



Newsletter of the Harwell Amateur Radio Society

Affiliated to the Radio Society of Great Britain
RSGB Regional Club of the Year, 2009 and 2011



QAV

No 426
September 2016

Editorial Comment

It is with some sadness that I am writing this. We have all got used to Malcolm, G8NRP writing the Editorial Comment when he created QAV. Malcolm has been doing this job for many, many years and I for one certainly wish to thank him for all the hard work he did as Secretary. When I was Chairman, he could always be relied upon to get things done.

As I am creating this edition of QAV, Ann and I are coming to the end of a **very** long, 9 week trip to Normandy. Our time has mainly been taken up with building work in the house, but we have found time to do some other things, including some radio activities. For me, the highlights will be operating for F6KCZ/P in a VHF/UHF contest and sampling the 80 year old Calvados when we were invited for 'aperitifs' by our (French) neighbours!

Mike, G8CUL.

Another over from the Chairman

Well that was a nice long break, and I trust that those of you that took a holiday, had a pleasant time. Our last meeting was in fact our annual D/F hunt, this time run by Dave Aram G8DVK, with the venue being the George & Dragon in Upton, I am sure that Dave will report on it later in this edition of QAV. Marian and I made our usual trip to Normandy, albeit a bit delayed by 48hrs, due to having to make an unplanned visit to the JR for Marian to be told that she had a possible kidney stone, hopefully by the time you read this we will have had some results of the tests, at least we managed to meet up with the members of the Caen Radio club.

Whilst all this was going on, you will have gathered from my email that I sent out on the 24th of August, that we have had a few changes within the committee. This came about when Malcolm, G8NRP, resigned as Secretary to the club. At this moment in time, I would

ask you all to bear with us while I and the rest of the committee cover for the many tasks that Malcolm had performed for HARS.

73, John, G6LNU.

Charlie Sierra Signal Report

Two reports for the price of one :-)
Eleven intrepids in July and nine in August, both at Frosts. Good to see new initials of Ray G3LQC and Val in July and Neil G4BRK in August. The CS net spreads ever wider!

For September, come along to the Frosts Garden Centre coffee shop at Millets Farm (same venue again!) at 10:45hrs on Friday 16th September, all welcome, radio conversation optional.

Ron, G7DOE

July DF Hunt

The annual RDF hunt took place on the sun blessed summer's evening of the 14th August with the event culminating at the George & Dragon village Inn at Upton some 5 miles south west of



Didcot at 21.00hrs. For those not

familiar with the area the tiny village of Upton was on the railway line to Newbury from Didcot. The now long gone line provides, in parts, a good footpath passing to the east of Chilton village and the old Upton station has become an interesting residence.

Transmissions commenced at 18.40 on 144.189MHz (why 189? don't ask!) and every 20 minutes thereafter up to 20.00hrs when they went to 15 minute



intervals, or at least they should have been!! Unfortunately due to a lack of concentration (and it wasn't due to beer!), for which I apologise to the remaining DF'ers the first of these later transmissions started some few minutes late.

After only two transmissions we were found by the joint effort of Paul, 2E0PGY & Steve, 2E0XTX who having not found us in the pub carpark decided

to investigate the surrounding area. Despite an attempt at camouflage and with the vehicle driven as far as possible into the hedge in a nearby lane we were located.

Congratulations to them both as new comers to the hobby. My hat goes off to both as they had built homemade aerials. Their first bearings were from the Ridgeway at the well-known high point on the road leading over to West Ilsley. Their plotted line passed through the George & Dragon, (makes note, next time don't hide near the final watering hole) They used two different approaches to the aerials, one was a well-made 3 element tape measure yagi, the other approach was to use two quarter wave whips in anti-phase spaced a quarter wave apart. A superb result chaps; this approach tempted me to delve into a little research via Google and came up with an interesting article at www.grz.ru/schemes/contribute/arrl/chap14.pdf an article describing a whole range of RDF techniques.

Second in was Ron G0BNC (a very connected call sign) at 19.38hrs who by now is an experience DF'er having won several previous events and in return acted at the Fox in the past, well done Ron.

Colin G3NNG came in next, having exhausted all possible strange bearings due to an overpowering signal thus producing strange headings! (Another lesson learnt - mW next time)

The equipment used was an Icom 7000 into a home-made halo. The first transmissions were at 50Watts, reducing thereafter to just under 1 Watt.

Dave, G8DVK

Radio Active

John, G6LNU - Well I only have 2 sessions to report this edition, the July 144MHz UKAC contest with 7 QSO's and 1410 points claimed, best DX was MM0GPZ/P at 460 km and in the July 50MHz UKAC I had 20 QSO's and 2611 points claimed, the best DX was G4VFL/P, at 328K.

David, 2E0DYN - I am thinking of adding a low frequency band to my home-made receiver to cover the long wave band, the 2200m amateur band, and non-directional beacons, possibly also the Varberg Alexanderson generator on 17.5KHz.

There are two problems. Firstly, I need to avoid a second IF of 85KHz. Secondly, the existing tuning capacitor is 300pF. With the large coils needed for low frequency, the stray capacitance will restrict the tuning range. That will mean a lot of new added bands to cover the frequency range.

I would prefer not to leave a gap for the IF. I could switch in parallel trimmers to all the second IF tuned circuits and second oscillator on one of the bands, to lower the second IF just for that one band, and avoid a gap. I could connect one or two 500pF tuning capacitors in parallel with the 300pF on the low bands to improve the ratio of minimum to maximum capacitance. I could tune the low band by varying the inductance as well as the capacitance.

To gain some experience with variable inductors, I built a variometer. I wound 240 turns of 36swg, in 2 halves, on a piece of 2" pvc tubing for the rotor, and 200 turns, in 2 halves, on a piece of 2 1/2" pvc tubing for the stator.

The inductance varied from 3mH to 13mH. Q was 44 at 250kHz at 3mH, to 93 at 79kHz at 13mH.

The main drawback of the variometer is its size; it would need a 5" diameter screening can!

Next I will look at permeability tuning.

I built a crystal set, with a 1000pF variable capacitor, and found that I could receive BBC Radio 4, a French station, possibly Allouis on 162kHz, and some noises on 50kHz. Tuning range was 45kHz to 480kHz.

Tim, 2E0KEP - During the last couple of months I've been active on HF using JT65 for DX and 2m talking to local Amateurs. Using JT65 and my new 50W of power I have been heard in Australia and had a QSO with a station in Brazil! I'm very happy with how my HF vertical is performing. I've also had a QSO on 4m using the same HF vertical and a modified Ascom radio that I borrowed. I have purchased the parts to build a 10m to 4m transverter to allow me to use my FT991 on 4m in future. I've also had an Ettus Research Software Defined Radio delivered that I'm starting to use with Gnu Radio. This should allow me to transmit and receive all modes from 70MHz to 6GHz! I initially aim to create a Vector

Network Analyser application for antenna testing and try some 23cm/13cm work which I can use through my Discone antenna - I still have no idea if the SWR will allow this though! I anticipate needing new antennas in the near future if I'm to achieve any reasonable distances, but for the time being, my two antenna DC to daylight setup is working very well for experimenting with the different amateur bands and general coverage reception.

Ron, G0BNC (July) - Val & I went to the very good HARS barbecue. As normal not a lot of radio activity. worked - 29 contacts in 15 squares on 2m, 27 in 15 squares on 6m. Then I modified the 6m beanpole 5 ele yagi, to make it easier to erect. Val & I were pleased to be the 2nd team to find the fox in the annual July DF hunt. We were happy to hand the fox trophy back after looking after it for the last year. Another pleasant Charlie Sierra meeting. Lots of time spent repairing my daughter's Sony radio/CD player which was left in a very hot conservatory. The plastic did not like it at all. I managed to get the lid open and straightened it out a bit with a hot air gun, but the laser head rubbed on the CD. I did a complete strip down to try to adjust the laser head but did not know which way to turn the adjuster. Turned the screws 1 turn - Big Error! The head bobs up & down to check the CD. After over 2 weeks of countless adjusting and having to do a complete strip down & rebuild for each adjustment. I found the audio again. The adjustment between rubbing the

CD & working is very fine. 1/8 of a turn = 7 thou. Then I broke another plastic peg, so I then made a new alloy top & hinges & lid closing peg. ERRR. Went to the Mc Michael rally/boot sale.

Ron, G0BNC (August) - The CD player saga continues, but after 2.5 weeks of stripping down, adjusting & re-building with endless patience, the CD/Radio is working again without rubbing the CD. I still do not know why the laser head bobs up & down to check the CD. When playing, the head stays still after the initial start up. I managed to do 3 RSGB contests this month to give points to HARS, despite 2 lots of visitors staying a week & the others a few days. 24 contacts on 2m, 28 contacts on 6m, (my highest number on 6m and 16 on the 80m Sprint. With the visitor distraction I only remembered to work Ann & Mike in France a couple of times. Had trouble with my net connection on my old XP PC, so installed Win7 SP1 and got the well documented SP1 would not update (many attempts of 2-5-8hrs) So I ran a 20m cat6 cable from PC to the modem. After countless hour of research on Goggle, the solution to my update was a simple one, not the complicated ones advised early on in my looking. I Purchased a mini 8 pin din plug & made up a lead to go between my Yaesu FT897 & the SSB DCW15B sequencer, so now able to use the masthead relay box I made for my 6m preamp. We had another pleasant Charlie Sierra meeting and my first visit to Milton Keynes radio boot sale. Back to reality, a few days ago a near lightning strike/spike took

out my Labgear LMA415V TV masthead amp. Anyone know what a sot343 device marked SFC, is and a marked Wm39 which I think is OK (Since this 5 way amp has been fitted, I have never had any radio transmit interference) Lucky no sign of damage to the amp, I was by the side of the TV when the thunder cracked, then lost signal immediately. BUT at least the CD player is still working.

Angus, G0UGO - More like radio inactive over the last couple of months with a total of 15 QSOs and three of them with F4VRB. Two weeks in July were taken up with a summer return trip to HB9 to go walking instead of skiing. Then one day the temperature dropped and it started snowing. As there was an jazz festival on while we were there, next day we went to a concert at a mountain restaurant; as we listened to music, children were outside building snowmen! Thanks to Ron G7DOE who sent me a couple of nostalgic photographs taken in 1965 when the same weather event happened. On return from holiday my YL Elizabeth became my XYL.

Did have an attempt at the IOTA contest but after 4 QSOs it was very apparent that the only reliable band was 20m and even that wasn't in great shape. The post contest chatter confirmed this as most operators said they found it hard work. I just went back to building my new patio which, as I write this, is still work in progress. Hopefully I will be radio active next month.

Ray, G3LQC - Well not engaged in much this month and worked nothing unusual. I have however had my Elecraft KX3 back at W&S to have the antenna tuner board installed. Earlier in the month I had installed myself a NiMh battery charger into the KX3. Just another clever feature it has. The set can be installed with 8 better cells in the case within and when you go to bed at night you can leave the KX3 connected, to a 13.5-15v supply, but turned off. Set the charge to a 4, 8 or 12 hour charge. I had an initial fault on the battery system, which occurred when running on the batteries. Load the rig to above 2w and it would cut out. Checking each cell with a Volt meter showed them to be around 1.4V. I got on to W&S and within the course of the same evening I received a reply from Peter Walters saying it most certainly is one or more faulty batteries. So Friday I popped into MAPLIN and purchased a new set (8 off) Panasonic 'eneloop' pro 2500mAh and stuck them in. Problem solved and I can now load to the full 5 watts on Battery. The ones which failed were MAPLINS own brand. They were a new pack! Needless to say the Panasonic ones are far more expensive

I am not sure if Malcolm will look at this section but if you do - thank you for the hard work you have put in as Club Secretary. Having served a term of office myself for a while I can only say you did a far better job than I and I am sure your absence will be missed.

Ron, G7DOE and Kate, G7DOF
- We took a little punt at the 70cms contest this month, just a couple of

contacts but a nice band. The WSPR station on 30m keeps chuntering away too, with more than 60000 spots since January 2015. There were only just over 20000 spots in 2015 so there's a lot more activity this year.

As a bit more distraction on the tetrode front, I programmed up a PIC12F675 as a triple voltmeter for Va, Vs and Vg driving a 16x2 LCD display controlled over an I2C interface. A bit of a squeeze to fit the C code onto this small chip. The high voltage PSU arrived from China so bits can start to be put together.

Andy G4JNT raised doubts about the authenticity of the chips in some of the Chinese 4351 boards I have also been using. He couldn't get his board below 140MHz, but mine from the same ebay source works fine at 50MHz so we have a little ongoing mystery. I'm happy with mine!

Dave, G8DVK - The only VHF activity is re assembling aerials, preamps and feeders for 2m, 70cm & 23cm with a determination to get back on these bands after an absence of 15+ years.

HF activity - Renewed the copper common ground plane radial connection plate for the full size 80m vertical. This has 60 buried radials (6 added during this year whilst replacing a garden path) The vertical comprising 22, 15, 8mm copper tubing with the tip made with copper wire all supported within fiberglass tubing has been stripped down, soldered joints and connections checked & cleaned. No

DX activity to talk of on 80m, however the darker nights are approaching when the band opens in the evenings/nights. Playing with noise cancelling aerials with some limited success.

Mike, G8CUL and Ann, G8NVI -

We were fortunate to spend most of July and all of August in Normandy where we continued to take part in the UKACs (2m, 70cm and 6m only at present). We attended meetings of the Caen Radio Club and also assisted in the 2m contest at the beginning of August where, for the first time, we were invited to operate for the club (quite an honour). The language barrier did not prove to be as much of a problem as our use of their logging program (French keyboards are different from English ones!). Eventually we ended up providing an English keyboard and a simple way of switching between the two types was identified.

Technical Corner

Martin, M0HAH

Generator Starting -

For one reason or another, I have let my 2.2KW generator stay static for quite a while. I sometimes use it with my electric garden strimmer to give it a bit of exercise if I don't get out to play field radio a number of times in the year. However, this year, I could not get it started !

It's a "pull cord" style engine start - very common with mobile generators, but no matter what I did, I could not get it started manually.

So, I went through the usual things: Topped up the engine oil, added some more (fresh) fuel, let it sit for a while, and then tried again - still no luck.

I decided to look on the internet for a few tips and tricks. The "tips" vary from stripping the engine down and testing each part, to "just try this" type approaches.

The most common "just try this" approach was to spray some "easy start" into the air intake of the generator and then attempt to start it. This is the one I tried first, and it worked first time !

The other approaches all made sense: check your fuel and fuel lines, check your air-intake filters, make sure the carb is clean, make sure that the sparkplug is working (no battery to test on a hand-pull generator !)

One of the things that seems to be mentioned a lot on the internet is if the fuel has been left in the device for more than 6 months, you should pump it out and use fresh. I have to say, that personally, and speaking to other UK "petrol heads", I've never had an issue yet with petrol having been left standing in a fuel tank - even if its years (as in an old petrol lawn mower !).

So, my tip is this: keep a can of quick start handy if you own or look after a generator that does not get use every 6 months or so !

Mobile Antenna Robustness

When you look at specifications of mobile antennas and mounts, they often tell you about the performance of the antenna, but rarely say much about the physical aspects of the antenna - its size, and possibly its wind loading as well.

It can be quite difficult from this information to get a good feel for what this can mean in practical terms. We could use a computer to do some mechanical finite-element analysis simulation, or we could look at some anecdotal information - which is what I have shared here.

First of all - the mount system: I've found that mag mounts with a diameter of less than 7 inches can be prone to coming dislodged easily on road bumps and "minor" everyday driving occurrences (even quick braking) - so I'd recommend that if using a mag mount - go for a single 7 inch diameter or multi-mag-mount option. If using gutter mounts, I'd recommend that there is some movement of the antenna "elevation" tightness in the direction of travel - (the reasons will become apparent later on !)

As for the antenna "under test" - it's a 2m/70cm Diamond SG7500 - the first 19 cm from bottom is about 3 cm diameter, and then moves to a steel (about 0.4mm diameter) rod, the whole antenna being about 1.06 Metres in length , with a mid-way plastic joint in the middle.

So, here are some incidents that occurred, and what happened:

Multi-storey car park - Car is a Honda Jazz with antenna on top using a 7" mag mount: Lots of scraping when entering low roof - easily heard, and just top third of antenna bending on roof. No damage as just unscrew the antenna. Low speed. It survived this fine. No damage to antenna or shape.

Next - low tree branch across the road, about 25 to 30 mph, bottom 3rd of

antenna impact: Mag -mount (7" dia.) dislodged - No damage to antenna (or car luckily !). Coax fine too.

The same experience with a somewhat shorter antenna, but a gutter mount antenna with some elevation movement in the direction of travel just gets knocked flat at this speed.

Last: 60 mph impact with top of antenna (with 7" Mag mount) cross flying pigeon (mass approximately 490g): Antenna snaps at mid-joint (pigeon does not survive - but not confirmed). Mag mount does not move. Antenna unusable after this.

I have considered that there may be a mitigation to avoiding "intelligent flying object impact" - Put an "antenna topper" on top of the antenna so that it is more visible. This is being tested at the moment. So far, no obvious side effect to reception or transmission has been observed!

Mike, G8CUL

QYT KT8900R

During the summer I was introduced to a new VHF/UHF **mobile** radio. We are all used to the recent low-cost hand-held ones from Baofeng and the like, but this is a mobile unit from the same sort of stable. It is a KT8900R from QYT (not to be confused with the 4-band mobile radio from Yaesu!) and covers 144 and 432MHz (and also 220MHz!). Power output is around 20-25W and it is **TINY!** All the way from the far East, it cost ~€80, delivered! Being unable to resist, I bought one and had it delivered to the house in Normandy, so I could 'play' while we

were away. Delivery took less than a

Footnote

Although the Radio Active section in QAV has been very successful, it does tend to be the same members who contribute - and their input is most welcome - but it would be nice to see more input from other members. So, have a go and just tell us what you've been doing in Radio over the last month. It would also be nice to expand the 'Technical Corner' so have some thoughts and write something for inclusion!



week and it came well packed, including a programming lead and the PC software. The radio itself is really



small as can be seen in the second picture. Sadly, I have only had a limited time to 'play' but so far it looks good. If you are interested, search for KT8900R using your favourite search engine and see what comes up. I will report back when I have had more time to 'play' with it!

Contest News

Placings on the RSGB UKACs for June - August 2016 (results to date).

JUNE			
13cm	G4BRK	SAO	3rd
	G8CUL	SAR	1st
	G0MJW	SAR	19th
9cm	G4BRK	SAO	1st
	G8CUL	SAR	2nd
	G0MJW	SAR	3rd
6cm	G4BRK	SAR	7th
3cm	-	-	-
6m	G6NVI	AR	16th
	F1BHL/P	AR	38th
	G6LNU	AR	89th
	G7IVF	AR	119th
	G8NRP	AR	122nd
	M6VPW	AL	32nd

AUGUST			
2m	F8BRK	AO	5th
	F1BHL/P	AR	11th
	F4VRB	AR	58th
	G0BNC	AR	96 th
	G0MJW	AR	146th
	M0PXM	AL	46th
	M6VPW	AL	55th
70cms	F8BRK	AO	2nd
	F4VRB	AR	64th
	G0MJW	AR	74th
	G7DOF	AR	105th
	M0PXM	AL	40 th
	2E0KEP	AL	73 rd
23cm	F8BRK	AO	6th
	G4BRK	AO	7th
	M0PXM	AL	55th

JULY			
2m	F1BHL/P	AR	9th
	G4BRK	AR	43rd
	G0BNC	AR	94th
	G7IVF	AR	95th
	G8NRP	AR	143rd
	M0PXM	AL	49th
	G6LNU	AL	56th
	M0CIW	AL	57th
70cms	G4BRK	AR	25th
	F4VRB	AR	65th
	M0PXM	AL	32nd
23cm	G4BRK	AO	6th
	G0MJW	AR	12th
	M0PXM	AL	47th
6m	F1BHL/P	AR	8th
	G0BNC	AR	64th
	G6LNU	AR	69th
	F/G8NVI	AR	73rd
	M6VPW	AL	29th
	M0PXM	AL	30th
13cm	G0MJW	SAR	7th
9cm	G0MJW	SAR	2nd
6cm	-		
3cm	G0MJW	SAR	2nd

We are now 10th overall in the UKACs so all to play for during the Autumn. It is good to see that the French "section" of the club are still contributing regularly to UKACs on 2m, 70cm, 23cm and 6m. Let's hope 'BREXIT' does not affect our fun!!!

Forthcoming Contests

VHF

13 th September	70cm UKAC
18 th September	4m Contest
20 th September	23cm UKAC
17 th September	SHF and 6m UKAC
1-2 nd October	70cm-1.2mm Contest
4 th October	2m UKAC
11 th October	70cm UKAC

HF

14 th September	80m Club Sprint SSB
24 th September	International Autumn Sprint CW
29 th September	80m Club Sprint CW
2 nd October	DX Contest
12 th October	80m Club Sprint CW

Details on <http://www.rsgbcc.org/>

Date for your diary

We also plan to operate in CQ Worldwide SSB Section on 29th October.

73 Ann G8NVI

ann.stevens@btinternet.com

Rally News

Harwell Radio Rally – Sunday 12th February 2017

Next year's rally is now booked so please put this date in your diary – further information will follow next month.

RCE EXAM NEWS:

Advanced Exam

HARS will be hosting an Advanced Examination (Exam only – no training course) on Sunday 23rd October at Hagbourne School, East Hagbourne at 1400.

If you are interested in taking this exam, please email ann.stevens@btinternet.com

(paperwork and payment need to be completed by 15th September)

CLASSIFIED ADS

Free to good home -

Electronic constructor's sloped-front enclosure, light greyish top half, dark grey/black bottom half, ABS. Suit character keyboard E.G. with raspberry pi, or maybe audio mixer for example. Size 490mm x 235mm x 70mm(max) sloping down to 40mm.

Good condition, no holes drilled in it, been sitting around for ages. Photo available if you might be interested.

Ron, G7DOE, ron.mount@gmail.com

DIARY

Thursday 8th September
Show and Tell Natter Night

Thursday 13th October
Carol Ann Hodges, 2E1RBH
BYLARA

Thursday 10th November
Richard, G0REL
Grimeton—A Long Wave Transmitter

Thursday 8th December
AGM

Sunday 12th February 2017
Harwell Radio Rally

OFFICERS

Chairman: John Durban, G6LNU
Vice-Chairman: Ann Stevens, G8NVI
Secretary: Vacant
Treasurer: Angus Wilson, G0UGO

ORDINARY MEMBERS

Dave Aram, G8DVK
John Booth, G6ZHB
Alex Comerford, 2E0OXF
Ron Mount, G7DOE
Roger Powell, G0AOZ
Martin Summers, M0HAH

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Opinions expressed in QAV are the personal views of the contributor and cannot be taken as reflecting the views of the society, committee or editor.

The deadline for the October QAV is 7th October 2016. Articles submitted after this date cannot be guaranteed to be included.

Contributions from all members are greatly welcomed. They may be submitted to ann.stevens@btinternet.com