

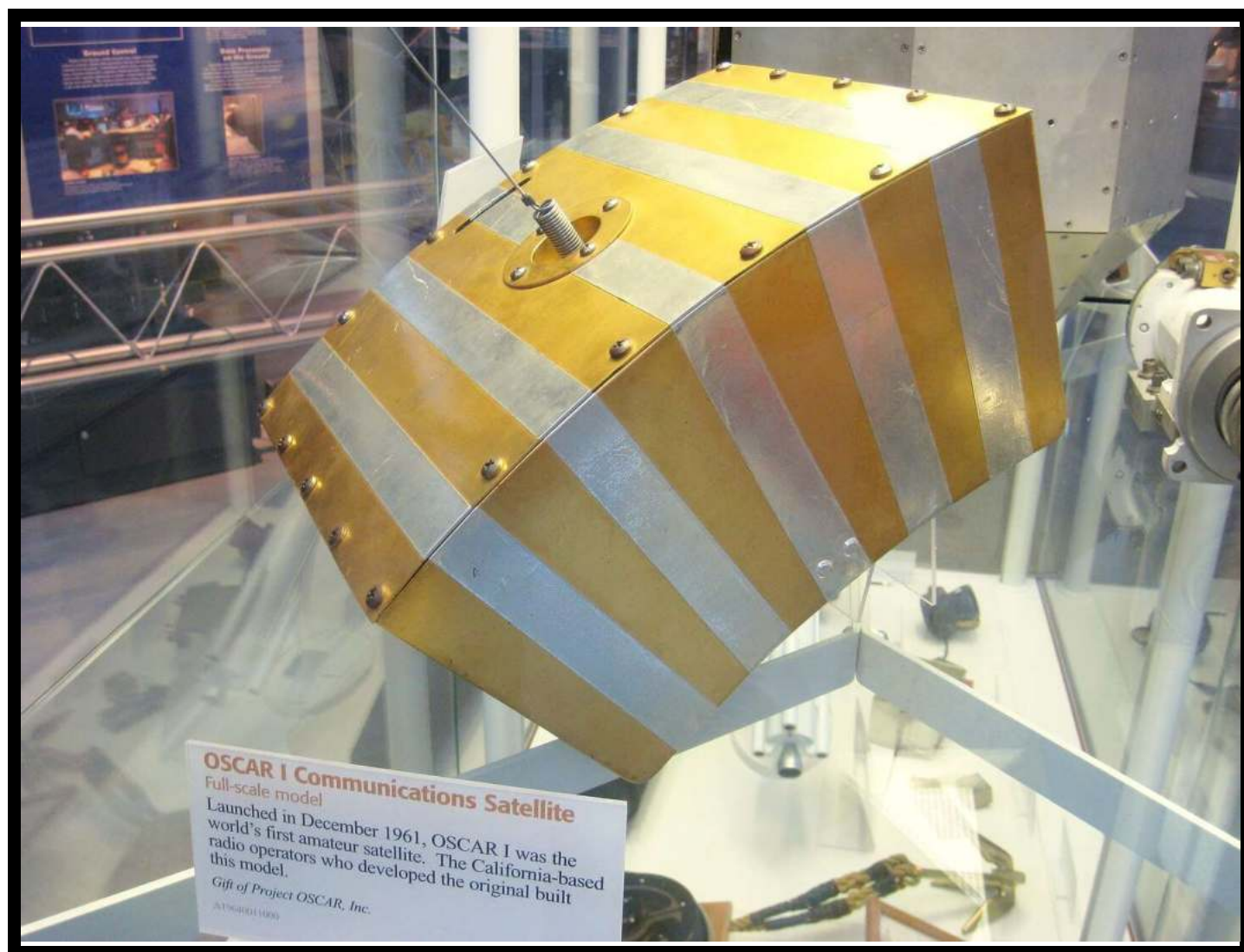
C.D.A.R.S.

May 2025

CESHAM & DISTRICT AMATEUR RADIO SOCIETY MONTHLY NEWSLETTER

Amateur Radio Satellites.

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



Practical

**Brush Up On Your
Knots**

Regulars

***Dates For Your Diary
*Radio Rally Dates
*Contest Results**

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'.

Learn About.....

What are you interested in? Here are a few useful links:



FISTS CW Club

Promoting Morse Code for 36 years 1987-2023

<https://fists.co.uk>

VK3TBS

Learn About VARAC

<https://vk3tbs.home.blog/2024/03/06/vara-varac/>

Essex Ham

FT-8 Basics

<https://www.essexham.co.uk/ft8-basics-explained>

Essex Ham

What is PSK31? The Basics.

<https://www.essexham.co.uk/psk31-the-basics>

Welcome to LCWO.net

Learn Morse Code (CW) Online!

<https://lcwo.net/>

Electronic Notes

What is RTTY? The Basics.

https://www.electronics-notes.com/articles/ham_radio/digimode/s/what-is-rtty-radio-teletype.php



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/>

Contents

May 2025

Regulars		Contesting	
Welcome	4	Contest Round Up	7
Chairmans Ramble	5	Contest Dates	11
Dates For Your Diary	12		
Radio Rallies	13		
For Sale & Wanted	14		
Features		Other	
Amateur Radio Satellite	9	NEW! Learn About	2
Practical			
Brush Your Knot Tying	10		

Cover Photo: *Source Wikipedia, Courtesy Daderot - Own Work*

All text and photo's contained in this newsletter are copyright of their respective owners and protected under copyright laws.

Chairman	- Dave Keston (G8FMC)	Secretary	- Malcolm Appleby (G3ZNU)	Treasurer	- Matt Whitchurch (M1DTG)
	- Guy Plunkett (M0GUY)		- John Hall (G0ODQ)		- Peter Holliday (2E0PTH)
	- Roger Fellows (2E0TGU)				

All the above are members of the committee and can be contacted on cdars-committee@googlegroups.com

Newsletter Editor - Roger Fellows (2E0TGU) newsletter submissions to: cdarsnews@gmail.com

Welcome

Welcome to the May 2025 edition of the CDARS newsletter. The feature this month is about amateur radio satellites. The cover photo shows the very first amateur radio satellite, OSCAR 1. We have tried contacting via a satellite at a couple of past club meetings at the hall but does anyone have any experience / successes from their QTH or elsewhere. If so, we would love to hear about them, however successful or not.

Also in this issue there's a short item following on from the last club meeting regarding knots. The knots that were discussed and demonstrated were the bowline, the half hitch and figure 8 stop knot. You can brush up on your knot tying skills with a little help on page 10.

That's all from me this month but do please send some articles in so that we can keep these pages of interest.

Roger 2E0TGU.



Roger 2E0TGU

DID YOU KNOW?....

.....the Oscar 1 Amateur Radio Satellite was launched barely 4 Years after the launch of the Sputnik 1.

Chairmans Ramble

More on the G8FMC EFHW (End Fed Half Wave):

Last month I reported on my newly installed 135ft EFHW for 80m & up, that replaced my 40m/80m Fan Dipole. Initial results suggested that it was working quite well, with performance as well or slightly better than expected; although probably a bit worse than the Dipole's? I have had more time to make further assessments and can now report general satisfaction overall, from what is inherently a compromise antenna.

The most significant improvement is in the mechanical arrangement & the smoothness of raising & lowering. I guess I will never know how satisfactory that aspect would have been with just swapping the (worn) nylon bush for a glazed ceramic insulator as my pulley?



Dave G8FMC

As reported last month my tests on 40m with John G4KXP in Droitwich suggested the 40m performance was almost identical to the Fan Dipole. I subsequently did some more tests with John on 80m. Precise comparisons are almost impossible without a big plot or antenna range, with the ability to have both systems up at the same time & be able to perform A – B switching. A luxury very few can achieve. However I am luckier than some in having an alternative antenna for 80m & 40m. This is very loosely based on the G7FEK antenna (Google it) My version is a vertical for 40m, sharing a feed with an inverted L on 80m, with a just about passable earthing system. (About 5 earthing rods arranged in a semi-circle about 350mm out from the base, with about 5 buried radials of varying lengths & directions) The earthing system is not so critical with my setup, since my elements are longer than a $\frac{1}{4}$ wave, possibly nearly a $\frac{3}{8}$ wave? This means they are inductive & a higher impedance than a $\frac{1}{4}$ wave ground mounted vertical. The inductance is tuned out with a series capacitor of high RF voltage & current rating. The resulting antenna is less critically dependant on the earthing system & has the max current point a little off the ground. Especially on 40m, it performs very well for DX. I may pen an article with more details sometime.

In my previous tests with the Fan Dipole, I performed comparisons between this 2nd antenna & the Fan Dipole on both 40m (during the day) & 80m (after dark). Friend John logged the differences when switching between the different antennas, whilst I transmitted a steady carrier on each. With the EFHW having replaced the Fan Dipole, we again performed similar tests & compared the 2nd antenna to the new EFHW. We were thus able to draw comparisons (via the 2nd antenna) between the EFHW & the old Fan Dipole.

This of course is not a precise science & on HF there are big changes in propagation characteristics, even over minutes let alone a week or more! However by using my 2nd antenna as a reference we had a good guide. Further use of the EFHW on 80m CC's & on the CQ WW WPX contest, gave me a good feel for how it was performing. I have also done more 'tinkering' & have now added some 8m or so of counterpoise, dropping down to ground level then along the ground (concrete path adjacent to the house footings!) The counterpoise seemed to improve the matching characteristics a little & maybe the performance slightly?

My findings are:

- * 80m is maybe a tiny bit down on the Fan Dipole (say 1 – 2dB?)

- *40m is very comparable, but remember we now have a 'Full-wave' on 40m, which will have an influence on the Vertical radiation pattern & hence optimum skip!

- *The EFHW is usable on various higher bands, where there will be several lobes & nulls. Generally slightly worse than e.g. my 20m Delta-loop & the 40m Vertical when used on 15m.

- *The mechanical situation is a vast improvement!

- *Local RF noise pick-up on RX is no real difference to the Fan Dipole. (i.e. equally as bad)

continued.....

*With the mast in its low position the EFHW is very usable, with only slight de-tuning. Just 0.6m or so of lift & there is essentially NO de-tuning due to roof proximity! Mast is now left at +0.6m height unless severe wind is expected; result!

So in summary; The convenience & mechanical aspects are much better, with the 40m performance very comparable on short skip (I have my vertical for the 40m long skip)
The 80m performance is probably a bit down on the Dipole, but my 80m capability is anyhow probably limited by the ability of the operator?!
20m & up is not as good as a dedicated antenna for those bands, but very useable.

Note: No Ferrite-cored Transformer device is going to be loss-free, therefore an EFHW, also an OCFD (Off-centre-fed-Dipole, often known as a Windom, which generally have 4:1, or 6:1 transformers) will NEVER perform as well as a centre-fed Dipole! The question is are those losses manageable & acceptable?

About a year ago I measured a couple of 49:1 Unun's connected back-back with my Spectrum Analyser with Tracking-generator. A couple of the sweep displays are in the photo's. I may do a fuller article on those tests another time. It can be seen that the losses for a single 49:1 unit (half of the measured loss for a pair) are about 1 – 2dB, with greater losses towards the extremities of the frequency range? Any additional miss-match is likely to make these figures worse.

This is consistent with my tests & the 'gut-feel' of using the EFHW on-air.
In many cases this loss may be considered as acceptable, given the convenience & versatility an EFHW can provide? (It is for me, where my VHF/UHF capability is my main interest)
A similar case can be argued with regard to the OCFD, although the inherent 'unbalanced' nature of that can be an issue on stray radiation causing EMC issues & increased noise on RX? A lot depends with the OCFD on the quality of both the RF Transformer & the choke Balun for the down-lead, which is usually combined into a single unit. (A number of suppliers of Windom/OCFD provide a very marginal balun/transformer unit which is likely to not perform either matching or balance job adequately!)

The other possible antenna I considered, was a return to an 'Open-wire Doublet' of about 105ft. This potentially could be slightly more efficient (i.e. less loss) than the EFHW, but would probably need a remote ATU? (which would not be loss-free either!) Since I regularly run up to 500W on HF, a remote Auto ATU of e.g. 1KW rating is very expensive! Home-brew (manually band-switched) alternatives are a possibility, but are a significant project! I have other projects pending, so that option is way down the priority list at the moment.

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



Contests/Operating

The UKAC progress for 2025: (under the NRS banner)

We continue to out-number & hence (as a group) out-perform Hereford in the UKAC's. With the almost unbeatable Parallel Lines group having migrated to the 'General Club' category, that leaves us, under the Northampton banner, very comfortably in the lead of the 'Local Clubs' this year.

Awaiting several results; however the latest overall results now stand at:

NRC & Friends = 5265pts (Normalised 1000pts on all bands except SHF)

Hereford = 3563pts

Spalding = 2563pts

80m CC's: (also under the NRS banner)

This has been led by John G4CZB as usual. This year John has been giving the NRS club call of G8N an airing. (Getting some 'Qualification points' in advance of the next renewal) On CW it is really just John & Malcolm, with Steve G5IIA sometimes. On Data we have also had G8FMC & G7LII making a contribution. On SSB a few others sometimes join the fray; G1MZD, G0SKA, oh & Phil MW0N (M0NVS) recently made an excellent contribution from a holiday farm in N. Wales! The overall listing has thus climbed a bit with NRC in 11th out of 44 to date. A bit better than recent years.

VHF Championship: (under the CDARS banner)

Nothing new to report, but the next sessions are on 3rd & 4th May, where we hope to field a few entrants. Probably unlikely to win this year, but we should be quite well placed?

General/others:

I gave the CDARS club call of G3MDG an airing for a dabble on CQWW WPX (all HF bands) & also a token session on 40m for the SP DX contest. New EFHW & other antennas used. I was just hunting for WPX multipliers & ignoring numbers in the CQWW. My modest effort did therefore result in a high points/QSO. I made 157 QSO's in 136 unique band/WPX locations resulting in 38,760 points. I was happy with that & enjoyed myself. This score might seem quite good to a beginner, but the lead multi-op stations were on over 5,000 QSO's & points scores will be in the millions! G3MDG will get listed in the latest 'lists' on N1MM+ etc, so good to give the club callsign some exposure.

73, Dave K, G8FMC

Amateur Radio Satellites

An amateur radio satellite is an artificial satellite built and used by amateur radio operators. It forms part of the Amateur-satellite service. These satellites use amateur radio frequency allocations to facilitate communication between amateur radio stations.

Many amateur satellites receive an OSCAR designation, which is an acronym for Orbiting Satellite Carrying Amateur Radio. The designation is assigned by AMSAT, an organization which promotes the development and launch of amateur radio satellites. Because of the prevalence of this designation, amateur radio satellites are often referred to as OSCARs.

These satellites can be used free of charge by licensed amateur radio operators for voice (FM, SSB) and data (AX.25, packet radio, APRS) communications. Currently, over 18 fully operational amateur radio satellites are in orbit. They may be designed to act as repeaters, as linear transponders, and as store and forward digital relays.

Amateur radio satellites have helped advance the science of satellite communications. Contributions include the launch of the first satellite voice transponder (OSCAR 3) and the development of highly advanced digital "store-and-forward" messaging transponder techniques.

The Amateur Radio Satellite community is very active in building satellites and in finding launch opportunities. Lists of functioning satellites need updating regularly, as new satellites are launched and older ones fail. Current information is published by AMSAT. AMSAT has not been actively involved in the launch and operation of most amateur satellites in the last two decades beyond allocating an OSCAR number.

History

OSCAR 1

The first amateur satellite, simply named OSCAR 1, was launched on December 12, 1961, barely four years after the launch of the world's first satellite, Sputnik I. The satellite had to be built in a very specific shape and weight, so it could be used in place of one of the launch vehicle ballast weights. OSCAR 1 was the first satellite to be ejected as a secondary payload (the primary payload was Discoverer 36) and to subsequently enter a separate orbit. It carried no on-board propulsion and its orbit decayed quickly. Despite orbiting for only 22 days, OSCAR 1 was an immediate success and led to follow-on missions. Over 570 amateur radio operators in 28 countries forwarded observations to Project OSCAR.

OSCAR 10

Most of the components for OSCAR 10 were "off the shelf". Jan King led the project. Solar cells were bought in batches of 10 or 20 from Radio Shack, and tested for efficiency by group members. The most efficient cells were kept for the project; the rest were returned to RadioShack. Once ready, OSCAR 10 was mounted aboard a private plane, and flown a couple of times to evaluate its performance and reliability. Special QSL cards were issued to those who participated in the airplane-based tests. Once it was found to be operative and reliable, the satellite was shipped to Kennedy Space Center, where it was mounted in the launch vehicle's third stage. OSCAR 10's dimensions were: Height: 1.35 m (53 in) Width: 2.0 m (78.75 in) Weight: 140 kg at launch; 90 kg post engine firings.

Other Satellites

Other programs besides OSCAR have included Iskra (Soviet Union) circa 1982, JAS-1 (Fuji-OSCAR 12) (Japan) in 1986, RS (Soviet Union and Russia), and CubeSats. Es'hail 2 / QO-100 [4] Launched November 15, 2018. In geostationary orbit covering Brazil to Thailand.

Hardware

The first amateur satellites contained telemetry beacons. Since 1965, most OSCARs carry a linear transponder for two-way communications in real time. Some satellites have a bulletin board for store-and-forward digital communications, or a digipeater for direct packet radio connections.

Orbits

Amateur satellites have been launched into low Earth orbits and into highly elliptical orbits.

Operations

Satellite communications

Currently, amateur satellites support many different types of operation, including FM voice and SSB voice, as well as digital communications of AX.25 FSK (Packet radio) and PSK-31.

Mode designators

Uplink and downlink designations use sets of paired letters following the structure X/Y where X is the uplink band and Y is the downlink band. Occasionally, the downlink letter is rendered in lower case (i.e., X/y). With a few exceptions, the letters correspond to IEEE's standard for radar frequency letter bands...[5]

Designator	H	A	V	U	L	S	S2
Band	15 m	10 m	2 m	70 cm	23 cm	13 cm	9 cm
Frequency	21 MHz	29 MHz	145 MHz	435 MHz	1.2 GHz	2.4 GHz	3.4
Designator	C	X	K	R			
Band	5 cm	3 cm	1.2 cm	6 mm			
Frequency	5 GHz	10 GHz	24 GHz	47 GHz			

Prior to the launch of OSCAR 40, operating modes were designated using single letters to indicate both uplink and downlink bands. While deprecated, these older mode designations are still widely used in casual conversation.

Mode A: 2 m uplink / 10 m downlink

Mode B: 70 cm uplink / 2 m downlink

Mode J: 2 m uplink / 70 cm downlink

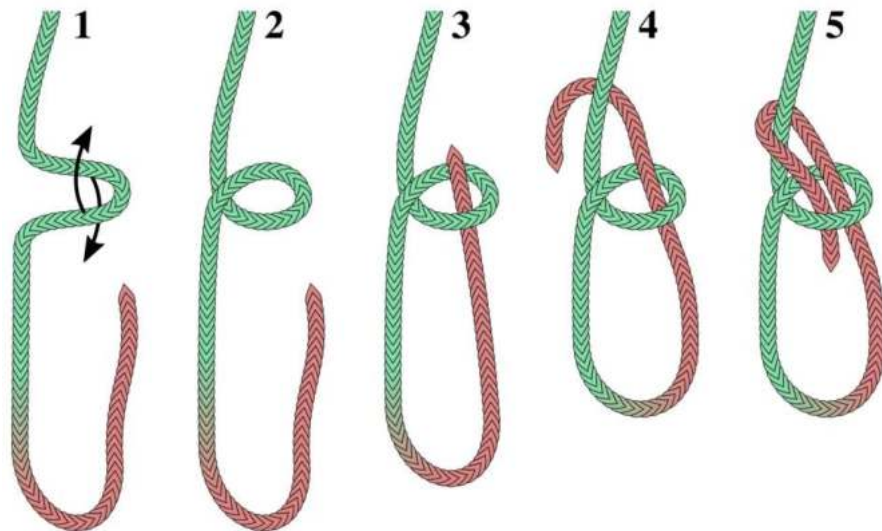
Doppler shift

Due to the high orbital speed of the amateur satellites, the uplink and downlink frequencies will vary during the course of a satellite pass. This phenomenon is known as the Doppler effect. While the satellite is moving towards the ground station, the downlink frequency will appear to be higher than normal. Hence, the receiver frequency at the ground station must be adjusted higher to continue receiving the satellite. The satellite in turn, will be receiving the uplink signal at a higher frequency than normal so the ground station's transmitted uplink frequency must be lower to be received by the satellite. After the satellite passes overhead and begins to move away, this process is reversed. The downlink frequency will appear lower and the uplink frequency will need to be adjusted higher. Due to the complexity of finding the relative velocity of the satellite and the speed with which these corrections must be made, these calculations are normally accomplished using satellite tracking software. Many modern transceivers include a computer interface that allows for automatic doppler effect correction. Manual frequency-shift correction is possible, but it is difficult to remain precisely near the frequency. Frequency modulation is more tolerant of doppler shifts than single-sideband, and therefore FM is much easier to tune manually.

Source: Wikipedia.

HOW TO TIE KNOTS

Following on from our last meeting at Ashley Green Memorial Hall where John G4CZB and Malcolm G3ZNU gave us a practical demonstration of how to raise a mast (or not) safely and also how to tie the guy ropes to stakes so that the mast stays upright. Below I have given a few diagrams and photo's of 'how to's' for a few knots that were covered at the meeting.



Below: Two Half Hitches. Source: Wikipedia.

Above: Bowline Source Wikipedia: Courtesy By Buz11 - Own work,

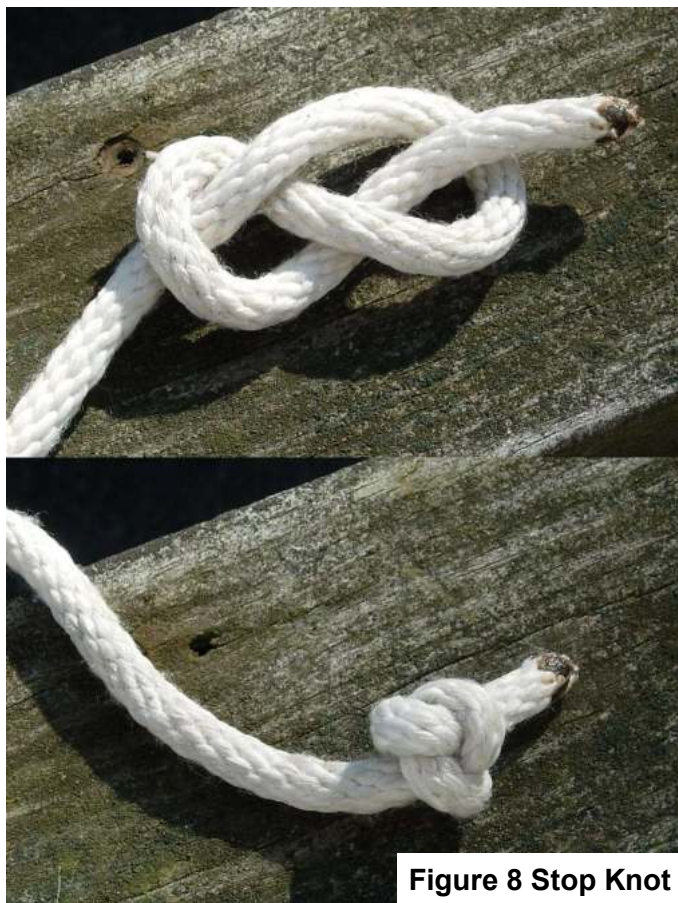
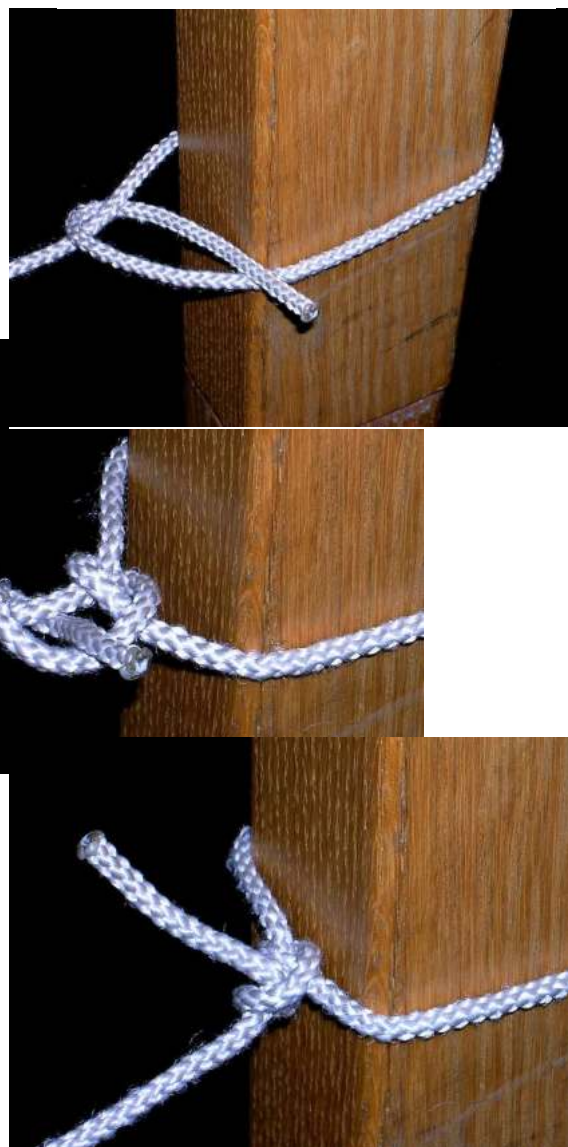


Figure 8 Stop Knot

Above Source: Wikipedia Courtesy By Just plain Bill - Own work,



Contest Calendar for May and June 2025

May - HF

Day	Date	Time (UTC)	Contest Name
Mon	12 May	1900-2030	80m CC SSB
Mon	19 May	1900-2030	RSGB FT4 Contest
Wed	21 May	1900-2030	80m CC DATA
Thu	29 May	1900-2030	80m CC CW

May - VHF

Day	Date	Time (UTC)	Contest Name
Sat-Sun	03-04 May	1400-1400	May 432MHz-245GHz Contest
Sat	03 May	1400-2000	432MHz Trophy Contest
Sun	04 May	1100-1500	1st 144MHz Backpackers
Sun	04 May	0800-1400	144MHz May Contest
Tue	06 May	1800-1855	144MHz FMAC
Tue	06 May	1900-2130	144MHz UKAC
Wed	07 May	1700-2100	432MHz FT8 AC (4 hours)
Wed	07 May	1900-2100	432MHz FT8 AC (2 hours)
Thu	08 May	1900-2130	50MHz UKAC
Sun	11 May	900-1200	70MHz Contest CW
Tue	13 May	1800-1855	432MHz FMAC
Tue	13 May	1900-2130	432MHz UKAC
Wed	14 May	1700-2100	432MHz FT8 AC (4 Hours)
Thu	15 May	1900-2130	70MHz UKAC
Wed	14 May	1900-2100	432MHz FT8 AC (2 Hours)
Tue	20 May	1900-2130	1.3GHz UKAC
Tue	27 May	1830-2130	SHF UKAC

June - HF

Day	Date	Time (UTC)	Contest Name
Mon	02 Jun	1900-2030	80m CC DATA
Sat-Sun	07-08 Jun	1500-1500	National Field Day
Wed	11 Jun	1900-2030	80m CC CW
Mon	16 Jun	1900-2030	RSGB FT4 Contest
Thu	26 Jun	1900-2030	80m CC SSB

June - VHF

Day	Date	Time (UTC)	Contest Name
Tue	03 Jun	1800-1855	144MHz FMAC
Tue	03 Jun	1900-2130	144MHz UKAC
Wed	04 Jun	1700-2100	144MHz FT8 AC (4 hours)
Wed	04 Jun	1900-2100	144MHz FT8 AC (2 hours)
Tue	10 Jun	1800-1855	432MHz FMAC
Tue	10 Jun	1900-2130	432MHz UKAC
Wed	11 Jun	1700-2100	432MHz FT8 AC (4 hours)
Wed	11 Jun	1900-2100	432MHz FT8 AC (2 hours)
Thu	12 Jun	1900-2130	50MHz UKAC
Sun	15 Jun	900-1300	2nd 144MHz Backpackers
Tue	17 Jun	1900-2130	1.3GHz UKAC
Thu	19 Jun	1900-2130	70MHz UKAC
Sat-Sun	21-22 Jun	1400-1400	50MHz Trophy Contest
Tue	24 Jun	1830-2130	SHF UKAC
Sun	29 Jun	900-1200	50MHz Contest CW

Dates For Your Diary



Listed below are dates of RSGB, UK and International contests for 2025.

ARI International DX - Sat 3rd May 1200 to Sun 4th May 1159Z

UKuG Low Band - Sun 4th May - 0800 - 1400Z

WAB 7 MHz Phone - Sun 4th May - 1000 - 1400Z

Worldwide Sideband Activity Contest - May 6th - 0100Z-0159Z.

VHF-UHF FT8 Activity Contest - May 7th - 1700Z-2100Z.

Mills on the Air - CDARS at Brill Windmill - Sat 10th May & Sun 11th May 2025

Worldwide Sideband Activity Contest - May 13th - 1000Z-0159Z

VHF-UHF FT8 Activity Contest - May 14th - 1700Z-2100Z,

His Maj. King of Spain CW Contest, May 17th 1200Z to May 18th - 1200Z.

UKuG mm-wave - Sun 11th May - 1900 - 1700Z

FISTS Saturday Sprint - May 20th - 0000Z-2359Z.

CQWW WPX CW - Sat 24th May 0000 to Sun 25th May 1139Z

UK uG High Band - Sat 24th May 0600 - 1800Z

Full details and more contests at: <https://www.contestcalendar.com/contestcal.html>

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 in Radcom & the RSGB website.

May 2025

5th - Dartmoor Radio Rally, The Yelverton Memorial Hall, Yelverton, Devon, PL20 6AL.

11th - Retrotech UK (British Vintage Wireless Society), Leamington Road, Ryton-on-Dunsmore, Coventry CV8 3FL.

18th - West of Scotland Braehead Radio Rally, Braehead Arena, Glasgow, G51 4BN.

18th - Lough Erne Amateur Radio Club 41st Annual Rally, Lisnaskea, Enniskillen, BT92 0UZ.

25th - Durham and District ARS Radio Rally Bowburn Community Centre, Bowburn, Co. Durham. DH6 5AT.

June 2025

1st - Spalding & DARS Annual Radio Rally, Spalding Football & Rugby Club, Spalding. PE12 6AF.

8th - Mendips Radio Rally Church Lane, Farrington Gurney, BS39 6UA.

14th - Rochdale & District Amateur Radio Summer Rally, N (Ipswich Radio Rally) Horden, Rochdale. OL12 7QR.

15th - East Suffolk Wireless Revival (Ipswich Radio Rally), Kirton, IP10 0PW

29th - Cornish Radio Amateur Club G4CRC Rally, St. Clement, Truro TR1 1TN.

July 2025

Saffron Walden Radio Ham/CB Rally, Lovecotes Farm, Henham Village, Bishops Stortford, CM22 6BH.

August 2025

10th - Flight Refuelling Hamfest. *(Further Details to Follow)*

(All information courtesy of Radcom & the RSGB website)



L

For Sale and Wanted

SK sale of the shack contents of the late Bryan M0IHY (Items with Dave G8FMC)

ITEM	ASKING PRICE or O.V.N.O.
1. Power Mag 145 – large magnetic mount + cable (new £62) New & boxed.	£40
2. Comet CHA-250HD/BXII Multi-Band HF Vertical Antenna (new £350) 250W SSB 75W Data. See March 2024 PW review. As new,unused	£220
3. Moonraker MRQ750 2m/70cm Mobile whip (new £35) Unused as new	£25
4. HF Mobile/portable antenna PL259 fitting e.g. large mag-mount? Unused	SOLD
5. Modified Cobweb antenna (Polish) (new £200)	£70
6. Sangean ATS-909X2 all-band portable receiver £225 ish new boxed	£150
7. QRM Eliminator X-phase 1-30MHz - £45 new	£25
8. Kent Straight key	£65
9. CW Keyer TC 701 - £70 new	£45
10. Soldering Station (basic) 60W	Offers
11. IGEN Max regenerative receiver. eBay US has an unbuilt kit at £160.	£50
12. Lead-free solder & cleaner (in bag)	Offers
13. SWR meter Moonraker SWR-300 120-500MHz £35 new	SOLD
14. Austcol Radiation Meter MT525 -£25 online average price new.	£10
15. Signalink USB sound Card 8pm. £120 new	SOLD
16. Metro VNA in case (£270 new)	£175 (Reserved)
18. Prepp Comm multi-band morse transceiver. Approx £358 new.	£225
19. MFJ Super Hi-Q Loop Remote Control . Unknown model.	?
20. QRP Kits EFHW Tuner	Offers

Please initially contact Dave G8FMC if interested:- g8fmc547@gmail.com