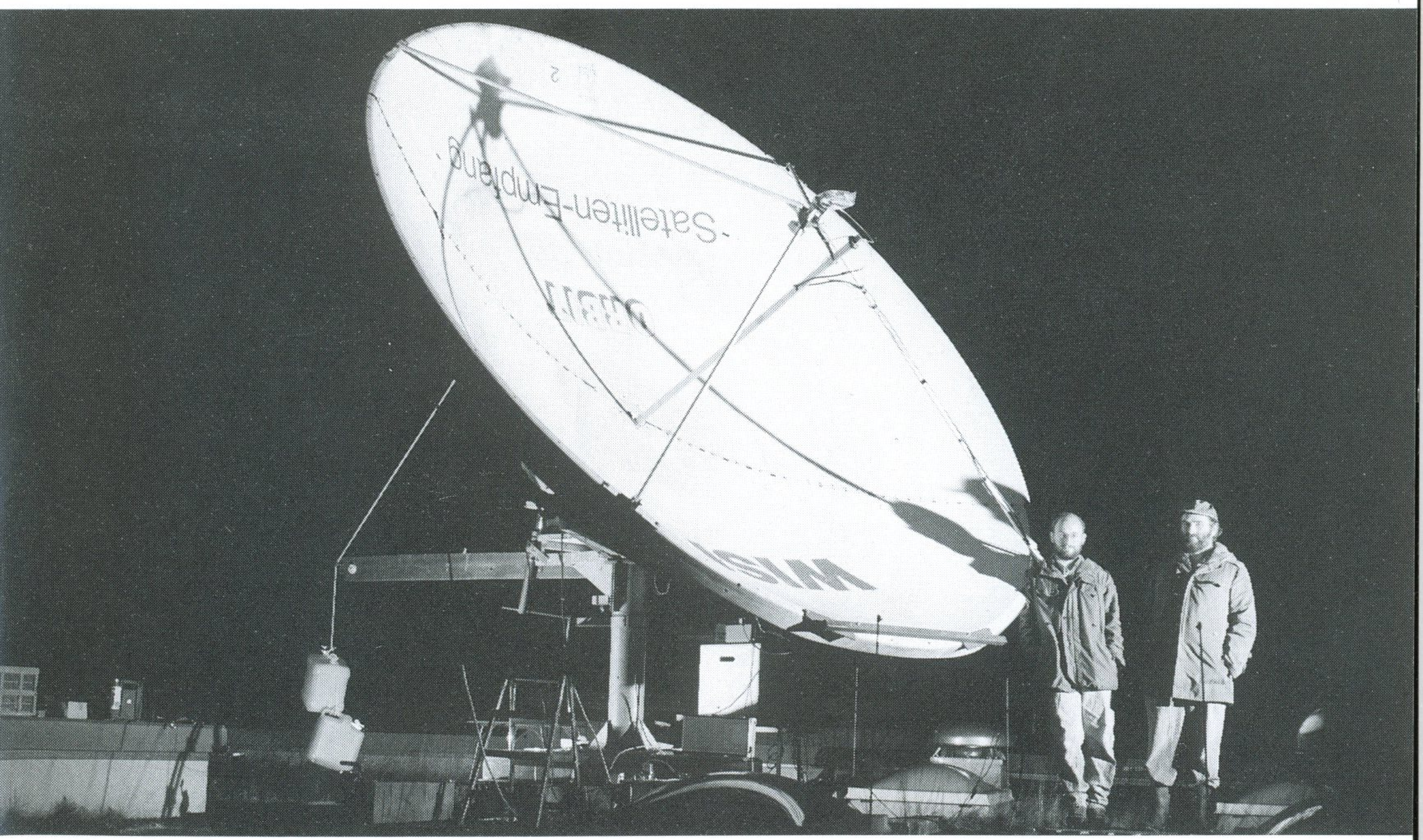
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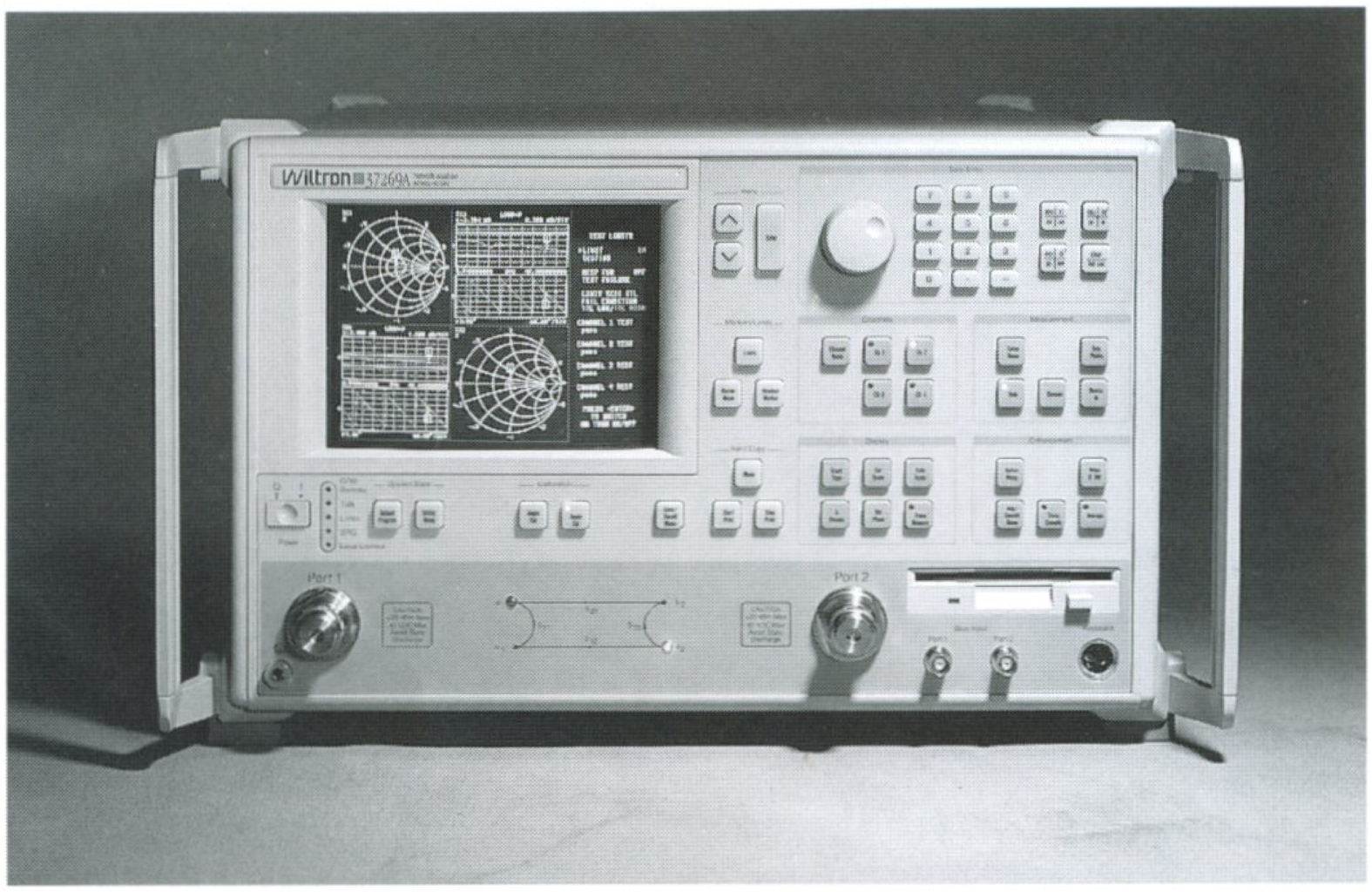


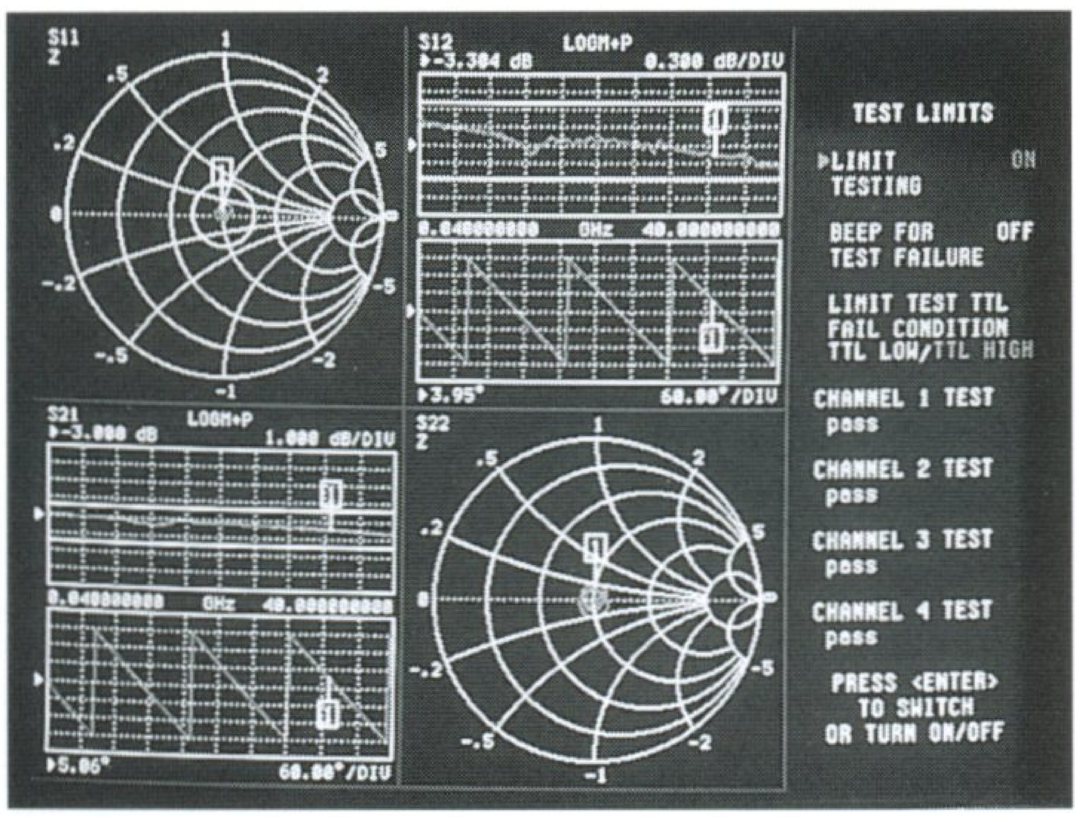
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Technical Reports

Editor: Rainer Bertelsmeier, DJ9BV

144MHz wideband noise amplifier

Charles Suckling, G3WDG

Introduction

This amplifier was developed to amplify the output from a 10GHz receiver with a 144MHz if to a level capable of driving a Hewlett Packard power meter (HP432). It has many applications, from noise figure measurement/comparison in conjunction with a calibrated noise source to sun/moon noise measurements of EME equipment. Its main use to date has been for dish tracking for 10GHz EME using moon noise. For accurate noise measurements the amplifier/power meter system has two main advantages over audio type power meters - it is very accurate (limited only by the linearity of the amplifier) and the noise level does not fluctuate to any noticeable extent. Audio measurements suffer from receiver agc action, unknown detector characteristics etc which can ofter cause several dB error in quoted sun noise readings! For moon noise tracking an accurate power meter is not required of course: I use a simple diode detector/op amp combination which gives 0 to fsd of about 3dB.

The circuit diagram of the amplifier is shown in Fig 1. The amplifier consists of a BFR91 tuned input stage for low noise figure, driving a cascade of 4 modamps with stages coupled through 2-chamber TOKO helical filters, which define the bandwidth of the amplifier. The bias to the first stage is adjustable to allow the desired output level to be set for a wide range of input levels. The amplifier gain can be varied from 33 to 75dB. At the highest gain setting, the noise output from a typical converter (eg 3dB noise figure, 30dB conversion gain) will be amplified to approximately -6dBm, plenty to drive a thermal power meter.

The output modamp was chosen to have a high 1dB compression point. 0.25dB gain conpression occurs at about 7dBm output for a cw signal. For noise measurements it is normal practice to expect compression effects to occur some 10dB below the cw value, so it is recommended for highest accuracy not to exceed about -3dBm noise output power. This should give sufficient range to measure say at least 17dB of sun noise, as the power meter would be measuring about -20dBm on cold sky, which is within the capability of an HP432 type power meter if the meter is zeroed frequently to take account of any zero drift.

Construction

The construction of the amplifier is straightforward. The component layout on the pcb is shown in Fig. 2. The pcb is housed in a homemade box built from single or double sided copper clad pcb material. The prototype used double-sided, with only the internal seams soldered. The accompanying figures should explain the construction. The location of the pcb in the box is shown in Fig 3, and Fig 6 shows how the connectors are fitted, by filing slots in the pcb to accept the connector flange.

Details of the input coil are given in Fig 5. The bias inductors Lb are 15 turns of 0.3mm enamelled copper wire internal diameter 3mm, while the FB inductors were 1 turn of 0.3mm wire on a small

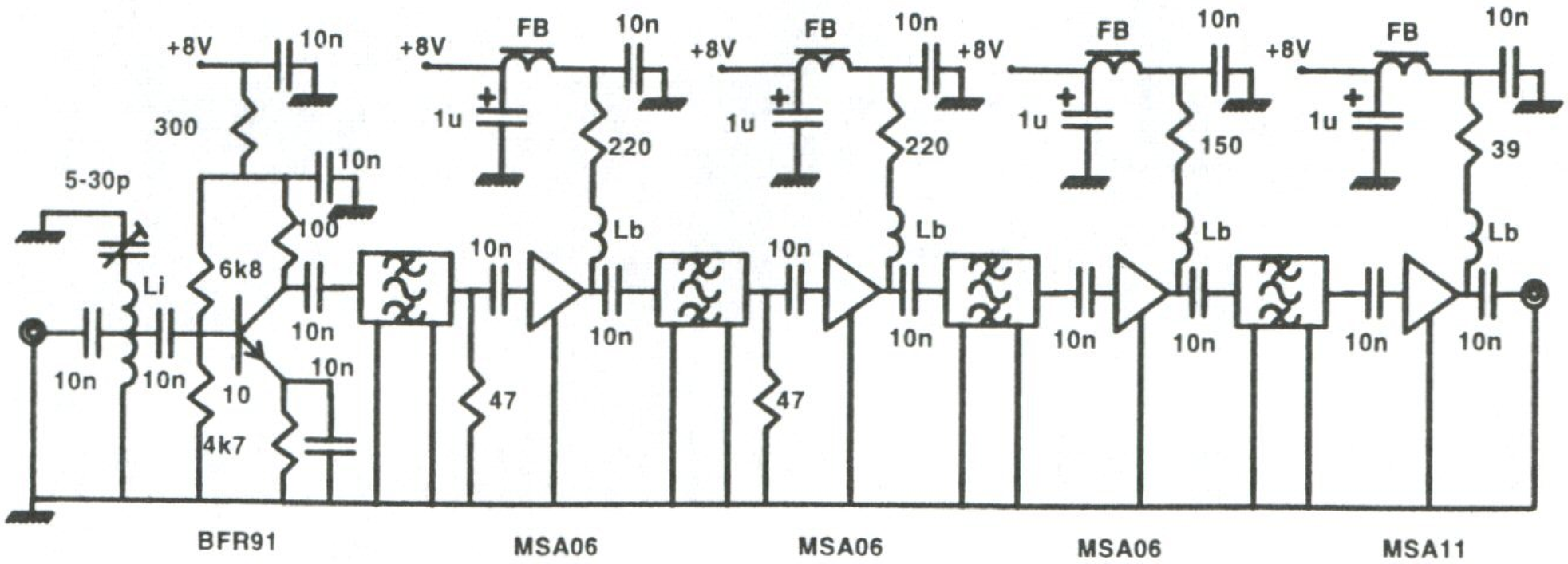


Fig. 1: Circuit Diagram

single hole ferrite bead. Mounting of the Toko helical filters is shown in Fig 4. The filters are Toko type 271MT-1006A Cirkit stock # 17-10062. It is recommended to slot the holes in the pcb where the tabs of the filter are to pass through. This can be done by "filing" with a drill or sharp knife. In order to make soldering to the filter tabs easier, it is recommended to scrape or file off the laquer and tin the tabs before fitting the filter to the board. If this is not done, soldering the tabs to the ground-plane side can be difficult.

The +8V power connections were brought out individually through feedthrough capacitors mounted in one of the sides of the box, and commoned outside. The power feed to the first stage was fed from the wiper of a 250R ten turn pot connected between the +8V rail and ground. This is the gain control potentiometer. The +8V rail should be regulated - a 7808 three terminal regulator fed from a 12V supply was used in the prototype.

It is recommended not to mount the unit inside another housing, unless strong interfering signals on 144MHz are a problem. I had some problems initially with stability when the unit was put into another housing (diecast box). This was probably due to coupling between the flexible coaxial cables used to link the input and output connections to bulkhead sockets fitted to the secondary housing. Some level of screening of the component side of the board is probably necessary, such as a tinplate lid soldered to the inside of the box.

At the time of writing (1 Oct 1993) two prototypes of this amplifier have been built and the design should be considered experimental. It has not yet been fully beta tested, and is published mainly as a source of ideas rather than a fully proven design. Prototype pcbs are available from the Microwave Committee Components Service. Please phone for details.

One further note of caution. The output power from this amplifier is capable of overdriving the power sensors of certain types of power meter. If the amplifier is left connected to the power meter while transmitting, the output power under these conditions may be sufficient to cause a drift in the power meter zero, or could possibly damage the sensor.

Deutsch

Einführung

Dieser Verstärker wurde entwickelt, um das Ausgangssignal eines 10 GHz-Empfängers soweit zu verstärken, um es mit einem HP435 Leistungsmesser messen zu können. Die Baugruppe hat viele mögliche Anwendungen, angefangen von Rauschzahlmessungen mit kalibrierten Rauschquellen oder für Mond-/Sonnenrauschmessungen bei EME-Stationen. Bei mir wird das Modul hauptsächlich dazu benutzt, durch Messung des Mondrauschens auf 10 GHz meinen Spiegel für EME nachzusteuern. Bei Rauschzahlmessungen hat diese Baugruppe zwei Vorteile gegenüber Messung auf der NF-Seite:

1. Es ist sehr genau

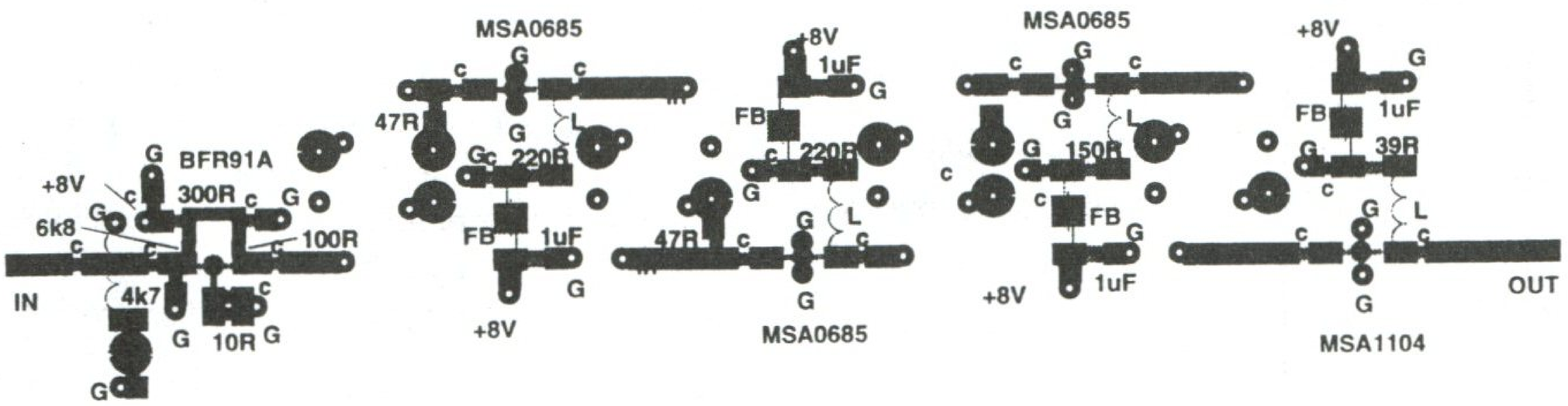


Fig. 2: Component Layout

2. Geringe Schwankungen der Anzeige bedingt durch die große Bandbreite

NF-Messungen leiden auch an der nichtlinearen Charakteristik des Demodulators und der AGC. Das kann zu Fehlern von einigen dB führen.

Wenn man Mondrauschen mißt, ist ein genauer Leistungsmesser wie der HP435 nicht erforderlich. Da es nur auf die relative Anzeige ankommt, kann man einen einfachen Diodendetektor nachschalten, der einen Vollauschlag von 3 dB auf irgendeinem Instrument produziert.

Die Schaltung ist in Abb. 1 zu sehen. Der Verstärker benutzt im Eingang einen BFR91 mit Ausgangsbandfilter. Diese Stufe hat eine niedrige Rauschzahl. Darauf folgen 4 Stufen mit MSA-0685/1104 Modamps. Diese sind über TOKO Helical-Filter gekoppelt und bestimmen die Bandbreite. Durch Ändern des Stroms im ersten Verstärker kann die Gesamtverstärkung von 35 bis 75 dB geregelt werden. Bei der höchsten Verstärkung wird der Output von einem Konverter mit 3 dB Rauschzahl und 30 dB Verstärkung auf ca. -6 dBm verstärkt. Damit kann man ohne weiteres einen thermischen Leistungsmesser ansteuern.

Der Ausgangsverstärker ist ein MSA-1104, um eine hohe Ausgangsleistung ohne Kompression zu erreichen. Diese ist ca.- 0,25 dB bei +7 dBm Ausgangsleistung. Wegen des hohen Crest-Faktors (Verhältnis von Spitzenleistung zu mittlerer Leistung) bei Rauschsignalen ist es nötig ca. 10 dB unter der Kompressionsleistung zu bleiben. Für größte Genauigkeit ist es sinnvoll, unter einer Ausgangsleistung von -3 dBm zu bleiben. Ist die minimale Leistung des thermischen Leistungsmessers -20 dBm (z.B. ein HP432) kann man bei regelmäßigem Nullabgleich mindestens 17 dB Sonnenrauschen messen. Ein HP435 würde den Dynamikbereich auf mindestens 20 dB erweitern. Bei diesen Messungen ist die Genauigkeit ca.

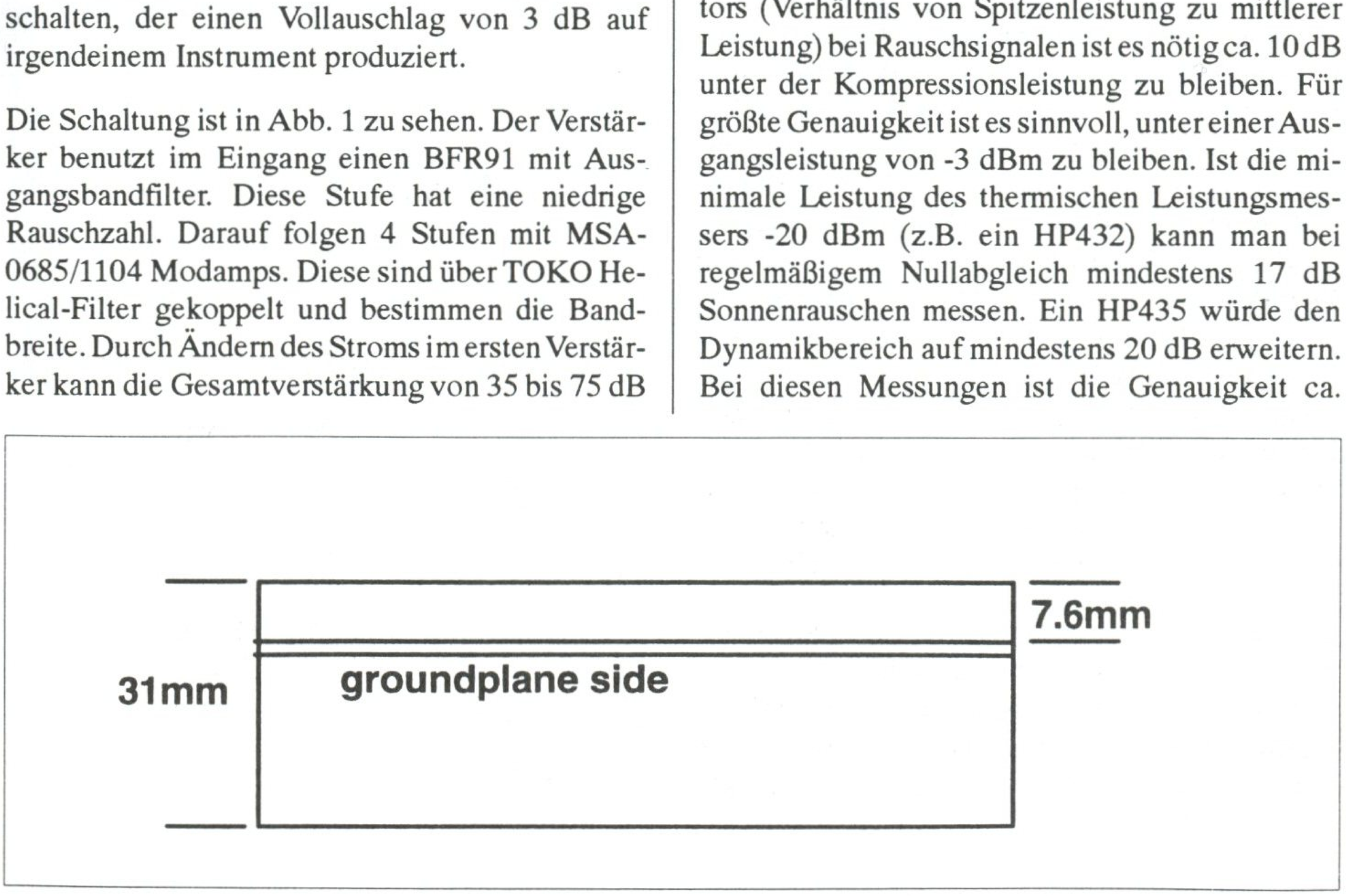


Fig. 3: Location of PCB in the Box

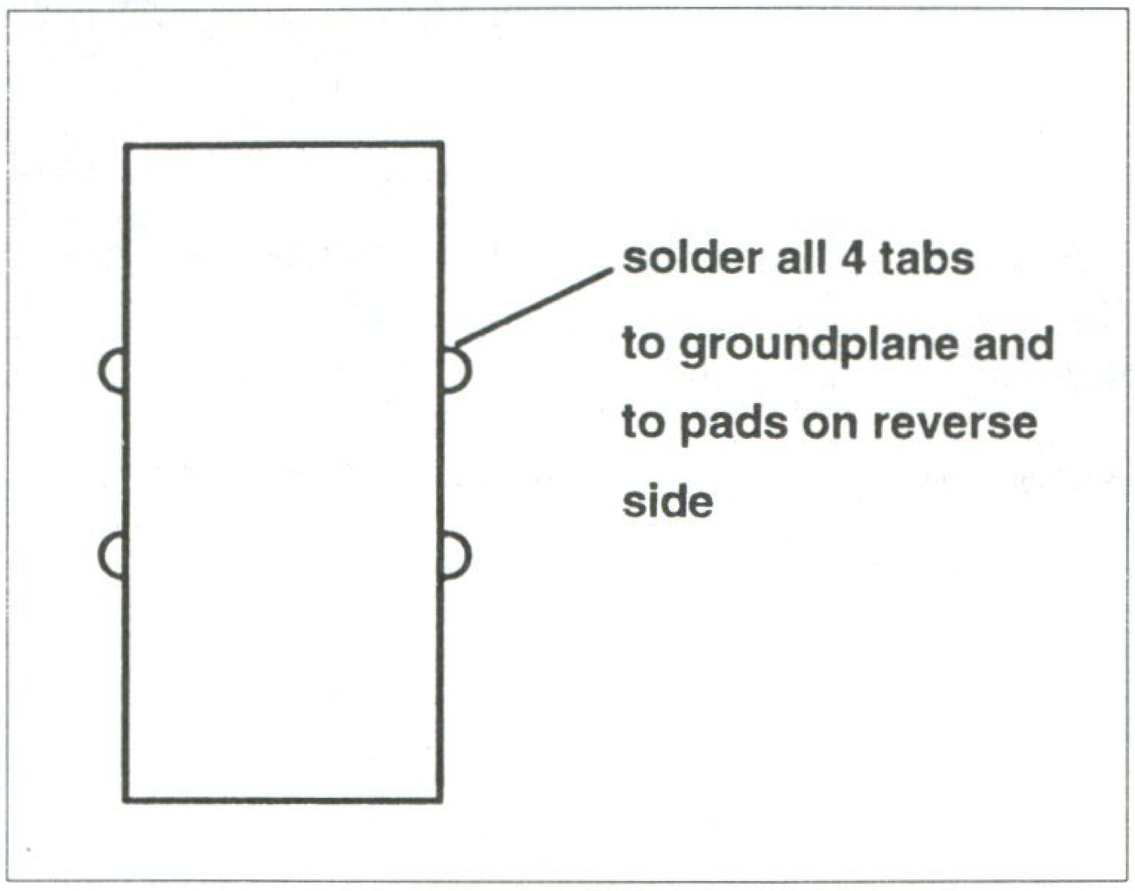


Fig. 4: Filter Mounting

±0,1 dB! Das unterscheidet sich wohltuend von der sonst erreichbaren Genauigkeit von ±1 dB, die man mit der Substitutionsmethode mittels geeichtem Abschwächer in der ZF erzielen kann, ganz zu schweigen von der Genauigkeit bei NF-Messungen, die ±2 dB kaum übersteigen dürfte.

Konstruktion

Die Konstruktion des Verstärkers ist recht einfach. Die Anordnung der Teile ist aus Abb. 2 ersichtlich. Die Platine kann man in ein selbstgebautes Gehäuse aus Platinenmaterial einbauen. Die Anordnung der Platine in dem Gehäuse sieht man in Abb. 3. Abb. 6 zeigt, wie die Anschlußbuchsen eingebaut werden. Eine Detailzeichnung der Eingangsspule zeigt Abb. 5. Die Drosseln für die Modamps (lb) werden aus 15 Wdg., 0,3 mm CuL auf einem 3 mm Dorn gewickelt. Die Drosseln FB in der Betriebsspannung sind 1 wdg., 0,3 mm CuL durch einen Ferritkern (Dämpfungsperle).Die Montage der TOKO Filter 271MT-1006A zeigt Abb. 4. Die Fahnen für das Gehäuse der Filter müssen durch Schlitze in der Platine durchgesteckt werden.

Die Betriebsspannung von 8 V wird individuell pro Stufe über Durchführungskondensatoren zugeführt. Die Spannung der ersten Stufe wird mit einem 250 Ohm Potentiometer abgegriffen. Die Betriebsspannung wird mit einem 7808 Regler aus 12V gewonnen.

Es wird nicht empfohlen, das Modul in ein anderes Gehäuse zu montieren. Zuerst hatte ich ein Druckgußgehäuse verwendet. Das gab Probleme mit Selbsterregung, wahrscheinlich durch Übersprechen der Koaxkabel, die ich zum Verbinden mit den Buchsen verwendet hatte.

Zur Zeit (10/93) sind zwei Prototypen des Verstärkers aufgebaut. Es ist eher eine experimentelle Bauidee als eine durchentwickelte Sache. Es soll eher als Anregung für eigene Versuche dienen. Platine können aber beim Microwave Committee Components Service bezogen werden.

Anmerkung: Die Ausgangsleistung dieses Verstärkers kann bis zu 50 mW betragen. Das ist für einige Sensoren schon zu viel. Deswegen ist Vorsicht bei Sensoren geboten, die nur 10 mW aushalten.

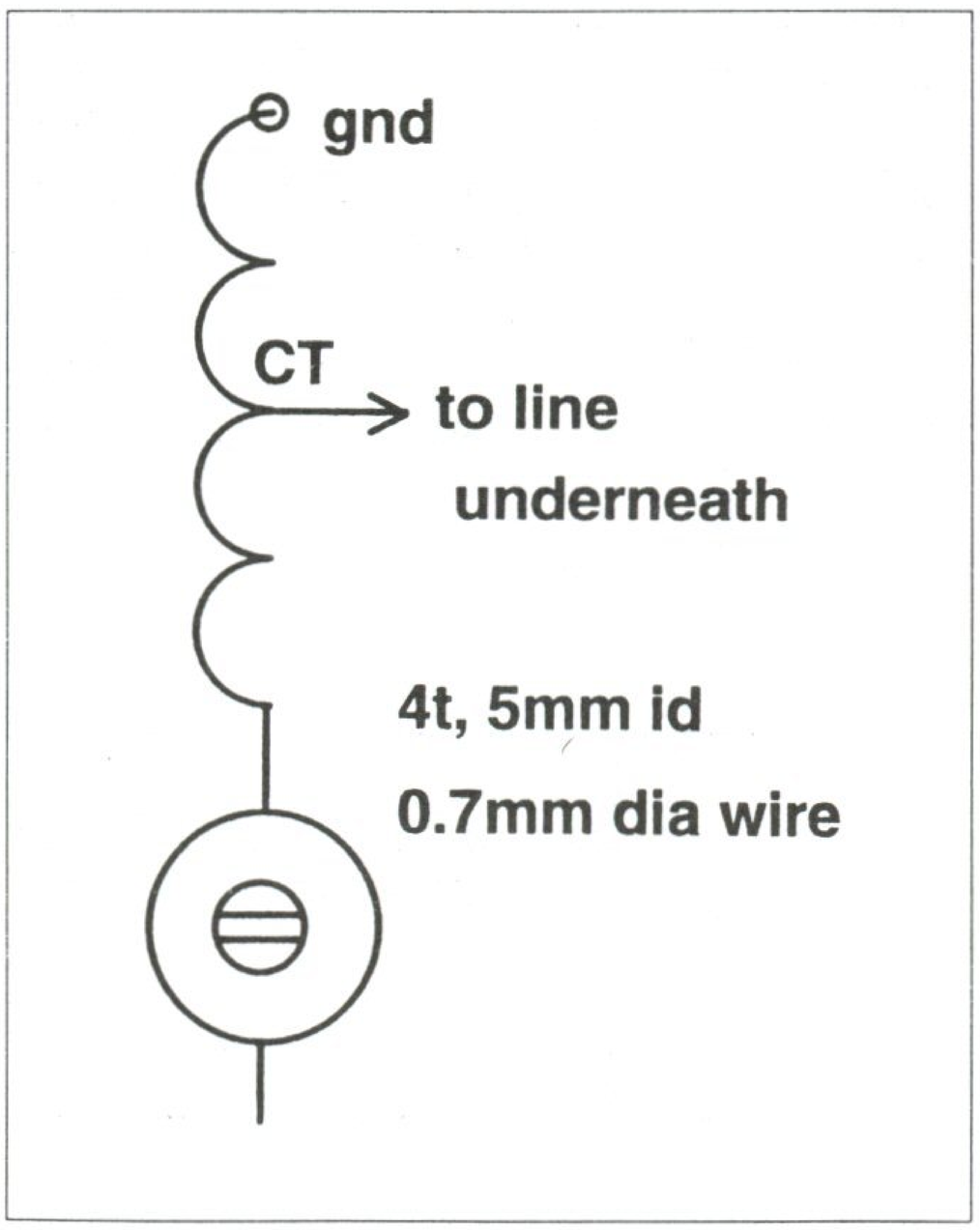


Fig. 5: Input Coil

A 3 dB Hybrid Coupler for 10 GHz

Charles Suckling, G3WDG

Introduction

This technical note describes a 3dB power splitter/combiner for use at 10GHz. It was designed to allow two identical solid state power amplifiers to be combined in a balanced configuration to give (nearly) twice the output power of one of the amplifiers, as shown in Fig 1. The couplers used in this application should have low loss, high isolation between the two output ports (to minimise interactions between the amplifiers), and equal amplitudes at the two outputs. This design uses the classic Riblet sidewall coupler which has all these properties over a reasonable bandwidth. The phase difference between the outputs of the coupler is close to 90 degrees (a quadrature coupler).

The low loss of the coupler and the 90 degree phase difference between the outputs would also make the coupler suitable for generating circular polarisation with a suitable dish feed, as shown in Fig. 2. Both LH and RH signals are available from the two input ports. Should EME operators choose to adopt circular polarisation on 10GHz in the future, this type of coupler could be used to make a reasonably high performance dish feed. (NOTE Most EME operators today are using LINEAR polarisation for good reasons, and I do not see a change to circular as likely!) The large "X" represents the coupler.

A third application for the coupler would be as a directional coupler, for setting up antennas, transitions etc., as shown in Fig. 3. A fourth application, which has been used by the author professionally, is to combine two signal generators when doing intermodulation testing of amplifiers.

The design of a well-proven SMA to waveguide transition is included in this note, and was used in the couplers built by the author to connect to the two amplifiers being combined.

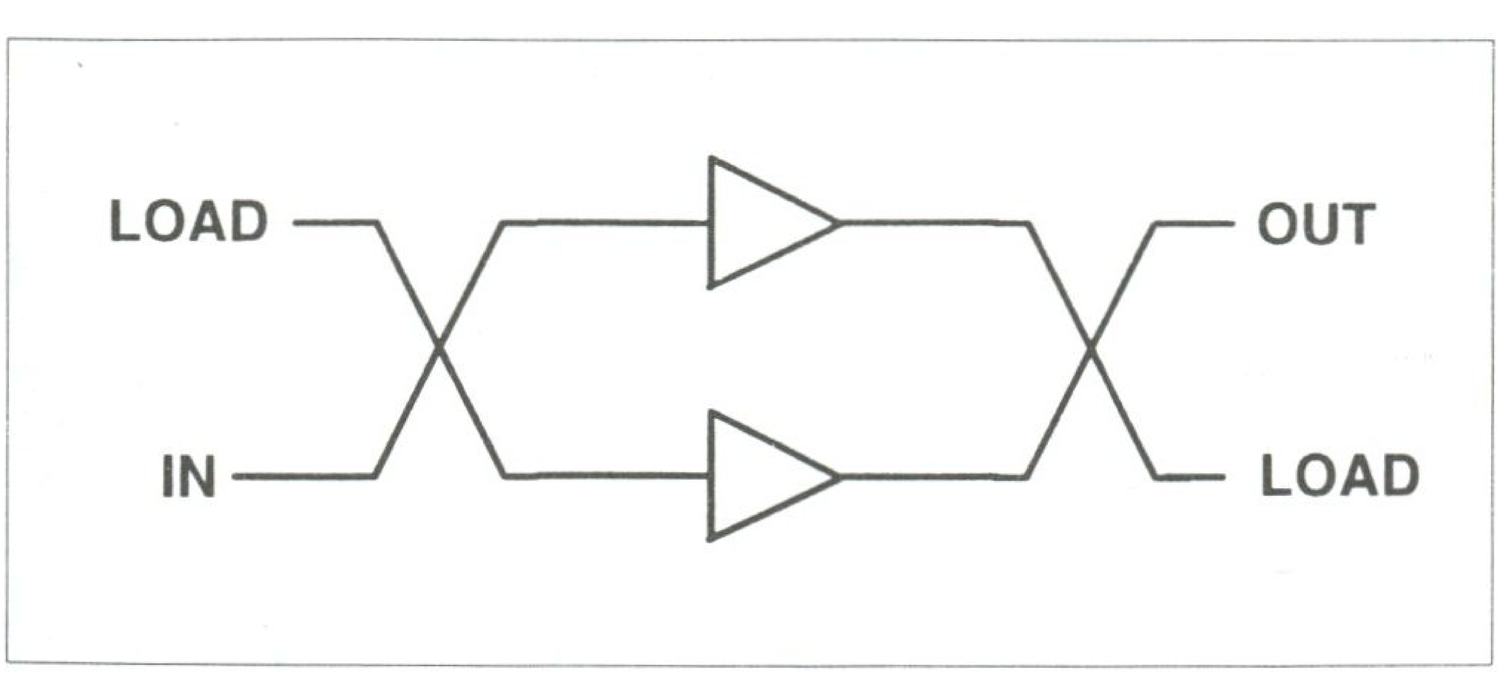


Fig. 1: Balanced Amplifier Configuration

Construction

Constructional details of the coupler are given in Fig 4. Two pieces of brass waveguide (WG16/WR90) are required. One of the sidewalls of the longer piece of waveguide is removed over a length of 41.4mm, by milling out or by drilling small holes close to each other and filing. The shorter waveguide has one of its broad walls removed completely, either by milling, or by careful sawing (I used the second method, using a junior hacksaw and much patience!)

The two waveguides are then soldered together using solder paste and a hotplate. When cool, file or mill square the end where the two coupled ports are to be located, and mark out the holes for the SMA connectors. Drill these holes 4.1mm diameter, and deburr the holes. Drill and tap 2 M2 holes per connector, 5.85mm from the shorting plate locating with diagonal holes in the SMA connector flange. M2 screws up to 4mm thread length can be used to secure the connectors later,

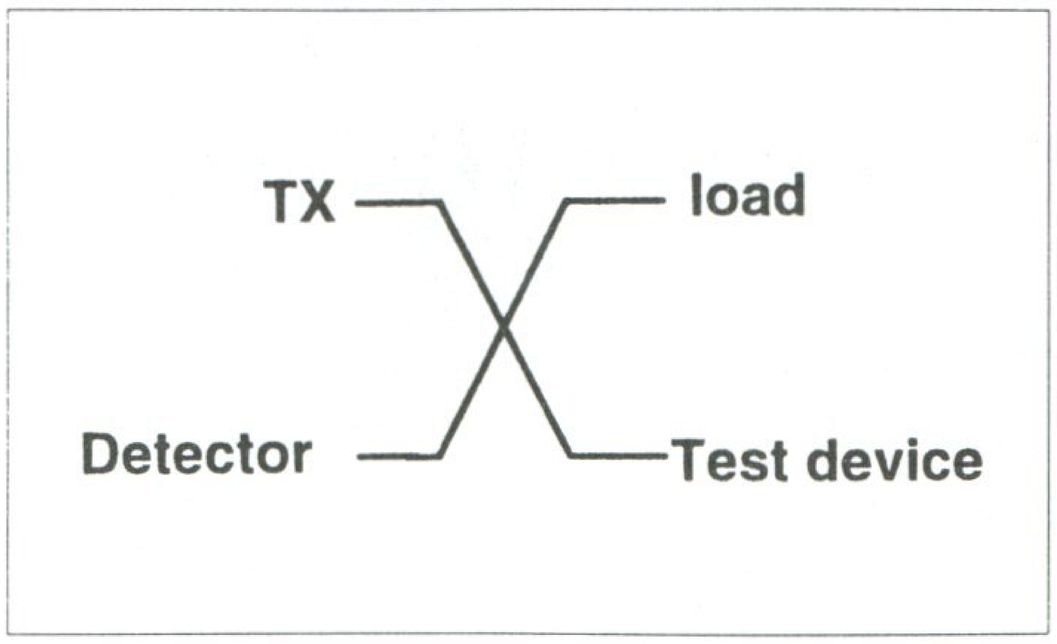


Fig. 2: Coupler to measure VSWR

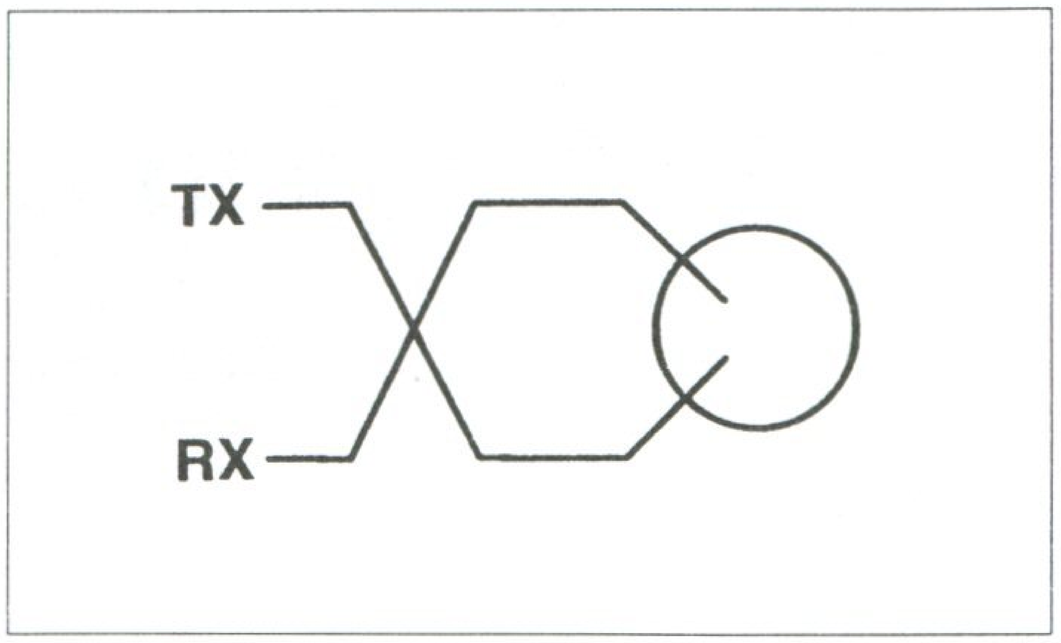
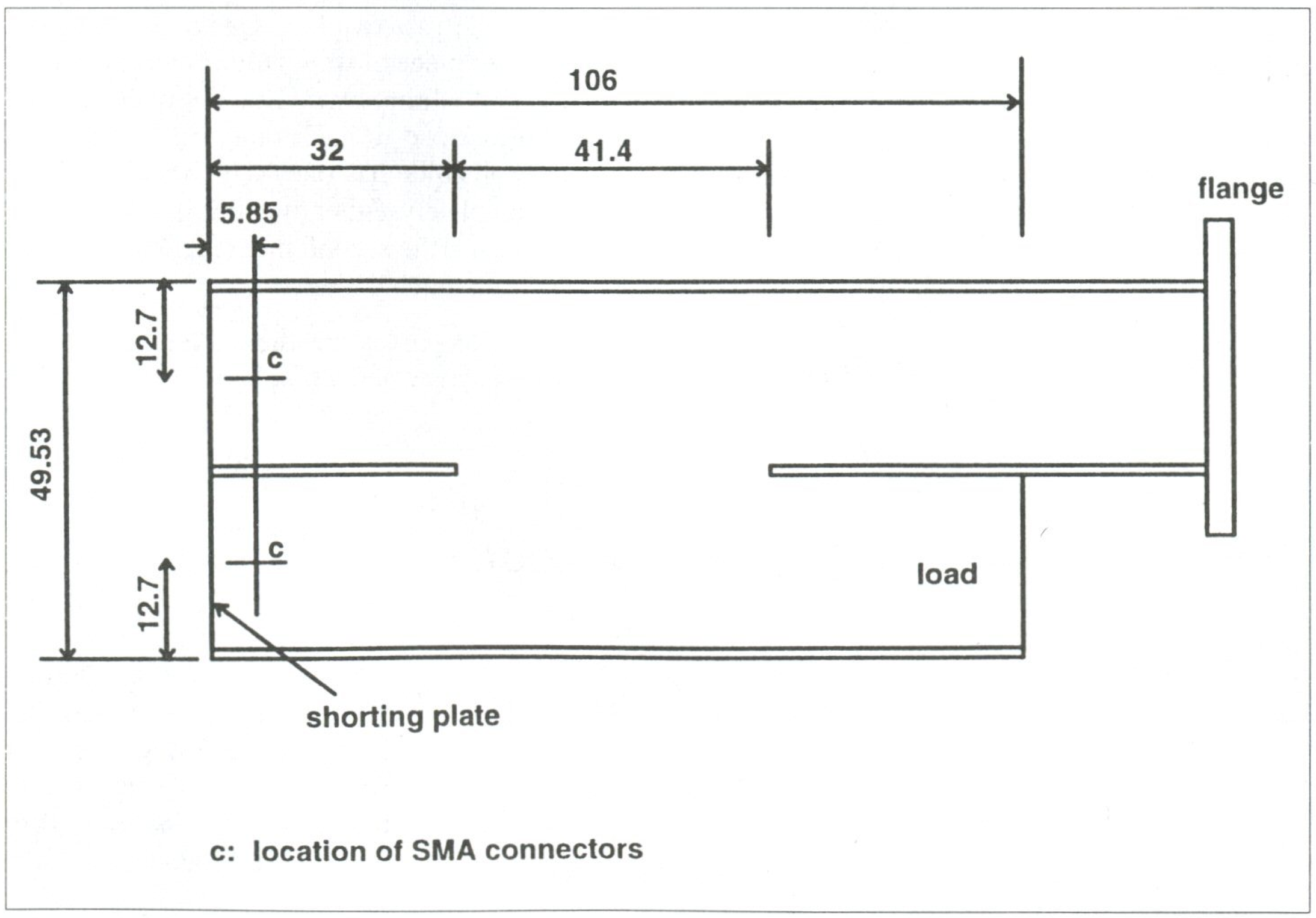


Fig. 3: Generation of CP using coupler and feedhorn

without affecting the VSWR of the transition (it is not necessary to file the screws flush on the inside of the waveguide). The shorting plate (one piece, 49.53mm x 12.7mm) may then be soldered on, using wet cloth around the rest of the assembly to prevent the seam joints from unsoldering. If a waveguide flange is to be used for the other port, this may be soldered on in the same way. I have also used conductive epoxy to fit the shorting plate, which avoids the problem of the the whole assembly falling apart when fitting the end plate and flange! If brazing equipment is available, this could be used to make the seam joints between the waveguides.

The choice of using waveguide flanges or SMA connectors is left to the constructor. As shown in Fig 4, the centres of SMA connectors are located 5.85mm from the shorting plate. If an external load is to be used, an SMA connector and shorting plate

Fig. 4: Construction details of 10 GHz coupler



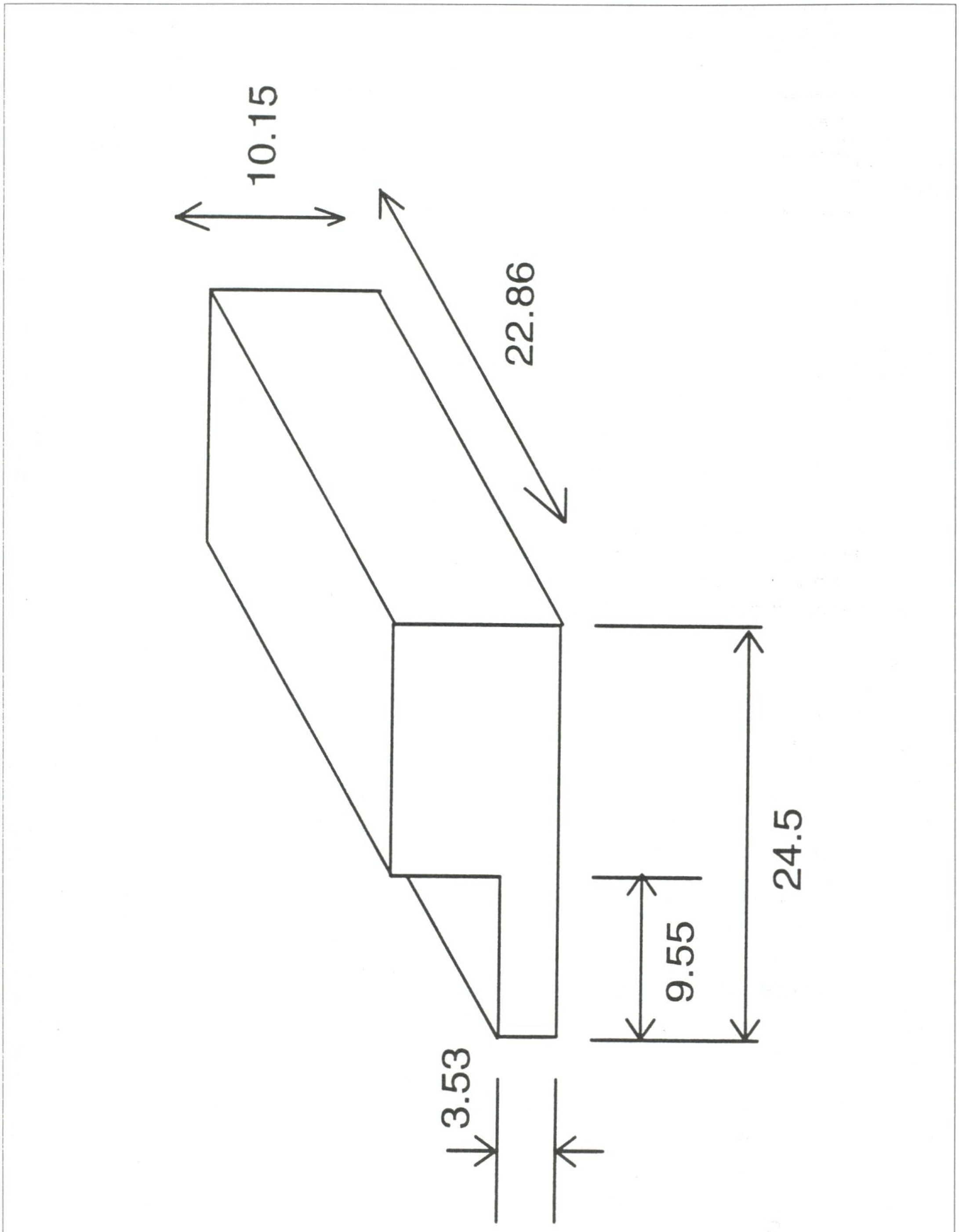


Fig. 5: Details of Solid Load

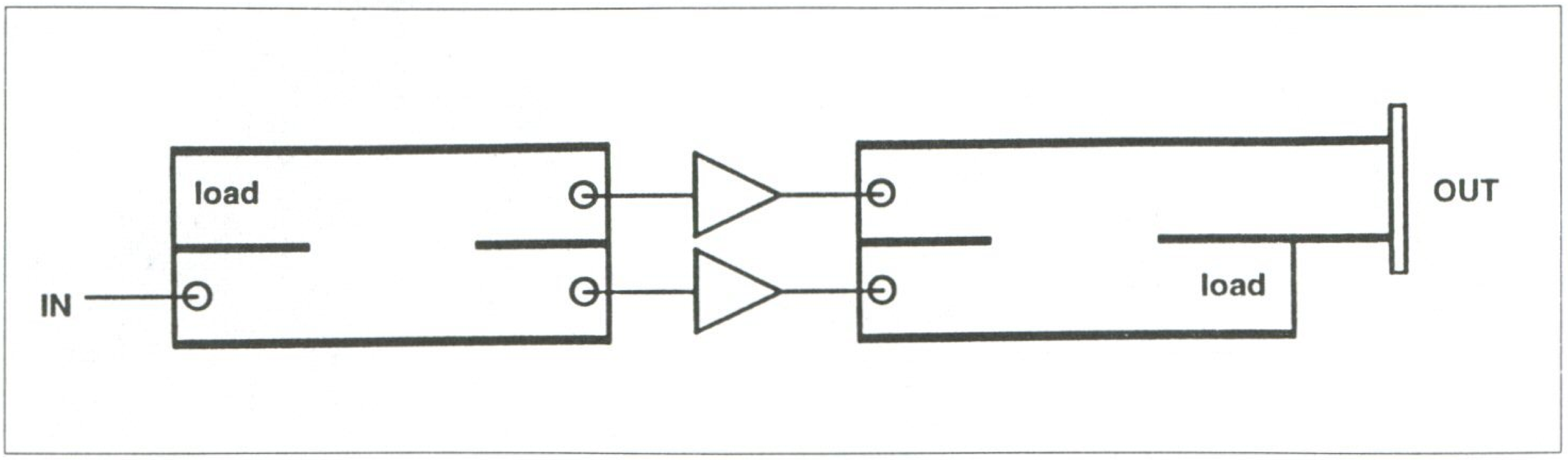


Fig. 6: Balanced Amplifier using Couplers

would be used in place of the inserted load shown in the figure (as would be the case also if the coupler were to be used to drive a dish feed).

The assembly is completed by fitting the load to the isolated port. Two types of load have been used by the author, a piece of lossy rubber (22.5 x 30mm glued to one broad face in the coupled port) or a piece of solid iron loaded absorber cut/filed to the dimensions shown in Fig 5. It was thought that the solid load might have better power handling than the lossy rubber, and this was used in the combining coupler. The lossy rubber load was used in the splitting coupler. I have no information on the material used in the solid load, as it was obtained from a piece of surplus equipment. The dimensions shown were found to be optimum for this material, but may not be correct for other materials and some experimentation may be necessary.

The couplers are arranged as shown in Fig 6 to make the balanced amplifier.

Performance Measurements

Performance of the coupler is shown in Figs 7 to 11.

Fig 12 shows details of the SMA connector launchers used in the transitions.

Finally to check out the performance of the couplers in real life, a balanced amplifier was constructed using two nominally identical solid state amplifiers. One of these had 5W output power at saturation, the other 4.5W. Care was taken in the construction of the short interconnecting cables (.085" semi-rigid coax) to keep them all the same length. The balanced amplifier worked well, with just over 9W output power, and the amplifiers' operating currents etc seemed to be the same as they had been when operated individually.

Although this has not been tried, the couplers should also be suitable for combining TWT amplifiers, and are arguably easier to make than the Magic-T alternative.

Prepared, ready-to-fit SMA connectors and pieces of lossy rubber are available from the Microwave Committee Components Service (Tel +44 1933 411446) [please note change of telephone number owing to changes in the UK network].

Deutsch

Einführung

Dieser Artikel beschreibt einen 3 dB Koppler für 10 GHz. Er wurde entwickelt, um zwei Verstärker in einer symmetrischen Konfiguration, wie in Abb. 1 gezeigt, zu koppeln. Dann erhält nahezu die doppelte Ausgangsleistung. Solche Koppler müssen niedrige Verluste, hohe Isolation und gleiche Amplituden auf den Ein-/Ausgängen haben, um keine unnötigen Verluste zu verursachen. Das vorliegende Design benutzt eine Riblet-Kopplerstruktur, um die gewünschten Eigenschaften über eine brauchbare Bandbreite zu erreichen. Der Phasenunterschied zwischen dén Ausgängen ist ca. 90°. Es ist folglich eine Qudratur-Koppler.

Die niedrigen Verluste und die Phasendrehung von 90 ° machen den Koppler außerdem zur Erzeugung von zirkulärer Polarisation geeignet (Abb. 2). Man kann entweder das RHCP- oder das LHCP-Signal von den Eingängen abgreifen (RHCP=Right Hand Circular Polarized = Im Uhrzeigersinn Zirkular drehend, LHCP = gegen den Uhrzeigersinn). Falls die EME-Leute zirkulare

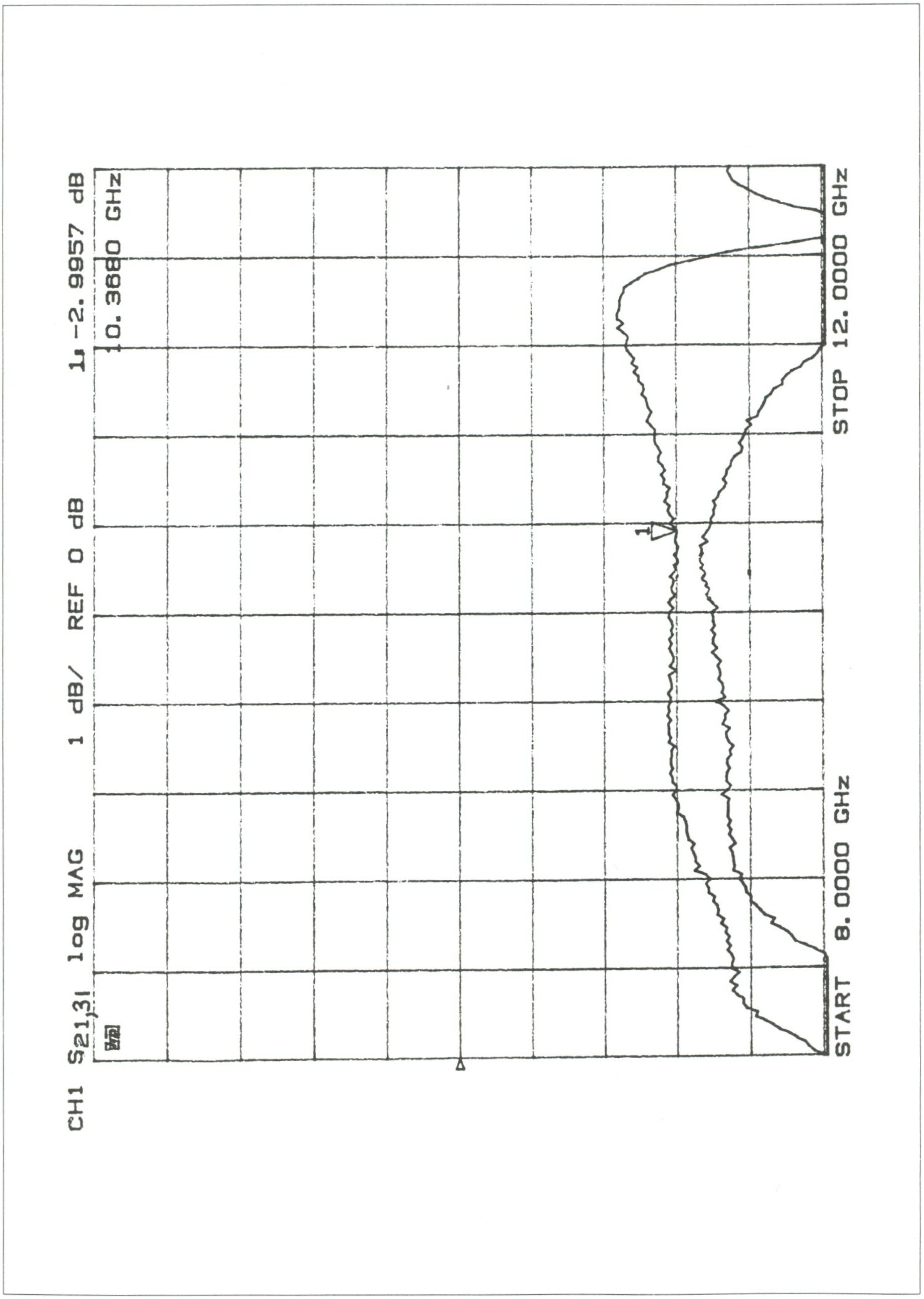


Fig. 7: Amplitude and Phase Balance of one Coupler

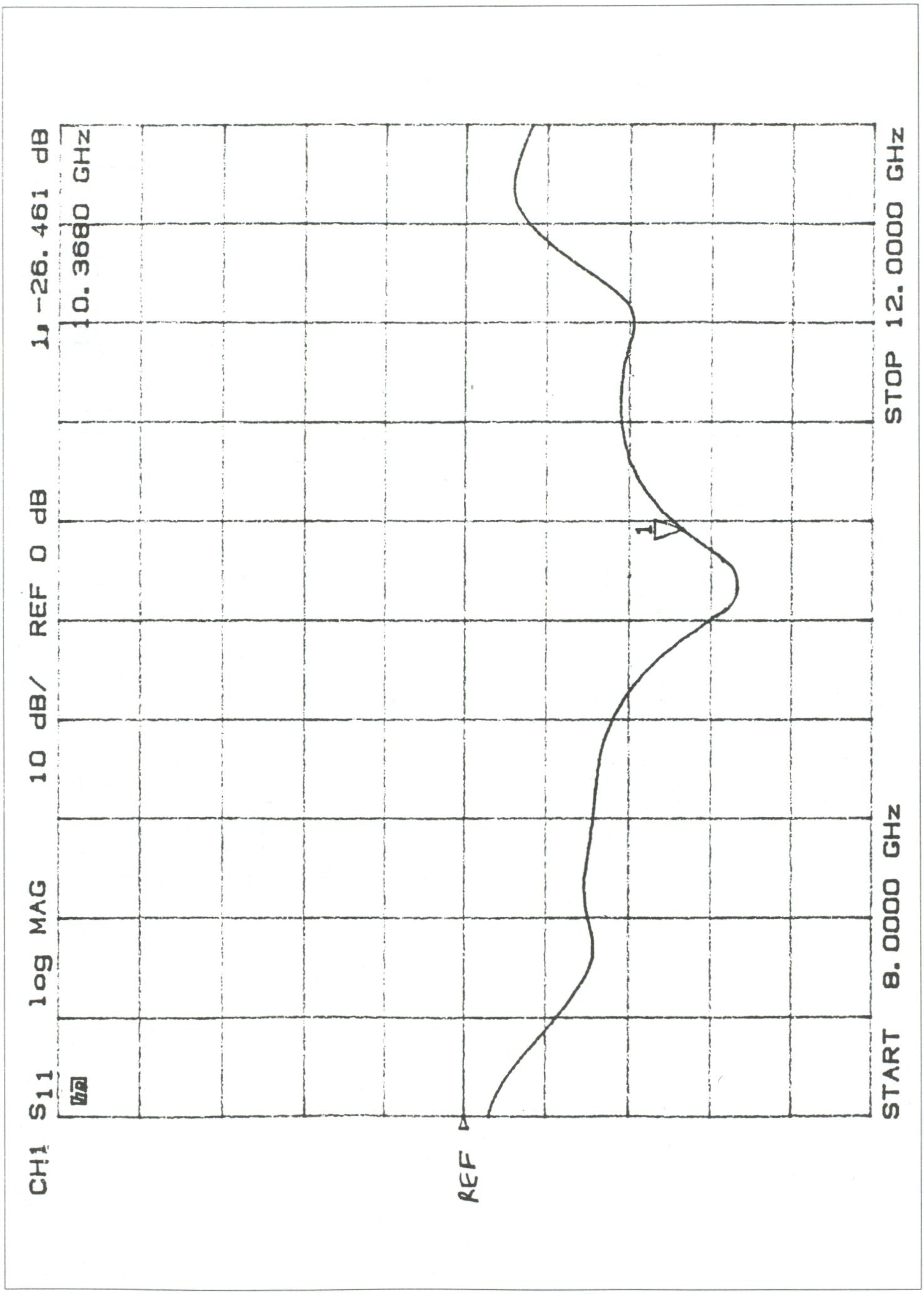


Fig. 8: Measurement Input Return Loss

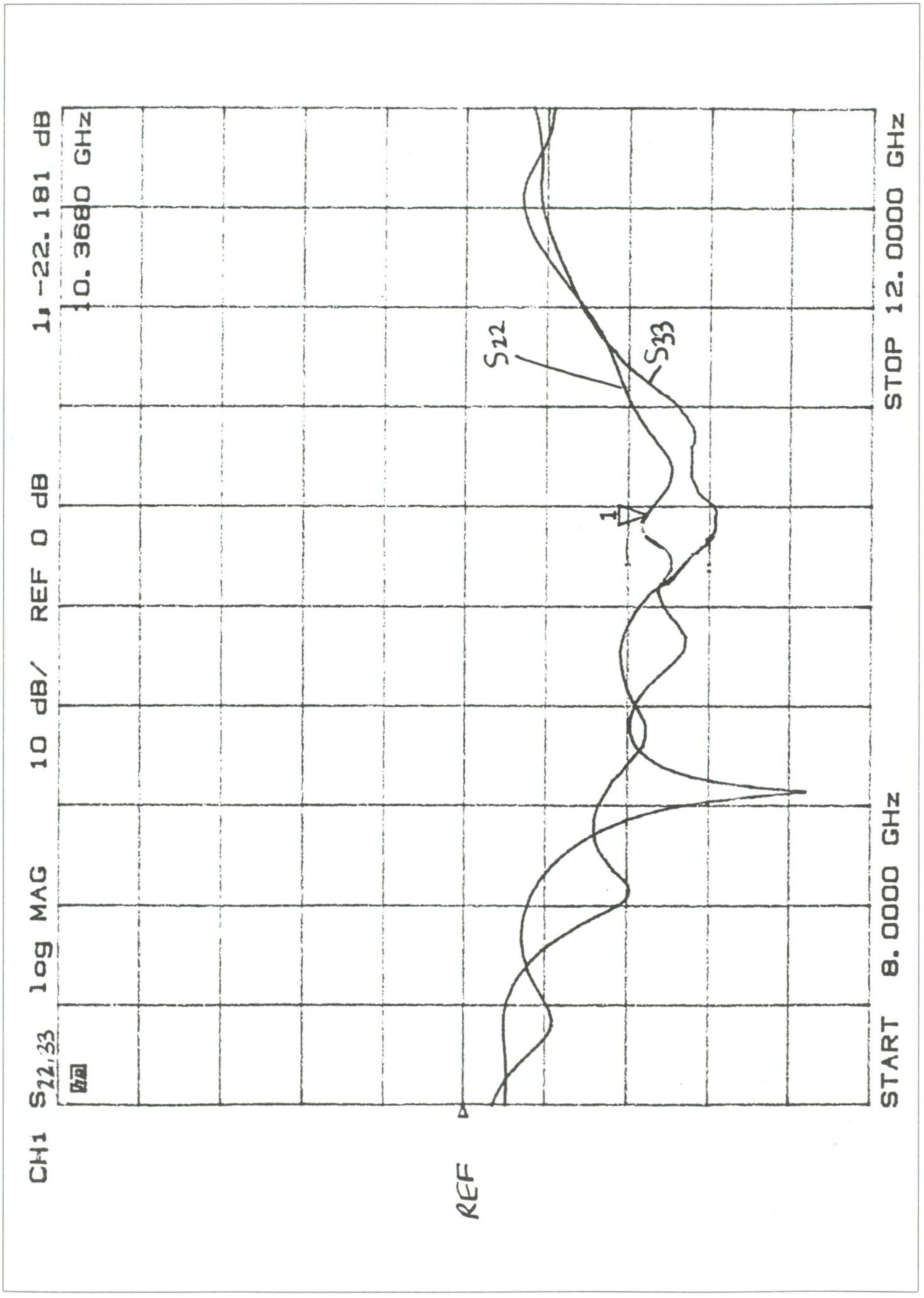


Fig. 9: Measurement Output Return Loss

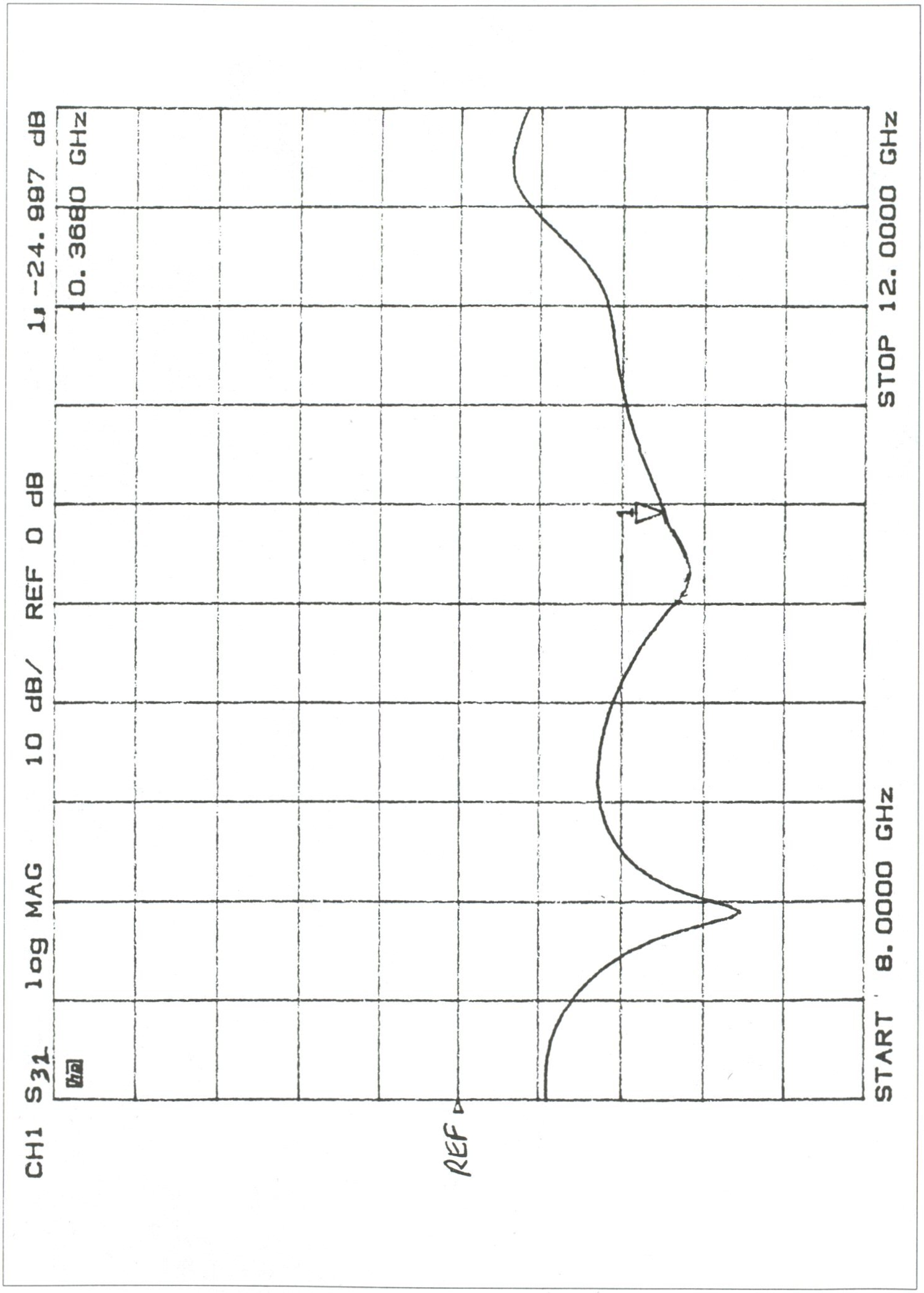


Fig. 10: Measurement Isolation

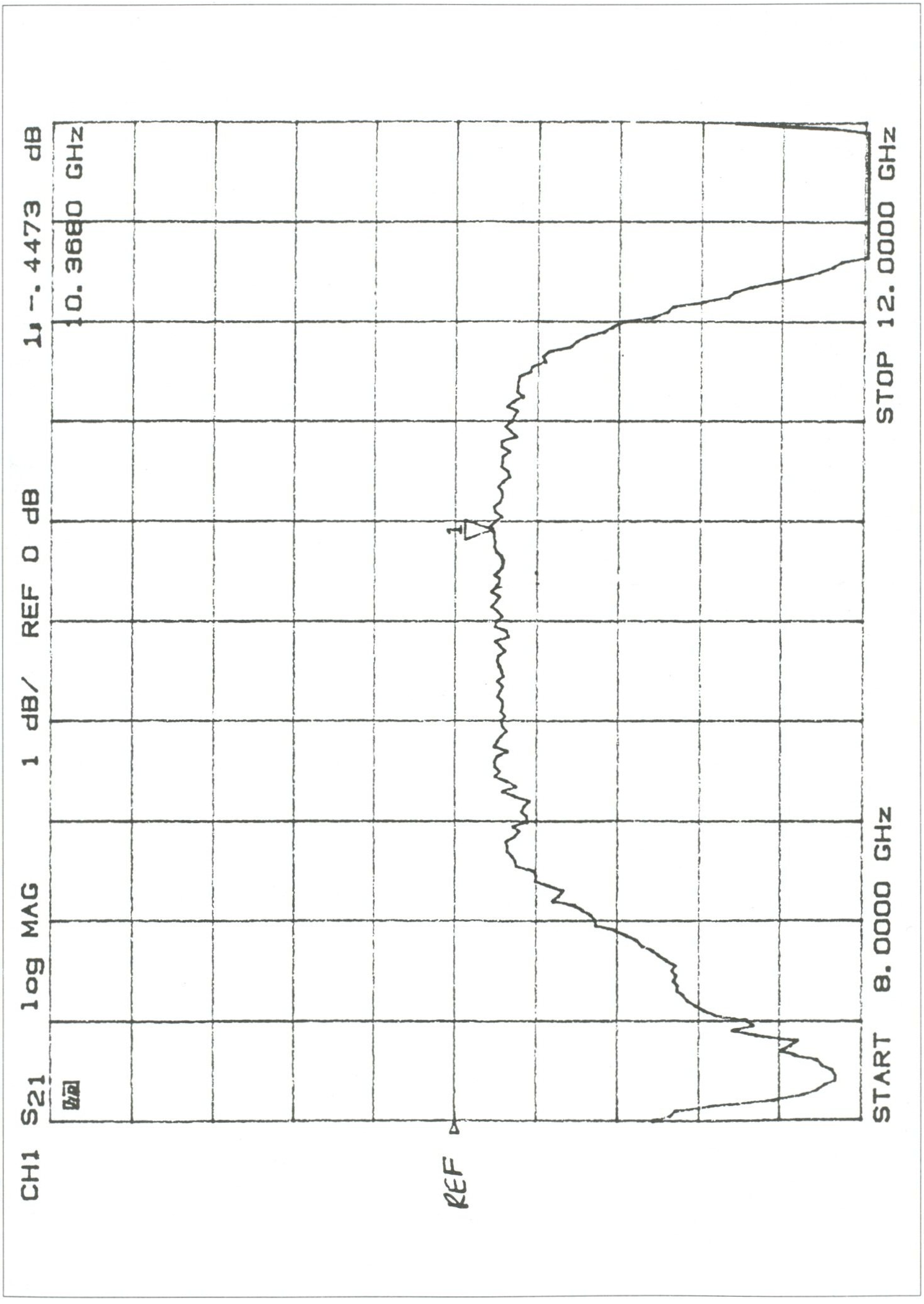


Fig. 11: Measurement Through Loss Two Couplers

Polarisation für die Zukunft als Standard[1] wählen sollten, kann man diese mit einem solchen Koppler einfach erzeugen. Eine dritte Anwendung für einen solchen Koppler ist der Gebrauch als Richtkoppler, um etwa Antennen oder andere Bauelemente zu messen. Eine vierte Anwendung besteht darin, zwei HF-Generatoren rückwirkungsarm, also intermodulationsarm, miteinander zu koppeln, um ein Zweiton-Signal für Messungen zu erzeugen.

Das Design eines bewährten und getesteten SMA-Hohlleiter Übergangs wird in Abb. 12 gezeigt.

Konstruktion

Die Konstruktion des Kopplers ergibt sich aus den Abb. 4 bis 6. Man braucht zur Realisierung Zwei Stücke WR90 Hohlleiter. Man entfernt die Seitenwand eines Stückes auf einer Länge von 41,4 mm. Ebenso schneidet man die breite Seite des zweiten Stücks ab. Die zwei Stücke werden zusammen gelötet. Die Löcher für die SMA-Buchsen werden mit 4,1 mm Durchmesser gebohrt. Die SMA-Buchsen werden mit M2 Schrauben befestigt. Die Kurzschlußplatte (49,53x12,7 mm) wird aufgelötet.

Die Wahl der Anschlüsse, SMA oder Hohlleiter, bleibt dem Nachbauer überlassen.

In Abb. 4 sieht man, daß die SMA-Buchsen 5,85 mm von der Kurzschlußplatte entfernt sind. Falls eine externe Last angewendet wird, wird die interne Last durch eine SMA-Buchse und eine zusätzliche Kurzschlußplatte ersetzt.

Um die Konstruktion zu vervollständigen, muß noch eine 50 Ohm Last am isolierten Tor angebracht werden. Man hat zwei Möglichkeiten: entweder klebt man ein Stück Mikrowellenabsorber (22,5x30 mm) auf der breiten Seite in das isolierte Tor oder man verwendet ein Stück Eisenabsorber, das nach Abb. 5 angefertigt wird. Die zweite Lösung empfiehlt sich für hohe Leistung. Da ich genau weiß, welches Material ich hatte - es stammt aus dem Schrott - muß man eventuell mit den Abmessungen etwas experimentieren.

Meßwerte

Die Leistungsdaten des Kopplers kann man den Abbildungen 7 bis 11 entnehmen. Abb. 12 zeigt den SMA-Hohlleiterübergang.

Um die Koppler zu testen, habe ich eine Zusammenschaltung von zwei 5 W Verstärkern gebaut. Einer hatte 4,5 W und der andere hatte 5 W Leistung auf 10,368 GHz. Die Verbindungsleitung aus 0,085" Semirigid müssen exakt auf gleiche Länge geschnitten werden, da sonst die Phase nicht stimmt. Der gesamte Verstärker hatte 9 W Ausgangsleistung mit etwa den gleichen Betriebsströmen, wie sie bei Einzelbetrieb waren. Obwohl es nicht probiert wurde, kann man die Koppler natürlich auch zum Koppeln von TWT's verwenden.

Teile bekommnt man beim Microwave Committee Components Service (Tel +44 1933 411446).

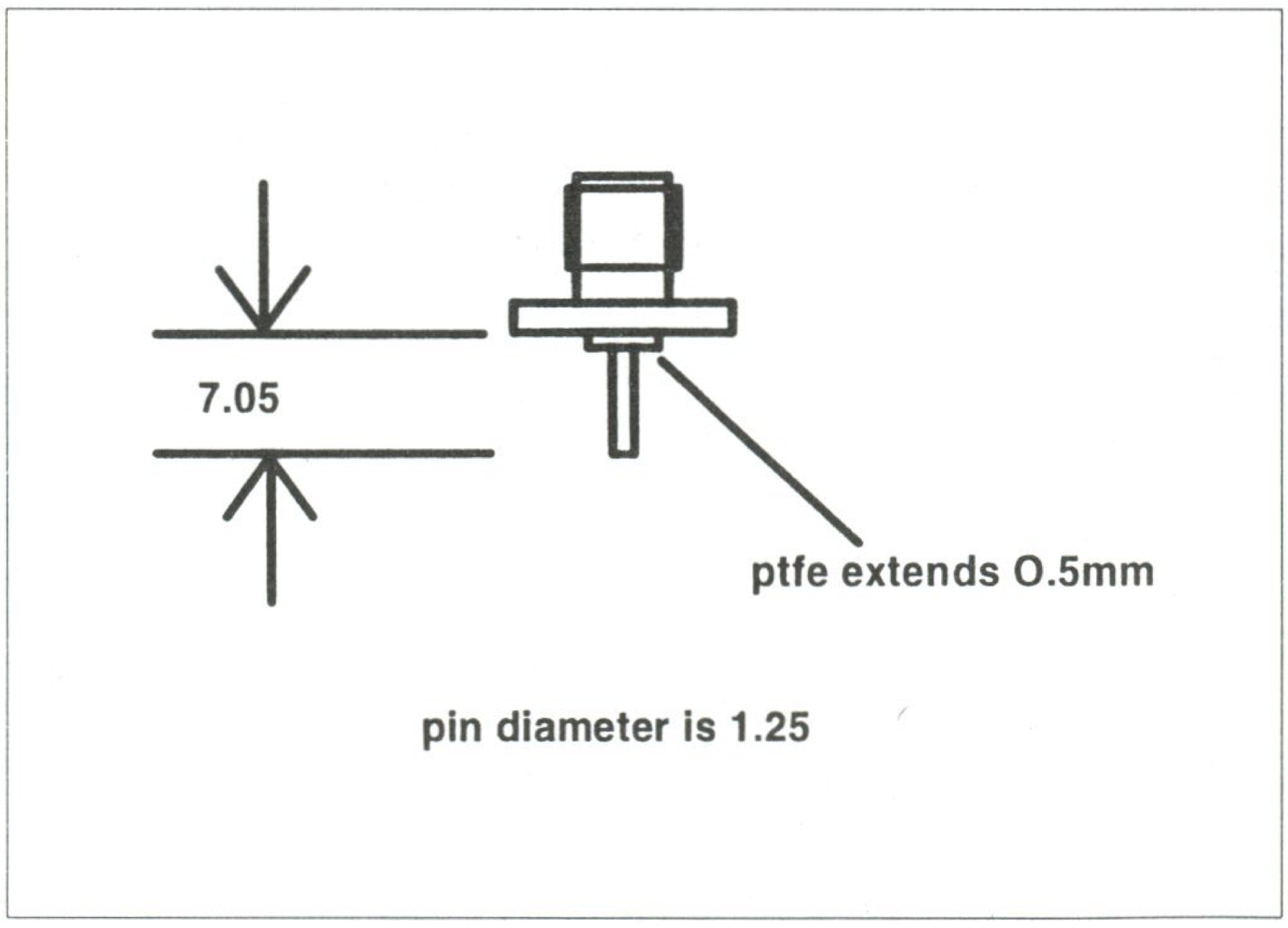


Fig. 12: Details of SMA Launch

1 *Die meisten EME-Amateure benutzen heutzutage aus guten Gründen lineare Polarisation und ich glaube auch nicht, daß sich das ändern wird.*

10 GHZ No-Tune Transverter

Toshihiko Takamizawa, JE1AAH

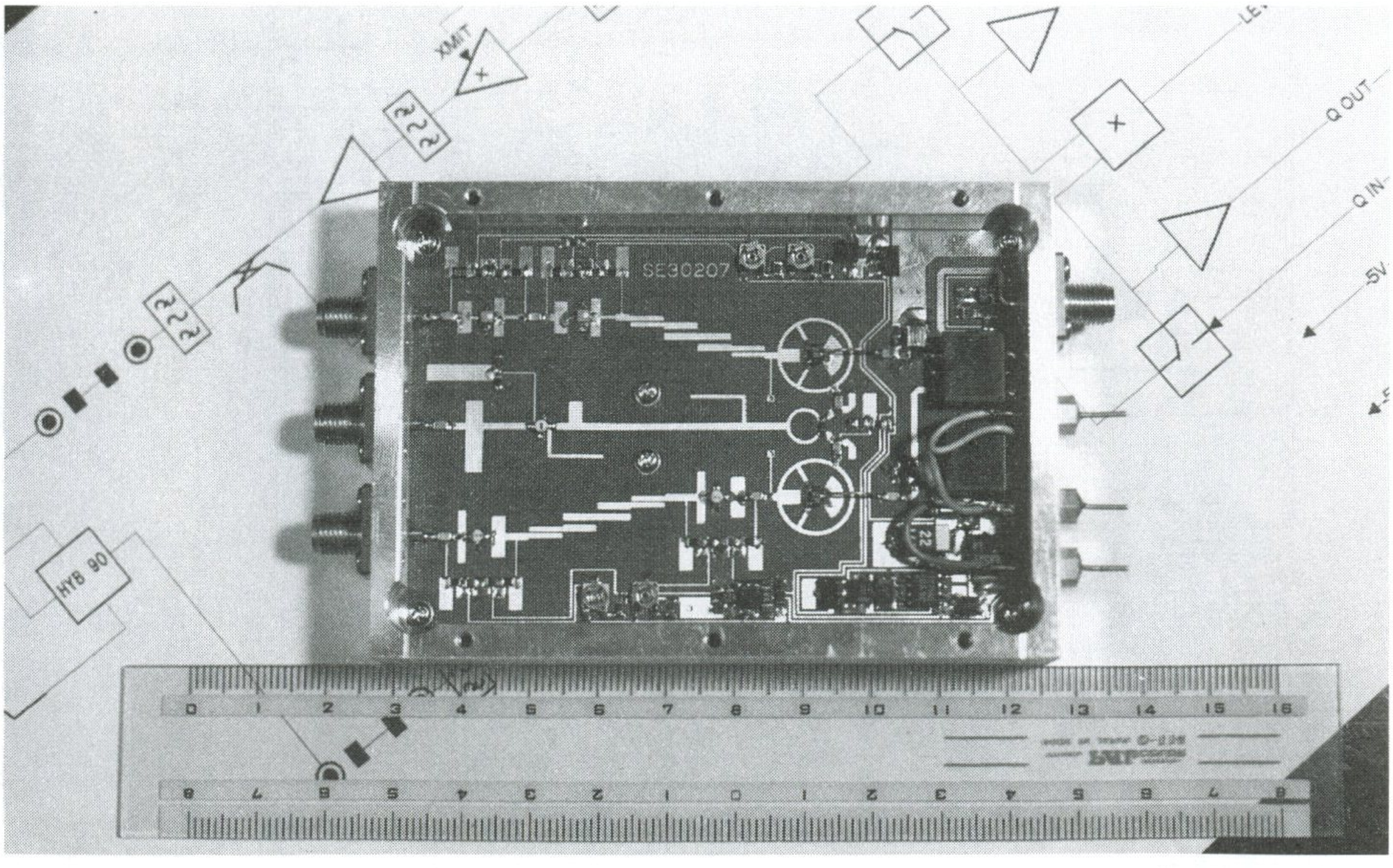
Description

This transverter has been developed by my friend 7N1OXG, Jun Shiozaki. Fig. 1 shows the block diagram. It utilizes 1.28 GHz as IF. The reasons are the availability of commercial 23 cm allmode rigs in JA and the feasibility of stripline bandpass filters on 10 GHz. The RX uses two stages with the FHX06LG. A NF of 1.4dB is achievable. Total gain of the two stages is around 20 dB. The RF is routed through a 3-pole bandpass filter, which uses edge-coupled halfwave resonators. It follows a single balanced mixer with the HP2802 Schootky diode pair. Conversion loss is around 10 dB on 10 GHz. Total RX gain adds to 10 dB and total NF of the transverter is around 1.7 dB.

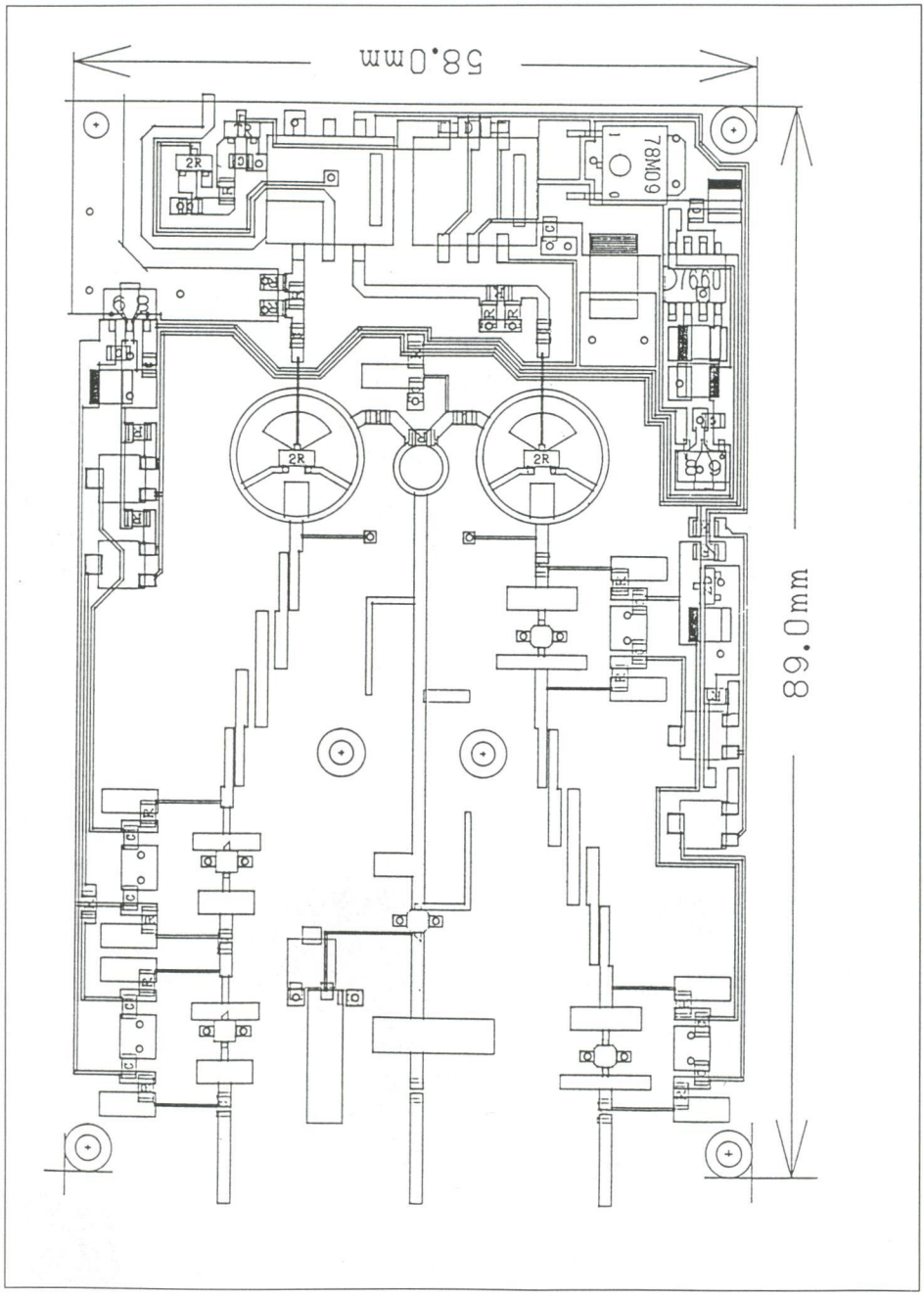
The TX utilizes two MGF-1402. The 1.28 GHZ IF is mixed with the 8.96 GHZ LO in a single balanced mixer. Output is filtered by the very same 3-pole filter as in the RX. The MGF-1402s amplify by 20 dB to an output of 10 dBm.

The LO-chain is made from a doubler starting from 4.48 GHZ. Output filter is a band reject filter for 4.48 GHz. This seems to be sufficient, because all 10 GHZ mixing products are filtered by the BP-filters. The 4.48 GHZ signal is suppressed about 20 to 30dB. The injection level into the mixers is about +10 dBm.

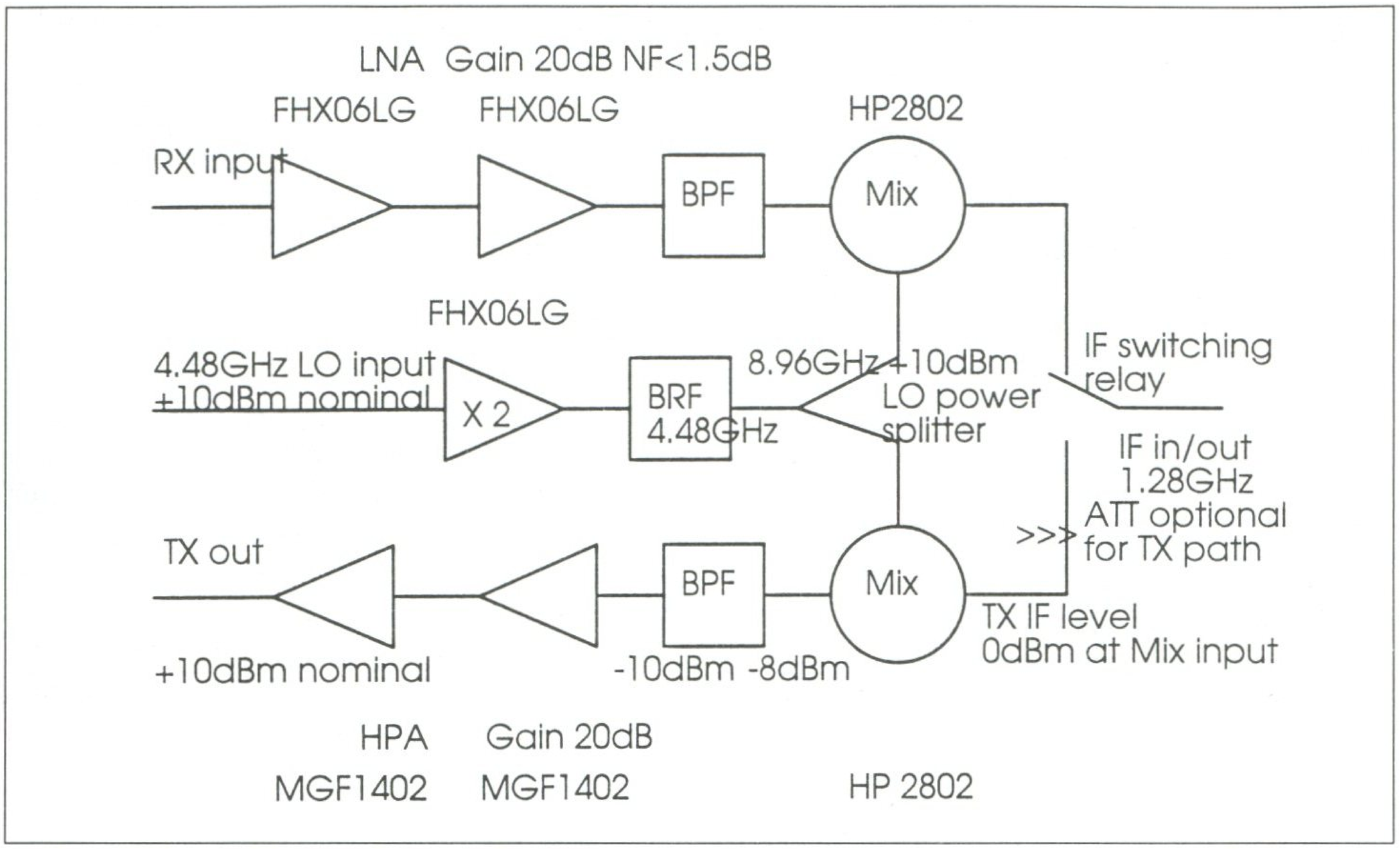
The transverter contains positive/negative bias supply and the appropriate switching facilities for IF and bias. Regulators are 78L05 and 7660.



No-Tune 10 GHZ Transverter



Figure/Abb. 1: Layout



Figure/Abb. 2: Block Diagram

Construction

The transverter uses only SMD components. IF switch is a small Matsushita coaxial relay. The DC switch is a small reed relay. To obtain components 7N1OXG provides a kit. The PCB costs 4500 Yen. Ask me for kit or PCB by mail or fax.

After soldering all parts the current in the FETs is set by the bias pots. One remark to ESD-measures regarding the HEMTs: Personally I found those HEMTs quite robust and insensitive. You can just handle them by hand on your workbench. I never lost a HEMT by static damage!

Since TX-mixer input level is designed for a nominal value of 0 dBm, there is room for an attenuator in the TX path. You may need to construct an PI-type attenuator to adjust input level in accordance with the output of your IF rig. But more than 1 W output on this is prohibitive, because there is no room for high power resistors on the board.

Overall RX gain is 10 dB. Since overall NF is about 1.7 dB, this is sufficient for commercial transceivers in the IF. Excessive RX gain impairs IMD performance. The transverter can be used standalone for portable operation. For fixed station use you can add a mast-head preamp and also a power amp.

Final remarks

It's very popular to use 1,28 GHz IF in Japan. For SHF transverters low IFs as 144 MHz for example are never used, because you cannot use fixed tuned stripline BPFs but have to rely on metal can BPFs. These seems to be not easy to construct and to reproduce. and need a spectrum analyser for tuning. The real solution is to use no-tune stripline BPFs. Those construction would be very easy to construct.

Beschreibung

Dieser Transverter wurde von meinem Freund Jun Shiozaki, 7N1OXG, entwickelt. Abb. 1 zeigt das Blockdiagram. Der Transverter mischt auf 23 cm herunter, z.B. auf 1280 MHz. Damit kann man die weit verbreiteten 23 cm Funkgeräte benutzten. Außerdem erlaubt die hohe ZF die Anwendung von fest abgestimmten Streifenleitungs-Filtern. Die Eingangsstufen des RX werden von einem 2-stufigen LNA mit FHX06LG mit einer Verstärkung von ca. 20 dB gebildet. Dann folgt ein dreipoliges Streifenleitungs-Bandfilter mit seitengekoppelten Resonatoren mit einer halben Wellen-

länge. Der Mischer ist ein einfach symmetrischer Mischer mit dem Schottky-Diodenpaar HP2802. Der Mischverlust beträgt ca. 10 dB. Die gesamte Verstärkung im RX beträgt ca. 10 dB bei einer Gesamtverstärkung von 10 dB.

Der TX benutzt zwei MGF-1402 als Leistungsverstärker. Die ZF von 1,28 GHz wird mit dem 8,96 GHz LO-Signal in einem zum RX baugleichen Mischer mit der HP2802 gemischt. Das Ausgangsfilter ist baugleich mit dem im RX-Zweig verwendeten Filter. Die MGF-1402 FET's verstärken das TX-Signal um 20 dB und erzielen eine Ausgangsleistung von ca. 10 dBm.

Die Oszillatoraufbereitung besteht aus einem Verdoppler von 4,48 auf 8,96 GHz. Das Ausgangsfilter ist eine Bandsperre auf 4.48 GHz. Dieses unterdrückt die Grundwelle um ca. 20 bis 30 dB. Die anderen Oberwellen erzeugen Mischprodukte, die von den Bandpaßfiltern im RX- und TX-Zweig unterdrückt werden. Die Injektionsleistung ist ca. 10 dBm.

Der Transverter enthält Regler und Inverter für ±5V (78L05/ICL7660) und die Umschalteinrichtungen für die ZF.

Konstruktion

Der Transverter benutzt nur SMD Komponenten. Das ZF-Relais ist ein kleines Matsushita Koaxrelais. Die Gleichspannungen werden mit einem kleinen Reedrelais umgeschaltet. Die Platine kostet 4500 Yen. Bausätze sind bei mir oder 7N1OXG erhältlich.

Nachdem alles bestückt ist, kann man den Strom in den FET's mit den Arbeitspunkt Potis einstellen. Noch eine Bemerkung zu den oft angesprochenen ESD-Maßnahmen. Nach meiner Erfahrung sind die HEMT's ziemlich robust. Man kann sie wie normale Bauteile mit der Hand anfassen. Ich habe noch nie einen HEMT durch statische Aufladung verloren.

Die Eingangsleistung im TX-Mischer ist auf 0 dBm festgelegt. Für Leistungen unter 1 W kann man einen Abschwächer mit SMD-Widerständen auf der Platine unterbringen.

Die Verstärkung im Empfangszweig ist 10 dB. Da die Rauschzahl ca. 1,7 dB beträgt, reicht das für normale Transceiver auf 1,3 GHz aus. Zuviel Verstärkung verschlechtert nur das Intermodulationsverhalten.

Der Transverter kann sowohl allein für Portabelbetrieb als auch zusammen mit zusätzlichen Vorverstärker und Leistungsverstärker für Feststationen verwendet werden.

Ausblick

In Japan ist die Verwendung von 23 cm Transceivern ziemlich populär. Deswegen braucht auch keine abstimmbaren Resonatorfilter verwenden. Diese benötigen einen feinfühligen Abgleich, möglicherweise mit einem Spektrumanalysator, und müssen als extra Bauteil gebaut werden. Streifenleitungsfilter sind dagegen schon in die Platine integriert und brauchen nicht abgestimmt werden. Eine solche Technik ist sehr einfach zu bauen und verspricht unmittelbaren Erfolg.

Low Noise Amplifier with BFP 420 Transistor at 2.4 GHz

K. Brenndörfer

Siemens AG, Bereich Bauelemente, Vertrieb, HL EH PD 1, Produkt-Information, Balanstraße 73, D-81541 München, ***Copyright by Siemens AG 1994***

The SIEMENS Grounded Emitter Transistor Line is a complete new generation of silicon bipolar junction RF-transistors. This application note shows a low-noise amplifier with the following data:

- **Gain: 13.6 dB**
- Noise Figure: 1.4 dB @ 2.4 GHz, V_{ce}=2.5V, I_c=5mA
- Unconditionally stable at all frequencies

To achieve a proper matching at the input and output and to stabilise the transistor, a well defined emitter inductance is used as negative feedback. This decreases the usable gain of the transistor. Without this feedback, the gain would be **17.5 dB**, but matching and stability would be worse. Noise figure would stay at 1.4 dB because of the lossless feedback.

For DC-biasing a two-transistor active stabilisation is used, which works as temperature stable current source.

Figure 1 shows the circuit diagram:

Figure 2 shows the circuit layout. Substrate material is PTFE, e_r=2.45, H=0.38mm, e.g. Di-CLAD 527, 15mil.

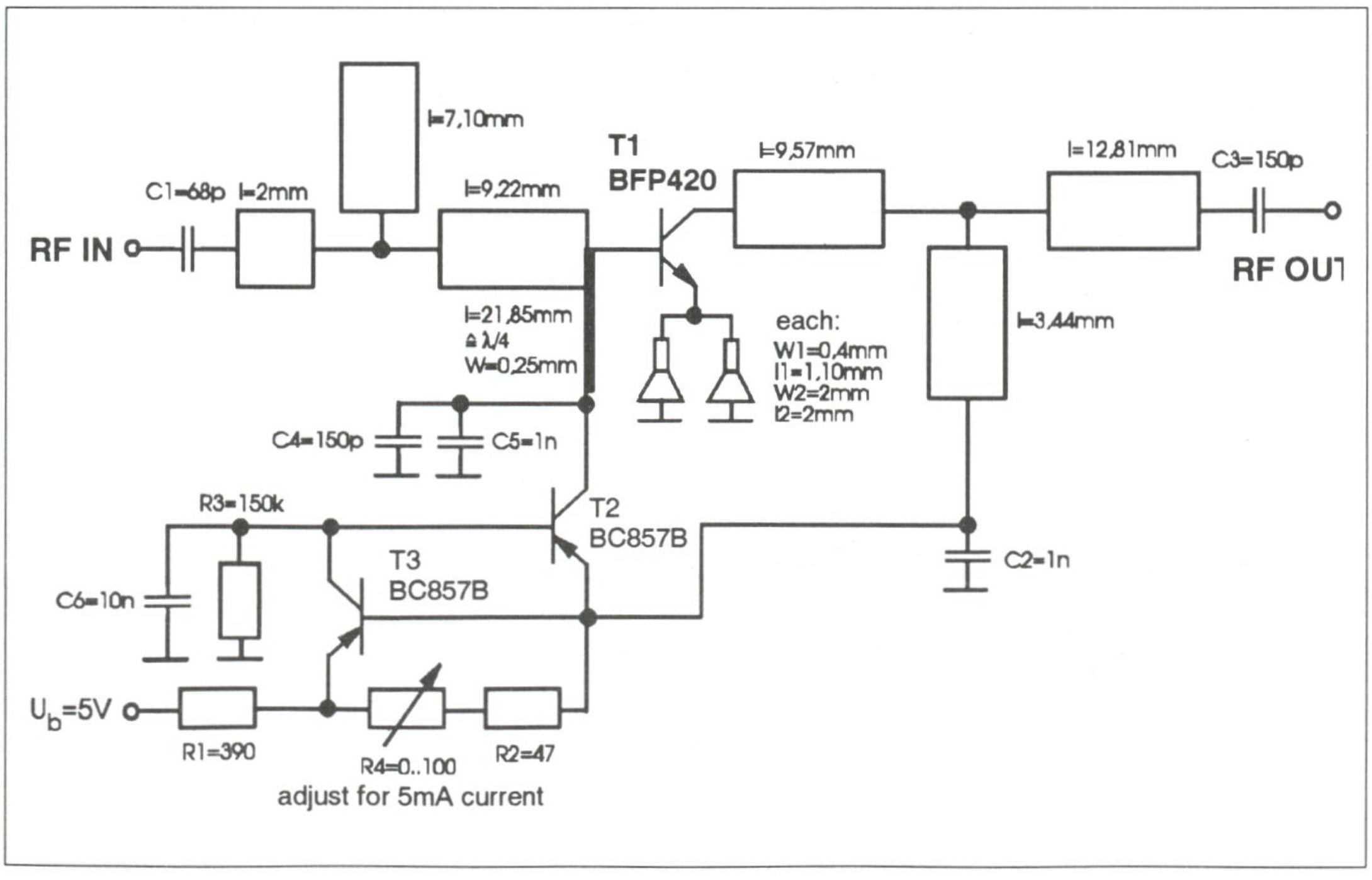
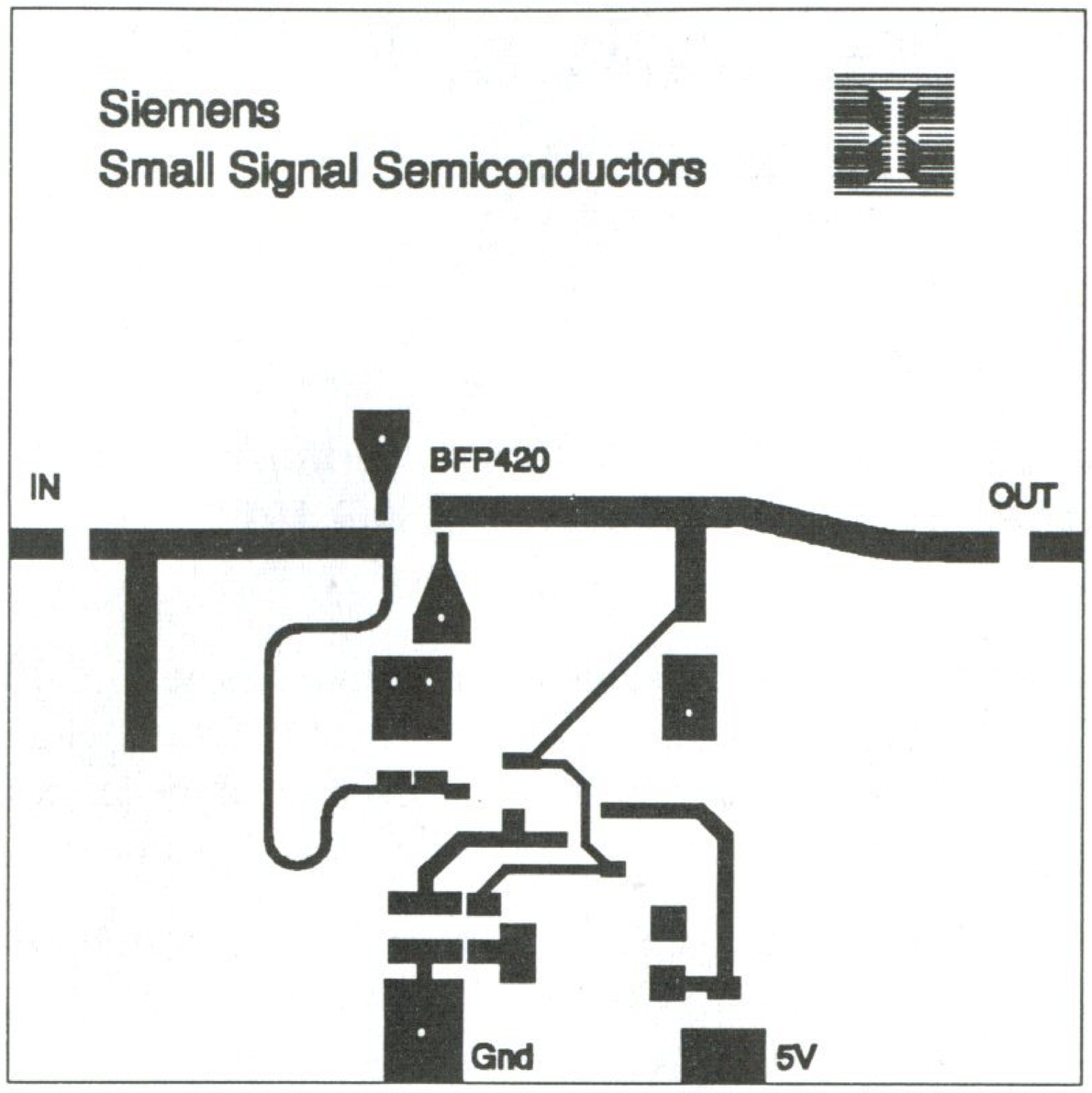


Fig. 1: Circuit Diagram

Figure 2: Circuit Layout of LNA



Scale: 2:1 (40mm x 40mm real size):

Figure 3 shows the mounting plan of the parts:

Table 1 lists all used SMD components:

Deutsch:

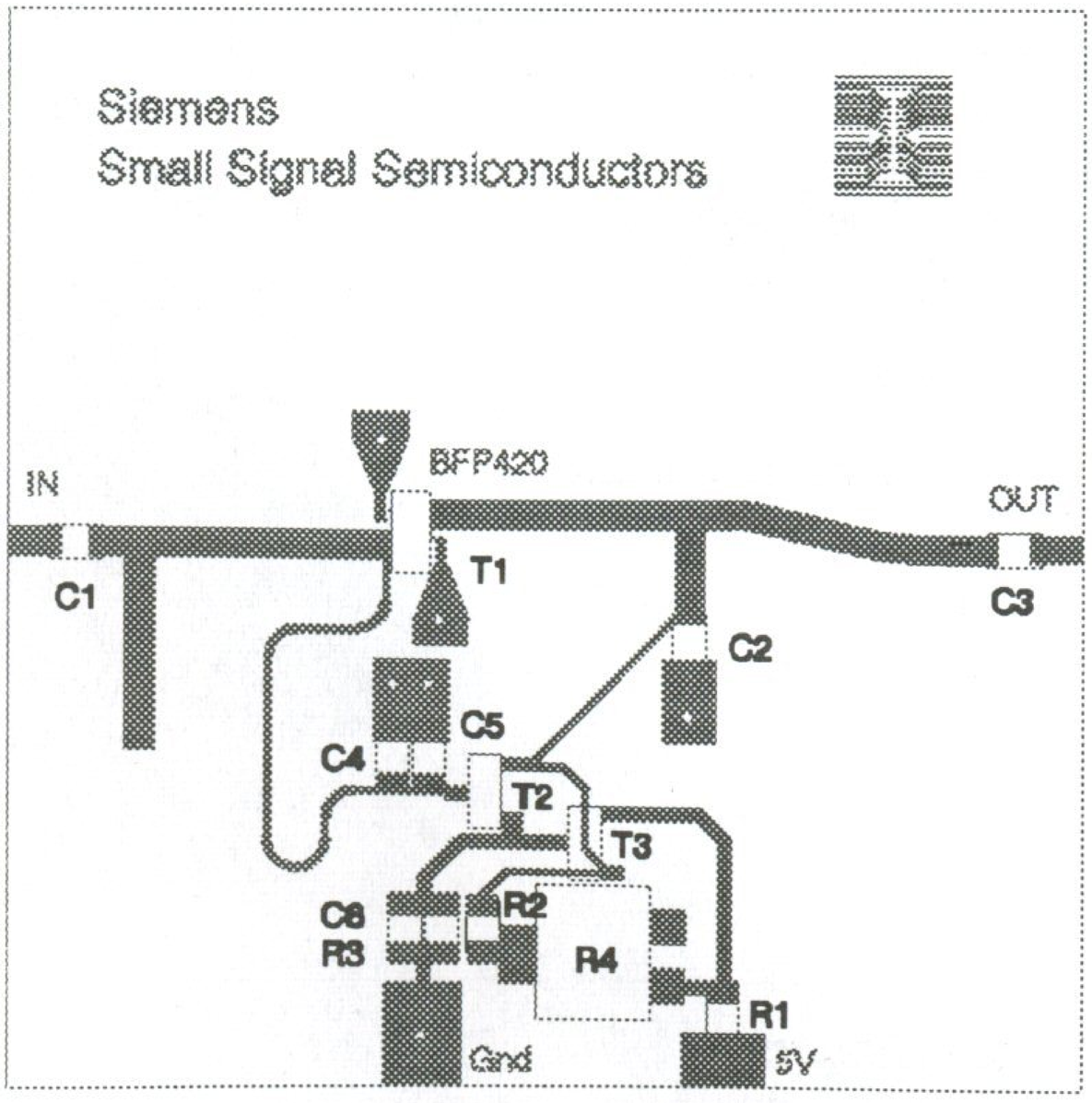
Die neue Serie von Siemens SIEGET Transistoren erlaubt u.a. die Konstruktion von rauscharmen Verstärkern im 2,4 GHz Band. Folgende Werte wurden erzielt:

- Verstärkung: 13,6 dB
- Rauschzahl: 1,4 dB auf 2,4 GHz
- Stabilität: Absolut stabil auf allen Frequenzen.

Um eine gute Rückflußdämpfung am Ein- und Ausgang zu erzielen und um absolute Stabilität zu erreichen, wird eine zusätzliche Emitterinduktivität vorgesehen, die eine Gegenkopplung bewirkt. Das führt auch zu einer Reduzierung der Verstärkung. Ohne die Gegenkopplung wäre die Verstärkung ca. 17 dB. Die Rauschzahl wird von der Gegenkopplung nicht beeinflußt.

Zur Arbeitspunkteinstellung wird eine Schaltung mit zwei Transistoren benutzt. Diese wirkt als eine temperaturstabile Stromquelle mit dem HF-Transistor als Stellglied. Abb. 1 zeigt die Schaltung. Die gedruckte Schaltung auf 0,38 mm dickem PTFE-Material wird in Abb. 2 gezeigt. Die Anordnung der teile auf der Platine zeigt Abb. 3.

Figure 3: Parts Layout of LNA



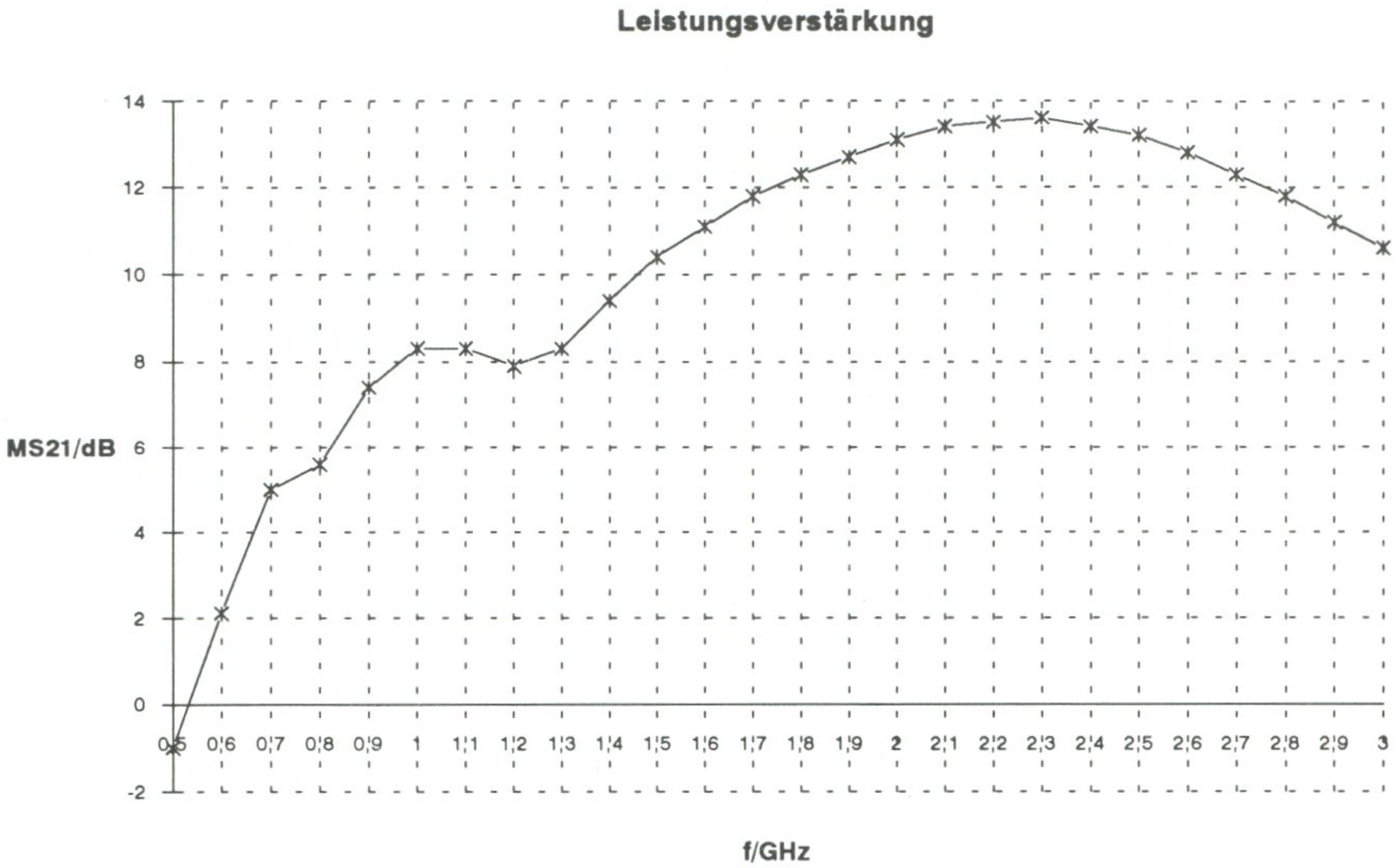


Fig. 4: Power Gain versus F

Name	Type, Package, (Supplier)
C1	68pF 0805 (S+M)
C2	1nF 0805 (S+M)
C3	150pF 0805 (S+M)
C4	150pF 0805 (S+M)
C5	1nF 0805 (S+M)
C6	10nF 0805 (S+M)
R1	390Ω 0805 (S+M)
R2	47Ω 0805 (S+M)
R3	150kΩ 0805 (S+M)
R4	0...100Ω Trimmer (Beckman)
T1	BFP 420 SOT343 (Siemens)
T2	BC 857B SOT23 (Siemens)
T3	BC 857B SOT23 (Siemens)

Tabl 1: Parts List

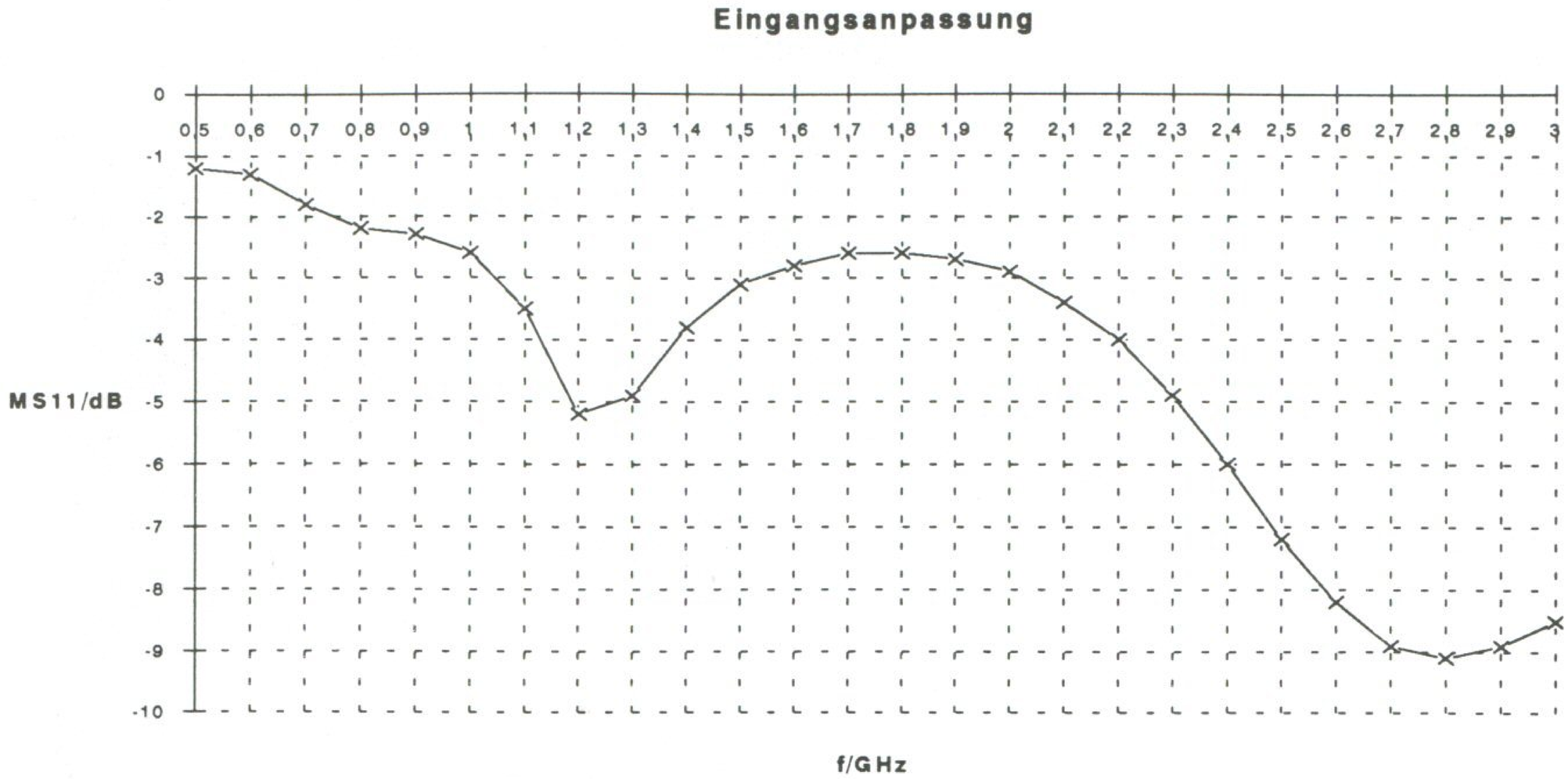


Fig. 5: S11 versus F

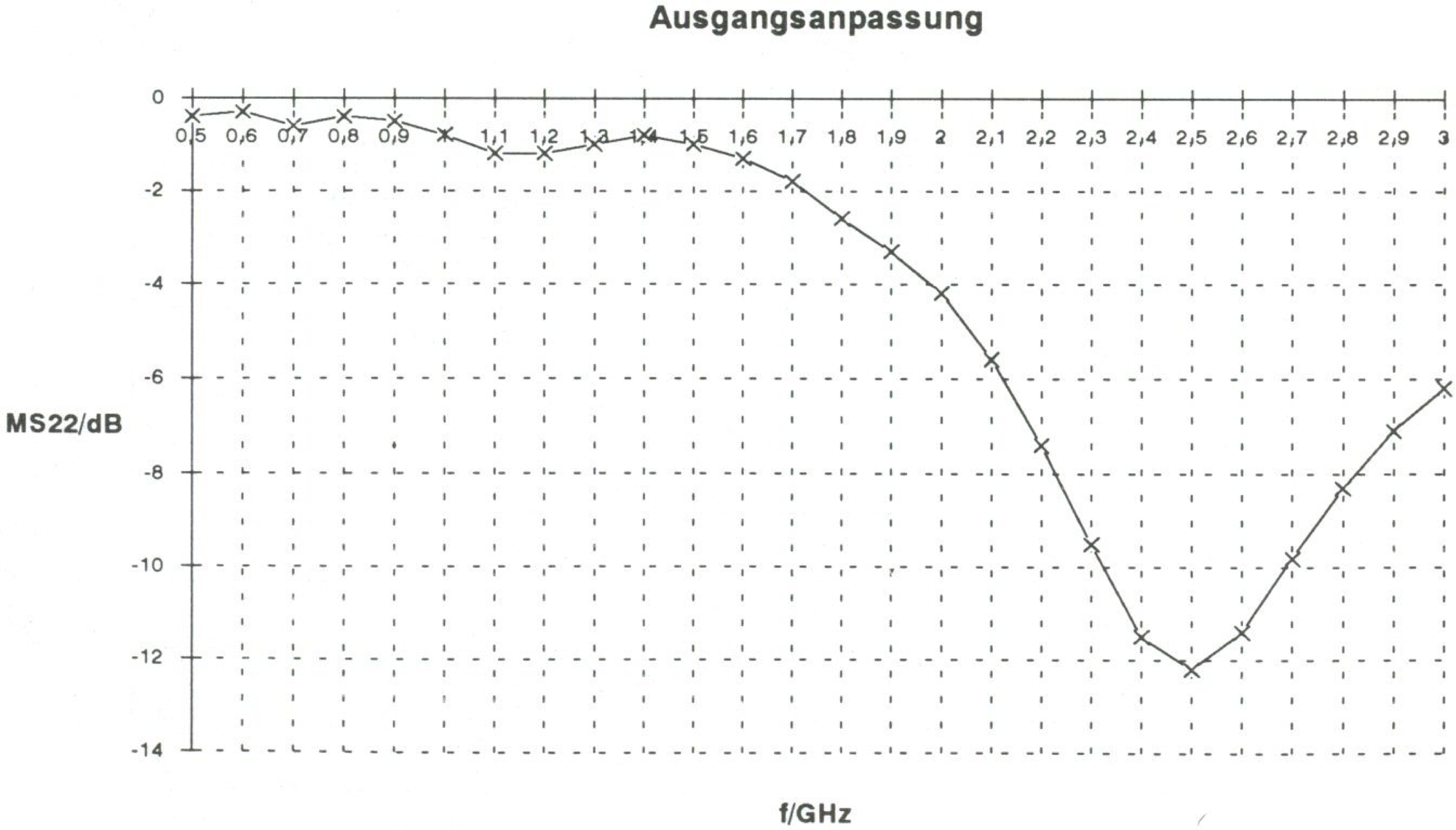


Fig. 6: S22 versus F

f/GHz	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
F/dB	1.4	1.4	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.5	1.6

Tabl. 2: Measured Noise Figure @ F

Part Lists for PHEMT Preamps

R. Bertelsmeier, DJ9BV

There were lots of enquiries about the parts lists for the PHEMT-Preamps described in DUBUS 1/1995. Just read the circuit diagrams in DUBUS 1/1995, p. 34, 38 and 42 together with the diagram of the bias circuit .

Wegen der vielen Anfragen nach den Teilelisten für die in der DUBUS 1/1995 breschriebenen PHEMT-Vorverstärker, werden diese nun nachgereicht. Die Schaltpläne sind in DUBUS 1/1995, S. 34, 38 und 42.

On Board Bias Circuit

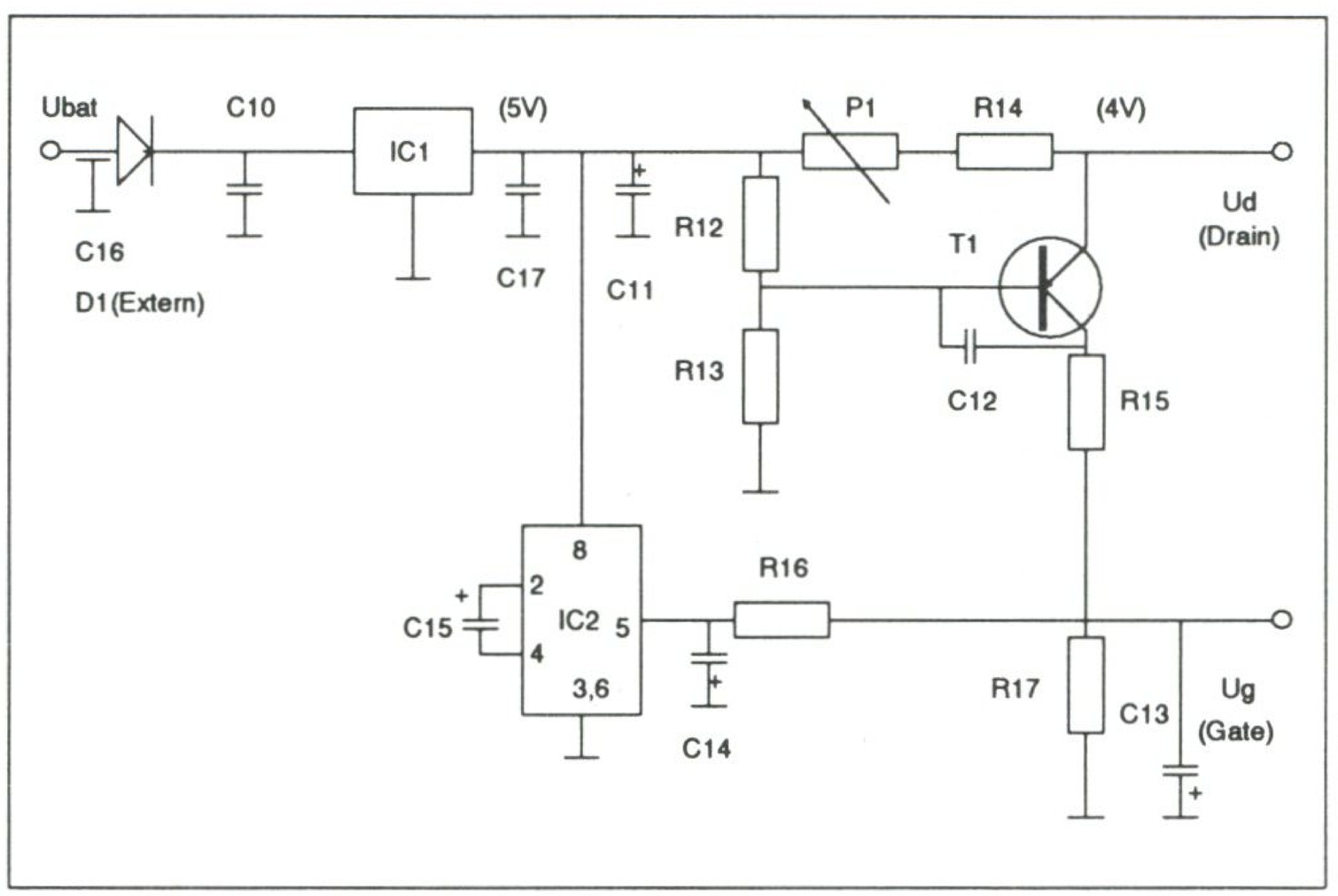


Table 1: Parts List of LNAH-5.7-N324

Teile-Nummer/Part-No.	Art/Sort	Wert/Value	Hersteller/ Manufacturer	Herst.-Bez./Manuf.-No.
C1,3	SMD-C	100pF	Sie	
C2,4	SMD-C	1000pF	Sie	0805
C5	Chip-C 50mil	1 pf (500 CHA 1R0 JG)	Tekelec	CHA
R1	SMD-R	47	Sie	1206
R2	SMD-R	100k	Sie	1206
R3	SMD-R	4R7	Sie	1206
R4	SMD-R	22	Sie	1206
FET	GaAs-FET	NE32684	NEC	
Bu1,2	Coaxial	SMA	Radiall/Suhner	
PCB	Teflon PCB, Duroid 5870	mm, 0.508 mm, Er=2.3, - LNAH-5.7-N326	DC3XY	
G	Box, Aluminium	35x74x30 mm		

Table 2: Parts List LNAH-2.3-N424/M865

Teile-Nummer/Part-No.	Art/Sort	Wert/Value	Hersteller/Manufacturer	Herst.-Bez./Manuf.-No.
C1	Chip-C 50mil	4.7pf (500 CHA 4R7 JG)	Tekelec	CHA
C2,3,6	SMD-C	100 pF	Sie	0805
C4	SMD-C	5.6 pF	Sie	0805
C7,8,19	SMD-C	1000 pF	Sie	0805
C9,18,20	SMD-C	10 nF	Sie	0805
C10,12,17	SMD-C	0.1 µF	Sie	1206
C11,14,15	SMD-Elco	10 µF	Sie	1210
C13	SMD-Elco	1 µF	Sie	1206
C16	Feed-Thr.	1000 pF	Sie	
R1,3	SMD-R	47 Ω	Sie	1206
R2,14	SMD-R	39 Ω	Sie	1206
R4,5	SMD-R	10 Ω	Sie	1206
R12	SMD-R	6.8 kΩ	Sie	1206
R13,15	SMD-R	10 kΩ	Sie	1206
R16,17	SMD-R	22 kΩ	Sie	1206
P1	SMD-Pot	100 Ω	Murata	4310
Dr.1	Printed	$\lambda/4$		
L1	Wire Loop	0.5 mmCuAg, 18 mm long, 1 mm above PCB	Homemade	
L2	Wire Loop	0.5 mmCuAg, 8 mm long, on PCB	Homemade	
D1	Diode	1N4007	Mot	
FET	GaAs-FET	NE42484A	NEC	
MMIC	GaAs-MMIC	MGA-86576	HP	
T1	PNP	BC807,856,857,858,859	Sie	SOT-23
IC1	Regulator	uA7805A	Mot	TO-92
IC2	Inverter	LTC1044SN8 (ICL7660SN8)	LT (Intersil)	SO8
Bu1,2	Coaxial	N-Small Flange or SMA	Radiall/Suhner	
PCB	Teflon PCB, Taconix TLX	35 x 72 mm, 0.79 mm, Er=2.55, -LNAH-2.3-N424	DC3XY	
G	Box, Weißblech (Tinplate)	35x74x30 mm		

All Parts except D1, C20 and uA7805A are SMD-Parts

Table 3: Parts List of LNAH-3.4-N424/865

Teile-Nummer/Part-No.	Art/Sort	Wert/Value	Hersteller/Manufacturer	Herst.-Bez./Manuf.-No.
C1	Chip-C 50mil	1 pf (500 CHA 1R0 JG)	Tekelec	CHA
C2,3	SMD-C	1.5 pF	Sie	0805
C4	SMD-C	1.8 pF	Sie	0805
C6	SMD-C	100 pF	Sie	0805
C7, 8, 19	SMD-C	1000 pF	Sie	0805
C9, 18, 20	SMD-C	10 nF	Sie	0805
C10, 12, 17	SMD-C	0.1 µF	Sie	1206
C11, 14, 15	SMD-Elco	10 µF	Sie	1210
C13	SMD-Elco	1 µF	Sie	1206
C16	Feed-Thr.	1000 pF	Sie	
R1	SMD-R	47 Ω	Sie	1206
R2	SMD-R	33 Ω	Sie	1206
R3	SMD-R	22 Ω	Sie	1206
R4,5	SMD-R	10 Ω	Sie	1206
R12,13,15	SMD-R	10 kΩ	Sie	1206
R14	SMD-R	68 Ω	Sie	1206
R16,17	SMD-R	22 kΩ	Sie	1206
P1	SMD-Pot	100 Ω	Murata	4310
L1	Wire Loop	0.25 mmCuAg, 9 mm long, 1 mm above PCB	Homemade from Wirewrap	
L2	Wire Loop	0.25 mmCuAg, 3.5 mm long, on PCB	Homemade from Wirewrap	
D1	Diode	1N4007	Mot	
FET	GaAs-FET	NE42484A	NEC	
MMIC	GaAs-MMIC	MGA-86576	HP	
T1	PNP	BC807,856,857,858,859	Sie	SOT-23
IC1	Regulator	uA7805A	Mot	TO-92
IC2	Inverter	LTC1044SN8 (ICL7660SN8)	LT (Intersil)	SO8
Bu1,2	Coaxial	SMA	Suhner/Rosenberger	
PCB	Teflon PCB, Taconix TLX	34 x 72 mm, 0.79 mm, Er=2.55, -LNAH-3.4-N424	DC3XY	
G	Box, Aluminium, Machined	34x72x30 mm	DC3XY	

All Parts except D1, C20 and uA7805A are SMD-Parts

Computer News

Editor: Gerold Bächle, DF5GX

"HornCalc V2.50"

Arnold Tibus, DK2WT and Stefan Tibus, DG2GTS

Kurzbeschreibung

HornCalc ist ein Programm für Windows 3.1 und erlaubt die schnelle Dimensionierung eines Pyramiden-Horns bei Erfüllung folgender Bedingungen:

- Es ist ein 'Optimum' -Horn, d.h. die Aperturdimension ist so gewählt, daß bei gegebener Höhe der Pyramidendreiecke maximaler Gewinn erreicht wird.
- Die E-und H-Feld 3dB Öffnungswinkel sind in etwa gleich.
- Der spezifizierte Gewinn wird bestmöglich erreicht. Die Genauigkeit bzw. Abweichung vom Realwert liegt bei wenigen zehntel dB!
- Das Horn paßt genau auf einen beliebig spezifierten Hohlleiter (standardmäßig werden Innenmaße verwendet).

Entstehung

Das Programm in seiner Urform wurde von DK2WT, Arnold Tibus, entwickelt und existiert seit 1985. Diese neue Version für Windows 3.1 für IBM comp. PCs wurde weiterentwickelt und von DG2GTS, Stefan Tibus, in Borland Pascal programmiert und um die graphische Darstellung erweitert. Gegenüber der Vorgängerversion 2.0a erlaubt die Version 2.5 das freie Drehen des Horns im 3-dimensionalen Raum. Obwohl es bei dieser Anwendung keine Rolle spielt, wird auch die Dämpfung im Hohlleiter in dB/m errechnet.

Die Steuerung der Drehung im 3-dimensionalen Raum erfolgt in der Vollbild-Ansicht über verschiedene Rollbalken, die sowohl mit der Maus, als auch mit der Tastatur bedient werden können. Selbst Einsteigern soll mit diesem Programm ein Werkzeug in die Hand gegeben werden, sich auch auf diesem Gebiet erfolgreich experimentell betätigen zu können.

Bemerkungen zum Aufbau

Wichtig zu erwähnen ist, daß natürlich die Präzision und die saubere Verarbeitung eine große Rolle spielt, will man die errechneten Werte auch in der

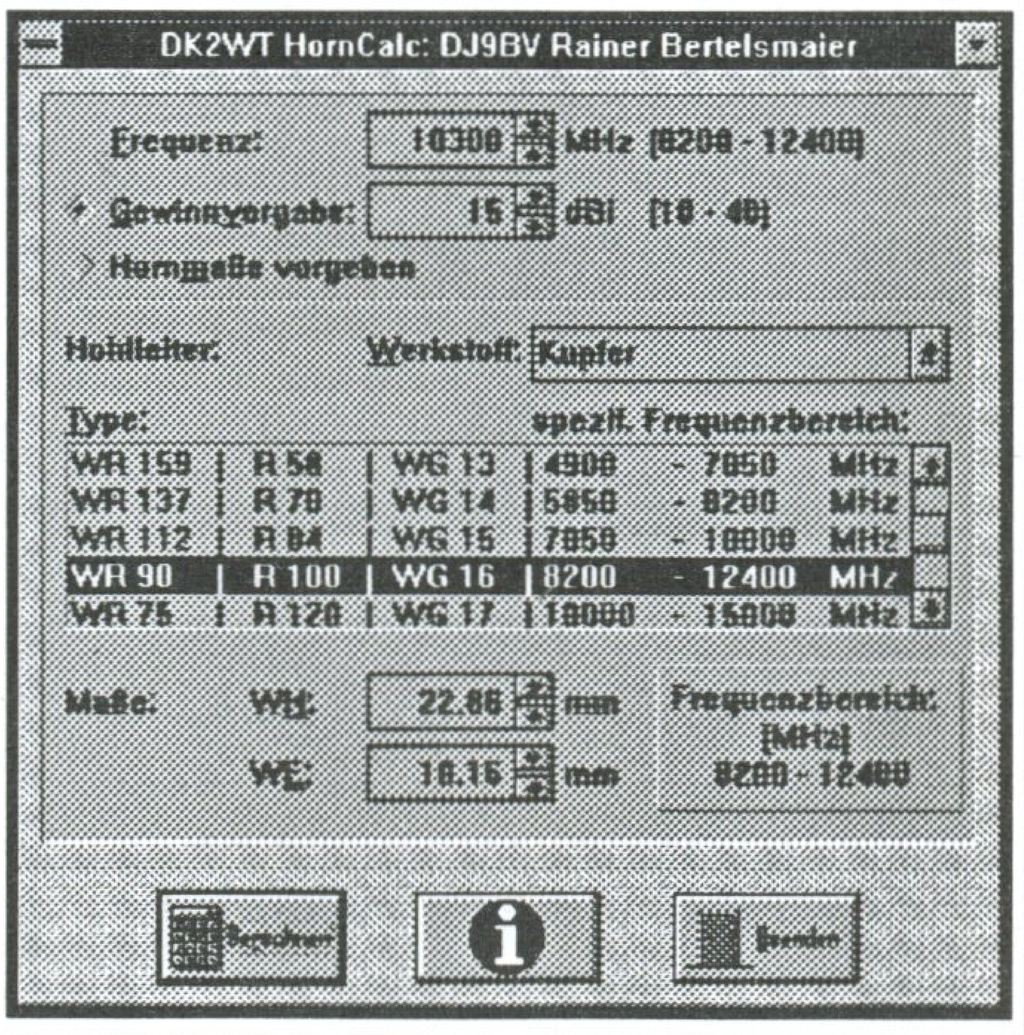


Abb./Fig.1

DK2WT HornCalc: DJ9BV Rainer Bertelsmaier

HornCalc - Ergebnisse

Zurück | Tabelle Speichern | Drucken

Hornmaße (innen):

Aperturmaße:	Seite a=	77.04	mm
	Seite b=	56.96	mm
Trapezhöhen:	zur Seite a=	44.06	mm
	zur Seite b=	46.13	mm
Seitenlänge:	s=	51.73	mm
Hornlänge:	Lh=	37.34	mm

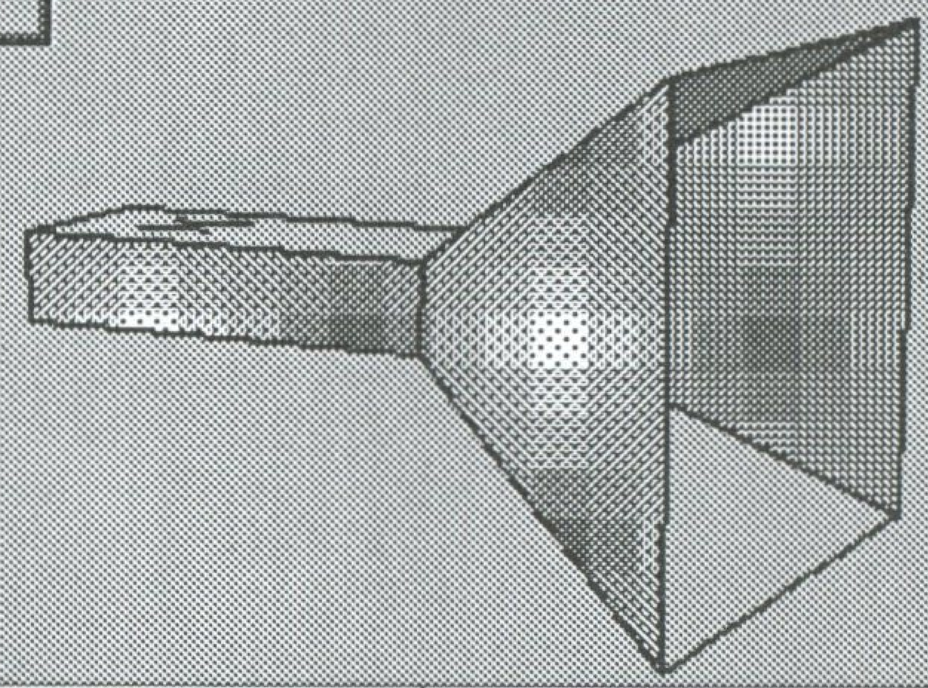
Hohlleiter:

Type:		WR 90 / R 100 / WG 16	
Werkstoff:		Kupfer	
Breite (innen):	WH=	22.86	mm
Höhe (innen):	WE=	10.16	mm
Länge (innen):	L=	47.18	mm
Strahlerabstand:	¼ WL=	9.44	mm

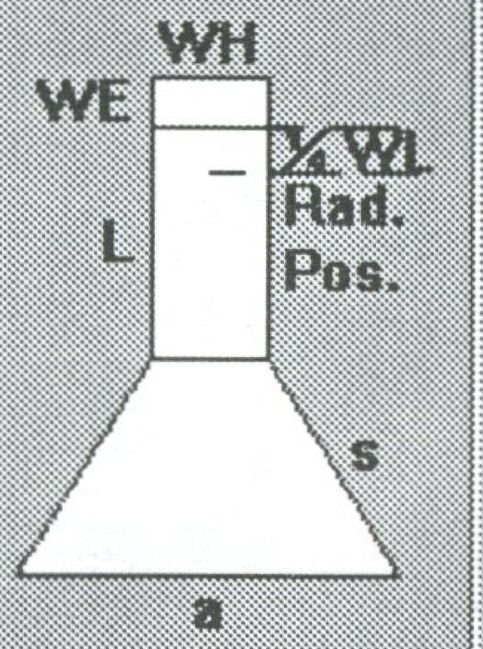
elektrische Werte:

Frequenz:	f=	10.300	GHz
Gewinnvorgabe:	gd=	15.00	dBi
Gewinn berechnet:	g=	15.10	dBi
Wellenlänge (HL):	WL=	37.74	mm
Dämpfung (HL):	d=	0.106	dB/m

Gesamtansicht:



Abwicklg. H-Ebene:



Abwicklg. E-Ebene:

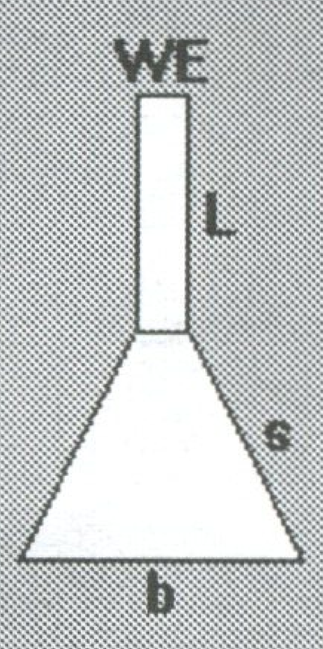


Abb./Fig.2

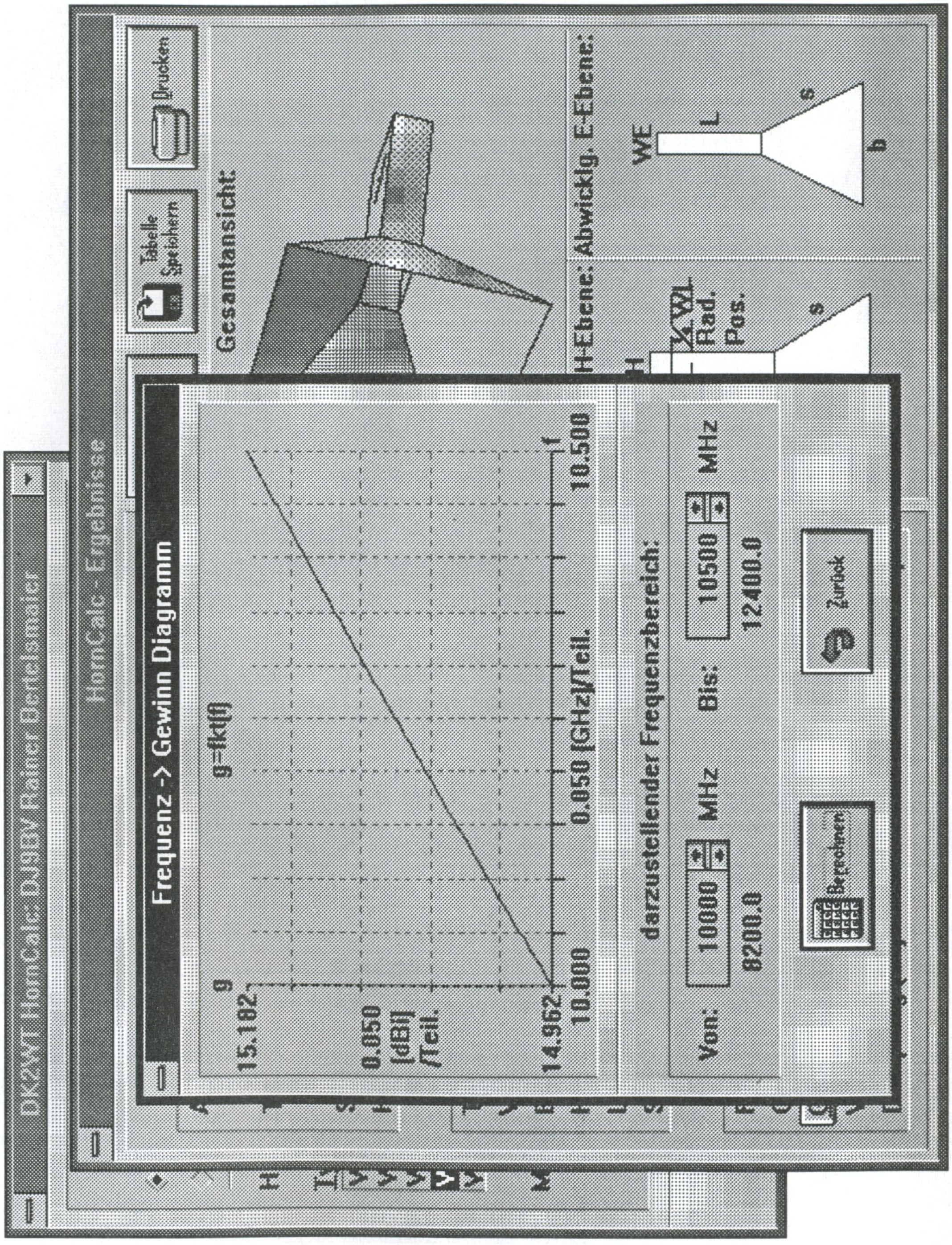
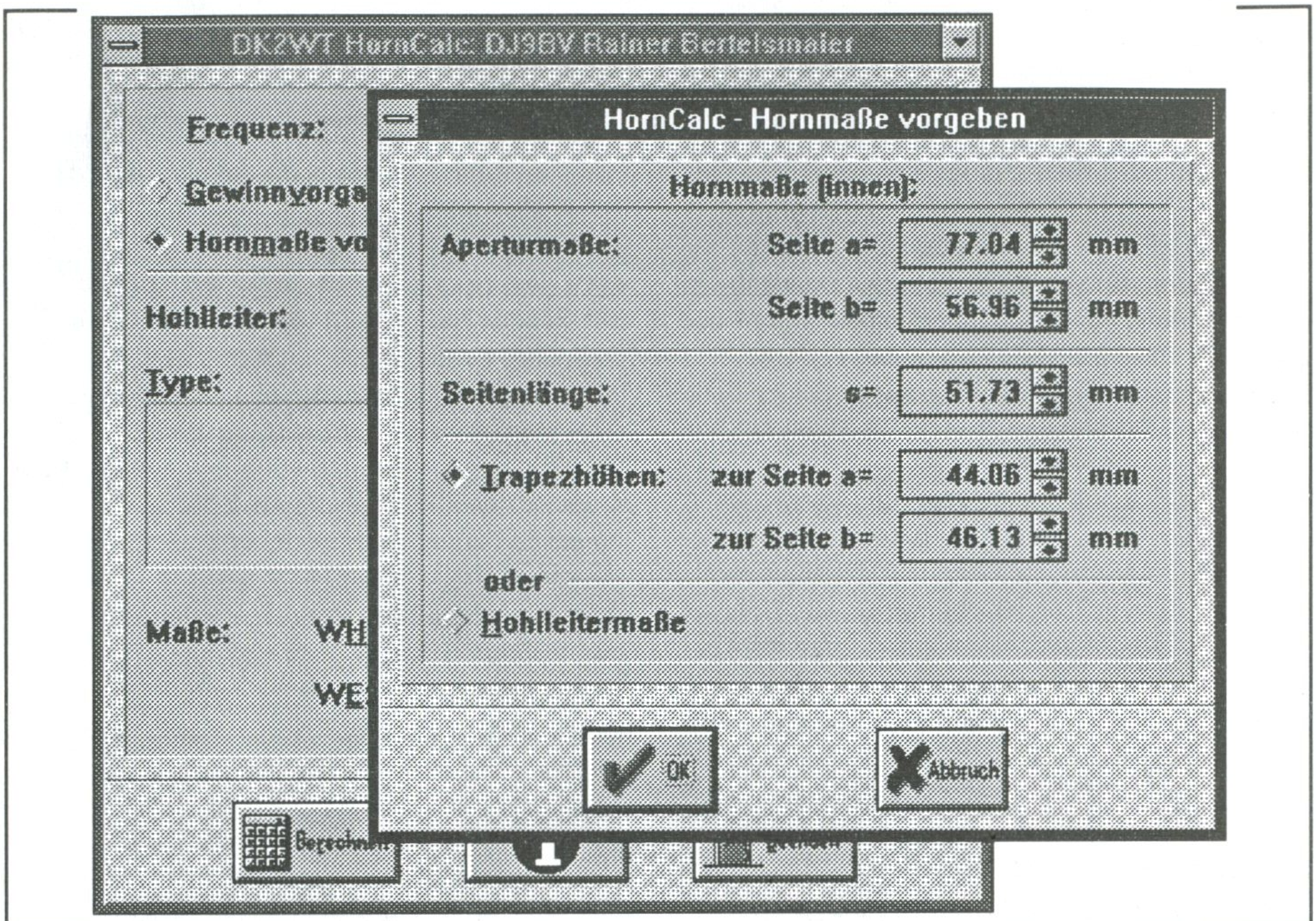

DK2YT HornCalc BJ1RBV Rainer Bertelsmeier
HornCalc - Ergebnisse
Frequenz -> Gewinn Diagramm
Drucken
Tabelle Spreadsheet
Gesamtansicht:
WE
L
s
b
H-Ebene: Abwickig. E-Ebene:
Rad. Pos.
darzustellender Frequenzbereich:
Von: 10000 MHz
820.0
Bis: 10500 MHz
12400.0
Zurück
Berechnen
15.192
0.050
dB]
/Teil.
8
8=kW
14.962
10.000
0.058 [GHz/Teil.
10.500

Abb./Fig.3

Abb./Fig.4



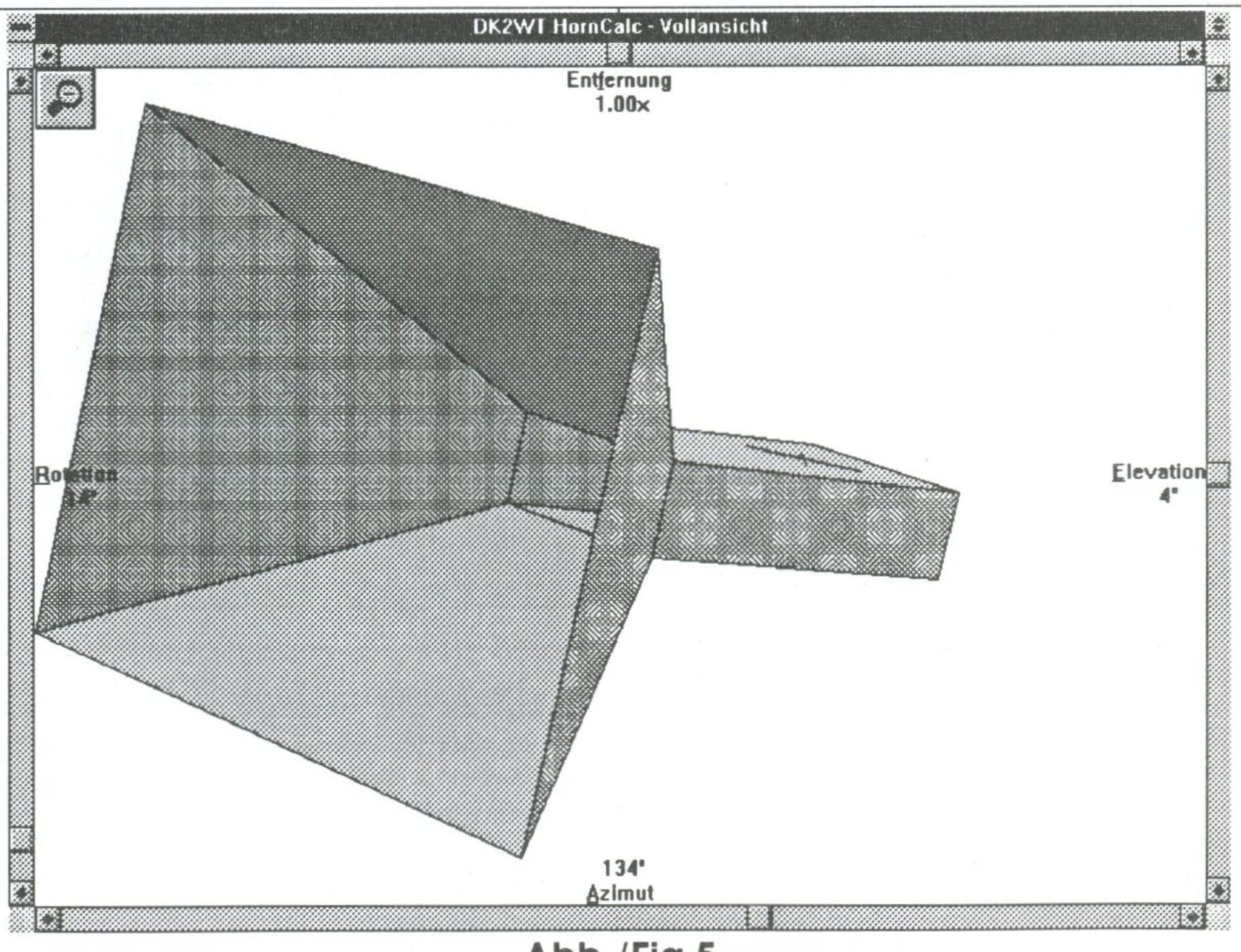


Abb./Fig.5

Praxis erreichen. Beim Material wird davon ausgegangen, daß zumindest die Oberflächen verkupfert sind, eine Versilberung ist nicht vonnöten ('nice to have'). Der Einfachheit halber wird man wohl besser gleich zu Kupferblech greifen, wie es z.B. die Flaschner verwenden.

Die Position des Strahlers im Hohlleiter ist angegeben und liegt bei 1/4 der Wellenlänge im Hohlleiter vom Hohlleiterabschluß. Der Strahler ist nicht kritisch. Für Versuche kann man einfach ein Kupferröhrchen über den Innenkontakt einer Koaxflanschbuchse schieben und sauber verlöten. Die Länge liegt bei Standardabmessungen der Hohlleiter bei ca. 0.5*Seitenlänge von WE (E-Feld).

Damit der Strahler nicht 'gesehen' werden kann und auch der Hohlleiter nicht in Resonanz kommt, wird eine Länge von 1,25 Lambda (Hohlleiterwellenlänge) für den Hohlleiter gewählt. Die Befestigung des Koaxflansches kann zumindest bei großen Hohlleitern (Wellenlänge 13cm) ohne große Einbußen auch mit Kupfer-/Messingschrauben erfolgen, wobei dann allerdings der Schraubenkopf im Hohlleiter liegen soll, da generell die Regel gilt, daß keine Fremdkörper, schon gar keine metallenen, etwas im Hohlleiter zu suchen haben. Besser ist es, den Flansch auf der Außenseite aufzulöten, was aber nur mit einem großen Lötkolben der Kategorie 120W und guter Lötpraxis gelingt.

Daß alle Flächen des Horns und auch des Hohlleiters elektrisch und mechanisch eine gute Verbindung untereinander brauchen, dürfte wohl klar sein. Bei gelöteten Verbindungen sollte möglichst kein Zinn auf den Innenflächen zu sehen sein, da Zinn für Mikrowellen eine große Dämpfung aufweist.

Bezugsquelle

Das Programm kann unter Angabe von Rufzeichen, Name und Adresse für nicht-kommerzielle Nutzung für DM 40,- (für kommerzielle Benutzung DM 150,-) inkl. Porto und Versandkosten in DL bezogen werden von:

DK2WT Arnold Tibus
Diamantstr. 7
88048 Friedrichshafen

Die Verfasser sind für Verbesserungsvorschläge dankbar.

Abstract

HornCalc is a program running with DOS and Windows 3.1 and calculates the mechanical dimensions of an pyramidical horn on following conditions:

- It is an 'optimum'- horn, i.e. the dimension of the aperture is chosen, that you can achieve maximum gain with the given height of the pyramidical triangle.
- The E- and H- 3dB-angles are similar.
- The specified gain will be achieved and differs only a few tenth of dB!
- The horn fits exactly on any specified waveguide.

The program is written in german language, but it is easy to handle. You may ask the author, if he intends to deliver an english version.

Technical Notes

It is important to mention, that precision and a proper finish are required, to achieve the calculated values in practice. The material should have at least a coppered surface, silver is not really necessary.

Further information about the mechanical realisation you receive together with the program.

Source of supply

Give details about your callsign, name and address and you can get the program for noncommercial use (40.-DM) or commercial use (150.-DM) incl. postage and transportation costs by:

DK2WT Arnold Tibus
Diamantstr. 7
D-88048 Friedrichshafen

Microwave Parts

Editor: Rainer Bertelsmeier, DJ9BV

Product Review: 20 W GaAs-FET Power on 2.3 GHz

R. Bertelsmeier, DJ9BV

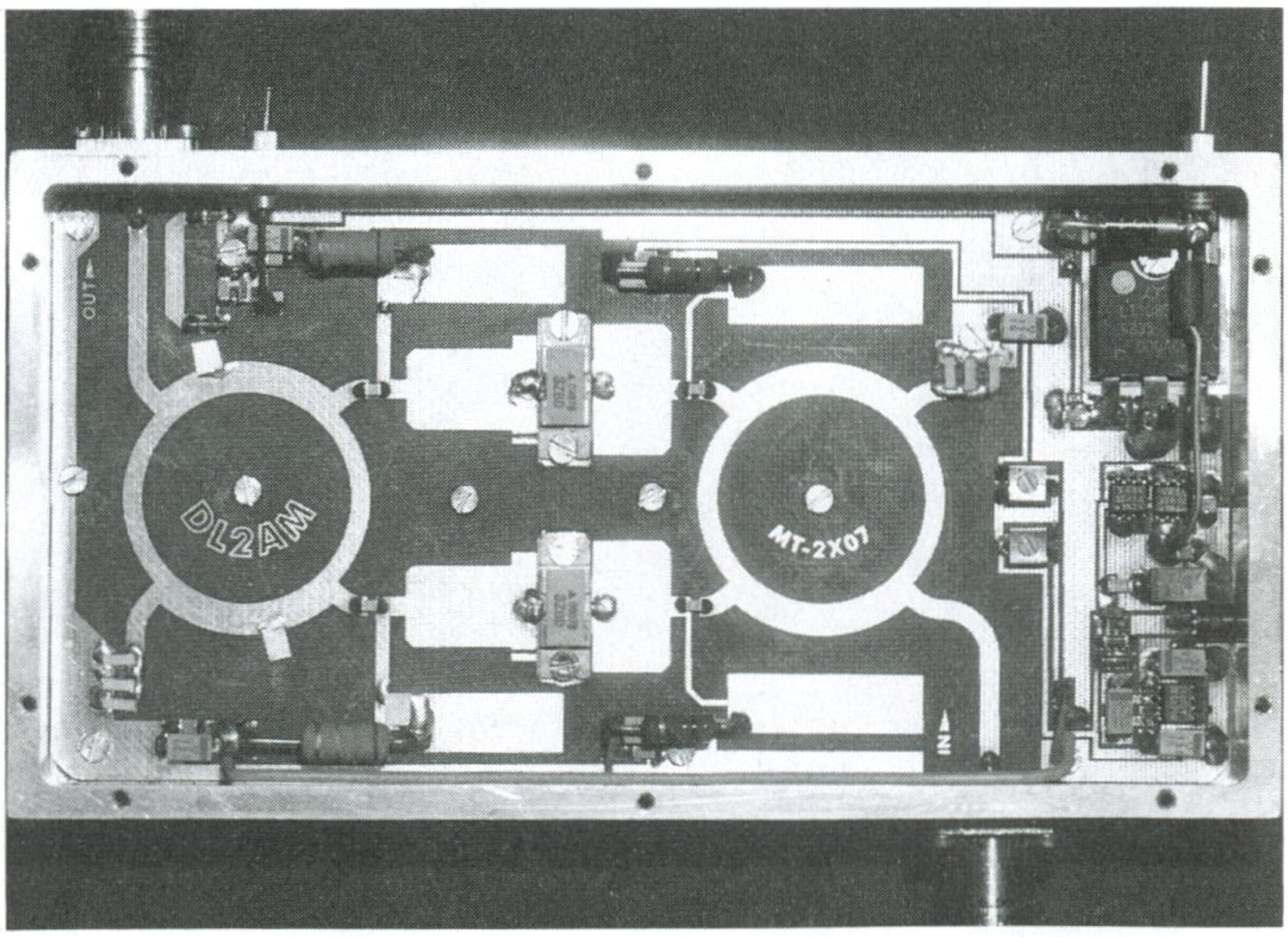
Kurzfassung: Der Leistungsverstärker MT-2X7 von Philipp Prinz, DL2AM, ist mit zwei MGF-0907 von Mitsubishi bestückt, die über 3 dB Hybridkoppler verkoppelt eine Ausgangsleistung 23 W bei 1 dB Kompression und 11 dB Verstärkung erreichen. Der Verstärker benötigt eine Betriebsspannung von 12 V und ist in einem gefrästen Aluminiumgehäuse untergebracht.

Abstract: The power Amplifier MT-2X7 made by Philipp Prinz, DL2AM, provides a 1 dB compression output power of 23 W on 2.32 GHz with a supply voltage of 12 V and 11 dB gain. It uses two GaAs FETs MGF-0907 from Mitsubishi and is constructed on Teflon board in a machined aluminum box.

Schaltungsbeschreibung

Zwei Verstärker mit dem MGF-0907 sind über 3 dB Hybride zusammengekoppelt und können damit eine Ausgangsleistung von 23 W auf 2,3 GHz erzeugen.

Die Platine ist aus 0,79 mm starkem RT-5870 Duroid und ist mit Silberleitkleber sowie M2 Schrauben kontaktiert. Ein Ausgangsrichtkoppler liefert eine Gleichspannung als relative Leistungsanzeige. Die Versorgungsspannung beträgt 11,5...15 V. Sie wird intern stabilisiert. Ebenso wird die negative Vorspannung intern erzeugt. Die Schaltung regelt bei Ausfall der negativen Vorspannung her-



13 cm Poweramplifier MT-2x07

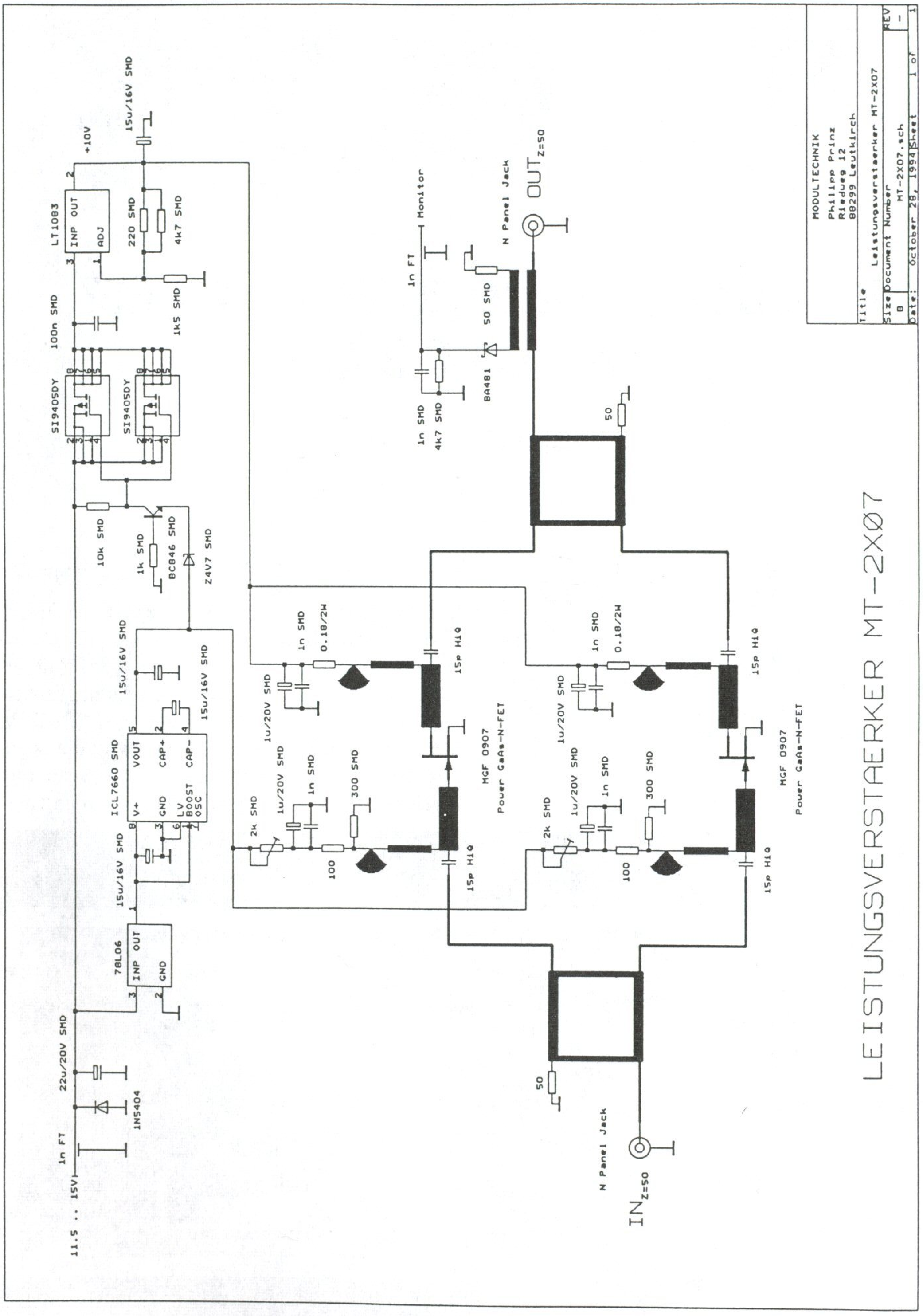
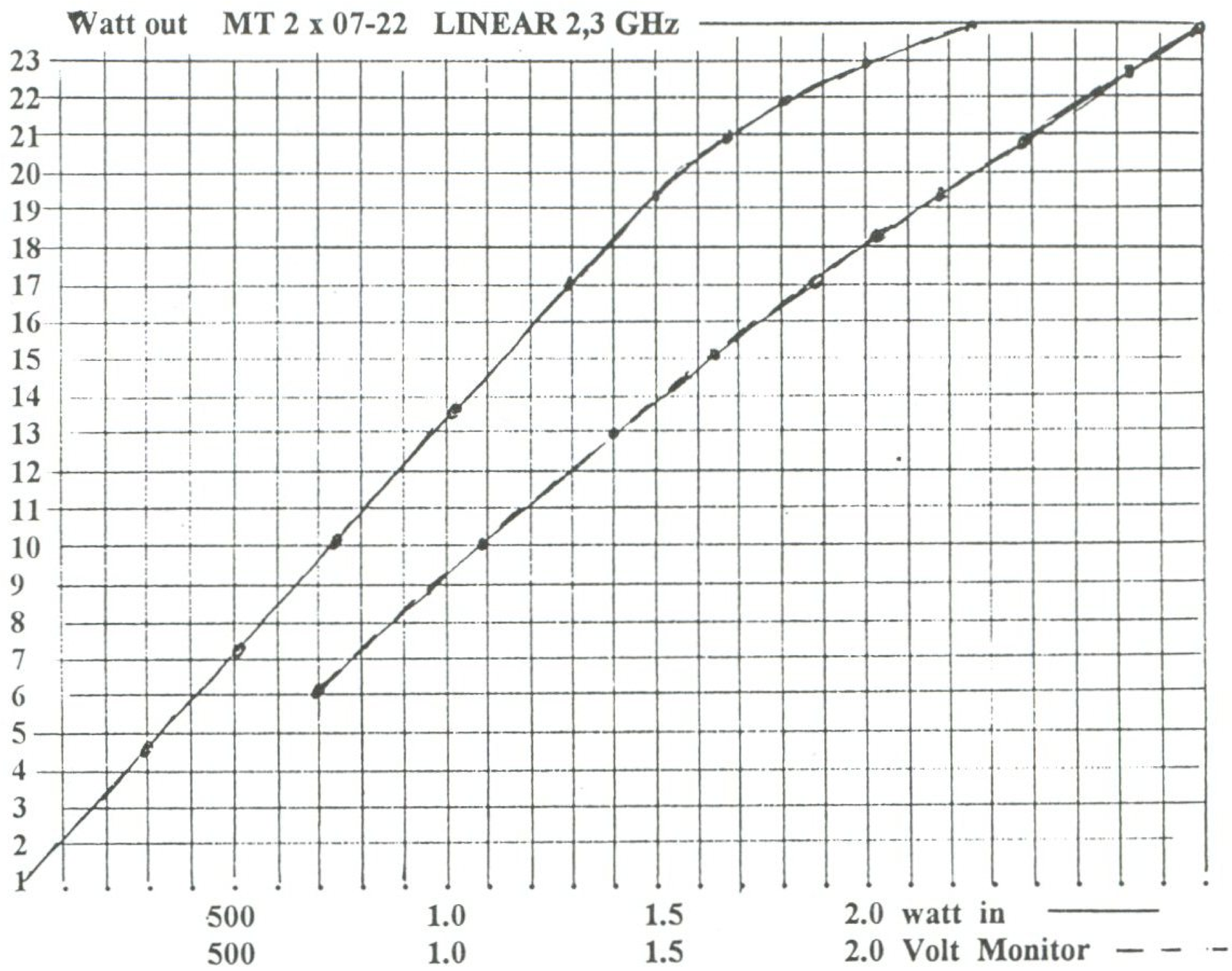


Fig. 1: 13 cm Poweramplifier MT-2x07: Circuit Diagram

Figure 2: Output vs Input Power



unter[1]. Der Ruhestrom beträgt 5,1 A. Die Abmessungen sind 154x81x28 mm.

Description

The amplifier is constructed around power GaAs-FETs MGF-0907 from Mistubishi. It provides an output power of 23 W at 1 dB compression.

The PCB is made from 0.79 mm RT-5870 duroid. An integrated directional coupler delivers a power monitoring DC-voltage. Size of the enclosure is 154x81x28 mm. Supply voltage is 11.5...15 V.

13 cm Power Amplifier

Devices:	**2xMGF-0907**
Supply Voltage:	**11.5..15 V**
DC-Current:	**5.1 A**
Gain:	**11 dB**
Output Power:	**23 W**

Supply current is 5.1 A.. All voltages are stabilised internally. A fail-safe circuit[1] for a missing negative gate supply is provided.

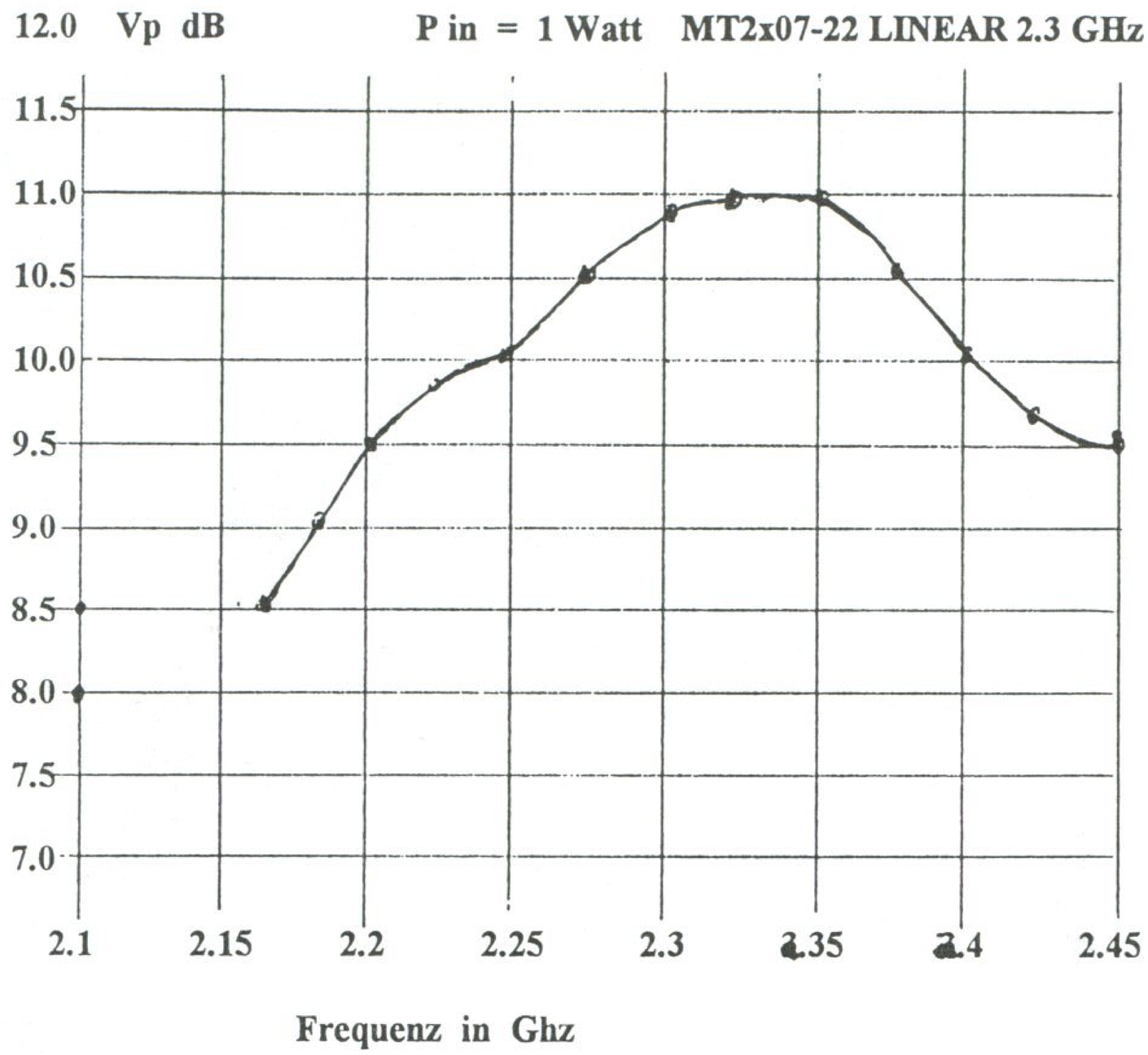
Parts/Teile

Ready made units and parts can be ordered from Philip Prinz, DL2AM, Riedweg 12, D-88299 Leutkirch 3, Tel.: (++49)-7567-294/Fax: (++49)-7567-1200.

Komplette Verstärker und Teile sind bei Philip Prinz, DL2AM, Riedweg 12, D-88299 Leutkirch 3, Tel.: (++49)-7567-294/Fax: (++49-7567-1200 zu haben.

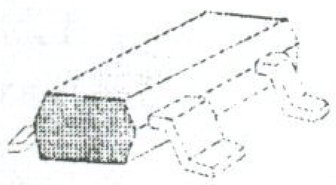
1 *M. Kuhne, DB6NT, "High Power GaAs-FET Amplifier for 9 cm", DUBUS 2/1991, p.7*

Figure 3: Gain Versus Freq.



New MMICs from Hewlett Packard

INA-30311

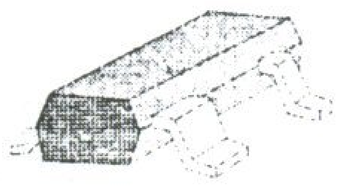


SOT-143
3 V/6,3mA
Vielseitig einsetzbarer Verstärker mit niedrigem Preis

DC - 1 GHz
12,5 dB Gain(1 GHz)
3,5 dB typ. NF(1 GHz)
P_{1dB} -11 dBm

ab Lager lieferbar!

INA-50311

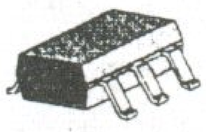


SOT-143
5V/17mA
Vielseitig einsetzbarer Verstärker mit niedrigem Preis

DC - 1 GHz
19 dB Gain(1 GHz)
3,6 dB typ. NF(1 GHz)
P_{1dB} -0 dBm

ab Lager lieferbar!

INA-51063

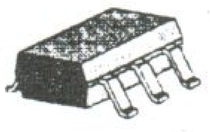


SOT-363(SC-70)
5V/12mA
Vielseitig einsetzbarer Verstärker mit niedrigem Preis

DC - 2,4 GHz
20,9 dB Gain(1 GHz)
3,0 dB typ. NF(1,5GHz)
P_{1dB} -2,5 dBm

ab Lager lieferbar!

INA-52063



SOT-363(SC-70)
5V/30mA
Vielseitig einsetzbarer Verstärker mit niedrigem Preis

DC - 1,6 GHz
20 dB Gain(1 GHz)
3,5 dB typ. NF(1 GHz)
P_{1dB} +9 dBm

ab Juni lieferbar!

Low-Cost GaAs MMIC MGA-86563

MGA-86563 **SOT-363**(SC-70) **5V/14mA**

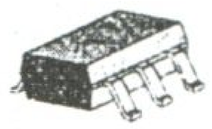


Low Cost GaAs Gain Verstärker

0,5 - 6 GHz
22,5 dB Gain(2,4 GHz)
1,6 dB typ. NF(2,4GHz)
P_{1dB} +4,2 dBm(2,4GHz)

ab Lager lieferbar!

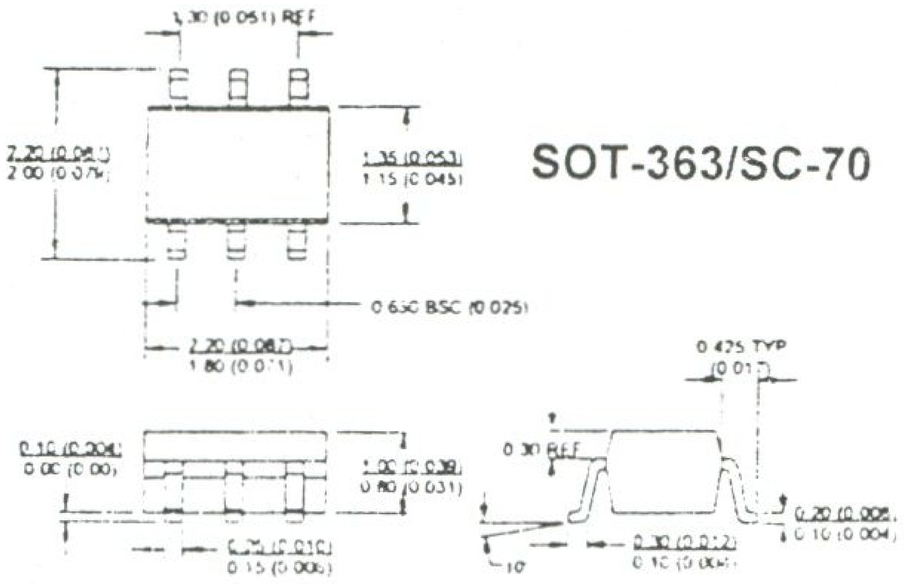
MGA-87563 **SOT-363**(SC-70) **3V/4,5mA**



Low Cost GaAs Gain Verstärker

0,5 - 4 GHz
12,5 dB Gain(2,4 GHz)
1,6 dB typ. NF(2,4GHz)
P_{1dB} -2 dBm(2,4 GHz)

ab Lager lieferbar!



SOT-363/SC-70

MGA-86563

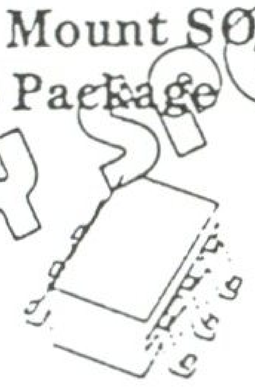
Features

- Ultra-miniature Package
- Internally Biased, single +5V Supply (14 mA)
- 1.6 dB Noise Figure at 2.4 GHz
- 21.8 dB Gain at 2.4 GHz
- +3.1 dBm P_{1dB} at 2.4 GHz

Applications

- LNA or Gain Stage for ISM, PCS, MMDS, GPS, TVRO, and other C band Applications

Surface Mount SOT-363 (SC-70) Package

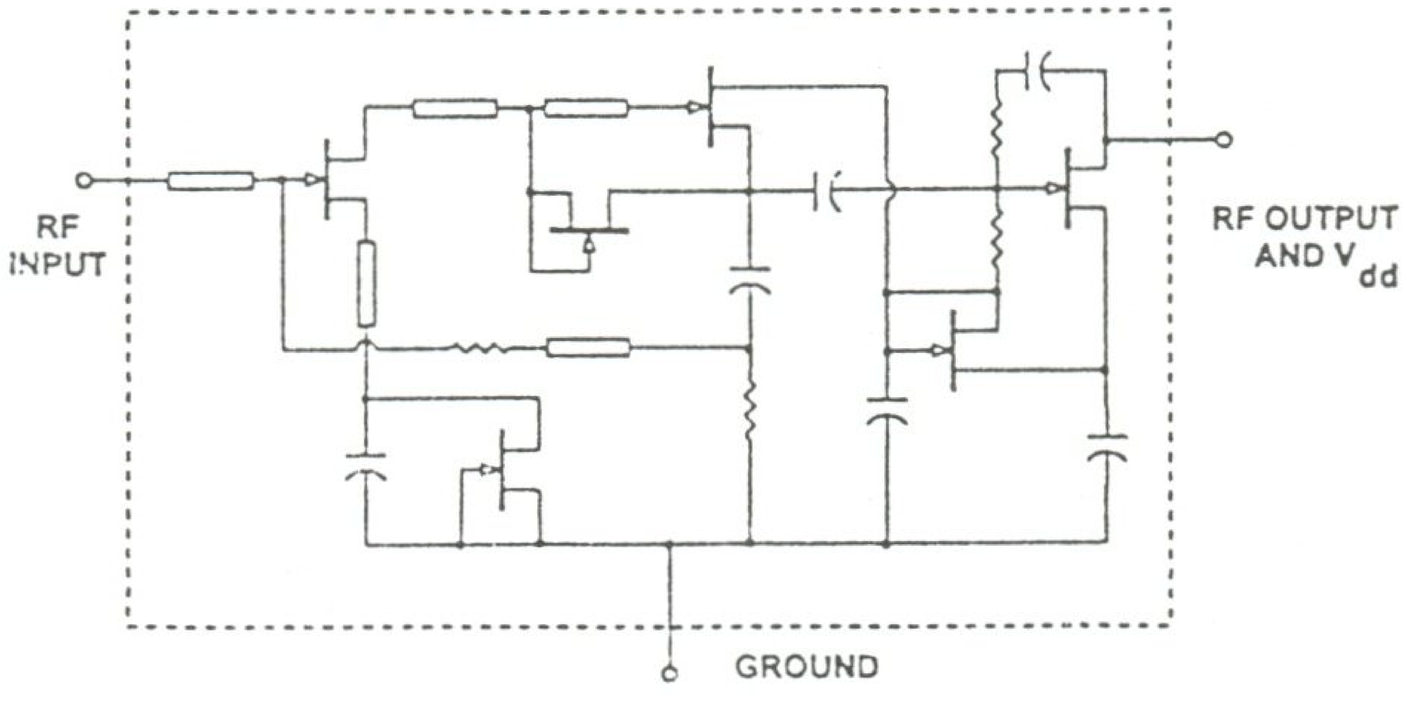


Pin Connections and Package Marking



Note: Package marking provides orientation and identification.

Equivalent Circuit



Description

Hewlett-Packard's MGA-86563 is an economical, easy-to-use GaAs MMIC amplifier that offers low noise figure and excellent gain for applications from 0.5 to 6 GHz. Packaged in an ultra-miniature SOT-363 package, it requires half the board space of the SOT-143.

The MGA-86563 may be used without impedance matching as a high performance 2 dB NF gain block. Alternatively, with the addition of a simple shunt-series inductor at the input, the device noise figure can be reduced to 1.6 dB at 2.4 GHz. For 1.5 GHz applications and above, the output is well matched to 50 Ohms. Below 1.5 GHz, gain can be increased by using conjugate matching.

The circuit uses state-of-the-art PHEMT technology with self-biasing current sources, a source-follower interstage, resistive feedback, and on chip impedance matching networks. A patented, on-chip active bias circuit allows operation from a single +5 V power supply. Current consumption is only 14 mA, making this part suitable for battery powered applications.

PRELIMINARY SPECIFICATION
SUBJECT TO CHANGE

Frequency	NF_o	Γopt		$R_N/50\ \Omega$
GHz	dB	Mag.	Ang.	-
0.5	2.8	0.61	4	1.16
1.0	1.8	0.56	24	0.47
1.5	1.5	0.50	33	0.34
2.0	1.5	0.45	40	0.38
2.5	1.6	0.41	50	0.33
3.0	1.6	0.38	57	0.30
4.0	1.7	0.32	73	0.28
5.0	1.9	0.24	98	0.27
6.0	2.1	0.15	131	0.24

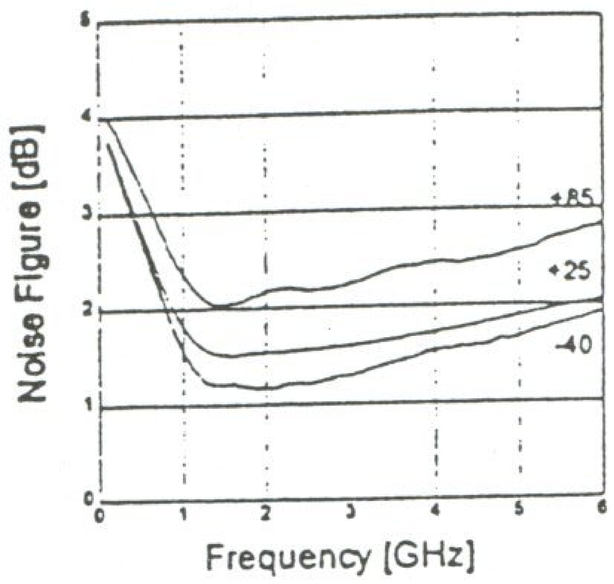


Figure 1. Minimum Noise Figure (Optimum Tuning) vs. Frequency and Temperature.

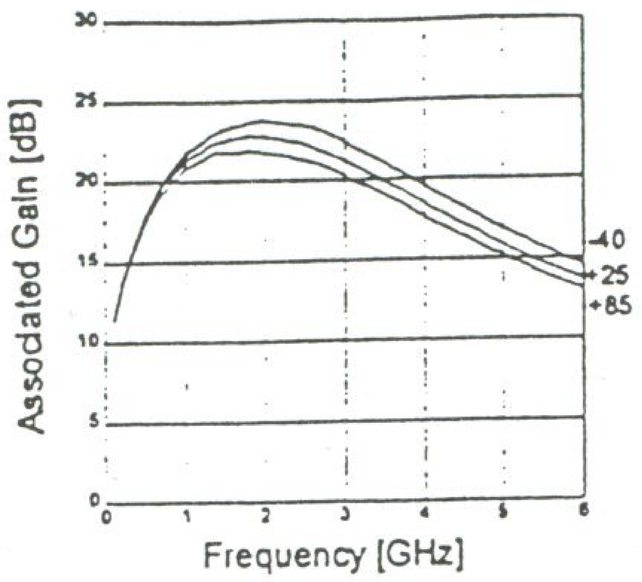


Figure 2. Associated Gain (Optimum Tuning) vs. Frequency and Temperature.

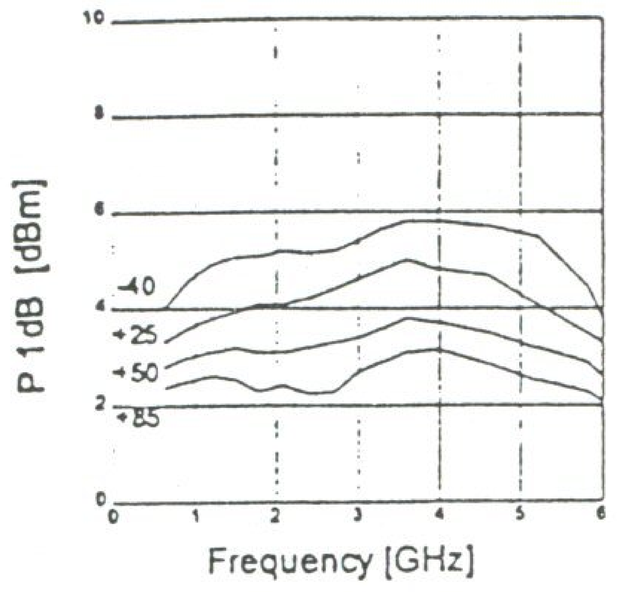


Figure 3. Output Power for 1 dB Gain Compression (into 50 Ω) vs. Frequency and Temperature.

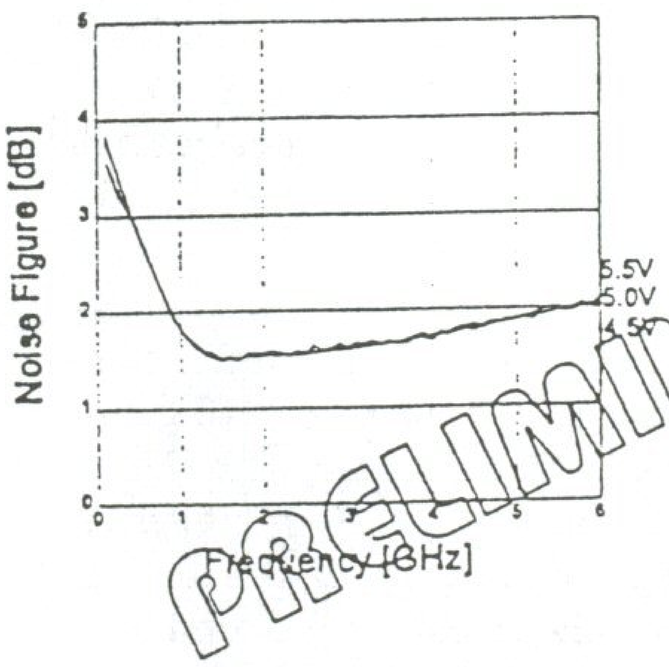


Figure 4. Minimum Noise Figure (Optimum Tuning) vs. Frequency and Voltage.

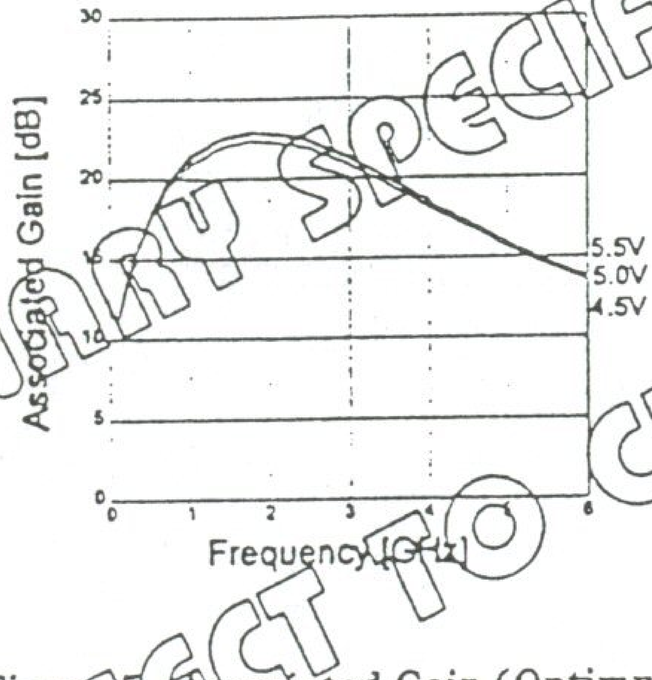


Figure 5. Associated Gain (Optimum Tuning) vs. Frequency and Voltage.

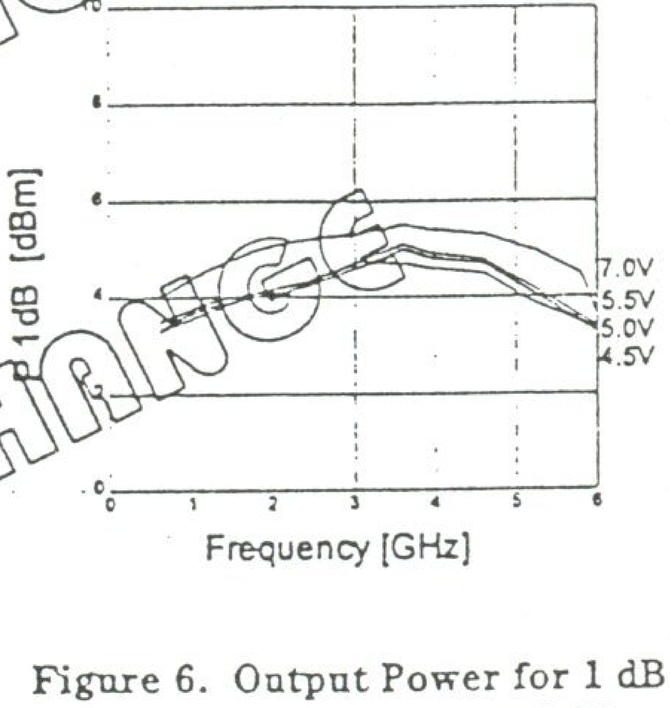


Figure 6. Output Power for 1 dB Gain Compression (into 50 Ω) vs. Frequency and Voltage.

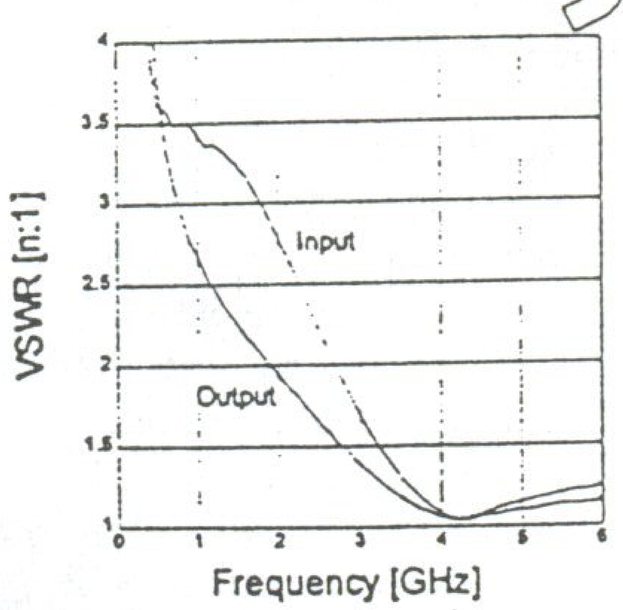


Figure 7. Input and Output VSWR (into 50 Ω) vs. Frequency.

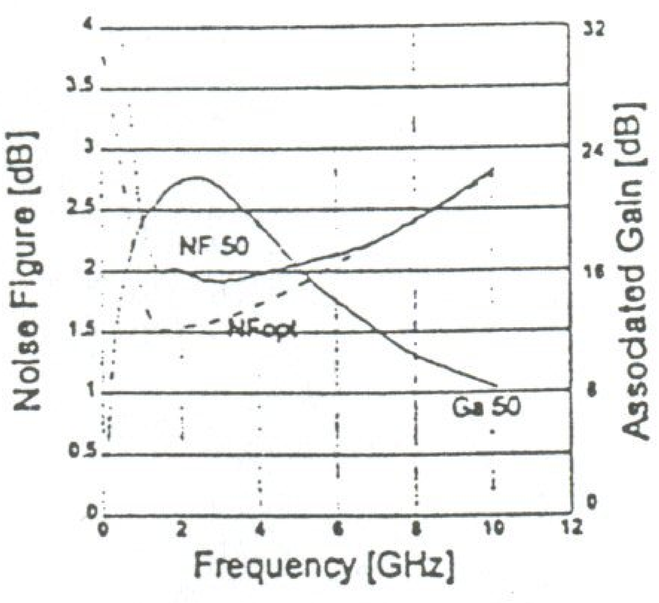


Figure 8. 50 Ω Noise Figure and Associated Gain vs. Frequency.

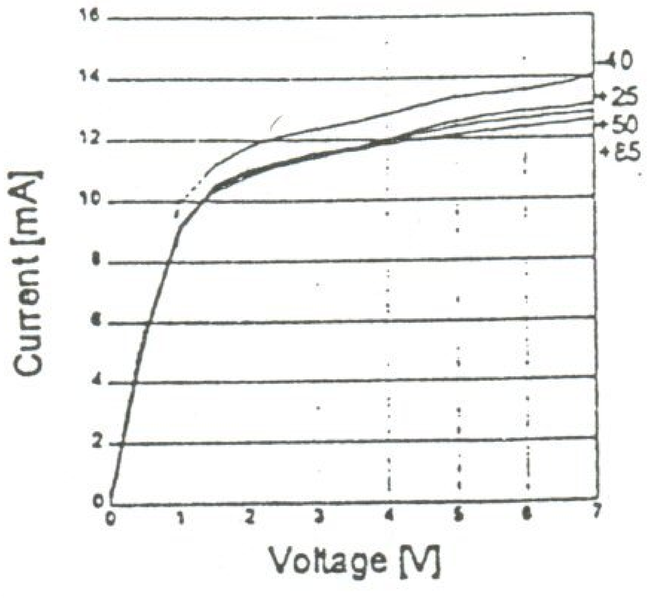


Figure 9. Device Current vs. Voltage.

PRELIMINARY SPECIFICATION
SUBJECT TO CHANGE

Low-Cost Si MMIC INA-51063

2.4 GHz Low Noise Silicon MMIC Amplifier

Technical Data

INA-51063

PRELIMINARY SPECIFICATION
SUBJECT TO CHANGE

Features

- Ultra-miniature Package
- Internally Biased, Single 5 V Supply (12mA)
- 20.5 dB Gain
- 3 dB NF
- Unconditionally Stable

Applications

- Amplifier for Cellular, Cordless, Special Mobile Radio, PCS, ISM, Wireless LAN, DBS,TVRO, and TV Tuner Applications

Surface Mount SOT-363 (SC-70) Package

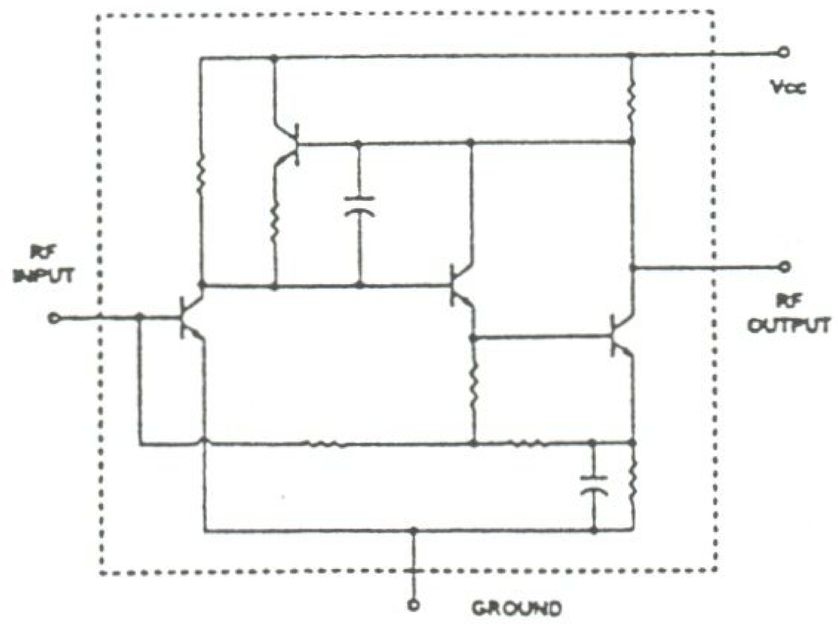
Pin Connections and Package Marking



Note: Package marking provides orientation and identification.

Equivalent Circuit

(Simplified)



Description

Hewlett-Packard's INA-51063 is a Silicon monolithic amplifier that offers excellent gain and noise figure for applications to 2.4 GHz. Packaged in an ultra-miniature SOT-363 package, it requires half the board space of a SOT-143 package.

The INA-51063 uses a topology which is internally biased, eliminating the need for external components and providing decreased sensitivity to ground inductance.

The INA-51063 is fabricated using HP's 30 GHz f_{max} ISOSAT™ Silicon bipolar process which uses nitride self-alignment submicrometer lithography, trench isolation, ion implantation, gold metalization, and polyimide intermetal dielectric and scratch protection to achieve superior performance, uniformity, and reliability.

INA-51063 Typical Performance, T_C = 25°C, Z_o = 50 Ω, V_{CC}= 5 V, unless noted

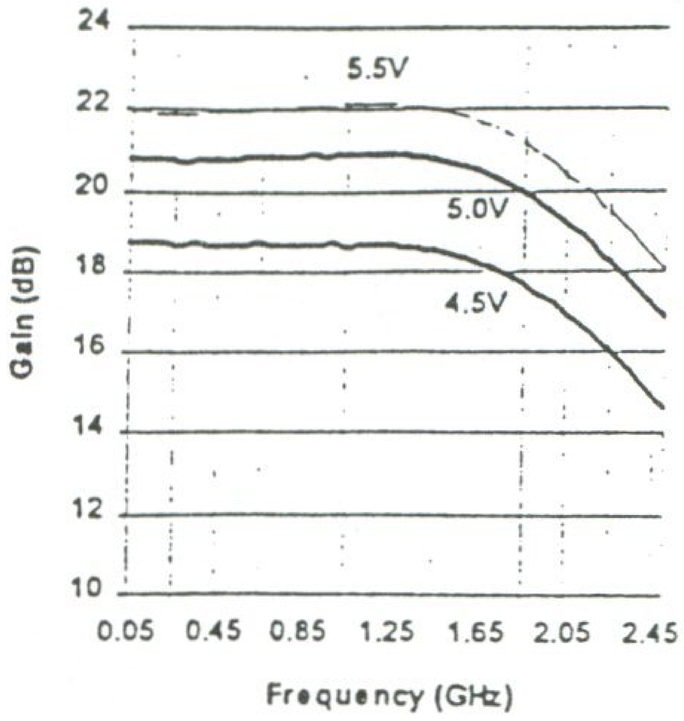


Figure 1. Gain vs. Frequency and Voltage.

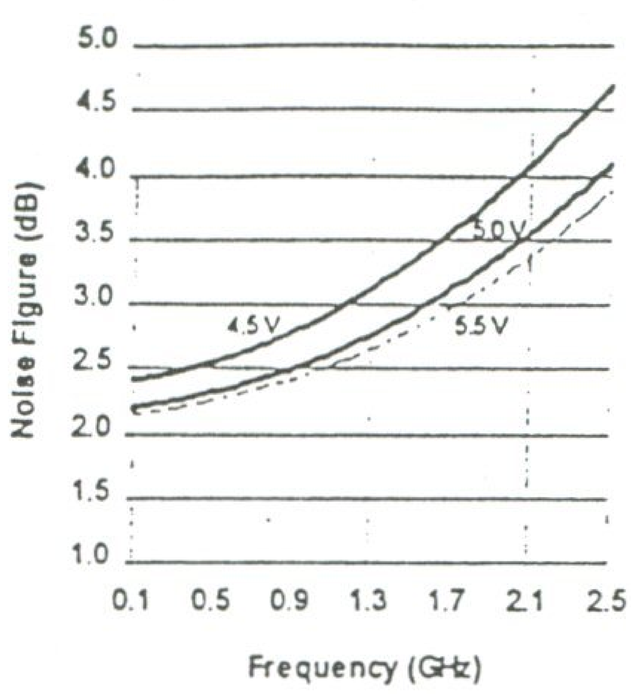


Figure 2. Noise Figure vs. Frequency and Voltage.

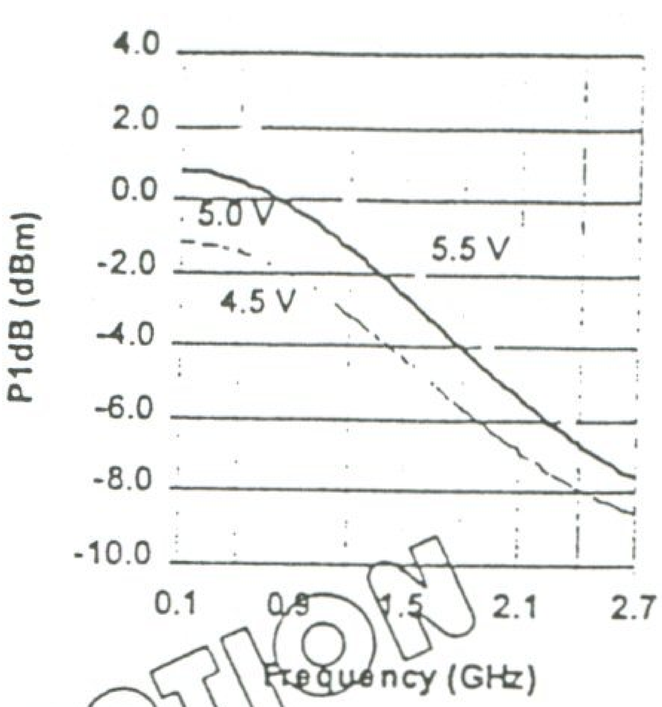


Figure 3. Output Power for 1 dB Gain Compression vs. Frequency and Voltage.

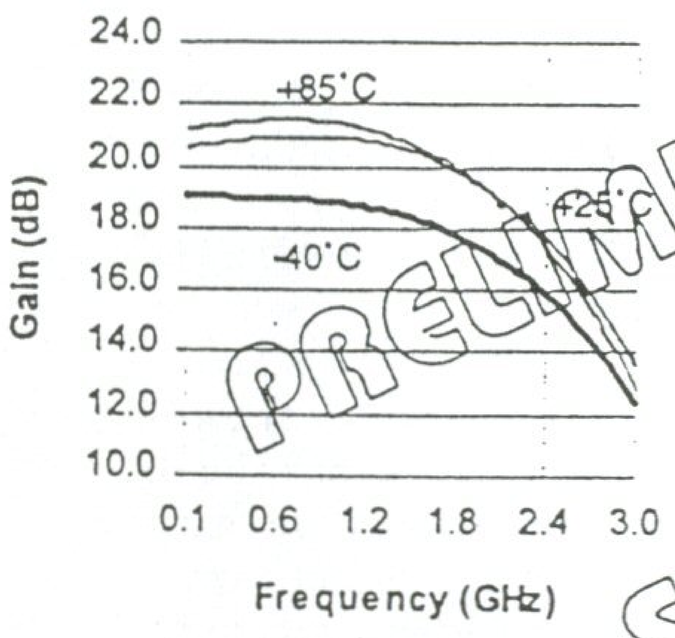


Figure 4. Gain vs. Frequency and Temperature.

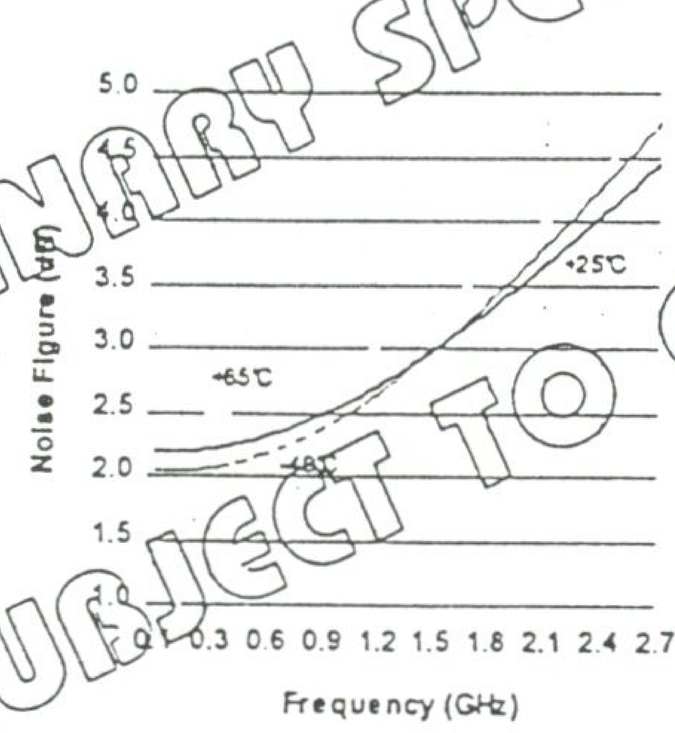


Figure 5. Noise Figure vs. Frequency and Temperature.

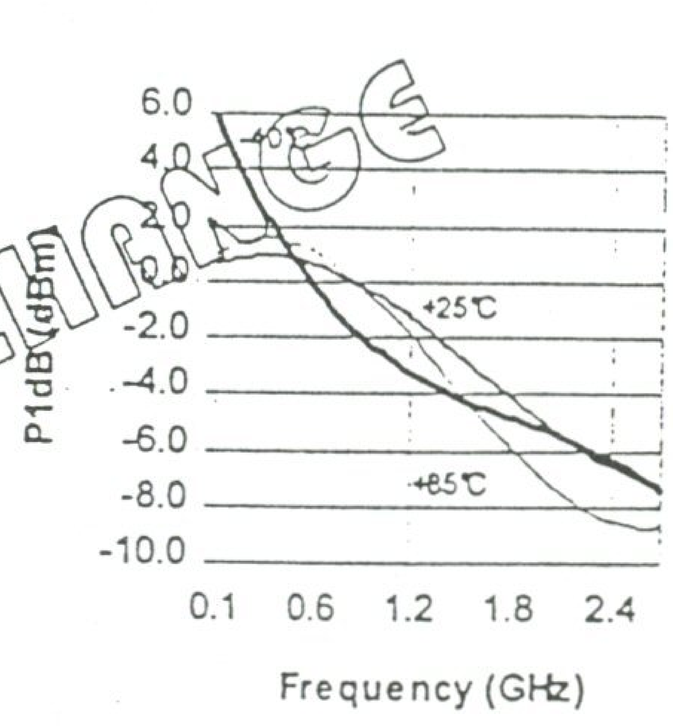


Figure 6. Output Power for 1 dB Gain Compression vs. Frequency and Temperature.

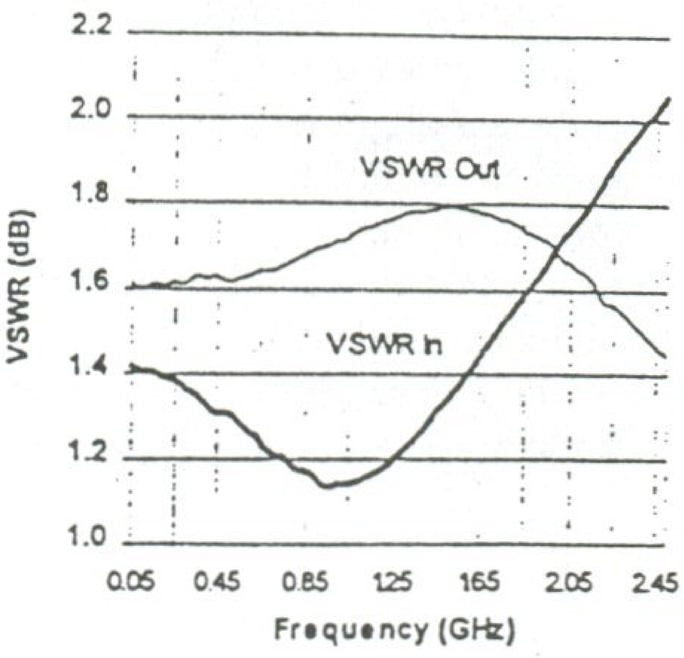


Figure 7. Input and Output VSWR vs. Frequency.

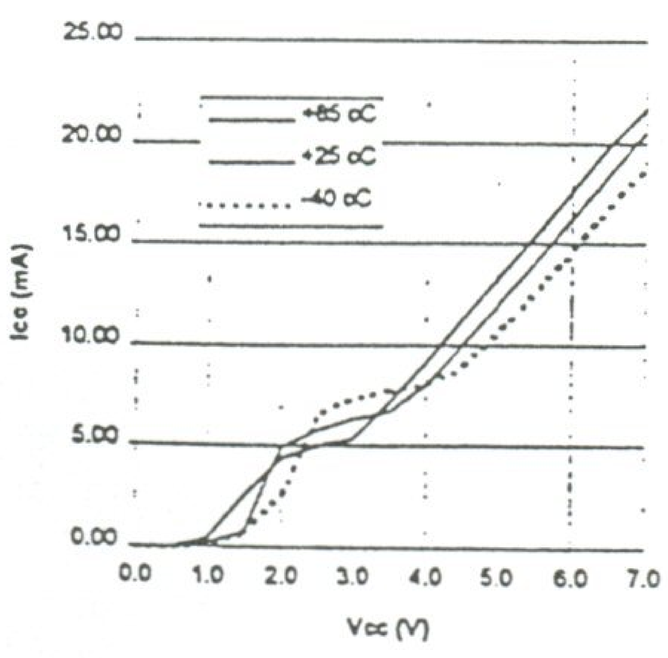


Figure 8. Supply Current vs. Voltage and Temperature.

PRELIMINARY SPECIFICATION SUBJECT TO CHANGE

Microwave Europe

Editor: John Sørensen, OZ1IPU

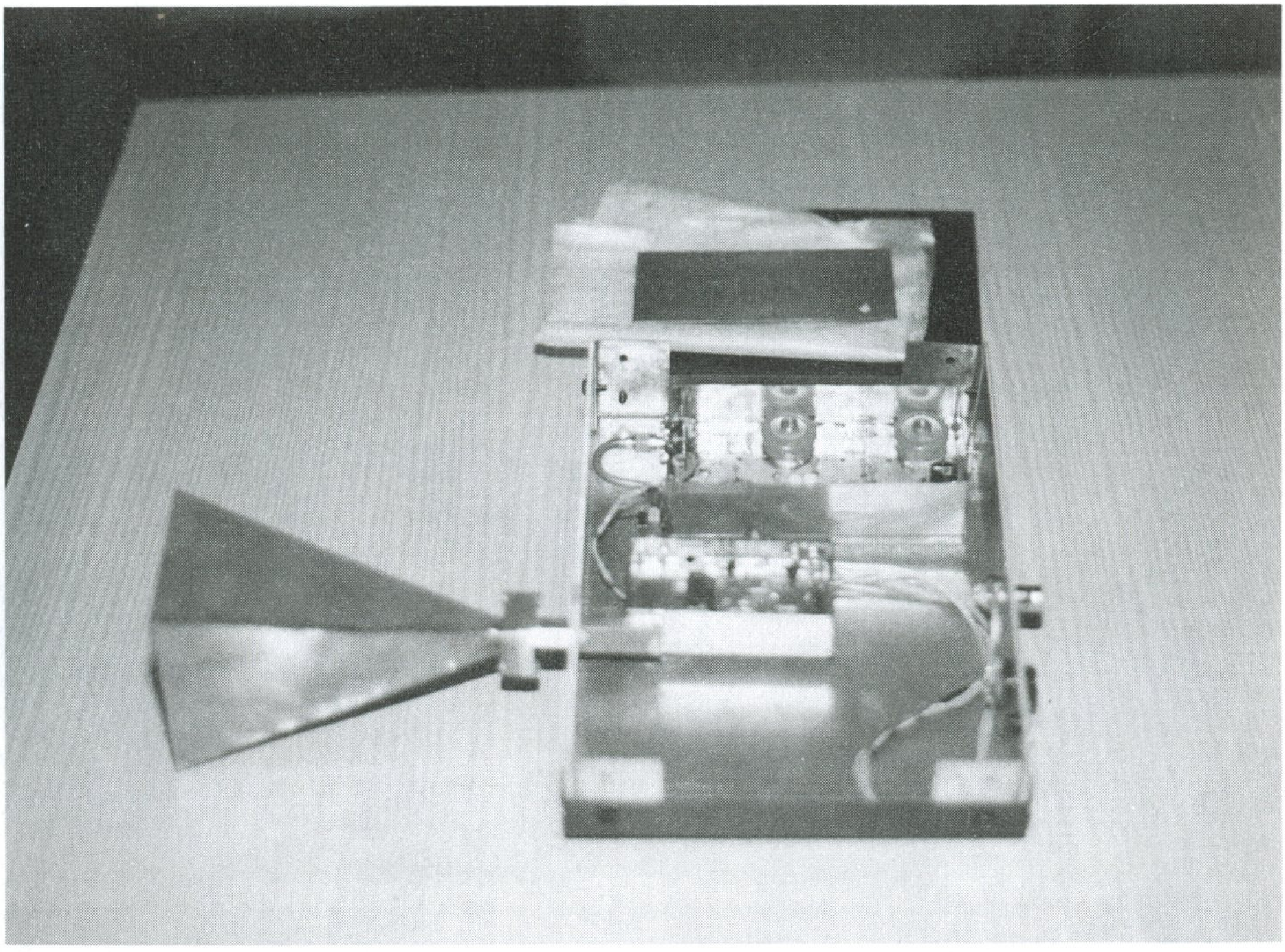
There not many reports over the quarter. I take the opportunity, to publish the Microwave address list.

47 GHz

DB6NT/p and OK1AIY/P made the first QSO on 47 GHZ between OK and DL. In fact the QSO took place at the customs in Asch. The distance was only some hundred meters. There was no line of sight however. After crosstalk on 2 m, the QSO on 47 GHz succeeded immidiately. The transverter used were of the subharmonic mixer type, with about 100 uW output and 25 cm dishes from PROCOM.

73 John OZ1IPU

24 GHz Transverter from CT1DMK



The CT Gang(l. to r.): CT1FAK, CT1EEB, CT1AL, CT1WW, CT1DMK



Microwave Address List

No.	Call	BAND	WW	PWR	ANT	Name	Telephone	Remark	Update
1	2E1AJE	X	JO02..			Sarah		at G4DDK	9402
2	2E1AVS	X							9301
3	9A2EY	X	JN57XV	.2	.3	ulip			9410
4	9H1BT	X	JM75..						0
5	DA4RG/P	X	JO60VP	.12	.6				0
6	DB1BX	X	JO32OT			RUDI			9307
7	DB1DI	X	JO31QX	1.5	.4	Michael	49-25074121		9410
8	DB1VY/P	X	JN39IH	.2		Hanspeter			9310
9	DB4JK/P	X	JO42ID						9305
10	DB5KN	X				MIKE	bei DF9PY		0
11	DB6NT/A	XKUEPG	JO50SI	5		MICHAEL	49-9288-8232		9402
12	DB7OZ/P	X	JO42UI			RUDI	49-511-492703		0
13	DB9JC	X	JO31BT				49-2821-18494		0
14	DC0DA	XKUE	JO31SL	4	.8	JUERGEN	49-231-460161		9310
15	DC3NI	X	JO50TH	.6	.6	franz	49-92891263		9402
16	DC4BK	X	JO43LA			HANS	49-4202-6781		9305
17	DC4UI	X	JN48CN			MANFRED	49-7271-42425		0
18	DC5EO	X	JO31FE			Hans			9307
19	DC6CM/P	X	JO30QV			KLAUS			0
20	DC6HZ/P	X	JO30LN						0
21	DC6RW	X	JN49HK			Udo	49-6203-46042		0
22	DC6TV	X	JO30MT			HORST	49-2208-3995		0
23	DC6UW	X	JO44VJ	20	1	NORBERT	49-4356-351		9306
24	DC7BQ	X	JO30KP			WILFRIED	49-2255-4689		9306
25	DC8CE	X	JO44RT			HANS	49-461-62711		0
26	DC8EC/P	XK	JN57..				49-8104-9495	dl0nn	9402
27	DC8NV	X	JN58TC			LUDWIG			0
28	DC8UG	X	JO30UH			HARALD			9307
29	DC8VJ	X	JO31TO	.2	.8	Dietmar	49-2306-80093		9310
30	DC9BU/A	X	JO40XI			HEINRICH			9307
31	DC9KK	X	JO30NT			PETER	49-2241-42949		9310
32	DC9UP	X	JN39TM	1	1.2	Hermann	49-63742084		9410

No.	Call	BAND	WW	PWR	ANT	Name	Telephone	Remark	Update
33	DC9XG	X	JO43OM			HORST	49-4761-3987		9306
34	DD0SB/P	XK	JN48JD						9402
35	DD1XF	XK	JO53BO	1	.5	Frank	49-406428253		9402
36	DD9KG	X	JO30NV			HOLGER	49-220314782		0
37	DF0OG	X	JO41PU			ULI	CONT:05283/615		9310
38	DF1EO	X	JO31MD	.25	.6	JUERGEN	49-212333435		9407
39	DF1EQ	X	JO31NC	40mW	.4	REINHARD	49-2174-8295		9307
40	DF1OI	X	JO42TF			Johannes			9306
41	DF5SL/P	X	JO40FF	.7	.7	RICHARD	49-711-681902		0
42	DF5TC/P	X	JN48JC						0
43	DF6IY	X	JN48EU			Nobi	49-704-706		0
44	DF6NA	X	JN49WR			Rainer	49-9293-7013		0
45	DF6VB	XK	JO31QP	.1	.4	ALFONS	49-2309-1222		9402
46	DF7KB	X	JO30QV			WOLFRAM	49-2247-69357		9307
47	DF7KF	X	JO30HU	0.1	0.6	DITHMAR			9310
48	DF9CY	X	JO41DX			CHRIS			9308
49	DF9LN	XKUE	JO31VJ	5	.6	UWE	49-2372-61405		9402
50	DF9QX	X	JO42HD	.2	.5	Mathias	49-5221-66606		9309
51	DF9XX	X	JO30..			Rolf			9306
52	DF9ZT/P	X	JO40						9402
53	DG0CR/P		JO50XL	.2	.7	bernd	49-3741-447651		9402
54	DG1GLH/P	X	JN48CO			Lothar			9310
55	DG1KBF	X	JO30QR			Hubert	49-2248-3943		9310
56	DG1KDA	X	JO30FQ			Alex			9306
57	DG2NUD	X	JO63LE	1	.5	Hermann	49-39828290		9402
58	DG4KBV	X	JO30FQ			Franz			9306
59	DG5MFX	X	JN	.2	.7	helmut	49-8062-9571		9402
60	DG7NBE/P	X	JO40XI						0
61	DH1SBJ	X	JN48NV	20	30dB	ROLF	49-7141-604489		9305
62	DH6FAE/P	XK	JO40PL	4		Walter	49-6650-336		9402
63	DH6IAL/P	X	JN39TM						9310
64	DH9FAH	X	JO40ID	4	.6	thomas	49-69-521868		9402
65	DJ0IX/P	X	JO30MT	.25	.6	Ann			0
66	DJ1KP	X	JO40JJ	1		Helmut	49-6036-5640		9402
67	DJ1RV	X	JO40FE	10		Heinz	49-6173-61925		9402
68	DJ2DY	X	JN39OI	.15	.4	RAINER	49-6821-53658		9300
69	DJ4YJ	X	JN69..			Hans	49-9427-202		0
70	DJ5AP/P	X	JN47AU			Gerhard	49-792^-54135		9402
71	DJ5BV	X	JO30MR	10	.9	GERD	49-228-641130		9307
72	DJ5HN	XK	JO40JH	.75	.6	ERWIN	49-6031-61698		9402
73	DJ5VW	X	JO31RJ	.2	.6	Hagen			9309
74	DJ5ZE	XK	JO40IH	.7	.6	HERMANN	49-6031-3510		9402
75	DJ6EP	X	JO31JO	10	.5	ROMAN	49-2134-34201		9402
76	DJ6JJ	X	JO31LG	.8		HEINO			0
77	DJ6TA	X	JO30MS			ULI			9310
78	DJ6UT/P	X	JO30OX			RICHARD			0
79	DJ6XV/P	X	JO31MO	.2	.4	PETER	49-2362-62626		9402
80	DJ7FJ/P	X	JN47AU	1.5	1	SEPP	49-7832-3884		9310
81	DJ7GK	XK	JN			hans			9402
82	DJ8ES	XK	JO43SX	1.3	.4	Wolfgang	49-48931441		9410
83	DJ8QL	X	JN49DX			Franz	49-6131-839138		0
84	DJ8UQ	X	.....						0
85	DJ9DW	X	JO40LF	.8	.6	Peter	49-6181-71488		9311
86	DJ9VS	XKU	JN49GO	5	.6	HILMAR	49-6206-58653		9402
87	DK0KVG/P	X	JO31HC						9300
88	DK0MU	X	JO31QX						0
89	DK0NA	XKUEPG	JO50TI	6	O.6				9402
90	DK0OG	X	JN68GI	15	.5				9306
91	DK0PX	X	JN48JC						9310
92	DK0TU	X	JO62..						9209
93	DK1KR	X	JO53HW	6	.6	WALTER	49-4505-700		9410
94	DK1PZ	X	JO41TH	.15	.9	Heinz	49-5543-710		9308
95	DK1UV	X	JO41CT	20	1.5	DIETER	49-25298075		9310
96	DK1VE/P	X	JO31VE			Dieter			9306
97	DK2DB	XK	JN48FW	.65	.5	Ewald	49-721-453126		9307
98	DK2GR	X	JN59IE	.2	.6	Willi	49-911-751735		9402
99	DK2KA	X	JO30LX			Horst	49-221-1701490		9306
100	DK2UO	XK	JO31IA	2		HAJO	49-2238-42845		9307
101	DK3FF/P	X	JO30MT	.25	.6	ERNST			9306
102	DK3IK	X	JN39JF			Volker			9307

No.	Call	BAND	WW	PWR	ANT	Name	Telephone	Remark	Update
103	DK3UC	X	JO42WK	25	.7	ULI	49-511-611703		9310
104	DK4GD/P	XK	JN48JC	4		guido	49-771-5132		9306
105	DK5IE	X	JN49EB	.8	1.0	FERI	49-721-706573		0
106	DK5QI	X	JO41KW			FRANK	49-5231-48133		9305
107	DK9MN	X	JN58TC	4	0.8	MANFRED	49-89-632088		9310
108	DL0NN	XK	JN57UU	20				dc8ec	9402
109	DL0OW	X	JO41CT						9303
110	DL0UD	X	JO31NF						0
111	DL0WI	X	JO41CB						0
112	DL0WX	X	JO30FQ						9310
113	DL1AS/P	X	JN47WO						9305
114	DL1BKK	X	JO43NA			WERNER	49-4202-71209		9305
115	DL1EBR	X	JO31BS			Axel			9300
116	DL1JIN		JO60DJ	.2	.6	helmut	49-37241-23168		9402
117	DL1MEZ/A	X	JN57UU	12	1.2	Sepp	bei DL0NN		0
118	DL1RQ/P	X	JN69KA	.6	1.2	PETER	49-9923-567		9307
119	DL1SUN	X	JO64				qrv ??		9311
120	DL2AM/P	X	JN....	4			49-7567-294		9402
121	DL2NUD	XK	JO63LE	5	.85	Hermann	49-3982820290		9410
122	DL3NQ	X	JN49IN	.5	1.6	DIETER	49-6201-62432		9310
123	DL3YEE	XK	JO42GE	0.2	.4	Klaus	49-5223-5398		9310
124	DL4FBN	X	JO30WC			Reinhard	49-6774-509		0
125	DL4OAN/P	X	JO51GO		.9	Siggi	49-5507-7219		9305
126	DL4VCG	X	JN39NI			FRANK	49-6824-5537		9310
127	DL5KVA	X	JO64CC	.3	.47	Manfred	49-381683903		9410
128	DL5KVD	X	JO64AD	.2	.6	manfred			9402
129	DL5YAG	X	JO31LQ						9300
130	DL6NAQ/P	X	JO40XI			Engelber	49-9708-1414		9310
131	DL6NCI	XK	JO50SI	5	.5	LORENZ	49-9293-7013		9402
132	DL6SAQ/P	X	JN48UO			WALTER	49-7308-7179		0
133	DL8KBR	X	JO31KA	.15		HARTWIN			9305
134	DL9SH/A	X	JN49DN			HORST	49-6233-70451		9300
135	EA3MM	X	JN01WH						0
136	F0GOH/P	X	JN37..						0
137	F1AHO	X	JN37NV						0
138	F1DED	X	JN18CS			Claude	33-1-39464914		0
139	F1FHI/P	X	JN25VV			Jean-Pierre	33-40057015		0
140	F1GMB	X		1	.9	Eric			9410
141	F1HDF	X	JN18JJ						9300
142	F1HRY/P	X	JN19..						9307
143	F1JBP/P	X	JN25						0
144	F1JEB/P	X	JN09CQ						0
145	F6BCU	X	JN38..						0
146	F6CGB/P	X	JN24						0
147	F6DHP/P	X	JN09						0
148	F6DKW	X	JN18CS	.1	.3	Morice			9303
149	F6DPH/P	X	JO09CR			PHIL			0
150	F6DZK	X	JN08XS						9300
151	F6IOC/P	X	JN36ER						0
152	F8WN/P	X							0
153	G0API	X	IO80XS	20	.6	John			9402
154	G0BPU	X	JO02OB	20	.6	MIKE			9301
155	G0EIV/P	X	IO82..						0
156	G0FDZ	X	JO01BK	10	.6	Chris	44-81-304-9750		9300
157	G0KSP/P	X	IO93						0
158	G0KZP/P	X	IO91GI	.25	1	Mike	44-494-482479		0
159	G0OLX/P	X	JO01..						0
160	G1MPW/P	X	IO91PF						9402
161	G2DSP/P	X	IO90SV	.05	.5	Ron	44-243-823684		9402
162	G3BEX	X	IO91QP	4	.6	John	44-494-675097		9402
163	G3BNL	XK	IO92KA	8		Les	44-280-703512		9402
164	G3CU	X							9305
165	G3FNQ	XK	IO83LO	.3	1	Denis	44-704-78100		9402
166	G3FYX	XK	IO81SM	10	.5	Roy			9310
167	G3GNR	XK	IO70WT	12	.9	Bob			9402
168	G3GRO	X	IO91VC	18	.9	Derek	44-293-520424		9310
169	G3JMB	X	IO91WA	.6	.6	Jack	44-444-413889		9300
170	G3JMB/P	X	IO90TV	.6	.6	Jack	44-444-413889		9300
171	G3JMY	X	IO81RM	6	.8	Ted	44-454-772384		9305
172	G3JVL	X	IO90MS	100	1.2	Mike	44-705-464482		9402

No.	Call	BAND	WW	PWR	ANT	Name	Telephone	Remark	Update
173	G3KEU	X	IO91CN	10	.6	Tim	44-793-724150		9310
174	G3LQR	XK	JO02QF	10	.6	SIMON	44-728-78493		9402
175	G3LYP	X	IO91OO	10	.6	Mike	44-494-81298		9300
176	G3MTG	X	IO81LA			Richard			9402
177	G3NKL/P	X	IO84..	.3		Ray	44-772-784997		9402
178	G3NWU/P	X	IO94MJ	10	.6	John	44-429274842		9402
179	G3OXL	X	IO82..						9402
180	G3PHO	XK	IO93..			Peter			9402
181	G3PYB	X				Peter			9402
182	G3UKV	X		20		Martyn			9310
183	G3UYM/P	XK	IO82..			Harold			9402
184	G3WDG	XK	IO92RG	35	3	CHARLIE	44-933-411446	EME	9402
185	G3YGF/P	X	IO80WP	10	1.2	Julian	44-794-40008		9402
186	G3ZFP	X	IO91RT	18	1.2	Ray	44-582-873638		9301
187	G3ZME/P	X	IO82QL						9300
188	G3ZTR/P	X	IO93PV			Dave			9402
189	G4BRK	X	IO91DP	12	.6	Neil	44-793-764995		9310
190	G4BYV	XK	JO02LQ			John			9402
191	G4CBW	X	IO83UB	3	.6	Tony	44-782566783		9402
192	G4DDK	X	JO02PA	6	.6	SAM	44-394-8495		9302
193	G4ELM/P	X	IO90MX	.001	.8	Ted	44-730-892462		9300
194	G4EML/P	X		.25		Colin	44-483-223351		0
195	G4EQD	X	IO93QN			NIGEL	44-724-858187		9310
196	G4EZP	X	JO01GN	45	.6	Ian	44-268-751417		9300
197	G4EZP/P	X	JO01PU	.2	.3				9305
198	G4FCD	X	IO91JV	10		Richard			9402
199	G4FRE/P	X	JO01PX			Dave			9402
200	G4FUF	X	JO01GN	45	.5	Keith	44-268-751417		9402
201	G4JAR/P	X	JO01PU						9310
202	G4JNT	X	IO90IV	10	.6	Andy	44-489-287424		9300
203	G4KGC	X	IO92GR	35	3	Petra	at G3WDG		9305
204	G4KNZ	XK	IO91PJ			Steve			9402
205	G4LDR	X	IO91EC	8	.6	Neil	44-980-862886		9410
206	G4LOJ	X	JO02QN	10	.7	Chris	44-508-49025		9305
207	G4LRT	X	IO92LJ	1		Steve	44-604-740633		9300
208	G4MAP/P	X	IO82NN			Andy			9402
209	G4PBP	X	IO82WO			Russ			9402
210	G4PCS	X	IO91TV			Mark			9402
211	G4PMK	X	IO93GT	1	.6	Roger	44-532-736326		9410
212	G4RFR/P	X							9305
213	G4RFR/P	X	IO80UU	10	1.6		see G4JNT		9305
214	G4UQI/P	X	IO84..						9300
215	G4UVZ	X	IO80KX			Adrian	44-823421751		9402
216	G4XDM	X	IO82..						0
217	G4ZXO	X	IO91UJ	.2	.4	Peter	44-81-949-3598		9300
218	G6CMS/P	X	JO01..						0
219	G6DER	X	IO93GN	.4	.6	Keith	44-226-296108		9300
220	G6UAJ	X							0
221	G6XM/P	X	IO80AQ	.6	1	Bill		SSB under Constr.	9402
222	G8AGN/P	X	IO93EH			Barry			9402
223	G8APZ	X	JO01CO	20	.6	Robin	44-277-211126		9311
224	G8AYY	XK				Paul			9402
225	G8BJG/P	X							0
226	G8BKE	X		.25		Chris	44-425-615143		9306
227	G8DDK	X	IO91VX	15	.6	Bryan	44-462-678712		9300
228	G8FWA	X	IO92LM	10	.6	Julian	44-533-402952		9402
229	G8HPU/P	X	JO02						0
230	G8HPW/P	X	JO01QX						0
231	G8IFT/P	X	IO93XG	.2		Ian			0
232	G8KMH/P	XK	IO91PF	.8	1.4	Lehane	44-252-851078		9402
233	G8KQW/P	X	IO91GA			Ian			9309
234	G8LSD	X	JO0...	.2	.8	Alan	44-892-662561		9300
235	G8LSD/P	X	IO90TV	.2	.8	Alan	44-892-992561		9300
236	G8PUB/P	X	JO01QE						0
237	G8PX	X							9305
238	G8SWZ	X	IO82WO	10	.6	Glyn	44-902-753975		9402
239	GD3ZME/P	X	IO74..						0
240	GI8GJX	X	IO74AQ	15	1.2	Sam	44-232-832451		9402
241	GM3BJF	X							9305
242	GM3WIL/P	X		1	.9	Dave			9402

No.	Call	BAND	WW	PWR	ANT	Name	Telephone	Remark	Update
243	GM4ISM	X	IO85AR	40	.3	Mark	44-698-886504		9402
244	GW1GHZ/P	X	IO82..						0
245	GW3ATM/P	X	IO81..						0
246	GW3PPF/P	XK				Phil	44-222-6310		9402
247	GW4LXO/P	X	IO81..	.15		Jonathan	44-222620694		0
248	HA9RX/DL/P	X				WERNER	bei DF9PY		0
249	HB9AGE	XK	JN37KB	40	3	Walter	41-38246543	EME	9402
250	HB9AMH/P	XKU	JN37OE	17	1	ARNOLD	41-32872107		9307
251	HB9BZD		JN47HH	.2	1	Albert	X		9505
252	HB9MIN/P	XKU	JN37OE	20	.9	ERICH	41-32815013		9402
253	HB9MIO/P	XKU	JN37WA	1	.7	Ferdinand	41-7678114		9303
254	HB9MMM/P	X	JN37PG	.2	.4	Püüp	41-614214343		9402
255	HB9RG	X	JN47GF	20	1	HANS	41-1-7299441		9410
256	HB9SV	X	JN45..						9306
257	HG2RG/3	X	JN96..						0
258	I0LVA	X	JN62						9303
259	I1DDS/IX1	X	JN35..						0
260	I2BBH/2	X	JN44..						0
261	I2MUT/2	X	JN55..						9205
262	I3CLZ/3	X	JN55..						0
263	I3DRE	X	JN55..						9307
264	I3OPW/3	X	JN65..						0
265	I3ZH/3	X	JN45..						9306
266	I3ZJL	X	JN55QR	1	1	Giorgio	44-5526997		9410
267	I4AOR	X	JN54..						0
268	I4BER	X	JN54..	1.5	1		39-51510640		9306
269	I4CHY	X	JN54..		4	MARCO	39-51723184		0
270	I4FKD/4	X	JN54						0
271	I4QIG	X	JN54..						9306
272	I6XCK	X	JN63..						9306
273	I6XCK/IS0	X	JM49..						0
274	I6ZAU	X	JN63..						0
275	IK3IEO/3	X	JN66..						0
276	IK3NVW/3	X	JN55..						9306
277	IK4OMN	X	JN64..						9306
278	IT9FTG/IH9	X	JN63GN						9207
279	IV3FDO/P	X	JN66						9306
280	IW0BFZ	X	JN61						0
281	IW1ALW	X	JN35..						0
282	IW4AKY/P	X	JN54..						0
283	IW4ASY	X	JN54..						0
284	IW5BSF	X	JN53GW						9306
285	IW6AEG/6	X	JN63GN				39-71883719		9306
286	LA1T	X	JO59..						0
287	LA2D	X	JO48..						9307
288	LA3VW	X		.2	.5				0
289	LA4WN	X	JO59..						0
290	LA5QEA	X	JP99MQ	1	.5	Rolf			9505
291	LA6LCA	XK	JO59FE			LEIF	47-3384063		9410
292	LA7QM	X	JP89TF	.2	.5	Arvid			9505
293	LA8AK	X	JO38XC	20	1	JAN-MARTIN	47-4287178		9402
294	LA8AV/P	X		.5	.5	Eigil	47-32823918		9505
295	LX1CD	X	JN39BN	1.5	.7	Carlo	45-75732311		9410
296	LX1DB	X	JN29XL						0
297	LX1DU	X	JN29XM	.5		FRANK	35-2556765		9310
298	OE1CIW	X	JN77..						9307
299	OE1EEA/3	X	JN77..						0
300	OE1JOW	X	JN88..						0
301	OE1KTC	X	JN88..						0
302	OE1KTC/5	X	JN68..						0
303	OE1WWA/3	X	JN77..						9307
304	OE2BM/P	X	JN67..						9307
305	OE3XUA	X	JN77XX						9307
306	OE5GGM	X							0
307	OE5VRL/5	X	JN78DK	1	1.5	Rudi	43-072126239		9310
308	OE6AP	X	JN77SB			ALOIS			9306
309	OE6LOG	X	JN76..						0
310	OE8JDK/8	X	JN66						0
311	OE8MF	X							0
312	OE8MI/8	X	JN66HQ						9306

No.	Call	BAND	WW	PWR	ANT	Name	Telephone	Remark	Update
313	OE8NTK	X	JN66..						9305
314	OE8XBB/8	X	JN60..						0
315	OE9ERC	X	JN47VL			Erich			9300
316	OE9MDI	X	JN47						0
317	OE9PMJ		JN47	10	1	Peter			9402
318	OE9YTV/9	XKUE	JN47	10	1	Reinhilde			9402
319	OH0NC	X	JP90XC	.5	.7	Sam	358-2813068		0
320	OH2BWL	X	KP20..						0
321	OK1AIK/P	X	JO70..						9307
322	OK1AIY/P	X	JO70SQ						9307
323	OK1DIG/P	X	JO60WN						0
324	OK1HK/P	X	JO70..						0
325	OK1KAI/P	X	JO60..						0
326	OK1KIR	X	JN79DW		4		EME !!!		9310
327	OK1KIR/P	X	JO60LJ	15	1				9310
328	OK1KKD/P	X	JO70..						9307
329	OK1KKH/P	X	JN79OW	6mW					9307
330	OK1KQT/P	X	JO80..						0
331	OK1KTL/P	X	JO60LJ						9307
332	OK1KZN/P	X	JO70..						0
333	OK1MDK/P	X	JN79OW			Pepik			0
334	OK1MWD/P	X	JO60..						9307
335	OK1UFL/P	X	JO70..						9307
336	OK1UWA/P	X	JO70UR			Peter	(OK1AXH)		0
337	OK1VAM/P	X	JO60..						0
338	OK1WFE/P	X	JO70..						0
339	OK8AUS	X					via OK1KEI/p		0
340	ON4CP/A	X	JO20IV						9307
341	ON4QQ	X	JO20FS						0
342	ON5FF	X	JO11VB			Marc			9300
343	ON5OF/P	X	JO30AM						9306
344	ON5UI	X	JO11VA			Noel	32-91304770		9310
345	ON5VK/P	X	JO20KJ						9300
346	ON6JZ	X						EME	9305
347	ON6OO	X	JO21JH			Bert	32-33123087		0
348	ON6UG	X	JO11UB			Freddy			9310
349	ON7WR/A	X	JO20EP						9307
350	ON7YK	X	JO21GG	0.5	.5	ANDRE	32-3-6583206		0
351	OZ1COX/P	X	JO55			Ernst			9402
352	OZ1DAT	X	JO55			Svend			9402
353	OZ1DCT/P	XK	JO55			Thomas			9402
354	OZ1DOQ		JO65HP	10		Uffe			9402
355	OZ1FJJ	X	JO46			Kurt			9402
356	OZ1FPN/P	XK	JO65			Palle			9402
357	OZ1HDA	XKX	JO47VK			Erik	45-98889301		9402
358	OZ1HRP/P	XK	JO65			Henrik			9402
359	OZ1IPU	XK	JO57GH	.4	.65.	John	45-98463311		9402
360	OZ1JLA/P	X	JO65			Jens			9402
361	OZ1JXY	XK	JO46TX	.25	.6	Henning	45-98353856		9402
362	OZ1UM	XKUE	JO65DX	10	.6	BJARNE	45-42287033		9402
363	OZ2FF/P	XK	JO66..			Finn			9402
364	OZ2HSO/P	XK	JO55			Sören			9402
365	OZ2OE	XK	JO45VV			Ole			9307
366	OZ2TG	X	JO65FP			Steen			9402
367	OZ5BZ	X	JO45OU	.2	.5	Erik	45-75732311		9410
368	OZ5DI/P	X	JO66			Eigil			9402
369	OZ5TG/P	X	JO45			Verner			9402
370	OZ5UJ/P	XK	JO66..			Nils			9402
371	OZ6JI/P	X	JO45			Joern			9402
372	OZ6MD/P	XK	JO66			Johnny			9402
373	OZ6TX/P	XK	JO55			Jens			9402
374	OZ7DX	XK	JO66CD			Voegg			9402
375	OZ8AO/P	XK	JO66..			Jan			9402
376	OZ8VO	X	JO56AL	.5	.5	Harry	45-86419510		9410
377	OZ8WK	X	JO47XA			Joergen			9402
378	OZ9FR/P	X	JO55			Flemming			9402
379	OZ9ZI	XK	JO65CS	.2	.5	Steen	45-42172142		9402
380	PA0ASH	X	JO22HH	8	.75	TONI	++31-23-292040		9410
381	PA0AWN	X	JO33DE	1	0.5	ALBERT	++31-5945-49227		9410
382	PA0BAT	X	JO31FX	.6	.7	GERARD	31-835241339		9310

No.	Call	BAND	WW	PWR	ANT	Name	Telephone	Remark	Update
383	PA0EHG	XKUE	JO22HB	2.5	.7	Hans	++31-1727-17975		9410
384	PA0EZ	X	JO22OF	40	.75	ARIE	31-35241408		9410
385	PA0GUS	X	JN23TA	.2	.7	Guus	++31-5150-17474		9410
386	PA0HRK	X	JO21EX	.2	.45	Harke	++31-15-613948		9410
387	PA0JCA	X	JO22JG	2	.7	Sjaak	++31-2977-29522		9410
388	PA0JGF	XK	JO32IH	2.5	.6	Jan	++31-5407-62894		9410
389	PA0JOZ	X	JO22FF	1	.7	JOS	31-171915472		9410
390	PA0PLY	X	JO22MH	20	.75	JAN	31-250334591	contest only	9410
391	PA0SQE	X	JO21FW	.60	.4	SIMON	++31-10-4674897		9410
392	PA0TAB	X	JO33HF	1	.7	JOHAN			9410
393	PA0WWM	X	JO22FE	.2	0.3	WIM	++31-1718-75575		9410
394	PA2DOL	X	JO21GW	10	.5	DOLF	++31-10-4564897		9410
395	PA2HJS	X	JO20XX	.3	.75	HENK	31-44924980		9410
396	PA3AGS	X	JO22JP	3.5	.7	Hans	31-72612193		9410
397	PA3AWJ	X	JO21GW	.2	.75	Theo	++31-10-4421485		9410
398	PA3DIJ	X	JO33BC	.2	.7		++31-5120-30783		9410
399	PA3DU	X	JO33BC	1.2	.8	Frank	31-512030783		9410
400	PA3FPQ	X	JO21VX	.15	.9	Johan	++31-8373-12981		9410
401	PA3FPS	X	JO22IJ	1	.7	Theo	31-23374139		9410
402	PA6C	X	JO33GB			Ene	PA3CEG	contest only	9410
403	PE0AGO/P	X	JO32FI	.3		TON	(PE1CJW)		9303
404	PE0MAR/P	X	JO21BX	20	.6	RON	PE1CKK		9410
405	PE1BTV	X	JO22KL	3	.7		31-23385226		9410
406	PE1CQQ	X	JO22PQ			Adriaan			9410
407	PI4GN	X	JO33KK				PA0PLA	contest only	9410
408	S51JN/P	X	JN65..						9306
409	S51WI	X	JN75FO	.2	1.2	Stojan	386-67-22883		9402
410	SK0CT	X	JO89XJ	.1	.7	CLUB-STN	46-8-7573315	call at SM0KAK	9402
411	SK0WX	X	JO99BM	10	.6	Club		SM0LKE	9402
412	SM0CPA	X	JO89XH	10	.6	LARS	46-8803321		9402
413	SM0EJW/P	X	JO89	10		Peter	46-8369744		9402
414	SM0ERR	X	JO89WS	.2	.6	Mart	46-8-361905		9402
415	SM0FUO	X	JO89	.2	.6	Haakan	46-853255257		9402
416	SM0FZH	X	JO99HI	10	.6	Eberhard	46-889-6989		9402
417	SM0LKE/P	X	JO99	.2	.6	Owe	46-854-132044		9402
418	SM0MEM	X	JO99	10	.6	Peter	46-87734075		9402
419	SM3BEI	X	JP81NG	10	.6	Lennart	46-27051474		9402
420	SM4DHN	X	JP60VD	60	4	Lars	46-563-26061	EME	9402
421	SM5BEI	X	JP90EZ	10	.6	Lennart		Summer QTH	9402
422	SM5QA	X	JO89WJ	10	.6	Karl-Gösta	46-873-3282		9402
423	SM6EAN	X	JO57WQ	6	.7	Mats	46-31294274		9410
424	SM6ESG	X	JO67CC	10	1	MORGAN	46-340-83360		9402
425	SM6HYG	X	JO58RG	5	1.4	KARL	46-523-11032		9402
426	SM7ECM	X	JO65NQ	10	.9	ANDY	46-40465606		9402
427	WB6YLI/G0	X	JO00CT	.5	1.5	Gordon	44-323-484643		9300

Microwave: World Firsts and World Records

Band [GHz]	World First QSO			World Record		
	Date	Calls	QRB [km]	Date	Calls	QRB [km]
10	6.V.1946	W2JRM-W2JN	3.3	30.12.1994	VK6KZ-VK5NY	1991
24	14.IX.1975	G3BNL/P-G3EEZ/p	150	3.II.1993	HB9MIN/p-DH6FAE/p	396
47	3.X.1984	HB9AMH-HB9MIN	1	5.X.1994	HB9MIN/p-DF7FJ/p	184
76	30.12.1985	HB9MIN-HB9AGE	0.5	17.I.1995	HB9MIO/p-DK4GD/p	80
145	12.VII.1992	DB6NT/p-DL1JIN/p	1	2.VII.1994	OZ1UM/p-OZ9ZI/p	11
241	23.V.1993	DB6NT/p-DL1JIN/p	0.1	30.VI.1993	OZ/DB6NT-OZ/DF9LN	0.5

If you have an update or a correction, please write to:
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Microwave Japan

Editor: Toshihiko Takamizawa, JE1AAH

First of all I must say something about earthquake in Kobe. There was a really big earthquake in Kobe (JA3 area) January 17th. It was M7.2 big and has hit the city from just under ground of that area. So magnitude is not so relatively big but damage was absolutely large in that area. We must say thank you for all emergency rescue from foreign countries but due to bad treatment of our government we must apology not to accept those help as quick as possible. In the government, some party said 'let's have rescue from HB9 with special rescue dog' and Department of agriculture said 'Dogs must be checked and kept to isolate for 2 months'. Its unbelievable! What can they do after 2 months isolation? Our government system is built completely by its functional order and NO department to department linkage arises. It is a big barrier for such complex matter.

Japanese government should change it soon. Now it is Feb.13th and there are still 230,000 people are evacuated at public hall, school and park because their house or flat was broken or partially broken and not allowed to get into those buildings. Still more than 500,000 houses do not have gas and water. Electric has been recovered instead.

Anyway, many thanks to all from Japan, again.

10GHz EME frequency from JA

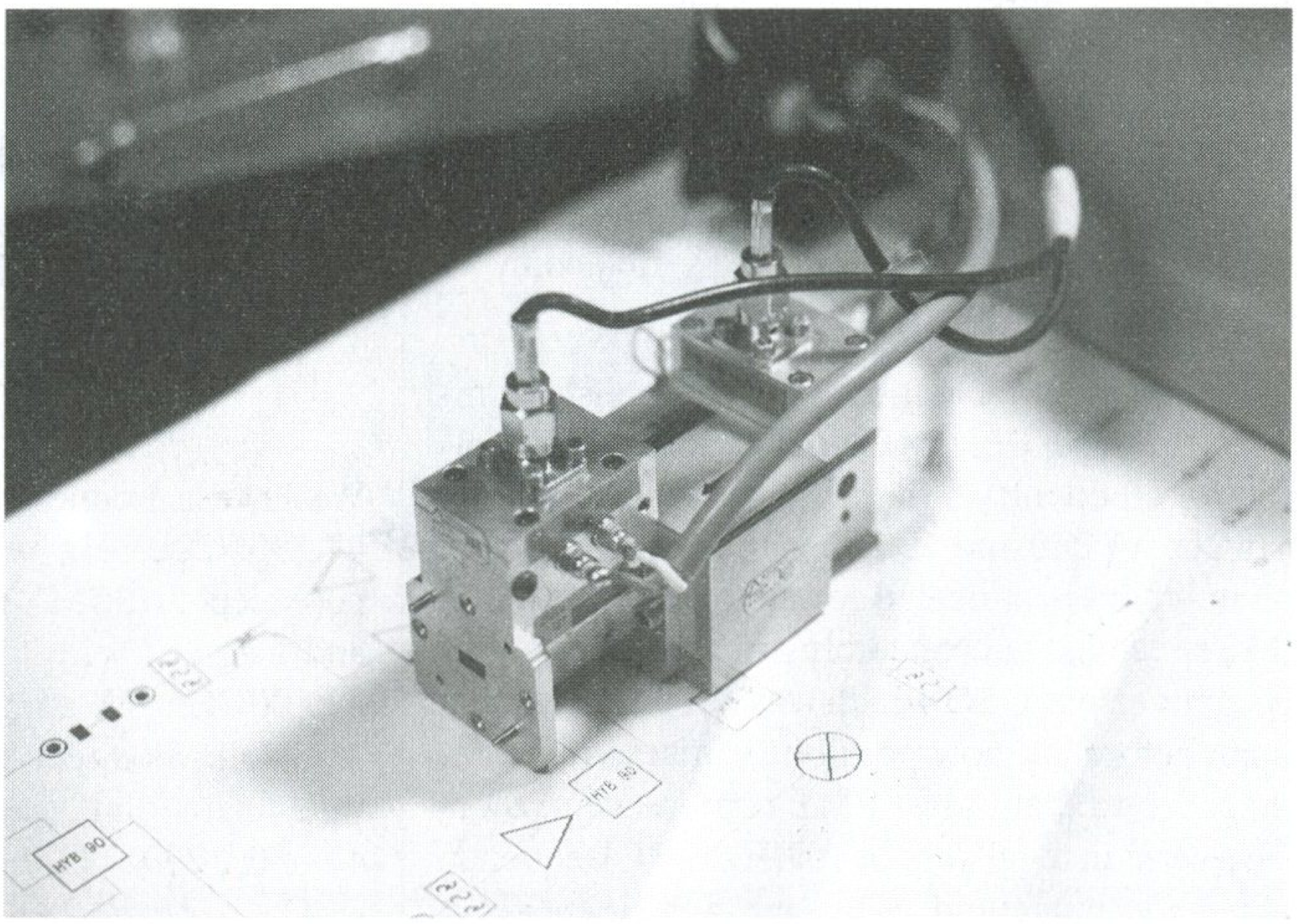
Now wave for 10GHz EME has been very high in the world. It is the same in Japan and several stations are building equipment. JA0IXX is probably almost ready for operation. JA4BLC will report in the next issue focusing EME but this month I would like to present frequency allocation for 10GHz EME between JA and other countries.

As I mentioned before, we had 10.000 to 10.500GHz for 3cm. However most preferable part from 10.250 to 10.450GHz was quitted from government few years ago.

We must operate 10GHz EME between 10.000 and 10.250 or 10.450 and 10.500.

Additionally, we must comply with JARL bandplan which specifies SSB/CW between 10.240 and 10.242GHz. Any of mode is allowed between 10.000 and 10.025, 10.080 and 10.180, 10.245 and 10.250, 10.450 and 10.500. This bandplan is not a law but we mustcomply while operation.

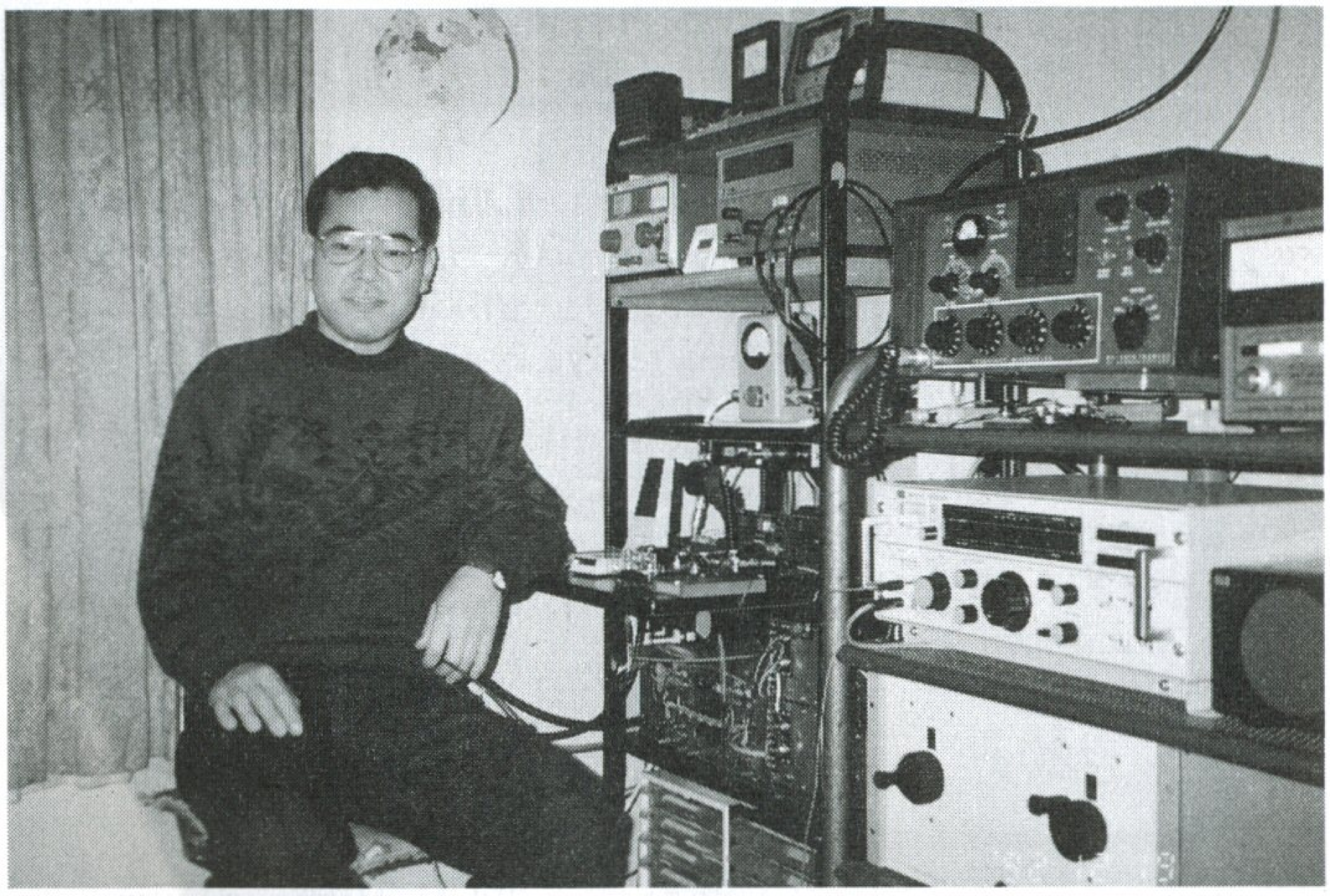
I understand almost 10GHz station in Europe and USA is using 2m as IF. So 10.224GHz is a local



Millitech 45GHZ Gunnoscillator with 100 mW

frequency. As a result of upper sideband heterodyne 10.368GHz is produced. What do anybody think to use lower sideband heterodyne for JA contact 10.224-144=10.080GHz which is just a start frequency of any mode allocation.

Only one problem is due to lower heterodyne and 143.xxx is needed for IF to operate 10.080.xxx. 143.90MHz will be converted to 10,080.10MHz. According to previous government license



Tokuichi, JA2KRW: 432 EME

authorization, above mode specification(bandplan) is highly recommended to get license. Below 10.080GHz(144.00 and above), it is allocated to TV mode and not good for SSB/CW as license point of view. Could anyone kindly offer how to expand 2m computer control rig's frequency to lower side?

Another recommendation is to establish common/shared 10GHz EME window which is acceptable for all country's frequency allocation. I think between 10.240 and 10.250 is the best window in Japan which is allocated for any mode. I'm not a EME specialist but concerning frequency portability for overseas QSO which was not possible from Japan before but now possibility arises via moon. I have heard that in last EME conference in Sweden a session to talk about 10GHz EME frequency was made but could not reach agreement. Is it correct?

Personally, I got 10pcs of FLM0910-10 for something SSPA purpose. It costs 95,000 yen each. For 10GHz, splitting and combining high power is not easy like that of 1.2 or 2.3GHz. At least 1dB of insertion loss is estimated. Thicker board is good for dielectric loss but not good for radiation loss. It is trade-off between thickness of the board, dielectric loss and radiation loss. My friend working in the Fujistu SSPA division recommended me to use 0.5mm or 0.6mm PTFE or Duroid board for SSPA. He said a ratrace coupler would perform better than a branch line coupler at X band and above. As there is no high power device above 12W(TM1011-12 from Toshiba) in the market, we should produce over 10W using power combining technique.

24GHz frequency usage in Japan

It is not critical like that of for 10GHz because it is not easy to operate EME this band. Since we do not have above 24.050GHz, almost QSO is being done between 24.000 and 24.040GHz. I understand in UK consideration to move to 24.048GHz has been taken in account but in continental country, 24.192 will be used near future. No JARL bandplan is established yet.

47GHz frequency plan in Japan from JE1AAH

We have a frequency allocation from 47.000 to 47.200, 200MHz width. Since there is almost no(except JA8CMY) activity reported, my friend and I agreed with to operate between 47.060 to 47.100GHz. We are planning to use 1.2GHz as IF and it allows direct frequency translation from IF rig's main dial. (i.e.: 1260 > 47.060, 1280 > 47.080, 1299 > 47.099) A 1145MHz baseband LO will be built and then multiplied 40 to 45.800GHz. There is no bandplan from JARL also and we will be first stone in the future bandplan.

10GHz contest in Japan

There is no 10GHz contest in Japan. Now JARL microwave committee is starting to think about separated SHF contest. I thank to Rainer, Kent and Lehane for their contribution for me to get a contest rule from DL, W and G. It is really good example to make our new SHF contest rule.

EME News from Japan

I have reported current Japanese EME scene one year ago in Dubus 2/94. Author of the article JA4BLC attended EME conference in Sweden last summer and has had confidence that many EMEers were intersted in the article. This month I will present update of EME activity of this 12 months in Japan.

January 17th 1995, we had very large earthquake in Kobe area. JH3ERQ lost 4 yagi for 70cm by the earthquake. Fortunately he and his family could survive without injury in such catastrophic disaster. No other EMEer was damaged. We must thank for quick and heartful expression of your sympathy. How we were encouraged by those inquiry at that time, we can not exprain. Many thanks, again.

Hot news

144MHz

Update of 500W license JL1ZCG 12 yagi + 4CX1500A

JK1HIX 4 yagi + 8877

432MHz

Update of 500W license JR1RCH(100W) 4 yagi + 4CX250Rs

JL1ZCG 16 yagi + 8938

JH3ERQ 4 yagi + 3CX800A7

JR9NWC 8 yagi + 3CX800A7

1296MHz

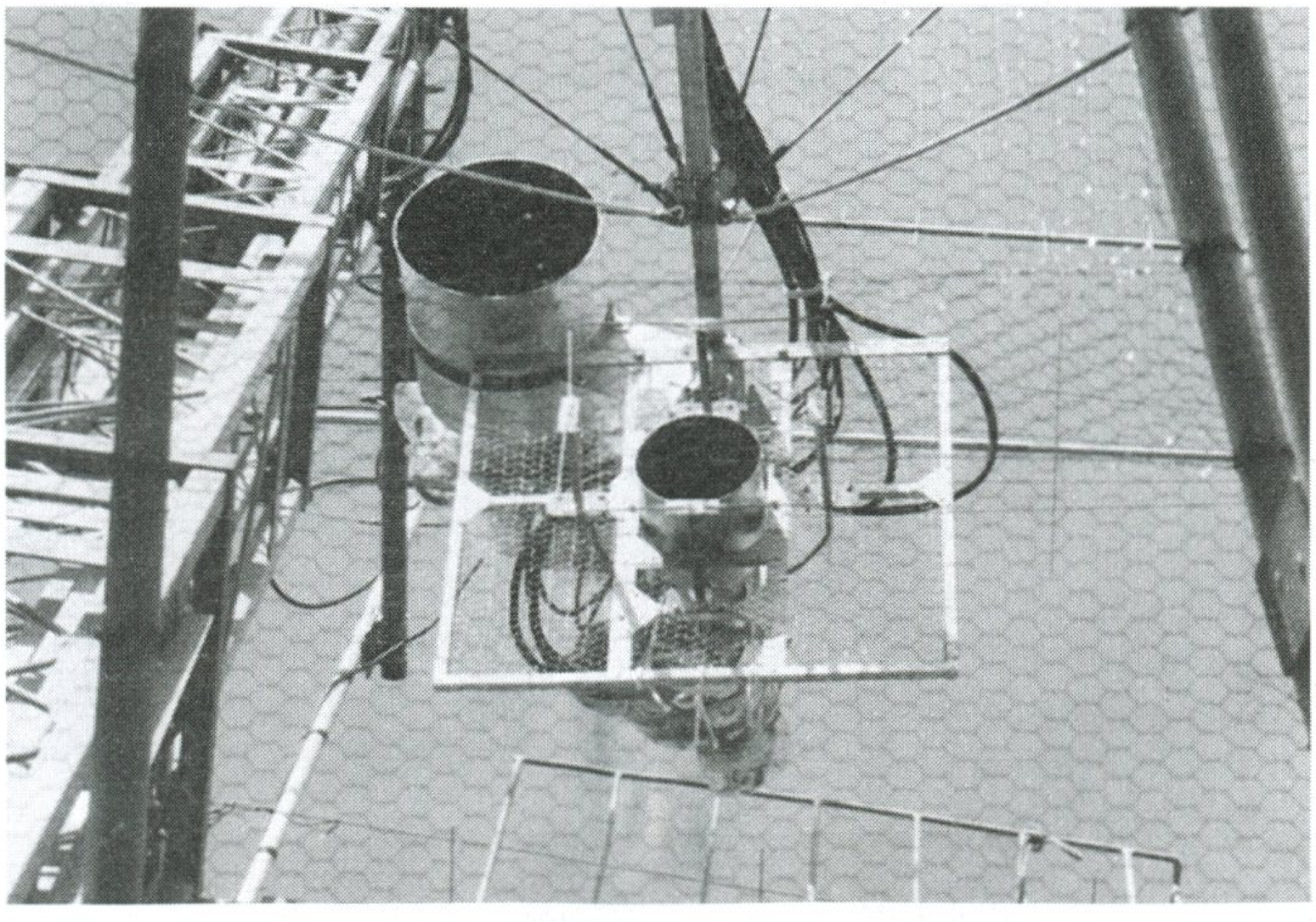
JA4BLC, JR4BRS, and JH3EAO are licensed for EME as of today.

JR4AEP has submitted 500W proposal 3 years ago and he received preliminary license for system test February 1995. He will have government inspection after he completes system test and will get authorized license. His system will be 4m dish with 2 x water cooled parallel 7289 HPA which is expected to produce 500W. JA4BLC is also submitting 500W license update.

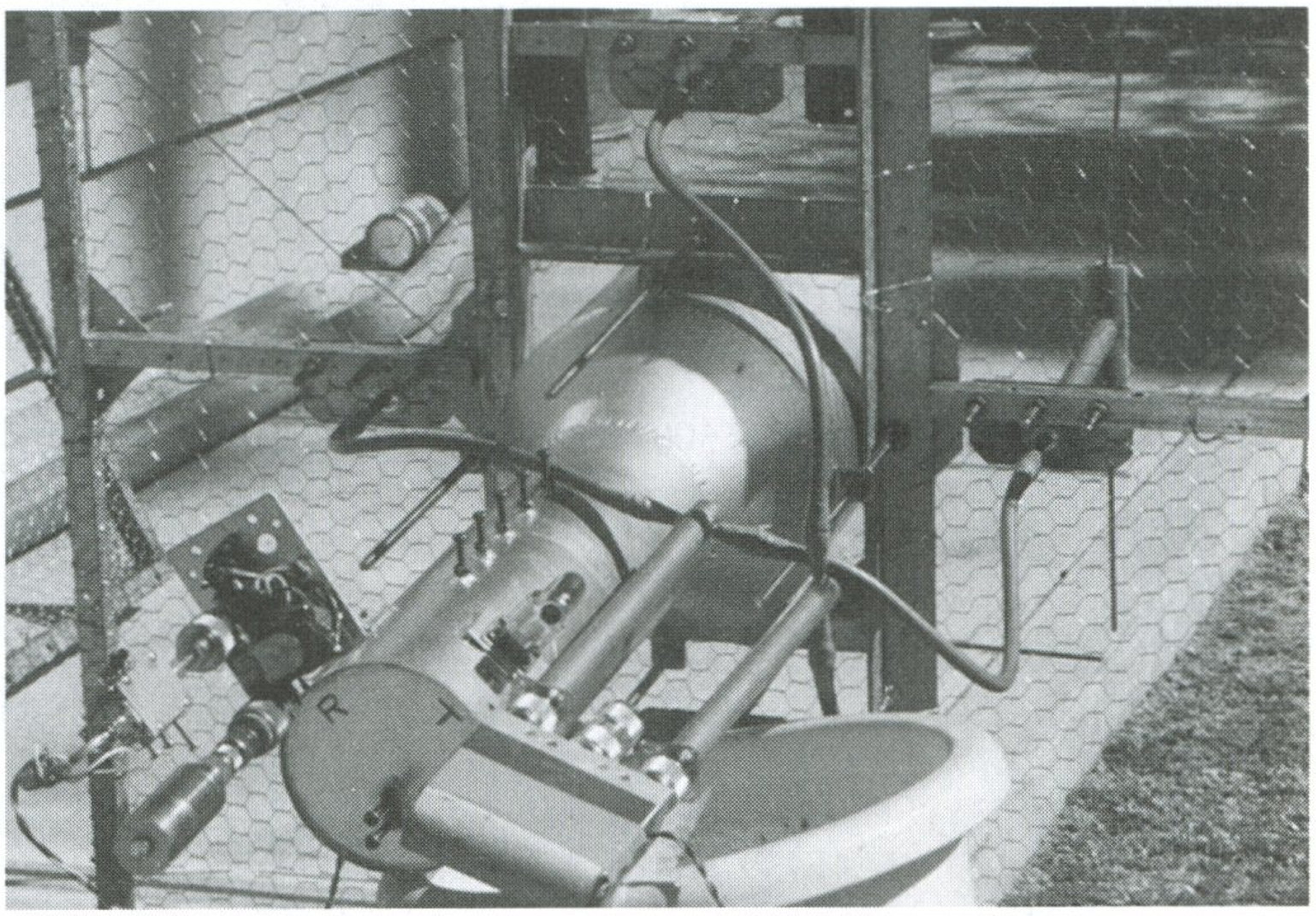
2424MHz

JH3EAO follows JA4BLC to get 100W license and has been autholized last March 1995. He is equiped with 4.7m dish, FHX15LG, VE4MA designed water cooled 2x7289. He made contacts with JA4BLC, WB5LUA, W4HHK, and OE9ERC. Initial is 4.

In December 1994, JA6CZD got 100W preliminary license. He is a big name of 432MHz EMEer and has been QRT for this couple of years due to QSY of house. He has 7m dish and making VE4MA design water cooled 7289 HPA. JA4BLC made his first SSB QSO with OE9ERC last November 1994.



JA4BLC: Triband feed for 432, 1296 and 2304



JA4BLC: Dual Dipole Feed for 432 and W2IMU for 2304

Since Japanse EME frequncy is splitted more than 100MHz from international standard frequency, it is required to make JA special(2424MHz) converter to receive our signal. We are pleased to thank to W4HHK, I6PNN, IN3HER, OK1KIR, and IK6EIW for their contribution to build the JA converter. They made QSO or have copied our signal successfully by the converter.

5760MHz

JA4BLC has been inspierd by OE9XXI's sucessfull QSO using 10mm mesh dish and decided to start 5760MHz EME project using his 10mm mesh dish. He has already gotten DL2AM 22W HPA. As mentioned before, legal limit of this band is 1W! and he has already submitted 25W proposal to government.

10GHz

There would be several G3WDG systems imported at the moment. JA0IXX has built the system and have tested with 1m dish measuring Sun noise of 6.5dB / Moon noise of 0.25dB while NF of 1.5dB. He has already obtained JA made 10W TWT and bulding high voltage power unit. JA4BLC, JR4BRS, and JH3EAO have already completed G3WDG kits. As JE1AAH reported, legal limit of 10GHz in Japan is 1W EMEer should get special authorization/license to transmit enough power to hear own echo.

Unfortunately JA does not have 10.368GHz allocation. 3cm band on JA is split to 10.000 to 10.250 and 10.450 to 10.500. We should have split operation on 3cm as well as 13cm. I think frequecy allocation possiblly be 10.000 to 10.025, 10.080 to 10.180, 10.240 to 10.242, and 10.450 to 10.500. Pesrsonally JA4BLC proposes 10.450 for JA'sEME uplink.

Publication for EME

Since Japnese language would be a sort of special language in the world, geographically and historically Japanse has been unfamilier with English. Even though in the Ham society in which there would be more opportunity to listen/hear foreign language JA Hams are not good at speaking English. As it dose not change for EMEer we must translate EME publication written in English and publish in Japanese to get popularity.

We have two monthly amateur radio magazines published commercially. One is CQ ham radio which is more than 100,000 monthly issues and other one is Mobile Ham which is more than several ten-thousand monthly issues. Foutunately both magazines have EME column. JA9BOH Kimio is a editor for CQ ham radio column(1 page) which had been written by JA4BLC for 13 years until December 1993. JH3EAO Takao is a editor of Mobile Ham column(2 pages) following JF1MCF since June 1993.

Unfortunately members magazine JA EME news published by JR4AEP for 12 years had halted last March 1995. JA9BOH Kimio has started e-mail information service since last year instead. It reports sked, activity info exchange using Fax and PC.

I would like to introduce Japanese EME publication which should attract foreign amateurs who



432 EME: SWL JA4HZN with 4 m Dish

can not understand Japanese language through figures and schematics.

EME handbook 253 pages January 1994 Author JA4BLC $53USD

All EME related article in full 253 pages (world first?!). JA4BLC is a editor in chief editing an article written by several active JA EMEers.

Ham journal #93 $18USD

CQ ham radio magazine's technically specialized bi-monthlt magazine. #93 has

2.4GHz EME special issues(44 pages) by JA4BLC.

Ham journal #94 $18USD

This issue includes special EME conference report(8 pages) held last August 1994 in Sweden. You will enjoy through many photos and enjoyable report by JA4BLC.

Ham journal #95

Following #94, JA4BLC reports his trans-European EMEer tour before attending 1994 conference(12 pages). DL9KR, DL5MAE, OE9ERC, OE9XXI, OE5JFL, DF6NA, and SM6CMU are smiling, eating, drinking, and shouting in many photographs with their great shack and antenna.

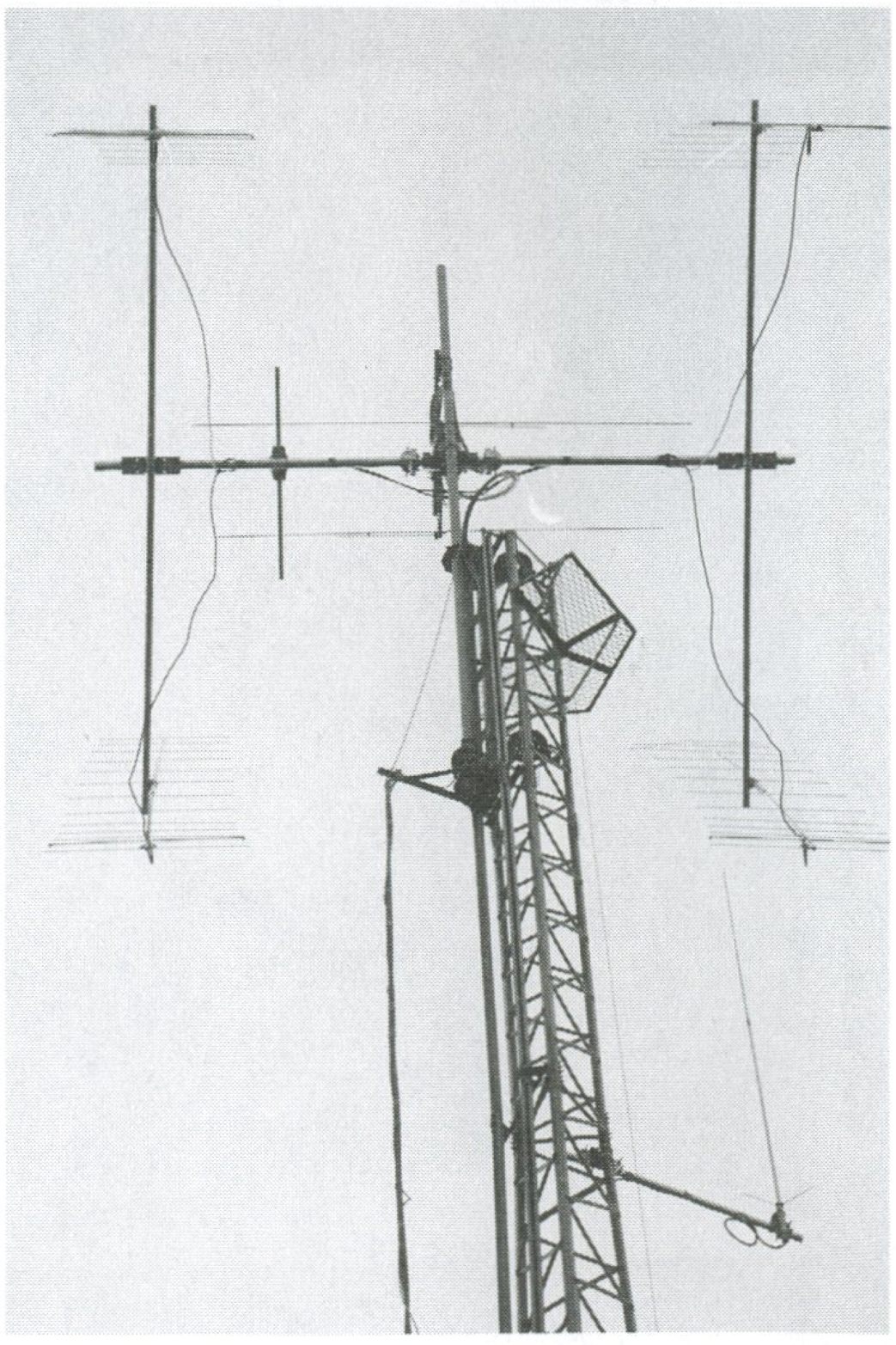
Inquiry for these publications should go to JA4BLC. Cost includes postage.

VY 73 JE1AAH

EME News

Editor: Bernd Wilde, DL7APV

Intro: REF/DUBUS contest had fair conditions on 70cm bur activity was not as expected, but on 23cm and up the activity was very good. One highlight was 3A/DJ5MN on 70cm with 1KW&1 Yagi. The dates for the **ARRL** International EME Competition has been set for the weekends of **October 7-8 and November 4-5**, 1995. The complete rules will appear in September QST, issued by Billy Lunt, KR1R Contest Manager, ARRL. Like the diccussion last year this great **wise** decision to put the ARRL contest this year parallel to the UHF/SHF IARU Region 1 contest, will impair the European stations considerably. Does the **infallible ARRL** know how to run an EME contest in the middle of Europe when a tropo contest is on and your sigs can be heard from about 100-500 contest-stations and they will insist to call you? Should we have to concentrate to the European DUBUS/REF - EME contest? This issue includes the **results** of the DUBUS/REF contest.



JE1BMJ 4x13el. 2m

144MHz

I2FAK wkd : new initals OZ8RW, K0KKV, DL4DTU, JW0BY, OL5X, G3LGC, JA9BOH, OZ1LO, F5UM, 9A5Y, UN8BT, DF1IAZ, LU7DZ (new QTH!), SK7CA, OH3AWW, KE6PT, DJ7OQ, VE1ZJ, VE3ASO, DJ3MYJ, DL3MGL, W8WZG, OK7O, WA6YDI, KB6IGC, N8ITP, G4ASR, G4WFR, JA5YJS, KB2AYU, DH2OAA, AA0CP, S52LM, NI6G, IK4WLV; HB9SUL, IW1BCV, KC4/K6MYC county 101, IW1CGB, VE1VAS, DL7UTS, I3DLI, OZ1DLD, OZ1FKZ, DK0TU, DK0BN, EA3AXV, I5WBE, IK0IXI and W6JKV/V2 country 102 and #766. He found condx at italian eme contest bad to fair, low activity from europe and one way condx to north america made it not to much enjoyable. Score #83 and 18 I stns for final 1568. tnx fer info Franco

JL1ZCG wkd : 15.04. RU1AA #, I4XCC, F/G8MBI #, YU7EW #, IK3MAC, OH2AUK #, SM5MIX, DK2PH #, EA6VQ, hrd : DL3BWW NIL 3A2MD, #288. He couldn't hear 3A2MD at all, but condx for europe seemend very well. He wkd 5 new initials though negative declination. tnx fer info JR4ENY/1 AWA

JW0BY reports from JQ88AD, in early January the winter gales had broken off the first boom sections of two antennas, with 4 elements each. Hence the system is reduced now to 2 x 17-element and 2 x 13-element yagis. However, the performance seems not much degraded, as echoes can be copied quite regularly. In 1995 also the following new stations were worked:W0RWH, JA9BOH, VK3AMZ (first VK-JW), DK9OY, DF7KF,

EME-TOPLIST

144MHz

Call	small SQR		DXCC	States	WAS	WAC
I2FAK	393	54	89	50	1993	1988
HB9CRQ	358	53	84	50	1994	1987
DL3BWW	352	52	78	50	1992	1983
UA9FAD	202	37	56	35	--	Yes
SM5BSZ	199	40	63	39	--	Yes
F6IRF	171	29	41	32	--	Yes
UA4NM	111	23	32	21	--	--
EA6VQ	84	22	26	0	--	--
LA0BY	83	27	29	20	--	--
SM0PYP	76	19	28	15	--	--
JW0BY	58	18	23	8	--	--
DL5DTA	37	15	19	7	--	--
DL7AKA	32	14	12	10	--	--
F5HRY	20	0	8	7	--	--
HB9DFG	9	7	6	2	--	--
DL3YEE	6	3	5	1	--	--
OK1KJT/p	3	3	3	1	--	--
DF8LC	?	?	20	0	--	--
DF8LC	9	5	7	0	--	--
F5HRY	4	0	3	2	--	--
ON4KNG	?	?	21	0	--	--

432MHz

DL9KR	343	48	76	50	1987	1978
SM0PYP	290	40	50	42	--	1989
DJ6MB	231	34	56	39	--	1984
OK1KIR	224	40	58	43	--	1982
DL3BWW	201	38	59	38	--	1991
OE9ERC	126	0	0	0	--	1993
OK1CA	108	22	25	21	--	--
UA9FAD	104	24	34	26	--	--
YO2IS	99	19	31	21	--	--
SP5CJT	94	24	28	26	--	--
DL3YEE	90	22	32	15	--	--
EA6/DF5JJ	37	15	14	0	--	--
HB9CRQ	20	13	12	9	--	--
UA4NM	12	8	10	4	--	--

1296MHz

OE9XXI	165	28	33	25	--	1989
OE9ERC	142	23	25	21	--	1993
OK1KIR	101	26	28	19	--	1989
SM0PYP	100	21	26	15	--	1989
EA6/DF5JJ	50	15	18	9	--	--
HB9BBD	49	41	21	5	--	1994
OE9FKI	48	9	17	10	--	--
DF5JJ	13	6	7	2	--	--
DL3YEE	9	6	6	1	--	--

2300MHz

OE9XXI	39	14	16	9	--	--
OE9ERC	30	12	15	7	--	--
OK1KIR	26	10	12	8	--	--
SM0PYP	21	9	11	7	--	--
OE9FKI	3	3	3	1	--	--

5760MHz

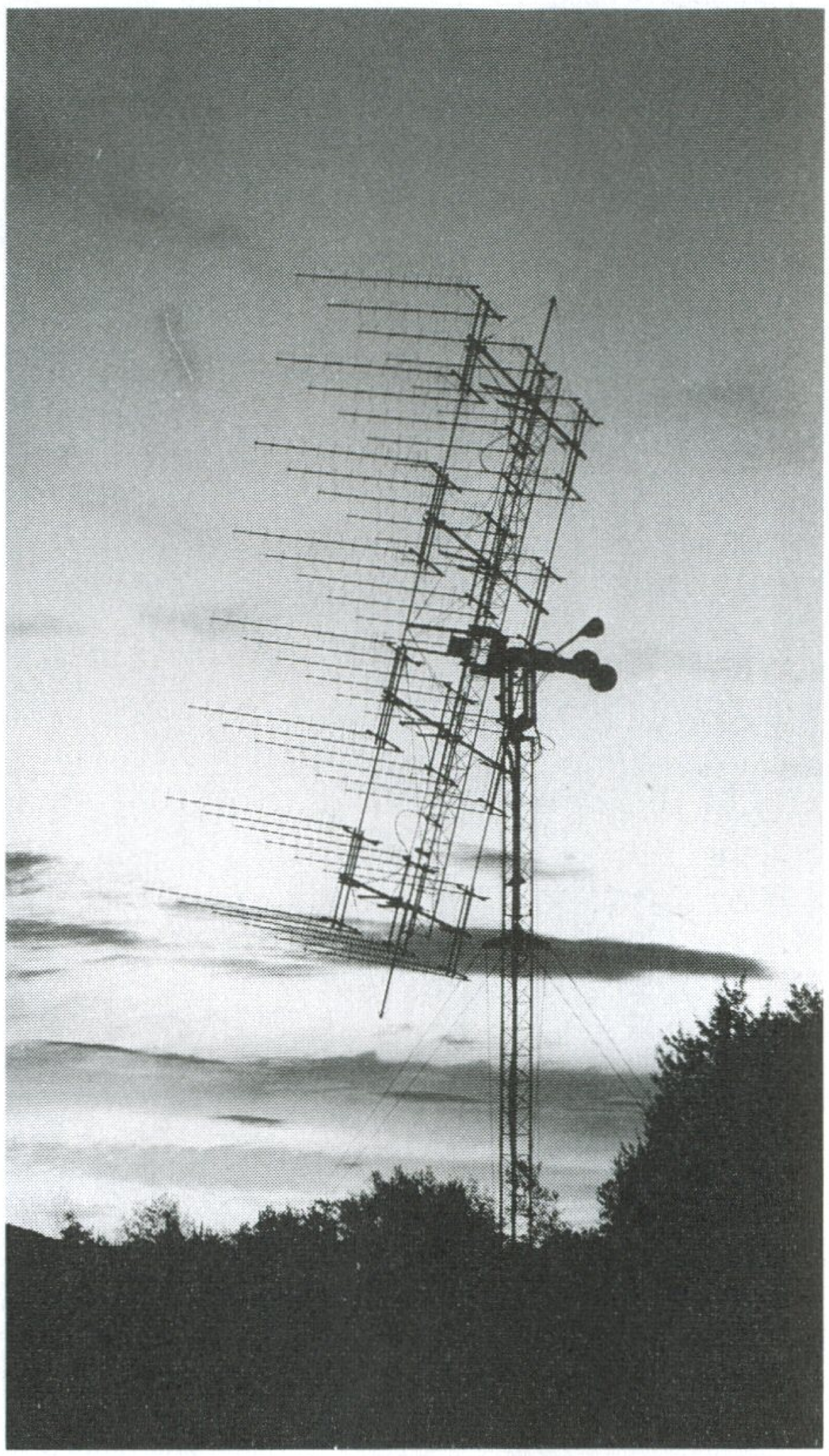
OE9PMJ	7	4	6	0	--	--
OE9ERC	4	2	4	0	--	--
OE9YTV	3	2	3	0	--	--
OE9FKI	1	1	1	0	--	--
OK1KIR	1	1	1	0	--	--

10368MHz

DJ7FJ	16	0	13	5	--	--
G3WDG	14	0	11	4	--	--
OE9ERC	11	8	7	3	--	--
G4KGC	9	0	9	2	--	--
OK1KIR	8	5	8	1	--	--

LU7DZ (first LU-JW), W7HAH, WG8Q, ZS6ALE (first ZS-JW), W9QXP, UT4EQ, IK1FJI for # 82. These are the possible EME-sked times for JW0BY in June 1995: June 3, 0500-1700 UT + 1930-2200 UT June 4, 0700-1800 UT + 2000-2300 UT June 5, 1500-1830 UT June 6, 1600-1930 UT June 7, 1800-2000 UT. JW0BY will normally use the frequency 144.155 MHz both for skeds and for random CQ. Those interested in a random QSO are advised to wait until a sked is finished and CQ transmitted. The earlier indicated exclusive CQ periods are omitted from the schedule in order to allow for more skeds, but not all of the time indicated is necessarily filled with skeds. Sked proposals are welcome by email (stefan@eiscat.no) or through VE7BQH. The phone number to the shack is +47-790-21236, FAX +47-790-21751 (only in urgent cases). tnx fer info Stefan (JW0BY)

PA3FJY wkd : 27.12.94 EA3DXU #, 29.12.94 IK2DDR #, 02.01.95 SM5MIX, 08.01. UT5ER #, 20.01. JL1ZCG #r, 21.01. IW5AVM #, S51WV #, IK1FJI #, DL9YEY #, I2FAK, HB9CRQ, 22.01. LA8YB, W5UN, WB5LBT, EA6VQ #, K5GW, 10.03. K2GAL, 11.03. SM5FRH, I2FAK, 12.03. SM5BSZ # 58, I5JUX, IK2DDR. rig : 4x17el 3.6l, FT225rd+PA 350-400w, preamp <1dB at feed NF-



NC1I 48x15el fully rotable array

Filter FL-3. His moon window >15° at rise >10° at set. Dick can take skeds, but not between 22-04 UT via VHF-Net. Presently he prefers random contacts. tnx fer info Dick

UA4NM wkd : 29.10.94 F3VS, S51WV, LA8YB, I2FAK, DL8DAT, SM5BSZ, K5GW, LZ2US, 30.10. I5JUX, OE5JFL, SM5FRH, I4XCC, W4ZD, KB8RQ, 26.11. HB9CRQ, K2GAL, WB5LBT, W5UN, SM2CEW, 27.11. SM7BAE. tnx fer info Vlad

144MHz netnews

K0IFL gets less and less input for his newsletter and is thinking of giving up, **WB5LBT** activated Nebraska on EME, **LU7DZ** is in FF78 now. **EME conference** 26.-28.05.95 in Baton Rouge Louisiana, any question USA Tel 504 275 6556, Fax 504 275 7704 or postal R.A. Bob Taylor, 10715 Waverland Drive, Baton Rouge, LA 70816-5056; USA.

432 MHz

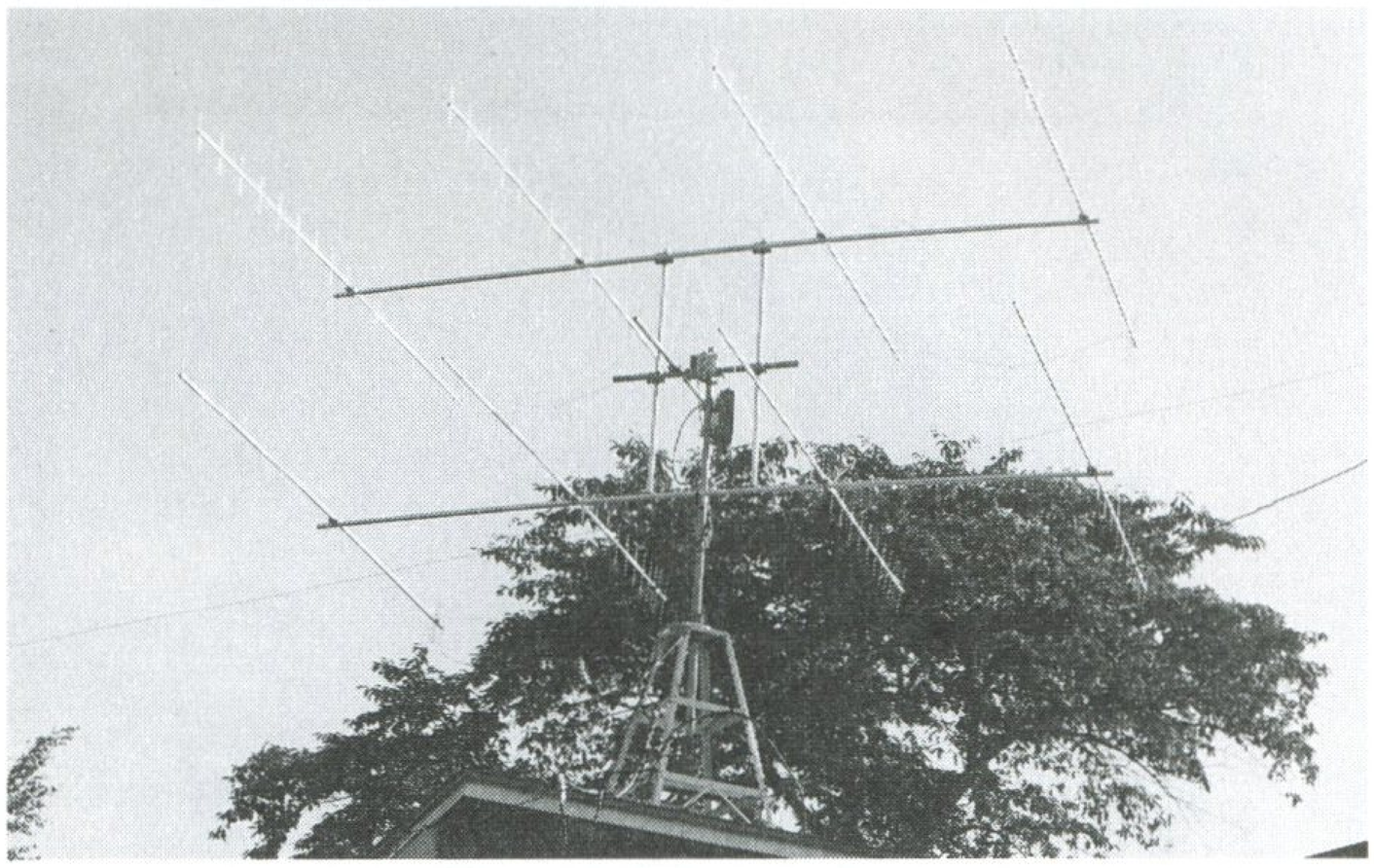
G0RUZ reports that his new antenna system of 6 x 11wl DJ9BV opt 70 yagis was installed (not without problems,the rear weight of the antennas gives him elevation headaches at first) on Saturday 8th and he was only qrv between 20:00 and 21:00 and worked : K0RZ 449/459 # 44 and K1FO 559/439 then disaster the elevation screwjack-clamp slipped due to the imbalance and that was that. After repair he hrd JA9BOH, VK5MC with 439, and wkd : ON4KNG 0/0, SM2CEW 559/549 #45, WA4NJP 449/0, DL3BWW 549/539, N4GJV 559/559 a huge signal. On CQ wkd : G4ALH O/O #46, I5CTE O/O, DL4XX O/O (not sure about this), HB9SV 559/559 #48. CWNR I2COR, hrd EA3DXU, wkd in sked PY5ZBU O/O # 49 and WAC, tnx Don!, Nil on sked withs AL7JM, JR9NWC, JH4JLV O/O #50, W0RAP O/O #51, DL8OBU 439/429 r, OE3JPC nil, EA3DXU O-439/O s #52, K5JL 449/559r, I5TDJ 439/449s, N9AB O/M for #54. He would now like to try with some smaller stations 2 yagi etc skeds are always welcome especially by email. Packet radio skeds can also be sent to G0RUZ @ GB7WRG. #19. GBR.EU. He is particularly keen to have skeds outside of sked weekends. tnx fer info Conrad

G3SEK reports in Feb skeds nil from IN3KLQ, 9A2AE or 4X1IF, but wkd : only PA3CSG, UT5DL, IK1MTZ, SM4IVE and WA7BBM (449/449) #217. Heard DL9NDD, SM3AKW, NC1I, W7CI, G4ERG and K0RZ. tnx fer info Ian

IK5WJD wkd : 29.10.94 OE5JFL 559/549, F1FEN 559/O, DL9KR 569/559, SM4IVE 559/539, F1ANH O/O, DL9NDD O/O, I2COR, 559/539, NC1I 569/559, N2IQU 559/449, KD4LT 559/449, K1FO 559/449, K2UYH O/O, 30.10. SM0PYP O/O, N4GJV 549/449, 26.11. OH2PO 559/449, DJ6MB 449/449, K9ZZH 449/449, K0RZ 449/449, F6CGJ 449/449, 27.11. OK1CA 449/449, G4RGK 339/O, F5MZN O/O, 08.04. SM2CEW 449/449, OK1CA 449/449, 09.04. K1FO 449/449, DL9KR 559/559, DL3BWW O/O. tnx fer info Alex

JA9BOH wkd : in April weekend 10 stations. Condx seemed good farady condition for vertical

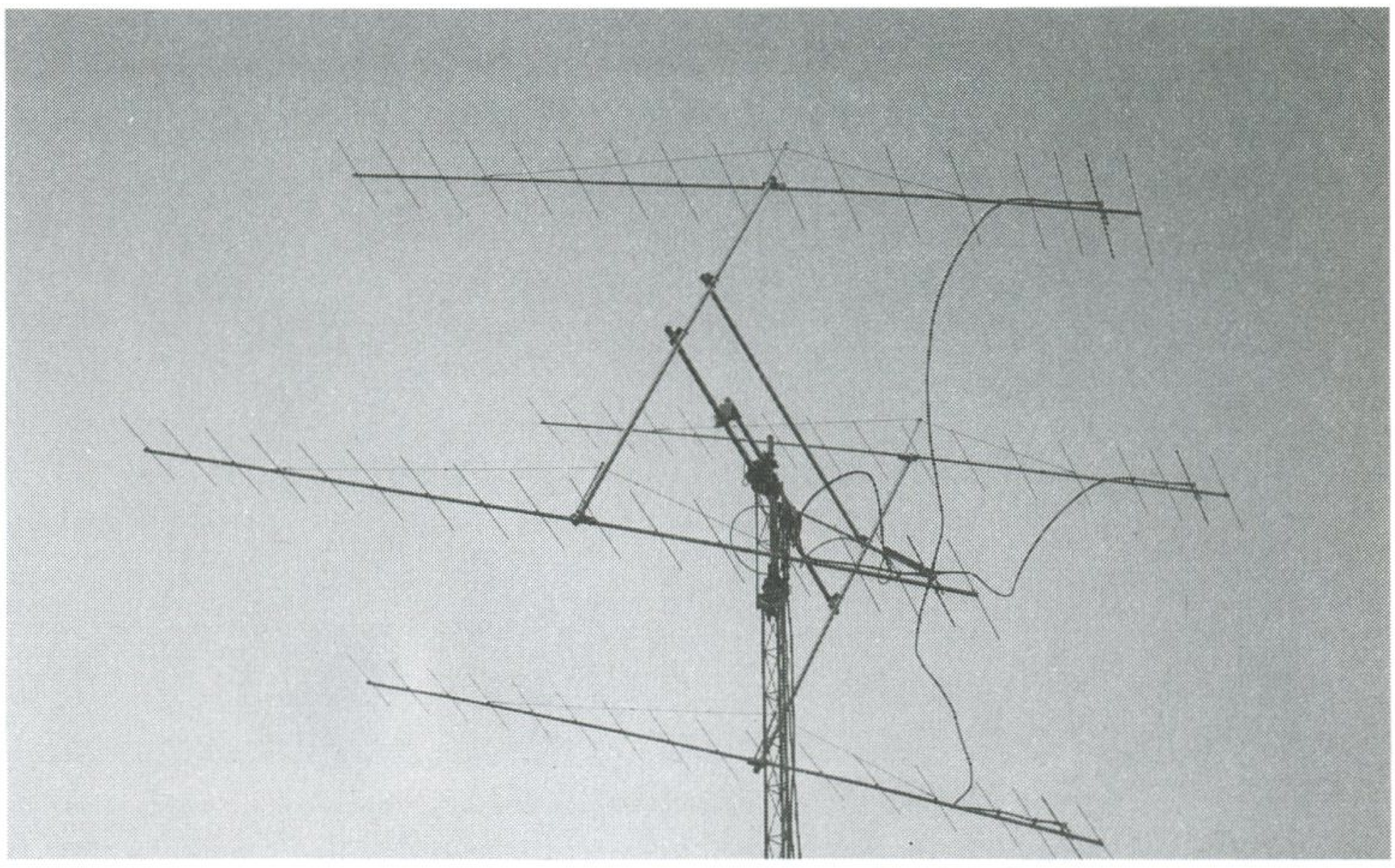
pol, but due to some 2 mtrs skeds, he must QSY some time. 07.04. 4X1IF nil, 08.04.KB2AH nil, K0RZ 439/549, K1FO 549/439, JA4BLC 439/339, OK1CA O/O, ON4KNG O/O. Hrd F6KBI/p (O) working DL9KR, 09.04. CWNR W0KJY(O), WB2VVV nil, JA5OVU O/O, DL3BWWO/O, SM2CEW 449/539, I2COR O/O, DL9KR 569/549. CWNR W0KJY IK6MMJ, JH7PAV JA5YJS QRV?? tnx fer info Kimio



JH7PAV 8x21el FO 70cm

JA5OVU wkd : 11 Stations in Eu-contest 08.04. K1FO 569/549, DL9KR 579/559, OK1CA O/O, UT5EC O/O, SM2CEW 549/449, 09.04. WA4NJP O/O #76, JA9BOH O/O, EA3UM 549/449, OH2PO 549/O, ON4KNG 449/439, I2COR 549/549, hrd: K0RZ, F1FEN, JR9NWC, W0KJY, VK5MC, HB9SV, 9M2BV, G0RUZ, DL3BWW, JA4BLC, UR5LX, IK1MTZ tnx fer info

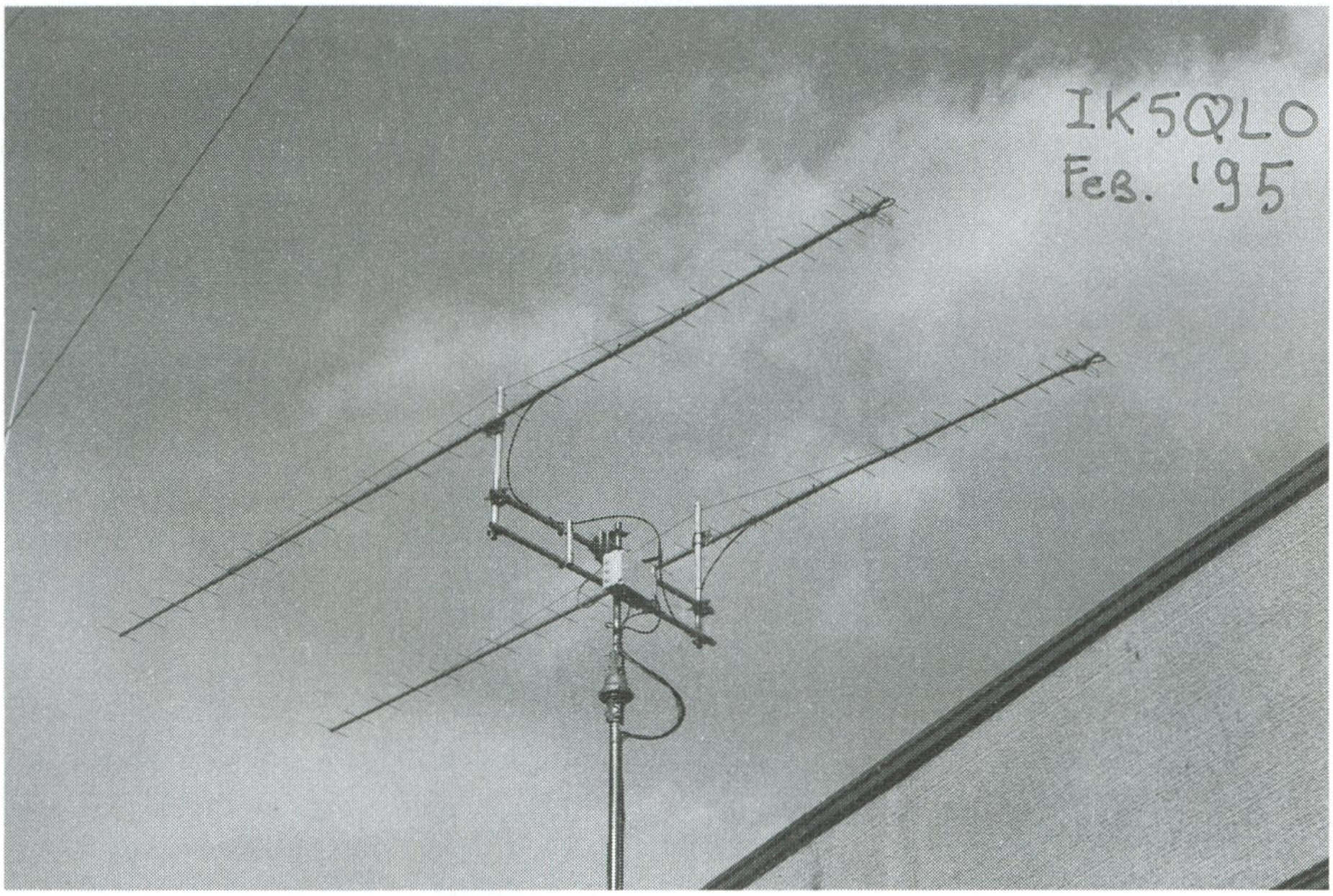
KD4LT - Scott's operating time was somewhat limited in January and February due to bad weather and work. Nil was heard from 9A2AE on 1/14 or 1/21 skeds. Scott worked WG3I # 253. Several stations were heard and worked on the second weekend for the Italian EME contest. In February Scott was on for SV1BTR and 9A2AE but heard nil on both. Scott miss skeds with 9M2BV and JR9NWC due to weather. The new dish mount system is now designed and being fabricated and if the weather permits the new system should be mounted in the dish and operating by the April activity weekend. This change will allow Scott to mount his "IMU" feed horn and become active on 23cm. To construct the new feed system, Scott will need to remove the old system and will not be QRV in March. The Email list is continuing to grow weekly. If you have Email via Internet, please send Scott your Email address to be included. There is now lots of information being passed via the Internet. Scott will send the updated list to all when new information is added to it. tnx fer info Scott



PA3FJY 4x17el mod Cudee 3.6wl

OK1KIR wkd : 11.02. PY5ZBU # 299 DXCC#58 field 40, 12.02. JA5OVU, UT5DL, IK1MTZ, UR5LX and DL8OBU #300. tnx fer info Tonda

PY5ZBU Don worked the following stations in

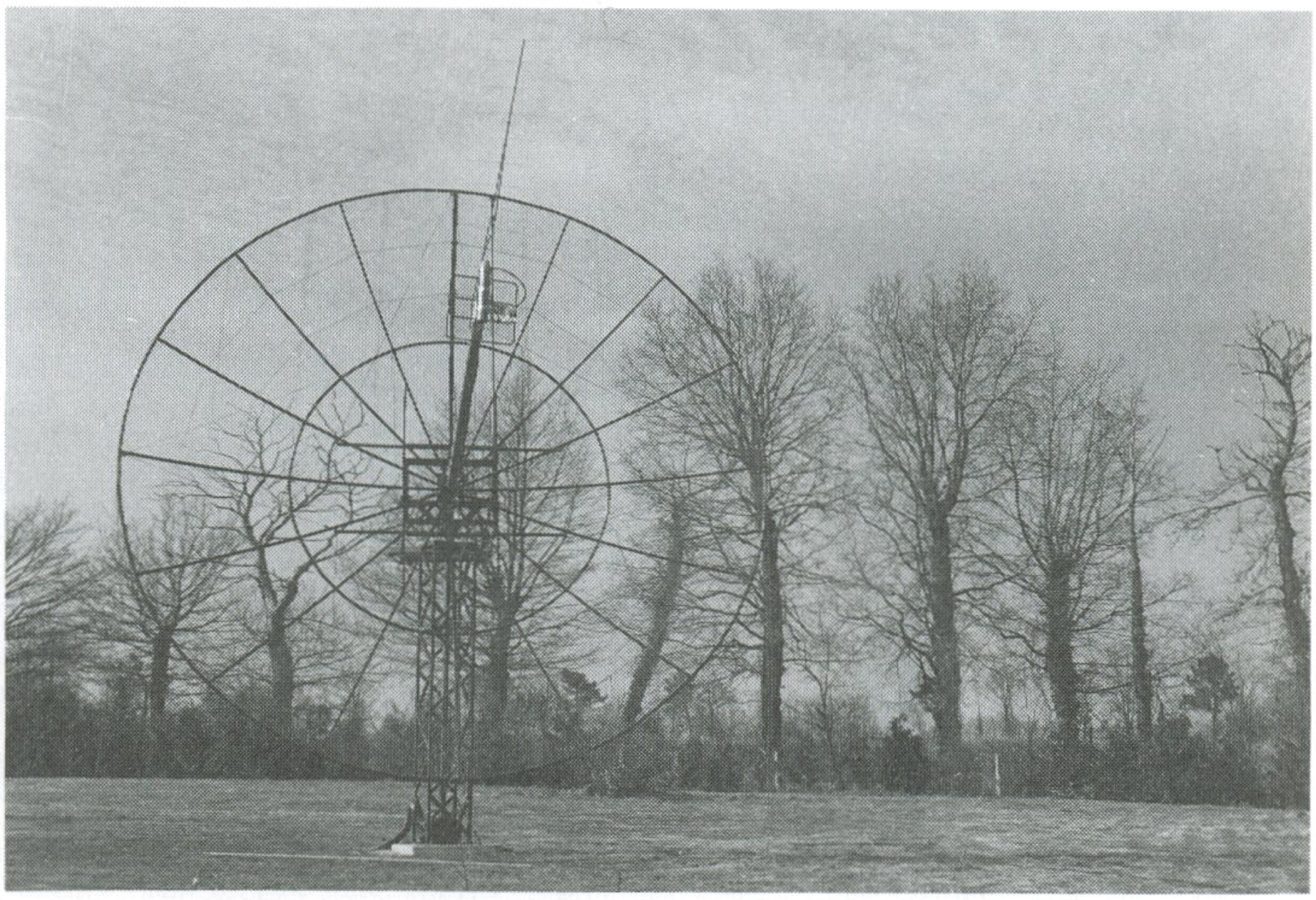


IK5QLO 2x9wl M2 2m

February - W0KJY, PA3CSG, DL9NDD, OK1KIR, DL3BWW, YO2IS, UT5DL, IK5WJD, And OE5JFL. Don shares plans for a 7m dish for 70 & 23cm EME and is seeking information on feed systems for both bands. If you have any new ideas, Don would like to here from you. Please send all information you can to Don via his directory address. (via KD4LT) tnx fer info Don

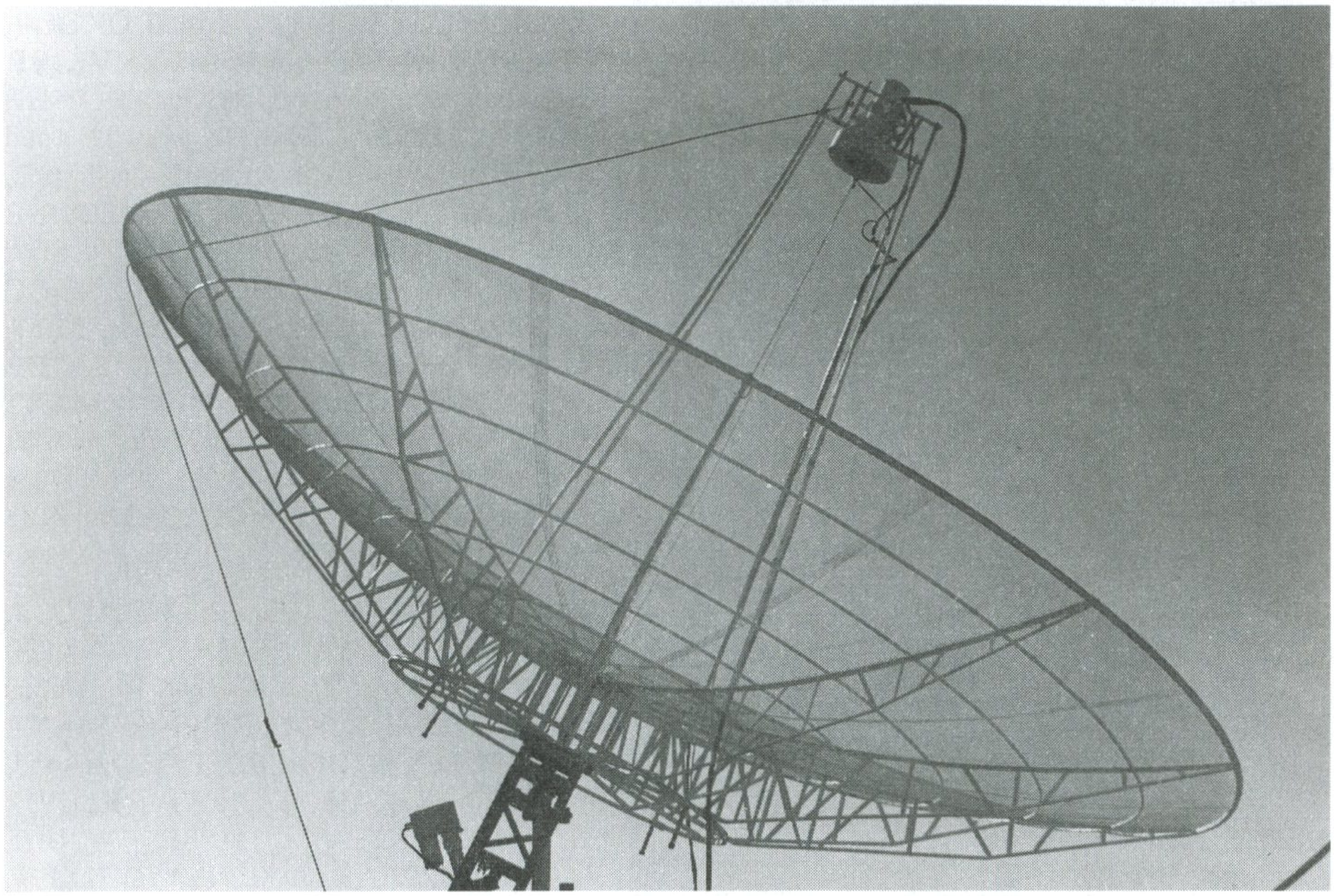
UA4NM wkd : 27.11. F1FEN. tnx fer info Vlad

WG3I reports in Feb : Condx were fair on the friday night. The usuals and W0KJY were all heard better than O. Then came Saturday: After last months excellent condx it had to average out, and it did, this months condx were awful. Nil was heard from UT5DL,UR5LX, DL3BWW, G0BPU and G3LTF. K0RZ and W0KJY were heard (O) every tx period but was not copying me. Also heard (new) were DL9NDD (549) and G4RGK (559). He called W7CI again with lots of QRZ back but eventually discovered (after 40 minutes) he was not the only one calling him, so gave up. A sked was arranged via 20m net with W7CI for the sunday evening but nil was heard. All in all a dissapointing activity weekend. The one bright spot was that he got a Timewave DSP9+ (after discussing them with K0RZ) which helped pull signals out of the noise very well. He



F1ANH: 7 m Dish

I6PNN 4m dish f/D 0.5 VE4MA feed 13cm/W2IMU 6cm



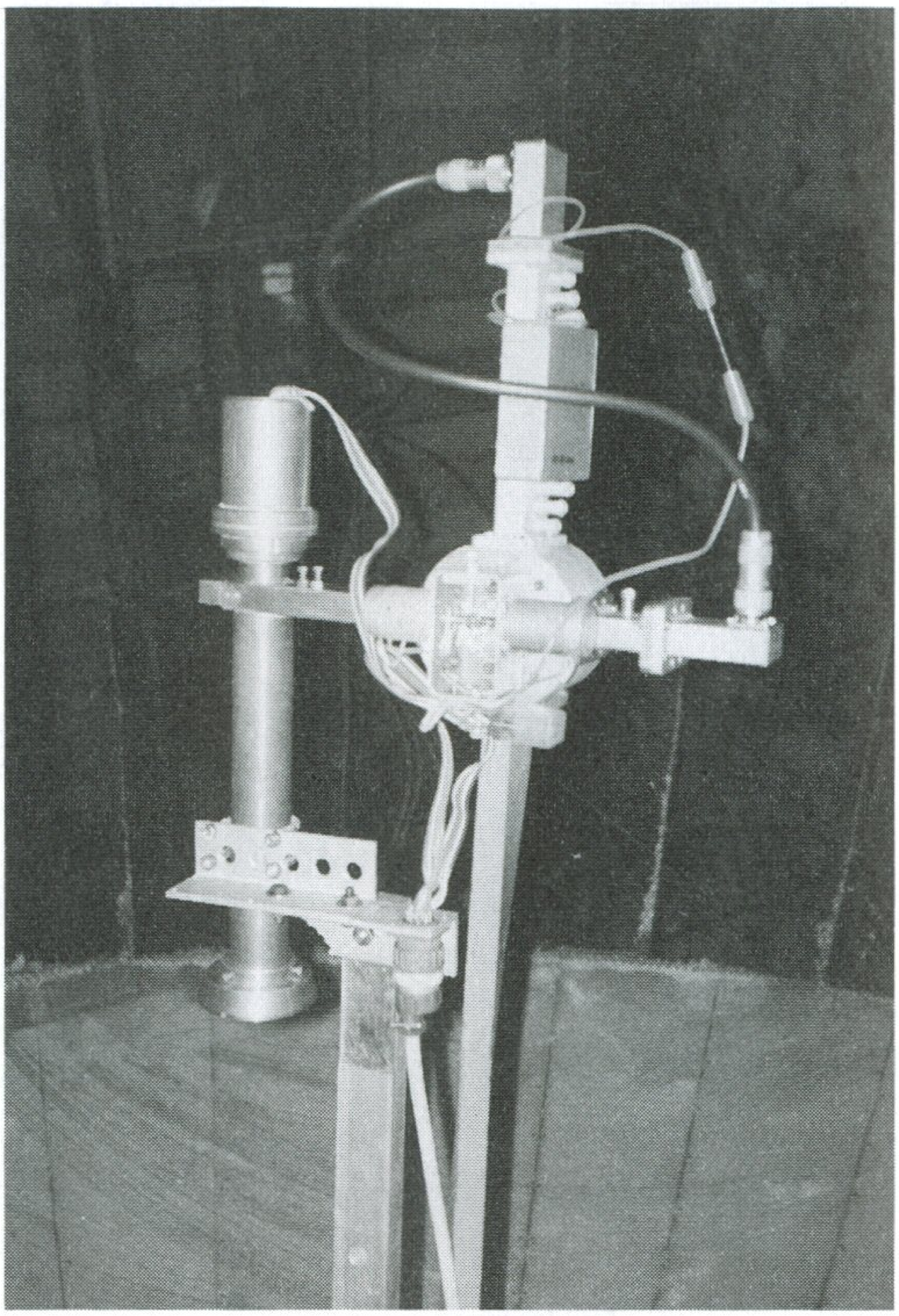
thinks the problem now is that his eme signal resolution capabilities far outmatch my ERP! He will be change the antennas to FO22 before the REF contest and will try four 55 ele yagis for 1296 (+200W &0.4nF). On 19.02. K0RZ (M/O) and W7CI (O/559) were worked easily. Note (especially for those sending qsls) that his address is 18 Lowe Ave, Fairlawn, NJ07410.

432&up Netnews

OK1KIR is very sorry that ARRL contest is as the same weekend as IARU Region I UHF/SHF. **OE9PMJ** has some 13cm PA kits for sell TH326/YD1304 50-150W out, 2200-2500MHz tunable, included all required parts allready finished; ask for price& details Phone ++43 55 74 46916 or Fax (work) ++43 55 74 688316 Peter Riml. **IK5WJD** is waiting for qsl from AA4TJ, N2IQU, SM2CEW, UT5DL, UR5LX and PY5ZBU. **NEW** stations were worked : **3A/DJ5MN, DL7AEN** 4yagi 500w JO62, **DL4XX, IK5QLO, JJ1NNJ, JR9NWC, F6KBI/p, IK6MMJ, K9BCT, K6HXW, A22BW**. **OH3LWP** is currently using 4 x 40 el K1FO long-yagis, 500W from a single 4CX250 and 0.35 NF cavity preamp on 432 MHz EME, his address Vaisanen Ari, Matinlahdentie 228, 33720 Tampere, Finland. **EA6/DF5JJ** is now on 2304,

1296 MHz

AA6WI reports : Lars - AA6IW is currently trying to become QRV on 23cm EME for the 11/12 March European EME contest. Lars will be using a 5 meter dish, VE4MA feed, PMJ Quad Hybrid, and Th-328 water-cooled PA @ 500 watts output. It looks very likely that'll he'll be ready in time. However, Hoppy is sure this will create a lot of confusion on 23cm as Hoppy will also be QRV during the contest from AA6WI. Lars and Hoppy will work out an arrangement where we will spread out a bit frequency wise since we're pretty close to each other. Lar's QTH is Los Altos, California...about 20 miles north of Hoppy's QTH in San Jose. Lars is also in a different grid. We will see who can really copy CW during the contest weekend!! hi. tnx fer info Hoppy



OK1KIR: 5760MHz Feed with LNA and WG-Switch

DJ7FJ wkd : in DUBUS contest 11.03. F2TU, OE9XXI ssb, LA8LF, JA4BLC, IN3HER, HB9SV, OE5JFL, ZS6AXT, F6CGJ, N2IQU, OK1KIR, KB2AH ssb, AA6WI, WB5LUA, OE9ERC, K2UYH. rig FT736+2x2C39+TH308, ant. 4.5m Andew dish with VE4MA feed. tnx fer info Joe

OE9ERC wkd : 11.09.94 DJ5QX #131, 23.10. G4FUF #, JA4BLC, OE9XXI, DJ9DW, DL6YDR, 30.10. PA0PLY #, PA3DZL#, K2UYH, KB2AH, F1ANH, OZ4MM, OZ9AAR, 27.11. HB9BBD, OZ9AAR, LA8LF, ZS6AXT, F6CGJ, DD1XF #, K3EAO #, 11.12. SM5DGX #143, OE9XXI, and nil in sked with UA3TCF. tnx fer info Erich

OE9XXI wkd : 11./.12. 03. KB2AH, OZ9AAR, VE6TA, N2IQU, K3EAV, W7GBI, W0KJY, W2UHI, AA6WI, DJ7FJ, F2TU, IK3COJ, DF3RU (439/559) #, JA4BLC, JA8ERE, IN3HER, ZS6AXT, OE5JFL, SM5DGX, I2COR, F6CGJ, VE1ALQ, AA4TJ, OK1KIR, OE9ERC, K2UYH, WD5AGO, VK1VP, SV1OE, IK3GHY, DD1XF, DL0SHF, S57GM, HB9SV, DF9QX, G3LTF and HB9BBD; 14qso in ssb and 80% on lin pol.. all random for 37x25 92500 points. CWNR LA8LF. 09.04. NU7Z 439/519 #181 + State WA, in May EA6/DF5JJ 559/579, N2IQU 569/589, AA4TJ 549/579, KB2AH 57/57, KD5RO 43/57, OZ4MM 54/57, LX1DB 55/57, DF9QX 54/57, ZS6AXT 559/579+44/55, DF3RU 549/579+ 44/56, OZ9AAR 549/559+ 43/53, SM5DGX 449/569, W2UHI 559/589, OK1CAM/O #182 on random, G3LTF 559/579. tnx fer info Peter

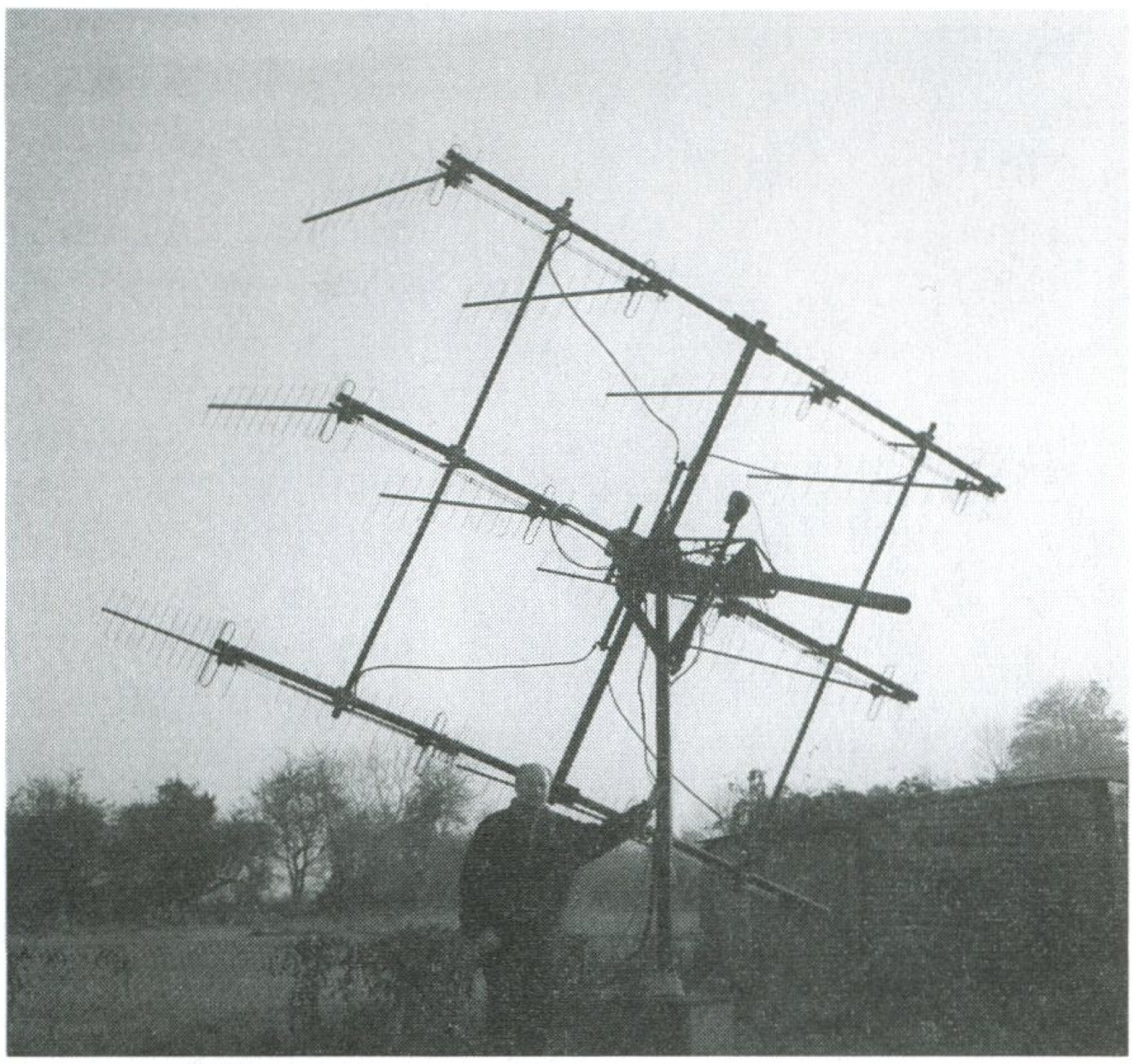
OK1KIR wkd : 11./12.02. VE1ALQ #, VE6TA #, VE4MA, SM3AKW, AA4TJ, VE1ALQ, OZ9AAR, W2UHI #, Ref/Dubus contest 11/12.03. N2IQU, DJ7FJ #, ZS6AXT, F6CGJ, OE9XXI, OE9ERC, F2TU, AA4TJ, IN3HER, KB2AH, AA6WI, K2UYH, WD5AGO, K3EAV, LA8LF, W2UHI, JA4BLC, OZ9AAR, JA8ERE #, DD1XF #, OZ4MM, HB9SV, VE1ALQ, G3LTF and DF9QX #119. tnx fer info Tonda

2304/2320 MHz

OE9ERC wkd : 26.11. JA4BLC cw and ssb with very good signals, JH3EAO, OE9XXI, W4HHK. tnx fer info Erich

OE9XXI wkd : 08./09.04. JH3EAO 549/559 #, JA4BLC 559/539, I6PNN 549/549, OE9ERC 54/55, IK6EIW 549/559 #31, GW3XYW 549/549, W4HHK 559/559, OK1KIR 549/549, IN3HER 559/449 and EA3UM 569/449 loudest signal, nil with DF3RU and EA6/DF5JJ; hrd were OH2DG and LX1DB. sun noise at 08.04. 2304 20.7dB, 6.7dB CSG, moon 1.7dB. 23.04. OE5VRL/5 O/O #40, in 05/06.05. EA6/DF5JJ 549/559 #41 and OK1KIR 559/539. tnx fer info Peter

OK1KIR wkd : 09.04. 2424/2304 JA4BLC #27, IN3HER, OE9XXI, CWNR EA3UM and W4HHK. tnx fer info Tonda



G3SEK 12yagi 3axes rotable array

5760 MHz

I6PNN: is now qrv on this band. rig : WB5LUA preamp FHX35+ATF10136 0.85dB; HB Transverter 200mW into RW89 TWT 30W out. Ant. 4 meter dish f/D 0.5 6mm mesh W2IMU feed linear. He has about 12dB sun noise and 0.6dB moon. Amato is interested in skeds. tnx fer info Amat*o*

OE9ERC wkd : 15.10. OE9PMJ #1, 17.12. VE4MA #2, OE9PMJ 549/549 and ssb, 11.12. OK1KIR #3. tnx fer info Erich

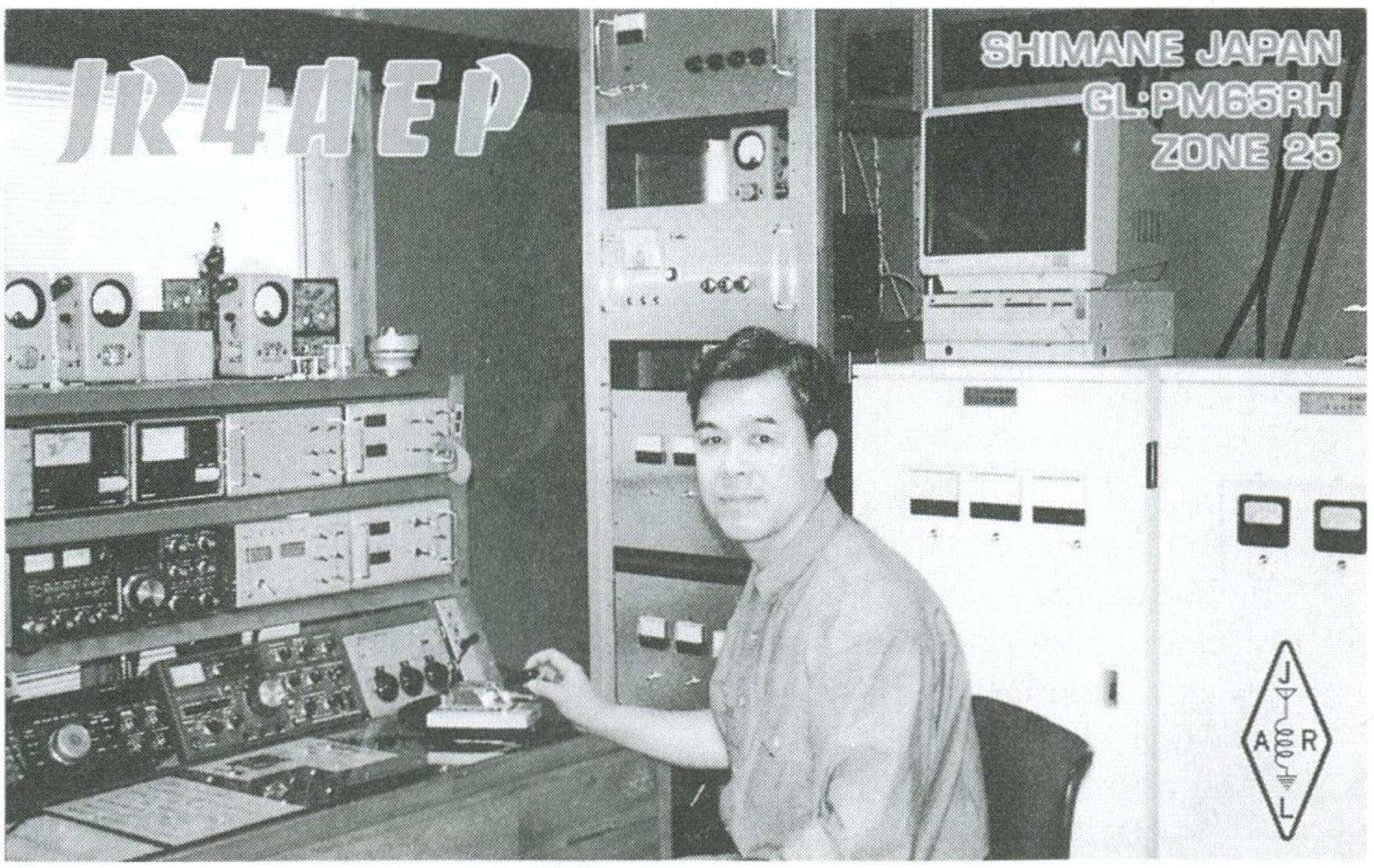
OE9PMJ wkd : 14.04. I6PNN 339/559 #5 and country. 23.04. OE9ERC 549/559, 06.05. I6PNN T/O, DL2GSG 549/559, OE9ERC 549/549, OK1KIR 439/449 #6, VE4MA 439/439, 12/12.05. SM4DHN 549/539 #7, OE9ERC 44/44 and I6PNN O/O, tnx fer info Peter

OE9YTV wkd : 11/12.05. SM4DHN 449/539, OE9ERC 44/44 and I6PNN O/O #3. tnx fer info Rheinhilde

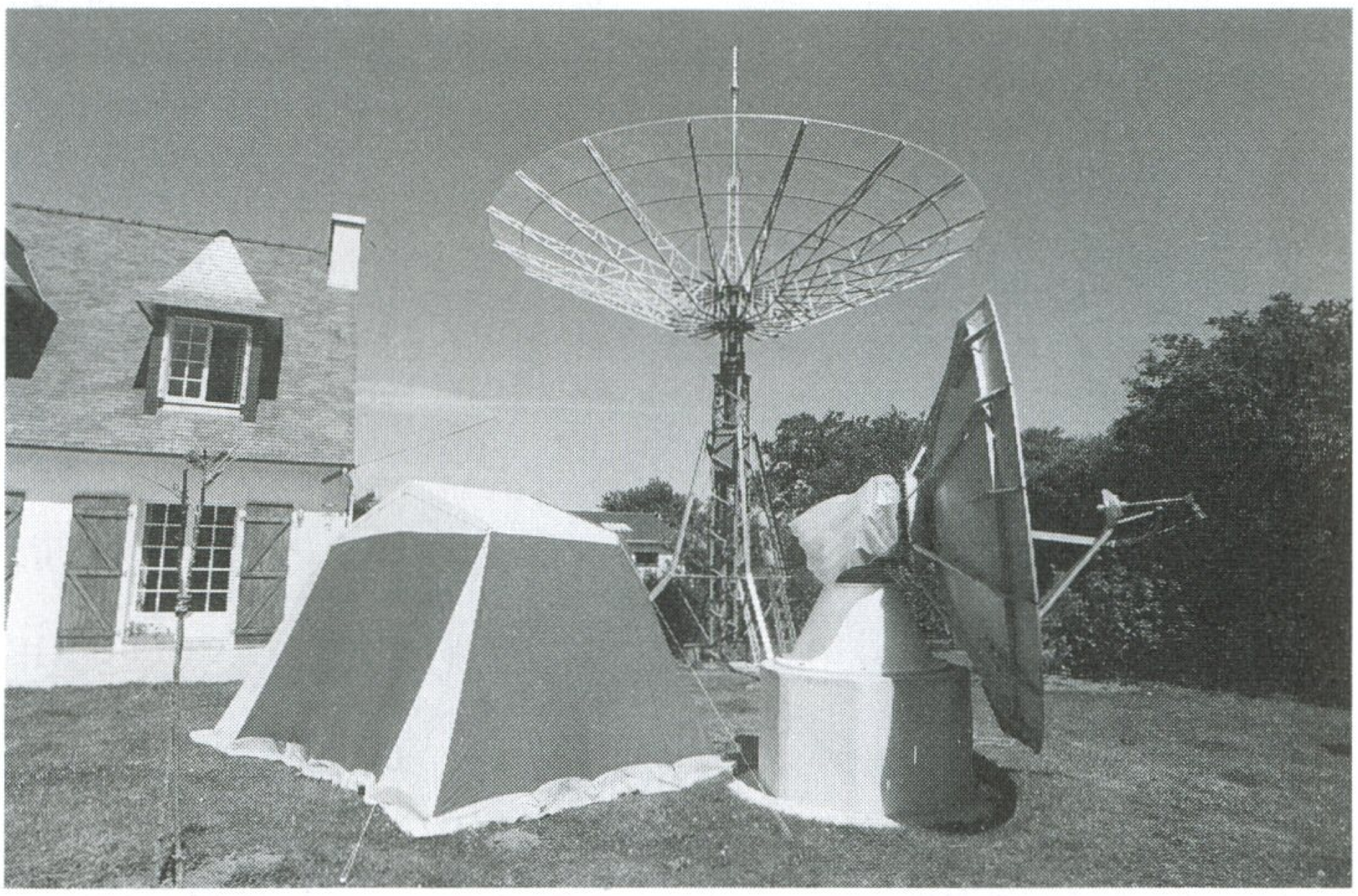
10 GHz

DJ7FJ wkd : 29.10.94 OK1KIR, F6KSX, PA3CSG, DL2GSG/p, WA7CJO, G4RFR, OE9ERC all O/O, 14.11. EA7/DL2GSG/p O/O, 15.11. SM4DHN, EA9/DL2GSG/p O/O, 26.11. I4CHY, SM4DHN in ssb, K9KFR, F6CGJ, WA6EXV, G3WDG, G4KGC all O/O, 10.12. S56UUU O/O. rig 4.5m dish 50w. tnx fer info Joe

DL2GSG active in EA-EA9. The 10G EME portable operation idea was born long ago. The first attempts were made in June '94. A crazy idea had Joe DJ7FJ to activate Africa on 10G EME. The easy way was to go to EA9. The first problem was to get enough power on 10G out of a car battery. Two TWTA were combined and he had to buils a



JR4AEP



F6CGJ: Dishes for 23 and 3 cm

12V TWT power supply. A 1.8m alu. dish were cutted in 3 pieces for better transport, but never reached the gain again. So they had to use a 1.8m glasfiebr dish, but how to transport?. The solution was to rent a campervan. In oct. the station was complete just in time for ARRL. The dish was mounted on a tripod and tracked by hand and moon noise. The moon noise is 0.9dB which is realized with a LNA, transverter, and a moon noise meter, all homebrew. The feedhorn is just the end of a circular waveguide. The system is by accident as good as an optimized VE4MA horn. The power is fed by a waveguide and the TWTA reaches 55W output. During tests it was possible to copy his own echoes but very weak. The dish was fixed on the roof of the camper. After 2500km they reached EA7 from where they made the first QSOs. 14.11. as EA7/DL2GSG/p DJ7FJ O/O, SM4DHN O/M, WA7CJO O/M, G4KGC not complete. Next day they took the ferry to Ceuta; EA9. In the evening of 15.11. they wkd as EA9/DL2GSG/p DJ7FJ O/O, SM4DHn O/M, WA7CJO O/M, form Petra G4KGC no sigs could be received. As usual when you do tricky things you will have some extra problems like storm with gusts or wild dogs which running through your station. The customs officers between Ceuta and Europe haven't took an interest in their rig, but they sent the sniffer dog in the campervan. After this successful test it is demonstrated that you don't have to be a big gun to make nice QSOs, but you will need them for a QSO. tnx fer info Greg

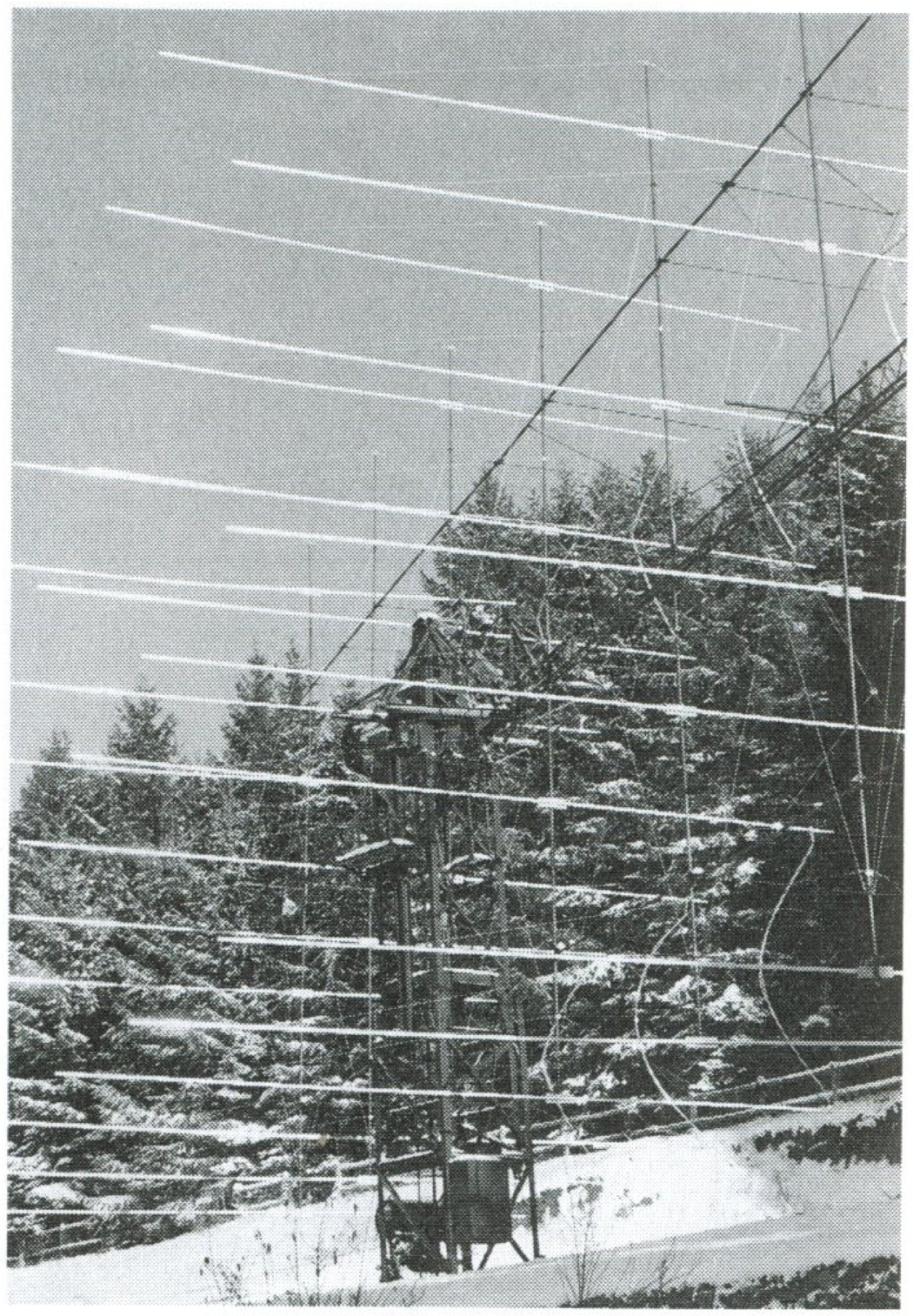
EA2BK made their first EME qso during the REF/DUBUS contest on 08.04.95. They wkd DJ7FJ. This was the secound attempt, the first with G3WDG in Feb. was only partial. Also SM4DHN was hrd but Lars went qrt. rig : 3m dish f/D .34

DUBUS BBS:

DUBUS mailbox service information:

- Tel.: (++ 49 30 455 76 25)
- Speed: up to 16800/ARQ/V42bis. Speed of calling modem will be recognized automatically.
- Services:
  - Bulletin Board/Mail
  - DUBUS News
  - Technical Software
  - EME Skeds Database for 144&432&up
  - EME Sked Utilities (Programs)
  - EME Contest Results (REF & ARRL)
  - European Contest Schedules
  - 10GHz Active Station List
  - European Beacon List
  - 432&up EME adress list
- Access for all who use their call sign.
- Box-Operator: DL7APV or DL4EBY
- Software Maintainance: DL4EBY
- PE1DAB sends the sked database 2m&up from the K4PKV mailbox always in time (Every Monday) from stateside. mny tnx !!!

European EME Contest: F3VS on 2

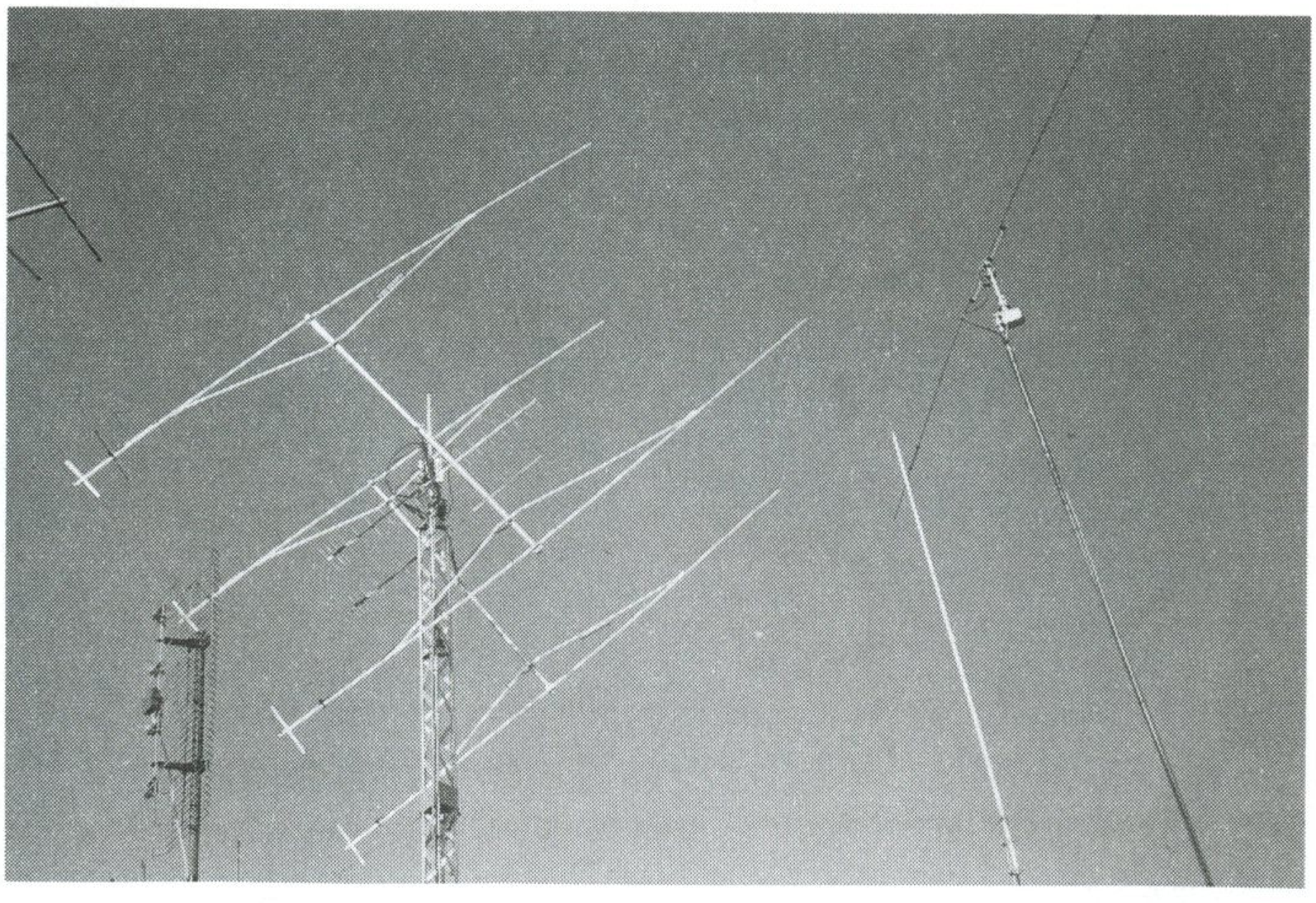


vertical pol. with scalar ring, TWTA YH1193 20-25W output, ssb transverter and Hemt preamp. For any information about future operations contact George EA2LU via VHF-Net 14.345 or Phone 34 48 264966 between 18:30 and 20:30 UTC. tnx fer info Jorge

G3WDG/G4KGC wkd in '95 three times WA7CJO. During the secound qso they used a solid state PA with just over 9W output, and got an M report from Jim. Their own echoeswere quite reasonable too. The PA uses two 5W amplifiers combined using 3dB waveguide combiners, described in one of the WDG technical notes. These are quite a lot easier to make than a magic tee, and have good amplitude balance and isolation. Phase difference between outputs is within 5° of 90. Back to back loss of two splitters together was about 0.4dB, so they are quite low loss. The combined amp was very tame, each half biased up just like when operated single ended. On 02.04. they worked Jim again. They had been transmitting for about 20 minutes for the benefit of GM4ISM who was testing out the recieve performance of the system he is developing. He heard them M, good enough to copy calls and reports, with his 6ft dish. Not bad for near apogee. He has 40W avaible, and hopes to be qrv in a few weeks time for skeds. tnx fer info Petra & Charlie

OE9ERC wkd : his first QSOs on 10GHz 29.10.94 WA7CJO #1, DJ7FJ, 30.10. PA3CSG, WA5VJB, G4RFR, K9KFR, 26.11. OK1KIR, G3WDG, G4KGC, SM4DHN, 27.11. F6CGJ, F6KSX #11. tnx fer info Erich

OK1KIR wkd : 08.04. DJ7FJ, CWNR F6KSX and SM4DHN. tnx fer info Tonda.



SV1BTR: 2 m

Last

This issue included many pictures from you. I hope you would like it. We will not be back on 432 until autumn with DK0NHF.

73 Bernd DL7APV

European EME Contest

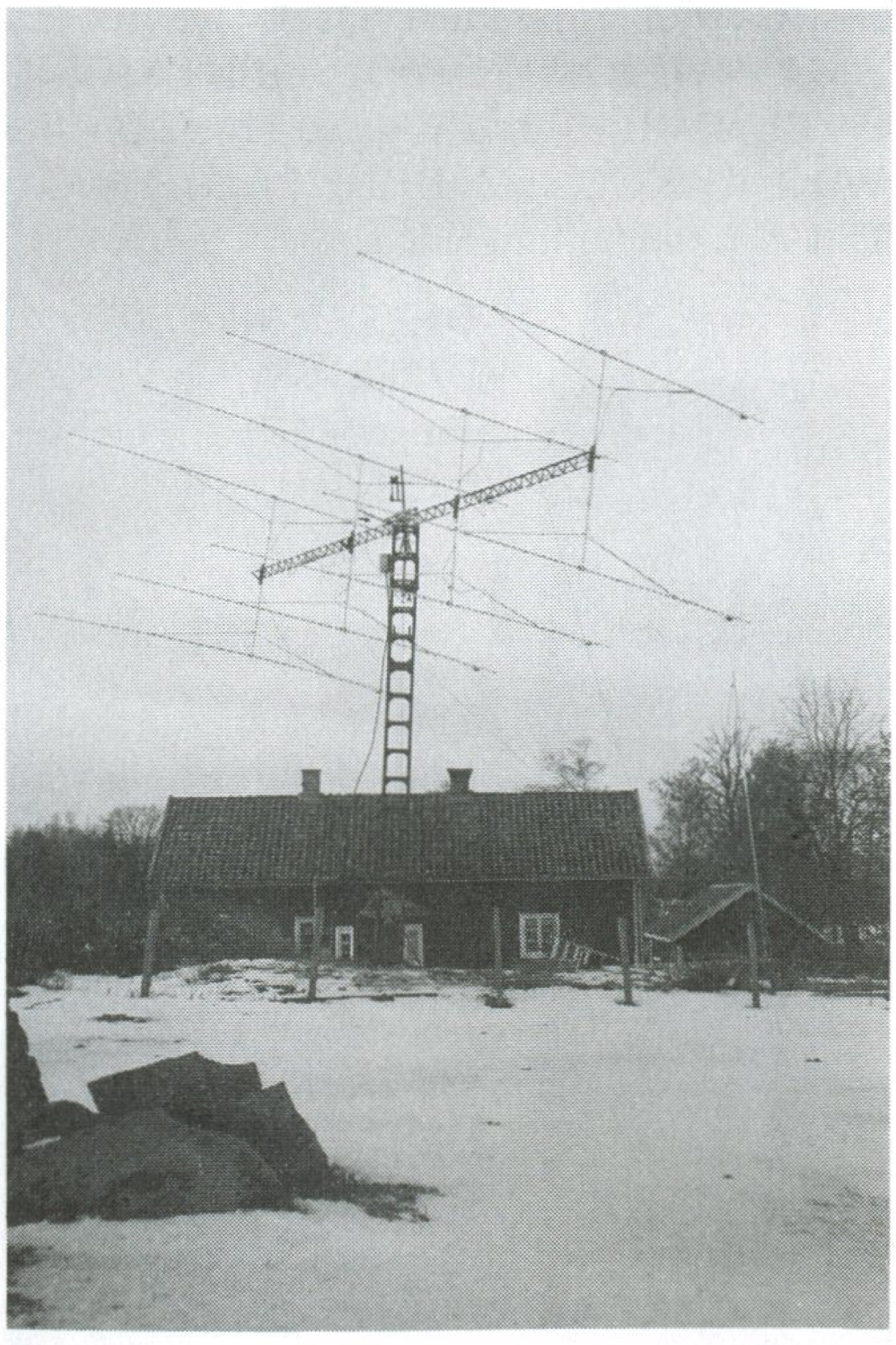
EME Contest 95

First weekend in March on showed marginal conditions the first night, but improved in the second one. Likewise the second weekend was impaired by some Aurora. Activity on 70 cm was extremely poor. Finally there arrived 31 entries on 2 m, 11 entries on 70 cm, 9 entries on 23 cm, 5 entries on 13 cm and 3 entries on 3cm.

Complete evaluation by DL8HCZ, checked by DL8LAQ. Logs received until May 15th were accepted this time. We hope for more stateside logs next time. Also surprising was the low activity on 70 cm. Joe, DL8HCZ

Comments

IK5QLO: On Saturday condx were quite poor, but they got better on Sunday after 18UT. It was fun anyway even with a qrp-station. cu agn next year!



SM5MIX: 1 st Place on 2 m

Results 144 MHz

Pos	Call	Points	QSO Mul	QRO Sin Mul	
1	**SM5MIX**	**323000**	85	38	Y S
2	SM5BSZ	296000	80	37	Y S
3	I2FAK	277200	77	36	Y M
4	F3VS	205900	71	29	Y M
5	LA8YB	147400	62	29	Y S
6	K2GAL	132500	53	25	Y S
7	F6IRF	86000	43	20	Y S
8	DL5MAE	74000	37	20	Y S
9	JL1ZCG	59500	35	17	Y S
10	PA2CHR	33800	26	13	Y S
11	S52LM	30000	25	12	Y S
12	SM6CMU	22920	19	12	Y S
13	PE1DAB	22000	20	11	Y S
14	UT1PA	20000	20	10	Y S
15	DL/OM9AME	19800	18	11	Y S
16	HB9DGX	18000	20	9	N S
17	F9HS	17100	19	9	N S
18	S51ZO	16200	18	9	N S
19	IK5UBM	15000	15	10	N S
20	HB9SUL	14490	16	9	N S
21	SV1BTR	13300	13	10	N S
22	UT5EC	8800	11	8	Y S
23	SP5EFO	7000	10	7	N S
24	7K3LGC	6300	9	7	N S
25	F6HEO	5400	9	6	N S
26	JA4BLC	4500	9	5	Y S
27	OZ5IQ	4000	8	5	N S
28	F6CRP	400	2	2	N S
29	K7JA	400	2	2	N S
30	AA4RR	100	1	1	N S
31	JH7SIA	100	1	1	N S

432 MHz

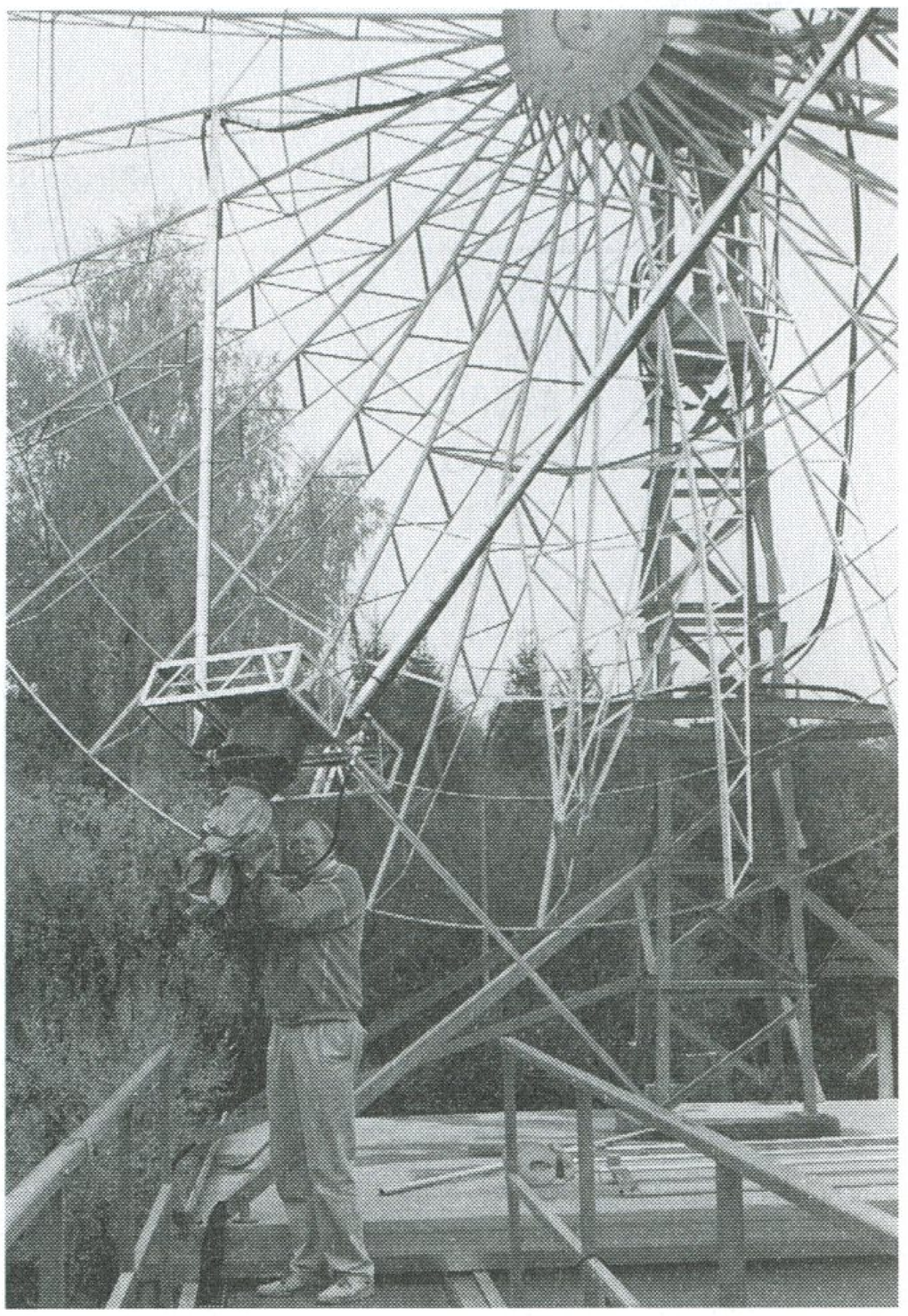
Pos	Call	Points	QSO	Multi	QRO	Sin/ Mul
1	**ON4KNG**	**14000**	14	10	N	S
2	UT5EC	8000	10	8	Y	S
3	IK5QLO	5600	8	7	N	M
4	JA4BLC	4900	7	7	N	S
5	DL4XX	4800	8	6	N	S
6	DK3FB	4200	7	6	N	S
7	IK5WJD	2000	5	4	Y	S
8	F6KBI/p	1600	4	4	N	M
9	S57QM	1600	4	4	N	S
10	UT1PA	900	3	3	N	S
11	JJ1NNJ	100	1	1	N	S

ON4KNG: There was Aurora before the contest and also on Saturday. Own echoes loud on Sunday all the time.

I6PNN: During the contest generally good condx on both 8th and 9th April. Significant activity on 13cm.

IK5WJD: Sorry for few QSOs, but I had poor condx on Saturday. And on Sunday morning moonrise a strong wind made me unable to lift my antenna system.

JA4BLC: I am happy to send four band logs. I enjoyed two weekends though the activity seemed



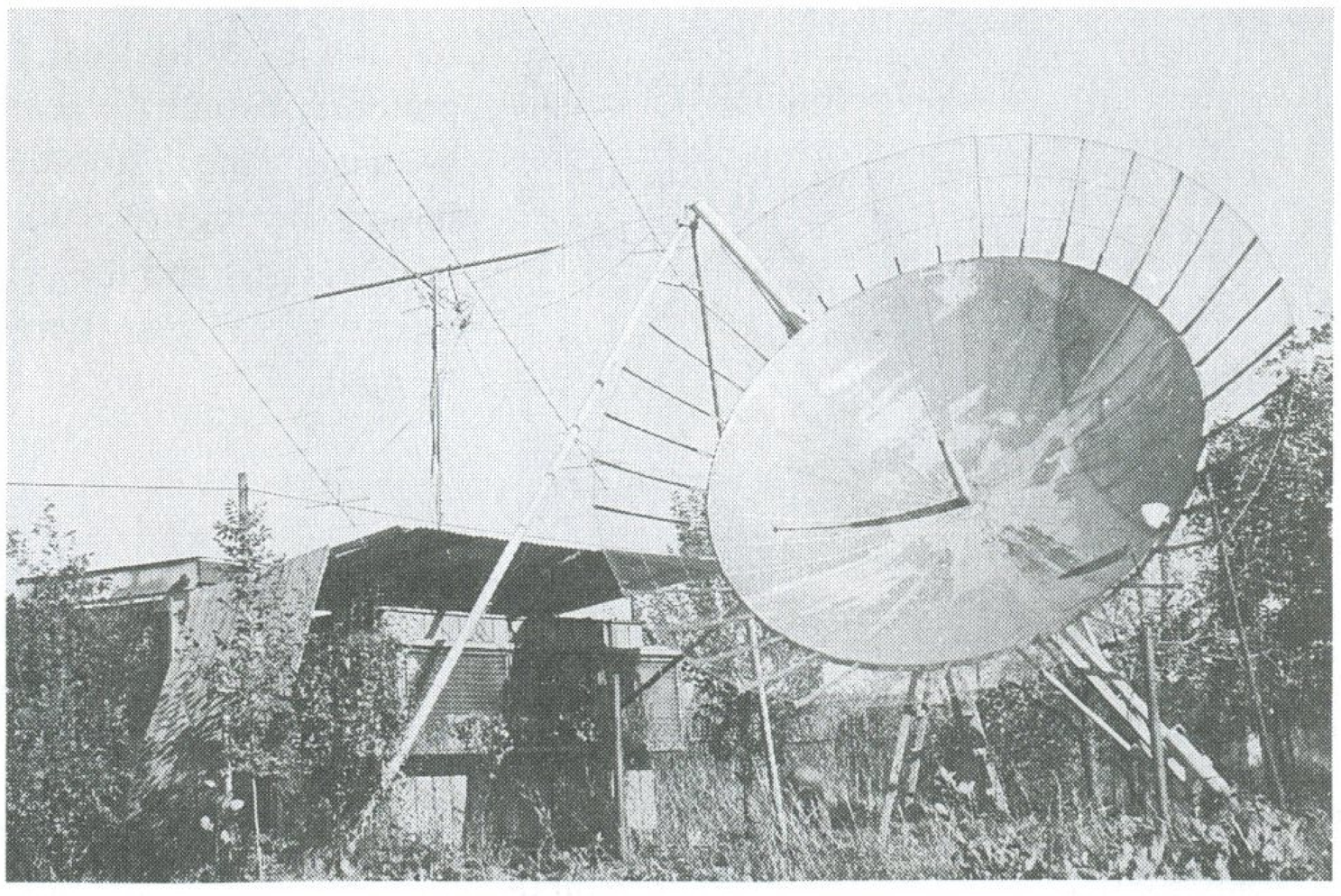
OE9XXI: 1 st Place on 23 cm

a bit low and condx poor. Thank you for the contest.

F6CRP: I have no elevation, so I have to wait for the right moment whhen the moon is in the direction of my antennas, hi. Congrats to W5UN and K2GAL for their good receivers, antennas and ears.

K7JA: First contest entry with tiny station. I wish there had been more Europeans calling CQ around their moonset. See you next time.

SM5MIX: Activity was not so high and we had strong aurora during moonset of 11th March, very bad condx that time. Fast polarity changes said SM5BSZ, but I did not have so much trouble as usually with polarity. I am very pleased with my score and eleven new ones during this weekend. 73s to all. Ulf



European EME Contest: OK1KIR on 70, 23, 13 & 3

1296 MHz

Pos	Call	Points	QSO	Mult	QRO	Sin/ Mul
1	**OE9XXI**	**92500**	37	25	Y	S
2	F6CGJ	53200	28	19	Y	S
3	OK1KIR	43380	24	18	N	M
4	F2TU	37500	25	15	Y	S
5	AA6WI	34000	20	17	Y	S
6	DJ7FJ	20800	16	13	Y	S
7	JA4BLC	15600	13	12	N	S
8	IK3COJ	4200	7	6	N	S
9	S57QM	100	1	1	N	S

2320 MHz

Pos.	Call	Points	QSO	Multi	QRO	Sin/ Mul
1	**OE9XXI**	**7000**	10	7	-	S
2	I6PNN	2400	6	4	-	S
3	JA4BLC	900	3	3	-	S
4	OK1KIR	900	3	3	-	M
5	IK6EIW	600	3	2	-	S

(Ed.: Congrats for winning 2m, good work! DL8HCZ)

DL5MAE: Condx very bad and low acitivity. Long distance stations like VK3AUU, AH6LE and LU7DZ only heard this time. Tnx for organizing this contest.

SM6CMU: Unfortunately very QRL during the weekend. Condx not particularly good but ok at times. 2 new stations (now 127 initials).

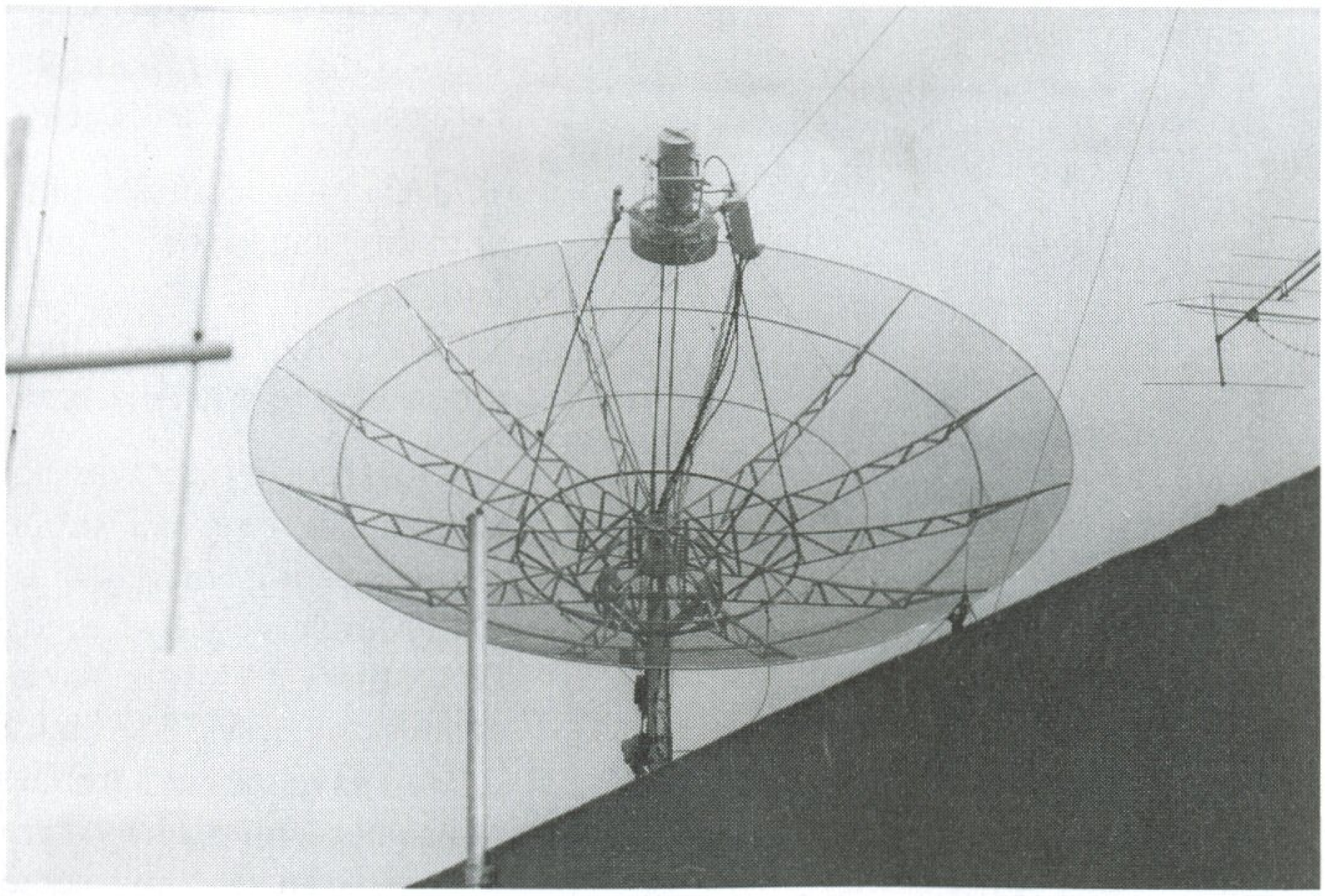
SV1BTR: I found codx very bad, especially on Saturday night with poor signals. The next day in the afternoon they started to get stronger. I hope that there will be more activity next year.

DJ7FJ: Super that you took over the REF-EME-Contest. Now we can hopefully expect that an evaluation will be made at all and results published in acceptable time. It was difficult to get stations on 10 GHz active.

Here some reasons for not getting qrv on 10 GHz:

S53UU: Three months in America. PA3CSG: I will not work new stations. VE7CLD: My preamp is oscillating. WA6EXV: I have a dinner with friends in Norway. WA5VJB: Will go 3 days after the contest to ZL. K9KFR: Elevation drive is broken.

JJ1NNJ: 2nd day bad WX, rain bringing high VSWR. Therefore I could not transmit to work DK9KR.



IK3COJ: 23 cm

Certificates and Trophies

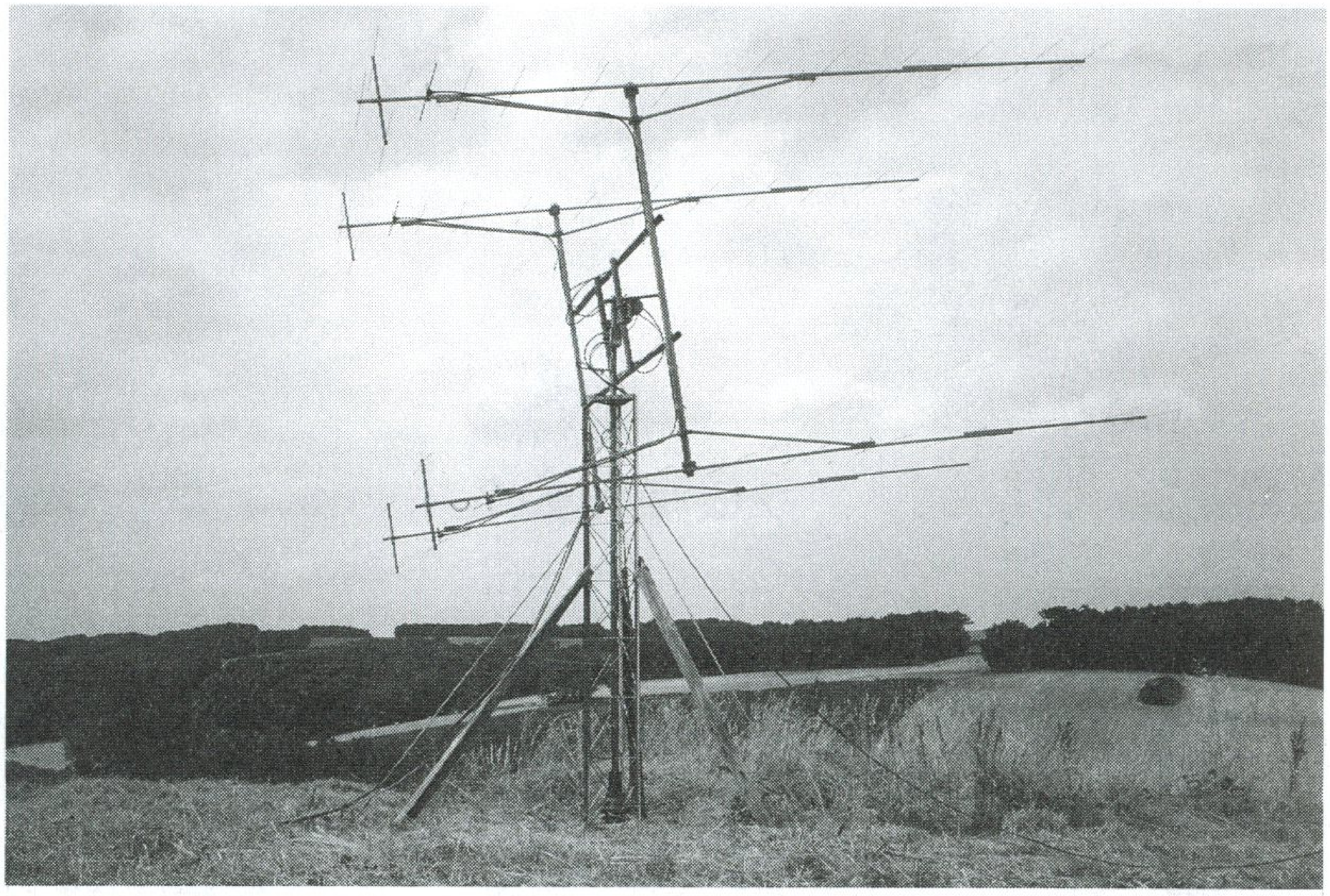
Every participant will receive a certificate. The six winning stations will receive a trophy. Just be patient for some 4 weeks, because the trophies have to be engraved with the callsigns and the certificates are just being printed.

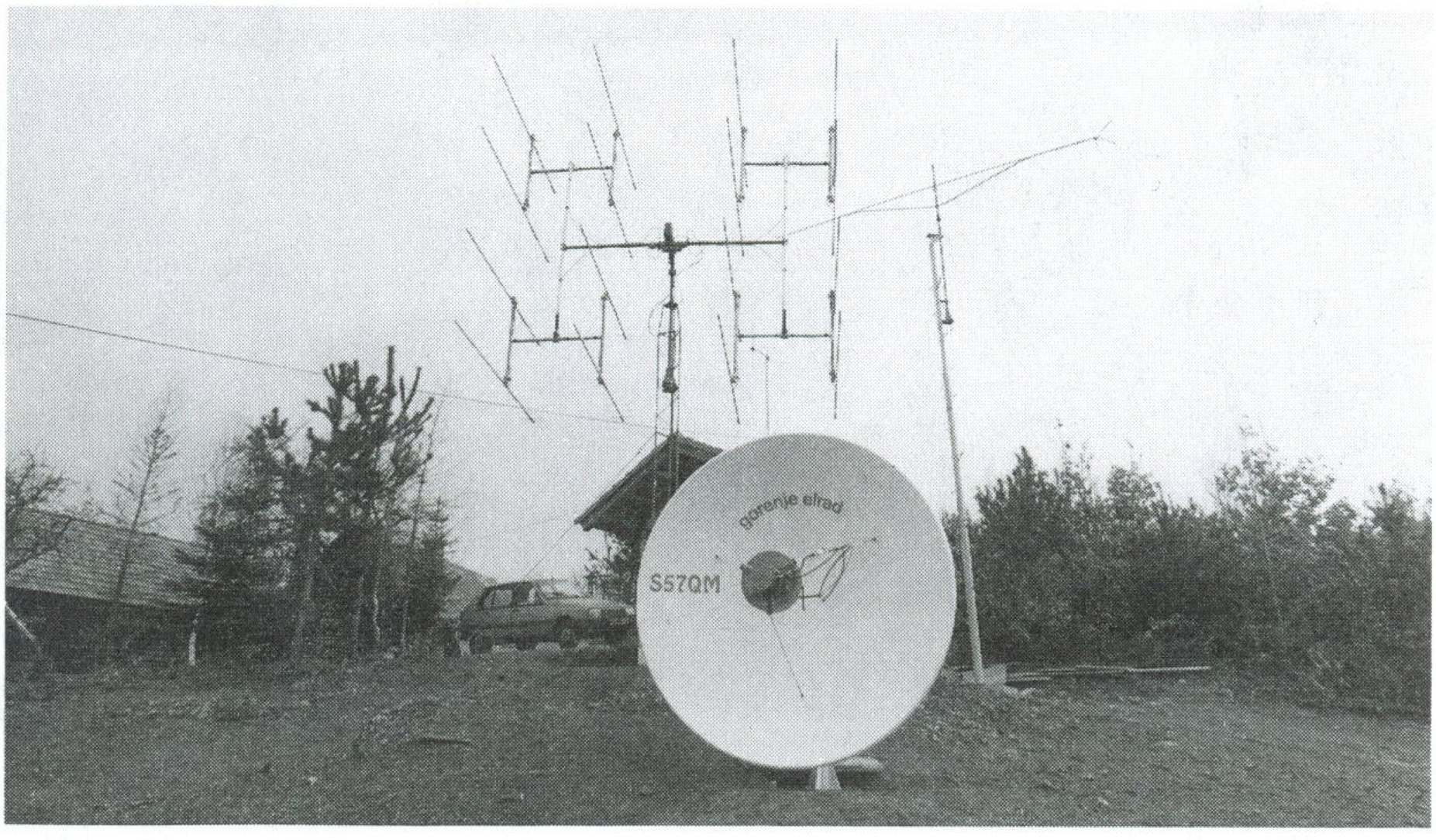
Proposed contest dates for 1996

First Leg (144/1296 MHz): 30/31 of March

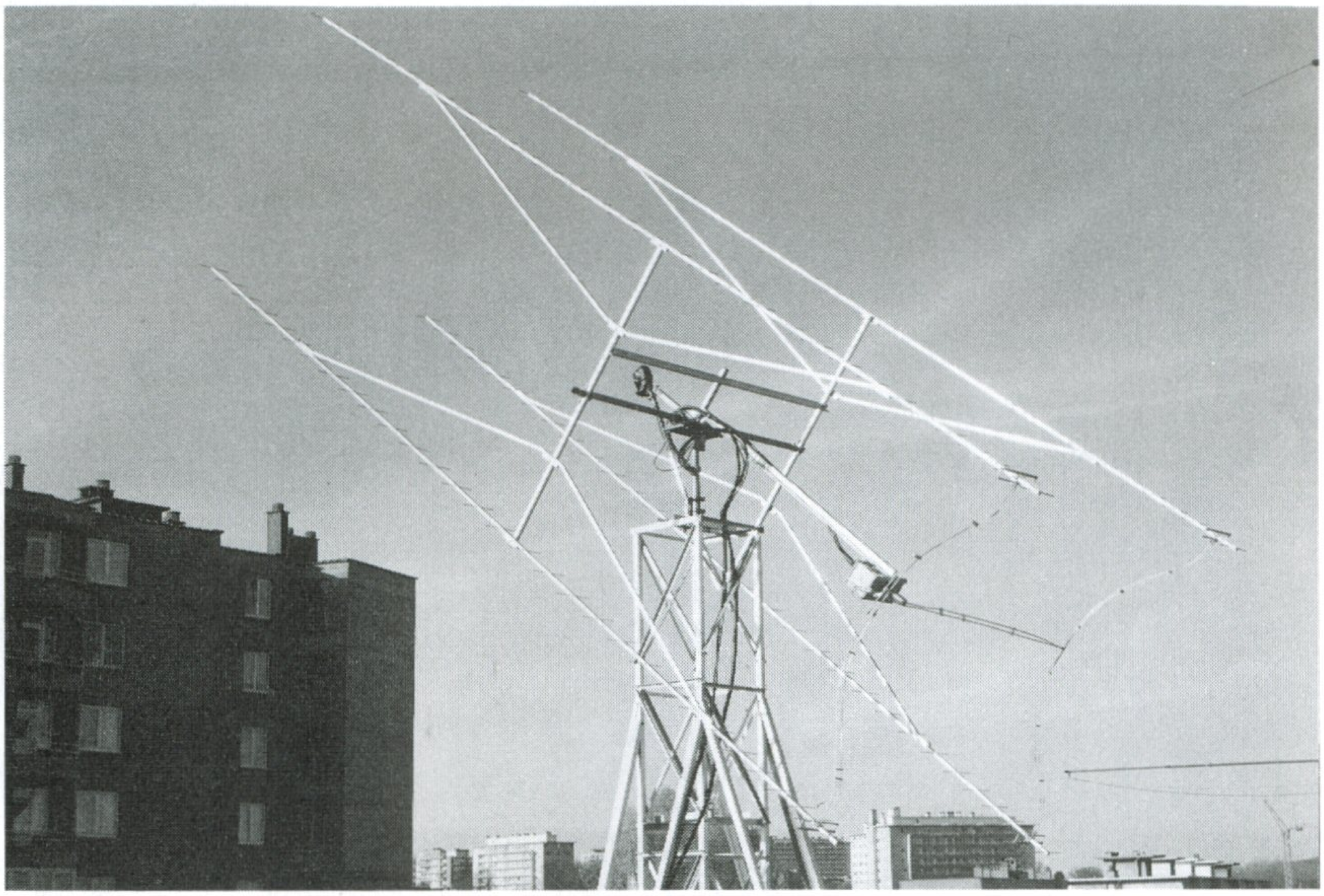
Second Leg (432/2300 & up): 27/28 of April

F9HS: 2 m





S57QM: 70 cm & 23 cm



ON4KNG: 70 cm



EA2BK (l.) & EA2LU (r.): 3 cm

Tropo News

Editor: Joachim Kraft, DL8HCZ

2m > 700 km

CT1/DC9KZ/p DF7KF, DH0LS or DL8EBW, IN50XX wkd >500km: 2.5.95 EA7BIH IM87cs Arturo 510km, F9HS JN03gl 758km, 3.5.95 EA3ECE JN01lp 755km, EA7BIH IM89cs 510km, EA7ALL IM87cs 510km, EA5CD IM98bx 570km, EA2LU IN92et 570km, EA2AGZ IN91dv 537km, F1SOH IN93oi 652km, F9HS JN03gl 758km, F1BPK JN03ax 742km, F6FZS IN93qi 665km, F5ADT IN94wo 760km, EA5EIL IM99cd 574km, EA5EI IM98bx 570km, EA5DIT IM99cd 569km. 4.5.95 F6DRO JN03sm 837km.

From IN51XA: 5.5.95 F9HS JN03gl 757km, EA2AWD IN93ci 576km, EA2LU IN92et 566km, F/G8MBI JN04ft 809km, F1BPK JN03ax 739km, F5ADT IN94wo 758km, EA2AGZ IN91dv 536km, F1SOH IN93oi Les 651km. 6.5.95 EB5IJA IM88wv 556km, EA4CAV IN90bt 518km, EA7AJ IM87cs 513km, EA7BIH IM87cs 513km, EA7ALL IM87cs 513km, EB7AQR IM87cs 513km, EA7DYV/p IM87ah 542km, EA5CD IM98bx 572km, EA3ECE JN01li 753km, ED2URP IN92kp 600km, EA2AMC IN92eu 568km, F1SOH/p IN93ld 624km, EA4CAV IN90bt 518km. 7.5.95 EA5HQY IM88vp 563km, EA5FWS IM99mh 631km, EB5BCF/p IM99nt 621km, EA9AI/p IM75iv 618km.

We completed around 150 Tropo QSO with 4 countries (CT, EA, EA9 and F) and there were 34 Locatorsquares worked within 7 days! (IM 67, 68, 75, 77, 78, 79, 87, 88, 89, 98, 99 - IN 50, 51, 52, 53, 60, 61, 62, 63, 70 IN 71, 72, 73, 80, 81, 82, 90, 91, 92, 93, 94 - JN01, 03, 04) Tropo tests with EI5HN in IO61 (1200km) and CT/DL5MAE (1300km) were not ok! It was a pleasure for us, to stay at these wonderful locations in CT!! Kind regards from the Expeditionteam: DC9KZ, DH0LS, DF7KF and DL8EBW

CT1DMK, IN50QP hrd: 6.2.95 15UT G?-Stn from IO70ST with 53. Info via CT4LV

DB3VE, JN39KK, wkd: 2.4.95 1816 - 2132 EI4DQ IO51WU, EI7GL IO51TU, EI3EBB IO51RV, G4RKV JO01OI, G0VKL JO01FJ, G7EXX IO81VQ, G1HQE IO92XA, G3GNR IO70WT, G1HJW JO01IN, G0FIG IO90UU, G7ITU IO91WK, G6YXT IO80FK, G0PQF JO01KU, G3WRD JO02HC, G4XEN IO92PH, G0LCB IO91GO, G7LMT JO01FH, G7NEG IO92NE. Rig: 2C29BA-PA + DL7KM-beam. tnx fr info, Erni

DF0JNA, JO50SU wkd: (OPs DL1ATO, DG0OBA & DH0LS), 446 m asl, 2x9 el, 12 m agl, 250 Watt. 4./5.3.95 9A1BST JO83GX 851 km, IK5IDHM/5 JN54GD 749 km, 9A5Y JN85OO 718 km, IK4WLV JN54XK 714 km, SP5EFO KO02MD 672 km, IW3FLL/3 JN64FU 670 km. tnx fr info, Jens

DF0TAU (Op DL2FDX), JO40QO, wkd: 4./5.3.95 OZ6ABA JO57DJ 758km, HG1DRD JN87KU 690km, 9A1W JN75RS 701km, 9A5Y JN85OO 804km, I4XCC JN63GV 783km, 9A1DS JN73OX 857km, HA1KFR JN86MM 724km, HG5FMV JN97KR 760km. Rig: TS-850 + Transverter + 4CX250B + 2*14ele. tnx fr info, Oliver

DF0RI (Op DL8OBC u.a.), wkd: Rig: TS850+LT2+LNA144+8877+8x9,2x17,17 4./5.3.95 G3IMV IO91OX 678, G6RAF IO92QP 664, F1OWN JN25IT 770, F6KBF/P JN17NP 655, OK1KHL JO78AC 736, IK4WLV JN54XK 877, 9A1EZA JN86HG 846, OK2KCN/P JN89PG 655, OL7Q JN99DQ 696, IK1RAG JN45HA 788, SP9EWU JO90NH 723, OK2KRT JN99BK 698, 9A2AE JN86FF 842, I4XCC JN63GV 947, F1CVU/P JN09BO 689, G4RRA IO91OF 690, G3RHH IO82UB 779, G4AEP IO91NJ 692, G4AEQ IO93PE 673, G4CLA IO92LJ 692. tnx fr info, Uli

DG3FK, JO41RI, wkd: 15.10.94 OK2UCM JN99FN 667, OK2BVE/P JN99GO 671, OK2VQF/P JN99GO 671, OM3CQF/P JN88RT 637, GW3ZTH/P IO81FP 899, OK1FEA JO80FG 506, OK1UOW JO80FG 506, G4CCC/P IO91IH 746, G3KEQ JO01BH 648, G8MYK JO92BJ 786, G1EUC JO01GR 618, G4RKV JO01OI 573, SP2DDV JO93AC 616, G4ASR IO81MX 858, OK2BFH JN99FN 667. 16.10.94 OE1PMC JN88FD 616, G4RRA IO91OF 712, OK2PJW JN89JM 558. 02.12.94 OK2UCM JN99FN 667. 16.04.9 OK1UGA JO80DD 500, OK2PTC/P JN89JM 558. 22.04.95 IK4DCO JN64GB. 25.04.95 I4XCC JN63GV 861, IK4WLV JN54XK 791. Rig: 4CX250 + 17 ele. tnx fr info, Tom

DK1VI, JO31, wkd: 6.2.95 1712-1953 EB1EHO IN73DM hrd 52, EA1EYT IN73DM hrd 51, EB1EHO IN73DM wkd 53/55 QRB 1270 km New ODX on Tropo ! EA1NV IN73EM hrd 53, F6APE IN97QI wkd 56/54. Stn: IC251E + PA 750 W HF, GaAs-Fet Preamp, 16 El. F9FT tnx fr info, Ernst

DK3RV, JO31DG, wkd: 6./7.2.95 JN05, 16, 17, 19, 25, 27, 28, 38, IN73, 93, 94. tnx fr info

DL1EAP, JO31IK wkd:

6.2.95 2012-0021 EB1EHO IN73DM 1280, EB1DNK IN73DM 1280, F6APE IN97QI 698, F1IEH JN08FE 575, F6GPT IN94SW 896, EA2AWD IN93CI 1101, EA1YY IN73AO 1286, F6BYJ JN05FS 780, F5FLN IN94SR 915, F1HNF IN97XF 676, F1IRQ IN96PT 745, EA2ADJ IN93AH 1113, EA2LP IN93AH 1113, F3VX IN97SK 682, EA1NU IN73EM 1275, F6CRP IN96KE 817, F5GXX IN95VK 839, F5GHP IN96LE 813, F5ODJ JN16FI 645, G8ZVM IO70ID 855. tnx fr info, Wolfgang

DL1KDA, JO30FQ wkd >700km: 3.1.95 OZ4TST JO75KD 750, OZ6EVA JO57HJ 794, SM7CMV JO65UK 716. 6.2.95 EB1EHO IN73DM 1215, EA1NV IN73EM 1210, F6GPT IN94SW 821, F6FSK JN04QK 792, F/G8MBI JN04FT 792, EA1YY IN73AO 1223, F5FLN IN94SR 840, EA2AWD IN93CI 1026, F5GXX IN95VK 765, EA1NU IN73EM 1210. 7.2.95 SM7CMV JO65UK 716, OZ4TST JO75KD 750, OZ4EDR/A JO75JE 749, SM7CMV JO65UK 716, OZ4TST JO75KD 750, SM7ALC JO65RL 708. 9.3.95 S53VV JN65UM 787. 23.3.95 GW3ZTH/P IO81FP 705. 2.4.95 EI4DQ IO51WU 1021, EI7GL IO51TU 1038, GW8ELR IO71RX 777. 4.4.95 OZ9IT JO46HW 709, OZ6ABA JO57DJ 787, OZ4EDR/P JO75JE 749, OZ4TST JO75KD 750. 6.4.95 G7KTE/P IO80FI 707. 16.4.95 OK2PTC/P JN89JM 748, OK1OEA JO80FG 709. tnx fr info, Alex

DL2FDX/p, JOP40QO wkd: I4XCC JN63GV 783km, IK4IDP jn54rm 700km. Rig: 15W + 14 ele. tnx fr info, Oliver

DL3YEE, JO42GE wkd: 6.2.95 EB1EHO 55 53 IN73DM 1430 km Rig: 2,5 Watt, 14ele.

DL4KG, JO31NA, wkd:

6.2.95 Nach dem allabendlichen 70 cm-Sked mit G3KPV (IO91LK - 572 km) mit 59 auf beiden Seiten, meldete ON4ZN gute Condx nach Frankreich. Jochen, DJ9DL - JO31NC, war bereits Richtung Frankreich qrv. Wir wechselten kurz einige Worte als pltzlich eine Station in Englisch hereinrief. Auf Rckfrage meldete sich EA1NU (IN73EM). Jochen und ich loggten Antonio mit 55 auf beiden Seiten. fr mich war es ein neues ODX ber 1272 km. Danach gingen noch F6APE (IN97QI - 696 km), F6GCT (JN18NT - 378 km) und F6CRP (IN96KE - 811 km) ins Netz. EA1NU konnte noch 1 Stunde lang mit guten Feldstrken beobachtet werden. Die aktiven Stationen aus Frankreich und Spanien waren leider nicht sehr zahlreich. Mein QTH: Leverkusen JO31NA - 125 mm . NN (Ant 140 m . NN) Rig: TS-850 mit HM Transverter + HM Transistor-PA 100 W Ant: 2x20 Ele. vertikal gestockt tnx fr info, Gerald

F9HS, JN03GL, wkd >800 km: 6.2.95 IO80, IO81, IO82, IO90, IO92, JO01, JO20 and JO22. Odx is G7JBG, IO92VX 1061 km. tnx fr info, Claude

I4YNO, JN54KP, wkd: 28.8.94 DL8AKI/P JO51. 18.9.94 OK1KOB JO70. 5./6.11.94 DF0CI JO51, OK1AQT/P JO70, OK1KKL/P JO70, OK2KJU/P JN89, OK1OEA JO80, OK5VHF/P JO70. 20.11.94 OK1AJY JO70. 3.12.94 DL8AKI/P JO51. 4.12.94 DL9YEY JO41 824. 14.12.94 ON4GG JO20AR 848KM. 7.1.95 DL9YEY JO41. 8.1.95 DL9YEY, DG6PS JO30. 14.1.95 DL9YEY. tnx fr info, Alex

I8MPO. JN70FP, wkd SSB >900-1380km: 15.5.94 EA6VW JM19MP 976. 22.5.94 F1EPB/p JN13GK 1031. 23.5.94 EA3FLX JN01UX 1075, EA3ADW JN11CQ 1032. 28.5.94 F5SJP JN13VQ 941. 1.6.94 EB5IFI IM99WU 1240. 19.6.94

EA6QB JM08QV 1134, EA6PZ JM08RV 1127, EA6AAX JM08QV 1134. 2.7.94 F6KSJ/P JN13VM 936, F6KKH/P JN13ND 978. 3.7.94 F6KBR/P JN12FM 1019. 4.7.94 EA3GDP JN00GQ 1173. 13.7.94 EA3DUY JN12LD 973, EB3DYO/P JN11NU 957, EA3CHN JN11CJ 1031. 14.7.94 EA3CN JN11BI 1083, EA1RT/3 JN11NU 957, EB3ENW JN11BK 1038, EA3AND JN11CK 1031. 16.7.94 EA3FLN/P JN11NV 957, EA6SA/P JM19QS 946. 23.7.94 EB4DYS JN11CK 1031. 24.7.94 EA3ARZ JN11BP 1038, EA3DXU JN11CM 1031. 6.8.94 EA3RCF/P JN12ED 1021, EA6VC JM19, EA6IB/P JM09SC 1115, EB3EOM JN12ND 960, EA3BTD/P JN12GA 1006, EA4EKP/5 JN00DG 1199, EA5GIN/P IM98VP 1274, EA3GFB JN11KX 978, EA3EVJ/P JN02LA 1137, EA3DJL JN11CP 1031. 7.8.94 EA3BB/P JN02SE 1090, EA3AKS JN01UG 1072, F6HTJ/P JN12EL 1025, EA6/HB9FAP/P JN10WA 900. 8.8.94 EA3SCV JN01ND 1122, EA3FLN JN12KA 979, EA3GFM JN11CJ 1031. 20.8.94 EA3BJR JN11BK 1038. 21.8.94 EA3FBO JN11CM 1031, EA3CRI JN11CL 1031. 22.8.94 EA3EAU JN01UF 1073, EA3QD JN11FS 1011. 23.8.94 EA2AGZ IN91DV 1360. 29.8.94 EA3XS JN11DP 1024. 31.8.94 EA5FKW IM98PG 1328. Note: Although last summer I had more than one contact with several of the above EA3s ans EA6s, I have listed only the first QSO I had with each of them during the given time period. Equipment 15.5.-3.8.94 100w out + 13 ele, 4.8.-31.8.94 200w out + 13 ele. tnx fr info

OE1XTU/3, JN77KR wkd >700km: OPs OE1TKW, OE1REC, OE3LHC, OE1MCU. Rig: 1KW, 18ele. 4./5.3.95 DL0OS JO42AH 705, DF0JV JO33XM 807, DL9GJW JO54VC 741, DL1EAP JO31IK 718, PA0JED JO22WA 801, PI50RCG JO22PE 845, PA3CMC JO21WI 764, DF0CG JO31CQ 762, DL0GL/P JO31KP 721, PA3BUT JO21VX 804, PI50ZI/P JO32IK 783. tnx fr info, Michael

PA3BIY, JO22, wkd: 28.11.94 OK1AAZ JN69, OK1XN JO70, OM3CQF JN88. 29.1.94 HA/DL1MAJ JN87. 6.2.95 EB1DNK XD32e, EB1EHO XD32e, EA1YY XD31h, F5RJM ZJ33g, EA2AWD ZD52h, EA2ADJ ZD51g, F/G8MBI AE63h, F1IRQ ZD17j(?), F6ANQ ZE18g, F5FLN ZE28b, EA1BTA XD60b (He used 4 Watt only!), F1ROW ZJ32c, F6CRP ZG65j. tnx fr info

PA3FJY, JO32EH, wkd: 6.2.95 EB1EHO IN73DM, EB1DNK IN73DM, EA1YY IN73AO, F6IRQ IN96PT, F6GPT IN94SW, F5RCB JN06BR, F6DBB IN96NS, F1MRO IN95LQ, F/G8MBI JN04FT, EA2AWD IM93CI, EA1BTA IN73XI, F6CRP IN96KE, F3VX IN97SK, F5IRP JN06WE, F1JXR IN98JN, F6FZS IN93DH, F5GHP IN96LE. 4.3.95 OK1FNX/P JN79IO. 23.3.95 GW3ZTH/P IO81FP, G4UDE IO82KT, G1GFQ IO83PPH, GU3EJL IN89VR, DG1MDN JN58RT. 16.4.95 OK1KJB/P JN79IO, OK1FXX JO70UV. 30.4.95 I4XCC JN63GV, IK4WLV JN54XK, I4GBZ JN54VV HRD. tnx fr info, Dick.

PE1LAU, JO33MD, wkd: 6.2.95 1953-2119 EB1EHO IN73DM 1421km, F/G8MBI JN04ST 1009km, F1MJC JN06SR 814km, F6APE IN97QI 842km, F6GPT IN94SW 1062km, EA1YY IN73AO 1426km, EA2ADW IN93CI 1267km, EA2ADJ IN93AH 1267km, F6BYJ JN05FS 947km. Rig: 120w + 7 ele. tnx fr info, Johan

PI4NYV, JO32FI, (OP PA3FJY) wkd: 4.3.95 OE9DMV JN47, SK7JC JO76, OK1KCB JN78, SP3SUX JO82, OL7M JO80, HB9RHV/P JN37. 5.3.95 OK1KPA JN79, F5MSC/P IN99, OE5XXL JN78, HB9CXR JN47, OK1KJB JN79, OK1AVD JN79, OK1FLY JN79, OK1OXX/P JN79, HB9DGX/P JN47, F5KCR/P JN26, HB9DKZ JN47, F5FNY/P JN36, DK0OG JN68. 6.5.95 G1HXH/P IO85, G0PWE/P IO85, G1KFX/P IO85, OE5XXL/2 JN67, SP3BLR JO72, SM7LXV JO65, SM7JUQ JO65, SM7RYO JO76, HB9CNY/P JN36, OK1KBA/P JN89, DL0DWD JO34, SP1UJU/P JO84, SP1NQN JO84, SP2OFW JO93, GM4YXI IO87. 7.5.95 SP3SUX JO82, OK1KPA JN79, OE3XTU/3 JN77, SP7EBM JO91, SP2SGZ JO82, SP2MKO/A JO93, SP2PIK JO93, SQ3BYC JO91, OK2RAB JN89, OM3KMA JN88, SN7L JO91, HB9AQW JN37, OL7M JO80 + MNI JO70/71, JN69/79. tnx fr info, Dick

UR3EE, KN78 wkd: 9.10.94 2141 YO3DMU KN34BJ, 2236 LZ2FT KN34PC. tnx fr info

US5WU, KO20DI, wkd: 14.10.94 DL8BDF JO43, DJ2XS JO53, DL6BCZ JO43, DJ9YE JO43, G3ZXZ IO93, DL9GJW, DL7AKA JO62, DK5HQ JO53, DL1BBM JO43, DB6LJ JO43, SP7OGP KO01, DL8UNO JO72, DL3KUM

JO64, DL8HCZ JO53, DG8LAV JO44, PE1LAU JO33, SP7DSB IO91, DL7MB JO72, SP6GVU JO81, DF8LC JO53, DL9GKA JO63, DJ7RJ JO53, SP3TYF JO82, SP6MQO JO90, SP6CT JO81, SP3DOQ JO81, SP9GDI JO90, OZ6TY JO55, SP2MKO/A JO93, SP5IDK KO02, SP6RLA JO81, OK2BPR JN99, OK2UFB JN99, OK1UOW/P J+OK1FEA JO80. tnx for info, Boris

70cm >500km

DG3FK/p, JO40UJ, wkd: 3.9.94 2353 F5DYD/P JN02QW 1062km. Rig:4x9 ele, 75W. tnx Tom

DJ8ES, JO43, wkd: 6.5.95 1655-2132 DL0UL/p JN48UO 597km, DF1VW/p JN39NR 500km, G4DSP/p JO03CE 621km, G4GCM/p JO02QV 553km, G4LOJ JO02QN 565km, G0VHF JO01PU 600km, DF1IAZ JN49RB 546km, OS6ZT JO10UU 526km. tnx fr info, Wolfgang

DK3RV, JO31DG, wkd: 6.2.95 EA1NU IN73, F1CYB JN17. tnx fr info, Walter

DK9TF, JO31NF wkd: 2103-2307 EA1NU IN73EM, F6APE IN97QI, F1YIN IN96WT, F5GYA JN15MR, F6ANQ IN94RT, F5GXX IN95VK. RIG: FT726R + 2 X 4CX250 + 19 ele tnx fr info, Jürgen

DL2FDX/p JO40QO wkd: 5.2.95 IW3RI JN65RU 608km. Rig: 15w + 21 ele. tnx Oliver

DL3YEE, JO42GE, wkd: 6.2.95 2145-2310 F6APE 55 52 IN97QI 849 km, F6ANQ 559 519 IN94RT 1057 km, EA1NU 52 52 IN73EM 1426 km, F5GXX 58 52 IN95VK 985 km. Rig: 25W, 2 x 28 Ele.

DL4MDQ, JN58RP, wkd >500km: Rig: 2 x 23 ele, TH308-PA. 7.1.95 DL8BDU JO43. 8.1.95 DB8WK JO33, DL3BAL JO43, DG9BEM JO43. 10.1.95 PE1BBI/p JO33. 16.1.95 DB8WK JO33. 20.2.95 PE1CKK JO22. 27.2.95 PA0EZ JO22. 28.2.95 DL6NVC/p JO73. 4.3.95 PA3BPC/p JO21, PA3FPS JO22, PA3GCV JO32, DL1BKK JO43, DK5HQ JO53, DK0SM/p JO53, DF0NF JO44, PA3FPQ JO21, PI4GN JO33. 5.3.95 F5KRC/p JN26, OK2BDQ/p JN99, PA6C JO33, DJ9RX JO43, DG2BCP JO43, DL6NVC/p JO73, ON7WR JO20, IK4DCX/4 JN64. 12.3.95 DL8BDU JO43, DB8WK JO33. 6.4.95 hrd GB3BSL IO81qj at 1940z RST 539; no activity! 16.4.95 DL8QS JO43, DL6BCR JO43, DL0HMB JO53. 29.4.95 DC1HR JO53. 30.4.95 PE1NHS/p JO32. 01.5.95 DG9BEM JO43. 6.5.95 G4CLA/p JO00hv, G0VHF JO01pu, OS6ZT/p JO10uu, IW1QBJ/1 JN44gk. tnx fr info, Max

DL0DK, (OP DG3FK), JO40XL wkd > 500km: 4./5.3.95 OZ6HY JO45WA 505, S53AC JN76GB 597, IW1CLE JN45JD 599, OZ6OL JO65DJ 569, S50C JN76JG 588, OZ1FKZ JO56AB 621, S53M JN86BS 612, 9A1WJN75RS 664, I4YNO/4 JN54OK 678, S51ZO JN86DR 625, OZ2OE JO45VV 602, IK4DCX JN64GA 744. Rig: 4 x 11 ele, PA 4CX250, 940m asl. tnx fr info, Tom

I4YNO/4, JN54OK, Monte Capra, wkd: 4./5.3.95 DL9NDD JN59 571, DL0FLT JN49 602, DH5NAH JN59 585, OE3EFS/3 JN78 523, OE1FCS JN88 588, OE5VRL/5 JN78 504, OK2KJU/P JN89 732, DK2GR JN59 530, DL0DK JO40 679, DG9NCX JN59 604, DK2RY JN59 571, 9A3B JN95 586, OK1KCR/P JN79 687, DC2GY JN48 529, DJ1NY JN49 605, DK2DB JN48 543, OK1KLL/P JN79 667, OK2ZZ JMN89 688, DJ9UI JN59 561, DG1NZ JN59 543, DL5RDW JN68 505, DL0NF JN59 561, DG7SFL JN49 544km. Rig: 3CX800 + 8 x 25ele, 440m asl. Skeds via PR I4YNO via I4EUM or phone + 39 59 236243 after 19z . tnx Della!

PE1LAU, JO33MD wkd: 6.2.95 2132-2326 EA1NU IN73EM 1417km, F6APE IN97QI 842km, F6ANQ IN94RT 1077km, F5GXX IN95VK 1004km. tnx fr info, Johan

US5WU, KO20DI, wkd with 3w + 21 ele: 14.10.94 DB8WK JO33, DK3BU JO33, DL1NTC JO63, DF5LQ JO44, DL3BWW JO72, DL4XX JO43, DK0TU JO62. 15.10.94 OK1UOW/P JO80, OK1FEA JO80, SP3NNH JO81. tnx Boris.

50 MHz - Infos

DL1GI, JN38, wkd: 15.5.95 1740-1823 EH7KW IM67, CT0WW-B hrd, EH7KF hrd, EH1BLA/p IN63FK, EH1TA/p IN62BF, EH7BIH IM87CS hrd, EH7PZ IM67XJ, EH7BVD IM77OU. tnx fr info, Ralf

DL5BAC, JO43LG, wkd on 6m: 14.4.95 1652 OZ5AGJ 51 51 JO56 Tropo. 15.4.95 1010-1028 via Es IK0FTA JN61, IK0AKP JN61, IK9EVE JN71, I5VOW JN52, hrd also I0JX JN61, IK0OKY JN61, I8TUS JM89. tnx fr info, Hans

Meteor Scatter

Editor: Norbert Göttsche, DL8LAQ

VHF Expedition to CT 1995

IN50XX - Montemuro - 1000m asl (CT/DF7KF or CT/DL8EBW)

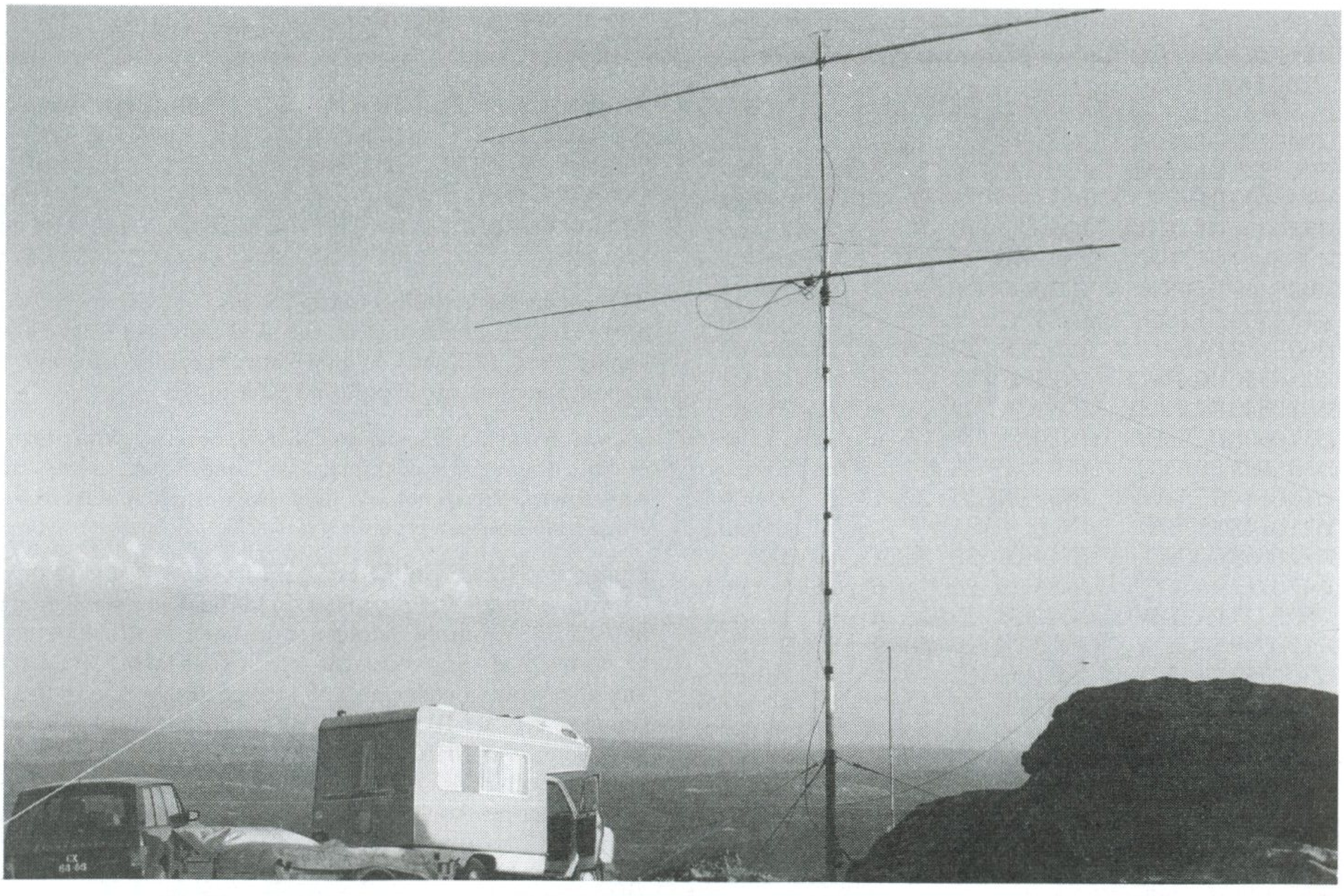
950502

0300	0400	DL7VBW	JO62QN	26		3	2	1	nc
	0400	DD0VF	JO61VC					nil	tail
0325	0417	IW1AZJ	JN35UB	27	27	15	m	1	nc r *1
0400	0432	DL1KDA	JO30FQ	26	26	27	23	4	c
0445	0517	DH6JT	JO31	26	27	10	m	1.5	c r
0500	0519	DL1EAP	JO31IK	26	27	14	7	0.5	c
0520	0543	I2FAK	JN45OB	28	27	m	m	12	c r
0557	0623	PA3FJY	JO32EH	27	27	12	m	1	c r
0545	0653	DF1SO	JN48PO	26	27	15	8	3.5	c
0650	0710	DL2IAN	JN49BC	27	27	5	m	1	nc r
0700	0800	DL2DXA	JO61VC	26		3	4	1	nc
0823	0844	DK9OY	JO52CK	27	26	m	m	1	c r
0800	0857	S51AT	JN75GW	26	26	6	8	0.5	c
0900	0936	S57EA	JN76	26	26	8	4	1.5	c

950503

0300	0330	F6DWH	JN19	36	27	16	22	22!	nc r
0300	0352	DL9YEY	JO41GV	27	27	23	32	0.5	c
	0400	DK2PH	JO41GV						nil t
0340	0405	F6DRO	JN03SM	27	27	9	m	1	nc r
0405	0432	I1DMP	JN35UB	27	27	16	m	6	c r
0400	0500	9A1CCY	JN85OO						nil
0442	0516	F5HRY	JN18DT	27	26	36	m	9	c r
0500	0520	G4YTL	IO91JU	27	26	22	28	1	c
0520	0600	S53VV	JN65UM	27	27	11	16	3	nc t *2
0522	0603	IW2BNA	JN45ON	28	26	m	m	8	c r *3
0603	0617	F/G8MBI	JN04FT	38	27	m	m	16	c r *4
0600	0618	S57TW	JN75EX	27	27	20	31	2	c
0625	0642	IK1PAG	JN35SB	26	26	20	4	5	c t *4!
0617	0706	DJ7OF	JO51EP	37	26	18	10	11	c r
0700	0714	DF5BN	JN49GU	26	27	25	10	2	c
0707	0718	DJ3MY	JN58JN	27	26	11	17	2	c r
0722	0743	DL2IAN	JN49BC	26	27	7	10	0.7	c r
0800	0823	IW1AZJ	JN35UB	27	26	18	3	7	c
0757	0850	DL0WAE	JO42FB	27	37	12	11	2	nc r *5
0857	0938	DK0OG	JN68GI	27	47	25	m	13	c r
0900	0952	DK0UB	JO31PK	36	37	12	8	8	c

950504



Expedition to CT (IN51XA): DF7KF, DC9KZ, DL8EBW, DH0LS

0300	0323	DK2PH	JO41GV	27	27	11	5	1 c
0300	0353	S53VV	JN65UM	26	27	16	17	3 nc r *6
0330	0358	DL3IAE	JN49LE	26	26	5	5	0.5 c te
0400	0443	DL3BWW	JO72GI	26	27	7	7	13 c odx**
0445	0500	PA2TAB	JO32GB			1	2	0.5 nc t
0500	0513	DK1KO	JO53CT	27	27	6	3	6 c *7
0417	0514	EA3DXU	JN11CM	27	27	m	m	8 c r
0600	0648	IC8FAX	JN70CN	26	27	15	11	14 c *8
0710	0725	HB9JAW	JN47PH	27	26	m	m	40! c
0800	0900	DL2DXA	JO61VC	26	26	3	5	0.5 nc
0900	0918	HB9CRQ	JN47CF	26	26	11	6	66! c *9
0905	0938	DJ2JA	JO40IM	48	26	15	27	27! c r
0430	0500	S51AT	JN75GW			1		0.2 nc t
0445	0500	I2FAK	JN45OB	37	27	m	m	16 nc t
0500	0524	F6DRO	JN03SM	37	27	15	15	5 c
0500	0542	DL8LAQ	JO43XU	26	36	10	4	12 c
0525	0548	IK5OIY	JN52NS	38	27	18	22	9 c t
0545	0552	G4YTL	IO91JU	27	38	m	m	2 c t
0600	0628	IW1AZJ	JN35UB	27	27	18	m	41 c
0630	0658	IK1LGV	JN44JK	27	26	10	7	1.5 c t
0700	0713	PA3FOC	JO21FW	27	27	7	3	3 c
0715	0728	PA2DWH	JO22GD	47	36	6	1	28 c t
0800	0818	I8MPO	JN70CN	26	26	12	16	10 c s

IN50XX - Montemuro - 1000m asl (CW CTDF7KF or CTDL8EBW and SSB CTDH0LS or CTDC9KZ)

950505

0300	0344	DH6JL	JO31MI	26	26	16	33	1.5 c
0300	0348	DL5GAC	JN47SS	26	26	19	2	0.4 c
0345	0400	DD0VF	JO61VC					nil t
0400	0433	DK4TG	JO31FF	26	26	19	10	0.5 c
0400	0448	DF9KX	JO30FQ	26	26	19	m	1 c *10
0450	0500	DL1EJA	JO31DS					nil t
0435	0503	DL9NDD	JN59KN	26	26	8	2	1 nc t
0500	0529	G6RAF	IO92QP	26	27	m	m	2 c s
0530	0600	DC6KI	JO30IL				1	nc s t
0600	0612	I8MPO	JN70CN	27		m	m	45 nc s *11
0615	0631	I8MPO	JN70CN	28	37	m	m	18 c s r
0632	0700	DF9QT	JO30OR	26		4	3	2 nc s t
0700	0751	9A1CCY	JN85OO	26	26	9	4	21 c
0700	0800	DJ1JD	JO52CK	26	26	7	6	60 nc *12
0700	0845	PA2TAB	JO32GB			2	2	0.5 nc
0800	0845	DK2AM	JO43AK	26	26	7	7	0.7 nc
0845	0930	DL2DXA	JO61VC					nil t
0900	0938	IK1LGV	JN44JK	26	36	12	17	3 c

IN51XA - Montemuro - 1050m asl (CTDF7KF or CTDL8EBW)

950506

0300	0320	DL1EJA	JO31DS					nil
0300	0333	DL1EAP	JO31IK	26	26	27	m	1 c
0320	0400	DH6JT	JO31	26	26	37	20	0.8 c t
0335	0401	DL1KDA	JO30FQ	26	26	5	9	2 c t
0400	0414	DF5BN	JN49GU	27	27	12	2	6 c
0402	0442	DF9KX	JO30FQ	26	26	21	19	1.5 c t
0415	0500	DF1SO	JN48PO					nil t
0500	0514	IW5AVM	JN52NS	27	26	m	m	5 c
0515	0536	IK5JWQ	JN52NS	37	27	m	m	12 c t
0507	0540	DL9YEY	JO41GV	49	27	m	m	33 nc r *13
0537	0608	IK5OIY	JN52NS	27	26	m	m	13 nc t
0550	0623	EA6VQ	JM19MP	28	27	m	m	15 c r
0610	0624	S57TW	JN75EX	27	27	17	6	3 c
0625	0645	S57EA	JN76					nil t
0627	0658	I4YNO	JN54KC	38	36	17	m	12 c r
0647	0717	9A1CCY	JN85OO	26	26	6	2	5 nc t
0700	0727	PA2DWH	JO22EB	39	26	4	m	13 nc r *13
0717	0744	DK9OY	JO52CK	27	28	9	3	3 c
0730	0753	DL1EJA	JO31DS	27	26	7	14	2 c r
0746	0758	DJ1JD	JO52CK	27	27	7	4	4 c t
0755	0810	EA3DXU	JN11CM	28	27	m	m	10 nc r
0845	0945	I8MPO	JN70CN	37	27	8	m	15 nc s r *13

IN51XY - Montemuro - 1050m asl (CW CTDF7KF or SSB CTDC9KZ - DL8EBW flew home after 07UT)

950507

0400	0430	IC8FAX	JN70CN					nil
0400	0443	DF1SO	JN48PO	26	26	4	12	3 c

IN51XA - Montemuro - 1050m asl (CT/DF7KF or CT/DH0LS)

950508

0300	0357	DK2AM	JO43AK	26	26	14	8	1 c
0300	0340	DL2IAN	JN49BC	26	26	11	25	2 c
0400	0420	G3WZT	IO90UX	27	26	15	16	1 c
0400	0437	DL8EBW	JO31NF	26	28	8	2	1 c
0420	0455	G0GMS	IO91UB	27	26	4	11	2 c t
0437	0500	DL5GAC	JN47SS		26	3		0.5 nc t
0342	0400	DL3IAE	JN49DE					nil t
0500	0600	DF8LC	JO53GX		26	4	6	0.7 nc
0500	0510	I2FAK	JN45OB	27	27	m	m	3 c
0510	0542	DK9ZY	JO40BE	26	26	16	m	2 c t
0555	0622	HB9JAW	JN47CE					nil
0600	0645	DH2OAA	JO53EE			3	2	0.2 nc
0622	0657	IW2BNA	JN45ON	27	26	11	18	3 c t
0700	0800	S51AT	JN75GW	26		11	9	1 nc
0800	0827	9A1CCY	JN85OO	26	26	m	m	8 c
0852	0920	S57EA	JN76	26	26	16	5	0.6 c r

IN50XX - Montemuro - 1000m asl (CT/DF7KF, only one station rebuilt in IN50)

950509

0300	0402	DK2AM	JO43AK	26	26	16	5	1 nc
0410	0502	DL8EBW	JO31NF	26	27	16	29	1 c
0502	0528	DJ1JD	JO52OK	27	27	10	5	1 c
0530	0600	DL9NDD	JN59KD					nil

Our Rig:

1.) Most on Rndm : Drake TR7 and LT2S, 3CX800, 11el on 12m.

2.) Most on Skeds: IC730 and LT2S, PA 3CX800 one or two times 17el M2 (depending on the sked distance) Gaas-Fets, Laptops, and DTR-MS (digital Tape Recorders) for every station, and of course Dipole and 80W for HF.

Special thanks on this way to CT4KQ, Serafim, who organized all around QTH, Camping Car, Land Rover, discussion with Town Officials etc... Without his warm help, that expedition have not been possible!!

Remarks: ** 2123km! Our odx *1 Pse do not always give rrr with both calls! (eg. rrr iwaazj ctdf7kf !? try with rrr azj rrr). *2 S53VV made Sidescatter (distance at all 2400km!). *3 Many QRM - Someone send 4 periodes MMM. *4 Sometime also weak troposignals. *5 I called nearly 1 hour - why you gave up after 10 min?. *6 We rcvd RRR at min 55, but they were from DH6JL - why???. *7 Wkd F/G8MBI with 529 Tropo after this QSO, hi. *8 Sidescatter over JN16 -wkd F6DRO during the QSO with 519(Tr). *9 Longest Burst during the Expedition! He has received also 15sec - so at all 81sec! *10 Lot of QRM at that QSO. *11 Sri, was wrong procedur - random QSO was ok than! *12 Sri, you have had wrong calls in keyer, hi. *13 Why you gave up after 15min, if you called us in Random??

Hallo dear VHF-Friends, these are the results from the 144MHz VHF-DX-Expedition to Portugal.

We have made some very nice experiences and also did some quite interesting tests! At all we found out, that working random with a parallel station is not as successfull as to run two sked stations at the same time! It was quite interesting to see, that the reflection point for stations in different directions can be the same! So we saw sometimes the same reflection points for stations from DL compared to EA or I, as our antennas where beaming direct to them! This result was not caused by the big horizontal angle of the antenna!

Also we found some very interesting results via sidescatter (S53VV was beaming via JN16 - so the complete distance had to be more than 2400km! Or also IC8FAX made sidescatter over JN53 - complete distance more than 2000km).

Sometimes we got disappointed about the random operation of some stations! Calling 4-5 periodes of MMM - sending RRR and destroying QSOs - or transmitting C/S + Rprt over 4 or 5 periodes when we were transmitting roger rprt for some others ..... is it less experience or is it only the need to make a new one???

We hope that some of you enjoyed our operation (as well the pile-ups in the VHF-Net) and we wish to see you in Weinheim for some discussions!

73 de DC9KZ Angelo, DF7KF Dithmar, DH0LS Jens and DL8EBW Guido.

DD0VF (JO61VB) wkd on 144MHz:

940608								
0400	0504	SM5TSP	JP90	26	27	8	13	3 c s
940610								
0900	0930	GU/DC9KZ	IN89	29	26	11	9	3.5 c s
940709								
0600	0700	TK/DC3VW	JN42	26	26	6	16	3 c s
940725								
2000	2100	SV/DC3VW	KM08					nil s
940811								
0337		GB3LER	IP90	47		1		35 bcn
0500	0600	Z32UC	KN11	27		3		3 nc s
2100	2200	GW8ELR	IO71	27		3	2	4 nc s
940812								
0700	0800	SM3AKW	JP92	27	27	4	9	7 c s
0800	0900	SK3MF	JP82	26		5	10	0.5 nc s
0900	1000	LA0BY/p	JP89	26		3		1 nc s *1
1100		GW0PZT	IO72	27	27	1		14 c s r
1136	1138	G8TIC/p	IO84	37	37	3		10 c s r
1204		OY/G4DHF	IP61	27	27	1		10 c s r
1237		G6RAF	IO92	27	27	1		15 c s r
1400	1445	SM4DHN	JP60					nil s
1500	1545	EJ9HW/p	IO43					nil s
2100	2116	GW8ELR	IO71	27	37	3	1	8 c s
940813								
0900	1000	SM4DHN	JP60	26	26	4		5 nc s *2
1400	1430	IK0IXO	JN52					nil s
940814								
0900	0933	SM4DHN	JP60	26	26	3	11	22 c s
1100	1205	SK3MF	JP82	26	26	3	2	7 c s
1900	2000	OH8UV	KP34					nil s
941221								
0700	0731	GB3LER	IP90	47		m	m	43! bcn fb
950103								
2157	2210	UT5EC	KN78	27	27	5	m	2 c r *3
950104								
0330	0335	I8MPO	JN70	29	39	8	m	5 c s r
0400	0450	SM3JGG	JP71	27	27	16	2	1.5 c
0500	0540	LA4XGA	JP33	27	27	15	11	1.5 c
0600	0700	SM3BIU	JP73	27	27	4	2	10 nc
1200	1255	SM3LGO	JP83	27	27	22	36	10 c
1800	1900	RW1AW	KP50	27	27	6		0.3 nc

Remarks: *1 2050km! Stefan worked random, but was qrv in our sked for 15 min. *2 No final rogers. *3 My first qso in CW. Equipment: IC275, pwrfet PA, 4 x 10ele. Every sked is very welcome! Steffen Minack, Polenzstr. 3, D-01277 Dresden. Phone ++351334254 (home), ++3512589379 (qrl). Thanks for report, Steffen.

DH6JT (JO31JO / DL34b) wkd on 144MHz:

941202								
0500		S53VV	JN65	26	26	8	8	1 c
941210								
0140		9A5Y	JN85	27	27	5	6	2 c r
941211								
2210		EA3MD	JN02	27	27	27	42	2 c r
941213								
0150		YU7FU	KN04	27	27	7	9	3 c r
1830		S51AT	JN75	27	27	9	10	2 c r
959103								
2300		IW4DJE	JN64	27	27	4	7	6 c s
950104								
0015		I4XCC	JN63	27	27	11	9	3 c r
0100		S53VV	JN65	28	27	11	8	5 c
0305		I8MPO	JN70	27	38	4	1	7 c s r
0430		EA3DUY	JN12	27	27	m	m	9 c s r
950211								
2300		LY2BIL/P	KO05	26	26	9	28	2 c

Thanks for info, Thorsten.

DL8EBW (DL66a/JO31NF) wkd on 144MHz:

950224								
0500	0524	LA4XGA	JP33VC	27	26	12	20	2 c *1
950303								
0500	0531	LA4XGA	JP33VC	27	26	8	20	1.5 c *1
950310								
0500	0552	LA4XGA	JP33VC	27	26	12	16	0.5 c *1
950319								
0200	0251	I4XCC	JN63GV	28	27	27	46	3 c
0310	0330	GET/BCN	JN01RQ	27	hrd	6	8	1 MS-Bcn
0400	0600	EA9AI	JM75IV				4	nc
950322								
0500	0610	F/G8MBI	JN04FT	27	26	19	41	1 nc
950324								
0500	0515	LA4XGA	JP33VC	27	39	6	6	3 c *1
950331								
0400	0451	LA4XGA	JP33VC	26	26	6	23	1 c *1
950414								
0500	0600	OE6IWG	JN77PK	26	27	6	11	0.7 nc
0600	0631	LA4XGA	JP33VC	28	27	12	10	1 c *1
950419								
0400	0442	IW1AZJ	JN35UB	26	26	6	8	1.5 c
950420								
0100	0135	LY3BF/p	KO25OL	26	26	14	28	1 c #456
950421								
0400	0453	LA4XGA	JP33VC	27	27	11	26	1 c *1
950423								
0600	0720	F/G8MBI	JN04FT	27	27	20	40	0.7 c? *2
0801		LY3BF/p	KO25OL	47	hrd	1		100! UFB!
950508								
0405	0448	CT/DF7KF	IN51XA	28	26	14	20	2 c *3
950509								
0410	0502	CT/DF7KF	IN50XX	27	26	16	32	2 c #458
950514								
0425	0502	EA6FB	JM09SC	27	26	11	21	0.6 c tail

0502 0601 OH2KKP KP20MH 26 26 11 14 1 c *4
0645 EI5HN IO53MH 28 hrd FB!
Remarks: *1 Regular sked with Geir (1320km), to test MS-condx. *2 I was transmitting "SSS" missing code for rprt - but reply was "RRR" so the QSO takes 85 minutes to get sure that I was needing report and no rogers , hihi! *3 I came home 7th of May at 20 local - so I had the oportunity to work 'my own' expedition, hi - In CT it was much easier to copy reflections because of the low noise, than from at home. Now I think to have 3 weeks holiday, but the chief in my office says ... sri, hihi! *4 He ran only 30 W into 4 times 10ele! Congrats dear Tuomas!!!

Rig: FT-726R modified (CF300), 4CX250b abt 350W, 11ele FlexaYagi, preamp MGF 1302, DTR-MS tape recorder (made by DF7KF) RX max 5000lpm, OH5IY Compact-MS-Soft Version 4.2f. Every sked for MS, also with stations I worked before is very (!) WELCOME!!! Thanks for the report, Guido.

I4YNO (JN54KP) wkd via MS:

941120
0500 0605 UR3EE KN88 26 26 4 20 nc
941211
0500 0530 OZ8ZS JO55 nil
0600 0700 DL1SUN JO53 26 26 2 6 nc
941214
2203 2218 DG1VL JO61 27 nc r
Heard on the evening of the 14th Dec. 94 on 144.200 on random the following stations: DK2PH, ON4GG (also via Tropo), G4RKV, DL3LBK, DJ3LE and DL9DBJ.
950103
2300 2317 LA2PHA JO38 26 37 3 11 c
950104
0021 0025 OZ9FW 28 27 c? r
Heard during Quadrantids on 144.200: SM6CEN, SM0EJY, SP2NJI, G4RKV and DL9DBJ.
950129
0700 0735 DL8EBW JO31DL 2 nc
Thanks for report, Alex.

LY3BF (KO25OL) wkd on 144 (in CW):

959419
0500 0600 PA3BIY 27 27 c
0600 0700 S53VV JN65UM 27 27 c r
950420
0100 0200 DL8EBW JO31NF 26 26 4 13 1 c
2000 2025 YU7EW 27 27 4 15 5 c r
950421
0200 0220 DL9YEY JO41GV 27 26 5 6 1 c
0900 0935 DL2DXA JO61WO 26 27 4 13 2 c
1030 1037 YU7MS 26 26 4 5 1 c r
950422
2000 2100 S57TW JN75EX 26 27 8 m 2 c
2100 2200 IW2BNA JN45ON 26 27 12 m 3 c
2237 2255 DF7KF 27 27 m m 1 c r
2257 2310 OE3JPC JN88EB 27 27 m m 2 c
950423
0000 0045 G3WZT IO90UX 27 26 4 8 3 c
0100 0127 PE1LWT 37 37 7 m 4 c
0130 0145 PA3FPQ 28 37 7 13 3 c r
0400 0442 I4XCC JN63GV 37 38 15 m 31 c
0730 0747 DL1KDA JO30FQ 26 26 6 8 2 c
0750 0757 DH2OAA 27 27 5 6 1 c r
0815 0837 DK9OY 28 38 m m 4 c r
0857 0930 DH6JT 37 27 m m 15 c r
0930 0940 DL8GP 27 27 m m 20 c r

LY2BIL wkd on 144 MHz MS CW:

950420
0500 0600 DK2PH 26 26 4 30 1 c
0600 0733 DH6JT 26 26 4 25 1 c
0745 0820 DJ3MY JN58QD 26 37 6 18 1 c r
0837 0900 DD0VF 26 27 4 13 1 c r
1200 1250 S51AT JN75GW 26 26 3 14 1 c
1347 1410 DK0OG 26 26 12 38 2 c r
1900 2000 YU7BCL KN05FW 27 27 6 20 5 c
950421
0500 0540 PA2DWH 26 28 8 40 3 c
0600 0620 DJ1JD 26 27 7 m 1 c
0635 0655 DJ7OF 27 26 8 m 3 c r
0700 0735 G0GMS IO91UB 36 26 4 9 6 c
0847 0900 DH2OAA 26 27 11 23 2 c r
950422
0100 0200 DL9GJW JO54WC 26 26 4 6 .5 c
0200 0230 DL1EAP 27 26 8 18 1 c
0500 0530 IW1AZJ JN35UB 27 26 6 16 3 c
0530 0545 DL5MAE 27 27 8 m 3 c r
0600 0627 IW1CGB JN35VD 26 27 m m 4 c
0700 0725 IK1EGC JN35SD 26 26 4 12 1 c
0800 0900 PA3FOC 26 26 4 m 0.5 c
NC: DL2IAN, PA3BZL, DJ5RE, DL7VBW, OK1KF, G0CUZ, G0FIG - sorry. Rig: FT-736R, PA800W, 11el at 12m, OH5IY v4.2, UHER 4000. Comments: Thanks to Mr & Ms Cesunas for all care at their beautifull farm 195 m asl. What next? Maybe KO35 or KO34. 73 Rytis LY2BIL@LY1BZB.

PA3FJY (JO32EH) wkd on 144MHz:

950102
2205 2330 S51AT JN75 28 27 51 85 1 c r
950103
1535 1600 SM2CEW KP15 27 39? 13 21 5 nc r
2055 2137 RU1AA KO59 27 27 32 75 10 c r
950104
0000 0025 US5WU KO20 28 28 24 26 4 c
0530 0605 S57CA JN76 28 37 36 32 5 c r
0700 0800 JX7DFA IQ50 nil
0809 0825 9H1PA JM75 27 27 11 12 8 c r s *1
950117
0700 0748 F/G8MBI JN04 27 27 30 118 1 c
950501
0645 0755 I5YDI JN54 27 26 34 85 3.5 c r
950502
0600 0635 CT/DL8EBW IN50 27 27 28 63 4 c r
Remarks:*1 He is absolutely sure that he was not QRV at that time, is there anybody who has perhaps more info???

Equipment: 350W, 4 times 17 ele modified CueDee with elevation. Maximum speed up to 2000 lpm RX/TX. Skeds up to 1500km are no problem, especially in CW. Longer distances between QTF 0 and 140 degrees are difficult because of local 'mountain' (75m high). During summertime most days free from 04 - 05 UTC. Look for me on random freq. 144.100 during the weekend between 04 and 07 UTC. So, wishing you good luck in MS! 73 de Dick. Address: D.G.A. van der Knaap, Raalterweg 33, 7451 KZ Holten, Netherlands. Telephone ++5483-63742 (17-21 UTC).

Results of S50C - Dream Team activity during the Perseids shower in 1994

S50C (JN76JG) wkd on 144MHz:

940804
2025 UT5ER KN78ER 27 27 4 25 1 cw
940805
2125 DK8LV JO44SJ 26 26 20 cw
2225 G0FIG IO90UU 26 26 2 20 2 cw
2347 SM7TUG JO67SJ 27 26 2 10 15 ssb

940806								
0920	OH5IY/4	KP31JK	26	26		20		cw
940810								
2227	ON1ALJ	JO10VV	26	27	2		3	ssb
940811								
0158	SM7TUG	JO67SJ	26	27			8	ssb r
0347	PA3FOC	JO21FW	26	46			5	cw r
0634	G6RAF	IO92QO	27	37			30	ssb r
0650	G4AEP	IO91NJ	27	27			25	ssb r
0650	F6CBH	JN19	27	27			25	ssb r
0700	G8TIC/p	IO84	27	27			15	ssb r
0822	UR5M	KN99FD	26	27	1	13	9	cw
1045	UT5JCW	KN64RO	26	26	1	7	4	cw
1200	US5CCO	KN59XG	27	27	2	10	1	cw
1612	G4XBF/p	IN79JX	38	38	3	22	11	cw
1930	SM7SJR	JO87FA	26	26	3	21	18	cw
2300	G4ZAP/p		27	26			10	ssb r
940812								
0030	GM4VVX	IO87WA	37	37	3	11	5	cw
0601	G8XVJ	IO83RJ	27	27			10	ssb r
0844	OZ1BVW	JO45SL	27	27			7	ssb r
1122	EA6/HB9FAP/p	JN10WA	37	47	5	12	25	cw
1847	US1VQ	KN58XA	26	27	2	16	5	cw
2255	G8TIC/p	IO84	39	39			15	ssb r
940813								
0006	PA4FOC	JO21FW	39	37			60	ssb r
0006	GW4VEQ		39	38			60	ssb r
0006	G4ASR	IO81MX	27	37			60	ssb r
0006	G1AAR		27	27			60	ssb r
1233	G4SWX		59	59			25	ssb .
							300	

NC skedules: F6IFR and G4ASR. NIL skedules: RA3TES, LZ1ZX, RU3ZD, US1VQ and EA3FLN. On random frequency were a lot of QRM especialy during reflections. This year no special maximum were noticed. During the night was static up to 9+20dB! Equipment: Kenwood TS-711E, preamp BF981, PA 2 x 4CX250B, 4 x 15ele CueDee. Our location was on Mt. Menina (JN76JG), 1508m asl. 73 de S50C. Thanks for report.

MS-Address-List

(Revision Date: 15.X.1994)

9H1BT	HV03E	JM75	P. GALEA, 94 BOSKETTO RD., RABAT,
9H1CD	HV03E	JM75	H.G. SOUCHET, DAVIS 29/2, SAN GWANN,
9H1CG	HV13B	JM75	J. BRINCAT, P.O.BOX 10, ZABBAR, ++685993,
9H1GB	HV13A	JM75	M. GRECH, TAL-GRAZZIA, dawret l-imqabba, MQABBA, ++827997,
CT1WW	WB63B	IN61	T. J. FREDERICO, NAGOSELO DO DOURO, 5130 S JOAO DA PESQUEIRA,
DB4VQ	DJ66H	JN39	G. HECKENHAHN, SCHEIDTERSTR. 35, 66133 SAARBRÜCKEN-SCHEIDT, ++681818777, SSB ONLY
DB5ML	FI67G	JN58	M. LESSIG, AM DRUDENBOGEN 19, 82256 FÜRSTENFELDBRUCK, ++4125931, SSB ONLY
DC6DY	DL47G	JO31OK	ANTON PICKHARDT, HOFSTEDER STR. 24, 44791 BOCHUM, SSB ONLY
DC6KI	DK44A	JO30	W. RÖSSLER, DÜRENER STR. 53, 53947 NETTERSHEIM, ++24861889, SSB ONLY
DC7OH	GM47G	JO62OK	ERIC DIETERLE, BERLEPSCHSTR. 3, 14165 BERLIN, ++308156975,
DC9YC	DL47C	JO31	D. KLEIN, DURCHHOLZER STR. 195A, 58456 WITTEN, ++230277911,
DD0BI	DN48A	JO33	T. FRIEDRICHS, BIRKHAHNWEG 4A, 26603 AURICH, ++494165312, SSB ONLY
DD0VF	GL79C	JO61VB	STEFFEN MINACK, POLENZSTRAßE 3, 01277 DRESDEN, ++3512329379, PHONE QRL! SSB ONLY, SKEDS VIA DL5DTA
DD5TD/A	EJ14H	JN49HU	D. PLESSE, HEBBELSTR. 3, 64291 DARMSTADT, ++6151375269, SSB ONLY
DF1CF	FH23J	JN57	J. HEINZE, MEMERSCH 16, 87466 OY-MITTELBERG, ++8376404,
DF1IAZ	EJ65D	JN49LD	RALF HAUEISEN, FRIEDLIEBSTR. 16, 75050 GEMMINGEN, PR @DB0RBS.#BW.DEU.EU
DF1OC	FM44E	JO52	T. WILM, KANTALLEE 5, 38440 WOLFSBURG,
DF1SO	EI37A	JN48	D. BREDIN, GARTENSTR. 12/1, 72663 GROSSBETTLINGEN, ++702243661,
DF3RU	FJ49J	JN59	K. SCHMIDT, MÖRSWINKEL 1, 92278 ILLSCHWANG, ++9666328,
DF4LY	EO38G	JO44	M. KUROCK, WIESENWEG 6, 24850 HÜSBY,
DF5BN	EJ13B	JN49	W. MENDEL, GEORGSTR. 3, 64347 GRIESHEIM, ++615578487,
DF5DE	EK02H	JO40	K. O. HERLING, KATZENBACH 12, 57339 ERNDTEBRÜCK 1, ++27532513,
DF6LO	FM62G	JO52CE	M. KUHN, SPECKEN 4, 38272 BURGDORF-BEREL, ++53471995, CW 1200LPM SSB ONLY RANDOM
DF6NA	EJ	JN49	RAINER ALLRAUN, TRAUTENAUER STR. 12, 97074 WÜRZBURG,
DF6OB	FM44C	JO52	M. KÜHLE, CRANACHWEG 2, 38448 WOLFSBURG,
DF7DJ	DL39A	JO31	H. ASCHHOFF, BERGKAMENERSTR. 76, 59174 KAMEN, ++230713786,
DF7IT	EJ34G	JN49	V. WINTERSCHEID, OBERTORSTR. 7, 69469 WEINHEIM, ++620144844, PHONE NO. OF DL0WH SSB+CW 3000LPM

Meteor Scatter:

DF8LC	FN03A	JO53	L. BEYER, 23623 LEBATZ, ++45253589, CW 1500LPM EME ON 2M+70CM
DF9CY	FO41H	JO54AL	C. PETERMANN, BUSCHHECKENWEG 22, 24229 KRUSENDORF, ++43081012, MS ON 2M+70CM
DF9OX	FM	JO52	A. KLINGEBERG, BUNSENSTRAßE 6B, 30890 BARSINGHAUSEN, SSB+CW
DG1BA	EN75C	JO43LB	D. MEYER, SÜDWALDERSTR. 53, 28307 BREMEN, ++421429733, SSB ONLY
DG1KBY	DK09A	JO30	H. SÄNGER, AUF DER BURG 5, 51580 REICHSHOF-WILDBERG, ++22971681, SSB ONLY
DG1VL	GL80C	JO61WC	HENRY RICHTER, KURZER WEG 4, 01454 GROSSERKMANNSDORF,
DG6LS	FO	JO54	S. LEHMANN, STRUKBROCK 17, 24161 ALTENHOF-KLAUSDORF, SSB ONLY
DG7SF	EI	JN48RR	G. KRAUTER, LISZTSTR. 2, 73207 PLOCHINGEN, SSB ONLY
DG9NBT	EJ20E	JN49WS	MARTIN LEICHT, INDUSTRIESTR. 8, 97249 EISINGEN, ++9306906949, SSB ONLY
DG9NCX	FJ11J	JN59BT	HUBERT METZ, HEINRICH-SCHATZEL-STR. 17, 97337 DETTELBACH, ++93242894, SSB+CW 1000LPM
DH1KBB	CL	JO20XX	JÖRG PRÖMPER, LUISENRING 51A, 52538 GANGELT, ++24541635, SSB+CW 2000LPM
DH2FAF	EK75J	JO40	J. BÜCHNER, VON-STAUFFENBERG-STR.15, 63179 OBERTSHAUSEN, ++610441254,
DH2NAF	FI	JN58	J. FISCHER, P.O.BOX 1101, 85072 EICHSTÄTT, ++8424972,
DH3IAJ	EI64F	JN48HD	RALF MITTELSTÄDT, WÜRTTEMBERGER STR. 32, 78628 ROTTWEIL, ++74121982, PR @OE9XBI, SSB ONLY
DH6JT	DL	JO31JO	THORSTEN SCHERF, LUCHSSTR. 6, 46535 DINSLAKEN, ++213418220, SSB ONLY EX DD7JE
DH8NAA	EJ06A	JN49NX	UDO LANGENOHL, GABELSBERGERSTR. 22A, 63739 ASCHAFFENBURG, ++602124167, FAX ++93114094 SSB+CW
DH9KAE	DK01J	JO30BW	D. BRUNKEL, BRUCHHAUSENER STR. 7, 52531 UEBACH-PALENBERG, SSB+CW 800LPM SKEDS DL1EFJ
DJ1LP	GO	JO64	D. BÖLTE, KURT-SCHUMACHER-RING, 18146 ROSTOCK, EX Y22HA
DJ1OJ	FI68C	JN58	HEIJO SCHULTE, EBERWURTZSTR. 85, 80935 MÜNCHEN, ONLY CW 1200LPM
DJ2IE	EI04E	JN48HV	DR. R. SCHUBERTH, SCHWARZWALDSTR. 23, 75217 BIRKENFELD, ++7231480345, SSB+CW 1000LPM EX Y23FN
DJ2QV	EL02D	JO41EV	MAIK RECKEWEG, DÜPPELSTR. 27, 33330 GÜTERSLOH, SSB+CW 1200LPM EX DG9YEP
DJ3MY	FI67D	JN58QD	CHRISTIA DOBMEIER, NELKENSTR. 5, 82110 GERMERING, +898416619, PR @DB0AAB.#BAY.DEU.EU, 4X17ELE, 100W
DJ3TF	FJ05G	JN59	W. WESSELY, P.O.BOX 2211, 92212 AMBERG, ++962112426, CW
DJ5AR	EJ02F	JO51	A. IMSE, HINTER DER KIRCHE 31, 551296 MAINZ, ++613645427,
DJ5MS	GI	JN68	P. PELZ, KOLPINGSTR. 6, 94447 PLATTLING,
DJ5RE	FJ60A	JN59WI	THOMAS HÖPPE, BODELSCHWINGSTR. 3, 92224 AMBERG, ++962184535, CW ONLY, MAX. 1000 LPM
DJ6LV	DL54D	JO31	W. SCHUBERT, FRIEDRICH-LAU-STR. 16, 40474 DÜSSELDORF, ++211433329, SSB+CW RANDOM
DJ7OF	FL22D	JO51	K. VOELTZ, MARKTPLATZ 7, 37412 HERZBERG (HARZ),
DJ8PB	EO76H	JO44	H. SACHSE, MITTELWEG 12, 25704 NORDERMELDORF,
DJ9EV	EI	JN48	H. RAU, IM RING 5, 74360 ILSFELD,
DJ9YE	EN14A	JO43	K. HINZ, DORFSTR. 78, 27476 CUXHAVEN, ++472126678, SSB+CW 1200LPM
DK0AK	DK	JO30NQ	OP WOLFG , ++228324555,
DK1KO	FN12G	JO53	R. KOCH, NEUER WEG 3, 23867 SÜLFELD, ++4537224, EME STATION
DK2LM	EJ21F	JN49	F. KUBITZSCH, WEIERHOF, 67295 BOLANDEN,
DK2PH	EL03E	JO41	H. WILKE, ARNDTSTR. 47, 33415 VERL, ++52467400,
DK2PR	EN76D	JO43	P. BLOCK, GRASDORF 80, 28870 OTTERSBERG,
DK2UO	DK	JO30	H. WÖLKY, AM ALTEN FLIESS 11, 50129 BERGHEIM, ++223842845,
DK3BU	DN36B	JO33	H. KOWALCZIK, NEUSEEDEICHERWEG 1, 26506 NORDEN, ++49318537,
DK4TG	DL63H	JO31	L. RUHM, GATHERSKAMP 45, 41066 MÖNCHENGLADBACH,
DK6AS	FM44D	JO52	A. SÖCHTING, AUGUST-BIER-WEG 1, 38440 WOLFSBURG,
DK8VS	DJ	JN39	W. HEYDT, TÄLCHENBERG 36, 66131 SAARBRÜCKEN-ENSHEIM,
DK9OY	FM41C	JO52	D. REINECKE, KATENSER HAUPTSTR. 2, 31311 UETZE,
DK9TU	EI66H	JN48	M. STOLL, STAUFENBÜHLSTR. 8, 72461 ALBSTADT,
DK9ZY	EK61J	JO40BE	WOLF-DIE POLLERT, STUECKERGRABEN 19, 65329 HOHENSTEIN, SSB+CW 1200LPM
DL1DSB	GL79D	JO61	R. THOMAS, PROHLISER ALLEE 13/08-04, 01239 DRESDEN, ++512741629, EX Y28OL
DL1GBF	EI46E	JN48	P. GRUCHOT, BERGÄCKERWEG 8, 72116 ÖSCHINGEN, ++74731748, CW 1500LPM
DL1SDN	EI27E	JN48RR	D. STUMPP, P.O.BOX 1941, 72622 NÜRTINGEN, ++702242741, SSB+CW 1000LPM
DL1SUN	FN	JO53	NORBERT RICHTER, WALSMÜHLERSTR. 23, 19073 WALSMÜHLEN,
DL2DXA	GL43B	JO61GL	BERND PONETKA, BOLTENHAGENER STR. 69, 01109 DRESDEN, ++3518806901, CW 1000 LPM
DL2NWK	GN28D	JO63SP	W. KUNICKE, SCHWANBECKER STR. 5, 17098 FRIEDLAND, ++3960126725, EME/MS (1000LPM) 4X10ELE DJ9BV,450W

DL2OM	DK38J	JO30	R. MILKER, FINKENWEG 14, 56587 OBERHONNEFELD, ++26345209,
DL2YDS	DM58F	JO32	STEFAN LAUKEMPER, SCHILLERSTR. 20, 48431 RHEINE, CW ONLY
DL3AAL	FM44D	JO52	B. SEDLACZEK, AM FINKENHAUS 27, 38444 WOLFSBURG, ++536172642,
DL3AMA	FL66E	JO51ND	SIGI KLEINE, GROTEWOHL STR. 3/78, 99610 SÖMMERDA, CW 1000LPM - 70CM MS IN 1992
DL3BWW	HM53A	JO72	J. FIEDLER, P.O.BOX 531, 15206 FRANKFURT (ODER), 003740282,
DL3DTS	GL79E	JO61UA	SYLVE RÜDIGER, PLATZ DER BAUARBEITER 9/14-06, 01169 DRESDEN, ++3514912369,
DL3IAE	EJ62B	JN49DE	DANIEL KOCH, PROBSTEISTR. 14, 76771 HÖRDT, SSB+CW TX2000/RX1300LPM
DL3MBG	GI53D	JN68	C. ENTSFELLNER, WEICHSELSTR. 5, 84513 TÖGING, ++863190537,
DL3SAS	EI27H	JN48OR	H. WECKENMANN, SPAICHINGER STR. 25, 70619 STUTTGART, ++711479496, PHONE AFTER 17UTC
DL3YBP	EM74G	JO42	H. FELDMANN, HEEPER STR. 10, 32107 BAD SALZUFLEN, ++52088754,
DL3YEL	EL02D	JO41EV	U. KRATSCH, MANGELSDORFSTR. 10, 33330 GÜTERSLOH, ++524113543, SSB+CW 1200LPM
DL4DTU	GL79E	JO61UA	NORBERT RÜDIGER, AMALIE-DIETRICH-PLATZ 9/14-06, 01169 DRESDEN, ++3514112369,
DL4MEA	FI64C	JN58	G. KÖLLNER, RIEDWEG 10, 86853 LANGERRINGEN, ++82328451,
DL4NAA	EJ	JN48	C. PRITZEL, ULMENWEG 49, 63741 ASCHAFFENBURG, ++602188397,
DL5BAC	EN55D	JO43	H.J. MÜLLER, DORFSTR. 14A, 27726 WORPSWEDE 1, ++47927434,
DL5BCU	EN65D	JO43	I. SCHNELL, AM HEIDBERG 8, 28865 LILIENTHAL, ++42983882, SSB+CW
DL5DTA	GL79D	JO61	A. THOMAS, PROHLISER ALLEE 13/08-04, 01239 DRESDEN, ++3512741629, EX Y27BL
DL5GAC	EH18D	JN47	R. TRENTZ, HÖLDERLINSTR.4, 88213 RAVENSBURG-OBERZELL, ++75162262,
DL5MCG	FI55A	JN58	W. RAUH, FRAUENTORSTR. 22, 86152 AUGSBURG, ++821152316,
DL5YET	EL02D	JO41EV	MARKUS TOPPMÖLLER, AUF DEM KNÜLL 17, 33334 GÜTERSLOH, ++524125146, 2M+70CM MS EX DH5YAU
DL6KAI	DK16C	JO30	R. SCHMITZ, GÜLDENBERGSTR. 33A, 53840 TROISDORF,
DL6KR	DK26J	JO30NQ	MARTIN (, ++228324555, 10ELE, 130W
DL6NAA	FK59C	JO50	R. VÖLKEL, BRUNNENSTR. 9, 95191 LEUPOLDSGRÜN, ++92921525,
DL7AKA	GM37B	JO62QO	H.-J. MÜLLER, FINSTERWALDER STR. 9, 13435 BERLIN, ++304025137, 1000LPM
DL7ARM	GM	JO62RJ	CHRISTIA GOY, KRONACHER STR. 121/49, 12309 BERLIN,
DL7UTS	GM	JO62TJ	B. GRÖSCHKE, KAROLINENHOFWEG 63, 12527 BERLIN, 003726323676, SSB+CW RX 1500/TX 3000LPM (EX Y24QO)
DL7YS	GM	JO62	P. JOHN, KAISERIN-AUGUSTA-STR. 74, 12103 BERLIN, ++307519512, SSB+CW 1200LPM (PHONE -20UTC)
DL7YW	GM48H	JO62RL	J. HAHN, KIENITZER STR. 118, 12049 BERLIN, ++306211702, SSB+CW 2000LPM
DL8DAT	DL49H	JO31	M. KUBAT, ALTER DORTMUNDERWEG 18, 58239 SCHWERTE, ++230413324,
DL8EBW	DL66A	JO31	G. JÜNKERSFELD, GEIBELSTR. 13, 42327 WUPPERTAL, ++202781170, SSB+CW VHF NET
DL8FBD	EK75F	JO40	G. NENNER, NIEDERRÖDERSTR. 32, 63110 RODGAU 2,
DL8GP	DJ55C	JN39	H.W. JOACHIMSEN, RATHAUSSTR. 35, 66292 RIEGELSBERG,
DL8HCZ	FN21F	JO53	J. KRAFT, GRÜTZMÜHLENWEG 23, 22339 HAMBURG, ++405383186, 50/144MHZ
DL8LAQ	EN20B	JO43XU	N. GÖTTSCHE, TULPENWEG 3, 24568 KALTENKIRCHEN, ++419188138, SSB+CW 1500LPM
DL8NBN	FI16J	JN58	A. LUTHE, AM WALD 12, 91809 WELLHEIM-KONSTEIN, ++8427306,
DL8SCQ	EI08F	JN48RV	E. BRENNER, LINDENSTR. 12, 71573 ALLMERSBACH IM TAL, ++719152227,
DL9BDM	DN48A	JO33RL	EILERT MENKE, LEERER LANDSTR. 58, ex dg4be, 26603 AURICH, SSB
DL9GS	DL47G	JO31	A. SCHLENDERMANN, P.O.BOX 102201, 44722 BOCHUM, ++2347003396,
DL9MCC	GH	JN67	H. BÖSSL, GUSTAV-HEINEMANN-RING 102, 81739 MÜNCHEN, ++,
DL9YEY	EL03E	JO41GV	THOMAS FAHNENSCHMIDT, EX DH0YAZ, GRUBENWEG 10, 33415 VERL, ++52466621, FAX ++524683413, SSB/CW 1500LPM 6/2/70
EA1CYE	YD42F	IN83	P. MATORRAS GALAN, LEALTAD 24-1, 39002 SANTANDER,
EA1YV	VC67H	IN52OF	AGUSTIN BENDAMIO QUINTAS, P.O.BOX 148, 36200 VIGO, ++86660958, AX SSB+CW 1000LPM,19EL+500W
EA2LU	ZC12E	IN92	J. R. D. ACCUNZI, M. IRIBARREN 2-5D, 31008 PAMPLONA,
EA3ADW	BB22G	JN11	J.M. PORTA, LA MIRANDA 46, la ametillada del valles, BARCELONA,
EA3AIR	BB41E	JN11	J.I. GARCIA, CARRENCA 25, BARCELONA 17,
EA3BTZ	AB60B	JN01	E. FRAILE ALGECIRAS, FREDERIC COROMINAS 92, barna, TORRELLES DE LLOBREGAT BA,
EA3DXU	BB41C	JN11	JOSE M. PRAT PARELLA, AV. ONZE DE SETEMBRE 60, 08130 SANTA PERPETUA DE MOGODA, ++3435740234, SSB+CW 1000LPM
EA3WH	AB	JN01	J.G. BARCELO, VILLAFRANCA DEL PENEDES, p.o.box 23, BARCELONA,
EA5EMM	ZZ49H	IM99	J. LOSA, CASTILLO DE BENISANO 18, 46018 VALENCIA,
EA5HM	ZZ	IM99	P.R. MARTINEZ, C/O CHILE 11-14A, VALENCIA 10,
EA6FB	AY	JM08	J.T. SALA, P.O.BOX 8, suliva, 07830 SAN JOSE, IBIZA,

Meteor Scatter:

EA6VQ	BZ26F	JM19MP	GABRIEL SAMPOL, C/SOLDADO ISERN COMAS, 11, 1, 07010 PALMA DE MALLORCA, ++3471756163,
EB1EFC	VC67H	IN52OF	ALFONSO REPRESA CARAZO, P.O.BOX 148, 36200 VIGO,
EB3CNX	BB51A	JN11	M.G. GARCIA, P.O.BOX 92016, 08080 BARCELONA,
EB5EHX	ZZ69J	IM99	X.-A. CORTES, P.O.BOX 51, sueca, VALENCIA,
EI2CA	WM10A	IO62	P. MARTIN, CRONROE, ashford, CO WICKLOW,
EI4DQ	VL20A	IO51	T. COCKING, SCARTLEA,, saleen, middleton,, CO CORK,
EI5FK	VL08F	IO51	C. COUGHLAN, 12 FOREST RIDGE CRESCENT, wilton, CORK,
ES3GZ	MS04B	KO28	JAAN NIKKER, MAHLAMÄE 8-28, 203500 RAPLA, EX UR2GZ
F1DUZ	ZH	IN97	PH. LEVRON, 37 RUE DE LA FONDERIE, 49300 CHOLET,
F1FLN	ZE07F	IN94QV	MICHEL ROUSSELET, 90 AV DU GL DE GAULLE, 33290 BLANQUEFORT,
F5DE	AF	JN05	B. DELAGE, LOTISSEMENT BEAUREGARD, touvre, 16600 RUELLE,
F5HRY	BI22C	JN18EQ	HERVE BIRAUD, EX F1HRY, 37 Rue Pierre Brossolette, 91600 SAVIGNY SUR ORGE, ++169966879, SSB+CW 1500LPM
F6BSJ	CG	JN26	H.M. MAUBLANC, B.P. 9, 71460 ST. GENGOUX LE NATI,
F6CJG	BF21J	JN15	G. GERVAIS, IMPASSE BALUZE, 19100 BRIVE,
F6CRP	ZG65G	IN96KE	DENIS AUQUEBON, 30 RUE DES MURIERS, 17140 LAGORD, ++46674052, SSB ONLY
F6CTW	BI		R. CAMUS, 11 AV. ROBERT SCHUMANN, 92360 MEUDON LA FORET,
F6DCD	DI30A	JN38	D. HEITZ, 1 RUE BOHL, 67850 HERRLISHEIM, ++88316555,
F6DKQ	DH51A	JN37	G. FALCOZ, LA CLAIRIERE, moncey, 25870 GENEUILLE, ++81578674, CW
F6DRO			D. DEHAYS, 13 AV. CAMBOURRAS, 31320 ESCALQUENS,
F6DWG	BJ	JN19	M. FABRIE, 133 RUE DE PARIS, 60000 BEAUVAIS,
F6ETI	YH	IN87	P. MARTIN, GRANDE RUE, 56680 PLOUHINEC,
F6EYM	ZJ75A	IN99	G. VIBET, LES FONTANELLES DU HAUT, 50000 SAINT GEORGES MONTCOCQ, ++33575855,
F8OP	CG36F	JN26MM	GEORGES VIALET, "LE COTTAGE", rte de tournus, 71290 CUISERY,
F9FT	CJ51F	JN29	M. TONNA, 134 BLVD. DAUPHINET, 51100 REIMS,
F9HS	AD43A	JN03GL	CLAUDE DAGONNEAU, MONCASSIN, 32300 MIRANDE, 13ELE 60W, SSB/CW
FC1CCM	ZD59F	IN93	M. MOLLET, 29 RUE DU STADE, 64121 SERRES CASTET, SSB ONLY
FC1FIH	CD13E	JN23	M. LABORDE, 10 RUE CARAVELLE, 30127 BELLGARDE, SSB
FC1LUW	BK26F	JO10	F. TRICOT, 25/18 RUE HENRI DUNANT, 59000 LILLE, SKEDS VHF NET VIA F1HRY
FC1ODA	BD	JN13LE	E. COUSTAL, DOMAINE DE BIDA, route de lunes, 11100 NARBONNE, ONLY SSB, SKEDS VHF NET VIA FD1NIH
FD1GHP	ZG65C	IN96LE	J.-P. RIGOULET, 10 RUE DU CLOS L'EGLISE, 17220 SAINTE-SOULLE, ++46376357, CW 1000LPM
G0CHE	ZK17F	IO90	K. PIPER, 6 SUMMER LANE, bognor regis, W. SUSSEX PO21 4NG,
G0CHI	ZK17E	IO90	K.G. HODGES, 15 GRAVITS LANE, bognor regis, SUSSEX PO21 5LT,
G0CUZ	YM40F	IO82WM	C. MORRIS, 12 TURNERS HILL RD, lower gornal, dudley,, WEST MIDLANDS DY3 2JU,
G0DAZ	YM69B	IO82	CJ. MISTER, 35 MEADOW RD., claines, WORCESTER WR3 7PP, CW + 432MHZ
G0GMB	ZM76J	IO92	M. BAKER, 25 PENTLANDS, hilltop, stony strattford,, BUCKS MK11 2AF, SSB+CW 1500LPM
G0KAS	ZL59B	IO91UI	MIKE STEVENS, 20 MELTON PLACE, epsom, SURREY KT19 9EE, ++372742476,
G0LBK	ZN44C	IO93JK	D. LAW, 20 COOK AVENUE,, maltby, rotherham,, S. YORKS S66 8QZ, SSB+CW 2000LPM
G0MGA	AK12J	JO00DT	SIMON PRYCE, 62 BEACH ROAD, eastbourne, EAST SUSSEX BN22 7HA, ++32322571, CW TX3000/RX1500LPM
G1DXI	ZN38E	IO93	I. CRIPPS, SYCAMORE HOUSE, STATION RD., hibaldstow, brigg, S. HUMBERSIDE DN20 9EB, ++65254222,
G1EZF	ZN13G	IO93	M. ALLMARK, 11 POTTERNEWTON CRESC, meanwood, LEEDS LS7 2DY,
G1SMD	ZK21H	IO90AR	I. GALPIN, 19 PALMER ROAD, oakdale, poole, DORSET BH15 3AR, SSB 50.155 FOR ITALY/50.355 ALL OTHERS
G3BW	YO33G	IO84	W.H. HODGSON, 53 HILL TOP ROAD, whitehaven, CUMBRIA CA28 9ED,
G3IMV	ZL07H	IO91	J. HUNTER, 28 WHITELEY CRES., bletchley, BUCKS MK3 5DG,
G3LTF	AL11D	JO01	P.K. BLAIR, LITTLE POOLES, potter st., harlow, ESSEX CM17 9AD,
G3WZT	ZK09J	IO90	J. MATTHEWS, KINGS DOWN, church rd., partridge green,, HORSHAM, WEST SUSSEX,
G4AHN	ZL	IO91OE	RICHARD LAX, 1 GARDENERS HILL RD, farnham, SURREY GU10 4RL, SSB+CW 125LPM ON 50.135MHZ 6 ONLY
G4APA	YN	IO83TD	TONY , 13 OFFLEY ROAD, sandbach, CHESHIRE CW11 9AY, ++270761805, SSB+CW 1000LPM
G4ASR	YL06H	IO81MX	D. BUTLER, 23 YEW TREE COTTAGE, lower maescoed, HEREFORDSHIRE HR2 0HP, ++87387679, WORK++432372737 SSB+CW 1000LPM 6/4/2MTR
G4DCV	AL	JO01	P. WHATTON, 55 KINGSDOWN ROAD, st. margarets at cliffe, DOVER CT156,
G4DGU	XK	IO70	C.P. BARTRAM, BRADWORTHY, holsworthy, DEVON EX22 7TU,

G4DHF	ZM19F	IO92	D. JOHNSON, 65 WEST ST., bourne, LINCOLNSHIRE PE10 9PA,
G4DOL	YK28D	IO80SP	P. ATKINS, 11 GRAFTON AVENUE,, radipole, weymouth, DORSET DT4 9RZ, SSB 144.205/144.405 RANDOM
G4DSC	ZO	IO94	D. BONIFACE, 11 HOLMEFIELD RD., RIPON HG41 1RZ, ++7652230,
G4HGT	YN	IO83	J. WILKINSON, 10 RINGWAY RD., lee pk., LIVERPOOL L25 3QS,
G4IGO	YK06C	IO80NW	K.S. OSBORNE, 7 WINCHESTER COTTAGES, seav.-st-michael, ilminster, SOMERSET TA19 0QJ, ++46041223,
G4IJJ	ZL	IO91	A.J. SPRATT, 14 EDGECOTE CLS., caddington, BEDS. LU1 4HG,
G4ISM	AL	JO01	M. HUGHES, 7 MARTINDOWN RD., whitstable, KENT,
G4MUT	ZL46J	IO91	T. HACKWILL, 59 RIVERMEAD RD, woodley, READING RG5 4DH, ++734693766,
G4NDG	YK	IO80	P. KERSLAKE, SILVERTON, seven crosses, tiverton, DEVON EX16 8JS,
G4OAE	ZL	IO91	D. CRISP, 2 FLAXMAN CLOSE, earleyx, reading, BERGS., ++734874232,
G4RGK	ZL37G	IO91ON	D. DIBLEY, BRIGADOON, BOLTER END,, high wycombe,, BUCKINGHAMSHIRE HP14 3LU, ++494881654,
G4RNL	YN48J	IO83	D. HOOPER, P.O.BOX 141, warrington, CHESHIRE,
G4SHC	YN40G	IO83VO	R. BENTHAM, 108 STANYCLIFFE LANE, middleton, MANCHESTER M24 2QL, ++616553250, SSB+CW 2000LPM
G4VXE	YL	IO81WV	T. KIRBY, 19 SIDNEY STREET, CHELTENHAM GL50 2TD, ++242236723, 50MHZ SSB/144MHZ SSB+CW
G4WGS	YN47D	IO83	M. GAWNE-SHERIDAN, 170 WINCHESTER AV, great sankey, warrington, CHES WA5 1XY,
G4XOL	?	?	M. OSBORNE, 5 HARVEY AVE, newton-le-willows, MERNYSIDE,
G4XUM	YN78J	IO83	M. PLATT, 15 MNT. CLOSE, nantwich, CHESHIRE CW5 6JJ, ++270626351,
G4YTL	ZL15H	IO91JU	D. HILTON-JONES, PARK FARMHOUSE, wendlebury, bicester, OXON OX6 8PW, ++869240268,
G6DER	ZN33C	IO93	K. HEWITT, 6 CHURCH GROVE, monk bretton, barnsley, S. YORKS S71 2EY,
G6HCV	YM30F	IO82	B.G. FLETCHER, 2 SLADE GARDENS, codsall, STAFFS WV8 1BJ,
G6HKS	AM22G	JO02	R. MASON, 19 SALTS RD, west walton, wisbech, CAMBS PE14 7EJ,
G6OYL	ZN45G	IO93	D. LAW, 86 LILLYHALL ROAD, rotherham, maltby, S. YORKS S66 8AT,
G6RAF	ZM27E	IO92PP	RAF N LUFFENHAM RC, OAKHAM, LEICS. LE15 8RL, SSB ONLY, SKEDS VIA GW8VHI
G6XVV	ZN44C	IO93	H. BARKER, 24 MICKLEBRING LN., braithwell, S. YORKS S66 7AS, SSB+CW
G8JHL	YN39E	IO83	J. LOVELL, 40 VINE ST., kersal, salford, MANCHESTER M7 0PG,
G8ROU	ZM	IO92	D. HARDY, THORNTREE HOUSE, wensley, matlock, DERBYSHIRE DE4 2LL,
G8XVJ	YN48F	IO83	E. GEDVILAS, P.O.BOX 141, warrington, CHESHIRE TR14 8HG, SSB
G8ZDS	XK	IO70	P. HOCKING, 26 UNION STR., camborne, CORNWALL TR14 8HG, SSB
GI0OTC	WP67B	IO65	A. DOHERTY, 14 RODNEY STR., portrush, ANTRIM BT56 8BL, ++265824735,
GI1JUS	XO21G	IO74	I. BROWN, 13 O'NEILL RD, newton abbey, ANTRIM, ++232868492,
GI4OMK	XO31J	IO74	PH. MURPHY, 19 CAIRNSHILL PK, BELFAST BT8 4RG, ++232702528,
GI4OPH	XO33J	IO74	T. CRAWFORD, 24 MAIN STR., ballywater, CO DOWN BT22 2PG, ++247758425,
GI6ATZ	XO31J	IO74	G. CURRY, 28 BEECHILL PK. SOUTH, BELFAST BT8 4PB, ++232795307,
GM0BQM	YP62G	IO85	M. ROBERTSON, MURRAYFIELD COTTAGE, closeburn, THORNHILL DG3 5AY,
GM0HUO	YQ57H	IO86OI	ARLEN PARDOE, 120 NORTH STREET, st. andrews, FIFE KY16 9AF, ++33473460, PHONE+FAX SSB+CW 1000LPM
GM0JOL	XS38D	IO78VM	J. LINCOLN, THE MANSE OF FARR, BETTYHILL,, sutherland,, SCOTLAND KW14 7SZ, ++6412208, CW 1000LPM VHF NET
GM3POI	YS	IO88MI	C. S. PENNA, NORTHWINDBRAKE, dearness, SOUTH ORKNEY KW17 2QL,
GM4YXI	YR60A	IO87	K. KERR, 3 HILLHEAD OF MOSSTOWN, udny, ellon, ABERDEENSHIRE AB41 0QA,
GM8BDX	YP	IO85	A.J. SCOTT, MANDERSTONE STABLES, duns., BERWS.,
GM8MJV	YQ77E	IO86PB	TOM MELVIN, 1 RHODES FARMHOUSE, north berwick, EAST LOTHIAN EH39 5NH, ++6204084, SSB ONLY
GW4FRX	YM	IO82	J.H. NELSON, BANK COTTAGE, bausley hill, crew green, SHREWSBURY SY5 9BN,
GW4LXO	YL34D	IO81	J. EASTMENT, 211 PANTBACH RD., rhiwbina, CARDIFF CF4 6AE,
GW4TTU	YL	IO81	K. WEAVER, 24 MONTCLAIRE AVE, blackwood, GWENT NP2 1EE,
GW6DDB	XN60F	IO73	P. LANE, 8 BRYNTEG, llansadwrn, menai bridge, GWYNEDD, ++248810227,
GW8JLY	YL	IO81	L. LEACH, 9 WYON CLOSE, dane scourt, llandaff, CARDIFF CF5 2RN,
GW8VHI	YL32F	IO81	R. WOOLLEY, 7 OLD RD, baglan, p. talbot, W.-GLAM. SA12 8TR, ++639821308,
HB9BZA	DG61C	JN36BE	R. CHALMAS, P.O.BOX 222, 1227 CAROUGE/GE, ++22436837, 2M+70CM MS
HB9CRQ	EH61B	JN47	D. GAUTSCHI, P.O.BOX 12, 5737 MENZIKEN,
HB9DBM	EH62F	JN47	M. BRUN, P.O.BOX 56, 6024 HILDISRIEDEN, ++992996,
HB9QQ	EH45E	JN47	P. PASTEUR, SUNNHALDENSTR. 28A, 8600 DÜBENDORF/ZH,

Meteor Scatter:

HB9RG	EH	JN47	H.R. LAUBER, P.O.BOX 114, 8033 ZÜRICH/ZH,
HB9SNR	DG26H	JN36MR	G. EGGER, 1743 VILLARSEL-LE-GIBLOUX, SSB ON SIX DURING THE NIGHT ONLY
HB9STI	EH43D	JN47GJ	F. SCHERRER, LEONHARDSTR. 12, 8001 ZÜRICH, ++12510832 or, ++12565223 SSB ONLY, QRV ALSO FROM JN46
HB9SUL	EG75D	JN46LA	A. BIANCHI, VIA ARBOSTRA 23A, 6963 PREGASSONA (TI), ++9391516730, SSB ONLY
HG1YA	IH63B	JN87	G. DRASKOVITS, KARPATI U. 43, 9700 SZOMBATHELY, ++9424585, PHONE DURING EVENINGS
HG2EAD	JH32B	JN97	I. KASZAS, CSERESZNYEFA U. 55, 2800 TATABANYA, SSB+CW
HG2KNP	JH32B	JN97	RADIOCLUB TATABANYA, GYORI UT. 13, 2800 TATABANYA, SSB+CW 1500LPM
HG2NP	JH32B	JN97	R. INCZEDI, RETI UT. 30 IV/1, 2800 TATABANYA, SSB+CW SKEDS VIA HA2KML OR HA2KNP
HG4KXG	JG05J	JN96	D. VASMUE RADIO CLUB, P.O.BOX 132, 2401 DUNAUJVAROS,
HG4XG	JG05E	JN96	G. KOVACS, DUNASOR 18, 2428 KISAPOSTAG,
HG5CW	JH	JN97	J. GYÖNGYÖSI, KISCELLI UTCA 16.X/60, 1032 BUDAPEST,
HG5PT	JH46G	JN97MK	DR. HOLM TAMAS, HAROS U. 70, 1222 BUDAPEST,
HG6KNB	JI69C	JN98	RADIOCLUB, P.O.BOX 115, 3101 SALGOTARJAN,
HG6KVB	KH	KN07	RADIOCLUB, KOSSUTH L. U. 4., 3300 EGER,
HG7AJ	JH58G	JN97	A. BENDE, KOSSUTHL U. 88/B, 2200 MONOR, SSB+CW 1000LPM
HG7KPL	JH57F	JN97	QSL VIA HG7PL,
HG7PL	JH57F	JN97	DALLOS LASZLO, BERZSENYI UT.12, 2364 OCSA,
HG7PR	JH	JN97	HETVES JOZSEF, P.O.BOX 17, 2441 SZAZHALOMBATTA,
HG7WJ	JH26F	JN97MP	SANDOR BERES, P.O.BOX 19, 2011 BUAKALASZ,
HG8CE	KG32C	KN06	KOVACS ISTVAN, PAPTELEK 5., 6621 DEREKEGYHAZ,
HG8ET	KG22J	KN06	G. NAGY, UTTORO SETANY 3, 6600 SZENTES,
I0NLK	GB	JN61	F. SELVA, VIA S. MATTEO 86 PA.D, 00015 MONTEROTOND.RM,
I0UZF	GD72B	JN63	F. ALBERTI, VIA LORENZINI 6, 06100 PERUGIA PG,
I1BSN	DE18D	JN34	FRANCO BESSONE, VIA GUNIA ALTA 14, 10067 VIGONE, ++119801432, SSB ONLY
I1DMP	DF79J	JN35UB	PAOLO DEL MEDICO, VIA DANEO 22, 10135 TORINO TO, ++11610153, SSB+CW 1200LPM
I1JTQ	DF79J	JN35UB	MARIO TRIOLI, VIA LEGNANO 28, 10128 TORINO TO, ++11547622, SSB+CW 1200LPM
I1KTC	EF	JN45	A. ZAMPOGNA, VIA PRIV. FORMAGGIO 11, 28100 NOVARA NO,
I1TXD	EF13C	JN45	ROSSI FERRUCIO, CHIUSO RIBONI 8, 28010 COLAZZA NO,
I2AV	EF	JN45	A. AVANZINI, P.O.BOX 37, 21047 SARONNO, SSB+CW
I2FAK	EF77G	JN45	F. GIORGI, VIA ZAVATTARELLO 24, 27043 BRONI PV,
I2FHW	EE17F	JN44	FRANCO ROTA, VIA DANTE 5, 20030 SENAGO MI,
I3FGX	FF	JN55	G. BATTISTA FERRERO, VIA PINAZZA 10, 35031 ABANO TERME PD,
I3LDP	FF	JN55	L. BRESCIANI, P.O.BOX 2035, 37121 VERONA 2 VR,
I3LGP	GF24G	JN65	G. ARTICO, VIA VENEZIA 4, 30022 CEGGIA VE, ++42139312,
I3YXQ	FF57A	JN55	GIANCARL MORETTO, VIA SALVAROLO 4, 37040 ARCOLE VR,
I4BXN	FE	JN54	G. SALVIONI, V. ROVERSELLA 1, 40054 BUDRIO,
I4MKN	GE	JN64	M. SOCI, VIA DONIZETTI 31, 47049 VISERBA CW+SSB,
I4UJB	GE62G	JN64	G. SPINELLI, VIA COLOMBARA 449, s. andrea, 47020 CESENA,
I4VXH	GE41D	JN64	L. BABINI, VIA FIUME ABBANDONATO 50, 48100 RAVENNA,
I4XCC	GD	JN63	CLAUDIO MARACCI, VIA SOARDI 7, 47037 RIMINI FO,
I5JUX	FD	JN53	G. BRACCIOTTI, VIA COLOMBO 366, 55043 LIDO DI CAMAIORE, SSB+CW
I5MZY	FD17F	JN53	M. ZANNONI, V. PIENZA 43, 50142 FIRENZE, ++55712035,
I6CXD	GD38B	JN63	P. PALADINI, V. DALMAZIA 13, 60100 ANCONA,
I6DQE	GD	JN63	A.D. D'ELIA, VIA BRUNAMONTI 2, 62019 RECANATI,
I6WJB	HC42G	JN72	P. BATTAGLIA, VIA 319 NO 12, 65100 PESCARA,
I6YPK	HC42E	JN72	B. SANTALUCIA, VIA SALITA MICHETTI 5, 66023 FRANCA VILLA AL MARE,
I7RNI	IA23D	JN80	N. ROGGES, VIA MORELLI 1, 222401 MATERA,
I8REK	HA	JN70	A. MINGO, V. MARIO RUTA 7, 80128 NAPOLI,
I8WES	HA02E	JN70	R. ESPOSITO, VIA DIAZ 7, 80026 CASORIA (NA), ++817587497,
IK0FEC	GD65H	JN63	L. MATARAZZI, P.O.BOX 12, 06023 GUALDO TADINO PG,
IK0OKY	GB	JN61	E. CUTOLO, VIA BATT D'ASSALTO 6, 00148 ROMA, QRV 6M+2M EX IW0BTS
IK0SMG	GB13F	JN61FS	PINO NOTO, VIA ALDO BANZI 81, 00128 ROMA RM, EX IW0AKA
IK0VKL			FLAVIO CREMASCO, EX IW0DRT, Via Antonio Tempesta 28, 00176 ROMA, PR @IW0CFV-8
IK1EFM	EE44C	JN44JK	ANTONIO VENNI, CALAMANDRE 6, 16157 GENOVA, ++106507078, CW 1200LPM
IK1LGV	EE44C	JN44JK	G. CALVILLO, VIA DE NICOLAY 16/5, 16155 GENOVA PEGL. GE, ++106983153, SSB/CW 1200LPM PR @I1HUH
IK1LUT	DE	JN34TW	MARCELLO CASETTA, VIA FINALE LIGURE 10, 10040 LA LOGGIA TO, ++119658694, SSB ONLY

IK1MTZ	DF79J	JN35UB	DIEGO SIBONA, STRADA DEL CRESTO 31, 10132 TORINO, ++118998086, SSB ONLY
IK1PAG	DF78C	JN35SB	ROBERTO BENEDETTO, VIA NICARAGUA 26, 10095 GRUGLIASCO (TO), SSB+CW 800LPM SKEDS VIA VHF NET ALSO
IK1SPR	DE29H	JN34TR	FLAVIO PRECISVALLE, P.O.BOX 1, 12030 RUFFIA CN, ++172373442, SSB ONLY EX IW1BWR
IK5EHR	FD	JN53	R. PANIGADA, VIA DELLE TAGLIATE 2, trav. 1 no. 78, 55100 LUCCA, SSB+CW
IK6FHF	GD	JN63	A. CRISTALLINI, VIA LE BENADUCCI N.74, 62029 TOLENTINO MC, ++733,
IN3DOV	FG20E	JN56WS	K. ZWERGER, TIROLENHEIM 5, 39040 ST.STEFANSDORF/LORENZEN, SSB+CW 1000LPM
IN3TWX	FG26C	JN56	W. GICK, HASLACHSTR. 86, 39019 DORF TIROL, CW 1200LPM
IT9BLB	GY	JM68	G. LA PAROLA, VIA VELLO D'ORO 14, 90151 MONDELLO PALERMO,
IT9LCY	HX36B	JM77	G. DISTEFANO, PIAZZA EUROPA 16, 95024 ACIREALE CT, ++957647256, CW
IT9VDQ	GY67E	JM68PD	G. GIUNTA, VIA PRESTISIMONE N.24, 90146 PALERMO, ++91527507,
IV3GBO	GG	JN66	G. BORTOLUZ, VIA ROVIGO 30, 33100 UDINE, SSB
IV3HWT	GF18C	JN65	L. COLAUTTI, VIA I MAGGIO 55, 34074 MONFALCONE GO,
IW0BFZ	GB13H	JN61	B. SCHIAVONCINI, V. G. CASELLI 34, 00149 ROMA,
IW0DRT	GB03D	JN61GV	FLAVIO CREMASCO, VIA ANTONIO TEMPESTA 28, 00176 ROMA,
IW0QLV	GD	JN63EC	M. BELLADONNA, VIA MARTIRI DEI LAGER 21, 06100 PERUGIA PG,
IW1AZJ	DF79J	JN35UB	SILVIO RUA, CORSO BENEDETTO CROCE 33, 10135 TORINO TO, ++116191269, OR ++1157777420 OFFICE, SSB+CW 1000LPM
IW2BNA	EF36B	JN45	W. RIVOLTA, VIA NOVELLA 3/C, 20037 PADERNO DUGNANO MI, ++9104712,
IW2BZY	EF36J	JN45NN	LORENZO CAPPELLO, VIA MILANO 146, 20024 GARBAGNATE MILANESE MI, ++29953545, SSB ONLY
IW4ARD	GE63F	JN64	G. MATTEINI, V. C. PAVESE 20, 47041 BELLARIA FO, ++54144292,
IW5AVM	FC	JN52	M. PARMEGGIANI, P.O.BOX 6, 58100 GROSSETO GR, ++56427304,
IW5BBH	FD	JN53	A. GHILARDI, VIA DON MINZONI 46/C, 55100 LUCCA LU, SSB
IW5BHY	FD	JN53	A. DELL'IMMAGINE, VIA S. DONATO 730, 55100 LUCCA, SSB+CW
IW5BML	FC	JN52	A. BUZZANI, P.O.BOX 40, 58022 FOLLINICA, SSB+CW
IW5BPE	FC	JN52	M. CIANCHI, VIA DEGLE AIALI 168, 58040 ROSELLE, SSB
LA0BY	JD	JP99	S. HECK, C/O EISCAT, ramfjordmoen, 9027 RAMFJORDBOTN,
LA1K	FX42C	JP53EK	AKADEMISK RADIOKLUBB, STUD. POST 250, 7034 TRONDHJEM, ++7899663, SSB+CW ON 6M+2M
LA3EU	DW51E	JP32BG	P.M. BLOMVIK, 6037 EIDSNES, ++7191019, SKEDS AT EVENING AND WEEKENDS ONLY
LA3UU	FT/FV		THOR MYERS, HOTVEDTVEIEN VEST 37, 3023 DRAMMEN,
LA3WU	CU57C	JP20QH	I. LUNDE, NOTTVEITLIA 18, 5045 SKJOLDTUN,
LA6CU			P. OLSEN, JONGSTERHAUGSKIFTET, 5092 HYLKJE,
LA6HL	CS09J	JO28	J. BAARDSEN, RISABERGSSTIEN 29, 4056 TANAGER, ++4697200,
LA6VBA	ES	JO48	TARALD MYKLAND, 4909 SONGE, ++4155253,
LA7KK	FU62J	JP50	P. DAHL, DRONNING RAGNHILDSV. 9, 3500 HOENEFOSS,
LA8AK	DS80B	JO38	J.M. NOEDING, VOIELIA 39/B, 4623 KRISTIANSAND, ++38087178, (QRL++38072361) ONLY CW MIN.1500LPM
LA9BM	EU32G	JP40	L. BREIE, FURUTOPPEN 11, 3580 GEILO, ++6785005 qrl, OR ++6785802 AT HOME
LA9FY	EU35D	JP40LM	STEINAR VISSEBRATEN, P.O.BOX 36, 3540 NESBYEN, ++6771677, CW 2000LPM SSB ONLY DURING SHOWERS
LX1DB	DJ	JN39	W. BAUER, 12 RUE BALTY WEBER, SANDWEILER,
LZ1AG	MC64E	KN22	A. NESTOROV, RAVNICHTA 29 AP 10, 4002 PLOVDIV,
LZ1DP	MC49G	KN22	H. MINTCHEV, BORUIGRAD 8 AP. 10, 6004 STARA ZAGORA,
LZ1DX	MC49G	KN22	N. ZAPRYANOV, GR. IGNATIEV 38, 6000 STARA ZAGORA,
LZ1KDP	LC27J	KN12	RADIO CLUB, P.O.BOX 812, 1000 SOFIA,
LZ1KDZ	NC23A	KN32	RADIO CLUB, VIA LZ1KU,
LZ1KG	NB12F	KN31	D. JORDANOV, M. GORKY 9, 6500 SVILENGRAD,
LZ1KJ	NB12F	KN31	I. SAMUNDJIEV, VIA LZ1KG,
LZ1KRB	NC	KN32	RADIO CLUB, P.O.BOX 394, 8000 BOURGAS,
LZ1KU	NC23A	KN32	S. VALCHEV, P.O.BOX 10, 8804 SLIVEN,
LZ1KWT	MC49G	KN22	RADIO CLUB, VIA LZ1DP,
LZ1QM	LC27D	KN12	S. MITZKANOFF, P.O.BOX 90, 1000 SOFIA,
LZ1ZP	MC64E	KN22	G. NESTOROV, VIA LZ1AG,
LZ1ZX	NC34A	KN32	D. DIMITROV, P.K.YAVOROV 37, 8680 STRALDJA,
LZ2JF	MD79H	KN23	N. PISSAROFF, G.SEMINAROFF 1, vhod 707, 5000 VELIKO TIRNOVO,
LZ2PP	ND33J	KN33	V. GANEV, P.O.BOX 196, 7200 RAZGRAD,

Meteor Scatter:

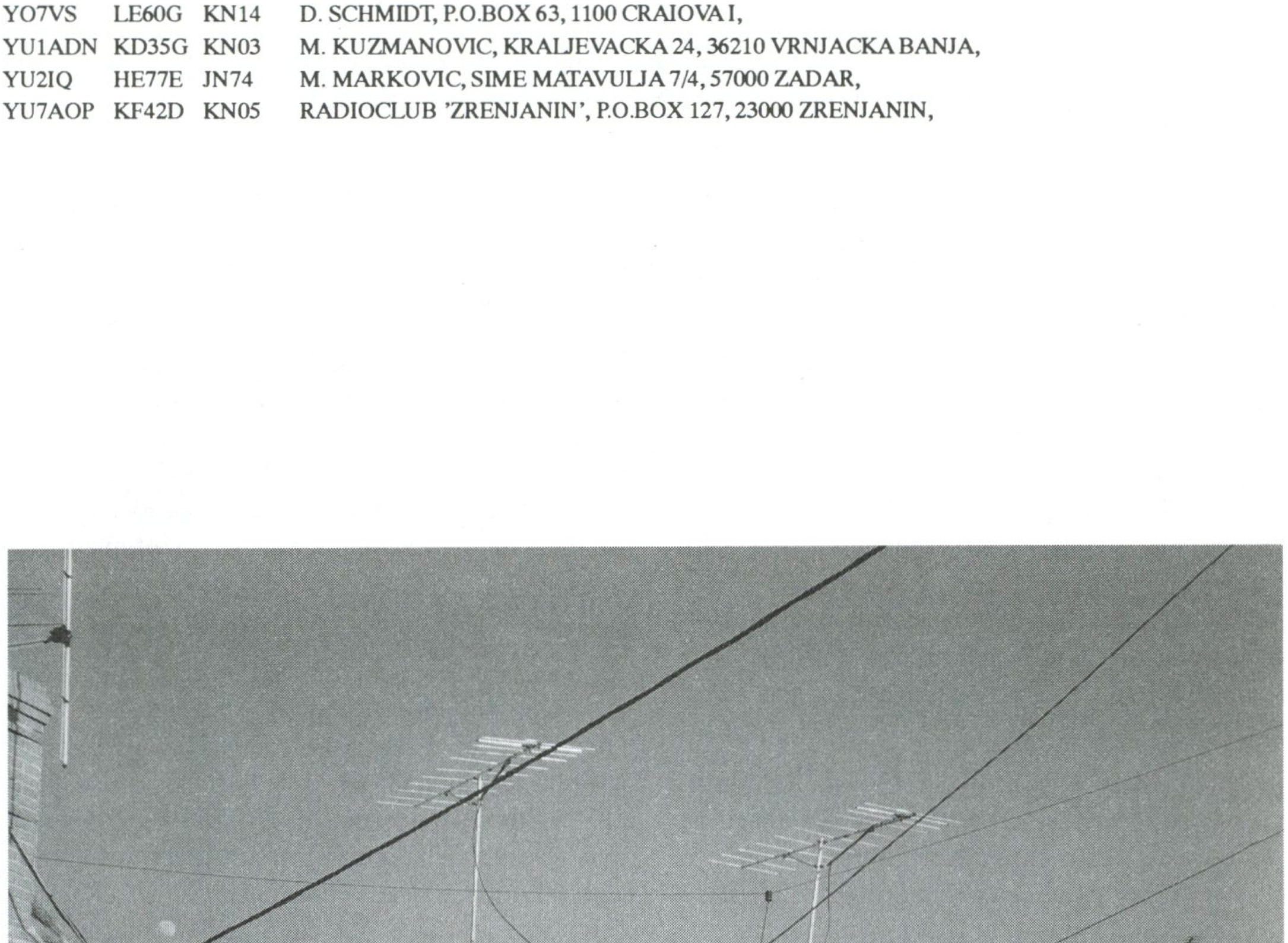
LZ2US	LD48F	KN13	M. TZEKOV, VK "LJUTIBRODSKY" BL.25 AP.172, 3005 VRATZA,
LZ2UU	LC27J	KN12	J. JANKOV, VIA LZ1KDP,
OE1KRU	II	JN88	ROBERT KÖHLER, K.EBERSDORFERSTR. 220/5/31, 1110 VIENNA, SSB ONLY
OE3JPC	II72C	JN88EB	JOHANNES PICHLER, JOH.-SIEGMAYER-GASSE 5, 2361 LAXENBURG, ++2236718025, SSB+CW 1500LPM PHONE UNTIL 20UTC
OE3NFC	II73H	JN88	N. FUTSCHIK, LEOPOLDSDORFER STR. 26, 2326 MARIA LANZENDORF, SSB ONLY
OE3OBC	II52B	JN88	O. BIBARIC, BISAMBERGSTR. 16, 2100 KORNEUBURG, SSB ONLY
OE3OKS	IH21H	JN87	W. KAGER, GRENZGASSE 25, 2630 TERNITZ, SSB+CW
OE3UP	II12G	JN87CT	H.P. USCHAN, ÄUSSERE BAHNZEILE 21, 2700 WIENER NEUSTADT, CW 1500LPM
OE3XUA	HH	JN77	OE3LI C. LIBOWITZKY, JUBILÄUMSSTR. 22, 2301 PROBSTDORF, CW+SSB VHF-NET VIA OE3JPC
OE5KE	HI	JN78	A. KERSCHBAUM, PANHOLZERWEG 3, 4033 LINZ, NOT QRV THIS TIME
OE6AHD	HG18B	JN76	A. PECH, SAUSAL 50, 8444 NEUDORF, ++34563685,
OE6IWG	HH47J	JN77	W. STEINWENDER, HUGO V. HOFMANNSTHALWEG 3/4, 8605 KAPFENBERG, ++3862251485,
OE6JGD	HH77B	JN77	J. GERGETZ, HERZOGENBERGGASSE 6, 8051 GRAZ, ++316663005,
OE6XHF	HG18F	JN76	VUSC, SAUSAL 50, 8444 ST. ANDRAE, ++34563685, SSB+CW
OE8HWQ	HG15G	JN76	H. WURZER, NO. 319, 9431 SANKT STEFAN, ++43524400, NOT QRV THIS TIME
OH2BAP			J. RINTALA, IIVARINTIE 7, 04600 MANTSALA, CW SSB ONLY DURING SHOWER
OH2TI	MU65G	KP20	PRK, DIPOLI, 02150 ESPO,
OH9NLO	MZ23B	KP25	J. TUOVINEN, KAIVOKATU 5, 94100 KEMI,
OH9NYW	MZ23B	KP25GR	ARI KEKKI, KOULUKATU 6, 94100 KEMI, ++69816952, CW 1200LPM
OK1DIG	HK	JO70	D. GLANC, PURKYNOVA 13, 41117 LIBOCHOVICE,
OK1FM	GJ27B	JN69QQ	MILAN GÜTTER, KARAFIATOVA 23, 31702 PLZEN / CZECH. REP., ++197247810, PR @OK0PKL.TCH.EU
OK1FM	GJ27B	JN69QQ	MILAN GÜTTER, KARAFIATOVE 21, 31702 PLZEN, ++1945975,
OK1KHI	HK62D	JO70	S. HLADKY, GOTTWALDOVA 881, 25263 ROZTOKY U PRAHY, SSB+CW
OK1KKH	HJ06C	JN79	RADIOCLUB, P.O.BOX 44, 28480 KUTNA HORA,
OK1KRA	HK62E	JO70	OL1BRA D KLIMOSZ, PLOJHAROVA 1892, 16200 PRAHA 6-PETRINY,
OK1MAC	HJ37H	JN79	JAN ZIKA, SNET 84, 25768 DOLNI KRALOVICE,
OK1MDK	HJ07J	JN79	J. CERNIK, MARXOVA 101, 28401 KUTNA HORA,
OK1MS	HK48A	JO70	S. BLAZKA, SLEZSKA 402, 50901 NOVA PAKA,
OK1OA	HK	JO70	J. BITTNER, VELTRUSSKA 532, 19000 PRAHA 9,
OK1YA	HK73A	JO70	P. BURIAN, MARTINOVSKA 7, 19000 PRAHA 9-DROSEK,
OK2BFH	JJ	JN99	J. SZAROWSKI, KIROVOVA 6-2305, 73401 KARVINA 1,
OK2KZR	IJ32J	JN89	RADIOCLUB, QSL VIA OK2PEW,
OK2PEW	IJ32F	JN89	R. TOUZIN, S.II 984, 59301 BYSTRICE N.PERN., SSB+CW + 70CM CW
OK2PZW	IJ54G	JN89	Z. STERBACEK, DVORSKA 16, 67801 BLANSKO, ++5062811, OR ++506823 AT QRL
OK3CPY	JI59A	JN98UI	ERVIN BENUS, ERENBURGOVA 9, 98401 LUCENEC,
OK3KCM	JI	JN98	QSL-MANA IVAN J., KVETNA 30, 93401 LEVICE,
OK3LQ	II46G	JN88	PALO KOSINOHA, FEBR. VITAZSTVA, 90101 MALACKY OKR. BRATISLAVA,
OM3AU	KI27H	KN08	ANDREJ ORAVEC, SLOBODY 31, 04011 KOSICE, ++95420304,
ON1AOI	CL	JO21	G. DEWAELHENS, DIJKSTRAAT 83, 9330 DENDERMONDE,
ON1IM	BL	JO11	DIRK VERBERCKMOES, HEERNISPLEIN 1, 9040 GENT - SINT-AMANDSBERG, SSB ONLY
ON4AMX	CK05E	JO20KV	MARC MICHIELS, KRAASBEEK 37, 3390 TIELT-WINGE, ++16634388, SSB+CW 1000LPM
ON4AUD	CK07A	JO20	A. F. VELDHUIJSEN, ST. JOBSTRAAT 88, 3540 BOLDERBERG-ZOLDER.,
ON7EH	CK03F	J020FV	MICHEL SPELIER, BLIJDE INKOMSTSTR. 79, 1830 MACHELEN, ++22516865, SSB+CW 1500LPM
ON7RB	BL80F	JO11VA	R. BOYDENS, MAGERSTRAAT 119, 9070 DESTELBERGEN, ++91305486,
ON7UC	BL66D	JO11ND	JOHAN VA BRABANDT, SNELLEGEMSESTRAAT 89, 8210 ZEDELGEM, ++50201983, AFTER 19UTC, SSB/CW 1200LPM, PR @ON1CED
OY9JD	WV07H	IP61	J. DAM, P.O.BOX 2028, 3800 ARGIR, ++12717,
OZ1ASL	FO18C	JO54	P. ROERHOLT, KASTANIEV. 14, 4990 SAKSKOBING, ++3096143,
OZ1BVW	EP48A	JO45	BIRGER JENSEN, INGRIDSVEJ 57, 6000 KOLDING, ++5527286,
OZ1CFO	ER	JO47	PER GIESSING, KOELTOFTEN 2, lillevorde, 9280 STORVORDE,
OZ1CLL	GP23C	JO65	J. AMUNDSEN, STRANDBOULEVAREN 164 5.TV., 2100 COPENHAGEN 0, ++1185968,
OZ1DOQ	GP24F	JO65	U. LINDHARDT, ÖSTRIGSGADE 49 2.TV., 2300 KOBENHAVN S,
OZ1EKI	EP49H	JO45	T. EKELUND, STENDERUPVEJ. 155, 6092 VARMARK, ++5571349,
OZ1ELF	EP49H	JO45	E. POULSEN, S. STENDERUPVEJ 157, 6092 VARMARK, ++5571296,
OZ1FDH	GP22C	JO65	C. FELBY, MORBARHAVEN 17-17, 2620 ALBERTSLUND,

OZ1FGP	EQ68A	JO46	KAI WÜRTZ, SERUP TINGHOJVEJ 8, 8632 LEMMING,
OZ1FTU	FP10J	JO55	S. PEDERSEN, KRUMSTIEN 10A, 2730 HERLEV,
OZ1GFX	HP66E	JO75	TH. NIELSEN, INGEMANNSVEJ 2, 3740 SVANEKE, ++3996374,
OZ1HNE	FR53J	JO57	J. CHRISTIANSEN, ULDALLSVEJ 5, 9300 SAEBY, ++8463357,
OZ1IPU	FR53J	JO57GH	J. SÖRENSEN, ROSENVEJ 49, 9300 SAEBY, ++8463311,
OZ1IUK	GQ73J	JO66	BENT NIELSEN, P.O.BOX 348, 3000 HELSINGOR,
OZ1IVW	FQ41H	JO56	MORTEN RASMUSEN, NORREBROGADE 31, 8900 RANDERS, ++6430607,
OZ1JVX	EQ12E	JO46DS	A. PEDERSEN, KRIKVEJ 86, 7770 VESTERVIG, ++97941996,
OZ1OF	EQ78B	JO46	O. KRISTENSEN, HOJAGERVEJ 45, 8653 THEM, ++6847885,
OZ2ZB	EQ/ER		K. KRISTENSEN, P.O.BOX 43, 9490 PANDRUP, ++8247900288,
OZ3ZW	FO18E	JO54	T. ANDERSEN, MARGRETHEVAENGET 33, 4930 MARIBO, ++3880027,
OZ4VV	EQ	JO46	F. KRISTENSEN, SKOVBAKKEN 2, 9600 ARS,
OZ9FW	GP31B	JO65	F. NIELSEN, ROSKILDEVEJ 11, tune, 4000 ROSKILDE, ++2136104,
PA0FRE	CL	JO21	D.F. VAN ESVELD, GORDELWEG 44B, 3037 AD ROTTERDAM,
PA0HWM	CK10E	JO20	J. HANSSEN, HAGERWEG 9, 6343 AL KLIMMEN, ++44053017,
PA0JMV	CL37E	JO21	J.H. MUTTER, DE SCHUTTER 10, 5688 VH OIRSCHOT, ++499772587, CW 1200LPM
PA0JOZ	CM	JO22	J.F. VAN DER LIST, VOORSTR. 43, 2201 HL NOORDWIJK,
PA0NIE	CL12D	JO21	K. NIEUWLAND, MOLENDIJK 31, 3284 LE ZUID-BEYERLAND, ++18661632,
PA0OOM	DN54G	JO33	J. DE VRIES, STIFTSWERDERWEG 23, 9991 XH MIDDELSTUM, ++590049393,
PA0OOS	DN63B	JO33	J.C. VAN OOSTEN, LAGE DE AA 32, 8009 GRONINGEN,
PA0RDY	CM45E	JO22	ROBERT DYKSTRA, P.O.BOX 26239, 1002 GE AMSTERDAM, ++206325745,
PA0RLS	CM53D	JO22	R.L. SCHIPPERS, BARTOKSTR. 22, 2162 VE LISSE, ++252115553,
PA2CHR			C. PLOEGER, MONNIKENSTEEG 32, 6323 AC ARNHEM,
PA2JOK	CL15B	JO21	J. KUIJNTJES, VAN GOUDOEVERSTRAAT 117, 4204 XD GORINCHEM, ++183020795, SSB+CW
PA2TAB	DM63B	JO32GF	ARIE BALTES, R. VISSCHERHOF 2, 7471 NH GOOR, ++547071682, SSB/CW 1500LPM, QRV 6, 2 & 4M-X-BAND
PA2VST	CM35D	JO22	P.A. GOUWELEEUW, R.V.BRODERODESTR.32, 1471 CP KWADYK, ++29921298,
PA3AEF			P. BEYER, MINKELOOS 27, 4221 SR HOOGBLOKLAND,
PA3AMF	CM44B	JO22	K. FEELDERS, DR. BONSTRAAT 80, 1566 KZ ASSENDELFT, ++75281184,
PA3BIY	CM72C	JO22	P.C. HOEFSLOOT, LISDODDE 3, 2631 DJ NOOTDORP, ++3117319601,
PA3BZO	CL18E	JO21	P. VAN DEN BOS, ARENDSTRAAT 10, 5341 RR OSS, ++412023292, CW 1500LPM
PA3COB	DM66H	JO32	H. VAN EWIJK, STERKERSTR. 7, 7586 CX OVERDINKEL, ++542386937, CW 1500LPM
PA3CPL	DN63C	JO33	A. WEDEMEIJER, T. MESDAGSTR. 21A, 9718 KJ GRONINGEN, ++50132926,
PA3DMH	CL13B	JO21	A. VAN HENGEL, SCHOENER 85, 2991 JK BARENDRECHT,
PA3DNM	CM73H	JO22	E. CORNELISSE, MEERKOETEILAND 23, 2252 WS VOORSCHOTEN, ++17179000,
PA3DOL	CM15B	JO22	S. BRATTINGA, LANGEWEG 23, 1774 AJ SLOOTDORP, ++22781236,
PA3DWD	CN79F	JO23	L. HOLLANDER, GELE LIS 98, 8607 HC SNEEK,
PA3DYS	CL34C	JO21	F. HOLL, VALKHOFSTR. 46A, 4834 PG BREDA,
PA3DZL	CL34F	JO21HM	JAC DE BRUYN, DORPSSTRAAT 11-13, 4711 ND SINT WILLEBRORD, ++3116537346, ALSO QRV 70CM METEORSCATTER
PA3ECU	DM62H	JO32	R. ATTEMA, GILDENBURG 232, 7423 ZD DEVENTER, ++570053395,
PA3EON	CL32E	JO21	C. GEERSR, NWE. MOLENWEG 25, 4661 SG HALSTEREN, ++16416178,
PA3FJY	DM53G	JO32	D.G.A. VAN DER KNAAP, RAALTERWEG 33, 7451 KZ HOLTEN, ++548363742, PHONE 17-21UTC
PE1GBT	DN71A	JO33	T. ANDRAE, DE SINGEL 61, 9203 XZ DRACHTEN, ++512015842, SSB+CW
PE1IWS	CM65D	JO22	F. DE BLES, SCHEPERSWEG 110, 3621 JM BREUKELEN, ++346264708,
PE1KHP	CM70C	JO22XE	ADRIAN KOOPMAN, RUSTENBURGSTR. 130, 7311 JC APELDOORN, ++3155212846, SSB/CW 1000LPM, PR @PI8APD
PE1LAU	DN	JO33	JOHN MEEZEN, NARCIS STRAAT 3, 9675 JV WINSCHOTEN, SSB ONLY
RB5EF			ARKADY GRABARNIK, P.O.BOX 226, 322640 DNEPRODZERZHINSK-40,
RB5GU			ALEX SAIKO, P.O.BOX 5, KHERSON 325000,
S59AM	GF09J	JN65	I. NANUT, CANKARJEVA 76, 65000 NOVA GORICA,
SM0FSK	IT	JO89	P. HALL, TIMOTEJV. 15, 19177 SOLLENTUNA, ++87544788,
SM0HAX	JT51B	JO99	P. OHLSSON, FARKOSTVAGEN 6, 18135 LIDINGOE, ++7671921,
SM1BSA	JR34A	JO97	A. GUTEDAL, LYEGATAN 11, 62143 VISBY, QRV MAY-AUGUST
SM2BYA	KB12H	KP07	G. WANNBERG, DUVVÄGEN 22, 98137 KIRUNA,
SM2BYC	MZ	KP25	M. LATHI, KUKKOLA 3451, 95300 HAPARANDA,
SM2CEW	LZ22H	KP15CR	PETER SUNDBERG, PL PERSÖN 8811, 95190 LULEÄ, ++92070025, SSB+CW 1200LPM ON 50/144/432MHZ

Meteor Scatter:

SM2CKR	KX12G	KP03	M. FREDERIKSSON, FLOTTAREGATAN 5, 90254 UMEA,
SM2EKM	KZ19J	KP05	JAN ERIK HOLM, P.O.BOX 139, 96122 BODEN, ++92119287, CW 1500LPM
SM2ILF	KY	KP04	S. HEDENSTROM, PL 11537, 93100 SKELLEFTEA,
SM3AKW	JW31H	JP92	K.G. MOHLIN, HÄRNÖN, notsand 1, 87193 HÄRNÖSAND, ++61179020,
SM3BEI	IV56D	JP81NG	LENNART NORBERG, SÄTER 4490, 82600 SÖDERHAMN, ++27051474,
SM3BIU	HX18J	JP73	B. ERIKSSON, TULLINGSAS 6174, 83300 STRÖMSUND,
SM3COL	IW	JP82	R. STROEMBERG, FACK 12, 87013 VIKSJOE,
SM3GHB	HW39E	JP72	B. GERHARDSSON, BOBERGSV. 10, 84100 ANGE, ++69012318,
SM3IEK	IW46A	JP82NL	K. BERG, ORIENTERARV. 19C, 86025 KOVLAND, ++6091473, SSB+CW 1500LPM
SM3LBN	IU34B	JP80	H. ERIKSSON, SÄLJANSV. 230B, 81152 SANDVIKEN, ++2649209,
SM4ANQ	HU66D	JP70	U. AKESSON, ROTORVÄGEN 41, 77100 LUDVIKA,
SM4AXY	HT55C	JO79	L. WAHLSTROEM, P.O.BOX 39, 71015 VINTROSA,
SM4DHN	GU70F	JP60	L.B. KARLSSON, P.O.BOX 7111, 68300 HAGFORS,
SM4GVF	HT	JO79	KJELL JARL, P.O.BOX 6082, 69200 KUMLA, ++1978193,
SM4IVE	HT68D	JO79	L. PETTERSON, SMEGARDEN TALBY, 71500 ODENSBACKEN, ++1950223,
SM4KYN	HT	JO79	ANDERS QVIST, BERGSJÖTORP, 68100 KRISTINEHAMN, ++55055075,
SM4POB	HU	JP70FK	PER J. LISSEL, HAGA 13, 78053 NÄS, ++102075562, FAX AT WORK ++24362390
SM5BEI	JU72C	JP90EB	LENNART NORBERG, KOLARMORA 2679, 74073 HARGSHAMN, HOLIDAY QTH OF SM3BEI
SM5BEI	IT50J	JO89	L. NORBERG, BERGASVÄGEN 11, 19146 SOLLENTUNA, 8354958,
SM5CBN	HS56C	JO78	L. HILLAR, PARKGATAN 49, 59500 MJÖLBY, ++14215874, CW 2000LPM
SM5DIC	IT14C	JO89JT	JAGGE RAGERO, LÖT, TÄRNA, 73393 SALA, QRV 50+144+432
SM5EJN	IT77J	JO89	J. ANCKER, O. STORG. 10, 15010 GNESTA,
SM5FRH			T. KIHLGREN, STORA HÖGÄSEN, forsabruk, 64190 KATRINEHOLM,
SM5MIX	HS	JO78	U. GUSTAVSSON, DALGARDSGATAN 9C, 59010 BOXHOLM, ++14251747,
SM6CMU	FR50B	JO57XK	I. OLSSON, KROKVÄGEN 4, 43400 KUNGSBACKA, ++30027944, SSB+CW 1200LPM ON 6+2M - QRL ++31321151
SM6CMU	GX		I. OLSSON, KROKVÄGEN 4, 43400 KUNGSBACKA,
SM6FBQ	GS	JO68	C. BERNERUS, HJ. SELANDERSGATAN 1A, 41674 GÖTEBORG,
SM6KJX	GR	JO67CK	JAN RYTORP, TORPA 1381, 43033 FJAERAES, ++30044489, CW RX 1300/TX 1500LPM ON 50+144MHZ
SM7AED	GQ56B	JO66	A. NILSSON, TRUMSLAGAREG. 3, 23100 TRELLEGORG,
SM7BAE	GP26D	JO65	K. RASMUSSON, KAP 325, 24500 STAFFANSTORP,
SM7FJE	GQ	JO66	B. NILSSON, SPANGATAN 7 A/5TR., 21144 MALMÖ,
SM7GEP			H. ANDERSSON, KONSISTORIEGATAN 19B, 58234 LINKÖPING,
SM7GWU	HS75J	JO78	S. LEDIN, SNICKAREGATAN 13, 57334 TRANAES, ++1401346316109,
SM7JUQ	GP37A	JO65	H. JAKOBSEN, HÄSSLEBERGA 18/23, c/o catronix, 24013 GENARP,
SM7KNK	HP32C	JO75	K. SJÖSTEDT, LUNDEG. 65, 27200 SIMRISHAMN,
SM7SCJ	GP47D	JO65	R. JACOB, BRONNESTAD 9, 23020 KLAGSTORP, ++41026664, SSB+CW 1500LPM ON 6M/2M
SP2DXL			NOW LA4YGA, CONTACT LA8AK
SP2ERZ	JO	JO94	A. KARWOWSKI (EX SP4ERZ), UL. KOL. ZVEBY 16/1, 80133 GDANSK,
SP2JYR	JM	JO92GP	RYSZARD ZUBER, PROCHNOWO, 88200 , ++2599, CW 800LPM
SP2LU	JN61F	JO93	R. KOWASLSKI, CHODKIEWICZA 37 BL.3/43, 85667 BYDGOSZCZ,
SP2NJI	JM26F	JO92MP	WIESLAW JANICKI, UL. WIENIECKA 48/126, 87800 WLOCLAWEK,
SP3MFI	JL11E	JO91	ST. KASIK, UL. DLUGOSZA 6/11, 62800 KALISZ, SSB ONLY
SP4MPB	KN24G	KO03	M. KRZEMINSKI, MARCINKOWO 15, 11030 PURDA,
SP5CCC	KM66A	KO02NF	TOMASZ CIEPIELOWSKI, P.O.BOX 19, 03996 WARSAW, ++125600, SSB+CW 1200LPM
SP5EFO	KM66F	KO02	LESZEK DUNOWSKI, UL. J.S.BACHA 30 M 908, 02743 WARSZAWA,
SP5EFO	KM	KO02	L. DUNOWSKI, UL. SAKA 4M110, WARSZAWA,
SP5HEJ	KM66G	KO02	M. RESZKA, UL. WILLOWA 9M5, 00790 WARSZAWA,
SP6ARE	IL65D	JO81	W. STEPNIEWSKI, KWISKA 6/6, 54210 WROCLAW,
SP6AZT	IL75B	JO81	Z. MALIK, OLOWIANA 6/4, 53434 WROCLAW,
SP6GWB	IK44G	JO80HK	ST. ZIEMCZONEK, UL. OKRZEI 6/4, 57300 KLODZKO,
SP6GZZ	IL54H	JO81	ROMAN FUTOMA, UL. SCINAWSKA 11F/6, 56100 WOLOW,
SP8AOV	LL53D	KO11	Z. OLENDER, P.O.BOX 23, 20015 LUBLIN 1, ++8128413,
SP9AMH	JK76H	JO90MC	MARIUSZ MROCZKOWSKI, UL. CYGANERII 17M.19, 43105 TYCHY,
SP9EWO	JK74E	JO90IA	JANUSZ DZIADZKO, UL. PAWLIKOWSKIEGO 16A/23, 44240 ZORY,
SP9EWU	JK56C	JO90	WOJTEK KEDZIERSKI, UL. MALACHOWSKIEGO 4 M. 6, 42500 BEDZIN,
SV1AB	LY	KM18	L. VERNARDAKIS, BOTSARI 72, kifissa, 14561 ATHENS,

TK5EP	EB04J	JN41IW	PATRICK EGLOFF, P.O.BOX 223, 20179 AJACCIO, SSB+CW
UA1MC	PT	KO59	W. TSCHERNYSCHEW, UL.KORABLESTROITELEI 38-1-93, 199155 LENINGRAD,
UA1ZCL	RC08C	KP78	A.P. KLIMANSKIJ, POS.TUMANNYJ, kolskij r-n, 184375 MURMANSKAJA,
UA4NM	YS29A	LO48	V. SUVOROV, 8 MARCH 9-25, 610030 KIROV,
UC2AAB	NN18C	KO33	G. GRISHEHUK, AERODROMHAJA 55, 220065 MIHCK 65,
UV6AKO	SE07E	KN84	GENNADY YEMELYANENKO, IVANA GOLUBTSA 103-2, anapa, 353410 USSR,
YO2IS	KF17E	KN05	SUELI IULIUS, STR. IASI 1, 1900 TIMISOARA,
YO3JW	NE41C	KN34	STEFAN FENYÖ, C. P. 19-43, 74400 BUCAREST,
YO4AUL	OE64G	KN44	C. FAURESCU, P.O.BOX 11, 8700 CONSTANTA,
YO5AVN	NE31D	KN34	L. LINGVAY, P.O.BOX 3-30, BUCURESTI 3,
YO7CKQ	LF77A	KN15	NIMARA SORIN, STR. UNIRII BLOC 4/41, 1400 TIRGU-JIU,
YO7VS	LE60G	KN14	D. SCHMIDT, P.O.BOX 63, 1100 CRAIOVA I,
YU1ADN	KD35G	KN03	M. KUZMANOVIC, KRALJEVACKA 24, 36210 VRNJACKA BANJA,
YU2IQ	HE77E	JN74	M. MARKOVIC, SIME MATAVULJA 7/4, 57000 ZADAR,
YU7AOP	KF42D	KN05	RADIOCLUB 'ZRENJANIN', P.O.BOX 127, 23000 ZRENJANIN,



EME Contest 95 **F6HEO: 2 m**

FAI News

Editor: Georges Vialet, F8OP

Call for Infos and Papers

In fact I cannot present news, I just haven't got something.

Some DUBUS readers may be not aware that we have a new column, which is dedicated to scatter phenomena like FAI or Ionoscatter. I try hard, to set this new column after several years of absence in the DUBUS magazine. I think we will publish QSO-reports, but also technical features, propagation theory and reports should be of high interest to our readers. Also phenomena like Ionoscatter need to be investigated. Come on you guys from GM, LA and SM, send some reports about your precious QSOs.!

There is also a request from IARU, Region 1, Propagation Studies, to participate in propagation studies. DUBUS will take part in those programs and your reports besides being printed in DUBUS will have a second use for these studies. This may help to defence our bands by showing that we support public interests.

Conclusion:

- Send your reports via mail, email, packet
- Send your photographs
- Send articles, if you wish.
- Be active: For active amateurs by active amateurs, that's the motto DUBUS stands for.

/3

Georges Vialet, F8OP

Ich bin leider nicht in der Lage, Neuigkeiten zu präsentieren.

Vielleicht ist noch nicht durchgedrungen, daß ich vor einiger Zeit die Sparte FAI übernommen habe. Nach einigen Jahren, in denen die Sparte nicht erschien, möchte ich wieder über FAI und Ionoscatter-Phänomene berichten. Dazu gehören QSO-Berichte, technische Berichte, Ausbreitungstheorie usw.

Es gibt auch eine Anfrage der Koordinatoren für 'Propagation Studies' der IARU, Region 1, an die DUBUS mit der Bitte um Zusammenarbeit. DUBUS wird diese Arbeit der Region 1 unterstützen. Damit erfüllen Eure Berichte einen doppleten Sinn: sie werden in der DUBUS gedruckt und dienen als Datenmaterial für Ausbreitungsstudien. Durch diese Funktion, so denke ich, beweisen wir ein Stück weit, daß wir tatsächlich ein experimenteller Funkbetrieb sind. Das unterscheidet uns wohltuend von anderen, die ein begehrliches Auge auf unsere UKW-Bänder geworfen haben.

Kurzum, Reden ist Silber, Machen ist Gold:

- Sendet bitte Eure Reports via Post, packet oder email
- Sendet Fotos
- Sendet Artikel, Berichte, was Ihr wollt.
- Seid aktiv, wie das DUBUS-Motto nahelegt

73

Georges Vialet, F8OP

Aurora News

Editor: Edmund Ramm, DK3UZ

DK2PH (EL03d) wkd via Aurora on 144MHz in CW:

950326

1548	YL3AG	MQ01g	55a	55a	15	1632	SM5BSZ	IT44e	59a 59a 10
1600	SM7RME	HR25d	55a	55a	15	1637	SM6EAN	FR30j	58a 57a 20
1610	LA2AB	FT03f	53a	53a	0	vln dk fr info, Hans			

DK8LV (EO48d) wkd via Aurora on 144MHz in CW:

950102

1846	SM5BSZ	IT44e	58a	42a	15				

950129

1703	SM4HFI	HU39h	57a	53a	5	1804	SM5MIX	HS54d	58a 56a 355
1705	SM3JGG	HV50e	53a	56a	10	1812	GM4ILS	YR24e	56a 55a 355
1709	SM3AKW	JW31h	56a	53a	10	1823	LA4YGA	ES61g	55a 55a 355
1721	OH2KKP	MU56g	56a	55a	25	1832	LA3EDA	FU52f	59a 58a 0
1731	ES2RW	MT56a	54a	59a	25	1837	OH2BTB	MU65b	56a 55a 0
1749	OY9JD	WW77f	51a	33a	0	1907	OH3MF	MU23h	55a 53a 0
1757	SM5BSZ	IT44e	58a	57a	0	1918	GM4YXI	YR60a	55a 52a 0

950130

1746	SM5BSZ	IT44e	56a	54a	10	1841	LA3DV	ET20e	57a 55a 10
1847	SM3AKW	JW31h	56a	54a	10	1858	LA4OGA	FT05b	55a 55a 10

950203

950211

1757	SM5BSZ	IT44e	59a	58a	40	1807	GM4YXI	YR60a	57a 55a 40
						1822	SM4OJ	HU60e	55a 55a 30

950212

1843	SM4HFI	HU39h	55a	53a	0				

950226

1828	OH3MF	MU23h	55a	53a	30	1836	OH2KKP	MU56g	31a 55a 30
1835	OH2BNH	MU55d	55a	59a	30	1848	SM4HFI	HU39h	59a 54a 25
						1919	SM5BSZ	IT44e	58a 57a 35

950326

1332	LA5LBA	FT78h	55a	57a	30	1410	YL3AG	MQ01g	56a 55a 40
1334	SM4SEF	GT56a	57a	57a	30	1413	LA2PHA	DS74j	57a 55a 30
1336	SM7RME	HR25d	57a	57a	30	1449	OH2BNH	MU55d	57a 57a 20
1338	LA3DV	ET20e	56a	55a	10	1552	GM0NAI	ZP28h	57a 59a 20
1340	SM4CFL	GT38g	55a	59a	10	1828	LA9OGA	FU14f	59a 59a 5
1348	DL9GJW	FO79b	59a	59a	25	1831	OH1LSQ	LU52j	55a 55a 5
						1852	LA8WF	FT03d	55a 53a 5

DK8LV (EO48d) contd.:

950326

1350	SM5BSZ	IT44e	59a	59a	10	1858	ES2RJ	MT34d	31a 55a 355
1358	SM1CJV	JR62b	57a	58a	30	1902	SM0ELV	IT49a	55a 55a 355
1400	SM5KQS	IS26j	55a	57a	30	vln dk fr info, Stephan			

DK8ZJ (DK04a) wkd via Aurora on 144 Mhz in CW:

950326

1413	LA4YGA	ES61g	55a	55a	25	1524	LA2AB	FT03f	53a 53a 25
1424	SM6KWJ	GR22d	53a	52a	25	1530	GM4YXI	YR60a	58a 57a 25
1441	LA2PHA	DS74j	55a	55a	25	1556	YL3AG	MQ01g	55a 55a 25
1449	SM5BSZ	IT44e	59a	58a	25	1605	SM7RME	HR25d	53a 53a 25
1458	GM0NAI	XP18h	53a	55a	25	1610	SM6EAN	FR30j	55a 55a 25
1511	SM6OPX	FS58f	53a	53a	25	1630	OZ6ABA	FR42e	*55a 55a* 25
						1734	SK6HD	GS68d	55a 57a 25

950407

1538	G0OFE	ZK11g	55a	57a	40	1637	SM6CRX	GR26h	56a 57a 45
1552	UA1WAM	PQ53b	55a	57a	45	1640	DL9QB	EO43h	57a 59a 45
1559	SP2OFW	JN71h	55a	59a	45	1642	SM5RN	IS32g	53a 55a 45
1606	G3TGL	ZM41f	57a	56a	40	1646	DL7AST	GM47c	55a 56a 45
1611	GM0CLN	YP06h	55a	53a	40	1647	G3EDD	YM62j	55a 58a 40
1620	G4RRA	ZL67h	57a	59a	45	1650	G4CI	ZL59b	53a 56a 35
1624	SM7ALC	GP48h	55a	57a	45	1653	G0MGA	AK12j	52a 55a 20
						vln dk fr info, Martin			

DL1EAP (DL44j) wkd via Aurora on 144MHz in CW:

950326

1417	LA2PHA	DS74j	54a	53a	5	1605	SM6EAN	FR30j	52a 54a 30
1426	LA4YGA	ES61g	52a	52a	10	1615	OZ1CLL	GP23c	53a 55a 20
1430	SM6KWJ	GR22d	52a	52a	30	1621	GM4YXI	YR60a	59a 57a 30
1509	SM5BSZ	IT44e	55a	57a	350	1635	OZ6ABA	FR42e	*57a 55a* 5
1519	LA2AB	FT03f	51a	51a	350	1710	LA8SJ	FT24g	53a 55a 5
1554	YL3AG	MQ01g	53a	55a	20	1732	SK6HD	GS68d	53a 54a 15
						vln dk fr info, Wolfgang			

DL1EJA (DL12e) wkd via Aurora on 144MHz in CW:

950407

1624	LA8SJ	FT24g	55a	59a		1748	GW4FRX	YM26h	55a 55a
1630	F6CRP	ZG65g	55a	55a		1751	G4AJC	ZL49d	55a 55a
1631	DF1CF	FH23j	59a	59a		1757	DK9ZY	EK61j	52a 52a
1638	G4RGA	ZL	55a	55a		1808	DB8KJ	DK32f	*52a 53a*
1645	LA2PHA	DS74j	55a	55a		1824	PA2DWH	CM72c	55a 54a
1650	DL3KFM	GO	55a	55a		1826	GM3JFG	XR30b	55a 53a
1700	HB9QQ	EH45e	55a	57a		1839	OZ6OL	GP42e	55a 55a
1709	HB9DFG	DH38d	55a	54a		1851	PA3EPD	CL02c	51a 55a
1726	DL2OM	DK38j	57a	55a		1854	G0CUZ	YM40f	55a 51a
1731	DL1VAA	GL80j	55a	55a		1902	DL7VBW	GM37c	55a 55a
1736	DF2UQ	EJ74j	55a	55a		vln dk fr info, Oliver			

DL1KDA (DK23g) wkd via Aurora on 144MHz in CW:

950407

1503	OZ8ZS	FP18g	57a	59a	1600	SP2OFW	JN71h	55a	59a
1519	DL2IAN	EJ71a	52a	55a	1608	GW4FRX	YM26h	59a	59a
1524	OE2UKL	GH05b	53a	55a	1616	F8EAM	BJ36f	53a	59a
1529	HA0HO	KH18b	53a	59a	1630	S53VV	GF39e	53a	55a
1541	DL3IAS	EJ42d	41a	55a	1635	DL2FCN	EJ14b	55a	55a
1543	DL4FCH	EK64e	53a	55a	1651	DF0BT	GM37c	59a	59a
1547	PA3EKK	DM74f	55a	55a	1654	G0CUZ	YM40e	52a	57a

950408

1550	GM0CLN	YP06h	52a	51a	1554	SM6KWJ	GR22d	52a	53a

vln dk fr info, Alex

DL2IAN (EJ71a) wkd via Aurora on 144MHz in CW:

950407

1505	OZ8ZS	FP18g	55a	52a	1524	F6DWG	BJ41j	53a	55a
1506	DL9GJW	FO80a	55a	55a	1528	DL5MAM	FI79j	52a	52a
1507	PA3EKK	DM74f	52a	54a	1548	DL0FTG	FN21f	52a	55a
1511	DF8LC	FN03a	53a	53a 50	1652	DL2LAR	EO46h	57a	55a
1517	DL8EBW	DL66a	57a	57a 30	1656	G0CUZ	YM40e	53a	53a
1518	DL1KDA	DK23g	55a	52a					

vln dk fr info, Thomas

DL8EBW (DL66a) wkd via Aurora on 144MHz in CW:

950313

1807	SM5BSZ	IT44e	52a	hrd	10

950326

1455	SM5BSZ	IT44e	55a	54a	350	1549	PA3FJY	DM52c	57a	55a 50
1535	GM4YXI	YR60a	57a	hrd	350	1554	DL7VBW	GM37c	59a	59a 45

950407

1452	DL9GJW	FO80a	57a	56a	40	1609	DF5DE	EK02h	57a	57a 50
1455	DF8LC	FN03b	59a	59a	40	1612	G4BAK	ZL42a	44a	54a 50
1500	DJ2XS	FN41g	55a	53a	40	1619	F2TH	CI76h	55a	52a 50
1502	GM0CLN	YP06h	*59a*	*55a*	25	1622	DF1CF	FH23f	55a	55a 70
1514	DL6CTG	FM50d	57a	55a	50	1637	HB9QQ	EH45e	57a	59a 75
1516	DL2IAN	EJ71a	57a	57a	50	1642	G4RGK	ZL37g	57a	59a 40
1519	DL4FCS	EK64e	55a	55a	50	1645	F6APE	ZH57b	57a	56a 40
1521	DL5MAM	FI79j	57a	59a	70	1651	RA3LE	QO21h	59a	hrd 40
1523	HB9LEH	EH43c	55a	55a	70	1702	HB9DFG	DH38d	57a	55a 70
1528	HG0HO	KH18j	55a	hrd	75	1735	DL1VAA	GL74c	55a	53a 75
1537	DF7KF	DK13b	59a	59a	75	1806	DL2FDX	EK55d	52a	52a 50
1538	DL0FTG	FN21f	59a	59a	75	1817	PA2DWH	CM63d	55a	55a 50
1547	F6DWG	BJ42a	55a	55a	50					

Fb Aurora evening, but very poor activty! Our situation was not so very good. Stations in the East were better located.

vln dk fr info, Guido

ES1CW (MT44g) wkd via Aurora on 144MHz in CW:

950326

1340	YL3AG	MQ01g	59a	57a	1502	SM4HFI	HU39h	59a	54a
1343	LA8SJ	FT24g	59a	56a	1510	SM3COL	IW30d	59a	57a

ES1CW (MT44g) contd.:

950326

1348	OH1LTU	KV79g	59a	55a	1605	GM4YXI	YR60a	57a	51a
1417	SM7TKR	HR46f	59a	53a	1615	OZ5UKF	HP66f	57a	55a
1431	SP2OFW	JN71h	57a	55a	1617	UA3MBJ	SS78d	59a	53a
1434	SM5DCX	IT57h	59a	59a	1642	DK1KO	FN12g	57a	53a
1439	RN1NY	?????	57a	57a	1654	DL1JF	FO62h	55a	53a
1448	OZ6OL	GP42e	59a	56a	tks fr info Arvo				

OE3JPC (II72c) wkd via Aurora on 144MHz in CW:

950407

1554	G0PES	YN15d	53a	52a	330	1630	G4RKV	AL57h	55a	55a	325
1559	EI4DQ	VL20a	54a	57a	320	1633	G4CI	ZL59b	52a	55a	315
1602	G3NAQ	ZL44h	53a	52a	320	1644	DL7VBW	GM37c	55a	55a	330
1604	DL9YEK	EM55c	53a	55a	330	1647	G4BRK	ZL22e	53a	54a	330
1606	DK4QT	EL04h	52a	53a	330	1649	G3EDD	AM62j	56a	56a	330
1609	G3KEQ	AL51j	56a	56a	330	1651	DL9GJW	FO80a	57a	57a	330
1612	G4IGO	YK06j	52a	53a	330	1652	SP2RS	JO43c	57a	57a	330
1615	DL3BWW	HM53a	58a	59a	330	1656	DK5HE	FN34j	59a	59a	330
1624	GW3KJW	XM17j	54a	55a	330	1659	G4AEP	YL46e	54a	54a	320
1626	DJ6GK	EK14c	52a	55a	320	1702	G3GNR	XK20j	52a	53a	320
1626	HA0HO	KH18b	55a	59a	315	432MHz: nil hrd.					
						vln dk fr info, Johannes					

OH2BNH (MU55d) worked via Aurora on 144MHz in CW:

950326

1414	DL1KUS	GN08b	55a	55a	1633	DL1SUN	FN37j	57a	57a
1422	UA3PB	SN09h	55a	57a	1635	DL3SWS	FN58d	57a	55a
1436	SM6KWJ	GR22d	59a	55a	1636	DL1JF	FO62h	57a	57a
1439	DJ3LE	EO18d	59a	59a	1637	DK9HN	EN34b	57a	55a
1442	SM1CJV	JR62b	59a	59a	1640	DL9QB	EO49a	54a	57a
1444	DF8LC	FN03b	57a	57a	1643	SM3VAC	IX79d	59a	59a
1446	RN1NY	PV31e	59a	59a	1706	SM7UYJ	GP27g	59a	55a
1451	DK8LV	EO48d	57a	57a	1802	DL7VBW	GM37c	59a	58a
1453	LA7AE	FU76e	55a	55a	1807	DK9OY	FM42g	57a	53a
1455	SM5TJH	IS32g	57a	59a	1810	OZ5UKF	HP66f	56a	55a
1537	DL0FTG	FN21f	57a	59a	1820	DL8CMM	FM40a	58a	56a
1549	GM4YXI	YR60a	59a	56a	1924	SM3UVH	IU26j	55a	55a
1620	SP2OFW	JN71h	59a	59a	1942	SM0EPO	IT50b	59a	57a
1632	DL9GJW	FO80a	59a	59a	1952	DL9GKA	GN08b	59a	57a
					kiitos info Pasi				

PE1MVJ (CL03f) wkd via Aurora on 144MHz in SSB:

950407

1510	GM0CLN	YP06h	57a	55a	1531	OZ6ABA	FR42e	56a	55a
1517	EI3GE	WN70d	56a	55a	1557	G8XVJ	YN48f	56a	55a
					bedankt voor info Hans				

UT3BW (MJ79e) hrd via Aurora on 144MHz:

940407

1655	RA3LE	QO21h 58a hrd	1658	UA1WAM	PQ53b 57a hrd
			спасибо за инфо Игорь		

70cm 70cm 70cm 70cm 70cm 70cm 70cm 70cm 70cm 70cm 70cm

DL4MDQ (FI28f) wkd via Aurora on 432MHz in CW:

950408

1600	OZ1FDH	GP22c 41a hrd 30	1645	DL8BDU	EN71f 42a hrd 30
1635	SM7BYU	GP15d 52a 52a 30	vln dk fr info, Max		

Please submit your Aurora reports preferably in machine readable form. You may do so using the following **magnetic media:**

5 1/4" or 3 1/2" 720K TOS or MS-DOS (please no HD coating)

Further you can report to me by **E-Mail:** dk3uz@techno.isys.net

or via **Packet Radio:** DK3UZ @ DB0HHT.#HH.GER.EU

vy 73, Eddi

News & Comments

Editor: Klaus Tiedemann, DL4EBY

The 17th Nordic VHF-UHF-SHF Meeting June 9-11. 1995, Sandefjord Norway

We hereby have the pleasure to invite you to the annual VHF-UHF-SHF meeting 1995. The meeting will be held at the YMCA scout camp near Sandefjord.

Activities : There will be lectures on several technical topics. This time we will take special care of new hams interested in VHF and above DX work. General discussions on VHF and above related matters, with information from the Vienna meeting. One of the discussion topics will be future band planning. Fleamarket, Amsat station and radio stations from 50MHz.
Family activities : This year we hope you will bring your family, because this time there will be a lot of those not interested in ham radio. We can mention canoe, kayak, sand beach, football field and montain climbing.

Acconmmodation and prices : Indoor accommodation possibilities in 4, 6 or 8 bed rooms, as well as camping. Remember to bring your own sleeping bag or similar. No kitchen for making yout own meals avaible.

Prices :
All included from Friday to Sunday (bed) NOK 650.- All included from Friday to Sunday (camp.) NOK 550.-
Above prices include : free coffee/tea, all meals including ham dinner and accommodation.
bed (one night) NOK 125.-
Meals (one day) NOK 175.-
Ham diner NOK 150.-
Camping (one night) NOK 50.-

After the Saturday evening ham dinner, there will be dance to a live orcestra.

Please note *alchohol* restrictions as this is a YMCA camp.

Location : The camp is located on a little island just outside the city of Sandefjord, and is called "Knattholmen leirsted". If you arrive by car , follow the road no. 303 from Sandefjord and drive in direction to Tonsberg. Some km north of Sandefjord follow the road to Nattholmen.

Check in and guide frequency 145.450 MHz or R6.

Reservation : Transportation from the Stromstad-Sandefjord and Fredikshaven-Larwik ferries will be arranged if needed.Please give us following information when making your reservation :
- name and callsign
- name of family members
- day of arrival
- transportation from a ferry needed
- bed or camping
- meals and ham dinner

Send your reservations to :
Helge Karlsen, LA1BR, N-2355 Gaupen
Packet LA1BR@LA5G.RAU.E.NOR.EU,
Phone/Fax, +47 623 54282 (0900-1700).

mny tnx fer info

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DUBUS Toplist

Editor: Norbert Goettsche, DL8LAQ

DUBUS 50 MHz Top List

NR	CALL	WW	EU	WK	TR	AU	MS	ES	F2
1	PA0RDY	JO22	CM	597	725	1617	1597	****	16320
2	G4IGO	IO80	YK	583	577	1308	2528	6970	16188
3	ON4KST	JO20	CK	581	652	1415	1509	7920	16498
4	ON4ANT	JO20	CK	551	710	1757	1695	7243	16547
5	ON4GG	JO20	CK	534	710	1757	1695	7243	16547
6	DL7QY	JN59	FJ	532	741	1665	2186	6900	16353
7	GW4LXO	IO81	YL	500	300	650	1200	7500	10000
8	G6HKM	JO01	AL	481	347	1883	780	5674	16112
9	SM6CMU	JO57	FR	424	762	1452	1642	5922	0
10	F1GTU	JN05	AF	418	699	815	1421	3268	16400
11	DL8HCZ	JO53	FN	412	365	1250	1356	3350	0
12	I4XCC	JN63	GD	394	492	0	1427	3349	18627
13	PA2TAB	JO32	DM	387	610	1370	1809	5797	15339
14	PA3FYM	JO22	CM	375	1238	2019	0	****	16373
15	G8VR	JO01	AL	365	760	2154	1290	8470	16416
16	F8OP	JN26	CG	348	631	1023	1369	5508	13547
17	OK1MAC	JN79	HJ	336	0	0	0	0	0
18	DL9GU	JN49	EJ	327	721	450	0	8500	15625
19	OK1IBL	JO60	GK	317	530	1320	1717	6941	11816
20	DL7ARM	JO62	GM	315	909	1189	1245	8324	15817
21	OK1DDO	JO60	GK	284	620	1423	1340	6100	13300
22	SP6GZZ	JO81	IL	268	515	0	1826	7619	0
23	OK1FAV	JO60	GK	246	0	579	1093	6250	10366
24	DL3YEE	JO42	EM	244	540	1056	1300	2700	13053
25	OZ7IS	JO65	GP	228	410	1294	850	3100	0
26	DL8LAQ	JO43	EN	228	0	0	0	0	0
27	G6LEU	IO70	XK	214	700	750	0	0	0
28	ES1CW	KO29	MT	201	1052	1726	2841	3311	4343
29	OK1VBN	JN78	HI	200	455	0	0	4010	0
30	DL5BBL	JO42	EM	199	414	1008	0	3165	5863
31	OK1FFD	JO60	GK	195	550	1247	0	6060	13300
32	DL7YS	JO62	GM	195	342	461	969	3547	8767
33	DL8EBW	JO31	DL	184	247	1050	1150	5800	13300
34	9A2EY	JN85	IF	182	438	0	0	0	0
35	SP6GWB	JO80	IK	163	696	629	1880	4250	0
36	HB9AOF	JN36	DG	156	100	0	0	5400	10663
37	DL5GAC	JN47	EH	147	129	690	0	5100	11900
38	SP5EFO	KO02	KM	147	0	0	0	0	0
39	DL3AMA	JO51	FL	143	372	0	1600	4001	0
40	OK1VQ	142	245	539	0	2002	2755		
41	DL5IO	JN49	EJ	119	113	340	900	3100	12995
42	I2FUM/2	JN45	EF	107	137	0	0	2023	0
43	IN3TWX	JN56	FG	95	396	0	0	1890	8100
44	DL6BF	JO32	DM	94	0	0	0	0	0
45	SM0FZH	JO99	JT	66	502	1016	0	1984	0
46	DJ6MB	JO30	DK	64	0	661	0	5968	0
47	EH1DVY/P	IN82	YC	49	467	0	0	2409	0
48	DJ8ES	JO43	EN	45	1105	0	0	2100	0

DUBUS 144 MHz Top List

NR	CALL	WW	EU	WK	TR	AU	MS	ES
1	DK1KO	JO53	FN	630	2124	2057	2194	3285
2	DL3BWW	JO72	HM	623	2243	2034	2295	2782
3	DL8HCZ	JO53	FN	554	1615	1976	2096	3527
4	PA0RDY	JO22	CM	547	1582	1979	2272	2819
5	SM6CMU	JO57	FR	534	1760	1928	2280	2540
6	SM6AFH	JO66	GQ	531	1730	1554	2010	2330
7	PA3BIY	JO22	CM	530	1550	2026	2205	3143
8	DK6AS	JO52	FM	516	1460	1885	2510	2260
9	OH5LK	KP30	NU	515	1962	2041	2235	2891
10	DF8LC	JO53	FN	514	2105	2045	2202	3291
11	DK9OY	JO52	FM	511	1651	1947	2208	2434
12	SP6GZZ	JO81	IL	506	1670	1794	2017	2717
13	SP9EWU	JO90	JK	489	1710	1927	2154	2531
14	OE3JPC	JN88	II	472	1584	1821	2128	2769
15	I2FAK	JN45	EF	469	1750	1508	2405	2995
16	OZ1DOQ	JO65	GP	466	1885	1940	1981	2888
17	DL8EBW	JO31	DL	458	1454	1918	2029	2214
18	DL8LAQ	JO43	EN	442	1376	1806	1934	3302
19	DL2NWK	JO63	GN	441	1819	1956	1991	2251
20	DL7UTS	JO62	GM	430	1516	1379	2057	2312
21	UV1AS	KN59	PT	427	1709	1905	2271	2547
22	DL5BCU	JO43	EN	421	1479	1928	2010	2538
23	RA3YCR	KO73	RN	420	1835	1964	2255	2429
24	I4XCC	JN63	GD	416	1177	1803	2275	3257
25	OM3AU	KN08	KI	401	2128	1756	2065	2513
26	PA3FOC	JO21	CL	400	1373	2010	2142	2179
27	DL5DTA	JO61	GL	399	1344	1578	1907	2057
28	OK1FM	JN69	GJ	397	1843	1438	2200	2031
29	DL7AKA	JO62	GM	396	1747	1916	2065	3620
30	F8OP	JN26	CG	395	1228	1196	2028	2720
31	SP5EFO	KO02	KM	392	1702	1982	2010	2626
32	OK1MAC	JN79	HJ	392	1536	1681	2005	2511
33	OK1JKT/P	JO60	GK	385	1701	1764	2121	2269
34	I3LGP	JN65	GF	380	1335	1387	2020	3174
35	UA3MBJ	KO88	SS	373	1560	2006	2573	2392
36	ON4ANT	JO20	CJ	371	1420	1965	2124	2725
37	HB9CRQ	JN47	EH	369	1404	1288	2060	2959
38	ON4GG	JO20	CK	365	1420	1965	2124	2124
39	F5FHI	IN97	ZH	355	1739	2051	2183	2735
40	DL3AMA	JO51	FL	350	1785	1803	1925	2075
41	OE3OKS	JN87	IH	349	1441	1273	1867	2788
42	UT1PA	KO21	ML	340	1901	1934	1806	2425
43	DL1SUN	JO53	FN	336	1824	1724	1845	2333

44	DL7YS	JO62	GM	334	1512	1528	1826	2136
45	PA3FJY	JO32	DM	333	1536	1337	1981	1940
46	G3LQR	JO02	AM	329	1776	2031	0	2406
47	S50C	JN76	HG	329	1463	1530	2233	3356
48	I4YNO	JN54	FE	327	1145	1374	1960	2243
49	DJ1LP	JO64	GO	324	1347	1071	2058	2301
50	EA1DVY	IN81	YB	323	1946	0	0	2064
51	F6DKW	JN18	BI	322	1519	1602	2051	2755
52	OK1DKS	JO70	HK	321	1230	1308	0	3530
53	DK0OG	JN68	GI	311	1708	1722	2125	3320
54	PA0RLS	JO22	CM	311	1350	1890	1890	2832
55	DK1KR	JO53	FN	310	1481	2103	0	2026
56	SP3MFI	JO91	JL	307	1697	1632	1802	2617
57	UA3TCF	LO26	WQ	306	1131	1996	2498	2332
58	IW1AZJ	JN35	DF	306	1105	1188	1904	2780
59	DL5GAC	JN47	EH	305	1264	1876	2135	3079
60	SP9HWY	JO90	JK	303	1698	1928	0	2532
61	DL6BF	JO32	DM	303	1542	1932	1452	2332
62	DL8OBU	JO42	EM	297	1483	1866	1733	2159
63	RW3RW	LO02	UM	297	1298	2098	1740	2834
64	SM5BSZ	JO89	IT	293	1764	1824	1938	0
65	SP6GWB	JO80	IK	291	1780	1581	1875	2437
66	OK1DFC	JO60	GK	291	1775	2099	2024	2016
67	UA3DHC	KO96	TQ	289	1766	1891	2180	2429
68	F1FIH	JN23	CD	289	1305	999	1723	2934
69	IN3TWX	JN56	FG	283	1100	0	1609	1750
70	F1EAN	JN06	AG	282	1650	1420	0	2479
71	LA8AK	JO38	DS	280	1496	1804	1804	2413
72	OK1FFD	JO60	GK	277	1388	1720	1937	2154
73	DB6BX	JO32	DM	275	1534	1541	1921	2059
74	G4IGO	IO80	YK	274	2761	1917	1903	2833
75	SP2JXN	JO94	JO	274	1650	1690	0	2634
76	UA4API	LO20	WK	271	1127	1820	0	0
77	PA0WWM	JO22	CM	268	1303	1839	1997	2212
78	OK1IBL	JO60	GK	266	1438	1462	2003	3398
79	UA4NM	LO48	YS	265	1215	1850	2510	2290
80	GW4LXO	IO81	YL	261	2750	1550	2000	2200
81	OZ1IPU	JO57	FR	261	1387	1187	1566	2452
82	UZ2FWA	KO04	KO	261	912	1759	2125	2010
83	OK1HAG	JN79	HJ	260	1441	1749	1909	3463
84	DK2BJ	JO30	DK	258	1476	1924	0	2205
85	F5HRY	JN18	BI	257	1239	1695	2038	2758
86	DD0BI	JO33	DN	252	1565	1018	1102	2362
87	F6CKZ	JN09	AJ	252	1552	1330	1725	3407
88	DJ6LV	JO31	DL	250	1268	1880	1822	3130
89	G6HKM	JO01	AL	248	1304	1555	1660	2269
90	ON4KST	JO20	CK	245	1435	1612	0	2383
91	PE1KHP	JO22	CM	241	1685	1214	1321	2010
92	DG1BA	JO43	EN	239	1674	1280	1588	2239
93	F5JRX	JN25	CF	237	1598	1187	1616	2301
94	UV6AKO	KN84	SE	237	1155	960	2017	2567
95	UT7GA	KN66	QG	231	1877	1446	2131	2617
96	DK1VI	JN49	EJ	227	1148	1107	1604	3131
97	F1GTU	JN05	AF	225	1650	967	1934	2400
98	DH3YAK	JO31	DL	225	1187	1162	0	2650
99	RA6HHT	LN05	UF	224	1255	1827	1827	2782
100	OE6IWG	JN77	HH	224	1221	1110	2220	1954
101	DH6JT	JO31	DL	221	1199	1051	1870	1634
102	OK1VBN	JN78	HI	217	1578	1682	1915	2209
103	DD0VF	JO61	GL	217	1279	1275	1800	2001
104	UA4UK	LO14	VO	215	0	0	0	0
105	DC6DY	JO31	DL	212	1416	1045	1914	2292
106	DL5BBL	JO42	EM	212	1416	1290	0	2028
107	F5PAU	IN88	YI	209	1630	0	0	2425
108	UR7GN	KN66	QG	205	1830	0	2010	1940
109	UY5HF	KN66	QG	201	1750	0	1820	2032
110	HB9DFG	JN37	DH	201	1367	1299	1784	2302
111	G3XDY	JO02	AM	200	1355	2049	0	2124
112	DL9BDM	JO33	DN	197	1538	1248	1659	2321
113	DF9QX	JO42	EM	197	1446	1070	1455	3320
114	OK1SC	JO70	HK	195	1490	1673	0	1729
115	DK2DB	JN48	EI	192	1239	1136	0	3106
116	PA2TAB	JO32	DM	191	1302	1094	1949	2183
117	DL8AAV	JO52	FM	185	1236	1127	0	2144
118	S59AM	JN65	GF	184	1377	0	1945	1788
119	UZ3TXB	LO16	VQ	183	1163	1941	2145	0
120	OE5VRL/5	JN78	HI	182	1665	1573	1990	2124
121	OK1DDO	JO60	GK	180	1329	1500	1720	2418
122	HB9RUZ	JN47	EH	180	1060	970	0	3014
123	HB9MIO/P	JN37	DH	179	1316	975	0	2183
124	DK9RL	JN69	GJ	177	1311	1513	1286	3316
125	RA3TES	LO15	VP	177	1074	1935	2144	2247
126	G6LEU	IO70	XK	173	2620	750	0	2403
127	DL3YEE	JO42	EM	172	1574	1450	1480	2106
128	HB9AOF	JN36	DG	171	1201	670	1675	2166
129	HA1SO	JN87	IH	170	1787	1797	0	2143
130	UA6LGH	KN97	TH	169	1918	758	1918	2167
131	DG0CR/P	JO50	FK	169	1279	1530	0	2010
132	UA3RBO	LO03	UN	169	952	1909	2137	2378
133	DG1VL	JO61	GL	168	1209	1223	1800	2038
134	UA3MAS	KO97	TR	167	1667	1752	1884	1996
135	IK1LGV	JN44	EE	163	1466	0	1613	1890
136	SM0FZH	JO99	JT	158	1226	1442	1200	2377
137	SP9FG	JN99	JJ	157	1647	1283	0	1698
138	OK1CA	JO70	HK	156	1540	1065	950	2096
139	UA3MHJ	KO87	SR	156	539	1943	2405	1948
140	OK1IAS	JO60	GK	153	1195	1004	0	2138
141	DG9NBT	JN49	EJ	151	1363	0	1648	1832
142	UT5JCW	KN64	QE	150	0	0	0	0
143	DL0UL/P	JN48	EI	149	1026	0	0	2019
144	OZ7IS	JO65	GP	148	1128	1294	1901	1845
145	PA3FXW	JO22	CM	144	1267	1247	1436	1965
146	DL1BKK	JO43	EN	143	1512	877	0	1965
147	DJ6XV	JO31	DL	143	1337	961	0	2007
148	DG5NEX	JN49	EJ	133	1234	0	1333	1941
149	UW3ZD	KO81	SK	126	1713	2126	1755	2363
150	RV3ZR	KO80	RK	124	1045	1956	1785	2077
151	DL3NAW	JN59	FJ	120	1019	0	1961	1237
152	UA4CFV	LO32	XM	118	1311	1824	0	2415
153	UA4AQL	LO20	WK	116	1123	2055	2158	1962

DUBUS 432 MHz Top List

NR	CALL	WW	EU	WK	TR	AU	MS	ES
1	DJ9BV	JO43	EN	219	2154	1863	1440	0
2	PA0RDY	JO22	CM	202	1979	1807	1376	0
3	G3LQR	JO02	AM	198	2031	1613	0	0
4	DL3BWW	JO72	HM	193	1547	1494	0	0
5	PA0EZ	JO22	CM	189	1787	1445	0	0
6	PA0WWM	JO22	CM	187	1547	1836	0	0
7	OZ7IS	JO65	GP	185	1499	1048	1294	0
8	F5FHI	IN97	ZH	184	1892	1280	1530	0
9	UA6LGH	KN97	TH	182	2216	0	0	0
10	DL8QS	JO43	EN	180	1513	1513	0	0
11	DL7QY	JN59	FJ	173	1640	1848	1292	0
12	DJ6MB	JO30	DK	171	1278	1733	0	0
13	PE0AGO	JO32	DM	163	1702	0	0	0
14	DK6AS	JO52	FM	161	1569	775	0	0
15	F6DKW	JN18	BI	161	1519	0	0	0
16	DK1KO	JO53	FN	160	1643	694	0	0
17	DB6BX	JO32	DM	158	1550	662	0	0
18	F1EAN	JN06	AG	154	1493	0	0	0
19	G3XDY	JO02	AM	154	1350	1619	0	0
20	DB6NT/A	JO50	FK	153	1823	0	0	0
21	PA3DIJ	JO33	DN	150	2116	1010	0	0
22	DK1KR	JO53	FN	150	1400	1827	0	0
23	OZ2OE	JO45	EP	148	2216	1020	0	0
24	RA3YCR	KO73	RN	147	1671	1788	0	0
25	OK1CA	JO70	HK	146	1670	0	0	0
26	SM6ESG	JO67	GR	144	1427	0	0	0
27	SM0FZH	JO99	JT	143	1900	1218	0	0
28	DF8LC	JO53	FN	143	1615	1361	0	0
29	DH3NAN	JO50	FK	143	1437	1008	0	0
30	SP6GWB	JO80	IK	141	1780	759	0	0
31	SP6MLK	JO80	IK	141	1780	0	0	0
32	DL1SUN	JO53	FN	136	1157	1071	0	0
33	DL3YEE	JO42	EM	134	1574	1728	0	0
34	SM7ECM	JO65	GP	132	1348	1073	0	0
35	OK1KIR/P	JO60	GK	130	1773	0	0	0
36	SP9FG	JN99	JJ	130	1660	0	0	0
37	OH5LK	KP30	NU	128	1386	1196	0	0
38	DL1BKK	JO43	EN	123	1193	565	0	0
39	SP9EWU	JO90	JK	121	1544	1558	1664	0
40	G6HKM	JO01	AL	120	1289	281	0	0
41	G6RAF	IO92	ZM	119	1730	0	0	0
42	OE5VRL/5	JN78	HI	119	1522	1031	0	0
43	LA8AK	JO38	DS	119	1373	981	0	0
44	DL4VCG	JN39	DJ	115	1335	0	0	0
45	OZ1IPU	JO57	FR	113	1387	0	0	0
46	DL6BCT	JO43	EN	112	1152	0	0	0
47	F5PAU	IN88	YI	111	1630	0	0	0
48	DJ6XV	JO31	DL	111	1128	976	0	0
49	UA3MBJ	KO88	SS	110	1306	1541	0	0
50	GW4LXO	IO81	YL	109	1550	0	0	0
51	SP6GZZ	JO81	IL	109	1549	870	0	0
52	DL7UTS	JO62	GM	109	1507	772	0	0
53	HB9MIN/P	JN37	DH	109	1300	0	0	0
54	DL0UL/P	JN48	EI	109	1238	0	0	0
55	SM6CMU	JO57	FR	108	1641	670	0	0
56	SM6AFH	JO66	GQ	108	1315	1200	0	0
57	PA0BAT	JO31	DL	105	1301	0	0	0
58	UT1PA	KO21	ML	105	1238	1761	0	0
59	DF9QX	JO42	EM	105	1136	721	0	0
60	DC4XH	JO43	EN	103	1133	808	0	0
61	UA3DHC	KO96	TQ	101	1596	1009	0	0
62	HB9CRQ	JN47	EH	101	1010	0	0	0
63	DG9NBT	JN49	EJ	100	1204	0	0	0
64	UT7GA	KN66	QG	98	1877	0	0	0
65	SP9HWY	JO90	JK	98	1398	1306	0	0
66	OK1DKS/P	JO60	GK	98	1118	0	0	0
67	ON4GG	JO20	CK	96	1407	0	0	0
68	ON4ANT	JO20	CK	96	1406	0	0	0
69	DK0OG	JN68	GI	96	1351	745	0	0
70	DL3AMA	JO51	FL	94	1015	1219	0	0
71	DL2NWK	JO63	GN	92	1636	590	0	0
72	DJ1LP	JO64	GO	91	1414	0	0	0
73	DG5NEX	JN49	EJ	91	1187	0	0	0
74	G4LRT	IO92	ZM	90	1394	410	0	0
75	DK9RL	JN69	GJ	87	1185	0	0	0
76	SP5EFO	KO02	KM	87	1120	1705	0	0
77	DD0BI	JO33	DN	85	1259	0	0	0
78	F5HRY	JN18	BI	85	1222	583	0	0
79	UY5HF	KN66	QG	84	1670	0	0	0
80	DK1VI	JN49	EJ	84	1125	870	0	0
81	DC6DY	JO31	DL	83	1190	0	0	0
82	DL5BCU	JO43	EN	83	1188	766	0	0
83	DG0CR/P	JO50	FK	82	1048	759	0	0
84	HB9AOF	JN36	DG	82	926	0	0	0
85	DK2DB	JN48	EI	81	1331	0	0	0
86	HB9MIO/P	JN37	DH	81	1096	0	0	0
87	DF1EQ	JO31	DL	80	1249	0	0	0
88	F6CKZ	JN09	AJ	76	1038	0	0	0
89	DJ8ES	JO43	EN	76	1025	0	0	0
90	DH3YAK	JO31	DL	75	1165	0	0	0
91	F1GTU	JN05	AF	75	1114	0	0	0
92	OK1FFD	JO60	GK	74	1339	0	0	0
93	RW3RW	LO02	UM	73	1275	1284	0	0
94	UR7GN	KN66	QG	70	1790	0	0	0
95	OE3JPC	JN88	II	69	1000	1450	0	0
96	S50C	JN76	HG	68	817	0	0	0
97	DG1VL	JO61	GL	67	1125	0	0	0
98	DL0SP/P	JO62	GM	64	909	0	0	0
99	G6LEU	IO70	XK	63	1400	0	0	0
100	OK1SC	JO70	HK	63	1310	758	0	0
101	F5JRX	JN25	CF	62	1070	0	0	0
102	OK1DFC/P	JO60	GK	62	977	0	0	0
103	DL8AAV	JO52	FM	62	914	0	0	0
104	UA4NM	LO48	YS	58	1230	1310	0	0
105	UA3MAS	KO97	TR	57	1254	1251	0	0
106	DL3IAS	JN49	EJ	55	886	0	0	0
107	DB8NU	JN49	EJ	55	691	0	0	0

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NR	CALL	WW	EUWKODX		
1	PA0EZ	JO22	CM	121	1261
2	PA0RDY	JO22	CM	119	1286
3	F6DKW	JN18	BI	117	1273
4	F5FHI	IN97	ZH	115	1538
5	PA0WWM	JO22	CM	115	1298
6	HB9AMH/P	JN37	DH	111	1351
7	DB6NT/A	JO50	FK	107	1243
8	G3LQR	JO02	AM	106	1274
9	G3XDY	JO02	AM	105	1199
10	PE0AGO	JO32	DM	102	1200
11	SP6GWB	JO80	IK	91	1580
12	F1EAN	JN06	AG	90	1321
13	OK1KIR/P	JO60	GK	89	1208
14	DB6BX	JO32	DM	89	1117
15	SM6ESG	JO67	GR	88	1440
16	OE5VRL/5	JN78	HI	86	1522
17	G6DER	IO93	ZN	86	1306
18	DL7QY	JN59	FJ	86	1261
19	F5PAU	IN88	YI	85	1630
20	SP6MLK	JO80	IK	85	1580
21	OZ2OE	JO45	EP	82	1425
22	SM7ECM	JO65	GP	82	1326
23	DL3YEE	JO42	EM	80	1136
24	DK1KR	JO53	FN	79	1097
25	PA3DIJ	JO33	DN	79	939
26	DK6AS	JO52	FM	78	1421
27	PA0BAT	JO31	DL	78	1014
28	DL1BKK	JO43	EN	75	995
29	G6LEU	IO70	XK	74	2620
30	OZ7IS	JO65	GP	72	1205
31	OZ1IPU	JO57	FR	72	1096
32	OK1CA	JO70	HK	70	1421
33	DL4VCG	JN39	DJ	70	838
34	OK1AIY/P	JO70	HK	69	1490
35	G4PMK	IO93	ZN	66	1302
36	G4LRT	IO92	ZM	66	1152
37	HB9RG	JN47	EH	66	920
38	OZ1DOQ	JO65	GP	65	1319
39	DF1EQ	JO31	DL	65	908
40	G6HKM	JO01	AL	64	1193
41	OK1DFC/P	JO60	GK	64	1176
42	DK0OG	JN68	GI	63	1160
43	DC4XH	JO43	EN	63	1090
44	DG9NBT	JN49	EJ	62	1016
45	DH3NAN	JO50	FK	61	1143
46	DG5NEX	JN49	EJ	61	1060
47	HB9AOF	JN36	DG	61	920
48	HB9MIO/P	JN37	DH	60	1000
49	F5HRY	JN18	BI	59	1064
50	DL0UL/P	JN48	EI	58	962
51	DF9QX	JO42	EM	57	1066
52	SM0FZH	JO99	JT	56	1252
53	DJ6XV	JO31	DL	56	946
54	DG0CR/P	JO50	FK	55	1048
55	DC0DA	JO31	DL	55	1034
56	DL1SUN	JO53	FN	54	1162
57	DC8UG	JO30	DK	54	900
58	DL9GU	JN49	EJ	54	900
59	RA3LE	KO64	QO	52	1428
60	SP9FG	JN99	JJ	51	1492
61	DL3NQ	JN49	EJ	51	920
62	ON4ANT	JO20	CK	51	914
63	LA8AK	JO38	DS	49	1373
64	DB8NU	JN49	EJ	49	1016
65	GW4LXO	IO81	YL	48	990
66	OK1DKS/P	JO60	GK	46	1207
67	ON4GG	JO20	CK	44	934
68	DJ8ES	JO43	EN	43	839
69	DJ6MB	JO30	DK	42	876
70	DB1BX	JO32	DM	41	895
71	OK1FFD	JO60	GK	40	1058
72	DL3IAS	JN49	EJ	40	769
73	F6CGB	JN18	BI	40	700
74	DC6DY	JO31	DL	39	865
75	DJ1KP	JO40	EK	39	698
76	F1GTU	JN05	AF	36	896
77	DK2DB	JN48	EI	36	873
78	OE3JPC	JN88	II	36	702
79	RA3YCR	KO73	RN	36	657
80	I0LVA	JN62	GC	33	1152
81	SP9EWU	JO90	JK	33	946
82	DH3YAK	JO31	DL	33	715
83	DF6VB	JO31	DL	31	722
84	UR7GN	KN66	QG	30	820
85	I2FUM/2	JN44	EE	30	779
86	DG1VL	JO61	GL	28	723
87	S50C	JN76	HG	28	626
88	DK9RL	JN69	GJ	27	891
89	DK0PX	JN48	EI	27	725
90	UT7GA	KN66	QG	26	680
91	OZ8VO	JO56	FQ	24	951
92	UA3MBJ	KO88	SS	20	301
93	OH5LK	KP30	NU	18	1349
94	DK0FLT	JN49	EJ	17	567
95	DJ1LP	JO64	GO	15	558
96	DK1VI	JN49	EJ	15	424
97	OK1VBN	JN78	HI	15	307
98	9A2EY	JN75	HF	14	395
99	HA1SO	JN87	IH	14	348
100	F1FIH	JN23	CD	13	475
101	HA1DAB	JN87	IH	13	292
102	UA3MAS	KO97	TR	11	265
103	OK1SC	JO70	HK	10	440
104	UA6LGH	KN97	TH	9	464
105	DL0SP/P	JO62	GM	9	347
106	RW3RW	LO02	UM	8	400
107	UY5HF	KN66	QG	6	520
108	UA3TCF	LO26	WQ	5	455
109	UA3TIE	LO16	VQ	2	403

DUBUS 2320 MHz Top List

NR	CALL	WW	EUWKODX		
1	PA0EZ	JO22	CM	72	962
2	PA0RDY	JO22	CM	60	831
3	DB6NT/A	JO50	FK	55	1119
4	PA0WWM	JO22	CM	55	851
5	G3LQR	JO02	AM	52	1006
6	PE0AGO	JO32	DM	49	800
7	OK1KIR/P	JO60	GK	48	1115
8	DL7QY	JN59	FJ	47	1018
9	G6DER	IO93	ZN	44	1265
10	DL1BKK	JO43	EN	43	760
11	PA3DIJ	JO33	DN	43	727
12	OK1AIY/P	JO70	HK	40	1296
13	SM6ESG	JO67	GR	40	1051
14	F5FHI	IN97	ZH	37	1017
15	PA0BAT	JO31	DL	37	923
16	OE5VRL/5	JN78	HI	36	1289
17	DC8UG	JO30	DK	33	900
18	DF1EQ	JO31	DL	33	678
19	OZ1IPU	JO57	FR	31	1028
20	DC0DA	JO31	DL	31	775
21	SM7ECM	JO65	GP	30	880
22	DL3NQ	JN49	EJ	29	890
23	DL9GU	JN49	EJ	29	877
24	G4LRT	IO92	ZM	28	1022
25	OZ7IS	JO65	GP	28	860
26	G3XDY	JO02	AM	27	947
27	DL3YEE	JO42	EM	27	912
28	DG0CR/P	JO50	FK	26	962
29	DF9QX	JO42	EM	26	915
30	OZ2OE	JO45	EP	26	809
31	HB9MIO/P	JN37	DH	26	694
32	DL4VCG	JN39	DJ	25	668
33	I0LVA	JN62	GC	23	612
34	DJ1KP	JO40	EK	23	454
35	G4PMK	IO93	ZN	22	1249
36	OZ1DOQ	JO65	GP	22	827
37	DL0UL/P	JN48	EI	21	493
38	DK2DB	JN48	EI	20	873
39	F1EAN	JN06	AG	19	940
40	HB9AMH/P	JN37	DH	18	933
41	DK0OG	JN68	GI	18	675
42	DB1BX	JO32	DM	18	525
43	DK0PX	JN48	EI	17	566
44	DG9NBT	JN49	EJ	17	465
45	DB8NU	JN49	EJ	17	428
46	DG5NEX	JN49	EJ	16	465
47	DL3IAS	JN49	EJ	15	445
48	DF6VB	JO31	DL	15	414
49	OK1DKS/P	JO60	GK	13	602
50	F5HRY	JN18	BI	13	539
51	DJ6XV	JO31	DL	12	396
52	DK6AS	JO52	FM	11	620
53	DJ8ES	JO43	EN	10	682
54	I2FUM/2	JN44	EE	10	354
55	DK1KR	JO53	FN	9	792
56	DL1SUN	JO53	FN	9	349
57	LA8AK	JO38	DS	8	677
58	OK1CA	JO70	HK	8	291
59	DK0FLT	JN49	EJ	7	464
60	DH3NAN	JO50	FK	7	331
61	F1GTU	JN05	AF	7	313
62	S50C	JN76	HG	5	346
63	F6CGB	JN18	BI	4	407
64	SP9FG	JN99	JJ	3	342
65	DF2CA/P	JN57	FH	3	206

66	GW4LXO	IO81	YL	3	200
67	OK1VBN	JN78	HI	3	158
68	F5PAU	IN88	YI	2	120
69	9A2EY	JN75	HF	2	96
70	SP9EWU	JO90	JK	1	134

DUBUS 3400 MHz Top List

NR	CALL	WW	EU	WK	ODX
1	DB6NT/A	JO50	FK	27	738
2	PA0EZ	JO22	CM	23	636
3	DC0DA	JO31	DL	17	660
4	PE0AGO	JO32	DM	17	457
5	G3LQR	JO02	AM	16	924
6	PA0BAT	JO31	DL	16	568
7	PA0WWM	JO22	CM	16	435
8	DL1BKK	JO43	EN	15	703
9	DL3NQ	JN49	EJ	15	637
10	DL7QY	JN59	FJ	15	565
11	DC8UG	JO30	DK	13	724
12	G6DER	IO93	ZN	13	718
13	DF1EQ	JO31	DL	13	532
14	PA0RDY	JO22	CM	12	445
15	G4PMK	IO93	ZN	10	845
16	DB1BX	JO32	DM	9	425
17	DK2DB	JN48	EI	9	331
18	DL0UL/P	JN48	EI	9	239
19	G4LRT	IO92	ZM	6	563
20	DK0PX	JN48	EI	6	528
21	DL4VCG	JN39	DJ	6	339
22	DJ8ES	JO43	EN	4	578
23	DJ6XV	JO31	DL	3	396
24	GW4LXO	IO81	YL	3	117
25	DF9QX	JO42	EM	2	143
26	DK0OG	JN68	GI	2	78
27	DF2CA/P	JN57	FH	2	24

DUBUS 5700 MHz Top List

NR	CALL	WW	EU	WK	ODX
1	HB9AMH/P	JN37	DH	29	700
2	SM7ECM	JO65	GP	27	960
3	DB6NT/A	JO50	FK	26	880
4	PA0EZ	JO22	CM	26	835
5	HB9MIO/P	JN37	DH	26	694
6	SM6ESG	JO67	GR	21	947
7	G3LQR	JO02	AM	20	949
8	DL1BKK	JO43	EN	18	689
9	OZ1IPU	JO57	FR	17	805
10	PA0BAT	JO31	DL	17	723
11	OK1UWA/P	JO70	HK	16	998
12	OK1KIR/P	JO60	GK	16	393
13	PE0AGO	JO32	DM	15	800
14	I0LVA	JN62	GC	12	557
15	DL3NQ	JN49	EJ	12	318
16	DC0DA	JO31	DL	11	451
17	DL0UL/P	JN48	EI	11	266
18	DC8UG	JO30	DK	10	724
19	OK1AIY/P	JO70	HK	10	693
20	OZ7IS	JO65	GP	10	593
21	DL7QY	JN59	FJ	10	565
22	G6DER	IO93	ZN	9	947
23	PA0WWM	JO22	CM	9	772
24	OZ1DOQ	JO65	GP	8	415
25	HB9MIN/P	JN37	DH	8	286
26	S51WI	JN75	HF	7	532
27	G4PMK	IO93	ZN	6	958
28	DK2DB	JN48	EI	6	315
29	DC8EC/A	JN57	FH	6	278
30	I2FUM/2	JN44	EE	6	201
31	DF1EQ	JO31	DL	5	461
32	DK0PX	JN48	EI	5	324
33	DB1BX	JO32	DM	5	150
34	F6CGB	JN18	BI	4	407
35	DL1JIN/P	JO60	GK	4	321
36	DG0CR/P	JO50	FK	4	304
37	DL4VCG	JN39	DJ	3	339
38	F6CGB/P	JN24	CE	2	375
39	DG1VL	JO61	GL	2	161
40	DJ6XV	JO31	DL	2	144
41	DK0OG	JN68	GI	2	78

DUBUS 10 GHz Top List

NR	CALL	WW	EU	WK	ODX
1	PA0EZ	JO22	CM	50	835
2	G3WDG	IO92	ZM	46	1135
3	HB9AMH/P	JN37	DH	43	939
4	HB9MIN/P	JN37	DH	41	939
5	G4KGC	IO92	ZM	39	1135
6	SM7ECM	JO65	GP	39	1110
7	I6XCK/6	JN63	GD	39	702
8	F6DKW	JN18	BI	35	1215
9	I6CXB/6	JN63	GD	35	751
10	DL3YEE	JO42	EM	35	700
11	SM6ESG	JO67	GR	33	1140
12	DB6NT/A	JO50	FK	31	692
13	PA0BAT	JO31	DL	31	604
14	G4BRK	IO91	ZL	30	1115
15	G3LQR	JO02	AM	30	924
16	DK1KR	JO53	FN	29	868
17	HB9RG	JN47	EH	28	761
18	HB9MIO/P	JN37	DH	28	694
19	OE5VRL/5	JN78	HI	26	1134
20	I0LVA	JN62	GC	26	850
21	DL3NQ	JN49	EJ	26	712
22	DL1BKK	JO43	EN	24	662
23	OZ1IPU	JO57	FR	22	941
24	PA0WWM	JO22	CM	21	589
25	OK1KIR/P	JO60	GK	21	419
26	OZ2OE	JO45	EP	20	789
27	DF9QX	JO42	EM	19	504
28	G4LDR	IO91	ZL	18	1118
29	PE0AGO	JO32	DM	18	800
30	DK0OG	JN68	GI	18	512
31	DJ1KP	JO40	EK	18	413
32	DK0PX	JN48	EI	17	419
33	DK4GD/P	JN48	EI	17	411
34	DL0UL/P	JN57	EI	17	363
35	OK1AIY/P	JO70	HK	16	736
36	DC8UG	JO30	DK	15	753
37	S51WI	JN75	HF	15	532
38	DL7QY	JN59	FJ	15	492
39	OK1UWA/P	JO70	HK	15	434
40	G4PMK	IO93	ZN	14	958
41	DC0DA	JO31	DL	14	639
42	DK2DB	JN48	EI	14	432
43	F5HRY	JN18	BI	12	684
44	DG9NBT	JN49	EJ	12	426
45	DL4VCG	JN39	DJ	12	360
46	GW4LXO	IO81	YL	12	309
47	G4KNZ	IO91	ZL	12	247
48	DB1BX	JO32	DM	11	465
49	I4XCC	JN63	GD	11	426
50	HB9AMH	JN37	DH	9	567
51	DC8EC/A	JN57	FH	9	297
52	SM0FZH	JO99	JT	9	242
53	F6CGB	JN18	BI	8	677
54	F6CGB/P	JN12	BC	7	823
55	DL1JIN/P	JO60	GK	7	345
56	OZ1DOQ	JO65	GP	6	472
57	PA3DIJ	JO33	DN	6	344
58	DL3IAS	JN49	EJ	6	176
59	LA8AK	JO38	DS	5	212
60	DJ8ES	JO43	EN	5	210
61	DF6VB	JO31	DL	5	162
62	DJ6XV	JO31	DL	5	144
63	9A2EY	JN75	HF	4	374
64	DK0FLT	JN49	EJ	4	284
65	DG0CR/P	JO50	FK	4	283
66	DG1VL	JO61	GL	4	197
67	DF1EQ	JO31	DL	4	181
68	S50C	JN76	HG	4	176
69	DH3NAN	JO50	FK	3	134
70	G4LRT	IO92	ZM	3	103
71	DG5NEX	JN49	EJ	1	173

DUBUS 24 GHz Top List

NR	CALL	WW	EU	WK	ODX
1	HB9MIN/P	JN37	DH	12	396
2	HB9AMH/P	JN37	DH	10	286
3	HB9MIO/P	JN37	DH	10	172
4	DC8EC/P	JN57	FH	8	245
5	DB6NT/A	JO50	FK	5	178
6	DF2CA/P	JN58	FI	5	142
7	DL3NQ	JN49	EJ	4	287
8	DK4GD/P	JN48	EI	4	184
9	DL3YEE/P	JO42	EM	4	151
10	DF6VB/P	JO31	DL	4	104
11	OK1AIY-P	JO60	GK	3	227
12	G4KNZ/P	IO83	YN	3	120
13	DK0PX	JN48	EI	3	99
14	DJ1KP	JO40	EK	3	75
15	OK1AIY/P	JO70	HK	2	266
16	DF1EQ/P	JO31	DL	2	133
17	DL1JIN/P	JO60	GK	2	58
18	DG0CR/P	JO50	FK	2	52
19	DK2DB	JN48	EI	2	48
20	DC0DA/P	JO32	DM	1	104
21	F6CGB/P	JN37	DH	1	74

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22	GW4LXO	IO81	YL	1	58
23	OZ1IPU	JO57	FR	1	55
24	OK1UWA/P	JO70	HK	1	43
25	DB1BX	JO32	DM	1	37
26	DL4VCG	JN39	DJ	1	9
27	PA0BAT	JO31	DL	1	3
28	G3LQR	JO02	AM	1	2

DUBUS 47 GHz Top List

NR	CALL	WW	EU	WK	ODX
1	HB9MIN/P	JN37	DH	8	185
2	HB9MIO/P	JN37	DH	8	166
3	HB9AMH/P	JN37	DH	5	166
4	DF2CA/P_	JN58	FI	4	15
5	OE9PMJ/9	JN47	EH	4	12
6	OE9YTV/9	JN47	EH	4	11
7	DK4GD/P	JN47	EH	3	123
8	DB6NT/A	JO50	FK	2	95
9	DF6VB/P	JO31	DL	2	69
10	DC0DA/P	JO31	DL	2	69
11	DF2CA/P	JO60	GK	2	59
12	DL3YEE/P	JO42	EM	2	45
13	DL/HB9AMH/P	JN48	EI	1	184
14	DL1JIN/P	JO60	GK	1	58
15	DC8EC/A	JN57	FH	1	14

DUBUS 76 GHz Top List

NR	CALL	WW	EU	WK	ODX
1	DG2MF/P	JO58	FI	4	4
2	DF2CA/P	JO50	FK	4	4
3	OE9YTV/9	JN57	FH	3	1
4	OE9PMJ/9	JN57	FH	3	1
5	DB6NT/A	JO50	FK	2	77
6	DC0DA/P	JO50	FK	2	48
7	DF6VB/P	JO50	FK	1	18
8	DL1JIN/P	JO60	GK	1	11
9	OE9FKI	JN47	EH	1	2
10	HB9AMH/P	JN37	DH	1	1
11	HB9MIN/P	JN37	DH	1	1

DUBUS 145 GHz Top List

NR	CALL	WW	EU	WK	ODX
1	DB6NT/OZ	JO57	FR	1	3
2	DB6NT/A	JO50	FK	1	1
3	DL1JIN/P	JO60	GK	1	1

DUBUS 241 GHz Top List

NR	CALL	WW	EU	WK	ODX
1	DB6NT/A	JO50	FK	1	0
2	DB6NT/OZ	JO57	FR	1	0