



WELCOME

It has been another busy year for the repeater group. We have now moved to Lansdown, and things are starting to settle down. December the 19th 2009 was the date we moved from Cossham Hospital to Lansdown. Its almost like moving house, you find your new house has a few minor problems to fix, you also find your living room full of boxes that need to be unpacked and the contents put away. Everything takes time but you keep chipping away at things until they are done.

Anyway we hope you will find this news letter interesting and it will bring you up to date with what has been going on with GB3BS and its new site.

PO Box Closure.

When royal mail sent us this year's reminder for renewing the PO BOX it showed a 45% fee increase from the previous year. It did not take any time with the calculator to work out that this new fee would mean not only would membership collected via the PO BOX not cover the cost, but it would also require us dipping into membership collected via other channels.

On contacting Royal mail to ask "Why" the massive increase I was told that this was to not only cover service improvements, but also to match competitor's prices.

It was decided that the cost of the PO BOX would be better spent directly on the repeater and therefore we have cancelled subscription to the box. The PO Box closed on the 1st July 2010. We were able to check for post up to the 9th of July.

At the moment we have obtained a postal address for correspondence. This is:-

"The Bristol 70cms Repeater Group. 66 Forest Ave, Fishponds. Bristol. BS16 4DA"

Please note that if you have news letters prior to this one, then the address to renew your membership will be incorrect and you will need to update your records to the address above, use the membership form at the bottom of this news letter or go to our web site, www.gb3bs.com.

Now, without further-a-do I will hand over to Mark for the rest of the GB3BS DIY Manual, I mean Newsletter!

73 - Mat (G7FBD) Chairman, Technical support and mug washer

Well, looking back over the last year and now writing this newsletter it does seem more like working on a DIY Publication than a repeater newsletter. However, we do hope it will give an indication of all the work that's been going on since the last newsletter and our move to Lansdown.

Current Site Status.



Comms room just after we took ownership

These last 12 months seem to have flown by and so much work has been done, both to the site itself and moving the BS equipment into its new home. As was mentioned in our last newsletter (which went out shortly after we secured the new site), we had to quickly carry out essential building repairs. Stripping and replacing a new flat roof to stop water ingress, clear out materials left by the previous occupier. Then rewire the site's mains electrical supply bringing it in line with the 17th edition of the wiring regulations, before cleaning and painting the walls, ceiling and floor.

We can report that this work has now been completed and the repeater equipment is now finally in a clean & dry room. Members may not be aware that the site actually has two rooms. Adjacent to the room that houses the repeater is a room that's home to the standby generator, switchgear, battery charger and mains distribution boxes.



The Original Electrical distribution board.



The new modern distribution boards kindly donated by Wilts Electrical

It is this room that suffered the most from the leaking roof, but since the roof was repaired we have over the last 12 months seen a dramatic improvement to the walls and ceiling. Once the new roof was fitted all the water trapped in the concrete roof and brick walls only had one way to get out and this was through into the room itself. Subsequently this room has remained untouched while everything dried out. We hope that during the summer of 2011 we will be able to clean up this room and with it repaint the walls and ceiling.

The Move

During bouts of DIY work to the building we also had to erect a temporary antenna system as our main antenna could not be installed on the tower until the riggers became available.

As most of you probably already know GB3BS was finally closed down at the Cossham Hospital site on December the 19th 2009. This had been the home of the repeater for over 30 years, since its conception, and gave an almost uninterrupted service for that time.

Once the repeater had been closed down and moved to its new home it was only a matter of hours until it was back on the air again. As already mentioned, we could only operate on a temporary antenna system which was at most only 10 feet off the ground and heavily shielded all around by either high trees or buildings. Coverage at this time turned out to be terrible, worse than we had ever expected, even from this temporary setup.



Temporary antenna system at its full height

Remotely monitoring signal levels showed that the antenna system was indeed suffering badly from its surroundings. Mat and I returned to site on Boxing Day 2009 to see if anything could be improved upon. We remember this so well as it was such a bitterly cold day, well below freezing and it was starting to snow. On top of all that I was battling with a real bad cold. Mat said it was Man Flu,....more like Mad Flu I thought!

We managed to modify the temporary support pole so as to gain about another 5 feet. This put the antenna at around 15 feet off the ground, still well below any tree level and below other buildings around the site. Unfortunately we could not go any higher as we were at the limit of what the supporting poles could do, but our main concern above all was safety. We did not want this coming down and causing damage to other equipment or vehicles, especially if we had high winds.

The temporary antenna system remained in this position; it was still under performing although a very small improvement was noted. We had no option than to wait for the riggers to become available and install the antenna on the tower.

The Winter Months.



The shiny new floor, cabinet and tray work

Over the remaining winter months and into the early spring of 2010 we concentrated on preparing the main comms room of the site which would permanently house the repeater equipment (BS was operating from a temporary position within the Generator room). The comms room was completely gutted; walls floor and ceiling were all scraped and cleaned.

The floor was especially difficult as it had remnants of old tiles that were stuck down and needed removing so we could seal and paint it. Mat got out his hot air blower and soon they were gone. But this left a horrible residue of old glue; this was removed by using some strong solvent – It's funny, Mat and I cannot remember much about that day; it was all a bit of a haze!

At the next site visit, I think it was a very cold February, we decided to jet wash the inside of the comms room to

finally remove all dirt, dust and grime before painting. This was done with good effect apart from us getting soaked and ending up being very very cold. Over several weeks we managed to completely paint the ceiling and walls giving them several coats. The floor was then sealed and painted; this took several weeks to complete to allow proper drying of each coat.

Things were starting to come together and as the weather slowly improved and the days got longer we were able to put more time into finishing the comms room. The main equipment rack was delivered to site and new tray work to support power and the aerial feeder was installed together with some re-working of the main earthing and lightning protection system that was already on site.

Aerial Installation.

As the months ticked by we were still without a proper antenna mounted on the main tower. Four months had now passed since our move to Lansdown and due to the rigging company's commitments to other priority jobs several opportunities came and went much to everyone's frustration!

However, during those four months we were able to secure a more prominent position on the tower. Initial plans were to erect the GB3BS antenna on the side of the tower, with a suitable stand-off to reduce the effects of tower shielding and reflections.

It was found that an existing antenna located at the very top of the tower was in fact redundant and its feeder already removed. We quickly got permission to remove the old antenna and mount our antenna on the top of the tower provided everything checked out ok with the riggers when they got on site. This in it self would make the installation simpler and quicker as there was now no need for any stand-off or supporting steel work.



Old antenna being removed from the top of the tower.

Finally on the 19th of April we had the antenna installed on the tower. It was perfect antenna rigging weather, sunny with no wind or rain. The aerial riggers soon got to work in removing the old and redundant antenna and fabricating a new platform for mounting our antenna on the very top of the tower.

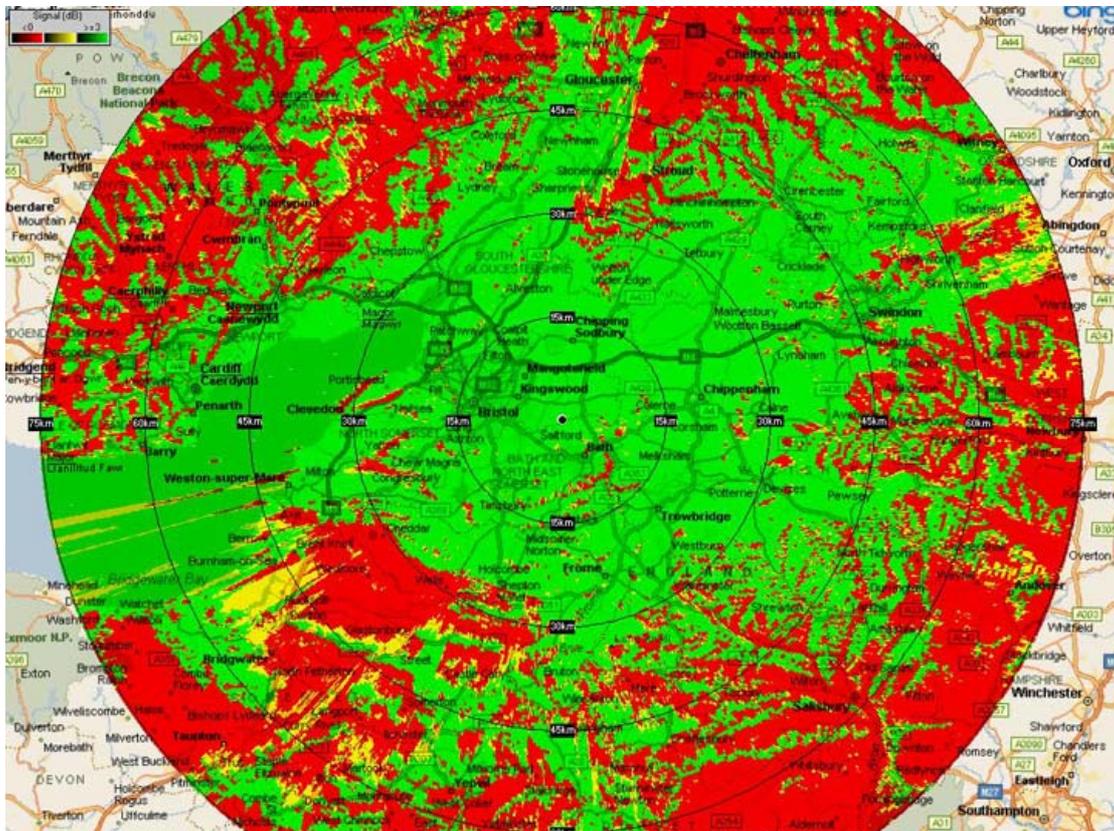
New feeder was pulled in and supporting clips installed from the top of the tower to the bottom and along to the main room. Soon we connected up the test equipment to the new antenna for a VSWR sweep test. Everything was looking good with an overall VSWR of less than 1.2:1 giving a return loss of some 21db. The riggers did a fantastic job for us and it was well worth the wait.



New antenna fitted, just waterproofing the connector.

Coverage of the repeater has exceeded our predictions. We had spent many hours going over coverage predictions and analysing the best position on the tower to place the antenna. In the end mounting it at the very top of the tower gave us a complete 360 degree un-obstructed view, without any tower shielding effects to worry about.

We are still learning the new coverage foot print and reports that have come in to us have been extremely interesting. Swindon, Wooton Bassett and Chippenham especially seem to be well covered, better than was expected. In fact our computer predictions seem to of been slightly on the pessimistic side.



Coverage map: Green indicates signal $\geq 1\mu\text{V}$; Yellow $\geq 0.5\mu\text{V}$ RED everything $< 0.5\mu\text{V}$

Equipment Move.

Several weeks after the antenna installation we moved the repeater equipment out of its small cabinet and into the new rack which has been rewired and connected up to the backup generator supply. At the same time we installed the new GPS Clock unit that Mat had been designing and building over the winter which would keep the repeaters logic (RC-210) time management synchronised with real time. During this installation we had also to upgrade the RC-210 logic with new versions of firmware and a modified configuration. This was to remove some long standing bugs and switch the GPS clock to auto local time rather than fixed to UTC.



New GPS Clock unit at the top, GPS frequency standards below

Moving the repeater to the new rack also required us to complete some earth bonding and installing a lightning arrester to the main antenna feeder line.



This is a shorted quarter wave co-ax stub with the shorted end bonded to earth. This should help keep noise, rain / storm static and any lightning discharges from building up on the feeder and possibly discharging into the Tx/Rx units.

This work took most of the day and during this time the repeater was off air for around 5 hours. It was also decided to give the repeater a health check after its move from Cossham just to ensure that everything was ok and that system levels were unchanged.

Monitoring the site we had found that the site itself has a very low noise floor compared to when we were at Cossham and this allowed us to lighten the squelch. This has hopefully reduced the squelch gate from closing too rapidly especially on low power portable stations.



We are currently still working with Arcom Systems in the states, helping them to debug and develop new versions of firmware and facilities for the RC-210 controller. We will always try to keep the repeater up-to-date with the latest software while taking as much care as we can not to introduce any instability in the repeaters operation.

A Brief Look Back.

It is sad in some ways that we had to leave the Cossham Hospital site but due to the pending, and well overdue, multimillion pound refurbishment of this famous hospital and landmark, we had no option.

Just prior to our site move several rumours were circulating the air waves, ranging from we were being kicked off the site to the repeater is closing down for good through lack of funds.

All I can say is that none of these stories were or are true. The group's relationship with the management and staff at Cossham Hospital together with the project managers running the refurbishment were always very warm and accommodating.

Members may also remember the problems we had on site regarding the blocking of car security alarms and key-less entry systems that use the 433.920MHz frequency. This was a small nightmare for us at the time, but one that we managed to work around along with the understanding and co-operation of the staff at the hospital. If it were not for them, then our time at Cossham Hospital could have been cut much shorter.

Looking Forward.

As mentioned, we have more DIY work to complete in the generator room, water proofing a window and a bit of gloss paint to the doors to stop the exposed wood from rotting.

We will be adding equipment to the rack which will provide hot swappable backup equipment should any part of GB3BS fail. This will also allow us to pre-test any new software or configuration prior to it being run on GB3BS.

Mat has been investigating the possibility of a Wi-Fi link between the repeater site and his QTH. The equipment needed has already been donated to the repeater group and has been field tested, and meets both our requirements and also that of Ofcom. It is a professional bit of kit and is designed to survive out doors and in all weathers. If successful, this would provide the repeater site with a secure 10 M/bit circuit which could be used for any manor of things such as internet linking, Skype, web cams, hosting of the GB3BS web site and of course, remote control and monitoring of the site. There are also thoughts of a small on-site weather station that could be accessed via the internet, but that's for the future.

Unfortunately we ran out of time, in that the nights have drawn in and it's getting colder. We hope that as soon as we get more daylight hours and warmer weather we will be out on site testing and installing this Wi-Fi link.



Backup Generator.

The generator is in full working order and has had some new starter batteries fitted by the previous owner. We also have a better and more modern battery charger which we will fit as the existing one has suffered from the wet conditions and is rather rusty, but still works! The diesel engine needs a good clean and maybe some paint along with a standard service and some plain old TLC.

The generator is fully auto start and should keep the repeater on-air during any incoming mains supply failure. The repeater has recently been fitted with a small backup battery which is designed to keep the equipment powered during the brief time it takes to change over from normal mains to generator and vice versa. This prevents the RC-210 logic controller from rebooting. The battery itself could run the repeater for up to two hours if needed.

The restoration, as it were, of the generator is very much a long term project of its own, but the priority will always be towards the repeater and keeping that running.

GB3BS Expenditure.

As you can see, the last 12 months have been very busy for us. We have spent much time writing and answering letters, talking to many people about getting the Lansdown site habitable, dry and above all, safe.

We have been so fortunate in that most of the materials used to completely refurbish the comms room have been kindly donated to the group. This ranges from wall and ceiling paint to electrical distribution boards and cable. We were also very lucky that even the roofing company offered their services at a massively reduced rate.

Not forgetting that the complete antenna installation itself was a donation to us by the rigging company. This by far was the biggest and most important job and had to be done right and to a professional standard. Our web site has a "Support" page detailing the various people and companies that have gone out of their way to help us.

Moving site to Lansdown has also made us look at our insurance cover. We have had to completely change this to reflect our new assets along with the new environment. As a result of this we have seen a small increase to our insurance premium.

Other costs have been in the purchasing small amounts of hardware such as electrical conduit, paint brushes and wall filler, not forgetting the back up battery we recently fitted.

All in all we believe that in the long term, financially, we should be able to run the repeater at its new location as we did when at Cossham. Obviously over the last year our funds have taken a dive. Our biggest expenditure by far was having a roof refit; this was critical and essential to getting the whole project off the ground.

It should also be remembered that back in 2008/9 we carried out a complete refit of the repeater with all new equipment which included the purchasing of new logic and a spare Tx/Rx rack.

Our bank account is now very slowly recovering and this has only been made possible by its members, supporters and those that have so kindly made a donation.

Membership.

Membership over the last 12 to 18 months has unfortunately seen yet another fall from around 43 to 32.

Over the last five to six years we seem to fluctuate around these figures with our all time high of 54 back in 2007. People come & people go.

It is interesting though that some stations openly say they will not support the repeater as they never use it, yet are often and regularly heard in QSO on GB3BS. Then there are those who just choose not support us for what ever reason, and that's ok. Membership seems to be one of those sensitive subjects and there are even some who at times show animosity towards us.

Usually we aim to send out a reminder via email to inform a member that his or her membership will laps in 30 days time. If that membership is not renewed then we will usually delete that members details after around 4 months.

Below are the callsigns of all current paid up members. If you have received a copy of this newsletter and your callsign is **not listed**, then your membership has lapsed you will no longer be able to access the members area of the forum and this will be the last newsletter you will be sent .

Please check our web site for an up-to-date membership list which shows when it will lapse and how you can renew. If you have a query about your membership then do contact us or send us an email.

We are hoping that with the repeater now reaching new areas never covered before and the increase in its interest since moving site, we may see more stations using the repeater and, we hope, supporting the group!

Finally.

Yes, finally, I know some of you out there are probably thinking by now they have just read through a DIY Magazine! Well for Mat and myself the last year has felt that way too, but we thought you would want to know what has been going on, including all the DIY stuff. Unfortunately neither Mat nor I are available for laying patio's or interior design work!

This last 12 months has seen the repeater in its new home and with it, we hope, a new future. We have been very fortunate in gaining this new site and it gives us the ability to expand which we could not really of contemplated at Cossham. Looking back we feel that having to move away from Cossham was in some way a piece of good fortune.

Please remember to keep looking at our web site & Forum, it has a lot more detailed information and a good selection of pictures which we will keep adding too as things progress. We also have a GB3BS Group on Facebook which was created by one of our members (Thanks Dan), the link to it can be found on our web site.

We of course welcome any feed back or suggestions of any kind and this can be done via our web site, the Forum, email and on the Facebook pages, not forgetting via our postal address too.

Our sincere thanks go to all those out there who have supported us over this last year and who continue to do so. We wish everyone a Happy Christmas and a good New Year.

On a very personal note, I would especially like to thank those friends who gave me their support and assistance when times became especially difficult,.... they know who they are.

73's

Mark – G4SDR (Repeater Keeper).

Callsign	Membership Expires(end)
2E0JUW	Mar 11
2E0WSW	May 11
G0GZW	July 11
G1FUA	Oct 11
G1IHL	Nov 11
G3LYW	Nov 11
G3LZN	Life Member
G3XED	Jul 11
G4EJH	Dec 10
G4FUA	Nov 11
G4JQX	April 11
G4KUQ	April 11
G4OJI	Nov 15
G4RZY	Dec 10
G4SDR	Oct 11
G4TAH	Oct 11
G4ULV	Dec 10
G4XCB	April 11
G4YZR	Dec 10
G6FFB	Nov 11
G7FBD	June 11
G8NQO	Mar 11
G8YMM	Dec 10
M0AKF	Dec 10
M0GBH	Nov 11
M0TGN	April 11
M0TSX	July 11
M0XMM	June 11
M3JDK	April 11
M3VIU	May 11
M6AVL	Oct 11
M6FUA	Oct 11

Current membership snapshot taken 02/12/2010

BRISTOL 70cms REPEATER GROUP, (GB3BS)

GB3BS Web Site: www.gb3bs.com

Email: info@gb3bs.com

If you use the Voice Repeater GB3BS & would like to support the group then all you need do is fill out this form and part with just £6.00p. Your details & membership fee will then be passed to our Treasurer.

PLEASE REMEMBER

Repeaters do cost money to run.

Without members the repeater GB3BS would cease to exist.

Please help to support what you use.

Please make Cheques payable to "Bristol 70cms Repeater Group".

Please tick appropriate boxes and print clearly.

£6.00p Membership

Donation Amount £.....

Paid by... **Cheque/Cash/Paypal** (Please highlight option)

Callsign:.....

Email:.....

Name:.....

Address:.....

.....

Post Code:.....

Please send to: **Bristol 70cms Repeater Group:**



If you would prefer to receive future newsletters via email, please submit your request via our "Contact us" page on our website.