



Ham Radio Ireland



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HAM RADIO IRELAND

Ham Radio Ireland has been well supported and we have achieved over 40,000 downloads from our links in over 68 countries over the last year.

It is a fact that we are the **ONLY** Independent Radio Magazine in Ireland geared towards the Radio Experimenter.

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

Through the Collective Communications Group, Ham Radio Ireland was re-launched in January 2025. This magazine is for all radio amateurs and electronics experimenters! We remain non political in all respects of the hobby. We will endeavour to print any radio orientated articles submitted to us.

We ensure interesting and vibrant articles and we endeavour not to appear like a parish newsletter.

Special thanks to the many who have supported this Magazine and encouraged us to re-launch it. By popular demand no less!

We publish bi-monthly and welcome any articles from Amateur Radio circles and CB or PMR 446 operators.

We primarily seek technical articles covering home built equipment, antennas, outdoor portable operating, VHF, UHF, Microwave and Satellite operation.

If you have never written an article before - NOT A PROBLEM.

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

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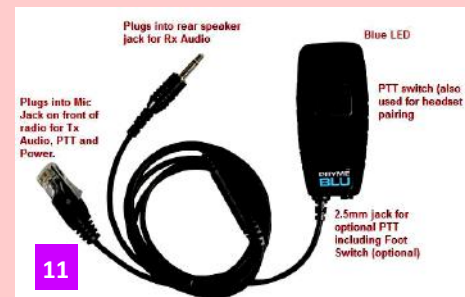
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Submitting Items for This Magazine

We are always delighted to receive any radio related material for this magazine in word format. Pictures should be submitted in an uncompressed JPG format to ensure best quality reproduction.



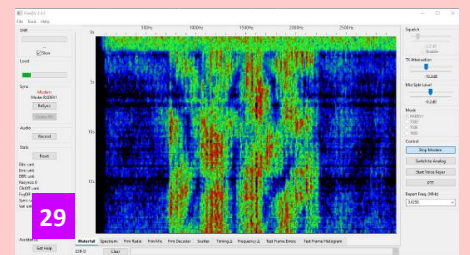
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Cover Image

KSOB
Loop Antennas

Views expressed in this publication do not necessarily reflect the views of the Editor, those of Carrion Press, Ham Radio Ireland or EI3CC

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Want to become Member



**Contact us and we can give you info on
the options available.**

**this year we can now offer public
liability insurance per individual.**

Standard membership €10.00

Membership with cover €15.00

**you can pay via Paypal:
collei3cc@gmail.com
or Revolut: @john83mj6**



EURA 
EUROPEAN RADIO AMATEURS' ORGANIZATION



News and Forthcoming Events Planning 2025

Freedom of association: a right in danger in amateur radio

Some IARU R1 member societies have threatened their members with expulsion if they join EURAO, clearly violating freedom of association, a fundamental right enshrined in article 12 of the EU Charter of Fundamental Rights.



The "argument" put forward by these societies is that EURAO is a competitor, overlooking the fact that IARU and EURAO are also collaborators in areas of common interest, such as CEPT. And if they don't remember that, they should see the [joint statement resulting from the 2017 meeting](#) between both organizations.

For this reason, EURAO does not rule out taking appropriate legal action if the case arises, beyond the crude and stupid threat.

We know that it seems incredible that this mentality is still in force today, but it is and we will do everything possible to unmask and combat it. Some would need to brush up on their **HAM SPIRIT**...

Parks On The Air

Currently POTA has 5 official events throughout the year, as detailed below.

Events start at **00:00:00 UTC** and end **23:59:59 UTC** on the days listed:



New Year's Week

First full week of the new year. January 1-7, 2026

Casual contacts to help ring in the new year!

Support Your Parks

This event happens seasonally, on the 3rd full weekend of the month (Saturday & Sunday UTC). These are 'activity weekends' where the main purpose is to get out in the parks, and have as much fun as possible.

Winter - 3rd Full Weekend of January. January 17-18, 2026

Spring - 3rd Full Weekend of April. April 18-19, 2026

Summer - 3rd Full Weekend of July. July 18-19, 2026

Autumn - 3rd Full Weekend of October. October 17-18, 2026

More Info: <https://docs.pota.app/>

We Have a Facebook Page Ham Radio Ireland



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

EURAO European Radio Amateurs' Organization

the open global radio amateurs community



EURAO was established to promote and support the interests of amateur radio operators across Europe and around the world. For two decades, it has provided a strong voice for hams, encouraging cooperation, technical advancement, and friendship among radio amateurs globally. Whether you're chasing special event stations, participating in EURAO activities, or simply curious, thank you for stopping by. We appreciate your QSO and your interest in amateur radio! In a very short period of time, EURAO has managed to gather around itself many radio amateurs from all over the world in an exciting collective project that has received recognition from many international bodies.

Association, clubs, groups and individuals are part of this young, global and open ecosystem called European Radio Amateurs' Organization. Thanks to all for your support.

EURAO Public Liability Insurance

The purpose of this insurance, with a coverage of 9.000.000 EUR, is to guarantee the pecuniary consequences of the civil liability incumbent on the insured due to consequential bodily, material and immaterial damage caused to third parties as a result of their radio amateur activities, including travel, and events organized by the subscriber, including assembly and disassembly operations.

This means, translated to our activity, a plus of relief when we do radio outside our QTH, either on the beach, in the countryside, in a park or in the mountains, as in the case of field days or SOTA.

EURAO also provides coverage in an urban environment, such as in a square, in a schoolyard or inside a classroom in a workshop with students, or with scouts in their venue or campground.

In addition to covering contingencies, this insurance is useful to obtain authorization to carry out activities in the public space, which is mandatory in some countries.

The coverage of this insurance is worldwide, with some limitations for the USA and Canada. More Info: <https://www.eurao.org/en/node/1130>



WWFF, World Wide Flora and Fauna in Amateur Radio, is encouraging licensed ham radio operators to leave their shacks and go outside operating portable in Protected Flora & Fauna areas (PFF) all over the world.

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 W11IDP, QTH Tucson Arizona, operator Jerry confirmed that the net now also uses the **17m band operating on 18.112 MHz** moving up in increments of 3KHz. This move avoids the increased QRM on 20m and taking advantage of improved propagation conditions.

News and Forthcoming Events Planning 2025

Ham Radio Ireland Now in Two Formats

Ham Radio Ireland now comes in two formats. Recently we introduced the new Flip book format which is similar to the ARRL and RSGB digital format. Apart from reading this on line it is possible to download the PDF File by clicking on the cloud icon. We retain the traditional "Docdroid" download page where the magazine can be read page by page. Current and back issues may be downloaded in both formats and maybe accessed from:

<https://galwayvhfgroup.blogspot.com/2022/06/connacht-regional-radio-newsletter.html>



Nervous Novices CW NET
Wednesday Evening
20.30 UTC

Listen out for CQ "NNCW"

The speed is the Net is the speed of the
slowest operator

Net Controller Eamo EI7LC

Freq is 3.555 +/- So call in and say hello



Bob Marley Award

HamRadioDx is holding the Bob Marley Anniversary Special Diploma activity in commemoration of the 45th anniversary of the death of the famous singer and king of reggae.

Objective: To contact as many special stations as possible on as many bands as possible.

Date: From 00:00 (Spanish time) on February 5th to 23:59 (Spanish time) on February 7th, 2026.

Bands: 10, 12, 15, 17, 20, 30, 40, and 80 meters on the segments recommended by the IARU. Modes: SSB, CW, and digital (MGM).

Participants: Any licensed amateur radio operator.

Calls: CQ Bob Marley Special Anniversary Diploma 2026
To obtain the diploma, you must accumulate a total of 10 points.

Award Points

5 points are awarded for contacts made in SSB or voice.

5 points are awarded for contacts made in VoIP.

5 points are awarded for contacts made in FT8.

Once you have obtained the necessary points, you can download the diploma from our website:

www.HamRadioDx.es by searching for your callsign.



Lagan Valley Amateur Radio Society are holding their Annual Rally on Saturday, 7th March 2026 at

**Hillsborough Village Centre,
7 Ballynahinch Road,
Hillsborough,
BT26 6AR**

Doors open at 10:30 and the rally finishes at 13:00. Entrance fee £5.00, including free entry in prize draw. Please hold on to your ticket to participate in the draw

**If you would like to book a
table at the rally,
email**

rally@lvars.uk

Traders Attending (TBC)

P&D Peter M10CIB – Radios, Antenna, Cable, Connectors and accessories. (Confirmed)

Billy Goat Stuff Alan G17GSB – Radio and electronic sundry. (Confirmed)

Dave G14XIR – Radio and electronic sundry. (Confirmed)

Brian G14KEQ – Test equipment. (Confirmed)

Harry G14JTF & Richard G14DOH – QSL cards. (Confirmed)

Micheal M10HOZ RSGB – Meet your regional and district representatives. John G14BWM, RSGB President will also be in attendance.

Eddie G17FHZ – RAYNET information stand. (Confirmed)

Bring & Buy – Sell that bit of equipment that has been sitting on the shelf or pick up a bargain.

News and Forthcoming Events Planning 2025

Over 300 Editions of RadCom Available in RSGB Web App



The RSGB recently announced that they have added more RadCom editions to their web app. RSGB members are now able to browse through over 300 editions of RadCom magazines dating back to January 2000. Go to the web app via <https://rsgb.org/> to explore the content. You will need RSGB membership to access this content. The RSGB Book shop offers reductions on all books purchased by RSGB members



Ham Radio Ireland 1st Anniversary After Relaunch

Ham Radio Ireland was relaunched by the Collective Communications on the 24th of January 2025. To date the Free Magazine has been downloaded over 40,000 times and its readership spans over 68 countries. To Commemorate our anniversary we will be activating the Magazine's Callsign **EI3HRI** at regular intervals throughout the year. Do give us a call if you hear us on the airwaves. We thank all of our authors for their support and interesting articles, We thank all of our readers for their support also,

RSGB News Services

For your weekly fix of GB2RS, from 80m to UHF DMR. Full schedule available from rsgb.org.uk/gb2rsschedule.

09:30 145.5250 FM

10:00 3.6400 LSB

12:00 DMR BM TG2354

19:30 DMR Phoenix TG880

Phoenix Amateur Radio Club Coolmine Rally

SUNDAY

**15th of February
2026**

Doors open at 10 a.m.

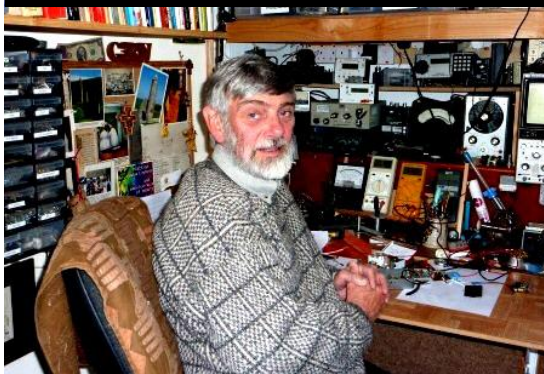
at the usual venue

**Coolmine Community
School**

Dublin

D15 FW97

G QRP CLUB



The G-QRP club was formed by Rev. George Dobbs G3RJV in 1974 to cater for those interested in low power communications after a group used to meet around 3.560MHz. In the year 2000, the club celebrated its 25th birthday and we continue growing year by year.

The club has a quarterly magazine called SPRAT, so called for Small Powered Radio Amateur Transmissions. This magazine is 2/3 full of circuit ideas and 1/3 editorial. Until his passing in 2019 it was edited by George.

It was in September 1974 that George Dobbs G3RJV started the wheels turning to make the G-QRP Club a reality. Fifty years later, the Club is going strong and we have had around four thousand paid up members for over a decade.

Membership is handled by Daphne, G7ENA, GQRP Club, 33 Swallow Drive, Louth, LN11 0DN. Subscription currently stands at €15.00 for EU members.

News and Forthcoming Events Planning 2025

Friedrichshafen International Ham Radio Exhibition

As Europe's largest amateur radio exhibition, Ham Radio provides the perfect platform for radio enthusiasts from all over the world. Exhibitors and visitors gather in Friedrichshafen from over 59 countries to explore the full spectrum of the radio universe in three exhibition halls and the Foyer West. A unique aspect of **HAM RADIO** is the combination of commercial exhibitors, internationally networked associations, and the largest radio flea market in Europe.



MRD Maritime Radio Day is being held annually 14th to 15th of April to remember almost one hundred years of wireless service for seafarers. Since its beginning in 1900 it was the most important communication service until the end of 1998. The date of MRD should be a reminder of the Titanic disaster in 1912. Former Wireless operators of the merchant marine, fisheries and coast stations are requested to register.

Date: 14th April 1200 UTC 15th April 2200 UTC

Bands: 160m, 80m, 40m, 20m, 15 & 10m plus WARC – Calling Frequencies +/- for QRM – 1824, 3520, 7020, 10118, 14052-55, 21052 and 28052 KHz

Mode: CW only **Output power:** not limited

QSO-Exchange QRK, name, call sign of last or favourite ship / coast station / aircraft / maintenance company and additional: travel report, msg and/or QTC if you like.

Deadline of registering: 1st of April at midnight, deadline of logs: 1st of May Certificate of participation (CoP) – SWL must send a complete log to be able to verify QSO data by selection. Licensed operators send either a log as Word .doc/.docx or .pdf, or an e-mail with number of ships, coast, special and hams contacted.

Online Registration:

<https://radioofficers.com/mrd-home/registrations/>

World Amateur Radio Day



Every April 18, radio amateurs worldwide take to the airwaves in celebration of World Amateur Radio Day. It was on this day in 1925 that the International Amateur Radio Union was formed in Paris. Amateur Radio experimenters were the first to

discover that the short wave spectrum — far from being a wasteland — could support worldwide propagation. In the rush to use these shorter wavelengths, Amateur Radio was “in grave danger of being pushed aside,” the IARU’s history has noted. Amateur Radio pioneers met in Paris in 1925 and created the IARU to support Amateur Radio worldwide. Today, Amateur Radio is more popular than ever, with more than 3,000,000 licensed operators! World Amateur Radio Day is the day when IARU Member-Societies can show our capabilities to the public and enjoy global friendship with other Amateurs worldwide.

Amateur Radio is more popular than ever, with more than 3,000,000 licensed operators!

YL POTA PARTY



On Saturday, the 8th of March, women interested in amateur radio and portable operating are invited to spend the day together at Owens Lodge, Pineway Ponds Park along the Erie Canal in Spencerport, NY for a relaxed YL POTA Party.

Parks On The Air (POTA) is an amateur radio activity that encourages operators to set up portable stations in parks and

make contacts from the field. The YL POTA Party is an exciting way for women of all ages to experience portable operating, learn by doing, and enjoy time on the air together. You do not need to be licensed to participate/

Starting at 9:00 am the day kicks off with setting up portable stations and getting on the air, with plenty of time to operate, chat, and enjoy food throughout the day (we just need to be out by 9 PM). Bring your own portable equipment or operate from ours.

Similar YL POTA parties are held each year around International Women’s Day, with gatherings planned worldwide to celebrate women’s contributions to radio and their involvement in the hobby.

2026 Events & Activities Planner

PARS Coolmine Rally	15th February
World Thinking Day on the Air (G. guides)	22nd February
LVARS Rally	7th March
International Woman’s Day POTA Party	8th March
St Patricks Day Activity	17th March
Maritime Radio Day	14th - 15th April
IARU World Amateur Radio Day	18th April
International Marconi Day	25th April
Mills on the Air	9th - 10th May
Lough Erne Rally	17th May
SOS Radio Week	1st - 31st May
Friedrichshafen Ham Radio Exhibition	26th - 28th June
Museums on the Air	TBA June
British Inland Waterways on the Air	TBA
Stradbally Steam Rally	2nd - 3rd August
ILLW Lighthouses on the Air	15th - 16th August
G QRP Convention/Telford Ham Fest	30th - 31st August
Newark Ham Fest	25th - 26th Sept
Railways on the air	26th - 27th Sept
JOTA Scouts on the Air	16th - 18th October



Carrickfergus Amateur Radio Group

The Club meets every Tuesday evening during normal school term time from 7pm in Elim Pentecostal Church, North Road, Carrickfergus, BT38 8ND. All visitors are welcome. Regular news and updates are provided on the CARG website <https://gi0lix.home.blog/>. It is expected that the CARG Annual Rally will take place on: Saturday 25th October 2025 in Elim Church, North Road, Carrickfergus, Co. Antrim, BT38 8ND from 11:30 am - the final date to be confirmed (I will advise of the confirmed date in advance).

CARG will participate in the annual [International Lighthouse/Lightship Weekend](#) (ILLW) on 16th & 17th August 2025 adjacent to [Chaine Memorial Tower](#), Larne, Co. Antrim (WAI: D40, IOTA: EU-115, IO74CU, ARLHS NTI-004 - see the Club website for further details).

Bush Valley Amateur Radio Club

Meets on the last Thursday of each month at 8pm in the Burnfoot Community Centre, 294 Drumane Road, Burnfoot, BT47 4NL. We now have over 20 members, and are a very active club and we hold a number of events throughout the year. Website: bushvalleyarc.org
Enquiries to: Bushvalleyarc@gmail.com

West Tyrone Amateur Radio Club

West Tyrone ARC GN4OMA, has regular monthly meetings. Our meetings take place in Order of Malta Hall, Brook Street, Omagh, BT78 1DE on the second Wednesday of every month at 7.30 pm. Enquiries to: info@wtarc.org.uk

Lough Erne Amateur Radio Club

Meets at the Share Village, Smith's Strand, Linaskea, Co Fermanagh at 19:30 on the first Monday of each month. More info: <https://lougherneradioclub.co.uk>

Mid Ulster Amateur Radio Club



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 FB page 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 second Sunday of the month except July/August in Tandragee Golf Club at 3pm.. We organise

field days for St Patricks day, Marconi weekend, 145 Alive, Sota weekend and other events. If you're in the region, and would like to take part, the club secretary can be contacted on the following email address:

Email address: muarc.secretary@yahoo.co.uk

Antrim and District Amateur Radio Society

The Antrim and District Amateur Radio Society meets on the 2nd Friday of each month in the Greystone Community on the Ballycraig Road, BT41 1PW 7:30 - 9:30pm. For More information: Email secretary@adars.co.uk

Ballymena Amateur Radio Club

The Club meets every Thursday night at 70 Nursery Road, Gracehill, BALLYMENA except during the summer months (June, July and August) when we only officially meet on the first Thursday night of the month, but there are some members there nearly every Thursday night. E-mail: HKernohan@aol.com

City of Belfast Amateur Radio Society

The City of Belfast Amateur Radio Society meets on the first Monday of each month at 8pm in the Shorts Recreation Club, Aircraft Park, Hollywood Road, Belfast BT4 1SL. Contact Paul Irwin GI6FEN for more information E-mail: paulirwin@btinternet.com

Northwest Group Amateur Radio Club

The Northwest Group Amateur Radio Club, meets last Tuesday of the month at Shantallow Community Centre, Derry. Contact nwgarc@gmail.com

Bangor and District Amateur Radio Society

The Bangor and District Amateur Radio Society meets on the 2nd Tuesday of the month in the Marquis Hall, Abbey St, Bangor BT20 4JE 19:30 for 20:00. We don't meet during July and August. Facebook page: <https://www.facebook.com/BangorDistrictARS/> Contact GI4JTF for more information.

White Mountain Amateur Radio Club

The White Mountain Amateur Radio club meets at 7a, Sheepwalk Road, Castlerobin, Lisburn on Friday nights for the Amateur Radio Exam Courses, Sundays at 12pm Wednesday nights at 7pm for general radio topics, practical and social evenings. Whether interested in Amateur Radio, CB, PMR 446 or electronics all are welcomed to come along to our meetings. More information from <https://wmarc.co.uk/>

If your Club, Group or Society is not listed here, please notify us and we will add to the next issue of Ham Radio Ireland





Novice Amateur Radio Licence



Scan the QR code with your phone or visit www.change.org/noviceireland to sign the petition.

As an avid ham radio operator, I've had the incredible experience of connecting with people across the globe, sharing knowledge, and fostering a unique sense of community. Yet, despite all its benefits, the path to becoming an amateur radio enthusiast in Ireland faces hurdles due to the lack of a novice licence.

A novice amateur licence caters to beginners by allowing newcomers, particularly young individuals, to easily access and explore the amateur radio community. Countries like the UK, Australia, and the US have already recognised the value of these entry-level licences, providing a simpler route to involvement and education in amateur radio.

Ireland must take action to encourage our budding radio operators and harness their potential. By urging ComReg to introduce a novice amateur radio licence, we can make ham radio more accessible and inviting for the younger generation. This licence would lower examination barriers and offer a streamlined approach to gaining essential skills and knowledge.

The introduction of an entry-level licence can significantly boost participation and promote innovation and technological literacy among the youth. It aligns with global trends encouraging STEM education and inspires future generations to explore engineering, communication, and technology fields.

Please join me in this endeavour to pave the way for young aspiring ham radio operators in Ireland. By taking action together, we can petition ComReg to set the stage for a thriving amateur radio community.

Sign this petition to signal your support for the creation of a novice amateur radio licence in Ireland. Liam EI7GTB

Choose ML&S in 2026 for the 'Big 3' and so much more!

YAESU

ML&S Officially the only Direct Factory Appointed Distributor & Repair Workshop for Yaesu Musen Products

This month's STAR PERFORMER Yaesu FTX-1F ALL BAND ALL MODE PORTABLE



Another Dream Radio from Yaesu.
Taking over from where the best-selling FT-818 left off.

FTX-1F (Field version): £1459.00
comes with free SPG-1 protection guard & SCF-1 fan.

- 6W/10W on any band
- 160-70cm incl 4m
- Twin RX with any mode on either receiver
- SDR Technology and 3DSS
- 5670mAh high-capacity Li-ion battery pack
- Dual Loudspeakers
- USB ports support CAT operation, audio input/output and TX control

Yaesu FTX-1 Optima. 100W HF/6M 50W 4M/2M/70cm SDR Transceiver. £1950.00 comes with a free backpack.

HamRadio.co.uk/FTX1F

NEW Yaesu FTM-510DE ASP
Dual Band Mobile Transceiver
C4FM Digital/FM 55W Dual-Band Mobile Transceiver

The New Flagship Mobile with Super-DX & ASP for Enhanced Coverage
Latest high-performance C4FM Digital/FM Dual-Band Mobile Transceiver, offering 55W VHF / 50W UHF output power and packed with cutting-edge features for superior communication. Designed to replace upon the successful FTM-500DE. **£569.95**

Yaesu FTM-150 ASP
55/50W 144/430MHz FM Dual Band Mobile Transceiver. Versatile dual-band mobile transceiver offering 55W on VHF and 50W on UHF. **£349.99**

Yaesu FT-3185 ASP 85W 144MHz VHF FM Mobile Transceiver.
Powerful 2m mobile transceiver, delivering an impressive 85W of reliable transmit power, selectable at 85W, 50W, 20W or 5W. **£189.95**

Yaesu FT-3165 ASP - 65W 144MHz FM Mobile Transceiver. Robust, compact 2m mobile transceiver designed to deliver powerful performance and reliability for ham radio enthusiasts. With a 65W output, users can select from three power levels (65W/30W/5W) to suit various needs. **Limited Offer £156.00**

Yaesu FTM-310DE ASP
(Without ASP) 144/430MHz 55W/50W C4FM Digital / FM Mobile Transceiver
Now in Stock. £375.00



ONE OF OUR BEST SELLING UNITS

FT-710 AES HF/6/4m All Mode Compact Transceiver.
Perfectly sized & simple to use **£999.95**
FT-710 Field (no speaker) £949.00
Both with a Free Yaesu hat!

FTdx101D
100W HF/6m Transceiver **£3099.95**
FTdx101MP **£4099.99**
Yaesu FTdx10 Narrow band SDR and Direct Sampling **£1299.00**
Yaesu FT-891 HF/6m Base/Mobile **£649.00**
20% Discount off FC-50 when bought together
Yaesu FT-991A All-Mode Transceiver **£1249.00**
Yaesu FT-5DE IPX7 Dual C4FM RX Handle **£379.00**
Yaesu FT-70DE
C4FM/FM 144-430MHz Dual Band Handle **£167.95**
Yaesu DR-2XE C4FM Repeater **£1279.00**
Yaesu FT-65E VHF/UHF 2m/70cm Dual Band FM Handle **£84.95**



Yaesu FT-4XE
5W VHF/UHF FM Portable Transceiver **£64.99**

Yaesu M-70 Desktop Microphone **£129.95**



KENWOOD

ML&S Officially Appointed UK Sole Distributor & Repair Workshop for Kenwood's Ham Radio Products

This month's Featured Kenwood Kenwood TS-890SE2 HF/6m Transceiver



BACK IN STOCK!

Probably the best HF/6m Transceiver Kenwood have ever made.

Peter Hart was astounded by the receiver performance & general build quality. **This month's deal includes a FREE MC-43 microphone.** **MLS Price: £4049.95**



Kenwood TH-D75e
144/430MHz Handie

The new TH-D75e is the logical evolution of Kenwood's popular TH-D74e duo bander. 5W on 2/70. FM & D-Star, Built-in Digipeater, APRS, Wide-band all mode receive, IF Shift function, USB-C charging port & IP54/55 approved.

New! Dual Band remote TM-D750E.
First shown at Tokyo Ham Fair 2024.
Coming Soon!



Priced at £778.99 with FREE UK mainland shipping, use code RC75.

ICOM

ML&S Stock the Full Range of New Icom Products

This month's Featured Icom Icom IC-7300Mk2



You asked and Icom Japan listened!

An upgraded Mk2 version of the best-selling radio.

Final price £1359.60 - Now in stock.
See HamRadio.co.uk/IC7300mk2

Icom IC-7300 Best selling 100 Watt - HF/50/70MHz Transceiver with SSB / CW / RTTY / AM / FM **with free PSU £975.00**

Icom ID-5100
Latest 2/70 D-Star Touch Screen Transceiver **£639.95**

Icom ID-5200
144/430MHz Dual-Band Transceiver

Versatile dual-band transceiver supporting both FM and DV (Digital Voice) modes, with the ability to perform simultaneous dual reception of FM-FM, FM-DV and DV-DV signals.



Price and Delivery Date TBC. Place a £50 Deposit to secure yours NOW.

Icom IC-7760 200W HF/6m 50MHz Remote head transceiver **£5074.99**

IC-7760 Remote head accessory for the Icom IC-7760 **£1679.00**

Icom IC-718 **£730.00**
100W HF/6W Base Transceiver.



IC-PW2 HF/50MHz 1kW Linear Amplifier

A high-performance, multi-function linear amplifier is one of the key pieces of equipment for keen competition in DX hunting and contesting. Increased Linearity & Clean Transmission with the Digital Pre-Distortion (DPD) Technology (with the IC-7760). **£5095.00**

Icom IC-905 VHF/UHF/SHF D-Star Transceiver
The IC-905 is a versatile all-mode transceiver that covers 144-5600MHz and includes a 10GHz transverter option, providing access to VHF/UHF and SHF frequencies. **£2949.95 or CALL for bundle deal!**

Icom CX-10G 10GHz Transverter **£1450.00**
Or buy together with IC-905. Call for package price!

The Icom CX-10G 10GHz Transverter is a high-performance radio frequency (RF) converter designed for amateur radio enthusiasts and radio experimenters.

ID-52E PLUS Dual Band D STAR Digital Transceiver **SPECIAL PRICE £539.95**

Icom IC-7100 HF/6m/4m/2m/70cm Base & Mobile Transceiver including D-Star with remote control head unit

NEW LOW PRICE £975.00 and Free PS-30 Power Supply

IC-R6E 0.100-1309.995MHz Handheld receiver **PRICE DROP £220.00 ML&S £199.00**

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A PC Headset for Hands Free Radio Operation

A Heil-Pro headset is an attractive idea for the shack but is it really worth the price? Ok there are many plus, points like tailored Audio and no distraction from external noise but they are bulky and look ridiculous.

There are many lightweight PC gaming headsets which are far more comfortable to wear and also have excellent sound reproduction. These are perfectly adequate for purpose and won't break the bank and you won't look like something out of Dr Who.

I wanted something lightweight, unobtrusive and practical. I didn't want to look like a *Space Cadet!* I would normally only use headphones when signals are weak or use a headset with boom mic for handsfree operation. For mobile operation I would use a headset with a single earpiece and a boom mic. I am certain it would not be legal to have both ears covered whilst driving.

I use a lightweight PC headset with jack plugs as these are generally cheaper. eBay or Amazon would be a good source. K8JHR lists many suitable headsets at this link: [https://www.k8jhr.com/files/headset notes and recommendation s.pdf](https://www.k8jhr.com/files/headset%20notes%20and%20recommendations.pdf)

The basic circuit for wiring to the headset with electret mic is shown in Fig.1 plugged directly into the Radio and the PTT can be brought from the Mic plug to a jack plug for either a footswitch or a small handheld switch. Obviously the footswitch is the better choice.

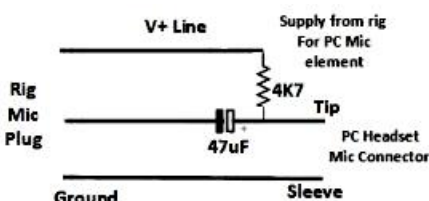


Fig.1 PC Headset Mic wiring

Trawling through the internet I found an excellent circuit by Thomas, OZ1JTE, Fig. 2. This circuit ticked all the boxes and can be used with almost any PC or Gaming Headset. The addition of the pre-amp circuit for the electret mic makes it even more versatile. The power from the 5 Volt phantom supply for the microphone is sufficient to power the pre-amp circuit. Several different headsets have been tried with this circuit, and good reports have always been returned.

The PTT is simply a connection from the PTT pinout on the mic plug connected to via a switch to ground. This can be either a footswitch or a push button mounted on something easy to hold.

Microphone pinouts for most

amateur transceivers may be found at this URL: <https://www.qsl.net/g4wpw/date.html>

The circuit in Fig 2 could well be used for a small electret microphone on a gooseneck mounted on the sun visor of the car.

The gain of the microphone can be adjusted to give a happy balance between voice and ambient noise from the car. It is generally not necessary to use a headset in a car whilst mobile as the speakers are more than adequate.

MyDEL Safe Speak, and Watson supply a system to fix onto the dashboard or sun visor allowing handsfree mobile operation and these all use a similar circuit to isolate the mic circuit from the phantom 5V line powering the electret microphone.

Finally, whilst it is illegal to use mobile phones in the car, the use of two-way radio is not although, can be a grey area. If you are doing a Pasa Doble and not paying attention to the road in front you will no doubt court attention. The use of a handsfree device will naturally be more acceptable than holding a mic.

A good alternative PC headset would be a Bluetooth system and this would interface well with the majority of the modern transceivers on the market nowadays.

See following article covering the use of Bluetooth headsets with older transceivers.

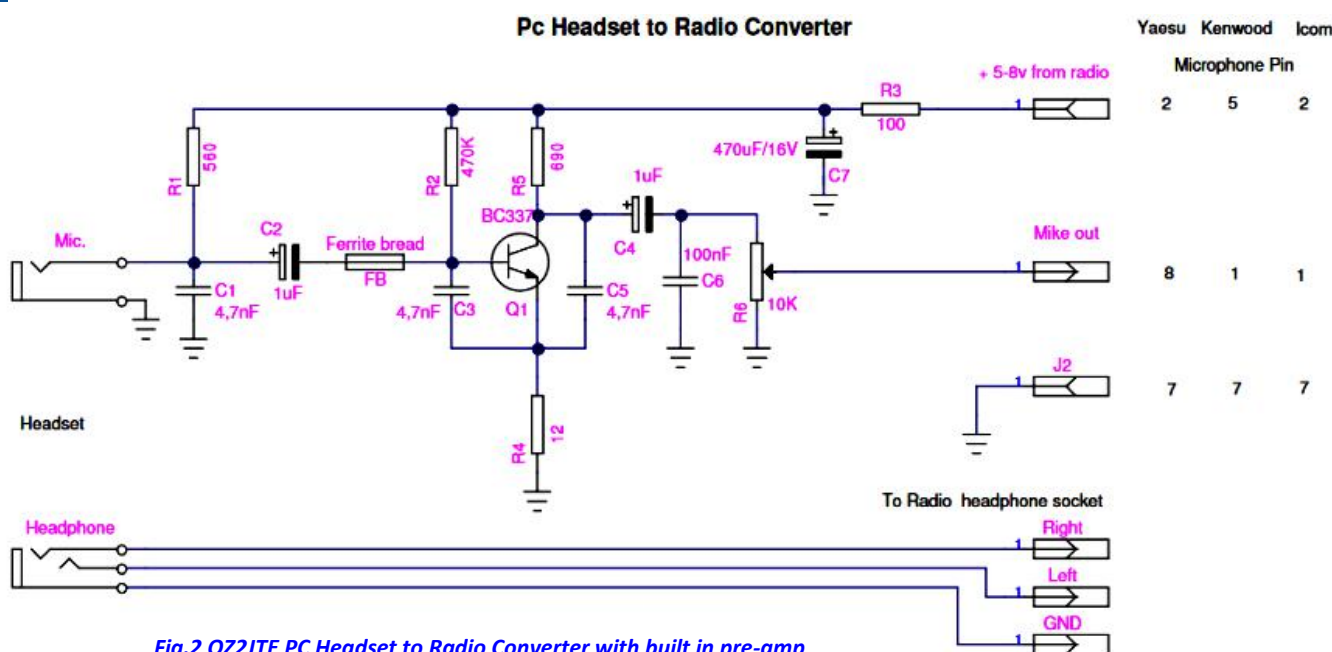


Fig.2 OZ2JTE PC Headset to Radio Converter with built in pre-amp

Bluetooth Hands Free Radio Operation

Unlike mobile phone operation, the operation of two way radio is less likely to cause distraction if it is only a case of picking up the microphone, pressing the PTT, and talking. The likelihood of changing channels or changing parameter on the radio is minimal but down to the operator. While operating through a Repeater or Gateway, it should not be necessary to make any changes of frequency and nowadays, DMR Networks facilitate roaming. This article offers alternatives to holding the microphone in the hand to the face.

The more recent models of mobile radio incorporate Bluetooth systems that will interface with the in-car handsfree mobile phone system or offer the alternative of an earpiece with a small boom microphone. This is an advantage in that there are no wires to get caught around great levers or tangled in the steering wheel. There is generally a tiny button on the earpiece to facilitate PTT it often difficult enough to press this tiny button and so an independent PTT is often a better proposition.

Some may have the PTT switch attached to the gear lever so that it is convenient to flick the PTT to transmit without having to hunt for a lead with a switch on the end of it.

Talk Safe

TalkSafe was manufactured by RPF communications and addressed the issues of handsfree operation. Sadly the unit is no longer in production but may be found on eBay from time to time and will provide an excellent solution See Fig.1

Talk Safe had two leads, one of which connected to the speaker socket and the other via a customised lead into the microphone socket. Two leads were wired to the microphone socket - one for the input of audio derived from the Bluetooth microphone and the other would connect to an external PTT located on the gearstick or on a flying lead.



Fig 1 Bluetooth Interface unit

The headset could be an earpiece with small boom mic or something like the Blue Parrot headset which had one earpiece and a longer boom mic.

Pryme Blu Adaptor

The Pryme Blu adaptor is primarily designed for commercial radios but is also available for some models of amateur radios Fig.2 .The commercial version fits into the accessory socket on the back of the radio in the case of Motorola and Kenwood equipment. Located in the centre of the Fob, is the PTT switch or there is a socket to take a small jack with an extension lead for an external PTT switch. The quality of audio is excellent from these units and good reports on speech quality have been received.



Fig 2 Pryme Blu Adaptor

Sena SR10 Bluetooth Adaptor

Another versatile unit that can be adapted to interface with most

mobile radios. This unit is more expensive as it is designed for use on motorcycle two-way radios and is waterproofed.

Jabra A-210 Bluetooth Adaptor

This was a unit commonly found on eBay and was originally designed to interface to a Mobile phone that did not have Bluetooth facilities. They do show up from time to time. These were easily modified to accommodate any amateur radio transceiver and worked well with most Bluetooth Headsets. A very cheap alternative to the expensive commercially produced units. VK3KBC provided a step by step video covering the use of the Jabra A-210 with ham radio here: https://radcomms.net/Jabra_A210.html

Blue Parrot Headset

Blue Parrot Headset Fig.3 is expensive but an ideal solution for hands free mobile operation. There is less pick up of ambient noise in the car and the boom mic is close to the mouth which reduces the need to add additional boost to the audio signal.



Fig. 3 Blue Parrot Headset

You will need an additional lead from the radio for a PTT switch box unit which can be fixed to the gear stick.

Other headsets can be the small earpiece with a boom as used with mobile phones. These generally have a very small button that can latch the radio on or off when pressed.

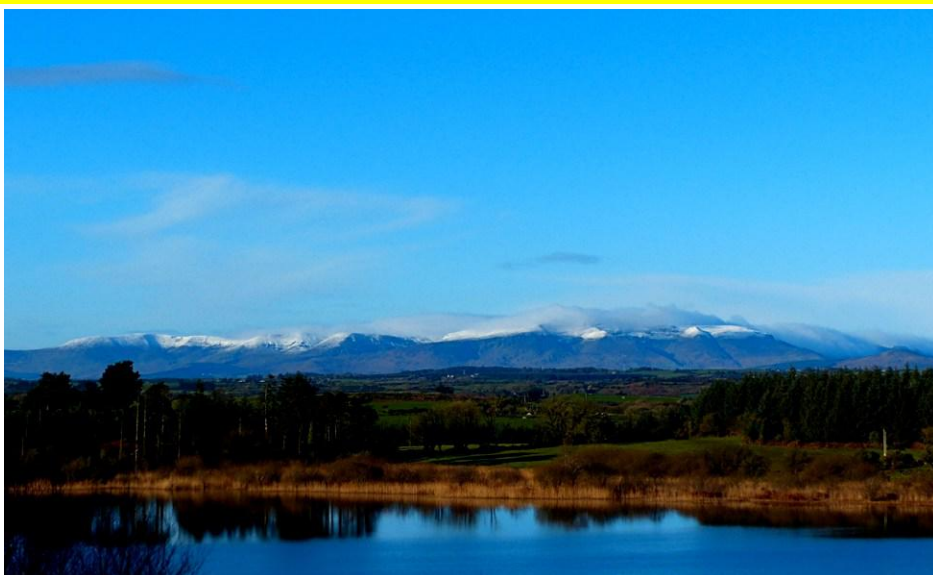
The headsets can be used with the more modern radios that already have Bluetooth fitted. In some cases may be a cheaper alternative to the branded headsets

Steve Wright - EISDD
wright14@gmail.com

EI3CC First Outing of 2026



Our first outing of 2026 was to the new club house, located on the edge of Tramore and overlooking Ballyscanlan lake with the Comeragh mountains off in the distance, as can be seen by the image it was a cold day but snug in the new club house with underfloor heating.



The Stunning View from the Clubhouse

The plan for the day was for members to bring along handhelds they had bought and they would have the opportunity to program them with the chirp software.

This would install local repeaters info ie. Frequency shift and tones needed to operate them, they would include marine and Airband frequencies too.

We asked members to bring the radio's they used at home as some had new license and a bit confused with what some of the functions were on the radio.

I brought my ICOM 7600 so members could see what I operate at my QTH and to do a comparison with the ICOM 7300



In the radio shack the ICOMs had been set up and first to get a tutorial tour around his ICOM 7300 was frank EI8JLB he is relatively new to radio hobby but very eager in learning all about the hobby, David EI6GVB has owned the 7300 from the launch of the model some 10 years ago, David moves thru the menus with a fluid ease and is excellent with explaining what each button was used for and the best levels for the operating the radio.



I also brought my Bencher key as again some members are looking at getting a CW ticket and we have plans to run an online CW class in the next few weeks so some demonstration CW was going to be part of the activities for the day too.

Wayne EI7HKB was going to be the main programming man for the day so a series of laptops were set up and each owner would also be shown how the process of programming the handy would happen.



EI3CC First Outing of 2026

I had been operating the group radio a week prior, I was working a station with a vintage set, he was slightly off frequency with me so some use of the RIT was needed. Frank enquired why I used that item on the radio, I explained that the RIT would allow me to tune to his frequency on receive but still keep the original TX freq.



This is how we came to getting members to bring along the radios and we could help them with the best operating procedure for that particular radio so not only getting the Christmas present programed they are learning about their radio's.

Our new club house is a project still ongoing but at least it is warm and has a kettle so sandwiches were offered with a nice coffee or tea at lunchtime before getting back to the job in hand the programing.



A popular radio at the moment seems to be the Radtel 950 pro RT-950.



Frequency Coverage:

49-53Mhz TX/RX @ 4-5w

136 -174Mhz TX/Rx

400 - 520Mhz TX/RX

18 - 620 AM/FM RX

27Mhz RX at -121dB

Wayne was busy with CPS programing these and it takes a mere 5 mins in updating the firmware.

The Club house was a buzz with radio and the four laptops running the programs flat-out.



The carpark was getting full as many members wanted to view the new building and are looking forward to the official opening in April of this year.



With some minor bits to finish on the new club house its going to be a great radio venue for the future so roll on 2026 and keep an eye on EI3CC Facebook page or YouTube channel for more info

Flying the flag for our hobby

John Tubritt- EI3HQB
ei3hqb@gmail.com

The Radio Control Unit (RCU) Part 1

When we set up collective communication radio group one of the intentions was to have a dedicated mobile radio unit, although we had a group caravan that we could use it was seen as a better option to keep that for our canteen and sleeping. The other thing we wanted was a unit that was fully independent from generators or mains electricity but in the event that we had to it could still use this type of power to the unit, so a solar system and battery pack would be our main source of power while on the move, we also wanted it to be fully loaded with equipment from mast radio etc. so no member would need to bring his coax while another would have to bring a radio and so on.

I am a carpenter by trade but I also dabble in a lot of other trades welding etc. so our initial plan was to use a caravan chassis that was in my possession and then get some plywood and build from that, having worked on a number of caravans over the years I knew that weight was the crucial element and that making the walls light they needed to also be strong.

As always with me, I spent a number of days/months sketching ideas and trying to work out the best use of space also I wanted the front of the unit to be able to open above the radio desk and this made it easier to interact with the public. The rear would completely open up allowing access to the public if they wanted to enter and what was going on with the radio.

Seating would be dual use no chairs just a full-length bench so when not a bench it would provide a sleeping area for when we would be operating overnight. lots to consider in the plans and lots to think about to make the unit and its space as efficient as possible.

This was also going to be a club project with as many of the members getting involved weather making coffee to painting or sanding timber etc.

I discussed the project with one club member and he informed me of fiberglass box trailer that had been lying idle for seven years, he was unsure of the condition

of the box trailer it had been in use with the AREN (Amateur Radio Emergency Network) as a mobile radio operating station.

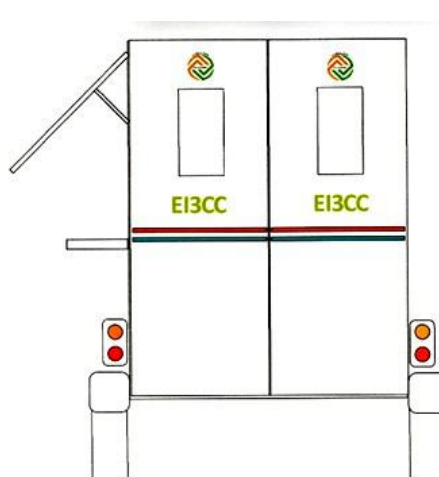
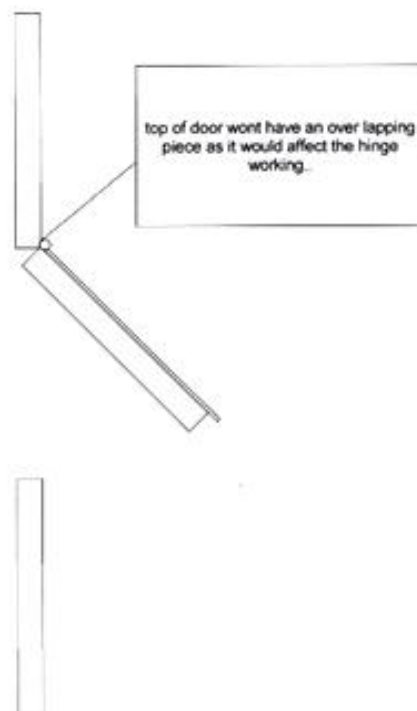
A decision was made to travel to where the unit was lying for four of its seven years at a mechanics yard awaiting work to be carried out on it. In Ireland sometimes things tend to be put on the back of a list and when questioned the usual reply is ill have a look at next week to which four years later, we arrive at the yard.

As you can imagine, the unit had turned green with slime and moss growing from everywhere parts of the floors had rotted through and where you could see chassis it was looking like cracker biscuits, but we decided to tow the unit away because if left it would have just rotted into the hedge and be gone forever.

Our journey back to my workshop on the farm was a better place to give it a full intensive look over and decide if it should just be scrapped and dumped into one of the metal skips on the farm.

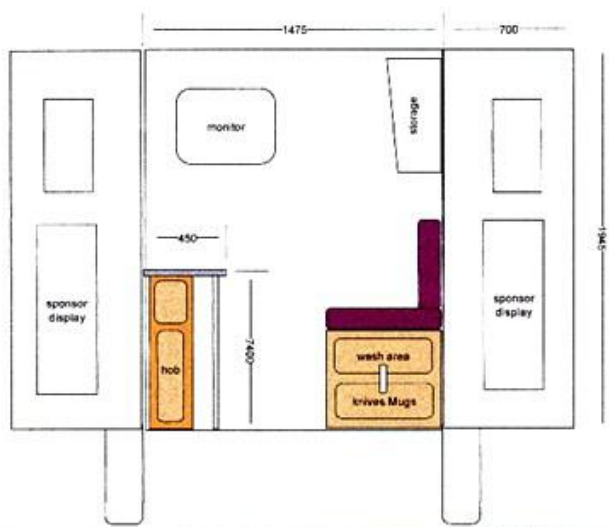
So our first impressions were, how did we just tow this crap back 50 miles without it disintegrating and as you will see in the many images to follow, I am not kidding.

The decision was to strip it further and make a decision again as and when, or if, we carried on, I went back to the drawing board after taking dimensions from the box trailer, I did up a new set of drawings as can be seen below. This is what was in mind and as with all projects that was



The Radio Control Unit (RCU) Part 1

to change as time went on and the spare wheel would end up inside, no external counter below opening front.



On to the real images of the unit when it was towed to the farm and as can be seen in somewhat of a state and begging to be saved.



some mains wiring in conduit installed already, the bench was 1" inch box steel and took up a large portion of the unit, this was to be discarded but the top timber would be used again when a new bench was made and all wiring removed too, we wanted a clean canvas to work from.



One of the problems with this type of trailer is damp and the main culprit in most cases is the fiberglass roof which is a single sheet and when it gets cold moisture turns to condensation then turns into water droplets and causes problems down the road, we did not want an issue with a damp unit.



Needless to say, the floors were rotten and some of this also was a result of the seal between the external sheeting and the angle iron that it was sitting on where the seal between had broken down so as a result this caused the floor to rot and the chassis too.

After some time, cutting it was just all the outside edges of the flooring that had rotted so we decided to retain the middle section. The steel that was exposed and



The first job was steam clean it and see what was left lol one of the benefits of the steam cleaner too was it made light work of and loose paint and stickers.

It was like opening Tutankhamun Tomb to view the internals or what was left of them there was a bench and

The Radio Control Unit (RCU) Part 1



at this stage could now be treated with grinding pads and treated with a motor factor underseal with a little modification I developed having restored a number of vintage cars over the years a lot of the rust in this area was mainly surface

This wind breaker is hollow so I had an idea to cut out a section inside the unit and install a mains meter box as seen externally on property here this in turn would house all our electrical installations and be out of sight.

One of the main criteria was also once complete there would no cables or wires seen in the finish product so less of a chance of a cable being caught and a radio taking flight from the bench.

Wayne EI7HKB got stuck into the cutting after making sure measurements were correct and in no time, we had a void to fit our donated electricity box.



Sue EI1826 was in charge of the undersealing and in no time picked up the gun and completed the sealing of the cleaned steel.

In the mean time we decided that the wind breaker on the front of the box could yield extra space internally.



The Radio Control Unit (RCU) Part 1

We were then able to repair the floor with matching material which is also used in horse boxes a type of non-slip laminate plywood so a number of off cuts were donated and hey presto a new free repaired floor was installed, a small thing but a step forward in what would become a six months project and in some cases seven days a week.

All joints were sealed and also where the timber came into contact with the external steel angle.



refitted to the unit a new set of tyres were also fitted too.

We turned our attention to the front axle deciding to leave this on in place, this axle required some welding which I carried out but this axle would come back to haunt us on its first outing as you will see in later editions of this article one of the arms had corroded and a repair was carried out again the axle was sealed like the rear.



Next we turned our attention to the running gear and external steel on the lower chassis and front end. We removed the rear axle and this was serviced in the workshop by myself EI3HQB and Sue EI1826 we checked the bearings which were replaced, also the general condition of the axle was given the all clear so Sue cleaned it with the grinder and a coat of underseal applied and



Next, we removed the spare wheel mount as we had a plan that this is where our battery box would go and all the antenna connections would terminate before going into

The Radio Control Unit (RCU) Part 1



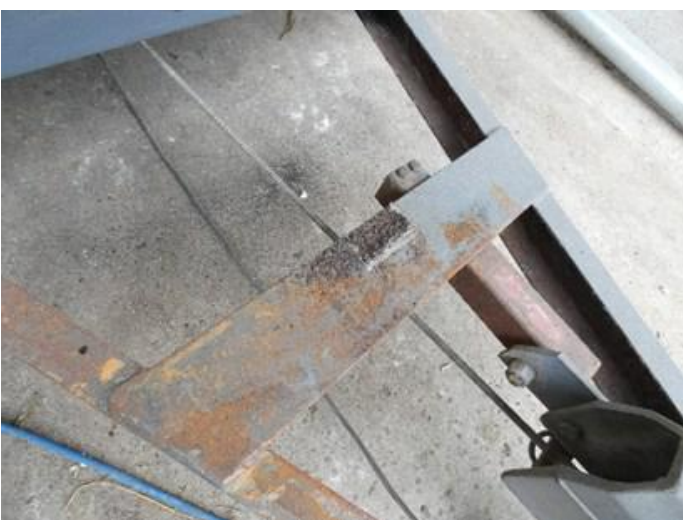
the unit. The wheel would go inside as you will see in time and this also made it more secure and not being removed by persons unknown.

side, we decided to put a suspended ceiling in with insulation thus removing the cold spot that causes the water droplets and soaking the unit inside.

The first thing was to put up a timber frame that would carry the new ceiling then we installed what we call here Kingspan board 50mm thickness which is a type of dense foam with foil on each side. We then trimmed the edges in what's again known here a J channel (in black) this then will give a finish when we fit the final trim and the ceiling board slots into this.



Any gaps we filled with expanding foam thus making it fully air tight and also removing the cold spot so no more ceiling drips. We also left the roof vent in place that way we



At this stage we had a new floor in and we now had safe wheels to be able to move the unit around the farm.

Onto the ceiling as stated this type are known for the condensation, they cause last thing we wanted was a mildew sweat box with all our equipment getting damaged with damp, the fibreglass had gone black with age and was not letting in any light and as we had a plan to cut open the

The Radio Control Unit (RCU) Part 1

still had an amount of ventilation for the unit much needed when it's used as accommodation.

The boards used to cover the ceiling were Upvc they come in 5mtr lengths and easy to clean and a cavity through them means again better insulation. The sheets are 300mm wide and are then pinned with a stainless white capped pin after drilling a pilot hole

The roof vent looked a bit tatty and we did not want to replace it so we decided to leave it in the lower vent position and internally a piece of old polycarbonate Perspex was buzz sanded with so you could not see through it but it let in light, no wiring needed to go through the ceiling as we wanted nothing hidden to the point that we had difficulty accessing in the event anything went wrong.



At this stage we have made most of the outside repairs and also inside we have a base floor to work on and a nice clean and being white made a big difference to the light inside, no longer looking like a dark hole.

When starting a project of this type the question of money needless to say pops it head up at the time we decided to go ahead with this project we were only one year into a club being formed so our finance pot was somewhat empty, I have been self employed most of my life and I have made many friends in business and I have a policy of never burn your bridges you may need to cross them again so with that in mind I went down the road of sponsorship.

We were just over covid and a number of youth organisations clubs etc had not reopened so there was a need for youth involved activates needed and with that in

mind. I contacted a number of businesses and put my case on their table explaining that what we intended to do with the RCU involving scouts and youth groups so with that I had no difficulty in raising funds for the project also a number of radio members gave large contributions too as they could see the goal at the end if the build.

And so to the money, don't go to the nearest builder merchant and say I need 10,000 to convert a fibreglass box for radio use, better to go to individual companies that supply different items you need, so say for example we needed five sheets MDF timber that was sourced from a timber supplier as with the ceiling materials again another company supplied the PVC sheeting and a different one supplied the insulation and so on , so between eighteen companies in the overall project we were able to complete our RCU at minimal expense to the group.

Always consider a sponsor you have two chances yes or no but if you put your case across you will have no issue and they get the company name out into the public.

Look out for the next edition of the magazine where we will be turning to the rear door and some of the steel that the doors are fixed to. One door in particular was deemed trash but where there is a will there's a way thing can be done.



John Tubritt- EI3HQB

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THE FINAL COUNTDOWN

Adams Journey To Everest

Waterford 22-year-old aims to become youngest Irish person to summit Everest

We managed to catch up with Adam who is now counting down to the event of his life with a climb of Mt Everest.

As you can imagine Adam has been quite busy on building up his body to be ready for the climb and as many know if you're not for the climb you can end up in big trouble, so a lot of stamina training is required just to be able to stay fit and survive on the mountain as well as altitude stability, body strength is a major part of any climb so every day continuous training at home is essential on the indoor climbing wall. This builds up leg arm strength a must in a climb like Everest.



Rope training is also essential weather training on a snow-covered mountain or at home off the cliffs Being fully aware of your rope setup is essential continuous training in the ropes and clips has to be constant to the point that you could do them blindfolded one mistake like not clipped in can be unforgiven.

The ascenders are your life line to the rope's ant in turn the mountain too much like tools of a trade you only get to know them with time and plenty of use so you can imagine at altitude you are on your last legs of energy it's your ascender that keeps you moving forward with every slide along the rope. And the carabiners are to keep you in full safety in the event of a slip or stumble.

A number of other items are also required too so a good set of crampons again essential for grip in the areas where ice forms, this can be anywhere depending on the weather if it rained overnight between say base camp 1 to 2 now you are climbing glass in some areas so crampons essential.

A good ice axe again much needed and again it may be a life saver in the event of a slip you will need to dig in your ice axe hard into the snow and ice to stop you sliding down the mountain.



Here ae a number of other items needed in the climb

Adam has been on a number of climbs since we last spoke to get altitude experience and adjust to climbing in snow and ice.

Adam walking in Toubkal getting practice for his climb to Everest again repetitive training over and over again until it becomes second nature also sleeping in the snow again if not done right hypothermia sets in and you are just another statistic of Everest.

Again in Italy another hard climb with equipment load and getting used to the carry although we will have three sherpas with us on the climb it is good for stamina training.

Adams Journey To Everest



We were grateful for the visit to the Copper Coast Scout Group from Adam with his ever busy time and a leaving date of March 31 for Nepal.

Adam came along to give the group an insight on his climb and how it all began his interest in climbing, our scout group has had many a climb into the Comeragh mountains about 12 miles from the camp some of this has been in cold and wet weather so you can imagine being told it could be -30 on Everest and winds of more than 100km per hour.



To give the talk a bit of atmosphere we decided to hold it on the deck of the new HQ temp was 3deg so for us a bit of a chill but as you can see Adam took it in his stride with only a light top and leggings.



We set up a laptop and projector screen on a handy sheet pinned to the wall and we were ready for the night ahead.

Adams Journey To Everest

Adam explained how he got into mountaineering and also highlighted that if you have a dream then stick with it and you will have pitfalls on the way but you can get through them and chase the dream.

He went on to show some of his equipment he will have with him and demonstrated the fitting and use of the crampons and went on to explain with photos the ladder crossings on the crevasse which are bridged with aluminium ladders that you have to get over with the crampons fitted to your boots, a bit mind blowing when looking down a few hundred meters between each ladder rung.



Adam demonstrated how you would use an ice axe in the event of a slip and also highlighted that every piece of gear you carry has to be connected by rope because if you drop it you cant just go pick it up and continue so as you can imagine loosing the axe can be a nightmare.



updated in issues of Ham Radio Magazine as and when we get them, he also has a go fund me page which you can find here in this magazine and we will also be running the special call EIOEVRST while Adam completes his climb



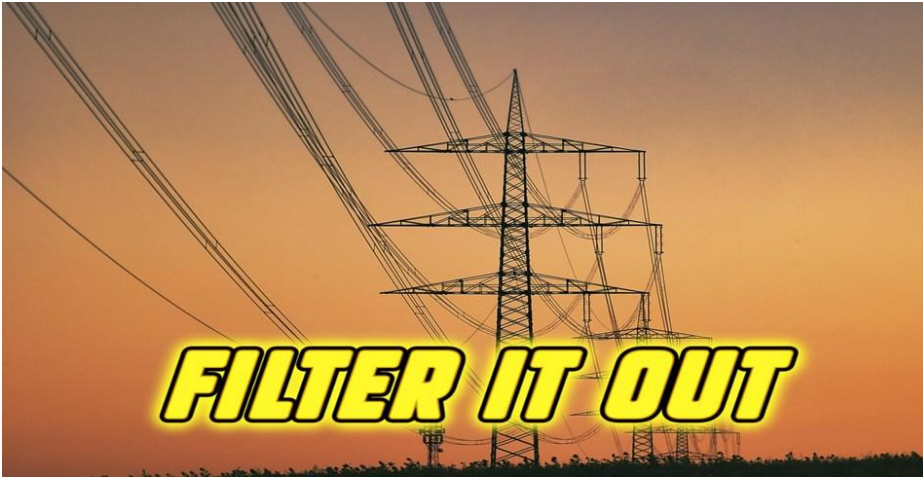
The evening was a great success with many questions answered a few faces looking into the night sky maybe thinking of may a possible climb for them too in the future the group gave Adam a rapturous applause and presented him with a copper coast scout badge to take with him to Everest and are looking forward to hearing of his updates from EI3CC who will be keeping in contact with Adam over the five weeks in Nepal

We wish him well in his quest and we will have

You can help by clicking on the link below or by copy and pasting the link into your browser and donating to my Go Fund Me page

https://www.gofundme.com/f/adam-become-the-youngest-irish-person-to-summit-everestfbclid=PAZXh0bgNhZW0CMTEAAaZxMo4nC-TUp0397g_vjK24WSq1nNqSC6W-egf10HzXYIQT8xu80UjcXk_aem_i7TyCaN4SjCfBR3vkpmCLQ

Reducing Mains Borne Interference



As radio operators we have a hatred of interference, back in the early days we were the target for any interruption of TV signals and so on. Everyone looked for any changes in the area and if an antenna appeared that was deemed the culprit.

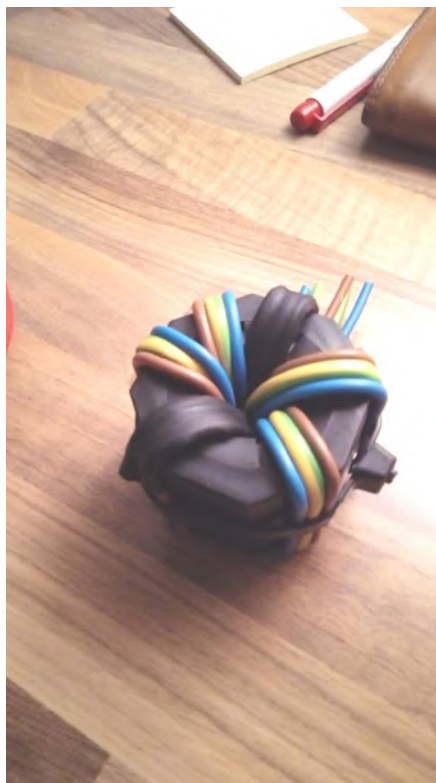
Back to today we have now become the victim of noise some as a result of dodgy chargers and lighting. But another source is up through the mains electric lines, and this is often overlooked and never considered as most assume it's antenna based and in a power cut the noise has gone but again the assumption is airborne noise.

With that in mind a small device worth fitting to the mains supply to

I stripped the cable to expose the three core cables inside and colour coded to our spec here in Ireland that is Brown (live) Blue (neutral) and green/yellow (Earth).



I put some heat shrink on the wires just to keep them in order while I wound them around the ferrite core and then secured with a cable tie around the core to secure.



were tinned and a 30a cable connector fitted, I then cut some cable to required lengths one having a 13a plug and the other end



I fitted a multi plug connector this was then fitted the filter was placed in a box to keep silly hands out of the way.

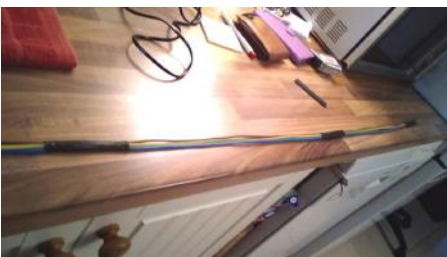


It is a simple device to build and it may cure an issue you may have and at no big expense in my case about €55.



Fair-Rite 0431177081 snap-on core

your radios is a mains choke, this comprises of a in my case a ferrite hexagonal core with mains cable wound around it.



I set about making my filter by cutting a length of cable 900mm long (more than I needed).

The excess cable was then removed and the ends of the wire

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2RN – Ireland's First Radio Station

The story of 2RN, Ireland's first official radio broadcasting station, is closely bound to the emergence of the Irish Free State and the country's determination to establish its own cultural, political, and technological identity. When 2RN went on air on 1 January 1926, it marked Ireland's formal entry into the age of public broadcasting and laid the foundations for a broadcasting tradition that continues to this day.



Long before I was born, the transmission of organised radio broadcasting in Ireland began with this historic launch. Radio in the 1920s was still a young and exciting technology, but it was already recognised as a powerful tool for communication, education, and nation-building. Just six years later, in 1932, the enthusiasm surrounding wireless technology and experimentation led to the formation of the Irish Radio Transmitters Society (IRTS). This highlighted an important parallel development in Irish radio history: while 2RN represented state-led broadcasting, the IRTS emerged to support the growing hobby of experimental and amateur radio, bringing together technically minded individuals who were eager to explore and advance wireless communication.

Political and Social Context

Following independence in 1922, the Irish Free State faced the challenge of creating new national institutions that reflected its sovereignty and values. Communications infrastructure was a key part of this effort. Until then, most radio broadcasting available in Ireland originated from Britain, particularly from the BBC. Establishing a domestic broadcasting service was therefore seen as both a practical necessity and a symbolic act.

Radio offered the government a way to communicate directly with the population, promote Irish culture and language, and foster a shared national identity. Responsibility for broadcasting was placed under the Department of Posts and Telegraphs, ensuring state oversight at a time when radio was viewed as a strategic medium rather than a purely commercial enterprise.

The Launch of 2RN

2RN officially began broadcasting from studios located in the General Post Office. The choice of the GPO was deeply symbolic. Already central to Ireland's communications network, it also held immense national significance following the events of the 1916 Rising.



The General Post Office - Dublin

The station's call sign, "2RN," followed international radio conventions and quickly became familiar to early listeners. Transmission equipment was installed at McKee Barracks in Dublin, with an initial power output of approximately 1.5 kilowatts. By modern standards this was very modest, but at the time it was sufficient to provide coverage across Dublin and much of the surrounding regions. On favourable nights, the signal could be received well beyond Ireland's shores.

On January 1st 1926, Dr. Douglas Hyde officially launched the Irish radio service 2RN. With no recording facilities, the only recording of that first broadcast was made on a record by the BBC, which carried the opening. Until today, only Hyde's voice was heard with old vinyl crackling, now for the first time hear his opening remarks in Irish cleaned up.



Early Programming and Broadcast Style

Programming on 2RN was cautious, formal, and strongly influenced by the public-service ethos of the time. Broadcasts typically lasted a few hours each evening and were transmitted live, as recording technology was not yet available. Content included:

- News bulletins and official announcements
- Live music performances, both traditional and classical
- Poetry readings and literary talks
- Educational lectures
- Religious services

A single microphone often served an entire programme, and performers were keenly aware that any mistake would be heard instantly by listeners nationwide. Despite these limitations, broadcasts were generally well received and carried a sense of occasion and importance.

Irish cultural life featured prominently. Traditional music, song, storytelling, and the Irish language were actively promoted, reflecting the state's desire to revive and preserve national heritage. At the same time, international material was also broadcast, acknowledging Ireland's cultural links beyond its borders.

Listeners, Experimenters and early Challenges

In the mid-1920s, radio receivers were expensive and often unreliable. Many early sets were home-built by

2RN – Ireland's First Radio Station

enthusiasts, particularly those interested in the technical side of wireless communication. As a result, listening to 2RN was often a communal activity, with neighbours gathering around a single receiver in a home, hall, or public space.

Technical challenges were constant. Interference from powerful British stations was common, and reception quality varied widely across the country. Staffing levels were small, and presenters, engineers, and technicians were frequently learning on the job. Yet these difficulties also fuelled interest in radio as a technical pursuit, contributing to the growth of experimental and amateur radio activity that would soon be formalised through the IRTS.

It soon became clear that a single low-power transmitter in Dublin could not adequately serve the entire country. A major breakthrough came in 1932 with the opening of a high-power transmitter at Athlone, which dramatically improved national coverage. This marked a turning point, transforming Ireland's radio service from a largely regional operation into a truly national broadcaster.

In 1937, 2RN was formally rebranded as Raidió Éireann, reflecting a more confident national identity and an expanded broadcasting vision. While the name 2RN gradually disappeared from everyday use, its legacy remained firmly embedded in Irish broadcasting structures and practices.



Cultural and Historical Significance

The impact of 2RN extended far beyond its role as a technological milestone; it fundamentally reshaped Irish society, culture, and national identity. For the first time, people across Ireland, urban and rural alike, could simultaneously hear the same news, music, drama, and voices. This shared listening experience helped to foster a sense of national unity at a time when the young Irish Free State was still defining itself politically, culturally, and socially. Radio quickly became a trusted companion in daily life, bringing the wider world into homes that had previously relied on newspapers, word of mouth, or public meetings for information.

During periods of political change and social uncertainty, 2RN played a crucial role as a reliable source of news and public information. Government announcements, election coverage, and public service messages reached citizens directly and immediately, helping to shape informed public opinion. In times of crisis or national importance, radio proved its value as a medium capable of connecting the population in real time, reinforcing its status as a vital public service rather than

simply a form of entertainment.

Culturally, 2RN became a powerful platform for Irish identity and expression. It actively promoted Irish music, language, and storytelling, supporting the wider cultural revival that was underway during the early decades of independence. Traditional musicians, singers, actors, poets, and writers found a national audience through radio broadcasts, many for the first time. Programmes featuring traditional music, drama productions, and literary readings helped preserve and popularise Ireland's rich cultural heritage while also encouraging new creative talent. For many performers, a broadcast on 2RN marked the beginning of national recognition and professional opportunity.

The station also played a key role in education and public enlightenment. Talks on agriculture, health, industry, and civic responsibility reflected the broadcaster's mission to serve the public good. These programmes helped modernise Irish society by sharing knowledge, encouraging best practice, and supporting economic and social development, particularly in rural areas where access to formal education and information could be limited.

Alongside the growth of state broadcasting, Ireland also witnessed the parallel development of amateur and experimental radio, supported by organisations such as the Irish Radio Transmitters Society (IRTS), established in 1928. Amateur radio operators were not merely listeners; they were experimenters, innovators, and skilled technicians who built, modified, and operated their own equipment. This community ensured that Ireland was not only consuming radio content but actively contributing to the advancement of radio technology and communications expertise.

The relationship between professional broadcasting and amateur radio fostered a strong technical culture within the country. Skills developed through experimentation, such as electronics, signal propagation, and antenna design, would later feed into broader developments in engineering, telecommunications, and education. In this way, the legacy of 2RN extends beyond broadcasting itself, laying foundations for Ireland's long-standing engagement with communications technology, experimentation, and innovation.

Together, 2RN and the amateur radio movement helped shape a modern, connected Ireland, one that listened together, learned together, and increasingly spoke to the world through the airwaves

Legacy

Nearly a century later, the significance of 2RN is unquestioned. It gave Ireland its first independent broadcasting voice, set the foundations for public-service radio, and helped shape a national cultural identity through sound. From its modest beginnings in the GPO to its pioneering broadcasts across the country, 2RN represents the moment Ireland truly entered the wireless age, both as a broadcasting nation and as a community of radio experimenters whose influence continues to be felt today

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EI3CC Four Years On

We are heading into our fourth year as a successful and dynamic Radio Group. From the back of Wayne, EI7HKB's, van to our mobile RCU and now to our latest venture a lovely new EI3CC Club House overlooking Ballyscanlan Lake.

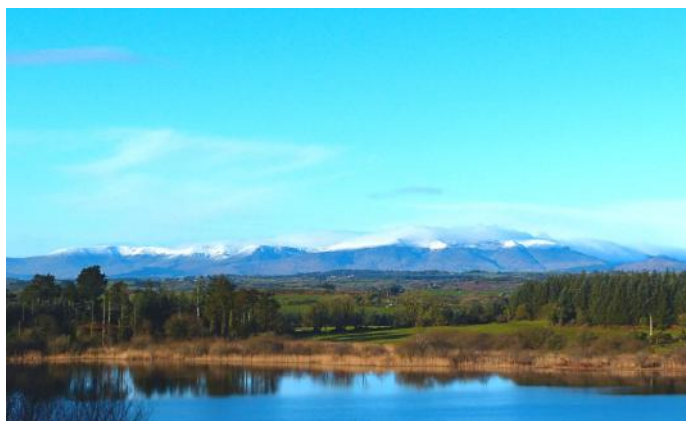
This is a stunning location just outside the town of Tramore in the southeast corner of Ireland, our journey to this site began a number of years ago when we contacted the copper coast scout group about running a JOTA station.



JOTA they said what is JOTA so after explaining JOTA to them they were very eager, the scout group then was based in Annstown house just on the coast road.

They were using a number of rooms and it was a temporary location as the building was being renovated as a holiday dwelling.

We did a number of JOTAs from the site but as time went on the area that could be used was becoming limited but light was at the end of the tunnel with a site being purchased at Ballyscanlan a few miles inland, the site consisted of nothing only a fabulous view and a stunning lake.



We continued our journey with the copper coast scout troop operating from containers and sheds and of course the RCU.

We also had the Dome, a quirky building, but it sufficed for the purpose and was a great talking point with visiting clubs.



Plans had been drawn up for a permeant building but financing such a project was costly and beyond the means of the scout group, so applications had to be made to various groups to help raise funds movement was made two years ago with the foundation going into place and with that in place you could get an indication of the new building floor area.



In 2025 a grant was received and the building could be ordered this was to be built in France and assembled on site this would be a full eco building to fit in with the surroundings and running costs at a minimum.

Work started mid-2025 and as can be seen even the supporting beams are timber laminate with the full eco theme in mind.



By the end of 2025, we are 99 percent complete and we have now a stunning building and most of all a great club house with stunning views.

This marks a great triple journey from starting the group, we continue to grow with a membership currently at 61 and rising.

Our ethos is still aimed at promoting the hobby of communication with no bias towards whatever form of

EI3CC Four Years On



transmissions used whether it is PMR, CB radio, or Ham radio.

Everyone started on one of the above modes and some are still happy to continue to use them as they still have many friends on those modes and still have many DX contacts on 11mtrs.

We have always dedicated our time to be on the road all over Ireland having covered 8KM in the last two years introducing our great hobby to the public.

We direct potential students to the national society who run online classes and arrange the Harec exam when required.

Several items of equipment have been donated to the group these range from Radio's antenna's and even a



lattice tower so we are looking forward to kitting out the new shack once the floors have been painted at the end of January.

EI3CC still stands by its core of commitment no matter what type it is we continue to experiment with radio and have now a fully operational Qo-100 satellite system and we are looking at having a go at moon bounce for 2026.

The official opening of the building is April 14th, and we can't wait for the fine weather and BBQ season to fire up, we have done a lot in three years, and this is the icing on the cake for us after a lot of hard work.

John Tubritt- EI3HQB

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Amateur radio and CB call sign stands.

If you are looking for a Personalised call sign stand, then I can 3d print them from £15.00 (5 letter call sign) plus £2.50 P&P.

These were mentioned in PW June 2025 edition on page 7

If you would like to see what your call sign stand would look like then send me a PM on Facebook or email me at g5eco@hamradio3dprinting.co.uk and I'll show you what it will look like printed on my 3D printer.



I can also create drink mats with your call sign, as well as a range of other 3d printed items for our hobby.

Have a look at my Facebook page to see what I have created for other people.

<https://www.facebook.com/ham.radio.3d.printing>
Siggi G5ECO (Find me in QRZ.COM).



For Sale

IC 7610 as new -used in remote only – unmarked condition
Acom 1200S just back from a full update to latest spec by ACOM in box unopened

only ever set up remotely

ATU ACOM 04AT will match any Acom Solid State amplifier from smallest to the 2020S

ACOM 2000A new Amplifier

Acom 2000A 10 way auto antenna switch

Acom E Box for remoting the 2000A or the solid stated linears up to the 2020s

2 x sections lattice professional SS tower 50 feet in height no staying

1 x 50-foot lattice tower erected --can take it down quickly SS professional tower

2 x 6 meter 5 element yagis

5 X 4 meters dipoles

Several runs of good used Heliaw w/connectors

All correct bolts for the towers are available

Contact Mike - 00 353 (0)87 2552578
wescomradio@gmail.com

Digital Voice on HF Using FreeDV

Digital Voice on HF amateur Radio is not a new concept as it was being developed by Charles Brain (G4GUO) and Andy Talbot (G4JNT) as far back as the year 2000. Their concept was described in the ARRL publication QEX May/June 2000¹. This led to the production of the first in line Digital Voice modem released by AOR in 2005. This was around the same time that D-star was being heavily promoted. However, at the Dayton HamVention in 2004, not only was the AOR modem and D-Star Modem being shown off but an open-source Digital system FreeDV was demonstrated for the first time.

Codec 2 speech codec used in FreeDV are also open source³.

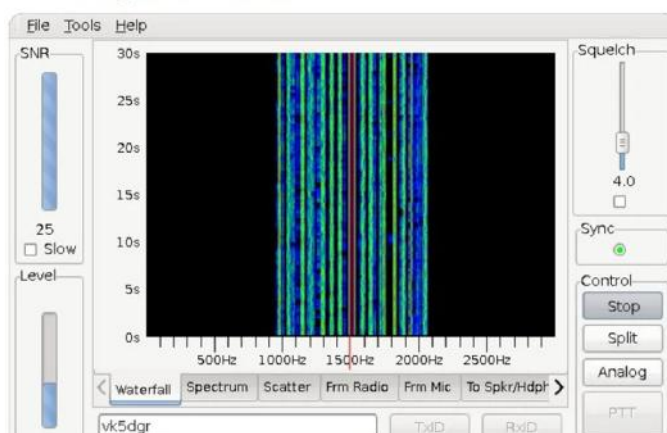


Waveform Emission

The waveform consists of 14 differential quadrature phase-shift keying (DQPSK) carriers with 75-Hz spacing between centres and a total bandwidth of 1.125 kHz. A differential binary phase-shift keying (DBPSK) carrier is centred between the 14 DQPSK carriers, making a total of 15 carriers. The DBPSK carrier has approximately twice the power of the 14 DQPSK carriers and is used for frequency offset estimation and frame synchronization. The carriers operate at 50 symbols/s (50 baud) each. Combined, they carry the Codec 2 voice data, call sign text data, and synchronization information⁴. This is illustrated in the diagram below.

7/amateurradio • 11y ago
k4dzt

FreeDV: Digital Voice for HF



Additional information about data rate, Frequency tolerance, correction and frame structure may be found at <https://freedv.org/freedv-specification/>

Standard Modes of FreeDV operation in the FreeDV Software Versions 2.0.1 and 2.0.2

1600 - The original widely used mode which uses a bit rate of 1600bits per second and requires 1.1 KHz of Bandwidth. Probably the better mode used on a clear FM channel not 100% but very good in challenging conditions.

700 D / 700 E - Low bit- rate modes, 700 bps. These are

The problem with D-Star was expense due to its reliance on propriety, patented technology, limited manufacturer competition and high-quality hardware standards. Both D-Star and the AOR system use the AMBE (Advanced Multiband Excitation) voice codec patented by Digital Voice Systems Inc. A license fee was required for the use of these chips. Many would groan about the fact that this was not conducive to experimentation. We will discuss these modes in a future article.

If a single company owned the patents for SSB and FM radio experimenters would be rightly in the soft and smelly! Just Black Boxes!

Enter FreeDV

FreeDV is a Digital Voice mode² primarily designed for HF radio by Radio Experimenters. It is 100% open source. It uses a free GUI application for Windows, and Linux that allows SSB to be used for low bit rate voice. As time progressed a FreeDV modem was produced by Rowetel³ which could be used in line between the mic and the radio.

Initially FreeDV sounded a little "ropey" – there was great potential there, and in exceptional conditions over the air one could see the gist of what was being attempted. As time progressed an international group came together on coding, design and user interface testing. FreeDV is open source under the public License V 2.1. The modems and

Digital Voice on HF Using FreeDV

optimised for poor HF signal conditions with forward error correction (FEC) designed to outperform SSB at low signal to noise ratios (SNR). These sound very digital and robotic when used on a clear FM channel.

RADE (Radio Autoencoder) - A more recent addition introduced in version 2.0 RADE uses machine learning and neural codecs to provide superior performance. RADE V1 can maintain intelligible speech at SNRs as low as -2dB which is significantly better than traditional SSB or older codecs. SNRs of -5 have been achieved and may become more reliable in future iterations. They nailed it with this one. Sounds good on a clear FM channel and very good on HF even with a lot of atmospheric noise on channel.

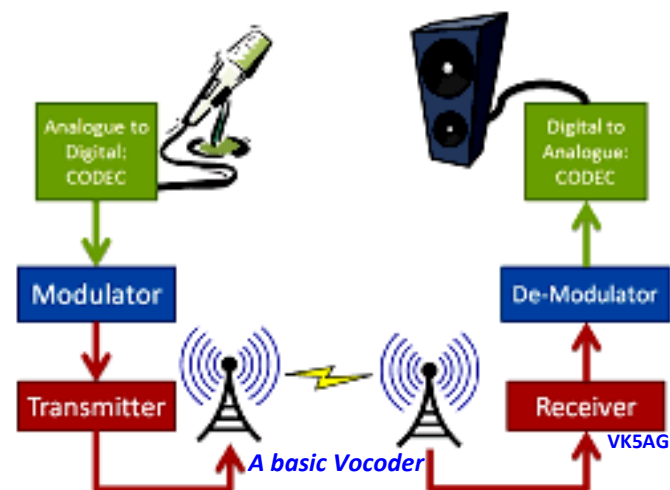
The RADE system uses a low rate vocoder operating at speeds ranging from 600 - 2400 bps and operates at a bandwidth of 1.5 KHz.

RADE has fulfilled the challenges of superior voice quality with robustness and achieves almost -5 dB SNR although is still work in progress.

What is a Vocoder

There is nothing mysterious about the vocoder. A vocoder analyses the frequency content of the analog signal, in our case the human voice via a microphone, and applies those characteristics to a carrier signal (bit stream) in the Analog to Digital Converter. It then splits both signals that are passed through filters that divide them into multiple frequency bands where the modulator's volume level in each band controls the carrier volume creating the digital signal for transmission. The signal is then applied to the transmitter.

To Receive the signal the process is reversed. The bitstream is demodulated and fed through the Digital to Analog converter driven by the matching algorithm used in the transmit side. The analog signal is then fed via an amplifier to a speaker ⁵. See Diagram below



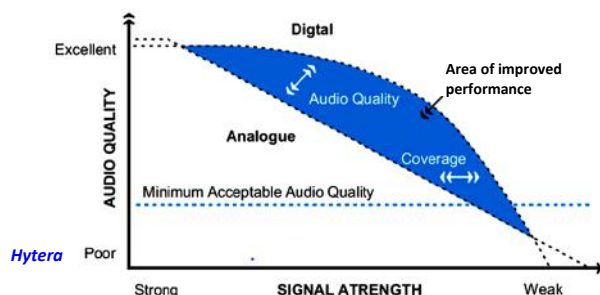
Why Digital

As digital voice uses a lower bandwidth than SSB it can help reduce QRM on crowded bands. One can reduce the filter settings on the receiver to encompass the width of the digital signal thereby reducing a lot of noise.

As the digital signal just encodes the voice, the decode will reproduce just the voice and no band noise or atmospherics. By comparing to other digital noise such as

D-Star or C4FM FreeDV will bring a signal out of the noise with perfect clarity until it falls below the noise floor.

When the signals fall below the noise floor one experiences another noise known as quantisation. This is the R2D2 effect that one experiences on Mobile phones and any other digital device when errors are encountered by the decoder due to loss of data packets. At this point one would definitely not have received voice on SSB! Basically, the digital voice signal is either there or not there. There is no hissy intermediate reception at lower signal strengths.



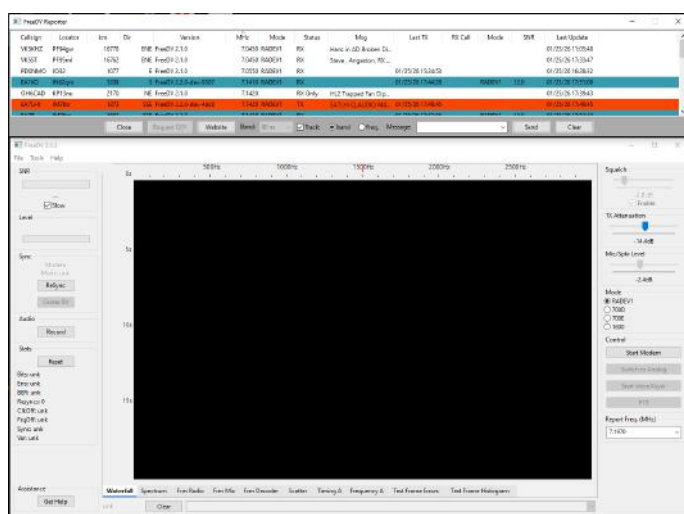
With the History and the basic theory out of the way we can get started on the actual setup and use of the FreeDV program. I might point out that an awful lot of time can be saved by reading the accompanying manual!

Setting up FreeDV

You require

A Transceiver with a built-in soundcard or an external soundcard if using an older transceiver. The same set up of cables is used as with any Data Modes such as FT-8 or RTTY run via the computer. The program can be downloaded for Windows, MAC OS, or Linux. A PC headset or mic and speakers for the audio side.

Download Freed DV from <https://freedv.org/download/> and install. And Run the Program

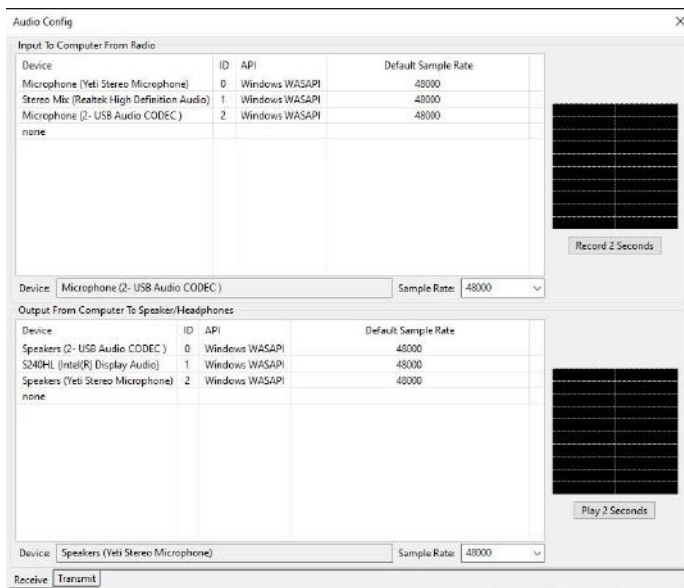


Two items appear on the screen one is a FreeDV Reporter which will indicate activity on the band of choice once the Program is fully set up and controlling the radio.

The other is the main control panel and at the top left hand corner is the tools tab for setting the audio in and out and the settings for the rig and PTT control.

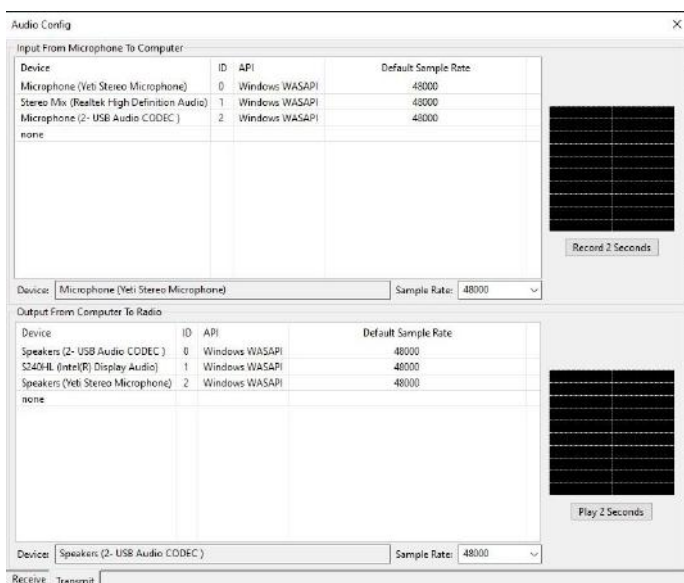
Digital Voice on HF Using FreeDV

Select Audio Config
Receive Audio as in the Diagram below:



The audio from radio is via SBB Audio Codec and the output from Computer is via my speaker system.

The Transmit Audio:



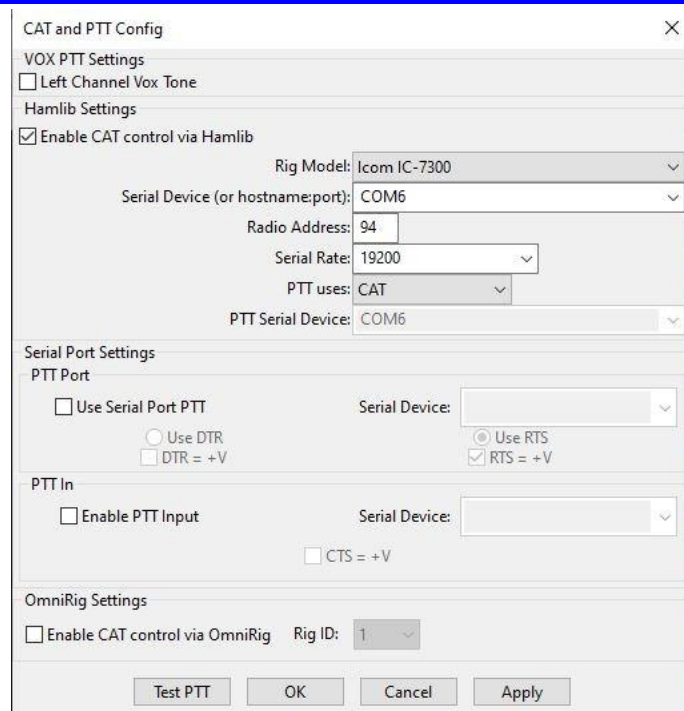
The input from microphone to computer is via the speaker system and the output is via the USB audio codec.

The Next section causes the most grief and that is CAT and PTT Configuration—it should be straight forward.

If nothing else is connected, it will be easy enough to identify the Com port. The radio address is generally standard for ICOM Radios but check the manual if in doubt.

I use Hamlib for Cat Control so the setup was straight forward. On pressing the Test PTT button the radio will go into Transmit if all is well.

The panel on the top left hand side show the layout of Cat Control and PTT section. If you have already set up FT-8, WSPR or any other Data Modes program it should not create too many problems



Starting FreeDV

There are 4 modes to choose from in version 2.0.2. RADE1 is the most popular mode and seems to give best results.

On pressing the **Start Modem**, the waterfall will display a lot of noise. The box labelled Report Freq can be used to select a preset operating frequency. Most of the popular channels are listed here. You can tune the radio to any other frequency and it will show up in the box.

The Free DV Reporter panel will show activity on the band you are tuned to.

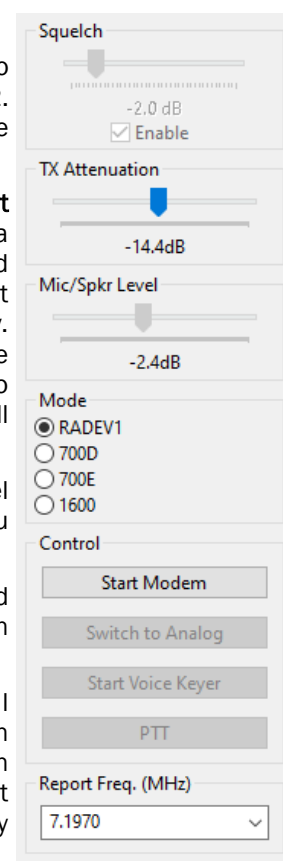
You can also access Freed DV reporter at this location <https://qso.freedv.org/>

FreeDV Reporter will indicate how many are listening on air and will show their status as in transmit or receive. A Great opportunity to tune to a frequency and see if you can decode.

Band conditions have not always been great and first time may be disappointing although a good indicator that weak signal that may not be apparent if something does appear in the waterfall.

Set UP the TX Level

You can either set up the space bar as PTT or click on the PTT button on the panel just above the report freq box. Once in transmit move the TX attenuation slider to increase or decrease power. I run it at about the same maximum power output as I would run FT-8 or PSK as there is a 100% duty cycle on transmission.

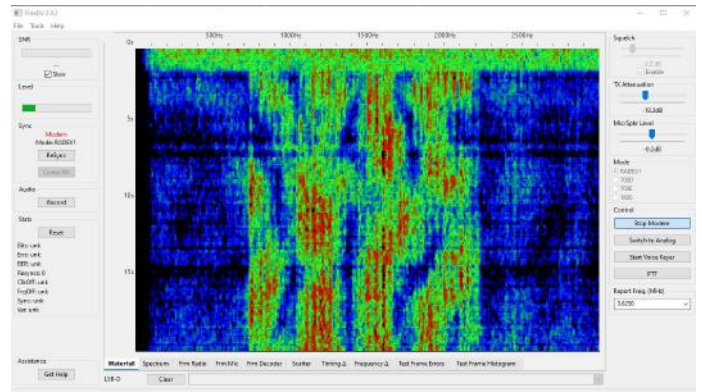


Digital Voice on HF Using FreeDV

To set up the audio level from the microphone, click on the **Frm Mic** button below the signal display window. Press the PTT button and speak normally into the mic. Move the **Mic Spkr** level slider to achieve peaks on the display. Mine was slightly lower in this instance. The Level meter on the top left hand side will alert you if you over modulate. Turn off all items like transmit Speech Processors and Receive DSP noise reduction. Operating from the home QTH with a poor antenna in a small garden and lots of local QRM with poor band

button did bring it back momentarily. This was due to a weak signal plus fading into the noise. At -0.02 dB SNR the signal was clear with no dropout. A lot of noise present on the bands and the conditions variable.

QSO on 80 Metres around 9pm



This was an excellent decode of a RADE1 QSO on 80 metres the SNR was -2 dB - 0 dB the voice was very clear despite the slight fading on the signal. RADE1 does give a very natural quality to the voice. If the signal drops below -2 dB there is likely to be some drop out. If one clicks on the ReSync button it is possible to bring the signal back although one is asking a lot if the signal drops below a SNR of -4 .

Sadly I have only had QSOs on RADE1 as the majority of operators are trying this new mode. Looking at the FreeDV Reporter, it appears that more operators listen rather than transmit but I did work stations eventually.

conditions.

First impressions was that more are listening than actually transmitting.

Results

DF6VI at 6 pm on 40 metres

Receiving at -0.6 dB the digital signal was breaking up but you can make it out on the Waterfall. Pressing the resync

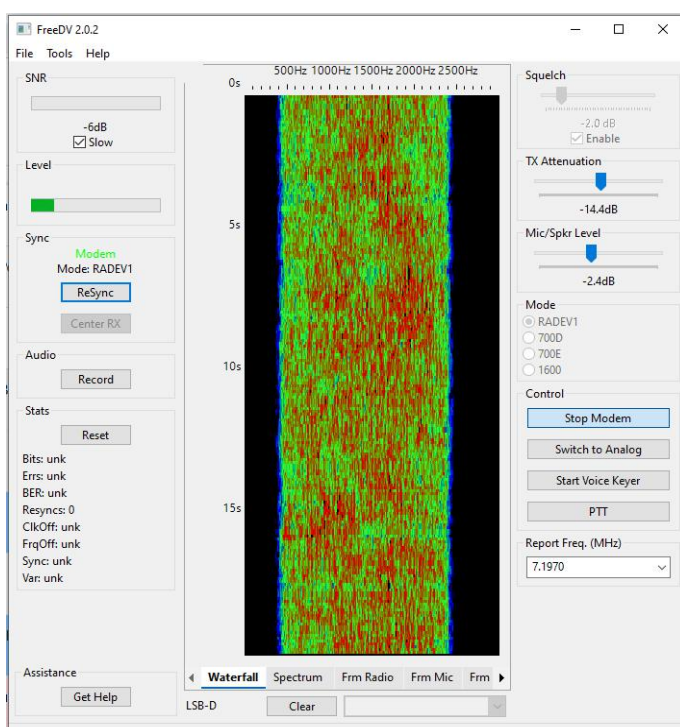
Overall Impression

FreeDV is a free program downloadable from their website. It is open source and has been developed over time by Radio Experimenters. FreeDV provides clear intelligible communications where traditional SSB would be buried in the noise floor. The audio is clearer as digital reception eliminated traditional atmospheric and background noise. Digital voice is ideally suited to QRP operation. FreeDV signals operated at a lower bandwidth than standard SSB.

The narrower bandwidth modes as in 700E and 700D do sound robotic however this is outweighed by their ability to use a narrower bandwidth. The 1600 mode is a vast improvement but RADE1 has really ticked the boxes for quality.

References

1. <https://www.arrl.org/files/file/Technology/tis/info/pdf/0056x003.pdf>
2. <https://freedv.org/>
3. <https://www.rowetel.com/wordpress/?p=4694>
4. <https://freedv.org/freedv-specification/>
5. <https://www.ares.org.au/activities-old/hf-digital-voice>



Steve Wright - EI5DD
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My Frivolous CW Project

During the Autumn of 2025, I acquired my first proper vintage transceiver, the much-lauded Yaesu FT-290R. It was second hand and while aesthetically in good shape, the less could be said with regards to the innards.

Initially I was disappointed with my acquisition. I'd paid a reasonable sum for a fully boxed radio along with its accomplice – also fully boxed – linear amplifier, the Yaesu FL-2010. While all was on the surface present and correct, the radio itself wasn't firing on all cylinders.

The Real Thing

I was, in fact, lumbered with a malfunctioning radio that I'd paid a premium for due to it being fully boxed and with the amplifier. I considered sending it back for a refund until a helpful EI ham pointed me in the direction of someone within Ireland who might be able to help.

"I was, in fact, lumbered with a malfunctioning radio that I'd paid a premium for".

A few weeks later and my FT-290R had been given a clean bill of health – a new internal speaker, complete realignment, fixing a loose LED light upgrade and so forth. All was well with the world.

Then I went and accidentally fried my FL-2010 and MML 144/25 (I since also purchased an MML 144/40 because sure why not?) by letting bare cables hang loose and touch near a 12v battery. The wires just happened to be the wrong way round and fried both my amplifiers.

Talk about bad luck! Thankfully I was able to get both repaired by the same EI Patron Saint of Vintage Radio. Finally, I was up and running.

After The Love Has Gone, or, Y U No Break-In?

Being very green to radios of the more vintage variety, I hadn't expected what came next. My sole reason for purchasing an FT-290R was down to it being a) highly regarded and b) an all mode VHF transceiver. Imagine my confusion then when after jumping a (rather large) hurdle of having a malfunctioning radio, when I finally got it on air to try CW on 144MHz and began to engage my straight key...nothing happened!

After some light research online, I discovered the FT-290R is so ancient (like myself) that it wasn't blessed with the wonder of 'break-in' – in other words, enabling transmission during a key press. To enable CW transmission on the FT-290R you need to engage the PTT (Push to Talk) button on the hand mic (and keep it engaged) while working your straight key (no paddles allowed here, you'll be wanting a keyer for that).

As you might imagine, this is unquestionably what is known throughout the entire world as... 'a faff'. Other, more unbecoming words spring to mind, but I shan't list them here.

I Wanna Hold Your Hand, or, The Beginning of an Arduous Journey in to FT-290R CW Madness.

It was at this point that my first idea toward some sort of modification or CW usage improvement for the FT-290R came about. I hastily whipped up a couple of

prototype 3D designs in Tinkercad. As you can tell from the photo below, a) my 3D design skills are somewhat lacking, b) the prototype was never going to work and c) at this stage I was unaware of the sheer majesty of the little 3.5mm jack on one side of the Yaesu FT-290R labelled 'Stand By' and its sheer brilliance.



The first iteration of what would eventually become the Adiemod Turbo 6000 Executive Edition Ghia

What I came up with, as if you have even the slightest notion from the photo above, was a double-sided block that would hold the hand mic on one side (note the raised circle to 'hook'

the mic to and the curved ridge to stop the mic from falling as you hold it sideways) and a CW key on the other.

It was a disaster. I gave up on the idea after a couple of test prints and design alterations. A little deflated, but not defeated, I was then introduced to a modification made by Adrian G4AZS – a simple on/off throw switch that he had attached to his straight key. The switch was mounted on to the side of his key and soldered to a length of wire with a 3.5mm connector which was in turn plugged in to the jack on the radio marked 'Stand By'.

In this configuration, you simply flick the throw switch to the ON position to enable CW transmission, then flick it back to OFF when you wish to receive. Utilising the 'Stand-By' jack engages TX negating pressing and holding down the PTT button on the hand mic, and the requirement of having a hand mic connected to the radio altogether (if you are planning a CW-only operation of course). Genius!

I had to have the same set up. Thus began the long road to Yaesu FT-290R CW utopia, and ultimately, my investing an unthinkable amount of time (and money) in to designing the most frivolous, over the top, completely unnecessary add-on my mind could conjure up.

Birth of 'The Adiemod'

It all started with, the 'Adiemod' (a nod to G4AZS for enlightening me with his wonderful contraption). It followed the same idea as what G4AZS utilised except I made my version as a standalone rocker switch (see below).



My Frivolous CW Project

My initial interpretation. A simple rocker switch wired to a 3.5mm stereo pigtail in a mono configuration. Cap'n Crunch Phreaking whistle optional.

This worked perfectly fine (it still does) and I even took it out for a test run during the dying embers of the Irish Autumn. I didn't make any contacts on 2 meters CW, but I enjoyed being able to use the radio in CW mode without the kerfuffle of juggling a key and a hand mic at the same time. I even introduced a Picokeyer in to the device chain (see below photo) so I could test out my Palm Radio Pico Paddle.



Taking my original 'Adiemod' for a test drive during late Autumn of 2025.

Realistically that should have been that. Job done. Mission accomplished. Out of nowhere, one evening a random idea popped in to my head. A vision to make the most over the top version of what is essentially a simple modification. I had a vision in my mind about what I wanted to make, and I was set on completing it.

The only sticking point was that I had absolutely no idea how to make it, or the skills required to actually make what was in my mind. I was going to literally have to learn as I went along.

Welcome to the CW Pleasure Dome

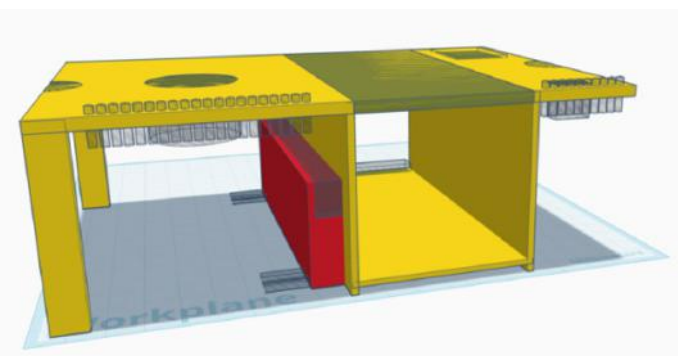
With the idea in my mind, I set about sketching out what I thought it might take to put my idea down on paper and to make it a reality.

No circuit diagrams, no fancy electronics terminology required. Mainly because I hadn't a clue how to produce either of those.

What I wanted to make was an entirely self-contained box that would house both the 'Stand By' rocker switch and a small straight key, with the ability to wire them to the radio all in one unit.

This was the premise, albeit with a caveat. The ultimate end product must be an over-the-top, ultra-premium, entirely unnecessary amalgamation of total and utter folly. A madcap love letter to the Yaesu FT-290R, a radio that in its heyday was wildly popular, and still is over 40 years later.

I had no idea what I was letting myself in for, or the new skills I would need to learn in order to achieve my goal. The inner box 3D model I made in Tinkercad. Revision number 18, no less.



The inner box took 18 different revisions within Tinkercad (and about 827,642kg of PLA and PETG filament wasted) to get right. The two main issues were finding fit for the rocker switches and wiring, and structural reinforcements to endure continued use of the switches and from continuous weight pressing down from the operation of the straight key (more on this later).

3D design aside, I had an even more infuriating time tracking down components that were a) the right size and dimension e.g. I went through ordering – and sending back for a refund – 4 different pine boxes, and b) getting said parts to actually work and not be complete electronics landfill – again, cue a plethora of ordering, returns and refunds.

After a number of attempts (4 to be precise), I finally settled on a rough, unsanded, unfinished, unpainted pine trinket box. Once I had the box selected and the dimensions down, I set about the arduous task of sanding and painting it. I also added two mono 3.5mm jacks – for the Stand By switch and the CW key, and a metal locking clasp to keep the lid secure.

I chose to use a water-based stain, which was more forgiving for a beginner who has never stained wood in their life, and to not seal with a varnish, rather once completed I sealed it with beeswax. I've included images of the process, along with a selection of some of the 3D

My Frivolous CW Project

prototypes, in the image gallery below.



Living in a Box

With the box that would house my project finally sanded and stained, and an inner lining that would house the components completed after it's 18th revision, it was time to begin populating the box with components and ultimately working out how to best wire them in a satisfactory but more importantly a safe way.

This is where I had to learn a bit about electronics, voltages, wiring in series and parallel and so forth. It was all new to me and again, I had to learn as I went along.

I wanted to ensure that the folly element of my project was upheld, so I went down the road of sourcing anything and everything that might have an LED in it. Cue more endless buying, waiting for postage, finding out X doesn't work or Y is shoddy quality, sending back for refunds and so on ad infinitum.

Eventually I settled upon a simple LED rocker switch for the 'Stand By' component, a simple sliding 3 pole switch for an LED strip I wanted to mount in the CW key chamber, and a waterproof momentary rocker switch that would be home to the piece de resistance, the triumph of engineering, the CW marvel, the moment of madness that took my idea to the next level...

I wanted to have the CW key appear on a motor-driven scissor platform.

No reason. Just because.

I envisaged the CW key rising triumphantly like an organ player on a Wurlitzer rising from the stage trapdoor of a seaside theatre.

This is the part that tested my patience to the absolute limit.

Finding a motorised platform that would both fit the dimensions of the box, my 3D inner liner design and support the weight of a CW key both in order to raise and lower it as well as support pressure being applied to it during operation (and keep it stable during transport) was really bloomin' difficult.

I went through endless prototype ideas, scaling models up

and down and sanding and filing gears and rewiring motors until finally I discovered a wonderful little [micro platform on Thingiverse](#).

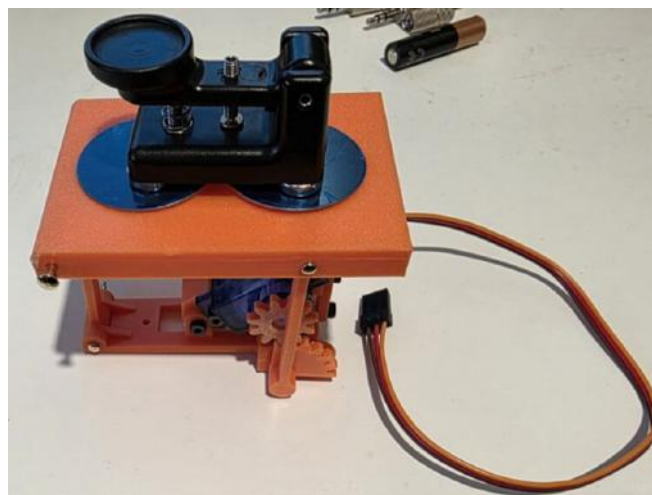
The dimensions of the platform were perfect, it would fit my box as well as the key chamber housing in my 3D inner liner design. It might also support the weight of a micro CW key I purchased on Ali Express some months earlier - I bought it initially to use with a modified Quansheng handheld.

To state that this 3D print was a pain in the backside is an understatement. The majority of the build is fine. The problems come in getting just the right sanding down on the micro gear in order to grip and move the platform and to adhere enough to the servo in order to move the gear without slipping.

This tested my patience to the limit. I nearly gave up and began looking at cheap commercially-made alternatives (note: there aren't any, well, there is one - literally one - on Ali Express but the dimensions are too big for the box I chose).

Finally, after a couple of weeks of fiddling and about 6 servo's I ruined later, I got the platform to work. This was the Hallelujah chorus moment. The pivotal moment that told me I would be able to see this project over the finish line.

I hit another problem though. I couldn't power the servo without a servo tester or introducing an Arduino board to control the motion of the motor as well as it's speed.



The completed platform prototype. I now needed to figure out how to power it in the box.

FT-290R: Rise of the CW Machines

With the majority of the project now complete, attention turned to producing another micro platform, this time in black PLA (except for the gear cog which I printed in PETG for a bit more resilience).

The production build went a lot better as I could model it off of the teething issues I solved with the prototype. There was however the matter of figuring out how to power and control the servo.

With a little research, I discovered if you remove the back casing on the servo, exposing the PCB, you can

My Frivolous CW Project

desolder the 3 PIN wire that is normally connected to an Arduino etc. On the other side of the PCB are two pads. These can be soldered to, positive and negative, with wiring, fed out the back casing nice and neat just like the stock wiring, essentially converting the servo in to a gear motor. Perfect!



Key goes up...

Key goes down!

I worried a little as the platform would raise and lower rather quicker than I would have liked when engaging the momentary switch. By adding the CW key to the platform and securing it with magnetic plates, the key provided enough weight to slow the platform down just enough and the magnets held the key in place both so it wouldn't fly off when engaged and it kept the key in place during transport.

Double win!

Velvet Pants.

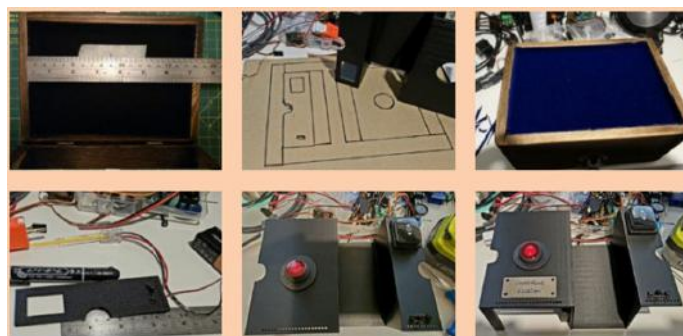
With the finish line in sight, it was time to commence buttoning everything up and making it all look deluxe and spiffy!

I decided to line the 3D printed inner liner with adhesive black velvet craft sheets. I did the same for the inner lid, and also the outer bottom though using dark navy velvet for that part. It was tricky to measure, cut and fit but it didn't need to be perfect as the components would hide some of the obvious cutting imperfections.

The last parts to add were the LED strip for the CW chamber and a small brushed aluminium plate engraved with 'Executive Edition'. I purchased a small Dremel 270 engraving tool, printed out the words in a snazzy script font, put the plate in a bench vice and set to work engraving for the very first time.

I don't think it turned out particularly bad for a first try, though I wanted the text to stand out a bit better so lightly sketched in the marks with a Sharpie.

There was just a couple of bits left to finish off and the project would be almost completed. I wanted to give the box a little bit more of a luxury feel, so I purchased a gold, raised Limited Edition decal and some metallic 3D lettering. You can see the results of this in the image at the



Lighting the Key Chamber was tricky. Originally I wanted to use 4 LED's in series.

very start of this article. It wasn't overly tricky to complete this phase, just painstaking as I had to lift and apply the letting with tweezers and apply the gold decal correctly without it lifting or tearing, which I nearly succeeded in doing on a couple of occasions during the application process.

(Richard) Ghia

With the project now 99.9% completed, I had two final tasks to complete. The first was to add a replica Ghia badge to the outer box. No real reason other than a nod to luxury – Ghia is a renowned Italian coachbuilder, you might recall them from their own vehicles they produced, or perhaps more commonly from cars such as the Capri Ghia or Ford Escort Ghia and so forth.



Adding a replica Ghia badge to the outer box for a touch of class!

My Frivolous CW Project

I just thought adding the badge might add a nice touch and a bit of (unofficial!) branding per se.

The very last thing I wanted to add, to make the whole project fit the bill of being completely over the top, was music.

I found a light-triggered LED PCB which had an on-board speaker and sound PCB. Once the box was opened and light hit the LED, it would play a one time *.wav file. In this instance I edited the intro to the famous Transformers: The Movie song [The Touch by Stan Bush](#), which would play as the box was opened and the end user was busy flicking switches and raising CW keys on servo-controlled platforms.

Completely over the top? Check. Entirely unnecessary? Check. Fits the project mission statement? Check!

And thus, with everything buttoned off and tested and triple checked, my vision for an over the top love letter to the Yaesu FT-290R was completed.



*The finished Adiemod Turbo 6000 Executive Edition Ghia
Mission Accomplished*



The project I had in my head for some three or 4 months was now completed.

<https://youtu.be/ObyZ8HY6FJs>

After I hung up the phone to the Samaritans, I set about making a short YouTube video of the box in action. For the record I don't have a YouTube channel as such, I just needed somewhere to host a short video so please don't expect content in the future!

I feel I have achieved my goal. Yes I could perhaps have done things differently or made things better or wired something a different way or done something entirely different to get to the same resolve.

Learning and Experimentation

The point is, I had an idea. I had no actual idea how to make the idea a reality but I am so glad I saw it through. I learned so much.

1. From sanding wood properly to get a finish ready for staining, to staining wood and polishing it with beeswax.
2. I learned to engrave (not very well but I learned a skill all the same).
3. I learned about simple servo robotics and basic electronics.
4. 3D printing

I learned a plethora of skills that I thought I may never have needed when I first set about creating the vision I initially had.

Yes, it is crude.

Yes it is over the top.

Yes it is probably a waste of time in many peoples eyes.

But it is my crudely-made project.

My vision.

My learning experience.

My little nod to a much-loved radio that first hit the shops in 1982.

Regrets? Absolutely none.

CW [morse code radio yaesu](#)



Ian - EI3LH

EI3CC YOTA Event 2025



EI3CC held its first YOTA station at our new club house it was a short notice call on weather we would run a station in 2025 as we are more geared to have a YOTA station ready for 2026.

We arrived on site in the pouring rain and we had intended to get the youngsters involved in setting up a station from scratch, this would involve putting up poles for wires and feeding the coax back to the shack.

We are still setting up our new club house so our lattice mast is not yet set up so we revert to using some portable masts which sit in our drive on mast supports.

Once the antennas are in place we then turn to the radio's and the main club radio is a ICOM 7300 so our young guests are then shown then how to check the antenna for SWR to make sure we are ready to roll.



Once the station is deemed ready we are then going on air with EI3YOTA our designated call for the club.

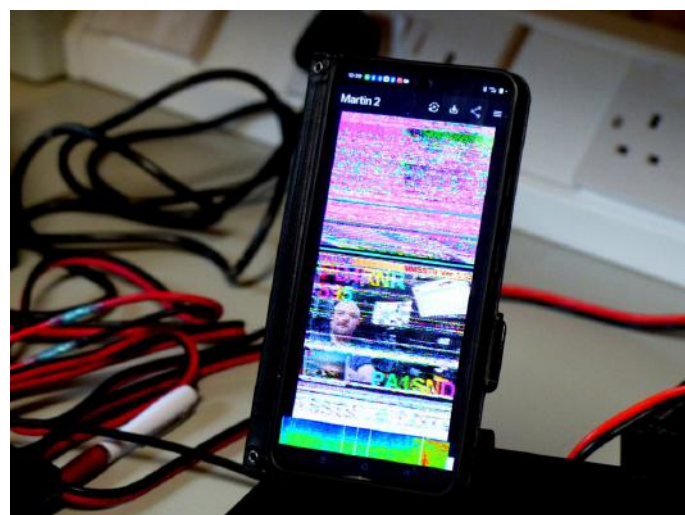
The bands were not in good shape as we had been lashed by yet another CME 24 hours before and it was looking like a blackout, this is where for 2026 we intend to set up the QO-100 sat system. We persevered and calls started to come in all be it hard work for the young operators.

Soon we had a circle of eager operators wanting to take turns on the microphone and stations had seen posts on the clusters for a YOTA station which always attract people to call in.

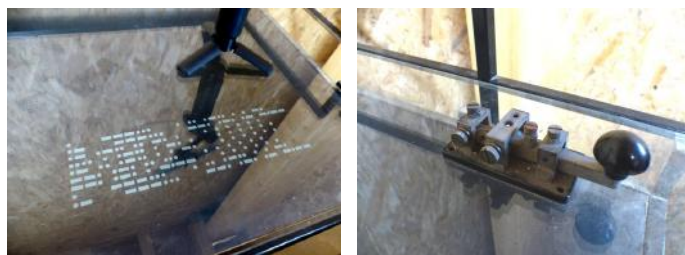


The log was starting to fill in between heavy QSB but the mood was good and many turning up in the Christmas spirit mode.

We also in between contacts were able to display some slow scan TV that they could download on their phones and as you can imagine this created great interest too.



An introduction into CW was available with one of the desks in the shack displaying CW as part of the Eileen Gray exhibition, here we explained each symbol and did a demo on the key too.



We displayed a number of kits that could be built and plan over 2026 holding home brew events where the group can assist in projects so from components to a working item will create great interest.

All in all it worked out a good day the members enjoyed it as did our young guests and we are already looking forward to the 2026 YOTA.

The KSOB - Magnetic Loops

Mmagnetic loops, what an interesting type of antenna. Small and work rather well for the band its designed for BUT be warned because of these antennas are a high Q rating when there on TX mode they can produce large voltages across them hitting in to KV or a many KV's

They are a kind of a large capacitance, and because of High Q rating they are a bit of a narrow band antenna as well meaning the bandwidth is probably no more than 50khz and they need frequent retuning. Because of this they are a rather good antenna and tend to radiate off their ends and not their sides.

Another bonus, they also tend to radiate signals similar to a small beam and at angles from level to straight up into sky and the sides are the Null of the loops and hence directional.

This is why they are a good idea for small antenna for a small garden or even a loft because of their size. They can be made from any conductive materials such as copper, aluminium, or even Coax of the larger type and single core would be best. Heliax is often used.

The first one I ever built was copied from the internet with my own modifications of course. Mine was a small 20m Mag loop made from 22mm copper tubing about 1.4M in diameter. I did not bend copper into shape but cut lengths with angles and soldered together a 1.4Mm octagon shaped loop. What I liked about the design of this antenna was the way it is capacitated and tuned by its own style of variable capacitor.



It is the slide trombone capacitor. It's an larger 22mm outer tubing with plastic tubing inserted into that and then in that you insert the 15mm copper pipe with end stops and it becomes the capacitor part of the mag loop. This will tune your antenna and do note that the cap on the top of the mag loop is best way to mount them.

Here's the KSOB supervisor Fred. Now the tuning or to move the trombone cap in and out of its housing am using a small 12v Motor connected to a studding M6 to which rotates and moves the trombone slider at a slow speed to tune antenna up and down.

According to the web page from where I got the design, you can also make a bolt on cap out of 22mm tubing and 15mm same way you make the legs of the trombone cap and add it to one of the trombone legs. This will increase the capacitance of the antenna and you can now tune in 40m

With this little box of tricks I also made up with a PWM controller, I could set the speed it moved and tune in the antenna and make it go backwards when retired. BUT best way I found to tune the antenna across the 20m band was to turn up the Vol of radio and spin the motor on the



The KSOB - Magnetic Loops



trombone slider and wait till I heard a peak in noise level then checked SWR by Taxing. Usually I was close and with a little more tuning required.

I had some very interesting chats with European stations, but best one was the Guy in Northern Brazil for he was using a 4 element beam from his location and was rather surprised when I told him I was using the Mag loop, I recently built and saw the pictures on my QRZ pages.

<https://www.66pacific.com/calculators/small-transmitting-loop-antenna-calculator.aspx>

And here is your link to the small antenna loop calculator or Mag loop calculator.

<https://www.youtube.com/watch?v=7fdxFgb8a9A> Part 1 https://www.youtube.com/watch?v=9kJzh1_alk4&t=398s Part 2.

Videos on how to build a copper pipe Mag loop 20m.

This is a good antenna if you have small back garden with little space, and it will get you out on 20m and, with the bolt on cap, will get you out on 40m if do not wish to build a tad bigger one for 40m. as this will be nigh on 2m in dia.

Karl Kruger 2E0FEH

freebirds658@aol.com

International Marconi Day

International Marconi Day celebrates the huge part Guglielmo Marconi played in the invention of radio. IMD is a 24 hour amateur radio event that is held annually to celebrate the birth of Marconi on 25 April 1874.



The event is usually held on the Saturday closest to Marconi's birthday and in 2026 it will be held on 25th April, his birthday. The purpose of the day is for amateur radio enthusiasts from around the world to make contact with Historic Marconi Sites using communication techniques similar to those used by Marconi himself.

The IMD Award

As in previous years the event will run for a full 24 hours with contacts made on any band counting towards the award. All modes of radio communication are accepted towards the award and are actively encouraged.

Please note that internet modes such as Echolink, DMR and other Digital Voice modes will NOT count towards the award for IMD.

The Certificates are of a very high quality and are well worth obtaining to display on the wall of any Shack. They are based on an original Marconi Stock Certificate Circa 1901.

Transmitting Amateur

To establish direct two-way communication with 10 different official Award Stations, reduced this year due to quite a few not able to operate, mixed modes are permitted



in the log (mixed modes CW voice, data)

Shortwave Listeners

To log two-way communications made by 10 different official Award Stations, mixed modes are permitted in the log (mixed modes CW, voice, data)

All Bands allowed from from HF to SHF

Award Claims

Rick Hall G4PGD, IMD Awards Manager, Cornish Radio Amateur Club, 18 Park View, Truro, Cornwall, TR1 2BW

email logs to:

crac.imd@gmail.com

The East Leinster Amateur Radio Club Winter Field Day 2026

Participation in 'Winter Field Day 2026' (WFD 2026) was quite an experience for the East Leinster Amateur Radio Club (ELARC). This international event 'aims to help participants improve their preparedness for disasters and enhance their operational abilities in adverse conditions' (see <https://winterfieldday.org/>). That's exactly what we are interested in at ELARC and exactly what we got

It was not the quantity or worldwide spread of the QSOs on 24th and 25th of January that we will remember WFD 2026 by at ELARC; it was the experience of setting up and successfully operating overnight in stormy conditions with high wind, gusting up to 80kmph, and persistent heavy bands of rain. But then, that is what ELARC is about: getting out on the ground and operating in trying conditions.

Picking up the ELARC Club tent from Johnnie (EI8IPB), Michael (EI6IRB) headed to our operating location at the Fingal Scouts' field at Bog of the Ring. Many thanks to the Fingal Scouts for permission to set up and operate overnight, and to Dom (EI5IAB) for sorting this with the scouts.

One man setting up a large tent in a storm is not easy and so Michael's being joined by Michael (EI8JKB) and Dom gave us a chance to get the tent up in a less wet and less squally break in the weather. As we got the fly sheet in place Tom (EI5IEB) arrived and re-jigged the slightly skewed set-up of our base for the next twenty-four hours.

Ensuring an organised operating environment inside the tent from the get go is critical. We learned this on previous WFD operations. We knew we needed suitable portable tables and chairs, set points in the tent structure to run feeder lines through, plenty of spare battery power, effective lighting and heating and an understanding of the proximity of antennae to each other and the correct filters to enable multi-band operation.

Tom was operating his Xiegu G90 with a Chameleon vertical antenna.

well suited to the cold, wet and windy conditions of portable operation in the middle of winter. They fed into a JPC-12 vertical which we tuned with a Nano-VNA by Michael (EI6IRB) moving the clip on the coil and Michael (EI8JKB) shouting loudly from the tent over the wind when the SWR was at its lowest. It worked and we were down to 1:1.3



2: The two operating stations: PRC-320 on the left and Xiegu G90 on the right.

Tom operated on 20 meters and Michael on 40 metres. We used our own callsigns and the ELARC Club callsign of EI0EL. The PRC320 has two handset feeds so this allowed both Michaels to listen simultaneously and call out as needed. The objective was to contact another WFD station and give the WFD message of '20' (Two Oscar). That is, we are operating two stations (2) outdoors (O).

It quickly became clear that operating conditions were rubbish. 20 metres seemed to collapse. 40 metres was only marginally better. We picked up the WFD Bulletin on 20 and 40 metres from EIOWFD, but despite our constant calling to them when they were operational they did not hear us until we called out on 40 metres on Sunday morning. Other stations we completed QSOs with on 40 metres were WWA stations in Spain and Portugal and a solitary operator in Serbia.

But Saturday night was memorable for other reasons. The crackle of the radios was drowned out by the constant beating of heavy rain on the tent and the shriek of gusting wind. 'Will the tent hold?' ... 'Was that another guy ripping off?' ... 'Is your vertical meant to operate lying on the ground?' The four of us wondered if we would be forced to break down the station in a hurry and watch the tent fly off across the fields?

There is always the positive side to operating like this. It came in the form of a visit from Orla of the Fingal Scouts with a box of assorted chocolate biscuits which got us through the night. Then Dom, who had left after we set the tent up, remained true to his promise and returned with chicken 'n' chips 'n' onion rings, not to mention vinegar, salt and ketchup. A hot takeaway in a dry tent in the middle of a storm was almost as good as a Michelin-starred meal!



1: Michael's converted PRC-320 operating on 40 metres.

Michael (EI6IRB) was operating two of his 'green radios': on Saturday a 30w ex-British Army PRC320 from 1974 with modifications for DDS operation, and on Sunday a 20w ex-Bundeswehr PRC2200 from the 1990s. Both are

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3: Part of 'Deliveroo Dom's' feast.

We kept calling, but the QSOs fell off by 22:00 as band conditions worsened. The weather truly turned by 23:00 and the gusts hitting the tent for the next hour or so were heavyweight. Mack EI6IZB joined us close to midnight. We got the tent properly warmed up thanks to his gas heater, and, with the coffee pot back on, we were sorted. We talked about radios, weather and set ups and put the world to rights for the next four hours or so. The weather abated just a little and we turned in at about 04:30.

Later that morning the weather had changed for the better. It was bright, relatively calm and there was even some heat in the winter sun. The tent survived, the antennae remained in place and 40 and 20 metres were in better shape, but not great.

We were operating from about 0930. More coffee and we got a handful of QSOs on the Club callsign on 40

metres into England and with ELARC member Ian (EI4DP) operating on the Great Sugar Loaf mountain in Wicklow. Ian was operating 10W through a dipole set for 40 metres. He received EIOEL 5/7, but such were conditions that we could only receive him 3/1.



4: The morning after ...

Frank (EI8HIB) arrived mid-morning and set up on 20 metres with his PRC2200, also using a JPC-12.

We operated until early afternoon and then took our saturated camp apart. Everything had held.

We fulfilled the WFD goal of setting up, calling out and completing QSOs and we were 100% operational portable throughout our operating timeframe despite conditions. We had two antennae deployed, two radios operational, both on battery power and working on 20 and 40 metres. We were operational from 18:00 on 24 January to 02:00 on 25 January and then from 09:30 on 25 January to 12:00 midday. We copied the WFD bulletins on 20m at 18:30 and 40m at 21:00 on 24 January.

We did it, but there are the small things that we need to do it better: in particular more practice setting up the tent, a few more band filters and some plastic lattice for the floor of the tent to keep us above water.

Michael Kennedy - EI6IRB

michael.j.kennedy.70@gmail.com

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My name is Adam Sweeney, and in 2026 I plan to be the youngest Irish person to summit Mount Everest, the tallest mountain in the world at the age of 22, with the current youngest being 26.

In February of this year I completed my first big mountain - the highest mountain in South America, Aconcagua standing at 6961m in The Andes. With a success rate of only 30% I was delighted to make it to the summit with no problems with fitness, skill, or altitude sickness. As far as I am aware, at 20 years of age, I am the youngest Irish person to summit Aconcagua, but I could be proved wrong with that fact!!

Summitting Aconcagua in the Argentinian Andes, my first 7 summit, has given me the confidence to move on with my dream.

In November 2024 I plan to climb Ama Dablam with an Irish Team in Nepal. At 6,812 meters which is slightly lower than Aconcagua but it is a step up in technicality and a natural training ground for Everest.

In May 2025, I'll be going to Alaska to tackle Denali, the highest mountain in North America. The approach to Denali is a challenge in itself, where I will have to haul my expedition gear on a sled to Base Camp, taking 3-4 days. The summit attempt itself will take 21 days, with time taken acclimatising to the mountain altitude, before an assault to the top which stands at 6190m. This is a fully self-sufficient trip and a great mental test before Everest.

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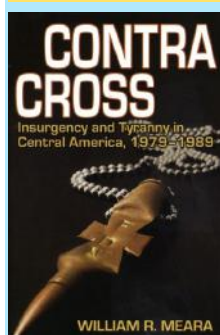


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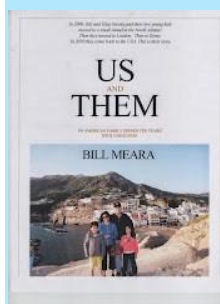


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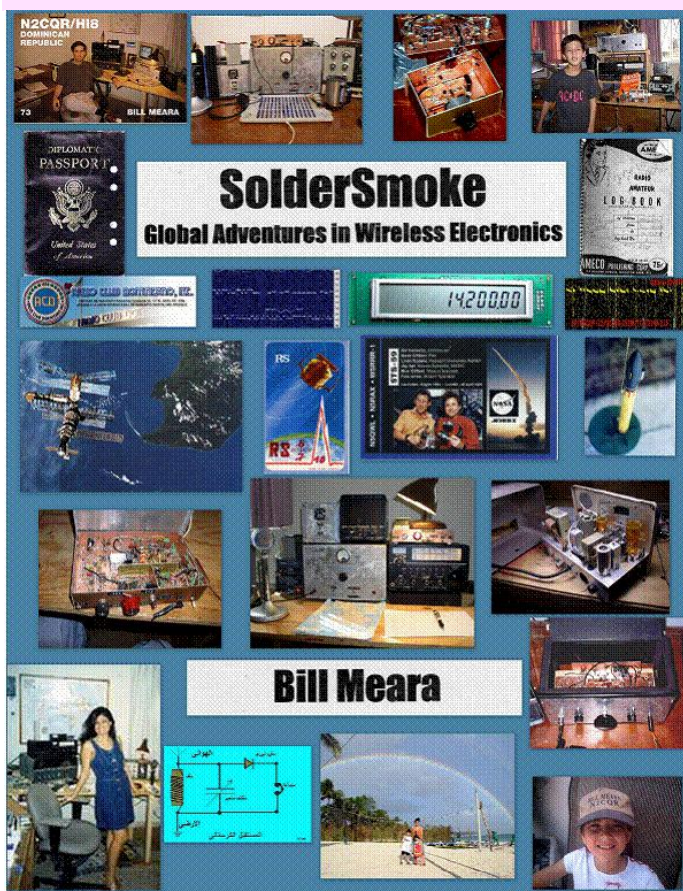
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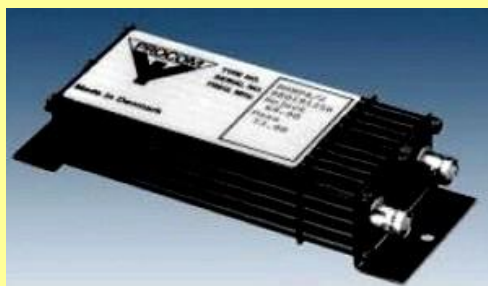
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- 8-Inch 1920 X 1200 IPS Display on AU-520M with external monitor port
- >155 dB Dynamic Range
- Built in 500W Antenna Tuner
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- Integrated GNSS receiver with antenna maintains radio frequency with no adjustments
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