

Ham Radio Ireland



Servientes Traditiones et Spiritus Experimentalis Radio



Editor: Steve Wright EI5DD wright14@gmail.com Vol. 2 Issue 05 May 2023



In This Issue

- Forthcoming Events - RSGB Region 8 News - A Mains Filter for the Shack Pt 1
- Experiments with a Test dipole for 30 .. 70MHZ - Using The Radio Lab System
- The Lazy 8 Transverter Project Pt. 2 - Sporadic E Propagation
- The Four Metre Band - An Overview of VARA & VARAC Pt 2
- Club Reports and Activities

**We have changed
our name to
Ham Radio Ireland**

Ham Radio Ireland was the logical progression from what started as a Magazine covering the Province of Connacht in the West of Ireland.

In point of fact we are the only Independent Radio Magazine in Ireland geared towards the Radio Experimenter.

All clubs and groups are welcomed to submit reports and promotions of their activities and special events. If you are a homebrewer and designer we would welcome your articles.

The format and content of the Magazine will remain the same and we will naturally continue to support Home Brew projects, QRP Radio, Antenna Projects, HF, VHF, UHF, SHF Portable operation, SOTA, POTA, Short Wave Listening, Digital Voice and Data Modes, Hints for the shack, New developments in Radio and Electronics, Radio experimentation, Current technology CB Radio, PMR 446, and much more.

We repeat forthcoming events in our News Section right up to their date of operation. In this way we hope to encourage as many groups or clubs to take part. If you have an event planned feel free to promote it through our Magazine

We are not affiliated to any Group, Club, or Society and therefore remain unbiased and inclusive. This magazine is for all radio and electronics experimenters! We remain non political in all respects of the hobby.

We welcome any articles submitted for publication and encourage those who have never written for a magazine before.

**We welcome Feedback
If you enjoyed this
publication please
email
Steve EI5DD
wright14@gmail.com**

Contents

May 2023

News and Events

- Forthcoming Events 2
- Region 8 News from Northern Ireland 9

Features

- A Mains Filter for the Hamshack Pt.110
- Experiments with a Test Dipole..... 11
- Using the Radio Lab System 12
- Lazy Eight Transverter Project Pt. 2 15
- Sporadic E Propagation 19
- The Four metre Band 21
- An Overview of VARA and VARAC Pt.2 23
- GB0AEL Special Event Station 29

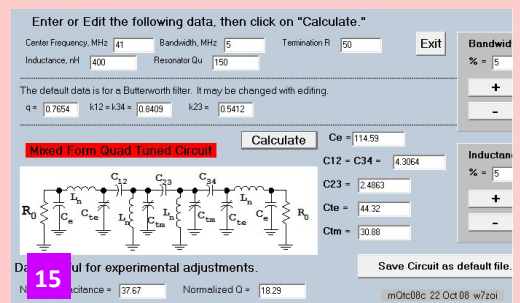
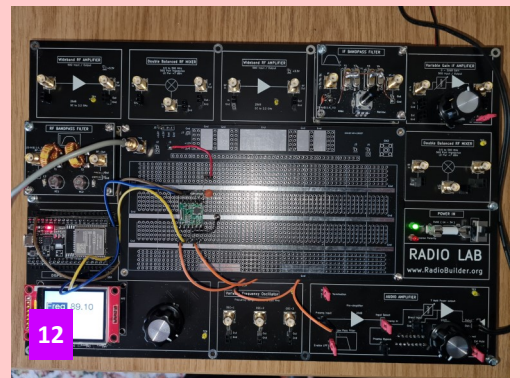
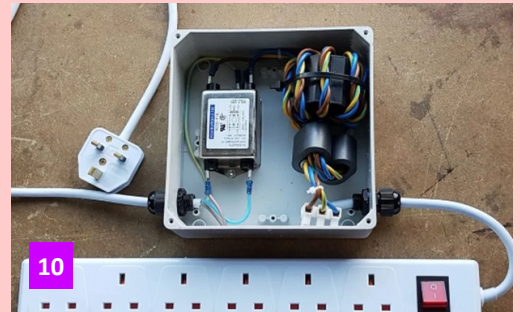
Radio Club's News & Reports

- RSGB Region 8 Northern Ireland News 9
- Galway Radio Club..... 24
- Shannon Basin Radio Club 25
- Hillwalking Radio Club 30
- Mayo Radio Experimenter's Network 28
- Galway VHF Group 31
- Skywave Radio club 33

Submitting Items To This Magazine

We are always delighted to receive any radio related material for this magazine.

Please E-mail us in advance of submission so that space can be allocated.



Cover Image

Rafal EI6LA receiving a raffle prize at the Shannon Basin Rally in Ballinasloe

Views expressed in this publication do not necessarily reflect the views of the Editor, those of the Carrion Press or the Galway VHF Group

Lough Erne Rally



Sunday 7th May

**Share Centre
Lisnaskea Co. Fermanagh
BT92 0EQ**

**Doors Open 11:30 am
Entry £5.00 or €5.00**

**Free tables for trade, Special
Interest, Shack Clearance Bring and
Buy etc.**

RSGB Sales Stall

**Bar, Food Café, Cooked Lunch
Free Parking**

Book tables via

argault91@gmail.com



FIND YOUR DREAM RADIO

AT A DISCOUNTED PRICE

BUY USED!



MARTIN LYNCH & SONS LTD. THE WORLD'S FAVOURITE HAMSTORE

MLS & S

www.HamRadio.co.uk

SAFE ONLINE SHOPPING. E&OE

0345 2300 599

Wessex House, Drake Avenue, Staines, Middlesex TW18 2AP

E-mail: sales@hamradio.co.uk

Opening Hours: Mon - Fri: 8.30am to 5pm. Sat: 9am to 4.30pm.

International Tel: +44 1932 567 333

HAVE YOU WATCHED ML&S TV YET?
Every week there's something new. One simple URL

www.MLandS.TV

FOLLOW US ON TWITTER AND FACEBOOK

HamRadioUK

ML&S - a Personal Service in a Virtual World

These are just a tiny sample of the 100s of positive reviews posted about our service on Trustpilot. Thank you so much!



Fantastic service as always!..

Not had a problem ordering from ML&S yet!..everything is in stock, and if there's a delay of any kind, they'll call you, and let you know (They did on a previous order!)

Date of experience:
March 20, 2023

Acom 06AT - brilliant piece of kit

Bought to use with the Acom 1200S and it performs superbly. After the initial tuning on each band, it automatically transforms antenna impedance to 50 Ohms and an SWR below 1.3:1. The antenna switch is a major plus. My radio and the 1200S are connected by CAT cable and any change in the band/frequency is automatically detected by the amplifier and, in turn, automatically detected by the ATU which switches to the appropriate antenna. This just takes a second or so. Brilliant!

And all this complemented by ML&S's usual first-class service.
Date of experience:
March 17, 2023

Order via internet was seamless

Order via internet was seamless and quick. Delivery was fast. Goods as expected.
Date of experience:
March 16, 2023

All the people are so helpful

If they don't know the answer to the question they will find someone who can. Martin

Lynch & Sons is just like one big Amateur Radio club with the store as an extra big bonus. Keep it up lads we would be lost without you.

Date of experience:
March 17, 2023

Good service

Always acknowledged with a greeting, and any questions are either answered by staff on counter or directed to guys in the office who come out and help. Treated like an important customer even before they knew I was going to leave the shop with a significant purchase.

Helpful extras like asking me how my station was set up so that an amplifier wouldn't cause me problems etc. Item carried to car for me because it was somewhat heavy but nice touch. Same level of service whether I've bought coax or a four-figure item. Cheers, MOGVA.
Date of experience:
March 27, 2023

Good service & delivery

Very good packaging to protect the device (box in box with good padding). Please keep it that way - Thanks.

Order to Delivery was excellent and I know I can reach them over the phone if there is a problem.

Date of experience:
March 15, 2023

ML&S

Always enjoy my visits. Staff helpful and knowledgeable, great selection of radio

equipment and accessories available. MOCET
Date of experience:
March 20, 2023

Wanted a new radio but a bit unsure

Wanted a new radio but a bit unsure of what to buy so rang Martin Lynch and Son and spoke to the sales staff, got some very good advice and finished up with a Yaesu FT-710 which I'm very pleased with, Radio arrived next day very well packed and came with the free microphone and stand.

So thank you I appreciate the time you spent with me and in the end I got a really nice radio.
Date of experience:
March 15, 2023

Super quick long range purchase

Could not source a Windcamp portable dipole in Australia or on eBay except for sellers that quoted shipping times in months. In desperation I decided to buy from you from the other side of the world and it was just too easy. The antenna arrived faster than eBay sellers that have the stock 100 km from me.....thank you for your excellent and super quick service!

Date of experience:
March 11, 2023

Antenna repair, excellent service!

Bought an antenna from ML&S, couple weeks later I managed to damage it trying to take it

out of frozen ground! Brought it into ML&S to see if they could fix it. Needless to say Gary S. Had it fixed in a day or two and shipped back to me so we could get back on the air. Amazing job, very glad to have bought from the team at ML&S.

Date of experience:
January 26, 2023

More excellent service today

I've been an ML&S customer for some years now and have always had great service. I've bought big, expensive things and cheaper accessories but whatever it has been, the service is always the same - just great! This morning I had to phone and amend an online order I'd made an error with the night before. The order was only for a few pounds but the help I got from John on the phone this morning was as good as if I'd just ordered a flagship rig costing thousands.

This is the sort of help and service that keeps me coming back to ML&S so keep up the good work guys and WELL DONE all but particularly to John for his help this morning.
Date of experience:
March 13, 2023

Professional handling of requests and excellent attention to details.

I always have peace of mind and total confidence in products I purchase and have done now for thirty years.
Date of experience:
February 16, 2023

MARTIN LYNCH & SONS LTD. THE WORLD'S FAVOURITE HAMSTORE

ML&S
www.HamRadio.co.uk

SAFE ONLINE SHOPPING. E&OE

0345 2300 599

Wessex House, Drake Avenue, Staines, Middlesex TW18 2AP

E-mail: sales@hamradio.co.uk

Opening Hours: Mon - Fri: 8.30am to 5pm. Sat: 9am to 4.30pm.

International Tel: +44 1932 567 333

HAVE YOU WATCHED ML&S TV YET?
Every week there's something new. One simple URL



www.MLandS.TV YouTube

FOLLOW US ON TWITTER AND FACEBOOK



HamRadioUK



News and Forthcoming Events Planning 2023



SOS Radio Week is one month of fun, operating, an opportunity for amateur radio to celebrate the work of the Royal National Lifeboat Institution and to raise much needed awareness and funds for them. Any licensed Amateur Radio operator, or Amateur Radio club, based

within the United Kingdom, Ireland, Guernsey, Jersey and the Isle of Man can register to run an official SOS Radio Week station. All you need to do is let us know what callsign you will be using during the event, together with your location, and you will become an official Registered SOS Radio Week Station, promoting the work of the RNLI and NCI throughout the event.

SOS Radio Week takes place during the month of May every year to coincide with the (RNLI's) own Mayday fund-raising event. It starts at **00:00 on the 1st May and ends at 23:59 on the 31st May 2023**. Basically you can elect to operate your station any time within the month of May

Registered SOS will be on the air at various times during the event. There is always a large number of stations on the air supporting this event and a list of these may be found at <https://www.sosradioweek.org.uk/registered-stations/sos-radio-week-stations/> it is possible to register your station at <https://www.sosradioweek.org.uk/about/sos-radio-week-registration/> basically it remains to promote your part in the event and where possible raise funds for the RNLI.

Special Event Stations

In celebration of the 25th anniversary of the establishment of the Hong Kong Special Administrative Region of the People's Republic of China on the **1st of July 1997**, Hong Kong licensed amateurs are granted the use of the special prefix VR25 until the 30th of June 2023. The VR2 Contest Club, and the Hong Kong Amateur Radio Transmitting Society will be using **VR25CC** and **VR25HK**, respectively.

YR1400VT is the special callsign that members of Radio Club YO6KGS will be using until the **30th of June 2023** to popularise the newly inaugurated Via Transilvanica, a long-distance trail used for hiking, cycling and horse riding that crosses Romania. More information can be found on QRZ.com QSL via eQSL.

The Isle of Wight radio society will be broadcasting from the Marconi Monument at the Needles on the island for International Marconi Day, **22nd April**. Call sign **GB0MAR**. SSB 40m and 20m and probably CW on all bands.

A group of radio amateurs in Jersey will be using special event callsign **GB3KCJ** as part of the Coronation celebrations. An opportunity exists for groups in each of the UK nations who have a regional secondary locator, and the Crown Dependencies, to apply for similar special event callsigns.

The Isle of Muck is part of the Scottish Small Islands group along with Rhum, Eigg and Canna called the Inner Hebrides situated off the West Coast of Scotland. The intention is to be on the island from **15th April 2023 until 21st April 2023** using the callsign **GB0SIM**. There will be two stations operational on all HF Bands from 1.8 - 28MHz SSB & CW.

EUDOTA Europe Day "On the Air" 2023



This year the 9th of May falls on a Tuesday, but we will be active from **Friday the 5th until Sunday the 14th of May**. For one whole week the Special Callsigns AO2EU, AO3EU, AO4EU, AO5EU, AO6EU, AO7EU, AO8EU

and AO9EU, to commemorate the creation of the EU in 1950. As usual, special QSLs and Awards will be available. Contacts will also be valid for the Radio clubs of the World Award, EANET.

GB80AGBB - Commemorating Flight 777 (30 May 2023 - 3 June 2023)

BOAC Flight 777 from Lisbon, Portugal to Whitchurch, Bristol, UK was shot down over the Bay of Biscay on 1 June 1943. Many mysteries surround this event not the least of which is the fact that the records associated with the event remain restricted despite the expiration of the usual 50 year release date.

The passenger manifest included some notable people including Wilfrid Israel who had a significant role in the "kindertransport" and Hollywood actor Lesley Howard. It is known that both sides used Lisbon as a route for spies and kept observations at the airport to review the comings and goings and some have suggested that Lesley Howard could have been mistaken for Churchill's regular bodyguard and that an accountant on the flight also resembled Churchill himself.

North Bristol ARC have organised this event and South Bristol ARC are supporting their initiative. This 5 day event will be operated from the Beach Hut Cafe in Hengrove Park, Bristol which is the location of the now disused Whitchurch Airfield, the final planned destination for Flight 777.



GB2KC Special Event station



GB2KC Special Event station will be active from Bishop Thornton, Harrogate, England, 1st May - 30th June 2023, celebrating the coronation of King Charles and Queen Camilla. The actual coronation will take place in Westminster Abbey on the 6th May 2023.

QRV on HF Bands.
QSL via eQSL

News and Forthcoming Events Planning 2023



In May 2023 a team will land on Rockall Island, more than 200 nautical miles from the West Coast of Scotland, and the nearest civilisation. Their intention is to survive on the tiny island for one week battling winds and waves in order to raise £50,000 for charity.

The expedition team is made up of a number of highly experienced radio operators who will be running 24x7 transmissions on SSB CW and FT8 for 1 week, with two radios transmitting simultaneously. More details will be posted here soon! Rockall is an uninhabitable granite islet situated in the North Atlantic Ocean. The nearest permanently inhabited place is North Uist, an island in the Outer Hebrides of Scotland, 200NM to the east.

The UK claimed Rockall on the 18th of September 1955 when "Two Royal Marines and a civilian naturalist, led by Royal Navy officer Lieutenant Commander Desmond Scott, raised a Union flag on the islet and cemented a plaque into the rock".



Rockall stands at 17.15m above sea level at its tallest point, covering an area of just 784.3 m² it is located at 57° 35'28.79" N 13°41'11.39" W. more information from: <https://www.rockallexped.com/>

British Railways Amateur Radio Society

During 2023, the British Railways Amateur Radio Society will be marking 55 years since the withdrawal of steam from British Railways in 1968. Special Event Callsigns GB0LMR and the Club call GX4LMR will be active throughout the year operated by Mark G1PIE active from Preston. QSLs via the Bureau, eQSL, or direct to Pam, 2E1HQY enclosing a SAE. More information from <https://www.qrz.com/>



UK Coronation Celebration Activities



As part of our Coronation celebration activities, Ofcom has approved "R" as the optional Coronation regional secondary locator prefix for all UK radio

amateurs to use during May and June 2023. UK Radio Amateurs may apply to Ofcom for a NOV allowing them to avail of this facility.



RSGB News Services

For your weekly fix of GB2RS, from 80m to UHF DMR. Full schedule available from [rsgb.org.uk/gb2rsschedule](https://www.rsgb.org.uk/gb2rsschedule).

09:30 145.5250 FM

10:00 3.6400 LSB

12:00 DMR BM TG2354

19:30 DMR Phoenix TG880

International Museums on the Air Weekends 2023



International Museums Weekend

Museums on the Air takes place over the weekends of the 17th – 18th and 24th – 25th of June. The intention of the event is to set up amateur radio special event stations at as many of the museums as possible throughout the whole of the world on HF, VHF and, if at all possible, a Ui-View (APRS) packet station to be set up at each museum site, but the scope of your station is entirely up to you. The choice of museum is also left very much up to you, however, aim for the largest and/or most unusual site you can find.

The museums taking part over the years have included ships, castles, air museums, Napoleonic forts, pumping stations, wireless museums, racing museums and many others. For the purposes of the event, the word 'museum' is loosely interpreted. There really is no shortage of venues in which such an event can be staged, no matter where in the world you might live.

The event has proven itself to be extremely popular and well supported special event particularly amongst the UK radio amateur population. It also went down very well at the museums which were used as the venues for the event, and invitations have again been extended for the coming June. It has shown itself to be a tremendous public relations exercise, as well as all of us having lots of fun over the IMW weekends.

At least part of the intention for this event, is to present modern amateur radio to members of the public and to help us lose some of the stuffy anorak image. What better place to do this than in the very public and well visited areas of the many museums which can be found in most parts of the world?

Those clubs and museums which do decide to take part, should please use the free on-site 'Registration' facility. The 'Registration' is simply to assist us in administration of the event and provide those taking part with an indication of how many and exactly where the museums taking part are located. We also send out a participation award to all stations that register. More information and registration details at <https://www.radio-amateur-events.org/IMW/index.htm>

News and Forthcoming Events Planning 2023

HAM RADIO
46th International Amateur Radio Exhibition
June 23 – 25, 2023
Messe Friedrichshafen

OFFICIAL PARTNER

The No.1 in Europe!

HAM RADIO serves as a platform where radio enthusiasts can get together and exchange information and experience.

As one of the largest amateur radio exhibitions in the world, alongside the Hamvention Dayton/Ohio, USA and the Ham Fair in Tokyo/Japan, HAM RADIO attracts exhibitors and visitors from more than 52 countries all round the world to Friedrichshafen.

A special feature of HAM is the combination of commercial exhibitors, worldwide networked associations and Europe's largest radio flea market with over 300 participants from 16 countries.

International Lighthouse/Lightship Weekend



The ILLW weekend takes place over the weekend of August commencing from **00:00 19th to 23:59 on the 20th of August 2023**. August seems to have become the international weekend for lighthouses. Countries all over the world have become involved in one for or another of lighthouse activity. Some years ago the United States Congress declared August 7th as their National Lighthouse Day and during that first week in August amateur radio operators in America set up portable stations at lighthouses and endeavour to make contact with each other. This event is known as the US National Lighthouse Week.

In Britain the Association of Lighthouse Keepers, ALK, conducts International Lighthouse Heritage Weekend on the same weekend as the ILLW in August. Their objective is to encourage Lighthouse managers, keepers and owners to open their lighthouse or light station and related visitors' centres to the public with a view to raising the profile of lighthouses, lightvessels and other navigational aids, and preserving our maritime heritage.

The ILLW usually takes place on the 3rd full weekend in August each year and attracts over 500 lighthouse entries located in over 40 countries. It is one of the most popular international amateur radio events in existence probably because there are very few rules and it is not the usual contest type event.

New Micro-Super Capacitor

Scientists in India say that they have created the smallest micro-supercapacitor to date, developing it out of two-dimensional materials: graphene and molybdenum disulfide. This is considered significant because as electronic devices continue to shrink - as is the case with wearable sensors and smart devices - their energy storage devices must be just as small. Supercapacitors are considered ideal for this task because they not only store energy but can handle the kind of rapid charge-discharge cycles beyond the ability of conventional chemical batteries.

Misra said that she and her colleagues used two-dimensional materials for the ultramicro-supercapacitor because they are semiconductors. Each of the multi-layer electrodes acts as a field-effect transistor. She told the IEEE Spectrum that the tiny device has a remarkably high capacitance and an easy ability to integrate with electronic chips because of its use of a gel electrolyte instead of a liquid. The researchers are not stopping there, however. Their next challenge is to create devices out of other two-dimensional materials in an attempt to boost capacitance even further.

Would You Like to Promote Your Club and its Activities?

Is your club planning an event in the next month?

Are you planning a club activity?

Are you setting up a new Repeater or Gateway?

Drop us a line or two and we will include your item in the Ham Radio Irelandletter

We Have a Facebook Page The Ham Radio Ireland Magazine



<https://www.facebook.com/groups/1437072523434876>

News and Forthcoming Events Planning 2023

RAF North Killingholme
Lincolnshire

LOC: IO93UP
WAB: TA11



Operation Chastise : 16/17th May 1943 - 80 Years

GB8DAM "The Dambusters Raid"

GB8DAM Special Event Station will be active from Lincolnshire, England, commemorating 80 years since RAF 617 Squadron carried out operation Chastise aka "The Dambusters Raid" of 16/17th May 1943.

Activations will occur throughout May, with Saturday 13th, Sunday 14th, Tuesday 16th and Wednesday 17th seeing longer operating sessions.

We'll be QRV on 80m/40m SSB plus other bands/modes subject to band conditions

An Airworthy Lancaster (PA474) is currently based at RAF Coningsby and operated by the Battle of Britain Memorial Flight, is due to fly overhead on the 16th of May at 7pm.

National Hamfest 2023 Cancelled



A Message from the Directors of National Hamfest (Lincoln) Ltd:

It is with a sad heart that we unfortunately have to advise that the National Hamfest team

will reluctantly have to cancel the 2023 National Hamfest event.

Unfortunately, we have been hit with several curved balls this year. Firstly, our temporary move to Peterborough in October was cancelled by the venue themselves, which has meant finding a new venue or new date. A new venue has proved impossible to find at short notice. We have negotiated some revised dates in July at Newark but after many discussions we have reached the conclusion that the school holidays and the like were a problem for traders big and small. We are also unsure how many of the attendees would also be unable to attend for the same reasons. Finally, we looked at the financial impact and concluded it was not viable to run the event with the reduced trade attendees and the risk of reduced footfall.

We can assure you all, we haven't made this decision lightly. However, we are pleased to confirm that we hope to put on a bigger and better event in 2024 at the Newark Showground on our more usual dates of the 27 & 28 September. Please put the date in your diary now and we hope to see you there.

On behalf of the National Hamfest (Lincoln) Ltd
www.nationalhamfest.org.uk

RSGB tonight@8 Webinars



The RSGB runs a series of monthly Webinars called "Tonight@8" and forthcoming webinars may be found at <https://rsgb.org/main/tonight-at-eight-live-webinars/>

Archived webinars may be found at https://www.youtube.com/results?search_query=tonight%408 The Webinars cover a wide interest so there is something for everyone.

The next Webinar is scheduled for the **15th May: The T41-EP ALPS: A high Performance CW Decoder** by Jack Purdum W8TEE and Al Peter, AC8Y.

Jack and Al collaborated to build the T41-EP, a 7 band, 20W, CW/SSB SDR transceiver and this presentation is chiefly about how they developed the high performance CW decoder.

Future Webinars Include:

5th June: Node-RED for Radio Amateurs by Mike Richards, G4WNC.

Node-RED is a visual programming language that is very powerful but surprisingly easy to use. The language has matured over recent years and has the potential to be a valuable tool for radio amateurs. In this talk, Mike will provide an introduction to Node-RED programming techniques. He will conclude with a live demonstration to show just how easy it can be to add extra facilities to your rig.

3rd July: Receiving Antennas are Different by Eric P. Nichols, KL7AJ.

Almost every ham radio station can benefit from a separate receiving antenna (or several!) While reciprocity applies to both receiving and transmitting antennas, the priorities are different. Effective receiving antennas are optimized for best signal to noise ratio, not necessarily the greatest gain. There are countless interesting means of building high signal to noise ratio receiving antennas and we will explore some of these in 'Receiving Antennas are Different'.

Irish Net

Active not only on Sundays, but most weekdays starting at around **16:00 UTC, the informal gathering on 14.156 MHz** frequently suffers from QRM during contests and DXers unaware of this long standing net of North American operators with an Irish connection. In a recent contact on 20m with W11DP, QTH Tuscon Arizona, operator Jerry confirmed that the net now also uses the **17m band operating on 18.114 MHz**, avoiding the increased QRM on 20m and taking advantage of improved propagation conditions



Lough Erne Rally

7th May

Share Centre
Lisnaskea Co. Fermanagh
BT92 0EQ

Doors Open 11:30 am
Entry £5.00 or €5.00

Free tables for trade, Special Interest, Shack Clearance etc.

RSGB Sales Stall

Bar, Food Café, Cooked Lunch
Free Parking

Book tables via
argault91@gmail.com



Bangor & District ARS Rally

on

Saturday the 17th June

at

Ballygilbert

Presbyterian Church

Bangor

BT19 1UH

Northern Ireland Radio Club Meetings

The Strangford High Frequency Enthusiasts Group is accepting UK-wide enrolments for the next UK Full licence training programme. They also use Google Meets on Monday evenings. It is completely free, email GI0VKP@gmail.com for details or see the QRZ.com entry for GI0VKP.

On Tuesdays Carrickfergus Amateur Radio Group meets in the Elim church, North Road, Carrickfergus from 7pm. All visitors are welcome. Info from gi0usx@yahoo.co.uk

Bushvalley Amateur Radio Club has a club net on Tuesdays at 8.30pm on 145.300MHz. On Thursday, the club meets at The United Services Club, Roemill Road, Limavady. Contact Jason, M13UIW, via email to Bushvalleyarc@gmail.com

West Tyrone ARC holds regular monthly meetings on 2nd Wednesday each month at 19:30 in Strathroy Community Centre, Omagh, BT79 7XE. Contact: info@wtarc.org.uk for more information

Lough Erne Amateur Radio Club normally meets at 7:30pm on the first Monday of each month at the Share Centre, Lisnaskea. More information from: <https://lougherneradioclub.co.uk/>

The Mid Ulster Amateur Radio Club (MUARC) has been active since 1965, our Club call sign is MN0VFW. Please take time to look through our website, where you will find information on our club, activities, events and members as well as a great gallery full of images of our latest activities. Mid-Ulster Amateur Radio Club meets on the air weekly on the GB3WT repeater every Monday evening at 7.30pm. There will always be a net controller from the club but everyone is welcome to call in and join the conversation. The club meets socially on Zoom twice each month. If you're in the region, and would like to take part, the club secretary can be contacted on the following email address: muarc.secretary@yahoo.co.uk

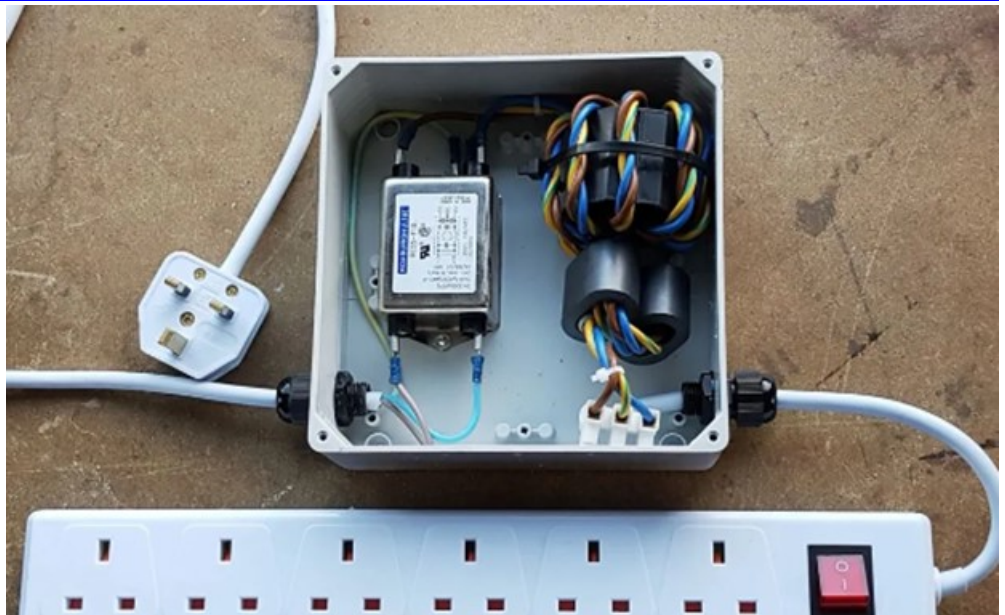
You can go to www.youtube.com/muarcmedia and that will bring you to our YouTube channel with all our previous lecture videos and much more content in the pipeline.

The Online Radio Club has a virtual radio club night at 7:30 pm every Thursday via Zoom. It is suitable for all Radio Enthusiasts regardless of individual skill level. To to the website for the meeting link <https://onlineradioclub.org/>



A Mains Filter for the Hamshack Part-1

Building a mains filter for an amateur radio shack using an EMI filter and Fair-Rite cores is an excellent way to minimize electromagnetic interference and ensure that your radio equipment operates smoothly. This approach is highly effective and straightforward to implement, making it an excellent option for both experienced and novice electronics enthusiasts.



The finished Mains filter

EMI (Electromagnetic Interference) filters are designed to suppress high-frequency noise and prevent it from entering sensitive electronic devices. These filters are widely used in power supplies and other electronic devices to prevent interference from electrical noise on the power line. By incorporating an EMI filter into your mains filter, you can significantly reduce the amount of noise and interference that enters your radio equipment.



EMI Filter

Fair-Rite cores are another critical component of a mains filter. These cores are made from a high-permeability material, typically ferrite, which is highly effective at blocking high-frequency noise. By wrapping the power cord around a Fair-Rite core, you can create an inductor that helps to filter out unwanted noise and interference.

To build a mains filter using an EMI filter and Fair-Rite cores, you will need to select the appropriate components and assemble them into a custom filter. This process can be simplified by using pre-designed circuit boards that incorporate the necessary components and wiring connections.



Once you have assembled your mains filter, you can connect it between the power outlet and your radio equipment to reduce unwanted noise and interference. It is essential to test your filter to ensure that it is working correctly and that it does not introduce any additional noise or distortion into your radio signals.

In summary, building a mains filter for a ham radio shack using an EMI filter and Fair-Rite cores is an excellent way to minimize electromagnetic interference and ensure that your radio equipment operates smoothly. This approach is highly effective and relatively straightforward to implement, making it an excellent option for amateur radio enthusiasts of all skill levels. With the right components, tools, and knowledge, you can create a custom filter that enhances your radio experience and minimizes unwanted noise and interference.

In part two I will set out the components you need and how to put them together. Also, I will produce a BOM (bill of materials) and where to get them●



The different Fair-ite Cores

Lez Ferguson EI4GEB

Experiments with a Test Dipole for 30MHz ... 70MHz - EI9KP

I have been using a “test dipole” on the Low VHF frequencies for a good number of years now. This has allowed me to set up experiments from 30...70MHz, with the dipole either in horizontal or vertical polarisation. I am often using the test dipole for receive only with a ‘traditional’ receiver on a spot frequency (e.g. beacon ZS6WAB on 40.675MHz) or with an SDR showing in-band activity on 8m or 4m on a spectrum waterfall.



Fig. 1 Aluminium Mounting Plate and ABS Box at the Centre of the Dipole

The test dipole is a simple construction of sliding aluminium tubes held at the centre by compression in an ABS waterproof box. This box houses a W1JR-type low power 1:1 balun made of 4 turns of RG-174 on a FT140-43 ferrite core, as well as an N-connector. The dipole is centre-fed and has a typical impedance of 50...70 Ohm. Mount the dipole on an insulated mast when in vertical polarisation.

The construction consists of 2 telescopic aluminium tubes: a centre element 2x1.0m long of 16mm outer diameter and a tip 1.5m long of 12mm outer diameter. The overlap of the tubes is minimal 0.10m. For frequencies from 45...70 MHz I use a shorter tip which is 0.50m long. Aluminium tubes are expressed as tube outer diameter x wall thickness, both dimensions will have a certain tolerance. Important is that the tip element can be slid easily in and out of the centre element, to the desired frequency, and clamped with a jubilee clamp. For this dipole expect a bandwidth of around 2MHz for SWR < 1.5. For experiments on Low VHF the tube diameters are not critical, use what you have, I tend to use 10x1mm for building prototypes.

The photo **Fig. 1** shows the aluminium mounting plate (dimensions: 200x80x6mm) and the ABS box (dimensions: 80x82x55mm) at the centre of the dipole. Note also the insulated mast (38mm Glass fibre Reinforced Plastic) and the green polypropylene saddle clamps. All bolts, nuts and washers are stainless steel. Also shown is the L-bracket and coupled element, read more about it below.

For another experiment I modified the test dipole to become a dipole with a “capacitive load”. The idea is that one can reduce the physical length of the dipole, and any reduction in length on the low VHF wavelengths is of course very welcome. The simplest load was a horizontal bar using 4mm aluminium rod pushed through the tip element and held in place by a self-tapping screw. The 4mm rod was because I had some supply, and the dipole

was measured to be 7% shorter than the free space length. The larger the diameter of the rod, the more pronounced the effect of “capacitive load” will be, and the shorter the physical dipole.

I used this antenna for a beacon experiment on 34MHz, at first with the dipole mounted in HP on an aluminium pole on the gable wall, later with the dipole in VP on an insulated mast.

Next, a new requirement arose to have a wide band dipole from 32...36MHz. A single dipole did not provide enough bandwidth (SWR < 1.5), even with 16mm diameter tubes.

I have been fascinated by the concept of *sleeve-coupled* parasitic elements, and indeed have built a few such antennas for 17m/12m, 10m/6m and other, stranger combinations.

My requirement was to have two resonance points: 32MHz and 36MHz. I experimented with a parasitic dipole “in front of” the driven dipole and made antenna simulations using MMANA-GAL, a free software program, to get an idea of what would be possible. For frequencies that were very close to one another (less than 3MHz apart) it was not possible to come up with a match, for 32MHz and 36MHz it worked, for frequencies further apart there was no problem.

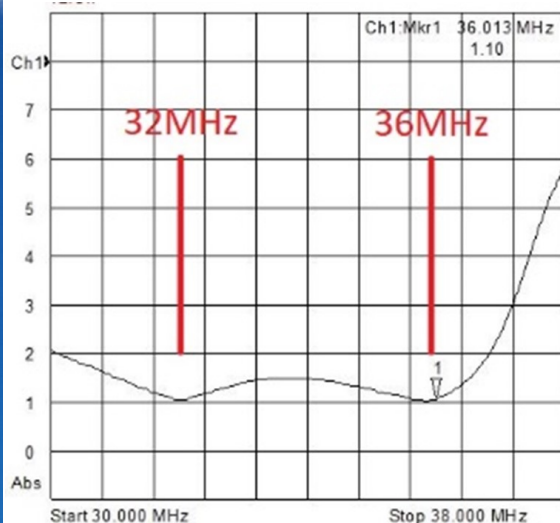
I configured my test dipole as *driver* dipole, a 32MHz signal and indeed a 36MHz signal can now be presented on a single coax. I made a L-bracket to space the parasitic dipole in front of the driven dipole. The L-bracket had holes drilled at a 10mm spacing so that I could change the position of parasitic element and check for effect on a network analyser. After two hours of testing, which included a lot of antenna mounting and dismounting going up/down a ladder, a good SWR match was found at 100mm spacing, with the parasitic element being 4.0m in length for resonance on 36MHz.

Experiments with a Test Dipole for 30MHz ... 70MHz - EI9KP



Fig. 2 L. Test Dipole with Capacitive Load
R coupled dipoles for 32MHz and 36MHz

The photo Fig. 2 shows the test dipole with capacitive load, the photo on the right shows the coupled dipoles for 32MHz and 36MHz.



Using a network analyser I measured low SWR at 32MHz and 36MHz, and an acceptable SWR of 1.6 at 34MHz (my original beacon frequency). At around 37MHz there is a steep rise in SWR, which was predicted by the antenna simulation software.

This article has, hopefully, given you some background to my antenna experiments and maybe inspired you to build yourself a test dipole, or a dipole with a capacitive load or even a coupled dipole.

I am planning to use this 32/34/36MHz dipole in vertical polarisation for my upcoming beacon propagation experiment. Reception reports are very welcome●

32/34/36 MHz Beacon Tests

13th - 14th May

Exact Frequencies

32.013 MHz, 34.01 MHz and 36.01 MHz

USB dial is set 800 Hz Lower

Transmission Sequence will Be

2 x FT8 + 2 X CW + Short Carrier

These frequencies are in between 10m and 8m and will check the MUF by following the frequencies, taking 3 minutes of SWL time to complete a cycle.

There should be some Sporadic E around this time perhaps less of F2 all Reception Reports would be appreciated. Please forward to Phil EI9KP.

Using The Radio Lab to Test the Si4730 Digital Radio Module

The Si4730 is a popular digital radio module that can receive AM and FM. It's a versatile and powerful module that can be used in a variety of radio applications, from simple hobby radios to more complex commercial or industrial radios.

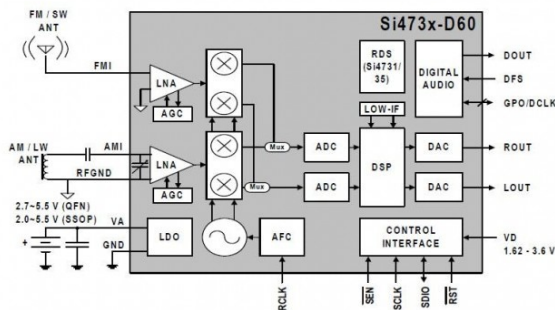


SI4730-V2.0 Stereo Radio Module

The Si4730 module can be programmed to perform a variety of functions, such as scanning for available radio stations, setting frequency limits, and adjusting audio settings. By using the radio lab, you can practise programming the module and experimenting

with different settings to optimise its performance. In addition, the RadioLab has a TFT display and an encoder that can be used to change the frequency and recall preset radio stations. This user interface makes it easy to experiment with different settings and to tune in to your favourite stations.

Functional Block Diagram



There is also a Si4735 module that has HF capability and can be programmed to receive SSB and CW that can be connected up that same way and use the same software libraries.

I got a few modules from AliExpress and I wanted to see how they performed at my location. I happen to be in an area (Portlaoise, Co. Laois) that has very poor FM signal strength of most FM broadcast stations and even good FM radios struggle with reception.

I did not connect the AM section as virtually all the AM stations are no longer broadcasting in Ireland, with the exception of RTE1 on 252KHz.

I soldered the module to one of the RadioLab prototype boards and added two headers for connections. The only

connections needed are

1. GND
 2. VCC (3.3V)
 3. SDA
 4. SCL
 5. RESET
 6. AUDIO Out
- FM Antenna

I connected the I2C lines to the I2C header, added the reset to a GPIO line, connected the antenna input via a capacitor to the SMA connector on the prototype board, the VCC to a 3.3V regulator and the audio out to the audio amplifier.

Writing the Code

Reading the encoder and writing to the display are included functions that come with the RadioLab code. I added a library "PU2CLR SI4735 Library for Arduino" by Ricardo Lima Caratti which allows setup of the module and changing frequency. There are many functions available but I wanted to keep it simple.

```
void loop()
{
  long currentReading = rotaryEncoder.readEncoder();
  long change = currentReading - lastEncoderReading;
  bool update = false;

  if(change !=0){
    currentFrequency = currentFrequency + change*10;
    lastEncoderReading = currentReading;
    update = true;
  }

  int bState2=digitalRead(SW_2_PIN);
  int bState3=digitalRead(SW_3_PIN);
  int bState4=digitalRead(SW_4_PIN);

  if(bState2==1){
    currentFrequency = 10580; // Newstalk
    update = true;
  }

  if(bState3==1){
    currentFrequency = 9620; // Midlands
    update = true;
  }

  if(bState4==1){
    currentFrequency = 8910; // RTE 1
  }

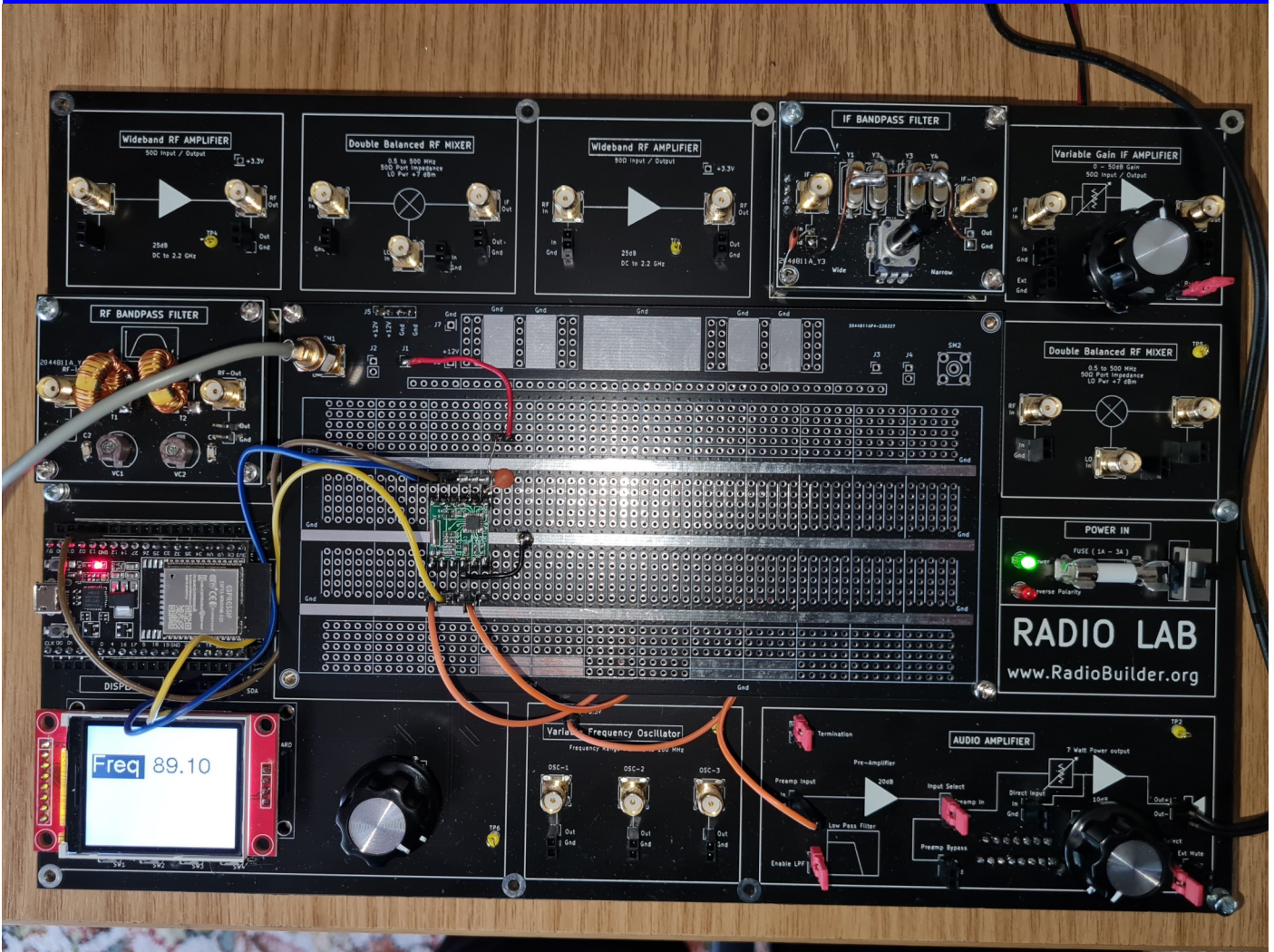
  if(update==true){
    rx.setFrequency(currentFrequency);
    String freq = String(float(currentFrequency)/100.0) + " ";
    tft.drawString(freq,70,30,4)+ " ";
  }
}
```

The code is simple to use. The main loop checks if the encoder has changed and if so it changes the frequency in 100KHz steps depending on how many encoder steps were changed. It also reads three buttons that have pre programmed frequencies for my favourite stations

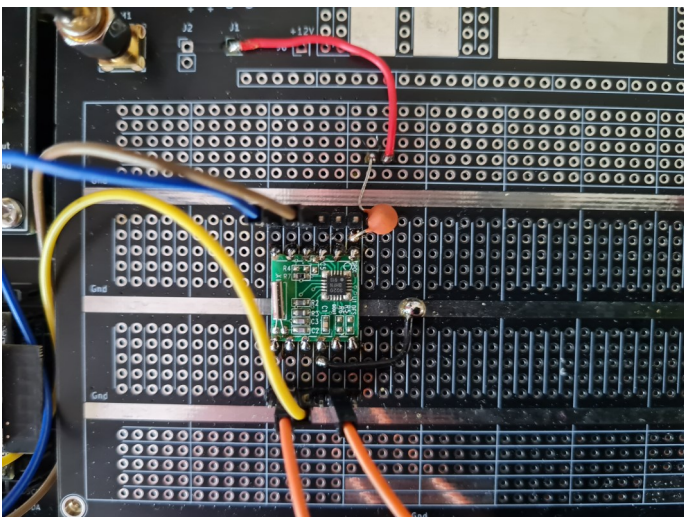
Performance

The overall performance is similar to other FM radios that I have. Using a 1 meter wire antenna I could receive stations but overall reception was not great. This was

Using The Radio Lab to Test the Si4730 Digital Radio Module



The Si4730 Module connected up to the Radio Lab



Close-up of the Connections to the Si4730 Board

expected as I am in a poor FM signal area. However when I used a 40 meter dipole antenna that is in the attic all that changed and reception was great. I can get stations from all over the country and they are loud and clear.

Finally, using the RadioLab to test the Si4730 module can be both educational and fun. Radio experimentation is a great way to learn about electronics, radio theory, and signal processing. By experimenting with different

components and configurations, you'll gain a deeper understanding of how radios work and how to optimise their performance. And, of course, experimenting with radios can be a fun and rewarding hobby.

For more info visit www.RadioBuilder.org or search for RadioBuilder.org group on Facebook●



RadioLab Kits being made up for dispatch.

Louis Ryan - EI8KI

The Lazy Eight Transverter Project Part 2 - Philip - EI8JT

This article describes some band pass filters required for the transverter.

Two types are needed, a receive filter and a transmit filter. Since the the intended configuration will use a conversion to 28-30MHz with a 12MHz oscillator, the receiver filter must: Supress the 10M band, the oscillator frequency, image frequencies and provide adequate 8M band selectivity.

The requirements for the Transmitter section are suppression of everything except the 8M band signals. . This is more stringent requirement. The lazy way to design a filter is to use design software. Free software is available from W7ZOI, the ladpac suite from Experimental Methods in RF Design.

<http://w7zoi.net/emerrata.html>

The only information I needed were the inductances and Q values for the program to operate. A quick search of a few Ham publications extracted the following suitable values, all used in filters around 30 to 50MHz. 400nH Q150 10 turns on T50-6. 350nH Q160 15 turns on T37-12. 230nH Q130 8 turns on T30-6

Enough to work with without me doing any Q measurements.

So, I set to 'work'. The only choices I needed to make were the bandpass width and the filter type. Many configurations are available, each with its own characteristics.

I settled for 40 to 43MHz. So I could get 40-42MHz on 10M and with a 13MHz oscillator 42-43MHz converted to 29-30MHz. 43-45MHZ with 500KHz maximum signal bandwidth needs dedicated equipment, not my FT817ND. A 15MHz oscillator should do the conversion to 28-30MHz for it when needed.

The transmit filter with the best shape and attenuation outside the passband is the Quad mixed form.

To cover the bandwidth I had to use a centre F of 41 and a bandwidth of 5MHZ. Odd but it worked. The capacitor values were altered to standard values and the filter plotted. It works fine. The Cte and Ctm can be a mix of fixed and trimmer capacitors.

Enter or Edit the following data, then click on "Calculate."

Center Frequency, MHz: 41 | Bandwidth, MHz: 5 | Termination R: 50

Inductance, nH: 400 | Resonator Qu: 150

The default data is for a Butterworth filter. It may be changed with editing.

q = 0.7654 | k12 = k34 = 0.8409 | k23 = 0.5412

Mixed Form Quad Tuned Circuit

Calculate

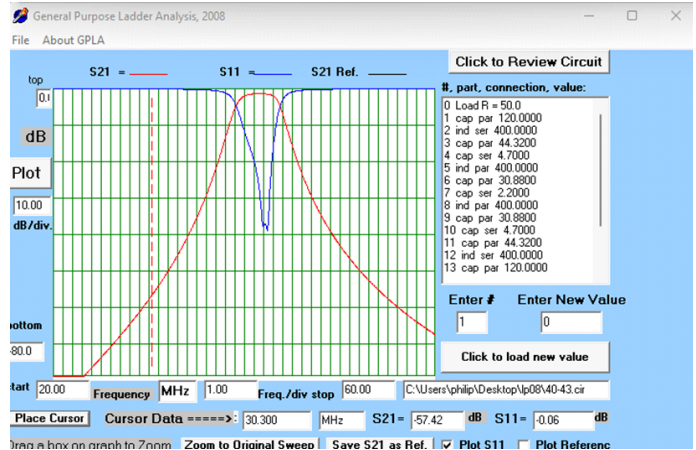
Ce = 114.59
C12 = C34 = 4.3064
C23 = 2.4863
Cte = 44.32
Ctm = 30.88

Data useful for experimental adjustments.

Nodal Capacitance = 37.67 | Normalized Q = 18.29

Save Circuit as default file.

The circuit is shown in the ladder builder screen. The odd values are the trimmer capacitors. The filter shape is excellent flat across the band with minimal insertion loss. With the T50-6 inductors 400nH,



this filter could be used at power levels to clean up rigs broad banded to transmit on 8M but not having the required filtering.

The insertion loss is just under -2dB. 28-30MHz down -65 and -58dB.

The receiver filters do not require power handling components ; only the T37-12 and T30-6 were used.

The software suite provides for double and triple tuned circuit design. Classic and Mixed form. It is interesting to observe the response with different inductors and forms.

Design of Triple Tuned LC Filters 08

Edit or Enter the Following Data. Then click on "Calculate."

Frequency, MHz: 41 | Bandwidth, MHz: 5 | Filter Termination R0 = 50

Inductance, nH: 230 | Inductor Qu = 130

Mixed Form TTC

Calculate

Ce = 200 | Cte = 85.50
Cm = 6.80 | Ctm = 52.29

Save As Default File

Bandwidth % 5

Inductance % 5

Data useful for experimental adjustments.

Nodal Capacitance pF = 65.52 | Normalized Q = 15.85

R-par @ end resonators = 518.56

The picture above shows the Triple tuned filter. Changing the inductor value and Q value was all I had to do to generate other filter examples.

The values generated were changed to the nearest standard values and stored. The response plots were generated with those values. The same procedure for the double tuned filters.

General Purpose Ladder Analysis, 2008

Click to Review Circuit

#, part, connection, value:

2	ind par	230.0000
3	cap par	36.9500
4	cap par	4.8000
5	ind par	230.0000
6	cap par	54.2200
7	cap ser	5.0000
8	ind par	230.0000
9	cap par	36.9500
10	cap ser	27.0000
11	ind ser	0.0000
88	Source R =	50.0
89	Inductor Q =	130.0

Enter # | Enter New Value

1 | 0

Click to load new value

Place Cursor | Cursor Data: 28.000 MHz | S21 = -60.26 dB | S11 = -0.02 dB

Value Tune Mode: Up | Down | # = 4 | % = 5 | Value =

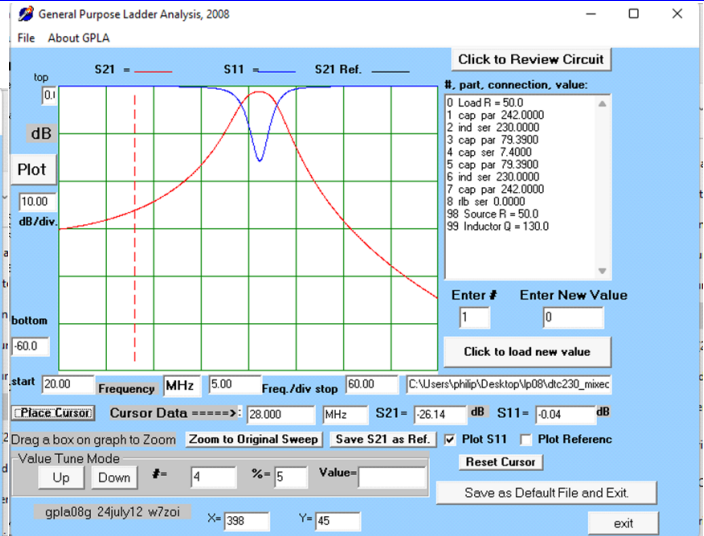
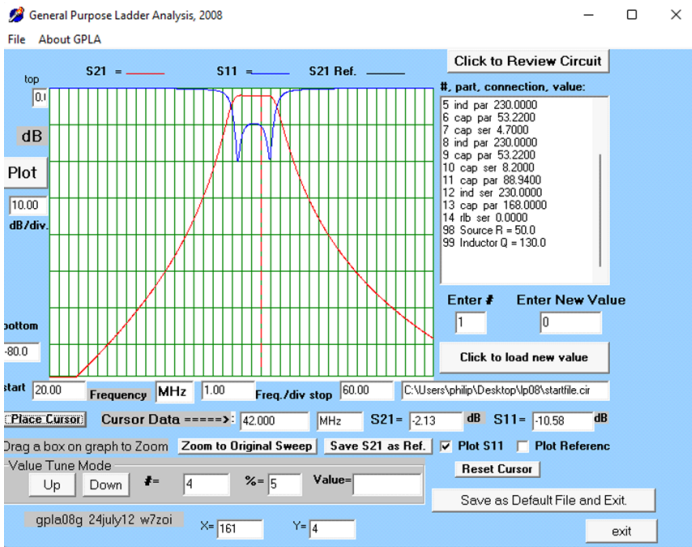
Save as Default File and Exit.

To the left we show a double tuned filter Classic form. Notice the steep roll off below the filter pass band.

A better more symmetrical response with

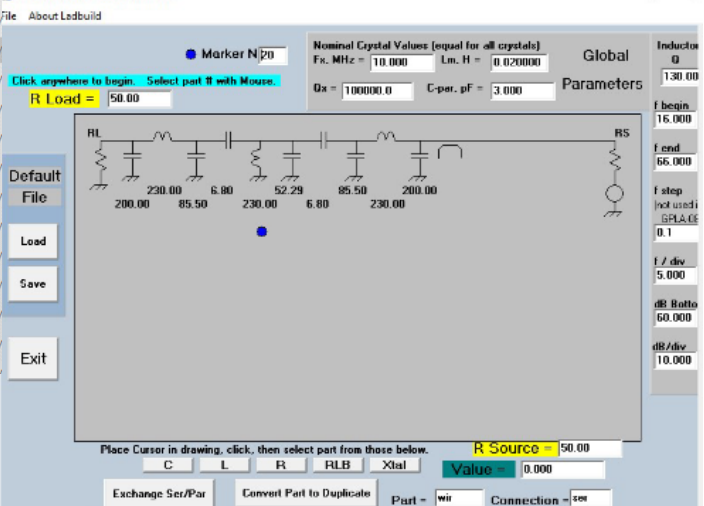
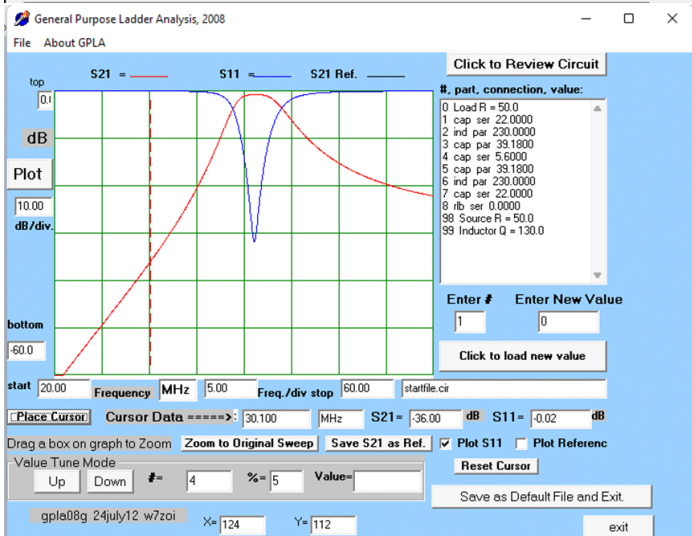
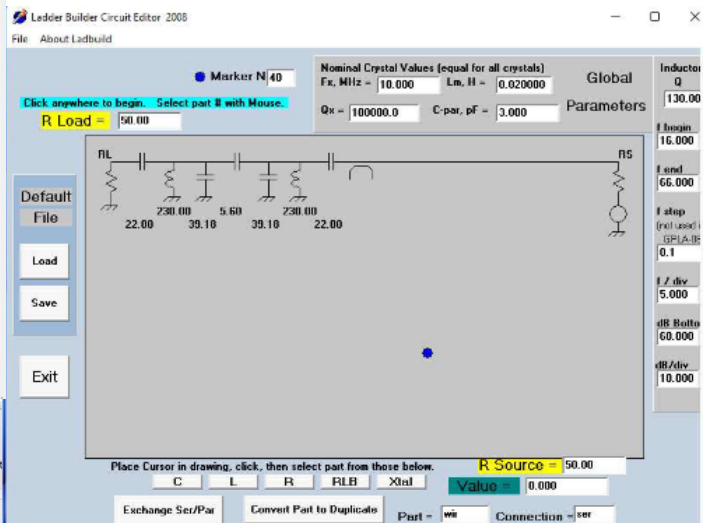
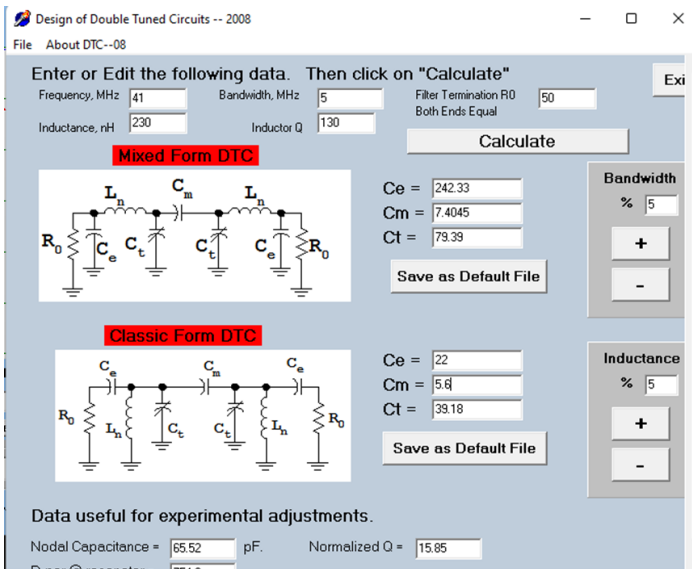
The Lazy Eight Transverter Project Part 2 - Philip - EI8JT

the mixed form below. Preferred over the classic
The suppression of 10m is within a dB for each form.



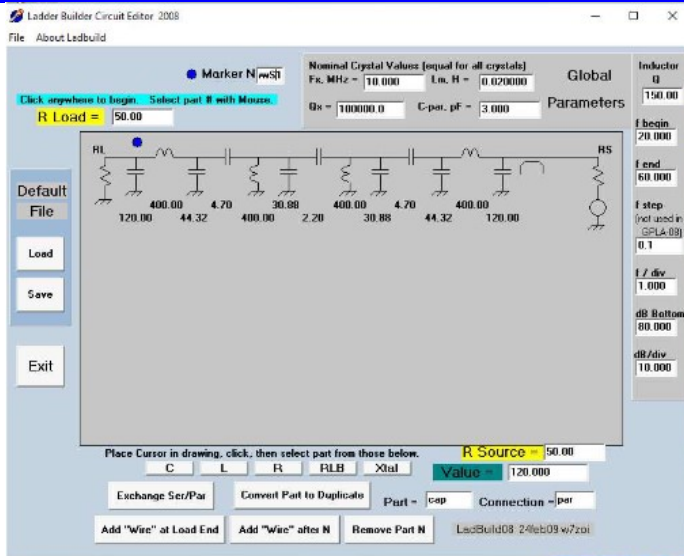
The captured screens use the T30-6 230nH toroid. No great difference with the T37-12 350nH in responses. At 30MHz they varied by -1dB. The only advantage with the T37-12 is its power handling. I could be used in driver amplifiers whereas the T30 is best kept for very low-level filters i.e. after a TX mixer.

In conclusion I have decided on three filters as being suitable for the transverter.



This is the mixed form of the Double Tuned filter. Poor roll of below the passband but steeper above. For the proposed scheme the Classic is preferable, better suppression of the 10M band.

Lazy 8 Transverter Project



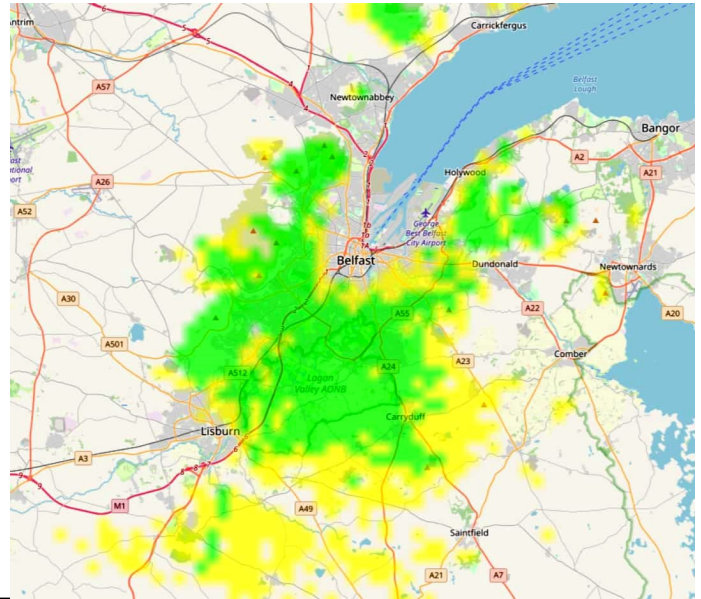
In theory there is no difference between theory and practice. In practice there is!

Part 3 gets more practical with building and testing of the low pass and bandpass filters

New Repeater in Belfast

GB7RK is a Belfast based C4FM (Fusion) repeater which is operational on DVU35. The Keeper/NOV Holder /Sysop MI5DAW

O/P 439.4375 I/P 430.4375 (-9 Mhz) Connected to WX room 44222 (NWFG and ref 44222 (GBNWFG))

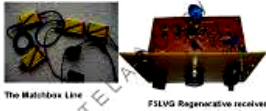


Join the G-QRP Club

The G-QRP-Club is an organisation run entirely by volunteers to promote Low Power Radio (QRP).

The G-QRP CONVENTION: 2nd - 3rd September 2023

The 2023 Convention will be Saturday 2nd & Sunday 3rd September at the Harper Adams University Campus, near Telford, TF10 8NB. More information to follow as plans develop.

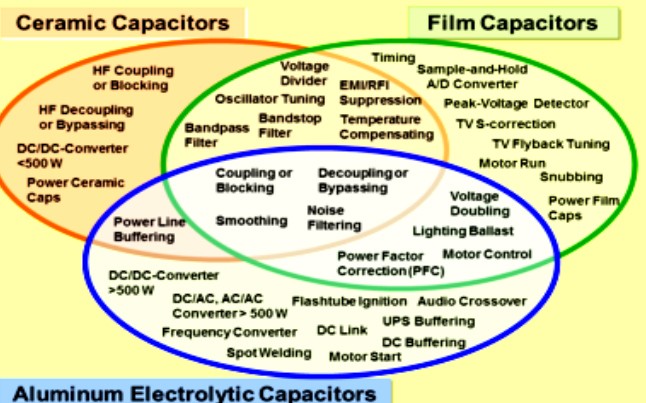


In this issue:
 RF Generation for Superhets - The Matchbox Radio Line
 yu7m/MAS Transceiver - 459kHz BFO - FSLVG Regen RX
 New Way of Constructing Bleeds - High Gain L-match
 Sabin News - Value Day Report
 Antennae Anticodes and Awards
 Communications and Contests - Member's News

The quarterly magazine, SPRAT, provides interesting reading. Articles covering Antennas, Test gear, Transmitters and Receivers of varying complexity. More information: <https://www.gqrp.com/index.htm>

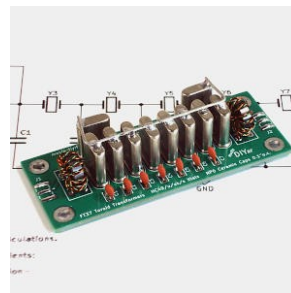
Membership Service include a QSL Bureau, component supplies books and reprints

Overlapping Applications of Capacitor Types



Check out our site: <https://mostlydiyrf.com/>

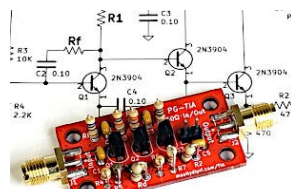
Kits and modules available including :



8-Pole QER Crystal Filters

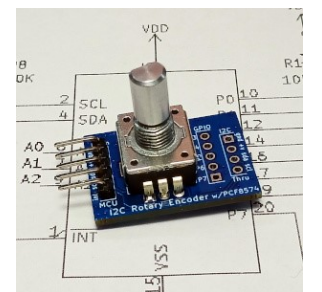


TIA-AGC IF Amplifier



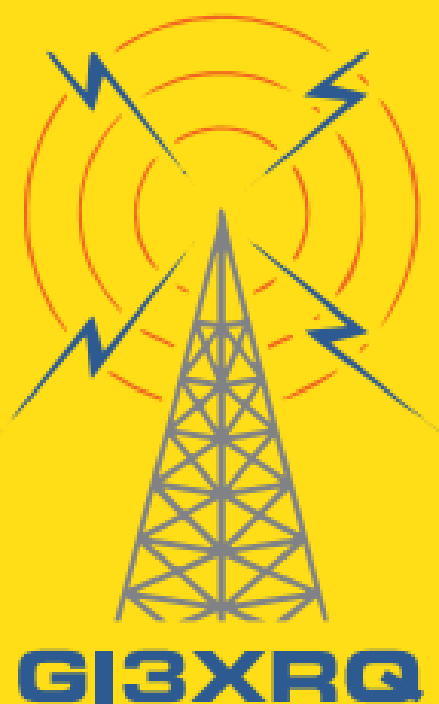
ematic follows Hayward W7Z01 and Kopski K3 termination-insensitive IF amps [http://w7z01/ched_amp/ifier.pdf]. This version is for a single directional amp. This makes it usable in non-stems or paired together for bi-directional i
 istors are 2N3904. All resistors are 1/4 Watt

ADE-1 Double Balanced Diode Ring Mixer



12C Rotary Encoder

There is more coming so subscribe to be alerted of our new products



54th Annual Radio Rally

Visit our
Facebook
page for map,
and last-minute
news.

Usual Traders including

- ▶ **P&D CB, Amateur Radio Supplies**
Peter has all types of amateur radio, cb radio, pmr radio, shop radio, and motorbike intercoms in stock.
- ▶ **Test & Radio Equipment**
Brian has loads of hardware and cables at rock bottom prices.
- ▶ **Alan Weise**
Alan has new and used radios, components and test equipment.  *Billy Goat's Stuff*
- ▶ **Bring & Buy**
Do you have surplus equipment? Bring it along.
- ▶ **Worked All Britain**
Ian & Esther WAB G10AZA, G10AZB



RSGB QSL Bureau
and membership stand,
meet the Region 8
Representative.

SATURDAY 17th June 2023

Ballygilbert Presbyterian Church Hall



376 Belfast Rd, Bangor BT19 1UH

**Good parking available in church car-park
and on roadside verge.**

Doors open: 11.30am
Admission: £3.00

Enjoy light refreshments and chat
face-to-face for a change.



Need directions or to book a table
contact MI00BR at andrewis@live.com

Sporadic E (Es) Propagation

Sporadic E (Es) is a phenomenon that occurs in the Earth's ionosphere, where patches of highly ionized gas known as sporadic E layers form at irregular intervals and heights within the E region of the ionosphere. These layers can reflect radio waves at VHF and UHF frequencies, allowing radio signals to travel much farther than they would normally be able to.

Sporadic E is more common at certain times of the year, particularly during the summer months in the Northern Hemisphere. The causes of sporadic E are not fully understood, but it is thought to be related to atmospheric conditions such as temperature, wind, and electric fields, as well as the interaction between the ionosphere and the Earth's magnetic field. Typically, Sporadic E season commences around May and diminishes around the end of August, although this year it appeared around March/April. The exact causes of sporadic E (Es) are not fully understood, but there are several theories about what might be behind this phenomenon.

One theory suggests that sporadic E may be caused by atmospheric gravity waves, which are created by the interaction between the Earth's atmosphere and the Sun's radiation. These waves can cause pockets of ionized gas to form in the ionosphere, which can reflect radio waves at VHF and UHF frequencies.

Another theory suggests that sporadic E may be caused by electric fields in the ionosphere, which can create horizontal plasma drifts that lead to the formation of the sporadic E layers. These electric fields can be influenced by a number of factors, including solar radiation, geomagnetic activity, and atmospheric conditions.

It is also thought that sporadic E may be related to the interaction between the ionosphere and the neutral atmosphere, particularly in the lower regions of the ionosphere. This interaction can cause turbulence and mixing in the ionosphere, which can lead to the formation of sporadic E layers as a result of wind shear.

Overall, sporadic E is a complex phenomenon that is influenced by a variety of factors, and further research is needed to fully understand its causes and effect.

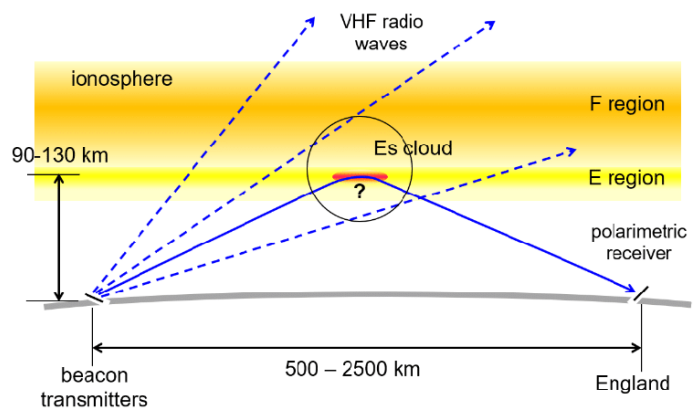
Sporadic E (Es) can affect radio communication at VHF and UHF frequencies, typically between 30 MHz and 500 MHz. Most of the time Sporadic E will affect 28 – 60 MHz and occasionally it creeps into the 70 – 150 MHz range. These frequencies include those used for FM radio broadcasting, television broadcasting, amateur radio, aviation communication, and other types of communication systems. At this point there will be a huge number of Commercial radio stations to be heard in the FM broadcast band. This is a good indication to check the 2 metre band. Sporadic E seldom affects the spectrum above 170 MHz but there is always a possibility.

During periods of sporadic E, radio signals at these frequencies can be reflected off the sporadic E layers in the ionosphere, allowing them to travel much farther than they

would normally be able to. This can result in long-distance communication over short ranges and can be particularly useful for radio operators who are trying to communicate over long distances with low-power or portable equipment.

When sporadic E ionisation clouds form, the intensity builds up steadily. First this affects frequencies in the lower part of the radio spectrum, and then rises. The highest frequencies that may be affected will depend upon a number of factors including the level of ionisation - this will vary from one cloud to the next.

Another factor that is found with Sporadic E clouds, is that they can become opaque below a certain frequency, dependent upon the state of the cloud. The critical frequency varies significantly in time and space making it very difficult to utilise for commercial radio communication systems.



Sporadic E clouds vary greatly in size and also in the intensity of the ionisation. Some clouds may be a few metres across, whereas others have been seen that are over 200 km across. They typically occur in the regions between about 90 and 120 km, although they can extend much higher than this.

The shape also varies - some are approximately circular having approximately the same dimensions in both directions across them, while others are long and thin. While the actual shapes are not of great importance, they explain to some degree why some stations may experience sporadic E propagation whereas others may not experience it or the areas where stations they can hear are totally different.

The clouds are also remarkably thin. The E region itself spans altitudes of several tens of kilometres. Many Sporadic E clouds may be only a few tens of metres thick. As a result the reflections occur as a result of an extremely sharp change in electron density. Other clouds may be much thicker and have a much more defined level of ionisation which leads to reflections in the normal way.

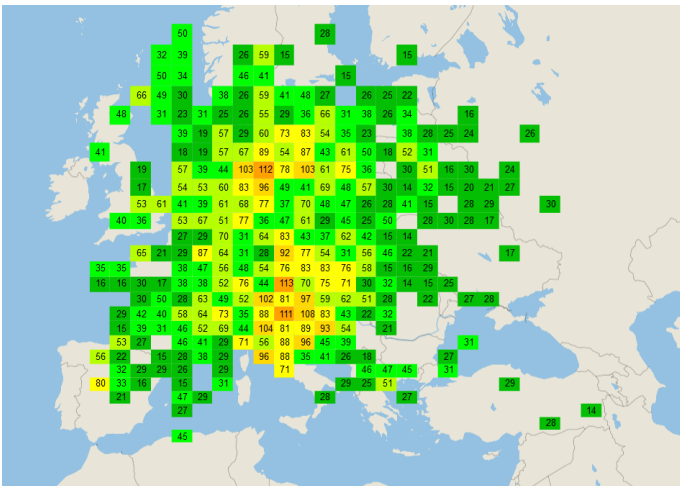
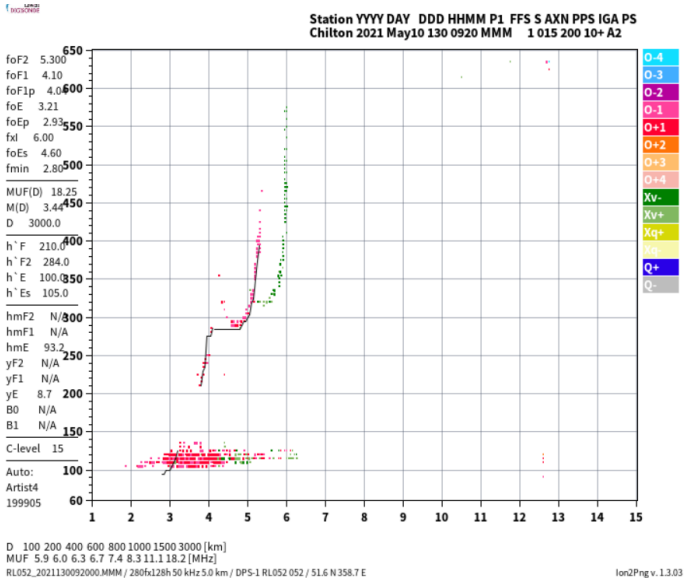
Not only is the formation of the Sporadic E clouds, almost random, but they also move as a result of the winds in the upper reaches of the atmosphere. The winds reach speeds of up to 400 km per hour. This movement can result in the sporadic E skip changing relatively quickly - the source of signals heard / interference will change over a relatively short period of time.

Sporadic E (Es) Propagation

Sporadic E can have both positive and negative effects on radio communication. On the one hand, it can allow for long-distance communication in the order of 2,000 km on frequencies that are not normally usable at those distances. On the other hand, it can also cause interference and signal degradation for radio operators..

It would appear that most days DXmaps <https://www.dxmaps.com/spots/mapg.php?Lan=E> send warnings that Sporadic E Propagations is possible following a number of log reports submitted automatically from successful operators. When a really good opening is in operation the map below typically maps out the paths an location over which Sporadic E clouds exist.

frequencies are slowly becoming available in more countries and there is no harm checking the maps on a regular basis to see if there are any openings.



The yellow squares denot propagation above 70 MHz, orange and red squares would indicate above 100 MHz and 150 MHz.

From Log entries received where locators have been exchanged it is possible to map the paths of signals. Naturally as the density of Sporadic E increases more an more QSOs become possible. The map below shows the plots of paths between stations.

As is the nature of Sporadic E, it can pop up quite unexpectedly so I tend to refer to the Ionogram as shown above. A thick trace at approximately 90 - 100Km is an indication that there are sporadic E clouds in the vicinity. This can occur at any time so, unless there is already activity on the band it may be a while before it is detected.

Nowadays the Digital modes are left active and will pick up on Sporadic E almost as soon as it happens.

Other indications that Sporadic E is present may be down to worsening conditions on 40 metres with weak and watery signals. Distances covered by 20 and 15 metres may be severely diminished also.

The widgets below are also useful indicators as to where Sporadic E clouds may be and frequencies to try.



Solar-Terrestrial Data - https://www.nbuhh.com			
15 Sep 2012 1515 GMT	VHF Conditions	UF Conditions	Condition
SFI 97 SN 53	Aurora Band Closed	17-15m Fair	K-In A-In
A 6 K 2/PIntry	6m ESEU Band Closed	12-10m Fair	0-2 0-7
X-Ray B1.5	4m ESEU Band Closed	Geomag Field QUIET	Unsettled 3 8-15
304R 141.0 @ SEM	2m ESEU Band Closed	Sig Noise Lvl S1-S2	Active 4 16-29
Ptn Flx 0.13	EME Deg GOOD	MUF US Boulder 14.88	Minor storm 5 30-49
Elc Flx 445.00	MUF 14.88	SFI A-In K-In Prop Opng	Major storm 6 50-99
Aurora 4.7/n=0.92	MS km e 120 18 UHF MHz	>180 <3 E-U open	Severe storm 7-9 >100
Bz -1.2 Su 393.2		>180 <3 N-S open	Aurora

FT8 has become a popular mode on Sporadic E but don't forget to try voice and other means of Digital Communications.

Bands such as 50 MHz can give one or two surprises. The Dx maps are only good when a contact is made and logged. If many more show up then the maps becomes a good indication. Probably the most reliable source of information is the Ionogram.

50 MHz may give an occasional surprise. One late night session, I put out a CQ call at 2am, and to my surprise a Spanish station answered almost immediately. We were both amazed at the contact so it does pay to put out that occasional CQ call using voice.

Naturally it is possible to work stations on 30 MHz and upwards during a good Sporadic E opening. 40Mhz

Steve Wright - E1SDD/GR4GFC
wright14@gmail.com

The Four Metre Band

The Four metre band was always referred to as the "Gentleman's Band" due to the relatively small community of operators who were on first name terms with one another. These were real radio hams as they either built their own equipment or modified existing ex-commercial equipment.

Until recently the Four metre band was not hugely popular in Ireland mainly because there were very few commercial black boxes and it was "just another VHF Band". For the more serious and dedicated operators, there was the option of a transverter, allowing SSB and FM operation, and, for general use, many would delve into the innards of Low Band ex-commercial equipment and align it onto the Four metre band.

Some resourceful operators converted existing Six metre equipment for use on Four metre band, whilst many others designed and built their own transceivers. Twiddling with radios on the bench is primarily what we do, as radio amateurs, because it is part of the hobby and is cost effective.

In the last few years, more and more countries have allowed operation on the Four metre band although the actual band allocation varies in some countries. As a result of this, the amateur radio manufacturers have offered radios which include the Four metre band. Anytone, Wouxun and Retevis have produced some dedicated Four metre transceivers which perform admirably on the 4 metre band.

Retevis have recently introduced the RT9000D to the market and several YouTube videos have given it good reviews. Recently, three operators in the West of Ireland purchased the RT 9000D **Fig. 1**. This radio covers 66 - 88 MHz which is ideal considering the new segment of VHF Allocation we received a couple of years ago.

Of course, modified commercial equipment would be adequate for most operations mobile or portable.

More recently Martin Lynch has offered a the Wouxun KG-UV8G handheld radio that works on both 4 and 2 metres **Fig. 2**. This is a sensitive handheld and very user friendly with good reviews.

EI7FAB, was surprised to hear a Dutch station on his KV-UV8G during a Sporadic E opening. He promptly called the station back and succeeded in a two way exchange of details on the high power setting using the Rubber Duck antenna.

Other radios with 4 metres are the European Models of the ICOM 7100 and, more recently the European model of the ICOM 7300. The advantage of these transceivers is that it is easy enough to interface Data Modes such as RTTY, FT8 and VARA,

The Propagation characteristics of the Four metre band make mobile operation more interesting as the distance covered is generally superior to Two metres. Auroral,



Fig. 1 Retevis RT 9000D 4 Metre Band Transceiver

Sporadic E and Tropospheric Propagation often result in some vast DX openings. Sometimes a DX station will appear on the operating channel out of the blue.

Normally Sporadic E season is noticeable from the end of April until the end of August. Recently there have been strong openings around 9 am Local time. Moving into the Summer Sporadic E is most noticeable around 5pm.

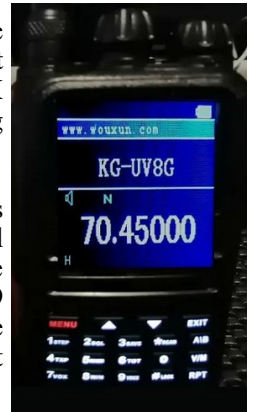


Fig. 2 Wouxun KG-UV8G

Four Metres will produce good DX via tropospheric propagation. Aircraft scatter is particularly noticeable on this band with sharp rise and falls of signal strength. My home QTH in the UK was in the flight path to Heathrow so this was noticeable almost every day.

Tests were conducted on many bands, by members of the Galway VHF group, especially in Connemara which has a very rugged and mountainous terrain. Bands from 70cms to 10 metres were included.

Surprisingly, as VHF Bands go, the Four-metre band actually gave the best signal strengths over defined distances. 4 metres managed to circumvent many obstacles. It was concluded that the 4 metre band would always give better results whilst mobile in most areas, even in Connemara. Tests over a given path from Salthill (9m Above Sea level) to Headford found a greater signal strength for a given power level over a fixed path on Four metres vs Two metres - not surprising as the wavelength is longer. Furthermore, there is less likelihood of mobile flutter or dropouts during mobile operation.

Galway has a 4 metre Allstar Gateway which has proven quite useful around Galway City and surrounding areas within a 25 mile radius. The Gateway is located 9m above sea level in Salthill and is not in the best of locations.

The Gateway has always worked well and while linked into HUBNet UK, there has always been plenty of activity. If HUBNet is quiet, a quick call will always yield results.

Steve Wright - EI5DD/GR4GFC
wright14@gmail.com

An Overview of VARA and VARAC - Part 2

VARA FM is capable of achieving data transfer rates of up to 10,000 bits per second (bps) over FM radio links, which is significantly faster than traditional FM digital modes such as APRS (Automatic Packet Reporting System) or POCSAG (Post Office Code Standardization Advisory Group). It is also claimed to have better performance in noisy and fading radio environments.

The VARA FM mode requires specialized software and hardware to operate and is not compatible with other FM digital modes used in amateur radio. It has gained popularity among radio amateurs who require high-speed data transfer over FM radio links, particularly for emergency communications and digital voice repeaters.

VARA FM has a bandwidth of approximately 3 KHz, while the faster 9600 FM Wide has a bandwidth of 6 KHz. Var FM requires an FM Radio capable of handling 9600 Packet Radio with a special soundcard (6KHz bandwidth) connected via the rear panel of the radio. Some radios have the soundcard built in and these just need a connection to the computer to adjust levels.

The 3KHz bandwidth utilised much the same system as VARA HF although will appear much faster as the FM signal will seldom encounter any serious interference and the Modem will automatically send and receive at the highest possible error free symbol rate.

It should be noted that the symbol rates and number of subcarriers is much higher due to the wider bandwidth of an FM carrier. The FM narrow mode is capable of sending at speeds up to 12,750 BPS and the wide mode 25,210 BPS.

The VARA FM modem panel appear much the same as that of the HF Modem. The program to drive the system is VARAC which was developed by Ira Deutch 4Z1AC. This program is updated on a regular basis, and it is wise to regularly check for updates.

What makes VARA So Special?

It utilises the OFDM (Orthogonal Frequency Division Multiplex) Modulation system.

OFDM stands for Orthogonal Frequency Division Multiplexing, which is a digital modulation technique used in modern communication systems such as Wi-Fi, digital television, and cellular networks, and VARA.

OFDM divides a high-speed data stream into multiple lower-speed subcarriers, each modulated with digital data. These subcarriers are orthogonal to each other, meaning that they are mathematically independent and do not interfere with each other. This makes it possible to transmit multiple data streams simultaneously without interfering with each other. **Fig.1**

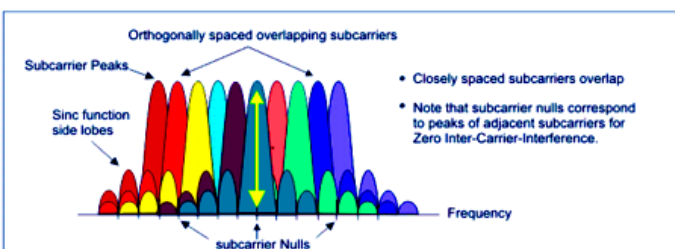


Fig. 1 OFDM Frequency Spectra

OFDM is able to overcome the effects of multipath

interference, which is a common problem in wireless communication where the signal is reflected off buildings, trees, and other obstacles. The use of multiple subcarriers spaced closely together makes the OFDM signal more resistant to fading caused by multipath interference.

Two Versions VARA FM Wide and VARA FM Narrow.

In VARA Narrow FM there are 11 levels of Modulation. In VARA Wide FM there are 13 levels of modulation. **Fig 2.**

Level	VARA FM WIDE				VARA FM NARROW			
	Symbol Rate	Carriers	Mod	Net Rate (bps)	Symbol Rate	Carriers	Mod	Net Rate (bps)
1	42	14	4PSK	566	42	14	4PSK	549
2	42	29	4PSK	1188	42	29	4PSK	1181
3	42	58	4PSK	2390	42	58	4PSK	2390
4	42	98	4PSK	4040	42	58	4PSK	3188
5	42	98	4PSK	5387	42	58	8QAM	4252
6	42	98	8QAM	7185	42	58	16QAM	5668
7	42	98	16QAM	9580	42	58	32QAM	7087
8	42	116	16QAM	11340	42	58	64QAM	8505
9	42	116	32QAM	14144	42	58	64QAM	9567
10	42	116	64QAM	16932	42	58	128QAM	11162
11	42	116	64QAM	19003	42	58	256QAM	12750
12	42	116	128QAM	22102				
13	42	116	256QAM	25210				

Fig. 2 Symbol Rates, Modes, and Net bit rate in bits per second

VARA always maintains a constant symbol rate for each carrier but the different levels refers to the number of carriers used. 2 primary modulation modes used. Phase Shift keying PSK and Quadrature Amplitude modulation

PSK stands for Phase Shift Keying, which is a digital modulation technique used in communication systems to transmit digital data over an analog signal. In PSK, the phase of a carrier wave is changed to represent digital data.

The phase of the carrier wave is shifted by a certain angle to represent a digital 1 or 0. The most common types of PSK are Binary PSK (BPSK), where there are only two phase angles, and Quadrature PSK (QPSK), where there are four phase angles.

QAM offers advantages such as high spectral efficiency, low error rates, and good performance in noisy environments. However, it requires accurate phase synchronization between the transmitter and receiver, and it may be susceptible to phase ambiguity if the phase shift is not precisely aligned with the receiver.

QAM stands for Quadrature Amplitude Modulation, which is a modulation technique used in communication systems to transmit digital data over an analog signal. In QAM, two carriers, one in-phase (I) and one quadrature (Q), are modulated with the digital data. The amplitude and phase of each carrier are varied to represent the digital data.

The data is usually represented as a combination of two digital signals, each with its own amplitude and phase. The amplitude and phase values are then used to modulate the I and Q carriers, resulting in a signal that contains both amplitude and phase information. In QAM, two carriers, one in-phase (I) and one quadrature (Q), are modulated with the digital data. The amplitude and phase of each carrier are varied to represent the digital data.

The Var FM Modem looks the same as the VARA HF Modem, however, the software determines the function of the system. Other programs are just interfaces. **Fig. 3.**

An Overview of VARA and VARAC - Part 2

VARA FM keyboard to keyboard communication may be used via the Program VARAC. The speeds are fast and will be perfect for file transfer.

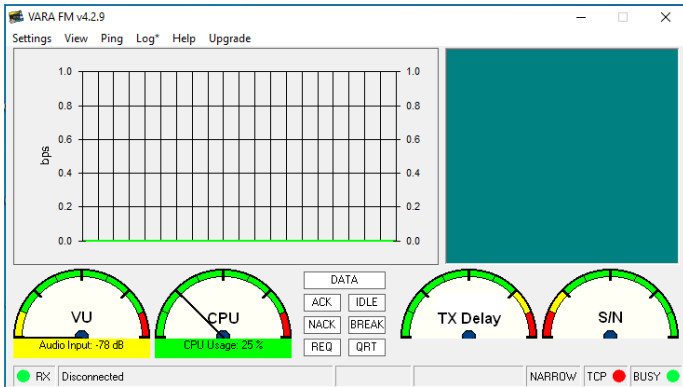


Fig. 3 the Vara FM Modem

The VARA FM system will allow digipeating via up to two stations and this makes an interesting system for EmComms, and local networking. VARA. Files may be sent between stations and if the connection is good these may be passed with great speed. This would include pictures or text files. There is significantly improved weak signal operation through the addition of a lower data rate speed level.

Send Emails via WinLink Express

WinLink Express maybe downloaded from: <https://WinLink.org/WinLinkExpress>.

WinLink Express is a WinLink Email Client supporting a wide selection of soundcard modes and a wide selection of transceivers. It is easy to set up and once up and running it looks similar to any Email system See Fig. 4

WinLink Express may be used as a client for Emergency Communications. It does have a special feature for EmComm use, such as forms creation and compact formless transport.

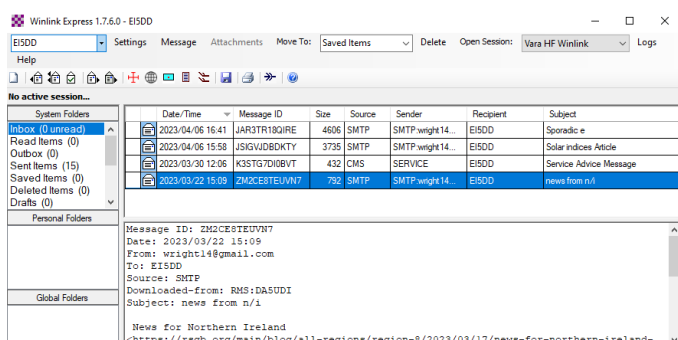


Fig. 4 WinLink Express Screen

Basically this program allow the compilation of Email messages which are stored in the outbox until you want to send them over a HF or VHF Link. To send the mails open a session and select the mode in which you wish to operate. Fig. 5.

Once the modem is connected to a WinLink Gateway it is possible to send Emails which are then sent via the internet to their destination. Using WinLink via VARA FM would require a gateway to be set up in the locality. This Gateway would receive the messages and forward them to their destinations via the internet. If the message is sent to

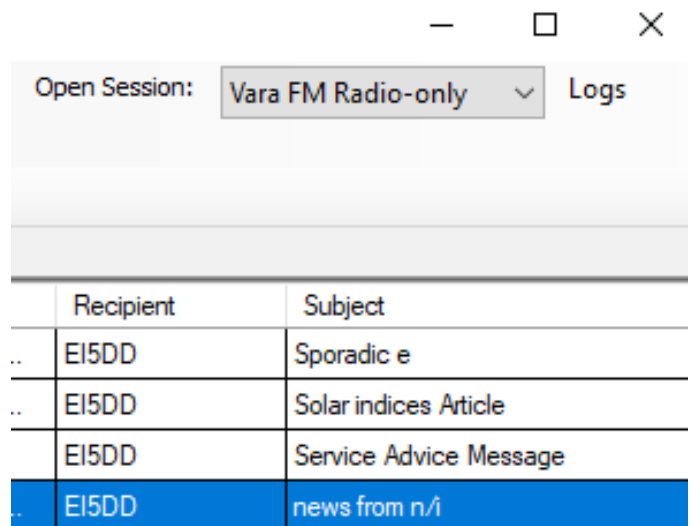


Fig 5 The open Session Box in WinLink Express

a WinLink Email address it will be sent to the recipient via a HF or VHF Link. To download messages destined for you, just connect via HF or VHF if you have a gateway in the locality. Your messages will download automatically when you connect to the Gateway.

To become a WinLink Gateway Sysop, it is necessary to consider whether you have the capabilities to operate 24 hours a day and guarantee that your station will continue to operate during power outages. A part time station is of little value. The resilience of the system is based on stations with backup power supplies and continuous operation.

A combination of VARA and WinLink has been used to assist with the evacuation of yachtsmen requiring medical attention, Community Emergency Communications, and medical missions in far off jungles. Sysops regularly receive letters of thanks for their services.

It is wise to check for updates to the VARAC software as it is continuously evolving. Occasionally the VARA Modem software is updated and these updates can be obtained from the VARA Webpage E15HVK <https://rosmodem.wordpress.com/>.

VARAC, the free P2P real time chat application, is a must for keyboard to keyboard operation and this is also regularly updates and may be found at this location: <https://www.varac-hamradio.com/>

Whilst I am probably a little biased at this stage, I do find that VARA has the edge over JS8Call but I do think that it will become the standard for EmComms. Speed of transfer and accuracy of messages are the premium requirement and this system is able to deliver. If you have not tried this system, you will not be disappointed.

The ability of the VARA modem to adjust and modify the system of modulation in mid QSO according to the signal strength and QRM is most innovative.

You may be impressed with the HF operation but do try the VARA FM system on VHF in your locality and you will be even more impressed●

Steve Wright - E15DD/GR4GFC
wright14@gmail.com

Galway Radio Experimenters' Radio Club

Galway Radio Club

Our Club Monthly Meetings:

The Galway Radio Club met in the Menlo Park Hotel for the monthly club night. It is generally held on the first Monday of every month, except if it is a Bank Holiday in which case, we meet on the second Monday of the month. We also support a virtual presence via. Jitsi (<https://jitsi.org/>).

It generally a well-attended night with members being both physically and virtually present.

Focus:

The focus of our monthly club night is, as a rule, all things Ham Radio is about – learning about new things, sharing information on what works (or doesn't work), showing new (or old) pieces of equipment and giving presentations/demo's where we can. Any "club administration" is handled separately by our committee and only bring to the Monday night meeting anything that the club members need to be made aware of. Of course, Monday night club members can also raise questions/concerns/issues etc. to the committee.

Last Club Night:

Last club night (03-April), was an relatively short night – we only had a very small number of members.

Upcoming Events

There are quite a number of upcoming local events that we want to participate in, namely:

Date	Event
22-April	Marconi Weekend
23-April	Connemara Marathon
29/30-April	Gala Dinner, Rally and IRTS AGM

So most of the discussion centred around how we might play a role in the events, what was required to do so, and who would be available to support the who events.

From there we quickly covered the other upcoming events and then moved on to a presentation by Tom Frawley

St. Patricks Day

We briefly touched on St. Patricks Day and any calls made during that time. An email had been sent out which had a collated set of contacts made across a number of members. We made 125 contacts, with (at the time of writing) 50 confirmed: See panel in next column.

At the time of the meeting, an additional 3 contacts had been confirmed, and at the time of writing this article we were up to 56 confirmed contacts.

Maamturks Challenge

We talked about the Maamturks Challenge and how it went on 01-April. From the club, Tom Frawley (EI3ER), Gerry Ormond (EI8XB), Ken Collins (EI4FOB), Ciaran McCarthy (EI8IH) and Steve Wright (EI5DD) took part, with Tom on control and Steve also running an "Internet

based Phone".

On the day, 169.63KHz worked perfectly, but 145.4MHz didn't work great at all - even on 25W. Ken went out and experimented with the antenna, moving it to different locations in the car park to see if it made a difference. He found a sweet spot about 20-30m away from the original spot and this made a big difference. 218 started the challenge, with 177 finishing. There were 2 injuries that Mountain Rescue had to react to - but none from the actual challenge members. One was a lady who slipped and broke a leg - this required mountain rescue and the helicopter - a great photo wastaken of the helicopter landed at Maumean:



AOB

We had some presentations lined up around the St. Patricks Day event and the V26EI DXpedition, but because we had a small number of members, we decided to hold these off until the next meeting.

And that was the end of the night!
Our next club night is 08-May.

Country	No. QSL's
ITALY	9
SPAIN	8
UNITED STATES OF AMERICA	7
POLAND	4
FEDERAL REPUBLIC OF GERMANY	3
NETHERLANDS	3
INDONESIA	3
FRANCE	2
ENGLAND	2
EUROPEAN RUSSIA	2
BELARUS	1
FINLAND	1
ROMANIA	1
UKRAINE	1
BULGARIA	1
NORWAY	1
IRELAND	1
Grand Total	50

Countries worked during the St Patricks Day operation

Shannon Basin Radio Club



Keith EI5IN, Brian EI8IU, Fergus EI6IB, and Anthony EI6GGB on Cairn Hill in Co. Longford for the IRTS 2m/70cm Counties Contest

IRTS 2m/70cm Counties Contest

Operating from Cairn Hill in Co. Longford, a team from Shannon Basin Radio Club took part in the IRTS 2m/70cm Counties Contest on Easter Monday April 10th. Brian EI8IU, Keith EI5IN, Anthony EI6GGB, and Fergus EI6IB operated as EI2SBC/p. Despite heavy showers of rain that could be seen all around from their high vantage point, the team managed to avoid the worst of them on site. Strong QSB was noticed on 70cm making it difficult to complete QSOs at times during the 30min contest. Despite the challenging weather conditions, the event was hugely enjoyable. Shannon Basin Radio Club was delighted to emerge as victors amassing 13 QSOs and 7 counties on 70cm and 42 valid QSOs & 18 counties in the 2m contest.

IRTS AGM Weekend and Shannon Basin Radio Club Rally

After months of preparation, the club was delighted to welcome radio and electronics enthusiasts to Ballinasloe for the 2023 IRTS AGM weekend held on April 29th and 30th. The weekend's events featured a mix of club and IRTS-run activities in addition to over €2,000 in raffle prizes over the course of the weekend. The events included a series of technical talks and the radio show/rally both organised and ran by Shannon Basin Radio Club, the IRTS Gala Dinner celebrating the 90th anniversary of the society, and the 90th IRTS AGM itself.

On Saturday April 29th, the well-attended technical talks featured an enthralling recount of the EIDX groups' DXpeditions. Of particular interest was their recent

adventures in Antigua operating as V26EI where Enda EI2II described the fun and challenges involved in establishing their operations base for the trip. IRTS Youth Officer, Niall EI6HIB then talked about the wide range of activities to help promote and encourage youth involvement in the hobby. Rafal EI6LA then shone the light on RTTY; the second oldest digital mode. In a lively presentation, he covered the many uses of RTTY on our bands including QSOs, news, weather, and other purposes. He described how to get started (or re-started) easily. In our final talk of the session, Jeffery EI7IRB spoke about TinyGS; a LoRa based satellite ground station. Jeffrey showcased the merits of this project as a gateway into amateur radio and a perfect mix of science, technology, engineering, and mathematics combining radio, Internet of Things, and space.

Later that evening, special guests Senator Aisling Dolan and RSGB President John McCullagh MBE, and his wife Grace, in addition to all the guests were welcomed to the packed IRTS Gala Dinner with Keith EI5IN (Shannon Basin Radio Club PRO) acting as MC for the evening. Following the presentation of the IRTS Award, Shannon Basin Radio Club held the first of two raffles of the weekend. Nine prizes thanks to our very generous sponsors Ballinasloe Credit Union, Shearwater Hotel, and Andy EI7IOB were handed out to lucky winners that evening.

Following a very late night, club members were back on site before 7am the next morning in preparation for the load-in for the eagerly awaited radio show. Over 25 traders and clubs set up in preparation for the rush making it one

Shannon Basin Radio Club

of the largest radio shows in Ireland this year. At 9am, entry and raffle tickets went on sale and a large queue built up well before the doors were thrown open at 10am. The club was delighted to welcome amateur radio and CB clubs and enthusiasts. The large venue filled quickly and over the course of several hours, bargains were snapped up and friends both old and new used the opportunity to connect. From 11am, the IRTS 40m news was read live on stage in the venue by Rafal EI6LA followed by Stefan EI4KU on 80m at 12pm. At 12.30pm, all eyes turned to the monster raffle with featured a whopping fifteen prizes thanks to our fantastic sponsors WiMo, Yaesu UK, Long Communications, Messi and Paoloni, Martin Lynch and Sons, MFJ Enterprises, Icom UK, Wescom Ireland Ltd., Satworld.ie, Begali Keys, Airmast, Seán from Charleville, Eddie EI3FFB, and EI2WRC.

The final event of the weekend; the 90th IRTS AGM then commenced at 2pm. Shannon Basin Radio Club was honoured to be awarded the Shandon Trophy for the leading station in the 2m restricted section of the IRTS VHF/UHF Field Day, the IRTS HF Shield for highest scoring Single Operator EI station in the UKEICC DX SSB contest, and the IRTS IOTA Trophy as the leading EI/EJ station in the 2022 IOTA Contest.

The club wishes to thank everyone who travelled to Ballinasloe for the weekend in addition to all our excellent sponsors and club member volunteers that helped ensure it ran as smoothly as possible.



Keith EI5IN presents Stan EI7DGB with his raffle prize of a premium Expedition Turtle key sponsored by the renowned Italian key maker, Begali



Enda EI2II recounting the adventures of the EIDX group during the technical talk sessions



A view of part of the packed room during the Shannon Basin Radio Club rally



Daniel Rusek presented with his prize of €50 sponsored by Seán - Charleville by Keith EI5IN

Shannon Basin Radio Club



Keith E15IN presenting lucky winner Steve Brosnan E18FHB with a brand new Yaesu FTM300 dual-band transceiver sponsored by Yaesu UK



David Boyne (Eldertree Engineering) receiving his prize sponsored by Eddie E13FFB from Keith E15IN



Keith E15IN presents Rafal E16LA with his new ICOM SM20 microphone and Icom kit sponsored by Wescom Ireland



Peter Tracey (on right) is the lucky winner of essential shack equipment sponsored by MFJ Enterprises.



Pat E12HF receiving his prize of a fantastic 50kHz-3.3GHz vector network analyser sponsored by WIMO from Keith E15IN.



Des E12DNB receiving his prize of a Ferguson i100s internet radio sponsored by Satworld.ie from Keith E15IN



Keith E15IN presenting E14ABB with his new Yaesu FT-65 dual-band handheld transceiver kindly sponsored by Martin Lynch & Sons



Patricia (SWL) pictured here receiving her prize of a drive-on antenna mount from Keith E15IN which was sponsored by Airmast



John E17BA (on right) is the lucky winner of a premium coax cable kit sponsored by Messi & Paoloni

Shannon Basin Radio Club



Keith EI5IN presents Joe EI2ISB with the second of the 50kHz-3.3GHz antenna analysers sponsored by Wimo



Martin EI7IB pictured here receiving his prize from Keith EI5IN which is a brand new 30A power supply sponsored by Long Communications



John EI2FN receiving his prize sponsored by ICOM UK from Keith EI5IN



Stefan EI4KU (left) and Rafal EI6LA (right) busy with the IRTS news which were both read on 40m and 80m from the stage during the rally.



The three awards picked up by Shannon Basin Radio Club for their contesting work



Thanks to our sponsors!



COAXIAL CABLES & CONNECTORS



CUSTOM BUILT
MAST CONVERSIONS
DRIVE ON SUPPORT
CUSTOM T-K BRACKET



Irish Built Telescopic Mast
086 870 9265



LONG COMMUNICATIONS

DUNKINEELY - CO. DONEGAL - IRELAND
TEL. +353 74 973 7152

Joining Shannon Basin Radio Club

Shannon Basin Radio Club's very active membership continues to grow. If interested in learning more about the club or becoming a member, you can contact the club by email to admin@sbrc.ie or find more information on the club's website at www.sbrc.ie. You can also find information and updates about the club activities via Facebook, Twitter, and Instagram.

Shannon Basin Radio Club



**Mike Higgins EIOCL
WESCOM**



Ronnie McGrane EI9ED

GB0AEL Special Event



The North West Amateur Radio Club, MN0NWG, in northern Ireland will be operating a Special Event Callsign, GB0AEL, to commemorate the 92nd anniversary of the first

transatlantic flight made by a female, Amelia Earhart. Our club station MN0NWG will host the activation on most dates throughout the event and we will be active from the field in which Amelia touched down on her epic flight on the weekend of 21st May 1932.



The activation will this year use our new SP7GXP 6 band, 13 element beam on our 20m tower and various loop and wire antennas.

For our field activation we will run a 6 band

HEXBEAM on our portable tower and an 80m doublet. Using all HF modes and we intend running DMR and C4FM via our club gateway MB6DY.

We realise there were many U.S.A General Class operators who didn't get to contact us because of their HF band plan allocation. This was pointed out to us and we attempted to make up for this by calling for this specific class of operators. In the UK our A-Class 80m band allocation is 3.5 - 3.8MHz and 40m band allocation is 7.000 - 7.200MHz. 20m band allocation is 14.000 - 14.350 MHz. This year we will again be actively looking to include as many U.S.A General Class operators as possible.

The activation will coincide with many local events that will occur within our city to celebrate the occasion and we hope this year's operation will be as successful as last year's event.

Our sister station will again be operational this year from the airport in Atchison, Kansas from where Amelia departed on route to Harbour Grace NFL. The Kansas operation will be led by our friends Steve, KC0VYS and Chuck, KB0TOT. They will begin transmitting on 18th May at 12:00 CDT and will finish on 21st May at 12:00 CDT (17:00z). Their operations will be mostly on 17m, 20m, 40m and 80m and they would be grateful for spots on the DX heat and DX watch clusters.

We are very happy to announce that the Kansas operation will be using a unique and special call which will be WB0SFT. Please listen for both GB0AEL and the Kansas crew, feel free to spot us on all the usual places.

For Info please visit <http://www.qrz.com/db/WB0SFT>

More details from

<https://www.qrz.com/db/GB0AEL>



Wayne Lewis EI7HKB Collective Communications



Jim Smith EI4CP & Seamus McCague EI8BP

The Hillwalking Radio Club

The Hillwalking Radio Club

On Tuesday 11th April, members of the Hillwalking Radio Club had a refresher course on CPR and using our new Defibrillator Trainer Unit and manakin. The training was given by one of our Team Jerry who is also a paramedic. This unit was supplied by Hayes First Aid Newcastle West and has all the added extras like a remote control for the different scenarios, but we stayed with the basic. The Unit can be powered by 4 double A batteries as it's just for demonstration purposes only.

The focus was on how to stabilise an injured person on the hills until the rescue services arrived. Some of the techniques included stabilising arm and leg injuries, fractures, using a Sked Stretcher, survival blankets and basic first aid. For this training we used short range license free 446mhz radios which were ideal for onsite communications.



On Saturday 15th of April, we had some more punishment with a course on Casualty Care training with instructor and Mount Everest climber John Mulready.

To facilitate our new members, next month will have our final training session before the summer, a basic radio course not in the classroom but out on the hills. Team members will be expected to use call signs, give grid and GPS references, wind speed and temperature.



The last image the Infurider Anemometer for measuring wind speed and temperature. can be purchased on Amazon.DE for €24.

The Hillwalking Radio Club have a Facebook Page and website:

<https://sites.google.com/view/hwrg?pli=1>

Our Next Meeting



The Mayo Radio Experimenters Network will hold their next club meeting on Wednesday evening may the 3rd at 9pm in the Breaffy House Hotel, Breaffy Co. Mayo. Everybody is

welcome to come along for the evening.

Galway VHF Group

The Galway VHF Group activities kicked in early this year with the provision on EmComms for the Kinvara Rock and road Full and Half Marathon which took place on the 4th of March. A full team of operators were spaces around the course keeping an eye open for any of the competitors experiencing difficulties and requiring medical attention.

The weather conditions were excellent this year, and this minimised the number of injuries caused by slipping on the road. 2 metres was used for the duration of the event and we also had the net controller in touch with the Order of Malta Ambulances via their TETRA system.

On the 23rd of April, the Connemara Ultra Marathon took place through the Inagh Valley, towards Leenane and via the Maam Valley to Maam Cross. There were three events run in total.- the Ultra Marathon, the Full Marathon and the Half Marathon. Several Communications systems were used throughout the event. 80 metres was used primarily for passing information back to the control centre in Maam Valley. 2 metres was used between the operators leading and following each of the events. These operators would communicate with the 80 metre stations should they need to pass information to the base of to the Ambulance services.

APRS was used to display the location of each operator which saved the "where are you now" messages. The weather was perfect until the last ¼ hour when it started to rain. During the event there were no major sprains although a few calls for pick up did go out where the competitor became exhausted. We than the Galway operators Gerry EI8DRB, Tom EI2GP, Steve EI5DD, Andrew EI3FEB, Ciaran EI8IH, and Ronan EI8HJ for their assistance during this event.

Meetings will really have to resume soon as we have not met since COVID times. Many items to discuss and many new projects for the bench. Perhaps we will event stimulate more activity on the airwaves. Portable activity is high on the agenda as some have acquired interesting new equipment. This should keep us going for the next year.

If you know stuff... you can do stuff.

soldersmoke.blogspot.com

Lough Erne Rally



Sunday 7th May

Share Centre
Lisnaskea Co. Fermanagh
BT92 0EQ

Doors Open 11:30 am
Entry £5.00 or €5.00

Free tables for trade, Special Interest, Shack Clearance Bring and Buy etc.

RSGB Sales Stall

Bar, Food Café, Cooked Lunch
Free Parking

Book tables via

argault91@gmail.com

Bangor & District Amateur Radio Society



54th Annual Radio Rally

Visit our Facebook page for map, and last-minute news.

Usual Traders including

- ▶ **P&D CB, Amateur Radio Supplies**
Peter has all types of amateur radio, cb radio, pmr radio, shop radio, and motorbike intercoms in stock.
- ▶ **Test & Radio Equipment**
Brian has loads of hardware and cables at rock bottom prices.
- ▶ **Alan Weise**
Alan has new and used radios, components and test equipment. 
- ▶ **Bring & Buy**
Do you have surplus equipment? Bring it along.
- ▶ **Worked All Britain**
Ian & Esther WAB G1OAZA, G1OAZB



RSGB QSL Bureau and membership stand, meet the Region 8 Representative.

SATURDAY 17th June 2023

Ballygilbert
Presbyterian
Church Hall



376 Belfast Rd, Bangor BT19 1UH
Good parking available in church car-park and on roadside verge.

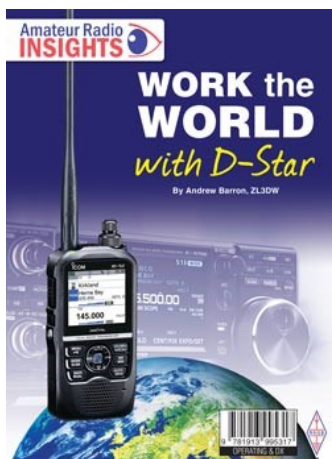
Doors open: 11.30am
Admission: £3.00

Enjoy light refreshments and chat face-to-face for a change.



Need directions or to book a table contact MI00BR at andrewis@live.com

BangorDistrictARS



Work the World With D-Star

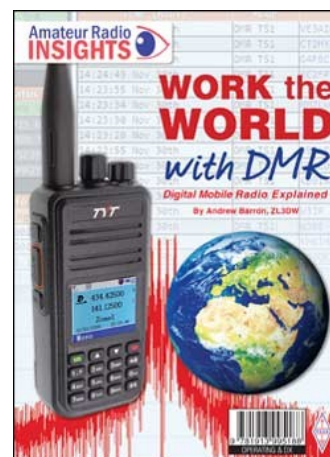
By Andrew Barron, ZL3DW

Work the World with D-Star is a practical guide that explains the steps that you need to follow to make your new D-Star radio work through your local repeater or hotspot. There are terms to discover, including dashboards, reflectors, gateways, hotspots, and Echo. Also, acronyms like AMBE+2, DR, DV, CS, and MMDVM. The book covers how to link to a reflector and what to say when you are making your first calls. If you are using a hotspot you can link to a reflector using the hotspot's Pi-Star dashboard or using the functions on the radio. Or you can use PC software or a phone app. There is guidance on MMDVM (multi-mode digital voice modem) 'hotspots' and step-by-step instructions for configuring the Pi-Star modem. Information on the D-Star data structure and the advantages and disadvantages of digital voice technology over FM, and other digital voice modes such as System Fusion, DMR, and P25 is also discussed. Work the World with D-Star even includes programming instructions for some popular Icom D-Star radios such as the ID-52A, ID-51A +2, IC-705, and IC-9700. As always, not forgotten is Andrew's guide thoughts on "which is best," and "what should I buy?"

Work the World with DMR

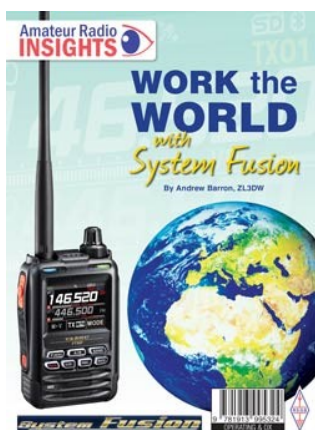
By Andrew Barron, ZL3DW

The Work the World with DMR practical approach explains the steps that you need to follow to make your new DMR radio work on your local repeater or hotspot, and for worldwide contacts. Amateur Radio DMR is not as simple as entering a couple of frequencies and setting a CTCSS tone the way you would for an FM radio. So, you can expect a steep learning curve but of course that's where this book will be the most helpful. You will discover lots of new terms including dashboards, zones, receive groups, colour codes, code plugs, hotspots, Parrot, talk groups, and time slots. Also, acronyms like MMDVM, CPS, IPSC2, DMR-MARC, TGIF, and DMR+. MMDVM (multi-mode digital voice modem) 'hotspots' are very popular accessories and there is information here about their uses and configuration. You will also find coverage of duplex hotspots and the perhaps more familiar simplex hotspots, including a section on how to assemble a hotspot from a kit, a Raspberry Pi, and an SD card. There is even step by step instructions for configuring the Pi-Star hotspot operating system.



Work the World With System Fusion

By Andrew Barron, ZL3DW



System Fusion and Wires-X are exclusive to Yaesu. Although you have to use a Yaesu radio to access Yaesu Wires-X 'rooms' anyone can access thousands of YSF and FCS reflectors using a hotspot, a DV dongle, or a non-Yaesu repeater. Many of these reflectors are in turn linked to DMR talk groups, D-Star reflectors, Wires-X rooms, and other digital voice modes.

As usual Andrew explains in Work the World with System Fusion the base technology from the C4FM (continuous 4-state frequency modulation) which is similar to the 4FSK modulation used by DMR and the GMSK modulation used for D-Star. The DN digital narrow mode and what happens when you press the Wires-X button. For example, if you are connected to a genuine Yaesu repeater or a PDN or HRI-200 Wires-X node, the search function on the radio will list the available Wires-X rooms. If you are using a hotspot, multi-mode repeater, DV dongle, or non-Yaesu repeater, the search function will list YSF and FCS reflectors. A powerful set of features indeed. There is much more besides in this book, with using the various reflectors explained, alongside Hotspots, Troubleshooting and there is even advice on 'What should you buy!'

DV SCOTLAND PHOENIX WEEKLY NETS

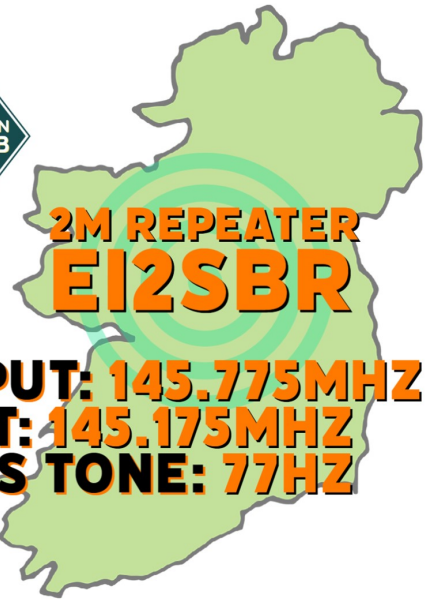


MONDAY NIGHT NET
8PM TILL 9.30PM UK

SATURDAY NIGHT
COAST TO COAST NET
9PM TILL 10PM

STATIC ON TG 23555 & 23556

HAMSHACK HOTLINE : 94110
HAMS OVER IP : 25001



**2M REPEATER
EI2SBR**

**OUTPUT: 145.775MHZ
INPUT: 145.175MHZ
CTCSS TONE: 77HZ**



The May meeting of the Skywave Amateur Radio Club. EI0SW Will take place, Tuesday the 2nd of May at 8.00 p.m. at the Old Halfway House, Rathduff, Co. Cork. T23 VN88

New members or anyone interested in learning more about amateur radio are very welcome to attend.

Handmade Ham Radio Gadgets

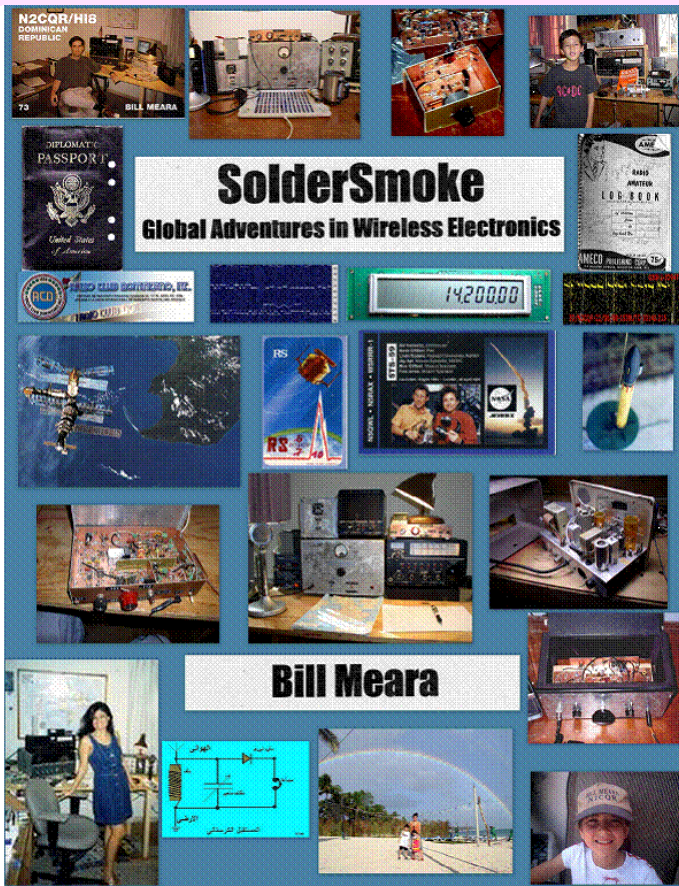


Contact : 0877775249
EI9GWB Arek

Drop by our Online SolderSmoke Store



<https://www.cafepress.com/soldersmoke>



If you know stuff... you can do stuff.

[soldersmoke.blogspot.com](https://www.lulu.com/)

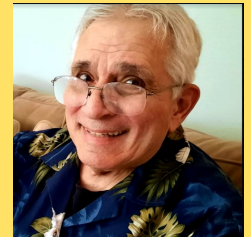
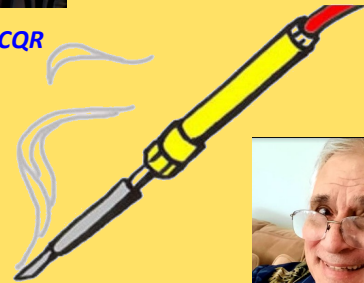
Books are available from the Lulu Website:
<https://www.lulu.com/>

SOLDER SMOKE THE PODCAST



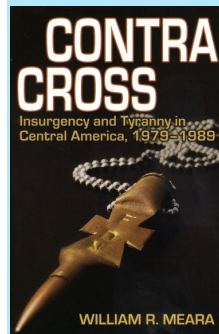
Serving the world-wide community of radio and electronic homebrewers

Host - Bill N2CQR

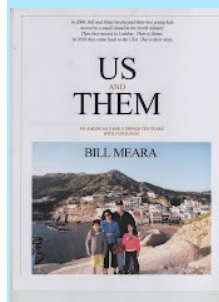


Co Host - Pete N6QW

<https://soldersmoke.blogspot.com/>



A journey through the Central American wars of the 1980s as seen through the eyes of a young American officer who worked on both sides of insurgency in the region: In El Salvador Bill Meara supported efforts to defeat insurgents; with Nicaraguans he worked to keep an insurgency alive. One of very few Americans to see both sides up close, he takes readers into his world as an advisor struggling with cultural differences and human rights violations while trying to stay alive in murderous El Salvador. We join him on dangerous helicopter rides into contra base camps on the Honduran-Nicaraguan border and into a U.S. Embassy under attack. From Special Forces school at Ft. Bragg to Joan Baez's back-stage party in Managua to a contra POW camp deep in the jungle, we get a taste of Meara's world up close.



What happens if you take an American family and send them to Europe for ten years? In the summer of 2000, Bill and Elisa Meara, accompanied by 2 year-old Billy and 4 month-old Maria, left their home in the suburbs of Washington, D.C. and moved to the Azores. There they experienced the highs and lows of diplomatic life on a small distant island. After three years in the Azores, they spent four years London and three years in Rome. Overseas they lived in two houses and two apartments, went to five schools, used four different health care systems, experienced one earthquake, 9-11, the terrorist attack on London, tea with the Queen, the election of Barack Obama... and all the ordinary things that families go through. They lived mostly with the locals, learned Portuguese, Italian, and a bit of Cockney, and made many friends (foreign friends!) They returned to the United States in 2010 with a changed view of the world. This is their story



KANGA PRODUCTS

Kits and Parts for the Radio Enthusiast

Morse Tutors

ATU & Dummy Loads

QRP TX, RX and Audio kits

<https://www.kanga-products.co.uk/>

Walford Electronics

We are suppliers of electronic kits, with very detailed instructions, for home construction, using mainly analogue circuits which are often used in simple Amateur Radio equipment.

You can choose from [Simple](#) projects for beginners, or slightly more advanced [Intermediate](#) ones, right up to our [Advanced](#) projects for skilled constructors, and of course there are also many [Accessories](#)!

Get in Touch

Walford Electronics Ltd.
Vedal House, Vedal Drove, Long Sutton,
Langport, Somerset TA10 9FB
e mail electronics@walfords.net phone
0044 (0)1458 241103

Shannon Basin's Automated Stations

Sliabh Bán Repeater O/P: 145.775 ,I/P :145.175, CTCSS 77Hz

Roscommon Multimode Digital Gateway EI2BED 144.8625 MHz

Current Systems Active in Galway

70cm DMR Repeaters

EI7RHD I/P 430.450 O/P 439.450 CC1

EI7LRD I/P 430.475 O/P 439.475 CC1

EI7AKR I/P 438.425 O/P 430.825 CC1

EJ7IBD I/P 430.500 O/P 439.500 CC1

Yaesu Fusion Repeater

EI2KMR I/P 145.025 O/P 145.625 Wires -X

Gateways

EI2SHD 144.8125 Wires-X Gateway

EI2GCD 145.850 P25 Gateway

EI4GCG 70.425 ALLSTAR node

What is Waiting in the Wings?

1 x 70cm D-Star Repeater

1 x 70cm DMR Repeater completing the network to the South East.



Radio Society of Great Britain
Advancing amateur radio since 1913

ARE YOU A MEMBER OF THE RSGB YET?

ARE YOU MISSING THE BEST AMATEUR RADIO MAGAZINE EVERY MONTH?



www.rsgb.org

MFJ



Luca Clary

MFJ's brands Ambassador for Europe & Italy

+39 327 23 911 40

ambassadorsuit@mfjenterprises.com

www.mfjenterprises.com

The world leaders in Ham Radio Accessories!

RSGB Radio News Services From GI

10:00 3640KHz LSB Dungiven

12:00 TG2354 Time Slot 2 BM Network

19:30 TG 880 Time Slot 2 Phoenix Network



Visit the WESCOM Radio Shop
<https://wescom.ie/>

SolderSmoke Daily News

Serving the worldwide community of radio-electronic homebrewers.
<http://soldersmoke.blogspot.com/>
Providing blog support to the Solder Smoke
podcast: <http://soldersmoke.com>



UK Six Metre Group
Dedicated to promoting 50MHz activity around the world



An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

Published by the UK Microwave Group



ARRL
The National Association for
Amateur Radio®
<http://www.arrl.org/>



<https://www.eurao.org/en/welcome>

Dates for the Diary

SOS Radio Week 1st - 31st May

Lough Erne Radio Club Rally 7th May

GB8DAM Speial Event 16 - 17th May

GB0AEL Special Event 20th - 21st May

Bangor and District ARC Rally 17th June

Friedrichshafen June 23rd - 25th

International Lighthouses on the air 19th - 20th Aug

RSGB



The Radio Society of Great Britain (RSGB) is the national membership organisation of amateur radio enthusiasts. The society was founded in 1913 and incorporated in 1926. The Society is dedicated to the development of the science and practice of amateur radio. It works to increase awareness and understanding of amateur radio and to make the hobby accessible to everyone. Amateur radio licences were issued to the first UK radio amateurs in 1934. The RSGB represents the interests of UK licensed radio amateurs and is a not-for-profit organization that:

- Promotes the general advancement of the science and practice of radio communication or other relevant subjects.
- Facilitates the exchange of information and ideas on these subjects among its members.

The RSGB aims to obtain the maximum liberty of action consistent with safeguarding the interests of all concerned. RSGB membership is open to all who have an interest in radio communications. The national governing body (The Board) is elected nationally. The regional governing body (The Regional Council) is elected on a regional basis. The day-to-day management of the society is under the control of a small team of full-time employees who are based at the society's head office in Bedford. *RSGB Membership is just £59.00 and this includes 12 monthly technical magazines.* Affiliate your club and get the opportunity for all members to log in and read the online publication of RADCOM, RADCOM Basics and RADCOM Plus as well as receiving a hard copy of the Magazine for the Club. Apply here: <https://rsgb.org/main/join-us/join-the-rsgb/>



Welcome To EI3CC

What ever your interest in radio is then maybe we can help you.

Our aim is operating stations outdoors and getting involved with as many groups as possible. Scouting, youth clubs etc are all welcome.

So come join us and enjoy the world of

Collective Communication

WESCOM RADIO SHOP

<https://wescom.ie/>

WESCOM RADIO SHOP

<https://wescom.ie/>

AVIONIC – EXPERIMENTER / AMATEUR – MARINE RADIO



Full Range of ICOM Experimental/Amateur Radio Equipment



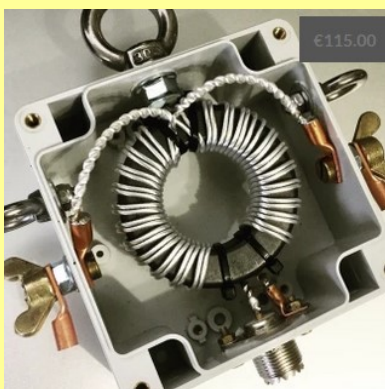
Tennadyne World Class Antenna systems



Spid Rotators



ACOM Linear Amplifiers



Baluns and UNUNs to suit all applications



ICOM Marine Radio



Spiderbeam, Poles and Accessories

Check out our Clearance Section on the Website

Contact Us
00 353 (0)87 2552578
wescomradio@gmail.com
Deerpark, Oranmore,
Co. Galway, H91 X2YH