Крупнейший в мире журнал о бизнесе цифрового ТВ
с 1981 года

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Сателит
OTT
Smart TV
IP/WebTV
Streaming

B 9318 E

МЕЖДУНАРОДНЫЙ 09-10 2013

Отчет об испытаниях
SPAUN
Мультисвитч Приумножает Емкость Кабельных систем

Отчет об испытаниях
AUDOLICI
Валерий Кучковский
Использует старомодную электронно-лучевую технологию в своих выдающихся усилителях

Отчет об испытаниях
HORIZON
Пол Пикеринг
Предлагает кабельным операторам отличный инструмент для профессиональных установок

также:

MKTECH: Отличный ресивер для Южной Америки

CHANGHONG: „из кожи вон лезет“ чтобы помочь жертвам

SPEEDCAST: универсальный сайт для восходящих каналов в Южной Америке

TIVI+: Пульт, который работает как телевизор

TELE audiovision AWARD 09-10/2013

Отчет об испытаниях
DEVISER S7000

Анализирует любой ТВ сигнал в мире

PANODIC

Digital World,Simple Life

Over a decade of experience in digital set top boxes

we have models for worldwide market

CI Slot

HD DVB-S2 with CI MPEG-4/H.264 HDS-275SCI

- USB PVR and Timeshift Ready
- HD MPEG-4 DVB-S2 with CI slot
- Media playback: MP3, JPEG, AVI (Divx), MKV
- Up to 5000 channels
- HD output:576I/720P/1080P
- 15 Days EPG(need program support)
- EUP

- DVB-T/T2
- DVB-C
- ISDB-T
- DVB-S2+DVB-T
- HD DVB-T IP
- DVB-S/S2
- HD DVB-T+CONAX
- ISDB-T+DVB-T
- IP VOD BOX
- Mobile Device

DVB-S FTA SDS-552ANP

- SD MPEG2 DVB-S FTA version
- USB PVR and time shift ready
- Media playback: OGG/JPEG/BMP/ MPGE PS/MPEG4
- UP to 5000 channels
- Advanced Automatic and blind scan
- NIT Network Search compliant

DVB-T2 HDT-129N

- Full HD DVB-T2 compliant
- Media playback: MP3, WMA, FLAC, JPG, JPEG, MPG, MPEG, VOB, AVI, TS, TRP, M2T, M2TS, MP4, MKV, MOV, DIVX*
- UP to 5000 channels

OTT Android TV Box IV3118

- Online Live TV and VOD easily
- Local media through USB or micro SD card, even HDD.
- Applications like Youtube/Facebook/Skype/Netflix
- Applications for contents and services from customized servers
- Applications (diverse like games) from Play Store or other Android markets
- Quick accesses to websites by powerful browser
- Multi-language OSD, support 1080p full HD video decoding
- Compatible with MJPEG, MPEG-1, MPEG-2, MEPG-4 SP, MEPG-4 ASP, MEPG-4 AVC (H.264), DIVX, H.264, WMV9, VC-1, RMVB, WebM, MP3, WMA, OGG, AAC, APE.
- CPU: ARM Dual Core Cortex A9 1.5GHz
- 1GB DDRIII SDRAM
- 4GB NAND FLASH
- Andriod 4.2 OS
- 802.11 b/g/n (Built-in WiFi module)
- RJ45 ethernet jack (Internet connection compatible PPPOE ADSL)
- HDMI/AV/Coaxial output
- External dual USB2.0 ports
- Micro SD card slot
- 2.4GHz wireless airmouse/keyboard (optional)

DVB-C HD MPEG-4/H.264 With CA STB PCH208-B1

- CA Interface: NDS, Verimatrix, Nova Super TV, etc.
- Video Decode:
  SD Formats: MPEG-2 MP@ML;
  MPEG-4 Part 10 MP@ Level 3.0
  HD Formats: MPEG-2 MP@ML and MP@HL;
  MPEG-4 Part 10 MP@ Level 3.0/4.0 and HP@Level 3.0/4.0"
- Audio Decode: Two channel MPEG-1 layers I/II/III (ISO/IEC 11172-3); Two channel MPEG-2 (ISO/IEC 13818-3); Dolby Digital AC-3; MPEG-4 AAC
- Mail: 1 Alert Setting: on/off the alert message. 2 View message
- AVM Setting audience view measurement On/Off in secure engineer menu.
- Pairing STB and smartcard pairing Channel List view the channels
- Audio setting: Multiple audio language selection
- OTA Over the air software download
- Tuner Type DVB-C Range (32-1002MHz)
- SDRAM Memory 256MBytes DDR3
- Flash Memory 4MByte SPI Flash + 128MByte NAND
- NVRAM(EEPROM) Emulated on NNOR Flash
- Video out composite: CVBS X 1 HDMI1.4a
- Audio output: Stereo Audio R/L X 1, S/PDIF
- Front panel LED: Red/Green
- External adapter: DC 12V 1A

Panodic Electric (ShenZhen) Limited

High Tech Office:12/F, Grentech Building, Keji.C. Road 3rd Hi-Tech Industrial Park, Nanshan District, Shenzhen, P.R.China
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TELE-audiovision International
The World's Largest Digital TV Trade Magazine
since 1981

Alexander Wiese
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alex@tavmag.com
HQ in Munich, Germany

Дорогие читатели,

Никогда раньше не было так легко измерять цифровой сигнал. За последние три года мы увидели, как доступность анализаторов сигнала становится все шире и шире. Сначала это были всего лишь модифицированные цифровые ТВ-ресиверы, которые устанавливались в доме, и были сделаны так, чтобы казалось, что это анализатор.

Но теперь это больше не так! Новейшие анализаторы сигнала – это реальные анализаторы, которые показывают реальные результаты. И даже работа с этими анализаторами становится все легче и легче, и что еще более удивительно, точность их измерений улучшилась, в то время как, цена таких анализаторов становится ниже и ниже. А есть ли какая-нибудь причина не измерять больше цифровые сигналы? Ответ прост : нет.

В то же время, требования всех, кто связан с установкой цифрового ТВ, только растут. Так как нет больше причин, чтобы при установке чего-либо правильно, проводить только формальную тестовую проверку, каждый установщик и системный дизайнер должны уделять гораздо больше внимания правильным величинам, чем когда либо раньше. Чтобы вы ни планировали и устанавливали – это должно быть сделано гораздо более точно.

Приятное следствие того, что количество анализаторов сигнала только растет – это то, что теперь все больше профессионалов в сфере цифрового ТВ могут себе их позволить. Как результат – качество их работы улучшится. А это также необходимо – сложность сегодняшних технологий требует этого. Это параллельное технологическое развитие: многие из сегодняшних технологий цифрового ТВ оптимизируются наилучшим способом в сегодняшних анализаторах сигнала.

В каждом выпуске TELE-audiovision мы представляем Вам самый последний обзор всех доступных на данный момент анализаторов сигнала. Загляните в данный выпуск начиная со страницы 128. Даже если у Вас уже есть анализатор сигнала – есть множество новых вещей, и чаще всего, эти новые анализаторы скорее доступны, чем нет.

Александр Визе
Главный редактор TELE-audiovision Международный.

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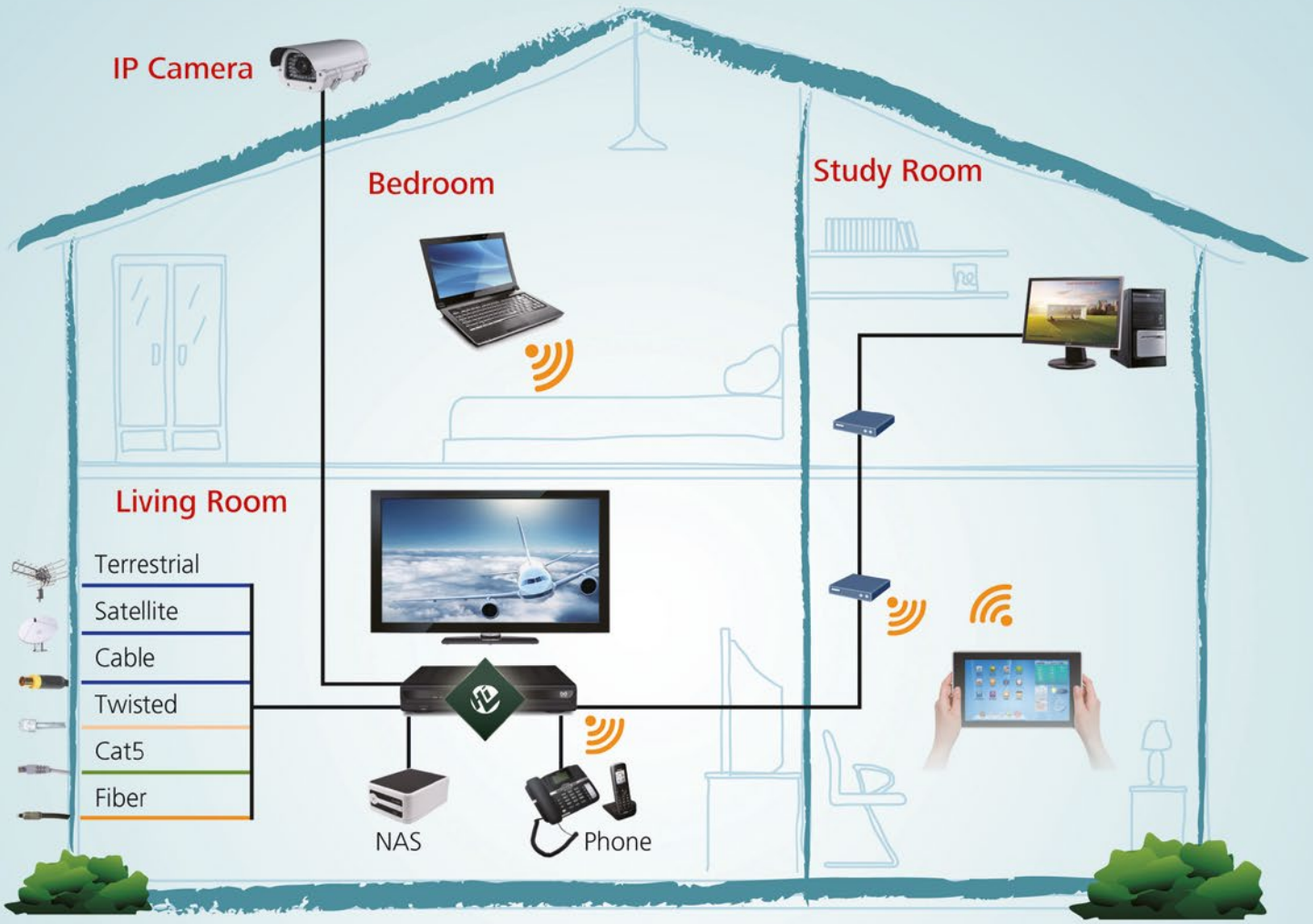
Hisilicon

Home network SoCs and Solutions



Hisilicon STB SoC Key Features

- High performance ARM Cortex A9 CPU
- Integrated with DVB-C or DVB-S/S2 Demodulator
- Hardware decoder supporting Full HD H.264/MPEG2/MPEG4/AVS/Real/VC-1/FLV/VP6/VP8
- Hardware encoder supporting H.264 SVGA
- High performance 2D and 3D engine
- Advanced security features
- Dual Ethernet, Dual USB 2.0, HDMI 1.4

Solution Features

- Low cost HD-STB solution with 3DTV
- Quick Boot-up, Low Power Consumption
- 3D Games, 3D UI
- Linux/Android 4.0
- Full-service PVR
- Video phone, VOIP
- DVB, IPTV, OTT, Hybrid STB
- Cloud computing, Thin Client solutions

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- Twin DVB-S2 and One DVB-T/C/T2 Complinat
- Recording & Playback with internal SATA , external eSATA and USB 2.0 Devices
- Event Recording by EPG
- 4X USB 2.0 Host ports (MP3 Player & JPEG Viewer)
- 10/100/1000 Base Tx Ethernet port
- Support Internal 2.5 inch HDD (Optional)
- Blind scan
- Multi-LNB Controlled by DiSEqC Control Version 1.0, 1.1, 1.2 and USALS
- Multi-Satellite Search
- User friendly stylish icon menu
- Dual HD PIP(Picture in Picture)

HbbTV SYNC Player+ CI+ Linux EMBEDDED UNICABLE

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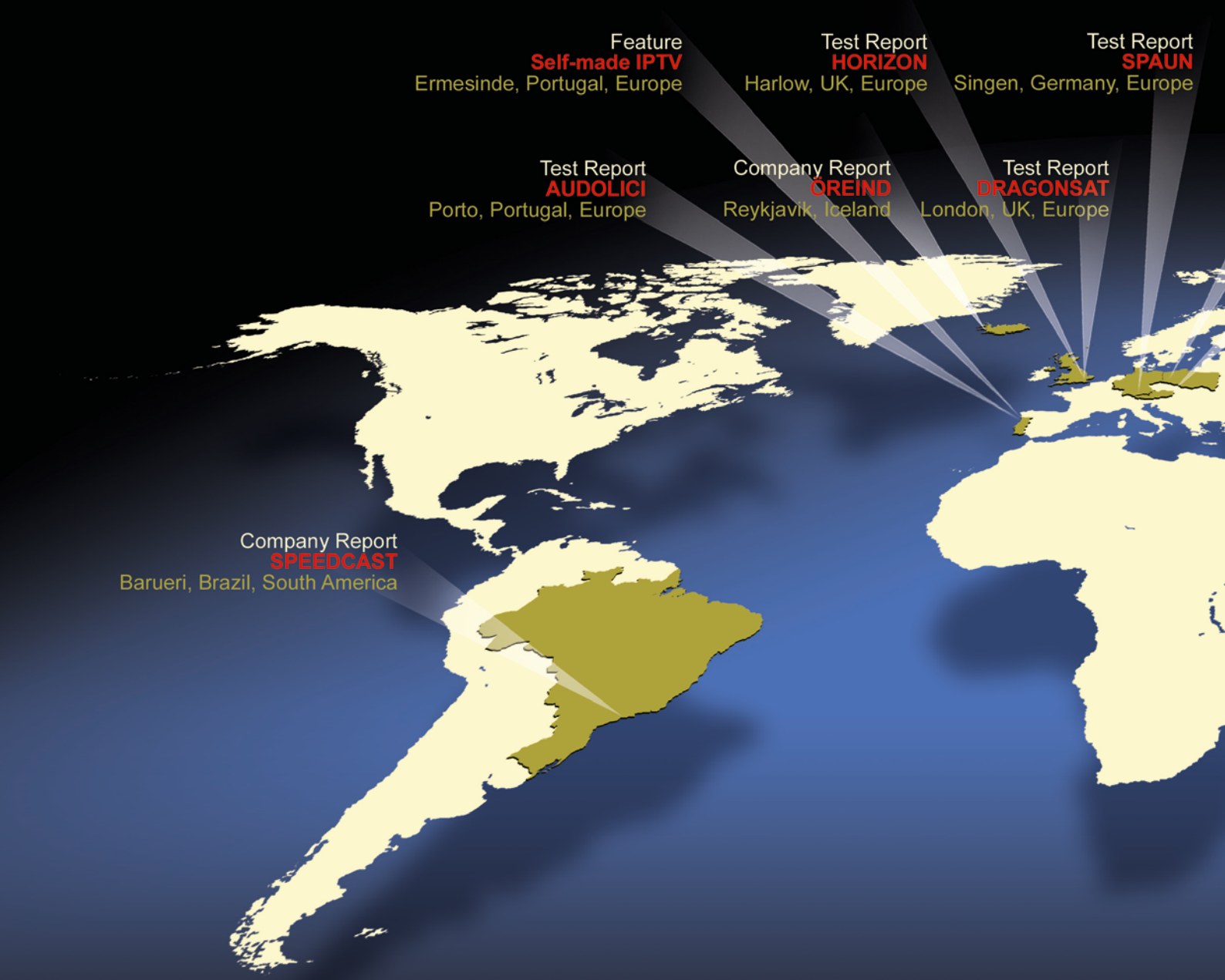

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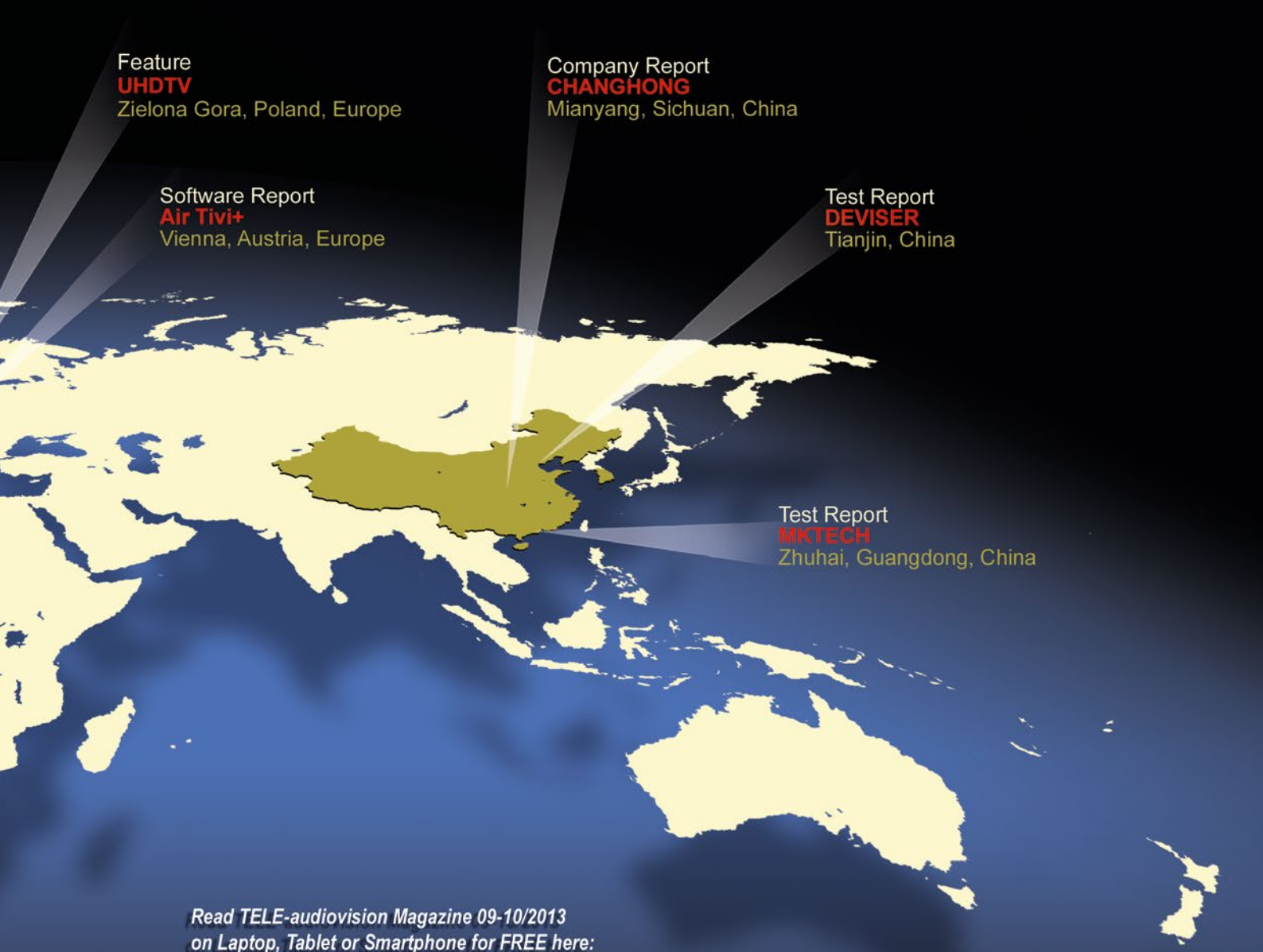

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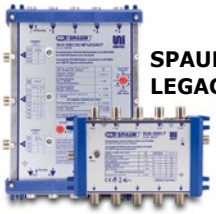
***Company Reports** are written by TELE-audiovision's editorial staff on location*
***Test Reports** are written by TELE-audiovision's engineering staff located at different strategic reception points around the world*

DEVISER S7000
Multi Norm Professional Digital TV Signal Analyzer 18

MKTECH IS1-19HD
Satellite and Terrestrial PVR Receiver 48

HORIZON HD-CM+
DVB-C Signal Meter 62

DRAGONSAT DS-5500HD
HDTV Satellite Receiver..... 72



SPAUN SUS 5581/33 NF LEGACY & SUS 5581 F
Cascadable SCR Multiswitches 88

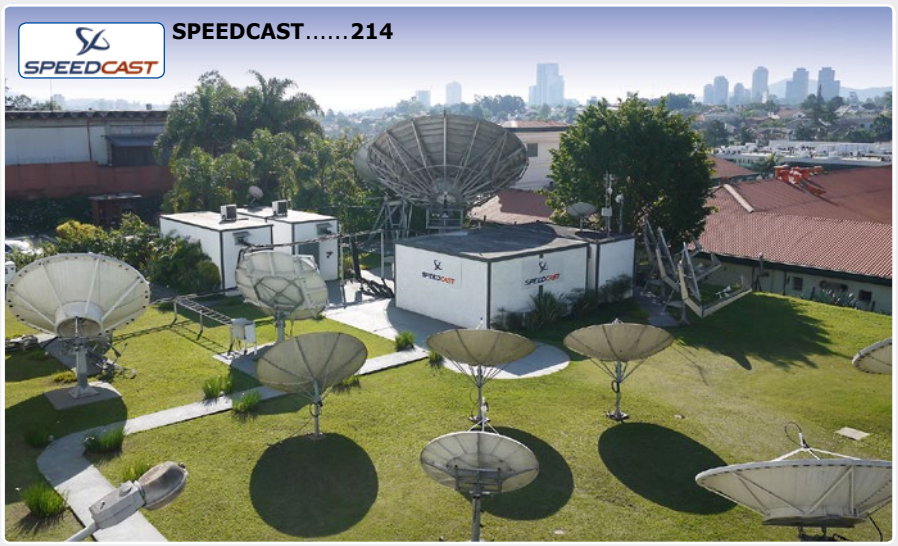
AIR TIVI+
Tiviar App..... 98

AUDOLICI A1/25
Hi-Fi audio amplifier.....104

UHDTV.....162

ÖREIND **188**

CHANGHONG ...**196**



SPEEDCAST.....**214**

Global Readership of TELE-audiovision Magazine..... 12

AWARD Winning:
Digital Receivers of 21st Century 118

AWARD Winning:
Signal Analyzers of 21st Century 128

AWARD Winning:
IPTV/WebTV Receivers of 21st Century 136

AWARD Winning:
The Best Headend Equipment of 21st Century 142

Feature:
Self-made IPTV - Part 3..... 148

Feature:
Ultra High Definition Television 162

Digital Technology:
New Developments 166

Vitor's Workshop Overview:
How to get the most out of technology 172

Company Report:
Digital TV Wholesaler ÖREIND, Iceland 188

Company Report:
Satellite Receiver Manufacturer CHANGHONG, China 196

Global Company Directory:
The Decision Makers in Worldwide Digital TV Industry 202

Company Report:
Satellite Uplink SPEEDCAST, Brazil..... 214

Uplink Overview:
Best Satellite Uplink Earth Stations..... 230

TELE-audiovision History:
TELE-audiovision in 1983..... 240

TELE-audiovision History:
TELE-audiovision in 1993..... 242

TELE-audiovision History:
TELE-audiovision in 2003..... 244

News:
Ultra High Definition HDTV..... 248

WebTV Providers Around the World..... 250

DTT of the World 252

Satellites of the World 254

CHANGHONG

Professional in STB

CREATING EASY LIFE

Smart Center Box

- Android 2.2, 1080P HD
- Multi-screen interaction
- Content sharing with Pad, phone, STB
- Multi-media player
- 3D somatic games
- HTML 5 browser
- IP camera
- Smart remote control
- Changhong APP store

Products & Technologies

- DVB-C/T/S/C2/T2/S2, ISDB-T, IPTV
- Conax/Nagra/Irdeto/NDS
- MHEG-5/Opentv/NDS Core/MHP
- Android/OS21/Linux/μ_iTron
- OTT/HBBTV/CATCH UP TV/UNICABLE

Company Profile

Established in 1998, Sichuan Changhong Network Technologies Co.,Ltd is now one of the largest professional STB suppliers in China. With the experienced R&D team and qualified project management, Changhong Network provides the consumers with leading products and technical solutions...

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MHEG-5 opentv NDS Core mhp

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Http://www.changhong-network.com

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ALUOSAT	China	127
AMIKOSTB	Hungary	91
ASIATVRO	China	209
AUDOLICI	Portugal	79
AZBOX	Portugal	259
AZURESHINE	Taiwan	57
B-MAGA	Japan	193
BSD	Brazil	207
BT	UK	235
CES2014	USA	151
CHANGHONG	China	9
CHINABROADCASTING	China	211
CONVERGENCEINDIA2014	India	177
COSMOSAT	Argentina	115
DEVISER	China	75, 219
DEKTEC	Netherlands	103
DEXIN	China	71
DIGITALTELEMEDIA	China	260
DISHPOINTER	UK	205
DISHTUNING	India	213
DVBCN	China	209
ECEBE2013	Hungary	165
EMP	Czech	229
ETRI	Korea	201
FORCETECH	China	55
FTATV	Argentina	213
GLOBALINVACOM	UK	45
HISILICON	China	4
HORIZON	UK	59, 147
HTCE	Hongkong	259
IBC2013	UK	155
ICECRYPT	UK	93
INTERBEE2013	Japan	179
ITU2013	Switzerland	153, 183
JIUZHOU	China	260
JONSA	Taiwan	33
KWS	Germany	83
LIANXING	China	27
MFC	USA	217
MICO	China	2
MKTECH	China	69
NABSHOW2014	USA	159
PANODIC	China	2
PERFECTVISION	USA	67
ROGETECH	China	31
SATBEAMS	Belgium	211
SATELLITEGUYS	USA	207
SAT-LINK	China	51
SATSON	Belgium	97
SCATINDIA2013	India	161
SES	Luxembourg	113
SICHUANJIUZHOU	China	260
SKYWORTH	China	11
SOWELL	China	25
SPAUN	Germany	205, 217, 223,229
SPAUN ELECTRONIC	Germany	39
TEKNIKSAT	Turkey	219
TENOW	China	223
TIVIAR	South Korea	5
TOPSIGNAL	China	21
TSINGHWA	China	107
TURBOSAT	UK	93
VIETNAM2013	Vietnam	157
VSAT2013	UK	141

HSM1

Specifiction:

System: Basic on Android 4.0 ICS
OSD: 3D Graphical User Interface(Support OpenGL ES2.0)
DVBS/DVBS2 Demodulator
Mpeg2,Mpeg4(H.264) decoder ,fully DVBS&DVBS2 compliant
Storage 8000 TV and Radio programs
Video codec: H.264(MPEG4-AVC, VC-1), MPEG2, DviX3/4/5/6,Xvid
Audio codec: MP3, AAC, OGG, MPEG, MPEG Audio, Dolby AC-3
Container : MP4, AVI, MKV, FLV, MPEG TS
DLNA 1.5 compliant
Networking-WIFI AP,Ethernet

Feature:

Multi-Screen shifting (DLNA and AIRPLAY Alike)
OTT (Over the top)
Android Market
Web Browser
Twitter, Facebook,YouTube...
Motion sensing games
Powerful Media
OTA(over the air)
2.4G wireless interface
Support 3D and 3D convert 2D function

HS1J

- Video decode: MPEG2 SD, MPEG2 HD, H.264/AVC SD, H.264/AVC HD,MP4
- Interface: Single CIplus, SCART,dual USB2.0,LNB ,HDMI,RCA, Digital Audio, Ethernet
- Video Resolution: 480i/p, 576i/p, 720i/p, 1080i/p
- Function : Manual/Auto search, Edit Channel, EPG, Subtitle,TXT, PVR , RSS, Weather Forecast ,Youtube ,Game,32 FAV group, Media player;
- Language:English, French, German, Italian, Spanish, Portuguese, Russian, Turkish, Arabic, Polish etc

HS1C

- Pluggable tuner,support S2+S2/S2+T2/S2+C tuner
- Video decode:MPEG2 HD/SD H.264/AVC HD/SD
  Output interface:Single CI plus,,dual USB2.0, HDMI,SPDIF,YPbPr/SCART
  Features:
- youtube,google map,picasa,Weather Forecast, RSS,Fastscan search,PVR
- Support WIFI

HTAB

- Video decode :MPEG2 SD, MPEG2 HD, H.264/AVC SD, H.264/AVC HD
- Output Interface : HDMI ,SPDIF, USB,SCART
- Video Resolution : Full HD 1080P, 1080i
- DVB Function : Manual search, Edit Channel, EPG, Subtitle, TXT, PVR,Meadia player

HTJ4

SD MPEG-2/HD H.264 & fully DVB-T compliant,

- Output Interface: HDMI,Scart ,SPDIF
- Video Resolution : Full HD 1080P,
- Function : Manual search, Edit Channel, EPG,
- Subtitle, TXT, PVR
  Wifi(option):RSS Reader, Weather Forecast ,maps,
- Picasa,Google ,Youtube ,Youporn,Vimeo,etc

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- Poland
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- Greece

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Published in 20 Languages

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Worldwide

Top 25 Countries > 3200 Readers

COUNTRY	Readers #
Brazil	31,706
Germany	27,403
USA	22,574
Italy	14,261
China	12,808
UK	12,585
Iran	12,359
France	11,663
Indonesia	10,190
Turkey	10,000
Netherlands	9,530
Algeria	9,471
Romania	8,243
Portugal	6,666
Russia	6,155
Belgium	5,956
Morocco	5,753
Spain	5,589
Hungary	5,477
Poland	5,411
India	4,821
Egypt	4,751
Bulgaria	4,563
Czech	4,200
Greece	4,194
Canada	4,036
Ukraine	3,757
Saudi Arabia	3,661
Slovakia	3,260

Readers' Breakdown

Manufacturers	4%
Distributors	9%
Wholesaler	18%
Dealers	27%
Installers	12%
Satellite Provider	2%
Cable Provider	8%
IPTV Provider	5%
Program Provider	6%
Governmental	2%
Institutional	2%
Private Enthusiasts	5%

Top 25 to 105 Countries > 130 - 3200 Readers

COUNTRY	Readers #
Argentina	3,120
Switzerland	3,100
Chile	2,943
Tunisia	2,904
Pakistan	2,774
Austria	2,766
Croatia	2,713
Iraq	2,355
Malaysia	2,347
Sweden	2,344
Australia	2,107
Israel	2,069
Venezuela	2,052
Norway	2,043
Serbia	1,945
UAE	1,580
Ireland	1,561
Colombia	1,531
South Africa	1,510
Mexico	1,476
Denmark	1,390
Thailand	1,298
Finland	1,137
Philippines	1,058
Libya	977
Sri Lanka	975
Slovenia	934
Jordan	900
Peru	864
Yemen	842
Nigeria	831
Lithuania	829
Lebanon	814
South Korea	759
Bosnia and Herzegovina	749
Syria	740
Macedonia	726
Ecuador	698
Sudan	685
Japan	644
Uruguay	622
Kenya	587
Bolivia	571
Kuwait	565
Puerto Rico	562
Panama	558
Albania	548
Cyprus	536
Qatar	511
Taiwan	494
Paraguay	476
Latvia	467
Hong Kong	463
Luxembourg	454
Moldova	446
Oman	412
Senegal	410
New Zealand	403
Belarus	356
Georgia	351
Mauritius	324
Vietnam	313
Côte d'Ivoire	298
Estonia	298
Kazakhstan	292
Bahrain	287
Ghana	284
Singapore	272
Dominican Republic	240
Iceland	212
Uganda	210
Palestine	199
Aruba	193
Ethiopia	191
Bangladesh	190
Malta	181
Cameroon	175
Costa Rica	158
Barbados	155
Azerbaijan	145
Montenegro	142
Afghanistan	141
Zimbabwe	141
Myanmar	134

Top 106 to 180 Countries < 130 Readers

COUNTRY	Readers #
Suriname	133
Mali	131
Trinidad and Tobago	129
Tanzania	128
Uzbekistan	128
Netherlands Antilles	117
Maldives	112
Brunei	109
Malawi	106
Armenia	101
Mauritania	98
Botswana	94
New Caledonia	90
Madagascar	88
Niger	88
Namibia	84
Zambia	77
Angola	69
Rwanda	69
Guatemala	68
Martinique	66
Haiti	65
French Polynesia	65
Guyana	63
Kyrgyzstan	61
Mozambique	61
Burkina Faso	60
Congo	56
Réunion	55
Benin	54
Djibouti	53
Honduras	53
Cape Verde	49
Gambia	49
Jamaica	49
Macau	49
French Guiana	47
Guadeloupe	46
Togo	43
Cambodia	42
Seychelles	42
Cuba	40
Tajikistan	40
Nepal	39
Gabon	36
Comoros	36
Turkmenistan	35
Nicaragua	34
Greenland	33
El Salvador	33
Monaco	30
Dominica	27
Bermuda	25
Palau	25
Mongolia	23
Fiji	19
Bahamas	17
Laos	17
Burundi	16
Timor-Leste	15
Somalia	14
Congo Republic	13
Belize	12
Guinea	12
Saint Vincent and Grenadines	11
Anguilla	10
Guernsey	10
Papua New Guinea	10
British Virgin Islands	10
Isle of Man	9
Jersey	9
Andorra	8
Turks and Caicos Islands	8
Central African Republic	7
Curaçao	7
Eritrea	7
Swaziland	7

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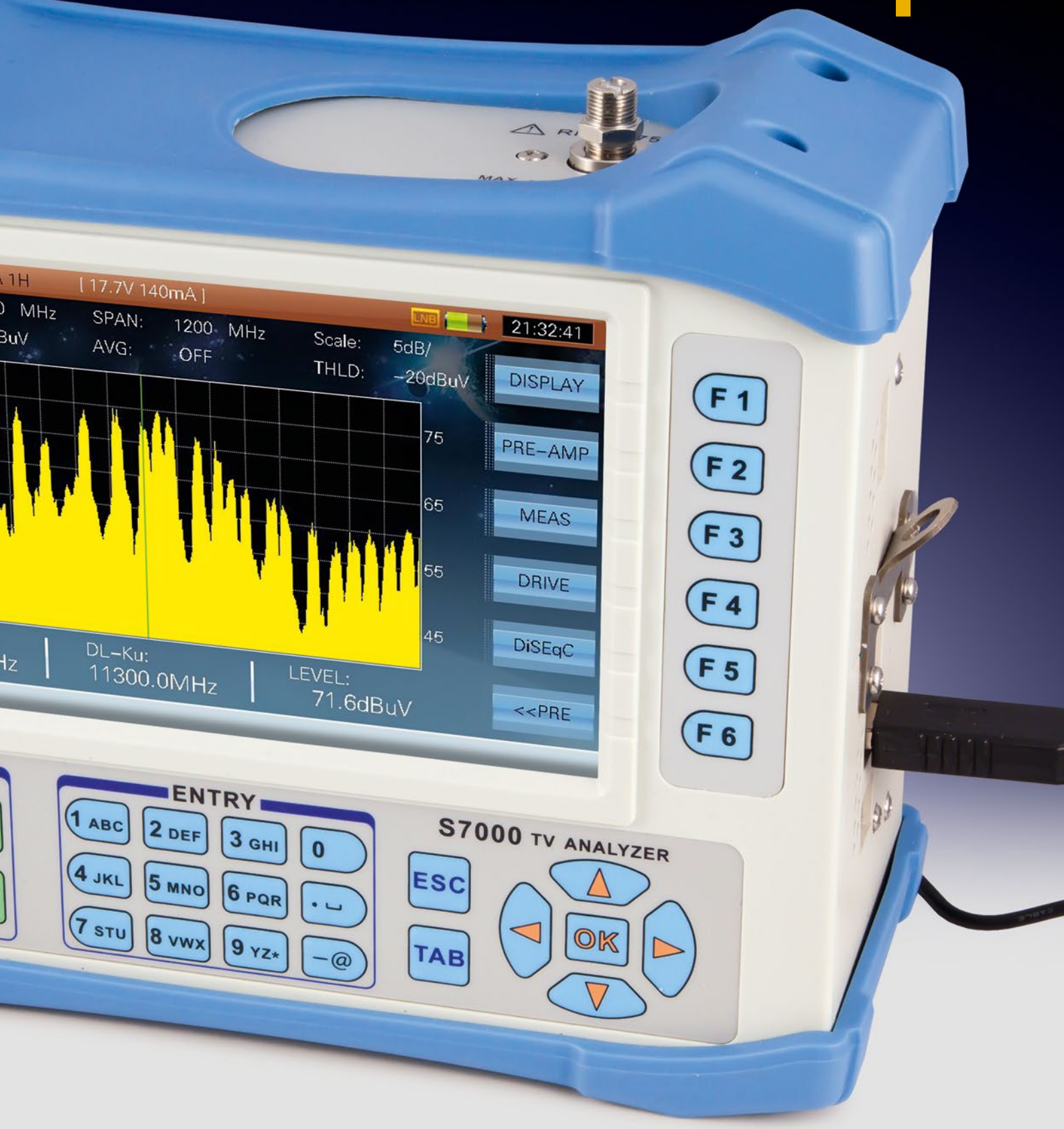
Изобретатель анализатора ТВ S7000

- ***Очень большой дисплей с высоким разрешением***
- ***Подходит для MPEG2 и MPEG4***
- ***Спектр в реальном времени для быстрого определения активных транспондеров***
- ***Может управляться удаленно, через ПК или мобильный телефон***
- ***Очень эргономичное и практичное управление***

Часть 1: Функции анализатора



Professional Combination Analyzer for all Digital TV Standards

My expectations were big when Deviser sent their new flagship S7000 to us here at TELE-audiovision to be tested.

It's a signal analyzer that can work with essentially all the different TV standards: satellite DVB-S/S2 signals, cable DVB-C signals as well as all the terrestrial standards DVB-T/T2/H, ATSC, DTMB signals and, believe it or not, even older analog signals.

As is normal, I first use the device to be tested for a while without having to worry about the test report so that I can simply gain some experience with the unit. But I also like to open up the boxes as soon as they arrive and play around with the devices without first reading the user manual. It's simply

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ously only available on a PC with specialized software.

But that's not all. Do you remember the TELE-audiovision issues from 12-01/2012 and 02-03/2012? In those issues I described my idea of implementing a waterfall diagram to continuously display the spectrum for satellite signal analyzers. This makes it possible to display the spectrum over a specified time period so that, for example, intermittent errors could be identified. It also makes it much easier to align antennas, especially motorized dishes. Suffice it to say that it's thrilling to find this fun to do this but it also gives you a feel of how easy it will be to work with the unit.

But this time it was different: I was speechless when I first saw the S7000. This unbelievable analyzer can not only handle your typical measurements like those you'd find in higher-end professional units, it also integrates a complete transport stream analyzer that provides information on the entire contents of a received transponder. All of the parameters can be displayed - this type of detail was previ-

function in the S7000.

It also comes as no surprise that measurements like Echo, Barscan, skew, constellation diagrams, real-time spectrum analysis, etc., are available in this super analyzer. Using the S7000 is child's play and the user manual was only needed occasionally to make sure that none of its functions were overlooked.

Another surprise in these tests came from the included CD. The software on this CD not only allowed the comfortable administration of the channel and transponder lists, logger files and screenshots, but we discovered

that the entire signal analyzer could be completely remotely controlled. This makes it possible to remotely diagnose problems. You simply place the analyzer at the customer site and access it via the internet. Or you could climb on the roof with your mobile phone while the analyzer stays in the living room. The Deviser S7000 is overwhelming. Thus far we have never had the opportunity to test such a complete and feature-rich signal analyzer.

Since a full encompassing test report of this unbelievable signal analyzer would be much longer than normal, this report is divided into two parts. The first part presents a detailed introduction to the Deviser S7000's wide range of functions. In the next issue of TELE-satellite we will report on our actual test results where we thoroughly tested the S7000 to our satisfaction.

Deviser was founded in 1990 and is located in Tianjin in northeastern China, not too far from Beijing. Deviser develops signal analyzers for TV and radio and is China's leader in this segment. Deviser is on the way to becoming an international force as well. Deviser is the first Chinese signal analyzer manufacturer to receive ISO9001 certification. Deviser first appeared in TELE-audiovision in the 06-07/2011 issue and then again recently in the 07-08/2013 issue after they moved into their brand new production and office facility.

The Deviser TV Analyzer S7000 reached our test center packed in a cardboard box in which the actual product package was packed. Inside we found the sufficiently protected S7000 in a soft carrying case made out of durable nylon. A removable box contained the following accessories:

- Charger (12V/5A)
- 12V car charger
- Carrying case replacement strap
- Two "F" adapters (male-male)
- GPS antenna with USB interface
- Mini CD with user manual in PDF format and control software
- Guarantee card

The analyzer's TFT screen is surprisingly large with a diagonal measurement of 7 inches. Its size is similar to that of Android tablets. The analyzer is relatively lightweight and thanks to its rubber jacket it can be securely held in your hands. At 3.4 Kg (7.5 Lbs), longer workdays are possible with the S7000.

The carrying case is very handy. Unlike other analyzers, you won't have the urge to remove the case since, despite providing protection for the analyzer, it still allows access to all of the unit's buttons. Also practical is the ability to open the case upwards into three segments. By folding the three segments into a triangle, it makes it easy to place the analyzer in an inclined position on a table thus simplifying its use, especially if you're used to using analyzers that could only be laid flat on the table or placed standing fully upright. In either case the analyzer would be hard to use and the screen could not easily be viewed. So, a serious plus to Deviser for coming up with the idea to place the analyzer in an inclined position.

The front side of the S7000 pays tribute to Deviser's many years of experience with professional signal analyzers. And it's the ergonomics that stand out here in the foreground; sure enough, you'll find your way around very quickly. The already mentioned 7" TFT screen has a resolution of 800x480 pixels and is large enough to clearly display all information. The days of switching between different low-resolution screens just to view all of the important parameters are over. To the left of the centrally located screen is a button to turn the unit on and off. Below this button are three LEDs that show the status of the rechargeable battery: battery is charging, analyzer is switched on/off and battery is discharged. To the right of the screen are six function buttons. The function of these buttons is shown in the corresponding spot on the screen next to these buttons and varies depending on what menu screen is currently active.

Under the screen are an additional three groups of buttons: the group to the left consists of six function buttons that can be accessed at any time (TV, HOME, EXPLORER, CH INFO, SETUP and SAVE), the central group consists of an alphanumeric keypad for frequency and text entry using 12 but-

tons and lastly the right-side group of buttons includes arrow buttons plus an OK button for confirmation and ESC and TAB buttons. The relatively large number of buttons actually simplifies operation in that most of the buttons only have a single function. There's no unnecessary switching to go through like there would be with multi-function buttons. Aside from that, we definitely approve the ability to enter frequencies directly.

On the top side of the S7000 is the HF input in the form of an "F" connector. Two male-male "F" adapters are included in the package. Of course, other types of connectors can be used such as the type needed for a typical CATV antenna jack. Unfortunately, the required connector adapters are not included as accessories with the S7000 although any practicing technician would already have these adapters.

On the left side of the analyzer is the outlet for the cooling fan and the carrying case has a mesh cutout in the same location so that the analyzer can also be operated and even recharged in its carrying case without giving it a second thought. These details are evidence of Deviser's attention to detail.

Additional connections can be found on the right side of the analyzer: a USB port for the GPS antenna and USB storage device, an RJ-45 port as well as a connection for the power supply. Further up is the HDMI jack so that

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- ARM Mali-400 GPU processor, for 3D Graphics processing
- One MediaCPU and Two MediaDSPs for AV decoding
- Full 1080P HD video decoding
- 3D Video Support
- Power Control Processor

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- 4MB SPI Nor Flash
- 4GB Nand Flash internal

Network
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- 10/100Mbps Fast Ethernet
- 3G USB Dongle

DVB Frontend(Optional)
- DVB-S2 Supported
- Customized for other STB application

Other
- HDMI 1.4a
- 2 Host USB Ports
- OS Android4.0 or Later
- Multi languages supported
- Support USB Keyboard&Mouse, Wireless Keyboard&Mouse&RCU

Applications
- Video Movie Player(*.mkv,*.wmv,*.mpg, *.mpeg, *.dat, *.avi, *.mov, *.iso, *.mp4, *.rm etc.)
- Music Player(MP3, AAC, WMA, RM, LFAC, Ogg etc.)
- Picture viewer (JPG, JPEG, BMP, GIF, PNG etc.)
- Web Browser (HTML5 supported)
- Online VOD application
- Customized application market
- Customized applications
- Online video search
- 3D Game

HD1512 DVB-S2

- IPTV
- USB Adapter
- 3G Support
- WIFI Support
- Movie Online
- Smartphone Remote
- RSS News
- Dailymotion
- DVB-S2 Tuner
- HDMI1.3, FULL-HD 1080P supported
- PVR (Personal Video Record)
- HD Media Player
- Picture Player
- Music Player
- File Manager
- Firmware Upgrade via USB
- EBOOK
- ISO
- Youtube, Weather, Google map, N32 game
- Built-in LAN
- With CA
- Recording & Playback with External Storage Devices(USB2.0 / HDD)
- 2 USB

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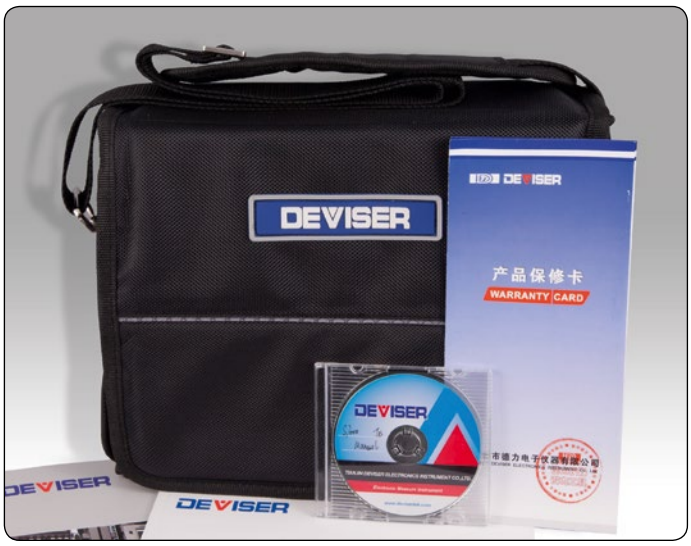

the display can also be routed to an external monitor; this could be useful, for example, in a training environment. The carrying case has the necessary Velcro flaps to cover the inputs.

The rechargeable battery can be swapped out by the user and can be accessed from the rear panel. There's also another highlight of this professional analyzer: an ASI input and output. It's very unusual yet excellent for measuring real professional systems. There's even a Common Interface (CI) available and with the proper CAM even encrypted channels can be analyzed. The built-in speaker is also mounted on the rear side.

The housing on the front is made out of light plastic although it certainly doesn't have a cheap feel to it; on the contrary, the analyzer is extremely solid and firm. The housing doesn't warp at all when it is squeezed; the sides and bottom of the analyzer are metallic. A light blue rubber cover protects it from accidental bumps and also if it should fall to the floor. Throughout our tests we really didn't have to worry about the S7000; we could focus on our work

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without having to constantly keep an eye on the analyzer.

After turning the S7000 on, it needs only 18 seconds before it's ready to be used. The Main menu appears from which you can switch between SAT and CATV/terrestrial mode with the help of the menu buttons on the side. The IPTV option can be added for an additional charge whereby even IPTV in a network could then also be measured and analyzed. This option was not available in our test analyzer.

The S7000 comes shipped with transponder lists from numerous satellites as well as the frequency tables for cable and terrestrial TV.

Additionally, the analyzer permits the administration of various channel lists that are created from an automatic channel scan. They can also be manually edited and managed.

At this point it's important to point out that the S7000 can analyze a signal unusually fast and can automatically set the corresponding reception parameters. In SAT mode you can very quickly get used to driving to the desired transponder and directly take measurements in a real-time spectrum. The signal is correctly locked on to within 1-3 seconds, even with non-standard symbol-rates. There's no other analyzer known that can accomplish this as fast. Of course DXers will be excited about this since feeds can then be found so much faster.

It's not a coincidence that the S7000 is labeled TV Analyzer". It actually contains a complete transponder stream analyzer. It can not only display MPEG2 and MPEG4 video with audio (analog video and audio too), it also shows a variety of parameters and PIDs. Added to this are powerful functions to fully analyze and measure transport streams.

Up until now, these kinds of functions have never been found in analyzers in this price class. Absolutely ideal is the ability to store the transponder stream on a USB storage device so that it can be analyzed more closely or documented later on in the office.

We can't help but reveal our opinion at this point: as a passionate DXer, feedhunting is a piece of cake with this analyzer! It has never been so simple using a real-time spectrum to select the typical transponder peaks of feeds (they're much narrower than normal transponders and are also typically lower in power) and then push the TV button. In just seconds the S7000 automatically processes the reception parameters and simultaneously makes it possible to completely analyze the received transponders.

So much for the Deviser S7000's introduction. It's become clear that this is no ordinary combination meter for satellite, cable and terrestrial TV; it's a complete TV analyzer that can perform every conceivable measurement and signal analysis and yet is still small and lightweight, has a high-resolution display and can operate for up to five hours on its own.

In part two of this report in the next issue of TELE-audiovision, we will present the results of our tests. The S7000 had to compete against our TELE-audiovision upper-class reference units to prove its measurement accuracy. We will also show how this analyzer can be controlled via a network from a PC and what tricks came to mind. Just to whet your appetite a little: the analyzer passed our tests with flying colors!

EXPERT OPINION

+ **Professional Analyzer for analogue, DVB-S/S2, DVB-C, DVB-T/T2/H, ATSC and DTMB Signals**
Complete Transport Stream Analyser
MPEG2 & MPEG4 Decoder
Waterfall Diagram for Spectrum display
Advanced measurements like: Echo, MER vs. Carrier, Constellation Diagram, etc.
Can record Transport Stream for offline analysis
Features ASI Input/Output

– **none**

MORE ABOUT THIS COMPANY

www.TELE-satellite.com/TELE-satellite-1107/eng/deviser.pdf

www.TELE-audiovision.com/13/07/deviser

TELE-audiovision's first report on signal analyzer manufacturer Deviser appeared in the 06-07/2011 issue. After moving into a completely new production and administration facility, a follow-up report appeared in the 07-08/2013 issue.

TECHNICAL DATA

MANUFACTURER	Deviser Electronics Instrument Co., Ltd.
Fax	+86-22-27645002
E-mail	overseasbiz@deviser.com.cn
Web page	www.devisertek.com
Model	S7000
Function	Professional TV Signal Anaylzer
Display	7” TFT LCD, 800×480 pixels
AC/DC Adapter	AC 100-240V/50-60Hz - DC 12 V / 5 A
Battery	Li-ion, 7.4 V/13Ah
Charge Time	around 5 Hours
Working Time	>5 Hours
Remote Feeding	5/13/15/18/21 V, Max. 5 W
22 kHz Control	Yes
DiSEqC	DiSEqC 1.0, 1.1, 1.2 and SaTCR
Dimension (W×H×L)	245mm × 194mm × 105 mm
Weight	2.8 kg
Working Temperature	-100C ~ +500C
Storage Temperature	-200C ~ +700C

SPECTRUM ANALYSER	
Frequency Range	5 - 1050 MHz(TV); 950-2150 MHz (Satellite)
Frequency Span	0 - 1045 MHz (TV); FULL/600/300/200/100/50/20/10 MHz(Satellite)
Frequency Step	10 kHz (TV), 1 MHz (Satellite)
Resolution Bandwidth (-3 dB)	30 kHz, 100 KHz, 300 kHz, 1 MHz, 3 MHz(TV); 1 MHz, 3 MHz(Satellite)
Level Measurement Range	10-120 dBµV (TV); 30-120 dBµV (Satellite)
Accuracy of Measurements	±1.5 dB
Measurement Detector	Peak, sample, AVG
Reference Level	30-120 dBµV
Markers	2

ANALOGUE TV MEASUREMENT	
Standards	B/G, I, D/K, L/L, M/N
Colour Standards	PAL, SECAM, NTSC
Hum Measurement	> 50 dB
C/N	> 50 dB
Level Measurement Range	30 - 120 dBµV
Accuracy Of Measurements	±1.5 dB
Level Resolution	0.1 dB

DIGITAL CATV MEASUREMENT	
Modulation Type	16/32/64/128/256QAM, ITU-T, J.83, ANNEX A/B/C
Symbol Rate	4.0-7.0 MS/s
Power Level Range	30-110dBµV
Level Resolution	0.1 dB
Power Level Accuracy	±1.5 dB(C/N>20dB)
MER Measurement	40 dB
MER Accuracy	±2.0 dB
BER Measurement	1E-3~ 1E-9
Constellation	Yes

ATSC MEASUREMENT	
Modulation Type	8 VSB
Power Level Range	25-110 dBµV
Level Resolution	0.1 dB
Power Level Accuracy	±1.5 dB (C/N>20dB)
MER Measurement	> 35 dB
MER Accuracy	±2.0 dB
BER	Yes
Constellation	Yes

DTMB MEASUREMENT	
Carriers	C=1 - 3780
Power Level Range	-83- +2 dBm
Level Resolution	0.1 dB
Power Level Accuracy	±1.5 dB (C/N>20dB)
MER Measurement	> 28 dB
MER Accuracy	±2.0 dB
BER	Yes
Constellation	Yes
Echo Pattern	Yes

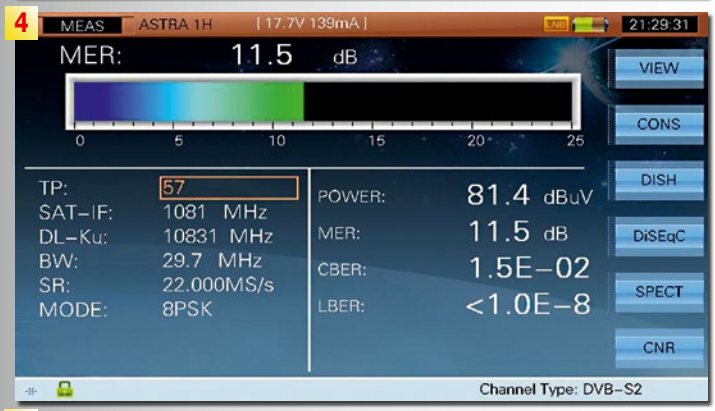
DVB-T/H MEASUREMENT	
Modulation Type	QPSK, 16 QAM, 64 QAM
Power Level Range	25 - 110 dBµV
Level Resolution	0.1 dB
Power Level Accuracy	±1.5 dB (C/N>20 dB)
MER Measurement	> 30 dB
MER Accuracy	±2.0 dB
CBER/VBER	Yes
Constellation	Yes
MER Versus Carriers	Yes
Echo Pattern	Yes
DVB-T2 MEASUREMENT	
Modulation Type	QPSK, 16 QAM, 64 QAM, 256 QAM
Power Level Range	25 - 110 dBµV
Level Resolution	0.1 dB
Power Level Accuracy	±2 dB (C/N>20dB)
MER Measurement	> 30 dB
MER Accuracy	±2.0 dB
CBER/LBER	Yes
Constellation	Yes
Echo Pattern	Yes

DVB-S/S2 MEASUREMENT	
Modulation Type	QPSK,8PSK
Symbol Rate	2 -45 MS/s (DVB-S) 1 – 45MS/s (QPSK DVB-S2) 1 – 45MS/s (8PSK DVB-S2)
Power Level Range	40-110 dBµV
Level Resolution	0.1 dB
Power Level Accuracy	±1.5 dB (C/N>20dB)
MER Measurement	> 25 dB
MER Accuracy	±2.0 dB
CBER/LBER (VBER for DVB-S)	Yes
Constellation	Yes

VIDEO/AUDIO DECODER	
Video	MPEG2/4, H.264
Video Resolution	1080i, 720p, 576i
Audio	MPEG1/2, AAC
CAM Module	EN50221 (DVB-CI) PCMCIA interface
TS-ASI Input and Output	Yes
TS Record	Yes

TS ANALYSER	
Interface	EN 50083-9 (DVB SPI, ASI)
DVB-ASI Interface	75Ω BNC
DVB-ASI Clock	270 MHz
DVB-ASI Max Data Rate	0 to 72 Mbps
DVB-ASI Output Signal Level	1.0 Vp-p nominal
DVB-ASI Return Response	>15 dB
DVB-ASI Input Level	800 mV +/- 10 %
Real-time Decoder	Display the real television pictures (through CA system), including program numbers, program names, provider information, video & audio PIDs.
TR101290 Monitor	TR101 290 three levels real time monitor
Base Information	Count the PIDs percent according to the type of the streams: Video, Audio, PSI/SI, Null Packages
PID List	Display all the PIDs in current stream
Program Information	Detailed info's about a program (if it isn't be encrypted). Video resolution and audio compress rate.
PCR Monitor	Calculate PCR interval and PCR accuracy
PSI/SI List	Display the PSI/SI info's by tree view. Including PAT, PMT, CAT and, when available, NIT, SDT, RST, TDT, EIT.
Program Info	EPG
PID Capture	Capture a specified PID by its type: Video, Audio, PSI (PAT, PMT, NIT, TDT, RST, SDT, EIT) and display the data in HEX format.
TS Record and Replay	8 GB disk for Transport Stream record

INTERFACE	
RF Input	75Ω F-Type
HDMI Output	1x
USB	1x USB 2.0
LAN	1x 10/100 MBit/s
CAM	1x PCMCIA
TS-ASI Input/Output	2x 75 Ω BNC
DC Supply Input	12 V / 5A
GPS Input	USB



Satellite Modes

1. The S7000's Main menu is nicely organized. The function buttons to the right select the desired mode: cable, terrestrial or SAT (IPTV optional). The File Manager can also be accessed here. The arrow buttons are used to switch between measurement, constellation diagram, spectrum analyzer, Sat Finder and DiSEqC.

2. A push of the SETUP button brings up the correct LNB configuration page.

3, 4, 5, 6. In just 2-3 seconds a signal lock is achieved and all the reception parameters are displayed. As expected, for digital signals the measurement screen displays the level, MER and BER whereby BER is divided into CBER and LBER. BER (Bit Error Rate) shows the bit error ratio, that is, the number of faulty bits compared to the number of received bits in the same time interval.

Since the received bits go through an error correction process, professional analyzers display the BER before and after error correction. Depending on the modulation method, different error correction algorithms are used. Our modulation table compiles all of the important details together.

Modulation Table

Modulation	Algorithmus of Error Correction	Recommended Threshold BEFORE Error Correction	Recommended Threshold AFTER Error Correction
DVB-S	VITERBI	CBER = <1E-6	VBER = <1E-8
DVB-S2	LDPC+BCH	CBER = <1E-7	PER = <1E-8
DVB-C	Reed-Solomon	PRE-BER = <1E-6	POST-BER = <1E-8
DVB-C2	LDPC+BCH	CBER = <1E-7	LBER = <1E-8
DVB-T/H	VITERBI	CBER = <1E-6	VBER = <1E-8
DVB-T2	LDPC+BCH	CBER = <1E-7	LBER = <1E-8

For DVB-S signals, the S7000 shows the BER measurements in QPSK modulation in CBER (Channel Bit Error Rate – before error correction) and VBER (Viterbi Bit Error Rate – after Viterbi error correction). With DVB-S2 signals using 8PSK modulation, BER is shown as CBER and LBER since in this case LPDC+BCH error correction is used.

It is extremely helpful to have the BER measurements displayed in this way in that for one thing you want to receive a signal that is as error-free as possible and secondly, any errors would be totally corrected by error correction.

The first function button is labeled VIEW. This highlights that these analyzers were designed by technicians for technicians since with this button you can switch between measurements whereby the currently selected measurement is prominently displayed in the upper part of the screen numerically and as a bar graph. This makes it easy to read from a distance even when outside working on the antenna.

We also appreciated some of the smaller details like, for example, the ability of the S7000 to show the transponder frequency simultaneously in satellite IF form and actual downlink frequency. You no longer have to convert the frequency (for example, the conversion in the Ku-band with a universal LNB is like this: up to 11700 the IF = transponder frequency – 9875 and from 11700 and up the IF = transponder frequency – 10600). We should mention that the transponder bandwidth is also displayed.

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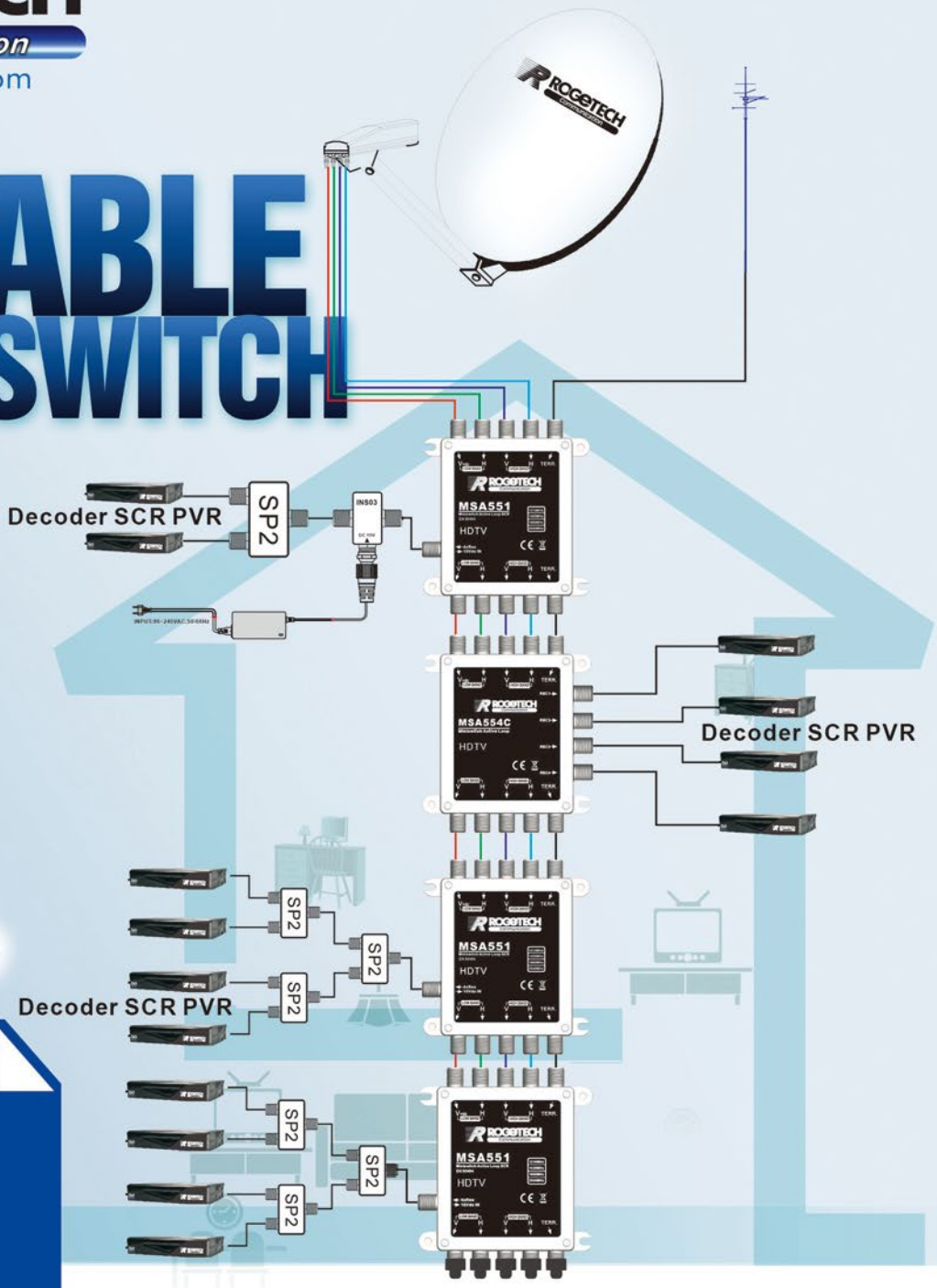

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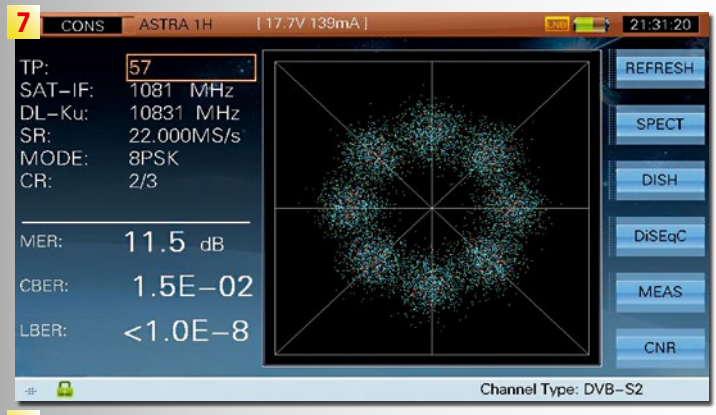

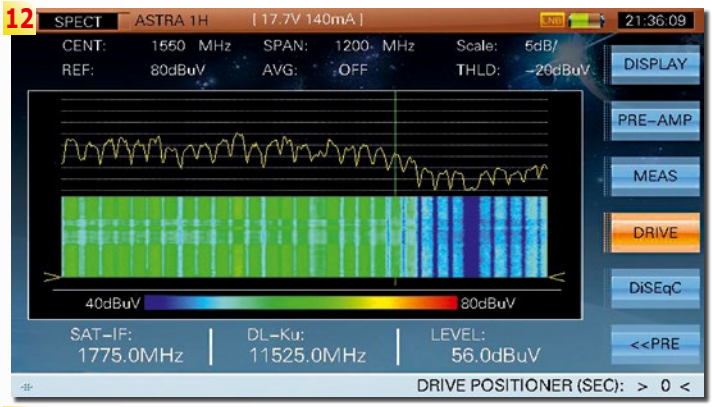

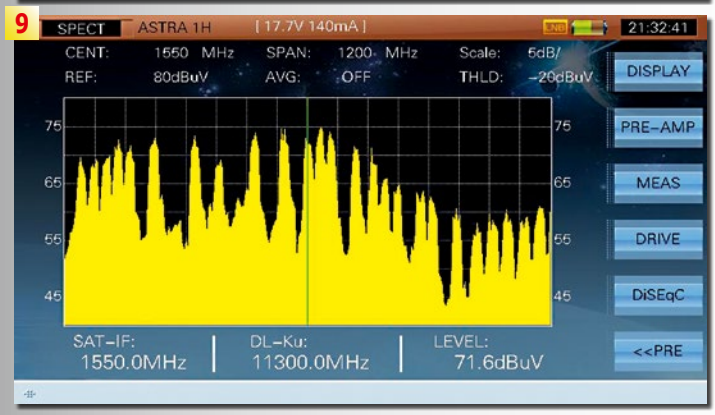

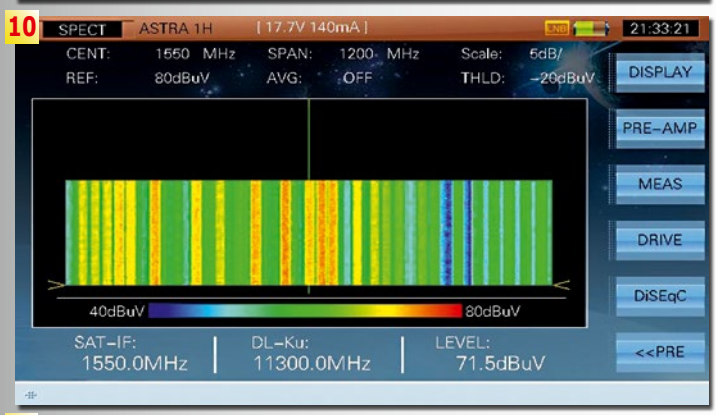

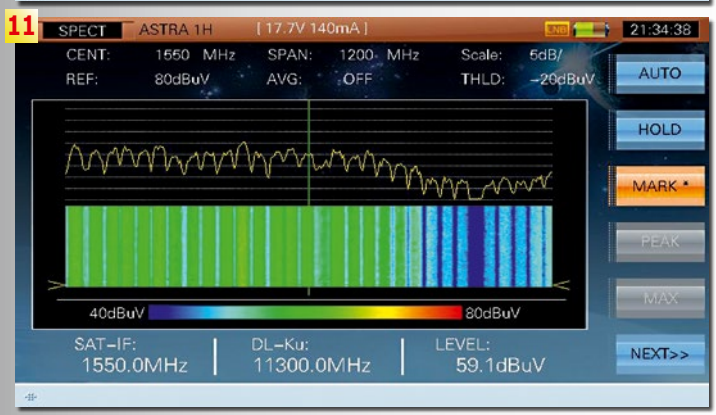

7. Without any detours you end up in the constellation diagram. Here Deviser utilizes the high-resolution display and provides an excellent method to diagnose problems caused by faulty components.

8. Next is the Spectrum Analyzer mode. First of all we liked that the spectrum can be displayed with a 1200 MHz span in real time. Real time simply means that the spectrum display is renewed multiple times per second. In this way you can instantly recognize how, for example, an antenna needs to be adjusted to receive the best possible signal. And just the high-resolution of the spectrum itself is a plus point – closely spaced narrow-bandwidth transponders are clearly resolved.

9. The representation of the spectrum can be switched using the DISPLAY function button located in the second row of function buttons. Instead of displaying the spectrum as a single line, it can also be shown with the area below the line filled in.

10. Push the DISPLAY button a second time and the spectrum is then shown as a waterfall diagram. You can easily follow transponders over a period of time and since it's possible to send out DiSEqC 1.2 commands while in this mode, aligning motorized antennas becomes easy as pie. If you want to learn more about how to use waterfall diagrams you may read my articles in TELE-audiovision issues 12-01/2012 and 02-03/2012.

11. That Deviser actually put some thought into this and didn't simply implement the waterfall diagram carelessly can be seen when the DISPLAY function button is pressed again. Just as can be seen in the demonstration software, the spectrum is now displayed in parallel to the waterfall diagram. In this way you can clearly recognize the transponders in the spectrum and measure the levels using the obligatory markers (available in all display modes) while the waterfall simultaneously documents the evolution of the signal. The otherwise standard peak-hold function (that, of course, is also available) will now only seldom be used thanks to the waterfall diagram.

12. If the function button labeled DRIVE is pressed, the up/down buttons can then be used to switch between the DiSEqC 1.2 modes MOVE and STEP whereby the left/right buttons move the motor correspondingly. The spectrum is still displayed in real-time and thanks to the waterfall diagram it's easy to obtain the best possible alignment. Aside from that, you can also see how many and which satellites can be received between the east and west limits of the antenna. You simply drive the antenna from east to west (or vice versa) and using the waterfall diagram you can clearly recognize each satellite and with a little experience you'll also be able to identify them.

13. The S7000 supports a variety of DiSEqC and single cable SCR standards with a single DiSEqC menu. These can be selected in the Main menu or at any other time using the function buttons.

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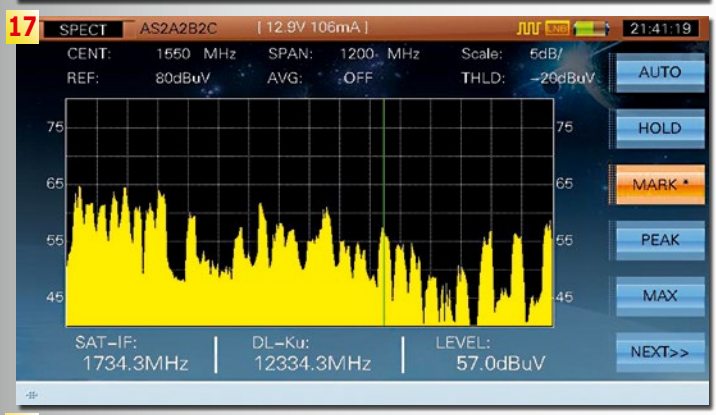

14. Switching from SaTCR (SCR - Single Cable Routing) and DiSEqC. In SCR mode the individual frequency windows of the antenna jacks can flexibly be edited so that the S7000 can be harmonized with practically every SCR switch.

15. In DiSEqC mode DiSEqC 1.0 and 1.1 multiswitches can be controlled (for up to 4 or 16 LNB inputs) as well as a DiSEqC 1.2 positioner. Simple tone-burst switches can also be controlled.

16. The Sat Finder function shows the active satellite's selected transponder signal level. If needed, an audio tone can also be turned on so the antenna can be aligned without having to look at the analyzer. The arrow buttons can be used to switch satellites without having to leave the current display screen.

The specialty of this feature is the automatic calculation of azimuth, elevation and LNB skew. This data is obtainable thanks to the GPS antenna; the current position is of course also shown. If for some reason the current geographical position can't be obtained from the GPS, this information can also be entered manually. At first this might not seem all that critical; the antennas are always mounted outdoors. But what if the installer wants to pre-align the antenna in his workshop so that he can install it more quickly at the customer? Then it could be very practical to enter the customer's position in ahead of time.

17, 18, 19. The S7000 can automatically recognize reception parameters like symbolrate, FEC and modulation. Many instruments fail at this seemingly simple task and therefore need current and specially setup channel lists. Not true with the Deviser S7000: it recognizes these parameters on its own and in a very short time. Sure enough, markers can be used to select a desired transponder (or the frequency can be directly entered) and in measurement mode the S7000 determines a variety of reception parameters in 1-3 seconds and also simultaneously shows these values.

20, 21, 22, 23, 24. Naturally, the S7000 can also play audio and video and includes the corresponding decoders for analog and digital signals in MPEG2 and MPEG4. This mode can be accessed at any time with the TV button. If the signal has not yet been locked on to, because perhaps in spectrum mode the marker was just placed on top of a transponder, the analyzer determines the corresponding reception parameters on its own, just like in measurement mode. In just a few seconds the live picture of an unencrypted channel is displayed and you can quickly switch between channels via the transponder service list. The S7000 shines with channel switching times of 1-3 seconds depending on the type of signal and modulation.

25. In this mode the Deviser S7000 even has a complete transponder stream analyzer available. This function is geared more towards technicians that are responsible for head-end stations, transmission or reception systems. All analyzer functions are available for each received transponder stream regardless if they originate from the internal DVB-S/S2, DVB-C, DVB-T/H tuners, from the ASI input or, for example, from an external transponder stream file. The first picture shows the transponder stream's primary data. The bandwidth is shown as well as NIT information and the stream's basic statistical data.

26. In the second picture, EVENT INFO, additional information on the quality of the transport stream is shown.

27. The third screen, PID VIEW, shows the assignment of the different PIDs. This data is also important for installers because it can provide important error conclusions with the setup of smaller head-end stations and IPTV servers, for example, if the wrong PIDs were accidentally configured.

28. The fourth screen, PROG GRAPH, displays details on the selected channel within the transponder stream. These parameters provide important information on the resolution and, above all, the CODECs in use. If a customer complains, for example, that a specific channel can't be played back by a receiver, then the reason could be that the channel is encoded with professional equipment using 4:2:2 Chroma, instead of the standard receiver based 4:2:0 Chroma.

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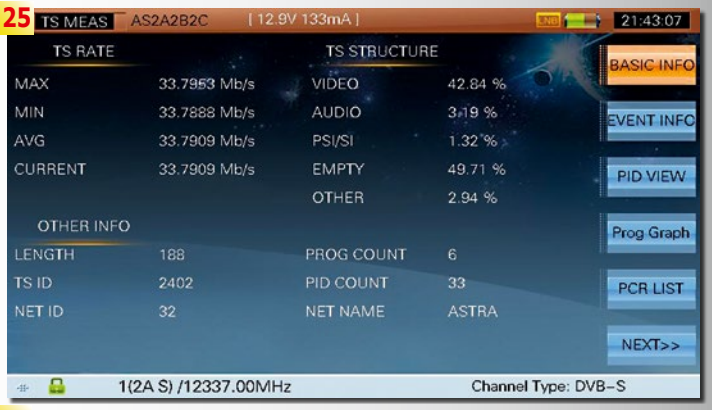

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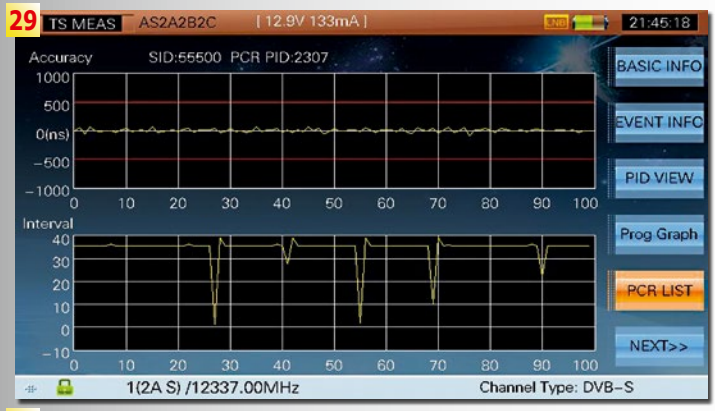

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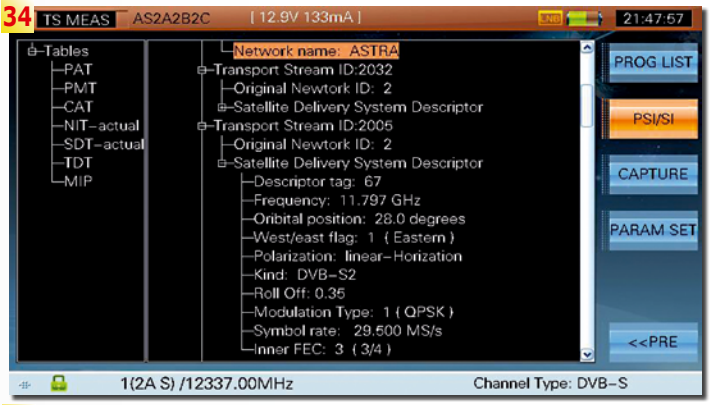

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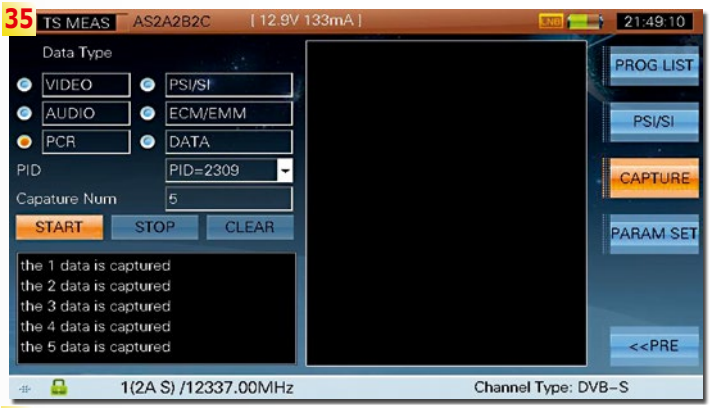

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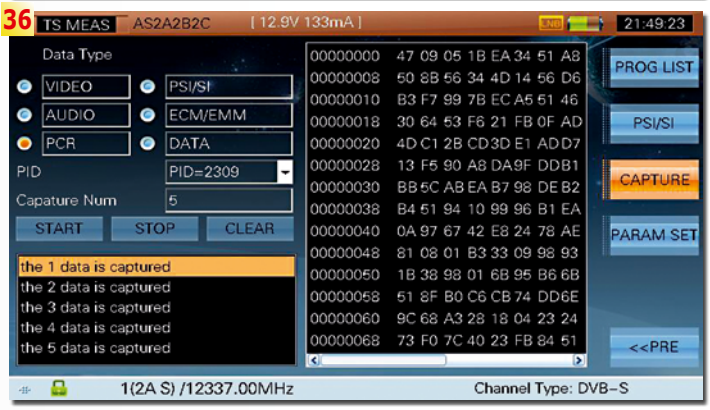

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29. The fifth screen contains a PCR measurement. PCR stands for Program Clock Reference and serves to determine the transit time delay between the received signal and the receiver clock (27 MHz). A PCR is periodically added to the transport stream. The Deviser S7000 reads this PCR and shows how precisely synchronized the internal 27 MHz clock is with the PCR signal. The difference should normally be no more than +/- 500ns. Since the PCR bytes themselves are generated with a 27 MHz clock and embedded in the transport stream, the resolution is limited to 37ns. The accuracy shown in the upper graphic highlights the timing error within the multiplexer, but not any run-time delays that were generated within the network. As you can see, a perfectly synchronized transport stream is being received indicating that no errors existed in the clocks of various multiplexers and modulators at the headend. If the delays are longer than 500ns, then the receiver could have problems.

In the lower graphic the timing offset between the PCR bytes is shown. Run-time delays that were generated within the network can be derived. And here too everything is in the green. Even though small delays are visible, they don't yet have any influence on the reception quality. It is therefore an extremely important measurement when it comes to maintaining head stations and broadcasting systems

.

30. The PROG LIST shows the provider's channels. This information, as long as it's correctly entered into the NIT by the provider, makes possible a faster channel scan for receivers since known transponders do not have to be scanned separately. Unfortunately, many broadcasters don't stick with the standards and all too often don't include the correct NIT information in the stream. Thus a transponder would show the wrong satellite name or even no name at all. And then there's the case where the name of the satellite, bouquet, etc., is spelled wrong or non-uniform upper/lower case lettering is used. Here the responsible technician should definitely have an S7000 placed in his hands!

31, 32, 33, 34. The seventh menu screen PSI/SI lets you navigate within the complete TS table. All data can easily be analyzed, PAT, PMT, CAT, NIT, SDT, TDT and MIP. The arrow buttons let you navigate within the individual branches of the table giving you information on the smallest detail. It's an indispensable aid when working with multiplexers and you want to make sure that all the parameters are correctly configured.

35, 36. The transport stream analyzer's eighth menu screen is a highlight of the S7000: here individual transport stream packets can be stored and displayed. After recording, these data packets can be displayed byte-by-byte.

37. In the last menu screen the transport stream's reception parameters can be read and edited. This permits the simulation of different situations; the S7000 can be configured like similar receivers. There is no other known signal analyzer that can do this.

38, 39. If you insert a USB storage device into the S7000, the transport stream can be recorded if it is in transport stream analysis mode. The streams are recorded in *.ts format, a format compatible with many PC processing programs such as TS Reader, VLC or TransEdit. Of course, recorded transport streams can be played back on the S7000. In this case all of the listed analysis tools are available. In other words, you can record a transport stream on a receiver or computer and then analyze it with the S7000.

40. The currently displayed image on the screen can be saved in JPG format to the analyzer's internal memory by pressing the Store button. If you happen to be in one of the various measurements modes, the analyzer will ask you if want to save the current screen or the displayed data. If the latter is chosen, the data can be recalled offline on a PC and if desired can be displayed and edited, for example, with the marker. Using the analyzer's File Manager (accessible from the Main menu), the data stored in the analyzer can be displayed, deleted, edited or saved to a USB storage device.

41. The active transponder can be edited and stored in a special channel configuration screen. In this way the channel list can also be managed and updated directly on the S7000. This process is actually quite comfortable so that you don't necessarily need to refer to the Settings Editor on the included CD.

42. Back in the Configuration menu the TS INTERFACE makes it possible to activate or deactivate the ASI input. This interface lets you stream transponders to other devices or take the ASI streams from other devices and scrutinize them with the S7000's transport stream analyzer.

43. The Configuration menu is divided into five sections: ABOUT, GENERAL, MEASURE, CHANNEL and INTF. In the first section a variety of analyzer information is displayed, for example, the version number and the different modules.

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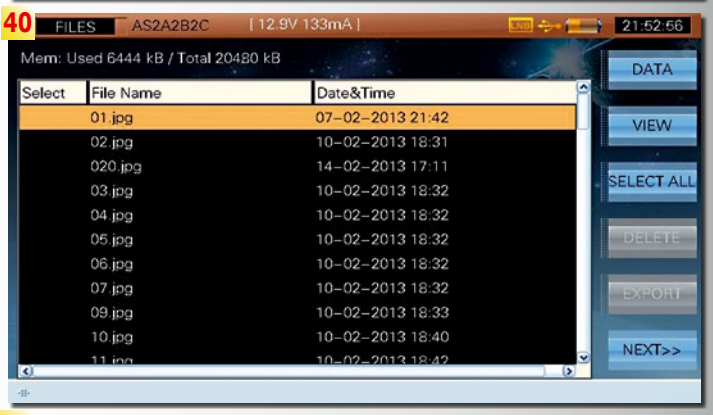

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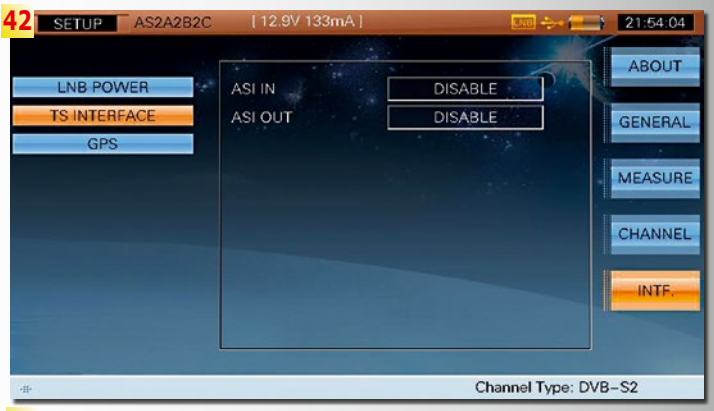

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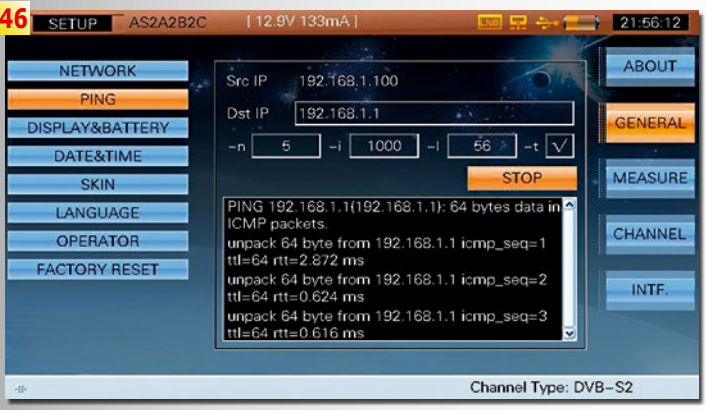

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44. In the second GENERAL section the network interface can be configured.

45, 46. Outstanding: the Ping command can be used to test the network connection. This alone is very useful when, for example, a so-called Triple Play CATV connection is being installed and, in addition to telephone and digital cable TV, the Internet connection needs to be tested.

47. Display and power consumption can also be configured, such as, how much inactivity time should elapse before the S7000 turns itself off.

48. The date and time can be set.

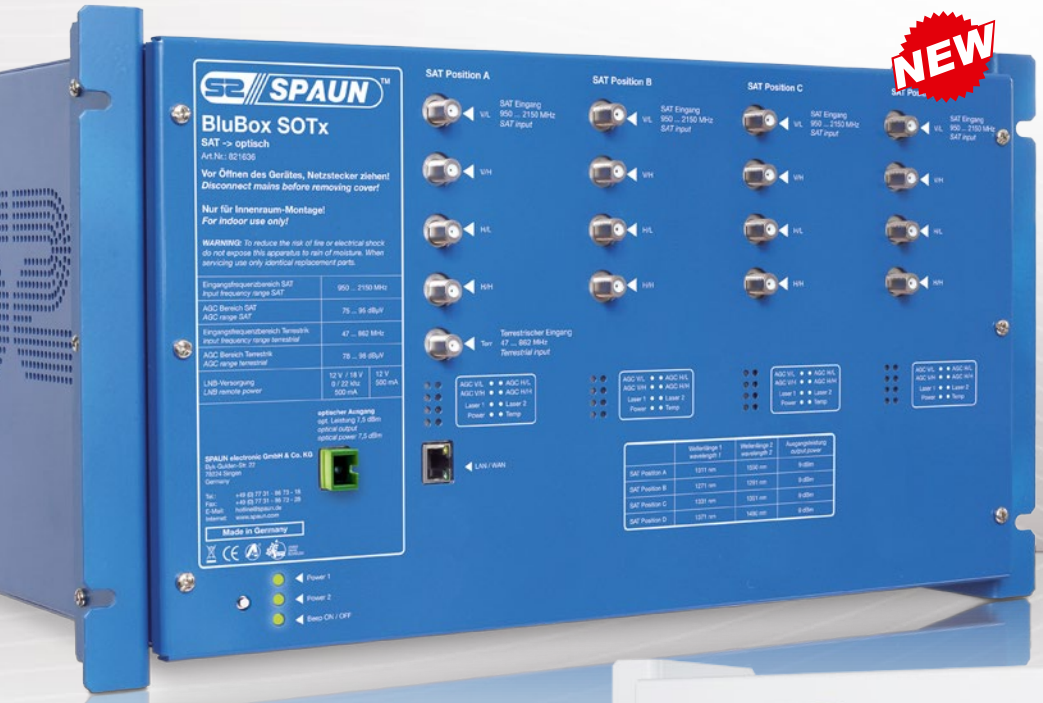
49. A variety of skins can be selected.

50. Of course, a variety of menu languages are also available.

51. The submenu OPERATOR is very interesting: different technicians can log in here and even the company name can be left behind. This allows the analyzer to be operated by different users whereby it would be easy to determine who is responsible for a particular measurement.

52. Retrieving the analyzer's default settings.

Highlights



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53. In the submenu HUM the user can select whether the line voltage uses 50 or 60 Hz. The corresponding measurement can therefore properly recognize and display any hum.

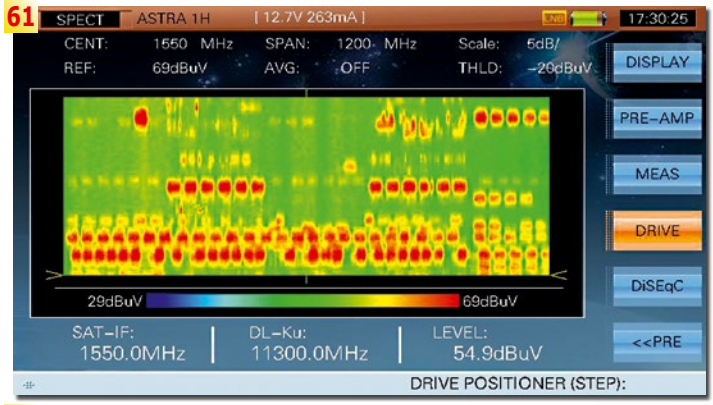
54. Under LEVEL UNIT the desired units can be selected for signal level and power measurements. The standard is dBµV although measurements can also be displayed in dBmV or dBm. The S7000 can also offset the measurements from -3.0 dB to +3.0 dB so that comparisons can be made with other analyzers.

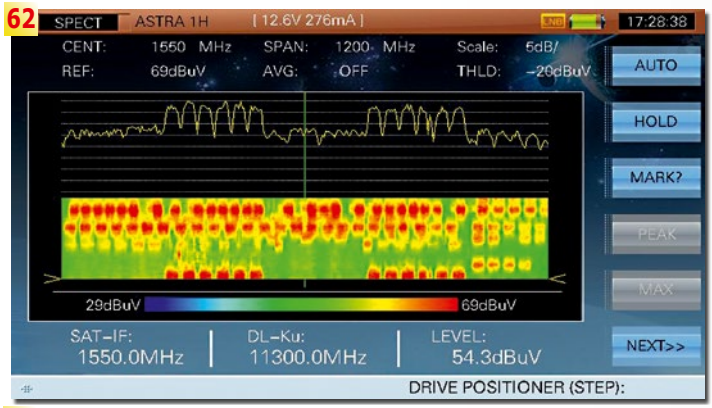
55. TP COMPENSATION allows you to add two additional compensation values. The first field lets you add a general dB value that is then added to the measured signal. In the second field an additional dB value can be entered that is also added to the signal; the intention here is to compensate for the probe. Only positive values can be entered in both fields (0 dB to 40.0 dB). This is always useful when, for example, different cables or adapters with varying attenuations are used between the S7000 and the antenna jack. In this way it's possible with a table to compensate for the attenuation in different cables. Now the first field makes sense: here you can enter the compensation of the analyzer or other passive/active elements in the network (such as, multiswitches, amplifiers or filters) to make sure that other instruments will provide the exact same measured values

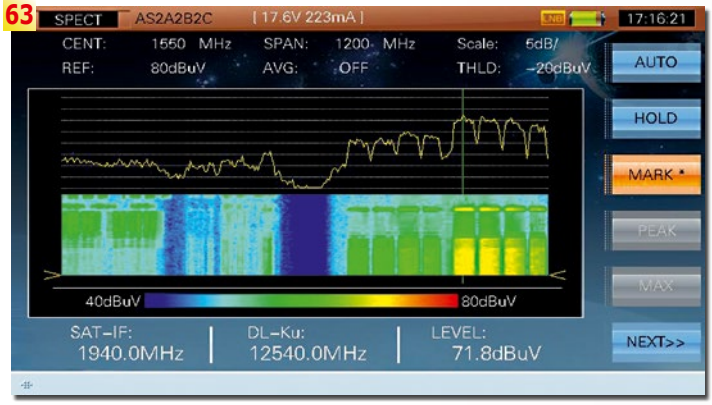
.

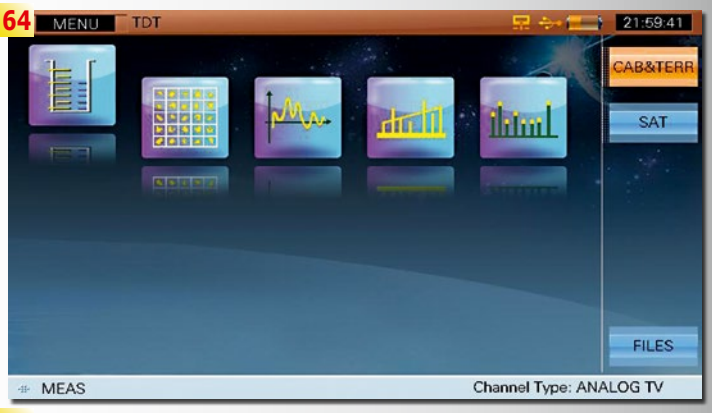
56. Choosing the PID number representation in the transport stream analyzer. A decimal display is the more popular choice with most users but others might be more used to hexadecimal format in that it has the advantage that all bytes, regardless of their value, have precisely two characters.

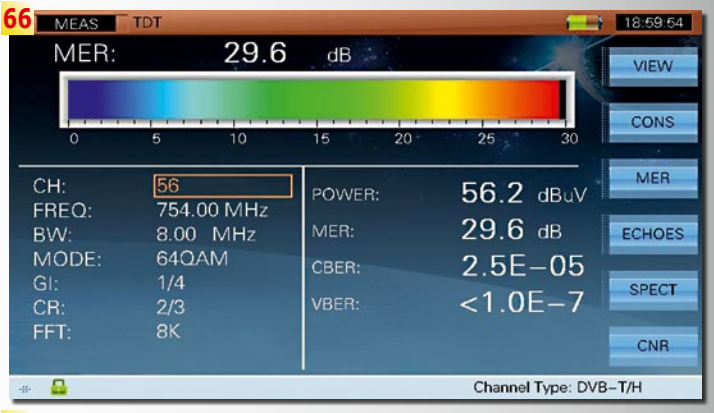
57. Since the S7000 supports both ATSC and DVB, the desired mode can be selected in the appropriate menu. This only affects the transponder stream analyzer which displays the received stream. Sure enough, there's very little you can do wrong here; the S7000 processes the reception parameters automatically, even if these were predefined incorrectly.

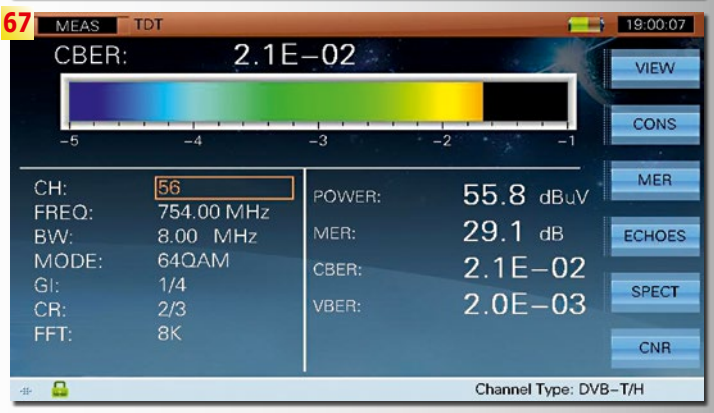












58. In the last submenu the correct analog signal standard can be selected. All standards are supported: PAL-BG, PAL-I, PAL-M, PAL-N, PAL-DK, NTSC-M, NTSC-N, NTSC-433, SECAM-BG, SECAM-DK and SECAM-L, and, of course, 50 or 60 Hz. There's no doubt, no matter where you are in the world, this analyzer can be used to measure TV signals.

59. Another highlight: channel lists can be created not only with the editor that can be found on the CD, but also directly here on the analyzer.

60. Last but not least, there's also a dedicated menu for configuring the GPS antenna. If it's active, the current position will be displayed. If there's no GPS antenna or if you want to enter in another position, such as the customer's location, this can be done manually.

In the firmware of the analyzer that we tested, the GPS antenna is used to only show the current position and to calculate the azimuth, elevation and skew. An upgrade to the firmware that would allow the continuous recording of measurement parameters together with the geographical position would be nice. Such a recording of the reception parameters along with the geographical position could be used, for example, in conjunction with Google Maps to create regional footprints of Single Frequency Networks.

Waterfall

61. The Deviser S7000 is the first combined TV analyzer that features the waterfall diagram to show the spectrum. In this picture you can see the result of rotating our motorized dish. Notice the different satellites and their transponders. Can you guess the satellites? With a bit of experience you will be able to recognize the satellites.

62. Deviser not only implemented the waterfall diagram – they seriously thought about it and realized a combined spectrum and waterfall display mode. This is really useful, since the spectrum is in high resolution, while the waterfall will keep track of the spectrum over a period of time.

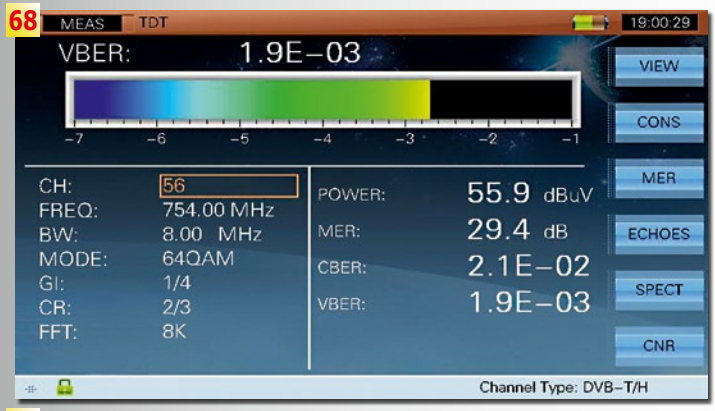
63. Here we were optimizing our dish for the reception of exotic satellites… notice how the reception level varies on the waterfall diagram. After using this display mode, you'll never go back to anything else.

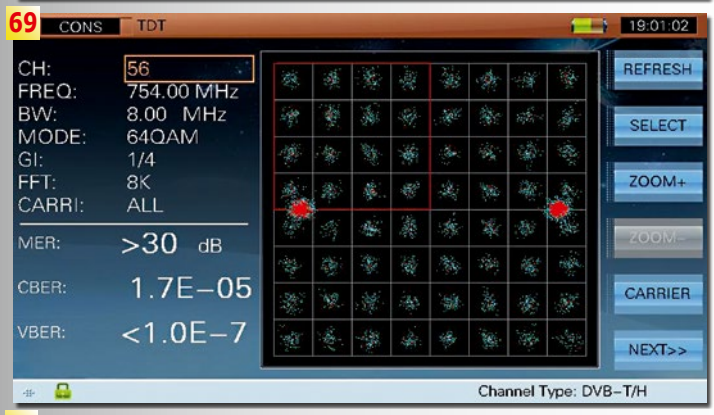
CATV and Terrestrial TV Modus

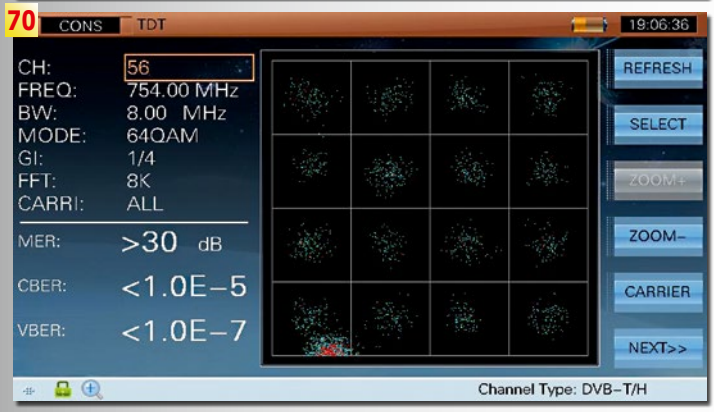
64. If you switch to Cable and terrestrial TV mode from the Main menu, two new symbols will appear in place of the Sat Finder and DiSEqC symbols for the measurement of angular position and Barscan.

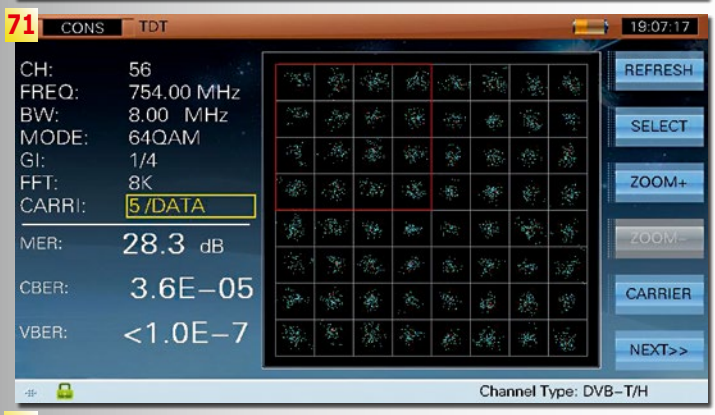
65, 66, 67, 68. Based on the active channel list, the analyzer automatically selects CATV or terrestrial reception.

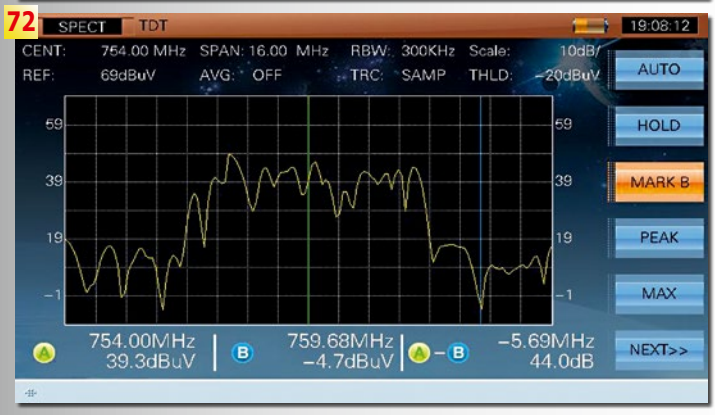
Once again the S7000 automatically recognizes the reception parameters and in record time. Just like in Sat mode, in the upper part of the screen the power, MER, CBER or VBER can be enlarged and displayed with bar graphs.











69, 70, 71. In DVB-T/H mode, the constellation diagram is enormously useful in identifying errors. The Deviser S7000 comes with all the expected functions like Zoom, to magnify quadrants. Also interesting is the ability to focus the constellation diagram onto single carriers in the transponder. This lets you analyze, for example, the influence of a narrow bandwidth interference signal on a single carrier. Fantastic!

72, 73. And just like in Sat mode, the spectrum in DVB-T/H mode can also be displayed in various forms, including a waterfall diagram. The 50 MHz to 1000 MHz spectrum is clearly refreshed at a much slower rate than in Sat mode and this is obviously due to other signal modulations and smaller spectrum frequency bandwidths being used. However, Deviser gives the user the ability to edit the spectrum frequency bandwidth in increments. Depending on the setting, the spectrum is displayed in more detail or presented much faster.

74. You don't want to analyze the spectrum across the entire frequency span here anyway - it would be good enough if you find out ahead of time on what frequencies signals can be found. It's critical here to enter small enough ranges that would allow a precise measurement of the signal-to-noise ratio. There are two markers available in this mode for that purpose and the S7000 automatically determines this ratio in MHZ and dB.

75. An ECHO measurement should be included in every modern DVB-T/H signal analyzer. This type of measurement is critical for Single Frequency Networks (SFN). The idea here is that various transmitters in a region all broadcast on the same frequency. This has numerous advantages; for one thing the rest of the frequency band remains clear for other uses and secondly, receivers can be transported within a region (such as in cars) without having to reset the reception frequency.

Unfortunately, SFN transmissions also come with a huge disadvantage: if the receiver finds itself between two transmitters, the signal will be received from both transmitters. Since the distance of the receiver to both of the transmitters is likely to be different, the result is a shift in the arrival times of both signals known as ECHO.

The DVB-T/H standard provides for a so-called Guard interval that automatically compensates for this time shift if it is small enough, that is, lies within the Guard interval. If the ECHO is too large, it will inevitably lead to reception problems even though a simple signal analyzer will show a high signal level!

The S7000 has mastered these ECHO measurements and automatically displays these measured ECHOs graphically and in a table. For each ECHO the corresponding level as well as the delay in microseconds/kilometers is shown. This will allow the installer to determine which transmitter is causing the interfering ECHO and properly align the antenna especially if he has documentation showing the regional distribution of these transmitters.

A trick would be to use the sloping roof of a house to block the unwanted signal from a distant transmitter.

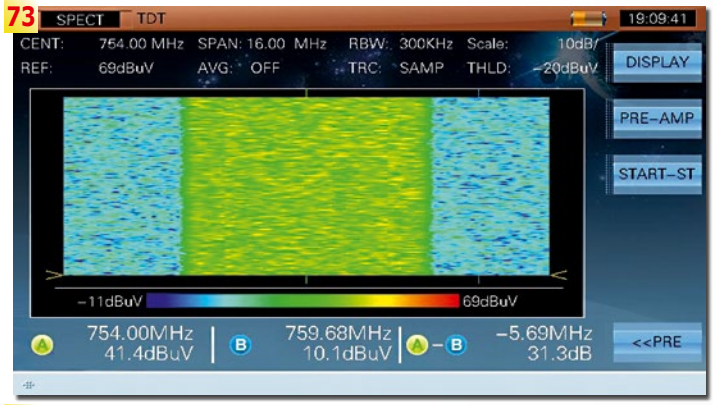
76. Another relatively new measurement that is found in very few professional analyzers is the MER vs. carrier measurement. Here the Modulation Error Rate (MER) is not shown as an average value of all carriers within a transponder, instead it is shown for each individual carrier.

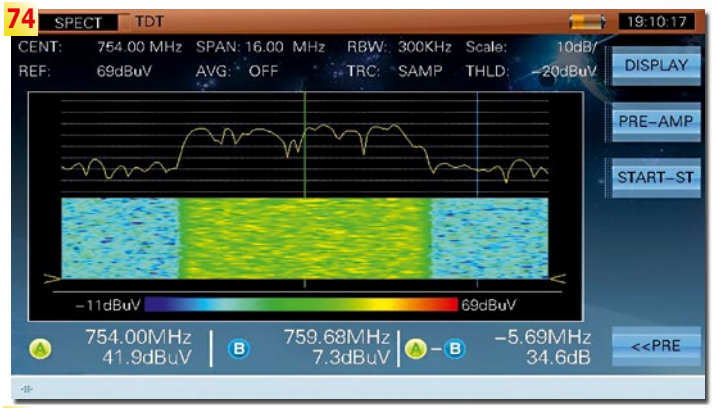
These values are presented in a graphic that resembles the spectrum and consequently, also in a waterfall diagram. The marker allows the navigation within the many carriers that make up the transponder and the analyzer will show the respective matching MER value in dB.

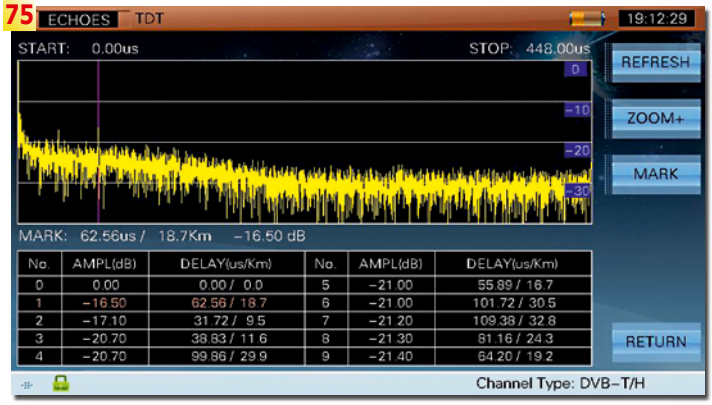
This measurement serves to identify the smallest interference such as that from audio/video broadcasters in the VHF/UHF range. But even LTE and other services could interfere with a DVB-T/H transponder. With a basic MER measurement this interference might not be detected since the average value is hardly affected. Nevertheless, it could be enough to totally interfere with a few carriers such that a considerable portion of the transponder stream can no longer be correctly received.

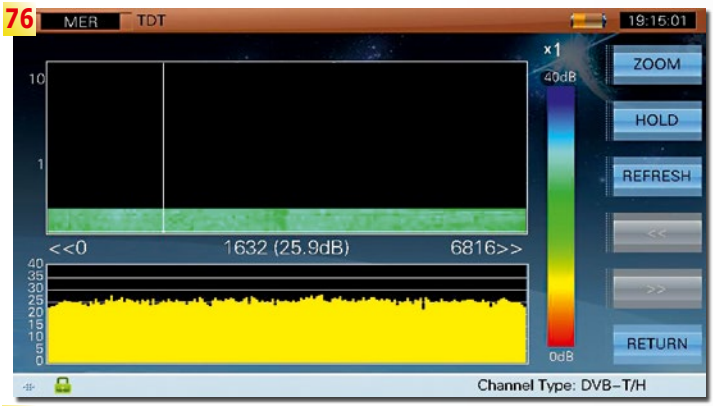
The simultaneous display as a waterfall diagram is truly one-of-a-kind; it allows you to catch and document even intermittent and momentary interference.

77. Just like in Sat mode, the TS Analyzer can be accessed at any time. In just seconds a signal lock is achieved and the reception parameters are read. Thanks to the implementation of many standard and also non-standard CODECs, channels such as the Portuguese TDT (Televisão Digital Terestre - digital terrestrial television) can be displayed even though, despite DVB-T modulation, the video and audio are compressed in MPEG H-264 and MPEG4 AAC, respectively, as can be seen in the PROG GRAPH screen.





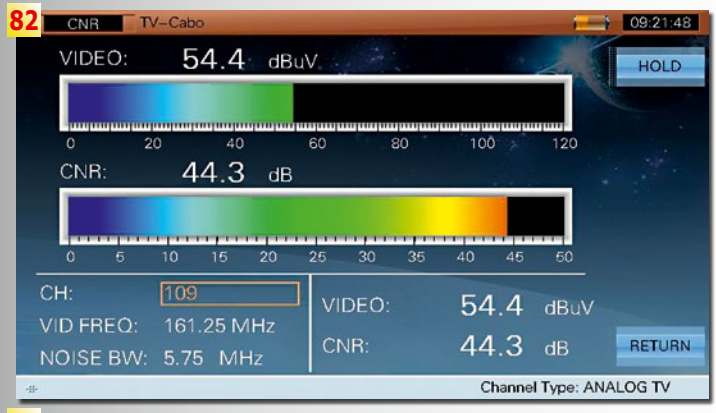


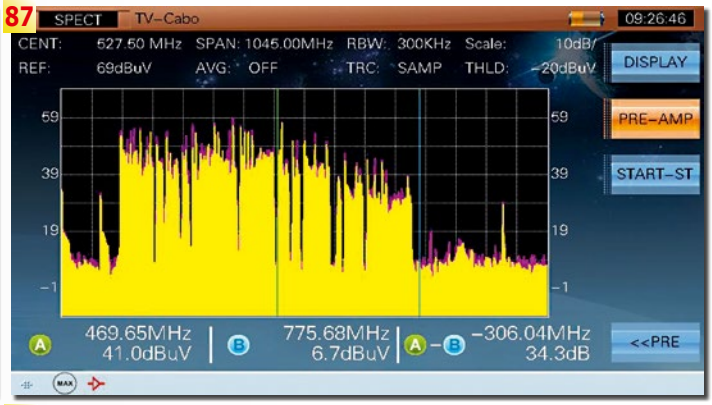


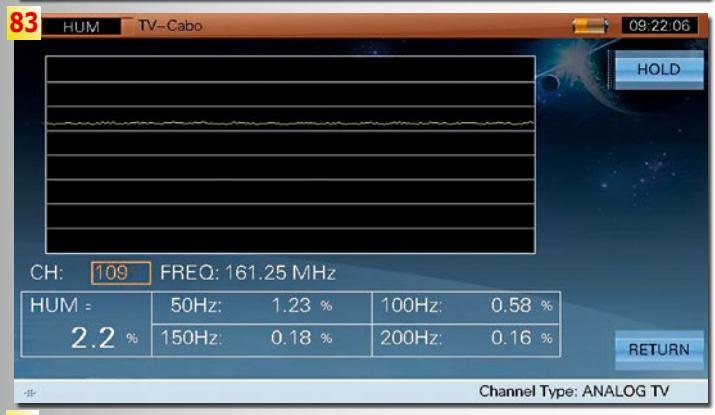
78, 79, 80. The Deviser S7000 doesn't differentiate between CATV and terrestrial TV. The advantage here is that the channel list doesn't need to be divided and you don't have to go through complicated menus to change modes. The S7000 recognizes the modulation, regardless if it's analog, DVB-C or DVB-T/H.

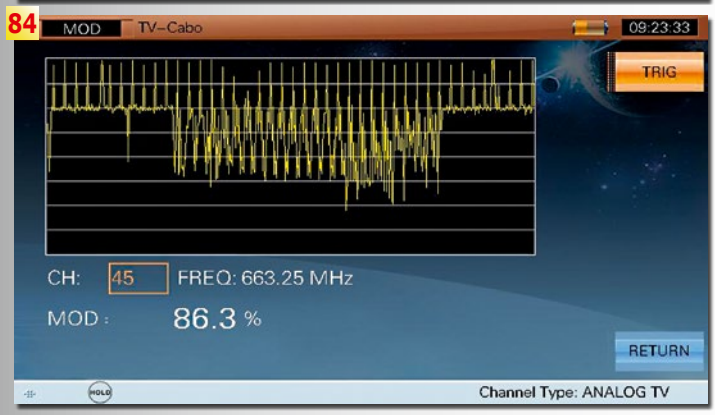
With analog channels the audio/video levels are displayed and the offset is automatically calculated.

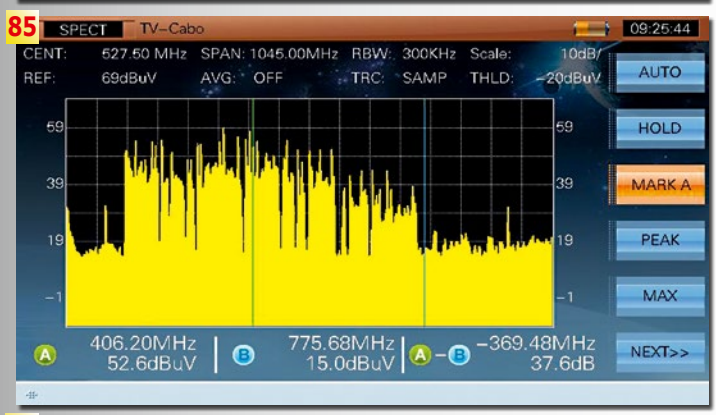
81. Naturally, analog channels can be presented with picture and sound while the analyzer simultaneously shows added information such as the video standard. Just like with the presentation of digital transponders, the TV picture can be shown in full-screen mode by simply pushing the OK button.

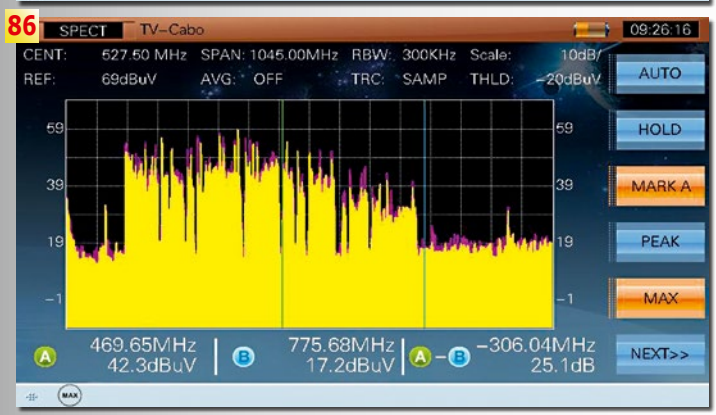












82. With analog signals there are of course additional measurements possible, for example, the signal-to-ratio. What's unusual is all of the information that can be displayed at the same time thanks to the high-resolution screen. Even from a distance you'd be able to read on a bar graph the numerical values, for example, for the signal level and the signal-to-noise ratio while at the same time, for example, the channel number and frequency are displayed.

83. The S7000 can also perform hum measurements. This makes it possible to measure the influence of hum that originates from the power grid and are present on analog channels. Naturally you can choose in the configuration menu whether the power grid operates on 50Hz or 60Hz.

84. And another surprise: in order to actually find every possible error, the analog video lines can be presented in an oscillator mode. In this way, for example, problems in the blanking intervals that are critical for picture synchronization can be recognized.

85. The spectrum mode when used in CATV and terrestrial modes has the capabilities to position two markers whereby the level offset is automatically displayed.

86. A peak-hold function is, of course, also available. This would be useful, for example, when an amplifier needs to be adjusted.

87. A preamplifier is integrated into the Deviser S7000 and, when necessary, can be activated.

88. Digital CATV channels can also be measured and once again the S7000 processes the necessary reception parameters in record time. It was surprising that throughout the entire testing process it was not necessary to use the Settings editor to setup the channel lists ahead of time.

89. With digital signals the power and signal-to-noise ratio is displayed in the measurement screen. Thanks to the large screen all of the critical measurements and parameters such as MER, Pre and Post BER and frequency can all be viewed at the same time.

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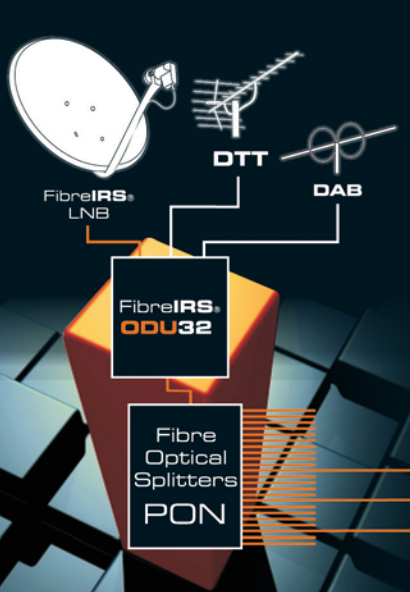
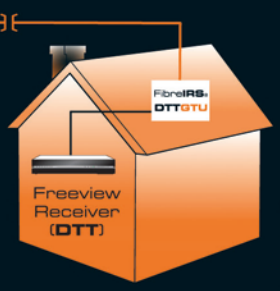
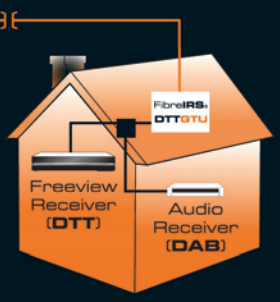
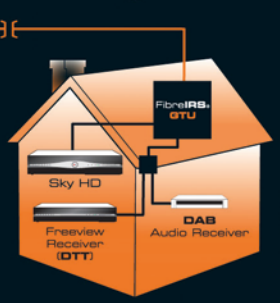




DTT & DAB Installation



DTT & DAB Installation



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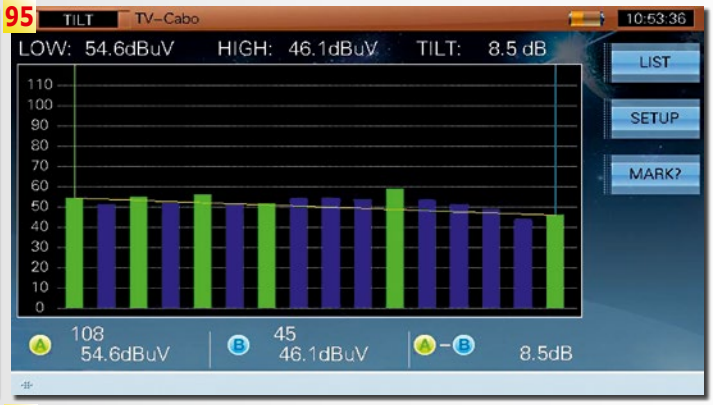
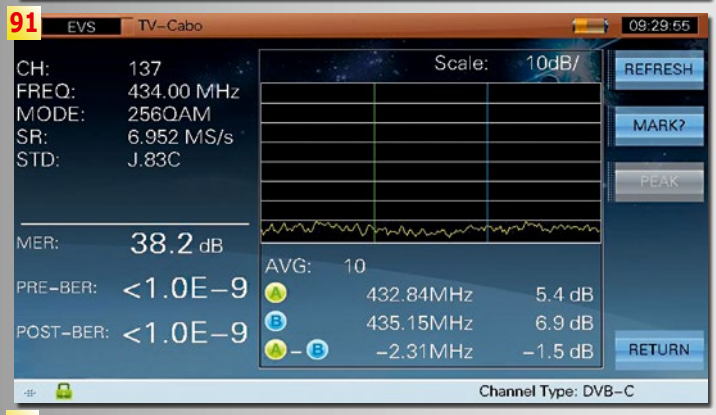
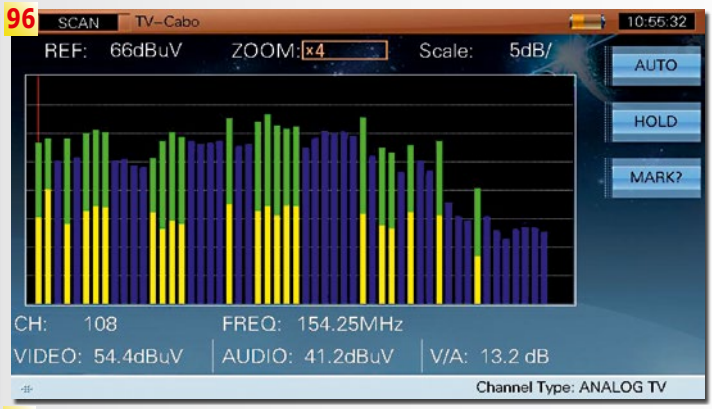
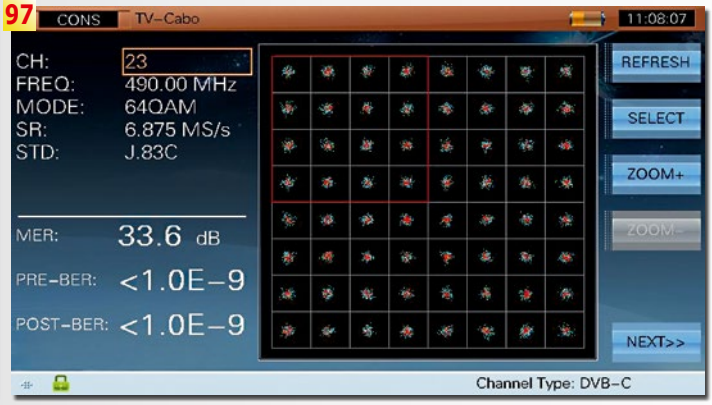








90. Just like with the handheld signal analyzer DS2400T introduced in the 1209 issue of TELE-audiovision, a long duration bit error rate (BER) measurement is also available. The time interval can be selected and from that point on a graphic shows the progression of BER and MER. This helps to identify intermittent problems.

91. An additional measurement for DVB-C signals is available, namely the EVM or Error Vector Magnitude. This measurement resembles the MER measurement but here a different reference is used: while the RMS value of a QAM signal is used for determining the MER, for the EVM measurement the peak value of the QAM signal is used as a reference. The EVM measurement presents the ratio of the error vector amplitude versus an ideal vector amplitude and helps with the identification of interference in signals under the QAM mask.

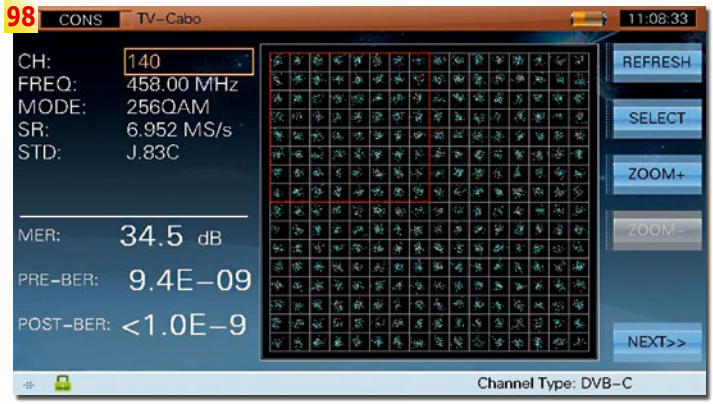
92. The so-called Tilt measurement shows the bars for each channel in increasing frequency from the left to the right so that the line connecting the first bar to the last bar shows the tilt. Ideally, the line should be as horizontal as possible. A large tilt in the line suggests attenuation in the upper frequency range (or lower frequency range) and can, for example, be compensated for with the proper amplifier.

93. For the Barscan measurement up to 16 channels can be selected – you can choose only analog, only digital or a combination of analog and digital channels.

94. Here only analog channels were used for the Barscan measurement.

95. Digital channels were now measured (in blue) at the same port. It's obvious that the signal is falling off for the four digital channels on the right side. The attenuation is too high.

96. The so-called Barscan measurement is nearly self-explanatory and is where the level and power of the selected channels are displayed as a bar graph. With analog channels the video level is shown in green and the



associated audio level is shown in yellow. Digital channels are shown in blue. Here too the channels are arranged in increasing frequency and once again it's obvious that there's a problem on this antenna jack. The digital channels to the right clearly have a lower level than the others.

97, 98. The Deviser S7000 supports all the standard CATV modulators and can display the constellation diagram without any problems regardless if it's 64QAM or 256QAM.

99, 100. The S7000 can perform a channel scan for terrestrial TV and CATV. The user can choose if only analog channels, digital channels or both should be searched for. The threshold values can be predefined in the configuration menu.

101. For satellite mode the desired satellite simply needs to be selected from the list and it's even possible to enter new satellites into the analyzer. The preprogrammed satellite list contains nearly every satellite from around the world along with their current transponders.

■TELE-audiovision's Technical Editor Vitor Martins Augusto using the Deviser S7000

MKTech IS1-19HD

ISDB-TB & DVB S2

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- **Умно: съемный жесткий диск**
- **Звук может быть настроен и установлен индивидуально для каждого канала**

The Best of Both Worlds

The IS1-19HD from MK-Tech is a hybrid receiver. It can receive both DVB-S2 satellite signals as well as terrestrial channels. MK-Tech configured the IS1-19HD with an ISDB-T receiver section because of the fast growing market in South America.

On the front panel of the subtle housing you'll find a very easy to read VFD display and right along side the manufacturer incorporated a total of seven buttons to control the receiver in case the remote control goes missing or its batteries die. Behind a flap there's a card reader that permits the reception of encrypted channels. The rear connector panel is nicely equipped; there are DVB-S2 and ISDB-T inputs that each have looped-through outputs, an HDMI output, six RCA jacks for stereo audio, CVBS and YUV outputs, a network interface, a coaxial S/PDIF output and a USB 2.0 port. Especially clever and new to us in this form is the removable frame for an internal 2.5" SATA hard drive. It can be inserted and removed without any tools; simply push one button and it pops right out. And let's not forget the WiFi dongle that the manufacturer also included in the package. It can be used to set up a wireless network connection with the IS1-19HD.

The included remote control sits very nicely in your hand and its slip-free surface underneath guarantees it won't slip easily out of your hand. The nicely arranged and clearly labeled buttons greatly simplify the use of this receiver. All-in-all we had nothing but praise for the workmanship of the MK-Tech IS1-19HD and the easy-to-access removable hard drive frame is an especially nice feature.

The IS1-19HD does not come with an installation assistant; the user has to take care of all the necessary settings manually and deal with all the various menu entries on his own. But it turns out that it's easier than it sounds; the entire menu structure is nicely organized and all the menu entries are essentially self-explanatory. Thanks to the support of all the DiSEqC protocols (1.0, 1.1, 1.2 and 1.3), the IS1-19HD can be used with any antenna configuration. The preprogrammed as well as freely selectable LOF values make it easy to use this box anywhere in the world. MKTech preprogrammed the receiver with a total of 59 satellite entries but, unfortunately, these entries are not all that up-to-date. Channel scanning, on the other hand, is definitely outstanding: Blind scanning and normal channel scanning functioned very

WS-6936

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show Cursor location and signal strength downlink frequency,
Signal was locked。
Show spectrum bandwith：1200MHz；540 MHz；108 MHz

DVB-T Spectrum:
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WS-6909
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nicely in our tests. 1500 TV and 520 radio channels were discovered in just about four minutes. We liked in Blindscan mode that the receiver first identified all the active frequencies (for which it needed a little more than a minute) and then compared them with those in the preprogrammed list. After that it performed a channel scan. In this way the transponder list is consistently kept up to date with every Blindscan.

In ISDB-T mode the user can perform automatic and manual channel scans. In automatic mode, all of the available frequencies will be processed; in manual mode the frequencies can be selected and processed individually. Both the ISDB-T tuner and the DVB-S2 tuner have excellent input signal sensitivity and can easily handle weaker signals. A total of eight Favorites lists are available for the quick and easy recall of all of your favorite channels and if you don't want to take any chances, you can store the channel lists on an external storage device so that in an emergency you won't have to redo all of that channel list setup work again.

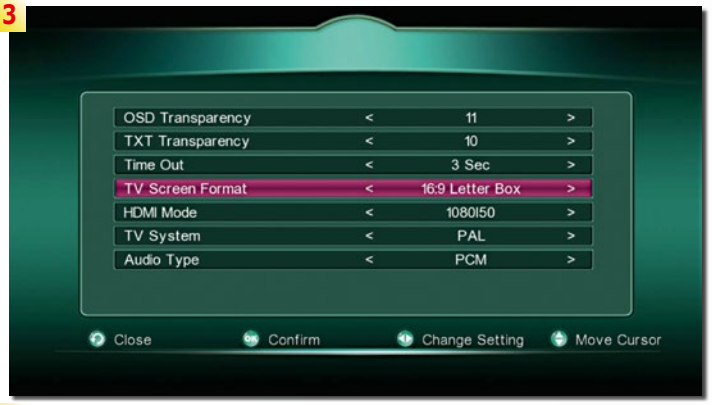
The automatic signal matching feature worked perfectly in our tests. While our 42" LCD TV could handle resolutions up to 1080p, the receiver correctly recognized the maximum resolution of our capture card to be 1080i and automatically adjusted the resolution to the proper setting.

We shouldn't forget to mention the „Volume per Channel" feature that can be activated or deactivated in the System Settings. With it activated, the receiver automatically recognizes the volume setting for each individual channel so that especially loud channels can be set to a lower volume and, vice versa, a significantly quieter channel can be set to a higher volume. In our tests this feature proved itself to be very practical especially when surfing between channels from different regions of the world that are often broadcast with varying volume levels.

The Info bar that appears with every channel change shows the name of the current program and the upcoming program assuming of course that the provider supplies this information. Since the IS1-19HD is a PVR receiver, MKTech naturally thought to include the ability to set up timer recordings directly from the EPG with the push of just one button. This worked exceptionally well in our tests even when setting up repeated daily or weekly recordings.

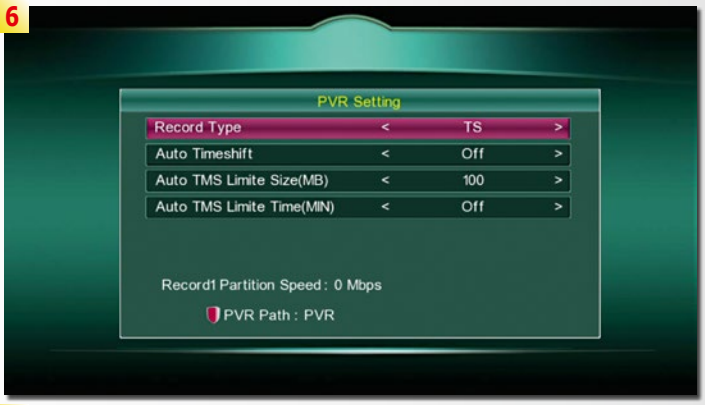
Thanks to the clearly arranged channel list, surfing between channels is actually quite a bit of fun. And this is only enhanced by the speedy channel switching speed of less than one second.

We appreciated the number of direct-select buttons on the remote control, such as, searching for a specific



1. The IS1-19HD's main menu
2. The Language menu also contains the volume setting for each channel "Volume per Channel"
3. Matching the video output signal
4. Child protection settings
5. USB and network settings
6. PVR settings
7. With the help of the USB Tools, files and directories can be created and edited
8. Hard wired network connection
9. Of course the DHCP protocol is supported
10. Thanks to the included WiFi dongle, the receiver can also communicate wirelessly with a router
11. Available WiFi networks
12. Manual IP entry
13. Additional features of the IS1-19HD
14. Stock prices
15. RSS Reader

6



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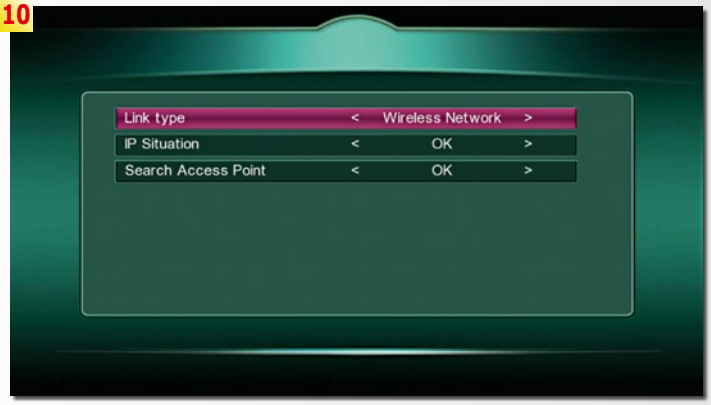

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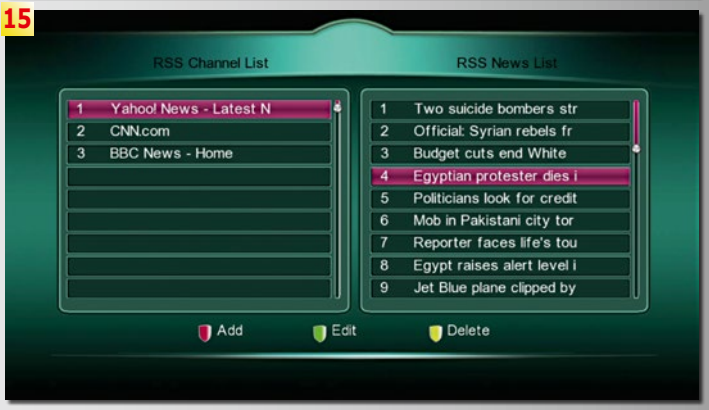

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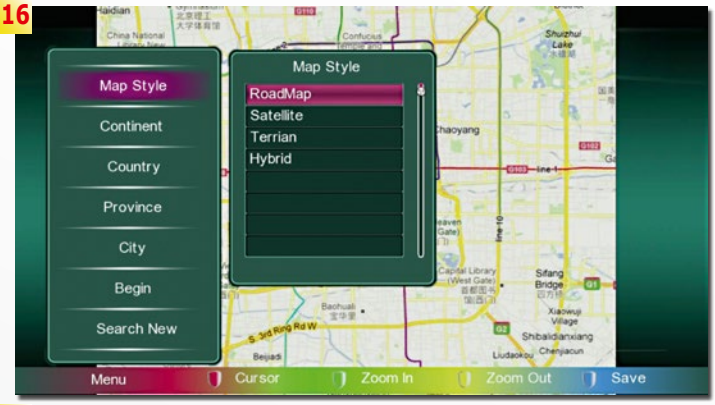

16. All the functions of Google Maps that the user is familiar with on a PC are also available in the receiver
17. Access to the online photo services Yupoo, Picasa and Flickr
18. Sorting the displayed YouTube clips
19. Searching for specific YouTube clips
20. For weather forecasts there are numerous cities already preprogrammed, more cities can easily be added
21. Weather forecast for Florence
22. Dozens of games can be downloaded
23. Installation menu
24. The preprogrammed satellite list

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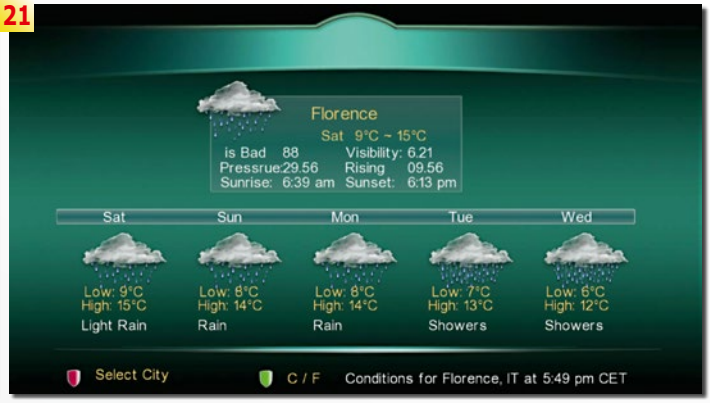

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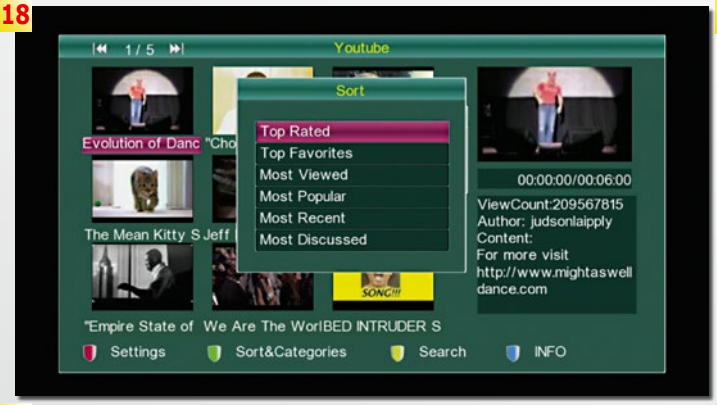

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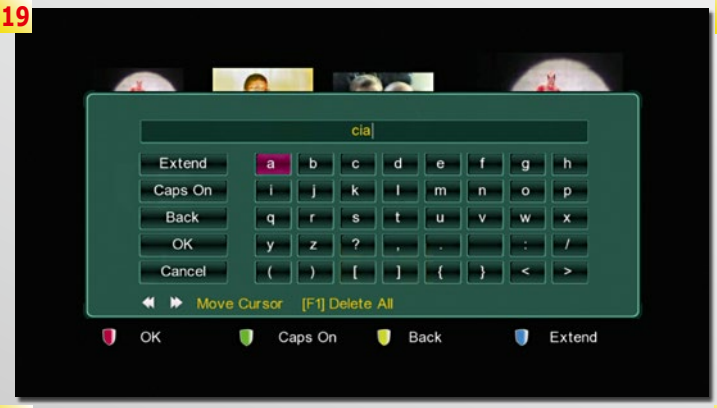

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24

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E-mail: info@forcetech.net
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ForceTech

channel, changing the output resolution, switching the picture display mode as well as displaying the currently stored timer entries.

Our overall positive impression was further amplified by the error-free functioning of the OSD teletext decoder and the on-the-whole very carefully implemented software. Thanks to the powerful main processor, the 128 MB flash memory and the 256 MB SDRAM, all of the remote control commands were promptly executed without any delay.

This can also be seen with its PVR functions. There were no problems recording two HD programs at the same time while a third program could be watched live or played back from the hard drive. And thanks to the practical USB Manager, users can easily create folders as well as delete, copy or rename files. It's also possible to format new storage devices.

The MKTech IS1-19HD also comes with a jukebox function so that audio files can be played back. There's also a photo viewer as well as a video player. These are features that have generally become standard an nearly every PVR receiver. The file formats that are supported include: AVI, ASF, MPEG, MKV, RM, TS, M2TS, FLV, SWF, DAT, VOB and RMVB for videos, MP3, FLAC, WMA and AAC for audio as well as JPEG, BMP, PNG and GIF for pictures.

Last but not least, the USB port serves to upload the latest receiver software. The manufacturer regularly makes software updates available for download via their web site.

The IS1-19HD comes not only with a hard-wired RJ45 Ethernet interface, with the help of the included WiFi Dongle it can also communicate wirelessly with your router. In our tests this connection worked perfectly; as soon as the Dongle was connected to the USB interface, it immediately recognized all of the locally available WiFi

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25. Transponder overview

26. The user can easily edit transponder entries or add new ones

27. If needed, the LOF can be entered manually

28. A network scan to find related transponders is also available

29. Picture viewer

Intelsat / GVF Type Approved

Ka-Band Antenna System

VSAT Antenna System

DTH Antenna System

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compliant RoHS

30. DiSEqC 1.2 settings
31. Country selection in the DiSEqC 1.3 settings
32. ISDB-TB frequency overview
33. Editing the channel list
34. Channel List Manager
35. The IS1-19HD channel list
36. Language selection
37. A total of eight Favorites lists are available
38. Specific channels can be searched for using the OSD keyboard

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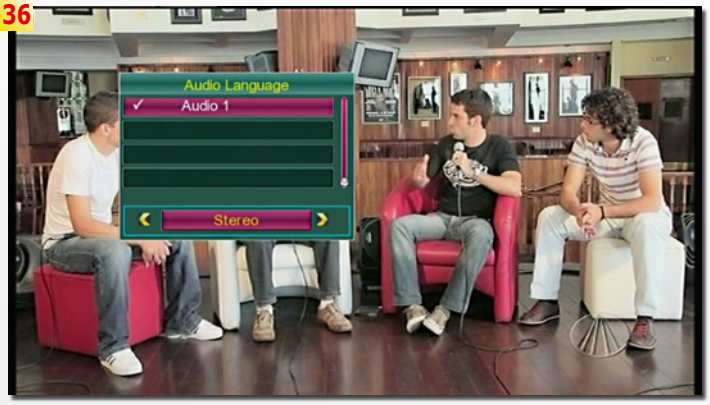

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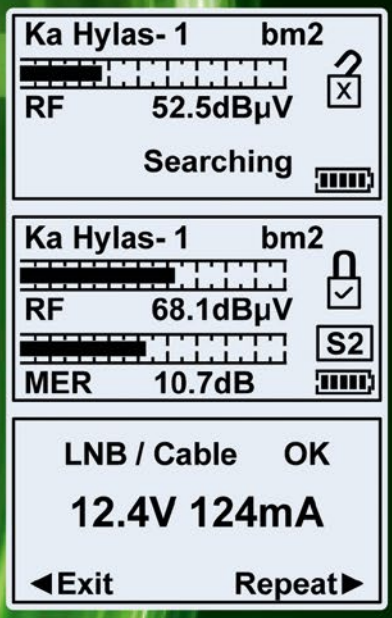
HORIZON

For a reliable solution!

Winners of the Queen's award for international trade 2007, Horizon Global Electronics is a UK Company established in 2001 specialising in the design and manufacture of hand held test equipment for the digital satellite and TV sector. Our strength lies in being able to find innovative solutions to leading technology issues.

Introducing the new HD-S2A!

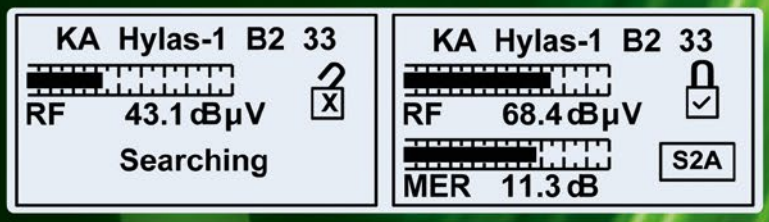


The HD-S2 satellite meter features all the functions you will need to perform DVB-S and DVB-S2 satellite installations.

The HD-S2A developed for Avanti Broadband features tone functions for Hughes Ka-Band ODU polarisation selection.

The cost effective Nano S2A

The Nano-S2A satellite meter is the ideal cost effective solution for Hylas-1 and Hylas-2 VSAT installations. The Nano-S2A features tone generation for Hughes ODU polarisation control along with a lock state indicator that supports DVB-S2 advanced modulation schemes. The signal level and quality indicators make this the easiest meter to use ever. One button does it all. The Nano-S2A can be receiver or battery powered.



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Email:
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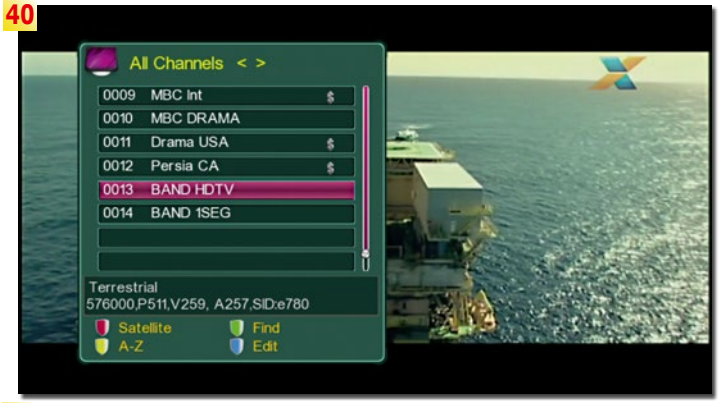
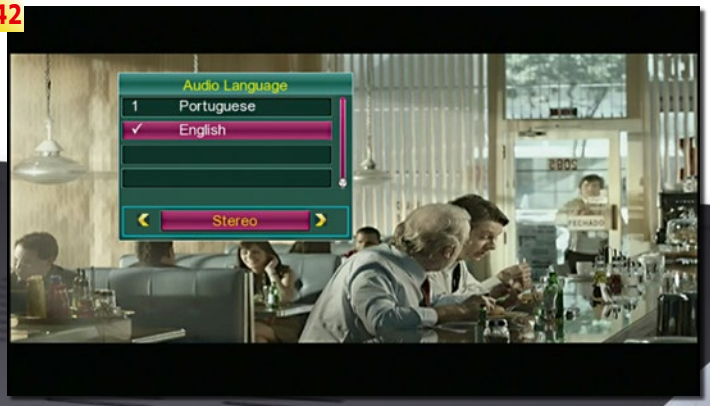


networks. Manually entering the SSID is not possible so therefore the receiver can't look for hidden WiFi networks. Once a connection has been established with the Internet, the user can then check the local weather forecast, access an RSS reader, check stock prices, view Google Maps, YouTube as well as the online photo services Yupoo, Picasa and Flickr. There's also a large assortment of entertaining video games available for download.

39. ISDB-T channel scan
40. The IS1-19HD channel list
41. BAND HD from Chile via ISDB-T
42. Language selection

Overall we enjoyed using the MKTech IS1-19HD's network features - all the services were integrated by the manufacturer in an exemplary fashion; they were all fully functional. We especially liked that they could all be used very effectively via the receiver and TV. Only in that way will users actually want to utilize them.

The combination of DVB-S2 and ISDB-T tuners in this receiver makes it a very interesting choice for our TELE-audiovision readers in South America and we're certain that the IS1-19HD from MKTech will find many fans in that part of the world.



EXPERT
OPINION

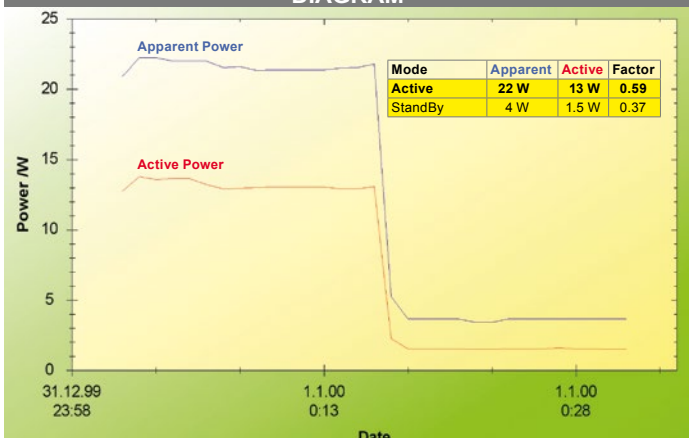
+ Thoughtful, clear and error-free software
Rich yet easy to use functions
The removable frame for the 2.5“ SATA hard drive is very innovative and clever

– Cannot enter SSID manually in WiFi mode

TECHNICAL
DATA

Manufacturer	Gotech International Technology Co., Ltd.
Adress	66 Yongda Road, Hongqi, ZhuHai 519045, Jinwan, CHINA
Contact	www.gotechcn.com/Enquiry.asp
Internet	www.gotechcn.com
Model	IS1-19HD
Function	DVB-S2 & ISDB-Tb Combo Receiver
Input frequency DVB-S2	950 - 2150 MHz
Input symbol rate DVB-S2	2 - 45 Ms/s
DiSEqC	1.0, 1.1, 1.2, 1.3
Input frequency ISDB-Tb	177 - 213 MHz & 473 - 803 MHz
HDMI	yes
Digital Audio out	yes (coaxial)
USB 2.0	yes
Internal 2.5“ SATA HDD	yes
CI Slot	no
Card Reader	yes
Stereo Audio, CVBS, YUV	yes (6x RCA)
Scart	no
Ethernet	yes
WiFi	yes
RS232	yes
0/12V	no
EPG	yes
HDTV	yes
PVR	yes
WebTV	no
Power Supply	100 - 240V AC 50/60 Hz
Dimensions	28 x 23 x 5.5 cm
Weight	1.35 kg

ENERGY
DIAGRAM



Energy: The first 15 minutes active operation; the second 15 minutes Standby

HORIZON HD-CM+

для DVB C

- ***управление чрезвычайно удобное для пользователя***
- ***возможность полностью автоматического измерения с очень удобным для чтения дисплеем***
- ***функция контроля рассеивания – для определения поврежденного кабеля***
- ***измерения частот для проверки кабеля***


HORIZON HD - CM+
HORIZON
HDCM PLUS
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OK
ON
CE
Horizon HD-CM+
DVB-C meter
RECOMMENDED
PRODUCT BY
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Test Center
Austria
TELE audiovision
www.TELE-audiovision.com

Made for professionals – by professionals!

A reliable signal meter is one of the most important tools for professional installers of new DVB-C networks for hotels, apartment buildings and small residential estates or for distributing existing DVB-C signals. Horizon has come up with just the right device for all those demanding installers out there: The HD-CM+ for DVB-C signals, launched by a long-time manufacturer of top-notch signal meters which TELE-audiovision readers have come to know and appreciate through numerous test reports.

The blue signal meter measures 17 x 16 x 6.5 cm, weighs approximately 1 kg and sports the tried-and-tested Horizon design that has proven its worth in many previous tests. On the front users of the new HD-CM+ can find a female socket for the signal input. High up on the wish list of most installers is an option to exchange that socket, and Horizon has gladly met that demand. In case you're wondering why this is an issue at all – the signal input socket is usually the first component of a meter to fail due to all those different cables that need to be connected and disconnected again during active use.

Right next to the socket there is a perfectly readable LCD display, as well as a total of five buttons for using all functions of the meter.

Turning the meter around will give you access to the power socket on the back, as well as a USB interface and connection for the external 12V car charger on the side. The built-in Ni-MH battery pack is located on the bottom side and is protected by a sturdy flap. We love the fact that the battery pack can be accessed without the need for additional tools and therefore can easily be exchanged, if need be. After all, nothing is more annoying than running out of power during a major installation job.

Horizon has also been generous as far as included accessories are concerned. The HD-CM+ comes with all required cables (power supply, USB), a car charger, a very handy display cover for rainy days, an external antenna for detecting faulty cables or interfering signals, and a heavy-duty carrying bag made of nylon. This way, the meter is always at hand while at the same time being protected from the elements or damage. The manual that is also part of the package is clearly structured and deals with all functions of the signal meter in a straightforward way.

Horizon recommends charging the battery pack of the HD-CM+ for eight hours before using the meter for the first time. This makes sure the battery reaches its maximum capacity and provides optimum performance. It goes without saying that we heeded that advice and connected the meter to the mains overnight. Speaking of which, the internal power pack can handle any voltage between 90V and 250V AC, which makes it a true globetrotter. During the charging process an indicator on the display shows the current battery status at any time, which is a nice feature as it gives you some hint as to when the charging cycle will be completed. And while we're at it, let's have a closer look at the monochrome LCD display at this stage. Offering a resolution of 128 x 64 pixels it sports remarkable readability in dark surroundings thanks to its backlight feature, but also in direct sunlight thanks to its excellent contrast settings. As far as the battery pack is concerned, Horizon has opted for a 3300 mAh Ni-Mh battery which allows seven hours of continuous operation without external power supply. This in turn means that a single cycle will get most professional installers through a regular workday.

Similar to other Horizon meters the HD-CM+ is brought to life with a feisty touch of the arrow down button. Installers can then call up the settings menu right away in order to customise the meter according to their requirements. This is where you can adjust the backlight mode, display brightness and display contrast, or you can activate automatic shutdown after a pre-set period of inactivity. This is a particularly useful feature, as it avoids drawing all power out of the battery pack simply because you forgot to switch off the meter. Measurement results can be given in dBµV, dBmV or dBm and an automatic noise limiter can be set between -75 dBm and -55 dBm. Lastly, default factory settings can also be restored through the settings menu.

Right after turning on the

1. Horizon HD-CM+ Logo
2. The three scan modes of the HD-CM+
3. Signal level measurement
4. MER measurement
5. BER measurement
6. Manual scan with spectrum display
7. Selecting one of five pre-set channel allocation plans
8. Comparison measurement of five different frequencies
9. Comparison measurement of five different frequencies with signal level difference shown
10. Spectrum display
11.Settings menu
12. Settings menu
13. Leakage test
14. Constellation diagram
15. Individual channels can easily be selected for a comparison measurement

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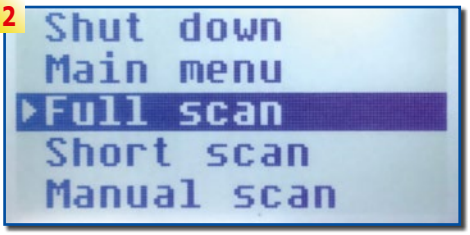

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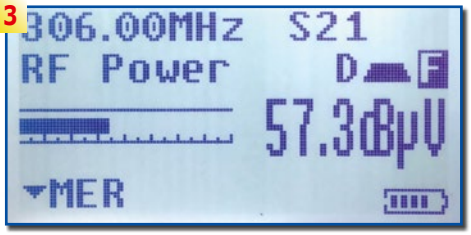

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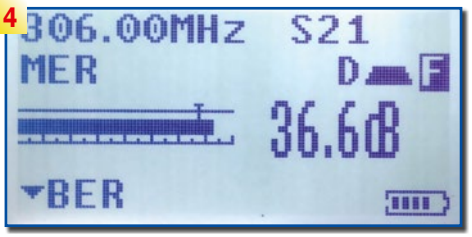

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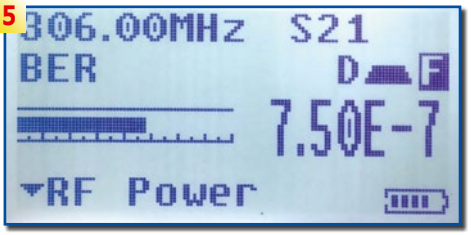

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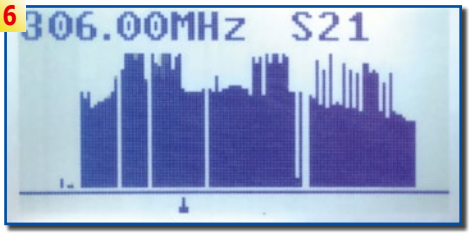

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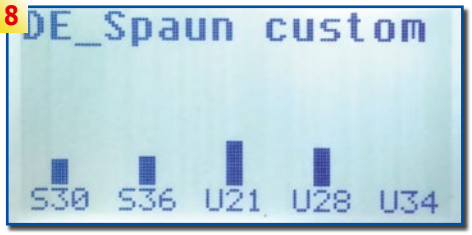

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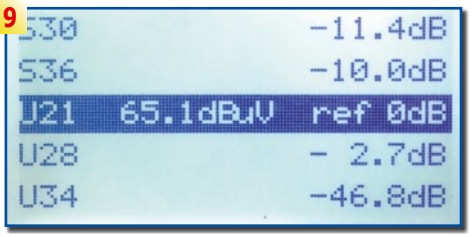

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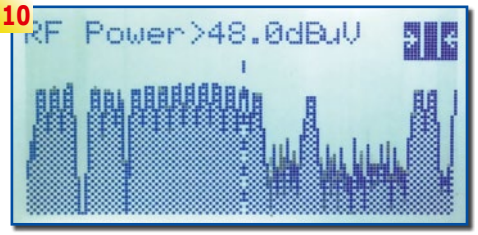

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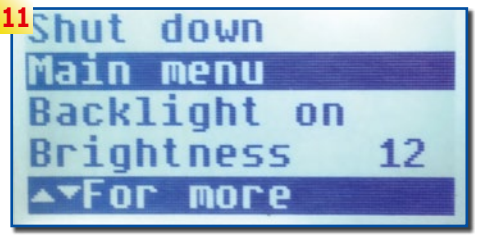

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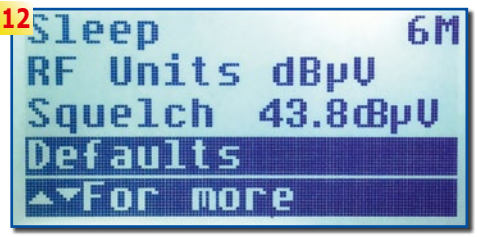

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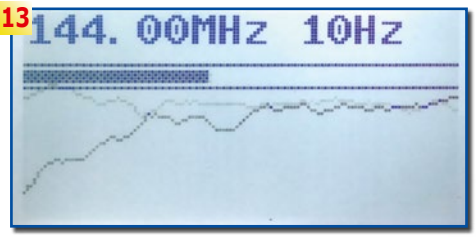

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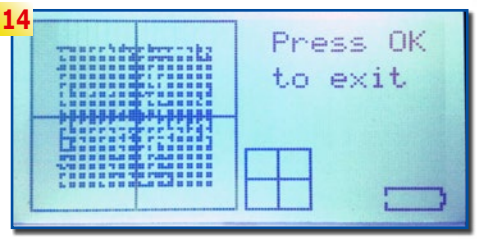

15


HD-CM+ installers will be happy to find themselves smack in the scan menu which lets them select one of three available scan modes: full scan, short scan and manual scan. Before we explain all three varieties and make a selection for testing purposes, we should mention that the HD-CM+ signal meter is capable of storing up to 20 pre-defined channel allocation plans in its internal memory. Those plans are available for dozens of DVB-C providers worldwide and allow fast access to all active frequencies of a given cable network.

In case no channel allocation plan is available for the provider at hand you can always fall back on a standard channel plan that includes all UHF and VHF frequencies. Channel allocation plans can easily be selected for download from the manufacturer's website at www.horizonhge.com. All data will be packaged into a ZIP file that can be downloaded to a PC. All that is left to do then is to use the USB cable for connecting the meter to the PC. All drivers that are required to that end are also available from the Horizon website. File transfer worked flawlessly during our test and without any additional user input, since the zipped channel allocation plans come complete with all necessary

software. Only pre-defined plans can be downloaded without an option for creating a customised plan; however, customised plans can be requested from Horizon directly.

Our test PC runs with Windows 8, so we're happy to confirm that both drivers and software work smoothly with the latest Microsoft operating system.

As the name implies, a full scan goes through the currently selected channel plan in its entirety, from A to Z, or from Z to A by pushing the LEFT/RIGHT buttons. With a short scan it is possible to look at specifically selected frequencies of the current channel plan, and a manual scan allows users to chose a single frequency from a frequency selection with spectrum view. Both in full scan mode and short scan mode the HD-CM+ starts from the lowest frequency and works itself up to the highest frequency of the plan. Whenever an active frequency is

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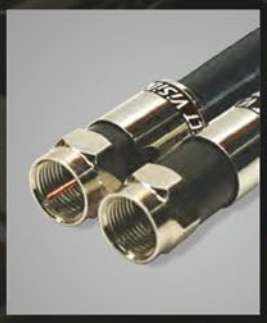

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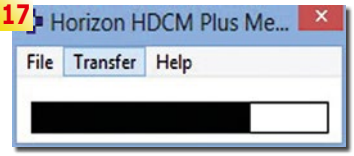
found, the scan stops and a measurement is initiated. In addition, the meter gives out the following parameters for each active frequency, depending on the actual signal type: RF, signal level, MER and BER for digital signals, and RF video signal level, RF audio signal level as well as SNR for analog channels. What's more, you don't only get a precise figure, but also an info bar!

During our test the display did not only impress us with its clearly structured display layout, but also with absolutely flawless readability under all circumstances. So it's easy to see why we could hardly wait to have a close look at the signal of our local DVB-C provider. As it turns out, no pre-defined channel allocation plan is available on the Horizon website for UPC Austria, our cable operator. Not to worry, though, as we simply used the standard channel plan that will do fine for situations like this. It didn't take long until the first measurement results popped up on our meter's display, and we were amazed by the ease of use and smart simplicity of the HD-CM+.

As always with signal meters that we test, we need to find out if the indicated values can be categorised as rough estimates (read: unreliable) or correct results (read: good for professionals). To find out, we connected a second meter from another manufacturer and discovered that both devices showed almost identical results. The conclusion that can be drawn is that Horizon has made a point of equipping its latest professional meter with an excellent tuner. Have a look at table 1 to see for yourself which results

	Signal Level Horizon	MER Horizon	BER Horizon	Signal Level Reference	MER Reference	BER Reference
328 MHz	59.6 dBµV	32.1 dB	2.05E-4	61.2 dBµV	31.3 dB	2.3E-4
394 MHz	64.7 dBµV	34.7 dB	2.69E-4	62.1 dBµV	33.5 dB	2.3E-4
562 MHz	59.7 dBµV	36.6 dB	3.20E-7	58.4 dBµV	34.8 dB	3.1E-6



16. Pre-set channel allocation plans are available for convenient download from the manufacturer's website (www.horizonhge.com)

17. Transfer tool of stored measurement results of the HD-CM+

MKTECH

S1-50HD

Dual Core Android4.0 OS OTT Box with DVB-S2 & 3D GPU

- Opeartion System: Android version 4.0.4
- XBMC Supported
- ARM Cortex-A9 Application processor with NEON SIMD Multimedia extension: 5000DMIPS Dual core 1GHz
- Advanced NEON includes the ARM NEON SIMD extensions
- 3D GPU supports 3D user interfaces & games
  Broad Format HD Content Decoding:online video on demand (VOD) and over-the-top (OTT) services, including native support for VP8 codec
- Supports Mouse and Keyboard
- 3G USB DONGLE supported
- Support Android Browser Apps/boot animation/Screen Shot/File browser/ Live Wallpaper
- Support Google Search, Web browser, Email, ect

DVB-S2 Twin Tuner Box with Enigma2 & XBMC OS

- E2 BMC-XBMC and Enigma2 dual-boot
- DVB-S/DVB-S2 Satellite Compliant based on Enigma2
- Twin Sensitive Tuner Supported
- Enhanced media features and functionality from XBMC
- Abundant media plug-ins for users: XBMC-movies, pictures, radio channels, plenty of library portals available
- Support Webserver, Airplay, NAS, Samba and Cifs connection
- Remote control app available for working on Smartphones and tablets
- Media content share by BubbleUpup with Smartphone and tablet
- Real Picture in Picture Supported

Digital T2/S2/C Combo 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

MKTECH
Gotech International Technology Ltd

Headquarters: 66 Yongda Road, Hongqi, Jinwan District, Zhuhai 519045 P.R.China
Tel: 0086-756-6801 600 Fax: 0086-756-6801 798 E-mail: info@gotechcn.com

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we obtained for individual frequencies.

Every time the Horizon signal meter detects an active frequency a touch of the OK button will call up a constellation diagram (for digital signals), plus all measured signal parameters can be saved onto the meter's internal memory.For DVB-C, in particular, varying signal levels and somewhat inclined signal levels spread over the entire frequency band can create major problems. These issues are mostly caused by bad cabling, low-budget splitters or signal feed units that are not properly configured. In order to address those issues, up to five active frequencies can be determined for a comparison measurement, with their signal levels shown side-by-side in a clearly presented overview. This way it is child's play to make all required signals adjustments. Another benefit: If you mark one of the five selected frequencies the meter calculates and shows the signal level difference between the marked and the other four frequencies.

We also appreciated the spectrum view that is always very helpful for professional installers. The spectrum's bandwidth can be adjusted right on the meter using the control buttons, with the following pre-defined options available: 8, 16, 32, 64, 128,256, 512 and 840 MHz. Each frequency can conveniently be selected using the left/right buttons and is shown in the upper section of the display, alternating with the current bandwidth and the measured RF signal level. If you then need to analyse the current frequency and find out all additional parameters, all you need to do is press the OK button.

The range of options and functions of the HD-CM+ is completed with a so-called leakage test that allows quick identification of unintended signal loss or sources of interference. In order to perform this test, installers have to attach the antenna that is shipped with the meter to the signal input of the HD-CM+ and then select one of the pre-set test frequencies. The meter then initiates a particularly intense noise level measurement whose results are shown on the display either as a grey bar (indicating that the measurement result is below the threshold and – consequently – no faults occurred) or as pronounced signal level peaks (indicating a problem somewhere along the line). Obviously, we gave this feature a thorough test as well and can report that it works brilliantly.

Amateur users are usually happy with an easy-to-operate signal meter that gives them quick results. Professional installers, on the other hand, take money for their work and therefore frequently require written documentation for completed jobs. Once again, the HD-CM+ delivers with its internal log function that can be used to store all measured signal parameters in the meter's internal memory. Free software from the manufacturer's website then allows using those data in the CSV format in MS Excel, for example. Our test showed that all values of the comparison measurement could easily by saved and imported into an XLS chart. Last – but by no means least – we should like to mention the built in voltmeter with a measurement range from 0 to 110 V.

In summary, the Horizon HD-CM+ turned out to be an excellent DVB-C signal meter during our test. To a large extent, this is due its excellent usability and smart user interface. Added to that is a display with wonderful readability – something that always sets an installer's heart on fire. The comparison with a reference meter demonstrated that the measurement results turned out to be absolutely accurate.

EXPERT OPINION

+ Easy to use and clearly structured, a perfectly readable display, a wide range of functions and accurate measurement results – all this makes the HD-CM+ a top-notch signal meter. Thanks to its capable battery pack, several included accessories and robust build quality it is just the right companion for professional jobs.

– None

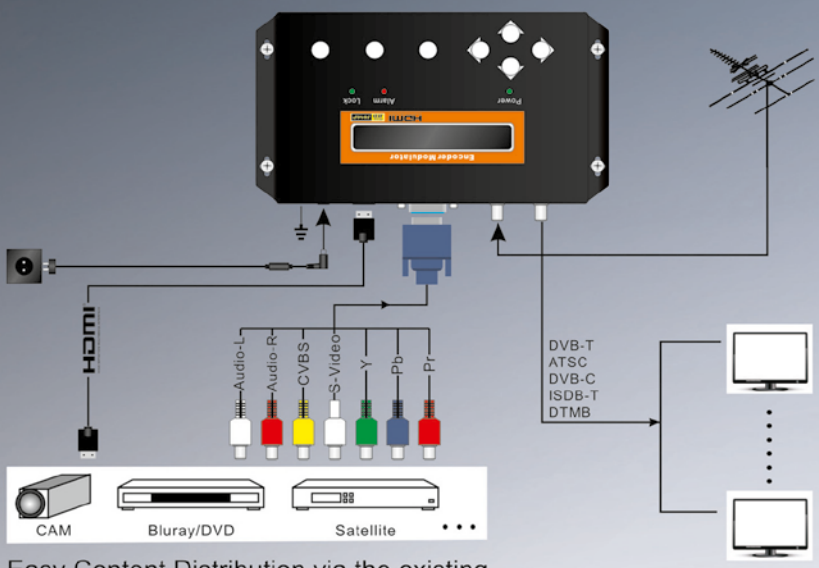
MORE ABOUT THIS COMPANY

www.TELE-audiovision.com/13/01/horizon.pdf

NDS3552 Encoder Modulator — Home version

NDS3552 HD/SD
single channel
MPEG 4 AVC/H.264

NDS3552 SD
single channel
MPEG 2



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DragonSat DS-5500HD

- ***Управляется через электронный программный гид в двух режимах***
- ***Высокая скорость переключения каналов***
- ***Быстрый ответ на все команды с пульта управления***
- ***Особенный тюнер, подходящий для слабых сигналов так же и для низких скоростей сигнала***
- ***Интегрированный проигрыватель и сервер для мультимедийного контента***


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DragonSat
DS-5500HD
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STANDBY / REMOTE

A Satellite Receiver with Many Excellent Features

Just because it's a high quality receiver doesn't mean it has to be big. Dragonsat wants to prove this with their new DS-5500HD. So, is it true? Well, that's what we wanted to find out so we put this new receiver to the test.

After unpacking the box, there was really nothing that stood out visually. At 22 x 14.5 x 3.5 cm the DS-5500HD is nice and small. It should therefore easily find its place in any TV cabinet or living room wall unit. On the front panel the manufacturer incorporated a four-digit display and right next to it a status LED as well as three buttons for receiver operation without the remote control. If you turn the Dragonsat receiver around, you'll reveal the tightly spaced connector panel. In addition to the required connections, the manufacturer also included the CI slot and the internal card reader on the back of the box. The satellite signal is fed into the Sat IF input. Right alongside the input is the looped-through output as well as an HDMI port, a USB port, an RJ-45 network interface, an S/PDIF output, an RS232 interface and a connection for the included CVBS/Stereo audio adapter cable. Power is supplied to the DS-5500HD by an external 12V power supply. This allowed the manufacturer to eliminate the extra space in the receiver that would have otherwise been needed for an internal power supply.

The included remote control is somewhat narrow and the buttons on the lower portion are rather small. Overall though, the quality of the receiver and remote control left us with a very positive impression as did the included user manual.

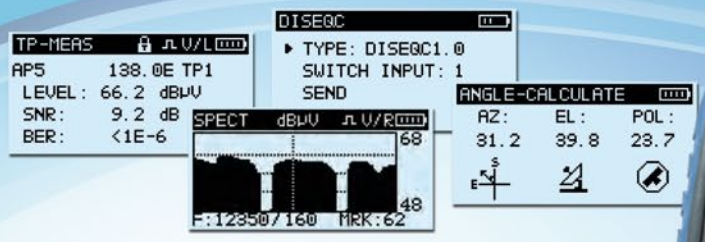
As has become standard with nearly every receiver, the owner of a DS-5500HD will also be greeted with an Installation Assistant when first turning on the box. It will guide you through the most important basic settings. This includes OSD language, time settings, network settings and of course an automatic channel scan to top it off.

If one or more details are missing or if you simply want to get an overview of all the functions of your newly acquired receiver, we suggest you take a look in the Main menu. In the System settings you can personalize nearly every one of the DS-5500HD's functions. For example, the resolution of the video signal output can be set to 480i, 480p, 576i, 576p, 720p, 1080i or 1080p or you can let the receiver handle this task automatically. We really appreciate the fact that more and more receivers, including the DS-5500HD, are fully HD compatible even though the availability of 1080p HD content depending on the region is still very limited or completely non-existent. But at least you're ready for the future.

External USB storage devices connected to the receiver via the USB interface

DEVISER

www.devisertek.com



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- Fast spectrum analysis with 5~2150 MHz frequency span
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- Support SD&HD Video format
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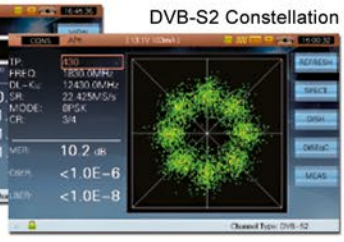
- TS record and TS replay
- IPTV analysis option
- GPS option
- HDMI, LAN and USB interface
- Easy to use
- High resolution 7" TFT LCD with bright display for indoors and outdoors use
- W245×H194×L105, light weight
- Working time >5 hours (battery)


DVB-T Signal


DVB-S2 Constellation

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Http://www.devisertek.com ▪ E-mail: overseasbiz@deviser.com.cn

DEVISER

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can be used without any problems. Formatting these devices (thankfully also in NTFS format) with this receiver is also possible. If you really want to be able to use all of the DS-5500HD's functions, such as the various OSD display modes or its PVR features like fast forward/rewind, it definitely pays to have a look in the user manual where detailed information on these and other features can be found. All-in-all, the DS-5500HD's menu structure is very logically constructed and easy to use although one of the options to save energy in Standby that the manufacturer incorporated in the display settings gave us a little bit of a headache in our test center.

To make it easy for the new owner to get right to satellite reception, Dragonsat included a very comprehensive list of European and Asian satellites along with the corresponding C and Ku-band transponder data. In some cases this list is very up to date; the newly launched ASTRA 1N satellite located at 28.2° east is correctly identified. But in other instances it's not quite up to date; important transponders like 11494H or 11671H on ASTRA1 at 19.2° east are missing.

The DS-5500HD is compatible with all the DiSEqC protocols allowing it to be used with nearly every possible antenna configuration. DiSEqC 1.0 can be used with up to four satellites, 1.1 with up to 16 satellites as well as 1.2 and 1.3 for motorized antennas. They also thought to include the ability to freely define LOF parameters.

Once these settings have been taken care of and the receiver has been matched to the reception equipment, the next step would be to start filling the channel list with as many as 10,000 entries. To handle this task there is an automatic channel scan on one or more satellites, a manual transponder scan, an expanded transponder scan with manual PID entry as well as a Blindscan. If you're not interested in receiving encrypted channels, the scan can be set to find only freely receivable channels. This would save quite a bit of time and provide organization later on when going through the channel list.

The channel scan itself was fast right from the start; the DS-5500HD needed only about five minutes to find 1568 TV and 373 radio channels on HOTBIRD at 13° east. If you invest a little more time, 12 minutes to be exact, the Blindscan function will find 1604 TV and 374 radio channels on the same satellites. Naturally the Blindscan feature had to prove itself under more difficult conditions, specifically on TURKSAT at 42° east with all of its narrowband SCPC transponders. It mastered

1. The DS-5500HD's main menu

2. System settings

3. The DS-5500HD also supports the NTFS file system. Recorded data no longer needs to be split into 4GB pieces

4. Channel list editor

5. Channel list entries can be edited all the way to their PID values

6. Thanks to the Favorites lists, popular channels can be accessed very quickly at any time

7. The customized channel list can be backed up on an external USB storage device

8. Recorder settings

9. OSD settings

10. The installation assistant starts with the OSD language selection

11. Network settings

12. If you prefer, you can do without all of the DS-5500HD's many Internet features, but who would want to do that?

13. Time settings

14. Daylight savings time settings have been uniquely solved

15. Language settings

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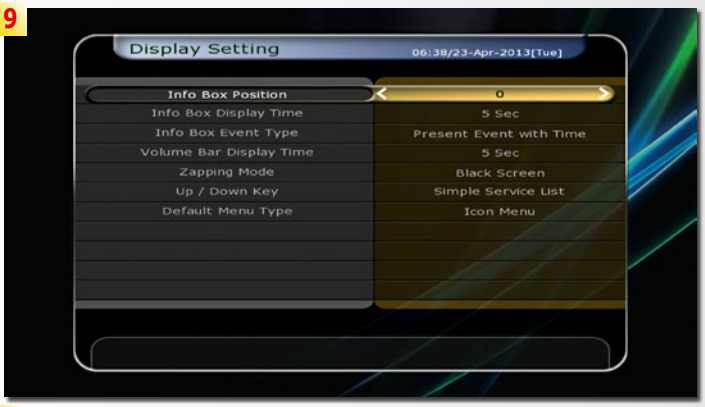

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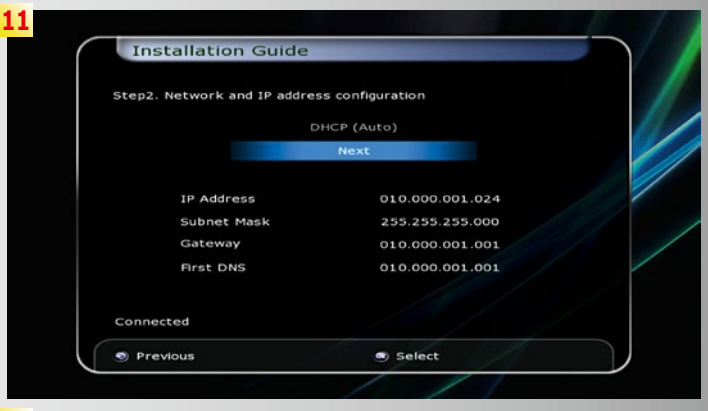

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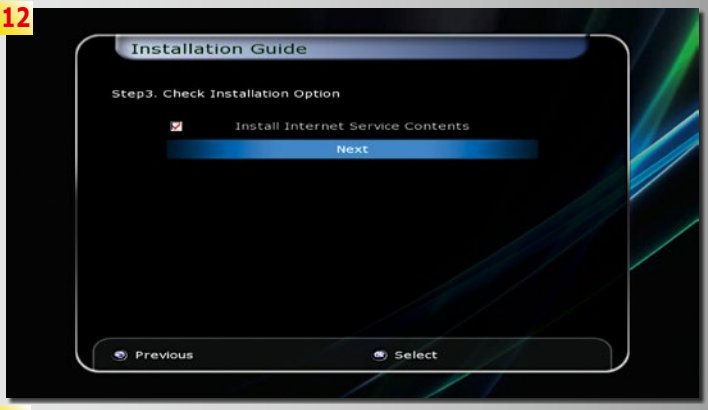

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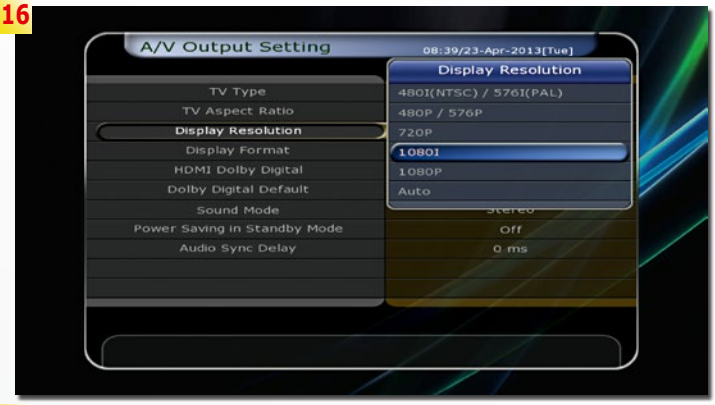

16. The receiver supports all of the standard video output resolutions

17. The preprogrammed satellite list is extensive and up-to-date

18. The recently launched ASTRA1N at 28.2° east is correctly listed

19. The transponder list is not always up-to-date; missing, for example, are a few important transponders on ASTRA1 at 19.2° east that have a number of HD channels

20. The DiSEqC 1.0 and DiSEqC 1.1 protocols are supported

21. The DS-5500HD effortlessly drives a motorized antenna with the help of the DiSEqC 1.2 and 1.3 protocols

22. Four different scan modes are available

23. The scan can be limited to just TV channels or unencrypted channels

24. The LOF parameters can be individually matched

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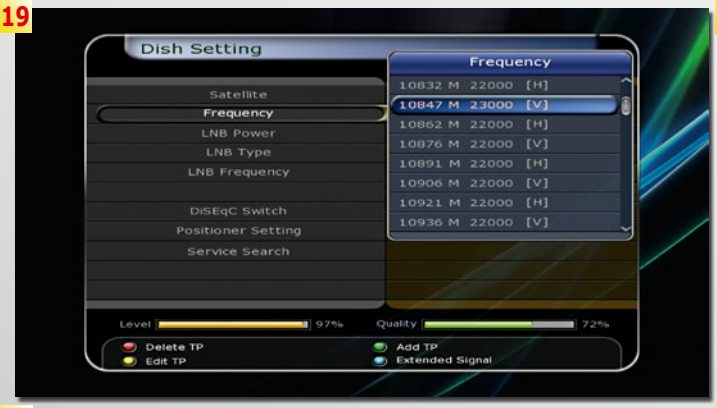

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this task without any problems. This is exactly how a Blindscan should work!

With nearly 2000 different channels that alone were found on a single satellite, powerful editing and sorting capabilities of the channel list are an absolute must. And the DS-5500HD did not disappoint here; the channel list entries can be easily deleted, moved, renamed, locked with a PIN code to hide them from the curious eyes of your kids or shifted into one of the many Favorites lists. The channel list can also be sorted alphabetically, by provider, satellite, transponder or encryption system and it can all be handled with the push of one button.

When you look at the Main menu for the first time it quickly becomes clear that the DS-5500HD is strongly oriented to the reception of content via the Internet. It makes sense then that the manufacturer paid special attention when designing its networking features. The fact that the DHCP protocol is supported comes as no surprise but we also appreciated that the receiver can also be connected to the Internet wirelessly through the optionally available WiFi or 3G dongle. This makes the DS-5500HD perfect for outdoor use out on the balcony or at a camping site.

After the channel list is filled and the settings have been adjusted to your personal tastes, the receiver automatically switches to the first available channel when exiting the Main menu. And it's at this point where the very attractively designed Info bar can be seen for the first time. In addition to the title of the current program and, if desired, the upcoming program, the Info bar also contains a number of symbols. These symbols provide information on what features are available with the current program, specifically, teletext, language choices, subtitles or HD resolution. And it's here where the dedicated function but-

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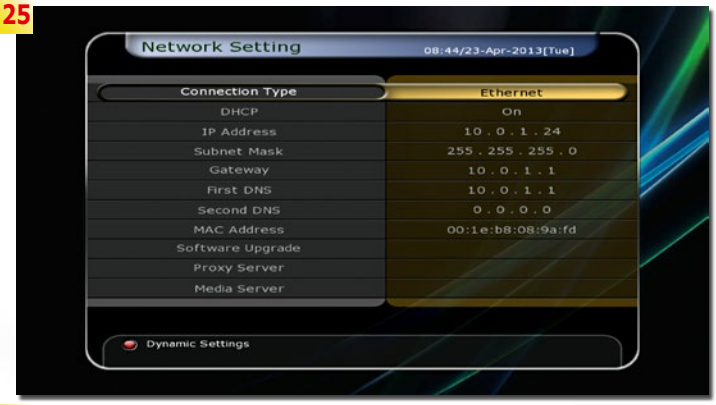

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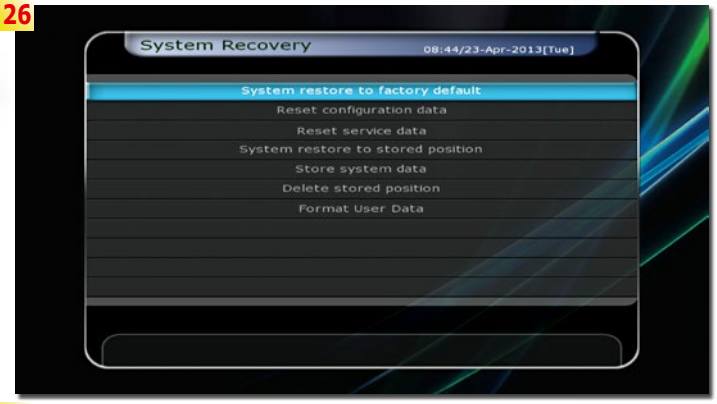

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25. Network settings

26. If necessary, many of the settings can be reset to their factory default values

27. Utilities menu

28. Individual PID entry in the expanded scan

29. Blindscan function

30. A successful Blindscan of HOTBIRD at 13°; thus far 37 new channels have been found

31. SCPC reception as seen here in the picture via TURKSAT at 42° east is also possible

32. Channel scan for ASTRA2 at 28.2° east

33. Setting up a timer entry

34. Additional transmission information

35. EPG overview for six channels

36. EPG overview of one channel

37. Subtitle selection

38. The satellite list can be directly accessed through a dedicated function button on the remote control

39. Picture-in-picture, mode 1

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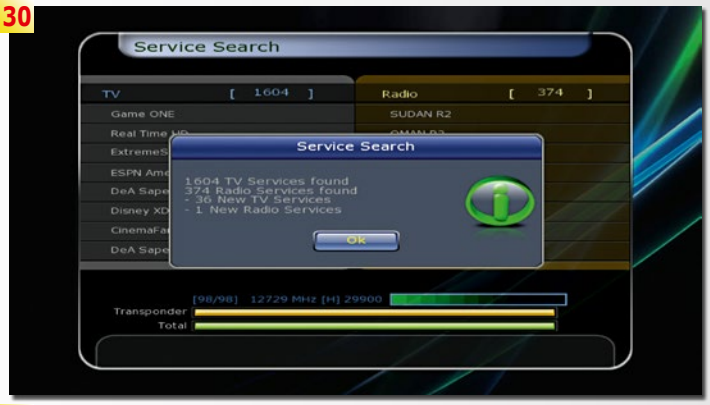

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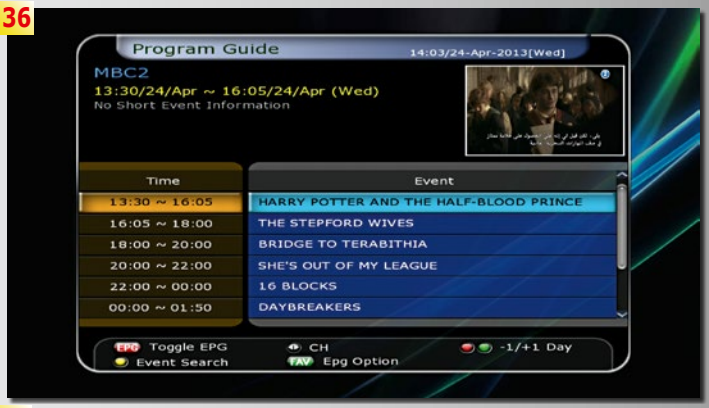

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40. Picture-in-picture, mode 2
41. Picture-in-picture channel selection
42. Mosaic view of up to 12 channels
43. The channel list sorted by satellite
44. Channel list options
45. The Download menu. Here the user can update software, Apps and preprogrammed lists on the receiver via the Internet
46. The Plugin menu provides access to a variety of tools
47. Weather forecast
48. The Media submenu

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tons on the remote control show their worth: they provide access to teletext, language selection, subtitles or the Favorites lists.

The new Dragonsat receiver's channel list can be accessed, as is typical, with the OK button and presents itself as very detailed and organized. Thanks to the speedy channel switching times of less than one second, channel surfing with the DS-5500HD is actually fun. The Electronic Program Guide (EPG) will also raise an eyebrow: it is available in two different modes and provides detailed programming information for several hours for up to six channels or it can show the entire programming schedule for a single channel for the next several days. Since the new Dragonsat also comes with PVR features, recordings can easily be programmed directly via the EPG.

We definitely like that you not only can record two channels at the same time while watching a third channel live, but the Timeshift function is also automatically available at any time (up to a maximum of one simultaneous recording). If you're afraid of missing the next episode of your favorite TV series, then the ability to set up daily, weekly, weekday or weekend timer recordings would be just perfect for you.

Overall, playing around with the DS-5500HD was a lot of fun and this was due in large part to the speedy reaction of the receiver to remote control commands. The decision by the manufacturer to incorporate an STi processor with 256MB Flash as well as 256 MB SDRAM was right on the money.

Dragonsat even paid close attention to quality when the tuner was chosen; in our tests it was able to handle weaker signals like those found on BADR at 26° east and also narrowband signals such as those found on TURKSAT at 42° east. We also want to mention the practical Picture-in-Picture (PIP) function that shines during commercial breaks. It can be used to show a second TV channel is a small window on top of the primary channel or display two channels side-by-side in the same size windows. Also available, although not all too useful, is the ability with the push of one button on the remote control to provide a mosaic

49. New entries can be added manually to the Internet TV+ list

50. Internet TV+ playback

51. Unfortunately, the Internet Radio+ list is empty and doesn't contain any preprogrammed channels

52. The YouTube App in the FreeTV+ section worked perfectly

53. The web browser with a number of bookmarks to interesting pages

54. The character entry via the OSD keyboard works just like a mobile telephone

55. The TELE-audiovision homepage with the browser's status bar at the bottom of the display

56. Bookmark function

57. The web browser window can be adjusted in size and moved to different positions

58. Two recordings (even from HD channels) can take place at the same time

59. The receiver displays all of the previously recorded content clearly and concisely

60. The DLNA media player can access the multimedia content on other devices in the local network

61. Here you can see a number of video files that are stored on a MAC and are displayed and played back on the DS-5500HD

62. Music playback via DLNA in the local network

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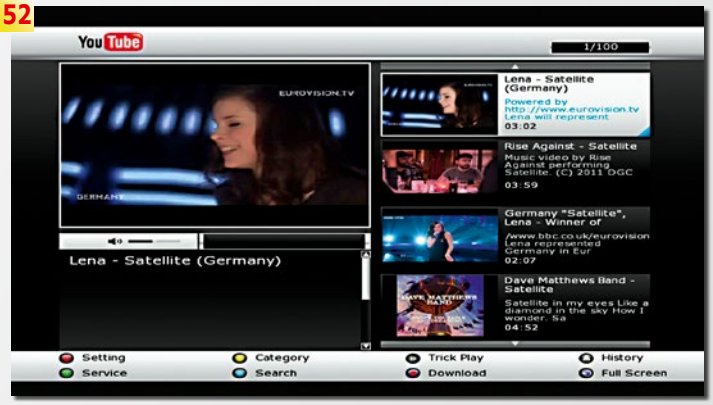

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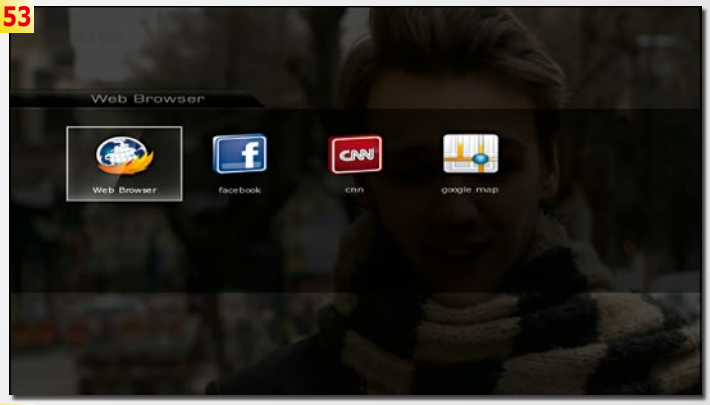

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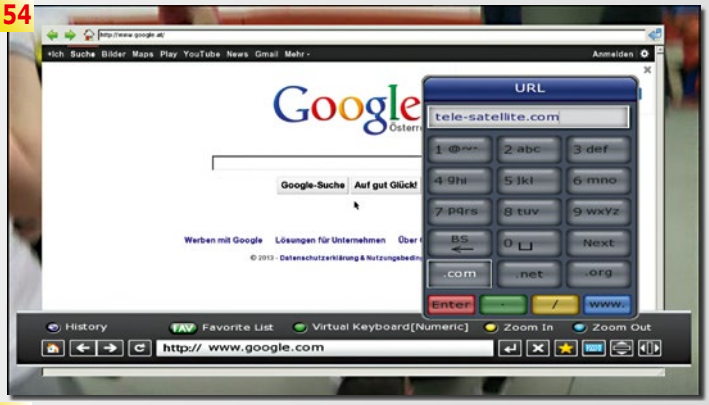

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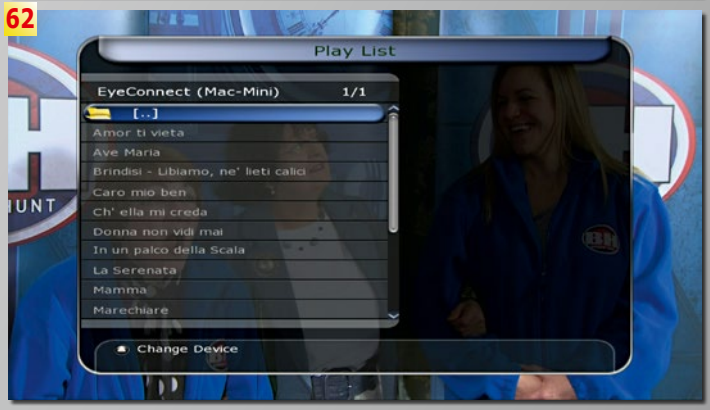

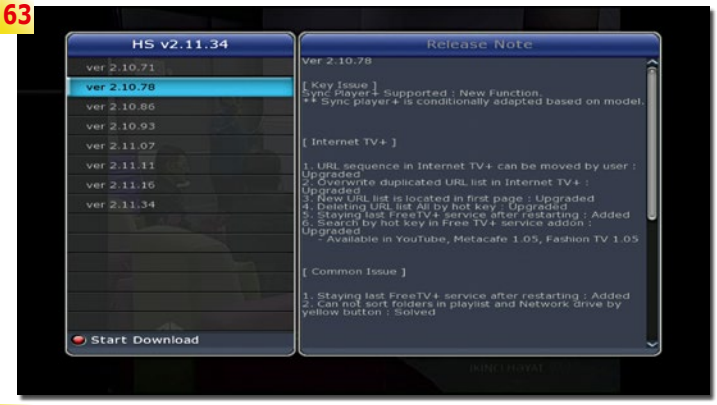

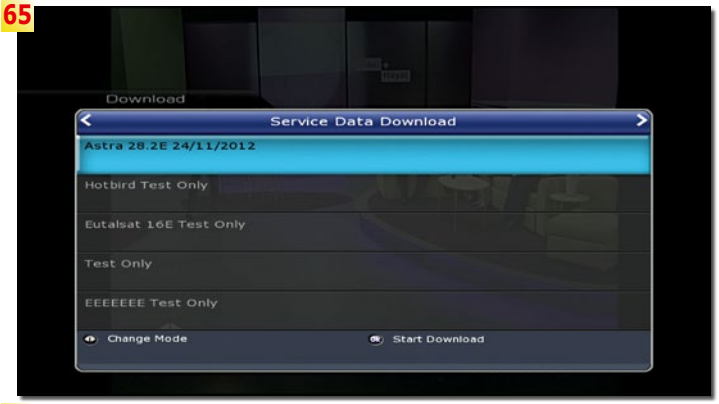

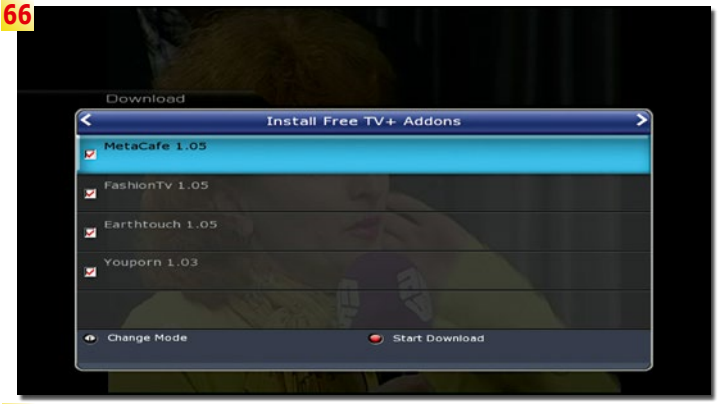

display of 9 or 12 channels.

If you take a look at the manufacturer's website, you'll quickly realize that they are constantly at work modifying and improving the DS-5500HD. There have already been multiple updated software versions posted there. New software can not only be downloaded from the Dragonsat website, but updates can also be performed directly on the receiver through an Internet update.

Dragonsat with their new DS-5500HD is standing squarely behind the Internet as a secondary source of TV and radio reception. We here at TELE-audiovision feel that the manufacturer is definitely on the right path; high-speed Internet access has already established itself to be a viable competitor to satellite, cable and terrestrial TV.

If you enter the submenu „Media", you'll come across catchy feature names like Internet TV+, Internet Radio+ or FreeTV+. When these were accessed during our tests we uncovered a small disappointment: a mere seven TV channels were preprogrammed and the Internet Radio+ list was completely empty. On top of that, of the seven preprogrammed channels, only three could be accessed and displayed. If you're not satisfied with these choices, the alternative is to manually add Internet channels. Fortunately, this can be done without any problems.

The heading FreeTV+ provides access to a variety of multimedia and content providers via the Internet with the help of some practical Apps. Currently there's only one App for YouTube available; additional Apps were displayed as if they were available for download but in the end they could not be loaded on our test receiver. Nevertheless, the YouTube

63. Thanks to automatic software updates, it's very easy to keep the Dragonsat up-to-date

64. In addition to new software, FreeTV+ Apps, Internet TV+ and Internet Radio+ lists can be downloaded via the Internet. Even preconfigured channel lists (e.g. for ASTRA2 at 28.2° east) are also available for download

65. Channel list download for ASTRA2 at 28.2° east, HOTBIRD at 13° east and EUTELSAT at 16° east

66. FreeTV+ Apps can be downloaded and updated from the Internet

67. The picture quality of the preprogrammed Internet TV+ channels is very good

App worked perfectly and when all the other Apps work reliably, the user should be more than satisfied.

To top it all off, the multimedia section has a client that provides access to the Russian PayTV provider Kartina TV and, of course, there's also the ability to play back local video files in the formats WMV, TS, MP4, MP4 HD, MKV, Flash, DivX and AVI. For audio files the MP3 format is available and for pictures it's the JPG format.

In connection with this we also liked the integrated DLNA media player with which you can reach across the network and access your music collection on your PC with the DS-5500HD. The same, of course, is also true for videos. And as if this wasn't enough, Dragonsat made it possible using the DLNA media player to access all of the stored content on your receiver, whether it's videos, music or pictures, from a Windows PC. This worked exceptionally well in both directions in our tests and at the same time it was a lot of fun.

Of course, such an Internet-oriented receiver like the DS-5500HD should not be without a browser. And Dragonsat did not fail here either, however, improvements can be made here as evidenced by the 10 second startup time that was needed. Even the display of websites despite a 100Mbit Internet connection was very slow here in our test center - nearly 20 seconds was needed to fully load our Facebook page. Yet we did like that Dragonsat included a number of pre-programmed bookmarks for some of the more popular sites like Facebook, CNN or Google Maps. Entering characters via the virtual keyboard also worked correctly. The browser itself can be individually adjusted for size and position such that, for example, a commercial break can be used to surf the Internet while still having the TV picture in view so you know when it would be time to stop surfing. The Internet features are rounded off with a weather App, an RSS reader, a calendar and a calculator.

At this point we only want to mention the submenu Plugin for completeness; it contains numerous tools that go deeper into the reception technology.

EXPERT
OPINION

+ Handy and easy to use receiver highlighted by a nicely structured OSD and sophisticated software. Thanks to a wide variety of Internet features, this box is much more than an ordinary satellite receiver. Through its space-saving design and its external 12V power supply it would be perfect for mobile applications, such as, when camping.

– The loading of Apps did not work during our tests and the Internet TV+ and Internet Radio+ lists are very lackluster and need some updating.

ENERGY
DIAGRAM

Energy: The first 15 minutes active operation, the second 15 minutes normal standby, the third 15 minutes expanded standby with energy saving functions


Low
1
V
Standby
High
V
2
Terr.
0
Low
H
3
High
H
4
SPAUN
SUS 5581/33 NF LEGACY
Art.Nr.: 865109
Kaskadierbarer Einkabel-Multischalter nach EN 50494
für 4 SAT-ZF-Ebenen und Terrestrik
Cascadable SCR-Multiswitch according to EN 50494
for 4 SAT IF signals and terrestrial
Legacy
oder/or
Freq. MHz
3 x 3 SCR-ID
974 0
1076 1
1178 2
Freq. MHz
SCR-ID
3 x 3
1 x 8
974 - 0
1076 - 1
1178 - 2
1280 0 3
1382 1 4
1484 2 5
1586 - 6
1688 - 7
Legacy
oder/or
Freq. MHz
3 x 3 SCR-ID
1586 0
1688 1
1790 2
Eingänge – Ausgänge | Inputs – Outputs
SAT – Terrestrik | SAT - Terrestrial
5/5
4/1
Ausgänge – Teilnehmer
Outputs - Subscribers
1 x 8 / 3 x 3
Durchgangsdämpfung
Terr. 5 ... 862 MHz
Through loss terrestrial trunk
< 4 dB
Durchgangsdämpfung
SAT 950 ... 2200 MHz
Through loss terrestrial trunk
1 ... 2,5 dB
Anschlussdämpfung Terr. | Tap loss terr.
5 ... 862 MHz
13 ... 15 dB
AGC-Regelung | Automatic Gain Control
SAT-Eingangspegel | SAT input level
65 ... 95 dBµV
Ausgangspegel | Output level
SAT 950 ... 2150 MHz
„Full-Band" Belegung | Full-band assignment
Modus | Mode
1 x 8 ≥ 95 dBµV
3 x 3 ≥ 85 dBµV
SAT Ausgangspegel | SAT Output Level
Legacy Mode
73 dBµV
Dauerbetrieb
Always On
18 V
12 V
22 kHz
22 kHz
12 V
18 V
Standby
LNB - Mode
1x8
3x3
Made in Germany
LNB-Gesamtfernspeisestrom
LNB remote power
500 mA
Strombedarf je Receiver
Power consumption for each receiver
< 60 mA
Externer Steckernetzteil U–
External wall mount power supply U–
100 ... 240 V
47 - 63 Hz
< 7 W
Ext. Power
19 V max.
V/Low
Eingänge LNB
V/High
Terr.
H/Low
SPAUN
SUS 5581 F
Art.Nr.: 865101
Kaskadierbarer Einkabel-Multischalter nach EN 50494
für 4 SAT-ZF-Ebenen und Terrestrik
Cascadable SCR Multiswitch according to EN 50494
for 4 SAT IF signals and terrestrial
Eingänge - Ausgänge | Inputs / Outputs
SAT / Terr.
5 / 5
4 / 1
SCR Ausgang | SCR Output
1 x 8
Durchgangsdämpfung | Through loss
Terr. 5 ... 862 MHz
< 4 dB
Durchgangsdämpfung | Through loss
SAT 950 ... 2200 MHz
1 ... 2 dB
Anschlußdämpfung | Tap loss
Terr. 5 ... 862 MHz
4 ... 6 dB
AGC-Regelung | Automatic Gain Control
Ausgangspegel | Output level
95 dBµV
SCR-Adresse
SCR Address
0
1
2
3
4
5
6
7
Receiver
Made in Ger
1
2
0
3
SPAUN SUS 5581/33 NF
LEGACY & SUS 5581 F
SCR Multiswitch
RECOMMENDED
PRODUCT BY
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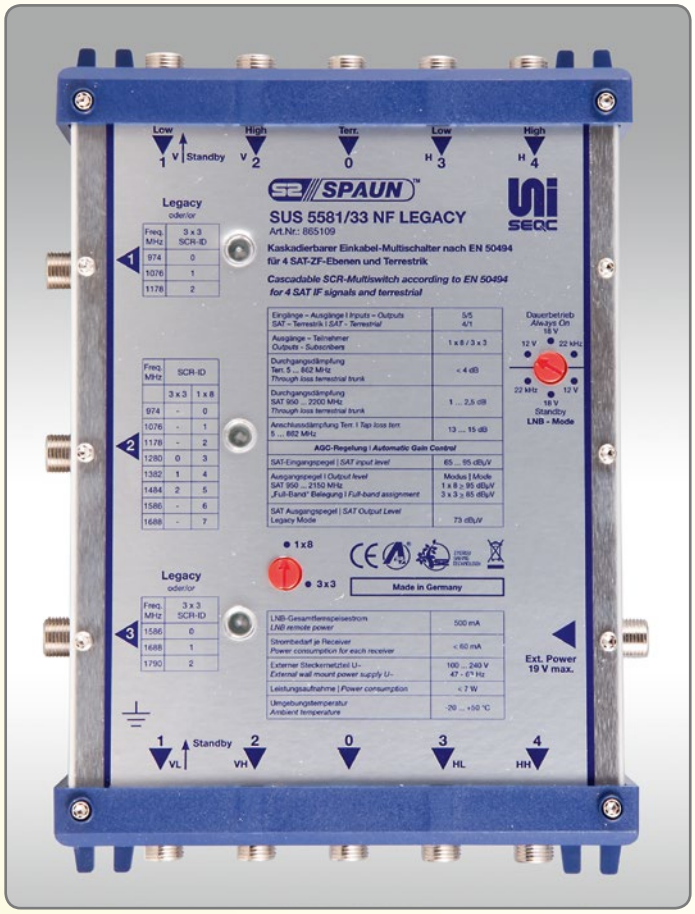
Jacek Pawlowski
Test Center
Poland
VIP
CARD
TELE audiovision
www.TELE-audiovision.com

Каскадные SCR Мультисвичи SPAUN SUS 5581/33 NF LEGACY и SUS 5581 F

Часть 1

- *позволяет использовать уже имеющиеся одинарные коаксиальные кабели*
- *чрезвычайно хорошие спецификации оставляют качество начального сигнала без изменения*
- *простое решение для распределения спутникового и наземного сигналов вплоть до 16 SCR ресиверов*
- *Имеется бонус: время «зависания» канала меньшее в сравнении с большинством ресиверов*

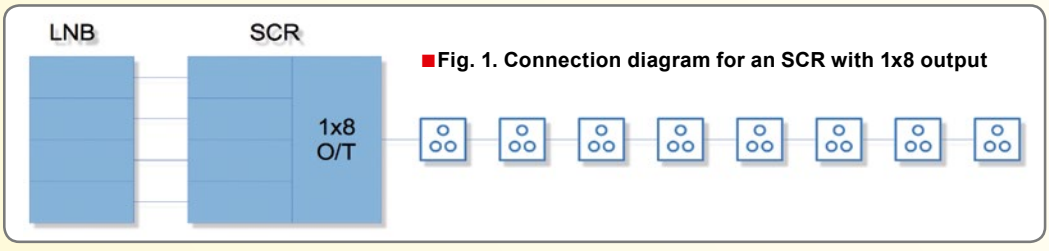
Most easy way to add satellite and terrestrial tv to an existing small cable network



Some time ago in a test report we introduced the SPAUN SUS 5581/33 NF. We headlined it as "A very Easy-to-Install Satellite TV Signal Distribution" (see TELE-satellite 12-01/2012). At the time it was the first of its kind: a Single Cable Router (SCR) Multiswitch. In the meantime SPAUN expanded the concept and introduced not only newer models but a whole family of products around the single cable concept. We picked two of the new models for this test report: SUS 5581/33 NF LEGACY and SUS 5581 F. While each of them can be used independently, nothing prevents connecting them together in order to build a more extensive single cable systems and checking how far the single cable concept can be brought.

Are you familiar with the SCR single cable concept? For our less experienced readers let us make a short introduction to SCR technology first. A single cable router usually takes signals from a Quad or Quattro LNB – similarly to a regular multiswitch. However, unlike a multiswitch you do not connect individual receivers to the separate outputs of an SCR. Instead, you connect not one but a number of receivers in series – one after another - to a coax cable hooked up to a SCR output. Of course, you need to use suitable subscriber sockets, for example: SPAUN UNiSocket 310, 314 und 318 in order to connect the receivers and allow the signal to pass through to the next socket. See Figure 1.

In the example shown in figure 1, the SCR outputs eight modulated carriers at strictly defined frequencies – like generating 8 different transponders. Each of the eight receivers must be configured to read just one such carrier.



■ **Fig. 1. Connection diagram for an SCR with 1x8 output**

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DC 12 V

RoHS COMPLIANT

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audio and video codecs are subjects to availability*

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- Easy software upgrades through USB or Network
- Program and Channel information transfer from receiver to receiver using the USB backup function

RSS READER

weather forecast

RETRO Gamer

MULTIMEDIA PLAYBACK* AVI MKV MPG MP3 MP4 TS

audio and video codecs are subjects to availability*

PLUGIN SUPPORT

BLIND SCAN

Full HD 1080

SW UPGRADES THROUGH INTERNET

матрёшка MATROSKA MKV

ecology low power consumption in stand-by

GAME CONTROLLER

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Now that the basics are explained, we can move on to testing the real world products. We started with the SUS 5581/33 NF LEGACY. This SCR Multiswitch is a rather complex one. It has four inputs to connect either a Quattro or Quad LNB and the fifth input is designed to connect a terrestrial antenna. Instead of one output SPAUN's version sports three outputs that can be configured in two modes:

- 3x3 Mode: each of the three outputs generates three different SCR carriers
- 1x8 Mode: output no. 2 generates eight SCR carriers while output 1 and 3 work like a classical multiswitch output to which conventional (legacy) satellite receivers can be connected

Moreover, the SUS 5581/33 NF LEGACY is equipped with 5 trunk outputs: four for the satellite signals and one for the terrestrial signal. That's perfect to connect them to the inputs of another multiswitch. And that's what we did in our test setup, but more on that later.

All SPAUN multiswitches are perfectly finished off. There is absolutely nothing we could complain about. The Technical Advice brochures that accompany every product provide all the relevant technical data and hints for proper installation. You will not get confused nor loose your time trying to figure out what you should connect with what. Everything is clear from the very beginning.

Each multiswitch is additionally equipped with a plug type universal power supply with changeable adapters for various electric power sockets. They can operate in a wide range of mains voltage: 100~240 V a.c. 50/60 Hz and provide 18 V d.c. output for the multiswitches.

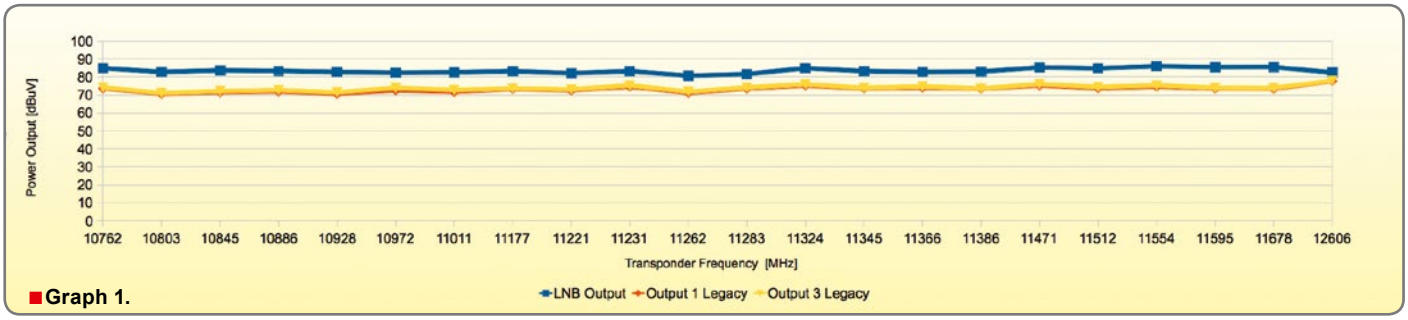
■ **In TELE-satellite 12-01/2012 we introduced SPAUN's UNiSEqC system with the first multiswitch of the series, the SUS 5581/33 NF**
www.tele-audiovision.com/TELE-satellite-1201/eng/spaun.pdf

Our test setup consisted of a satellite dish pointed to EUTELSAT16A on 16° East and equipped with a Quad LNB. We connected the LNB outputs to the SUS 5581/33 NF LEGACY satellite inputs and switched its top cover switch to the "22 kHz" position as required for a Quad LNB. Should we have used a Quattro LNB we would have switched it to the "12V" position.

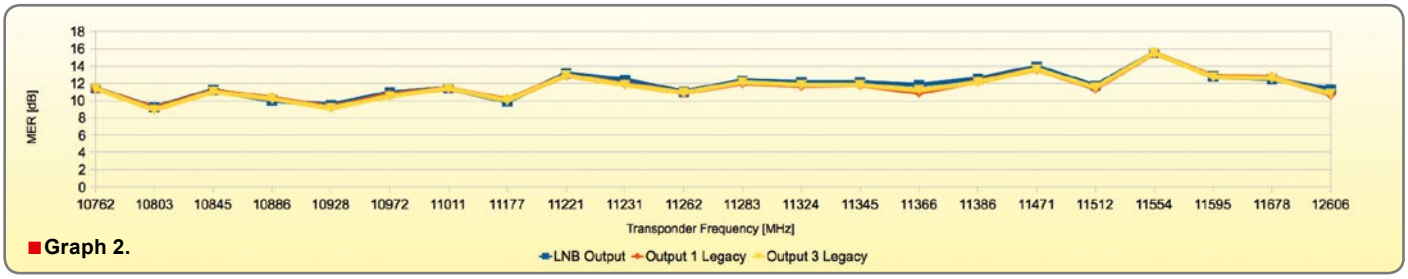
Before testing the single cable signals we wanted to make sure that all is OK with the legacy signals. Therefore our first test was to compare one output of our Quad LNB with the output no. 1 and output no. 3 when working in legacy mode (1x8 mode).As you can see in Graph 1 both outputs are regulated to around 73 dBµV what is exactly in line with SPAUN's specifications. Quality of the signal is practically unaffected – MER stays almost exactly the same as it is in the multiswitch input – see Graph 2.

And what about the trunk outputs? We took similar measurements comparing the original LNB output to the trunk outputs of the SUS 5581/33 NF LEGACY and got the average through loss of 1.62 dB what is in good agreement with SPAUN's promise: 1 … 2.5 dB loss.

We also checked if signal quality is not



■ **Graph 1.**



■ **Graph 2.**

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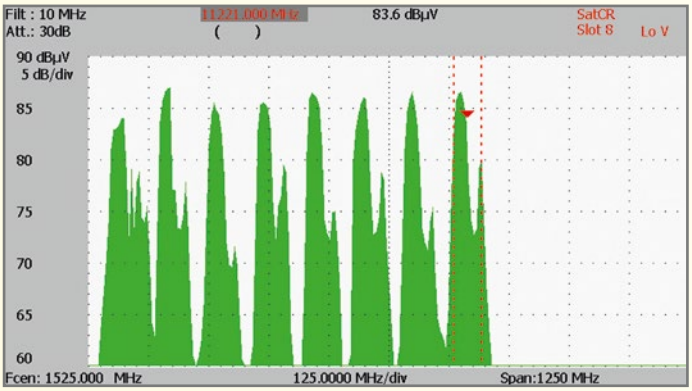
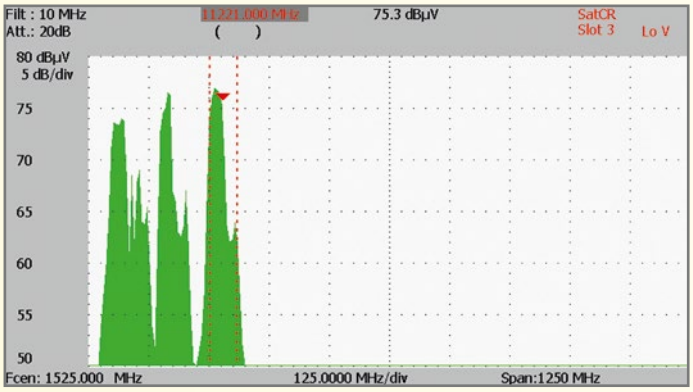
Tel: +44 1795 429 666

degraded after passing the multiswitch. But no. On the average, the MER went down just 0.21 dB – this is almost nothing. So the signal repeated on the trunk outputs of the multiswitch is only marginally worse than the original one available at the output of our test Quad LNB.

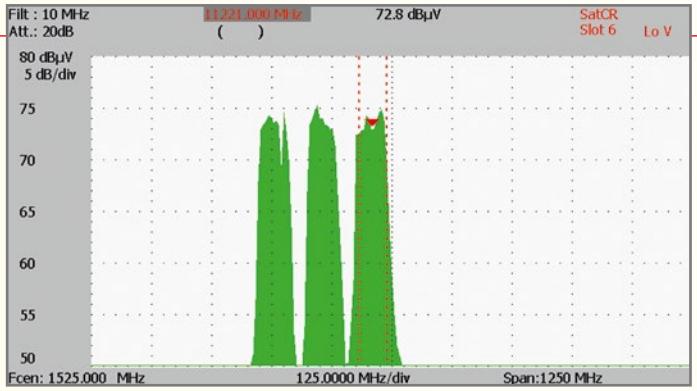
Once we were through with the conventional satellite signals it was time to check out the SCR signals. Initially we examined the 1x8 signal on Output no. 2. Figure 2 shows the spectrum. It is very clean – no spurious signals are de-



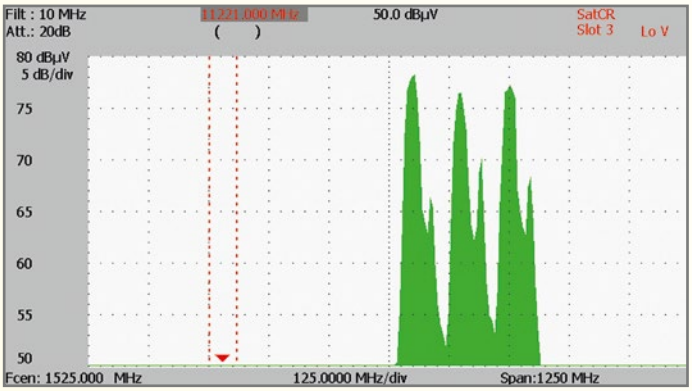
■ **Fig. 2. Spectrum of Output 2 in 1x8 Mode.**



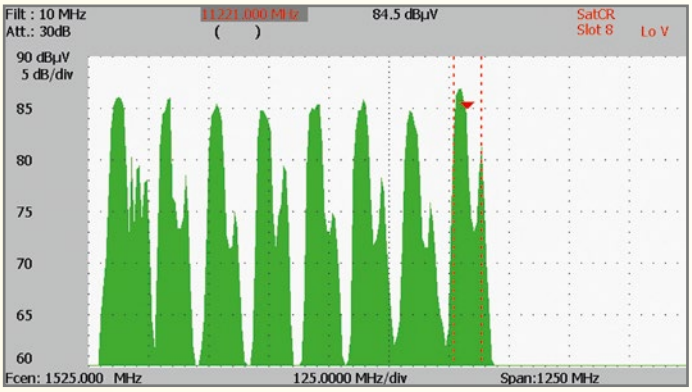
■ **Fig. 3. Spectrum of Output 1 n 3x3 Mode.**



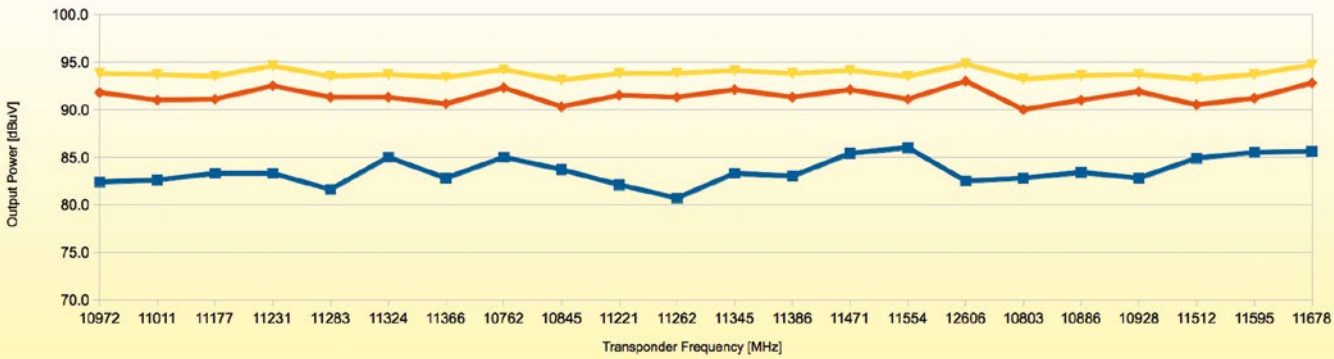
■ **Fig. 4. Spectrum of Output 2 n 3x3 Mode.**



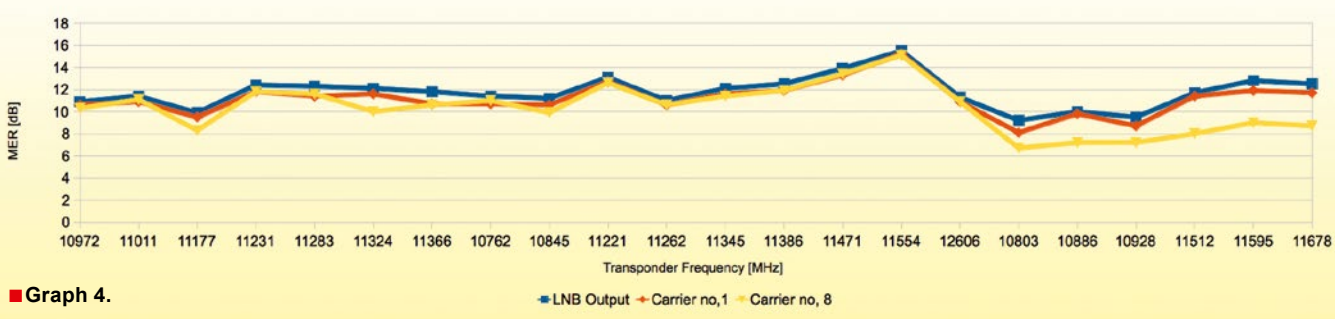
■ **Fig. 5. Spectrum of Output 3 n 3x3 Mode.**



■ **Fig. 6. Spectrum of SUS 5581 F output.**



■ **Graph 3.**



■ **Graph 4.**

tected and the signals themselves have excellent carrier-to-noise ratio. Also the MER measurements confirmed what could be deduced from the spectral view – quality of the output signal was very good (see Graph 4).

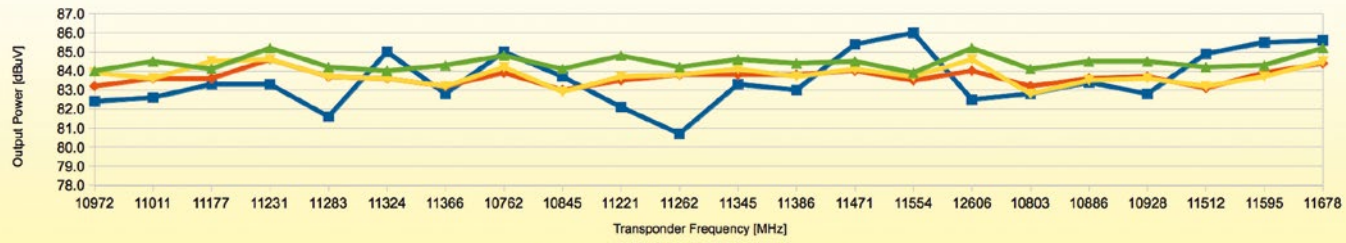
The output power was regulated to 90-95 dBµV as can be seen in Graph 3. The higher output was for the higher frequency carrier what makes sense as coax cable attenuation increases with frequency.

Then, we changed the mode to 3x3 in which each output (1 through 3) produced three different carriers. Figures 3 through 5 show the screenshots taken from our signal analyzer and Graphs 5 and 6 show the power output and MER. Similarly to the 1x8 mode, also in this mode C/N was perfect and the MER results were down only slightly.

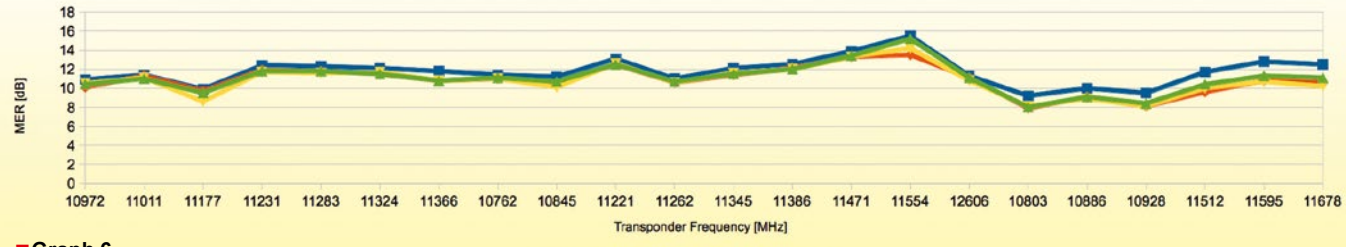
We did not notice any impact on the MER due to transponder symbol rate. SUS 5581/33 NF LEGACY processed the signal faultlessly for both: very high and very low symbol rates (30 Ms/sec and 2.5 Ms/sec respectively).

Now, the highlight came for the SUS 5581 F. While you can connect it directly to a Quattro LNB, as mentioned earlier you can also hook it up to the trunk outputs of a SUS 5581/33 NF LEGACY. In such a configuration you gain another single cable output to which you can connect up to 8 additional receivers. Figure 6 shows the spectral view of SUS 5581 F output – 8 carriers each carrying a transponder selected by a receiver connected to the line. The spectrum looked perfect again. The output power was exactly what SPAUN specified, that is 95 dµBV. MER was down by about 1.2 dB versus a direct LNB output. This is a very good result if we take into account that the signal had to pass not one but two multiswitches - see Graph 7, 8.

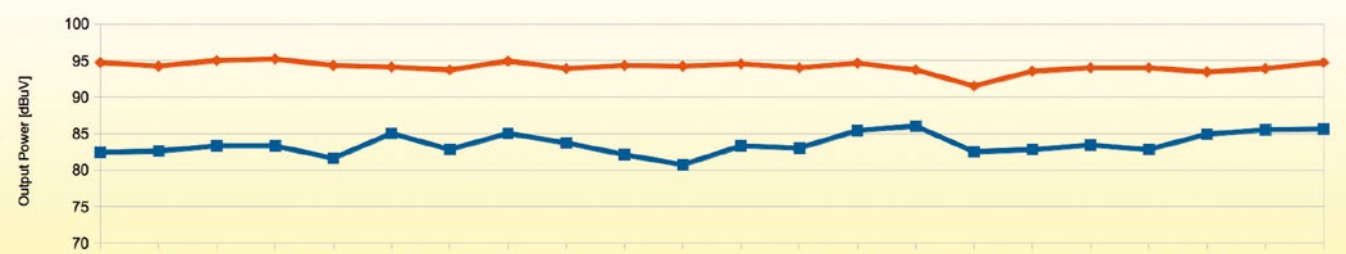
After checking the satellite signals performance we also checked terrestrial signal



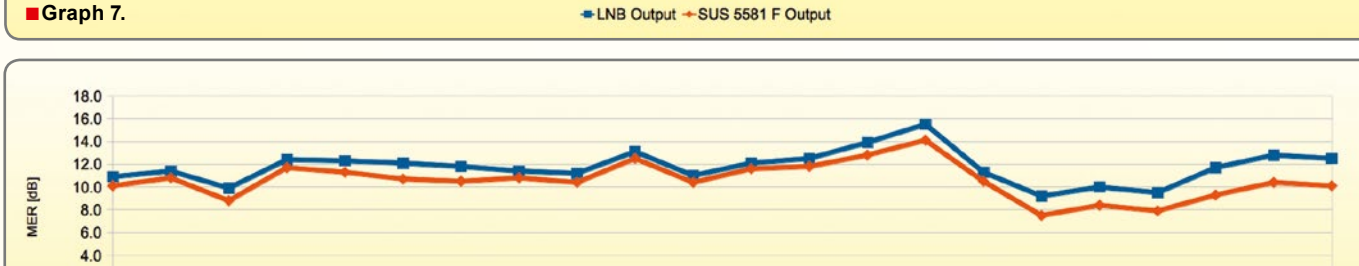
Graph 5.



Graph 6.



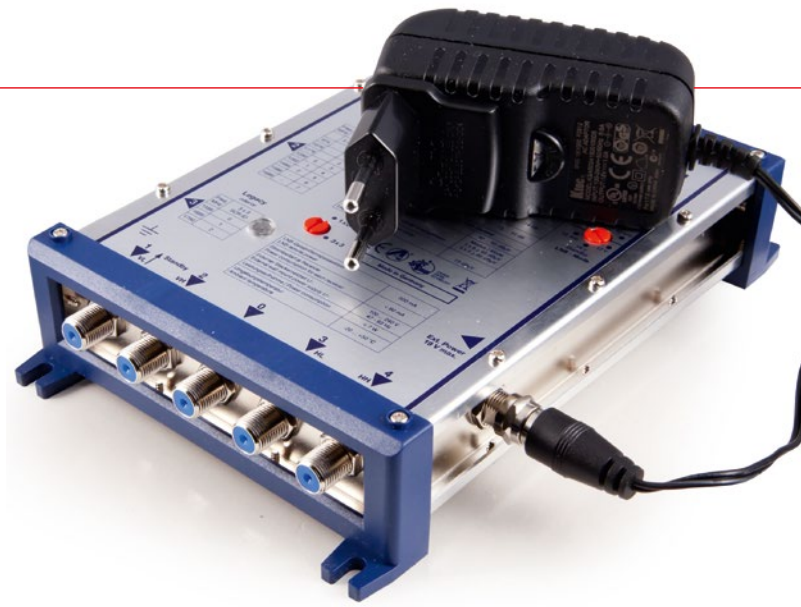
Graph 7.



Graph 8.

handling. As we expected, all the signal losses introduced by both multiswitches were below specified parameters. Good job!

To sum it up: both multiswitches performed very well indeed. As our measurements revealed, SPAUN delivered what they promised. To finalize our test, we connected a regular receiver to check if all transponders would be still available in a single cable setup. And of course they were. Channel zapping was fast and actually if your receiver is not very good in this respect, using single cable network with high quality multiswitches like those from SPAUN can boost the speed of channel zapping and increase your joy of watching digital TV.



EXPERT OPINION

+
- **Excellent workmanship**
- **High Gain**
- **Low Noise**
- **Fast Channel Zapping**
- **Flexible Building Blocks – Suitable for Various Network Setups**

–
- **None**

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	**SUS 5581/33 NF LEGACY**	**SUS 5581 F**
Inputs SAT/TERR	04/01/13	04/01/13
Through loss 5...862 MHz	< 4 dB	< 4 dB
Through loss 950...2200 MHz	1 … 2.5 dB	1 … 2 dB
Tap Loss 5...862 MHz	13 … 15 dB	4 … 6 dB
SAT Input Level	65 … 95 dBµV	65 … 95 dBµV
SAT Output Level (Legacy Mode)	73 dBµV	N/A
Output Level 950...2200 MHz	1x8: 95 dBµV 3x3: 82 dBµV	95 dBµV
SCR carriers [MHz]	974 1076 1178 1280 1382 1484 1586 1688 1790 (only in 3x3 setup)	974 1076 1178 1280 1382 1484 1586 1688
Power consumption	< 7 W	< 7W

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- Programmable channel name and logical channel number insertion
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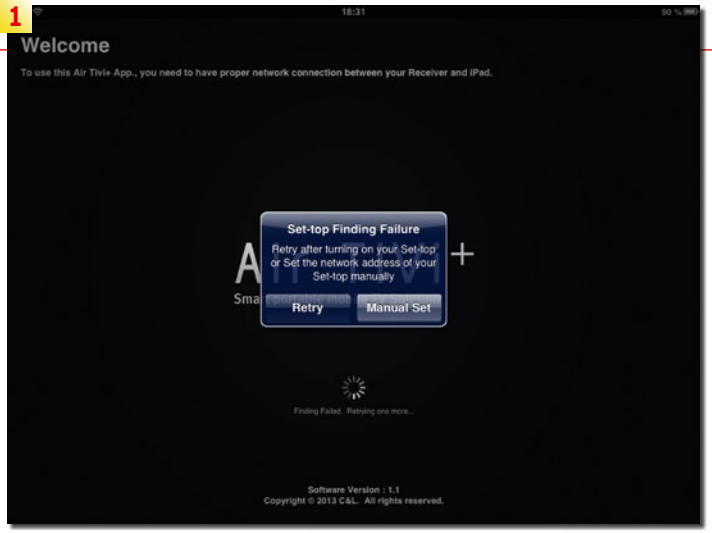
- ***потоковая передача ТВ в прямом эфире прямо на Ваш iPad или iPhone***
- ***работает даже с каналами в HD качестве***
- ***интегрированная функция записи***
- ***в настоящее время не подходит для моторизированных антенн***

Add-on App for the Tiviar

Thomas Haring



In our previous issue 07-08/2013 of TELE-audiovision we presented the new Tiviar receiver to our readers. The manufacturer has now launched a smartphone/tablet app called Air Tivi+, which can be downloaded free of charge from the Apple iTunes store and works with all iOS devices. All you have to make sure of is that both the Tiviar receiver and the iOS device use the same network and a WiFi connection is available for the smartphone or tablet.

In the bottom line of the app's home screen the following functions can be selected: Channel, Schedule, Remote and Settings.

The Remote section is of particular interest, as it allows operating the receiver via the iPhone's or iPad's touchscreen. Due to the different display sizes of phone and tablet the virtual remote control differs slightly on both devices.

The system worked without any lag at all during our test, something we did not really expect and which impressed us all the more. What's more, the virtual remote control is obviously much bigger (at least when an iPad is used) and more convenient to use than the original remote that comes with the receiver.

So how does it actually work? Simply select a channel for playback on your device. A small window then pops up counting down from 10 to 0 until enough data is stored in the buffer memory for smooth video playback. Another touch of a (virtual) button is all it takes for full-screen view, which also works flawlessly.

It goes without saying that we were particularly curious

■ **In the previous isue 07-08/2013 of TELE-audiovision we presented the new Tiviar Receiver**
http://www.TELE-audiovision.com/TELE-audiovision-1307/eng/tiviar.pdf

Tiviar®
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α+

1. We had to enter the receiver's IP address manually in our test – automatic detection did not work
2. TV channel list of the Air Tivi+ app on the iPad
3. Channels sorted by groups
4. Setting options of the Air Tivi+ app
5. Virtual remote control on the iPad
6. Live playback of an HD channel
7. Complete EPG data for all channels is available with the app
8. A single touch of a button marks events for recordings
9. Editing existing timer entries
10. Full-screen playback of an HD channel

3


Air Tivi+
Amos 2 3
Astra 1E 3A
Astra 1F 1M
Astra 1G
Astra 1N 2A 2B / Eutelsat 28A
Badr 4 6
Cable
Eutelsat 10A
Eutelsat 12 West A
Eutelsat 25A
Eutelsat 5 West A
Eutelsat 7A
Eutelsat 9A
Eutelsat Hotbird 13A 13C
Eutelsat W2
4852 MBC 4
THE DOCTORS

7


MBC 4
Sonntag, 26. Mai 2013
3460 MB SmartCast Test 4
3462 MB SmartCast Test 5
3463 MB SmartCast Test 6
3461 MB SmartCast Test 7
3450 MB SmartCast Test 8
3433 MB SmartCast Test 9
4851 MBC 1 HAYAT
4853 MBC 2
4854 MBC 3 TOTALLY SPIES
4852 MBC 4 THE DOCTORS
4169 MBC Action
4861 MBC Action WWE MAIN EVENT
3971 MBC Action
MAN ANA
PRETTY LITTLE LIARS
THE DOCTORS
ISHQ WA JAZAA
ALA MAR AL ZAMAN
FE GHAMDET AIN
PRETTY LITTLE LIARS
MAN ANA

4


Setting
Nearby Set-top-boxes (STB) List
None
Status of connected STB
IP address (Enter manually)
10.0.1.11
Parental password of your STB (to view Locked channels)
Web server username
Web server password
Stream to other device

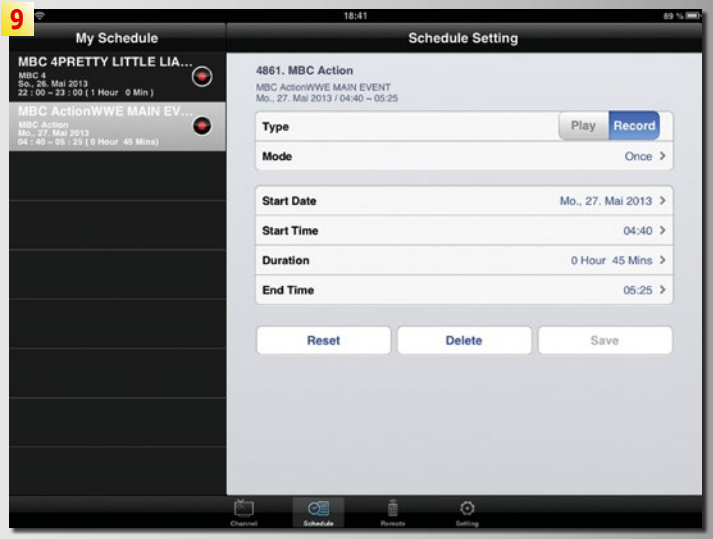
8


Schedule Setting
4852. MBC 4
PRETTY LITTLE LIARS
Type
Play
Record
Mode
Once
Start Date
So., 26. Mai 2013
Start Time
22:00
Duration
1 Hour 0 Min
End Time
23:00
Reset
Delete
Save

5


TV / Radio
Resolution
4852 MBC 4
THE DOCTORS
Info
Recall
OK
Menu
Exit
Air TiVi+
VOL
CH
FAV
EPG
Play List
PIP
PIP Swap
PIP List

9


My Schedule
MBC 4PRETTY LITTLE LIA...
MBC ActionWWE MAIN EV...
Schedule Setting
4861. MBC Action
MBC ActionWWE MAIN EVENT
Type
Play
Record
Mode
Once
Start Date
Mo., 27. Mai 2013
Start Time
04:40
Duration
0 Hour 45 Mins
End Time
05:25
Reset
Delete
Save

6


Air Tivi+
1223 3sat HD
1224 KiKA HD
1225 ZDFinfo HD
1447 ProSieben Austria
1449 Kabel 1 Austria
1450 SAT.1 A
1624 DMAX
1631 SPORT1
1644 Bibel TV
1718 tagesschau24
1719 Einsfestival
1720 EinsPlus
1225 ZDFinfo HD
(No Information)

10


3sat HD

as to how the system would cope with HD channels – and we were delighted when we were shown HD content even before the initial countdown had reached 0.

A word of caution: We found out during our thorough test that HD channels put considerable strain on the WiFi connection, which means that they work smoothly only if the network is in mint condition. Move away too far from the router and you'll soon experience signal drops. With SD content, on the other hand, we never had a problem.

Each of the three Tiviar tuners can be chosen to provide its signal to the app, with the two other tuners remaining available for recordings or live viewing with the receiver itself.

It is even possible to record two different channels with the receiver and use the third tuner for watching TV with the app. And not only is this possible in theory, it also works flawlessly in practice.

One aspect we noticed and which to us didn't make a lot of sense is that the channel order in the app is different from the channel list on the receiver. And by the way, streaming only works if the selected channel is available right away. In other words, users of a DiSEqC motorised antenna, whose system may take some time until the required antenna position is reached, can use the app only for channels on the currently received satellite at this stage.

In summary, the general concept and design of the new Air Tivi+ app did not fail to impress us and once the remaining bugs are eliminated, it will offer a vast enhancement to the Tiviar receiver.

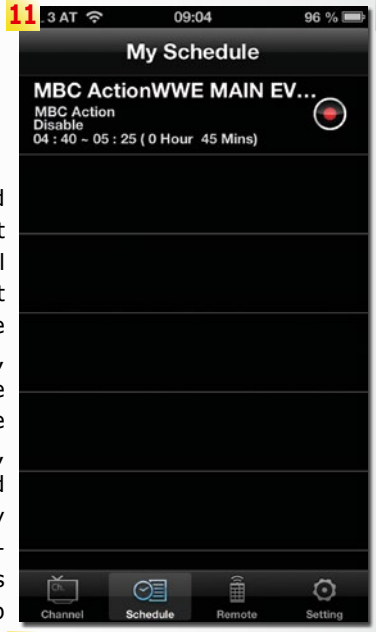
11. List of timer entries shown on the iPhone

12. Virtual remote control on the iPhone – page 1

13. Virtual remote control on the iPhone – page 2

14. Virtual remote control on the iPhone – page 3

15. Channel list with live TV on the iPhone



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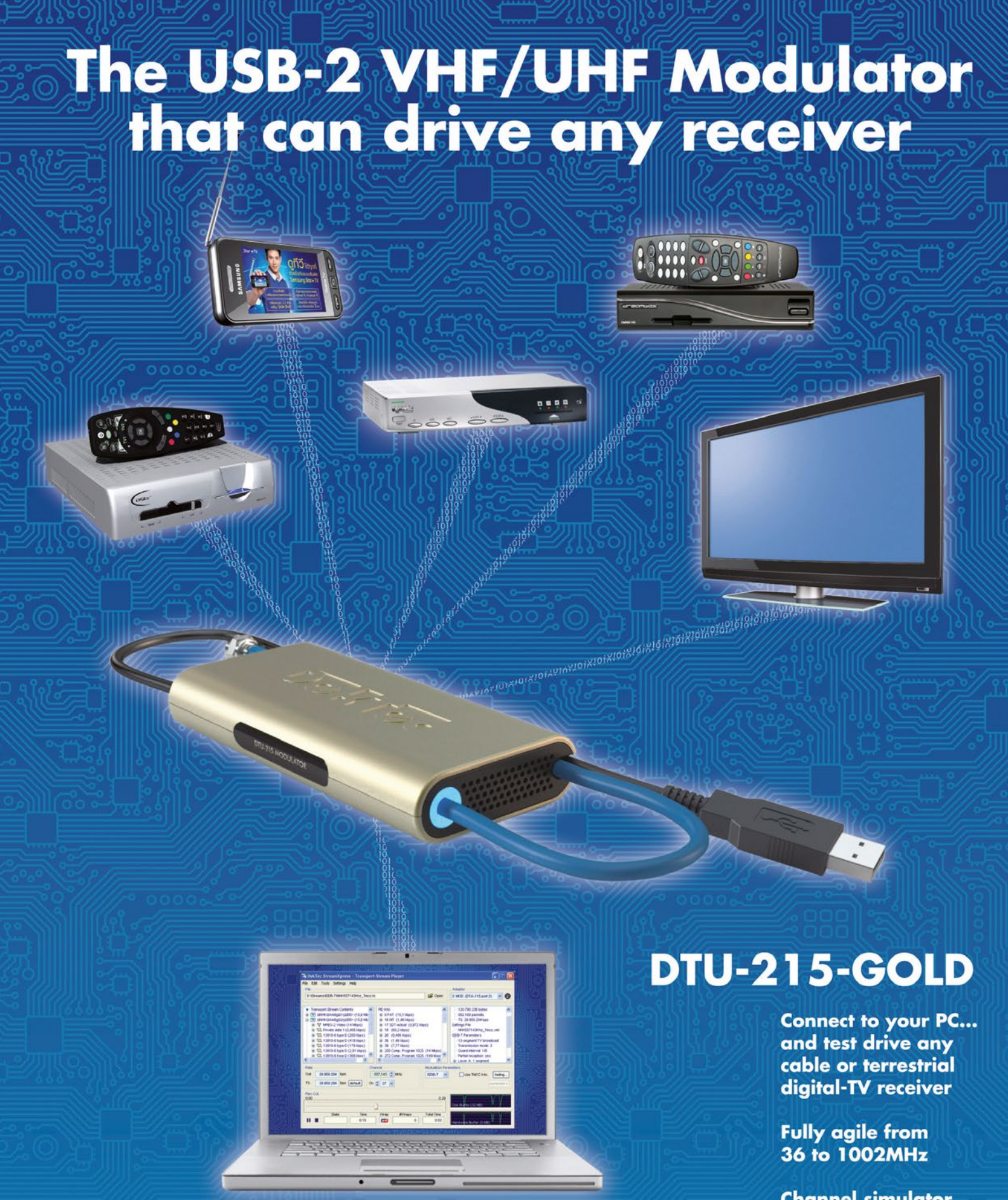

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DekTec
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Audolici A1/25

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- ***добавляет новое измерение в восприятии музыки***
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- ***доступен по разумной цене для домашнего пользователя***

Integrated Amplifier

Hi-Fi Sound for the Home

Vitor Martins Augusto

When was the last time you heard music in really good quality? Not just „good" stereo, but in a concert hall with good acoustics or even from a high class audiophile system? Maybe that's a long time ago, because nowadays audiophile sound quality is completely neglected. Most people nowadays are used to portable music players and of course it is great to carry around a large collection of albums in a small mp3 player, mobile phone or iPod. But with such devices our hearing ability is pushed into the background, as the focus is about the quick consumption of music: anytime, anywhere. Home Hi-Fi systems were replaced by surround sound systems, which are basically optimized to reproduce sounds and noise coming from all directions, rather than trying to obtain the best music quality.

And so it comes that most people no longer are aware of how incredibly perfect music reproduction sounds and which dimensions, depth and plasticity can be achieved. This happened to me when I was able to test the Audolici A1/25 Integrated Amplifier. From the very first song by Joan Baez –"Diamonds and Rust", the music flowed through me and gave me goose bumps; I closed my eyes and was formally conveyed to the 70s and before me she stood and sang for me. When did I listen the last time to music in this way? I do not know exactly, but certainly a good 20 years ago. Back in the late 80s a proper Hi-Fi sound system was to be found in almost every household, but somehow this has changed in the 90s and especially in this new century. One encounters surround systems, media centres and home cinema, but listening to music on these AV receivers is just not the same.

And so I dove into the

This is Valeriy Kuchkovskyi, founder and owner of Audolici. In his hands he is holding the incredible Hi-Fi amplifier A1/25. He has all reasons to smile: this is a truly exceptional amplifier.

VIP Card

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world of music, spending hours listening to many amazing albums and discovering new details in the songs I already knew. All thanks to the A1/25, an audiophile class tube amplifier from Audolici.

Very few will have ever heard of Audolici, so first a small introduction to this company. The history begins with Ukrainian Valeriy Kuchkovskyi who,back in the days of the Soviet Union, worked in the Ukraine as an engineer specialized in tubes. Do you still know what a tube is, also known as vacuum valve? These were used before transistors and transistors were used before the integrated chips IC became the norm and are used all over nowadays.

Early on Valeriy started discovering the mysteries of audio circuits, especially the ones using tubes. Instead of just using well known schematics, he introduced his own ideas into the circuits. 15 years ago Valeriy moved to Portugal and in 2007 he founded his own company Audolici, in partnership with INESC Porto, the Institute for Systems and Computer Engineering of the city of Porto, located in the upper north of Portugal. During a period of five very productive years, Audolici not only developed a variety of tube amplifiers, phono pre-amplifiers and studio equipment, building up simultaneously a network of specialized companies to provide components of the highest possible quality. The best known Audolici product developed within this period is the classic AUDOLICI-50 Series, featuring the Jazz, Swing and


INPUT SELECTOR
POWER
VOLUME
TUBE
INTEGRATED AMPLIFIER
MODEL
A 25 M
Cisco Systems
ISO 9001
14001

1

Blues models.

These are designed in the more typical appearance, in which we see the tubes and can guess the transformers at the rear. While this design is a delight to any audiophile, normal music lovers will struggle a little, because these amplifiers do not fit in a normal rack, cannot be stacked with other audio components and therefore basically require a matching set of furniture. This will often cause some heavy discussion between the audiophile and his or her partner, even though the 50-AUDOLICI does look extremely classy.

The initial years of Audolici existence have been very important to get a better understanding of the very demanding audiophile market, too. Feedback came from all over the world and Audolici listened. And so it happened that Audolici has developed a new approach to tube amplifiers and implemented it for the first time with the A1/25. It is a real tube amplifier, but in a classic amplifier housing. Indeed, it makes one immediately want to screw open the chassis cover to make sure that there really are tubes inside the receiver. And yes, 6 tubes reside inside, four tubes (type 6SL7) for the first stage and two tubes for the output power stage (the famous EL-34B). These are hand-picked, which may sound unbelievable, but it makes sense. Despite the utmost care in the production of the tubes, it is impossible to produce two tubes with absolutely identical properties. Valeriy therefore checks personally all the tubes used for each

2

amplifier and only uses tube pairs which sonically match. It is no secret that Russian tubes are considered the best and it's no coincidence that Valeriy knows all the best tubes and where to get them from Russia.

But hold on: Audolici amplifiers are not of the handmade category: yes, the components on the board are soldered manually and all components are screwed together manually as well. But much more amazing is the amount of real development that has been gone into the production of the key components. The transformers for example are produced by a Portuguese company specialized in this area. Still, Audolici worked with this company over years, researching the best production methods and properties to build the finest transformers for audiophile amplifiers. It is not just about how to wrap the coil: even the right composition for the ferrite core has been investigated.

Another example is the black finishing of the case. Yes it is black, but it is neither piano shiny black, which perfectly reproduces any fingerprints, nor is it the matte kind of black, which looks a bit cheap. It is of the perfect smooth black kind, which I honestly never encountered before. Again, the reason for this unusual finishing comes from the fact that Audolici researched the most advanced materials and surface finishing techniques available and established partnerships to both develop and produce the finishing of the casing. The result is a work of art and I have witnessed myself this commitment to excellence, because Valeriy is not unknown to me, as he lives like me in Porto and our professional paths have crossed many times in the past.

1. The Audolici aplifier A1/25 in its full glory in the audiophile test room
2. This room not only has very good acoustic properties: it features the unbelievable JBL Olympus C 50 speaker. Yes, they are big but what great sound comes out of them. The small tweeters on top of the speakers complement them perfectly and despite their size they feature an amazing weight of around 3 Kg each.
3. The Audolici A1/25 was tested with the Sony CDP-X77ES, one of the best CD players ever built by Sony.

The Audolici A1/25 is not only design wise different from other tube amplifiers. It has another unusual point: its price. While an audiophile tube amplifier like the AUDOLICI-50 Jazz has a price tag of around 7500 Euros for the end user, the Audolici A1/25 aims at approximately half that price. This represents an unbeatable bargain for an amplifier of this class, particularly because Valeriy did not manage to make this amplifier sound worse than more expensive models.

I was able to test this amplifier twice: first at my home and then in a proper auditorium for audiophile music systems, owned by a private collector and audiophile addict. This dual test enabled me on one hand to get to know the A1/25 in a familiar acoustic environment. On the other hand, it was also important for me to hear the amplifier with speakers evenly matched in a truly optimized space, along with high class components.

The first contact with the A1/25 is marked by the weight of the amplifier. Being used to the keywords „compact" and „light" – common marketing keywords nowadays - it is surprising how heavy a „real" amplifier can be. The A1/25 brings an impressive 11.5 kg to the scale.

The casing is perfect. An elegant front panel with only two knobs and a switch and a characteristic minimalist design. The left knob allows selection of the input (CD, Tuner, AUX 1 and AUX 2), while the right knob controls the volume. Both knobs are solid and heavy and have a high quality finishing.The volume knob uses an Alps 100k log potentiometer, which again is a sign that only the best components have been used to build this equipment. The centre lever indicates the ON state by means of a green LED, which is integrated in the switch. The colour of my test equipment was graphite black, but the receiver is also available in silver.

On the rear side, the A1/25 presents itself again with a high quality finishing. All RCA sockets are gold plated and the output terminals for the speaker use a WBT type binding post, which will totally satisfy the most demanding user. Although the unit is assembled by hand, the A1/25 by no means looks like a "do it yourself" amplifier, as opposed to many of the tube amplifiers to be encountered in the market from other brands. The manufacturing of the device is very professional as you would expect from a premium Hi-Fi component.

The arrangement of the speaker output terminals indicates the internal architecture of the amplifier, for they are distributed symmetrically and allow the connection of only one pair of speakers, which may be of the 4-6 Ohm or 6-8 Ohm type. Having only output terminals for one pair of speakers cannot be regarded as a limitation, because the A1/25 is to be used with a matched high quality speaker pair and it would not make sense to connect more speakers, nor to spend money in the purchase of two speaker pairs. Instead, Audolici has been rather generous with the 4 inputs connector pairs. In this segment, it is not that usual to have this number of input connectors available, but it does make sense in the present days, since music lovers no longer want to swap cables to be able to alternate between different sources, like a CD

After setting up the amplifier we were ready to enjoy a long afternoon listening to a huge amount of CDs.

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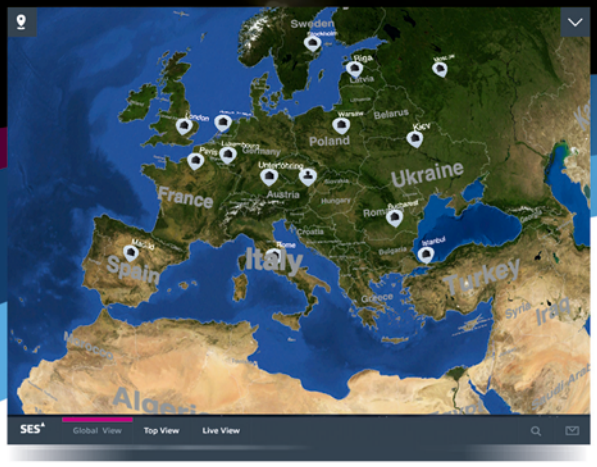

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(Niclas Friese Greene, Senior Vice President of Marketing and Corporate Communications, **SES)**

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player, a modern media player with a digital audio output connected through a DAC (Digital to Analogue Converter - more on that later on), a tuner or a turntable through a phono preamplifier. Overall, the appearance of the A1/25 is discreet, classy, yet elegant. Although it is in principle a black box, you can immediately see that it is a special device. Sometimes less really is more.

The cover is secured by 6 screws. Inside the case the tubes reveal themselves, since they occupy a third of the available space. The trick to the small hight of the A1/25 comes from the fact that the tubes are arranged horizontally, rather than the usual vertical position. A total of 6 units are installed, 3 for the left and 3 for the right audio channel. Like the speaker jacks the interior of the A1/25 is totally symmetrical, as is common in audiophile amplifiers.

The printed circuit boards are of excellent quality and all the cables are of industrial grade with professional connectors. The device is the result of a remarkable feat of engineering, combining „Old School" with the latest manufacturing techniques. Being located in Portugal offers unprecedented advantages, because when it comes to the production of very small series, many highly specialized companies are to be found in this region, offering sheet metal production, electrical cables, etc.

The 11.5 kgweight of the amplifier is not only due to the robust and perfect body but mainly caused by the three transformers especially produced for this amplifier. These were prepared according to the specifications of Audolici in a specialized Portuguese company. This expertise has a tradition in Portugal, because major companies like Grundig were located in the vicinity, resulting in a network of suppliers.

Testing the Audolici with the Best Available CDs

- Dire Straits - Brother in Arms -
„Your Latest Trick"

Fantastic, the saxophone at the beginning of the song, then the voice of Mark Knopfler. The drums precisely positioned. The A1/25 reproduced this quiet song with a fabulous visibility and at great ease. I discovered in this song many new details.

- Sade - Promise -
„The Sweetest Taboo"

A great album in which Sade's voice remains in the foreground and yet accompanied by a plethora of instruments and compositions. Here, too, the A1/25 provides full pleasure. If you close your eyes, you have Sade singing for you - an indescribable experience – surrounded by all the instruments and arrangements.

- Pat Metheny Group - Travels -
„Goodbye"

This album has grown on me and it is by far the album I've heard the most times in my life. Therefore, this double CD is in each of my audio tests. The track called „Goodbye" especially evokes emotions in me. It is not easy for many amplifiers to reproduce the tender sounds at the beginning with the voice of Naná Vasconcelos drawing a fragility that does not require volume, but presence. The A1/25 mastered this. With the volume knob set to about half the quiet background composition had presence, while the voice was not too loud. Interestingly, the A1/25 requires the volume knob to be turned further than other amplifiers to get the same volume output.

- Pink Floyd - Dark Side of the Moon -
„Time"

This song begins with a prelude that is difficult for many amplifiers: the clocks ticking and ringing. I was thrilled by the Audolici amplifier being able to bring to life each clock individually. Only the best amplifiers in the world will be able to resolve the panoply of ticking and ringing sounds with such a brilliance. But the rest of the song captivates the listener as well with the guitar solo leading the listener through time and space. I have to confess that I never experienced „Time" by Pink Floyd like this before. Naturally, I kept on listening and "The Great Gig In The Sky" sounded just fabulous!

- Arne Domnerus Group -
„Jazz at the Pawnshop"

Audiophiles know Jazz at the Pawnshop, as most audiophile stereos will be tested with this CD to start with. The reason is not only because this CD was incredibly well produced, but also because the recording was done in a club full of people. This CD is simply considered the best jazz live recording ever. Although the conditions were just far away from the ideal: you can also hear clinking cups, chairs being pushed and people coughing. But this is exactly the reason for the fascination about this CD. The Audolici A1/25 mastered this CD with flying colours. For me this means: close your eyes and wait so see whether the amplifier just manages to transport me into The Pawn Shop. Yes it does, I am sitting at a table and I'm in for a great Jazz experience.

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To test the amplifier at home I connected it to my vintage speakers produced by the German manufacturer Pilot. The bulky speakers have a pure and solid sound, because they come from the Hi-Fi heyday, the early 80's. To play CDs I used my CD/DVD Player DVP-S715 from Sony – not the most expensive device, but still fitted with a proper mechanism and individual CD and DVD heads. I have connected this player both through the internal DAC and an external DAC from Music Fidelity, the well-known V-DACII.

To be able to fully take advantage of an amplifier in the 21st century there is no way around using a modern media player. It is so much more comfortable to be able to browse in your own music library directly via a remote control, rather than having to constantly get up to change CDs. Therefore I connected a media player running the legendary "Xbox Media Centre" (XBMC), now available on many platforms like the old Xbox, iPod, iPad, Android and even the Raspberry Pi. I used a Media-PC to run XBMC and connected it via the V-DACII to the A1/25. Interestingly, my media player gets the music over the network from a file server: analogue audio meets modern digital electronics.

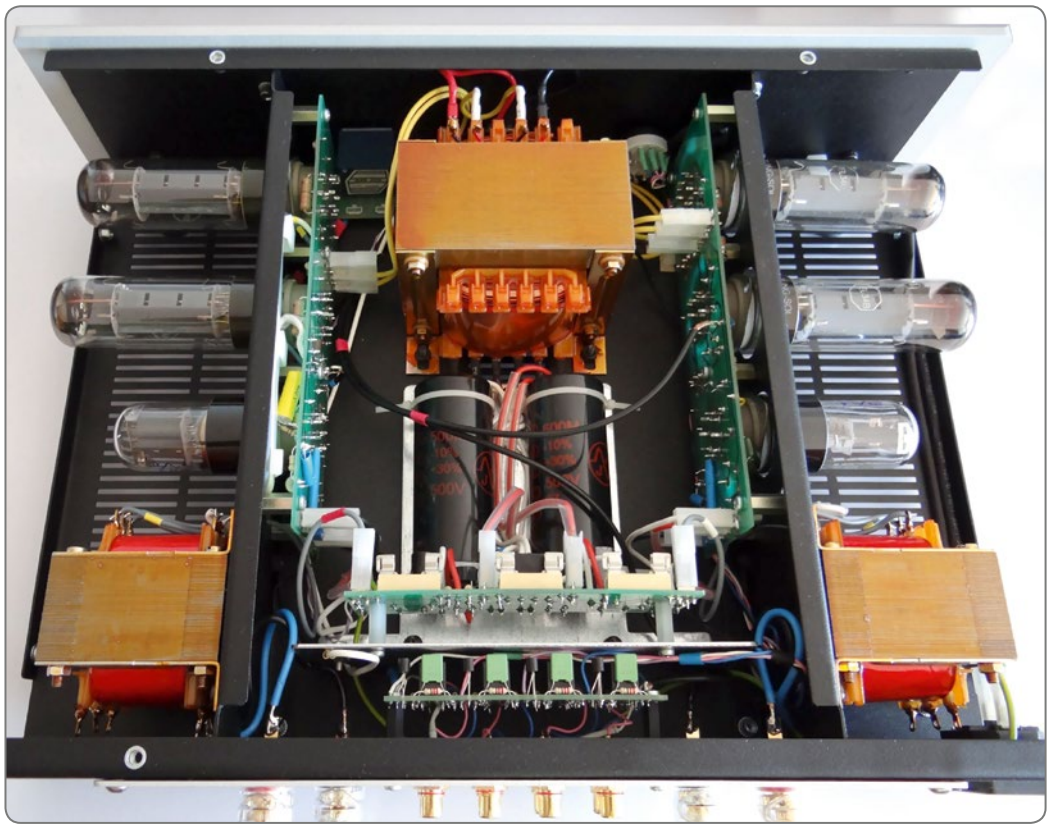
What can I say about the amplifier? It is incredible! You experience music in a whole new context. It is as if one has seen his life through a matte glass, thinking that the sight was the normal one, when suddenly this glass is removed and you see the world in a sharpness and clarity like never before. This is how it felt to me. But just as you suddenly can see the image crystal clear you start to notice all faults as well. Suddenly you realize how bad mp3 actually sounds, due to the compression artefacts. Any mp3 file with a bitrate of less than 320MBPS simply makes no fun at all to listen to. Worse, one even discovers that some CDs do not sound so great either, because they have been badly produced. All this can not be noticed using a regular music player. To test the A1/25 I have therefore resorted to well-known recordings, which have been exceptionally well produced, meaning for example that you can locate all instruments in space:

I have listened to these albums at home using CDs (with internal and external DAC) and using the media player (with the V-DACII). It was now time to repeat the listening in an audiophile environment. While the A1/25 was very tolerant with my speakers, CD player and theV-DACII, I wanted to see the hidden power of this valve amplifier when it had to feed proper audiophile speakers. I was lucky to be able to use a truly legendary classic audiophile speaker, the JBL Olympus C 50. As a CD player a Sony CDP-X77ES was used.

Here the A1/25 could really show what‘s in it. I was already impressed with the sound quality in my home but now the A1/25 just produced a state of euphoria. It‘s so amazing to listen to well-known CDs on this system. It is as if you were there, in the middle of the action - see my listening experience in the „ Testing the Audiolici with the Best Available CDs“ section.

No question, the Audolici A1/25 reproduces a well-balanced sound with a spectacular space. You close your eyes and can position the individual instruments around you. Especially acoustic instruments benefit from the valve amplifier.

The Audolici A1/25 is a masterpiece in its category. Audolici has developed an amplifier that brings enthusiasm among audiophiles and yet at the same time this unit is affordable to a wider audience. The industry has neglected Hi-Fi sound in favour of the visual stimulation. Modern homes feature large TVs in HD resolution and surround sound, but with our ears we can achieve quicker and deeper relaxation and immersion in emotions. I wholeheartedly recommend to all ourTELE-audiovision readers to seek a demonstration of a real audiophile system, preferably of this amazing amplifier. Even if you have no interest or possibility to buy it you should at least try it out and I am sure you‘ll hear the difference it makes to listen to a real outstanding audio system.



Inside of the A1/25. The tidiness is the result of yearlong research and development. As expected, the amplifier is mainly symmetrically build. Here, the tubes are installed vertically, a unique concept. The two transformers have been especially designed.

TECHNICAL DATA

Model	Audiolici A1/25
Function	Hi-Fi audio amplifier
Manufacturer	Audiolici, Centro de Empresas NET, Edifício PROMONET, Rua de Salazares 842, 4149-002 Porto, Portugal
Website	www.audolici.com
Contact	vkuchkovskyy@audolici.com
Tel	+351-91-2005308
Channels	2
Inputs	4 (CD / TUNER / AUX 1 / AUX 2)
Power output	A1 2 x 20W A1/25 2 x 25W
Loudspeaker impedance	4-6 Ω or 6-8 Ω
Total harmonic distortion	@ 1W, 1000Hz 0,4% @ 10W, 1000Hz 0,8% @ 20W, 1000Hz 2,5%
Frequency response	28Hz – 20 KHz / ±1,5dB @ 20W
Input impedance	47 kΩ
Input sensitivity	1,57 V
Output impedance	0,4 Ω
Signal-to-noise ratio	-89dB
Damping factor	10 @ 1KHz
Channel separation	50dB @ 1KHz
Overall Negative Feedback	0dB
Power consumption	200VA
Dimensions (W x H x D)	435 x 96 x 345 mm
Weight	11.5Kg
Input terminal	Gold plated RCA
Colours	Black, white and grey

AWARD WINNING 21 DIGITAL RECEIVERS OF 21ST CENTURY

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Manufacturer	Gotech
Website	www.gotechcn.com
Function	DVB S2 & ISDB-Tb Combo Receiver
DVB S2/LAN	• / •
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	• / •

Manufacturer	TBS Tenow
Website	www.tbsdtv.com
Function	DVB S2 compatible Twin Tuner Streamingbox
DiSEqC	1.0 / 1.1
DVB S2/LAN	• / •
PVR	•
S-Video/HDMI	— / —
Scart/Digital Audio	— / —

Manufacturer	Gotech
Website	www.gotechcn.com
Function	DVB S2 Satellite Receiver
DVB S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •

TELE audiovision AWARD 07-08/2013

MKTechHD
Fully featured Mini Scart Receiver with HDTV via HDMI

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/07/mktech

Read TELE-audiovision Test Report

Energy Efficiency Rating eco friendly 0.61 power factor tested by TELE-audiovision

MKTECH

Manufacturer	Fortis
Website	www.tiviar.com
Function	DVB S2 / DVB T2 / DVB C Triple PVR Receiver
DVB S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •

TELE audiovision AWARD 07-08/2013

Tiviar Alpha Plus
Best dissolved integration for reception of all digital TV signals

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/07/tiviar

Read TELE-audiovision Test Report

Energy Efficiency Rating eco friendly 0.60 power factor tested by TELE-audiovision

TIVIAR


Manufacturer | Changhong
Website | www.changhong.com
Function | DVB-C Receiver, Mediaplayer, Android Apps
DVB-S2/LAN | — / •
PVR | •
S-Video/HDMI | — / •
Scart/Digital Audio | — / •
TELE audiovision AWARD 05-06/2013
Changhong Smartcenter
Very successful hybrid receiver for digital TV
TELE-audiovision International Magazine
Business Voucher
www.TELE-audiovision.com/13/05/changhong
Read TELE-audiovision Test Report
CHANGHONG RB78A
eco friendly 0.55 power factor
Energy Efficiency Rating
tested by TELE-audiovision
CHANGHONG iho
SmartCente
CHANGHONG


Manufacturer | Panodic
Website | www.panodic.com
Function | DVB-T / DVB-T2 Receiver
DVB-T2/LAN | • / —
PVR | •
S-Video/HDMI | — / •
Scart/Digital Audio | • / —
TELE audiovision AWARD 03-04/2013
Panodic HDT-275C
Great receiver for the new HDTV era in digital terrestrial TV in future-proof DVB-T2
TELE-audiovision International Magazine
Business Voucher
www.TELE-audiovision.com/13/03/panodic
Read TELE-audiovision Test Report
eco friendly 0.53 power factor
Energy Efficiency Rating
tested by TELE-audiovision
HDT-275C
0302
PCMCIA CARD
PANODIC

Manufacturer	Tsinghwa
Function	DTMB Receiver
LAN	—
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	— / •

TELE-audiovision International Magazine

Business Voucher

www.TELE-audiovision.com/13/03/tsinghwa

Read TELE-audiovision Test Report

TELE audiovision AWARD 03-04/2013

Tsinghwa GT-278
Rock-solid receiver with excellent speed reaction time

Energy Efficiency Rating eco friendly 0.53 power factor tested by TELE-audiovision

Manufacturer	Skyworth
Website	www.skyworthdigital.com
Function	DVB T / DVB T2 HDTV Receiver
DVB T2/LAN	• / —
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	— / —

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/01/skyworth

Read TELE-audiovision Test Report

TELE audiovision AWARD 01-02/2013

Skyworth HTA6
A rock-solid receiver for HDTV over the terrestrial antenna

Energy Efficiency Rating eco friendly 0.45 power factor tested by TELE-audiovision


TRACK
1 2 3
4 5 6
7 8 9
DEL 0 INPUT
MENU BACK
OK
VOL
HOME
SEARCH
CH
LANG
F1 F2 F3 F4
JIUZHOU
Manufacturer Jiuzhou
Website www.jiuzhou.com.cn
Function DVB T & Android STB
DVB S2/LAN — / •
PVR •
S-Video/HDMI — / •
Scart/Digital Audio — / •
INNOVATION
TELE audiovision AWARD
11-12/2012
Jiuzhou DTP2100
Cutting-edge receiver thanks to Android operating system
TELE-audiovision International Magazine
Business Voucher
www.TELE-audiovision.com/12/11/jiuzhou
Read TELE-audiovision Test Report
JIUZHOU DTP2100
LOCK NET RUN STANDBY
IR
RF IN
VIDEO-L-R
HDMI
ETHERNET
S/PDIF
USB
USB
Energy Efficiency Rating
eco friendly
0.55
power factor
tested by TELE-audiovision
JIUZHOU


STANDBY
INFO
SUBTITLE
MUTE
PLAY/PAUSE
STOP
MENU
CH+
EPG
VOL-
OK
VOL+
RECORD
TIMESHIFT
CH-
EXIT
BACK
MEDIA
TEXT
TV/RADIO
AUDIO
FILE
TIMER
ASPECT
RES
GOTO
REPEAT
SLOW
BOOKMARK
Manufacturer Panodic
Website www.panodic.com
Function DVB S / DVB S2 Receiver
DVB S2/LAN • / —
DiSEqC 1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI — / •
Scart/Digital Audio • / —
TELE audiovision AWARD
11-12/2012
Panodic HDS275
Best designed mini-receiver for the best HD reception
TELE-audiovision International Magazine
Business Voucher
www.TELE-audiovision.com/12/11/panodic
Read TELE-audiovision Test Report
HDS275
0302
PCMCIA CARD
STANDBY/ON
MENU
VOL-
VOL+
CH-
CH+
Mascom spol.s.r.o., Czech republic
LOOP OUT
DISH IN
CVBS
R
L
HDMI
USB
COAXIAL
SCART
Energy Efficiency Rating
eco friendly
0.58
power factor
tested by TELE-audiovision
PANODIC

Manufacturer	AZBox
Website	www.azbox.com
Function	HDTV DVB-S/DVB-S2 Miniature HDTV Linux Receiver with Multimedia Features
DVB-S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3 / USALS
S-Video/HDMI	— / •
Scart/Digital Audio	— / •

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/09/azbox-mini-me

Read TELE-audiovision Test Report

TELE audiovision AWARD 09-10/2012

AZBox mini ME
Excellent mini-receiver with Network features - ideal for a home network

Energy Efficiency Rating eco friendly 0.57 power factor tested by TELE-audiovision

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

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/07/panodic

Read TELE-audiovision Test Report

TELE audiovision AWARD 06-07-08/2012

Panodic HDT-127A DVB-T
Well-equipped DVB-T Mini-Receiver

Energy Efficiency Rating eco friendly 0.63 power factor tested by TELE-audiovision

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	— / —

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/05/panodic

Read TELE-audiovision Test Report

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	— / •

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Expert Opinion

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Expert Opinion

www.TELE-audiovision.com/13/09/horizon

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Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Digital Meter DVB-C Signals
Frequency Range	51 ~ 858 MHz
Video Output	—
Built-in Monitor	LCD display

TELE audiovision AWARD 09-10/2013

HORIZON HD-CM+ for DVB-C
Extremely easy to operate,
for professional installers

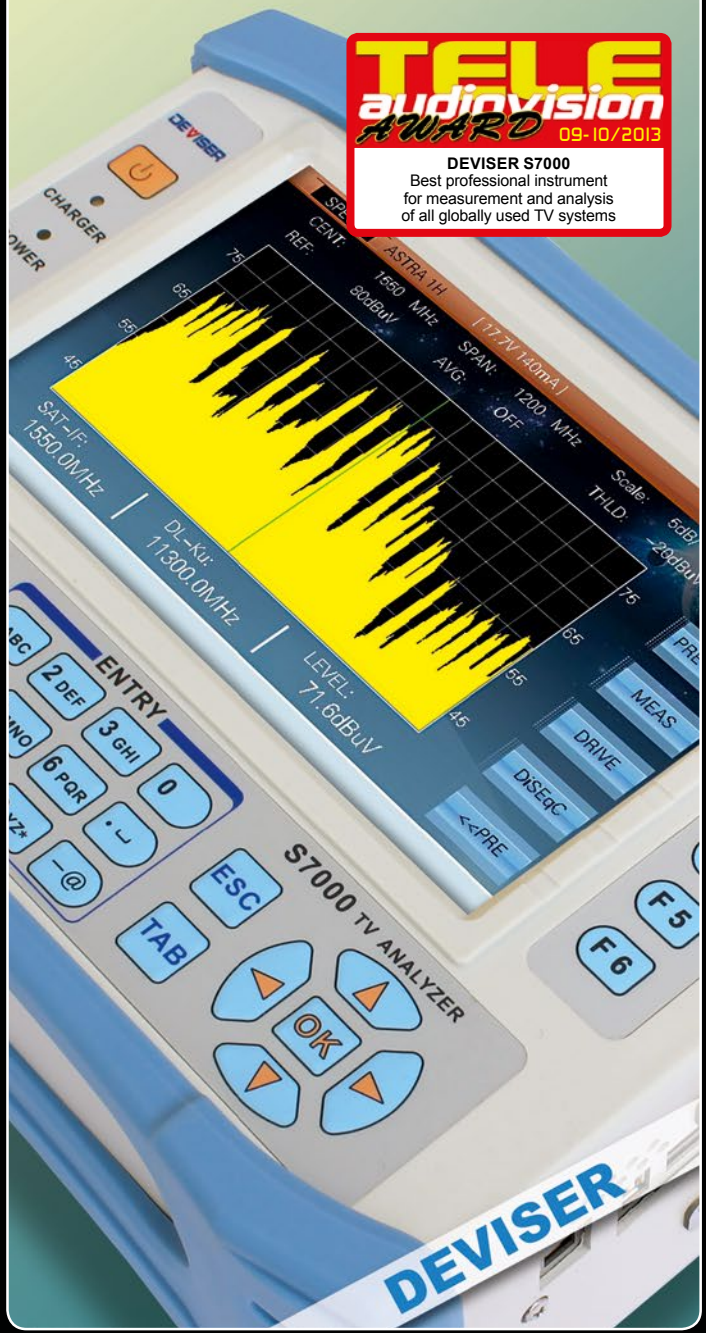
TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/09/deviser

Read TELE-audiovision Test Report

Manufacturer	Tianjin Deviser Electronics Instrument
Website	www.devisertek.com
Function	Professional TV Signal Anaylzer
Frequency Range	5 - 1050 MHz (TV); 950-2150 MHz (Satellite)
Video Output	HDMI
Built-in Monitor	7" TFT LCD, 800×480 pixels



TELE audiovision AWARD 09-10/2013

DEVISER S7000
Best professional instrument
for measurement and analysis
of all globally used TV systems

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/05/deviser

Read TELE-audiovision 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

TELE audiovision AWARD 05-06/2013

DEVISER S30
Highly accurate handheld meter optimized for the satellite dish installer

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/03/horizon

Read TELE-audiovision Test Report

Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Digital Satellite Meter for DVB S and DVB S2 Signals
Frequency Range	950 ~ 2150 MHz
Video Output	—
Built-in Monitor	LCD display

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/01/kws

Read TELE-audiovision Test Report

Manufacturer	KWS-Electronic
Website	www.kws-electronic.de
Function	Handheld Signal Analyzer with Spectrum for DVB S, DVB S2
Frequency Range	910 ~ 2150 MHz
Video Output	yes
Built-in Monitor	5,7" Color-TFT, VGA Resolution

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/11/satlink

Read TELE-audiovision Test Report

Manufacturer	Fujian Baotong
Website	www.sat-link.com.cn
Function	Digital Meter & Receiver for DVB S and DVB T Signals
Frequency Range	47 ~ 862 MHz & 950 ~ 2150 MHz
Video Output	yes
Built-in Monitor	4.3 inch display

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/11/horizon

Read TELE-audiovision Test Report

Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Digital Meter for Analogue, DVB-T and DVB-T2 Signals
Frequency Range	48 ~ 862 MHz
Video Output	—
Built-in Monitor	LCD display

TELE audiovision AWARD 11-12/2012

HORIZON HD-T2
One of the world's first DVB-T2 signal analyzers with exceptional data

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/11/deviser

Read TELE-audiovision Test Report

Manufacturer	Tianjin Deviser Electronics Instrument
Website	www.devisertek.com
Function	Optical Power Meter
Frequency Range	-43 dBm ~ +25 dBm
Video Output	—
Built-in Monitor	LCD display

TELE audiovision AWARD 11-12/2012

DEVISER AE 120
Optical Power Meter
Extremely simle to use but at same time very accurate

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/09/deviser

Read TELE-audiovision Test Report

Manufacturer	Tianjin Deviser Electronics Instrument
Website	www.devisertek.com
Function	Professional Meter for DVB-T, DVB-C and CATV (analog TV)
Frequency Range	5 ~ 1000 MHz
Video Output	—
Built-in Monitor	320 × 240 TFT display

TELE audiovision AWARD 09-10/2012

DEVISER DS2400T
This is by far the best handheld measuring instrument for DVB-T, DVB-C and CATV I have come across. Deviser has done an excellent job!

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/05/spaun

Read TELE-audiovision Test Report

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)

TELE audiovision AWARD 04-05/2012

SPAROS SAT HD
Very useful meter for setting up critical satellite systems

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/03/satcatcher

Read TELE-audiovision Test Report

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 audiovision AWARD 02-03/2012

Satcatcher Digipro C Max
More than a cable meter: includes everything a professional installer needs

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/01/horizon

Read TELE-audiovision Test Report

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 audiovision AWARD 12-01/2012

Horizon HD-STM
Perfect choice for an installer who values a practical instrument.

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AWARD WINNING

21ST CENTURY IPTV/WebTV RECEIVERS OF

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Manufacturer	TBS Tenow
Website	www.tbsdtv.com
Function	DVB S2 compatible Twin Tuner Streamingbox
DiSEqC	1.0 / 1.1
DVB S2/LAN	• / •
PVR	•
S-Video/HDMI	— / —
Scart/Digital Audio	— / —

INNOVATION TELE audiovision AWARD 07-08/2013

TBS Streaming Box MOI
Program offers streaming and isolation of hardware and software, a double innovative concept for the future of TV

TELE-audiovision International Magazine

Business Voucher

www.TELE-audiovision.com/13/07/tenow

Read TELE-audiovision Test Report

Energy Efficiency Rating eco friendly 0.54 power factor tested by TELE-audiovision

TENOW

Manufacturer	D-Link
Website	www.dlink.com
Function	Internet Streaming Box
WIFI/LAN	• / •
Internal Storage	no
HDTV	yes (up to 1080p)
CVBS/HDMI	— / •
USB/SD Card	• / •

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/07/boxee

Read TELE-audiovision Test Report

Energy Efficiency Rating eco friendly 0.52 power factor tested by TELE-audiovision

BOXEE

Manufacturer	Netgear
Website	www.netgear.com
Function	Streaming Player
WIFI/LAN	• / •
Internal Storage	no
HDTV	yes (up to 1080p)
CVBS/HDMI	— / •
USB/SD Card	— / —

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/05/netgear

Read TELE-audiovision Test Report

NETGEAR

Manufacturer	Roku
Website	www.roku.com
Function	Streaming Player
WIFI/LAN	• / —
Internal Storage	no
HDTV	yes (up to 1080p)
CVBS/HDMI	• / •
USB/SD Card	— / •

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/03/roku

Read TELE-audiovision Test Report

ROKU


Manufacturer | LookeeTV
Website | www.lookeetv.com
Function | Multimedia Player for local media and Internet
WIFI/LAN | • / •
Internal Storage | yes, 1.14 GB
HDTV | yes (up to 720p)
CVBS/HDMI | • / •
USB/SD Card | • / •
TELE-audiovision International Magazine
Expert Opinion
www.TELE-audiovision.com/12/11/lookee
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Energy Efficiency Rating
eco friendly
0.54
power factor
tested by TELE-audiovision
LOOKEETV


Manufacturer | AZBox
Website | www.azbox.com
Function | HDTV DVB-S/DVB-S2 Miniature HDTV Linux Receiver with Multimedia Features
DVB-S2/LAN | • / •
Channel Memory | unlimited
DiSEqC | 1.0 / 1.1 / 1.2 / 1.3 / USALS
S-Video/HDMI | — / •
Scart/Digital Audio | — / •
TELE audiovision AWARD 09-10/2012
AZBox mini ME
Excellent mini-receiver with Network features - ideal for a home network
TELE-audiovision International Magazine
Expert Opinion
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Energy Efficiency Rating
eco friendly
0.57
power factor
tested by TELE-audiovision
AZBOX mini me
ANT IN
LOOP
S/PDIF
LAN
HDMI
Recovery
USB
e-SATA
YPbPr
Normal Boot
A/V
BRAND AZBOX
MODEL miniMe
DISTRIBUTOR OpenSAT Lda.
AZBOX

Manufacturer	Logitech
Website	www.logitech.com
Function	IPTV Receiver

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/03/googletv

Read TELE-audiovision Test Report

Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	IPTV Set-Top-Box
Stream Protocol	UDP
Menu Standards	HTML4, Javascript 1.5, Java Virtual Machine
WLAN	• (via USB stick)

TELE audiovision AWARD 12-01/2011

JIUZHOU DTP8300
IPTV Receiver Equipped with Top-Notch Technology

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Expert Opinion

www.TELE-audiovision.com/11/01/jiuzhou

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Expert Opinion

www.TELE-audiovision.com/13/03/antiference

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Manufacturer	Antiference
Website	www.antiference.co.uk
Model	KLA-110 Launch Amplifier & KCC-110 Channel Convertor/Processor
Function	Filtering, amplifying and converting DTT channels to new frequencies
Input / Output frequency range	44 – 862 MHz / 44 – 862 MHz
Input level range	65 – 95 dBµV
Output level adjustment (KCC-110)	60 – 80 dBµV
Gain adjustment (KLA-110)	14 – 45 dB

TELE audiovision AWARD 03-04/2013

KLA-110 Launch Amplifier & KCC-110 Channel Convertor/Processor
Professional handling of DTT signals

KINGRAY

Manufacturer	Dexin Digital Technology
Website	www.dsdvb.com/english
Model	NDS3975 DVB-S2 HD IRD
Function	Professional Integrated Receiver Decorder
Tuner Input	QPSK,QPSK DVB-S2 (DVB-T/DVB-C/ISDB-Tb optional)
ASI Input	Maximum transmitting rate 90Mbps
ASI Input	Maximum transmitting rate 90Mbps
DVB-S2/LAN	• / •
SDI/YPbPr/CVBS/HDMI	• / • / • / •
Scart/Digital Audio	— / •

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/01/dexin

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TELE audiovision AWARD 01-02/2013

Dexing NDS3975
Most powerful and versatile IRD ever - its built-in monitor is a unique plus.

Energy Efficiency Rating eco friendly 0.61 Power factor tested by TELE-audiovision

Manufacturer	Sat & Sound
Website	www.satson.eu
Model	HD-MOD-001T
Function	HDTV-compatible DVB-T Modulator
Output Frequency	50 - 860 MHz
Video Input Format	Component Video, YPbPr RCA, HDMI
Video Encoding Format	MPEG-2 Video (ISO/IEC 13818-2)
HDMI/LAN	• / •
Modulator Standard	DVB-T (ETSI EN 300 744)
Bandwidth	6, 7, 8 MHz
Constellation	QPSK, QAM16, QAM64

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/13/01/satson-modulator

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TELE audiovision AWARD 01-02/2013

Satson HD-MOD-001T
Smart solution for distributing HD signals via an existing coax cable network

Energy Efficiency Rating eco friendly 0.84 power factor tested by TELE-audiovision

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/11/dektec

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Manufacturer	DekTec
Website	www.dektec.com
Model	DTE-3137
Function	Networked DVB-S/DVB-S2 Receiver
Frequency range	950 - 2150 MHz)
Transmission Standards	DVB, DVB-RSC, ATSC
Modulations	QPSK, 8-PSK, 16-APSK and 32-APSK
DVB-S2/LAN	• / •

Energy Efficiency Rating eco friendly 0.56 power factor tested by TELE-audiovision

TELE audiovision AWARD 11-12/2012

DekTec DTE-3137
Perfectly equipped professional satellite receiver for use in networks and for processing in cable networks.

DEKTEC

TELE audiovision AWARD 09-10/2012

SPAUN VAM 420 NG PAL
Easy way to create analogue tv channels

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Expert Opinion

www.TELE-audiovision.com/12/09/spaun-vam

Read TELE-audiovision Test Report

Manufacturer	Spaun
Website	www.spaun.com
Model	VAM 420 NG PAL
Function	VSB Twin Modulator
Frequency range	110 … 862 MHz
TV standard	B/G/D/K/I/L
Output level max	90 dBµV
Output level adjustment	0...-10 dB
Spurious level	<-60 dB
C/N ratio	≥ 50 dB
Input level	1 ± 0.1 V p-p

SPAUN

Manufacturer	Global Invacom
Website	www.gloablinvacom.com
Model	FibreIRS DTT Processor
Function	Filtering and amplifying DVB-T signal
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
DAB Frequency range	217-230 MHz
Insertion loss	< 2 dB

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Expert Opinion

www.TELE-audiovision.com/12/07/globalinvacom

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TELE audiovision AWARD 06-07-08/2012

FibreIRS DTT Processor
Delivery perfectly clean DTT signals for any distribution system

GLOBAL INVACOM

TELE audiovision AWARD 06-07-08/2012

SPAUN BluBox 16
Great leap forward in headend technology

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/07/spaun

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Manufacturer	Spaun
Website	www.spaun.com
Model	BluBox 16
Function	DVB S/DVB S2 to DVB C Head End
DVB S2/LAN	• / •
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
QAM standard	DVB C / ITU-T J.83 Annex A (fixed)

SPAUN

TELE-audiovision International Magazine

Expert Opinion

www.TELE-audiovision.com/12/01/netup

Read TELE-audiovision Test Report

Manufacturer	NetUP
Website	www.netup.tv
Model	Dual DVB-T/C-CI
Function	DVB C and DVB T PCI-e adapter for professional applications under Linux

TELE audiovision 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

Manufacturer	NetUP
Website	www.netup.tv
Model	IPTV Combine 4x
Function	IPTV Gateway for DVB Signals, Middleware,Billing, VoD, nVoD, DHCP-, Time- & DNS-Server
Tuners	4
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www.TELE-audiovision.com/11/03/netup

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NetUP DVB-IP Gateway 4x
Perfect ease of use, combined with reliable technology – ideal for IPTV providers.

Energy Efficiency Rating eco friendly 0.98 Power factor tested by TELE-audiovision

Телевидение из сети

Часть 3

- *Основы передачи данных по сети*
- *TCP, UDP и RTP – что обозначают эти буквы?*
- *Оптимизация сети*
- *кабельное хозяйство сети делает все остальные кабели излишними*
- *для надежного функционирования рекомендуется 1000MBPS*

This is how our test centre looked like for this report.

Vitor Martins Augusto

You can find quite a bit of information on IPTV in the Internet but it's often not all that easy to understand since it can be very long-winded and complicated and assumes the reader has some basic knowledge. One reason for the difficulty in getting started in this field is that most of the material doesn't have TV installers in mind but rather is more geared towards network specialists and IT administrators; two worlds bump into each other here. Our goal is to save our TELE-audiovision readers some time and describe the more important points.

Taking the leap into the IPTV world is made complicated by these keywords: TCP, UDP, RTP, Multicasting and Unicasting. But none of these are really earth-shattering.

Almost everyone today that uses a computer or tablet to get to the Internet knows what TCP is. This network protocol regulates the communication between the various computers. Data is sent in small packets from the sender's computer to the recipient's computer.

To prevent the loss of a packet, it contains the address of the transmitter and the receiver. The packet also includes a checksum that is calculated from the data it contains. This makes it possible to determine if the packet arrives correctly and undamaged.

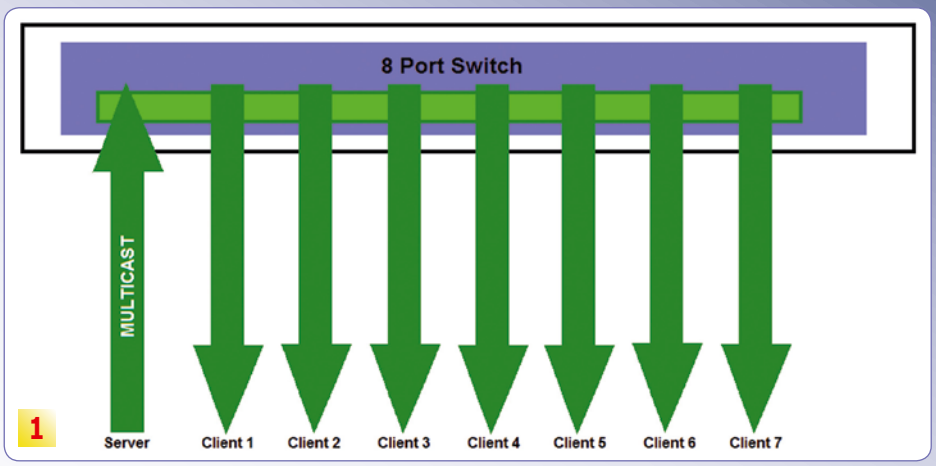
The best thing about TCP is that the individual packets are transmitted until a confirmation is sent back by the receiver. If this is the case, the transmitter can then forget about the correctly received data. Otherwise, the packet would be retransmitted as often as needed until a reception confirmation is sent back. The order in which the individual data packets are received is not important – they will be placed in the proper order by the receiver.

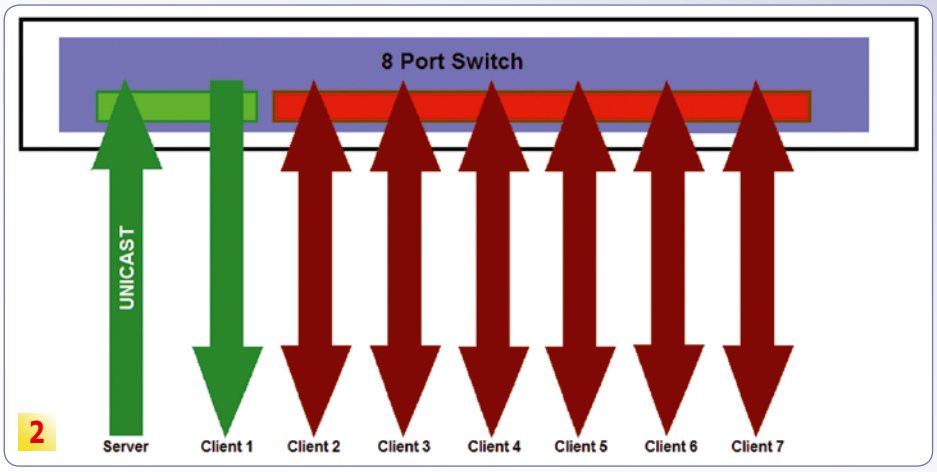
You can look at TCP as an amateur radio communication between two Hams: the first Ham transmits a lengthy message and after each sentence waits for the second Ham to signal that he received the message by saying „Roger". If he didn't understand it the first time, the first Ham repeats the transmission.

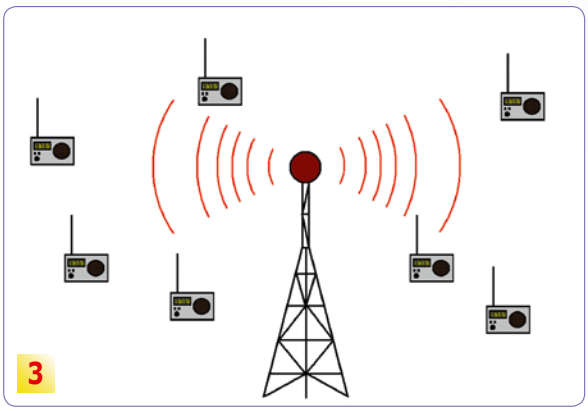
This protocol is ideal for data transmissions; it guarantees that the data arrives correctly and in one piece. For live video and/or audio transmissions this protocol is not as ideally suited. There are two problems:

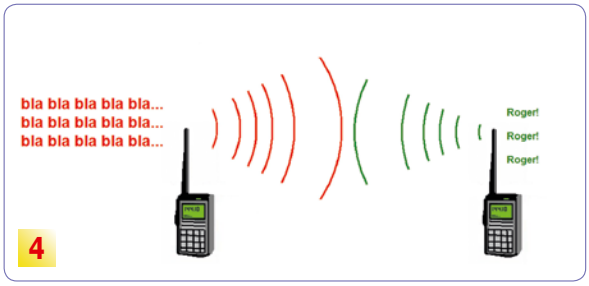
1) The video (or audio) has to arrive in the correct order. What good would it do if the third frame, for example, is lost and after the seventh frame the whole thing is repeated?

2) The checksum process is redundant. If the image data of a frame doesn't arrive correctly, it would be too late the retransmit that frame.









1. Schematics of a MULTICAST transmission. The server sends one stream to the switch. The transmission is then forwarded to all connected devices.

2. Schematics of a UNICAST transmission. The server sends one stream to the switch, but this time the stream is only forwarded to one specific client. Notice how the remaining ports are fully available for other communications.

3. Analogy of UDP: one transmitter sends information, regardless of how many listeners there are. Also, there is no feedback to the transmitter. If a listener misses a part or if he cannot correctly receive the transmission, there is nothing to do about it – the transmitter will never know!

4. Analogy of TCP: one transmitter sends information to one listener. The reception of every sentence has to be confirmed by the listener. If he missed the sentence or if he did not understand it clearly, the transmitter will send the sentence again.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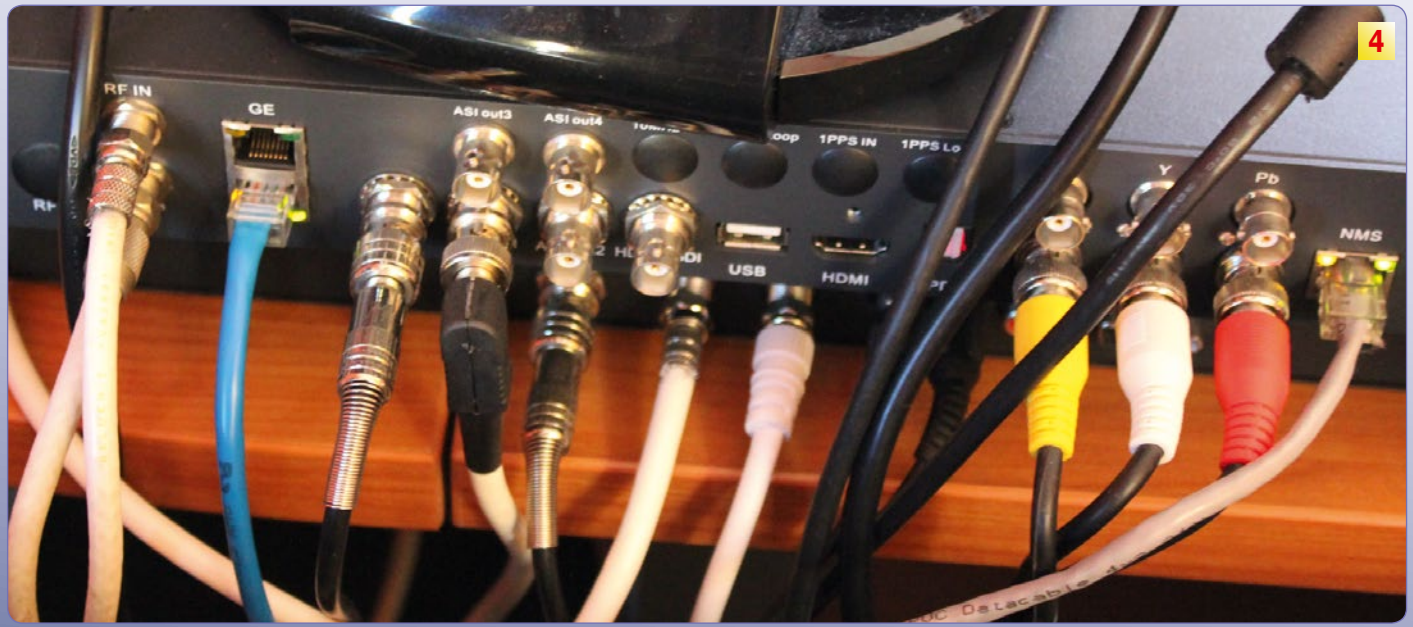
Because of these reasons the UDP protocol is much better suited for live transmissions of audio and video. In this case we're dealing with a greatly simplified protocol in that the data packets are sent without a checksum. Aside from that, the transmitter is not looking for any kind of return signal from the receiver. And in Multicast mode the transmitter really doesn't care who's on the receiving end.

Analog to UDP could be compared to a radio broadcast: the DJ reads the news aloud and has no idea who's listening, no idea how good the reception is and no idea if the listener understood everything that was said.

Unlike TCP, with UDP you

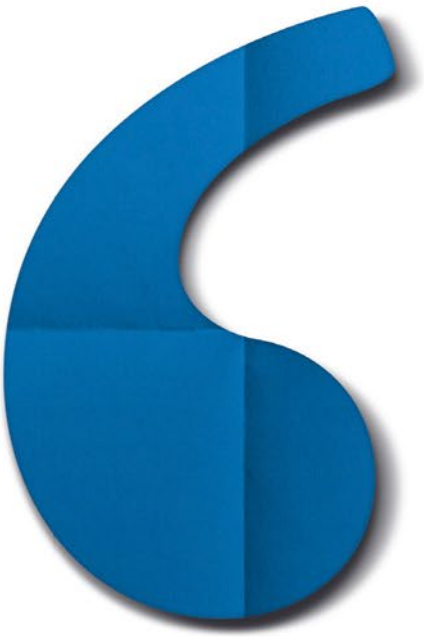


1. DekTec DTE-3137 in action. Amazing how much performance has been fitted in such a small device – yet, it can inject a complete DVB-S/S2 transponder into the network.

2. In order to be able to work with IPTV, we had to get ourselves a gigabit switch. These are very cheap now, so there is no excuse to keep struggling with 100MBPS technology.

3. The Dexing NDS3975 in action: it is receiving three transponders (one from its internal tuner, one from the Topreal TP-1011 through ASI and one from the DekTec DTE-3137 through IP). It then multiplexes a new transponder which is output through ASI and IP (on a different IP). Amazing!

4. This picture shows one clear advantage of using only IPTV within a studio or head-end station: notice the blue network cable – this single cable is enough to transport all required information. Actually, all other cables could be removed (except for the LNB-cable, in case you want to use the internal tuner).



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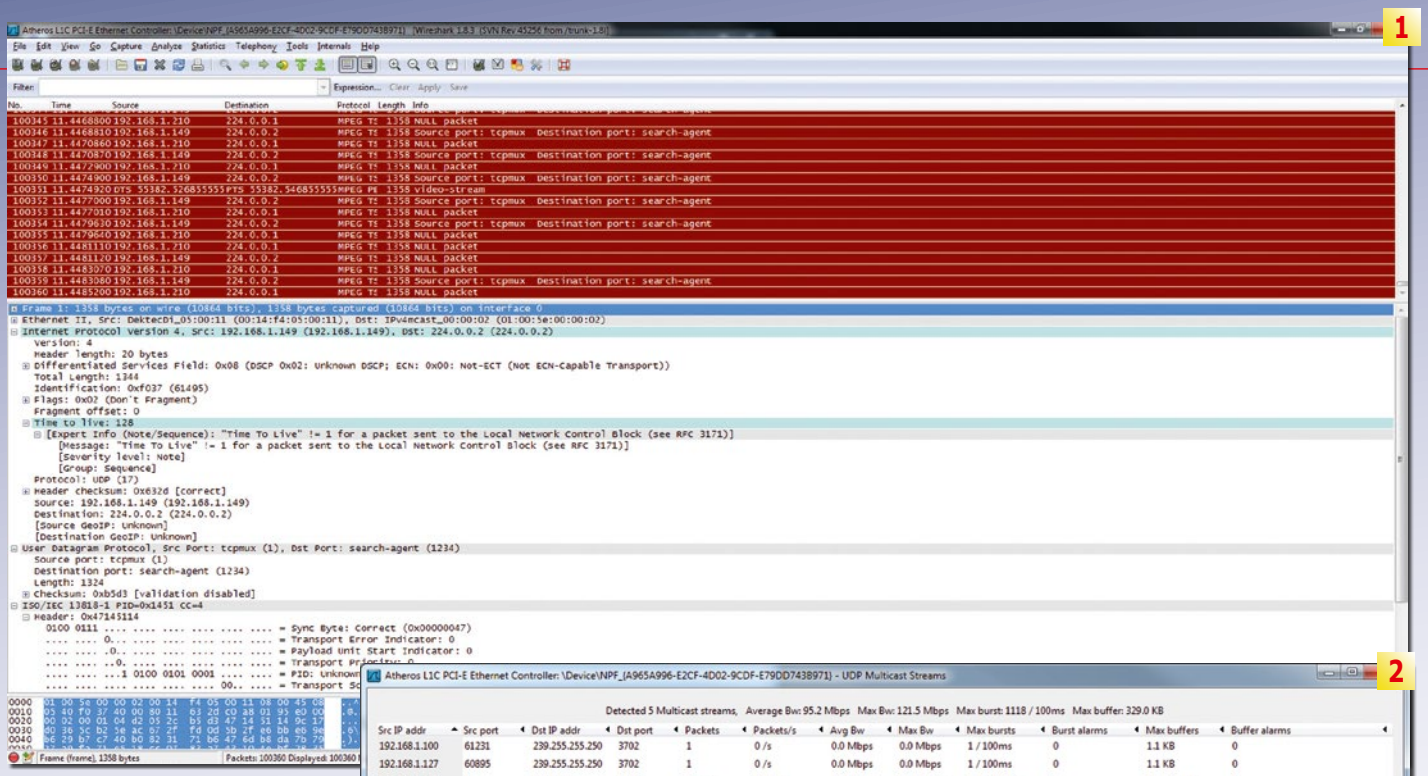

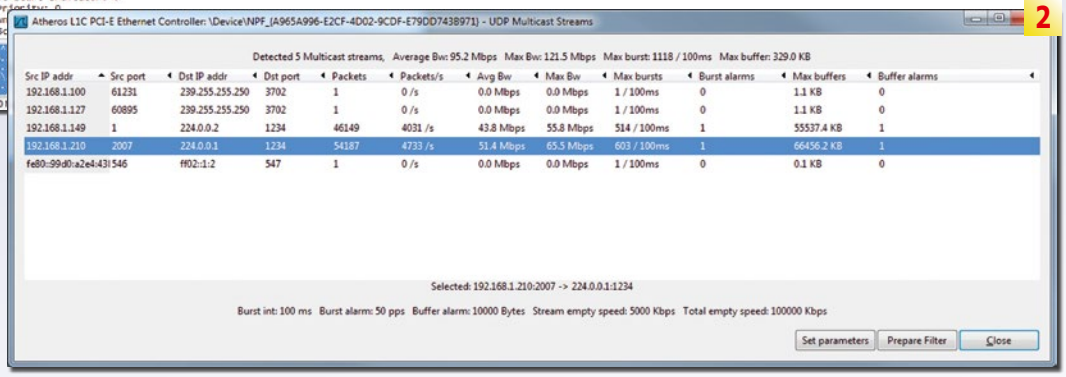

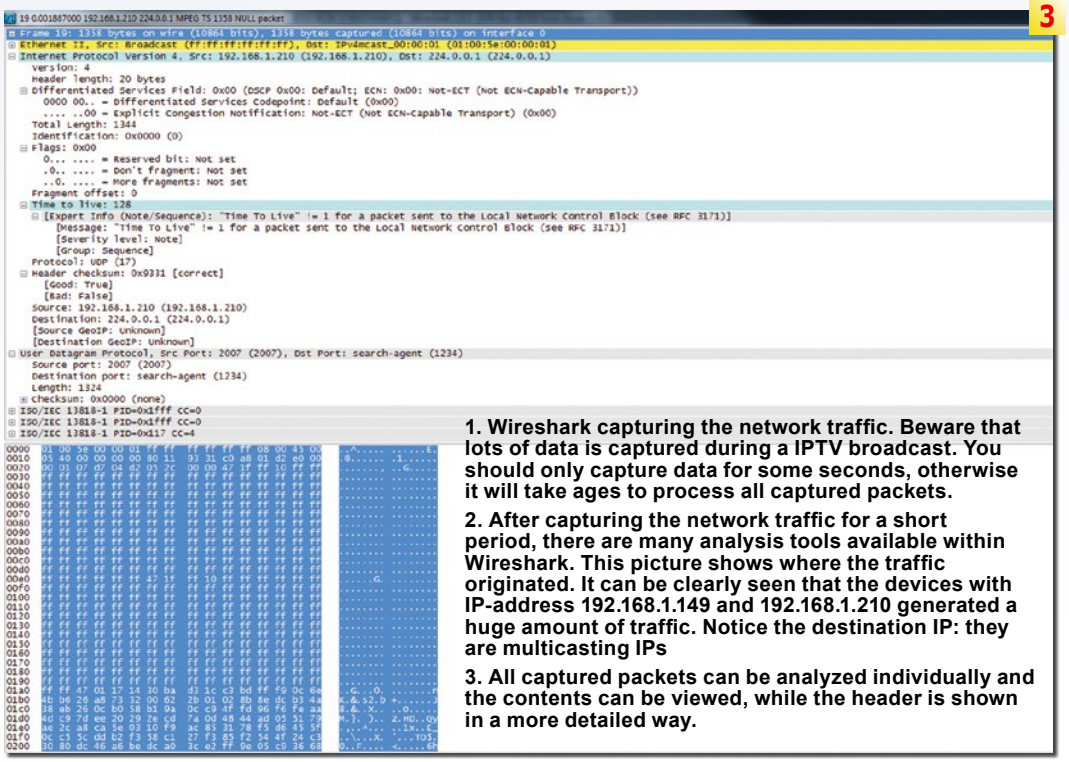

1. Wireshark capturing the network traffic. Beware that lots of data is captured during a IPTV broadcast. You should only capture data for some seconds, otherwise it will take ages to process all captured packets.

2. After capturing the network traffic for a short period, there are many analysis tools available within Wireshark. This picture shows where the traffic originated. It can be clearly seen that the devices with IP-address 192.168.1.149 and 192.168.1.210 generated a huge amount of traffic. Notice the destination IP: they are multicasting IPs

3. All captured packets can be analyzed individually and the contents can be viewed, while the header is shown in a more detailed way.

should make sure there is a reliable network connection between the transmitter and receiver, otherwise the broadcast won't be reliable.

RTP on the other hand is not a fundamental protocol like TCP or UDP. On the contrary, RTP is a protocol layer based on UDP. This means that as a basis UDP is always used for RTP. RTP offers a number of functions that greatly improve live audio and video transmissions:

- Data identification
- Time stamps for audio/video synchronization
- Maintaining the order of MPEG frames
- Special handling of MPEG key frames

This just goes to show that RTP should be used whenever all the devices involved support this protocol.

With Multicasting an audio/video stream is simply transmitted without any particular receiver in mind. This transmission is routed to all users by the network and it's up to the users to decide if they want to receive it or not. Obviously this is extremely practical if more than one user wants to receive the same stream. As many users as desired can tune in without the need for additional network bandwidth between the transmitter and the switch.

Since the switch has to process numerous data packets, it could very quickly become overloaded when dealing with a cheap SOHO product (Small Office, Home Office) while at the same time additional data is exchanged between users. If, for example, User 2 doesn't want to take part in Multicasting and would rather send a large file to User 3, it could happen that the flow of this data transmission is reduced to a snail's pace or it might not function at all.

To utilize Multicasting, with regard to the IP destination address it would be good enough to configure using any IP address from 224.0.0.0 to 239.255.255.255. This address range would be used by all of the Multicast de-

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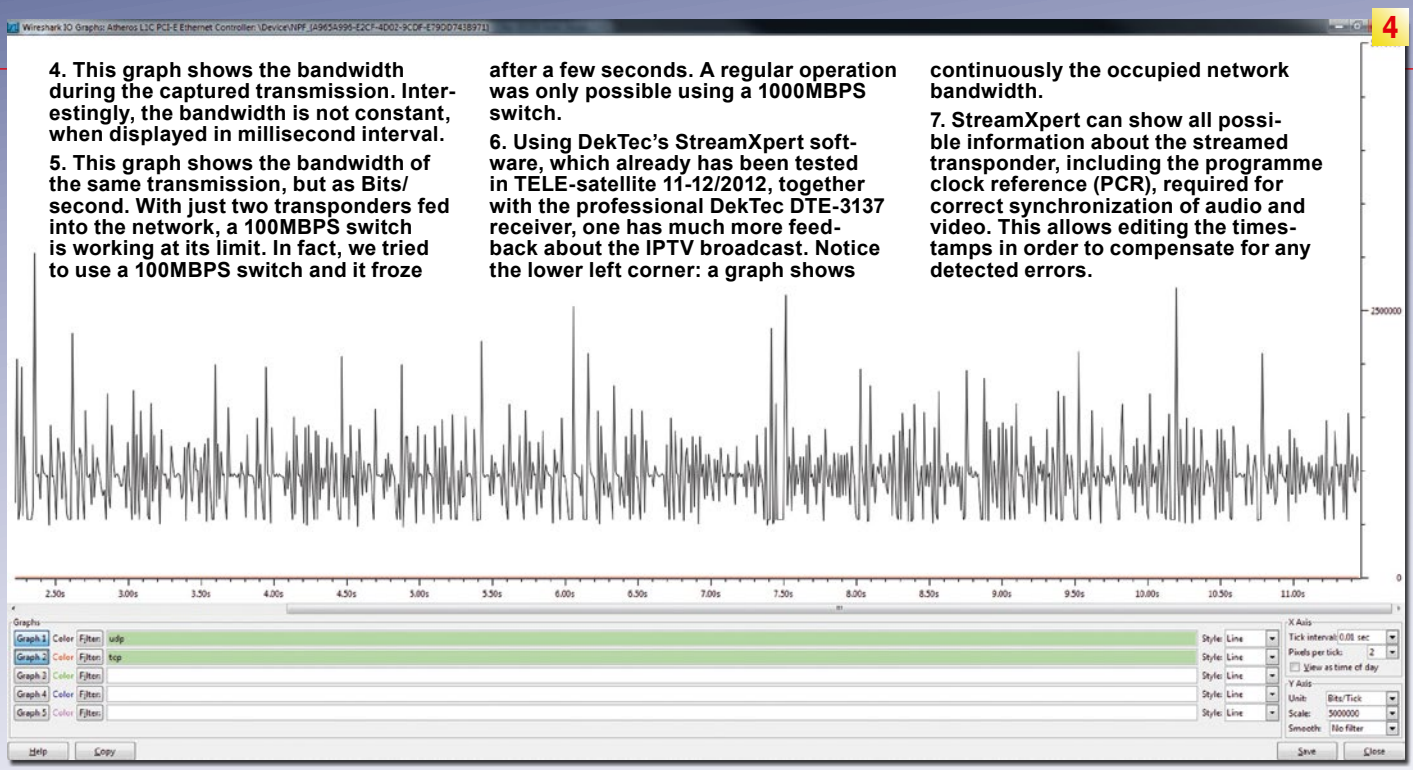
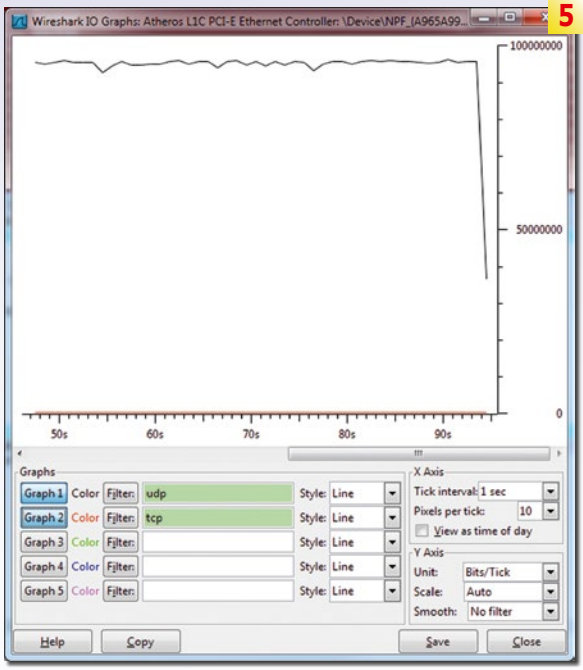


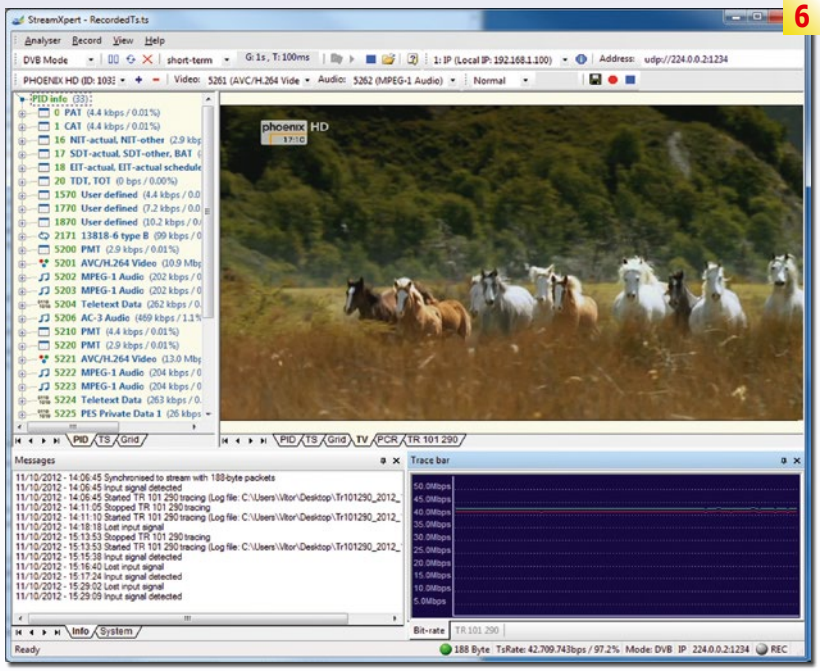
4. This graph shows the bandwidth during the captured transmission. Interestingly, the bandwidth is not constant, when displayed in millisecond interval.

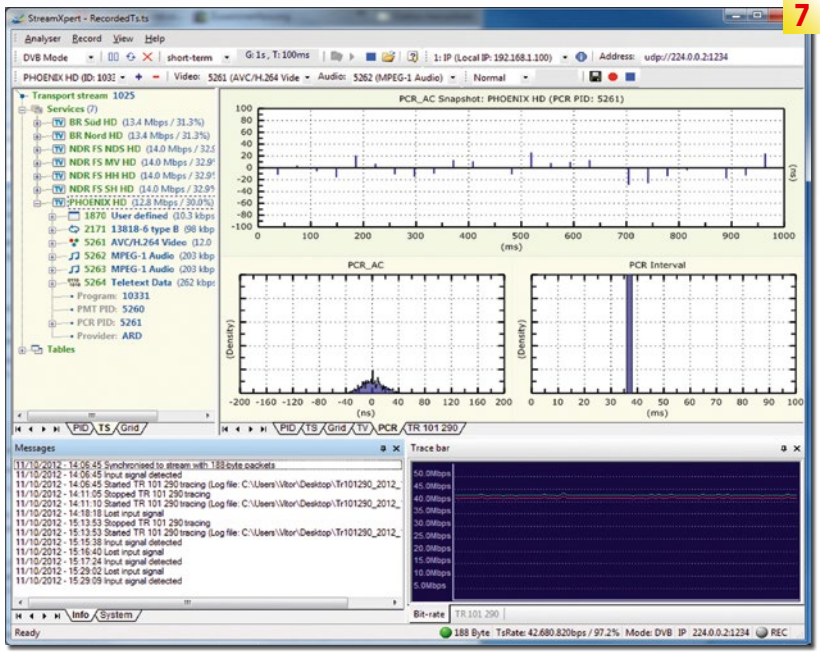
5. This graph shows the bandwidth of the same transmission, but as Bits/second. With just two transponders fed into the network, a 100MBPS switch is working at its limit. In fact, we tried to use a 100MBPS switch and it froze after a few seconds. A regular operation was only possible using a 1000MBPS switch.

6. Using DekTec's StreamXpert software, which already has been tested in TELE-satellite 11-12/2012, together with the professional DekTec DTE-3137 receiver, one has much more feedback about the IPTV broadcast. Notice the lower left corner: a graph shows continuously the occupied network bandwidth.

7. StreamXpert can show all possible information about the streamed transponder, including the programme clock reference (PCR), required for correct synchronization of audio and video. This allows editing the timestamps in order to compensate for any detected errors.







vices.

Note that Multicast is not only used for IPTV; it is used whenever the same data needs to be sent to multiple computers, such as, when multiple computers need to be installed all at the same time via a network. That's how IT professionals, for example, in universities or large company's install an operating system on hundreds of computers all at once.

With Unicasting however, the stream - unlike Multicasting - is sent to one specific receiver. This has the advantage of not loading down the network for all the remaining users allowing data traffic to function normally. The data is routed in the switch between the inputs of the servers and the users while the remaining switch ports remain free.

The disadvantage is the fact that for every additional user the stream would have to be individually retransmitted. In no time at all the network bandwidth

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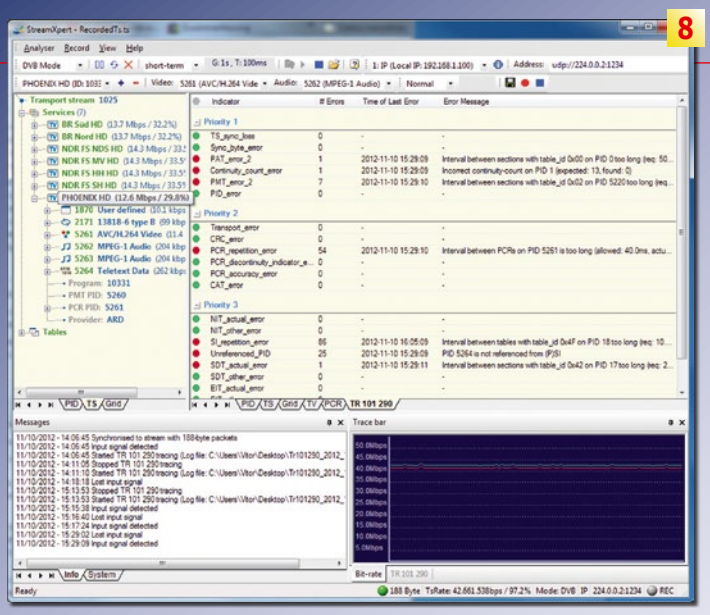

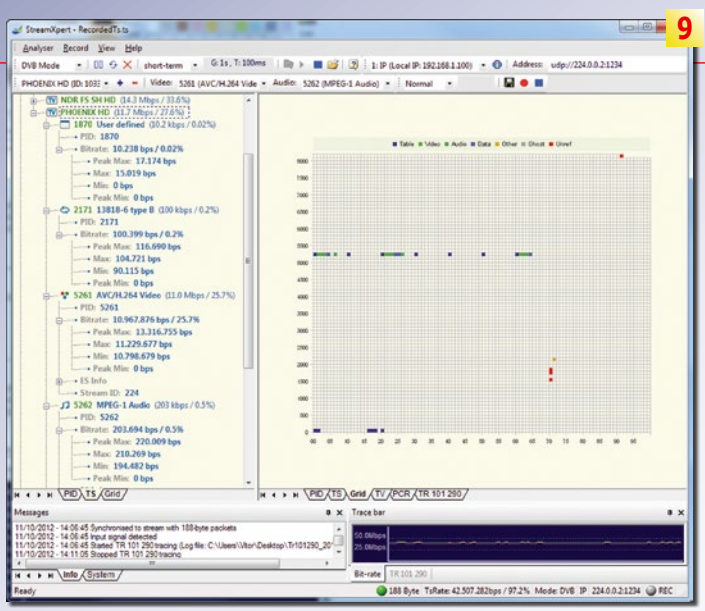

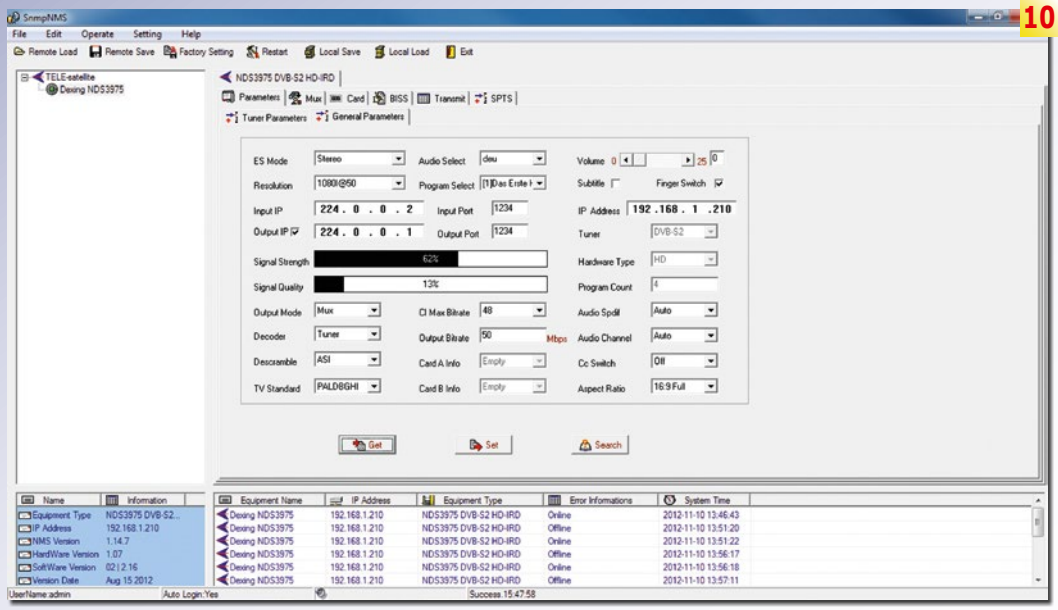

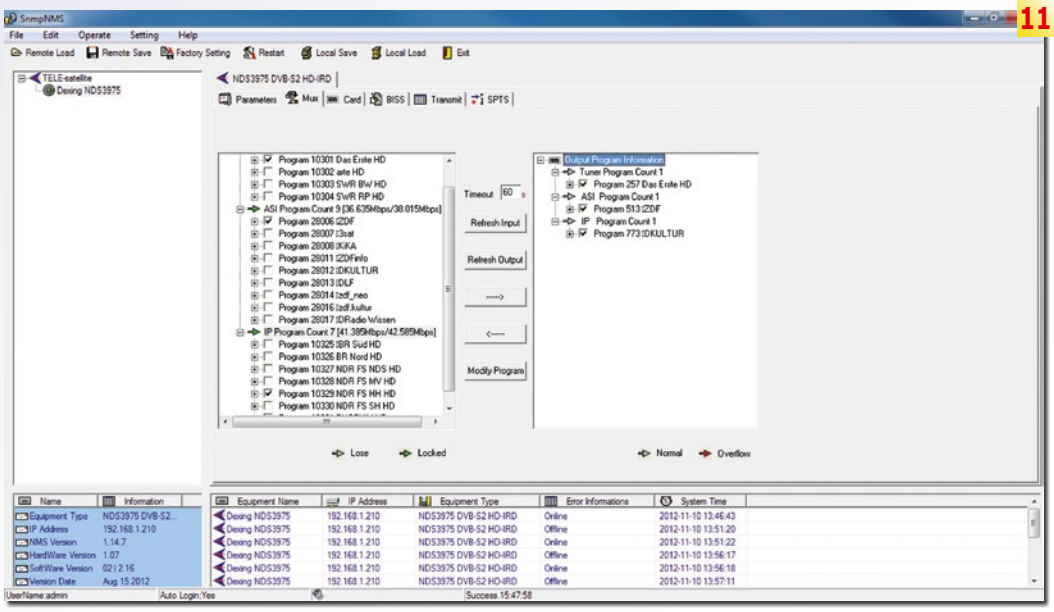

8. Despite having a perfect picture, StreamXpert indicates some errors in PAT and PMT. Interestingly; these were already present in the original DVB-S stream...

9. Useful information provided by StreamXpert: the grid view, where all active services within the stream are mapped according to their PID.

10. Meanwhile, we monitor our Dexing NDS3975 with the SnmpNMS management software. This application gives us remote access to the internals of this integrated professional receiver.

11. On the Mux-tab, we can specify which channels of the three different incoming transponders (through the internal tuner, ASI-in and IPTV) we want to output.

would reach its capacity and it's especially the connection from the server to the switch that would need to withstand enormous amounts of data.

The question often arises if IPTV should be operated at 100MBPS or would it be better at 1000MBPS (also referred to as 1GBPS or 1GBit/s). It's not an easy answer; it depends ultimately on how you want to use IPTV and the network. When different receivers will only route single transponders to one or more multiplexers, then for the most part a 100MBPS network would suffice. Quite often professional receivers only operate via a 100MBPS interface; in view of the fact that the bandwidth of common DVB-S/S2 transponders transport data on average at 50MBPS, this would be sufficient.

All the IPTV receivers we know of also operate on a 100MBPS network interface. Why then would you want to upgrade to a 1000MBPS infrastructure? The simplest explanation is this: if cars could only drive at 55 MPH, then in principle single-lane roads would be good enough. But if there are a large number of cars all on the road at the same time, then a multi-lane highway would be much better even though the cars would be moving no faster than 55 MPH. A 100MBPS switch is designed for this speed and would fall to its knees if all the ports would suddenly demand high data transfer rates at the same time. A 1000MBPS switch is

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simply able to handle much more data internally.

If you want to provide IPTV to a community, a hotel or a home where the network would be used for other services (Internet, File sharing, VoIP, etc.), then we definitely would recommend a 1000MBPS network. In today's day and age this is considered standard and upgrading from a 100MBPS network to a 1000MBPS network should not really present any problems if the cables already in place are CAT-5e or CAT-6 types. If this isn't the case, the existing cable should be replaced with CAT-6 cable. The switches would also have to be updated and you should make sure that the network adapter on older computers can also handle 1000MBPS.

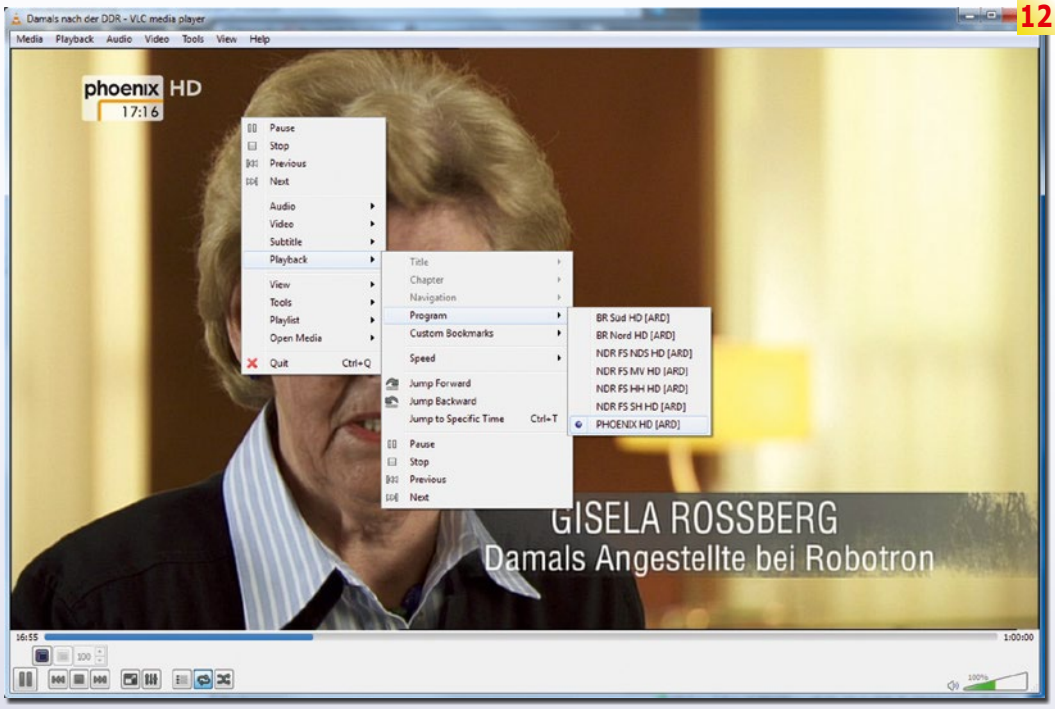
To get an overview of the network, it would pay to install a Network Monitoring Program, also called a Network Sniffer. These programs log all packets that are sent on a network.

In order for this to be technically possible, special software, known as WinPcap, needs to be installed. WinPcap places the computer's network card in „promiscuous" mode in which the network card accepts all packets, not just those that are specifically meant for that computer, but all of them. Additionally, WinPcap provides an interface for applications to gain access to these data packets.

The most well-known and most popular network monitoring program is Wireshark. The basic requirement is WinPcap and with that all of the data traffic can be logged. In this way it's easy to recognize which IP addresses from which computers are requesting which data packets. It's also easy to identify if network multicasting is in use, how much bandwidth is being used, etc. And the good news? Both WinPcap and Wireshark are free.

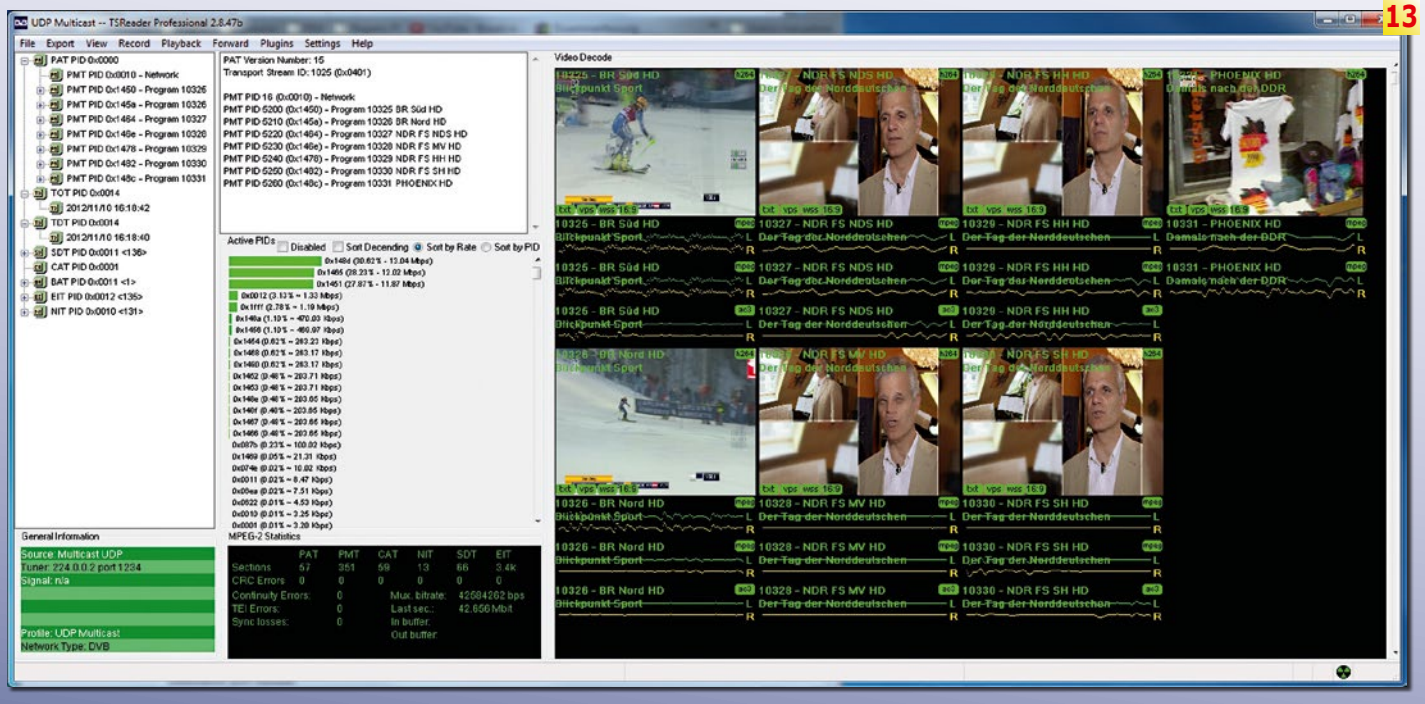
Whether in a studio or in a headend, IPTV has established itself as an omnipresent solution for the distribution of audio and video signals. There are many advantages regardless if IPTV is used for the internal distribution in a headend or for the direct feed to an end user.

Just the fact alone that all data can be sent over a single cable makes it worth utilizing this technology.



12

12. To check our IPTV streams within the network, we use VLC.



13

13. TSReader Professional is an excellent tool when it comes to analyze transponder streams. Instead of just rendering the channel, TSReader shows all PIDs and their respective bandwidth.

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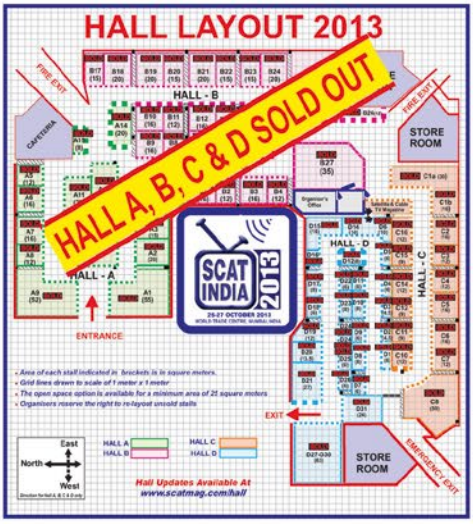

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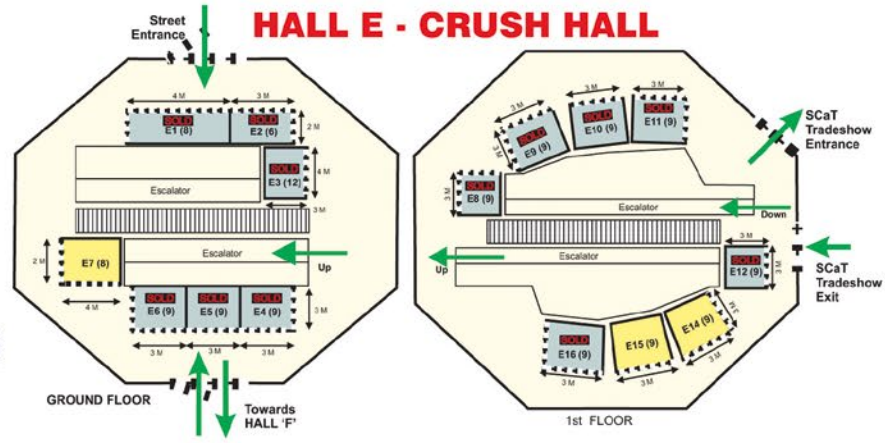

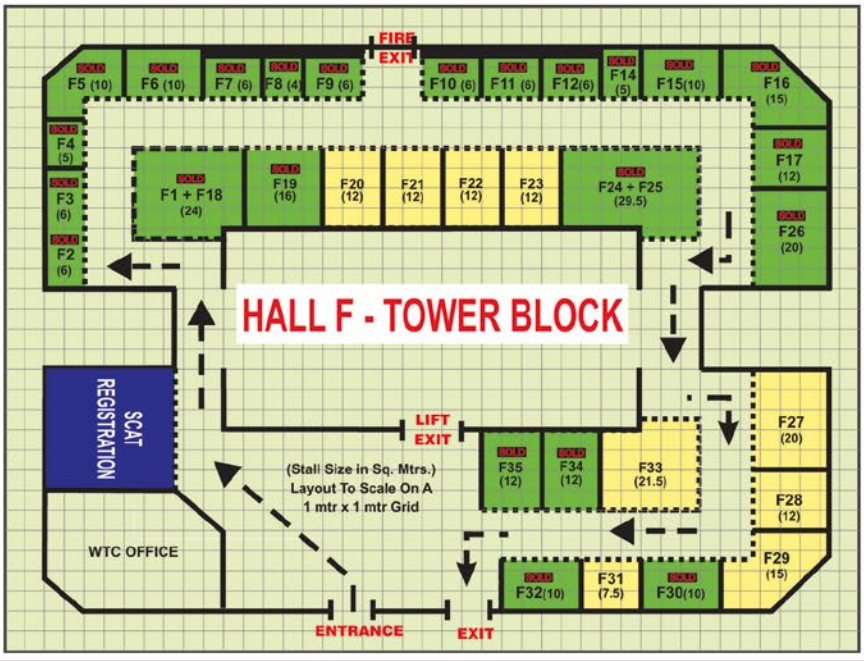

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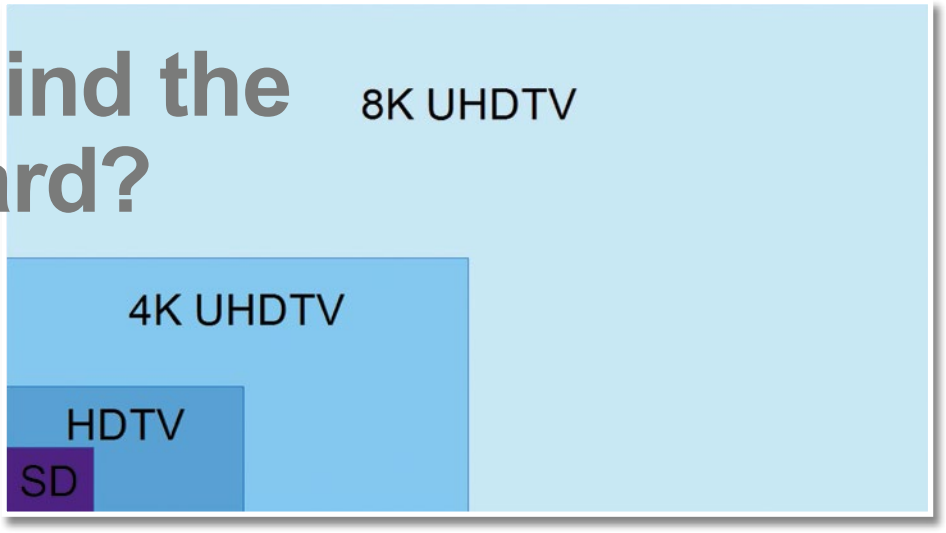
UHDTV
Ultra High Definition Television

What's behind the new standard? Is it even a standard?

Jacek Pawlowski



■ **Comparison of the TV screens for different resolution standards.**

We all are familair with High Definition Television. HDTV uses picture resolutions of either 720p, 1080i or 1080p. The first two are used for broadcasting TV via satellites while the last one is mostly used with Blu-ray discs. A HDTV video signal has either 50 or 60 picture frames per second. If a complete picture is sent in every frame, the letter "p" is added after the resolution figure (720p or 1080p). If only half the horizontal lines are sent in one frame (only odd number lines, then only even number lines and so on), the letter "i" depicts such interlaced video.

Most of the contemporary satellite TV receivers upscale any 720p or 1080i video signals to 1080p and then output the video to your living room TV. Now, if we focus on the best version of HDTV – 1080p – it has a picture resolution of 1920 x 1080. The new 4K UHDTV standard has doubled the resolution in both axes to 3840 × 2160 while the 8K UHDTV has even quadrupled it: 7680 × 4320. The best way to realize how big an improvement UHDTV introduces is to look at our simple picture showing TV screens for different standards but the same pixel size (see picture). Imagine this: 4K is like arranging 4 HD TV-sets in a 2x2 array, while for 8K UHDTV one would need 8 HD TVs arranged in a 4x4 array!

Though resolution is the most obvious improvement over classical HDTV it is by no means the only parameter that has been changed. The other two related to video are: color space and frame rate. UHDTV has a wider color space than HDTV. In particular, UHDTV picture is able to reproduce more deeply red and more deeply green colors which can not be shown by our existing HDTV equipment. In this way, UHDTV is able to reproduce more natural colors.

The standard extends the allowable frame rates up to 120 frames per second. In this way 3D video can be reproduced with up to 60 fps for each eye. 60 fps are typical for North American TV whilst 50 fps is used in most other areas including Europe. Therefore European 3D TV will use 100 fps rather than 120 fps.

Adding to these enormous improvements in video performance, UHDTV also expanded the audio quality. With the new UHDTV standard an astounding 22 audio channels plus 2 low frequency effects channels are possible. The 22 channels are divided into three groups: an upper layer of nine channels, a middle layer of ten channels and a lower layer of three channels. Such complex audio setups can be found at movie theatres and thus with UHDTV this also becomes available to the average viewer.

Of course, the first thing in order to enjoy that big resolution is a UHDTV compliant TV monitor. The best TV manufacturers already offer 4K UHDTV TV-sets with large screen (70" or more). Monitors capable of showing 8K can be seen at the professional broadcasting exhibitions but sofar we know of no such monitor available at regular stores.

Now, what about the sources of ultra HD video? Presently, the choice is extremely small. One model of UHDTV video player has been announced with a few pre-stored movies in 4K format on the internal HDD. Blu-ray Disc Association have just started their work on extending Blu-Ray Disc specification to include 4K Ultra HD video. Similarly, Sony announced that their PlayStation 4 will support 4K resolution but only for photos and videos – not for the games themselves.

And what is going on in the satellite industry? In Europe EUTELSAT has started 4K UHD test transmissions coded with the MPEG-4 codec on EUTELSAT 10A. Quite recently, SES has done one step further and started a 4K channel coded with the newest HEVC (H.265) codec that helped reducing the necessary bitrate down to 20 Mbit/sec.

You do not have to be an expert to realize that 4K UHDTV requires 4 times more bits than HDTV and 8K UHDTVrequires 16 times more bits. This is really a problem because the communication networks have finite throughput rates. HEVC, known also as H.265, can help here as its efficiency is roughly 2 times better than MPEG 4. But even using the best available codec you still need about 20 Mbit/sec for 4K UHDTV and as much as 80 Mbits/sec to broadcast a single channel. And all this for 50/60 fps. If you liked to double the frame rate to 100/120 to transmit 3D UHDTV you would need twice the bandwidth.

It is funny to think that if in the future 8K is introduced to satellite broadcast, one transponder will be carrying a maximum one channel – like in the old days of analog TV.

The list of devices and standards that still have to be developed or extended is long: UHDTV cameras and other studio equipment, HDMI interface, audio equipment, and, of course, all kinds of digital TV receivers: satellite, cable, IPTV and (maybe) terrestrial. New equipment will require new chip-sets and perhaps even new hardware architecture to do the job efficiently.

UHDTV is not backward compatible with HDTV. In other words, your present HDTV receiver will not process a UHDTV channel. Naturally, in the beginning, there will be a scarcity of ultra high resolution programs and many UHDTV channels will be created by up-scaling regular HDTV. We can still remember the first years of HDTV or more recently 3D HDTV – the same will happen with UHDTV.

However, despite all the technology, communication and media problems linked with UHDTV, we strongly believe that the race has started for good and sooner or later we will all enjoy the wonderful ultra high definition pictures in our houses.

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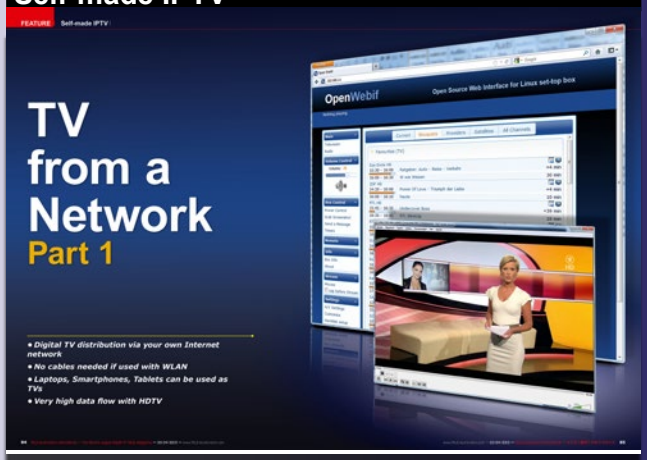

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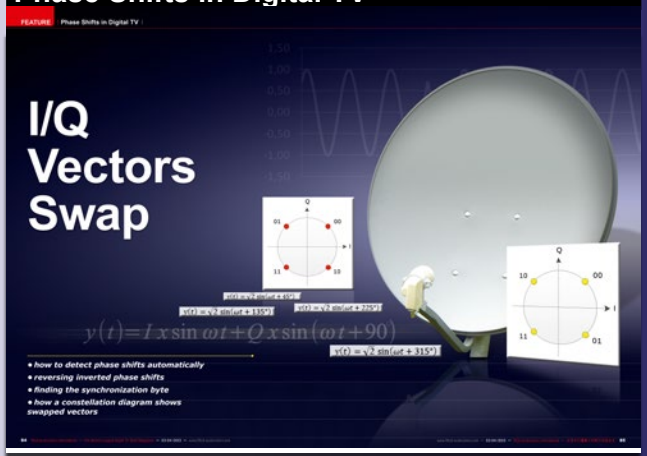

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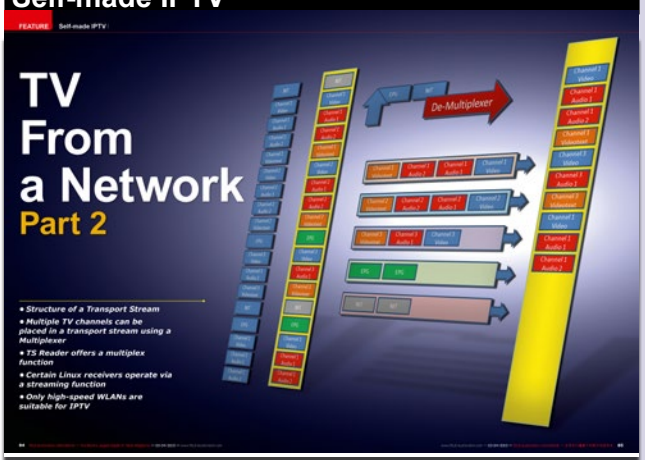

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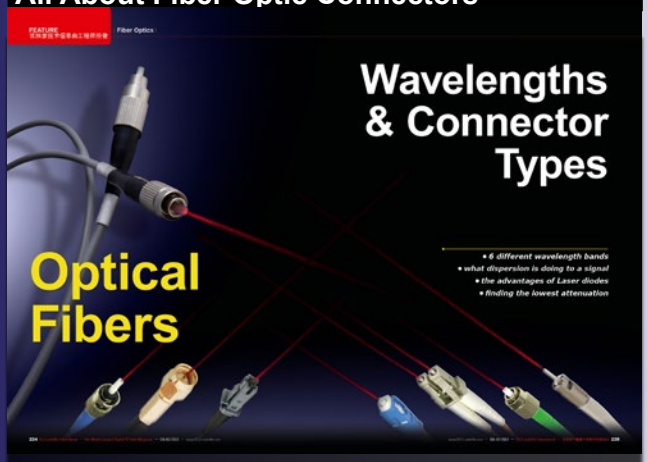

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DVB-S2 MIS Reception with VCM/ACM

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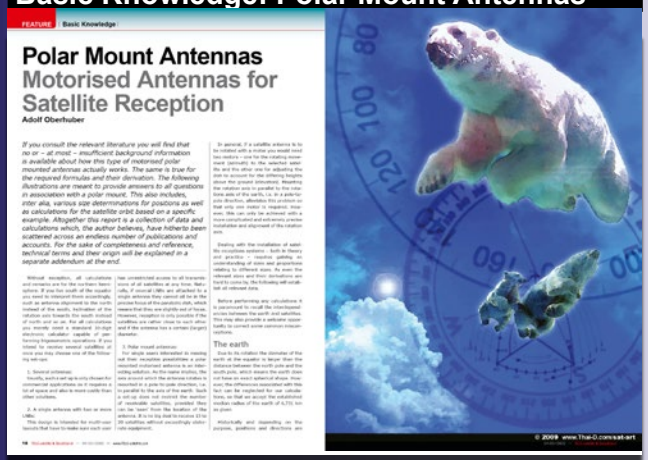
Basic Knowledge: Polar Mount Antennas



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Automatic Creation of 3D

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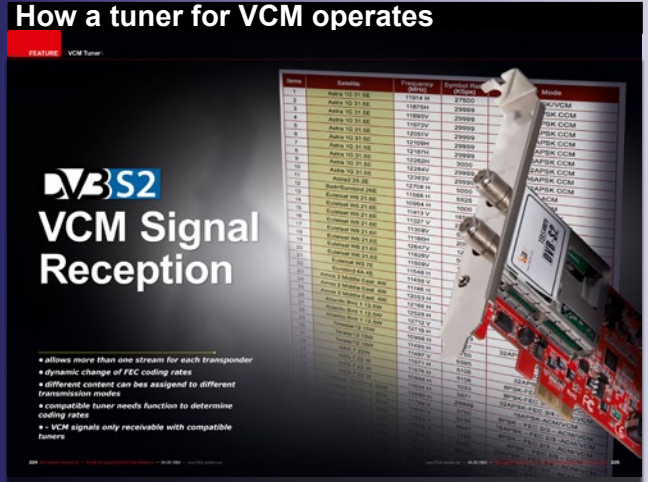
How a tuner for VCM operates



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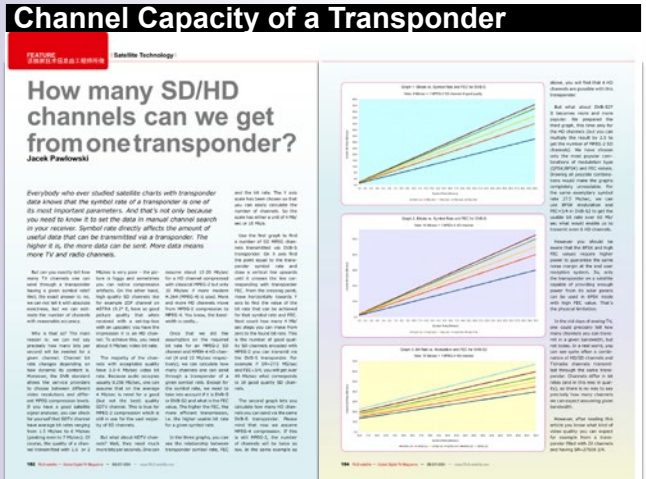
Channel Capacity of a Transponder



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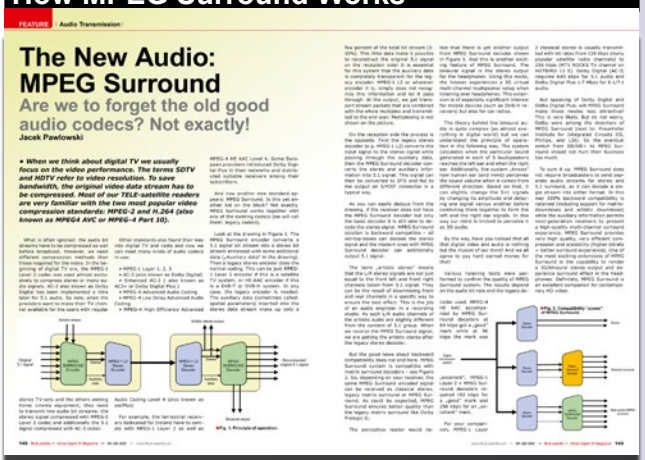
How MPEG Surround Works



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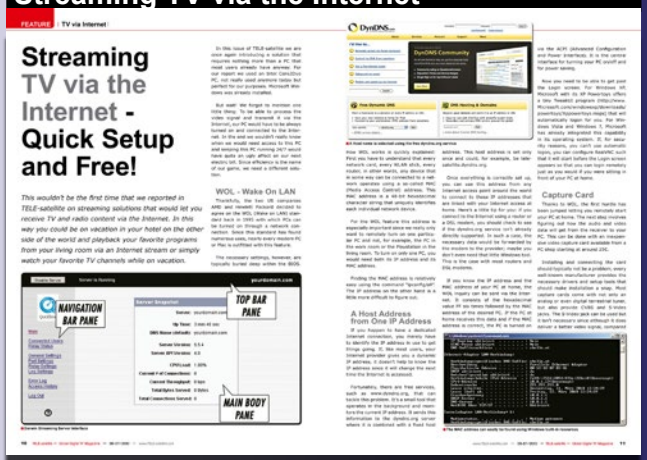

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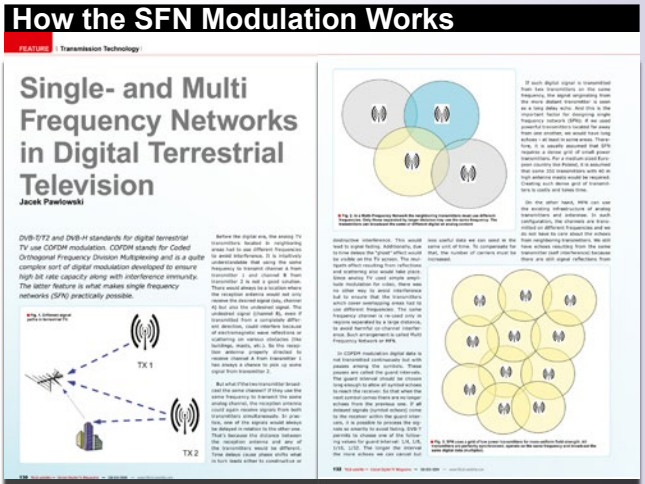

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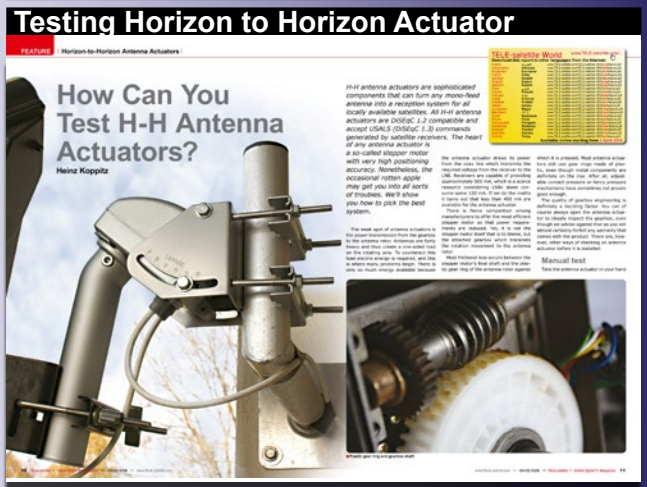

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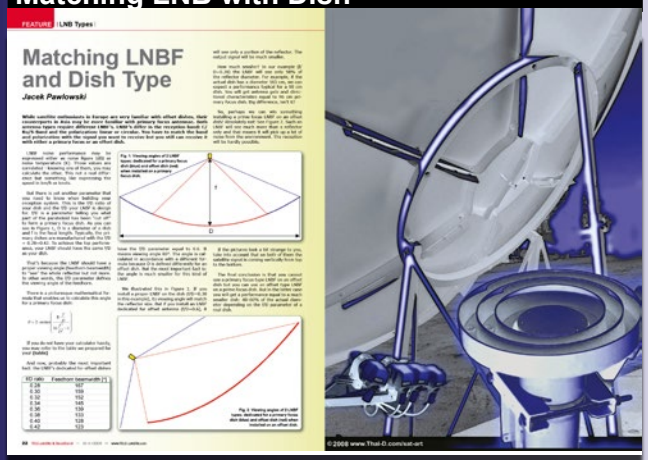
Matching LNB with Dish



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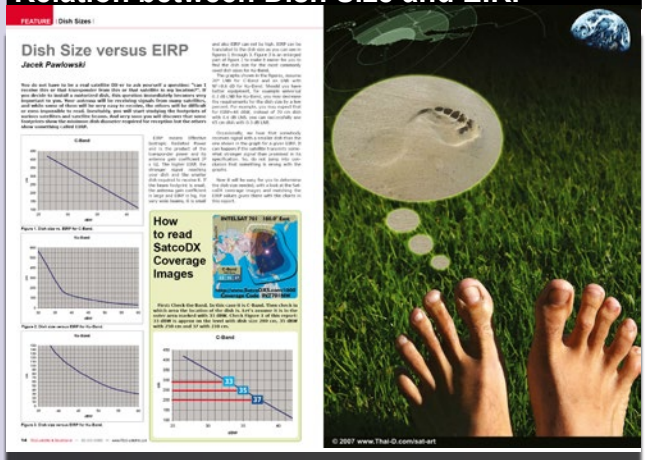

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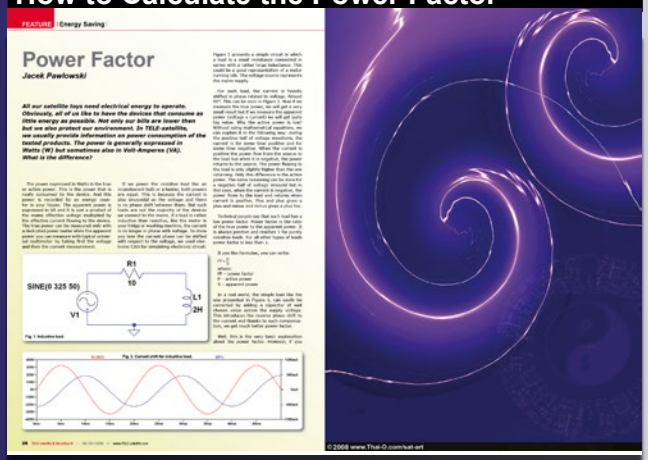

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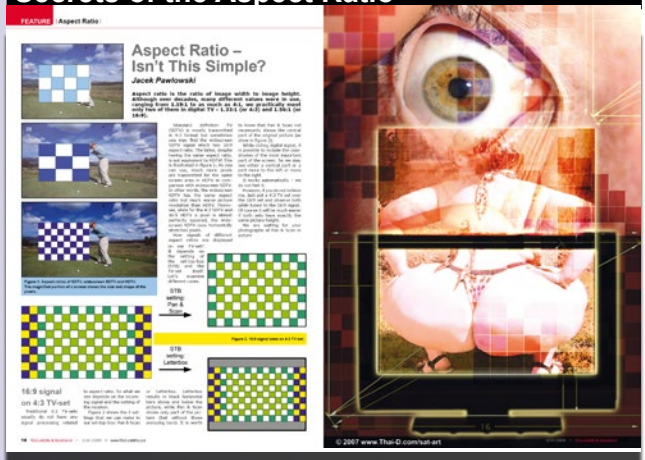

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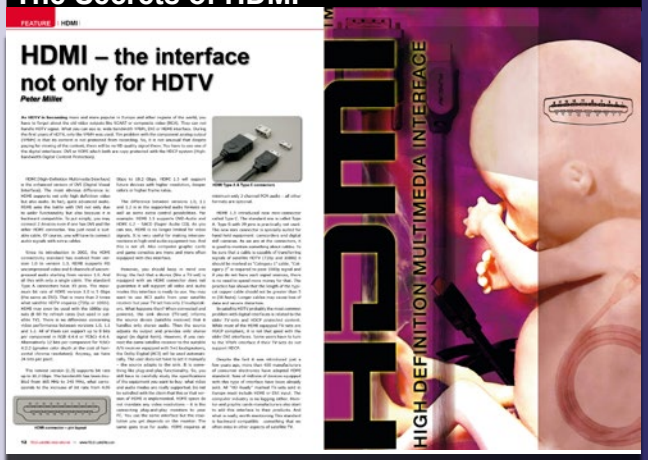

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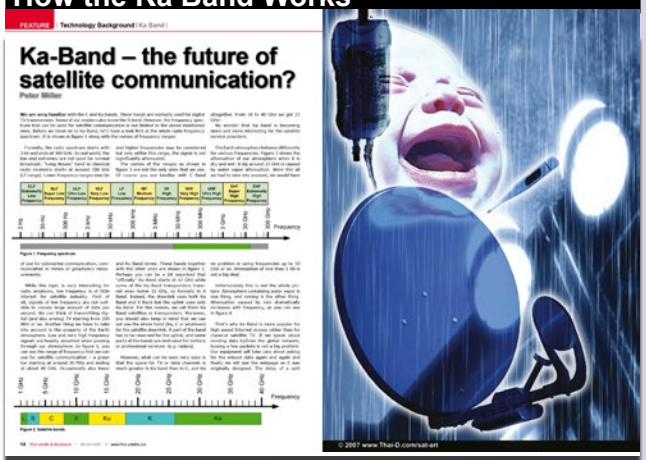
How the Ka Band Works



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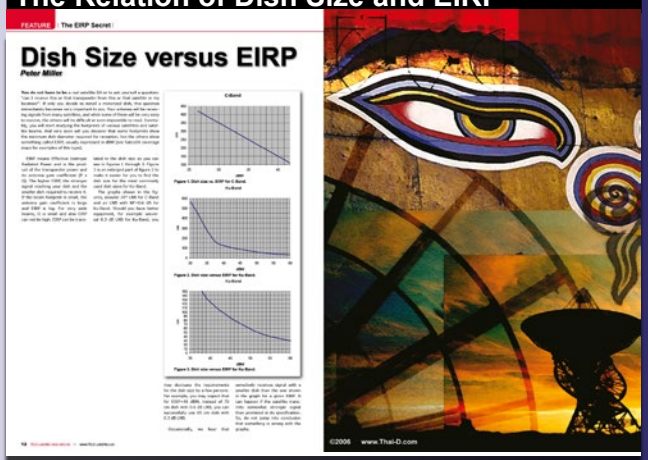

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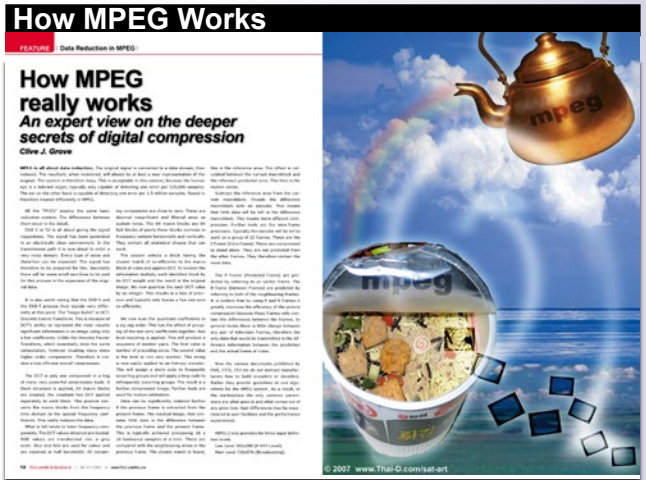

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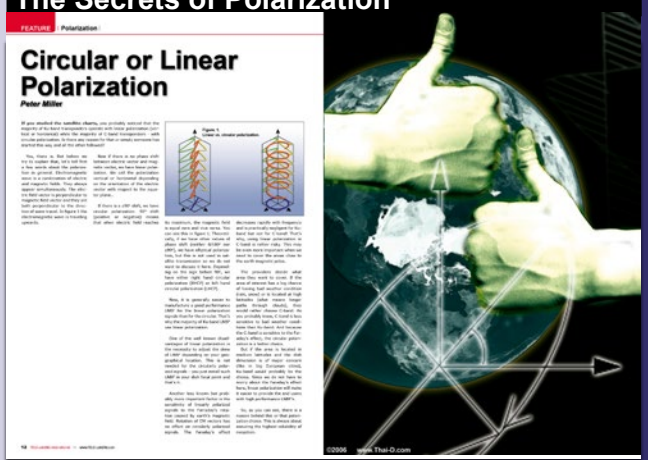

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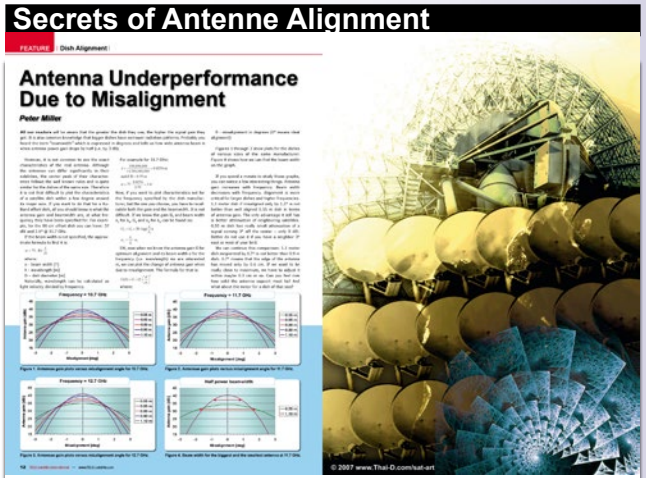

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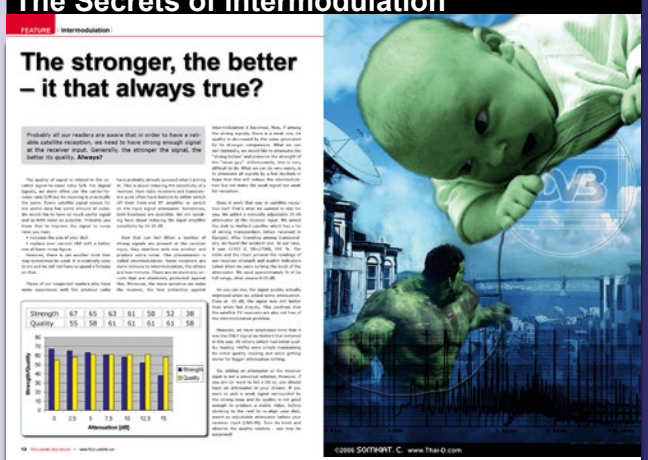

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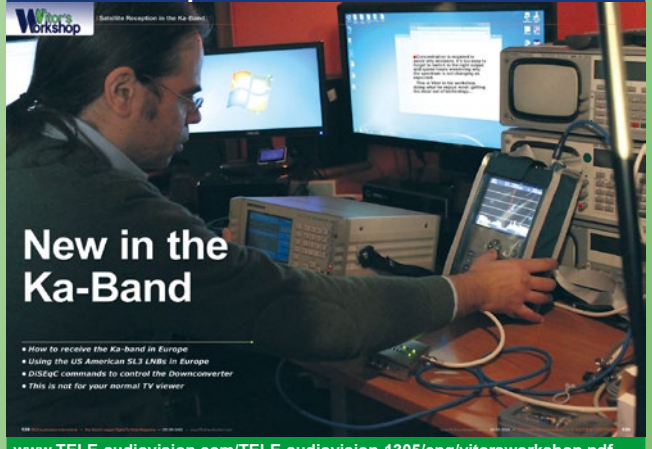

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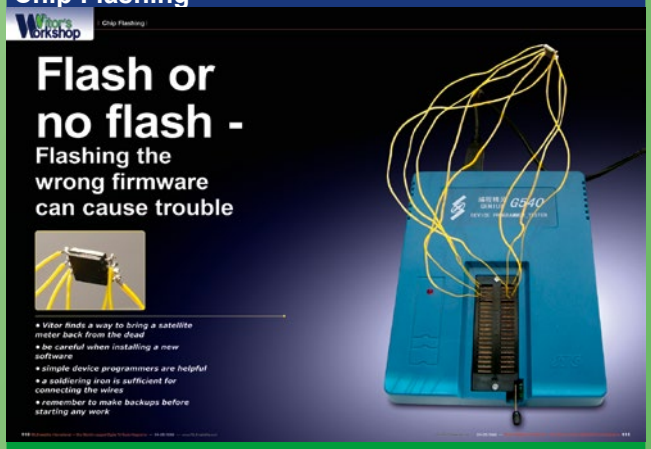

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Hong Kong International Film & TV Market (FILMART 香港國際影視展)
BI 2013

2012 REVIEW

Visitors

Visited by business users from diverse fields

■Registered visitors

31,857

(Overseas visitors:750)

Over 80% of visitors is Involved in the purchase and introduction

Exhibitors

Record high number of exhibitors took part

■No. of Exhibitors

871 companies (Record-High)

■No. of Overseas exhibitors:

491 companies (Record-High)

About 80% of exhibitors is satisfied with participation in Inter BEE

The Professional Information Site for Audio, Video and Communications

Inter BEE online

www.inter-bee.com

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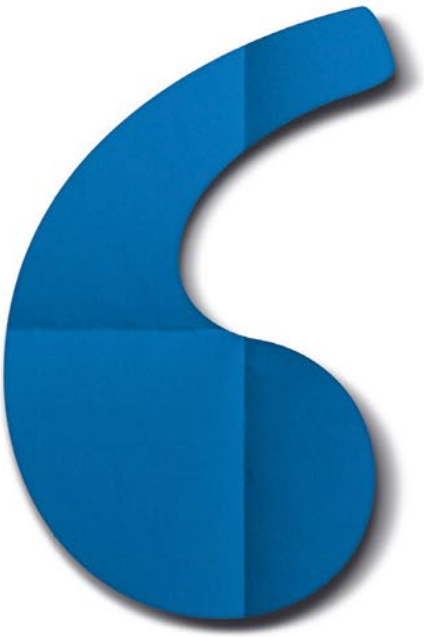

The world is greedy for data.

Social networks, video on demand, OTT apps and smartphones have created a hunger for bandwidth. Where is the extra spectrum coming from- and who's funding the network upgrade?

The 1 conversation that matters

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Bangkok 19-22 November

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Online Pre-registration

www.vietnam-telecomp.com
www.vietnam-internet-it.com
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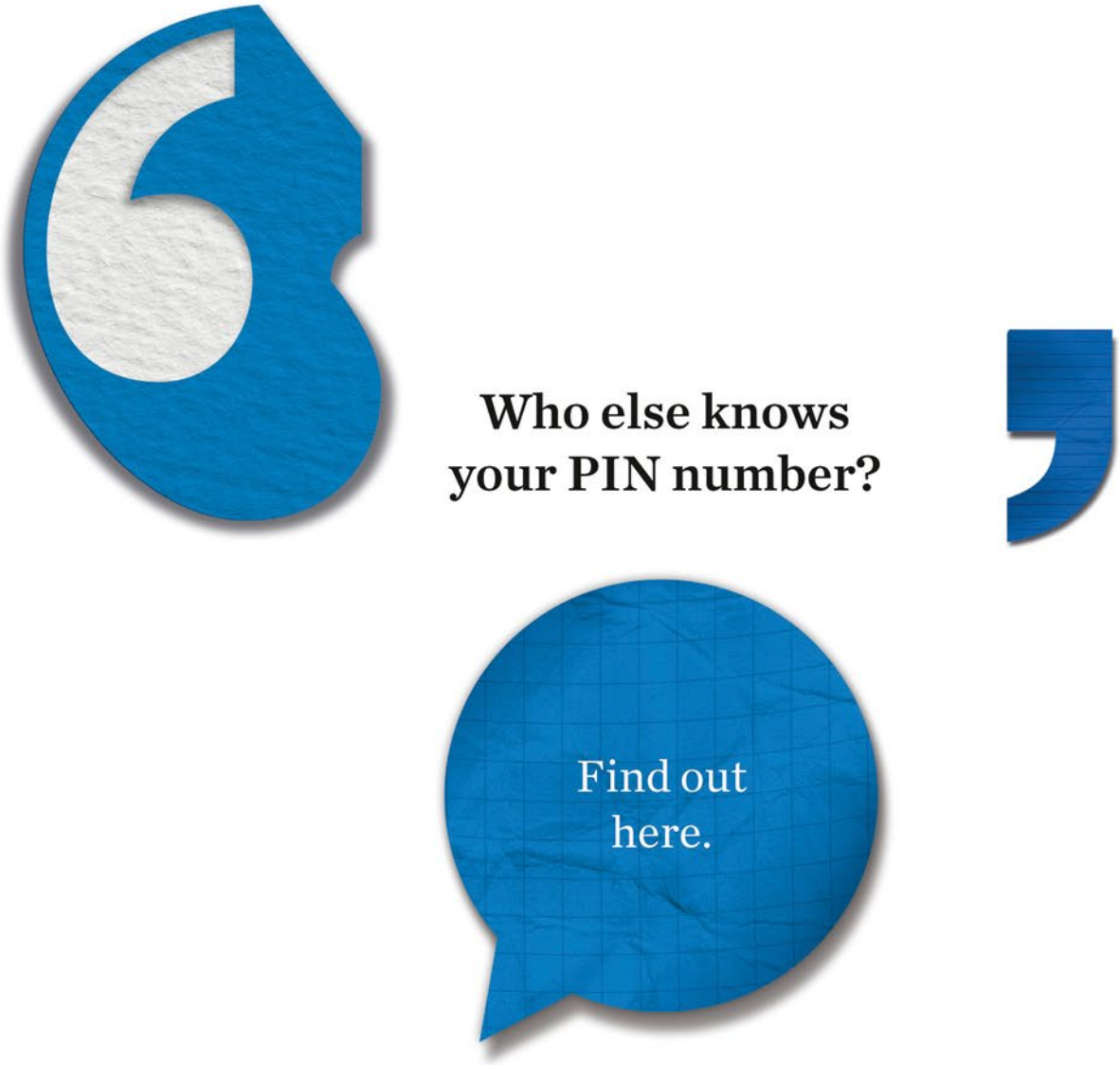

Cyber criminals; government agencies; your next door neighbour. Who has access to your personal data and what can we do to protect, regulate, and securely store sensitive information?

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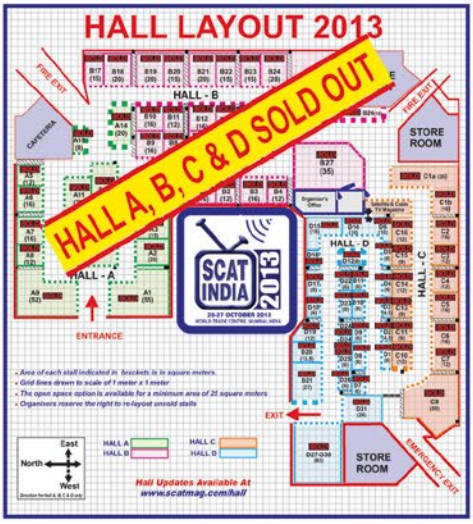

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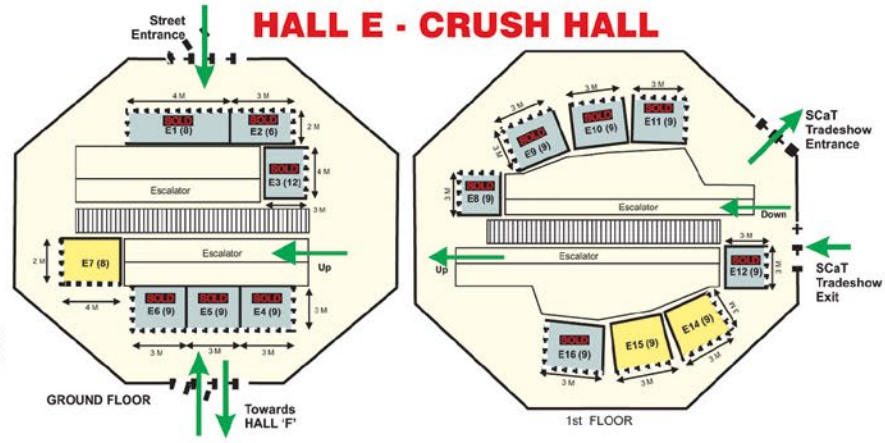

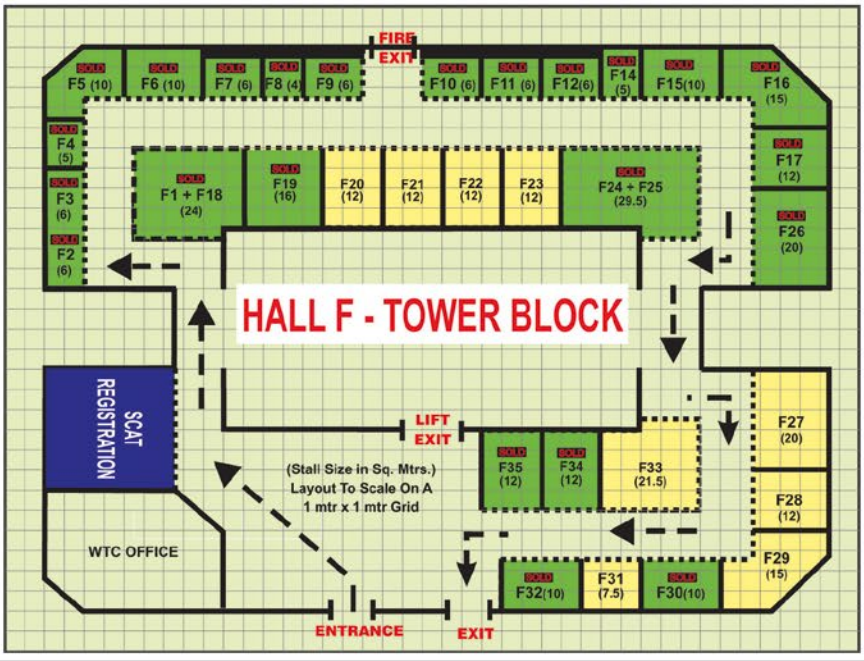

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Tsinghwa GT-278

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Öreind – отмечает свое 25-ти летие

ÖREIND

- ***успешны в сегменте домашней электроники***
- ***всегда в наличии весь необходимый материал для установки антенн***
- ***фокус на IPTV для устойчивого развития бизнеса***
- ***значительных размеров ремонтная мастерская для домашнего электронного оборудования***

■ Looking for Öreind? Simply head to the satellite dishes that are clearly visible in the Kopavogur commercial area. The two partners are currently in the process of refitting the hall to the left into an actual shop for all components required by installers of satellite TV, terrestrial reception systems and IPTV.

Home Electronics Featuring TVs and Antennas

It was October 2013 when small company Öreind (www.oreind.is) celebrated 25 years of business. It takes quite some stamina to surf the wave of success in the fast-paced TV and antenna business – and an intuition for doing things right. Öreind (the Icelandic word for 'particle') is basically a two-men business located in Kopavogur, a suburb of Iceland's capital city of Reykjavik. This is where two smart guys laid the foundation stone of their business, in a place so far north the sun never sets in summer, but never fully rises in winter either.

"We're both repair specialists for TV sets," says Baldur Sveinnsson, one of the two partners. Both had been employed by other companies before they decided to set up their own business. "We repair any home electronics device," Baldur Sveinsson continues. "No matter whether it's a TV panel, audio equipment of any kind or the odd tape-based video recorder that pops up every once in a while." Video tapes? Well, yes! Many people in Iceland still have some old tapes lying around in their basement, and they need video recorders in order to watch them. Simple as that…

The two partners also install antennas and satellite reception systems. "We began to import satellite components from Great Britain and Germany in 1992." In those early days Öreind sold some 50 to

Baldur Sveinsson is one of the founders and partners of Öreind in Kopavogur, close to the Icelandic capital of Reykjavik.

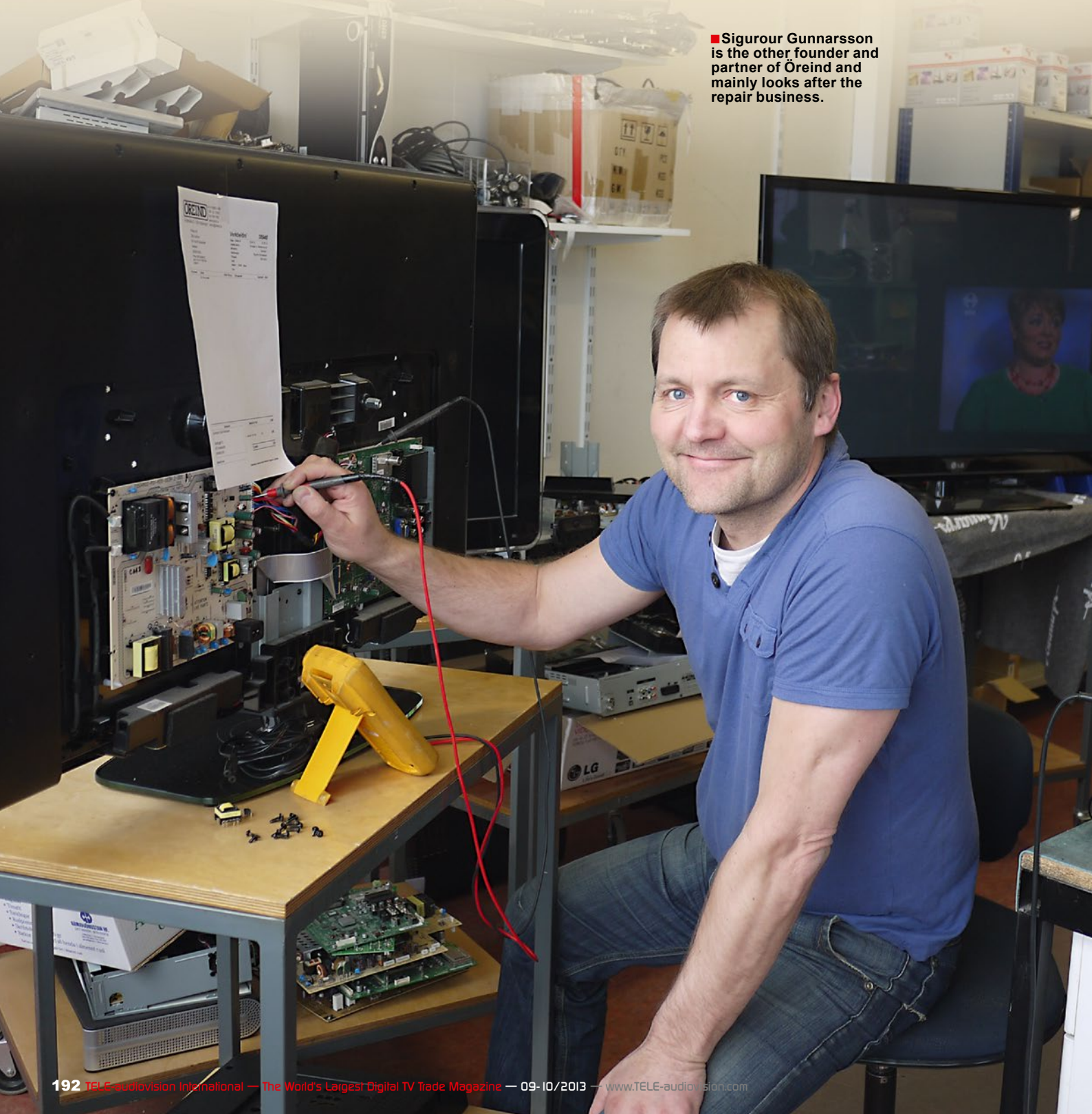
100 complete systems each year. "The pinnacle of our success was in the year 2007. At that time between 300 and 400 satellite systems went over our counter," partner Sigurour Gunnarsson remembers. It was a time when Öreind could even afford two extra employees to meet high demand. "Today we sell some 150 satellite system per year."

The Öreind storage is filled to the brim with installation material, satellite dishes and terrestrial antennas. "We generate approximately 40% of our turnover with satellite components, 10% with terrestrial antennas and 20% with repair work."

What about the remaining 30%? This is the part both partners consider particularly important for the future of their business. "We offer installation material and components for IPTV." While Baldur and Sigurour expect digital terrestrial TV business to pick up again with the introduction of DVB-T2 in Iceland, they both see the future of Öreind in IPTV.

Nonetheless, satellite reception will always remain a major pillar of Öreind. "Here in Iceland the most popular orbital position is ASTRA 28.2°E and even a relatively small 85 cm dish will provide reasonably reliable reception." You will hardly meet an Icelander who does not speak English, so the UK channels on ASTRA 28.2°E are watched by many. "Those of us with an unobstructed view can receive signals from all positions between 42°E and 30°W," Sigurour Gunnarsson explains the local situation in Iceland.

Like so many small businesses, Öreind has experienced many ups and downs in its 25 years of existence, but there's not a single challenge the two Icelanders haven't mastered successfully. With their new focus on IPTV, many new chapters will be written for Öreind.



Sigurour Gunnarsson is the other founder and partner of Öreind and mainly looks after the repair business.

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Cable Television, Multi-Channel Satellite Broadcasting, IPTV, Mobile TV etc.

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- Media industry news

Monthly B-Maga (Broadband Broadcast Business) / Founded June 2002 / Single issue price: 1,500 yen / In Japanese (cover and table of contents in English)

www.satemaga.co.jp

1

3

2

1. The motorised satellite dish on the roof of Öreind is a 1.5 m antenna which receives signals from all positions between 28°E and 30°W.

2. View of the storage: Everything you need for installing antennas (left shelve) as well as satellite dishes in all sizes (right shelve) are always in stock at Öreind.

3. The choice is yours. 14-element UHF antennas are Öreind's top sellers, followed by round dipole antennas for FM radio. But don't be fooled: A huge variety of other antennas is available as well for on-the-spot buying.

4. The future is here: Öreind can supply a wide range of IPTV components such as Ethernet switches.

Changhong помогает со спутниковым телевидением жертвам землетрясения

■ Employees gather in front of the Changhong headquarters in Mianyang (Sichuan province) to make relief goods and satellite equipment ready for dispatch to those affected by the earthquake in April 2013.

- ***Changhong организовывает быструю помощь для жертв землетрясения***
- ***организация поставок для оказания помощи, а также полных систем спутникового приема***
- ***тренировочный центр компании был сделан доступным для школьников***
- ***спутниковое телевидение – идеально для сбора информации, когда наземная инфраструктура полностью разрушена***

Satellite Television

Providing Information for Earthquake Victims

Picture this: A devastating earthquake has not only taken the lives of countless people, but has also destroyed much of the existing infrastructure. All communication channels relying on cables are dead, and power outages are the rule rather than the exception. Yet, this is a time when those affected are in need for information and coordination – how should they deal with the situation, and where can they turn to for help?

Those scenes may sound like straight out of a disaster movie, but this is exactly what happened twice in recent years to residents of the Sichuan region in China. The first terrible quake occurred on 12 May 2008, had a magnitude of 10, and caused more than 20,000 deaths near the city of Wen Chuan. A similarly catastrophic earthquake happened only very recently, on 20 April 2013 in the city of Ya An, which is also located in the province of Sichuan.

In both cases Changhong offered help and assistance immediately. The company is one of the largest manufacturers of TV panels and satellite receivers and provided complete satellite sets to those that were hit hardest. But Changhong did not stop there. According to a company spokesperson "Changhong organised an immediate response team right on the night of the big earthquake in 2008. The group set off to the city of Bei Chuan right away, a place that was almost entirely destroyed. Food, water and tents were supplied by Changhong." Almost all schools in the area were destroyed as well, which is why Changhong converted its own training centre into a makeshift school, so that kids were able to continue their school education in the weeks and months that followed. "Changhong supplied clothing and food to school students and even

organised teachers until regular schools were able to open again," according to the company spokesperson.

When history repeated itself with a second devastating earthquake in 2013, Changhong did not hesitate for a moment to offer its help and assistance once again. In addition to humanitarian aid, the company also provided satellite equipment. "We shipped satellite receivers and satellite dishes to the affected region, as well as TV sets, batteries and sources of light. This way people in need were able to watch the news on satellite channels to find out what's going on around them."

It is extreme situations like the two Sichuan earthquakes that lend living proof to the importance of satellite communication. Fixed-line infrastructure was destroyed or at least out of work, while those affected could still turn to their satellite reception systems to watch the news and – more importantly – find out about help and relief available to them from various organisations and initiatives. Changhong offered valuable relief to people in need and demonstrated yet again that satellite technology, in particular, has countless benefits that are all too frequently swept under the carpet.

■ **Changhong staff have decided to immediately offer help to the victims of the Sichuan earthquakes.**

CHANGHONG

1. Two of the satellite systems donated by Changhong – complete with dish and TV receiver.

2. Satellite cases are prepared for transportation to the disaster zone.

3. On site at the disaster zone: A Changhong employee connects the mobile satellite reception system. Victims are glued to the television to watch the latest news that is broadcast on satellite channels.

4. One of the satellite reception systems was installed in this village. Here too, residents affected by the earthquake watch the news carried on satellite channels to find out more about the overall situation in the area and about help and relief that is on its way.

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Hwadar, China - Fiberglass Dishes

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GM
Wang Dan


General Engineer
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Business Manager
Monica Wang

- one step at a time can lead to lasting success
- extraordinary quality thanks to the use of SMC fiberglass offset, PDA and segment dishes in all sizes can be produced
- supplier of choice even for small purchasers
- guarantees very long service life of its dishes

Deviser, China - Signal Analyzer

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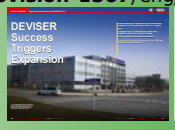

- new company headquarters streamlines production and administration at a single site
- expansion of a dedicated repair and logistics centre in and for Europe
- strong growth in export markets
- state-of-the-art test benches for EMS and overvoltage protection

Dexin, China - Digital TV Head-ends

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QM Qualified


GM
Sun Yu

- Established in 1994 in Chengdu
- Specializes in professional tv head-end equipment
- 50% of their production is exported
- Intense quality controls

Forcetech, China - IPTV Solution Provider

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Sales
Ren Nan


Marketing
Lan Haidong

- offering technically mature and fully-fledged IPTV solutions
- large Chinese movie provider as showcase customer and shareholder
- small-scale IPTV systems can be realised on a tight budget
- excellent video quality thanks to P2P technology

Tianditong, China - Antennas

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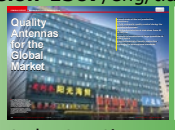

- uses state-of-the-art production machinery
- fully automatic quality control during the production process
- volume production of dish sizes from 45 to 180 cm
- ready for production of large quantities at short notice
- environmentally-friendly production according to international standards

ELDTEC, Brasil - Dish, Antennas and Cables

www.TELE-audiovision.com/**TELE-audiovision-1305**/eng/eldtec.pdf

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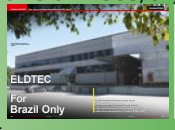

- Large market coverage within Brazil
- OEM production for other brand names
- Concentration on just a few product series
- Also offers antennas for 2.4 and 5.8 GHz (WiFi)

LIANXING, China - Satellite Dishes

www.TELE-audiovision.com/**TELE-audiovision-1305**/eng/lianxing.pdf

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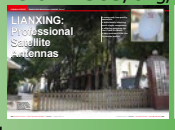

- using only top-quality materials
- individually checking each single component
- offering antennas for the C and Ku bands
- very successful on the Japanese market

Jiuzhou, China - Android Receivers

www.TELE-audiovision.com/**TELE-audiovision-1303**/eng/jiuzhou.pdf

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Product Manager Yongjun Zhang

- Develops receivers with complex features
- Installation of Apps on a limited basis
- Android system requires higher quality components that results in higher costs
- Android is well-suited for private users but only limited for cable network operators

Sat-Link, China - Signal Analyzers

www.TELE-audiovision.com/**TELE-audiovision-1303**/eng/sat-link.pdf

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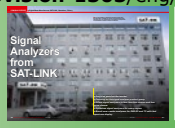

- Only five years on the market
- Focusing on the signal analyzer product group
- Offers signal analyzers in four function classes and four price classes
- Optimizes signal analyzers for every region
- Brand new: combo analyzers for DVB-S2 and T2 with fast spectrum display

Tecsys, Brazil - Professional Equipment

www.TELE-audiovision.com/**TELE-audiovision-1303**/eng/tecsys.pdf

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CEO Jose Marcos Freire Martins

COO Jorge Alberto Ganuza

Production Adilson da Silva

- Very good operational organization
- Concentration on professional satellite reception products
- In-house development department
- IRD is their success product

Cosmosat, Argentina - Satellite Dishes

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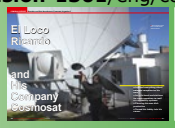
Owner Ricardo



- Learned everything about satellite reception on his own
- Installs head end stations for cable operators as well as community systems
- Planning his own dish production
- Turned his hobby into his career

Horizon, UK - Signal Analyzers

www.TELE-audiovision.com/**TELE-audiovision-1301**/eng/horizon.pdf

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CEO Paul Pickering

Technical Director Paul Hardcastle

Technical Manager Rob Sydee

- Numerous new products for new DVB sectors
- Exports to every country as an OEM and under their own name
- Focusing expansion to emerging countries such as South Africa and in South America
- Specializes in easy to use analyzers for installers

Satson, Belgium - HDMI

www.TELE-audiovision.com/**TELE-audiovision-1301**/eng/satson.pdf

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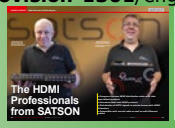
CEO Stefaan Cornelis

Technical Manager Didier Debey



- Conquers the new HDMI distribution niche with their specialized products
- Conceives their own HDMI products
- Distribution of HDTV signals in private homes with HDMI Extenders
- Compatible with coaxial cable as well as with Ethernet cables

Antiference, UK - Antenna and HDMI

www.TELE-audiovision.com/**TELE-satellite-1211**/eng/antiference.pdf

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MD Trevor Paintain

Sales Arnold Boeijen

- Manufacturing TV antennas since 1937
- Provides all the components needed for TV reception
- Expanding into HDMI distribution, as well as wireless solutions
- Expanding distribution network to the European market
- Offers their own products as OEM and private label

USATel, Brazil - Distributor

www.TELE-audiovision.com/**TELE-satellite-1211**/eng/usatel.pdf

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MD Jose Manuel Pereira

CFO Allam Almughrabin

- Imports all of its products from China
- Optimized assortment for digital TV needs in Brazil
- Sells and ships almost exclusively to end users
- Expanding into new business segments such as WLAN and IPTV

DMS International, USA - Distributor

www.TELE-audiovision.com/**TELE-satellite-1209**/eng/dms-international.pdf

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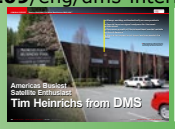
CEO
Tim Heinrichs

President
Vicky Heinrichs



- Always working enthusiastically on new products
- Special focus on signal analyzers for the semi-professional
- Enormous growth of the international market outside of North America
- Innovative expansion of signal analyzer models for 2012

Topsignal, China - Satellite Dishes

www.TELE-audiovision.com/**TELE-satellite-1209**/eng/topsignal.pdf

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Chairman
Zongbao King

GM
Chaofeng Ge

Sales
James You

- OEM delivering exclusively to Wholesalers
- Specializes in large production quantities
- Produces millions of satellite dishes and LNBs
- Majority of shipments go to South America
- Expanding product palette to include high-quality LNBs and VSAT

DVBCN, China - Internet News and Job Forum

www.TELE-audiovision.com/**TELE-satellite-1207**/eng/dvbcn.com.pdf

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Owner
Anna Xie

Chief Editor
Victor Ho

- Known by every digital TV company in China
- Provides all information regarding digital TV
- Expanding in the areas of recruitment and software development
- Focusing in future technologies such as OTT and IPTV
- Working on international expansion

SVEC, China - Satellite Dishes

www.TELE-audiovision.com/**TELE-satellite-1207**/eng/svec.pdf

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CEO
Wang Duo

Sales
Becky

- 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

TSReader, USA - Analyzer Software

www.TELE-audiovision.com/**TELE-satellite-1207**/eng/tsreader-rod-hewitt.pdf

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Owner
Rod Hewitt

- Wrote one of the most successful stream reader programs
- Developed a technical solution to archive TV channels for 'Internet Archive'
- Working on IPTV application programs
- Planning on a program for OCR recognition of BBC's EPG data

Hypex, UK - Distributor

www.TELE-audiovision.com/**TELE-satellite-1205**/eng/hypex-icecrypt-uk.pdf

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MD
Neal

- Ships large dishes to Great Britain and Europe
- Offers successful product lines from ICECRYPT and GLOBALINVACOM
- Low prices thanks to minimal overhead costs
- Consistent sales despite pricing pressure

Ricks Satellite, USA - Distributor

www.TELE-audiovision.com/**TELE-satellite-1205**/eng/ricks-satellite-azbox.pdf

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Owner
Rick Caylor

Owner
Rick Caylor

- celebrates its 10th anniversary in 2012
- distributes AZBox's receivers in North America
- is an enthusiastic satellite feedhunter
- sees a good future for the FTA market in North America

StelliteGuys, USA - Internet Forum

www.TELE-audiovision.com/**TELE-satellite-1205**/eng/satelliteguys.us.pdf

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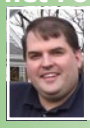
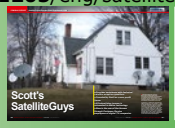


Owner
Scott Greczkowski



- Provides assistance with technical satellite reception questions
- Founded by Scott as a non-profit forum
- All advertising income is reinvested in better technology
- New is the use of the forums through Customer Service employees of digital TV companies

Sowell, China - IPTV Receivers

www.TELE-audiovision.com/**TELE-satellite-1205**/eng/sowell-iptv.pdf

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GM
Eagle Chain

- 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

DishPointer AR

See where to point your dish, live on the iPhone screen!

The revolutionary DishPointer Augmented Reality app is now available on the app store. Just point your iPhone anywhere towards the sky and see all the satellites lined up on the live video screen.

See the Video

See DishPointer AR in action on YouTube!

This app uses the iPhones GPS, motion sensor and compass to calculate all the satellite positions and overlays them on the camera. At a glance you will see where to point the dish and any obstacles blocking the line of sight.

DishPointer is the world's No.1 satellite dish pointing site, offering custom built tools for mobile devices or websites to businesses. For more information, visit www.dishpointer.com.

References

CANAL DIGITAAL SATELLIET

TV VLAANDEREN DIGITAAL

ASTRA

INNOVATION SATELLITE AWARD BROADBAND
DISHPOINTER
Software Solution that, with the help of Google Maps and its real images as well as SatcoDX and its up-to-date channel data, provides highly accurate satellite reception information.

Available for the ANDROID

www.dishpointer.com
info@dishpointer.com

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SPAUN™
www.spaun.com Quality made in Germany

SATELLITE TV METER

*SPAROS SAT HD**

- High quality and bright display (4.3 inch)
- MPEG4-display and measuring
- SCR single cable switching commands
- DiSEqC 1.x and SCR EN 50494 control
- Spectrum analysis
- Robust, impact-resistant housing
- Splash-resistant keypad

* *also available as Combo Analyzer*
SPAROS SAT HD DVB-C
SPAROS SAT HD DVB-T

NEW

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Email: contact@spaun.com · www.spaun.com

Wadt, Brazil - Headends

www.TELE-audiovision.com/**TELE-satellite-1205**/wadt-brazil.pdf

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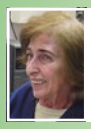

Owner
Neide Wadt

Technical Director
Joao Wadt

- Involved in HF for more than 60 years
- New allocation of cable licenses in Brazil opens up huge opportunities for the company
- Specialized products for cable headends
- Only ships domestically

Jiuzhou, China - Receivers

www.TELE-audiovision.com/**TELE-satellite-1203**/jiuzhou-ott.pdf

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TELE audiovision Recommended
QM Qualified

Vice Marketing
Jimmy Zhang

Vice GM
Richard

- Developes Digital TV receivers optimized for OTT
- Dedicated OTT development team
- Market for OTT in Europe and North America
- Upgrade of older digital receivers possible with a software upgrade

Panodic, China - Receivers

www.TELE-audiovision.com/**TELE-satellite-1203**/panodic.pdf

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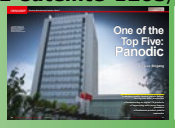
Founder
You Zhen Yu

Founder
Huang Wei

CEO
Xu Hai Bin

Marketing Manager
Alan Yu



- Multiple quality control points before, during and after production
- Concentrating on digital TV products
- Cooperating with many license providers
- Continuous product palette expansion

Sortec, Slovakia - Distributors

www.TELE-audiovision.com/**TELE-satellite-1203**/sortec.pdf

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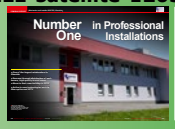
Founder
Ladislav Šmárik

GM
Pavol Macko

Sales
Alexander Záhončík

Sales
Pavol Lukáč



- One of the largest wholesalers in Slovakia
- Success through distribution of well-known, high-quality brand names
- Move to their own building in 2012
- Active in new technologies such as fiber optics and IPTV

Turbosat, UK - Receivers

www.TELE-audiovision.com/**TELE-satellite-1203**/turbosat-icecrypt.pdf

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Sales
Chris Ward

Technical Director
Ray Gargiulo

- own receiver line ICECRYPT
- 50% of sales outside Great Britain
- Focus on receivers, CAM, SmartCards and LNBs
- 80,000 receivers a year
- produces Dolly Buster TV programming via HOTBIRD

BSD, Brazil - Internet Forum

www.TELE-audiovision.com/**TELE-satellite-1201**/bsd.pdf

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Owner
Marcus Bernardini

- Operates Brazil's largest digital TV website
- Engaged in the further education of digital TV antenna installers
- Planning his own IPTV channel all about digital technology
- Living his dream with his own worldwide radio station

P-Sat, Hungary - Distributor

www.TELE-audiovision.com/**TELE-satellite-1201**/p-sat.pdf

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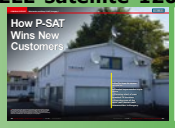
Owner
Tibor Posta



- Has its own customer magazine
- Created supermarket style store
- Planning start of own branded TV services
- Operates one of the most well-known web communities in Hungary

SatalliteAV, USA - Wholesaler

www.TELE-audiovision.com/**TELE-satellite-1201**/satelliteav.pdf

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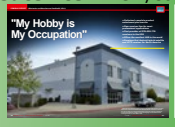
President
Brian Gohl



- Optimized complete product assortment plus service
- Own receiver line for semi-professional applications
- First provider of OTA-SSU FTA receivers in the USA
- Offers the smallest LNB in the world
- Develops first Android hybrid satellite and IPTV receiver for North America

AB-COM, Slovakia - Receivers

www.TELE-audiovision.com/**TELE-satellite-1111**/abcom.pdf

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Founder
Juraj Masaryk

Marketing Manager
Michal Grezo

Sales
Pavol Blaho

- Particularly successful in Central Europe
- Products for different applications such as 3D and pay TV
- Focus on cost-efficient product range
- Products optimised for individual applications

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Applied Instruments, USA - Signal Analyzers

www.TELE-audiovision.com/**TELE-satellite-1111**/appliedinstruments.pdf

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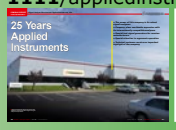
GM
Tom Haywood

Engineering
Jeff Haas

Sales
Scott Haywood



- The power of this company is its robust signal analyzers
- Company plans worldwide expansion with its internationally compatible analyzers
- Special test signal generators for receiver manufacturers
- Special attention to ergonomic operation
- Technical customer service an important highlight of the company

Huber+Suhner, Switzerland - Fibre Optics

www.TELE-audiovision.com/**TELE-satellite-1111**/huber+suhner.pdf

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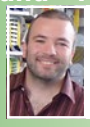

Product Manager
Patrick Zaina

Marketing Manager
Othmar Fuchs

- One of the leading fiber optic companies in the world
- New CLIK! System for easy installation
- New market segment that will make coaxial cable distribution systems obsolete
- Now available: economical alternative with distribution systems starting with eight users

iPONT, Hungary - 3DTV

www.TELE-audiovision.com/**TELE-satellite-1109**/ipont.pdf

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CEO
Zoltan Korcsok

CTO
Andor Pasztor

- iPONT's softwarevsolution converts 3D for use with auto-stereoscopic monitors
- 3D enjoyment without annoying glasses
- Potential for receiver manufacturers to expand their STB's to include 3D
- Compatible with the variety of manufacturer auto-stereoscopic monitor solutions

Megasat, Germany - Receiver and Wholesaler

www.TELE-audiovision.com/**TELE-satellite-1109**/megasat.pdf

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GM
Sven Melzer

- 80% of distributed products come from in-house MEGASAT brand
- full range of satellite components
- special focus on self-aligning camping antennas
- distribution to the whole of Europe

Sapro, Czech - Receiver and Wholesaler

www.TELE-audiovision.com/**TELE-satellite-1109**/sapro.pdf

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Owner
Lubomír Proboszcz

Sales
Petr Zwrtek

Sales
Jana Proboszczová

- Covers every price segment with its four brand names
- Starting expansion to surrounding countries
- In-house design and production (assembly line)
- Produces 100,000 receivers per year

WSInternational, USA - Receiver and Wholesaler

www.TELE-audiovision.com/**TELE-satellite-1109**/wsinternational.pdf

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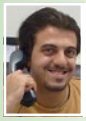
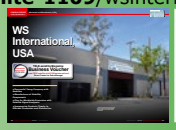
Owner
Robby Dosetareh



Sales
Joseph Bassala



- Successful Young Company with Ambition
- Manufacturer of Satellite Components
- Plan for Worldwide Expansion with Satellite Signal Analyzers
- Inexpensive Products Thanks to Efficient Production and Distribution

BYA, Algeria - Dishes and Receiver

www.TELE-audiovision.com/**TELE-satellite-1107**/bya.pdf

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Slimane Ait Yala

Boiingsat, China - LNB

www.TELE-audiovision.com/**TELE-satellite-1105**/boiingsat.pdf

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GM
Haowen Chiang

Co-Owner
Yunnjye Qin

Sales
Jason Chiang

- Three Production Locations in Zhuhai/ China
- Large Sales Expansion in South America
- In the Works: LNB with Two Feed Rings

Bomare, Algeria - Receiver

www.TELE-audiovision.com/**TELE-satellite-1105**/bomare.pdf

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Technical Manager
Tewfik Lamrani

Prevail, China - Fibre Optics and CATV

www.TELE-audiovision.com/**TELE-satellite-1105**/prevail.pdf

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Sales
Necy-xu


Sales
Helen


Production Manager
Ren Guorui

- Substantially Increased Sales for 2011 Thanks to Rising Exports
- Additional Factory Soon to be in Operation
- Increased Number of Employees
- Four New SMT Machines in Operation
- Very Active R&D Team

Jiuzhou, China - IPTV Boxes

www.TELE-audiovision.com/**TELE-satellite-1103**/jiuzhou.pdf

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TELE audiovision Recommended
QM Qualified


Sales
Huang Wei


Vice Marketing
Jimmy Zhang

- IPTV box production may reach 1 million units in 2011
- Jiuzhou starts HbbTV boxes for Europe
- Big retailers about to launch into IPTV box sales
- Jiuzhou to attend all major exhibitions in 2011, 10 in all

Sowell, China - Receivers

www.TELE-audiovision.com/**TELE-satellite-1103**/sowell.pdf

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TELE audiovision Recommended
QM Qualified


GM
Eagle Chain


Software
Sun Guanghua


Software
Peng Yi

- Founded by 5 Partners
- ISDB-T and DVB-T2 Receiver in 2011
- Overseas Offices in the Plan
- User Friendliness is Company Philosophy

Tenow, China - PC Cards

www.TELE-audiovision.com/**TELE-satellite-1103**/tenow.pdf

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Founder
Richard Zhang


Founder
Bob Liu


Founder
Eric Deng


Founder
James Liu

NetUP, Russia - IPTV

www.TELE-audiovision.com/**TELE-satellite-1101**/netup.pdf

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Co-Founder
Abylay Ospan


Co-Founder
Evgeniy Makeev


Sales
Konstantin Emelyanov

Tevii, Taiwan - PC Cards and Receiver

www.TELE-audiovision.com/**TELE-satellite-1101**/tevii.pdf

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Founder
Matthias Liu

Satbeams, Belgium - Software

www.TELE-audiovision.com/**TELE-satellite-1011**/satbeams.pdf

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Founder
Alexander Derjugin

SmartWi, Denmark - Wireless Card Reader

www.TELE-audiovision.com/**TELE-satellite-1011**/smartwi.pdf

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Founder
Kurt Olesen


Technical Manager
Jens Glad

Spaun, Germany - Power Supplies

www.TELE-audiovision.com/**TELE-satellite-1011**/spaun.pdf

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TELE audiovision Recommended
QM Qualified

IBC Certificate Holder


MD
Kevin Spaun

Boxsam, China - Receivers

www.TELE-audiovision.com/**TELE-satellite-1009**/boxsam.pdf

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GM
Xiaofeng Huang


VP
Jeffrey Zhao

Atlanta, Dubai - Wholesaler

www.TELE-audiovision.com/**TELE-satellite-1007**/atlanta.pdf

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Founder
Rajmal Jain


Director
Sanjeev Jain

Yinhe, China - Receiver

www.TELE-audiovision.com/**TELE-satellite-1007**/yinhe.pdf

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Marketing Manager Jianbiao Zhu

GlobalInvacom, UK - Fibre Optics

www.TELE-audiovision.com/**TELE-satellite-1005**/globalinvacom.pdf

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TELE audiovision Recommended

QM Qualified

Sales Ivan Horrocks

Sales David Fugeman

Changhong, China - Receiver

www.TELE-audiovision.com/**TELE-satellite-1003**/changhong.pdf

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TELE audiovision Recommended

QM Qualified

Sales Richard Cheng Li

Kaifa, China - Receivers

www.TELE-audiovision.com/**TELE-satellite-1003**/kaifa.pdf

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Marketing Manager Jackie Yan

Skyworth, China - Receivers

www.TELE-audiovision.com/**TELE-satellite-1003**/skyworth.pdf

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Vice GM David Ken

Technical Manager Jack Zhang

Promax, Spain - Signal Analyzers

www.TELE-audiovision.com/**TELE-satellite-0909**/promax.pdf

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Founder José Clotet

GM José-Maria Clotet

Infosat, Thailand - Dishes

www.TELE-audiovision.com/**TELE-satellite-0907**/infosat.pdf

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Founder Niran Tangpiroontham

Aluosat, China - Wholesaler

www.TELE-audiovision.com/**TELE-satellite-0905**/aluosat.pdf

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TELE audiovision Recommended

Founder Luo Shigang

Sales Luo Jun

MFC, USA - Filters

www.TELE-audiovision.com/**TELE-satellite-0903**/mfc.pdf

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TELE audiovision Recommended

QM Qualified

CEO Carl Fahrenkrug

Sales Scott Parsell

Marketing Manager Sandy Nelepovitz

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MD Peter Löble

MD Christoph Hoefler

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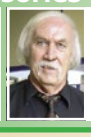

Founder Friedrich Spaun

MD Kevin Spaun

Technical Manager Steffen Kuck

Look at India!

Satellite Signal Reception Discussion Forum for Indian DTH Services, C Band and Ku Band Reception

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El foro de la TV libre

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Hi guest, if you read this, it means you are not registered. Click here to Register, so you can enjoy all the features of our forum. Once registered we invite you to walk through our Presentations section to let you know in our community. A greeting from the staff of Ft @ TV ...
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- *Работает с семью большими тарелками восходящего канала*
- *имеют свою собственную студию для Бизнес-ТВ*
- *вещают в 3D с 2010 года*


SPEEDCAST
SPEEDCAST
SPEEDCAST

Seven Uplink Dishes and Many, Many Reception Antennas

Satellite TV uplink operator Speedcast can be found in this modern office complex in Barueri near Sao Paulo

Modern and very organized is the impression you get from the Speedcast uplink station in Barueri west of Sao Paulo. With seven large dishes (we'll talk more about them later) and numerous other smaller and larger dishes used just for reception, Speedcast is one of the largest in Brazil. The company's customers include among others the TV channels Rede TV and SBT.

Speedcast is particularly proud of being the first company to uplink an HDTV signal in Brazil – that was 2008 for Rede TV and TV Bandeirantes.

Henrique Antonini is one of the broadcast technicians at Speedcast and tells us more about the company: "Speedcast was founded in 2003 by Alfonso Aurin and Luciano Esteves." Both of them are engineers and Alfonso Aurin was for many years Technical Manager at SBT, a TV channel that was founded in 1981 whose headquarters is located in Oscasco, the next town over from Barueri. But the initial

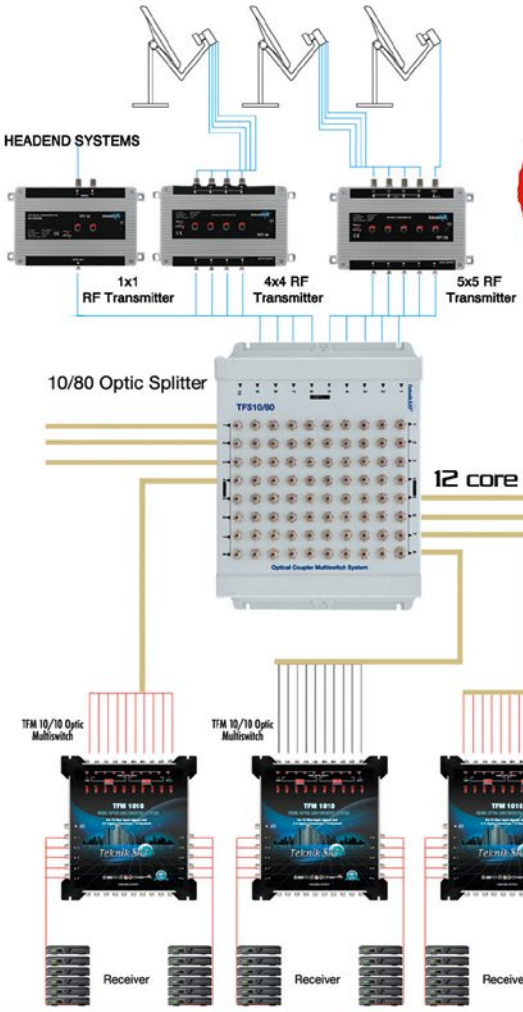
1

2

1. In a conference room broadcast technicians are displaying on three monitors the live pictures that are being uplinked by Speedcast: RedeTV HD (left monitor), SBT (center monitor) and the still image of Business TV (upper monitor) with a programming note regarding an upcoming broadcast from Volkswagen

2. A look in the small live studio. Business TV programs are produced here. At the moment there's a broadcast going on for Volkswagen

Fiber Optic Systems



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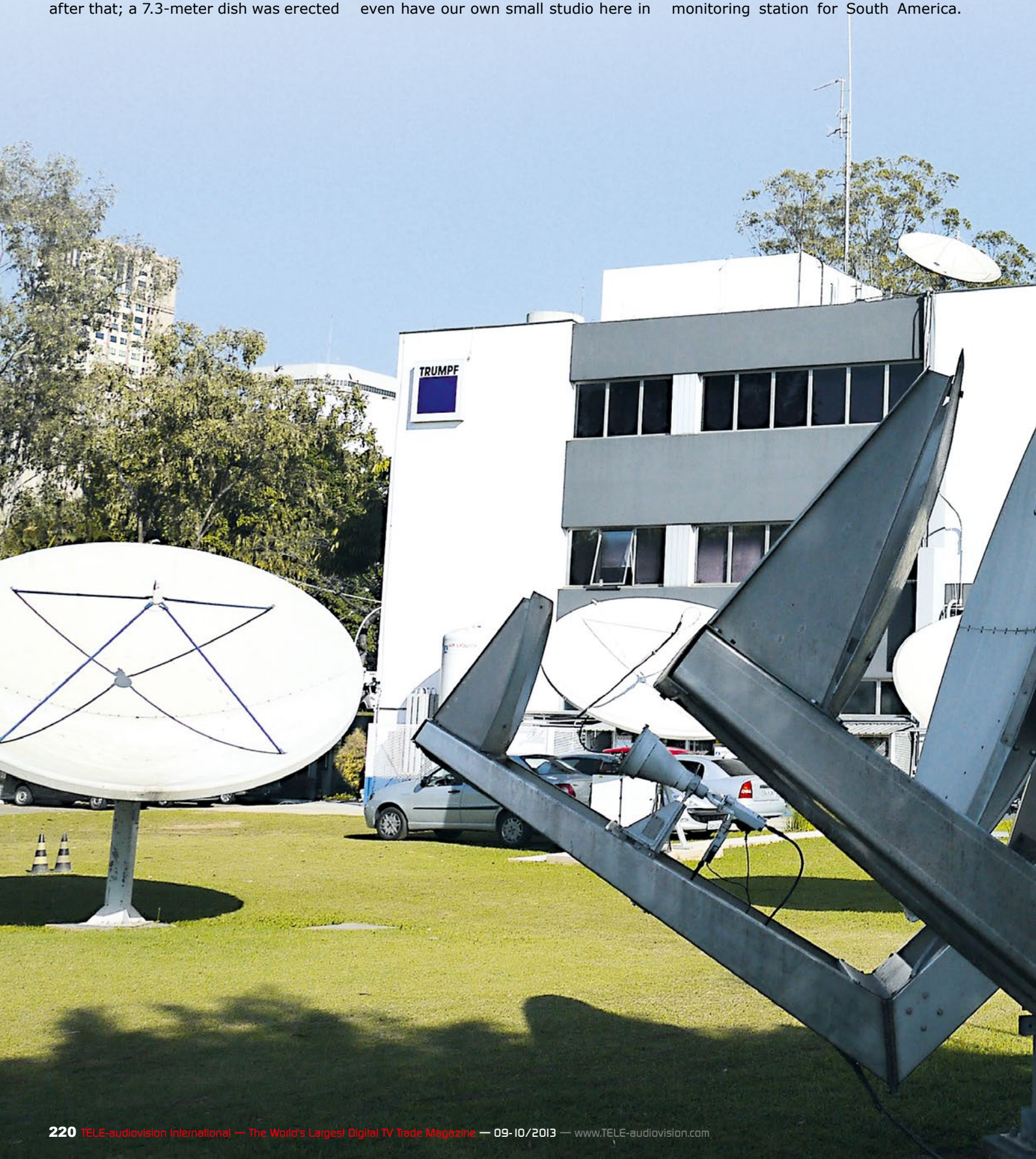
services provided by Speedcast in 2003 were not TV uplinks, it was VSAT services. That radically changed in 2005: Speedcast completely eliminated VSAT and switched entirely over to TV uplink. "The first uplink dish was our 9.0-meter antenna that is still in operation today." Additional dishes followed soon after that; a 7.3-meter dish was erected and over the years four more 3.6-meter uplink antennas and one at 4.5-meters were placed into service. All of these uplink dishes are used not only for regular TV channels, but also for Business TV. Their most prominent customer is Volkswagen; they regularly keep their employees informed at specific times. "We even have our own small studio here in which these Business TV programs are produced." Other Business TV customers include NCR, PanAmerican Bank, Johnson Batteries and the Business TV service TV Oficina Brasil.

In 2007 Speedcast went into cooperation with EUTELSAT. Since then Speedcast has been operating EUTELSAT's monitoring station for South America.



Henrique Antonio explains to us how that works: "The EUTELSAT technicians can access our system directly from their headquarters in Paris and can thus keep a real-time eye on the signals." In the same year 2007, Speedcast also expanded their technology and since then have been able to process all broadcasts in 16:9. The upgrade to 3D came in 2010. Today there are a total of 34 employees at Speedcast, 15 of them are at their headquarters while the rest are field technicians working with customers. In just ten years Speedcast has made quite a name for itself in the TV uplink field. In Brazil the company is one of the first names you come across in this field.

The dishes in the foreground are reserved for EUTELSAT. Technicians at EUTELSAT's headquarters in Paris can remotely control these antennas allowing them to keep an eye on transmissions from the EUTELSAT satellites

■ A Speedcast technician is checking on the positioning of the 9.0-meter dish that is fixed on STARONE C1 at 65W. The smaller 7.3-meter dish behind it is fixed on STARONE C2 at 70W

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A look in the video control room. Video signals that arrive here from the TV channel's studios via fiber-optic cable are monitored as is the transmitted signal


SPEEDCAST

1

SPEEDCAST

1. In the heart of the system: here you'll find the 19" racks of the actual transmitters

2. Large dishes, because of their extremely small aperture angle, constantly need position adjustments. This is taken care of by this controller. The set points for optimum reception have been predetermined and with the aid of a beacon receiver the position of the 9.0-meter antenna can be kept perfect

3. The signals via fiber-optic cable land here: Speedcast takes the Rede TV and SBT signals and uplinks them to the STARONE satellite

4. This rack is reserved for EUTELSAT: this is where the dishes reserved for EUTELSAT are remotely controlled. Speedcast only makes the space available; all of the work is handled remotely from the EUTELSAT headquarters in Paris. A small web camera is pointed at this rack so that technicians in Paris can actually see what's going on and advise when something needs to be changed.

2

3


SPEEDCAST
4
SAMSUNG

1. TV Aparecida is another channel carried by Speedcast. Its signal is received via satellite in this rack and then retransmitted

2. The broadcasted signal can be viewed in the broadcasting room at the same time. The individual reception antennas can be connected here and the spectrum analyzer is used to monitor the signal. The monitor above shows the corresponding TV picture

3. A mosaic monitor shows all of Speedcast's broadcasted channels

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ESPN Bristol USA

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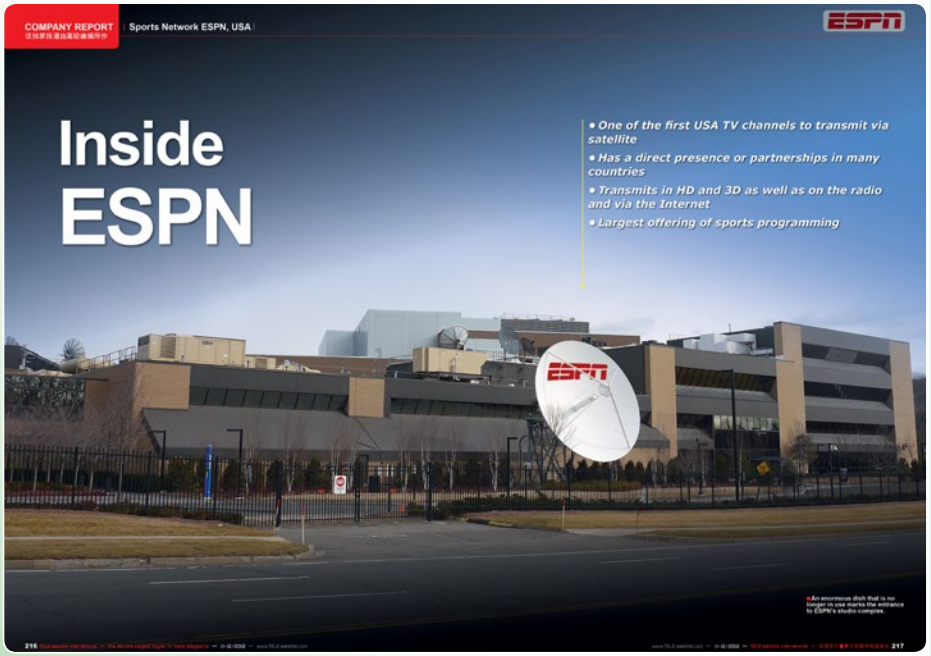

Nivaldo da Silva São Paulo Brazil

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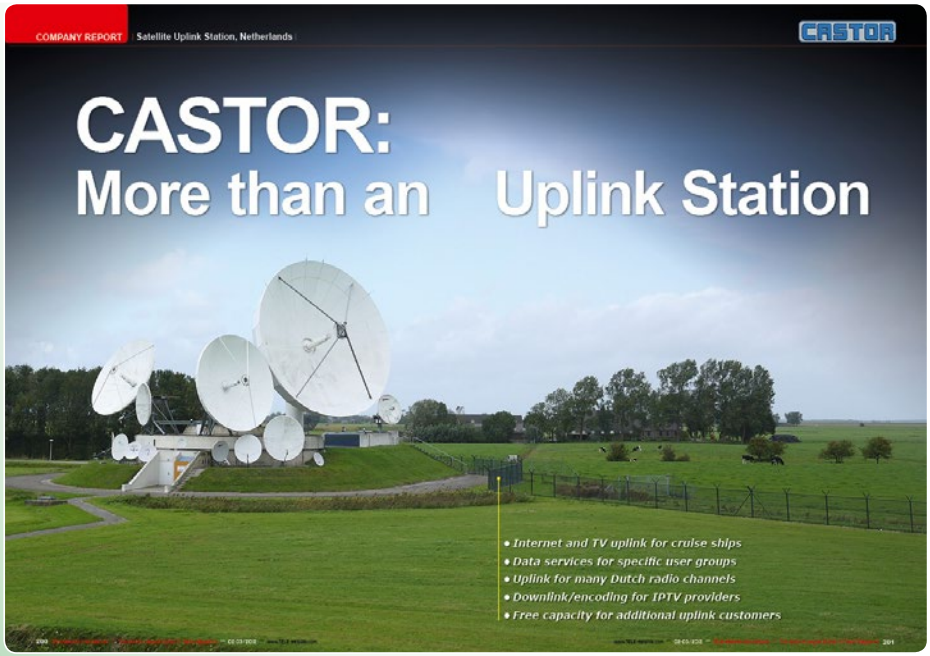

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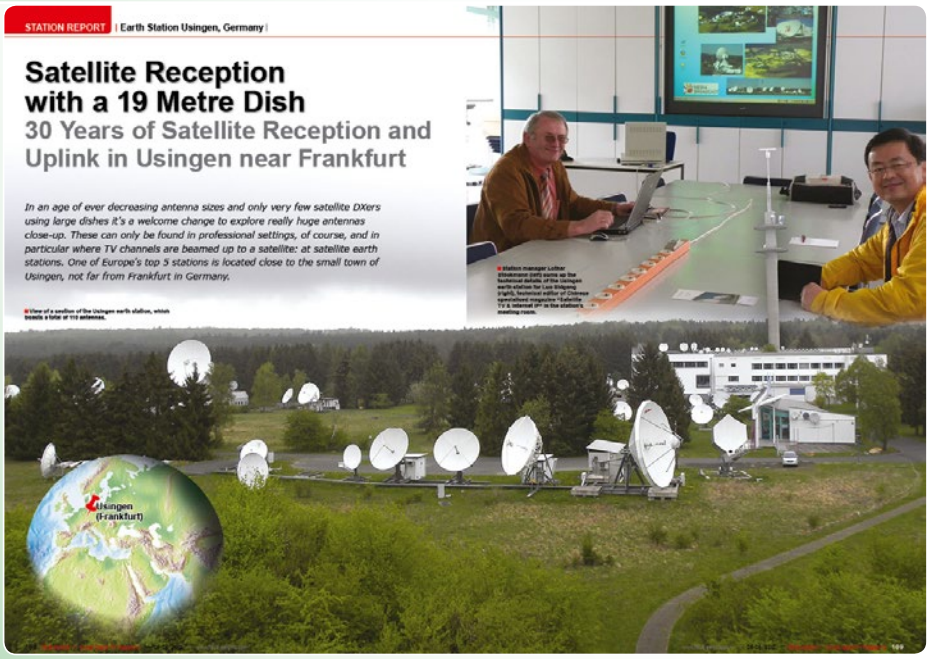
STATION REPORT | Earth Station Usingen, Germany |

Satellite Reception with a 19 Metre Dish

30 Years of Satellite Reception and Uplink in Usingen near Frankfurt

In an age of ever decreasing antenna sizes and only very few satellite DXers using large dishes it's a welcome change to explore really huge antennas close-up. These can only be found in professional settings, of course, and in particular where TV channels are beamed up to a satellite: at satellite earth stations. One of Europe's top 5 stations is located close to the small town of Usingen, not far from Frankfurt in Germany.

Usingen (Frankfurt)

Telemedia Johannesburg South Africa

Read Full Report

www.tavmag.com /07/09/telemedia


Company Report | TV Uplink

Telemedia, Johannesburg

HELLAS SAT 2 039.0° East

SIRIUS 4 005.0° East

PTS Taipei Taiwan

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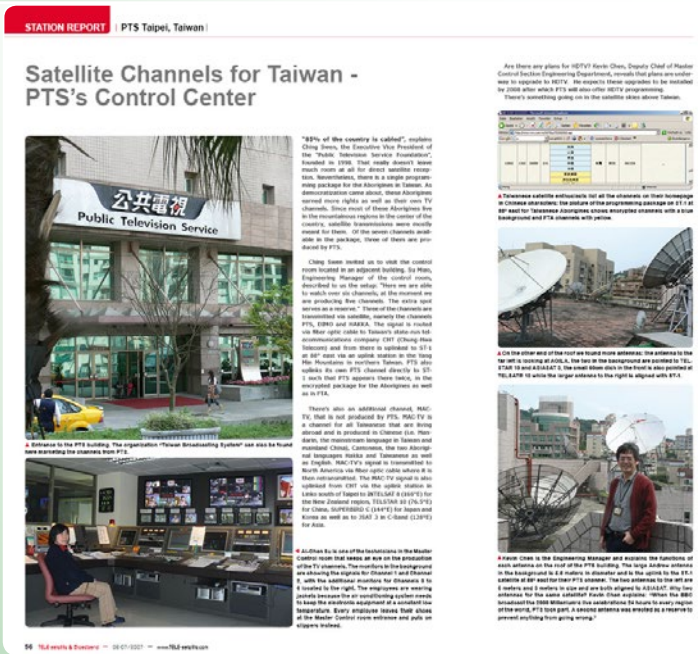
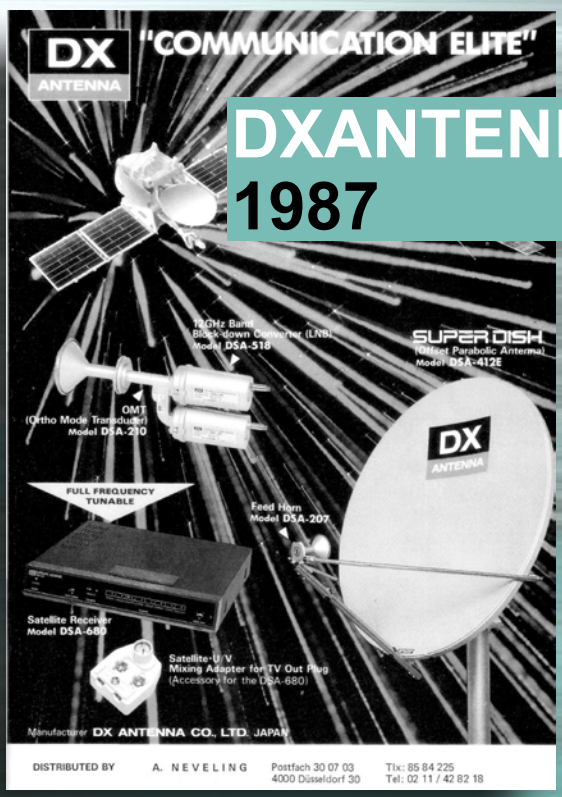

STATION REPORT | PTS Taipei, Taiwan |

Satellite Channels for Taiwan - PTS's Control Center

公共電視 Public Television Service

TELE-audiovision

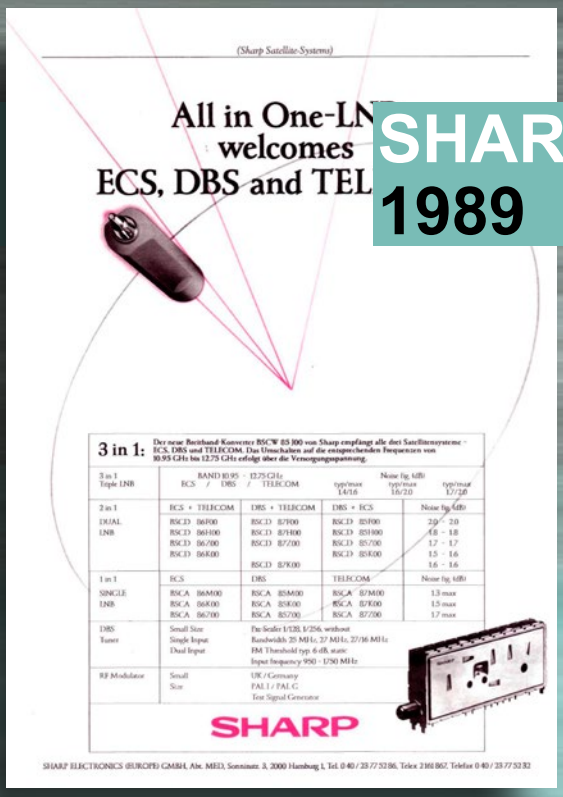
These Companies Started Their International



DXANTENNA
1987

ASTRA
1987

MASPRO
1988



SHARP
1989

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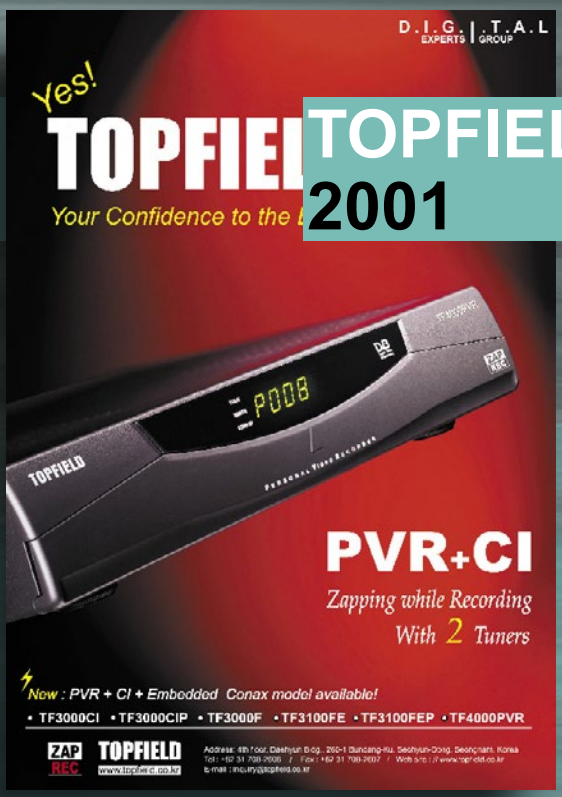
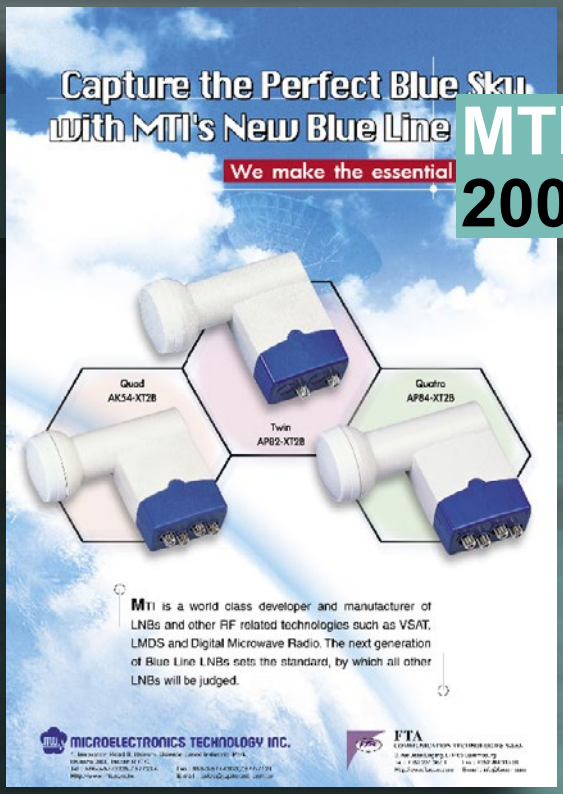
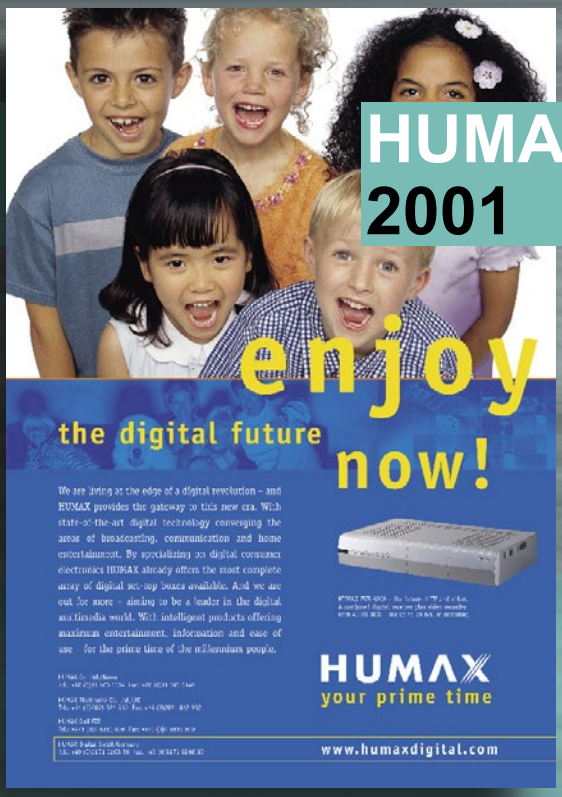
Success with TELE-audiovision Magazine



TOPFIELD 2001



MTI 2001



HUMAX 2001

ARION 2001

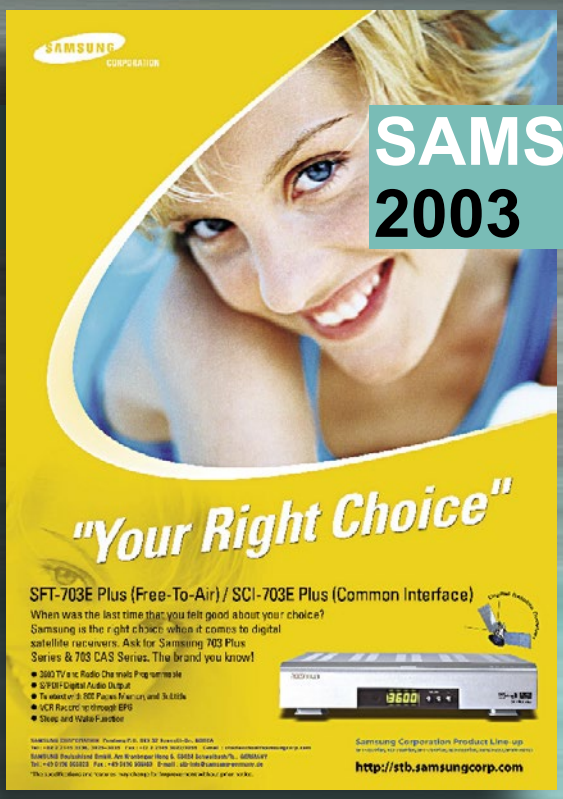
TELE-audiovision

These Companies Started Their International

NDS 2002

DREAM 2002

KAON 2003



SAMSUNG 2003

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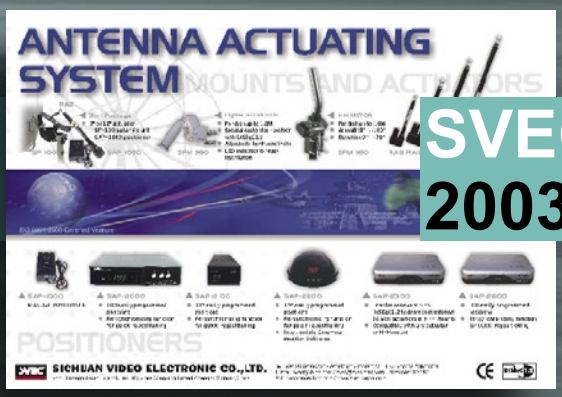
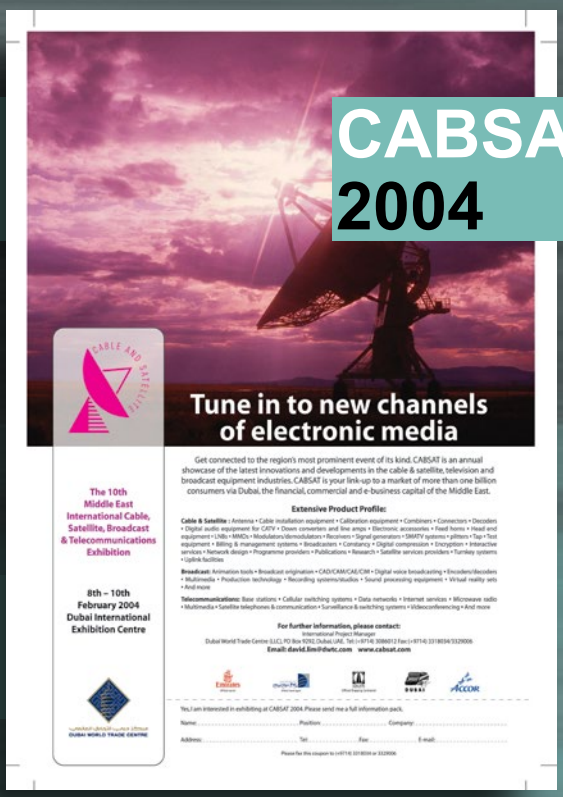
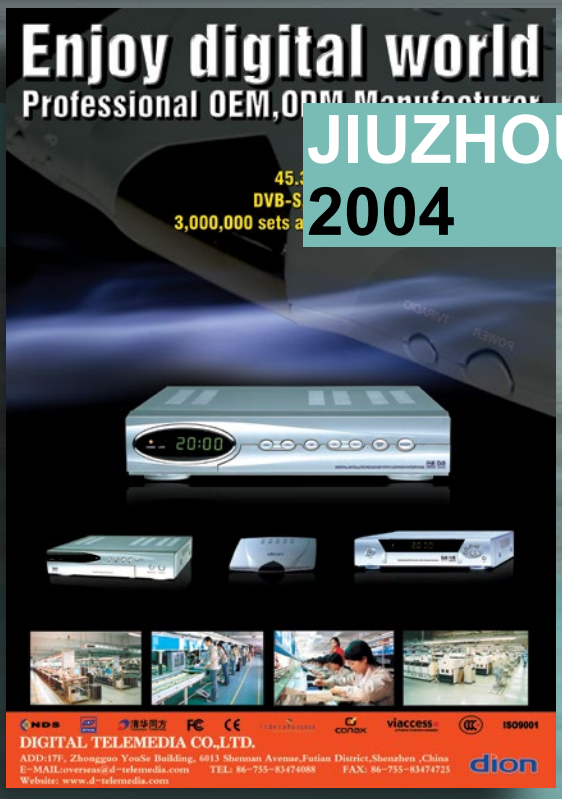


SVEC
2003



CABSAT
2004

JONSA
2004



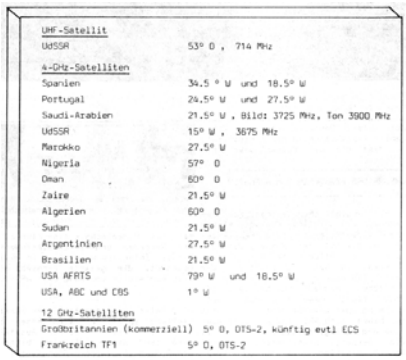
JIUZHOU
2004

CHANGHONG
2006

30 Years Ago

Receivable Satellites in Europe in 1983

In the UHF range a Russian Satellite was located at 53E. In 4 GHz (C band) programmes could be watched form all over the world. The 12 GHz range (Ku band) has just started with satellites at 5E.



UHF-Satellit	
UdSSR	53° O , 714 MHz
4-GHz-Satelliten	
Spanien	34.5 ° W und 18.5° W
Portugal	24.5° W und 27.5° W
Saudi-Arabien	21.5° W , Bild: 3725 MHz, Ton 3900 MHz
UdSSR	15° W , 3675 MHz
Marokko	27.5° W
Nigeria	57° O
Oman	60° O
Zaire	21.5° W
Algerien	60° O
Sudan	21.5° W
Argentinien	27.5° W
Brasilien	21.5° W
USA AFRTS	79° W und 18.5° W
USA, ABC und CBS	1° W
12 GHz-Satelliten	
Großbritannien (kommerziell)	5° O, DTS-2, künftig evtl ECS
Frankreich TF1	5° O, DTS-2

SAT-TV

Satelliten für Europa

Wegen der vielen Anfragen an die TAV-Satelliten-Redaktion, welche Satelliten man nun eigentlich heute schon in Europa empfangen könne, hier eine Aufstellung der "Weltraum-Parkplätze" der in frage kommenden Satelliten.

Diese Zusammenstellung war gar nicht so einfach, die zuständigen Stellen schweigen sich über dieses Thema aus, so waren erst mal unfangreichere Recherchen notwendig, alle Satelliten ausfindig zu machen.

Viele der aufgeführten Satelliten sind von den erwähnten Ländern lediglich gemietet. Das erklärt, warum selbst amerikanische Satelliten in Europa zu empfangen sind: Die Strahlungskeulen dieser Satelliten sind so groß, daß sowohl die Nord- wie die Süd-Halbkugel der Erde erfaßt wird, um für die Vermieter (meist Intelsat) universell einsetzbar zu sein.

UHF-Satellit	
UdSSR	53° O , 714 MHz
4-GHz-Satelliten	
Spanien	34.5 ° W und 18.5° W
Portugal	24.5° W und 27.5° W
Saudi-Arabien	21.5° W , Bild: 3725 MHz, Ton 3900 MHz
UdSSR	15° W , 3675 MHz
Marokko	27.5° W
Nigeria	57° O
Oman	60° O
Zaire	21.5° W
Algerien	60° O
Sudan	21.5° W
Argentinien	27.5° W
Brasilien	21.5° W
USA AFRTS	79° W und 18.5° W
USA, ABC und CBS	1° W
12 GHz-Satelliten	
Großbritannien (kommerziell)	5° O, DTS-2, künftig evtl ECS
Frankreich TF1	5° O, DTS-2

Die Frequenzen werden oft gewechselt, so daß keine dauerhaften Frequenzangaben gemacht werden können. Alle Satelliten senden das Bild FM-moduliert aus, teilweise gescrambelt oder gewobbelt. Die Elevation beträgt von Mitteleuropa aus etwa 28 bis 30 Grad. RB

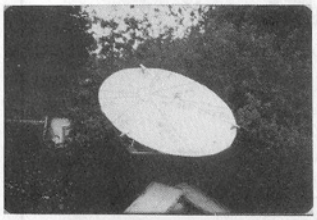
Versuche auf 4 GHz

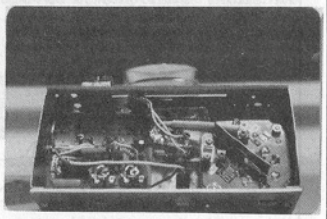
Während seines England-Trips besuchte Rainer Bärmann zusammen mit Dave Lauder einen DXer, der sich auf den Empfang von TV-Satelliten im 4-GHz-Band spezialisiert hat. (Über einen 12-GHz-DXer berichtete TAV im letzten Heft).

Der 4GHz-DXer und Funkamateur Mark Raffield wohnt im Süden von London. Ausgelagert in einer kleinen Hütte, etwa 20m vom Wohnhaus entfernt, baut er seine Empfangsanlagen zusammen - ob seine Familie befürchtet, sein Bausatz fliege in die Luft? Nichtsdestotrotz sind die Dämpfungsverluste durch die dadurch kürzer gewordene Koaxleitung extrem weniger geworden, der Parabolspiegel mit 2m Durchmesser ist neben der Hütte aufgebaut und hat freie Sicht nach Süden.

Die Empfangsanlage war allerdings beim Besuch wegen eines technischen Defekts auseinandermontiert. Nach stundenlangem Suchen mit Dave Lauder's selbstkonstruiertem Breitbandwobbler konnte eine kalte Lötstelle als Urheber ausgemacht werden.

Die Eingangsstufe des Empfängers kommt ohne Vorverstärker aus und die ankommenden Signale werden in einem Mischer (Varil DBM1600, Preis ca DM 160.-) ins UHF-Band gemischt. Ein preiswerter Tuner mit einer Bandbreite von 500 MHz bringt das Signal in eine ZF-Lage von etwa 70MHz. Der im letzten TAV-Heft gezeigte FM-Demodulator (S.53) macht das FM-TV-Signal zum normgerechten AM-Bild. Das nun erhaltene Signal kann an der De-Emphasis des Fernsehers eingespeist werden. RB



Links: Der 2m Parabolspiegel im Garten; darunter: selbstgebauter Erreger. In der Mitte ist die Polarisationsweiche (ein Teflon-Block) zu erkennen. Rechts: Dave Lauder und Mark Raffield bei der Fehlersuche am Empfänger; darunter: der 4GHz-Empfänger geöffnet und repariert. Fotos: RB

TV-Sender

Städteporträt LINDAU

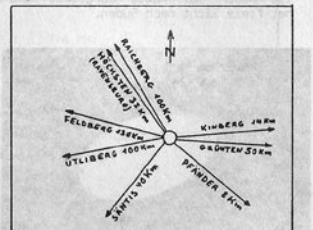
Fernsehen am Bodensee

Zehn Fernsehprogramme, davon acht in deutscher Sprache, in PAL, Norm B/G und damit mit handelsüblichen deutschen Empfängern zu sehen? Möglich ist das in der Region zwischen Bodensee, Stuttgart und Ulm. Diese Region liegt im Empfangsbereich der deutschen Sender Grünten und Ravensburg, des schweizer Säntis und des österreichischen Pfänder. Die Empfangssituation beschreibt Fernsehtechnikermeister Jürgen Erbrich aus Lindau.

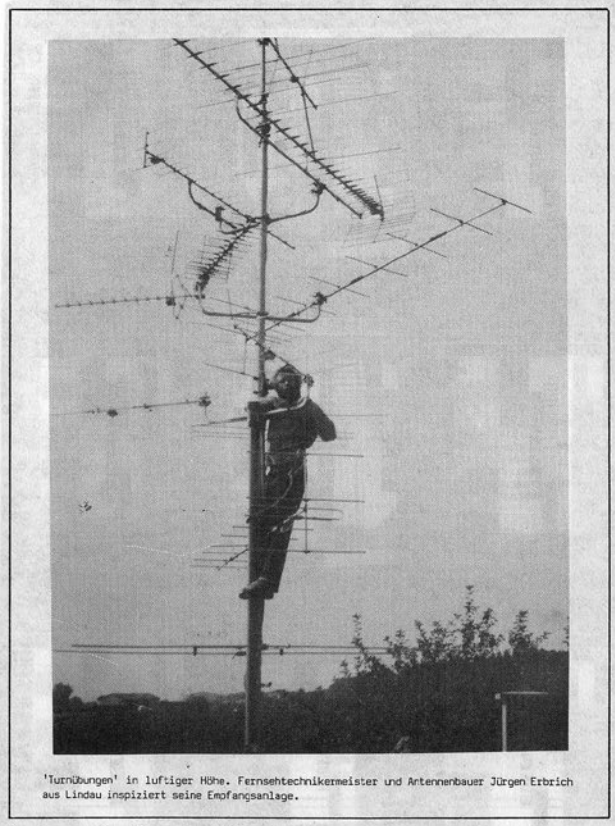
EMPFANG AUF VHF

In den fünfziger Jahren begann der Sender Feldberg im Schwarzwald mit der Fernsehversorgung des Bodenseeraums. Auf Kanal 8 konnte auch Lindau diesen Sender gut empfangen. Später begannen die Schweizer ihr Programm SRG von Säntis auf Kanal 7 abzustrahlen - mit den unvermeidlichen Nachbarkanalstörungen. In Bayern folgte der Sender Grünten auf Kanal 2, jedoch ohne Empfangsmöglichkeit am tiefgelegenen Bodenseeufer im Schatten des Pfändermassivs. Als auch aus Österreich vom Pfänder auf Kanal 5 das ORF-Programm FS1 zu empfangen war, gab es beim damaligen Stand der Empfangstechnik arge Probleme für die Antennenbauer.

Mit Einführung des Regionalfernsehens entwickelte der Bayerische Rundfunk den Ehrgeiz, die im westlichsten Zipfel des Freistaats lebenden Lin-



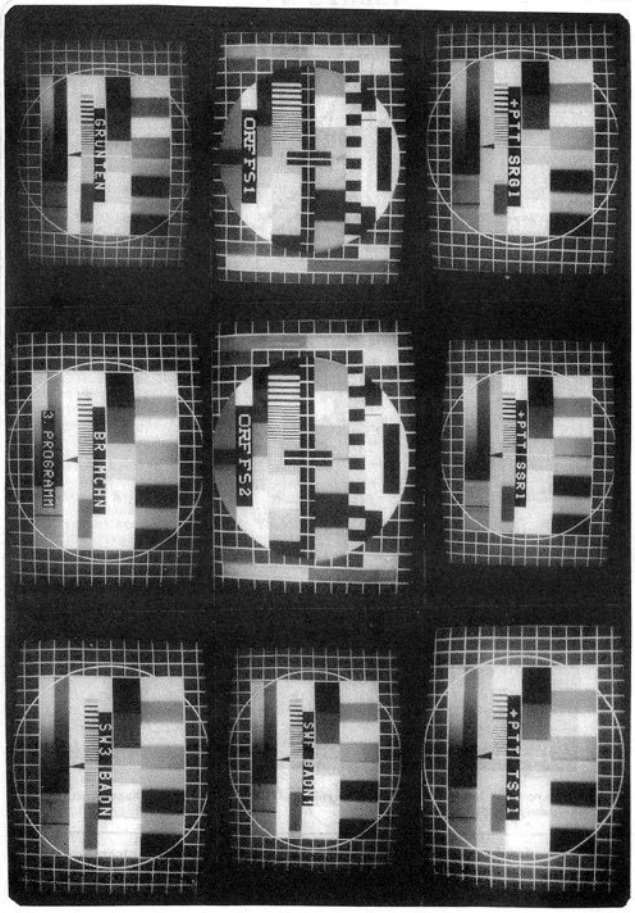
Übersichtskarte und Richtungsstern für Empfangsgebiet Lindau/Bodensee.



'Turnübungen' in luftiger Höhe. Fernsehtechnikermeister und Antennenbauer Jürgen Erbrich aus Lindau inspiziert seine Empfangsanlage.

dauer an das Programm BR1 anzuschließen. Das nicht ganz uneigennützige Angebot der Österreicher hierzu, einen Umsetzer auf dem 1064m hohen Pfänder zu errichten, wurde aus zolltechnischen Gründen abgelehnt. Auf Kanal 9 mit nur 100W versorgt seit dem ein Umsetzer in 740m Höhe

TV in Lindau



östlich von Lindau mehr schlecht als recht (Störungen von Kanal 8) das bayerische Bodenseeufer. Zur Freude der Österreicher und Schweizer bringt dieser Sender jedoch ungewollt am Südufer teilweise die einzige Empfangsmöglichkeit für das ARD-Programm.

Als die Rundfunkleute aus München merkten, daß es immer noch Abschattungsgebiete in Lindau gab, wurde notgedrungen im Stadtgebiet ein zusätzlicher Umsetzer gebaut. Nach totalem Umbau vor zwei Jahren mit Kosten von einer Million Mark (zur Einweihung war sogar ein Minister da) strahlt er jetzt mit 100 bis 150 W je Kanal alle drei Fernsehprogramme aus (siehe Kanalübersicht). Außerdem wurden die vier bayerischen Radioprogramme mit 100 bzw 1000 W installiert.

EMPFANG AUF UHF

Seit Einführung des 2. und 3. deutschen Fernsehprogramms (ZDF, SW3, BR3), in Österreich FS2 und in der Schweiz SSR und TSI, die in der Regel zwei Kanalabstände im UHF-Bereich einhalten, geht es im UHF-Band wie auf der UKW-Skala zu. DX-(Fern-)-Empfang ist nur noch in den Nacht- und Morgenstunden möglich.

Wie schon erwähnt, können BR1, ZDF und BR3 auf den Kanälen 44, 27 und 54 meist problemlos vom Lindauer Umsetzer empfangen werden, in der höher gelegenen Umgebung sind es die Kanäle 2, 28, 43 und 46 vom Grünten.

Der ORF strahlt sein FS2 auf Kanal 24 vom überall sichtbaren Pfänder mit verschwenderischen 80 dB aus. Der ebenfalls sichtbare 2500m hohe Säntis beherbergt die Sender für SSR (französische Schweiz) und TSI (italienische Schweiz) auf Kanal 31 und 34.

Etwas problematisch (große UHF-Antenne und evtl Vorverstärker) ist Südwest 3 aus Ravensburg auf Kanal 40 wegen des geringen Pegels zu empfangen. Muß grundsätzlich auf den Sender Grünten oder Lindau verzichtet werden, dann kann von Ravensburg auch das ZDF auf Kanal 37 bezogen werden.

		Kanal	Programm	Standort
VHF	Bereich I	2	BR 1	Grünten
		3	SRG	Utliberg
		4	SWF 1	Raichberg
	Bereich III	5	Ö 1	Pfänder
		7	SRG	Säntis
		8	SWF 1	Feldberg
		9	BR 1	Lindau-Kinberg
		11	SRG	Pfänder
UHF	Bereich IV/V	24	Ö 2	Pfänder
		27	ZDF	Lindau-Hoyerberg
		28	ZDF	Grünten
		31	SSR	Säntis
		34	TSI	Säntis
		37	ZDF	Höchsten
		40	SWF 3	Höchsten
		41	BR 3	Lindau-Kinberg
		43	SWF 1	Grünten
		44	BR 1	Lindau-Hoyerberg
		46	BR 3	Grünten
		49	SSR	Pfänder
		54	BR 3	Lindau-Hoyerberg
		62	TSI	Pfänder

Kanalübersicht aller in Lindau empfangbaren TV-Sender. Zusammenstellung J-Erbrich.

Wem das Regionalprogramm des BR im ARD-Kanal nicht reicht, der kann auf Kanal 43 vom Grünten SWF1 aus Stuttgart empfangen. In Lindau muß dafür eine zuschaltbare Einzelantenne auf Kanal 8 verwendet werden.

DIE ANTENNENANLAGE

Es sollte für jede Empfangsrichtung eine separate Antenne montiert werden. Kommen bei günstiger Empfangslage zwei Sender aus gleicher Richtung

Da ist die Bildröhre voll - zur gegenüberliegenden Fotoseite: Testbilder der neun (von zehn - das ZDF fehlt) TV-Programme, die in Lindau empfangen werden können. Von oben links nach rechts unten: das deutsche, französische und italienische Programm der Schweiz, die beiden österreichischen Programme, 1.Programm vom SWF und vom BR, 3. Programm vom BR und zum Schluß vom SWF/SDR.

Alle Fotos: J-Erbrich

20 Years Ago

Everything at once from SPAUN

For all viewers that have access to two satellites, SPAUN electronics offers an interesting solution Each single viewer needs one sat relais SAR 207 F and a Sat switching generator sUG 7000 F. Switching is done by toggling the 0/5 V control voltage from the receiver's polarizer input, activating the generator, which then delivers a 7 kHz signal to the relais. No control cable is needed and the units can also serve as the building blocks of a four-viewer system.

10 Years Ago

TELE-satellite Receiver Guide

Satellite DVB Receivers	Channel Memory	Symbolrate	SCPC Compatible	DiSEqC	USALS Compatible	NTSC/PAL	Modulator Output	Looped-Through IF	Power Supply	Digital Audio Output	Audio/Video Output	Scart Output	S-VHS Output	0/12 Volt Output	Positioner	Mechanical Polarizer	Hard Disk (Built-in)	Serial Interface	CI Slots	Embedded CA	TSI Magazine
	TV Radio	Ms/sec							Volt Hertz		RCA		S-VHS	0/12 V			GB				Issue Page
ASTON XENA 1800HD Digital with Hard Drive	4000	1.8-45	yes	1.2, 2.3	no	PAL	yes, UHF	yes	**110-230V** 50/60Hz	yes, AC-3	yes	yes, 4	yes	no	no	yes	yes	yes, 2 RS-232	yes,2	yes,2	**0303** 20
ASTROVOX VSR-4500 2CI Digital	**3000**	2-45	yes	1.0, 1.3	yes	NTSC/ PAL	yes, UHF	yes	**90-250V** 50/60Hz	yes, S/PDIF	yes	yes, 2	no	yes	no	no	no	yes, RS-232	yes, 2	yes, UCAS	**0307** 20
AVIAS VA203S Digital with embedded Viaccess	2000	2-45	yes	1.0	no	NTSC/ PAL	no	yes	12VDC	no	yes	yes, 1	no	no	no	no	no	yes, RS-232	no	yes, Viaccess	**0311** 20
AXAS M-Box with 2 CI Slots and UCAS	4000	2-45	yes	1.0, 1.2	no	PAL	yes	yes	**95-250V** 50/60Hz	yes, S/PDIF	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	yes, UCAS	**0309** 20
CHESS Digi 1000 FTA	4000	2-45	yes	1.0, 1.2	no	NTSC/ PAL	yes	yes	**95-240V** 50/60Hz	yes, S/PDIF	yes	yes, 2	no	no	no	no	no	yes, RS-232	no	no	**0309** 28
COSHIP CDVB 3188C Digital FTA	2000	2-45	yes	1.0	no	NTSC/ PAL	no	yes	**100-240V** 50/60Hz	no	yes	no	yes	yes	no	no	no	yes, RS-232	no	no	**0311** 24
DELTASAT CXCI 1106 HDI with 2 CI Slots and optional Hard Drive	5000	2-45	yes	1.0, 1.2, 1.3	no	NTSC/ PAL	yes	yes	**95-250V** 50/60Hz	yes, AC-3	yes	yes, 2	yes	yes	no	no	yes, option	yes, RS-232	yes, 2	yes, CONAX	**0309** 24
DREAMBOX DM 5600-S	unlimited	n/a	yes	1.0, 1.2	no	NTSC/ PAL	coming soon	no	**230V** 50Hz	yes	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes,2	yes,1	**0303** 17
DREAMBOX DM 7000-S	unlimited	n/a	yes	1.2	yes	NTSC/ PAL	coming soon	no	**230V** 50Hz	yes	yes	yes, 2	no	no	no	no	yes, option	yes, RS-232	yes,1	no	**0301** 20
EM TECH eM-150FTA Digital	2000	1-45	yes	1.0, 1.2	yes	NTSC/ PAL	yes	yes	**90-260V** 50/60Hz	yes, AC-3	yes	yes, 2	no	no	no	no	no	yes, RS-232	no	no	**0303** 24
KAON KSC-510H Digital with 2 CI Slots and Hard Drive	4080	2-45	yes	1.0, 1.2	yes	NTSC/ PAL	yes	yes	**95-250V** 50/60Hz	yes	yes	yes, 2	no	no	no	no	yes	yes, RS-232	yes, 2	no	**0301** 71
GRUNDIG Selio DTR 5210 S CI Digital	**4000**	2-45	yes	1.2	yes	PAL	no	yes	**230V** 50Hz	yes, S/PDIF	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	no	**0307** 24
HIRSCHMANN	4000	2-45	yes	1.0, 1.2	no	NTSC PAL SECAM	no	yes	**90-250V** 50/60Hz	yes	yes	yes, 2	no	no	no	no	no	yes, RS-232	no	no	**0303** 84
HIRSCHMANN CSR 60 CI with 2 CI Slots	4000	2-45	yes	1.2	no	NTSC PAL SECAM	no	yes	**95-250V** 50/60Hz	yes, AC-3	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	no	**0309** 16
HI TOP Si-dTV Digital Portable	400	2-45	yes	no	no	NTSC PAL SECAM	no	yes	**100-240V** 50/60hz 9-12VDC	no	yes, not RCA	no	no	no	no	no	no	yes, RS-232	yes, 2	no	**0305** 20
HUMANACE SKYCI 2003 Digital	3000	2-45	yes	1.0, 1.2	no	NTSC PAL	yes	yes	90-260V 50/60Hz	no	yes	yes, 2	no	yes	no	no	no	yes, RS-232	yes, 2	yes	**0305** 24
INTERSTAR DSR 8006CI XCAM with 2 CI Slots and embedded Conax	6600	2-45	yes	1.0, 1.2	no	NTSC/ PAL	yes	yes	**90-265V** 50/60Hz	no	yes	yes, 2	no	yes	no	no	no	yes, RS-232	yes, 2	yes, CONAX	**0309** 36
KAON KSC-510H Digital with 2 CI Slots and Hard Drive	4080	2-45	yes	1.0, 1.2	yes	NTSC/ PAL	yes	yes	**95-250V** 50/60Hz	yes	yes	yes, 2	no	no	no	no	yes	yes, RS-232	yes, 2	no	**0301** 71
KJAERULFF Maximum FTA-100	4000	2-45	yes	1.0, 1.2	yes	PAL	no	yes	**100-240V** 50/60Hz	no	no	yes, adapt. cable	no	no	no	no	no	no	no	no	**0307** 40
LEMON 07 CI Digital	3000	2-45	yes	1.0, 1.2	no	NTSC PAL	yes	yes	**90-260V** 50/60Hz	yes, 2	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	no	**0305** 28

10 Years Ago

Read test reports online: www.TELE-satellite.com

Satellite DVB Receivers	Channel Memory TV Radio	Symbolrate Ms/sec	SCPC Compatible	DiSEqC	USALS Compatible	NTSC/PAL	Modulator Output	Looped Through IF	Power Supply Volt Hertz	Digital Audio Output	Audio/Video Output RCA	Scart Output	S-VHS Output S-VHS	0/12 Volt Output 0/12 V	Positioner	Mechanical Polarizer	Hard Disk (Built-in) GB	Serial Interface	CI Slots	Embedded CA	TSI-Magazine Issue Page
MEDIACOM MFT 910 Plus Digital	3000	2-30	yes	1.0, 1.2	no	NTSC PAL	yes	yes	**90-250V** 50/60Hz	no	yes	yes, 2	no	yes	no	yes	no	yes, RS-232	no	no	**0303** 28
MEDIACOM MCI-920 Digital with Two CI Slots	3000	2-30	yes	1.0, 1.2	no	NTSC/ PAL	yes	yes	**220-240V** 50Hz	no	yes	yes, Euro Version	yes	no	no	no	no	yes, RS-232	yes, 2	no	**0311** 28
NAEMO MEGA S00-5540 MCI	4000	2-45	yes	1.0, 1.2	no	NTSC/ PAL	no	yes	90-250V 50/60Hz	yes, S/PDIF	yes	yes, 2	yes	no	no	no	no	yes, RS-232	yes, 2	no	**0307** 32
NEXTWAVE Plus SCR-3200C Digital	4000	2-31	yes	1.0, 1.2	no	NTSC/ PAL	yes, UHF	yes	**90-245V** 50/60Hz	yes, 2 S/PDIF	yes	yes, 2	no	yes	no	no	no	yes, RS-232	no	yes, CRPWK	**0307** 28
OPENTECH ODS 4000PVR Digital with Two Tuners and Hard Drive	4000	1-45	yes	1.0, 1.2	no	NTSC PAL	yes	yes	**90-240V** 50/60Hz	yes	yes	yes, 2	no	no	no	no	yes	yes, RS-232	yes, 2	no	**0303** 71
PALCOM DSL-3 with USALS	4000	2-45	yes	1.2	yes	NTSC/ PAL	no	yes	**110-240V** 50/60Hz	yes	yes	yes, 2	no	no	no	no	no	yes, RS-232	no	no	**0305** 74
PIXX ADT 8310 Digital, DVD, CD, MP3	5000	1-45	yes	1.0, 1.2	no	NTSC PAL SECAM	no	yes	?	yes	yes	yes, 2	yes	no	no	no	no	yes, RS-232	yes, 2	no	**0305** 17
SAMSUNG SCRCI-703E	4000	2-45	yes	1.0, 1.2	no	NTSC, PAL	yes, UHF		**90-245V** 50-60Hz	yes	yes	yes, 2	yes	no	no	no	no	yes, RS-232	yes, 2	yes, CYPWK	**0307** 36
SATELCO DVB-S USB Box	unlimited	2-45	yes	1.0	no	n/a	n/a	no	12VDC	no	no	no	no	no	no	no	yes (PC)	yes (PC)	no	no	**0303** 80
SATFORCE S-ZWO FTA 2500 F FTA	5000	2-45	yes	1.0, 1.2, 1.3	yes	NTSC/ PAL	no	yes	**90-250V** 50/60Hz	yes, S/PDIF	yes	yes, 2	no	no	no	no	no	yes, RS-232	no	no	**0309** 40
SUCCESS CG5860 Digital	4000	2-45	yes	1.0, 1.2	no	n/a	yes	yes	n/a	no	yes	yes, 2	no	yes	no	no	no	yes, RS-232	no	no	**0305** 71
TECHNOTREND DVB-S Card 1.6 with Remote Control and S/PDIF	unlimited	as good as 1-45	yes	1.0, 1.2	no	n/a	no	yes	n/a	yes, S/PDIF	yes	yes, via adapter	no	no	no	no	yes (PC)	yes (PC)	yes, optional	no	**0311** 16
TOPFIELD TF3200IR Digital with Embedded Irdeto	4000	2-45	yes	1.0, 1.2	yes	NTSC/ PAL	yes	yes	**90-250V** 50/60Hz	no	yes	yes, 1	no	no	no	no	no	yes, RS-232	no	yes, Irdeto	**0303** 74
TOPFIELD TF4000PVR Digital with Two Tuners and Two CI Slots	5000	1-45	yes	1.0, 1.3	yes	NTSC/ PAL	yes	yes	**90-250V** 50/60Hz	yes, S/PDIF	yes	yes, 2	no	no	no	no	yes	yes, RS-232	yes, 2	no	**0301** 74
TOPFIELD TF5000 PVR with Two Tuners	5000	2-45	yes	1.2	yes	NTSC/ PAL	no	yes	**90-250V** 50/60Hz	yes	yes	yes, 2	yes	no	no	no	yes	yes, RS-232	yes, 2	no	**0307** 44
VISIONPLUS VP-DTV Sat-CI Digital PC Card	unlimited	2-45	yes	1.2	yes	n/a	no	yes	n/a	no	no	no	no	no	no	no	yes (PC)	yes, RS-232	no	no	**0301** 84
WEISS DigitAll World SFT-2000 with addable Universal Card Reader	4000	1-45	yes	1.0, 1.2	no	NTSC/ PAL	yes	yes	**90-250V** 50/60Hz	yes, S/PDIF	yes	yes, 2	no	yes	no	no	no	yes, RS-232	no	must be added	**0309** 44
WEISS DMSIS DSR-110SKCI with 2 CI Slots and Skycrypt	3600	2-45	yes	1.0, 1.2	no	NTSC/ PAL	yes	yes	**90-264V** 50/60Hz	yes AC-3	yes	yes, 2	no	no	no	no	yes, (via PC)	yes, RS-232	yes, 2	yes, Sky-crypt	**0309** 47
XTREME HORNET A2CI STR with Two CI Slots and embedded Skycrypt	9000	2-45	yes	1.0, 1.2	no	NTSC/ PAL/ SECAM	yes	yes	**90-250V** 50/60Hz	yes	yes	yes, 2	no	yes	no	no	no	yes, RS-232	yes, 2	yes, Sky-crypt	**0311** 32
XTREME ONE U2CI PVR	8058	2-45	yes`	1.2	yes	NTSC/ PAL/ SECAM	yes	yes	**90-250V** 50/60Hz	yes, S/PDIF	yes	yes, 2	no	yes	no	no	yes	yes, RS-232	yes, 2	yes, UCAS	**0307** 16
X-WINDS DVB-X2005CI Digital/Terrestrial	4000	1-45	yes	1.0, 1.2	no	NTSC/ PAL	yes	yes	**100-240V** 47-63Hz	yes	yes	yes	no	no	no	no	no	yes, RS-232	yes, 2	no	**0305** 78

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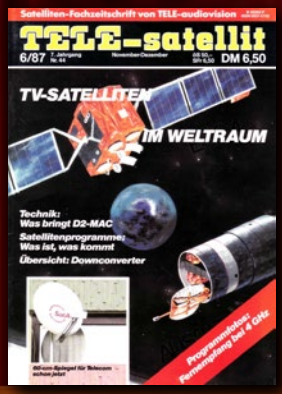

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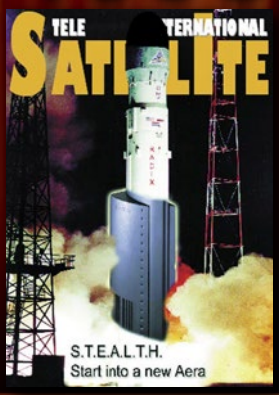

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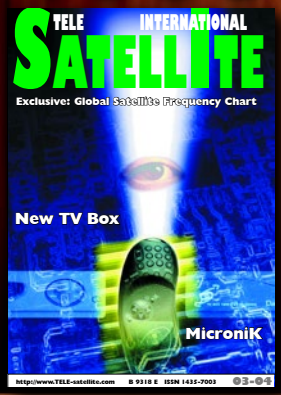

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Edited by
Branislav Pekic

EUROPE

TRICOLOR TV TESTS ULTRA HD STANDARD

Russian satellite TV operator Tricolor TV plans to carry out broadcasts using the Ultra HD standard, reports Tass-Telecom. Offering 3840 x 2160 pixel resolution, the new standard is four times higher than the existing Full HD resolution. The broadcasts will be carried out over the 84-inch 3D TV from LG supporting Ultra HD. A transponder on the Eutelsat 36A satellite will be used to show the UHDTV content under the MPEG-4 standard at 40 Mbps.

EUTELSAT, FRANCE TELEVISION AIR 4K FROM ROLAND GARROS

Eutelsat has teamed up with France Televisions, ATEME and 4Ever during the Roland Garros tennis tournament to promote 4K UHDTV. Visitors to the event were able to see live images shot by 4K cameras. This was the first trial that included the new HEVC codec and live feeds for reception on PC, tablet and PC.

HISPASAT, LG TO PROMOTE ULTRA HD

Spanish satellite operator Hispasat and LG Espana have reached an agreement to promote the development of TV in Ultra HD. As part of the deal, both companies will exchange knowledge, share a platform for development of new products and technologies related to Ultra HD, increase their operational and commercial synergies, spread the usage of Ultra HD TV sets from LG, as well as use satellites to support the broadcasting of new content in Ultra HD. Hispasat will broadcast via satellite a promotional Ultra HD channel. At the presentation ceremony a live demonstration of the new technology was shown on a LG Ultra HD TV via the Hispasat 1E satellite.

SONY CONDUCTS 4K TRIALS AT WIMBLEDON

Sony has captured part of this year's Wimbledon Tennis Championships in the Ultra HD/4K format. Sony used the F55 cameras and NEX-FS700 cameras to film the action in 4K. The footage was shown at the Sony 4K Experience centre which was set up at the location.

SAMSUNG EXPECTS ULTRA HD TO BECOME MAINSTREAM IN 2017

UHDTV will become mainstream by 2017, according to the director of European Business Development at Samsung Electronics. Speaking at the Futuresource Entertainment Summit 2013, Vassilis Seferidis, said that the question is whether operators will wait for penetration to reach 5 per cent before introducing channels. He added that some operators such as Sky Deutschland were already experimenting with UHDTV.

NORTH AMERICA

INTELSAT AND ERICSSON TRIAL UHDTV

Intelsat and Ericsson in June conducted the first 4G UHDTV trials in North America. Intelsat's Galaxy 13 satellite delivered a 4:2:2 10-bit, 4K UHDTV signal at 60 frames per second to Turner Broadcasting's facilities in the USA. The 100 Mbps video feed was encoded and decoded in real time by Ericsson, using its AVP 2000 contribution encoders and RX8200 receivers. Newtec provided the modulation and demodulation hardware, featuring Clean Channel Technology.

COMCAST DEMONSTRATES ULTRA HD OVER 3 GBPS

Cable operator Comcast has demonstrated a 3Gbps broadband connection at NCTA's Cable Show 2013 in Washington, DC for downloading a 4K Ultra HD video file to a PC. On the occasion, Comcast said that 4K Ultra HD is still in the early stages.

SONY SELECTS GARTH DAVIS TO PROMOVE 4K UHDTV

Sony Electronics has launched a marketing campaign in support of its new 4K Ultra HD TVs, featuring Garth Davis. The commercial featuring Davis was shot on the Sony F65 and F55 professional 4K cameras. Sony is also advertising its new 4K UHDTV TV sets via social networks, email, direct mail, among other means.

ESPN PREFERS ULTRA HD OVER 3D

Disney has announced it will close down the ESPN 3D channel by the end of the year, after three years of broadcasting. The channel said that customers have not warmed to the technology, citing a "lack of demand from the majority of consumers." Disney is now looking to focus their efforts on Ultra HD or 4K TV rather than 3D broadcasts.

SOUTH AMERICA

SONY RECORDS CONFEDERATIONS CUP IN 4K

Sony Brasil has covered three matches of the Confederations Cup, which took place in Brazil in June, in 4K. The material will be used as test material for FIFA and Brazilian broadcaster TV Globo. A total of 35 cameras were used, five of them 4K. The image resolution will be 3840 x 2160, which is five times that of Full HD, and the audio was 5.1.

HISPASAT CONDUCTS 4K TRANSMISSION IN BRAZIL

Hispasat conducted a live satellite broadcast of 4K content, reproduced on an 84-inch TV set from LG, during an event in Rio de Janeiro to celebrate the start of operations of the Amazonas 3 satellite. The images were generated in Spain and were received by a PC connected to the TV with the necessary codecs for playback. Local cable and DTH operators should start selling the first domestic receivers compatible with 4K from the 2H 2014.

ASIA

NTT WEST TESTS 4K TV STREAMS VIA INTERNET

Japan's NTT West has been conducting 4K tests via the internet to set-top boxes, a first of its kind. A new video compression standard is being used to reduce the amount of data that needs to be transmitted. Japan plans to become the first country to broadcast 4K programming over satellite from 2014, in time for the football World Cup.

SONY ANNOUNCES 4K MEDIA PLAYER

Sony has announced a 4K Ultra HD media player and a 4K Ultra HD content service providing 4K downloads within the Sony Entertainment Network. The player, to be available July 15 for USD 699, will come preloaded with 10 Ultra HD feature films. Ultra HD compression encoding technology from eyeIO has been licensed by Sony Pictures to enable the studio to offer the first-ever 4K UltraHD content delivered to the home.

MEASAT, ERICSSON TEST UHDTV

Ericsson and Measat have demonstrated a live solution at Broadcast Asia 2013, Asia's largest show for the pro-audio, film and TV industries. The system shows how UHDTV premium coverage such as live sport can be broadcast today. The UHDTV trial uses Ericsson's AVP 2000 contribution encoders, RX8200 advanced modular receivers, as well as its Simulsync technology.

NHK, MITSUBISHI ELECTRIC DEVELOPS FIRST HEVC ENCODER

NHK and Mitsubishi Electric Corp have jointly developed the world's first HEVC encoder for 8K ultra HDTV Super Hi-Vision (SHV). The SHV standard offers 16 times the number of HD pixels and a 22.2 multichannel surround sound experience. HEVC is due to be recognized as an international standard this year. It offers about double the data compression of AVC2), and about four times that of the MPEG-2 standard currently employed for digital HDTV broadcasting.

JAPANESE COMPANIES TEAM UP TO PROMOTE ULTRA HD

Some 21 Japanese companies, including manufacturers, telecommunications operators and broadcasters, have set up a partnership to promote the development of the Ultra HDTV standard. They include broadcasters NHK and SkyPerfect, as well as manufacturers such as NEC, Sony, Toshiba, Panasonic and Fujitsu.

WORLD

ROVI AND BROADCOM TO DELIVER 4K DEVICES

Rovi and Broadcom have teamed up to to enable device manufacturers and service providers to utilise the benefits of High Efficiency Video Codec (HEVC/H.265) to deliver an enhanced entertainment experience. Rovi is planning to drive 4K content creation and market availability of compatible devices. Broadcom plans to support the playback of DivX HEVC streaming and downloadable content in the UHDTV home gateway chip BCM7445.

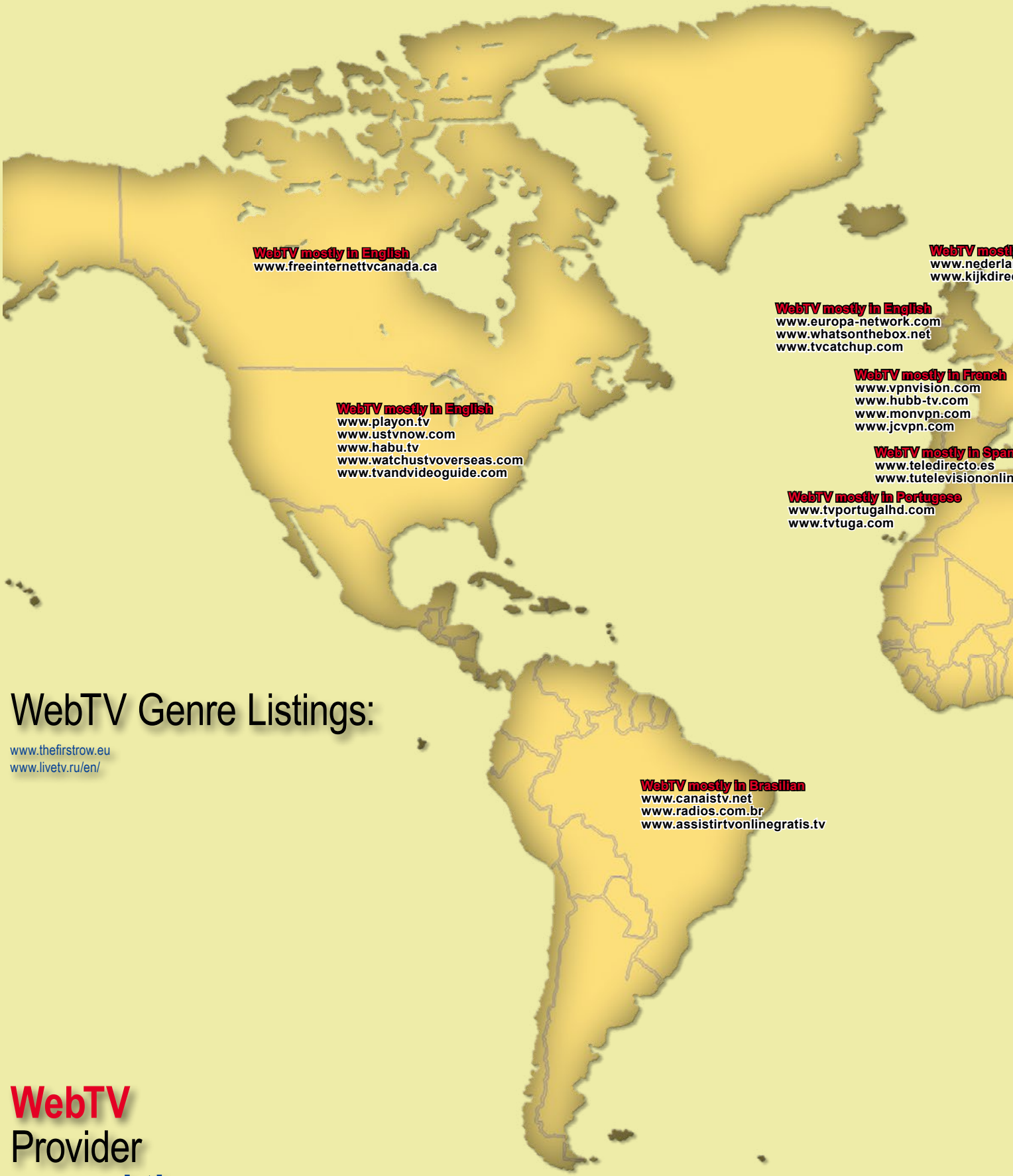
943.000 UHD LCD PANELS TO BE SHIPPED THIS YEAR

Manufacturers expect to ship nearly 943,000 Ultra High Definition LCD panels this year, up from less than 33,000 units in 2012, according to IHS. For 2015, the figure will reach 7.1 million units and in 2017 it will arrive to 20.8 million units. Suppliers collectively plan to ship as many as 4 million UHD Ready panels this year alone. Leading panel suppliers such as Samsung, LG Display, AUO and Innolux are all introducing UHD TV panels, with TV brands like Sony, Sharp, Samsung, LG Electronics, and Vizio planning to launch their own offerings later this year.

SUPER Hi-VISION

NHK

JAPAN BROADCASTING CORPORATION



WebTV Genre Listings:

www.thefirstrow.eu
www.livetv.ru/en/

WebTV Provider around the WORLD

WebTV Channel Listings:

www.surfmusic.de/surftv.htm
www.glotzdirekt.de
www.wwitv.com
www.delicast.com
www.onlinetvi.com
www.free-internet-tv.cz
www.lookfortv.com
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DVB-T2
V: H.264
A: MPEG-4 AAC

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Austria
Belgium
Bulgaria
Colombia
Croatia
Denmark
Finland
Ghana
Indonesia
Kazakhstan
Kenya
Kyrgystan
Madagascar
Malaysia
Mongolia
Mozambique
Myanmar
Namibia
Nigeria
Romania
Russia
Serbia
Singapore
Slovakia
South Africa
Sri Lanka
Swaziland
Tanzania
Thailand
Turkey
Uganda
UK
Uzbekistan
Vietnam
Zambia
Zimbabwe

DVB-T
V: H.264
A: MPEG-4 AAC

Azerbaijan
Belarus
Burundi
Central Africa
Czech
Estonia
Guinea
Hungary
Iceland
Ireland
India
Iran
Israel
Latvia
Lithuania
Macedonia
Mauritius
New Zealand
Norway
Panama
Poland
Portugal
Rwanda
Slovenia
Spain
Uganda
Ukraine

ATSC
V: MPEG-2
A: AC-3

Canada
Dominican R.
Honduras
Mexico
South Korea
USA

DVB-T
V: MPEG-2
A: MPEG-1 Level 2

Algeria
Albania
Australia
France
French Guyana
Germany
Greece
Italy
Luxembourg
Morocco
Netherlands
Qatar
Sweden
Switzerland
Tunisia

ISDB-TB
V: H.264
A: MPEG-4 AAC

Argentina
Belize
Bolivia
Botswana
Brazil
Costa Rica
Chile
Ecuador
Guatemala
Paraguay
Peru
Philippines
Uruguay
Venezuela

ISDB
V: MPEG-2
A: MPEG-2 AAC

Japan

Digital Terrestrial Television of the World

Dominant System per Country

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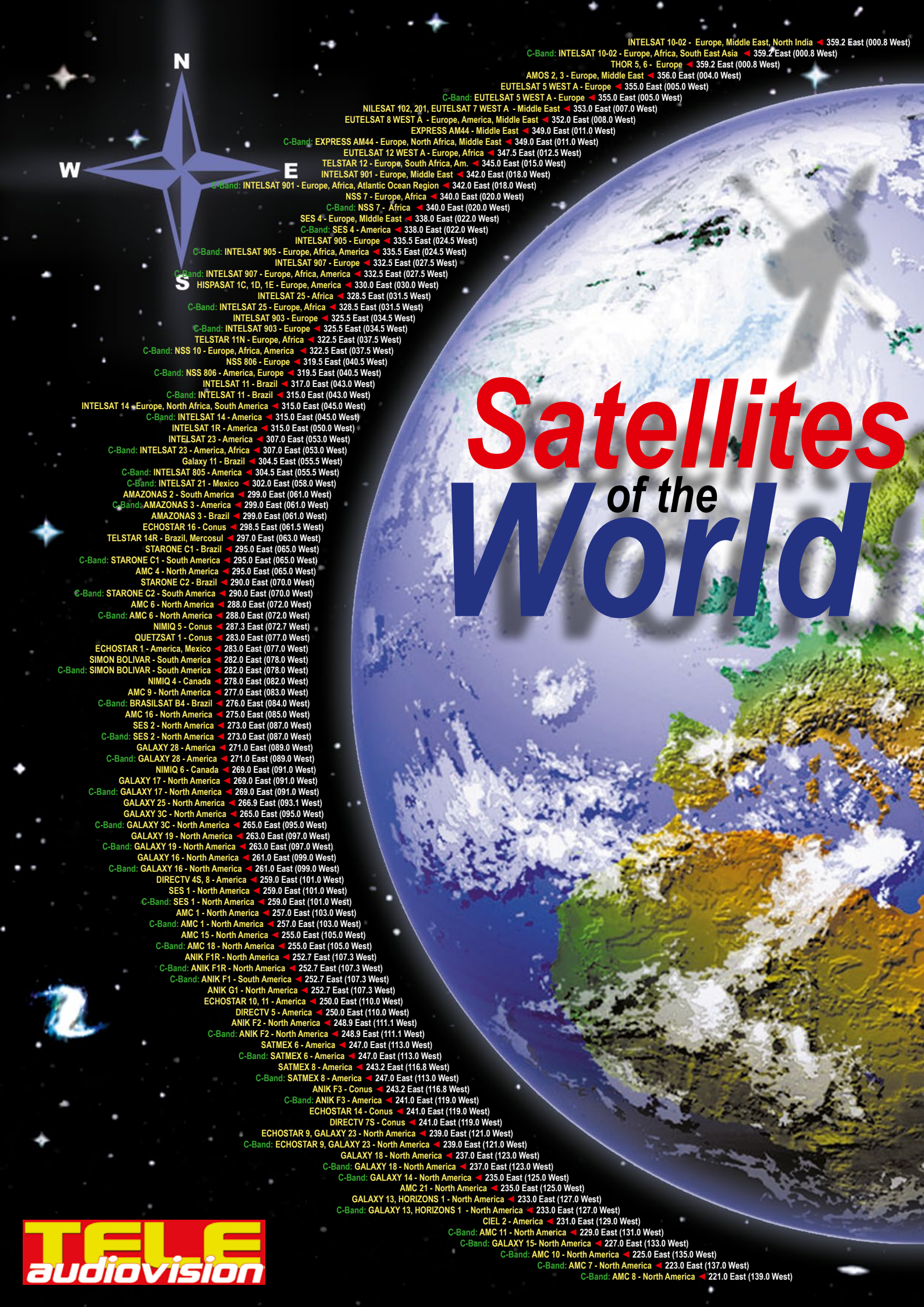
N
W
E
S
Satellites
of the
World
INTELSAT 10-02 - Europe, Middle East, North India ◄ 359.2 East (000.8 West)
C-Band: INTELSAT 10-02 - Europe, Africa, South East Asia ◄ 359.2 East (000.8 West)
THOR 5, 6 - Europe ◄ 359.2 East (000.8 West)
AMOS 2, 3 - Europe, Middle East ◄ 356.0 East (004.0 West)
EUTELSAT 5 WEST A - Europe ◄ 355.0 East (005.0 West)
C-Band: EUTELSAT 5 WEST A - Europe ◄ 355.0 East (005.0 West)
NILESAT 102, 201, EUTELSAT 7 WEST A - Middle East ◄ 353.0 East (007.0 West)
EUTELSAT 8 WEST A - Europe, America, Middle East ◄ 352.0 East (008.0 West)
EXPRESS AM44 - Middle East ◄ 349.0 East (011.0 West)
C-Band: EXPRESS AM44 - Europe, North Africa, Middle East ◄ 349.0 East (011.0 West)
EUTELSAT 12 WEST A - Europe, Africa ◄ 347.5 East (012.5 West)
TELSTAR 12 - Europe, South Africa, Am. ◄ 345.0 East (015.0 West)
INTELSAT 901 - Europe, Middle East ◄ 342.0 East (018.0 West)
C-Band: INTELSAT 901 - Europe, Africa, Atlantic Ocean Region ◄ 342.0 East (018.0 West)
NSS 7 - Europe, Africa ◄ 340.0 East (020.0 West)
C-Band: NSS 7 - Africa ◄ 340.0 East (020.0 West)
SES 4 - Europe, MIddle East ◄ 338.0 East (022.0 West)
C-Band: SES 4 - America ◄ 338.0 East (022.0 West)
INTELSAT 905 - Europe ◄ 335.5 East (024.5 West)
C-Band: INTELSAT 905 - Europe, Africa, America ◄ 335.5 East (024.5 West)
INTELSAT 907 - Europe ◄ 332.5 East (027.5 West)
C-Band: INTELSAT 907 - Europe, Africa, America ◄ 332.5 East (027.5 West)
HISPASAT 1C, 1D, 1E - Europe, America ◄ 330.0 East (030.0 West)
INTELSAT 25 - Africa ◄ 328.5 East (031.5 West)
C-Band: INTELSAT 25 - Europe, Africa ◄ 328.5 East (031.5 West)
INTELSAT 903 - Europe ◄ 325.5 East (034.5 West)
C-Band: INTELSAT 903 - Europe ◄ 325.5 East (034.5 West)
TELSTAR 11N - Europe, Africa ◄ 322.5 East (037.5 West)
C-Band: NSS 10 - Europe, Africa, America ◄ 322.5 East (037.5 West)
NSS 806 - Europe ◄ 319.5 East (040.5 West)
C-Band: NSS 806 - America, Europe ◄ 319.5 East (040.5 West)
INTELSAT 11 - Brazil ◄ 317.0 East (043.0 West)
C-Band: INTELSAT 11 - Brazil ◄ 315.0 East (043.0 West)
INTELSAT 14 - Europe, North Africa, South America ◄ 315.0 East (045.0 West)
C-Band: INTELSAT 14 - America ◄ 315.0 East (045.0 West)
INTELSAT 1R - America ◄ 315.0 East (050.0 West)
INTELSAT 23 - America ◄ 307.0 East (053.0 West)
C-Band: INTELSAT 23 - America, Africa ◄ 307.0 East (053.0 West)
Galaxy 11 - Brazil ◄ 304.5 East (055.5 West)
C-Band: INTELSAT 805 - America ◄ 304.5 East (055.5 West)
C-Band: INTELSAT 21 - Mexico ◄ 302.0 East (058.0 West)
AMAZONAS 2 - South America ◄ 299.0 East (061.0 West)
C-Band: AMAZONAS 3 - America ◄ 299.0 East (061.0 West)
AMAZONAS 3 - Brazil ◄ 299.0 East (061.0 West)
ECHOSTAR 16 - Conus ◄ 298.5 East (061.5 West)
TELSTAR 14R - Brazil, Mercosul ◄ 297.0 East (063.0 West)
STARONE C1 - Brazil ◄ 295.0 East (065.0 West)
C-Band: STARONE C1 - South America ◄ 295.0 East (065.0 West)
AMC 4 - North America ◄ 295.0 East (065.0 West)
STARONE C2 - Brazil ◄ 290.0 East (070.0 West)
C-Band: STARONE C2 - South America ◄ 290.0 East (070.0 West)
AMC 6 - North America ◄ 288.0 East (072.0 West)
C-Band: AMC 6 - North America ◄ 288.0 East (072.0 West)
NIMIQ 5 - Conus ◄ 287.3 East (072.7 West)
QUETZSAT 1 - Conus ◄ 283.0 East (077.0 West)
ECHOSTAR 1 - America, Mexico ◄ 283.0 East (077.0 West)
SIMON BOLIVAR - South America ◄ 282.0 East (078.0 West)
C-Band: SIMON BOLIVAR - South America ◄ 282.0 East (078.0 West)
NIMIQ 4 - Canada ◄ 278.0 East (082.0 West)
AMC 9 - North America ◄ 277.0 East (083.0 West)
C-Band: BRASILSAT B4 - Brazil ◄ 276.0 East (084.0 West)
AMC 16 - North America ◄ 275.0 East (085.0 West)
SES 2 - North America ◄ 273.0 East (087.0 West)
C-Band: SES 2 - North America ◄ 273.0 East (087.0 West)
GALAXY 28 - America ◄ 271.0 East (089.0 West)
C-Band: GALAXY 28 - America ◄ 271.0 East (089.0 West)
NIMIQ 6 - Canada ◄ 269.0 East (091.0 West)
GALAXY 17 - North America ◄ 269.0 East (091.0 West)
C-Band: GALAXY 17 - North America ◄ 269.0 East (091.0 West)
GALAXY 25 - North America ◄ 266.9 East (093.1 West)
GALAXY 3C - North America ◄ 265.0 East (095.0 West)
C-Band: GALAXY 3C - North America ◄ 265.0 East (095.0 West)
GALAXY 19 - North America ◄ 263.0 East (097.0 West)
C-Band: GALAXY 19 - North America ◄ 263.0 East (097.0 West)
GALAXY 16 - North America ◄ 261.0 East (099.0 West)
C-Band: GALAXY 16 - North America ◄ 261.0 East (099.0 West)
DIRECTV 4S, 8 - America ◄ 259.0 East (101.0 West)
SES 1 - North America ◄ 259.0 East (101.0 West)
C-Band: SES 1 - North America ◄ 259.0 East (101.0 West)
AMC 1 - North America ◄ 257.0 East (103.0 West)
C-Band: AMC 1 - North America ◄ 257.0 East (103.0 West)
AMC 15 - North America ◄ 255.0 East (105.0 West)
C-Band: AMC 18 - North America ◄ 255.0 East (105.0 West)
ANIK F1R - North America ◄ 252.7 East (107.3 West)
C-Band: ANIK F1R - North America ◄ 252.7 East (107.3 West)
C-Band: ANIK F1 - South America ◄ 252.7 East (107.3 West)
ANIK G1 - North America ◄ 252.7 East (107.3 West)
ECHOSTAR 10, 11 - America ◄ 250.0 East (110.0 West)
DIRECTV 5 - America ◄ 250.0 East (110.0 West)
ANIK F2 - North America ◄ 248.9 East (111.1 West)
C-Band: ANIK F2 - North America ◄ 248.9 East (111.1 West)
SATMEX 6 - America ◄ 247.0 East (113.0 West)
C-Band: SATMEX 6 - America ◄ 247.0 East (113.0 West)
SATMEX 8 - America ◄ 243.2 East (116.8 West)
C-Band: SATMEX 8 - America ◄ 247.0 East (113.0 West)
ANIK F3 - Conus ◄ 243.2 East (116.8 West)
C-Band: ANIK F3 - America ◄ 241.0 East (119.0 West)
ECHOSTAR 14 - Conus ◄ 241.0 East (119.0 West)
DIRECTV 7S - Conus ◄ 241.0 East (119.0 West)
ECHOSTAR 9, GALAXY 23 - North America ◄ 239.0 East (121.0 West)
C-Band: ECHOSTAR 9, GALAXY 23 - North America ◄ 239.0 East (121.0 West)
GALAXY 18 - North America ◄ 237.0 East (123.0 West)
C-Band: GALAXY 18 - North America ◄ 237.0 East (123.0 West)
C-Band: GALAXY 14 - North America ◄ 235.0 East (125.0 West)
AMC 21 - North America ◄ 235.0 East (125.0 West)
GALAXY 13, HORIZONS 1 - North America ◄ 233.0 East (127.0 West)
C-Band: GALAXY 13, HORIZONS 1 - North America ◄ 233.0 East (127.0 West)
CIEL 2 - America ◄ 231.0 East (129.0 West)
C-Band: AMC 11 - North America ◄ 229.0 East (131.0 West)
C-Band: GALAXY 15- North America ◄ 227.0 East (133.0 West)
C-Band: AMC 10 - North America ◄ 225.0 East (135.0 West)
C-Band: AMC 7 - North America ◄ 223.0 East (137.0 West)
C-Band: AMC 8 - North America ◄ 221.0 East (139.0 West)
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Issue	**TELE-audiovision 09-10/2013**	**TELE-audiovision 11-12/2013**	**TELE-audiovision 01-02/2014**	**TELE-audiovision 03-04/2014**
#	1309	1311	1401	1403
Editorial Deadline	28 June 2013	30 August 2013	1 November 2013	27 December 2013
Advertisement Deadline 广告截止日期	**5 July 2013**	**6 September**	**6 November 2013**	**3 January 2014**
Hardcopies	16 August 2013	18 October 2013	20 December 2013	14 February 2014
Online	30 August 2013	1 November 2013	3 January 2014	28 February 2014

Digital TV Exhibitions

6 - 11 September 2013
IFA 2013
The Global Innovations Show
Messe Berlin, Messedamm 22, Berlin, Germany
Opening Hours:
6 - 11 September: 10am - 6pm
www.ifa-berlin.com

13 - 17 September 2013
IBC 2013
For professionals engaged in the creation, management and delivery of entertainment and news content
RAI Convention Centre, Amsterdam, The Netherlands
Opening Hours:
13 September: 10:30am - 6:00pm
14 - 16 Sept.: 9:30am - 6:00pm
17 September: 10:30am - 4:00pm
www.ibc.org

18 - 20 September 2013
VSAT 2013
Grand Hotel Krasnapolsky, Amsterdam, The Netherlands
www.vsatevent.com

13 - 16 October 2013
HKTDC Autumn
Hongkong, China

24 - 27 October 2013
CeBIT Bilisim Eurasia
Istanbul, Turkey

29 - 30 October 2013
ECEBE Broadband Expo
East and Central European Broadband Exhibition
Keleti u. 1. (Budapark), Budaörs, Budapest, Hungary
Opening Hours:
29 October: 09:00am - 5:00pm
30 October: 09:00am - 5:00pm
www.ecebe.eu

25 - 27 October 2013
SCaT India 2013
South Asia's Largest Tradeshow of the Indian Cable & Satellite Television Industry
World Trade Centre, Cuffe Parade, Mumbai, India
Opening Hours:
25 October: 11:30am - 6:30pm
26-27 October: 10:30am - 6:30pm
www.scatmag.com/scatindia/

13 - 15 November 2013
InterBEE
International Broadcast Equipment Exhibition
Tokyo, Japan
www.inter-bee.com

19 - 22 November 2013
ITU Telecom World
Conversation that Matters
IMPACT, 99 Popular Road, Banmai Subdistrict, Pakkred District, Nonthaburi 11120, Thailand
world2013.itu.int

20 - 23 November 2013
Vietnam Electronics 2013
The Best Platform to Capture the Electronics Market in Vietnam
Saigon Exhibition and Convention Center, 799 Nguyen Van Linh Parkway, District 7, Ho Chi Minh City, Vietnam
www.vietnamelectronics.com

3 - 4 December 2013
Satellite Mobility 2013
London, UK
mobility.vsatevent.com

7 - 10 January 2014
2014 International CES
Manufacturers, developers and suppliers of consumer technology hardware, content, technology delivery systems and related products and services
Las Vegas Convention Center, Las Vegas, Nevada, USA
Opening Hours:
7 January: 10:00am - 6:00pm
8 - 9 Jan.: 9:00am - 6:00pm
10 January: 9:00am - 4:00pm
www.cesweb.org

21 - 23 January 2014
Convergence India 2014
New Delhi, India

28 - 30 January 2014
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