newsletter

wythall radio club

"having fun with rf"

wythall contest group

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Mar– Apr 2014

Wythall Radio Club meets from 8pm every Tuesday evening at Wythall House, Wythall Park, Silver Street, Wythall, B47 6LZ, near Birmingham. Visitors are very welcome. **Wythall Radio Club** is affiliated to the Radio Society of Great Britain. Contact g0eyo@blueyonder.co.uk

Wythall Rally our 29th one!

Fantastic weather has helped to make this year's Wythall Radio Rally an unqualified success! Traders began arriving in glorious sunshine from 0700 this morning and, helped by the enthusiastic members of Wythall Radio Club, it wasn't too long before all the stalls were ready. Bacon Rolls from our caterer helped the morning go quickly and before long it was 1000 and opening time!

Traders were seen making brisk deals, visitors were caught between the many offerings on display and wanting to stop to catch up and chat with old friends – and despite our inability to use the school playing fields for our car park, the vast majority of visitors were very understanding and helped make today's event the undoubted success that it was.

Thank you one and all, traders, visitors & hard working Wythall Radio Club members – we cannot do it without you!

Chris G7DDN

GB3WL - A new repeater for Wythall

Since the Christmas Contest of 2012, it has been very gratifying to see and hear so many Wythall Radio Club members on air using their radios on 145.225MHz FM. The Activity Ladder has obviously played a part in that but, nonetheless, it is great to hear so many members actually dusting off their radios and *using* them!

However I have been aware for some time that lots of our members struggle to get a signal to each other on a simplex frequency like 145.225MHz and though many of us have improved our antenna systems to try to get over the problems, sometimes the sheer geography of living somewhere, for example, the "wrong" side of Gorcott Hill means that joining in club "on-air" activities is often a difficult and frustrating exercise.

There isn't really any repeater currently available that covers everyone and which we would not feel guilty "tying up" for club contacts, so the thought occurred to me that what would be a good solution would be to have our own Wythall repeater!

The main problems with running a repeater are a) getting a good site, b) supplying mains electricity to power the box, c) maintenance & d) cost.

Wythall House is a pretty good location VHF/UHF-wise and since we have mains electricity in the shack, we wouldn't have a problem getting power to any repeater we installed there, if allowed to do so.

With the likes of Barry M0DGQ & Dave G3YXM in the club, we could easily maintain such a device and we are relatively well-off funds-wise to be able to at least kick off such a project.

2m was never going to be an option for a repeater as the channels are too full around the Midlands and it would simply not even be considered by the authorities. Also we use 2m from the shack quite a lot and we wouldn't want anything interfering with that. However 70cms? This is a band that the RSGB is keen to promote use of, so that we do not lose it, so looked a good choice.

I spoke with Noel G8NDT who is a local repeater "guru" (he keeps GB3GB on 70cms on Barr Beacon and GB3VI on 6m in Birmingham, now sadly off air!) and also with some of the other local repeater keepers and the general consensus was that a 70cms box on the south side of Birmingham would fill in some useful holes in coverage across the wider West Midlands, as well as give our members what they needed, more reliable coverage between ourselves. Another advantage was that more of us could use those handhelds which we all own, that we only seem to get out at Rally times (Vic M0AEJ excepted of course! J)

I put together a simple proposal and a short presentation to give at the January 2014 Committee meeting and was pleasantly surprised that those present were *overwhelmingly* in favour and so I was duly "elected"(!) Project Manager to see if we could get it off the ground.

Noel G8NDT was a fantastic source of encouragement and knowledge in those early days & so it was that one Friday in January we together submitted an online proposal to the RSGB for a repeater – the callsign GB3WL (standing for Wythall) was available, so we plumped for that one.

Initially Mike G4VPD acted as Repeater Keeper just so we could get the application in, but we needed someone with a technical bent to be involved, so I approached Dave G3YXM who thankfully seemed to be very interested in the technical side of the project and he readily agreed to become the Repeater Keeper. This meant that his callsign would eventually have the Notice of Variation (NoV) attached to it so he is the "last word" in anything to do with GB3WL. (You have been warned!)

Noel, Dave and I are all active on 160m, as many of you know, and through our regular contacts we know Jake G1YFF over in Cambridge. Jake is a repeater builder and an absolute wizard with repeater logic circuitry. (see board below). As it happened, some of Noel's repeater equipment was already with Jake awaiting a possible future project, so Noel readily agreed to donate one of his Tait T800 base stations to the project.

That meant that we had most of the hardware already, we just needed the "logic". Jake was happy to do that for us at a cut-down price and so GB3WL was born as a finished repeater, at least from the hardware side of things.

Of course, we now needed somewhere to actually put it! From the outset we wanted to install it in our club shack, but that presented issues that involved my having to negotiate with Wythall House to ensure they were happy to let us have something switched on 24/7 and that it would not cause them any issues.

Since repeaters are generally low power devices that thankfully was not too big a hurdle.

One that could have raised its head though was the House Car Park! Many normal 1.6MHz split repeaters have suffered severe issues with Car Key fobs which operate around 433 MHz. That last thing we wanted was our new shiny repeater locking everyone out of their BMW's! This is why we applied for a wide-split repeater, which moves the frequencies outside of where the key fobs operate. Just imagine the irate folk we might have had if we hadn't considered that!

For an antenna, we initially looked at putting something new up, whether we

GB3WL

should put it on the House or the tower, but then we realised there was a solution staring us in the face! The tri-band "white-stick" collinear on the House chimney was already there and was not being used on 432MHz at all! In fact it is hardly used for anything other than 2m FM and that usually for Activity Ladder reasons. So we thought, why not use the 70cms portion of that for the repeater, with a duplexer so it could still be used on 2m as well. Sometimes the KISS (Keep It Simple, Stupid!) approach has much to commend it!

At the time of writing, the project is awaiting the final approval from the House Management, which I am led to believe is a formality, and also clearance from Ofcom and the MoD to allow us to switch the repeater on.

When that day arrives, I would like Dave G3YXM as Repeater Keeper to do a ceremonial "switching on" and maybe try to make a splash and invite some local dignitaries etc. to make a media event of our new arrival. Why? Well, since the box is well protected being underground, you never know the use it might have in the event of a civil emergency of some kind.

I hope you have enjoyed reading this short history of GB3WL. We are not even on air yet and already I get the feeling from the members that this is one of the most exciting projects the club has undertaken in recent years. I for one, hope it will encourage people to come on air even more and also help to promote all that is good about Wythall Radio Club to our near neighbours and those driving through the area who will doubtless pop up to use the box.

My thanks especially to the Project Team, Dave G3YXM, Noel G8NDT & Jake G1YFF, all of who have been totally "unamateur" but instead thoroughly professional throughout and without whom, we would have no repeater at all!

Chris G7DDN
Project Manager
GB3WL

PS There are other developments to this story, so it may not be finished just yet – watch this space for what could be done in the future with GB3WL and whether it may yet have a "big brother"!!

A large green canvas bag.....

You may have noticed a large green canvas bag in the shack recently, this contained some surplus parts from a Racal HF DF set, donated by Noel G8NDT. Being naturally nosey I had a good rummage in the bag and found the manuals. Inside was a diagram showing how the system was intended to be deployed. Four active probe aerials were to be set out in a square pattern and connected back to the control box so that the operator could tune into an HF signal (up to 30MHz) and identify which direction it was coming from. Could be useful… but all we had in the bag were the four probe aerials and their mounting stakes, no control box and no cables. Maybe the probe aerials would be useful if I could find out how they worked?

Each probe aerial consists of a black plastic housing with the pre-amp in it, which is screwed into a metal pole attached to a bracket. The bracket has a U-bolt so that it can be fixed onto one of the heavy pointed stakes that are in the bag. It could be fitted to any pole of around 30mm diameter.

On the bottom of the metal tube is a "C-type" connector (it looks like a giant BNC) but if you unscrew the plastic housing from the top of the tube you find that there is a standard BNC connector on the base, which may be easier to find a cable for!

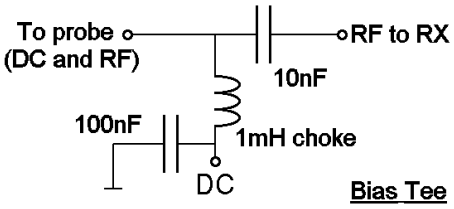
On the top of the black housing is a 6mm threaded receptacle into which a one metre whip aerial should fit. These whips are missing from the bag but the length is not critical and a whip from a 2m mobile aerial can be used. I found one that just about fitted the thread.

Time to try it out. I went down the garden and pushed one of the stakes into the ground, bolted the aerial bracket onto the top and connected it back to the shack with a long length of coax (having eventually managed to find a C-type adaptor!) I have used "e-probe" aerials before and I already had the "bias tee" available so that I could phantom a DC supply down the coax to power the electronics in the aerial. I connected the supply terminals of my bias tee to a 0-30V DC bench power supply. The manual mentioned 33V, which seemed a bit high to me, so I connected up a receiver and wound the Voltage up slowly. No signals were received until I got to about 19V when it burst into life. By the time I'd got to 24V it

was working well with good signals on all HF bands and no cross modulation effects. At this Voltage it was drawing about 50mA from the power supply. My supply will actually produce 33V so I gave it a burst of that and the current increased but there was no change in performance, so I returned it to 24V.

If you have a need for an HF receive aerial then one of these may be of use to you, it could be sited well away from your house or any other source of noise. You would need to build a bias tee and find a 24V DC PSU, supply a 1 metre whip and a C-type connector (or modify the mount so that you can plug a BNC straight into the pre-amp). We have another three in the bag so it's first come first served and a donation to club funds would be welcome… the DX Engineering ARAV-1 which has similar performance is $249!

Dave G3YXM

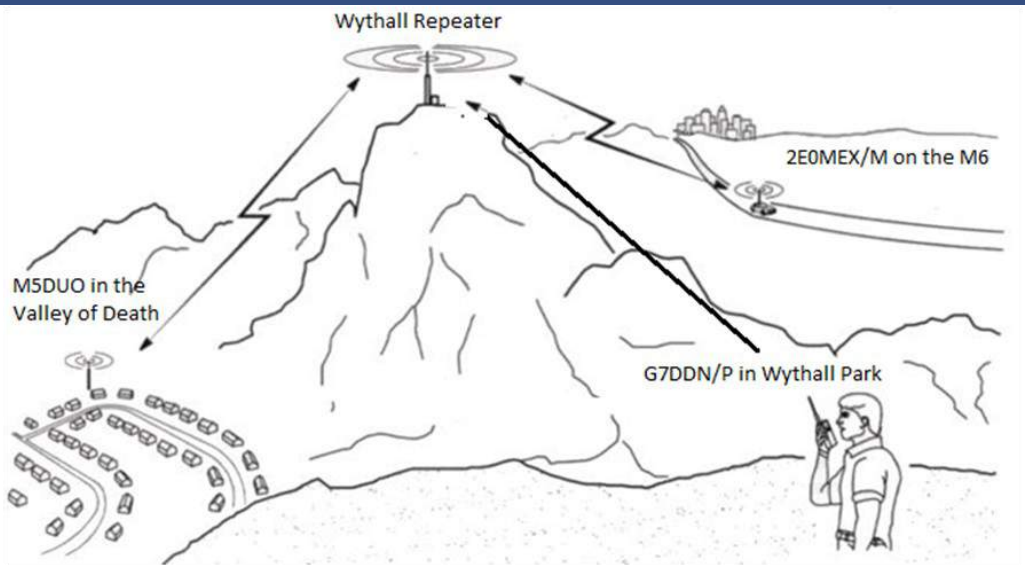


More on Repeaters

WHAT IS A REPEATER?

Repeaters initially became popular in the 1970's and 1980's when it became clear that simplex contacts for mobiles and handhelds were limited in range on FM.

The idea of a repeater is to be an unattended station, preferably in a good radio location, that can receive low powered stations within its area and then rebroadcast those signals to everyone within the repeater's coverage area. It's as if everyone's antenna is where the repeater's antenna is situated!



Using a repeater therefore, a half-watt hand portable can now make contact with stations well beyond simplex range. This has also opened up contact possibilities for people who can only use HTs, those who live in low lying locations, those in remote areas with no other possibility of local contact and, of course, assist with emergency calls due to the extra coverage afforded and the greater probability of someone listening.

Since a picture is better than a thousand words, take a look at this…
HOW TO USE A REPEATER

To access a repeater you need to make sure you are transmitting and receiving on the correct frequencies. In most radios there is a "repeater shift" option. This usually defaults to the "regular" split frequencies used (-600kHz on 2m and +1.6Mhz on 70cms)

However for GB3WL, you will almost certainly need to programme the correct frequencies into one of your memories. This is because GB3WL has a non-standard +7.6MHz split. You need to be transmitting on 438.550 MHz and when you de-key, you need to be listening on 430.950 MHz

To wake the repeater up and let it know you want to use it, you will also need to program into the same memory, a sub-audible tone. Once done, this is automatically transmitted along with your carrier and it inaudibly tells the repeater that you want access it and it lets you in immediately. For GB3WL, this tone will be 67Hz.

There are plenty of members at the club who will help you with programming radios when the time comes. Just ask!
GOOD REPEATER OPERATING PRACTICE

Listen for a while before transmitting. This gives you an idea of who is around and what to expect
Priority should be given to mobile and handheld users above fixed stations
Leave a break after your transmission - it allows the timer on the repeater to reset and also gives a convenient gap for new stations to call in
The recognised calling procedure is "This is (*your callsign*) listening through GB3WL"
If you can hear the other station on the input channel then you should consider moving to a simplex channel, especially if the repeater is busy
Your callsign should be given with sufficient frequency to identify you, but does not have to be given on *every* over

Keep your overs short and snappy. According to Colin Dalziel GM8LBC, the RSGB Repeater "Guru", it makes for a more enjoyable repeater experience
Ignore any antisocial and illegal use. Do not acknowledge it at all; this is what abusers crave. Either carry on as if they were not there or leave the repeater. The repeater keeper or those empowered to deal with the problem can deal with the misuse through accepted channels.

THE REPEATER KEEPER & THEIR ROLE

In the case of GB3WL, Dave G3YXM is designated as the "Repeater Keeper". This means he has the legal responsibility for ensuring the station adheres to the licence conditions and is operating correctly. He is also responsible for ensuring that the repeater is working to spec, but will be backed up by other members of the club lending a helping hand. He is also empowered to switch off the repeater in certain circumstances.

It is also worth remembering that repeaters are licensed for <u>*ALL*</u> radio amateurs to use, whether or not they have contributed in any way to the upkeep of the repeater or are members of Wythall RC.

There is no such thing as a "closed" repeater and we can expect complaints should any station feel that they are being prevented or discouraged from using it, something I am sure Dave G3YXM will be very "hot" on!
SOME REPEATER TERMINOLOGY

Listening through - how you announce yourself on the repeater; it refers to the

Contd...

duplex operation of the unit.
Box - another word for repeater
Deaf - a derogatory term used when a repeater might have a desensitisation problem resulting in the device not being able to "hear" the input frequency very well
K-Break/K-tone - a short gap in transmission that users should leave when they end an over, to allow the repeater to reset its timers before other stations come in. It is also courteous to use this K-Break as a chance for other stations to join in by giving their callsign
Logic - the controller system that determines the way the repeater functions
Timeout - what happens when an input transmission has exceeded the timer set by the logic. Usually the repeater will simply shut down when timeout occurs

MORE ABOUT TIMEOUTS

All repeaters including GB3WL have a timer to prevent the input from being held on indefinitely; two-minute timers are not uncommon in the UK. So if you do rabbit on for longer, the repeater will simply shut down its input and stop relaying your transmission.

A good idea to avoid this is to setup your radio to de-key itself after 2 minutes. In this way, you will never have the "shame" of being temporarily kicked off the box!

For more information and further reading, go to http://www.ukrepeater.net/documents/getting_started.pdf

Chris G7DDN
Project Manager
GB3WL

Marine Vertical with radials

Having installed my old Shakespeare Marine vertical a while ago as a ground-mounted vertical, today was radial laying day. I've read that laying your radials out in the spring, across the lawn, means that the grass will grow up and gradually bury them under the grass thatch. I hope so!

Since I'm only having a test, I laid out 16 radials across a 180 degree arc. I can't lay any radials in the other arc since the house is in the way.

I used PVC coated 7 strand D10 military wire which has seven small strands; four steel and three copper. They are the maximum length that fits in my small yard here, between about 6m and 12m in length. Near the feedpoint, I drilled a large hole in a piece of redundant 1 inch wood and fed all the radials through this and under some gravel to the ATU. I did the same at each end of every radial; a small hole which allowed the D10 to snake through before hammering them into the ground under tension.

The bundle of radials connects to an SG230 ATU which I screwed to the wall right next to the vertical and used a small 12V DC gell battery to power it.

Some days, you get lucky and today was one of them. I found a in my junk box, a 15m section of low-loss coax already with PL259 connectors on. I also discovered a neat 1 inch hole that I had drilled though previously (and subsequently gooped up with mastik) very close to the ideal entry point to my "bunker". Cleaning the goop out was fairly straight forward and the coax length was so perfect, I couldn't have cut it any cleaner. Lucky day indeed.

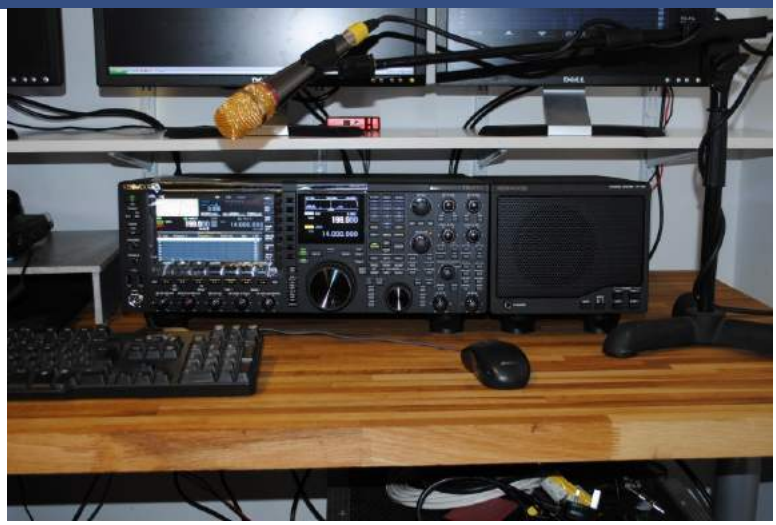
Results: As predicted, local (zero to 500 miles) signals on 40m are rubbish but from 14 MHz upwards it really has some legs. I can easily copy signals across the Atlantic and the SG230 tunes every band and (from 160m to 10m) with ease.

What a good day for having fun with RF.

73. Callum.M0MCX

Kenwood TS-990s User Review

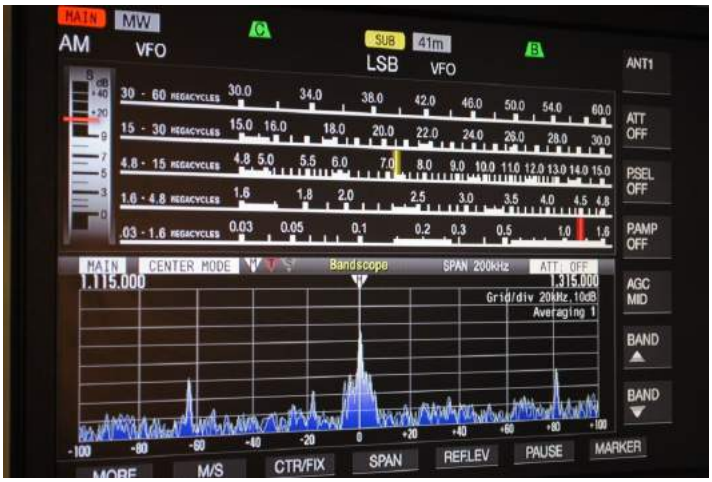
I finally took delivery of my TS990s in early January 2014 and it came with the latest firmware from the factory. First impressions, distilled into single words: massive, engineered, beautiful, functional, imposing, radio bling. But not a microphone in sight which I thought was pretty odd but they must have got their sums right, I would never had used a cheap mic on this wonderful radio anyway since I use a stick mic on a table boom (Heil Goldline) but it would have been good to check without making up a cable.



Everything about this rig is solid. My expectations had been managed by all the articles that I've read on the internet about the radio and I double checked the radio when I compared both the FTdx5000MP and the TS-990s at the RSGB convention in late 2013. For me, the TS-990s was the winner, although more expensive. The main reason for switching my allegiance from Yaesu was the size (I like very large radios), the in-built monitor and scope function, and particularly the fact that a single USB cable connects the rig to my WIndows 7 PC, effectively de-cluttering my MK2R+ SO2R system. I was fed up with all the wires everywhere.

Initially, I connected the rig to my 40m loop, a full wave triangle in the garden at about 20 feet. It took a few days to build my confidence but I heard some stations working UBA contest and made a few fast contacts. James (M0YOM) came around and we played with the roofing filters. I set up three main parameters, wide, intermediate and very sharp. Together with the width and shift, these seemed extremely effective in dialling out close QRM. There appeared to be no overload with close-too stations.

Hooking up to Ham Radio Deluxe was a breeze, however like all things on the TS990s, the definition of a breeze is sitting for two hours and a cup of coffee thumbing the manual and cross referencing many chapters. Finally PSK31, PTT and the rest of the regular rig-controls were working. HRD doesn't support the TS-990s natively, however selecting the TS-590 does.



I really thought I needed a new rig because I like to use my radio in the evening which means mostly 40m and 80m. These bands can be pretty tight, especially when there are contests on. My FT-1000MP used to have a hard time copying a weak station when I was tucked up right next to a loud one. The numbers suggested that I'd have a heck of an easier time with this radio.

Tonight, I used her in anger for the first time in the RSGB 80m SSB Club Championships on 80m. a few hundred stations crammed into a hundred kilohertz or so. I was genuinely blown away when I really did copy and make exchanges with very quiet stations whilst I was just 1kHz down from the next guy. Yes there is QRM still but nothing like I have been used to. No overload or crunching groans this time. I used the very tight roofing filter and dialled in about 1600 Hz on the bandwidth and happily conversed. This is truly a remarkable rig.

My thanks to Martin and the crew at Martin Lynch Ham Radio for supplying and making sure I got a great deal with the SP990 speaker, thrown in for free.

Full reviews are available on the internet so I won't give you all the numbers and features suffice to say, it really does do what it says on the tin; 200w output, on-board PSK and FSK decode and 300 pages of more stuff than you could probably ever digest.

Callum M0MCX

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2013 Xmas Contest Results

Christmas Contest results night at Wythall Radio Club tonight was full of surprises as always! Participation in this event has gone through the roof again with over 50 members taking part and over 40 logs submitted, an all-time record.

The overall winner in the Open Section, and thus the winner of the Reg Brown G7OJO Trophy for 2014 is Stuart M0NYP. Chairman Mike G4VPD finished in second place and David G7IBO picked up the 3rd place certificate.

In the 2 metre FM section, it was quite a family affair with the "Voice of the Midlands" Jim 2E0BLP coming out on top, just pipping his own son(!) Kevin M6NCO into second place. Third was a very creditable showing from club founder member, Colin G6ZDQ.

There were sterling efforts too from our lady members with Dawn M6UDY and Stacey M6STJ also winning certificates. Ian M0IDR completed the certificate winners with a special award for the highest score from a non-local member.

Our thanks go to Lee G0MTN for his untiring work on the organisation and software fronts – and for putting adjudicating our contest ahead of some little event he also helps adjudicate called "CQ Worldwide"!!!

Wythall Radio Club members are now looking forward to April and our Easter Contest where there is the little matter of chocolate eggs to be won!

Pictures: Bottom left: Jim 2E0BLP receiving FM only trophy from Lee G0MTN:
Left middle: Stew M0NYP receiving G7OJO Trophy from Lee
Left: Stacey M6STJ receiving Certificate for Leading Foundation in FM section
Above: Dawn M6UDY receiving Certificate for Leading Foundation in Open section

open section

POS	CALL	QSOs	BEST	MLTS	PTS	BONUSES				GRAND TOTAL	Adjudicated
						Band	Op	Mode	Total		
1	M0NYP	248	171	54	9234	400	100	200	700	9934	1st & G7OJO Trophy winner
2	G4VPD	216	168	53	8904	400	100	200	700	9604	2nd
3	G7IBO	203	158	53	8374	400	100	200	700	9074	3rd
4	G0EYO	218	147	51	7497	300	100	200	600	8097	
5	M1JSS	184	119	46	5474	400	100	150	650	6124	
6	G0NES	141	108	44	4752	350	100	150	600	5352	
7	2E0SDD	137	107	45	4815	300	100	100	500	5315	
8	M6UDY	125	106	36	3816	250	50	100	400	4216	Leading Foundation
9	G4TVR	87	87	40	3480	400	100	200	700	4180	
10	M0DGQ	110	87	38	3306	150	0	100	250	3556	
11	M0GRO	71	71	33	2343	100	50	50	200	2543	
12	M0MCX	65	59	31	1829	100	0	50	150	1979	
13	G4JGV	49	49	26	1274	300	0	100	400	1674	
14	M0JMM	46	43	25	1075	150	100	150	400	1475	
15	M6RSC	46	45	23	1035	50	0	50	100	1135	
16	G7DDN	30	27	14	378	50	100	200	350	728	all 432 MHz
17	G0ICJ	32	32	18	576	50	0	50	100	676	
18	M6KET	9	9	6	54	100	0	50	150	204	all CW

2m fm only section

POS	CALL	QSOs	BEST	MLTS	PTS	BONUSES				GRAND TOTAL	Adjudicated
						Band	Op	Mode	Total		
1	2E0BLP	221	150	48	7200	50	100	50	200	7400	1st & 2m FM Trophy winner
2	M6NCO	191	137	43	5891	50	100	50	200	6091	2nd
3	G6ZDQ	201	134	42	5628	50	100	50	200	5828	3rd
4	M0IDR	140	122	42	5124	50	100	50	200	5324	Leading "out of town" winner
5	G1MJO	146	119	41	4879	50	0	50	100	4979	
6	G1VLT	134	115	38	4370	50	100	50	200	4570	
7	M5DUO	141	102	38	3876	50	0	50	100	3976	
8	2E0LPD	98	98	38	3724	50	0	50	100	3824	
9	G0HOR	120	100	34	3400	50	0	50	100	3500	
10	G0HDF	85	85	34	2890	50	100	50	200	3090	
11	2E0ULC	100	88	32	2816	50	50	50	150	2966	
12	M0GWM	96	86	31	2666	50	100	50	200	2866	
13	M6STJ	95	78	33	2574	50	0	50	100	2674	Leading Foundation
14	2E0WTH	94	79	32	2528	50	0	50	100	2628	
15	2E0XTV	77	77	31	2387	50	0	50	100	2487	
16	M6DUO	75	68	24	1632	50	0	50	100	1732	
17	M0AEJ	73	65	23	1495	50	0	50	100	1595	
18	M0RKX	42	42	26	1092	50	50	50	150	1242	
19	M6FAB	47	47	23	1081	50	50	50	150	1231	
20	G0MTN	41	41	25	1025	50	0	50	100	1125	
21	G7OKF	26	26	19	494	50	0	50	100	594	
22	2E0TBR	23	24	17	408	50	0	50	100	508	
23	M3SSP	13	13	13	169	50	0	50	100	269	

Wythall Rally cont..d

Training News

February and March brought a number of passes for the club's training candidates. Darren now M0WYH passed his Advanced re-sit and our class of five Foundation students got high marks in their passes. Hopefully they will have got their new callsigns allocated to them by the time you read this. From left to right; Jamie, Gavin, Kevin, Darren and Craig.

Club member George M6LTE couldn't wait for us run an intermediate course so decided to go in for self-tuition but sought the club's help to do the practical assessements and organise the exam for him. I am pleased to say that George passed and will be seeking his new 2E0 callsign, unless of course he goes straight on to the Advanced licence. Our online Foundation course began in mid February and we have 6 students studying for that with their exam scheduled for March 29th.

Well done and good luck to all

Chris G0EYO

The next issue of the Wythall Radio Club Newsletter will be published at the beginning of June 2014

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