Connacht Regional News

Servientes Traditiones et Spiritus Experimentalis Radio

Editor: *Steve Wright EI5DD* *wright14@gmail.com* **Vol. 2 Issue 01** **February 2023**

In This Issue

Welcome to the twelfth Edition of the Connacht Regional News Magazine

The Connacht Regional News Magazine is 100% *inclusive, unbiased*, and primarily written for the local Clubs and Groups in Connacht although there is a wealth of information that is of interest to all radio operators. More recently we have decided to include all aspects of Radio Communications and associated Groups. *Please Note:* We are *totally freelance* and in absolutely no way, tied into, or affiliated to, any one National Society. This enables us to report activities of *ALL* Radio Groups and Clubs in Ireland who wish to supply news items of interest.

It should be noted that, by taking a freelance stance, we are not favouring any Club Group or Society. If there is an absence of material from a Society or Club, it is because they did not supply material, *naturally beyond our control.*

We are fortunate that the West of Ireland has seven Radio Clubs within Connacht all of which are very active, as can be seen from their activities in our publication.

We do repeat forthcoming activities in several editions to give advanced notice of the event and to enable clubs and groups to prepare for them.

We promote >>ALL<< radio activities that are due to occur rather than report those that have happened. If you have an item of interest, please feel free to forward it to Steve. EI5DD, who will include it in the following newsletter.

Due to the overwhelming success and readership of the Connacht Regional news, now going viral, we will produce a publication MONTHLY.

A link may be found on the Galway VHF Group Web Page for the most recent copy of the Publication.

Contents February 2023

News and Events

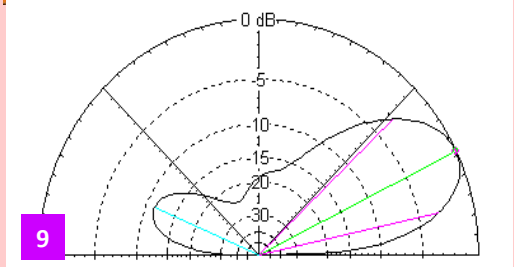
Features

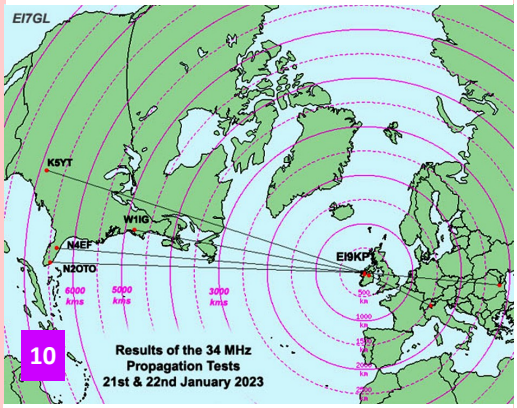
News From Our Clubs

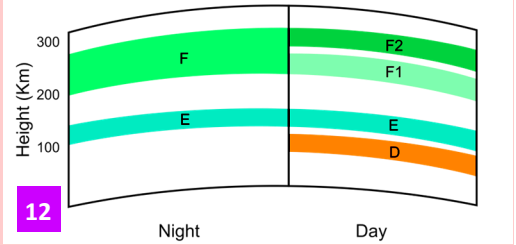
Submitting Items To This Magazine

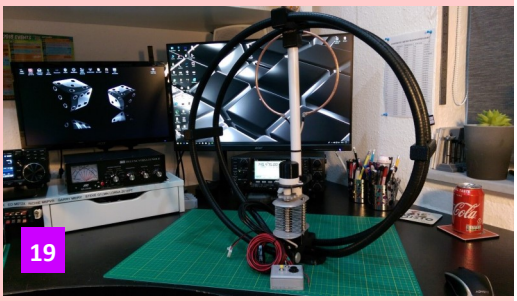
We are always delighted to receive any radio related material for this magazine.

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









We Welcome Feedback so if you enjoyed this publication please mail Steve EI5DD:

wright14@gmail.com

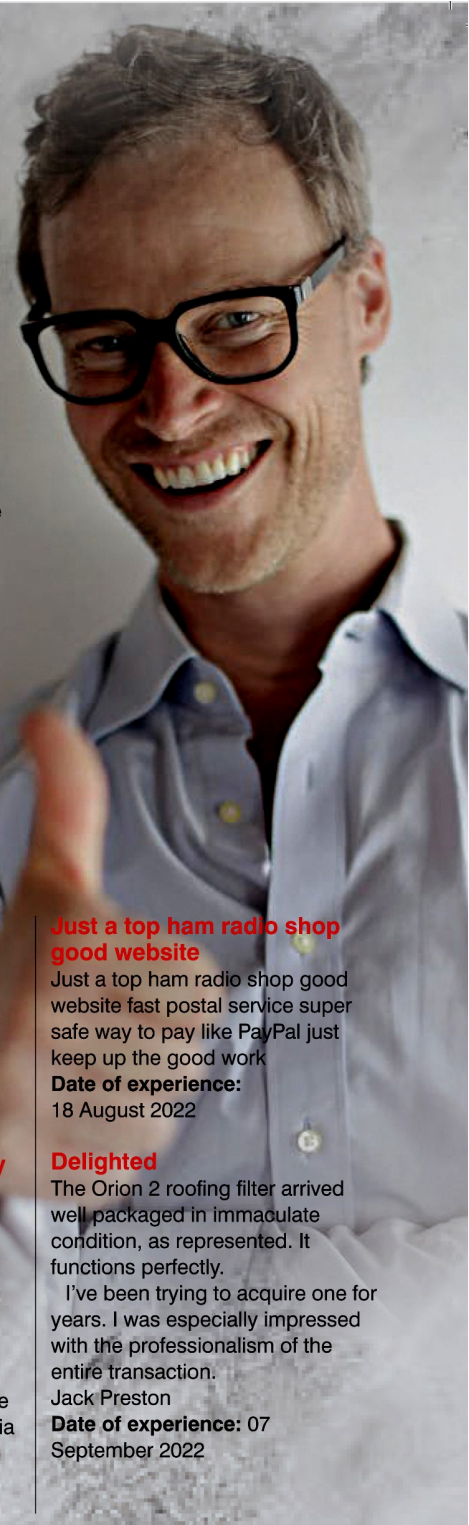
Cover Image

Young Scientist & Technologist of the Year Award 2023 Winner Shane O'Connor SWL from Abbey School, Tipperary Town

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

We may all sell the same products but the service from ML&S is in a different league.

Don't take our word for it;



I am new to Ham Radio and needed setup advice

I am new to Ham Radio and was looking for specific setup advice. I visited Martin Lynch and Sons in Staines and got exactly what I wanted. The sales assistant, John Jenkins spent over an hour with me going over every detail, drew helpful diagrams and even soldered the connections in place. All this along with friendly and useful chat. I cannot remember ever being so well treated with a technical purchase - with the possible exception of the Apple store in Regent Street. I strongly recommend this company to novices and experts alike
Mr. Romer.
Date of experience:
30 August 2022

Excellent Service

Very helpful staff when I got in touch with them, the items which I purchased was a quick and easy transaction. Pleasure to do business with. 10/10.
Anne Christian
Date of experience:
03 August 2022

I purchased an item on-line

I purchased an item on-line and needed to return it. They received the item back and refunded me without any delay and without any stress. The sign of a remarkable and well-managed company with integrity. They can be trusted and I will be back.

I rarely have to return items, but another part of my big plan - the items needed to be returned within the "cooling off" period and they (a competitor of Martin Lynch) have been a nightmare to deal with and refuse to simply comply with the law. It's dishonest and it looks like a money claim. I'm so sorry that the items I needed were out of stock at ML&S and I was forced to buy elsewhere.

This is why I'm taking the trouble to endorse Hamradio and Martin Lynch and wish that more companies in this industry were like them.

Many thanks. Much appreciated.
Date of experience:
02 September 2022

I have nothing but 100% praise for ML&S

I have nothing but praise for Martin Lynch & Sons. I sent two well packaged Radios for a trade in, they were worth a considerable sum of money, but both went missing. ML&S went out of their way to sort it with the courier with one radio found 13 days later and I was more than happy with the outcome through this company. Trust me, ML&S goes the extra mile for customers and I am very happy to recommend them 100%.

Special thanks are due to Richard and Paul in particular. Fantastic company.
MM3GQT
Date of experience:
17 August 2022

Just what I wanted

Just what I wanted, super quick delivery thanks very much.
Andrew Ward
Date of experience:
23 August 2022

I Recently I purchased a radio that...

I Recently I purchased a radio that developed a fault under warranty. I contacted ML&S who arranged for the radio to go back to them, repaired and returned to me. The whole experience was organised and painless for me, the staff were helpful and cared about my problem. Good old fashion customer care. Would recommend them most highly and will purchase again.
Robert
Date of experience: 07 September 2022

Have used ML&S for years and can never fault their service

Have used ML&S for years and can never fault the service, be it telephone support or order processing and delivery. Highly recommended.
Graham McCusker
Date of experience:
05 September 2022

What can I say but carry on as the service is first rate by a mile

What can I say. Repeat business is always a pleasure with Martin Lynch and Sons and the team. First rate goods be they new or old . Delivery first class. Support first class. I shall be looking in late September for a new shack in a box .Yaesu Ft 991A and some accessories. All the best from Julia Merton, G7LJL
Date of experience:
05 September 2022

Just a top ham radio shop good website

Just a top ham radio shop good website fast postal service super safe way to pay like PayPal just keep up the good work
Date of experience:
18 August 2022

Delighted

The Orion 2 roofing filter arrived well packaged in immaculate condition, as represented. It functions perfectly.

I've been trying to acquire one for years. I was especially impressed with the professionalism of the entire transaction.
Jack Preston
Date of experience: 07 September 2022

Why shop anywhere else?

New to the hobby or seasoned operator, you'll get the same welcoming and professional greeting every time. I wouldn't have placed my name on the company if we didn't.

Martin Lynch & *his* Sons Ltd. Established 1990.

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

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E-mail: sales@hamradio.co.uk
Opening Hours: Mon - Fri: 8.30am to 5pm. Sat: 9am to 4.30pm.
International Tel: +44 1932 567 333

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www.MLandS.TV YouTube

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News and Forthcoming Events Planning 2023

National Radio Society of Ireland AGM 2023

The Annual General Meeting of the NRSI will take place **on Sunday the 19th of February 2023** commencing at **11:00 am**. The Meeting will be held in Mullingar and hosted via multiple online platforms. Those unable to attend in person will be sent a link to the meeting.

The NRSI is an inclusive, national non-profit organisation for radio enthusiasts in Ireland. Membership consists of Licenced Radio Experimenters, Radio Amateurs, Licence-Exempt Communicators and Shortwave Listeners. For more information contact via info@nrsi.ie

TDOTA is an opportunity for the members of Girlguiding from the youngest Rainbow to the oldest Trefoil Guild member to talk to other members of the World Association of Girl Guides and Girl Scouts all over the world via Amateur Radio. .

The **22nd February 2023 is Thinking Day** because it was the birthday of Lord Robert Baden-Powell, the founder of the Scout and Guide movements, and his wife Olave, who was the first World Chief Guide..

On this day each year members of WAGGGS (World Association of Girl Guides and Girl Scouts) remember the founders of the movement and take part in various activities to think about their sisters throughout the world. Find us on Facebook, look for TDOTA

St Patrick's Day Activity and Awards

Many people worldwide, annually celebrate St Patrick's Day by going green, with many amateurs running Special Event stations as part of the festivities. This year's event will take place from the **16th – 18th of March 2023**.

St Patrick's Day is a celebration of a legendary Irish saint and a national holiday that is about fun and celebration. We encourage you to get on the air with friends and family through this fun event, to show and enjoy all the benefits of amateur radio.

Anyone can participate, whether in Ireland or overseas, licensed Experimenters/Amateurs or shortwave listers. In the course of operating you might like to pass your details such as county, WAI or WAB square.

If you wish to become a registered St Patricks Day Station apply at this location and fill in the details in the online application form here https://www.stpatricksaward.com/register-a-station

There are several categories:

1) SPS Station award for the participating registered St Patricks day Station
2) Fixed Portable Station Award for making a minimum of 10 contacts with registered stations
3) Digital Station Award for contacting a minimum of 20 SPD registered stations
4) Mobile Station Award for making a minimum of 5 contacts with registered SPD stations
5) Short Wave Listener Award for logging 2 way contacts between a minimum of 10 SPD Stations

Full details of the event and awards may be found at https://www.stpatricksaward.com/

World Amateur Radio Day - April 18th 2023

Every April 18th, 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.

Two years later, at the International Radiotelegraph Conference, Amateur Radio gained the allocations still recognized today — 160, 80, 40, 20, and 10 meters. Since its founding, the IARU has worked tirelessly to defend and expand the frequency allocations for Amateur Radio.

Thanks to the support of enlightened administrations in every part of the globe, radio amateurs are now able to experiment and communicate in frequency bands strategically located throughout the radio spectrum. From the 25 countries that formed the IARU in 1925, the IARU has grown to include 160 member-societies in three regions. IARU Region 1 includes Europe, Africa, the Middle East, and Northern Asia. Region 2 covers the Americas, and Region 3 is comprised of Australia, New Zealand, the Pacific island nations, and most of Asia.

The International Telecommunication Union (ITU) has recognized the IARU as representing the interests of Amateur Radio.Today, Amateur Radio is more popular than ever, with more than 3,000,000 licensed operators! More information at https://www.iaru.org/on-the-air/world-amateur-radio-day/

News and Forthcoming Events Planning 2023

International Marconi Day April 22nd 2023

IMD is a 24-hour amateur radio event that is held annually to celebrate the birth of Marconi on the 25th of April 1874. The event is usually held on the Saturday closest to Marconi's birthday and in 2023 it will be held on 22nd April. On this occasion the period of operartion will be from **00:00 – 23:59 UTC on the 22nd of April**

The purpose of the day is for amateur radio enthusiasts from around the world to contact **Historic Marconi Sites** using communication techniques similar to those used by Marconi himself.

To become a registered Marconi Station, you must operate from a site which has a connection with Guglielmo Marconi himself. This must be a location somewhere Guglielmo Marconi has personally operated from, lived or set up experimental stations.

To register your station please email crac.imd@gmail.com All official stations must be registered by midnight on April the 21st and no later.

There are two categories for contacting Registered Marconi Stations.

TRANSMITTING AMATEUR

To establish direct two-way communication with 15 different official Award Stations, mixed modes are permitted in the log (mixed modes CW, voice, data)

SHORTWAVE LISTENERS

To log two-way communications made by 15 different official Award Stations, mixed modes are permitted in the log (mixed modes CW, voice, data)
Please note the following:
Only one radio contact with each IMD Special Event Station (Official Participating Station) will count towards the Award.

The Award is NOT cumulative, ie contacts made in previous or subsequent years with an IMD station WILL NOT count towards the Award. The required number of Award Stations must be worked during the SAME 24 hour period.

Qualifying Bands

All bands now allowed HF, VHF & UHF

Modes Permitted

CW, SSB, FM, AM and available Data Modes i.e RTTY, PSK, JT, SSTV, FT

More information about the award and how to claim it from http://gx4crc.com/imd-award/

SOS Radio Week is one month of fun, operating, an opportunity for amateur radio to celebrate the work of the Royal National Lifeboat Institution and to raise much needed awareness and funds for them. Any licensed Amateur Radio operator, or Amateur Radio club, based within the United Kingdom, Ireland, Guernsey, Jersey and the Isle of Man can register to run an official SOS Radio Week station. All you need to do is let us know what callsign you will be using during the event, together with your location, and you will become an official Registered SOS Radio Week Station, promoting the work of the RNLI and NCI throughout the event.
SOS Radio Week takes place during the month of May every year to coincide with the (RNLI's) own Mayday fund -raising event. It starts at **00:00 on the 1st May and ends at 23:59 on the 31st May 2023**. Basically you can elect to operate your station any time withing the month of May
Registered SOS will be on the air at various times during the event.will be on the air at various times during the event. There is always a large number of stations on the air supporting this event and a list of these may be found at https://www.sosradioweek.org.uk/registered-stations/sos-radio-week-stations/ it is possible to register your station at https://www.sosradioweek.org.uk/about/sos-radio-week-registration/ basically it remains to promote your part in the event and where possible raise funds for the lifeboat organisation.

News and Forthcoming Events Planning 2023

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

The expedition team is made up of a number of highly experienced radio operators who will be running 24×7 transmissions on SSB CW and FT8 for 1 week, with two radios transmitting simultaneously. More details will be posted here soon! Rockall is an uninhabitable granite islet situated in the North Atlantic Ocean. The nearest permanently inhabited place is North Uist, an island in the Outer Hebrides of Scotland, 200NM to the east.

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

Rockall stands at 17.15m above sea level at it's tallest point, covering an area of just 784.3 m^2 it is ;located at 57° 35'28.79" N 13°41'11.39" W. more information from: https://www.rockallexped.com/

British Railways Amateur Radio Society

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

RSGB News Services

For your weekly fix of GB2RS, from 80m to 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

Bushvalley Amateur Radio Club visit the base of the Air Ambulance Northern Ireland this morning for the official presentation of the donation of £2500 raised by the club at their rally last November. A very informative and eventful morning as the Helicopter was called out on an emergency!

International Museums on the Air Weekends 2023

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

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

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

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

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

News and Forthcoming Events Planning 2023

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

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

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

International Lighthouse/Lightship Weekend

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

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

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

RSGB AGM

The RSGB's 96th AGM will take place on Saturday, 15 April 2023.

Full details of the AGM, the voting process and the calling notice will appear in the April 2023 issue of *RadCom*.

In the coming weeks, the Society will publish details of the roles that will form part of the elections, and how you can get involved.

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 WI1IDP, QTH Tuscon Arizona, operator Jerry confirmed that the net now also uses the **17m band operating on 18.114 MHz**, avoiding the increased QRM on 20m and taking advantage of improved propagation conditions

Would You Like to Promote Your Club and its Activities?

Is your club planning an event in the next month?

Are you planning a club activity?

Are you setting up a new Repeater or Gateway?

Drop us a line or two and we will include your item in the Connacht Regional Newsletter

We Have a Facebook Page

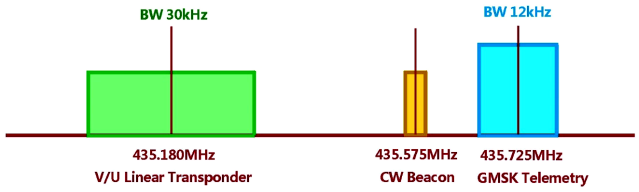
The Connacht Regional News Magazine

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

News and Forthcoming Events Planning 2023

User Manual for CAS-10

On December 18, 2022, CAMSAT's satellite XW-4 (CAS-10) was deployed from the Tianzhou-5 cargo ship that was docked to the Tiangong space station. CAS-10 carries a linear amateur radio transponder.
The satellite user manual can be downloaded here: CAMSAT XW-4 (CAS-10) Amateur Radio Satellite User's Manual V1.0



Lough Erne Rally

7th May

Share Centre
Lisnaskea Co. Fermanagh
BT92 0EQ

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

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

RSGB Sales Stall

Bar, Food Café, Cooked Lunch
Free Parking

Book tables via
argault91@gmail.com

CAS-5A (Fengtai OSCAR-118)

CAMSAT's transponder satellite CAS-5A (Fengtai OSCAR-118) launched on December 9, 2022, carrying three amateur radio transponders.
The satellite user manual can be downloaded here: CAS-5A Amateur Radio Satellite User's Manual V1.0

CAS-5A Frequencies:
CW Beacon: 435.570MHz CW 22wpm
U/V Linear Transponder: Uplink 145.820MHz, Downlink 435.540MHz, Bandwidth 30kHz
U/V FM Transponder : Uplink 145.925MHz, Downlink 435.600MHz Bandwidth 15kHz
H/U linear Transponder: Uplink 21.435MHz, Downlink 435.505MHz Bandwidth 15kHz
Telemetry : 435.650MHz GMSK 4800bps

OR100RCBE Commemorative station

Commemorative station celebrating the 100th anniversary of the "**R**adio **C**lub **B**elge de l'**E**st" created in Verviers in 1922. Almost certainly the first amateur radio club in Belgium.

The club Was formed with 10 members during a meeting held on Sunday March 26th, 1922 on the second floor of the café de l'émulation, at number 5 place des martyrs in Verviers by Mr. Laurent Henrotay (B4QS) who became the president as well as by Mr. R. Niederprun the treasurer. Other well-known members who were very active in radio broadcasting were André Courtois (B4YZ) the vice-president and René Pirotte (B4RS) the secretary. Other people were soon added, for example Léon Sneepers (B4AS) and René Toussaint (B4US). The inaugural meeting of the R.C.B.E. radio club took place on 9th August 1922. The premises were located on the 2nd floor of the house known as "de la Mutuelle", a house situated in the Rue Tranchée at number 50 (now rue Pelzer de Clermont).

The callsign **OR100RCBE** will only be active from **March 1st to December 31st 2022**.

Beware of Counterfeit ICOM Equipment

ICOM has reported seeing counterfeit copies of ICOM radios available online, with some also arriving into the UK to unsuspecting buyers. These copies look like genuine ICOM radios, but when examined more closely, are not and are significantly inferior in both quality and performance. Several buyers have contacted ICOM, believing that they had purchased, and were receiving, a genuine ICOM product. On arrival it turned out that the radios had an incorrect channel set, some channels were missing; and in some cases, buttons were not functioning as expected. Most, if not all, of these counterfeit products, are found online; compared to genuine radios, they are priced very low. However, what might seem like a bargain or a great purchase, may soon become a disappointment and could affect how you use your radio, as ell as your own and others' safety. If you are unsure, ask the seller for a serial number in advance of purchasing and Call the ICOM customer service team in your region. Infor: https://tinyurl.com3auarknd

Congratulations to Shane O'Connor & Liam Carew

Congratulations to Shane O'Connor and Liam Carew, Winners of the BT Young Scientist & Technologist of the Year 2023 from the Abbey School Tipperary Town.

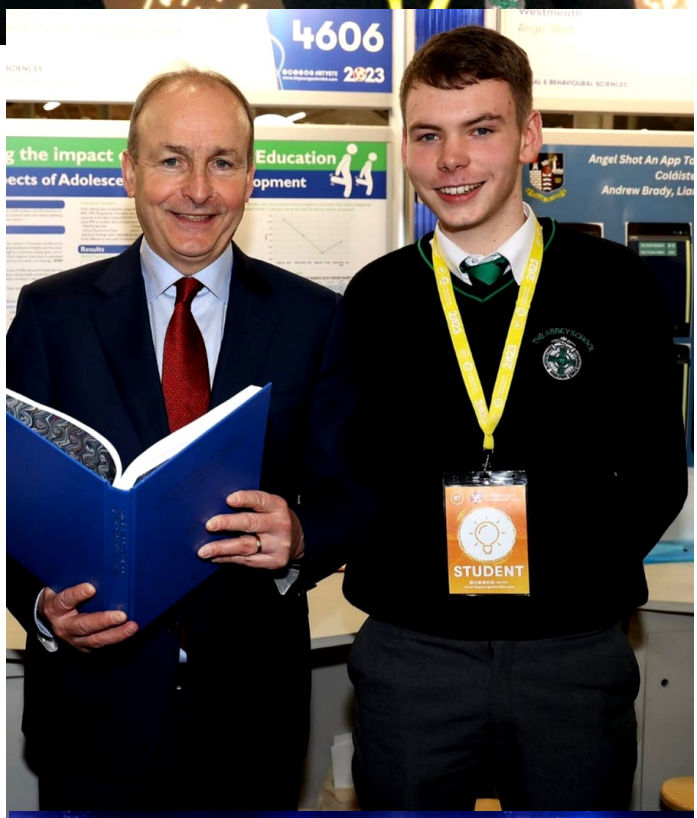
Their project entitled 'Assessing the impact of second-level education on key aspects of adolescents life & development' was awarded the overall winning prize in the RDS on the 13th of January. The award was presented by Minister for education, Norma Foley.BT have sponsored the event for over 20 years.

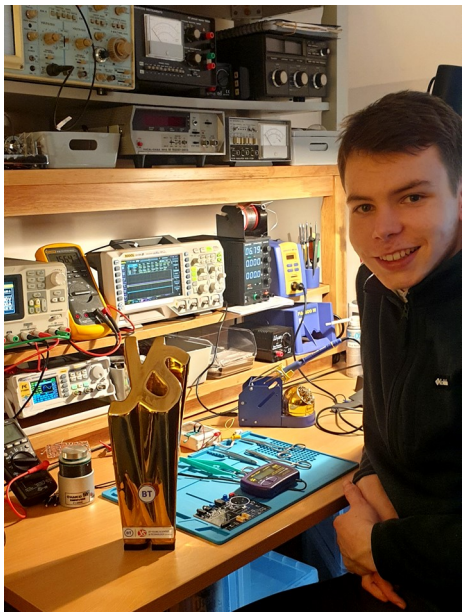
Shane and Liam will represent Ireland at the International Youth Science forum, London, in July of this year. They will also represent Ireland at the European Contest for Young Scientists in Brussels in September.

Shane is a Short-Wave Listener for many years. He also enjoys building electronic kits and is currently constructing a QRP Labs radio kit. Shane has attended many Radio Rallies across the country.

Shane has an interest and a wide collection of vintage Drake TR7A, Swan 100MX and valve Swan 350c and Rockwell Collins KWM380 equipment.

Last week the community of Tipperary came together to welcome Shane and Liam home, with a guard of honour through the streets .Shane's dad is EI8IF and Shane hopes to do the HAREC in the near future.





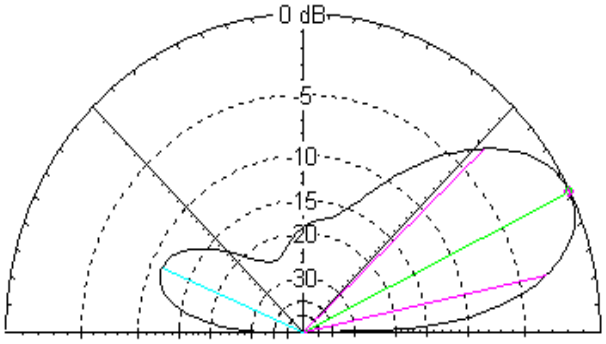
Experimental Radio - RF Gain - Antenna Gain

Antenna Directivity & Antenna Gain is synonymous

RF gain is generally associated with an increase of power at the output of the final power amplifier. There is also antenna gain which delivers an increase in ERP. These are two different matters which are important considerations to the serious Experimenter.

Firstly, we are considering antenna gain and this is practically always expressed as gain over the standard or reference ½ λ dipole. The ½ λ dipole is usually the driven element in practically all Yagi and beam systems. These antennas are multi-element and consist of generally one or more reflectors and many directors. They can be either driven or parasitic.

The standard dipole, discussed in an earlier article, is generally equally potent in two directions at right angles to the dipole elements. The moment a reflector is added in the same plane at the correct spacing and length, the transmitted power is now directed in the opposite direction to that which the reflector is mounted. Below we have added one reflector and one director to the system



The spacing is determined by frequency, height above ground, gain factor sought, front to back ratio sought, and the **impedance required at the feed point of the driven element** (**DR**) and can be finally verified by field measurements, usually at about 30 wavelengths to the forward and reverse directions and at right angles to the line of the DR.

It is generally accepted that, in order to achieve a gain of say 3 dB on any given HF frequency, one needs to double the power at the PA. Thus, if we find we already now have achieved a forward gain of 3 dB, what has happened? **A** have we doubled the power? **B** how could this be the case?

The simple answer, of course, is that at the expense of far less power to the reverse side of the system we have lost apparent power, but to the forward side of the system we show a power or gain increase of the 3 dB over the DR (in this case the dipole) It is a little like the light bulb held in front of a concave mirror and moved so as to change the intensity and the beamwidth of the resulting beam of light.

Not alone have we achieved gain on transmit but we have also seen the same gain approximately on receive. This can also cause a noise increase on receive.

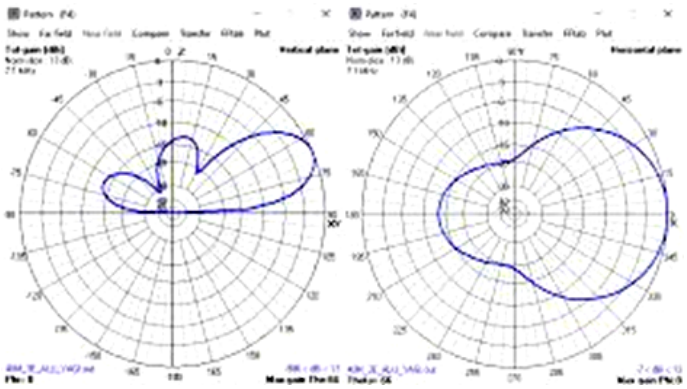
So, with the beam antenna we have robbed Peter to pay Paul, but that is what we wanted of course The further advantage of this setup is of course apparent; we have reduced the receiving gain as well from the unwanted direction.

Let us say we want to achieve the same gain in the forward direction on a simple DR or dipole on its own. Will doubling the power at the PA do this job ? Answer No it will not. As with the simple dipole, the extra power will travel in two directions showing only a gain of 1.5 DB in each direction, this means we have to double the power again to achieve the same gain as we did with the addition of a simple reflector.

If we now add a director in front of the DR in the same plane and correctly spaced and sized, we can add further appreciable gain. As much as 2 dB more is adjusted by field testing, adding more directors continue to increase gain, narrow the beamwidth, and raise the Q factor of the antenna. This director can be driven or parasitic.

It will now work on a much smaller frequency excursion that the simple DR, so you must choose the required centre frequency where you have absolute resonance.

With continuous field testing you can achieve easily achieve 15 - 25 dB front to back ratio and 5 - 9 dB forward gain with a 5-element wire beam on 40-60-80 meters.



With 100 watts fed into this say a 6 dB gain beam will deliver a theoretical ERP of 600 watts in a forward direction. Inefficiencies will arise caused by the feeder system and other RF sensitive entities from metal roofs to poles, other cables, power lines, height above ground, and the like, so let's settle for 500watts ERP.

Provided the height above ground is in the order of a ½ λ, the take-off angle will be perhaps 15%, then if there are no near field obstacles in the line of take-off, this setup will produce excellent results in the right conditions. Refer to a previous article in this area.

As an example, a 40-meter (7 MHz) antenna would need to be about 65 feet AGL to achieve this take off angle.

To achieve yet more gain once the antenna gain is maximized ,you will have to increase power at the PA and this always requires a power amplifier. Always remember that with a big increase in power comes extra responsibility to take even greater care before calling on a frequency and consider your neighbouring operator ensuring you are allowing reasonable distance (in KHZ) to minimise potential interference. To reduce the noise on RX, look at our previous article on the Beverage antenna.

In the next article, we will match the feed point for such an antenna and see what else we can achieve in a simple manner.

Marconi Radio Group - EI0MRG

wescomradio@gmail.com

EI9KP 34MHz F2 Layer Propagation Tests

Phil, EI9KP/ON4TA, resides at an excellent VHF location in Co. Sligo. Phil has always been a keen VHF, UHF, SHF radio experimenter and also dedicated much of his time to SOTA operations which have resulted in some interesting DX. More recently, Phil's attention has turned to the Irish Allocations – 9 metres - 35 MHz, 8 metres - 40 MHz, and 5 metres - 60MHz.

EI9KP transmitted on 34.013 MHz The sequence of the beacon was 2 x FT8, 2 x CW ID, Locator, and short carrier. The 2 x CW part to facilitate SWL's who do not use digital modes and also help during QSB cycles.

The beacon was GPS disciplined with an output power of 1-watt. The antenna was a horizontal dipole with capacity hat loading.

To listen for this beacon, try 34.013 MHz CW or 34.0122 MHz USB.

On Saturday the 21st and Sunday the 22nd of January 2023, Phil EI9KP conducted some propagation tests on the 9m band in the low-VHF part of the spectrum. He operated a supervised beacon on 34.013 MHz for most of the daylight hours running 1-watt into a horizontal dipole with capacitive loading.

This is a report on who heard his signal over the two days.

Results 21.01.2023

Equipment - Beacon 34.013MHz 1W Dipole active from 10:05 till 17:15 UTC

Reception reports:

YO9FTR in the east of Romania, locator KN35XG, from 10:51 till 10:57 UTC, SNR -15 to +14 dB

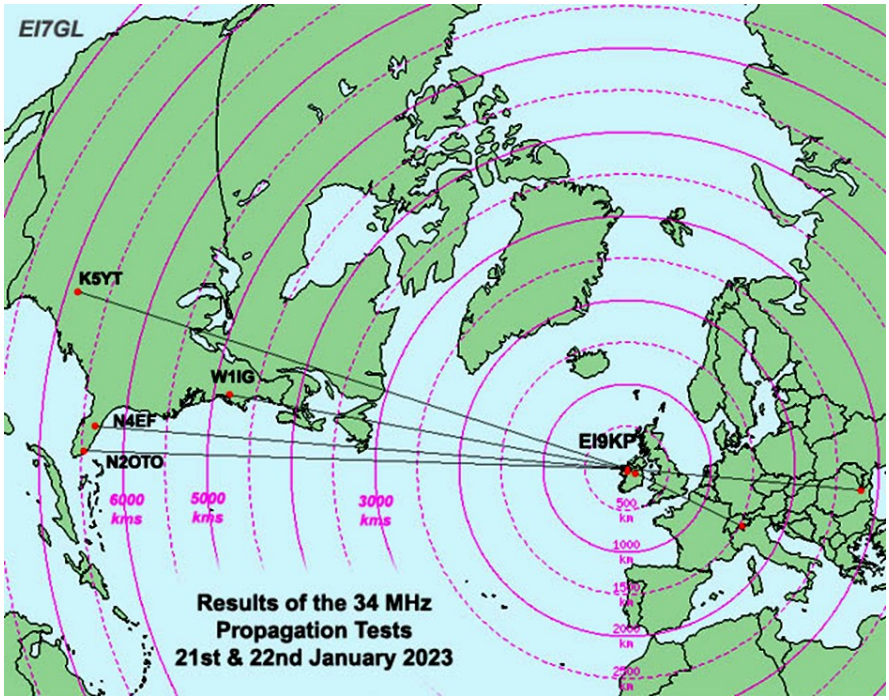
N2OTO in locator EL96WI, Florida, from 13:12 till 13:19 UTC, SNR -16 to -13 dB

W1IG in locator FN31LN, Connecticut in the USA at 16:08 UTC

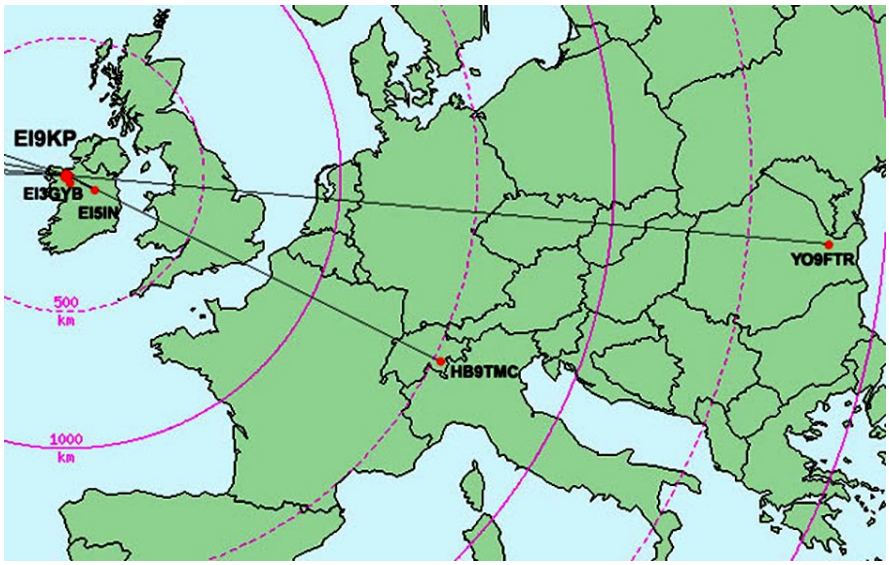
N4EF in locator EL98HP, Florida in the USA at 16:10 UTC using an ICOM IC-7610 with a dipole in the attic.

HB9TMC in Switzerland in locator JN46LJ, from 16:53 till 17:01 UTC

EI3GYB in locator IO53OT, over several hours during the afternoon



Reception Reports from the USA



Reception Reports from Europe

Spots from PSK Reporter...21st Jan

Txmtr	Rcvr	Band	Mode	Distance	Time (UTC)
EI9KP	N4EF	9m	FT8	6350 km	16:10:14
EI9KP	W1IG	9m	FT8	4805 km	16:08:14
EI9KP	HB9TMC	9m	FT8	1526 km	16:53:26
EI9KP	N2OTO	9m	FT8	6457 km	13:12:15

22.01.2023

Beacon 34.013MHz 1W Dipole active from 08:43 till 17:15 UTC

Reception reports:

YO9FTR in the east of Romania, locator KN35XG, from 08:43 till 11:42 UTC, SNR -21 to +14 dB

K5YT in locator EM22NV, Texas, from 15:03 till 15:11 UTC, SNR from -18 to -7 dB.

N4EF in locator EL98HP, Florida in the USA using an ICOM IC-7610 with a dipole in the attic. FT8 reports from 14:48 to 15:13 UTC and also reports hearing the CW a few times at strength 329.

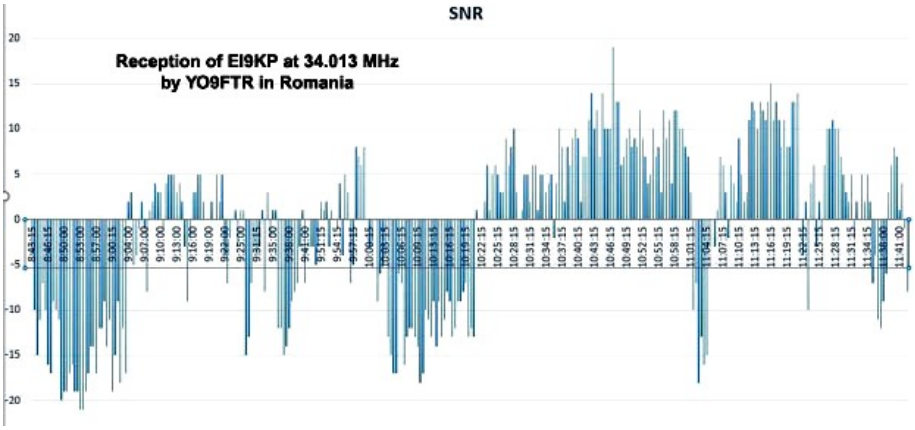
EI5IN in locator IO63HM, at 15:01 UTC, SNR -21 dB

EI9KP 34MHz F2 Layer Propagation Tests

Spots from PSK Reporter…

22nd Jan

Txmtr	Rcvr	Band	Mode	Distance	Time (UTC)
EI9KP	EI5IN	9m	FT8	120 km	15:04:29
EI9KP	K5YT	9m	FT8	6855 km	15:49:14

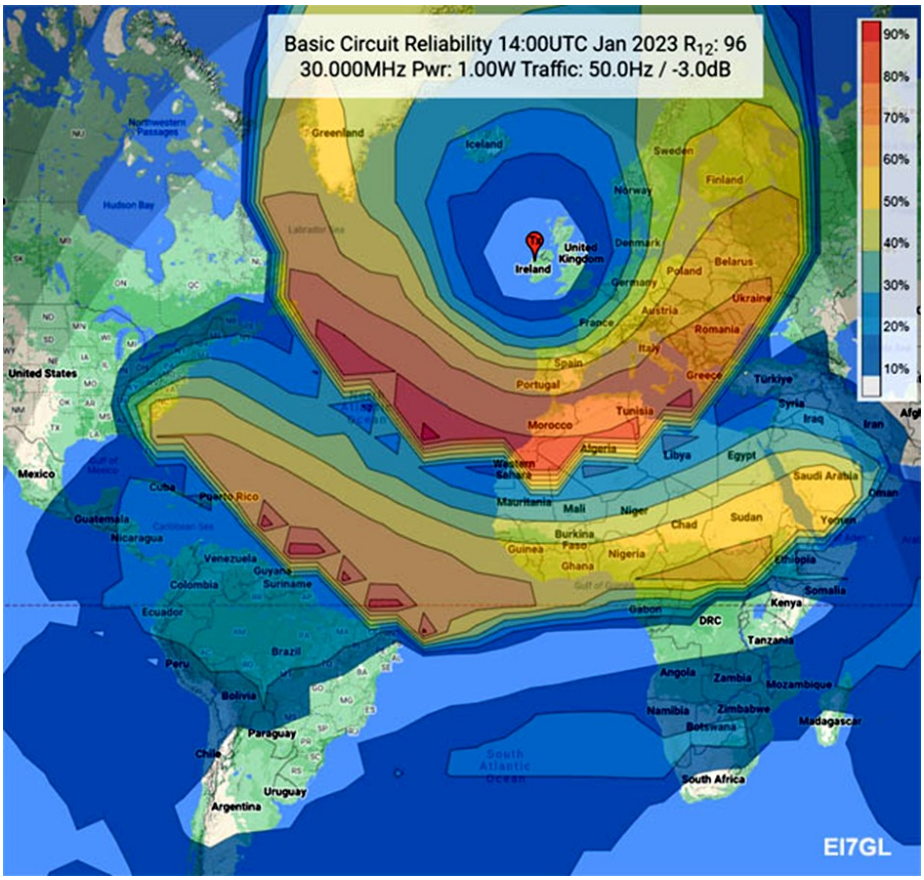


YO9FTR made a long observation of the signal/SNR. This wasn't pre-arranged, however, I am thankful for the data and realised there was some pattern in it. The resulting graph shows signal/SNR over several hours, really a nice observation. Graph of reception of the 34 MHz signal from 08:43 - 11:41 UTC.

Analysis...

It should be noted that the reports above are from a beacon running just 1-watt which is pretty amazing. It just goes to show how far a signal can travel via F2 layer propagation with relatively low attenuation.

The map below shows the predicted coverage for a 1 Watt operating at 30 MHz. It's not quite 34 MHz but it's close enough. The solar flux was just around 200-210 for the test.



YO9FTR... For most of the daylight hours, Romania is in the ideal spot for F2 layer propagation and reception of the beacon. The reception chart from In the 'old days' when listening just by ear, it would have appeared that the signal was in and out, missing for long periods and then strong for a while. With a weak signal mode like FT8, we can see that the signal was actually there all of the time for three hours. The software was able to decode the FT8 signal when it was buried in the noise.

HB9TMC... It's hard to know for sure what propagation mode was responsible for the reception of the beacon signal in Switzerland. It's seems a bit too close for F2 layer. Was it Sporadic-E? Backscatter? Paul, MI3LDO heard French roads control traffic on 35/36 MHz on Saturday afternoon and thinks it was almost certainly Sporadic-E.

USA... Florida seems to be in the perfect spot for reception. It's the most southerly path and it's in the right area for the second F2 hop. Texas would seem to be at the edge of the footprint.

Overall an interesting test and a very successful one considering the relatively small number of people that would have known about the transmissions. It's also worth noting that very few people have antennas for 34 MHz and most are listening on antennas tuned for other bands.

Ireland is the only country in the world where radio amateurs can transmit at 34 MHz (9m band). It lies pretty much half way between the 10m band (28 MHz) and the experimental 8m band at 40MHz.

On 16-17-18/01/2023 my 1W beacon on 34.013MHz was received by VO1FOG in Newfoundland, Canada, via F2 layer propagation. To further investigate F2 layer propagation the beacon was ON 21/01 and 22/01 morning till 17:15 UTC.

Phil's experimentation is an ongoing process with the intention to continue into February and March. We will continue to update his progress in this magazine.

We thank **Phil, EI9KP**, for permission to publish his work and **John EI7GL** for his work compiling the results and producing the maps and excellent graphic content.

https://ei7gl.blogspot.com/

The Ionosonde

The Ionosphere

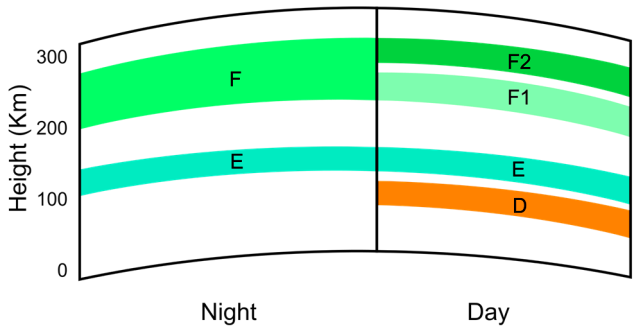
Layers of ionised gases are present from approximately 80Km – 500Km above the earths surface and these are collectively referred to as the ionosphere. At altitudes above 80km the atmosphere is "thin" enough to permit free electrons to exist for short periods before they are captured by a nearby positive ion. The number of these free electrons is sufficient to affect radio propagation. This portion of the atmosphere is partially ionised and contains a plasma which is referred to the as the Ionosphere.

The level of Ionisation is dependent of the level of Ultraviolet, X-ray and shorter wavelengths of solar radiation. Photons at these frequencies contain sufficient energy to dislodge an electron from a neutral gas atom or molecule upon absorption. The reverse process to ionization is recombination, in which a free electron is "captured" by a positive ion. Recombination occurs spontaneously and causes the emission of a photon carrying away the energy produced upon recombination. As gas density increases at lower altitudes, the recombination process prevails, since the gas molecules and ions are closer together. The balance between these two processes determines the quantity of ionization present.

The level of ionisation is not uniform across the height of the ionosphere , across the globe, or constant in nature. Spontaneous changes may occur by sudden ionospheric disturbances caused by solar events.

Ionospheric Layers

At night the F layer is the only layer of significant ionization present, while the ionization in the E and D layers is extremely low. During the day, the D and E layers become much more heavily ionized, as does the F layer, which develops an additional, weaker region of ionisation known as the F1 layer. The F2 layer persists by day and night and is the main region responsible for the refraction and reflection of radio waves. ***See Diagram below***



An Ionosonde, or chirp sounder is a special radar used for the examination and study of the ionosphere. The basic ionosonde technology was invented in 1925 by Gregory Briet and Merle Tuve and further developed by eminent physicists including Edward Appleton. The Ionosonde displays the state of the ionosphere in real time and is not a prediction program.

The Transmitter sweeps over a wide range of HF frequencies.

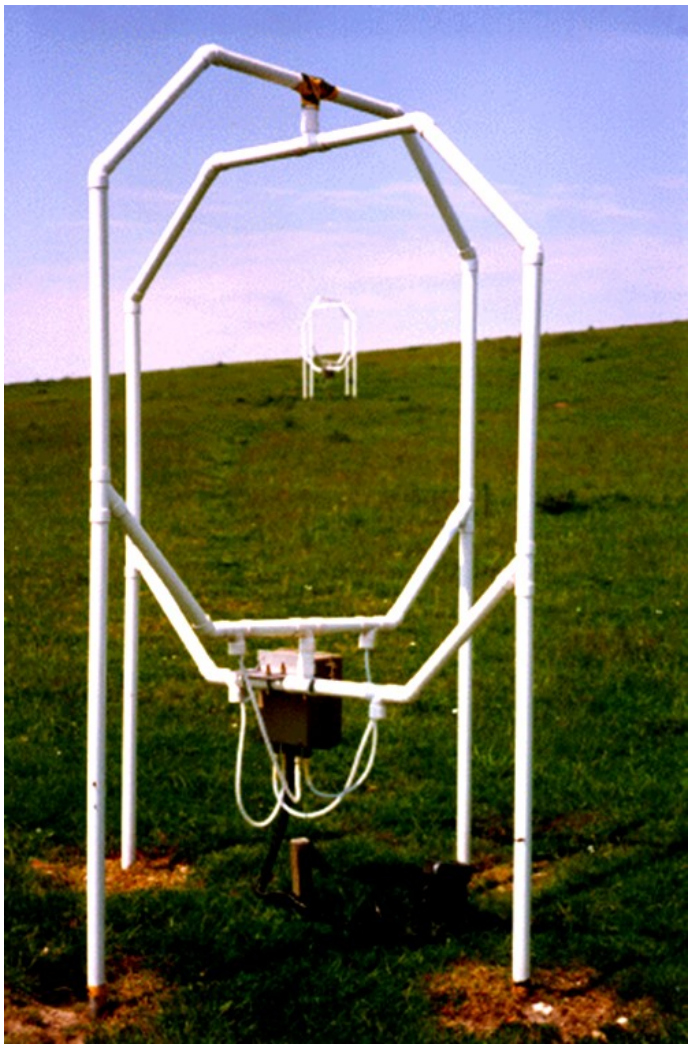
The Transmit Antenna is designed to work over a wide range of frequencies and is designed to radiate straight upwards.

The Receiver is linked to the transmitter so that it is always receiving on the transmitted frequency.

The Receive Antenna is broadband, so it is useful over a wide range of frequencies.

A Timed Control system is designed to simultaneously control the transmit and receive frequencies and basically synchronise the reception of the transmitted pulse.

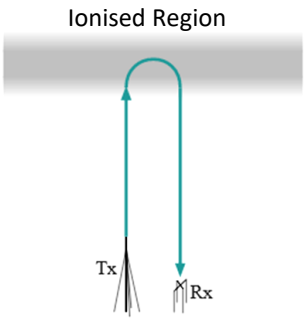
Correlation – information gathered is compiled and an Ionogram produced. This may be sent to various centres to compile a worldwide maps showing the state of the ionosphere in real time



The Ionosonde Antenna system

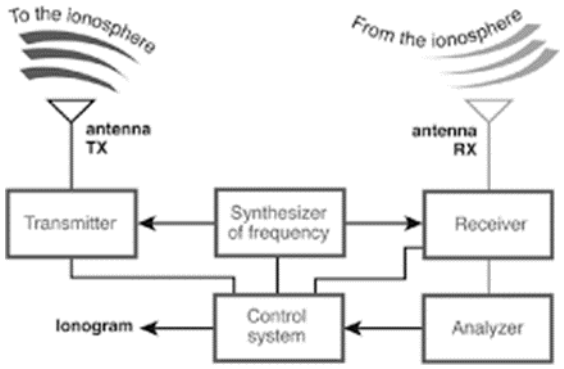
The Ionosonde sweeps all or part of the HF frequency range transmitting short pulses. These pulses are reflected by the various layers of the Ionosphere at heights from 100 – 400 Km (60 – 250 miles), and their echoes are received by the receiver and analysed by the control system. The time take from transmission of a pulse to the reception of the pulse will determine the height of the layer.

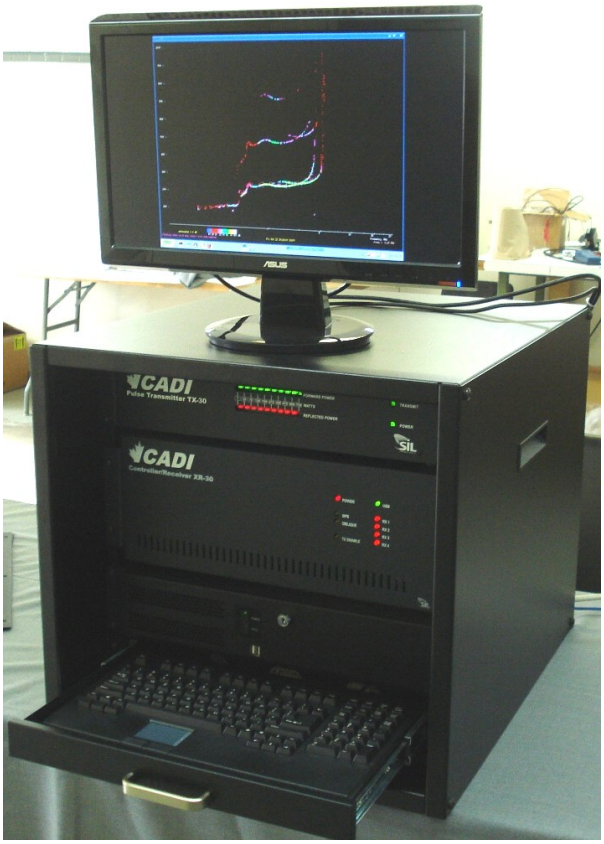
The signal is transmitted vertically upwards and is refracted back down to the receiver. The time taken for the transmitted signal to be received will determine the height of the ionised region. This is essentially a plot of the altitude against frequency.



The Ionosonde

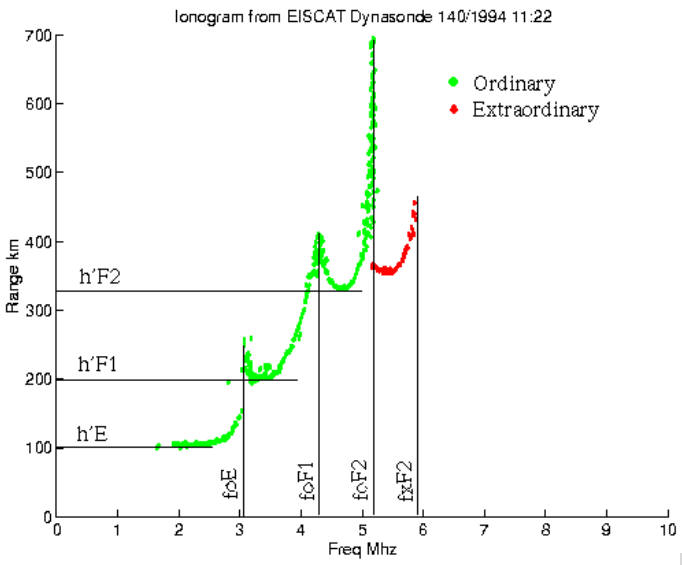
22The block Diagram of an Ionosonde is shown below:





An Inosonde System displaying an Ionogram on screen

The Ionogram



In the diagram of the Ionogram, bottom left, the vertical axis shows the height and the horizontal axis shows the frequency.

From the ionogram it is possible to see the critical frequencies for each of the ionospheric regions or layers. These are labelled as f_0 for each layer or region. In other words **FoE is the critical frequency for the E region, etc**.

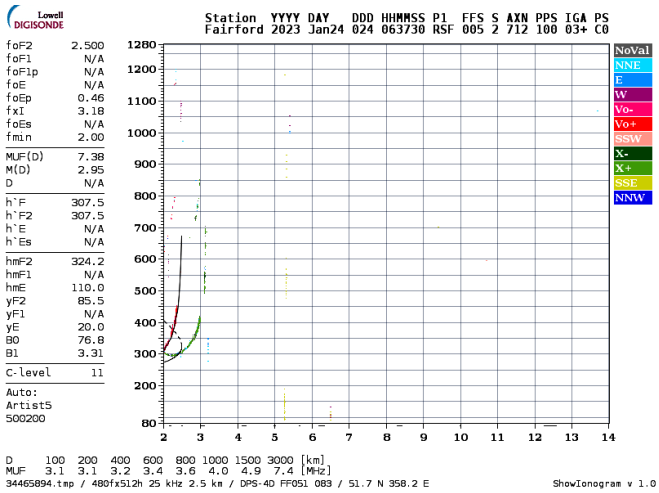
From the diagram, it can be seen that the signal is sent upwards and initially it is absorbed by the D layer and no reflection is seen.

As the signal moves up in frequency, it starts to be reflected back to the ground by the E region and the delay in receiving the pulse enables the approximate height to be determined.

As the frequency increases, the height of the reflection increases as the signal penetrates further into the E region. Ultimately the rate at which the signal penetrates the region for a given increase in frequency increases as the signal reaches the point at which it passes through the region. The actual frequency at which it passes through the E region is called the critical frequency, FoE.

Above FoE, the signal reaches the F_1 region (assuming the F region has split into two) and the process repeats. Again the same process repeats for the F_2, until the signal passes through all the different regions and travels on into outer space.

As the Ionosonde takes regular measurements throughout the day it is possible to obtain near up to date characteristics of the Ionosphere.

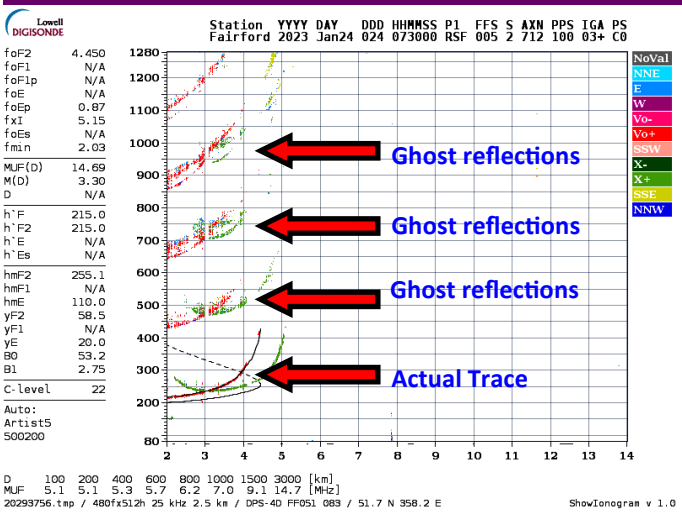


Bottom Row - Maximum Usable Frequency for a given distance

The Ionogram above was taken at just after 6:30 am. Concentrating on the red line reflections, these are the normal reflections, we can see that there is a clearly defined line staring at 2 MHz and rapidly rising between 2 MHz and 2.5 MHz. At 2.5MHz the critical frequency of the (FoF2) F-Layer has been reached and this is the point where the any frequencies above 2.5 MHz pass straight through the layer. The Green trace is the extraordinary wave is as a result of the magnetic field which causes the Ionosphere to be bi-refringent - similar to the effect seen with light passing through glass lenses.

Note the figures at the bottom of the graph showing predicted coverage for a given frequency. Long distances would be possible on 80 metres although NVIS propagation is more prevalent. If the antenna were transmitting low angle radiation towards the ionosphere then it would be possible to work a long distance on the 40 metre band .

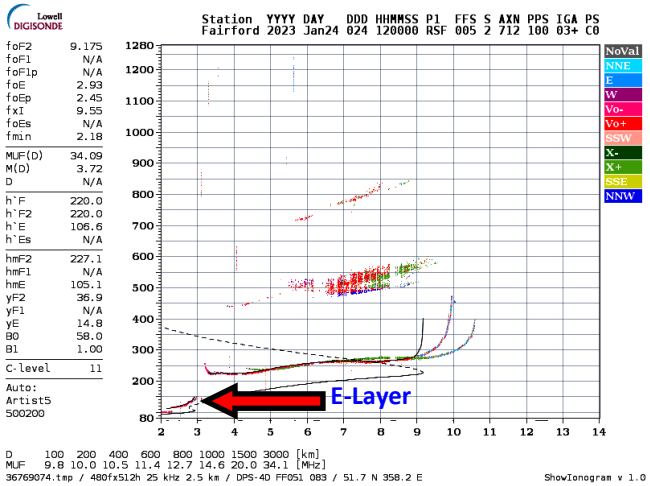
The Ionosonde



Our next Ionogram is taken approximately one hour later and in a very short space of time the critical frequency, (FoF2), of the F2 Layer has increased to 4.450 MHz . This is a period before sunrise which could be referred to as the "grey line".

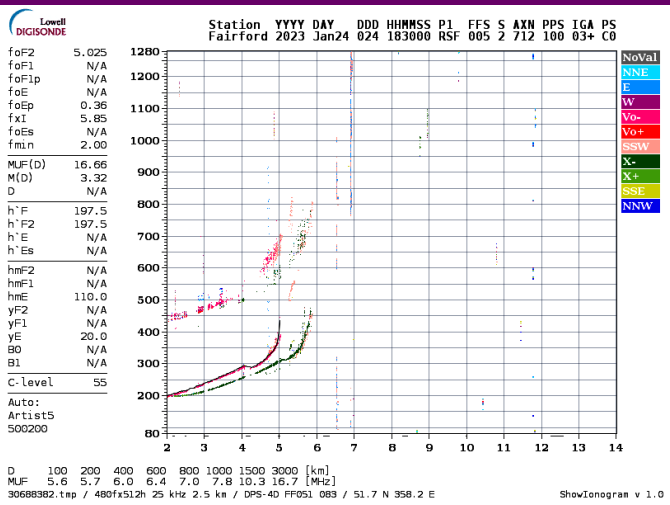
Changes are beginning to occur as the sun approaches the horizon. The density of the layers is increasing and one can see "mirrored traces" shown by the red arrows. These are not additional layers of ionisation but are ghost reflections caused by the signal being reflected back to earth and then bouncing back up again to be returned two or more times. Naturally each time this occurs each reflection appears to be twice the height of the original trace.

The predicted distances show NVIS possible around 5 MHz and the 14 MHz band is opening up for long distance communications. As time progresses from sunrise, the D-Layer begins to form, absorbing anything from below medium wave to 80metres



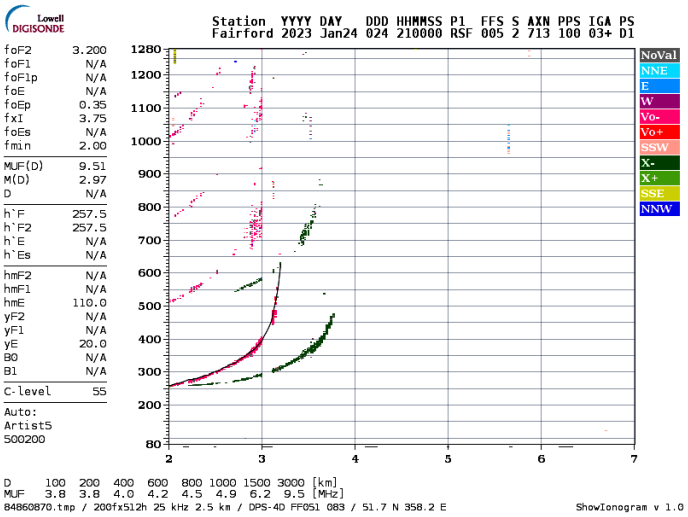
At Solar noon the sun's radiation has had a profound effect on the Ionosphere. The E-layer is now evident at a height of 105.1Km. The FoE, critical frequency, is 2.9MHz so any frequency above this will pass through the layer. The height of the F-Layer is 220Km with a critical frequency, FoF2 of 9.1 MHz. As can be seen long distance communications are now possible from 14 - 34 MHz according to the information contained on the bottom of the Ionogram. It can be seen that the sun's radiation does have a profound effect at solar noon.

Between solar noon and 18:00 UTC the level of ionisation slowly diminishes, the E-Layer disappears completely, the Critical frequency of the F layer reduces and the MUF decreases. The D-layer fades until it



completely disappears.

By 18:30 UTC darkness has fallen the critical frequency FoF2 has fallen to 5.025 MHz good for NVIS communication. The MUF has reduced from 34Mhz to 16.7MHz - and still allows long distance communications on 14 MHz 7 MHz is beginning to show signs of a longer communications path. This would be borne out by continental QRM occurring as the afternoon progressed on a band primarily open into the UK and Ireland. The D-Layer disappears and 80 metres becomes active



Note that the frequency sweep has reduced to a maximum of 7 MHz at 21:00 as there is little reason to sweep beyond that limit at this time of day. The height of the F2 Layer has increased to 257Km, the critical frequency FoF2 has reduced to 3.2MHz the MUF has reduced to 9.5 MHZ and 7MHz will yield long distance contacts

Conditions on 80 metres improve around sunset and greyline propagation will enhance any paths in darkness.

The D-Layer will have disappeared completely at this time so anyone with a good antenna system will be able to work into the States from this time onwards provided that both ends of the path are in darkness. At this time the height of the F-Layer will increase as the level of ionisation diminishes and so facilitates longer distances.

Naturally on a day to day basis conditions can change due to solar influences such as flares etc. Every day will be different so it is advisable to check the Ionogram at regular intervals. Communication path distances will be dependent on the height of the F2 Layer and the Maximum Usable Frequency.

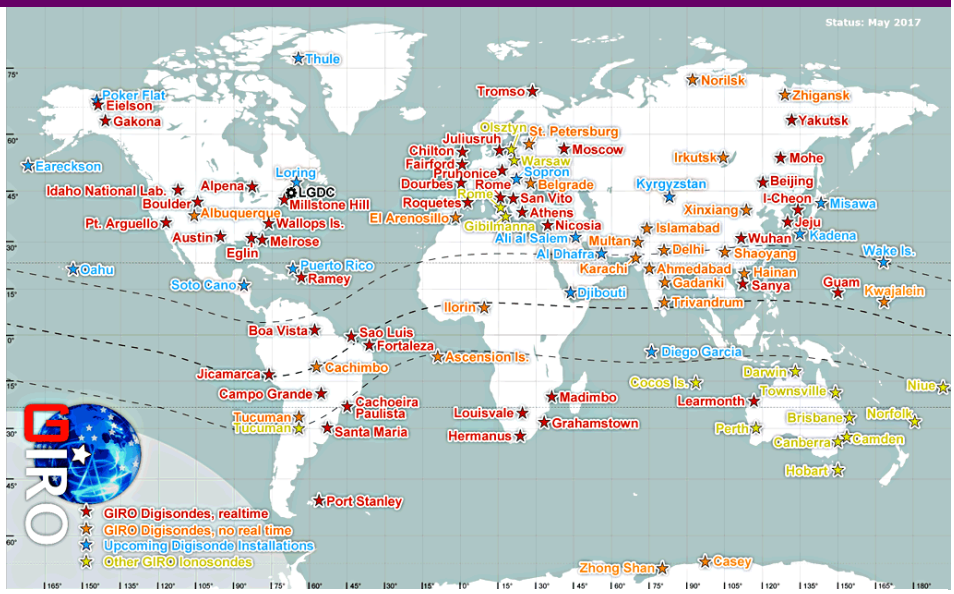
Another point to note is that, as a HF DX opening starts to close and signals become weaker, try switching from vertical polarisation to horizontal polarisation and you may get an extra 1/2 to 3/4 of an hour. This is where that green trace on the Ionogram will have some relevance.

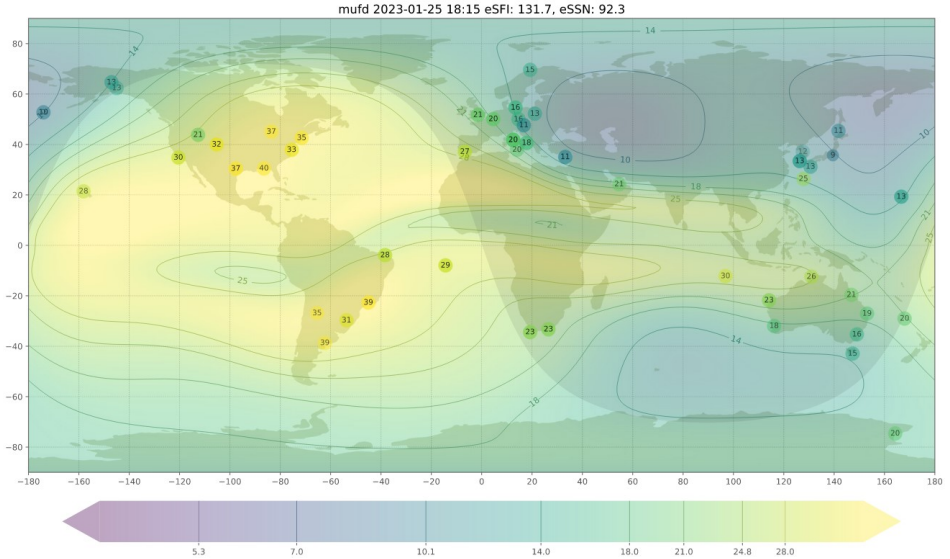
The map to the right shows locations of Ionosondes distributed around the world and, by correlating all of the available data it is possible to plot a real time propagation map showing the state of the ionosphere in a world Mercator projection map.

The second map shows the real time Ionospheric MUF conditions at 18:15 UTC on the 25th. This bears out the level of ionisation at solar noon with the MUF over 28MHz over the majority of the USA and around the equatorial regions.

Bear in mind that we have only covered only one day in the middle of winter here but the interpretation of the real time Ionogram is what we have covered.

Remember changes to the daily cycle occur on a seasonal basis from winter to spring, spring to summer, summer tto autumn and autumn to winter. We are also in a solar maxima at present.

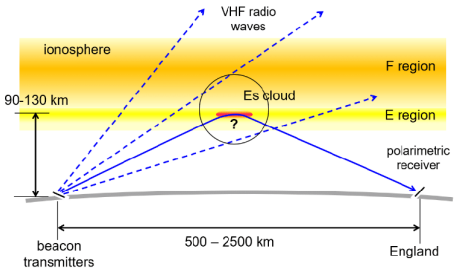




Sporadic E

As we transit from spring to summer and usually from the end of April continuing to the end of August, we enter Sporadic E season. On regular occasions the E-Layer can become so densely ionised that there will be a total communications blackout on HF while.

From 28 MHz and way into the VHF spectrum communications paths will be enhanced. Sporadic E arises when very intense clouds of ionisation build in the lower reaches of the E region of the ionosphere.



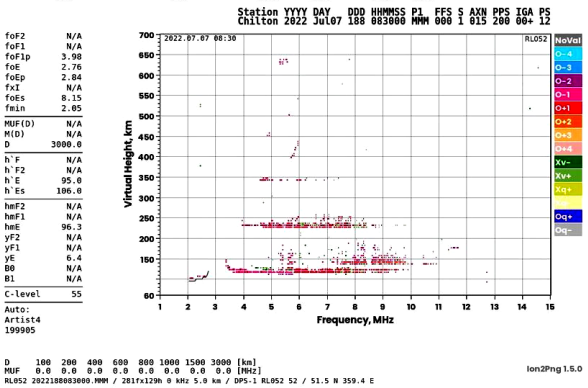
The level of ionisation may be up to five times greater than those normally achieved at the peak of the sunspot cycle and this is the reason why signals well into the VHF region of the radio spectrum can be reflected. In view of the very high levels of ionisation, the levels of loss are particularly low.

As the name indicates, sporadic E propagation occurs sporadically. It is difficult to predict, but there are times of the day and year when it is more likely to occur.

For the radio experimenter, sporadic E offers many possibilities including that of ionospheric propagation on frequencies as high as 144 MHz. As sporadic E on these frequencies can be very short lived, the bands really liven up and operating is quite rewarding.

On bands with lower frequencies, sporadic E is longer lived and is more frequent, and particularly in the periods of the sunspot minima, it offers ionospheric propagation when no other long distance options may be open for communications.

Our last Ionogram shows a couple of items of interest. Firstly the area between a and 3.5 MHz show no trace due to D- Layer absorption and then the dense area at a height of 105 Km which is attributable to Sporadic E. This area impenetrable to frequencies below 28 MHz. For the main time, frequencies from 28MHz to 70 MHz will benefit. Sporadic E can occur as early as 7:30 am and continue up to and beyond 18:00z.



Steve Wright - EI5DD - G4GFC

NATIONAL RADIO SOCIETY OF IRELAND

Promoting and Supporting Radio Enthusiasts in Ireland

Annual General Meeting

AGM 2023

All are welcome to attend

Sunday
19th Feb
11:00 UTC
Hosted in Mullingar and via multiple online platforms

Mark Bannon
President/Chairperson

For more information please visit www.nrsi.ie

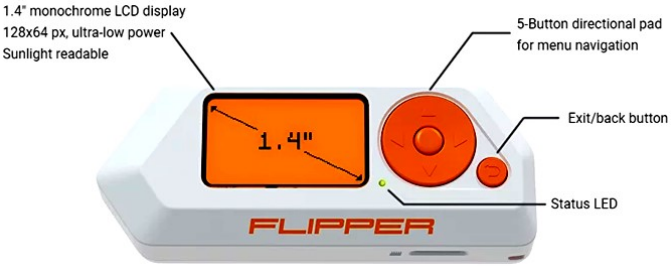
The Flipper Zero

As a Radio Experimenter I am very much into hacking, be it computers, redesigning, or engineering
the crap out of something. I came across this little marvel some weeks ago and purchased same. It is a little wonder and very much fun.

It's called the Flipper Zero.

Flipper Zero is a portable multi-tool for pen testers and geeks in handy unit that fits in your hand. You will love hacking digital stuff, such as radio protocols, access control systems, hardware and more. It's fully open-source and customizable, so you can extend it in whatever way you like.

Flipper Zero is a tiny piece of hardware which can interact with digital systems in real life and grow while you use it. You can explore any kind of access control system, RFID, radio protocols, and debug hardware using the GPIO pins on the unit. The unit is smaller than a phone, easily concealable, and is stuffed with a range of radios and sensors that allow you to intercept and replay signals from keyless entry systems, Internet of Things sensors, garage doors, NFC cards, and virtually any other device that communicates wirelessly in short ranges. For example, in just seconds, I used the Flipper Zero to seamlessly clone the signal of an RFID-enabled card tucked safely inside my wallet. I also use in in teaching my students about RFID in engineering.



Entirely independent, the Flipper Zero requires no external computer or hardware to function - everything is driven by its five-way navigation button and LCD screen. When connected to a computer or the included Android / iOS apps on your mobile phone, the Flipper can be extended, modified, upgraded and reflashes according to your needs.

It's a fun tool and a great learning tool for the amateur radio enthusiast. Its not cheap, but I think it was worth the price of around €170.

Note: Don' t mess with hardware and Wi-Fi networks that you don't own or have permission to work with! You can quickly end up in a world of hurt and deep into legal headaches.

More information from https://flipperzero.one/

Lez Ferguson EI4GEB

QSOs with Artificial Intelligence Over The Air

Artificial Intelligences (Ais) can now apparently carry on a passable conversation, depending on what you classify as passable conversation. The quality of your local pub's banter aside, an AI stuck in a text box doesn't have much of a living quality. human. An AI that holds a conversation aloud, though, is another thing entirely. [William Franzin] has whipped up just that on amateur radio.

The concept is straightforward, if convoluted. A DSTAR digital voice transmission is received, which is then transcoded to regular digital audio. The audio then goes through a voice recognition engine, and that is used as a question for a ChatGPT AI. The AI's output is then fed to a text-to-speech engine, and it speaks back with its own voice over the airwaves.

William demonstrates the system, keying up a transmitter to ask the AI how to get an amateur radio licence. He gets a pretty comprehensive reply in return.

The result is that radio amateurs can call in to ChatGPT with questions and can receive actual spoken responses from the AI. We can imagine, in the near future, AIs will be chatting it up all over the airwaves with similar setups. After all, a few robots could only add more diversity to the already rich and varied ham radio community. More info: https://hackaday.com/2023/01/28/the-voice-of-chatgpt-is-now-on-the-air/

Limerick Radio Club

ICOM UK have kindly donated some spot prizes (as per attached pic) for the club and will be given away in the coming weeks/months to members.
Enquiries about the club can be directed to: limerickradioclubei9lr@gmail.com

LIMERICK RADIO CLUB
Estd. 2022
EI9LR

The Hentenna - Part 1

The Hentenna was developed by Japanese radio experimenter in the 1970s and the first article in English was published in QST circa 1982 entitled "The Hentenna – The miracle Wire" The name is derived from the Japanese for strange or unusual.

On first impression, this antenna would appear to be vertically polarised but, in fact, it is horizontally polarised. Secondly, in its dimensions, a variation of 5 – 10% will not adversely affect its performance.

This can be a light weight wide bandwidth antenna with a low angle of radiation and will yield a gain of 3dBd.

The Hentenna has three important measurements:

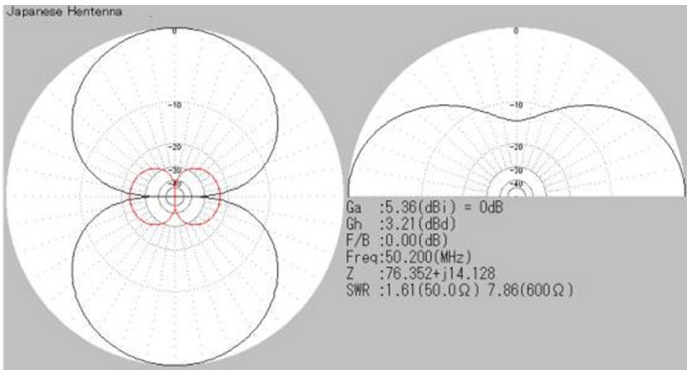
H height, W Width, and S the distance of the feed point above the bottom of the antenna.

The dimensions for 50.1 MHz are as follows:
W = 1/6 λ .998m
H = 1/2 λ 2.994m
S = approximately 1/10 λ adjust points a and b 0.599

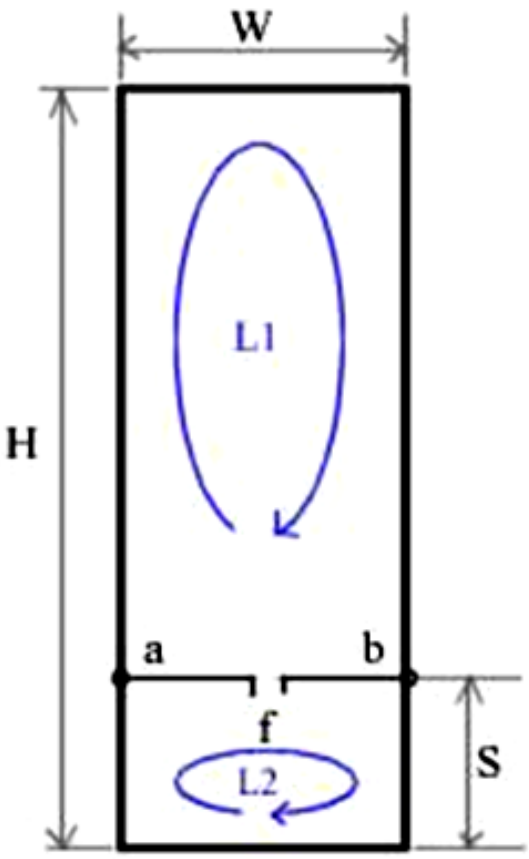
How to match

Move points a and b up or down slightly to find the best matching point. It should be possible to achieve a < 1.4:1 SWR Whilst it will work fine unbalanced the addition of a 1:1 balanced feed is preferable. It would be advantageous to use a 1:1 Balun at eh feed point but not absolutely necessary.

The radiation patterns are illustrated below ahd this shows that the radiation pattern is broadside from the antenna with a low angle of take-off. This is an antenna for DX working and would be perfect for propagation experiments on any section from 30MHz to 144MHz.



The table below shows dimensions for various bands. Whilst such an antenna would be huge at 80 metres, it would be possible to mount this sideways to achieve vertical polarisation. LA2PJ has a very handy Hentenna dimension calculator which just requires the frequency to be typed in to reveal the lengths required.



Dimensions of the Hentenna

Construction of this antenna is simple:

Two lengths of plastic tubing for the top and bottom sections.

Route 1.5mm wire through these to form the rectangle section. A third length of tubing can be used for the feed-point once the sweet spot has been found.

The antenna should be mounted as high as possible on a non conductive section of pole or mast.

To date, this antenna has only been tried on 50 MHz and naturally does perform better than a dipole.

Resources:

file:///C:/Users/Owner/Downloads/The-Hentenna-Pr%C3%A4sentation_EN-HAM16-1.pdf

https://www.la2pj.net/software/hentenna.htm

Part 2 will cover modifications to the design

	80m	40m	30m	20m	17m	15m	12m	10m	6m	2m
Freq.(MHz)	3.550	7.050	10.10	14.20	18.15	21.25	24.95	28.50	50.20	144.2
Wavelength (m)	84.51	42.55	29.70	21.13	16.53	14.12	12.02	10.53	5.976	2.083
Height: H (m)	44.25	21.28	14.85	10.56	8.26	7.06	6.01	5.26	3.00	1.04
Width : W (m)	14.08	7.09	4.95	3.52	2.75	2.35	2.00	1.75	1.00	0.35
Position of Loop separator : S (m)	8.45	4.26	2.97	2.11	1.65	1.41	1.20	1.05	0.60	0.21

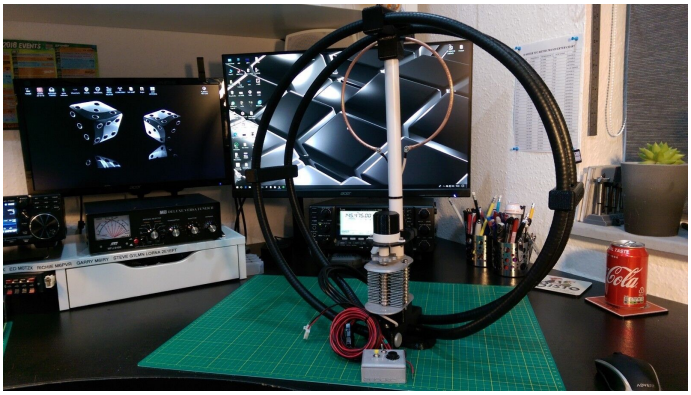
The 2E0ERO 40-17m Compact Magnetic Loop

The magnetic loop is a high Q antenna. The bandwidth is quite small and even a slight variation in frequency will require a re-tune. I bought this antenna for portable use for WWFF. I haven't taken it out yet as I still have to build the transceiver. That being said I have used it quite a bit at home and it's thoroughly tested. Traditional magnetic loops have a smaller loop that couples with the large loop and at the opposite end a variable capacitor. Variable capacitors are hard to find nowadays but Adrian has a three axis CNC machine and makes his own capacitors to a very high quality.

What makes this loop different to others is that the tuning is DC motor assisted. Tuning the loop is very easy. First press the fast button and listen on your receiver until you get maximum noise. You will probably shoot past the tuning point but at that stage, click the reverse switch and press the slow button. Using 5 Watts or less on CW, transmit and looking at your SWR meter, tune until you get minimum SWR. That's how easy it is to tune, and you will tune faster the more times you do it.

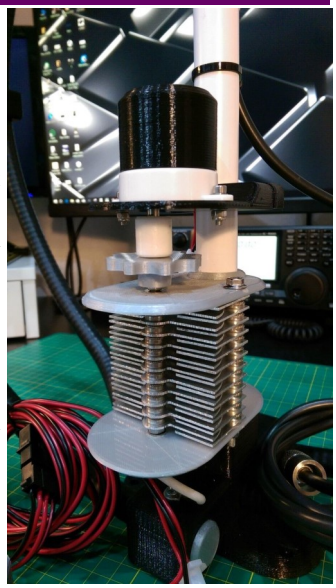
The tuning control box

Physically the loop is very well made. The loop itself is made from ¼ inch Andrew Heliax and the brackets are 3D printed. The loop is very stable and rests on my table. I'm quite sure that the loop will sit okay on the roof of my car as soon as I go portable. It comes with two meters of mini 8 coax.



The fully assembled 40-10 metre loop antenna in the shack

On the specifications, Adrian states that the loop will tune from 40M to 17M but I found that it will tune perfectly on 15M so that is an added bonus. The loop will tune with a maximum SWR of 1.5:1 on all bands from 40M to 15M. The maximum power the loop will work with is 30 watts but I've worked the world using just 5 watts CW. I've had nothing but fun using this antenna and if you are restricted with antenna space, this will works wonders



Tuning motor and capacitor

The loop is available at the time of going to press on Ebay for £210 and Adrian will ship internationally.

Magnetic Loop advantages:

1) Magnetic loops are quiet because they are not affected by electrical interference
2) Magnetic Loops are small for a given wavelength
3) They are 0.1 or smaller circumference for 20 metres
4) Magnetic Loops can be mounted close to the ground. Typically 1 – 2 diameters off the ground on a tripod.
5) Magnetic Loops are directional

Magnetic loop disadvantages:

1) Magnetic Loops require high voltage and high current variable capacitors
2) Magnetic loops have very low radiation resistance, so construction requires great care to minimise loss resistance
3) Magnetic Loops have a small bandwidth

Living and operating from a challenging QTH with a small back garden should not mean that one cannot take part in Experimental Radio operation. Many QTHs have compromised back gardens and the loop is the ideal antenna system. The Low noise figures area also an advantage especially located in the middle of the town.

Many QRP operators who have purchased this antenna have been amazed at the signal reports received. One called out on 20 metres using 5 Watts on an ICOM 705, for the first time with an immediate reply from central Russia giving a 5 9 report. Such reports speak for themselves.

Micheal Na bPoib - MI0HOZ

mick.conaghan@gmail.com

Lagan Valley Amateur Radio Society

Annual Rally

4th March 2023

Hillsborough Village Centre,

7 Ballynahinch Road,

Hillsborough,

BT26 6AR

Doors open at 10:30 (note the earlier time) and the rally finishes at 13:00.

Entry fee is £4.00 or €5.00

Traders Attending

P&D Peter Mi0CIB – Radios, Antenna, Cable, Connectors and accessories.

JG Electronics John Gi4UXR – Radios and accessories.

Stacks Colin – Aerial mounting hardware, Wall Brackets, Clamps etc Cables, Connectors and accessories

Billy Goat Stuff Alan Gi7GSB – Radio and electronic sundry.

Brian Gi4KEQ – Test equipment.

David Gi4XIR – Radio and electronic sundry.

Jim-Bob Mi0JBT – Radio and electronic sundry.

Dave Gi8LCJ – Dave is bring his PDP for the FM1100 which will allow minor adjustments.

Harry Gi4JTF & Richard Gi4DOH- QSL cards and RSGB books.

Meet your RSGB Regional and District representatives.

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

If you would like to book a table at the rally, email - rally@lvars.uk

Lagan Valley Amateur Radio Society LVARS GI4GTY

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www.AMSAT.ie

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For over 50 years Amateur Satellite Service organisations have existed throughout the world which have provided a critical platform for further development of the Amateur Radio hobby.

Galway Radio Experimenters Club – Christmas Dinner

It has been the tradition for the last number of years to beat the January Blues by holding our Club Christmas Dinner in January. This year was no different.

We held our dinner in the Menlo Park Hotel who yet again did a fantastic job for us. We had our own private room, which was laid out with 2 large round tables, full Christmas decorations including Christmas Crackers for everyone, and coloured lighting in the corners to add to the effect.

Not only did we have our members and their wives, but we also had the pleasure of the IRTS President and Vice-President at our dinner. Ok – I am milking this as they are Larry McGriskin and Enda Broderick who are also members of our club but it is nice to be able to correctly say that they attended. Indeed, we have a photo of everyone with Larry wearing his "Chain of Office".

We started gathering at 5pm, where some got "a pint", and others checked out the large "cauldron" of mulled wine in the corner. The mulled wine went down a treat - even some that were not usual "mulled wine drinkers" thought it was lovely and had a second

Orders were taken by the very nice staff and crackers were pulled. The crackers consisted of the usual party hat, along with a joke and a piece of trivia written on paper. As with all Christmas Crackers, the jokes were proper "Dad Jokes" so you can imagine how corny some of them were. They still got a good laugh though and the "Christmas mood" started to settle in nicely.

Starters came out, which was a choice of either a Festive Goats Cheese Tartlet or a Sweet Potato & Roast Pepper soup. I went for the soup and it was delicious!! Looking around at my table, I didn't see any of the starters being left behind at all!!

Main course came out and this again was a choice between the traditional Festive Roast Turkey Roulade or Oven Baked Fillet of Seabass. I took the turkey – I love the Turkey & Ham at Christmas time so was not going to miss this. Others took the Seabass and there was plenty in both, along with extra mash and vegetables to spare – no-one was going home hungry from the dinner!!! Again all plates were cleaned and the Seabass was well liked by people who like "properly cooked" fish.

Finally, the dessert came out which was a "Signature Festive Dessert Trio" which again was really very nice. Mini mince pies and tea/coffee rounded off the meal.

During all of this, the conversations ranged from Radio related items to trips abroad, kids, family, younger days and days to come.

Of course, once the meal was over, we pulled the two tables together and settled in for more chats, pints, whiskey, wine and anything else that one fancied – safe driving was already taken care for the night!! The last of us left the hotel at about 11:30pm, and to be fair to the hotel staff – they were not kicking us out at all – we had that room for as long as we wanted to say.

The hotel staff were very obliging for us and looked after us for the night. I would highly recommend the Menlo Park Hotel if you are looking at any events – the staff there are really good – contact Aishling at events@menloparkhotel.com.

And no – I do not have any investment in the hotel other then they always look after us for our club nights and any other events we hold there!!!

Galway Radio Experimenter's Club

The Galway Radio Club met in the Menlo Park Hotel for the monthly club night. It is generally held on the first Monday of every month, except if it is a Bank Holiday in which case, we meet on the second Monday of the month. We also support a virtual presence via. Jitsi It generally a well-attended night with members being both physically and virtually present.

Focus:

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

Last Club Night:

Last club night (09-January), we covered several topics including the events in early 2023 and our Christmas Dinner!! There were no demos this night – it was the first after Christmas so it was a light night.

Christmas Dinner

We talked briefly about the upcoming Christmas dinner which is on 14-January in the Menlo Park Hotel, starting

Galway Radio Club News

around 5pm. We needed to continue getting confirmation of names as soon as possible for the hotel.

Maamturk Challenge

The Maamturk Challenge (https://nuigmc.com/maamturks/) is planned for 01-April. It is a 6am start so we need to be there early to support it.

Marconi Weekend

Marconi Day is on 22-April-2023 and is a 24 hour event starting at 00:00 on Saturday 22-April, and finishing at 00:00 on 23-April. We talked about some additional locations to what we had discussed in the previous meeting so more to follow in the coming months.

Kinvara Rock and Road

The annual Kinvara Rock and Road event is on 4th March and is a 10K, Half and Full Marathon. More details can be seen at https://www.rockandroad.ie/. To support this, we need 3-4 members who can work VHF on 2m during the day. The event starts at Kinvara, goes into the Burren and returns to the village.

St Patricks Day

This is a weekend event and we are going to try and put out a station for this. We will get a special call sign for the event and do up some new QSL cards for the event.

Morserino-32

Several people have purchased and assembled this and Enda has set up a morserino-32 server which we can access. The intent here is to use the server to practice with others in the club who also have morserino-32's.

In addition to this, those that have them will bring them to our club nights and for a few minutes at the end of each club night, they can configure the morserino-32 for LoRa mode and practice their CW in the room itself – sharing information etc.

AOB

Lez brought up some questions around the use of 8m and has workarounds that can be applied to certain Yaesu rigs that could work on this band. Also, Zaktek transmitters were looking to increase the bands as well.

Paul asked about the Chilton Ionogram which seemed to have stop working. Steve pointed out the Dourbes Ionogram site in Belgium. This can be found at https://digisonde.oma.be/ - click on the Ionogram to get the latest information.

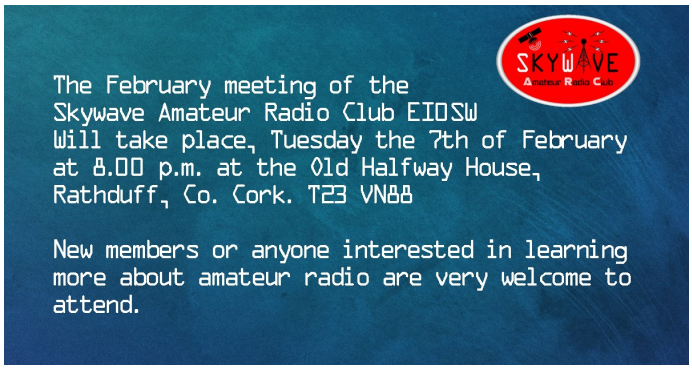
Mayo Radio Experimenters

The Mayo Radio Experimenters Network will hold their next club meeting on Wednesday evening February 1st @ 9.00pm in the Breaffy House Hotel, Breaffy. Everyone is welcome to come along in the evening.

The club held its AGM at its last meeting of December 2022 and the officers elected for 2022/23 are:

Chairperson: Tom Moran EI4KY
Secretary: John McDonnell EI6IR
Treasurer: Padraic Baynes EI9JA
QSL Manager club Rep: Brendan Minish EI6IZ

The meeting was a lively affair with many topics discussed about radio and its wonders.



Shannon Basin Radio Club

Weekly SSB Nets

Our weekly SSB nets are proving to be very popular with operators from Ireland and the wider European area. The topband 160m net is on Monday nights on 1.847MHz. The 80m net on Thursday evenings on 3.775MHz. All are very welcome to join.

Experimenting with SSTV on 2m

Over recent weeks, club members Keith EI5IN has been experimenting with slow-scan TV (SSTV) on 2m to see if any renewed interest in other uses of the band can be kickstarted.

CQ calls were received by Owen EI4GGB. However, both stations are quite close to each other. If any other stations are interested in giving this a try, further SSTV activations will be posted on the club's social media channels. This is a SWL-friendly activity also – the images can be decoded using the audio from the radio via a variety of SSTV phone applications for iOS and Android.

Forthcoming Events

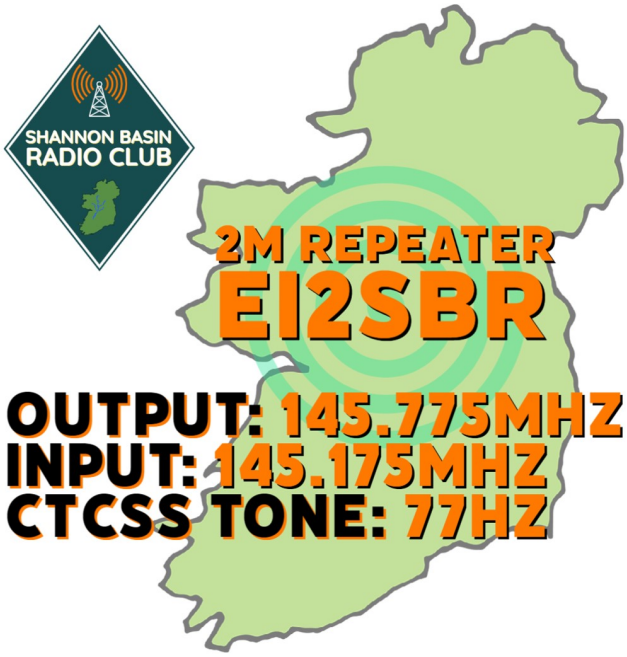
Preparations are continuing for the 2023 IRTS AGM weekend. The short talk sessions on Saturday April 29th and radio rally on Sunday April 30th welcome anyone with an interest in radio and electronics. Anyone wishing to book a table for the rally and/or secure tickets for the gala dinner can find the information needed on www.sbrc.ie/agmweekend. Gala dinner tickets will also be available for sale at the Limerick Clare Amateur Radio Club rally. Accommodation using our special negotiated rate at the Shearwater Hotel and Spa is limited. If interested, you are advised to contact the hotel directly via phone as soon as possible using the reference "SBRC".

Joining Shannon Basin Radio Club

Shannon Basin Radio Club membership continues to grow. We warmly welcome our new club members, Mark MI0MCZ, Martin EI7IIB, and Andy EI3KF who recently joined the club. If interested in learning more about the club or becoming a member, you can contact the club by email to admin@sbrc.ie or find more information on the club's website at www.sbrc.ie

Welcome To EI3CC

What ever your interest in radio is then maybe we can help you.
Our aim is operating stations outdoors and getting involved with as many groups as possible.
Scouting, youth clubs etc are all welcome.
So come join us and enjoy the world of
Collective Communication



Interested in joining us?

We are always looking for new members and volunteers. For more information about IECRO please visit our website...

WWW.IECRO.COM

AREAS OF INTEREST:

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- Civic Planning
- Defence Forces
- Telecommunications and Infrastructure/Utilities
- Technology Development
- Search and Rescue

For just 15 Euro Membership you can get an individual AXA Public Liability Insurance Cover of €9,000,000. This is applicable to all Member states of the EU.
Why not affiliate your club also and obtain cover for all club events. This organisation does not require you to declare your membership for their DATABASE!

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WWW.IRTS.IE

WWW.SBRC.IE/AGMWEEKEND

Northern Ireland Radio Club Meetings

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

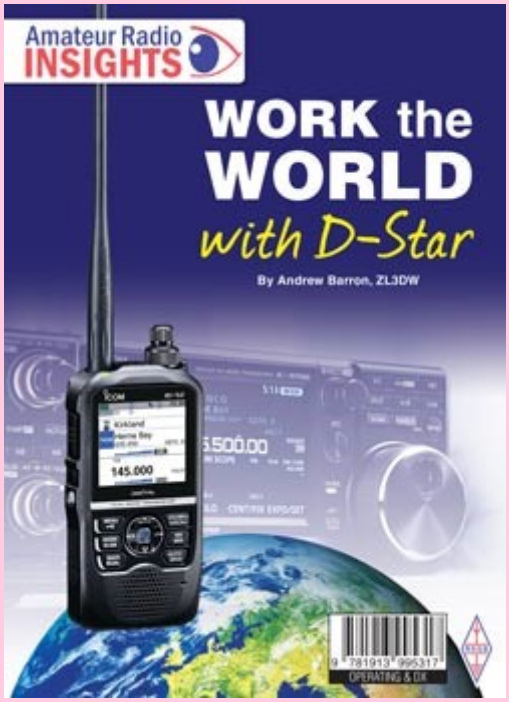
On Tuesdays **Carrickfergus Amateur Radio Group** meets in the Elim church, North Road, Carrickfergus from 7pm. All visitors are welcome. Info from gi0usx@yahoo.co.uk

Bushvalley Amateur Radio Club has a club net on Tuesdays at 8.30pm on 145.300MHz. On Thursday, the club meets at The United Services Club, Roemill Road, Limavady. Contact Jason, MI3UIW, via email to Bushvalleyarc@gmail.com

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

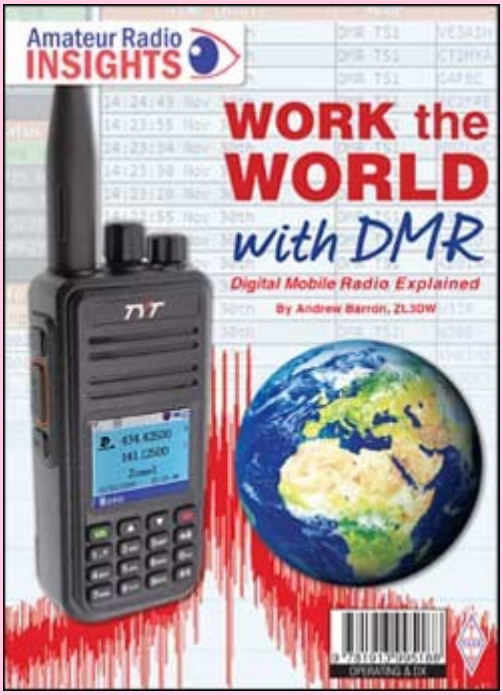
Lough Erne Amateur Radio Club normally meets at 7:30pm on the first Monday of each month at the Share Centre, Lisnaskea. More information from: https://loughernerадioclub.co.uk/

Latest Releases in the RSGB Book shop



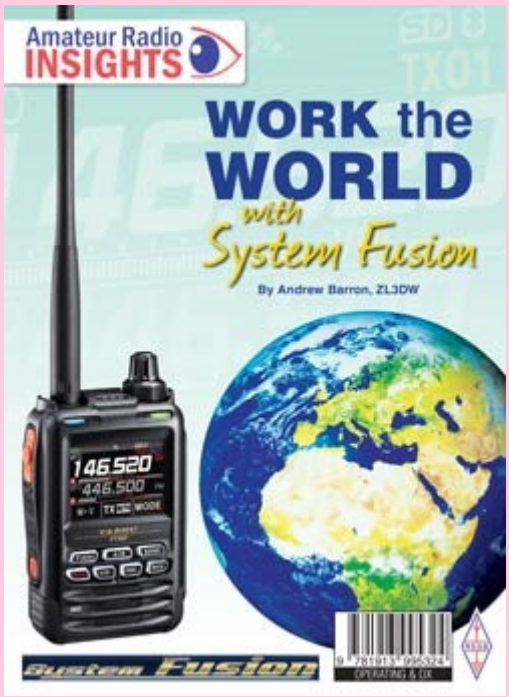
Work the World With D-Star
By Andrew Barron, ZL3DW

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



Work the World with DMR
By Andrew Barron, ZL3DW

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



Work the World With System Fusion
By Andrew Barron, ZL3DW

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

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

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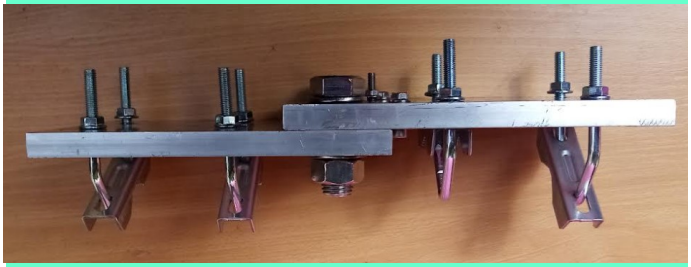
For more information contact the awards manager by email awards@nrsi.ie

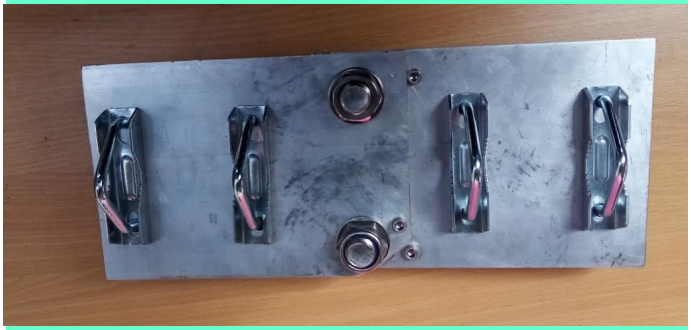
For Sale - Antenna Tilt Plates

Antenna tilt plates for sale **160 Euro** shipped via DPD within EI suitable for Hex, Cobweb and Yagi antennas that are on a tilt mast to make maintenance and repair easier. Overall 30mm thick aluminium plate design, each side of the plate being 15mm.With 30mm on its overlap with stainless steel pivot and nyloc nut hardware for added flexibility. With a set of dual heavy duty V clamps on the upper and lower plate allow for universal mounting onto a variety of masts and antenna stub masts which can accommodate mast and stub poles up to 50mm in diameter which are then secured into the V clamps by its clamp and Jaw hardware.

These are new and are handmade and never been used.

Contact: Charlie Carolan
087 6265418
or
charlie.carolan@gmail.com





RSGB Radio News Services From GI

10:00 3640KHz LSB Dungiven

12:00 TG2354 Time Slot 2 BM Network

19:30 TG 880 Time Slot 2 Phoenix Network

Shannon Basin's Automated Stations

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

Roscommon Multimode Digital Gateway EI2BED 144.8625 MHz

Current Systems Active in Galway

70cm DMR Repeaters

EI7RHD	**I/P 430.450**	**O/P 439.450**	**CC1**
EI7LRD	**I/P 430.475**	**O/P 439.475**	**CC1**
EI7AKR	**I/P 438.425**	**O/P 430.825**	**CC1**
EJ7IBD	**I/P 430.500**	**O/P 439.500**	**CC1**

Yaesu Fusion Repeater

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

Gateways

EI2SHD	**144.8125**	**Wires-X Gateway**
EI2GCD	**145.850**	**P25 Gateway**
EI4GCG	**70.425**	**ALLSTAR node**

What is Waiting in the Wings?

1 x 70cm D-Star Repeater

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

Wescom IRELAND LTD

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https://wescom.ie/

SolderSmoke Daily News

Serving the worldwide community of radio-electronic homebrewers.

http://soldersmoke.blogspot.com/

Providing blog support to the Solder Smoke podcast: http://soldersmoke.com

50MHz UKSMG

UK Six Metre Group

Dedicated to promoting 50MHz activity around the world

An Amateur Radio publication for the Microwave Enthusiast

UKuG **scatterpoint**

Published by the UK Microwave Group

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

EURA
EUROPEAN RADIO AMATEURS' ORGANIZATION
https://www.eurao.org/en/welcome

Dates for the Diary

NRSI AGM Sunday the 19th of February
Guides Thinking Day On The Air - 22nd February
Lagan Valley ARS Rally - Saturday 4th March
COTA activation by Skywave - Sunday 5th March
St Patricks Day Activity and Awards 16th - 18th March
RSGB 2023 AGM - 15th April 2023
International Marconi Day - Saturday 23rd April 2023
SOS Radio Week 1st - 31st May
Lough Erne Radio club Rally 7th May
International Lighthouses on the air 19th—20th Aug
UK National HamFest Peterborough 6th - 7th October

RSGB

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

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

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

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