STARLITE

THE JOURNAL FOR THE STOURBRIDGE AND DISTRICT A.R.S.

G6OI

G6SRS

G4CVK

ISSUE: DECEMBER 2021

STOURBRIDGE & DISTRICT AMATEUR RADIO SOCIETY

INCORPORATING

OLDSWINFORD HOSPITAL SCHOOL RADIO CLUB

MEETINGS NORMALLY HELD AT

OLDSWINFORD HOSPITAL SCHOOL
HEATH LANE
STOURBRIDGE
[8:00 TO 10:00 PM]

VISITORS ALWAYS WELCOME

DURING COVID, THE SOCIETY TEMPORARILY HOLDS ITS MEETINGS EVERY MONDAY AT NORTON SOCIAL & SNOOKER CLUB, 25 OSMASTON ROAD, STOURBRIDGE, DY8 2AL

Happy Christmas

RSGB AFFILIATED SOCIETY

The views expressed in STARLITE may not be those of the Committee – Stourbridge and District Amateur Radio Society

STARLITE

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StARS Website URLs:-
www.g6oi.org.uk

StARS Facebook Page:-
https://www.facebook.com/groups/stourbridge.ars/

Forthcoming Meetings

December 6th	Club Meeting at Norton Social & Snooker Club. 8pm
December 13th	**Christmas Party & Buffet at Norton Social Club. 7pm**
December 20th	Club Meeting at Norton Social & Snooker Club. 8pm
December 27th	Club Meeting at Norton Social & Snooker Club. 8pm
January 3rd 2022	Club Meeting at Norton Social & Snooker Club. 8pm
January 10th 2022	Club Meeting at Norton Social & Snooker Club. 8pm
January 17th 2022	Club Meeting at Norton Social & Snooker Club. 8pm
January 24th 2022	Club Meeting at Norton Social & Snooker Club. 8pm
January 31st 2022	Club Meeting at Norton Social & Snooker Club. 8pm
February 7th 2022	Club Meeting at Norton Social & Snooker Club. 8pm
February 14th 2022	Club Meeting at Norton Social & Snooker Club. 8pm
February 21st 2022	Club Meeting at Norton Social & Snooker Club. 8pm
February 28th 2022	Club Meeting at Norton Social & Snooker Club. 8pm
March 7th 2022	Club Meeting at Norton Social & Snooker Club. 8pm

Editor's Comment [Editor: **g4xom@g6oi.org.uk**]

Some of you may have received an email notification (some of us did not!) regarding the Society's Christmas Party, as noted here. This information came from the StARS Facebook page:

This year we are having a Christmas party for members of the Society, 13th December 7pm at Norton Social Club. If you haven't already got your name down, I need to know very soon. £7 per head for superb buffet. Wayne M5LLT. [You may still have time when you read this. Ed.]

Foundations of Amateur Radio

What mode is that?

The hobby of amateur radio is about communication. When you go on-air and make noise, you initiate a communications channel, sending information out into the world and hoping for another station to receive and decode what you sent. The channel itself can be used in an infinite number of ways and each one is called a modulation mode, or mode for short. The popular ones come with most radios, CW, AM, SSB and FM.

Those few are not the only ones available. In fact as computers are being integrated into the radio at an increasing pace, signal processing is becoming part and parcel of the definition of a mode and new modes are being introduced at break neck speed. I've talked about WSPR as an example of one such mode, but there are many, each with their own particular take on how to get information between two stations.

As you listen on the bands you'll increasingly find yourself hearing a bewildering litany of beeps, pops and clicks. Some of those are due to ionospheric conditions, but many are different modes that are being experimented with across our spectrum.

If you have access to a band scope, a way of visualising radio spectrum, you can actually see the shapes and patterns of such signals over time and getting to that point can be as easy as feeding your radio audio into your computer and launching a copy of fldigi or WSJT-X.

Every mode requires a specific tool to decode it and with practice you'll discover that there is often a particular look or sound associated with a mode. Over time you'll confidently select the correct decoder, using your brain for the process of signal identification.

Of course if you don't have access to the library in your brain yet, since you've only just started, or if the mode you've come across is new, you'll need another library to discover what you found. There is such a library, the Signal Identification Wiki. It's a web-site that hosts a list of submitted signals, grouped by usage type, including one for our community.

On the amateur radio page of the Signal Identification Wiki there are over 70 different modes listed, complete with a description, an audio file and a spectrogram. With that you can begin to match what you've discovered on your radio to what the web-site has in the library and determine if you can decode the incoming information.

I will mention at this point that the Signal Identification Wiki is far from complete. For example, the Olivia mode has 40 so-called sub-modes of which about 8 are in common use. Each of those sub-modes looks and sounds different. The wiki shows only a single line for Olivia.

I'm pointing this out because the wiki allows you to submit a mode for others to use. If you have a signal, either by recording it off-air, or better still, recording it directly from the source, consider submitting it to the wiki so others can benefit from your experience.

If you've come across a signal and you cannot figure out what it is, there are other places you can go for help. The four and a half thousand members of the /r/signalidentification sub on reddit will happily look at and listen to your signal and try to help. Make sure you contribute some meta data like the time, frequency and location to accompany the spectrogram and audio.

You might have come to this point wondering why I'm encouraging you to use and contribute to the wiki and ask for help on reddit. Amateur radio is about experimentation.

We love to do that and as we make signal processing easier and easier, more people are making new modes to play with.

The speed at which this is happening is increasing and as an operator you can expect to come across new signals. I remember not that long ago, it was last month, tuning to an FT8 frequency and the person I was with asking what that sound was. They'd heard it before but never discovered its purpose, even though FT8 has been with us since the 29th of June 2017.

What interesting signals have you come across and how did you go with decoding them?

I'm Onno VK6FLAB

• *This article is the transcript of the weekly 'Foundations of Amateur Radio' podcast, produced by Onno Benschop, VK6FLAB who was licensed as radio amateur in Perth, Western Australia in 2010. For other episodes, visit http://vk6flab.com/. Feel free to get in touch directly via email: cq@vk6flab.com*

• *If you'd like to join a weekly radio net for new and returning amateurs, check out the details at http://ftroop.vk6flab.com/, the net runs every week on Saturday, from 00:00 to 01:00 UTC on Echolink, IRLP, AllStar Link, Brandmeister and 2m FM via various repeaters, all are welcome.*

Ofcom agree to extend 146-147 MHz NoV

The RSGB has announced that Ofcom has agreed to the request to extend the 146-147 MHz NoV for a further year

The Society says:

However, it is made available on a non-interference basis and applicants should note that as the band is increasingly used by other users, the NoV is subject to a 30-day notice period of change or withdrawal.

Full licence holders can apply for the 146/147MHz NoV via the RSGB website

http://www.rsgb.org/nov

Source: RSGB statement

https://rsgb.org/main/blog/news/rsgb-notices/2021/11/03/146-147mhz-nov-extension/

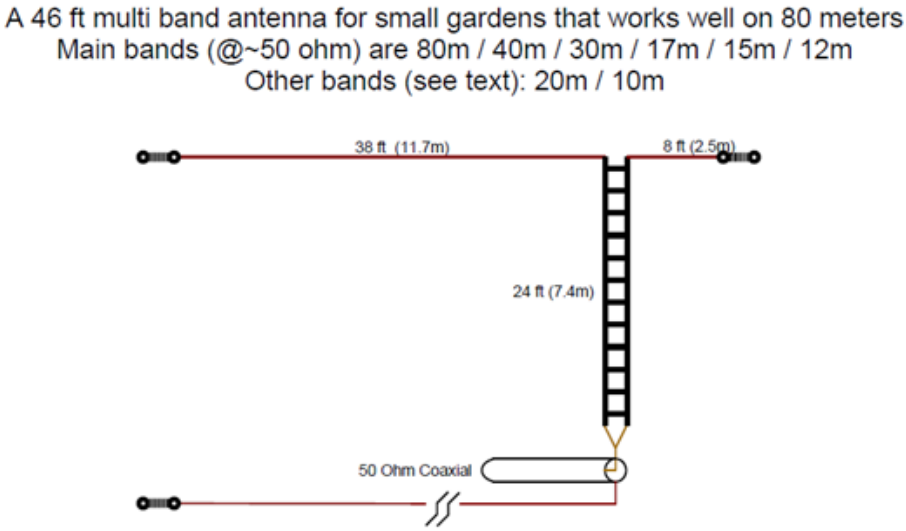
A small, efficient All-Band Antenna

The G7FEK Multi-Band Nested Marconi Antenna

I HAVE NOT TRIED THIS ANTENNA!

This Nested Marconi looks pretty good, but...

DO YOUR OWN DUE DILIGENCE.



This antenna was first conceived as a simple dual band antenna in 1988, in an attempt to achieve sensible dual band operation in a small garden of 14m (46 ft) length.

Evolving from a simple end-fed Marconi for 80m, the idea was to use the opposing harmonicrelationships of two ¼ wave elements so that they could be fed on odd harmonics without mutual coupling.

This principle has been used with nested dipole antennas and other specialist multi-band antennas such as the Cobweb, but because of interaction and coupling issues, it's rarely implemented on end fed wire antennas. With this version of the antenna, interaction between elementsand top resonance have been turned to our advantage allowing for excellent multi-band working, while maintaining a useful radiation pattern and efficiency on almost all Amateur Radio bands.

The suggested dimensions provide for low radiation angle (30 to 40 degrees) on all bands except 30m where the antenna acts as afull size horizontal dipole.

Low VSWR is achievable on most bands and, with careful construction, up to four bands can be usedwithout ATU.

Radiation resistance is in the range 25 to 200 ohms on all bands, ensuring high radiation efficiency, even with moderate earthing arrangements. Unlike the Windom or G5RV, the fundamental bands can be resonated independently.

G7FEK Limited Space Antenna

A Multi-Band "Nested Marconi" Antenna. 2008 Version (rev 5) G7FEK antenna.pdf

What Does SOS Actually Mean?

The Nairobi Wire looks at the meaning of the distress call SOS

'SOS' has inspired a slew of backronyms. The letters don't mean anything, in actuality.

There's no reason why the signal should consist of three distinct letters. There are no spaces or full stops in this continuous Morse code string of three dots, three dashes, and three dots (…—-…).

Because in Morse code, three dots make the letter "S" and three dashes create the letter "O," the signal has been referred to as a "SOS" for convenience's sake.

As a result of this relationship, the letters have emerged as a visual distress signal distinct from Morse Code, and persons in need of rescue have been known to spell them out on the ground so that they are visible from above.

Here is the full story from The Nairobi Wire:

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If you wanted to, the string might be divided into IJS, SMB, and VTB segments.

Why is SOS used in the first place?

If the dots and dashes have no significance, then why use them in the first place? The answer is because that was the most efficient method for completing the task at hand.

About a century ago, when wireless radiotelegraph devices first appeared on ships, sailors in peril needed a way to attract attention, indicate distress, and appeal for assistance — a distinct signal that could be transmitted loudly and rapidly without being confused with other messages.

Initially, several groups and governments used their own "in-house" distress signals to communicate. As per the International Code of Signals, the U.S. Navy employed "NC" as a marine distress flag signal.

The Marconi Company used "CQD", and it provided its telegraph equipment and telegraph

operators to various vessels. To ensure that all German operators followed the "German Regulations for Control of Spark Telegraphy" in 1905, they were required to use "…—-…"

Having so many different distress signals could be perilous if not handled properly. In other words, it meant that if a ship was in distress in international waters, rescuers would face a language barrier even if they used International Morse Code.
A few countries decided to meet together to discuss international regulations for radiotelegraph communications because of this as well as other difficulties.

In Berlin, 1906, delegates at the International Wireless Telegraph Convention worked to create a global distress signal. At an earlier conference, Italy proposed Marconi's "SSSDDD" ("... … … —.. —.. —..."), but it was rejected because it was considered unwieldy.
Meanwhile, Germany's "…—…" message was simple to send as well as almost impossible to misread. On July 1, 1908, it became the official international distress signal for the countries represented at the meeting.

Adoption of "SOS"

The first known use of the distress signal "SOS" occurred just over a year later, in August 1909.
Ship's radio operators sent the distress signal when the SS Arapahoe in Cape Hatteras, North Carolina, was disabled by a damaged propeller.

Although the new standard wasn't immediately accepted by all, some people adapted quickly.

When it came to "CQD," the Marconi Corporation was particularly emphatic. Famously, the Marconi operators on board the Titanic sent out a "CQD" signal until another operator suggested they try the new "SOS" signal as well.

History of the Ham Radio Callsign

In this video **Mike Ritz W7VO** looks at the history of amateur radio call signs in the United States.

Every legal amateur radio operator in the world has a unique callsign assigned to them by their government, and many of us are better known by our callsign than our given name. But what world event was it that caused these monikers to be? Why are they constructed the way they are?

Watch this video I put together as presented at the QSO Today Expo in March 2021, and discover for yourself the storied history of the ham radio callsign!

Watch "*The Storied History of the Ham Radio Callsign*" on You Tube at:

https://youtu.be/Su76QvChuEU

VP0 new prefix

Alan, VK6CQ (VK0LD, VP8PJ), from Perth, provided the following information:

Further to the recent announcement of the new VP0 prefix for South Georgia and the South Sandwich Islands, the government of British Antarctic Territory has now published similar draft legislation that will affect amateur radio licences for the British claimed sector of the Antarctic (which includes the South Shetlands and South Orkneys).

This can be viewed at:

https://britishantarcticterritory.org.uk/consultation-amateur-radio-licensing/

Members of the amateur radio community have until 10th November to forward comments on the draft legislation to: polarregions@fcdo.gov.uk

How new licences will be issued and how existing VP8 South Georgia and Antarctic licences will be rolled over into new VP0 licences has not yet been finalized.

Supervised operation of Foundation licence candidates

The RSGB Exam Standards Committee has clarified the licence conditions regarding the supervised operation of Foundation licence candidates.

The full announcement can be found on the examination announcements page of the RSGB website:

https://rsgb.org/main/clubs-training/examination-announcements/

New ham radio mock exam papers

The RSGB has released new Mock Exam Papers to help those studying for their UK amateur radio Foundation, Intermediate or Full exams

They can be downloaded from the Mock exams page at:

https://rsgb.org/main/clubs-training/training-resources/mock-exams/

Special Dutch call signs for December/January

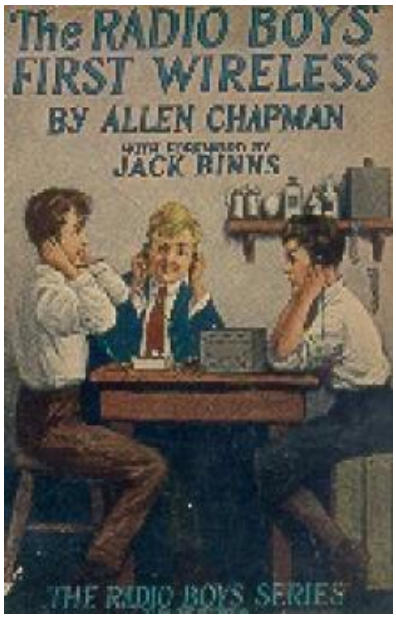
On the occasion of the Christmas season, Raymond PA5DX, Wijnand PD8DX and Ramona PD9YL will activate three special callsigns: PA21XMAS, PD21SANTA and PD22HNY

The three stations will be active from December 1, 2021, to January 31, 2022, both on the HF bands and at 70 cm and 2 meters using FT4, FT8 and SSB.

Radio amateurs who work at least two of the three special stations are eligible for a certificate. See their QRZ page: https://www.qrz.com/db/PA21XMAS

Source VERON https://IARU-Netherlands

1922 wireless book available for free download



The 1922 book 'The Radio Boys' First Wireless' by Allen Chapman has a foreword by **Jack Binns** who was the Marconi Wireless Operator on the RMS Republic.

The RMS Republic was rammed by the Italian Liner SS Florida and sank January 23, 1909.

It was the first ship in history to issue a CQD distress signal, the U.S. Revenue Cutter Service's Gresham and the White Star liner Baltic responded to the distress call sent by Jack Binns, saving many lives.

Download the book from
https://www.fulltextarchive.com/pdfs/The-Radio-Boys-First-Wireless.pdf

2009 Jack Binns commemorative event in Chelmsford, Essex
http://www.g0mwt.org.uk/sandfordmill/jack-binns09fold/jb09.htm
Jack Binns
http://www.jackbinns.org/

It's 220 pages and an interesting read.

BBC News reports on a recently licenced radio ham

John Emery 2E0HWE from Ashbourne, Derbyshire, got some good publicity for Amateur Radio in a BBC News article

The BBC says:

Lockdown was an isolating experience for many people, but for John Emery it was an amazing opportunity to make new friends nearby and overseas.

The maintenance engineer has always had an interest in amateur radio, but pandemic restrictions actually gave him the chance to fully embrace his hobby.

He was able to save enough money to afford the equipment needed. With radio exams forced to move online, he also had the time to get fully qualified.

He says he has since joined a radio club and regularly speaks to other amateur radio enthusiasts across Europe.

"*I have made new friends,*" the 55-year-old from Derbyshire says. "*This helped with living alone and there are hundreds of people who have done the same.*"

Read the full BBC story at
https://www.bbc.co.uk/news/business-59238426

What is Amateur Radio?
http://www.essexham.co.uk/what-is-amateur-radio

Free UK amateur radio Online Training course
https://essexham.co.uk/train/foundation-online/

Digital Radio Operating Manual

Those interested in digital radio can download a copy of the Digital Radio Operating Manual from the Galway Radio Club web page.

This manual is packed with information about the various digital modes, information about repeaters and gateways, maps and lists of EI, GI and UK talk Groups.

The 2021 Galway Radio Club Annual Journal is near completion and will be sent to club secretaries who may wish to distribute the publication among their members.

The journal is filled with club activities, technical articles, reviews and items of general radio interest. Copies of the 2019 and 2020 Journals may be downloaded from the Galway Radio Club web page.

https://www.galwayradio.com/

Forget radio - Transmitting with neutrons

Throughout history, people have devised ways to send information across long distances. For centuries we relied on smoke signals, semaphores, and similar physical devices. Electricity changed everything. First the telegraph and then radio transformed communications. Now researchers at the University of Lancaster have demonstrated another way to send wireless data without using electromagnetic radiation. They've harnessed fast neutrons from californium-252 and modulated them with information with 100% success.

The setup was interesting. The radioactive material was encased in a cubic meter steel tank filled with water. A pneumatic system can move the material to one edge of the tank which allows fast neutrons to escape. A scintillating detector can pick up the increased neutron activity. It seems like it is akin to using what hams call CW and college professors call OOK (on off keying). You can do that with just about anything you can detect. A flashlight, knocking on wood, or — we suppose — neutrons.

We wondered what the practical application of this might be. The paper suggests that the technique could send data through metal containment structures like those of a nuclear reactor or, perhaps, a spacecraft where you don't want anything unnecessarily breaching the containment. After all, neutrons cut through things that would stop a conventional radio wave cold.

It seems like you only have to prove you can detect something to make this work — it really doesn't matter what it is you are detecting. It seems like it would be much harder to do more advanced types of modulation using neutrons. Maybe this is why we don't hear aliens. They are all Morse code operators with neutron-based telegraphs.

https://hackaday.com/2021/11/14/forget-radio-transmitting-with-neutrons/
https://www.sciencedirect.com/science/article/pii/S0168900221009013

Stephen Walters G7VFY Professional Celebrity Photographer
www.facebook.com/mister35mm
Tel 07956-544202

ISS SSTV Dec 1-2 145.800 MHz FM

Russian cosmonauts on the International Space Station (ISS) are planning to transmit Slow Scan TV images on 145.800 MHz FM using the SSTV mode PD-120

The transmissions are part of the Moscow Aviation Institute SSTV experiment (MAI-75) and will be made from the amateur radio station RS0ISS in the Russian ISS Service module (Zvezda) using a Kenwood TM-D710 transceiver.

December 1, 2021 (Wednesday) from 12:10 GMT until 19:10 GMT*

December 2, 2021 (Thursday) from 11:40 GMT until 17:20 GMT*

*Dates and times subject to change.

The signal should be receivable on a handheld with a 1/4 wave whip. If your rig has selectable FM filters try the wider filter for 25 kHz channel spacing.

You can get predictions for the ISS pass times at https://www.amsat.org/track/

ARISS SSTV Blog https://ariss-sstv.blogspot.com/

Useful SSTV info and links https://amsat-uk.org/beginners/iss-sstv/

Radio ham has over 500 wireless sets

France 3 TV reports on keen radio enthusiast **Bernard Pottin F6CND** who has more than 500 wireless sets

Bernard Pottin has been collecting for twenty years old radio sets. In the garage of his house in Bouquigny, in the Marne, he has accumulated more than 500.

Bernard Pottin spends hours in his garage in Bouquigny, west of Epernay in the Marne, repairing his radio sets. The oldest can only pick up long wave.

Bernard has been passionate about radio since childhood. "At my parents' house, there were TSF [wireless telegraphy] stations where you could listen to amateur radio," he says. This is where the passion was born. I became a radio amateur in 1972. Then I developed this collection about twenty years ago."

Bernard sometimes manages to receive BBC programs in the United Kingdom, "but very weakly". Destroyed by television and replaced by transistors, the wireless counts its last hours of reception on the long waves.

Read the full France 3 story at this link

Triumph of the Amateurs - The Transatlantic Tests of 1921

The Antique Wireless Museum has released a video of the talk given by **Edward Gable K2MP** and **Mark Erdle AE2EA** about the successful amateur radio Transatlantic Tests of 1921

Early in the twentieth century Amateur Radio Operators had been exiled to the wavelengths shorter than 200 meter's as part of a power play by large communication companies and the US government to set aside what they thought were the most desirable radio spectrum for themselves, leaving the shortwave wasteland below 200 meters to hams, but in 1921 a small group of radio amateurs performed an experiment that proved hams really had the better end of the deal.

Ed Gable, K2MP, and Mark Erdle, AE2EA, tell the story of the Transatlantic Tests of 1921, which were conceived of by radio amateurs, and proved that even with modest equipment, the Atlantic Ocean could be spanned with shortwave signals, opening up improved communications for many more purposes. These "short" wavelengths below 200 meters had been considered useless by commercial and governmental interests, resulting in the Radio Act of 1912 banning amateur activity in the wavelengths longer than 200 meters.

As a result of the successful efforts of radio amateurs in Transatlantic Test Project , over the last 100 years many experimenters and inventors became focused on continually improving wireless technologies and devices. The direct results of that inventing are the smart phones, smart watches, smart TVs, wireless Internet routers, GPS tracking devices, and Bluetooth headsets, all of which depend on wireless technologies. Those pioneers 100 years ago could never have envisioned the way society has been enabled and transformed by wireless!

For more information visit http://1BCG.org

Watch Triumph of the Amateurs - The Transatlantic Tests of 1921

https://youtu.be/zt_M5VVsR1Q

Vintage Ham Radio Gets Brain Transplant

Old radios didn't have much in the way of smarts. But as digital synthesis became more common, radios often had as much digital electronics in them as RF circuits. The problem is that digital electronics get better and better every year, so what looked like high-tech one year is quaint the next. [IMSAI Guy] had an Icom IC-245 and decided to replace the digital electronics inside with — among other things — an Arduino.

He spends a good bit of the first part of the video that you can see at the link below explaining what the design needs to do. An Arduino Nano fits and he uses a few additional parts to get shift registers, a 0-1V digital to analog converter, and an interface to an OLED display.

Unless you have this exact radio, you probably won't be able to directly apply this project. Still, it is great to look over someone's shoulder while they design something like this, especially when they explain their reasoning as they go.

The PCB, of course, has to be exactly the same size as the board it replaces, including mounting holes and interface connectors. It looks like he got it right the first time which

isn't always easy. Does it work? We don't know by the end of the first video. You'll have to watch the next one (at the link below) where he actually populates the PCB and tests everything out.

https://hackaday.com/2021/11/27/ham-radio-gets-brain-transplant/

UK EMF regulations: New interim guide for microwavers

The UK Microwave Group (UKuG) has made available interim EMF compliance guidance for radio amateurs operating in the microwave bands

The guidance document is mainly about parabolic dish antennas with a feedhorn.

Read the guidance at https://wiki.microwavers.org.uk/EMF

UK Microwave Group https://www.microwavers.org/

EMF Compliance in latest Galway newsletter

The Winter 2021 issue of the Galway Radio Club Journal, free to download, is packed with good articles including EMF Compliance by **Steve Wright EI5DD** who takes a look at the RSGB EMF calculator

Among the other articles are:
- WSPRing on the HF bands
- Build an Allstar Node for 70cms
- Activating the 4 metre Band
- Bluetooth Hands-Free Mobile
- Loops and QRM on Digital Radio
- Bandwidth vs Data Rate
- A 5-Element Yagi for 80 Metres

Read the Winter 2021 Journal at
https://www.galwayradio.com/wp-content/uploads/2021/11/GRC-Newsletter-Winter-2021.pdf

Galway Radio Club https://www.galwayradio.com/

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