
 Newsletter of the Severnside Television Group

CHAIRPERSONS CHRISTMAS MESSAGE

The Severnside Television Group is run by a committee of nine members, who may from time to time require assistance now that our membership approaches eighty. May I take this opportunity of welcoming new members and ask for any assistance that they may be able to give.

As Christmas approaches may I also take this opportunity to wish you and your family a merry Christmas and a happy new year.

The Christmas social evening will take place at Elm Park Parish Pavilion, Filton on SATURDAY 5th December.

The party for ATV enthusiasts has moved to SATURDAY to give our more distant members a chance to attend and bring their families and friends. We will be holding a Christmas raffle again this year and members are asked to assist by buying and selling tickets to friends and relatives. This is our main fund raising event of the year, with over £100 worth of prizes. We are also holding the now traditional auction and members are asked to bring along some unwanted items that our very capable auctioneer Roger G4ZQF can coax us into purchasing.

A small buffet will be provided by members of the committee, but members are requested to bring along some refreshments to supplement this please : we do not wish to use any of our hard earned funds that we need for additional projects which are in the pipeline.

During the year the engineering team have tried new receivers in various combinations to give even better results from GB3ZZ. Hopefully the new receiver will be installed by the time you receive this newsletter. Also included in this issue of "P5" is an updated page of the DTMF tones needed to operate the many facilities on GB3ZZ. This is primarily intended for new members.

Due to the popular request of those living within range of GB3ZZ, in the new year we will once again be holding a "Fancy Dress on Air" party on Sunday 3rd January at 7.30 pm. Members can dress up and have some light hearted entertainment in front of the camera. The more distant stations wishing to take part can if they wish by sending me a short sketch on video tape (any format) lasting up to ten minutes. I will relay this through GB3ZZ and return the tape after.

I look forward to seeing you all at the Christmas Social on SATURDAY 5th December. The repeater shack will be open and committee members will be on hand to answer or discuss any technical queries which you may require advice on.

Best wishes for 1993,

Viv G1IXE,
STG Chairperson.

The best receiver yet ? Echostar SR50 ..

Whilst the advantages of FM modulation for 23 cm ATV are now widely accepted, there none the less remain one or two problems that have proved difficult to overcome. Probably the most prominent of these is the need for an FM video demodulator that is sensitive and does not introduce distortion into the recovered video waveform.

The first generation of FM TV demodulators were usually based around the NE564 phase locked loop chip. These operated in the region 37-50 MHz, and examples include the Wood & Douglas VIDIF board and the well known BATC design. More recently, Camtech have introduced a board based upon an entirely different technique. However, extensive tests by several members of the Group with two of these units reveal that despite a significantly greater cost than the simpler alternatives, its overall performance is no great advance.

There is now a new generation of PLL chips that operate in the 480 MHz region. However, no one has yet developed a reproducible design based on these which is available to the

Amateur. I know that one of our Group members is experimenting with some degree of success with these chips, so perhaps we may soon see some progress in this area.

The final method that is increasingly used for FM TV reception is utilising satellite receivers. With the enormous growth in domestic satellite reception, these have become widely available at reasonable cost. The well known rally trader Frank Martin is able to supply the Comtel manually tuned receiver for about £60, brand new and boxed. This unit performs well and is a good receiver for both ATV and satellite use.

Most satellite receivers feature an FM video demodulator that operates at 70 MHz. They often utilise the familiar NE564 chip. However, they have been well developed by the designers and seem to avoid the deficiencies which the boards commonly used by amateurs suffer from. These problems include distortion of the video waveform, ramping, poor colour response and noisy sound unless the signal is very strong. None the less, the ordinary satellite receiver is designed for a much wider signal deviation than is used in amateur practice.

However, STG has recently come across a new satellite receiver that we believe might be the best amateur FM TV receiver yet. This is the Echostar SR50-S. We have bought one for trial use, and the initial results are extremely encouraging.

The first thing to note is that this receiver is easy to use. It has no digital tuning, memories or remote control. It is tuned by a large knob on the right hand side of the front panel. The tuning action is a little sharp, and would benefit from the addition of a slow motion dial or the replacement of the conventional 270 degree tuning pot with a multiturn type. Such a modification is easily undertaken by most amateurs. Tuning is aided by a large backlit analogue signal strength meter.

The unique feature of this receiver is the large variety of variable controls available to the user. It could be accurately described as the "DXers" satellite receiver, since it is as different from a conventional receiver as shortwave receiver is from a domestic broadcast tuner. The most important of these controls is the variable video IF bandwidth. This is continuously adjustable from 12 to 26 MHz. Thus it is possible for the first time to adjust the receiver bandwidth to

suit that of the incoming signal. Tuning the output of GB3ZZ, I was able to find an optimum point at about 18 MHz, with sparklies appearing either side of this. The video level of the output signal is also adjustable by means of a recessed screw control on the back panel. However, I found that with amateur signals even full gain was not quite sufficient and I think that the receiver would benefit from a small booster amplifier.

However, the results obtained were superb. The picture was crisp and clean, with no line pulling or frame roll. The video frame waveform on the scope was flat and undistorted. Colour performance was strong. The sound performance was equally impressive. This is a stereo receiver, with a separate tuning controls for the left and right channels. What this means in practice is that it will receive any two sound sub-carriers simultaneously. This is not much use on the amateur service at present, but some satellite channels send up to 5 sound sub-carriers. If you are tuning a signal such as GB3ZZ with only one sub-carrier, you must tune both left and right channels to it, otherwise the noise from the untuned channel will drown out the tuned one.

Once again, the audio section features variable IF bandwidth. With this turned down to minimum (150 kHz), signals from GB3ZZ were completely free from noise and buzz, even on those testcards that seem to generate video buzz the most. The sound was of hifi quality.

Another useful feature of the receiver is the ability to separate the down convertor section from the IF. The down convertor is the module commonly seen on many similar receivers, made in Taiwan by Hwa Lin. It tunes the range 950 to 2000 MHz, with an IF output at 70 MHz. Despite the presence of a second output socket for the divide by 256 prescaler which is often used with a tuning synthesizer, the necessary components are missing from the module internally. The sensitivity of the down convertor is about the same as any good quality satellite receiver, ie for direct off air reception with weak signals, you need a good pre-amp such as the ULNA23/24 from AZTEX Electronics. This pre-amp can be supplied suitable for direct powering by the receiver.

With this 70 MHz loop through facility (which is normally bridged by a supplied cable link to go between the two F type sockets on the back panel) it is possible to add in further filtering or IF processing, or alternatively use the IF of the receiver with another downconvertor. The well received new Camtech down convertor can be modified to run a 70 MHz IF, as could the Wood & Douglas 1250DC50.

As a satellite rather than an ATV receiver, there is a wide range of facilities available. Provision is made for normal composite and baseband video output, left and right audio line level outputs and the usual UHF modulator loop through (the modulator features a VCR style "find me easily" tuning signal and the ability to vary the output channel frequency). Two types of LNB polarisers may be driven ; the Marconi/Amstrad/Astra type that use 14/18 V switching or the more conventional pulse width proportional type. Incidentally, the voltage feed to the LNB may be disconnected by removing the internally mounted 500 mA fuse. A switch could be easily fitted if this needed to be done often.

The receiver is a smart looking unit, built in a sturdy metal case. Internally it is well built, with most of the circuitry on a deceptively simple looking pcb. There is plenty of room to

add in extra modules such as video amplifiers or an alternative down convertor. It is mains powered, but we haven't yet pulled it apart sufficiently to see whether the mains PSU may be bypassed for DC only operation. In conclusion therefore, I think you will have gathered by now that we have been very impressed with this receiver. It is probably the best performing FM TV demodulator that we have seen, and is also a tailor made satellite DXers receiver, designed to get the very best out of those weak edge of

coverage area channels.

The Echostar SR50-S retails for about £160, but STG have managed to locate a trade source of these fine receivers. We hope to supply them brand new, boxed and guaranteed for about the £139 mark. Please phone Shaun G8VPG on 0225 873 098 for confirmation before ordering. Needless to say, carrying out any of the modifications suggested above would void the warranty. ●

Contest News

Once again, your intrepid G7ATV/P contest team took to the hills in September for the International ATV Contest. The action took place over the weekend 12/13th September, and we used our usual site on top of the Mendip Hills in Somerset.

The weather was decidedly changeable, and at many times it felt more like the contests that we used to enter in March. The wind came up quite strong at times, and it rained whilst we were taking the station down on Sunday afternoon. The going underfoot was soft, with Wellington boots needed at most times.

The station was assembled very quickly - I think that Ivor and Ken have now had more than enough practice. We were ready to go on air by about Saturday lunchtime, some 5 hours before the start. We therefore treated ourselves to a long and leisurely lunch at the Castle of Comfort. The guest beer this time was called Summer Lightning, which is brewed by a small pub brewery in Salisbury. This was a very nice drop of wallop indeed, pale in colour yet with a good body, and strong as these smoothly deceptive beers usually are.

The afternoon was spent playing with our new Echostar satellite receiver and setting up the links for the 10 Ghz ATV station. Our first contacts of the contest were on 10 GHz. However, conditions on all bands were flat and there was a noticeable shortfall of stations compared to previous years. This can be seen from the scores that we are claiming, 3554 points on 70 cm, 4677 on 23 cm and 590 on 10 GHz.

On the Sunday morning there was a panic when one of our big power supplies blew up. Luckily we were able to obtain another to stand in for it. We made a little bit of history when your editor, a GB2RS standby newsreader for the 145.525 MHz transmission read the news from the contest site. Special permission was obtained for this one off event. The coverage from this site was tremendous,

and I have never experienced such a large pile up of reports when the transmission finished. The best report was 58 from North Yorkshire 1. Eagle eyed members may have noticed that a camera was accidentally recording the event on GB3ZZ.

Before long, the contest was over and it was back down to the pub for our Sunday roast, followed by packing up the station in the cold and rain. Why do we do it ?.

None the less, we will return next year. Look out for us in the summerfun contest during the second week of June 1993. A final thank you is due to all those members that assisted with the station, and who came on air to work us. Without you, it would be far more difficult. ●

Christmas Party & Raffle

Our grand Christmas Social Evening will take place on SATURDAY 5th December, commencing at 7.30 pm at Elm Park Parish Pavilion, Elm Park Filton, Bristol. Entrance is free to members, their families and guests, but you are asked to bring along a contribution in kind for the buffet or bar.

All the usual attractions will be available : guided tours of GB3ZZ in action : a full display of Group products for purchase : technical advice from the committee : an auction of donated equipment and members equipment for commission and of course the draw for our annual raffle. The first prize will be £50 in cash, and there will be at least a further £50 worth of prizes. Tickets are available now at 5 for £1.00. Members are asked to be generous to what has become one of our largest single fund raising events of the year. As always, all profits go to group funds, thus allowing us to further develop our projects in 1993. ●

Rally News

The week before the contest, the Group were at the Bristol Rally which was once more held in the Brunel Train Shed at Temple Meads. The rally was a good success, with a full compliment of traders and a record crowd through the doors. The South Bristol ARC who organised the event were very pleased with the outcome.

I think that our stand was the best we have yet done. We put up a black backdrop to the stand, with our usual blue covered display tables. There were plenty of colourful and informative posters on display. The whole area was brightly lit up by Ivors 1000 W halogen lamp, and the overall result looked very professional.

The stand featured a live demonstration of GB3ZZ, a live 10 GHz ATV link across the hall arranged by Group Chief Engineer G8KUW and a comprehensive display of all of our Group products. We were pleased to meet many members and friends, and a steady run of business was done all day.

Thanks must go to the South Bristol ARC, who donated the stand space. We very much hope to be back again next year. Thanks also go to all those members who helped on the stand. This is surprisingly hard work, since we have to spend several hours on the day before the rally setting up our aerials on the roof of the building.

As I write this, we are planning our last rally of the year, the Leicester Show on Saturday 24th October. Through the good offices of Mike Wooding, we hope to use a small corner of his stand to make our full range of products available to the many visitors to this popular national event. ●

NEW LOOK FOR "P5"

Welcome to the December 1992 issue of P5, and the start of a whole new look for our newsletter. Those of you with long memories will recall previous skirmishes with Desk Top Publishing systems. Whether due to limitations within the software or your editor (or perhaps a bit of both) somehow they never really came off. Hopefully this time it will be different.

I have invested in two items that have enabled my long serving PCW to produce better looking copy. The first of these is some new DTP software called Microdesign 3. I have been most impressed both with the results that it produces and with how easy it is to use. After only a very few hours of use, I was able to produce worthwhile copy. This is partly due to a very good tutorial manual that comes with the programme. The tutorial is about half the size of the comprehensive reference manual, and goes through many of the features of the programme in detail.

The programme offers a large variety of different typefaces (fonts in DTP jargon) in many sizes and styles. The text is laid out like a newspaper or book, with proportional spacing, justification and kerning to produce what I hope you will agree is a professional appearance. It is certainly better than the old word processor produced.

I would welcome your comments on the new layout, which at the present is still experimental. I can vary just about everything ; size and style of text, number of columns etc. Please let me know what you think.

Of course all of this sophisticated software would be less impressive if the results were still produced on my old 9 pin dot matrix printer. The second big change has been the acquisition of a new printer. Much to the disgust of our Group Chief Engineer (a loyal HP man !) I have bought a Canon BJ10ex bubblejet device. This really is the most amazing machine. It is so small, in plan form about the size of a piece of A4 paper and less than 50 mm high. The Canon BJ printers have one of the highest resolutions of any widely available printers around, namely 360 dots per inch in the vertical and horizontal directions. This results in fine detail being accurately produced.

Who's that at the door, dear ?

There are two subjects that often strike a chord of fear into Radio Amateurs : interference complaints and planning permission problems. If you encounter either of these problems, you will know that they can seriously affect your freedom to enjoy your hobby. Therefore, we are going to take look at both of these problems to see what you should do, starting in this issue with interference.

TVI or EMC ?

This is often called TVI (Television Interference) but the modern jargon is EMC, or Electromagnetic Compatibility. This reflects the fact that there are far more devices than televisions in common use that can suffer from interference, or can cause interference to radio communications. As modern microprocessor controlled electronics spreads to more and more domestic appliances, the potential for EMC problems is increasing. As one of the RSGB's volunteer EMC advisors, I have heard of problems with telephones, burglar alarms, and deaf aids as well as the more usual TV's, video recorders, hifi etc.

PREVENTION

The first point to consider on this subject is preventative work : what can you do to avoid a potential problem in the first place ? . Perhaps the most important item is to ensure that your own house is clear. If you can demonstrate that your family can watch TV whilst you operate, then it makes the complainant start to question himself. It also means that if you have had to do some work to achieve this state of affairs, you have learnt how to cure some of the potential problems.

INFORMATION

Another important point is to keep yourself informed on the subject of EMC. Radcom now has an excellent monthly EMC column, which contains lots of useful information and case

Because it does not rely on impact to produce a character, it is also very quiet and also prints at a fair speed of about 80 characters per second. I am sure that with all these advantages, together with reasonable cost (less than £200 plus VAT) Bubblejet and Inkjet (the HP alternative) printing is going to have a very rosy future. ●

histories. Some of the other magazines run articles on this subject, and there are also some books on the market. It is a good idea to keep this information readily available in the shack, rather than running around in a panic if a problem arises.

STATION LAYOUT

Another important preventative point is to try and lay out your station so that the potential for interference is minimised. This can be difficult or impossible in densely occupied urban areas, but it is worth thinking about what you can do. Is it a good idea to position your shack with the HF rig against the party wall opposite your neighbours TV set ? . Is it a good idea to put your Amateur Radio aerials on the same chimney stack as your neighbours TV aerials ? . Do you beam through your neighbours house when working in your favourite direction ? . Do you use the minimum power needed to achieve the contact, and do you have a quick and easy means to reduce power output ? . This not only minimises the potential for TVI, but also reduces the general clutter of RF on the bands.

KEEP CALM !

However, if all the preventative work has failed and the dreaded knock on the door occurs, what should you do ? . The first thing is to remain polite and calm, however annoyed the other person may be : a calm word turns away anger. If the problem is to be resolved, you need the co-operation of the neighbour and this will be far more difficult if you are not on speaking terms. Many EMC problems that are technically quite simple to solve are made almost impossible by a state of general feud developing between neighbours.

LISTEN FIRST !

Listen to what your neighbour has to say and make a note of it. Ask him to give you full details over a period of time of when the problems arises : date, time, channel watched, severity of effect etc. At this stage, whilst remaining polite and sympathetic, do not admit responsibility. There have been many cases where the Radio Amateur was suspected, but the real cause was a CBer nearby, or a taxi operator etc. Similarly, people will

interference when you are not on the air, perhaps because they dislike your aerials or just want to cause trouble.

TESTS

The next step is to do some tests to see the extent of the problem. The best way to do this is engage the help of another Radio Amateur. One person operates the station, whilst the other visits the complainant. It is useful to have a pair of (interference free !) handheld rigs to co-ordinate the tests. At the shack end, try all bands, varying power levels, different beam directions : you will often find that it is just one particular band that causes the trouble. At the complainants end, go through a similar set of exhaustive tests.

TELEVISION

If a TV set is affected, unplug the aerial. If the interference disappears, it is coming down the aerial cable and can usually be cured by fitting a suitable filter. If it remains, it could be coming up the mains cable (try winding several turns of it around a ferrite ring) or being picked up directly on the internal circuitry of the set. This last case is very difficult, since it means internal modification to the set is necessary. It is recommended that you never do this ; do not even take the back off the set, since you could then be held liable for any damage done, whether real or imagined by the owner. If the set is rented, the rental company might tackle this.

FILTERS

The RSGB sell a very good range of filters that may be inserted into the aerial lead of TV sets, as well as ferrite rings. In Bristol, the RSGB Group have a full set of these available for loan. This enables you to try them all, and then purchase the filter(s) that cures your particular problem. This is a good idea for any radio club to follow.

CLEAN SIGNALS ?

Another very important point is to check that your own station is in order. Are you sure that you are putting out a clean signal with no harmonics or distortion ? Is the power output within permitted levels ? Do you have an absorption wavemeter to cover up to the third harmonic of the highest frequency in use ? An absorption wavemeter will give you an indication that something might be

wrong, although it is much easier to check this out with a spectrum analyser. This is a very expensive item of test gear, but you will often find that some of the rallies (particularly the RSGB NEC and Sandown shows) have test gear available to test your rigs. You may have a club member who has access to one, or you can invite the RIS along to give a talk at your club : they will usually bring along some test equipment.

The RIS

Having mentioned the RIS, I had better explain about them. RIS stands for Radio Investigation Service, which is a part of the Radiocommunication Agency of the Department of Trade & Industry : in other words the Government department that grants our licences and is responsible for managing the use of the radio spectrum. The bulk of the radio spectrum is used by commercial bodies (broadcasters, emergency authorities, mobile radio and telephones etc) and the RIS give most of their attention to these. Amateur Radio is regarded as "leisure radio" and is given very little attention until a major problem arises.

RIS VISITS

However, the RIS will investigate Amateur Radio EMC problems. The complainant must fill out a form which logs the interference over a period of three weeks or so, must have their installation checked by a competent TV dealer and must have an effective external aerial for a TV set. They must also pay a fee of about £30. If they comply with this then they will receive a visit and hopefully a solution might be found. You will also probably receive a visit for a station inspection (make sure your station is in order as indicated above, and tests are logged periodically in your log book). Such an inspection is likely to occur even if the complainant does not pay the fee, but in this case he will receive no direct assistance from the RIS.

PATIENCE !

Carrying out all of these tests and maybe calling in the RIS all takes time, and if your neighbour is having his TV/hifi/video or whatever blacked out for five hours a night, his patience is likely to wear thin. Therefore, it might be advisable for you to consider a temporary restriction on your activities until a permanent solution is found. This often takes the heat out of a vexed

case, but it must be remembered that it is only a short term temporary measure. You have as much right to exercise the terms of your Amateur radio licence as your neighbour has to watch his TV. Some Amateurs have sadly allowed themselves to be dragooned off the air due to these sort of pressures, and this is equally as wrong and an infringement of your liberties.

RSGB HELP

This is just a fairly superficial guide to resolving TVI cases, but it contains many of the points that I have been surprised to have had to make to Amateurs phoning me for advice. If you do not belong to the RSGB, it is worth considering joining since they offer good support to members suffering from EMC problems. There is a network of local advisors (all listed in the callbook) and for more difficult cases, the services of the EMC committee. The committee runs a telephone hotline for support, and will on occasions pay site visits. They also spend much time liaising with the RIS, equipment manufacturers etc.

ASK FOR HELP !

Finally, lets end on a positive note. EMC problems are usually quite simple to solve on a technical level. If you are able to keep the human relationship side of it positive, then a solution is usually found. Always remember that someone, somewhere has probably suffered the same problem as yourself, and has got around it. It is surprising how much help, advice and goodwill is available from other Radio Amateurs, either over air or at the local club. However, if you don't ask, no one will know of your need : ask and you shall receive ! ●

METEOSAT

Enclosed as part of this issue is the latest dissemination schedule for Meteosat 4 - the satellite that GB3ZZ monitors 24 hours a day (courtesy of the Remote Imaging Group Newsletter No. 30). You will need to make reference to the diagrams contained in the December 1991 issue of "P5" to locate all the various sectors listed. Briefly though, pictures of the UK are contained in sectors C2, D2 and E2. The weather satellite facility remains another unique GB3ZZ feature that is much referred to by members - especially on contest weekends ! ●

Dissemination Schedule S9208M02 - METEOSAT 4

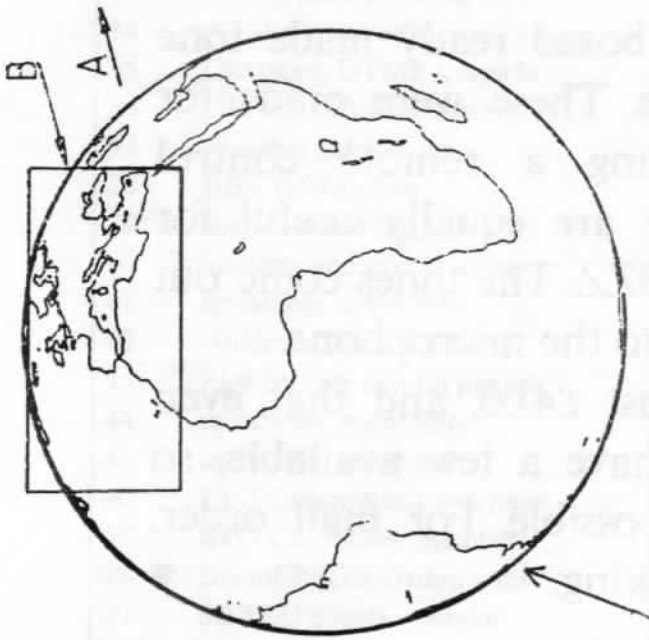
(Channel A1 = 1691 MHz - Channel A2 = 1694.5 MHz)

HH	00		03		06		09		12		15		18		21		MM
	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	
2	D1 48	AI 48	D1 6	AI 6	C02 12	AIVH 12	C02 18	AIVH 18	C02 24	AIVH 24	C02 30	AIVH 30	D1 36	AIVH 36	D1 42	AIVH 42	2
6	D3 48	AI 46	D3 6	AI 6	C03 12	AIVH 12	C03 18	AIVH 18	C03 24	AIVH 24	C03 30	AIVH 30	D3 36	AIVH 36	D3 42	AIVH 42	6
10	D4 48		D4 6		D1 12	AIVH 12	D1 18	AIVH 18	D1 24	AIVH 24	D1 30	AIVH 30	D4 36	AIVH 36	D4 42	AIVH 42	10
14	D5 48	DTOT 48	D5 6	DTOT 6	D3 12	DTOT 12	D3 18	DTOT 18	D3 24	DTOT 24	D3 30	DTOT 30	D5 36	DTOT 36	D5 42	DTOT 42	14
18	D6 48	ETOT 48	D6 6	ETOT 6	D4 12	ETOT 12	D4 18	CTOT 18	D4 24	CTOT 24	D4 30	CTOT 30	D6 36	ETOT 36	D6 42	ETOT 42	18
22	D7 48		D7 6		D5 12	WEFA	D5 18	ATEST 1	D5 24		D5 30		D7 36		D7 42	ATEST 1	22
26	D8 46		D8 6		D6 12	WEFA	D6 18	ATEST 1	D6 24		D6 30		D8 36		D8 42	ATEST 1	26
30	D2 1	BIW 1	D2 7	BIW 7	D2 13	BIV 13	D2 19	BIV 19	D2 25	BIV 25	D2 31	BIV 31	D2 37	BIV 37	D2 43	BIW 43	30
34	D9 1	AI 1	D9 7	AI 7	C02 13	AIVH 13	C02 19	AIVH 19	C02 25	AIVH 25	C02 31	AIVH 31	D9 38	AI 37	D9 43	AI 43	34
38	D1 1	AI 1	D1 7	AI 7	C03 13	AIVH 13	C03 19	AIVH 19	C03 25	AIVH 25	C03 31	AIVH 31	D1 37	AI 37	D1 43	AI 43	38
42	D3 1	AW 1	D3 7	AW 7	C3D 13	AIVH 13	C8D 19	AIVH 19	C3D 25	AIVH 25	C8D 31	AIVH 31	D3 37	AW 37	D3 43	AW 43	42
46		AW 1		AW 7	C2D 13	AW 13	C9D 19	AW 19	C2D 25	AW 25	C9D 31	AW 31		AW 37		AW 43	46
50					D3 13	AW 13	C2D 19	AW 19	C1D 25	AW 25	D3 31	AW 31		WEFA			50
54					D1 13		D1 19		D1 25		D1 31			WEFA			54
58	D2 2	BIW 2	D2 8	BIW 8	D2 14	BIVW 14	D2 20	BIVW 20	D2 26	BIVW 26	D2 32	BIVW 32	D2 38	BIVW 38	D2 44	BIW 44	58

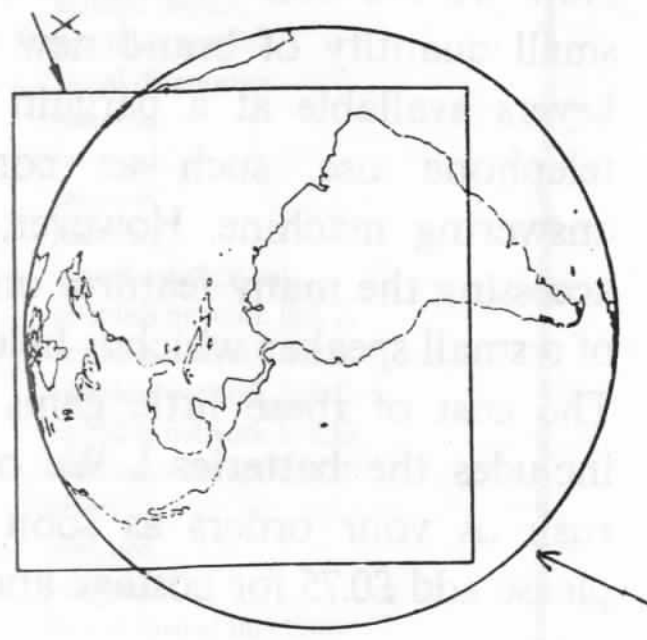
HH	01		04		07		10		13		16		19		22		MM
	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	
2	D1 2	AI 2	D1 8	AI 8	C02 14	AIVH 14	C02 20	AIVH 20	C02 26	AIVH 26	C02 32	AIVH 32	D1 38	AIVH 38	D1 44	AI 44	2
6	D3 3	AI 2	D5 8	AI 8	C03 14	AIVH 14	C03 20	AIVH 20	C03 26	AIVH 26	C03 32	AIVH 32	D3 38	AIVH 38	D3 44	AI 44	6
10			E1 8		D7 14	AIVH 14	D7 20	AIVH 20	D7 26	AIVH 26	D7 32	AIVH 32	E1 38	AIVH 38			10
14		LXI 1	E2 8	LXI 7	D8 14	LXI 13	D8 20	LXI 19	D8 26	LZ 25	D8 32	LZ 31	E2 38	LZ 37		LXI 43	14
18		LY 1	E3 8	LY 7	D9 14	LY 13	D9 20	LY 19	D9 26	LY 25	D9 32	LY 31	E3 38	LY 37		LY 43	18
22		LR 1	E4 8	LR 7	D3 14	LR 13	D3 20	LR 19	D3 26	LR 25	D3 32	LR 31	E4 38	LR 37		LR 43	22
26			E5 8			AVHRR		AVHRR		LXI 25/26		LXI 31/32	E5 38	LXI 37/38		AVHRR	26
30	D2 3	BIW 3	D2 9	BIW 9	D2 15	BIV 15	D2 21	BIV 21	D2 27	BIV 27	D2 33	BIV 33	D2 39	BIV 39	D2 45	BIW 45	30
34	D1 3	AI 3	D1 9	AI 9	C02 15	AIVH 15	C02 21	AIVH 21	C02 27	AIVH 27	C02 33	AIVH 33	D1 39	AIVH 39	D1 45	AI 45	34
38	D3 3	AI 3	D3 9	AI 9	C03 15	AIVH 15	C03 21	AIVH 21	C03 27	AIVH 27	C03 33	AIVH 33	D3 39	AIVH 39	D3 45	AI 45	38
42			E6 9		D1 15	AIVH 15	D1 21	AIVH 21	D1 27	AIVH 27	D1 33	AIVH 33	E6 39	AIVH 39			42
46			E7 9		D3 15		D3 21		D3 27		D3 33		E7 39				46
50		WEFA	E8 9				C1D 21		C1D 27		C1D 33		E8 39				50
54		WEFA	E9 9				C2D 21		C2D 27		C2D 33		E9 39				54
58	D2 4	BIW 4	D2 10	BIW 10	D2 16	BIVW 16	D2 22	BIVW 22	D2 28	BIVW 28	D2 34	BIVW 34	D2 40	BIW 40	D2 46	BIW 46	58

HH	02		05		08		11		14		17		20		23		MM
	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	CH A1	CH A2	
2	D1 4	AI 4	D1 10	AI 10	C02 16	AIVH 16	C02 22	AIVH 22	C02 28	AIVH 28	C02 34	AIVH 34	D1 40	AI 40	D1 45	AI 46	2
6	D3 4	AI 4	D3 10	AI 10	C03 16	AIVH 16	C03 22	AIVH 22	C03 28	AIVH 28	C03 34	AIVH 34	D3 40	AI 40	D3 46	AI 46	6
10		AW 4		AW 10	C3D 16	AIVH 16	C3D 22	AIVH 22	C3D 28	AIVH 28	C1D 34	AIVH 34		AW 40		AW 46	10
14		AW 4		AW 10			C4D 22		C4D 28		C4D 34			AW 40		AW 46	14
18	TEST	ADMIN	ADMIN	TEST	TEST	ADMIN	ADMIN	TEST	TEST	ADMIN	ADMIN	TEST	TEST	ADMIN	ADMIN	TEST	18
22																	22
26																	26
30	D2 5	BIW 5	D2 11	BIW 11	D2 17	BIV 17	D2 23	BIV 23	D2 29	BIV 29	D2 35	BIV 35	D2 41	BIW 41	D2 47	BIW 47	30
34	D1 5	AI 5	D1 11	AI 11	C02 17	AIVH 17	C02 23	AV 23	C02 29	AIVH 29	D1 35	AIVH 35	D1 41	AIVH 41	D1 47	AI 47	34
38	D3 5	AI 5	D3 11	AI 11	C03 17	AIVH 17	C03 23	AV 23	C03 29	AIVH 29	D3 35	AIVH 35	D3 41	AIVH 41	D3 47	AI 47	38
42			E1 11		C5D 17	AIVH 17	E1 23	AV 23	C5D 29	AIVH 29	E1 35	AIVH 35		AIVH 41	E1 47		42
46			E2 11		C6D 17	WEFA	E2 23	AV 23	C8D 29	WEFA	E2 35			WEFA	E2 47		46
50			E3 11		C7D 17	WEFA	E3 23	AV 23	C7D 29	WEFA	E3 35			WEFA	E3 47		50
54	CTH 4				CTH 16			AV 23	CTH 28					CTH 40			54
58	D2 6	BIW 6	D2 12	BIW 12	D2 18	BIVW 18	D2 24	BIVW 24	D2 30	BIVW 30	D2 36	BIVW 36	D2 42	BIW 42	D2 48	BIW 48	58

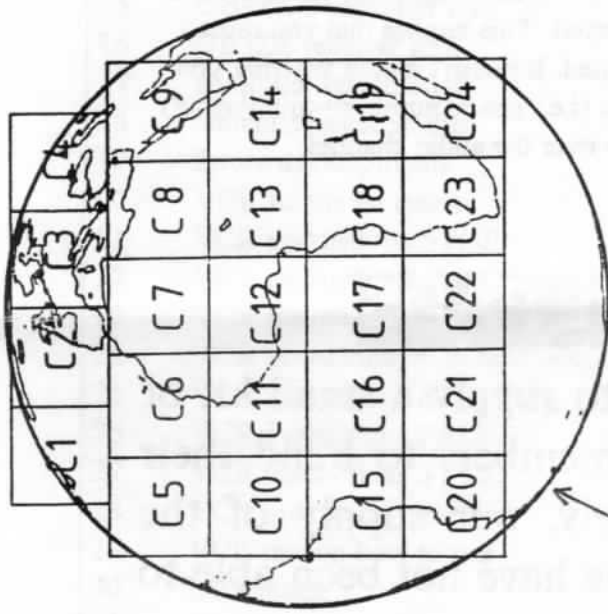
- | | | |
|---|--|--|
| <p>AI HRI Full Disk IR</p> <p>AIVH HRI Full Disk IR & Half Res VIS</p> <p>AW HRI Full Disk WV</p> <p>AV HRI Full Disk Full Res VIS</p> <p>Lxx METEOSAT-ADC relay transmission
(uplinked by CMS Lannion)</p> | <p>BIW HRI European sector IR & WV</p> <p>BIV IR & Full Res VIS</p> <p>BIVW IR, WV & Half Res VIS</p> <p>ATEST HRI Test Pattern</p> <p>TEST WEFAX Test Pattern</p> | <p>C0x WEFAX VIS Full Res</p> <p>CxD WEFAX VIS Half Res</p> <p>Dx WEFAX IR</p> <p>Ex WEFAX WV</p> <p>CTH WEFAX processed Cloud Top Height</p> <p>xTOT WEFAX Full Disk</p> <p>AVHRR WEFAX processed AVHRR</p> <p>ADMIN WEFAX Administration Message</p> |
|---|--|--|
- LXI HRI format (odd slots contain IR data, even slots contain VIS data)
- LZ, LR, LY WEFAX formats



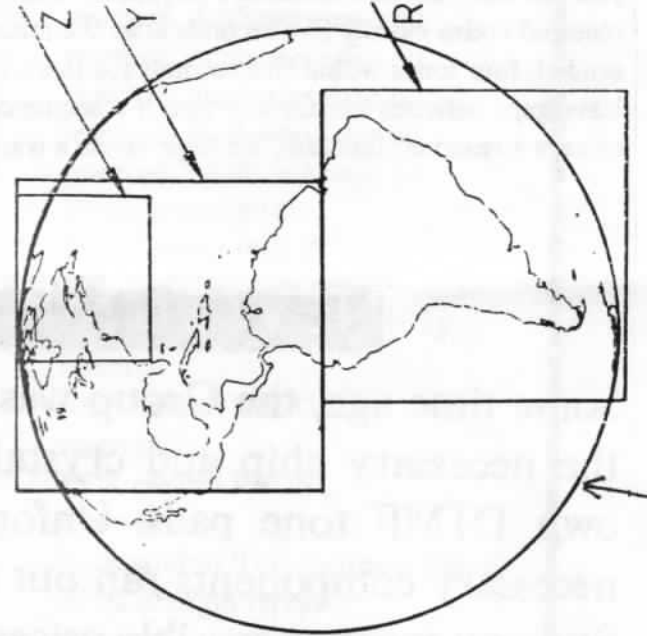
Meteosat 4 - high resolution (digital) formats disseminated from ESOC.



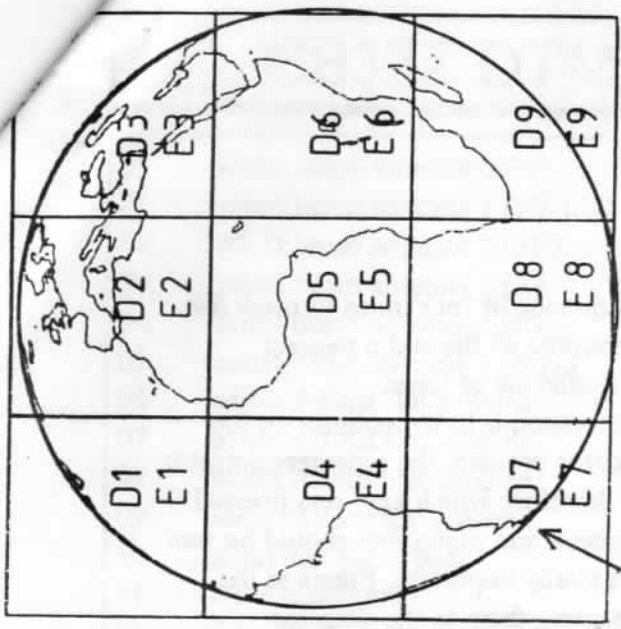
Meteosat 4 - high resolution (digital) format disseminated from CMS Lannion.



Meteosat 4 - WEFAX visible formats disseminated from ESOC.



Meteosat 4 - WEFAX infrared (formats R & Y) and visible (format Z) disseminated from CMS Lannion.



Meteosat 4 - infrared (formats D) and water vapour (formats E) disseminated from ESOC.

DON'T FORGET THE DATE !
SUNDAY 5th JANUARY 1993
FOR THE NEXT
FANCY DRESS ON THE AIR NIGHT !

Using GB3ZZ DTMF codes.

To operate GB3ZZs special functions you have to send a sequence of four tones through the normal audio channel. A special tone detector constantly monitors all the audio passing through the repeater and signals to the logic unit if it hears a valid set of tones. Each tone is made of two frequencies, a high note which corresponds to the column on the keypad and a low note corresponding to the row. When a key is pressed, the repeaters detector hears the notes and works out which row and column, and therefore which key, was pressed. The tones should be at about the same volume as normal speech and preferably should be sent with as little background noise as possible although this isn't vitally important. Filters in the tone circuits remove most of the unwanted sounds before passing them to the detector. It only takes about one tenth of a second for a tone to be recognised and decoded so you can send codes very quickly if you want to. The only constraint to using tones is the *longest* time you can take. So that unfinished sequences don't get left in the system, the logic unit clears all received codes exactly five seconds after the initial "*" is keyed. This implies that you must send all four tones within five seconds for them to be actioned. It doesn't matter whether you leave gaps between the tones or not. If a sequence is wrong (i.e. not *<number><number>#) or calls a reserved function, the logic sends a warning beep over the audio channel.

NEW DTMF TONE PADS

Some time ago, the Group was able to supply a small kit of the necessary chip and crystal for members to build their own DTMF tone pads. Unfortunately, our supply of the necessary components ran out and we have not been able to find any more at sensible prices.

Now we are able to offer a much better deal. We have a small quantity of brand new and boxed ready made tone keyers available at a bargain price. These were made for telephone use, such as controlling a remote control answering machine. However, they are equally useful for accessing the many features on GB3ZZ. The tones come out of a small speaker which is held up to the microphone.

The cost of these little gems is just £4.00, and that even includes the batteries !. We only have a few available, so rush us your orders as soon as possible. For mail order, please add £0.75 for postage and packing. ●

GB3ZZ DTMF KEYPAD CODES

00	select beam antenna 0 (N)	50	reserved
01	select beam antenna 1 (NE)	51	reserved
02	select beam antenna 2 (SE)	52	reserved
03	select beam antenna 3 (S)	53	reserved
04	select beam antenna 4 (SW)	54	reserved
05	select beam antenna 5 (NW)	55	reserved
06	select Alford slot antenna	56	reserved
07	select Alford slot antenna	57	reserved
08	select Alford slot antenna	58	reserved
09	select Alford slot antenna	59	reserved
10	main text index page	60	display weather satellite image
11	STG description	61	switch to satellite channel 1
12	GB3ZZ special features	62	switch to satellite channel 2
13	DTMF instructions	63	reserved, duplicates page 60
14	DTMF valid tone sequences	64	reserved, duplicates page 60
15	GB3ZZ transmitter info	65	reserved, duplicates page 60
16	GB3ZZ receiver info	66	reserved, duplicates page 60
17	computer information	67	reserved, duplicates page 60
18	Antenna selection info	68	reserved, duplicates page 60
19	future developments	69	reserved, duplicates page 60
20	VCR functions index	70	VCR control STOP
21	VCR instructions STOP	71	VCR control PLAY
22	VCR instructions PLAY	72	VCR control REWIND
23	VCR instructions REWIND	73	VCR control FAST FORWARD
24	VCR instructions F.FORWARD	74	reserved
25	VCR instructions RECORD	75	VCR control RECORD
26	VCR instructions PAUSE	76	reserved
27	VCR instructions STILL	77	VCR control PAUSE
28	VCR operation overview	78	reserved
29	VCR tips on how to use	79	VCR control STILL (freeze frame)
30	STG index	80	signal strength report
31	P5 newsletter	81	repeater status report
32	BATC information	82	identify repeater
33	Bristol RSGB Group info	83	callsign caption
34	ATV contest info	84	recall last caption
35	Obtaining DTMF keypads	85	signal diagnostics
36	GB3ZZ software notes	86	reserved
37	Weather satellite info	87	reserved
38	BBS information	88	reserved
39	map to reach GB3ZZ	89	reserved
40	contests and events index	90	cancel network link
41	updatable, event info	91	establish network link A
42	Guide to 23cm TV book	92	establish network link B
43	Plea for more to fill pages!	93	establish network link C
44	updatable, event info	94	establish network link D
45	updatable, event info	95	establish network link E
46	STG Committee news page	96	reserved
47	STG Committee members	97	reserved
48	Bristol RSGB Group page	98	reserved
49	SBARC events calendar	99	cancel special functions

A CHEAP 10 GHz FREQUENCY MEASURING DEVICE

John Hudson G3RFL

At one of the rallies, I purchased some LNB's with a poor noise figure of 2.2 dB that most people did not want - for only £3.00 each !.

several hours to allow it to warm up and settle down, then I switched on the LNB and measured the frequency output of the LNB. The results are as follows ;

I was informed by a friend that the local oscillator works on 10,000 MHz. I was playing around with some Gunn Diode transmitters which worked in the region of 10,350 MHz and began to wonder what output I would get from the LNB IF output if I placed the transmitter in front of it ?.

TIME Mins	LNB IF OUTPUT MHz	ROOM TEMP degC
0	353.873	21.6
2	353.930	21.6
5	353.909	21.6
10	352.501	21.6
20	351.609	22.1

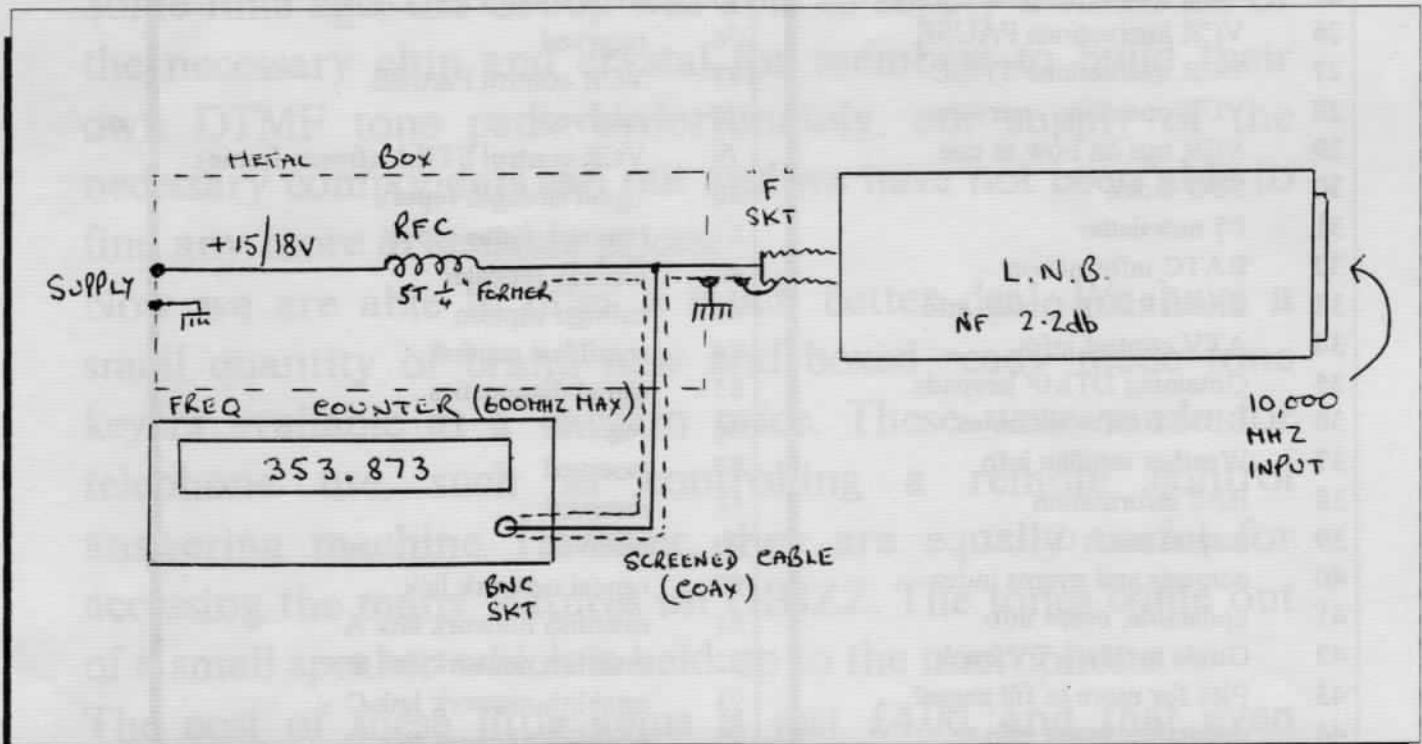
I have a cheap Maplin 600 MHz frequency counter and connected this to the LNB IF output. To my surprise, it read 350 MHz ! (10,350 - 10,000 = 350 MHz). Upon tuning the voltage controlled transmitter, it gave an output from 350 to 500 MHz. This was not my transmitter, so I did not see how low in frequency it would go (Gunn diodes being negative resistance devices, too low a control voltage can cause a fatal current to flow). At this range, it worked over several feet.

Generally it was within a few Megahertz in 10,000. Some of this error could have been the transmitter drifting or the room temperature rising slightly.

All that is required is a simple tee junction so that the LNB may be supplied with 15 to 18 V dc (see diagram below).

Its cheap and it works - why not try it ? 73's from John G3RFL.

When playing at these frequencies, any test equipment is better than none. If at some time one can gain access to a known frequency source, then it would be possible to determine what the error factor is. I left the transmitter on for



© 1992 SEVERNSIDE TELEVISION GROUP. "P5" is edited by Shaun O'Sullivan G8VPG, and is sent free of charge to all members of the Group. Articles may be reproduced in genuine Amateur Radio publications provided full credit is given to "P5", the Group and the author. New articles are always welcome and should be sent to the editor at the address below. "P5" is published by the SEVERNSIDE TELEVISION GROUP, c/o 15, Witney Close, Saltford, Bristol BS18 3DX.