ERG NEWS

GB3DA GB3ER GB3CMS GB7EP

Welcome

Welcome to this the second regular news letter from the Essex Repeater Group. As you all will be aware that since the last news letter we have had many problems with our repeaters. The main problem has been where DA. would keep dropping out with out any notice. At First when ever we arrived on site the fault was not apparent, eventually we arrived on site and managed to cure the problem. Further problems then occurred again with the transmitter this lead to the repeater being removed from site and a new transmitter board and p.a. being fitted by Malcolm over one weekend. The problems with the logic continued so Malcolm brought forward the scheduled fitting of the new logic, he removed the repeater from the site on Wednesday evening rewired it completely and refitted the repeater to site on the Thursday evening with a Beta test version of the logic software. This software by Saturday evening was on the 3rd version. With all these problems on DA. it has been nearly a full time job keeping on top of it all ER. has also suffered there has been problems accessing ER. this was cured by fitting heated crystals thus stabilizing the frequency. The talkthrough audio was then poor quality if the logic tones were OK or the audio was OK and the tones were non existent. This fault was traced to incorrect components in the audio stages on the logic board. The repeater was removed from service and is at present being rebuilt into the new style case and having the new logic fitted. It will be returned to service as soon as we are sure that the software on the logic is correct.

Nigel G6ZVV

6 Metre Repeater at Danbury?

You may have heard or read in the R.S.G.B.News of 16th April 1995 that the Radio Communications Agency will now consider applications for 6 metre voice repeater licenses. We, the E.R.G. Committee have discussed the possibility of installing and operating such a repeater. We have decided to ask your views and to register a possible interest with the R.S.G.B. and the R.A..
Would anyone who has an interest, either for or against, in 6 metre repeaters please contact me or any other committee member. A note outlining your views will be preferred, hence the email address!

Geoff, G8GNZ

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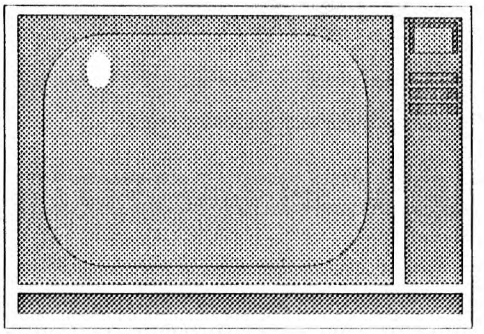
HELP!!

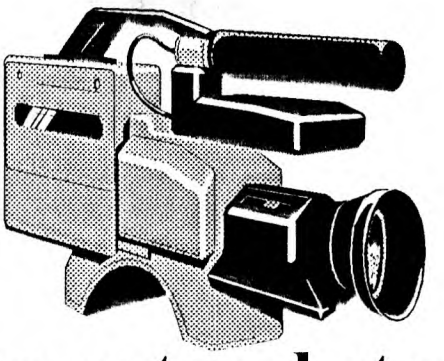
I am interested if there are any readers with experience of using multi-channel A-D converter cards in PC's, if so please contact me. I am particularly interested in use under UNIX (Linux).

Geoff, G8GNZ

CONGRATULATIONS

The editor would like to congratulate Malcolm G3XVV on his recent visit to Buckingham Palace, to a garden party in recognition of the work that he does with the Radio Communications Agency.





SSTV to FSTV, the natural step?

Proposal for an FSTV repeater at Danbury

Over the last few months it has been obvious that the level of activity of Slow Scan Television (SSTV) has increased dramatically. Part of the reason for this can, with no doubt at all be attributed to the arrival of JVFAX (currently on version 7) which, for the uninitiated is a piece of FREE computer software that is capable of receiving full colour FAX and SSTV with the addition of a very simple interface. The level of interest has grown so much that 144.500 can become quite crowded in the evening.

The natural progression from SSTV is to Fast Scan Amateur Television (FSTV) on either 70cms (430MHz) or 24cms (1.2GHz). From what I understand, activity now tends to be on 24cms rather than 70cms as the available bandwidth is greater.

I am conducting a feasibility study into the possibility of a 24cms FSTV repeater to be located at the Danbury site along with GB3DA, GB3ER, GB3CMS and GB7EP. I would like to know the feelings of ALL amateurs in the Essex area, not just ERG members. If you are at all interested in FSTV, or feel that the addition of an FSTV repeater would encourage you to become active on that mode then please do let me know. If you are currently active on FSTV then I would be very interested to talk to you with regard to this project.

I have been making some enquiries about the cost of equipment for 24cms FSTV and the feedback I have been getting is that it can be surprisingly low. For instance, a 1 watt transmitter kit can be purchased for as little as £60. If you want to add crystal controlled frequency stabilization that is an extra £25. A 20 watt amplifier kit is as little as £50! An old satellite receiver that can be found at a rally for about £20 is suitable to be used for a receiver (a pre-amp is needed). All in all, I estimate that (not including the coax or aerial) the cost of the equipment to be well less than £200. A lot of people already have a Camcorder and that is ideal for the picture source, but if you don't then ex security mono cameras will do the job nicely and they are often to be found advertised in the pages of the British Amateur Television Club magazine, CQ-TV.

If you are interested in this project, or if you would like to offer any help then please contact me, Keith, G6NHU as soon as possible so that a full proposal can be drawn up and passed to the ERG committee. If you are on packet, I can be reached at GB7COS.

Keith Maton, G6NHU

The New Face of GB3DA.

Since the problems, encountered at the end of 1994, were solved, GB3DA has undergone some major changes. The Tx/Rx unit has been completely redesigned with a view to making it more reliable and, in the event of problems, very much easier to service. The old unit required a complete removal of the logic housing before any work, even of a minor adjustment nature, could be carried out. The new unit is built into a single, 2 unit high, rack mounting box. Removal of the box lid gives immediate access to both Tx and Rx PCB's and their relative adjustment points. The principle being "easier maintenance is usually quicker maintenance".

The most significant change to the "box" is probably the fitting of the new logic unit. It has been a long time coming but then the design of a new unit was likely to be a little protracted as, would you believe, amateur radio has to take a back seat compared with family and business commitments. Apart from the lack of "hours in the day" delays, we were virtually forced into a redesign before the original was complete due to a new CTCSS integrated circuit being added to the CML range of devices. We felt that the new device would give greater flexibility when considering additional facilities in the future. Perhaps, when everyone is used to CTCSS, we can introduce DCS to the system. Don't throw your arms up in horror, although DCS is likely to be widespread in PMR in the next few years, I would not expect amateur repeaters to use it for a long while. If, however, it was required, GB3DA could accommodate it now.

The New Logic. How it Works.

At the time of writing this, the new logic is running a Beta Test version of the software. This is a very basic version incorporating the important aspects of control without the fancy bells and whistles that will provide additional facilities such as remote control of the squelch setting and Tx power level to provide fine tuning of the repeater under different atmospheric conditions without a trip to Danbury to do it. The CTCSS facility is included in the Beta Test software and a number of group members have found it to be useful. I deliberately fitted the new unit to the box during a period of severe "lift" as I wanted to find as many bugs as possible in as short a time as possible. The ability of a station using CTCSS encode to override a rogue carrier and extract a "K" and timer reset from DA when, with the old logic it would have run into time-out, is probably it's most useful facility. If two CTCSS users are in QSO then a rogue carrier will have no effect on the conversation, as long as the conversing stations are strong enough to capture DA's discriminator.

Apart from the CTCSS facility, the new unit behaves a little differently to the old one. The 1750 Hz tone burst access procedure is more tolerant as far as timing and level is concerned. The deviation level of the burst should be one kilohertz or greater and the length should be anything greater than 30 ms. The frequency should be within plus/minus 10 Hz for the above minimums to be effective. Because of the concern of some members that they would not be able to access the repeater as they had neither CTCSS encode or 1750 Hz tone burst facilities, I rewrote part of the software to enable a "sliding whistle" to be used. This change does detract from the logic's ability to prevent false access by the presence of 1750 Hz in speech, so I hope that those members who use the "sliding whistle" will fit either a tone burst module or a CTCSS encoder so that we can upgrade the software as soon as possible.

The time-out procedure is different in that it is now in two stages. "Impending Time-out" and "Time-out".

The "over" time is still 2 minutes but you will hear "Impending Time-out" pips, superimposed on the T/T audio during the 10 second run-up to time-out. These pips are at one second intervals. At the two minute point, the pips change to "triple pips". i.e. a group of three closed spaced pips every one second and the T/T audio is cut. This condition will persist for 30 seconds or until the station that timed out, drops carrier, whichever is the sooner. In the former case, the repeater will, at the end of the 30 second period, send it's callsign and drop CTCSS and carrier and then go into the "waiting for access state". In the later case, the "triple pips" will cease, the repeater will send a "C" rather than a "K" and the conversation can continue as if time-out had not occurred.

N.B. A CTCSS user, driving the box though the time-out period into the "waiting for access state" will re-access the box immediately as they are

constantly transmitting the access condition. A "1750" user doing the same trick with the time-out, will need a kindly fellow, with a stronger signal into the repeater, to "blip him back in" with a burst of 1750 Hz. Alternatively, when he realizes what has happened, he can re-access, with 1750 Hz, himself. If at any time, up to and including the "impending time-out" period, a "1750" user drops carrier but the box is being held by an interfering carrier, a CTCSS user can force the box to give a "K" and reset the 2 minute timer by keying up their Tx for a period of one to one and a half seconds and then de-keying again. This "overcalling" is not effective during the 30 seconds of time-out. i.e. when the triple pips are running. When a CTCSS user de-keys, the box should always give a "K" despite the presence of an interfering carrier.
Finally, two points regarding the CW Ident. Firstly, during idle periods the repeater sends it's CWID every 5 minutes without a transmitted CTCSS tone. The call sign is followed by an "H". This is the designator for our CTCSS tone as laid down by the RMG. Callsign and "H" are sent at 12 wpm during these idle periods. Secondly, the logic is polite in that it will not send a CWID during an "over". If it due to send an ident but someone is talking via the repeater at the time, it will wait until they de-key and then send the ident (without the "H") at 20 wpm immediately before the "K".
Repeating what I said at the beginning of this article, the software is a Beta Test version. At the time of writing,, the software has had three rewrites in 8 days to remove "bugs" that were found when it was put on air. This was despite a continuous bench test of 14 days. It is impossible to anticipate every eventuality. An example....The software allows "1750" access and CTCSS access. I hadn't thought about how the system would react to both at once but someone tried it within 10 minutes of switch-on. I will get it sorted out as soon as I possibly can but please be patient. There are only 24 hours in a day and sometimes it is a job to fit all the amateur radio jobs in. (This is being written at 01:30 to meet the publication deadline)
If you have any queries regarding the software or the operation of the new logic, please feel free to give me a call either on the repeater or on the land-line (01376 514377).

73 de Malcolm (G3XVV)

Future improvements to GB3CMS

By its very nature the site at Danbury is open to extremes of weather, baked in the summer (if you are lucky! ed.) and frozen in the winter. This causes the equipment on the site to be exposed to a wide range of temperatures, this causes in our experience frequency drift. This has been apparent on both GB3ER and GB3CMS ER has been cured as previously mentioned but CMS is not quite as simple.
The best method to overcome this problem is to provide CMS with a frequency standard to work against. This will involve reengineering GB3CMS to be able to accept this frequency standard. The on-site frequency standard would continually compare its frequency **"Rugby MSF"** and if necessary an automatic correction facility can be installed.

If you wish to join the Essex Repeater Group please fill in this coupon and return it to P. Franklin, G1FOA. 84 Bodmin Road, Chelmsford, Essex. or come along and see us at any of the Essex Rallies at the groups table.

NAME .....

CALLSIGN.....

ADDRESS .....

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