NEWSLETTER

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C.D.A.R.S.

June 2024

CHESHAM & DISTRICT AMATEUR RADIO SOCIETY MONTHLY NEWSLETTER

Numbers Stations: The Worlwide Spy Network.

We meet the 2nd Wednesday each month at The Golden Eagle Pub in Ashley Green and every 4th Wednesday each month at the Ashley Green Memorial Hall, Ashley Green, HP5 3PP

Mills on the Air

145 Alive and Brill Windmill Weekend Reports

For Sale and Wanted

Still lots of ex-club goodies up for grabs.

Want to write something for the newsletter? Then you can contact me on cdarsnews@gmail.com

Can't find that elusive part or have anything for sale? Why not drop me an email and put it in 'For sale and wanted'.

Morse links

If you're interested in Morse code, here are a few useful links:

FISTS CW Club

Promoting Morse Code for 36 years 1987-2023

https://fists.co.uk

Wikihow

How to learn Morse Code

https://www.wikihow.com/Learn-Morse-Code

The Ham Whisperer

Morse Code Course

http://www.hamwhisperer.com/p/morse-code-course.html

LEARN MORSE CODE

LEARN MORSE CODE in one minute !

http://www.learnmorsecode.com/

Welcome to LCWO.net

Learn Morse Code (CW) Online!

https://lcwo.net/

Tools for learning Morse Code

https://www.aa9pw.com/morsecode/

Celebrating the unique art form of Morse Code

https://cwops.org/

Morse Code by Ray Burlingame-Goff (SK - 29th July 2021)

http://www.g4fon.net/

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Welcome

Roger M7RMF

We may not have had much good weather prior to the beginning of May but the sun finally surprised us with some good and bad solar activity prior to the weekend of 11th and 12th. Some fantastic photo's of the aurora caused by the solar storm were posted online and in the media in general. Something for many would be a once in a lifetime experience. However with that came the lack of HF activity, the solar storm blanking out almost the entire band. With the solar maximum getting nearer we may see more events like this over the coming months.

This month we have a good mix of items including an article about number stations. Common belief is this is the spy network for various different governments contacting their agents in all corners of the globe. Which begs a question, does the whole spying network cease during the aforementioned solar storm?

Apart form the usual regular items Peter 2E0PTH provides an insight into building a Data Interface from items from his junk box. The moral there is 'don't throw anything away, it will become handy one day'. On that note don't forget to check out the 'for sale' pages. There's still lots of ex club items up for grabs, which may come in handy one day!! Any reasonable offer accepted.

Thats all from me this month. Hope you enjoy the newsletter.

Roger M7RMF.

Chairmans Ramble


Dave (G8FMC)

I guess the main event during the last month was our annual weekend at the Brill Windmill for the 'Mills on the Air' event, over the weekend of 11 – 12 May.
There has been much work & many changes at the mill, with more visitor promotion material and considerably more visitors anticipated. Consequently this year we operated just outside the mill, rather than inside. Both stations used the special call of GB0BWM (Brill Wind Mill) as in a number of previous years.

The HF station was setup in the smallish tent/shelter borrowed from John G4CZB of the Northampton club. This was pitched on an almost flat patch of ground adjacent to the rear door of the mill. The usual OCF Dipole had its feed-point pulled up through the small hatch in the canopy of the mill & the ends supported by our telescopic poles (essentially the same as the last 2 years)

The VHF station had for the last 2 years been sited upstairs inside the mill, with the 2m/70cm vertical on a pole lashed to the stairway handrail. This year we used a pump-up mast loaned by Mark M7EFR, together with a drive-on base, that was firmly anchored down by Roger M7RMF's big red van. To help stabilise it if it got windy (it is a WIND-mill sited on a high & exposed bit of land!) we had it leaning about 1deg away from the van & used 2 x guys tied to the ends of the vans roof rails on the far side. With just a tiny bit of tension to pull the mast vertical, it proved very stable. That setup would probably have happily supported a small 2m beam in quite moderate winds?

Since it was quite warm & sunny Roger setup the VHF station on a small table by the open sliding N/S side-door. Not often we get weather conducive to al-fresco operating?

Saturday 11th May was the day after the big visible aurora. Now big aurora often wipe out most HF band activity! This VERY big aurora DID wipe-out almost all activity on the LF & HF bands, with just 2 scratchy 40m QSO's for Saturdays total! Sunday was a little better but still very poor. Details & pictures elsewhere in this newsletter.

By contrast VHF 2m FM was really busy on Saturday afternoon, as we were a designated 'Net Control' station for a 145 alive event; 1pm – 3pm local time. Roger M7RMF was 'Net-controller' on 145.550MHz (what used to be S22 back in-the-day!) I think Roger was well outside his normal comfort-zone, but did a magnificent job under not easy circumstances. The stations calling in seemed to be all operating well & were very appreciative of our 'Net Controller' doing his best to get most callers to work most other callers. After 2 hours of intense operating Roger, closed the net & sat-back exhausted, but I think quite pleased with his efforts. I think Roger has a bit more elsewhere on this, from his viewpoint.

Help from numerous members was much appreciated. It was good to get a visit by Paul & a little later to meet his wife Pamela. A chance to see some real radio in action.

Your chairman & contest coordinator has recently acquired roof-bars for my Mazda CX-30, so that I can transport modest length poles & antennas if required.
I purchased the Thule supports & fitting kits for my existing bars, previously on my BMW 320 Estate. The Mazda is slightly narrower that the BMW so that must work?
WRONG! The BMW although wider, has a significantly narrower roof. This meant that I was about 200mm short on bar length! Back to Halfords for a 2nd unexpected purchase. I do now have a complete Thule roof-bar system for a BMW 3 series if anyone wants one?

73 all, Dave K, G8FMC (Chairman and Contest Coordinator)

Contests/Operating

The UKAC's 2024

We are still in 3rd place overall, but very close behind Hereford & are still beating Hereford on 432MHz & 1296MHz bands; mainly because of additional input this year from entries from NRC & AVRS club members. Thanks & well done team.

VHF Championship 2024 (AFS section)

Well, believe it or not, CDARS & friends are still in 1st place after 3 events! The 432MHz Trophy on Sat 4th May we won; another 1,000pts!

We managed to field 8 members over all 3 clubs, 2 in the Open section & 6 of us in SF.Again weight of numbers swayed it, following up some good individual entries; The best places in SF were: Dave G4RGK 6th, Roger G3MEH in 8th & John G0ODQ in 9th out of a field of 43. A good solid representation under the CDARS Banner.

For Sun 5th May in the 10GHz contest, Dave G4RGK was the only entrant & managed 6th out of 9 in the SF section. Thanks Dave. His score was good enough to get us 506pts in the overall rating, giving a total of 2,506 against 2,136 for Hereford in 2nd place.

Over the W/E of 18-19 May we had the 144MHz May Contest, with a total of 7 entries, but with Hereford fighting back with 10 & Harwell 9. (I believe PE1EWR Frank's entry for Harwell, is excluded as not UK? So really 8 for them) We await results, but have a few good logs in the 'Claimed Scores' listings? - Results on this next month.

Yours truly staggered through quite a lot of hours in the SF section to maximise points for the AFS listing in the Championship, although I handicapped myself with just 25W. I am hoping for the Certificate for the lead station in SF using 25W max & a single antenna? I found that I managed to contact most stations that I would normally get with 250W, but it took more time & effort. (Not to mention significant messaging on KST!)

We have the 50MHz Trophy coming up on June 15-16th, so that is the next event in the VHF Championship, all entries very much appreciated, if you are available?

We have had it confirmed that (for the overall AFS listing) it is the raw score that counts.
So, if one does not mind sacrificing ones personal rating, then say 10hrs in the SF section gets our group more points than just 6hrs in the 6S.

Other Contests:

The results of the CQ WPX have been confirmed, with Phil M0N holding his 10th in-England place; very respectable with Phil's quite modest HF antenna setup. My pal Stewart G3Q (with about 3.5 acres of antenna-farm at his disposal!) also managed to hang on to the 1st in-England spot; just, with M1U less than 1% behind him.

John G4CZB (NRC) has had a bit more support in the 80m CC's recently. Thanks to those that have submitted a log to Northampton (7 of us); now 14th out of 48. The 80m CC's continue through June & July. Malcolm did the Data session on Wed 22nd at the club meeting at Ashley Green Hall. Thanks to all the members who got the antenna up & ready for Malcolm. The time slot of 8.00 – 9.30pm was convenient & still in daylight, just!

Planning has started for VHF Field-day; 6-7th July, when we plan to be at Wigginton again.

73, Dave K, G8FMC

Number Stations: The Worldwide Spy Network.

Overview

A numbers station is a short-wave radio station characterized by broadcasts of formatted numbers, which are believed to be addressed to intelligence officers operating in foreign countries. Most identified stations use speech synthesis to vocalize numbers, although digital modes such as phase-shift keying and frequency-shift keying, as well as Morse code transmissions, are not uncommon. Most stations have set time schedules, or schedule patterns; however, some appear to have no discernible pattern and broadcast at random times. Stations may have set frequencies in the high-frequency band.

Numbers stations have been reported since at least the start of World War I and continue in use today. Amongst amateur radio enthusiasts there is an interest in monitoring and classifying numbers stations, with many being given nicknames to represent their quirks or origins.

History

According to the notes of The Conet Project, which has compiled recordings of these transmissions, number stations have been reported since World War I with the numbers transmitted in Morse code. It is reported that Archduke Anton of Austria in his youth during World War I used to listen in to their transmissions, writing them down and passing them on to the Austrian military intelligence.

Numbers stations were most abundant during the Cold War era. According to an internal Cold War-era report of the Polish Ministry of the Interior, numbers stations DCF37 (3.370 MHz) and DFD21 (4.010 MHz) were transmitted from West Germany beginning in the early 1950s. Many stations from this era continue to broadcast and some long-time stations may have been taken over by different operators. The Czech Ministry of the Interior and the Swedish Security Service have both acknowledged the use of numbers stations by Czechoslovakia or espionage,with declassified documents proving the same. Few QSL responses have been received from numbers stations by shortwave listeners who sent reception reports to stations that identified themselves or to entities the listeners believed responsible for the broadcasts, which is the expected behaviour of a non-clandestine station.

One well-known numbers station was the E03 “Lincolnshire Poacher”, which is thought to have been run by the British Secret Intelligence Service. It was first broadcast from Bletchley Park in the mid-1970s but later was broadcast from RAF Akrotiri in Cyprus. It ceased broadcasting in 2008.
In 2001, the United States tried the Cuban Five on the charge of spying for Cuba. The group had received and decoded messages that had been broadcast from the “Atención” number station in Cuba.

Atención spy case

The “Atención” station of Cuba became the world’s first numbers station to be officially and publicly accused of transmitting to spies. It was the centerpiece of a United States federal court espionage trial, following the arrest of the Wasp Network of Cuban spies in 1998. The U.S. prosecutors claimed the accused were writing down number codes received from Atención, using Sony hand-held short-wave receivers, and typing the numbers into laptop computers to decode spying instructions. The FBI testified that they had entered a spy’s apartment in 1995, and copied the computer decryption program for the Atención numbers code. They used it to decode Atención spy messages, which the prosecutors unveiled in court. The United States government’s evidence included the following three examples of decoded Atención messages:

“prioritize and continue to strengthen friendship with Joe and Dennis”

“Under no circumstances should [agents] German nor Castor fly with BTTR or another organization on days 24, 25, 26 and 27.” (BTTR is the anti-Castro airborne group Brothers to the Rescue)

“Congratulate all the female comrades for International Day of the Woman.”

The moderator of an e-mail list for global numbers station hobbyists claimed that “Someone on the Spooks list had already cracked the code for a repeated transmission [from Havana to Miami] if it was received garbled.” Such code-breaking may be possible if a one-time pad decoding key is used more than once.[19] If used properly, however, the code cannot be broken.

Recent cases

In 2001, Ana Belén Montes, a senior US Defense Intelligence Agency analyst, was arrested and charged with espionage. The federal prosecutors alleged that Montes was able to communicate with the Cuban Intelligence Directorate through encoded messages, with instructions being received through “encrypted short-wave transmissions from Cuba”.

In 2006, Carlos Alvarez and his wife, Elsa, were arrested and charged with espionage. The U.S. District Court for the Southern District of Florida[stated that “defendants would receive assignments via short-wave radio transmissions”.

In June 2009, the United States similarly charged Walter Kendall Myers with conspiracy to spy for Cuba, and receiving and decoding messages broadcast from a numbers station operated by the Cuban Intelligence Directorate to further that conspiracy.

As discovered by the FBI up to 2010, one way that Russian agents of the Illegals Program were receiving instructions was via coded messages on short-wave radio. It has been reported that the United States has used number stations to communicate encoded information to persons in other countries. There are also claims that State Department-operated stations, such as KKN50 and KKN44, used to broadcast similar “numbers” messages or related traffic, although these radio stations have been off the air for many years.

North Korea revived number broadcasts in July 2016 after a hiatus of sixteen years, a move which some analysts speculated was psychological war; sixteen such broadcasts occurred in 2017, including unusually timed transmissions in April.

Suspected use for espionage

It has long been speculated, and was argued in one court case, that these stations operate as a simple and fool-proof method for government agencies to communicate with spies working undercover. According to this hypothesis, the messages must have been encrypted with a one-time pad to avoid any risk of decryption by the enemy. Writing in 2008, Wallace & Melton described how numbers stations could be used in this way for espionage:

The one-way voice link (OWVL) described a covert communications system that transmitted messages to an agent’s unmodified short-wave radio using the high-frequency short-wave bands between 3 and 30 MHz at a predetermined time, date, and frequency contained in their communications plan.

The transmissions were contained in a series of repeated random number sequences and could only be deciphered using the agent’s one-time pad. If proper trade-craft was practised and instructions were precisely followed, an OWVL transmission was considered unbreakable. As long as the agent’s cover could justify possessing a short-wave radio and he was not under technical surveillance, high-frequency OWVL was a secure and preferred system for the CIA during the Cold War. Evidence to support this theory includes the fact that numbers stations have changed details of their broadcasts or produced special, non-scheduled broadcasts coincident with extraordinary political events, such as the attempted coup of August 1991 in the Soviet Union.

A 1998 article in The Daily Telegraph quoted a spokesperson for the Department of Trade and Industry (the government department that, at that time, regulated radio broadcasting in the United Kingdom) as saying “These [numbers stations] are what you suppose they are. People shouldn’t be mystified by them. They are not for, shall we say, public consumption.”

Formats

Generally, numbers stations follow a basic format, although there are many differences in details between stations. Transmissions usually begin on the hour or half-hour. The prelude, introduction, or call-up of a transmission (from which stations' informal nicknames are often derived) includes some kind of identifier, for the station itself, the intended recipient, or both. This can take the form of numeric or radio-alphabet "code names" (e.g. "Charlie India Oscar", "250 250 250", "Six-Niner-Zero-Oblique-Five-Four"), characteristic phrases (e.g. "¡Atención!", "Achtung!", "Ready? Ready?", "1234567890"), and sometimes musical or electronic sounds (e.g. "The Lincolnshire Poacher", "Magnetic Fields").

Sometimes, as in the case of radio-alphabet stations, the prelude can also signify the nature or priority of the message to follow (e.g., it may indicate that no message follows). Often the prelude repeats for a period before the body of the message begins.

After the prelude, there is usually an announcement of the number of number-groups in the message,the page to be used from the one-time pad, or other pertinent information. The groups are then recited. Groups are usually either four or five digits or radio-alphabet letters. The groups are typically repeated, either by reading each group twice or by repeating the entire message as a whole. Some stations send more than one message during a transmission. In this case, some or all of the above process is repeated, with different contents.

Finally, after all the messages have been sent, the station will sign off in some characteristic fashion. Usually, it will simply be some form of the word "end" in whatever language the station uses (e.g., "End of message; End of transmission", "Ende", "Fini", "Final", "?????"). Some stations, especially those thought to originate from the former Soviet Union, end with a series of zeros, e.g., "00000" "000 000"; others end with music or other sounds.

Because of the secretive nature of the messages, the cryptographic function employed by particular stations is not publicly known, except in one (or possibly two cases). It is assumed that most stations use a one-time pad that would make the contents of these number groups indistinguishable from randomly generated numbers or digits. In one confirmed case, West Germany did use a one-time pad for numbers transmissions.

Transmission technology

High-frequency radio signals transmitted at relatively low power can travel around the world under ideal propagation conditions – which are affected by local RF noise levels, weather, season, and sunspots – and can then be best received with a properly tuned antenna (of adequate, possibly conspicuous size) and a good receiver.

Although few numbers stations have been tracked down by location, the technology used to transmit the numbers has historically been clear—stock short-wave transmitters using powers from 10 kW to 100 kW. Amplitude modulated (AM) transmitters with optionally–variable frequency, using class-C power output stages with plate modulation, are the workhorses of international shortwave broadcasting, including numbers stations.

Application of spectrum analysis to numbers station signals has revealed the presence of data bursts, radioteletype-modulated subcarriers, phase-shifted carriers, and other unusual transmitter modulations like polytones. RTTY-modulated sub-carriers were also present on some U.S. commercial radio transmissions during the Cold War.

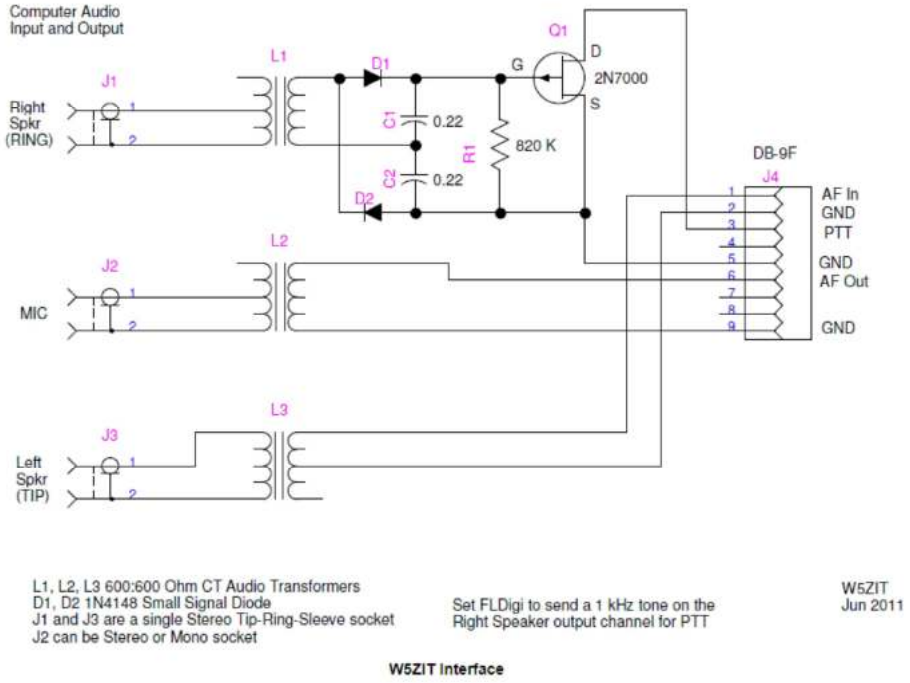
The frequently reported use of high-tech modulations like data bursts, in combination or in sequence with spoken numbers, suggests varying transmissions for differing intelligence operations.

Source: Wikipedia

Data Interface.

Note: This article is not a How-To-Build an interface but more of how my version evolved.

A few months ago I decided to build a data interface so I could try some of the machine generated modes. My starting point was the circuit at the end of the fldigi user manual, the circuit diagram is shown below.



W5ZIT Interface

The circuit implements a VOX operated PTT using the right audio channel from the PC.

The only additions or changes I made were:

*Add two level controls, the first between the Mic input and the isolation transformer and the second control between the PC (left) output and the isolation transformer. I find twiddling a knob easier than adjusting an on screen slider.

*Change the DB-9F connector to a round multi-pin connector

*Include a USB sound card.

USB Soundcard

The sound card was one I bought for use with a Raspberry PI. The problem I had with it was the two 3.5mm connectors were too close together for most 3.5mm plugs.

I removed the plastic case, cut off the USB lead and then soldered the sound card directly onto my PCB.

The circuit was easy to build and worked first time. I fairly quickly abandoned the fldigi software as it seemed to have numerous bugs when running on a Windows laptop.This meant I needed to change the PTT circuit as most other programs don't support right channel PTT.

The Mk II version uses a USB to Serial adaptor with the PTT being driven by the RTS signal. I included a USB Hub so the serial adaptor and sound card are connected to the PC by a single USB cable. This design is nothing new, I remember reading an article in either Practical Wireless or RadCom about a similar interface.

The completed PCB in it's enclosure.

Setup complete with Yaesu FT-817, Interface and Laptop.

Peter 2E0PTH

All photo's courtesy and copyright of Peter Holliday, 2E0PTH.

145 Alive Activity Event.

As you may know CDARS was offered a 'Net Contol' station for this event during the Mills on the Air weekend at Brill Windmill which ran for two hours, 1pm - 3pm local time, on Saturday 11th May. We ran the station under GB0BWM (Brill Widmill) callsign.

The 145 Alive Activity Event was originally setup to increase the activity on the 2m FM Simplex band. Apart from the monthly RSGB FMAC contest it is generally under used. Also at it's inception there were "mutterings" of commercial interest which could lead to losing part of the band. Hence 145 Alive was borne.

145 ALIVE ACTIVITY EVENT GROUP

So how does it all work?

There are a number of 'Net Control' stations setup around the country all on different frequencies, there are some duplications but they are far enough away not to be heard by other stations on the same frequency. Our allocation was 145.550 MHz The net controller calls for stations to join the net and then runs it along the lines of a conventional net with a slight difference. Normally nets are run in a round robin type of scenario where each station passes to the next station in turn. Here the idea is to get as many stations to contact as many other stations in no particular order. Something now having been involved with is a lot harder than it sounds.

How did we do?

Over the two hours we managed 21 confirmed stations call in, however some of those stations were relayed to us, as we couldn't hear them, by other stations in the group. Mike M0KZO/M and Ricky M0YDR/P helped in this respect immensley. Initially it was relatively easy to pass everyone around. As time went on it became increasingly difficult as stations QSY'd to contact other stations from other 'nets'.

The 2m 145 Alive Station at Brill Windmill. Photo courtesy of Guy M0GUY.

As mentioned above all net control stations on the same frequency should be far enough away not to be heard by other net stations. However we did suffer at times from conflicting signals from 2E1WND who was running a net centred around Devils Dyke, North West of Brighton who was also transmitting on 145.550MHz. While at times it was uncertain who was calling/responding to who it didn't detract too much. Whether this was an effect of the solar storm that was prevelent at the time we will probably never know for certain.

At the end of the two hours and having never been 'net controller' before I can honestly say I was exhausted. Would I do it again? Yes, absolutely. However I did learn a few things that should make it easier next time. Breaking the stations into groups of 4 or 5 rather than trying to get everyone to talk to everyone would be easier. Also making sure all the signal reports and locations are in the log from the outset. Trying to remember afterwards is difficult as my memory is not great at the best of times. I did do a paper log as this way i could see all the stations at a glance rather than scrolling on a pc/laptop.

So there we have it. An enjoyable exhausting 2 hours that everyone who called in appeared to enjoy also. And if nothing else has put CDARS/ Brill Windmill firmly on the map.

(Below: A few photo's from the weekend as a whole. Photo's courtesy of Malcolm G3ZNU)

Roger M7RMF

Bob G8MFH & Roger M7RMF manning the VHF Station.

Matt M1DTG finding the going hard at the HF Station.

Brill Windmill in all it's glory.

The VHF Station next to the Windmill

Contest Corner

June - HF

Day	Date (2024)	Time (UTC)	Contest Name
Sat-Sun	01-02 Jun	1500-1500	NFD
Mon	10 Jun	1900-2030	80m CC DATA
Mon	17 Jun	1900-2030	RSGB FT4 Contest
Wed	19 Jun	1900-2030	80m CC CW
Thu	27 Jun	1900-2030	80m CC SSB

June - VHF

Day	Date (2024)	Time (UTC)	Contest Name
Tue	04 Jun	1800-1855	144MHz FMAC
Tue	04 Jun	1900-2130	144MHz UKAC
Wed	05 Jun	1700-2100	144MHz FT8 AC (4 hours)
Wed	05 Jun	1900-2100	144MHz FT8 AC (2 hours)
Sun	09 Jun	900-1300	2nd 144MHz Backpackers
Tue	11 Jun	1800-1855	432MHz FMAC
Tue	11 Jun	1900-2130	432MHz UKAC
Wed	12 Jun	1700-2100	432MHz FT8 AC (4 hours)
Wed	12 Jun	1900-2100	432MHz FT8 AC (2 hours)
Thu	13 Jun	1900-2130	50MHz UKAC
Sat-Sun	15-16 Jun	1400-1400	50MHz Trophy Contest
Tue	18 Jun	1900-2130	1.3GHz UKAC
Thu	20 Jun	1900-2130	70MHz UKAC
Sun	23 Jun	900-1200	50MHz Contest CW
Tue	25 Jun	1830-2130	SHF UKAC

July - HF

Day	Date (2024)	Time (UTC)	Contest Name
Mon	01 Jul	1900-2030	80m CC CW
Wed	10 Jul	1900-2030	80m CC SSB
Sat-Sun	13-14 Jul	1200-1200	GR2HQ Challenge
Mon	15 Jul	1900-2030	RSGB FT4 Contest
Sun	21 Jul	900-1600	International Low Power Contest
Thu	25 Jul	1900-2030	80m CC DATA
Sat-Sun	27-28 Jul	1200-1200	IOTA Contest

July - VHF

Day	Date (2024)	Time (UTC)	Contest Name
Tue	02 Jul	1800-1855	144MHz FMAC
Tue	02 Jul	1900-2130	144MHz UKAC
Wed	03 Jul	1700-2100	144MHz FT8 AC (4 hours)
Wed	03 Jul	1900-2100	144MHz FT8 AC (2 hours)
Sat-Sun	06-07 Jul	1400-1400	VHF NFD
Sun	07 Jul	1100-1500	3rd 144MHz Backpackers
Tue	09 Jul	1800-1855	432MHz FMAC
Tue	09 Jul	1900-2130	432MHz UKAC
Wed	10 Jul	1700-2100	432MHz FT8 AC (4 hours)
Wed	10 Jul	1900-2100	432MHz FT8 AC (2 hours)
Thu	11 Jul	1900-2130	50MHz UKAC
Tue	16 Jul	1900-2130	1.3GHz UKAC
Thu	18 Jul	1900-2130	70MHz UKAC
Sat	20 Jul	1400-2000	70MHz Trophy Contest
Tue	23 Jul	1830-2130	SHF UKAC

2024 Club (Team) Contests

Note: Contests in Bold are Sat or Sat-Sun Contests

Date	Time UTC	Contest Name	Sections	Ch'ship
9 June	**900-1300**	**2nd 144MHz**	**Backpackers 5B, 25H**	**Solo**
10 Jun	1900-2030	80m CC Data	100W-A, 10W-A, 100W-U, 10W-U	NRC
15-16 Jun	**1400-1400**	**50MHz Trophy**	**O, 6O, SF, SO & 6S (6hr option)**	**CDARS**
19 Jun	1900-2030	80m CC CW	100W-A, 10W-A, 100W-U, 10W-U	NRC
23 Jun	**900-1200**	**50MHz CW**	**AO, AR & AL**	
27 Jun	1900-2030	80m CC SSB	100W, 10W	NRC
1 Jul	1900-2030	80m CC CW	100W-A, 10W-A, 100W-U, 10W-U	NRC
6-7 Jul	**1400-1400**	**VHF NFD**	**O, R, L, M, MS, FSO & FSR**	
7 Jul	**1100-1500**	**3rd 144MHz**	**Backpackers 5B, 25H**	**Solo**

For sale and wanted

If anyone has anything for sale, or looking for that elusive item, then this is the place to post.
Photo's and descriptions will help, email me at **cdarsnews@gmail.com**

Listed below are items that the club no longer has a use for. If you are interested in any item then please email Malcolm G3ZNU, malcolm@luthien.co.uk, to arrange collection.

			Notes	eBay range	Member Price
Rigs	Icom IC-48E transceiver	70cm FM	Less mic	None listed	£20.00
Antenna accessories	Heathkit SWR meter	HF			£10.00
	S.E.M. QRM eliminator			Radioworld £60	£20.00
Test equipment	Haoxin HC-F2700L multifunction counter	Upto 2.7GHz		Similar £90	Offers
	Amtron UK552 counter	? Up to 600MHz?		None listed	Offers
	Hantek 1008C 8 channel oscilloscope	For interfaceing to PC			
Ex-G3XZG	Sommerkamp FT690	6m all mode	No pictures	One on at £100	£40.00
	BNOS 6m linear nominal 100w	For use with FT690	No pictures		£20.00

<<<< Icom IC-48E>>>>

<<<< Heathkit SWR Meter >>>>

<<S.E.M QRM Eliminator>>

<<<< Haoxin HC-F2700 >>>>
Multifunction Counter

<<<< Amtron UK552 >>>>
Counter

<<<< Hantec 1008C
8 Channel Oscilloscope

Antennas (All below open to offers)

144MHz Ringo Ranger - *Good Condition*
4m whip, PL259 termination - *Needs Mag Mount*
Mirfield Electronics ME270 2m/70cm colinear - *1.2m long*
? 4 ele 4m beam, with boom strengthener
HF doublet with ladder line feeder - *Needs ATU*
? 9 ele 2m Tonna beam - *Missing one element* **Claimed**
Diamond W735 80m / 40m loaded dipole - *As New*
G5RV with ladder line
Scanner / handie mag mounts, selection - *Dubious Quality*

Dates For Your Diary

Listed below are dates of RSGB, UK and International contests for 2024.

ARRL Digital DX Contest - 1st/2nd June 2024

Practical Wireless QRP Contest - 9th June 2024

UK Six Metre Group Summer Contest - 1st/2nd June 2024.

IARU Region 1 Field Day, CW, June 1st, June 2nd 2024

RSGB 80m Club Championship, Data, June 10th 2024

IARU Region 1 50 MHz Contest 1400Z, June 15th/16th 2024

WAB (Work All Britain) 50 MHz Phone, June 16th 2024

RSGB FT4 Contest, June 17th 2024

VHF-UHF FT8 Activity Contest (Europe), June 19th 2024

RSGB 80m Club Championship, CW, June 19th 2024

RSGB 80m Club Championship, SSB, June 27th 2024

VHF NFD - 6th/7th July 2024. (CDARS at Wiggington tbc)

Islands on the Air -IOTA Management & RSGB - 27th/28th July 2024.

SSB NFD - 7th/8th September (CDARS at Wiggington tbc).

CQWW RTTY Contest - 26th/29th September 2024

Railways on the Air - Organised by Bishop Auckland RAC - 28th/29th September 2024.

CQWW DX SSB Contest - 26th/27th October 2024.

CQWW DX CW Contest - 23/th24th November 2024.

ARRL 10m DX Contest - 14th/15th December 2024

Please double check dates, start/end times etc in good time prior to the event.

Radio Rally Dates.

Full details of the events are available at: g4gra.org.uk/All.

June 2024

9th - Mendips Rally, Somerset.

9th - Junction 28 Radio Rally, Alfreton, Derbys.

15th - Rochdale & DARS Summer Rally

16th - East Suffolk Wireless Revival / Ipswich Radio Rally

23rd - Newbury 35th Radio Rally.

30th - Dunstable Downs Radio Club Bootsale.

July 2024

6th - Burton on Trent ARC Mini Rally & Barbecue [Saturday]

7th - Barford Norfolk Radio Rally, Barford, Norfolk.

14th - Lincoln Short Wave Club Summer Rally, Market Rasen.

14th - McMichael Radio Rally, Reading.

14th - Cambridge Repeater Group Rally, Foxton, Cambs.

21st - Finningly ARS Rally, Doncaster

28th - Wiltshire Radio Summer Rally, Kingston Langley.

August 2024

4th - Kings Lynn ARC 34th Great Eastern Rally

11th - Flight Refuelling ARS Hamfest, Wimborne, Dorset

25th - Torbay Annual Comms Fair, Newton Abbot, Devon

25th - Milton Keynes Radio Rally, Loughton Lodge, Milton Keynes

26th - Huntingdon ARS Annual Rally, St Neots, Cambs.

(All information courtesy of g4gra.org.uk)