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Claus Neie, DL7QY, D-7181 Rudolfsberg 24 Phone: 07951-7418

## DUOBANDTRANSCEIVER

TEIL 2 - MODUL SSCW 702 RI 1

HF-EINGANGSTEIL

MISCHER

SENDETREIBER

STÖRAUSTASTER

1. ZF-VERSTÄRKER

2m & 70cm

SSB + CW

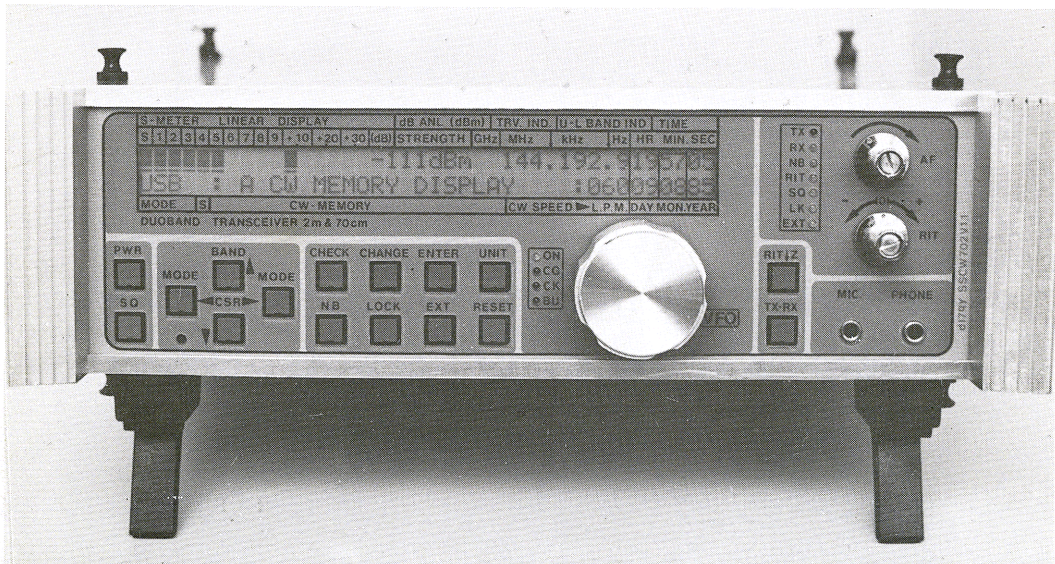
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COVERPICTURE: DUOBANDTRANSCEIVER SSCW702 2M & 70CM

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# TECHNICAL REPORTS

## SSCW 702 SSB/CW 2m & 70cm DUOBAND TRANSCEIVER

Teil 2 (Vorstufen, Mischer, Tx Treiber, Störaustaster, ZF Vorverstärker)  
von DL7QY

Die hier beschriebene Baugruppe stellt den Teil des Transceivers dar, welcher im Wesentlichen für die Großsignal- und Empfindlichkeitseigenschaften verantwortlich zeichnet. Der Entwicklung dieser Baugruppe wurde deshalb besondere Aufmerksamkeit gewidmet. Das Modul SSCW702 RI1 V1.1 beinhaltet eine doppelseitig kaschierte Epoxy Platine, welche in eine Neusilberzarge rundum vor dem Bestücken eingelötet wird. In dieser Zarge wurden vorher schon die Durchführungsfilter DF1 bis DF15 und die Koaxbuchsen (SMB) RIC1 bis RIC9 eingelötet. Die Anschlußstifte der Durchführungsfilter dienen gleichzeitig als Steckeranschlußleiste für das Modul.

### Der Pegelplan

Im Pegelplan sind die Empfangseigenschaften dargestellt. Drei Ausführungen auf den IP bezogen, sind abgebildet. Die Standardversion ist mit einem IP von +5dBm ausgestattet. Opt.01 bezieht sich auf einen IP von +10dBm (macht sich später im Preis erheblich bemerkbar, weil Materialpreise deutlich höher). Eine Opt.02 wird bei entsprechender Nachfrage als Sonderausstattung zur Verfügung stehen. Noch ein Hinweis zu den im Pegelplan angegebenen Rauschwerten: In der rechten Spalte (ZF-Vorstärker) sind die Gesamtrauschzahlen angegeben. Diese beziehen sich aber auf die Koaxeingänge des Moduls SSCW702 RI1 V1.1! Die in der linken Spalte (Stufe) angegebenen Rauschwerte entsprechen den Rauschwerten an der Transceiver-Antennenbuchse, d.h. es ist eine Antennenrelais- und Kabelzusatzdämpfung von 0.3dB hinzu addiert worden. Beim Vergleich der Empfindlichkeitsdaten der verschiedenen Versionen läßt sich deutlich eine Verschlechterung der Rauschwerte zu Gunsten der Großsignalfestigkeit ablesen. Leider läßt sich hier keine kompromißlose Lösung realisieren. Letztlich entscheidet der Anwender selber, ob er mehr Wert auf Empfindlichkeit oder bessere Großsignalfestigkeit legt. Weiterhin soll dieser Pegelplan verständlicher machen, Was in welcher Abhängigkeit voneinander steht. Vielleicht bewirkt es auch ein etwas defensiveres Werben von einigen 'Vorverstärker-Herstellern', welche mit ihren 'Großsignalfesten' und 'Superrauscharmen' Vorverstärkerdaten dem technisch nicht so versierten OM ständig Sand in die Augen streuen. Daß v.g. Eigenschaften vom gesamten Empfängerkonzept einschließlich von den VFO-Eigenschaften abhängen, kann nicht oft und deutlich genug propagiert werden!

### Schaltungsbeschreibung

#### 1.) 2m Vorverstärker

Aus Bild 1.1 ist die Schaltung ersichtlich. Zwei Koaxbuchsen (SMB) führen zum 1. Vorverstärker über das Relais RL1, welches von der MCU gesteuert, bestimmt, ob der Transverteranschluß als Eingang dient (RIC3), oder das über das Antennenrelais (nicht auf dieser Platine) kommende 2m Eingangssignal von der Antenne (RIC4). In der ersten und zweiten Vorstufe kommt ein Dual Gate MES GaAs FET vom Typ CF300 (Telefunken Elektronik), der wohl rauschärmste und großsignalfesteste MES FET zur Zeit auf dem Weltmarkt, zum Einsatz. Die Intermodulationseigenschaften sind in Fig. 4 dargestellt. Diese Meßwerte wurden von mir selber ermittelt, nach Anforderung auch anschließend vom Hersteller bestätigt, welcher z. Z. daran arbeitet den Chip vom CF300 im Gehäuse metallisch zu befestigen (bisher geklebt), um die Verlustleistungswärme besser ableiten zu können. Dauerversuche haben gezeigt, daß die derzeitig zulässige Verlustleistung (250mW) zwar problemlos bis 350mW überschritten werden kann, aber durch die veränderten Befestigungsmaßnahmen

vom Chip im Gehäuse bis auf etwa 650mW erhöht werden kann. Über die Schaltung der Vorstufe kann aus (1) mehr Information bezogen werden. Hierbei möchte ich nochmals darauf hinweisen, daß die in (1) veröffentlichten Vorverstärker ohne Änderung mit dem CF300 bestückt werden können; man erhält dadurch die Vorteile des geringeren Rauschens und erheblich bessere Großsignaleigenschaften im Gegensatz zum NE41137 bei etwa gleichem Preis.

Die Werte der Sourcewiderstände können der Tabelle Fig. 3 entnommen werden, je nach Ausführung des Gerätes. Nach der ersten Verstärkerstufe folgt ein Vierkreisbandfilter welches genauer in (2) beschrieben ist. Hiernach folgt ein Festdämpfungsglied, welches auch je nach Ausführung bestückt ist (Tab.3). In Tab.: Fig. 6 sind Werte für 50 Ohm PI Dämpfungsglieder von 1dB bis 40dB dargestellt. Die zweite Vorstufe dient im Wesentlichen dazu, um die Durchgangsdämpfung des ersten Vierkreisbandfilters bei dem Eigenrauschen der Eingangsstufe zu retten. Dazu wird auch ein Großteil der Verstärkung durch das Festdämpfungsglied wieder vernichtet, um die Großsignaleigenschaften der zweiten Vorverstärkerstufe nicht wesentlich zu verschlechtern. Das zweite Vierkreisfilter wird sender- und empfangsseitig benutzt und jeweils durch entsprechende PIN Dioden (MA47266-10W PIN Diode) verzweigt. Wie sich Verstärkung, Rauschen und Intermodulationsfestigkeit verhalten, kann aus dem Pegelplan (Fig.7) entnommen werden. Insgesamt garantieren die beiden Vierkreisfilter eine Selektion von besser 100dB des Durchlaßbereiches 144-148MHz.

## 2.) 2m Sendetreiber

Das Sendesignal gelangt über ein Vierkreisbandfilter zum 1. Sendetreiber CF300 (T4). Anschließend gelangt das Signal über ein weiteres Vierkreisfilter. Die Filter BP145 haben eine Durchgangsdämpfung von 4dB bei einer Welligkeit von  $\pm 0.1$ dB im Durchlaßbereich 144-148MHz. Die 3dB Bandbreite beträgt 143-149MHz. Anschließend wird das 2m Signal über T3 verstärkt und durchläuft ein vierkreisiges Tiefpaßfilter. Das 2m Signal (hier +20dBm) gelangt nun bei Transverterbetrieb über Relais RL2 zur Koaxbuchse RIC1 oder bei Normalbetrieb an RIC2. Die Ober- und Nebenwellenunterdrückung auf dem an einer dieser beiden Koaxbuchsen anstehenden 2m Sendesignal beträgt größer 100dB.

## 3.) 70cm Empfangsvorverstärker

Der 70cm Empfangsteil ist mit dem 2m Teil identisch, bis auf die Verwendung von Wendelkreisbandfiltern, allerdings auch vierkreisig. Die Werte von R17 und des Festdämpfungsgliedes können aus Tab. (Fig.3) je nach Ausführung entnommen werden. Für das zweite Vierkreisfilter gilt das Gleiche, wie im 2m Vorverstärker. Es wird sender- und empfangsmäßig benutzt und entsprechend durch PIN Dioden umgeschaltet.

## 4.) 70cm Sendetreiber

Nachdem das 70cm Sendesignal das PDG (Programmierbares Dämpfungsglied) verlassen hat und das erste Vierkreisfilter passiert hat, wird es in T8, einem CF300, verstärkt. Nach weiterer Filterung durch das Vierkreisfilter L10 und L11 wird das Signal im T7 weiter verstärkt und gelangt über das Tiefpaßfilter TP440 auf die Koaxbuchse (SMB) RIC6, wo es mit +24dB max. dem Sendendverstärker mit 100dB Ober- und Nebenwellenfreiheit zugeführt werden kann.

## 5.) Programmierbares Dämpfungsglied (PDG)

Das PDG ist mit einer Grunddämpfung von 6dB ausgestattet. Es handelt sich um ein spannungsgesteuertes Dämpfungsglied mit einem Dämpfungsbereich von 6 bis 36dB. R31, 32, 33 und 34 bestimmen die Grunddämpfung und haben auch erheblichen Einfluß auf die Rückflußdämpfungswerte. Durch Vergrößern oder Weglassen der Widerstände R33 und R34 kann die Grunddämpfung bis auf 2dB reduziert werden, was allerdings zu einer schlechteren Rückflußdämpfung führt. Fig. 5 zeigt die Abhängigkeit der Dämpfung von der anliegenden Gleichspannung. Mit RE3 wird ein Dämpfungswert von 36dB eingestellt (Bei U DGL=2.38V); nun



gilt die angegebene Tabelle in Fig. 5.0. Die Werte gelten für 144MHz. Bei 432MHz ist 1dB hinzu zu addieren. Fig. 5.1-5.4 zeigen die Durchgangsdämpfung bei 6, 16, 26 und 36dB mit den dazugehörigen Rückflußdämpfungen, bezogen jeweils auf die Durchlaßlinie. Fig. 5.5-5.12 zeigen die Impedanzwerte im Ein- und Ausgang bei den verschiedenen Dämpfungswerten. Das PDG wird über einen D/A-Wandler von der MCU im Sende- und Empfangsfall gesteuert. Die Einstellungen im Empfangsfall sind aus dem Pegelplan Fig.7 (Spalte Progr. Dämpfgl.) ersichtlich. Diese Werte sind frei programmierbar und können einfach verändert werden. Im Sende- und Empfangsfall bestimmt der eingestellte Wert die jeweilige Ausgangsleistung des Senders, oder die Ausgangsleistung des Transverters, ebenfalls frei programmierbar. Als PIN Diode findet der MA Typ MA47266 Verwendung. Hierbei handelt es sich um eine 10W PIN Diode. Der IP wurde mit +37dBm (3 Dioden par.) bei zwei Eingangsleistungen von -15dBm ermittelt. Das Relais RL3 wird entsprechend für 2m oder 70cm Betrieb von der MCU umgeschaltet.

## 6.) Der Mischer

Als Mischer findet im Sende- und Empfangsfall ein Dioden-Ringmischer Verwendung. Welche Type verwendet wird, richtet sich nach der Version des Gerätes und kann dem Pegelplan (Spalte Mischer) entnommen werden. Die ausgangsseitige Breitbandanpassung wird über den Hochpaß L15, C46 und C47 am Widerstand R35 sichergestellt. Die Spule L15 wird ohne Kern, zum Erhalt der Großsignaleigenschaften, verwendet. Besonders empfindlich reagiert der Mischer auf Fehlanpassung auf der 3xL0+-ZF. Der Serienresonanzkreis L16 (auch ohne Kern) mit CE13/C48 dient zur Ausfilterung der ZF 21.4MHz.

## 7.) RX-ZF Anpaßverstärker mit Signalverzögerung

Das ZF Signal gelangt über das Relais RL4, im Empfangsfall, verstärkt über T9, in das Quarzfilter XT1/XT2, was zur Signalverzögerung benötigt wird, um den Laufzeitunterschied zwischen Störsignalverstärker und Hauptsignalzweig auszugleichen. Gleichzeitig kann man von einer Weitabvorselektion von etwa 35dB ausgehen. Anschließend folgt eine Parallel-Verstärkerstufe mit zwei POWER FET's, welche das Signal um etwa 3.5dB verstärkt und die Anpassung zum Störaustaster (D12-D15) herstellt. Ausführliche Beschreibungen sind aus (4), (5), (6) und (7) zu entnehmen. Die Ausgangsimpedanz vom Austaster beträgt 50 Ohm. Anschließend gelangt das ZF Signal über das Relais RL5 zum 8-poligen Quarzfilter TQF21-06. Dieses Quarzfilter wird im Sende- und Empfangsfall benutzt. Es besitzt eine Ein- und Ausgangsimpedanz von 50 Ohm ohne Kapazitive Anteile. Die eigentlichen Anpassungstransformatoren sind intern im Filter ausgebildet und mit besonders intermodulationsfesten Eisenpulver-Ringkernen ausgestattet. Die 6dB Bandbreite des Filters beträgt +-1.2 kHz. Die genauen Durchlaß- und Selektionsdaten können Fig.8.0-8.1 entnommen werden. Dieses Quarzfilter wurde speziell für diesen Transceiver entwickelt. Das ZF Signal gelangt vom Quarzfilter über C64 an den 1. integrierten ZF Verstärker IC6, SL611, welcher das ZF Signal um etwa 25dB bei einer Rauschzahl von ca. 3dB verstärkt. Dieser Verstärker wird über den AGC Anschluß RI1 geregelt. Die Regelspannungserzeugung ist im Modul SSCW702 IL1 V1.1 untergebracht, dessen Beschreibung im nächsten DUBUS Heft folgt. Das ZF Signal selber steht an der Koax-Buchse (SMB) RIC7 zur weiteren Verarbeitung zur Verfügung.

## 8.) Störkanalaustastverstärker

Abweichend von den Vorschlägen in (5) und (6), findet hier ein neu entwickelter IS von Plessey Anwendung: Ein komplett integrierter Empfänger IS mit eingebautem Monoflop zur Störaustastung. Das ZF-Signal 21.4MHz wird über T10 vom Hauptzweig abgetrennt und gelangt über C68 in den IS IC2. Hier wird das Signal verstärkt und auf eine 2. ZF von ca. 400kHz, mit Hilfe des Oszillators T11 (21.0MHz), umgesetzt. Die Gesamtverstärkung beträgt etwa 100 dB. Die Schaltung wurde im Wesentlichen aus (3) übernommen. Ein interner Monoflop triggert über T14 als Treiber und T15 als Schalter die Dioden im Austastgatter D12-D15. Die Monoflop-Haltezeit kann über Zuschalten verschiedener Kondensatoren C87-C90 verändert werden. Die jeweilige

Austastzeit wird von der MCU über IC3, IC4 und IC5 gesteuert und ist frei in 4 Stufen programmierbar. Die erreichte Sperrtiefe kann z. T. mit RE5 (Verstärkung des Störkanalverstärkers) beeinflusst werden. Die endgültige Austasttiefe wird von dem Brückenzustand D12-15 bestimmt und beträgt etwa 70dB. Die Angaben von DJ7VY in (4) und (5) über den IP des Austastgatters von IP= +31dBm können bestätigt werden. Durch Verkleinern von R57 auf 68 Ohm wird ein IP= +33dBm erreicht. Der Strom durch die Dioden gerät aber hier in den Grenzbereich für die Dioden und ist nicht zu empfehlen. Über R43 und R44 werden die Dioden im Sperrzustand negativ vorgespannt, was der Sperrtiefe noch entscheidend zu Gute kommt.

#### 9.) Sendezweig ZF 21.4MHz.

Im Sendefall gelangt das ZF-Sendesignal 21.4 MHz über die Koaxbuchse (SMB) RIC8, über das Quarzfilter und das Relais RL5 (im Sendefall angezogen) zum IS IC1, SL611. Hier wird der Grundsendepegel mit RE6 eingestellt. Mit einer Leistung von etwa +3dBm gelangt das Signal über das Relais RL4 (im Sendefall angezogen) auf den Hauptmischer MI1 zur weiteren Verarbeitung.

#### 10.) Der Abgleich

Für alle Abgleicharbeiten wird an das PDG keine Spannung angelegt (Grunddämpfung 6dB ist wirksam).

An RI1 3V Gleichspannung anlegen.

Obwohl es sich hier um ein relativ komplexes Modul handelt, ist der Abgleich relativ schnell vorgenommen (vorausgesetzt, Meßgeräte vorhanden). Anderenfalls im späteren Modulbausatz ist das Modul natürlich fertig abgeglichen mit entsprechendem Meßprotokoll.

2m Vorverstärker: Mit RE1 Ruhestrom T1 auf 21mA einstellen. Mit CE3 und L2 auf größte Verstärkung (bei 146 MHz) einstellen. Mit CE1/CE2 und L1 wechselseitig auf niedrigstes Rauschen.

70cm Vorverstärker: Wie 2m Vorverstärker (Mittenfrequenz 434MHz). L5 und L6 und CE8/L7 auf max. Verstärkung. L13 und L14 auch auf max. Verst. abgleichen.

2m Sendetreiber: In Stellung 'TUNE' mit RE6 auf etwa +3dBm am Mischer MI1 einstellen. CE5 und L3 auf größte Ausgangsleistung, ebenso mit CE4, bei 146MHz. Ausgangsleistung liegt bei min +23dBm. Wird später über PDG reduziert.

70cm Sendetreiber: ZF wie bei 2m. RE4 auf etwa 20mA Ruhestrom T7 einstellen. Auf 434 MHz L13 und L14 Ausgangsleistung maximieren. Ebenso mit CE12/L12, L10 und L11, CE10/11 und CE9. An RIC6 stehen min +24dBm zur Verfügung. Wird später mit PDG reduziert.

Programmierbares Dämpfungsglied: Bei 2.38V an RI15 mit RE3 auf 36dB Dämpfung einstellen.

ZF-Verstärker und Störaustaster: Mit CE14/15 auf geringste Durchgangsdämpfung. Mit RE7 auf gleiche Gleichspannung an beiden Außenanschlüssen des RE7. Mit CE16 auf geringste Durchgangsdämpfung abgleichen. Mit RE8 im Ruhezustand (Störsignalverstärker NICHT aktiv) gleiche Spannung an R45/46 einstellen. Schwaches Störsignal einspeisen und mit Abgleich von L18 auf größte Austastung einstellen (RE5-Schleifer am Source Anschluß).

#### 11.) Aufbau und Anschlußplan

Den Bestückungsplan zeigt Fig. 2.0. Den Anschlußplan zeigt Fig.2.1. Die Durchführungsfilter sind mit 0,3mm CuL mit den entsprechenden Punkten auf der Printplatte verbunden und zu einem Kabelbaum zusammengebunden. Die Neusilberzarge ist in Fig. 9 maßlich dargestellt, in welche die Platine vor dem Bestücken eingelötet wird.

## Die Transformatoren:

TR1: 3x4 Wdg trifilar 0.3CuL auf F100b  
Ringkern. D=9mm (NEOSID)  
TR2: Wie TR1.  
TR3: 2/7Wdg lin 0.3CuL auf F100b  
Ringkern. (NEOSID)  
TR4: Wie TR1.  
TR5: 3x1 Wdg trifilar 0.3CuL auf F100b  
Ringkern D=4mm. (NEOSID)  
TR6: Wie TR5.  
TR7: Wie TR5.

TR8: 2x10 Wdg. bifilar 0.3CuL auf  
R6.3N30 Ringkern (SIEMENS)  
TR9: 3x10 Wdg trifilar 0.3CuL auf  
R6.3N30 Ringkern. (SIEMENS)  
TR10: 2x10 Wdg. bifilar 0.3CuL auf  
T25-27 ge Ringkern. (AMIDON)  
TR11: 2x6 Wdg 0.3CuL verdreht auf  
T25-27 ge Ringkern. (AMIDON)  
TR12: 3x9 Wdg. trifilar 0.3CuL auf  
T25-27 ge Ringkern. (AMIDON)

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- (3) SL6700A-IF amplifier and AM detector, Linear Integrated Circuit Handbook (Plessey) p.177-184.
- (4) Modernes Eingangsteil für 2m Empfänger mit großem Dynamikbereich, DJ7VY UKW-Berichte 2/78 S.116.
- (5) Großsignalfester Störaustaster, DJ7VY, UKW-Berichte 2/79 S.74/UKW-Berichte 4/79 S.201.
- (6) Quarzfilter und ZF Vorverstärker für IM-feste KW Empfänger und Nachsetzer W. Flor OE1LO, cqDL4/82 S.178
- (7) Vielseitig einsetzbares ZF-Teil für 2m Empfänger und Nachsetzer, F. Krug DJ3RV, UKW-Berichte 4/81 S.239.

Berichtigungen aus DUBUS 2/85 Duobandtransceiver Teil 1 VFO:

S. 116 Anschlußbild NE73432E- Collector ist mit Basis im Anschlußbild vertauscht. Seite 106/107 bei 'Technische Daten 2m+70cm Empfänger' muß es bei Intercept Punkt lauten (gilt für 2m + 70cm gleichermaßen):  
Ohne Option (Standard Modell): IP= +5dBm (+17dBm LO power).  
Option 01 : IP= +10dBm (+23dBm LO power).  
Option 02 : IP= +15dBm (+27dBm LO power).

SSCW 702 SSB/CW 2m & 70cm DUOBAND TRANSCEIVER

Part 2 (Preamp, Mixer, TX Driver, Noiseblanker, IF-preamp) SSCW702 RI1 V1.1 by DL7QY

This unit of the transceiver represents that part, which is mostly responsible for the performance of its dynamic and sensitivity features. The PCB is made from a double clad epoxy material and soldered into the frame after mounting the feedthrough filters DF1 to DF15 and the coax sockets RIC1 to RIC9 (SMB). The pins of the feedthrough filters are used as connectors for the module.

Level Diagram

The Level Diagram shows the receivers performance (Fig.7). Three versions are available depending of the intercept point of the receiver. Standard model without any option features +5dBm; Option 01 an IP of +10dBm. A special model Option 02 will be available features an IP of +15dBm. The noise figures in the right column of the level diagram (IF-amplf.) refer to the coax input sockets of the module SSCW702 RI1 V1.1. The total noise performance including the antenna relay loss and its feedline loss (additional .3dB) is shown in the left column (Stage).

## Circuit description

### 1.) 2m preamplifier

Fig. 1.1 shows the circuit diagram. From the coax sockets RIC3 (under transverter operation) or RIC4 (normal operation), the 2m signal passes the relay RL1 (MCU controlled) and is amplified by the first Dual Gate GaAs MES FET T1 typed CF300, at present the most noiseless and intermodless MES FET worldwide, produced by Telefunken Electronics (low cost abt. DM 6,—). The IM features are shown in Fig. 4. The there shown results were measured by myself and confirmed by the producer. The factory recommend a max. P tot of 250mW yet. I, myself operate the transistor up to 350mW powerdissipation without any failure, even under long term operation. The Telefunken Electronics will improve the CF300 in the near future by using a metallic mounting method of the chip into the case up to 650mW power dissipation which allows a higher drain current and gives a more large dynamic range performance; maybe up to an 3rd order IP of +25dBm instead of 20dBm now. Further details are obtainable from (1). The there used Transistor NE41137 can be replaced by the CF300 without any other change of components, giving much better noise and dynamic performance.

The value of the source resistor (T1) can be find out from the table Fig. 3. Another table (Fig.6) shows 50 Ohm PI attenuators from 1 to 40dB. After amplification through T1, the signal is filtered by a fourpole bandpassfilter (2). Thereafter follows a fixed attenuator eliminating a great part of the amplification of the first transistor to keep the large dynamic range performance of the receiver including a low frontend noise and passband selection performance. The values of the resistors are obtainable from Fig. 3. The second stage T2 is amplifying the signal for another 20dB. Thereafter the signal is passing an other 4pole bandpassfilter and the PD6 (programmable attenuator). The two fourpole bandpassfilter in the receive path guarantees a passband selection performance of better than 100dB.

### 2.) 2m TX driver

The 2m TX signal, product from the mixer MI1, is passing the MCU controlled PD6 and is filtered by a fourpole passband filter and amplified by T4. The bandwidth of the BP145 amounts 143 to 149MHz (3dB). The rippel within the 144-148MHz passband amounts  $\pm 1$ dB. The filters will be delivered later already aligned as module. After passing the 2nd BP145, the signal is amplified by T3 followed by a lowpass filter. The 2m TX driver signal is now obtainable at one of the coax sockets RIC1 (transverter operation MCU controlled) or at RIC2 (normal operation) with abt. 23dBm power. Spurious and harmonic rejection is better than 100dB.

### 3.) 70cm preamplifier

The 70cm preamp is nearly identical to the 2m preamplifier. Instead of the fourpole bandpass filters fourpole helix bandpassfilters are used. The values of R17 and of the fixed attenuators are shown in Fig. 3 depending on the selected dynamic performance of the transceiver.

### 4.) 70cm TX driver

The 70cm TX driver is also similar to the 2m one, except the used helix filters and its final transistor is a bipolar type used instead of a FET. Spurious and harmonic performance of the 70cm TX signal is similar to the 2m path, better 100dB rejection. On the coax socket RIC6 (all coax sockets are SMB types) the signal is obtainable of +24dBm strength.

### 5.) Programmable attenuator PD6

The residual attenuation is fixed to 6dB for getting a better returnloss performance of the device. The PD6 is controlled by a DC Voltage of .1 (-6dB) up to 2.38V (-36dB). Fig. 5 shows the attenuation values depending on the



driven voltage. The shown values are valid for 144MHz. For 434MHz an other 1dB has to be added. Fig. 5.1 to 5.4 show the attenuation and simultaneously the returnloss response selected for 6, 16, 26 and 36dB. Fig. 5.5 to 5.12 show the in- and output impedance performance depending on the selected attenuation values of 6, 16, 26 and 36dB. The PDG is programmable MCU controlled. In case of receiving, the PDG is programmed to the recommended value from the level diagram (Fig. 7). In case of transmitting the PDG can be programmed by the operator for the wanted output power of the transceiver selected on each band and the wanted driver power for transverter operation each band, too. High power PIN-Diodes typed MA47266 (Microwave Associates) are used giving very good linearity and a large dynamic range performance. An 3rd order IP of +37dBm was measured using three diodes parallel.

#### 6.) The Mixer

The used mixer MI1 is a ring diode type. Which model is used can be taken, depending on the transceiver model, from the level diagram shown in Fig. 7. The mixer is active in case of receiving as well as during transmitting. Under receiving, the output termination (IF) is matched to the L0x3 +-IF via a highpass filter C46/47 and L15 (without core-aircoil only) into the 50 Ohm load R35. The IF signal 21.4 MHz is selected via the series resonance circuit L16/CE13 and C48. (Also this coil is used without any core).

#### 7.) RX-IF matching amplifier and signal delay circuit

The IF signal is passing the relay RL4 in case of receiving, amplified by T9, passing the crystal filter XT1/XT2 which delays the signal to arrive the linear gate at the same time as that in the separate noise blanker receiver IC (IC2) generated blanking signal. After passing the crystal filter, the IF signal is amplified in a parallel power FET amplifier T12/13 and matched on its output to the linear NB gate followed by a 8-pole crystal filter TQF21-06. The bandwidth of this filter amounts +-1.2kHz at an In- and Output impedance of 50 Ohm. This crystal filter is especially designed for this transceiver and contains iron-powder ringcores transformers to improve its dynamic range performance up to +40dBm 3rd order IP. The performance is shown in Fig. 8.0-8.1.

#### 8.) Noise Blanker receiver

The not delayed IF signal is separated by T10 and drives the 'single chip' receiver IC2 typed SL6700A factured by Plessey. The SL6700 contains also a integrated monoflop producing a blank signal of different lengths depending on the capacitances C87-C90. 4 different blanking times are programmable MCU controlled via IC3/4 and 5. The IF signal 21.4MHz is mixed down within the IC2 to abt. 400kHz IF (T11=Oscillator on 21.0MHz) and the NB channel gain is max. 100dB.

#### 9.) The TX-IF path 21.4MHz

In case of transmitting the same crystal filter is used as in the receiving path on 21.4MHz. The TX signal is passing the activated relay RL5, is amplified up to abt. +3dBm in IC1 and drives via RL4 the mixer MI1.

#### 10.) Alignment of the module

For all adjustments disconnect any voltage from the PDG -RI15- (6dB attenuation). Supply RI1 (AGC) by 3V DC.

2m preamplifier: T1 drain current is adjusted by RE1 to 21mA. CE3 and L3 to max. gain (at 146MHz). CE1/2 and L1 is aligned to the best noise performance.

70cm preamplifier: same procedure as on the 2m type (frequency 434MHz). Additional alignment of the helix-filters L5/6 and L13/14 to max gain on

434MHz.

2m TX driver: In mode 'TUNE' adjust with RE6 to abt. +3dBm the 21.4MHz signal on the MI1 (IF-port). CE5/L3 max outputpower (146MHz) as well as CE4. The obtainable outputpower now on RIC1/2 amounts +23dBm which is reduced later by the MCU to the wanted values.

70cm TX driver: IF- the same as on 2m. RE4 is adjusted to Iq of T7 to 20mA. On 434MHz to max. output power L13/15, CE12/L12, L10/11, CE10/11 and CE9. Abt. +24dBm now obtainable at RIC6.

PDG (programmable attenuator): Supply RI15 by 2.38V DC. Now adjust with RE3 the attenuation to -36dB.

IF-amplifier and noise blanker: Adjust with CE14/15 the IF path to most less insertion loss. Adjust RE7 to same sourcevoltages of T12/13. Adjust RE8 to same voltages on R45/46 when NB is NOT active. Supply the receiver by a weak noise signal at one of the coax input sockets for being able to make a proper adjustment for best noise blanker performance by RE5. RE5 sets the gain of the noise receiver channel.

### 11.) Connection diagram

The placement of components is shown in Fig. 2.0. The connection wiring in Fig. 2.1. The feedthrough filters within the frame are connected via CuL 0.3 wires into the terminations on PCB. The housing is shown in Fig. 9. The PCB is soldered blank into the frame without any components on it. Now the parts can be placed on the PCB.

### The transformers

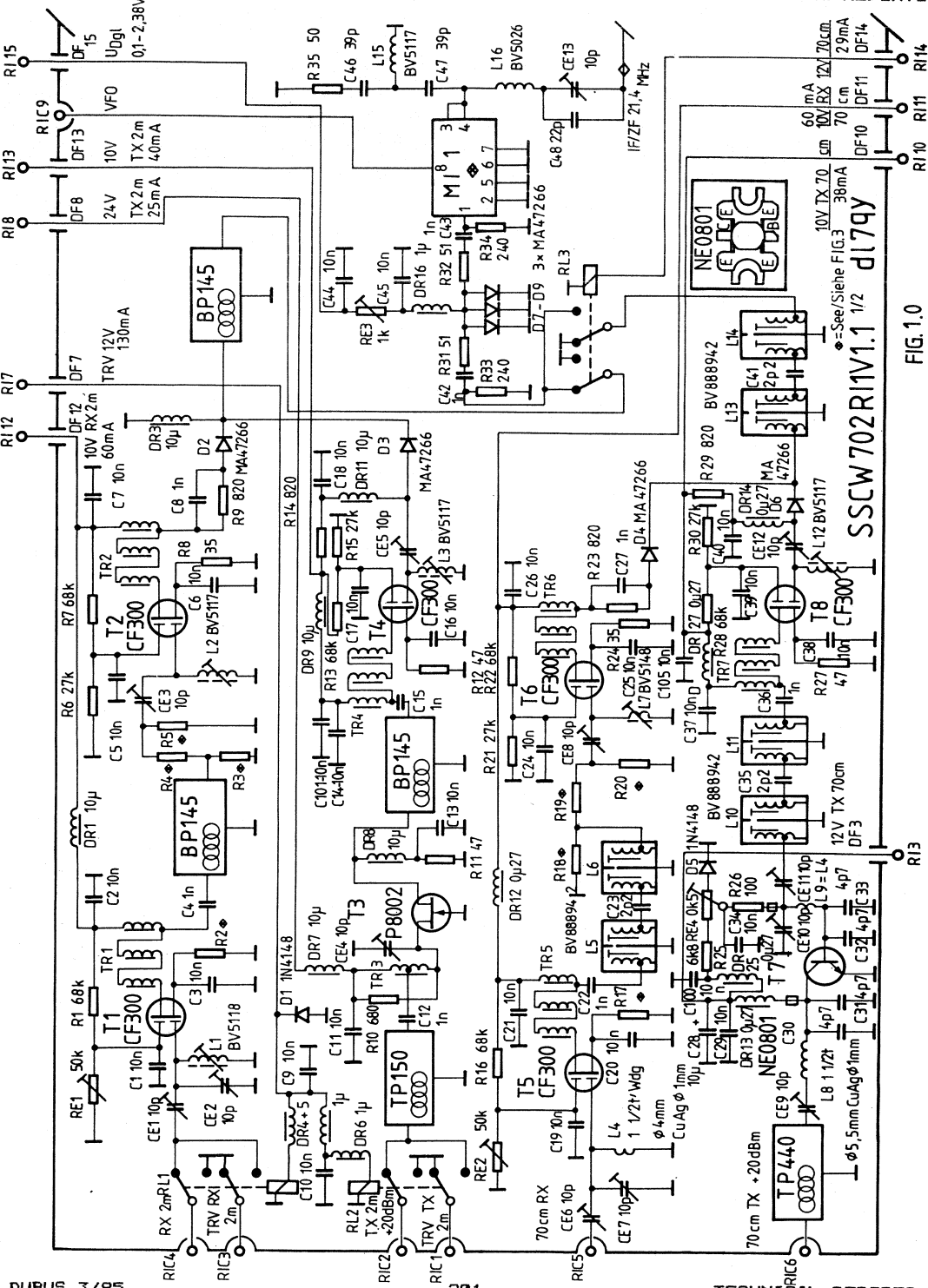
|                                                                |                                                                |
|----------------------------------------------------------------|----------------------------------------------------------------|
| TR1: 3x4 trn trifilar 0.3CuL on F100b Ringcore. D=9mm (NEOSID) | TR8: 2x10 trn. bifilar 0.3CuL on R6.3N30 Ringcore (SIEMENS)    |
| TR2: As TR1.                                                   | TR9: 3x10 trn trifilar 0.3CuL on R6.3N30 Ringcore. (SIEMENS)   |
| TR3: 2/7trn lin 0.3CuL on F100b Ringcore. (NEOSID)             | TR10: 2x10 trn. bifilar 0.3CuL on T25-27 ye Ringcore. (AMIDON) |
| TR4: Wie TR1.                                                  | TR11: 2x6 trn 0.3CuL twisted on T25-27 ye Ringcore. (AMIDON)   |
| TR5: 3x1 trn trifilar 0.3CuL on F100b Ringcore D=4mm. (NEOSID) | TR12: 3x9 trn. trifilar 0.3CuL on T25-27 ye Ringcore. (AMIDON) |
| TR6: As TR5.                                                   |                                                                |
| TR7: As TR5.                                                   |                                                                |

### 12.) References:

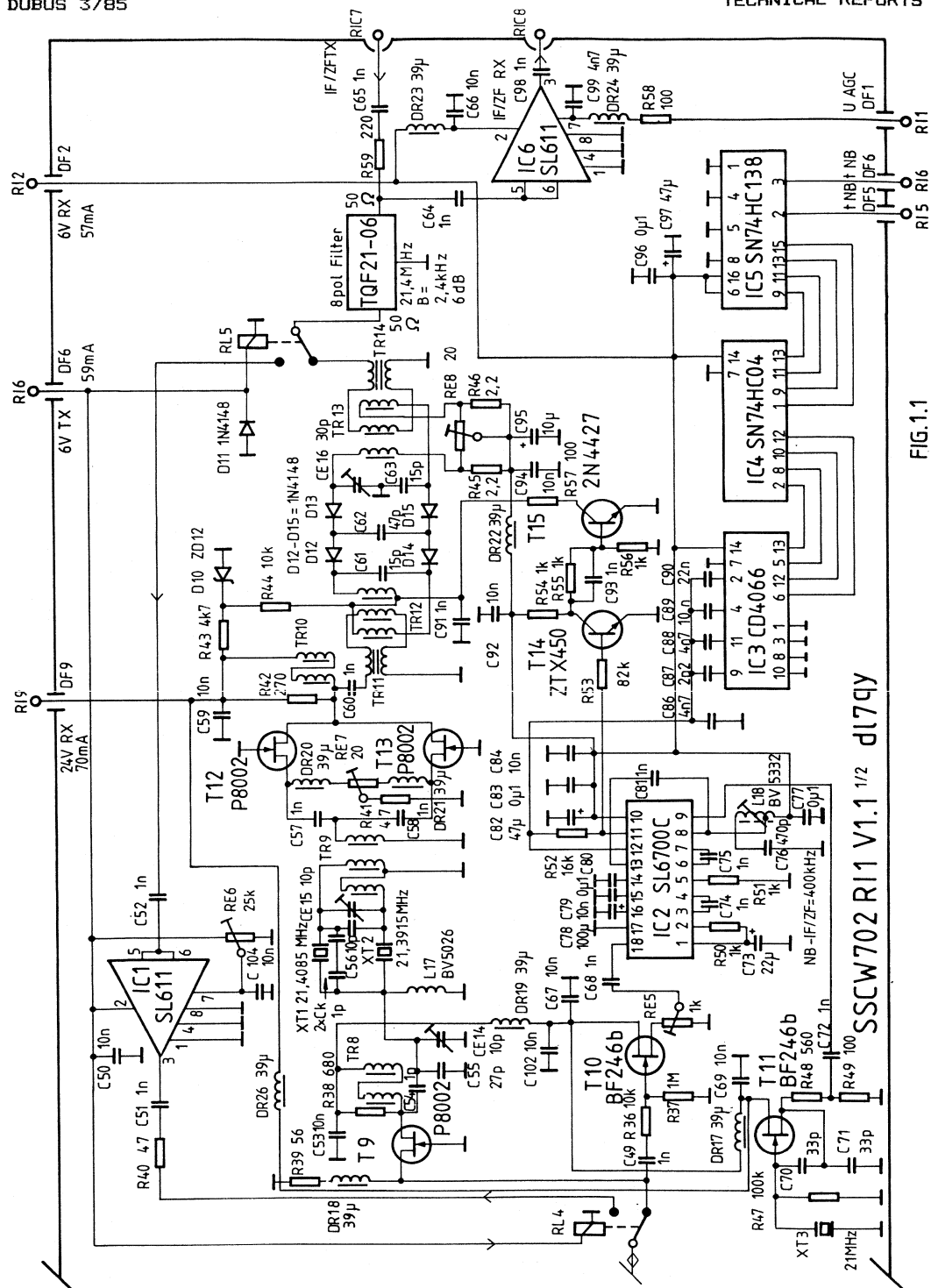
- (1) 2m + 70 cm Low Cost GaAs FET amplifier, DL7QY DUBUS 4/84 S.261.
- (2) 4-Kreisbandfilterbeschreibung SSCW702 (Teil 1) DUBUS 2/85 S.122-123.
- (3) SL6700A-IF amplifier and AM detector, Linear Integrated Circuit Handbook (Plessey) p.177-184.
- (4) Modernes Eingangsteil für 2m Empfänger mit großem Dynamikbereich, DJ7VY UKW-Berichte 2/78 S.116.
- (5) Großsignalfester Störaustaster, DJ7VY, UKW-Berichte 2/79 S.74/UKW-Berichte 4/79 S.201.
- (6) Quarzfilter und ZF Vorverstärker für IM-feste KW Empfänger und Nachsetzer W. Flor OE1LO, CQ DL4/82 S.178
- (7) Vielseitig einsetzbares ZF-Teil für 2m Empfänger und Nachsetzer, F. Krug DJ3RV, UKW-Berichte 4/81 S.239.

### Correction in DUBUS 2/85 issue: Duobandtransceiver Teil 1 VFO:

Page 116: termination NE73432E- Collector and Basis have to be changed. Page 133/134: 2m receiver performance is changed into: (2m and 70cm).  
 Without option (Standard Model): IP= +5dBm (+17dBm LO power).  
 Option 01 : IP= +10dBm (+23dBm LO power).  
 Option 02 : IP= +15dBm (+27dBm LO power).

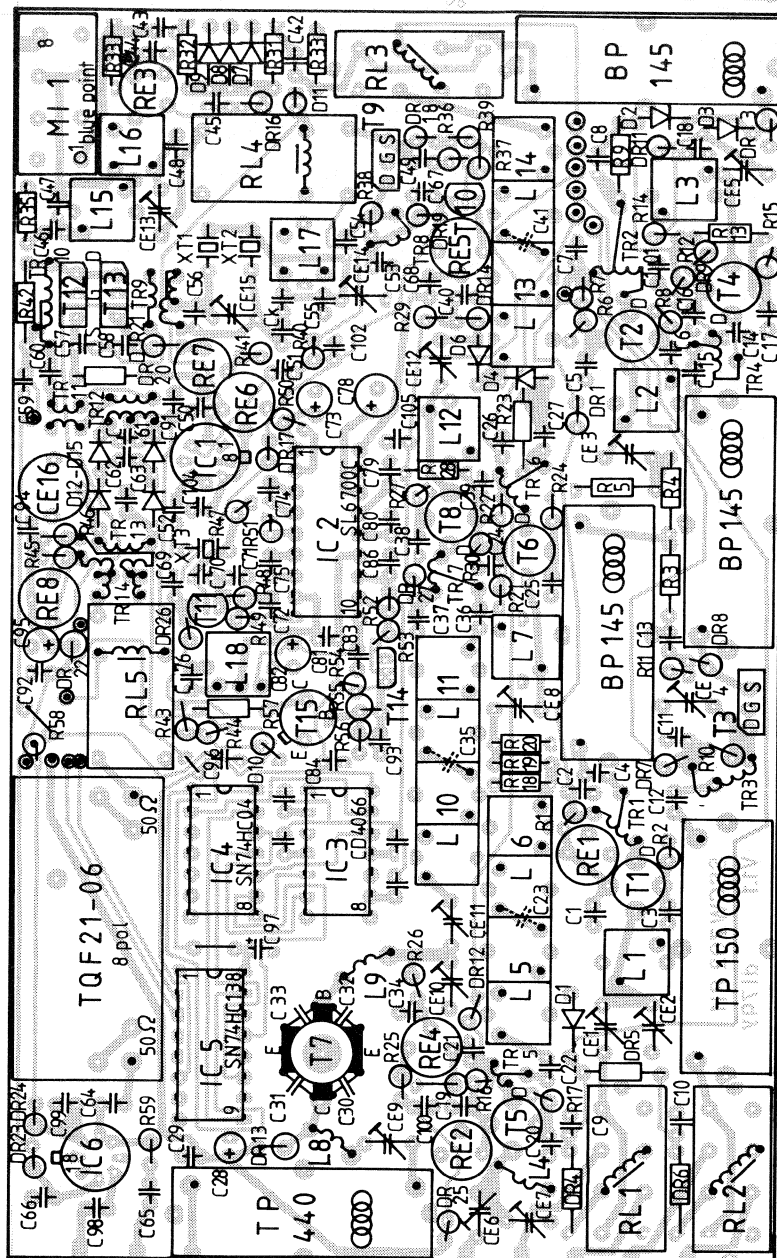


**FIG. 1.0**



**FIG. 1.1**

SSCW702 RI1 V1.1<sup>1/2</sup> d17cy



PCB COMPONENT VIEW LEITERPLATTE BESTÜCKUNGS- SSCW702 RI1 V1.1 dL7qy  
SEITE FIG.2.0





| VERSION   |          | MI 1  | R2 | R17 | R3 | R4 | R5 | R18 | R19 | R20 |
|-----------|----------|-------|----|-----|----|----|----|-----|-----|-----|
| STANDARD  | IP +5dBm | SRA1H | 68 | 68  | 96 | 71 | 96 | 131 | 45  | 131 |
| OPTION 01 | IP+10dBm | RAY1  | 47 | 47  | 96 | 71 | 96 | 131 | 45  | 131 |

FIG. 3

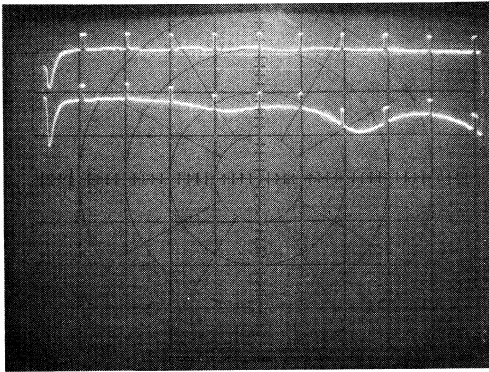
| 3rd Order Data CF300                                                   |         |         |                  |                   |
|------------------------------------------------------------------------|---------|---------|------------------|-------------------|
| NF (dB)                                                                | IP(dBm) | IM (dB) | R <sub>S</sub> Ω | I <sub>D</sub> mA |
| 0,8                                                                    | 15      | 64      | 68               | 21                |
| 1                                                                      | 18      | 69      | 47               | 27                |
| 1,1                                                                    | 19      | 73      | 35               | 35                |
| 1,2                                                                    | 20      | 75      | 24               | 40                |
| $U_{DS} = 9V$ $P_E = -17dBm$<br>$f_1 = 432 MHz$ $f_2 = 433 MHz$ FIG. 4 |         |         |                  |                   |

| $\pi$ ATTENUATORS DÄMPFUNGSGLIEDER 50 Ω |            |            |
|-----------------------------------------|------------|------------|
| 1 dB                                    | 869.548164 | 5.76918793 |
| 2 dB                                    | 436.211609 | 11.6149294 |
| 3 dB                                    | 292.40218  | 17.614794  |
| 4 dB                                    | 220.971386 | 23.8483963 |
| 5 dB                                    | 178.488559 | 30.3984522 |
| 6 dB                                    | 150.476024 | 37.3518771 |
| 7 dB                                    | 130.72842  | 44.8009387 |
| 8 dB                                    | 116.142534 | 52.8444816 |
| 9 dB                                    | 104.993917 | 61.5892386 |
| 10 dB                                   | 96.2475296 | 71.1512475 |
| 11 dB                                   | 89.2444056 | 81.65739   |
| 12 dB                                   | 83.5449831 | 93.2470767 |
| 13 dB                                   | 78.8447455 | 106.074095 |
| 14 dB                                   | 74.9260175 | 120.308653 |
| 15 dB                                   | 71.6290422 | 136.139633 |
| 16 dB                                   | 68.8339047 | 153.777103 |
| 17 dB                                   | 66.4488352 | 173.455102 |
| 18 dB                                   | 64.4024101 | 195.434745 |
| 19 dB                                   | 62.6382156 | 220.007689 |
| 20 dB                                   | 61.1111111 | 247.5      |
| 21 dB                                   | 59.7845592 | 278.276486 |
| 22 dB                                   | 58.628683  | 312.745533 |
| 23 dB                                   | 57.6188297 | 351.364522 |
| 24 dB                                   | 56.7344911 | 394.645905 |
| 25 dB                                   | 55.9584834 | 443.164    |
| 26 dB                                   | 55.2763145 | 497.562611 |
| 27 dB                                   | 54.6756914 | 558.563576 |
| 28 dB                                   | 54.1461322 | 626.976341 |
| 29 dB                                   | 53.6786576 | 703.708701 |
| 30 dB                                   | 53.2655432 | 789.778847 |
| 31 dB                                   | 52.9001194 | 886.328878 |
| 32 dB                                   | 52.5766079 | 994.639956 |
| 33 dB                                   | 52.2899876 | 1116.1493  |
| 34 dB                                   | 52.0358835 | 1252.46927 |
| 35 dB                                   | 51.8104748 | 1405.40874 |
| 36 dB                                   | 51.6104166 | 1576.99714 |
| 37 dB                                   | 51.4327761 | 1769.51133 |
| 38 dB                                   | 51.2749764 | 1985.50586 |
| 39 dB                                   | 51.1347506 | 2227.84684 |
| 40 dB                                   | 51.010101  | 2499.75    |

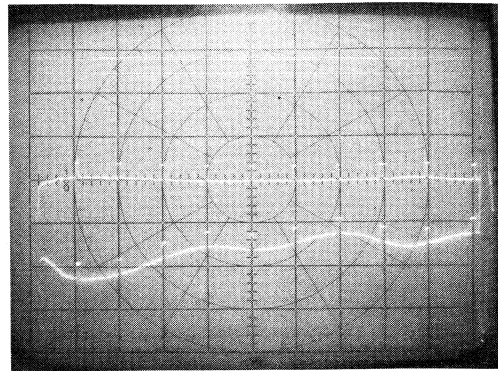
FIG. 6

| PROGR. ATTENUATOR<br>145MHz DÄMPFUNGSGLIED |       |       |      |       |      |
|--------------------------------------------|-------|-------|------|-------|------|
| D(dB)                                      | U(V)  | D(dB) | U(V) | D(dB) | U(V) |
| 6                                          | ≤ 0,1 | 16    | 0,56 | 26    | 1,01 |
| 7                                          | 0,3   | 17    | 0,59 | 27    | 1,09 |
| 8                                          | 0,35  | 18    | 0,62 | 28    | 1,18 |
| 9                                          | 0,38  | 19    | 0,65 | 29    | 1,28 |
| 10                                         | 0,41  | 20    | 0,69 | 30    | 1,38 |
| 11                                         | 0,43  | 21    | 0,73 | 31    | 1,50 |
| 12                                         | 0,46  | 22    | 0,78 | 32    | 1,64 |
| 13                                         | 0,48  | 23    | 0,83 | 33    | 1,80 |
| 14                                         | 0,51  | 24    | 0,88 | 34    | 1,97 |
| 15                                         | 0,53  | 25    | 0,94 | 35    | 2,17 |
| +1 dB on 433 MHz ±0,2dB                    |       |       |      | 36    | 2,38 |

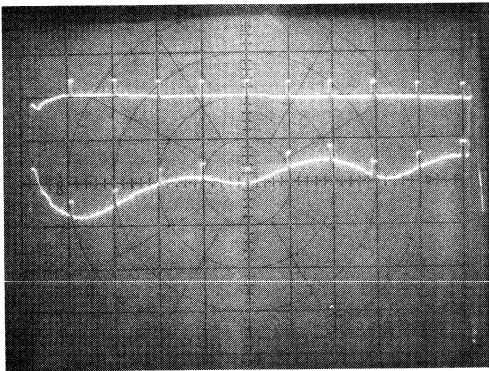
FIG. 5.0



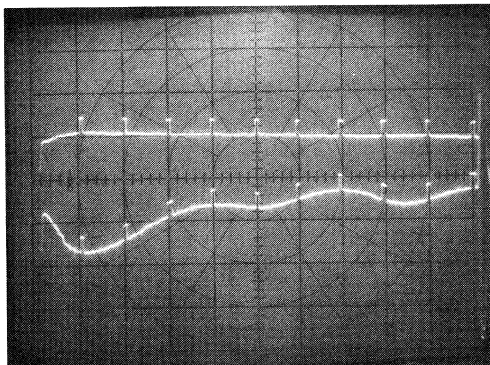
Programmable attenuator transmission and returnloss response at 6dB attenuation, 4-500 MHz. Programmierbares Dämpfungs-glied Durchlaßkurve mit Rückflußdämpfung  $D=6\text{dB}$ , 4-500 MHz.  
Fig. 5.1



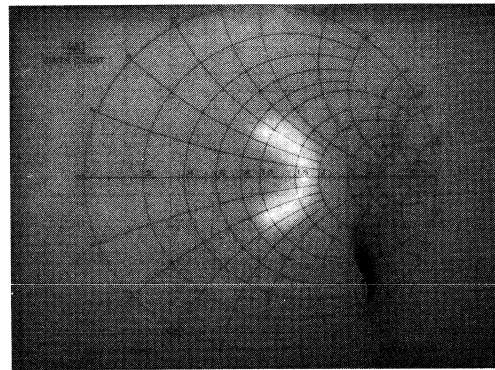
Programmable attenuator transmission and returnloss response at 36dB attenuation, 4-500 MHz. Programmierbares Dämpfungs-glied Durchlaßkurve mit Rückflußdämpfung  $D=36\text{dB}$ , 4-500 MHz.  
Fig. 5.2



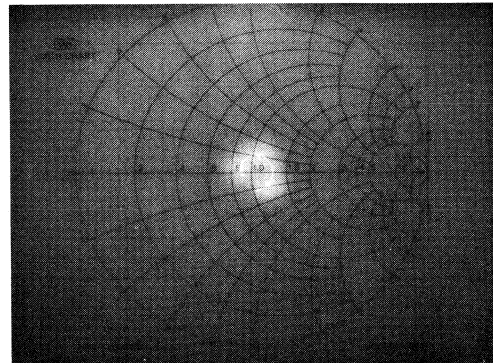
Programmable attenuator transmission and returnloss response at 16dB attenuation, 4-500 MHz. Programmierbares Dämpfungs-glied Durchlaßkurve mit Rückflußdämpfung  $D=16\text{dB}$ , 4-500 MHz.  
Fig. 5.3



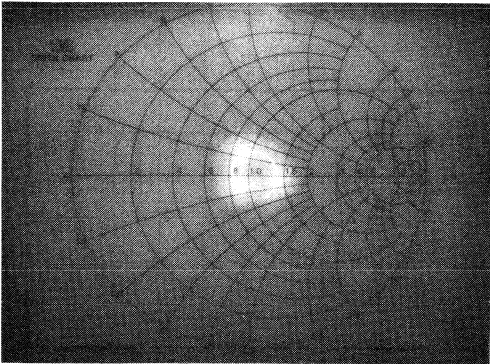
Programmable attenuator transmission and returnloss response at 26dB attenuation, 4-500 MHz. Programmierbares Dämpfungs-glied Durchlaßkurve mit Rückflußdämpfung  $D=26\text{dB}$ , 4-500 MHz.  
Fig. 5.4



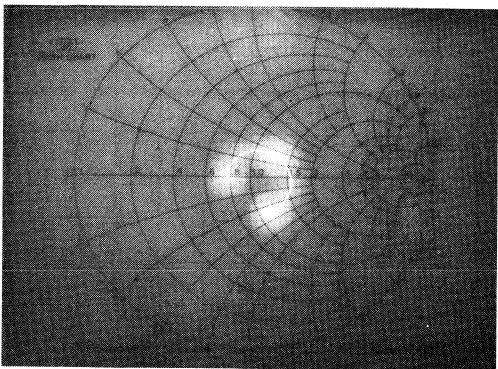
Programmable attenuators in - output impedance at 145 MHz at 6 dB attenuation,  $f_{\text{center}} = 145\text{ MHz}$ , Marker 10 MHz. Programmierbares Dämpfungs-glied Ein- Ausgangsimpedanz bei 145 MHz und 6dB Dämpfung, Mittenfrequenz = 145 MHz, 10 MHz Marken.  
Fig. 5.5



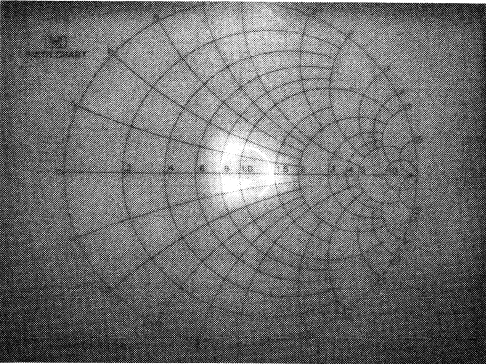
Programmable attenuators in - output impedance at 150 MHz at 16dB attenuation,  $f_{\text{center}} = 150\text{ MHz}$ , Marker 50 MHz. Programmierbares Dämpfungs-glied Ein- Ausgangsimpedanz bei 150 MHz und 16dB Dämpfung, Mittenfrequenz = 150 MHz, 50 MHz Marken.  
Fig. 5.6



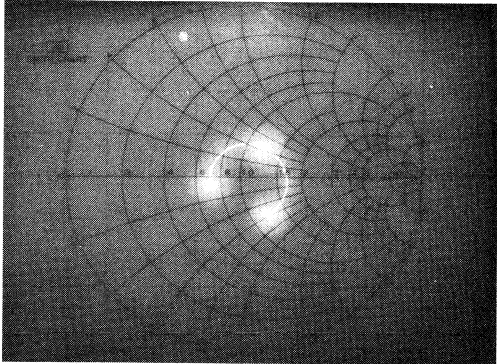
Programmable attenuators in - output impedance at 150 MHz at 26dB attenuation. f center = 150 MHz. Marker 50 MHz. Programmierbares Dämpfungsglied Ein- Ausgangsimpedanz bei 150 MHz und 26dB Dämpfung. Mittenfrequenz = 150 MHz. 50 MHz Marken. Fig. 5.7



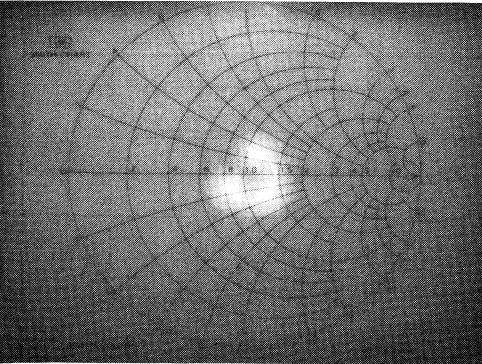
Programmable attenuators in - output impedance at 450 MHz at 16dB attenuation. f center = 450 MHz. Marker 50 MHz. Programmierbares Dämpfungsglied Ein- Ausgangsimpedanz bei 450 MHz und 16dB Dämpfung. Mittenfrequenz = 450 MHz. 50 MHz Marken. Fig. 5.10



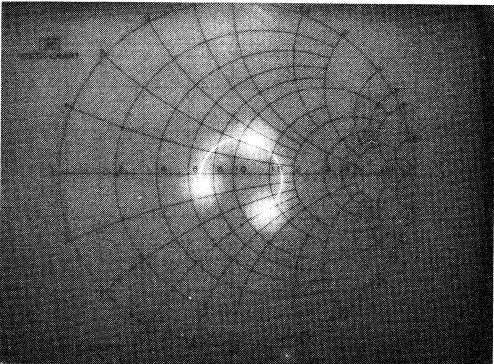
Programmable attenuators in - output impedance at 150 MHz at 36dB attenuation. f center = 150 MHz. Marker 50 MHz. Programmierbares Dämpfungsglied Ein- Ausgangsimpedanz bei 150 MHz und 36dB Dämpfung. Mittenfrequenz = 150 MHz. 50 MHz Marken. Fig. 5.8



Programmable attenuators in - output impedance at 450 MHz at 26dB attenuation. f center = 450 MHz. Marker 50 MHz. Programmierbares Dämpfungsglied Ein- Ausgangsimpedanz bei 450 MHz und 26dB Dämpfung. Mittenfrequenz = 450 MHz. 50 MHz Marken. Fig. 5.11



Programmable attenuators in - output impedance at 450 MHz at 6dB attenuation. f center = 450 MHz. Marker 50 MHz. Programmierbares Dämpfungsglied Ein- Ausgangsimpedanz bei 450 MHz und 6dB Dämpfung. Mittenfrequenz = 450 MHz. 50 MHz Marken. Fig. 5.9



Programmable attenuators in - output impedance at 450 MHz at 36dB attenuation. f center = 450 MHz. Marker 50 MHz. Programmierbares Dämpfungsglied Ein- Ausgangsimpedanz bei 450 MHz und 36dB Dämpfung. Mittenfrequenz = 450 MHz. 50 MHz Marken. Fig. 5.12

| SSCW702 PEGELPLAN / LEVEL DIAGRAM |                             |                             |                                |                             |                             |                                      |                  |                             |                                   |                             |                           |                             |                               |
|-----------------------------------|-----------------------------|-----------------------------|--------------------------------|-----------------------------|-----------------------------|--------------------------------------|------------------|-----------------------------|-----------------------------------|-----------------------------|---------------------------|-----------------------------|-------------------------------|
| Stage:<br>Stufe:                  | 1. Presamp.<br>1. Vorverst. | 1. Bandpass<br>1. Bandfilt. | 1. Attenuator<br>1. Dämpf.gld. | 2. Presamp.<br>2. Vorverst. | 2. Bandpass<br>2. Bandfilt. | Progr. Attenuat.<br>Progr. Dämpfung. | Mixer<br>Mischer | 1. IF Stage<br>1. IF Verst. | 1. 1-tal filter<br>1. Quarzfilter | 2. IF Stage<br>2. IF Verst. | Linear Gate<br>Aut.-Stufe | 1-tal filter<br>Quarzfilter | IF Amplifier<br>IF Verstärker |
| Device                            | Bauteil:<br>CF300           |                             |                                | CF300                       |                             | 3 x M447266                          | S941N            | P8082                       | 2 pol.                            | P8082                       | 4 x 1M1410                | 8 pol.                      |                               |
| 2a Band                           | Gain dev.<br>+ 22dB         | - 3dB                       | - 18dB                         | + 22dB                      | + 3dB                       | - 8dB                                | - 5.5dB          | + 7dB                       | - 1dB                             | + 3.5dB                     | - 1dB                     | - 3dB                       | +18dB                         |
| MF tot 1.3dB                      | Gain tot<br>22dB            | 19dB                        | 9dB                            | 31dB                        | 26dB                        | 26dB                                 | 14.5dB           | 21.5dB                      | 20.5dB                            | 24dB                        | 23dB                      | 26dB                        | 12dB                          |
| IP tot + 30dB                     | IP device<br>+150dB         | +18dB                       | +26dB                          | +26dB                       | +9dB                        | +37dB                                | +26dB            | +27dB                       | +26dB                             | +26dB                       | +31dB                     | +36dB                       | unerheblich                   |
| IP tot + 30dB                     | IP tot<br>+150dB            | +18dB                       | +26dB                          | +60dB                       | +9dB                        | +17dB                                | +22dB            | +13dB                       | +14dB                             | +16dB                       | +11dB                     | +14dB                       | unimportant                   |
| No option                         | MF device<br>1.1dB          |                             |                                | 1.1dB                       |                             |                                      | 5dB              | 2.2dB                       |                                   | 2.2dB                       |                           |                             | 3dB                           |
| standard model                    | MF tot<br>8.6dB             |                             |                                | 8.6dB                       |                             |                                      | 8.3dB            | 8.9dB                       |                                   | 8.9dB                       |                           |                             | 1.87dB                        |
| 78cm Band                         | Gain dev.<br>+ 26dB         | - 3dB                       | - 7dB                          | + 26dB                      | + 3dB                       | - 7dB                                | - 5.5dB          | + 7dB                       | - 1dB                             | + 3.5dB                     | - 1dB                     | - 3dB                       | +18dB                         |
| MF tot 1.6dB                      | Gain tot<br>26dB            | 17dB                        | 18dB                           | 38dB                        | 27dB                        | 26dB                                 | 14.5dB           | 21.5dB                      | 20.5dB                            | 24dB                        | 23dB                      | 26dB                        | 12dB                          |
| IP tot + 30dB                     | IP device<br>+150dB         | +18dB                       | +26dB                          | +26dB                       | +11dB                       | +37dB                                | +26dB            | +27dB                       | +26dB                             | +26dB                       | +31dB                     | +36dB                       | unerheblich                   |
| IP tot + 30dB                     | IP tot<br>+150dB            | +18dB                       | +26dB                          | +8dB                        | +11dB                       | +18dB                                | +23dB            | +16dB                       | +17dB                             | +16dB                       | +16dB                     | +17dB                       | unimportant                   |
| No option                         | MF device<br>1.2dB          |                             |                                | 1.2dB                       |                             |                                      | 5dB              | 2.2dB                       |                                   | 2.5dB                       |                           |                             | 3dB                           |
| standard model                    | MF tot<br>8.8dB             |                             |                                | 8.8dB                       |                             |                                      | 1.82dB           | 1.1dB                       |                                   | 1.77dB                      |                           |                             | 1.27dB                        |
| Device                            | Bauteil:<br>CF300           |                             |                                | CF300                       |                             | 3 x M447266                          | RAY 1            | P8082                       | 2 pol.                            | 2 x P8082                   | 4 x 1M1410                | 8 pol.                      |                               |
| 2a Band                           | Gain dev.<br>+ 22dB         | - 3dB                       | - 18dB                         | + 22dB                      | + 3dB                       | - 7dB                                | - 5.5dB          | + 7dB                       | - 1dB                             | + 3.5dB                     | - 1dB                     | - 3dB                       | +18dB                         |
| MF tot 1.9dB                      | Gain tot<br>22dB            | 19dB                        | 9dB                            | 31dB                        | 27dB                        | 26dB                                 | 14.5dB           | 21.5dB                      | 20.5dB                            | 24dB                        | 23dB                      | 26dB                        | 12dB                          |
| IP tot + 18dB                     | IP device<br>+26dB          | +26dB                       | +33dB                          | +26dB                       | +15dB                       | +37dB                                | +31dB            | +27dB                       | +26dB                             | +31dB                       | +31dB                     | +36dB                       | unerheblich                   |
| IP tot + 18dB                     | IP tot<br>+26dB             | +26dB                       | +33dB                          | +12dB                       | +15dB                       | +22dB                                | +27dB            | +26dB                       | +21dB                             | +17dB                       | +18dB                     | +21dB                       | unimportant                   |
| Option 01                         | MF device<br>1.1dB          |                             |                                | 1.1dB                       |                             |                                      | 5dB              | 2.2dB                       |                                   | 4dB                         |                           |                             | 3dB                           |
| MF tot                            | MF tot<br>1.1dB             |                             |                                | 1.1dB                       |                             |                                      | 1.3dB            | 1.36dB                      |                                   | 1.53dB                      |                           |                             | 1.63dB                        |
| 78cm Band                         | Gain dev.<br>+ 26dB         | - 3dB                       | - 7dB                          | + 26dB                      | + 3dB                       | - 6dB                                | - 6.5dB          | + 7dB                       | - 1dB                             | + 3.5dB                     | - 1dB                     | - 3dB                       | +18dB                         |
| MF tot 2.1dB                      | Gain tot<br>26dB            | 17dB                        | 18dB                           | 38dB                        | 27dB                        | 21dB                                 | 14.5dB           | 21.5dB                      | 20.5dB                            | 24dB                        | 23dB                      | 26dB                        | 12dB                          |
| IP tot + 18dB                     | IP device<br>+26dB          | +26dB                       | +36dB                          | +26dB                       | +13dB                       | +37dB                                | +31dB            | +27dB                       | +26dB                             | +31dB                       | +31dB                     | +36dB                       | unerheblich                   |
| IP tot + 18dB                     | IP tot<br>+26dB             | +26dB                       | +36dB                          | +12dB                       | +13dB                       | +19dB                                | +25dB            | +18dB                       | +19dB                             | +16dB                       | +16dB                     | +19dB                       | unimportant                   |
| Option 01                         | MF device<br>1.2dB          |                             |                                | 1.2dB                       |                             |                                      | 6dB              | 2.2dB                       |                                   | 4dB                         |                           |                             | 3dB                           |
| MF tot                            | MF tot<br>1.2dB             |                             |                                | 1.2dB                       |                             |                                      | 1.45dB           | 1.51dB                      |                                   | 1.65dB                      |                           |                             | 1.75dB                        |
| Device:                           | Bauteil:<br>CF300           |                             |                                | -----                       |                             | -----                                | VAY1             | CP451                       | 2 pol.                            | CP458                       |                           | 8 pol.                      |                               |
| 2a Band                           | Gain dev.<br>+ 23dB         | - 3dB                       |                                |                             |                             |                                      | - 6dB            | + 7dB                       | - 1dB                             | + 3dB                       | - 1dB                     | - 3dB                       | +18dB                         |
| MF tot 2.3dB                      | Gain tot<br>23dB            | 20dB                        |                                |                             |                             |                                      | 14dB             | 21dB                        | 26dB                              | 23dB                        | 22dB                      |                             | 119dB                         |
| IP tot +150dB                     | IP device<br>+26dB          | +23dB                       |                                |                             |                             |                                      | +48dB            | +35dB                       | +26dB                             | +48dB                       | +46dB                     | +46dB                       | unerheblich                   |
| IP tot +150dB                     | IP tot<br>+26dB             | +23dB                       |                                |                             |                             |                                      | +29dB            | +22dB                       | +23dB                             | +28dB                       | +24dB                     | +24dB                       | unimportant                   |
| Option 02                         | MF device<br>1.1dB          |                             |                                |                             |                             |                                      | 6dB              | 5dB                         |                                   | 5dB                         |                           |                             | 3dB                           |
| MF tot                            | MF tot<br>1.1dB             |                             |                                |                             |                             |                                      | 1.35dB           | 1.64dB                      |                                   | 1.84dB                      |                           |                             | 1.94dB                        |
| 78cm Band                         | Gain dev.<br>+ 26dB         | - 3dB                       |                                |                             |                             |                                      | - 7dB            | + 7dB                       | - 1dB                             | + 3dB                       | - 1dB                     | - 3dB                       | +18dB                         |
| MF tot 2.6dB                      | Gain tot<br>26dB            | 17dB                        |                                |                             |                             |                                      | 18dB             | 17dB                        | 16dB                              | 19dB                        | 18dB                      |                             | 115dB                         |
| IP tot +150dB                     | IP device<br>+26dB          | +23dB                       |                                |                             |                             |                                      | +48dB            | +35dB                       | +26dB                             | +48dB                       | +46dB                     | +46dB                       | unerheblich                   |
| IP tot +150dB                     | IP tot<br>+26dB             | +23dB                       |                                |                             |                             |                                      | +38dB            | +23dB                       | +24dB                             | +21dB                       | +21dB                     | +25dB                       | unimportant                   |
| Option 02                         | MF device<br>1.2dB          |                             |                                |                             |                             |                                      | 6dB              | 5dB                         |                                   | 5dB                         |                           |                             | 3dB                           |
| MF tot                            | MF tot<br>1.2dB             |                             |                                |                             |                             |                                      | 1.49dB           | 1.89dB                      |                                   | 2.14dB                      |                           |                             | 2.24dB                        |

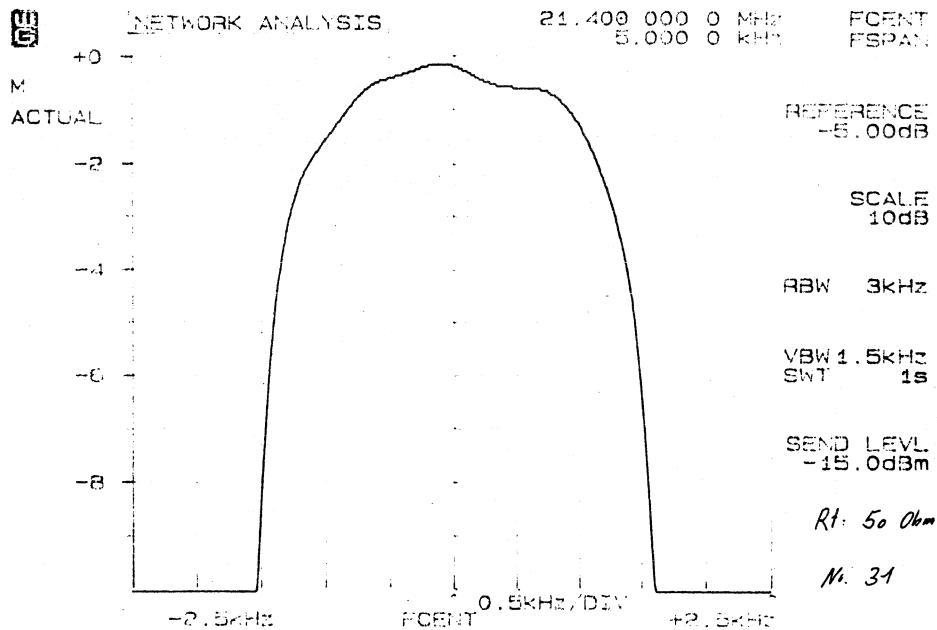


FIG.8.0

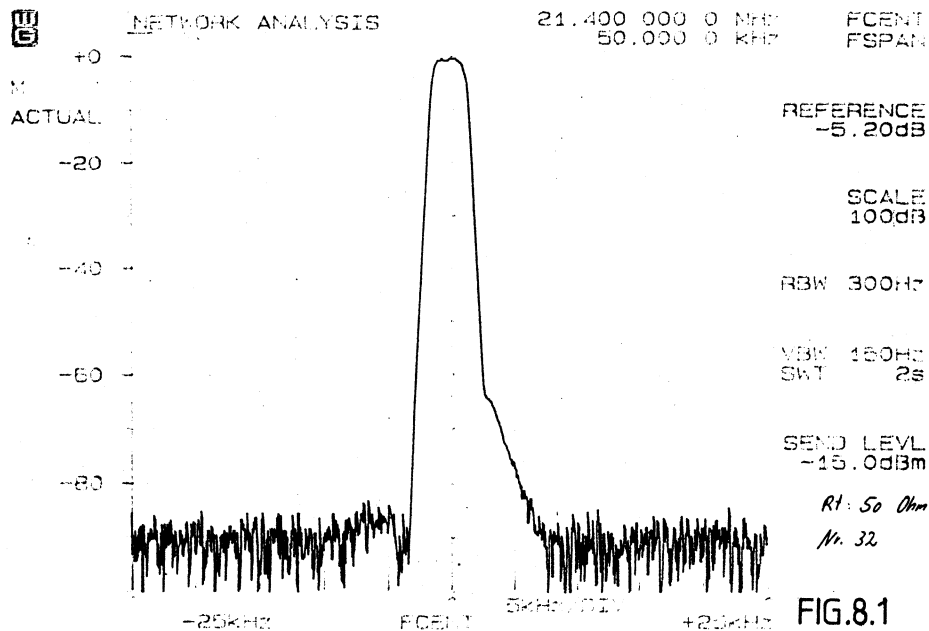
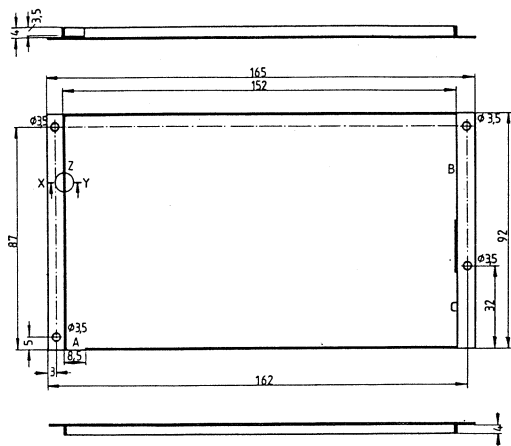
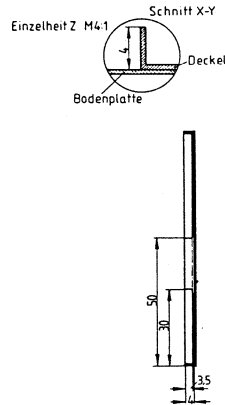


FIG.8.1



A,B,C = Aussparungen

FIG.9.0

Oberer Deckel wie unterer Deckel, aber ohne Aussparungen

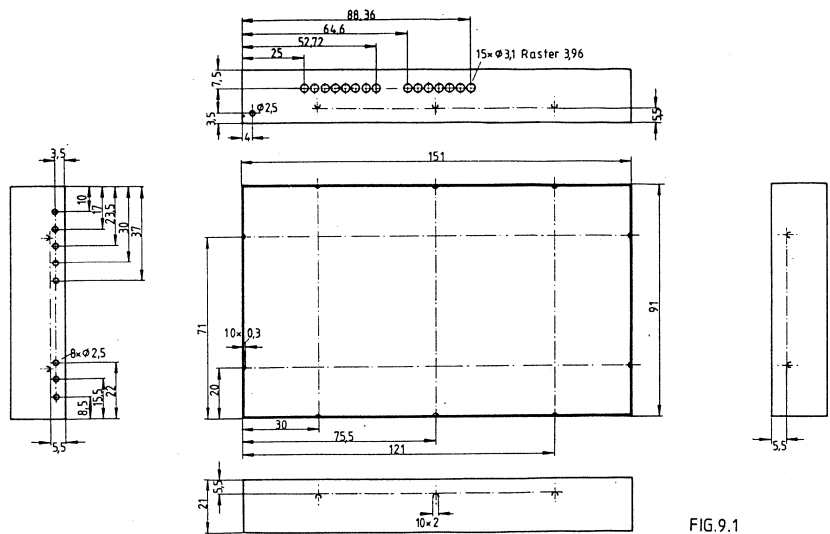
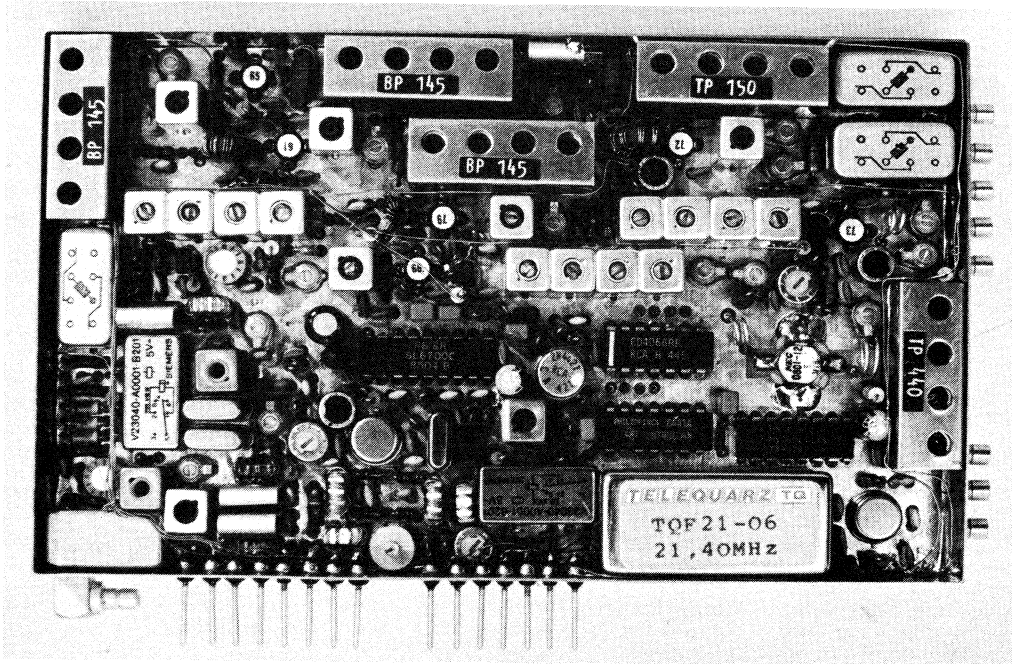
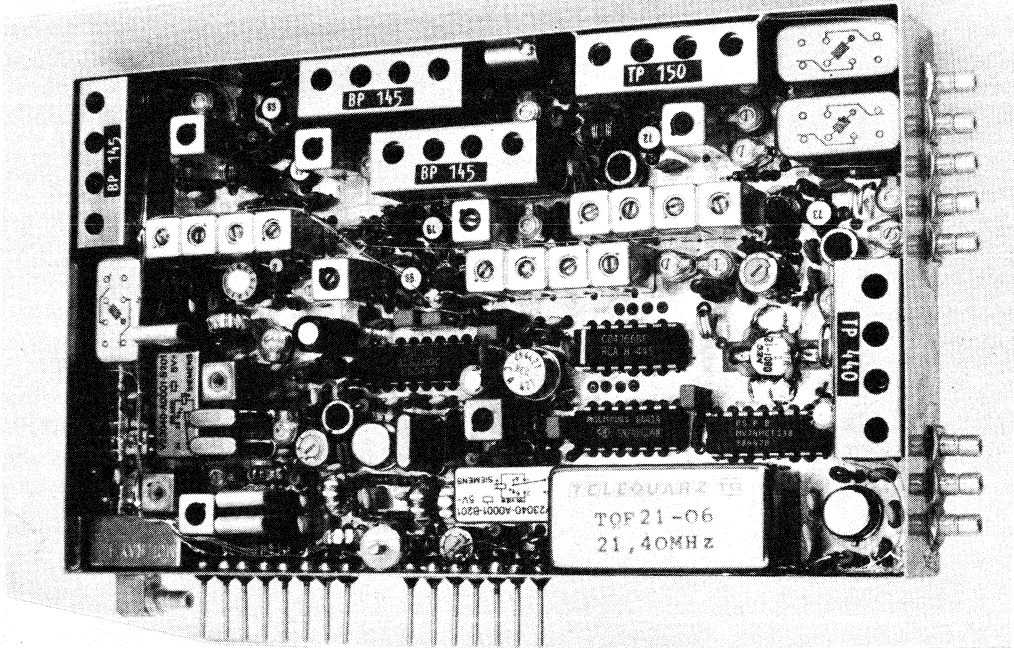


FIG.9.1





144 MHz High Power Amplifier

by ONSFF, Mark de Muck  
Konig Albert Laan 126, B-9000 Gent

1.) Concept

This amplifier, using two 3CX800A7 grounded grid triodes in parallel in a quarter wave stripline circuit produces over 1500 W rf in FM and RTTY, and up to 2.8kW in CW and SSB.

Even at the 2.8kW output level, the average dissipation per valve will never reach half the maximum permitted dissipation (800W per valve). The blower requirements and the blower noise are low. The loaded Q of stripline is low, this results in:

- a.) higher harmonic content, a lowpass filter is included.
- b.) high efficiency: approx 70%, depending on bias and drive power.
- c.) large bandwidth of the output circuit: when tuned to 144.250 MHz, no adjustment is needed between 144 and 144.5 MHz (measured at 2kV/1.4A).

The valves are connected in parallel and no separate monitoring is necessary. 20 valves were tested in the circuit and all showed the same parameters.

2.) Construction

The anode box and resonator are constructed from 2mm red copper. Aluminium is also suitable for the box. Don't use brass for the strip line unless silver plated. Silver plating of the copper circuit increases the efficiency by +-1%. The anode resonator L1 measures 342x165mm and contains C4 (+-630pF) to separate the HV from the ground. 0.6mm Teflon (PTFE) sheet is kept between L1a and L1b,c by M3x10 bolts through six 018x2 Teflon discs pressed into the 18mm holes in L1a. The two Teflon sheets are 178x95mm and extending over the conducting surfaces to prevent HV flashover. Contact with the anodes is made by finger stock. The space between the bottom and the cover of the box is 62mm. The plate line is just in the middle, and kept in place by a Teflon standoff 0 18mm long 33mm. C1 is a fixed capacitor, screwed to the bottom plate near valves. The two 0.3mm bronze flappers C2 and C3 are kept 20mm from the cover. C2 by a copper U 20mm wide and 70mm long, one side soldered to the flapper, the other side bolted to the cover. C3 is insulated from the cover by a Teflon block 10x10x70mm and fixed with self tapping screws. A small wire loop is soldered at the inside of C2 and its value is lowered by moving the strip towards the cover by 0.3mm fishing line through the cover. C3, the output coupling capacitor is moved upwards to the cover by a teflon cord, made by cutting a 0.6mm wide strip from 0.6mm teflon sheet. (fishing line would burn here because of the strong rf field).

The holes in the bottom to clamp the grid rings are not marked. Also the diameter for the anode holes in the plate line isn't, this depends on the type of finger stock used.

3.) The blower system

The air inlet is through a 0 144mm hole in the bottom. 1.5mm inox mesh is clamped between the blowers and the bottom. 120mm square computer type blowers are used because of long life and low noise level. Different types were tried and all brought a pressure of about 3mm water column into the cavity. Although a 3mm water column is enough to cool the valves at an average of 400W per valve, we decided that it would be better to run the valves a bit cooler. Putting 2 of the same blowers in series increased the pressure to about 4mm. Finally we adopted the ETRI 125XR (clockwise) blowing into a PAPST (anticlockwise). This brought the pressure to 8.5mm because of the opposite senses of turning. If the PAPST was blowing into the ETRI, the resulting pressure was even higher (10.5mm) but the noise level was unacceptable high. The air outlet is in the cover and 1.5mm inox mesh is clamped between the SK1906 chimneys and the cover.

#### 4.) The Lowpass Filter

C5 and C6 are 18pF capacitors, made of RG142 high temperature teflon coax. RG142 has  $\pm 1\text{pF/cm}$ . Two identical pieces of RG142 are cut so that the screened length of the coax is 18cm. The outer insulation is removed for 1cm on each side and the braid tinned. Cut two 0.5mm copper strips about 1cm by 2cm and form these to fit against the coax and the cover. Put solder on the inside of the strips and on the cover. Press the coax with the strips against the cover and heat with a hot flame on the rear side until the solder melts. Solder L2, L3 and L4 in place and remove the flapper C3. Clamp the braid of a piece RG58 between the teflon block and the cover. Solder the inner conductor of the cable as short as possible to L2. Connect a good dummy load to the output connector and a directional coupler via some length of RG58. Adjust the coils L2, L3 and L4 by stretching to obtain at least 30dB of return loss to the filter. Solder C3 in place.

#### 5.) The Output Connector

If you use N-connectors, be sure that these are of good quality and in good shape. Don't use ex-equipment. If a bad contact occurs, the center pin burns away immediately. 7/16 or C-connectors are a better choice but N is more compatible with measuring equipment etc.

#### 6.) Tuning up

With the loading C3 to minimum and a dummy load connected, apply about 40W of drive, and adjust C2 for maximum output. Adjust C9 for maximum output. Observe the grid current, increase the loading if the grid current goes over 50mA. As you increase the drive power, the loading should become heavier and the value of C2 lower. Insert a directional coupler in the input circuit, and adjust C9 for maximum return loss at the drive level you are going to use. The drive required for max. output is abt. 85 Watts. The output is 2.2kW at 2kV and 2.8kW at 2.5kV. Anode current at full drive is 1.6A. Quiescent current is abt. 120mA with 8.2V Zener in the cathode and about zero with 12V Zener. Heater requirement is only 3A at 13.5V. The max input on FM and RTTY is 1A at 2350V. Harmonics are more than 60dB down.

#### 7.) Precautions

The heaters should be on for 2 minutes before drive may be applied. HV may be switched on simultaneously with the heaters. Never apply drive without HV on the anodes. Keep the grid current below 100mA. Be sure antenna relays are closed before power is applied and vice versa. The grid and anode meters should be protected with 3A diodes. Nearby 70cm antennas may pickup sufficient RF to blow the frontend. Some electronic circuits can be used to protect the PA from misuse.

#### 8.) Component list/ Bauteileliste

Z1= 12V Zener 20W (on cooling fin/auf Kühlkörper).  
 Z2= 8.2V Zener 20W (on cooling fin/auf Kühlkörper).  
 C7= 200pF uncased mica/ Glimmerkondensator ohne Gehäuse.  
 C8= 20pF uncased mica/ Glimmerkondensator ohne Gehäuse.  
 C9= 21pF air trimmer/ Lufttrimmer (TRONSER).  
 C10= 4x1000pF 3kV.  
 C11, C12, C13= 1000 feedthrough capacitors/ Durchführungskondensatoren.  
 L5= 0.5mm copper strip 90x20mm/ 0.5mm Kupferstreifen 90x20mm.  
 L6= 3 turns  $\varnothing 10$ , 1.5mm 15mm long/ 3 Wdg.  $\varnothing 10$ , 1.5mm 15mm lang.  
 L7= 4 turns  $\varnothing 10$ , 1.5mm 15mm long/ 4 Wdg.  $\varnothing 10$ , 1.5mm 15mm lang.  
 Anode RFC= 15 turns  $\varnothing 10$ , 0.8mm 35mm long/ Anodendrossel 15 Wdg.  $\varnothing 10$ , 0.8mm 35mm lang.  
 Kathode and heater RFC= 45cm  $\varnothing 0.8\text{mm}$  close wound on  $\varnothing 10\text{mm}$ / Kathoden- und Heizdrosseln= 45cm  $\varnothing 0.8\text{mm}$  dicht gewickelt mit 10mm Durchmesser.

L2= 2.5 turns  $\varnothing$  10 close wound 2.5mm CuAg/ 2.5 Wdg  $\varnothing$  10mm dicht gewickelt mit 2.5mm starkem CuAg.

L3= 4 turns  $\varnothing$  13mm, 15mm long 2.5mm CuAg/ 4 Wdg.  $\varnothing$  13mm, 15mm lang mit 2.5mm CuAg.

L4= 3 turns  $\varnothing$  10mm, 15mm long 2.5mm CuAg/ 3 Wdg.  $\varnothing$  10mm, 15mm lang aus 2.5mm CuAg.

Sockets/Sockel: SK1900.

The author can supply valves and all metalwork./ Röhren und Mechanik sind beim Autor erhältlich.

### 144 MHz Leistungs Endstufe

von ONSFF

In dem hier beschriebenen Linear Verstärker werden zwei Trioden vom Typ 3CX800A7 in Gitter- Basisschaltung, parallel angeordnet, verwendet. Der Anodenresonanzkreis ist in  $\Lambda/4$  Stripline ausgeführt. Die Endstufe erzeugt in FM oder RTTY 1500W HF und bis zu 2.8kW in CW oder SSB Betrieb. Selbst bei einer Anodenspannung von 2.8kV sind die Röhren nur zur Hälfte ihrer möglichen Verlustleistung belastet (800W pro Röhre). Weiter zeichnet die beschriebene Endstufe einen geringen Lüfteraufwand, sowie niedrige Lüftergeräusche während des Betriebes aus. Durch das niedrige Q des Anodenstreifenleitungskreises ergeben sich folgende Eigenschaften der Endstufe:

- a.) Größerer Harmonischenanteil im Ausgangssignal, aber dagegen ist ein Tiefpaßfilter eingebaut.
- b.) Hoher Wirkungsgrad: ca. 70%, hängt von der Treiberleistung und dem eingestellten Arbeitspunkt ab.
- c.) Große Bandbreite. Keine Nachstimmung zwischen 144 und 144.5MHz erforderlich (gemessen bei 2kV und 1.4A).

Die beiden Röhren sind parallel geschaltet und benötigen keine getrennte Beobachtung während des Betriebes. 20 verschiedene Röhren wurden beim Verfasser ausprobiert; alle zeigten gleiche Betriebsbedingungen.

### 2.) Die Konstruktion

Die Anodenkammer mit dem Resonator besteht aus 2mm starkem Kupfer. Aluminium kann genauso verwendet werden. Der Resonator sollte nicht aus Messing gefertigt werden, außer mit anschließender Versilberung. Empfohlen wird ein Kupferstreifen, der anschließend versilbert wird. Durch das Versilbern erhöht sich der Wirkungsgrad um ein paar Prozent. Die Abmessungen des Anodenresonators betragen 342x165mm und beinhalten schon C4 mit einer Kapazität von etwa 630pF. 0.6mm Teflonfolie befindet sich zwischen L1a und L1b,c, mit M3x10mm Schrauben nochmals 10mm Teflonscheiben 18x2mm isoliert, befestigt in den 18mm Bohrungen in L1a. Zwei weitere Teflonfolien (178x95mm) befinden sich an der Zarge um Hochspannungsüberschlägen vorzubeugen. Den Anodenkontakt stellt ein Fingerstock Material her. Der Abstand zwischen Boden und Deckel beträgt 62mm. Der Anodenkreis befindet sich in der Mitte und ist auf Teflon-Abstandshaltern D=18mm, 30mm lang, befestigt. C1 ist ein fester Kondensator, auf die Bodenplatte geschraubt, in der Nähe der Röhren. Die zwei justierbaren Bronzefahnen C2 und C3 sind 20mm von der Bodenplatte entfernt angebracht. C2 ist ein U-Profil aus Kupfer (20mm breit und 70mm lang), an dessen eine Seite die Bronzefahne angelötet ist. Die andere Seite ist mit der Bodenplatte verschraubt. C3 ist durch einen Teflon Block 10x20x70mm mit selbstschneidenden Gewindeschrauben befestigt. Eine dünne Drahtschleife ist innerhalb C2 angelötet, an welcher ein Stück Angelschnur befestigt wird, um die Bronzefahne später bewegen zu können. C3, der Auskoppelkondensator wird in ähnlicher Weise abgestimmt, jedoch kann hier wegen der hohen HF-Feldstärke keine Nylonschnur verwendet werden; sie würde einfach durchbrennen. Es muß eine Teflonschnur angefertigt werden, indem man aus einer etwa 0.6mm starken PTFE- Folie einen 0.6mm breiten Streifen herauschneidet. Der Durchmesser der Durchbrüche für die Röhren hängt von dem verwendeten Fingerstock-Material ab und ist dementsprechend zu bemessen.

### 3.) Das Kühlsystem

Der Lufteinlaß befindet sich in der Bodenplatte und hat einen Durchmesser von 114mm. Zwischen dem Lüfter und dem Innenraum befindet sich ein Schutzgitter mit einer Maschenweite von etwa 1.5mm. Verwendet wird ein Axiallüfter, wie er häufig in der Computertechnik Verwendung findet (120x120mm), wegen des geringen Geräuschpegels. Verschiedene Typen wurden getestet. Alle Typen brachten einen Druck von ca. 3mm Wassersäule. Normalerweise ausreichend um eine mittlere Verlustwärme von 400W pro Röhre abzuführen. Wir entschlossen uns jedoch die Röhren etwas kühler zu betreiben. Zwei derartige Lüfter mit gleicher Drehrichtung übereinandergebaut ergaben einen Druck von 4mm Wassersäule. Ein anderer Versuch brachte deutlich bessere Ergebnisse. Ein ETRI (125XR) Lüfter, rechtsdrehend drückt in einen darüber befindlichen PAPST Lüfter linksdrehend. Das Ergebnis brachte 8.5mm Wassersäulen Druck. Als wir den PAPST Lüfter in den ETRI drückend betrieben haben, erhielten wir das beste Ergebnis von 10.5mm Druck, aber der Geräuschpegel bei dieser Anordnung war zu hoch und wir entschieden uns für die vorletzte Version. Der Luftaustritt in die Kammer ist so angeordnet, daß er sich direkt zwischen Bodenplatte und Kamin des SK1906 Sockels befindet.

### 4.) Das Tiefpaßfilter

C5 und C6 sind 18pF Kondensatoren, welche aus RG142 (Teflon Koaxkabel) hergestellt werden. Dieses Kabel hat pro cm eine Kapazität von etwa 1pF. Zwei gleichlange Stücke (18cm lang) an ihren Enden etwa 1cm abisoliert und 1cm die Abschirmung stehen lassen und verlöten.

Zwei zugeschnittene Kupferstreifen 0.5mm stark ca. 10x20mm werden über die Abschirmung des Koaxkabels gedrückt und mit der Grundplatte verlötet. Hierzu sollte die Platte mit einer Flamme vorher erwärmt werden, damit das Lötzinn gut fließt. Anschließend werden L2, L3 und L4 angelötet. C3 (Die Bronze-Abstimmfahne wird jetzt entfernt. An L2 wird ein Stück RG58 (Innenleiter) angebracht und die Abschirmung mit der Masse verbunden. Davor wird ein SWR Meter geschaltet und an die Antennenbuchse ein Abschlußwiderstand angeklemt. Auf 144.3MHz wird nun etwas Leistung dem Punkt L2 zugeführt. Durch Abstimmen der Spulen (Zusammendrücken oder auseinanderbiegen) L2, L3 und L4 sollten mindestens 30dB Rückflußdämpfung erreicht werden. Anschließend wird C3 wieder angelötet.

### 5.) Die Ausgangsbuchse

Wenn eine N-Buchse benutzt werden soll, ist darauf zu achten, daß sich diese in unversehrttem Zustand befindet. Von Verwendung bereits benutzter oder ausgebauter Buchsen wird dringend abgeraten. Schon bei einem leichten Kontaktfehler in der Steckverbindung würde beim Betrieb der Innenleiter abbrennen. Besser für die Übertragung großer Leistungen wie hier ist die Benutzung von der 7/16 Norm (Siemens oder Spinner) oder der C-Norm. Der Vorteil der N-Norm ist, daß die meisten Meßgeräte über Anschlüsse dieser Norm verfügen usw.

### 6.) Der Abgleich

Wenn die Anpassung von C3 eingestellt ist und ein Abschlußwiderstand angeschlossen ist, wird in die Endstufe eine Treiberleistung von etwa 40W gegeben. Mit C2 wird maximale Ausgangsleistung abgeglichen, ebenso mit C9. Beim Abgleichen sollte der Gitterstrom beobachtet werden. Wird der Gitterstrom höher als 50mA sollte er durch Nachstimmen der Auskopplung mit C3 wieder reduziert werden. Bei größerer Ansteuerleistung sollte zwischen Treiber und Endstufe ein SWR-Meter eingeschleift werden, um das Eingangs SWR zu kontrollieren. Mit CE9 wird auf größte Rückflußdämpfung abgeglichen. Die erforderliche Treiberleistung für maximale Ausgangsleistung beträgt 85W. Bei 2kV Anodenspannung beträgt die Ausgangsleistung 2.2kW, bei 2.5kV Anodenspannung 2.8kW HF. Bei voller Treiberleistung beträgt der Anodenstrom etwa 1.6A.

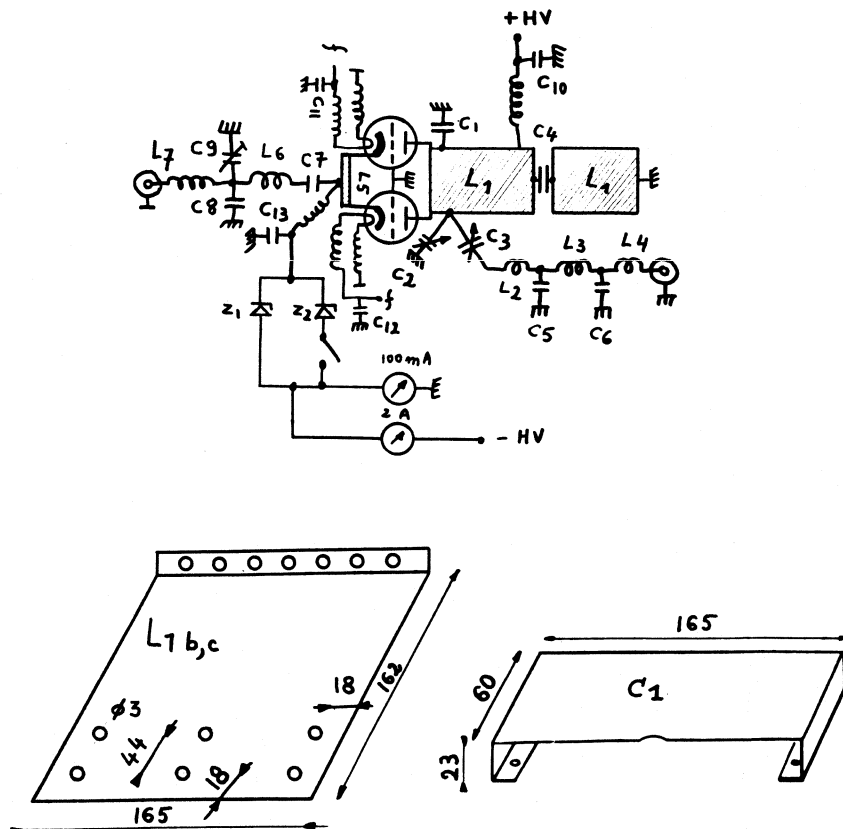
Der Ruhestrom beträgt ca. 120mA bei einer 8.2V Zener Diode in der

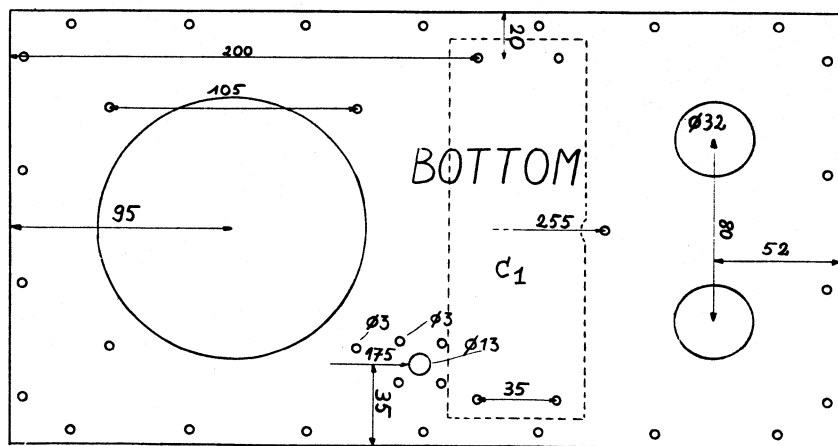
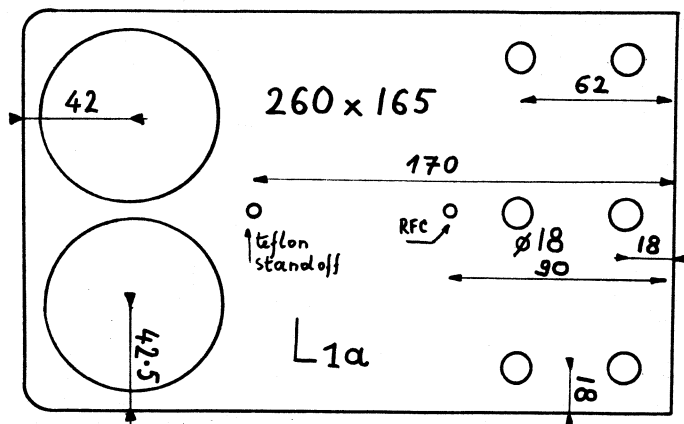
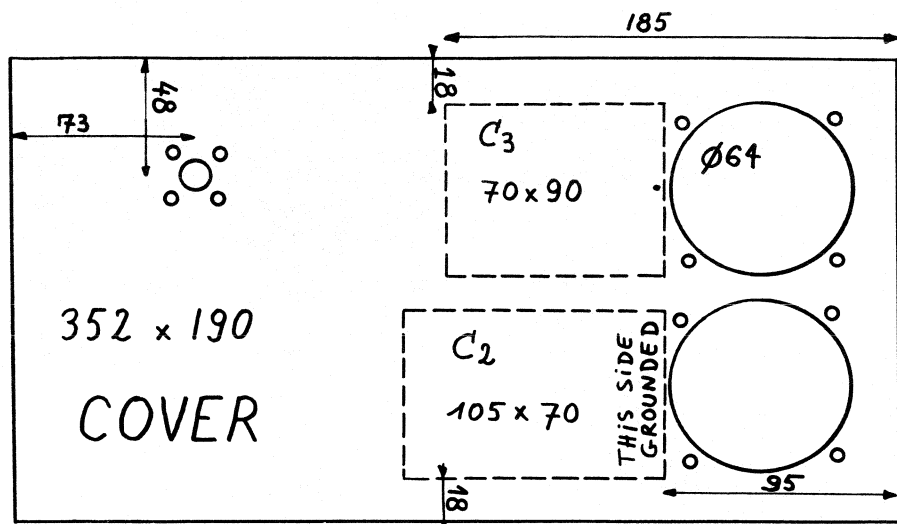
Kathodenleitung. Etwa 0 bei einer 12V Zenerdiode. Als Heizstrom sind bei 13.5V nur 3A erforderlich. Die maximal zulässige Anodenspannung bei FM und RTTY Betrieb soll 2350V nicht übersteigen. Die Oberwellenunterdrückung beträgt 60dB.

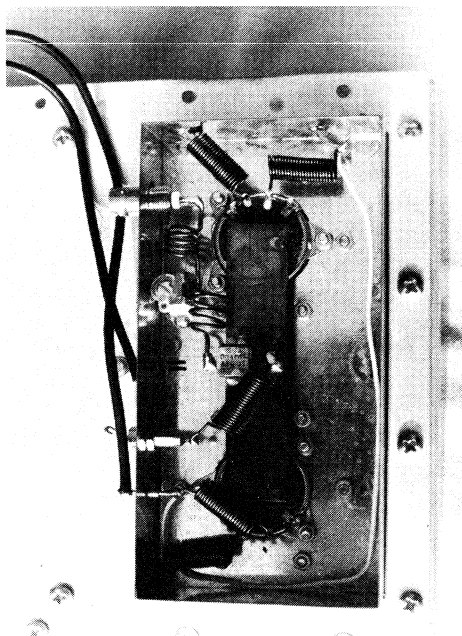
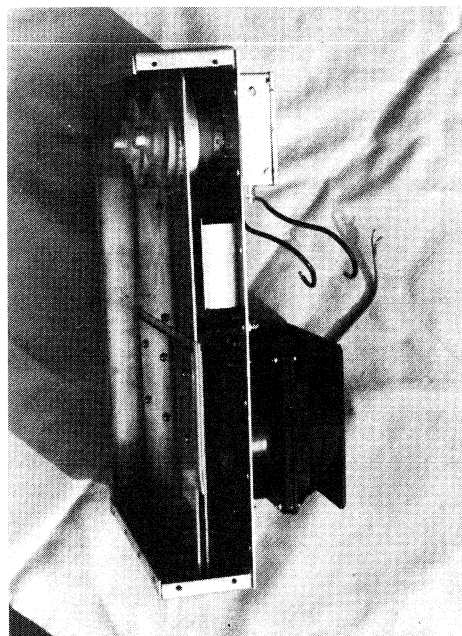
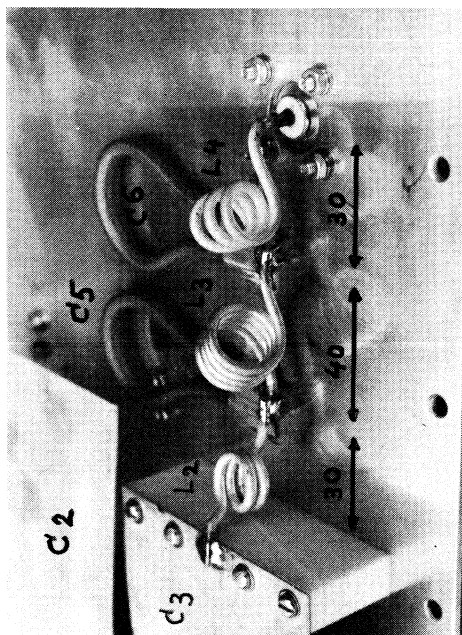
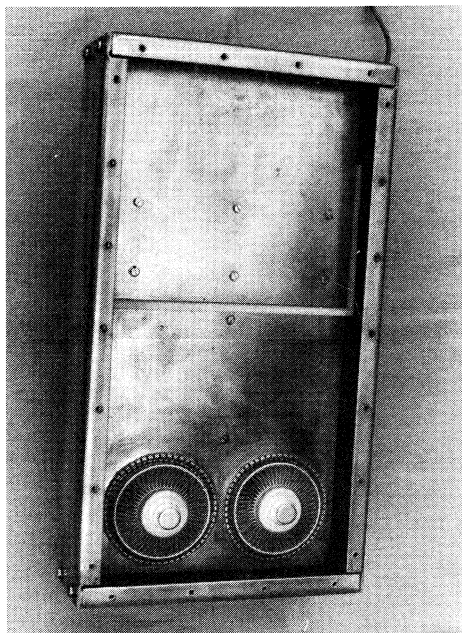
### 7.) Hinweise zum Betreiben

Die Heizung der Röhren sollte 2 Minuten eingeschaltet sein, bevor die Treiberleistung auf die Endstufe geschaltet wird. Die Anodenspannung kann gleichzeitig mit der Heizspannung angelegt werden. Niemals Ansteuerung auf die Röhre geben ohne zugeschaltete Anodenspannung! Den Gitterstrom in jedem Fall unter 100mA halten. Sicherstellen, daß das Antennenrelais angeschlossen ist und zur Antenne durchgeschaltet ist, bevor gesendet wird. Die Instrumente zum Anzeigen des Gitter- und Anodenstromes mit 3A Dioden schützen. Nahestehende Antennen zur 2m Antenne können einen großen Teil der abgestrahlten HF aufnehmen und Empfangsvorstufen zerstören. Zusätzliche elektronische Sicherheitsschaltungen können sehr nützlich sein, außerdem sollte die Endstufe gegen Mißbrauch geschützt werden.

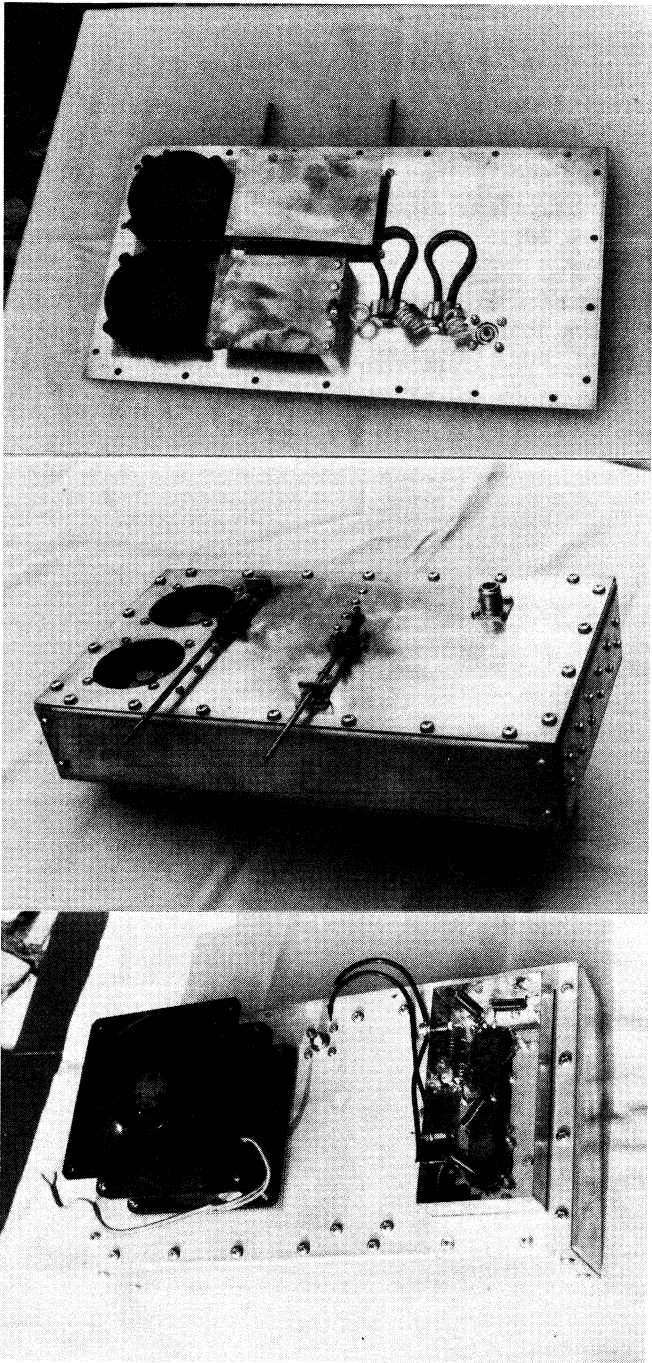
Die Bauteilliste befindet sich am Ende des englischen Textes auch in deutsch.











Coupling Line for 8 x 23el 1296 MHz

by F6DZK (translation &amp; comments by F1EIT)

E. This system using 50 Ohm air lines and a slug, avoiding lossy cable such as KX4, was primarily designed to stack two groups of 4x23 el. Tonna but should be suitable for any other long yagis.

Both 4 antenna groups are matched with three N-Tees (UG107A/U), an old American easy way comparing favourably with expensive commercial couplers (\*). 8x coupling lines (two tested) exhibit 25dB or more return loss on Wiltron VSWR bridge. The whole antenna system at F6DZK's gives 200 mW back from 150W. Assembly is made using a female flange with unlocked pin or a threaded pin.

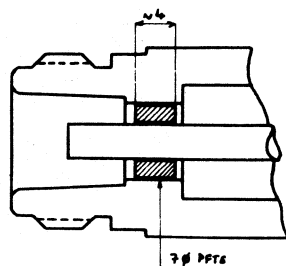
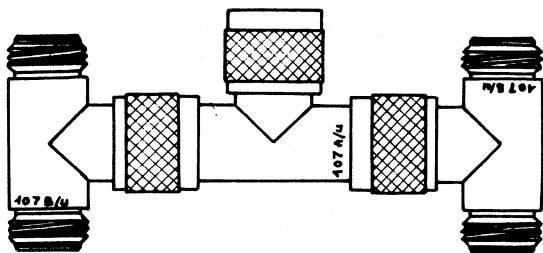
(\*) In fact people using that way have 3xUG107A/U (SWR abt. 1.3) but the better ready available system is a central Tee UG107A/U with two UG107A/U which shows 1.15 at 1296 MHz. Optimum frequency can be slide from 1.4GHz down to 1.3GHz by inserting PTFE rings in the two female N of the central Tee; returnloss better than 25dB can be achieved.

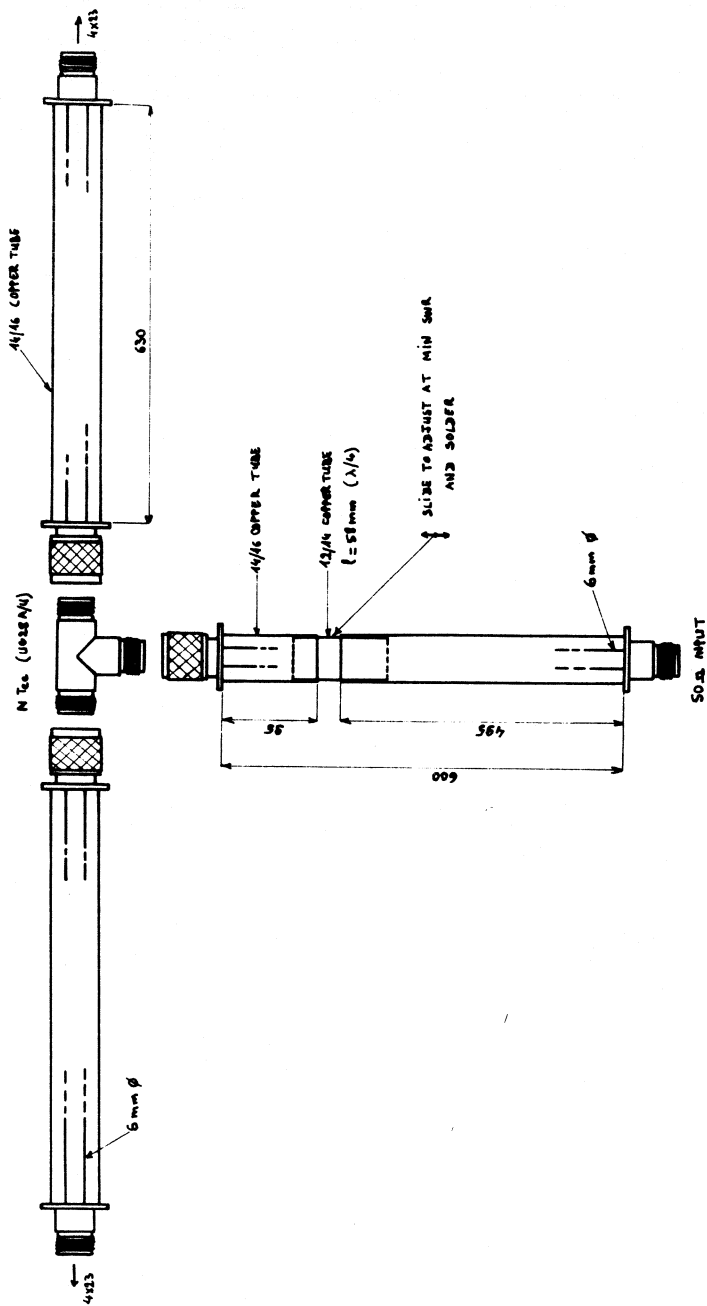
Note that inverting the system, central Tee UG107A/U and two UG107A/U outside, gives a 4 Meteosat antennas coupler with SWR better than 1.1.

D. Ursprünglich wurde dieses Anpassungssystem für zwei 4x23 el. Tonna's entwickelt mit 50 Ohm Anpassungsleitungen mit Luftdielektrikum. Natürlich läßt sich dieses Anpassungssystem auch für jede andere Yagigruppenanordnung verwenden.

Beide 4-Antennen Gruppen sind mit drei T-Stücken (UG107A/U) zusammengeschaltet, ein alter amerikanischer Weg um kostengünstig mehrere Antennen zusammenzuschalten, ohne aufwendige teure Koppler zu benutzen. (\*) Mit 8 Koppelleitungen läßt sich eine Rückflußdämpfung von größer 25dB erreichen, gemessen mit einer Wiltron Brücke. Der Rücklauf von F6DZK's Antennensystem ist bei einer Ausgangsleistung von 150W etw 200mW.

(\*) Tatsächlich benutzen eine Menge Leute die einfache Art mit 3xUG107A/U (SWR ca. 1.3) ihre Antennen zusammenzuschalten. Aber besser ist es ein zentrales T-Stück zu benutzen und nach zwei von dort ausgehenden Anpaßleitungen zwei weitere UG107A/U zusammenzuschalten. Auf diese Weise erreicht man mühelos ein SWR von 1.15. Bringt man in der zentralen Zuleitung noch eine Verschiebmöglichkeit an, kann man das SWR innerhalb eines Frequenzbereiches von 1300 bis 1400MHz zu besser als 1.1 auf jede Frequenz optimieren.





1.3 GHz GaAs FET TRANSVERTER MODULE

by Peter Riml, OE9PMJ

D.

Der hier beschriebene Transverter ist speziell für Portabeleinsatz geeignet, aber auch als "Modul" in einer erweiterbaren Version mit Einstufe, als Feststation oder nur als Steuersender (Oscar Mode L) oder auch nur als Konverter.

E.

This here described transverter is useful especially for portable operation but as well as a module of an extended transverter version or, of course, as driver in a Satellite Transmitter (1269 Mc).

D. Technische Daten:

Zwischenfrequenz 144..146 MHz, Ausgangsfrequenz 1296..1298 MHz,  
Ausgangsleistung 400..700mW (BFG34), 250..500mW (BFR96S)  
Eingangsleistung ca 50mW bis max 2W PEP (CW, SSB) einstellbar  
Nebenwellenunterdrückung typ. 50dB  
RX-Durchgangsverstärkung ca 17dB, Rauschzahl typ. 3,2 dB

E. Specification:

IF 144..146 MHz, Outputfrequency 1296..1298 MHz,  
Outputpower 400..700mW (BFG34), 250..500mW (BFR96S)  
Inputpower abt. 50mW up to 2W PEP (CW, SSB) adjustable  
Spuriousrejection typ. 50dB  
RX gain abt. 17dB, Noise Figure typ. 3,2 dB

D. Schaltung:

Im Oszillator (Q1) wird ein J-FET (J310) betrieben. Die Quarzhalterkapazität ist durch L2 kompensiert. Der Xtal sollte ein Präzisionstyp sein (therm. Drift  $-20^{\circ}...+70^{\circ}\text{C}$  max 10ppm), die oft üblichen "Standard"-Quarze (50ppm) sind auf Frequenzen über 500MHz nicht zu empfehlen.

Das 96MHz Signal wird von Q2, Q3 und Q4 auf 1152MHz vervielfacht und über L9/C22 und Tr dem Mischer (D13, D14) zugeführt, welcher für Sendung und Empfang benützt wird. Das Bandpassfilter L10/C24-L11/C25 selektiert das TX-Signal und L10/C24-L16/C26 das RX-Signal. CH2/C27 ist als L0-Saugkreis (1152MHz) ausgeführt.

Der Verstärker Q5, Q6, Q7 hebt das Sendesignal um etwa 30dB an. Q10 verstärkt das ZF-Signal. Der Empfangsverstärker ist mit Q8 und Q9 aufgebaut. Die 144MHz RX-TX Umschaltung besteht aus den Dioden D1, D2 und D3. Der Detektor der integrierter HF-Vox (D5, D6) ist mit einer Vorspannung, stabilisiert mit D8, versehen um hohe Ansprechempfindlichkeit zu Erreichen. Das DC-Signal wird über Q12, Q13 und Q11 verstärkt und Q15 (Q14) zugeführt.

Die Anpassung des 144MHz TX-Pegels erfolgt durch den Dämpfungsgregler VR1 (0,05...2W). Die Verzögerungszeit der HF-Vox ist mit VR3 (25k) einstellbar.

E. Circuit design:

In the oscillator stage there is a J-FET (Q1 = J310) in use. The Xtal holder's capacitance is compensated by the inductance L2. The Xtal should be a precision version (thermal drift  $-20^{\circ}$  to  $70^{\circ}\text{C}$  max 10ppm), the often used 50ppm Xtal "standard" is not to recommend on applications above 500MHz.  
The multiplier Q2, Q3 and Q4 brings the 96MHz signal up to 1152MHz

and passes L9/C22 and Tr to reach the Mixer (D13, D14), which is in use for reception as well as to transmit. The band pass filter L10/C24-L11/C25 selects the TX-signal, L10/C24-L16/C26 the RX-signal. CH2/C27 is a LO-trap configuration (1152MHz).

The amplifier Q5, Q6, Q7 gains the transmitter signal about 30dB. Q10 steps up the IF-signal. The low noise amp. consists of Q8 and Q9. The RX-TX switch is built up from D1, D2 and D3. The detector of the integrated RF-Vox (D5, D6) is biased by the stabilized voltage of D8 to get high sensitivity. The DC-signal, gained by Q12, Q13 and Q11, feeds Q15 (Q14).

The 144MHz TX level is adjusted with the variable attenuator VR1 (.05 to 2W). The RF-Vox delaytime is adjustable by VR3 (25k).

#### D. Praktischer Aufbau:

Die gesamte Schaltung ist auf einer einzigen Platine (Epoxy 1,6 mm) untergebracht und findet in einem 148x74x34mm Gehäuse Platz. Die Spulen L1, L2 und L3 sind NEOSID Fertigfilter, hingegen müssen die Induktivitäten L4, L5, L17 und Tr entsprechend der Stückliste selbst gewickelt werden. Alle anderen Induktivitäten sind gedruckte Ausführungen.

Zuerst werden die Durchkontaktierungen für L8, L9, L11 und L16 mit kurzen Drahtstücken angebracht. Dann werden die Stripline Transistoren (Q2, Q3, Q4, Q6, Q7 und Q9) eingesetzt, gefolgt von den Widerständen, Dioden, Kondensatoren und den restlichen Bauteilen.

Zuletzt werden die Chip-Kondensatoren (C30, C31, C32, C33), die GaAs FET's (Q5, Q8), R13, R20 und L10-Umschließung eingesetzt.

Zu Beachten ist ein möglichst kurzbeiniges Einlöten der Kondensatoren 1n und 10n (Abblockungen - der Kondensatorkörper soll auf der Platine aufliegen) speziell bei den Emitter-Abblockungen und L8. Die Bauteile mit Anschluß an Masse werden ohne Löcher in der Printplatte direkt an der Massefläche angelötet ausgenommen bei Q11, Q12 und VR2, dort sollten die Lötungen zur Masse nicht vergessen werden. Die zu erdenden Anschlüsse der Folientrimmer werden nach außen gebogen und auf ca 1mm gekürzt vor dem Löten.

Nach einer abschließenden Überprüfung des Aufbaues wird der Print in ein passendes Gehäuse eingebaut.

#### E. Rebuilding:

The complete circuit design is printed at a single PCB (1,6 mm Epoxy) and can be enclosed by a housing of 148x74x34mm.

The coils L1, L2 and L3 are molded types from NEOSID, whereas the inductances L4, L5, L17 and Tr are just to finish with the windings according to the parts list. All other inductances are printed configurations in the PCB design.

At first connect-through the holes of L8, L9, L11, and L16 by insert short pieces of wire. Then install the stripe line transistors Q2, Q3, Q4, Q6, Q7 and Q9, followed by the resistors, diodes, condensers and all other components. At last insert the chip caps (C30, C31, C32, C33), the GaAs FET's Q5, Q8, the resistors R13, R20 and the L10-enclosure. Note to keep the connection wires of the block capacitors 1n and 10n as short as possible (the capacitor's body in touch to PCB ground) especially on the emitter caps and L8. The components with ground connections are directly soldered to the PCB surface without holes, except on Q11, Q12 and VR2 - there don't forget the ground joint. The ground connected pins of the folie trim caps bent outside and cut to abt. 1mm before soldering. After a final check of the build-up it is ready to put into a suitable housing.

Abgleich / tune up:

D. Bevor die Betriebsspannung angelegt wird, sollten die Abstimm-elemente auf die Positionen entsprechend nachstehender Tabelle eingestellt werden.

E. Before put on the DC voltage bring all adjustable elements to the positions as shown in the table below.

| Teil<br>part | Wert<br>value | Stufe<br>stage         | Einstellung<br>adjustment |
|--------------|---------------|------------------------|---------------------------|
| C19          | 10pF yellow   | Multipl. 288MHz        | 65%                       |
| C20          | 6pF           | Multipl. 576MHz        | 60%                       |
| C21          | 6pF           | Multipl. 1152MHz       | 10%                       |
| C22          | 6pF           | Filter 1152MHz         | 40%                       |
| C23          | 6pF           | Mixer                  | 15%                       |
| C24          | 6pF           | 1296MHz RX/TX filter   | 15%                       |
| C25          | 6pF           | 1296MHz TX filter      | 10%                       |
| C26          | 6pF           | 1296MHz RX filter      | 10%                       |
| C27          | 6pF           | 1152MHz LO trap        | 25%                       |
| C28          | 6pF           | 1296MHz Q6-Q7 transf.  | 25%                       |
| C17          | 10pF yellow   | 1296MHz Q6-Q7 transf.  | 60%                       |
| C29          | 6pF           | 1296MHz output transf. | 5%                        |
| C18          | 10pF yellow   | 1296MHz output transf. | 60%                       |
| C15          | 5pF PFTE      | 1296MHz low noise amp  | 10%                       |
| C16          | 5pF PFTE      | 1296MHz low noise amp  | 10%                       |
| VR1          | 250 $\Omega$  | 144MHz TX level/Pegel  | end lefthand/Linksanschl. |
| VR2          | 1 k $\Omega$  | Q7 bias/Arbeitspunkt   | 70% clockwise/rechtsdr.   |
| VR3          | 25 k $\Omega$ | VOX delay/Verzögerung  | 50%                       |
| L1           | 330nH         | 96MHz oscillator       | see text                  |
| L2           | 330nH         | 96MHz (compensation)   | 2mm below rim/unter Rand  |
| L3           | 115nH         | IF amp/ZF Verstärker   | 2mm below rim/unter Rand  |

D. Bei Betrieb mit getrenntem Sender und Empfänger wird Br1 eingesetzt (ohne Br2), ansonsten Br2 (ohne Br1). Die Sende- Empfangs-umschaltung kann durch 4 Möglichkeiten aktiviert werden:

- |                                           |                 |
|-------------------------------------------|-----------------|
| a) PTT Anschluß                           | Br 3 entfällt   |
| b) +9..15V an Anschluß Vdc TX             | Br 3 entfällt   |
| c) interne HF-VOX                         | Br 3 eingesetzt |
| d) +5..15V an RX/TX Buchse (über R34, D4) | Br 3 eingesetzt |

E. Operation with separate RX and TX requires to insert Br1 (without Br2), otherwise insert Br2 (without Br1). There are 4 possibilities to activate RX-TX switching:

- |                                           |              |
|-------------------------------------------|--------------|
| a) PTT line                               | without Br 3 |
| b) +9..15V at Vdc TX                      | without Br 3 |
| c) internal RF-VOX                        | insert Br 3  |
| d) +5..15V at RX/TX socket (over R34, D4) | insert Br 3  |

D. Zuerst wird die HF-VOX und die RX-TX Umschaltung geprüft (Br 3 eingesetzt). Ohne 144MHz Steuersignal liegt an Anschluß Vdc RX Spannung, und Vdc TX ist spannungslos (weniger als 0,3 V). Wenn einige mW HF am 144MHz Eingang angelegt werden, dann kehrt sich die Situation (Vdc RX low, Vdc TX high). Anschließend wird die Frequenzaufbereitung wie folgt abgeglichen:

- L1 durchstimmen bis der Oszillator (Q1) anschwingt (Spannungssprung von 0V auf 0,3V an R5), Frequenz mit Frequenzzähler prüfen (an R4)
- C19 auf max Spannungsabfall an R9 (ca. 0,7V) stimmen
- C20 auf max Spannungsabfall an R12 (ca. 0,5V) abstimmen

Nun existiert bereits ein 1152MHz Signal an L8, L9, und ein starkes Bakensignal auf 1296MHz sollte bereits hörbar sein, um C21, C22, C24, C26, C15 und C16 auf max Empfangssignal abzugleichen. Der Strombedarf beträgt bei Empfang etwa 80mA.

Um den Senderteil abzugleichen wird ein HF-Detektor mit 1296MHz-Filter und Abschwächer am TX-Ausgang angebracht. Ebenso kann ein Absorptionsfrequenzmesser benützt werden, natürlich ist ein Spektrumanalysegerät hier sehr hilfreich. Der TX wird aktiviert (PTT-Anschluß an Masse) und mit VR2 der Spannungsabfall an R17 auf etwa 1,6V justiert. Dann ein 144MHz-Träger, etwa 50 bis 100mW an den Eingang geben und die Trimmer C25, C28, C29, C17 und C18 auf max 1296MHz Output abstimmen. Das Verstimmen von C25 und C28 hat den grössten Einfluss auf die Ausgangsleistung. C27 sollte auf grösste Oszillatorunterdrückung (1152MHz) eingestellt werden (ca. 55dB). Die Stromaufnahme beim Senden liegt bei etwa 200mA.

E. At first check the RF-VOX and the RX-TX switching (Br 3 inserted). Without 144MHz input signal there is no voltage (less than .3V) at point Vdc TX but Vdc RX is high. A few mW of 144MHz TX input reverses the situation (Vdc RX low, Vdc TX high). After that tune the LO as follows:

- a) adjust L1 for oscillation of Q1 (96MHz), voltage at R5 steps up from zero to abt. .3V. Check the frequency by a counter (at R4).
- b) tune C19 to max voltage at R9 (abt. .7V)
- c) tune C20 to max voltage at R12 (abt. .5V)

Now there is available an LO signal (1152MHz) at L8, L9, and a strong 1296MHz beacon signal should be detectable to tune C21, C22, C24, C26, C15 and C16 for max reception. On RX the DC requirement is about 80mA.

To tune up the transmitter part put a RF detector included a 1296MHz filter and attenuator at the output port. As well a cavity wavemeter or, of course, a spectrum analyser would be very helpful. Activate the TX (PTT connection to ground) and adjust the bias pot VR2 to a voltage of abt. 1.6V at R17. Then put about 50 to 100mW of a 144MHz carrier at the input socket and tune the trim caps C25, C28, C29, C17 and C18 for max power output on 1296MHz. The most affect on power output gives the adjustment of C25 and C28. C27 should be tuned for max LO suppression (abt. 55dB). The transmitter requires about 200mA DC supply.

#### Bausätze / Kits

D. Ein kompletter Bausatz (BFG34 Version) mit N-Buchsen am 1296MHz Anschluß und gebohrtem Weißblechgehäuse ist erhältlich von KUENAG electronics, P.O.Box 27, FL-9486 Schaanwald, LIECHTENSTEIN, Tel 075-34289. Preis ca DM 270,-. Auch das Fertiggerät ist erhältlich. In DL ist der Bausatz auch von Karl Himmler, DB3UU, Scheffelweg 2, D-6805 Heddeshheim, Tel 06203-44142, verfügbar.

E. A complete kit (BFG34-version), 1296MHz N-connectors, 144MHz BNC, included a tin sheet housing with all required holes is available from KUENAG electronics, POB 27, FL-9486 Schaanwald, PRINCIPALITY of LIECHTENSTEIN, Tel 075-34289. Costs about DM 270,-. The all ready finished version is as well available there.

Eine 13cm Version dieses Transverters läuft als Prototyp und wird in einer der nächsten DUBUS Ausgaben erscheinen. A prototype of a 13cm version of this transverter is under Test and will appear in one of the next DUBUS editions.

OE9PMJ

PARTS LIST      1.3GHz TRANSVERTER      OE9PMJ 201      STÜCKLISTE

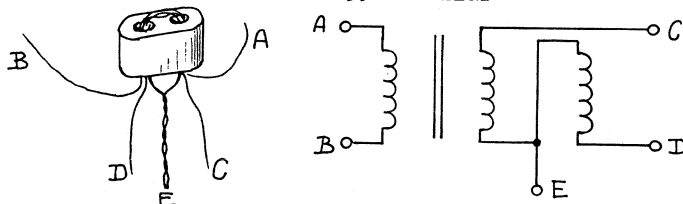
|                          |                                              |                                            |              |
|--------------------------|----------------------------------------------|--------------------------------------------|--------------|
| Widerstände<br>Resistors | 1/4W                                         | Keramik-Kondens.<br>Ceramic caps           | 2.5mm, 63V   |
| R1                       | 180                                          | 14x1n                                      | o.47...1.5nF |
| R2                       | 8k2                                          | 20x10n                                     | 4.7...15nF   |
| R3, R31, R37             | 2k2                                          | C1                                         | 1pF          |
| R4                       | 3k9                                          | C2, C3                                     | 2.2pF        |
| R5, R9                   | 100                                          | C4                                         | 3.3pF        |
| R6, R30                  | 4.7                                          | C5, C6                                     | 4.7pF        |
| R7, R11, R39             | 3k3                                          | C7, C8                                     | 5.6pF        |
| R8                       | 33k                                          | C9                                         | 12pF         |
| R10                      | 82k                                          | C10, C11                                   | 39pF         |
| R12                      | 47                                           | C13                                        | 2.2nF        |
| R13 (27..39)             | 39                                           | C14 (5mm, 16V)                             | 22...56nF    |
| R14                      | 270                                          |                                            |              |
| R15, R21, R33            | 120                                          | Keramik-Rohrkond.                          | 10mm, 63V    |
| R16, R43                 | 2k7                                          | Ceramic tube cap                           |              |
| R17, R29                 | 27                                           | C12                                        | 56...220pF   |
| R18                      | 1.2                                          |                                            |              |
| R19, R26                 | 220                                          | Plastik Trimmcond.                         | Ø 7.5mm      |
| R20 (56..100)            | 82                                           | Plastic trim caps                          | 7.5mm dia    |
| R22                      | 390                                          |                                            |              |
| R23, R24                 | 560                                          | C17, C18, C19 (yellow)                     | 10pF         |
| R27, R38                 | 150                                          | C20...C29 (grey)                           | 6pF          |
| R28                      | 820                                          |                                            |              |
| R32                      | 680                                          | PTFE Folientrimmer                         | (SKY)        |
| R34                      | 1k8                                          | PTFE folie trim caps                       |              |
| R35                      | 1k5                                          | C15, C16                                   | 5pF          |
| R36, R45                 | 5k6                                          |                                            |              |
| R40                      | 27k                                          | Tantal caps                                | min 16V      |
| R41                      | 15k                                          | C34, C35, C36                              | 1µF          |
| R42                      | 22k                                          | C37                                        | 10µF         |
| R44                      | 18k                                          | C38                                        | 22µF         |
| R46                      | 1k                                           |                                            |              |
| Widerstand<br>Resistor   | 1/2W                                         | Trapezkond. keramisch<br>Ceramic chip caps |              |
| R25 (22..39)             | 39                                           | C30, C31, C32, C33                         | 820pF        |
| D1, D2, D3               | BA243, BA182, BA282, o. ähnlich / or similar |                                            |              |
| D4, D5, D6, D7           | 1N4148, 1N914 o. ähnlich / or similar        |                                            |              |
| D8, D9, D10, D11         | Zener Diode 5.6V, o.5W                       |                                            |              |
| D12                      | Zener Diode 15V, 1W                          |                                            |              |
| D13, D14                 | BA481, HP5082-2811, HP5082-2835              |                                            |              |
| D15, D16                 | 1N4005, 1N4004, BYW55 o. ähnl. / or similar  |                                            |              |
| IC                       | 78Lo6                                        |                                            |              |
| Q1, Q10                  | J310                                         |                                            |              |
| Q2, Q3                   | BFW92                                        |                                            |              |
| Q4, Q9                   | BFR90A, BFR34A, MRF901                       |                                            |              |
| Q5, Q8                   | CFY13, MGF1200, oder ähnlich / or similar    |                                            |              |
| Q6                       | BFR96, BFR96S                                |                                            |              |
| Q7                       | BFG34, BFR96S, BFT98T, BFQ34                 |                                            |              |
| Q11, Q12                 | BC237, BC238, BC337 o. ähnl. / or similar    |                                            |              |
| Q13                      | BC308, BC327, BC557 o. ähnl. / or similar    |                                            |              |
| Q14, Q15                 | BD136, BD138, BD434 o. ähnl. / or similar    |                                            |              |



Xtal 96.000MHz (1296), 93.667MHz (1269), HC-18/U  
 VR1 Trimpot 250 1/4W, 5x10mm or 5x7.5mm  
 VR2 Trimpot 1k 1/4W, detto  
 VR3 Trimpot 25k 1/4W, detto

L1, L2 NEOSID coil-set N8 BV 005049, max 330nH,  
 (yellow-white /-gelb-weiß)  
 L3 NEOSID coil-set N8 BV 005061, 115nH,  
 (blue-brown /-blau-braun)  
 L4 Ferrit Perle / ferrite bead  
 Ø3,5 x Ø1,3 x 3mm lg, .138"OD, .051"ID, .118"HT  
 AMIDON FB-64-101 o. ähnl. / or similar, (150nH/t<sup>2</sup>)  
 2 Windungen 0,15 Cul / 2 turns AWG 35..32  
 L5 Ferrit Perle wie L4/ ferrite bead equal L4,  
 3 Windungen 0,15 Cul / 3 turns AWG 35..32  
 L16 Ferrit Perle wie L4/ ferrite bead equal L4,  
 1 Windung 0,15 Cul / 1 turn AWG 35..32

Tr Ferrit Doppellockkern / ferrite binocular  
 AMIDON BN-61-2302 or SIEMENS B62 152-A7-X17  
 2 Windungen trifilar 0,15 Cul  
 2 turns AWG 35 trifilar



Weißblechgehäuse / tin sheet housing  
 146x72x33mm innen / 5<sup>3</sup>/<sub>4</sub>" x 2<sup>27</sup>/<sub>32</sub>" x 1<sup>5</sup>/<sub>16</sub>" inside

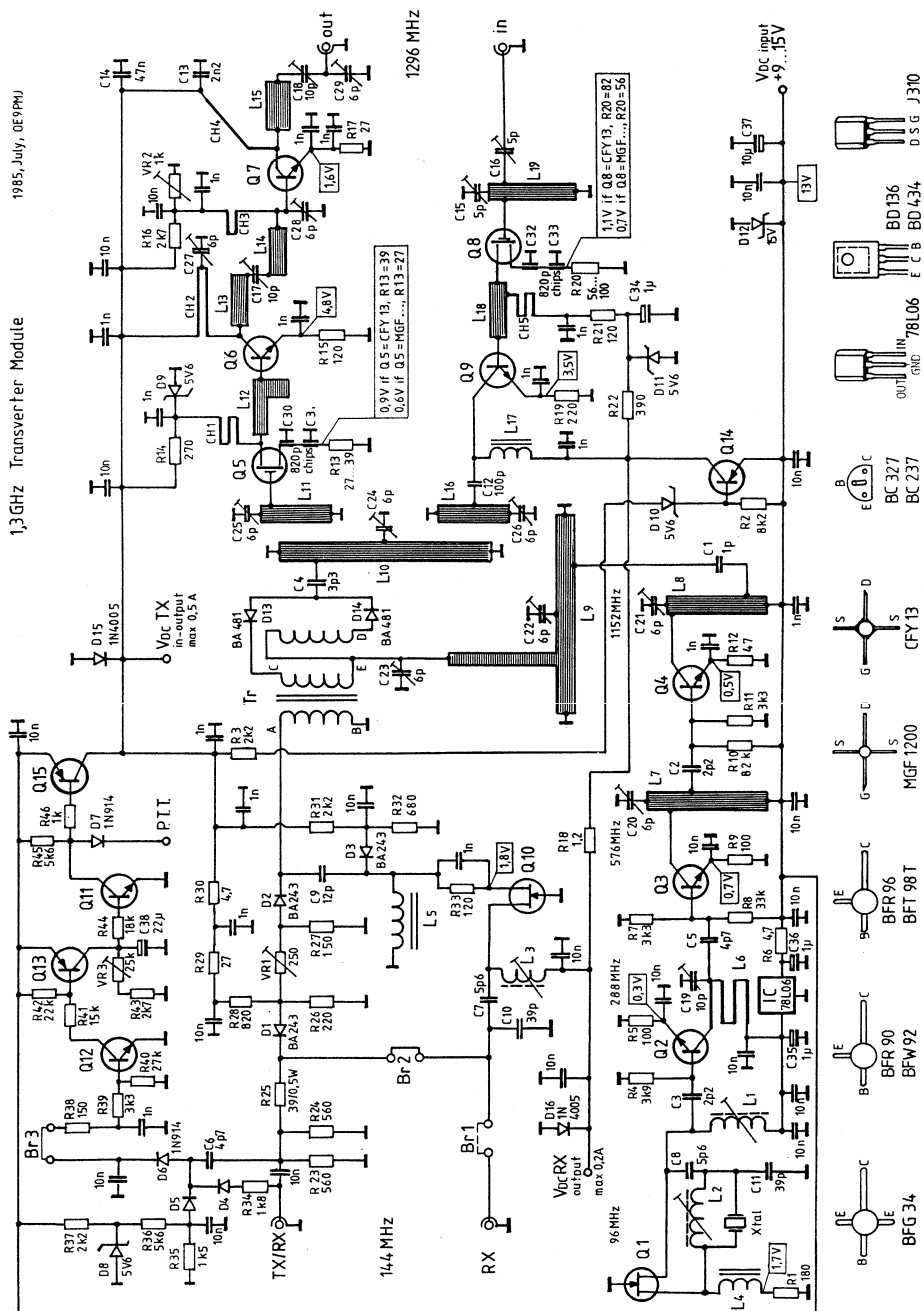
144MHz input-output BNC, UG290/U or UG447/U  
 1296MHz input output N-flange socket with UG447 flange /  
 N-Flanschbuchse mit UG447 Flansch  
 or BNC UG290/U or UG447/U

Keramische Durchführungskondensatoren 1nF, Ø3mm  
 Feed through capacitor 1nF, 3mm dia

Schrauben und Muttern M2,5 / screws and nuts M2.5

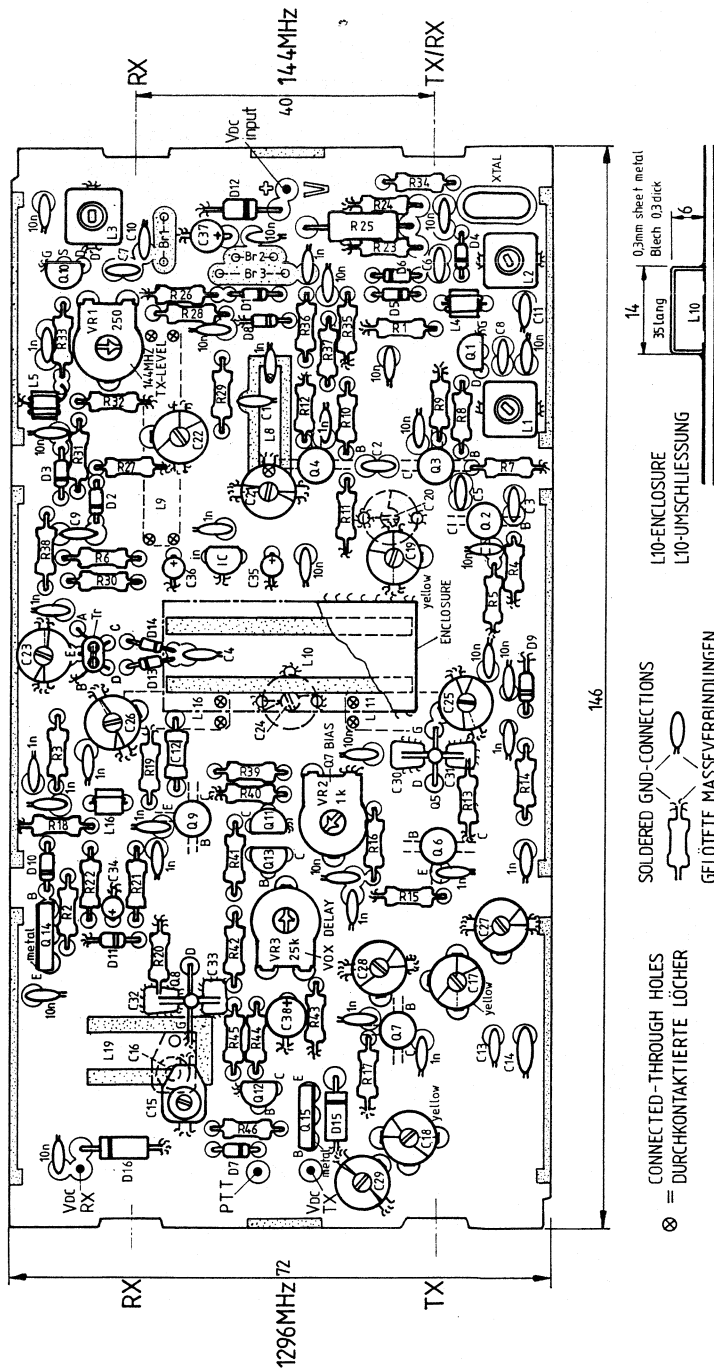
## 1,3GHz Transverter Module

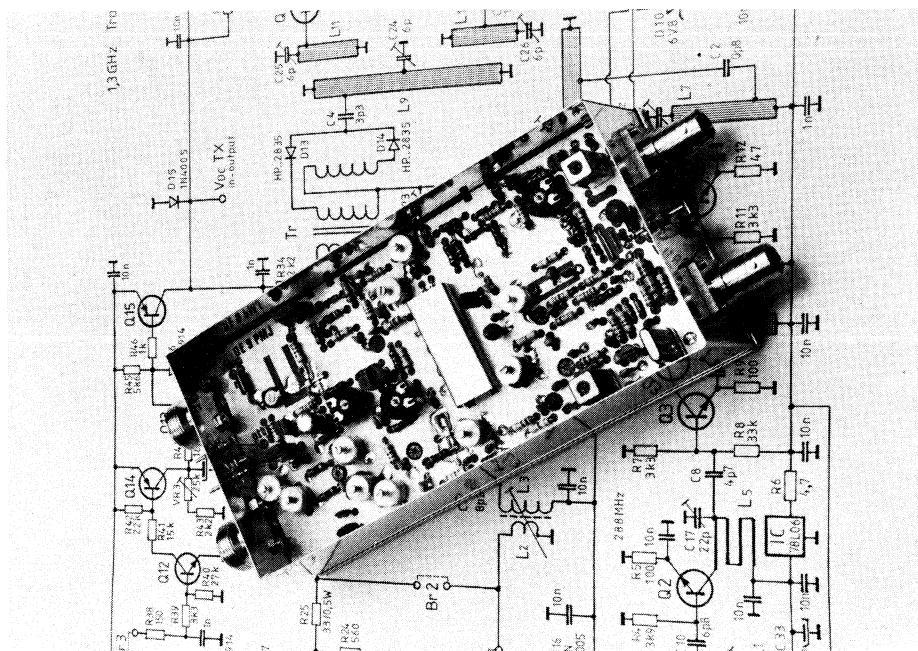
1985, July, 0E9PMJ



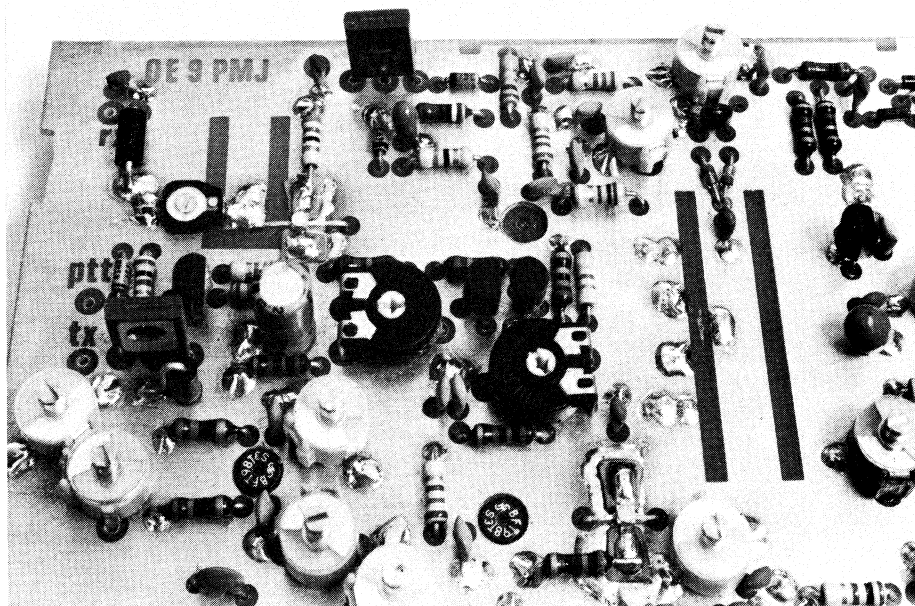
1985, July, 0E9PMJ

1.3GHz Transverter Module

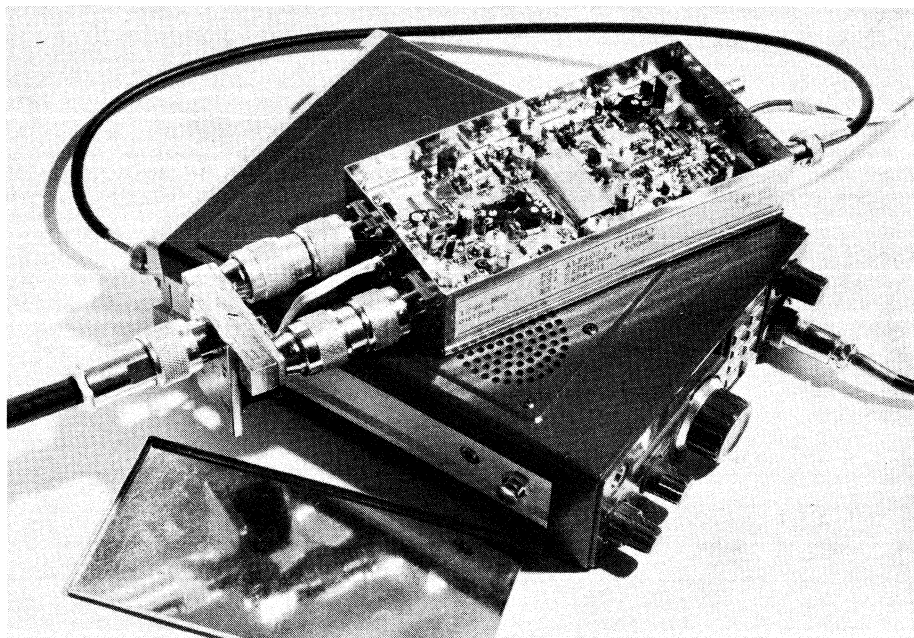




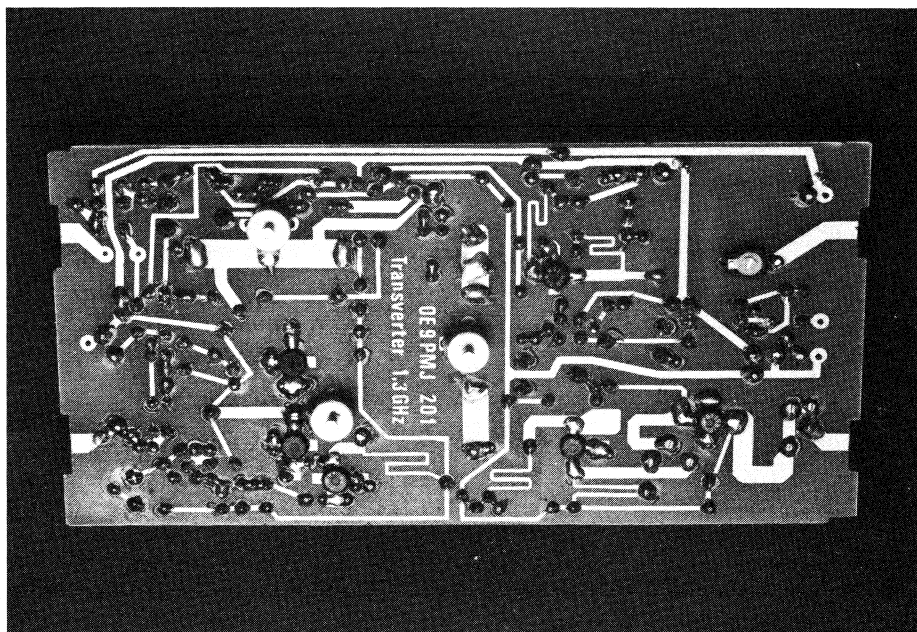
23c. GaAs FET TRANSVERTER MODULE



1296 MHz Teil des Transverters. Links oben Eingangskreis; Rechts Diodenmischer mit L10 ohne Abdeckung.  
1296 MHz part of transverter. Left above RX input circuit; Right diode mixer with L10 without enclosure.



Portabel- Einsatz mit angeschlossenem Koaxrelais (Model CX-520-D, TOYO TSUSHO, JAPAN).  
Portable application with connected coax relay.



Bauteile auf der Unterseite-Components located at the bottom.

# TECHNICAL NEWS

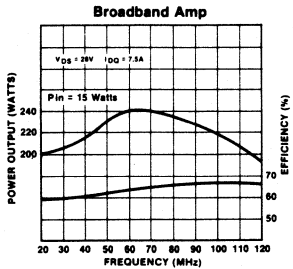
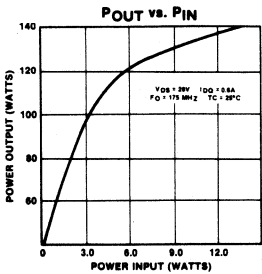
120 W RF VHF ISOFET by ACRIAN

E. The new VMIL120FT Silicon ISOFET produces 120W rf using very simple amplifier design. Other features: Broadband applications, High dynamic range, very rugged when subject to high SWR, can be used from D.C. to 200 MHz—limited service up to 400 MHz, excellent gain control characteristics and selected input designs allow for excellent input return loss over very broad bandwidths.

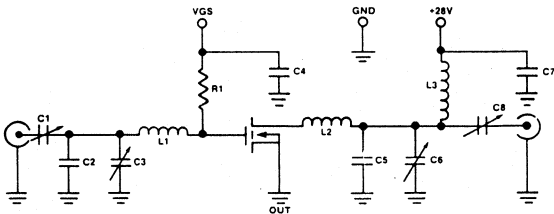
D. Der neue Silizium ISOFET VMIL120FT von ACRIAN erzielt eine Ausgangsleistung von 120 W im VHF Bereich. Weitere Merkmale sind: für Breitbandanwendungen geeignet, großer Dynamikbereich, unempfindlich gegen Lastschwankungen, kann von Gleichstrom bis 200 MHz und bis 400MHz mit eingeschränkten Daten eingesetzt werden, ausgezeichnete Regeleigenschaften und hohe Rückflußdämpfung im Eingang.

ABSOLUTE MAXIMUM RATINGS (TC = 25°C unless otherwise noted)

| STORAGE TEMPERATURE | JUNCTION TEMPERATURE | TOTAL DEVICE DISSIPATION | DRAIN-CURRENT (DC) | DRAIN-GATE VOLTAGE | DRAIN-SOURCE VOLTAGE | GATE-SOURCE VOLTAGE | THERMAL RESISTANCE, JUNCTION TO CASE |
|---------------------|----------------------|--------------------------|--------------------|--------------------|----------------------|---------------------|--------------------------------------|
| -65° C to 150° C    | 200° C               | 240W                     | 12A                | 80V                | 80V                  | 60V                 | 0.73° C/W                            |



175 MHz Test Fixture



**PARTS LIST**

- C1, C6 5-80 pF (ARCO 462)
- C2, C5 50 pF SEMCO
- C3 4-40 pF (ARCO 422)
- C4, C7 0.01  $\mu F$
- C8 9-180 pF (ARCO 463)
- L1 7/8" #12 AWG 0.4" Loop
- L2 7/8" #12 AWG 0.4" Loop
- L3 8 Turns #16 AWG 1/4"  $\phi$
- R1 10K 1/4W

## New Broadband Power Modules from ACRIAN

E. The **MB15-10** is a highly reliable, rugged, medium power high gain broadband amplifier capable of delivering 10 Watts from 28VDC over a frequency range of 100-500 MHz. The heart of this amplifier is the ACRIAN push-pull ISOFET. This amplifier has the capabilities of being externally modulated and gain controlled via Valc input, resulting in a wide dynamic range.

This module is also available for a frequency range from 30-400 MHz (model MB-34-10).

D. Neues Breitband-Leistungs Modul von ACRIAN MB15-10. Es handelt sich hier um einen Breitbandleistungsverstärker mit 10W Ausgangsleistung bei 28VDC von 100-500 MHz. Die Endstufe dieses Moduls besteht aus zwei ISOFET's im Gegentakt geschaltet. Das Modul kann extern moduliert werden, ebenso Leistungsverstärkung.

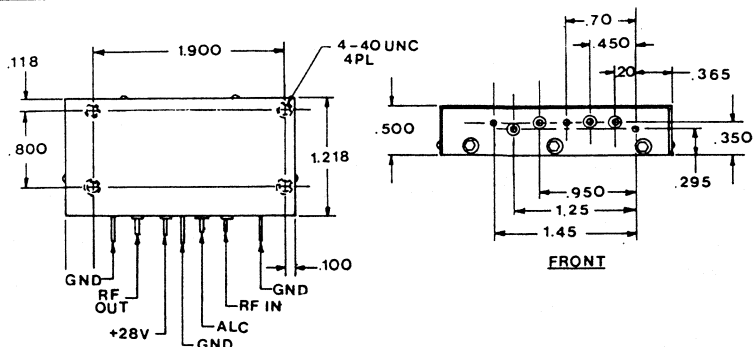
Das Modul ist auch unter der Typenbezeichnung MB.34-10 für einen Frequenzbereich von 30-400 MHz erhältlich.

### Absolute Maximum Ratings

| Characteristics             | Test Condition | Min. | Max. | Units |
|-----------------------------|----------------|------|------|-------|
| Supply Voltage              |                |      | 28   | Volts |
| Supply Current              |                |      | 2.5  | Amps  |
| V <sub>alc</sub>            |                | -4   | 10   | Volts |
| Operating Frequency Range   | Po = 10 Watts  | 100  | 500  | MHz   |
| Operating Temperature Range | Po = 10 Watts  | -35  | +70  | ° C   |
| Storage Temperature Range   |                | -55  | +200 | ° C   |
|                             |                |      |      |       |

## Performance

| Characteristics          | Test Condition    | Min. | Typ. | Max.  | Units |
|--------------------------|-------------------|------|------|-------|-------|
| Power Output             | @ 1dB compression | 10   |      |       | Watts |
| Gain Ripple              | Po = 10 Watts     |      |      | ± 2.5 | dB    |
| Input VSWR               | Po = 10 Watts     |      |      | 2.5:1 |       |
| Load Mismatch Capability | All Phase Angles  |      |      | 5:1   |       |
| Power Gain               |                   | 27   |      |       | dB    |
| Standby Current          |                   |      |      | 300   | mA    |
| ALC Dynamic Range        | Po=10 watts       | 60   |      |       | dB    |



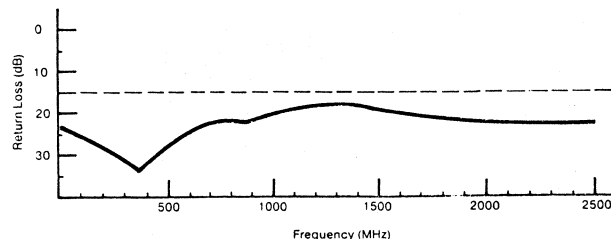
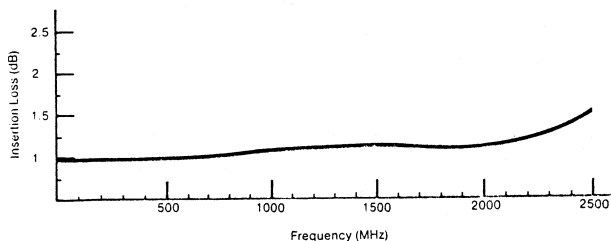
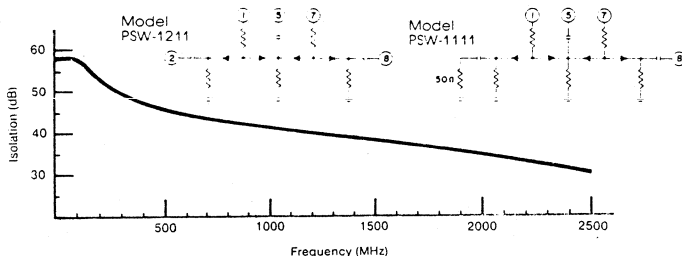
# Low Cost PIN Diode Switches -PSW Series- by Mini Circuits

E. A line of SPST and SPDT switches is designed to operate over 10 to 2500 MHz range. The switches use PIN diode chips mounted on thick-film ceramic substrate. A control signal of +5V (appr. 3mA) will turn the switch on, and a 0 to -5V (10 $\mu$ A) signal will turn it off. The switching speed is 1 $\mu$ Sec maximum. Typical insertion loss is shown in Fig. 1. Isolation in Fig. 2 and the return loss vs frequency in Fig. 3. The 1dB compression point vs frequency and third-order intercept are shown in tables 1 and 2 respectively. Max. RF input = +20dBm.

D. Mini Circuits hat eine Serie von PIN Dioden-gesteuerten Koaxschaltern SPST und SPDT für einen Frequenzbereich von 10-2500 MHz entwickelt. Es handelt sich hier um PIN Dioden Chips, welche auf einem Dünnfilm-Keramik Substrat aufgebracht sind. Eine Steuerspannung von +5V (3mA) schaltet den Schalter ein, von -5V (10 $\mu$ A) aus. Die maximale Schaltzeit beträgt 1 $\mu$ sek. Die typische Durchgangsdämpfung zeigt Bild 1, die Sperrdämpfung Bild 2 und die Rückflußdämpfung über die Frequenz, Bild 3. Tabelle 1 und 2 geben Auskunft über die Großsignaleigenschaften. Die maximale HF Eingangsleistung darf +20dBm betragen.

| TABLE I<br>1 dB COMPRESSION VS. FREQUENCY |                                |
|-------------------------------------------|--------------------------------|
| FREQUENCY (MHz)                           | POWER AT 1dB COMPRESSION (dBm) |
| 10                                        | +11                            |
| 50                                        | +19                            |
| 100                                       | +22                            |
| 500                                       | +22                            |
| 1000                                      | +28                            |

| TABLE II<br>THIRD ORDER INTERCEPT VS. FREQUENCY |                            |
|-------------------------------------------------|----------------------------|
| FREQUENCY (MHz)                                 | THIRD ORDER INTERCEPT (dB) |
| 15-20                                           | 22                         |
| 40-50                                           | 35                         |
| 100-110                                         | 40                         |
| 200-210                                         | 40                         |
| 400-410                                         | 40                         |



## Technical Data:

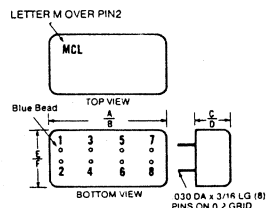
MODELS PSW 1111 (SPST)  
and PSW 1211 (SPDT)

Frequency range: 10-2500 MHz  
Insertion Loss:  
10-2000 MHz 1.7 dB max.  
2000-2500 MHz 2.4 dB max.  
Isolation:  
10-2000 MHz 30 dB min.  
2000-2500 MHz 25 dB min.  
SWR 1.5 max. (on condition)  
Switching Speed: 1  $\mu$ s max.  
Maximum RF Input: +20 dBm  
Control:  $\pm 5$  V (5 mA max.)  
Operating Temperature: -54° C to +100° C  
Storage Temperature: -54° C to +100° C  
Environment: MIL-STD-202 E  
Case: metal, hermetic, sealed  
Dimensions: 10 x 20 x 7.5 mm

| MODEL                             | PSW 1111   | PSW 1211 |
|-----------------------------------|------------|----------|
| RF-Common                         | 5          | 5        |
| RF-1 Port                         | 8          | 2        |
| RF-2 Port                         | -          | 8        |
| Control-1                         | 7          | 1        |
| Control-2                         | -          | 7        |
| RF-1 Port-50 $\Omega$ termination | 1          | -        |
| Ground                            | 2, 3, 4, 6 | 3, 4, 6  |

|     | A    | B    | C    | D    | E    | F    |
|-----|------|------|------|------|------|------|
| INC | .770 | .800 | .305 | .285 | .370 | .400 |
| MM  | 19.5 | 20.3 | 7.7  | 7.2  | 9.3  | 10.1 |

## DIMENSIONS + PIN CONFIGURATION:

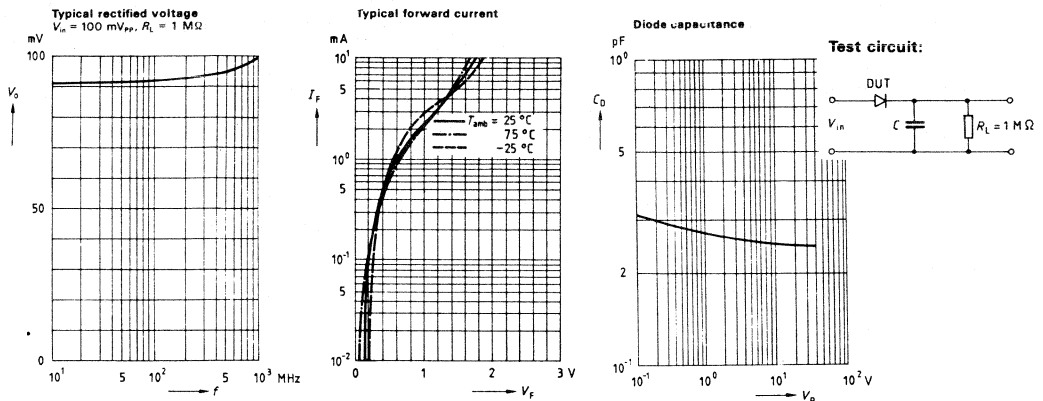




### Neue Schottky Diode für HF Detektoren von Siemens BAT16-096

D. Siemens hat eine neue "Low barrier-Schottky" Diode für Anwendungen speziell bei HF-Detektoren im Mikrowellenbereich entwickelt, welche die bisher benutzten Germanium Typen (große Temperaturabhängigkeit) ablösen soll.

E. Schottky Diode for rf detection developed by Siemens. The BAT16-096 is a low-barrier-Schottky diode in guard-ring technology. It is intended for microwave applications and as replacement for germanium diodes.



### New GaAs Microwave FET by Mitsubishi MGF1405

E. Mitsubishi provides a new GaAs FET MGF1405 features 10dB gain on 12 GHz and 1.4dB noise figure typical.

D. Mitsubishi bietet einen neuen GaAs X-Band FET, MGF1405 mit einer Verstärkung von 10dB bei 12GHz und einer typ. Rauschzahl von 1.4dB, an.

### CF 300 der neue leistungsstarke Dualgate MES GaAs FET von TELEFUNKEN

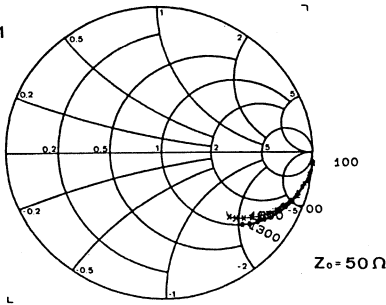
Im letzten DUBUS-Heft wurde bereits auf die Neuentwicklung von Telefunken Electronic hingewiesen. Einer Anzahl von Anfragen bei der Redaktion über technische Details Folge leistend, hier nun die wichtigsten technischen Merkmale über diesen Transistor. Wie aufmerksame DUBUS-Leser sicher schon bemerkt haben, findet der CF300 in dem neuen DUOBAND SSCW702 Transceiver in etlichen Stufen Anwendung. Nachdem TI die Fertigung des S3030 nun endgültig eingestellt hat und alle anderen auf dem Markt befindlichen DUAL-Gate GaAs FET's erheblich schlechtere Daten aufweisen, dürfte der CF300 wohl zukünftig einen großen Anwendungsbereich in der Kommunikationstechnik finden. Der NE41137 brachte nur mäßige Resultate in seinem Rauschverhalten bei gleichzeitig mäßiger Großsignalfestigkeit. Gegenüber dem MRF966 und S3030, im Rauschverhalten mehr zufriedenstellend, aber im Großsignalverhalten auch nur sehr mäßig, nimmt der CF300 jetzt bei einem 3rd order intercept von +20dBm und zufriedenstellenden Rauscheigenschaften eine Spitzenstellung ein. Nach Rücksprache mit dem Telefunken Entwicklungslabor werden z.Z. Versuche gemacht, den Chip im Gehäuse mit einer Metallverbindung anzubringen, was die zulässige max. Verlustleistung auf bis zu 600mW erhöhen würde. Wie man den nachfolgenden Daten entnehmen kann, verschlechtert sich die Rauschzahl nur geringfügig bei steigendem Drainstrom, und damit steigender Großsignalfestigkeit. Der CF300 ist in drei ID Gruppen lieferbar: A=10-30mA, B=30-50mA und C=45-80mA. In den diversen DUBUS Veröffentlichungen findet, wenn nicht ausdrücklich anders daraufhingewiesen, die B Version Verwendung. Der Transistor ist erhältlich bei der Fa. R. Metzger, Stettiner Str. 8, D-7180 Crailsheim (Tel:07951/21158) zu einem Preis von DM 6.40, erhältlich.

E. In the column 'Technical News' of the latest issue of DUBUS magazine, the GaAs MES Dualgate FET CF300 designed by Telefunken Electronics, was already mentioned. Some requests of readers concerning delivery and technical information induced me to supply more data and informations about this brand new transistor. The already well known MES FET's, NE41137 shows moderate noise and intercept performance, MRF966 and S3030 (TI stopped its production totally now) shows good noise but also moderate intercept performance. On the contrary the CF300 shows good noise- and intercept performance as you can read from the following tables when noise performance unimportant deteriorate under higher Drain current. The absolute max. rate of dissipation power will be improved to 600mW for instead of 250mW now. The CF300 is obtainable in three different ID versions right now: A=10-30mA, B=30-50mA and C=45-80mA. The transistor is available at: R. Metzger, Stettiner Str. 8, D-7180 Crailsheim, W-Germany. (phone:07951/21158) The small quantity price amounts DM 6.40.

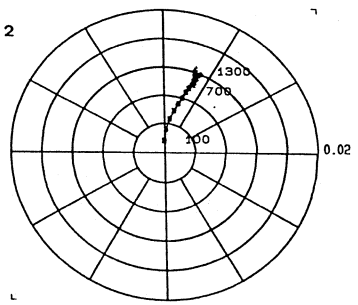
CF 300 Uds=5V Ug2s=2V oId=2mA \*5mA x10mA +20mA  
100 bis 1300 MHz

CF 300 Uds=5V Ug2s=2V oId=2mA \*5mA x10mA +20mA  
100 bis 1300 MHz

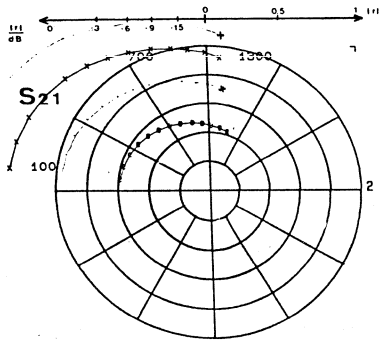
S11



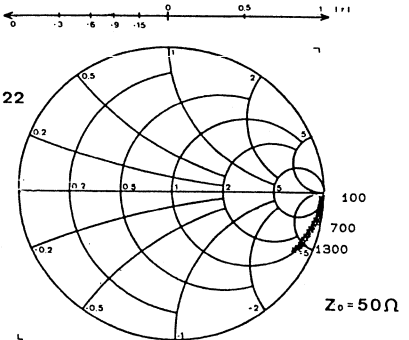
S12



S21

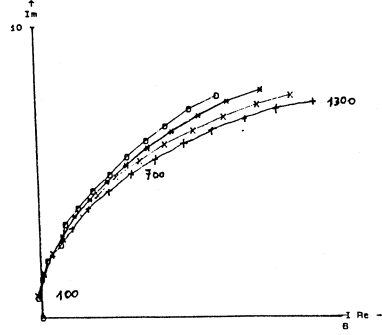


S22

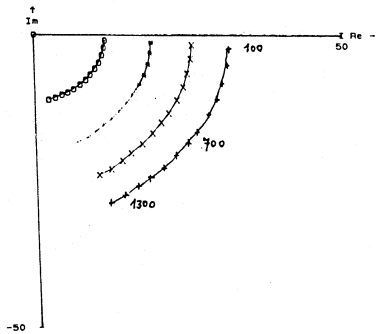


CF 300 Uds=5V Ug2s=2V oId=2mA \*5mA x10mA +20mA  
100 bis 1300 MHz

Y11



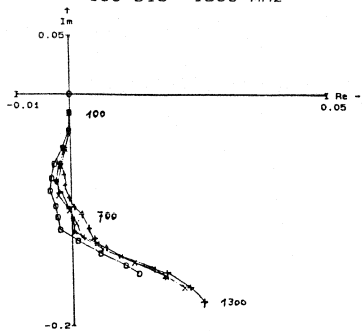
Y21



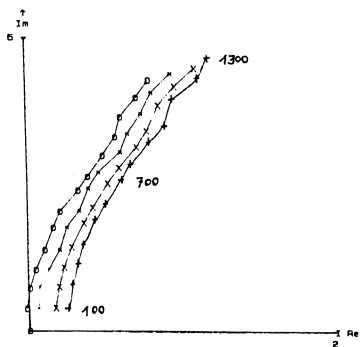
CF 300 Uds=5V Ug2s=2V oId=2mA \*2mA x10mA +20mA

100 bis 1300 MHz

Y12



Y22

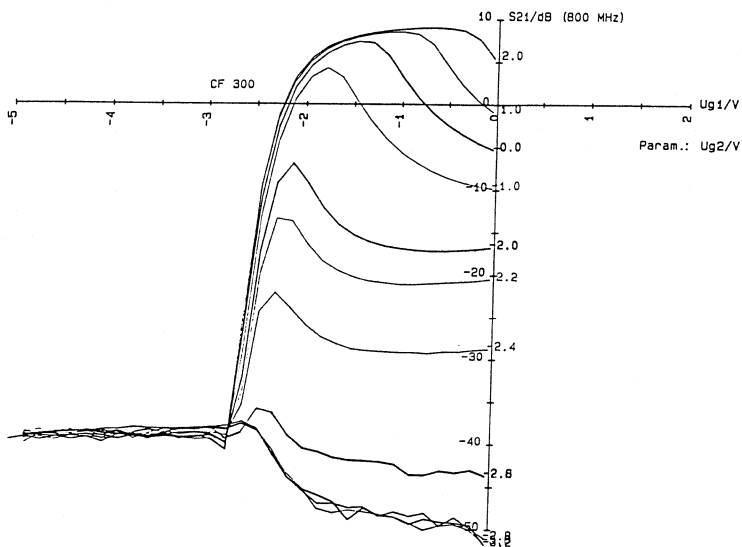
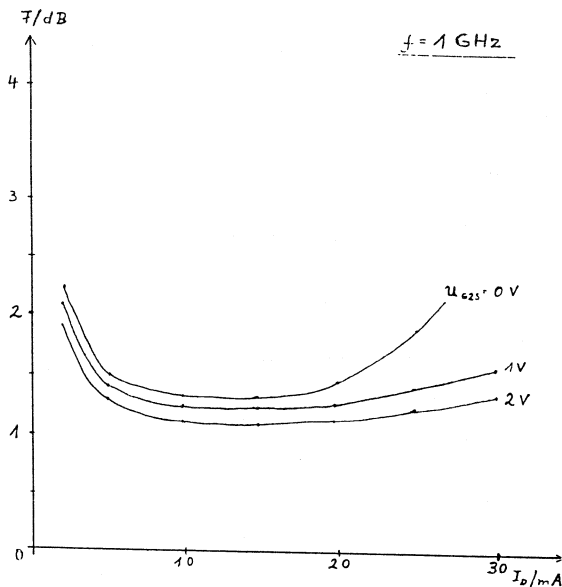


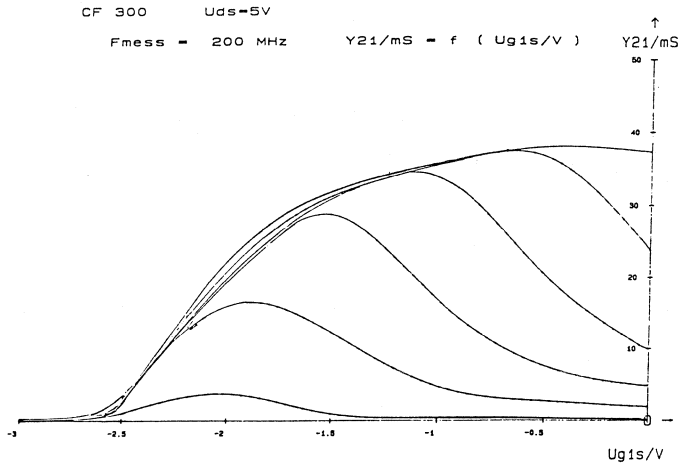
CF 300

$$F = f(J_d)$$

$$U_{D3} = 5V$$

$$f = 1 \text{ GHz}$$



Ferrite Comparison Table / Ferrit Vergleichstabelle

Werkstoffvergleichstabelle

FERRIT

| Neosid<br>D | COFELEC<br>F  | CRL<br>D         | KASCHKE<br>D      | KWH<br>DDR       | NEOSID-LTD<br>GB | SIEMENS<br>D  | TDK<br>J                      | VALVO<br>D              | VOGT & Co.<br>D  | ANT<br>D   |
|-------------|---------------|------------------|-------------------|------------------|------------------|---------------|-------------------------------|-------------------------|------------------|------------|
|             | Ferrinox      | Karaperm         | Kamafer           | Manifer          |                  | Silferrit     |                               | Ferroxcube              | Ferrocarit       |            |
| F100b       | H60 1)        | 814              | K10               | 320              | F29 1)           | U17           | M5C                           | 4E1 1)                  | Fi 110<br>Fi 090 | M6<br>M12  |
| F40         | —             | 818              | K40 1)            | 321 2)           | F22 2)           | K12           | M11                           | 4E1 2)                  | Fi 130 1)        | M11        |
| F20         | H50           | 704              | K40 2)            | 330 2)           | F25              | —             | M9                            | 4D1 1)                  | Fi 150 1)        | —          |
| F10b        | H30<br>H32 2) | 602 1)           | K80 2)<br>K150 1) | 340<br>343 2)    | F16              | K1 2)         | Q5B                           | 4C6 1)<br>4C4 1)        | Fi 212           | M9<br>M7   |
| F2          | H20           | 606              | K300 1)           | 360 1)           | F14              | —             | Q2<br>Q2B                     | 4B1                     | Fi 221           | —          |
|             |               |                  |                   |                  |                  |               |                               |                         |                  |            |
| F08 *       | B10           | 503 1)           | K900 1)           | 143 2)           | F11 2)<br>F8 1)  | M33<br>M25    | L6 2)                         | 3D3                     | Fi 292 1)        | M4         |
| F02         | B30 2)        | 407 2)<br>417 1) | K2002 1)          | 163 2)<br>183 1) | F7               | N22           | —                             | 3C6                     | Fi 321 1)        | M3         |
|             |               |                  |                   |                  |                  |               |                               |                         |                  |            |
| F5is        | —             | 602 2)           | K151 2)           | —                | F16 2)           | K1 2)         | L4 2)                         | 4C1 2)                  | Fi 210 2)        | —          |
| F1is        | —             | —                | —                 | 260              | F13 2)           | —             | —                             | 4A4 2)                  | —                | —          |
| F5 4)       | T22           | 420              | K2401             | —                | —                | N27           | H6K<br>H7C1                   | 3C7                     | Fi 322 2)        | K61<br>M10 |
| F6 4)       | —             | 407              | K2002             | —                | —                | N22           | H6H3                          | 3C8 1)                  | Fi 321 1)        | M13        |
| F8 4)       | —             | —                | K1201 2)          | —                | —                | N22           | H6A3                          | 3C6                     | Fi 311           | K6         |
| F9 4)       | T6            | 421 2)           | K3600 2)          | 195 1)           | —                | N30<br>T35 1) | H7A<br>HP4000 2)<br>HP5000 1) | 3E4<br>3E1 2)<br>3E2 1) | Fi 340           | K4         |
| P10 4)*     | T10<br>T14    | —                | —                 | 183              | —                | N48<br>T26    | H6K                           | 3B8<br>3H1              | —                | M31        |
| P11 4)*     | T13           | —                | —                 | —                | —                | N28<br>N32    | —                             | 3H1                     | —                | M31        |

1) Permeabilität größer als Neosid-Werkstoff.

2) Permeabilität kleiner als Neosid-Werkstoff.

3) Vergleich nur bei Drosselanwendung zulässig.

4) Werkstoff aus dem Programm Neosid-LTD.

\* für Näherungsschalter vergleichbar.

Neue Helix Bandfilter für 800 - 1000 MHz von NEOSID

D. 7.2G und 7.3G heißen die neuen Helixfilter von Neosid, welche Weiterentwicklungen auf der Grundlage der bereits bekannten Filter für den 400-470MHz sind. Es handelt sich bei der Type 7.2G um ein Zweikreisfilter und bei der Type 7.3G um ein Dreikreisfilter. Die Daten können aus den nachfolgenden Tabellen entnommen werden.

E. NEOSID provides two new developed helixfilters, model 7.2G (two-pole) and 7.3G (three-pole) for 800-1000MHz applications, based on the well known versions for 400-470MHz applications. The performance can be taken from the following tables.

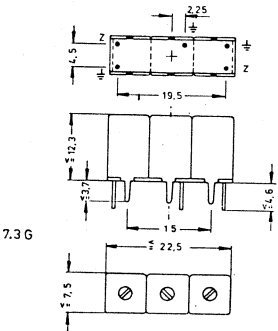
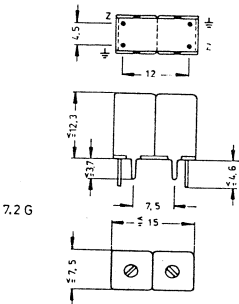
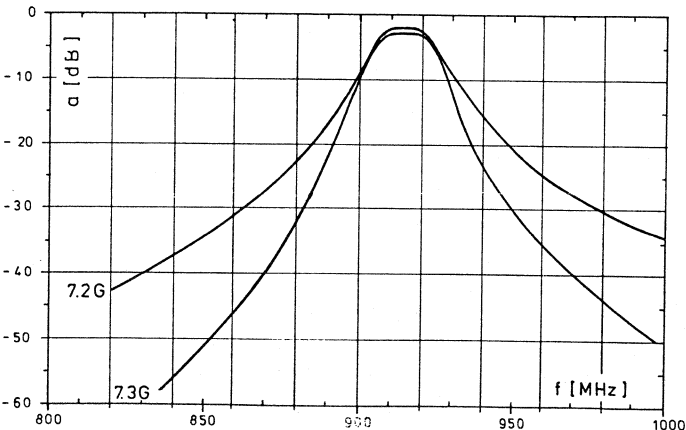
7.2 G

| $f_o$<br>[MHz] | $a_o$<br>[dB] | B (-3 dB)<br>[MHz] | a (-/+ 40 MHz)<br>[dB] | a (-/+ 60 MHz)<br>[dB] |
|----------------|---------------|--------------------|------------------------|------------------------|
| 893            | 2,3           | 23                 | 27/24                  | 33/30                  |
| 914            | 2,2           | 23                 | 26/23                  | 32/29                  |
| 959            | 1,9           | 23                 | 23/20                  | 30/28                  |
| 980            | 1,8           | 25                 | 21/19                  | 29/26                  |

7.3 G

|     |     |    |       |       |
|-----|-----|----|-------|-------|
| 914 | 2,9 | 23 | 38/34 | 52/42 |
| 959 | 2,8 | 23 | 37/33 | 50/40 |

Durchlaßkurven



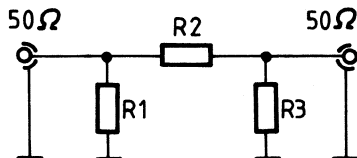
# MICROCOMPUTER NEWS

## Einfaches BASIC Programm zur Berechnung von 50 Ohm PI Dämpfungsgliedern

Simple BASIC program for 50 Ohm PI attenuators.

```
10 INPUT "WANTED ATTENUATION / GEWÜNSCHTE DÄMPFUNG IN DB";D
20 N=10^(D/20)
30 R1=50*(N+1)/(N-1)
40 R2=50*((N^2)-1)/(2*N)
50 R3=R1
60 PRINT,D"DB";" R1="R1;" R2="R2;" R3="R3
70 GOTO10
```

Example/Berechnungsbeispiel:



```

RUN
WANTED ATTENUATION / GEWÜNSCHTE DÄMPFUNG IN DB? 10
      10 DB R1= 96.2475296 R2= 71.1512475 R3= 96.2475296
WANTED ATTENUATION / GEWÜNSCHTE DÄMPFUNG IN DB? 6
      6 DB R1= 150.476024 R2= 37.3518771 R3= 150.476024
WANTED ATTENUATION / GEWÜNSCHTE DÄMPFUNG IN DB? 3
      3 DB R1= 292.40218 R2= 17.614794 R3= 292.40218
WANTED ATTENUATION / GEWÜNSCHTE DÄMPFUNG IN DB?
```

## BASIC Programm konvertiert den WW-QTH-LOC in den E-QTH-LOC

von E. Ramm, DK3UZ

REM Converts world wide locator to European locator

POKE 110H,0: CONSOLE REM set indefinite line length (CBASIC only)

REM ----- Constants -----

```
LET FALSE% = 0
LET TRUE% = -1
LET WWL.LENGTH% = 6
REM -----
```

REM ----- Arrays -----

```
DIM sbsqr$(3)
REM -----
```

REM ----- Functions -----

```
DEF FN.mod(x, y) = x - INT(x / y) * y
```

```
DEF FN.okwwl%(loc%)
  IF ( (LEN(loc%) = WWL.LENGTH%) \
    AND ( (LEFT$(loc%,1) >= "A") AND (LEFT$(loc%,1) <= "R") ) \
    AND ( (MID$(loc%,2,1) >= "A") AND (MID$(loc%,2,1) <= "R") ) \
    AND ( (MID$(loc%,3,1) >= "0") AND (MID$(loc%,3,1) <= "9") ) \
    AND ( (MID$(loc%,4,1) >= "0") AND (MID$(loc%,4,1) <= "9") ) \
    AND ( (MID$(loc%,5,1) >= "A") AND (MID$(loc%,5,1) <= "X") ) \
    AND ( (RIGHT$(loc%,1) >= "A") AND (RIGHT$(loc%,1) <= "X") ) ) \
  THEN LET FN.okwwl% = TRUE% \
  ELSE LET FN.okwwl% = FALSE%
RETURN
FEND
```

```

DEF FN.wwlat(wwl$)
  LET hght = 4.16666666666667e-2
  LET latctr = 2.08333333333333e-2
  LET latfield = (ASC(MID$(wwl$,2,1)) - ASC("J")) * 10.0
  LET latsquare = VAL(MID$(wwl$,4,1))
  LET latsubsqr = (ASC(RIGHT$(wwl$,1)) - ASC("A")) * hght + latctr
  LET FN.wwlat = latfield + latsquare + latsubsqr
RETURN
FEND

```

```

DEF FN.wwlng(wwl$)
  LET wdth = 8.33333333333333e-2
  LET lngctr = 4.16666666666667e-2
  LET lngfield = (ASC(LEFT$(wwl$,1)) - ASC("J")) * 20.0
  LET lngsquare = VAL(MID$(wwl$,3,1)) * 2.0
  LET lngsubsqr = (ASC(MID$(wwl$,5,1)) - ASC("A")) * wdth + lngctr
  LET FN.wwlng = lngfield + lngsquare + lngsubsqr
RETURN
FEND
REM -----

```

```

REM ----- MAIN -----

```

```

LET sbsqr$(0) = "fed"
LET sbsqr$(1) = "gjc"
LET sbsqr$(2) = "hab"

```

1.0

```

PRINT: PRINT
INPUT "WWL ==> "; in$
LET inqthl$ = UCASE$(in$)
IF inqthl$ = "END" THEN STOP
IF (NOT FN.okwwl$(inqthl$)) THEN GO TO 1.0

```

```

LET lat = FN.wwlat(inqthl$)
LET lng = FN.wwlng(inqthl$)

```

```

WHILE (lng < 0.0)
  LET lng = 52.0 - ABS(lng)
WEND
WHILE (lng > 52.0)
  LET lng = lng - 52.0
WEND
LET lngdeg% = INT%(lng)
LET p% = lngdeg% / 2
LET p$ = CHR$(p% + ASC("A"))

```

```

IF (lat > 66.0) THEN LET lat = lat - 26.0
IF (lat < 40.0) THEN LET lat = lat + 26.0
LET latdeg% = INT%(lat)
LET q% = latdeg% - 40
LET q$ = CHR$(q% + ASC("A"))

```

```

LET r% = 7 - INT%( (lat - FLOAT(latdeg%)) * 8.0 )
LET s% = INT%( FN.mod(lng, 2.0) * 5.0 ) + 1
IF s% = 10 THEN LET s% = 0: LET r% = r% + 1
LET r$ = CHR$(r% + ASC("0"))
LET s$ = CHR$(s% + ASC("0"))

```

```

LET tlat% = INT%( FN.mod(lat, 0.125) / 4.16666666666667e-2 )
LET tlng% = INT%( FN.mod(lng, 0.2) / 6.66666666666667e-2 )
LET t$ = MID$(sbsqr$(tlat%), tlng% + 1, 1)

```

```

PRINT inqthl$; " = "; p$; q$; r$; s$; t$

```

```

GO TO 1.0
REM -----
END

```

# MICROWAVE NEWS

DCODA (DL38e) berichtet: Durch die Mithilfe vieler OM konnte ich meine Station auf 10 GHz endlich ausbauen und bin an Versuchen bei überreichweiten speziell in Richtung Norden (OZ) und Westen (PA0, G) interessiert. Station: TX YH1193 13W HF in SSB, RX MGF1402/1400 = F ges. 4,8dB. Als Empfangsmischer wird ein aktiver GaAs FET-Mischer mit CFY19 benutzt. Als Sendemischer ein aktiver GaAs FET-Mischer mit CFY19 und nachgeschaltetem Linearverstärker mit CFY19. Antennenzuleitung 15m 5/8" Flexwell-Kabel + 4m H100 ges. Dämpfung 3,8dB. Die 15m Flexwell-Kabel werden noch durch Flexwell-Hohlleiter "E110" ersetzt. Antenne: Parabolspiegel D=70cm - noch keine optimale Ausleuchtung, da auch für 13, 9 und 6cm benutzt. Der Transverter zum Aussteuern der TWTa ist ein kleiner Portable-10 GHz-SSB-Transverter, an dem die Leistung von 60mW auf 3mW durch Zurücknahme der ZF-Leistung auf 32m herunter geregelt wird. Als Nachsetzer hat sich das IC202 bestens bewährt.

Portabel-Station (QRV bei gutem Wetter in EL54, 750m über NN): 60mW in SSB, TX-PA CFY19, 10dB Eingangsempfindlichkeit; RX-aktiver Mischer CFY19; Zuleitung 1,5m H100; Antenne IKEA-Spiegel mit 26dB Gain; Querverbindung 2m in FM; Verabredungen und Richtung auspeilen 2m SSB (2W HB9CV) und demnächst 23cm SSB (2W, 16dB) mit Langyagi. Von dort aus geht es besonders gut Richtung Norden. DC9XD EM14a wurde mit einem 25dB-Mischer bereits schon mit S2 gehört. Ziel ist es, Verbindungen mit DF9LN, DC9XG und DC9XD zu tätigen. Eine Portable-PA mit MGF1802, MGF 2124 und eine Verbesserung der Empfindlichkeit mit 2xCFY18 ist geplant.

DCODA (DL38e) reports: With the help of many OM I finally was able to complete my 10 GHz station. I am now interested in tests during conditions especially in northern (OZ) and western (PA0, G) direction. Station: TX YH1193 13W RF in SSB, RX MGF1402/1400 = F total 4.8dB. An active GaAs FET mixer with CFY19 is used as RX mixer. An active GaAs FET mixer with CFY19 and subsequent linear amplifier with CFY19 is used as TX mixer. Antenna feed line 15m 5/8" Flexwell cable + 4m H100 total attenuation 3.8dB. The 15m Flexwell cable will be replaced by Flexwell wave guide "E110". Antenna parabolic dish d=70cm - no optimal aperture illumination yet as also used for 13, 9 and 6cm. The transverter for driving the TWTa is a small portable 10 GHz-SSB-transverter on which the power of 60mW is regulated down to 3mW by reducing the IF power on 2m. As driver the IC202 has proved best.

Portable station (QRV from EL54, 750m asl, when weather is good): 60mW in SSB, TX-PA CFY19, 10dB input sensitivity; RX active mixer CFY19; feed line 1.5m H100; antenna IKEA dish 26dB gain; cross communication 2m in FM; skeds and determining the direction 2m SSB (2W, HB9CV) and soon 23cm SSB (2W, 16dB) with Longyagi. From this QTH good possibilities into North. DC9XD EM14a was already heard with a 25dB mixer with S2. QSO's with DF9LN, DC9XG and DC9XD are first plans. A portable PA with MGF1802, MGF2124 and improving the sensibility with 2xCFY18 are planned, also. tks fer info, Jürgen.

DC9XG (EN37f) wkd on 5760 MHz on May 30th G3LQR AM67b. Station: TX 3W TWT, RX MGF1401/1400, 2m dish, 22m home made waveguide (20 x 40 x 1.5mm Al-rectangle tube) 1.5dB attenuation.

On 10 GHz on June 2nd/3rd PA0EZ CM66b, PA0CRA CM75a, PA0EHG DM65j, PE1CMO CM26e and G3LQR AM67b 560km. Station: TX 10W TWT, RX MGF1402/1400, 70cm dish, home made waveguide out of 22mm copper tube (from a central heating), 22m long, two 90 degrees curves, attenuation 3dB.

Horst writes: It is a pity that there are such few 10 GHz stations in G. 40mW (diode mixer and two GaAs FET stages are under conditions enough.

Horst schreibt: Es ist schade, daß aus dem klassischen Mikrowellenland England so wenig 10 GHz Stationen zu hören sind. Eine Leistung von 40mW (Diodenmischer und 2 GaAs Fet Stufen) reicht bei solchen Bedingungen aus. tks fer info, Horst.



DC9XD (EM14a) wkd on 1296 MHz on June 2nd G4VCJ ZD, G1H6J ZP, G3ZEZ AL, G4BEL AM and G6JHR AL. On June 3rd G4CBW YN, G3UVR YN, G8ECI AN and G4TXG YM.  
 On 2320 MHz on June 2nd G8PNN ZP, G3ZEZ AL, G3XDY AM, G4BEL AM, G0BPU AM and G4CBW YN ODX 732km.  
 On 3456 MHz on June 1st PAOCRA CM. On June 2nd G3LQR AM, hrd G3ZEZ AL 59 and G0BPU AM. On July 21st DB7BP EM. On July 25th DF1EQ DL.  
 On 5760 MHz on June 1st PAOCRA CM. On June 2nd G3LQR AM 559 59 500km. On July 21st DB7BP EM.  
 On 10368 MHz on June 1st PAOEZ CM and PAOCRA CM. On June 2nd G3LQR AM ODX 500km and DL3HAL FN. tks fer info, Manfred.

DF1EQ (DL) wkd on 2320 MHz on July 25th 2030 DC9XD EM14a 56 54 and 2045 DC4BK EN75d 42 52.

On 3456 MHz on June 16th 1009 PAOEZ CM66b 53 52, 1127 DC8UG DK59j 52 52 and 1355 DL3NQ EJ34j 57 51. On July 7th 1315 PA0EHG DM65j 55 56. On July 25th 2034 DC9XD EM14a 41 41. tks fer info, Reinhard.

DJ5AP (EH11h) wkd on 1296 MHz on July 6th 1423 DL0HC/p EL 57 53 370km, 1522 DC9XD EM 53 56 557km and 1749 DK0NA FK 58 59 382km. On July 7th 1239 OE5XXL/2 GH 55 59 406km.

On 2320 MHz on July 6th 1426 DL0HC/p EL 51 51, 1816 DK0NA FK 52 54, 2003 DK0HT/p EL 56 57 308km and 2157 DL0SN/p EL 59 58 347km.

On 3456 MHz on July 6th 1448 DL3NQ EJ 59 59 195km, 1452 DB3UU EJ 57 55 190km and 1827 DK0NA FK 41 51.

On 5760 MHz on July 6th 1938 DK46D EH 59 59 39km. On July 7th 0632 DL3NQ EJ 52 54, 0757 DB3UU EJ 41 41, 0825 HB9AMH/p DH 59 59 96km and HB9MIN/p DH 57 59 109km. tks fer info, Gerhard.

DJ6GQ (EI13j) and DD8DA (DL47h) sind jeden Montag um 2000 MEZ auf 1296.230 MHz QRV (QRV every Monday at 2000 MET on 1296.230 MHz).

#### First G-LA

G4BYV (AM25C) wkd on 2320 MHz on June 3rd LABAE FT 915km and LA6LCA FT 930km. tks fer info, John.

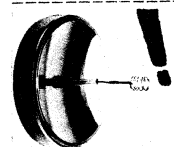
HB9SAX (DG05g) wkd on 1296 MHz on June 9th IW2BNA EF, F1FEN CF and IW1AHH DF. On June 16th I2AV/p4 FE. On June 30th I2FHW EE. On July 20th F1FJL/p DH (with 680mW). On July 28th F1EA/p CF. On Aug. 4th F1FJL/p DI (with 680mW). Station: 10W, 26ele Loop. tks fer info, Andre.

LABAK (DS80b) wkd on 1296 MHz following squares: on June 2nd AN and CM. On June 3rd CL, CM, AN, GR, YM, ZM and ZP. On June 4th AN, DN, GR and HT.  
 On 2320 MHz on June 3rd 1955 PA3AGS CM24d 51 419, 2135 PAOEZ CM66g 52 419 667km and 2150 PA0TAB DN64h 57 529. Station: 2W, 1.2m dish. tks fer info, Jan.

PE1JSE (CL34f) wkd on 1296 MHz >300km on April 18th G3JXN ZL. On May 4th G4SIV ZM and G4LIP/p AN. On May 27th FC1FDB DI. On May 30th DJ9BV EN, DK2NH FN and DC4BK EN. On May 31st GW4LXO YL, G4BCH AL and G6MGL AL. On June 1st G4PEC ZP. On June 2nd G8ECI AN and hrd SM6ESG GR no QSO because QSB. On June 15th hrd DK0NA FK.

On 2320 MHz >200km on May 30th DC4BK EN and DK2NH FN. On June 1st PA0GUS/p CN. On June 2nd hrd SM6ESG GR no QSO because QSB. On June 15th DF5DN/p EL and DL0HC/p EL. tks fer info, Jac.

SP6GWB/6 (IK54d) wkd on 1296 MHz on July 6th/7th 1757 OE3XUA HH 559 559 and 12x OK1, OK2 and 1x SP6. Station: trx 28-30 MHz + konv. DL7QY BFR 91 front end TX, trx 28-30 MHz + transv. + PA 2C39 5W input. tks fer info, Stan.



Sonnen Zigarettenanzünder als Parabolspiegel für 24 oder 48 GHz.  
 D= 100mm, Preis = DM 2.95. Als Parabolreflektor bestens geeignet.  
 Solar Power Cigarette Lighter, is very suited for parabolic reflector application for 24 or 48 GHz. D= 100mm, price: DM 2.95.  
 Available at: Völkner GmbH, PO Box 5320, D-3300 Braunschweig.

# TROPO NEWS

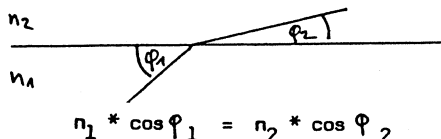
## Foundations on Propagation in the Troposphere in deutsch DUBUS 2/85, by Peter Gerber, HB9BNI

For understanding the origin of overshoot situations one should understand the propagation of electromagnetic waves in the normal troposphere, first. The troposphere is the area of the ground's atmosphere up to a height of 7-14km where weather processes take place.

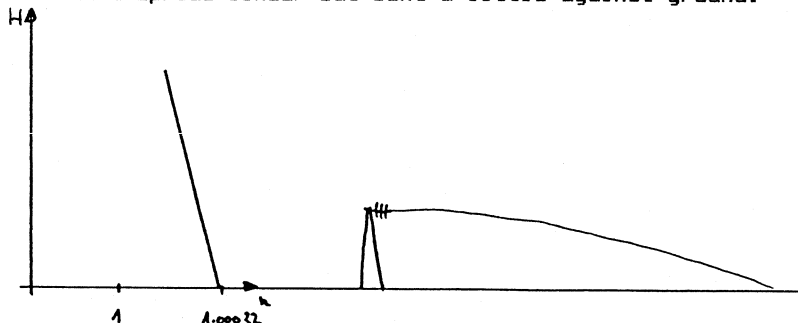
Electromagnetic waves spread in vacuum with the known velocity of light  $c = 300000\text{km/sec}$ . Spreading in a different medium as the vacuum is always slower and depends on the so called refractive index, by the equalation:

$$c(n) = c/n$$

This deceleration results in a refraction of the radio beams, the waves don't spread linear anymore, by changing from one medium into another. This phenomenon can easily be seen on light beams in a glass of water with a spoon in it. The Snellius refraction law is valid for all electromagnetic waves:



For the earth atmosphere an average refraction index of 1.000320 is measured on ground. At the topside of the atmosphere, in the vacuum,  $n=1$  that means by increasing height the refraction index decreases. This decrease results in that radio beams don't spread linear but bent a little against ground.

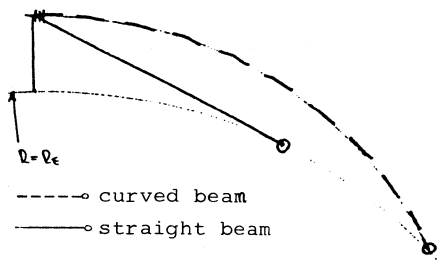


Calculations are complicated because the uncomfortable value of  $n$ , just little more than 1. To avoid problems and large numbers a new dimension is used, the so called refractive index  $N$ , defined by:

$$N = 10^6 * (n-1)$$

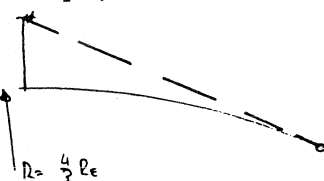
i.e. for  $n=1.000320$  is  $N=320$ .

The second problem is the curved surface of the earth. Moreover, the radius of curvature of the earth and of the radio beams bent by the troposphere are of same size, so one can't neglect one of the curvatures. The relations can be seen best in a drawing made to scale. In this drawing you can also see that the curvature of a radio beam causes a longer range as you could reach with a straight beam. The mathematic or graphic treatment of such problems with bent beams over bent ground (earth) is not easy. But there are two ways to simplify this problem:

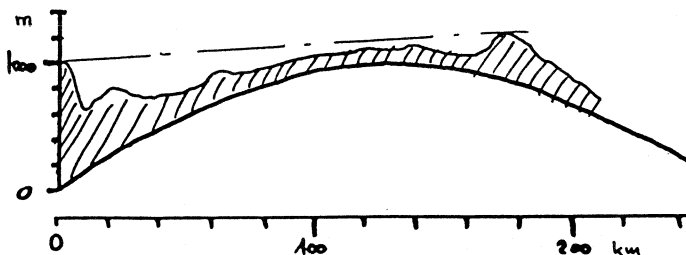


1.) One supposes that the radio beams spread linear. To explain the propagation behind the optic horizon one supposes the radius of earth larger

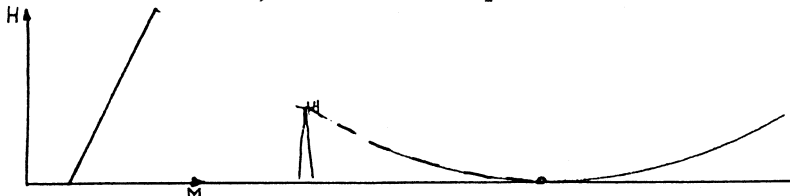
than it really is. This not simple calculation shows that the earth's radius by an N of 320 should be enlarged for 33% (so called 4/3 earth). In such a scheme the radio beams can be drawn with a ruler, this principle is suitable for graphic analysis:



The factor the earth's radius has to be multiplied with (here 4/3) is called k-factor and this type of propagation (i.e. by regular decrease of N) is called the k-type of propagation. For the graphic analysis schemes can be prepared in which the TX and RX antennas are drawn in. Connecting both positions one can see immediately if there is (optical) sight or not.



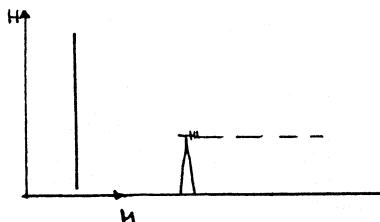
2.) For the mathematic handling of propagation problems it is easier to imagine the propagation over plane earth. But as the curvature of the earth exists the radio beams must be bent different by supposing a straight earth. The propagation isn't described anymore with the refractive index N but with the modified refractive index M. In contrast to N, M increases at increasing height, the beam is bent away from the (straight) earth's surface.



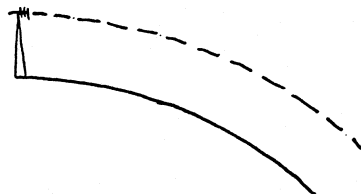
The modified refractive index can be calculated from the refractive index by the equalation:

$$M(h) = N(h) + 0.157 * h \quad (h = \text{height in meters})$$

It is obvious now that the beam is not bent at all at constant M (over plain earth) any range would be possible. This corresponds to a radio beam over "normal curved" earth which is bent as same strong as the earth's curvature. By the equalations given before it corresponds to a decrease of N for 157 units per km or as sometimes declared  $dN = 16/100m$ . Procock called this situation "superrefraction". Graphical it looks like following:

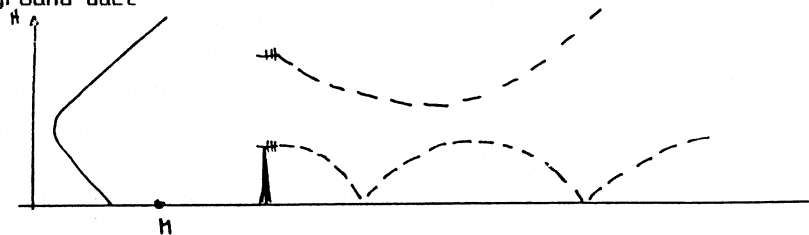


Curved earth

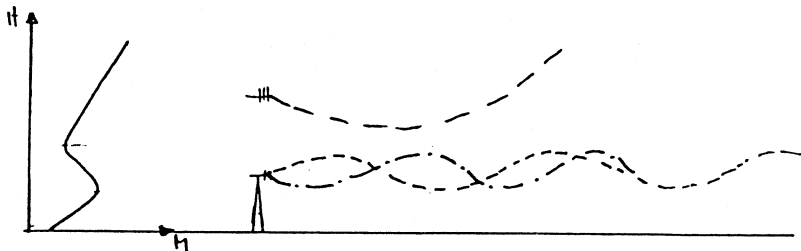


Other interesting situations develop when the shape of M gets negative with increasing height. This results in a formation of ducts, which can guide electromagnetic waves like a waveguide over large distance partwise with the help of reflections on the ground.

Example: "ground duct"

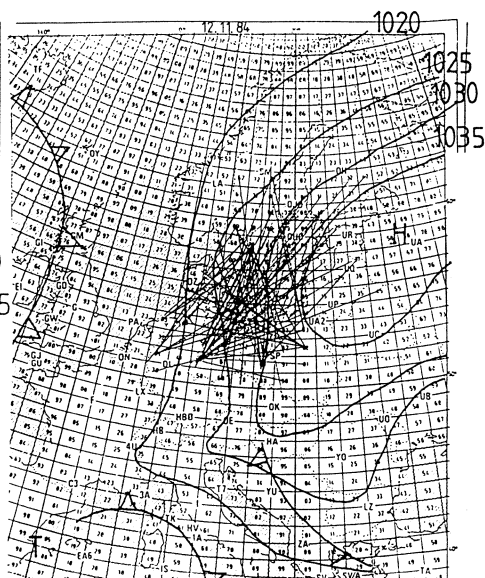
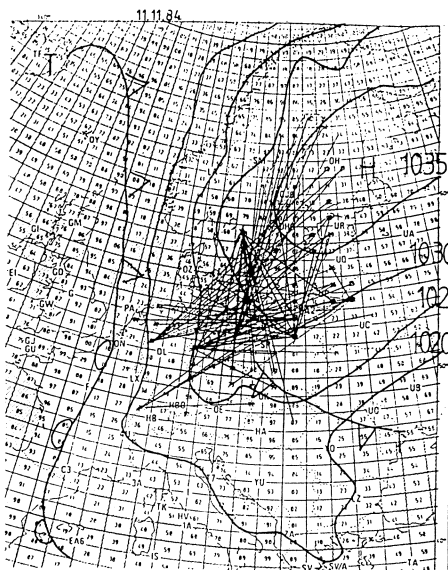


Example: "elevated duct"



In both graphics beams from transmitters are also drawn in above the duct. It is evident that they can't profit by the duct. This could explain occasional "bad" results of contest stations with high up location.  
 tks fer report, Peter.

Verbindungsmöglichkeiten 11./12.11.1984  
 von HB9BNI



Es wurden Verbindungen auf dem 2m-Band ausgewertet, die am 11.11. und 12.11.1984 getätigt wurden und die in DUBUS 1/85 veröffentlicht worden waren. Es wurden nur DX-Verbindungen (>500km) berücksichtigt. Die Zusammenstellung zeigt, daß an beiden Tagen gute Verkehrsmöglichkeiten im Bereich DDR, Polen, baltische Staaten, Südschweden, Südfinnland und Dänemark bestanden, mit einzelnen "Ausreißern" nach Westdeutschland (Nordteil) und am 11.11. CSSR und Schweiz. Am 12.11. wurden weniger Verbindungen getätigt, wohl weil es sich um einen Montag handelte.

Ein Vergleich mit der Bodenwetterkarte zeigt, daß das Gebiet mit guten Ausbreitungsbedingungen im südwestlichen Teil des Hochdruckgebietes mit Zentrum über Leningrad liegt. Das Hochdruckgebiet war seit ca. zwei Wochen stabil an dieser Stelle, es dürfte sich um ein "warm core" Hoch gehandelt haben. Verbindungen, die die Front von Island bis Spanien kreuzen, wurden keine rapportiert.

Die Höhenwetterkarte zeigt einen weit nach Norden reichenden Ausläufer eines Hochs über dem Mittelmeer. Dieser Ausläufer dürfte den in der Höhe gelegenen Anteil des oben beschriebenen Hochs darstellen. Die Achse des Hochs ist also gegen Südwesten zu geneigt. Eine solche Neigung scheint typisch zu sein für stabile, "warme" Hochdruckgebiete.

Das Gebiet mit den guten Ausbreitungsbedingungen liegt nun zwischen den Zentren des Hochs am Boden und in der Höhe, also südwestlich des Hochs auf der Bodenkarte.

QSO Possibilities on 11./12.11.1984  
by HB9BNI

Only DX-QSOs (>500km) done on 11./12.11.1984 published in DUBUS 1/85 were evaluated. The composition shows that there were good QSO-possibilities on both days in the area of GDR, Poland, Baltic states, Southsweden, Southfinland and Danmark and sometimes northern Westgermany and on 11.11. in the CSSR and Switzerland. On 12.11. less QSOs were done probably because it was a Monday. A comparison with the ground weather map shows that the area with good propagation conditions lies in the southwestern part of the highpressure region with centre over Leningrad. Since two weeks the highpressure region was at this place stable. It probably was a "warm core" high. No QSOs crossing the front from Iceland to Spain were reported. The area with good propagation conditions lied between the centres of the highpressure of ground and of light, southwestern of the highpressure region of the ground weather map. tks fer info. Peter.

$$2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m$$

H29SAX (DG05q) wkd on April 30th TK5EP/p EB. On May 18th IK6DIN/p6 GD and TK4DCO GE. On May 17th IV3GBO GG and IV3DXL GF. On May 22nd F9WQ BC. On May 25th I5AVM FC. On May 26th TK4DL EC. On June 1st F1HLK/p DD, I5YMR FD, EA3BB BC and EA3RCH BB. On June 11th OE3PQU HI. On July 11th ON7EH CK. On July 15th F6DRO AD. On July 20th I4EAT/3 FG. On July 23rd G4XNL AK, G6ZMQ AK, G8BZL AK, F1FHI ZH and G4MJC AK. On July 28th HG1W IH. On Aug. 3rd EA6QB AZ and EA3AYX BC. On Aug. 4th EA2LU ZD, YU3ES GF, EA3EY BB, YU3UAN GF, YU3EKL/2 HE, YU2ARS/2 HE and T77F GD. tks for info. Andre.

HB9SAX/p and HB9CUA/p (DH66f) wkd on July 3rd >900km G1LTR ZD, G4WXX YN, GBWPD ZN, EI9Q WM, G14OPH XO, G14SAM XO, G146VS XO ODX 1230km, GD4NGH XO, GW4GSS YN, G6VDO YN, G60YL ZN, G4GWS YN, G3UHH ZN, G1DMK ZD, G1EFZ ZN, G6DER ZN, GBVGM/p ZD, G4YTD ZD, EI9ED WN, GW3KOW XM, G4SIX ZN, GW6LNP YN, G4LBV ZD, G4IFX YN, GB8XP ZN, G4NFC YN, G8LRX ZN, G1EFZ ZN, G4PNT ZN, G8DYK ZN, G6YIN ZN, G4KUX ZD, GW4RWR YN, GW6IWy XN, GBWPD ZN, G4DUZ ZN, G3UTS ZD, G6YJD ZN, GBASU ZN and mni stns in AK. ZK. YK. AL. ZL. YL. AM. ZM. AN. tks fer info. Andre.

13YXQ (FF) wkd on May 24th EA3ECD AB, F8OP CF, EA2LU ZC and F6DRO AD. On May 25th EA3BTZ AB and EA3DXU BB. On June 9th Y37UK/p FK, Y38XK/p FK and DB7UG/a FK. On June 17th OK1MS HK and OK1TH HK. On June 20th EA3DXU BB. tks fer info, Claudio.

1W2BZY (EF36j) wkd >400km on Feb. 2nd IT9GSF/9 GX. On April 6th YU2IQ HE. On April 7th YU2RSD/2 HE. On April 8th DK1VI DJ. On April 22nd DG5FO EK. On April 30th YU2IQ HE. On May 1st F1ADD BJ. On May 11th F6HTJ BC and DG5FO EK. On May 12th I8LPR HB. On May 18th IC8CQF HA. On May 21st F1ADD BJ. On May 24th F6FHP/p AE. On June 1st EA3BB BC, EA3ADW BC, FD6KDX/p BD and YU4WEU/4 IE. On June 2nd IT9OWA/9 GY, EA3RCH BB, EA3CHN BB and EA3CBH BB. On June 22nd LX1JX/p DK, LX1JA CJ and LX1EA DJ. On June 26th IT9XJJ GY, IT9SGO GY and IT9TVF GY. On June 28th F6DRO AD. On June 30th IT9BLB/9 GY, DG2NQ FK and F1ADD BJ. tks fer info. Lorenzo.

1W3EY6 wkd during HG-contest on June 15th/16th HG1W IH, HG8VF JG, HG1Z IG, HG1S IH, HG8KCP KG, HG3GR IG, 4N3M IG, HG5KDB/p JH, HG5KDBQ, YU7AR KF, HG7B/p JH, HG8VF JG, HG1Z IG, HG9R/p KI and HG2KME. tks fer info, Claudio.

OK1DFC (GK39f) wkd on May 25th I4BXN GD 579 559. On June 1st G1DMK Z048g 58  
55. tks fer info. Zdenek.

ON4YZ (CK53e) wkd on June 4th 075UKW FP, 071ALS EO and 075DDK/a EP. tks fer  
info. Paul.

PE1GBT (DN) wkd >500km on July 2nd LA6VBA ES, SM6CMU FR and SK7NM/7 GQ. On July 6th HB9LU/p EG, HB9GT EH, HB9FS/p DH, HB9GL EH, HB9ND/p DH, F/PA0EAR AJ, OK1KTL/p GK, HB9SJV/p EG and F1KSL/p CI. On July 7th OK1KIR/p GK, OE5XXL/2 GH and F6KBF ZJ. On July 12th F6EID BI. On July 19th F6KAW/a CI. On July 21st I4EAT/3 FG and GJ4ICD YJ. On July 23rd HB9RCJ DH and F1EAN AG. On July 27th OK1KDC/p HK, OK1OA/p GK and OK1KR6/p GK. On July 28th F6HYE/p DG. On July 30th GU0/PA3CEF YJ and F66NJ AJ. tks for info.

SM7LXV (GP) wkd on March 2nd DFOOK DK. On April 2nd SK3SN IU. On May 4th DL2KAL DK, OK1KRA HK, DL9GS DL and PA2VST CM. On May 7th OK5MIR GK. On May 31st OK2BWY/p GK and OK1KTL GK. On June 2nd PI4KST/p DM and PA3BYZ CM. On June 3rd G4KUX ZO. On July 6th PA0IJM/a DM, OK1PU/p GK, OK1KDC/p HK, PA3BRJ/p DM, OK1ORA/p GK, OK1KVK GK, OK1KRU/p HK, OK1KHI/p HK, OK1KWH/p HK, OK1KKS/p HK, OK1AGI HK, SP5AD KM and SP5AXV KM. On July 7th DL6NAA FK, DJ9MH/p EK, PA00QS/p CN, PA0GUS/p CN, OK1KWN/p GK, DF6NW/p FJ, Y24XN/p GK and DK00N EL. On July 27th OK1KDC/p HK, OK1OA/p GK, OK1SNV/p HK, U2FQC JO, SP6HEI IL, UR2RQX KO and U2FDF JO. On July 28th U2FZC LP, U2FKL LP and U2FCF JO. tks fer info, Christer.

SP6GWB/6 (IK54d) wkd on July 6th/7th IV3HWT/3 GG, YU3DEC/3 HB, YU3APR/3 HF, IK4CZF/4 FE, YU4CF/4 IE, YU2CRK/2 HE, YU3DBC IG, YT3W HB, I4KLY/4 GD, SP1ADM HN, SP4DCS/4 KN. IOGUT/O GD. I4AUM/4 FE and YT3C HB. tks fer info. Stan.

UR2GZ (MS04b/K028JX) wkd in 1984 on Nov. 3rd SP4DCS/4 KN, RB5AO QL, RB5AL QL, UY5OE SK, RB5LA SJ, RC2WCG OP and UA3LBE OK. On Nov. 4th RA3YCR RN. On Nov. 11th OK1JKT/p GK, OK1AUN GK, OZ1IUK GQ, OK1KPU/p GK, Y22ME HM, OK2KYC/p JJ, OK2KZR/p IJ, SP9HWY JK, SP6LZW JK, SP9EWU JK, DK6XY FN, DJ8QQ EN, SP6CRT/6 IL, Y23FG FM, DL3YB/A EM, DL3AAL FM, DF9OX FM, SP7ABL KL, DL9GS DL, DJ4AX FL, DK2PR EM, Y21IF HL, Y22HG FL and DL6LAW FO. On Nov. 12th DL72M/p GM, DK5AI FL, DL9AAK FL, Y22IC GN, SP6ASD HL, Y22SA GN, DK0TU GM, OZ1IUK GQ, SM7DKF GP and Y22HA GO. On Nov. 13th SM6MRZ GS, SM6OUH GS and Y3BZA HN. On Nov. 14th OH9TJ MZ. tks fer info. Jaan.

70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70

HB9SAX (DG05g) wkd on July 23rd F1FHI ZH, G4ITF/p ZK and G8LPY ZK. On July 27th HB0/PE1JAN EH. tks fer info, Andre.

1W2BZY (EF36j) wkd >300km on April 27th IWSAVM FC and DG4GAN EI. On May 11th FC1HIU DD. On June 16th YU3G0/3 HF and IWSAVM FC. On June 30th IT9BLB/9 GY 51  
51. tks fer info, Lorenzo.

PE1JSE (CL34f) wkd >500km on May 4th OZ9PZ EQ and GW4BVY/p YL. On May 5th DK2GR FJ. On May 24th HB9CRQ EH. On May 30th HB9RCJ DH and DL8LAS FO. On May 31st GW4LXO YL and G4SWT ZP. On June 2nd SM6ESG GR, LA1ZE CS and G8PNN ZP. On June 3rd GM6MGS/p YR and LA9DI FT. On June 16th DK0NA FK. tks fer info, Jac.

SM7LXV (GP) wkd on March 7th SMOCPA IT. On July 4th DL9AAK/p FL, G3JOC AM and G3LQR AM. tks fer info, Christer.

SP6GWB/6 (IK54d) wkd on July 6th/7th DC7QH GM, Y22ME HM, SP3MFI/3 JL, SP3JBI/3 JL, SP3LRN/3 JL, SP3DRT/3 JL, Y23BD GM, DK0NA FK, YT3U IG, YU3DEC/3 HG, YU3DBC IG, DL0NN FH, YU3APR/3 HF, DL9AAK/p FL, HB9AHD EH, DL0UL/p FL, DF0SO GK and DG9NQ/p FJ. tks fer info, Stan.

SP6MLK (IK) wkd on April 6th OK1VLA HK, OK2KZR/p IJ, OK1SC HK, OK1KKH/p HJ, OK1MHJ HK, OK2BBS/p IK and OK1QI/p IK. On April 7th OK1QI/p IK, OK1KKH/p HJ, OK1MWD/p IJ, OK2BBS/p IK, OK1MHJ HK, OK1DKP/p IJ, OK1DEF/p HK, OK2KZR/p IJ, OK1AYR IK, OK2VSM/p IK, OK1VLA HK and SP6GWB IK. On April 12th OK1VLA HK and OK1AYR IK. On April 15th OK1AYR IK. On April 21st OK1AYR/p IK, SP6AZT IL, OK2VMH/p II, OK1KHK/p HJ, SP5DED/6 IK, SP6FID/6 IK, OK1MHJ HK, OK1KUO/p IK, OK2BBS/p IK, OK2BFI IJ, OK1VLA HK, OK2KZR/p IJ, OK1KJB/p HJ, OK2VSM/p IK, OK1MWD/p HK, OK1DNX/p IK and SP6CRT IL. On May 11th SP6AZT/6 IL. On May 12th SP6AZT/6 IL, SP6JLW IK, SP6GWB IK, SP6GUN IK, SP9BIF JK, SP9BGS JK, SP9MM JK, OE1KTC II and OE1APS II. On May 19th OE3LFA II and OK1AYR IK. On June 1st SP6GWN/6 IK, OK3TMR/p II, OK1KKH/p HJ, OK2BBS/p IK, SP6JLW IK, OK1QI/p IK and OK1VLA HK. On June 2nd OK1QI/p IK, OK1KKH/p HJ, OK1KRG/p HJ, SP6GWN/6 IK, OK2BBS/p IK, OK1KKD HK, OK3TMR/p II, OK1AYR IK, OK1VLA HK and SP6GWB IK. On June 12th OE3OBC II.

SP6MLK/6 (IK) wkd on May 4th/5th >100km OK5UHF GJ, OK1DTL/p HJ, OK5MIR HK, OK1KRA HK, OK1DVM/p HK, OK1KIR/p HK, OE5XXL HI, OK2KZR/p IJ, OK1DIG HK, SP9MM JK, OK1SC HK, OE3XUA HH, OK1KJB/p HJ, OK1QI/p IK, SP9BGS JK, Y24BO GM, SP9EWU JK, OK2KIS JI, SP3DRT JL, SP3BI JL, SP2FWF JN, H67B/p JH, OK3KVL/p JI, Y22UL/p GL, DL7QH GM and DL7APV GM. tks fer info, Stan.

Continued from page 280

| EUROPEAN VHF UHF SHF BEACON LIST 18.08.1985 |           |        |       |           |                                 |      |         |      |         |
|---------------------------------------------|-----------|--------|-------|-----------|---------------------------------|------|---------|------|---------|
| CALL                                        | QRG (MHZ) | HW-QTH | E-QTH | POWER (W) | ANTENNA                         | QTF  | ASL (M) | MODE |         |
| DL7QY/A                                     | 3456.000  | JN49XC | EJ80B | 0.05      | 10DB SLOT WAVEG.<br>12EL. GROUP | E    | 450     | OMNI | A1A     |
| DB0KI                                       | 3456.058  | J050SF | FK68B | 0.2       |                                 | NW   | 720     |      | A1A     |
| DL0WY                                       | 3456.115  | JN67CR | GH22H | 0.08      |                                 | ??   | 1560    |      | A1A     |
| DB0JO                                       | 3456.155  | J031SL | DL48A | ??        |                                 | N    | 312     |      | F1A     |
| DC0DA                                       | 3456.360  | J031SM | DL38E | 120 ERP   | 0.7M DISH                       | S    | 220     | OMNI | F1A     |
| DL7QY/A                                     | 5760.000  | JN49XC | EJ80B | 0.01      | 10DB SLOT WAVEG.<br>6DB HORN    | E    | 450     |      | A1A     |
| DB0KI                                       | 5760.097  | J050SF | FK68B | 0.1       |                                 | NW   | 720     |      | A1A     |
| DL0WY                                       | 5760.192  | JN67CR | GH22H | 0.05      |                                 | N    | 1560    |      | A1A     |
| DC0DA                                       | 5760.600  | J031SM | DL38E | 8.5 ERP   | 0.7M DISH                       | S    | 220     |      | F1A     |
| LA1SHF                                      | 5760.860  | J059FE | FT63G | 2.5 ERP   | 10DB HORN                       | S    | 75      | OMNI | A1A     |
| GB3TOW                                      | 10100.000 | I0901O | ZK34A | 0.15 ERP  | SLOT WAVEGUIDE<br>WAVEGUIDE     | OMNI | 250     |      | F2A     |
| GB3LBH                                      | 10100.000 | J0018N | AL31C | 1.5 ERP   |                                 | OMNI | 45      |      | F2A/F3E |
| GB3ALD                                      | 10120.000 | IN89WR | YJ30H | 1 ERP     |                                 | NNE  | 90      |      | F2A     |
| DB0JX                                       | 10350.000 | J031FF | DL63A | 0.01      |                                 | OMNI | 115     | OMNI | F2A     |
| DL7QY/A                                     | 10368.000 | JN49XC | EJ80B | 0.01      | 17DB HORN                       | E    | 450     |      | A1A     |
| LA1SHG                                      | 10368.000 | J059FE | FT63G | 20 ERP    |                                 | S    | 75      |      | A1A     |
| DL1MZ/P                                     | 10368.020 | JN57TU | FH19H | .1        |                                 | OMNI | 700     |      | F1A     |
| PA0MS/A                                     | 10368.045 | J021SL | CL48A | 0.05      |                                 | NW   | 56      | OMNI | F1A     |
| PE1BLE                                      | 10368.045 | J022JH | CM55G | 0.01      | 15 DBI                          | OMNI | 50      |      | F1A     |
| PA0DBQ                                      | 10368.100 | J022DB | CM72J | 0.04      |                                 | W    | 75      |      | F1A     |
| DB0KI                                       | 10368.175 | J050SF | FK68B | 0.03      |                                 | OMNI | 720     | OMNI | A1A     |
| DL0WY                                       | 10368.345 | JN67CR | GH22H | 0.02      | 10DB SLOT WAVEG.<br>10DB HORN   | NW   | 1560    |      | A1A     |
| SK6SHG                                      | 10368.800 | J058RG | FS58F | 10 ERP    |                                 | S    | 80      |      | A1A     |
| GB3MHX                                      | 10368.830 | J002PB | AM77J | 1 ERP     |                                 | E    | 60      |      | F1A     |
| SK7SHG                                      | 10368.850 | J065OR | GP27H | 0.5 ERP   |                                 | OMNI | 110     | OMNI | F1A     |
| GB3XGH                                      | 10400.000 | I083OF | YN67B | 1 ERP     | SLOT WAVEGUIDE<br>15DB HORN     | OMNI | 100     |      | F2A     |
| GB3LEX                                      | 10400.000 | I0921Q | ZM24J | 1 ERP     |                                 | SE   | 220     |      | F2A     |
| 15X                                         | 10450.000 | JN54BC | FE71A | 0.4 ERP   |                                 | NW   | 1260    |      | A1A     |
| DL0WY                                       | 24192.805 | JN67CR | GH22H | 0.0005    | 15DB HORN                       | NW   | 1560    | OMNI | A1A     |
|                                             |           |        |       |           |                                 |      |         |      |         |

**Meteor Shower Information Service August to November**  
 Reprint from BMS Radiant catalogue compiled by Robert A. Mackenzie.

| Stream                  | Date          | Maximum    | Nr. of<br>Refle. | R.A.  | Dec.  | Solar-<br>Longit. |
|-------------------------|---------------|------------|------------------|-------|-------|-------------------|
| Tau Herculids           | Aug.20.-25..  |            | 6                | 242   | +49   |                   |
| Gamma Pegasids          | Aug.1.-20.    | Aug.12.    | 5                | 5     | +17   | 138               |
| Cepheids                | Aug.12.-18.   | Aug.15.    | 5                | 359   | +75   | 141               |
| <u>KAPPA CYGNIDS</u>    | Aug.6.-Oct.9. | Aug.18.    | 4                | 286   | +59   | 145               |
| Alpha Sculptorids       | Aug.15-Sep.2  | Aug.20.    | 5                | 350   | -32   | 147               |
| Gamma Andromedids       | Aug.19.-25.   | Aug.21.    | 5                | 25    | +42   | 148               |
| <u>ALPHA AURIGIDS</u>   | July30-Nov.28 | Aug.21-31  | 12               | 74    | +43   |                   |
| Alpha Camelopardis      | Aug.22.-29.   | Aug.27.    | var              | 70    | +65   | 153               |
| Beta Cassiopeids        | Aug.20-Sep.15 | Aug28-Sep7 | var              | 1     | +63   |                   |
| Rho Aurigids            | Sep.10.       |            | 5                | 86    | +42   |                   |
| Alpha Hydrids           | Sep.1.-2.     |            | 9                | 30    | -62   |                   |
| Gamma Eridanids         | Aug.25-Sep.10 | Sep.3.     | 5                | 62    | -08   | 159               |
| Epsilon Perseids        | Aug.21-Sep.16 | Sep.3.-7.  | 10               | 62    | +37   |                   |
| Pi Cetids               | Aug.28-Sep.10 | Sep.5.     | 8                | 51    | -16   | 161               |
| Eta Cetids              | Sep.1.-20.    | Sep.7.     | 5                | 12    | -10   | 163               |
| Nu Eridanids            | Sep.1.-15.    | Sep.7.     | 5                | 70    | -28   | 163               |
| <u>PISCIDS</u>          | Aug.12-Oct.6  | Sep.9.     | 10               | 9     | +07   | 165               |
| E638 Camelopardis       | Sep.7.-12.    | Sep.10.    | var              | 79    | +77   | 166               |
| Zeta Draconids          | Aug.27-Sep.26 | Sep.11.    | var              | 265   | +60   | 167               |
| 11 Orionids             | Aug.25-Sep.22 | Sep.15-16  | 7                | 73    | +14   |                   |
| Kappa Aquarids          | Sep.5.-28.    | Sep.16-21  | 10               | 338   | -05   | 178               |
| Theta Aurigids          | Sep.13.-27.   | Sep.18.    | 5                | 87    | +34   | 175               |
| Xi Aurigids             | Sep.15-Oct.20 | Sep.25.    | var              | 78    | +57   | 181               |
| 292 Camelopardis        | Sep.24.-26.   | Sep.25.    | var              | 104   | +77   | 181               |
| Mu Leporids             | Sep.29-Oct.11 |            | 8                | 75    | -17.5 |                   |
| 30 Lyncids              | Oct.1.-31.    | Oct.8.     | 10               | 124   | +54   | 194               |
| <u>DRACONIDS</u>        | Oct.6.-10.    | Oct.8-9    | var              | 262   | +42   | 195               |
| Sigma Ursa Majorids     | Oct.5-Nov.13. | Oct.8-15   | 5                | 133   | +68   |                   |
| Eta Cepheids            | Oct.4.-20.    | Oct.11.    | 22               | 313   | +58   | 197               |
| Theta Eridanids         | Oct.8.-20.    | Oct.11.    | 5                | 52    | -40   | 197               |
| Octanids                | Oct.15.       |            | 6                | 148   | -87   | 200               |
| <u>EPSILON ARIETIDS</u> | Sep.21-Nov.13 | Oct.14-31  | 12               | 40    | +20   |                   |
| Beta Doradids           | Oct.14.-21.   | Oct.15.    | 8                | 91    | -64   | 201               |
| Kappa Leonids           | Oct.11.-22.   | Oct.15-18  | var              | 140   | +28   |                   |
| Beta Arietids           | Oct.8-Nov.30  | Oct.19.    | 9                | 22    | +22   | 205               |
| Epsilon Geminids        | Oct.14.-27.   | Oct.19.    | 6                | 104   | +27   | 205               |
| Pegasids                | Oct.18.-21.   | Oct.19-20  | 18               | 349   | +27   |                   |
| Beta Canis Majorids     | Oct.14.-25.   | Oct.20.    | 5                | 106   | -12   | 206               |
| Alpha Cetids            | Oct.18.-31.   | Oct.20-22  | 6                | 45    | +06   |                   |
| <u>ORIONIDS</u>         | Oct.17.-26.   | Oct.21.    | 35               | 95    | +16   | 208               |
| Nu Aurigids             | Oct.11-Nov.18 | Oct21-Nov2 | 10               | 87    | +40   |                   |
| Aquarids                | Oct.2.-30.    |            | 10               | 306   | -05   |                   |
| Cetids                  | Oct.20.-29.   |            | 5                | 20    | -24   |                   |
| Aquarids                | Oct.15.-30.   | Oct.26.    | 7                | 345   | -12   | 212               |
| Cygnids-Lyrids          | Oct.15.-30.   | Oct.26.    | 8                | 280   | +40   | 212               |
| Tau 2 Eridanids         | Oct.10-Nov.15 | Oct29-Nov7 | 5                | 41    | -23   |                   |
| <u>TAURIDS S</u>        | Sep.15-Nov.30 | Nov.3.     | 7                | 50.5  | +13.6 | 220               |
| <u>CASSIOPEIDS</u>      | Nov.8.-13.    | Nov.9.     | 120              | 357.5 | +61   | 226               |
| Beta Hydrids            | Nov.8.-10.    | Nov.9.     | 3                | 30    | -81   | 226               |
| Pi Orionids             | Nov.8.-15.    | Nov.10.    | 3                | 74    | +02   | 227               |
| Iota Cancrids           | Nov.10.-23.   | Nov.12.    | 3                | 133   | +31   | 229               |
| <u>TAURIDS N</u>        | Sep.17-Dec.5  | Nov.13.    | 9                | 58.3  | +22.3 | 230               |
| <u>ANDROMEDIDS</u>      | Nov.6-Dec.1   | Nov.16-17  | var              | 26    | +25   | 234               |
| Alpha Canis Majorids    | Nov.8-Dec.12  | Nov.16-25  | 8                | 116   | +09   |                   |
| <u>LEONIDS</u>          | Nov.14.-20.   | Nov.17     | var              | 152   | +22   | 234               |
| Alpha Columbids         | Nov.15.-25.   | Nov.18     | 3                | 91    | -33   | 235               |
| Delta Canis Majorids    | Nov.7.-25.    | Nov.20.    | 4                | 110   | -23   | 237               |
| Mu Ursa Majorids        | Nov.14.-28.   | Nov.26.    | 10               | 157   | +42   | 243               |
| Epsilon Ursa Majorids   | Nov.13-Dec.5  | Nov.30.    | 5                | 191   | +58   | 247               |



## Supplements/Corrections to MS-List

|        |       |                                                                 |
|--------|-------|-----------------------------------------------------------------|
| DB3FK  | EK    | M. Wenzel; Altkönigsstr. 43; 6390 Usingen; 608114016            |
| DF2ZC  | EO    | B. Mischlewski; P.O.Box 1612; 2390 Flensburg                    |
| DH8NA  |       | ex DG4NAE                                                       |
| DJ9YE  | EN14a | K. Hinz; Dorfstr. 78; 2190 Cuxhaven; 472126678; CW+SSB 1200LPM  |
| DK2PR  | EM07e | P. Block; Heinrich-Renke-Str. 3; 2810 Verden; 423161726         |
| DK3LL  | FO72h | Chr. Langbehn; Bornhoeveder Landstr. 56; 2355 Ruhwinkel         |
| DL4MDQ | FI    | ex DG5MCL                                                       |
| DL9FBS | EK53j | R. Kohl; Am Tripp 4; 6390 Usingen 5; 60812878                   |
| EA5EM  | ZZ49h | Julio Losa; Castillo de Benisano 18; 46018 Valencia             |
| FD6ISI | BD32e | E. Gros; 7 Rue du Champ du Mai; 81200 Aussillon                 |
| F6DWG  | BJ41j | M. Fabrie; 7 Rue du Docteur Leblond esc.B6; 60000 Beauvais      |
| G1EZF  | ZN13g | M. Allmark; 11 Potternnewton Cresc; Meanwood; Leeds LS7 2DY     |
| HB9DBM | EH62f | M. Brun; P.O.Box 56; 6024 Hildisrieden; 41992996; CW+SSB        |
| I0UZF  | GD72b | F. Alberti; Via Lorenzini 6; 06100 Perugia                      |
| IK0FEC | GD65h | L. Matarazzi; P.O.Box 12; 06023 Gualdo Tadino (PG)              |
| LZ2FP  | ND24e | V. Ganev; P.O.Box 196; Razgrad                                  |
| OE3FNC | II73h | N. Futschik; Leopolddorfer Str. 26; 2326 Maria Lanzendorf       |
| OE3JPC | II72c | QRV for MS only from this square, address see MS list           |
| OH2AXH |       | QRT on MS                                                       |
| OH2BEW |       | QRT on MS                                                       |
| OH3AZW |       | QRT on MS                                                       |
| OH4OB  |       | not QRV on MS                                                   |
| OH5NW  |       | QRT on MS                                                       |
| OH6RM  |       | QRT on MS                                                       |
| OH7AZX |       | not QRV on MS                                                   |
| OH9RH  |       | not QRV on MS                                                   |
| OY9JD  | WV07h | Jon Dam; P.O.Box 2028; FR-3800 Argir; Faroe Islands; ( )12717   |
| OZ1DUQ | GP24f | U. Linhardt; Östrigsgade 49 2tv; 2300 Copenhagen S              |
| PA0WWM | CM63g | W.W. Munniks; Bijdorpsr.26; 2223 ES Katwijk; 171875575; 432 MHz |
| PA2CHR | CL    | C. Ploeger; Hartenweg 13; 6861 CL Osterbeek; 85342662           |
| PA3CPL | DN63c | A. Wedemeijer; T.Mesdagstr. 21A; 9718 KJ Groningen; 50132926    |
| PA3DZL | CL34f | ex PE1JSE                                                       |
| SM3IEK | IW56h | K. Berg; Tvärvägen 5; 86400 Matfors; 6021001                    |

$2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m$

| DATE | GMT        | CALL | QTH | REPORT | burst | pings | dur. | re-   |
|------|------------|------|-----|--------|-------|-------|------|-------|
|      | start stop |      |     | tr re  | Nr.   | Nr.   | sec  | marks |

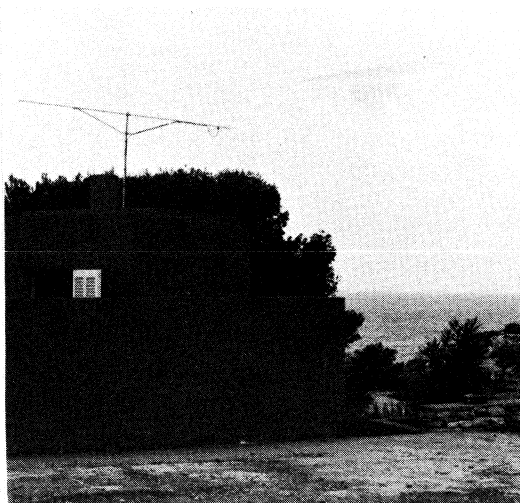
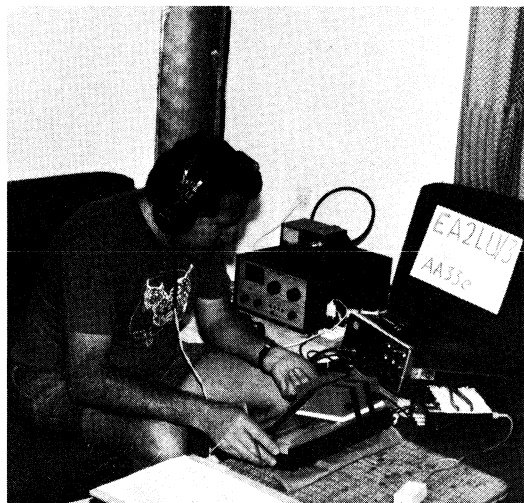
DJ9YE (EN14A) wkd:

|                                                                               |      |      |         |    |    |     |     |   |         |
|-------------------------------------------------------------------------------|------|------|---------|----|----|-----|-----|---|---------|
| 02.01.85                                                                      | 2320 | 0020 | YU1BB   | 37 | 37 | 5   | 8   | 6 | C Rand  |
| 03.01.85                                                                      | 1110 | 1130 | SM2BYC  | 37 | 37 | mni | mni | 7 | C Rand  |
|                                                                               | 2310 |      | UP2BFR  |    | 26 | 2   |     | 1 | NC Rand |
| 04.01.85                                                                      | 0315 | 0400 | YU3TS   | 27 | 27 | 5   | 10  | 3 | C Rand  |
| HRD Random: UA3DHC, UB5EFS, RB5EU, HG2ZB, HG2NP, LZ2PP, DF7DJ, YU1IMV, IK4DCO |      |      |         |    |    |     |     |   |         |
| 28.02.85                                                                      | 2200 | 2300 | EA3BTZ  |    |    |     |     |   | NIL     |
| 07.03.85                                                                      | 0000 | 0200 | EA2LU   |    |    | 2   | 14  | 2 | NC      |
| 09.03.85                                                                      | 0500 | 0630 | EA2LU   | 26 | 26 |     |     |   | C?      |
| 11.03.85                                                                      | 0500 | 0705 | I6WJB   | 26 | 26 |     |     |   | NC SSB  |
| 15.03.85                                                                      | 0500 | 0605 | EA2LU   | 26 | 26 |     |     |   | C       |
| 17.03.85                                                                      | 2200 | 0000 | EA5MM   |    | 26 | 1   | 2   | 1 | NC      |
| 05.05.85                                                                      | 0300 | 0350 | RB5EU   | 27 | 26 | 5   | 10  | 1 | C Rand  |
|                                                                               | 0400 | 0600 | EA1CYE  |    | 26 | 3   | 21  | 1 | NC      |
|                                                                               | 0700 | 0805 | YU7AU/5 | 26 | 26 | 4   | mni | 3 | C       |
|                                                                               | 0805 | 0900 | CT4KQ   |    |    |     |     |   | NIL     |

|                     |      |      |         |  |    |    |     |     |   |       |
|---------------------|------|------|---------|--|----|----|-----|-----|---|-------|
|                     | 0925 | 1045 | LZ2PP   |  | 26 | 26 | 5   | 38  | 8 | C     |
| 08.06.85            | 0600 | 0800 | EA1CYE  |  |    |    | mni | mni |   |       |
|                     | 1000 | 1200 | RB5AL   |  |    |    |     |     |   | NIL   |
|                     | 1226 | 1300 | I6DQE/6 |  | 27 | 27 | mni | mni | 4 | C     |
| 14.06.85            | 1545 | 1645 | SK3LH   |  | 27 | 27 | mni | mni | 4 | C     |
| 15.06.85            | 0400 | 0505 | SM2LTA  |  | 27 | 27 | 15  | mni | 5 | C     |
| 18.06.85            | 0600 | 0643 | I4MKN   |  | 26 | 26 | 7   | 38  | 4 | C SSB |
|                     | 0700 | 0800 | EA1YV   |  |    |    |     |     |   | NIL   |
| 21.06.85            | 0300 | 0400 | RB5QF   |  |    |    | 1   | 3   |   | NC    |
|                     | 0600 | 0700 | EASEMM  |  | 27 | 26 | 10  | 9   | 4 | C     |
|                     | 1300 | 1320 | SM3BIU  |  | 26 | 27 | mni | mni | 4 | C     |
|                     | 2200 | 2400 | RB5AO   |  |    |    |     |     |   | NIL   |
| 22.06.85            | 0700 | 0730 | EA1CYE  |  |    | 26 | 3   | 7   | 2 | NC    |
| 24.06.85            | 0630 | 0650 | GB4WQ   |  | 27 | 26 | 20  | mni | 2 | C     |
|                     | 0700 | 0800 | OH7PS   |  |    |    |     |     |   | NIL   |
|                     | 1510 | 1530 | IW5AVM  |  | 27 | 26 | 8   | mni | 3 | C SSB |
| 25.06.85            | 1400 | 1430 | I5JUX   |  |    |    |     |     |   | NIL   |
| tks fer info, Klaus |      |      |         |  |    |    |     |     |   |       |

EA2LU/3 (AA33e) wkd:

|          |      |      |        |    |    |    |   |    |     |   |
|----------|------|------|--------|----|----|----|---|----|-----|---|
| 01.07.85 | 2100 | 2155 | PA3CNN | CM | 26 | 26 | 6 | 25 | 1   | C |
|          | 2200 | 2230 | YU3TS  | HF | 27 | 26 | 4 | 8  | 1.5 | C |



|          |      |      |        |    |          |    |     |    |     |        |
|----------|------|------|--------|----|----------|----|-----|----|-----|--------|
| 02.07.85 | 0500 | 0550 | F6FLV  |    | 26       | 27 | 10  | 26 | 12  | C      |
|          | 0600 | 0700 | EA1OD  | YD |          |    |     |    |     | NIL    |
|          | 2100 | 2150 | DL4MDQ | FI | 26       | 26 | 1   | 16 | 1.5 | C      |
|          | 2200 | 2300 | G40IG  | ZM | 26       | 26 | 7   | 17 | 1   | C      |
|          | 2300 | 2337 | DK0TU  | GM | 26       | 26 | 11  | 25 | 65  | C      |
|          | 2337 | 2400 | DL7AFB | GM | 26       | 26 | 3   | 10 | 1   | C Rand |
| 03.07.85 | 2100 | 2200 | PA3APH |    | recorder |    | qrt |    |     | NIL    |
|          | 2225 | 2300 | OE3OKS | IH | 26       | 26 | 4   | 12 | 1.5 | C *1   |
|          | 2300 | 2400 | OE6IWG | HH | 26       | 27 | 7   | 2  | 2   | C?     |
| 04.07.85 | 0500 | 0545 | F8CS   | CH | 26       | 26 | 3   | 18 | 12  | C      |
|          | 0600 | 0655 | F6BSJ  | CG | 26       | 26 | 10  | 50 | 3   | C      |
|          | 0700 | 0800 | YU1AFS | KE | 26       | 26 | 5   | 12 | 1   | C      |
|          | 2100 | 2200 | OK1MAC | HJ | sri, not |    | QRV |    |     | NIL    |
| 05.07.85 | 0500 | 0535 | ON7EH  | CK | 26       | 28 | 6   | 36 | 8   | C      |
|          | 0535 | 0600 | DF7DJ  | DL | 26       | 27 | 9   | 24 | 2   | C Rand |
|          | 0600 | 0625 | F6DKQ  | DH | 26       | 26 | 5   | 15 | 65  | C      |
|          | 0700 | 0745 | DK2PH  | EL | 26       | 26 | 7   | 22 | 4   | C      |
|          | 2100 | 2200 | EA1CYE | YD |          |    |     |    |     | NIL    |

|          |      |      |        |    |    |    |    |    |     |     |     |
|----------|------|------|--------|----|----|----|----|----|-----|-----|-----|
|          | 2200 | 2300 | DK2PR  | EM | 26 | 26 | 5  | 8  | 1   | C   |     |
|          | 2300 | 2335 | DL8DAT | DL | 27 | 26 | 13 | 40 | 2   | C   |     |
| 06.07.85 | 0000 | 0052 | PA3CAP | CM | 26 | 27 | 5  | 15 | 2   | C   |     |
|          | 2100 | 2200 | G4IJJ  | AM | 26 | 26 | 3  | 7  | 65  | No  | RRR |
|          | 2200 | 2310 | EA10D  | XD | 26 | 26 | 3  | 6  | 2   | C   |     |
| 07.07.85 | 2100 | 2200 | OK1MAC | HJ | 26 |    | 1  | 1  | 1.5 | NC  |     |
|          | 2200 | 2230 | OK1MDK | HJ |    |    |    |    |     | NIL |     |
|          | 2300 | 2400 | DL0JZ  | FN | 26 | 26 | 2  | 7  | 1   | NC  |     |
| 08.07.85 | 2100 | 2150 | PA2VST | CM | 26 | 27 | 12 | 53 | 65  | C   |     |
|          | 2200 | 2330 | EA1QJ  | VD | 26 | 26 | 19 | 68 | 3   | C   |     |
| 09.07.85 | 0000 | 0050 | PA0RDY | CM | 26 | 27 | 10 | 27 | 65  | C   |     |
|          | 2100 | 2200 | DJ5KW  | EL | 26 |    | 1  |    | 1   | NC  |     |
|          | 2200 | 2300 | SP6GZZ | IL |    |    |    |    |     | NIL |     |
|          | 2300 | 2400 | DL0JZ  | FN | 26 | 26 | 2  | 9  | 1.5 | No  | RRR |
| 10.07.85 | 2100 | 2135 | YU1EV  | KE | 26 | 26 | 7  | 25 | 1   | C   |     |
|          | 2200 | 2300 | DJ9YE  | EM | 26 | 26 | 3  | 13 | 1   | NC  | *2  |
|          | 2300 | 2400 | OK2VMD | IJ | 26 | 26 | 3  | 6  | 1.5 | C   |     |
| 11.07.85 | 0600 | 0635 | PA3CSG | CL | 26 | 26 | 9  | 34 | 1   | C   |     |
|          | 0700 | 0735 | GM3WCS | YQ | 26 |    | 3  | 2  | 65  | NC  | *3  |
|          | 0800 | 0820 | OK1KT  |    | 26 |    | 1  | 1  | 1   | NC  | *4  |
| 12.07.85 | 0500 | 0537 | ON5SA  | CJ | 26 | 26 | 12 | 14 | 12  | C   |     |
|          | 0600 | 0640 | PA3APH | CL | 26 | 26 | 5  | 12 | 10  | NC  |     |
|          | 0640 | 0700 | DJ9YE  | EM | 26 | 26 | 3  | 4  | 2   | C?  |     |
|          | 2100 | 2200 | SP6AZT | IL |    |    |    |    |     | NIL |     |
|          | 2200 | 2400 | EA1CYE | YD | 26 |    | 1  | 8  | 1   | NC  |     |
| 13.07.85 | 0600 | 0700 | G4YUZ  |    |    |    |    |    |     | NIL |     |
|          | 0700 | 0800 | F6DWG  | BJ | 26 | 27 | 12 | 60 | 6   | C   |     |
|          | 0800 | 0900 | IN3TWX | FG | 26 | 26 | 4  | 18 | 3   | C   |     |

\*1 Sri, first 20 min. recorder QRT; \*2 QRM, YU3FM called me the same time; \*3 Vy QRN, no more info at 0735, QRT; \*4 Sri, QRT, A.C. Volts off.

EA2LU writes: Since July 4th I had very low A.C. Voltage, although I was using a 4CX250 Power amp. I only had have 50/70W for transmitting. I want to thank EA10D for his help in arranging skeds day for day on the VHF net and especially I want to thank my XYL for her patience during this holidays. tks fer info.

# EASEMM (ZZ49h) wkd:

|          |      |      |        |       |    |    |     |     |    |    |    |
|----------|------|------|--------|-------|----|----|-----|-----|----|----|----|
| 27.01.85 | 0500 | 0726 | PA3CAC | CM66b | 26 | 26 | 2   | 11  |    | C  | *1 |
| 03.02.85 | 0500 | 0525 | DL8DAT | DL49h | 27 | 26 | 13  | 27  | 2  | C  | *2 |
| 10.03.85 | 2100 | 2300 | DK1KO  | FN12g | 26 | 26 | 8   | 19  | 2  | C  |    |
| 12.03.85 | 0500 | 0700 | Y22QG  | FM79h | 26 | 26 | 6   | 17  |    | C  |    |
| 15.03.85 | 0600 | 0800 | DF1ZE  | EJ13e | 26 | 26 | 9   | 22  | 2  | C  |    |
| 04.04.85 | 0500 | 0700 | IN3TWX | FG26c | 26 | 26 | 2   | 30  |    | C  |    |
| 05.04.85 | 0500 | 0725 | Y27BL  | GL79e | 26 | 26 | 5   | 21  |    | C  |    |
| 06.04.85 | 0500 | 0707 | DL3LL  | F072h | 26 | 26 | 6   | 21  |    | C  |    |
| 12.04.85 | 0700 | 0848 | DJ5MS  | GI11a | 26 | 26 | mni | mni | 5  | C  |    |
| 19.04.85 | 2000 | 2100 | YU6VHF | JB    | 26 | 26 | 2   | 7   | 6  | C  |    |
| 21.04.85 | 0600 | 0705 | Y22ME  | HM    | 26 | 26 | mni | mni | 10 | C  |    |
|          | 0705 | 0900 | G4RNL  | YN    | 26 | 26 | 5   | 16  | 3  | C? |    |
| 26.04.85 | 0400 | 0525 | YU3FM  | HG73j | 26 | 26 | 5   | mni | 8  | C  |    |
| 28.04.85 | 0400 | 0505 | G4IJE  | AL12g | 26 | 26 | 12  | mni | 4  | C  |    |
| 04.05.85 | 0400 | 0600 | OK1KT  | HK    | 26 | 26 | 4   | 2   | 2  | C  |    |
|          | 0600 | 0800 | Y22ML  | GL79e | 26 | 26 | 6   | 10  | 4  | C  |    |
| 05.05.85 | 0400 | 0600 | FBCS   | CH56h | 26 | 26 | 16  | 12  | 2  | C  |    |
| 08.05.85 | 0400 | 0500 | DK0TU  | GM    | 26 | 26 | 11  | 17  | 2  | C  |    |
| 12.06.85 | 0400 | 0540 | G4RGK  | ZL37j | 26 | 26 | 14  | 18  | 5  | C  |    |
| 19.06.85 | 0400 | 0600 | F6BSJ  | CG    | 27 | 37 | mni | mni | 2  | C  |    |
| 21.06.85 | 0400 | 0510 | PA3APH | CL    | 26 | 26 | mni | mni | 4  | C  |    |
|          | 0600 | 0713 | DJ9YE  | EN14a | 27 | 26 | 10  | 9   | 6  | C  |    |
| 23.06.85 | 0400 | 0520 | DL8NBN | FI16j | 26 | 26 | 12  | 13  | 3  | C  |    |
|          | 0600 | 0710 | HB9CRQ | EH61b | 27 | 26 | mni | mni | 2  | C  |    |
|          | 0945 | 1045 | G4SHC  | YN    | 27 | 26 | 15  | 18  | 3  | C? |    |
| 25.06.85 | 0500 | 0535 | F6EQQ  | YI    | 26 | 26 | 10  | 12  |    | C? |    |
| 26.06.85 | 0400 | 0500 | DK2LM  |       | 26 | 26 | 19  | mni | 2  | C  |    |

0600 0700 DL3YBP EM74g 27 26 mni mni 3 C  
 27.06.85 0500 0615 G3WZT ZK09j 26 27 mni mni 16 C  
 NC/NIL: PA3DOL, G3IMV, DL0JZ, OK10A, OE3JPC, SP6FUN, EA10D, ON6NL, YU5AU/5,  
 DL9GS, SP6GWB, G4KUX and DK9TU. \*1 400 lpm 30W, \*2 400lpm. tks fer info,  
 Julio.

EB5EHX (ZZ69j) wkd (first operation on MS):

|          |      |      |        |    |    |    |   |    |   |        |
|----------|------|------|--------|----|----|----|---|----|---|--------|
| 12.12.84 | 2200 | 2300 | G4YUZ  | ZL | 26 |    |   | 2  |   | NC SSB |
|          | 2300 | 2330 | G4IJE  | AL | 26 | 26 | 8 | 9  | 2 | C SSB  |
| 13.12.84 | 2000 | 2100 | DL8NBN | FI | 26 | 26 | 8 | 15 |   | C SSB  |
|          | 2200 | 2300 | Y23FG  | FM | 26 | 26 | 4 | 6  |   | C SSB  |
|          | 000  | 0100 | GW4JLY | YL | 26 |    | 3 |    |   | NC SSB |
| 14.12.84 | 2300 | 0000 | GBXVJ  | YN | 26 |    | 2 | 19 |   | NC SSB |
| 16.12.84 | 0700 | 0800 | ON5ASL | BL | 26 |    | 1 | 12 |   | NC SSB |
| 22.12.84 | 2300 | 2400 | DL8DAT | DL | 26 | 26 | 4 | 11 |   | C SSB  |
| 02.01.85 | 0000 | 0100 | G4RNL  | YN | 26 |    | 3 |    |   | NC SSB |
|          | 2300 | 2400 | PE1HVD | CL | 26 |    | 2 |    |   | NC SSB |
| 03.01.85 | 1400 | 1500 | PA3DMH | CL | 26 |    | 2 |    |   | NC SSB |
|          | 1530 | 1600 | Y22ME  | HM | 26 | 27 | 4 | 6  | 3 | C SSB  |
|          | 1900 | 2000 | GBAPZ  | AL | 26 |    | 1 | 6  |   | NC SSB |

Hrd Random: 1515 G4XUM 37 1 burst 9 sec. SSB (QTF on both sides 50 deg.) and  
 1550 Y22ME 37 1 burst 10 sec. SSB.

|          |      |      |        |    |    |    |    |     |      |                          |
|----------|------|------|--------|----|----|----|----|-----|------|--------------------------|
| 05.04.85 | 0500 | 0700 | IN3TWX | FG | 26 |    | 1  | 5   |      | NC                       |
| 06.04.85 | 0500 | 0700 | DH8NAA | EJ | 26 |    | 1  | 10  |      | NC                       |
| 11.04.85 | 0700 | 0810 | DJ5MS  | GI | 26 | 26 | 5  | 12  | 3    | C                        |
| 12.04.85 | 0600 | 0800 | Y24NL  | GL |    |    |    |     |      | QRM                      |
| 20.04.85 | 2000 | 2100 | YU6VHF | JB | 26 | 26 | 6  | 8   |      | C                        |
| 21.04.85 | 0000 | 0020 | DK0TU  |    |    |    |    |     |      | NIL                      |
|          | 0600 | 0800 | Y24NL  | GL |    |    |    |     |      | sri, power supply defect |
| 28.04.85 | 0500 | 0700 | G4YUZ  | ZL | 26 | 26 | 6  | 51  | 2    | C                        |
| 01.05.85 | 0400 | 0600 | DK3LL  | FO | 26 | 26 | 8  | 20  | 2    | C                        |
| 03.05.85 | 0500 | 0700 | DK0TU  | GM | 26 | 26 | 15 | 10  | 1min | C                        |
| 04.05.85 | 0400 | 0600 | PA0RDY | CM | 26 | 37 | 26 | mni | 3    | C                        |
|          | 0600 | 0800 | OK2VMD | IJ | 26 | 37 | 16 | 23  | 8    | C                        |
|          | 0800 | 1000 | IN3TWX | FG | 26 | 26 | 1  | 6   | 3    | NC                       |
| 05.05.85 | 0600 |      | F8CS   | CH |    |    |    |     |      | sri, not QRV             |
| 08.05.85 | 0500 | 0700 | Y22QG  | FM | 26 | 26 | 14 | 15  | 8    | C                        |

many stations NIL

Station: SSB 100W + 2x16ele; CW 100W + 20ele I20DI, RX 3SK97 or NE41113, soon  
 250W (4CX250 hi). Skeds to: Xavier-A. Cortes, P.O.Box 51, Sueca, Valencia,  
 Spain or via EA5WJ on VHF net. tks fer info, Xavier.

HB9DBM (EH62f) wkd:

|          |      |      |        |       |    |    |    |     |    |       |
|----------|------|------|--------|-------|----|----|----|-----|----|-------|
| 07.06.85 | 0400 | 0600 | Y22HA  | G071h | 26 | 27 | 19 | mni | 2  | C     |
|          | 1200 | 1300 | G4XUM  | YN78j |    |    |    |     |    | NIL   |
|          | 1300 | 1400 | GM4YXI | Y005a | 26 | 26 | 12 | mni | 3  | C SSB |
| 08.06.85 | 0500 | 0600 | GW4TTU | YL25g |    |    |    |     |    | NIL   |
|          | 0600 | 0800 | G40IG  | ZM56d | 26 | 26 | 16 | mni | 6  | NC *  |
|          | 1000 | 1030 | OZ11UK | BQ    | 26 | 26 | 14 | 24  | 4  | C     |
|          | 1100 | 1200 | OZ1DJJ | GP    | 26 | 27 | 27 | 30  | 4  | C     |
|          | 1300 | 1330 | GM0BQM | YP    | 26 | 26 | 10 | mni | 5  | C     |
| 09.06.85 | 0400 | 0500 | LA9BM  | EU32g | 26 | 27 | 20 | 17  | 3  | C     |
|          | 1300 | 1400 | GW4TTU | YL25g |    |    |    |     |    | NIL   |
| 16.06.85 | 0200 | 0400 | SM2LTA | JY02g |    |    | 1  |     | 1  | NC    |
|          | 0400 | 0430 | SM6CMU | FR50b | 37 | 27 | 16 | 33  | 7  | C     |
|          | 0600 | 0700 | EA2LU  | ZC12c | 26 | 26 | 14 | mni | 10 | C     |
| 17.06.85 | 0400 | 0600 | EA1YV  | VC67h | 26 | 26 | 3  | 4   | 1  | NC    |

\* sri, but I didn't hear any Rogers from you, Gerold. tks fer info, Mark.

IN3TWX (FG26c) wkd:

|          |      |      |        |    |    |    |    |   |   |        |
|----------|------|------|--------|----|----|----|----|---|---|--------|
| 03.01.85 | 0200 | 0300 | G4KUX  | ZO |    |    |    | 1 |   | NC     |
|          | 0300 | 0500 | G3IMV  | ZL | 26 | 26 | 10 | 8 | 4 | C *1   |
|          | 0500 | 0600 | EA1CYE | YD | 26 |    | 2  | 1 | 2 | NC     |
|          | 0800 | 0900 | I7RNI  | IA |    |    | 1  | 4 | 1 | NC SSB |

|          |      |      |         |    |    |    |    |    |     |       |
|----------|------|------|---------|----|----|----|----|----|-----|-------|
|          | 1300 | 1350 | F1GTU   | AF | 26 | 26 | 6  | 6  | 4   | C SSB |
|          | 1700 | 1800 | DL8DAT  | DL | 26 | 27 | 2  |    | 2   | C     |
|          | 2000 | 2200 | DK2PH   | EL | 26 |    | 1  |    | 1   | NC    |
| 03.02.85 | 0600 | 0800 | EA1CYE  | YD | 26 | 26 | 2  | 1  | 1   | NC    |
| 10.02.85 | 0600 | 0800 | EA1CYE  | YD | 26 |    | 2  | 6  |     | NC    |
| 12.02.85 | 0500 | 0600 | EA5EMM  | ZZ |    |    | 2  | 11 |     | NC    |
| 10.03.85 | 0600 | 0800 | EA1CYE  | YD | 26 |    | 3  | 2  | 1   | NC *2 |
| 04.04.85 | 0500 | 0700 | EA5EMM  | ZZ | 26 | 26 | 7  | 6  | 1   | C     |
| 06.04.85 | 0700 | 0900 | EB5EHX  | ZZ | 26 |    | 3  | 5  | 1   | NC    |
| 05.05.85 | 0000 | 0100 | YU7AU/5 | KB | 26 |    | 3  | 4  | 1   | NC *2 |
| 20.05.85 | 0500 | 0610 | EB5EHX  | ZZ | 26 | 26 | 6  | 4  | 3   | C     |
| 03.06.85 | 0400 | 0600 | PA0RDY  | CM | 26 | 26 | 4  | 9  | 2   | C *1  |
| 06.06.85 | 0400 | 0500 | I7RNI   | IA | 26 | 26 | 8  | 9  | 2   | C SSB |
| 07.06.85 | 0400 | 0600 | DK2PH   | EL | 26 | 26 | 8  | 12 | 3   | C     |
|          | 0700 | 0930 | G4IJE   | AL | 26 | 26 | 9  | 5  | 5   | C? *1 |
| 08.06.85 | 1115 | 1200 | IT9BLB  | GY | 27 | 26 | 15 | 17 | 4   | C     |
|          | 1200 | 1300 | IS0PDQ  | EZ |    |    | 8  | 4  | 0.5 | NC    |
| 09.06.85 | 0500 | 0630 | DK4TG   | DL | 27 | 26 | 11 | 12 | 1.5 | C *1  |
|          | 0800 | 0900 | F8CS    | CH | 26 |    | 1  | 2  | 1   | NC    |
| 10.06.85 | 0500 | 0700 | DK0TU   | GM | 26 | 26 | 9  | 9  | 1.5 | C? *1 |
| 15.06.85 | 0400 | 0600 | YU2JL   | HD | 36 | 27 | 9  | 12 | 10  | C     |
| 22.06.85 | 1400 | 1520 | YU2FM   | ID | 26 | 26 | 10 | 8  | 2   | C     |
| 29.06.85 | 0400 | 0530 | EA1CYE  | YD | 27 | 27 | 9  | 7  | 1.5 | C     |
| 30.06.85 | 0300 | 0400 | YU7AU   | KE | 26 |    | 12 | 6  | 3   | NC    |
|          | 0400 | 0530 | DN6UG/p | BL | 27 |    | 2  | 1  | 2   | NC    |
|          | 0700 | 0930 | EA1QJ   | VD | 27 | 26 | 19 | 17 | 7!  | C? *3 |
| 02.07.85 | 0610 | 0740 | EA3DXU  | BB | 27 | 27 | 12 | 14 | 6   | C     |
| 03.07.85 | 0500 | 0600 | G3WZT   | ZK | 37 | 37 | 3  | 9  | 5   | C?    |
| 07.07.85 | 0300 | 0350 | EA3DXU  | BC | 27 | 27 | 11 | 14 | 12  | C     |

NIL: LZ1AG, GI4OPH, EA4QR, OZ1IUK, OZ1GFX, OZ1CFQ, G3WZT, SP9EWU, GW4TTU, LZ1KDZ, RB5EU, EB7BUH, RB5AL, GWBVHI, PA0HMM, F1CCM, YU1MN, Y05AVN, IBTUS, DD0HZ, F6FLV, YU1AFS, EA1YV and YT9W.

\*1 I was beaming to a high mountain in my near, \*2 PA defect, \*3 QSB and doppl. shift. tks fer info, Wolfgang.

IW2BZY (EF36j) wkd:

|          |      |      |        |       |    |    |    |    |    |        |
|----------|------|------|--------|-------|----|----|----|----|----|--------|
| 08.06.85 | 1300 | 1332 | GI4OMK | XO31j | 26 | 26 | 4  | 7  | 5  | C SSB  |
| 09.06.85 | 0500 | 0509 | OZ1FTU | FP10j | 27 | 27 | 7  | 16 | 10 | C SSB  |
|          | 0600 | 0640 | G4XEN  | ZM    | 26 | 27 | 5  | 14 | 7  | C SSB  |
| 26.06.85 | 0300 | 0400 | GM0BQM | YP    | 27 | 26 | 11 | 29 | 7  | NC SSB |

tk's fer info, Lorenzo.

LZ2PP (ND24e/KN33IP) wkd (all QSO's on Random CW, 800 lpm max.):

|          |      |      |        |    |    |    |  |  |  |       |
|----------|------|------|--------|----|----|----|--|--|--|-------|
| 14.12.84 | 2055 | 2315 | SM5CND | HS | 26 | 37 |  |  |  | C *1  |
| 15.12.84 | 0005 |      | DK3TN  |    | 26 | 37 |  |  |  | NC 2* |
|          | 0140 | 0155 | YU3TS  | HF | 37 | 27 |  |  |  | C     |
|          | 0615 |      | Y21PL  |    | 37 |    |  |  |  | NC    |
| 02.01.85 | 2325 | 0055 | PA3COB | DM | 26 | 27 |  |  |  | C     |
| 03.01.85 | 0505 | 0520 | RA3YCR | RN | 26 | 37 |  |  |  | C     |
|          | 0755 | 0825 | YU3ES  | GF | 27 | 27 |  |  |  | C     |
|          | 1400 | 1445 | UA3RFS | UM | 38 | 27 |  |  |  | C     |
|          | 1455 | 1530 | UA3YCC |    | 27 | 38 |  |  |  | C     |
|          | 2605 | 1620 | DL3MBG | GI | 37 | 37 |  |  |  | C     |
| 05.05.85 | 0925 | 1040 | DJ9YE  |    | 26 | 26 |  |  |  | C     |

\*1 my first MS QSO, \*2 DL7YS calling me all the time.

Station: 250W output, aant. 2x13ele or 2x16ele F9FT, 318m asl. Address: Valentin Ganev, P.O.Box 196, Razgrad, Bulgaria. tks fer info, Val.

OE3JPC (II72e) wkd:

|          |      |      |        |    |    |    |  |  |  |    |
|----------|------|------|--------|----|----|----|--|--|--|----|
| 27.11.84 | 2000 | 2200 | 9H1CD  | HV | 26 | 26 |  |  |  | C  |
| 29.11.84 | 2200 | 0000 | G3IMV  | ZL | 26 | 26 |  |  |  | NC |
| 01.12.84 | 2200 | 2300 | G3IMV  | ZL | 26 | 26 |  |  |  | C  |
| 04.12.84 | 2100 | 2300 | RB5AL  | QL | 26 | 26 |  |  |  | C  |
| 06.12.84 | 2300 | 0000 | OZ1IUK | GQ | 26 | 26 |  |  |  | C  |

|          |      |      |        |    |    |    |  |  |         |
|----------|------|------|--------|----|----|----|--|--|---------|
| 10.12.84 | 2200 | 0000 | RB5QF  | RH | 26 |    |  |  | NC      |
| 11.12.84 | 1700 | 1800 | PA3CGR | DM | 27 | 27 |  |  | NC Rand |
| 12.12.84 | 0655 | 0730 | F1FHI  | ZH | 27 |    |  |  | NC Rand |
|          | 1815 | 1855 | PA3CGR | DM | 27 | 27 |  |  | C Rand  |
|          | 2130 | 2220 | SM5CNQ | HS | 37 | 37 |  |  | C Rand  |
| 15.12.84 | 2000 | 2200 | RB5QF  | RH | 27 | 26 |  |  | C       |
| 29.12.84 | 2200 | 0000 | LABOW  | EU | 26 | 26 |  |  | C       |
| 03.01.85 | 1600 | 1635 | G4XEN  | ZM | 37 | 38 |  |  | C       |
| 06.04.85 | 0400 | 0510 | LA6QBA | GV |    |    |  |  | NIL     |
| 08.04.85 | 0400 | 0515 | G4R6K  | YL | 26 | 26 |  |  | C       |
| 13.04.85 | 0400 | 0510 | OH4ZS  | OV | 26 |    |  |  | NC      |
| 20.04.85 | 0500 | 0635 | GW4TTU | YL | 26 | 26 |  |  | C       |
|          | 2200 | 2300 | EA5EMM | ZZ |    |    |  |  | NIL     |
| 22.04.85 | 0300 | 0445 | SM4KYN | HT | 26 | 26 |  |  | NC      |
| 08.05.85 | 0300 | 0445 | SM4KYN | HT | 26 | 26 |  |  | C       |
|          | 2100 | 2200 | RB5EF  | RI | 26 | 26 |  |  | NC      |
|          | 2300 | 0000 | EA2LU  | ZC | 26 |    |  |  | NC      |
| 09.05.85 | 2030 | 2115 | RB5EU  | RI | 26 | 27 |  |  | C       |
| 10.05.85 | 0300 | 0435 | OH7MA  | OW | 37 | 26 |  |  | C       |
| 11.05.84 | 0730 | 0830 | G4IJE  | AL | 36 | 26 |  |  | C       |
| 12.05.85 | 0400 | 0530 | GI4OPH | XO | 26 |    |  |  | NC      |

tk's fer info, Johannes.

RB5EU (RI) wkd:

|          |      |      |         |    |    |    |    |     |        |
|----------|------|------|---------|----|----|----|----|-----|--------|
| 15.10.84 | 2200 | 2400 | OH7MA   | OW | 26 | 26 | 5  | 19  | C      |
| 19.10.84 | 2200 | 2400 | OE3PUW  | II | 26 | 27 | 8  | 18  | C      |
| 20.10.84 | 0240 | 0315 | YU1ADN  | KD | 26 | 27 | 4  | 11  | C      |
|          | 0406 | 0500 | YU7EW   | KF | 47 | 27 | 5  | 11  | C Rand |
| 30.10.84 | 0304 | 0428 | DF9DX   | FM | 26 | 27 | 4  | 17  | C      |
| 01.12.84 | 2300 | 0100 | YU6AA   | JC | 36 | 26 | 5  | 11  | C      |
| 02.12.84 | 2100 | 2300 | UA4NDV  | YS | 26 | 27 | 2  | 7   | C      |
| 06.12.84 | 2100 | 2250 | SP9EWU  | JK | 27 | 27 | 3  | 19  | C      |
| 09.12.84 | 2300 | 2340 | YU7PXO  | JF | 26 | 26 | 4  | 3   | C Rand |
| 10.12.84 | 2100 | 2130 | UA3MEE  | TR | 27 | 27 | 4  | 21  | C      |
| 11.12.84 | 2100 | 2130 | UW4CE   | YL | 27 | 27 | 8  | 4   | C      |
|          | 2200 | 2310 | Y22IC   | GN | 26 | 36 | 4  | 2   | C      |
| 12.12.84 | 0245 | 0305 | SM3AKW  | JW | 26 | 26 | 8  | 29  | C Rand |
| 13.12.84 | 0016 | 0030 | YU7QED  | KF | 37 | 37 | 11 | 8   | C Rand |
|          | 0100 | 0130 | OK2SGY  | IJ | 26 | 27 | 6  | 1   | C      |
|          | 0215 | 0235 | SM6AEK  | GQ | 27 | 27 | 9  | 6   | C Rand |
|          | 0240 | 0300 | UR1RWX  | MT | 27 | 27 | 6  | 11  | C Rand |
|          | 0300 | 0330 | OH8UV   | NY | 27 | 48 | 11 | 4   | C      |
|          | 0715 | 0730 | OK1YA   | HK | 47 | 27 | 3  | mni | C Rand |
|          | 2320 | 2357 | HG1YA   | IH | 38 | 26 | 7  | mni | C      |
| 14.12.84 | 0100 | 0156 | SP3JBI  | JL | 26 | 26 | 3  | 11  | C SSB  |
|          | 0218 | 0249 | OK1DPM  | HJ | 27 | 27 | 14 | 36  | C Rand |
|          | 1800 | 2000 | UW9WP   | CO | 26 | 27 | 3  | 16  | C      |
| 15.12.84 | 0200 | 0340 | OH7PI   | NW | 27 | 27 | 3  | 21  | C      |
| 22.12.84 | 2100 | 2220 | LZ1AG   | MC | 26 | 27 | 3  | 14  | C      |
| 28.12.84 | 2100 | 2150 | OE5KE   | HI | 26 | 26 | 4  | 9   | C      |
| 29.12.84 | 2030 | 2230 | UA3OG   | UR | 26 | 27 | 2  | 7   | C      |
| 30.12.84 | 2100 | 2135 | DF1ZE/a | FH | 27 | 26 | 4  | 7   | C      |
| 02.01.85 | 1100 | 1200 | SM0HJZ  | IT | 26 | 27 | 2  | 9   | C      |
|          | 2100 | 2200 | UA9WCK  | BO | 27 | 27 | 4  | 26  | C      |
| 03.01.85 | 0330 | 0350 | SM4GVF  | HT | 37 | 37 | 11 | 19  | C Rand |
|          | 1400 | 1435 | SB4LP   | QV | 27 | 27 | 6  | 7   | C      |
| 04.01.85 | 0300 | 0500 | OZ1CFO  | ER | 26 | 26 | 2  | 13  | QRM    |
|          | 1230 | 1320 | DK3LL   | FO | 27 | 27 | 2  | 7   | C      |

tk's fer info, Vlad.

# AURORA NEWS

2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m-2m

| GMT | CALL | QTH | RST | QTF | GMT | CALL | QTH | RST | QTF |
|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
|-----|------|-----|-----|-----|-----|------|-----|-----|-----|

DJ9YE (EN14a) wkd:

28.01.85

|      |         |       |         |  |      |        |    |         |  |
|------|---------|-------|---------|--|------|--------|----|---------|--|
| 1612 | SM5BKI  | IT    | 55A 55A |  | 1646 | LA8WF  |    | 59A 59A |  |
| 1630 | SK5EU   | IS    | 55A 55A |  | 1650 | OH1AJ  | LU | 56A 56A |  |
| 1633 | OH7MA   |       | 42A 55A |  | 1708 | SM00NR | IT | 55A 59A |  |
| 1639 | G6GN    | YL48h | 56A 56A |  | 1710 | SM3AKW | JW | 57A 56A |  |
| 1644 | UR2RPZ  | NS    | 55A 55A |  | 1715 | OH2AUK | LT | 55A 55A |  |
| 1645 | UR2RQ   | MS    | 57A 59A |  | 1717 | OH2BGD | MU | 55A 57A |  |
| 1645 | OH3HC/1 | LU    | 57A 58A |  | 1721 | OH2BYJ | MU | 52A 53A |  |

05.03.85

|      |        |    |         |  |      |       |    |         |  |
|------|--------|----|---------|--|------|-------|----|---------|--|
| 1829 | LA9B   | FT | 55A 55A |  | 1838 | SK4RL | HT | 52A 55A |  |
| 1835 | UR1RXM | MT | 55A 55A |  |      |       |    |         |  |

21.04.85

|      |        |    |         |  |      |         |    |         |  |
|------|--------|----|---------|--|------|---------|----|---------|--|
| 1525 | SM3AKW | JW | 54A 53A |  | 1648 | OH3CU/2 | MU | 52A 52A |  |
| 1527 | SM0CCM | IT | 52A 55A |  | 1703 | LA2AB   |    | 55A 55A |  |
| 1530 | SM3JGG | HV | 57A 56A |  | 1704 | UQ2GMH  | LR | 55A 54A |  |
| 1532 | SM4MBC | HT | 56A 55A |  | 1717 | UR1RXM  | MT | 51A 52A |  |
| 1534 | SM4HAK | HV | 51A 53A |  | 1722 | GM3ZXE  | YQ | 51A 52A |  |
| 1536 | SM3GHK | IV | 52A 53A |  | 1858 | RQ2GAG  | MQ | 56A 55A |  |
| 1616 | GM4RZW | YP | 52A 53A |  |      |         |    |         |  |

tkts fer info, Klaus.

DL9LBH (EO) wkd:

05.03.85: 1830 GM4ULD ZR 1920 SM4GVF HT

01.04.85

|      |        |    |  |  |      |          |    |  |  |
|------|--------|----|--|--|------|----------|----|--|--|
| 1510 | GM3JIJ | WS |  |  | 1603 | LA8QJ    | CS |  |  |
| 1514 | SM3JGG | HV |  |  | 1651 | LA6QBA/p | GV |  |  |
| 1518 | RQ2GAG | MQ |  |  |      |          |    |  |  |

09.04.85: SM4MBC

|        |       |        |    |
|--------|-------|--------|----|
| HT     | 1515- | LA3EDA | FU |
| SM0CCM | IT    | SL0CB  | IT |
| SM00NR | IT    | LA4EU  | FU |
| LA8KV  | FW    | GM4YPZ | YQ |
| SM00UG | IT    | OH3HC  | LU |
| SM4HFI | HU    | SM3JGG | HV |
| LA4IAA | CS    |        |    |

Station: FT290R + QOE06/40 ca. 40W + 22ele Flexa Yagi 9m a.g. + homemade preamp. with BF981. tks fer info, Hans-Walter.

QY9JD (WV07h) wkd:

28.01.85

|      |        |       |          |  |      |        |  |         |  |
|------|--------|-------|----------|--|------|--------|--|---------|--|
| 1820 | G3BW   | Y033g | 55A 53A  |  | 1949 | GM4DCJ |  | 55A 53A |  |
| 1823 | G3BRA  | YP20d | 53A 56A  |  | 1953 | GM4UFD |  | 55A 56A |  |
| 1942 | UA1ZCL | RC08c | 599 599* |  | 2234 | LA9FX  |  | 56A 55A |  |
| 1944 | GM3ZXE | ZT    | 55A 56A  |  |      |        |  |         |  |

05.03.85

|      |        |       |         |  |      |        |  |         |  |
|------|--------|-------|---------|--|------|--------|--|---------|--|
| 1750 | GM4BYF | YP04d | 55A 55A |  | 2250 | GM4BWT |  | 54A 55A |  |
| 1759 | GM4IPK | YP05h | 59A 59A |  | 2255 | LA4B   |  | 55A 55A |  |
| 1820 | SM6CMU |       | 55A 57A |  | 2309 | GM40GM |  | 57A 59A |  |
| 1849 | GM3JIJ |       | 55A 56A |  | 2315 | LA6VDA |  | 53A 42A |  |
| 1852 | G18YDZ | WP67b | 55A 53A |  | 2316 | G4KUX  |  | 59A 59A |  |
| 1927 | SK6NP  | GS74j | 55A 55A |  | 2323 | GM4DMA |  | 55A 56B |  |

01.04.85

|      |        |       |         |  |      |        |       |         |  |
|------|--------|-------|---------|--|------|--------|-------|---------|--|
| 1645 | GM4IPK | YP05h | 59A 59A |  | 1703 | GM1YPZ | YP19g | 52A 55A |  |
|------|--------|-------|---------|--|------|--------|-------|---------|--|

04.04.85

|      |       |  |         |  |      |        |  |         |  |
|------|-------|--|---------|--|------|--------|--|---------|--|
| 1639 | LA9DL |  | 53A 55A |  | 1702 | SM0HJZ |  | 41A 52A |  |
| 1650 | LA3EU |  | 53A 54A |  | 1708 | LA2AB  |  | 55A 53A |  |

|                 |       |         |  |                 |       |             |
|-----------------|-------|---------|--|-----------------|-------|-------------|
| 1657 SMSKWV     |       | 53A 53A |  | <u>21.04.85</u> |       |             |
| <u>08.04.85</u> |       |         |  |                 |       |             |
| 2337 LABKV      |       | 54A 55A |  | 2349 OZ1IUUK    |       | 53A 51A     |
| 2345 SMOEPU     |       | 41A 31A |  | 2359 LA1BEA     |       | 53A 57A     |
| <u>09.04.85</u> |       |         |  |                 |       |             |
| 0014 GM4IPK     |       | 55A 55A |  |                 |       |             |
| <u>19.04.85</u> |       |         |  |                 |       |             |
| 1640 LJ2I       | ES53b | 42A 449 |  | 1742 GM4UPX     |       | 41A 55A     |
| 1644 LA6QBA     |       | 55A 55A |  | 1751 G4UID      |       | 42A 52A     |
| 1650 OZ1AZZ     |       | 54A 59A |  | 1804 GM4IPK     | YP05h | 59A 59A     |
| 1655 LA4IAA     |       | 54A 54A |  | 1805 GM8MJV     | YP05c | 55A 57A     |
| 1700 SM3AKW     |       | 53A 55A |  | 1851 G4KUX      |       | 42A 53A     |
| 1705 SM7EKP     |       | 42A 55A |  | 1858 GM4RZW     | YP    | 31A 41A     |
| 1708 OZ1IUUK    |       | 55A 55A |  | 2326 LA80J      |       | 54A 56A     |
| 1714 OZ6ZR      |       | 55A 55A |  | 2340 GM8MJV     |       | 57A 57A     |
| 1720 GI4OPH     |       | 57A 59A |  | 2343 G4KUX      |       | 59A 59A SSB |
| 1726 LA80W      |       | 54A 55A |  | 2344 GM4IPK     | YP05h | 59A 59A SSB |
| 1730 GM3ZXE     |       | 59A 59A |  | 2349 LA8SJ      |       | 59A 59A     |
| <u>20.04.85</u> |       |         |  |                 |       |             |
| 0004 LA6MA      |       | 42A 43A |  | 1716 SM6CMU     |       | 54A 56A     |
| 0039 GI4FFL     | W057b | 42A 54A |  | 1721 SM6CTQ     |       | 53A 55A     |
| 0047 GM4CXM     |       | 42A 52A |  | 1727 SM3GND     |       | 43a 57A     |
| 0051 GM4IPK     | YP    | 59A 59A |  | 1740 SM4FPF     |       | 42A 55A     |
| 0112 DK3LL      | FO    | 55A 55A |  | 1742 SM3GXM     |       | 54A 54A     |
| 0117 OH7MA      |       | 51A 53A |  | 1750 SM3AZV     |       | 41A 33A     |
| 0122 OH5LK      | KP    | 42A 52A |  | 1752 SL6AL      |       | 52A 53A     |
| 0133 G1AWP      |       | 55A 59A |  | 1800 OZ3GW      |       | 31A 53A     |
| 0143 GM4CFS     |       | 56A 59A |  | 1805 SM5BEI     |       | 42A 42A     |
| 1635 LA1K       |       | 51A 52A |  | 1811 SM4JEW     |       | 51A 52A     |
| 1638 GM4IAO     |       | 52A 58A |  | 1816 GM4JEJ     | YQ    | 51A 51A     |
| 1646 LA6QBA     |       | 41A 51A |  | 1823 SM5MIX     |       | 51A 51A     |
| 1650 LABWF      |       | 57A 56A |  | 1830 SM4BMC     |       | 52A 55A     |
| 1657 LABNCA     |       | 55A 57A |  | 1845 GM4IPK     | YP05h | 59A 59A     |
| 1659 LA8SJ      |       | 58A 59A |  | 1852 GM4SFW     |       | 55A 59A     |
| 1700 LA2AB      |       | 55A 57A |  | 1853 G6XYH      |       | 57A 59A     |
| 1704 LA3EDA     |       | 42A 55A |  | 1857 G1AWP      | ZP    | 51A 53A     |
| <u>21.04.85</u> |       |         |  |                 |       |             |
| 0151 G4KTR      |       | 42A 55A |  | 1817 G1AWP      | ZP42a | 54A 58A     |
| 0201 DK0TU      |       | 51A 51A |  | 1818 G3BRA      | YP30d | 54A 56A     |
| 1740 G3BRA      | YP30d | 51A 56A |  | 1820 GM4ZUK     |       | 52A 57A     |
| 1802 GM3JIJ     | WS    | 59A 59A |  | 1822 GM1FXJ     |       | 53A 55A     |
| 1804 GM8PNP     | ZU    | 58A 59A |  | 1826 GM4IPK     | YP05h | 59A 59A     |
| 1810 GM8MBP     |       | 55A 58A |  | 1851 GM4ILS     |       | 57A 55A     |
| 1812 GM8YPI     |       | 55A 56A |  | 1858 GM4UPX     |       | 42A 41A     |
| 1814 G1FFF      | YP30b | 57A 59A |  |                 |       |             |
| <u>27.04.85</u> |       |         |  |                 |       |             |
| 0150 LA1K       | FX    | 52A 55A |  | 1534 GM4JEJ     | YQ37e | 41A 55A     |
| 1508 OZ1JXY     |       | 52A 55A |  | 1537 SM5IDM     |       | 52A 53A     |
| 1511 OZ1CFD     | ER80d | 52A 53A |  | 1544 SM5EFP     |       | 41A 54A     |
| 1514 LABAE      |       | 53A 55A |  | 1550 LA3VUX     |       | 41A 52A     |
| 1528 GM4UPX     |       | 41A 55A |  | 1555 SK5EW      |       | 41A 43A     |
| <u>28.04.85</u> |       |         |  |                 |       |             |
| 0056 OZ1GMP     |       | 53A 59A |  | 0251 UR1RXM     |       | 54A 59A     |
| 0100 LABSDA     |       | 54A 58A |  | 0255 OH2TI      |       | 52A 57A     |
| 0104 LA4B       |       | 54A 56A |  | 0340 OH40B      |       | 51A 54A     |
| 0110 LA9JK      |       | 53A 55A |  | 0358 LABWF      |       | 52A 57A     |

tk's fer info, Jon.

OZ1CFD (ER80d) wkd:

02.03.85

SM4KFJ IS 54A 54A 40

01.04.85

OH2BZI 55A 55A 40

G4AWP ZP42d 57A 59A 40

GBECI AN 56A 57A 40



09.04.85  
 GM2PNL 53A 35A 35 OH1AYQ 52A 53A 20  
 SM5DFY 53A 59A 25 LA6LCA FT63g 59A 59A 20

21.04.85  
 GM8PNP 59A 59A 45 GM3XQQ 59A 58A 30  
 LABOW 57A 59A 30 LA9BM 57A 59A 45

27.04.85  
 OY9JD WV07h 53A 52A 10

tk's fer info.

PE1GBT (DN) wkd:

21.04.85  
 1455 SM6CMU FR 59A 59A 15 1610 SM7LXV GP 53A 53A 15  
 1505 GM4IPK YP 55A 55A 10 1615 SM5GLC YP 55A 55A 15  
 1509 LA1YCA DS 55A 53A 15 1625 GI4OMK XO 55A 55A 7  
 1514 LA6DJ CS 55A 54A 15 1630 LA5DW CT 55A 54A 15  
 1522 SM5NZY HS 59A 51A 15 1742 OZ1DSK EQ 55A 55A 15

tk's fer info.

PE1JSE (CL34f) wkd:

21.04.85  
 1539 SM6CMU FR 57A 59A 45 1639 G4KUX ZO 57A 59A 40  
 1553 GM6LNM XP 59A 59A 35 1651 GM4QGM YP 53A 58A 35  
 1615 OZ1EYE FQ 57A 58A 40 1744 GM4IPK YP 54A 55A 35

30.04.85  
 1303 OZ1GMP FQ 57A 55A 40 1313 OZ1IUK GQ 55A 55A 40  
 1308 SM6CMU FR 56A 57A 40 1321 OZ1FGP EQ 55A 57A 40

tk's fer info, Jac.

SM7LXV (GP) wkd:

09.04.85: 1633 GM4YPZ YQ 55A 55A  
 21.04.85  
 1436 LA6MA FT 53A 55A 1537 LA5LBA FT 55A 55A  
 1452 SM3AKW JW 54A 32A 1603 LA5DW CT37c 52A 51A  
 1504 LABWF FT 57A 56A 1645 G4DCV AL 54A 51A  
 1533 PE1GBT DN 53A 54A

tk's fer info, Christer.

SP2AOZ (JO) wkd

20.04.85  
 1748 RQ2GAG 55A 55A 2145 SM00NR 59A 59A  
 2128 LA6QBA 55A 55A 2306 LA3EDA 57A 57A  
 2132 LA8SJ 56A 59A 2308 LABAE 59A 59A  
 2135 SM4HFI 57A 55A 2310 SM3LRH 59A 59A  
 2138 OH3TE 55A 57A 2315 SM0NCL 55A 58A  
 2139 SM4MBC 57A 59A 2320 GM3XQQ 55A 55A  
 2142 SM5CPD 59A 59A 2323 OH6SF 44A 55A

21.04.85  
 0031 GM4IPK 57A 59A 1506 OH2BCI 55A 55A  
 0035 GM4QGM YP05h 57A 54A 1521 SM4COK 57A 56A  
 0036 EI4CL HRD 1529 UQ2GMD 55A 55A  
 0047 GM4JEJ YQ27e 55A 52A 1531 OZ9QV 55A 53A  
 0613 SM3JGG 57A 56A 1533 GM4CXM 55A 55A  
 1501 SM0CKM 44A 55A 1629 GM4IPK 57A 54A  
 1503 OH1DP 55A 57A 1631 DJ9YE 33A ??  
 1505 OH2BGD 55A 57A

tk's fer info.

SP5KVV (KN78C) wkd: 05.03.85

1748 SK4AO 59A 55A 1846 RQ2GAG 59A 57A  
 01.04.85: 1518 SM5KWU 55A 42A

Hrd mni stns from SM, OH and UR. tks fer info, Wojtek.

UA4NM (YS) wkd:

23.01.85

|          |        |        |       |     |     |      |        |        |     |     |     |
|----------|--------|--------|-------|-----|-----|------|--------|--------|-----|-----|-----|
| 1538     | UA9FAD |        | 58A   | 58A | 15  | 1547 | UA9FY  | L089JI | 58A | 58A | 15  |
| 28.01.85 |        |        |       |     |     |      |        |        |     |     |     |
| 1347     | UA9GL  |        | 59A   | 59A | 20  | 1505 | UA3PDG |        | 58A | 58A | 310 |
| 1349     | UV9WC  |        | 59A   | 59A | 25  | 1508 | RA3AGS |        | 59A | 59A | 315 |
| 1351     | UA9FY  | L089JI | 59A   | 59A | 20  | 1512 | OH2BGD |        | 57A | 55A | 315 |
| 1358     | RC2WBH |        | 58A   | 56A | 310 | 1520 | OH5LK  |        | 58A | 58A | 320 |
| 1417     | UA9FB  |        | 59A   | 59A | 20  | 1524 | UQ2GMD |        | 57A | 54A | 310 |
| 1419     | UW9WF  |        | 59A   | 59A | 45  | 1543 | EO9ACS | M006HU | 59A | 59A | 35  |
| 1422     | UA9AET | M003JB | 59A   | 59A | 45  | 1545 | UV9FB  |        | 59A | 59A | 30  |
| 1432     | SM1MUT |        | 55A   | 55A | 305 | 1550 | UA9CS  |        | 58A | 58A | 35  |
| 1434     | UA3RFS |        | 59A   | 57A | 305 | 1554 | SM4GVF |        | 57A | 55A | 305 |
| 1445     | RA9CES |        | 59A   | 59A | 35  | 1605 | OH2TI  |        | 57A | 55A | 310 |
| 1447     | RA9WFW |        | 59A   | 59A | 40  | 1607 | UA3DQS |        | 59A | 59A | 310 |
| 1450     | UA9CJI |        | 59A   | 59A | 40  | 1612 | UA1QBE |        | 57A | 57A | 310 |
| 1451     | UA9CKI | M009AW | 59A   | 59  | 40  | 1620 | UA3PB  |        | 58A | 57A | 305 |
| 1453     | UZ9CXM | M006FT | 59A   | 59A | 30  | 1622 | RA1ASK |        | 57A | 57A | 345 |
| 1455     | UA9FAI |        | 59A   | 59A | 10  | 1626 | UA9XEA |        | 59A | 59A | 0   |
| 02.03.85 |        |        |       |     |     |      |        |        |     |     |     |
| 1430     | UA9FY  | L089JI | 58A   | 58A | 0   | 1508 | UA9FAD | L088DA | 58A | 56A | 350 |
| 1433     | UA9FEW |        | 59A   | 59A | 0   |      |        |        |     |     |     |
| 01.04.85 |        |        |       |     |     |      |        |        |     |     |     |
| 1527     | UW9FU  | L089TE | 59A   | 59A | 20  | 1540 | UA9FAD | L088DA | 59A | 59A | 10  |
| 1532     | UA9XEA | LP63VM | 59A   | 59A | 15  |      |        |        |     |     |     |
| 09.04.85 |        |        |       |     |     |      |        |        |     |     |     |
| 1334     | UA9XEA | LP63VM | 59A   | 59A | 15  | 1541 | RA1WF  |        | 57A | 57A | 320 |
| 1339     | UA9FAD | L088DA | 59A   | 59A | 15  | 1543 | RA1AMV |        | 59A | 59A | 340 |
| 1346     | UA9XQ  | LP63   | 59A   | 59A | 15  | 1546 | UZ3MWC |        | 59A | 59A | 330 |
| 1359     | UV9WC  | L074   | 59A   | 59A | 30  | 1550 | OH2TI  |        | 57A | 55A | 320 |
| 1412     | UA1ZCL |        | 56A   | 53A | 0   | 1553 | EM3W   |        | 55A | 57A | 320 |
| 1418     | UA9FY  | L089JI | 59A   | 59A | 10  | 1557 | OH5WR  |        | 58A | 59A | 340 |
| 1423     | UZ4PZZ |        | 59A   | 59A | 0   | 1602 | OH5FA  |        | 59A | 59A | 340 |
| 1428     | UA9CKI | M009AW | 59A   | 59A | 10  | 1607 | UA3PPH |        | 57A | 59A | 300 |
| 1529     | OH4QB  |        | 58A   | 58A | 340 | 1610 | UA1UW  |        | 57A | 57A | 310 |
| 1535     | RQ2GAG |        | 55A   | 55A | 315 | 1611 | UA3DQS |        | 57A | 57A | 310 |
| 21.04.85 |        |        |       |     |     |      |        |        |     |     |     |
| 1405     | UW9FU  | L089TE | 59A   | 59A | 20  | 1517 | UV9WC  | L074   | 59A | 59A | 40  |
| 1410     | UA9FAD | L088DA | 59A   | 59A | 20  | 1530 | OH5LK  |        | 57A | 55A | 330 |
| 1412     | UA9FY  | L089JI | 59A   | 59A | 20  | 1536 | UA3ACY |        | 59A | 59A | 315 |
| 1414     | UA9CKI | M009AW | 59A   | 59A | 25  | 1543 | UA3DHC |        | 59A | 59A | 320 |
| 1418     | UA9CKW | M006FR | 59A   | 59A | 30  | 1552 | UA9XQ  | LP63   | 59A | 59A | 20  |
| 1427     | UA3MAL | KD97RV | 58A   | 58A | 330 | 1556 | RA9CES |        | 59A | 59A | 35  |
| 1445     | UA9AET | M003JB | 57A   | 57A | 40  | 1604 | UA3MBJ |        | 59A | 59A | 30  |
| 1448     | UA9SL  | L071QT | 57A   | 57A | 45  | 1619 | RA3YCR |        | 57A | 57A | 300 |
| 1456     | RA9AKJ | M005QD | 57A</ |     |     |      |        |        |     |     |     |

tk's fer info, Vlad.

70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70cm-70

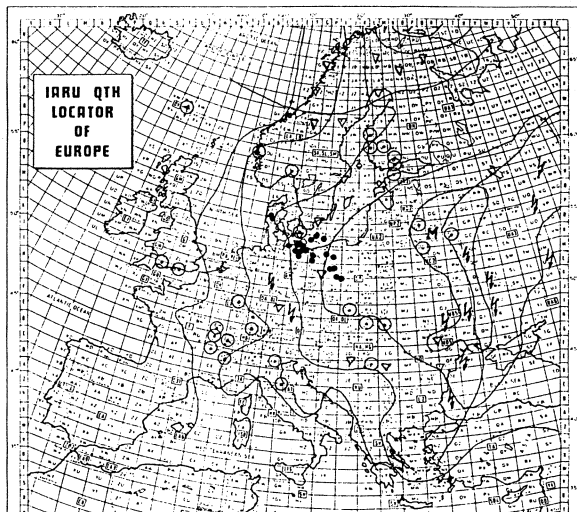
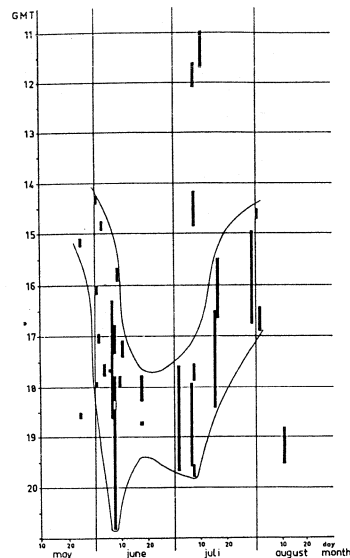
071CFO (ER80d) wkd on 09.04.85 LA6LCA FT63g 52A 52A 20  
tkr fer info.

# Es INFORMATION

## The Es event on 8th June 1984

by OH2CX

Weather map and Es-QSO's on 8.6.84 at 1800 GMT.  
Wetterkarte und Es-QSO's vom 8.6.84 um 1800 GMT.



E. Left: The duration of all registered radio amateur Es QSO's worked from Finland in the 144 MHz band during the years 1977-1984.

D. Links: Dauer aller in Erahrung gebrachter Amateurradio Es Verbindungen im 2m Band von Finland in den Jahren 1977-1984.

E. Right: In the chart there are shown some radio amateur stations and each black dot indicates the middle point of the distance between them. This point shows the location of the Es cloud. The cloud seems to be oblong shaped and the most of the QSO's were worked perpendicular to the cloud.

D. Rechts: In der Karte sind einige AR Standorte eingezeichnet; die schwarzen Punkte stellen den jeweiligen Mittelpunkt zwischen zwei Stationen dar, welche miteinander Verbindung hatten. Diesen Punkt kennzeichnet die reflektierende Es Wolke. Es hat den Anschein als ob die Es Wolken rechtwinklig formiert sind und die Verbindungen senkrecht zu den Es Wolken stattgefunden haben.

The Summary Es Report Saison 1985 will be published in DUBUS 4/85. Please send your report in time. Date of deadline is the 1st October 1985 for Es reports. Later sent reports can not be considered. TNX

Der Es Gesamtbbericht von 1985 erscheint in der DUBUS-Ausgabe 4/85. Bitte senden Sie Ihren Bericht bis spätestens 1. Okt. 1985. Später eintreffende Berichte können leider nicht mehr berücksichtigt werden. TNX.



SM2GGF "O"/"O"; 31.3.85:YU3WV "O"/"O" hrd IK2DFA,SM2GGF,DL8DAT; wkd F9HS"O"/"O"  
 Q25VHF "O"/"O" hrd UA1ZCL,KD8SI,YU3WV; wkd:SM2ILF "O"/"O" hrd SM5DGX,DK9IP;  
 27.4.85: WA1JXN/7 "O"/"O" hrd HB9SV,DL8DAT,F6BSJ,SM7BAE; 28.4.85: HG1YA "O"/"O"  
 OZ1EME "O"/"O" hrd SM2GGF and QRM by DG4IN (C-11s in the Cw-range?)

All QSOs random. Rig same as usual: TX 1 KW; Ant: 4x16 E1 Tonna; Rx: FT 726,  
 Preamp CFY14 but the transistor dosnt work quiet well. On 31.3.85 I worked with  
 the 3SK97-Preamp, but signals were difficult to copy.

IWOBFZ and Team from Roma spent some time for listening. So we could copy in the  
 ===== REF-Contest on 27/28 April 85: SM2GGF "O"; DL8DAT "O"; YU3WV "O";WA1JXN/  
 7 "O"; SM7BAE "O"; UA1ZCL "O" and I6WJB "O". Our conditions: Only 1 - 20el Yagi  
 with very long boom (9.30m). GaAs-Fet 3SK97 at the feedpoint.(0.9dB nf + 20dB  
 gain). RX: FT 225 RD with BF 981 or/and Converter STE + TS 930 ,150Hz Bw by an  
 audiofilter from Daiwa. We hope to get up quickly a Tower with 2 or 4 - 20el  
 Yagis and start with EME work very soon. Tnx DR bruno.

F6EYM/p,Guy reports: Here are some news about my first steps in EME during the  
 ===== weekend (27/28.4.85) in the french Contest. Station was 4 times 9 el  
 Yagis, a single 4 CX 250b at 400 watts out, 10m of Coax, GaAs-Fet 3 sk 124 at  
 the feedpoint. I am qrv from a portable QTH. with that rig I got 8dB of sun-  
 noise. Unfortunately no QSO ,but some "QRZ ?" after my call! So on Saturday 27.  
 I heard: G3POI calling KH6DI; UA1ZCL; SM2GGF rec."QRZ?"; F6BSJ rec "QRZ?";  
 YU3WV;DL8DAT rec"QRZ?";WA2GSX; WA1JXN/7; SM7BAE; KB8RQ; SM5MIX; G3POI; 28.4.85:  
 hrd SM2GGF; F6BSJ and DL8DAT with "QRZ? F6E?"; When I was calling to DL8DAT  
 some neighbours got strong TVI so I must stop my transmission. I think the QSO  
 must be possible with a little bit of chance. Strongest stations: G3POI (559)  
 DL8DAT And SM2GGF at moonrise. (some remarks for you Guy- spent my holidays  
 every year in French ;1983,84,85-in a small village 27km southeast of Cherbourg  
 called Surtainville. I found your qth is not so far away- so hope to see you  
 next Year . df7vx)

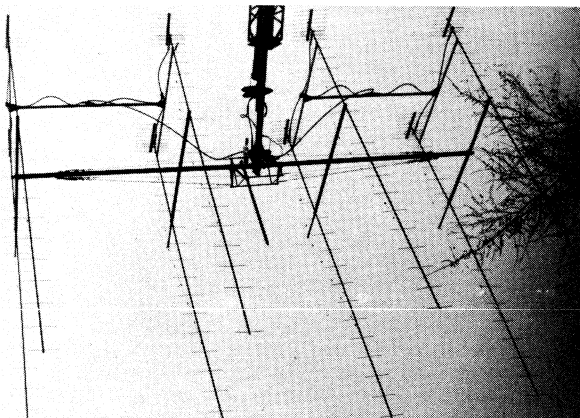
W6DB-EME-Dxpedition to Nevada. On May 18,N6AMG,K6QXY and WA6MGZ started assembl  
 ===== ing the EME station at the home of W6DB, now living in Gardnerville  
 Nevada, 45 miles south of Reno. After 10 straight non-stop hours of assembling  
 4 out-of-the-box KLM 16LBXs, the tower, H-frame and Az and El rotator system as  
 well as setting up the operating position complete with two receivers, exciter,  
 amplifier and relay sequencing system, the moment of truth arrived. VSWR of the  
 Ant. looked good. Sunnoise peaking up to 1.5 S-units at the TS 830 behind of  
 60 feet transmitting half inch hard line. In the morning of the 24.,WA6MGZ left  
 home for the trip back to W6DB. The antennas were re-aligned, however the rotat  
 ors were hopeless out of calibration,fortunately,even though the moon was  
 pretty new,the air is clear in Nevada and optically pointing was deemed practi-  
 cal even in daylight at least until further help arrived. Now,upon moonrise  
 echos were listened for,with no results,also there appeared ot be little outside  
 noise.However this condition did appear totally abnormal.It was not until some-  
 time after the first sked with UA9FAD (apologies to him) that the tx/rx switch  
 on the TS-700 was discovered left in the transmit position- thus preventing the  
 antenna relays from going back ot the rx position. After correct the error,good  
 echos were heard.But our echos were weak or disappeared during mid day.So on  
 Saturday morning the preamp wre mounted on top of the tower in hopes improving  
 the receive signals. All went well until the high voltage power supply was turn  
 ed on. After much circuit breaker re-setting, it was determined that the high  
 voltage capacitor was shorted. Condx improved over the previous day with better  
 echos and more Europeans being heard and worked. Also K6PVS finally arrived  
 after an very long drive from southern Cal. So soon took over the operating  
 position and this allowed WA6MGZ to return home. Sunday morning (26.)we now  
 listening on two receivers and the additional help in optically sighing the  
 array,some of the weaker signals were able to indentified and worked.  
 The expedition has to be considered as more than 50 stations were worked from  
 this rather state. For at least 3 stations this was their 50th state and 2m-WAS  
 Several lessons were learned and future improvements noted. The rig: 4 x KLM 16  
 LBX spaced 12 feet by 13.5 feet, a TS 700 with a Lunar intermediate amp and a  
 home brew 8877 power amp of N6AMG design. On receive, a MGF-1200 preamp follow-  
 ed by an ARR converter driving both a TS-830 and a FT-301s as receivers.  
 And here the list we worked: KB8RQ, KD8SI, KD2PH, OK1MS, SM2GGF, K2OS, WBODRL,  
 WA0TKJ, K9MRI, OK2TU, VE1UT, WD4DGF, WA1JXN, WA9OZN, N8BJN, SM4GVF, KH6HI,YU3WV  
 DL8DAT, KOADD, W5RCI, VE3ALG, N4GJV, WA2GSX, W7HAH, WD5AGO, KB7WW, WA6MGZ,  
 UA1ZCL, F6BSJ, PE1AGJ, LA1TN, LA9FY, GW4CQT, UA9FAD, PA2UST, SM7BAE, F6CJG,  
 OZ1EME, DK3FW, SM5CPD, DF7DJ, K1GUM, W7FU, WBOSWD, KC4EG, WBOTEM, SM5CNG,KB7Q  
 SM5DGX, WA2PNW; time: 24.- 27. of May 1985

So at least the best Info we received: OY9JD wkd: 28.4.1985: SM2GGF "0"/"0"; and SM7BAE "0"/"0" on random!! He said ===== that in the sked with SM2ILF the Power-Amp. go qrt. Many stations heard - called them - but very often only QRZ? maby they think it was a joke !! also QSO ? with YU3WV but could not hear the any final roger. Call to WA1JXN/7 for more than 2 hours, but only QRZ? This is the first time for me to be grv on EME. My rig: FT 726R , PA 2 x 4CX 250b abt 700 watts; Ant. 2 x 16 el F9FT fixed azimuth with 7 degrees. GaAs-Fet preampi; Will put up very soon 4 x 15 el CUE DEE Yagis. Tnx for ufb info!!

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 432 432 432 432 432 432 432 432 432 432 432 432 432 432 432 432 432 432 432 432  
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DF3RU, Karl reports: wkd on 30.3.85: OZ7UHF "0"/"0"; G3SEK "0"/"0"; DJ6MB 449/ ===== 449; VK5MC "0"/"0"; JA0JCJ 559/"M"; JA6CZD "0"/449; LX1DB 449/"0"; G3LTF "0"/439; K2UYH 449/339; OK1KIR "0"/"M"; F1FHI "0"/"0"; K1FO "M"/"0"; G3LQR "0"/"0"; N4GJV "0"/"0"; DL6WU "0"/"0"; F9FT 559/"0"; 31.3.85: DL9KR 559/549; ZL3AAD "0"/"0"; WA1RWU "0"/"0"; KU4F "0"/"0"; F1FEN "0"/"0"; HB9SV 559/549; W1ZX "0"/"M"; K4QIF "0"/"0"; 26.4.85: DK1UV "M"/"M"; 27.4.85: VK5MC "0"/"0"; JA6CZD "0"/"0"; YU1AW 569/449; OE9XXI "0"/"0"; 28.4.85: VK3UM 449/449; G3LQR "0"/"0";

LX1DB "0"/"0"; DL9EBL "0"/429; SM3AKW "0"/"0"; 24.5.85: OK1KIR "0"/"0"; N9AB 559/449; K4QIF "0"/439; DL9KR 559/559; JA4BLC 449/449; JA6CZD 549/449; 26.5.85: JA4BLC 449/439; JA4AEP 449/449; JA4BLC 55/33(SSB); JA0JCJ 549/449; N4GJV 449/449; W5HUR "0"/549; KU4F 559/"0"; W7HAH "0"/"0" RB5GU wkd: 1.3.85 K5JL 559/449; ===== 2.3.85: K2UYH "0"/"0"; W1ZX "0"/"0"; I5MSH "0"/"0"; WB5LUA "0" 7.3.85: G3LQR 339/"0"; F1FHI "0"/"0" 30.3.85: JA0JCJ "0"/"0"; K1FO "0"/"0" OK1KIR "0"/"0"; N4GJV "0"/"0"; 27.4.85: LX1DB "0"/"0"; YU1AW 559/449 K2UYH 559/339; RB5GD wkd: 8.3.85: G3LQR "0"/"0"; ===== WA1RWU "0"/"M"; K2UYH 559/339 RB5GBX wkd: 31.4.85 DL9KR 559/449 =====



The UKRAINE Antennasystem

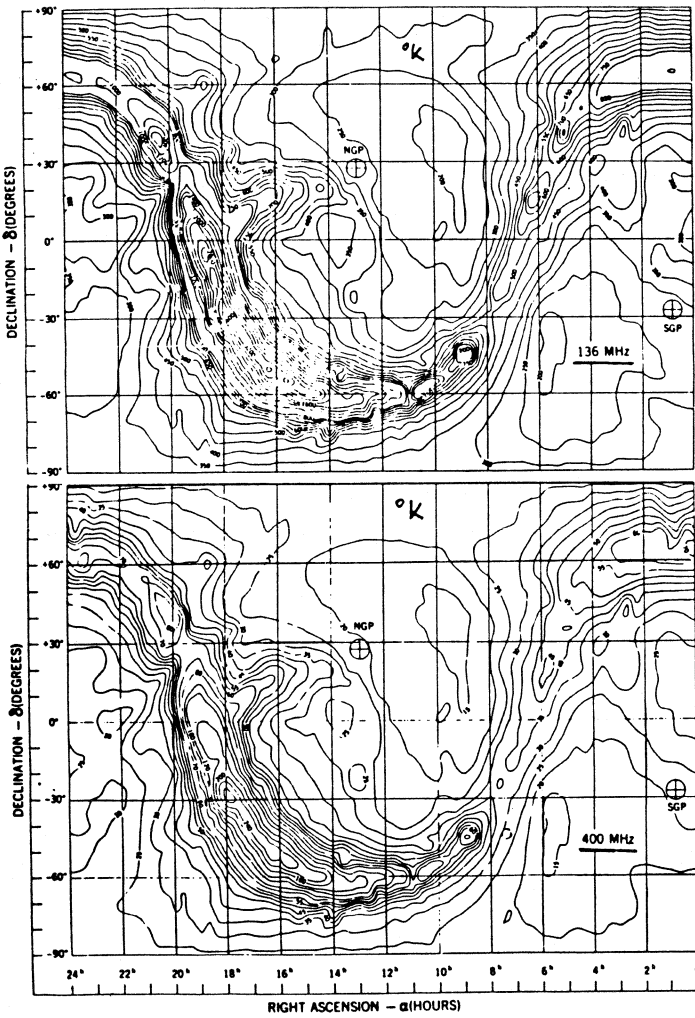
UB5GBN wkd: 7.3.85 F1FHI "0"/"0"; 8.3.85 G3LQR "0"/"0"; F1FHI 339/339; 30.3.85 DL9KR ===== 559/449; 31.3.85 JA6CZD 449/449; 27.4.85 LX1DB "0"/"0"; G3LTF "0"/"0"; 28.4. JA0JCJ "0"/"0"; UY5HF Wkd: 1.3.85 K5JL 559/439; 2.3.85 WA1RWU "M"/"0"; K2UYH "0"/"0"; WB5LUA "0"/ ===== "0"; OE9XXI "0"/"0"; 7.3.85 F1FHI "0"/"0"; 8.3.85 G3LQR "0"/"0"; 30.3.85 JA0JCJ "0"/"0"; W1JR "0"/"0"; 31.3.85 ZL3AAD "0"/"0"; JA6CZD 559/449; WA1RWU "0"/"0"; K1FO "0"/"0"; OK1KIR "0"/"0"; DL9KR 559/449; 27.4.85 LX1DB "0"/"0"; SO1MN Karl told us: I am ready to try EME after 1000 difficulties. Sometimes I ===== am blocked by high manmade noise and low net voltage so I cannot key the Power-Amp. Both weekends of the REF-Contest it was raining cats and dogs here. Also low net voltage. K2UYH was the strongest station in my rx at the first part In the second part F1FHI, WA1RWU and DJ6MB the dominating stations. DL9KR was a little bit weak. Rig: 16 x 12el and 3 cx 800 power amp. LZ2KSQ On 28.4.85 in 21.55 gmt the Radio-Club station LZ2KSQ made his FIRST EME ===== QSO with DL9KR. Signals on both sides solid "0"/"0"; Now our hardware: preamp 2T 3115A2 - NF=1.8dB; Transceiver modif. TS 780 with AF Filter ; Power-Amp 2 times 4 cx 250; Ant: 5 m Dish ; UA6LGH Now also QRV via the Moon. So we worked on 31.3.85 DL9KR "0"/"0" !! ===== Ant is 16 times 22el yagis.

73's Hellmuth, DF7VX

NEWS + SKEDS + COMMENTS + SUPPLEMENTS

About Electromagnetic Wave Noise  
by WB8IFM

Noise is the Nemesis of all communications. In Electromagnetics at low frequencies the dominant noise sources are thunderstorms around the globe generating "atmospheric noise". At around 20 MHz this noise because of propagation drops in strength and noise from space generated by stars and other sources in ways not completely understood takes over. This noise then subsides at several hundred MHz and is finally replaced by thermal noise generated in the receiver itself and from the ground in the field of view of the antenna. If the antenna is looking into empty space, the frequency range between 1 and 10 GHz exhibits an extremely low background noise (equivalent to



about 3 degrees K thermal) and represents our ground based window to the outer world. At these frequencies and for space application then it is more appropriate to replace the receiver noise figure which is referenced to a thermal background of 300 degrees K with the receiver noise temperature, which then can be directly compared with space radio temperatures. The two maps (courtesy NASA) illustrate the improvement possible in space communication (transmitting from space to earth) by using higher frequencies.

Über elektromagnetisches  
Wellenrauschen  
von WB8IFM

Lärm ist die Nemesis jeglicher Kommunikation. In der Elektromagnetik sind Gewitter rund um den Globus die Rauschquelle, die "atmosphärisches Rauschen" bei niedrigen Frequenzen verursachen. Bei ca. 20 MHz wird dieses Rauschen durch Ausbreitung schwächer und das Rauschen aus dem Weltall nimmt den Platz ein, welches durch Sterne und andere Quellen auf noch nicht völlig geklärte Weise verursacht wird. Dieses Rauschen verringert sich dann bei

einigen hundert MHz und endet schließlich im thermischen Rauschen, das im Empfänger selbst und vom Erdrauschen erzeugt wird. Wird die Antenne in den

Weltraum gerichtet, weist der Frequenzbereich zwischen 1 und 10 GHz ein äußerst niedriges Grundrauschen auf, ein Kriterium für die Systemempfindlichkeit. Bei diesen Frequenzen und für Weltraumanwendung ist es besser an Stelle der Empfänger-Rauschzahl, die sich auf ein thermisches Grundrauschen von 300 Grad K bezieht, die Empfänger-Rauschtemperatur zu verwenden, die dann direkt mit Weltraumtemperaturen verglichen werden kann. Die beiden Karten (NASA) zeigen die mögliche Verbesserung in der Weltraumkommunikation (vom Weltraum zur Erde sendend) durch Benutzung höherer Frequenzen.

Competing Natural Noise Sources  
by WB8IFM

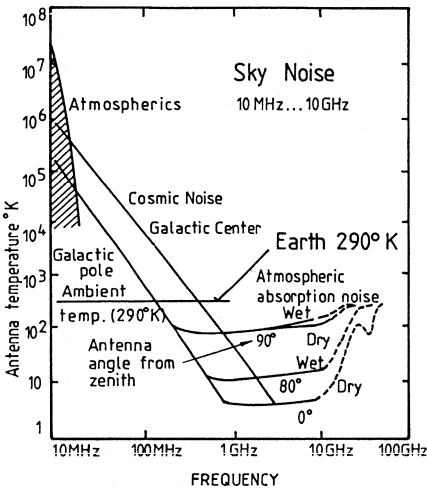


Fig. from John Kraus, WBJK, "Radio Astronomy" 1966. Antenna sky noise temperature as a function of frequency and antenna angle. A beam angle (HPBW) of less than a few degrees and 100 percent beam efficiency are assumed. Because of this noise characteristic the highest transmit power is required at low frequencies (160, 75 and 40m), less power at 20, 15 and 10m and much less at VHF/UHF. Noise contributions of receivers (set-noise) are specified in different ways: at low frequencies in sensitivity (μV) and at VHF/UHF as noise figure (dB) and at Microwaves in noise temperature (°K).

Gleichzeitig auftretende natürliche  
Rauschquellen  
von WB8IFM

Abbildung von John Kraus, WBJK, "Radio Astronomy" 1966. Antennenhimmelsrauschen-temperatur als Funktion von Frequenz und Antennenwinkel. Ein Öffnungswinkel von einigen

Conversion Factors      Umsetzungsfaktoren

| to obtain<br>um zu<br>erhalten    | Sensitivity<br>Empfindlichkeit<br>μV / 10 dB S/N<br>(BW = 2,5 kHz) | Noisefigure<br>Rauschzahl<br>NF (dB)    | Noisetemperature<br>Rauschtemperatur<br>T (°K) |
|-----------------------------------|--------------------------------------------------------------------|-----------------------------------------|------------------------------------------------|
| multiply by<br>multiplizieren mit |                                                                    |                                         |                                                |
| μV                                | 1                                                                  | 20 lg $\frac{\mu V}{0,07}$              | 290 $\left(\frac{\mu V}{0,07}\right)^2$        |
| NF                                | $0,07 \times 10^{\frac{NF}{20}}$                                   | 1                                       | 290 $\left(10^{\frac{NF}{10}} - 1\right)$      |
| T                                 | $0,07 \sqrt{\frac{T}{290}}$                                        | $10 \lg \left(1 + \frac{T}{290}\right)$ | 1                                              |

wenigen Grad und 100% Strahlungswirkungsgrad wurden angenommen. Aufgrund dieser Rauschkurve ist bei niedrigen Frequenzen (160, 75 und 40m) höchste Sendeleistung erforderlich, weniger Leistung bei 20, 15 und 10m und geringe Leistung ausreichend bei VHF/UHF. Das Eigenrauschen von Empfängern wird auf verschiedene Art angegeben: bei niedriger Frequenz in Empfindlichkeit (μV), bei VHF/UHF als Rauschzahl (dB) und bei Mikrowellen als Rauschtemperatur (°K).

The Beacon IX1A

Frequency 144.845 MHz, Power E.R.P. 20W, Antenna 11ele Yagi, Direction 240 degrees, Elevation 22 degrees, Locator DF27g (JN350Q), Altitude 750m asl, Country Saint Pierre (8km west from Aosta), Message 10 sec. A1A + 10 sec. of



carrier, Responsible IW1AHH.

#### Introduction

It is installed for the specific study of different kinds of propagation. Its usefulness is exalted by the number of hearing-reports received.

#### The aim of the installation

To study the ionizations with a strong concentration in the high troposphere, stratosphere and chemosphere that are used to manifest themselves on the Western Alps' vertical. Particularly for the study of a not yet well classified phenomenon.

#### High Troposphere

We often get into difficulties when we have to locate the true altitude of a propagation tropospheric phenomenon. The horizon seen by the antenna of the beacon at a distance of 17km is at 10 degrees of elevation and at 3500m asl. Knowing the orography of the place, we remark that this signal can't be emitted by one only diffraction or reflection; for that it has to do a second bound on the mountains with an altitude exceeding the 4000m. The attenuation in comparison with the original signal gets to the -50dB or even more; with this the attenuation can diminish when the signal directly hits a ionized mass or the horizon can transform itself in a true transmitter at about -30dB from the fundamental. We also can do interesting studies about the variations of the amplitude and of phase of the signal diffused on the mountains.

#### FAI propagation

From experiences of different OM, this phenomenon manifests itself even on the Alp's vertical. Considering the short distance that the radio-beacon's signal must cover, it will be interesting to find out if it succeeds in propagating by angular diffusion in the ionosphere. It is our intention to increase the power before, especially to succeed in this aim.

#### Sporadic E

It is known that the openings between the South of Italy and the European North-West and between the Iberian peninsula and Eastern Europe are very frequent. In these cases the cloud is nearly always on the Alp's vertical. From the hearing-experience at the foot of the "Mont Blanc" the signal can travel from the both directions for a short time. It will be also interesting to remark the intensity of tropospheric diffusion during an event like that.

#### Meteor Scatter

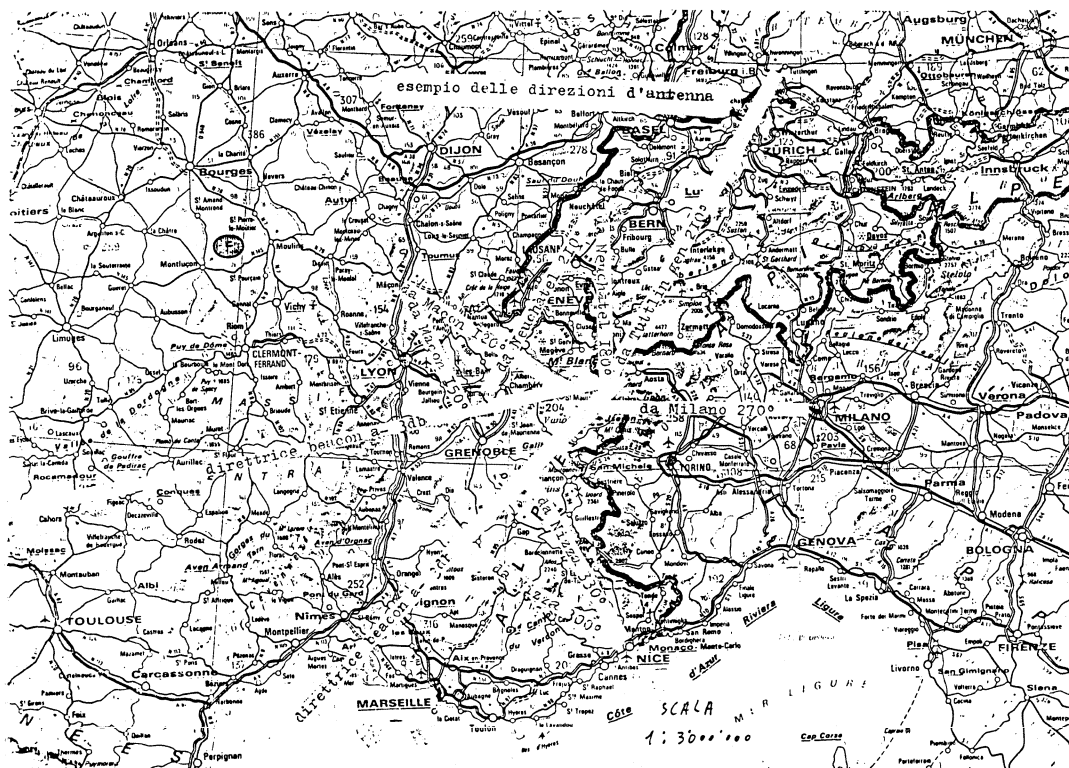
Even in this case the experiences to do can be various. For instance, the verification of the given possibilities employing the reflection instead of the refraction on the ionised trace. For those who will have the possibility to receive also the direct signal, we hope it will be possible to observe the different distortions that manifest themselves with this kind of radio-propagation.

#### A not yet well classified phenomenon

The openings are short, from some seconds to some minutes. The greatest activity and intensity period goes from April until September; the observations in the months of December and January will be very interesting. From the observations done in the past years, the correlations with the meteorological phenomena are similar to those of the FAI and Sporadic E. The biggest anomaly that is shown is a strong doppler phenomenon to the signal. From a short examination on the beacon's signal, we deduce an angular diffusion from 30 to 30 degrees of direction. The most facilitated directions of hearing on the directrix are seemed to be of 180 - 210 - 240 degrees or 360 - 30 - 60 degrees. A strong link between two points of adjacent direction taken often place, with the stable signal in continuity and the lightly changeable frequency.

#### Conclusion

We remark that on the directrix, the beacon's function is normal, that is through refraction of the signal from a whatever kind of propagation above enumerated. Interesting data to mention in the hearing report: intensity, hour, duration, direction and antenna's elevation, kind of existing propagation at the moment of the hearing, and so on. We warmly thank in advance all those who will attempt the radio-beacon reception; you can send the data to the responsible. 73 from Lorenzo and the group of the beacon IW1A. IW1AHH, Lorenzo Revel, Via della Fontana 5, 11013 Courmayeur (Aosta), Tel. 0165-842543, Italy.



### Die Bake IX1A

#### Technische Daten:

Frequenz 144.845 Mhz, Leistung E.R.P. 20W, Antenne 11ele Yagi, Richtung 240 Grad, Elevation 22 Grad, Locator DF27g (JN350Q) Saint Pierre (8km westl. von Aosta), Höhe 750m über NN, Tastung 10 sek. A1A + 10 sek. Träger, Verantwortlicher IWIAHH.

#### Einführung

Die Bake wurde installiert um überreichweiten zu beobachten. Ihre Nützlichkeit wird aus der Anzahl der eingegangenen Hörberichte ermittelt.

#### Ziel der Installation

Beobachtung der vor den westlichen Alpen sich vertikal aufbauenden Ionisationsschichten innerhalb der hohen Troposphäre, Stratosphäre und Chemosphäre und insbesondere der Beobachtung eines bis jetzt noch nicht völlig klassifiziertem Ausbreitungsphänomen.

#### Hohe Troposphäre

Es ist oft schwierig, die wahre Höhe troposphärischer Ausbreitungsbedingungen zu ermitteln. Der Horizont aus der Antennensicht der Bake bei einer Entfernung von 17km ist bei 10 Grad Elevation und 3500m über NN. Kennt man die gebirgige Struktur des Standortes bemerkt man, daß das Signal nicht nur einmal gebeugt oder reflektiert wurde, es muß auch an den Bergen, die bis zu 4000m hoch sind, ein zweites Mal reflektiert oder gebeugt werden. Die Dämpfung beträgt -50dB oder mehr verglichen mit dem Ausgangssignal. Die Dämpfung kann um etwa -30dB verringert werden, wenn das Signal direkt auf eine ionisierte Masse trifft oder der Horizont sich zum Transmitter wandelt. Auch sind interessante

Beobachtungen an Amplituden- und Phasenvariationen der Signale möglich, die an den Bergen gestreut werden.

# AI Ausbreitung

Die Erfahrung verschiedener OM zeigt, es dieses Phänomen selbst vertikal der westlichen Alpen gibt. Bedenkt man die kurze Entfernung, die das Bakensignal zurücklegt, ist es interessant zu erfahren, ob es sich auch durch winklige Diffusion ausbreitet. Auch dazu wollen wir die Leistung zuvor erhöhen.

# Idrografisch E

Es ist bekannt daß die Öffnungen zwischen Süditalien und dem europäischen Nordwesten und zwischen der Iberischen Halbinsel und Osteuropa sehr häufig sind. In diesen Fällen liegt die Wolke fast immer vertikal zu den Alpen. Die Hörerfahrung am Fuß des Mont Blanc zeigt, daß das Signal kurzfristig zwischen den beiden Richtungen wechseln kann. Interessant ist es auch, die Intensität troposphärischer Streuung während eines solchen Ereignisses festzustellen.

# Meteor Scatter

Selbst in diesem Fall können die gemachten Erfahrungen verschieden sein. Zum Beispiel, die Verifizierung der gegebenen Möglichkeiten unter Verwendung der Reflexion anstelle der Brechung an der ionisierten Spur. Wir hoffen, daß diejenigen, die das Signal auch direkt empfangen können, in der Lage sein werden, auch die verschiedenen Verzerrungen zu beobachten, die es bei dieser Ausbreitungsart gibt.

# Ein bisher noch nicht völlig klassifiziertes Phänomen

Die Öffnungen sind kurz, einige Sekunden bis einige Minuten lang. Am aktivsten und intensivsten von April bis September. Die Beobachtungen im Dezember und Januar werden sehr interessant sein. Die meteorologischen Erscheinungen sind ähnlich wie bei FAI und ES. Die größte Anomalität ist ein starker Dopplereffekt, den das Signal erfährt. Aus einer kurzen Untersuchung des Bakensignals leiteten wir eine winklige Diffusion von 30 bis 30 Grad der Richtung ab. Die üblichsten Hörrichtungen scheinen 180 - 210 - 240 Grad oder 360 - 30 - 60 Grad zu sein. Oft verbinden sich zwei Punkte benachbarter Richtung stark bei kontinuierlich stabilem Signal und leichter Frequenzverschiebung.

# Abschluß

Wir möchten bemerken, daß die Bake normal arbeitet. Etwaigen Signalveränderungen liegt eines der obengenannten Ausbreitungsphänomene zugrunde. Interessant wäre es folgendes im Hörerbericht zu erwähnen: Intensität, Stunde, Dauer, Richtung und Antennenelevation, welches Ausbreitungsphänomen, usw. Wir möchten im Vorraus all denen herzlich danken, die versuchen werden unsere Bake zu empfangen. Die Berichte können an den Verantwortlichen gesandt werden: IW1AHH, Lorenzo Revel, Via della Fontana 5, 11013 Courmayeur (Aost), Tel. 0165-842543, Italien.  
73 von Lorenzo und der Bakengruppe IX1A. tks fer info, Lorenzo.

# Testbild-Katalog EURPOA von Norbert Kaiser

Mit seinem zweiten Buch hat Norbert Kaiser ein Nachschlagewerk für den TV-DXer herausgebracht. Auf über 100 Seiten sind neben den Testbildern auch die Fernsehuhren und Nachrichtenbilder europäischer Fernsehstationen abgebildet, die dem TV-DXer eine Identifikation des empfangenen Fernsehbildes möglich machen.

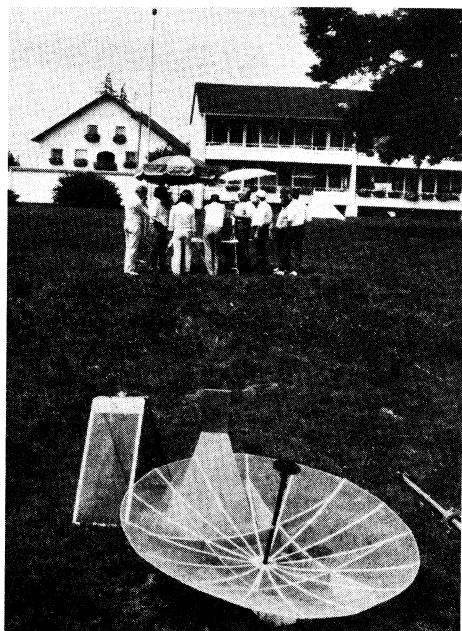
Erhältlich bei: Scheunemann Verlag, Köln, ISBN 3-922101-82-8, Preis: 19,80 DM.

# Catalogue of TV-Pictures EUROPE by Norbert Kaiser

With his second book, Norbert Kaiser has published a reference-book for the TV-DXer. On over 100 pages TV-images and test patterns of European TV-stations are collected giving the possibility of identification of the received TV-picture to the TV-DXer.

Available at: Scheunemann Verlag, Köln, ISBN 3-922101-82-8, price DM 19,80.

Bericht von der SHF-Tagung in Notzing  
von Ferdinand Schmehr, DC8EC



Am 13.7.85 fand in Notzing die jährliche von der UHF/SHF-Gruppe München ausgerichtete SHF-Tagung statt. Nachdem sie in diesem Jahr erstmals in DUBUS angekündigt worden war, war die Resonanz entsprechend. Es konnten viele aktive UHF/SHF-Amateure aus DL, OE und sogar F1EIT und F1FHR aus Paris begrüßt werden. Das diesjährige Motto lautete "Antennenmessungen", jedoch konnten auch an anderen Meßplätzen bemerkenswerte Rauschzahlen gemessen werden, z.B. 2320 MHz 0.3dB EME-Vorverstärker OE9PMJ (wird im nächsten DUBUS veröffentlicht), 10 GHz 2.8dB Vorverstärker DL8RAH, etc. um nur einige stellvertretend für viele gute Ergebnisse zu nennen (Rauschmeßplatz hp8970). Weitere Meßplätze ermöglichten Spektrumanalyse, Frequenz- und Leistungsmessung im Bereich 10 MHz - 26 GHz, wobei insbesondere der Übertragungsmeßplatz vielen Beteiligten die Optimierung der Antennenanpassung ermöglichte. Anschließend konnte der Gewinn auf der Antennenmeßstrecke überprüft werden. In der anschließenden Tabelle sind alle gemessenen Antennen aufgeführt.

Geräte: Sender: SLRD + Isolator, P 100mW, Sendeantenne GTE Sylvania AN10-B ca. 12m hoch, Empfänger USVB (+6dB Dämpfungsglied), Empfangsantenne GTE Sylvania AN10-B 1.5m hoch, Fehler +/- 0.2dB.

Report of the SHF-Convention in Notzing

On 13th July the annual SHF-convention organised by the Munich-SHF-Group took place. After announcing this event in DUBUS for the the first time more participants were noted. Quite a lot of active SHF amateurs from DL and OE and even F1EIT and F1FHR from Paris could be welcome. The main program was microwave antennas gain measurements. Also noise figure measurements were done. As example some results: OE9PMJ 2320 MHz preamp n.f.=0.3dB (will be published in one of the next DUBUS issues) or the 10 GHz preamp by DL8RAH with 2.8dB n.f. Using HP networkanalyzer many antennas could be matched to better SWR as well as spectral purity of transmitters could be measured, too. The table below shows the result of gain measurements of various antennas.

Measurement equipment: TX SLRD + isolator Pout 100mW, antenna GTE Sylvania AN10-B 12m high, RX USVB (6dB attenuator), antenna GTE Sylvania AN10-B 1.5m high

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23cm f = 1296,5 MHz Antennengewinn/antenna gain AN10-B 5.8dBi = 3.7dBd

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| Call   | Ant.-Typ           | Gain (dBd) | Call  | Ant.-Typ    | Gain (dBd) |
|--------|--------------------|------------|-------|-------------|------------|
| DL1VX  | 10er array         | 12.6       | DL2DD | Loop-Yagi   | 15.7       |
| DK2RV  | Horn Dualb.23+13cm | 10.0       | DJ1EE | Backfire    | 12.7       |
| DJOEW  | 15el 4 Lambda      | 11.7       | DG2MF | 6er array   | 9.8        |
| OE9UHI | 12er array         | 13.2       | DB4CE | 10er array  | 13.3       |
| DK2RV  | Mini-4el           | 5.2        | DKBCI | MPI-tube    | 5.3        |
| DK2RV  | AEL Horn           | 4.9        | DK2RV | Spiegel 1.3 | 19.2       |
| DJ9HO  | Doublequad         | 7.5        | DG2MF | Jay-Beam    | 10.7       |
| DB8MM  | 10er array         | 13.1       | DC1YX | 6er array   | 10.7       |

|       |               |      |       |            |      |
|-------|---------------|------|-------|------------|------|
| DL6LM | Loop-Yagi     | 14.2 | DB8MM | Tonna-Yagi | 15.2 |
| DB2VY | 8x Tonna-Yagi | 20.5 |       |            |      |

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13cm f = 2321 MHz Antennengewinn/antenna gain AN10-B 9.5dBi = 7.4dBd

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| Call  | Ant.-Typ           | Gain (dBd) | Call  | Ant.-Typ      | Gain (dBd) |
|-------|--------------------|------------|-------|---------------|------------|
| DL2DO | 7er array          | 9.3        | DL2DO | 7er array     | 12.7       |
| DL2DO | 7er (DJ8VY)        | 13.6       | DL2AS | 6el Yagi      | 8.0        |
| DL6LM | Parabolsegment     | 14.9       | DL9HO | Doublequad    | 9.0        |
| DK8CI | tube (brass)       | 5.5        | F1EIT | Double-Loop   | 8.1        |
| DK2RV | Doublequad         | 7.4        | DK8CI | Kaffedose     | 5.0        |
| DJ7GK | Spiegel 1.2m       | 21.9       | DB6NT | Broadbandhorn | 4.0        |
| DK2RV | Horn Dualb.23+13cm | 16.0       | DK2RV | Corner-Ref.   | 11.0       |
| DG2MF | 6er array          | 10.1       |       |               |            |

---

9cm f = 3456 MHz Antennengewinn/antenna gain AN10-B 12.4dBd

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| Call  | Ant.-Typ  | Gain (dBd) | Call  | Ant.-Typ  | Gain (dBd) |
|-------|-----------|------------|-------|-----------|------------|
| DC8EC | 19el Yagi | 15.7       | F1EIT | 14el Yagi | 14.7       |

---

3cm f = 10368 MHz Antennengewinn/antenna gain AN10-B 12.4dBd

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| Call  | Ant.-Typ       | Gain (dBd) | Call   | Ant.-Typ  | Gain (dBd) |
|-------|----------------|------------|--------|-----------|------------|
| DK2RV | Pillbox        | 8.5        | DL1MZ  | Horn 20cm | 18.5       |
| DK2RV | Horn 30cm      | 20.5       | DJ1CR  | AIL-Horn  | 12.5       |
| DK8CI | Kugelreflektor | 15.5       | DLBRAH | dish 30cm | 22.5       |

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#### AN ALLE VERWENDER DER FOLIE TEC 200

Als Verbesserungsvorschlag zu Übertragung des Leiterbahnenbildes auf die kupferkaschierte Platine schreibt DL2OM: Bringen Sie die Platine auf eine Temperatur von ca. 140 Grad C, indem Sie sie auf eine heiße Heiz-/Kochplatte oder auf ein umgedrehtes Bügeleisen legen. Auf die aufgeheizte Platine legen Sie nun die Folie TEC 200 mit dem darauf kopierten Leiterbahnenbild. Durch Abrollen einer Gummiwalze (wie sie in Fotofachgeschäften zum Aufquetschen von Fotografien erhältlich ist) wird das Leiterbahnenbild unter leichtem Andruck von der Folie auf die Platine übertragen. Die Resultate sind deutlich besser als die mit dem direkten Aufpressen des Bügeleisens auf die Folie. Selbst Feinstleiterbahnen werden nach der oben beschriebenen Vorgehensweise sauber und sicher übertragen. tks fer info, Roland.

#### **News & Comments**

##### A comment to the article by HB9CRQ in DUBUS 2/85

OZ1DQG writes: HB9CRQ's perception of the MS-procedure does not agree with the IARU-MS-procedure that says: Send report when you for sure have received the counterparts and your own callsign or part of these. THEREFORE: Do not stop transmitting the callsigns when you send roger report.

OZ1DQG schreibt: HB9CRQ's Auffassung der MS-Prozedur stimmt nicht mit den Regeln der IARU überein, welche besagen: Rapport dann senden, wenn man ganz sicher Rapport der Gegenstation und das eigene Rufzeichen empfangen hat. DAHER: Rufzeichen auch beim Rogerrapport senden. tks fer comment, Uffe.

HB9DBM (EH42f) (ex HB9RQZ) schreibt: Ich bin nun QRV in CW+SSB MS, Ich kann bis ca. 1000 LPM in CW gehen. Rig: 4x9ele, ca. 100W. Ich bin QRV auf dem VHF-Netz oder schriftlich Skeds an: M. Brun, Box 56, CH-6024 Hildisrieden, Tel. 41992996. HB9DBM (EH42f) is QRV now on CW+SSB MS, abt. 1000lpm, QRV on VHF-net or write for skeds (address s.a.). tks fer info, Mark.

I2AV, Bert, schreibt: Es wäre sehr interessant, wenn deutsche Stationen etwas mehr Aufmerksamkeit auf unsere Signale geben könnten, besonders auf 23cm. Die Aktivität ist natürlich nicht so eifrig wie in DL, aber besonders unsere

Gruppe gibt sich viel Mühe im Portabelbetrieb, um Erfolg zu haben. Wir sind in der Lage die deutsche Schweiz (HB9AMH, HB9SAX, HB9KK) mit guten Signalen zu arbeiten, aber trotz QSP von obigen OM's haben wir bis dato keinen Versuch mit DL machen können. Unser Contest-QTH ist auf dem Berg Cimone (2167m) in FE und die Station ist folgendermaßen ausgerüstet: Transverter made by I2SG mit GaAs FET p/out 10W, Antennen 4x23ele Tonna; 13cm (jedoch 2304 MHz) Transverter von I2SG mit 3W out und 60cm Parabolspiegel. Wir sind in jedem Contest QRV und bitten durch DUBUS um Skeds auf 23cm. In Kürze werden wir auch eine PA mit 2C39WA fertig bauen, um mehr Ausgangsleistung zu gewinnen. tks fer info, Bert.

## VHF/UHF and ABOVE

Information Exchange

Dedicated to 50 MHz and up Communications

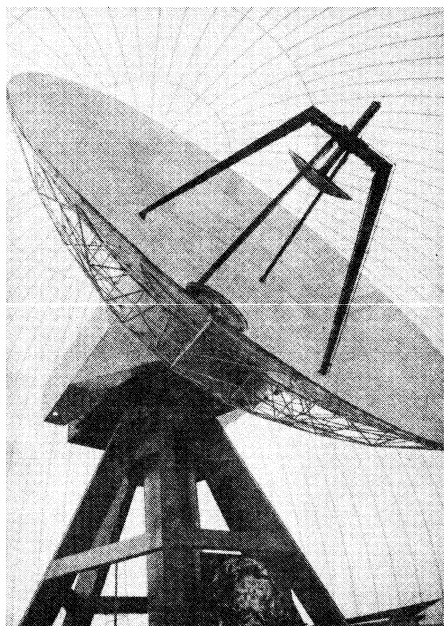
## VHF/UHF and ABOVE

KAOHPK, Rusty Landes ist der Herausgeber einer UKW Zeitschrift für Amateure in den Vereinigten Staaten. Eine umfassende Informationsmöglichkeit über was so in den USA an Aktivitäten im UKW-Bereich passiert. Die Zeitschrift beinhaltet u. a. einen sehr ausführlichen EME-Teil, von Allen Katz, K2UYH editiert. Eine HAM Börse, sowie Arbeitsberichte über Ausbreitungsarten wie Tropo, Aurora, ES und Meteor-Scatter. Weiterhin ist eine ständig aktualisierte Top-Liste über gearbeitete und bestätigte "Fields" vom 6m Band bis zum 13cm Band enthalten. Über technisch-betriebliche Dinge wird berichtet wie Antennenmeßergebnisse u.s.w.. WOSD, Ed Gray editiert die 220 MHz News. Die Zeitschrift erscheint monatlich und beinhaltet 24 Seiten. Sicherlich eine Bereicherung für jeden, der sich auch über UKW-Aktivitäten informieren möchte, welche hier in Europa nicht in Erfahrung gebracht werden können. Bei Interesse bitte den abgedruckten Abo Coupon ausfüllen und an KAOHPK zurücksenden.

VOLUME 2 No. 6

JUNE 1985

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KH6HI writes: I have been off 2m EME since end of May to design new antenna system for 50 MHz and 144 MHz. I have just completed the 50 MHz design - 38'2" boom with 8ele. I will be installing 4 of these on my AZ/EL mount in the next two weeks. I hope to be back on two meters by end of September with 4-6 Lambda Yagi. I may have vertical and horizontal polarization available that can be switched. I would be quite interested in running skeds on six meters with any station that has a decent antenna and about 1kW of power on moonrise or moonset. I need Europe for WAC on 6m plus I would like to make the first European 6m QSO. Has anyone interest? I'll be checking into the EME net as soon as my 20m antenna is back up so info can get to me over the net. On six I have a pre 4-400 and can get about 1200W out. I realize not very many countries in Europe have ability to operate on 50 MHz in Europe but I hope there will be some interest from those who can. tks fer info, Bert.

KH6HI beschreibt seine 6m Station und sucht Skedpartner für das 6m Band, weil die Erstverbindung KH-Europa noch aussteht.

OE3JPC writes: I intend to be QRV on 70cm, 23cm 13cm and 3cm (FM) from HH20f, 2056m asl, the highest mountain in OE3 during the contest on 5./6. October. I am very interested in skeds. Address see MS List.

OE3JPC schreibt: Ich plane während des Oktober-Contestes am 5./6.10. in HH20f, 2056m as, dem höchsten Berg in OE3, auf 70cm, 23cm, 13cm und 3cm (FM) QRV zu sein. Ich bin sehr an Skeds interessiert. Adresse siehe MS Liste.

Rig: 70cm 50W, 19ele Yagi. 23cm: 2W (6W?), 2x13ele Yagi. 13cm: 1W, 90cm dish. tks fer info, Johann.

PAORDY und PA2VSI planen eine MS-Expedition nach CN an einem Wochenende Ende September, Anfang Oktober. Skeds über das VHF-Netz auf 20m.

PAORDY und PA2VSI intend to make a MS-expedition to CN during a weekend in the end of September or beginning of October. Skeds via VHF-net. tks fer info.

PA3CPL (DN63c), former CLO2a, will be QRV on MS soon. Station: 100W, 2x11ele Yagi, BF9B1 abt. 1dB nf. New address: A. Wedemeijer, T. Mesdagstr. 21A, 9718 KJ Groningen, tel. 50132926. tks fer info.

PA3DZL (CL34f) (ex PE1JSE), QRV on 2m, 70, 23 and 13cm writes: I hope to be QRV on 6cm this year. QRV CW and SSB MS also Tropo, Aurora and Es.

PA3DZL wird voraussichtlich dieses Jahr auch auf 6cm QRV sein. tks fer info, Jac.

SP5KVV (KN78c), Radioclub, is now also QRV on 432MHz. Station: FT1012D + Transverter 28/144 MHz, 30W, 9ele Long Yagi; FT1012D + Transverter 28/432 MHz, 10W, 32ele Long Yagi. Address SP5KVV, P.O.Box 12, 07-400 Ostroleka, Poland.

Der Radioklub SP5KVV in KN78c ist jetzt auch auf 432 MHz QRV. (Station und Adresse s.o.) tks fer info, Wójtek.

Y07VS (LE60g) is looking for MS partners from / sucht MS-Partner aus: CT, ZB2, CN, C3, HV, 4U1ITU, TK, 9A, 3A, H80, LX, EI, GM, GI, GU, GC and OH0. He is also interested in following squares / er ist auch an folgenden Großfeldern interessiert: YC, YB, YY, YX, ZK, ZJ, ZD, ZB, ZA, ZX, AK, AI, AC, AA, BI, CN, CJ, CI, CH, DI, ER, EK, EH, EF, ED, EC, EB, EA, FQ, FJ, FI, FF, FC, FB, GH, GF, GE, GC, GB, GY, GX, HQ, HF, HO, HN, HL, HC, HB, HA, HZ, HY, HX, IO, IN, IM, IC, IB, IA, IZ, IY, JN, JM, JL, JK, LJ. QRV during all showers/QRV zu allen Schauern, 0700-1400 GMT and 2000-0400 GMT, Sundays/Sonntags 2100-0600 GMT (Y03 in summer, Y02 in winter). Station: TX CW (600LPM), SSB, PA 60W HF, 2xQB3/300, 2x4CX250, RX BF9B1, Ant. Swan. Skeds: VHF Net, or by letter/oder schriftlich. Address s. MS List. tks fer info, Dietmar.

#### Regarding the dxpedition to SAN MARINO, T7

E. Unfortunately we could not be QRV from San Marino after all. We are very sorry to have spread the news too early. We wrote a letter to T77C, Tony, in January. His reply was that it is very difficult to obtain a reciprocal license. After this I4YNO, Alex, decided to write a letter to the Home Office of San Marino to get a more official acknowledgment. They replied as follows:

"It is not possible for a foreign amateur to obtain a license, however it is allowed to use an all ready existing callsign". So it was arranged that we could borrow the callsign of the San Marino club station T70A. Then in the end of May I4YNO received a letter saying that they had withdrawn the license, without giving any reason at all. After this we tried desperately to convince them, but only bad luck. We are all very sad that we did not succeed. We will try again next year.

We wish thank to T77C, without his help we would never have obtained the first license. 73 from DJ0XJ, DL6LAU, HBOCZS, I4MKN, I4YNO, OZ1DOQ, OZ1FDJ and OZ1FTU.

D. Betreffend der San Marino Expedition: Leider können wir nicht aus San Marino grv sein und bedauern die zu frühzeitige Ankündigung unseres Vorhabens. Im Januar schrieben wir einen Brief an Tony, T77C. Er antwortete, daß es recht schwierig sei eine Lizenz zu erhalten. I4YNO, Alex erkundigte sich dann bei der Lizenzbehörde von San Marino mit dem Erfolg, daß man vorschlug ein bereits vorhandenes Rufzeichen zu verwenden. Alles schien gerettet und wir wollten das Club-Rufzeichen T70A verwenden. Ende Mai erhielt I4YNO eine Nachricht von der Lizenzbehörde, daß der Clubstation die Lizenz entzogen sei - ohne Angabe von irgendwelchen Gründen. Daraufhin versuchten wir noch einmal zu intervenieren, aber ohne Erfolg. Wir sind alle ziemlich enttäuscht, aber wir werden es nächstes Jahr noch einmal probieren. Wir bedanken uns für die Unterstützung von T77C, ohne seine Hilfe hätten wir die erste Lizenz niemals erhalten. 73 von DJ0XJ, DL6LAU, HBOCZS, I4MKN, I4YNO, OZ1DOQ, OZ1FDJ und OZ1FTU.

#### QTH Squares Century Club

Since issue 1/85 another 9 members have joined the 144 MHz QTH Squares Century Club, 5 of them through publicity in DUBUS. In addition, four earlier members have obtained stickers for more squares. The amendments to the list on page 77 in 1/85 are:

Seit der DUBUS Ausgabe 1/85 sind neun weitere Mitglieder auf 2m hinzugekommen. Außerdem haben vier Mitglieder Sticker für neue Felder erhalten. Folgend die Ergänzungen zur Liste auf Seite 77 1/85:

| Cert. no. | Call   | QTH   | Date issued | Squares conf. | Cert. no. | Call   | QTH   | Date issued | Squares conf. |
|-----------|--------|-------|-------------|---------------|-----------|--------|-------|-------------|---------------|
| 3         | G3IMV  | ZL07h | 79-04-14    | 350           | 48        | G3PBV  | YK32b | 85-03-16    | 154           |
| 22        | OE3CEW | II52f | 83-01-14    | 202           | 49        | PA3AKM | DM11j | 85-03-25    | 100           |
| 28        | G8TGM  | ZK17f | 83-03-05    | 150           | 50        | 9H1CG  | HV13b | 85-04-10    | 150           |
| 37        | OE1APS | II63g | 84-05-10    | 132           | 51        | YU2EZA | I654f | 85-04-20    | 210           |
| 45        | G6HCV  | YM30f | 85-02-13    | 100           | 52        | DL8NBN | FI16j | 85-04-22    | 101           |
| 46        | OE6IWG | HH47j | 85-02-21    | 100           | 53        | GJ4ICD | YJ70a | 85-05-08    | 215           |
| 47        | G6HKM  | AL31g | 85-03-14    | 100           |           |        |       |             |               |

You will note that I have reverted to the E-QTHL. There are two reasons for this: First, all the records are kept in E-QTHL squares and second, very few VHF/UHF operators like the Maidenhead system anyway. There are now QTHCC members in 14 WAE countries and G6HKM, Ela Martyr, is the first YL member. The QTHCC is for 144 MHz or 432 MHz operation, the starting date being 01-01-1975. For a copy of the rules and an application form, please send an IRC to: QTHCC, Short Wave Magazine, 40 Eskdale Gardens, Purley, Surrey, England, CR2 1EZ. Aus zwei Gründen habe ich die Veröffentlichung wieder auf den E-QTH-Kenner umgestellt:

1.) Alle bisher registrierten Daten sind in Form des E-QTH-Kenners eingegangen.

2.) Und außerdem sind die meisten VHF Amateure sowieso gegen Benutzung des neuen Kenners in Europa.

Der QTH Century Club wertet 2m und 70cm Verbindungen seit dem 01.01.1975. Der QTHCC hat bis jetzt Mitglieder aus 14 WAE Ländern und G6HKM, Ela Martyr ist das erste weibliche Mitglied. Gegen ein IRC sind die Ausschreibungsbedingungen des Clubs erhältlich bei: QTHCC, Short Wave Magazine, 40 Eskdale Gardens, Purley, Surrey, England, CR2 1EZ.

tk's fer info, Norman.



## Editors opinion—Meinungen der Redaktion

A lot of letters arrived confirming my note regarding the locator. Not enough space in DUBUS for publishing this letters. Three letters received opposite to my note in DUBUS 2/85: Some extracts from the opposit letters: HB9RO...I was shocked from the last line on the cover (DUBUS 2/85). I must say that I didn't follow the argument QTH-Loc. vs. Locator because I found it really stupid.....Now the most important point: you don't have the smallest right to use a "technical publication" to dismantle (or try doing same) IARU's work on the subject....

Ed.: there is no need for any comment.

SMSAGM: I am sorry to read that there are amateurs recommending the continuation of the old locator. The new locator has been adopted by all three regions of IARU and is the result of eight years of preparation. The average period of activity for a European VHF-UHF amateur is about 5-15 years, which means that after 20 years the majority of all stations on the band will have no emotional linkage of the old system....

Ed.: Well, Folke, I do agree concerning the emotional aspect but you missing the point. Not even in hundred of years the E-Loc will be less efficiently to handle than the WW-Loc for European VHF-Microwave traffic- because we never can work on 1296MHz Tropo into W or on 70cm Aurora to ZL. I am glad for a common loc use world wide for world wide traffic like hf, OSCAR, EME and 6m Es use of course, but this doesn't concern the majority of serious European VHF-Microwave DX'ers. The reality are thousands of tropo QSO's within a few-hundred km range, daily, within Europe. Why should this people have to do harder especially under weak signal conditions? I find out that the exist of a world wide locator system is necessary for SPECIAL-VHF-UHF and hf traffic, indeed. But our more simple E-locatorsystem is necessary, too, for the European DX scene which makes up more than 80% from the world wide VHF-SHF activity!

Earlier some people believed I support the WW-Locator within Europe because I was including it together with the E-Loc. in the DUBUS-Beacon and TOP-List. No! This is a service for our friends in the whole world to participate in the Top-List (W1JR, the first on 70cm now in this issue, very welcome!) and the beacon list for giving an impression of the beacon scene within Europe. More than 300 operating beacons from 144 MHz up to 24 GHz in Europe representing the VHF-Microwave activity you cannot approximately find at any other place in the world.

Latest News: In PA0 the E-Loc. is fully valid under contests again (Including IARU Contests!).-In England a similar discussion within the RSGB started now with the same aim. In DL I am in contact with DJ1XK (German VHF manager of DARC) in this matter and hope we will follow soon.

Now, in DUBUS all reports of contacts within Europe will be published in that manner as done before, in E-Loc. All contacts to other continents or within other continents in WW-Loc.-manner.

Some reports in this issue were already translated to the E-Loc. Some reports arrived without any locator.

For the World-Wide DX'ers: SMSAGM supplies a 24 page World Atlas showing all 32400 Maidenhead Locator squares. It also contains a description of the system and computer programs for Locator determination and direction and distance calculation, index, field map and invitation to a field competition. It can be ordered by sending a 220\*310mm SAE+6IRC's to Folke Rosvall, Box 8037, S-19108 Sollentuna, S eden.

HB9CRQ wrote some lines in DUBUS 2/85 p. 155 concerning MS procedure.

Ed.: I can't agree on 3.) The QSO., because of my own experiences of MS work (have done more than 450 MS QSO's). After receiving parts of the callsigns start transmitting callsigns and three times the report and wait until r-report +C/S or Report+C/S, there after reply with R-Report+C/S or RR+C/S, The report or r-report should be given three times between the C/S.

Never transmit anything without including callsigns. At the beginning of MS activity in the late 60's and 70's, the report was included 20 or more times and it often happened during a good burst that the report was received 15 times, but one letter of one callsign was still missing. The report should be included three times between the callsigns, being the most efficient procedure to succeed in a MS-QSO.

A QSO is complete if callsigns, reports and confirmation rr's are exchanged on both sides. QTH-Loc. is not necessary to exchange for a QSO being valid.

Vy 73 es dx de DL7QY, DUBUS publisher and editor.

D.

Eine Menge Briefe erreichten mich, zustimmend meiner Stellungnahme in DUBUS 2/85 betreffend der Benutzung des E-Locators. Aus Platzgründen können diese leider nicht wiedergegeben werden. Drei gegenteilige Stellungnahmen waren auch dabei, aus denen ich zitieren möchte:

HB9RO schreibt: Ich war schockiert von dem Aufruf auf der Titelseite in DUBUS 2/85.....Ich muß sagen, ich habe die Argumentation über den Locator wirklich nicht verfolgt, ich fand das alles wirklich zu dumm.....Und jetzt der wichtigste Punkt: Sie haben nicht das geringste Recht eine "Technische Zeitschrift" zu benutzen, um IARU Beschlüsse zu boykottieren.....

Ed.: Kein Kommentar erforderlich.

SMSAGM schreibt: Ich bin enttäuscht lesen zu müssen, daß in DUBUS dazu aufgerufen wird den WW-Locator in Europa nicht zu verwenden. Der WW-Kenner ist von allen Regionen der IARU jetzt angenommen worden; es hat acht Jahre gedauert. Die durchschnittliche Aktivitätsphase eines UKW-DX'ers beträgt 5-15 Jahre, was bedeutet, daß nach 20 Jahren keiner mehr aus emotionalen Gründen dem E-Locator nachtrauert....

Ed.: Lieber Folke, Ich stimme Dir zu, was den emotionalen Aspekt betrifft; dieser ist aber in der Sache nicht das Ausschlaggebende, weil: In hundert Jahren kann der WW-Kenner immer noch nicht, was die Effektivität betrifft, dem E-QTH Kenner näher sein, weil wir auch dann nicht in der Lage sein werden über Tropo auf 1296 MHz W oder über 70cm Aurora ZL arbeiten zu können. Ich bin froh, daß es endlich eine weltweit einheitliche Standortbestimmung gibt und man sollte diese auch dafür benutzen, nämlich für weltweiten Betrieb wie: Kurzwellen DX, Sonder DX auf UKW wie EME, OSCAR und 6m ES. Das ist aber alles nicht das tägliche Brot von dem wir leben. Tausende von Tropo QSO's täglich in Europa über 500km (oder mehr/weniger), das ist die Realität, und warum dieser großen Mehrheit etwas aufzwingen, was umständlicher zu handhaben ist? Und dazu noch, wo sich innerhalb Europas mehr als 80% der gesamten UKW Aktivität von der ganzen Welt abspielen?

Einige Leute dachten früher, daß ich für den WW-Kenner im europäischen Raum eintrete, weil ich ihn in die Top-Liste und die Bakenliste zusätzlich eingebracht habe. Nein, das war nur als Service für außereuropäische Freunde gedacht, welche somit in der Top-Liste teilnehmen können (übrigens, der erste ist W1JR in der 70cm Top-Liste in diesem Heft; Herzlich willkommen!) und einen für sie übersichtlichen Eindruck über die Bakensituation in Europa von 144MHz - 24GHz zu erhalten, was letztlich auch die Aktivität auf diesen Bändern in Europa widerspiegelt. Über 300 VHF-UHF-SHF Bakensender in Europa, das gibt es in keinem anderen Gebiet dieser Erde.

Letzte Nachricht: In PA0 ist ab sofort der E-Locator in Kontesten wieder gültig (Auch IARU Konteste)! Nach noch nicht bestätigten Informationen ist eine Diskussion in der RSGB (G) im Gange mit gleichen Bestrebungen. In DL stehe ich mit DJ1XK in Verbindung und hoffe kurzfristig auf das gleiche Ergebnis wie in Holland.

Alle in DUBUS veröffentlichten Berichte über QSO's innerhalb Europas werden zukünftig nur noch in E-QTH Kenner-Form erfolgen. Berichte über Verbindungen mit anderen Kontinenten oder innerhalb anderer Kontinente in WW-Kenner-Form. In diesem Heft sind einige Berichte (Aurora-Tropo) vom Kenner her umgerechnet worden. Einige Berichte enthielten überhaupt keinen Kenner.

HB9CRQ schreibt über seine Vorstellungen zur Abwicklung von MS-QSO's in DUBUS 2/85 S. 154 einige Dinge, die eine Erläuterung erfordern. Dem Punkt 3.) kann ich nicht zustimmen. Mit meiner langjährigen MS Erfahrung (über 450 QSO's) kann ich nur empfehlen die bisherige Abwicklung beizubehalten wie: Erst beide Rufzeichen senden, nach Empfang von Teilen der beiden Rufzeichen die Rufzeichen mit 3maligem Rapport senden (oder wenn Rapport mit Rufzeichen der Gegenstation bereits komplett aufgenommen wurden: Beide Rufzeichen mit R Rapport senden). Anschließend mit RR's und Rufzeichen bestätigen. Niemals irgend etwas ohne "beide Rufzeichen" senden. Den größten Wirkungsgrad erhält man, wenn zwischen den Rufzeichen der Rapport 3x eingefügt ist. Früher, Anfang der 70er hatte man den Rapport 10-20 mal zwischen den Rufzeichen gesendet, aber oftmals kam dann ein guter Burst in dem 15 Mal der R-Rapport enthalten war, und einem immer noch ein Buchstabe der Rufzeichen fehlte. Übrigens ist es nicht für ein gültiges QSO erforderlich, entgegengesetzt der Meinung einiger OM, den QTH-Locator mitzübermitteln. Ausgetauschte Rufzeichen mit Rapporten und dessen Bestätigung sind Voraussetzung für ein gültiges QSO und nichts weiter.

Vy 73 es dx de DL7QY, DUBUS Herausgeber und Redakteur.

| EUROPEAN VHF UHF SHF BEACON LIST 18.08.1985 |           |         |       |           |              |       |         |         |  |
|---------------------------------------------|-----------|---------|-------|-----------|--------------|-------|---------|---------|--|
| CALL                                        | QRB (MHZ) | WW-QTH  | E-QTH | POWER (W) | ANTENNA      | QTF   | ASL (M) | MODE    |  |
| U79FYR                                      | 144.215   | L088??  | CS656 | 5         | 15 DB        | NNW   | ??      | A1A     |  |
| U026EZ                                      | 144.220   | K037MJ  | NR46F | ??        | ???          | OMNI  | ??      | A1A     |  |
| UA9UKO                                      | 144.225   | N033??  | RN??? | 5         | DIPOLE       | ??    | ??      | A1A     |  |
| U79AWN                                      | 144.250   | M005QD  | EP67D | 1         | 4*7EL. YAGI  | N     | ??      | A1A     |  |
| U73UZA                                      | 144.323   | L006LX  | UQ05B | ??        | ???          | ??    | ??      | F1A     |  |
| UB4JWS                                      | 144.360   | KN74BX  | RE01A | ??        | 21DB         | N     | ??      | A1A     |  |
| UB4YWW                                      | 144.370   | KN28WG  | M160E | 3.5       | DIPOLE       | OMNI  | 285     | A1A     |  |
| UB4G                                        | 144.371   | KN66LS  | Q015D | 5         | DIPOLE       | N/S   | 80      | A1A     |  |
| U79FYR                                      | 432.240   | L088??  | CS656 | 5         | 17 DB        | NNW   | ??      | A1A     |  |
| UP2WN                                       | 432.440   | K025DB  | MP72J | 1         | TURNSTILE    | OMNI  | ??      | A1A     |  |
| UA9C                                        | 432.513   | L096WW  | D010J | 1         | TURNSTILE    | OMNI  | ??      | A1A     |  |
| U79AWN                                      | 432.750   | M005QD  | EP67D | 1         | 4*7EL. YAGI  | N     | ??      | A1A     |  |
| Y07VHF                                      | 144.948   | JN95TD  | JF69F | ??        | ???          | ??    | ??      | ??      |  |
| Y02KHP                                      | 144.957   | KN05DS  | KF17F | 2.5       | TURNSTILE    | OMNI  | 80      | A1A     |  |
| Y03KAA                                      | 145.900   | KN34BK  | NE41J | 0.2       | DIPOLE       | OMNI  | 80      | A1A     |  |
| YU3VHF                                      | 144.506   | JN76NC  | HG76A | 2         | CROSSDIPOLE  | OMNI  | 1219    | A1A     |  |
| YU2V                                        | 144.930   | JN83HG  | I054F | 1         | CROSSDIPOLE  | OMNI  | 780     | A1A     |  |
| YU3UHF                                      | 432.507   | JN, aNC | HG76A | ??        | LOG.PERIODIC | ??    | 1219    | A1A     |  |
| Y41M                                        | 144.932   | JO61FH  | GL53B | 0.2 ERP   | 2*DIPOLE     | OMNI  | 232     | A1A     |  |
| Y41B                                        | 144.985   | JO53RP  | FN28F | 10        | 2*BIG WHEEL  | OMNI  | ??      | F1A     |  |
| Y41N                                        | 432.030   | JO60JW  | GR05B | 0.1       | DOUBLE QUAD  | NW/SE | 360     | A1A     |  |
| ZB2VHF                                      | 50.035    | IM76HE  | XW646 | 20        | 5EL. YAGI    | NNW   | 117     | F1A     |  |
| ZB2VHF                                      | 70.120    | IM76HE  | XW646 | 10        | 4EL. QUAD    | N     | 117     | F1A     |  |
| ZB2VHF                                      | 144.145   | IM76HE  | XW646 | 15/35     | 8EL. YAGI    | NE    | 117     | F1A     |  |
| 3A2B                                        | 144.900   | JN33RR  | DD28H | 5         | GROUNDPLANE  | OMNI  | 60      | F1A/F2A |  |
| 5B4CY                                       | 50.500    | KM64HT  | QU14G | 35        | 5EL. YAGI    | NNW   | 2000    | A1A     |  |
| 5B4CY                                       | 70.112    | KM64LU  | QU15B | 10        | 4EL. YAGI    | NNW   | 117     | F1A     |  |
| 5B4CY                                       | 144.139   | KM64HT  | QU14G | 40        | 6+6EL. YAGI  | NW    | 2000    | A1A     |  |
| 9H1VHF                                      | 144.830   | JH75FV  | HV03F | 1.5       | TURNSTILE    | OMNI  | 210     | A1A     |  |

RETURN TO DL7QY

| CALLSIGN: |          | E-QTH LOC: |            | WW-QTH LOC: |             |        |
|-----------|----------|------------|------------|-------------|-------------|--------|
| BAND      | N.O.S.W. | TROPO ODX  | AURORA ODX | MS ODX      | E SPOR. ODX | EME OP |
| 2M        |          | KM         | KM         | KM          | KM          |        |
| 70CM      |          | KM         | KM         | KM          | KM          |        |
| 23CM      |          | KM         | KM         | KM          | KM          |        |
| 13CM      |          | KM         | KM         | KM          | KM          |        |
| • 9CM     |          | KM         | KM         | KM          | KM          |        |
| 6CM       |          | KM         | KM         | KM          | KM          |        |
| 3CM       |          | KM         | KM         | KM          | KM          |        |
| 1.3CM     |          | KM         | KM         | KM          | KM          |        |

RETURN TO DL7QY, CLAUSS MEIE, D-7181 RUDOLFSBERG 24,----- ODX = BEST DX-----N.O.S.W. = NUMBER OF SQUARES WORKED.

| EUROPEAN VHF UHF SHF BEACON LIST |           |        |        |           |                 |         |         |         |     | 18.08.1985 |
|----------------------------------|-----------|--------|--------|-----------|-----------------|---------|---------|---------|-----|------------|
| CALL                             | QRG (MHZ) | WW-QTH | E-QTH  | POWER (W) | ANTENNA         | QTF     | ASL (M) | MODE    |     |            |
| GB3SIX                           | 50.020    | 1073TJ | XN49F  | 100 ERP   | 3EL. YAGI       | W       | 58      | A1A     | F1A |            |
| ZB2VHF                           | 50.035    | 1M76HE | XW64G  | 20        | 5EL. YAGI       | WNW     | 117     |         | F1A |            |
| OX3VHF                           | 50.045    | 1Q06PS | QK17E  | 20        | GROUND PLANE    | OMNI    | 25      |         | F1A |            |
| GB3NHQ                           | 50.050    | 1091VQ | ZL29C  | 15 ERP    | CROSSED DIPOLES | OMNI    | 35      |         | F1A |            |
| SB4CY                            | 50.500    | KM64HT | QU14G  | 35        | 5EL. YAGI       | WNW     | 2000    | A1A     |     |            |
| GB3CTC                           | 70.030    | 10700J | XK46D  | 40 ERP    | 2EL. YAGI       | NE      | 320     | A1A/F1A | F1A |            |
| GB3WHA                           | 70.040    | J0018A | AL71D  | 16 ERP    | 2EL. YAGI       | NW      | 168     |         | F1A |            |
| GB3BUX                           | 70.050    | 1093BF | ZN61A  | 20 ERP    | 2*TURNSTILE     | OMNI    | 460     |         | F1A |            |
| GB3ANG                           | 70.060    | 1086LN | YQ35C  | 100 ERP   | 4EL. YAGI       | SSE     | 370     |         | F1A |            |
| SB4CY                            | 70.112    | KM64LU | QU15B  | 10        | 4EL. YAGI       | WNW     | 117     | F1A     |     |            |
| ZB2VHF                           | 70.120    | 1M76HE | XW64G  | 10        | 4EL. QUAD       | N       | 117     | F1A     |     |            |
| EL14RF                           | 70.130    | 1063SN | WN38C  | 25 ERP    | 2*5EL. YAGI     | NE/SE   | 120     | A1A     |     |            |
| DE3XAA                           | 144.126   | JN88BA | 1171D  | 0.5       | HALO            | OMNI    | 840     | A1A     |     |            |
| UP2WN                            | 144.136   | K025DB | MP72J  | 3         | TURNSTILE       | OMNI    | ??      | A1A     |     |            |
| SB4CY                            | 144.139   | KM64HT | QU14G  | 40        | 6+6EL. YAGI     | NW      | 2000    | A1A     |     |            |
| UK3KP                            | 144.140   | K085?? | SP???  | 5         | 9 EL. YAGI      | NNE     | ??      | A1A     |     |            |
| ZB2VHF                           | 144.145   | 1M76HE | XW64G  | 15/35     | 8EL. YAGI       | NE      | 117     | F1A     |     |            |
| OZ3VHF                           | 144.149   | J055FI | FP53H  | 1         | HALO            | OMNI    | 35      | A1A     |     |            |
| EA3XS                            | 144.152   | JN11DP | BB22E  | 20/250    | 16EL. YAGI      | NE      | ??      | A1A     |     |            |
| U23MMQ                           | 144.162   | K087SV | SR08E  | 5         | 2*DIPOLE        | OMNI    | 130     | A1A     |     |            |
| UT5U                             | 144.177   | K050CG | PK52F  | 5         | DIPOLE          | OMNI    | 169     | A1A     |     |            |
| UB4TWC                           | 144.187   | KN38IR | NI24D  | 3         | ????            | ??      | 300     | A1A     |     |            |
| U26AWA                           | 144.189   | KN95JA | TF75F  | 3         | GROUND PLANE    | OMNI    | ??      | A1A     |     |            |
| UA9C                             | 144.189   | L096AW | DQ10J  | 3         | 2*DIPOLE        | OMNI    | ??      | A1A     |     |            |
| U24NWF                           | 144.204   | L049JJ | YT45F  | 5         | 9 EL. YAGI      | NNE     | 110     | A1A     |     |            |
| U29FYR                           | 144.215   | L088?? | CS65G  | 5         | 15 DB           | WNW     | ??      | A1A     |     |            |
| UQ2GEZ                           | 144.220   | K037MJ | NR46F  | ??        | ????            | OMNI    | ??      | A1A     |     |            |
| UA9UKO                           | 144.225   | N033?? | RN???  | 5         | DIPOLE          | ??      | ??      | A1A     |     |            |
| U29AWN                           | 144.250   | M005QD | EP67D  | 1         | 4*7EL. YAGI     | N       | ??      | A1A     |     |            |
| U73UZA                           | 144.323   | L066LX | UQ05B  | ??        | ????            | ??      | ??      | F1A     |     |            |
| UB4JWS                           | 144.360   | KN74BX | RE01A  | ??        | 21DB            | N       | ??      | A1A     |     |            |
| UB4YNN                           | 144.370   | KN28WG | M160E  | 3.5       | DIPOLE          | OMNI    | 285     | A1A     |     |            |
| UB4B                             | 144.371   | KN66LS | QG15D  | 5         | DIPOLE          | N/S     | 80      | A1A     |     |            |
| YU3VHF                           | 144.506   | JN76NC | HM76A  | 2         | CROSSDIPOLE     | OMNI    | 1219    | A1A     |     |            |
| IT9A                             | 144.805   | JM67LX | 8X05B  | 30 ERP    | 2*BIG WHEEL     | OMNI    | 825     | A1A     |     |            |
| IS0A                             | 144.810   | JN408X | EA008A | 25 ERP    | TURNSTILE       | OMNI    | 450     | A1A     |     |            |
| 14A                              | 144.815   | JN54LG | FE55D  | 20 ERP    | 2*TURNSTILE     | OMNI    | 950     | A1A     |     |            |
| 17A                              | 144.815   | JN71UR | HB29A  | 12 ERP    | BIG WHEEL       | OMNI    | 1012    | A1A     |     |            |
| 10A                              | 144.825   | JN61ES | GB12D  | 30 ERP    | 2*BIG WHEEL     | OMNI    | 30      | A1A     |     |            |
| 9H1VHF                           | 144.830   | JM75FV | HV03F  | 1.5       | TURNSTILE       | OMNI    | 210     | A1A     |     |            |
| 11G                              | 144.830   | JN35SH | DF58C  | 20 ERP    | BIG WHEEL       | OMNI    | 625     | A1A     |     |            |
| IT9G                             | 144.840   | JM68QE | GY67C  | 35 ERP    | 5EL. YAGI       | N       | 150     | A1A     |     |            |
| 1X1A                             | 144.845   | JN35QO | DF27G  | 20 ERP    | 11EL. YAGI      | NE/SW   | 750     | A1A     |     |            |
| 15A                              | 144.850   | JN53FR | FD23H  | 4 ERP     | BIG WHEEL       | OMNI    | 918     | A1A     |     |            |
| DL0UB                            | 144.850   | J062QL | GM47B  | 5         | 4*DIPOLE        | OMNI    | 80      | F1A     |     |            |
| LA5VHF                           | 144.855   | JP76CW | HA01C  | 100 ERP   | 2*6 EL. QUAD    | SW/S    | 450     | A1A     |     |            |
| LA1VHF                           | 144.860   | J049GT | ET13C  | 12        | TURNSTILE       | OMNI    | 1882    | A1A     |     |            |
| HB9HB                            | 144.865   | JN37NE | DH66C  | 10        | 10EL. YAGI      | WNW     | 1300    | F1A     |     |            |
| EA1VHF                           | 144.867   | IN53UG | VD59E  | 25        | 5EL. YAGI       | N/E     | ??      | A1A     |     |            |
| I2M                              | 144.870   | JN55AD | FF61F  | 20 ERP    | BIG WHEEL       | OMNI    | 52      | A1A     |     |            |
| LA2VHF                           | 144.870   | JP53EG | FX52D  | 500 ERP   | 10EL. YAGI      | NNE     | 710     | A1A     |     |            |
| I2G                              | 144.875   | JN45ST | EF18J  | 30 ERP    | 2*BIG WHEEL     | OMNI    | 1330    | A1A     |     |            |
| HB9W                             | 144.875   | JN47GJ | EH43D  | 0.036 ERP | HALO            | OMNI    | 490     | A1A     |     |            |
| SK2VHF                           | 144.875   | JP94TF | JY69H  | 30        | 2*CLOVER LEAF   | OMNI    | 300     | A1A     |     |            |
| LA3VHF                           | 144.880   | J038PB | DS77J  | 120 ERP   | 8EL. YAGI       | S       | 100     | A1A     |     |            |
| OY6VHF                           | 144.885   | IP62NA | WW76D  | 60 ERP    | 4EL. YAGI       | SE      | 350     | A1A     |     |            |
| OK0ED                            | 144.885   | JN9980 | JJ31A  | 0.1       | 2*DIPOLE        | OMNI    | 560     | F1A     |     |            |
| 18A                              | 144.890   | JM78WD | HY70F  | 20 ERP    | 2*TURNSTILE     | OMNI    | 1958    | A1A     |     |            |
| LA4VHF                           | 144.890   | JP200Q | KU27G  | 200 ERP   | 4*8EL. YAGI     | S       | 48      | A1A     |     |            |
| SK2VHF                           | 144.890   | KP07MV | KB06F  | 60        | 16EL. YAGI      | S       | 495     | A1A     |     |            |
| EA3VHF                           | 144.892   | JN11LS | BB15D  | 1         | HALO            | OMNI    | 155     | A1A     |     |            |
| FX0THF                           | 144.895   | JN08ML | AI46H  | 30        | 2*TURNSTILE     | OMNI    | 246     | F1A     |     |            |
| 3A2B                             | 144.900   | JN33RR | DD28H  | 5         | GROUND PLANE    | OMNI    | 60      | F1A/F2A |     |            |
| DB0OP                            | 144.900   | JN59WI | FJ60H  | 4         | BIG WHEEL       | OMNI    | 522     | A1A     |     |            |
| OH6VHF                           | 144.900   | KP02TG | KW59F  | 50/100    | 2*6EL. YAGI     | N/SW    | 220     | A1A     |     |            |
| OX3VHF                           | 144.902   | 1Q06PS | QK17E  | 10        | 6EL. YAGI       | SE      | 25      | A1A     |     |            |
| FX3THF                           | 144.905   | IN88GS | YI13D  | 30        | 2*9EL. YAGI     | SE      | 80      | F1A     |     |            |
| DL0PR                            | 144.910   | J044JH | E054C  | 150       | 6EL. YAGI       | N/S     | 100     | A1A     |     |            |
| GB3CTC                           | 144.915   | 10700J | XK46D  | 40 ERP    | 3EL. YAGI       | NE      | 320     | A1A     |     |            |
| DK0OE                            | 144.915   | J030DU | DK12A  | 30 ERP    | 10EL. YAGI      | NNE     | 265     | F1A     |     |            |
| EA6VHF                           | 144.918   | JM08PW | AY07J  | 25        | 5EL. YAGI       | NE      | 150     | A1A     |     |            |
| SK7VHF                           | 144.920   | J065SN | GP38C  | 30        | 2*CLOVER LEAF   | OMNI    | 190     | A1A     |     |            |
| GB3VHF                           | 144.925   | J001DH | AL52J  | 50 ERP    | 2*3EL. YAGI     | WNW/NNW | 275     | F1A/F1B |     |            |
| DB0JT                            | 144.927   | JN67JT | GH14C  | 30 ERP    | 2*4+4 DIPOLE    | NW      | 785     | F1A/F1B |     |            |
| YU2V                             | 144.930   | JN83HG | 1D54F  | 1         | CROSSDIPOLE     | OMNI    | 780     | A1A     |     |            |
| OZ71GY                           | 144.930   | J055VO | FP39B  | 50 ERP    | BIG WHEEL       | OMNI    | 96      | A1A     |     |            |
| Y41H                             | 144.932   | J061FH | GL53G  | 0.2 ERP   | 2*DIPOLE        | OMNI    | 232     | A1A     |     |            |
| DL0UH                            | 144.940   | J041RD | EL68F  | 1 ERP     | V-DIPOLE        | OMNI    | 385     | F1A     |     |            |
| OK0EA                            | 144.946   | J070UP | HK29D  | 0.004     | 2*DIPOLE        | OMNI    | 1355    | A1A     |     |            |
| Y07VHF                           | 144.948   | JN95TD | JF69F  | 10        | ????            | ??      | ??      | A1A     |     |            |
| SK1VHF                           | 144.950   | J0978G | JR51D  | ??        | 2*CLOVER LEAF   | OMNI    | 60      | A1A     |     |            |
| FX4VHF                           | 144.955   | JN05VE | AF69C  | 20        | BIG WHEEL       | OMNI    | 600     | A1A     |     |            |
| Y02KHP                           | 144.957   | KN05GS | KF17F  | 2.5       | TURNSTILE       | OMNI    | 80      | A1A     |     |            |
| SK4MP1                           | 144.960   | JP70NJ | HU46D  | 100       | 4*6EL. YAGI     | N       | 510     | A1A     |     |            |
| GB3LER                           | 144.965   | IP90JD | ZU65F  | 50 ERP    | 4EL. YAGI       | NNE     | 107     | F1A     |     |            |

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|----------------------------------|-----------|--------|-------|-----------|-------------------|---------|---------|------------|
| CALL                             | QRG (MHz) | WW-QTH | E-QTH | POWER (W) | ANTENNA           | QTF     | ASL (M) | MODE       |
| OK8EO                            | 144.765   | JN890Q | IJ27C | .05       | CROSS DIPOLE      | OMNI    | 610     | F1A        |
| DF0ANN                           | 144.766   | JN59PJ | FJ47E | 0.02      | DIPOLE            | OMNI    | 430     | F1A        |
| SP6VHF                           | 144.766   | J070VP | HK29D | 0.15      | 2EL. YAGI         | NE      | 1602    | A1A        |
| OK0EB                            | 144.770   | JN78DU | HI12A | .1        | BIG WHEEL         | OMNI    | 1083    | F1A        |
| GB3ANG                           | 144.775   | I086LN | YQ35C | 20 ERP    | 3EL. YAGI         | SSE     | 370     | F1A        |
| DL0SG                            | 144.775   | JN68EQ | G122C | 15        | 4*4EL. YAGI       | OMNI    | 500     | F1A        |
| OK0ET                            | 144.778   | KN08SU | K118A | .5        | H89CV             | W       | 981     | F1A        |
| OK0EC                            | 144.980   | J060CF | GK62H | .08       | 3EL. YAGI         | E       | 790     | F1A        |
| ON4VHF                           | 144.985   | J020FP | CK23E | 2.5       | BIG WHEEL         | OMNI    | ??      | F1A        |
| Y41B                             | 144.985   | J053RP | FN28F | 10        | 2*BIG WHEEL       | OMNI    | ??      | F1A        |
| Y03KAA                           | 145.900   | KN34BK | NE41J | 0.2       | DIPOLE            | OMNI    | 80      | A1A        |
| L2ZF                             | 145.980   | KN33WM | ND40F | 25 ERP    | ????              | OMNI    | 275     | ??         |
| SP6VHF                           | 431.998   | J070VR | HK29B | 0.06      | 2EL. YAGI         | NE      | 1602    | A1A        |
| Y41N                             | 432.030   | J060JP | GK05B | 0.1       | DOUBLE QUAD       | NW/SE   | 360     | A1A        |
| DL0BQ                            | 432.050   | JN49GP | EJ23D | 0.2       | DISCONE           | OMNI    | ??      | A1A        |
| DK1WY                            | 432.095   | J042HG | EM56F | 0.05      | BIG WHEEL         | OMNI    | 90      | A1A        |
| OH2NLA                           | 432.240   | KP20ID | MU44E | .5        | ????              | OMNI    | 40      | F1A        |
| UZ9FYR                           | 432.240   | L088?? | CS65B | .5        | 17 DB             | NNW     | ??      | A1A        |
| OH2NRA                           | 432.300   | KP20JE | MA65B | .5        | TURNSTILE         | OMNI    | 20      | A1A        |
| OE3XAA                           | 432.378   | JN88BA | I171D | 1 ERP     | 4EL. YAGI         | NNE     | 840     | A1A        |
| OE3XMB                           | 432.400   | JN77SX | HH08B | 0.1       | 9EL. YAGI         | N/NW    | 1246    | A1A        |
| UP2WN                            | 432.440   | K025DB | MP72J | 1         | TURNSTILE         | OMNI    | ??      | A1A        |
| DJ4WG                            | 432.455   | JN59AQ | FJ21B | 0.005     | 11EL. YAGI        | NE      | 265     | A1A        |
| YU3UHF                           | 432.507   | JN76NC | HG76A | ??        | LOG. PERIODIC     | ??      | 1219    | A1A        |
| UA9C                             | 432.513   | L096WW | DQ10J | 1         | TURNSTILE         | OMNI    | ??      | A1A        |
| DB0QO                            | 432.540   | J042BA | EM71E | 2         | SLOT RADIAT       | OMNI    | ??      | A1A        |
| UZ9AWN                           | 432.750   | M005QD | EP67D | 1         | 4*7EL. YAGI       | N       | ??      | A1A        |
| IT9B                             | 432.805   | JM67LY | GX05B | 50 ERP    | 10EL. YAGI        | N       | 825     | A1A        |
| DB0JZ                            | 432.805   | J031SN | DL38J | 1 ERP     | ????              | OMNI    | 125     | F1A        |
| DL0RW/A                          | 432.810   | JN69ES | GJ12D | 1         | 2*DIPOLE QUAD     | NW/SW   | 825     | A1A        |
| GB3WHA                           | 432.810   | J001BA | AL71D | 25 ERP    | 2*8+8EL. YAGI     | NW/E    | 165     | F1A        |
| LA8UHF                           | 432.820   | J059CB | FT71C | 25 ERP    | 10EL. YAGI        | S       | 70      | A1A        |
| DB0OP                            | 432.825   | JN59WI | FJ60H | 2         | BIG WHEEL         | OMNI    | 522     | A1A        |
| 10B                              | 432.825   | JN61ES | GB12D | 40 ERP    | 4*MINI WHEEL      | OMNI    | 30      | A1A        |
| FX1UHF                           | 432.830   | JN18BR | B121B | 10        | 4*BIG WHEEL       | OMNI    | 160     | F1A        |
| 11H                              | 432.830   | JN35SN | DF38C | 12 ERP    | 3EL. YAGI         | S       | 650     | A1A        |
| OH6UHF                           | 432.840   | KP13BM | LX33D | 7         | 7 DB N 4.5DB      | OMNI    | 60      | A1A        |
| DB0KI                            | 432.841   | J050SF | FK60B | 2         | 4*4EL. YAGI       | OMNI    | 720     | F1A        |
| 15B                              | 432.850   | JN53JR | FD25H | 20 ERP    | 4*MINI WHEEL      | OMNI    | 56      | A1A        |
| DL0UB                            | 432.850   | J062QL | GM47Z | 5         | 4*DOUBLE QUAD     | OMNI    | 80      | F1A        |
| LA5UHF                           | 432.855   | JP66?? | GA7?? | 250 ERP   | 17 EL. YAGI       | S       | 1140    | A1A        |
| SK3UHF                           | 432.855   | JP82XQ | IA40B | 10        | 4*DOUBLE QUAD     | OMNI    | 180     | A1A        |
| 12B                              | 432.860   | JN45NT | EF16J | 35 ERP    | 2*10EL. YAGI      | SE/SW   | 490     | A1A        |
| LA1UHF                           | 432.860   | J059JW | FT05B | 10 ERP    | MINI WHEEL        | OMNI    | 364     | A1A        |
| OZ2UHF                           | 432.865   | J046JZ | EQ64D | 10 ERP    | BIG WHEEL         | OMNI    | 355     | F1A        |
| FX4UHF                           | 432.866   | IN93EH | ZD52C | 10        | 2*6EL. YAGI       | NNE     | 900     | F1A        |
| 12H                              | 432.870   | JN55DN | FF32J | 2 ERP     | TURNSTILE         | OMNI    | 990     | A1A        |
| 12U                              | 432.875   | JN45ST | EF18J | 30 ERP    | 2*TURNSTILE       | OMNI    | 1330    | A1A        |
| SK2UHF                           | 432.875   | JP94WG | JY60E | 4         | 2*20 EL. COLL     | N/S     | 400     | A1A        |
| IV3B                             | 432.880   | JN65WR | GF30H | 20        | TURNSTILE         | OMNI    | 418     | A1A        |
| LA3UHF                           | 432.880   | J048BC | ES71A | 40 ERP    | 2*10EL. YAGI      | SSW     | 15      | A1A        |
| OY6UHF                           | 432.885   | IP62NA | WW76D | 30 ERP    | SEL. YAGI         | SE      | 350     | A1A        |
| 16B                              | 432.885   | JN72AN | HC31G | 12 ERP    | 2*TURNSTILE       | OMNI    | 444     | A1A        |
| OK0EP                            | 432.885   | J080OC | IK77H | 2         | 2*3EL. YAGI       | W/SE    | 1500    | F1A        |
| 10B                              | 432.890   | JM70WQ | HA40A | 12 ERP    | 2*MINI WHEEL      | OMNI    | 250     | A1A        |
| DB0AE                            | 432.890   | J043GN | EN33C | ??        | ????              | ??      | ??      | F1A        |
| PA0DSW                           | 432.895   | J022JJ | CM35F | 0.5       | MALT. CROSS       | OMNI    | 10      | A1A        |
| OZ4UHF                           | 432.895   | J075JE | HP64C | 20 ERP    | BIG WHEEL         | OMNI    | 154     | A1A        |
| 10H                              | 432.900   | JN61IS | GB14E | 4 ERP     | 2*MINI WHEEL      | OMNI    | 373     | A1A        |
| DB0YI                            | 432.900   | J042XC | EM00B | 1         | BIG WHEEL         | OMNI    | 480     | A1A        |
| GB3MLY                           | 432.910   | I093EO | ZN32D | 50 ERP    | 8+8EL. YAGI       | SE      | 600     | F1A        |
| DB0AD                            | 432.913   | J030XS | DK20B | 1         | 11EL. YAGI        | W       | 290     | F1A        |
| SK7UHF                           | 432.920   | J077BG | HR21J | 7         | BIG WHEEL         | OMNI    | 350     | A1A        |
| DB0JG                            | 432.925   | J031GT | DL13C | 1         | CLOVER LEAF       | OMNI    | 45      | F1A        |
| SK6UHF                           | 432.925   | J067BF | GR61A | 10 ERP    | BIG WHEEL         | OMNI    | 75      | A1A        |
| OZ7IGY                           | 432.930   | J055VQ | FP39B | 50 ERP    | BIG WHEEL         | OMNI    | 96      | A1A        |
| SK7UHF                           | 432.936   | J086FQ | IQ23J | 30 ERP    | 2*CLOVER LEAF     | OMNI    | 60      | A1A        |
| OK0EA                            | 432.938   | J070UP | HK29D | 2.5       | 2*15EL. YAGI      | W/SW    | 1355    | F1A        |
| DL0UH                            | 432.940   | J041RD | EL68F | 0.3 ERP   | V-DIPOLE          | OMNI    | 385     | A1A        |
| DB0LB                            | 432.945   | JN48NV | E106D | 0.2       | CORNER DIPOLE     | N/S     | 367     | F1A        |
| DB0OS                            | 432.945   | J040CW | EK01G | 0.7 ERP   | 2 EL. YAGI        | W       | 745     | F2A        |
| FX3UHF                           | 432.950   | IN97PF | ZH67A | 10        | 4*BIG WHEEL       | OMNI    | 200     | F1A        |
| DB0AA                            | 432.950   | J031NK | DL46C | 1 ERP     | ????              | N       | ??      | F1A        |
| DB0AH                            | 432.950   | J053JD | BL65F | 3.5       | DIPOLE            | OMNI    | 118     | A1A        |
| SK1UHF                           | 432.950   | J097BJ | JR41D | 10        | 2*BIG WHEEL       | OMNI    | 60      | A1A        |
| OZ1UHF                           | 432.955   | J047WB | ER80J | 30 ERP    | 2*MALTESE         | OMNI    | 85      | A1A        |
| SK4UHF                           | 432.960   | J079KH | HT55J | 60        | 4*10EL. LOG. PER. | N/SW/SE | 285     | A1A        |
| OK0ED                            | 432.965   | JN89QK | IJ27C | .05       | CROSS DIPOLE      | OMNI    | 610     | F1A        |
| DF0ANN                           | 432.966   | JN59PJ | FJ47E | 1         | CLOVER LEAF       | OMNI    | 630     | F1A        |
| GB3CTC                           | 432.970   | I0700J | XK46D | 5 ERP     | 4EL. YAGI         | NE      | 320     | F1A        |
| OK0EB                            | 432.970   | JN78DU | HI12A | .05       | 3*DIPOLE          | OMNI    | 1100    | F1A        |
| DL0SG                            | 432.974   | JN68EQ | G122C | 7         | 4*11EL. YAGI      | OMNI    | 500     | F1A        |
| DB0JW                            | 432.975   | J030DU | DK12J | 50 ERP    | ????              | NE      | 165     | F1A        |
| SK5UHF                           | 432.975   | JP80TB | IU79B | 25 ERP    | BIG WHEEL         | OMNI    | 90      | A1A        |
| GB3ANG                           | 432.980   | I086LN | YQ35C | 100 ERP   | 9EL. YAGI         | SSE     | 370     | F1A        |

| EUROPEAN VHF UHF SHF BEACON LIST |           |        |       |           |                    |         |         |      |  | 18.08.1985 |
|----------------------------------|-----------|--------|-------|-----------|--------------------|---------|---------|------|--|------------|
| CALL                             | QRG (MHZ) | NW-QTH | E-QTH | POWER (W) | ANTENNA            | QTF     | ASL (M) | MODE |  |            |
| OK0EC                            | 432.980   | J060CF | GK62H | .08       | 10EL. YAGI         | E       | 790     | F1A  |  |            |
| OZ2ALS                           | 432.983   | J045VB | EP79C | .10       | BIG WHEEL          | OMNI    | 32      | F1A  |  |            |
| HB9F                             | 432.984   | JN36XN | D840C | 15 ERP    | CORNERREFLECTOR    | N/S     | 3573    | F1A  |  |            |
| DF0AAD                           | 432.990   | J054IF | F064A | 10 ERP    | 4*DOUB. HYBR. QUAD | OMNI    | 250     | F1A  |  |            |
| DL1XV                            | 433.143   | JN67LQ | GH25C | .40       | SLOT               | NW      | 1618    | F1A  |  |            |
| LAIUHG                           | 1295.990  | J059FE | F1636 | 25 ERP    | MINI WHEEL         | OMNI    | 75      | F1A  |  |            |
| LABUHG                           | 1295.995  | J059JW | F1056 | 10 ERP    | MINI WHEEL         | OMNI    | 364     | F1A  |  |            |
| LA3UHG                           | 1295.999  | J038XB | D880C | 10 ERP    | 2*15EL. YAGI       | S       | 5       | F1A  |  |            |
| DF5EO/A                          | 1296.025  | J031DV | D102E | .0.8      | DBL.HELICAL        | OMNI    | 170     | F1A  |  |            |
| HB9BBD/P                         | 1296.050  | JN47FA | EH73E | .5        | CORNER             | N/N/E   | 1661    | F1A  |  |            |
| DB0AJ                            | 1296.180  | JN57VX | FH09B | .10       | 6EL. GROUP         | N/W     | 720     | F1A  |  |            |
| DK1WY                            | 1296.285  | J042MG | EM56F | 0.025     | BIG WHEEL          | OMNI    | 90      | F1A  |  |            |
| OE1XCS                           | 1296.340  | JN88DD | I162E | .0.2      | ????               | N       | ??      | F1A  |  |            |
| OE3XMB                           | 1296.400  | JN775X | HH08B | .018      | DOUBLE QUAD        | N/NW    | 1246    | F1A  |  |            |
| DB0JS                            | 1296.800  | JN59GB | FJ73C | 5 ERP     | SLOT               | OMNI    | 700     | F1A  |  |            |
| SK6UHI                           | 1296.800  | J066LJ | G045D | 10 ERP    | CLOVER LEAF        | OMNI    | 220     | F1A  |  |            |
| DB0GP                            | 1296.805  | JN48NQ | E130G | 4 ERP     | 4*5EL. YAGI        | OMNI    | 760     | F1A  |  |            |
| GB3NWK                           | 1296.810  | J001BH | AL51J | 100       | 2*8EL. YAGI        | NNW     | 180     | F1A  |  |            |
| DB0VI                            | 1296.815  | JN39MF | DJ66H | .1        | 13EL. YAGI         | ??      | 400     | F1A  |  |            |
| I4C                              | 1296.815  | JN54PK | FE47J | 4 ERP     | 2*MINI WHEEL       | OMNI    | 444     | F1A  |  |            |
| FX4UHZ                           | 1296.823  | JN06WD | AG70F | 100 ERP   | ????               | OMNI    | ??      | F1A  |  |            |
| I1I                              | 1296.830  | JN35SH | DF58C | 0.4 ERP   | SQUARECORNER       | S       | 625     | F1A  |  |            |
| GB3BPO                           | 1296.830  | J002PB | AM77J | 700 ERP   | 2*32EL.SLOT.WAVEG  | W/E     | 85      | F1A  |  |            |
| SK0UHG                           | 1296.835  | J089MI | IT40H | 15 ERP    | DOUBLE HELICAL     | OMNI    | 30      | F1A  |  |            |
| DB0KI                            | 1296.844  | J050SF | FK68B | .5        | 4*DOUBLE QUAD      | OMNI    | 720     | F1A  |  |            |
| GB3FRS                           | 1296.850  | J091PH | ZL57J | .3        | DISC               | OMNI    | 120     | F1A  |  |            |
| I5C                              | 1296.850  | JN53DV | FD02E | 0.2 ERP   | MINI WHEEL         | OMNI    | 30      | F1A  |  |            |
| DL0UB                            | 1296.850  | J062QL | GM47B | .3        | DBL HELICAL        | OMNI    | 80      | F1A  |  |            |
| DB0JO                            | 1296.854  | J031SL | DL48A | 350 ERP   | 4*15+15EL. YAGI    | W       | 312     | F1A  |  |            |
| I5I                              | 1296.855  | JN53LL | FD45B | 10 ERP    | 4*MINI WHEEL       | OMNI    | 550     | F1A  |  |            |
| OZ2UHF                           | 1296.865  | J046JD | EG64D | .3        | BIG WHEEL          | OMNI    | 85      | F1A  |  |            |
| GB3AND                           | 1296.870  | J0916F | ZL63B | 50 ERP    | STACK. SLOTS       | OMNI    | 85      | F1A  |  |            |
| PA0EHB/A                         | 1296.875  | J021SK | CL48J | .4        | GAIN 6DB           | OMNI    | 61      | F1A  |  |            |
| ONSUHF                           | 1296.880  | J010UN | BK39J | 10 ERP    | ????               | OMNI    | 180     | F1A  |  |            |
| FZ4UHY                           | 1296.886  | JN06BX | AG01A | 15 ERP    | CARDIOID           | OMNI    | ??      | F1A  |  |            |
| GB3DUN                           | 1296.890  | J091SV | ZL08E | 2 ERP     | N                  | N       | 263     | F1A  |  |            |
| I4CB                             | 1296.890  | JN70CT | HA12G | 6 ERP     | MINI WHEEL         | OMNI    | 589     | F1A  |  |            |
| DB0JC                            | 1296.895  | J048RV | EK08F | 1.5       | 4EL.SLOT.WAVEG     | OMNI    | 620     | F1A  |  |            |
| GB3IOW                           | 1296.900  | J09810 | ZK34A | 100 ERP   | ALFORD SLOT        | OMNI    | 250     | F1A  |  |            |
| DB0JR                            | 1296.900  | JN67CR | GH22H | 0.2       | CORNERREFLECTOR    | NNW     | 1560    | F2A  |  |            |
| DB0AN                            | 1296.900  | J031SX | DL08B | .1        | BIG WHEEL          | OMNI    | 100     | F2A  |  |            |
| OK0EA                            | 1296.900  | J078UP | HK29D | 0.2       | 4*15EL. YAGI       | W/S/N/E | 1355    | F1A  |  |            |
| DB0AD                            | 1296.905  | J030XS | DK20D | .1        | DIPOLE             | W/E     | 290     | F1A  |  |            |
| GB3CLE                           | 1296.910  | J082RL | YH48H | 10 ERP    | 2*15+15EL. YAGI    | N/S/E   | 573     | F1A  |  |            |
| DB0JB                            | 1296.910  | JN48FX | E103A | 1 ERP     | BIG WHEEL          | OMNI    | 275     | F1A  |  |            |
| PA0QHN                           | 1296.917  | J022FH | CM53J | .4        | GAIN 6DB           | OMNI    | 20      | F1A  |  |            |
| DB0VC                            | 1296.920  | J0541F | F064A | .10       | 2*BIG WHEEL        | OMNI    | 250     | F1A  |  |            |
| SK7UHG                           | 1296.920  | J077BQ | HR21J | 2 ERP     | BIG WHEEL          | OMNI    | 350     | F1A  |  |            |
| SK6UHG                           | 1296.925  | J0577Q | FR29G | .10       | 4*BIG WHEEL        | OMNI    | 35      | F1A  |  |            |
| GB3MLE                           | 1296.930  | J093EO | ZN32B | 50 ERP    | CORNERREFLECTOR    | SSE     | 600     | F1A  |  |            |
| OZ71GY                           | 1296.930  | J055VO | FP39B | 5 ERP     | BIG WHEEL          | OMNI    | 96      | F1A  |  |            |
| DB0YI                            | 1296.935  | J042XC | EM80B | .3        | BIG WHEEL          | OMNI    | 480     | F1A  |  |            |
| DL0UH                            | 1296.940  | J041RD | EL68F | 0.2 ERP   | V-DIPOLE           | OMNI    | 385     | F1A  |  |            |
| HB9F                             | 1296.945  | JN36SW | D080C | 15 ERP    | 2*CORN. REFLECTOR  | NE/SW   | 937     | F1A  |  |            |
| DB0OS                            | 1296.945  | J040CW | EK01G | 1 ERP     | 6 EL. ARRAY        | W       | 745     | F1A  |  |            |
| OZ1UHF                           | 1296.955  | J047WB | ER80J | 10 ERP    | BIG WHEEL          | OMNI    | 85      | F1A  |  |            |
| DF0ANN                           | 1296.956  | JN59PJ | FJ47E | .2        | 4*DOUBLE QUAD      | OMNI    | 630     | F1A  |  |            |
| SK4UHG                           | 1296.960  | JP60VA | GU79D | 4         | 2*15EL. YAGI       | S       | 450     | F1A  |  |            |
| DB0JU                            | 1296.975  | J031BU | DL11B | ??        | HELICAL            | OMNI    | 295     | F1A  |  |            |
| OZ3ALS                           | 1296.985  | J045VB | EP79C | 10 ERP    | BIG WHEEL          | OMNI    | 33      | F1A  |  |            |
| GB3EDN                           | 1296.990  | J085HW | YP040 | 25 ERP    | 2*CORN. REFLECT.   | NW/SE   | 117     | F1A  |  |            |
| DB0FB                            | 1296.990  | JN47AU | EH11H | .4        | DIPOLE             | N/S     | 1200    | F1A  |  |            |
| DB0JN                            | 1296.990  | J031WP | DL30F | 0.1       | MINI WHEEL         | OMNI    | 80      | F1A  |  |            |
| DB0JQ                            | 1296.995  | JN68TU | BI19H | 6 ERP     | 4*QUAD             | OMNI    | 1150    | F2A  |  |            |
| DB0JW                            | 1297.010  | J030DU | DK12J | 50 ERP    | ????               | NE      | 165     | F1A  |  |            |
| DB0LB                            | 1297.040  | JN48NV | E106D | 0.2       | DIPOLE             | OMNI    | 367     | F1A  |  |            |
| OE3XPA                           | 1297.153  | JN78SB | HI78C | .0.1      | 11EL. YAGI         | NW      | 725     | F1A  |  |            |
| GB3AND                           | 2304.010  | J0916F | ZL636 | 5 ERP     | ????               | E       | 85      | F1A  |  |            |
| GB3LDN                           | 2304.050  | J001BL | AL41A | 25 ERP    | ????               | NW/NE   | ??      | F1A  |  |            |
| I1D                              | 2304.830  | JN35TB | DF79G | 1 ERP     | 2*SQUARECORNER     | N/S     | 25      | F1A  |  |            |
| SK6UHI                           | 2320.800  | J058BF | FK58F | .1        | 2*??EL. YAGI       | S/SW    | 80      | F1A  |  |            |
| DB0KI                            | 2320.844  | J058SF | F168B | .1        | 4*6EL. ARRAY       | OMNI    | 720     | F1A  |  |            |
| LAIUHH                           | 2320.860  | J059FE | F1636 | 20 ERP    | 7DB HORN           | S       | 75      | F1A  |  |            |
| DB0JO                            | 2320.899  | J031SL | DL48A | 0.1       | DIPOLE             | N       | 312     | F1A  |  |            |
| DB0JB                            | 2320.900  | JN48FX | E103A | 1 ERP     | BIG WHEEL          | OMNI    | 275     | F1A  |  |            |
| PA0TGA                           | 2320.900  | J021WU | CL20A | .1        | 10 DB GAIN         | NW/W    | ??      | F1A  |  |            |
| DB0JW                            | 2320.900  | J030DU | DK12J | 50 ERP    | ????               | NE      | 165     | F1A  |  |            |
| DB0VC                            | 2320.920  | J0541F | F064A | .5        | BIG WHEEL          | OMNI    | 230     | F1A  |  |            |
| PA0QHN                           | 2320.925  | J022FH | CM53J | .2        | GAIN 6DB           | OMNI    | 20      | F1A  |  |            |
| DB0GB                            | 2320.940  | J030BQ | DK27G | 2 ERP     | SLOT               | OMNI    | 324     | F1A  |  |            |
| DB0OS                            | 2320.945  | J048CW | EK01G | 1 ERP     | 8 EL. ARRAY        | W       | 745     | F1A  |  |            |
| GB3LES                           | 2320.955  | J0921Q | ZM24J | 5 ERP     | ALFORDSLOT         | OMNI    | 220     | F1A  |  |            |
| DF0ANN                           | 2320.965  | JN59PJ | FJ47E | 0.5       | DOUBLE QUAD        | OMNI    | 630     | F1A  |  |            |
| DB0AS                            | 2320.967  | JN67CR | GH22H | 0.5       | 28EL. YAGI         | NW      | 1560    | F1A  |  |            |
| DC8EC/A                          | 2321.050  | JN58TB | FI79G | .4        | 6EL. GROUP         | NW      | 580     | F2A  |  |            |

| EUROPEAN VHF UHF SHF BEACON LIST 18.08.1985 |           |         |       |           |                    |       |         |         |     |
|---------------------------------------------|-----------|---------|-------|-----------|--------------------|-------|---------|---------|-----|
| CALL                                        | QRB (MHZ) | WW-QTH  | E-QTH | POWER (W) | ANTENNA            | QTF   | ASL (M) | MODE    |     |
| DL0UB                                       | 144.850   | J06220L | GM47B | 5         | 4*DIPOLE           | OMNI  | 80      | F1A/F1B | F1A |
| DB0OP                                       | 144.900   | JN59WI  | FJ36H | 4         | BIG WHEEL          | OMNI  | 522     |         | A1A |
| DL0PR                                       | 144.910   | J044JH  | ED54C | 150       | 6EL. YAGI          | N/S   | 100     |         | A1A |
| DK00E                                       | 144.915   | J030DU  | DK12A | 30 ERP    | 10EL. YAGI         | NNE   | 265     |         | F1A |
| DB0JT                                       | 144.927   | J067JT  | GH14C | 30 ERP    | 2*4+4 DIPOLE       | NW    | 785     |         | A1A |
| DL0UH                                       | 144.940   | J041RD  | EL68F | 1 ERP     | V-DIPOLE           | OMNI  | 385     |         | A1A |
| DF0ANN                                      | 144.966   | JN59PJ  | FJ34E | 0.02      | DIPOLE             | OMNI  | 630     |         | F1A |
| DL0SG                                       | 144.975   | JN68EQ  | GI22C | 15        | 4*4EL. YAGI        | OMNI  | 500     |         | A1A |
| DL0BQ                                       | 432.050   | JN49BP  | EJ23D | 0.5       | DISCONE            | OMNI  | ??      |         | A1A |
| DK1WY                                       | 432.095   | J042MG  | EM56F | 0.05      | BIG WHEEL          | OMNI  | 90      |         | A1A |
| DJ4WG                                       | 432.455   | JN59AQ  | FJ21G | 0.005     | 11EL. YAGI         | NE    | 265     | F1A     | A1A |
| DB0QO                                       | 432.540   | J042BA  | EH71E | 2         | SLOT RADIAT        | OMNI  | ??      |         | A1A |
| DB0JZ                                       | 432.805   | J031SN  | DL38J | 1 ERP     | ????               | OMNI  | 125     |         | F1A |
| DL0RW/A                                     | 432.810   | JN69ES  | GJ12D | 1         | 2*DIPOLE QUAD      | NW/SW | 825     |         | A1A |
| DB0OP                                       | 432.825   | JN59WI  | FJ60H | 2         | BIG WHEEL          | OMNI  | 522     |         | A1A |
| DB0KI                                       | 432.841   | J050SF  | FK68B | 2         | 4*4EL. YAGI        | OMNI  | 720     |         | F1A |
| DL0UB                                       | 432.850   | J0620L  | GM47B | 5         | 4*DOUBLE QUAD      | OMNI  | 80      |         | F1A |
| DB0AE                                       | 432.890   | J043GN  | EN33C | ??        | ????               | ??    | ??      |         | F1A |
| DB0YI                                       | 432.900   | J042XC  | EM80B | 1         | BIG WHEEL          | OMNI  | 480     |         | A1A |
| DB0AD                                       | 432.913   | J030XS  | DK20D | 1         | 11EL. YAGI         | W     | 290     |         | F1A |
| DB0JG                                       | 432.925   | J031GT  | DL13C | 1         | CLOVER LEAF        | OMNI  | 45      |         | F1A |
| DL0UH                                       | 432.940   | J041RD  | EL68F | 0.3 ERP   | V-DIPOLE           | OMNI  | 385     |         | A1A |
| DB0LB                                       | 432.945   | JN48NV  | E106D | 0.2       | CORNER DIPOLE      | N/S   | 367     |         | F1A |
| DB0QS                                       | 432.945   | J040CW  | EK01G | 0.7 ERP   | 2 EL. YAGI         | W     | 745     |         | F2A |
| DB0AA                                       | 432.950   | J031NK  | DL46C | 1 ERP     | ????               | N     | ??      |         | F1A |
| DB0AH                                       | 432.950   | J053JD  | FN65F | 3.5       | DIPOLE             | OMNI  | 118     |         | A1A |
| DF0ANN                                      | 432.966   | JN59PJ  | FJ47E | 1         | CLOVER LEAF        | OMNI  | 630     |         | F1A |
| DL0SG                                       | 432.974   | JN68EQ  | GI22C | 7         | 4*11EL. YAGI       | OMNI  | 500     |         | A1A |
| DB0JW                                       | 432.975   | J030DU  | DK12J | 50 ERP    | ????               | NE    | 165     |         | F1A |
| DF0AAD                                      | 432.990   | J0541F  | FO64A | 10 ERP    | 4*DOUB. HYBR. QUAD | OMNI  | 250     |         | F1A |
| DL1XV                                       | 433.143   | JN67LQ  | GH25C | 40        | SLOT               | NW    | 1618    |         | F1A |
| DF5EO/A                                     | 1296.025  | J031DV  | DL02E | 0.8       | DBL. HELICAL       | OMNI  | 170     |         | F1A |
| DB0AJ                                       | 1296.180  | JN57VX  | FH09B | 10        | 6EL. GROUP         | N/W   | 720     |         | A1A |
| DK1WY                                       | 1296.285  | J042MG  | EM56F | 0.025     | BIG WHEEL          | OMNI  | 90      |         | A1A |
| DB0JS                                       | 1296.800  | JN59GB  | FJ73C | 5 ERP     | SLOT               | OMNI  | 700     |         | A1A |
| DB0GP                                       | 1296.805  | JN48NG  | E130G | 4 ERP     | 4*5EL. YAGI        | OMNI  | 760     |         | F1A |
| DB0VI                                       | 1296.815  | JN39MF  | DJ66H | 1         | 13EL. YAGI         | ??    | 400     |         | F1A |
| DB0KI                                       | 1296.844  | J050SF  | FK68B | 5         | 4*DOUBLE QUAD      | OMNI  | 720     |         | A1A |
| DL0UB                                       | 1296.850  | J0620L  | GM47B | 3         | DBL HELICAL        | OMNI  | 80      |         | F1A |
| DB0JO                                       | 1296.854  | J031SL  | DL48A | 350 ERP   | 4*15+15EL. YAGI    | W     | 312     |         | F1A |
| DB0JC                                       | 1296.895  | J040RV  | EK08F | 1.5       | 4EL. SLOT WAVEG    | OMNI  | 620     |         | F1A |
| DB0JR                                       | 1296.900  | JN67CR  | GH22H | 0.2       | CORNER REFLECTOR   | NNW   | 1560    |         | F2A |
| DB0AN                                       | 1296.900  | J031SX  | DL08B | 1         | BIG WHEEL          | OMNI  | 100     |         | F2A |
| DB0AD                                       | 1296.905  | J030XS  | DK20D | 1         | DIPOLE             | W/E   | 290     |         | F1A |
| DB0JB                                       | 1296.910  | JN48FX  | E103A | 1 ERP     | BIG WHEEL          | OMNI  | 275     |         | F1A |
| DB0VC                                       | 1296.920  | J0541F  | FO64A | 10        | 2*BIG WHEEL        | OMNI  | 250     |         | F1A |
| DB0YI                                       | 1296.935  | J042XC  | EM80B | 3         | BIG WHEEL          | OMNI  | 480     |         | A1A |
| DL0UH                                       | 1296.940  | J041RD  | EL68F | 0.2 ERP   | V-DIPOLE           | OMNI  | 385     |         | A1A |
| DB0QS                                       | 1296.945  | J040CW  | EK01G | 1 ERP     | 6 EL. ARRAY        | W     | 745     |         | F1A |
| DF0ANN                                      | 1296.956  | JN59PJ  | FJ47E | 2         | 4*DOUBLE QUAD      | OMNI  | 630     |         | F1A |
| DB0JU                                       | 1296.975  | J031BU  | DL11B | ??        | HELICAL            | OMNI  | 295     |         | A1A |
| DB0FB                                       | 1296.990  | JN47AU  | EH11H | 4         | DIPOLE             | N/S   | 1200    |         | F1A |
| DB0JN                                       | 1296.990  | J031WP  | DL30F | 0.1       | MINI WHEEL         | OMNI  | 80      |         | F1A |
| DB0JQ                                       | 1296.995  | JN68TU  | GI19H | 6 ERP     | 4*QUAD             | OMNI  | 1150    |         | F2A |
| DB0JW                                       | 1297.010  | J030DU  | DK12J | 50 ERP    | ????               | NE    | 165     |         | F1A |
| DB0LB                                       | 1297.040  | JN48NV  | E106D | 0.2       | DIPOLE             | OMNI  | 367     |         | F1A |
| DB0KI                                       | 2320.844  | J050SF  | FK68B | 1         | 4*6EL. ARRAY       | OMNI  | 720     |         | A1A |
| DB0JO                                       | 2320.899  | J031SL  | DL48A | 0.1       | DIPOLE             | N     | 312     |         | F1A |
| DB0JB                                       | 2320.900  | JN48FX  | E103A | 1 ERP     | BIG WHEEL          | OMNI  | 275     |         | F1A |
| DB0JW                                       | 2320.900  | J030DU  | DK12J | 50 ERP    | ????               | NE    | 165     |         | F1A |
| DB0VC                                       | 2320.920  | J0541F  | FO64A | 5         | BIG WHEEL          | OMNI  | 250     |         | F1A |
| DB0GB                                       | 2320.940  | J0300Q  | DK27G | 2 ERP     | SLOT               | OMNI  | 324     |         | A1A |
| DB0QS                                       | 2320.945  | J040CW  | EK01G | 1 ERP     | 8 EL. ARRAY        | W     | 745     |         | F1A |
| DF0ANN                                      | 2320.965  | JN59PJ  | FJ47E | 0.5       | DOUBLE QUAD        | OMNI  | 630     |         | F1A |
| DB0AS                                       | 2320.967  | JN67CR  | GH22H | 0.5       | 28EL. YAGI         | NW    | 1560    |         | A1A |
| DC8EC/A                                     | 2321.050  | JN58TB  | FI79G | 4         | 6EL. GROUP         | NW    | 590     |         | F2A |
| DL7QY/A                                     | 3456.000  | JN49XC  | EJ80B | 0.05      | HORN               | E     | 450     |         | A1A |
| DB0KI                                       | 3456.058  | J050SF  | FK68B | 0.2       | 10DB SLOT WAVEG.   | OMNI  | 720     |         | A1A |
| DL0WY                                       | 3456.115  | JN67CR  | GH22H | 0.08      | 12EL. GROUP        | NW    | 1560    |         | A1A |
| DB0JO                                       | 3456.155  | J031SL  | DL48A | ??        | ????               | ??    | 312     |         | F1A |
| DC0DA                                       | 3456.360  | J031SM  | DL38E | 120 ERP   | 0.7M DISH          | N     | 220     |         | F1A |
| DL7QY/A                                     | 5760.000  | JN49XC  | EJ80B | 0.01      | HORN               | E     | 450     |         | A1A |
| DB0KI                                       | 5760.097  | J050SF  | FK68B | 0.1       | 10DB SLOT WAVEG.   | OMNI  | 720     |         | A1A |
| DL0WY                                       | 5760.192  | JN67CR  | GH22H | 0.05      | 6DB HORN           | NW    | 1560    |         | A1A |
| DC0DA                                       | 5760.600  | J031SM  | DL38E | 8.5 ERP   | 0.7M DISH          | N     | 220     |         | F1A |
| DB0JX                                       | 10350.000 | J031FF  | DL63A | 0.01      | 10DB GAIN          | OMNI  | 115     |         | F2A |
| DL7QY/A                                     | 10368.000 | JN49XC  | EJ80B | 0.01      | HORN               | E     | 450     |         | A1A |
| DL1MZ/P                                     | 10368.020 | JN57TU  | FI19H | .1        | SLOT               | OMNI  | 700     |         | F1A |
| DB0KI                                       | 10368.175 | J050SF  | FK68B | 0.03      | 10DB SLOT WAVEG.   | OMNI  | 720     |         | A1A |
| DL0WY                                       | 10368.345 | JN67CR  | GH22H | 0.02      | 10DB HORN          | NW    | 1560    |         | A1A |
| DL0WY                                       | 24192.885 | JN67CR  | GH22H | 0.0005    | 15DB HORN          | NW    | 1560    |         | A1A |
| EA3XS                                       | 144.152   | JN11DP  | BB22E | 20/250    | 16EL. YAGI         | NE    | ??      | F1A     | ??  |
| EA1VHF                                      | 144.867   | IN53UG  | VD59E | 25        | 5EL. YAGI          | N/E   | ??      |         | A1A |
| EA3VHF                                      | 144.892   | J111LS  | BB15D | 25        | 5EL. HALO          | OMNI  | 155     |         | A1A |
| EA6VHF                                      | 144.918   | JN08PW  | AY07J | 25        | 5EL. YAGI          | NE    | 150     |         | A1A |

| EUROPEAN VHF UHF SHF BEACON LIST |           |        |       |           |                   |       |         | 18.08.1985 |
|----------------------------------|-----------|--------|-------|-----------|-------------------|-------|---------|------------|
| CALL                             | QRG (MHZ) | NW-QTH | E-QTH | POWER (W) | ANTENNA           | QTF   | ASL (M) | MODE       |
| E14RF                            | 70.130    | 1043SN | WN3BC | 25 ERP    | 2*SEL. YAGI       | NE/SE | 120     | A1A        |
| FX0THF                           | 144.895   | JN08ML | A146H | 30        | 2*TURNSTILE       | OMNI  | 246     | F1A        |
| FX3THF                           | 144.905   | IN88GS | Y113D | 30        | 2*9EL. YAGI       | E     | 80      | F1A        |
| FX4VHF                           | 144.955   | JN05VE | AF69C | 20        | BIG WHEEL         | OMNI  | 600     | A1A        |
| FX1UHF                           | 432.830   | JN18BR | B121B | 10        | 4*BIG WHEEL       | OMNI  | 160     | F1A        |
| FX4UHF                           | 432.866   | IN93EH | ZD52C | 10        | 2*6EL. YAGI       | NNE   | 900     | F1A        |
| FX3UHF                           | 432.950   | IN97PF | ZH67A | 10        | 4*BIG WHEEL       | OMNI  | 200     | F1A        |
| FX4UHF                           | 1296.823  | JN06WD | AG70F | 100 ERP   | ????              | OMNI  | ??      | F1A        |
| FZ4UHF                           | 1296.886  | JN06BX | AG01A | 15 ERP    | CARDIOTID         | OMNI  | ??      | F1A        |
| GB3SIX                           | 50.020    | 1073TJ | XN49F | 100 ERP   | 3EL. YAGI         | W     | 58      | F1A        |
| GB3NHQ                           | 50.050    | 1091VQ | ZL29C | 15 ERP    | CROSSED DIPOLES   | OMNI  | 35      | F1A        |
| GB3CTC                           | 70.030    | 10700J | XK46D | 40 ERP    | 2EL. YAGI         | NE    | 320     | F1A        |
| GB3WHA                           | 70.040    | J001BA | AL71D | 16 ERP    | 2EL. YAGI         | NW    | 168     | F1A        |
| GB3BUX                           | 70.050    | 1093BF | ZN61A | 20 ERP    | 2*TURNSTILE       | OMNI  | 460     | A1A/F1A    |
| GB3ANG                           | 70.060    | 1086LN | YQ35C | 100 ERP   | 4EL. YAGI         | SSE   | 370     | F1A        |
| GB3CTC                           | 144.915   | 10700J | XK46D | 40 ERP    | 3EL. YAGI         | NE    | 320     | A1A        |
| GB3VHF                           | 144.925   | J001DH | AL52J | 50 ERP    | 2*3EL. YAGI       | NW/NW | 275     | F1A/F1B    |
| GB3LER                           | 144.965   | IP90JD | ZU65F | 50 ERP    | 4EL. YAGI         | NNE   | 107     | F1A        |
| GB3ANG                           | 144.975   | 1086LN | YQ35C | 20 ERP    | 3EL. YAGI         | SSE   | 370     | F1A        |
| GB3WHA                           | 432.810   | J001BA | AL71D | 25 ERP    | 2*8+8EL. YAGI     | NW/E  | 165     | F1A        |
| GB3MLY                           | 432.910   | 1093EO | ZN32B | 50 ERP    | 8+8EL. YAGI       | SE    | 600     | F1A        |
| GB3CTC                           | 432.970   | 10700J | XK46D | 5 ERP     | 4EL. YAGI         | NE    | 320     | F1A        |
| GB3ANG                           | 432.980   | 1086LN | YQ35C | 100 ERP   | 9EL. YAGI         | SSE   | 370     | F1A        |
| GB3NWK                           | 1296.810  | J001BH | AL51J | 100       | 2*8EL. YAGI       | NNW   | 180     | F1A        |
| GB3BPO                           | 1296.830  | J002PB | AM77J | 700 ERP   | 2*32ELSLT.WAVEG   | W/E   | 85      | F1A        |
| GB3FRS                           | 1296.850  | 1091PH | ZL57J | 3         | DISC              | OMNI  | 120     | F1A        |
| GB3AND                           | 1296.870  | 1091GF | ZL63B | 50 ERP    | STACK. SLOTS      | OMNI  | 85      | F1A        |
| GB3DUN                           | 1296.890  | 1091SV | ZL08E | 2 ERP     | HB9CV             | N     | 263     | F1A        |
| GB3IOW                           | 1296.900  | 109010 | ZK34A | 100 ERP   | ALFORD SLOT       | OMNI  | 250     | F1A        |
| GB3CLE                           | 1296.910  | 1082RL | YM48H | 10 ERP    | 2*15+15EL. YAGI   | N/SE  | 573     | F1A        |
| GB3MLE                           | 1296.930  | 1093EO | ZN32B | 50 ERP    | CORNERREFLECTOR   | SSE   | 600     | F1A        |
| GB3EDN                           | 1296.990  | 1085HW | YP04G | 25 ERP    | 2*CORNER REFLCT.  | NW/SE | 117     | F1A        |
| GB3AND                           | 2304.010  | 1091GF | ZL63B | 5 ERP     | ????              | E     | 85      | F1A        |
| GB3LDN                           | 2304.050  | J001BL | AL41A | 25 ERP    | ????              | NW/NE | ??      | F1A        |
| GB3LES                           | 2320.955  | 10921Q | ZN24J | 5 ERP     | ALFORDSLOT        | OMNI  | 220     | F1A        |
| GB3IOW                           | 10100.000 | 109010 | ZK34A | 0.15 ERP  | SLOT WAVEGUIDE    | OMNI  | 250     | F2A        |
| GB3LBH                           | 10100.000 | J001BN | AL31C | 1.5 ERP   | WAVEGUIDE         | OMNI  | 45      | F2A/F3E    |
| GB3ALD                           | 10120.000 | IN89WR | YJ30H | 1 ERP     | SECT. HORN        | NNE   | 90      | F2A        |
| GB3MHX                           | 10368.830 | J002PB | AM77J | 1 ERP     | 1.2M DISH         | E     | 60      | F1A        |
| GB3XGH                           | 10400.000 | 1093OF | YH67B | 1 ERP     | SLOT              | OMNI  | 100     | F2A        |
| GB3LEX                           | 10400.000 | 10921Q | ZN24J | 1 ERP     | SLOT WAVEGUIDE    | SE    | 220     | F2A        |
| HB9HB                            | 144.865   | JN37NE | DH66C | 0.036 10  | 10EL. YAGI        | NNW   | 1300    | F1A        |
| HB9W                             | 144.875   | JN47BG | EH43D | 15 ERP    | HALO              | OMNI  | 490     | A1A        |
| HB9F                             | 432.784   | JN36XN | D048C | 5         | CORNERREFLECTOR   | N/S   | 3573    | F1A        |
| HB9BD/P                          | 1296.050  | JN47FA | EH73E | 5         | CORNER            | N/NE  | 1661    | F1A        |
| HB9F                             | 1296.945  | JN36SW | D008C | 15 ERP    | 2*CORN. REFLECTOR | NE/SW | 937     | F1A        |
| I17A                             | 144.805   | JN67LX | GX05B | 30 ERP    | 2*BIG WHEEL       | OMNI  | 825     | A1A        |
| I50A                             | 144.810   | JN40SA | EA08A | 25 ERP    | TURNSTILE         | OMNI  | 450     | F1A        |
| I4A                              | 144.815   | JN54LG | FE55D | 20 ERP    | 2*TURNSTILE       | OMNI  | 950     | A1A        |
| I7A                              | 144.815   | JN71UR | HB29A | 12 ERP    | BIG WHEEL         | OMNI  | 1012    | A1A        |
| I0A                              | 144.825   | JN61ES | GB12D | 30 ERP    | 2*BIG WHEEL       | OMNI  | 30      | A1A        |
| I16                              | 144.830   | JN35SH | DF58C | 20 ERP    | BIG WHEEL         | OMNI  | 625     | A1A        |
| I17G                             | 144.840   | JM68QE | GY67C | 35 ERP    | 5EL. YAGI         | N     | 150     | A1A        |
| I1A                              | 144.845   | JN35QJ | DF27G | 20 ERP    | 11EL. YAGI        | NE/SW | 750     | A1A        |
| I5A                              | 144.850   | JN53FR | FD23H | 4 ERP     | BIG WHEEL         | OMNI  | 918     | A1A        |
| I2M                              | 144.870   | JN55AD | FF61F | 20 ERP    | BIG WHEEL         | OMNI  | 52      | A1A        |
| I2G                              | 144.875   | JN45ST | EF18J | 30 ERP    | 2*BIG WHEEL       | OMNI  | 1330    | A1A        |
| I8A                              | 144.890   | JM78WD | HY70F | 20 ERP    | 2*TURNSTILE       | OMNI  | 1958    | A1A        |
| I17B                             | 432.805   | JM67LX | GX05B | 50 ERP    | 10EL. YAGI        | N     | 825     | A1A        |
| I0B                              | 432.825   | JN61ES | GB12D | 40 ERP    | 4*MINI WHEEL      | OMNI  | 30      | A1A        |
| I1H                              | 432.830   | JN35SN | DF38C | 12 ERP    | 3EL. YAGI         | S     | 650     | A1A        |
| I5B                              | 432.850   | JN53JR | FD25H | 20 ERP    | 4*MINI WHEEL      | OMNI  | 56      | A1A        |
| I2B                              | 432.860   | JN45NT | EF16J | 35 ERP    | 2*10EL. YAGI      | SE/SW | 490     | A1A        |
| I2H                              | 432.870   | JN55DN | FF32J | 2 ERP     | TURNSTILE         | OMNI  | 990     | A1A        |
| I2U                              | 432.875   | JN45ST | EF18J | 30 ERP    | 2*TURNSTILE       | OMNI  | 1330    | A1A        |
| I13B                             | 432.880   | JN65WR | GF30H | 4 ERP     | TURNSTILE         | OMNI  | 418     | A1A        |
| I6B                              | 432.885   | JN72AN | HC31G | 12 ERP    | 2*TURNSTILE       | OMNI  | 444     | A1A        |
| I8B                              | 432.890   | JM70WD | HA40A | 12 ERP    | 2*MINI WHEEL      | OMNI  | 250     | A1A        |
| I0H                              | 432.900   | JN61ES | GB14E | 4 ERP     | 2*MINI WHEEL      | OMNI  | 373     | A1A        |
| I4C                              | 1296.815  | JN54PK | FE47J | 4 ERP     | 2*MINI WHEEL      | OMNI  | 444     | A1A        |
| I1I                              | 1296.830  | JN35SH | DF58C | 0.4 ERP   | SQUARECORNER      | S     | 625     | A1A        |
| I5C                              | 1296.850  | JN53DV | FD02E | 0.2 ERP   | MINI WHEEL        | OMNI  | 50      | A1A        |
| I5I                              | 1296.855  | JN53LL | FD45B | 10 ERP    | 4*MINI WHEEL      | OMNI  | 550     | A1A        |
| IC8C                             | 1296.890  | JN70CT | HA12B | 6 ERP     | MINI WHEEL        | OMNI  | 589     | A1A        |
| I1D                              | 2304.830  | JN35TB | DF79B | 1 ERP     | 2*SQUARECORNER    | N/S   | 25      | A1A        |
| ISX                              | 10450.000 | JN54BC | FE71A | 0.4 ERP   | 15DB HORN         | NW    | 1260    | A1A        |
| LA5VHF                           | 144.855   | JP76CW | HA01C | 100 ERP   | 2*6 EL. QUAD      | SW/S  | 450     | A1A        |
| LA1VHF                           | 144.860   | JO49BT | ET13C | 12        | TURNSTILE         | OMNI  | 1882    | A1A        |
| LA2VHF                           | 144.870   | JP53EG | FX52D | 500 ERP   | 10EL. YAGI        | NNE   | 710     | A1A        |
| LA3VHF                           | 144.880   | JO38PB | DS77J | 120 ERP   | 8EL. YAGI         | S     | 100     | A1A        |
| LA4VHF                           | 144.890   | JP20QJ | CU27G | 200 ERP   | 4*8EL. YAGI       | S     | 48      | A1A        |
| LA8UHF                           | 432.820   | JO59CB | FT71C | 25 ERP    | 10EL. YAGI        | S     | 70      | A1A        |
| LA5UHF                           | 432.855   | JP6677 | GA777 | 250 ERP   | 17 EL. YAGI       | S     | 1140    | A1A        |
| LA1UHF                           | 432.860   | JO59JW | FT05G | 10 ERP    | MINI WHEEL        | OMNI  | 364     | A1A        |
| LA3UHF                           | 432.880   | JO48BC | ES71A | 40 ERP    | 2*10EL. YAGI      | SSW   | 15      | A1A        |



| EUROPEAN VHF UHF SHF BEACON LIST |           |        |       |           |                 |        |         |         |      | 18.08.1985 |
|----------------------------------|-----------|--------|-------|-----------|-----------------|--------|---------|---------|------|------------|
| CALL                             | QRG (MHZ) | WW-QTH | E-QTH | POWER (W) | ANTENNA         |        | QTF     | ASL (M) | MODE |            |
| LA1UHG                           | 1295.990  | J059FE | FT636 | 25 ERP    | MINI            | WHEEL  | OMNI    | 75      | A1A  |            |
| LA8UHG                           | 1295.995  | J059JW | FT056 | 10 ERP    | MINI            | WHEEL  | OMNI    | 364     | A1A  |            |
| LA3UHG                           | 1295.999  | J038XB | DS80C | 10 ERP    | 2*15EL.         | YAGI   | S       | 5       | A1A  |            |
| LA1UHH                           | 2320.860  | J059FE | FT636 | 20 ERP    | 7DB             | HORN   | S       | 75      | A1A  |            |
| LA1SHF                           | 5760.860  | J059FE | FT636 | 2.5 ERP   | 10DB            | HORN   | S       | 75      | A1A  |            |
| LA1SHG                           | 10368.000 | J059FE | FT636 | 20 ERP    | 17DB            | HORN   | S       | 75      | A1A  |            |
| L2ZF                             | 145.980   | KN33WM | ND40F | 25 ERP    | ????            | ????   | OMNI    | 295     | ??   |            |
| OE3XAA                           | 144.126   | JN88BA | II71D | 0.5       | HALO            | WHEEL  | OMNI    | 840     | A1A  |            |
| OE3XAA                           | 432.378   | JN88BA | II71D | 1 ERP     | 4EL.            | YAGI   | NNE     | 840     | A1A  |            |
| OE3XMB                           | 432.400   | JN77SX | HH08B | 0.1       | 9EL.            | YAGI   | N/NW    | 1246    | A1A  |            |
| OE1XCS                           | 1296.340  | JN88DD | II62E | 0.2       | ????            | ????   | N       | ??      | ??   |            |
| OE3XMB                           | 1296.400  | JN77SX | HH08B | .018      | DOUBLE          | QUAD   | N/NW    | 1246    | A1A  |            |
| OE3XPA                           | 1297.153  | JN78SB | HI78C | 0.1       | 11EL.           | YAGI   | NW      | 725     | A1A  |            |
| OH6VHF                           | 144.900   | KP02TB | KW59F | 50/100    | 2*6EL.          | YAGI   | N/SW    | 220     | A1A  |            |
| OH2NLA                           | 432.240   | KP20TD | MU64E | 5         | ????            | ????   | OMNI    | 40      | F1A  |            |
| OH2NRA                           | 432.300   | KP20JE | MU65B | 5         | TURNSTILE       | WHEEL  | OMNI    | 20      | A1A  |            |
| OH6UHF                           | 432.840   | KP13GM | LX33D | 7         | 7 DB N 4.5DB    | WHEEL  | OMNI    | 60      | A1A  |            |
| OK0ED                            | 144.885   | JN99BO | JJ33A | 0.1       | 2*DIPOLE        | WHEEL  | OMNI    | 560     | F1A  |            |
| OK0EA                            | 144.944   | J070UP | HK29D | .004      | 2*DIPOLE        | WHEEL  | OMNI    | 1355    | F1A  |            |
| OK0EO                            | 144.965   | JN89QQ | IJ27C | .05       | CROSS           | DIPOLE | OMNI    | 610     | F1A  |            |
| OK0EB                            | 144.970   | JN78DU | HI12A | .1        | BIG             | WHEEL  | OMNI    | 1083    | F1A  |            |
| OK0ET                            | 144.978   | KN08SU | KI18A | .5        | HB9CV           | WHEEL  | W       | 981     | F1A  |            |
| OK0EC                            | 144.980   | J060CF | GK62H | .08       | 3EL.            | YAGI   | E       | 790     | F1A  |            |
| OK0EP                            | 432.885   | J0800C | IK77H | .2        | 2*3EL.          | YAGI   | W/SE    | 1500    | F1A  |            |
| OK0EA                            | 432.938   | J070UP | HK29D | 2.5       | 2*15EL.         | YAGI   | W/SW    | 1355    | F1A  |            |
| OK0EO                            | 432.965   | JN89QQ | IJ27C | .05       | CROSS           | DIPOLE | OMNI    | 610     | F1A  |            |
| OK0EB                            | 432.970   | JN78DU | HI12A | .05       | 3*DIPOLE        | WHEEL  | OMNI    | 1100    | F1A  |            |
| OK0EC                            | 432.980   | J060CF | GK62H | .08       | 10EL.           | YAGI   | E       | 790     | F1A  |            |
| OK0EA                            | 1296.900  | J070UP | HK29D | 0.2       | 4*15EL.         | YAGI   | W/S/N/E | 1355    | F1A  |            |
| ON4VHF                           | 144.985   | J020FP | CK23E | 2.5       | BIG             | WHEEL  | OMNI    | ??      | F1A  |            |
| ON5UHF                           | 1296.880  | J010UN | BK39J | 10 ERP    | ????            | ????   | OMNI    | 180     | F1A  |            |
| OX3VHF                           | 50.045    | I006PS | QK17E | 20        | GROUND PLANE    | WHEEL  | OMNI    | 25      | A1A  |            |
| OX3VHF                           | 144.982   | I006PS | QK17E | 10        | 4EL.            | YAGI   | SE      | 75      | A1A  |            |
| OY6VHF                           | 144.885   | IP62NA | WW76D | 60 ERP    | 4EL.            | YAGI   | SE      | 350     | A1A  |            |
| OY6UHF                           | 432.885   | IP62NA | WW76D | 30 ERP    | 5EL.            | YAGI   | SE      | 350     | A1A  |            |
| OZ3VHF                           | 144.149   | J055FI | FP53H | .1        | HALO            | WHEEL  | OMNI    | 35      | A1A  |            |
| OZ7IGY                           | 144.930   | J055VO | FP39B | 50 ERP    | BIG             | WHEEL  | OMNI    | 96      | A1A  |            |
| OZ2UHF                           | 432.865   | J046JD | EQ64D | 10 ERP    | BIG             | WHEEL  | OMNI    | 85      | F1A  |            |
| OZ4UHF                           | 432.895   | J075JE | HP64C | 20 ERP    | BIG             | WHEEL  | OMNI    | 154     | A1A  |            |
| OZ7IGY                           | 432.930   | J055VO | FP39B | 50 ERP    | BIG             | WHEEL  | OMNI    | 96      | A1A  |            |
| OZ1UHF                           | 432.955   | J047WB | ER80J | 30 ERP    | 2*MALTESER      | WHEEL  | OMNI    | 85      | A1A  |            |
| OZ2ALS                           | 432.983   | J045VB | EP79C | 10        | BIG             | WHEEL  | OMNI    | 32      | A1A  |            |
| OZ2UHF                           | 1296.865  | J046JD | EQ64D | 3         | BIG             | WHEEL  | OMNI    | 85      | F1A  |            |
| OZ7IGY                           | 1296.930  | J055VO | FP39B | 5 ERP     | BIG             | WHEEL  | OMNI    | 96      | A1A  |            |
| OZ1UHF                           | 1296.955  | J047WB | ER80J | 10 ERP    | BIG             | WHEEL  | OMNI    | 85      | F1A  |            |
| OZ3ALS                           | 1296.985  | J045VB | EP79C | 10 ERP    | BIG             | WHEEL  | OMNI    | 33      | A1A  |            |
| PA0DSW                           | 432.895   | J022JH | CM35F | 0.5       | MALT. CROSS     | WHEEL  | OMNI    | 10      | A1A  |            |
| PA0EHG/A                         | 1296.875  | J021SK | CL48J | 4         | GAIN 6DB        | WHEEL  | OMNI    | 61      | F1A  |            |
| PA0QHN                           | 1296.917  | J022FH | CM53J | 4         | GAIN 6DB        | WHEEL  | OMNI    | 20      | F1A  |            |
| PA0TGA                           | 2320.900  | J021WU | CL20A | 1         | 10 DB GAIN      | WHEEL  | NW/W    | ??      | ??   |            |
| PA0QHN                           | 2320.925  | J022FH | CM53J | 2         | GAIN 6DB        | WHEEL  | OMNI    | 20      | F1A  |            |
| PA0MS/A                          | 10368.045 | J021SL | CL48A | 0.05      | GAIN 21DBI      | WHEEL  | NW      | 56      | F1A  |            |
| PE1BLE                           | 10368.045 | J022JH | CM55B | 0.01      | 15 DBI          | WHEEL  | OMNI    | 50      | F1A  |            |
| PA0DBQ                           | 10368.100 | J022DB | CM72J | 0.04      | GAIN 20DB       | WHEEL  | W       | 75      | F1A  |            |
| SK2VHF                           | 144.875   | JP94TF | JY69H | 30        | 2*CLOVER LEAF   | WHEEL  | OMNI    | 300     | A1A  |            |
| SK2VHF                           | 144.890   | KP07MV | KB06F | 60        | 16EL.           | YAGI   | S       | 495     | A1A  |            |
| SK7VHF                           | 144.920   | J065SN | GP38C | 30        | 2*CLOVER LEAF   | WHEEL  | OMNI    | 190     | A1A  |            |
| SK1VHF                           | 144.950   | J077BG | JR51D | 10        | 2*CLOVER LEAF   | WHEEL  | OMNI    | 60      | A1A  |            |
| SK4MP1                           | 144.960   | JP70NJ | HU46D | 100       | 4*6EL.          | YAGI   | N       | 510     | A1A  |            |
| SK3UHF                           | 432.855   | JP82XO | IW40B | 10        | 4*DOUBLE        | QUAD   | OMNI    | 180     | A1A  |            |
| SK2UHF                           | 432.875   | JP74WG | JY60E | 20        | 2*20 EL. COLL   | WHEEL  | N/S     | 400     | A1A  |            |
| SK7UHF                           | 432.920   | J077BQ | HR21J | 7         | BIG             | WHEEL  | OMNI    | 350     | A1A  |            |
| SK6UHF                           | 432.925   | J067BF | GR61A | 10 ERP    | BIG             | WHEEL  | OMNI    | 75      | A1A  |            |
| SK7UHF                           | 432.936   | J086FG | IQ23J | 30 ERP    | 2*CLOVER LEAF   | WHEEL  | OMNI    | 60      | A1A  |            |
| SK1UHF                           | 432.950   | J097BJ | JR41D | 10        | 2*BIG           | WHEEL  | OMNI    | 60      | A1A  |            |
| SK4UHF                           | 432.960   | J079KH | HT35J | 60        | 4*10EL.LOG.PER. | WHEEL  | N/SW/SE | 285     | A1A  |            |
| SK5UHF                           | 432.975   | JP80TB | IU79E | 25 ERP    | BIG             | WHEEL  | OMNI    | 90      | A1A  |            |
| SK6UHF                           | 1296.800  | J066LJ | GQ45D | 10 ERP    | CLOVER LEAF     | WHEEL  | OMNI    | 220     | A1A  |            |
| SK0UHF                           | 1296.835  | J089VJ | IT60H | 15 ERP    | DOUBLE HELICAL  | WHEEL  | OMNI    | 30      | A1A  |            |
| SK7UHF                           | 1296.920  | J077BQ | HR21J | 2 ERP     | BIG             | WHEEL  | OMNI    | 350     | A1A  |            |
| SK6UHF                           | 1296.925  | J057TT | FR29E | 10        | 4*BIG           | WHEEL  | OMNI    | 35      | A1A  |            |
| SK4UHF                           | 1296.960  | JP60VA | GU79D | 4         | 2*15EL.         | YAGI   | S       | 450     | ??   |            |
| SK6UHF                           | 2320.800  | J058RG | FS58F | 1         | 2*??EL.         | YAGI   | S/SW    | 80      | A1A  |            |
| SK6SHG                           | 10368.800 | J058RG | FS58F | 10 ERP    | 20 DB HORN      | WHEEL  | S       | 80      | A1A  |            |
| SK7SHG                           | 10368.850 | J065OR | GP27H | 0.5 ERP   | 10 DB OMNI      | WHEEL  | OMNI    | 110     | F1A  |            |
| SP6VHF                           | 144.966   | J070VP | HK29D | 0.15      | 12EL.           | YAGI   | NE      | 1602    | A1A  |            |
| SP6VHF                           | 431.998   | J070VR | HK29D | 0.06      | 2EL.            | YAGI   | NE      | 1602    | A1A  |            |
| UP2WN                            | 144.136   | K025DB | MP72J | 3         | TURNSTILE       | WHEEL  | OMNI    | ??      | A1A  |            |
| UK3KP                            | 144.140   | K085TV | SP7?? | 5         | 9 EL.           | YAGI   | NNE     | ??      | A1A  |            |
| UZ3MWQ                           | 144.162   | K087SV | SR08E | 5         | 2*DIPOLE        | WHEEL  | OMNI    | 130     | A1A  |            |
| UT5U                             | 144.177   | K050CG | PK52F | 5         | DIPOLE          | WHEEL  | OMNI    | 169     | A1A  |            |
| UB4TWC                           | 144.187   | KN38IR | NI24D | 3         | ????            | ????   | ??      | 300     | A1A  |            |
| UZ6AWA                           | 144.189   | KN95JA | TF75F | 3         | GROUNDPLANE     | WHEEL  | OMNI    | ??      | A1A  |            |
| UA9C                             | 144.189   | L096WJ | DQ10J | 3         | 2*DIPOLE        | WHEEL  | OMNI    | ??      | A1A  |            |
| UZ4NWF                           | 144.204   | L049JJ | YT45F | 5         | 9 EL.           | YAGI   | NNE     | 110     | A1A  |            |

## WORLD WIDE VHF TOP LIST 144 MHZ

18.08.1985

NR CALL WW-QTH E-QTH WKD TROPO AURO MS ES

|    |          |      |    |     |      |      |      |       |
|----|----------|------|----|-----|------|------|------|-------|
| 1  | Y22ME    | J072 | HM | 551 | 1605 | 1579 | 2293 | 2197* |
| 2  | SM4IVE   | J079 | HT | 480 | 1900 | 1945 | 2021 | 2284* |
| 3  | SM4GVF   | J079 | HT | 479 | 1796 | 1796 | 2099 | 2310* |
| 4  | PA2VST   | J022 | CM | 468 | 2371 | 1827 | 2572 | 3208* |
| 5  | F6CJG/P  | J115 | BF | 452 | 1748 | 1892 | 2510 | 2836* |
| 6  | SM7FJE   | J066 | GQ | 450 | 1642 | 1600 | 2241 | 1761  |
| 7  | PA0RDY   | J022 | CM | 445 | 1578 | 1959 | 2262 | 2295* |
| 8  | DL8DAT   | J031 | DL | 441 | 1585 | 1542 | 2173 | 3285* |
| 9  | DK6AS    | J052 | FM | 438 | 1460 | 1885 | 2510 | 2260* |
| 10 | G3POT    | J001 | AL | 433 | 1645 | 1935 | 1935 | 2208* |
| 11 | F6B81    | JN26 | CG | 415 | 1510 | 1220 | 2105 | 2705* |
| 12 | SM6EOC   | J066 | GQ | 411 | 1730 | 1800 | 2000 | 2230  |
| 13 | OZ1OF    | J046 | EQ | 408 | 1765 | 1770 | 2134 | 2294  |
| 14 | OZ1EYX   | JN68 | G1 | 402 | 1260 | 1509 | 2102 | 2527* |
| 15 | OZ1EYX   | J066 | GQ | 401 | 1577 | 1759 | 1893 | 2517  |
| 16 | OH7PI    | KP32 | NW | 394 | 1902 | 1715 | 2151 | 2272* |
| 17 | OZ1EIK   | J045 | EP | 392 | 1450 | 1777 | 2088 | 2273  |
| 18 | SM6AEK   | J066 | GQ | 386 | 1730 | 1800 | 1900 | 2330  |
| 19 | SM5CNQ   | J078 | HS | 386 | 1698 | 1751 | 1909 | 1843* |
| 20 | DK5AI    | J051 | FL | 384 | 1661 | 1510 | 2275 | 2282  |
| 21 | OK1KKH   | JN79 | HS | 383 | 1500 | 1489 | 2379 | 2146  |
| 22 | SM6AKH   | J066 | GQ | 379 | 1730 | 1554 | 1900 | 2330  |
| 23 | SM6CMU   | J057 | FR | 376 | 1760 | 1770 | 2280 | 2540  |
| 24 | HG1YA    | JN87 | IR | 370 | 1548 | 1750 | 2183 | 2885  |
| 25 | HG8CE    | KN06 | KG | 366 | 1364 | 1923 | 2050 | 2442  |
| 26 | SM5BEI   | JP90 | JU | 363 | 1525 | 1777 | 2702 | 2455  |
| 27 | OZ1FBO   | J065 | GP | 362 | 1581 | 1762 | 2271 | 2287  |
| 28 | UA3LBD   | K064 | QO | 354 | 1807 | 1939 | 2273 | 2467* |
| 29 | OK1FM    | JN69 | GJ | 350 | 1843 | 1438 | 2220 | 2031* |
| 30 | SM5MIX   | J078 | HS | 350 | 1820 | 1770 | 1876 | 2260* |
| 31 | SM5CHK   | J078 | HS | 350 | 1262 | 1753 | 1991 | 2060  |
| 32 | DL1MF    | JN67 | GH | 348 | 1530 | 1512 | 2085 | 3255  |
| 33 | OZ1DOQ   | J065 | GP | 348 | 1411 | 1598 | 1879 | 2260  |
| 34 | F6DWB    | JN19 | BJ | 346 | 1756 | 1880 | 2143 | 3441  |
| 35 | DK2PR    | J043 | EN | 343 | 1460 | 1515 | 1940 | 2425  |
| 36 | OE3XUA   | JN77 | HH | 339 | 1610 | 1975 | 2150 | 2340* |
| 37 | ONSQW    | J011 | BL | 337 | 1510 | 1927 | 2080 | 3285  |
| 38 | ON7EH    | J020 | CK | 334 | 1525 | 1889 | 2237 | 2227  |
| 39 | DF3YU    | J053 | FN | 332 | 1643 | 1808 | 2106 | 2222  |
| 40 | Y23FB    | J052 | FM | 330 | 1595 | 1375 | 2010 | 2232  |
| 41 | UR2RQ    | K028 | MS | 330 | 1452 | 1840 | 2172 | 1725  |
| 42 | PA00DM   | J033 | DN | 328 | 1405 | 1986 | 2310 | 2215  |
| 43 | SM6OFFS  | J099 | JT | 327 | 1820 | 1500 | 2030 | 2190  |
| 44 | SM6HAX   | J099 | JT | 326 | 1700 | 1640 | 2000 | 2240  |
| 45 | OZ1FDJ   | J065 | GP | 325 | 1559 | 1766 | 1868 | 2259  |
| 46 | I3TJG    | JN65 | GF | 323 | 1000 | 1258 | 2030 | 3120  |
| 47 | OK3AU    | KN08 | KI | 322 | 1608 | 1637 | 2065 | 2293  |
| 48 | OK2AAB   | K033 | NN | 322 | 1350 | 1850 | 1980 | 2280  |
| 49 | F1FHI    | JN97 | ZH | 321 | 1739 | 1922 | 2183 | 2467* |
| 50 | I3LGP    | JN65 | GF | 321 | 1000 | 1387 | 2020 | 3150  |
| 51 | EA3LL    | JN01 | AB | 320 | 1995 | ---  | 2300 | 3215* |
| 52 | UB5JL    | KN74 | RE | 320 | 1709 | 1497 | 2500 | 2826* |
| 53 | SM5AJQ   | J099 | JT | 319 | 1625 | 1979 | 2310 | 2610  |
| 54 | OZ9FW    | J065 | GP | 318 | 1538 | 1831 | 1954 | 2286  |
| 55 | I6WJB    | JN72 | HC | 315 | 2224 | 1500 | 2214 | 2374  |
| 56 | Y21PL    | J061 | GL | 315 | 1760 | 1711 | 2110 | 2060  |
| 57 | DK1KO    | J053 | FN | 315 | 1625 | 1745 | 2124 | 2194  |
| 58 | HG8ET    | KN06 | KG | 315 | 1445 | 1845 | 2000 | 2427  |
| 59 | SM7GWU   | J078 | HS | 313 | 1585 | 1770 | 2099 | 2154  |
| 60 | SM3AKV   | JP92 | JW | 312 | 1870 | 2078 | 2142 | 2756* |
| 61 | SP6FUN   | O081 | IL | 311 | 1620 | 1416 | 1884 | 2320  |
| 62 | OK2KZR/P | JN89 | IJ | 311 | 1518 | 1610 | 2793 | 3598  |
| 63 | OK1MS    | J070 | HK | 307 | 1506 | 1599 | 1506 | 2434* |
| 64 | Y02IS    | KN05 | KF | 306 | 1560 | 1775 | 2095 | 2550  |
| 65 | SM3BIU   | JP73 | HX | 306 | 1460 | 1886 | 2260 | 2242* |
| 66 | PA0FTF   | J020 | CK | 304 | 1500 | 1800 | ---  | 2900  |
| 67 | UA3CTF   | J026 | WQ | 303 | 1131 | 1794 | 2498 | 2332* |
| 68 | OZ1IUY   | J066 | GQ | 302 | 1587 | 1506 | 2344 | 2246* |
| 69 | PA3BIU   | J022 | CM | 302 | 1480 | 1850 | 2000 | 2296  |
| 70 | OE3LFA   | JN88 | II | 301 | 1615 | 1795 | 1720 | 3550  |
| 71 | DK4TO    | J031 | DL | 301 | 1410 | 1730 | 2440 | 2000  |
| 72 | ON6UG    | J011 | BL | 301 | 1364 | 1813 | 2640 | 3296  |
| 73 | DL4EA    | J031 | DL | 300 | 1468 | 1723 | 2078 | 2247  |
| 74 | OZ1EYE   | J056 | FQ | 299 | 1960 | 1297 | 2329 | 2606  |
| 75 | YU3SE    | JN65 | GF | 298 | 1361 | 1802 | 2074 | 2358  |
| 76 | UR2EQ    | K039 | NT | 296 | 1541 | 1840 | 2240 | 2245  |
| 77 | G3NSM    | J001 | ZL | 295 | 1489 | 2003 | 1872 | 2481  |
| 78 | OK1OA    | J070 | HK | 295 | 1256 | 1589 | 2050 | 2854* |
| 79 | DK3LL    | J054 | FO | 294 | 1525 | 1271 | 1930 | 2115  |
| 80 | F8DP     | JN26 | CG | 292 | 1228 | 1196 | 2028 | 2720  |
| 81 | PA0KDV   | J033 | DN | 291 | 1475 | 1610 | 2051 | 2352  |
| 82 | 9H1BT    | JM75 | HV | 290 | 1980 | ---  | 2031 | 3200  |
| 83 | OZ1IFTU  | J055 | FP | 290 | 1527 | 1558 | 1903 | 3315  |
| 84 | SM4AXY   | J079 | HT | 289 | 1714 | 1760 | 1880 | 2143  |

NR CALL WW-QTH E-QTH WKD TROPO AURO MS ES

|     |          |      |    |     |      |      |      |       |
|-----|----------|------|----|-----|------|------|------|-------|
| 85  | SM2CKR   | KP03 | KX | 289 | 1630 | 1660 | 2310 | 1810* |
| 86  | SM0DJW   | J088 | IS | 289 | 1340 | 1810 | 1840 | 2573  |
| 87  | PA0HDM   | J020 | CK | 285 | 1823 | 1508 | 1880 | 3103  |
| 88  | OZ26FZ   | K037 | NR | 283 | 1531 | 1855 | 2027 | 2159  |
| 89  | LA9BM    | JP40 | EU | 282 | 1612 | 1670 | 1892 | 2165* |
| 90  | OH51Y    | KP30 | NU | 282 | 1419 | 1941 | 2017 | 2339* |
| 91  | G4SDC    | I094 | ZO | 281 | 1485 | 1485 | 1942 | 2285  |
| 92  | DK2PH    | J041 | EL | 279 | 1624 | 1673 | 1952 | 3315  |
| 93  | LA8XN    | JN54 | FE | 279 | 1600 | 1520 | 1916 | 2670  |
| 94  | SM7JUQ   | J065 | GP | 276 | 1579 | 1646 | 1921 | 2032  |
| 95  | PA3CNN   | J022 | CM | 276 | 1543 | 1453 | 1981 | 2253  |
| 96  | DF6NA    | JN49 | EJ | 276 | 1156 | 1120 | 2080 | 1709  |
| 97  | RQ2GAG   | K026 | MQ | 275 | 1432 | 1761 | ---  | 2040  |
| 98  | DK8VS    | JN39 | DJ | 274 | 1350 | 1220 | 2240 | 3230  |
| 99  | OE6WIG   | JN76 | HG | 274 | 1214 | 1728 | 1890 | 2269  |
| 100 | 9H1CD    | JM75 | HV | 273 | 1960 | ---  | 2701 | 2508  |
| 101 | LA2PT    | J059 | FT | 272 | 1438 | 1660 | 2020 | 2427  |
| 102 | LA4XC    | JN63 | GD | 272 | 1070 | 1782 | 2275 | 3066  |
| 103 | SM5CUI   | J089 | IT | 271 | 1590 | 1600 | 2190 | ---   |
| 104 | DF10H    | J042 | EM | 271 | 1564 | 1671 | 2242 | 2379  |
| 105 | Y24QO    | J062 | GM | 270 | 1598 | 985  | 2056 | 2068  |
| 106 | DH8NAA   | JN49 | EJ | 269 | 1372 | 1296 | 1804 | 2253  |
| 107 | Y23Z1    | J051 | FL | 268 | 1785 | 1280 | 1925 | 2075  |
| 108 | Y22HA    | J064 | GO | 268 | 1250 | 1071 | 2058 | 2041  |
| 109 | YU2IQ    | JN74 | HE | 268 | 1210 | ---  | 1955 | 3462  |
| 110 | UR2GZ    | K028 | MS | 267 | 1577 | 1720 | 2141 | 2136  |
| 111 | OZ1LASL  | J054 | FO | 266 | 1763 | 1675 | 2061 | 2363  |
| 112 | SP5JC    | K082 | KM | 266 | 1740 | 1740 | 1980 | 1821  |
| 113 | OA3LAW   | K054 | PO | 265 | 1372 | 1675 | 2208 | ---   |
| 114 | OH3TH    | KP11 | LV | 265 | 1355 | 1669 | 2217 | 2069* |
| 115 | SP6GZJ   | K081 | LS | 262 | 1700 | 1150 | 2100 | 2060  |
| 116 | UA3MBJ   | K088 | SS | 262 | 1560 | 2006 | 2573 | 2390  |
| 117 | ON4YZ    | J020 | CK | 261 | 1530 | 1914 | ---  | 2360  |
| 118 | SM4COK   | J079 | HT | 261 | 1440 | 1570 | 2080 | 1940  |
| 119 | SM7MT    | J065 | GP | 260 | 1590 | 1680 | 2330 | 2180  |
| 120 | LA4ET    | JN54 | FE | 260 | 1550 | 1420 | 2240 | 2500  |
| 121 | PA3DOL   | J022 | CM | 260 | 1445 | 1394 | 1951 | 2283  |
| 122 | PA0XMA   | J032 | DN | 260 | 1394 | 1368 | 2300 | 2164  |
| 123 | PA0WWM   | J022 | CM | 260 | 1303 | 1839 | 1997 | 2212  |
| 124 | 6M4CYM   | I075 | XP | 259 | 1425 | 1750 | 2100 | 2023  |
| 125 | GN3TF    | K081 | AL | 258 | 1824 | 1846 | 2021 | 2174  |
| 126 | OZ3ZF    | J054 | FO | 258 | 1763 | 1863 | 1415 | 2100* |
| 127 | DK1PZ    | J051 | FL | 257 | 1567 | 1364 | 1867 | 1866  |
| 128 | OH28BF   | K019 | LT | 257 | 1388 | 2000 | 2125 | 2144  |
| 129 | Y39CZ    | J031 | DL | 256 | 1650 | 1862 | 1925 | 2015  |
| 130 | SM5KMU   | J089 | IT | 254 | 1343 | 1657 | 1744 | 2162  |
| 131 | OZ2GLO   | K086 | KQ | 253 | 1447 | 1802 | 1992 | 1576  |
| 132 | PA2CHR   | J021 | CL | 253 | 1370 | 1108 | 1695 | 2137  |
| 133 | 88VR     | K081 | AL | 251 | 1341 | 1767 | 2152 | 2200  |
| 134 | YU1UE    | KN04 | KE | 250 | 1680 | ---  | 2200 | 2380  |
| 135 | YU2EZA   | KN86 | IG | 250 | 1416 | 1413 | 2084 | 2377  |
| 136 | F9HS     | JN13 | BD | 250 | 1151 | ---  | 2086 | 1991* |
| 137 | DF1JC    | J031 | DL | 249 | 1270 | 1830 | 2348 | 2007  |
| 138 | LA1GR    | JN39 | DJ | 249 | 868  | 1104 | 2206 | 1409  |
| 139 | SM5DRV   | J077 | HR | 248 | 1330 | 1410 | 1810 | ---   |
| 140 | YU7EW    | KN05 | KF | 246 | 1868 | 1172 | 1930 | 2425  |
| 141 | OZ2GCG   | K017 | LR | 245 | 1676 | 1797 | 1990 | 1769  |
| 142 | DL7LZ    | J062 | GM | 245 | 1401 | 1254 | 3200 | 3800  |
| 143 | OK1KHI/P | J070 | HK | 242 | 1803 | 1180 | ---  | 2040  |
| 144 | FACWT    | JN18 | BI | 241 | 1676 | 1713 | 2207 | 2416  |
| 145 | PA3AQU   | J032 | DN | 241 | 1392 | 1673 | 1763 | 2193  |
| 146 | UA1MC    | KP50 | PU | 240 | 1500 | 1540 | 2145 | ---   |
| 147 | OZ6OL    | J055 | FP | 239 | 1800 | 1700 | ---  | 1800  |
| 148 | OZ8SL    | J065 | GP | 238 | 1476 | 1305 | ---  | 2188  |
| 149 | SM7GEP   | J077 | HR | 238 | 1467 | 1768 | 1695 | 2043  |
| 150 | OH0JN    | JP90 | JU | 238 | 1451 | 1856 | 2108 | 1998  |
| 151 | PA0RLS   | J022 | CM | 238 | 1350 | 1890 | 1890 | 2204  |
| 152 | YU7BCX   | KN05 | KF | 237 | 1868 | 1172 | 1956 | 2425  |
| 153 | OE3OKS   | JN87 | IF | 237 | 1354 | 946  | 1687 | 2322  |
| 154 | SM3DCX   | JP81 | IV | 237 | 1300 | 1850 | 1990 | ---   |
| 155 | PA3BBA   | J022 | CM | 236 | 1300 | 1436 | 1907 | 2311  |
| 156 | DL7YS    | J062 | GM | 234 | 1512 | 1067 | 1677 | 1902  |
| 157 | DF6OB    | J052 | FM | 234 | 1421 | 1349 | 1877 | 2013  |
| 158 | SM5BSZ   | J099 | JT | 233 | 1830 | 1720 | 1890 | 2080  |
| 159 | SM5EJN   | J089 | IT | 233 | 1770 | 1630 | 2240 | 1920  |
| 160 | PA3BRS   | J022 | CM | 233 | 1494 | 1738 | 1613 | 2112  |
| 161 | OE3CEW   | JN88 | II | 233 | 1464 | 1344 | 1856 | 2126  |
| 162 | UR1RWX   | K029 | MT | 233 | 1131 | 1761 | 1861 | 2157  |
| 163 | PA3CAP   | J022 | CM | 232 | 1305 | 1230 | 1794 | 2177  |
| 164 | DK2LM    | JN49 | EJ | 232 | 1244 | 1098 | 1956 | 2444  |
| 165 | SP9AI    | JN99 | JT | 231 | 1870 | 1300 | 1810 | 2400  |
| 166 | SM5FRH   | J079 | HT | 231 | 1580 | 1690 | 1650 | ---   |
| 167 | SM4GCG   | J069 | GP | 231 | 1284 | 1815 | 1856 | 1670  |
| 168 | OZ1CII   | J065 | GP | 230 | 1268 | 1848 | 1448 | 2390  |

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|---------------------------------|---------|--------|-------|-----|-------|--------|------|-------|-----|----------|--------|-------|------------|-------|------|------|-------|
| NR                              | CALL    | WW-QTH | E-QTH | WKD | TROPO | AURO   | MS   | ES    | NR  | CALL     | WW-QTH | E-QTH | WKD        | TROPO | AURO | MS   | ES    |
| 169                             | 11DMP   | JN35   | DF    | 230 | 1106  | 930    | 1864 | 2718  | 253 | UR2RIW   | K018   | LS    | 184        | 1545  | 1643 | ---- | 1810  |
| 170                             | 12AV    | JN45   | EF    | 229 | 1860  | ----   | 2480 | 2323  | 254 | SM4FXR   | J079   | HT    | 184        | 1280  | 1430 | 1760 | ----  |
| 171                             | PA3DZL  | J021   | CL    | 228 | 1358  | 1815   | 1947 | 2253  | 255 | UR2RO    | K028   | MS    | 183        | 1802  | 1800 | ---- | 1780  |
| 172                             | SP9EWL  | J090   | JK    | 228 | 1357  | 1532   | 1690 | 2006  | 256 | SM7LXV   | J045   | BP    | 183        | 1534  | 1480 | ---- | 2066  |
| 173                             | GW4LYO  | I081   | YL    | 227 | 1500  | 1300   | 1800 | 2200  | 257 | ON1TM    | J011   | BL    | 183        | 1380  | 1015 | 1310 | 2120  |
| 174                             | SM3COL  | JP82   | YL    | 226 | 1784  | 1693   | 2122 | 2367  | 258 | PE1JSE   | J021   | CL    | 183        | 1358  | 1015 | 1939 | 1913  |
| 175                             | SM6CKU  | J067   | GR    | 225 | 1530  | 1560   | 1470 | 1790  | 259 | LABAE    | J059   | FT    | 182        | 2041  | 1573 | ---- | 1932  |
| 176                             | YU3CAB  | JN76   | HG    | 225 | 1463  | 1530   | 2165 | 3356  | 260 | SP9MH    | J090   | JK    | 182        | 1598  | 1594 | ---- | 2338  |
| 177                             | DF9CY   | J041   | EL    | 225 | 1382  | 1603   | 1841 | 2350* | 261 | SP6AZT   | J081   | IL    | 182        | 1392  | 1463 | 1710 | 2151  |
| 178                             | SM3UL   | JP81   | IV    | 225 | 1275  | 1521   | 2110 | 2363  | 262 | UQ2DOW   | K026   | MQ    | 182        | 1092  | 1514 | 1845 | 1943  |
| 179                             | GBUFW   | J001   | AL    | 224 | 1810  | 1410   | 2466 | 1800  | 263 | SM5FND   | J079   | HT    | 181        | 1445  | 1601 | 1616 | 2060  |
| 180                             | GJ4ICD  | IN89   | VJ    | 223 | 1620  | 1100   | 2050 | 2090  | 264 | DJ7YV    | J042   | EM    | 180        | 1500  | ---- | 1461 | 2029  |
| 181                             | G3CHN   | I080   | YK    | 222 | 2656  | 2138   | ---- | 2358  | 265 | 1W2BNA   | JN45   | EF    | 180        | 1213  | 0800 | 1719 | 2191  |
| 182                             | F6CER   | JN18   | BI    | 222 | 1500  | 1350   | 1700 | 2300  | 266 | UR2NW    | K019   | LT    | 180        | 1650  | 1626 | 1797 | ----  |
| 183                             | DF2ZC   | J030   | DK    | 221 | 1090  | 1686   | 2004 | 2009  | 267 | G3SEK    | I091   | ZL    | 179        | 1560  | 1681 | 1872 | 2154  |
| 184                             | UR2REJ  | K039   | NT    | 218 | 1422  | 1840   | ---- | 2070  | 268 | PA3CEE   | J033   | DN    | 179        | 1419  | 1343 | ---- | 2182  |
| 185                             | SM01OT  | J099   | JT    | 218 | 1300  | 1700   | 1820 | 2100  | 269 | HB9CRQ   | JN47   | EH    | 179        | 1250  | ---- | 2059 | 2200  |
| 186                             | G18YDZ  | I045   | WP    | 217 | 1216  | 1809   | 1901 | 2562  | 270 | SP6ARE   | J081   | IL    | 179        | 1285  | 1222 | 1756 | 2442  |
| 187                             | UQ2GMD  | K017   | LR    | 216 | 1596  | 1889   | ---- | 1653  | 271 | SM0DFP   | J089   | IT    | 178        | 1830  | 1590 | 2030 | ----  |
| 188                             | OK1MAC  | JN79   | HJ    | 216 | 1122  | 1448   | 1940 | 2026  | 272 | DJ0VZ    | J030   | DK    | 178        | 1820  | 1205 | ---- | 1980  |
| 189                             | DL20M   | J030   | DK    | 214 | 1270  | 1712   | 2104 | 2488* | 273 | SM5LE    | J099   | JT    | 178        | 1440  | 1470 | 2190 | ----  |
| 190                             | DE50LL  | JN68   | GI    | 213 | 1430  | 1596   | 1370 | 3359  | 274 | UB5UN    | K050   | PK    | 178        | 1376  | 1270 | 2410 | 1457  |
| 191                             | DL7YV   | J062   | GM    | 213 | 1299  | 1106   | 1895 | 2170  | 275 | OE1APS   | JN88   | II    | 178        | 1343  | 1765 | 1852 | 2005  |
| 192                             | DK3XT   | J053   | FN    | 211 | 1350  | 1430   | 1800 | 1990  | 276 | EA6FB    | JM08   | AY    | 177        | 1964  | ---- | 1800 | 1960  |
| 193                             | YU2JL   | JN73   | HK    | 211 | 1156  | ----   | 2108 | 2019  | 277 | OH0NC    | JP90   | JU    | 177        | 1525  | 1308 | 1670 | 2493  |
| 194                             | Y23FN   | J060   | GK    | 210 | 1790  | 1220   | 1920 | 1630  | 278 | F1EAN    | JN06   | AG    | 176        | 1650  | ---- | ---- | 2400  |
| 195                             | I2FHW   | JN44   | EE    | 210 | 1500  | 950    | 1605 | 2900  | 279 | OZ1HNE   | J057   | FR    | 176        | 1578  | 1025 | 1230 | 2046  |
| 196                             | SP5AD   | K002   | KM    | 209 | 1767  | 1724   | ---- | 1973  | 280 | UR2HD    | K018   | LS    | 176        | 1550  | 1918 | ---- | ----  |
| 197                             | YU2KDE  | JN95   | JF    | 209 | 1731  | 1097   | 2074 | 2196  | 281 | PA0CSL   | J022   | CM    | 176        | 1528  | 1610 | 1750 | 1960  |
| 198                             | G3FPK   | I091   | ZL    | 208 | 1828  | 1488   | ---- | 2335  | 282 | PE1GBT   | J033   | DN    | 176        | 1368  | 984  | ---- | 2027* |
| 199                             | UQ2NX   | K027   | MR    | 208 | 1712  | 1745   | 1707 | 1870  | 283 | F5DE     | JN05   | AF    | 175        | 1850  | 900  | 1810 | 2300  |
| 200                             | SM5CNF  | J078   | HS    | 208 | 1660  | 1730   | 1850 | ----  | 284 | G3COJ    | I091   | ZL    | 175        | 1630  | 1650 | ---- | 1852  |
| 201                             | DF5DL   | J041   | EL    | 208 | 1389  | 1596   | 2003 | 2020  | 285 | PE1AAP   | J022   | CM    | 175        | 1326  | 1086 | ---- | 2052  |
| 202                             | LABAK   | J038   | DS    | 208 | 1325  | 1804   | 1804 | 2303  | 286 | UR2RGM   | K029   | MT    | 175        | 1131  | 1768 | 1429 | 2157  |
| 203                             | EA3ATR  | JN11   | BB    | 208 | 1241  | ----   | 1850 | 2607  | 287 | G8TGM    | I090   | ZK    | 174        | 1251  | 798  | 1323 | 2161  |
| 204                             | SM0BYC  | J089   | IT    | 207 | 1380  | 1710   | 1890 | 2390  | 288 | OZ6ZR    | J056   | FQ    | 173        | 1462  | 1077 | 1457 | 2358  |
| 205                             | OY3HE   | J056   | FQ    | 207 | 1340  | 1580   | ---- | 2338  | 289 | F6FHP    | JN04   | AE    | 172        | 1752  | ---- | 2243 | 2105  |
| 206                             | YU1EV   | KN04   | KE    | 206 | 1650  | ----   | 2165 | 2200  | 290 | F1FEN/P  | JN25   | CF    | 172        | 1506  | 974  | 1750 | 2895  |
| 207                             | I2FAK   | JN45   | EF    | 206 | 1500  | 970    | 1775 | 3000  | 291 | DL6BX    | J032   | DM    | 172        | 1398  | 1094 | ---- | 2059  |
| 208                             | PA3BSK  | J031   | DL    | 206 | 1387  | 1698   | 1290 | 2148  | 292 | SV1DH    | KM18   | LY    | 172        | 1060  | ---- | ---- | 2580  |
| 209                             | UQ2AO   | K026   | MS    | 205 | 1647  | 1679   | 1472 | ----  | 293 | UR2CQ    | K028   | MS    | 171        | 1600  | 1600 | 1910 | 1800  |
| 210                             | EA3AK   | J048   | ES    | 205 | 1325  | 1804   | 1804 | 2303  | 294 | PA3DMH   | J021   | CL    | 171        | 1363  | 1112 | 1420 | 1941  |
| 211                             | OE5XDL  | JN78   | HT    | 204 | 1400  | 1515   | 1976 | 1958  | 295 | DL7WC    | J062   | GM    | 171        | 1360  | 1240 | 1550 | 1800  |
| 212                             | DF3CFD  | J047   | ER    | 203 | 1262  | 1044   | 1969 | 2185  | 296 | PA0SBL   | J022   | CM    | 171        | 1258  | 1513 | 1848 | 1772  |
| 213                             | DF9PV/P | J030   | DK    | 203 | 1203  | 1009   | 1770 | 2088  | 297 | DL8BFD   | J040   | EK    | 171        | 1123  | 1190 | 1665 | 2230  |
| 214                             | SM4ARQ  | J079   | HT    | 202 | 1750  | 1590   | 1950 | 1930  | 298 | EA1ED    | IN53   | VD    | 170        | 1818  | ---- | 1533 | 2119  |
| 215                             | G23PA   | J064   | GO    | 202 | 1168  | 1150   | 1710 | ----  | 299 | F9FT     | JN29   | CJ    | 170        | 1440  | 1440 | 2017 | ----  |
| 216                             | F6EAS   | IN98   | ZI    | 201 | 1382  | 1475   | 2230 | 2118  | 300 | SP1FFB   | J073   | HN    | 170        | 1440  | 1260 | 1605 | 2134  |
| 217                             | PE1BNK  | J022   | CM    | 201 | 1328  | 1349   | 2100 | 2118  | 301 | Y04AFP   | KN26   | MG    | 170        | 1380  | 1175 | 2220 | 2138  |
| 218                             | PA3GER  | J021   | CL    | 201 | 1327  | 1249   | 2100 | 2118  | 302 | OE31WG   | KP78   | RC    | 170        | 608   | 1830 | 2147 | 1802  |
| 219                             | SM3FGL  | JP81   | IV    | 200 | 1563  | 1680   | 1955 | ----  | 303 | SM5CPD   | J089   | IT    | 169        | 1820  | 1210 | 1370 | 1960  |
| 220                             | F6FLV   | JN18   | BI    | 200 | 1435  | 868    | 1368 | 2099  | 304 | UR2AO    | K029   | MT    | 169        | 1162  | 1716 | 1792 | 2136  |
| 221                             | OZ9PW   | J046   | EQ    | 200 | 1200  | 1200   | 1500 | 2160  | 305 | PA0JUZ   | J022   | CM    | 169        | 1159  | 1420 | 1666 | 1980  |
| 222                             | DL1BP   | J033   | DN    | 199 | 1335  | 1609   | 1475 | 2045  | 306 | DL5LH    | J054   | FO    | 167        | 1313  | 1614 | ---- | 2080  |
| 223                             | EA3ADW  | JN11   | BB    | 198 | 2311  | ----   | 1932 | 2425  | 307 | PE1HWO   | J021   | CL    | 167        | 1290  | 1250 | 1800 | 1965  |
| 224                             | G4NCU   | J001   | AL    | 198 | 1567  | 1630   | 1627 | 2792  | 308 | IW0AKA   | JN61   | GB    | 166        | 1119  | ---- | 1575 | 2380  |
| 225                             | DF5DE   | J040   | EK    | 198 | 1186  | 1670   | 1845 | 1752  | 309 | SP8ADV   | K011   | LL    | 165        | 1224  | 1723 | 1821 | 1851  |
| 226                             | GH2BWL  | KP20   | MU    | 197 | 1714  | 1586   | 1901 | 2221  | 310 | DL7ACG   | J062   | GM    | 164        | 1592  | 850  | ---- | 1987  |
| 227                             | G3LQR   | J002   | AM    | 196 | 1776  | 2150   | 2150 | 2150  | 311 | 10AKP    | JN61   | GB    | 164        | 1440  | ---- | 1790 | 2341  |
| 228                             | EAT1H   | IN82   | YK    | 196 | 1366  | ----   | 1674 | 2292  | 312 | UN4AUD   | J020   | CK    | 163        | 1652  | 1192 | 1350 | 2152  |
| 229                             | Y24TN   | J060   | GK    | 195 | 1790  | 1310   | 1920 | 1630  | 313 | PA0LSC   | J022   | CM    | 163        | 1528  | 1590 | 1750 | 1960  |
| 230                             | SP1JX   | J084   | IO    | 195 | 1617  | 1622   | ---- | 2285  | 314 | OK3CPY   | JN98   | JT    | 163        | 1478  | 1830 | 1905 | 2264  |
| 231                             | UQ26AJ  | K016   | LQ    | 195 | 1403  | 1614   | 1507 | 1965  | 315 | SP6GWB/6 | JN08   | IK    | 163        | 1402  | 1200 | 1730 | 1986  |
| 232                             | DH0HBH  | J042   | EM    | 194 | 1646  | 1112   | 1852 | 2098  | 316 | OZ1DPR   | J045   | EP    | 163        | 1373  | 1215 | 1327 | 2015  |
| 233                             | DC70H   | J062   | GM    | 194 | 1349  | 1289   | 1680 | 2200  | 317 | HB9QQ    | JN47   | EH    | 163        | 1330  | 1250 | 1685 | 1520* |
| 234                             | DJ4UF   | J030   | DK    | 193 | 1933  | 1794   | ---- | 2124  | 318 | UP2BBBC  | K015   | LP    | 163        | 1260  | 1904 | 1989 | ----  |
| 235                             | OE5JFL  | JN68   | GI    | 193 | 1503  | 1155   | 1964 | 1823  | 319 | SM0CAP   | J089   | IT    | 163        | 1064  | 1955 | 1655 | 1871  |
| 236                             | IWSAVM  | JN52   | FC    | 192 | 1466  | ----   | 2016 | 2891  | 320 | SM0AGP   | J089   | IT    | 162        | 1820  | 1710 | 1560 | ----  |
| 237                             | HG3KQD  | JN97   | JH    | 192 | 1307  | ----   | 1849 | 2195  | 321 | G3WSN    | J001   | AL    | 162        | 1522  | 1820 | 2076 | 2077  |
| 238                             | SM5AGM  | J099   | JT    | 191 | 1930  | 1740   | ---- | 2000  | 322 | DD3KF    | J030   | DK    | 162        | 1491  | 1150 | 1576 | 2165  |
| 239                             | PA0PKD  | J033   | DN    | 191 | 1429  | 1742   | ---- | 2231  | 323 | 14GBZ    | JN54   | FE    | 162        | 1049  | ---- | ---- | 2388  |
| 240                             | PA0BAT  | J031   | DL    | 191 | 1078  | 1377   | 2498 | 2042  | 324 | 11JTG    | IN53   | DF    | 162        | 1001  | ---- | 1720 | 2315  |
| 241                             | G3PBV   | I080   | YK    | 190 | 1540  | 1466   | 1563 | 2315  | 325 | EA1TA    | IN53   | VD    | 161        | 1820  | ---- | 1739 | 2334  |
| 242                             | G8KBQ   | I081   | YL    | 190 | 1501  | 1775   | 1865 | 2235  | 326 | EA7PZ    | IN77   | XX    | 161        | 1820  | ---- | ---- | 2406  |
| 243                             | UR2RDR  | K028   | MS    | 189 | 1200  | 1750   | 1600 | 2100  | 327 | Y04AUL   | KN44   | OE    | 160        | 1156  | ---- | 1620 | 2448  |
| 244                             | OZ1IVW  | J056   | FQ    | 188 | 1485  | 1129   | 1735 | 2317  | 328 | DK2NH    | J053   | FN    | 159        | 1607  | 1432 | ---- | 1996  |
| 245                             | DL7AN   | J062   | GM    | 188 | 1310  | 1140   | 1936 | 1845+ | 329 | OE5XPL   | JN78   | HI    | 159        | 1434  | 836  | 1929 | 1680  |
| 246                             | OE5EFM  | JN78   | HT    | 188 | 1291  | 1548   | 1807 | 1936  | 330 | UR2JL    | K029   | MT    | 159        | 1426  | 1500 | ---- | ----  |
| 247                             | PA3AHAD | J022   | CM    | 188 | 1279  | 1586   | 1940 | 1879  | 331 | OK3KKF   | JN98   | JT    | 159        | 1269  | 1636 | 1830 | 2236  |
| 248                             | OE6LOB  | JN76   | HG    | 187 | 1307  | 1048</ |      |       |     |          |        |       |            |       |      |      |       |



WORLD WIDE UHF TOP LIST 432 MHZ

18.08.1985

| NR | CALL     | WW-QTH | E-QTH | WKD | TROPO | AURO | MS   | ES   | NR  | CALL     | WW-QTH | E-QTH | WKD | TROPO | AURO | MS   | ES   |
|----|----------|--------|-------|-----|-------|------|------|------|-----|----------|--------|-------|-----|-------|------|------|------|
| 1  | F1FHI    | IN97   | ZH    | 199 | 1892  | ---- | ---- | ---- | 85  | DB2VY    | JN39   | DJ    | 101 | 1335  | ---- | ---- | ---- |
| 2  | DL7QY    | JN59   | FJ    | 199 | 1640  | 1618 | 1292 | ---- | 86  | PE1GHH   | JO21   | CL    | 101 | 1323  | ---- | ---- | ---- |
| 3  | DK5AI    | JO51   | FL    | 196 | 1506  | 798  | ---- | ---- | 87  | RQ2GAG   | K026   | MQ    | 100 | 1542  | 1041 | ---- | ---- |
| 4  | SM0DJW   | JO88   | IS    | 188 | 1910  | 910  | ---- | ---- | 88  | DC7QH    | JO62   | GM    | 100 | 1231  | 509  | ---- | ---- |
| 5  | DL7ZL    | JO62   | GM    | 188 | 1685  | 1249 | ---- | ---- | 89  | ON5GW    | JO11   | BL    | 99  | 1395  | 435  | ---- | ---- |
| 6  | SM3AKW   | JP92   | JW    | 187 | 1517  | 1188 | ---- | ---- | 90  | F6CER    | JN18   | BI    | 99  | 1350  | 500  | ---- | ---- |
| 7  | DL7YC    | JO62   | GM    | 179 | 1225  | ---- | ---- | ---- | 91  | DL7AN    | JO62   | GM    | 99  | 1240  | ---- | ---- | +    |
| 8  | DF7VX    | JO41   | EL    | 172 | 1105  | 658  | ---- | ---- | 92  | DK2PH    | JO41   | EL    | 99  | 1056  | ---- | ---- | ---- |
| 9  | W1JR     | FN42   | ---   | 169 | 1397  | 1086 | ---- | ---- | 93  | GBK8Q    | IO81   | YL    | 97  | 1327  | ---- | ---- | ---- |
| 10 | OZ7IS    | JO65   | GP    | 167 | 1499  | 1048 | 1294 | ---- | 94  | DF9CY    | JO41   | EL    | 97  | 1067  | 430  | ---- | *    |
| 11 | DF3XU    | JO53   | FN    | 165 | 1607  | 1057 | ---- | ---- | 95  | DC9XO    | JO42   | EM    | 96  | 1600  | ---- | ---- | ---- |
| 12 | UA3LBO   | K064   | GO    | 160 | 2031  | 1612 | ---- | *    | 96  | DC9CSA   | JO62   | GM    | 96  | 1171  | ---- | ---- | +    |
| 13 | PA0RDV   | JO22   | CM    | 159 | 1799  | 843  | ---- | ---- | 97  | OK1ATV/P | JO70   | HK    | 95  | 1410  | ---- | ---- | ---- |
| 14 | DJ6MB    | JO30   | DK    | 158 | 1253  | 921  | ---- | *    | 98  | PA0JUS   | JO22   | CM    | 95  | 1340  | ---- | ---- | ---- |
| 15 | OE3LFA   | JN88   | IT    | 155 | 1620  | ---- | ---- | ---- | 99  | DL7ACG   | JO62   | GM    | 95  | 1279  | ---- | ---- | ---- |
| 16 | PA0EZ    | JO22   | CM    | 153 | 1787  | 1029 | ---- | ---- | 100 | SM6CHU   | JO57   | FR    | 94  | 1640  | 670  | ---- | ---- |
| 17 | OZ9FW    | JO65   | GP    | 153 | 1501  | 1026 | ---- | ---- | 101 | ON4VZ    | JO20   | CK    | 93  | 1424  | ---- | ---- | ---- |
| 18 | PE0AGO   | JO32   | DM    | 150 | 1702  | ---- | ---- | ---- | 102 | ON6UG    | JO11   | BL    | 93  | 1364  | 420  | ---- | ---- |
| 19 | SMACKU   | JO67   | GR    | 150 | 1293  | 660  | ---- | ---- | 103 | PA3BSK   | JO31   | DL    | 93  | 1129  | ---- | ---- | ---- |
| 20 | G3LTF    | JO01   | AL    | 147 | 1520  | 890  | ---- | *    | 104 | DK1PZ    | JO51   | FL    | 93  | 1018  | ---- | ---- | *    |
| 21 | OZ7LX    | JO55   | FP    | 146 | 1456  | 720  | ---- | ---- | 105 | PA2DOL   | JO21   | CL    | 92  | 1088  | ---- | ---- | ---- |
| 22 | DL7APV   | JO62   | GM    | 146 | 1308  | 850  | ---- | *    | 106 | SM0DYE   | JO99   | JT    | 91  | 1205  | 845  | ---- | ---- |
| 23 | G3LQR    | JO02   | AM    | 144 | 2031  | 873  | ---- | *    | 107 | PA0CRA   | JO22   | CM    | 90  | 1412  | ---- | ---- | ---- |
| 24 | DJ9BV    | JO43   | EN    | 144 | 1436  | 887  | ---- | ---- | 108 | DB1BP    | JO33   | DN    | 90  | 1165  | ---- | ---- | ---- |
| 25 | G3BEK    | IO91   | ZL    | 144 | 1269  | 170  | ---- | ---- | 109 | F9FT     | JN29   | CJ    | 90  | 960   | ---- | ---- | ---- |
| 26 | SM7BAE   | JO65   | GP    | 142 | 1220  | 850  | ---- | *    | 110 | DF1OH    | JO42   | EM    | 89  | 1261  | 1038 | ---- | ---- |
| 27 | PA0FRE   | JO21   | CL    | 138 | 1839  | 867  | ---- | ---- | 111 | DJ6XV    | JO31   | DL    | 89  | 968   | 508  | ---- | ---- |
| 28 | SM6HYG   | JO58   | FS    | 138 | 1685  | 720  | ---- | ---- | 112 | LA8AE    | JO59   | FT    | 88  | 1585  | 843  | ---- | ---- |
| 29 | Y23FG    | JO52   | FM    | 137 | 1560  | 885  | ---- | ---- | 113 | OZ1EVE   | JO56   | FQ    | 88  | 1368  | 788  | ---- | ---- |
| 30 | PA3DIJ   | JO33   | DN    | 135 | 1695  | 825  | ---- | ---- | 114 | DD2EK    | JO31   | DL    | 88  | 1284  | ---- | ---- | ---- |
| 31 | Y22ME    | JO72   | HM    | 134 | 1364  | 874  | ---- | ---- | 115 | Y22HA    | JO64   | GO    | 87  | 1414  | ---- | ---- | ---- |
| 32 | PA0WWM   | JO22   | CM    | 133 | 1342  | 724  | ---- | ---- | 116 | PE1GVK   | JO21   | CL    | 87  | 1197  | ---- | ---- | ---- |
| 33 | DB6BX    | JO32   | DM    | 132 | 1398  | ---- | ---- | ---- | 117 | DF5JJ    | JO31   | DL    | 87  | 908   | ---- | ---- | ---- |
| 34 | DJ9DL    | JO31   | DL    | 131 | 1274  | 615  | ---- | *    | 118 | PA2CHR   | JO21   | CL    | 86  | 1265  | ---- | ---- | ---- |
| 35 | OH0NC    | KP00   | KU    | 129 | 1544  | 864  | ---- | ---- | 119 | G3UBX    | IO82   | YM    | 86  | 1101  | ---- | ---- | ---- |
| 36 | PE1CQQ   | JO32   | DM    | 128 | 1705  | 836  | ---- | ---- | 120 | OZ2LD    | JO54   | FO    | 85  | 1250  | ---- | ---- | ---- |
| 37 | F1FEN/P  | JN25   | CF    | 128 | 1540  | ---- | ---- | ---- | 121 | Y23PA    | JO64   | GO    | 85  | 1102  | ---- | ---- | ---- |
| 38 | DK6AS    | JO52   | FM    | 127 | 1360  | 620  | ---- | *    | 122 | OZ3GW    | JO56   | FQ    | 85  | 1090  | 620  | ---- | ---- |
| 39 | SM0FZH   | JO99   | JT    | 126 | 1900  | 957  | ---- | ---- | 123 | F1BUU    | IN94   | ZE    | 84  | 1250  | ---- | ---- | ---- |
| 40 | OZ1EKI   | JO45   | EP    | 125 | 1325  | 700  | ---- | ---- | 124 | LA8AK    | JO38   | DS    | 84  | 1191  | 776  | ---- | ---- |
| 41 | OK1CA/P  | JO70   | HK    | 124 | 1267  | ---- | ---- | ---- | 125 | Y24QO    | JO62   | GM    | 84  | 1100  | ---- | ---- | ---- |
| 42 | OZ2OE    | JO45   | EP    | 122 | 1429  | 1020 | ---- | ---- | 126 | HB9MIN/P | JN37   | DH    | 84  | 1100  | ---- | ---- | ---- |
| 43 | SM6ESG   | JO67   | GR    | 121 | 1600  | ---- | ---- | ---- | 127 | PE1HWO   | JO21   | CL    | 83  | 1290  | ---- | ---- | ---- |
| 44 | F6BGR    | IN97   | ZH    | 120 | 1894  | ---- | ---- | ---- | 128 | DF3CK    | JN57   | FL    | 83  | 1283  | 867  | ---- | ---- |
| 45 | OK1KHI/P | JO70   | HK    | 120 | 1525  | ---- | ---- | ---- | 129 | DL6NAQ   | JO40   | EK    | 83  | 1253  | ---- | ---- | ---- |
| 46 | SM5BEI   | JP90   | HU    | 120 | 1325  | 1016 | ---- | ---- | 130 | G6HKT    | IO81   | YL    | 83  | 1190  | ---- | ---- | ---- |
| 47 | OZ3ZW    | JO54   | FO    | 120 | 1298  | 613  | ---- | ---- | 131 | ON5GF    | JO20   | CK    | 83  | 1115  | ---- | ---- | ---- |
| 48 | DB2NT/A  | JO50   | FK    | 119 | 1505  | ---- | ---- | ---- | 132 | DC4XH    | JO43   | EN    | 83  | 1090  | ---- | ---- | ---- |
| 49 | OE3XUA   | JN77   | HH    | 119 | 1408  | ---- | ---- | *    | 133 | SP1JX    | JO84   | IO    | 82  | 1208  | ---- | ---- | ---- |
| 50 | SM0CPA   | JO89   | IT    | 118 | 1856  | 797  | ---- | ---- | 134 | F6BSJ    | JN26   | CG    | 81  | 1525  | ---- | ---- | ---- |
| 51 | PE1ALA   | JO22   | CM    | 118 | 1336  | 788  | ---- | ---- | 135 | G4LRT    | IO92   | ZM    | 81  | 1394  | ---- | ---- | ---- |
| 52 | DK2NH    | JO53   | FN    | 117 | 1607  | 997  | ---- | ---- | 136 | GB8PU    | JO02   | AM    | 81  | 1241  | ---- | ---- | ---- |
| 53 | F6APE    | IN97   | ZH    | 116 | 1706  | ---- | ---- | ---- | 137 | G4MCU    | JO01   | AL    | 81  | 1192  | ---- | ---- | ---- |
| 54 | DC2XK    | JO43   | EN    | 115 | 1440  | ---- | ---- | ---- | 138 | SP9MM    | JO90   | JK    | 80  | 1547  | ---- | ---- | ---- |
| 55 | F6DWG    | JN19   | BJ    | 115 | 1350  | ---- | ---- | ---- | 139 | PA3BGL   | JO23   | CN    | 79  | 1250  | ---- | ---- | ---- |
| 56 | DF3EE    | JO31   | DL    | 115 | 1267  | ---- | ---- | ---- | 140 | SM78WU   | JO78   | HS    | 79  | 1192  | 692  | ---- | ---- |
| 57 | DG4BAN   | JN48   | EL    | 114 | 1504  | ---- | ---- | ---- | 141 | UR2EQ    | K039   | NT    | 79  | 1160  | 907  | ---- | ---- |
| 58 | Y23BD    | JO62   | GM    | 114 | 1285  | ---- | ---- | ---- | 142 | DF1JC    | JO31   | DL    | 78  | 1270  | ---- | ---- | ---- |
| 59 | DL3UZ    | JO53   | FN    | 114 | 1270  | ---- | ---- | ---- | 143 | DK2ZF    | JO53   | FN    | 78  | 1223  | ---- | ---- | ---- |
| 60 | OH3TH    | KP11   | LV    | 113 | 1199  | 943  | ---- | +    | 144 | DS1NZ    | JN59   | FJ    | 78  | 1146  | ---- | ---- | ---- |
| 61 | SM6FYU   | JO66   | GK    | 112 | 1441  | 706  | ---- | ---- | 145 | DB5AQ    | JO51   | FL    | 78  | 1050  | ---- | ---- | ---- |
| 62 | PA3AQH   | JO31   | DL    | 112 | 1254  | 530  | ---- | ---- | 146 | PA0BV    | JO22   | CM    | 77  | 1180  | ---- | ---- | ---- |
| 63 | G4FRE    | JO01   | AL    | 112 | 1225  | 560  | ---- | ---- | 147 | DL5FAU   | JO40   | EK    | 76  | 1120  | ---- | ---- | ---- |
| 64 | DJ7YP    | JO42   | EM    | 112 | 1140  | ---- | ---- | ---- | 148 | SP6AZT   | IO81   | YL    | 75  | 1538  | ---- | ---- | ---- |
| 65 | DK0NA    | JO50   | FK    | 112 | 1096  | ---- | ---- | ---- | 149 | Y22EN    | JO60   | GK    | 75  | 1395  | ---- | ---- | ---- |
| 66 | SM5CPD   | JO89   | IT    | 110 | 1230  | 640  | ---- | ---- | 150 | GW4LXO   | IO81   | YL    | 75  | 1250  | ---- | ---- | ---- |
| 67 | ON5FF    | JO11   | BL    | 110 | 1170  | 736  | ---- | ---- | 151 | G4MUT    | IO91   | ZL    | 75  | 1196  | ---- | ---- | ---- |
| 68 | SM5DWC   | JO89   | IT    | 109 | 1480  | 810  | ---- | ---- | 152 | PA2DRV   | JO21   | CL    | 75  | 1147  | ---- | ---- | ---- |
| 69 | SM0FWS   | JO99   | JT    | 109 | 1380  | 740  | ---- | ---- | 153 | UQ2AO    | K026   | HQ    | 74  | 1329  | 1040 | ---- | ---- |
| 70 | PA0J0Z   | JO22   | CM    | 109 | 1270  | ---- | ---- | ---- | 154 | DL6WU    | JN49   | EJ    | 74  | 1305  | 740  | ---- | *    |
| 71 | PA3DZL   | JO21   | CL    | 108 | 1358  | 782  | ---- | ---- | 155 | DL7HR    | JN58   | FJ    | 74  | 1256  | 980  | ---- | ---- |
| 72 | G3PBV    | IO80   | YK    | 106 | 1572  | ---- | ---- | ---- | 156 | DC9BUA   | JO40   | EK    | 74  | 1253  | ---- | ---- | ---- |
| 73 | OK1KIR/P | JO60   | GK    | 106 | 1331  | ---- | ---- | *    | 157 | OH28BF   | K019   | LT    | 74  | 1164  | 773  | ---- | ---- |
| 74 | PE1IST   | JO22   | CM    | 106 | 1285  | ---- | ---- | ---- | 158 | SO1MM    | JO73   | HN    | 73  | 1340  | 730  | ---- | ---- |
| 75 | SM4AXY   | JO79   | HT    | 105 | 1714  | 1100 | ---- | ---- | 159 | SM4IAZ   | JO79   | HT    | 73  | 1055  | 1134 | ---- | ---- |
| 76 | OZ1HDA   | JO47   | ER    | 105 | 1406  | ---- | ---- | ---- | 160 | DK1VI    | JN49   | EJ    | 73  | 998   | 532  | ---- | ---- |
| 77 | DL4EA    | JO31   | DL    | 105 | 1265  | 1009 | ---- | ---- | 161 | UR2HD    | K018   | LS    | 72  | 1565  | 614  | ---- | ---- |
| 78 | G4MAW    | IO80   | YK    | 105 | 1088  | ---- | ---- | ---- | 162 | SM7GEP   | JO77   | HR    | 72  | 1428  | 533  | ---- | ---- |
| 79 | PE1USE   | JO21   | CL    | 104 | 1358  | 782  | ---- | ---- | 163 | PA3CNN   | JO22   | CM    | 72  | 1299  | ---- | ---- | ---- |
| 80 | OZ1CFO   | JO47   | ER    | 104 | 1343  | 243  | ---- | ---- | 164 | DF2YQ    | JO31   | DL    | 72  | 1077  | 475  | ---- | ---- |
| 81 | F1EAN    | JN06   | AG    | 102 | 1500  | ---- | ---- | ---- | 165 | PA0XMA   | JO32   | DM    | 72  | 980   | 485  | ---- | ---- |
| 82 | GJ4ICD   | IN89   | YJ    | 102 | 1340  | 803  | ---- | ---- | 166 | GB8VY    | IO80   | YK    | 71  | 1500  | ---- | ---- | ---- |
| 83 | G3COJ    | IO91   | ZL    | 101 | 1465  | 812  | ---- | ---- | 167 | G4BEL    | JO02   | AM    | 71  | 1175  | ---- | ---- | ---- |
| 84 | SM0DFP   | JO89   | IT    | 101 | 1410  | 830  | ---- | ---- | 168 | SM5CUI   | JO89   | IT    | 71  | 1150  | 1260 | ---- | ---- |

## WORLD WIDE UHF TOP LIST 432 MHZ

18.08.1985

| NR CALL WW-QTH E-QTH WKD TROPO AURO MS ES |          |      |    |    |      |      |      |      |      | NR CALL WW-QTH E-QTH WKD TROPO AURO MS ES |          |      |    |    |      |      |      |      |      |
|-------------------------------------------|----------|------|----|----|------|------|------|------|------|-------------------------------------------|----------|------|----|----|------|------|------|------|------|
| 169                                       | Y2480    | J062 | GM | 71 | 1066 | 838  | ---- | ---- | ---- | 253                                       | PA3BBA   | J022 | CM | 49 | 1028 | ---- | ---- | ---- | ---- |
| 170                                       | SM7CFE   | J076 | HQ | 70 | 1420 | ---- | ---- | ---- | ---- | 254                                       | HB9CRQ   | JN47 | EH | 49 | 1012 | ---- | ---- | ---- | ---- |
| 171                                       | OZ1HDB   | J047 | ER | 70 | 1418 | ---- | ---- | ---- | ---- | 255                                       | SP6GWB/6 | J080 | IK | 49 | 820  | ---- | ---- | ---- | ---- |
| 172                                       | UR2RTW   | K018 | LS | 70 | 1342 | 907  | ---- | ---- | ---- | 256                                       | YU3CAB   | JN76 | HG | 49 | 644  | ---- | ---- | ---- | ---- |
| 173                                       | SP9FG    | JN99 | JJ | 70 | 1327 | ---- | ---- | ---- | ---- | 257                                       | EA3XU    | JN11 | BB | 47 | 1230 | ---- | ---- | ---- | ---- |
| 174                                       | PA3BRS   | J022 | CM | 69 | 1292 | ---- | ---- | ---- | ---- | 258                                       | UR2JL    | K029 | MM | 47 | 1125 | ---- | ---- | ---- | ---- |
| 175                                       | I4LCK/4  | JN54 | FE | 69 | 876  | ---- | ---- | ---- | ---- | 259                                       | UR26Z    | K028 | MS | 47 | 1035 | ---- | ---- | ---- | ---- |
| 176                                       | DF1EQ    | J031 | DL | 69 | 811  | ---- | ---- | ---- | ---- | 260                                       | DD3KF    | J030 | DK | 47 | 862  | ---- | ---- | ---- | ---- |
| 177                                       | DK0IK/P  | J043 | EN | 68 | 1436 | ---- | ---- | ---- | ---- | 261                                       | OE9XXI/9 | JN47 | EH | 47 | 844  | ---- | ---- | ---- | ---- |
| 178                                       | DF6NA    | JN49 | EJ | 68 | 1201 | 650  | ---- | ---- | ---- | 262                                       | SP6BTI   | J081 | IL | 47 | 806  | ---- | ---- | ---- | ---- |
| 179                                       | SM5CUL   | J089 | IT | 68 | 1150 | 1260 | ---- | ---- | ---- | 263                                       | HG1YA    | JN87 | TH | 46 | 1348 | ---- | ---- | ---- | ---- |
| 180                                       | PE1AAP   | J022 | CM | 68 | 1132 | ---- | ---- | ---- | ---- | 264                                       | EA3BB    | JN11 | BB | 46 | 1225 | ---- | ---- | ---- | ---- |
| 181                                       | I2FHW    | JN44 | EE | 68 | 910  | ---- | ---- | ---- | ---- | 265                                       | EA3BBU   | JN11 | BB | 46 | 1225 | ---- | ---- | ---- | ---- |
| 182                                       | UQ2NX    | K027 | MR | 67 | 1355 | ---- | ---- | ---- | ---- | 266                                       | SP5JC    | K002 | KM | 46 | 1120 | 866  | ---- | ---- | ---- |
| 183                                       | OZ11PU   | J057 | FR | 66 | 1387 | ---- | ---- | ---- | ---- | 267                                       | SP6GWN/6 | J080 | IK | 46 | 820  | ---- | ---- | ---- | ---- |
| 184                                       | UQ28AJ   | K016 | LQ | 66 | 1274 | ---- | ---- | ---- | ---- | 268                                       | SP6LB    | J070 | HK | 45 | 1301 | ---- | ---- | ---- | ---- |
| 185                                       | OK2KZR/P | JN89 | IJ | 65 | 1333 | ---- | ---- | ---- | ---- | 269                                       | OH2BWL   | KP20 | MU | 45 | 1223 | 1005 | ---- | ---- | ---- |
| 186                                       | OZ9SW    | J046 | EQ | 65 | 1050 | ---- | ---- | ---- | ---- | 270                                       | DH2FAF   | J040 | EU | 45 | 825  | ---- | ---- | ---- | ---- |
| 187                                       | SM7FMD   | J077 | HR | 64 | 1594 | ---- | ---- | ---- | ---- | 271                                       | UR2RGM   | K029 | MT | 45 | 780  | ---- | ---- | ---- | ---- |
| 188                                       | OZ11VW   | J056 | FQ | 64 | 1368 | ---- | ---- | ---- | ---- | 272                                       | SM3COL   | JP82 | IW | 45 | 621  | 455  | ---- | ---- | ---- |
| 189                                       | DG4BB    | J043 | EN | 64 | 1194 | ---- | ---- | ---- | ---- | 273                                       | IWSAVM   | JN52 | FC | 44 | 1458 | ---- | ---- | ---- | ---- |
| 190                                       | OZ1ASL   | J054 | FO | 64 | 1187 | ---- | ---- | ---- | ---- | 274                                       | PA3CAP   | J022 | CM | 44 | 1281 | ---- | ---- | ---- | ---- |
| 191                                       | DL0SP/P  | J062 | GM | 64 | 1150 | ---- | ---- | ---- | ---- | 275                                       | OZ1FHD   | J065 | GP | 44 | 1033 | 822  | ---- | ---- | ---- |
| 192                                       | DL9PW    | JN59 | FJ | 64 | 1101 | ---- | ---- | ---- | ---- | 276                                       | OE5XVL   | JN67 | GH | 44 | 890  | ---- | ---- | ---- | ---- |
| 193                                       | DK8VS    | JN39 | DJ | 64 | 920  | ---- | ---- | ---- | ---- | 277                                       | F6ECI    | JN18 | BI | 44 | 880  | ---- | ---- | ---- | ---- |
| 194                                       | HB9AOF   | JN36 | DG | 64 | 821  | ---- | ---- | ---- | ---- | 278                                       | I2FUM/2  | JN44 | EE | 44 | 875  | ---- | ---- | ---- | ---- |
| 195                                       | UQ28LO   | K006 | KQ | 63 | 1433 | 614  | ---- | ---- | ---- | 279                                       | DL2HAD   | J043 | EN | 44 | 798  | ---- | ---- | ---- | ---- |
| 196                                       | G3WSN    | J001 | AL | 63 | 1385 | ---- | ---- | ---- | ---- | 280                                       | G8ROU    | I093 | ZN | 43 | 1255 | ---- | ---- | ---- | ---- |
| 197                                       | DL2DM    | J030 | DK | 63 | 993  | 639  | ---- | ---- | ---- | 281                                       | SM2CKR   | KP03 | KY | 43 | 1215 | 820  | ---- | ---- | ---- |
| 198                                       | UR2RQ    | K028 | MS | 63 | 872  | 1142 | ---- | ---- | ---- | 282                                       | UA3MBJ   | K088 | SS | 43 | 1200 | 800  | ---- | ---- | ---- |
| 199                                       | OE5EFM   | JN78 | HI | 62 | 1214 | ---- | ---- | ---- | ---- | 283                                       | DF3XZ    | J053 | FN | 43 | 956  | ---- | ---- | ---- | ---- |
| 200                                       | UP2BBC   | K015 | LP | 62 | 1125 | 807  | ---- | ---- | ---- | 284                                       | DC8LG    | JN57 | FH | 43 | 934  | ---- | ---- | ---- | ---- |
| 201                                       | G4R0K    | I091 | ZL | 62 | 1100 | ---- | ---- | ---- | ---- | 285                                       | DC9VA    | JN39 | DJ | 43 | 920  | ---- | ---- | ---- | ---- |
| 202                                       | DH4NAG   | J050 | FK | 62 | 1096 | ---- | ---- | ---- | ---- | 286                                       | DB9SB    | JN49 | EJ | 43 | 917  | ---- | ---- | ---- | ---- |
| 203                                       | OK1KTL/P | J060 | GK | 62 | 993  | ---- | ---- | ---- | ---- | 287                                       | OE6LOG   | JN76 | HG | 43 | 470  | ---- | ---- | ---- | ---- |
| 204                                       | UR1RWX   | K029 | MT | 62 | 860  | ---- | ---- | ---- | ---- | 288                                       | SM0AGP   | J089 | IT | 42 | 740  | 410  | ---- | ---- | ---- |
| 205                                       | F6CJG/P  | JN15 | BF | 61 | 1170 | ---- | ---- | ---- | ---- | 289                                       | GW8VHI   | I081 | YL | 41 | 2787 | ---- | ---- | ---- | ---- |
| 206                                       | DK3DL    | J031 | DL | 61 | 989  | ---- | ---- | ---- | ---- | 290                                       | OE5UAL   | JN68 | GU | 41 | 1287 | ---- | ---- | ---- | ---- |
| 207                                       | Y21PL    | J061 | GL | 61 | 864  | ---- | ---- | ---- | ---- | 291                                       | SM4DHN   | JP60 | FR | 41 | 1240 | 1030 | ---- | ---- | ---- |
| 208                                       | SM5DSN   | J089 | IT | 60 | 1470 | 670  | ---- | ---- | ---- | 292                                       | OZ1HNE   | J056 | GU | 40 | 948  | ---- | ---- | ---- | ---- |
| 209                                       | SM4IVE   | J079 | HT | 60 | 938  | 710  | ---- | ---- | ---- | 293                                       | UQ2WU    | K026 | MQ | 40 | 934  | 833  | ---- | ---- | ---- |
| 210                                       | SM5LE    | J099 | JT | 59 | 1560 | 710  | ---- | ---- | ---- | 294                                       | DL7WC    | J062 | GM | 40 | 795  | ---- | ---- | ---- | ---- |
| 211                                       | G8SFM    | I081 | YL | 59 | 1255 | ---- | ---- | ---- | ---- | 295                                       | SP2DDV   | J063 | IN | 40 | 783  | ---- | ---- | ---- | ---- |
| 212                                       | DL7RU    | J062 | GM | 59 | 1251 | ---- | ---- | ---- | ---- | 296                                       | OK1VAM/P | J060 | BK | 40 | 511  | ---- | ---- | ---- | ---- |
| 213                                       | OE5UKL/5 | JN68 | GI | 59 | 1221 | ---- | ---- | ---- | ---- | 297                                       | EA3LL    | JN01 | AB | 39 | 1315 | ---- | ---- | ---- | ---- |
| 214                                       | SP1FPB   | J073 | HN | 59 | 1220 | ---- | ---- | ---- | ---- | 298                                       | DL9HN    | J053 | FN | 39 | 1093 | ---- | ---- | ---- | ---- |
| 215                                       | F6EAS    | JN98 | ZI | 59 | 1073 | ---- | ---- | ---- | ---- | 299                                       | GM3ZSS   | I087 | YR | 38 | 1400 | ---- | ---- | ---- | ---- |
| 216                                       | F6HLD/P  | JN26 | CG | 58 | 1545 | ---- | ---- | ---- | ---- | 300                                       | UQ26FZ   | K037 | NR | 38 | 1328 | 590  | ---- | ---- | ---- |
| 217                                       | OE1RKU   | JN88 | II | 58 | 1354 | ---- | ---- | ---- | ---- | 301                                       | OE3JHC   | JN78 | HI | 38 | 1017 | ---- | ---- | ---- | ---- |
| 218                                       | OE3PQU   | JN78 | HI | 58 | 1220 | ---- | ---- | ---- | ---- | 302                                       | SM3BUI   | JM77 | HX | 38 | 917  | 763  | ---- | ---- | ---- |
| 219                                       | OE3RLC   | JN77 | HH | 58 | 1131 | ---- | ---- | ---- | ---- | 303                                       | PA3DMH   | J021 | CL | 38 | 852  | ---- | ---- | ---- | ---- |
| 220                                       | PE0DOL   | J021 | CL | 58 | 1033 | ---- | ---- | ---- | ---- | 304                                       | DK0IK/P  | J034 | DO | 38 | 800  | ---- | ---- | ---- | ---- |
| 221                                       | DL4DL    | J052 | FM | 57 | 1818 | ---- | ---- | ---- | ---- | 305                                       | OE5JPC/3 | JN77 | HH | 38 | 671  | ---- | ---- | ---- | ---- |
| 222                                       | DK9NN    | JN58 | FI | 56 | 1260 | ---- | ---- | ---- | ---- | 306                                       | SP5AD    | K002 | KM | 37 | 1331 | ---- | ---- | ---- | ---- |
| 223                                       | I68QA    | JN63 | GD | 56 | 813  | ---- | ---- | ---- | ---- | 307                                       | OE5XPL   | JN78 | HI | 37 | 1176 | ---- | ---- | ---- | ---- |
| 224                                       | DK3UC    | J053 | FN | 55 | 1300 | 600  | ---- | ---- | ---- | 308                                       | DF9PY/P  | J030 | DK | 37 | 737  | ---- | ---- | ---- | ---- |
| 225                                       | DC4BK    | J043 | EN | 55 | 1332 | ---- | ---- | ---- | ---- | 309                                       | DL8DAU   | J031 | DL | 37 | 737  | ---- | ---- | ---- | ---- |
| 226                                       | UR2NW    | K019 | LT | 55 | 1213 | 675  | ---- | ---- | ---- | 310                                       | DF1EO    | J031 | DL | 36 | 767  | ---- | ---- | ---- | ---- |
| 227                                       | HB9MIO/P | JN37 | DH | 55 | 1010 | ---- | ---- | ---- | ---- | 311                                       | OE1ERC/9 | JN57 | FH | 36 | 709  | ---- | ---- | ---- | ---- |
| 228                                       | IK4DCO/6 | JN63 | GD | 55 | 631  | ---- | ---- | ---- | ---- | 312                                       | HG2KML   | JN97 | JH | 36 | 600  | ---- | ---- | ---- | ---- |
| 229                                       | DC70H    | J062 | GM | 54 | 1216 | ---- | ---- | ---- | ---- | 313                                       | EA1ED    | I053 | VD | 35 | 1830 | ---- | ---- | ---- | ---- |
| 230                                       | PA0JME   | J021 | CL | 54 | 1046 | ---- | ---- | ---- | ---- | 314                                       | UR2AO    | K029 | MT | 35 | 1131 | ---- | ---- | ---- | ---- |
| 231                                       | HB9SAX/P | JN37 | DH | 54 | 938  | ---- | ---- | ---- | ---- | 315                                       | DL9DAK   | J031 | DL | 35 | 824  | ---- | ---- | ---- | ---- |
| 232                                       | PA0HRK   | J021 | CL | 54 | 881  | ---- | ---- | ---- | ---- | 316                                       | OE1KTC   | JN88 | II | 35 | 808  | ---- | ---- | ---- | ---- |
| 233                                       | PA2HJS   | J020 | CK | 54 | 832  | ---- | ---- | ---- | ---- | 317                                       | D85BQ    | J043 | EN | 35 | 739  | ---- | ---- | ---- | ---- |
| 234                                       | F6HEO    | JN16 | BG | 54 | 761  | ---- | ---- | ---- | ---- | 318                                       | DL7YW    | J062 | GM | 35 | 724  | ---- | ---- | ---- | ---- |
| 235                                       | DL5LH    | J054 | FO | 53 | 1256 | 630  | ---- | ---- | ---- | 319                                       | YU3USB/3 | JN66 | GG | 35 | 632  | ---- | ---- | ---- | ---- |
| 236                                       | IWSAFB   | JN52 | FC | 53 | 945  | ---- | ---- | ---- | ---- | 320                                       | I3ZVN    | JN55 | FF | 34 | 866  | ---- | ---- | ---- | ---- |
| 237                                       | PA0KDV   | J033 | DN | 53 | 920  | ---- | ---- | ---- | ---- | 321                                       | SP4DCS   | K003 | KN | 34 | 855  | ---- | ---- | ---- | ---- |
| 238                                       | DK1KO    | J053 | FN | 53 | 920  | ---- | ---- | ---- | ---- | 322                                       | SM3UL    | JP81 | IV | 34 | 585  | 674  | ---- | ---- | ---- |
| 239                                       | EA3JA/P  | JN12 | BC | 52 | 1085 | ---- | ---- | ---- | ---- | 323                                       | OK1VAM   | J060 | BK | 34 | 511  | ---- | ---- | ---- | ---- |
| 240                                       | DG66P    | JN48 | EI | 52 | 1016 | ---- | ---- | ---- | ---- | 324                                       | OE3HJW/3 | JN77 | HH | 33 | 1643 | ---- | ---- | ---- | ---- |
| 241                                       | PA0JTA   | J021 | CL | 52 | 920  | ---- | ---- | ---- | ---- | 325                                       | OE3HJW/9 | JN77 | HH | 33 | 1643 | ---- | ---- | ---- | ---- |
| 242                                       | DL0SO/A  | J031 | DL | 52 | 888  | ---- | ---- | ---- | ---- | 326                                       | DK2PR    | J043 | EN | 33 | 1200 | ---- | ---- | ---- | ---- |
| 243                                       | OE1APS   | JN88 | II | 51 | 1341 | ---- | ---- | ---- | ---- | 327                                       | G6JNS    | I082 | YM | 33 | 979  | ---- | ---- | ---- | ---- |
| 244                                       | DH8OAB   | J042 | EM | 51 | 912  | ---- | ---- | ---- | ---- | 328                                       | SM7LXV   | J045 | GP | 33 | 890  | ---- | ---- | ---- | ---- |
| 245                                       | DL0UL/P  | JN48 | EI | 51 | 759  | ---- | ---- | ---- | ---- | 329                                       | DL5BBL   | J042 | EM | 33 | 841  | ---- | ---- | ---- | ---- |
| 246                                       | OE3EFS   | JN78 | HI | 50 | 1303 | ---- | ---- | ---- | ---- | 330                                       | DJ5LZ    | JN58 | FI | 32 | 931  | ---- | ---- | ---- | ---- |
| 247                                       | DF7YU    | J041 | EL | 50 | 1147 | ---- | ---- | ---- | ---- | 331                                       | SM5EVK   | J088 | IS | 32 | 740  | ---- | ---- | ---- | ---- |
| 248                                       | DL8FBD   | J040 | EC | 50 | 1147 | ---- | ---- | ---- | ---- | 332                                       | F1DUZ    | JN97 | ZH | 32 | 674  | ---- | ---- | ---- | ---- |
| 249                                       | EA3ADW/P | JN12 | BC | 50 | 1050 | ---- | ---- | ---- | ---- | 333                                       | I1JTD    | JN35 | DF | 32 | 550  | ---- | ---- | ---- | ---- |
| 250                                       | SM6FHZ   | J066 | GO | 50 | 1010 | 800  | ---- | ---- | ---- | 334                                       | OK3AU    | KN08 | KI | 31 | 1172 | ---- | ---- | ---- | ---- |
| 251                                       | UQ26CB   | K017 | LR | 49 | 1275 | 987  | ---- | ---- | ---- | 335                                       | OE3ARR   | JN88 | II | 31 | 889  | ---- | ---- | ---- | ---- |
| 252                                       | HB9QQ    | JN47 | EH | 49 | 1000 | ---- | ---- | ---- | ---- | 336                                       | G4JCC    | I090 | ZK | 31 | 841  | ---- | ---- | ---- | ---- |

THE LIST IS PUBLISHED CONTINUOUSLY. DATA COMPILED ABOVE BASED ON UNCONFIRMED CLAIMS BY OPERATORS.

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## WORLD WIDE SHF TOP LIST 1296 MHZ

18.08.1985

| NR | CALL     | WW-QTH | E-QTH | WKD | TROPO | NR  | CALL     | WW-QTH | E-QTH | WKD | TROPO | NR  | CALL     | WW-QTH | E-QTH | WKD | TROPO |
|----|----------|--------|-------|-----|-------|-----|----------|--------|-------|-----|-------|-----|----------|--------|-------|-----|-------|
| 1  | PE1CHQ   | J032   | DM    | 90  | 1200* | 58  | DD3KL    | J030   | DK    | 50  | 719   | 115 | OZ1CFO   | J047   | ER    | 29  | 816   |
| 2  | PA0EZ    | J022   | CM    | 89  | 1261  | 59  | DL7YC    | J062   | GM    | 49  | 1040* | 116 | DL0UL/P  | JN48   | EI    | 28  | 589   |
| 3  | F1FHI    | IN97   | ZH    | 88  | 1538  | 60  | PA0J0Z   | J022   | CM    | 49  | 892   | 117 | DF3CK    | JN57   | FH    | 27  | 1240  |
| 4  | PE0A80   | J032   | DM    | 88  | 1200  | 61  | OZ1HDA   | J047   | ER    | 47  | 1372  | 118 | JD6NB    | J030   | DK    | 27  | 876   |
| 5  | PA0FRE   | J021   | CL    | 86  | 1337  | 62  | DL19G0   | JN49   | EJ    | 47  | 900   | 119 | DC4XH    | J043   | EN    | 27  | 839   |
| 6  | PA0WWM   | J022   | CM    | 83  | 1298  | 63  | DH4NAG   | J050   | FK    | 46  | 1096  | 120 | D648B    | J043   | EN    | 27  | 741   |
| 7  | DL7QY    | JN59   | FJ    | 83  | 1261  | 64  | PE1HWO   | J021   | CL    | 46  | 880   | 121 | Z3BBD    | J062   | GM    | 26  | 977   |
| 8  | G3LTF    | J001   | AL    | 83  | 1078  | 65  | DB2VY    | JN39   | DJ    | 46  | 783   | 122 | G8BKQ    | I081   | YL    | 25  | 926   |
| 9  | HB9AMH/P | JN37   | DH    | 82  | 1264  | 66  | SM0FZH   | J099   | JT    | 45  | 1252  | 123 | 12FFW    | JN44   | EE    | 25  | 865   |
| 10 | F6DZK    | JN08   | AI    | 81  | 1229  | 67  | SM0DFP   | J089   | IT    | 45  | 1057  | 124 | UR2RQ    | K028   | MS    | 25  | 540   |
| 11 | G3LQR    | J002   | AM    | 80  | 1232  | 68  | DF1EO    | J031   | DL    | 45  | 802   | 125 | SM4AXY   | J079   | HT    | 24  | 1000  |
| 12 | ON56F    | J020   | CK    | 77  | 1010  | 69  | PE1ALA   | J022   | CM    | 44  | 1315  | 126 | GWBTVX   | I071   | XL    | 24  | 940   |
| 13 | F6CER    | JN18   | BI    | 75  | 1350  | 70  | F6BSJ    | JN26   | CG    | 44  | 850   | 127 | 12FUM/2  | JN44   | EE    | 24  | 779   |
| 14 | DF3XU    | J053   | FN    | 74  | 1277  | 71  | SM6CKU   | J067   | GR    | 44  | 820   | 128 | PA0VVV   | J022   | CM    | 24  | 622   |
| 15 | PE1GHG   | J021   | CL    | 74  | 872   | 72  | OZ3ZW    | J054   | FO    | 43  | 1183  | 129 | SM5CPD   | J089   | IT    | 24  | 610   |
| 16 | OZ7LY    | J055   | FP    | 73  | 1456  | 73  | G4MAW    | I080   | YK    | 43  | 989   | 130 | HB9AOF   | JN36   | DG    | 24  | 581   |
| 17 | PE1CQQ   | J032   | DM    | 73  | 1167  | 74  | DC8UG    | J030   | DK    | 43  | 826   | 131 | ON5WQ    | J011   | BL    | 23  | 730   |
| 18 | PA0RDY   | J022   | CM    | 72  | 927   | 75  | SM0CCA/P | J089   | IT    | 42  | 1141  | 132 | 12AV     | JN45   | EF    | 23  | 535   |
| 19 | SM6HYG   | J058   | FS    | 71  | 1685  | 76  | OK1CA/P  | J070   | HK    | 42  | 1089  | 133 | PA0JME   | J021   | CL    | 22  | 867   |
| 20 | G4BYV    | J002   | AM    | 70  | 1028  | 77  | DL3NG    | JN49   | EJ    | 42  | 920   | 134 | OK1KTL/P | J060   | GK    | 22  | 467   |
| 21 | DB6NT/A  | J050   | FK    | 69  | 1105  | 78  | SM5BEI   | JP90   | JU    | 42  | 877   | 135 | IK4DCO/6 | J063   | GD    | 22  | 460   |
| 22 | DB6BX    | J032   | DM    | 69  | 1052  | 79  | FIELL    | JN18   | BI    | 42  | 707   | 136 | G6LZZ    | I083   | YN    | 21  | 759   |
| 23 | DC9X0    | J042   | EM    | 69  | 963   | 80  | G4FRE    | J001   | AL    | 42  | 641   | 137 | 13ZVN    | JN55   | FV    | 20  | 972   |
| 24 | 1D1ED    | JN18   | BI    | 66  | 1049  | 81  | L8ABE    | J059   | FT    | 41  | 1271  | 138 | PA0KDV   | J033   | DN    | 20  | 724   |
| 25 | PA3D1J   | J033   | DM    | 66  | 988   | 82  | FIIFEN/P | JN25   | CF    | 41  | 1190  | 139 | OE1ERC/9 | JN57   | FH    | 20  | 657   |
| 26 | DK2UO    | J031   | DL    | 66  | 871   | 83  | G3PBV    | I080   | YK    | 41  | 996   | 140 | SM0DYE   | J099   | JT    | 20  | 485   |
| 27 | PA3A0H   | J031   | DL    | 65  | 940   | 84  | PA0JUS   | J022   | CM    | 41  | 820   | 141 | DL7M     | J062   | GM    | 19  | 814+  |
| 28 | OE3LFA   | JN88   | II    | 62  | 1260  | 85  | DL3NI    | J031   | DL    | 41  | 798   | 142 | SM3AKW   | JP92   | JU    | 19  | 888   |
| 29 | PA2D0L   | J021   | CL    | 62  | 1027  | 86  | ON6UG    | J011   | BL    | 39  | 988   | 143 | DK01K/P  | J034   | DO    | 19  | 758   |
| 30 | DK2NH    | J053   | FN    | 62  | 939   | 87  | G3CQJ    | I091   | ZL    | 39  | 963   | 144 | DG4GAN   | JN48   | EI    | 19  | 594   |
| 31 | OZ2OE    | J045   | EP    | 61  | 1425  | 88  | DC7QH    | J062   | GM    | 38  | 1216  | 145 | OE3PQU   | JN78   | HI    | 19  | 546   |
| 32 | PA0CRA   | J022   | CM    | 61  | 1286  | 89  | DL5FAU   | J040   | EK    | 38  | 740   | 146 | OE9PMJ/9 | JN47   | EH    | 18  | 890   |
| 33 | DL7LZ    | J062   | GM    | 61  | 1285  | 90  | SM5DWC   | J089   | IT    | 37  | 1061  | 147 | G4MCU    | J001   | AL    | 18  | 704   |
| 34 | OZ7IS    | J065   | GP    | 61  | 1205  | 91  | PA3BSK   | J031   | DL    | 37  | 821   | 148 | IW5AVM   | JN52   | FC    | 18  | 672   |
| 35 | SM6ESG   | J067   | GR    | 61  | 1048  | 92  | PE1IST   | J022   | CM    | 37  | 795   | 149 | OZ2GAG   | K026   | MQ    | 18  | 443   |
| 36 | DK3UC    | J053   | FN    | 60  | 1223  | 93  | DOZEK    | J031   | DL    | 36  | 845   | 150 | DG1NZ    | JN59   | FJ    | 17  | 668   |
| 37 | DK0NA    | J050   | FK    | 59  | 1096  | 94  | DC0DA    | J031   | DL    | 36  | 815   | 151 | HB9SAX/P | JN37   | DH    | 17  | 446   |
| 38 | DF5JJ    | J031   | DL    | 59  | 897   | 95  | L8ABK    | J038   | DS    | 35  | 1117  | 152 | OE3EFS   | JN78   | HI    | 16  | 643   |
| 39 | F6DWS    | JN19   | BJ    | 58  | 1196  | 96  | SM0FFS   | J099   | JT    | 35  | 1040  | 153 | G4RQK    | I091   | ZL    | 16  | 683   |
| 40 | PA3DZL   | J021   | CL    | 58  | 907   | 97  | PA0HRK   | J021   | CL    | 35  | 861   | 154 | UR1RWX   | K016   | LQ    | 16  | 430   |
| 41 | G8PHU    | J002   | AM    | 57  | 1254  | 98  | HB9BBD/P | JN47   | EH    | 35  | 497   | 155 | OZ2GAG   | K016   | LQ    | 15  | 876   |
| 42 | OK1K1R/P | J060   | GK    | 56  | 1288  | 99  | PA3BGL   | J023   | CM    | 34  | 1155  | 156 | IW1ALW   | JN35   | DF    | 15  | 680   |
| 43 | DK5AI    | J051   | FL    | 56  | 1188  | 100 | DL7APV   | J062   | GM    | 34  | 1112  | 157 | 14XCC    | JN63   | GD    | 15  | 438   |
| 44 | OK1AIY/P | J070   | HK    | 55  | 1351  | 101 | G4W4X0   | I081   | YL    | 34  | 900   | 158 | OE1KTC   | JN88   | II    | 15  | 423   |
| 45 | DL6NAQ   | J040   | EK    | 55  | 1253  | 102 | DF7VX    | J041   | EL    | 34  | 886   | 159 | EA3JA/P  | JN12   | BC    | 14  | 1058  |
| 46 | G4LRT    | I092   | ZM    | 55  | 1152  | 103 | OK1PJ    | J051   | FL    | 34  | 865   | 160 | DJ80L    | JN49   | EJ    | 14  | 778   |
| 47 | DL4EA    | J031   | DL    | 55  | 906   | 104 | DL0SQ/A  | J031   | DL    | 33  | 642   | 161 | OE1KTC/5 | JN68   | EI    | 14  | 545   |
| 48 | DC9N8/A  | J040   | EK    | 54  | 1253  | 105 | UR2EQ    | K039   | NT    | 33  | 636   | 162 | DB9SB    | JN48   | GJ    | 14  | 467   |
| 49 | PA3CNN   | J022   | CM    | 54  | 810   | 106 | OE9XXI/9 | JN47   | EH    | 32  | 742   | 163 | 14XCC/6  | JN63   | GD    | 14  | 425   |
| 50 | PA2DRV   | J021   | CL    | 53  | 1318  | 107 | LX1DU    | JN29   | CJ    | 32  | 600   | 164 | F6HLD/P  | JN26   | CG    | 13  | 740   |
| 51 | OH0NC    | KP00   | KU    | 52  | 1529  | 108 | G4BEL    | J002   | AM    | 31  | 1025  | 165 | DG6GP    | JN48   | EI    | 13  | 664   |
| 52 | DK6AS    | J052   | FM    | 52  | 990   | 109 | PA2HJS   | J020   | CK    | 31  | 690   | 166 | G6HKT    | I081   | YL    | 12  | 830   |
| 53 | DF1EQ    | J031   | DL    | 52  | 908   | 110 | DK0IK    | J043   | EN    | 31  | 672   | 167 | OZ3GW    | J056   | FG    | 12  | 760   |
| 54 | PE1JSE   | J021   | CL    | 52  | 907   | 111 | OZ2LD    | J054   | FO    | 30  | 1196  | 168 | HB9SAX   | JN36   | DG    | 12  | 429   |
| 55 | DC4BK    | J043   | EN    | 50  | 972   | 112 | HB9MIQ/P | JN37   | DH    | 30  | 715   | 169 | YU3ES/3  | JN65   | FG    | 12  | 374   |
| 56 | DF3EE    | J031   | DL    | 50  | 882   | 113 | OE3RLC   | JN77   | HH    | 29  | 954   | 170 | OE3JPC/3 | JN77   | HH    | 12  | 293   |
| 57 | HB9RG    | JN47   | EH    | 50  | 820   | 114 | DE3XUA   | JN77   | HH    | 29  | 900   | 171 | I0AKP    | JN61   | GB    | 11  | 1166  |

## WORLD WIDE SHF TOP LIST 2320 MHZ

18.08.1985

| NR | CALL     | WW-QTH | E-QTH | WKD | TROPO | NR | CALL     | WW-QTH | E-QTH | WKD | TROPO | NR | CALL     | WW-QTH | E-QTH | WKD | TROPO |
|----|----------|--------|-------|-----|-------|----|----------|--------|-------|-----|-------|----|----------|--------|-------|-----|-------|
| 1  | PA0EZ    | J022   | CM    | 48  | 827   | 24 | DC4BK    | J043   | EN    | 23  | 677   | 47 | OE1ERC/9 | JN57   | FH    | 12  | 657   |
| 2  | PE0A80   | J032   | DM    | 48  | 788   | 25 | DF1EQ    | J031   | DL    | 23  | 461   | 48 | OE3XU    | JN77   | HH    | 12  | 490   |
| 3  | G4BYV    | J002   | AM    | 39  | 1028  | 26 | DC0DA    | J031   | DL    | 21  | 580   | 49 | 12AV     | JN45   | EF    | 12  | 325   |
| 4  | PE1GHG   | J021   | CL    | 39  | 872   | 27 | OK1AIY/P | J070   | HK    | 20  | 1027  | 50 | DL0UL/P  | JN48   | EI    | 12  | 305   |
| 5  | DL7QY    | JN59   | FJ    | 38  | 1018  | 28 | G4LRT    | I092   | ZM    | 20  | 1022  | 51 | PA0JGF   | J032   | DM    | 11  | 444   |
| 6  | DB6NT/A  | J050   | FK    | 36  | 742   | 29 | PA3DZL   | J021   | CL    | 20  | 589   | 52 | OE9XXI/9 | JN47   | EH    | 11  | 439   |
| 7  | PA0WWM   | J022   | CM    | 35  | 790   | 30 | DL3FUG   | J040   | EK    | 20  | 582   | 53 | DD3KL    | J030   | DK    | 10  | 549   |
| 8  | DC9X0    | J042   | EM    | 35  | 732   | 31 | DC8UG    | J030   | DK    | 19  | 806   | 54 | DF5QZ    | J031   | DL    | 10  | 468   |
| 9  | PA0FRE   | J021   | CL    | 33  | 891   | 32 | DL3NI    | J031   | DL    | 19  | 788   | 55 | L8ABE    | J059   | FT    | 9   | 829   |
| 10 | PE1CQQ   | J032   | DM    | 31  | 733   | 33 | DK2NH    | J053   | FN    | 18  | 750   | 56 | DG4GAN   | JN48   | EI    | 9   | 545   |
| 11 | G3LQR    | J002   | AM    | 30  | 924   | 34 | DF5JJ    | J031   | DL    | 18  | 420   | 57 | DF3CK    | JN57   | FH    | 9   | 418   |
| 12 | OK1K1R/P | J060   | GK    | 30  | 866   | 35 | OZ7IS    | J065   | GP    | 17  | 860   | 58 | PA2HJS   | J020   | CK    | 9   | 388   |
| 13 | DK0NA    | J050   | FK    | 30  | 527   | 36 | PA2DRV   | J021   | CL    | 17  | 776   | 59 | PA0JME   | J021   | CL    | 9   | 262   |
| 14 | SM6ESG   | J067   | GR    | 28  | 895   | 37 | PA2DOL   | J021   | CL    | 15  | 781   | 60 | DJ80L    | JN49   | EJ    | 8   | 463   |
| 15 | SM6HYG   | J058   | FS    | 27  | 1290  | 38 | DK3UC    | J053   | FN    | 15  | 661   | 61 | OK1KTL/P | J060   | GK    | 7   | 349   |
| 16 | ON56F    | J020   | CK    | 27  | 800   | 39 | PE1JSE   | J021   | CL    | 15  | 589   | 62 | DB2VY    | JN39   | DJ    | 7   | 339   |
| 17 | DK2UO    | J031   | DL    | 27  | 638   | 40 | PA0HRK   | J021   | CL    | 15  | 539   | 63 | DK5AI    | J051   | FL    | 7   | 326   |
| 18 | DH4NAG   | J050   | FK    | 27  | 528   | 41 | G3LTF    | J001   | AL    | 14  | 1017  | 64 | LX1DU    | JN29   | CJ    | 7   | 300   |
| 19 | OE3LFA   | JN88   | II    | 26  | 910   | 42 | G8PHU    | J002   | AM    | 14  | 641   | 65 | 12CVC/2  | JN55   | FF    | 7   | 267   |
| 20 | PA3D1J   | J033   | DM    | 26  | 622   | 43 | OZ2OE    | J045   | EP    | 13  | 809   | 66 | DF3XU    | J053   | FN    | 6   | 416   |
| 21 | DL3NG    | JN49   | EJ    | 23  | 890   | 44 | G4FRE    | J001   | AL    | 13  | 641   | 67 | IW1ALW   | JN35   | DF    | 6   | 350   |
| 22 | DL9GU    | JN49   | EJ    | 23  | 877   | 45 | DL7YC    | J062   | GM    | 13  | 634   | 68 | IK4DCO/6 | JN63   | GD    | 6   | 298   |
| 23 | DK5AI    | J051   | FL    | 23  | 685   | 46 | DC3QS    | J032   | DM    | 13  | 419   | 69 | 12FUM/2  | JN44   | EE    | 6   | 215   |

THE LIST IS PUBLISHED CONTINUOUSLY. DATA COMPILED ABOVE BASED ON UNCONFIRMED CLAIMS BY OPERATORS.

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| WORLD WIDE SHF TOP LIST 3456 MHZ 18.08.1985 |         |      |    |    |     |                                |         |      |    |    |     |                                |         |      |    |   |     |
|---------------------------------------------|---------|------|----|----|-----|--------------------------------|---------|------|----|----|-----|--------------------------------|---------|------|----|---|-----|
| NR CALL WW-QTH E-QTH WKD TROPO              |         |      |    |    |     | NR CALL WW-QTH E-QTH WKD TROPO |         |      |    |    |     | NR CALL WW-QTH E-QTH WKD TROPO |         |      |    |   |     |
| 1                                           | DB6NT/A | J050 | FK | 19 | 528 | 12                             | DH4NAG  | J050 | FK | 12 | 528 | 23                             | DC4BK   | J043 | EN | 6 | 435 |
| 2                                           | G4BYV   | J002 | AM | 14 | 983 | 13                             | PE1CQQ  | J032 | DM | 12 | 502 | 24                             | DD3KL   | J030 | DK | 6 | 434 |
| 3                                           | DL3NQ   | JN49 | EJ | 14 | 637 | 14                             | PE0ABO  | J032 | DM | 11 | 440 | 25                             | PA0JME  | J021 | CL | 5 | 220 |
| 4                                           | DL7GY   | JN59 | FJ | 14 | 565 | 15                             | DC8UG   | J030 | DK | 10 | 525 | 26                             | SM6HYG  | J058 | FS | 4 | 925 |
| 5                                           | DC9XD   | J042 | EM | 14 | 520 | 16                             | PE1GHH  | J021 | CL | 10 | 460 | 27                             | G8HPU/P | J001 | AL | 4 | 641 |
| 6                                           | PA0CRA  | J022 | CM | 13 | 802 | 17                             | PA2DOL  | J021 | CL | 9  | 528 | 28                             | PA2HJS  | J020 | CK | 4 | 388 |
| 7                                           | DK0NA   | J050 | FK | 13 | 528 | 18                             | DF1EQ   | J031 | DL | 8  | 219 | 29                             | PA0JGF  | J032 | DM | 4 | 376 |
| 8                                           | DC0DA   | J031 | DL | 13 | 429 | 19                             | DF5QZ   | J031 | DL | 7  | 587 | 30                             | G8AGN/P | J093 | ZN | 4 | 115 |
| 9                                           | DF5JJ   | J031 | DL | 13 | 417 | 20                             | G4FRE/P | J001 | AL | 7  | 478 | 31                             | DF5JJ/P | J030 | DK | 2 | 80  |
| 10                                          | G3LQR   | J002 | AM | 12 | 924 | 21                             | DC3QS   | J032 | DM | 7  | 419 | 32                             | DL3NI   | J031 | DL | 2 | 74  |
| 11                                          | PA0EZ   | J022 | CM | 12 | 636 | 22                             | PA2DRV  | J021 | CL | 7  | 243 | 33                             | DK3UC   | J053 | FN | 2 | 63  |

| WORLD WIDE SHF TOP LIST 5760 MHZ 18.08.1985 |         |      |    |    |     |                                |          |      |    |   |     |                                |          |      |    |   |     |
|---------------------------------------------|---------|------|----|----|-----|--------------------------------|----------|------|----|---|-----|--------------------------------|----------|------|----|---|-----|
| NR CALL WW-QTH E-QTH WKD TROPO              |         |      |    |    |     | NR CALL WW-QTH E-QTH WKD TROPO |          |      |    |   |     | NR CALL WW-QTH E-QTH WKD TROPO |          |      |    |   |     |
| 1                                           | DB6NT/A | J050 | FK | 10 | 528 | 9                              | DH4NAG   | J050 | FK | 6 | 528 | 17                             | HB9AMH/P | JN37 | DH | 3 | 287 |
| 2                                           | DC9XD   | J042 | EM | 10 | 500 | 10                             | OE3XUA   | JN77 | HH | 6 | 158 | 18                             | G4BYV    | J002 | AM | 3 | 274 |
| 3                                           | SM6HYG  | J058 | FS | 9  | 980 | 11                             | SM6ESG   | J067 | GR | 5 | 357 | 19                             | HB9AJF   | JN47 | EH | 3 | 217 |
| 4                                           | DL7GY   | JN59 | FJ | 9  | 565 | 12                             | DL3NQ    | JN49 | EJ | 5 | 318 | 20                             | F060H/P  | JN37 | DH | 3 | 216 |
| 5                                           | PA0CRA  | J022 | CM | 7  | 802 | 13                             | PA2DOL   | J021 | CL | 4 | 529 | 21                             | PE1GHH   | J021 | CL | 3 | 215 |
| 6                                           | DC0DA   | J031 | DL | 7  | 429 | 14                             | HB9M10/P | JN37 | DH | 4 | 250 | 22                             | I2FUM/2  | JN45 | EE | 3 | 197 |
| 7                                           | G3LQR   | J002 | AM | 6  | 924 | 15                             | G4FRE/P  | J001 | AL | 4 | 249 | 23                             | DC8UG    | J030 | DK | 2 | 492 |
| 8                                           | DK0NA   | J050 | FK | 6  | 528 | 16                             | IW1ALW/1 | JN35 | DF | 4 | 140 | 24                             | DF5GZ    | J031 | DL | 2 | 326 |

| WORLD WIDE SHF TOP LIST 10368 MHZ 18.08.1985 |          |      |    |    |     |                                |          |      |    |   |      |                                |          |      |    |   |     |
|----------------------------------------------|----------|------|----|----|-----|--------------------------------|----------|------|----|---|------|--------------------------------|----------|------|----|---|-----|
| NR CALL WW-QTH E-QTH WKD TROPO               |          |      |    |    |     | NR CALL WW-QTH E-QTH WKD TROPO |          |      |    |   |      | NR CALL WW-QTH E-QTH WKD TROPO |          |      |    |   |     |
| 1                                            | I6ZAU/6  | JN63 | GD | 17 | 832 | 25                             | G4FRE/P  | J001 | AL | 7 | 256  | 49                             | OE3XUA   | JN77 | HH | 4 | 77  |
| 2                                            | I3CLZ/3  | JN55 | FF | 13 | 571 | 26                             | PA2DOL   | J021 | CL | 7 | 217  | 50                             | OH2BWL   | KP20 | MU | 4 | 70  |
| 3                                            | YU3JN/3  | JN65 | GF | 13 | 563 | 27                             | HB9AJF   | JN47 | EH | 7 | 204  | 51                             | SM0DFP   | J089 | IT | 4 | 60  |
| 4                                            | I6XCK/6  | JN63 | GD | 12 | 665 | 28                             | IW0BFZ   | JN61 | GB | 6 | 1166 | 52                             | OE3KE/5  | JN68 | GI | 3 | 254 |
| 5                                            | I4XCC/6  | JN63 | GD | 12 | 563 | 29                             | HB9AMH/P | JN37 | DH | 6 | 287  | 53                             | ON6UG    | J011 | BL | 3 | 174 |
| 6                                            | I4CHY/4  | JN54 | FE | 11 | 633 | 30                             | DB6NT/A  | J050 | FK | 6 | 285  | 54                             | DH4NAG   | J050 | FK | 3 | 171 |
| 7                                            | I3JZL/3  | JN55 | FF | 11 | 572 | 31                             | DL3NQ    | JN49 | EJ | 6 | 285  | 55                             | DG4BB    | J043 | EN | 3 | 132 |
| 8                                            | IW4AKY/P | JN54 | FE | 11 | 570 | 32                             | I4FKD/4  | JN54 | FE | 6 | 260  | 56                             | OE6LOG   | JN76 | HG | 3 | 127 |
| 9                                            | I4QIG/4  | JN54 | FE | 11 | 440 | 33                             | F060H/P  | JN37 | DH | 6 | 216  | 57                             | YU3CAB   | JN76 | HG | 3 | 107 |
| 10                                           | DL7GY    | JN59 | FJ | 10 | 488 | 34                             | HB9MDP/P | JN47 | EH | 6 | 205  | 58                             | DC8UG    | J030 | DK | 2 | 492 |
| 11                                           | YU3URI   | J076 | HG | 10 | 344 | 35                             | IW3EYV   | JN55 | FF | 5 | 315  | 59                             | OKIAIV/P | J070 | HK | 2 | 285 |
| 12                                           | PA0EZ    | J022 | CM | 9  | 488 | 36                             | IW3QCV   | JN65 | GF | 5 | 290  | 60                             | OKIAIV/P | J060 | GK | 2 | 201 |
| 13                                           | DJ4YJ/P  | JN47 | FH | 9  | 358 | 37                             | G8HPU/P  | J002 | AM | 5 | 255  | 61                             | OKIWF/P  | J070 | HK | 2 | 201 |
| 14                                           | I4BER/P  | JN54 | FE | 9  | 340 | 38                             | IW1ALW   | JN35 | DF | 5 | 250  | 62                             | OE9MDI   | JN47 | EH | 2 | 155 |
| 15                                           | YU3TAL   | JN65 | GF | 9  | 322 | 39                             | HB9M10/P | JN37 | DH | 5 | 217  | 63                             | DJ6XV    | J031 | DL | 2 | 121 |
| 16                                           | I2BPH/2  | JN44 | EE | 9  | 237 | 40                             | OE2BM/2  | JN67 | GH | 5 | 153  | 64                             | DF1EQ    | J031 | DL | 2 | 74  |
| 17                                           | HB9MIN/P | JN37 | DH | 8  | 310 | 41                             | OE8JDK/8 | JN66 | GG | 5 | 127  | 65                             | DL0S0/A  | J031 | DL | 2 | 65  |
| 18                                           | DJ7FJ/P  | JN37 | DH | 8  | 243 | 42                             | DK0NA    | JN46 | FA | 4 | 285  | 66                             | DF1ED/P  | J031 | DL | 2 | 63  |
| 19                                           | I1ANP/1  | JN44 | EE | 8  | 214 | 43                             | PA0JME   | J021 | CL | 4 | 220  | 67                             | F6EAS    | IN98 | ZI | 2 | 56  |
| 20                                           | DC9XD    | J042 | EM | 7  | 500 | 44                             | PA2DRV   | J021 | CL | 4 | 215  | 68                             | DJ6TA    | J030 | DK | 2 | 51  |
| 21                                           | G3LQR    | J002 | AM | 7  | 376 | 45                             | PE1GHH   | J021 | CL | 4 | 215  | 69                             | OE1KTC/5 | JN68 | GI | 2 | 50  |
| 22                                           | I4AOR    | JN54 | FE | 7  | 320 | 46                             | DC0DA    | J031 | DL | 4 | 190  | 70                             | OE1WEB   | JN88 | II | 2 | 50  |
| 23                                           | I4ZTO/4  | JN54 | FE | 7  | 290 | 47                             | DK7GN/P  | JN48 | EI | 4 | 166  | 71                             | F1FEN/P  | JN25 | CF | 2 | 13  |
| 24                                           | PA0CRA   | J022 | CM | 7  | 268 | 48                             | GW4LXO   | I081 | YL | 4 | 162  | 72                             | PA0FRE   | J021 | CL | 2 | 10  |

| WORLD WIDE EHF TOP LIST 24192 MHZ 18.08.1985 |          |      |    |   |     |                                |          |      |    |   |     |                                |         |      |    |   |     |
|----------------------------------------------|----------|------|----|---|-----|--------------------------------|----------|------|----|---|-----|--------------------------------|---------|------|----|---|-----|
| NR CALL WW-QTH E-QTH WKD TROPO               |          |      |    |   |     | NR CALL WW-QTH E-QTH WKD TROPO |          |      |    |   |     | NR CALL WW-QTH E-QTH WKD TROPO |         |      |    |   |     |
| 1                                            | DJ7FJ/P  | JN47 | EH | 5 | 229 | 4                              | HB9M10/P | JN37 | DH | 3 | 57  | 7                              | F060H/P | JN37 | DH | 2 | 109 |
| 2                                            | HB9MIN/P | JN37 | DH | 5 | 184 | 5                              | DJ4YJ/P  | JN57 | FH | 2 | 243 | 8                              | I6ZAU/6 | JN63 | GD | 1 | 67  |
| 3                                            | HB9AMH/P | JN37 | DH | 3 | 78  | 6                              | OE2BM/2  | JN67 | GH | 2 | 153 | 9                              | GW4LXO  | I081 | YL | 1 | 58  |

DEADLINE IN 1985 (1)13.2. (2)15.5. (3)14.8. (4)13.11. WKD=NUMBER OF SQUARES WORKED \*\*OP. HAS DIED \*\*EME OP PRINTED BY DL 7 QV

## WORLD WIDE VHF UHF SHF TOP LIST

ONLY A SINGLE CALL SIGN AND A SINGLE QTH COUNT FOR THE LIST (MAY BE /P BUT MUST ALWAYS BE THE SAME). SQUARES WORLD WIDE ARE VALID. QSO'S VIA PASSIVE REFLECTORS COUNT BUT NOT THOSE VIA REPEATERS OR SATELLITES. THE LIST IS PUBLISHED FOUR TIMES PER YEAR - DEADLINES ARE GIVEN AT THE FOOT OF THE LIST. SEND YOUR SCORE ON THE FORM BELOW, OR ENCLOSE IT WITH YOUR ACTIVITY REPORTS TO DL7QY.

FÜR DIE TOP LISTE ZÄHLT NUR EIN RUFZEICHEN UND EIN QTH (KANN /P SEIN, MUSS ABER IMMER DASSELBE SEIN). GÜLTIG SIND ALLE FELDER WELTWEIT. NUR QSO'S ÜBER PASSIVE REFLEKTOREN SIND GÜLTIG, SOLCHE ÜBER RELAIS ODER SATELLITEN ZÄHLEN NICHT. DIE LISTE WIRD 4 MAL PRO JAHR VERÖFFENTLICHT - DER JEWEILIGE REDAKTIONSSCHLUSS BEFINDET SICH IN DER FUSSLEISTE JEDER TOP LISTE. SENDEN SIE IHREN QTH-KENNERSTAND AUF UNTERHALB BEFINDLICHEM FORMBLATT ODER MIT IHREM AKTIVITÄTSBERICHT AN DL7QY.

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