

Крупнейший в мире журнал о бизнесе цифрового ТВ

с 1981 года

ТЕЛЕ

3DTV
HDTV
IP/Web
сателлайт

В 9318 Е

МЕЖДУНАРОДНЫЙ 06-07-08₂₀₁₂



Отчет компании

GOOSAT

Mike Miao существенно расширяет производственные мощности на новом заводе



Отчет компании

SVEC

Wang Duo: Высокие инвестиции в высокое качество

Отчет компании

TSREADER

Rod Hewitt лидирует на мировом рынке тестирования цифровых потоков



Отчет компании

DVBCN

Anna Xie создала крупнейшее в Китае онлайн сообщество по цифровому ТВ



Тест отчет

**SPAUN
BLUBOX
HEADEND**

Наивысшая надежность для кабельных систем



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- DVB-S/S2 • HD DVB-T+CONAX • ISDB-T+DVB-T • IP VOD BOX • Mobile Device



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- Up to 5000 channels



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- Audio decode: MP3, WAV, WMA, AAC-LC/HC, OGG Vorbis, RA, Dolby D
- Display resolution: 1080P
- WiFi 802.11(b/g/n): USB WiFi dongle, built-in USB WiFi module (Optional), SSID auto search, WEP/WPA encryption
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**TELE-satellite
International**
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Digital TV Trade Magazine

since 1981

Alexander Wiese
Publisher

alex@TELE-satellite.com
HQ in Munich, Germany

Dear Readers,

In addition to the newest top receivers and future-oriented headends, we are also introducing to you in this issue of TELE-satellite something that at first glance doesn't seem all too impressive: a display (a small monitor) that can be connected to a receiver. The display can be configured in such a way that it shows the logo of the currently received TV channel. Now you could argue that there isn't much that could be less exciting; most channels already blend in their channel logo into the video, in fact, most every receiver shows the channel name on its display. So, what purpose does it serve to prominently display the logo yet again?

If you're asking this question, you're overlooking one aspect in today's digital receivers that is being provided less and less: that control center feeling. The integrated display is in most receivers simply an alphanumeric display that in almost every case only has a limited number of character places such that most channel names can't be fully displayed. The channel name is either cut off or the display scrolls through the channel name. With some channels this is not the case; a channel such as The Entertainment Channel "E!" fits in every receiver display. But I have yet to come across a display that can completely fit channel names like "The History Channel".

The argument is this: the display on a receiver really only serves as an emergency function that lets you set up a receiver even without a monitor. The on-screen menu provides everything your heart desires and in most cases shows the channel name in its entirety. So why should manufacturers include a large display in their receivers?

But there is another motive to think about here regarding the subject of receiver displays. On the one hand the user only sees the wonderful on-screen receiver menu during installation and then again in an abbreviated form (channel display when switching between channels) for one or two seconds. Hmm, what's the use of a menu that will hardly be used by the user in everyday use?

My take on this is that the whole approach is wrong. A receiver menu that is only visible during the installation doesn't have

to be visually appealing; it just needs to be functional. It's not a critical component of daily use. And if it isn't important for the user, then the value of the receiver is also reduced. The receiver simply becomes a part of everyday life. It's not all too exciting to switch channels with the remote control.

A large display that can permanently show the more relevant data, such as, channel logo, abbreviated EPG and the time, turns the receiver into a real control center. Can you imagine how much more fun it would be to enjoy an evening of TV with one of these "pimped up" receivers? Pushing a button on the remote control now takes on a completely new meaning now that you can do more with it instead of just switching the channels on the monitor. Now the information on the display changes along with the actual channel – the effect of the remote control is much more exciting.

Every manufacturer is amazed with a company like Apple that can take products and turn them into something special. It's actually something that any manufacturer could do. Even digital TV receivers can be made into something special if they are turned into a true TV channel control center. I'm waiting for the day when receivers will come with a lavish display rather than an alphanumeric display (a technology that stems from the earlier days of electronics from the last century). I want to see receivers that give the user the feeling of being actively involved in the programming control center of their living room. Then, instead of typical everyday receivers, you'll have an exciting and emotional TV device that meaningfully speaks to the user – and this is exactly what makes a manufacturer like Apple so successful.

Alexander Wiese
Editor-in-Chief TELE-satellite International



**TELE
satellite**

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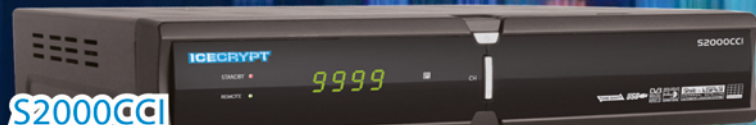
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GLOBALINVACOM
Essex, UK, Europe

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DXer Report
DX-Ralf
Emlichheim, Germany, Europe

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VITOR'S WORKSHOP
Ermesinde, Portugal, Europe

Company Report
OMEGA-SAT
São Paulo, Brazil, South America

Company Report
PIGNET
São Paulo, Brazil, South America

Company Report
TV BANDEIRANTES
Campina, Brazil, South America

06-07-08/2012

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Zielona Gora, Poland, Europe

Company Report
SVEC
Chengdu, Sichuan, China

Feature
SPARK
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AMIKO
Budapest, Hungary, Europe

Company Report
DVBCN
Shanghai, China

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PANODIC
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Test Report
SKYWORTH
Shenzhen, Guangdong, China

Company Report
GOOSAT
Zhuhai, Guangdong, China

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Company Reports are written by TELE-satellite's editorial staff on location
Test Reports are written by TELE-satellite's engineering staff located at
different strategic reception points around the world



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HYBRIDTUNER
DVB-T+C



DIGITAL SET-TOP BOX

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- ▶ Two Conax Embedded Card Readers
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AND MORE!

- ▶ Spark Portal - Bringing Popular Internet Applications to your Television's Screen
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- ▶ Opera Web Browser (with Flash Lite)
- ▶ USB Wireless Keyboard & Mouse Support
- ▶ Online Subtitle Downloads
- ▶ Multi-Language Spark Online User's Manual and F.A.Q. videos
- ▶ Expandable Possibilities with Plug-In support
- ▶ Continuous Software Development and easy-to use Online Upgrades



SPARK PORTAL



Full HD
1080

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PVR / Timeshift



HS17 HD DVB-S/S2

MPEG4, 1080p, Conax CAS,
LAN, PVR/Timeshift



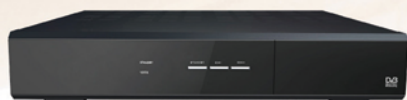
HS1C HD DVB-S/S2

2Tuners: S2+S2/S2+T/S2+T2/S2+C
(4 options) MPEG4, 1080p, CI, Conax CAS,
LAN, 2*USB, PVR & Timeshift



HTA5 HD DVB-T

MPEG4, 1080p, PVR/Timeshift,
Mediaplayer



HS15 HD DVB-S/S2

CI+, Conax CAS, LAN, MP4
1080p, PVR, Timeshift



HTJ2 HD DVB-T

MP4, 1080p, Conax CAS,
PVR/Timeshift, Mediaplayer



HTP1 HD DVB-T/T2

T/T2, MP4, 1080p PVR/Timeshift,
Powerful Mediaplayer



INNOVATION

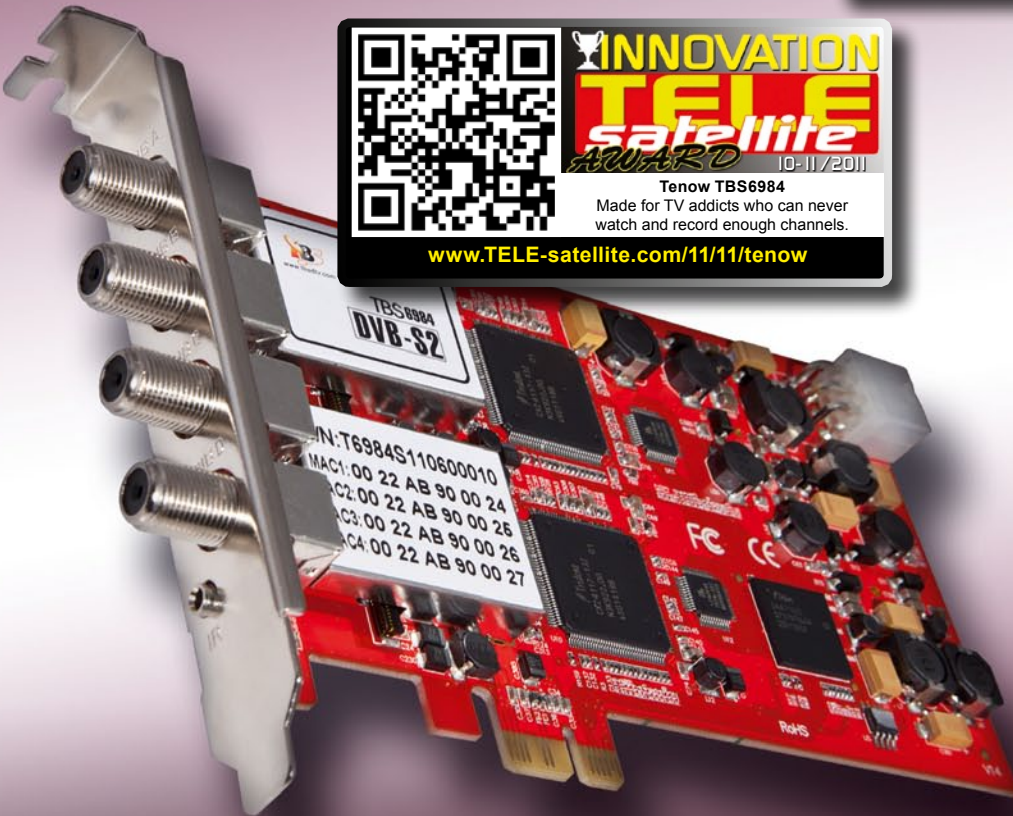
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THT91



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- Event/One Touch recording
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- Fast channel zapping)
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- ... and much more

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THOMSON

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by ASTRA

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- Parental lock function for menu and rating control selectable per channel
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STRONG
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PRIMASAT I



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- USB 2.0 port

SRT 6205 - PVR Ready



USB recording capability

- UHF Modulator to connect the receiver to TV
- 2 Common Interface slots
- USB port

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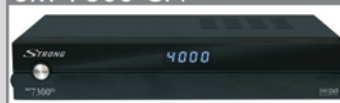


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- HD + compatible (HD+ smart card for 12 months including

SRT 7300 CI+



HDTV Receiver, USB PVR Ready

- HDTV (1080i) • USB port
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TOPFIELD

SRP-2401 CI+

HDTV DVB-S Receiver



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- Dolby AC-3 bitstream output
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Premium

Satlook
ICE



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- DVB-S (Free to Air) and Analog TV-picture
- Digital readout of BER and SNR.
- Super bright 5" 16:9 TFT-LCD color display
- ... and much more

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- Very handy and easy to use Satellite-TVmeter.
- "EasyFind"-satellite identification
- Very sensitive
- Digital BER and S/N-ratio
- ... and much more

Cost Effective

Digitas
PRO ACCU



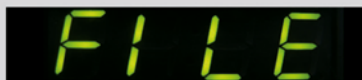
- Measure signallevel from two LNB's at the same time.
- Measured information are displayed on the LCD.
- DiSEqC, 22 kHz, 13/18v and mA readout.
- Generate DiSEqC, 22 kHz and 13/18v to control LNB/switch.
- ... and much more

Consumer

AirBeeper



- Very small and handy meter for installation of DVB-T antennas.
- Extremely easy to use, no buttons or knobs.
- Pitch-tone indication in the earphone
- ... and much more



HDTV & Ethernet connection

smart

CX 10
DVB-S HDTV Receiver



- HbbTV
- PVR-ready
- LAN / Ethernet connection
- FULL HD 1080p
- NAGRA embedded
- USB interface for external storage devices
- e-SATA interface
- Unicable ready

DVB-S FTA Receiver

THOMSON

TSR 200



- USB port for recording and playback on an external USB medium
- S/PDIF for digital audio output
- 4000 program presets
- Electronic program guide (EPG)
- IR sensor for desired positioning
- LED display
- Easy installation with installation assistant

Big Dishes

PRODELIN
A TriPoint Global Company



2.4M - C & KU-BAND

- Precision compression molded center fed reflector
- Series 1252 - Az/El Mount
- Series 1253 - Polar mount
- Low transportation cost with three panel reflector
- Individual panels inter-changeable and field replaceable
- Galvanized steel mounts Reader



3.7M - C & KU-BAND

- C-Band Intelsat F1, H4 and GType approved: approval #IA031A00 (without LNA) and #IA031A00 (approved LNA included)
- Intelsat approved LNA kit eliminates costly field testing
- C-Band INSAT & wide-band available
- Precision compression molded four segment offset reflector
- Installation time reduced with improved mount design
- Fully galvanized steel Az/El mount
- Reflector/Feed electrical Anti-Icing available
- Two axis tracking configuration available

Dishes

CIBERTINI TRIAX PRODELIN



- 40 cm - White
- 70 cm - White, Black, Red
- 90 cm - White, Black, Red
- 100 cm - White, Black, Red
- 120 cm - White
- 130 cm - White, Black

Big dishes directly from our warehouse!

NEW

- 160 cm
- 180 cm
- 240 cm
- 300 cm
- 370 cm

Optical fibre LNB

INVACOM

Innovation in Communications

Fibre LNB / Fibre Flange LNB



with optical fiber connection

AVAILABLE ACCESSORIES:

Optical 2, 4 or 8 way MDU

can imitate a twin, quad or quattro LNB, and you can have up to 32 MDUs from one Fibre Optic LNB



1x2, 1x4 or 1x8 optical fibre coupler



Optical cable from 1,0 meter up to 200 meters

The Fibre Optic LNB can feed the whole Ku-band up to 32 end-points.

Full LNB range INVACOM available as:

SNH-031, TWH-031, QTH-031, QDH-031, SNF-031, TWF-031, QTF-031 and QDF-031

Parts

Multifeed holder for 2, 3, or 4 LNB



Wallmounts

- 15 cm distance - Aluminium
- 25 cm distance - Aluminium
- 35 cm distance - Aluminium
- 45 cm distance - Aluminium
- 55 cm distance - Aluminium
- 35 cm distance - Steel
- 45 cm distance - Steel
- 50 cm distance - Steel
- 70 cm distance - Steel



- F-Connector - 7 mm
- F-Connector - 7 mm water resistant
- F-Connector - 4 mm and more

Remotesystems

- AV-Linker - Videosender for remote control
- Remote Blaster
- Zapline 2 and more

BIG Link



- Koaxial cable
- High Quality coax cable
- Minicable Coax
- Mini-Twincable Coax
- > 100 dB / > 110 dB

Flat-Dishes

SELF SAT



- Works on all Ku-band Satellites
- Cross polarization improved
- Ideal for High Definition reception

SELF SAT Flat-Dishes available as:

H30D / H30D2 / H30D4

STRONG



Slimsat SA Series

- Satellite antenna with integrated Single- Twin- or Quad LNB
- Simple: Installation within a few minutes

Slimsat Flat-Dishes available as:

SA 61 / SA 62 / SA 64

LNBs

- MTI
- BEST
- INVACOM
- ALPS
- INVERTO
- MAXIMUM
- TITANIUM, etc.



- Single Universal
- Twin Universal
- Quattro Universal
- Quad Universal
- Octo LNB
- Monoblock Single Universal
- Monoblock Twin Universal
- Monoblock Quad
- C Band
- Circular
- and many more

Inverto



- Red Extend - 40mm, 0,3dB
- Black Premium - 40mm, 0,2dB
- Black Ultra - 40mm, 0,2dB
- Black Multiconnect - 23mm, 0,2dB

All available as:

- Single Universal
- Twin Universal
- Quattro Universal
- Quad Universal



Full LNB range INVERTO available from stock

Motors

Aktuatoren/ Actuators

- Mini Actuators - 6", 10", 12"
- Regular Actuators - 12", 18", 24"
- Heavy Actuators - 24", 36"



H-H Mounts

- SG 99 / SG 99 II - up to 1,00 m
- SG 107 - up to 1,10 m
- SG 2500 A DiSeqC 1.2 - up to 1,00 m
- Stab HH100 DiSeqC 1.2 - up to 1,00 m
- Stab HH120 DiSeqC 1.2 - up to 1,20 m

Multiswitches/ DiSeqC-Switches

- SPAUN
- DTRON
- JAEGER
- JOHANSSON
- MAXIMUM
- BEST



From 2 in/1 out
up to 17 in/36 out

SPAUN Full range

Balcony mounting parts



- 25 cm distance - Steel
- 50 cm distance - Steel

120 cm length - Ø 6 cm

ALSO AVAILABLE:

- Balcony stand 100 cm Aluminium
- Balcony stand 100 cm Steel
- Balcony stand "Holland"
- Balcony holder L-form 25 cm
- Balcony holder L-form 50 cm

Unicable solution

Inverto
digital-labs

IDLP-USS200-CUO1O-8PP

This cascable Unicable switch is the smallest form factor Unicable switch enabling the reception of 2 satellites and installations with up to 8 satellite receivers over a single cable. In addition to its eight User Bands Unicable output, the multiswitch also features two legacy outputs, a terrestrial antenna input and is powered by an external power supply





FibreIRS DTT процессор от Global Invacom



- *Великолепное устройство для отфильтровывания нежелательных сигналов*
- *Очень простая настройка устройства*
- *Улучшает показатели C/N на выходе*
- *Применим как для коаксиальных так и для волоконно-оптических кабельных систем*

A Set of Brick Wall Filters and Signal Amplifiers

GlobalInvacom is a leading company in introducing fiber optics to satellite tv reception and TV distribution networks. Now they introduced another very useful piece of distribution system that can be very beneficial not only for fiber optics based systems but also for classical coaxial cable systems.

GlobalInvacom's DTT Processor is a device installed between a terrestrial antenna and the remaining part of a distribution system. Its most important function is filtering the signal your antenna picks up. Filtering means passing through the desired part of the frequency spectrum where the signals of interests are transmitted while blocking everything else from reaching the output.

Why is this that important? Thanks to the filtering, the signal that finally comes to the input of your DVB-T or DAB receiver contains much less noise. The probability of picture pixelation, video/audio glitches or complete loss of reception is greatly reduced. Starting with a clean signal is even more important in a distribution system based on fiber optic components. That's because we need to convert the electrical RF signal existing in the initial stages of such system to modulated light. GlobalInvacom's converter capable of changing electri-

cal currents into light will be covered in our next test report. Such converter if fed with very a noisy input signal might have a problem in generating well modulated light. Typically, the rule is: garbage in = garbage out. If the signal quality is low at the input, it will become even worse at the output. Fortunately, filtering can be used to break this rule.

The FibreIRS DTT Processor of GlobalInvacom accepts signals from two terrestrial antennas: one receiving terrestrial TV signals and the other digital audio (DAB) signals. The output is

one. That's because DVB-T TV operates in the 470-862 MHz range while DAB in the 217-230 MHz range. So it is possible to combine them in one RF output.

The basic version of the DTT Processor enables you to select up to six different TV channels. You can buy additional plug-in modules and extend its functionality to eight DVB-T channels. Each channel is 8 MHz wide in accordance with a typical terrestrial DVB-T-TV channel plan. Consequently, the

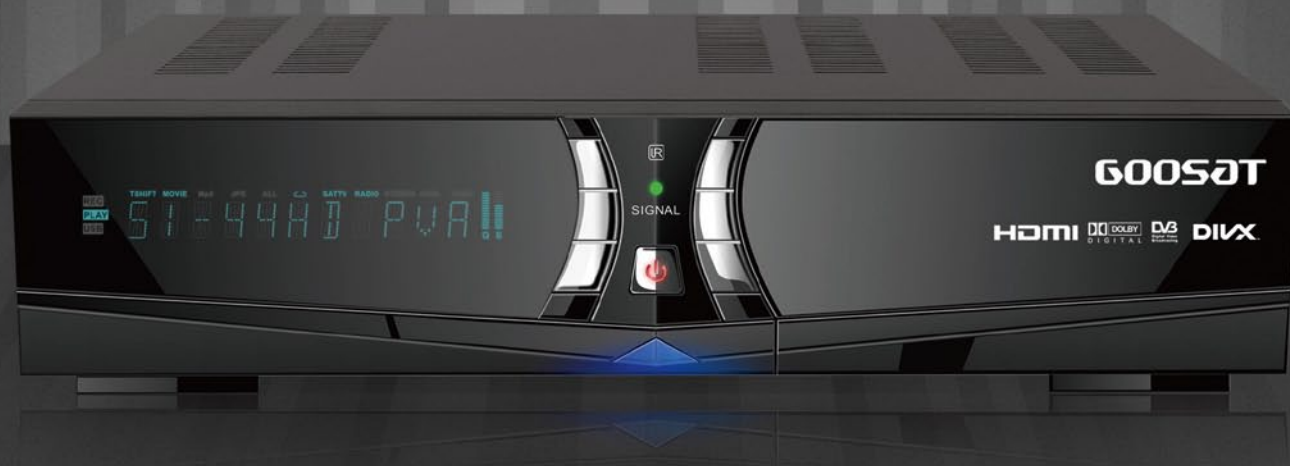
DAB band is treated as one 13 MHz wide channel.

We are used nowadays that one needs to connect a notebook PC to configure a professional system unit. It is convenient when the settings we need to do are complex. But in the case of a DTT processor, the settings are quite simple: the number of a channel you want to be passed through and its signal gain. So it is really



ANDROID PLUS LINUX

DUAL SYSTEM IP STB



S1-44HD

Android+Linux Dual OS IP STB

- Fully compliant with DVB-S and DVB-S2 (MPEG 2/ MPEG 4 / H.264)
- Common Interface available and Smart card slot for embedded Conax CAS
- LINUX for digital TV reception and ANDROID for IPTV, DUAL OS/DUAL Boot
- Up to three USB 2.0 available for media playing, software update and PVR
- Built-in WIFI modem and support external WIFI adaptor and 3G adaptor
- Auto-Timeshift supported with external hard drive disc
- Real PIP function supported (2 HD channels or 4 SD channels playing at the same time)
- File system supported: FAT, FAT32, NTFS, Ext2, Ext3
- Divx Plus @ supported
- DLNA supported

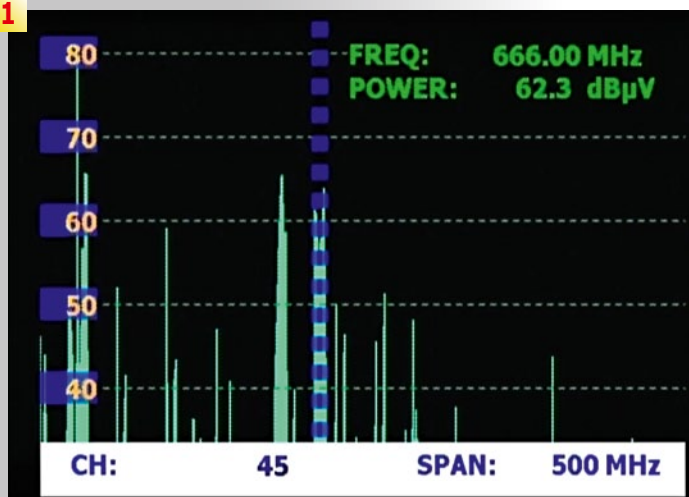
LED TV | 3D TV Google TV



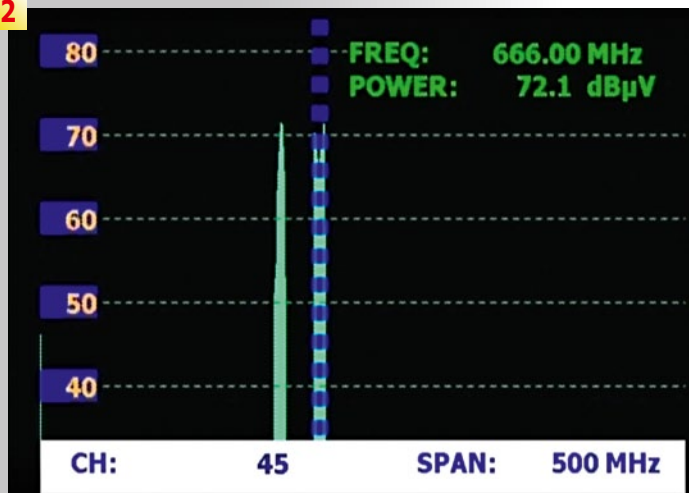
Digital Combo Signal Meter

- DVB-S2, DVB-T2/T and DVB-C signal meter in one
- High performance spectrum analyzer to display the signal strength of all transponders
- Pre-/ Post-BER and MER indicator, C/N in the dB and signal level in dB/μV
- Constellation analyzer
- Screenshot Function (Capturing): screens with data can be in BMP format on a USB-stick
- Super ECO system management for power saving, auto-standby function supported
- Multi-lingual OSD menu supported
- Weight: 480 grams
- Dimensions: (W*H*D) 105*170*45 mm

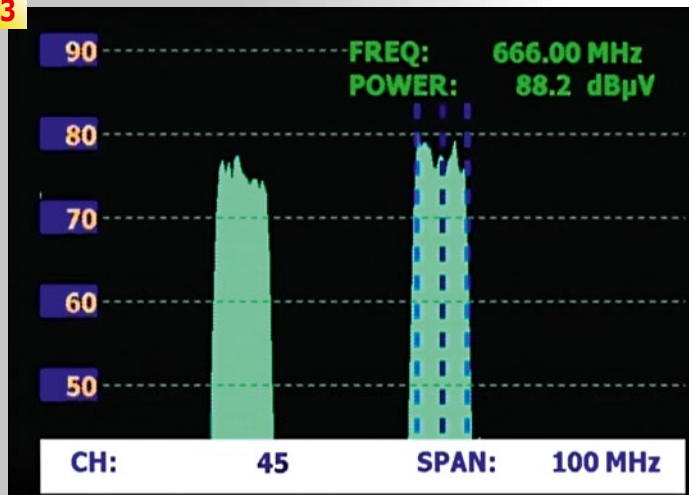
1



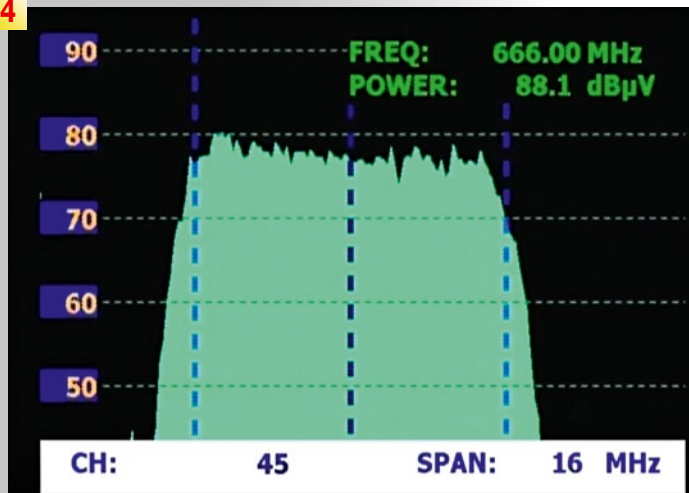
2



3



4



good that GlobalInvacom's processor does not require you to connect to a PC.

GlobalInvacom's FibreIRS DTT Processor not only passes through the desired TV channels and blocks the rest of the spectrum but also amplifies their signal. The unit is enclosed in a metal case designed to be mounted on a wall on two screws. It has an external AC/DC plug type adapter. After unscrewing two screws and removing the cover, you get access to the interior of the processor. Every module has an eight position DIP switch you use to set the desired channel number (from 21 through 69) and to turn a module on or off. A piece of foiled paper is attached to the internal surface of the cover. It's a short list of operating instructions, as how to turn the module on/off and how to set the channel number. A few clicks with a small screwdriver is enough to do all that setting. A green LEDs mounted on the top of each module signals which one is turned on.

Except for that, every unit has its own red knob for adjusting channel gain. The nominal adjustment range is 30 dB. There is also one slide switch enabling you to additionally boost the output by about 20 dB (18 dB in the specs). It adds this extra gain to all passed through channels. It may be very useful when you deal with very extended or complex cable networks in which you expect significant attenuation.

For best performance, the input signal should be above

60 dBμV for DVB-T and not more than 65 dBμV for DAB. The output of every channel should be adjusted optimally to 70 dBμV if you connect the GlobalInvacom ODU32 RF-to-light converter to the processor. If your antenna has a built in amplifier – no problem. The DTT Processor generates 12 V to power the amplifier.

We started our test with a real world signal. In our test location in Western Poland, two DVB-T multiplexes are available. They are transmitted on channels E41 and E45. The signal level was slightly above 66 dBμV – exactly as needed. As you can see on the attached screen shots, the input signal contained some undesired signals too. These were some analog TV channels which are still transmitted as well as some spurious signals produced mainly in the antenna amplifier. But the output of the DTT Processor was completely free of them. Only the two digital channels were left. We adjusted the output of every channel to 70 dBμV without any problem.

But that's not all. The carrier-to-noise (C/N) parameter measured at the output was better than that at the input by 12 dB! For example for E45 channel, it rose from 31.1 dB to 43.7 dB. We were really astonished because we had not expected such significant improvement in signal quality.

We checked the gain adjustment range for every channel. We got 26 dB adjustment range for E41 and 24.5 dB for E45. A little

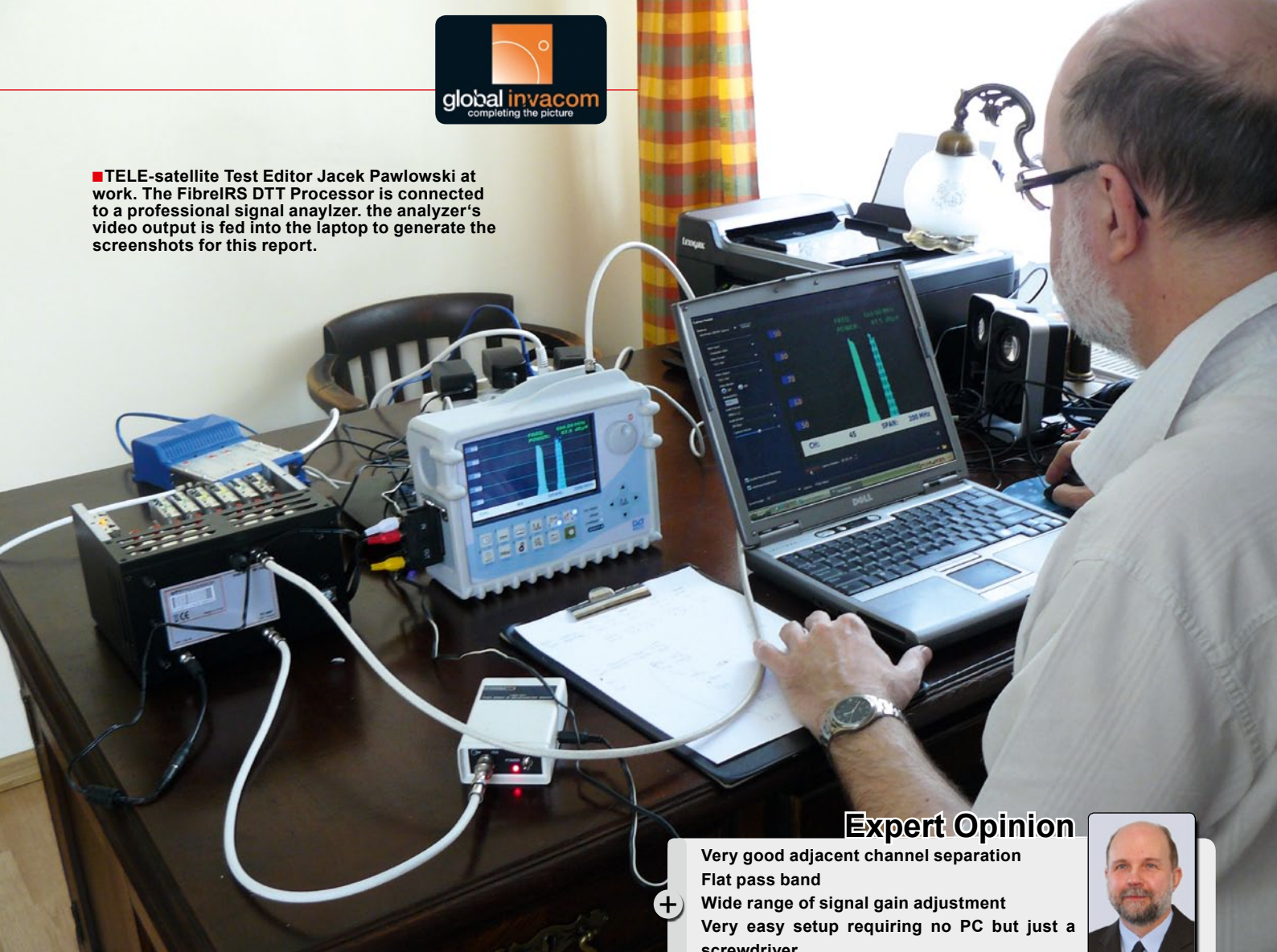
1. The original input signal picked up by a terrestrial antenna. There are 2 DVB-T signals at 634 and 666 MHz (channel 41 and 45) and a lot of unwanted noise.

2. After passing FibreIRS DTT Processor, only the desired DVB-T signals remain.

3. A test with a white noise generator proves excellent adjacent channels rejection.

4. Sharp roll-off and flat pass band - splendid frequency characteristics of one of the FibreIRS DTT Processor channel filters.

■ TELE-satellite Test Editor Jacek Pawlowski at work. The FibreIRS DTT Processor is connected to a professional signal analyzer. the analyzer's video output is fed into the laptop to generate the screenshots for this report.



Expert Opinion

Very good adjacent channel separation
Flat pass band
Wide range of signal gain adjustment
Very easy setup requiring no PC but just a screwdriver

— none



less than specified (30 dB) but still quite a lot. The additional output boost that could be turned on with a switch was 18.4 dB and 17.2 dB respectively. Almost exactly in line with the specification (20 dB). Of course, we had absolutely perfect video when we connected a DTT receiver to the processor output.

Finally, we fed the processor with a white noise generator signal to examine the frequency response. As our screen shots clearly show, the performance of the filters was awesome. We sometimes use the term "brick wall" for a filter with extremely steep roll-offs. That's the term you can certainly use for GlobalInvacom's FibreIRS DTT Processor. Its SAW filters do a very good job. You can see it in the other screen shots shown in this report. Also

the passband is very flat – another desired feature of a good filter.

We did not have an opportunity to check the DAB band but after such impressive results with TV channels, we have no doubt that also this band is processed equally well. For DAB, GlobalInvacom uses a Low Pass Filter.

To sum it up – the processor delivers what its specification promises. The output signal is exceptionally clean and its C/N improves more than anybody could expect. We can heartily recommend using GlobalInvacom FibreIRS DTT Processor not only for any fiber optic system but also for the usual coax cable distribution networks. We are sure that the end users will be completely satisfied with the quality of terrestrial signals delivered to their outlets.

TECHNICAL

DATA

Manufacturer	Global Invacom Ltd., Great Britain
Web	www.gloablinvacom.com
E-mail	sales@globalinvacom.com
Phone	+44-1621-743440
Fax	+44-1621-743676
Model	FibreIRS DTT Processor
Function	Filtering and amplifying terrestrial signal
DVB-T	
Frequency range	470-862 MHz
Number of channels	6 (expandable to 9)
Broadcast standard	DVB-T 8 MHz
Gain	20 dB
Channel flatness	< 2.5 dB
Adjacent channel rejection	> 45 dB
DAB	
Frequency range	217-230 MHz
Insertion loss	< 2 dB
DC power	
Input voltage	20 V
Current consumption	1 A
Physical	
Size	182 x 205 x 122 mm
Weight	3.7 kg
Operating temperature	0 to +50° C

Prevail Fobetmoc

HANGZHOU PREVAIL OPTOELECTRONIC EQUIPMENT CO.,LTD

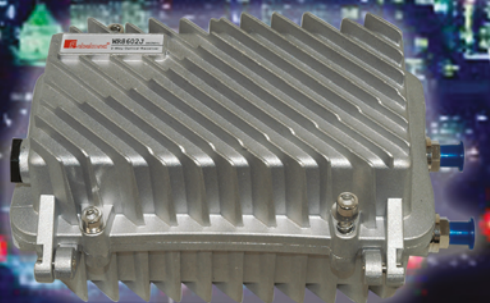
The Large-scale Manufacturer in China's Television and Broadcast Industry!



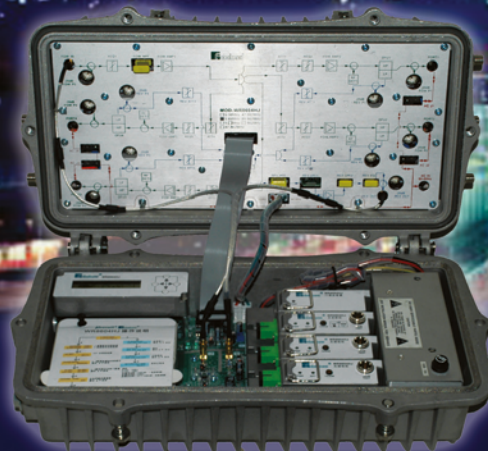
WR8602RJ OPTICAL AGC RECEIVER



WR8604JL 4 OUTPUT OPTICAL RECEIVER



WR8602J 2 OUTPUT OPTICAL RECEIVER



WR8604HJ FIBER OPTIC NODE



CATV SPLITTER AND TAP

CATV SPLITTER AND TAP

BI-DIRECTIONAL NETWORK TRANSMISSION EQUIPMENT

DIGITAL, ANALOG HEAD-END EQUIPMENT

1550nm, 1310nm FIBER OPTIC TRANSMISSION EQUIPMENT

EPON OPTICAL NETWORK EQUIPMENT

ADDRESS: Industrial Development Zone, Gugli Town,
Xiaoshan District, Hangzhou City,
Zhejiang, China.

TEL: +86-571-82559907 FAX: +86-571-82551107

E-MAIL: necy-xu@prevail-catv.com

[Http://www.prevail-catv.com](http://www.prevail-catv.com)



ISO9001:2000



WDS-6100 SCRAMBLER

WDE-4420 ENCODER

WDE-4220 MPEG-2/4 ENCODER

WDM-4140 MULTIPLEXER

WDQ-3204 QAM MODULATOR

WDE-H2220 HD ENCODER

WDT-1204 TS RECEIVER

4 OUTPUT RETURN OPTICAL RECEIVER

WR8602JDS ROOM OPTICAL RECEIVER

OPTICAL SWITCH

WR8602RJL ROOM OPTICAL RECEIVER

1550nm INTERNAL MODULATION OPTICAL TRANSMITTER

1550nm EXTERNAL MODULATION OPTICAL TRANSMITTER

1310nm EXTERNAL MODULATION OPTICAL TRANSMITTER

ERBIUM DOPED FIBER AMPLIFIER



CATV OPTICAL FIBER COMMUNICATION SYSTEM PLATFORM WOS-3000



SPAUN™

BluBox 8/16

DVB-S(2) -> DVB-C

Art.Nr.: 821626

Vor Öffnen des Gerätes, Netzstecker ziehen!
Disconnect mains before removing cover!

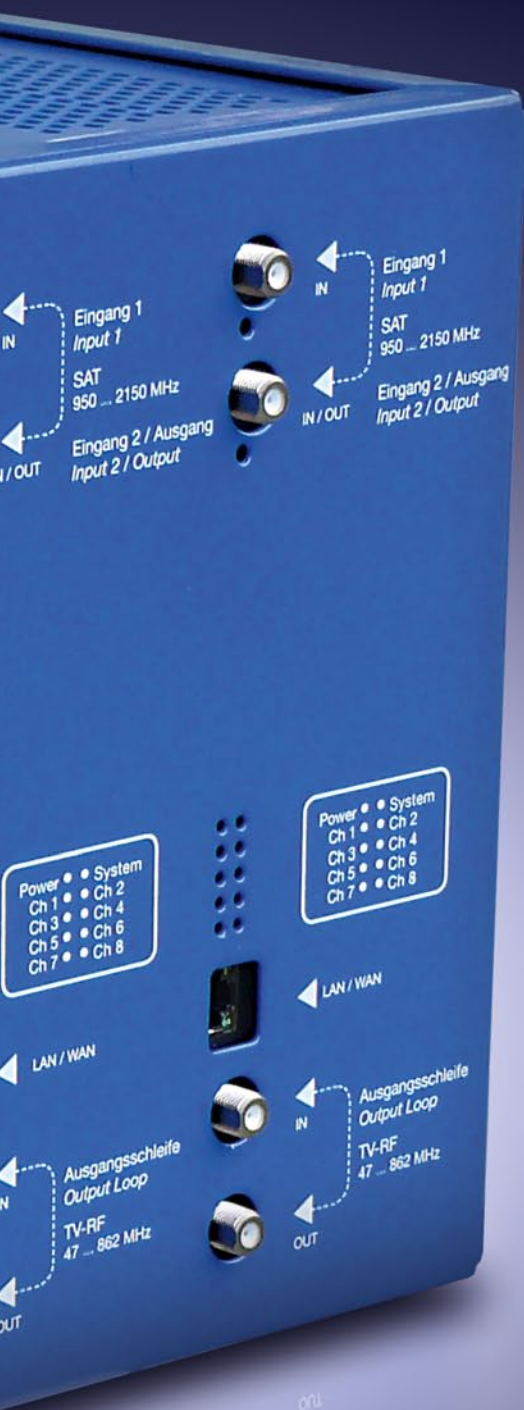
Nur für Innenraum-Montage!
For indoor use only!

WARNING: To reduce the risk of fire or electrical shock do not expose this apparatus to rain of moisture. When servicing use only identical replacement parts.

Eingangsfrequenzbereich Input frequency range	950 ... 2150 MHz
AGC-Pegelbereich AGC level range	64 ... 94 dBμV
Durchschleifdämpfung SAT-ZF Eingang Through loss SAT IF input	≤ 2,5 dB
LNB-Versorgung LNB remote power	14 / 18 V (400 mA), DiSEqC 1.0
Ausgangsfrequenzbereich Output frequency range	47 ... 862 MHz
Ausgangspegel Output level	80 dBμV
Durchschleifdämpfung QAM-Ausgang Through loss QAM output	1 dB



Made in Germany



SPAUN BluBox 16

- **Восхитительное качество благодаря специально подобранным электронным компонентам**
- **Автоматическое определение ошибочных настроек**
- **Предельно прост в использовании**
- **Каждый прибор оснащен полным тюнером с QAM модулятором**
- **Возможность выделения смежных каналов**

16 Satellite Tuners And 16 QAM Modulators in One Unit

Headend equipment usually comes in 19" units to be fitted in a standard 19" rack. And we expect a satellite headend to consist of several devices: a professional satellite receiver with a transport stream output, a re-multiplexer and a QAM modulator. Imagine our surprise when SPAUN's new BluBox arrived at our lab; we had to revise our thinking about how a headend system has to look like. We are often impressed by the pro-

gress in commercial satellite receivers and now the same happens with headends. SPAUN's BluBox 16, when compared to a traditional head end equipment, is not just a technological step, it is a giant leap forward.

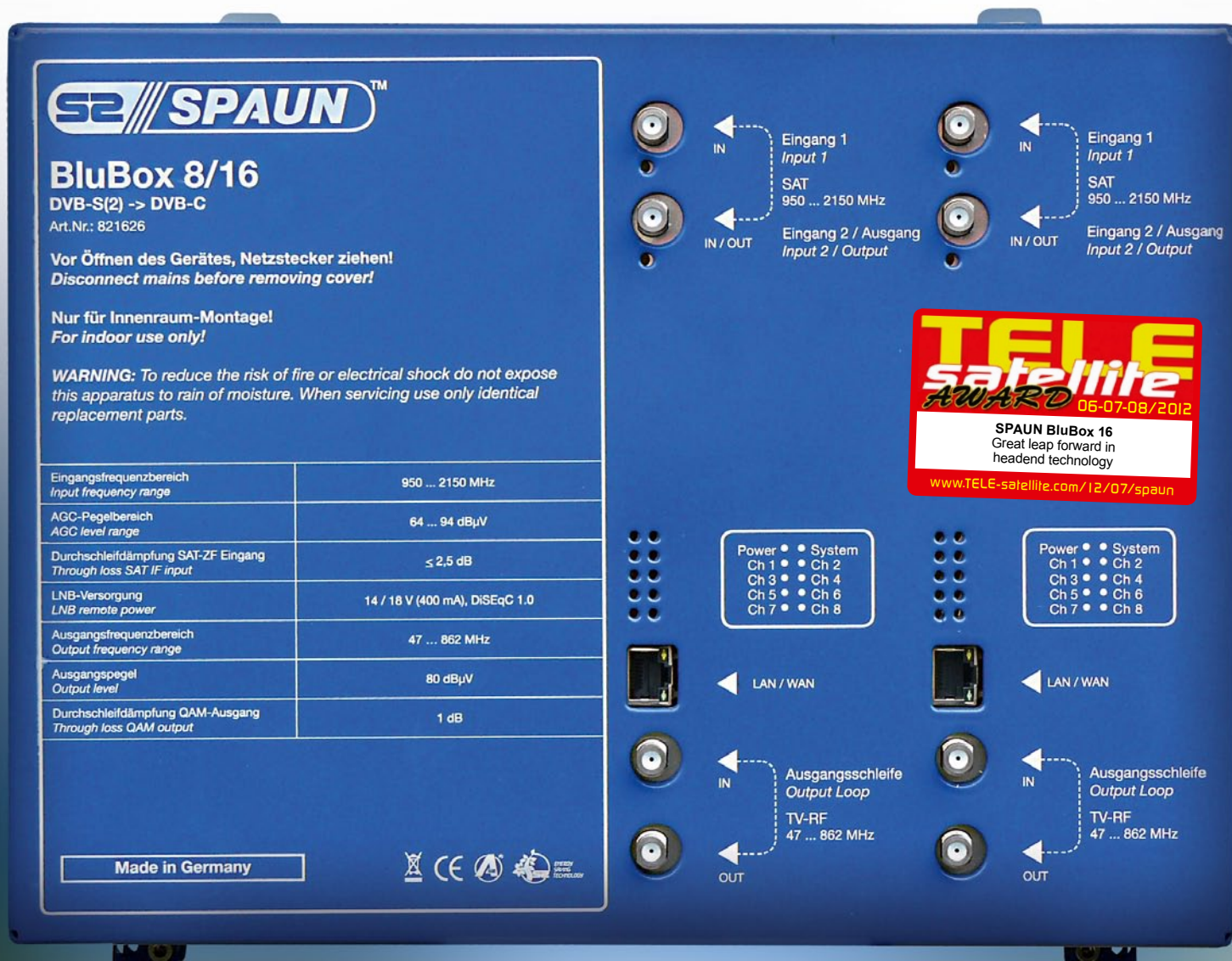
The BluBox16 is not designed for a 19" standard rack. It is housed in a quite small metal enclosure - 32 x 24 x 22 cm (about 13.5" x 9.5" x 8.5") and it is supposed to be installed on the wall with four screws. The

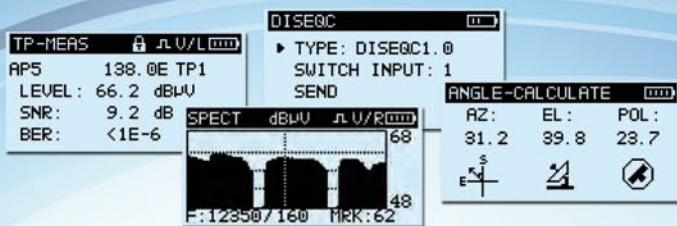
box is blue (the standard color for SPAUN) and has very clear labels and a table with basic parameters printed on the front panel (what is also very typical for SPAUN). BluBox 8 and BluBox 16 come in the same enclosure but the latter has greater possibilities.

BluBox 8 has one signal module and BluBox16 (such unit was in our test) has two signal modules. BluBox16 has 8 signal connectors: 4 for satellite signals (DVB-S/

S2) and four for cable TV signals (DVB-C QAM). There are also 2 RJ45 Ethernet connectors and 24 status LEDs on the front panel.

A power socket is placed on the bottom side of the box, which leads to two power supply units inside the box. Yes, that's right, SPAUN added redundancy here: even if the main power supply breaks, the BluBox keeps working with the spare power supply. This is what true professionalism is





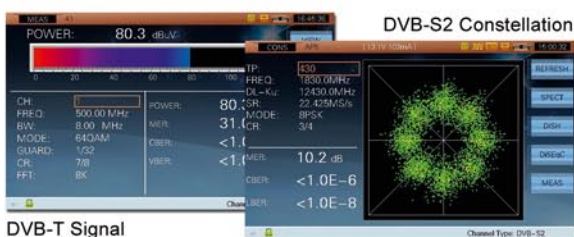
S20/S30 ✓ Satellite Finder

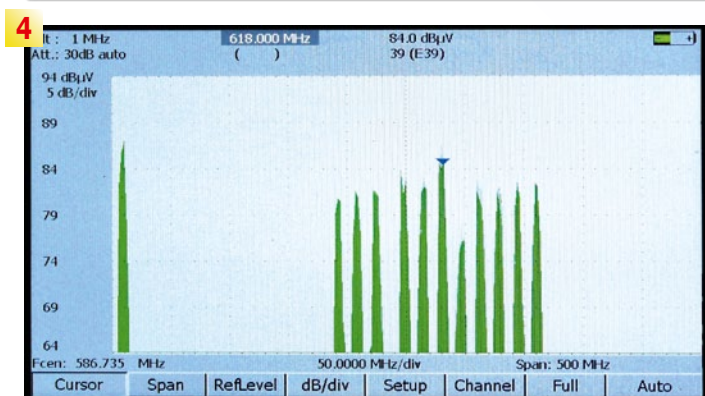
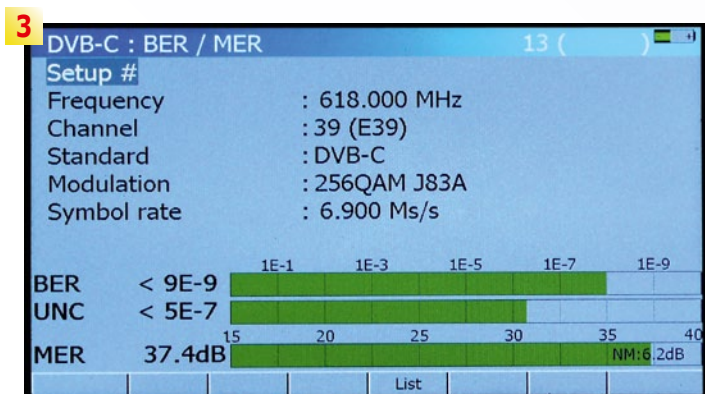
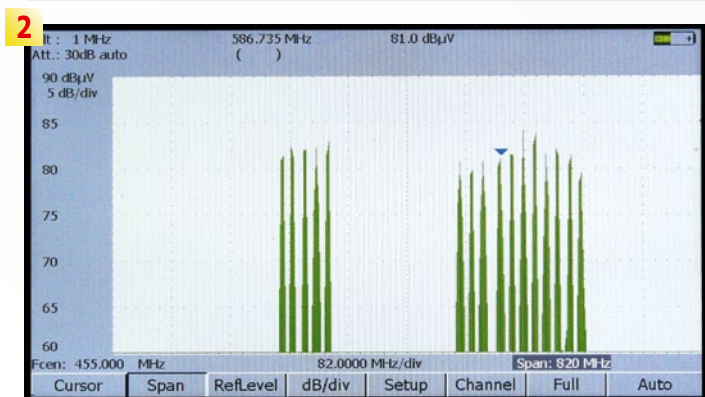
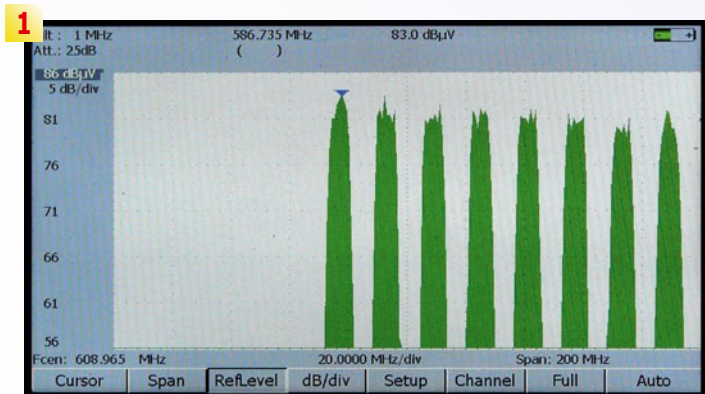
- S20 supports DVB-S
- S30 supports DVB-S2
- C, Ku, Ka or L band
- SNR and BER
- Spectrum function
- Support DiSEqC 1.0/1.1
- Signal level and quality display together
- 128×64 matrix LCD with back-lighted
- Large lithium battery capacity, over 4 hours working time
- Software upgrade and parameter set via USB interface



S7000 ✓ TV Analyzer

- All standards in one: QAM(J.83A/B/C), 8VSB, DVB-T/H/T2, DVB-S/S2
- Digital/Analog TV and Satellite TV analysis
- MPEG2 Transport stream analyzer and monitoring via TS-ASI input & RF input
- Fast spectrum analysis with 5~2150 MHz frequency span
- DSP Technology to support different Video decoding: MPEG-2, MPEG-4 and H.264 for 1080i, 720p and 576i, support PAL/NTSC/SECAM color system
- Support SD&HD Video format
- CI module (Common Interface) for encrypted channels
- TS-ASI input and output
- TS record and TS replay
- IPTV analysis option
- GPS option
- HDMI, LAN and USB interface
- Easy to use
- High resolution 7" TFT LCD with bright display for indoors and outdoors use
- W245×H194×L105, light weight
- Working time >4 hours (battery)





1. 8 QAM channels generated by one BluBox module

2. 16 QAM channels generated by two BluBox modules

3. Excellent output signal quality

4. Individual QAM channel level can be adjusted

all about: to be save against failure. What else is worse in a tv distribution system than subscribers loosing their signals. The second power supply gives the SPAUN BluBox an outstanding feature in high reliability and up-time..

Satellite IF signals are connected to the F connectors located in the upper part of every module. You can connect signals either from individual LNBs or from different outputs of a twin/quad/quattro LNB. While

the very top connector is always just a satellite IF input, its lower companion can be configured as an input number 2 or a looped through output of input 1.

To do this and all other configuration settings, you need to connect the BluBox to your computer network. After hooking up an Ethernet cable to the RJ45 connector on the front panel, you can run an Internet browser on any computer connected to the same computer network and enter its IP address: 192.168.1.250. In a second or so, you can see a web page generated by BluBox and you can set everything on the sub pages. All pages are available either in German or in English.

Just below the Ethernet connector in every module, you can see two connectors dedicated for DVB-C QAM signals. The very bottom one is just the output where the digital cable TV signal is generated and can be further fed to your cable network. The connector above is an input where you can insert a signal from another BluBox unit. In such simple way, you can sum up the outputs of two modules of BluBox 16. In the same way, you can sum up signals from separate BluBoxes units.

And now, the most exciting information about SPAUN BluBox 16. Every signal module of the Blue-Box 16 can convert not fewer but 8 different satellite transponders to 16 fully configurable DVB-C QAM channels. In other words, one BluBox 16 is able to convert 16 transponders to 16 QAM channels! We could not believe it. But, yes, BluBox 16 has in fact 16 independent satellite tuners and 16 independent QAM modulators! And everything is fully configurable. Can you imagine that? That's why we call it a

giant leap forward in head-end technology.

The BluBox 16 design is based on special integrated circuits called FPGA (Filed Programmable Gate Array). To put it simply, they are a kind of digital signal processors in which many features are implemented in the very complex hardware rather than software. Thanks to that, they are significantly faster than traditional processors relying on programs. But that's not all. This sophisticated hardware made it possible to achieve such a clear output signal that you can simply connect QAM outputs in series without any filtering. SPAUN's user guide gives an example of connecting the outputs of three BluBoxes 16 and generating 48 QAM channels in total (approx. 350 SD/HD programs of high quality). And all this without any combiner or filter – just 3 BluBox 16 units and a few pieces of coaxial cable with F connectors on both ends.

The BluBox 16 is accompanied by a single page instruction explaining how to connect it to the PC network and download a full operating manual. We followed the instructions and in a minute we were looking at the web page generated by the BluBox 16. We downloaded the operating manual and found out that it was very comprehensive and detailed but at the same time organized in a logical manner. It was really easy to follow it and lots of screen shots made the reading and understanding even easier.

We skimmed the manual but as soon as we realized how logical and intuitive everything was arranged, we put it aside and started setting up the box with the wizard that pops up at the beginning and helps in initial installation. Later, we

played with various configuration settings available in the sub pages of the 192.168.1.250. By the way, even this IP address at which BluBox is normally available can be changed by the user. So if you expect you may need frequent configuration changes of several BluBox modules, you may give them individual addresses (like 192.168.1.249, 192.168.1.248,...) and connect them permanently to your computer network. If you think that you will only occasionally need to correct the settings, you may leave the address unchanged and connect to your network only one module at a time to edit and save the settings. That's how we did it during our test.

If you have one BluBox 16 and want to insert satellite TV and radio channels from a Ku-band satellite into your cable network, probably the best idea is to use a quad LNB and configure all four satellite inputs/outputs of the BluBox as the ordinary inputs. Then, you connect each LNB output to the BluBox 16 satellite input. In this way, you will have a guarantee that you will be able to select any combination of transponders from the Ku-band satellite, no matter low/high band or H/V polarization. Of course, you can do the same with quattro LNB.

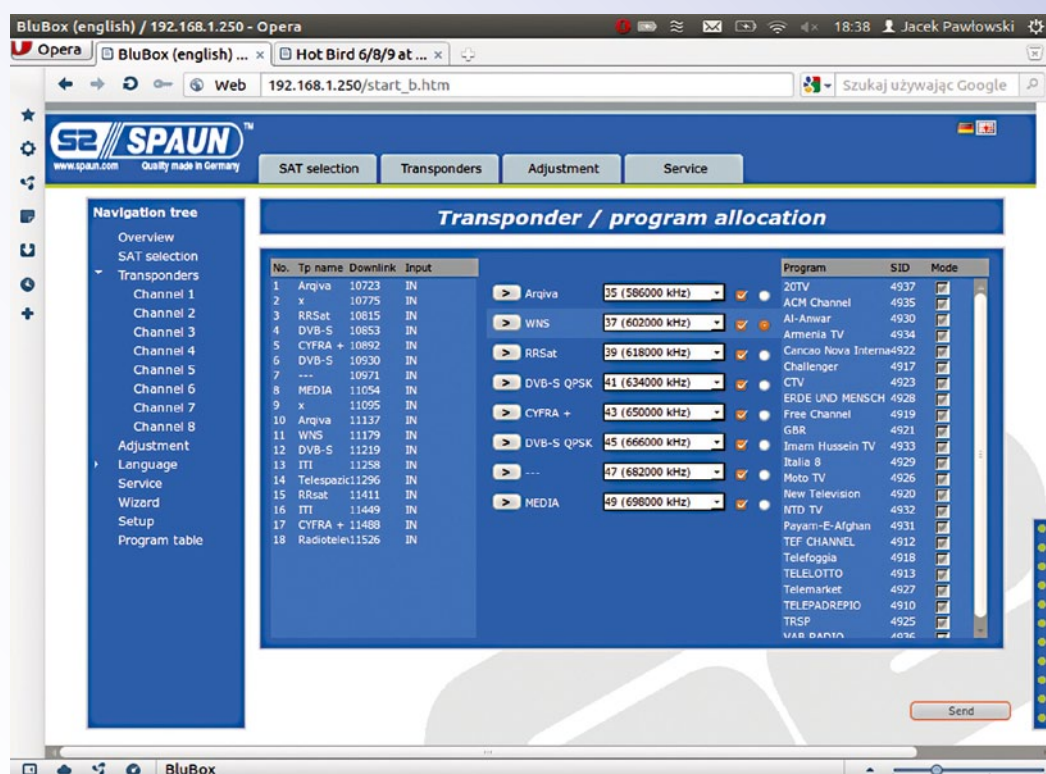
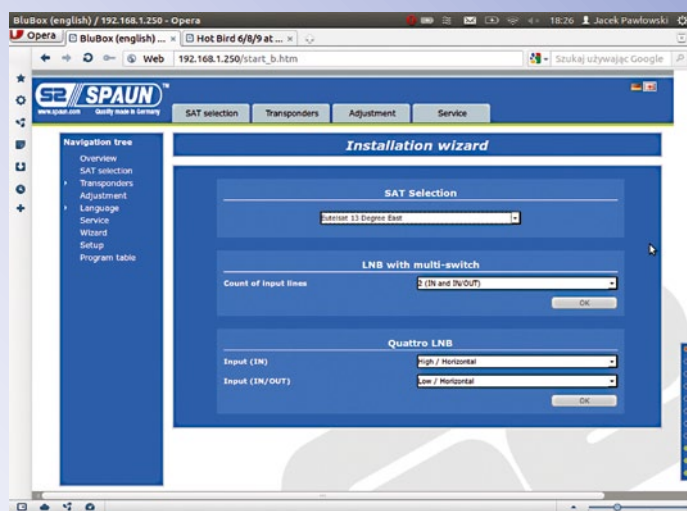
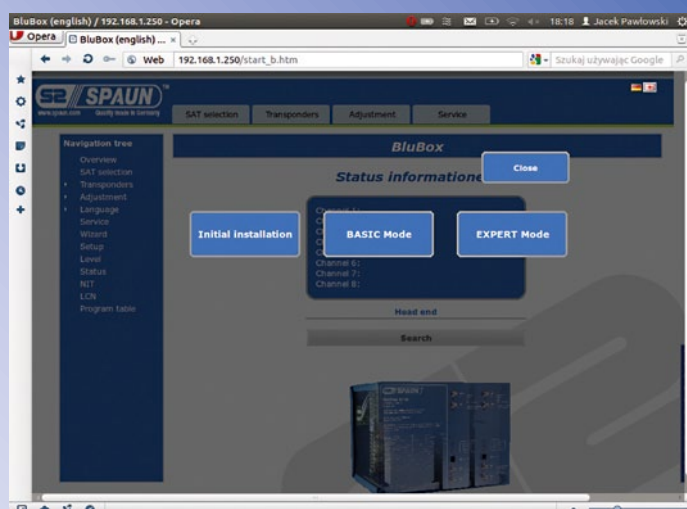
The configuration process is simplified by the SPAUN software to the maximum. While you can do it by selecting a satellite transponder from the list (by its frequency), you can do that also by selecting a TV channel name from the list (like FTV, CNN,...). Presently, BluBox 16 has the most popular European satellites stored in its memory (ASTRA 19.2° East, HOTBIRD 13° East and EUROBird 9°

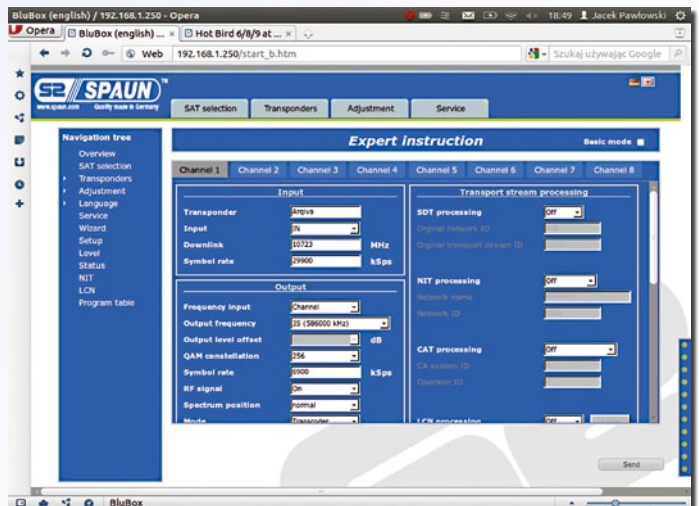
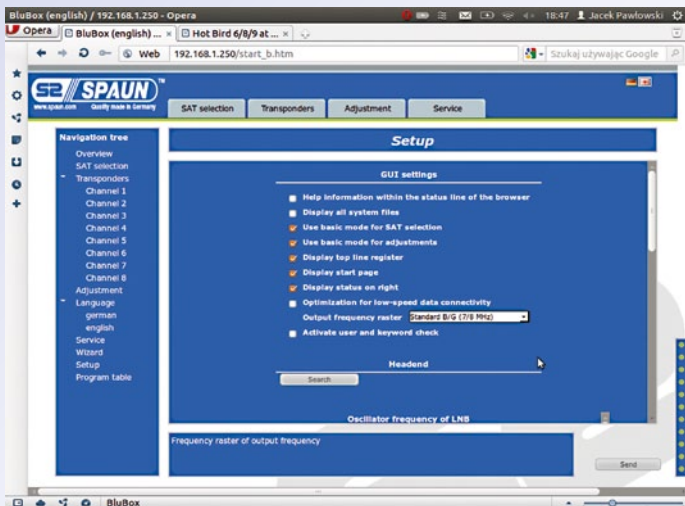
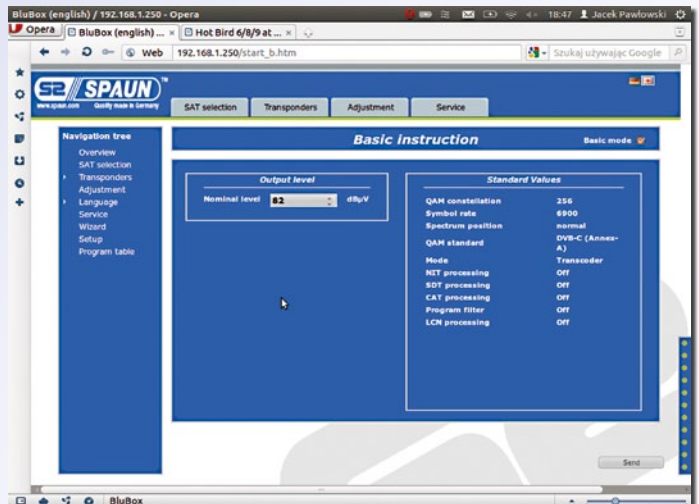
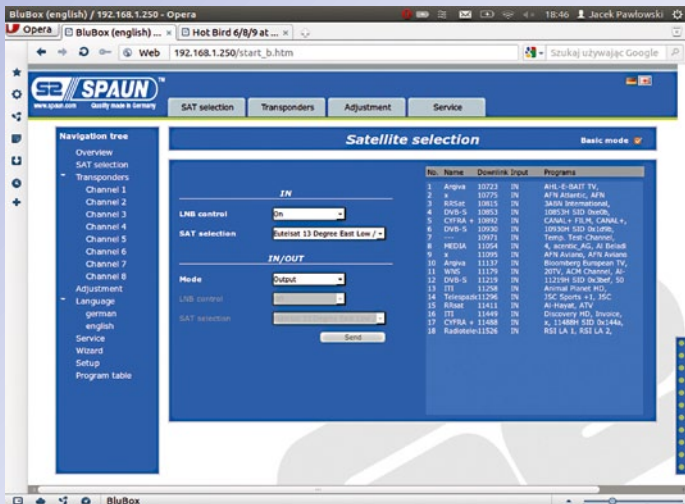
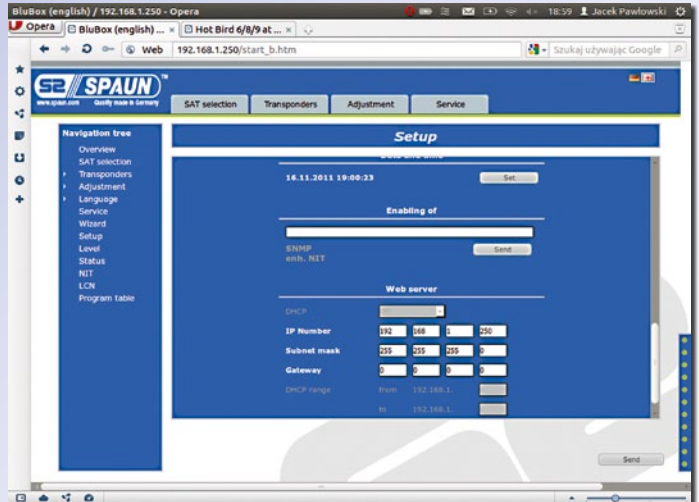
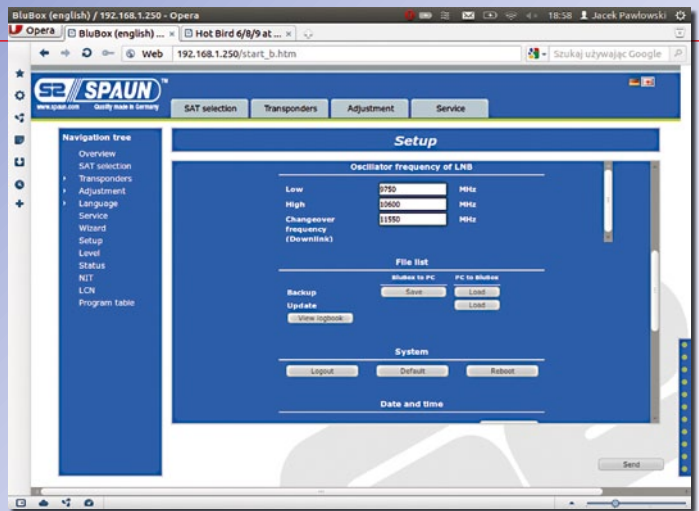
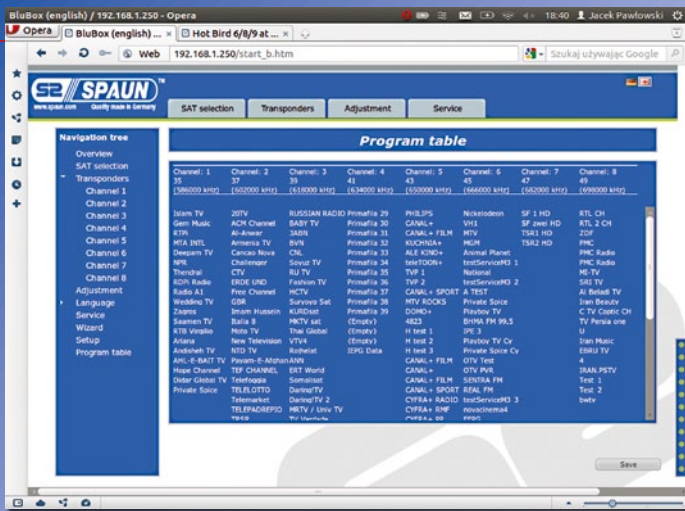
East) but you are able to add additional ones by yourself. After selecting the satellite transponder (either directly or by choosing the TV channel from that transponder), you select the frequency of the QAM channel that is supposed to carry the content of the satellite transponder. You simply pick it from the list which contains QAM channel numbers and corresponding frequencies.

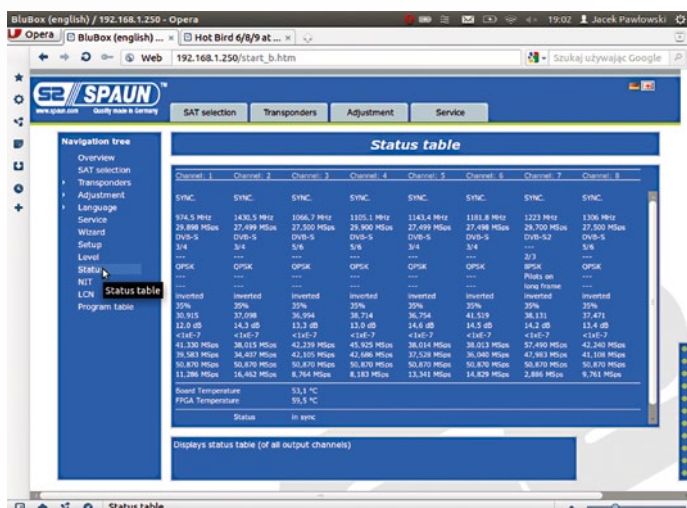
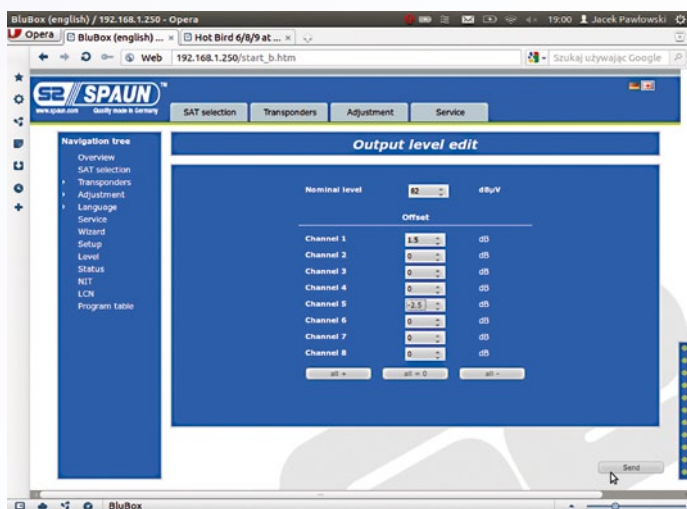
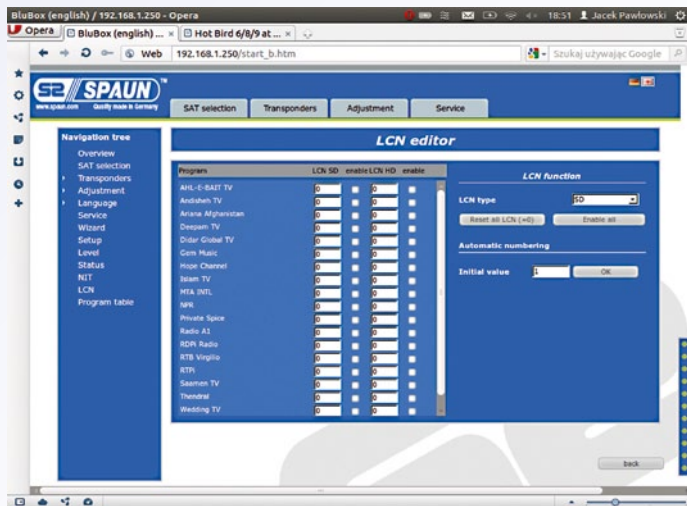
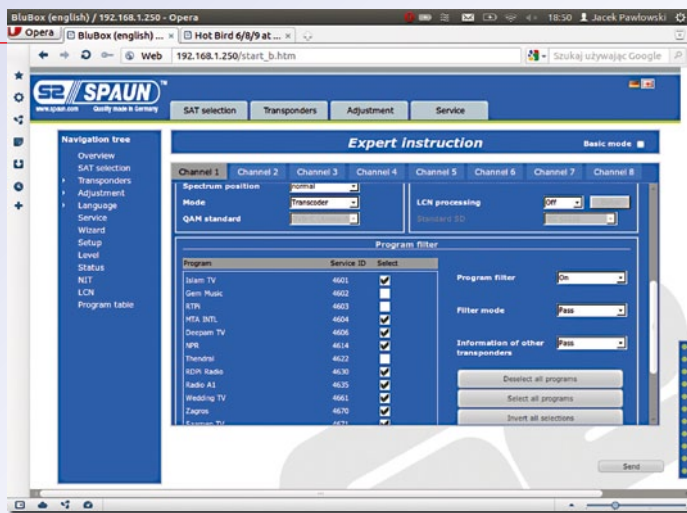
By default, the box assumes 256QAM and 6.9 Ms/sec. However, after switching the user interface from basic to expert mode, you are free to change it to any QAM order and any symbol rate. However, we advise to keep 6.9 Ms/sec as this matches the 8 MHz channel bandwidth normally used in cable TV.

If you do everything like we described above, you should notice that all 10 status LEDs of the module located above the RJ45 connector turn from amber to green. This means that the BluBox 16 locked to all programmed satellite transponders and generated

SPAUN™ Setup windows







corresponding QAM channels.

To find out how foolproof the unit is, we intentionally changed the settings for one QAM channel. Instead of the default 256QAM constellation, we set 64QAM. Immediately, the front panel LED indicator assigned to the channel as well as its counterpart on the PC monitor changed from green to amber. After clicking it on the PC monitor, a window popped up listing all the parameters of the channel and the cause of the problem became obvious. The total bit rate of all TV and radio channels from the selected satellite transponder was greater than what the QAM channel modulated with 64QAM with 6.9 Ms/sec symbol rate can carry.

If you are a little bit familiar with digital TV, you know what to do. You can either increase the symbol rate (but normally, you would not like to do that as this would interfere with the adjacent channels), increase the QAM to maybe 128QAM (and if this is not enough, to 256QAM) or remove some TV channels from the satellite content to be included in the QAM channel. We did the last thing and after blocking two TV channels the total bit rate decreased enough to be handled by the 64QAM and 6.9 Ms/sec channel. All LEDs were green again.

We decided then that it was time to take a few measurements at the outputs of the BluBox 16. We configured 8 channels of one module of the unit in such a way that every second cable TV channel was occupied. We did so for easy channel identification in a spectrum view of a signal analyzer that we connected to the output. Of course, the BluBox hardware is good enough to generate adjacent cable channels. 8

QAM channels appeared at the output of the module as expected. As you can also see it for yourself on the attached photos, there were no spurious signals visible in the spectrum but only eight very clean modulated carriers.

After such promising beginning, we configured the second module in a similar fashion but selected different channel frequencies of course. After connecting the output of the first module to the QAM input of the second module we measured the signal at the output of the second module where the summary signal of both modules was expected. All 16 QAM channels looked brilliantly. See the picture.

We checked that we can see the videos of the TV channels transmitted in the QAM channel and took a few measurements. As we expected, the purity of the signal was tremendous - almost no noise at all. MER at 37.3 dB and BER < 0.9 E-9 were at the end of our meter's scale. The measured signal power was matching the settings done in the BluBox 16 very well. We checked that indeed you are able to set the output power of all QAM channels in the range: 62...82 dBμV in 1 dBμV increments as stated in the specifications.

But you can do more than that when setting signal levels. The BluBox 16 lets you set individual deviation in signal levels of various QAM channels from -6 through +3 dB in 0.5 dB steps. We did the maximum increase for one channel and maximum decrease for another channel and took the photo. Everything worked as expected. By adjusting the power of individual QAM channels you are able to compensate for the losses in a cable network. Normally, you will

increase the power for the channels of higher frequencies and decrease for those at the lower end of the spectrum.

The BluBox 16 had no problem in processing DVB-S and DVB-S2 signals. Of course, the content of the transponder (MPEG-2 or MPEG-4) does not matter as the BluBox does not decode and re-code video of the TV channels. If something is in High Definition on a satellite transponder, it will be left in HD in the cable network.

SPAUN provides us with quite a choice of different settings for the satellite input and cable output. For example, you can set manually the LOFs of the LNB as well as its changeover frequency. Explanation for less advanced readers: the low-band and hi-band of Ku-band overlap each other; so the central part of Ku-band can be received either with lower LOF (9750 MHz) or higher LOF (10600). In a normal set-top-boxes this decision is taken by the box manufacturer and the user has no freedom to change it.

DiSEqC 1.0 is supported. You can select toneburst: off/A/B or satellite A/B/C/D.

You can manually select the presence of the 22 kHz waveform as well as the LNB voltage (13/18 V). You can edit, remove or add new transponders like in a regular satellite TV receiver but additionally you can label every transponder, for example with the name of the provider.

Individual channel numbers can be assigned to the TV and radio channels contained in the generated QAM channels. And if the set-top-boxes used in your cable system are supporting LCN (Logical Channel Number) functionality, the channel order in their channel lists will be exactly as you want it to be. As mentioned before, you can block some channels from appearing in the cable network simply by removing ticks next to their names in the appropriate menu (in the expert mode).

The BluBox gives you also some possibilities to manipulate NIT, SDT and CAT tables. You can change IDs of the network, service or conditional access system. If you wish, you can replace the original network name with your own network name but you have no

possibility to rename the original TV and radio channel. Some expertise is required when tinkering with these settings especially in NIT processing. Fortunately, everything is explained in great detail in the operating manual. Moreover, the default settings (without processing the tables at all) will be perfect anyway for most customers.

To sum up, setting up the BluBox 16 was a piece of cake. Everything was intuitive and worked as expected. We encountered not a single problem. Of course, all our

settings were stored in the BluBox memory safely and did not disappear on power cycling. After some period of operation, internal fans were automatically switched on to keep internal temperature low. They generated some noise but this is normal in professional equipment like computer network servers. The output signal was stable and very clean spectrally. Also the C/N ratio was excellent. SPAUN's BluBox 16 did a great job in converting DVB-S/S2 satellite transponders into DVB-C cable channels.

Expert Opinion

Extremely compact

Single unit converts large number of transponders to QAM channels (16)

Very clean output signal

BluBox outputs can be cascaded to multiply the number of QAM channels in the system output

Well designed application for setting up the instrument

Installation wizard, basic mode and expert mode suits both less and more advanced users

BluBox includes two power supplies for extreme high up-time

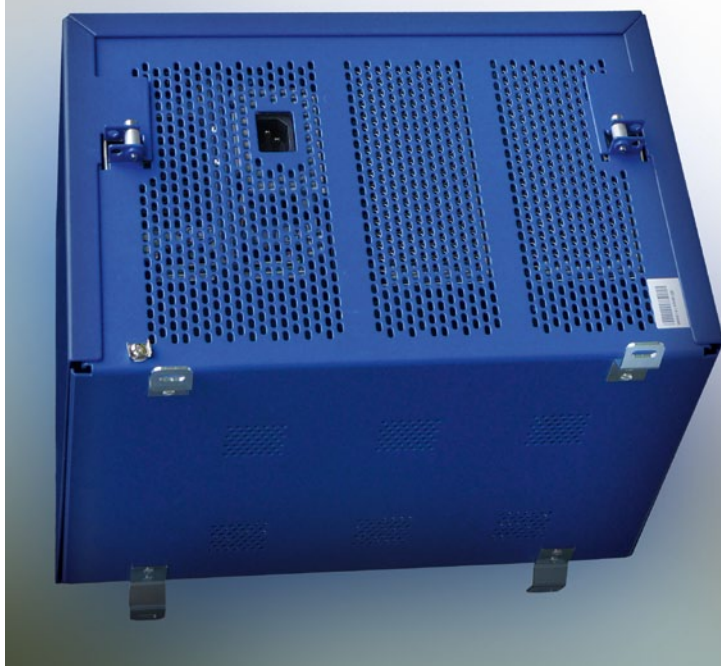


Jacek Pawlowski
TELE-satellite
Test Center
Poland

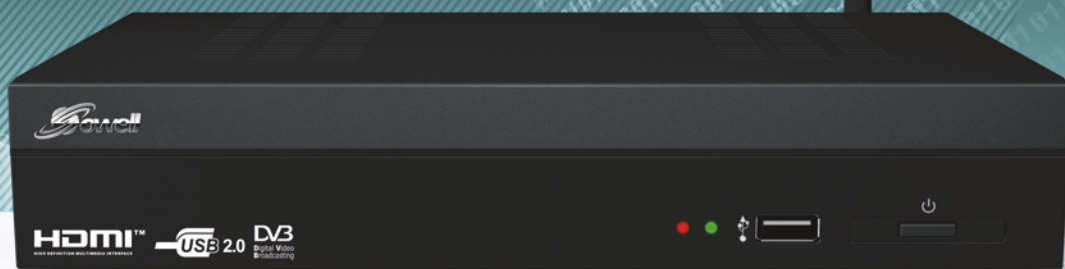
not possible to descramble the channels of various satellite PayTV providers and re-scramble them with a different CAS

TECHNICAL DATA

Manufacturer	SPAUN electronic GmbH & Co. KG Germany
Web	www.spaun.com
E-mail	contact@spaun.com
Phone	+49-7731-8673-0
Fax	+49-7731-8673-17
Model	BluBox 16
Function	DVB-S / DVB-S2 to DVB-C Head End
Number of inputs	4 (cascadable)
Input frequency range	950 ... 2150 MHz
Allowable input signal power	64 ... 94 dBμV
Number of outputs	2 (cascadable)
Output frequency range	47 ... 862 MHz
Output signal power setting (general)	62 ... 82 dBμV
Individual QAM channel power adjustment range	-6 ... + 3 dB
Number of transponder processed	Up to 16
Number of QAM channels generated	Up to 16
QAM standard	DVB-C ITU-T J.83 Annex A (fixed)
QAM constellations	16QAM, 32QAM, 64QAM, 128QAM and 256QAM
QAM symbol rate range	1.0 ... 7.2 Ms/sec
Power supply	2 x 100 ... 240 V, 47 ... 63 Hz, 85 W plus LNB



Hybrid OTT BOX+DVB-S2/T2/C



- IPTV
- Movie Online
- Web Browser (Optional)
- USB Mouse, Keyboard
- Fully MPEG-2 / MPEG-4 (H.264 / VC-1) and DVB-S/DVB-S2 Compliant
- Network Application (Youtube, Podcast, Yahoo, Picasa, Flickr etc.)
- Multi-media Player (TS, MKV, AVI, VOB etc.,)
- DLNA
- WiFi
- Recording & Playback with External Storage Devices(e-SATA / USB2.0 / HDD)
- Firmware Upgrade (USB / Online / OTA)
- VOD
- Conax CAS7.0 (Optional)
- 2 USB



You can meet us at the above shows in 2012.



- Fully MPEG-2/MPEG-4(H.264/VC-1) and DVB-S/DVB-S2 Compliant
- Multi-media Function (Playback TS, MKV, AVI, VOB etc.)
- Record & Playback with External Storage Devices (USB Stick/HDD)
- Support HDMI output (up to 1080i)
- Conax CAS7.0 Embedded (Optional)
- One Common Interface(CI) (Optional)
- Ethernet
- Support OTA (Optional)
- WiFi (Optional)
- 2 USB



- Fully DVB-T/MPEG-2/MPEG-4/H.264 Compliant
- PVR Recording (Viewing one channel and Recording another channel Simultaneously)
- Multi-media Function (Playback TS, MKV, AVI, VOB etc.)
- Record TV and playback with External Storage Devices (USB stick/HDD)
- Advanced Time-shift function
- Format Resolution: 1080i, 720p, 576p
- OTA (Optional)

HD DVB-S2

HD DVB-T

Panodic HDT-127A



- *Очень маленький ресивер с HDTV*
- *С функцией записи*
- *Очень маленький пульт*
- *Большой плюс: разъем USB на передней панели*



DVB-T

PANODIC

Digital World, Simple Life



Space-saving and Elegant DVB-T Receiver



The Panodic company slogan is 'Digital World. Simple Life.' and the HDT-127A lives up to that promise. We're talking about an elegant DVB-T set-top box that is small yet easy to use and filled to the brim with useful features.

Measuring only 190 x 120 x 35 mm it will fit into any TV cabinet and blend in nicely thanks to its unobtrusive overall appearance. But don't be deceived by its small size: With all the functions it has in store it will please even the most discerning users.

A four-digit segment display on the front panel shows either the channel number of the currently selected

station or the time when in standby mode. In addition, an LED indicates the operating mode of the receiver which can be changed with the On/Standby button that is located right next to it.

During our test we came to appreciate the USB 2.0 interface right on the front panel – this way it's much less hassle to connect and disconnect a USB storage medium.

If we now turn around the receiver to have a look at the rear panel we can find the RF input as well as loop-through output, HDMI for high-definition video and audio output, a scart euro-connector for hooking up standard-definition TV sets,

as well as three RCA jacks for stereo audio and CVBS video. A coax digital audio output for digital sound rounds off the connection options. The only thing that is lacking is a mechanical power switch to fully disconnect the box from the mains.

The remote control that is shipped together with the receiver comes with clearly labelled buttons offering a very pleasant pressure point. Like the receiver itself the remote is very small in size and it should be used within a three metre radius from the receiver if you want to make sure the box listens to all of your commands.

The level of workmanship of the HDT-127A is rather high, but we would not have expected anything less from Panodic.

Most receivers these days feature an installation wizard that guides users through the initial set-up routine, and the new Panodic HDT-127A is no exception. What is new, however, is the user experience offered by this box: While most manufacturers lead users to a number of windows in which individual settings can be adjusted, Panodic has arranged the four most important sections (region, language, video resolution, video aspect) in a single window.

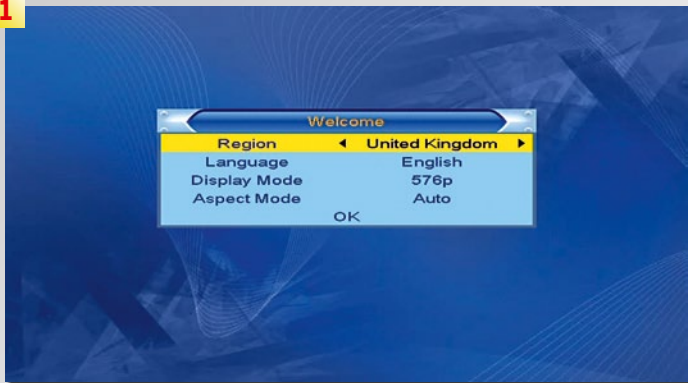
new

MODULATOR HD DVB-T / TNT HD-MOD-001T

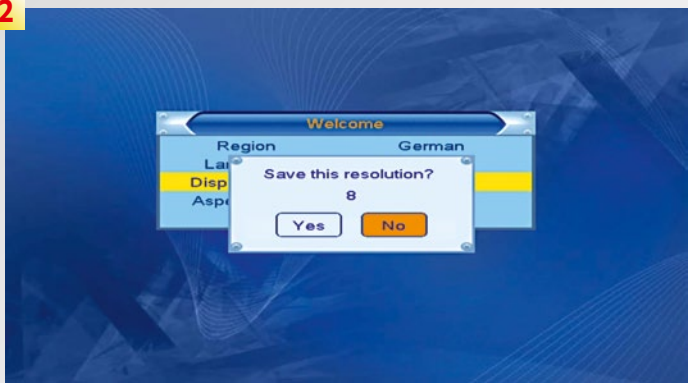
- ▶ Integration of HD Encoder and DVB-T Modulator in one box.
- ▶ Various video input include: HDMI, Component Video (YPbPr) and Composite Video (CVBS)
- ▶ Multiple video format compatibility including 1080i, 720p, 576i, 576p, 480i and 480p
- ▶ Multiple audio format compatibility including MPEG-1 Layer II
- ▶ Fully comply with DVB-T standard
- ▶ Frequency range : 50~860MHz
- ▶ Programmable video/audio/PCR PID
- ▶ Programmable channel name and logical channel number insertion
- ▶ User friendly setup and control,
Remote management through Telnet



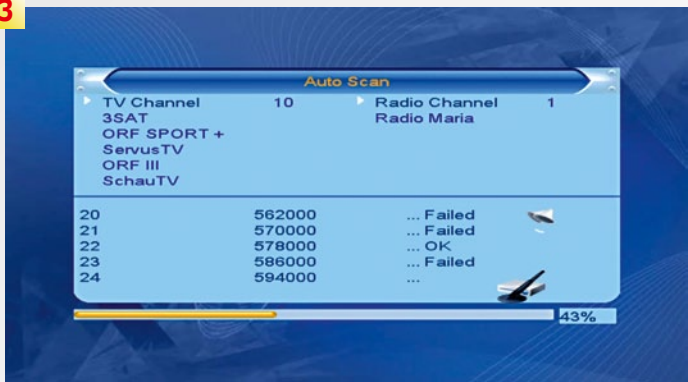
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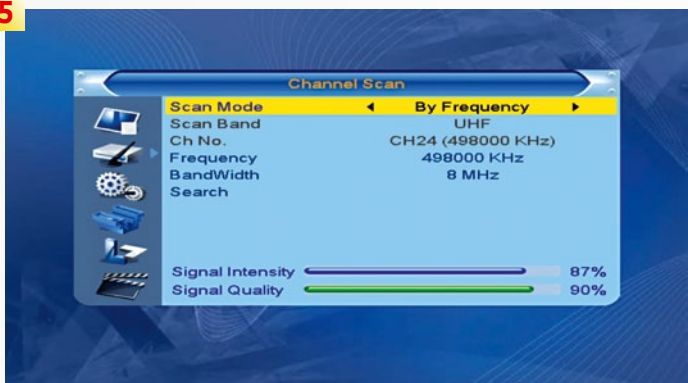
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5



Depending on the region you select the receiver automatically suggests the corresponding language for the on-screen display, which we found rather convenient. It goes without saying that this selection is not set in stone and you may of course choose French as your language of choice even though you use the receiver in Germany, for example.

In terms of video output resolutions, the following options are available: 576i, 576p, 720p, 1080i and 1080p, which makes HDT-127A a perfect match for future transmissions with full HD resolution as well.

Whenever you change the resolution you have 15 seconds to confirm the new resolution, and if you fail to do so the box goes back to the previously set video format. No more despair in front of a black screen, caused by a resolution that is not supported by your TV panel. A small step in terms of technology, a giant leap in terms of user-friendliness, so to speak.

In addition, you can set the video output to either 4:3 (pan & scan or letter box), 16:9 or Auto, which means the receiver adjusts the aspect ratio automatically.

Once all parameters in the four sections are set by the user the next step is an automatic channel search across the entire VHF and UHF bands. In our case the HDT-127A took slightly more than 90 seconds and detected all active DVB-T frequencies. As soon as that process is completed the receiver switches to the first found channel. Now, let the viewing pleasure begin...

Contrary to satellite TV reception with hundreds or even thousands of channels the DVB-T offering usually hovers around a dozen or so stations, with some regions boasting more variety than others. Nonetheless, Panodic has chosen to implement the entire range of

channel management and editing functions. It is possible to delete, move, rename or PIN-lock individual entries or to mark channels for skipping. With a total of eight favourites list all members of your family are guaranteed their own personalised channel line-up.

In case not all channels were found by the receiver during the initial automatic search or new channels have become available, it is possible at any time to access the installation menu and repeat the search – you may even choose whether or not to look for encrypted channels as well.

If need be, a manual search is available too, which lets you enter either the required frequency or the channel number in the VHF or UHF band.

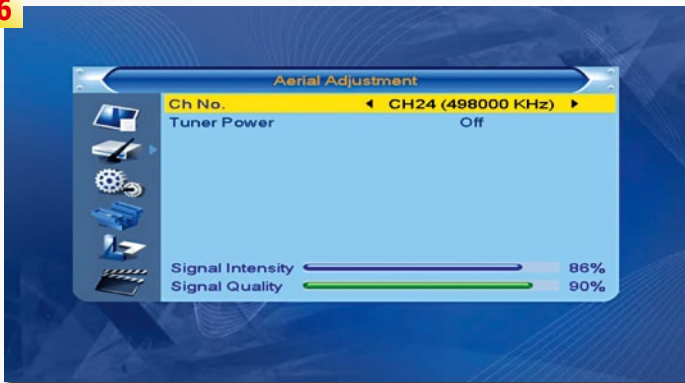
There is even a dedicated menu item for antenna adjustment, which calls up two signal bars (indicating quality and strength) in order to move the antenna until the two bars show the best possible values. Use this menu item to also select whether or not the coax cable should provide 5V current to the antenna, which is required for an active antenna.

All remaining set-up options of the main menu consist of the usual parameters such as audio language, teletext, subtitles and digital audio output in either the BS or LPCM format.

The internal clock of the HDT-127A can be set manually, or the receiver can read out the correct time from the DVB-T data stream. To make sure the right time for your location is shown it is not necessary to indicate the time difference to GMT (as is the case with many other manufacturers) but only to select your region from a list. The receiver even shows a number of major cities in each time zone, so that you couldn't possibly get it wrong. Talk about user-friendliness!

The Panodic HDT-127A is a PVR receiver and that is why

6



7



8



9



10



a dedicated menu item is available for PVR functions. Here you can permanently activate timeshift viewing, select a partition of the external USB storage medium for recordings and request the receiver to automatically add the timeshift buffer to a recording that is started manually. In our opinion, this is a particularly convenient feature as it makes sure you can save an entire program even though you only initiate the recording some time into the broadcast.

Once all settings are taken care of and the receiver is hooked up to all existing equipment it is finally time to do what that neat little DVB-T box is made for: watch TV!

As usual, pressing the OK button on the remote calls up the channel list. Not so usual is the fact that the left/right buttons can be used to access and switch between the favourites lists, a feature that we truly came to appreciate during our test.

A cleverly designed and easy to read info bar pops up every time a new channel is selected, showing the title of the current and next events if this information is provided by the channel.

The HDT-127A takes approximately one second to switch between channels, which puts a lot of fun into zapping. We were impressed with the video and audio quality delivered by this DVB-T receiver: If you make use of the HDMI connection you'll be spoilt with crisp and sharp images and

true-to-life colours, while the coax digital audio output offered a flawless soundtrack to our DD 5.1 home theatre receiver.

While the HDT-127A only supports DVB-T and cannot process DVB-T2 signals, it is nonetheless capable of dealing with HDTV broadcasts transmitted in MPEG4.

Such signals are not available at our location, which is why we decided to convert the signals of two satellite transponders to an MPEG4 DVB-T frequency so that we were able to check the box's worth in terms of HDTV functionality.

To that end we used HispanTV from EUTELSAT 7A 7° East and the Saudi Sports transponder from BADR 26° East. HispanTV uses MPEG4 SD as transmission standard, while Saudi Sports channels come in MPEG4 HD. As expected, all channels were processed by the HDT-127A smoothly and without any glitches whatsoever.

Picture this: You're relaxing in front of the telly after a busy day at work only to find out that your significant other has thrown away today's paper with the TV listings. Not a problem at all – simply press the EPG button on the remote and let your receiver spell out everything that's on TV tonight. Detailed program information for up to five channels is displayed in a grid layout.

It is possible to jump back and forth in steps of two hours or one full day, up to a maximum preview for seven days. If you're aiming for

1. Installation wizard of the HDT-127A

2. A new resolution needs to be confirmed within 15 seconds, otherwise the receiver will switch back to the last working resolution

3. Automatic channel search

4. The channel list can be managed and edited in numerous ways

5. Entering the frequency number for a manual search

6. The Panodic HDT-127A can even assist with correct antenna alignment

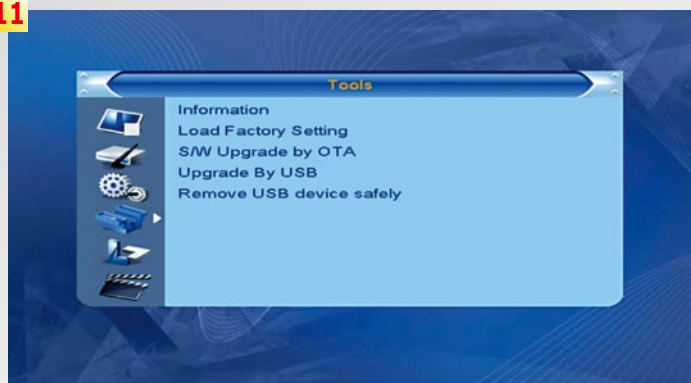
7. Language selection

8. Setting the correct time

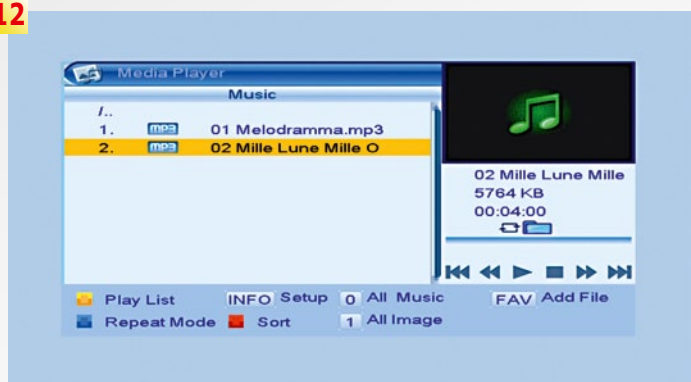
9. Timer entries can be created for daily, weekly or monthly recordings

10. A total of eight timer entries are available and can be assigned individual names

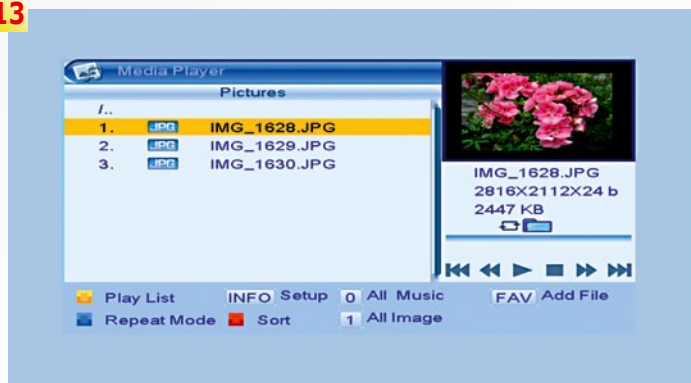
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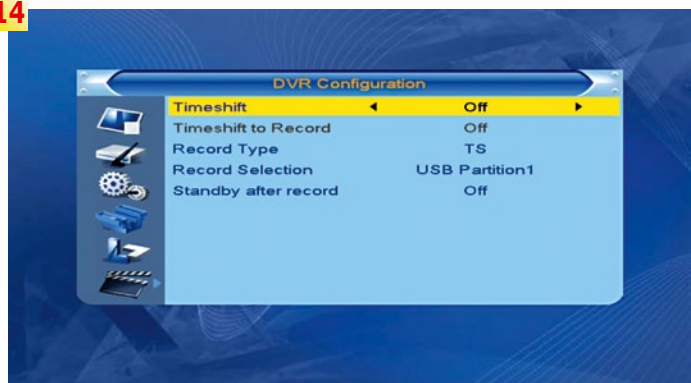
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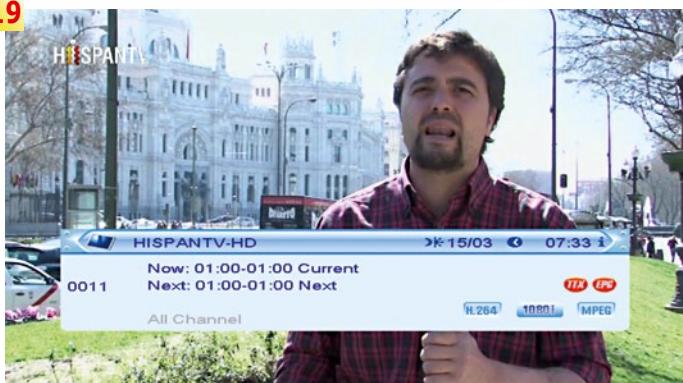
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18



19



11. Software updates make sure the receiver stays up-to-date
12. MP3 jukebox
13. Picture viewer
14. PVR options
15. Teletext decoder
16. The remaining recording capacity is shown every time a new recording starts
17. Channel list
18. EPG information for five channels
19. Reception of Hispan TV in MPEG-4 (SD)

convenient features such as creating timer entries right from the EPG and recording daily, weekly or monthly events, then you need not look further.

The PVR functions of the HDT-127A are on a par with the best on the market and make sure you'll never miss your favourite show again.

If you're still not entirely



HDSF 006



HSF 005

HD Satellite Finder



HDSR 620
HD DVB-S2



HDTR 810
HD DVB-T



HAV 2401
2.4G Wireless AV Sender



HIR 300
IR Remote Extender

HDMI Products



HDMI to VGA HDC 1/1V



HDMI to AV HDC 1/1A



HDMI REPEATER HDR 1/1R

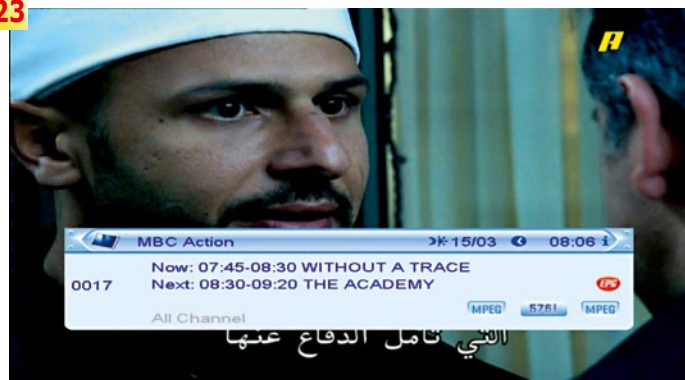


HDMI 8 WAY SPLITTER HDS 1/8

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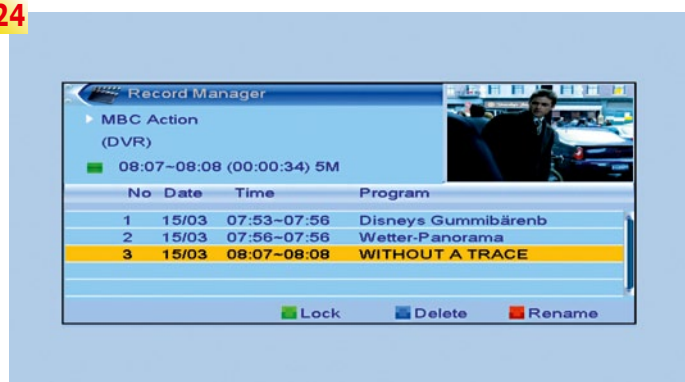
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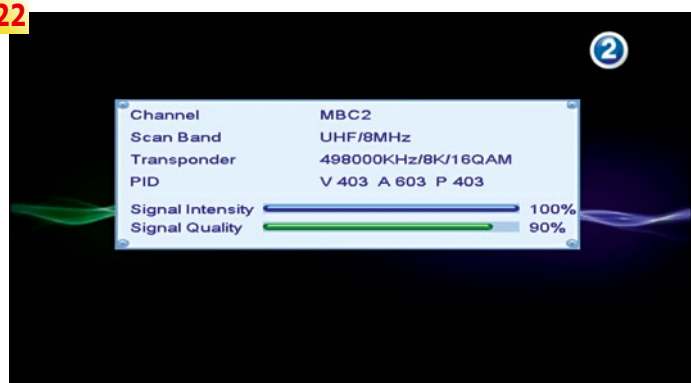
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22



20. Saudi Sports 1 logo (HD)

21. Reception of Saudi Sports 2 (HD)

22. Technical parameters of the currently received channel

23. Info bar

24. List of existing recordings



satisfied, the following list will definitely win you over: There's a built-in teletext decoder, selection of audio tracks and subtitles (if provided by the channel) and dedicated button for changing the video resolution on the go. What's more, thanks to a specific Timer button on the remote you can immediately access and edit up to eight timer entries of the HDT-127A.

Even though the model name does not immediately give it away, the Panodic HDT-127A comes with a USB 2.0 connection on the front panel and can therefore easily be turned into a fully-fledged PVR receiver by simply hooking up an external storage medium.

When tested, all PVR functions performed smoothly, but we should mention at this point that only one recording can be made at a time. It is, however, possible to watch a different channel live, as long as it is transmitted on the same frequency as the recorded channel.

We did like the remaining recording time that is shown whenever a recording is started. This way you easily find out whether or not the entire recording will fit on

your storage medium, particularly when you use USB sticks or the like with limited storage capacity. We created a total of eight timer entries, all of which were completed and recorded with absolute reliability by the new Panodic mini receiver.

We have come to expect that a modern PVR receiver can play back MP3 and WMA files, and it goes without saying that the HDT-127A easily meets this requirement and can be used as a jukebox without further ado.

JPEG and BMP images are also supported, so why not use the tiny Panodic box for your next slide show when friends are over at your place?

If you're a movie buff you can even download AVI, MPEG, TS and DivX movies from the Internet and play them back with the HDT-127A. We tried that feature with SD and HD content and can confirm that both were processed flawlessly.

Panodic is always looking to maintain its cutting edge, which means their firmware and operating software are subject to continuous improvement. New software can be copied into a USB storage medium and installed on the receiver

thanks to its USB connection.

And if those commercial breaks seem to be dragging on forever, why not kill time with Othello or Sudoku, two built-in video games?

The Panodic HDT-127A is

a small yet elegant DVB-T receiver that will please the whole family no end while offering top-notch features and functions. It passed our test with flying colours and turned out to be an absolutely reliable performer.

Expert Opinion

fully-fledged receiver with built-in PVR functions

comes with integrated EPG and teletext decoder

fast channel switching for zapping fun

intelligent adjustment of region/language and local time

timeshift buffer can be added to a recording

only eight timer entries for recordings

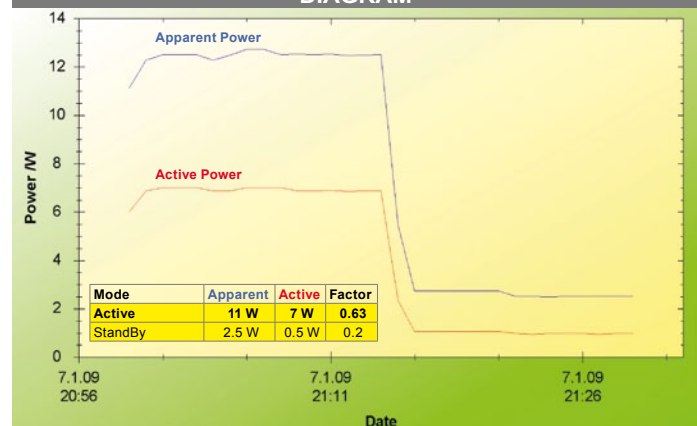


Thomas Haring
TELE-satellite
Test Center
Austria

TECHNICAL DATA

Manufacturer	Panodic
Address	12/F, Grentech Building, Keji.C. Road 3rd Hi-Tech Industrial Park, Nanshan District Shenzhen, China
Tel.	+86-755-8659 0230
Email	www.panodic.com/Contact.aspx
Internet	www.panodic.com
Model	HDT-127A
Function	Small DVB-T HD PVR Receiver
Input frequency	VHF (177.5-226.5 MHz) UHF (474-858 MHz)
EPG	yes
Supported standards	DVB-T
Video resolution	576i, 576p, 720p, 1080i, 1080p
RS232	no
Ethernet	no
USB 2.0	yes
HDTV	yes (via DVB-T)
MPEG4/H.264	yes (via DVB-T)
Supportes languages/regions	English, French, German, Spanish, Italian, Greek, Portuguese, Russian, Polish, Croatian, Slovenian, Australian

ENERGY DIAGRAM



Active use with channel switching, recording, playback etc. during the first 15 minutes, followed by 15 minutes in standby mode.



Amiko Alien 2

- Для приема спутникового (DVB-S2), эфирного (DVB-T), кабельного (DVB-C), а также Интернет ТВ
- Запись двух каналов с одновременным просмотром третьего
- Автоопределение настроек DiSEqC
- Интегрированное WebTV и IPTV
- Доступ в интернет посредством WiFi, кабеля, сети мобильной связи или модема

AMIKO



ALIEN²

Triple Tuner PVR for DVB-S2 and DVB-T/C Reception



Whenever a new receiver arrives at one of our test centers the first element of surprise comes when we unpack the device. This time we were met with a total of three tuner inputs on the rear panel, which at first sight seemed to be slightly over the top.

On second thought, however, it makes perfect sense and only goes to show the amount of insight and attention to detail Amiko puts

into its products. By closely observing market trends the manufacturer rightly realised that satellite television offers unparalleled variety and a DVB-S2 tuner can whizz up thousands of channels to the living room TV. But what about the many smaller and local channels closer to home, which cannot afford distribution via satellite and consequently rely on DVB-T, local cable networks or

Internet TV? It is precisely these non-satellite channels that Amiko targets with its new Alien 2, which is based on the popular Alien (see test report in TELE-satellite 04-05/2011) but comes with an additional DVB-T/C tuner. Fulan was again selected as the provider for the web TV software which means the Alien 2 is perfectly suited for IPTV as well.

But we digress, let's take one step at a time and be-

AMIKO® FULL HD DIGITAL HYBRID RECEIVER & MEDIA PLAYER WITH DUAL LINUX OS & CONAX EMBEDDED CARD READER

TRIPLE TUNER

T1	T2	T3	
☒	☒	☒	DVB-S/S2
☒	☒	☒	DVB-T
☒	☒	☒	DVB-C

ALLEN²

Powered By **SPARK**

SPARK PORTAL

OPERA WEB BROWSER

Full HD 1080

HbbTV

CONAX

KARTINA TV

ONLINE USER'S MANUAL

Full HD Digital Hybrid Set-Top Box & Media Player - Linux Embedded

- Dual Linux Operating Systems with Enigma2 Support
- Two Conax Embedded Card Readers
- High-Speed USB2.0 Ports (with USB HUB support)
- TimeShifting - Pause Live TV!
- MKV, AVI, MPEG TS, MOV, WMV, MP3, VOB, WMV Playback
- Easily Share Your Files through Local Network
- Rich Internet Applications
- YouTube, SHOUTcast Radio, YouTube, Picasa, RSS Reader
- Opera Web Browser with Flash Lite
- Wireless Keyboard / Mouse support
- USB WiFi and 3G Internet Modem Support
- Internet Streaming TV Support
- Electronic Program Guide (EPG)
- Software and Channel List upgrade via Internet
- Online User's Manual and FAQ Videos
- Extendable Features through Plug-In Support
- Full HD (1080p) Output via HDMI
- Dolby Digital 5.1-Stream Out via S/PDIF / HDMI
- <0.5W Power Consumption in Stand-By Mode

ONLINE USER'S MANUAL

RSS FEEDS

HYBRID TUNER DVB-S2

CONAX

KARTINA TV

OPERA

Full HD 1080

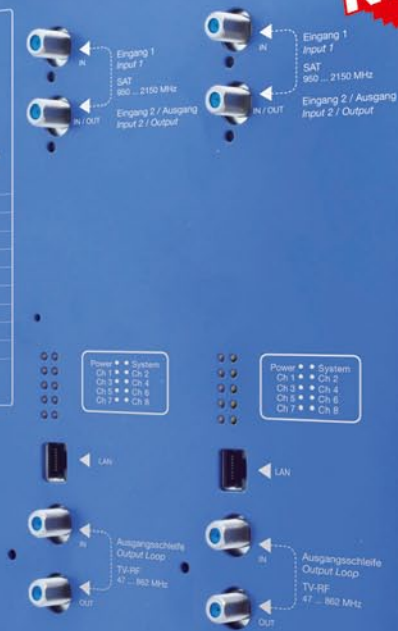
eco

Full HD 1080

AMIKO

Compact Headend 8 / 16 x DVB-S(2) into QAM BluBox 8 and BluBox 16

- 8 / 16 x DVB-S(2) (QPSK/8PSK) into DVB-C (QAM)
- For the reception of 60/120 TV programs SD/HD and 30/60 Radio programs
- Compact dimensions and high energy efficiency
- LNB control with 14/18 V + 22 kHz or DiSEqC
- Configuration via LAN/IP
- Complete processing of the transport streams possible
- All 8 / 16 output channels can be placed individually in the spectrum
- Two individual input ports



NEW

NEW



SAT-HD-ANALYZER SPAROS SAT HD

- High quality and bright display (4.3 inch)
- MPEG4-display and measuring
- SCR single cable switching commands according to EN 50494
- DiSEqC control
- Spectrum analysis
- Robust, impact-resistant housing
- Splash-resistant keypad



Optical Transmitter SOTx 1310607 NF

- Frequency range of 47 ... 2200 MHz
- Laser output power: +6 dBm
- Quattro- and QUAD-LNB support

Optical Receiver

SORx 1310607 NF and SORx 1310607/1 NF

- 4-way / 1-way receiver in a compact housing
- Remote powerable through one coaxial output

1



6

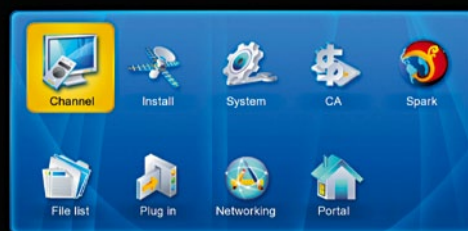


New Software (v1.2.41) is available on Spark Online! Introducing the new WebTV Function for viewing Internet Streaming ch

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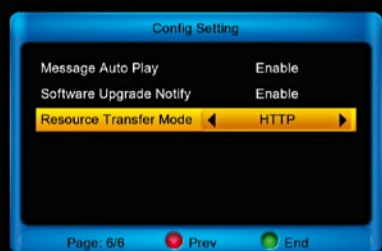
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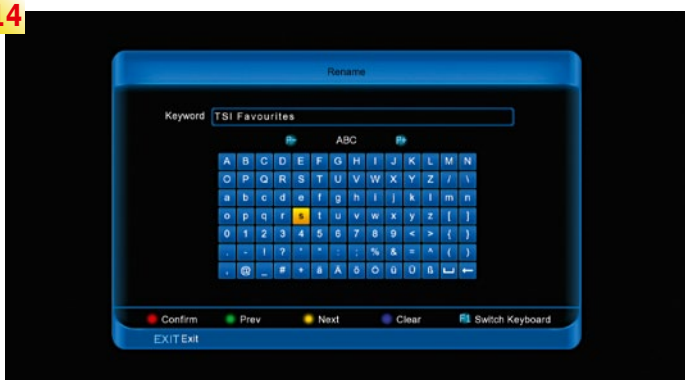
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14



15



gin with the outward appearance of the new Amiko Alien2.

The front panel consists of seven buttons which allow operating the receiver without a remote control, as well as two Conax card readers and a USB 2.0 connection, hidden behind a slap door.

The more features are packed into a receiver, the more important a perfect user/machine interface becomes, and to make sure Alien 2 users are never left in the dark Amiko has opted for a perfectly readable VFD display, next to a small LED which lights up red when the unit is in standby mode.

Turning around the receiver to have a look at the rear panel it becomes evident yet again that we are dealing with a top-notch device here that is a far cry from your average satellite set-top box.

On the left there are a total of three tuner inputs together with corresponding loop-through outputs. Right next to those is the Ethernet socket and the USB 2.0 connection which can also be used for USB hubs, thereby multiplying the number of USB devices that can be hooked up to the Amiko Alien 2. This is followed by an HDMI output for digital video and audio and a scart euroconnector as well as three RCA jacks for analog stereo and video – even though it's

hard to imagine somebody using an outdated analog TV set in combination with this high-end digital miracle box.

Your HiFi system can be fed with digital audio via an optical and a coax output, depending on your hardware or preference.

Moving further to the right there is an RS232 interface. All this is complemented by a mechanical power switch which can be used to fully disconnect the receiver from the mains.

If you are in awe of this comprehensive list of connection options, then you may get an impression of how we felt when our eyes began to wander across the rear panel. If we had to find a missing feature it would be a 0/12V supply output, but don't get us wrong: We don't want to sound like we're complaining to high heaven.

The remote control is just as impressive. It sits in your hand brilliantly, sports a remarkably clear layout and comes with easy-to-understand labelling.

Yet, looks are not everything and thankfully the remote scores highly with its touch-and-feel factor as well. Its buttons – while easy to press – offer just the right amount of feedback and after a short while this remote stands a good chance of becoming your best friend.

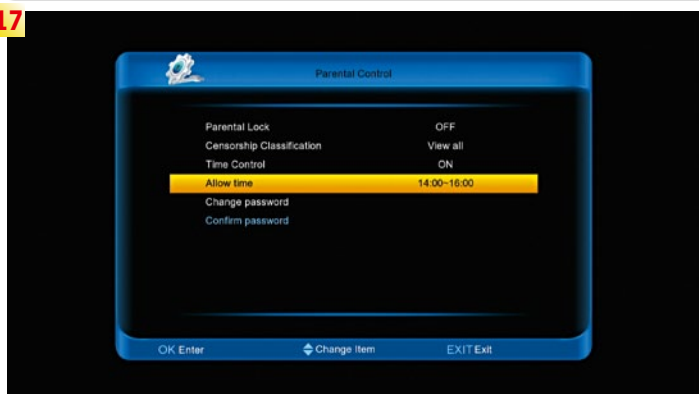
The overall level of work-

1. The Amiko Alien 2 installation wizard first wants to know your preferred OSD language
2. Setting the time
3. Network configuration
4. Resolution of the video output – 1080p is also available
5. Various customisation options of the Spark software
6. Whenever new software is available a message is shown in a text ticker on the bottom of the screen
7. Main menu of the Amiko Alien 2
8. Pre-stored satellite list
9. Each satellite can be configured individually for each tuner
10. DiSEqC protocols 1.2 and 1.3 for motorised antennas are supported as well
11. Transponder editor
12. Automatic channel search on ASTRA 19,2° East
13. DVB-T frequency list
14. Individual names can be given to favourites lists
15. Adding channels to favourites lists

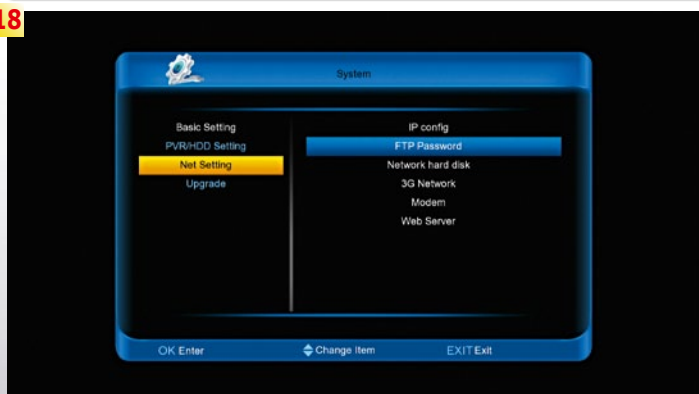
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19



20



manship and build quality of the new Amiko Alien 2 is outstanding. If we had to define the perfect receiver, this one could be it!

Enough said about looks and specs now. Let's proceed with connecting our TV panel, Dolby Digital home theatre system and of course all available antennas to the receiver and finally press the magic ON button.

After a short moment the Spark software installation wizard says hello and starts to guide us through the initial setup routine. This consists of six steps, starting with OSD audio offering a vast range of languages for virtually all corners of the globe.

Next, the receiver needs to find out the correct local time. You may select for the box to use the time signal transmitted with the DVB data stream, or you may also set the internal clock manually.

If you use the automatic option you need to define your local time zone, i.e. the time difference between your location and GMT. An extra field is available for standard/daylight saving time.

This is followed by video resolution. In order to make sure your TV panel is provided with the best possible video quality you need to enter the maximum resolution supported by your panel. The following options are available: 480i, 576i, 720p, 1080i and 1080p. Thanks to 1080p output the Amiko Alien 2 is a perfect match for maximum resolution TV panels as well as for future 1080p transmissions.

The aspect ratio can be set in a number of ways, and while several different options are offered for the

presentation of 4:3 events on 16:9 screens this feature loses importance all the time since most channels broadcast in 16:9 anyway.

At this stage we would have expected to continue with a channel search, but the Amiko Alien 2 instead wanted to find out some specifics of our local network. It goes without saying that the receiver supports DHCP for automated communication between client and router, even though you may elect to enter all IP details manually as well, if need be.

In case you want to do away with all cables for Internet access you simply need to attach a USB WiFi stick such as the TP-Link TL-WN321G and can then use your wireless network at home.

To wrap up the initial configuration you're asked whether you want to create an individual four-digit PIN and you can deal with same basic settings of the Spark software, such as automatic message reception, new software alert and the like.

Now that all the basics are taken care of the installation wizard says goodbye and leaves us with an empty channel list. So what next?

Well, you can either start a channel search or use one of the pre-defined channel lists that can easily be downloaded from the Internet in the main menu.

As far as DVB-S2 reception is concerned the Amiko Alien 2 comes with 64 pre-stored European and Asian satellite positions, all of which boast up-to-date transponder details.

No matter whether it's a single LNB antenna you have, a multi-feed dish with two or more LNBs or even a motorised antenna, the

16. Basic settings

17. It is possible to set a specific timeslot during which children may use the receiver

18. Network and Internet settings

19. The Amiko Alien 2 also supports Internet access via an external UMTS modem

20. Recordings can be saved onto network drives thanks to the NFS protocol

SATCATCHER

QUALITY ENGINEERING
HQ
HIGH

DIGIPRO HD S2

UNICABLE

TRUE HIGH DEFINITION TESTING

ASDTM

ACTIVE SATELLITE DATA

USALS

PERFECT MOTOR SETUP



DVB - S TEST
DVB -- S 2 TEST
WATCH HD TV
LBER TEST
UNICABLE
CAMERA TEST
22KHZ TEST
VOLTAGE TEST
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PORTABLE DEVICE
VERY LIGHTWEIGHT
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OTHER MODELS AVAILABLE:
DVB-S/T DIGIPRO ST COMBO
DVB-S2 DIGIPRO IIIS HD
DVB-T 1GB DIGIPRO T MK2
DVB-S/C DIGIPRO SC COMBO
DVB-C DIGIPRO C MAX
DVB-S 1GB EXCEL-TV MK4 NIT

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ALL PRODUCTS ARE AVAILABLE FROM YOUR LOCAL DISTRIBUTOR IN YOUR OWN LANGUAGE !

Amiko Alien 2 will be happy to work with any of these setups and make the most of all received signals.

But don't just take our word for – here's a look at the specifications: It supports DiSEqC 1.0 for up to four LNBs, 1.1 for a total of 16 LNBs, as well as 1.2 and 1.3 for motorised antennas. A number of frequently used oscillatory frequencies are already pre-stored, yet if you need a more out-of-the-ordinary setting you can always enter it manually as well.

DXers and owners of older reception systems will appreciate the fact that this receiver can either give out 13V/18V for switching between polarisations, or provide 13V or 18V permanently, if required. Both voltages can be increased by 0.5V, which is particularly helpful for high-length cabling.

The Amiko Alien is a receiver with two fully-fledged DVB-S2 tuners, which means that all settings can be adjusted individually for each tuner. In case you want or have to use this box with only a single line it is possible to hand over the signal from tuner 1 to tuner 2 – this is neatly implemented in the operating software.

When you're ready to initiate a channel search you can either go for a fully automatic mode across one or several transponders, or

you may of course just as well define a manual search on one or more transponders.

Since we're dealing with a top-notch receiver here there is a blind scan option available, and any search can be restricted to TV, radio, FTA TV and FTA radio. Network scan can be activated to make sure all transponders belonging to the same provider are found more easily.

Once again, DXers will give high marks for manual PID entry in the transponders search menu.

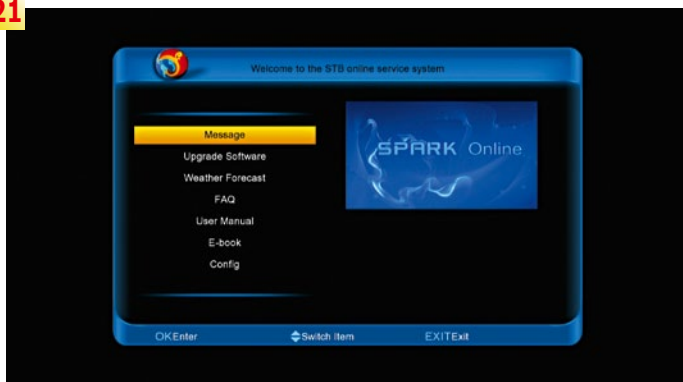
All of these functions are presented clearly and in a self-explanatory way, creating a very pleasing user-experience overall. Not once did we have to consult the user manual and we're sure even less technology-savvy users will instantly get along with the Amiko Alien 2.

What's more, the performance of the various search modes left us just as impressed.

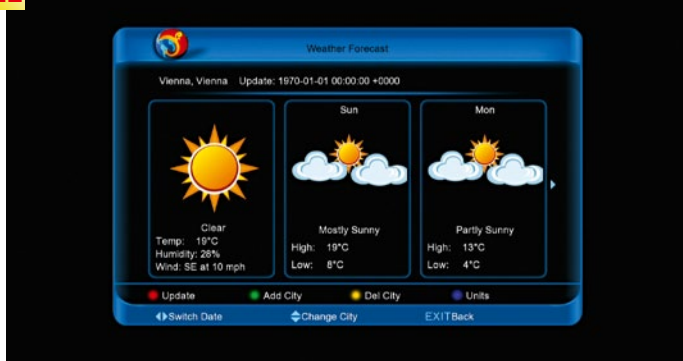
The standard search on HOTBIRD 13° East only took four minutes and resulted in 1490 TV channels and 410 radio stations, while a blind scan on the same position yielded 1745 TV channels and 477 radio station after six minutes.

If you need to add additional transponders and edit or delete existing entries you'll appreciate the built-in transponder editor, while

21



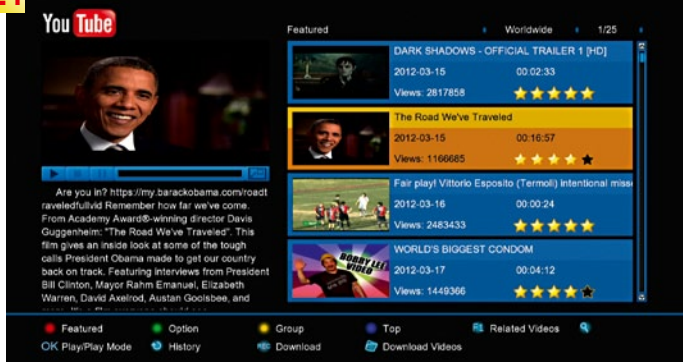
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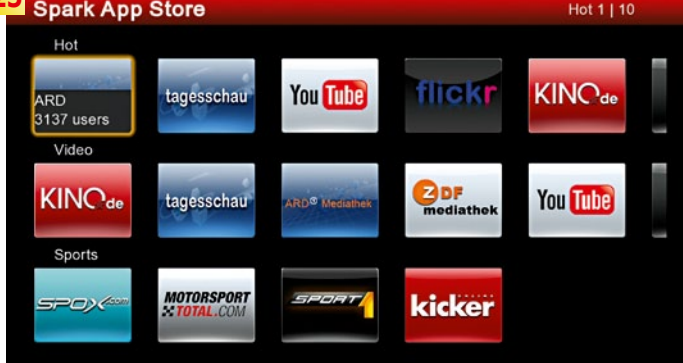
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24



25



21. Spark online portal

22. Weather forecast

23. Go to 'Networking' for access to YouTube, Shoutcast, Picasa or RSS feeds, among others

24. YouTube access with the Amiko Alien 2

25. A number of interesting applications for the Amiko Alien 2 are available from the Spark App Store

26. Recording settings

27. The receiver's database can be saved onto an external storage medium

28. Channel list

29. Sorting the channel list according to satellites

30. This menu can be used to activate teletext, different soundtracks and subtitles

31. Integrated teletext decoder

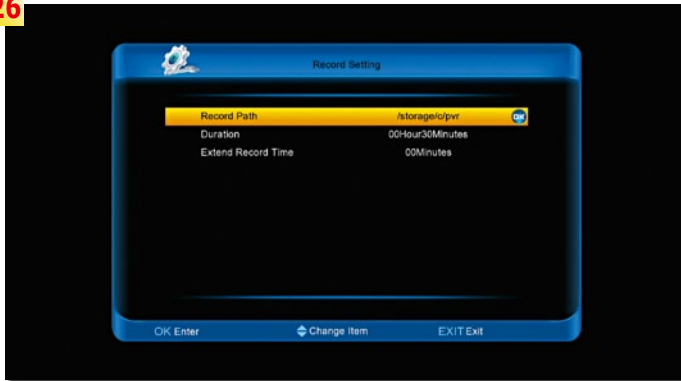
32. A maximum of two simultaneous recordings (SD or HD) are possible

33. Channel list with all HD channels

34. Info bar with titles of current and next events

35. EPG overview covering several channels

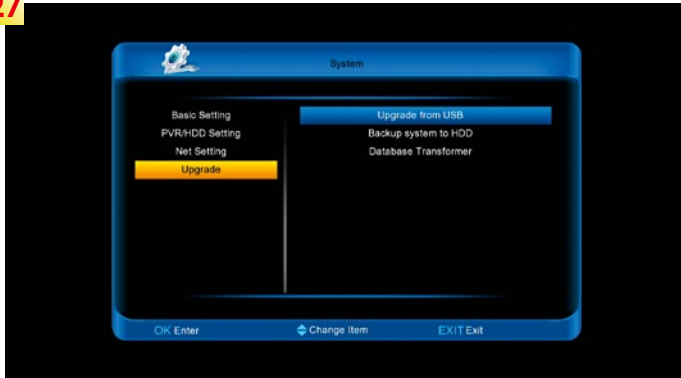
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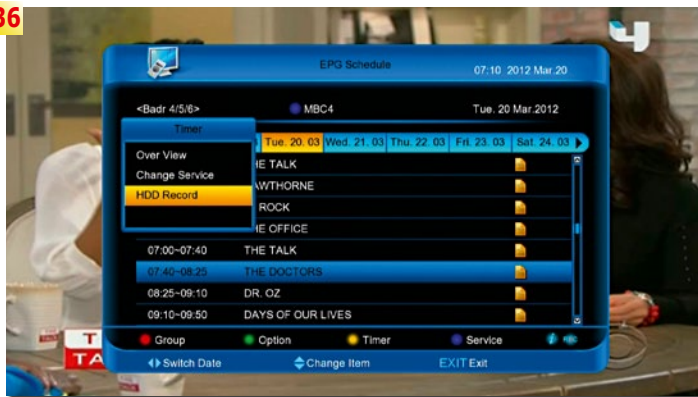
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40



one of the many smart features of the receiver is that you can press the INFO button on the remote to call up a listing of the entire transponder content without adding the channels to the channel list.

While most of our readers are deeply interested in the technical aspects of receivers we review, the average user out there simply wants to watch TV without any fuss. It is precisely for them that AMIKO has implemented Auto DiSEqC detection, which means the receiver finds out all by itself which DiSEqC port has to be used for the currently selected satellite.

We truly love how this manufacturer achieves a balancing act between offering special treats to pros and DXers and pleasing your average Joe.

Talking about user-friendliness, we'd like to go back to blind scan once again: First, all active transponders on both polarisations (or on one only, if requested) are looked for.

While at work searching the receiver displays an oscillator diagram – even though this turned out to be eye-candy without much actual use.

The second step involves analysing all found active transponders and reading all channels and feeds on those transponders. On the one hand this reduces the duration for the blind scan to an absolute minimum, while on the other hand it makes sure all available transponders are found reliably.

Let's turn to DVB-T/C now, which also creates an excellent first impression. It, too, features either an automatic or manual channel search and in automatic mode our test receiver required four

minutes for a search across the entire frequency band.

If you opt for the manual mode you can define the frequency that is to be scanned based on a pre-stored list for the VHF and UHF ranges.

Unfortunately, the Amiko Alien 2 does not allow storing DVB-T and DVB-C channels in a single channel list. As soon as the reception mode is changed in the basic settings the existing channel list is deleted and the receiver shuts down and re-starts again.

We tested both DVB-T and DVB-C reception and are happy to report that both worked absolutely flawlessly with the Alien 2.

Now that DVB-S and DVB-T/C channel searches have filled our channel list with hundreds of offerings we can finally move from theory to practice.

But wait a minute – we'd better bring some order into our channel list first, which vastly enhances our viewing pleasure later.

The Amiko sports a dedicated menu item for channel list management which allows deleting, moving, renaming or PIN-locking one or several channels at a time. In addition, a total of 32 favourites lists can be set up and filled.

Once again, this menu item creates a very pleasant user experience which takes a lot of pain out of channel list editing. A tidy house, a tidy mind – we couldn't agree more!

One last thought before we finally start with the practical section of our review: In the old days we had a handful of channels and we almost knew their daily offering by heart. These days, it is impossible to know what comes on TV and if you have children you

36. Timer entries can be created right from the EPG

37. Various repeat recording options can be used in order not to miss an interesting broadcast

38. MP3 playback

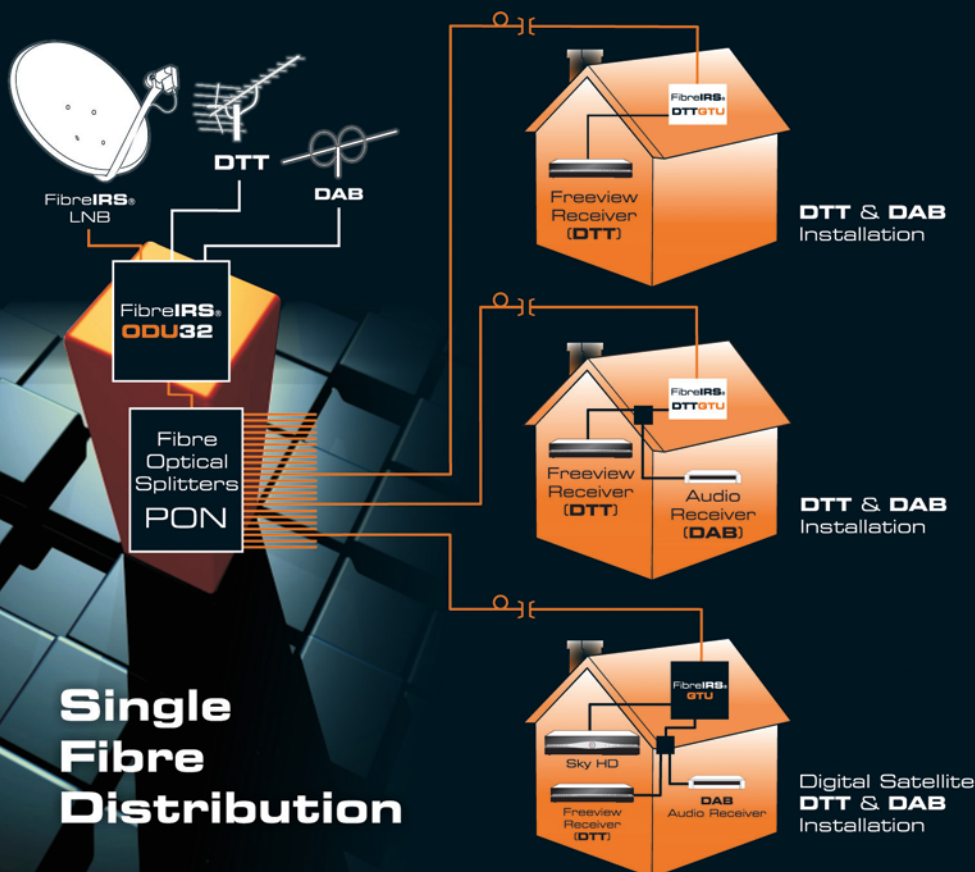
39. Playing back a previously stored recording

40. Image viewer



The New Generation Fibre Integrated Reception System

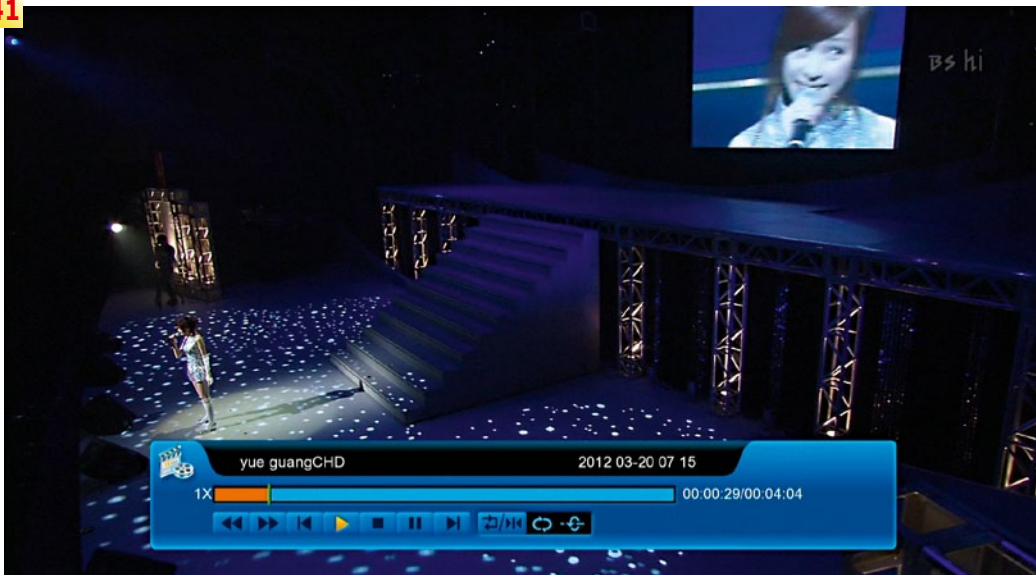
The only cost effective solution for distributing
**Satellite IF, DTT and DAB over a
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- Compatible with all digital satellite STBs
- Compatible with all DTT/Freeview™ STBs
- Compatible with all DAB Tuners
- Can be easily expanded to **256** points
- Simple installation* via 'Plug & Play' technology
- Ideal for short or long cable runs.

*Compared with existing Fibre Systems

41



42



should spare a moment to think about protecting them from inappropriate content.

The Amiko Alien 2 provides valuable assistance even in that area. It matches the rating transmitted by content providers with the limit set by you and can automatically PIN-lock events out of that range. In addition, you may restrict the operating time of the

receiver to a certain timeslot such as 5 pm to 7 pm, for example. Watching TV after 7 pm in those cases requires the correct PIN in order to unblock the set-top box.

Well then, we've looked long and hard at all basic settings and options of the Amiko Alien 2, and now it's finally time to find out all about its TV and radio reception capabilities.

As always, we give the OK button on the remote a go to call up the channel list, which consists of three elements. In the left column you can find the selectors for All, Favourite, Satellite, A-Z, Provider, CAS, HD and Broadcaster which can be used to restrict the channel list and to help you find the channel you're looking for faster.

The second column lists the options for the selection you have made and in the third column you can see all channels that meet your criteria.

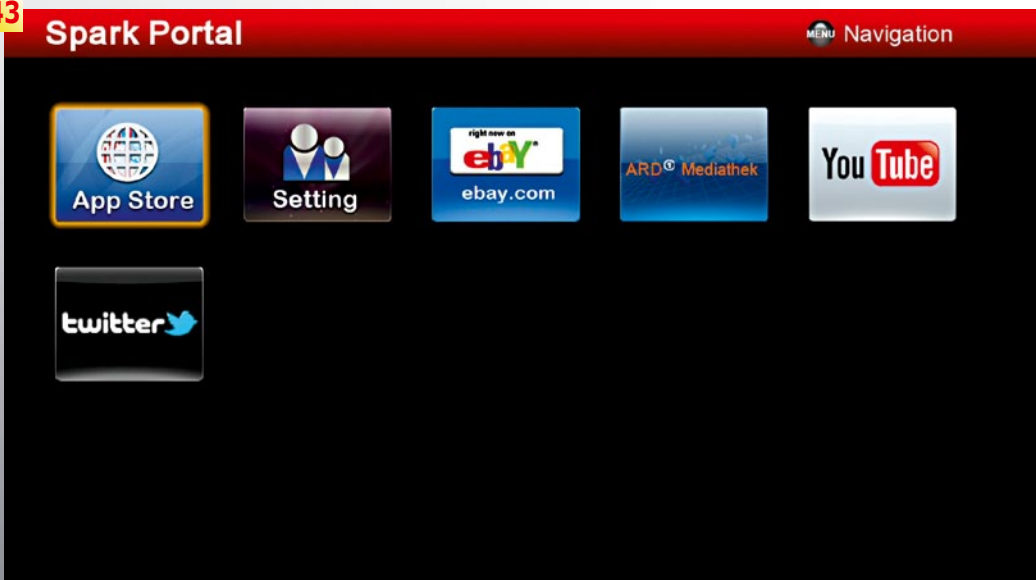
By the way, the Broadcaster menu item should be selected to change between the DVB-T/C tuner and the DVB-S2 tuners.

The manufacturer has put the colour-coded function keys on the remote control to very practical use for the channel list. The yellow button, for example, activates a range of editing options (delete, move, rename, add to favourites) on the fly, while the blue button calls up sorting functions (channel number, A-Z, Free+CAS, transponder). Finally, the green button displays extended EPG information on the current event of the selected channel.

If you're looking for technical parameters such as frequency, polarisation or PID you only need to press the INFO button.

There is even a search button on the remote which in combination with the OSD keyboard lets you search by name for a certain channel. Every time a new channel appears on screen or the

43



44



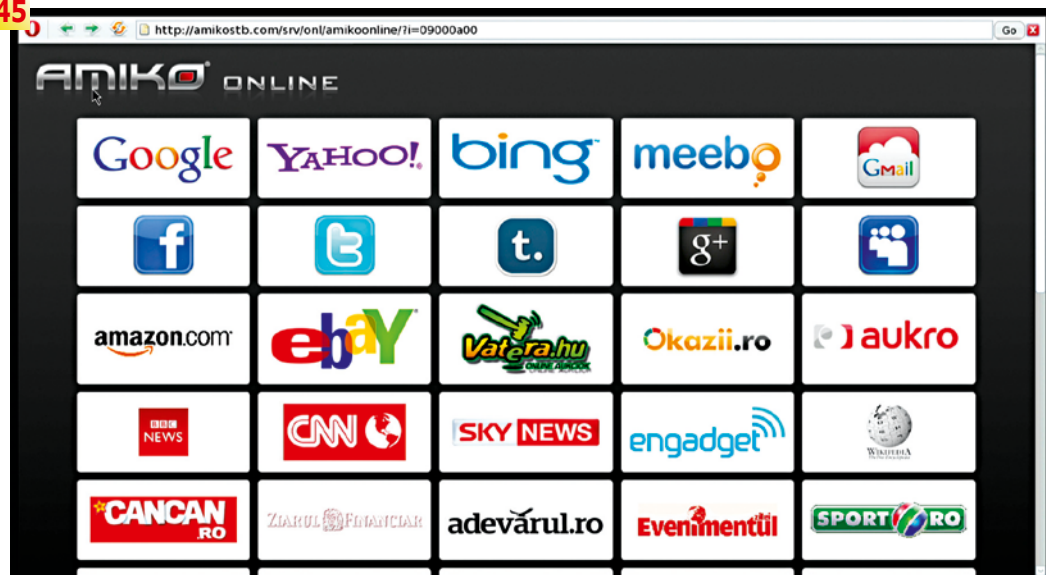
41. The Amiko Alien 2 will happily play back HD videos downloaded from the Internet

42. Various settings for the Spark App Store

43. Spark portal with apps for eBay, Twitter, etc.

44. ARD Mediathek as presented with one of the Spark apps

45. Start page of the integrated Opera browser with links to some popular Internet sites



INFO button is pressed the receiver displays a nicely laid out info bar that is also pleasing to the eye.

Apart from the title of the current and next events it shows a range of icons indicating the availability of alternative soundtracks, subtitles, EPG, teletext, encryption or HDTV. In addition two bars keep you informed about the strength and quality of the incoming signal.

We know we've been praising the Amiko Alien 2 to the skies so far – but not without reason, and here's one more: The electronic program guide (EPG) of this box is simply exemplary. It offers two different views showing either nine channels at a time or a complete listing covering up to seven days for a single channel.

For the sake of consistency, the same selectors as for the channel list (All, Favourites, Satellite, A-Z, Provider, CAS, HD and Broadcaster) are available here as well and speed up navigation within the EPG.

The Amiko Alien 2 comes with full PVR functionality and so it is only logical that you can create timer entries right from an EPG listing. In case your favourite show is broadcast daily, weekly, on weekdays or on weekends only, all corresponding timer options are available at the touch of a button. Use this smart feature and you'll never miss a sporting event

or your favourite sitcom again.

As you know we never treat products we review with too much respect but rather try to push them to their limits. What can we say, this time the Amiko Alien 2 always got the upper hand – or in other words, it performed flawlessly.

Its user interface sports a well thought-out design and makes for a very pleasant user experience, even though it offer all functions we expect from a state-of-the-art receiver, such as changing between various soundtracks, DVB subtitles and teletext. In addition, it is fully HbbTV compatible and will provide all additional features offered by content providers. Short for 'hybrid broadcast broadband TV', this technology can offer everything from a web TV portal and current news to additional content information or a multimedia program guide.

We'll deal with the vast range of PVR and network features this receiver has in store in a moment, but first comes our verdict on the hardware components used by the manufacturer.

In our test all built-in tuners delivered excellent results and were happy to process weak signals as well. We gave the Alien 2 a genuinely hard time with a signal from TURKSAT 42° East whose symbol rate never exceeds 3 Ms/s, but

we were astonished the tuners could not care less and performed smoothly.

The video quality via HDMI is impeccable with saturated colours, a top-notch contrast level and just the right dose of sharpness.

The same is true for digital audio which we sent to our Dolby Digital receiver using the optical audio output. We could not fault that either.

To all couch potatoes out there we can send the reassuring message that channel switching with the Amiko Alien 2 could become your new pastime. It only takes about two seconds until crisp video and synced audio are available, no matter whether you switching between SD or HD channels.

Speaking of availability, you should give the receiver some 30 seconds from standby until all systems are running, but if you're the impatient kind you may also select the Fake Standby mode in the main menu which will make sure the receiver is up and running almost instantly at the touch of button.

Of course this doesn't come without a drawback of its own, which in this case is much higher energy consumption than in deep standby (see energy diagram). As far as the remote control is concerned we should mention the fact that it comes with dedicated buttons for accessing the

Spark portal (more about that later in the network/Internet section of this review), safely removing a USB storage medium and changing the video resolution on the fly.

The Amiko Alien 2 can easily be turned into a fully-featured PVR receiver simply by attaching an external USB hard disk, memory card or USB stick.

Thanks to its three built-in tuners it is possible to record two different events at the same time while watching a third channel live. The receiver will automatically switch between the two satellite receivers and on the channel list all those channels that cannot be watched live while two other channels are recorded are shown with grey background.

It doesn't make a difference whether you make one DVB-T/C and one DVB-S2 recording or two DVB-S2 recordings, the selection is entirely up to you.

If you manually request a recording the receiver asks you if it should shut down after completion of the recording (with the start and end times obtained from the EPG). While this may sound like a minor feature, it is further proof of the Spark software's attention to detail and focus on ease-of-use.

Thanks to the integrated time shift viewing function the live program can be paused at any time and continued at a later time without missing single second. This means you may happily answer the phone or have a chat with your neighbour and still won't miss a thing – provided you press PAUSE, that is.

It goes without saying for a high-end product like the Amiko Alien 2 that you can add any length of lag time for your recordings and you can individually determine a storage location for each recording. During playback of an existing recording it is possible to fast forward or rewind with 2, 4, 8, 16, 32

or 64 fold speed, so that you don't have to search long for your favourite scene.

We did like that it is possible to save the entire configuration of the receiver onto an external storage medium so that you always have a working channel list plus all individual settings available if worse comes to worst.

Obviously, you can also choose to update the receiver's software with the help of a USB storage medium, even though most will probably prefer a direct download thanks to the network connection of the Amiko Alien 2.

The PVR features of the receiver are complemented

of course to the Internet as well. The manufacturer placed great emphasis on this aspect, which is reflected in the enormous range of functions and options for network integration. You may either use any existing cabling for hooking up the receiver to your LAN, or you can go wireless and access the Internet without any Ethernet cable at all.

Even if you don't have Internet at your place the Amiko Alien 2 offers a smart solution: Simply get the Huawei K3526, E1550, E1750 or any other compatible USB modem to use Internet via a 3G mobile phone network. And if that is not offered where you

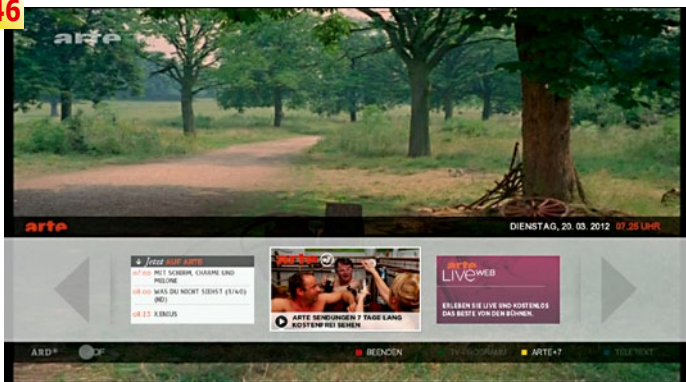
saging system to provide information on new products or important news.

By default, the 'Networking' item of the main menu has a number of applications in store for access to the YouTube video portal, Shoutcast Internet radio service, Picasa image service, RSS feeds, Kartina IPTV or to web TV content at large. For simply surfing the web the Amiko Alien 2 offers the Opera browser which – together with the OSD keyboard – creates a very pleasing user experience. The basic network features are rounded off with an FTP client for access to any FTP server for file transfer and a weather

a worthwhile investment. It will further enhance your browsing experience since aside from the keyboard it also sports a track pad.

The receiver is fully Amiko WLK-100 mini compatible and naturally we gave it a go: The two turned out to be a perfect match. Writing mails or chatting with friends is sheer pleasure and you'll find that your PC or smartphone will stay put where they are while you're browsing away on the TV. The Amiko Alien 2 supports the NFS protocol and therefore allows storing recordings right on a network drive. You'll appreciate that possibility if you like to create DVDs with your re-

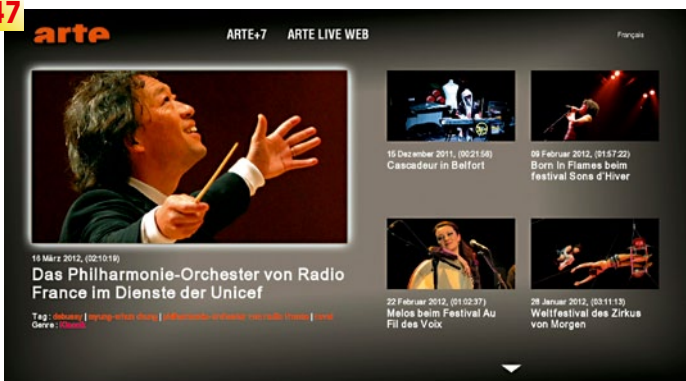
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by an MP3 music player and an image viewer for JPEG and BMP files. It will also play back videos downloaded from the Internet, provided they come in standard

live either, you may always use the built-in modem and connect it to your landline – either way, the world wide web will soon be at your fingertips.

47



file formats such as MPEG, TS, AVI, DivX, VOB, etc. All this turns the Amiko Alien 2 into a genuine multimedia centre in your living room.

One of the major bonus features of the Amiko Alien 2 is its network connectivity to your home network and

Once a connection to the Internet is established the Spark software has a few aces up its sleeve. For example, a text ticker informs users whenever a new software version is available for download and the manufacturer can even use this mes-

48



forecast service.

The Opera browser comes with a jazzed up home screen with links to frequently used pages such as eBay, Bing, Google or Ama-

cordings, since it does not involve any additional file copying.

Let's go back to the Spark portal once again, because it is something which in our

49



zon as well as social media networks (Facebook, Twitter, Google+, etc.).

If it turns out you use the Amiko Alien 2 for Internet access more frequently than expected, getting the Amiko WLK-100 mini wireless keyboard might turn out to be

opinion deserves special praise. It offers a range of small applications for various kinds of use. Some of these apps are in-house developments, others come from third-party and private software developers who are able to use a dedi-



cated software interface for creating their own compatible software.

Users can find those apps in the so-called Spark App Store, which offers TV libraries from a number of channels (ARD, ZDF, ARTE,

etc.), as well as information services such as kino.de, Sport1, motorsporttotal.com, kicker, nuna.tv or iConcerts. Even platforms like eBay and Twitter have

46. HbbTV is supported as well

47. HbbTV portal of French/German channel ARTE

48. The OSD keyboard comes with two layouts: classic or telephone

49. SCPC reception from TURKSAT 42° East

50. When doing a blind scan the receiver first looks for all active transponders of a satellite and only then performs a detailed signal scan

51. DVB-C reception

52. Web TV with numerous channels covering various different genres

53. With the help of the built-in web server the Amiko Alien 2 can be controlled remotely with a web browser

54. Language settings made through the Amiko Alien 2 web server

55. Status information can be called up through the web server, and it is possible to shut down or restart the receiver

their own apps and are available for download from the Spark portal, which incidentally can be launched with a dedicated button on the remote control.

It's quite striking that the Spark App Store currently features a large number of German-language apps, but we expect the number of languages and regions to increase rapidly in future.

If you're interested in a specific language only, you may use the corresponding filter in the Spark App Store, which can restrict the offering to English, German, Hungarian, Polish, Dutch or Arabic.

Even though it is a work in progress and therefore not yet fully implemented, we'd like to mention the

web server that comes with the Amiko Alien 2. Once completed, it will allow remote access and control of the receiver from any web browser.

No matter where in the world you are, you'll be able to fully control the receiver, with the range of options covering everything from video resolution to PVR settings. It is also possible to look at status information or to initiate a re-start.

Before you'll be able to use remote access you have to define a user name and password in the receiver menu, which then has to be entered in order to gain access to the receiver.

As the web server will only be released some time in the future, its features

are currently not active by default.

Right at the beginning of this review we mentioned that the Amiko Alien 2 does not care which transmission mode is used to feed it with TV and radio content.

Apart from the two DVB-S2 tuners and the DVB-T/C tuner it can even receive TV via Internet, which is hidden in the 'Web TV' menu item.

Generally speaking, this is a selection of TV and radio content that is freely available on the Internet, with all links saved in a dedicated xml file.

If you want to use the web TV function, this means you absolutely need such an xml file. Thankfully, a quick search on the Internet reveals a number of such lists

and our thanks go out to eager users compiling and updating those lists in their leisure time.

We obtained one list for testing purposes, which included an impressive variety of different genres, ranging from wrestling and music channels all the way to a 3D and HD channel, plus a number of radio stations. Stay tuned for a comprehensive review of the Spark software's web TV functions in one of the upcoming issues of TELE-satellite.

From the sheer length of this report and from our enthusiasm you can tell that the Amiko Alien 2 is filled to the brim with more features than you would ever expect.

What's more, each feature we tapped into worked flaw-

Expert Opinion

Feature-packed receiver made up of top-notch hardware and excellent software. Despite its enormous range of features it remains easy to use and can be recommended to satellite enthusiasts and beginners alike. Thanks to its three tuners it is possible to receive DVB-S2, DVB-T, DVB-C and Internet TV, which means a single box can deal with all available transmission modes.



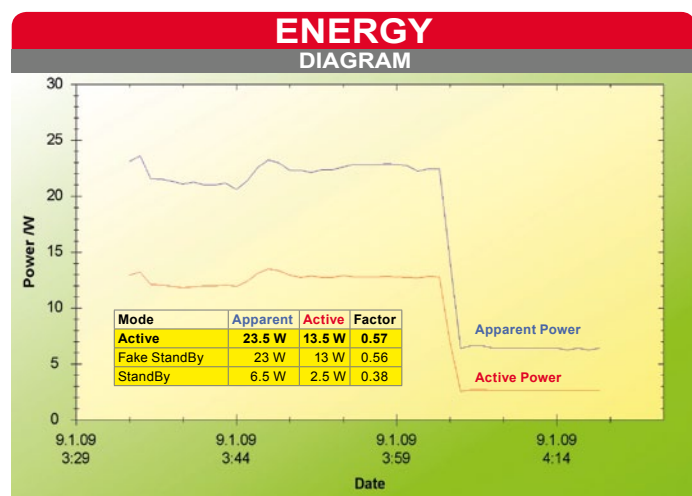
Thomas Haring
TELE-satellite
Test Center
Austria

Unfortunately, DVB-T2 is not supported



lessly thanks to top-quality hardware on the one hand, and the sophisticated and proven Spark software from Fulan on the other hand.

It all goes to show that so much attention to detail pays off in the end and leaves an everlasting smile on the face of happy users.



Energy: Active use with channel switching, recording, playback, etc. in first 15 minutes, followed by 15 minutes of fake standby and 15 minutes of deep standby.

TECHNICAL

DATA

Manufacturer	AMIKO EU
Website	www.amikostb.com
Model	Alien 2
Function	DVB-S2, DVB-T, DVB-C Triple Tuner PVR Receiver
Input frequency DVB-S2	950 - 2150 MHz
Input frequency DVB-T / DVB-C	VHF (170-230 MHz) UHF (470-860 MHz)
Symbol rates DVB-S2	2 - 45 Ms/s
EPG	yes
Video resolution	480i, 576i, 720p, 1080i, 1080p
DiSEqC	1.0, 1.1, 1.2, 1.3
RS232	yes
Ethernet	yes
USB 2.0	yes
CI Slot	no
Card Reader	yes (Conax)
HDTV	yes
MPEG4/H.264	yes
PVR	yes



Skyworth



HT21 DVB-T



- **Имеет такие же функции как и в «большом» ресивере**
- **Чувствительный DVB-T тюнер**
- **Обширное программное меню**
- **Функция записи через USB интерфейс**
- **«Футуристическое» меню**

A Mini DVB-T Receiver



Why should the housing of a receiver be unnecessarily big, clumsy and heavy when all of the electronics would take up no more space than 10.5 x 6 x 1.5cm? The engineers at Skyworth started thinking about this too and began working on developing a new DVB-T receiver. DVB-T, compared to satellite reception, is more perfectly suited for mobile applications because of its minimal antenna requirements. Just think: you could watch TV in the gazebo in your back yard, in your RV or in your summer home.

Of course, a receiver like this would also need to have a place in your living room and in this age of HDTV would also need to have a high-resolution A/V output.

When we opened the carefully packaged Skyworth HT21 DVB-T, we instantly had flashbacks of those mini receivers from the past. Back then they were fitted with Scart connectors; today's modern, HD compatible version from Skyworth comes with a short HDMI cable hard-wired into the receiver for connection to an LCD or plasma TV.

The receiver is not only inconspicuously small, but it also weighs a mere 92g. As for connectors, it comes with a DVB-T input, a looped-through output, a USB 2.0 interface as well as a connection for the external IR receiver. The IR receiver also has an integrated LED so that the user can easily identify what mode the receiver

is currently in. Because of its size, Skyworth had no room to integrate a power supply inside the receiver housing; instead it uses an external power supply. The overall workmanship of the receiver, the remote control and the IR receiver is quite exceptional.

Thanks to the practical installation assistant, the initial setup of the Skyworth HT21 DVB-T is actually quite simple. After selecting the OSD language (English, French, Italian, Portuguese, German, Spanish, Dutch, Swedish, Russian, Turkish, Farsi and Arabic), the receiver switches over to region selection.

Unlike satellite reception, there are small differences

in the frequency arrangements from one country or region to another. This makes selecting the correct location necessary so that a successful channel scan can be achieved by the user. The following choices are available: England, Germany, Italy, Spain, Holland, Sweden, Denmark, Finland, Poland and Iran. Once the user has made a choice, the completion of a scan across the entire frequency spectrum in less than a minute completes the initial installation.

The entire team here at the test center was completely fascinated by the OSD display of this new Skyworth receiver. The various menu entries and windows are presented in a modern, futuristic fashion. This is a





spark portal



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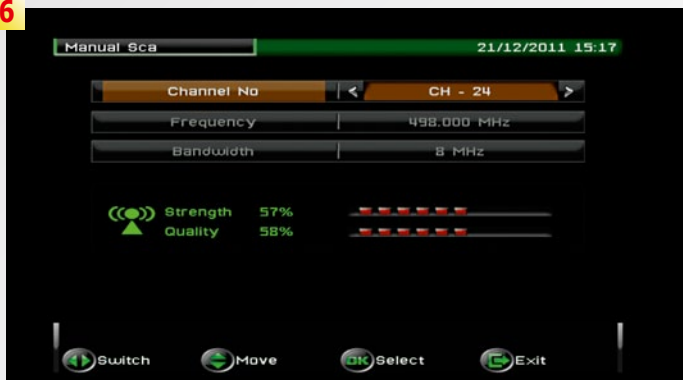
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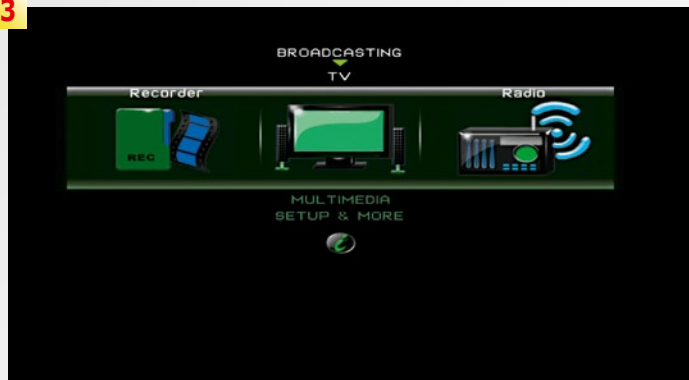
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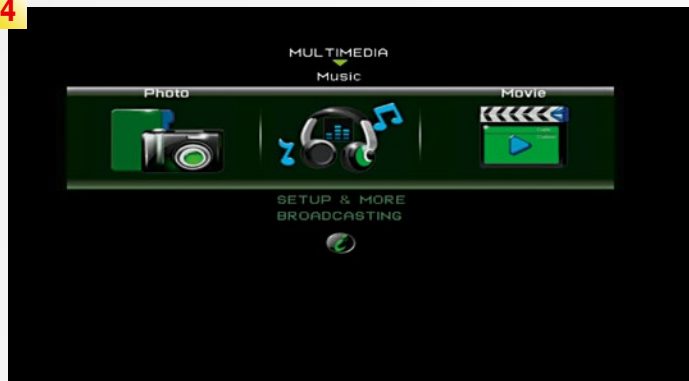
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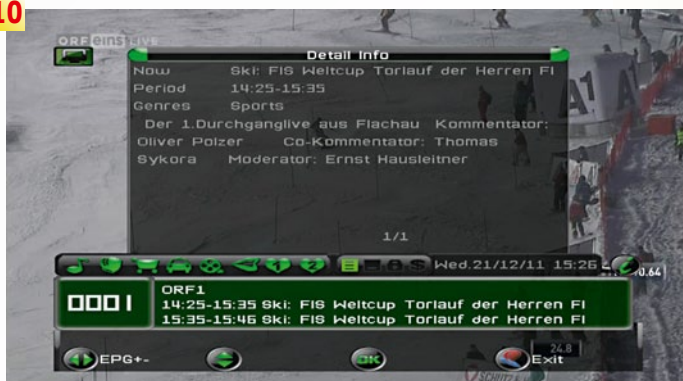
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14



welcome change from the format found in many other receivers!

Even the structure of the main menu left us with an overall positive impression. It is logically constructed and easy to use. While the main menu point is selected in the vertical level, you'll find the sub-menu selections in the horizontal level. At first this arrangement might appear to be unusual but you'll get used to it after only a short time and soon after won't want it any other way.

thing we wanted to do was test this receiver with our test equipment. For mobile applications, such as in an RV, this turns out to be a 22" LCD TV. But we also wanted to see how it behaved with a 55" plasma TV and whether it could really deliver incredibly sharp pictures via the HDMI interface. On the receiver side, the video output signal can be set to 720p and 1080i (each at 50Hz). You can also match the picture frame rate to your TV or display 4:3 programs on a 16:9 TV. A wide assortment of languages for the audio tracks and subtitles is an ab-

Naturally the very first

1. The Skyworth HT21 Installation Assistant
2. Automatic channel scan
3. Main Menu
4. The HT21 is a real multimedia machine with MP3 and video playback plus picture viewer
5. The HT21 can be matched with any equipment thanks to its broad settings capabilities
6. Manual channel scan
7. Setting the time
8. The HDMI video output can be set to 720p or 1080i (50Hz)
9. A calendar, a calculator and a video game round out the functional capabilities of this receiver
10. Info bar with information on the current and upcoming program
11. Current channel technical details
12. EPG Overview
13. Creating a timer entry
14. The internal teletext decoder



solute must have in any of today's digital receivers and should be integrated into a high-end product like the Skyworth HT21. The same is also true for the automatic time setting via the DVB-

number of available DVB-T channels will never be able to keep up with the number of satellite channels.

Skyworth still incorporated extensive channel list

ites lists. These Favorites lists cannot be individually named but are instead differentiated from each other by symbols. The channel list can also be sorted alphabetically, by PayTV/FreeTV or by frequency. Yes, this feature is available although you might find that you hardly ever use it.

The tuner in the HT21

unfortunately opted to do without a DVB-T2 tuner. We tested this with an HD signal in MPEG-4/H.264 on a DVB-T carrier and can confirm that it worked perfectly.

A momentary push of the OK button presents the channel list and after every channel change the receiver blends in, as we expected, an informative Info bar with in-



T data stream so that user merely needs to enter the time difference of the users location from UTC/GMT.

Despite the fact that the

editing capabilities into their receiver. The user can move channels around, rename them, lock them or delete them, or move them into one of eight different Favor-

does not support DVB-T2 so in many cases you might not be able to enjoy an HD picture. The HT21 can handle HD content but for some reason the manufacturer

formation on the current and upcoming programs. A push of the EPG button opens up a complete electronic programming guide that lists all the channels on the currently

Intelsat / GVF Type Approved

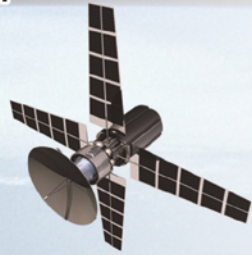
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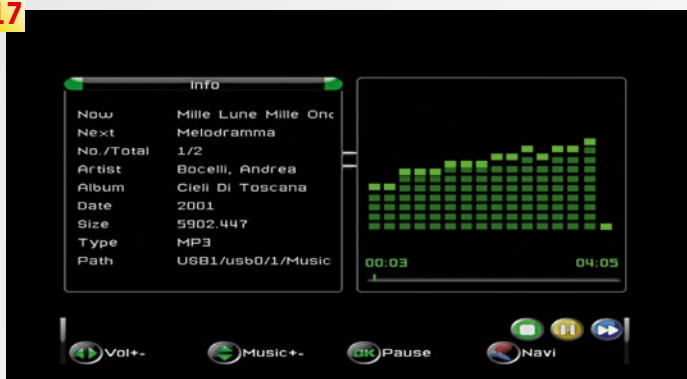
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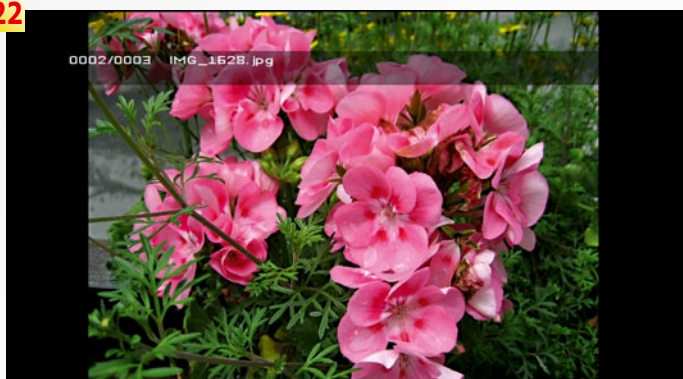
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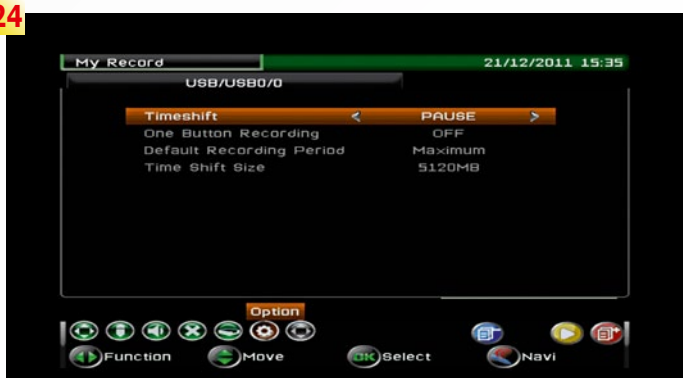
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24



25



30



26



27



28



29



15. Setting the length of a recording

16. Recording list

17. MP3 playback

18. Internet downloaded videos can be played back without any problems

19. DivX playback

20. MOV playback

21. Data Manager

22. Photos can easily be displayed

23. Photo selection

24. PVR settings

25. A wide assortment of editing capabilities are available for the channel list

26. Dubai Sports HD from one of our own modulated DVB-T frequencies

27. For our tests we set up a complete transponder from BADR 26° east as a DVB-T frequency for the Skyworth HT21

28. Saudi Sport 2 from BADR 26° east as received by a DVB-T receiver in our Austrian test center

29. All six HD channels from our „homemade“ DVB-T frequency were processed by the Skyworth HT21 without any problems

30. Saudi Sport 1 on BADR 26° east as received by a DVB-T receiver in our Austrian test center

selected frequency. But, as usual, this data is only displayed if the providers make this information available in the first place.

time when the interruption has passed. You won't miss a thing!

During our tests we also liked another feature in the HT21 that can be activated while watching TV by pushing the NAV button on the remote control. This feature allows you to select subtitles or various audio tracks and also lets you turn on the internal teletext decoder. A zoom function and diverse channel list editing capabilities are also available here.

We appreciated the ability to set up timer recordings directly from the EPG; the HT21 can be turned into a PVR-ready receiver simply by connecting an external storage device to the USB port such as a USB stick, an SD card or an external USB 2.0 hard drive. Since timer entries can be set to repeat on a daily, weekly or week-end basis, you'll never again have to worry about missing the next episode in your favorite TV series.

Thanks to the included time shift function, unexpected visitors or telephone calls won't interrupt your TV pleasure. The live TV program is simply paused and then restarted at a later

Since the HT21 is a receiver that is especially suitable for mobile applications, we tested it not only with our large rooftop UHF antenna, but also with a small rod antenna. As we have already seen in tests with other receivers, this small antenna can also deliver a strong enough signal for interference-free DVB-T reception. And with

the HT21 it was no different: the little Skyworth worked together with the small antenna very well and thanks to its error correction was able to provide for excellent TV reception even with weaker signals. Even when we created our own DVB-T signal in our test center and routed it to the HT21 through a corresponding modulator, the intentional error bits we added to the data stream did not bother the receiver's software at all. Additionally, the receiver proved itself even when the picture quality was reduced by our artificially introduced errors.

The HT21's PVR functions revealed the receiver's best side: previously recorded content could be played back without any problems or the

content could be transferred to a PC for further processing. The little receiver can even be used as a jukebox at a party. Thanks to its MP3 playback, it could create the perfect atmosphere at a celebration; its picture viewer could also set the right mood when showing your friends and family your latest vacation pictures on your TV. The Skyworth receiver can also playback downloaded movies from the Internet in DivX, MPEG, MOV and TS.

All of the features mentioned so far are even further enhanced by the ability to upload new software into the HT21 through a USB storage device so that new software from the manufacturer can easily and quickly find its way into the receiver.

While some users will pass the time during long commercial breaks by playing the integrated video game, others will take advantage

of the integrated calculator or calendar. Overall the Skyworth HT21 is a well-rounded receiver that we really enjoyed testing.

Expert Opinion



Thomas Haring
TELE-satellite
Test Center
Austria

Living room friendly receiver with excellent reception characteristics. The OSD is futuristic and a welcome change from the typical display found in receivers from other manufacturers. Thanks to the USB 2.0 port, the HT21 can with one hand be expanded to include PVR functions and yet its small size lets you easily slip it into your pants pocket so that you can take it with you in your RV or outside to your gazebo. Picture quality is excellent regardless if the HT21 is used with a 22" LCD TV or a large plasma monitor. The receiver's audio quality is also outstanding.

Unfortunately the built-in tuner doesn't support DVB-T2



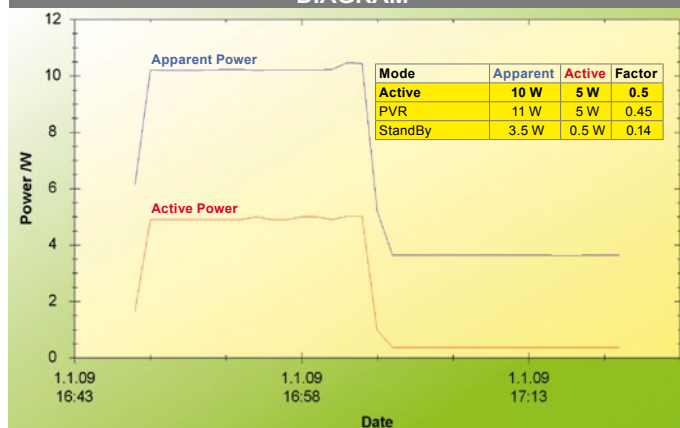
TECHNICAL

DATA

Manufacturer	Shenzhen Skyworth Digital Technology CO., LTD. Unit A 13-16/F, Skyworth Mansion, Gaoxin Ave. 1.S. Nanshan District, Shenzhen 518057, China
Email sales	ganweicai@skyworth.com
Internet	www.skyworthdigital.com
Tel	+86-755-26010018
Model	HT21
Function	Very small DVB-T PVR Receiver with HDMI
Input frequency	VHF (177.5 bis 226.5 MHz) UHF (474-858 MHz)
EPG	yes
Supported standards	DVB-T
Video resolution	720p, 1080i 50 Hz
RS232	no
Ethernet	no
USB 2.0	yes
HDTV	yes (only via DVB-T)
MPEG4/H.264	yes (only via DVB-T)

ENERGY

DIAGRAM



The first 15 minutes: active use with channel switching as well as recording and playback via the USB 2.0 interface. The second 15 minutes: standby

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- *Интересная особенность: прямой доступ к сервисам доставки*
- *Полный выход в интернет посредством браузера*

park

Spark



Apps That Expand the Functionality of Spark Equipped Receivers

Thomas Haring

exactly where Fulan stepped in and created a solution to this problem with their Spark software – the Spark App Store.

By clicking just one button on the remote control, the owner of a receiver outfitted with Fulan's Spark software can open the Spark Portal. Once inside the portal, all of the downloaded and installed apps are displayed as well as a button to access the Spark App Store plus a dedicated menu for various basic settings. This allows the user to filter the displayed Apps to specific languages (currently English, German, Hungarian, Polish, Arabic and Dutch) and also block out adult-oriented Apps.

The Spark App Store itself is divided into the categories Hot, Video, Sports, News, Tools, Game and Music. This makes it much easier to find the particular Apps you're looking for. You can also just take a look at the Hot category to see what the most popular downloads are from other users.

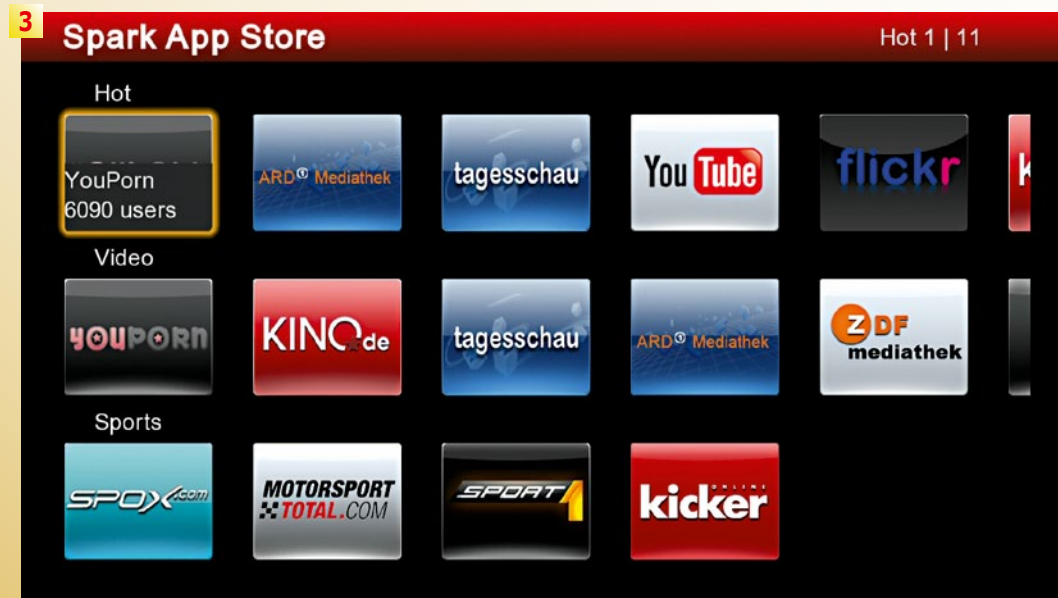
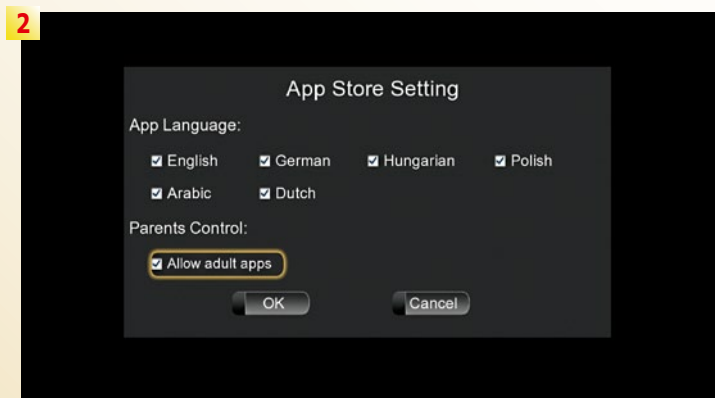
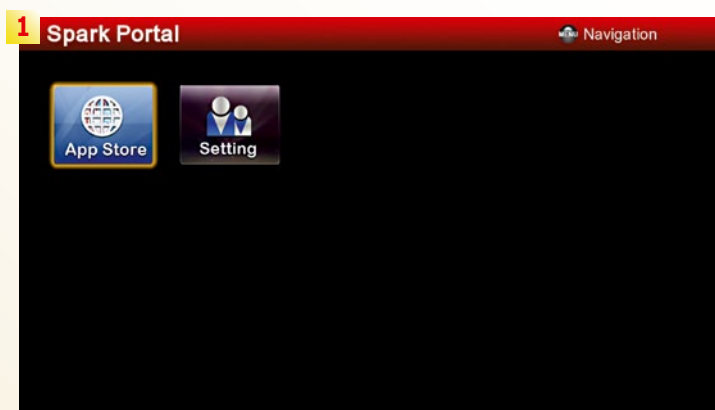
As soon as you select an App with the buttons on the remote control, a counter appears identifying the number of times that App has already been downloaded. We also liked that the Spark App Store can not only be organized vertically by category but can also be scrolled horizontally. In this way Fulan is able to offer the greatest number of Apps while at the same time presenting them in the best possible overview. Coming up we will be introducing the most interesting Apps to you.

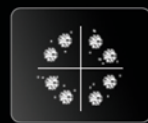
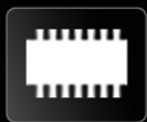
For German speaking TV viewers you'll find the Mediatheks of the two large German TV channels ARD and ZDF as well as Apps for the most viewed content such as the German news broadcast Tagesschau. You'll also find other European broadcasters such as the joint German/French channel ARTE with their own Apps.

For international TV view-

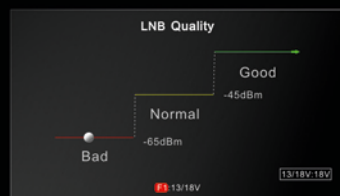
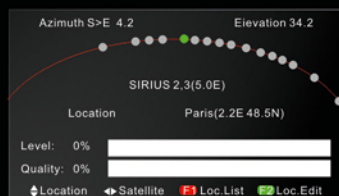
The idea of including an App interface in a digital receiver so that external programmers can expand the software of their receivers isn't exactly new. Some manufacturers have been including just such a concept in their boxes for years already but a weak spot was always the downloading of these little programs. Most of the time they were scattered over dozens of websites and even if a manufacturer went to the trouble of creating a collection of them on their own website, these Apps still had to first be downloaded to a PC and then transferred to the receiver. And this is

1. The Spark Portal in its delivery state
2. Spark App Store settings
3. The Spark App Store is divided into multiple categories





DVB S2



Installation Meter & Full Measurement for DVB-S2

Real-Time and Multi-Analyzing Spectrum

Constellation Chart

LNB Test MDU & Unicable

BER, S/N(MER),FEC Measurement

Auto Search,Blind Search,NIT Search,Manual Search

Satellite Name & Degree Auto Detective & Display

Auto DiSEqC1.0/DiSEqC1.1/DiSEqC1.2,USALS

Local satellites list showing automatically

Easy upgrading by Ethernet & USB & RS232 Port

Satellite List Editable by Editor via PC

Li-ion Battery(2350mAH), last 6 hours, Fast Charge(2 to 3 hours)

Accessories: Adaptor,Car Charger,upgrading cable,AV cable,

Water-Proof Bag,Compass,User Manual

Size:162x100x42(mm) Weight: 0.45kg

Tiny But Mighty



Xtra-S

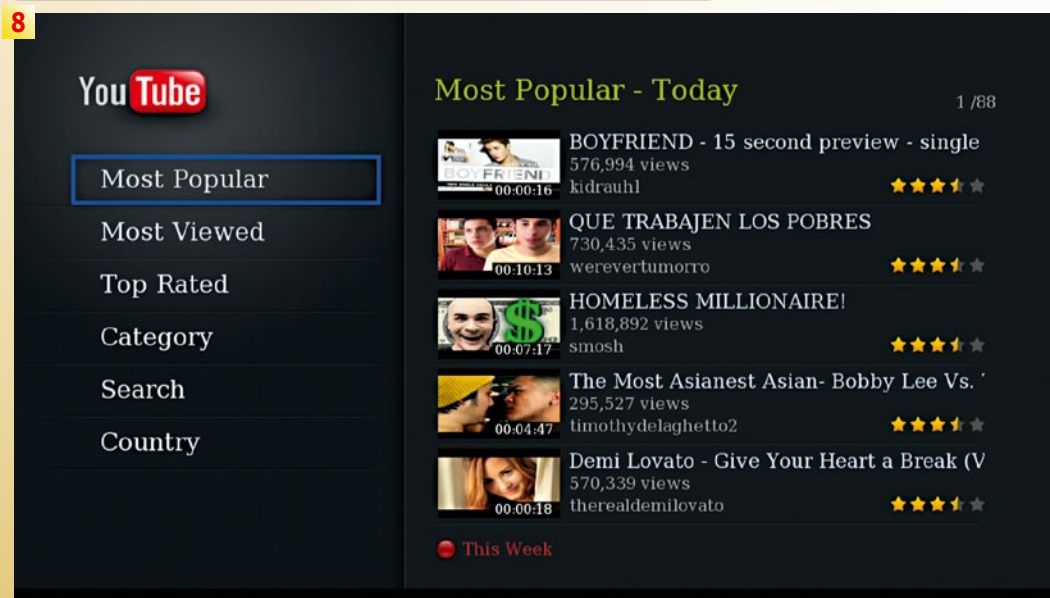
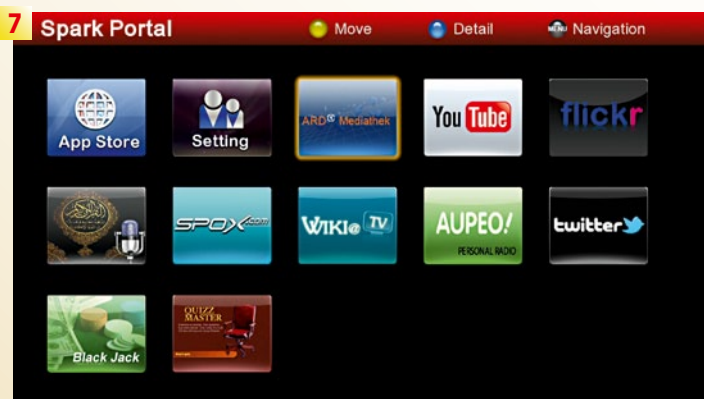
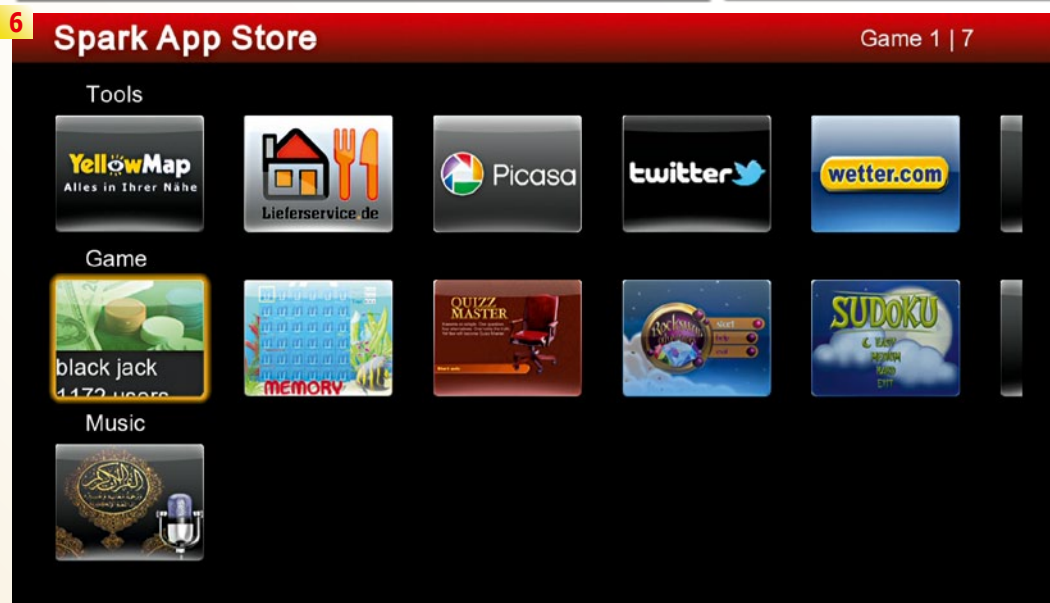
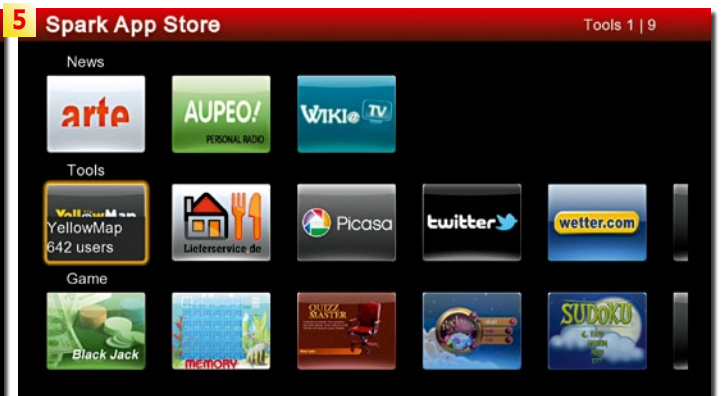
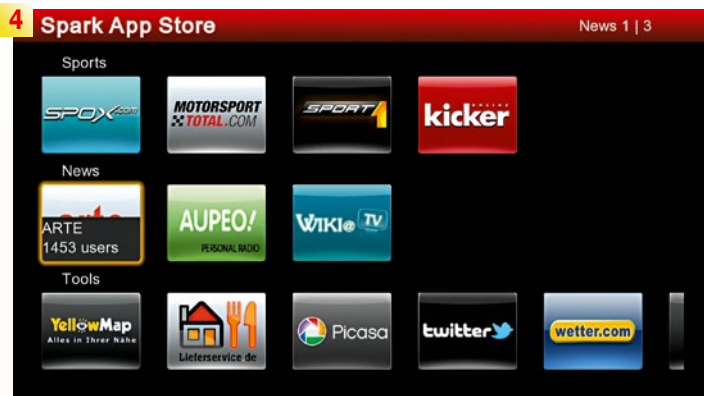
Minisat-plus S2/NIT DSS

Minisat-basic S2/NIT



Worldwide Dealers Are Welcome, And Your Sales Territory Will Be Well-Cared

Milestone DTV Device Creator



Since the Spark software works with HDTV receivers, the YouTube App can display video clips in resolutions up to 1080p. That makes YouTube a lot of fun!

The photo site Flickr also has an App in the Spark App Store and thereby provides access to your own pictures, your friend's pictures or all of the freely available content on the Web. The photos can be shown in full-screen mode or in a slide show. We especially liked how fast the pictures were displayed and how easy it was to use the App.

ers there's, of course, the YouTube App. We especially liked this; it comes with a variety of rich features such as the sorting of displayed videos by "Favorite", "Most Viewed" and "Top Rated" as well as restrictions based on category or country. There's also a search function that helps you find exactly the video clip you want.

And all you sports fans out there don't have to worry either; numerous sports-related Apps are also available in the Spark App Store. For example, there are Apps

4. In addition to news services, Apps such as Twitter and Picasa are also available

5. Exciting games pass the time during commercial breaks

6. The selection in the Spark App Store is already quite extensive

7. Our receiver's Spark Portal after we filled it with Apps

8. The YouTube App lets you display videos from different categories

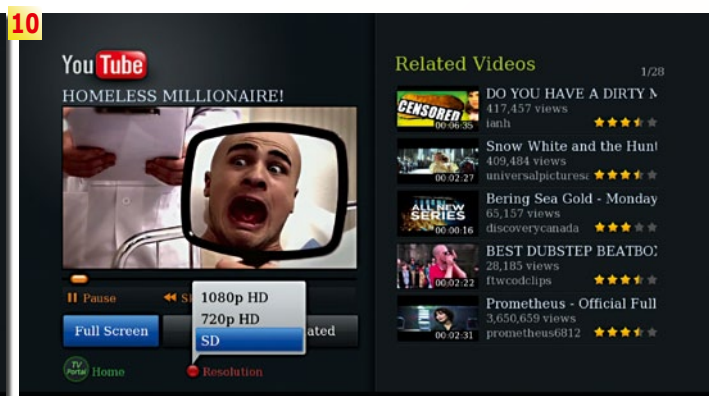
9. A country search fine tunes the YouTube search results

10. The YouTube App supports resolutions up to 1080p resulting in extremely sharp video clips

11. The Flickr photo service also has its own App and its simple operation shines

12. Flickr lets you comb through millions of pictures and find what you want with ease

13. Apps with extensive info and video clips from the world of sports can also be found in the Spark App Store



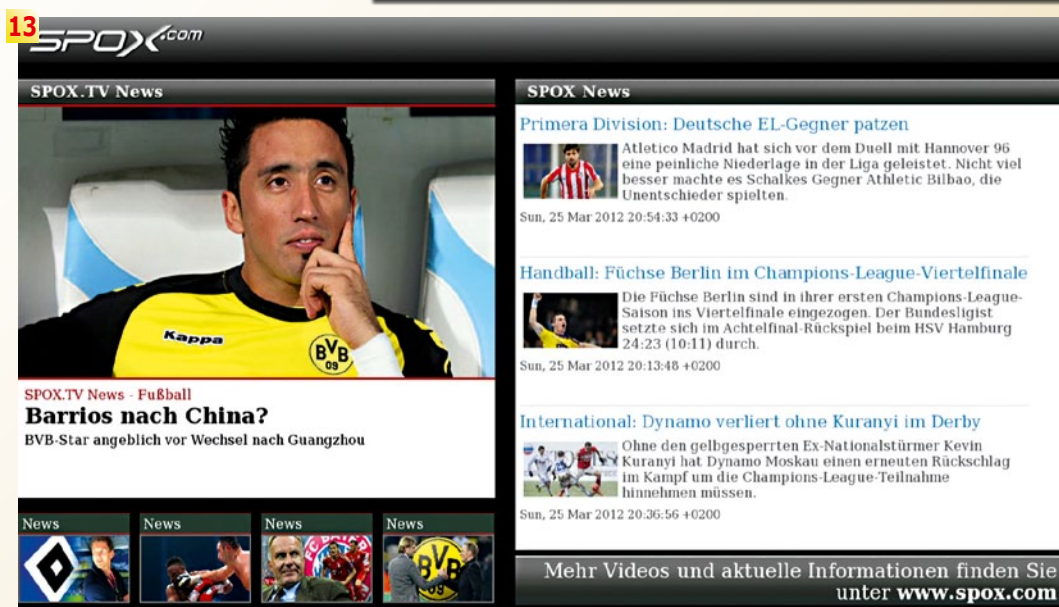
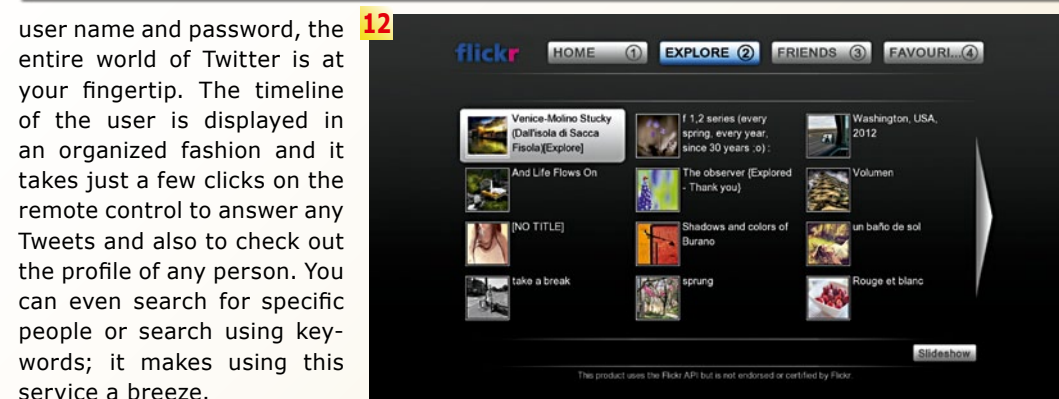
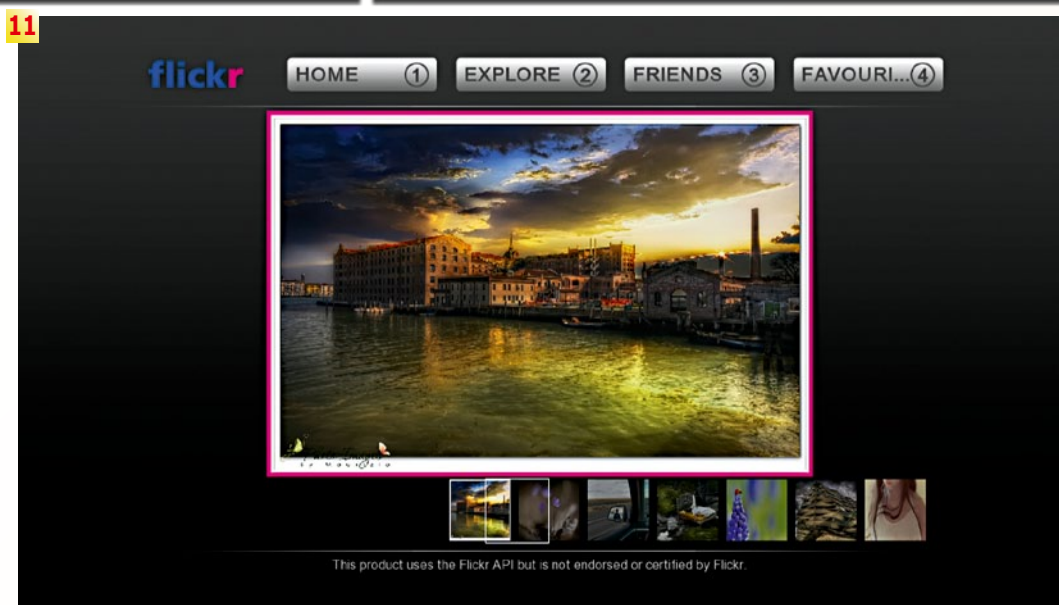
related to soccer and motor sports or the video portal spox.com that provides information and video clips for nearly every type of sport.

A unique highlight would have to be the Wikipedia App. If you come across an unfamiliar word or technical term during an exciting TV documentary, you can quickly have a look in Wikipedia. With the Spark software and the Wikipedia App, the user has complete access to the entire free Internet encyclopedia database with just a few commands from the remote control.

We were also pleased to see that the Spark software's OSD keyboard supported multiple languages and their language-specific character sets whether it's, for example, German umlauts or special Norwegian or Dutch characters. There's even a Cyrillic, Greek or Arabic keyboard available. In this way (nearly) every user can use the Apps regardless what language he/she speaks; it lets you use Apps like Wikipedia to the fullest extent.

The display of search results inside the Wikipedia App is very practical; as you're typing in search criteria, possible results are shown on the right side of the screen.

There are many of us out there that use social networks these days. If you happen to be sitting on the couch and discover an interesting movie to watch, wouldn't it be great if you could tell your friends about this discovery? Thanks to the Twitter App, it's no problem at all. After entering in your



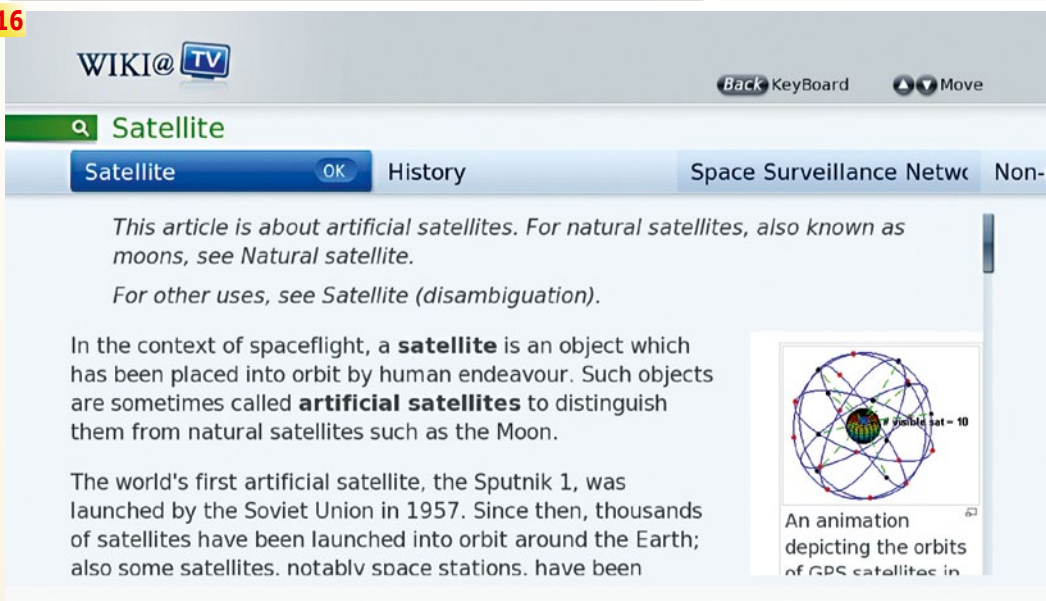
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16

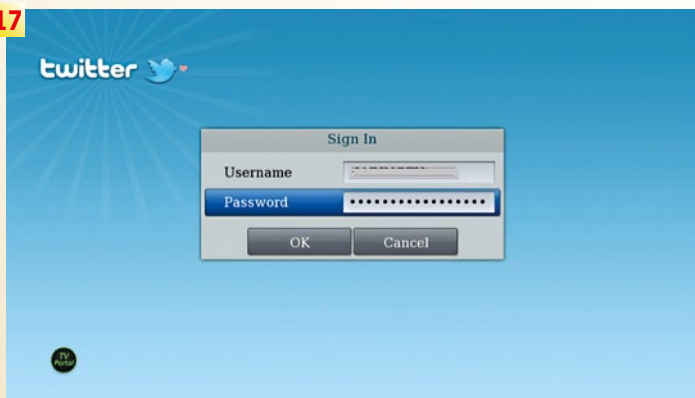


often quite difficult. Or did you already know how many muscles a cat has in each ear?

Other noteworthy Apps we found included Weather or Picasa (Google's own photo service) and let's not forget to mention this App: You-Porn. More than likely you can figure out for yourself what this App is all about.

Last but not least we want to introduce an App to you that we really didn't expect to find in this forum: namely Delivery Service. Yes, you read that correctly.

17



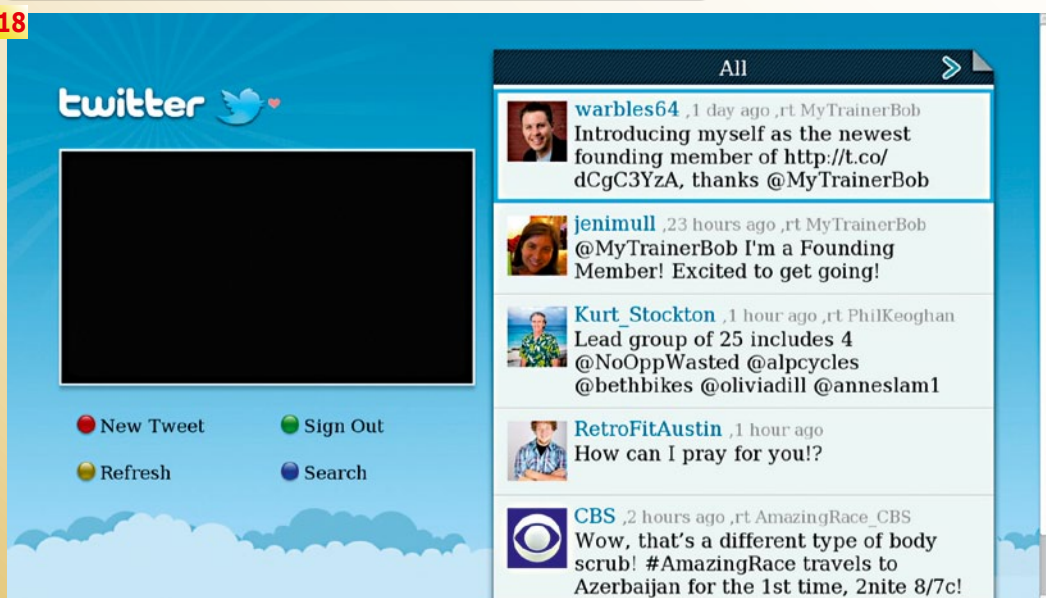
For most TV viewers commercial breaks are undoubtedly annoying. One way to pass the time during these breaks is to play games. Even here the Spark App Store has what you need; game Apps such as Black Jack or Quizzmaster are available. We found Quizzmaster to be especially interesting; the questions posed to users are not only creative but they're

With this App you can order anything from a classic pizza to oriental food up to and including Gyros. That's right, you can order anything to eat directly from your receiver and in less than 30 minutes the delivery guy will knock on your door at home.

There's only one limitation: this Spark App is only linked to Lieferservice.de and takeaway.com and so can only be used in a few European countries. The graphical presentation and above all the choices available in this App are excellent.

After entering in your postal code you're instantly presented with a list of all orderable products as well as

18



14. The Spark App platform's OSD keyboard supports the special characters from many different countries

15. The Wikipedia App begins showing results in a side bar during a search

16. The results of a Wikipedia search are easily readable within the App

17. Twitter Login

18. Twitter Timeline

MULTISWITCH



9 In 16 Out
Satellite Multiswitch



5 In 12 Out
Satellite Multiswitch



13 In 24 Out
Satellite Multiswitch



17 In 32 Out
Satellite Multiswitch



Gecen®

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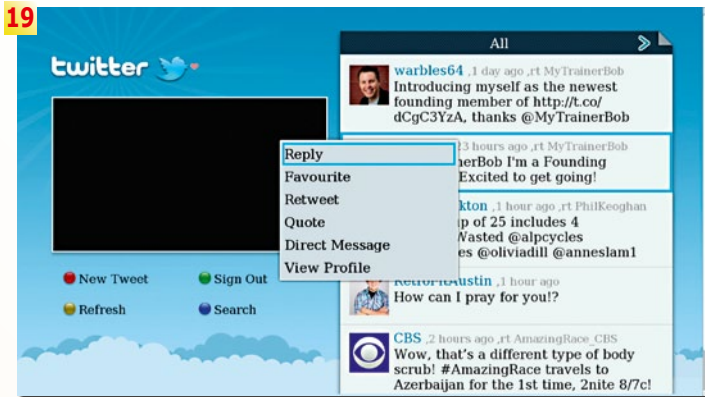
Add: Hi-Tech Zone, Zhuhai China

Tel: +86-756-3631088 3631089

Fax: +86-756-3626108

Http://www.gecensat.com

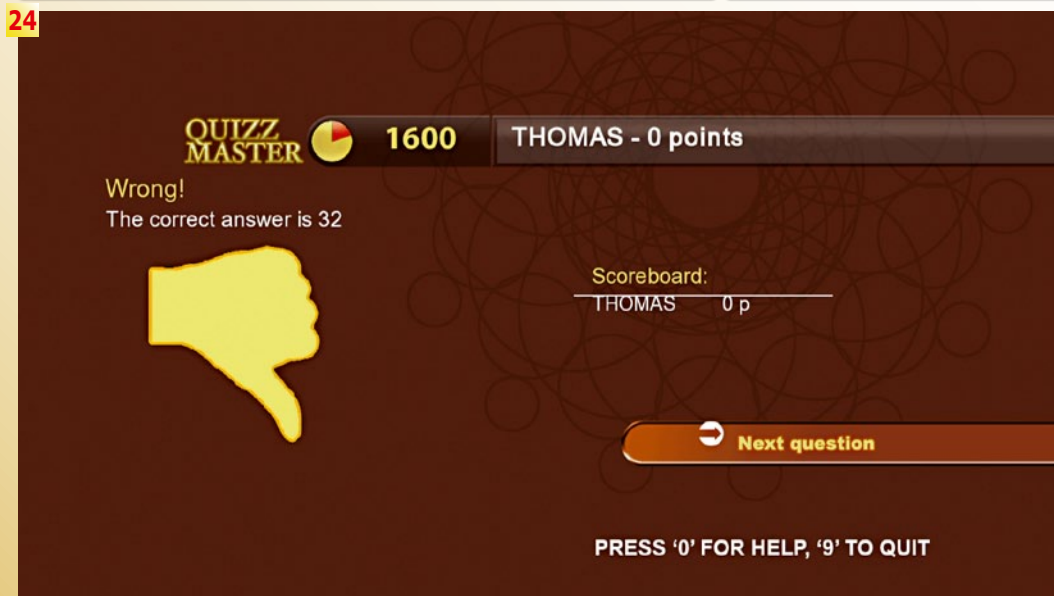
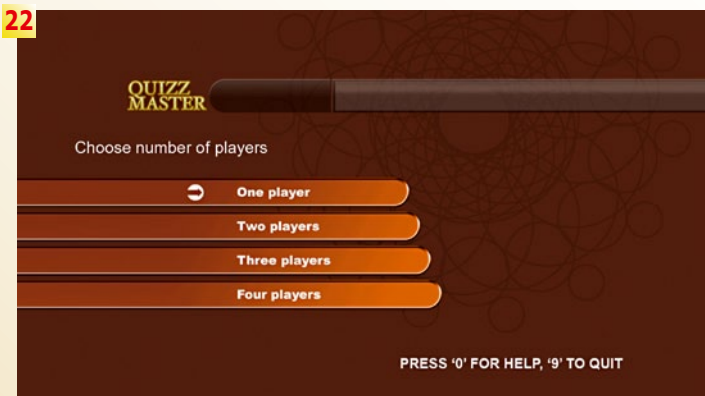
E-mail: gecen@vip.163.com



the providers. If you're ordering a pizza you can even add your own individual toppings.

This is especially practical when you're like us here in the test center and like to eat a salami pizza with chili and onion toppings; it's a combination that you don't typically find on every menu.

To round it all off, the functional capability of the Spark Portal is further enhanced by the integrated Opera browser that provides complete access to the World Wide Web. A dedicated menu bar



19. A new Tweet can be started or the profile of a user can be viewed with just one push of a button on the remote control

20. Black Jack is an enjoyable pastime during a commercial break

21. The Black Jack App is pleasing to the eye graphically and also easy to use

22. The Quizzmaster App can be played with up to four people

23. The Quizzmaster App questions are funny and occasionally difficult

24. This turned out to be nothing...

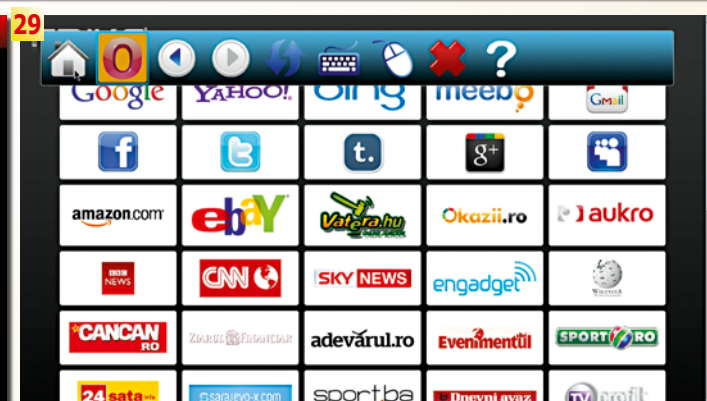
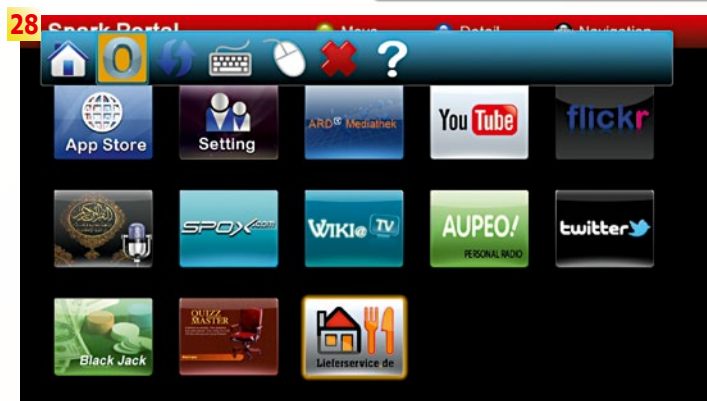
25. The Delivery Service App provides you with all kinds of food and snacks



at the top edge of the screen (that can actually be called up in any App) makes it possible to navigate within the Spark Portal and also lets you turn the OSD keyboard on or off as well as activate/deactivate the mouse pointer.

We enjoyed taking a closer look at the Spark Portal and the Spark App Store.

Thanks to efficient hardware and the clean programming of the Apps, they are all fun to use and lift the already outstanding Spark software to a higher level.



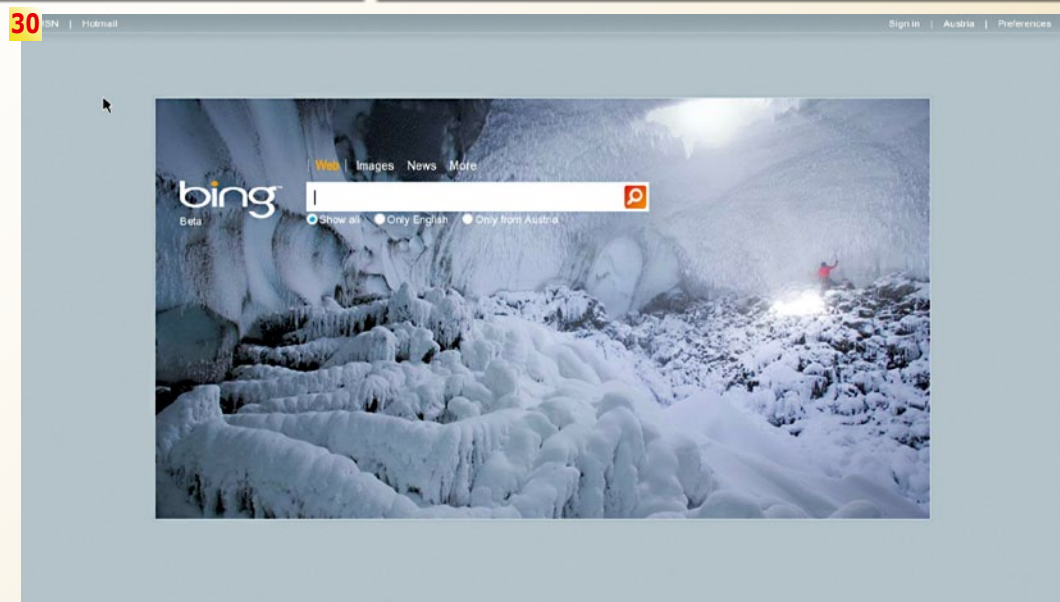
26. You can order a pizza from the standard menu...

27.or you can custom order a pizza with your favorite toppings

28. The practical navigation bar at the top of the screen lets you start the Opera browser and also lets you turn the OSD keyboard and mouse pointer displays on or off

29. The Opera browser comes with a start page with links to many well-known and popular web sites

30. The Microsoft search engine Bing as seen through the integrated Opera browser



My Videos

My Music

My Pictures

My UPnP

Раскрываем секреты AZBox ME Super Box

- Простая интеграция с домашней медиа сетью
- Ресивер показывает фильмы, проигрывает музыку и показывает статические изображения
- Возможность вставки субтитров в фильмы
- Возможность создания музыкальных плей-листов





Часть 2: Мультимедиа

Multimedia with the AZBox ME

Vitor Martins Augusto

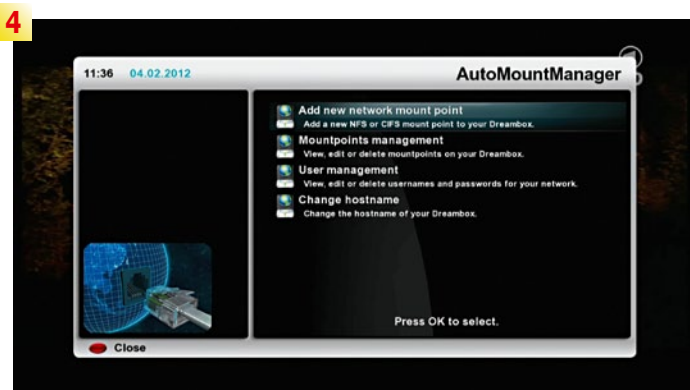
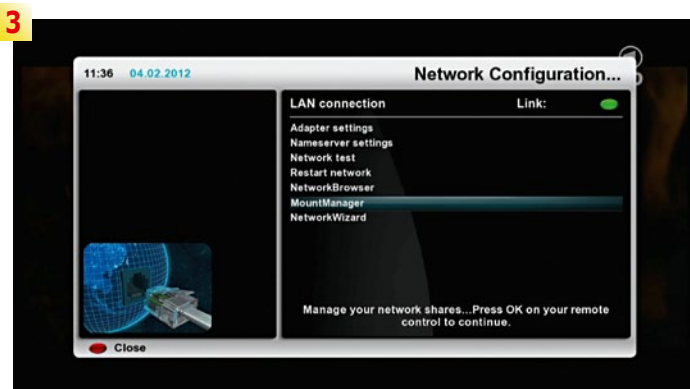
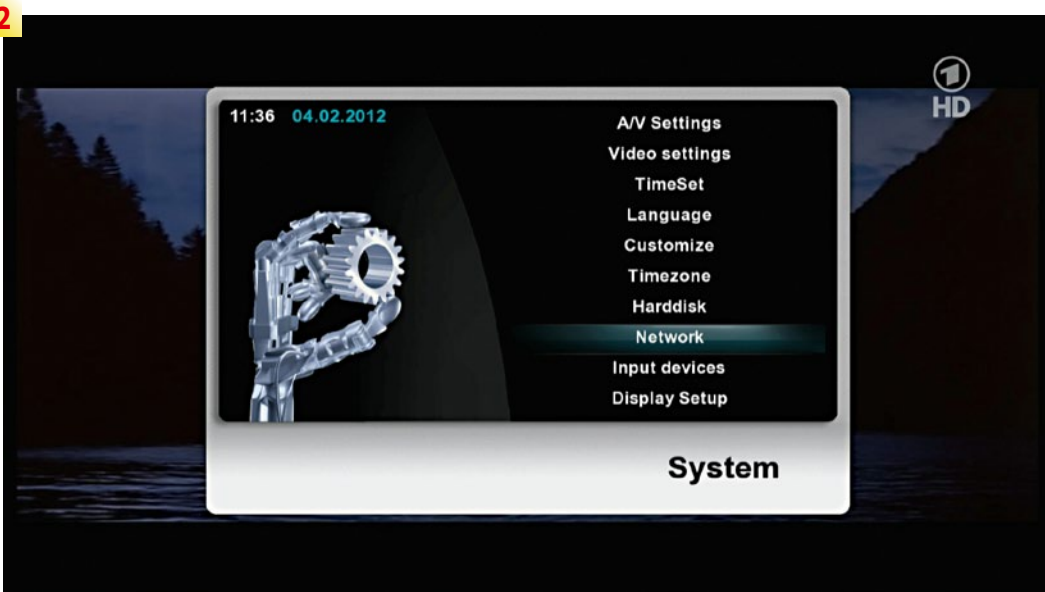
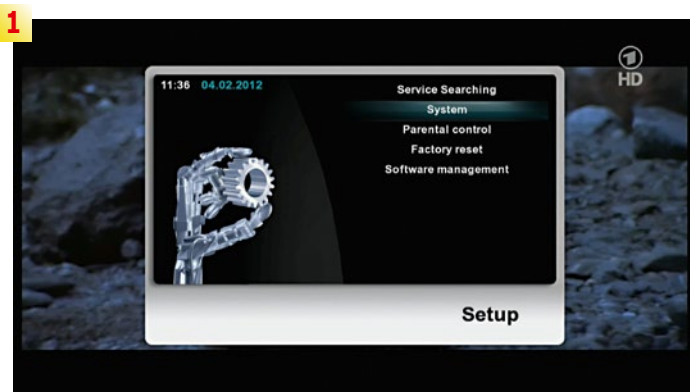
We already found out that the AZBox ME thrills feed hunters and DXers thanks to its outstanding reception capabilities. Now we look at another aspect and explain how this receiver pleases multimedia enthusiasts just as well. No matter what popular file format you throw at it, the AZBox ME will happily accept films, music and photos.

The easiest way to enjoy multimedia is to copy files to the internal hard disk of the AZBox ME using an FTP client. Nothing wrong with that, but these days there's often more than one TV in an average home and wouldn't it be nice to have access to multimedia content from the living room, study, bedroom or any other place you use for watching TV? In addition, it doesn't always make sense to copy huge file loads to the internal disk of the receiver.

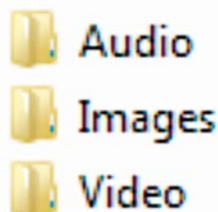
There's a convenient way out: You can decide not to store multimedia files locally in the receiver or media player itself, but rather create a central server which hosts

your multimedia content. Any Windows or Linux PC may be used as server, or you can opt for a ready-made Network Area Storage (NAS) product, preferably with Samba and NFS compatibility.

No matter which option you prefer, both feature the Microsoft Windows Network protocol that is recommended for our setup. In case Server Message Block (SMB) or Common Internet File System (CIFS) ring a bell with you, these are the two more commonly used names for the Microsoft Windows Network protocol. The Open Source community has emulated this protocol and distributes it under the name Samba. For average users at home this means that SMB, CIFS and Samba are basically the same protocol and



Multimedia



will be supported by Windows XP, Windows Vista and Windows7.

Since the AZBox ME supports this protocol as well it can be used to conveniently

access a central server and obtain files for playback from there. For that to work, however, it is necessary to create a network share on the server so that clients are given

permission to access certain directories and files on the server.

As you will see from our example, the AZBox ME should be granted access to a certain directory on our Windows7 computer. We named that specific directory 'Multimedia' and created three sub-directories within the 'Multimedia' directory, namely:

- 'Video' for video files
- 'Audio' for audio files
- 'Images' for pictures

It is best to set up Windows7 in a way that allows manual configuration of network shares. This is the only way to quickly determine whether read, write and read/write permissions are to be granted for files within a network share. We recommend read-only permission for all types of media clients – this way you can happily give the remote to your kids or technically challenged members of your family without having to fear your precious files might inadvertently get deleted by the end of the day.

Next, a user account has to be created for network access. Depending on your personal requirements or preferences you may choose to create either one general account for all media clients, or an individual account for each specific client. Both options come with certain advantages and drawbacks:

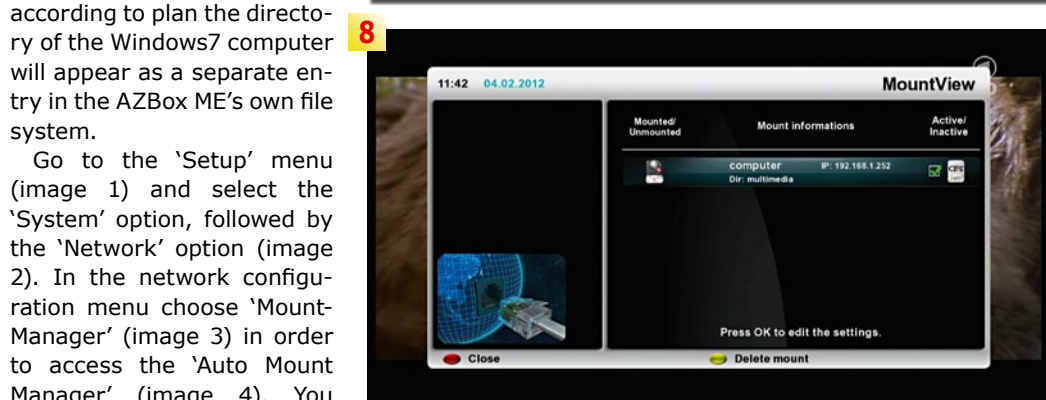
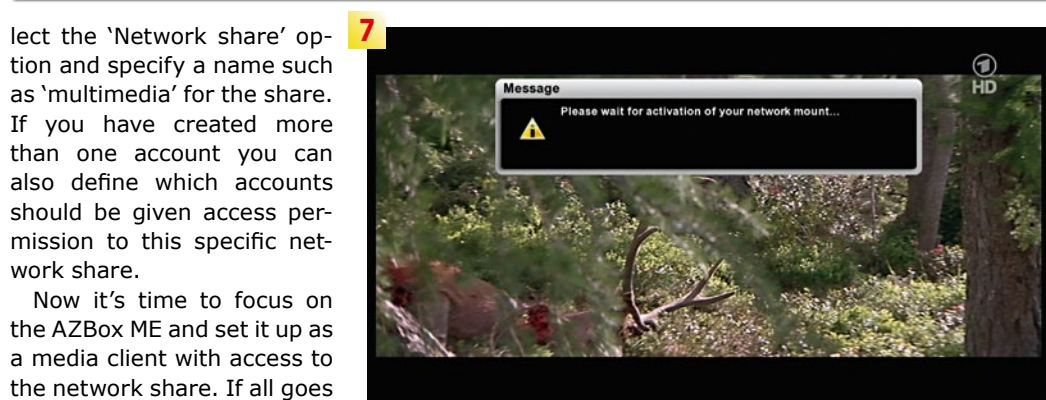
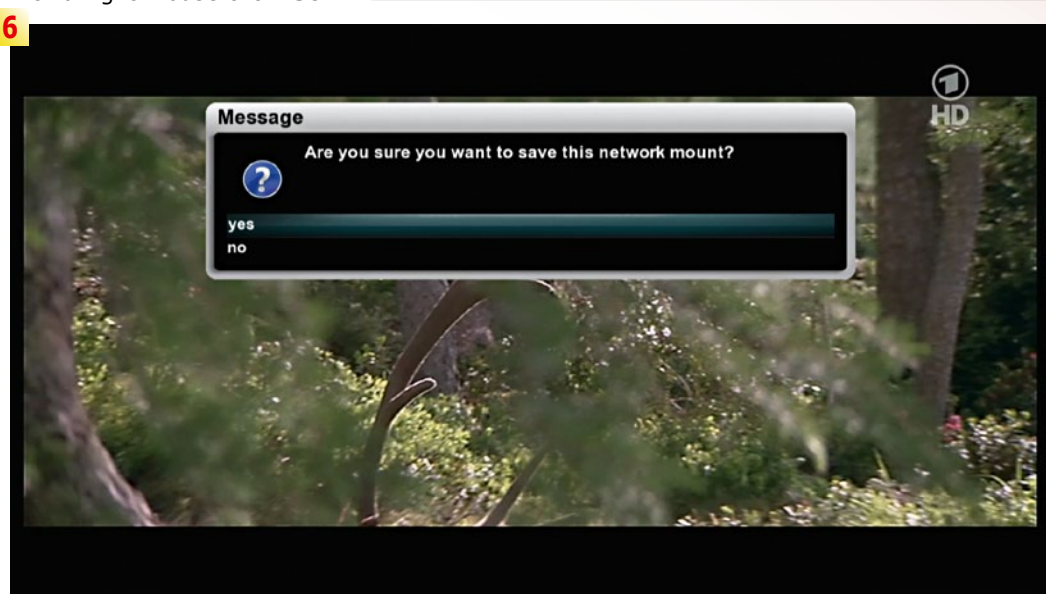
- One account for all media clients: You might like the fact that you're ready to go in a flash since only one account has to be set up. Please note, however, that this means all clients have permission to access the same directories and files.

- An individual account for each media client: This involves a little more work in the beginning, but you are then able to make sure your kids can only watch and listen to content that is located in a specific directory, for example.

No matter how you manage access to content, you need to specify a password in any case because Windows7

only permits network access through password-protected accounts.

Finally, the selected directory (which in our case is the directory with the name 'Multimedia') has to be flagged as a network share directory. Simply mark the directory and call up the context menu with a right mouse click. Se-



1-8. Installation

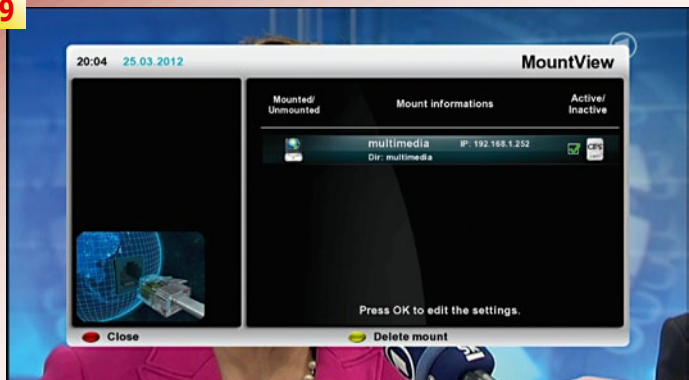
as required (image 5):

- Local share name: Specify a name for the network directory – this is how it will appear in the media player's

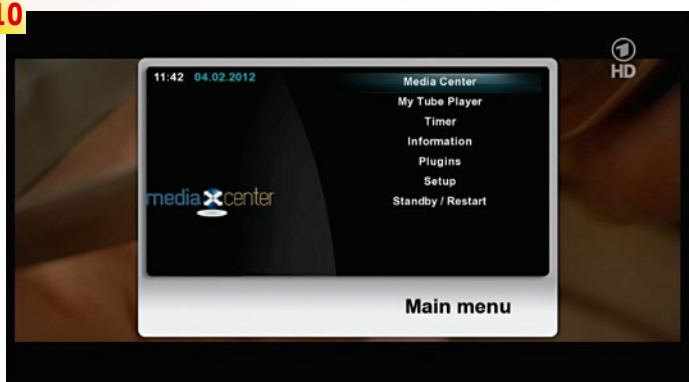
file system. You may want to use 'mediaserver' or 'computer', for example.

- Mount Type: If the SMB/CIFS/Samba protocol is used

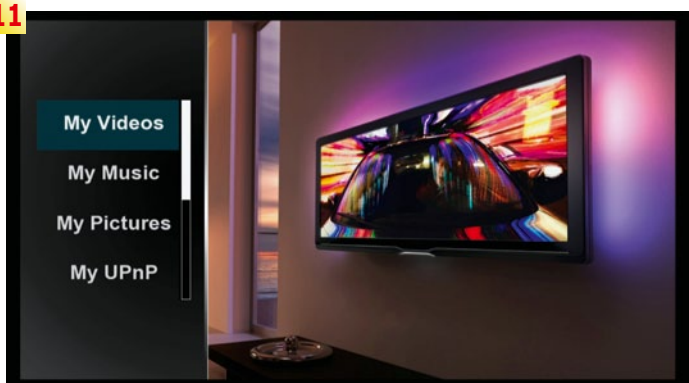
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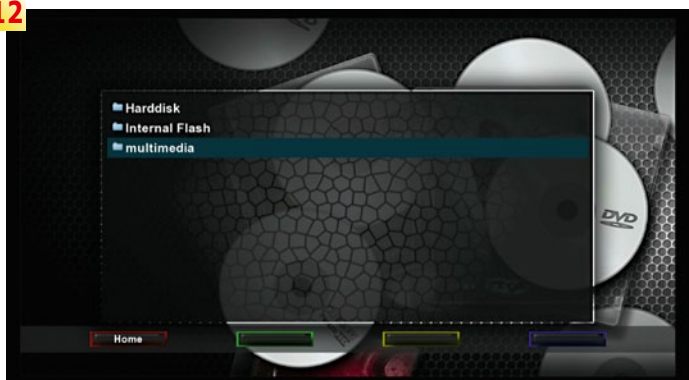
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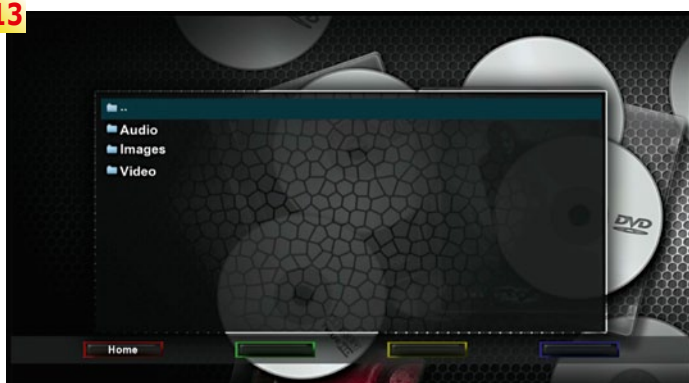
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12



13



(as in our case), select 'CIFS share'.

- **Server IP:** Enter the correct IP address of the server here. You can find that address in the server's network configuration. A word of caution: In case your server obtains its IP address from the router via DHCP you should make sure the server is always assigned the same IP address!

- **Server share:** Enter the name of the network share, in our example it is 'multimedia'.

- **Use as HDD replacement:** If your AZBox ME is equipped with an internal hard disk it is best to select 'no'. If you choose 'yes' you may use your network connection as a kind of virtual hard disk for recordings.

- **Mount options:** We have already defined read/write permission when setting up the network share on the server, so it is best to leave this option as 'rw'.

- **Username:** Enter the name of the account that you have set up on the server.

- **Password:** Enter the password for the corresponding account.

If you are then asked whether or not to save that configuration you should of course confirm with 'yes', unless you want to discard all settings you just made (image 6).

After a screen asking you to wait for a few seconds (image 7) you should see a refreshed list with all network directories. Please make sure the hard disk icon to the left does not have a red cross (image 8), since this would indicate a problem with the network share. If you're faced with such a situation we recommend a thorough Google search for 'windows7 samba problem' which should provide valuable assistance. Unfortunately, there are numerous different causes for failed network access – in many cases Windows7 will only al-

low connections using 128bit encryption by default and this (as well as most other issues) has to be addressed in Windows System Control. We set up network shares for our AZBox ME on a number of different computers with varying degrees of success. On some machines everything worked brilliantly right away, while on others we had to dig into the network options.

If you're more of an instant gratification type we recommend you use a PC with Windows XP. This operating system comes with much fewer security restrictions and you'll be able to set it up as a content server for the AZBox ME almost in an instant. Don't blame Microsoft for increased protection of its more recent operating systems, though: It merely reflects today's demands in terms of access protection and data security.

As soon as you can see a clear hard disk symbol on your screen (image 9) you know your network configuration has been successful and your AZBox ME can be used as a media client.

From now on the AZBox ME media center will automatically show a new directory whose content is actually on the server. Everything you move or copy into this directory – no matter whether it's files or new subdirectories with films, music or photos – will be available on the AZBox ME and can be played back on the TV.

You might ask yourself at this stage where legal content comes from? Quite simply, from www.archive.org. On this portal you can find 100% legal content such as movies, music and even books whose copyright protection has expired. Newer content is available as well, provided free of charge from some authors.

We use the portal on a regular basis to download all sorts of films and videos that are compressed with different codecs so that we can find out in our test center

9-10. Installation
11-13. Video

THOMSON

Evolution.
Emotion.
Passion.



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Seit über 120 Jahren ist die Marke THOMSON wegweisend in der Unterhaltungselektronik und bekannt für innovative, qualitativ hochwertige Produkte der neuesten Technologie. STRONG ist Spezialist digitaler TV-Empfangssysteme und Lizenznehmer der THOMSON Receiver, die in Europa über den Einzelhandel vertrieben werden. Brillanter Empfang, außergewöhnliches Design und eine Vielzahl an komfortablen Funktionen prägen das Produktsortiment für den Empfang über terrestrische Antenne, Satellit und IPTV sowie das dazu passende hochwertige Zubehör.

DVBS

DVBS2

DVBT

DVBT2

STRONG
DIGITAL TV

STRONG Ges.m.b.H.
Franz-Josefs-Kai 1
1010 Wien

Tel.: +43 1 581 02 32
Fax: +43 1 581 02 32-40
www.strong.tv

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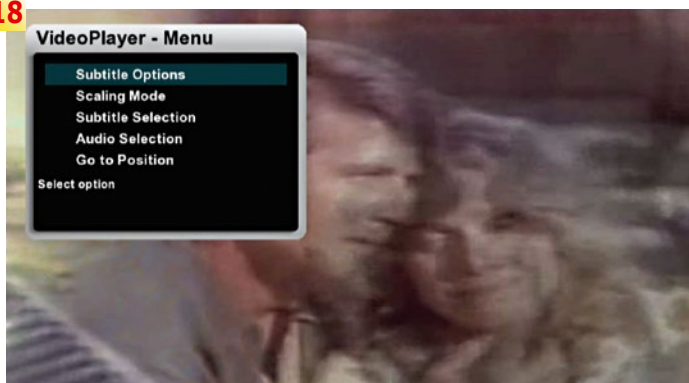
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18



how receivers we review deal with different material.

Our first task for the AZBox ME media player was the infamous movie 'Planet 9 from Outer Space'. Directed by Edward Wood this film is regarded by many as the worst of its kind ever. Interestingly enough, it is that bad reputation that has helped it gain so much dubious fame. Our version was an mp4 file made up of H264 – MPEG4 AVC video with a resolution of 640 x 480 pixels and MPEG AAC audio with 48kHz stereo.

The AZBox ME seemed to be perfectly happy with those technical specs and so we decided to while away for an hour or two and 'enjoy' what is judged the worst film in motion picture history. In case you care about our final verdict: We've already seen worse than that...

Next up was 'Captain Kidd' from the year 1954. The version we downloaded came in an AVI container consisting of MPEG4 (XVID) video and MPEG3 audio. Once again, we could watch the film without any flaws or glitches.

We even discovered and downloaded a subtitle file for 'Captain Kidd', which only needed to be saved with the same file name as the movie plus *.srt extension. When you watch the film the SUBT button on the remote will call up and/or cancel the subtitles on screen. We loved that size, appearance, positioning and even colour of the subtitles can be customised according to your preferences. In case audio and subtitles are not in sync it is possible to increase or decrease the delay factor.

It is unbelievably convenient to (legally) download a film to the PC, copy it into a directory and have it available for all media clients within the network. That's exactly how a media player should work and it's how the AZBox ME actually does work. Mission completed. Period.

14-21. Video

22-24. Music

25-28. Images

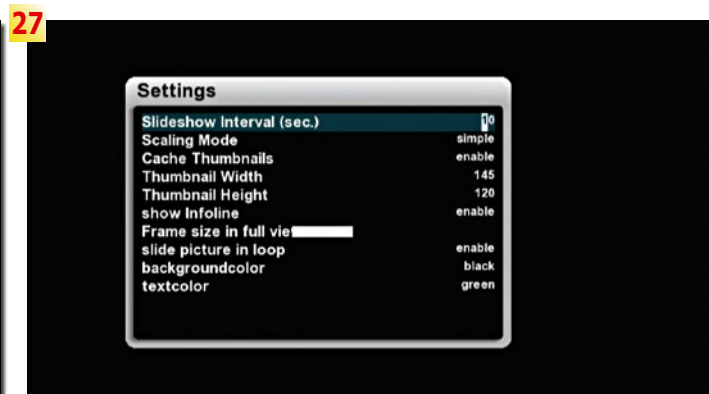
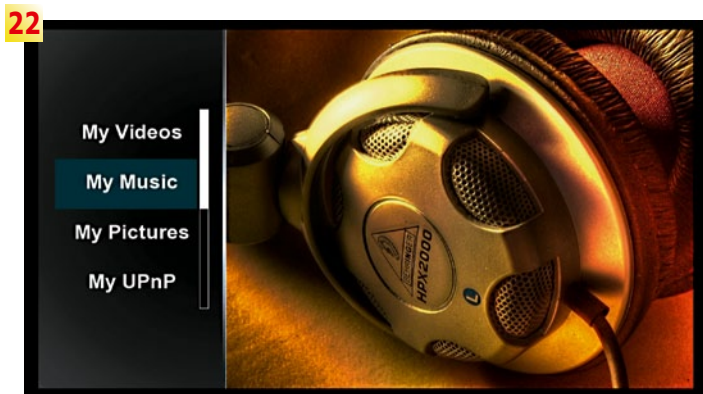
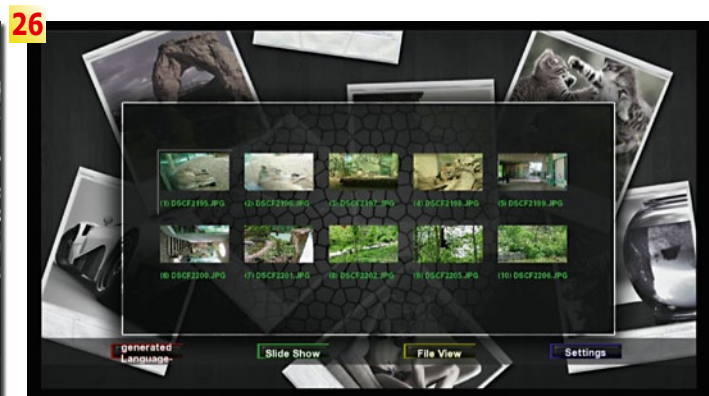
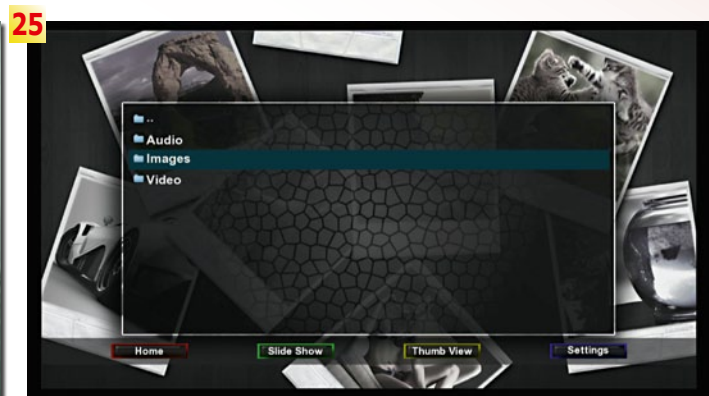
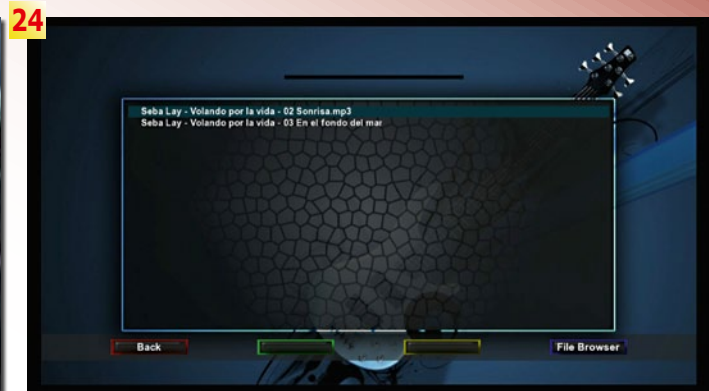
Let's turn to audio now. You can either choose to play all audio files in the directory or create a playlist and compile individual songs from the directory. In general, we always prefer a directory-based mp3 organisation because this does not restrict you to proprietary media software. To put it short: No complaints as far as audio is concerned.

One piece of advice for users: You should make a point of using the optical audio output for maximum listening pleasure. After all, that's exactly what it's here for. And finally, one request to the manufacturer: It would be nice if playlists could be saved and loaded again at a later time.

To finish things off we looked at how images and photos that are stored on the server can be shown with the AZBox ME media player. We expected a standard slideshow but soon became all the wiser: It's possible to create thumbnails of all pictures which are freely scalable in size, the background colour can be changed and file details can be displayed if desired. Thanks to the HDMI output the sharpness of the pictures on screen is nothing short of impressive and if the AZBox ME is matched to a 1080i/p panel the outcome is high-definition in the most literal sense.

To sum up, the AZBox ME's multimedia capabilities leave nothing to be desired and even surpassed our high expectations. Once again, we want to stress that this review specifically focuses on the media player of the receiver and how it can be set up to access files that are located on a server. All of the above will of course work just as nicely with content stored on an internal or external hard disk or an attached USB storage medium.

As far as we are concerned, we'll quickly wrap up this report and then head home to set up our own media network with an AZBox ME hooked to every TV...



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**DIGITAL
RECEIVERS OF
21ST CENTURY**

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Manufacturer	Amiko
Website	www.amikostb.com
Function	DVB-S2 / DVB-T & DVB-C Triple Tuner PVR Receiver
DVB-S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/12/07/amiko

Read TELE-satellite Test Report





Manufacturer	Panodic
Website	www.panodic.com
Function	Small DVB-T HD PVR Receiver
DVB-S2/LAN	— / —
DiSEqC	—
S-Video/HDMI	— / •
Scart/Digital Audio	• / —



PANODIC



TELE-satellite
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www.TELE-satellite.com/12/07/panodic
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Manufacturer	Skyworth
Website	www.skyworthdigital.com
Function	Very small DVB-T PVR Receiver with HDMI
DVB-S2/LAN	— / —
DiSEqC	—
S-Video/HDMI	— / •
Scart/Digital Audio	— / —



SKYWORTH



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www.TELE-satellite.com/12/07/skyworth
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Manufacturer	Amiko
Website	www.amikostb.com
Function	DVB-S / DVB-S2 & DVB-T Combo Receiver with PVR
DVB-S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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www.TELE-satellite.com/12/05/amiko
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AMIKO



Manufacturer	Skyworth
Website	www.skyworthdigital.com
Function	Very small DVB-S2 PVR Receiver with HDMI
DVB-S2/LAN	• / •
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	— / —



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www.TELE-satellite.com/12/05/skyworth
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SKYWORTH



Manufacturer	Panodic
Website	www.panodic.com
Function	DVB-T Mini Receiver with HDMI and PVR
DVB-S2/LAN	— / —
DiSEqC	—
S-Video/HDMI	— / •
Scart/Digital Audio	— / —



PANODIC



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Manufacturer	AZBox
Website	www.azbox.com
Function	HDTV DVB-S DVB-S2 Linux Receiver with Multimedia Features and large Flash-memory for 3 Boot Images
DVB-S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / USALS
S-Video/HDMI	— / •
Scart/Digital Audio	— / •



AZBOX



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www.TELE-satellite.com/12/03/azbox-me
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Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	DVB-S/DVB-S2, DVB-T PVR Digital Receiver
DVB-S2/LAN	• / •
Channel Memory	4000
PVR	•
S-Video/HDMI	• / •
Scart/Digital Audio	• / •



TELE-satellite Magazine Expert Opinion

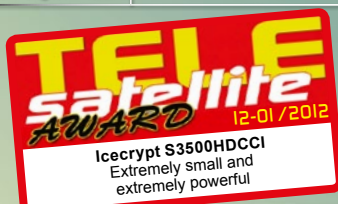
www.TELE-satellite.com/12/01/jiuzhou
Read TELE-satellite Test Report



JIUZHOU



Manufacturer	Iccrypt
Website	www.iccrypt.com
Function	HD PVR enabled satellite receiver
DVB-S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2
S-Video/HDMI	— / •
Scart/Digital Audio	— / •



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/12/01/iccrypt
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ICECRYPT



Manufacturer	Iccrypt
Website	www.iccrypt.com
Function	Two tuner HD receiver with Linux OS
DVB-S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3 (USALS)
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/11/iccrypt
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Manufacturer	Skyworth
Website	www.skyworth.com.hk
Function	ISDB-T Receiver with PVR function
DVB-S2/LAN	— / —
Channel Memory	1000
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	— / —



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/11/skyworth
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Manufacturer	Icecrypt
Website	www.icecrypt.com
Function	Digital Satellite Receiver with PVR ready
DVB-S2/LAN	• / •
Channel Memory	5000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3 (USALS)
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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www.TELE-satellite.com/11/09/icecrypt
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Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	DVB-S2/S2-L/SD/HD PVR Digital Receiver
DVB-S2/LAN	• / •
Channel Memory	4000
PVR	•
S-Video/HDMI	• / •
Scart/Digital Audio	— / •



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www.TELE-satellite.com/11/09/jiuzhou
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Manufacturer	Amiko
Website	www.amikostb.com
Function	Digital HDTV DVBS2 including dual boot
DVBS2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/05/amiko
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AMIKO



Manufacturer	Fulan
Website	www.fulansoft.com
Function	Digital HDTV Receiver with Dual-Boot and Spark online-platform
DVBS2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	— / •



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/05/fulan
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FULAN



Manufacturer	Jaeger / Doebis
Website	www.doebis.de
Function	Digital HDTV DVBS2 Receiver with Smart Card reader for HD+
DVBS2/LAN	• / —
Channel Memory	5000
DiSEqC	1.0 / 1.2
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/01/jaeger
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JAEGER



Manufacturer	AZBox
Website	www.azbox.com
Function	Digital HDTV Receiver with DVBS2 and DVB-T Tuners and various Multimedia & Internet Features
DVBS2/LAN	• / •
Channel Memory	15000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/01/azbox
Read TELE-satellite Test Report



AZBOX



Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	Digital PVR DVBT Receiver
DVBT/LAN	— / —
Channel Memory	1000
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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www.TELE-satellite.com/10/07/jiuzhou
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JIUZHOU



Manufacturer	AZBox
Website	www.azbox.com
Function	HDTV DVBS2 receiver with various Multimedia & Internet Features
DVBS2/LAN	• / •
Channel Memory	15000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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AZBOX

CHINA



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that matches your needs and requirements

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21 **HDTV**
PC CARDS OF
21ST CENTURY

这些是获得最高奖的产品





TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/12/01/netup
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Manufacturer	NetUP
Website	www.netup.tv
Function	Dual DVB-T / DVB-C - CI Professional PC Card
Channel Memory	unlimited
Channel Bandwidth	6,7,8 MHz
FFT mode	2K, 8K
Operating System	Linux



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satellite
AWARD 12-01/2012

DVB-T/C-CI

Impressive professional card for IPTV servers and multimedia centers that is loaded with the latest technologies for long-term use

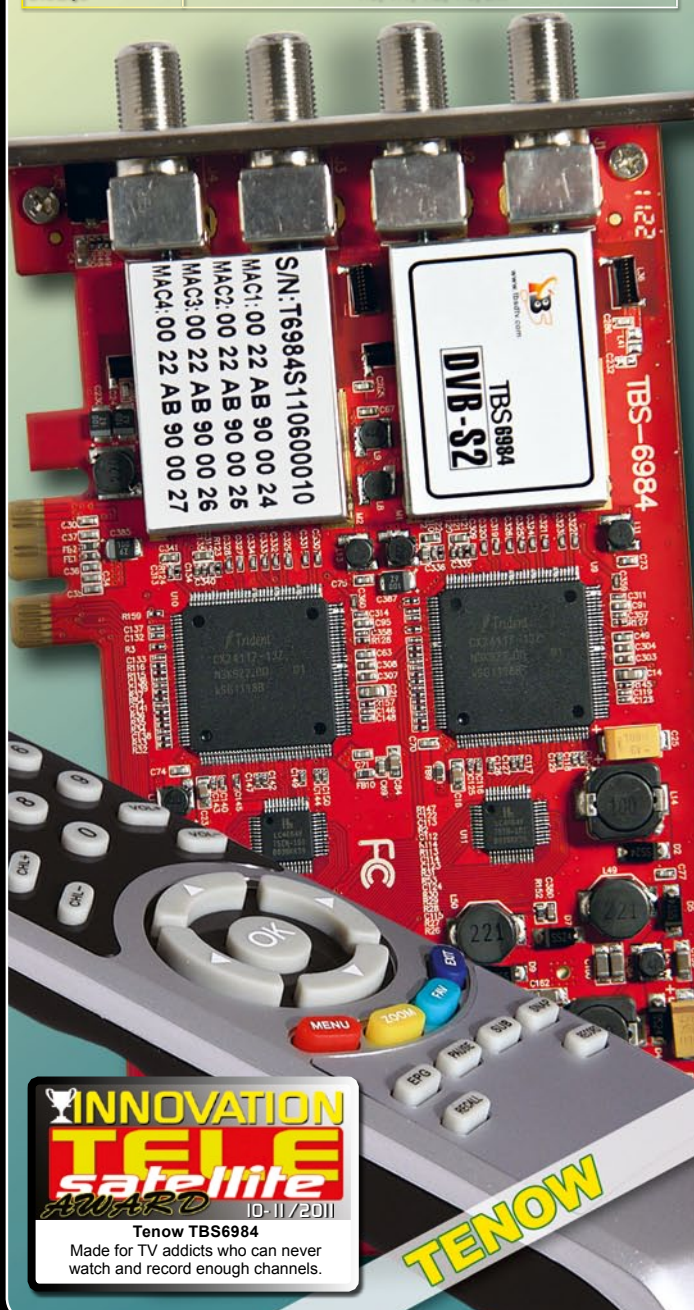
NETUP



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/11/tenow
Read TELE-satellite Test Report

Manufacturer	Tenow International
Website	www.tbsdtv.com
Function	DVB-S2 PCI-E card with 4 tuners compatible with Windows and Linux operating systems
Channel Memory	unlimited
Satellite Memory	unlimited
Symbol Rates	1-45 Ms/sec (QPSK), 2-36 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x



Tenow TBS6984
Made for TV addicts who can never watch and record enough channels.



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/11/tenow
Read TELE-satellite Test Report

Manufacturer	Tenow International
Website	www.tbsdtv.com
Function	DVB-S2 PCI-E professional card with Blindscan function
Channel Memory	unlimited
Satellite Memory	unlimited
Symbol Rates	0.2-45 Ms/sec (QPSK), 0.2-45 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x



Tenow TBS6925

Has every reception feature you could possibly ask for, plus blind scan. The card of choice for true die-hard professionals venturing to the extreme edges of satellite reception.



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/11/tenow
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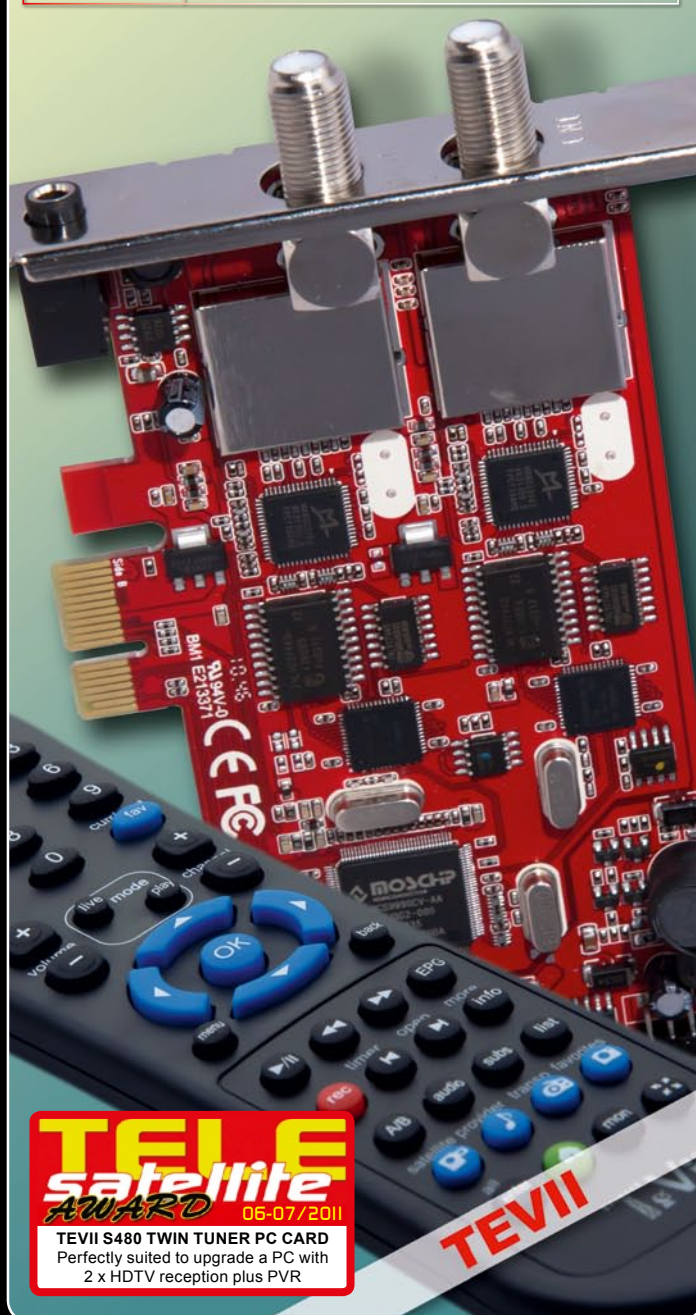
Manufacturer	Tenow International
Website	www.tbsdtv.com
Function	DVB-T / DVB-T2 PCI-E card with 2 Tuners
Channel Memory	unlimited
Channel Bandwidth	6, 7, 8 MHz
FFT mode	1K, 2K, 4K, 8K, 16K, 32K
Center IF Frequency	3 ~ 5 MHz



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/07/tevii
Read TELE-satellite Test Report

Manufacturer	TeVii Technology
Website	www.tevii.com
Function	PCI-E card for TV & Radio reception on the PC in SDTV and HDTV with two separate Tuners
Channel Memory	unlimited
Satellite Memory	178 preprogrammed - added by user: unlimited
Symbol Rates	2-45 Ms/sec
DiSEqC	1.0, 1.1, 1.2, 1.3

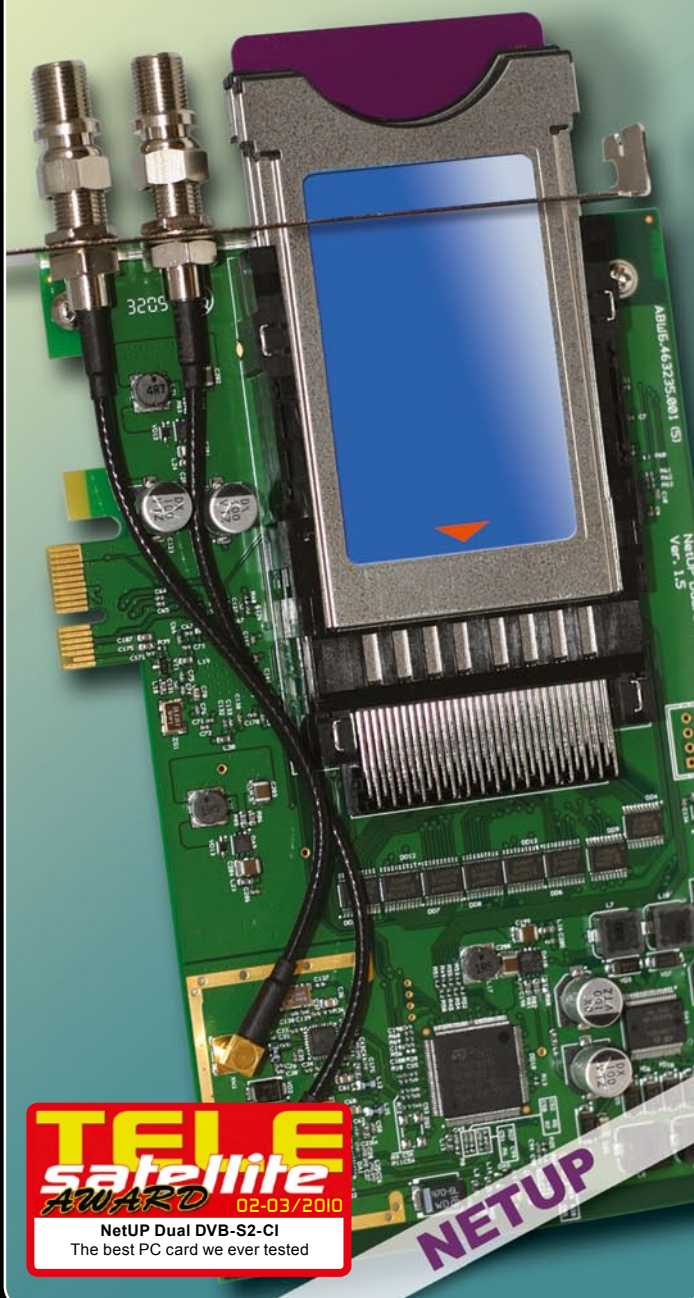




TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/10/03/netup
Read TELE-satellite Test Report

Manufacturer	NetUP
Website	www.netup.tv
Function	Two Tuners DVB-S2 PCIe card
Channel Memory	unlimited
Satellite Memory	—
Symbol Rates	1 to 47 Ms/sec (QPSK), 1 to 31.5 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2



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NetUP Dual DVB-S2-CI
The best PC card we ever tested

NETUP



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/09/09/tevii
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Manufacturer	TeVii Technology
Website	www.tevii.com
Function	PCI-E card for TV reception on the PC in SDTV and HDTV
Channel Memory	unlimited
Satellite Memory	177
Symbol Rates	2-45 Ms/sec
DiSEqC	1.0, 1.1, 1.2, 1.3



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AWARD 08-09/2009

TEVii DVB-S/S2
PCI-E CARD S470
An elegant solution for normal
and HDTV reception on a PC

TEVii

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ANALYZERS OF
21ST CENTURY**

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TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/12/05/spaun
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Manufacturer	SPAUN Electronic
Website	www.spaun.com
Function	DVB-S / DVB-S2 and DSS Signal Analyzer
Frequency Range	950-2150 MHz
Video Output	—
Built-in Monitor	4.3" TFT LCD display (16:9)



SPAROS SAT HD

Very useful meter for setting up critical satellite systems



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/12/05/trimax
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Manufacturer	Trimax Technology
Website	www.trimaxtec.net
Function	Handheld Digital TV Meter for DVB-S / DVB-S2 or DVB-T / DVB-C
Frequency Range	920-2150MHz (DVB-S / DVB-S2)
Video Output	S-VIDEO, HDMI
Built-in Monitor	4.3 inch TFT LCD screen (16:9)



TRIMAX TM-6800+

All the features you need, plus professional extras like ASI and spectrum display





TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/12/03/satcatcher
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Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Digital and analog cable TV meter
Frequency Range	46-862 MHz (for digital TV) and 46-870 MHz (for analog TV)
Video Output	—
Built-in Monitor	120 x 64 3.5" LCD color display



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/12/01/horizon
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Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Satellite and terrestrial antenna meter
Frequency Range	45-861 MHz (terrestrial) and 950-2150 MHz (satellite)
Video Output	—
Built-in Monitor	LCD display





TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/12/01/lexium
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Manufacturer	WS International
Website	www.lexium-dvb.com
Function	Digital Satellite Meter with AutoFind and QuickSweep features
Frequency Range	950~2150 MHz
Video Output	—
Built-in Monitor	LCD display



TELE
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AWARD 12-01/2012
LEXIUM FastAlign 7100 Pro
Excellent
Dish Installation Tool

LEXIUM



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/12/01/deviser
Read TELE-satellite Test Report

Manufacturer	Tianjin Deviser Electronics Instrument
Website	www.devisertek.com
Function	Satellite Antenna Meter
Frequency Range	950~2150 MHz
Video Output	—
Built-in Monitor	LCD display



DEVISER



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/09/8dtek
Read TELE-satellite Test Report

Manufacturer	8dtek Technology
Website	www.8dtek.com
Function	Satellite Meter for Antenna Alignment
Frequency Range	L-Band (950-2150 MHz), DVB-S/S2 and analog signal
Video Output	A/V (composite + mono)
Built-in Monitor	Color graphic 16:9 LCD



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/07/8dtek
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Manufacturer	8dtek Technology
Website	www.8dtek.com
Function	Satellite Meter for Antenna Alignment
Frequency Range	L-Band (950-2150 MHz), DVB-S/S2 and analog signal
Video Output	Composite
Built-in Monitor	Color graphic LCD



8DTEK DSM DESIRED
A HDTV signal meter and receiver all in one with plenty of professional features



8DTEK DSM GIFTED
Very useful small tv meter with high-end features





TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/11/07/satcatcher
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Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Signal meter for digital signals in DVB-S, DVB-T and DAB. Analogue signals in FM radio.
Frequency Range	46-870 MHz
Video Output	Composite
Built-in Monitor	120 x 64 3.5" LCD color display



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/10/11/horizon
Read TELE-satellite Test Report

Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Antenna Alignment Meter
Frequency Range	950-2150 MHz
Video Output	—
Built-in Monitor	LCD display





TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/10/09/spaun
Read TELE-satellite Test Report

Manufacturer	SPAUN Electronic
Website	www.spaun.de
Function	TV Signal Analyzer with WiFi Receiver
Frequency Range	45~865 MHz (terrestrial) and 950~2150 MHz (satellite)
Video Output	RCA Composite
Built-in Monitor	7 inch 16:9 color LCD display



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/10/09/horizon
Read TELE-satellite Test Report

Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Digital and analog terrestrial TV meter with spectrum analyzer and USB data output
Frequency Range	49~861 MHz
Video Output	—
Built-in Monitor	LCD display



SPAROS 609 WIFI OPTION
Converts the signal analyzer to a universally usable tool



HORIZON HD-TM USB PLUS
Small, economic and fast terrestrial signal meter





TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/10/07/satcatcher
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Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Signal Meter for DVB-T, analogue TV, digital DAB radio, analogue FM radio
Frequency Range	46~870 MHz
Video Output	—
Built-in Monitor	120 x 64 3.5" LCD color display



SATCATCHER DIGIPRO T MAX
Easy to use signal meter that doesn't stop at DVB-T. Everything you want from a signal meter



SATCATCHER



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/10/05/8dtek
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Manufacturer	8dtek Technology
Website	www.8dtek.com
Function	DVB Signal Meter with tv monitor for DVB-S and DVB-T
Frequency Range	950~2150 MHz (satellite) and UHF/VHF (terrestrial)
Video In/Output	RCA/RCA
Built-in Monitor	3.5" LCD color display



8DTEK TSM-8800
Easy menu operation and exceptionally simple to operate



8DTEK



TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/10/03/trimax
Read TELE-satellite Test Report

Manufacturer	Trimax Technology
Website	www.trimaxtec.net
Function	Satellite Meter with TV and Spectrum
Frequency Range	930~2150 MHz
Video Output	RCA Composite
Built-in Monitor	3.5" LCD color display



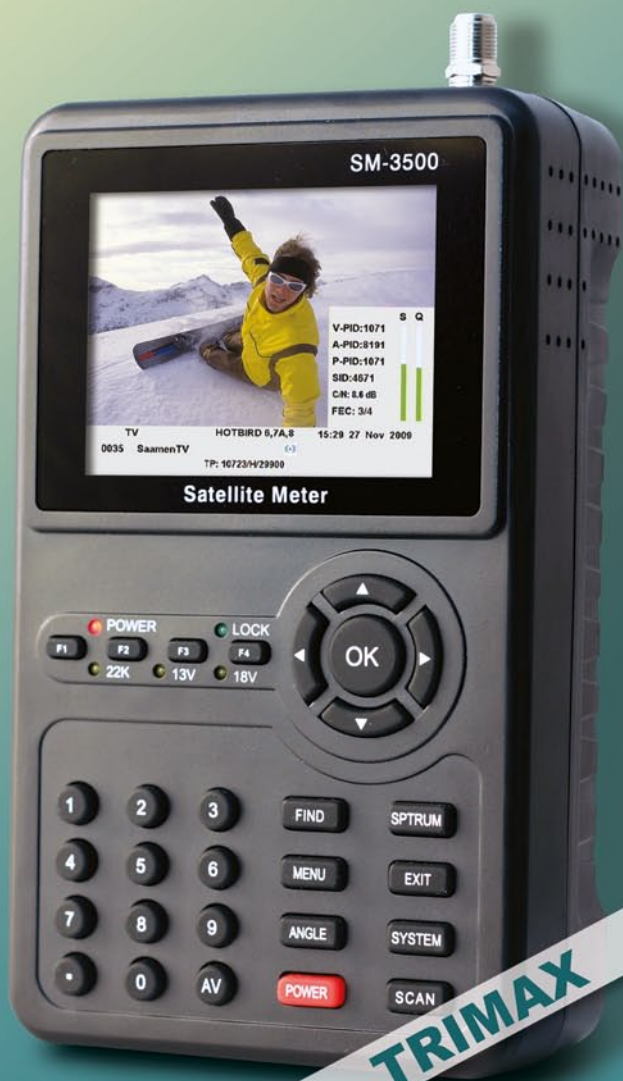
TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/10/01/horizon
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Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Handheld Satellite Meter for fast and easy Dish Alignment
Frequency Range	950~2150 MHz
Video Output	—
Built-in Monitor	128x64 Pixel LCD

TELE
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AWARD 02-03/2010

TRIMAX SM-3500
A well-balanced digital meter with
spectrum display and TV mode



TELE
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AWARD 12-01/2010

HORIZON NANOSAT
Ideal for the speedy alignment of
satellite antennas





TELE-satellite Magazine Expert Opinion

www.TELE-satellite.com/10/01/optiscan
Read TELE-satellite Test Report

Manufacturer	Global Invacom
Website	www.globalinvacom.com
Function	Signal Analyzer with an Optical Input
Frequency Range	950(160)~2150 MHz
Optical Range	+10 to -25 dBm
Video Output	—
Built-in Monitor	Eight-digit LCD display



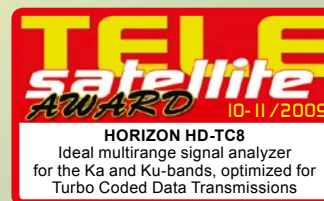
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Menu Standards	NetUP Middleware
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AMINO



Manufacturer	Jiuzhou
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Function	IPTV Set-Top-Box
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Function	IPTV Gateway for DVB Signals
Stream Protocol	UDP
Menu Standards	NetUP Middleware
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NETUP

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Stream Protocol	UDP
Menu Standards	html
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AZBOX



■ Channel logo and EPG information are shown on the digital picture frame.

Caid	Pid	Reader	From	Protocol	Hop	Ecm	Time
0x1830	0x1aea				2	0.351	

Digital Picture Frame для AZBox ME

- *Дешевое расширение дисплея ресивера*
- *Возможность постоянного отображения логотипа и программного гида канала*
- *Возможность показа прогноза погоды по данным интернета*
- *Рекомендуется для пользователей знакомых с Linux*

Large and Beautiful Channel Display – the DIY way

Vitor Martins Augusto

Many viewers are perfectly happy with a conventional set-top box that can be used for watching TV, but nothing else. For those of you with an interest in Linux receivers, however, there are endless options to customise such a receiver, and hundreds of plug-ins and extensions that add new functions to the operating system.

For this workshop we looked at something really neat: We took a conventional digital picture frame and added some modification so that it could be used as an information panel in conjunction with our AZBox ME. It then displays stylish channel logos, content information on the current and next events or even the weather forecast for your city. With the setup we used it is possible to add a whole range of tremendous features since text and images can be transferred using HTTP.

But let's start at the beginning. How come a conventional digital picture frame can be turned into an additional display for the AZBox ME? The trick lies in modifying the firmware of the digital picture frame to such an extent that it is able to receive image files via its USB port that is switched into slave mode. The frame then can be used to display all images sent from the Linux receiver. It sounds



all too simple: The receiver generates an image file with the required content and sends the file to the picture frame which in turn instantly displays that file. In order

for that to really work the picture frame obviously needs to come with a USB interface. While most digital picture frames these days fulfil this requirement without even the blink of an eye, most are set up as a USB host, which means the USB interface can only be used to read out a USB storage medium and to display the image files that are stored on that medium. Unfortunately, those models won't

1, 2, 3: A digital picture frame displays the logo of the currently selected channel. Whenever a new channel is selected the display will change accordingly.



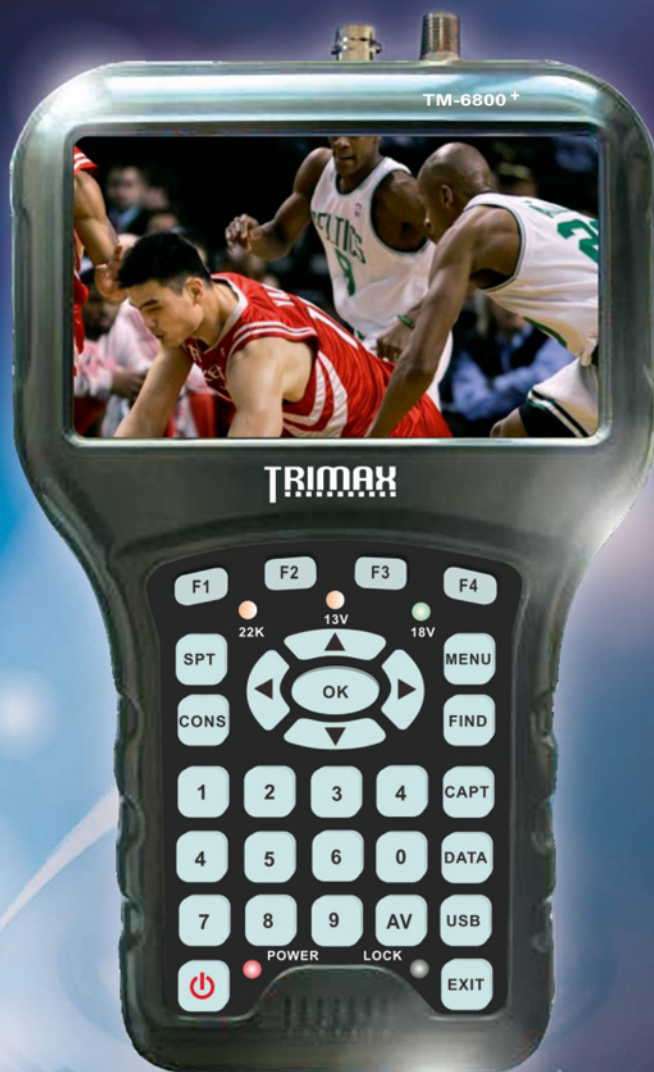
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jerryysz@gmail.com | jerrychu@trimaxtec.net



1. Digital picture frame with the AX206 chipset. These models are perfectly suited for our workshop.

2. The receiver menu can also be displayed on the digital picture frame.

3. Even the weather forecast can be shown on the picture frame. All required data is downloaded thanks to the Internet connection of the AZBox.

work with the AZBox ME.

There are, however, some types of digital picture frames that allow accessing their internal memory right from a PC, which means the picture frame must come with an USB slave connection. In such a case the picture frame acts like any other USB device that can be controlled from a PC. If we now decide to hook up such a suitable picture frame to

our Linux receiver we first have to modify its default firmware. Instead of waiting for a user to press a button in order to activate the connection to the PC the picture frame has to react immediately to all incoming files and must display them without delay.

Fully modified firmware versions are available for two specific types of digital picture frames. If you search the web you will easily find them. All you need to make sure is the right firmware version is used for the corresponding frame. You should also make a point of flashing the new firmware precisely as you are instructed.

Some digital picture frames from Samsung are suitable for our experiment, notably the SPF-72H, SPF-75H, SPF-83H,

SPF-85H, SPF-85P, SPF-87H, SPF-105P, SPF-107H and SPF-700T models. Numerous other inexpensive makes can also be used, provided they come with an AX206 controller chipset and a resolution of 320 x 200 pixels.

These AX206 picture frames are equipped with an integrated battery pack which is of no use to us since the display draws its power from the USB connection anyway. It's a wise move to remove the battery pack since this eliminates a potential source of problems. You only need to unscrew and remove four screws on the backside, lift the back cover and look for the blue battery pack which is hard to miss. Cut the two (red and black) wires using a small sidecutter, keeping in mind to make the cut as close as possible to the circuit board without risking a short circuit.

Now that all hardware requirements are met you need to install the lcd4linux plug-in on your AZBox ME. Our first two attempts on one of the two official firmware versions were not met with success because the lcd4linux plug-in requires some libraries that were missing in our firmware. These are the lacking libraries we obtained from the Internet:

- libpython2.6-1.0_2.6.7-ml8. 2_mipsel.ipk
- python-imaging_1.1.6-ml1_mipsel.ipk
- python-textutils_2.6.7-ml8. 2_mipsel.ipk

In addition, we had to install the following extension packages:

- python-codecs
- python-datetime
- python-imaging
- python-textutils

Then we were finally able to install the lcd4linux plug-in and complete all the configuration steps. Unfortunately, however, the LCD display of our digital picture frame remained dark. As it turned out our Linux distribution was still





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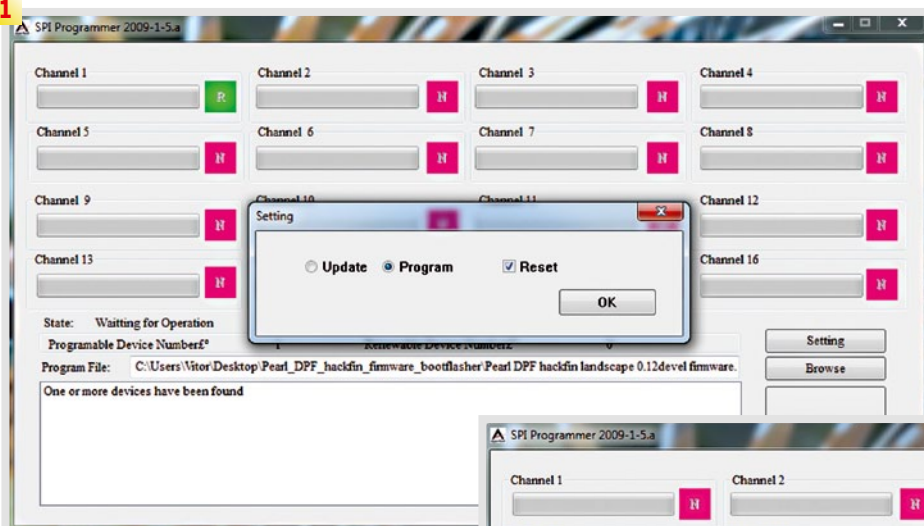
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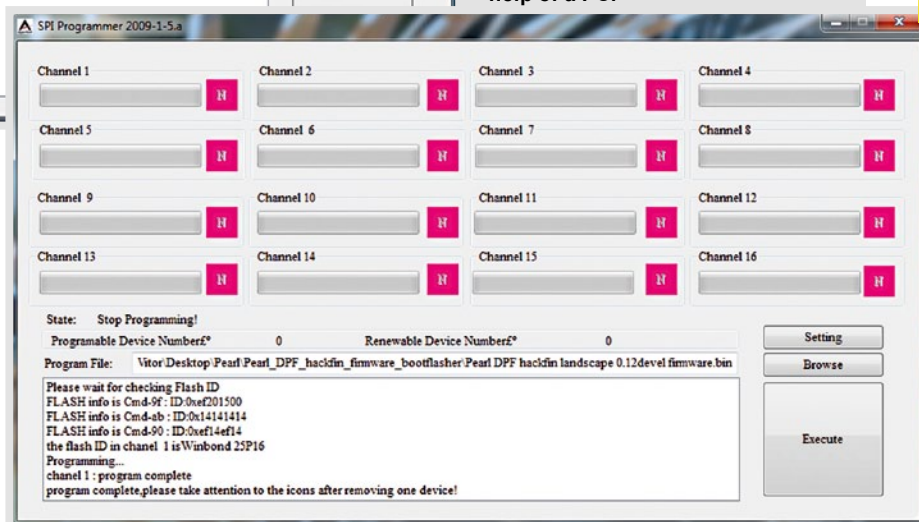
1



TFT Flashing

1, 2: Using a tool with the modified firmware that is stored in the archive you first have to flash the digital picture frame with the help of a PC.

2



not entirely complete, even with all the above listed libraries and packages installed. Thankfully there is the Internet and after a quick search we discovered a special lcd4linux plug-in which – once installed – replaced the original plug-in by the same name. The new plug-in once and for all featured all required routines so that we were finally able to use our picture frame. If you speak or understand German you may want to look at the German-language MyAZBox forum for a detailed summary of all required steps: <http://www.myazbox.de/forum/index.php?page=Thread&postID=52421>.

Thanks to the plug-in a number of options are available to display the name of the currently selected channel, show content information on the current and next events and the like.

The absolute high point is a feature that allows displaying channel logos. All you need to do is copy them to the /usr/shared/picons directory. Since standard channel logo packages have a different resolution than the digital picture frame we recommend the installation of dedicated picons packages for the picture frame. If required, these packages can even be copied to a separate directory so that they are available with different

resolutions for different purposes such as OSD inserts, for example.

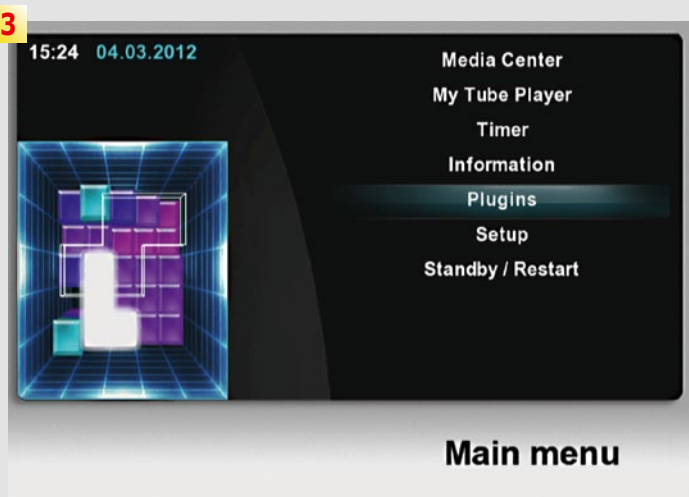
We do have to admit at this point that the whole setup was not yet 100% reliable and after a few minutes the picture frame went black and could only be re-activated by turning it off and then on again. At the same time we found out that a new firmware distribution for the AZBox ME was being launched and obviously we gave it a go right away.

What a wise move that was, because all that was left for us to do was to install the current lcd4linux plug-in for the picture frame to come back to life. It was not even necessary to manually install additional libraries or packages – the picture

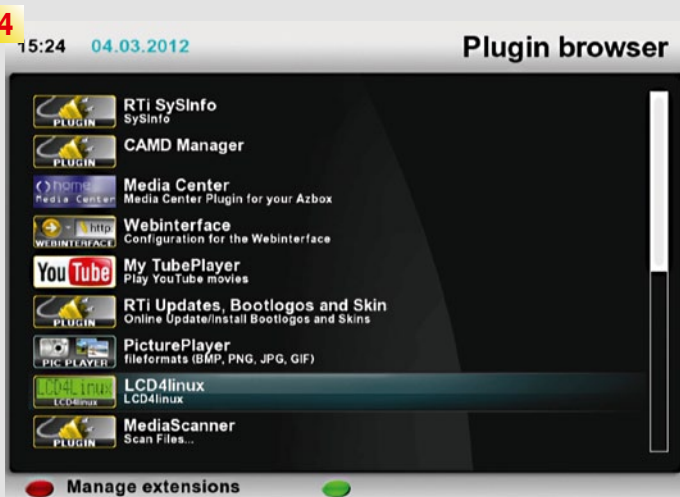
frame has been running smoothly and flawlessly ever since. Occasional hiccups do not bother us any longer since this special version of the picture frame firmware goes into a stable mode whenever a problem occurs.

In summary, we can state that our AZBox ME never ceases to surprise and impress us, and now it even comes with an external colour display for additional information such as channel logo, event name, duration, weather, etc. What's more, we now have installed three entirely different firmware versions on our AZBox ME and it's for us to decide whether we only want to watch TV or rather prefer to explore the depths of the DX world.

3



4



Configuration of the lcd4linux plug-in and media player settings:

3: The linux4lcd file can be found in the plug-in menu.

4: This is where linux4lcd should appear after successful installation of the plug-in and re-start of the receiver.

5: It is possible to save the numerous configuration options of the linux4lcd plug-in and retrieve them at a later stage – when you want or need to update the receiver's firmware, for instance.

6: The first menu item takes care of the basic settings of the picture frame.

7: You can define the city for the weather forecast here – the plug-in then uses the Internet connection of the AZBox ME to load the corresponding data and to keep the forecast up-to-date.

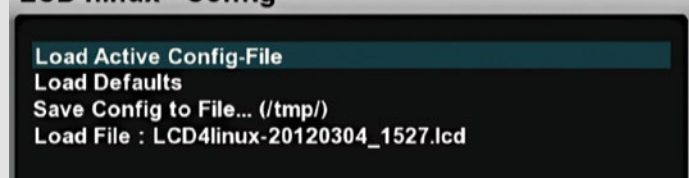
8: The next step of the configuration process deals with the default layout that is comes up every time the receiver is switched on. This is where you can choose to display the channel logo, among other things.

9: You decide about how your external panel looks – all elements can be arranged freely on the display.

10: Another option group allows activating a different display layout whenever the media player is active. It is possible to show the title of the currently playing movie or song information.

11: Due to the sheer range of options it takes some time until the display looks just the way you like it. Luckily, the plug-in visualises all changes right away so that you can always keep an eye on the final result.

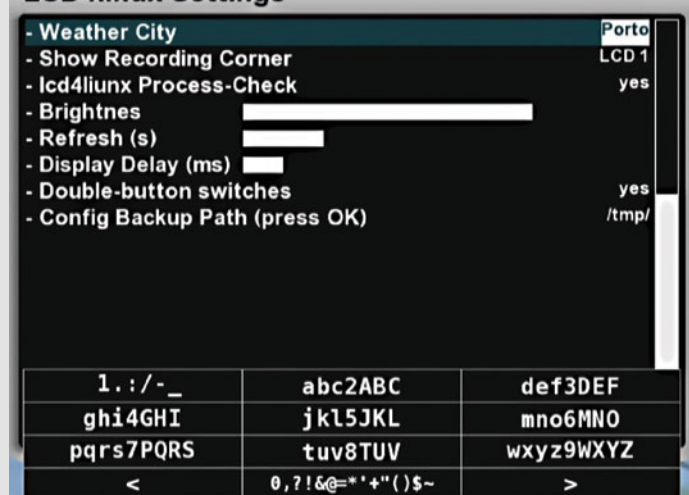
5 LCD4linux - Config



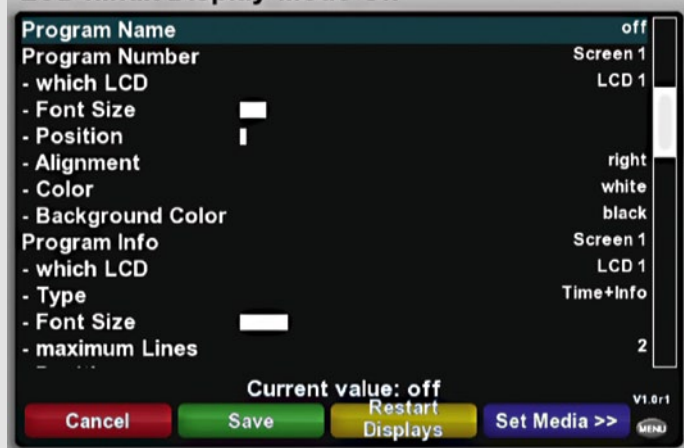
6 LCD4linux Settings



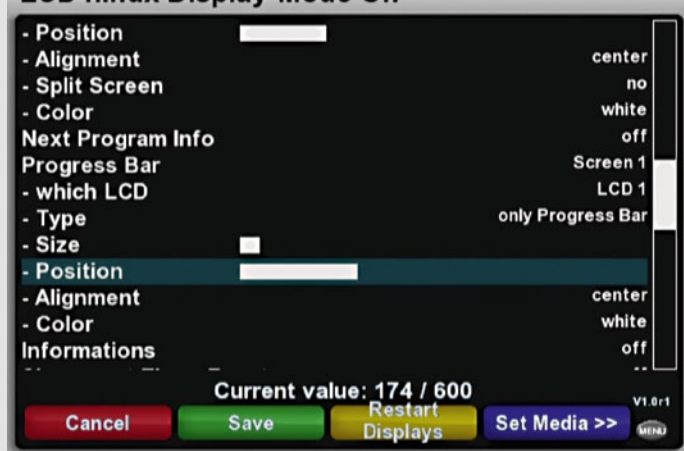
7 LCD4linux Settings



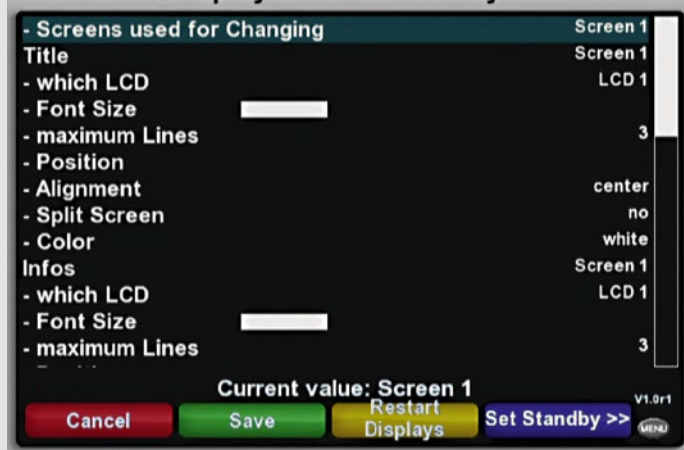
8 LCD4linux Display-Mode On



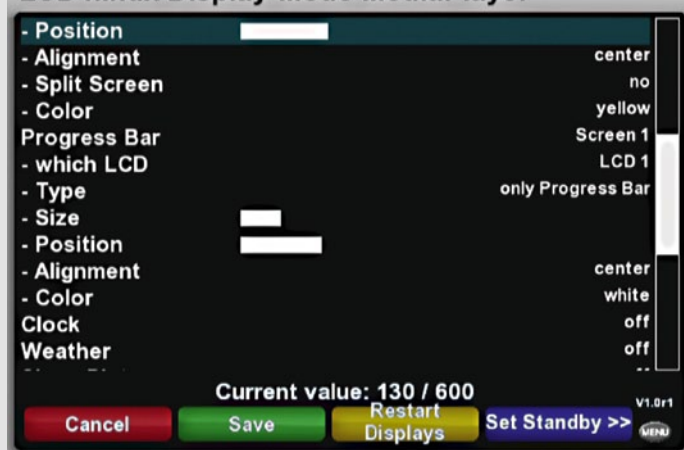
9 LCD4linux Display-Mode On



10 LCD4linux Display-Mode MediaPlayer



11 LCD4linux Display-Mode MediaPlayer





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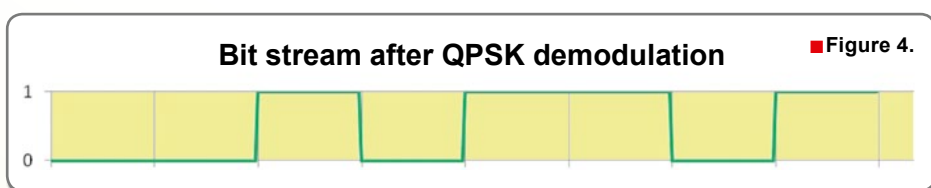
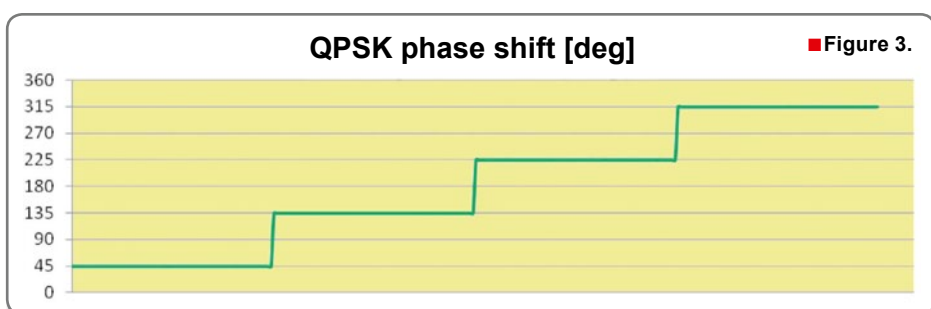
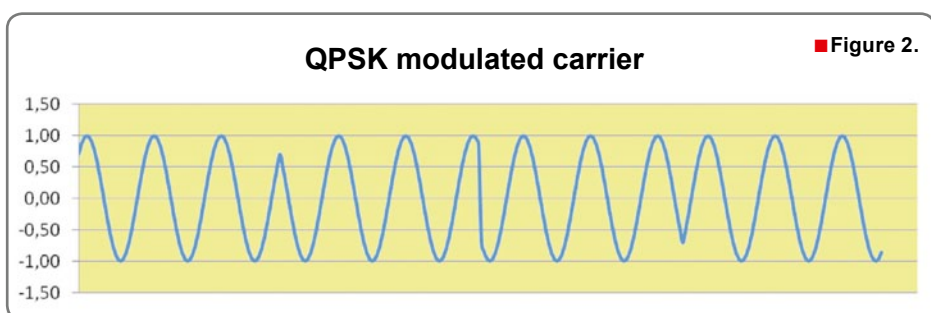
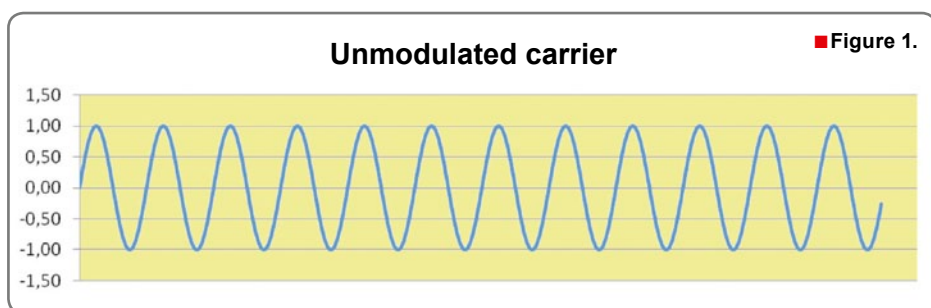
Jacek Pawlowski

If you examine satellite charts, you will see that DVB-S2 transponders usually use 8PSK or QPSK modulation. However these two modulations are not the only possibilities the DVB-S2 standard specifies. Except for the four basic modulation schemes: QPSK, 8PSK, 16APSK, 32APSK, the norm gives you other interesting options. In another Feature story in TELE-satellite we report on the Variable & Adaptive Coding and Modulation (VCM/ACM). In this article, we would like to discuss yet another possibility. It is called H-8PSK and it is a form of a hierarchical modulation.

In the classical DVB-S, one transponder is able to transmit just one transport stream. Of course, there can be a number of TV and radio programs multiplexed in one transport stream. However, everything in this transport stream is transmitted with one modulation and one forward error correction (FEC) setting, for example: QPSK 3/4.

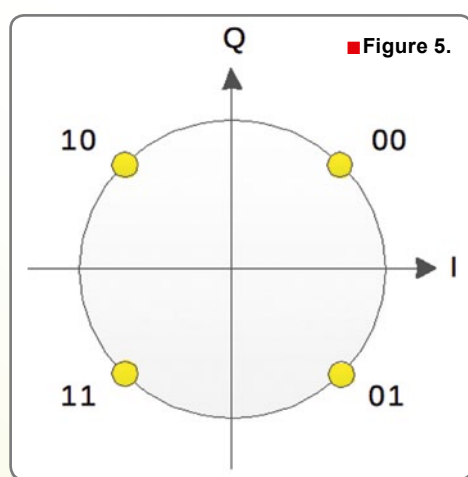
H-8PSK is a method to transmit two transport streams in one transmission channel and thus by one transponder. These two transport streams are modulated in different ways onto the radio frequency carrier and may have quite different FEC values. The transport streams are designated as the high priority (HP) stream and the low priority (LP) stream. H-8PSK is a rather unique concept in digital TV as it provides backward compatibility what is not so common in digital world. Namely, every DVB-S receiver should be able to receive a HP stream. Only the reception of the LP stream requires a H8-PSK compatible DVB-S2 receiver. How does it work?

Let's start with a reminder of a classical QPSK modulation. Figure 1 shows an unmodulated RF carrier and in Figure 2 this carrier is QPSK modulated with all possible combinations of a symbol: 00, 10, 11 and 01.



A symbol in QPSK is simply 2 successive bits in a bit stream. So we have just four possibilities – as mentioned above. For each symbol value, one specific phase shift is assigned. These are respectively: 45, 135, 225 and 315 degrees. Figure 3 shows the phase shift corresponding to the modulation shown in the example in Figure 2.

Your receiver converts the received phase shift and converts each phase shift to a pair of a bit. So the output of a QPSK demodulator supplied with



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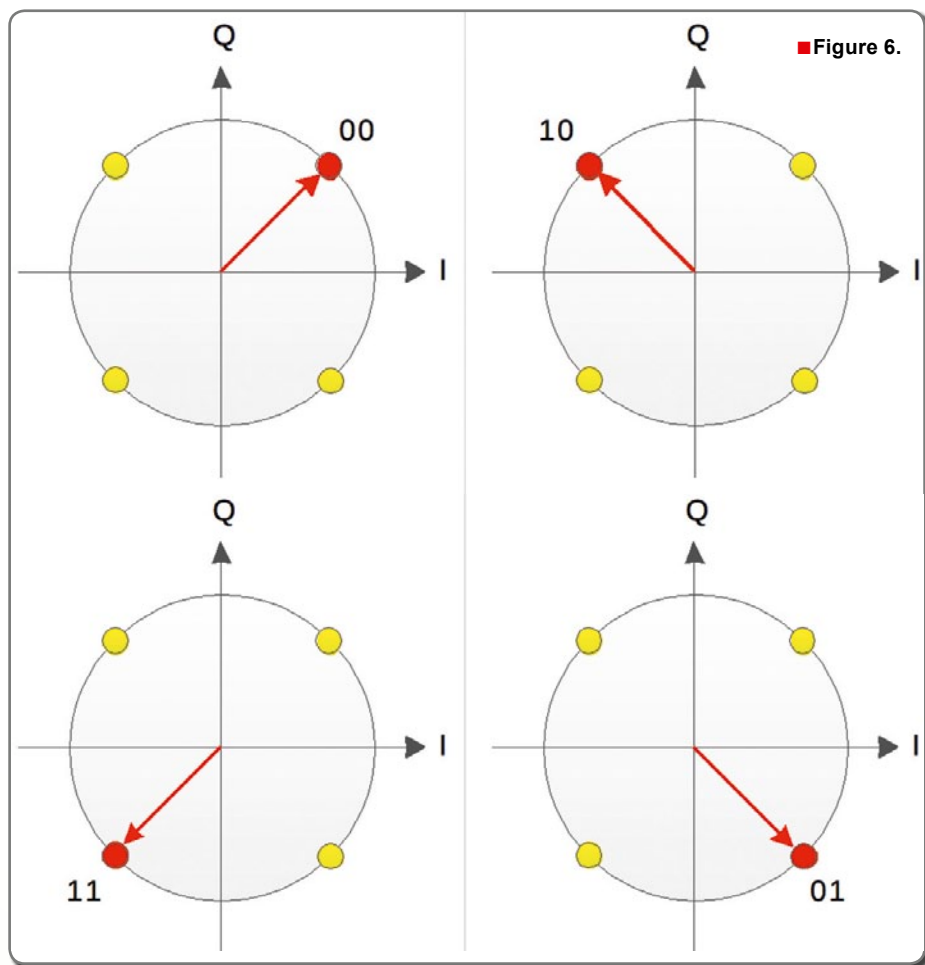
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in eight possible phase shifts in H-8PSK instead of four in QPSK - see Figure 7. In practice, θ should be something between 7-12°.

3 bits are assigned to every possible phase shift in a H-8PSK constellation. Except for the 2 bits that create a 2-bit symbol like in QPSK, there is one additional bit shown in blue ink in Figure 7. The HP stream is still coded like in a QPSK modulation. For example, if we need to send a symbol 00 we use 45° but we additionally take into account one bit from the LP stream and depending on its value, we either increase or decrease 45° by θ . As you can see, for every 2 bits of the HP stream, we send one bit of the LP stream.

Let's examine an example in which our original QPSK stream is enhanced with LP stream. In our example, we increased the QPSK shifts by θ for the first 2 symbols and decreased it by θ for the successive 2 symbols. The result is shown in Figure 8. Figure 9 and 10 show the HP and LP bit streams resulting from demodulation.

the signal as in Figure 2 would look like the picture in Figure 4.

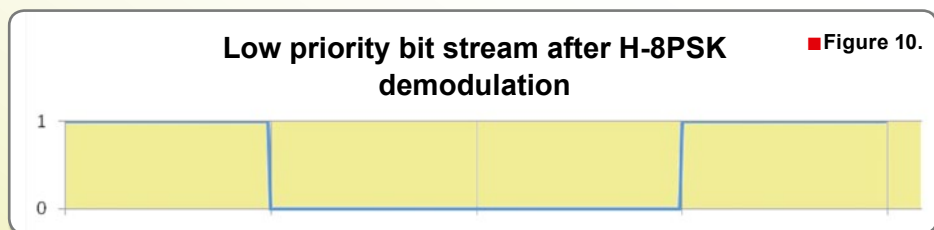
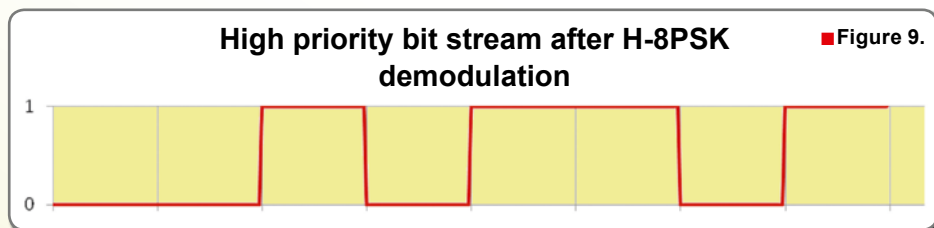
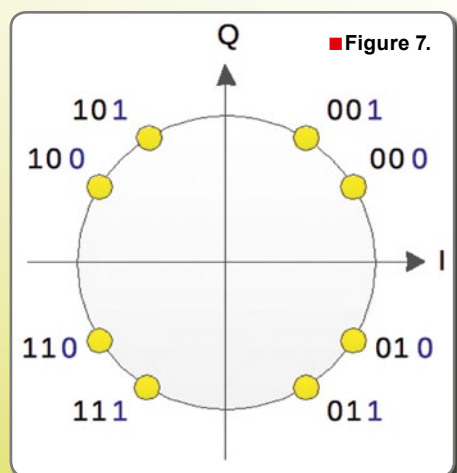
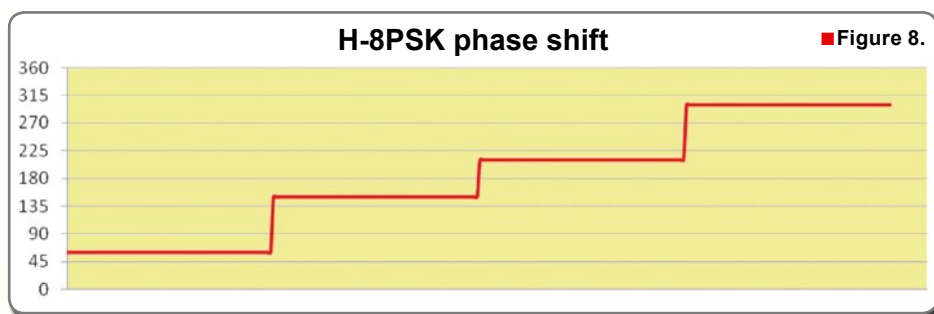
Almost always, the QPSK modulation is explained with a constellation diagram as the one shown in Figure 5.

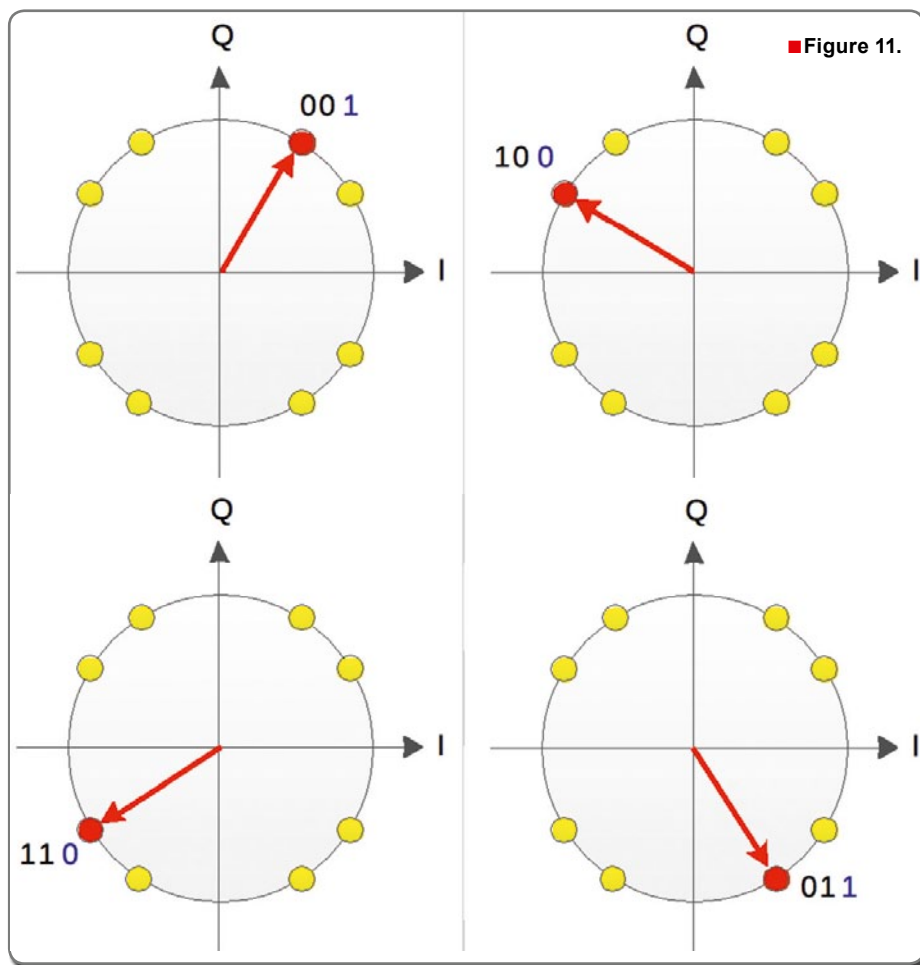
The phase shift changes shown in Figure 3 could be represented as four vector positions presented in Figure 6.

Now H-8PSK is a modification of QPSK. Each of the phase shifts defined for QPSK are replaced with two

new values: greater by θ and less by θ . For example instead of 45°, we get 45° - θ and 45° + θ . This results

Should we wanted to present our H-8PSK example with a series of con-





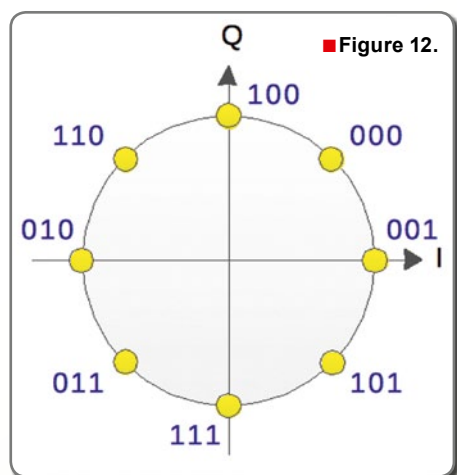
stellation diagrams, it would look like Figure 11.

Now, a regular QPSK receiver should recognize the 8-PSK modulation as a somewhat noisy QPSK. Of course, this "noise" is caused by the deviations of θ° introduced by the LP component. Such a receiver will be able to extract only the HP bit stream.

An H-8PSK compatible receiver, after decoding QPSK and learning from the information it contains that there is

an LP stream available, will try to lock to the H-8PSK phase shifts instead of QPSK and it will extract both streams.

It is important to note that H-8PSK is different than the regular 8PSK. Regular 8PSK is presented in Figure 12. The phase shifts for 8PSK are different than those for H-8PSK. So a receiver compatible with a typical DVB-S2 modulation: 8PSK, will not necessarily be able to decode H-8PSK. The LP stream has a twice lower bit rate than the HP stream. The ratio of useful bit rates between HP and LP streams may be not necessarily equal to 2:1 because they can have different FEC settings. Usually, the LP will need more error correction than HP.



H-8PSK is also quite different from the VCM mentioned at the beginning of this article. In VCM, we have one bit stream transmitted with a given modulation, symbol rate and FEC for a period of time then another bit stream with (possibly) different modulation, symbol rate and FEC transmitted for another period of time, and so on. If

we have N bit streams, in the N+1 period of time, the first bit stream appears again and so on. At any given moment, only one bit stream is transmitted. It is called "time multiplexing". In H-8PSK, there are exactly two bit streams and both are transmitted simultaneously. They can differ in FEC.

There are already receivers (or tuners in the form of PC cards) available on the market that can demodulate H-8PSK. But what about real transmissions? One of the satellite charts available on the Internet denoted three transponders on HOTBIRD 13° East as using H-8PSK modulation. The other charts did not confirm this information. So, we connected 3 different signal analyzers that we had in our lab to an antenna aimed at HOTBIRD to check how the constellation of those signals look. We have to say, that those signals were NOT H-8PSK modulated. We checked later a few more European satellites to see if anybody transmitted with H-8PSK but did not find any transponder. If you have a satellite signal analyzer capable of showing signal constellation, it should be able to lock to H-8PSK as to normal QPSK with symbol rate equal to that of the HP stream. If the symbol rate is not known and your analyzer has no blind scan feature it might be time consuming for you to guess the true HP symbol rate. But once your analyzer is locked to the QPSK component of a H-8PSK signal, you should see a constellation like that in Figure 7 instead of that in Figure 5.

There is one interesting use for H-8PSK, which indeed reminds us about the VCM feature: providers could transmit a SD version of their program on the HP (high priority) stream together with a HD version on the LP (low priority) stream. The provider would only need one single transponder for this and a regular DVB-S2 satellite receivers would get the SD version of program. Upgrading to the HD version would only require a H-8PSK capable receiver, all the rest (satellite transponder and satellite reception system at the receiver) would remain identical as before. Program providers in North America are already conducting tests with 8-8PSK.

Polar Mount Antennas

Motorised Antennas for Satellite Reception

Adolf Oberhuber

If you consult the relevant literature you will find that no or – at most – insufficient background information is available about how this type of motorised polar mounted antennas actually works. The same is true for the required formulas and their derivation. The following illustrations are meant to provide answers to all questions in association with a polar mount. This also includes, inter alia, various size determinations for positions as well as calculations for the satellite orbit based on a specific example. Altogether this report is a collection of data and calculations which, the author believes, have hitherto been scattered across an endless number of publications and accounts. For the sake of completeness and reference, technical terms and their origin will be explained in a separate addendum at the end.

Without exception, all calculations and remarks are for the northern hemisphere. If you live south of the equator you need to interpret them accordingly, such as antenna alignment to the north instead of the south, inclination of the rotation axis towards the south instead of north and so on. For all calculations you merely need a standard 10-digit electronic calculator capable of performing trigonometric operations. If you intend to receive several satellites at once you may choose one of the following set-ups:

1. Several antennas:

Usually, such a set-up is only chosen for commercial applications as it requires a lot of space and also is more costly than other solutions.

2. A single antenna with two or more LNBs:

This design is intended for multi-user layouts that have to make sure each user

has unrestricted access to all transmissions of all satellites at any time. Naturally, if several LNBs are attached to a single antenna they cannot all be in the precise focus of the parabolic dish, which means that they are slightly out of focus. However, reception is only possible if the satellites are rather close to each other and if the antenna has a certain (larger) diameter.

3. Polar mount antennas:

For single users interested in maxing out their reception possibilities a polar mounted motorised antenna is an interesting solution. As the name implies, the axis around which the antenna rotates is mounted in a pole-to-pole direction, i.e. in parallel to the axis of the earth. Such a set-up does not restrict the number of receivable satellites, provided they can be 'seen' from the location of the antenna. It is no big deal to receive 15 to 20 satellites without exceedingly elaborate equipment.

In general, if a satellite antenna is to be rotated with a motor you would need two motors – one for the rotating movement (azimuth) to the selected satellite and the other one for adjusting the dish to account for the differing heights above the ground (elevation). Mounting the rotation axis in parallel to the rotations axis of the earth, i.e. in a pole-to-pole direction, alleviates this problem so that only one motor is required. However, this can only be achieved with a more complicated and extremely precise installation and alignment of the rotation axis.

Dealing with the installation of satellite reception systems – both in theory and practice – requires gaining an understanding of sizes and proportions relating to different sizes. As even the relevant sizes and their derivations are hard to come by, the following will establish all relevant data.

Before performing any calculations it is paramount to recall the interdependencies between the earth and satellites. This may also provide a welcome opportunity to correct some common misconceptions.

The earth

Due to its rotation the diameter of the earth at the equator is larger than the distance between the north pole and the south pole, which means the earth does not have an exact spherical shape. However, the differences associated with this fact can be neglected for our calculations, so that we accept the established median radius of the earth of 6,731 km as given.

Historically and depending on the purpose, positions and directions are



defined using varying systems. Unless exact definitions rule out any ambiguities, one sometimes needs almost investigative skills to find out without doubt what is actually meant when reading about a position.

The equator can be established as the zero-point for the geographic latitude. Towards the north the range extends to 90 degrees north, or +90 degrees, towards the south it is 90 degrees south or -90 degrees to the pole(s).

As regards the geographic longitude an artificial zero-point had to be determined. The meridian crossing the Greenwich observatory near London with its line from the north pole to the south pole has been accepted as zero meridian since 1884. From this meridian, the circle is divided into 360 degrees towards the East. This system is derived from astronomy which also employs a left system (seen from the north pole) for projections from the earth's surface into space. This way the position of celestial bodies such as satellites in a geostationary orbit can be precisely defined.

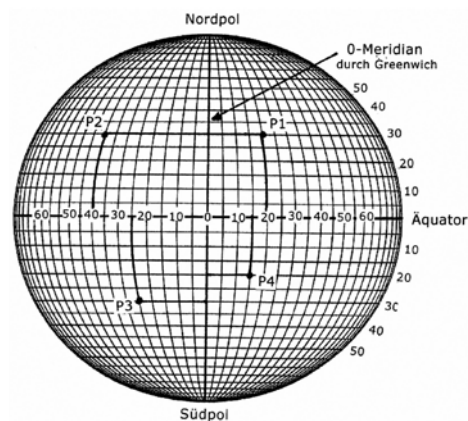


Fig. 1 features four points with their positions, which are listed in the table below with their used designations.

In Europe the relative designations are predominant, based on the zero meridian towards west or east. While this is the most complex and longest designation it is one that leaves no room for misinterpretation. As satellites are positioned near the equator, it is not necessary to also give the latitude as it is always zero degrees.

	Absolute	Relative	Relative, in use
P1	20/30 degrees	+20/+30 degrees	20 degrees eastern longitude/30 degrees northern latitude
P2	320/30 degrees	-40/+30 degrees	40 degrees western longitude/30 degrees northern latitude
P3	335/-30 degrees	-25/-30 degrees	25 degrees western longitude/30 degrees southern latitude
P4	15/-20 degrees	+15/-20 degrees	15 degrees eastern longitude/20 degrees southern latitude
Sat. Astra	19,2 degrees	+19,2 degrees	19,2 degrees east
Sat. Hispasat	330 degrees	-30 degrees	30 degrees west

When installing a polar mount antenna the most important parameter – apart from the exact positioning of the mast pointing north from its horizontal installation – is the precise determination of the southerly direction at the location. In most cases a compass will be used to find the exact south. However, the results are frequently inaccurate and problematic in principle, as the following sources of error clearly demonstrate:

1. The magnetic north pole as indicated by the magnetic needle of a compass is not the same as the geographic north pole and shifts from year to year. This is also the reason why nautical charts – which have to show the exact geographic north – have to be redrawn almost every year and are sold with revised information in certain intervals. To give you an understanding of the deviation look at the following comparison for a specific point in time:

The magnetic north pole was situated north of Canada at

- approx. 100 degrees western longitude and
- approx. 75 degrees northern latitude
- and that was approx. 1,500 km away from the geographic north pole.

The magnetic south pole was approx. 2,500 km away from the geographic south pole and was situated at

- approx. 140 degrees eastern longitude and
- approx. 65 degrees southern latitude.

The further north we move, the larger the deviation caused by a compass becomes (depending on the geographic longitude, however).

2. Below the surface conditions may exist that influence the magnetic field.

3. Objects made of metal (such as metal roofs, railings, concrete reinforcements etc.) may be located close to where the compass is used. These objects may severely interfere with the magnetic field.

4. Even the sunspot activity may distort the earth's magnetic field.

5. The glass protecting the magnetic needle may become electrostatically charged and then causes massive measurement errors if one is not cautious enough. Plastic coverings are particularly problematic in this regard.

If all these issues are taken care of a compass may actually deliver quite satisfying results. Still, the most reliable determination of the southerly direction is by locating a satellite that is as close as possible in the exact south when seen from the given location of the antenna. As a rule of thumb, satellites are mostly spread with a 3-degree spacing, which makes this method very accurate. Generally however, you will first have to find out the exact position given in geographic longitude and latitude of the location of the antenna. If you need help obtaining these parameters please approach your local TV installer, check the Internet or look at special maps. If you know somebody owning a handheld GPS device this would also be a convenient way of finding out where exactly you are.

The 'bad habit' of giving the deviation of satellites from a southern direction towards the east or the west (azimuth) by stating the compass course is gaining ground. This requires that we have to take into account that a compass has its zero point in the north, which means that south is at 180 degrees. The compass rose is divided into 360 degrees and constitutes a right system:

0 north, 90 east 180 south 270 west.

If we assume that a satellite is positioned three degrees east of the southern direction, it has a compass reading of 177 degrees. It would be easier to simply state 3 degrees east, or azimuth +3 degrees (east).

There are cases when older marching compasses are being used to determine the exact south. These also have their zero point in the north, but the full circle is divided into 64 segments (with one segment equalling 5.625 degrees) and it is a left system:

0 north, 16 west, 32 south, 48 east.

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The satellites

Satellites have to remain in their position relative to the surface of the earth so that transmissions from them can be used commercially – they have to be positioned geo-stationary so that a fixed antenna can receive signals. Therefore, satellites have to meet the following conditions:

1. They have to rotate above the equator.
2. They have to move in the same direction as the earth.
3. They have to be positioned at a distance from the earth that allows them to take 24 hours for one full rotation (precisely $23^{\text{h}} 56^{\text{m}} 04^{\text{s}}$).

In order to fulfil these conditions Kepler's third law of planetary motion has to be applied:

The square of the orbital period of a planet is directly proportional to the cube of the semi-major axis of its orbit.

According to Kepler's first law of planetary motion the orbit is an ellipse. In our case the ellipse comes very close to a circle. The great elliptic axis a is thus replaced by the radius R , and the satellite's mass m can be neglected when compared to the earth's mass M . Applying Kepler's third law we thus arrive at the following constants:

$$U = 23^{\text{h}} 56^{\text{m}} 04^{\text{s}} = 86\,164 \text{ sec}$$

U = rotation time

$$G = 6,668 \cdot 10^{-11} \text{ N.m}^2.\text{kg}^{-2}$$

G = gravitation constant

$$M = 5,976 \cdot 10^{24} \text{ kg}$$

M = earth's mass

$$R = \sqrt[3]{\frac{U^2 \cdot G \cdot M}{4 \cdot \pi^2}} = \sqrt[3]{\frac{86164^2 \cdot 6,668 \cdot 10^{-11} \cdot 5,976 \cdot 10^{24}}{4 \cdot \pi^2}} = 4,215985 \cdot 10^7 \text{ m} \approx 42160 \text{ km}$$

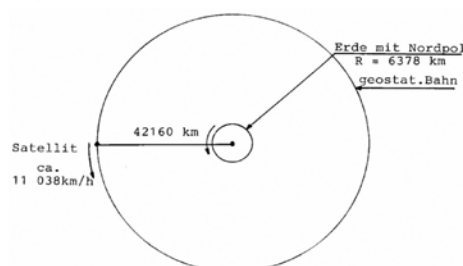


Fig.2

The speed of the satellite is this:

$$v = \frac{2 \cdot R \cdot \pi}{T} = \frac{2 \cdot 42160 \cdot \pi}{24} \approx 11038 \text{ km/h}$$

(The satellites are positioned at 42,160 – 6,378 km = approx. 36,000 km above the equator)

Polar mount antennas

If we were able to install a motorised antenna on the north pole or at the centre of the earth it would be possible to receive signals from all geo-stationary satellites – at least in theory. However, this would not be realistic even on the north pole as all satellites are below the horizon and therefore cannot be received. From this it follows that the reception range of an antenna that is directed towards the south and aligned towards the east or west is largest at the equator and gradually decreases the more we move north. At a northern and southern latitude of 80 degrees the range is zero. Calculations we will perform at a later stage will provide a scientific framework for this statement. As antennas realistically can only be set up on the earth's surface the proportions and relations of figure 3 apply.

The antenna is installed at a certain position P on the earth, with a northern latitude φ . If we now align the antenna to face precisely south, for example pointing to satellite $S1$ and rotate it around the axis PP' that has a pole-to-pole alignment until it points to satellite $S2$ it will not be able to exactly meet it as the antenna's radius is smaller than the distance $PS2$. It meets the equator plane at point $S2'$, i.e. somewhat lower. This in turn suggests that the elevation (see fig. 5) of the antenna has to be increased. The bigger the deviation from a precise southern direction, the bigger the margin of error. A check calculation was performed to find out of this margin of error that needs to be taken into account in practice: At the geographic latitude of 47 degrees and a ω value of 60 degrees the error is -0.41 degrees, which is negligible.

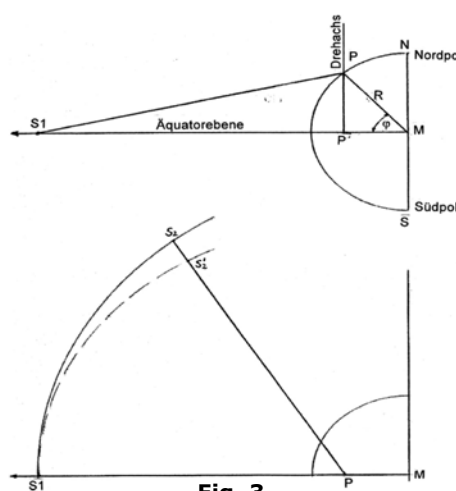


Fig. 3

M = centre of the earth

R = radius of the earth (6,371 km)

P = location of the antenna

φ = northern latitude of P

$S1$ = southern direction

$S1$ and $S2$ are satellites (fictitious)

$MS1 = MS2$ = radius of the satellites' orbit (42,160 km)

$PS1 = PS2'$ = radius of the motorised dish

If a spectator stands at location P and 'looks' in the direction of the satellites, what he sees appears to be similar to Fig. 4a. A satellite that is positioned in the exact south appears higher and those satellites that are located to the east or west appear closer to the horizon until they disappear below the horizon. Because of the earth's gravity spectators see the horizon as a horizontal line (see also Fig. 8).

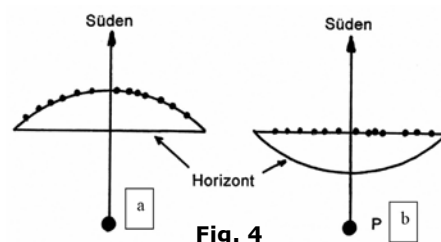


Fig. 4

A very different situation emerges when we deal with a polar mount antenna, as it rotates around the polar axis and 'sees' satellites next to each other in a straight line (which is why polar mount antennas are used in the first place). However, when the dish rotates the distance to the horizon changes, as Fig. 4b illustrates. Naturally, the antenna cannot perform an arc-like movement, because it only rotates around a single axis, which is aligned in parallel to the pole-to-pole line.

What we have learned so far clearly highlights the advantages of a motorised polar mount antenna when it comes to receiving a multitude of satellites and their respective channels. Such a set-up is not even very complex, with the single biggest issue probably being a suitable location to install the antenna. What you also need is a receiver which is capable of controlling a motor, as an extra device for motor control does not make sense. If you are computer-literate and both your receiver and your PC feature an RS-232 interface even the tiresome task of organising thousands of channels becomes manageable quite easily and if

you connect your receiver to your PC you will end with a fully-fledged information centre that leaves nothing to be desired. Language barriers can easily be overcome with the help of images and the Internet as well as TELE-satellite magazine are valuable sources of information for satellite enthusiasts.

Elevation towards the south

One of the determining factors for the successful installation of a polar mount antenna is the mast which needs to be inclined as precisely towards the north from its vertical position as possible. You may always correct a slight north-south deviation at a later stage when fine-tuning the complete system, whereas an imprecise east-west alignment can only be adjusted by moving the antenna mast.

Another underlying condition is knowing the precise geographic longitude and latitude of the antenna location – at least everything except the decimal places. As mentioned in the introduction these data can be obtained from specialists in the field or from friends owning a handheld GPS device. The geographic longitude is of particular importance, as it plays a crucial role for calculating the correct elevation and determining the southern direction. A compass should only be relied on as general guidance for identifying a southern direction, as its use is too error-prone.

It is much better to look for a satellite that is positioned as closely to the geographic longitude as possible. This of course requires a TV or monitor to verify the result and to avoid pointing the antenna to the wrong satellite (as satellites can be positioned rather close to each other). Fig. 5 indicates the correct angles which are required for the calculations that follow.

- M = centre of the earth
- N = north pole
- P = location of the antenna
- φ = geographical latitude of the location
- R = 6,371 radius of the earth
- MS = 42,16 radius of the satellite's orbit
- ε = elevation

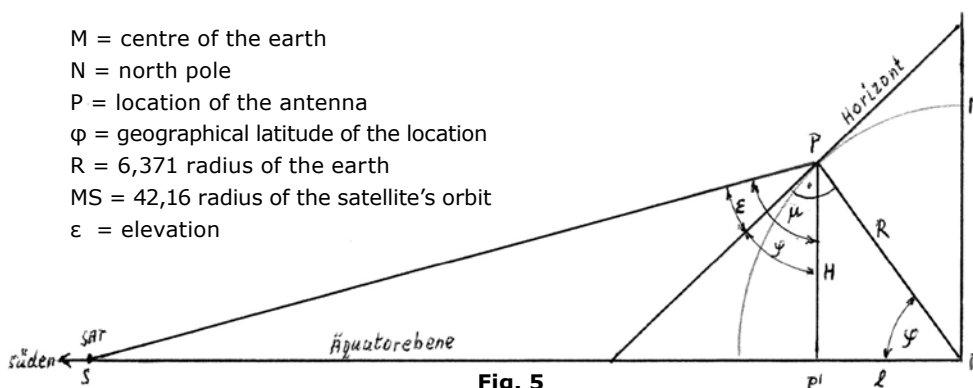


Fig. 5

$$\operatorname{tg} \mu = \frac{P'S}{H} = \frac{42,16 - 6,371 \cdot \cos \varphi}{6,371 \cdot \sin \varphi}$$

$$P'S = 42,16 - 6,371 \cdot \cos \varphi$$

$$\varepsilon = \mu - \varphi$$

This means the elevation ε towards the south is:

$$\varepsilon = \arctg \frac{6,6175 - \cos \varphi}{\sin \varphi} - \varphi$$

(Note that the radii of the earth and the satellite's orbit are shortened in the calculations.)

Figure 6 shows the angle by which the rotation axis for the antenna has to be inclined towards the north so that it is in parallel to the pole-to-pole axis.

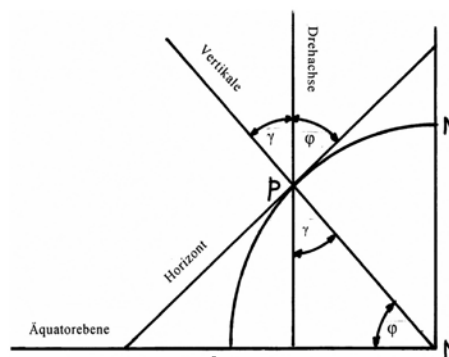


Fig. 6

Inclination towards the north against the horizontal level is: φ (conforms to geographical latitude)

Inclination towards the north against the horizontal level is: $\gamma = 90 - \varphi$

Inclination of the antenna towards the satellite

Once the rotating axis is inclined to the north by the appropriate angle the antenna has to be rotated downwards by the angle δ against the right angle towards the rotating axis, so that it 'looks' directly to a satellite that is south of the location.

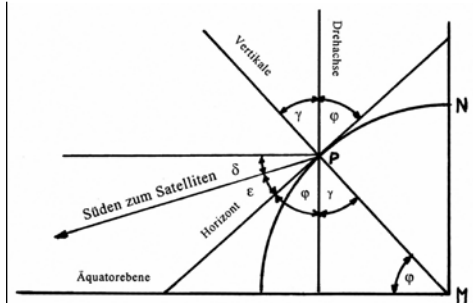


Fig. 7

Angle δ is defined as declination (deviation).

$$\delta = 90 - \varphi - \varepsilon$$

$$\delta = 90 - \varphi - \left(\arctg \frac{6,6175 - \cos \varphi}{\sin \varphi} - \varphi \right)$$

$$\delta = 90 - \arctg \frac{6,6175 - \cos \varphi}{\sin \varphi}$$

Maximum reception range

Naturally, a general calculation example like the one above cannot take into account local factors such as buildings, trees etc. that might influence reception at the respective location. The only value that can be calculated is the maximum angle that is limited by the horizon. This angle is calculated from the south towards east and west.

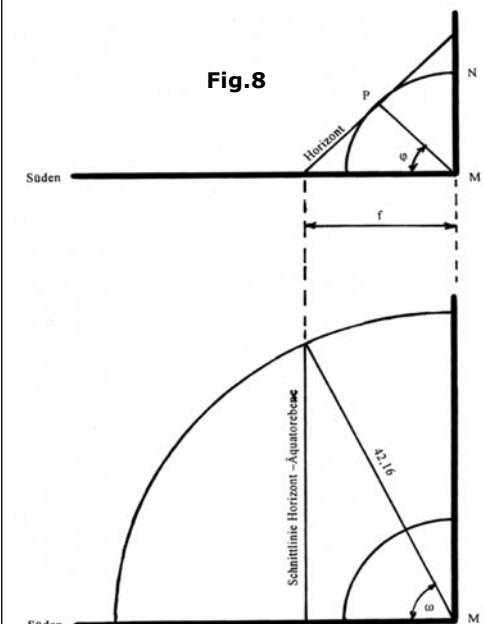


Fig. 8

$$f = \frac{6,371}{\cos \varphi} \quad \cos \omega = \frac{f}{42,16} = \frac{6,371}{42,16 \cdot \cos \varphi}$$

$$\omega_{\max} = \arccos \frac{1}{6,6175 \cdot \cos \varphi}$$

The maximum reception range ω depends on the geographic latitude of the location of the antenna, gradually decreases the further north the loca-

tion is situated, and reaches zero at 81 degrees northern latitude. The maximum reception range can be achieved at the equator at 81 degrees. Of course this is only true for satellites with a geo-stationary orbit.

The angle ω is calculated starting from a southern direction towards east or west. In order to find the largest possible number of available satellites (azimuth) the following formula applies:

Towards east: $\lambda + \omega$

(The correct algebraic sign has to be used for the geographic longitude λ of the location of the antenna)

Towards west: $\lambda - \omega$

(λ is positive for all positions east of the zero meridian.)

Polarisation

Figure 4b illustrates that the elevation changes automatically when the antenna is rotated. This at the same time implies that the antenna's orientation towards the satellites remains unaffected and the polarisation levels are the same for all receivable satellites and therefore need not be changed. Nevertheless, most receivers with integrated motor control come equipped with a device that corrects any possible tilt of satellites.

An LNB with built-in positioner can achieve this with either a coil with electric current flowing through it or an impulse-controlled tongue. Both options require a dedicated separate circuit from the receiver to the LNB. However, such measures are mostly obsolete these days as satellites can be controlled much more precisely than what used to be the case.

Parabolic/offset antennas

Figure 9 compares two basic antenna types for wavelengths of a few centimetres (approx. 10 GHz). For professional applications only parabolic antennas with a central reception unit (LNB) are in use, while for private reception offset antennas as shown in figure 9a are used up to a size of approximately 1.2 metres. With its more upright position an offset antenna is less exposed to the elements (rain, snow) and thus more convenient to operate in the private sphere.

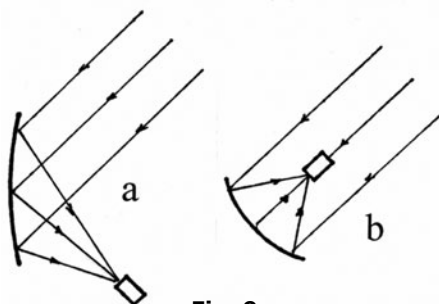


Fig. 9

Motor control

Traditionally, motorised antennas are powered by an actuator which consists of a shaft whose length is varied with the help of a DC motor. Such a motor has a uniform supply voltage of 36 V and changes its direction through switching the poles. A photocell is integrated in the motor for exact positioning. It creates the impulses for positioning through a perforated disc.

When this technology first surfaced external control devices had to be used to control the antenna's movements. Soon, however, new receiver models were introduced which were able to perform all required tasks and offered on-screen displays to set up the system in the first place.

36 V power packs usually supply current with at least 2 ampere, while the motors that are used generally require less than 1 A. Unfortunately, however, these devices are disappearing very fast and in most instances are replaced by so-called H-H motors.

Plus: sturdy design, hardly any repairs needed, suitable also for larger antennas.

Minus: separate circuit (5 wires) must lead to antenna, (+ and -36 Volt, ground, +5 V for electronics, impulse circuit)

DiSEqC

As more and more control functions had to be provided for one or more antennas and/or LNBs new and intelligent ways had to be found for providing control impulses via existing antenna cables. It then was a logical step to also integrate motor control into this system and using the regular antenna cable for impulse transmission (DiSEqC). As LNBs are supplied with 13 or 18 V depending on the polarisation level it made sense to use the same voltage for the motors as well. A current of between 0.2 and 0.3

A is required for these motors and can easily be generated by suitable receivers.

Plus: No separate line to the antenna required; DiSEqC via existing antenna cable is used instead. If motor is detached for repair there is still reception of one satellite, for example Astra.

Minus: As the current for the motor is 13 V or 18 V depending on the polarisation level of the received signal, both the speed and force of the rotation movement vary. Not suitable for very large dishes.

H-H

So-called H-H motor controls have been promoted by various companies for some time now. However, they do not fall into the polar mount category as their movement rather follows the circular line-up of satellites above the horizon that is shown in figure 4a. The antenna cable transmits all control signals. Due to their design H-H motor controls have to be physically attached to the antennas, which means that any repair requires the complete antenna to come down from the roof.

Plus: Rather easy installation, because all you need to know is the geographic latitude and the southern direction.

Minus: If repairs are necessary there is nothing left for reception. Only suitable for small dishes.

Practical example

We chose Munich is the location for our practical example. First, we collected all relevant data referring to our location and then performed all required calculations we might ever need for installing our antenna:

Geographic longitude:

$\lambda = 12,1$ degrees east

Geographic latitude:

$\phi = 48,1$ degrees north

Verification of the reception range:

$$\omega = \arccos \frac{1}{6,6175 \cdot \cos 48,1} \cong 77 \text{ Grad}$$

This means, in general the range to the east $\lambda + \omega = 12 + 77 = 89$ degrees and to the west $\lambda - \omega = 12 - 77 = -65$ degrees for the reception of satellites – azimuth +89 to -65 degrees. In actual fact, however, we will probably only be

able to really receive satellites between the Hispasat 30 degrees west (azimuth 42.1 degrees west) and the Panam-Sat 45 degrees east (azimuth 32.9 degrees east). Between these positions there are approximately 20 satellites transmitting more than 1500 free-to-air channels.

Next we have to perform all additional calculations, even though not all might be needed, depending on the make and model of the antenna:

$$\text{Elevation : } \varepsilon = \arctg \frac{6,6175 - \cos 48,1}{\sin 48,1} - 48,1 \cong 35 \text{ Grad}$$

$$\text{Deklinatıon : } \delta = 90 - \arctg \frac{6,6175 - \cos 48,1}{\sin 48,1} \cong 7,1 \text{ Grad}$$

Inclination of the rotating axis towards the north:

$\varphi = 48,1$ degrees against the horizontal line

$\gamma = 90 - \varphi = 90 - 48,1 = 41,9$ against the vertical line

Once all calculations are finished we have to look for a suitable spot to install the antenna. While perfect reception is the number one focus we nonetheless have to take into account other factors such as a robust support for the antenna mast (making it windproof and earthing it) and any restrictions or limitations that exist at the location. Of course all regulations by local authorities must be adhered to as well.

We recommend contracting a specialised company for installing the antenna mast. This way you can make sure (i.e. they must make sure) the mast can take high wind loads and is protected against damage from lightning. Authorised businesses can also be expected to know local regulations and are responsible for not breaking any rules.

Now that all queries are solved the next step is buying the technical equipment. If you're not the tech-savvy kind feel free to ask a specialist for assistance.

As far as assembly is concerned you start out with the antenna support and with adjusting the antenna according to the calculated values with the help of the existing marking on the support. Next, the support is attached to the antenna mast and the antenna itself with the LNB is attached to the support. You then need to connect a monitor or TV to the antenna before you start rotating the antenna until signals from a southern

satellite can be received. We recommend Hotbird at 13 degrees east, as it almost exactly (only 0.9 degrees deviation) corresponds to the geographic longitude of Munich. To make sure you're hooking to the correct satellite it is paramount to select a channel from that particular satellite. The following channel, for example, can be used for Hotbird:

ZDF digital 11,054 GHz vertical
Symbol rate 27 500
SID 8011
Video PID 570
Audio PID 571
PCR PID 570

Please make a point in setting all required parameters, as the same channel with the same name is also broadcast from ASTRA. Also make sure that the marking for south on the antenna support is adjusted precisely while the complete construction is rotated on the mast.

Once you can confirm reception of Hotbird all that is left to do is tighten the fixing screws before you can rotate the antenna for the first time to its limit stops, and check if the motor works satisfactorily using a soft stop mechanism that is available with most receiver types and prevents the antenna from striking any obstacle that might be in its way.

In case a satellite close to the limit stops cannot be received or comes in only weakly you can slightly bend the antenna up or down to find out which of the two scenarios shown in figure 10 you are faced with. It is now that a less than perfect installation of the antenna mast shows its unwelcome consequences:

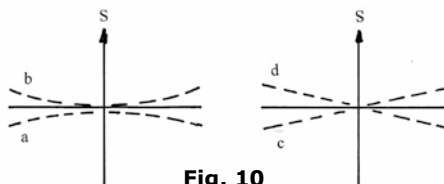


Fig. 10

- a: The rotation axis is not enough to the north
- b: The rotations axis is too much to the north
- c: The mast leans towards the east
- d: The mast leans towards the west

Mishaps like these can be rectified by readjusting elevation and inclination of the rotation axis – but always starting from a southern direction.

Addendum Compilation

λ = geographic longitude
 φ = geographic latitude
 ε = elevation towards south

$$\varepsilon = \arctg \frac{6,6175 - \cos \varphi}{\sin \varphi} - \varphi$$

δ = declination

$$\delta = 90 - \arctg \frac{6,6175 - \cos \varphi}{\sin \varphi}$$

ω = reception angle from the south
maximum no. of satellite positions (azimuth):

towards west: $\lambda - \omega$

towards east: $\lambda + \omega$

$$\omega_{\max} = \arccos \frac{1}{6,6175 \cdot \cos \varphi}$$

inclination of the rotation axis towards north:

against the horizontal level: φ

against the vertical level: $\gamma = 90 - \varphi$

radius of the earth = 6,371 km

orbit of the satellites = 42,160 km

Technical terms

Equator (Latin): balancer

Azimuth (Arab): angle between the meridian of the location of observation and the vertical circle of a heavenly body

Declination (Latin): deviation

DiSEqC (acronym): Digital Satellite Equipment Control. Transmission of data via the antenna cable by way of impulse controls using the 22 kHz tone. Developed by Philips and offering almost endless options. Even return channels can be implemented for more complex control set-ups.

Elevation (Latin): heightening, increase

Geodetic system (Gea = Greek: earth): system of imaginary lines covering the earth.

Horizon (Greek): skyline, horizontal level

Kepler: Natural scientist 1571 – 1630. Kepler's laws of planetary motion:

1. The orbit of every planet is an ellipse with the sun at a focus.
2. A line joining a planet and the sun sweeps out equal areas during equal intervals of time.
3. The square of the orbital period of a planet is directly proportional to the cube of the semi-major axis of its orbit.

LNB: Low Noise Block Converter (converter positioned in the focal point of the parabolic antenna and using an oscillator to convert the satellite frequencies into 950 to 2150 MHz, which then are transmitted to the receiver via the antenna cable)

Meridian (Latin): length, longitudinal circle. (0-meridian: longitudinal circle from the north pole via Greenwich near London to the south pole. Generally acknowledged as the zero meridian since 1884).

Monitor (Latin): device for observing images, video screen.

Polar (Greek): pivotal point; polar mount: mounted in a pole-to-pole direction.

Polarisation (Latin): direction (of waves).

Satellite (Latin): companion.

Greek characters that have been used:

λ Lambda δ Delta ω Omega π Pi
 γ Gamma ε Epsilon μ My φ Phi

Literature: Prof. Dr. Hans Heinrich Voigt, Göttingen university observatory „Abriß der Astronomie“ ("Abstract of Astronomy")

Take Advantage

A young woman with long, wavy red hair and blue eyes is smiling at the camera. She is wearing a red, ruffled, short-sleeved top. She is holding a black tablet computer with both hands in front of her chest. The tablet screen displays a white rectangular box containing text.

**Read TELE-satellite's Technical
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Basic Knowledge: Polar Mount Antennas

FEATURE Basic Knowledge

Polar Mount Antennas Motorised Antennas for Satellite Reception

Adolf Oberhuber

If you consult the relevant literature you will find that it is not at all – as it might seem – sufficient background information to be available about how the type of motorised polar mount antennas actually works. The same is true for the relevant formulas and their derivation. The following illustrations are meant to provide answers to all questions in connection with a polar mount. This also includes, inter alia, various size determinations for positions as well as calculations for the satellite orbit based on a specific example. Although the report is a collection of data and calculations which the author believes, have hitherto been scattered across an endless number of publications and accounts, for the sake of completeness and reference, technical terms and their origin will be explained in a separate addendum at the end.

Without reservation, all calculations presented in this report have been carried out with the aid of a computer. The author is not responsible for any errors or omissions. The author is not responsible for any damage or loss of data or equipment resulting from the use of the information provided in this report. The author is not responsible for any damage or loss of data or equipment resulting from the use of the information provided in this report.

The earth is a sphere. The distance of the earth's surface from the center of the earth is approximately 6,371 km. The distance of the earth's surface from the center of the earth is approximately 6,371 km. The distance of the earth's surface from the center of the earth is approximately 6,371 km.

In general, if a satellite antenna is to be pointed towards a satellite, the antenna must be pointed towards the satellite. The antenna must be pointed towards the satellite. The antenna must be pointed towards the satellite. The antenna must be pointed towards the satellite.



www.TELE-satellite.com/TELE-satellite-1207/eng/polarmount.pdf

DVB-S2: Hide the SD inside the HD

FEATURE Satellite Transmission Technology

H-8PSK Hierarchical Modulation

- backwards compatible to regular DVB-S2
- useful to pack SD and HD version of a TV program into one transponder
- very sensitive to misalignment
- may remain a niche technology

www.TELE-satellite.com/TELE-satellite-1207/eng/feature-h8psk.pdf

How a tuner for VCM operates

FEATURE VCM Tuner

VCM Signal Reception

- allows more than one stream for each transponder
- dynamic change of FEC coding rates
- different content can be assigned to different transmission modes
- compatible tuner needs function to determine coding rates
- VCM signals only receivable with compatible tuners

www.TELE-satellite.com/TELE-satellite-1205/eng/dvb-S2-vcv.pdf

DVB-S2 MIS Reception with VCM/ACM

FEATURE Satellite Reception

The New Flexible MIS Transmission Technology

- The receiver chooses the optimal reception mode
- Programming providers can optimize transmission modes
- Picture quality based on usable signal
- From "Broad"-Cast it becomes "Individual"-Cast

www.TELE-satellite.com/TELE-satellite-1201/eng/tenow-TBS6925.pdf

Automatic Creation of 3D

FEATURE 3 Dimensional Television

Automatic 2D-to-3D Conversion

- the tricks used to create a third dimension
- it's more easy than you think
- it won't be perfect, but adds a lot more fun
- only possible with digital TV

www.TELE-satellite.com/TELE-satellite-1109/eng/2d3dconversion.pdf

Software automatically creates the third dimension (depth)

Jack Pawlowski

The concept of automatic 3D creation is a very simple one. It is based on the fact that the human eye can only see two dimensions. The third dimension is created by the software. The software creates the third dimension by using the information from the two dimensions.



How a Silicon Tuner Works

FEATURE Tuner Secrets

What's inside a silicon tuner?

- a silicon tuner is a significant technological improvement that finds its way into nearly every new product in digital TV equipment

www.TELE-satellite.com/TELE-satellite-1107/eng/silicontuner.pdf

Channel Capacity of a Transponder

FEATURE Satellite Technology

How many SD/HD channels can we get from one transponder?

Jack Pawlowski

Everybody who ever studied satellite charts with transponder data knows that the transponder rate is one of its most important parameters. And that's not only because you need to know it to set the data in manual channel search in your receiver. Symbol rate directly affects the amount of useful data that can be transmitted via a transponder. The higher it is, the more data can be sent. Now, data means more TV and radio channels.

www.TELE-satellite.com/TELE-satellite-1107/eng/sdinhd.pdf

CI+ and HD+Encryption

FEATURE HDTV Copyright Management

CI+ and HD+Encryption

- prevents unauthorised distribution of HDTV content
- gives TV providers full control over content
- blocks many popular features – such as time-shift viewing and PVR functions – for customers

www.TELE-satellite.com/TELE-satellite-1107/eng/CI+HD+.pdf

How ABS-S Works

FEATURE New Digital Standard

ABS-S: a competition for DVB-S/S2?

Jack Pawlowski

When we were reading a press release about the launch of Zhongxing-9 (Changsheng-9), it looked like something quite routine. It was nothing out of ordinary that China had another DVB satellite in service. It was the coding and modulation the satellite was supposed to use that surprised us. It was neither DVB-S nor DVB-S2. It was something brand new: ABS-S (Advanced Broadcast System Satellite).

We all know that the introduction of a new digital standard is a complex task. It involves a lot of technical details and a lot of coordination. In the case of ABS-S, the complexity is even higher. It's not just a matter of changing the coding and modulation, but also the way the satellite is designed. The ABS-S satellite is designed to be a competition for DVB-S/S2. It's a new standard that is designed to be more efficient and more reliable than the existing standards. It's a standard that is designed to be a competition for DVB-S/S2. It's a standard that is designed to be a competition for DVB-S/S2.

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www.Tele-satellite.com/TELE-satellite-0903/eng/abs-s.pdf

Matching LNB with Dish

FEATURE LNB Types

Matching LNB and Dish Type

Jack Pawlowski

Most satellite receivers in Europe are now better able to deal with the different types of LNBs. This is a good thing, as it allows users to choose the LNB that best matches their dish. The LNB is a critical component of the satellite system, and it's important to choose the right one for the job. The LNB is a critical component of the satellite system, and it's important to choose the right one for the job. The LNB is a critical component of the satellite system, and it's important to choose the right one for the job.

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www.Tele-satellite.com/TELE-satellite-0811/eng/lbn+dish.pdf

How to Calculate the Power Factor

FEATURE Energy Saving

Power Factor

Jack Pawlowski

All our satellite receivers need electrical energy to operate. Obviously, all of us like to have the devices that consume as little energy as possible. But only our bills are lower than just one other part of our environment. In this article, we will explain how to calculate the power factor of a device. The power factor is a measure of how effectively the device uses the electrical energy it consumes. It's a measure of how effectively the device uses the electrical energy it consumes.

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www.Tele-satellite.com/TELE-satellite-0809/eng/powerfactor.pdf

How to Solve Problems with DiSEqC

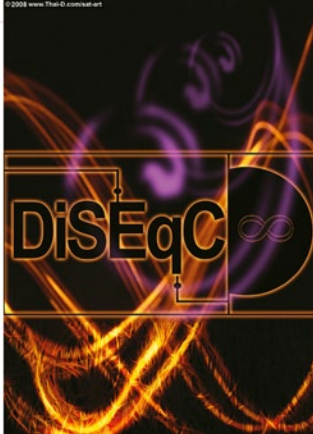
FEATURE DiSEqC

Why DiSEqC Isn't Always Reliable

Heinz Koppitz

The DiSEqC control system is a standard part of many satellite receivers. It's a system that allows the receiver to communicate with the LNB and the dish. It's a system that allows the receiver to communicate with the LNB and the dish. It's a system that allows the receiver to communicate with the LNB and the dish. It's a system that allows the receiver to communicate with the LNB and the dish.

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www.Tele-satellite.com/TELE-satellite-0807/eng/diseqc.pdf

How the 3D Diffractive Antenna Works

FEATURE Antenna Design

Development and Application of 3D Diffractive Antennas

Vladimir G. Vashin, Novosibirsk State Technical University, Russia

Recent years (1998-2008) have witnessed a rapid growth in the development and application of 3D diffractive antennas. These antennas are designed to be more efficient and more reliable than the existing standards. They are designed to be more efficient and more reliable than the existing standards. They are designed to be more efficient and more reliable than the existing standards.

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www.Tele-satellite.com/TELE-satellite-0805/eng/3ddiffractive.pdf

Relation between Dish Size and EIRP

FEATURE Dish Sizes

Dish Size versus EIRP

Jack Pawlowski

The dish size is a critical factor in determining the EIRP of a satellite system. The EIRP is a measure of the power of the signal transmitted by the dish. The EIRP is a measure of the power of the signal transmitted by the dish. The EIRP is a measure of the power of the signal transmitted by the dish.

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www.Tele-satellite.com/TELE-satellite-0803/eng/dishsize.pdf

Secrets of the Aspect Ratio

FEATURE Aspect Ratio

Aspect Ratio – Isn't This Simple?

Jack Pawlowski

The aspect ratio of a satellite receiver is a critical factor in determining the quality of the signal. The aspect ratio is a measure of the width of the signal relative to its height. The aspect ratio is a measure of the width of the signal relative to its height. The aspect ratio is a measure of the width of the signal relative to its height.

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www.Tele-satellite.com/TELE-satellite-0801/eng/aspectratio.pdf

How the Network Connection Works

FEATURE Receiver + Network

The Network Connection – a jack with multiple uses

Thomas Haring

The network connection is a critical part of many satellite receivers. It's a system that allows the receiver to communicate with the network. It's a system that allows the receiver to communicate with the network. It's a system that allows the receiver to communicate with the network.

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www.Tele-satellite.com/TELE-satellite-0711/eng/networkconnections.pdf

How the Ka Band Works

FEATURE Technology Background (Ka Band)

Ka-Band – the future of satellite communication?

Peter Miller

We are now familiar with the Ka band. It has been used for satellite communication for many years. It is the highest frequency band used for satellite communication. It is the only band that can provide the high data rates required for modern satellite communication systems.

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**DESCRIPTION: KU SUPER MINI SINGLE
MODEL :BK5-01**

KU-BAND

Features:

1. Dual Polarity Switchable
2. Super low Noise
3. Digital Ready
4. High Gain Output
5. Easy Installation
6. Waterproof



**DESCRIPTION: C-BAND SINGLE
MODEL :BC-103B**

C-BAND

Features:

1. Dual Polarity Switchable
2. Super low Noise
3. Digital Ready
4. High Gain Output
5. Easy Installation
6. Waterproof



KU-BAND SINGLE
MODEL: BK-101B



KU-BAND TWIN
MODEL: BK-201B



KU-BAND QUAD
MODEL: BK-401



KU-BAND OCTO
MODEL: BK-801



KU BAND DUAL SINGLE
MODEL: BKM-01



C-BAND TWIN
MODEL: BCM-12B



C-BAND QUAD
MODEL: BCM-14



C-BAND ONE CABLE SOLUTION
MODEL: BCS-11



C-BAND V./H. OUTPUT
MODEL: BCM-11



C+KU-BAND
MODEL: BCK-13



DiSEqC 2x1
MODEL: BDS-23



DiSEqC 4x1
MODEL: BDS-43



DiSEqC 4x1
MODEL: BDS-45



DiSEqC 8x1
MODEL: BDS-81



DiSEqC 4x1
MODEL: BDS-46



DiSEqC 4x1
MODEL: BDS-47



MULTISWITCH 2x4
MODEL: BMS-24



MULTISWITCH 2x6
MODEL: BMS-26



MULTISWITCH 2x8
MODEL: BMS-28



MULTISWITCH 4x4
MODEL: BMS-44



MULTISWITCH 4x6
MODEL: BMS-46



MULTISWITCH 4x8
MODEL: BMS-48



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Boiingsat[®]

Новые, супер- современные производ- ственные мощности GOOSAT

■ GOOSAT moved into this new production facility in Zhuhai, China in 2011. Several million digital TV receivers are made here every year.

- **Производство по высшим техническим стандартам**
- **200 сотрудников в области исследования и разработок**
- **3D разработки**
- **Производственные мощности до нескольких миллионов ресиверов в год**
- **Расширение в сферу производства телевизоров**

The newest manufacturing plant allows very high production rates at low prices

■ Mike Miao is GOOSAT's founder and chief. He takes care of all strategic decisions.



One of the most modern receiver and TV production lines was placed into service by GOOSAT in January of 2011. The production line was started up in multiple steps through the course of the year and by the end of 2011 it was time: TELE-satellite could visit GOOSAT's super new and super modern fabrication plant in Zhuhai.

Zhuhai is the "little sister" to the gigantic city of Shenzhen. The city is located on the western edge of the Pearl River, right next to Macao. While Shenzhen is the world's





THOMSON

Digital High Definition Satellite Receiver

Incredible pictures and sound

TSR600CI+



- ▶ HDTV (1080i) receiver for all digital Free-To-Air and pay TV programmes via its CI+ slot
- ▶ Pre-installed channel lists
- ▶ USB port for recording of TV and radio programmes, playing MP3 and viewing JPG images
- ▶ Event (daily, weekly) and one touch recording
- ▶ Timeshift: pause live TV and resume later
- ▶ Standby switch on the front
- ▶ **Connectors:** SAT IN, SAT OUT, HDMI, TV SCART, Audio L&R, CVBS video, S/PDIF coaxial, IR IN; USB and CI+ slot on front

Digital Satellite Receiver

Exquisite with many extras

TSR200



Digital Terrestrial Receiver

Great convenience and entertainment

TTR100



Digital Terrestrial Twin Tuner Receiver

Flexibility with twin tuner and recording capability

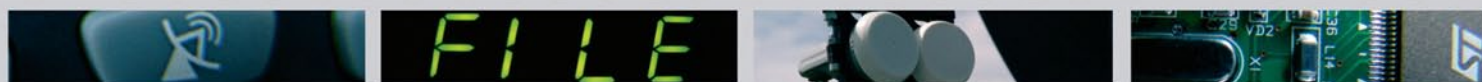
TTR110



Digital Terrestrial Receiver

Small and amazing with USB recording

THT91





■ This 250-seat auditorium is used by GOOSAT to organize meetings and other events and includes everything from employee training, company presentations up to dealer training classes.





■ Marketing manager
Josie Yang in GOOSAT's
showroom in front of a large
logo.

receiver manufacturing headquarters, competition is growing between Shenzhen and Zhuhai.

GOOSAT actually has its roots in Shenzhen. TELE-satellite reported on this back in the 02-03/2011 issue. Sure enough, GOOSAT's factory isn't located in central Zhuhai, but rather it can

be found 30km away in Hongqi Town where you'll find a brand new 300,000 sq-meter building. The central section contains GOOSAT's administration as well as the Research and Development engineers and programmers. The actual production facility can be found in the two adjacent sections of the building.

Production is already in the millions reveals Marketing manager Josie Yang

to us: "In 2010 we produced 4.2 million digital TV receivers." It was a little less in 2011.

The outlook is much better for 2012: "We're expecting to boost production to 4.5 million pieces in the new factory in Zhuhai." Above all, sales will significantly rise considering that the quality of the products will increase thanks in part to the new manufacturing machines.



1

"We're also planning to play a stronger role in TV production," comments Josie Yang. "We started our first delivers to The Middle East." The numbers are still somewhat small; in 2011 only about 10,000 TVs were shipped. But in 2012 plans call for a ten-fold increase. "We'll also

start selling TVs domestically here in China and we expect to sell 200,000 TVs." Of course, selling TVs in Europe is also part of the plan.

The TVs already manufactured for The Middle Eastern market are Plug&Play versions; the built-in tuner

can be either a DVB-S or DVB-S2 model. "For Europe we're making TVs with built-in DVB-T tuners." But when Josie Yang spoke about 3D TVs, the conversation got much more interesting: "We're hoping to be able to introduce a triple tuner 3D TV in 2012 with DVB-S2, DVB-T and DVB-C tuners."

1, 2: On GOOSAT's roof: a small satellite antenna farm. In the background can be seen housing for the production employees.



2

SmartWi wireless Multi Room Solution



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Warmest welcome
Mr. Alexander Wiese
of TELE-satellite Magazine
to visit Globalsat!

GOOSAT 全星

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Globalsat Technology (Zhuhai) Ltd.

朗朗电子科技有限公司

Longlong Electronics



GOOSAT
Receiver and TV Manufacturer, China
www.goosat.com

Company Details

Engineers in Research & Development | Total Number of Employees

0 250 500

Average Turnover (Previous, This, Next Year Estimates)

0 75 150 Mio US\$

Production Certificates
RoHS, FCC, UL, CE, DVB, ISO

Main Products
Receiver for HDTV and SDTV in DVB-S/S2, DVB-T, DVB-C, ISDB-T, HD+, CI+ and HbbTV, Multimedia Receiver, IPTV Boxes, Media Player, TV Monitors with built-in receivers

GOOSAT's New Super-Modern Production Facility

www.TELE-satellite.com/TELE-satellite-1101eng/globalsat.pdf
www.TELE-satellite.com/TELE-satellite-1201eng/globalsat.pdf

Technically this is possible but Europe has strict technical requirements that GOOSAT engineers still have to tackle: "Power usage has to be reduced; our TVs are still above the values required for Europe", we found out.

The huge numbers that GOOSAT can manufacture can also be found in other providers of TVs and digital receivers. Up until now GOOSAT has been understood to be an OEM manufacturer; they produce receivers that dealers sell under their own brand name. If GOOSAT were to find a suitable brand name and acquire it, then this situation would change.

"We are ISO certified", explains Josie Yang, "That has helped us to further optimize our production process; the knowledge contained in the ISO standard is actually quite useful for a perfect production line."

That's how the company, founded by Mick Maio in 2004 ("our first office was 14 Sq-meters in size"), has managed in just a few years to become one of the top digital TV manufacturers and thanks to the most modern production facilities have formed and excellent foundation to actively take part in the development of the international digital TV market.



CERTIFICATE OF REGISTRATION

Certificate No.: 117 11 QU 0194-06 ROM

This is to Certify the Quality Management Systems of
Globalsat Technology (Zhuhai) Co., Ltd.

Location 66 Yongda Road, Hongqi Town, Jinwan District, Zhuhai, 519045, P. R. China

has been assessed and registered as meeting the requirements of
ISO9001:2008

Scope of approval
Development, Production and Export of Digital Set-Top-Boxes

Signed by:

Approval Date: 20 Jun. 2011
Expiry Date: 19 Jun. 2014

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Certification and Accreditation Administration of P.R.C. (CMAA) 2008-127
The United Kingdom Accreditation Service (UKAS) No. 289
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Certificate No.: 117 11 E1 0238 ROM

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Location 66 Yongda Road, Hongqi Town, Jinwan District, Zhuhai, 519045, P. R. China

has been assessed and registered as meeting the requirements of
GB/T24001-2004/ISO14001:2004

Scope of approval
The Related Environmental Management Activities of Development, Production and Export of Digital Set-Top-Boxes for Globalsat Technology (Zhuhai) Co., Ltd. Located in 66 Yongda Road, Hongqi Town, Jinwan District, Zhuhai, 519045, P. R. China

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GOOSAT has achieved the ISO9001 certificate in 2008 and the ISO14001 in 2011



1

Research & Development Department

1. The designers work here. They are responsible for the physical appearance of GOOSAT's products. The 20 employees construct the front panels, the packaging, the housing and the physical shape of the circuit boards.

2. Ian is in charge of the Hardware Team. He is seen here holding one of the newest GOOSAT HDTV receiver models in his hands.

3. The Hardware Team. 35 engineers are constantly at work further developing GOOSAT's receiver product line.

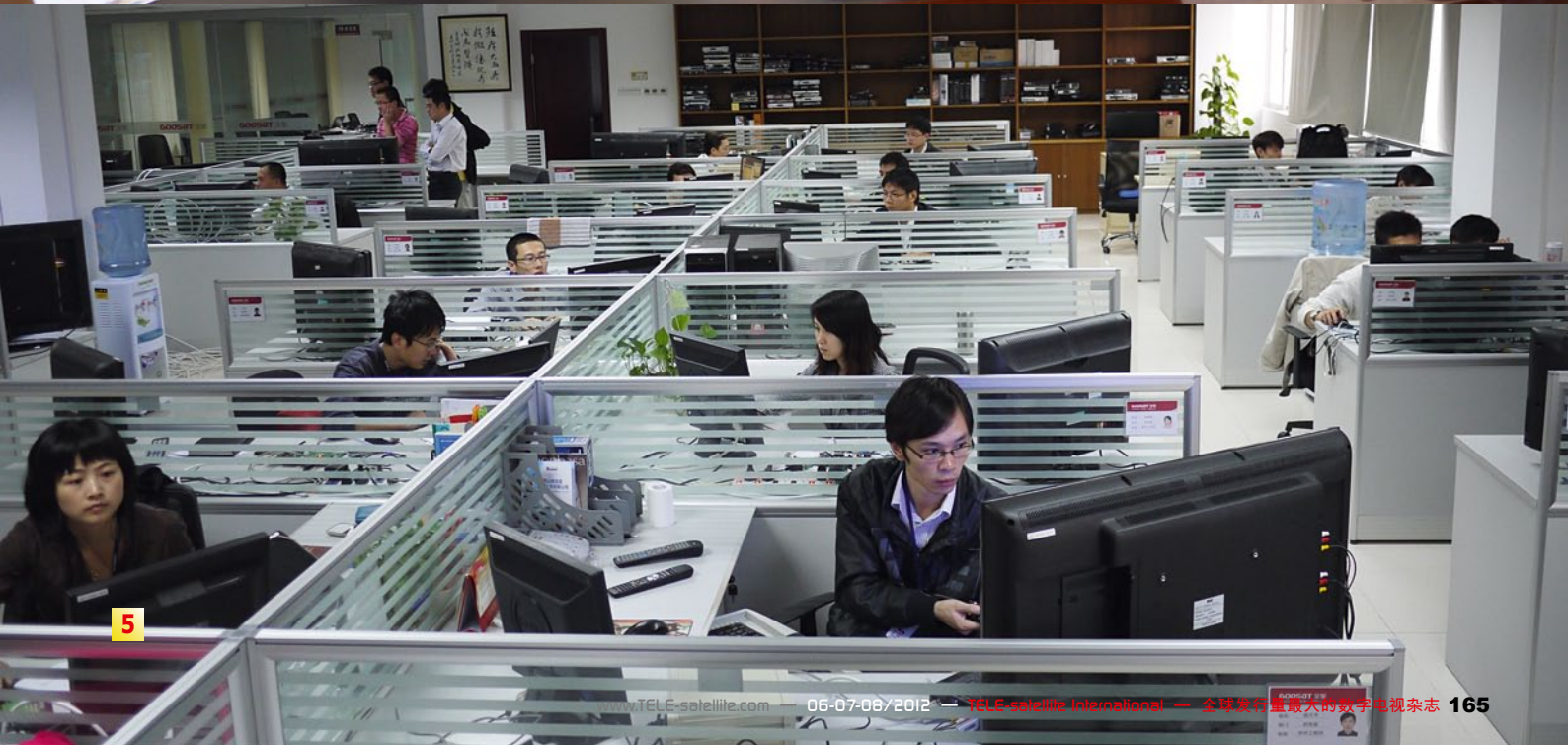
4. Denny Wu (right) runs the Software Team. CTO (Chief Technical Officer) Bean Zou (left) watches over the entire technical development process at GOOSAT.

5. GOOSAT's Software Team is also made up of 35 engineers.



2

GOOSAT 全星





6

6. What is this Software Team employee doing? She has an exciting job; she is developing 3D technology for GOOSAT products. Michelle is Project Manager in the R&D Team and is testing the function of a brand new GOOSAT 3D model. We can't wait for this receiver to become available!

7. In the software testing lab. Hui Li (center) runs the team that checks the receiver software functions.

8. The hardware testing room. New receivers models are checked here against their technical specifications. The 12 engineers have access to the most modern test equipment.

9. An employee is checking the function of a receiver using this super test instrument from Rohde&Schwarz. The instrument generates the various digital TV standards from around the world so that the receivers can be checked to see if they work with these different standards.



7

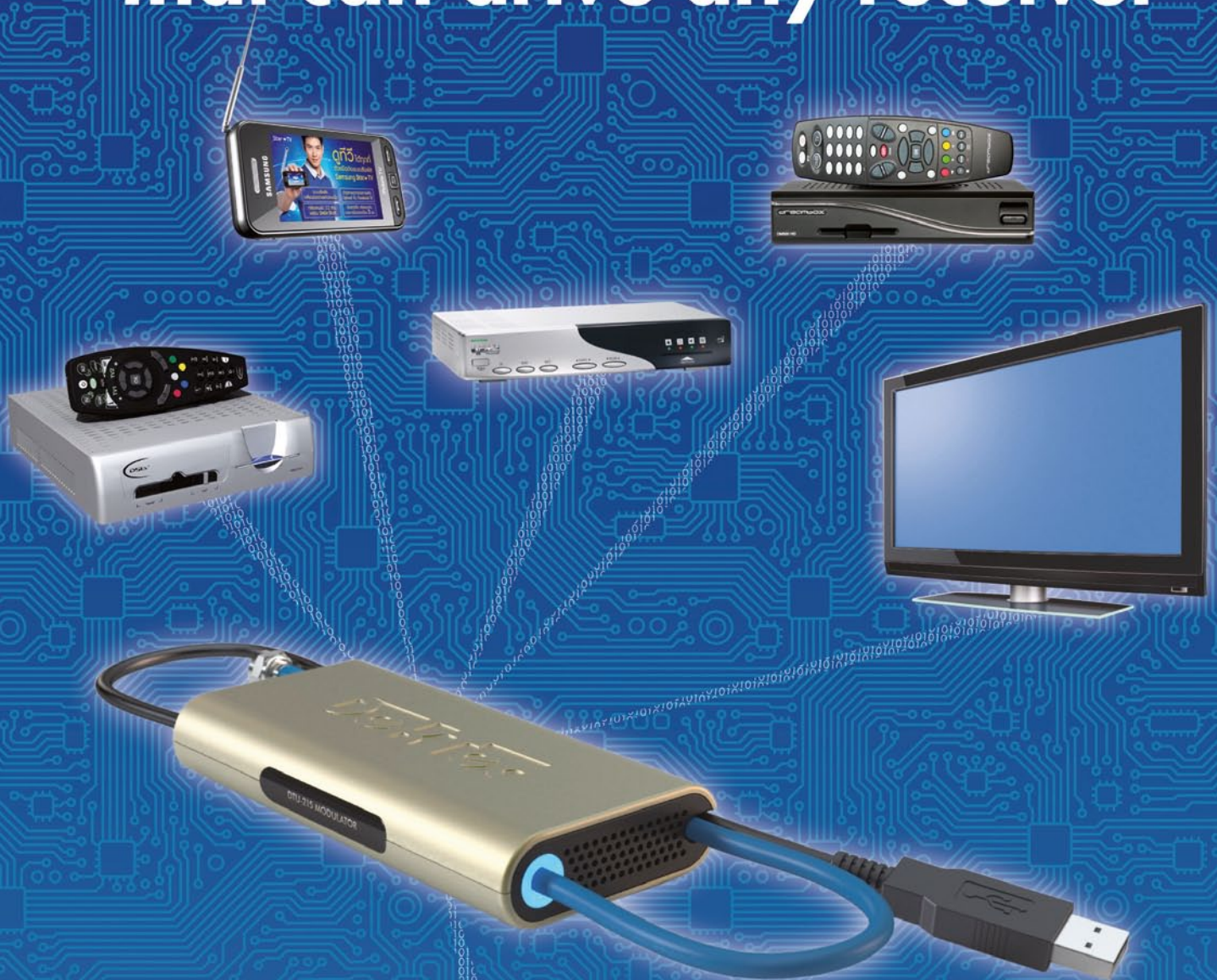


8



9

The USB-2 VHF/UHF Modulator that can drive any receiver



DTU-215-GOLD

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DeKtec
www.dektec.com



10



11

Circuit Board Production

10. Frank Ma is arguably the most important man in production; he's in charge of the section with the SMT machines. "Roughly four million USD was invested here", namely in a total of eight of the newest SMT systems. "Each SMT line is operated around the clock in two shifts from 8AM to 8PM. We can manufacture 1500 HD receiver circuit boards or 3000 SD receiver circuit boards on each machine. On top of that we produce lead-free!" At the moment production puts out about 300,000 pieces every month; in 2012 it will increase to 500,000 pieces. The machines are located in a clean room and can only be accessed through a special air lock. This guarantees extremely high production quality.

11. An employee is examining a circuit board for obvious defects before she sends it to an oven.

12. This AOI (Automatic Optical Inspector) checks the circuit boards for the smallest of defects fully automatically. Each GOOSAT SMT machine leads to the AOI at the end of the oven in which the surface mounted components are soldered onto the circuit board. Here we see two AOIs at the end of the oven and then...

13. ...here we see one of GOOSAT's all new double ovens: it is fed by two SMT machines. At a T junction (center) the two conveyor belts from the two SMT machines meet; the two circuit board belts run parallel into the oven. The best part: "If one of the SMT machines is loading an HD circuit board and the other is loading an SD circuit board, then the two conveyor belts run at different speeds through the oven", explains SMT Manager Frank Ma. "One HD circuit board carries from 400 to 600 components while an SD circuit board only carries from 200 to 500 components." The soldering process runs at 274°C so the HD circuit board that has more components must run at a slower speed through the oven. The monitor on the oven displays the two conveyor belts (middle of the monitor) and the circuit boards on the belts (black dots).



12



13



14



15



17



16

Receiver Assembly

14. Factory Manager Ren watches over a production employee. He explains: "140 employees assemble here each shift on five assembly lines."

15. Video function in-process inspection.

16. Samples from the circuit board production line pass through quality control before assembly and are functionally checked.

17. The tuner is placed on the circuit board here.



18



19



20



21



22



23

Receiver Assembly

18. Each and every circuit board is functionally checked before final assembly.

19. Production samples are tested. Six work stations are available for the eight quality inspectors. Using modern test equipment these inspectors check the functions of production samples. The ISO standard dictates exactly how many samples must be tested based on manufacturing conditions.

20. Final assembly takes place here: the completed circuit boards along with the power supply are installed in the housing. Eight of these assembly lines are operated by GOOSAT in this section; 300 employees work here per shift.

21. A completed receiver. Before it is packaged or sent as a production sample to quality control, it is given a quick check here of its critical functions.

22. GOOSAT also manufactures TVs. An employee is seen here testing the functions of a 32" LCD model.

23. A special feature with GOOSAT TVs: the Plug&Play receiver slot on the side of the TV. Either a DVB-S or a DVB-S2 tuner can be inserted here depending on what the customer wants. Models with DVB-T are also available for Europe.



Sales Team

24. Alvin is in charge of the Sales Team. In the past you could find him at almost any trade show. Today, though, he works more out of his office. He is constantly in contact with international customers. The Calligraphy on the wall means "If you work hard, you'll get rewarded".

25. If you want to purchase GOOSAT products as a dealer or distributor, you'll end up with the Sales Team. 35 employees handle orders that come in from around the world. Currently, the majority of GOOSAT's exports land with customers in The Middle East as well as Europe although the new markets emerging in South America (ISDB-T) and Africa (DVB-T2) have recently come into the focus of GOOSAT's Sales Managers.



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El Tu(r)bo de Carlos



■ One of the few remaining Villas in the sea of apartment buildings in the Ipiranga quarter of Sao Paulo. No one has any idea that there's a small but energetic satellite dealer and installer headquartered here. The satellite antennas can't be seen from the street.

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A Psychologist Sells Reception Equipment

The somewhat convoluted path to a successful online business



■ Carlos Augusto de Quadros in front of his home that at the same time doubles as the headquarters of his Internet shop. Two dishes are located in front of the door; the upper 60cm dish is aligned with HISPASAT at 30W while the lower 38cm antenna receives the Sky package on INELSAT 11 at 43W.

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COMNEWS

Carlos Augusto de Quadros very proudly shows us his student ID: he's studying Psychology. What does that have to do with digital TV? "It helps me with my online store", he explains to us. He's been selling products for antenna builders and satellite system installers since 2006. But it all started long before that.

"My father started it all in 1977 by installing antennas. Of course, back then they were used for terrestrial TV." Carlos would go to school in the morning and then help his father in the afternoon with these antenna installations. "I stood below with a walkie talkie and told my father which way he should turn the antenna." While his father later on moved on to a different line of work, namely the installation of lightning arrestors, young Carlos could not give up installing antennas. Then in 1991 came his first satellite

dish: "It was a 2.4-meter antenna that was pointed to the then-popular BRASILSAT 1 satellite." Carlos found the meaning of life. In 1992 he started his own business Omega-sat. Why Omega? "Simple, it's a nice name." In just his second year, his business took off - Brazilians had discovered satellite reception. "I installed at least one satellite antenna every day, sometimes it was two or even three a day." With the help of two others he managed to install 400 antennas a year.

His best year was in 1994 when he installed 2000 systems. But he began to realize that the demand for materi-

als was increasing so he started selling installation components. But he was young and wanted first to finish with school and then study at a university. "I was always interested in Psychology and so I started working towards that." It was an unusual combination that in the end helped him out with his customers. But no matter what, he now had a college degree. "I could





2

1. All the satellite cables meet here. Seven satellite receivers are used for reception. The 3D channel from RedeTV can be seen on Carlos' flat screen monitor. It can be received all over Brazil via STARONE 2 in C-band.

2. Carlos demonstrates to us using a Trimax signal analyzer that there's no problem with reception. "It's the only satellite that can be received in Brazil with such a small antenna."



always work at something else", says Carlos who is free to do what he wants. But he's too much of a TV enthusiast; anything else would probably just irritate him. He runs his business together with his daughter: "I might have to hire a helper soon."

So how is his business doing? "I sell about 1000 receivers a year. In 2011 70% of them were HD models, 20% SD models and 10% analog boxes." Receivers make up 60% of his sales followed by 30% LNBs and then 10% splitters and DiSEqC switches. "This adds up to about US\$100,000 dollars in sales a year." For the future he's expecting the number of combo receivers to increase thanks in large part to the strong expansion of the ISDB-T terrestrial network with all of its new HD channels.

At first glance the origin of his customers is surprising: "20% of my shipments go to the Pará province in northern Brazil. It's a sparsely populated area and for that reason satellite reception is often the only way to get TV. And since those people might still be very poor, they somehow manage to get the money together and quite often buy the components from my shop." It's interesting to note that Carlos achieves only 30% of his sales from his own website (www.antenaomega-digital.net); 70% of his sales are generated by his presence on the Internet platform mercadolibre, the Brazilian version of eBay. Foreigners are another large customer segment; they want to watch their TV from home or TV in their native language. "On my website I show those who are interested what channels in what language can be received here."



So, what's this "Tubo" or "Turbo" from Carlos all about? "It's an extension tube that amplifies the received circularly polarized signals in the C-band." This tube with the reception probes is placed in front of the LNB and aids in the reception of weaker signals. "It replaces the Teflon tab that would otherwise be used to separate the cir-

1. Carlos sells all varieties of LNBs in his Internet store.
2. Sky took over DirecTV a few years ago. The dishes that were used for DirecTV became useless - that is until Carlos had a special adapter built for him. It lets you install the new LNBs on the old dishes; the small plastic adapter is still a bestseller for him.

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1



2



cular signals”, explains Carlos. As you can see, both names actually make sense: it’s a “Tubo” (tube) as well as a Turbo for satellite reception. “Only a few enthusiasts know about this and even fewer dealers sell this device.”

Carlos, the Psychologist, is always on the lookout for new ideas that he can offer to his customers. “I’m an optimist and I’m looking forward to the future”, says Carlos. There’s nothing to stop the continued growth of his small company .

1. The shelves are full of LNBs. Naturally Carlos also sells PFA LNBs for the Ku-band.

2. “El Tubo des Carlos”: with this extension tube Carlos improves the reception of circularly polarized signals.

3. A look inside this tube: multiple reception probes enhance the reception of circularly polarized signals.

4. Can you see the satellite dishes? Only if you look really close can you recognize the dishes: (from left to right) 60cm for SATMEX 6, 60cm for C2, 60cm for ESTRELLA DO SUL 2, 60cm for GALAXY 28, 80cm for TELSTAR 12, 160cm for NSS 806 in the C-Band, 130cm for INTELSAT 9 in the C-Band, 60cm for GALAXY 28 and to the far right 150cm for STARONE 2 in the C-Band

SVEC – наступление качеством

■ A large dish highlights the location of SVEC's administration building in Chengdu in China's Sichuan province. The manufacturing facilities can be found directly behind the administration building.



- **Большие инвестиции в контроль качества**
- **Расширение в область производства VSAT и Ku-банд**
- **Открывает новое полностью автоматизированное производство спутниковых антенн**
- **Фокус на сегмент антенн высшего качества**





■ SVEC CEO Wang Duo

High Investment in Product Quality

SVEC (Sichuan Video Equipment Company) has been manufacturing satellite antennas of all sizes since 1993. Production quantities are enormous: SVEC manufactures several million dishes each month. The most popular dish types are 60 and 75cm offset antennas. Next in line are 1.2 and 1.5-meter diameter dishes. But SVEC also manufactures large segmented

dishes with diameters of 2.4 meters. Lately SVEC is concentrating on expanding their professional VSAT antenna business. "We also offer Ka-Band dishes for Internet-via satellite", we learn from Becky, Manager of the International Sales Team. And, really, that's the reason why we came to pay a visit to SVEC: professional products require professional production.

We already reported on SVEC back in TELE-satellite 02-03/2010 issue. Even back then we already mentioned how SVEC was becoming active in VSAT and the Ka-Band. Since then SVEC has invested enormously to not only guarantee production quality but also to raise the quality to new levels; levels that are unheard of for a manufacturer that produces millions of dishes every month.

China Satellite

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"We are currently installing a robotically controlled production system at our location in Jiangzhou not far from Shanghai", explains Becky to us, "It's an assembly line similar to what you'd see at an automobile manufacturer. The manufacturer of the assembly line adapted it to our satellite dish production line."

As soon as the new production line goes into operation, which is planned

to take place around the same time this edition of TELE-satellite is published, SVEC will be able to produce satellite dishes at quality levels that have up until now been unreachable. Becky explains: "Thus far, the raw dishes have been manually dunked in various baths to remove any oil residue to prepare the dishes for the spray painting station and so on." With the new assembly line all of these tasks will now be handled automatically.

"We will then only need two technicians to watch over the system." That portion of manual work will disappear: "The application of paint to the dishes can then lie within extremely tight limits." It's a precision that currently cannot be reached with manual spray painting.

Becky points out yet another advantage of this new production system: "We can therefore react very quickly



■ A look in SVEC's showroom with a variety of satellite dish types and shapes.

SVEC Dishes from Chengdu/Sichuan

Alexander Wiese

The Sichuan province is well known outside of China for its spicy cuisine. A national favorite is the "Hot Pot", in one pot with two separated sections a very spicy soup and a mild soup are heated up into which chopsticks are used to dunk in different types of food for a few minutes. This could be thinly sliced pieces of meat or vegetables. Along with that you drink sweetened Wong Lo Kat herbal tea to offset the spiciness of the Hot Pot. The company SVEC in Sichuan's capital city of Chengdu, a city with eight million inhabitants in southwestern China, has its own spicy menu. SVEC is looking for new challenges adding to their production of satellite dishes: they want to play a much bigger role in the world market with high quality products.

Alexander Wiese identifies SVEC's location in Chengdu as a reference. The international leading in the regional and in the space in the field is the satellite dish production facility.

The city of Chengdu itself has a long tradition for electronic communications in China. Its University of Electronic Science and Technology is very famous and has set up one of the first Academic Science majors in all of China's universities. It is well known that the best engineers in electronic communications can be found in Chengdu. About 30 factories are located in Chengdu.

In the High-Tech Development Park, West Zone, the first SVEC manufacturing facility is located. It is located well beyond Chengdu's third city ring but still within its city limits. At the conference table in the spacious office, Wang Duan, SVEC's Board Director, explains to us the company's strategy and begins with its own production. SVEC began in 1983 with the production of 1.5-meter aluminum antennas for the Chinese space program. In 1993, the first year out 30 employees produced 10,000 antennas.



TELE-satellite World

Ranking of the world's largest satellite dish manufacturers by production volume in 2009

Rank	Company	Production Volume (Units)
1	SVEC	10,000
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■ SVEC company report in TELE-satellite 02-03/2010

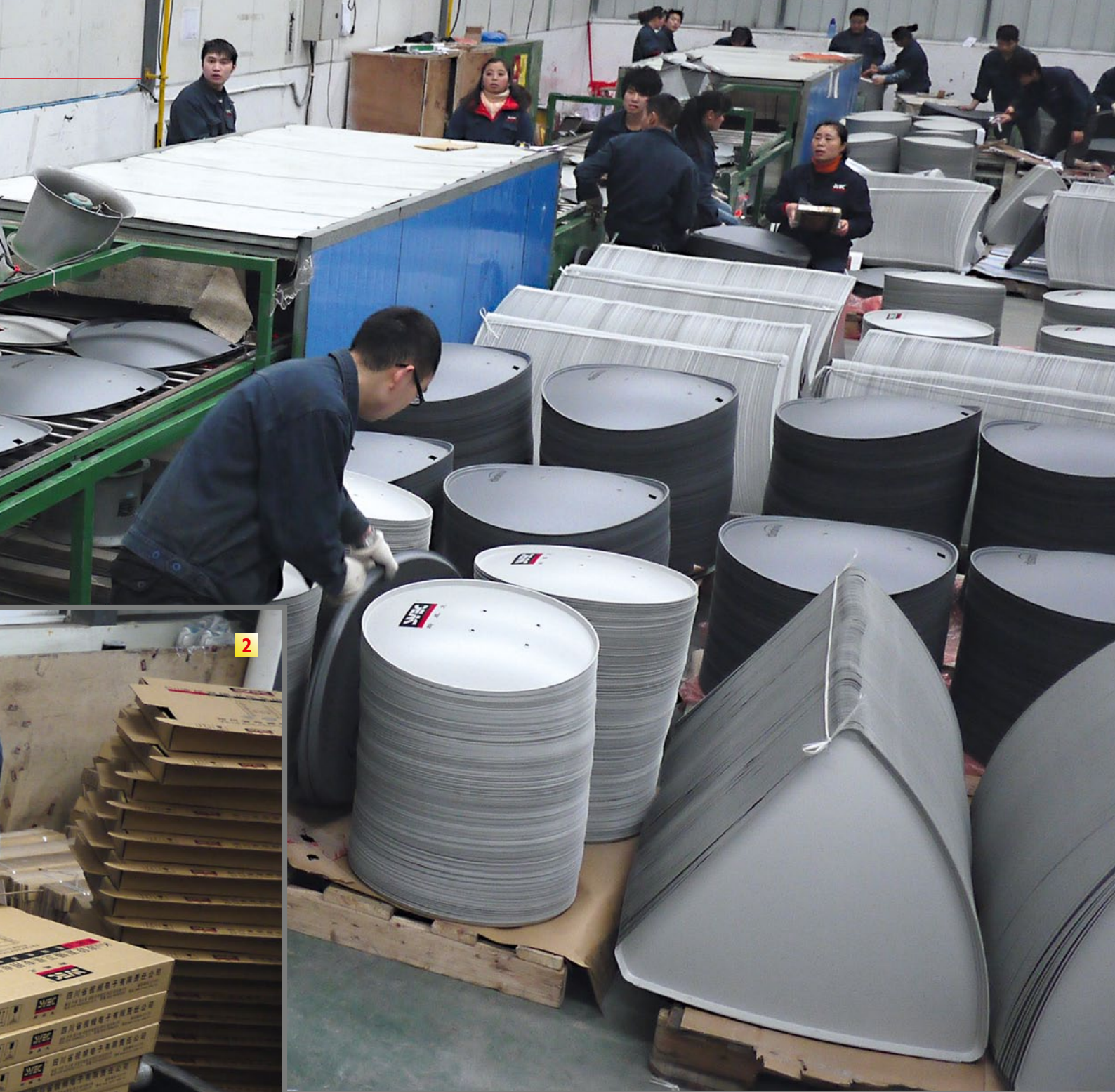
www.TELE-satellite.com/TELE-satellite-1003/eng/svec.pdf





1





to large orders." The extra costs of this new system will be recovered through its greater flexibility and above all through the higher quality of the satellite dish.

The investment in this new assembly line, that came at a cost of US\$ 1.6 million, turns out to be not their only investment over the past several years. "We also invested heavily in our quality assurance", says Becky who then provides us some specifics: "We installed a new microwave chamber, a Far-Field test

station, refurbished our aging chamber and erected a precision measurement chamber."

SVEC CEO Wang Duo invested quite a bit of money in order to manufacture products at yet higher levels of quality in order to step into the more demanding world of VSAT and Ka-Band. SVEC wants to not only take their millions of satellite dishes to new and higher levels of quality, they also want to be able to deliver high quality products to the professional world as well.

SVEC has invested in such a way that they are properly prepared for the future. Quantity alone is not enough; the quality must also be right so that the customers' requirements can be fulfilled. SVEC has reached that potential.

1. A look at SVEC's dish production: 60cm diameter antennas as well as 1.2-meter segmented dishes are prepared for shipping here.
2. The SVEC dishes are packed with all the required mounting components.



SVEC Sales Team

1. Kahlo, named herself after the painter Frieda Kahlo, handles the SVEC advertisement in TELE-satellite.
2. Becky runs the SVEC sales team with 15 employees
3. Milton and his team take care of SVEC customers in North and South America
4. Betty Lee runs the sales team for India and Africa
5. A look into the SVEC sales team offices. To the left is Belinda, responsible for The Far East and to the right is Nina, responsible for The Middle East.



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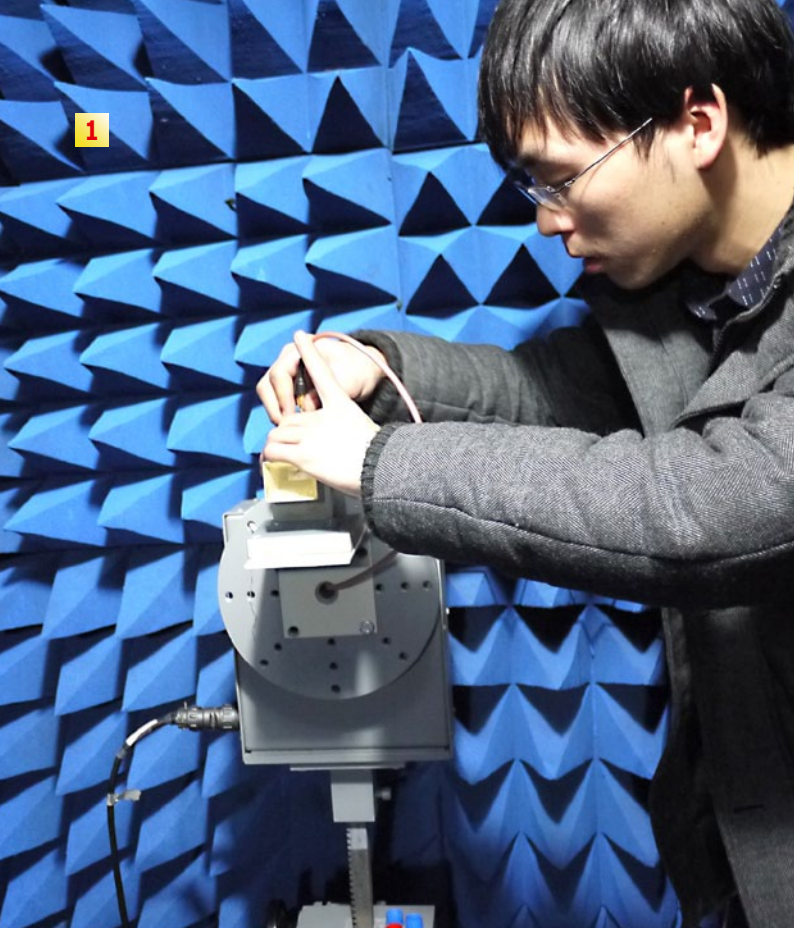


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Quality Control at SVEC: Microwave Chamber

1. One of the engineers in the Quality Assurance Team is Xin Giang. Here he can be seen mounting a reception probe for the Ka-Band in the Microwave Still Room. This room was newly installed by SVEC in 2011. Send and receive dishes are tested here. The chambers guarantee that there is no external influence and the Styrofoam spikes keep signal reflections to an absolute minimum.

2. The Microwave Still Room measures 8m long, 4m wide and 3m high. While the reception probes are mounted on one side of the chamber, the transmitting probes are located on the opposite side.

3. As soon as the send and receive probes of the test sample are installed, the test engineer steps out of the chamber and reads the results from the Agilent Signal Analyzer (up top in the rack) at the measurement station. In the rack at the bottom can be found the motor controls to operate the two probes remotely.

4. The software permits extremely fine control of the send and receiver probes. In this way satellite dishes and LNBS can be tested in any position so that the reception characteristics can be automatically evaluated. This generates, for example, graphics showing the reception angle window of an offset dish.

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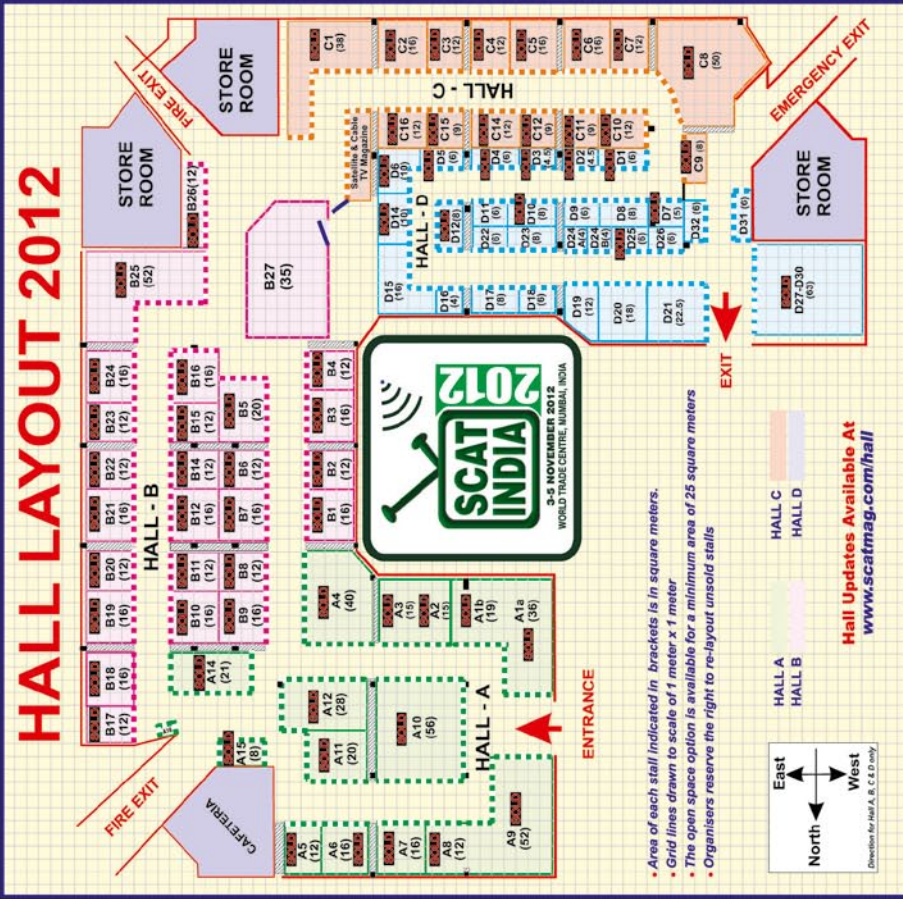
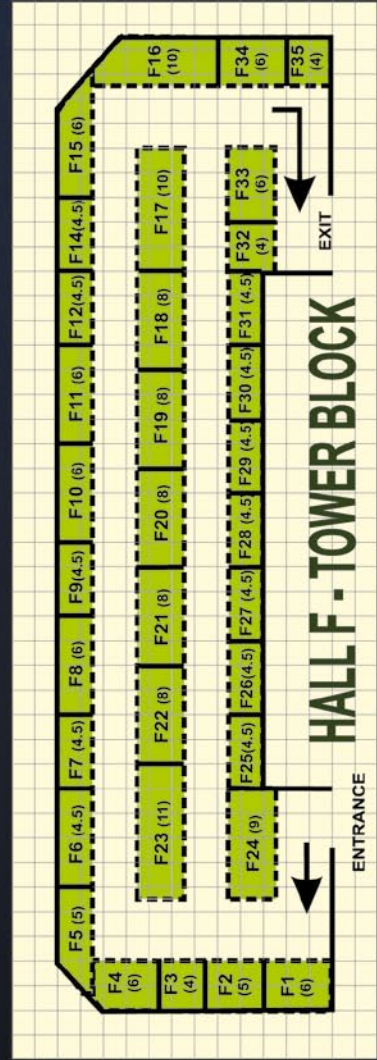


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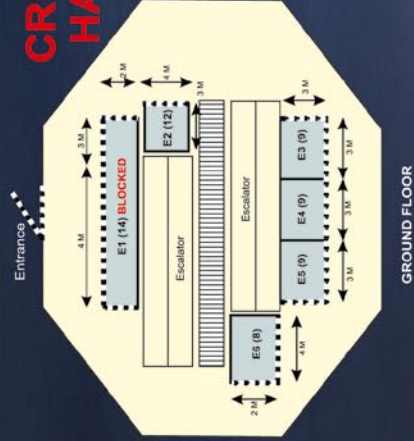


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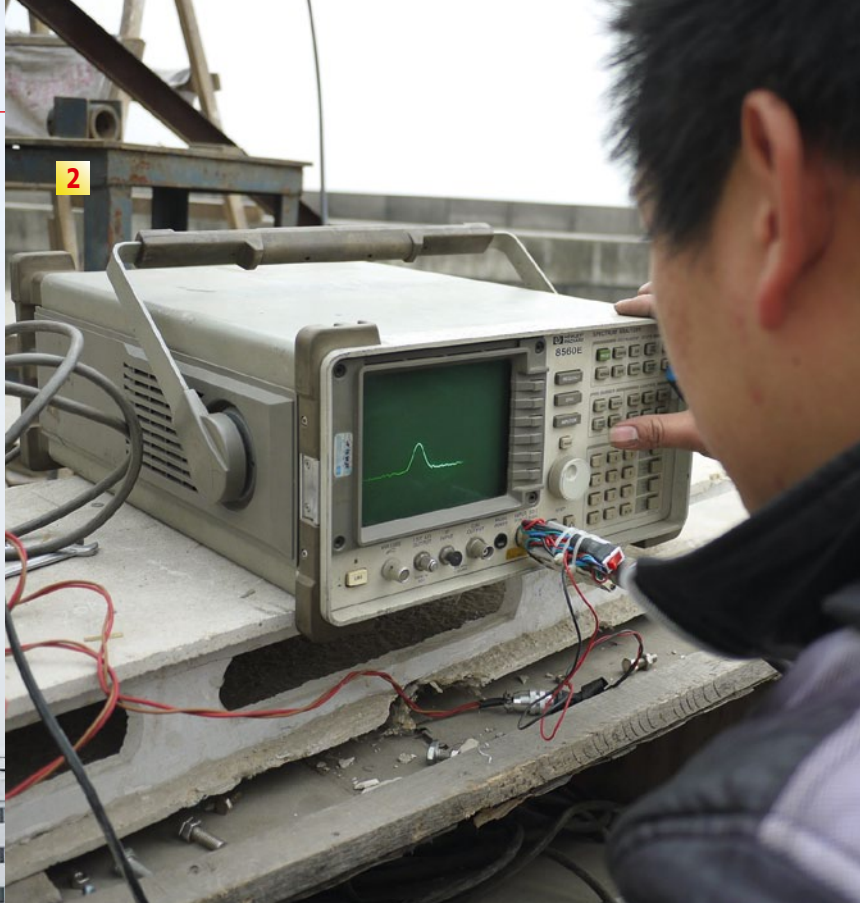
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Quality Assurance at SVEC: Far Field Test

1. The quality assurance engineers erected a VSAT reception system on the roof of SVEC's administration building. Here they can test the actual reception of a VSAT signal.

2. The technician is adjusting the professional analyzer to measure a VSAT antenna.

3. SVEC has erected their own test strip for direct measurements. SVEC engineer Huang Jifa (pictured) explains to us what's going on: "I'm mounting a test dish from SVEC's production line here on the roof. In that hut on the far side of the lake is a reception station. It's about 300 meters away." From here SVEC can test every production variant from the small 45cm dish all the way up to the 1.5-meter antenna.

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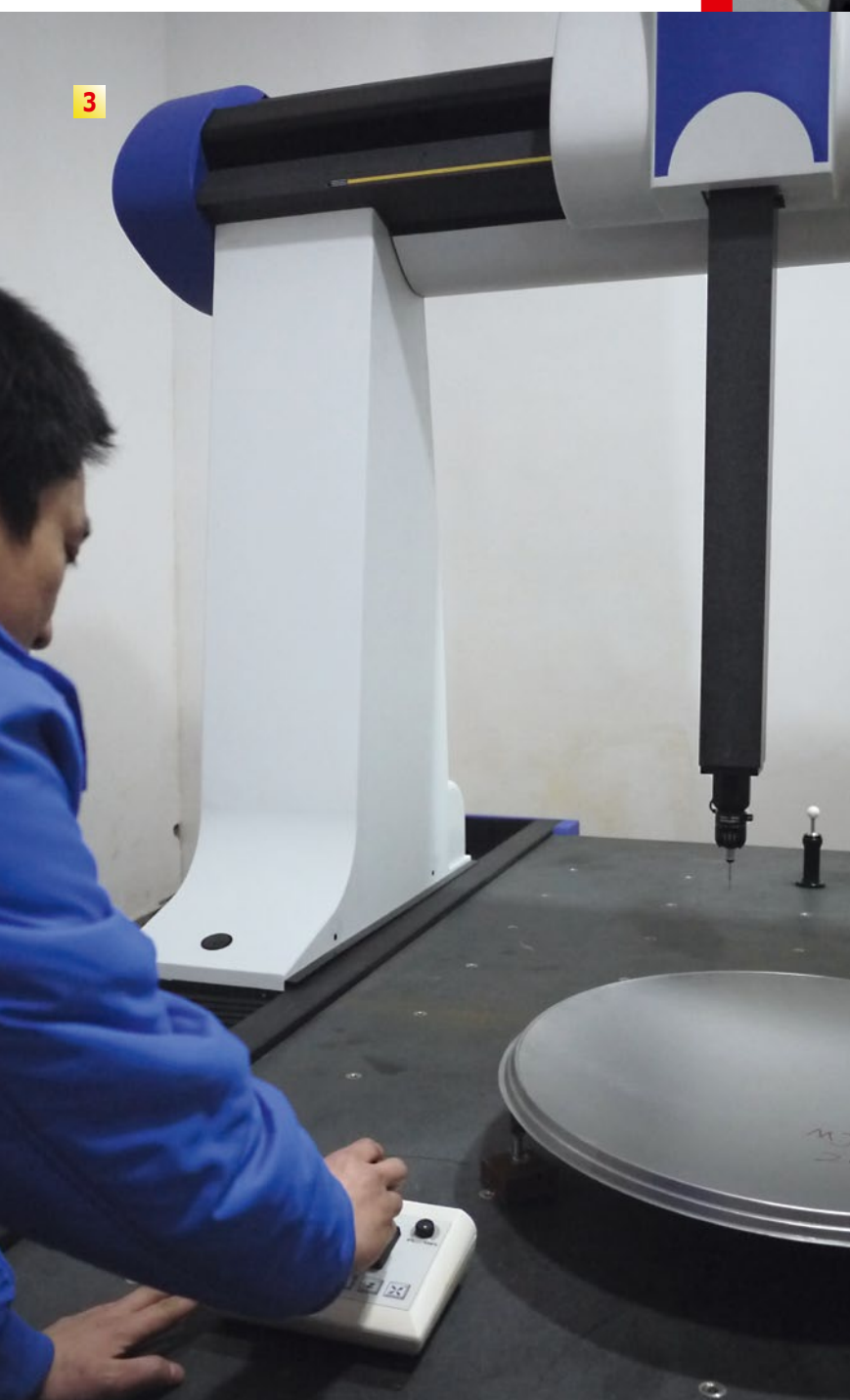
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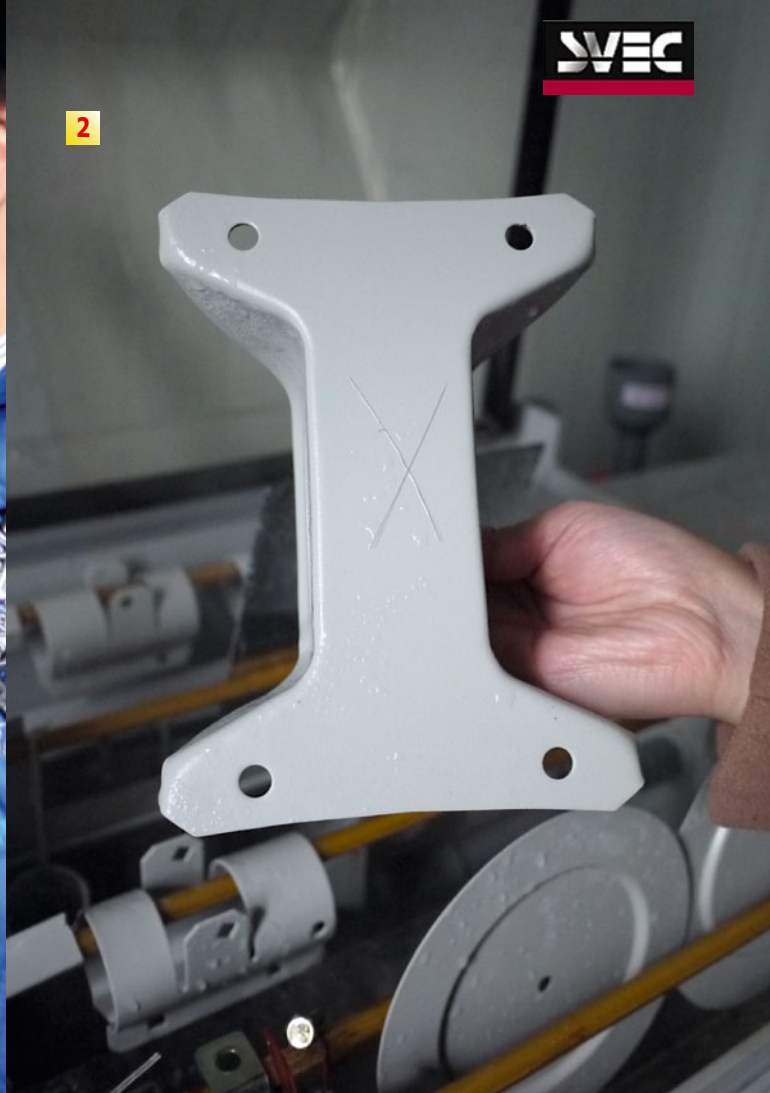
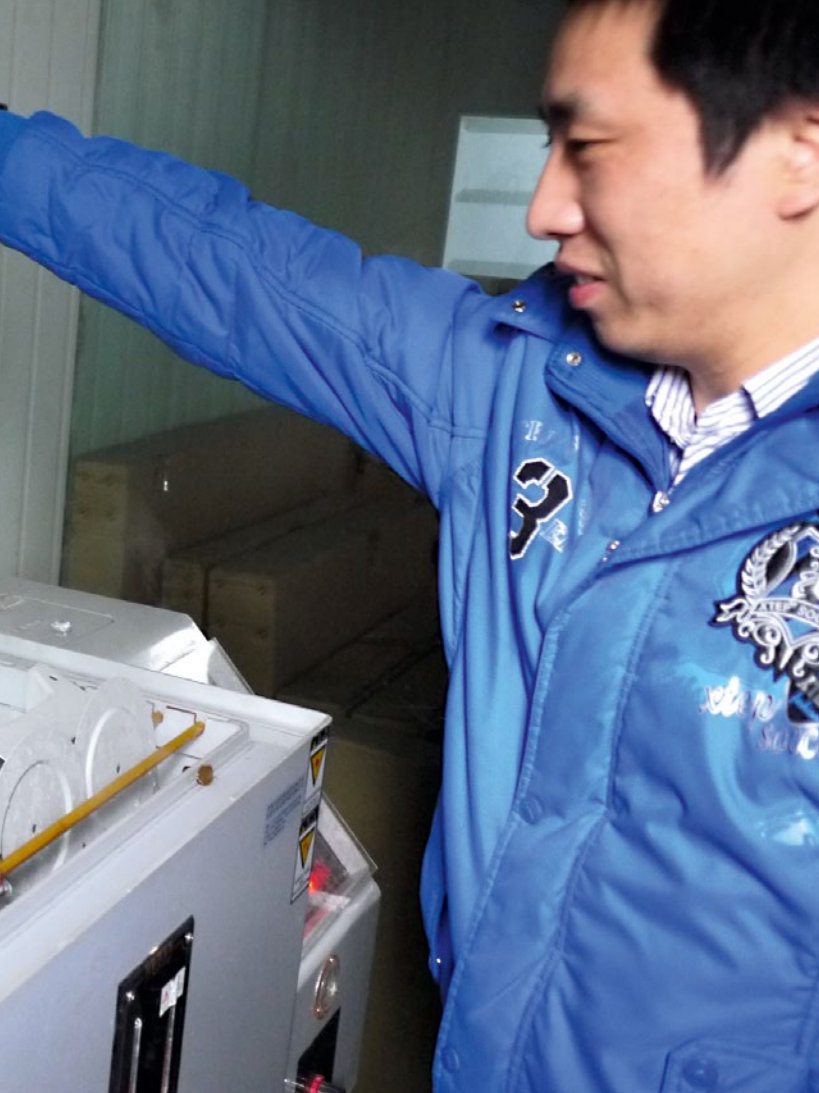


Quality Assurance at SVEC: Aging Chamber

1. In this chamber all of the mounting components, screws, feed, mount, etc. are hung in place. Quality Engineer Zhong Hua Ping (pictured) tells us what happens next: "These pieces remain in this chamber for 500 hours, almost three weeks, and are sprayed with 5% saltwater at 34°C." After three weeks the components have been artificially weathered as if they had been out in the open for seven years.

2. Quality Engineer Zhong Hua Ping retrieves a dish mount from the chamber and inspects the cross scratched into the surface. "We purposely put scratches in the paint to see how the rust developed." In this way SVEC with this aging chamber can determine what influence the handling of the material has on the aging process.



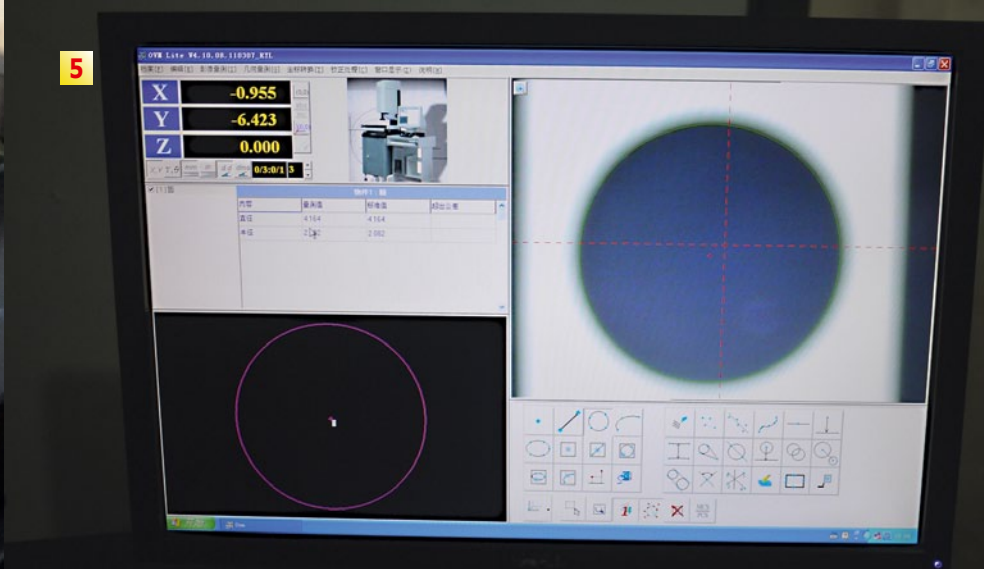


Quality Assurance at SVEC: Precision Measurement Chamber

3. This recently installed system permits the extremely precise measurement of a dish. The system is compatible with dishes up to 1.2 x 1.5 meters in size with a maximum height of 1.0 meters. The dishes are set up with calibrated measurement points. After that the Root Mean Square machine drives to each of the measurement points logging the results. SVEC can in this way monitor the precision of the offset as well as the parabolic shape.

4. An optical microscope is also used to monitor these precise measurements. The precision of the mounting holes on a mast bracket are being checked here. The microscope acts as a TV camera and displays the image on the adjacent monitor.

5. The precision of a mounting hole is checked here. The microscope provides a 72x magnification.



Rod Hewitt – человек создавший TSReader

- Написал один из самых успешных анализаторов потока
- Разработал техническое решение архивации ТВ каналов для «Интернет архива»
- Работает над программами для IPTV
- Планирует написать приложение для оптического распознавания программного гида BBC

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■ Rod Hewitt enjoys reading TELE-satellite magazine. The picture of the Eiffel Tower in his living room highlights the fact the he can speak French fluently and loves the French way of life.

One of the most well-known analyzer programs for digital TV is TSReader. This program can be used to analyze the transport stream of a digital channel: the software identifies every single PID of a digital transponder as well as a world of additional information such as bit rate or the type of PIDs. Video PIDs are displayed as a live picture and audio PIDs can be listened to. An analyzer program like TSReader is an invaluable tool for technicians; it lets them monitor the data stream so that any errors can be quickly identified and dealt with.

TSReader was developed by Rod Hewitt who is originally from England. For the past several years he has called Annapolis, the capital of the state of Maryland on the east coast of the USA, his home. Rod Hewitt's life story is typical for many software engineers: he dropped out of school early and yet

despite of that (or perhaps because of that) he became successful. We met up with him at his home in Annapolis. Computers (he's a fan of Apple) and digital receivers are scattered all over his apartment. "I used to have more satellite dishes including a 4.5-meter antenna", explains Rod to us, "but today a cable connection and good Internet access is sufficient."

But first things first. Rod Hewitt comes from Ware, a small town about 40km north of London, about half way between Stevenage and Harlow. "Ware sits exactly on the Prime Meridian, that is, precisely at 0° longitude", says Rod. His father worked as the Managing Director at Ferguson, a well-known manufacturer of TVs back then. "My



■ Rod Hewitt lives and works in this modern apartment building in Annapolis, Maryland, USA. Just a small 40cm antenna identifies the location of his apartment.



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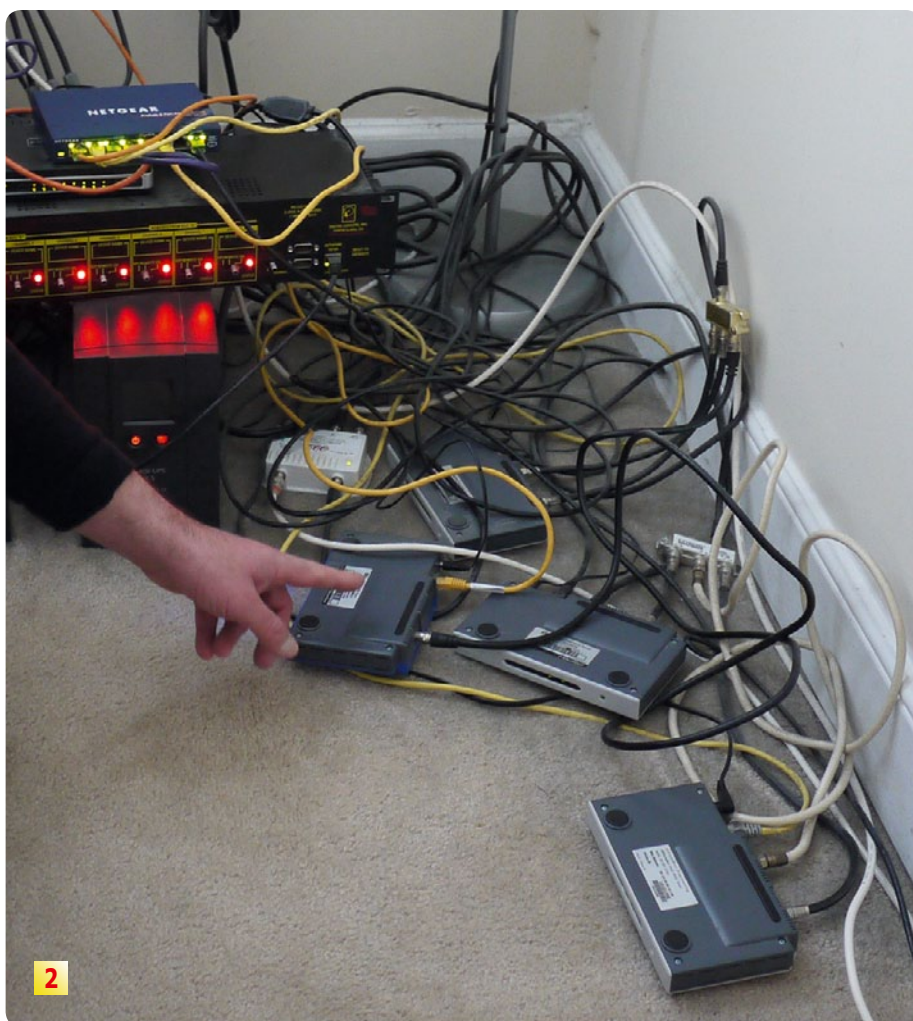
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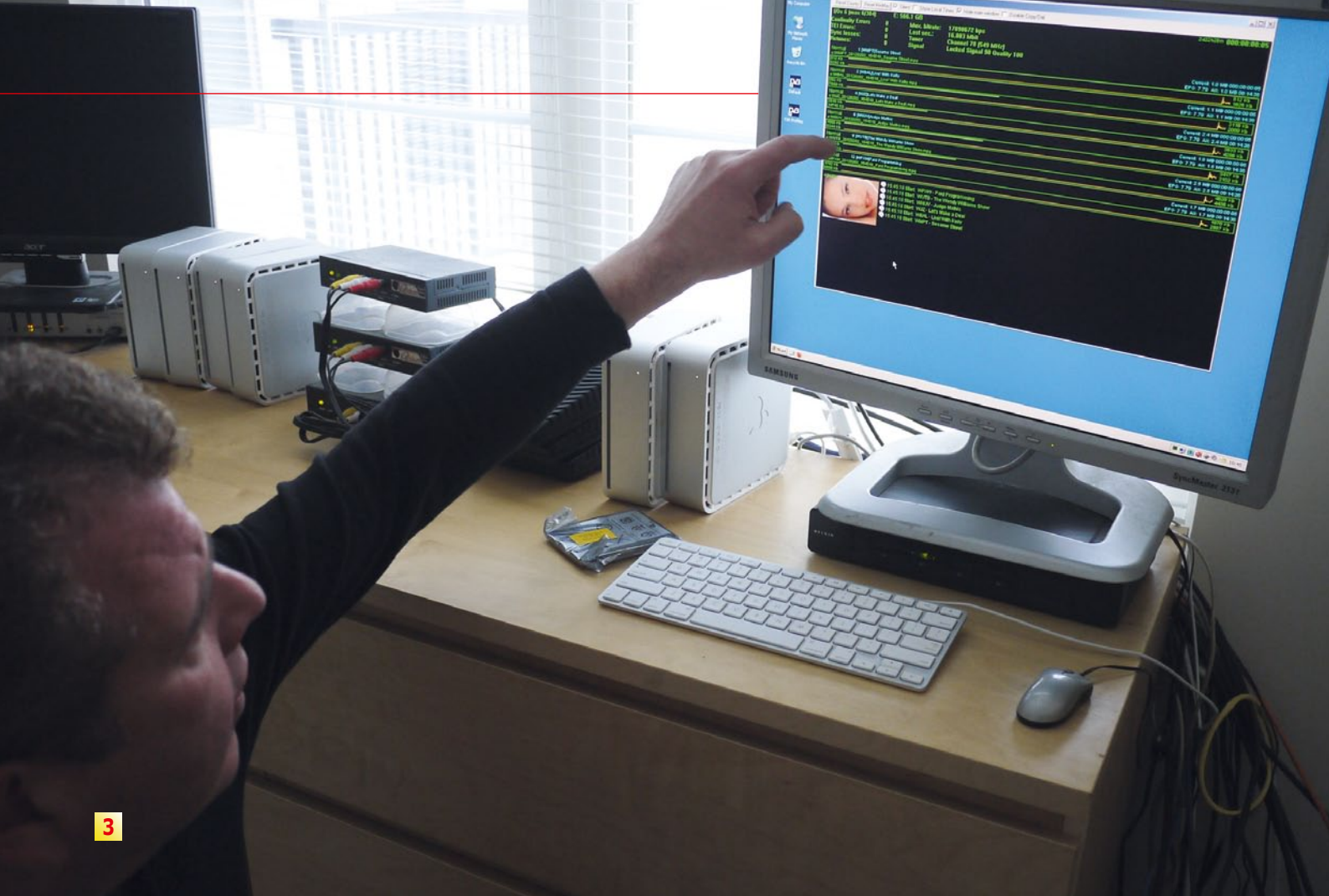


father occasionally took me with him to work and I managed to pick up a few things about TV reception." It got more interesting in 1980: "I was 14 years old then and had access to the university's computer through my school."

As many other software pioneers did back then, the young Rod Hewitt learned the secrets to computer programming. "I learned everything on my own." And just like other life stories from this day and age, Rod also couldn't take it much longer going to school: "I dropped out of school at 16 and started working for a computer distributing company."

In 1983 this company added a new computer model to their product line and wouldn't you know it: "It was the successor model to the same type of computer on which I learned to program by myself." In other words, Rod was instantly up to speed with all the secrets of this new computer model and took over the support of this manufacturer's computer models.

A few years later, in 1988, he was invited by this company to travel to the USA to handle a project." I spent three weeks in Santa Anna, California in Orange County and the Manager of the company was so impressed with my



3

work that they invited me to stay.” Rod didn’t take long to decide; giving up the rainy weather in northern London for consistently sunny days in California? It was a no-brainer. Since he had already worked for many years for the company in England, it wasn’t difficult to get a work permit.

1. In this digital day and age large offices are no longer necessary. Rod Hewitt works from home and simply installed the technology for the 24/7/365 recording of TV channels in his bedroom. In the background is the PC with the slots for multiple hard drives.

2. Rod explains the setup: “These four cable receivers each of which have two tuners are connected to the cable connection in my apartment via an eight-way splitter and an active amplifier.” Using two large PCs, with one as a backup, Rod records the data stream from 22 channels. The filled hard drives are sent to ‘Internet Archive’ in San Francisco to be archived.

3. Rod uses a monitor to keep an eye on all the MPEG data from the recorded TV channels. He uses mini MACs for his work. Replacement hard drives are ready to go as soon as one is full. “They’re automated to the extent that I can record all 22 TV channels uninterrupted with my two PCs and all the empty hard drives for about one month.”

4. The old recording system based on DLT (Digital Live Tape). Rod is now busy transferring the recorded data on the tapes over to hard drives.



4

Those were the best of times for the computer business. "This company had as many as 400 employees", remembers Rod, "and one of their many customers was a company in Maryland on the east coast of the USA."

As business started to slowly fall off for the California company, a job offer came from the company in Maryland. Should Rod move to the east coast of the USA? "There was one important factor in making this decision: back then the BBC World Service could be found at 58W and in Maryland it was easy to receive this signal."

Rod moved to Annapolis and erected his first satellite dish: "It was a two-meter antenna. BBC transmitted the signal in the clear so that it could be accessed by Canadian PayTV providers." BBC didn't count on private satellite enthusiasts receiving their channel, so not long after that, BBC encrypted the signal.

But by the time that happened, Rod had already become more in-

involved with satellite reception. He acquired the Nokia D-Box and installed the DVB98 software and later on the DVB2000 software: "It allowed you to do blind scans." Rod became a regular feed hunter.

At the same time he developed his first software application for his employer; it was a terminal program for Windows that he offered on his new website www.coolstf.com.

"In 1997 I got a little nosy and opened up my D-Box." To his surprise he recognized all of the installed chips and knew exactly how each of them functioned. He got in touch with the developer of DVB98 and DVB2000 and proposed an improvement. Rod then wrote the program DVBEEdit himself.

In the meantime Rod worked himself so deep into digital TV that he wrote a paper on the operation of MPEG2 (still worth reading today at www.tsreader.com/legacy). In 1999 coincidence once again stepped into Rod's life: an employee at the non-profit organization

'Internet Archive' in Los Angeles contacted Rod. The goal of this organization, founded in 1996, is to build a complete Internet archive which would also include the archiving of TV channels. They stumbled onto Rod through is MPEG2 paper: anyone who was so familiar with modern TV technology would undoubtedly know how to record TV channels.

As it turned out, they found the right person: "I worked up a strategy on how you would record and archive channels and made a proposal to 'Internet Archive'." It involved the sum of a quarter million US dollars recalls Rod. "It included the complete infrastructure and technological design."

Rod won the contract! He constructed a reception station for 20 TV channels as well as the technology for recording these channels. "We record the channels in their entirety, 24 hours a day, seven days a week, 365 days a year."

That was not as easy to do in 2000 as it is today. "The cost effective method





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to record such large amounts of data was through 'Digital Live Tape DLT'. But since at that time it was not yet possible to record the stream directly, we used MPEG encoders to take the digitally received signals that were outputted in analog by the receiver and reconvert them back into an MPEG stream." In just one year this method filled up 9000 DLT tapes. In 2002 the prices for hard drives fell so far that it became more cost effective to start using them and stop using DLT technology. Since then, Rod has been busy copying the 9000 DLT tapes onto hard drives. "This job will keep me busy for quite some time yet", sighs Rod.

During the course of recording the TV channels, it became evident that there were blackouts in the recordings. What was causing this? Rod was getting more and more nervous; sometimes he had to search for a long time. "I never knew if my reception system was the cause or if there was an issue with the uplink or downlink or if it was the channel itself." He had to find a solution - he had to be able to read the stream directly to find out what was causing the blackouts. "There were professional solutions but they were just too expensive."

Rod sat down and began programming the first version of his TSReader. "I used a commercial satellite receiver with ASI output and a professional PC card with ASI input; this let me start reading and analyzing the stream." He soon adapted his software to another PC card that also happened to be popular with private users and thus TSReader 1.0 was born. He made the software available as a free download. As a result, many DXers could now easily analyze the PIDs directly. He realized that professional users were also using his software and one day it was suggested by one of these professional users to expand his software to, for example, include the playback of video. "Since then TSReader is available in three versions: a Lite version for everyone, a standard version and a professional version with all the bells and whistles."

In 2004 Rod took it all online. "In my first year sales were a little slow at around 300 licenses." In 2011 TSReader was accepted: "In this year 6000 software licenses were purchased." Since some of these licenses were valid for more than one PC, the total users added up to over 10,000." It was quite a success for Rod consider-

ing that TSReader was originally written as a way for Rod to better handle the TV channel stream recordings he was undertaking for 'Internet Archive'. But there was another side effect to TSReader: "Since I was always getting better at working with the streams, the opportunity arose to also use TSReader to record the TV channels and this time using the original stream for these recordings."

Rod took some time to test and perfect his software. Finally, in 2008 it was time: 'Internet Archive' completely converted to recording using TSReader. "Since then we've been using my software to record the TV channels directly to hard drives." Rod continues, "At 'Internet Archive's' headquarters in San Francisco is a reception and recording station for currently 70 channels. Some of these channels come from the local cable network there and some via satellite. I record 22 TV channels here in Maryland including PBS Annapolis as well as WBAL, WJZ, WNUV, WUTB and WPBX." Rod simply uses his cable TV connection in his apartment. "Not only that, we have another reception station in London from which we record another 15 channels from Europe."

Rod would gladly record more TV channels: "The goal is to record at a minimum of one TV channel from every country."

But there are limits to what the 'Internet Archive' organization can do: "The amount of data involved is absolutely gigantic and every additional channel that we continuously record each time means a high investment." Even if the foundation that supports 'Internet Archive' has a lot of money behind it, the resources are still limited. "Any expansion is done with great care."

It's interesting to note that Rod Hewitt also records the EPG data for 'Internet Archive'. "Here by the window I have a small antenna pointed to DishNetwork at 72W. Once a day I automatically record all the EPG data. It takes about 20 minutes before all the data has been received and it amounts to about 300MB." The EPG data contains programming information for the next nine days. Rod records the data daily on a rolling basis and sends the data on a hard drive to the 'Internet Archive' headquarters in San Francisco.

Rod is also planning to record the EPG data from BBC. "But they're not making it easy for me: the BBC sends the EPG data as a bitmap and not in text format. I would first need to write a program that could read the bitmaps in OCR." Rod is always getting new challenges placed in front of him. And what does he have planned for TSReader?

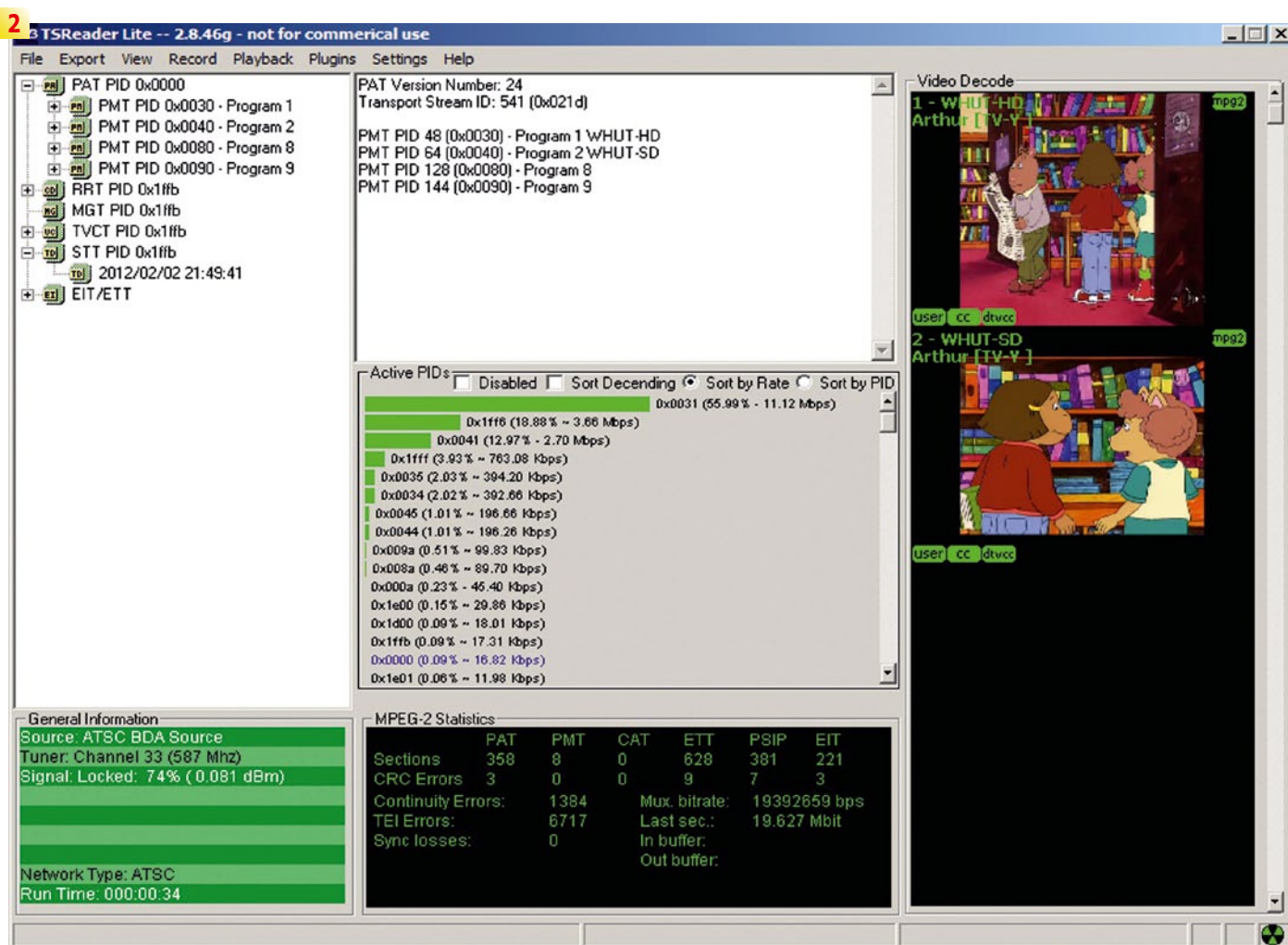
"Last year I made TSReader compatible with ISDB-T and also adapted it to AIT. Aside from that, TSReader is now also compatible with many different typesets so that, for example, Greek and Cyrillic can be properly displayed." But it doesn't stop there: "I just received an e-mail that says there are still problems with the display of Slovakian characters." It's actually not really a problem; Rod just needs a corresponding data stream so that he can adapt TSReader with it.

Rod is currently working on a project for IPTV: "I'm in the process of writing software that would let you display various IPTV channels in mosaic form." This is an especially interesting piece of software for IPTV operators to control their programming. Rod

has even more ideas: "You could build a small adapter and connect it to an LNB and transmit reception data to an iPhone or iPad via Bluetooth. In this way you wouldn't need your own signal analyzer; you could use the display and processor power in the iPhone or iPad for the measurements." Wow, what a fantastic idea! "Or you could use WiFi instead of Bluetooth", continues Rod regarding his ideas on the possibilities with today's technology. "I'm not sure yet if I'll get involved with that", grins Rod.

Rod clearly isn't short on ideas. His examples only prove that there's still more to be discovered and developed. Innovations today are much more than just possible, you just have to come up with the right ideas.

1. Rod's current project: the mosaic display of live video from IPTV channels.
2. Many satellite enthusiasts as well as digital TV professionals use Rod Hewitt's TSReader software. It displays all of the available PIDs in a data stream plus additional details such as bit rate. FTA channels are displayed in a window. The Lite version can be downloaded free of charge from Rod Hewitt's web site at www.coolstf.com or www.tsreader.com.



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■ In the office building to the left in Shanghai's Minhang district can be found DVBCN's leased offices on the fifth floor.

②

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How Anna Built up DVBCN.com in Just 10 Years

Alexander Wiese

It's not easy to find women in leading positions in the digital TV business and it's even rarer for women to actually start a company in this business. But that's exactly what Anna Xie did: she started a website from nothing and in just 10 years built it up into China's largest site for digital TV. It's an exciting story that we wanted to hear about directly from her.

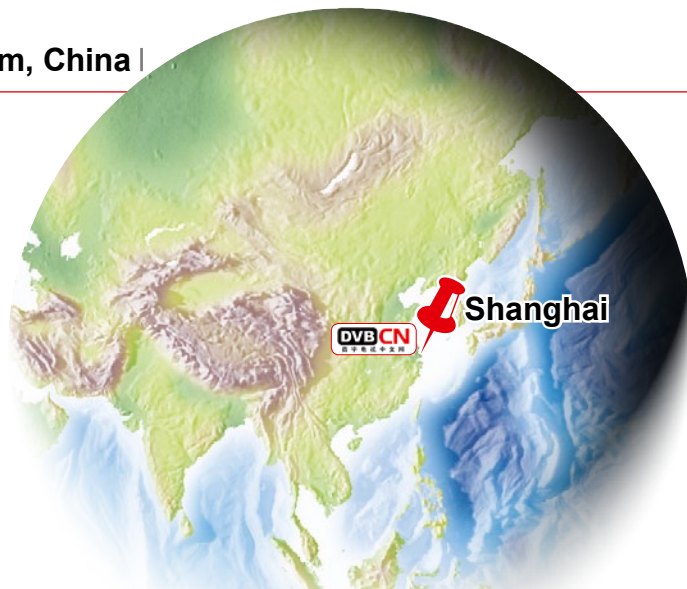
DVBCN's offices can be found in

Shanghai's Minhang District. Anna rented expansive office space on the fifth floor of a modern office building. 10 employees work there although DVBCN has an additional 13 employees. But more on that later. First we wanted to know how Anna managed to turn her website into China's largest site for digital TV.

She explains to us: "I come from Wenzhou in the Zhejiang Province." This province is located south of Shanghai;

Anna studied at the university in Shanghai. "I studied TV and radio journalism." That was in 2001. And she was still a brand new student when she started her website DVBCN in 2002 (www.dvbcn.com). "At first it was just a forum to discuss technical information."

As you can tell by the website's name, her forum dealt back then primarily with the new DVB technology. "We made available for download all documents,



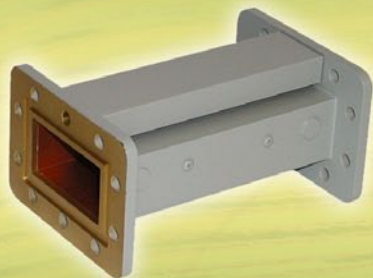
■ Anna Xie is founder and owner of DVBCN, the largest website for digital TV in China (www.dvbcn.com). Recently DVBCN began cooperating with TELE-satellite. The first DVBCN ad appeared in the TELE-satellite issue that Anna is holding in her hand.





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technical specifications and standards." Some of the documents were translated into Chinese by her fellow students. Anna had managed to find a powerful market gap; anyone in China who was involved with receiver production or development of digital receiver software could view and download all the necessary documents from Anna.

"By 2004 we already had 80,000 registered users", remembers Anna about the quickly growing popularity of her website. "We also offered the source codes for DVB applications and DVB analyzer information."

A natural development of her download forum website was the start of a discussion page and not long after that a news page was started. Today DVBCN is the most viewed website in China for anyone that in one form or another is connected with digital TV. Technicians can find not only valuable information for their work on the DVBCN site, but

even those employees in marketing use DVBCN for up to date information on digital TV trade shows and exhibitions. Today DVBCN has over 200,000 registered users.

But Anna was not satisfied with one website. "The main site is just a base website", she explains, "but two other business segments are above all financially successful." Since so many professional digital technical users have come together on DVBCN, it was actually quite easy to provide them and digital TV firms a platform where workers could find new jobs and digital TV companies could find new employees: In 2005 Anna started her new website www.51dtv.com that resembles a recruiting company; the number 51 is Chinese for "I need".

At the moment www.51dtv.com is only available in Chinese but Anna is in the process of creating an English version that would make it easier for companies

outside of China to search for employees and also, vice versa, to make it easier for Chinese digital TV specialists to find a job with a foreign company.

But that was still not enough for Anna - in 2011 she founded yet another business segment in her own company: Digital Technology Ltd. develops digital TV software. This segment immediately caught on; this is the company with the additional 13 employees we had mentioned earlier, although they're not located in Shanghai. "10 engineers work in an office in Hangzhou plus one additional engineer each in Shenzhen, Chengdu and Beijing."

What are these engineers doing at these locations? "We are primarily working on the DLNAOTT technology, that is, the integration of mobile telephone, laptop and TV under the term Multi Screen Interaction." This means that what you see on a display screen, for example, on a mobile telephone screen, can be

■ Victor Ho oversees the news and test reports on DVBCN. He is DVBCN's Chief Editor.



1



transferred to the TV screen in your living room. In other words, it's the complete interconnection of every device. "We're working under contract with well-known manufacturers from the digital TV industry", reveals Anna to us, "and this includes companies that can be found in TELE-satellite magazine." For sure it won't take long for receivers with Anna's new software to show up at TELE-satellite for testing.

In the first ten years Anna, as the head of the company, already has quite a bit on her plate. Now we want to know how all of this developed financially. "In the beginning I used my own money to start the website and keep it active", recalls Anna. But today the situation is different: "In 2011 our DVBCN website pulled in about 1.0 million RMB (roughly US\$ 150,000), the recruitment website www.51dtv.com achieved about the same numbers and our software development netted about 2.0 million RMB."

The company Digital Technology Ltd, that only just got started recently, has developed itself quite exceptionally and Anna sees here significant increases in income for 2012 ("about 50% more than in 2011"). The recruitment site is also expected to increase ("around 30%") while the DVBCN website should remain about the same. "But DVBCN is not just the base from which everything else was developed; it is also the mouthpiece and display window for all our other activities", and for this reason Anna is relaxed about not seeing much increase of income from this site.



1. DVBCN's editorial team (from l to r): Bella Lee and Jean Fang are news editors, Andrew Wang is forum editor and Ao Rick is a reporter.

2. Two of the Marketing Team employees at DVBCN: Marketing Manager Steven Song (left) and Marketing Specialist Alex Wang. They take care of the advertisements on the dvbcn.com website as well as the jobs seeking and jobs offerings announcements on the recruitment site www.51dtv.com.

Anna has managed in just a few short years to take her one website, that she just happened to start at the right time, and turn it into a flourishing company.

Everyone in China associated with the digital TV market knows of her website

and she continues to work on expanding her ascendancy. In a male dominated market Anna has managed to drive herself and her company to the top. It's quite a success story for her and we congratulate her on the company's 10-year anniversary!



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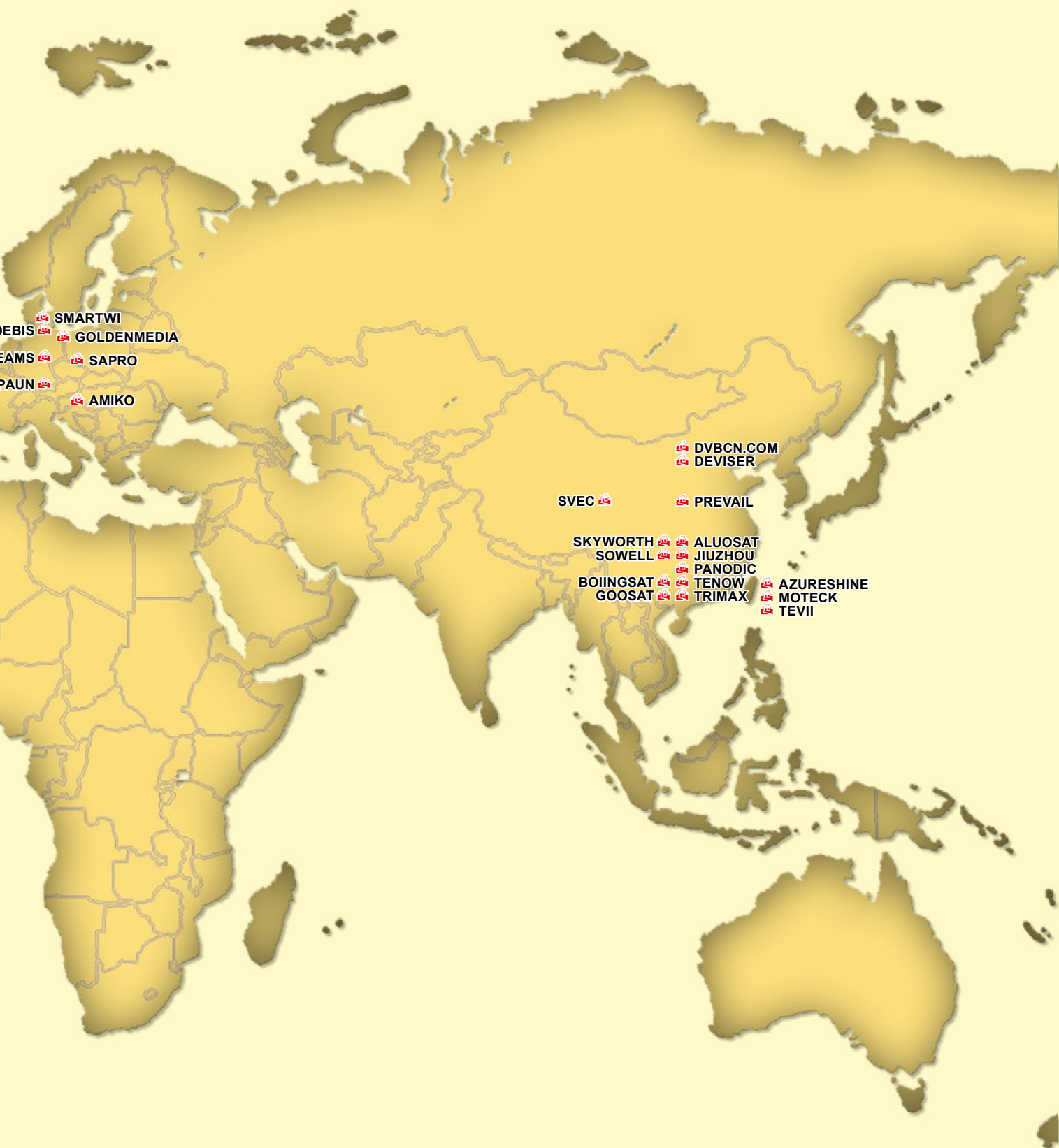
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TELE
satellite
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Signal Analyzer Manufacturer, USA



Engineers in Research & Development | Total Number of Employees

Average Turnover (Previous, This, Next Year Estimates)

Production Certificates

DVB

Production Categories

own brand

Main Products

**Cable TV Signal Analyzers, Satellite TV Analyzers, Noise Signal
Generators, Noise Power Ratio Test Instrument**

Satellite Receiver Manufacturer, Portugal



Professional Dish Manufacturer, Taiwan

TELE
satellite
Recommended



BOINGSAT

LNB Manufacturer, China



www.boingsat.com



www.TELE-satellite.com/TELE-satellite-1105/eng/boingsat.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 500 1000

Average Turnover (Previous, This, Next Year Estimates)

0 12.5 25 Mio US\$

Production Certificates

RoHS in preparation

Main Products

LNBs for Ku and C bands, Ka band in preparation. Variants in Single, Twin, Quad, Quattro and Octo.

BSD

Satellite Information Website, Brazil



www.portalbsd.com.br



www.TELE-satellite.com/TELE-satellite-1201/eng/bsd.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 250 500

Average Turnover (Previous, This, Next Year Estimates)

0 12.5 25 Mio US\$

Production Certificates

RoHS, CE, UL, ISO 10012, ISO 90001

Production Categories

OEM, own brand

Main Products

Signal Analyzers for Cable, Terrestrial, Telecommunications, Fiber Optic and Satellite, Spektrum Analyzers, Vector Network Analyzers, Broadcasting Measurement Instruments, QAM Meters

DEVISER

Signal Analyzer Manufacturer, China



www.devisertek.com



www.TELE-satellite.com/TELE-satellite-1107/eng/deviser.pdf

Software Programming, UK

www.dishpointer.com



www.TELE-satellite.com/TELE-satellite-0803/eng/dishpointer.pdf

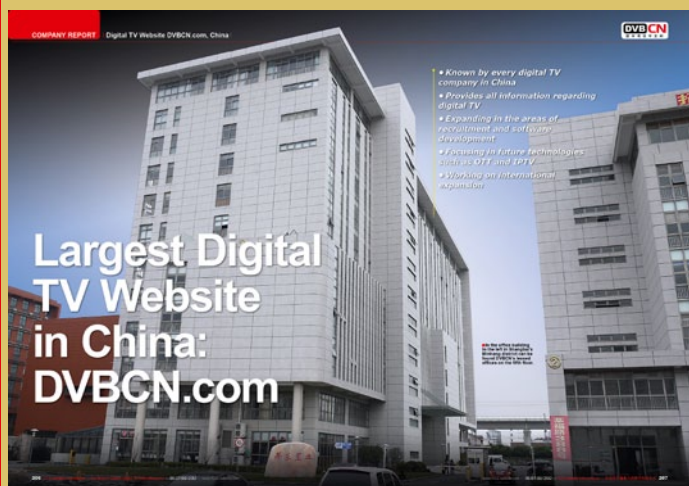
Satellite Wholesaler, Germany

www.doebis.de



www.TELE-satellite.com/TELE-satellite-1011/eng/doebis.pdf

Digital TV Website, Beijing, China



www.TELE-satellite.com/TELE-satellite-1207/eng/dvbcn.com.pdf

Fibre Optic Products, UK

www.globalinvacom.com



www.TELE-satellite.com/TELE-satellite-1009/eng/globalinvacom.pdf
www.TELE-satellite.com/TELE-satellite-1005/eng/globalinvacom.pdf
www.TELE-satellite.com/TELE-satellite-0909/eng/globalinvacom.pdf

Manufacturer and Distributor, Germany

www.cynextra.com



www.TELE-satellite.com/TELE-satellite-1009/eng/goldenmedia.pdf

GOOSAT

Receiver and TV Manufacturer, China



www.goosat.com



www.TELE-satellite.com/TELE-satellite-1103/eng/globalsat.pdf
 www.TELE-satellite.com/TELE-satellite-1207/eng/goosat.pdf

Company Details



Production Certificates

RoHS, FCC, UL, CE, DVB, ISO

Main Products

Receiver for HDTV and SDTV in DVB-S/S2, DVB-T, DVB-C, ISDB-T, HD+, CI+ and HbbTV, Multimedia Receiver, IPTV Boxes, Media Player, TV Monitors with built-in receivers

HORIZON

Signal Analyzer Manufacturer, UK



www.horizonhge.com



www.TELE-satellite.com/TELE-satellite-1111/eng/horizon.pdf
 www.TELE-satellite.com/TELE-satellite-0801/eng/horizon.pdf
 www.TELE-satellite.com/TELE-satellite-0701/eng/horizon.pdf

Company Details



Production Certificates

RoHS

Production Categories

own brand and OEM

Main Products

Satellite, Terrestrial and Cable Signal Analyzers and Meters

JIUZHOU

Receiver Manufacturer, China



www.jiuzhou.com.cn



www.TELE-satellite.com/TELE-satellite-1003/eng/jiuzhou.pdf
 www.TELE-satellite.com/TELE-satellite-0903/eng/jiuzhou.pdf
 www.TELE-satellite.com/TELE-satellite-0803/eng/jiuzhou.pdf

SAPRO

Manufacturer and Wholesaler, Czech Republic



www.sapro.cz



www.TELE-satellite.com/TELE-satellite-1109/eng/sapro.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 12 25

Average Turnover (Previous, This, Next Year Estimates)

0 2.5 5 Mio €uro

Production Certificates

DVB

Production Categories

own brands Di-Way, Di-Box, SatElita, Dreamsky, HD-Box

Main Products

Satellite Receivers for economic range, mid range and high range, Wholesaler for LNBs, dishes, accessories

SATBEAMS

Software Programming, Belgium



www.satbeams.com



www.TELE-satellite.com/TELE-satellite-1011/eng/satbeams.pdf

SATELLITEGUYS

Satellite Forum & Customer Support, USA

www.satelliteguys.com



www.TELE-satellite.com/TELE-satellite-1205/eng/satguys.us.pdf

SKYWORTH

OEM Receiver Manufacturer, China



www.skyworth.com



www.TELE-satellite.com/TELE-satellite-1103/eng/skyworth.pdf
www.TELE-satellite.com/TELE-satellite-1003/eng/skyworth.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 1250 2500

Average Turnover (Previous, This, Next Year Estimates)

0 1.250 250 Mio US\$

Production Certificates

RoHS, CE, REACH, DVB

Main Products

Receiver for DVB-S/S2, DVB-T, ISDB-T with single, twin and combo tuner, Receiver Sticks for USB, SCART in DVB-S and HDMI in DVB-S2

SOWELL

OEM Receiver Manufacturer, China



www.sowell-tech.com

COMPANY REPORT | Receiver Manufacturer Sowell, China

IPTV is Future

- Already operating the first IPTV project
- 3D planned for the future
- Integration of TV reception with IPTV
- 60% of all Sowell receivers are already HD

www.TELE-satellite.com/TELE-satellite-1103/eng/sowell.pdf
www.TELE-satellite.com/TELE-satellite-1205/eng/sowell.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 50 100

Average Turnover (Previous, This, Next Year Estimates)

0 25 50 Mio US\$

Production Certificates

DVB

Main Products

Receiver for DVB-S/S2, DVB-T/T2, DVB-C and ISDB-T, Receivers with 3D graphics, IPTV Boxes, Linux Boxes

SPAUN POWER

Power Supply Manufacturer, Germany



www.spaun.com

COMPANY REPORT | Power Supply Unit Manufacturer

Power Supply Units Made by SPAUN – guaranteed!

Every multi-switch and every amplifier comes with one, and of course every receiver has one, too: a power supply unit which is required to connect the device to the mains. It has become such an everyday component of virtually any electronic device that we have stopped thinking about how it actually works. SPAUN, on the other hand, has given it a great deal of thought and has arrived at a remarkable conclusion. Kevin Spaun is the managing director of SPAUN, one of the most renowned quality manufacturers of multi-switches and other accessories for satellite signal distribution. He tells us what it's all about.

www.TELE-satellite.com/TELE-satellite-1011/eng/spaun.pdf

SPAUN

High Quality Accessory Manufacturer, Germany



www.spaun.com

COMPANY REPORT | High Quality Accessory Manufacturer

Spaun at 40 years

Moving into the new decade with many new products

Alexander Weiss

After 40 years, SPAUN is celebrating its anniversary with a new look and many new products. The company, which has been producing high-quality satellite accessories for decades, is now moving into the new decade with many new products. Alexander Weiss, the managing director, tells us about the company's history and future.

www.TELE-satellite.com/TELE-satellite-0811/eng/spaun.pdf

SMARTWI

Wireless Card Reader Producer, Denmark



www.smartwi.net

COMPANY REPORT | Wireless Card Reader Producer Smartwi

SmartWi to Conquer Provider Market

Readers of this magazine have been familiar with wireless card reader manufacturer Smartwi for years. In TELE-satellite issue 06-05/2007 we published the first report on the Danish company which has come up with a portable USB device for transmitting data from a pay-TV provider's subscription card to a laptop or PC. The SmartWi device is now available in a new version, the SmartWi 2.0, which offers even more features and a more user-friendly interface.

www.TELE-satellite.com/TELE-satellite-1011/eng/smartwi.pdf
www.TELE-satellite.com/TELE-satellite-0709/eng/smartwi.pdf

SVEC

Professional Dish Manufacturer, China



www.svec.com.cn

COMPANY REPORT | Professional Dish Manufacturer SVEC, China

SVEC's Quality Offensive

- Large investment in Quality Assurance
- Expanding VSAT and Ka-Band production
- Opening a new fully automatic satellite dish production line
- Focusing on top-of-the-line Quality dishes

www.TELE-satellite.com/TELE-satellite-1207/eng/svec.pdf

TENOW

PC Card Manufacturer, China



www.tenower.com



www.TELE-satellite.com/TELE-satellite-1103/eng/tenow.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 12 25

Average Turnover (Previous, This, Next Year Estimates)

0 1.5 3 Mio €uro

Production Certificates

RoHS, DVB

Main Products

PC-Cards for DVB-S/S2, DVB-T/T2, DVB-C with single, dual and quad tuner, CAM Box for DVB-S2, USB-Stick for DVB-S/S2, DVB-C and ISDB-T

TEVII

PC Card & Receiver Manufacturer, Taiwan



www.tevii.com



www.TELE-satellite.com/TELE-satellite-1101/eng/tevii.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 25 50

Average Turnover (Previous, This, Next Year Estimates)

0 2.5 5 Mio US\$

Production Certificates

RoHS

Production Categories

OEM, ODM

Main Products

PC Cards for DVB-S/S2 and DVB-T/MPEG-4, Boxes for DVB-S/S2, DVB-T/MPEG-4, PC Sticks for DVB-S/S2

TRIMAX

Signal Analyzer Manufacturer, China



www.trimaxtec.net



www.TELE-satellite.com/TELE-satellite-1103/eng/trimax.pdf
www.TELE-satellite.com/TELE-satellite-1203/eng/trimax.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 10 20

Average Turnover (Previous, This, Next Year Estimates)

0 2.5 5 Mio US\$

Production Certificates

RoHS, FCC, DVB

Main Products

Signal Analyzer with built-in Monitor for DVB-S/S2, DVB-T and DVB-C, Satellite Receiver based on Android

TSREADER

Software Programmer Rod Hewitt, Annapolis, USA www.coolstf.com

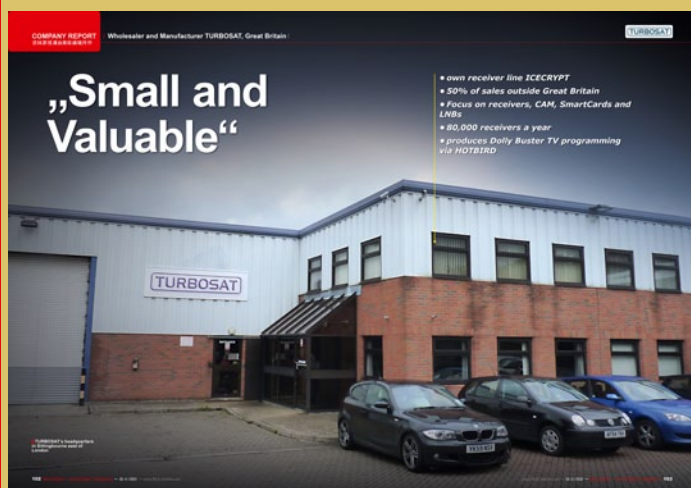


www.TELE-satellite.com/TELE-satellite-1207/eng/tsreader-rod-hewitt.pdf

TURBOSAT

Wholesaler and Manufacturer, UK

www.turbosat.com



www.TELE-satellite.com/TELE-satellite-1203/eng/turbosat.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 12 25

Average Turnover (Previous, This, Next Year Estimates)

0 2.5 5 Mio GB£

Production Certificates

DVB

Production Categories

own brand ICECRYPT

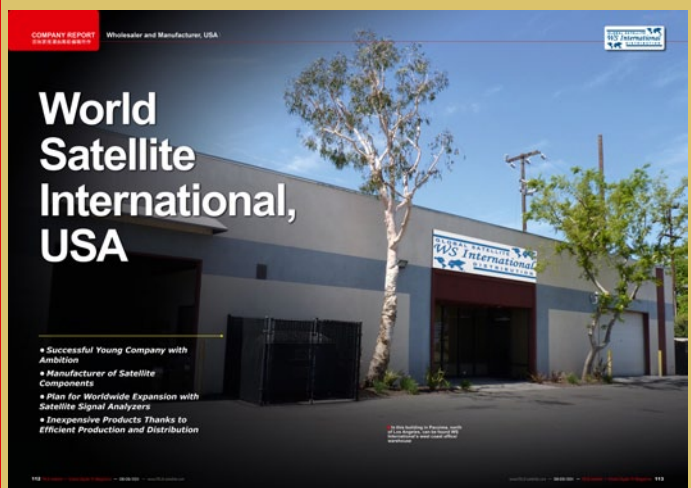
Main Products

Satellite Receiver for DVB-T/T2, DVB-S/S2, LNB, SmartCards

WS INTERNATIONAL

Wholesaler and Manufacturer, USA

www.wsdigital.com



www.TELE-satellite.com/TELE-satellite-1109/eng/wsinternational.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 10 20

Average Turnover (Previous, This, Next Year Estimates)

0 2.5 5 Mio U\$D

Production Certificates

DVB

Production Categories

own brands LEXIUM

Main Products

Receiver for DVB-S, dishes 75cm up to 4.5m, LNB and LNB

holders for KU and C band, DiSEqC switches, signal analyzers

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■ This antenna tower is used by TV Bandeirantes to broadcast the local version of its programming to the city of Campinas. In addition to three TV channels, there's also three FM radio stations and one AM radio station that are broadcasted. The Bandeirantes corporation also issues the local version of the free Metro newspaper.

Спутник



ANALÓGICA



HIP-TV



Спутниковые антенны в TV Bandeirantes

- Наиболее современные технологии приема и передачи сигнала в Бразилии
- Принимает и передает HD
- Принимает основные программы со спутника
- Специализируется на комбинировании аналоговых и цифровых каналов

metro 



ANALÓGICA


A Local TV Station in Campinas Utilizes the Most Modern HDTV Technology



■ Broadcast technician Joao Carlos in the engineering room. The signals from the satellite antennas are received here in HD.



The distribution of programming via satellite is required by many of the national TV chains so that all of the linked local stations can receive their programming. In the city of Campinas about 100km north of Sao Paulo can be found one of the most modern local TV stations from TV Bandeirantes; it is completely set up for HDTV.

On a hill overlooking Campinas, there's a row of antenna masts for the city's local TV channels. One of those masts belongs to TV Bandeirantes. This TV station transmits in analog on Channel 4 as well as Channel 15 but on Channel 16 the programming is transmitted digitally and in HD.

Jose Mariano is the station's Chief Engineer and explains to us: "The first TV tower was erected on this spot back in 1996. In 2003 the entire system was rebuilt and that's what you see here today." Four engineers make sure that everything runs smoothly with all broadcasts.

One of them is Joao Carlos, who told us more about the station's satellite antennas: "We operate a 5.0-meter dish and a backup 3.2-meter antenna. Both of them are pointed to BRASIL-SAT 4 at 84W and receive the signals in MPEG-4." Another 3.6-meter dish receives the signals from the STARONE C2 satellite at 70W.

An interesting feature of the station are the antenna combiners. TV Bandeirantes transmits in Campinas on UHF channel 15 in analog and on UHF channel 16 in digital. Both of these signals are merged in the combiner and then routed to the broadcasting antennas.

Antenna specialist Nivaldo da Silva was responsible for aligning the satellite dishes. He is considered the satellite guru in this region. He has the experience and expertise to professionally set up these antennas. He admits that sometimes he "talks" to the antennas and LNBS; that earned him the nickname "Antenna Whisperer".

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1



2



1. The TV Bandeirantes control room. The TV Bandeirantes national channel is received via satellite and is supplemented here with locally produced programming.

2. In the control room the technician can at any time access exterior cameras that are always active some of which are operated by TV Bandeirantes themselves and others that are operated by the local municipality. The municipal cameras include those on the highways and at specific locations in the city as well as a camera at the local airport. The technician in the control room can use a joystick to remotely pan and zoom the cameras. If there's a local event, the signals from these cameras can immediately be routed to the broadcaster.



■ A TV Bandeirantes specialty: the analog and digital broadcast signals are merged together in the combiner.

Antiference®



Antiference is a leading manufacturer in the antenna & satellite industry and we are proud to be celebrating 75 years of manufacturing UHF & VHF antennas this year. The Antiference product portfolio has been evolving and expanding to meet the needs of the ever moving market place.

Now as we enter the 'digital age', Antiference is pioneering new products and technologies, including our range of HDMI distribution systems.

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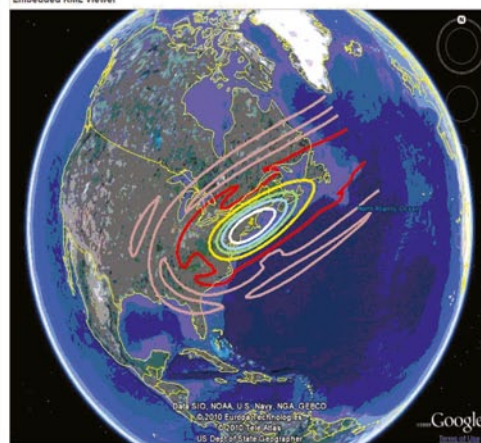
Find SATMAPS online at:
<http://satmaps.satelliteguys.us>

SatelliteGuys.US
America's Satellite Information Source

* FCC Satellite Maps - Chrome, Firefox or Safari required to view and sort Spreadsheet. IE requires adding "https://www.google.com" to IE Trusted Sites.

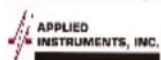
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<http://www.SatelliteGuys.US>



■ This is Nivaldo da Silva. He is the Sao Paulo region's satellite specialist when it has to do with the precise alignment of satellite antennas. He took all of TV Bandeirantes' satellite antennas and precisely aligned them to each corresponding satellite. His nickname is "Antenna Whisperer".

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- Spectrum analysis
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* also available as Combo Analyzer
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SPAROS SAT HD DVB-T



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DIGITAL SATELLITE METER



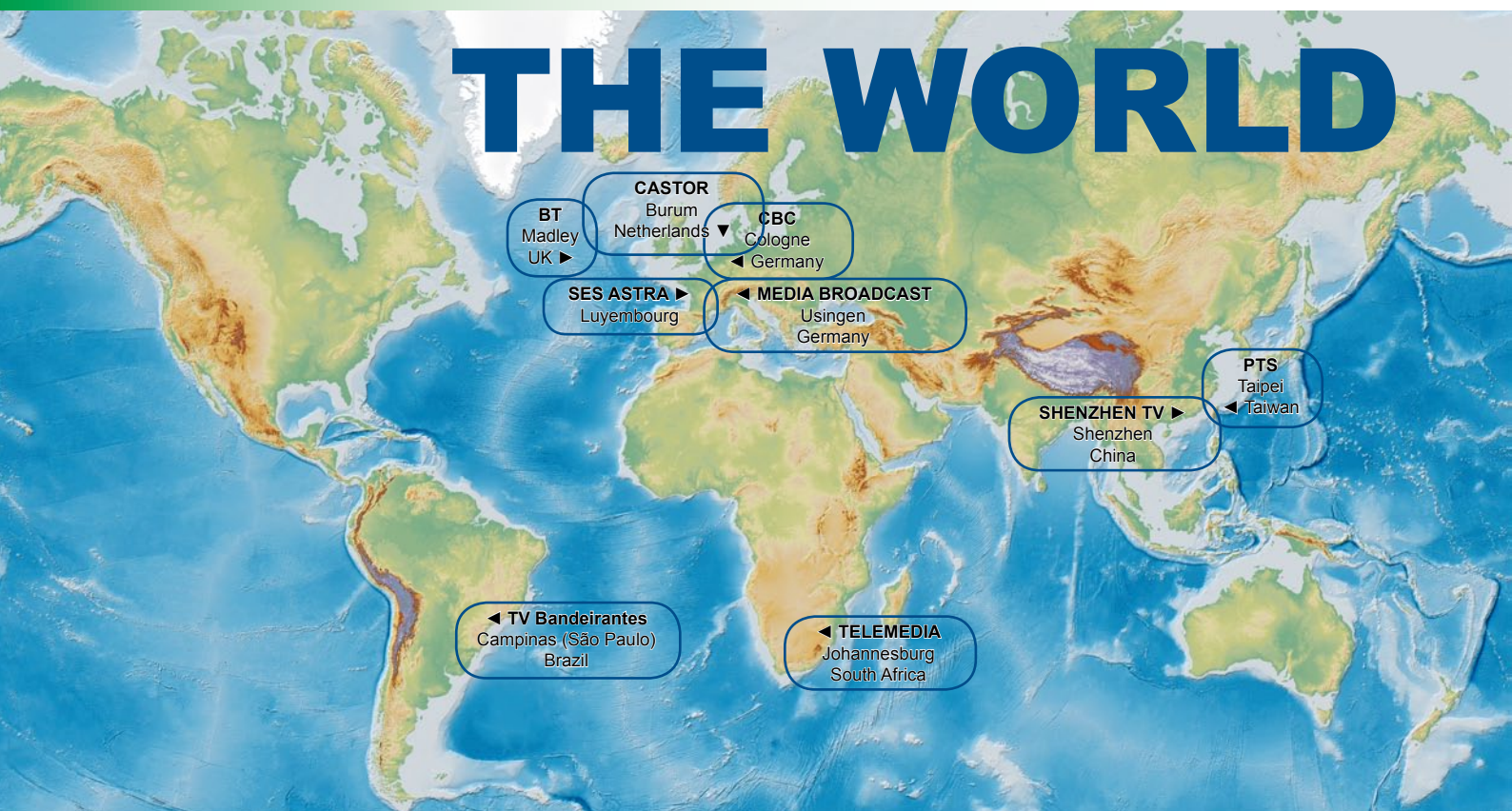
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TV Bandeirantes São Paulo Brazil

Read Full Report



www.TELE-satellite.com/12/07/tvbandeirantes

COMPANY REPORT TV Station TV Bandeirantes, Campinas, SP, Brazil

Satellite Dishes at TV Bandeirantes

This antenna tower is used by TV Bandeirantes to receive and transmit the signal of its programming to the city of Campinas, in addition to three TV channels and two radio channels. The antenna tower also receives the signal from the local version of the TV Bandeirantes network.

- The most modern reception and transmission technology in Brazil
- Receives and transmits in HD
- Receives the main program via satellite
- A specialty is the combination of analog and digital channels

Logos: ELNADORA, RB RADIO BANDEIRANTES, BAND NEWS 106.7, NATMA FM 89.3, metro.

Labels: ANALÓGICA, HD-TV, ANALÓGICA.

Shenzhen TV Shenzhen China

Read Full Report



www.TELE-satellite.com/12/05/shenzhen-tv

COMPANY REPORT Ground Station Shenzhen TV, China

Satellite Uplink directly from Shenzhen

Shenzhen TV is a leading television station in China. It has a large satellite dish antenna system for direct uplink from Shenzhen.

- uses 6 uplink dishes for SNG
- will start its own programming Uplink soon
- prepared for further expansion
- all important devices installed two times for instant backup

Logo: SZMG.

Castor Borum Netherlands

Read Full Report



www.TELE-satellite.com/12/03/castor

COMPANY REPORT Satellite Uplink Station, Netherlands

CASTOR: More than an Uplink Station

CASTOR is a satellite uplink station in the Netherlands, providing services for various users.

- Internet and TV uplink for cruise ships
- Data services for specific user groups
- Uplink for many Dutch radio channels
- Downlink/encoding for IPTV providers
- Free capacity for additional uplink customers

Logo: CASTOR.

CBC Cologne Germany

Read Full Report



www.TELE-satellite.com/12/01/cbc

COMPANY REPORT Uplink Provider

Zero Tape – Full HD

- all programming content stored as files
- huge file-based electronic archive
- global content distribution
- production and international playout of live coverage of German Bundesliga soccer matches
- fully equipped for HD/TV

This is what it's all about: The new building houses the uplink station of CBC's Cologne Earth Station in Cologne, Germany. It's a state-of-the-art facility.

BT Madley UK

Read Full Report



www.TELE-satellite.com/11/11/bt

COMPANY REPORT BT Madley International Communications Centre, UK

Partner for the Big Players

- Operates 65 dishes in southwestern Great Britain
- Recently began offering uplink services for programming providers
- Equipped for HD and 3D program processing
- International optical links in all directions
- Highly motivated technical specialists

Alexander Wiese

SES ASTRA Luxembourg

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www.TELE-satellite.com/11/09/ses

COMPANY REPORT Satellite Provider

SES ASTRA Spreading its Wings

- 34 million euro invested
- SES with shareholding in world-wide Internet-via-satellite MEO system
- 44 satellites around the world
- extremely low error tolerance makes for equally low failure rate
- remote monitoring of all SES ASTRA satellites via company-run reception stations

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- **Изучает все самостоятельно**
- **Доказал, что простейшие решения тоже возможны, сделав антенну из картонных «молочных» пакетов**




KREISELMEYER
superfocus

Feed and Feed Horn Collector DX-Ralf

■ Ralf Sunke has been a satellite DXer since 1989 and has been reading TELE-satellite for many years. The construction scaffolding in front of his house has been there for more than 10 years; he uses it as a place to mount some of his dishes. A 1.87-meter antenna is to the left and is currently pointed to 68.5E. Above that is a 1.05-meter dish with four LNBs (for 13.0E, 19.2E, 23.5E and 28.2/28.5E). Another 1.8-meter antenna is to the upper right and can be moved with an actuator motor; underneath is a 90cm dish for 19.2E as well as a motorized 90cm antenna.



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Read it in English: <http://translate.google.com/translate?hl=en&sl=zh-CN&tl=en&u=http://www.dvbcn.com>



Emlichheim

Ralf Sunke has kept himself busy with satellite reception since 1989. But he's a feed hunter and a technical specialist and freely admits that he's not really interested in watching TV, he'd much rather find the TV channels! "If I count all the TV channels that I can receive with my system, free channels, encrypted channels and feeds, it totals to more than 8000 channels", says Ralf.

In the small town of Emlichheim,

1



2



3





in extreme western Germany, Ralf Sunke over the years has managed to put together a one-of-a-kind collection of satellite dishes and satellite feed horns along with a vast number of C-band and Ku-band LNBs.

His specialty is the mechanical design of the feed horns. "There aren't many people that are familiar with the mechanics of feed horns" he explains to us, "A perfectly matched feed horn can significantly increase reception."

A weak spot with many feed horns is the lack of water resistance of many of the makes. "That was really the reason why I became a satellite

1. On the left is a milk carton from a local supermarket and on the right is a satellite dish made from a number of these empty milk cartons.

2. Front side of the milk carton dish. The inside of the milk carton container makes for a perfect reflector surface.

3. Closeup view of the homemade stapled milk carton dish.

4. DX-Ralf DXing: he's receiving a channel from Kenya on INTELSAT 906 at 64.2E in the C-band.

DXer", remembers Ralf about his first satellite system, "That was a standard reception dish for ASTRA but it stopped working after only a year."

He wanted to take care of the problem and started to disassemble the feed horn and LNB from his first small system. That was the start of a long and deeply involved learning curve; since then he's immersed himself even more deeply in the subject of feed horns and matching them to LNBs. He learned the basics on his own and began collecting feed horns and LNBs from various manufacturers.

"I got a lot of my stuff from hobby colleagues but I also acquired much of it through eBay." Especially interesting to him were components that were only manufactured in small numbers; he has amassed a one-of-a-kind collection of dishes of all shapes and sizes. He used many of these dishes together with modern LNBs. With each individual antenna

he had to keep an eye on other parameters and either match and optimize it with the correct feed horn or LNB mount or both.

"Unfortunately I can't install any more dishes, my landlord won't let me", comments Ralf sadly; he would love to install more antennas. But he can be proud of what he has. He has two large 1.8-meter antennas, a 1.0-meter dish, two 90cm dishes and another 80cm antenna. He rearranges things quite often whenever he wants to try out something new. One of his small Ku-band dishes is motorized as is one of his large C-band antennas.

"I can receive a total of 41 satellite positions including some of the more difficult ones like RASCOM at 2.8E on which I've seen quite a few TV channels from Libya." The hardest to receive is the AFN Pentagon channel on 1W. "I can only get this channel when it's cold outside and when the air is very dry. This transmission comes di-

rectly from the USA and is intended for the retransmission via HOTBIRD", explains Ralf.

"I used to be more active", he admits, "but since it seems that there's always a new TV standard appearing and I would have to have a receiver for each of these standards, it's taken some of the fun out of it for me."

His specialty is the mechanical side of things, not the software side. DX-Ralf, the name he calls himself when he communicates with his hobby friends, is very mechanically creative. One of the highlights of this creativity is the satellite dish that he fabricated from simple milk cartons that he stapled together. "I came up with the idea after realizing that the inside surface of milk cartons are coated with aluminum foil for protection; this makes for a perfect reflective surface." Once he approached the parabolic shape by trial and error and cut out the necessary elements from the empty milk cartons with the



■ Just a small selection of Ralf Sunke's enormous feed and LNB collection that he put together over many years. He took each individual piece and thoroughly studied it to find its advantages and disadvantages. Over the years he has built up quite a bit of invaluable knowledge in this area.



1

1. What's this? A dish light. A C-band feed with an LED light strip in the outer groove.
2. Ralf Sunke shows us what the dish light is good for. At night he can illuminate his dish thereby scaring his neighbors into thinking that aliens have landed on Earth.



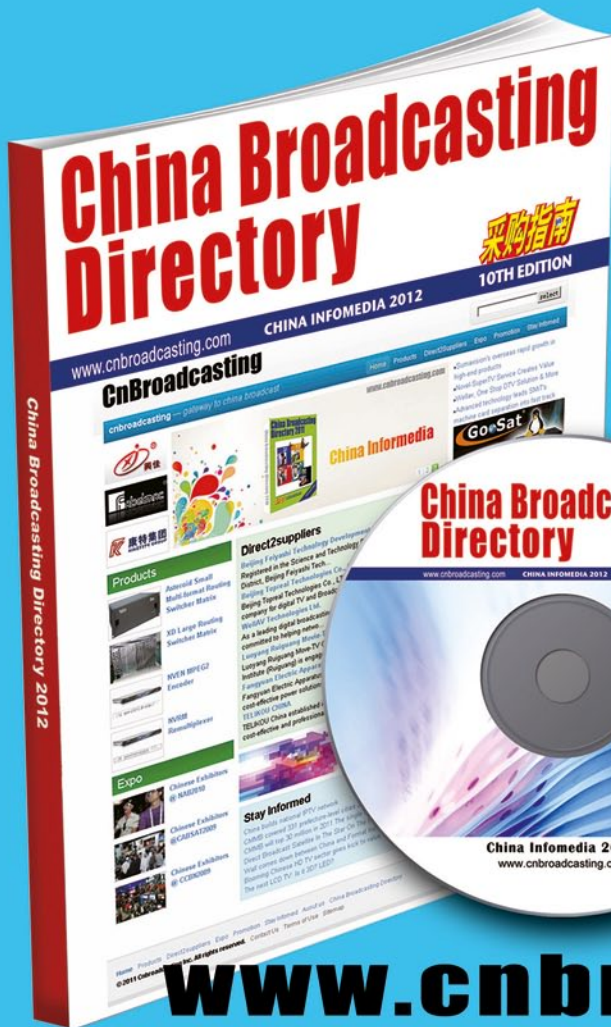
2



help of a template, he stapled the segments perfectly together. "The feed horn is a simple can in which I mounted a very narrow LNB", says Ralf who then points out the support stand, "This piece came from a TV antenna and these pieces here are simple threaded rods."

One night a light bulb went off in his head and he came upon the idea to take LED light strips, like those used to pimp a car, and bend them into a circle and install them in the feed horn of his dishes. It gives his dishes a supernatural look to them.

It's no wonder that his neighbors look at Ralf's hobby with some skepticism. "They simply don't understand what I'm doing here", says Ralf, "They say that I can only watch one channel at a time anyway, what do I want with 8000 channels?" But it's not about watching 8000 channels, it's about being able to receive 8000 channels.



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«Большой»

■ Transmission towers and
dishes: "Big" Ronaldo's
system

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- На основе своего хобби создал две успешных компании
- Предлагает беспроводный интернет в диапазонах 2.4 и 5.8 МГц
- Поиск каналов на предельно «низких» спутниках
- Хобби и профессия как следствие «технологического энтузиазма»

"Big" Ronaldo's Two Companies

If you live in a city that's named Louveira, you'll quickly come across ambiguous names. For "Big" Ronaldo Zovaro it was clear that one of his companies that sells amateur radio equipment would get the domain name www.louvetel.com.br. But we couldn't quite understand the reason behind giving his second company, a wireless Internet provider, the domain name www.pignet.com.br. Of course, it's much more important that he's a satellite enthusiast.

His property is full of every kind of dish. Unfortunately, he doesn't have all that much time anymore to play around with his hobby. "My company Pignet employs 15 people," he explains to us during a visit to his company in Louveira,

a city of 37,000 people in the São Paulo province in southeastern Brazil.

You can't miss his main office: in addition to a large 5-meter satellite dish there are two masts that streak towards the sky. These masts carry the transmitting antennas for his wireless Internet service that his company offers.

"Besides these two master transmitters, we also operate 30 additional repeaters throughout the city", Big Ronaldo explains to us regarding his business. "This allows us to reach more than 90% of all the people in Louveira. We install roughly 50 reception systems every month; at the moment we have about 2000 customers that use our service."

Transmissions take place in the 2.4

and 5.8 GHz ranges and customers can access his Internet service within a radius of about 1km from each of the transmission antennas. "Our service costs 50 Real per month with a one-time installation cost of 180 Real", says Ronaldo.

Ronaldo is an enthusiastic satellite hobbyist. He installed his first dish in 2002: "It was a 1.6-meter antenna", remembers Ronaldo. Additional dishes were not far behind: his big dish is a 5-meter monster that he erected with an actuator motor.

Most of the time he has this dish pointed to SATMEX 5 at 116° west. "This is real DX reception here in southern Brazil since this satellite's elevation is just 9°", adds Ronaldo as he refers to



■ "Big" Ronaldo at the base of the mast for his 5-meter dish. One of his 2.8-meter antennas can be seen in the background to the left.



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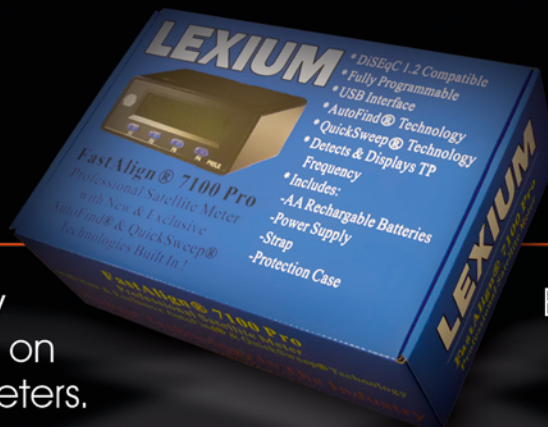
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References



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1. To the left a portion of his 5-meter dish, to the right a 1.6-meter antenna pointed to SATMEX 5 at 116° west. It's easy to see the low elevation of 9°.

2. "Big" Ronaldo uses a large assortment of test equipment in his workshop. One of his companies sells and repairs amateur radio equipment.

3. Ronaldo's company Pignet offers wireless Internet service in the Brazilian city of Louveira.

another 1.6-meter dish that is also pointed to SATMEX 5: "The smaller antenna is used for Ku-band reception on SATMEX 5."

Next to those are two more antennas that are 2.8-meters in diameter: "One of them is aligned with NSS806 while the other is pointed to STARONE C2 at 70° west."

At one point Ronaldo had 19 dishes installed although today he doesn't have as much time anymore to work on his hobby because of his two companies.

He still remembers when he got his first issue of TELE-satellite in his hands: "A friend of mine went to Switzerland and came back with two issues." Today he reads the Portuguese version of TELE-satellite in the Internet.

Ronaldo managed to take his interest in satellite reception and successfully expand it to two companies that have to do with transmission technology. He created two successful companies from his hobby.

3





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Ronaldo Zovaro, Louveira, Brazil

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Györgi

Györgi (George), Budapest

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DX-Ralf

Ralf Sunke, Emlichheim, Germany

Germany



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Benni

Marcos Eduardo Bernardini, Jundiaí (SP)

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SatGuy

Scott Greczkowski, Newington, CT, USA

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DX Bozoth

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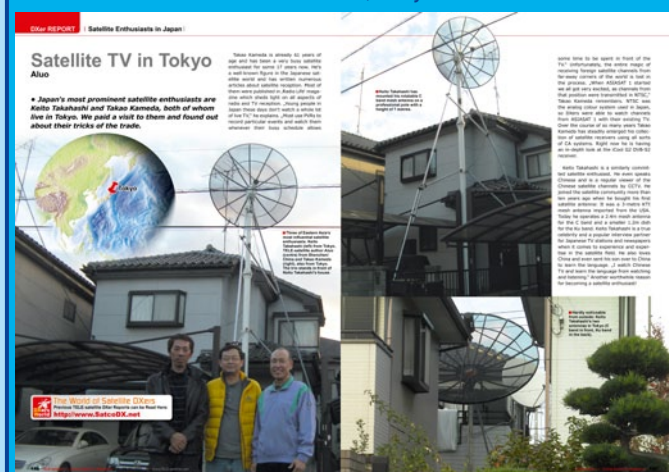
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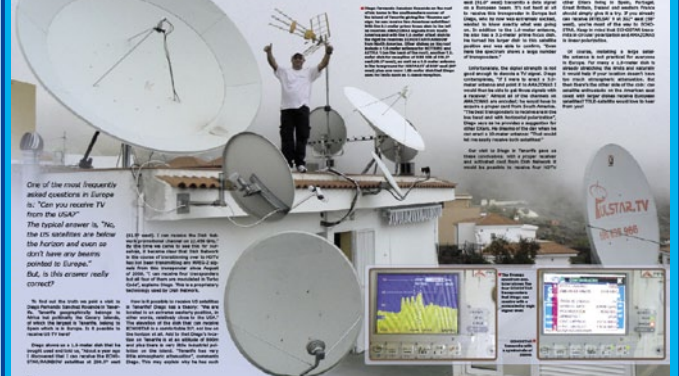
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Feedhunter Netherlands

Rini de Weijze, Amsterdam



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Tony Canada

Tony Di Rienzo, Toronto



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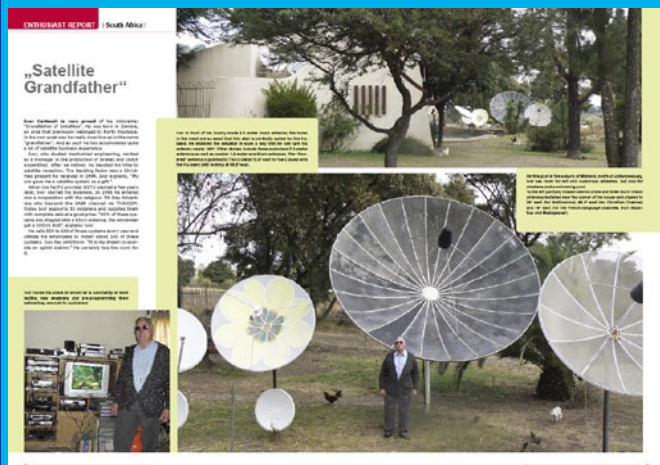
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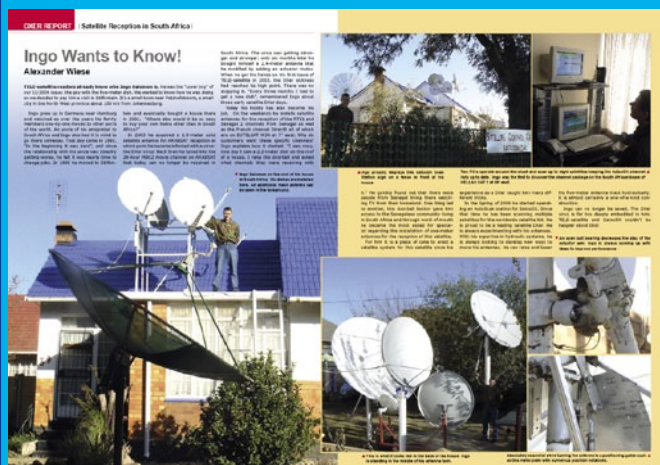
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49	0x0031	MPEG2 Video	-	1704.10	87.66	WPCH-DT	4619	0x120B	ETT	-	0.80	0.00	N/A	4631	0x1217	ETT	-	0.34	0.00	N/A
8191	0x1FFF	Null Packets	-	1721.05	8.85	N/A	4630	0x1216	EIT	-	0.69	0.00	N/A	4624	0x1210	ETT	-	0.34	0.00	N/A
52	0x0034	AC3 Audio	-	402.99	2.07	WPCH-DT	4627	0x1213	ETT	-	0.69	0.00	N/A	4612	0x1204	ETT	-	0.34	0.00	N/A
53	0x0035	AC3 Audio	-	141.34	0.73	WPCH-DT	4614	0x1206	ETT	-	0.69	0.00	N/A	4118	0x1016	EIT	-	0.34	0.00	N/A
8187	0x1FFB	MGT	-	56.72	0.29	N/A	4101	0x1005	EIT	-	0.69	0.00	N/A	4117	0x1015	EIT	-	0.34	0.00	N/A
0	0x0000	PAT	-	18.87	0.10	N/A	4623	0x120F	ETT	-	0.57	0.00	N/A	4115	0x1013	EIT	-	0.34	0.00	N/A
48	0x0030	PMT	-	15.09	0.08	WPCH-DT	4622	0x120E	ETT	-	0.57	0.00	N/A	4096	0x1000	EIT	-	0.34	0.00	N/A
4610	0x1202	ETT	-	11.89	0.06	N/A	4615	0x1207	ETT	-	0.57	0.00	N/A	4628	0x1214	ETT	-	0.23	0.00	N/A
4098	0x1002	EIT	-	11.89	0.06	N/A	4620	0x120C	ETT	-	0.46	0.00	N/A	4608	0x1200	ETT	-	0.23	0.00	N/A
4611	0x1203	ETT	-	1.60	0.01	N/A	4618	0x120A	ETT	-	0.46	0.00	N/A	4100	0x1004	EIT	-	0.23	0.00	N/A
4099	0x1003	EIT	-	1.37	0.01	N/A	4616	0x1208	ETT	-	0.46	0.00	N/A	4629	0x1215	ETT	-	0.11	0.00	N/A
4617	0x1209	ETT	-	1.14	0.01	N/A	4119	0x1017	EIT	-	0.46	0.00	N/A	4621	0x120D	ETT	-	0.11	0.00	N/A
4625	0x1211	ETT	-	1.03	0.01	N/A	4114	0x1012	EIT	-	0.46	0.00	N/A	4613	0x1205	ETT	-	0.11	0.00	N/A
4609	0x1201	ETT	-	1.03	0.01	N/A	4113	0x1011	EIT	-	0.46	0.00	N/A	4116	0x1014	EIT	-	0.11	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

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US

1379

TELE-satellite

Baltimore Channel 42

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	69	0x0045	AC3 Audio	-	197.86	1.02	MPT-2	7683	0x1E03	ETT	-	4.04	0.02	N/A	
49	0x0031	MPEG2 Video	-	12609.24	64.85	MPT-HD	68	0x0044	AC3 Audio	-	197.86	1.02	MPT-2	80	0x0050	PMT	-	4.04	0.02	V-me
65	0x0041	MPEG2 Video	-	3042.52	15.65	MPT-2	7427	0x1D03	EIT	-	28.68	0.15	N/A	64	0x0046	PMT	-	4.04	0.02	MPT-2
81	0x0051	MPEG2 Video	-	2040.13	10.49	V-me	7426	0x1D02	EIT	-	25.49	0.13	N/A	48	0x0030	PMT	-	3.93	0.02	MPT-HD
8191	0x1FFF	Null Packets	-	405.07	2.08	N/A	7425	0x1D01	EIT	-	25.17	0.13	N/A	7682	0x1E02	ETT	-	3.82	0.02	N/A
52	0x0034	AC3 Audio	-	394.67	2.03	MPT-HD	8187	0x1FFB	MGMT	-	18.90	0.10	N/A	7681	0x1E01	ETT	-	3.82	0.02	N/A
85	0x0055	AC3 Audio	-	197.86	1.02	V-me	7424	0x1D00	EIT	-	18.90	0.10	N/A	7680	0x1E00	ETT	-	3.19	0.02	N/A
84	0x0054	AC3 Audio	-	197.86	1.02	V-me	0	0x0000	PAT	-	18.82	0.08	N/A	7808	0x1E80	ETT	-	0.53	0.00	N/A

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Duration: 30 Sec. File Size: 76 MB ts.TELE-satellite.com/ATSC/US/Baltimore-Ch42-1201.ts

Transponderstream Technical Service File Download for Clients Only

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US

527

TELE-satellite

Hartford Channel 20

2 Audio PIDs for 1 Video

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	18187	0x1FFB	MGT	-	28.24	0.15	N/A	4611	0x1203	ETT	-	3.37	0.02	N/A	
49	0x0031	MPEG2 Video	-	10878.98	56.05	WCCT-DT	0	0x0000	PAT	-	16.98	0.09	N/A	4610	0x1202	ETT	-	3.03	0.02	N/A
8191	0x1FFF	Null Packets	-	4125.42	21.26	N/A	4097	0x1001	EIT	-	11.93	0.06	N/A	4608	0x1200	ETT	-	3.03	0.02	N/A
65	0x0041	MPEG2 Video	-	3524.68	18.16	This-TV	4096	0x1000	EIT	-	8.95	0.05	N/A	4099	0x1003	EIT	-	1.44	0.01	N/A
52	0x0034	AC3 Audio	-	395.15	2.04	WCCT-DT	64	0x0040	PMT	-	3.90	0.02	This-TV	4098	0x1002	EIT	-	1.15	0.01	N/A
53	0x0035	AC3 Audio	-	197.60	1.02	WCCT-DT	48	0x0030	PMT	-	3.85	0.02	WCCT-DT	5120	0x1400	ETT	-	0.14	0.00	N/A
68	0x0044	AC3 Audio	-	197.65	1.02	This-TV	4609	0x1201	FTT	-	3.70	0.02	N/A							

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US

507

TELE-satellite

Hartford Channel 33

very small null packet

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	4618	0x120A	ETT	-	53.84	0.28	N/A	80	0x0050	PMT	-	4.72	0.02	WFSB-3	
49	0x0031	MPEG2 Video	-	11523.09	59.39	WFSB	8187	0x1FFB	MG	-	48.71	0.25	N/A	64	0x0040	PMT	-	4.72	0.02	WFSB-2
65	0x0041	MPEG2 Video	-	3377.32	17.41	WFSB-2	4106	0x100A	EIT	-	36.43	0.19	N/A	48	0x0030	PMT	-	4.72	0.02	WFSB
81	0x0051	MPEG2 Video	-	1904.90	9.82	WFSB-3	4619	0x120B	ETT	-	33.33	0.17	N/A	4111	0x100F	EIT	-	0.74	0.00	N/A
97	0x0061	MPEG2 Video	-	813.26	4.19	WFSB-4	4620	0x120C	ETT	-	29.48	0.15	N/A	4110	0x100E	EIT	-	0.74	0.00	N/A
8191	0x1FFF	Null Packets	-	493.60	2.54	N/A	4621	0x120D	ETT	-	24.83	0.13	N/A	4098	0x1002	EIT	-	0.74	0.00	N/A
52	0x0034	AC3 Audio	-	394.96	2.04	WFSB	4107	0x100B	EIT	-	20.24	0.10	N/A	4100	0x1004	EIT	-	0.67	0.00	N/A
68	0x0044	AC3 Audio	-	197.48	1.02	WFSB-2	0	0x0000	PAT	-	18.82	0.10	N/A	4099	0x1003	EIT	-	0.67	0.00	N/A
84	0x0054	AC3 Audio	-	141.01	0.73	WFSB-3	4108	0x100C	EIT	-	17.07	0.09	N/A	4097	0x1001	EIT	-	0.47	0.00	N/A
100	0x0064	AC3 Audio	-	131.77	0.68	WFSB-4	4109	0x100D	EIT	-	15.52	0.08	N/A	4096	0x1000	EIT	-	0.47	0.00	N/A
53	0x0035	AC3 Audio	-	103.43	0.53	WFSB	96	0x0060	PMT	-	4.72	0.02	WFSB-4	4101	0x1005	EIT	-	0.40	0.00	N/A

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ATSC

US

Transportstream ID

515

Recording

TELE-satellite

Transmitter Hartford Channel 35

Remark

big null packet

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	12228.17	63.00	WVIT-HD
8191	0x1FFF	Null Packets	-	3266.54	16.83	N/A
8182	0x1FF6	?	-	1841.61	9.49	N/A
65	0x0041	MPEG2 Video	-	1091.77	5.63	NBC+
52	0x0034	AC3 Audio	-	395.05	2.04	WVIT-HD
53	0x0035	AC3 Audio	-	197.63	1.02	WVIT-HD
68	0x0044	AC3 Audio	-	197.58	1.02	NBC+
8187	0x1FFB	MGT	-	86.65	0.45	N/A

64	0x0040	PMT	-	25.04	0.13	NBC+
48	0x0030	PMT	-	25.04	0.13	WVIT-HD
0	0x0000	PAT	-	24.98	0.13	N/A
5000	0x1388	EIT	-	10.73	0.06	N/A
5133	0x140D	ETT	-	3.25	0.02	N/A
5005	0x138D	EIT	-	1.95	0.01	N/A
5001	0x1389	EIT	-	1.79	0.01	N/A
5134	0x140E	ETT	-	1.63	0.01	N/A
5131	0x140B	ETT	-	1.30	0.01	N/A

5006	0x138E	EIT	-	1.30	0.01	N/A
5132	0x140C	ETT	-	1.14	0.01	N/A
5130	0x140A	ETT	-	1.14	0.01	N/A
5129	0x1409	ETT	-	0.98	0.01	N/A
5007	0x138F	EIT	-	0.98	0.01	N/A
5128	0x1408	ETT	-	0.87	0.00	N/A
5003	0x138B	EIT	-	0.81	0.00	N/A
5002	0x138A	EIT	-	0.81	0.00	N/A
5004	0x138C	EIT	-	0.54	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 74 MB

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www.transponderstream.com/ATSC/US/Hartford-Ch35-1201.ts

ATSC

US

Transportstream ID

511

Recording

TELE-satellite

Transmitter Hartford Channel 45

Remark

2 Audio PIDs for 1 Video

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	13895.61	71.41	WEDH-1
65	0x0041	MPEG2 Video	-	1837.97	9.45	WEDH-2
81	0x0051	MPEG2 Video	-	1581.63	8.13	WEDH-3
52	0x0034	AC3 Audio	-	394.66	2.03	WEDH-1
8191	0x1FFF	Null Packets	-	319.02	1.64	N/A
84	0x0054	AC3 Audio	-	197.43	1.01	WEDH-3
68	0x0044	AC3 Audio	-	197.43	1.01	WEDH-2
85	0x0055	AC3 Audio	-	197.33	1.01	WEDH-3
69	0x0045	AC3 Audio	-	197.33	1.01	WEDH-2

53	0x0035	AC3 Audio	-	197.33	1.01	WEDH-1
170	0x00AA	Data	-	90.20	0.46	Service 10
7680	0x1E00	ETT	-	83.57	0.43	N/A
272	0x0110	Private PES	-	45.25	0.23	WEDH-1
273	0x0111	Private Sections	-	27.33	0.14	N/A
80	0x0050	PMT	-	25.15	0.13	WEDH-3
64	0x0040	PMT	-	25.15	0.13	WEDH-2
48	0x0030	PMT	-	25.15	0.13	WEDH-1
7424	0x1D00	EIT	-	21.58	0.11	N/A
8187	0x1FFB	MGT	-	16.73	0.09	N/A

0	0x0000	PAT	-	16.24	0.08	N/A
7681	0x1E01	ETT	-	14.55	0.07	N/A
7683	0x1E03	ETT	-	11.98	0.06	N/A
7682	0x1E02	ETT	-	11.29	0.06	N/A
186	0x00BA	Data	-	10.10	0.05	Service 11
7425	0x1D01	EIT	-	5.15	0.03	N/A
176	0x00B0	PMT	-	3.86	0.02	Service 11
160	0x00A0	PMT	-	3.76	0.02	Service 10
7426	0x1D02	EIT	-	3.56	0.02	N/A
7427	0x1D03	EIT	-	2.77	0.01	N/A

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www.transponderstream.com/ATSC/US/Hartford-Ch45-1201.ts

ATSC

US

Transportstream ID

1643

Recording

TELE-satellite

Transmitter Kansas City Channel 18

Remark

2 Audio PIDs for 1 Video

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	10021.51	51.54	KCPT-1
65	0x0041	MPEG2 Video	-	5000.54	25.72	KCPT-2
81	0x0051	MPEG2 Video	-	2389.76	12.29	KCPT-3
8191	0x1FFF	Null Packets	-	431.53	2.22	N/A
68	0x0044	AC3 Audio	-	197.32	1.01	KCPT-2
52	0x0034	AC3 Audio	-	197.32	1.01	KCPT-1
85	0x0055	AC3 Audio	-	197.22	1.01	KCPT-3
84	0x0054	AC3 Audio	-	197.22	1.01	KCPT-3
69	0x0045	AC3 Audio	-	197.22	1.01	KCPT-2
53	0x0035	AC3 Audio	-	197.22	1.01	KCPT-1

122	0x007A	Data	-	89.93	0.46	Service 7
7680	0x1E00	ETT	-	72.28	0.37	N/A
272	0x0110	Private PES	-	43.83	0.23	KCPT-1
7424	0x1D00	EIT	-	33.02	0.17	N/A
273	0x0111	Private Sections	-	27.37	0.14	N/A
7681	0x1E01	ETT	-	26.77	0.14	N/A
0	0x0000	PAT	-	17.95	0.09	N/A
8187	0x1FFB	MGT	-	16.96	0.09	N/A
7682	0x1E02	ETT	-	16.96	0.09	N/A
7683	0x1E03	ETT	-	12.39	0.06	N/A
7425	0x1D01	EIT	-	11.90	0.06	N/A

138	0x008A	Data	-	10.11	0.05	Service 8
7426	0x1D02	EIT	-	7.44	0.04	N/A
7427	0x1D03	EIT	-	5.45	0.03	N/A
7808	0x1E80	ETT	-	4.46	0.02	N/A
48	0x0030	PMT	-	4.46	0.02	KCPT-1
80	0x0050	PMT	-	4.36	0.02	KCPT-3
64	0x0040	PMT	-	4.36	0.02	KCPT-2
128	0x0080	PMT	-	3.77	0.02	Service 8
112	0x0070	PMT	-	3.77	0.02	Service 7

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www.transponderstream.com/ATSC/US/KansasCity-Ch18-1201.ts

ATSC

US

Transportstream ID

1639

Recording

TELE-satellite

Transmitter Kansas City Channel 24

Remark

one channel with high bitrate

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	18493.27	95.49	KCTV
52	0x0034	AC3 Audio	-	394.20	2.04	KCTV
8191	0x1FFF	Null Packets	-	367.74	1.90	N/A
8187	0x1FFB	MGT	-	31.18	0.16	N/A
48	0x0030	PMT	-	14.97	0.08	KCTV
1	0x0001	CAT	-	14.97	0.08	N/A
0	0x0000	PAT	-	14.97	0.08	N/A

4101	0x1005	EIT	-	7.38	0.04	N/A
4100	0x1004	EIT	-	7.38	0.04	N/A
4357	0x1105	ETT	-	5.74	0.03	N/A
4103	0x1007	EIT	-	5.33	0.03	N/A
4102	0x1006	EIT	-	4.92	0.03	N/A
4358	0x1106	ETT	-	1.44	0.01	N/A
4359	0x1107	ETT	-	0.82	0.00	N/A
4096	0x1000	EIT	-	0.62	0.00	N/A

4353	0x1101	ETT	-	0.41	0.00	N/A
4099	0x1003	EIT	-	0.41	0.00	N/A
4098	0x1002	EIT	-	0.41	0.00	N/A
4097	0x1001	EIT	-	0.41	0.00	N/A
4355	0x1103	ETT	-	0.21	0.00	N/A
4354	0x1102	ETT	-	0.21	0.00	N/A
4352	0x1100	ETT	-	0.21	0.00	N/A

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ATSC

US

Transportstream ID

1637

Recording

TELE-satellite

Transmitter Kansas City Channel 34

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
49	0x0031	MPEG2 Video	- 13657.34	70.22	WDAF DT
65	0x0041	MPEG2 Video	- 2609.76	13.42	WDAF SD
8191	0x1FFF	Null Packets	- 2452.52	12.61	N/A
52	0x0034	AC3 Audio	- 462.53	2.38	WDAF DT
67	0x0043	AC3 Audio	- 197.96	1.02	WDAF SD
0	0x0000	PAT	- 20.04	0.10	N/A

8187	0x1FFB	MGT	- 17.72	0.09	N/A
5131	0x140B	ETT	- 9.65	0.05	N/A
5003	0x138B	EIT	- 9.46	0.05	N/A
64	0x0040	PMT	- 3.99	0.02	WDAF SD
48	0x0030	PMT	- 3.99	0.02	WDAF DT
5132	0x140C	ETT	- 1.48	0.01	N/A
5004	0x138C	EIT	- 1.39	0.01	N/A

5000	0x1388	EIT	- 0.56	0.00	N/A
5129	0x1409	ETT	- 0.46	0.00	N/A
5001	0x1389	EIT	- 0.37	0.00	N/A
5128	0x1408	ETT	- 0.28	0.00	N/A
5002	0x138A	EIT	- 0.19	0.00	N/A

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ATSC

US

Transportstream ID

2083

Recording

TELE-satellite

Transmitter Las Vegas Channel 11

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
49	0x0031	MPEG2 Video	- 7803.76	40.09	KLVXHD
65	0x0041	MPEG2 Video	- 3571.86	18.35	KLVXSD1
8182	0x1FF6	?	- 2763.31	14.20	N/A
81	0x0051	MPEG2 Video	- 2496.00	12.82	KLVXSD2
2304	0x0900	Private Data	- 1038.73	5.34	_Service 6
52	0x0034	AC3 Audio	- 394.91	2.03	KLVXHD
8191	0x1FFF	Null Packets	- 219.21	1.13	N/A
68	0x0044	AC3 Audio	- 198.20	1.02	KLVXSD1
84	0x0054	AC3 Audio	- 197.51	1.01	KLVXSD2
85	0x0055	AC3 Audio	- 132.17	0.68	KLVXSD2
69	0x0045	AC3 Audio	- 132.17	0.68	KLVXSD1
53	0x0035	AC3 Audio	- 132.05	0.68	KLVXHD
138	0x008A	Data	- 90.24	0.46	_Service 8

8187	0x1FFB	MGT	- 35.98	0.18	N/A
7680	0x1E00	ETT	- 28.44	0.15	N/A
7424	0x1D00	EIT	- 24.10	0.12	N/A
0	0x0000	PAT	- 16.79	0.09	N/A
128	0x0080	PMT	- 15.19	0.08	_Service 8
112	0x0070	PMT	- 15.19	0.08	_Service 7
64	0x0040	PMT	- 15.19	0.08	KLVXSD1
96	0x0060	PMT	- 15.08	0.08	_Service 6
80	0x0050	PMT	- 15.08	0.08	KLVXSD2
48	0x0030	PMT	- 15.08	0.08	KLVXHD
7681	0x1E01	ETT	- 14.16	0.07	N/A
122	0x007A	Data	- 10.05	0.05	_Service 7
7682	0x1E02	ETT	- 9.37	0.05	N/A
7425	0x1D01	EIT	- 8.22	0.04	N/A

7683	0x1E03	ETT	- 7.77	0.04	N/A
7684	0x1E04	ETT	- 5.71	0.03	N/A
7426	0x1D02	EIT	- 5.37	0.03	N/A
7685	0x1E05	ETT	- 5.25	0.03	N/A
7686	0x1E06	ETT	- 4.57	0.02	N/A
7687	0x1E07	ETT	- 4.11	0.02	N/A
7427	0x1D03	EIT	- 3.88	0.02	N/A
7428	0x1D04	EIT	- 3.77	0.02	N/A
126	0x007E	?	- 3.77	0.02	N/A
7808	0x1E08	ETT	- 2.97	0.02	N/A
7431	0x1D07	EIT	- 2.51	0.01	N/A
7430	0x1D06	EIT	- 2.51	0.01	N/A
7429	0x1D05	EIT	- 2.51	0.01	N/A
8186	0x1FFA	?	- 1.49	0.01	N/A

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Duration: 5 Min, File Size: 741 MB

www.transponderstream.com/ATSC/US/LasVegas-Ch11-1201.ts

ATSC

US

Transportstream ID

0

Recording

TELE-satellite

Transmitter Las Vegas Channel 15

High Null Packets, Wrong TS ID

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
8191	0x1FFF	Null Packets	- 10779.99	55.30	N/A
49	0x0031	MPEG2 Video	- 8444.28	43.32	KELV HD
51	0x0033	AC3 Audio	- 198.52	1.02	KELV HD
8187	0x1FFB	MGT	- 18.81	0.10	N/A

0	0x0000	PAT	- 15.84	0.08	N/A
7425	0x1D01	EIT	- 9.90	0.05	N/A
7427	0x1D03	EIT	- 9.41	0.05	N/A
7426	0x1D02	EIT	- 6.27	0.03	N/A
48	0x0030	PMT	- 3.96	0.02	KELV HD

7424	0x1D00	EIT	- 3.14	0.02	N/A
7681	0x1E01	ETT	- 1.49	0.01	N/A
7683	0x1E03	ETT	- 0.99	0.01	N/A
7682	0x1E02	ETT	- 0.83	0.00	N/A
7680	0x1E00	ETT	- 0.66	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

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ATSC

US

Transportstream ID

512

Recording

TELE-satellite

Transmitter Las Vegas Channel 32

Remark Channel Name Missing

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
8191	0x1FFF	Null Packets	- 9844.94	50.45	N/A
49	0x0031	MPEG2 Video	- 9323.91	47.78	_Service 1
50	0x0032	AC3 Audio	- 236.50	1.21	_Service 1

0	0x0000	PAT	- 40.88	0.21	N/A
8187	0x1FFB	MGT	- 35.75	0.18	N/A
48	0x0030	PMT	- 10.25	0.05	_Service 1
7427	0x1D03	EIT	- 5.13	0.03	N/A

7426	0x1D02	EIT	- 5.13	0.03	N/A
7425	0x1D01	EIT	- 5.13	0.03	N/A
7424	0x1D00	EIT	- 5.13	0.03	N/A

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ATSC

US

Transportstream ID

1

Recording

TELE-satellite

Transmitter Las Vegas Channel 41

VeryHigh Null Packets, Wrong TS ID

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
8191	0x1FFF	Null Packets	-16403.86	84.49	N/A
113	0x0071	MPEG2 Video	-2701.65	13.91	K41IO-D
116	0x0074	AC3 Audio	- 263.46	1.36	K41IO-D

8187	0x1FFB	MGT	- 18.80	0.10	N/A
0	0x0000	PAT	- 18.80	0.10	N/A
112	0x0070	PMT	- 4.73	0.02	K41IO-D
4098	0x1002	EIT	- 3.39	0.02	N/A

4099	0x1003	EIT	- 0.57	0.00	N/A
4097	0x1001	EIT	- 0.14	0.00	N/A
4096	0x1000	EIT	- 0.14	0.00	N/A

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ATSC**US****Transportstream ID****0 Recording****TELE-satellite****Transmitter Las Vegas Channel 43****Remark****Radio, Wrong TS ID**

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
8191	0x1FFF	Null Packets	-10772.55	55.41	N/A
97	0x0061	MPEG2 Video	-2556.79	13.15	3ABN-ES
81	0x0051	MPEG2 Video	-2556.65	13.15	3ABN-DD
49	0x0031	MPEG2 Video	-2556.65	13.15	43FO-D
52	0x0034	AC3 Audio	-197.86	1.02	43FO-D
100	0x0064	AC3 Audio	-131.95	0.68	3ABN-ES
84	0x0054	AC3 Audio	-131.95	0.68	3ABN-DD
116	0x0074	AC3 Audio	-122.62	0.63	3ABN-RD
148	0x0094	AC3 Audio	-103.67	0.53	Radio74

132	0x0084	AC3 Audio	-103.67	0.53	3ABN-RL
8187	0x1FFB	MGT	-62.12	0.32	N/A
7424	0x1D00	EIT	-24.63	0.13	N/A
144	0x0090	PMT	-15.16	0.08	Radio74
128	0x0080	PMT	-15.16	0.08	3ABN-RL
112	0x0070	PMT	-15.16	0.08	3ABN-RD
96	0x0060	PMT	-15.16	0.08	3ABN-ES
80	0x0050	PMT	-15.16	0.08	3ABN-DD
48	0x0030	PMT	-15.16	0.08	43FO-D
0	0x0000	PAT	-15.16	0.08	N/A

7425	0x1D01	EIT	-5.41	0.03	N/A
7426	0x1D02	EIT	-2.44	0.01	N/A
7427	0x1D03	EIT	-1.89	0.01	N/A
7682	0x1E02	ETT	-1.62	0.01	N/A
7681	0x1E01	ETT	-1.62	0.01	N/A
7683	0x1E03	ETT	-1.35	0.01	N/A
7680	0x1E00	ETT	-1.35	0.01	N/A
7936	0x1F00	ETT	-0.14	0.00	N/A

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PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
49	0x0031	MPEG2 Video	-2457.59	12.66	KNGHSHN
97	0x0061	MPEG2 Video	-2367.88	12.20	KNGHSHN
113	0x0071	MPEG2 Video	-2365.90	12.19	MOVIES+
81	0x0051	MPEG2 Video	-2320.26	11.95	Bounce
129	0x0081	MPEG2 Video	-2124.31	10.94	KNGHSHN
257	0x0101	MPEG2 Video	-2072.13	10.67	SKYLINE
65	0x0041	MPEG2 Video	-2068.67	10.65	KNGHSHN
145	0x0091	MPEG2 Video	-2037.88	10.50	TVC+
8191	0x1FFF	Null Packets	-462.59	2.38	N/A

100	0x0064	AC3 Audio	-134.56	0.69	KNGHSHN
84	0x0054	AC3 Audio	-134.56	0.69	Bounce
52	0x0034	AC3 Audio	-134.56	0.69	KNGHSHN
260	0x0104	AC3 Audio	-134.46	0.69	SKYLINE
148	0x0084	AC3 Audio	-134.46	0.69	TVC+
132	0x0084	AC3 Audio	-134.46	0.69	KNGHSHN
116	0x0074	AC3 Audio	-134.46	0.69	MOVIES+
68	0x0044	AC3 Audio	-134.46	0.69	KNGHSHN
8187	0x1FFB	MGT	-17.82	0.09	N/A
0	0x0000	PAT	-15.05	0.08	N/A

256	0x0100	PMT	-3.76	0.02	SKYLINE
144	0x0090	PMT	-3.76	0.02	TVC+
128	0x0080	PMT	-3.76	0.02	KNGHSHN
112	0x0070	PMT	-3.76	0.02	MOVIES+
96	0x0060	PMT	-3.76	0.02	KNGHSHN
80	0x0050	PMT	-3.76	0.02	Bounce
64	0x0040	PMT	-3.76	0.02	KNGHSHN
48	0x0030	PMT	-3.76	0.02	KNGHSHN

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PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
65	0x0041	MPEG2 Video	-2950.49	15.06	LA18.2
177	0x00B1	MPEG2 Video	-2525.59	12.89	LA18.9
129	0x0081	MPEG2 Video	-2525.34	12.89	LA18.6
145	0x0091	MPEG2 Video	-2453.95	12.52	LA18.7
161	0x00A1	MPEG2 Video	-1914.02	9.77	LA18.8
81	0x0051	MPEG2 Video	-1649.76	8.42	LA18.3
113	0x0071	MPEG2 Video	-1582.83	8.08	LA18.5
97	0x0061	MPEG2 Video	-1260.07	6.43	LA18.4
49	0x0031	MPEG2 Video	-1020.85	5.21	LA18.1
8191	0x1FFF	Null Packets	-164.36	0.84	N/A
164	0x00A4	AC3 Audio	-133.12	0.68	LA18.8
116	0x0074	AC3 Audio	-133.12	0.68	LA18.5

100	0x0064	AC3 Audio	-133.12	0.68	LA18.4
68	0x0044	AC3 Audio	-133.12	0.68	LA18.2
180	0x00B4	AC3 Audio	-132.87	0.68	LA18.9
148	0x0094	AC3 Audio	-132.87	0.68	LA18.7
132	0x0084	AC3 Audio	-132.87	0.68	LA18.6
84	0x0054	AC3 Audio	-132.87	0.68	LA18.3
52	0x0034	AC3 Audio	-132.87	0.68	LA18.1
7424	0x1D00	EIT	-85.77	0.44	N/A
8187	0x1FFB	MGT	-31.24	0.16	N/A
0	0x0000	PAT	-30.49	0.16	N/A
7425	0x1D01	EIT	-28.01	0.14	N/A
7680	0x1E00	ETT	-23.80	0.12	N/A
7681	0x1E01	ETT	-18.84	0.10	N/A

7808	0x1E80	ETT	-13.63	0.07	N/A
7426	0x1D02	EIT	-13.14	0.07	N/A
7427	0x1D03	EIT	-12.39	0.06	N/A
176	0x00B0	PMT	-9.17	0.05	LA18.9
160	0x00A0	PMT	-9.17	0.05	LA18.8
144	0x0090	PMT	-9.17	0.05	LA18.7
128	0x0080	PMT	-9.17	0.05	LA18.6
112	0x0070	PMT	-9.17	0.05	LA18.5
96	0x0060	PMT	-9.17	0.05	LA18.4
80	0x0050	PMT	-9.17	0.05	LA18.3
64	0x0040	PMT	-9.17	0.05	LA18.2
48	0x0030	PMT	-9.17	0.05	LA18.1
7683	0x1E03	ETT	-6.45	0.03	N/A

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PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
65	0x0041	MPEG2 Video	-2642.06	13.35	KBEH-DT
145	0x0091	MPEG2 Video	-2336.30	11.80	KBEH-DT
81	0x0051	MPEG2 Video	-2251.67	11.38	KBEH-DT
49	0x0031	MPEG2 Video	-2223.47	11.23	KBEH-DT
129	0x0081	MPEG2 Video	-2115.90	10.69	KBEH-DT
257	0x0101	MPEG2 Video	-2105.00	10.64	KBEH-DT
113	0x0071	MPEG2 Video	-1974.49	9.98	KBEH-DT
97	0x0061	MPEG2 Video	-1835.34	9.27	KBEH-DT
8191	0x1FFF	Null Packets	-400.16	2.02	N/A
260	0x0104	AC3 Audio	-233.18	1.18	KBEH-DT
132	0x0084	AC3 Audio	-202.34	1.02	KBEH-DT

84	0x0054	AC3 Audio	-201.59	1.02	KBEH-DT
68	0x0044	AC3 Audio	-201.59	1.02	KBEH-DT
52	0x0034	AC3 Audio	-201.59	1.02	KBEH-DT
148	0x0094	AC3 Audio	-200.83	1.01	KBEH-DT
116	0x0074	AC3 Audio	-200.83	1.01	KBEH-DT
100	0x0064	AC3 Audio	-200.46	1.01	KBEH-DT
8187	0x1FFB	MGT	-55.29	0.28	N/A
5000	0x1388	EIT	-45.13	0.23	N/A
0	0x0000	PAT	-23.32	0.12	N/A
256	0x0100	PMT	-11.66	0.06	KBEH-DT
144	0x0090	PMT	-11.66	0.06	KBEH-DT
128	0x0080	PMT	-11.66	0.06	KBEH-DT

112	0x0070	PMT	-11.66	0.06	KBEH-DT
96	0x0060	PMT	-11.66	0.06	KBEH-DT
80	0x0050	PMT	-11.66	0.06	KBEH-DT
64	0x0040	PMT	-11.66	0.06	KBEH-DT
48	0x0030	PMT	-11.66	0.06	KBEH-DT
5130	0x140A	ETT	-10.15	0.05	N/A
5129	0x1409	ETT	-9.78	0.05	N/A
5128	0x1408	ETT	-9.78	0.05	N/A
5001	0x1389	EIT	-9.03	0.05	N/A
5003	0x138B	EIT	-4.51	0.02	N/A
5002	0x138A	EIT	-4.51	0.02	N/A

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ATSC**US**

Transportstream ID

2011 Recording

TELE-satellite

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
81	0x0051	MPEG2 Video	-12062.07	61.75	WNEN-HD
65	0x0041	MPEG2 Video	-2855.28	14.62	V-ME
49	0x0031	MPEG2 Video	-2486.42	12.73	KIDS
8191	0x1FFF	Null Packets	-685.91	3.51	N/A
84	0x0054	AC3 Audio	-398.03	2.04	WNEN-HD
68	0x0044	AC3 Audio	-198.87	1.02	V-ME
52	0x0034	AC3 Audio	-198.87	1.02	KIDS
86	0x0056	AC3 Audio	-132.78	0.68	WNEN-HD

Transmitter	Newark Channel 13
85 0x0055 AC3 Audio	- 132.48 0.68 WNEN-HD
149 0x0095 Data	- 90.50 0.46 Service 101
7680 0x1E00 ETT	- 42.57 0.22 N/A
7424 0x1D00 EIT	- 35.72 0.18 N/A
8187 0x1FFB MGT	- 32.15 0.16 N/A
144 0x0090 PMT	- 30.37 0.16 Service 101
0 0x0000 PAT	- 30.07 0.15 N/A
7681 0x1E01 ETT	- 19.35 0.10 N/A
80 0x0050 PMT	- 15.18 0.08 WNEN-HD

64 0x0040 PMT	- 15.18 0.08 V-ME
48 0x0030 PMT	- 14.89 0.08 KIDS
7682 0x1E02 ETT	- 12.50 0.06 N/A
7425 0x1D01 EIT	- 11.31 0.06 N/A
7683 0x1E03 ETT	- 7.74 0.04 N/A
7426 0x1D02 EIT	- 7.74 0.04 N/A
7684 0x1E04 ETT	- 6.85 0.04 N/A
7427 0x1D03 EIT	- 5.66 0.03 N/A
7685 0x1E05 ETT	- 5.06 0.03 N/A

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Transportstream ID

2493 Recording

TELE-satellite

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
49	0x0031	MPEG2 Video	-10281.05	52.91	WPHL-DT
81	0x0051	MPEG2 Video	-2932.78	15.09	Antenna
65	0x0041	MPEG2 Video	-2573.46	13.24	ThisTV
97	0x0061	MPEG2 Video	-1691.66	8.71	TANGO
8191	0x1FFF	Null Packets	-695.07	3.58	N/A
52	0x0034	AC3 Audio	-394.49	2.03	WPHL-DT
84	0x0054	AC3 Audio	-197.84	1.02	Antenna
100	0x0064	AC3 Audio	-197.77	1.02	TANGO

Transmitter	Philadelphia Channel 17
68 0x0044 AC3 Audio	- 197.77 1.02 ThisTV
53 0x0035 AC3 Audio	- 131.83 0.68 WPHL-DT
8187 0x1FFB MGT	- 20.59 0.11 N/A
7680 0x1E00 ETT	- 17.12 0.09 N/A
0 0x0000 PAT	- 16.77 0.09 N/A
7424 0x1D00 EIT	- 15.21 0.08 N/A
7681 0x1E01 ETT	- 12.45 0.06 N/A
7682 0x1E02 ETT	- 8.92 0.05 N/A
7425 0x1D01 EIT	- 7.93 0.04 N/A

Remark	2 Audio PIDs for 1 Video
7683 0x1E03 ETT	- 7.08 0.04 N/A
7426 0x1D02 EIT	- 5.73 0.03 N/A
7808 0x1E80 ETT	- 4.67 0.02 N/A
7427 0x1D03 EIT	- 4.25 0.02 N/A
96 0x0060 PMT	- 3.89 0.02 TANGO
80 0x0050 PMT	- 3.89 0.02 Antenna
64 0x0040 PMT	- 3.89 0.02 ThisTV
48 0x0030 PMT	- 3.89 0.02 WPHL-DT

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TransportStream ID

2167 Recording

Ron Roessel

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
8191	0x1FFF	Null Packets	-14954.80	76.90	N/A
65	0x0041	MPEG2 Video	-2065.16	10.62	WNYE2
49	0x0031	MPEG2 Video	-2063.60	10.61	WNYE1
68	0x0044	AC3 Audio	-115.38	0.59	WNYE2
52	0x0034	AC3 Audio	-115.38	0.59	WNYE1
8187	0x1FFB	MGT	-39.77	0.20	N/A
7424	0x1D00	EIT	-15.09	0.08	N/A
0	0x0000	PAT	-15.09	0.08	N/A

Transmitter	New York Channel 25
7680 0x1E00 ETT	- 10.41 0.05 N/A
7681 0x1E01 ETT	- 8.92 0.05 N/A
7682 0x1E02 ETT	- 4.16 0.02 N/A
64 0x0040 PMT	- 4.16 0.02 WNYE2
48 0x0030 PMT	- 4.16 0.02 WNYE1
7425 0x1D01 EIT	- 3.87 0.02 N/A
7687 0x1E07 ETT	- 3.72 0.02 N/A
7683 0x1E03 ETT	- 3.72 0.02 N/A
7686 0x1E06 ETT	- 3.12 0.02 N/A

7808 0x1E80 ETT	- 2.97 0.02 N/A
7684 0x1E04 ETT	- 2.68 0.01 N/A
7685 0x1E05 ETT	- 2.45 0.01 N/A
7426 0x1D02 EIT	- 2.38 0.01 N/A
7431 0x1D07 EIT	- 1.34 0.01 N/A
7427 0x1D03 EIT	- 1.34 0.01 N/A
7428 0x1D04 EIT	- 1.12 0.01 N/A
7430 0x1D06 EIT	- 0.89 0.00 N/A
7429 0x1D05 EIT	- 0.89 0.00 N/A

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TransportStream ID

2015 Recording

Ron Roessel

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
49	0x0031	MPEG2 Video	-4004.26	20.62	WMBC DT
129	0x0081	MPEG2 Video	-3003.24	15.47	Azteca
113	0x0071	MPEG2 Video	-3003.20	15.47	NTDTV
97	0x0061	MPEG2 Video	-2502.68	12.89	SinoVSN
81	0x0051	MPEG2 Video	-2002.13	10.31	CGN-TV
65	0x0041	MPEG2 Video	-2002.13	10.31	MBN
8182	0x1FF6	?	-921.74	4.75	N/A
8191	0x1FFF	Null Packets	-780.78	4.02	N/A
52	0x0034	AC3 Audio	-197.63	1.02	WMBC DT
84	0x0054	AC3 Audio	-103.54	0.53	CGN-TV
164	0x00A4	AC3 Audio	-103.50	0.53	WDNJ
148	0x0094	AC3 Audio	-103.50	0.53	KCBN

Transmitter	New York Channel 63
132 0x0084 AC3 Audio	- 103.50 0.53 Azteca
116 0x0074 AC3 Audio	- 103.50 0.53 NTDTV
100 0x0064 AC3 Audio	- 103.50 0.53 SinoVSN
68 0x0044 AC3 Audio	- 103.50 0.53 MBN
4110 0x100E EIT	- 53.12 0.27 N/A
8187 0x1FFB MGT	- 45.62 0.23 N/A
160 0x00A0 PMT	- 15.08 0.08 WDNJ
112 0x0070 PMT	- 15.08 0.08 NTDTV
96 0x0060 PMT	- 15.08 0.08 SinoVSN
64 0x0040 PMT	- 15.08 0.08 MBN
0 0x0000 PAT	- 15.08 0.08 N/A
144 0x0090 PMT	- 15.04 0.08 KCBN
128 0x0080 PMT	- 15.04 0.08 Azteca

80 0x0050 PMT	- 15.04 0.08 CGN-TV
48 0x0030 PMT	- 15.04 0.08 WMBC DT
1 0x0001 CAT	- 15.04 0.08 N/A
4111 0x100F EIT	- 7.62 0.04 N/A
4117 0x1015 EIT	- 2.93 0.02 N/A
4112 0x1010 EIT	- 2.93 0.02 N/A
4116 0x1014 EIT	- 2.73 0.01 N/A
4114 0x1012 EIT	- 2.73 0.01 N/A
4113 0x1011 EIT	- 2.73 0.01 N/A
4115 0x1013 EIT	- 2.54 0.01 N/A
8186 0x1FFA	- 1.56 0.01 N/A
4623 0x120F ETT	- 0.20 0.00 N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only**Duration: 30 Sec, File Size: 89 MB****ts.TELE-satellite.com/ATSC/US/NewYork-Ch63-1110.ts****Transponderstream Technical Service File Download for Clients Only****Duration: 5 Min, File Size: 729 MB****www.transponderstream.com/ATSC/US/NewYork-Ch63-1110.ts**

DTMB

terrestrial

CN

China

DTMB

CN

Network Name

4 Recording

TELE-satellite

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	
8191	0x1FFF	Null Packets	-	2023.22	21.02	N/A
53	0x0035	H.264 Video	-	1861.09	19.34	EMR-04
50	0x0032	H.264 Video	-	1860.37	19.33	EMR-05
80	0x0050	H.264 Video	-	1043.65	10.84	EMR-01
64	0x0040	H.264 Video	-	1043.62	10.84	EMR-03
69	0x0045	H.264 Video	-	737.53	7.66	EMR-02

Transmitter	Beijing Channel 30	Remark
70	0x0046	MPEG Audio - 188.01 1.95 EMR-02
65	0x0041	MPEG Audio - 188.01 1.95 EMR-03
54	0x0036	MPEG Audio - 188.01 1.95 EMR-04
51	0x0033	MPEG Audio - 188.01 1.95 EMR-05
81	0x0051	MPEG Audio - 125.34 1.30 EMR-01
33	0x0021	PMT - 25.31 0.26 EMR-05
0	0x0000	PAT - 25.31 0.26 N/A

Remark	TELE-satellite replay blocked
36	0x0024 PMT - 25.29 0.26 EMR-01
35	0x0023 PMT - 25.29 0.26 EMR-02
34	0x0022 PMT - 25.29 0.26 EMR-03
32	0x0020 PMT - 25.29 0.26 EMR-04
17	0x0011 SDT - 25.29 0.26 N/A
21	0x0015 Network Sync - 1.50 0.02 N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 37 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 372 MB

www.transponderstream.com/DTMB/CN/Beijing-Ch30-1203.ts

DTMB

CN

Network Name

1 Recording

TELE-satellite

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
74	0x004A	MPEG2 Video	\$ 2391.17	44.15	DVT2
58	0x003A	MPEG2 Video	\$ 2390.80	44.14	DVT1
75	0x004B	MPEG Audio	\$ 188.09	3.47	DVT2
59	0x003B	MPEG Audio	\$ 188.05	3.47	DVT1

Transmitter	Beijing Channel 59	Remark
211	0x00D3	ECM/EMM - 186.35 3.44 N/A
1282	0x0502	ECM/EMM - 14.88 0.27 DVT2
1281	0x0501	ECM/EMM - 14.88 0.27 DVT1
8191	0x1FFF	Null Packets - 13.47 0.25 N/A
64	0x0040	PMT - 6.84 0.13 DVT2

Remark	TELE-satellite encrypted
48	0x0030 PMT - 6.84 0.13 DVT1
1	0x0001 CAT - 6.82 0.13 N/A
0	0x0000 PAT - 3.71 0.07 N/A
17	0x0011 SDT - 2.97 0.05 N/A
21	0x0015 Network Sync - 1.51 0.03 N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 20 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 207 MB

www.transponderstream.com/DTMB/CN/Beijing-Ch59-1203.ts

DTMB

CN

Network Name

65535

Recording

TELE-satellite

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	
1201	0x04B1	H.264 Video	-	10291.69	49.22	CCTV HD T
1001	0x03E9	H.264 Video	-	2605.87	12.46	SCTV 3 T
1309	0x051D	H.264 Video	-	2588.00	12.38	SCTV 5 T
1301	0x0515	H.264 Video	-	2585.77	12.37	SCTV 1 T
8191	0x1FFF	Null Packets	-	1539.50	7.36	N/A
1202	0x04B2	MPEG Audio	-	440.85	2.11	CCTV HD T
1302	0x0516	MPEG Audio	-	189.15	0.90	SCTV 5 T

Transmitter	Chengdu Channel 40	Remark
1002	0x03EA	MPEG Audio - 189.15 0.90 SCTV 3 T
1310	0x051E	MPEG Audio - 188.90 0.90 SCTV 1 T
1308	0x051C	PCR - 50.39 0.24 N/A
1300	0x0514	PCR - 50.39 0.24 N/A
1200	0x04B0	PCR - 50.39 0.24 N/A
1000	0x03E8	PCR - 50.39 0.24 N/A
17	0x0011	SDT - 18.62 0.09 N/A
259	0x0103	PMT - 9.93 0.05 SCTV 5 T

Remark	TELE-satellite HDTV
258	0x0102 PMT - 9.93 0.05 SCTV 1 T
16	0x0010 NIT - 9.93 0.05 N/A
1	0x0001 CAT - 9.93 0.05 N/A
257	0x0101 PMT - 9.68 0.05 CCTV HD T
256	0x0100 PMT - 9.68 0.05 SCTV 3 T
0	0x0000 PAT - 9.68 0.05 N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 85 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 807 MB

www.transponderstream.com/DTMB/CN/Chengdu-Ch40-1203.ts

DTMB

CN

Network Name

1 Recording

TELE-satellite

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
1001	0x03E9	MPEG2 Video	-	2216.28	40.89
1201	0x04B1	H.264 Video	-	888.89	16.40
1101	0x044D	H.264 Video	-	786.84	14.52
1301	0x0515	H.264 Video	-	735.75	13.57
8191	0x1FFF	Null Packets	-	459.00	8.47

Transmitter	Chengdu Channel 60	Remark
1002	0x03EA	MPEG Audio - 138.16 2.55 MOBILE
1202	0x04B2	MPEG Audio - 69.75 1.29 SCTV-1
1102	0x044E	MPEG Audio - 69.75 1.29 CCTV-NEWS
1302	0x0516	MPEG Audio - 34.84 0.64 SCTV-1
1200	0x04B0	PMT - 3.39 0.06 SCTV-1
1	0x0001	CAT - 3.39 0.06 N/A

Remark	TELE-satellite MPEG2 and MPEG4
0	0x0000 PAT - 3.39 0.06 N/A
1300	0x0514 PMT - 3.32 0.06 CCTV-1
1100	0x044C PMT - 3.32 0.06 CCTV-NEWS
1000	0x03E8 PMT - 3.32 0.06 MOBILE
17	0x0011 SDT - 0.78 0.01 N/A
16	0x0010 NIT - 0.14 0.00 N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 20 MB

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Remark	unqualified descriptor
1 0x0001 CAT	- 15.05 0.16 N/A
17 0x0011 SDT	- 2.97 0.03 N/A
16 0x0010 NIT	- 2.97 0.03 N/A
20 0x0014 TOT	- 0.20 0.00 N/A

www.transponderstream.com/DTMB/CN/Guangzhou-Ch57-1110.ts

840	0x0348	ECM/EMM	-	15.14	0.10	ICS
838	0x0346	ECM/EMM	-	15.14	0.10	ICS
808	0x0328	ECM/EMM	-	15.14	0.10	MMTV
806	0x0326	ECM/EMM	-	15.14	0.10	MMTV
20	0x0014	TOT	-	9.91	0.07	N/A
55	0x0037	?	-	7.53	0.05	N/A
1296	0x0510	ECM/EMM	-	2.34	0.02	N/A
21	0x0015	Network Sync	-	1.49	0.01	N/A
1280	0x0500	ECM/EMM	-	0.19	0.00	N/A

www.transponderstream.com/DTMB/CN/Shanghai-Ch50-1203.ts

33	0x0021	PMT	-	15.06	0.07	SZTV-3
45	0x002D	PMT	-	15.02	0.07	CCTV-4
34	0x0022	PMT	-	15.02	0.07	SZTV-5
32	0x0020	PMT	-	15.02	0.07	SZTV-HD
0	0x0000	PAT	-	15.02	0.07	N/A
17	0x0011	SDT	-	4.55	0.02	N/A
20	0x0014	TOT	-	2.60	0.01	N/A
21	0x0015	Network Sync	-	1.52	0.01	N/A
16	0x0010	NIT	-	1.30	0.01	N/A

www.transponderstream.com/DTMB/CN/Shenzhen-Ch32-1110.ts

39	0x0027	PMT	-	15.06	0.16	CCTV-NEWS
38	0x0026	PMT	-	15.06	0.16	GD
37	0x0025	PMT	-	15.06	0.16	SZTV-2
0	0x0000	PAT	-	15.06	0.16	N/A
17	0x0011	SDT	-	4.65	0.05	N/A
20	0x0014	TOT	-	2.60	0.03	N/A
21	0x0015	Network Sync	-	1.49	0.02	N/A
16	0x0010	NIT	-	1.30	0.01	N/A

www.transponderstream.com/DTMB/CN/Shenzhen-Ch50-1110.ts

17	0x0011	SDT	-	3.97	0.02	N/A
20	0x0014	TOT	-	2.64	0.01	N/A
16	0x0010	NIT	-	1.32	0.01	N/A

www.transponderstream.com/DTMB/CN/Shenzhen-Ch60-1110.ts

HK

HongKong

DTMB

HK

Network Name

MFN_TVB

Recording

TELE-satellite

Transmitter

HongKong Channel 35

Remark

MHEG

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	823	0x0337	AC3 Audio	-	197.41	0.91	J2	21	0x0015	Network Sync	-	1.49	0.01	N/A
851	0x0353	H.264 Video	-	11970.85	55.26	High Definition Jade	822	0x0336	AC3 Audio	-	197.41	0.91	J2	17	0x0011	SDT	-	0.95	0.00	N/A
821	0x0335	H.264 Video	-	3698.76	17.07	J2	832	0x0340	AC3 Audio	-	133.20	0.61	iNews	16	0x0010	NIT	-	0.36	0.00	N/A
831	0x033F	H.264 Video	-	2983.64	13.77	iNews	834	0x0342	AC3 Audio	-	100.73	0.47	iNews	20	0x0014	TOT	-	0.18	0.00	N/A
8191	0x1FFF	Null Packets	-	866.69	4.00	N/A	833	0x0341	AC3 Audio	-	100.73	0.47	iNews	857	0x0359	DVB Subtitles	-	0.05	0.00	High Definition Jade
1001	0x03E9	MHEG	-	490.60	2.26	J2	850	0x0352	PMT	-	15.04	0.07	High Definition Jade	856	0x0358	DVB Subtitles	-	0.05	0.00	High Definition Jade
853	0x0355	AC3 Audio	-	423.06	1.95	High Definition Jade	830	0x033E	PMT	-	15.04	0.07	iNews	855	0x0357	DVB Subtitles	-	0.05	0.00	High Definition Jade
852	0x0354	AC3 Audio	-	235.06	1.09	High Definition Jade	820	0x0334	PMT	-	15.04	0.07	J2	825	0x0339	DVB Subtitles	-	0.05	0.00	J2
18	0x0012	EIT	-	200.74	0.93	N/A	0	0x0000	PAT	-	15.04	0.07	N/A							

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Duration: 30 Sec, File Size: 90 MB

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DTMB

HK

Network Name

aTV-SFN

Recording

TELE-satellite

Transmitter

HongKong Channel 37

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	122	0x007A	AC3 Audio	-	196.90	0.91	Asia	0	0x0000	PAT	-	15.06	0.07	N/A
121	0x0079	H.264 Video	-	14865.22	68.58	Asia	18	0x0012	EIT	-	194.28	0.90	N/A	150	0x0096	PMT	-	15.02	0.07	CCTV-1
151	0x0097	H.264 Video	-	1553.23	7.17	CCTV-1	132	0x0084	AC3 Audio	-	100.86	0.47	TVS	120	0x0078	PMT	-	15.02	0.07	Asia
131	0x0083	H.264 Video	-	1553.23	7.17	TVS	172	0x00AC	AC3 Audio	-	100.82	0.47	SZTV	17	0x0011	SDT	-	2.28	0.01	N/A
171	0x00AB	H.264 Video	-	1553.18	7.17	SZTV	152	0x0098	AC3 Audio	-	100.77	0.46	CCTV-1	21	0x0015	Network Sync	-	1.51	0.01	N/A
8191	0x1FFF	Null Packets	-	982.23	4.53	N/A	170	0x00AA	PMT	-	15.06	0.07	SZTV	16	0x0010	NIT	-	1.16	0.01	N/A
123	0x007B	AC3 Audio	-	393.76	1.82	Asia	130	0x0082	PMT	-	15.06	0.07	TVS	20	0x0014	TOT	-	0.09	0.00	N/A

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DVB-C

cable

PT

Portugal

DVB-C

PT

Network Name

Cabo Porto

Recording

Vitor Martins Augusto

Transmitter

Porto Channel 54

Remark

Nagravision 3

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	8144	0x1FD0	Private Sections	-	200.03	0.53	N/A	6760	0x1A68	Data	-	100.02	0.26	Canal de Teste
5184	0x1440	MPEG2 Video	\$	5827.72	15.32	TVI	8096	0x1FA0	Private Sections	-	200.01	0.53	N/A	119	0x0077	ECM/EMM	-	92.30	0.24	N/A
7968	0x1F20	MPEG2 Video	\$	4930.85	12.97	SIC Noticias	5185	0x1441	MPEG Audio	\$	198.53	0.52	TVI	17	0x0011	SDT	-	56.40	0.15	N/A
5168	0x1430	MPEG2 Video	\$	3740.60	9.84	SIC	5233	0x1471	MPEG Audio	\$	198.51	0.52	Canal Panda	217	0x00D9	?	-	56.30	0.15	N/A
7210	0x1C2A	MPEG2 Video	\$	3603.73	9.48	RTP Informação	5169	0x1431	MPEG Audio	\$	198.51	0.52	SIC	0	0x0000	PAT	-	37.51	0.10	N/A
5152	0x1420	MPEG2 Video	\$	3562.78	9.37	RTP 2	5153	0x1421	MPEG Audio	\$	198.51	0.52	RTP 2	1	0x0001	CAT	-	24.70	0.06	N/A
8191	0x1FFF	Null Packets	-	3027.04	7.96	N/A	5137	0x1411	MPEG Audio	\$	198.51	0.52	RTP 1	16	0x0010	NIT	-	21.76	0.06	N/A
5136	0x1410	MPEG2 Video	\$	2988.99	7.86	RTP 1	7969	0x1F21	MPEG Audio	\$	198.48	0.52	SIC Noticias	1193	0x04A9	ECM/EMM	-	15.05	0.04	Panda Biggs
5232	0x1470	MPEG2 Video	\$	2266.82	5.96	Canal Panda	7649	0x1DE1	MPEG Audio	\$	198.48	0.52	Panda Biggs	1166	0x048E	ECM/EMM	-	15.05	0.04	RTP Informação
7648	0x1DE0	MPEG2 Video	\$	2087.22	5.49	Panda Biggs	7211	0x1C2B	MPEG Audio	\$	198.48	0.52	RTP Informação	1017	0x03F9	ECM/EMM	-	15.05	0.04	SIC Noticias
18	0x0012	EIT	-	696.07	1.83	N/A	33	0x0021	Private Sections	-	198.18	0.52	N/A	1006	0x03EE	ECM/EMM	-	15.05	0.04	Canal Panda
6743	0x1A57	?	-	350.08	0.92	N/A	5280	0x14A0	MPEG2 Video	-	195.96	0.52	Canal de Teste	1003	0x03EB	ECM/EMM	-	15.05	0.04	TVI
6772	0x1A74	Data	-	300.07	0.79	DSMCC - IPPV	5138	0x1412	Teletext	-	188.10	0.49	RTP 1	1002	0x03EA	ECM/EMM	-	15.05	0.04	SIC
817	0x0331	PMT	-	297.25	0.78	Canal de Teste	6776	0x1A78	Data	-	170.04	0.45	DSMCC - RADIOS	1001	0x03E9	ECM/EMM	-	15.05	0.04	RTP 2
5186	0x1442	Teletext	-	263.26	0.69	TVI	8162	0x1FE2	Private Sections	-	150.02	0.39	N/A	1000	0x03E8	ECM/EMM	-	15.05	0.04	RTP 1
5170	0x1432	Teletext	-	225.63	0.59	SIC	8128	0x1FC0	Private Sections	-	150.02	0.39	N/A	216	0x00D8	?	-	8.38	0.02	N/A
8160	0x1FE0	Private Sections	-	200.03	0.53	N/A	8176	0x1FF0	Private Sections	-	100.02	0.26	N/A	20	0x0014	TOT	-	2.74	0.01	N/A

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Duration: 5 Min, File Size: 1401 MB

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DVB-S

satellite

9°E

EUROBIRD



9°E

Network Name

E.B.9 NMX

Recording

Thomas Haring

Transmitter EUROBIRD 11.919V

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	4011	0x0FAB	MPEG Audio	\$	198.50	0.37	FOX HD	119	0x0077	ECM/EMM	-	15.09	0.03	National Geographic HD	
8191	0x1FFF	Null Packets	-	9324.02	17.51	N/A	1000	0x03E8	ECM/EMM	-	98.30	0.18	N/A	121	0x0079	ECM/EMM	-	15.07	0.03	National Geographic HD
2010	0x07DA	H.264 Video	\$	8202.59	15.40	National Geographic HD	18	0x0012	EIT	-	85.39	0.16	N/A	118	0x0076	ECM/EMM	-	15.07	0.03	FOX HD
2011	0x07DB	H.264 Video	\$	8002.47	15.03	FOX HD	501	0x01F5	ECM/EMM	-	78.33	0.15	N/A	117	0x0075	ECM/EMM	-	15.07	0.03	MEZZO HD
2001	0x07D1	H.264 Video	-	7302.32	13.71	FTV HD	4001	0x0FA1	MPEG Audio	-	73.14	0.14	FTV HD	112	0x0070	ECM/EMM	-	15.07	0.03	Duck TV HD
2007	0x07D7	H.264 Video	\$	6567.28	12.33	MEZZO HD	16	0x0010	NIT	-	25.08	0.05	N/A	108	0x006C	ECM/EMM	-	15.07	0.03	Duck TV HD
2002	0x07D2	H.264 Video	\$	5414.85	10.17	iConcerts	1	0x0001	CAT	-	25.06	0.05	N/A	131	0x0083	ECM/EMM	-	15.05	0.03	iConcerts
2006	0x07D6	H.264 Video	\$	4501.45	8.45	Duck TV HD	0	0x0000	PAT	-	25.06	0.05	N/A	114	0x0072	ECM/EMM	-	15.05	0.03	Penthouse HD
3006	0x0BBE	MPEG Audio	\$	397.01	0.75	Duck TV HD	1011	0x03F3	PMT	-	24.26	0.05	FOX HD	133	0x0085	ECM/EMM	-	15.04	0.03	Penthouse HD
3001	0x0BB9	MPEG Audio	-	397.01	0.75	FTV HD	1010	0x03F2	PMT	-	24.26	0.05	National Geographic HD	120	0x0078	ECM/EMM	-	15.04	0.03	FOX HD
5011	0x1393	AC3 Audio	\$	394.92	0.74	FOX HD	1008	0x03F0	PMT	-	24.26	0.05	Penthouse HD	115	0x0073	ECM/EMM	-	15.04	0.03	Penthouse HD
4010	0x0FAA	AC3 Audio	\$	394.92	0.74	National Geographic HD	1007	0x03EF	PMT	-	24.26	0.05	MEZZO HD	100	0x0064	ECM/EMM	-	7.57	0.01	MEZZO HD
3010	0x0BC2	AC3 Audio	\$	394.92	0.74	National Geographic HD	1006	0x03EE	PMT	-	24.26	0.05	Duck TV HD	101	0x0065	ECM/EMM	-	7.55	0.01	MEZZO HD
3007	0x0BBF	MPEG Audio	\$	266.41	0.50	MEZZO HD	1002	0x03EA	PMT	-	24.26	0.05	iConcerts	103	0x0067	ECM/EMM	-	7.53	0.01	iConcerts
3002	0x0BBA	MPEG Audio	\$	266.41	0.50	iConcerts	1001	0x03E9	PMT	-	24.26	0.05	FTV HD	102	0x0066	ECM/EMM	-	7.53	0.01	iConcerts
502	0x1F6	ECM/EMM	-	211.56	0.40	N/A	116	0x0074	ECM/EMM	-	15.10	0.03	MEZZO HD	17	0x0011	SDT	-	6.02	0.01	N/A
3011	0x0BC3	MPEG Audio	\$	198.51	0.37	FOX HD	132	0x0084	ECM/EMM	-	15.09	0.03	MEZZO HD	20	0x0014	TOT	-	0.13	0.00	N/A

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9°E

Network Name

E.B.9 NMX

Recording

Thomas Haring

Transmitter EUROBIRD 11.938H

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	1102	0x044E	MPEG Audio	-	132.36	0.35	PTV	1570	0x0622	PMT	-	7.91	0.02	RFI Bucarest	
4331	0x10EB	MPEG2 Video	\$ 4105.59	10.79	RAI Africa	1101	0x044D	MPEG Audio	\$	132.36	0.35	Walf TV	1569	0x0621	PMT	-	7.91	0.02	RFI Lisbonne	
1026	0x0402	MPEG2 Video	\$ 3659.23	9.62	Disney Channel ME	1321	0x0529	MPEG Audio	-	132.33	0.35	Ayngaran TV	1568	0x0620	PMT	-	7.91	0.02	RFI Sofia	
1011	0x03F3	MPEG1 Video	-	2862.23	7.53	CCTV9 DOCUMENTARY	1109	0x0455	MPEG Audio	-	132.33	0.35	Africa 7	1567	0x061F	PMT	-	7.91	0.02	RFI Bakou
1005	0x03ED	MPEG2 Video	-	2759.03	7.25	NET 25 INTERNATIONAL	1103	0x044F	MPEG Audio	-	132.33	0.35	JSTV	1566	0x061E	PMT	-	7.91	0.02	RFI Tbilisi
1003	0x03EB	MPEG2 Video	-	2327.30	6.12	JSTV	1111	0x0457	MPEG Audio	-	131.57	0.35	CCTV9 DOCUMENTARY	1565	0x061D	PMT	-	7.91	0.02	RFI Prague
1004	0x03EC	MPEG2 Video	\$ 2215.43	5.82	TFM Senegal	1605	0x0645	MPEG Audio	-	69.66	0.18	RFI Divers 1	1564	0x061C	PMT	-	7.91	0.02	RFI Germany	
1221	0x04C5	MPEG2 Video	-	2105.53	5.54	Ayngaran TV	8190	0x1FFE	PCR	-	44.25	0.12	CCTV9 DOCUMENTARY	1563	0x061B	PMT	-	7.91	0.02	RFI Americas 5
1231	0x04CF	MPEG2 Video	-	1941.20	5.10	Jaya TV	1029	0x0405	PCR	-	39.37	0.10	N/A	1562	0x061A	PMT	-	7.91	0.02	RFI Music
1211	0x04BB	MPEG2 Video	-	1649.68	4.34	Touba Medias	18	0x0012	EIT	-	25.40	0.07	N/A	1561	0x0619	PMT	-	7.91	0.02	RFI Divers 4
1002	0x03EA	MPEG2 Video	-	1498.68	3.94	PTV	8000	0x1F40	ECM/EMM	-	15.83	0.04	RAI Africa	1560	0x0618	PMT	-	7.91	0.02	RFI Divers 3
1007	0x03EF	MPEG2 Video	-	1437.95	3.78	YAARL TV	1511	0x05E7	ECM/EMM	-	15.83	0.04	Walf TV	1559	0x0617	PMT	-	7.91	0.02	RFI Latine
601	0x0259	Data	-	1426.52	3.75	PMI Streaming W3	971	0x03CB	ECM/EMM	-	15.83	0.04	TFM Senegal	1558	0x0616	PMT	-	7.91	0.02	RFI Rmc Mo
1001	0x03E9	MPEG2 Video	\$ 1390.50	3.66	Walf TV	961	0x03C1	ECM/EMM	-	15.83	0.04	Walf TV	1557	0x0615	PMT	-	7.91	0.02	RFI Divers 7	
1008	0x03F0	MPEG2 Video	-	1159.79	3.05	KURD1	126	0x007E	PMT	-	15.83	0.04	Disney Channel ME	1556	0x0614	PMT	-	7.91	0.02	RFI Divers 2
8191	0x1FFF	Null Packets	-	1027.15	2.70	N/A	0	0x0000	PAT	-	15.83	0.04	N/A	1555	0x0613	PMT	-	7.91	0.02	RFI Divers 1
1009	0x03F1	MPEG2 Video	-	926.76	2.44	Africa 7	17	0x0011	SDT	-	15.71	0.04	N/A	1554	0x0612	PMT	-	7.91	0.02	RFI Afrique
600	0x0258	Data	-	200.91	0.53	PMI File W3	1130	0x046A	DVB Subtitles	-	13.73	0.04	Disney Channel ME	1553	0x0611	PMT	-	7.91	0.02	RFI Langues Div
1154	0x0482	MPEG Audio	\$ 200.65	0.53	RFM	500	0x01F4	PMT	-	7.94	0.02	PMI File W3	1552	0x0610	PMT	-	7.91	0.02	RFI Langues Est	
1127	0x0467	MPEG Audio	\$ 198.55	0.52	Disney Channel ME	111	0x006F	PMT	-	7.94	0.02	CCTV9 DOCUMENTARY	1551	0x060F	PMT	-	7.91	0.02	RFI Français	
1129	0x0469	MPEG Audio	\$ 198.52	0.52	Disney Channel ME	102	0x0066	PMT	-	7.94	0.02	PTV	501	0x01F5	PMT	-	7.91	0.02	PMI Streaming W3	
4332	0x10EC	MPEG Audio	\$ 196.81	0.52	RAI Africa	1599	0x063F	PMT	-	7.91	0.02	RFI Test	151	0x0097	PMT	-	7.91	0.02	Walf 2	
1128	0x0468	MPEG Audio	\$ 196.81	0.52	Disney Channel ME	1592	0x0638	PMT	-	7.91	0.02	RFI Skopje	150	0x0096	PMT	-	7.91	0.02	Walf 1	
1126	0x0466	MPEG Audio	\$ 196.81	0.52	Disney Channel ME	1591	0x0637	PMT	-	7.91	0.02	RFI Anik	123	0x007B	PMT	-	7.91	0.02	Jaya TV	
1150	0x047E	MPEG Audio	\$ 135.88	0.36	Walf 1	1589	0x0635	PMT	-	7.91	0.02	RFI Barcelona	122	0x007A	PMT	-	7.91	0.02	Ayngaran TV	
1612	0x064C	MPEG Audio	-	135.85	0.36	RFI Music	1588	0x0634	PMT	-	7.91	0.02	RFI Ordispace	121	0x0079	PMT	-	7.91	0.02	Touba Medias
1611	0x064B	MPEG Audio	-	135.85	0.36	RFI Divers 4	1587	0x0633	PMT	-	7.91	0.02	RFI Hispasat2	114	0x0072	PMT	-	7.91	0.02	RFM
1610	0x064A	MPEG Audio	-	135.85	0.36	RFI Divers 3	1586	0x0632	PMT	-	7.91	0.02	RFI Hispasat1	109	0x006D	PMT	-	7.91	0.02	Africa 7
1609	0x0649	MPEG Audio	-	135.85	0.36	RFI Hispasat1	1585	0x0631	PMT	-	7.91	0.02	RFI Rmc Amman	108	0x006C	PMT	-	7.91	0.02	KURD1
1606	0x0646	MPEG Audio	-	135.85	0.36	RFI Divers 2	1584	0x0630	PMT	-	7.91	0.02	RFI Orbit	107	0x006B	PMT	-	7.91	0.02	YAARL TV
1604	0x0644	MPEG Audio	-	135.85	0.36	RFI Test	1583	0x062F	PMT	-	7.91	0.02	RFI Austria	105	0x0069	PMT	-	7.91	0.02	NET 25 INTERNATIONAL
1603	0x0643	MPEG Audio	-	135.85	0.36	RFI Erevan	1582	0x062E	PMT	-	7.91	0.02	RFI M Orient	104	0x0068	PMT	-	7.91	0.02	TFM Senegal
1601	0x0641	MPEG Audio	-	135.85	0.36	RFI Skopje	1581	0x062D	PMT	-	7.91	0.02	RFI Multilingue	101	0x0065	PMT	-	7.91	0.02	Walf TV
1151	0x047F	MPEG Audio	\$ 135.85	0.36	Walf 2	1580	0x062C	PMT	-	7.91	0.02	RFI Ekaterinbourg	35	0x0023	PMT	-	7.91	0.02	JSTV	
1608	0x0648	MPEG Audio	-	135.82	0.36	RFI Rmc Amman	1579	0x062B	PMT	-	7.91	0.02	RFI Liban	32	0x0020	PMT	-	7.91	0.02	RAI Africa
1607	0x0647	MPEG Audio	-	135.82	0.36	RFI Divers 7	1578	0x062A	PMT	-	7.91	0.02	RFI Montenegro	1	0x0001	CAT	-	7.91	0.02	N/A
1602	0x0642	MPEG Audio	-	135.82	0.36	RFI Langues Est	1577	0x0629	PMT	-	7.91	0.02	RFI Kosovo	1199	0x04AF	ECM/EMM	-	5.09	0.01	Disney Channel ME
1331	0x0533	MPEG Audio	-	132.39	0.35	Jaya TV	1576	0x0628	PMT	-	7.91	0.02	RFI Albania	1132	0x046E	DVB Subtitles	-	3.00	0.01	Disney Channel ME
1107	0x0453	MPEG Audio	-	132.39	0.35	YAARL TV	1575	0x0627	PMT	-	7.91	0.02	RFI Chisinau	1131	0x046B	DVB Subtitles	-	3.00	0.01	Disney Channel ME
1311	0x051F	MPEG Audio	-	132.36	0.35	Touba Medias	1574	0x0626	PMT	-	7.91	0.02	RFI Ocean Indien	16	0x0010	N/A	-	0.64	0.00	N/A
1108	0x0454	MPEG Audio	-	132.36	0.35	KURD1	1573	0x0625	PMT	-	7.91	0.02	RFI Erevan	1226	0x04CA	ECM/EMM	-	0.61	0.00	N/A
1105	0x0451	MPEG Audio	-	132.36	0.35	NET 25 INTERNATIONAL	1572	0x0624	PMT	-	7.91	0.02	RFI Russia	20	0x0014	TOT	-	0.06	0.00	N/A
1104	0x0450	MPEG Audio	\$ 132.36	0.35	TFM Senegal	1571	0x0623	PMT	-	7.91	0.02	RFI Astra 4								

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9°E

Network Name

AFN Eurobird 9A

Recording

Thomas Haring

Transmitter EUROBIRD 12.418V

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	1300	0x0514	MPEG Audio	\$	125.39	0.33	AFN Freedom	5010	0x1392	PMT	-	15.05	0.04	Movie Channel
8191	0x1FFF	Null Packets	-	3900.20	10.25	N/A	1002	0x03EA	MPEG Audio	-	125.39	0.33	Movie Channel	5009	0x1391	PMT	-	15.05	0.04	Family Channel
510	0x01FE	MPEG2 Video	\$	2836.36	7.46	News	1000	0x03E8	MPEG Audio	\$	125.39	0.33	Movie Channel	5008	0x1390	PMT	-	15.05	0.04	Pentagon Channel
910	0x038E	MPEG2 Video	\$	2800.37	7.36	Family Channel	900	0x0384	MPEG Audio	\$	125.39	0.33	Family Channel	5006	0x138E	PMT	-	15.05	0.04	AFN Xtra
810	0x032A	MPEG2 Video	-	2621.95	6.89	Pentagon Channel	700	0x02BC	MPEG Audio	\$	125.39	0.33	AFN Rota	5005	0x138D	PMT	-	15.05	0.04	News
210	0x00D2	MPEG2 Video	\$	2498.79	6.57	AFN Vicenza / Livorno	600	0x0258	MPEG Audio	\$	125.39	0.33	AFN Xtra	1	0x0001	CAT	-	15.05	0.04	N/A
1310	0x051E	MPEG2 Video	\$	2393.11	6.29	AFN Freedom	509	0x01FD	MPEG Audio	\$	125.39	0.33	News	0	0x0000	PAT	-	15.05	0.04	N/A
610	0x0262	MPEG2 Video	\$	2382.07	6.26	AFN Xtra	400	0x0190	MPEG Audio	\$	125.39	0.33	AFN Sigonella	6262	0x1876	ECM/EMM	-	14.88	0.04	AFN Freedom Radio
1010	0x03F2	MPEG2 Video	\$	2326.88	6.12	Movie Channel	300	0x012C	MPEG Audio	\$	125.39	0.33	AFN Naples	6223	0x184F	ECM/EMM	-	14.88	0.04	AFNE Power Net - Livorno 107FM
410	0x019A	MPEG2 Video	\$	2299.75	6.05	AFN Sigonella	200	0x00C8	MPEG Audio	\$	125.39	0.33	AFN Vicenza / Livorno	6222	0x184E	ECM/EMM	-	14.88	0.04	AFN The Eagle - Livorno 108FM
110	0x00E6	MPEG2 Video	\$	2267.42	5.96	AFN Aviano	100	0x0064	MPEG Audio	\$	125.39	0.33	AFN Aviano	6203	0x183B	ECM/EMM	-	14.88	0.04	AFNE Power Net - Sigonella 107FM
710	0x02C6	MPEG2 Video	\$	2242.15	5.90	AFN Rota	800	0x0320	MPEG Audio	-	109.72	0.29	Pentagon Channel	6202	0x183A	ECM/EMM	-	14.88	0.04	AFN The Eagle - Sigonella 108FM
310	0x0136	MPEG2 Video	\$	1882.06	4.95	AFN Naples	506	0x01FA	MPEG Audio	\$	109.72	0.29	News	6183	0x1827	ECM/EMM	-	14.88	0.04	AFNE Power Net - Naples 107FM
1061	0x0425	Private Data	-	1679.74	4.42	News	5026	0x13A2	PMT	-	15.07	0.04	AFN Freedom	6182	0x1826	ECM/EMM	-	14.88	0.04	AFNE The Eagle - Naples 108FM
902	0x0386	MPEG Audio	\$	266.48	0.70	Family Channel	5262	0x148E	PMT	-	15.05	0.04	AFN Freedom Radio	6164	0x1814	ECM/EMM	-	14.88	0.04	AFN The Eagle Radio 107.5FM
904	0x0388	PCR	\$	172.42	0.45	N/A	5223	0x1467	PMT	-	15.05	0.04	AFNE Power Net - Livorno 107FM	6163	0x1813	ECM/EMM	-	14.88	0.04	AFN Rota Power Net
706	0x02C2	MPEG Audio	\$	172.42	0.45	AFN Rota	5222	0x1466	PMT	-	15.05	0.04	AFN The Eagle - Livorno 108FM	6162	0x1812	ECM/EMM	-	14.88	0.04	AFN The Eagle Radio 102.5FM
1304	0x0518	MPEG Audio	\$	141.09	0.37	AFN Freedom	5203	0x1453	PMT	-	15.05	0.04	AFNE Power Net - Sigonella 107FM	6143	0x17FF	ECM/EMM	-	14.88	0.04	AFNE Power Net - Vicenza 107FM
202	0x00CA	MPEG Audio	\$	141.09	0.37	AFN Vicenza / Livorno	5202	0x1452	PMT	-	15.05	0.04	AFN The Eagle - Sigonella 108FM	6142	0x17FE	ECM/EMM	-	14.88	0.04	AFN The Eagle Radio 108FM
106	0x006A	MPEG Audio	\$	141.09	0.37	AFN Aviano	5183	0x143F	PMT	-	15.05	0.04	AFNE Power Net - Naples 107FM	6123	0x17EB	ECM/EMM	-	14.88	0.04	AFN Aviano 107FM
1306	0x051A	MPEG Audio	\$	141.07	0.37	AFN Freedom	5182	0x143E	PMT	-	15.05	0.04	AFN The Eagle - Naples 108FM	6122	0x17EA	ECM/EMM	-	14.88	0.04	AFN Aviano 106FM
1302	0x0516	MPEG Audio	\$	141.07	0.37	AFN Freedom	5164	0x142C	PMT	-	15.05	0.04	AFN The Eagle Radio 107.5FM	6042	0x179A	ECM/EMM	-	14.88	0.04	AFNE Power Net - Vicenza 107FM
1006	0x03EE	MPEG Audio	-	141.07	0.37	AFNS Audio Test Signal	5163	0x142B	PMT	-	15.05	0.04	AFN Rota Power Net	6041	0x1799	ECM/EMM	-	14.88	0.04	AFN The Eagle - Vicenza 108FM
804	0x0324	MPEG Audio	-	141.07	0.37	Pentagon Channel	5162	0x142A	PMT	-	15.05	0.04	AFN The Eagle Radio 102.5FM	6026	0x178A	ECM/EMM	-	14.88	0.04	AFN Freedom
802	0x0322	MPEG Audio	-	141.07	0.37	Pentagon Channel	5143	0x1417	PMT	-	15.05	0.04	AFNE Power Net - Vicenza 107FM	6020	0x1784	ECM/EMM	-	14.88	0.04	AFN Sigonella
704	0x02C0	MPEG Audio	\$	141.07	0.37	AFN Rota	5142	0x1416	PMT	-	15.05	0.04	AFN The Eagle - Vicenza 108FM	6018	0x1782	ECM/EMM	-	14.88	0.04	AFN Naples
702	0x02BE	MPEG Audio	\$	141.07	0.37	AFN Rota	5123	0x1403	PMT	-	15.05	0.04	AFN Aviano 107FM	6014	0x177E	ECM/EMM	-	14.88	0.04	AFN Vicenza / Livorno
602	0x025A	MPEG Audio	\$	141.07	0.37	AFN Xtra	5122	0x1402	PMT	-	15.05	0.04	AFN Aviano 106FM	6012	0x177C	ECM/EMM	-	14.88	0.04	AFN Aviano
504	0x01F8	MPEG Audio	\$	141.07	0.37	News	5062	0x13C6	PMT	-	15.05	0.04	AFNS Audio Test Signal	6010	0x177A	ECM/EMM	-	14.88	0.04	Movie Channel
502	0x01F6	MPEG Audio	\$	141.07	0.37	News	5043	0x13B3	PMT	-	15.05	0.04	AFN PowerTalk	6009	0x1779	ECM/EMM	-	14.88	0.04	Family Channel
404	0x0194	MPEG Audio	\$	141.07	0.37	AFN Sigonella	5042	0x13B2	PMT	-	15.05	0.04	AFNE Power Net - Vicenza 107FM	6006	0x1776	ECM/EMM	-	14.88	0.04	AFN Xtra
402	0x0192	MPEG Audio	\$	141.07	0.37	AFN Sigonella	5041	0x13B1	PMT	-	15.05	0.04	AFN The Eagle - Vicenza 108FM	6005	0x1775	ECM/EMM	-	14.88	0.04	News
304	0x0130	MPEG Audio	\$	141.07	0.37	AFN Naples	5020	0x139C	PMT	-	15.05	0.04	AFN Sigonella	6016	0x1780	ECM/EMM	-	14.86	0.04	AFN Rota
302	0x012E	MPEG Audio	\$	141.07	0.37	AFN Naples	5018	0x139A	PMT	-	15.05	0.04	AFN Naples	18	0x0012	EIT	-	10.03	0.03	N/A
204	0x00CC	MPEG Audio	\$	141.07	0.37	AFN Vicenza / Livorno	5016	0x1398	PMT	-	15.05	0.04	AFN Rota	17	0x0011	SDT	-	5.02	0.01	N/A
104	0x0068	MPEG Audio	\$	141.07	0.37	AFN Aviano	5014	0x1396	PMT	-	15.05	0.04	AFN Vicenza / Livorno	16	0x0010	NIT	-	3.01	0.01	N/A
102	0x0066	MPEG Audio	\$	141.07	0.37	AFN Aviano	5012	0x1394	PMT	-	15.05	0.04	AFN Aviano	20	0x0014	TOT	-	0.15	0.00	N/A

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19°E

ASTRA



19°E

Network Name

ASTRA1

Recording

Thomas Haring

Transmitter

ASTRA 11.023H

Remark

3D side-by-side

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	2062	0x080E	MPEG Audio	-	138.13	0.41	Radio Beograd	34	0x0022	PMT	-	18.85	0.06	3D Tile Format
8191	0x1FFF	Null Packets	-	13188.42	38.98	N/A	2052	0x0804	MPEG Audio	-	137.98	0.41	RTS SAT	32	0x0020	PMT	-	18.85	0.06	ASTRA 3D demo
33	0x0021	H.264 Video	-	8188.04	24.20	ASTRA 3D demo	641	0x0281	MPEG Audio	-	131.63	0.39	AB Channel	5220	0x1464	PMT	-	18.77	0.06	AB Channel
2091	0x082B	MPEG2 Video	-	6173.50	18.25	ASTRA Caption	1701	0x06A5	PCR	-	42.72	0.13	N/A	1	0x0001	CAT	-	3.77	0.01	N/A
2051	0x0803	MPEG2 Video	-	3547.00	10.48	RTS SAT	1301	0x0515	PCR	-	42.72	0.13	N/A	0	0x0000	PAT	-	3.77	0.01	N/A
640	0x0280	MPEG2 Video	-	1430.39	4.23	AB Channel	2060	0x080C	PMT	-	18.85	0.06	Radio Beograd	16	0x0010	NIT	-	2.00	0.01	N/A
36	0x0024	Private Data	-	459.99	1.36	ASTRA 3D demo	2050	0x0802	PMT	-	18.85	0.06	RTS SAT	17	0x0011	SDT	-	1.77	0.01	N/A
642	0x0282	Teletext	-	225.71	0.67	AB Channel	1112	0x0458	PMT	-	18.85	0.06	ASTRA Caption	20	0x0014	TOT	-	0.15	0.00	N/A

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23.5°E

ASTRA



23.5°E

Network Name

Skylink

Recording

Thomas Haring

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name	Transmitter	ASTRA 11.798H	Recording	Thomas Haring
2720	0x0AA0	MPEG2 Video	\$	4166.89	10.96	TV JOJ	3206 0x0C86 Teletext	- 37.62 0.10 NGC	2803 0x0AF3 PMT	- 8.60 0.02 History channel
2721	0x0AA1	MPEG2 Video	\$	3218.99	8.47	JOJ PLUS	3281 0x0CD1 Private PES	- 37.60 0.10 JOJ PLUS	2801 0x0AF1 PMT	- 8.60 0.02 JOJ PLUS
2728	0x0AA8	MPEG2 Video	\$	3078.58	8.10	NG Wild	3131 0x0C3B Private PES	- 37.60 0.10 Sport 2	2008 0x07D8 PMT	- 8.60 0.02 HBO Comedy
2727	0x0AA7	MPEG2 Video	\$	2480.98	6.52	Discovery	2603 0x0A2B DVB Subtitles	- 36.01 0.09 History channel	2007 0x07D7 PMT	- 8.60 0.02 TV Paprika
2723	0x0AA3	MPEG2 Video	\$	2328.28	6.12	History channel	16 0x0010 NIT	- 34.40 0.09 N/A	2006 0x07D6 PMT	- 8.60 0.02 Sport 2
2729	0x0AA9	MPEG2 Video	-	2281.81	6.00	Fashion TV	3383 0x0D37 DVB Subtitles	- 28.23 0.07 History channel	1 0x0001 CAT	- 8.60 0.02 N/A
2016	0x07E0	H.264 Video	\$	2200.72	5.79	Sport 2	17 0x0011 SDT	- 18.32 0.05 N/A	0 0x0000 PAT	- 8.60 0.02 N/A
2722	0x0AA2	MPEG2 Video	-	2195.87	5.78	TA3	418 0x01A2 ECM/EMM	- 15.05 0.04 NG Wild	2815 0x0AFF PMT	- 8.59 0.02 History channel DUT
2018	0x07E2	H.264 Video	\$	2097.76	5.52	HBO Comedy	408 0x0198 ECM/EMM	- 15.05 0.04 NG Wild	2813 0x0AFD PMT	- 8.59 0.02 duck tv
2732	0x0AAC	MPEG2 Video	-	2058.70	5.41	tv8	348 0x015C ECM/EMM	- 15.05 0.04 NG Wild	2809 0x0AF9 PMT	- 8.59 0.02 Fashion TV
2017	0x07E1	H.264 Video	\$	1778.14	4.68	TV Paprika	328 0x0148 ECM/EMM	- 15.05 0.04 NG Wild	2802 0x0AF2 PMT	- 8.59 0.02 TA3
2726	0x0AA6	MPEG2 Video	\$	1707.02	4.49	NGC	308 0x0134 ECM/EMM	- 15.05 0.04 NG Wild	2800 0x0AF0 PMT	- 8.59 0.02 TV JOJ
8191	0x1FFF	Null Packets	-	1648.86	4.34	N/A	198 0x00C6 ECM/EMM	- 15.05 0.04 NG Wild	2010 0x07DA PMT	- 8.59 0.02 NG Wild BG
2733	0x0AAD	MPEG2 Video	\$	866.99	2.28	duck tv	196 0x00AC ECM/EMM	- 15.05 0.04 NGC	2009 0x07D9 PMT	- 8.59 0.02 History channel BG
2892	0x0B4C	MPEG Audio	-	266.38	0.70	tv8	191 0x00B8 ECM/EMM	- 15.05 0.04 JOJ PLUS	3368 0x0D28 ECM/EMM	- 7.52 0.02 NG Wild
3280	0x0CD0	Teletext	-	263.26	0.69	TV JOJ	190 0x00BE ECM/EMM	- 15.05 0.04 TV JOJ	3371 0x0D2B ECM/EMM	- 7.35 0.02 duck tv
3200	0x0C80	Teletext	-	263.26	0.69	TV JOJ	178 0x00B2 ECM/EMM	- 15.05 0.04 NG Wild	3363 0x0D23 ECM/EMM	- 7.35 0.02 History channel
18	0x0012	EIT	-	242.25	0.64	N/A	176 0x00B0 ECM/EMM	- 15.05 0.04 NGC	2848 0x0B20 ECM/EMM	- 5.02 0.01 NG Wild
3053	0x0BED	MPEG Audio	\$	203.72	0.54	duck tv	171 0x00AB ECM/EMM	- 15.05 0.04 JOJ PLUS	2846 0x0B1E ECM/EMM	- 5.02 0.01 NGC
2882	0x0B42	MPEG Audio	-	203.72	0.54	TA3	170 0x00AA ECM/EMM	- 15.05 0.04 TV JOJ	2841 0x0B19 ECM/EMM	- 5.02 0.01 JOJ PLUS
2880	0x0B40	MPEG Audio	\$	203.72	0.54	TV JOJ	148 0x009A ECM/EMM	- 15.05 0.04 NG Wild	2840 0x0B18 ECM/EMM	- 5.02 0.01 TV JOJ
2038	0x07F6	MPEG Audio	\$	203.72	0.54	HBO Comedy	146 0x0092 ECM/EMM	- 15.05 0.04 NGC	268 0x010C ECM/EMM	- 5.02 0.01 NG Wild
2028	0x07EC	MPEG Audio	\$	203.72	0.54	HBO Comedy	141 0x008D ECM/EMM	- 15.05 0.04 JOJ PLUS	266 0x010A ECM/EMM	- 5.02 0.01 NGC
2026	0x07EA	MPEG Audio	\$	203.72	0.54	Sport 2	140 0x008C ECM/EMM	- 15.05 0.04 TV JOJ	261 0x0105 ECM/EMM	- 5.02 0.01 JOJ PLUS
3046	0x0BEA	MPEG Audio	\$	203.70	0.54	NGC	183 0x00B7 ECM/EMM	- 14.89 0.04 duck tv	260 0x0104 ECM/EMM	- 5.02 0.01 TV JOJ
2889	0x0B49	MPEG Audio	-	203.70	0.54	Fashion TV	177 0x00B1 ECM/EMM	- 14.89 0.04 Discovery	248 0x00F8 ECM/EMM	- 5.02 0.01 NG Wild
2881	0x0B41	MPEG Audio	\$	203.70	0.54	JOJ PLUS	147 0x0093 ECM/EMM	- 14.89 0.04 Discovery	246 0x00F6 ECM/EMM	- 5.02 0.01 NGC
101	0x0065	ECM/EMM	-	197.55	0.52	N/A	2333 0x091D ECM/EMM	- 14.88 0.04 History channel	241 0x00F1 ECM/EMM	- 5.02 0.01 JOJ PLUS
2047	0x07FF	MPEG Audio	\$	141.02	0.37	TV Paprika	2323 0x0913 ECM/EMM	- 14.88 0.04 History channel	240 0x00F0 ECM/EMM	- 5.02 0.01 TV JOJ
2027	0x07EB	MPEG Audio	\$	141.02	0.37	TV Paprika	361 0x0169 ECM/EMM	- 14.88 0.04 duck tv	2268 0x08DC ECM/EMM	- 4.96 0.01 HBO Comedy
102	0x0066	ECM/EMM	-	140.01	0.37	N/A	331 0x014B ECM/EMM	- 14.88 0.04 duck tv	2267 0x08DB ECM/EMM	- 4.96 0.01 TV Paprika
2967	0x0B97	MPEG Audio	\$	133.20	0.35	Discovery	323 0x0143 ECM/EMM	- 14.88 0.04 History channel	2266 0x08DA ECM/EMM	- 4.96 0.01 Sport 2
2887	0x0B47	MPEG Audio	\$	133.20	0.35	Discovery	311 0x0137 ECM/EMM	- 14.88 0.04 duck tv	2258 0x08D2 ECM/EMM	- 4.96 0.01 HBO Comedy
2538	0x09EA	MPEG Audio	\$	133.20	0.35	NG Wild	173 0x00AD ECM/EMM	- 14.88 0.04 History channel	2257 0x08D1 ECM/EMM	- 4.96 0.01 TV Paprika
2528	0x09E0	MPEG Audio	\$	133.20	0.35	NG Wild	153 0x0099 ECM/EMM	- 14.88 0.04 duck tv	2256 0x08D0 ECM/EMM	- 4.96 0.01 Sport 2
2966	0x0B96	MPEG Audio	\$	133.19	0.35	NGC	143 0x008F ECM/EMM	- 14.88 0.04 History channel	273 0x0111 ECM/EMM	- 4.96 0.01 duck tv
2963	0x0B93	MPEG Audio	\$	133.19	0.35	History channel	2598 0x0A26 DVB Subtitles	- 11.34 0.03 NG Wild	267 0x010B ECM/EMM	- 4.96 0.01 Discovery
2886	0x0B46	MPEG Audio	\$	133.19	0.35	NGC	2814 0x0AFE ?	- 8.60 0.02 N/A	263 0x0107 ECM/EMM	- 4.96 0.01 History channel
2883	0x0B43	MPEG Audio	\$	133.19	0.35	History channel	2812 0x0AFC PMT	- 8.60 0.02 tv8	253 0x00FD ECM/EMM	- 4.96 0.01 duck tv
103	0x0067	ECM/EMM	-	120.95	0.32	N/A	2811 0x0AFB PMT	- 8.60 0.02 duck tv DUT	247 0x00F7 ECM/EMM	- 4.96 0.01 Discovery
2558	0x09FE	MPEG Audio	\$	87.74	0.23	NG Wild	2808 0x0AF8 PMT	- 8.60 0.02 NG Wild	243 0x00F3 ECM/EMM	- 4.96 0.01 History channel
3208	0x0C88	Teletext	-	75.22	0.20	NG Wild	2807 0x0AF7 PMT	- 8.60 0.02 Discovery	3286 0x0CD6 DVB Subtitles	- 3.02 0.01 NGC
104	0x0068	ECM/EMM	-	72.50	0.19	N/A	2806 0x0AF6 PMT	- 8.60 0.02 NGC	105 0x0069 ?	- 2.04 0.01 N/A
							2804 0x0AF4 PMT	- 8.60 0.02 NG Wild DUT		

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DVBS**23.5°E****Network Name****CS Link****Recording****Thomas Haring****Transmitter****ASTRA 11.876H**

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	276	0x0114	ECM/EMM	-	62.15	0.16	N/A	17	0x0011	SDT	-	15.01	0.04	N/A
2912	0x0B60	H.264 Video	\$	5007.44	13.17	Prima HD	428	0x01AC	PMT	-	24.27	0.06	Radio Beat	408	0x0198	PMT	-	13.54	0.04	Fishing and Hunting
2864	0x0B30	MPEG2 Video	\$	4031.18	10.60	DoQ	413	0x019D	PMT	-	24.27	0.06	Cinemax	403	0x0193	PMT	-	13.54	0.04	DoQ
2896	0x0B50	MPEG2 Video	\$	3903.89	10.26	Eurosport CZ	412	0x019C	PMT	-	24.27	0.06	Prima COOL	402	0x0192	PMT	-	13.54	0.04	Film+
2832	0x0B10	MPEG2 Video	\$	3792.15	9.97	Sport 5	409	0x0199	PMT	-	24.27	0.06	HBO 2	1	0x0001	CAT	-	10.02	0.03	N/A
3008	0x0BC0	MPEG2 Video	\$	3088.81	8.12	Prima COOL	406	0x0196	PMT	-	24.27	0.06	Prima HD	0	0x0000	PAT	-	10.02	0.03	N/A
2816	0x0B00	MPEG2 Video	\$	2242.85	5.90	CSFilm/CSMini	405	0x0195	PMT	-	24.27	0.06	Eurosport CZ	16	0x0010	NIT	-	9.98	0.03	N/A
2880	0x0B40	MPEG2 Video	\$	2149.14	5.65	HBO	404	0x0194	PMT	-	24.27	0.06	HBO	24	0x0018	ECM/EMM	-	9.74	0.03	N/A
2848	0x0B20	MPEG2 Video	\$	1883.14	4.95	Film+	401	0x0191	PMT	-	24.27	0.06	Sport 5	3847	0x0F07	ECM/EMM	-	5.14	0.01	CSFilm/CSMini
2960	0x0B90	MPEG2 Video	\$	1769.14	4.65	HBO 2	400	0x0190	PMT	-	24.27	0.06	CSFilm/CSMini	3846	0x0F06	ECM/EMM	-	5.14	0.01	CSFilm/CSMini
3024	0x0BD0	MPEG2 Video	\$	1710.55	4.50	Cinemax	3027	0x0BD3	DVB Subtitles	-	18.92	0.05	Cinemax	3845	0x0F05	ECM/EMM	-	5.14	0.01	Sport 5
8191	0x1FFF	Null Packets	-	1447.88	3.81	N/A	1578	0x062A	ECM/EMM	-	15.08	0.04	Prima COOL	3844	0x0F04	ECM/EMM	-	5.14	0.01	Sport 5
2944	0x0B80	MPEG2 Video	\$	1284.83	3.38	Fishing and Hunting	1577	0x0629	ECM/EMM	-	15.08	0.04	Prima COOL	104	0x0068	ECM/EMM	-	5.14	0.01	Cinemax
18	0x0012	EIT	-	460.58	1.21	N/A	1575	0x0627	ECM/EMM	-	15.08	0.04	Prima COOL	96	0x0060	ECM/EMM	-	5.14	0.01	Sport 5
2883	0x0B43	AC3 Audio	\$	399.68	1.05	HBO	1561	0x0619	ECM/EMM	-	15.08	0.04	Sport 5	87	0x0057	ECM/EMM	-	5.14	0.01	DoQ
2914	0x0B62	AC3 Audio	\$	395.00	1.04	Prima HD	1560	0x0618	ECM/EMM	-	15.08	0.04	Sport 5	81	0x0051	ECM/EMM	-	5.14	0.01	CSFilm/CSMini
3026	0x0BD2	MPEG Audio	\$	235.13	0.62	Cinemax	1559	0x0617	ECM/EMM	-	15.08	0.04	Sport 5	68	0x0044	ECM/EMM	-	5.14	0.01	Cinemax
3025	0x0BD1	MPEG Audio	\$	235.11	0.62	Cinemax	86	0x0056	ECM/EMM	-	15.08	0.04	Prima HD	67	0x0043	ECM/EMM	-	5.14	0.01	Cinemax
2833	0x0B11	MPEG Audio	\$	209.00	0.55	Sport 5	1572	0x0624	ECM/EMM	-	15.06	0.04	Fishing and Hunting	106	0x006A	ECM/EMM	-	5.12	0.01	Prima HD
2882	0x0B42	MPEG Audio	\$	203.77	0.54	HBO	1570	0x0622	ECM/EMM	-	15.06	0.04	CSFilm/CSMini	103	0x0067	ECM/EMM	-	5.12	0.01	Prima COOL
2881	0x0B41	MPEG Audio	\$	203.77	0.54	HBO	1569	0x0621	ECM/EMM	-	15.06	0.04	CSFilm/CSMini	102	0x0066	ECM/EMM	-	5.12	0.01	HBO 2
2962	0x0B92	MPEG Audio	\$	203.75	0.54	HBO 2	1568	0x0620	ECM/EMM	-	15.06	0.04	CSFilm/CSMini	101	0x0065	ECM/EMM	-	5.12	0.01	Fishing and Hunting
2961	0x0B91	MPEG Audio	\$	203.75	0.54	HBO 2	1564	0x061C	ECM/EMM	-	15.06	0.04	HBO	100	0x0064	ECM/EMM	-	5.12	0.01	Eurosport CZ
3041	0x0BE1	MPEG Audio	-	200.63	0.53	Radio Beat	1563	0x061B	ECM/EMM	-	15.06	0.04	HBO	99	0x0063	ECM/EMM	-	5.12	0.01	HBO
3009	0x0BC1	MPEG Audio	\$	198.54	0.52	Prima COOL	1557	0x0615	ECM/EMM	-	15.06	0.04	Eurosport CZ	97	0x0061	ECM/EMM	-	5.12	0.01	Film+
2913	0x0B61	MPEG Audio	\$	198.54	0.52	Prima HD	1556	0x0614	ECM/EMM	-	15.06	0.04	DoQ	64	0x0040	ECM/EMM	-	5.12	0.01	Prima COOL
2849	0x0B21	MPEG Audio	\$	198.54	0.52	Film+	1555	0x0613	ECM/EMM	-	15.06	0.04	Film+	61	0x003D	ECM/EMM	-	5.12	0.01	Prima COOL
1000	0x03E8	ECM/EMM	-	196.14	0.52	N/A	66	0x0042	ECM/EMM	-	15.06	0.04	Fishing and Hunting	60	0x003C	ECM/EMM	-	5.12	0.01	Fishing and Hunting
999	0x03E7	ECM/EMM	-	193.00	0.51	N/A	65	0x0041	ECM/EMM	-	15.06	0.04	Fishing and Hunting	59	0x003B	ECM/EMM	-	5.12	0.01	Fishing and Hunting
3010	0x0BC2	Teletext	-	150.48	0.40	Prima COOL	63	0x003F	ECM/EMM	-	15.06	0.04	Cinemax	56	0x0038	ECM/EMM	-	5.12	0.01	HBO
272	0x0110	ECM/EMM	-	140.80	0.37	N/A	62	0x003E	ECM/EMM	-	15.06	0.04	Cinemax	55	0x0037	ECM/EMM	-	5.12	0.01	HBO
2945	0x0B81	MPEG Audio	\$	135.85	0.36	Fishing and Hunting	41	0x0029	ECM/EMM	-	15.06	0.04	HBO	20	0x0014	TOT	-	3.04	0.01	N/A
2865	0x0B31	MPEG Audio	\$	135.83	0.36	DoQ	40	0x0028	ECM/EMM	-	15.06	0.04	Cinemax	2963	0x0B93	DVB Subtitles	-	3.00	0.01	HBO 2
280	0x0118	ECM/EMM	-	121.06	0.32	N/A	39	0x0027	ECM/EMM	-	15.06	0.04	HBO 2	2884	0x0B44	DVB Subtitles	-	3.00	0.01	HBO
2817	0x0B01	MPEG Audio	\$	104.49	0.27	CSFilm/CSMini	417	0x01A1	PMT	-	15.04	0.04	DaringTV DUT (0.00-6.00)							
2897	0x0B51	MPEG Audio	\$	100.31	0.26	Eurosport CZ	415	0x019F	PMT	-	15.04	0.04	DaringTV (0.00-6.00)							

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23.5°E

Network Name

Skylink

Recording

Thomas Haring

Transmitter

ASTRA 12.110H

Remark

HDTV

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	Skylink	Recording	Thomas Haring
3515	0x0DBB	H.264 Video	\$	8760.98	14.61	Spektrum HD	103 0x0067 ECM/EMM -	124.52 0.21	N/A	3005 0x0BBD PMT - 8.66 0.01 Eurosport HD BG
4003	0x0FA3	H.264 Video	\$	8466.02	14.12	FILMBOX HD	104 0x0068 ECM/EMM -	62.01 0.10	N/A	0 0x0000 PAT - 8.66 0.01 N/A
4008	0x0FA8	H.264 Video	\$	6212.31	10.36	Travel Channel HD CE	16 0x0010 NIT -	34.66 0.06	N/A	4099 0x1003 PMT - 8.54 0.01 Muzika CS
3514	0x0DBA	H.264 Video	\$	5308.37	8.85	Markiza HD	4482 0x1182 DVB Subtitles -	25.25 0.04	HISTORY HD	4088 0x0FF8 PMT - 8.54 0.01 Travel Channel HD CE
4007	0x0FA7	H.264 Video	\$	4755.34	7.93	HBO HD	17 0x0011 SDT -	18.20 0.03	N/A	4087 0x0FF7 PMT - 8.54 0.01 HBO HD
4001	0x0FA1	H.264 Video	\$	4417.19	7.37	EUROSPORT HD	4082 0x0FF2 PMT -	17.33 0.03	HISTORY HD	3504 0x0DB0 PMT - 8.54 0.01 Markiza HD
4002	0x0FA2	H.264 Video	\$	3658.44	6.10	HISTORY HD	4081 0x0FF1 PMT -	17.33 0.03	EUROSPORT HD	3004 0x0BBC PMT - 8.54 0.01 Travel Channel HD EE
8191	0x1FFF	Null Packets	-	2582.58	4.31	N/A	3838 0x0EFE ECM/EMM -	14.98 0.02	Travel Channel HD CE	3002 0x0BBA PMT - 8.54 0.01 Film Europe
3011	0x0BC3	H.264 Video	\$	2109.51	3.52	HBO Comedy	3832 0x0EF8 ECM/EMM -	14.98 0.02	HISTORY HD	3001 0x0BB9 PMT - 8.54 0.01 HBO Comedy
4019	0x0FB3	H.264 Video	\$	2047.25	3.41	Muzika CS	3831 0x0EF7 ECM/EMM -	14.98 0.02	EUROSPORT HD	1 0x0001 CAT - 8.54 0.01 N/A
4006	0x0FA6	H.264 Video	\$	1512.91	2.52	Doku CS	3828 0x0EF4 ECM/EMM -	14.98 0.02	Travel Channel HD CE	3668 0x0E54 DVB Subtitles - 8.05 0.01 Travel Channel HD WE
3012	0x0BC4	H.264 Video	\$	1174.51	1.96	Film Europe	3822 0x0EEE ECM/EMM -	14.98 0.02	HISTORY HD	3688 0x0E68 DVB Subtitles - 7.80 0.01 Travel Channel HD WE
4018	0x0FB2	H.264 Video	\$	583.36	0.97	Kino CS	3821 0x0EED ECM/EMM -	14.98 0.02	EUROSPORT HD	3818 0x0EEA ECM/EMM - 7.43 0.01 Travel Channel HD CE
4243	0x1093	AC3 Audio	\$	459.08	0.77	FILMBOX HD	3788 0x0ECC ECM/EMM -	14.98 0.02	Travel Channel HD CE	392 0x0188 ECM/EMM - 7.43 0.01 HISTORY HD
4163	0x1043	AC3 Audio	\$	458.71	0.76	FILMBOX HD	3778 0x0EC2 ECM/EMM -	14.98 0.02	Travel Channel HD CE	391 0x0187 ECM/EMM - 7.43 0.01 EUROSPORT HD
4247	0x1097	AC3 Audio	\$	394.23	0.66	HBO HD	372 0x0174 ECM/EMM -	14.98 0.02	HISTORY HD	262 0x0106 ECM/EMM - 5.07 0.01 HISTORY HD
4241	0x1091	AC3 Audio	\$	394.23	0.66	EUROSPORT HD	371 0x0173 ECM/EMM -	14.98 0.02	EUROSPORT HD	261 0x0105 ECM/EMM - 5.07 0.01 EUROSPORT HD
4167	0x1047	AC3 Audio	\$	394.10	0.66	HBO HD	192 0x00C0 ECM/EMM -	14.98 0.02	HISTORY HD	242 0x00F2 ECM/EMM - 5.07 0.01 HISTORY HD
4322	0x10E2	MPEG Audio	\$	271.94	0.45	HISTORY HD	191 0x00BF ECM/EMM -	14.98 0.02	EUROSPORT HD	241 0x00F1 ECM/EMM - 5.07 0.01 EUROSPORT HD
4162	0x1042	AC3 Audio	\$	264.76	0.44	HISTORY HD	189 0x00BD ECM/EMM -	14.98 0.02	Muzika CS	3765 0x0EB5 ECM/EMM - 4.95 0.01 Spektrum HD
5148	0x141C	MPEG Audio	\$	203.98	0.34	Travel Channel HD EE	182 0x00B6 ECM/EMM -	14.98 0.02	HISTORY HD	3764 0x0EAB ECM/EMM - 4.95 0.01 Markiza HD
5068	0x13CC	MPEG Audio	\$	203.98	0.34	Travel Channel HD EE	181 0x00B5 ECM/EMM -	14.98 0.02	EUROSPORT HD	3755 0x0EAB ECM/EMM - 4.95 0.01 Spektrum HD
5058	0x13C2	MPEG Audio	\$	203.98	0.34	Travel Channel HD EE	179 0x00B3 ECM/EMM -	14.98 0.02	Muzika CS	3754 0x0EAA ECM/EMM - 4.95 0.01 Markiza HD
4641	0x1221	MPEG Audio	\$	203.98	0.34	EUROSPORT HD	172 0x00AC ECM/EMM -	14.98 0.02	HISTORY HD	3262 0x0CBE ECM/EMM - 4.95 0.01 Film Europe
4328	0x10E8	MPEG Audio	\$	203.98	0.34	Travel Channel HD CE	171 0x00AB ECM/EMM -	14.98 0.02	EUROSPORT HD	3261 0x0CDB ECM/EMM - 4.95 0.01 HBO Comedy
4323	0x10E3	MPEG Audio	\$	203.98	0.34	FILMBOX HD	168 0x00A8 ECM/EMM -	14.98 0.02	Travel Channel HD CE	3252 0x0CB4 ECM/EMM - 4.95 0.01 Film Europe
4248	0x1098	MPEG Audio	\$	203.98	0.34	Travel Channel HD CE	162 0x00A2 ECM/EMM -	14.98 0.02	HISTORY HD	3251 0x0CB3 ECM/EMM - 4.95 0.01 HBO Comedy
4242	0x1092	MPEG Audio	\$	203.98	0.34	HISTORY HD	161 0x00A1 ECM/EMM -	14.98 0.02	EUROSPORT HD	279 0x0117 ECM/EMM - 4.95 0.01 Muzika CS
4168	0x1048	MPEG Audio	\$	203.98	0.34	Travel Channel HD CE	148 0x0094 ECM/EMM -	14.98 0.02	Travel Channel HD CE	278 0x0116 ECM/EMM - 4.95 0.01 Kino CS
3545	0x0DD9	MPEG Audio	\$	203.98	0.34	Spektrum HD	188 0x00B8 ECM/EMM -	14.85 0.02	Kino CS	268 0x010C ECM/EMM - 4.95 0.01 Travel Channel HD CE
3534	0x0DC5	MPEG Audio	\$	203.98	0.34	Markiza HD	178 0x00B2 ECM/EMM -	14.85 0.02	Kino CS	267 0x010B ECM/EMM - 4.95 0.01 HBO HD
3525	0x0DC3	MPEG Audio	\$	203.98	0.34	Spektrum HD	177 0x00B1 ECM/EMM -	14.85 0.02	HBO HD	266 0x010A ECM/EMM - 4.95 0.01 Doku CS
3524	0x0DC4	MPEG Audio	\$	203.98	0.34	Markiza HD	176 0x00B0 ECM/EMM -	14.85 0.02	Doku CS	263 0x0107 ECM/EMM - 4.95 0.01 FILMBOX HD
4179	0x1053	MPEG Audio	\$	203.86	0.34	Muzika CS	173 0x00AD ECM/EMM -	14.85 0.02	FILMBOX HD	259 0x0103 ECM/EMM - 4.95 0.01 Muzika CS
4161	0x1041	MPEG Audio	\$	203.86	0.34	EUROSPORT HD	167 0x00A7 ECM/EMM -	14.85 0.02	HBO HD	258 0x0102 ECM/EMM - 4.95 0.01 Kino CS
3581	0x0DFD	MPEG Audio	\$	203.86	0.34	Eurosport HD BG	166 0x00A6 ECM/EMM -	14.85 0.02	Doku CS	248 0x00F8 ECM/EMM - 4.95 0.01 Travel Channel HD CE
3031	0x0BD7	MPEG Audio	\$	203.86	0.34	HBO Comedy	163 0x00A3 ECM/EMM -	14.85 0.02	FILMBOX HD	247 0x00F7 ECM/EMM - 4.95 0.01 HBO HD
3021	0x0BCD	MPEG Audio	\$	203.86	0.34	HBO Comedy	4098 0x1002 PMT -	8.66 0.01	Kino CS	246 0x00F6 ECM/EMM - 4.95 0.01 Doku CS
101	0x0065	ECM/EMM	-	197.79	0.33	N/A	4096 0x1000 PMT -	8.66 0.01	Travel Channel HD WE	243 0x00F3 ECM/EMM - 4.95 0.01 FILMBOX HD
3022	0x0BCE	MPEG Audio	\$	197.05	0.33	Film Europe	4089 0x0FF9 PMT -	8.66 0.01	Eurosport HD DUT	4818 0x12D2 DVB Subtitles - 3.47 0.01 Travel Channel HD CE
18	0x0012	EIT	-	184.18	0.31	N/A	4086 0x0FF6 PMT -	8.66 0.01	Doku CS	3698 0x0E72 DVB Subtitles - 3.47 0.01 Travel Channel HD CE
4166	0x1046	MPEG Audio	\$	141.23	0.24	Doku CS	4083 0x0FF3 PMT -	8.66 0.01	FILMBOX HD	3678 0x0E5E DVB Subtitles - 3.47 0.01 Travel Channel HD CE
4178	0x1052	MPEG Audio	\$	141.10	0.24	Kino CS	4080 0x0FF0 PMT -	8.66 0.01	HISTORY HD DUT	20 0x0014 TOT - 0.25 0.00 N/A
102	0x0066	ECM/EMM	-	139.87	0.23	N/A	3505 0x0DB1 PMT -	8.66 0.01	Spektrum HD	
							3007 0x0BBF PMT -	8.66 0.01	HISTORY HD BG	

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 2251 MB

www.transponderstream.com/DVB-S/023/ASTRA-12110H-1111.ts



23.5°E

Network Name

CS Link

Recording

Thomas Haring

Transmitter

ASTRA 12.525H

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	CS Link	Recording	Thomas Haring
166	0x00A6	MPEG2 Video	\$	5868.69	15.44	CT 4	96 0x0060 MPEG Audio -	198.46 0.52	CT 2	1795 0x0703 ECM/EMM - 15.06 0.04 Prima TV
165	0x00A5	MPEG2 Video	-	4758.20	12.51	CT 24	288 0x0120 ECM/EMM -	197.84 0.52	N/A	1794 0x0702 ECM/EMM - 15.06 0.04 CT 2
162	0x00A2	MPEG2 Video	\$	4588.26	12.07	CT 1 JM	201 0x00C9 ECM/EMM -	194.46 0.51	N/A	1793 0x0701 ECM/EMM - 15.06 0.04 CT 1 JM
161	0x00A1	MPEG2 Video	\$	4254.41	11.19	Prima TV	52 0x0034 Teletext -	150.43 0.40	CT 24	1631 0x065F ECM/EMM - 15.06 0.04 CT 4
163	0x00A3	MPEG2 Video	\$	3900.06	10.26	CT 2	32 0x0020 Teletext -	150.41 0.40	CT 4	1620 0x0654 ECM/EMM - 15.06 0.04 CT 2
167	0x00A7	MPEG2 Video	-	3271.70	8.61	Noe TV	272 0x0110 ECM/EMM -	140.09 0.37	N/A	1619 0x0653 ECM/EMM - 15.06 0.04 CT 1 JM
8191	0x1FFF	Null Packets	-	3179.57	8.36	N/A	85 0x0055 MPEG Audio -	135.80 0.36	Prima TV	1617 0x0651 ECM/EMM - 15.06 0.04 CT 4
18	0x0012	EIT	-	533.59	1.40	N/A	274 0x0112 ECM/EMM -	124.06 0.33	N/A	1616 0x0650 ECM/EMM - 15.06 0.04 Prima TV
90	0x005A	AC3 Audio	\$	460.66	1.21	CT 1	273 0x0111 ECM/EMM -	70.67 0.19	N/A	1553 0x0611 ECM/EMM - 15.06 0.04 CT 4
184	0x00B8	MPEG Audio	-	275.78	0.73	CRo D-dur	55 0x0037 Teletext -	37.60 0.10	Noe TV	1552 0x0610 ECM/EMM - 15.06 0.04 CT 2
92	0x005C	MPEG Audio	\$	271.61	0.71	CT 2	16 0x0010 NIT -	25.10 0.07	N/A	1551 0x060F ECM/EMM - 15.06 0.04 CT 1 JM
102	0x0066	MPEG Audio	\$	271.59	0.71	CT 4	1 0x0001 CAT -	25.08 0.07	N/A	1538 0x0602 ECM/EMM - 15.06 0.04 Prima TV
88	0x0058	MPEG Audio	\$	271.59	0.71	CT 1 JM	0 0x0000 PAT -	25.08 0.07	N/A	209 0x00D1 Private Data - 8.93 0.02 CRo 1 - Radiozurnal
43	0x002B	Teletext	-	225.64	0.59	CT 2	17 0x0011 SDT -	25.05 0.07	N/A	211 0x00D3 Private Data - 7.70 0.02 CRo 3 - Vltava
40	0x0028	Teletext	-	225.64	0.59	CT 1 JM	1050 0x041A PMT -	24.27 0.06	CRo Radio Wave	41 0x0029 ECM/EMM - 6.79 0.02 N/A
37	0x0025	Teletext	-	225.64	0.59	Prima TV	1049 0x0419 PMT -	24.27 0.06	CRo Leonardo	3847 0x0F07 ECM/EMM - 5.03 0.01 Prima TV
180	0x00B4	MPEG Audio	-	208.92	0.55	Proglas	1048 0x0418 PMT -	24.27 0.06	CRo D-dur	3846 0x0F06 ECM/EMM - 5.03 0.01 Prima TV
186	0x00BA	MPEG Audio	-	200.57	0.53	Radio Cesko	1047 0x0417 PMT -	24.27 0.06	BBC CZ	3845 0x0F05 ECM/EMM - 5.03 0.01 CT 4
181	0x00B5	MPEG Audio	-	200.57	0.53	CRo 2+6/CRo 7	1046 0x0416 PMT -	24.27 0.06	CRo Region	3844 0x0F04 ECM/EMM - 5.03 0.01 CT 4
179	0x00B3	MPEG Audio	-	200.57	0.53	CRo 3 - Vltava	1045 0x0415 PMT -	24.27 0.06	CRo 2+6/CRo 7	3840 0x0F00 ECM/EMM - 5.03 0.01 CT 1 JM
178	0x00B2	MPEG Audio	-	200.57	0.53	CRo 2 - Praha	1044 0x0414 PMT -	24.27 0.06	Proglas	39 0x0027 ECM/EMM - 5.03 0.01 Prima TV
187	0x00B8	MPEG Audio	-	200.55	0.53	CRo Radio Wave	1043 0x0413 PMT -	24.27 0.06	CRo 3 - Vltava	38 0x0026 ECM/EMM - 5.03 0.01 CT 1 JM
185	0x00B9	MPEG Audio	-	200.55	0.53	CRo Leonardo	1042 0x0412 PMT -	24.27 0.06	CRo 2 - Praha	34 0x0022 ECM/EMM - 5.03 0.01 CT 4
183	0x00B7	MPEG Audio	-	200.55	0.53	BBC CZ	1041 0x0411 PMT -	24.27 0.06	CRo 1 - Radiozurnal	3843 0x0F03 ECM/EMM - 5.01 0.01 CT 2
182	0x00B6	MPEG Audio	-	200.55	0.53	CRo Region	1040 0x0410 PMT -	24.27 0.06	Radio Cesko	3842 0x0F02 ECM/EMM - 5.01 0.01 CT 2
177	0x00B1	MPEG Audio	-	200.55	0.53	CRo 1 - Radiozurnal	1031 0x0407 PMT -	24.27 0.06	Noe TV	3841 0x0F01 ECM/EMM - 5.01 0.01 CT 1 JM
100	0x0064	MPEG Audio	-	198.48	0.52	CT 24	1030 0x0406 PMT -	24.27 0.06	CT 4	36 0x0024 ECM/EMM - 5.01 0.01 CT 2
93	0x005D	MPEG Audio	-	198.48	0.52	CT 2	1029 0x0405 PMT -	24.27 0.06	CT 24	212 0x00D4 Private Data - 4.33 0.01 CRo Region
91	0x005B	MPEG Audio	-	198.48	0.52	CT 1	1027 0x0403 PMT -	24.27 0.06	CT 2	210 0x00D2 Private Data - 4.18 0.01 CRo 2 - Praha
89	0x0059	MPEG Audio	-	198.48	0.52	CT 1	1026 0x0402 PMT -	24.27 0.06	CT 1	20 0x0014 TOT - 3.03 0.01 N/A
84	0x0054	MPEG Audio	-	198.48	0.52	Prima TV	1025 0x0401 PMT -	24.27 0.06	Prima TV	950 0x03B6 Private Sections - 1.51 0.00 N/A
106	0x006A	MPEG Audio	-	198.46	0.52	Noe TV	1028 0x0404 PMT -	21.49 0.06	CT 1 SM	
							1024 0x0400 PMT -	21.49 0.06	CT 1 JM	

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www.transponderstream.com/DVB-S/023/ASTRA-12525H-1111.ts

108°E

TELKOM 1



108°E

Network Name

Network1

Recording

Vincent Witjhun

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
111	0x006F	MPEG2 Video	\$ 3628.16	9.78	GlobalTV
120	0x0078	MPEG2 Video	\$ 2637.51	7.11	Goal TV 2
126	0x007E	MPEG2 Video	\$ 2616.85	7.05	Disney Junior
135	0x0087	MPEG2 Video	\$ 2400.74	6.47	NG Adventure
117	0x0075	MPEG2 Video	\$ 2368.70	6.39	AXN Beyond
129	0x0081	MPEG2 Video	\$ 2305.45	6.22	FOX Channel
138	0x008A	MPEG2 Video	\$ 2286.72	6.16	Alif TV
102	0x0066	MPEG2 Video	\$ 2103.35	5.67	Metro TV
96	0x0060	MPEG2 Video	\$ 1935.93	5.22	RCTI
141	0x008D	MPEG2 Video	\$ 1858.81	5.01	B Channel
123	0x007B	MPEG2 Video	\$ 1745.07	4.70	FOXCrime
105	0x0069	MPEG2 Video	\$ 1671.97	4.51	Indosiar
132	0x0084	MPEG2 Video	\$ 1656.86	4.47	MGM
108	0x006C	MPEG2 Video	\$ 1488.05	4.01	ANTV
99	0x0063	MPEG2 Video	\$ 1398.03	3.77	Bali TV
114	0x0072	MPEG2 Video	\$ 1336.16	3.60	SCTV
34	0x0022	MPEG Audio	- 181.15	0.49	Trial Radio
32	0x0020	MPEG Audio	- 181.15	0.49	Trial Radio JAK FM
769	0x0301	ECM/EMM	- 141.90	0.38	N/A
18	0x0012	EIT	- 141.76	0.38	N/A
109	0x006D	MPEG Audio	\$ 136.21	0.37	ANTV
142	0x008E	MPEG Audio	\$ 135.93	0.37	B Channel
139	0x008B	MPEG Audio	\$ 135.93	0.37	Alif TV
136	0x0088	MPEG Audio	\$ 135.93	0.37	NG Adventure
133	0x0085	MPEG Audio	\$ 135.93	0.37	MGM
130	0x0082	MPEG Audio	\$ 135.93	0.37	FOX Channel

Transmitter

TELKOM 1 3.620H

124	0x007C	MPEG Audio	\$ 135.93	0.37	FOXCrime
121	0x0079	MPEG Audio	\$ 135.93	0.37	Goal TV 2
115	0x0073	MPEG Audio	\$ 135.93	0.37	SCTV
112	0x0070	MPEG Audio	\$ 135.93	0.37	GlobalTV
106	0x006A	MPEG Audio	\$ 135.93	0.37	Indosiar
103	0x0067	MPEG Audio	\$ 135.93	0.37	Metro TV
100	0x0064	MPEG Audio	\$ 135.93	0.37	Bali TV
97	0x0061	MPEG Audio	\$ 135.93	0.37	RCTI
127	0x007F	MPEG Audio	\$ 135.79	0.37	Disney Junior
118	0x0076	MPEG Audio	\$ 135.79	0.37	AXN Beyond
1024	0x0400	Private Data	- 97.23	0.26	_Service 9990
143	0x008F	PMT	- 30.10	0.08	B Channel
140	0x008C	PMT	- 30.10	0.08	Alif TV
137	0x0089	PMT	- 30.10	0.08	NG Adventure
134	0x0086	PMT	- 30.10	0.08	MGM
131	0x0083	PMT	- 30.10	0.08	FOX Channel
128	0x0080	PMT	- 30.10	0.08	Disney Junior
125	0x007D	PMT	- 30.10	0.08	FOXCrime
122	0x007A	PMT	- 30.10	0.08	Goal TV 2
119	0x0077	PMT	- 30.10	0.08	AXN Beyond
116	0x0074	PMT	- 30.10	0.08	SCTV
113	0x0071	PMT	- 30.10	0.08	GlobalTV
110	0x006E	PMT	- 30.10	0.08	ANTV
107	0x006B	PMT	- 30.10	0.08	Indosiar
104	0x0068	PMT	- 30.10	0.08	Metro TV
101	0x0065	PMT	- 30.10	0.08	Bali TV
98	0x0062	PMT	- 30.10	0.08	RCTI

37	0x0025	PMT	- 30.10	0.08	_Service 9990
35	0x0023	PMT	- 30.10	0.08	Trial Radio
33	0x0021	PMT	- 30.10	0.08	Trial Radio JAK FM
1	0x0001	CAT	- 30.10	0.08	N/A
0	0x0000	PAT	- 30.10	0.08	N/A
17	0x0011	SDT	- 17.34	0.05	N/A
2307	0x0903	ECM/EMM	- 4.99	0.01	Trial Radio JAK FM
1046	0x0416	ECM/EMM	- 4.99	0.01	B Channel
1045	0x0415	ECM/EMM	- 4.99	0.01	Alif TV
1044	0x0414	ECM/EMM	- 4.99	0.01	NG Adventure
1043	0x0413	ECM/EMM	- 4.99	0.01	MGM
1042	0x0412	ECM/EMM	- 4.99	0.01	FOX Channel
1041	0x0411	ECM/EMM	- 4.99	0.01	Disney Junior
1040	0x0410	ECM/EMM	- 4.99	0.01	FOXCrime
1033	0x0409	ECM/EMM	- 4.99	0.01	Goal TV 2
1032	0x0408	ECM/EMM	- 4.99	0.01	AXN Beyond
1031	0x0407	ECM/EMM	- 4.99	0.01	SCTV
1030	0x0406	ECM/EMM	- 4.99	0.01	GlobalTV
1029	0x0405	ECM/EMM	- 4.99	0.01	ANTV
1028	0x0404	ECM/EMM	- 4.99	0.01	Indosiar
1027	0x0403	ECM/EMM	- 4.99	0.01	Metro TV
1026	0x0402	ECM/EMM	- 4.99	0.01	Bali TV
1025	0x0401	ECM/EMM	- 4.99	0.01	RCTI
16	0x0010	NIT	- 3.88	0.01	N/A
20	0x0014	TOT	- 0.14	0.00	N/A

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108°E

Network Name

Tandberg

Recording

Vincent Witjhun

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
512	0x0200	MPEG2 Video	- 7771.55	94.56	TRANS7-JKT
256	0x0100	MPEG Audio	- 395.86	4.82	TRANS7-JKT
8190	0x1FFE	PCR	- 39.45	0.48	N/A

Transmitter

TELKOM 1 3.990H

32	0x0020	PMT	- 3.89	0.05	TRANS7-JKT
0	0x0000	PAT	- 3.75	0.05	N/A
18	0x0012	EIT	- 1.81	0.02	N/A
17	0x0011	SDT	- 0.97	0.01	N/A

1	0x0001	CAT	- 0.83	0.01	N/A
20	0x0014	TOT	- 0.14	0.00	N/A
16	0x0010	NIT	- 0.14	0.00	N/A

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113°E

PALAPA D



113°E

Network Name

SNG TRUCK

Recording

Vincent Witjhun

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
2201	0x0899	MPEG2 Video	- 7166.88	87.83	SCTV
2203	0x089B	MPEG Audio	- 407.65	5.00	SCTV
2202	0x089A	MPEG Audio	- 407.65	5.00	SCTV
500	0x01F4	ECM/EMM	- 82.94	1.02	N/A

Transmitter

PALAPA D 3.756H

1130	0x046A	Private Data	- 37.66	0.46	SCTV
5001	0x1389	PMT	- 14.97	0.18	SCTV
1	0x0001	CAT	- 14.97	0.18	N/A
0	0x0000	PAT	- 14.97	0.18	N/A
18	0x0012	EIT	- 6.01	0.07	N/A

16	0x0010	NIT	- 3.00	0.04	N/A
17	0x0011	SDT	- 1.53	0.02	N/A
20	0x0014	TOT	- 1.48	0.02	N/A

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113°E

Network Name

B-Channel

Recording

Vincent Witjhun

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
512	0x0200	MPEG2 Video	- 5172.78	93.88	TVN-1
4112	0x1010	MPEG Audio	- 209.05	3.79	TVN-1

Transmitter

PALAPA D 3.863V

256	0x0100	PMT	- 30.11	0.55	TVN-1
17	0x0011	SDT	- 30.11	0.55	N/A
16	0x0010	NIT	- 30.11	0.55	N/A

0	0x0000	PAT	- 30.11	0.55	N/A
20	0x0014	TOT	- 7.53	0.14	N/A

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113°E

Network Name

MPEG-2 ENCODER

Recording

Vincent Witjhun

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
3601	0x0E11	MPEG2 Video	- 3423.25	88.79	DAAI-TV
3606	0x0E16	MPEG Audio	- 313.56	8.13	DAAI-TV
33	0x0021	PCR	- 75.24	1.93	N/A

Transmitter

PALAPA D 4.044V

0	0x0000	PAT	- 15.07	0.39	N/A
32	0x0020	PMT	- 15.02	0.39	DAAI-TV
17	0x0011	SDT	- 6.00	0.16	N/A
20	0x0014	TOT	- 3.02	0.08	N/A

16	0x0010	NIT	- 2.98	0.08	N/A
18	0x0012	EIT	- 1.51	0.04	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 22 MB

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113°E

Network Name

Indosat 01

Recording

Vincent Witjuhn

Transmitter

PALAPA D 4.080H

Remark

MPEG-2 and H.264

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name	Transmitter	Indosat 01	Recording	Vincent Witjuhn
513	0x0201	MPEG2 Video	-	6136.76	18.47	MetroTV	1803 0x070B MPEG Audio	- 262.54 0.79 Ch 18	107 0x006B PMT	- 13.25 0.04 CH7
516	0x0204	MPEG2 Video	-	2688.50	8.09	NHK	666 0x029A MPEG Audio	- 262.54 0.79 POP FM	106 0x006A PMT	- 13.25 0.04 CH6
519	0x0207	H.264 Video	-	2557.16	7.69	CH10	665 0x0299 MPEG Audio	- 262.54 0.79 BBC	104 0x0068 PMT	- 13.25 0.04 Spacetoon
512	0x0200	MPEG2 Video	-	2412.66	7.26	CH3	658 0x0292 MPEG Audio	- 262.54 0.79 CH11	103 0x0067 PMT	- 13.25 0.04 CH3
515	0x0203	MPEG2 Video	-	2305.19	6.94	Spacetoon	655 0x028F MPEG Audio	- 262.54 0.79 CH6	102 0x0066 PMT	- 13.25 0.04 MetroTV
514	0x0202	MPEG2 Video	-	2098.78	6.32	Lejel	1804 0x070C MPEG Audio	- 131.67 0.40 Rodja	2900 0x0B54 PMT	- 13.20 0.04 Radio 19
2102	0x0836	MPEG2 Video	-	2083.89	6.27	CH 20	2001 0x07D1 MPEG Audio	- 66.18 0.20 Reda Crossa	2800 0x0AF0 PMT	- 13.20 0.04 Rodja
1902	0x076E	MPEG2 Video	-	2057.68	6.19	Ch 19	1904 0x0770 MPEG Audio	- 66.18 0.20 Radio 19	2100 0x0834 PMT	- 13.20 0.04 CH 20
1802	0x070A	MPEG2 Video	-	2053.75	6.18	Ch 18	8190 0x1FFE PCR	- 44.28 0.13 N/A	2000 0x07D0 PMT	- 13.20 0.04 Reda Crossa
518	0x0206	MPEG2 Video	-	1760.92	5.30	CH7	202 0x00CA PCR	- 39.65 0.12 N/A	1900 0x076C PMT	- 13.20 0.04 Ch 19
517	0x0205	MPEG2 Video	-	1557.64	4.69	CH6	2101 0x0835 PCR	- 39.60 0.12 N/A	1800 0x0708 PMT	- 13.20 0.04 CH 18
520	0x0208	H.264 Video	-	511.41	1.54	CH11	1901 0x076D PCR	- 39.60 0.12 N/A	117 0x0075 PMT	- 13.20 0.04 POP FM
664	0x0298	MPEG Audio	-	262.63	0.79	MTA FM	211 0x00D3 PCR	- 39.60 0.12 N/A	116 0x0074 PMT	- 13.20 0.04 BBC
1903	0x076F	MPEG Audio	-	262.59	0.79	Ch 19	210 0x00D2 PCR	- 39.60 0.12 N/A	115 0x0073 PMT	- 13.20 0.04 68H
657	0x0291	MPEG Audio	-	262.59	0.79	CH10	207 0x00CF PCR	- 39.60 0.12 N/A	114 0x0072 PMT	- 13.20 0.04 MTA FM
656	0x0290	MPEG Audio	-	262.59	0.79	CH7	206 0x00CE PCR	- 39.60 0.12 N/A	111 0x006F PMT	- 13.20 0.04 CH11
654	0x028E	MPEG Audio	-	262.59	0.79	NHK	205 0x00CD PCR	- 39.60 0.12 N/A	110 0x006E PMT	- 13.20 0.04 CH10
653	0x028D	MPEG Audio	-	262.59	0.79	Spacetoon	204 0x00CC PCR	- 39.60 0.12 N/A	105 0x0069 PMT	- 13.20 0.04 NHK
652	0x028C	MPEG Audio	-	262.59	0.79	Lejel	203 0x00CB PCR	- 39.60 0.12 N/A	101 0x0065 PMT	- 13.20 0.04 Lejel
651	0x028B	MPEG Audio	-	262.59	0.79	MetroTV	201 0x00C9 PCR	- 39.60 0.12 N/A	17 0x0011 SDT	- 4.54 0.01 N/A
650	0x028A	MPEG Audio	-	262.59	0.79	CH3	1801 0x0709 PCR	- 39.55 0.12 N/A	16 0x0010 NIT	- 0.19 0.00 N/A
2103	0x0837	MPEG Audio	-	262.54	0.79	CH 20	1 0x0001 CAT	- 15.03 0.05 N/A	20 0x0014 TOT	- 0.05 0.00 N/A
							0 0x0000 PAT	- 15.03 0.05 N/A		

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247°E (113°W)

SATMEX 6



247°E

Network Name

ADTH

Recording

Juan Carlos Duarte

Transmitter

SATMEX 6 12.080H

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name	Transmitter	ADTH	Recording	Juan Carlos Duarte
8191	0x1FFF	Null Packets	-	6192.45	17.45	N/A	2005 0x07D5 ?	- 75.31 0.21 N/A	49 0x0031 PMT	- 24.30 0.07 GDTV1
322	0x0142	MPEG2 Video	-	3408.32	9.60	BVN-TV	2010 0x07DA ?	- 75.28 0.21 N/A	46 0x002E PMT	- 24.30 0.07 ETNEWS
274	0x0112	MPEG2 Video	-	2703.91	7.62	DA-AI	340 0x0154 MPEG Audio	- 66.12 0.19 RVI-1	40 0x0028 PMT	- 24.30 0.07 CCTV-MOV
306	0x0132	MPEG2 Video	-	2225.93	6.27	MACTV	68 0x0044 MPEG Audio	\$ 62.87 0.18 CCTV-OPR	39 0x0027 PMT	- 24.30 0.07 DA-AI
273	0x0111	MPEG2 Video	-	1899.26	5.35	HWAZAN	38 0x0026 MPEG Audio	\$ 62.87 0.18 CCTV-MOV	36 0x0024 PMT	- 24.30 0.07 CCTV-OPR
1001	0x03E9	H.264 Video	-	1047.01	2.95	GDTV1	4100 0x1004 MPEG Audio	\$ 62.75 0.18 PTYN	35 0x0023 PMT	- 24.30 0.07 MACTV
258	0x0102	H.264 Video	\$	861.17	2.43	ETNEWS	113 0x0071 MPEG Audio	\$ 62.75 0.18 ZHEJIANG	34 0x0022 PMT	- 24.30 0.07 ETGLB
37	0x0025	H.264 Video	\$	765.41	2.16	CCTV-MOV	87 0x0057 MPEG Audio	\$ 62.75 0.18 DRGTV	6144 0x1800 ECM/EMM	- 10.12 0.03 ETNEWS
4216	0x1078	H.264 Video	-	744.43	2.10	CCTV4	84 0x0054 MPEG Audio	\$ 62.75 0.18 BTV	5640 0x1608 ECM/EMM	- 7.65 0.02 ETGLB
3105	0x0C21	H.264 Video	\$	742.95	2.09	GDTV	72 0x0048 MPEG Audio	\$ 62.75 0.18 CCTV-E	5637 0x1605 ECM/EMM	- 7.65 0.02 CCTV-OPR
112	0x0070	H.264 Video	\$	701.70	1.98	ZHEJIANG	67 0x0043 MPEG Audio	\$ 62.75 0.18 HUNAN	5636 0x1604 ECM/EMM	- 7.65 0.02 CCTV-MOV
83	0x0053	H.264 Video	\$	698.15	1.97	BTV	61 0x003D MPEG Audio	\$ 62.75 0.18 CYRTV	5635 0x1603 ECM/EMM	- 7.65 0.02 CCTV-ENT
51	0x0033	H.264 Video	\$	684.54	1.93	TVS	53 0x0035 MPEG Audio	\$ 62.75 0.18 TVS	5633 0x1601 ECM/EMM	- 7.65 0.02 BTV
74	0x004A	H.264 Video	\$	683.84	1.93	CCTV-ENT	110 0x006E MPEG Audio	\$ 62.72 0.18 XIAMEN	5680 0x1630 ECM/EMM	- 7.62 0.02 XIAMEN
57	0x0039	H.264 Video	\$	681.95	1.92	JIANGSU	77 0x004D MPEG Audio	\$ 62.72 0.18 PSTV	5673 0x1629 ECM/EMM	- 7.62 0.02 ZHEJIANG
66	0x0042	H.264 Video	\$	679.87	1.92	HUNAN	63 0x003F MPEG Audio	\$ 62.72 0.18 ATV	5670 0x1626 ECM/EMM	- 7.62 0.02 TVS
86	0x0056	H.264 Video	\$	675.53	1.90	DRGTV	58 0x003A MPEG Audio	\$ 62.69 0.18 JIANGSU	5664 0x1620 ECM/EMM	- 7.62 0.02 PTYN
109	0x006D	H.264 Video	\$	663.25	1.87	XIAMEN	47 0x002F MPEG Audio	\$ 62.51 0.18 FUJIAN	5657 0x1619 ECM/EMM	- 7.62 0.02 PSTV
290	0x0122	H.264 Video	\$	659.12	1.86	ETGLB	3106 0x0C22 AAC Audio	\$ 61.43 0.17 GDTV	5655 0x1617 ECM/EMM	- 7.62 0.02 JIANGSU
76	0x004C	H.264 Video	\$	640.39	1.80	PSTV	17 0x0011 SDT	- 25.14 0.07 N/A	5654 0x1616 ECM/EMM	- 7.62 0.02 DRGTV
62	0x003E	H.264 Video	\$	632.57	1.78	ATV	16 0x0010 NIT	- 25.11 0.07 N/A	5652 0x1614 ECM/EMM	- 7.62 0.02 HUNAN
4194	0x1062	H.264 Video	\$	628.59	1.77	PTYN	1 0x0001 CAT	- 25.11 0.07 N/A	5651 0x1613 ECM/EMM	- 7.62 0.02 GDTV
60	0x003C	H.264 Video	\$	627.60	1.77	CYRTV	0 0x0000 PAT	- 25.11 0.07 N/A	5650 0x1612 ECM/EMM	- 7.62 0.02 FUJIAN
69	0x0045	H.264 Video	\$	562.68	1.59	CCTV-OPR	114 0x0072 PMT	- 24.30 0.07 ZHEJIANG	5641 0x1609 ECM/EMM	- 7.62 0.02 ETNEWS
44	0x002C	H.264 Video	\$	560.60	1.58	FUJIAN	111 0x006F PMT	- 24.30 0.07 XIAMEN	5638 0x1606 ECM/EMM	- 7.62 0.02 CYRTV
71	0x0047	H.264 Video	\$	540.73	1.52	CCTV-E	102 0x0066 PMT	- 24.30 0.07 GDTV	5634 0x1602 ECM/EMM	- 7.62 0.02 CCTV-E
338	0x0152	MPEG Audio	-	165.37	0.47	RNW-2	101 0x0065 PMT	- 24.30 0.07 RNW-6	5632 0x1600 ECM/EMM	- 7.62 0.02 ATV
339	0x0153	MPEG Audio	-	165.34	0.47	RNW-3	100 0x0064 PMT	- 24.30 0.07 RNW-5	6153 0x1809 ECM/EMM	- 5.12 0.01 CCTV-MOV
337	0x0151	MPEG Audio	-	165.34	0.47	RNW-1	99 0x0063 PMT	- 24.30 0.07 RVI-1	6152 0x1808 ECM/EMM	- 5.12 0.01 CCTV-ENT
323	0x0143	MPEG Audio	-	136.91	0.39	BVN-TV	98 0x0062 PMT	- 24.30 0.07 RNW-3	6149 0x1805 ECM/EMM	- 5.12 0.01 BTV
307	0x0133	MPEG Audio	-	132.25	0.37	MACTV	97 0x0061 PMT	- 24.30 0.07 RNW-2	6145 0x1801 ECM/EMM	- 5.12 0.01 ETGLB
4195	0x1063	MPEG Audio	-	125.74	0.35	CCTV4	96 0x0060 PMT	- 24.30 0.07 RNW-1	6192 0x1830 ECM/EMM	- 5.09 0.01 ZHEJIANG
259	0x103	MPEG Audio	\$	125.56	0.35	ETNEWS	88 0x0058 PMT	- 24.30 0.07 DRGTV	6185 0x1829 ECM/EMM	- 5.09 0.01 XIAMEN
79	0x004F	MPEG Audio	\$	125.50	0.35	CCTV-ENT	85 0x0055 PMT	- 24.30 0.07 BTV	6184 0x1828 ECM/EMM	- 5.09 0.01 TVS
291	0x0123	MPEG Audio	\$	124.48	0.35	ETGLB	82 0x0052 PMT	- 24.30 0.07 CCTV-ENT	6176 0x1820 ECM/EMM	- 5.09 0.01 PTYN
275	0x0113	MPEG Audio	-	104.60	0.29	DA-AI	81 0x0051 PMT	- 24.30 0.07 PTYN	6169 0x1819 ECM/EMM	- 5.09 0.01 PSTV
3766	0x0EB6	?	-	101.14	0.29	N/A	78 0x004E PMT	- 24.30 0.07 PSTV	6167 0x1817 ECM/EMM	- 5.09 0.01 JIANGSU
33	0x0021	MPEG Audio	-	99.24	0.28	HWAZAN	75 0x004B PMT	- 24.30 0.07 HWAZAN	6165 0x1815 ECM/EMM	- 5.09 0.01 HUNAN
342	0x0156	MPEG Audio	-	99.21	0.28	RNW-6	73 0x0049 PMT	- 24.30 0.07 CCTV-E	6164 0x1814 ECM/EMM	- 5.09 0.01 GDTV
341	0x0155	MPEG Audio	-	99.18	0.28	RNW-5	70 0x0046 PMT	- 24.30 0.07 HUNAN	6163 0x1813 ECM/EMM	- 5.09 0.01 FUJIAN
152	0x0098	ECM/EMM	-	92.53	0.26	N/A	65 0x0041 PMT	- 24.30 0.07 CYRTV	6162 0x1812 ECM/EMM	- 5.09 0.01 DRGTV
1002	0x03EA	AAC Audio	-	89.76	0.25	GDTV1	64 0x0040 PMT	- 24.30 0.07 ATV	6161 0x1811 ECM/EMM	- 5.09 0.01 CYRTV
2018	0x07E2	?	-	75.31	0.21	N/A	59 0x003B PMT	- 24.30 0.07 JIANGSU	6160 0x1810 ECM/EMM	- 5.09 0.01 CCTV-OPR
2013	0x07DD	?	-	75.31	0.21	N/A	56 0x0038 PMT	- 24.30 0.07 TVS	6148 0x1804 ECM/EMM	- 5.09 0.01 ATV
2011	0x07DB	?	-	75.31	0.21	N/A	54 0x0036 PMT	- 24.30 0.07 BVN-TV	6147 0x1803 ECM/EMM	- 5.09 0.01 CCTV-E
2007	0x07D7	?	-	75.31	0.21	N/A	52 0x0034 PMT	- 24.30 0.07 CCTV4	20 0x0014 TOT	- 1.51 0.00 N/A
							50 0x0032 PMT	- 24.30 0.07 FUJIAN	153 0x0099 ECM/EMM	- 1.35 0.00 N/A

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288°E (72°W)**AMC 6****288°E****Network Name****Site - 1****Recording****Juan Carlos Duarte**

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
33	0x0021	MPEG2 Video	-	3043.34	20.64	CN23
99	0x0063	MPEG2 Video	-	3012.40	20.43	SEMSAT
36	0x0024	MPEG2 Video	\$	2723.43	18.47	ENC
39	0x0027	MPEG2 Video	\$	2206.62	14.96	C7NQ
8191	0x1FFF	Null Packets	-	552.31	3.75	N/A
35	0x0023	MPEG2 Video	-	479.27	3.25	C7
43	0x002B	MPEG Audio	\$	208.94	1.42	MEGA
47	0x002F	MPEG Audio	\$	208.93	1.42	TKM
45	0x002D	MPEG Audio	\$	208.93	1.42	RAD10
42	0x002A	MPEG Audio	\$	208.91	1.42	POP
41	0x0029	MPEG Audio	-	208.91	1.42	VALE
32	0x0020	MPEG Audio	-	135.82	0.92	CN23
98	0x0062	MPEG Audio	-	135.80	0.92	SEMSAT
63	0x003F	MPEG Audio	-	135.80	0.92	LA950
58	0x003A	MPEG Audio	-	135.80	0.92	CADECO
49	0x0031	MPEG Audio	-	135.80	0.92	AM630

Transmitter	Network Name	Site - 1
34	0x0022	MPEG Audio - 135.80 0.92 C7
53	0x0035	MPEG Audio - 135.79 0.92 RNAC
38	0x0026	MPEG Audio - 135.79 0.92 C7NQ
37	0x0025	MPEG Audio - 135.79 0.92 ENC
51	0x0033	MPEG Audio - 135.78 0.92 R UNO
17	0x0011	SDT - 47.56 0.32 N/A
16	0x0010	NIT - 23.78 0.16 N/A
101	0x0065	PMT - 13.84 0.09 SEMSAT
61	0x003D	PMT - 13.81 0.09 C7NQ
1	0x0001	CAT - 13.79 0.09 N/A
50	0x0032	PMT - 13.77 0.09 R UNO
103	0x0067	PMT - 13.76 0.09 RAD10
62	0x003E	PMT - 13.76 0.09 ENC
60	0x003C	PMT - 13.76 0.09 C7
0	0x0000	PAT - 13.76 0.09 N/A
82	0x0052	PMT - 13.74 0.09 CADECO
48	0x0030	PMT - 13.74 0.09 AM630

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
40	0x0028	PMT	-	13.74	0.09	VALE
102	0x0066	PMT	-	13.72	0.09	MEGA
52	0x0034	PMT	-	13.72	0.09	RNAC
44	0x002C	PMT	-	13.72	0.09	CN23
104	0x0068	PMT	-	13.70	0.09	LA950
100	0x0064	PMT	-	13.70	0.09	POP
46	0x002E	PMT	-	13.69	0.09	TKM
64	0x0040	Private PES	-	2.97	0.02	C7
1357	0x054D	ECM/EMM	-	2.40	0.02	C7NQ
1355	0x054B	ECM/EMM	-	2.37	0.02	VALE
1353	0x0549	ECM/EMM	-	2.37	0.02	POP
1346	0x0542	ECM/EMM	-	2.37	0.02	RNAC
1354	0x054A	ECM/EMM	-	2.33	0.02	TKM
1351	0x0547	ECM/EMM	-	2.28	0.02	RAD10
1358	0x054E	ECM/EMM	-	2.25	0.02	ENC
1352	0x0548	ECM/EMM	-	2.21	0.01	MEGA
1280	0x0500	ECM/EMM	-	0.96	0.01	N/A

Transponderstream Technical Service File Download for Clients Only**Duration: 3 Min, File Size: 218 MB****www.transponderstream.com/DVB-S/288/AMC6-11546V-1111.ts****297°E (63°W)****ESTRELLA DEL SUR****297°E****Network Name****ENTEL****Recording****Juan Carlos Duarte**

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
272	0x0110	MPEG2 Video	-	4519.88	23.84	Via X
256	0x0100	MPEG2 Video	-	4217.90	22.24	Zona Latina
3	0x0003	MPEG2 Video	-	3992.16	21.05	UCV
304	0x0130	MPEG2 Video	-	3238.42	17.08	Vive Deportes
8191	0x1FFF	Null Packets	-	2149.11	11.33	N/A

Transm.	Network Name	ENTEL
2	0x0002	MPEG Audio - 198.24 1.05 UCV
273	0x0111	MPEG Audio - 135.75 0.72 Via X
257	0x0101	MPEG Audio - 135.68 0.72 Zona Latina
305	0x0131	MPEG Audio - 135.46 0.71 Vive Deportes
4	0x0004	PMT - 30.17 0.16 UCV
264	0x0108	PMT - 30.09 0.16 Zona Latina

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
17	0x0011	SDT	-	30.09	0.16	N/A
16	0x0010	NIT	-	30.09	0.16	N/A
280	0x0118	PMT	-	30.02	0.16	Via X
0	0x0000	PAT	-	30.02	0.16	N/A
1	0x0001	CAT	-	29.94	0.16	N/A
312	0x0138	PMT	-	29.87	0.16	Vive Deportes

Transponderstream Technical Service File Download for Clients Only**Duration: 3 Min, File Size: 286 MB****www.transponderstream.com/DVB-S/297/ESTRELLA-11600V-1111.ts****297°E****Network Name****ENTEL****Recording****Juan Carlos Duarte**

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
305	0x0131	MPEG2 Video	\$	5303.59	18.16	03 CANAL 13
273	0x0111	MPEG2 Video	\$	5303.59	18.16	01 MEGA
289	0x0121	MPEG2 Video	-	3886.08	13.30	02 TELETRAK
337	0x0151	MPEG2 Video	-	3702.48	12.68	05 CHILEVISION
353	0x0161	MPEG2 Video	\$	3371.44	11.54	06 CAMARA DIPUTADOS
321	0x0141	MPEG2 Video	-	2268.00	7.76	04 SENADO TV
369	0x0171	MPEG2 Video	-	1781.57	6.10	07 Business TV
8191	0x1FFF	Null Packets	-	1573.69	5.39	N/A
354	0x0162	MPEG Audio	\$	271.74	0.93	06 CAMARA DIPUTADOS
338	0x0152	MPEG Audio	-	271.74	0.93	05 CHILEVISION
306	0x0132	MPEG Audio	\$	271.74	0.93	03 CANAL 13

Transm.	Network Name	ENTEL
274	0x0112	MPEG Audio - 271.74 0.93 01 MEGA
385	0x0181	MPEG Audio - 198.60 0.68 TEST RADIO1
370	0x0172	MPEG Audio - 135.87 0.47 07 Business TV
322	0x0142	MPEG Audio - 135.87 0.47 04 SENADO TV
290	0x0122	MPEG Audio - 135.87 0.47 02 TELETRAK
1281	0x0501	ECM/EMM - 32.32 0.11 N/A
17	0x0011	SDT - 22.59 0.08 N/A
389	0x0185	PMT - 22.56 0.08 TEST RADIO1
373	0x0175	PMT - 22.56 0.08 07 Business TV
357	0x0165	PMT - 22.56 0.08 06 CAMARA DIPUTADOS
341	0x0155	PMT - 22.56 0.08 05 CHILEVISION
325	0x0145	PMT - 22.56 0.08 04 SENADO TV

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
309	0x0135	PMT	-	22.56	0.08	03 CANAL 13
293	0x0125	PMT	-	22.56	0.08	02 TELETRAK
277	0x0115	PMT	-	22.56	0.08	01 MEGA
2	0x0002	NIT	-	22.56	0.08	N/A
1	0x0001	CAT	-	22.56	0.08	N/A
0	0x0000	PAT	-	22.56	0.08	N/A
515	0x0203	ECM/EMM	-	5.66	0.02	03 CANAL 13
519	0x0207	ECM/EMM	-	5.63	0.02	07 Business TV
518	0x0206	ECM/EMM	-	5.63	0.02	06 CAMARA DIPUTADOS
513	0x0201	ECM/EMM	-	5.63	0.02	01 MEGA
20	0x0014	TOT	-	0.40	0.00	N/A

Transponderstream Technical Service File Download for Clients Only**Duration: 3 Min, File Size: 444 MB****www.transponderstream.com/DVB-S/297/ESTRELLA-11640V-1111.ts****330°E (30°W)****HISPASAT****330°E****Network Name****Telecaribe, Colombia****Recording****Juan Carlos Duarte**

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
101	0x0065	MPEG2 Video	-	3892.72	53.63	TELECARIBE COLOMBIA
103	0x0067	MPEG2 Video	-	2666.68	36.74	ZOOM
102	0x0066	MPEG Audio	-	263.22	3.63	TELECARIBE COLOMBIA
8191	0x1FFF	Null Packets	-	234.66	3.23	N/A

Transmitter	Network Name	Telecaribe, Colombia
104	0x0068	MPEG Audio - 132.31 1.82 ZOOM
100	0x0064	PMT - 15.84 0.22 TELECARIBE COLOMBIA
32	0x0020	PMT - 15.84 0.22 ZOOM
1	0x0001	CAT - 15.84 0.22 N/A
0	0x0000	PAT - 15.84 0.22 N/A

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
18	0x0012	EIT	-	3.16	0.04	N/A
17	0x0011	SDT	-	1.59	0.02	N/A
16	0x0010	NIT	-	0.31	0.00	N/A
20	0x0014	TOT	-	0.20	0.00	N/A

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330°E

Network Name

TVE, America

Recording

Juan Carlos Duarte

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
8191	0x1FFF	Null Packets	-	9215.00	24.21
4368	0x1110	MPEG2 Video	\$	5585.14	14.67
4384	0x1120	MPEG2 Video	\$	4055.85	10.66
1160	0x0488	MPEG2 Video	\$	3688.44	9.69
4416	0x1140	MPEG2 Video	\$	3180.82	8.36
4240	0x1090	MPEG2 Video	-	2703.57	7.10
4256	0x10A0	MPEG2 Video	-	2703.52	7.10
4208	0x1070	MPEG2 Video	-	2703.52	7.10
4209	0x1071	MPEG Audio	-	271.96	0.71
36	0x0024	MPEG Audio	-	271.96	0.71
46	0x002E	MPEG Audio	-	271.91	0.71
45	0x002D	MPEG Audio	-	207.90	0.55
44	0x002C	MPEG Audio	-	207.85	0.55
42	0x002A	MPEG Audio	-	207.85	0.55

Transmitter	HISPASAT 12.052V
43	0x002B MPEG Audio - 207.80 0.55 EUSK
41	0x0029 MPEG Audio - 207.80 0.55 RGA
4257	0x10A1 MPEG Audio - 198.73 0.52 CANAL VASCO
4241	0x1091 MPEG Audio - 198.68 0.52 TV3 Cat
1120	0x0460 MPEG Audio - 141.18 0.37 ANTENA3
47	0x002F MPEG Audio - 136.01 0.36 REE
4417	0x1141 MPEG Audio \$ 135.95 0.36 TVEA2
49	0x0031 MPEG Audio - 135.95 0.36 RNE5
38	0x0026 MPEG Audio - 135.95 0.36 SAR7
4385	0x1121 MPEG Audio \$ 135.90 0.36 24HTVE
4369	0x1111 MPEG Audio \$ 135.90 0.36 TVEA1
35	0x0023 MPEG Audio - 135.90 0.36 RNE1
68	0x0044 MPEG Audio - 134.47 0.35 Radio Galicia 2
4386	0x1122 Private Data \$ 131.81 0.35 24HTVE
4370	0x1112 Private Data \$ 131.81 0.35 TVEA1

4418	0x1142	Private Data	\$	131.76	0.35	TVEA2
48	0x0030	PMT	-	83.62	0.22	ANTENA3
1211	0x04BB	MPEG Audio	-	71.02	0.19	NSE Radio
17	0x0011	SDT	-	51.62	0.14	N/A
16	0x0010	NIT	-	30.11	0.08	N/A
1	0x0001	CAT	-	30.11	0.08	N/A
0	0x0000	PAT	-	30.11	0.08	N/A
6001	0x1771	ECM/EMM	-	15.05	0.04	ANTENA3
192	0x00C0	ECM/EMM	-	13.72	0.04	N/A
20	0x0014	TOT	-	10.04	0.03	N/A
4431	0x114F	ECM/EMM	-	6.14	0.02	TVEA2
4399	0x112F	ECM/EMM	-	6.14	0.02	24HTVE
4383	0x111F	ECM/EMM	-	6.14	0.02	TVEA1

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330°E

Network Name

n.a.

Recording

Juan Carlos Duarte

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
255	0x00FF	MPEG2 Video	\$	3089.68	42.62
257	0x0101	MPEG2 Video	-	2581.48	35.61
8191	0x1FFF	Null Packets	-	804.71	11.10
266	0x010A	MPEG Audio	-	135.66	1.87
261	0x0105	MPEG Audio	-	135.66	1.87
258	0x0102	MPEG Audio	-	135.66	1.87
256	0x0100	MPEG Audio	\$	135.62	1.87

Transmitter	HISPASAT 12.170V
267	0x010B MPEG Audio - 70.22 0.97 RADIO COOPERATIVA
262	0x0106 MPEG Audio - 70.22 0.97 RADIO 3 PATAGONICA
601	0x0259 ECM/EMM - 30.95 0.43 N/A
0	0x0000 PAT - 13.68 0.19 N/A
100	0x0064 PMT - 7.71 0.11 SOLO TANGO
18	0x0012 EIT - 5.44 0.08 N/A
8190	0x1FFE ECM/EMM - 4.99 0.07 SOLO TANGO
108	0x006C PMT - 4.57 0.06 RADIO COOPERATIVA

107	0x006B	PMT	-	4.57	0.06	SIGLO 21
106	0x006A	PMT	-	4.57	0.06	CADENA 3
104	0x0068	PMT	-	4.57	0.06	RADIO 3 PATAGONICA
101	0x0065	PMT	-	4.57	0.06	CANAL 21
1	0x0001	CAT	-	3.87	0.05	N/A
17	0x0011	SDT	-	0.58	0.01	N/A
20	0x0014	TOT	-	0.33	0.00	N/A

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352.5°E (7.5°W)

ATLANTIC BIRD 1



352.5°E

Network Name

TIMB4

Recording

Thomas Haring

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
757	0x02F5	H.264 Video	-	9232.66	41.14
762	0x02FA	H.264 Video	-	9232.39	41.14
101	0x0065	H.264 Video	-	1801.87	8.03
8191	0x1FFF	Null Packets	-	1158.70	5.16
763	0x02FB	MPEG Audio	-	394.77	1.76
758	0x02F6	MPEG Audio	-	394.68	1.76

Transmitter	ATLANTIC BIRD 1 12.718H
18	0x0012 EIT - 39.17 0.17 N/A
104	0x0068 AAC Audio - 26.64 0.12 LA7 test MOSAICO
102	0x0066 AAC Audio - 26.64 0.12 LA7 test MOSAICO
105	0x0069 AAC Audio - 26.55 0.12 LA7 test MOSAICO
103	0x0067 AAC Audio - 26.55 0.12 LA7 test MOSAICO
1	0x0001 CAT - 15.13 0.07 N/A
771	0x0303 PMT - 15.04 0.07 LA7 test MOSAICO

761	0x02F9	PMT	-	15.04	0.07	LA7 test 3D
756	0x02F4	PMT	-	15.04	0.07	LA7 HD
0	0x0000	PAT	-	15.04	0.07	N/A
21	0x0015	Network Sync	-	2.51	0.01	N/A
17	0x0011	SDT	-	1.58	0.01	N/A
16	0x0010	NIT	-	0.28	0.00	N/A
20	0x0014	TOT	-	0.09	0.00	N/A

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352.5°E

Network Name

TIMB2

Recording

Thomas Haring

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
757	0x02F5	H.264 Video	-	8717.97	38.86
770	0x0302	H.264 Video	-	4112.51	18.33
760	0x02FE	H.264 Video	-	3089.98	13.77
799	0x0316	MPEG2 Video	-	2567.23	11.44
650	0x028A	MPEG2 Video	-	1465.59	6.53
772	0x0304	AC3 Audio	-	423.75	1.89
759	0x02F7	AC3 Audio	-	423.75	1.89
768	0x0300	AC3 Audio	-	423.65	1.89
18	0x0012	EIT	-	259.40	1.16
792	0x0318	MPEG Audio	-	200.78	0.90

Transmitter	ATLANTIC BIRD 1 12.718H
791	0x0317 MPEG Audio - 198.71 0.89 RTL 102.5 TV
8191	0x1FFF Null Packets - 193.95 0.86 N/A
651	0x028B MPEG Audio - 135.94 0.61 Padre Pio TV
7094	0x1BB6 Data - 35.05 0.16 ROVI
7041	0x1B81 Data - 23.86 0.11 ROVI
33	0x0021 PMT - 15.15 0.07 MTV MUSIC HD
1	0x0001 CAT - 15.15 0.07 N/A
769	0x0301 PMT - 15.05 0.07 LA7D HD
765	0x02FD PMT - 15.05 0.07 MTV HD
756	0x02F4 PMT - 15.05 0.07 LA7 HD
549	0x0225 PMT - 15.05 0.07 Padre Pio TV

490	0x01EA	PMT	-	15.05	0.07	RTL 102.5
290	0x0122	PMT	-	15.05	0.07	RTL 102.5 TV
269	0x010D	PMT	-	15.05	0.07	ROVI
0	0x0000	PAT	-	15.05	0.07	N/A
7040	0x1B80	Data	-	4.65	0.02	ROVI
17	0x0011	SDT	-	2.97	0.01	N/A
21	0x0015	Network Sync	-	2.48	0.01	N/A
16	0x0010	NIT	-	0.30	0.00	N/A
20	0x0014	TOT	-	0.20	0.00	N/A

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352.5°E

Network Name

TIMB3

Recording

Thomas Haring

Transmitter ATLANTIC BIRD 1 12.718H

Remark

MIS

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name
6112	0x17E0	MPEG2 Video	-	5023.91	22.39	LA7
6122	0x17EA	MPEG2 Video	-	2874.71	12.81	LA7D
6132	0x17F4	MPEG2 Video	-	2567.58	11.44	MTV MUSIC
6117	0x17E5	MPEG2 Video	-	2465.31	10.99	MTV
1457	0x05B1	MPEG2 Video	-	2362.96	10.53	frisbee
981	0x03D5	MPEG2 Video	-	2362.88	10.53	K2
8191	0x1FFF	Null Packets	-	1262.97	5.63	N/A
2039	0x07F7	MPEG2 Video	-	433.78	1.93	La7ondemand
6133	0x17F5	MPEG Audio	-	394.71	1.76	MTV MUSIC
6118	0x17E6	MPEG Audio	-	394.71	1.76	MTV
6113	0x17E1	MPEG Audio	-	263.61	1.17	LA7
18	0x0012	EIT	-	259.63	1.16	N/A
7011	0x1B63	MHP	-	244.39	1.09	LA7
6120	0x17E8	Teletext	-	188.37	0.84	MTV
6115	0x17E3	Teletext	-	150.71	0.67	LA7
7001	0x1B59	MHP	-	144.31	0.64	LA7
7081	0x1BA9	MHP	-	144.23	0.64	LA7
6123	0x17EB	MPEG Audio	-	132.51	0.59	LA7D

1458	0x05B2	MPEG Audio	-	132.51	0.59	frisbee
982	0x03D6	MPEG Audio	-	132.51	0.59	K2
990	0x03DE	MHP	-	94.15	0.42	CUBOVISION
6111	0x17DF	PMT	-	30.16	0.13	LA7
6160	0x1810	PMT	-	15.08	0.07	MTV
6157	0x180D	PMT	-	15.08	0.07	La7ondemand
6152	0x1808	PMT	-	15.08	0.07	LA7D
6141	0x17FD	PMT	-	15.08	0.07	MTV MUSIC
6131	0x17F3	PMT	-	15.08	0.07	MTV MUSIC
6116	0x17E4	PMT	-	15.08	0.07	MTV
6106	0x17DA	PMT	-	15.08	0.07	CUBOVISION
1551	0x060F	PMT	-	15.08	0.07	PIU' SERVIZI
1546	0x060A	PMT	-	15.08	0.07	PORTALE SERVIZI TELECOM
1541	0x0605	PMT	-	15.08	0.07	MTV MUSIC On Demand
1536	0x0600	PMT	-	15.08	0.07	MTV+ On Demand
1531	0x05FB	PMT	-	15.08	0.07	La7 Servizi On Demand
1526	0x05F6	PMT	-	15.08	0.07	La7D On Demand
1521	0x05F1	PMT	-	15.08	0.07	MTV On Demand
1516	0x05EC	PMT	-	15.08	0.07	MTV News On Demand

1512	0x05E8	PMT	-	15.08	0.07	La7 News On Demand
1461	0x05B5	PMT	-	15.08	0.07	frisbee
0	0x0000	PAT	-	15.08	0.07	N/A
6151	0x1807	PMT	-	15.00	0.07	LA7D
6150	0x1806	PMT	-	15.00	0.07	LA7
1511	0x05E7	PMT	-	15.00	0.07	K2
1	0x0001	CAT	-	15.00	0.07	N/A
590	0x024E	Private Sections	-	6.09	0.03	N/A
7080	0x1BA8	Private Sections	-	6.02	0.03	N/A
7010	0x1B62	Private Sections	-	6.02	0.03	N/A
7000	0x1B58	Private Sections	-	6.02	0.03	N/A
577	0x0241	Private Sections	-	6.02	0.03	N/A
400	0x0190	Private Sections	-	6.02	0.03	N/A
17	0x0011	SDT	-	4.45	0.02	N/A
21	0x0015	Network Sync	-	2.42	0.01	N/A
16	0x0010	NIT	-	0.63	0.00	N/A
20	0x0014	TOT	-	0.23	0.00	N/A

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DVB-S2

satellite

9°E

EUROBIRD



9°E

Network Name

Kabelkiosk

Recording

Thomas Haring

Transmitter

EUROBIRD 10.971H

Remark

cable feed

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name
8191	0x1FFF	Null Packets	-	4018.05	7.55	N/A
2273	0x08E1	MPEG2 Video	\$	3665.36	6.89	HSE24
2305	0x0901	MPEG2 Video	\$	3152.18	5.92	Russia Today
2113	0x0841	MPEG2 Video	\$	3140.79	5.90	QVC Plus
2209	0x08A1	MPEG2 Video	\$	2990.83	5.62	VIVA
2497	0x09C1	MPEG2 Video	\$	2567.05	4.82	CNBC
2337	0x0921	MPEG2 Video	\$	2863.09	5.38	Eurosport
2561	0x0A01	MPEG2 Video	\$	2779.54	5.22	Das Vierte
2241	0x08C1	MPEG2 Video	\$	2720.67	5.11	sixx
2593	0x0A21	MPEG2 Video	\$	2675.14	5.03	HSE 24 Extra
2081	0x0821	MPEG2 Video	\$	2567.05	4.82	Channel 21 Shop
2465	0x09A1	MPEG2 Video	\$	2406.72	4.52	CNN
2369	0x0941	MPEG2 Video	\$	2342.50	4.40	1-2-3 TV
2529	0x09E1	MPEG2 Video	\$	2233.27	4.20	DMAX
2145	0x0861	MPEG2 Video	\$	2147.38	4.03	Nick/Comedy Central
2433	0x0981	MPEG2 Video	\$	1809.54	3.40	YAYIDO
2401	0x0961	MPEG2 Video	\$	1368.59	2.57	iMusic 1
2104	0x0838	Teletext	\$	300.74	0.57	Channel 21 Shop
2232	0x08B8	Teletext	\$	296.40	0.56	VIVA
2168	0x0878	Teletext	\$	294.46	0.55	Nick/Comedy Central
2552	0x09F8	Teletext	\$	263.18	0.49	DMAX
2210	0x08A2	MPEG Audio	\$	263.15	0.49	VIVA
2616	0x0A38	Teletext	\$	263.15	0.49	HSE 24 Extra
2392	0x0958	Teletext	\$	263.15	0.49	1-2-3 TV
2264	0x08D8	Teletext	\$	263.15	0.49	sixx
2146	0x0862	MPEG Audio	\$	263.15	0.49	Nick/Comedy Central
2520	0x09D8	Teletext	\$	225.55	0.42	CNBC
2584	0x0A18	Teletext	\$	225.54	0.42	Das Vierte
2050	0x0802	ECM/EMM	-	211.50	0.40	N/A
2498	0x09C2	MPEG Audio	\$	203.63	0.38	CNBC
2434	0x0982	MPEG Audio	\$	200.50	0.38	YAYIDO
2402	0x0962	MPEG Audio	\$	200.50	0.38	iMusic 1
2242	0x08C2	MPEG Audio	\$	200.50	0.38	sixx
2594	0x0A22	MPEG Audio	\$	200.50	0.38	HSE 24 Extra
2530	0x09E2	MPEG Audio	\$	200.50	0.38	DMAX
2274	0x08E2	MPEG Audio	\$	200.50	0.38	HSE24
2082	0x0822	MPEG Audio	\$	200.50	0.38	Channel 21 Shop
2562	0x0A02	MPEG Audio	\$	200.49	0.38	Das Vierte
2370	0x0942	MPEG Audio	\$	200.49	0.38	1-2-3 TV
2338	0x0922	MPEG Audio	\$	200.49	0.38	Eurosport
2049	0x0801	ECM/EMM	-	193.25	0.36	N/A
2136	0x0858	Teletext	\$	187.97	0.35	QVC Plus
2296	0x08F8	Teletext	\$	187.97	0.35	HSE24
18	0x0012	EIT	-	148.66	0.28	N/A
2114	0x0842	MPEG Audio	\$	137.85	0.26	QVC Plus
2466	0x09A2	MPEG Audio	\$	137.84	0.26	CNN
2306	0x0902	MPEG Audio	\$	137.84	0.26	Russia Today
5424	0x1530	ECM/EMM	-	21.35	0.04	N/A

2481	0x09B1	ECM/EMM	-	15.17	0.03	CNN
2480	0x09B0	ECM/EMM	-	15.17	0.03	CNN
2449	0x0991	ECM/EMM	-	15.17	0.03	YAYIDO
2448	0x0990	ECM/EMM	-	15.17	0.03	YAYIDO
2353	0x0931	ECM/EMM	-	15.17	0.03	Eurosport
2352	0x0930	ECM/EMM	-	15.17	0.03	Eurosport
2321	0x0911	ECM/EMM	-	15.17	0.03	Russia Today
2320	0x0910	ECM/EMM	-	15.17	0.03	Russia Today
2161	0x0871	ECM/EMM	-	15.17	0.03	Nick/Comedy Central
2160	0x0870	ECM/EMM	-	15.17	0.03	Nick/Comedy Central
2609	0x0A31	ECM/EMM	-	15.16	0.03	HSE 24 Extra
2608	0x0A30	ECM/EMM	-	15.16	0.03	HSE 24 Extra
2577	0x0A11	ECM/EMM	-	15.16	0.03	Das Vierte
2576	0x0A10	ECM/EMM	-	15.16	0.03	Das Vierte
2545	0x09F1	ECM/EMM	-	15.16	0.03	DMAX
2544	0x09F0	ECM/EMM	-	15.16	0.03	DMAX
2513	0x09D1	ECM/EMM	-	15.16	0.03	CNBC
2512	0x09D0	ECM/EMM	-	15.16	0.03	CNBC
2417	0x0971	ECM/EMM	-	15.16	0.03	iMusic 1
2416	0x0970	ECM/EMM	-	15.16	0.03	iMusic 1
2385	0x0951	ECM/EMM	-	15.16	0.03	1-2-3 TV
2384	0x0950	ECM/EMM	-	15.16	0.03	1-2-3 TV
2289	0x08F1	ECM/EMM	-	15.16	0.03	HSE24
2288	0x08F0	ECM/EMM	-	15.16	0.03	HSE24
2257	0x08D1	ECM/EMM	-	15.16	0.03	sixx
2256	0x08D0	ECM/EMM	-	15.16	0.03	sixx
2225	0x08B1	ECM/EMM	-	15.16	0.03	VIVA
2224	0x08B0	ECM/EMM	-	15.16	0.03	VIVA
2129	0x0851	ECM/EMM	-	15.16	0.03	QVC Plus
2128	0x0850	ECM/EMM	-	15.16	0.03	QVC Plus
2097	0x0831	ECM/EMM	-	15.16	0.03	Channel 21 Shop
2096	0x0830	ECM/EMM	-	15.16	0.03	Channel 21 Shop
16	0x0010	NIT	-	12.89	0.02	N/A
17	0x0011	SDT	-	9.02	0.02	N/A
2452	0x0994	ECM/EMM	-	6.16	0.01	YAYIDO
2580	0x0A14	ECM/EMM	-	6.16	0.01	Das Vierte
2579	0x0A13	ECM/EMM	-	6.16	0.01	Das Vierte
2578	0x0A12	ECM/EMM	-	6.16	0.01	Das Vierte
2548	0x09F4	ECM/EMM	-	6.16	0.01	DMAX
2516	0x09D4	ECM/EMM	-	6.16	0.01	CNBC
2484	0x09B4	ECM/EMM	-	6.16	0.01	CNN
2451	0x0993	ECM/EMM	-	6.16	0.01	YAYIDO
2450	0x0992	ECM/EMM	-	6.16	0.01	YAYIDO
2420	0x0974	ECM/EMM	-	6.16	0.01	iMusic 1
2419	0x0973	ECM/EMM	-	6.16	0.01	iMusic 1
2418	0x0972	ECM/EMM	-	6.16	0.01	iMusic 1
2388	0x0954	ECM/EMM	-	6.16	0.01	1-2-3 TV
2387	0x0953	ECM/EMM	-	6.16	0.01	1-2-3 TV
2386	0x0952	ECM/EMM	-	6.16	0.01	1-2-3 TV

2324	0x0914	ECM/EMM	-	6.16	0.01	Russia Today
2323	0x0913	ECM/EMM	-	6.16	0.01	Russia Today
2322	0x0912	ECM/EMM	-	6.16	0.01	Russia Today
2292	0x08F4	ECM/EMM	-	6.16	0.01	HSE24
2260	0x08D4	ECM/EMM	-	6.16	0.01	sixx
2227	0x08B3	ECM/EMM	-	6.16	0.01	VIVA
2226	0x08B2	ECM/EMM	-	6.16	0.01	VIVA
2164	0x0874	ECM/EMM	-	6.16	0.01	Nick/Comedy Central
2163	0x0873	ECM/EMM	-	6.16	0.01	Nick/Comedy Central
2162	0x0872	ECM/EMM	-	6.16	0.01	Nick/Comedy Central
2132	0x0854	ECM/EMM	-	6.16	0.01	QVC Plus
2100	0x0834	ECM/EMM	-	6.16	0.01	Channel 21 Shop
2099	0x0833	ECM/EMM	-	6.16	0.01	Channel 21 Shop
2098	0x0832	ECM/EMM	-	6.16	0.01	Channel 21 Shop
2547	0x09F3	ECM/EMM	-	6.15	0.01	DMAX
2546	0x09F2	ECM/EMM	-	6.15	0.01	DMAX
2515	0x09D3	ECM/EMM	-	6.15	0.01	CNBC
2514	0x09D2	ECM/EMM	-	6.15	0.01	CNBC
2483	0x09B3	ECM/EMM	-	6.15	0.01	CNN
2482	0x09B2	ECM/EMM	-	6.15	0.01	CNN
2291	0x08F3	ECM/EMM	-	6.15	0.01	HSE24
2290	0x08F2	ECM/EMM	-	6.15	0.01	HSE24
2259	0x08D3	ECM/EMM	-	6.15	0.01	sixx
2258	0x08D2	ECM/EMM	-	6.15	0.01	sixx
2228	0x08B4	ECM/EMM	-	6.15	0.01	VIVA
2131	0x0853	ECM/EMM	-	6.15	0.01	QVC Plus
2130	0x0852	ECM/EMM	-	6.15	0.01	QVC Plus
2592	0x0A20	PMT	-	5.02	0.01	HSE 24 Extra
2560	0x0A00	PMT	-	5.02	0.01	Das Vierte
2496	0x09C0	PMT	-	5.02	0.01	CNBC
2432	0x0980	PMT	-	5.02	0.01	YAVIDO
2400	0x0960	PMT	-	5.02	0.01	iMusic 1
2368	0x0940	PMT	-	5.02	0.01	1-2-3 TV
2336	0x0920	PMT	-	5.02	0.01	Eurosport
2304	0x0900	PMT	-	5.02	0.01	Russia Today
2272	0x08E0	PMT	-	5.02	0.01	HSE24
2240	0x08C0	PMT	-	5.02	0.01	sixx
2208	0x08A0	PMT	-	5.02	0.01	VIVA
2144	0x0860	PMT	-	5.02	0.01	Nick/Comedy Central
2112	0x0840	PMT	-	5.02	0.01	QVC Plus
2080	0x0820	PMT	-	5.02	0.01	Channel 21 Shop
0	0x0000	PAT	-	5.02	0.01	N/A
2528	0x09E0	PMT	-	5.01	0.01	DMAX
2464	0x09A0	PMT	-	5.01	0.01	CNN
1	0x0001	CAT	-	3.01	0.01	N/A
100	0x0064	Private Sections	\$	1.54	0.00	N/A
5428	0x1534	ECM/EMM	-	1.01	0.00	N/A
5427	0x1533	ECM/EMM	-	1.01	0.00	N/A



9°E

Network Name

E.B.9 NMX

Recording

Thomas Haring

Remark

HDTV

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	4011	0x0FAB	MPEG Audio	\$	198.50	0.37	FOX HD	119	0x0077	ECM/EMM	-	15.09	0.03	National Geographic HD	
8191	0x1FFF	Null Packets	-	9324.02	17.51	N/A	1000	0x0038	ECM/EMM	-	98.30	0.18	N/A	121	0x0079	ECM/EMM	-	15.07	0.03	National Geographic HD
2010	0x07DA	H.264 Video	\$	8202.59	15.40	National Geographic HD	18	0x001E	EIT	-	85.39	0.16	N/A	118	0x0076	ECM/EMM	-	15.07	0.03	FOX HD
2011	0x07DB	H.264 Video	\$	8002.47	15.03	FOX HD	501	0x01F5	ECM/EMM	-	78.33	0.15	N/A	117	0x0075	ECM/EMM	-	15.07	0.03	MEZZO HD
2001	0x007D	H.264 Video	-	7302.32	13.71	FTV HD	4001	0x0FA1	MPEG Audio	-	73.14	0.14	FTV HD	112	0x0070	ECM/EMM	-	15.07	0.03	Duck TV HD
2007	0x007D	H.264 Video	\$	6567.28	12.33	MEZZO HD	16	0x0010	NIT	-	25.08	0.05	N/A	108	0x006B	ECM/EMM	-	15.07	0.03	Duck TV HD
2002	0x07D2	H.264 Video	\$	5414.85	10.17	iConcerts	1	0x0001	CAT	-	25.06	0.05	N/A	131	0x0083	ECM/EMM	-	15.05	0.03	iConcerts
2006	0x07D6	H.264 Video	\$	4501.45	8.45	Duck TV HD	0	0x0000	PAT	-	25.06	0.05	N/A	114	0x0072	ECM/EMM	-	15.05	0.03	Penthouse HD
3006	0x0BBE	MPEG Audio	\$	397.01	0.75	Duck TV HD	1011	0x03F3	PMT	-	24.26	0.05	FOX HD	133	0x0085	ECM/EMM	-	15.04	0.03	Penthouse HD
3001	0x0BB9	MPEG Audio	-	397.01	0.75	FTV HD	1010	0x03F2	PMT	-	24.26	0.05	National Geographic HD	120	0x0078	ECM/EMM	-	15.04	0.03	FOX HD
5011	0x1393	AC3 Audio	\$	394.92	0.74	FOX HD	1008	0x03F0	PMT	-	24.26	0.05	Penthouse HD	115	0x0073	ECM/EMM	-	15.04	0.03	Penthouse HD
4010	0x0FAA	AC3 Audio	\$	394.92	0.74	National Geographic HD	1007	0x03EF	PMT	-	24.26	0.05	MEZZO HD	100	0x0064	ECM/EMM	-	7.57	0.01	MEZZO HD
3010	0x0BC2	AC3 Audio	\$	394.92	0.74	National Geographic HD	1006	0x03EE	PMT	-	24.26	0.05	Duck TV HD	101	0x0065	ECM/EMM	-	7.55	0.01	MEZZO HD
3007	0x0BBF	MPEG Audio	\$	266.41	0.50	MEZZO HD	1002	0x03EA	PMT	-	24.26	0.05	iConcerts	103	0x0067	ECM/EMM	-	7.53	0.01	iConcerts
3002	0x0BBA	MPEG Audio	\$	266.41	0.50	iConcerts	1001	0x03E9	PMT	-	24.26	0.05	FTV HD	102	0x0066	ECM/EMM	-	7.53	0.01	iConcerts
502	0x01F6	ECM/EMM	-	211.56	0.40	N/A	116	0x0074	ECM/EMM	-	15.10	0.03	MEZZO HD	17	0x0011	SDT	-	6.02	0.01	N/A
3011	0x0BC3	MPEG Audio	\$	198.51	0.37	FOX HD	132	0x0084	ECM/EMM	-	15.09	0.03	MEZZO HD	20	0x0014	TOT	-	0.13	0.00	N/A

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Duration: 30 Sec, File Size: 205 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 2004 MB

www.transponderstream.com/DVB-S2/009/EUROBIRD-11881V-1111.ts



9°E

Network Name

Hello HD

Recording

Thomas Haring

Transmitter

EUROBIRD 12.074V

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	4385	0x1121	MPEG Audio	\$	135.91	0.23	Cool	3175	0x0C67	ECM/EMM	-	15.04	0.03	Filmbox HD	
6544	0x1190	H.264 Video	\$	6805.74	11.36	Filmbox HD	4353	0x1101	MPEG Audio	\$	135.91	0.23	Viasat 3	3025	0x0BC1	Private Data	-	15.04	0.03	Cable PDMS
4400	0x0230	H.264 Video	\$	2457.94	4.10	Digit Sport	4241	0x1091	MPEG Audio	\$	135.91	0.23	TV2	3023	0x0BDF	Private Data	-	15.04	0.03	Cable PDMS
4112	0x1010	MPEG2 Video	\$	2402.02	4.01	Filmbox Extra	4225	0x1081	MPEG Audio	\$	135.91	0.23	Sport 1	3022	0x0BCA	Private Data	-	15.04	0.03	Cable PDMS
4688	0x1250	H.264 Video	\$	2310.46	3.86	History Channel	4209	0x1071	MPEG Audio	\$	135.91	0.23	RTL Klub	3018	0x0BCE	Private Data	-	15.04	0.03	Cable PDMS
4464	0x1170	H.264 Video	\$	2209.99	3.69	Discovery Channel	4161	0x1041	MPEG Audio	\$	135.91	0.23	d1 TV	3006	0x0BBE	Private Data	-	15.04	0.03	Cable PDMS
4224	0x1080	H.264 Video	\$	2171.84	3.62	Sport 1	4145	0x1031	MPEG Audio	\$	135.91	0.23	Magyar ATV	3194	0x0C7A	ECM/EMM	-	15.00	0.03	Magyar ATV
4368	0x1110	H.264 Video	\$	1933.90	3.23	41 Story TV	4705	0x1261	MPEG Audio	\$	135.88	0.23	Animal Planet	2919	0x0B67	ECM/EMM	-	15.00	0.03	Filmbox HD
4496	0x1190	H.264 Video	\$	1842.24	3.07	HBO	4465	0x1171	MPEG Audio	\$	135.88	0.23	Discovery Channel	3277	0x0C8D	ECM/EMM	-	14.97	0.02	Lanchid Radio
4656	0x1230	H.264 Video	-	1740.85	2.90	Best of Music	4433	0x1151	MPEG Audio	\$	135.88	0.23	Spektrum	3192	0x0CDD	ECM/EMM	-	14.97	0.02	41 Story TV
4352	0x1100	H.264 Video	\$	1707.02	2.85	Viasat 3	4417	0x1141	MPEG Audio	\$	135.88	0.23	Film+	3191	0x0C77	ECM/EMM	-	14.97	0.02	National Geographic
4192	0x1060	H.264 Video	\$	1685.68	2.81	Minimax	4369	0x1111	MPEG Audio	\$	135.88	0.23	41 Story TV	3190	0x0C76	ECM/EMM	-	14.97	0.02	Spektrum
4672	0x1240	H.264 Video	-	1677.74	2.80	Rock TV	4193	0x1061	MPEG Audio	\$	135.88	0.23	Minimax	3189	0x0C75	ECM/EMM	-	14.97	0.02	History Channel
4176	0x1050	H.264 Video	\$	1651.39	2.76	HirTV	4177	0x1051	MPEG Audio	\$	135.88	0.23	HirTV	3183	0x0C6F	ECM/EMM	-	14.97	0.02	RTL Klub
4432	0x1150	H.264 Video	\$	1511.48	2.52	Spektrum	6465	0x1941	AAC Audio	-	122.36	0.20	Jazzradio	3178	0x0C6A	ECM/EMM	-	14.97	0.02	Filmbox Extra
18	0x0012	EIT	-	1501.26	2.50	N/A	4389	0x1125	Private PES	\$	37.62	0.06	Cinemax	3176	0x0C68	ECM/EMM	-	14.97	0.02	d1 TV
4128	0x1030	H.264 Video	-	1480.19	2.47	Music Plus	4245	0x1095	Private PES	\$	37.62	0.06	TV2	2922	0x0B6A	ECM/EMM	-	14.97	0.02	Filmbox Extra
4144	0x1020	H.264 Video	\$	1425.82	2.38	Magyar ATV	4213	0x1075	Private PES	\$	37.62	0.06	RTL Klub	3184	0x0C70	ECM/EMM	-	14.94	0.02	Music Plus
4160	0x1040	H.264 Video	\$	1418.43	2.37	d1 TV	1	0x0010	NIT	-	25.09	0.04	N/A	3177	0x0C69	ECM/EMM	-	14.94	0.02	HBO
4640	0x1220	H.264 Video	\$	1417.08	2.36	Cinemax	16	0x0001	CAT	-	25.09	0.04	N/A	3007	0x0CBF	Private Data	-	14.90	0.02	Cable PDMS
4208	0x1070	H.264 Video	\$	1403.50	2.34	RTL Klub	0	0x0000	PAT	-	25.09	0.04	N/A	3033	0x0BD9	Private Data	-	14.64	0.02	Cable PDMS
4384	0x1120	H.264 Video	\$	1400.89	2.34	Cool	17	0x0011	SDT	-	25.06	0.04	N/A	3034	0x0BDA	Private Data	-	14.38	0.02	Cable PDMS
4608	0x1200	H.264 Video	\$	1384.34	2.31	HBO2	6554	0x199A	PMT	-	24.30	0.04	Filmbox HD	3032	0x0BDB	Private Data	-	14.18	0.02	Cable PDMS
4624	0x1180	H.264 Video	\$	1361.03	2.27	HBO Comedy	4682	0x114A	PMT	-	24.30	0.04	Rock TV	3012	0x0BC4	Private Data	-	14.11	0.02	Cable PDMS
4480	0x1210	H.264 Video	\$	1318.33	2.20	National Geographic	4426	0x12A4	PMT	-	24.30	0.04	Film+	4010	0x0FAA	PMT	-	13.58	0.02	5800SX Update
4704	0x1260	H.264 Video	\$	1297.89	2.17	Animal Planet	4250	0x109A	PMT	-	24.30	0.04	TV2	6474	0x194A	PMT	-	13.55	0.02	Jazzradio
4240	0x1090	H.264 Video	\$	1297.56	2.17	TV2	4218	0x107A	PMT	-	24.30	0.04	RTL Klub	4714	0x126A	PMT	-	13.55	0.02	Animal Planet
4416	0x1140	H.264 Video	\$	1227.62	2.05	Film+	4138	0x102A	PMT	-	24.30	0.04	Music Plus	4698	0x125A	PMT	-	13.55	0.02	History Channel
8191	0x1FFF	Null Packets	-	964.10	1.61	N/A	4122	0x101A	PMT	-	24.30	0.04	Filmbox Extra	4666	0x123A	PMT	-	13.55	0.02	Best of Music
6546	0x1992	AC3 Audio	\$	661.00	0.77	Filmbox HD	1530	0x05FA	PMT	-	24.30	0.04	Lanchid Radio	4650	0x122A	PMT	-	13.55	0.02	Cinemax
6545	0x1991	AC3 Audio	\$	460.96	0.77	Filmbox HD	3037	0x0BDD	Private Data	-	20.58	0.03	Cable PDMS	4634	0x121A	PMT	-	13.55	0.02	HBO Comedy
4244	0x1094	Teletext	\$	301.08	0.50	TV2	3011	0x0BC3	Private Data	-	17.97	0.03	Cable PDMS	4618	0x120A	PMT	-	13.55	0.02	HBO2
4002	0x0FA2	SSU	-	282.58	0.47	5800CX Update	3010	0x0BC2	Private Data	-	17.97	0.03	Cable PDMS	4506	0x119A	PMT	-	13.55	0.02	HBO
4001	0x0FA1	SSU	-	282.41	0.47	5800SX Update	3027	0x0BC1	Private Data	-	17.81	0.03	Cable PDMS	4490	0x118A	PMT	-	13.55	0.02	National Geographic
4673	0x1241	MPEG Audio	-	271.80	0.45	Rock TV	3009	0x0BC4	Private Data	-	17.81	0.03	Cable PDMS	4474	0x117A	PMT	-	13.55	0.02	Discovery Channel
4657	0x1231	MPEG Audio	-	271.80	0.45	Best of Music	3008	0x0BC0	Private Data	-	17.81	0.03	Cable PDMS	4458	0x116A	PMT	-	13.55	0.02	_Service 6816
4129	0x1021	MPEG Audio	-	271.76	0.45	Music Plus	3004	0x0BC8	Private Data	-	17.81	0.03	Cable PDMS	4442	0x115A	PMT	-	13.55	0.02	Spektrum
4017	0x0FB1	SSU	-	261.87	0.44	RTL-2850ST Update	3016	0x0BCB	Private Data	-	15.56	0.03	Cable PDMS	4410	0x113A	PMT	-	13.55	0.02	Digit Sport
4212	0x1074	Teletext	\$	225.83	0.38	RTL Klub	3005	0x0BD7	Private Data	-	15.56	0.03	Cable PDMS	4394	0x112A	PMT	-	13.55	0.02	Cool
1521	0x05F1	MPEG Audio	\$	209.08	0.35	Lanchid Radio	3031	0x0BDD	Private Data	-	15.30	0.03	Cable PDMS	4378	0x111A	PMT	-	13.55	0.02	41 Story TV
3001	0x0BB9	?	-	208.95	0.35	N/A	3030	0x0BD6	Private Data	-	15.17	0.03	Cable PDMS	4362	0x110A	PMT	-	13.55	0.02	Viasat 3
4642	0x1222	MPEG Audio	\$	167.24	0.28	Cinemax	3029	0x0BD5	Private Data	-	15.17	0.03	Cable PDMS	4234	0x108A	PMT	-	13.55	0.02	Sport 1
4641	0x1221	MPEG Audio	\$	167.24	0.28	Cinemax	3028	0x0BD4	Private Data	-	15.17	0.03	Cable PDMS	4202	0x106A	PMT	-	13.55	0.02	Minimax
4626	0x1212	MPEG Audio	\$	167.24	0.28	HBO Comedy	3026	0x0BD2	Private Data	-	15.17	0.03	Cable PDMS	4186	0x105A	PMT	-	13.55	0.02	HirTV
4625	0x1211	MPEG Audio	\$	167.24	0.28	HBO Comedy	3024	0x0BD0	Private Data	-	15.17	0.03	Cable PDMS	4170	0x104A	PMT	-	13.55	0.02	d1 TV
4610	0x1202	MPEG Audio	\$	167.24	0.28	HBO2	3021	0x0BCD	Private Data	-	15.17	0.03	Cable PDMS	4154	0x103A	PMT	-	13.55	0.02	Magyar ATV
4609	0x1201	MPEG Audio	\$	167.24	0.28	HBO2	3019	0x0BCB	Private Data	-	15.17	0.03	Cable PDMS	4003	0x0FA3	PMT	-	13.55	0.02	5800CX Update
4498	0x1192	MPEG Audio	\$	167.24	0.28	HBO	3017	0x0BC9	Private Data	-	15.17	0.03	Cable PDMS	32	0x0020	PMT	-	13.55	0.02	RTL-2850ST Update
4497	0x1191	MPEG Audio	\$	167.24	0.28	HBO	3015	0x0BC7	Private Data	-	15.17	0.03	Cable PDMS	2816	0x0B00	ECM/EMM	-	9.43	0.02	N/A
4113	0x1011	MPEG Audio	\$	167.24	0.28	Filmbox Extra	3014	0x0BC6	Private Data	-	15.17	0.03	Cable PDMS	4004	0x0FA4	PMT	-	4.52	0.01	Cable PDMS
4689	0x1251	MPEG Audio	\$	135.91	0.23	History Channel	3013	0x0BC5	Private Data	-	15.17	0.03	Cable PDMS	2986	0x0BAA	ECM/EMM	-	3.03	0.01	N/A
4481	0x1181	MPEG Audio	\$	135.91	0.23	National Geographic	3003	0x0BBB	Private Data	-	15.17	0.03	Cable PDMS	20	0x0014	TOT	-	1.48	0.00	N/A
4401	0x1131	MPEG Audio	\$	135.91	0.23	Digit Sport	3002	0x0BBA	Private Data	-	15.17	0.03	Cable PDMS							

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13°E

HOTBIRD

DVB-S2

13°E

Network Name

EUTELSAT 13 EAST

Recording

Thomas Haring

Transmitter

HOTBIRD 10.971H

Remark

HD tests

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	547	0x0223	Teletext	-	263.18	0.46	TSR2 HD	1	0x0001	CAT	-	15.03	0.03	N/A	
532	0x0214	H.264 Video	\$ 10500.60	18.26	TSR1 HD	517	0x0205	Teletext	-	263.18	0.46	SF zwei HD	0	0x0000	PAT	-	15.03	0.03	N/A	
542	0x021E	H.264 Video	\$ 10500.55	18.26	TSR2 HD	543	0x021F	MPEG Audio	\$	198.50	0.35	TSR2 HD	541	0x021D	PMT	-	13.61	0.02	TSR2 HD	
512	0x0200	H.264 Video	\$ 10500.55	18.26	SF zwei HD	514	0x0202	MPEG Audio	\$	198.50	0.35	SF zwei HD	531	0x0213	PMT	-	13.61	0.02	TSR1 HD	
502	0x01F6	H.264 Video	\$ 10500.55	18.26	SF 1 HD	544	0x0220	MPEG Audio	\$	198.45	0.35	TSR2 HD	511	0x01FF	PMT	-	13.61	0.02	SF zwei HD	
8191	0x1FFF	Null Packets	-	9526.50	16.57	N/A	534	0x0216	MPEG Audio	\$	198.45	0.35	TSR1 HD	501	0x01F5	PMT	-	13.61	0.02	SF 1 HD
18	0x0012	EIT	-	1060.37	1.84	N/A	533	0x0215	MPEG Audio	\$	198.45	0.35	TSR1 HD	17	0x0011	SDT	-	7.61	0.01	N/A
535	0x0217	AC3 Audio	\$ 460.64	0.80	TSR1 HD	513	0x0201	MPEG Audio	\$	198.45	0.35	SF zwei HD	739	0x02E3	ECM/EMM	-	7.56	0.01	SF 1 HD	
515	0x0203	AC3 Audio	\$ 460.64	0.80	SF zwei HD	504	0x01F8	MPEG Audio	\$	198.45	0.35	SF 1 HD	729	0x02D9	ECM/EMM	-	7.56	0.01	SF 1 HD	
505	0x01F9	AC3 Audio	\$ 460.64	0.80	SF 1 HD	503	0x01F7	MPEG Audio	\$	198.45	0.35	SF 1 HD	719	0x02CF	ECM/EMM	-	7.56	0.01	SF 1 HD	
545	0x0221	AC3 Audio	\$ 460.59	0.80	TSR2 HD	602	0x025A	ECM/EMM	-	99.74	0.17	N/A	16	0x0010	NIT	-	4.58	0.01	N/A	
537	0x0219	Teletext	-	263.23	0.46	TSR1 HD	604	0x025C	ECM/EMM	-	99.70	0.17	N/A	20	0x0014	TOT	-	1.46	0.00	N/A
507	0x01FB	Teletext	-	263.23	0.46	SF 1 HD	603	0x025B	ECM/EMM	-	99.70	0.17	N/A							

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DVB-S2

13°E

Network Name

CYFRA+

Recording

Thomas Haring

Transmitter

HOTBIRD 11.411H

Remark

3D tests

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	18	0x0012	EIT	225.62	0.33	N/A	33	0x0021	?	-	22.57	0.03	N/A		
161	0x00A1	H.264 Video	\$ 11419.29	16.75	CANAL+ GOL HD	96	0x0060	AC3 Audio	\$ 197.45	0.29	teleTOON+ HD	32	0x0020	?	-	22.57	0.03	N/A		
166	0x00A6	H.264 Video	\$ 8748.77	12.83	KUCHNIA+ HD	92	0x005C	AC3 Audio	\$ 197.44	0.29	MINIMINI+ HD	0	0x0000	PAT	-	20.01	0.03	N/A		
165	0x00A5	H.264 Video	\$ 7405.04	10.86	PLANETE+ HD	182	0x00B6	ECM/EMM	-	186.35	0.27	N/A	183	0x00B7	ECM/EMM	-	17.02	0.02	N/A	
167	0x00A7	H.264 Video	\$ 7107.82	10.43	DOMO+ HD	680	0x02A8	?	-	183.85	0.27	N/A	1080	0x0438	PMT	-	10.03	0.01	Service 14280	
162	0x00A2	H.264 Video	\$ 6255.24	9.18	C+ WEEKEND HD	501	0x01F5	Teletext	-	37.59	0.06	CANAL+ FILM HD	17	0x0011	SDT	-	10.03	0.01	N/A	
163	0x00A3	H.264 Video	\$ 5582.34	8.19	MINIMINI+ HD	2110	0x083E	ECM/EMM	-	22.57	0.03	CANAL+ 3D test	16	0x0010	NIT	-	10.03	0.01	N/A	
164	0x00A4	H.264 Video	\$ 4928.63	7.23	teleTOON+ HD	2109	0x083D	ECM/EMM	-	22.57	0.03	ALE KINO+ HD	1	0x0001	CAT	-	10.03	0.01	N/A	
168	0x00A8	H.264 Video	\$ 4071.44	5.97	ALE KINO+ HD	2108	0x083C	ECM/EMM	-	22.57	0.03	DOMO+ HD	1010	0x03F2	PMT	-	10.01	0.01	CANAL+ 3D test	
160	0x00A0	H.264 Video	\$ 3975.70	5.83	CANAL+ FILM HD	2107	0x083B	ECM/EMM	-	22.57	0.03	KUCHNIA+ HD	1009	0x03F1	PMT	-	10.01	0.01	ALE KINO+ HD	
169	0x00A9	H.264 Video	\$ 3520.78	5.16	CANAL+ 3D test	2106	0x083A	ECM/EMM	-	22.57	0.03	PLANETE+ HD	1008	0x03F0	PMT	-	10.01	0.01	DOMO+ HD	
88	0x0058	AC3 Audio	\$ 394.90	0.58	C+ WEEKEND HD	2105	0x0839	ECM/EMM	-	22.57	0.03	teleTOON+ HD	1007	0x03EF	PMT	-	10.01	0.01	KUCHNIA+ HD	
113	0x0071	AC3 Audio	\$ 394.89	0.58	ALE KINO+ HD	2104	0x0838	ECM/EMM	-	22.57	0.03	MINIMINI+ HD	1006	0x03EE	PMT	-	10.01	0.01	PLANETE+ HD	
84	0x0054	AC3 Audio	\$ 394.89	0.58	CANAL+ GOL HD	2103	0x0837	ECM/EMM	-	22.57	0.03	C+ WEEKEND HD	1005	0x03ED	PMT	-	10.01	0.01	teleTOON+ HD	
81	0x0051	AC3 Audio	\$ 394.89	0.58	CANAL+ FILM HD	2102	0x0836	ECM/EMM	-	22.57	0.03	CANAL+ GOL HD	1004	0x03EC	PMT	-	10.01	0.01	MINIMINI+ HD	
8191	0x1FFF	Null Packets	-	370.46	0.54	N/A	2101	0x0835	ECM/EMM	-	22.57	0.03	CANAL+ FILM HD	1003	0x03EB	PMT	-	10.01	0.01	C+ WEEKEND HD
104	0x0068	AC3 Audio	\$ 263.27	0.39	KUCHNIA+ HD	1039	0x040F	PMT	-	22.57	0.03	ALE KINO+ HD	1002	0x03EA	PMT	-	10.01	0.01	CANAL+ GOL HD	
100	0x0064	AC3 Audio	\$ 263.27	0.39	PLANETE+ HD	1038	0x040E	PMT	-	22.57	0.03	DOMO+ HD	1001	0x03E9	PMT	-	10.01	0.01	CANAL+ FILM HD	
116	0x0074	AC3 Audio	\$ 263.26	0.39	CANAL+ 3D test	1037	0x040D	PMT	-	22.57	0.03	KUCHNIA+ HD	184	0x00B8	ECM/EMM	-	8.28	0.01	N/A	
112	0x0070	AC3 Audio	\$ 263.26	0.39	ALE KINO+ HD	1036	0x040C	PMT	-	22.57	0.03	PLANETE+ HD	721	0x02D1	DVB Subtitles	-	7.60	0.01	CANAL+ FILM HD	
108	0x006C	AC3 Audio	\$ 263.26	0.39	DOMO+ HD	1035	0x040B	PMT	-	22.57	0.03	teleTOON+ HD	729	0x02D9	DVB Subtitles	-	3.69	0.01	ALE KINO+ HD	
80	0x0050	AC3 Audio	\$ 263.26	0.39	CANAL+ FILM HD	1034	0x040A	PMT	-	22.57	0.03	MINIMINI+ HD	20	0x0014	TOT	-	0.38	0.00	N/A	

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28.2°E

ASTRA

DVB-S2

28.2°E

Network Name

ASTRA

Recording

TELE-satellite

Transmitter

ASTRA 12.460H

Remark

3D

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	642	0x0282	MPEG Audio	\$	196.76	0.46	Sky 3D	257	0x0101	PMT	-	21.44	0.05	Sky 3D	
513	0x0201	H.264 Video	\$ 17747.89	41.10	Sky Arts 1 HD	52	0x0034	?	-	189.54	0.44	N/A	1033	0x0409	Private Sections	-	17.99	0.04	N/A	
514	0x0202	H.264 Video	\$ 12610.29	29.20	Sky 3D	2305	0x0901	Private Sections	-	167.34	0.39	N/A	1030	0x0406	Private Sections	-	17.77	0.04	N/A	
512	0x0200	H.264 Video	\$ 8502.03	19.69	Sky News HD	89	0x0059	?	-	89.63	0.21	N/A	1283	0x0503	ECM/EMM	-	15.09	0.03	Sky 3D	
3080	0x0C08	Private Sections	-	724.90	1.68	N/A	85	0x0055	?	-	59.01	0.14	N/A	1282	0x0502	ECM/EMM	-	15.09	0.03	Sky Arts 1 HD
3081	0x0C09	Private Sections	-	500.09	1.16	N/A	259	0x0103	PMT	-	42.98	0.10	Sky Arts 1 HD	1280	0x0500	ECM/EMM	-	15.09	0.03	Sky News HD
661	0x0295	AC3 Audio	\$ 393.51	0.91	Sky Arts 1 HD	258	0x0102	PMT	-	42.98	0.10	Sky News HD	1032	0x0408	Private Sections	-	10.94	0.03	N/A	
660	0x0294	AC3 Audio	\$ 393.51	0.91	Sky News HD	2308	0x0904	Teletext	-	37.57	0.09	Sky News HD	80	0x0050	?	-	7.22	0.02	N/A	
662	0x0296	AC3 Audio	\$ 393.46	0.91	Sky 3D	18	0x0012	EIT	-	27.23	0.06	N/A	1	0x0001	CAT	-	1.53	0.00	N/A	
192	0x00C0	ECM/EMM	-	311.92	0.72	N/A	1034	0x040A	Private Sections	-	24.99	0.06	N/A	16	0x0010	NIT	-	1.42	0.00	N/A
96	0x0060	?	-	286.93	0.66	N/A	261	0x0105	PMT	-	21.49	0.05	Sky 3D	20	0x0014	TOT	-	0.11	0.00	N/A
17	0x0011	SDT	-	269.98	0.63	N/A	0	0x0000	PAT	-	21.49	0.05	N/A							

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#

43°E

TURKSAT

DVB-S2

43°E

Network Name

TURKSAT

Recording

Thomas Haring

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	TURKSAT 12.015H	Remark	3D red/cyan
8191	0x1FFF	Null Packets	-	25053.62	59.27	N/A	210 0x00D2 SSU	- 248.64 0.59	SUNNY DATA	1 0x0001 CAT - 15.07 0.04 N/A
145	0x0091	MPEG2 Video	-	4123.12	9.75	TMB TV	277 0x0115 SSU	- 224.13 0.53	EAST BEAM S&W UPDATE	0 0x0000 PAT - 15.07 0.04 N/A
135	0x0087	MPEG2 Video	-	3639.89	8.61	BENGUTURK TV	136 0x0088 MPEG Audio	- 209.06 0.49	BENGUTURK TV	777 0x0309 PMT - 15.03 0.04 SUNNY DATA
175	0x00AF	MPEG2 Video	-	2871.66	6.79	3D TEST	116 0x0074 MPEG Audio	- 198.75 0.47	TURKSAT TANITIM	290 0x0122 PMT - 15.03 0.04 ICT OAD 1
155	0x009B	MPEG2 Video	-	2677.05	6.33	KARADENIZTURK	297 0x0129 SSU	- 130.94 0.31	ICT OAD 1	280 0x0118 PMT - 15.03 0.04 SKYTECH DATA
115	0x0073	MPEG2 Video	-	1464.90	3.47	TURKSAT TANITIM	287 0x011F Private PES	- 128.10 0.30	SKYTECH DATA	270 0x010E PMT - 15.03 0.04 EAST BEAM S&W UPDATE
118	0x0076	Teletext	-	301.28	0.71	TURKSAT TANITIM	18 0x0012 EIT	- 30.15 0.07	N/A	150 0x0096 PMT - 15.03 0.04 KARADENIZTURK
176	0x00B0	MPEG Audio	-	263.38	0.62	3D TEST	170 0x00AA PMT	- 15.07 0.04	3D TEST	110 0x006E PMT - 15.03 0.04 TURKSAT TANITIM
156	0x009C	MPEG Audio	-	262.56	0.62	KARADENIZTURK	140 0x008C PMT	- 15.07 0.04	TMB TV	17 0x0011 SDT - 3.08 0.01 N/A
146	0x0092	MPEG Audio	-	262.51	0.62	TMB TV	130 0x0082 PMT	- 15.07 0.04	BENGUTURK TV	16 0x0010 NIT - 0.34 0.00 N/A
							120 0x0078 PMT	- 15.07 0.04	BASKENTAB TV	20 0x0014 TOT - 0.05 0.00 N/A

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288°E (72°W)

AMC 6

DVB-S2

288°E

Network Name

Arsat

Recording

Juan Carlos Duarte

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	AMC 6 12.020V	Remark	Mobile TV
8191	0x1FFF	Null Packets	-	15195.79	20.87	N/A	289 0x0121 AAC Audio	- 69.76 0.10	Tecnopolis	66 0x0042 PMT - 24.31 0.03 Video Exito
1296	0x0510	H.264 Video	\$	9519.19	13.07	TV Pública	353 0x0161 AAC Audio	\$ 69.55 0.10	Gol TV	65 0x0041 PMT - 24.31 0.03 G360
400	0x0180	H.264 Video	-	3306.41	4.54	Incaa TV	305 0x0131 AAC Audio	- 69.35 0.10	Encuentro	64 0x0040 PMT - 24.31 0.03 Suni TV
368	0x0170	H.264 Video	-	3306.41	4.54	Paka Paka	321 0x0141 AAC Audio	\$ 69.28 0.10	C5N	63 0x003F PMT - 24.31 0.03 Gol TV Móvil
352	0x0160	H.264 Video	\$	3306.41	4.54	Gol TV	273 0x0111 AAC Audio	\$ 69.15 0.09	CN 23	62 0x003E PMT - 24.31 0.03 TV Pública Móvil
304	0x0130	H.264 Video	-	3306.41	4.54	Encuentro	369 0x0171 AAC Audio	- 68.95 0.09	Paka Paka	61 0x003D PMT - 24.31 0.03 Encuentro Móvil
288	0x0120	H.264 Video	-	3306.41	4.54	Tecnopolis	385 0x0181 AAC Audio	\$ 68.81 0.09	TaTeTi	50 0x0032 PMT - 24.31 0.03 Radio 911
384	0x0180	H.264 Video	\$	3306.34	4.54	TaTeTi	1297 0x0511 AAC Audio	\$ 68.61 0.09	TV Pública	47 0x002F PMT - 24.31 0.03 Radio 921
416	0x01A0	H.264 Video	\$	2805.68	3.85	Vivra	387 0x0183 AAC Audio	\$ 40.25 0.06	Radio Nacional	46 0x002E PMT - 24.31 0.03 Radio 910
448	0x01C0	H.264 Video	\$	2805.48	3.85	Video Exito	355 0x0163 AAC Audio	\$ 40.11 0.06	Radio 961	44 0x002C PMT - 24.31 0.03 Radio 991
464	0x01D0	H.264 Video	\$	2654.89	3.65	G360	339 0x0153 AAC Audio	\$ 40.04 0.05	Radio 951	42 0x002A PMT - 24.31 0.03 Radio Nacional
496	0x01F0	H.264 Video	\$	2654.82	3.65	Construir	307 0x0133 AAC Audio	\$ 40.04 0.05	Radio 931	41 0x0029 PMT - 24.31 0.03 Telesur
320	0x0140	H.264 Video	\$	2654.76	3.65	C5N	51 0x0033 AAC Audio	\$ 36.74 0.05	Radio 911	39 0x0027 PMT - 24.31 0.03 Radio 971
272	0x0110	H.264 Video	\$	2654.76	3.65	CN 23	433 0x01B1 AAC Audio	\$ 35.59 0.05	Suri TV	38 0x0026 PMT - 24.31 0.03 CN 23 Móvil
43	0x002B	H.264 Video	\$	2654.62	3.65	Telesur	465 0x01D1 AAC Audio	\$ 35.52 0.05	G360	37 0x0025 PMT - 24.31 0.03 Radio 961
432	0x01B0	H.264 Video	\$	2103.79	2.89	Suri TV	481 0x01E1 AAC Audio	- 35.39 0.05	Turismo	36 0x0024 PMT - 24.31 0.03 Radio 951
480	0x01E0	H.264 Video	-	2103.72	2.89	Turismo	449 0x01C1 AAC Audio	\$ 35.39 0.05	Video Exito	33 0x0021 PMT - 24.31 0.03 Radio 941
70	0x0046	H.264 Video	-	293.61	0.40	Encuentro Móvil	403 0x0193 AAC Audio	\$ 35.32 0.05	Radio 991	17 0x0011 SDT - 11.07 0.02 N/A
49	0x0031	H.264 Video	\$	293.34	0.40	CN 23 Móvil	401 0x0191 AAC Audio	- 35.32 0.05	Incaa TV	1329 0x0531 ECM/EMM - 5.06 0.01 Video Exito
74	0x004A	H.264 Video	\$	293.28	0.40	Gol TV Móvil	371 0x0173 AAC Audio	\$ 35.32 0.05	Radio 971	1313 0x0521 ECM/EMM - 5.06 0.01 CN 23 Móvil
72	0x0048	H.264 Video	-	293.07	0.40	TV Pública Móvil	323 0x0143 AAC Audio	\$ 35.32 0.05	Radio 941	1409 0x0581 ECM/EMM - 5.00 0.01 TV Pública
18	0x0012	EIT	-	253.84	0.35	N/A	75 0x004B AAC Audio	\$ 35.32 0.05	Gol TV Móvil	1376 0x0560 ECM/EMM - 5.00 0.01 Radio 910
236	0x00EC	PCR	-	100.21	0.14	_Service 4094	73 0x0049 AAC Audio	- 35.32 0.05	TV Pública Móvil	1369 0x0559 ECM/EMM - 5.00 0.01 Radio 991
235	0x00EB	PCR	-	100.21	0.14	_Service 4093	71 0x0047 AAC Audio	- 35.32 0.05	Encuentro Móvil	1368 0x0558 ECM/EMM - 5.00 0.01 Radio Nacional
417	0x01A1	AAC Audio	\$	72.26	0.10	Construir	48 0x0030 AAC Audio	\$ 35.32 0.05	Radio 921	1367 0x0557 ECM/EMM - 5.00 0.01 Radio 971
497	0x01F1	AAC Audio	\$	71.72	0.10	Telesur	35 0x0023 AAC Audio	\$ 35.32 0.05	CN 23 Móvil	1366 0x0556 ECM/EMM - 5.00 0.01 Radio 961
45	0x002D	AAC Audio	\$	71.24	0.10	Turismo	32 0x0020 AAC Audio	\$ 35.32 0.05	Radio 910	1365 0x0555 ECM/EMM - 5.00 0.01 Radio 951
482	0x01E2	AAC Audio	-	70.70	0.10	G360	1 0x0001 CAT	- 25.12 0.03	N/A	1364 0x0554 ECM/EMM - 5.00 0.01 Radio 941
466	0x01D2	AAC Audio	\$	70.57	0.10	Suri TV	0 0x0000 PAT	- 25.05 0.03	N/A	1363 0x0553 ECM/EMM - 5.00 0.01 Radio 931
434	0x01B2	AAC Audio	\$	70.57	0.10	Incaa TV	4094 0x00FF PMT	- 24.31 0.03	_Service 4094	1362 0x0552 ECM/EMM - 5.00 0.01 Radio 921
58	0x003A	AAC Audio	-	70.57	0.10	Gol TV	4093 0x00FF PMT	- 24.31 0.03	_Service 4093	1361 0x0551 ECM/EMM - 5.00 0.01 Radio 911
55	0x0037	AAC Audio	\$	70.57	0.10	Paka Paka	2362 0x093A PMT	- 24.31 0.03	Radio 931	1332 0x0534 ECM/EMM - 5.00 0.01 Construir
56	0x0038	AAC Audio	-	70.50	0.10	Tecnopolis	1306 0x051A PMT	- 24.31 0.03	TV Pública	1330 0x0532 ECM/EMM - 5.00 0.01 G360
34	0x0022	AAC Audio	-	70.50	0.10	Video Exito	426 0x01AA PMT	- 24.31 0.03	Vivra	1328 0x0530 ECM/EMM - 5.00 0.01 Suri TV
450	0x01C2	AAC Audio	\$	70.36	0.10	Vivra	410 0x019A PMT	- 24.31 0.03	Incaa TV	1314 0x0522 ECM/EMM - 5.00 0.01 Gol TV Móvil
59	0x003B	AAC Audio	\$	70.30	0.10	C5N	394 0x018A PMT	- 24.31 0.03	TaTeTi	1298 0x0512 ECM/EMM - 5.00 0.01 Vivra
53	0x0035	AAC Audio	\$	70.30	0.10	CN 23	378 0x017A PMT	- 24.31 0.03	Paka Paka	1288 0x0508 ECM/EMM - 5.00 0.01 TaTeTi
52	0x0034	AAC Audio	\$	70.30	0.10	Encuentro	362 0x016A PMT	- 24.31 0.03	Gol TV	1286 0x0506 ECM/EMM - 5.00 0.01 Gol TV
40	0x0028	AAC Audio	-	70.30	0.10	Telesur	330 0x014A PMT	- 24.31 0.03	C5N	1285 0x0505 ECM/EMM - 5.00 0.01 Telesur
54	0x0036	AAC Audio	\$	70.16	0.10	TV Pública	314 0x013A PMT	- 24.31 0.03	Encuentro	1284 0x0504 ECM/EMM - 5.00 0.01 C5N
60	0x003C	AAC Audio	\$	70.09	0.10	TaTeTi	298 0x012A PMT	- 24.31 0.03	Tecnopolis	1281 0x0501 ECM/EMM - 5.00 0.01 CN 23
57	0x0039	AAC Audio	\$	69.96	0.10	Construir	282 0x011A PMT	- 24.31 0.03	CN 23	16 0x0010 NIT - 3.98 0.01 N/A
498	0x01F2	AAC Audio	\$	69.82	0.10		69 0x0045 PMT	- 24.31 0.03	Turismo	1537 0x0601 ECM/EMM - 1.69 0.00 N/A
							67 0x0043 PMT	- 24.31 0.03	Construir	20 0x0014 TOT - 1.55 0.00 N/A

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299°E

AMAZONAS

DVB-S2

299°E

Network Name

AMZ-2

Recording

Juan Carlos Duarte

Transmitter

AMAZONAS 10.728V

Remark

HD

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name	18	0x0012	EIT	-	248.16	0.43	N/A	4011	0x0FAB	ECM/EMM	-	15.09	0.03	TNT HD
2024	0x07E8	H.264 Video	\$	6751.80	11.60	A&E HD	286	0x011E	ECM/EMM	-	199.63	0.34	N/A	4010	0x0FAA	ECM/EMM	-	15.09	0.03	TNT HD
2019	0x07E3	H.264 Video	\$	6477.40	11.13	MAX HD	3022	0x0BCE	MPEG Audio	\$	198.74	0.34	Cinema Golden HD	1022	0x03FE	PMT	-	15.09	0.03	Space HD
2021	0x07E5	H.264 Video	\$	6434.07	11.06	Sony HD	288	0x0120	ECM/EMM	-	157.34	0.27	N/A	1006	0x03EE	PMT	-	15.09	0.03	History Channel HD
2025	0x07E9	H.264 Video	\$	5812.80	9.99	Space HD	17	0x0011	SDT	-	148.79	0.26	N/A	1005	0x03ED	PMT	-	15.09	0.03	Cinema Golden HD
2627	0x0A43	H.264 Video	\$	5649.14	9.71	AXN HD	16	0x0010	NIT	-	20.59	0.04	N/A	1003	0x03EB	PMT	-	15.09	0.03	TNT HD
2624	0x0A40	H.264 Video	\$	5649.07	9.71	Warner Channel HD	4658	0x1232	ECM/EMM	-	15.09	0.03	AXN HD	4068	0x0FE4	ECM/EMM	-	15.01	0.03	MAX HD
2020	0x07E4	H.264 Video	\$	5509.12	9.47	TNT HD	4657	0x1231	ECM/EMM	-	15.09	0.03	AXN HD	4067	0x0FE3	ECM/EMM	-	15.01	0.03	MAX HD
2022	0x07E6	H.264 Video	\$	4541.13	7.80	Cinema Golden HD	4623	0x120F	ECM/EMM	-	15.09	0.03	Warner Channel HD	1627	0x065B	PMT	-	15.01	0.03	AXN HD
2023	0x07E7	H.264 Video	\$	4018.42	6.91	History Channel HD	4622	0x120E	ECM/EMM	-	15.09	0.03	Warner Channel HD	1624	0x0658	PMT	-	15.01	0.03	Warner Channel HD
8191	0x1FFF	Null Packets	-	1976.25	3.40	N/A	4032	0x0FC0	ECM/EMM	-	15.09	0.03	Space HD	1007	0x03EF	PMT	-	15.01	0.03	A&E HD
287	0x011F	ECM/EMM	-	557.72	0.96	N/A	4030	0x0FBE	ECM/EMM	-	15.09	0.03	Space HD	1004	0x03EC	PMT	-	15.01	0.03	Sony HD
3640	0x0E38	AC3 Audio	\$	423.86	0.73	AXN HD	4028	0x0FBC	ECM/EMM	-	15.09	0.03	A&E HD	1002	0x03EA	PMT	-	15.01	0.03	MAX HD
3618	0x0E22	AC3 Audio	\$	423.86	0.73	Warner Channel HD	4026	0x0FBA	ECM/EMM	-	15.09	0.03	A&E HD	0	0x0000	PAT	-	15.01	0.03	N/A
3025	0x0BD1	AC3 Audio	\$	423.86	0.73	Space HD	4024	0x0FB8	ECM/EMM	-	15.09	0.03	History Channel HD	1	0x0001	CAT	-	14.86	0.03	N/A
3024	0x0BD0	AC3 Audio	\$	423.86	0.73	A&E HD	4022	0x0FB6	ECM/EMM	-	15.09	0.03	History Channel HD	292	0x0124	ECM/EMM	-	1.04	0.00	N/A
3023	0x0BCF	AC3 Audio	\$	423.86	0.73	History Channel HD	4020	0x0FB4	ECM/EMM	-	15.09	0.03	Cinema Golden HD	291	0x0123	ECM/EMM	-	1.04	0.00	N/A
3020	0x0BCC	AC3 Audio	\$	423.86	0.73	TNT HD	4016	0x0FB0	ECM/EMM	-	15.09	0.03	Cinema Golden HD	290	0x0122	ECM/EMM	-	1.04	0.00	N/A
3021	0x0BCD	AC3 Audio	\$	423.79	0.73	Sony HD	4014	0x0FAE	ECM/EMM	-	15.09	0.03	Sony HD	289	0x0121	ECM/EMM	-	1.04	0.00	N/A
3019	0x0BCB	AC3 Audio	\$	423.79	0.73	MAX HD	4012	0x0FAC	ECM/EMM	-	15.09	0.03	Sony HD	20	0x0014	TOT	-	1.04	0.00	N/A

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DVB-S2

299°E

Network Name

AMZ-2

Recording

Juan Carlos Duarte

Transmitter

AMAZONAS 10.808H

Remark

HD

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name	18	0x0012	EIT	-	247.13	0.43	N/A	1757	0x06DD	PMT	-	15.09	0.03	Movie City HD
7324	0x1C9C	H.264 Video	\$	5643.15	9.71	Nat Geo Wild HD	286	0x011E	ECM/EMM	-	206.16	0.35	N/A	1755	0x06DB	PMT	-	15.09	0.03	MTV LIVE HD
2761	0x0AC9	H.264 Video	\$	5643.15	9.71	RCN HD	3761	0x0EB1	MPEG Audio	\$	198.70	0.34	RCN HD	1753	0x06D9	PMT	-	15.09	0.03	Fox - Nat Geo HD
2753	0x0AC1	H.264 Video	\$	5643.15	9.71	Fox - Nat Geo HD	17	0x0011	SDT	-	148.77	0.26	N/A	1752	0x06D8	PMT	-	15.09	0.03	Discovery Theater HD
2752	0x0AC0	H.264 Video	\$	5643.15	9.71	Discovery Theater HD	288	0x0120	ECM/EMM	-	127.54	0.22	N/A	1751	0x06D7	PMT	-	15.09	0.03	Rush HD
2751	0x0ABF	H.264 Video	\$	5643.15	9.71	Rush HD	16	0x0010	NIT	-	20.23	0.03	N/A	1241	0x04D9	PMT	-	15.09	0.03	UNIVERSAL CHANNEL HD
2759	0x0AC7	H.264 Video	\$	5642.99	9.71	Fox Sports HD	7304	0x1C88	PMT	-	15.09	0.03	Nat Geo Wild HD	0	0x0000	PAT	-	15.09	0.03	N/A
2755	0x0AC3	H.264 Video	\$	5642.99	9.71	MTV LIVE HD	4759	0x1297	ECM/EMM	-	15.09	0.03	Fox Sports HD	4761	0x1299	ECM/EMM	-	14.93	0.03	RCN HD
2241	0x08C1	H.264 Video	\$	5642.99	9.71	UNIVERSAL CHANNEL HD	4757	0x1295	ECM/EMM	-	15.09	0.03	Movie City HD	4758	0x1296	ECM/EMM	-	14.93	0.03	Nat Geo Wild HD
2757	0x0AC5	H.264 Video	\$	5639.17	9.70	Movie City HD	4753	0x1291	ECM/EMM	-	15.09	0.03	Fox - Nat Geo HD	4755	0x1293	ECM/EMM	-	14.93	0.03	MTV LIVE HD
8191	0x1FFF	Null Packets	-	1987.31	3.42	N/A	4752	0x1290	ECM/EMM	-	15.09	0.03	Discovery Theater HD	4751	0x128F	ECM/EMM	-	14.93	0.03	Rush HD
287	0x011F	ECM/EMM	-	507.86	0.87	N/A	4691	0x1253	ECM/EMM	-	15.09	0.03	Fox Sports HD	4692	0x1254	ECM/EMM	-	14.93	0.03	RCN HD
3753	0x0EA9	AC3 Audio	\$	470.54	0.81	Fox - Nat Geo HD	4689	0x1251	ECM/EMM	-	15.09	0.03	Movie City HD	4690	0x1252	ECM/EMM	-	14.93	0.03	Nat Geo Wild HD
3241	0x0CA9	AC3 Audio	\$	470.37	0.81	UNIVERSAL CHANNEL HD	4688	0x1250	ECM/EMM	-	15.09	0.03	MTV LIVE HD	4686	0x124E	ECM/EMM	-	14.93	0.03	Discovery Theater HD
7344	0x1CB0	AC3 Audio	\$	423.44	0.73	Nat Geo Wild HD	4687	0x124F	ECM/EMM	-	15.09	0.03	Fox - Nat Geo HD	1	0x0001	CAT	-	14.76	0.03	N/A
3757	0x0EAD	AC3 Audio	\$	423.44	0.73	Movie City HD	4685	0x124D	ECM/EMM	-	15.09	0.03	Rush HD	292	0x0124	ECM/EMM	-	1.00	0.00	N/A
3755	0x0EAB	AC3 Audio	\$	423.44	0.73	MTV LIVE HD	4345	0x10F9	ECM/EMM	-	15.09	0.03	UNIVERSAL CHANNEL HD	291	0x0123	ECM/EMM	-	1.00	0.00	N/A
3752	0x0EA8	AC3 Audio	\$	423.44	0.73	Discovery Theater HD	4343	0x10F7	ECM/EMM	-	15.09	0.03	UNIVERSAL CHANNEL HD	290	0x0122	ECM/EMM	-	1.00	0.00	N/A
3751	0x0EA7	AC3 Audio	\$	423.27	0.73	Rush HD	1761	0x06E1	PMT	-	15.09	0.03	RCN HD	289	0x0121	ECM/EMM	-	1.00	0.00	N/A
3759	0x0EAF	MPEG Audio	\$	394.24	0.68	Fox Sports HD	1759	0x06DF	PMT	-	15.09	0.03	Fox Sports HD	20	0x0014	TOT	-	1.00	0.00	N/A

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330°E (30°W)

HISPASAT

DVB-S2

330°E

Network Name

IVG Default Network

Recording

Juan Carlos Duarte

Transmitter

HISPASAT 11.910V

Remark

H.264

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name	103	0x0067	MPEG Audio	\$	100.28	0.78	Eventos2	7504	0x1D50	ECM/EMM	-	5.08	0.04	Canal 4
102	0x0066	H.264 Video	\$	2089.27	16.30	Eventos2	1308	0x051C	PCR	-	42.98	0.34	N/A	7503	0x1D4F	ECM/EMM	-	5.08	0.04	Canal 4
904	0x0388	H.264 Video	\$	1417.45	11.06	Rut	1305	0x0519	PCR	-	42.98	0.34	N/A	508	0x01FC	PMT	-	5.02	0.04	CX20
901	0x0385	H.264 Video	\$	1417.38	11.06	Canal 12	1301	0x0515	PCR	-	42.98	0.34	N/A	504	0x01F8	PMT	-	5.02	0.04	Canal 5
1309	0x051D	H.264 Video	\$	1373.95	10.72	Eventos	907	0x038B	PCR	-	42.98	0.34	N/A	500	0x01F4	PMT	-	5.02	0.04	Canal 4
506	0x01FA	H.264 Video	-	1373.90	10.72	Canal 5	509	0x01FD	PCR	-	42.98	0.34	N/A	1307	0x051B	PMT	-	5.01	0.04	Eventos
502	0x01F6	H.264 Video	\$	1373.88	10.72	Canal 4	505	0x01F9	PCR	-	42.98	0.34	N/A	1304	0x0518	PMT	-	5.01	0.04	Zoe
1302	0x0516	H.264 Video	-	1373.86	10.72	TVCiudad	501	0x01F5	PCR	-	42.98	0.34	N/A	1300	0x0514	PMT	-	5.01	0.04	TVCiudad
8191	0x1FFF	Null Packets	-	798.61	6.23	N/A	101	0x0065	PCR	-	42.98	0.34	N/A	906	0x038A	PMT	-	5.01	0.04	Radio_Cero
908	0x038C	MPEG Audio	-	100.30	0.78	Radio_Cero	18	0x0012	EIT	-	30.08	0.23	N/A	903	0x0387	PMT	-	5.01	0.04	Rut
1310	0x051E	MPEG Audio	\$	100.29	0.78	Eventos	17	0x0011	SDT	-	6.02	0.05	N/A	900	0x0384	PMT	-	5.01	0.04	Canal 12
1306	0x051A	MPEG Audio	-	100.29	0.78	Zoe	7510	0x1D56	ECM/EMM	-	5.09	0.04	Eventos2	100	0x0064	PMT	-	5.01	0.04	Eventos2
1303	0x0517	MPEG Audio	-	100.29	0.78	TVCiudad	7509	0x1D55	ECM/EMM	-	5.09	0.04	Eventos2	0	0x0000	PAT	-	5.01	0.04	N/A
909	0x038D	MPEG Audio	-	100.29	0.78	Radio_Cero	7502	0x1D4E	ECM/EMM	-	5.09	0.04	Eventos	7903	0x1EDF	ECM/EMM	-	4.83	0.04	N/A
905	0x0389	MPEG Audio	\$	100.29	0.78	Rut	7500	0x1D4C	ECM/EMM	-	5.09	0.04	Eventos	16	0x0010	NIT	-	3.01	0.02	N/A
902	0x0386	MPEG Audio	\$	100.29	0.78	Canal 12	7508	0x1D54	ECM/EMM	-	5.08	0.04	Rut	1	0x0001	CAT	-	3.01	0.02	N/A
510	0x01FE	MPEG Audio	-	100.29	0.78	CX20	7507	0x1D53	ECM/EMM	-	5.08	0.04	Rut	7902	0x1EDE	ECM/EMM	-	0.14	0.00	N/A
507	0x01FB	MPEG Audio	-	100.28	0.78	Canal 5	7506	0x1D52	ECM/EMM	-	5.08	0.04	Canal 12	20	0x0014	TOT	-	0.10	0.00	N/A
503	0x01F7	MPEG Audio	\$	100.28	0.78	Canal 4	7505	0x1D51	ECM/EMM	-	5.08	0.04	Canal 12							

359°E

THOR 5

DVB-S2

359°E

Network Name

Telenor

Recording

Thomas Haring

Transmitter

THOR 5 11.785H

Remark

3D tests encrypted

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	610	0x0262	DVB Subtitles	-	15.49	0.02	Nat Geo HD	75	0x004B	ECM/EMM	-	15.12	0.02	Nat Geo Wild HD	
516 <td>0x0204<td>H.264 Video<td>\$<td>13846.91<td>20.65</td><td>TV 2 3D<td>612<td>0x0264<td>DVB Subtitles<td>-<td>15.24<td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0204 <td>H.264 Video<td>\$<td>13846.91<td>20.65</td><td>TV 2 3D<td>612<td>0x0264<td>DVB Subtitles<td>-<td>15.24<td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	H.264 Video <td>\$<td>13846.91<td>20.65</td><td>TV 2 3D<td>612<td>0x0264<td>DVB Subtitles<td>-<td>15.24<td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>13846.91<td>20.65</td><td>TV 2 3D<td>612<td>0x0264<td>DVB Subtitles<td>-<td>15.24<td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	13846.91 <td>20.65</td> <td>TV 2 3D<td>612<td>0x0264<td>DVB Subtitles<td>-<td>15.24<td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	20.65	TV 2 3D <td>612<td>0x0264<td>DVB Subtitles<td>-<td>15.24<td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td></td></td></td></td></td>	612 <td>0x0264<td>DVB Subtitles<td>-<td>15.24<td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td></td></td></td></td>	0x0264 <td>DVB Subtitles<td>-<td>15.24<td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td></td></td></td>	DVB Subtitles <td>-<td>15.24<td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td></td></td>	- <td>15.24<td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td></td>	15.24 <td>0.02<th>Nat Geo HD</th><td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td></td>	0.02 <th>Nat Geo HD</th> <td>261<td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td></td>	Nat Geo HD	261 <td>0x0105<td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td></td>	0x0105 <td>PMT<td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td></td>	PMT <td>-<td>14.99<td>0.02<td>TV 2 3D</td></td></td></td>	- <td>14.99<td>0.02<td>TV 2 3D</td></td></td>	14.99 <td>0.02<td>TV 2 3D</td></td>	0.02 <td>TV 2 3D</td>	TV 2 3D
515 <td>0x0203<td>H.264 Video<td>\$<td>12305.98<td>18.35</td><td>ESPN America HD<td>272<td>0x0110<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0203 <td>H.264 Video<td>\$<td>12305.98<td>18.35</td><td>ESPN America HD<td>272<td>0x0110<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	H.264 Video <td>\$<td>12305.98<td>18.35</td><td>ESPN America HD<td>272<td>0x0110<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>12305.98<td>18.35</td><td>ESPN America HD<td>272<td>0x0110<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	12305.98 <td>18.35</td> <td>ESPN America HD<td>272<td>0x0110<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	18.35	ESPN America HD <td>272<td>0x0110<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	272 <td>0x0110<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0110 <td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td>	PMT <td>-<td>15.12<td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td>	0.02 <td>MTV Live HD<td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td>	MTV Live HD <td>184<td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td>	184 <td>0x00B8<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td>	0x00B8 <td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td>	ECM/EMM <td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td>	- <td>14.99<td>0.02<td>Nat Geo HD</td></td></td>	14.99 <td>0.02<td>Nat Geo HD</td></td>	0.02 <td>Nat Geo HD</td>	Nat Geo HD
512 <td>0x0200<td>H.264 Video<td>\$<td>12038.82<td>17.95</td><td>Nat Geo HD<td>271<td>0x010F<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0200 <td>H.264 Video<td>\$<td>12038.82<td>17.95</td><td>Nat Geo HD<td>271<td>0x010F<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	H.264 Video <td>\$<td>12038.82<td>17.95</td><td>Nat Geo HD<td>271<td>0x010F<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>12038.82<td>17.95</td><td>Nat Geo HD<td>271<td>0x010F<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	12038.82 <td>17.95</td> <td>Nat Geo HD<td>271<td>0x010F<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	17.95	Nat Geo HD <td>271<td>0x010F<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	271 <td>0x010F<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x010F <td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td>	PMT <td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td>	0.02 <td>Nat Geo Wild HD<td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td>	Nat Geo Wild HD <td>174<td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td>	174 <td>0x00AE<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td>	0x00AE <td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td>	ECM/EMM <td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td>	- <td>14.99<td>0.02<td>Nat Geo HD</td></td></td>	14.99 <td>0.02<td>Nat Geo HD</td></td>	0.02 <td>Nat Geo HD</td>	Nat Geo HD
513 <td>0x0201<td>H.264 Video<td>\$<td>11995.69<td>17.89</td><td>Nat Geo Wild HD<td>270<td>0x010E<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0201 <td>H.264 Video<td>\$<td>11995.69<td>17.89</td><td>Nat Geo Wild HD<td>270<td>0x010E<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	H.264 Video <td>\$<td>11995.69<td>17.89</td><td>Nat Geo Wild HD<td>270<td>0x010E<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>11995.69<td>17.89</td><td>Nat Geo Wild HD<td>270<td>0x010E<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	11995.69 <td>17.89</td> <td>Nat Geo Wild HD<td>270<td>0x010E<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	17.89	Nat Geo Wild HD <td>270<td>0x010E<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	270 <td>0x010E<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x010E <td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td></td></td></td>	PMT <td>-<td>15.12<td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td></td>	0.02 <td>Nat Geo HD<td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td></td>	Nat Geo HD <td>102<td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td></td>	102 <td>0x0066<td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td></td>	0x0066 <td>ECM/EMM<td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td></td>	ECM/EMM <td>-<td>14.99<td>0.02<td>MTV Live HD</td></td></td></td>	- <td>14.99<td>0.02<td>MTV Live HD</td></td></td>	14.99 <td>0.02<td>MTV Live HD</td></td>	0.02 <td>MTV Live HD</td>	MTV Live HD
514 <td>0x0202<td>H.264 Video<td>\$<td>9947.94<td>14.83</td><td>MTV Live HD<td>260<td>0x0104<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0202 <td>H.264 Video<td>\$<td>9947.94<td>14.83</td><td>MTV Live HD<td>260<td>0x0104<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	H.264 Video <td>\$<td>9947.94<td>14.83</td><td>MTV Live HD<td>260<td>0x0104<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>9947.94<td>14.83</td><td>MTV Live HD<td>260<td>0x0104<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	9947.94 <td>14.83</td> <td>MTV Live HD<td>260<td>0x0104<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	14.83	MTV Live HD <td>260<td>0x0104<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	260 <td>0x0104<td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0104 <td>PMT<td>-<td>15.12<td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td>	PMT <td>-<td>15.12<td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td>	0.02 <td>MTV Live HD<td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td>	MTV Live HD <td>100<td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td>	100 <td>0x0064<td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td></td>	0x0064 <td>ECM/EMM<td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td></td>	ECM/EMM <td>-<td>14.99<td>0.02<td>Nat Geo HD</td></td></td></td>	- <td>14.99<td>0.02<td>Nat Geo HD</td></td></td>	14.99 <td>0.02<td>Nat Geo HD</td></td>	0.02 <td>Nat Geo HD</td>	Nat Geo HD
8191 <td>0x1FFF<td>Null Packets<td>-<td>3428.83<td>5.11<td>N/A<td>259<td>0x0103<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x1FFF <td>Null Packets<td>-<td>3428.83<td>5.11<td>N/A<td>259<td>0x0103<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	Null Packets <td>-<td>3428.83<td>5.11<td>N/A<td>259<td>0x0103<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	- <td>3428.83<td>5.11<td>N/A<td>259<td>0x0103<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	3428.83 <td>5.11<td>N/A<td>259<td>0x0103<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	5.11 <td>N/A<td>259<td>0x0103<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	N/A <td>259<td>0x0103<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	259 <td>0x0103<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0103 <td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td>	PMT <td>-<td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td>	0.02 <td>ESPN America HD<td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td>	ESPN America HD <td>1<td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td>	1 <td>0x0001<td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td>	0x0001 <td>CAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td>	CAT <td>-<td>14.99<td>0.02<td>N/A</td></td></td></td>	- <td>14.99<td>0.02<td>N/A</td></td></td>	14.99 <td>0.02<td>N/A</td></td>	0.02 <td>N/A</td>	N/A
641 <td>0x0281<td>AC3 Audio<td>\$<td>462.09<td>0.69<td>Nat Geo HD<td>258<td>0x0102<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0281 <td>AC3 Audio<td>\$<td>462.09<td>0.69<td>Nat Geo HD<td>258<td>0x0102<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	AC3 Audio <td>\$<td>462.09<td>0.69<td>Nat Geo HD<td>258<td>0x0102<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>462.09<td>0.69<td>Nat Geo HD<td>258<td>0x0102<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	462.09 <td>0.69<td>Nat Geo HD<td>258<td>0x0102<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0.69 <td>Nat Geo HD<td>258<td>0x0102<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	Nat Geo HD <td>258<td>0x0102<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	258 <td>0x0102<td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0102 <td>PMT<td>-<td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td>	PMT <td>-<td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td>	0.02 <td>ESPN America HD<td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td></td>	ESPN America HD <td>0<td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td></td>	0 <td>0x0000<td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td></td>	0x0000 <td>PAT<td>-<td>14.99<td>0.02<td>N/A</td></td></td></td></td>	PAT <td>-<td>14.99<td>0.02<td>N/A</td></td></td></td>	- <td>14.99<td>0.02<td>N/A</td></td></td>	14.99 <td>0.02<td>N/A</td></td>	0.02 <td>N/A</td>	N/A
48 <td>0x0030<td>ECM/EMM<td>-<td>413.14<td>0.62<td>N/A<td>257<td>0x0101<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0030 <td>ECM/EMM<td>-<td>413.14<td>0.62<td>N/A<td>257<td>0x0101<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	ECM/EMM <td>-<td>413.14<td>0.62<td>N/A<td>257<td>0x0101<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	- <td>413.14<td>0.62<td>N/A<td>257<td>0x0101<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	413.14 <td>0.62<td>N/A<td>257<td>0x0101<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0.62 <td>N/A<td>257<td>0x0101<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	N/A <td>257<td>0x0101<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	257 <td>0x0101<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0101 <td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td>	PMT <td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td></td>	0.02 <td>Nat Geo Wild HD<td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td></td>	Nat Geo Wild HD <td>611<td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td></td>	611 <td>0x0263<td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td></td>	0x0263 <td>DVB Subtitles<td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td></td>	DVB Subtitles <td>-<td>13.63<td>0.02<td>Nat Geo HD</td></td></td></td>	- <td>13.63<td>0.02<td>Nat Geo HD</td></td></td>	13.63 <td>0.02<td>Nat Geo HD</td></td>	0.02 <td>Nat Geo HD</td>	Nat Geo HD
18 <td>0x0012<td>EIT<td>-<td>401.25<td>0.60<td>N/A<td>256<td>0x0100<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0012 <td>EIT<td>-<td>401.25<td>0.60<td>N/A<td>256<td>0x0100<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	EIT <td>-<td>401.25<td>0.60<td>N/A<td>256<td>0x0100<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	- <td>401.25<td>0.60<td>N/A<td>256<td>0x0100<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	401.25 <td>0.60<td>N/A<td>256<td>0x0100<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0.60 <td>N/A<td>256<td>0x0100<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	N/A <td>256<td>0x0100<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	256 <td>0x0100<td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0100 <td>PMT<td>-<td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td>	PMT <td>-<td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td></td>	0.02 <td>Nat Geo HD<td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td></td>	Nat Geo HD <td>16<td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td></td>	16 <td>0x0010<td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td></td>	0x0010 <td>NIT<td>-<td>12.89<td>0.02<td>N/A</td></td></td></td></td>	NIT <td>-<td>12.89<td>0.02<td>N/A</td></td></td></td>	- <td>12.89<td>0.02<td>N/A</td></td></td>	12.89 <td>0.02<td>N/A</td></td>	0.02 <td>N/A</td>	N/A
657 <td>0x0291<td>AC3 Audio<td>-<td>400.75<td>0.60<td>TV 2 3D<td>104<td>0x0068<td>ECM/EMM<td>-<td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0291 <td>AC3 Audio<td>-<td>400.75<td>0.60<td>TV 2 3D<td>104<td>0x0068<td>ECM/EMM<td>-<td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	AC3 Audio <td>-<td>400.75<td>0.60<td>TV 2 3D<td>104<td>0x0068<td>ECM/EMM<td>-<td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	- <td>400.75<td>0.60<td>TV 2 3D<td>104<td>0x0068<td>ECM/EMM<td>-<td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	400.75 <td>0.60<td>TV 2 3D<td>104<td>0x0068<td>ECM/EMM<td>-<td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0.60 <td>TV 2 3D<td>104<td>0x0068<td>ECM/EMM<td>-<td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	TV 2 3D <td>104<td>0x0068<td>ECM/EMM<td>-<td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	104 <td>0x0068<td>ECM/EMM<td>-<td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0068 <td>ECM/EMM<td>-<td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td>	ECM/EMM <td>-<td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td>	0.02 <td>TV 2 3D<td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td>	TV 2 3D <td>95<td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td></td>	95 <td>0x005F<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td></td>	0x005F <td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td></td>	ECM/EMM <td>-<td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td></td>	- <td>5.08<td>0.01<td>Nat Geo Wild HD</td></td></td>	5.08 <td>0.01<td>Nat Geo Wild HD</td></td>	0.01 <td>Nat Geo Wild HD</td>	Nat Geo Wild HD
648 <td>0x0288<td>AC3 Audio<td>\$<td>400.75<td>0.60<td>MTV Live HD<td>103<td>0x0067<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0288 <td>AC3 Audio<td>\$<td>400.75<td>0.60<td>MTV Live HD<td>103<td>0x0067<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	AC3 Audio <td>\$<td>400.75<td>0.60<td>MTV Live HD<td>103<td>0x0067<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>400.75<td>0.60<td>MTV Live HD<td>103<td>0x0067<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	400.75 <td>0.60<td>MTV Live HD<td>103<td>0x0067<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0.60 <td>MTV Live HD<td>103<td>0x0067<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	MTV Live HD <td>103<td>0x0067<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	103 <td>0x0067<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0067 <td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td></td>	ECM/EMM <td>-<td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td></td>	0.02 <td>ESPN America HD<td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td></td>	ESPN America HD <td>94<td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td></td>	94 <td>0x005E<td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td></td>	0x005E <td>ECM/EMM<td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td></td>	ECM/EMM <td>-<td>5.08<td>0.01<td>Nat Geo HD</td></td></td></td>	- <td>5.08<td>0.01<td>Nat Geo HD</td></td></td>	5.08 <td>0.01<td>Nat Geo HD</td></td>	0.01 <td>Nat Geo HD</td>	Nat Geo HD
656 <td>0x0290<td>MPEG Audio<td>\$<td>267.17<td>0.40<td>TV 2 3D<td>101<td>0x0065<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0290 <td>MPEG Audio<td>\$<td>267.17<td>0.40<td>TV 2 3D<td>101<td>0x0065<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	MPEG Audio <td>\$<td>267.17<td>0.40<td>TV 2 3D<td>101<td>0x0065<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>267.17<td>0.40<td>TV 2 3D<td>101<td>0x0065<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	267.17 <td>0.40<td>TV 2 3D<td>101<td>0x0065<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0.40 <td>TV 2 3D<td>101<td>0x0065<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	TV 2 3D <td>101<td>0x0065<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	101 <td>0x0065<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0065 <td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td></td></td>	ECM/EMM <td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td></td>	0.02 <td>Nat Geo Wild HD<td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td></td>	Nat Geo Wild HD <td>97<td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td></td>	97 <td>0x0061<td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td></td>	0x0061 <td>ECM/EMM<td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td></td>	ECM/EMM <td>-<td>4.96<td>0.01<td>ESPN America HD</td></td></td></td>	- <td>4.96<td>0.01<td>ESPN America HD</td></td></td>	4.96 <td>0.01<td>ESPN America HD</td></td>	0.01 <td>ESPN America HD</td>	ESPN America HD
652 <td>0x028C<td>MPEG Audio<td>\$<td>263.20<td>0.39<td>ESPN America HD<td>96<td>0x0060<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x028C <td>MPEG Audio<td>\$<td>263.20<td>0.39<td>ESPN America HD<td>96<td>0x0060<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	MPEG Audio <td>\$<td>263.20<td>0.39<td>ESPN America HD<td>96<td>0x0060<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>263.20<td>0.39<td>ESPN America HD<td>96<td>0x0060<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	263.20 <td>0.39<td>ESPN America HD<td>96<td>0x0060<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0.39 <td>ESPN America HD<td>96<td>0x0060<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	ESPN America HD <td>96<td>0x0060<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	96 <td>0x0060<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0060 <td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td>	ECM/EMM <td>-<td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td>	0.02 <td>ESPN America HD<td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td>	ESPN America HD <td>616<td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td>	616 <td>0x0268<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td>	0x0268 <td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td>	DVB Subtitles <td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td>	- <td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td>	2.97 <td>0.00<td>Nat Geo Wild HD</td></td>	0.00 <td>Nat Geo Wild HD</td>	Nat Geo Wild HD
644 <td>0x0284<td>MPEG Audio<td>\$<td>229.99<td>0.34<td>Nat Geo Wild HD<td>87<td>0x0057<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0284 <td>MPEG Audio<td>\$<td>229.99<td>0.34<td>Nat Geo Wild HD<td>87<td>0x0057<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	MPEG Audio <td>\$<td>229.99<td>0.34<td>Nat Geo Wild HD<td>87<td>0x0057<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>229.99<td>0.34<td>Nat Geo Wild HD<td>87<td>0x0057<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	229.99 <td>0.34<td>Nat Geo Wild HD<td>87<td>0x0057<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0.34 <td>Nat Geo Wild HD<td>87<td>0x0057<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	Nat Geo Wild HD <td>87<td>0x0057<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	87 <td>0x0057<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0057 <td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td>	ECM/EMM <td>-<td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td>	0.02 <td>ESPN America HD<td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td>	ESPN America HD <td>615<td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td>	615 <td>0x0267<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td>	0x0267 <td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td>	DVB Subtitles <td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td>	- <td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td>	2.97 <td>0.00<td>Nat Geo Wild HD</td></td>	0.00 <td>Nat Geo Wild HD</td>	Nat Geo Wild HD
640 <td>0x0280<td>MPEG Audio<td>\$<td>201.12<td>0.30<td>Nat Geo HD<td>85<td>0x0055<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0280 <td>MPEG Audio<td>\$<td>201.12<td>0.30<td>Nat Geo HD<td>85<td>0x0055<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	MPEG Audio <td>\$<td>201.12<td>0.30<td>Nat Geo HD<td>85<td>0x0055<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	\$ <td>201.12<td>0.30<td>Nat Geo HD<td>85<td>0x0055<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	201.12 <td>0.30<td>Nat Geo HD<td>85<td>0x0055<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0.30 <td>Nat Geo HD<td>85<td>0x0055<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	Nat Geo HD <td>85<td>0x0055<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	85 <td>0x0055<td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0055 <td>ECM/EMM<td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td></td>	ECM/EMM <td>-<td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td></td>	0.02 <td>Nat Geo Wild HD<td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td></td>	Nat Geo Wild HD <td>614<td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td></td>	614 <td>0x0266<td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td></td>	0x0266 <td>DVB Subtitles<td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td></td>	DVB Subtitles <td>-<td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td></td>	- <td>2.97<td>0.00<td>Nat Geo Wild HD</td></td></td>	2.97 <td>0.00<td>Nat Geo Wild HD</td></td>	0.00 <td>Nat Geo Wild HD</td>	Nat Geo Wild HD
17 <td>0x0011<td>SDT<td>-<td>25.03<td>0.04<td>N/A<td>77<td>0x004D<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0x0011 <td>SDT<td>-<td>25.03<td>0.04<td>N/A<td>77<td>0x004D<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	SDT <td>-<td>25.03<td>0.04<td>N/A<td>77<td>0x004D<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	- <td>25.03<td>0.04<td>N/A<td>77<td>0x004D<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	25.03 <td>0.04<td>N/A<td>77<td>0x004D<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	0.04 <td>N/A<td>77<td>0x004D<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	N/A <td>77<td>0x004D<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td></td>	77 <td>0x004D<td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td></td>	0x004D <td>ECM/EMM<td>-<td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td></td></td>	ECM/EMM <td>-<td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td></td>	- <td>15.12<td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td></td>	15.12 <td>0.02<td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td></td>	0.02 <td>ESPN America HD<td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td></td>	ESPN America HD <td>20<td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td></td>	20 <td>0x0014<td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td></td>	0x0014 <td>TOT<td>-<td>2.97<td>0.00<td>N/A</td></td></td></td></td>	TOT <td>-<td>2.97<td>0.00<td>N/A</td></td></td></td>	- <td>2.97<td>0.00<td>N/A</td></td></td>	2.97 <td>0.00<td>N/A</td></td>	0.00 <td>N/A</td>	N/A

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DVB-T

terrestrial

AT

Austria

DVB-T

AT

Network Name

ORS DVB-T T2

Recording

Thomas Haring

Transmitter

Vienna Channel 34

Remark

Radio

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	1066	0x042A	MPEG Audio	-	175.78	1.06	ServusTV	153	0x0099	PMT	-	18.88	0.11	ServusTV	
1060	0x0424	MPEG2 Video	-	3262.60	19.64	ORF Sport Plus	1051	0x041B	MPEG Audio	-	175.69	1.06	PULS 4	152	0x0098	PMT	-	18.88	0.11	ORF Sport Plus
1064	0x0428	MPEG2 Video	-	3196.39	19.24	ServusTV	1061	0x0425	MPEG Audio	-	175.61	1.06	ORF Sport Plus	151	0x0097	PMT	-	18.88	0.11	3SAT
1055	0x041F	MPEG2 Video	-	3188.06	19.19	3SAT	1057	0x0421	MPEG Audio	-	175.61	1.06	3SAT	150	0x0096	PMT	-	18.88	0.11	PULS 4
1050	0x041A	MPEG2 Video	-	3079.65	18.54	PULS 4	1056	0x0420	MPEG Audio	-	175.53	1.06	3SAT	111	0x006F	PMT	-	18.88	0.11	Radio Maria
8191	0x1FFF	Null Packets	-	1477.70	8.90	N/A	1111	0x0457	MPEG Audio	-	138.02	0.83	Radio Maria	0	0x0000	PAT	-	3.71	0.02	N/A
1052	0x041C	Teletext	-	301.26	1.81	PULS 4	18	0x0012	EIT	-	132.66	0.80	N/A	21	0x0015	Network Sync	-	2.80	0.02	N/A
1058	0x0422	Teletext	-	301.18	1.81	3SAT	1069	0x042D	Private PES	-	37.68	0.23	ORF Sport Plus	17	0x0011	SDT	-	1.98	0.01	N/A
1068	0x042C	Teletext	-	263.67	1.59	ServusTV	1059	0x0423	Private PES	-	37.68	0.23	3SAT	16	0x0010	NIT	-	0.25	0.00	N/A
1067	0x042B	MPEG Audio	-	175.78	1.06	ServusTV	1169	0x0491	Private PES	-	37.60	0.23	ServusTV	20	0x0014	TOT	-	0.16	0.00	N/A

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Transponderstream Technical Service File Download for Clients Only

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CN

China

DVB-T

CN

Network Name

SZTVM

Recording

TELE-satellite

Transmitter

Shenzhen Channel 52

Remark

DVB Tests

Transmitter											Encryption Channel 52											DVB Tests										
PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	256	0x0100	MPEG Audio	-	104.40	1.32	SZTVM01	17	0x0011	SDT	-	22.54	0.29	N/A													
161	0x00A1	MPEG2 Video	-	2348.05	29.76	SZTVM02	92	0x005C	MPEG Audio	-	104.40	1.32	SZTVM04	16	0x0010	NIT	-	22.54	0.29	N/A												
308	0x0134	MPEG2 Video	-	2235.69	28.33	SZTVM01	67	0x0043	PMT	-	22.54	0.29	SZTVM04	0	0x0000	PAT	-	22.54	0.29	N/A												
163	0x00A3	MPEG2 Video	-	1397.22	17.71	SZTVM04	66	0x0042	PMT	-	22.54	0.29	SZTVM03	21	0x0015	Network Sync	-	2.48	0.03	N/A												
162	0x00A2	MPEG2 Video	-	1309.02	16.59	SZTVM03	65	0x0041	PMT	-	22.54	0.29	SZTVM02	20	0x0014	TOT	-	0.34	0.00	N/A												
84	0x0054	MPEG Audio	-	104.46	1.32	SZTVM02	33	0x0021	PMT	-	22.54	0.29	Data																			
88	0x0058	MPEG Audio	-	104.43	1.32	SZTVM03	32	0x0020	PMT	-	22.54	0.29	SZTVM01																			

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 31 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 301 MB

www.transponderstream.com/DVB-T/CN/Shenzhen-Ch52-1110.ts

DE

Germany

DVB-T

DE

Network Name

ZDF

Recording

TELE-satellite

Transmitter

Munich Channel 35

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
561	0x0231	MPEG2 Video	-	3123.36	24.72	3sat
545	0x0221	MPEG2 Video	-	2819.02	22.31	ZDF
577	0x0241	MPEG2 Video	-	2332.20	18.46	ZDFinfo
593	0x0251	MPEG2 Video	-	2184.34	17.29	neo/KI.KA
18	0x0012	EIT	-	372.19	2.95	N/A
599	0x0257	Teletext	-	263.21	2.08	neo/KI.KA
567	0x0237	Teletext	-	263.21	2.08	3sat
551	0x0227	Teletext	-	263.21	2.08	ZDF

594	0x0252	MPEG Audio	-	201.93	1.60	neo/KI.KA
562	0x0232	MPEG Audio	-	201.93	1.60	3sat
546	0x0222	MPEG Audio	-	201.93	1.60	ZDF
578	0x0242	MPEG Audio	-	135.76	1.07	ZDFinfo
547	0x0223	MPEG Audio	-	101.84	0.81	ZDF
563	0x0233	MPEG Audio	-	101.82	0.81	3sat
1	0x0001	CAT	-	15.84	0.13	N/A
0	0x0000	PAT	-	15.83	0.13	N/A
555	0x022B	Private Sections	-	10.00	0.08	N/A

576	0x0240	PMT	-	5.48	0.04	ZDFinfo
544	0x0220	PMT	-	5.48	0.04	ZDF
592	0x0250	PMT	-	5.46	0.04	neo/KI.KA
560	0x0230	PMT	-	5.46	0.04	3sat
21	0x0015	Network Sync	-	2.46	0.02	N/A
16	0x0010	NIT	-	0.95	0.01	N/A
17	0x0011	SDT	-	0.84	0.01	N/A
20	0x0014	TOT	-	0.22	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min, File Size: 99 MB

ts.TELE-satellite.com/DVB-T/DE/Munich-Ch35-1109.ts

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 483 MB

www.transponderstream.com/DVB-T/DE/Munich-Ch35-1109.ts

DVB-T

DE

Network Name

MEDIA BROADCAST

Recording

TELE-satellite

Transmitter

Munich Channel 48

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
225	0x00E1	MPEG2 Video	-	3492.50	26.63	N24
305	0x0131	MPEG2 Video	-	2590.09	19.75	ProSieben
385	0x0181	MPEG2 Video	-	2496.26	19.03	SAT.1
161	0x00A1	MPEG2 Video	-	2386.04	18.19	kabel eins
231	0x00E7	Teletext	-	263.21	2.01	N24
391	0x0187	Teletext	-	263.18	2.01	SAT.1
311	0x0137	Teletext	-	263.18	2.01	ProSieben
167	0x00A7	Teletext	-	263.18	2.01	kabel eins

18	0x0012	EIT	-	260.26	1.98	N/A
162	0x00A2	MPEG Audio	-	198.46	1.51	kabel eins
306	0x0182	MPEG Audio	-	198.43	1.51	SAT.1
386	0x0132	MPEG Audio	-	198.43	1.51	ProSieben
226	0x00E2	MPEG Audio	-	198.43	1.51	N24
384	0x0180	PMT	-	5.46	0.04	SAT.1
304	0x0130	PMT	-	5.46	0.04	ProSieben
224	0x00E0	PMT	-	5.46	0.04	N24
160	0x00A0	PMT	-	5.46	0.04	kabel eins

0	0x0000	PAT	-	5.46	0.04	N/A
312	0x0138	Private Sections	-	5.01	0.04	N/A
168	0x00A8	Private Sections	-	5.01	0.04	N/A
1	0x0001	CAT	-	3.16	0.02	N/A
21	0x0015	Network Sync	-	2.47	0.02	N/A
20	0x0014	TOT	-	0.95	0.01	N/A
17	0x0011	SDT	-	0.80	0.01	N/A
16	0x0010	NIT	-	0.17	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min, File Size: 68 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 501 MB

www.transponderstream.com/DVB-T/DE/Munich-Ch48-1109.ts

DVB-T

DE

Network Name

ARD BAYERN

Recording

TELE-satellite

Transmitter

Munich Channel 54

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
513	0x0201	MPEG2 Video	-	3445.16	27.19	Das Erste
49	0x0031	MPEG2 Video	-	2844.51	22.45	Phoenix
33	0x0021	MPEG2 Video	-	2038.59	16.09	arte
97	0x0061	MPEG2 Video	-	1889.14	14.91	EinsPlus
18	0x0012	EIT	-	305.67	2.41	N/A
516	0x0204	Teletext	-	263.25	2.08	Das Erste
100	0x0064	Teletext	-	263.25	2.08	EinsPlus
52	0x0034	Teletext	-	263.25	2.08	Phoenix
36	0x0024	Teletext	-	263.25	2.08	arte

514	0x0202	MPEG Audio	-	203.71	1.61	Das Erste
98	0x0062	MPEG Audio	-	203.71	1.61	EinsPlus
50	0x0032	MPEG Audio	-	203.71	1.61	Phoenix
35	0x0023	MPEG Audio	-	203.71	1.61	arte
34	0x0022	MPEG Audio	-	203.71	1.61	arte
44	0x002C	Private Sections	-	9.29	0.07	N/A
512	0x0200	PMT	-	8.59	0.07	Das Erste
96	0x0060	PMT	-	8.59	0.07	EinsPlus
48	0x0030	PMT	-	8.59	0.07	Phoenix
32	0x0020	PMT	-	8.59	0.07	arte

524	0x020C	Private Sections	-	7.74	0.06	N/A
108	0x006C	Private Sections	-	6.10	0.05	N/A
0	0x0000	PAT	-	5.47	0.04	N/A
1	0x0001	CAT	-	3.17	0.03	N/A
20	0x0014	TOT	-	3.02	0.02	N/A
21	0x0015	Network Sync	-	2.45	0.02	N/A
60	0x003C	Private Sections	-	1.55	0.01	N/A
16	0x0010	NIT	-	0.95	0.01	N/A
17	0x0011	SDT	-	0.80	0.01	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 55 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 484 MB

www.transponderstream.com/DVB-T/DE/Munich-Ch54-1109.ts

DVB-T

DE

Network Name

BR

Recording

TELE-satellite

Transmitter

Munich Channel 56

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
561	0x0231	MPEG2 Video	-	3171.05	24.88	BR-alpha
65	0x0041	MPEG2 Video	-	2720.55	21.35	EinsExtra
545	0x0221	MPEG2 Video	-	2370.25	18.60	Bayerisches FS Süd
3601	0x0E11	MPEG2 Video	-	2345.96	18.41	SWR Fernsehen
18	0x0012	EIT	-	299.95	2.35	N/A
3604	0x0E14	Teletext	-	263.17	2.06	SWR Fernsehen
564	0x0234	Teletext	-	263.17	2.06	BR-alpha
548	0x0224	Teletext	-	263.17	2.06	Bayerisches FS Süd
3602	0x0E12	MPEG Audio	-	203.66	1.60	SWR Fernsehen

546	0x0222	MPEG Audio	-	203.66	1.60	Bayerisches FS Süd
562	0x0232	MPEG Audio	-	203.63	1.60	BR-alpha
66	0x0042	MPEG Audio	-	203.63	1.60	EinsExtra
549	0x0225	MPEG Audio	-	133.16	1.04	Bayerisches FS Süd
555	0x022B	Private Data	-	26.98	0.21	Bayerisches FS Süd
560	0x0230	PMT	-	8.61	0.07	BR-alpha
544	0x0220	PMT	-	8.61	0.07	Bayerisches FS Süd
64	0x0040	PMT	-	8.61	0.07	EinsExtra
3600	0x0E10	PMT	-	8.58	0.07	SWR Fernsehen
76	0x004C	Private Sections	-	7.66	0.06	N/A

3612	0x0E1C	Private Sections	-	6.25	0.05	N/A
0	0x0000	PAT	-	5.48	0.04	N/A
1	0x0001	CAT	-	3.15	0.02	N/A
556	0x022C	Private Sections	-	3.12	0.02	N/A
572	0x023C	Private Sections	-	3.06	0.02	N/A
554	0x022A	Private Data	-	3.03	0.02	Bayerisches FS Süd
20	0x0014	TOT	-	3.00	0.02	N/A
21	0x0015	Network Sync	-	2.48	0.02	N/A
17	0x0011	SDT	-	0.86	0.01	N/A
16	0x0010	NIT	-	0.74	0.01	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 55 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 489 MB

www.transponderstream.com/DVB-T/DE/Munich-Ch56-1109.ts

HU

Hungary



Network Name

DTT Hungary

Recording

TELE-satellite

Transmitter

Budapest Channel 38

Remark

Radio

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
1011	0x03F3	H.264 Video	-	6650.33	29.96	m2 HD
1001	0x03E9	H.264 Video	-	5549.83	25.00	m1 HD
1211	0x04BB	H.264 Video	-	5450.87	24.55	Duna 2 HD
1201	0x04B1	H.264 Video	-	1573.21	7.09	Duna
18	0x0012	EIT	-	521.11	2.35	N/A
1014	0x03F6	AC3 Audio	-	423.03	1.91	m2 HD
1004	0x03EC	AC3 Audio	-	423.03	1.91	m1 HD
1214	0x04BE	AC3 Audio	-	423.00	1.91	Duna 2 HD
1003	0x03EB	Teletext	-	225.63	1.02	m1 HD
1212	0x04BC	MPEG Audio	-	132.33	0.60	Duna 2 HD

1202	0x04B2	MPEG Audio	-	132.30	0.60	Duna
1012	0x03F4	MPEG Audio	-	132.30	0.60	m2 HD
1002	0x03EA	MPEG Audio	-	132.30	0.60	m1 HD
1312	0x0520	AAC Audio	-	102.69	0.46	MR2 Petofi Radio
1322	0x052A	AAC Audio	-	102.64	0.46	MR3 Bartok Radio
1302	0x0516	AAC Audio	-	69.21	0.31	MR1 Kossuth Radio
1	0x0001	CAT	-	15.06	0.07	N/A
1320	0x0528	PMT	-	15.03	0.07	MR3 Bartok Radio
1310	0x051E	PMT	-	15.03	0.07	MR2 Petofi Radio
1300	0x0514	PMT	-	15.03	0.07	MR1 Kossuth Radio
1210	0x04BA	PMT	-	15.03	0.07	Duna 2 HD

1200	0x04B0	PMT	-	15.03	0.07	Duna
1010	0x03F2	PMT	-	15.03	0.07	m2 HD
1000	0x03E8	PMT	-	15.03	0.07	m1 HD
0	0x0000	PAT	-	15.03	0.07	N/A
1700	0x06A4	PMT	-	15.00	0.07	DataService_A
17	0x0011	SDT	-	3.00	0.01	N/A
21	0x0015	Network Sync	-	2.46	0.01	N/A
16	0x0010	NIT	-	0.93	0.00	N/A
20	0x0014	TOT	-	0.28	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 88 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 878 MB

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Network Name

DTT Hungary

Recording

TELE-satellite

Transmitter

Budapest Channel 55

Remark

encrypted

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
3101	0x0C1D	H.264 Video	\$	2741.44	13.19	Sport1
3111	0x0C27	H.264 Video	\$	2155.15	10.37	Sport2
3011	0x0BC3	H.264 Video	\$	1848.13	8.89	VIASAT3
3081	0x0C09	H.264 Video	\$	1840.69	8.85	Spektrum
3071	0x0BFF	H.264 Video	\$	1551.18	7.46	Cartoon Network
3091	0x0C13	H.264 Video	\$	1432.28	6.89	History
3021	0x0BCD	H.264 Video	\$	1342.33	6.46	Prizma TV
3051	0x0BEB	H.264 Video	\$	1268.70	6.10	Comedy Central
3001	0x0BB9	H.264 Video	\$	1190.26	5.72	PRO4
3061	0x0BF5	H.264 Video	\$	1174.81	5.65	Minimax
3031	0x0BD7	H.264 Video	\$	1169.10	5.62	Muzsika TV
3041	0x0BE1	H.264 Video	\$	910.12	4.38	Universal Channel
18	0x0012	EIT	-	514.37	2.47	N/A
3121	0x0C31	H.264 Video	\$	223.99	1.08	Dorcel TV
5000	0x1388	ECM/EMM	-	81.50	0.39	N/A
3094	0x0C16	AAC Audio	\$	68.09	0.33	History
3032	0x0BD8	AAC Audio	\$	68.00	0.33	Muzsika TV
3002	0x0BBA	AAC Audio	\$	68.00	0.33	PRO4

3112	0x0C28	AAC Audio	\$	67.94	0.33	Sport2
3082	0x0C0A	AAC Audio	\$	67.94	0.33	Spektrum
3052	0x0BEC	AAC Audio	\$	67.94	0.33	Comedy Central
3092	0x0C14	AAC Audio	\$	67.92	0.33	History
3042	0x0BE2	AAC Audio	\$	67.92	0.33	Universal Channel
3074	0x0C02	AAC Audio	\$	67.83	0.33	Cartoon Network
3022	0x0BCE	AAC Audio	\$	67.83	0.33	Prizma TV
3062	0x0BF6	AAC Audio	\$	67.80	0.33	Minimax
3012	0x0BC4	AAC Audio	\$	67.80	0.33	VIASAT3
3102	0x0C1E	AAC Audio	\$	67.77	0.33	Sport1
3072	0x0C00	AAC Audio	\$	67.74	0.33	Cartoon Network
3044	0x0BE4	AAC Audio	\$	67.71	0.33	Universal Channel
3122	0x0C32	AAC Audio	\$	35.24	0.17	Dorcel TV
3700	0x0E74	PMT	-	15.05	0.07	DataService_B
3129	0x0C39	ECM/EMM	-	15.05	0.07	Dorcel TV
3120	0x0C30	PMT	-	15.05	0.07	Dorcel TV
3110	0x0C26	PMT	-	15.05	0.07	Sport2
3100	0x0C1C	PMT	-	15.05	0.07	Sport1
3090	0x0C12	PMT	-	15.05	0.07	History

3080	0x0C08	PMT	-	15.05	0.07	Spektrum
3070	0x0BFE	PMT	-	15.05	0.07	Cartoon Network
3060	0x0BF4	PMT	-	15.05	0.07	Minimax
3050	0x0BEA	PMT	-	15.05	0.07	Comedy Central
3040	0x0BE0	PMT	-	15.05	0.07	Universal Channel
3030	0x0BD6	PMT	-	15.05	0.07	Muzsika TV
3020	0x0BCC	PMT	-	15.05	0.07	Prizma TV
3010	0x0BC2	PMT	-	15.05	0.07	VIASAT3
3009	0x0BC1	ECM/EMM	-	15.05	0.07	PRO4
3000	0x0BB8	PMT	-	15.05	0.07	PRO4
0	0x0000	PAT	-	15.05	0.07	N/A
3019	0x0BCB	ECM/EMM	-	15.03	0.07	VIASAT3
1	0x0001	CAT	-	15.03	0.07	N/A
17	0x0011	SDT	-	4.50	0.02	N/A
21	0x0015	Network Sync	-	2.45	0.01	N/A
16	0x0010	NIT	-	0.87	0.00	N/A
20	0x0014	TOT	-	0.29	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 84 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 795 MB

www.transponderstream.com/DVB-T/HU/Budapest-Ch55-1112.ts

IL

Israel



Network Name

Harashut Hashnia

Recording

Benjamin Ganor

Transmitter

Eilat Channel 29

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
2561	0x0A01	H.264 Video	-	3044.07	22.93	Ch 1
2657	0x0A61	H.264 Video	-	3039.96	22.89	Ch 33
2625	0x0A41	H.264 Video	-	2889.05	21.76	Ch 10
2593	0x0A21	H.264 Video	-	2295.87	17.29	Ch 9
2689	0x0A81	H.264 Video	-	1062.76	8.00	Ch 2
8191	0x1FFF	Null Packets	-	261.74	1.97	N/A
18	0x0012	EIT	-	160.12	1.21	N/A
2658	0x0A62	AAC Audio	-	53.19	0.40	Ch 33
2594	0x0A22	AAC Audio	-	53.19	0.40	Ch 2
2562	0x0A02	AAC Audio	-	53.02	0.40	Ch 1
2626	0x0A42	AAC Audio	-	53.04	0.40	Ch 10

2690	0x0A82	AAC Audio	-	52.89	0.40	Ch 99
94	0x005E	PCR	-	45.13	0.34	N/A
2817	0x0B01	AAC Audio	-	36.66	0.28	R01
2993	0x0BB1	AAC Audio	-	36.57	0.28	R12
0	0x0000	PAT	-	30.09	0.23	N/A
2992	0x0BB0	PMT	-	10.04	0.08	R12
2816	0x0B00	PMT	-	10.04	0.08	R01
2688	0x0A80	PMT	-	10.04	0.08	Ch 99
2624	0x0A40	PMT	-	10.04	0.08	Ch 10
2592	0x0A20	PMT	-	10.04	0.08	Ch 2
2560	0x0A00	PMT	-	10.04	0.08	Ch 1
2656	0x0A60	PMT	-	10.03	0.08	Ch 33

2608	0x0A30	DVB Subtitles	-	9.23	0.07	Ch 2
17	0x0011	SDT	-	6.05	0.05	N/A
2610	0x0A32	DVB Subtitles	-	3.58	0.03	Ch 2
2609	0x0A31	DVB Subtitles	-	3.58	0.03	Ch 2
2642	0x0A52	DVB Subtitles	-	3.15	0.02	Ch 10
2641	0x0A51	DVB Subtitles	-	3.15	0.02	Ch 10
2640	0x0A50	DVB Subtitles	-	3.15	0.02	Ch 10
20	0x0014	TOT	-	3.03	0.02	N/A
16	0x0010	NIT	-	3.03	0.02	N/A
21	0x0015	Network Sync	-	2.48	0.02	N/A

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 660 MB

www.transponderstream.com/DVB-T/IL/Eilat-Ch29-1110.ts

NL

The Netherlands

DVB-T

NL

Network Name

Digitenne

Recording

TELE-satellite

Transmitter Amsterdam Channel 27

Remark

Radio

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name	Transmitter	Amsterdam Channel 27	Digitenne	Recording	TELE-satellite
4041	0x0FC9	MPEG2 Video	-	2682.41	22.44	TV Drenthe tijdelijk	4130	0x1022	PMT	-	15.04 0.13 BBC Radio 3
4041	0x0FAB	MPEG2 Video	\$	2552.21	21.36	Nickelodeon/TeenNick	4112	0x1010	MPEG Audio	\$	165.58 1.39 BBC Radio 1
4031	0x0FBF	MPEG2 Video	\$	2484.09	20.79	SLAMITV	182	0x00B6	ECM/EMM	-	98.73 0.83 N/A
4021	0x0FB5	MPEG2 Video	\$	1918.51	16.05	13th Street	18	0x0012	EIT	-	83.55 0.70 N/A
4043	0x0FCB	Teletext	-	297.96	2.49	TV Drenthe tijdelijk	20	0x0014	TOT	-	20.01 0.17 N/A
4013	0x0FAD	Teletext	\$	223.62	1.87	Nickelodeon/TeenNick	4139	0x102B	ECM/EMM	-	15.17 0.13 BBC Radio 3
4012	0x0FAC	MPEG Audio	\$	166.37	1.39	Nickelodeon/TeenNick	4119	0x1017	ECM/EMM	-	15.17 0.13 BBC Radio 1
4122	0x101A	MPEG Audio	\$	166.18	1.39	BBC Radio 2	4039	0x0FC7	ECM/EMM	-	15.17 0.13 SLAMITV
4032	0x0FC0	MPEG Audio	\$	166.11	1.39	SLAMITV	4029	0x0FBD	ECM/EMM	-	15.17 0.13 13th Street
4022	0x0FB6	MPEG Audio	\$	166.11	1.39	13th Street	4019	0x0FB3	ECM/EMM	-	15.17 0.13 Nickelodeon/TeenNick
4142	0x102E	MPEG Audio	\$	165.98	1.39	BBC Radio 4	4149	0x1035	ECM/EMM	-	15.11 0.13 BBC Radio 4
4132	0x1024	MPEG Audio	\$	165.91	1.39	BBC Radio 3	4129	0x1021	ECM/EMM	-	15.11 0.13 BBC Radio 2
							4140	0x102C	PMT	-	15.04 0.13 BBC Radio 4

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 32 MB

ts.TELE-satellite.com/DVB-T/NL/Amsterdam-Ch27-1109.ts

PL

Poland

DVB-T

PL

Network Name

TP EmiTel

Recording

Jacek Pawlowski

Transmitter Poznan Channel 46

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name	Transmitter	Poznan Channel 46	TP EmiTel	Recording	Jacek Pawlowski
8191	0x1FFF	Null Packets	-	3521.45	14.15	N/A	205	0x00CD	Teletext	-	225.71 0.91 TVN
802	0x0322	H.264 Video	-	3277.97	13.17	Polsat Sport News	105	0x0069	Teletext	-	225.71 0.91 Polsat
202	0x00CA	H.264 Video	-	2936.74	11.80	TVN	505	0x01F9	Teletext	-	225.69 0.91 TVN Siedem
502	0x01F6	H.264 Video	-	2563.76	10.30	TVN Siedem	803	0x0323	MPEG Audio	-	196.82 0.79 Polsat Sport News
102	0x0066	H.264 Video	-	2154.60	8.65	Polsat	403	0x0193	MPEG Audio	-	196.82 0.79 TV Puls
302	0x012E	H.264 Video	-	2149.47	8.63	TV4	303	0x012F	MPEG Audio	-	196.82 0.79 TV4
702	0x02BE	H.264 Video	-	1817.12	7.30	TV6	703	0x02BF	MPEG Audio	-	196.80 0.79 TV6
402	0x0192	H.264 Video	-	1563.09	6.28	TV Puls	603	0x025B	MPEG Audio	-	196.80 0.79 PULS 2
602	0x025A	H.264 Video	-	819.43	3.29	PULS 2	503	0x01F7	MPEG Audio	-	196.80 0.79 TVN Siedem
18	0x0012	EIT	-	571.33	2.30	N/A	203	0x00CB	MPEG Audio	-	196.80 0.79 TVN
204	0x00CC	AC3 Audio	-	459.22	1.84	TVN	103	0x0067	MPEG Audio	-	196.80 0.79 Polsat
504	0x01F8	AC3 Audio	-	393.62	1.58	TVN Siedem	106	0x006A	DVB Subtitles	-	38.60 0.16 Polsat
305	0x0131	Teletext	-	225.72	0.91	TV4	701	0x02BD	PMT	-	14.95 0.06 TV6
							601	0x0259	PMT	-	14.95 0.06 PULS 2

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Minute, File Size: 366 MB

ts.TELE-satellite.com/DVB-T/PL/Poznan-Ch46-1110.ts

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 1130 MB

www.transponderstream.com/DVB-T/PL/Poznan-Ch46-1110.ts

PT

Portugal

DVB-T

PT

Network Name

1101

Recording

Vitor Martins Augusto

Transmitter Porto Channel 56

PID	Hex PID	Stream Type	Encrypted	kpbs	%	Service Name	Transmitter	Porto Channel 56	1101	Recording	Vitor Martins Augusto
8191	0x1FFF	Null Packets	-	6271.02	31.43	N/A	18	0x0012	EIT	-	218.33 1.09 N/A
512	0x0200	H.264 Video	-	4723.41	23.67	RTP 2	33	0x0021	Teletext	-	188.40 0.94 RTP 2
256	0x0100	H.264 Video	-	2495.07	12.50	RTP 1	32	0x0020	Teletext	-	188.40 0.94 RTP 1
1024	0x0400	H.264 Video	-	2373.95	11.90	TVI	513	0x0201	AAC Audio	-	104.14 0.52 RTP 2
768	0x0300	H.264 Video	-	1935.72	9.70	SIC	1025	0x0401	AAC Audio	-	103.89 0.52 TVI
3840	0x0F00	H.264 Video	-	501.31	2.51	HD	257	0x0101	AAC Audio	-	103.81 0.52 RTP 1
35	0x0023	Teletext	-	263.93	1.32	TVI	769	0x0301	AAC Audio	-	103.48 0.52 SIC
34	0x0022	Teletext	-	226.16	1.13	SIC	0	0x0000	PAT	-	25.07 0.13 N/A
							3856	0x0F10	PMT	-	24.32 0.12 HD

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min Sec, File Size: 144 MB

ts.TELE-satellite.com/DVB-T/PT/Porto-Ch56-1109.ts

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 750 MB

www.transponderstream.com/DVB-T/PT/Porto-Ch56-1109.ts



Transponderstreams are available on
memory cards or by Internet download

www.transponderstream.com

QA

Qatar



QA

Network Name

Nilesat101

Recording

TELE-satellite

Transmitter

Doha Channel 25

Remark

retransmit from satellite

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
1009	0x03F1	MPEG2 Video	-	2845.80	89.92
1010	0x03F2	MPEG Audio	-	263.42	8.32

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
17	0x0011	SDT	-	23.08	0.73
108	0x006C	PMT	-	15.05	0.48
0	0x0000	PAT	-	15.05	0.48

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
1	0x0001	CAT	-	1.50	0.05
16	0x0010	NIT	-	0.89	0.03
20	0x0014	TOT	-	0.11	0.00

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 12 MB

ts.TELE-satellite.com/DVB-T/QA/Doha-Ch25-1110.ts

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 118 MB

www.transponderstream.com/DVB-T/QA/Doha-Ch25-1110.ts

UK

United Kingdom



UK

Network Name

London.

Recording

TELE-satellite

Transmitter

London Channel 25

Remark

MHEG

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
630	0x0276	MPEG2 Video	-	3586.24	20.33
620	0x026C	MPEG2 Video	-	3166.95	17.96
600	0x0258	MPEG2 Video	-	2666.03	15.12
610	0x0262	MPEG2 Video	-	2414.70	13.69
640	0x0280	MPEG2 Video	-	2413.18	13.68
650	0x028A	MHEG	-	1100.58	6.24
18	0x0012	EIT	-	364.27	2.07
621	0x026D	MPEG Audio	-	263.35	1.49
611	0x0263	MPEG Audio	-	263.32	1.49
601	0x0259	MPEG Audio	-	263.27	1.49
631	0x0277	MPEG Audio	-	198.60	1.13
641	0x0281	MPEG Audio	-	198.57	1.13
651	0x028B	Data	-	150.10	0.85
652	0x028C	Data	-	150.08	0.85

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
632	0x0278	MPEG Audio	-	132.34	0.75
654	0x028E	SSU	-	50.04	0.28
605	0x025D	DVB Subtitles	-	35.63	0.20
643	0x0283	DVB Subtitles	-	35.46	0.20
4671	0x123F	PMT	-	15.05	0.09
4479	0x117F	PMT	-	15.05	0.09
4415	0x113F	PMT	-	15.05	0.09
4351	0x10FF	PMT	-	15.05	0.09
4228	0x1084	PMT	-	15.05	0.09
4164	0x1044	PMT	-	15.05	0.09
0	0x0000	PAT	-	15.05	0.09
7168	0x1C00	PMT	-	15.03	0.09
615	0x0267	DVB Subtitles	-	14.22	0.08
623	0x026F	DVB Subtitles	-	14.09	0.08
17	0x0011	SDT	-	4.78	0.03

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
1017	0x03F9	MHEG	-	3.01	0.02
1014	0x03F6	MHEG	-	3.01	0.02
1013	0x03F5	MHEG	-	3.01	0.02
1012	0x03F4	MHEG	-	3.01	0.02
1011	0x03F3	Data	-	3.01	0.02
1008	0x03F0	MHEG	-	3.01	0.02
20	0x0014	TOT	-	3.01	0.02
1021	0x03FD	Data	-	2.98	0.02
1005	0x03ED	MHEG	-	2.98	0.02
629	0x0275	Private Sections	-	1.18	0.01
619	0x026B	Private Sections	-	1.18	0.01
609	0x0261	Private Sections	-	1.18	0.01
16	0x0010	NIT	-	1.18	0.01

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min, File Size: 129 MB

ts.TELE-satellite.com/DVB-T/UK/London-Ch25-1107.ts



UK

Network Name

London.

Recording

TELE-satellite

Transmitter

London Channel 28

Remark

MHEG

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
204	0x00CC	MPEG2 Video	\$	4725.64	27.88
201	0x00C9	MPEG2 Video	-	2958.53	17.45
202	0x00CA	MPEG2 Video	\$	2187.05	12.90
205	0x00CD	MPEG2 Video	-	1229.36	7.25
301	0x012D	Data	-	949.95	5.60
203	0x00CB	MPEG2 Video	-	891.57	5.26
18	0x0012	EIT	-	426.65	2.52
401	0x0191	MPEG Audio	-	263.17	1.55
439	0x01B7	MPEG Audio	-	200.55	1.18
438	0x01B6	MPEG Audio	-	200.53	1.18
437	0x01B5	MPEG Audio	-	200.53	1.18
436	0x01B4	MPEG Audio	-	200.53	1.18
407	0x0197	MPEG Audio	-	198.41	1.17
434	0x01B2	MPEG Audio	-	167.10	0.99
432	0x01B0	MPEG Audio	-	167.10	0.99
433	0x01B1	MPEG Audio	-	167.08	0.99
303	0x012F	Data	-	149.99	0.88
302	0x012E	Data	-	149.97	0.88
305	0x01B3	MPEG Audio	-	135.79	0.80
421	0x01A5	MPEG Audio	-	132.30	0.78
411	0x019B	MPEG Audio	\$	132.30	0.78
408	0x0198	MPEG Audio	-	132.30	0.78
403	0x0193	MPEG Audio	\$	132.30	0.78
440	0x01B8	MPEG Audio	-	101.83	0.60
431	0x01AF	MPEG Audio	-	101.83	0.60
430	0x01AE	MPEG Audio	-	101.83	0.60
304	0x0130	Data	-	100.00	0.59

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
305	0x0131	Data	-	81.00	0.48
4147	0x1033	ECM/EMM	-	48.81	0.29
1203	0x04B3	ECM/EMM	-	15.04	0.09
1202	0x04B2	ECM/EMM	-	15.04	0.09
1201	0x04B1	ECM/EMM	-	15.04	0.09
1103	0x044F	ECM/EMM	-	15.04	0.09
1102	0x044E	ECM/EMM	-	15.04	0.09
1101	0x044D	ECM/EMM	-	15.04	0.09
601	0x0259	DVB Subtitles	-	14.01	0.08
4150	0x1036	ECM/EMM	-	9.99	0.06
715	0x02CB	PMT	-	7.93	0.05
711	0x02C7	PMT	-	7.93	0.05
703	0x02BF	PMT	-	7.93	0.05
701	0x02BD	PMT	-	7.93	0.05
0	0x0000	PAT	-	7.93	0.05
719	0x02CF	PMT	-	7.90	0.05
718	0x02CE	PMT	-	7.90	0.05
717	0x02CD	PMT	-	7.90	0.05
716	0x02CC	PMT	-	7.90	0.05
714	0x02CA	PMT	-	7.90	0.05
712	0x02C8	PMT	-	7.90	0.05
710	0x02C6	PMT	-	7.90	0.05
709	0x02C5	PMT	-	7.90	0.05
708	0x02C4	PMT	-	7.90	0.05
707	0x02C3	PMT	-	7.90	0.05
706	0x02C2	PMT	-	7.90	0.05
705	0x02C1	PMT	-	7.90	0.05
704	0x02C0	PMT	-	7.90	0.05

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
702	0x02BE	PMT	-	7.90	0.05
1	0x0001	CAT	-	7.14	0.04
17	0x0011	SDT	-	6.01	0.04
605	0x025D	DVB Subtitles	-	3.00	0.02
603	0x025B	DVB Subtitles	-	3.00	0.02
602	0x025A	DVB Subtitles	-	3.00	0.02
330	0x014A	MHEG	-	3.00	0.02
312	0x0138	MHEG	-	3.00	0.02
309	0x0135	Data	-	3.00	0.02
308	0x0134	MHEG	-	3.00	0.02
307	0x0133	MHEG	-	3.00	0.02
306	0x0132	Data	-	3.00	0.02
20	0x0014	TOT	-	3.00	0.02
314	0x013A	MHEG	-	2.98	0.02
209	0x00D1	Private Sections	-	1.18	0.01
16	0x0010	NIT	-	1.18	0.01
334	0x014E	MHEG	-	0.52	0.00
333	0x014D	MHEG	-	0.52	0.00
322	0x0142	MHEG	-	0.52	0.00
321	0x0141	MHEG	-	0.52	0.00
336	0x0150	MHEG	-	0.49	0.00
335	0x014F	MHEG	-	0.49	0.00
332	0x014C	MHEG	-	0.49	0.00
324	0x0144	MHEG	-	0.49	0.00
323	0x0143	MHEG	-	0.49	0.00
320	0x0140	MHEG	-	0.49	0.00
319	0x013F	MHEG	-	0.49	0.00

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min, File Size: 123 MB

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UK

Network Name

London.

Recording

TELE-satellite

Transmitter

London Channel 32

Remark

MHEG

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	London Channel 32	Recording Remark	TELE-satellite MHEG
521	0x0209	MPEG2 Video	-	2767.19	11.65	Challenge	6904 0x1AF8 MHEG	- 57.10 0.24	1-2-1 Dating	265 0x0109 PMT - 7.53 0.03 QUEST
6273	0x1881	MPEG2 Video	-	2602.78	10.96	bid tv	7089 0x1BB1 Data	- 49.23 0.21	Television X	264 0x0108 PMT - 7.53 0.03 1-2-1 Dating
6689	0x1A21	MPEG2 Video	-	2225.50	9.37	5 USA	6354 0x18D2 MPEG Audio	- 41.80 0.18	Teletext Hols	263 0x0107 PMT - 7.53 0.03 MOBILIZER
5381	0x1505	DVB Subtitles	\$	1898.58	8.00	TOPUP Anytime1	7076 0x1BA4 Audio	- 41.78 0.18	N/A	260 0x0104 PMT - 7.53 0.03 CITV
6049	0x17A1	MPEG2 Video	-	1886.30	7.94	QVC	4147 0x1033 ECM/EMM	- 39.66 0.17	N/A	259 0x0103 PMT - 7.53 0.03 QVC
6737	0x1A51	MPEG2 Video	\$	1812.19	7.63	TOPUP Anytime3	6522 0x197A Data	- 34.98 0.15	bid tv	386 0x0182 PMT - 7.50 0.03 ADULT Section
6596	0x19C4	MPEG2 Video	-	1753.07	7.38	5*	7068 0x1B9C MHEG	- 33.84 0.14	Home	381 0x017D PMT - 7.50 0.03 ADULT redhotTV
6833	0x1AB1	MPEG2 Video	-	1699.69	7.16	CITV	7081 0x1BA9 Private PES	- 28.99 0.12	TOPUP Anytime2	289 0x0121 PMT - 7.50 0.03 TOPUP Anytime2
6929	0x1B11	MPEG2 Video	-	1628.73	6.86	QUEST	6908 0x1AFC MHEG	- 24.95 0.11	MOBILIZER	288 0x0120 PMT - 7.50 0.03 TOPUP Anytime1
6881	0x1AE1	MPEG2 Video	-	1470.72	6.19	ITV3	6521 0x1979 Data	- 24.00 0.10	bid tv	277 0x0115 PMT - 7.50 0.03 ITV3
18	0x0012	EIT	-	623.79	2.63	N/A	2870 0x0B36 ECM/EMM	- 22.58 0.10	TOPUP Anytime3	274 0x0112 PMT - 7.50 0.03 Television X
6361	0x18D9	Data	-	250.07	1.05	Teletext Hols	2868 0x0B34 ECM/EMM	- 22.58 0.10	TOPUP Anytime1	261 0x0105 PMT - 7.50 0.03 bid tv
6056	0x17A8	MHEG	-	249.14	1.05	QVC	0 0x0000 PAT	- 15.03 0.06	N/A	17 0x0011 SDT - 6.55 0.03 N/A
7084	0x1BAC	DVB Subtitles	\$	135.81	0.57	TOPUP Anytime1	6886 0x1AE6 DVB Subtitles	- 14.49 0.06	ITV3	6640 0x19F0 MHEG - 4.99 0.02 Gems TV
6738	0x1A52	MPEG Audio	\$	135.81	0.57	TOPUP Anytime3	7074 0x1BA2 MHEG	- 10.01 0.04	ESPN	6609 0x19D1 MHEG - 4.99 0.02 ADULT Filth
6674	0x1A12	MPEG Audio	-	135.81	0.57	5*	4150 0x1036 ECM/EMM	- 10.01 0.04	N/A	6608 0x19D0 MHEG - 4.99 0.02 ADULT redhotTV
6274	0x1882	MPEG Audio	-	135.81	0.57	bid tv	6480 0x1950 MHEG	- 8.31 0.03	Television X	6544 0x1990 MHEG - 4.99 0.02 ITV2 +1
6114	0x17E2	MPEG Audio	-	135.81	0.57	Capital FM	395 0x018B PMT	- 7.53 0.03	Challenge	6520 0x1978 Data - 4.99 0.02 bid tv
6098	0x17D2	MPEG Audio	-	135.81	0.57	Heart	392 0x0188 PMT	- 7.53 0.03	Capital FM	6456 0x1938 MHEG - 4.99 0.02 ADULT Section
6082	0x17C2	MPEG Audio	-	135.81	0.57	Absolute Radio	391 0x0187 PMT	- 7.53 0.03	Heart	6120 0x17E8 MHEG - 4.99 0.02 Capital FM
6050	0x17A2	MPEG Audio	-	135.81	0.57	QVC	390 0x0186 PMT	- 7.53 0.03	Absolute Radio	6104 0x17D8 MHEG - 4.99 0.02 Heart
6930	0x1B12	MPEG Audio	-	135.79	0.57	QUEST	388 0x0184 PMT	- 7.53 0.03	ITV2 +1	6088 0x17C8 MHEG - 4.99 0.02 Absolute Radio
6882	0x1AE2	MPEG Audio	-	135.79	0.57	ITV3	387 0x0183 PMT	- 7.53 0.03	ADULT Filth	1 0x0001 CAT - 4.99 0.02 N/A
6834	0x1AB2	MPEG Audio	-	135.79	0.57	CITV	385 0x0181 PMT	- 7.53 0.03	ADULT Section	6360 0x18D8 MHEG - 3.02 0.01 N/A
6690	0x1A22	MPEG Audio	-	135.79	0.57	5 USA	382 0x017E PMT	- 7.53 0.03	Gems TV	20 0x0014 TOT - 3.02 0.01 N/A
659	0x0293	MPEG Audio	-	135.79	0.57	Challenge	290 0x0122 PMT	- 7.53 0.03	TOPUP Anytime3	16 0x0010 NIT - 1.17 0.00 N/A
6883	0x1AE3	MPEG Audio	-	73.13	0.31	ITV3	284 0x011C PMT	- 7.53 0.03	ESPN	6694 0x1A26 DVB Subtitles - 0.54 0.00 5 USA
6835	0x1AB3	MPEG Audio	-	73.13	0.31	CITV	279 0x0117 PMT	- 7.53 0.03	5 USA	6678 0x1A16 DVB Subtitles - 0.54 0.00 5*
6691	0x1A23	MPEG Audio	-	73.13	0.31	5 USA	276 0x0114 PMT	- 7.53 0.03	G.O.L.D.	6838 0x1AB6 DVB Subtitles - 0.32 0.00 CITV
6675	0x1A13	MPEG Audio	-	73.11	0.31	5*	275 0x0113 PMT	- 7.53 0.03	5*	6934 0x1B16 DVB Subtitles - 0.29 0.00 QUEST
669	0x029D	MPEG Audio	-	73.11	0.31	Challenge	270 0x010E PMT	- 7.53 0.03	Home	
							268 0x010C PMT	- 7.53 0.03	Teletext Hols	

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min, File Size: 174 MB

ts.TELE-satellite.com/DVB-T/UK/London-Ch32-1107.ts



UK

Network Name

London.

Recording

TELE-satellite

Transmitter

London Channel 34

Remark

MHEG

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	London Channel 34	Recording Remark	TELE-satellite MHEG
201	0x00C9	MPEG2 Video	-	2282.31	12.71	Pick TV+1	1101 0x044D MPEG Audio	- 69.98 0.39	talkSPORT	725 0x02D5 PMT - 7.51 0.04 Gems TV
2401	0x0961	MPEG2 Video	-	1956.14	10.89	Gems TV	103 0x0067 DVB Subtitles	- 27.00 0.15	Sky News	720 0x02D0 PMT - 7.51 0.04 ADULT Blue
2111	0x083F	MPEG2 Video	-	1903.22	10.60	Dave ja vu	503 0x01F7 DVB Subtitles	- 11.98 0.07	E4+1	716 0x02CC PMT - 7.51 0.04 ADULT smileTV3
301	0x012D	MPEG2 Video	-	1891.21	10.53	Pick TV	204 0x00CC DVB Subtitles	- 10.06 0.06	Pick TV+1	713 0x02C9 PMT - 7.51 0.04 Big Deal
401	0x0191	MPEG2 Video	-	1761.39	9.81	Dave	3013 0x0BC5 MHEG	- 10.01 0.06	Sky News	710 0x02C6 PMT - 7.51 0.04 ADULT Babestn2
101	0x0065	MPEG2 Video	-	1652.49	9.20	Sky News	2113 0x0841 DVB Subtitles	- 9.35 0.05	Dave ja vu	17 0x0011 SDT - 5.93 0.03 N/A
611	0x0263	MPEG2 Video	-	1649.21	9.18	price-drop tv	724 0x02D4 PMT	- 7.53 0.04	Create & Craft	2156 0x086C MHEG - 5.76 0.03 Daystar
501	0x01F5	MPEG2 Video	-	1451.25	8.08	E4+1	723 0x02D3 PMT	- 7.53 0.04	Daystar	2146 0x0862 MHEG - 5.76 0.03 ADULT Blue
2301	0x08FD	MPEG2 Video	-	1374.76	7.65	Create & Craft	722 0x02D2 PMT	- 7.53 0.04	ADULT PARTY	2126 0x084E MHEG - 5.76 0.03 Big Deal
18	0x0012	EIT	-	455.47	2.54	N/A	721 0x02D1 PMT	- 7.53 0.04	CNN	626 0x0272 MHEG - 5.76 0.03 COMMUNITY
2112	0x0840	MPEG Audio	-	137.94	0.77	Dave ja vu	719 0x02CF PMT	- 7.53 0.04	Pick TV+1	606 0x025E MHEG - 5.76 0.03 ADULT smileTV3
612	0x0264	MPEG Audio	-	137.94	0.77	price-drop tv	715 0x02CB PMT	- 7.53 0.04	COMMUNITY	426 0x01AA MHEG - 5.76 0.03 ADULT Babestn2
502	0x01F6	MPEG Audio	-	137.94	0.77	E4+1	711 0x02C7 PMT	- 7.53 0.04	Dave ja vu	2206 0x089E MHEG - 5.52 0.03 CNN
402	0x0192	MPEG Audio	-	137.94	0.77	Dave	707 0x02C3 PMT	- 7.53 0.04	price-drop tv	416 0x01A0 MHEG - 5.52 0.03 ADULT PARTY
202	0x00CA	MPEG Audio	-	137.94	0.77	Pick TV+1	706 0x02C2 PMT	- 7.53 0.04	talkSPORT	1102 0x044E MHEG - 4.52 0.03 talkSPORT
102	0x0066	MPEG Audio	-	137.94	0.77	Sky News	705 0x02C1 PMT	- 7.53 0.04	E4+1	20 0x0014 TOT - 3.01 0.02 N/A
2402	0x0962	MPEG Audio	-	137.92	0.77	Gems TV	704 0x02C0 PMT	- 7.53 0.04	Dave	16 0x0010 NIT - 1.29 0.01 N/A
2302	0x08FE	MPEG Audio	-	137.92	0.77	Create & Craft	703 0x02BF PMT	- 7.53 0.04	Pick TV	403 0x0193 DVB Subtitles - 0.58 0.00 Dave
302	0x012E	MPEG Audio	-	137.92	0.77	Pick TV	701 0x02BD PMT	- 7.53 0.04	Sky News	
							0 0x0000 PAT	- 7.53 0.04	N/A	

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UK

Network Name

London.

Recording

TELE-satellite

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	London Channel 67	Recording	TELE-satellite
2401	0x0961	MPEG2 Video	\$	3246.36	13.71	Sky Sports 1	105 0x0069 MHEG	- 47.38 0.20	4Music	1005 0x03ED PMT - 7.49 0.03 Ideal World
2501	0x09C5	MPEG2 Video	\$	2796.63	11.81	Sky Sports 2	5000 0x1388 ECM/EMM	- 46.52 0.20	N/A	1003 0x03EB PMT - 7.49 0.03 Yesterday
601	0x0259	MPEG2 Video	-	2375.20	10.03	ITV4	3022 0x0BCE Data	- 15.41 0.07	Channel Zero	1001 0x03E9 PMT - 7.49 0.03 4Music
701	0x02BD	MPEG2 Video	-	1947.39	8.22	Film4	2527 0x09DF ECM/EMM	- 15.14 0.06	Sky Sports 2	0 0x0000 PAT - 7.49 0.03 N/A
2101	0x0835	MPEG2 Video	-	1820.30	7.68	Russia Today	2517 0x09D5 ECM/EMM	- 15.11 0.06	Sky Sports 2	1024 0x0400 PMT - 7.47 0.03 SMOOTH RADIO
101	0x0065	MPEG2 Video	-	1753.24	7.40	4Music	2507 0x09CB ECM/EMM	- 15.11 0.06	QVC Beauty	1010 0x03F2 PMT - 7.47 0.03 Sky Sports 1
301	0x012D	MPEG2 Video	-	1700.80	7.18	Yesterday	2427 0x097B ECM/EMM	- 15.06 0.06	Sky Sports 1	1033 0x0409 PMT - 7.45 0.03 Al Jazeera Eng
501	0x01F5	MPEG2 Video	-	1659.45	7.01	Ideal World	2417 0x0971 ECM/EMM	- 15.06 0.06	Sky Sports 1	1021 0x03FD PMT - 7.45 0.03 Kiss
2391	0x0957	MPEG2 Video	-	1600.37	6.76	QVC Beauty	2407 0x0967 ECM/EMM	- 15.06 0.06	Sky Sports 1	1002 0x03EA PMT - 7.45 0.03 VIVA
201	0x00C9	MPEG2 Video	-	1477.78	6.24	VIVA	2503 0x09C7 DVB Subtitles	- 14.45 0.06	Sky Sports 2	17 0x0011 SDT - 6.93 0.03 N/A
18	0x0012	EIT	-	465.92	1.97	N/A	3021 0x0BCD Data	- 12.95 0.05	Channel Zero	1036 0x040C PMT - 6.83 0.03 ADULT Babestn
2502	0x09C6	MPEG Audio	\$	137.41	0.58	Sky Sports 2	2346 0x092A MHEG	- 10.10 0.04	ADULT Babestn	2403 0x0963 DVB Subtitles - 6.76 0.03 Sky Sports 1
2102	0x0836	MPEG Audio	-	137.41	0.58	Russia Today	603 0x025B DVB Subtitles	- 10.03 0.04	ITV4	203 0x00CB DVB Subtitles - 6.19 0.03 VIVA
602	0x025A	MPEG Audio	-	137.34	0.58	ITV4	2376 0x0948 MHEG	- 7.74 0.03	Al Jazeera Eng	2336 0x0920 MHEG - 5.75 0.02 Rocks & Co 1
202	0x00CA	MPEG Audio	-	137.31	0.58	VIVA	1023 0x03FF PMT	- 7.52 0.03	Kerrang!	1802 0x070A MHEG - 5.73 0.02 Magic
502	0x01F6	MPEG Audio	-	137.29	0.58	Ideal World	1042 0x0412 PMT	- 7.49 0.03	QVC Beauty	1602 0x0642 MHEG - 5.73 0.02 Premier Radio
302	0x012E	MPEG Audio	-	137.29	0.58	Yesterday	1041 0x0411 PMT	- 7.49 0.03	Channel Zero	1102 0x044E MHEG - 5.73 0.02 Kiss
102	0x0066	MPEG Audio	-	137.26	0.58	4Music	1040 0x0410 PMT	- 7.49 0.03	Premier Radio	1202 0x04B2 MHEG - 5.70 0.02 heat
2392	0x0958	MPEG Audio	-	137.12	0.58	QVC Beauty	1037 0x040D PMT	- 7.49 0.03	ITV4	1402 0x057A MHEG - 5.68 0.02 SMOOTH RADIO
702	0x02BE	MPEG Audio	-	137.12	0.58	Film4	1035 0x040B PMT	- 7.49 0.03	Rocks & Co 1	516 0x0204 MHEG - 5.68 0.02 ADULT smileTV2
2402	0x0962	MPEG Audio	\$	137.09	0.58	Sky Sports 1	1032 0x0408 PMT	- 7.49 0.03	ADULT Section	1902 0x076E MHEG - 4.99 0.02 Q
1901	0x076D	MPEG Audio	-	135.25	0.57	Q	1030 0x0406 PMT	- 7.49 0.03	Smash Hits!	1702 0x06A6 MHEG - 4.99 0.02 The Hits Radio
1801	0x0709	MPEG Audio	-	135.20	0.57	Magic	1029 0x0405 PMT	- 7.49 0.03	Q	1 0x0001 CAT - 4.96 0.02 N/A
1101	0x044D	MPEG Audio	-	135.08	0.57	Kiss	1028 0x0404 PMT	- 7.49 0.03	Magic	2116 0x0844 MHEG - 4.94 0.02 ADULT Section
1201	0x04B1	MPEG Audio	-	93.65	0.40	heat	1027 0x0403 PMT	- 7.49 0.03	The Hits Radio	1302 0x0516 MHEG - 4.94 0.02 Kerrang!
1301	0x0515	MPEG Audio	-	93.60	0.40	Kerrang!	1022 0x03FE PMT	- 7.49 0.03	heat	6502 0x1966 MHEG - 4.52 0.02 Smash Hits!
1701	0x06A5	MPEG Audio	-	93.50	0.39	The Hits Radio	1018 0x03FA PMT	- 7.49 0.03	ADULT Section	20 0x0014 TOT - 3.00 0.01 N/A
1501	0x05DD	MPEG Audio	-	93.47	0.39	Smash Hits!	1017 0x03F9 PMT	- 7.49 0.03	ADULT smileTV2	16 0x0010 NIT - 1.33 0.01 N/A
1401	0x0579	MPEG Audio	-	69.71	0.29	SMOOTH RADIO	1016 0x03F8 PMT	- 7.49 0.03	Russia Today	3020 0x0BCC Data - 1.23 0.01 Channel Zero
1601	0x0641	MPEG Audio	-	69.66	0.29	Premier Radio	1011 0x03F3 PMT	- 7.49 0.03	Sky Sports 2	303 0x012F DVB Subtitles - 0.54 0.00 Yesterday
							1008 0x03F0 PMT	- 7.49 0.03	Film4	3023 0x0BCF Data - 0.20 0.00 Channel Zero

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UK

Network Name

South West

Recording

Andy Middleton

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	Plymouth Channel 45	Recording	Andy Middleton
401	0x0191	MPEG2 Video	-	4592.51	19.41	CBeebies	7204 0x1C24 Data	- 100.08 0.42	BBC ONE	410 0x019A Data - 3.04 0.01 BBC FOUR
201	0x00C9	MPEG2 Video	-	3345.78	14.14	BBC TWO	7205 0x1C25 Data	- 81.06 0.34	BBC ONE	311 0x0137 MHEG - 3.04 0.01 BBC THREE
301	0x012D	MPEG2 Video	-	3293.92	13.92	CBBC Channel	306 0x0132 MPEG Audio	- 69.68 0.29	CBBC Channel	110 0x006E MHEG - 3.04 0.01 BBC ONE
101	0x0065	MPEG2 Video	-	2859.14	12.08	BBC ONE	505 0x01F9 DVB Subtitles	- 23.95 0.10	BBC NEWS	20 0x0014 TOT - 3.04 0.01 N/A
501	0x01F5	MPEG2 Video	-	1292.64	5.46	BBC NEWS	2700 0x0A8C MHEG	- 15.06 0.06	BBC Red Button	910 0x038E MHEG - 2.99 0.01 301
901	0x0385	MPEG2 Video	-	1191.96	5.04	301	2000 0x07D0 PMT	- 15.06 0.06	BBC World Sv.	811 0x032B Data - 2.99 0.01 CBeebies
7201	0x1C21	MHEG	-	1051.03	4.44	BBC ONE	1900 0x076C PMT	- 15.06 0.06	BBC Asian Net.	810 0x032A MHEG - 2.99 0.01 CBeebies
601	0x0259	MPEG2 Video	-	966.19	4.08	BBC Parliament	1800 0x0708 PMT	- 15.06 0.06	BBC R1X	711 0x02C7 Data - 2.99 0.01 CBBC Channel
18	0x0012	EIT	-	661.89	2.80	N/A	1700 0x06A4 PMT	- 15.06 0.06	BBC Radio 4 Ex	710 0x02C6 MHEG - 2.99 0.01 CBBC Channel
302	0x012E	MPEG Audio	-	263.49	1.11	CBBC Channel	1500 0x05DC PMT	- 15.06 0.06	BBC R5SX	610 0x0262 MHEG - 2.99 0.01 BBC Parliament
202	0x00CA	MPEG Audio	-	263.49	1.11	BBC TWO	1400 0x0578 PMT	- 15.06 0.06	BBC R5L	510 0x01FE MHEG - 2.99 0.01 BBC NEWS
102	0x0066	MPEG Audio	-	263.49	1.11	BBC ONE	1300 0x0514 PMT	- 15.06 0.06	BBC Radio 4	411 0x019B MHEG - 2.99 0.01 BBC FOUR
402	0x0192	MPEG Audio	-	263.45	1.11	CBeebies	1200 0x04B0 PMT	- 15.06 0.06	BBC Radio 3	310 0x0136 Data - 2.99 0.01 BBC THREE
1302	0x0516	MPEG Audio	-	200.76	0.85	BBC Radio 4	1100 0x044C PMT	- 15.06 0.06	BBC Radio 2	210 0x00D2 MHEG - 2.99 0.01 BBC TWO
1202	0x04B2	MPEG Audio	-	200.76	0.85	BBC Radio 3	1000 0x03E8 PMT	- 15.06 0.06	BBC Radio 1	605 0x025D DVB Subtitles - 2.81 0.01 BBC Parliament
1102	0x044E	MPEG Audio	-	200.72	0.85	BBC Radio 2	900 0x0384 PMT	- 15.06 0.06	301	450 0x01C2 Private Sections - 1.20 0.01 N/A
1002	0x03EA	MPEG Audio	-	200.72	0.85	BBC Radio 1	700 0x02BC PMT	- 15.06 0.06	CBBC Channel	350 0x015E Private Sections - 1.20 0.01 N/A
951	0x03B7	MPEG Audio	-	198.69	0.84	301	600 0x0258 PMT	- 15.06 0.06	BBC Parliament	250 0x00FA Private Sections - 1.20 0.01 N/A
1801	0x070A	MPEG Audio	-	167.28	0.71	BBC R1X	300 0x012C PMT	- 15.06 0.06	BBC THREE	150 0x0096 Private Sections - 1.20 0.01 N/A
1702	0x06A6	MPEG Audio	-	167.28	0.71	BBC Radio 4 Ex	200 0x00C8 PMT	- 15.06 0.06	BBC TWO	16 0x0010 NIT - 1.11 0.00 N/A
1602	0x0642	MPEG Audio	-	167.28	0.71	BBC 6 Music	100 0x0064 PMT	- 15.06 0.06	BBC ONE	2010 0x07DA MHEG - 0.51 0.00 BBC World Sv.
7203	0x1C23	Data	-	150.19	0.63	BBC ONE	0 0x0000 PAT	- 15.06 0.06	N/A	1910 0x0776 MHEG - 0.51 0.00 BBC Asian Net.
7202	0x1C22	Data	-	150.15	0.63	BBC ONE	1600 0x0640 PAT	- 15.01 0.06	BBC 6 Music	1810 0x0712 MHEG - 0.51 0.00 BBC R1X
1902	0x076E	MPEG Audio	-	135.91	0.57	BBC Asian Net.	800 0x0320 PMT	- 15.01 0.06	CBeebies	1710 0x06AE MHEG - 0.51 0.00 BBC Radio 4 Ex
952	0x03B8	MPEG Audio	-	132.46	0.56	301	500 0x01F4 PMT	- 15.01 0.06	BBC NEWS	1610 0x064A MHEG - 0.51 0.00 BBC 6 Music
602	0x025A	MPEG Audio	-	132.46	0.56	BBC Parliament	400 0x0190 PMT	- 15.01 0.06	BBC FOUR	1510 0x05E6 MHEG - 0.51 0.00 BBC R5SX
502	0x01F6	MPEG Audio	-	132.41	0.56	BBC NEWS	105 0x0069 DVB Subtitles	- 12.57 0.05	BBC ONE	1410 0x0582 MHEG - 0.51 0.00 BBC R5L
2002	0x07D2	MPEG Audio	-	101.97	0.43	BBC World Sv.	205 0x00CD DVB Subtitles	- 11.33 0.05	BBC TWO	1310 0x051E MHEG - 0.51 0.00 BBC Radio 4
1502	0x05DE	MPEG Audio	-	101.97	0.43	BBC R5SX	405 0x0195 DVB Subtitles	- 10.92 0.05	CBeebies	1210 0x04BA MHEG - 0.51 0.00 BBC Radio 3
1402	0x057A	MPEG Audio	-	101.92	0.43	BBC R5L	305 0x0131 DVB Subtitles	- 10.09 0.04	CBBC Channel	1110 0x0456 MHEG - 0.51 0.00 BBC Radio 2
							17 0x0011 SDT	- 6.91 0.03	N/A	1010 0x03F2 MHEG - 0.51 0.00 BBC Radio 1

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DVB-T**UK****Network Name****South West****Recording****Andy Middleton****Transmitter****Plymouth Channel 49**

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
520	0x0208	MPEG2 Video	-	3711.36	17.22	ITV1
560	0x0230	MPEG2 Video	-	2938.76	13.63	Channel 4
580	0x0244	MPEG2 Video	-	2793.78	12.96	Channel 4+1
540	0x021C	MPEG2 Video	-	1989.43	9.23	Channel 5
590	0x024E	MPEG2 Video	-	1925.85	8.93	More 4
570	0x023A	MPEG2 Video	-	1908.40	8.85	E4
600	0x0258	MPEG2 Video	-	1822.36	8.45	ITV1 +1
530	0x0212	MPEG2 Video	-	1622.99	7.53	ITV2
18	0x0012	EIT	-	496.01	2.30	N/A
581	0x0245	MPEG Audio	-	201.04	0.93	Channel 4+1
571	0x023B	MPEG Audio	-	201.04	0.93	E4
561	0x0231	MPEG Audio	-	201.04	0.93	Channel 4
591	0x024F	MPEG Audio	-	200.95	0.93	More 4
531	0x0213	MPEG Audio	-	199.00	0.92	ITV2
601	0x0259	MPEG Audio	-	198.91	0.92	ITV1 +1
541	0x021D	MPEG Audio	-	198.91	0.92	Channel 5
521	0x0209	MPEG Audio	-	198.81	0.92	ITV1
2362	0x093A	Data	-	94.21	0.44	ITV1

2361	0x0939	Data	-	72.12	0.33	ITV1
602	0x025A	MPEG Audio	-	69.80	0.32	ITV1 +1
542	0x021E	MPEG Audio	-	69.80	0.32	Channel 5
532	0x0214	MPEG Audio	-	69.80	0.32	ITV2
522	0x020A	MPEG Audio	-	69.80	0.32	ITV1
2367	0x093F	Data	-	57.92	0.27	Rabbit
305	0x0131	PMT	-	15.87	0.07	Channel 4+1
290	0x0122	PMT	-	15.87	0.07	ITV1 +1
288	0x0120	PMT	-	15.87	0.07	Gay Rabbit
274	0x0112	PMT	-	15.87	0.07	Rabbit
270	0x010E	PMT	-	15.87	0.07	More 4
1	0x0001	CAT	-	15.87	0.07	N/A
0	0x0000	PAT	-	15.87	0.07	N/A
304	0x0130	PMT	-	15.78	0.07	E4
300	0x012C	PMT	-	15.78	0.07	Channel 4
289	0x0121	PMT	-	15.78	0.07	Channel 5
258	0x0102	PMT	-	15.78	0.07	ITV2
256	0x0100	PMT	-	15.78	0.07	ITV1
573	0x023D	DVB Subtitles	-	10.58	0.05	E4

603	0x025B	DVB Subtitles	-	6.22	0.03	ITV1 +1
17	0x0011	SDT	-	4.18	0.02	N/A
2363	0x093B	MHEG	-	3.06	0.01	Channel 4
2360	0x0938	MHEG	-	3.06	0.01	Gay Rabbit
2169	0x0879	MHEG	-	3.06	0.01	Rabbit
21	0x0015	Network Sync	-	3.06	0.01	N/A
2168	0x0878	MHEG	-	2.97	0.01	ITV1 +1
2167	0x0877	MHEG	-	2.97	0.01	E4
2164	0x0874	MHEG	-	2.97	0.01	Channel 5
2162	0x0872	MHEG	-	2.97	0.01	ITV2
2161	0x0871	MHEG	-	2.97	0.01	ITV1
20	0x0014	TOT	-	2.97	0.01	N/A
523	0x020B	DVB Subtitles	-	2.23	0.01	ITV1
16	0x0010	NIT	-	1.49	0.01	N/A
533	0x0215	DVB Subtitles	-	1.30	0.01	ITV2
543	0x021F	DVB Subtitles	-	0.37	0.00	Channel 5
3004	0x0BBC	Data	-	0.09	0.00	E4

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only**Duration: 30 Sec, File Size: 87 MB****ts.TELE-satellite.com/DVB-T/UK/Plymouth-Ch49-1110.ts****Transponderstream Technical Service File Download for Clients Only****Duration: 5 Min, File Size: 815 MB****www.transponderstream.com/DVB-T/UK/Plymouth-Ch49-1110.ts****DVB-T2****terrestrial****AT****Austria****DVB-T2****AT****Network Name****ORS****Recording****Thomas Haring****Transmitter****Vienna Channel 60****Remark****MPEG4**

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
210	0x00D2	H.264 Video	-	5910.71	24.08	ORF2 HD
220	0x00DC	H.264 Video	-	5159.69	21.02	ServusTV HD
200	0x00C8	H.264 Video	-	4937.20	20.11	ORF1 HD
8191	0x1FFF	Null Packets	-	4732.38	19.28	N/A
223	0x00DF	AC3 Audio	-	460.84	1.88	ServusTV HD
213	0x00D5	AC3 Audio	-	460.79	1.88	ORF2 HD
203	0x00CB	AC3 Audio	-	460.79	1.88	ORF1 HD
18	0x0012	EIT	-	312.67	1.27	N/A
215	0x00D7	Teletext	-	300.96	1.23	ORF2 HD

205	0x00CD	Teletext	-	300.96	1.23	ORF1 HD
202	0x00CA	MPEG Audio	-	167.22	0.68	ORF1 HD
201	0x00C9	MPEG Audio	-	167.22	0.68	ORF1 HD
2130	0x0852	MPEG Audio	-	167.17	0.68	FM4
2110	0x083E	MPEG Audio	-	167.17	0.68	OE1
221	0x00DD	MPEG Audio	-	167.17	0.68	ServusTV HD
212	0x00DA	MPEG Audio	-	167.17	0.68	ORF2 HD
211	0x00D3	MPEG Audio	-	167.17	0.68	ORF2 HD
32	0x0020	AAC Audio	-	71.38	0.29	HITRADIO OE3
2013	0x07DD	PMT	-	30.13	0.12	FM4

2012	0x07DC	PMT	-	30.13	0.12	HITRADIO OE3
2011	0x07DB	PMT	-	30.13	0.12	OE1
2003	0x07D3	PMT	-	30.13	0.12	ServusTV HD
2002	0x07D2	PMT	-	30.13	0.12	ORF2 HD
2001	0x07D1	PMT	-	30.13	0.12	ORF1 HD
0	0x0000	PAT	-	30.13	0.12	N/A
17	0x0011	SDT	-	30.08	0.12	N/A
16	0x0010	NIT	-	30.08	0.12	N/A
33	0x0021	Private Sections	-	0.98	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only**Duration: 30 Sec, File Size: 93 MB****ts.TELE-satellite.com/DVB-T2/AT/Vienna-Ch60-1109.ts****Transponderstream Technical Service File Download for Clients Only****Duration: 5 Min, File Size: 922 MB****www.transponderstream.com/DVB-T2/AT/Vienna-Ch60-1109.ts****DE****Germany****DVB-T2****DE****Network Name****BR T2****Recording****TELE-satellite****Transmitter****Munich Channel 50**

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
737	0x02E1	H.264 Video	-	11775.17	44.90	Das Erste HD
8191	0x1FFF	Null Packets	-	7397.66	28.21	N/A
753	0x02F1	MPEG2 Video	-	2504.57	9.55	Das Erste
721	0x02D1	MPEG2 Video	-	1668.03	6.36	Bayerisches FS Süd
739	0x02E3	AC3 Audio	-	470.09	1.79	Das Erste HD
2172	0x087C	Data	-	400.03	1.53	Das Erste HD
18	0x0012	EIT	-	353.00	1.35	N/A
738	0x02E2	MPEG Audio	-	266.39	1.02	Das Erste HD

756	0x02F4	Teletext	-	263.25	1.00	Das Erste
740	0x02E4	Teletext	-	263.25	1.00	Das Erste HD
724	0x02D4	Teletext	-	263.25	1.00	Bayerisches FS Süd
754	0x02F2	MPEG Audio	-	203.70	0.78	Das Erste
722	0x02D2	MPEG Audio	-	203.70	0.78	Bayerisches FS Süd
725	0x02D5	MPEG Audio	-	133.22	0.51	Bayerisches FS Süd
555	0x022B	Private Data	-	27.01	0.10	Bayerisches FS Süd
6070	0x17B6	Private Sections	-	9.99	0.04	N/A
6031	0x178F	DVB Subtitles	-	3.75	0.01	Das Erste HD

720	0x02D0	PMT	-	3.19	0.01	Bayerisches FS Süd
1	0x0001	CAT	-	3.19	0.01	N/A
0	0x0000	PAT	-	3.19	0.01	N/A
752	0x02F0	PMT	-	3.14	0.01	Das Erste
736	0x02E0	PMT	-	3.14	0.01	Das Erste HD
20	0x0014	TOT	-	3.00	0.01	N/A
17	0x0011	SDT	-	0.80	0.00	N/A
16	0x0010	NIT	-	0.75	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only**Duration: 1 Min, File Size: 100 MB****ts.TELE-satellite.com/DVB-T2/DE/Munich-Ch50-1109.ts****Transponderstream Technical Service File Download for Clients Only****Duration: 5 Min, File Size: 786 MB****www.transponderstream.com/DVB-T2/DE/Munich-Ch50-1109.ts**

UK

United Kingdom

UK

						Network Name		Cambs & Beds.		Recording		TELE-satellite				
PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	London	Channel 21							
101	0x0065	H.264 Video	-	11166.93	30.41	BBC HD	106 0x006A AAC Audio	-	70.63	0.19	BBC HD	100 0x0064 PMT	-	15.05	0.04	BBC HD
6601	0x19C9	H.264 Video	-	9005.26	24.52	BBC One HD	6606 0x19CE AAC Audio	-	70.58	0.19	BBC One HD	0 0x0000 PAT	-	15.05	0.04	N/A
201	0x00C9	H.264 Video	-	7652.08	20.84	ITV1 HD	206 0x00CE AAC Audio	-	70.58	0.19	ITV1 HD	17 0x0011 SDT	-	4.56	0.01	N/A
301	0x012D	H.264 Video	-	7298.90	19.88	Channel 4 HD	306 0x0132 AAC Audio	-	70.53	0.19	Channel 4 HD	105 0x0069 DVB Subtitles	-	3.01	0.01	BBC HD
102	0x0066	AAC Audio	-	358.66	0.98	BBC HD	6605 0x19CD DVB Subtitles	-	49.85	0.14	BBC One HD	20 0x0014 TOT	-	3.01	0.01	N/A
18	0x0012	EIT	-	294.15	0.80	N/A	205 0x00CD DVB Subtitles	-	31.26	0.09	ITV1 HD	16 0x0010 NIT	-	1.60	0.00	N/A
202	0x00CA	AAC Audio	-	157.27	0.43	ITV1 HD	305 0x0131 DVB Subtitles	-	20.53	0.06	Channel 4 HD	6650 0x19FA Private Sections	-	1.31	0.00	N/A
6602	0x19CA	AAC Audio	-	156.01	0.42	BBC One HD	6600 0x19C8 PMT	-	15.05	0.04	BBC One HD	150 0x0096 Private Sections	-	1.31	0.00	N/A
302	0x012E	AAC Audio	-	156.01	0.42	Channel 4 HD	300 0x012C PMT	-	15.05	0.04	Channel 4 HD					
							200 0x00C8 PMT	-	15.05	0.04	ITV1 HD					

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 135 MB

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Duration: 5 Min, File Size: 945 MB

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DVB-T2

UK

							Network Name		South West		Recording		Andy Middleton							
						Transmitter	Plymouth Channel 42													
PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	130	0x0082	SSU	-	100.43	0.27	BBC HD	100	0x0064	PMT	-	15.08	0.04	BBC HD	
101	0x0065	H.264 Video	-	13880.81	37.17	BBC HD	306	0x0132	AAC Audio	-	70.84	0.19	Channel 4 HD	0	0x0000	PAT	-	15.08	0.04	N/A
201	0x00C9	H.264 Video	-	9917.67	26.56	ITV1 HD	106	0x006A	AAC Audio	-	70.84	0.19	BBC HD	205	0x00CD	DVB Subtitles	-	7.20	0.02	ITV1 HD
6601	0x19C9	H.264 Video	-	6352.93	17.01	BBC One HD	6606	0x19CE	AAC Audio	-	70.72	0.19	BBC One HD	305	0x0131	DVB Subtitles	-	5.60	0.01	Channel 4 HD
301	0x012D	H.264 Video	-	5728.66	15.34	Channel 4 HD	206	0x00CE	AAC Audio	-	70.61	0.19	ITV1 HD	17	0x0011	SDT	-	4.23	0.01	N/A
18	0x0012	EIT	-	297.85	0.80	N/A	105	0x0069	DVB Subtitles	-	27.99	0.07	BBC HD	20	0x0014	TOT	-	2.97	0.01	N/A
102	0x0066	AAC Audio	-	157.67	0.42	BBC HD	6605	0x19CD	DVB Subtitles	-	27.42	0.07	BBC One HD	16	0x0010	NIT	-	1.60	0.00	N/A
6602	0x19CA	AAC Audio	-	157.55	0.42	BBC One HD	6600	0x19CB	PMT	-	15.08	0.04	BBC One HD	6650	0x19FA	Private Sections	-	1.37	0.00	N/A
202	0x00CA	AAC Audio	-	154.58	0.41	ITV1 HD	300	0x012C	PMT	-	15.08	0.04	Channel 4 HD	150	0x0096	Private Sections	-	1.37	0.00	N/A
302	0x012E	AAC Audio	-	153.21	0.41	Channel 4 HD	200	0x00CB	PMT	-	15.08	0.04	ITV1 HD							

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 172 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 1393 MB

www.transponderstream.com/DVB-T2/UK/Plymouth-Ch42-1109.ts

RU

Russia

RU

DVBT2				RU	Network Name	10	Recording	TELE-satellite										
PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	Transmitter	Moscow Channel 32	Remark	encrypted									
45	0x002D	H.264 Video	\$ 1180.04	12.52	HTB	58	0x003A MPEG Audio	\$ 104.64	1.11	Karusel	34	0x0022	PMT	-	23.46	0.25	Russia-1	
45	0x002D	H.264 Video	\$ 1180.04	12.52	HTB	58	0x003A MPEG Audio	\$ 104.64	1.11	Russia-24	36	0x0010	NIT	-	23.46	0.25	N/A	
39	0x0027	H.264 Video	\$ 1075.78	11.41	5 kanal S-Pb	44	0x002C MPEG Audio	\$ 104.64	1.11	HTB	63	0x003F	PMT	-	23.09	0.24	Sport-2	
42	0x002A	H.264 Video	\$ 1068.33	11.34	1-kanal	47	0x002F MPEG Audio	\$ 104.26	1.11	Russia-K	57	0x0039	PMT	-	23.09	0.24	Russia-24	
54	0x0036	H.264 Video	\$ 1063.86	11.29	Russia-24	35	0x0023 MPEG Audio	\$ 104.26	1.11	Russia-2	110	0x006E	ECM/EMM	-	5.21	0.06	Sport-2	
62	0x0024	H.264 Video	\$ 1010.61	10.72	Russia-2	17	0x0011 SDT	-	25.32	0.27	N/A	109	0x006D	ECM/EMM	-	5.21	0.06	Karusel
36	0x003E	H.264 Video	\$ 916.40	9.72	Sport-2	1	0x0001 CAT	-	25.32	0.27	N/A	108	0x006C	ECM/EMM	-	5.21	0.06	Russia-24
59	0x003B	H.264 Video	\$ 810.65	8.60	Karusel	0	0x0000 PAT	-	25.32	0.27	N/A	56	0x0038	ECM/EMM	-	5.21	0.06	Russia-2
33	0x0021	H.264 Video	\$ 571.59	6.06	Russia-1	60	0x003C PMT	-	23.46	0.25	Karusel	55	0x0037	ECM/EMM	-	5.21	0.06	5 kanal S-Pb
48	0x0030	H.264 Video	\$ 427.48	4.54	Russia-K	49	0x0031 PMT	-	23.46	0.25	Russia-K	53	0x0035	ECM/EMM	-	5.21	0.06	Russia-K
61	0x003D	MPEG Audio	\$ 105.01	1.11	Sport-2	46	0x002E PMT	-	23.46	0.25	HTB	52	0x0034	ECM/EMM	-	5.21	0.06	Russia-1
41	0x0029	MPEG Audio	\$ 105.01	1.11	1-kanal	43	0x002B PMT	-	23.46	0.25	1-kanal	1360	0x0550	ECM/EMM	-	4.84	0.05	1-kanal
38	0x0026	MPEG Audio	\$ 105.01	1.11	5 kanal S-Pb	40	0x0028 PMT	-	23.46	0.25	5 kanal S-Pb	51	0x0033	ECM/EMM	-	4.84	0.05	HTB
32	0x0020	MPEG Audio	\$ 105.01	1.11	Russia-1	37	0x0025 PMT	-	23.46	0.25	Russia-2	20	0x0014	TOT	-	1.49	0.02	N/A

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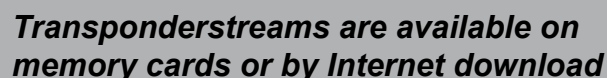
Duration: 30 Sec, File Size: 75 MB

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Duration: 5 Min, File Size: 335 MB

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RU

Network Name

1 Recording

TELE-satellite

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	Moscow Channel 34	1	Recording	TELE-satellite
802	0x0322	H.264 Video	-	2149.29	11.21	Карусель	703 0x02BF MPEG Audio	- 132.45 0.69	Россия 24	17 0x0011 SDT	- 25.00 0.13 N/A
302	0x012E	H.264 Video	-	2148.10	11.21	Россия 2	603 0x025B MPEG Audio	- 132.45 0.69	Россия K	1101 0x044D PMT	- 15.18 0.08 Радио Россия
702	0x02BE	H.264 Video	-	2146.91	11.20	Россия 24	503 0x01F7 MPEG Audio	- 132.45 0.69	Пятый канал	1001 0x03E9 PMT	- 15.18 0.08 Маяк
402	0x0192	H.264 Video	-	2146.02	11.20	HTB	403 0x0193 MPEG Audio	- 132.45 0.69	HTB	701 0x02BD PMT	- 15.18 0.08 Россия 24
202	0x00CA	H.264 Video	-	2145.42	11.19	Россия 1	303 0x012F MPEG Audio	- 132.45 0.69	Россия 2	601 0x0259 PMT	- 15.18 0.08 Россия K
102	0x0066	H.264 Video	-	2145.42	11.19	Первый канал	203 0x00CB MPEG Audio	- 132.45 0.69	Россия 1	501 0x01F5 PMT	- 15.18 0.08 Пятый канал
602	0x025A	H.264 Video	-	2144.53	11.19	Россия K	103 0x0067 MPEG Audio	- 132.45 0.69	Первый канал	401 0x0191 PMT	- 15.18 0.08 HTB
502	0x01F6	H.264 Video	-	2144.53	11.19	Пятый канал	604 0x025C Teletext	- 75.90 0.40	Россия K	901 0x0385 PMT	- 14.88 0.08 Вести FM
1102	0x044E	MPEG Audio	-	137.51	0.72	Радио Россия	204 0x00CC Teletext	- 75.60 0.39	Россия 1	801 0x0321 PMT	- 14.88 0.08 Карусель
1002	0x03EA	MPEG Audio	-	137.51	0.72	Маяк	104 0x0068 Teletext	- 75.60 0.39	Первый канал	301 0x012D PMT	- 14.88 0.08 Россия 2
902	0x0386	MPEG Audio	-	137.51	0.72	Вести FM	18 0x0012 EIT	- 52.09 0.27	N/A	201 0x00C9 PMT	- 14.88 0.08 Россия 1
803	0x0323	MPEG Audio	-	132.45	0.69	Карусель	1 0x0001 CAT	- 25.30 0.13	N/A	101 0x0065 PMT	- 14.88 0.08 Первый канал
							0 0x0000 PAT	- 25.30 0.13	N/A	20 0x0014 TOT	- 2.98 0.02 N/A

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Duration: 30 Sec, File Size: 75 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 725 MB

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ISDB-T_B

terrestrial

BR

Brasil

ISDB-T_B

BR

Network Name

Rede Record

Recording

TELE-satellite

SDS-1B						BR		Transmitter		Sao Paulo Channel 20		Remark		1Seg (Mobile TV), HD						
PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name														
273	0x0111	H.264 Video	-	15304.88	83.69	Record HD	274	0x0112	AAC Audio	-	104.10	0.57	Record HD	512	0x0200	PCR	-	7.52	0.04	N/A
							275	0x0113	AAC Audio	-	103.95	0.57	Record HD	39	0x0027	?	-	6.02	0.03	N/A
8191	0x1FFF	Null Packets	-	1303.08	7.13	N/A	643	0x0283	AAC Audio	-	65.84	0.36	Record 1Seg	288	0x0120	Private PES	-	1.50	0.01	Record HD
641	0x0281	H.264 Video	-	307.79	1.68	Record 1Seg	18	0x0012	EIT	-	60.01	0.33	N/A	36	0x0024	?	-	1.50	0.01	N/A
3000	0x0BB8	?	-	201.55	1.10	N/A	768	0x0300	PCR	-	39.51	0.22	N/A	16	0x0010	NIT	-	1.50	0.01	N/A
3106	0x0C22	?	-	200.06	1.09	N/A	257	0x0101	PMT	-	30.10	0.16	Record HD	656	0x0290	Private PES	-	1.50	0.01	Record 1Seg
3104	0x0C20	?	-	200.06	1.09	N/A	908	0x038C	Data	-	20.01	0.11	Record 1Seg	17	0x0011	SDT	-	1.00	0.01	N/A
3102	0x0C1E	?	-	200.06	1.09	N/A	0	0x0000	PAT	-	15.05	0.08	N/A	20	0x0014	TOT	-	0.30	0.00	N/A
276	0x0114	AAC Audio	-	104.10	0.57	Record HD	8136	0x1FC8	PMT	-	7.52	0.04	Record 1Seg	508	0x01FC	Private Sections	-	0.15	0.00	N/A

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 945 MB

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ISDB-T_B

BR

Network Name

BAND

Recording

TELE-satellite

SDS-1B						BR		Transmitter		Sao Paulo Channel 23		Remark		1Seg (Mobile TV), HD			
PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name											
259	0x0103	H.264 Video	-	10554.91	85.61	BAND HDTV	511	0x01FF	PCR	-	41.65	0.34	N/A	107	0x006B	Private PES	- 2.14 0.02 BAND HDTV
8191	0x1FFF	Null Packets	-	1071.43	8.69	N/A	274	0x0112	AAC Audio	-	35.83	0.29	BAND 1SEG	36	0x0024	?	- 1.58 0.01 N/A
273	0x0111	H.264 Video	-	305.29	2.48	BAND 1SEG	32	0x0020	PMT	-	15.83	0.13	BAND HDTV	16	0x0010	NIT	- 1.58 0.01 N/A
256	0x0100	AAC Audio	-	111.87	0.91	BAND HDTV	0	0x0000	PAT	-	15.82	0.13	N/A	17	0x0011	SDT	- 0.80 0.01 N/A
257	0x0101	AAC Audio	-	105.71	0.86	BAND HDTV	512	0x0200	PCR	-	7.52	0.06	N/A	20	0x0014	TOT	- 0.32 0.00 N/A
18	0x0012	EIT	-	49.96	0.41	N/A	8136	0x1FC8	PMT	-	3.96	0.03	BAND 1SEG				
							39	0x0027	?	-	3.00	0.02	N/A				

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 502 MB

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ISDB-T_B

BR

Network Name

Rede TV!

Recording

TELE-satellite

PID						Transmitter		Sao Paulo Channel 29		Remark		3D (side-by-side)								
PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name														
273	0x0111	H.264 Video	-	7102.65	64.56	Rede TV! HD	530	0x0212	AAC Audio	-	66.63	0.61	Rede TV! 1Seg	8136	0x1FC8	PMT	-	3.00	0.03	Rede TV! 1Seg
289	0x0121	H.264 Video	-	2154.51	19.58	Rede TV! 3D	18	0x0012	EIT	-	28.50	0.26	N/A	39	0x0027	?	-	3.00	0.03	N/A
8191	0x1FFF	Null Packets	-	980.45	8.91	N/A	512	0x0200	PCR	-	27.57	0.25	N/A	533	0x0215	Private PES	-	1.84	0.02	Rede TV! 1Seg
529	0x0211	H.264 Video	-	324.42	2.95	Rede TV! 1Seg	768	0x0300	PCR	-	16.37	0.15	N/A	36	0x0024	?	-	1.48	0.01	N/A
290	0x0122	AAC Audio	-	84.67	0.77	Rede TV! 3D	256	0x0100	PCR	-	16.33	0.15	N/A	16	0x0010	NIT	-	1.48	0.01	N/A
275	0x0113	AAC Audio	-	80.15	0.73	Rede TV! HD	258	0x0102	PMT	-	8.94	0.08	Rede TV! 3D	278	0x0116	Private PES	-	1.07	0.01	Rede TV! HD
274	0x0112	AAC Audio	-	79.89	0.73	Rede TV! HD	0	0x0000	PAT	-	8.94	0.08	N/A	17	0x0011	SDT	-	0.74	0.01	N/A
							257	0x0101	PMT	-	8.88	0.08	Rede TV! HD	20	0x0014	TOT	-	0.29	0.00	N/A

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 602 MB

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DVB-T

V: MPEG-2

A: MPEG-1 Level 2

Algeria
Albania
Australia
Austria
Belgium
Croatia**
Denmark**
Finland**
France*
French Guyana
Germany*
Greece*
Indonesia
Italy**
Luxembourg
Morocco
Namibia
Netherlands
Qatar
Sweden*/**
Switzerland
Tunisia

* some
V: H.264

** some DVB-T2

* some
DVB-T MPEG-2

** some DVB-T2

DVB-T

V: H.264

A: MPEG-4 AAC

Azerbaijan
Belarus*
Bulgaria
Burundi
Central African Republic
Colombia
Czech**
Estonia**
Ghana
Guinea
Hungary**
Iceland
Ireland
India
Iran
Israel
Kenya**
Latvia
Lithuania
Macedonia
Malaysia
Mauritius
New Zealand
Nigeria
Norway
Panama
Poland
Portugal
Romania
Rwanda
Slovakia
Slovenia**
Spain**
Uganda
Ukraine*
Vietnam
Zambia

ISDB-TB

V: H.264

A: MPEG-4 AAC

Argentina
Belize
Bolivia
Brazil
Costa Rica
Chile
Ecuador
Paraguay
Peru
Philippines
Uruguay
Venezuela

ISDB

V: MPEG-2

A: MPEG-2 AAC
Japan

DVB-T2

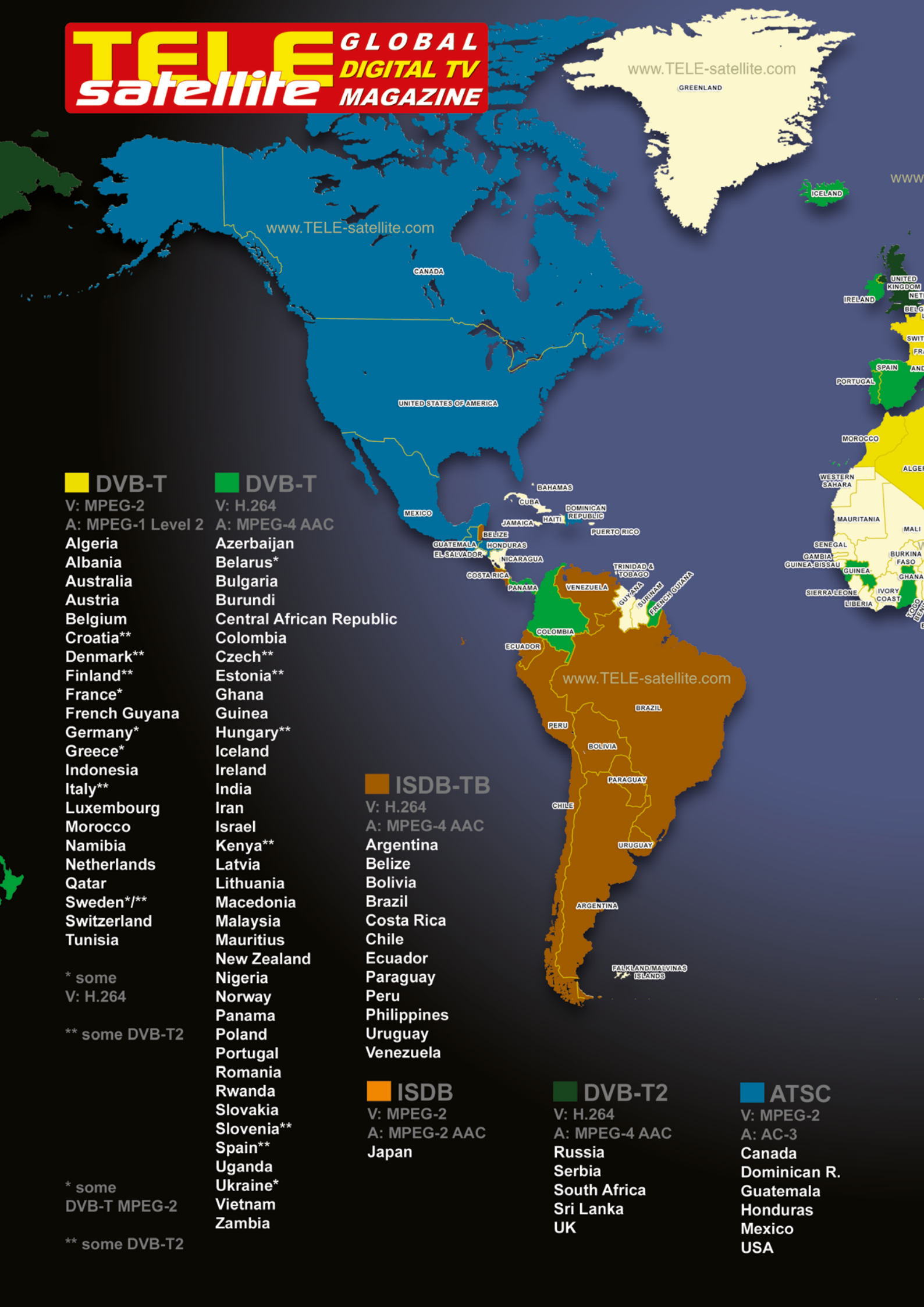
V: H.264

A: MPEG-4 AAC
Russia
Serbia
South Africa
Sri Lanka
UK

ATSC

V: MPEG-2

A: AC-3
Canada
Dominican R.
Guatemala
Honduras
Mexico
USA



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DTMB

V: H.264

A: MPEG-4 AAC

China*

* some

V: MPEG2

TELE

**3DTV
HDTV
IP/Web
satellite**

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30 Years Ago

Satellite News 1982:

The first European experimental TV programme is transmitted via the OTS satellite. It's called EURIKON. Between May and November 1982 5 transmission blocks are transmitted via the OTS satellite, each block consisting of 7 days. This gives the European broadcasters the opportunity both to check the programming of a "Europe Program" and to test in real live their technology. Actively supported are the tests by the broadcasters from Netherlands, UK, West-Germany, Austria and Italy. Further broadcasters participate passively. The Uplink is on 14.3025 GHz and the Downlink on 11.64 GHz. Two beacons can be used to align the reception dishes. One beacon transmits on 11.575 GHz with 18dBW linear and the other on 11.786 GHz with 2dBw circular. The EURIKON transmissions themselves however are still done in linear polarization, but in future they will switch to circular. Apparently, there are still technical problems to solve circular reception.

DDR

Das DDR-Fernsehen begann 1970 mit der Ausstrahlung von Stationsdias. Inzwischen läuft die 5. Generation, da jedes zweite Jahr eine neue Gestaltung der im wesentlichen nur Schrift enthaltenden Dias vorgenommen werden. Diese Dias sollen 20-30 min. vor dem morgendlichen Schulprogramm-

beginn ausgestrahlt werden. Von der regelmäßigen Ausstrahlung halten die meisten Sender aber nichts. So kann man sich glücklich schätzen, einige Dias nur einmal im Monat und dann auch nur zwischen 1 und 7 Minuten - statt der offiziellen 10 min - gesehen zu haben.

31

DDR 1971 ES

32

DDR 1975 ES

33

DDR 1978 ES

34

DDR 1980 ES

TELE-audiovision 8/9 1982

Ein Sender mit Zukunft : Radio Brenner International

Ein Bericht von Eduard Dunzinger und Alexander Wiese



Radio-Brenner Chefsprecher Bernie - im Hintergrund in der Sprecherkabine Sabine - mitten bei der Livesendung "Mittagsmagazin".

Strahlende Sonne, blauer Himmel, herrliche Berge: das sind unsere Impressionen als wir auf der Brenner-Staatsstraße ins Tal rollen. Unser Ziel ist ein von außen unscheinbar wirkendes Haus an der malerischen Rathausgasse im Herzen Sterzings, der ersten Stadt nach dem österreich-italienischem Grenzübergang am Brennerpaß.

Wir werden freundlich begrüßt und in ein geräumiges Büro geführt. Unser Gastgeber ist Alfred Scholz, der

Intendant von Radio-Brenner-International. Ihm zur Seite der Programmkoordinator des Senders, von allen "der Professor" genannt.

Im ersten Moment sind wir von der Größe und der Einrichtung des Büros überrascht: so etwas hätten wir uns von einem Privatsender nicht zu erwarten gehofft. Hier wirkt nichts improvisiert. Das Gespräch bestätigt dann auch die ersten Eindrücke.

"Wir haben", so erklärt uns der Inten-

Sat - TV aktuell:

Redakteur: Rainer Bärmann, c/o TELE-audiovision, Postfach 801965, 8000 München 80

Achtung! Neuerdings werden in der Fachpresse Sat-TV-Anlagen angeboten. Auch bei noch so günstigen Offerten ist Vorsicht geboten, denn diese Anlagen arbeiten im 3GHz-Band und entsprechen der amerikanischen Norm. Bei uns ist damit nur Rauschen zu empfangen.

Gerüchte besagen, die UdSSR habe den niederländischen KTV-Gesellschaften die Empfangsgenehmigung ihrer TV-Satelliten erteilt. (Notgedrungen...?)

Die finnische Tageszeitung HUFVUOSTADSLADEJ veröffentlichte eine Zeitlang - sie hat es jetzt wieder eingestellt - das Satelliten-TV-Programm, wie es von HTV - Helsinki-TV (TAV-7,5.6) übertragen wird. Man sieht, das Angebot der englischen Satellite-TV-Ltd, die ja dieses Programm produziert, ist noch nicht berauschend: Beginn erst um 2100 Uhr (2000 englische Zeit) mit Filmen und Serien, gegen 2200 Musikfilme.

via B-Kirk

HTV:s satellitprogramm

21.00 Hadleigh TVserie, del 6. 22.00 Johnny Cash riding the rails. En resa med countrylegenden Johnny Cash till pampiga Amerika.

HTV:s satellitprogram

29. 4. 21.00 Billy Liar. Komediserie, del 5. 21.30 Within these walls. Dramaserie, del 5. 22.30 Videocade mit The Teardrop Explodes. 30. 5. 21.00 Hadleigh TV serie, del 5. 21.30 Venc. Kortfilm om slöjd. 22.00 Paul Simon. En program som presenterar många av Simons populäraste sånger.

HTV:s satellitprogram

21.00 Hadleigh TV-serie, del 4. 22.00 Jazz med Ramsey Lewis.

Ebenfalls über den OTS-Satellit wird das erste europäische Fernseh-Programm experimentell ausgestrahlt: EURIKON genannt. Im Zeitraum zwischen Mai und November werden in fünf Blöcken zu je sieben Sendetagen über OTS Fernseh-Testprogramme abgestrahlt. Damit soll den beteiligten europäischen Rundfunkanstalten die Gelegenheit gegeben werden, sowohl die Gestaltung eines "Europaprogramms" in der Praxis zu erproben als auch ihre vorhandene Technik unter realen Bedingungen zu erproben.

Aktiv beteiligt sind die Rundfunkanstalten von Holland, England, BR-Deutschland, Österreich und Italien. Eine Reihe weiterer Anstalten beteiligt sich passiv, d.h. nur empfangsmäßig an den Versuchen.

Technische Angaben: Die Zuspiegelung zum Satelliten (uplink) geschieht auf 14,3025 GHz, die Abstrahlung vom Satelliten (downlink) erfolgt auf 11,64 GHz. Zwei Bakenstrahler (ständig eingeschaltete Hilfsstrahler) im Satelliten dienen zum Einrichten der Empfangsspiegel: eine Bake sendet auf 11,575 GHz 18dBm linear polarisiert, die andere auf 11,786 GHz 29dBm zirkular polarisiert. Die EURIKON-Versuche erfolgen allerdings alle noch in linearer (vertikaler) Polarisation - das spätere "richtige" Satelliten-Fernsehen wird demgegenüber zirkular arbeiten. Offenbar (siehe TAV-4, S.40f) ist zirkularer Empfang technisch immer noch nicht befriedigend gelöst.

10

TELE-audiovision 8/9 1982

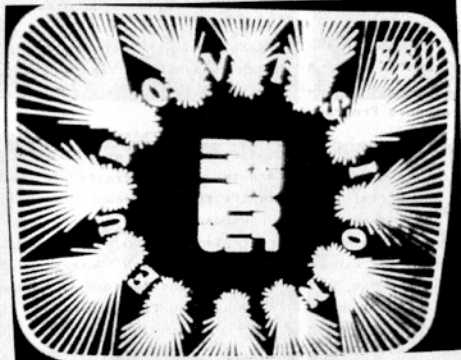
Folgende EURIKON-Versuche stehen noch aus:

vom 27.09. bis	3.10.82	Österreich
25.10.	31.10.82	Holland
22.11.	29.11.82	BR-Deutschland

Info: ORF-Technik 4/82

Hier noch zwei Satelliten-Fotos; Eurovisions-Logo der EBU und Titel eines für EURIKON produzierten Films. Vom ORF mit 3m-Spiegel im Wiener ORF-Zentrum aufgenommen.

Fotos: ORF-Technik



TELE-audiovision 8/9 1982

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Satelliten - Fernsehen

Redakteur: Rainer Bärmann
c/o TELE-audiovision
Postfach 801965
D-8000 München 80

Frage an Radio Eriwan:

Kann man zum Empfang von Sat-TV auch eine Yagi-Antenne verwenden und nicht nur einen häßlichen Teller, genannt Parabolspiegel?

Radio Eriwan antwortet:

Im Prinzip ja, aber...

So würde mit Sicherheit Radio Eriwan antworten; doch was ist an der Antwort dran? Es trennt sich, wie so oft, auch hier die Theorie von der Praxis. Die Funktion einer Yagi-Antenne läßt sich auf nahezu jeder Wellenlänge beweisen; in der Mikrowellentechnik ist es allerdings nicht mehr möglich, eine Yagi mit einem ähnlich hohen Gewinn und mechanischer Festigkeit aufzubauen. Allein die kapazitiven

und induktiven Verhältnisse in einer Mikrowellen-Yagi und deren Problemstellungen geben dem Parabolreflektor den Zuschlag.

Will man Regenwasser auffangen, so gilt es, ein möglichst grosses und breites Auffangbecken zu errichten. Genauso verhält es sich mit unseren Mikrowellen, in denen die Fernseh- und Tonsignale versteckt sind, die wir auffangen wollen.

Die bestimmte Wölbung des Reflektors konzentriert die Wellen, ähnlich dem Brennglas-Effekt, auf einen Brennpunkt, wo der Erreger (die eigentliche Antenne) sitzt. Der Durchmesser D des Reflektors bestimmt mit der Wölbungssteilheit den Abstand zwischen Scheitelpunkt und Brennpunkt: genannt Brennweite.

Bei einer gut funktionierenden Parabol-Antenne ist der Standort des Erregers mit dem Brennpunkt identisch: damit können alle gebündelten Wellen von diesem Erreger in leitungsgebundene Schwingungen umgewandelt werden. Der Erreger erfüllt somit die bekannte Funktion des Dipols, obgleich optisch kein Vergleich angestellt werden kann. Die Abbildung 2 simuliert den Erreger in drei Positionen: nur an der mittleren (Punkt 2) kann die volle Energie abgenommen werden.

Die am Standort der Antenne vorhandene Empfangsenergie vermehrt sich je nach Reflektorgröße um den Bündelungs-

gewinn, der sich zwischen 30 bis 50 dB bewegt. Jeder Fremdkörper im Strahlungsfeld, jede Befestigung des Erregers und auch raue Stellen auf der Reflektoroberfläche verändern den Wirkungsgrad nachteilig. Deshalb ist es das Ziel jeden Antennenbauers, den Erreger optimal zu montieren und für eine verlustfreie Ableitung über das Speisekabel zu sorgen.

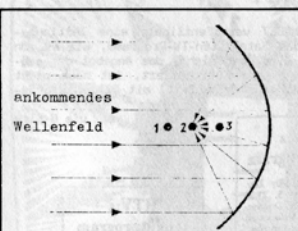


Abb. 2

Position des Erregers:

- 1: Der Erreger sitzt zu weit außerhalb des Brennpunktes.
- 2: Der Erreger sitzt genau im Brennpunkt und nimmt die volle, gebündelte Energie auf.
- 3: Die Bündelung erfolgt nach dem Erreger und wird in den Raum zurückgestrahlt.

Das Speisekabel ist für den Transport der vom Erreger abgenommenen Hochfrequenz-Spannung zuständig. Ein herkömmliches Fernseh-Koaxialkabel wäre für die 12-GHz-Schwingung zu verlustreich, deshalb verwendet man spezielle Hohlleiter, die oft auch als Befestigung des Erregers dienen.

Mit der Verwendung von Hohlleitern hat man sich den "Skin-Effekt" der leitergeführten Hochfrequenz angepasst (Abb.3). Oft sind diese Hohlleiter noch zusätzlich auf der Außen-

Begriffsverwirrung
dBd • dBS • dBuV

Die Bezeichnung dBd kennzeichnet den Gewinn einer Antenne verglichen mit dem isotropen Strahler (rein theoretische punktförmige Antenne), also eine Rechengröße. dBd ist die übliche Gewinnangabe; als Bezugsantenne gilt hier der Dipol. dBd-Angaben sind immer 2 dB höher wie dBd. Bei dBuV ist die Bezugsgröße 1µV. Im Sprachgebrauch verwendet man immer nur dB ohne die Bezugsgröße zu nennen.

fläche versilbert, um der HF einen noch geringeren Widerstand anzubieten.

Die Polarisierung der Antenne kann an der Öffnung des Hohlleiters erkannt werden. Dies ist bei der Montage der Antenne wichtig, um beim Empfang keine Einbußen zu erleiden. Während ein Rundhohlleiter meist auf zirkuläre Polarisierung schließen läßt, weist ein Rechteckhohlleiter stets zur linearen Polarisierung.

Beim Empfang des regulären Satelliten-TV-Programms wird nur mit zirkularer Polarisierung gearbeitet werden, um die auf der Übertragungsstrecke Erde-Satellit-Erde auftretenden Feldänderungen ausgleichen zu können. Arbeitet der Satellit auf der downlink (abwärts) Frequenz mit zirkular-rechtsdrehender Feldrichtung, so muß ihm die Empfangsstation mit zirkular-links-drehender Polarisierung entgegengesetzt werden.

Rainer Bärmann

(Fortsetzung folgt)

8

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9

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TELE satellit

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VORSTELLUNG**

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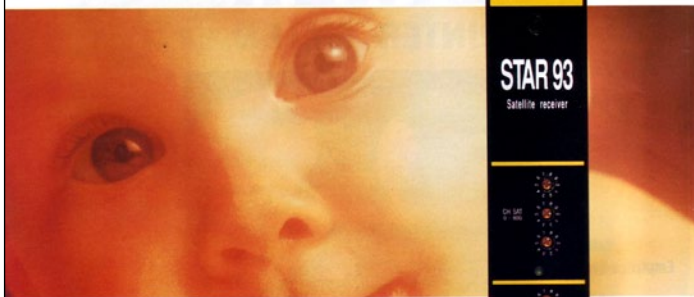


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10 Years Ago

TELE-satellite's Editorial 10 Years Ago

"Are there satellite receivers with digital video outputs?" This question was recently asked by a TELE-satellite reader. He actually has a point with this question. Several receivers already come with a digital audio output (AC3), but what about a digital video output? We still connect our TV's, VCR's and Dolby Surround systems with analog signals. Because of this we are still in the digital Middle Ages.

We are already using a digital receiver to receive TV and radio programs in MPEG2 standard. Providers are boasting of their digital quality, the LNB is "digital" compatible; even the TV is "fully digitalized". But the small connection between the receiver and the TV is a simple copper wire, something that was available even to my grandmother's grandfather. What kind of times are we living in? I think it is high time that this last piece of analog technology is finally retired.

OK, if you really want totally digital TV, you can get it. The higher-priced cards for PC's already come with a digital output so that programs can also be stored on your PC and then digitally played back via the monitor. But there isn't a normal standalone receiver in sight with a digital video output.

When you think about it, what good is a digital video output when a TV with a digital input doesn't exist? But there is actually something already happening on this front: terrestrial TV in digital format, that is DVB-T, is slowly becoming a reality. This will naturally lead to a change in the type of connections found on a TV. And when everything is digitally connected, it would no longer make any sense to convert these signals from digital to analog.

On the other hand, could there a reason not to have a digital video output on a satellite receiver? Are the owners of the rights to programs afraid that everyone would then be able to record them in original quality and then become providers themselves? It's a fear that, especially with PayTV, is not exactly out of the question. One person pays for the program and then copies it in original quality for all of his friends. Something like this has already happened with digital audio.

Nevertheless, I am convinced that the day will come when satellite receivers will include a digital video output. And then eventually manufacturers will want to save the expense of a digital-to-analog converter. It is just a question of time. But I am patient.

Alexander Wiese

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ADT-8110: Satellite TV, Hard Drive, DVD, CD, MP3, MPEG Playback and More All in One Box

New satellite data can be uploaded via PC.

A quick look at the design of the silver-colored cabinet might make you suspicious about the price. In the center is a multi-display that not only shows the current channel number and name (!), but similar to a good video recorder, all the other parameters of the hard drive and the audio. 5000 channels on 64 satellites plus 32 DiSeqC 1.2 controllable positions are available. On the right side of the front panel hidden behind a flap that is almost impossible to see are all the control buttons for the hard drive and the receiver.

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Receiver Tests

TELE-satellite



Usage	ARION AF-2000SE Digital Satellite Receiver FTA Seca	ARION AF-5000CI Digital Satellite Receiver with CI and Posit.	ASTON SIMBA 201 Digital Satellite with embedded Viaccess	AZTEC AZ-150 Digital Satellite Receiver with 2 CI, HDD
Channel memory TV/Radio	3000	3000	2000	2000
Symbol rate	2-45 Ms/Sec.	2-45 Ms/Sec.	1.8-40 Ms/Sec.	2-45 Ms/Sec.
SCPC / C-Band Compatible	✓/✓	✓/✓	✓/✓	✓/✓
CI / CA embedded	-/-	2/-	-/ <i>seca</i>	2/-
DISEqC / USALS	1.0, 1.2/-	1.0/-	1.2/-	1.0, 1.2
EPG / video insert	✓/✓	✓/✓	✓/✓	✓/✓
Scart / RCA A/V Connect.	2/2	2/3	2/3	2/3
Power Supply	95-260 VAC, 50/60 Hz	90-250 VAC, 50/60 Hz	90-250 VAC, 50/60 Hz	100-240 VAC
RS-232 / USB output	✓/-	✓/-	✓ RJ-45 / -	✓/-
DIGITAL Audio output	-	-	-	✓/-
Global/SatcoDX approval	✓/-	✓/-	✓/-	✓/-
Special attribute	<i>Multi-satellite auto search</i>	-	<i>Zoom function recording</i>	-
Test in issue / page No.	0201/p.66	0111/p.60	0201/p.72	0111/p.



Usage	FREESAT CI-220 Digital Satellite Rec. with 2 CI slots, 20 Gb HDD	FREESAT CI-330 Digital Satellite Rec. with 2 CI slots	GB SAT 2CI 20 GbSAT Dig. Sat. Rec. with 2 CI and 20 Gb HDD	GB SAT FTA 0 GbSAT Digital Satellite Receiver
Channel memory TV/Radio	4000	4000/1200 transp.	4000/1000 transp.	4000/1000
Symbol rate	1-45 Ms/Sec.	1-45 Ms/Sec.	1-45 Ms/Sec.	1-45 Ms/Sec.
SCPC / C-Band Compatible	✓/✓	✓/✓	✓/✓	✓/✓
CI / CA embedded	2/-	2/-	2/-	-/-
DISEqC / USALS	1.2/-	1.2/-	1.2/✓	1.0, 1.2, 1.3
EPG / video insert	✓/✓	✓/✓	✓/✓	✓/✓
Scart / RCA A/V Connect.	2/3	-/3	2/3	2/3
Power Supply	86-263 VAC, 47/64 Hz	86-263 VAC, 50/60 Hz	90-260 VAC, 50/50 Hz	90-260 VAC
RS-232 / USB output	✓/-	✓/-	✓/✓	✓/-
DIGITAL Audio output	-	-	✓ S/PDIF	✓/-
Global/SatcoDX approval	✓/-	✓/-	✓/✓	✓/✓
Special attribute	<i>Games, calendar video freeze</i>	<i>PAL & NTSC output</i>	<i>MP3 & WAV player</i>	<i>PAL & NTSC</i>
Test in issue / page No.	0201/p.38	0205/p.86	0203/p.23	0205/p.



Usage	LORENZEN SL No 17D Dig. Sat. FTA Rec. with AC-3 output, HDD and 2 tuner	MEDIACOM MCI-710PVR Dig. Sat. Rec. with 2 CI, 40Gb HDD, embed. Viaccess	MEDIACOM MCI-910 Digital Satellite Rec. with 2 CI slots	NEXTWAVE CX-600 Digital Satellite Rec. with 2 CI slots
Channel memory TV/Radio	999	3500 TV/1500 Rad.	4000	4000
Symbol rate	4-45 Ms/Sec.	1-45 Ms/Sec.	1-45 Ms/Sec.	1-45 Ms/Sec.
SCPC / C-Band Compatible	✓/✓	✓/✓	✓/✓	✓/✓
CI / CA embedded	-/-	2/-	2/-	2/-
DISEqC / USALS	1.0, 1.2/-	1.2/-	1.0, 1.2/-	1.0, 1.2
EPG / video insert	✓/✓	✓/✓	✓/✓	✓/✓
Scart / RCA A/V Connect.	2/2	2/3	2/3	2/3
Power Supply	90-250 VAC, 50/60 Hz	90-250 VAC, 50/60 Hz	90-250 VAC, 50/60 Hz	90-250 VAC
RS-232 / USB output	✓/-	✓/-	✓/-	✓/-
DIGITAL Audio output	✓ Optical	✓ Optical	-	-
Global/SatcoDX approval	✓/-	✓/ coming soon	✓/-	limited
Special attribute	<i>All signal param. on OSD</i>	<i>Time shift function, games</i>	<i>Multi-satellite auto search</i>	<i>Video freeze</i>
Test in issue / page No.	0109/p.26	0201/p.76	0201/p.62	0111/p.



Usage	PIXX ADT 1200 Digital Satellite FTA Rec. and servo polarizer	PROSAT P-6000S Digital Sat. Rec. with embed. Viaccess & Terrestrial TV	SAMSUNG SCI-702E Dig. Sat. Rec. with 2 CI HDD and with 2 tuner	SAMSUNG SFT-700 Digital Satellite Receiver
Channel memory TV/Radio	2000	2000	3500	3500
Symbol rate	1-45 Ms/Sec.	2-45 Ms/Sec.	2-45 Ms/Sec.	2-45 Ms/Sec.
SCPC / C-Band Compatible	✓/✓	✓/✓	✓/✓	✓/✓
CI / CA embedded	-/-	-/ <i>viaccess</i>	2/-	-/-
DISEqC / USALS	1.0, 1.2/-	1.2/-	1.0, 1.2/-	1.0, 1.2
EPG / video insert	✓/✓	✓/✓	✓/✓	✓/✓
Scart / RCA A/V Connect.	2/2	3/2 (european ver.)	2/3	2/3
Power Supply	100-240 VAC, 50/60 Hz	90-250 VAC, 50/60 Hz	85-250 VAC, 50/60 Hz	85-250 VAC
RS-232 / USB output	✓/-	✓/-	✓/-	✓/-
DIGITAL Audio output	-	-	-	-
Global/SatcoDX approval	✓/-	✓/ conditional	✓/✓	✓/-
Special attribute	-	<i>S-VHS output, games</i>	<i>Installation Wizard, games</i>	<i>video freeze</i>
Test in issue / page No.	0111/p.74	0109/p.32	0201/p.36	0109/p.

					
CH 000 Satellite and Posit.	DY TELECOM DTS-3070 ADCIP Digital/Analog Sat. Receiver with CI, 40 Gb HDD	ECHOSTAR DSB-808 2CI Digital Satellite Rec. with 2 CI and 20/40 Gb HDD	ECHOSTAR DVR-7000 Dig./An.Sat.Rec.with 2 CI and integr.40Gb	EM TECH EM-300C Digital Satellite Rec. with 2 CI slots and	FEDTEC SMART 140SCPC Digital Satellite Rec. with 2 CI slots and HDD
Sec.	2100 D, 200 A 2-45 Ms/Sec.	4000 2-32 Ms/Sec.	5000 D / 700 A 2-32 Ms/Sec.	4000/1000 transp. 1-45 Ms/Sec.	2000 1-45 Ms/Sec.
	✓ / ✓ 2 / -	✓ / ✓ 2 / viaccess	✓ / ✓ 2 / viaccess	✓ / ✓ 2 / -	✓ / ✓ 2 / -
	1.0 ✓ / -	1.0, 1.2 / - ✓ / ✓	1.0 / - ✓ / ✓	1.0, 1.2, 1.3, 2.3 / ✓ ✓ / ✓	1.2 / - ✓ / ✓
	2 / 3 ✓ / -	2 / 3 ✓ / -	3 / 3 ✓ / -	2 / 3 ✓ / -	1 / - ✓ / -
50/60 Hz	80-264 VAC, 50/60 Hz ✓ / -	90-250 VAC, 50/60 Hz ✓ / -	90-240 VAC, 50/60 Hz ✓ / -	90-260 VAC, 50/60 Hz ✓ / -	90-240 VAC, 50/60 Hz ✓ / -
	- ✓ / -	✓ S/PDIF ✓ / -	✓ S/PDIF ✓ / -	✓ S/PDIF ✓ / -	✓ ✓ / -
	Positioner (reed) 0107/p.34	- 0205/p.20	Positioner, MP3 player 0203/p.23	Time shift 0205/p.26	Time shift 0205/p.17
66					
					
AT Sat Satellite FTA	KAON KSC-100AP Digital and Analog Satellite Receiver	KAON KTF-510 Digital Terrestrial Receiver	LG DR-220F Digital Satellite Receiver FTA	LG LDR-4400CIP Digital Sat. Receiver with CI and Positioner	LG PVR-440 CI Dig.Sat.Rec.with 2 CI and integrated 20 Gb HDD
transp.	4000 D / 500 A 1-45 Ms/Sec.	1000 -	2000 2-45 Ms/Sec.	2000 2-45 Ms/Sec.	2000 2-45 Ms/Sec.
Sec.	✓ / ✓ 2 / -	- - / -	✓ / ✓ - / -	✓ / ✓ 2 / -	✓ / ✓ 2 / -
	1.0, 1.2 / - ✓ / -	- ✓ / -	1.0 / - ✓ / ✓	1.0, 1.2 / - ✓ / ✓	1.2 / ✓ ✓ / ✓
	2 / 3 ✓ / -	2 / 3 ✓ / -	2 / 3 ✓ / -	2 / 3 ✓ / -	2 / 3 ✓ / -
50/50 Hz	90-250 VAC, 50/60 Hz ✓ / -	90-250 VAC, 50/60 Hz ✓ / -	90-240 VAC, 50/60 Hz ✓ / -	90-240 VAC, 50/60 Hz ✓ / -	90-260 VAC, 50/50 Hz ✓ / -
	- ✓ / -	✓ S/PDIF ✓ / -	- ✓ / -	- ✓ / -	✓ RCA ✓ / -
	S-VHS output, 0201/p.70	- 0205/p.83	- 0109/p.34	Positioner 0203/p.86	SVHS 0205/p.78
TSC 23					
					
AVE 00 ite Rec. CI	NEXTEAVE DX-600 Digital Satellite Receiver FTA	NOKIA 9470s Digital Satellite Receiver FTA	NOKIA Mediamaster 9902s Digital Sat. Rec.with CI and integrated 40Gb HDD	OPENTEL ODS 2000CIV Digital Sat. Rec.with embedded Viaccess	OPENTEL ODS 2000CI Digital Satellite Receiver with 2 CI
Sec.	4000 1-45 Ms/Sec.	3000 2-45 Ms/Sec.	unknown 2-45 Ms/Sec.	2000 1-45 Ms/Sec.	2000 1-45 Ms/Sec.
	✓ / ✓ - / -	✓ / ✓ - / -	✓ / ✓ 2 / viaccess	✓ / ✓ 2 / viaccess	✓ / ✓ 2 / -
	1.0, 1.2 / - ✓ / ✓	1.2, SatScan / - ✓ / -	1.0 / 1.2 ✓ / -	1.0, 1.2 / - ✓ / ✓	1.2 / - ✓ / ✓
	- / 3 ✓ / -	2 / 2 ✓ / -	2 / 2 ✓ / -	2 / 2 ✓ / -	2 / 3 ✓ / -
50/60 Hz	90-250 VAC, 50/60 Hz ✓ / -	90-260 VAC, 50/50 Hz ✓ / -	230 VAC, 50/60 Hz ✓ / -	90-240 VAC, 50/60 Hz ✓ / -	90-240 VAC, 50/60 Hz ✓ / -
	- limited / ✓	✓ RCA - / -	✓ RCA - / -	- ✓ / -	- ✓ / -
freeze 64	Video freeze 0109/p.42	Plug & Play 0203/p.74	Open TV, modem 0111/p.72	Games 0203/p.76	- 0111/p.70
					
NG 02 Satellite FTA	SAT CRUISER TFT LCD MONITOR LCD display with integr.Dig.Sat.Receiver	STAR SAT SR-X200CI PLUS Digital Satellite Receiver with 2 CI	TOPFIELD TF 4000CI Dig.Sat.Rec.with 2 CI and integrated 30Gb	TWINHAN VP-1020 Digital Satellite FTA TV-PC card	WINSTEC RDS-2000 Digital Satellite Receiver FTA
Sec.	3640 2-31 Ms/Sec.	4000/1000 transp. 1-45 Ms/Sec.	4000 1-45 Ms/Sec.	unlimited 2-45 Ms/Sec.	2000 TV/1000 Rad. 1-45 Ms/Sec.
	✓ / ✓ - / -	✓ / ✓ - / -	✓ / ✓ 2 / -	✓ / ✓ - / -	✓ / ✓ - / -
	1.0, 1.2 / - ✓ / -	1.0, 1.2, 1.3, 2.3 / ✓ ✓ / -	1.0, 1.2 / - ✓ / -	1.2 / - ✓ / -	1.0, 1.2 / - ✓ / ✓
	2 / - ✓ / -	2 / 3 ✓ / -	2 / 3 ✓ / -	- / - ✓ / -	2 / 3 ✓ / -
50/60 Hz	100-240 VAC, 50/60 Hz ✓ / -	90-260 VAC, 50/60 Hz ✓ / -	90-250 VAC, 50/60 Hz ✓ / -	Windows 98, ME, 2000 ✓ / -	90-250 VAC, 50/60 Hz ✓ / -
	- ✓ / -	✓ S/PDIF ✓ / ✓	✓ Optical ✓ / coming soon	- ✓ / -	- ✓ / ✓
scan 38	- 0203/p.20	Quick transp. 0205/p.74	2 tuners 0109/p.28	time shift recording 0109/p.28	S-VHS output 0203/p.26

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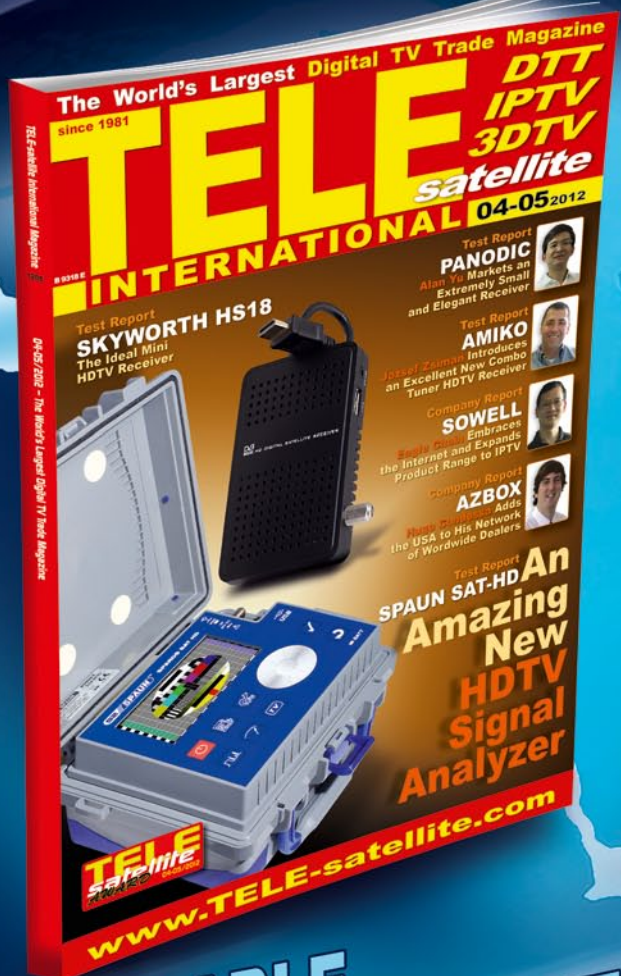


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Bahrain	290
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#	1207	1209	1211	1301
Editorial Deadline	30 March 2012	29 June 2012	31 August 2012	2 November 2012
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Hardcopies	18 May 2012	17 August 2012	19 October 2012	21 December 2012
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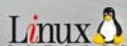
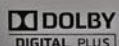
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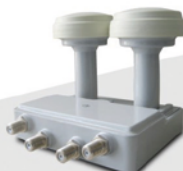


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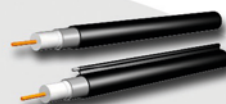
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