STARLITE

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

G6OI

G6SRS

G4CVK

ISSUE: JULY 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 HOLDS ITS MEETINGS
EVERY MONDAY ON 2M FM AND ZOOM VIDEO

RSGB AFFILIATED SOCIETY

STARLITE

Telephone Enquiries to:-

Hon. Secretary
John Clarke M1EJG
[01562] 700513

Or by Email to:-
honsec@g6oi.org.uk
johnclarke.m1ejg@btinternet.com

All correspondence/enquiries should be addressed to the Hon Secretary at:-

StARS
c/o The Mill House
21 Mill Lane
Blakedown
Kidderminster
DY10 3ND

StARS Website URLs:-
www.g6oi.org.uk
http://g6oi.ross-lewis.co.uk

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

Forthcoming Meetings

July 5th	Club Net 145.325MHz FM & Zoom Video. 8pm
July 12th	Club Net 145.325MHz FM & Zoom Video. 8pm
July 19th	**BBQ at The Sheepwalks. 7pm Start**
July 26th	Club Net 145.325MHz FM & Zoom Video. 8pm
August 2nd	Club Net 145.325MHz FM & Zoom Video. 8pm
August 9th	Club Net 145.325MHz FM & Zoom Video. 8pm
August 16th	**Zoom Presentation By A Guest Speaker. 8pm**
August 23rd	Club Net 145.325MHz FM & Zoom Video. 8pm
August 30th	Club Net 145.325MHz FM & Zoom Video. 8pm
September 6th	Club Net 145.325MHz FM & Zoom Video. 8pm
September 13th	Club Net 145.325MHz FM & Zoom Video. 8pm
September 20th	**Zoom Presentation By A Guest Speaker. 8pm**
September 27th	Club Net 145.325MHz FM & Zoom Video. 8pm
October 4th	Club Net 145.325MHz FM & Zoom Video. 8pm

Editor's Notes

Wayne M5LLT posted this announcement on the Society's Facebook page. Sounds promising. [I copied this due to receiving NO "official" notifications!]

It's what we've been waiting for.....

It's finally going to happen.....

With social distancing, masks and sanitizer.....

All members now vaccinated.....

It's The Sheepwalks BBQ JULY 19th 7pm start (NOT 😎 we have checked on Dudley MBC COVID SITE that we are within the regulations to hold this outdoor event and will be complying with all safety aspects. So.....that said come and enjoy. Usual format , same location, burgers, hotdogs and buns, but again by request I will be putting on my Indian Street Food again.

Here's a reminder of the last one.....

https://m.facebook.com/story.php?story_fbid=10224999277519256&id=1536492924

Just to fill the space on the page, we have this news item

North Pole Contest Group in Alaska

A team of operators from the (KL7RA) will activate W1AW/KL7 from Alaska between July 9-13th.

Wigi, KL0R, Station Manager of the North Pole Contest Group, reports that are currently planning to have four station locations in Alaska, including KL7RA in Kenai, KL2R in Fairbanks/Two Rivers, KL7AA in Anchorage, and one more station, most likely in Homer.

Activity will be on various HF bands (as many bands and modes as possible, plus EME), including activity in the IARU HF Championship (July 10-11th) as HQ Station.

QSL via W1AW, LoTW or ClubLog

Ofcom: Update to EMF licence condition guidance

Ofcom has published updated versions of their simplified guidance on the new electromagnetic fields (EMF) licence condition that will apply to spectrum licensees, along with a new EMF Calculator

On June 17 Ofcom announced:

In May we published our final decision to include this new condition in licences. The new condition aims to ensure spectrum licensees operate their equipment within international guidelines for EMF exposure. We also published the final version of our licence condition as well as detailed guidance on how licensees could ensure they complied with the new condition.

We have today published updated versions of the following simplified guidance documents which provide step by step direction on how to check compliance with the new condition:

- Simplified guidance for all spectrum users
- Additional guidance for ship radio licensees
- Additional guidance for amateur radio users
- Additional guidance for aeronautical radio users

We have also published an updated version of our EMF calculator which licensees can use to check compliance

https://ofcom.org.uk/manage-your-licence/emf/calculator

Ofcom Guidance docs

https://ofcom.org.uk/manage-your-licence/emf/compliance-and-enforcement-guidance

RSGB EMF page

https://rsgb.org/emf

Foundations of Amateur Radio

How much bandwidth is there?

Have you ever taken a moment to consider the available bandwidth on the various amateur bands?

As an entrant into amateur radio in Australia as a Foundation licence holder you have access to six different amateur bands, the 80m band, 40m, 15m, 10m, 2m and 70cm. If you add the bandwidth from each of those bands together, you end up with 26.65 MHz worth of bandwidth to play with in Australia.

I can tell you that's a big chunk of bandwidth, but until I give you some context, 26.65 MHz isn't likely something that you can picture.

You might think of things as being pretty crowded. For example, on the 40m band during a contest it's common to hear wall to wall signals. There's barely enough room to call CQ and not interfere with anyone else. But how crowded is it really?

Let's start with an SSB signal, typically it's 2.4 kHz wide. On the 40m band, with 300 kHz of bandwidth, there's room for about 125 SSB signals side-by-side. On the 10m band, there's space for over 700 SSB signals side-by-side. Across all the available bandwidth for a Foundation license holder in Australia, there's room for over 11-thousand different SSB signals side-by-side.

While we're on the subject of crowding, there's talk about the massive influx of FT8, some call it a scourge. FT8 channels are transmitted within a single SSB channel and each takes up 50 Hz. That means that within an SSB channel of 2.4 kHz, there's room for 48 different FT8 channels, and if you take into account the odd and even time-slots, that doubles to 96 different signals, all within the same single SSB channel. So while FT8 is popular and growing, let's not get too excited about how much space it's taking up. From the perspective of an Australian Foundation license holder, it's taking up exactly six separate SSB slots of those 11-thousand across the six available bands, room for 576 separate FT8 signals, taking up a total of 14.4 kHz, or 0.05% of the available bandwidth.

Let's look at this another way, of the 26.65 MHz available bandwidth, 20 MHz is from the 70cm band alone, that means that all the other bands put together, fit inside the 70cm band three times over.

Let that sink in for a moment, adding the 80m, 40m, 15m, 10m and 2m band together fit inside the 70cm band three times.

You can use the 70cm band alone for 800-thousand FT8 signals, remember that there's two time slots, so you get two for one.

If this makes your mind explode, then consider that a carrier wave signal is considered to be about 25 Hz wide, so on the 70cm band you could have 800-thousand individual CW signals. You could allocate a personal CW frequency to every one of the amateurs in the United States in the 70cm band and still have room for expansion, not that I'm advocating that, just to give you a sense of scale. I should note that the 70cm band in the United States is even larger than it is in Australia, but I don't want to get bogged down into the various band plans across the world at the moment.

You might ask yourself why am I getting so excited about this?

Amateur radio is about experimentation. I've been telling you about HF propagation and using techniques like FT8 to determine just how far your signal goes, but you could use

the same techniques to build a 70cm communication network with the amateurs within your city and share information across the city, perhaps even build a mesh network using your 70cm hand-held and an FT8-call network. It could be used to distribute propagation information, or messages in case of an emergency, or form the basis of something completely different.

If that doesn't whet your appetite, consider that the 1mm amateur band, which runs from 241 to 250 GHz is ready for you to experiment when your license permits. The current world distance record is 114 km, set in 2008 by Brian WA1ZMS and Peter W4WWQ, it has 9 GHz bandwidth and has room for 360-million FT8 signals, or 60 exclusive FT8 channels for every amateur on the planet.

My point is that as radio amateurs we have access to a massive chunk of radio bandwidth and it's just sitting there waiting for you to experiment with.

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 publish British Grand Prix frequencies

A Freedom of Information request asked Ofcom for the frequencies to be used at the F1 British Grand Prix 2021 at Silverstone

The name of the file Ofcom released has the year 2020, it's presumed the same frequencies will be in use for this year's event that takes place July 16-18.

Download the frequency spreadsheet from

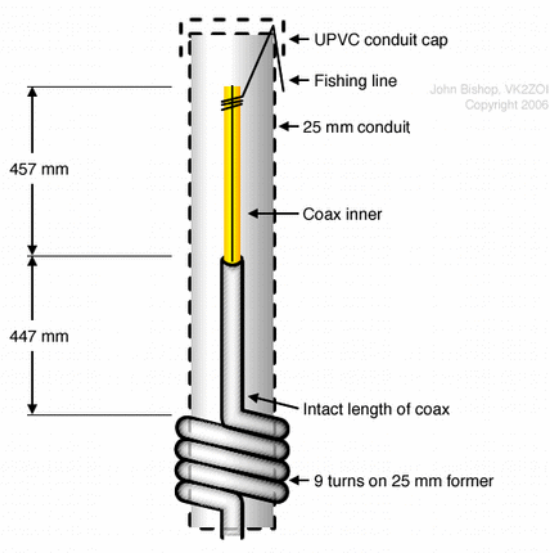
https://www.ofcom.org.uk/__data/assets/file/0010/220141/Frequency-list-Silverstone-2020.xlsx

Ofcom FoI responses

https://www.ofcom.org.uk/about-ofcom/foi-dp/foi-responses

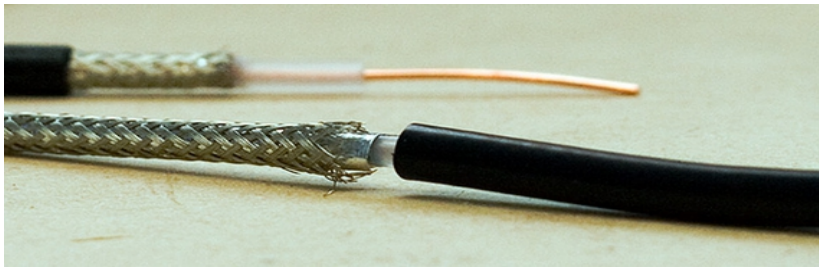
Half-Wave Flower Pot Antenna

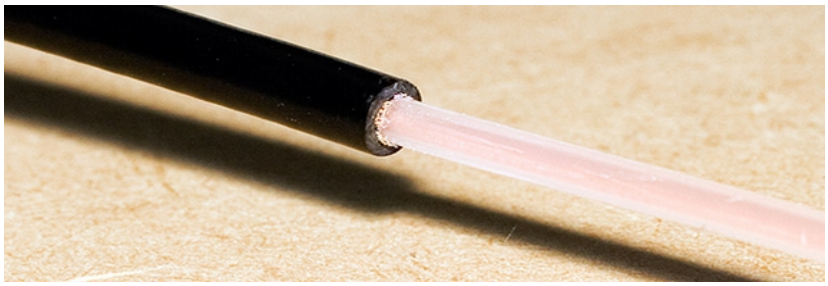
The diagram (right) shows the basic arrangement of the 2m Half-Wave version of the antenna. To construct the antenna, first select a suitable length of grey 25mm conduit (as a minimum 1m but if you make it longer, you will have more room below the coil to attach to your antenna support).



Drill two holes into the side of the conduit for the choke coil. The 'top' hole will be approx 925mm from the end (this distance is the length of the radiator plus a small clearance between its end and the end-cap). The spacing between the holes should be such that the coil turns will be firm and secure. Actual hole diameter and spacing will depend on the cable brand and/or where it was manufactured. It will be close to being two 6mm holes spaced 45mm apart but wind 9 turns temporarily on the conduit and take measurements.

Then take a suitable length of co-ax (I make mine using the one piece of cable, about 5 to 6m long, to reach from the antenna to the transceiver – the length is your choice). From one end, strip off 457mm of the outer sheath and braid to form the top element. It's not a big problem if you end up with a length that's a bit short, because a another piece of wire or the discarded braid can be soldered to the top to make the correct length.

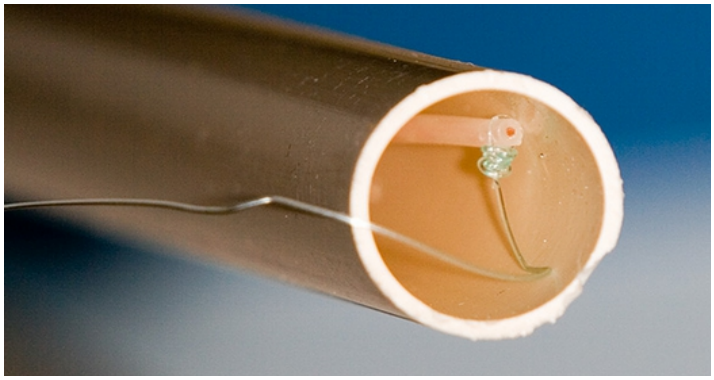




Using several "half-hitches", tie a piece of fishing line (or similar, thin nylon line), say about half a metre long, to the top of the upper element. This line will be used to pull the radiator taut, it will clip over the top of the conduit and be clamped by the end cap.

Now measure 447mm down from the feedpoint (the point where the braid/outer sheath now starts); this is the distance to the start (or top) of the choke coil and mark this position on the coax with a piece of tape, string, paint spot, or whatever, so as to be a reference/stop point when inserting the cable into the conduit.

The antenna is assembled by inserting the radiating portion (together with the piece of nylon line) through the top coil hole and pushing it upwards until the aforementioned reference/stop point disappears into the hole.



Fish-out (pun intended) the nylon line and by pulling it taut, temporarily straighten the radiator to “set” the bend at the choke coil top.

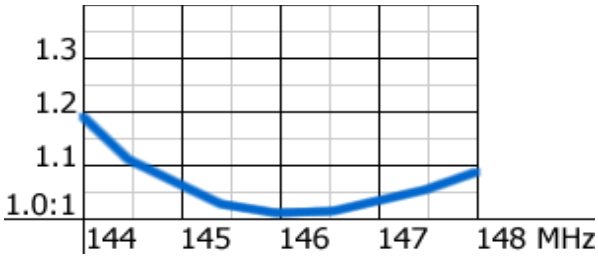
The coil is then wound on the outside of the conduit and the remainder of the cable inserted through the bottom coil hole and pushed down. Using firm but careful manipulation, the cable is pushed and tugged through the exit hole until the coil is tightly wound and secure. This must be done without altering the bottom radiator length (you should continue to just see your ‘mark’ through the top hole.

At the top, cut a small (thin, narrow) notch in the edge of the conduit, pull the nylon line taut and nip the nylon line into the notch. Later, when an end cap is fitted, the cap will clamp the nylon line solidly in place and hold the radiator straight.

Fit a connector, measure the VSWR, if necessary trim the top element.

However, you should find that very little trimming, if any, will be necessary. If you dual band the antenna, the 2m resonance will

appear to shift upwards slightly. So, don't be too concerned if your antenna at this stage appears to have its VSWR curve dip a bit below 146 MHz. The VSWR plot of the 2m Half-Wave antenna should look like the following:



VSWR plot of the 2m Half-Wave antenna

When you are happy with the VSWR, finally, cap the top, securing the nylon line and the radiator in place.

Don't block or seal the bottom end of the conduit. This is to allow condensation etc to drain away.

Tips

File the coil holes to ease the bends.

Heat-shrink the feed-point to seal against water entry. Also heatshrink the coil's entry and exit points to minimise water entry.

Heat-shrink the bottom end to provide a buffer for the exiting coax and neaten the base.

The type of Co-Ax is Important. Use braided co-ax only.

Do not use co-ax with a foil shield as the foil tends to break during assembly especially at the sharp bends at the choke entry/exit points. Obviously if this happens, your antenna will not work!

Cocky Proofing

To protect the choke coil from bird attacks especially from the White Cockatoos, the coil needs to be covered with a 'Cocky' shield. An empty Silicone Sealant cartridge (enlarge the hole at the top and cut the barrel to length) neatly fits over a 2m antenna coil. A PET soft-drink bottle can be used for larger coils which, when heated with a hot-air gun (but don't melt the conduit), will act like heat shrink tubing and become a very tough shield. Before fitting the shield, wrap PVC tape over the coil and the entry/exit holes to minimise water entry.

Using something other than grey electrical conduit

To the purist and his microwave oven, grey electrical conduit is considered lossy. It is, however, very UV resistant. The design compensates for the affect of the conduit by shortening the elements (by about a 2% factor) but otherwise the conduit appears to have little effect on the radiation efficiency.

If you use orange (HD) conduit, irrigation pipe, Telstra conduit, GRP, etc, the element lengths will be different. An unenclosed antenna will have longer elements (probably 2% or maybe 3% longer). Similarly, an antenna enclosed in something that is very much loaded with conductive filler will be much shorter (but, of course, don't ever use a material like this for an antenna).

A Spy in Every Embassy

'The intelligence coup of the century'. The extraordinary story of the longest running and most successful secret intelligence operation of the 20th Century.

For more than half a century, governments all over the world trusted a single company, Swiss-based Crypto AG, to keep the communications of their spies, soldiers and diplomats secret. But what none of its customers ever knew was that Crypto AG was owned for over 20 Cold War years by the CIA in partnership with the BND, the German Intelligence Service. The machines that many customers bought had deliberately weakened security – a window through which the CIA and BND could read the diplomatic traffic between their embassies, their trade negotiators and their own spies.

The BND sold out its share in 1993 for a tidy profit while the CIA continued until the company was broken up in 2018.

Crypto AG's own secret was only cracked last year in a combined investigation by German ZDF television, Swiss SRF and the Washington Post following the discovery of a secret history, Operation Rubicon, that had been assembled by some of the operatives who had been involved in the deception.

A Spy in Every Embassy is the story of the story, presented by German intelligence journalist Peter F Muller, who produced last year's television programme for ZDF, and British journalist David Ridd.

It gives the chronology of the manoeuvrings, arguments, successes and deceptions of the partnership that remained secret for a quarter of a century. Its revelations offer a new perspective on some of the landmark events of those decades - the Falklands War, the US bombing of Libya from British airfields, the negotiations that lead to the Camp David Accords and the Iranian Hostage crisis, as well as the daily churn of intelligence information from around the world about both friends and opponents.

The programme considers the collateral damage of deception on a grand scale. Most employees of Crypto AG knew nothing of the built-in weaknesses of the machinery they were building or trying to sell to governments in some very dangerous parts of the world.

Produced by John Forsyth

Assistant Producer: Alexandra Quinn

A Loftus Media production for BBC Radio 4 https://www.bbc.co.uk/programmes/m000w499

Extracts read by Lanna Joffrey, Annette Kossow, Blanca Belenguer, Mike Christofferson and Thilo Buergel.

Archive by kind permission of ZDF Television, Crypto Museum, Harry S Truman Library, National Security Agency Archive and Bletchley Park podcast. https://www.bbc.co.uk/programmes/m000w499

Svalbard Dxpedition

* Ken, LA7GIA, posted the following on FaceBook, May 21st [edited]:

"*Unfortunately 2 operators had to withdraw due to personal reasons, but we have managed to replace those and hope to be 6 operators when departing in July. Going to Prins Karls Island in JW requires a dedicated expensive vessel that will transport us from Longyearbyen to the island located in the nature reserve at the west coast. Last activation of this island was in 2001.*

When arriving we will be doing dinghy landing with all equipment. The 3Y0J team members will do some additional practice runs with the dinghy ;) We will focus on NA and Asia outside the IOTA contest, and we will do all modes CW, SSB and FTx. Our antennas will be VDAs and verticals at the shore close to saltwater with excellent take-off in all directions!

Due to the high risk for polar bear all over the island, we will have mandatory 24/7 polar bear watch. We will have several rifles, flare guns and other protection. Safety is a high priority and all team members will do training at a local shooting range.

Our budget is roughly 13,000 USDs and we will appreciate donations via PayPal to: jw0wpk@gmail.com
Thank you for supporting this trip! All the support will go to offset the expensive vessel cost!
73, JW0J team"

* Erwann, LB1QI, posted the following on FaceBook, May 21st [edited]:

"New members onboard -- We are very happy to welcome Allan Batievsky, EA3HSO, and Ronny onboard our Dxpedition to Prins Karls Forland (EU-063) between the 21st and the 26th of July 2021.

Allan, a well experienced contester and Dxpeditioner, will join the operators and Ronny will be in charge of our Security while on the island as the risk of being greeted by polar bears at some point of our stay is high. We will all have polar bears watch duties but he will keep the security at a high level while we concentrate on maintaining the antennas and contacting you! Both fellows are a great addition to the team.

We have an internet website (still in construction) but helpful should you wish to learn more about the team or support us: http://www.jw0w.no "

Best 73s, The JW0W Team

'Woodpecker' is now a cultural heritage site…

From the 1970's until the Chernobyl nuclear disaster the Soviet's Over the Horizon Radar 'Woodpecker' caused severe interference in the amateur radio bands

An article on Vice says:

Ukraine has declared that the enormous Duga-1 radar array is a protected cultural monument.

Almost 2,300 feet long and more than 450 feet high, the steel beams of the radar tower over the surrounding forest. From a distance, it appears to be a massive wall or the start of a cage.

The Association of Chernobyl Tour Operators first announced that Ukraine had made Duga-1 a protected heritage site on its Facebook page. Interfax, a Russian news service, later reported the official designation. “Our heritage is not only the area around the power plant but also the buildings located on its territory,” Oleksandr Tkachenko, Ukraine’s Minister of Culture and Information Policy, said in a Telegram thread about the announcement. “So now we are working on identifying other objects that should be part of the list of monuments. Our goal is to prevent destruction when possible.”

When Duga-1 came online sometime in the mid 1970s, radio operators around the world noticed a strange signal coming from the forests of Ukraine. The system was so powerful it disrupted some frequencies with an irritating thumping noise. Amateur radio operators dubbed the signal’s source “The Russian Woodpecker” because of the repeated tapping noise it pumped into HAM radios.

Read the full Vice story at

https://www.vice.com/amp/en/article/88nagx/a-missile-radar-in-the-chernobyl-exclusion-zone-is-now-a-protected-heritage-site

---

This space left intentionally blank for your contribution.

The Editor is waiting patiently for some input and has even resorted to reading sports magazines to fill the time!

Memories, photos, projects, general chit-chat, etc., would all be very welcome.

Send input to: g4xom@g6oi.org.uk

YOUR COMMITTEE

PRESIDENT	Alan Stanley	M7ALS
VICE PRESIDENT	Nick Moss	G6DQN
SECRETARY	John Clarke	M1EJG
TREASURER	John Scott	G8UAE
COMMITTEE MEMBERS		
	Wayne Mocroft	M5LLT
	Geoff Cooper	G0KVK
	Mark Cadman	M0TCG
	Keith Dixon	M0HPY
	Ross Lewis	2E0RLX

STARLITE EDITOR	Bob Egan	G4XOM
	Email:	g4xom@g6oi.org.uk