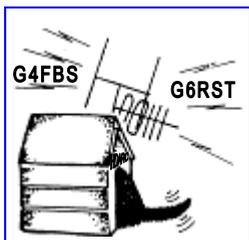


Horndean & District Amateur Radio Club Journal

Volume 4

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John G4WQZ, The Winner

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Founded in 1975

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Articles, letters of interest, photographs are always needed and should be sent to the Editor :- Mike Clark. m0zdz.mike@gmail.com

I use Microsoft Publisher to produce the journal so am happy to accept articles/photographs via email. A Word document or Picture attachment. Just use Journal article or Journal picture as the subject matter.

Opinions expressed in the journal are not necessarily those of the HDARC. The editor has the right to reproduce the articles for our affiliated club journals/newsletters. The Editor decision is always final.

Closing date for next journal is : 1st March 2019

Editorial



Hi All,

The first journal of 2019.

Hope you all had an enjoyable Christmas and New Year celebrations.

For all those who attended the Christmas Dinner everyone seemed to have a great time, the first I've been able to attend and thoroughly enjoyed the whole evening.

Had hoped to get out portable and play radio over the Christmas break but sadly events conspired against this, so very little to report on the radio front.

It would be nice to hear from those of you do who manage to get on air to let me know how you get on and I will give a little report each journal. You may encourage others to get more active.

Slightly slimmer edition than normal, but I am sure we will have a few more articles for the next journal.

Well done to John G4WQZ for winning the Alinco radio in our Christmas raffle, and thank you to everyone who purchased tickets which went towards the club's funds.

Till the next time, good DX

73 de

Mike, M0ZDZ / G7Y
Journal Editor HDARC



John G4WQZ was presented with his new Alinco DJ-MD5 by Frank G0LFI (who ran the raffle) and Club Chairman Ken G0JWL. The radio was generously donated by Nevada Radio of Portsmouth (www.nevadaradio.co.uk).



An automatic, computer interfaced, AZ/EL rotator controller (‘tracker’)

By Russell Tribe, G4SAQ

This is a reproduction of the article I wrote for ‘Oscar News’ after winning the 2018 AMSAT-UK construction contest at the RSGB Convention in October 2018.



Photo 1 – the finished job in use

How wonderful it was to win the 2018 AMSAT-UK construction contest. However, the achievement was not quite what it seems: I was the only entrant! Also, everything in life has its price and our Hon Sec (AMSAT-UK) has twisted my arm for this article. Well, in fairness, I was awarded a £50 voucher as my prize, so I can't complain.

I have decided to treat this subject as a description of what I did, rather than try to write a construction article. The reason is that the project was always intended to be a one-off and my stripboard layout will not be easy to replicate. However, I hope that my ideas might inspire others to have a go.

Since the early 1980's I have dreamed of having a mast with a pair of crossed yagis that I could control automatically to track satellites. Like many other amateurs, my hobby was put aside for many years whilst my family grew up. In 2011 my wife and I moved to my present QTH and I revived my radio interest. With valuable help from the RSGB Planning Advisor, I got permission for a 12m Tennamast. Pretty good going as I live in a conservation area! Then I started to consider what equipment I



would need. I already had an old AR40 azimuth rotator and a Kenpro elevation rotator. Clearly, I needed a way to interface them with my Windows computer, running SatPC32. The obvious choice would have been the excellent tracker designed by Howard Long, G6LVB (PCBs available from AMSAT-UK). However, for me, amateur radio is about trying to do things for myself. I do not come from an electronics or software background but I love to build things and I have always enjoyed programming PIC microcontrollers in assembly language. Therefore, the idea of building my own controller was born, unashamedly inspired by the G6LVB design.

This idea coincided with my decision to learn the 'C' programming language and having an end goal was a great driver. I followed a series of 'C' programming articles in EPE Magazine which culminated in the use of a PIC microcontroller with on-board USB capability. That influenced my decision to build a controller with just one IC, unlike the G6LVB which uses a separate serial to USB converter chip. My choice of microcontroller was the PIC18F26J50.

An interface controller ('tracker') has to perform the following main functions:

- To always 'know' which direction the antennas are facing (by reading the positional potentiometers within the rotators)

- To receive antenna pointing instructions from the host computer (via USB)

- To activate the rotators until the antenna positions match those specified by the host computer.

I built a prototyping board using 0.1" stripboard and wrote v1.0 of my code between September and November 2013.

Photo 2 –
the prototype



The next task was to modify the manual control units of my rotators. The main part of this work involved installing relays, two for each controller, that would be driven by my controller. After a couple of months, I managed to get the rotators and antennas up on my mast and everything worked rather well – for a while. During this time, I was still using my prototype layout, sprawling across a shelf in my shack (photo 2). Unfortunately, the elevation rotator died one day and I could not obtain spares. So, I replaced both the azimuth and elevation rotators with the Yaesu G5500 unit.

That was the moment I decided to smarten up my controller and to enclose it (mid 2018). I re-built it entirely, to the same design, using two strip-boards, one for the USB input/PSU and the other for the microcontroller, driver transistors etc. It derives 5v power from the USB connection. My display is a Nokia 5110 module with an SPI interface to the PIC.

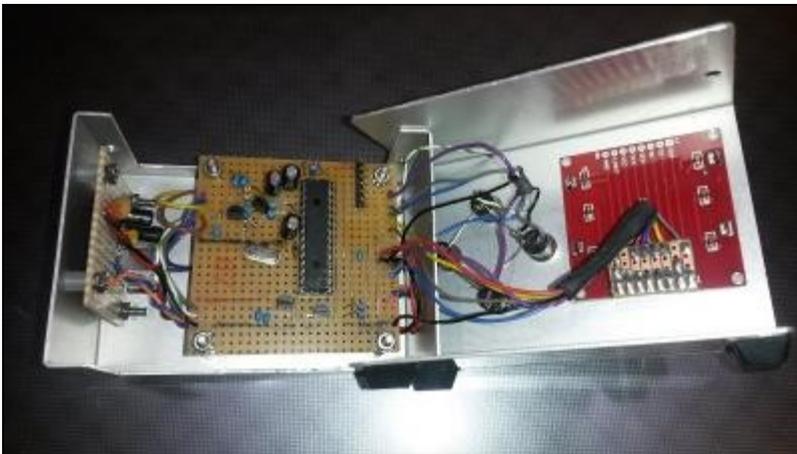


Photo 3 inside the re-built project.

I had to make a slight modification to my software to accommodate the 450 degree rotation offered by the G5500 unit but as far as I can tell, the controller works perfectly.

In conclusion, I will always encourage other amateurs to have go at building their own projects but I acknowledge that it took me a very long time to complete this one! Don't forget that you can buy the well-proven G6LVB boards from AMSAT-UK. Happy constructing. I look forward to having some competition next year!



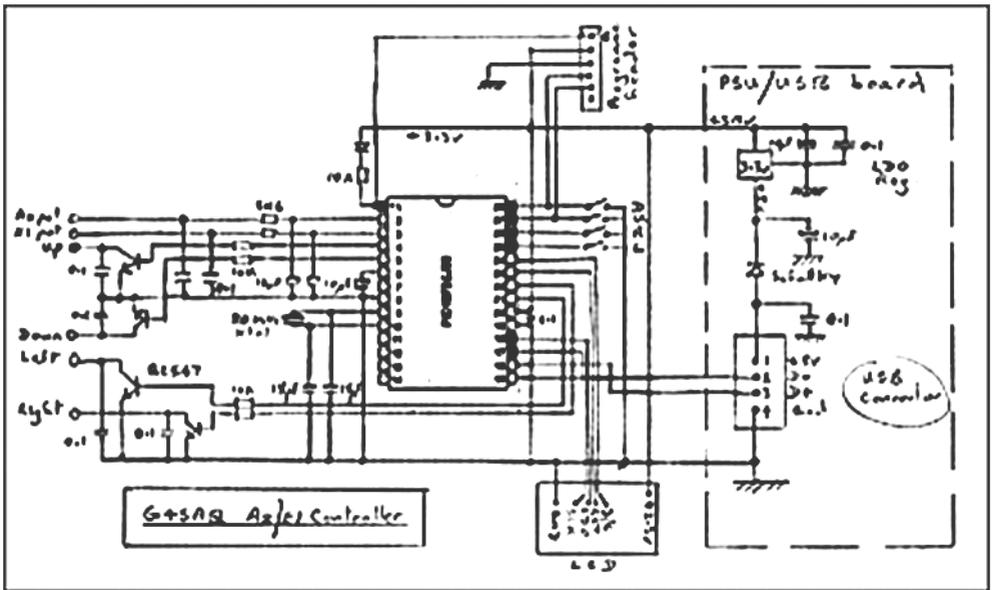


Fig.1 – circuit diagram



Photo 4 - Control in the shack.



Photo 5 The antennas

Crossed Yagi antennas by Innov Antennas Ltd. 5 el for 2m and 10 el for 70cms (NB counter-balance installed to assist elevation)
 Azimuth/ Elevation rotators – Yaesu G5500
 Mast – Tennamast 12m



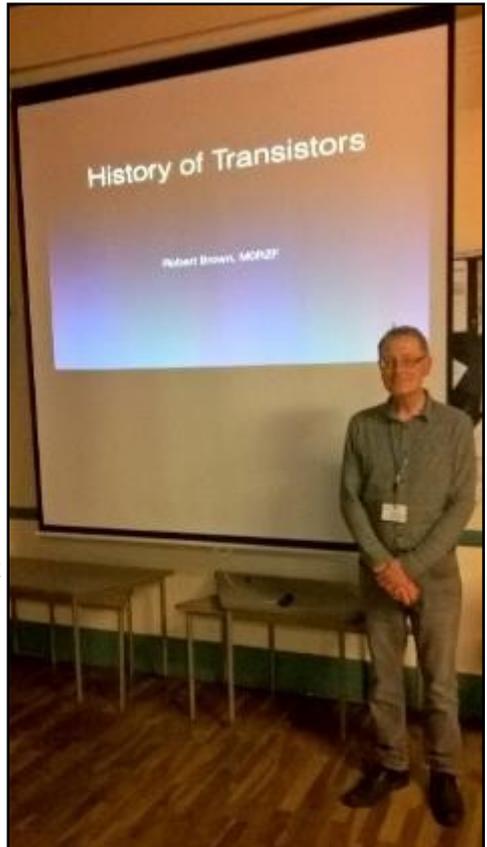
The History of Transistors

By Rob MØRZF

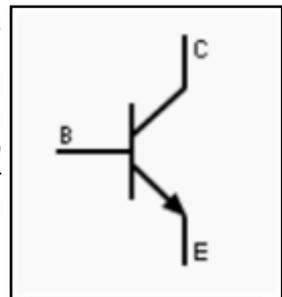
At the club meeting on September 21st 2018, Rob MØRZF gave us an excellent illustrated presentation on the history of transistors.

Rob started by asking the basic question: what is a semiconductor? The answer - a chemical element or compound that's halfway between an insulator and conductor. He showed a picture of a germanium crystal. Adding impurities (doping) affects conduction by controlling energy bands of electrons. There are complex properties involved, and quantum physics says energy levels always have steps. Charge carriers (electrons and holes) make semiconductors act as conductors or insulators.

To follow on from this basis, he then asked, what is a transistor? The name is a combination of 'transfer' and 'resistor'. In the transistor effect, a small current between base-emitter controls a large current collector-emitter. B=base, C=collector, E=emitter. The symbol here is NPN. N and P type materials are created by doping of a pure semiconductor. This is a "bipolar" transistor, and uses + and - charge carriers. Rob said he would describe other types, and we need to go back to 1926.



Before that, in 1906, the point contact (or cat's whisker) diode was invented to replace coherers. But...no solid state "triode" existed. Julius Lilienfeld (1882-1963) discovered control of current flow by an electric field - the field effect (1926). Patented, but no evidence it ever worked, and no devices were ever constructed or sold. In 1938, Pohl & Hilsch showed weak amplification in potassium bromide,



but further work was stopped by World War Two. Despite wartime advances in technology, little was done on solid state electronics. War was fought with valves (tubes). RADAR receivers couldn't use valves as detectors because their switching was too slow. In the USA, Bell Labs developed the P-N junction diode.

At this time, telephone calls across the USA were unreliable and expensive because of wasted power and limited life of valve amplifiers. Bell Labs, near New York, set up a large and well-funded research programme. One team took the lead consisting of John Bardeen, William Shockley and Walter Brattain (shown L to R at Bell Labs in 1948).



Bell Labs tried to reproduce Lilienfeld's field effect, but failed. Surface electrons were causing the problems, blocking the effect they wanted. Their new approach was a very narrow plastic blade covered with gold on both sides, pushing on the surface of a pure germanium slab. On December 23rd

1947 it worked! The 'Transistor' name was invented by John Pierce at Bell Labs, and they made a public announcement about their discovery in June 1948. They marketed the new product as Bell "Type-A" point contact transistors. However, there were problems: They were sensitive to vibration and corrosion, and could not be mass-produced. William Shockley was determined to solve these problems. He wanted to find out if the charges were flowing along the surface or through the material. After 3 months alone, he announced the junction transistor, which proved the charges flow through the semiconductor. Shockley used the PN junction idea to design a new transistor.

Shockley wanted his own patent, with the new product called 'a bipolar transistor'. At Bell Labs, Gordon Teal and Morgan Sparks developed the grown junction, and made an announcement in July 1951 that this could be mass produced and was much more reliable. Bell Labs licensed transistor production in 1952, at \$25,000, and in 1956 Shockley, Bardeen, Brattain were awarded the Nobel prize in Physics 'for their researches on semiconductors and their discovery of the transistor effect.' Refinements to production took years - valves were still cheaper until the 1960's. By all accounts, Shockley was a difficult person to work with, and alienated his two co-workers in particular. In 1956 Shockley moved from New Jersey to Mountain View, California to start Shockley Semiconductor Laboratory to live closer to his ailing and elderly mother in rural Palo Alto, California. The company, a division of Beckman Instruments, Inc., was



the first establishment working on silicon semiconductor devices in what came to be known as Silicon Valley.

There were 8 colleagues who couldn't work with Shockley, and they moved to Fairchild Camera and Instrument, better known as Fairchild Semiconductor. Later, engineers moved on from Fairchild, founding Silicon Valley and they are now called the "Fairchildren". Many well known companies are connected back to Fairchild, e.g. Intel, AMD, Altera, LSI.

With transistors becoming more widely available, commercialisation began. The first transistor radio was the TR-1 in 1954 made by Regency Corp, with transistors from (now a very big name in semiconductors), Texas Instruments. Doug Webb and Richard Grimsdale built the first transistor computer, TC, at Manchester University. But germanium is limited to 0 - 70C temperature range, and has high leakage.

Silicon was much more suitable for transistors, wider band-gap, low leakage, -70 to +150C. Morris Tanenbaum created the first silicon transistor at Bell Labs in 1954. The same year Gordon Teal announced the first commercial silicon transistor, designed at Texas Instruments (T.I.). By 1960, Silicon was the preferred material. It works well with diffusion, a technique which superseded grown-junction.

Diodes, resistors, capacitors and many transistors can be put on one "chip". In 1952 G.W.Dummer of Telecoms Research Establishment (UK) proposed a solid circuit without external wires. Jack Kilby at T.I. Built a "solid block" oscillator circuit on a single germanium chip in 1958. He used wires to connect components. In 1960 Fairchild showed a silicon device using on-chip metallisation and "planar" process. Which one was really the first Integrated Circuit was subject to legal wrangles between T.I. and Fairchild for years.

In the Planar process, the silicon can be processed to form a flat or planar circuit. An oxide layer gives lower leakage and more reliability, and it is easier to put many transistors and all connections on one flat slice of silicon. Jean Hoerni at Fairchild announced the planar process in 1959. Almost all semiconductors are now made this way.

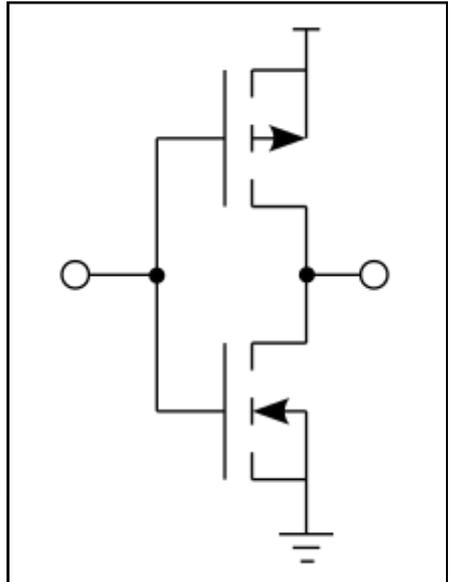
The development of MOSFET's. In 1959 at Bell Labs, John Atalla and Dawon Kahng finally made Lilienfeld's basic idea work. An electric field can control current flow, and they overcame the surface electron problem. Early devices were very slow and expensive, Bell Labs never pursued it. Fairchild picked up the idea, and combined it with the planar process to sell a much improved device, the 1st MOSFET FI-100 in 1964. Metal On Silicon Field Effect Transistor = MOSFET. 99% of transistors made today are FET's - the FET is triumphant! ➡

Logic and the Space Race.

There was a great demand in the 1960's for digital circuits in computers and military/space applications.

An inverter using a bipolar transistor had a high power consumption when 'on' and was sensitive to noise.

Many types of logic circuits appeared, e.g. DTL Diode-Transistor-Logic. TTL partly overcomes high power consumption. TTL is Transistor-transistor logic and is a logic family built from bipolar junction transistors. Its name signifies that transistors perform both the logic function (the first "transistor") and the amplifying function (the second "transistor"); it is the same naming convention used in resistor-transistor logic (RTL) and diode-transistor logic (DTL). Fairchild patented CMOS in 1967. The circuit shown



here is CMOS. Zero power consumption in either state. CMOS = Complementary Metal On Silicon. RCA introduced the famous CD4000 logic series in 1968. In 1971 Intel introduced the 4004. A 4-bit microprocessor with a whole central processor on one chip. The first CMOS micro was the CDP1802 in 1976 made by RCA. The Intel 8080, Zilog Z-80, Motorola 6800 quickly followed by the mid 1970's. The low cost allowed computers to reach widespread use, and transistors used in memory begin to replace magnetic storage. By the 1980's. transistors became the cornerstone of technology and society.

In the 1980's - 2000's, technology advances in satellite TV and mobile comms needed low noise transistors - GaAs FET introduced. There was invention of flash memory, which uses FETs (non volatile). Transistors were used to drive displays directly - TFT. Surface mount devices available. In the 1980s high power RF transmitters still used valves, because bipolar transistors were awkward to bias, and planar DMOS (Double diffused Metal On Silicon) FETs were too slow. There was demand from mobile comms market for 50W @1GHz transistor transmitters. Basic concept moves away from the planar process building up several layers to reduce capacitance between all external connections LDMOS = Lateral Double diffused Metal On Silicon. Now capable of 1kW at 5GHz, 2kW at 1GHz. LDMOS is extremely rugged, can handle high VSWR and is temperature stable unlike earlier bipolar power devices. Widely deployed in mobile communications infrastructure. Now SiC (Silicon Carbide) and GaN (Gallium Nitride) are taking over from Silicon.

Thanks to G3LIK for photo of Rob; text by GØFYX from Rob's slides.





CHANGE OF VENUE 2018

On Friday December 14th the club held its annual Christmas Dinner for the first time in a totally new area and location to that which has been the club's venue for many years. The new venue has a separate function room that doubles as a Skittles Alley, and would cater for the club's social venues each year. It was agreed between committee and those members present that the 2018 dinner should move to "The Crofton" in Crofton Lane, Stubbington, near Fareham, Hants, for 2018. A total of 28 guests attended who consisted of members and partners, family and friends. Sadly for the club there have been many silent keys over the years with Peter G3EMF who became known to many as F5VJE following his move across the water with his XYL Myra to start a new life in France. Peter stayed a club member and, each year whenever a social venue was organised, both Peter and Myra would make a special trip over at Christmas to join the festivity.



Christine M6UBI and Frank GOLFI.

For the past few years Myra has continued to support the Dinner and last year the Skittles Night with her daughter Wenda. Following an e-mail in November Myra asked if a Christmas venue had been booked for 2018 as she would like to attend whilst visiting her family in the UK for Christmas and New Year. Myra made the trip over in time to enable her and Wenda to join the dinner at The Crofton as it was nearer than travelling to Waterlooville. The evening was a great opportunity for Myra to catch up with some of hers and Peter's friends.

It was also nice to see some new members with their partners join the celebrations for the first time. I am sorry to the few who couldn't attend this year, which was down to a combination of venue change, distance and transport. Had myself or the committee been made aware of the difficulties we could have tried arranging a car share to help.



The evening went very well and all those who attended voted that the annual Skittles and Dinner venue should be held at this venue in 2019. With forward planning we can help those who couldn't join this year.

The Crofton allowed the club full access to the Function Room, which is located in a separate annexe to the main pub/restaurant. It has its own bar, cloakroom area, comfort facilities and allows for disabled access. The room doubles up with a portable Skittles alley on one side which is a far better idea because with the table arrangement means everything is on full view to guests during the evening. Finding a Skittle venue is very difficult now, although I understand that a portable fold up design is being considered at other locations which is good news because skittles has and always will be a good fun activity.



The function room at The Crofton was nice and warm with a pretty Christmas tree all decorated with lights etc; Guests started to arrive around 19.25hrs, ordered their drinks at the bar and by 19.55hrs everyone had arrived. Food was served at 20.00hrs; it was hot, smelt nice and was delicious. All food served here is freshly baked with real vegetables used. The three course menu had lots of options per course to choose from with traditional home cooked soup as starters, turkey for main and Christmas pudding for dessert most popular.

During the course of the evening Frank G0LFI and Christine M6UBI kindly ran two raffles. Christine did the normal Christmas raffle with lots of prizes on offer. I thank those guests who brought something along on the evening to add to the table. I and the committee thank Frank for selling tickets to members for a chance to win a Yaesu Radio which had been kindly donated by Mike Devereaux of Nevada Radio in Portsmouth so the club could include it as part of the club's Christmas raffle. Tickets were on sale for the last time on January 4th with the draw taking place at the end of the meeting where the name of the lucky ticket holder was announced (see front cover, and page 4).



Once the three course meal had finished, the evening was complimented by fresh tea and ground coffee with a hot mince pie. I thank Wenda for helping the staff to distribute the drinks to the guests.

The main draw for the annual evening's raffle commenced, and was followed by the lucky ticket number draw, this was won by Lesley Hedley, who was the YL of Chris MOKTT. I thank the club for their kind gift to me which was presented by Ken GOJWL the club Chairman.



Prior to, and before guests arrived, photos were taken with several members using cameras throughout the evening, some photos are included with this article. I sincerely hope that those who attended had a good evening and I look forward to seeing you at the next social event. Following discussions with the management and their diary, dates have now been booked. The skittles will take place on Friday 12th April from 18.45hrs, and the dinner on Thursday December 12th. Please put these dates in your diary now and pass the info on to your family, friends etc all of whom are welcome to join us.

However with the layout of the function room for a skittles hire or a larger number of guests for the dinner I do not know how many people the room is licensed to carry. I can only suggest you give me your names well in advance for one or both events to guarantee a place.

Happy New Year

Julia GOIUY
Hon. Social Secretary
HDARC



Up Coming Contests

March sees two of the biggest SSB contests in the calendar.

We start with the **ARRL DX SSB Contest** on the first full weekend of March 2nd & 3rd (the CW contest is the weekend of February 16th & 17th)

The objective of the contest is for stations from North America (USA & Canada) to work as many stations from outside North America and as many different countries as possible in a 48hr period on bands 160, 80, 40, 20, 15, and 10 metres. For stations outside USA and Canada it's to work as many stations from North America in as many States / Provinces as possible.

This is a great contest to get the chance to work some of the rarer states. When conditions were a lot better than they are now I managed to work all states in one contest, still will be possible but very difficult on lower power.

Full details can be found on www.arrl.org/arrl-dx

On the last full weekend, 30th & 31st March it's the **CQ World Wide WPX SSB Contest** (CW leg is not until 26—27 May).

The objective of this is just to work as many stations within the 48hr period as possible. More points are award for working stations in different continents. This contest brings many rare countries on air as working different callsign prefixes are awarded as multipliers and rare prefixes are an advantage. It can be beneficial for those with M6 or 2E0 as there will be less participants over the more common M0. Full details can be found at www.cqwpw/rules.htm

If anyone is interested in having a go but is unsure how it works, don't hesitate to ask me or Stuart and we can go through the rules with you. It's very straight forward for the casual participant and a great way to work countries that you may never normally hear.



MY PLUNGE INTO THE DEPTHS OF DMR

by Roger M0KWN

For over a year I had been thinking about exploring the digital radio world and finally took the plunge at this year's (2018) Kempton Park Radio Rally. ML&S was having a sale and Practical Wireless had just reviewed a very interesting DMR radio. The time was right!

There are three systems on the market, Yaesu Fusion, Icom Dstar and Digital Mobile Radio (DMR).

Unfortunately there is no compatibility whatsoever between the three formats, a very similar situation to that of the VHS v Betamax video formats in the past.

I suppose the deciding factor, besides cost, would be as to what system the nearest digital repeater to your QTH is using.

The Yaesu and Icom products are specifically made for amateur radio users, whereas until recently, DMR radios were modified business models that could only be programmed with a PC.

So looking at all the different options available I decided to purchase a DMR radio, and to utilise the Brandmeister network. At the time of my visit to the Kempton Park Radio Rally there wasn't a digital repeater serving the Portsmouth area, so that had to be taken into account. However there is one now, based in Gosport (GB7SO). Some research on the Internet provided a lot of information, especially if the DMR radio of interest had been reviewed on YouTube. In addition I had also kept some Practical Wireless DMR articles for reference.

Before doing anything else I applied for a DMR-ID number, this is the equivalent of your callsign in the digital world. The website is www.register@ham-digital.net. When applying you will need a scan of your Amateur Radio License to accompany your application. The whole process took less than 24 hours. Not having a local repeater initially, I decided to purchase my own 'hotspot' in the ML&S sale and opted for a Shark RF OpenSpot mk1. This connected directly to my router and was extremely simple to setup.



There are several advantages to having your own hotspot. For example on a repeater there may be a 'Time Out' period or other restrictions. With your own hotspot there are no limitations and with my Shark I can also work cross mode. That is, use my DMR radio to access Fusion or Dstar networks (I haven't tried this yet). With the Shark you can also work cross mode using Yaesu and Icom radios as well, but by doing this not all network features are accessible within the three systems.

I'm not sure if cross mode working is available with other manufacturers' hotspots. My choice of radio was the Ailunce HD1 GPS manufactured by Retevis. This was one of the first radios designed primarily with Amateur Radio operators in mind. From the front panel it has a direct access VHF/UHF VFO, but more importantly you can also program the radio without the need of a PC.

The terminology used with Fusion, Dstar and DMR is different, but confusingly often means the same thing. Building your own 'codeplug' sounds a bit daunting, but all that means is to program the radio, very similar to programming a vhf/uhf analog handie. 'Colour codes' are the equivalent of analogue cctss. Links to online help and explanations I'll put at the end of this article.

Repeater owner websites have programming information as do the hotspot manufacturers setup instructions. After I programmed my hotspot, it was time to get underway with my first attempt to create a codeplug. Initially I did a basic program with help from YouTube and PW articles, using direct entry with the radio keypad, which gave a logical sequence of the settings needed. Then I downloaded the manufacturers Customer Programming Software (CPS) into my laptop, then downloading the radio settings into the CPS which visually made the layout sequence much clearer. Once I got the basics working this gave me the confidence to enter a lot more Countries (talk groups) into the HD1. Many of the radio manufacturers websites contain links to download code plugs that can easily be modified for your own location.

My radio has a memory bank capable of holding 100,000 DMR contacts. By entering your personal information such as DMR ID, first name, callsign, town and country into a DMR ID database (Linked to QRZ.com) www.amateurradio.digital and downloading the .csv file into the CPS, really transforms the digital experience. Anybody in the world who



subscribes to this database and keys up their radio, their information entered into the database appears on your radio screen.

At the time I downloaded the DMR database there were 97,000 registered users worldwide, this by the way took 8 minutes to download to the radio. If your particular radio cannot hold this amount of data, then you can select individual countries or continents depending on their contact count for your radio. The latest DMR radios can now hold up to 150,000 contacts. I wonder how long it will be before that amount is exceeded?.

There is a 'code of conduct' for DMR. The important one is to always leave a 4 second space between overs. The reason is that if you are taking part in a worldwide talkgroup for example, you will have accessed many repeaters around the world. When you want to finish your session you will need to 'unlink' from your active talkgroup. You can only do this if nobody else is talking, hence the 4 second space.

So how did I do? Well, my first contact was Kris, VU3ARP from Mysore City in Southern India. FM quality audio, no QRM or QRN. Whilst DMR may not be everyone's cup of tea, it's very satisfying to be able to work the world quite literally from my armchair in the front room. For those with a restricted location or mobility, who cannot setup a station, digital radio could well be the answer.

Take a look at the following websites:

The guide to DMR in the UK. www.dmrguideuk.wordpress.com
About Phoenix DMR Core Network. www.dmr-uk.net
HDARC Group. <https://HDARC.groups.io/g/main>

Neil 2E0LNX, has kindly set up a DMR sub group on the HDARC.io website. This would be the ideal place to operate a Q&A forum for all the digital systems. A great club resource.

Have a Happy New Year 2019.

73
Roger M0KWN.



INTERMEDIATE EXAMINATIONS



As a continuation from the Dec/Jan Journal I am pleased to announce that three out of the five Intermediate candidates on the club's current course, sat the examination on Friday 16th November. Neville Horne, Bob Dick and Ian Smith (left to right in the photo above) all passed according to the indicative marks produced upon marking the papers and have since received their letters to confirm this. They now have a 2E0 call sign. Congratulations to them and the training team for all the hard work put in during training sessions. Simon and I thank Frank GOLF1 who was an additional mentor and helped with the practical tasks throughout with each candidate.

On January 18th the club is holding examinations for its remaining two Intermediate candidates, Alan Waller and Jon Platt together with two external Advanced Examination candidates. One of these has been doing the Bath Distance Learning course and the other was studying through the Worthing Club. We wish them all the best.

The HDARC is starting a fresh Foundation Course from its examination centre (Deverell Hall) on Friday 15th February from 19.00hrs. We have candidates on our current waiting list and will be using club night meetings prior in which to sign up and complete the paperwork with them. Friday 1st February 2019 is the last official opportunity prior to course start date. We realise that by the time this journal goes to print a few meetings will have lapsed so if there is any prospective candidates interested then contact me the Examinations Secretary ASAP via juliatrife@ntlworld.com so we can discuss your requirements with the assessors and arrange for you to be included on the course. Costs for course and examination are available by me upon request. The plan is to complete this and the following level (Intermediate) before the change of syllabus in the Autumn.

Julia G0IUY
Hon. Exam Sec
HDARC



Horndean & District A.R.C Information.



Club Call signs ***G4FBS (Held by MØKTT); G6RST (Held by G4WQZ)***

Club Website ***http://www.hdarc.co.uk***
(Maintained by Neil 2E0LNX)

Club Groups.io site ***Administrator is Stuart GØFYX***

Club Facebook page ***https://www.facebook.com/hdarc1975/***

Club Meetings ***Held at Deverell Hall, 84 London Rd, Purbrook,
Waterlooville, Hants. PO7 5JU, on the 1st and
3rd Friday of each month. Commencing at 1900.***

Club Nets ***All times are local and frequencies plus/minus QRM.***

Sunday ***0900 CW until about 0930 then SSB on 1950 kHz.
Net controller:- Stuart GØFYX***

***2000 FM 433.450 MHz
Net controller:- John G4WQZ***

Monday ***1930 SSB 1950kHz
Net controller:- Stuart GØFYX***

Wednesday ***1930 FM 145.375 MHz
Net controller:- John G4WQZ***

Club Membership

Joining fee £2 . Annual fee £26. Those aged 10-18 pay half this rate, and under 10's have free junior membership. For Europe and rest of the World fees please contact the Membership Secretary. All annual fees payable on November 1st. If fees not paid by the following January 31st, membership is ended.

Club Awards

Full details from Stuart GØFYX (details on committee page).

News of club members

Congratulations to Jon (ex M6XUE, then 2EØXUE) who is now MØXUE.

We thank Byron Melton and his photographer, both from the Portsmouth News, for the excellent article about the club and the hobby of amateur radio which appeared in the Weekend section of the Portsmouth News on December 29th. If you missed it you can view the on-line version at <https://www.portsmouth.co.uk/lifestyle/real-life/the-world-of-amateur-radio-is-still-thriving-in-the-waterlooville-area-1-8751834> . Thank you to all who contributed in whatever way.

Congratulations to John G4WQZ who won the Alinco DJ- MD5 handheld dual band DMR/analogue radio which was generously donated by Nevada Radio for our Christmas raffle. The winner was drawn at the club meeting on January 4th. The raffle, open only to club members, raised £160 for club funds. Thank you to all those who bought tickets, and supported the club. You can find out about Nevada Radio at <https://www.nevadaradio.co.uk> .

Diary

Friday February 1st Natter night/social evening

Friday February 15th 'Sailing the Atlantic in a small boat' by Russ G4SAQ

Friday March 1st Natter night/social evening

Friday March 15th 'History of Portsmouth, part 4' - Andrew Negus

This 'n' that

With effect from Version 21, 1 January 2019, Super Duper (SD) (the well-known contest logging program) by EI5DI is free and unrestricted. No registration or key file is required. SD will continue to be supported and updated, and users can request help by emailing sd-user (at) contesting.com. Go to www.ei5di.com to download the program. Several club members run this program during contests so please ask if you need any help.

The closing date for the current session of the Mike Matthews Award is January 31st. You need 50 CW contacts during the period August 1st 2018 to January 31st 2019, and including at least 5 club members. A current list of members is in the files area of the HDARC Groups.io site. Entries to me, with date, time, station contacted, band and reports.

Harwell Amateur Radio Society are holding a Radio and Electronics Rally at Didcot Leisure Centre, Mereland Road, Didcot, OX11 8AY from 10.00am-3.00pm on Sunday February 10th. Details at <https://www.g3pia.net> .





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Both the FLEX-6600™ and FLEX-6600M™ offer the ultimate performance SDR technology and the best value for the serious HF/6m operator. The FLEX-6600 model is designed for the Ham who wants to operate the radio exclusively as a server from PC, laptop, Maestro, Mac, or iOS clients

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Top of the range for those who want absolute performance and versatility.

- 100W 1.8 - 54MHz
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- Spectrum Dynamic. 155dB
- Contest Pre-selectors
- Diversity Reception
- Panadaptor Zoom

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As above but without the Maestro front panel. Control from your PC, Flex Maestro, Laptop, iPad or iPhone

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Both the FLEX-6400™ and FLEX-6400M™ offer the latest direct sampling SDR technology at an economical price for the general HF/6m operator yet they offer excellent performance for chasing DX and contesting. The FLEX-6400 model is designed for the Ham who wants to operate the radio exclusively as a server from PC, laptop, Maestro, Mac, or iOS clients — whether local or remote. Both models share the same game changing band awareness, industry leading phase noise performance, brick wall filters, and legendary audio performance to deliver you the most fun across a wide variety of operating styles.



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- 2 Receivers 30kHz - 54MHz
- Spectrum Dynamic. 144dB
- Contest Pre-selectors

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www.nevadaradio.co.uk

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