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Kent Repeater Group—Issue 119—Summer 2006



Kent Repeater Group

Special Edition

1976 - 2006

Do you remember?

- The drought of 1976 which brought standpipes and shared baths
- Jimmy Carter elected US President
- Summer Olympic Games held in Montréal
- Abba's 'Dancing Queen' in the charts
- Felix Aguilar Observatory discovers asteroid
- George Harrison releases 'This Song'
- Liz Taylor's 7th marriage to John Warner
- Russian pilot defects to Japan in a Mig 25 jet
- Queen's 'Bohemian Rhapsody' goes Gold
- GB3EK GOES ON AIR

Yes, it's GB3EK's
30th Birthday

What can I say other than it reminds me of the days back at school just thinking of when EK first came on air, listening on my old modified Pye Pocketphone (which opens up a whole bunch of memories in itself).

Well yes, if you have not gathered by now, its GB3EK's 30th Birthday this July and with it comes a special birthday party sponsored by Hilderstone Radio and Electronics Club—would be good to see you all!. More details below.

Thanks to Paul Nicholson G3VJF, we are able to take original extracts from the old editions dating back to the first edition in December 1974 and provide some potted history. Also to Ron G3YUH, Adrian G8FME, Fraser G8FEZ, John G3YCV and later Don G4TKR who's valued support made it all possible and continues to do so.

Please don't forget the KRG AGM in just a couple of weeks time.
Regards, Dave

GB3EK 30th Birthday Party
On 6th August at the WOK Weekend

GOHRS
Hilderstone Radio & Electronics Club

- Radio Station
- Family Fun
- Meet Old Friends
- Birthday Cake!

GOHRS
Off Minster Road
Westgate-On-Sea

The Kent Repeater Group will be holding its
Annual General Meeting
on Friday 16 June 2006 at 20:00 in the
Electronics Building at the University of Kent, Canterbury, Kent.

For further information, please contact secretary@krg.org.uk
or see our website www.krg.org.uk

KRG Web Site: www.krg.org.uk

GB3EK Margate Web Site: www.gb3ek.co.uk

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Aviation Archives

The new Aviation Archives website is online!

Focused on Kent Aviation history from 1914 to the current day

We are also looking for any photograph or archive which has some influence in Kent Airfields and Airports.

Web Site: www.AviationArchives.info

The Committee has met 3 times to organise the Group's business. Once after the AGM and on 2 other occasions. The issue of two Newsletters a year will continue. In view of the current low take up of the proposal to email the Newsletter it will continue to be sent to everyone as hard copy. This decision will be reviewed if take up of an emailed Newsletter gets nearer to 50% of the membership. In addition subscription reminders will be sent out to members whose subscription fall due when there is no Newsletter.

The Rainham Radio Rally was held in March and much of the subscription income due from December 2005 and March 2006 was collected there and a new member was recruited.

The Group has encountered the usual range of difficulties during this period and these have been overcome by the hard work and persistence of the various repeater working party members. The Group retains its presence on the Internet and has recruited members via its site (<http://www.krg.org.uk>). Although not strictly repeater business the NK Working Group did build and install a new GB3VHF beacon at Wrotham.

My thanks go to the Committee for their continued support throughout the year. Members of the respective Repeater Working Groups are thanked for their hard work during the year. They work quietly in the back ground making, in a number of cases, a very significant contribution to the Group as do a number of other individuals who work as professional radio engineers but give their support to the Group as well.

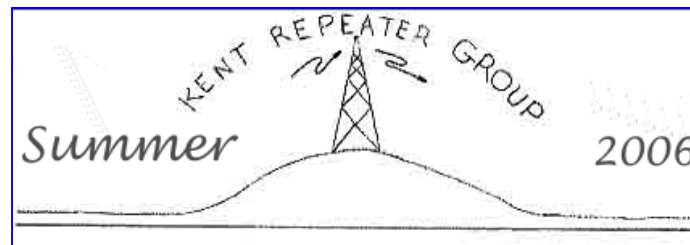
M W Stoneham G4RVV

Technical Reports

Reports from respective repeater keepers for both GB3EK, GB3KN and GB3RE comment that they continue to work well.

Support the
Kent Repeater Group

KRG



Story

July 1975 – The Repeater Proposal

At long last we have been able to send off the Repeater Proposal to the RSGB, who will forward it to the Home Office. After that it is just a matter of waiting and it could be any time from 6 months to 2 years before we hear anything! Recently applications seem to have been processed somewhat less slowly than before, so we are still optimistic about being on the air sometime in 1976.

August 1975 – The First Move

We have just sent a letter to G6JP, the General Manager of the RSGB, explaining our case for having a 2m repeater less than 100 miles from GB3LO, GB3PI and GB3PO.

Our main grounds, which should come as no surprise to KRG members, are that it is impossible to use any repeater whilst mobile in central or Eastern Kent, except under abnormal propagation, conditions. We have stated that a change to 70cm would not be acceptable to the Group.

Oct 1975 – Late News

We have received assurance from the RSGB that this will not affect the 2m application for Gb3KR now being negotiated. We would, however, withdraw the 70cm proposal if any problem affecting the 2m one arose,

This gives us the chance of having some sort of repeater within months rather than years, since the Home Office have indicated that there would be no problem with a licence for the 70cm band,

The 70cm project would be financed entirely separate and no existing KRG funds would be used on it, Tests will shortly be carried out to determine the best site,

Jan 1976 – The East Kent 70cm Repeater

With the rejection by the Home Office of our 2m proposal, we were advised by the RSGB to apply for a 70cm licence, as the authorities had indicated that this was likely to succeed. We took this as a suggestion to abandon the 2m project in favour of 70cm, and firmly rejected it on the grounds that all donations had been made towards a 2m repeater, and that 70cm would not give comparable coverage.

However, after hearing what the RSGB had to say at Brunel, we contacted the General Manager, G6JP, and were told that since 70cm proposals are treated independently of 2m ones, a 70cm application for East Kent would not jeopardise our chances of getting a 2m licence eventually. Since it was likely that such a repeater could be licensed fairly quickly, and on the grounds that almost any repeater is better than none, we opted to form a sub—group, Kent Repeater Group (UHF), to finance 'GB3EK'.

After studying maps, bearing in mind existing 70cm activity and the QTH's of those who had already pledged money towards the project, it was decided that the aim should be to cover Thanet, Canterbury, Heme Bay and Whitstable. The 'KR' site at Guston was considered unsuitable because of high feeder losses, and poor coverage of the population centres.

Several other locations were suggested, but finally Invicta House in Cliftonville, Margate was chosen, It is a 14 storey tower block situated at one of the highest points in Thanet, Use of this site will be confirmed in the Newsletter as soon as cost negotiations are concluded with Thanet District Council.

Coverage tests were carried out recently on 433.2 MHz, and the results, which were thought to be satisfactory, are shown on Page 3. A 4—element vertical beam was used pointing towards Whitstable and Canterbury.

It is stressed that although KRG and KRG (UHF) will be affiliated for administrative purposes, the repeaters will be financed separately, and the 70cm project will not in any way affect the possibility of a licence being granted for 'GB3KR'. Coverage Map

The map shows the coverage of the proposed East Kent 70cm repeater at Margate and is based on a 90% chance of access by a typical mobile station, (10w on 2m, 5w on 70cm), using a five-eighths whip.

There will be favourable locations outside the 'coverage area', where the repeater can be accessed, just as there will be a few places inside it where it will be unusable. This effect will be more marked on 70cm.

March 1976

Since the last edition of the Newsletter, we have made much progress with the UHF project. Provisional agreement has been reached with Thanet District Council for siting the repeater on the top of a tower block in Margate.

We have negotiated a rental of £50 per annum, which includes the use of electricity and is about a quarter of the commercial rate. Preparation of the contract will involve the site owners in legal costs, which we have also agreed to pay.

A Pye U450L base station has been purchased for £25, and comprises an all semi

I have not done anything to create a ground plane but there is a sliding sun screen inside the car roof. It would probably be possible to insert a sheet of aluminium foil stuck to thin card onto the upper side of this.

The setup has now been used for several hours continuous operation without any problems.

Martin G4RVV



Getting a decent sized antenna onto a car with a glass roof and no horizontal or reasonably vertical flat metal surfaces presented an interesting challenge. Initially I used a small antenna that clipped onto the top of the passenger window. This was, however, only suitable for handheld/low power operation. I looked as glass mount antenna but did not want a permanently fixed antenna mount.

Glancing through the Machine Mart catalogue I saw several different suction lifters with handles designed to attach to a sheet of glass to enable it to be lifted safely. I acquired one with three suction cups and found it to be quite solidly made. Unfortunately I then discovered the glass roof on the Smart car does not just curve from front back but from side to side as well. It is slightly concave which meant that when one sucker was attached the other two were not. I could force a second sucker to stick but the third was then to high to attach properly.

Having looked at the construction of the sucker unit I decided it was sufficiently robust to allow the carry handle to be cut about 85% through so that each sucker could firmly be attached to the roof. I then put a spacer at the top of the cut to hold it open at the required angle and screwed a strip of metal across the top of the handle. The spacer was attached to this using a cable tie to hold it in place. I found an old gutter mount antenna bracket which I fixed to a strip of metal. This was bolted to one side of the handle. This helped to maintain the correct width to the cut in the handle and provided further reinforcement.

The whole quite solid assembly was then mounted on the Smart car roof and the suckers applied. Not knowing how strong these were and to allow for the fact that the dual band [2 x 5/8; 4 x 5/8] antenna was being mounted the assembly was also strapped onto the vehicle using a nylon luggage strap passed through the mount handle and the both car doors. Belt and braces.

The aerial has stayed firmly in place up to 70mph even in quite gusty wind. It is attached to an IC 24xx dual band rig which is mounted in a carry case of my own design [see photograph]. This can be moved easily between vehicle and base station use with all necessary cables stowed in it when it is not in use. Not being sure of the car's own small battery's ability to run a rig for any length of static operation a caravan/leisure battery stowed in the boot is used to power it.

conductor receiver and a hybrid transmitter running a QQVO3—20 in the final, Donations have been received of 35m of low loss coax and a set of crystals for 433.2 MHz so that further testing can be carried out.

The repeater proposal was sent to the RSGB early this year, and in mid—February it was forwarded to the Home Office together with the RSGB 70cm overall location plan and 20 other proposals. There is no objection to the granting of this licence, which could be issued any time during the next few months

Brief Specification

Transmitter: About 5 watts output

Aerials: 4—element verticals beaming WSW towards Canterbury

Callsign. GB3EK (East Kent)

Location: Invicta House, Cliftonville, Margate.

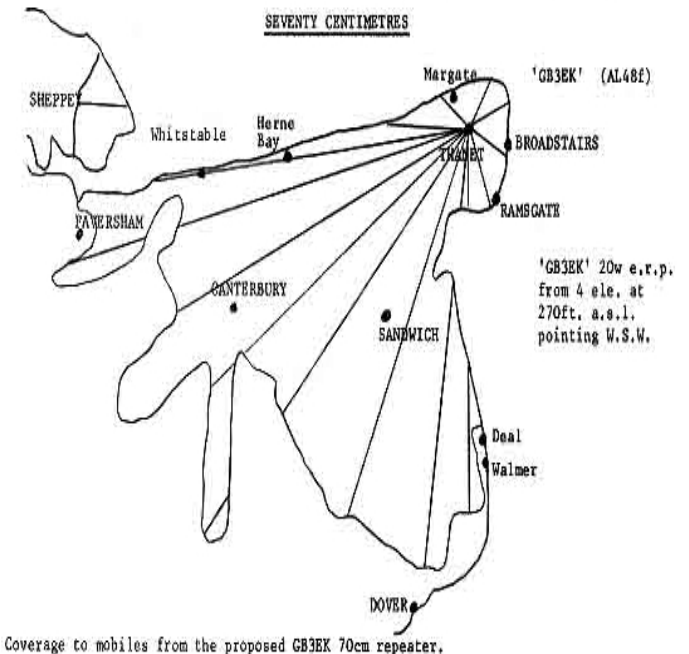
It is 30m high & 35m a.s.l.

Frequency: RB2 i.e. Output, 433.05 MHz, and Input, 434.65 MHz,

The operation of the repeater has been kept very simple since there is little likelihood of congestion.

It will require a tone—burst of 1750 Hz to open it up initially, and then will be carrier operated with no tone needed and no limit on the length of overs. The repeater will stay open until it has not been used for 20 seconds, when it will close down and await another tone burst. The tone filter will be quite wide to make it easy to 'whistle up',

Of course, if there is abuse of this system (i.e. ten minute overs with no gaps in between), it may be necessary to install a rigid control system similar to that to be used on 'KR'.



Coverage to mobiles from the proposed GB3EK 70cm repeater.

The 70cm repeater will be financed separately from 'KR' because all cash donated so far has been for the 2m project.

About £150 MUST be raised before the repeater can be put on the air, this includes the first year's site rental and associated insurance and legal fees, and the cost of the rig, aerials, cavity filters, control circuitry, postage, etc., etc

If you want to use this repeater, please send a generous donation NOW to the treasurer. Until sufficient funds are forthcoming, there simply will not be a 70cm repeater

70cm Channel Allocation

The Repeater Working Group of the RSGB has spent a considerable amount of energy and time in devising a frequency plan for 70cm which will not clash with existing users of the band, The IARU plan, agreed at Warsaw, was considered unsuitable because the repeater output channels would be in the 435MHz region, causing difficulties for Amateur TV operators.

It was agreed that output channels in the UK should be in the part of the band already used for FM (around 433.2 MHz), and it was proposed to use the system currently in use by the pioneer 70cm repeater, GB3PY, i.e Input frequencies 2MHz lower than outputs. Unfortunately, the use of 430—432MHz is prohibited in some parts of the country, and efforts to have this changed met with objections from another user of that part of the spectrum.

A compromise system was finally worked out which uses the reverse of the IARU scheme, with inputs 1.6 MHz higher than outputs (see p.3).

May 1976 - Licenses for East Kent 70cm Repeater, GB3EK

The licence for the Margate repeater was issued on the 7th April, but the actual operation is being delayed by the paperwork. The legal document permitting use of the tower block has been drafted by Thanet District Council but the final copy has not yet arrived. As soon as is possible the aerials will be erected and tests carried out on RB2 and 433.2 MHz. It is hoped to have the repeater operating in full talk—through in four to six weeks.

After much searching in this country for the dimensions of a cavity filter for 70cm, one was eventually found in France! We are indebted to F2XO for the loan of his filter and copies of it are now being made.

Newsletter 10 will be published immediately prior to the repeater coming on the air. It will contain a coverage map and full operational details (see also N/L's 7 and 8).

A reminder that GB3EK will be on RB2 (Input 434.65 MHz and Output 433.05 MHz).

Supporting Your Local Radio Clubs

Ashford Radio Club G4ARR

Location: Scout Hut - Norton Lane, Bethersden near Ashford

Web: www.g4aar.fsnet.co.uk

Email: m0wye@thersgb.net

Secretary: Hugh Burnham M0WYE

Dover Amateur Radio Club

Location: Dover

Web: www.darc.org.uk

Email: g4sau@bcuff.freemove.co.uk

Secretary: Brian Cuff G4SAU

East Kent Radio Society G0EKR

Location: Herne Mill - Herne, nr. Herne Bay

Web: www.paulnic.com/ekrs

Email: g3vjf@paulnic.com

Secretary: Paul Nicholson G3VJF

Folkestone and District Amateur Radio Club G2FA

Location: 11, Earls Ave Folkestone

Web: www.fadars.org.uk

Email: g0slj@fadars.org.uk

Secretary: Dennis Pepper G0SLJ

Hilderstone Radio and Electronics Club G0HRS

Location: Hilderstone Adult Education Centre - Broadstairs

Web: www.g0hrs.org.uk

Email: info@g0hrs.org.uk

Secretary: Mike Howland

Email: g4mix@waitrose.com

An N.B. Usage Information from the 70's

- A tone—burst is only necessary to switch the repeater on initially.
- Keep overs short and remember to wait for the 'K' each time.
- Always give your callsign clearly whenever you use the repeater.
- There is no objection to fixed stations using the repeater, but it should be remembered that repeaters are designed to aid mobile and hand—portable operators, and these stations take priority.
- Stations who are within simplex range of each other should leave the repeater clear for others. This applies particularly to fixed stations.
- A small amount of speech processing is employed in GB3EK, but your deviation should not exceed 6 KHz or distortion will result.
- In order to avoid interference to amateur TV operators, fixed stations are requested to use the lowest possible power to access GB3EK and to use vertical



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July 1976— GB3EK On The Air

The Margate 70cm repeater will become operational on Friday, 30th July and full details are supplied with this Newsletter.

It was originally intended that GB3EK should be a stop—gap whilst the licence for GB3KR was renegotiated. However, owing to the improved efficiency of the Home Office in processing the 2m proposal and to the delays in getting written permission from Thanet District Council to use the 70cm site, GB3KR was operational first.

Those who find the 2m repeaters rather hectic will (if they are in range) be able to enjoy the unrestricted operation of the 70cm machine.

We are indebted to G3YUH for exchanging his U450L receiver for the rather poor one originally intended for 'EK', and to G3YCV for getting the cavities silver-plated.

July 1976 - GB3EK operational this month!

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Using GB3EK

Since high occupancy is not expected, the operation of the East Kent 70cm repeater has been kept as free from restrictions as possible,

To switch the repeater on initially, a 300 mS tone—burst of 1750 Hz must be sent at around 3 KHz deviation. The repeater will then send its callsign and relay your audio.

There is no time—out period but users are requested to restrict overs to no more than 2 minutes to enable others to use the repeater. At the end of your over, a pause of 2 seconds should be left; this will be followed by a 'K' in Morse which is the go— ahead for the other station in the QSO to transmit. The pause is to permit other stations to call in or to pass short messages.

After switching the repeater on from 'cold', it becomes carrier operated, i.e. no tone—

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burst is necessary. When the input channel has been vacant for 20 seconds, the repeater will identify in CW and close down until it receives another tone—burst.

Those who do not have a tone—burst (e.g. Pocketfone users) will find GB3EK easy to 'whistle up'. The repeater will accept tones between 1700 and 1800 Hz and, to make it even easier, a circuit has been built in to remind you what 1750 Hz sounds like. Just transmit for a few seconds, giving your callsign, then listen; the repeater will send a 'K' then close down immediately. By mimicking this sound the repeater can be opened. It is essential when 'whistling up' the repeater to check that it is switched into talk—through, i.e. that it stays on the air after access. Once this is achieved, you may transmit without a tone—burst so long as the repeater stays open.

Tech Report

G8FEZ, the Technical Coordinator, reported that GB3EK was working very satisfactorily.

The 70cm repeater is somewhat quieter now that the novelty has worn off. The flat conditions and the presence of GB3ER at Chelmsford have also helped to reduce activity on EK. Nevertheless, those who do use it regularly find the unrestricted operation very much pleasanter than any 2m repeater.

As agreed at the open meeting, the aerials were turned some 20 further south after checking that the polar diagram was correct. It seems that this move could have been too much however, and they have just turned back 100 for a further experimental period. It may be that permission to use less directional aerials will have to be sought.

On Sunday, 14th November, a pre-amplifier was fitted in the receiver. This compensates for the losses in the cavity filter and has a better noise figure than the existing front end. It has improved the sensitivity of the repeater by about an "S" point

March 77 - 70cm - Margate

As previously reported, the 4 element beams were moved 20° south from their original heading to try to improve the coverage in south-east Kent. However, this reduced the signal in the north of the area, so the aerials have been backed off 10 as a compromise. This beam heading seems the most useful and the coverage of most parts of East Kent and the motorway is excellent.

A 20 dB notch at 1750 Hz was installed recently to reduce the relayed tones of those few who use automatic tone bursts.. This has proved so successful that a notch filter will be fitted to GB3KR as part of the Mk 2 modifications.

GB3EK continues to be a peaceful haven from the cacophony of KR. Why not try it?

