

STARLITE

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



**G6OI
G6SRS**



ISSUE: FEBRUARY 2024



G4CVH

**STOURBRIDGE & DISTRICT AMATEUR RADIO SOCIETY
INCORPORATING
OLDSWINFORD HOSPITAL SCHOOL RADIO CLUB**

**INFORMAL MEETINGS ARE HELD AT:
NORTON SOCIAL CLUB,
OSMASTON ROAD, STOURBRIDGE, DY8 2AL
[8:00 TO 10:00 PM]**

**MAIN MEETINGS (3RD MONDAYS) ARE HELD AT:
NORTON COMMUNITY CENTRE
HEMPTON WAY, STOURBRIDGE, DY8 3AP
[8:00 TO 10:00 PM]**

VISITORS ALWAYS WELCOME

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

StARS Facebook Page:-

<https://www.facebook.com/groups/stourbridge.ars/>

Forthcoming Meetings

February 5 th	Club Meeting at Norton Social Club. 8pm
February 12 th	Club Meeting at Norton Social Club. 8pm
February 19 th	On The Air: Testing The New Bantenna Antenna at Norton Community Centre. 8pm
February 26 th	Club Meeting at Norton Social Club. 8pm
March 4 th	Club Meeting at Norton Social Club. 8pm
March 11 th	Club Meeting at Norton Social Club. 8pm
March 18 th	ANNUAL GENERAL MEETING 2024 at Norton Community Centre. 8Pm Start.
March 25 th	Club Meeting at Norton Social Club. 8pm
April 1 st	Club Meeting at Norton Social Club. 8pm
April 8 th	Club Meeting at Norton Social Club. 8pm
April 15 th	Club Meeting at Norton Community Centre. 8pm
April 22 nd	Club Meeting at Norton Social Club. 8pm
April 29 th	Club Meeting at Norton Social Club. 8pm

StARS Meetings: Please note that the meeting venues are shown on the cover page of Starlite.

Notes from a recent Committee meeting:

- 1. Where to hold the President's dinner has not yet been decided. Three possible venues have been identified and will be researched.*
- 2. As main meetings are now held at Norton Community Centre, costing £20 per night, a proposal was put forward to increase members' annual subscription to cover the extra cost.*
- 3. Norton Community Centre has a grass area to the side, plus a separate room, we can put up an aerial and use the radios. The purchase of a Bantenna hf aerial was agreed. This can be quickly erected allowing the Club station to be on the air in short order.*

This month I have attached 2 extra files for you to read. I hope you find them of interest.

In this issue

*Spirally-Loaded Copper Tape and PVC Dipole W6NBC
Foundations Of Amateur Radio [2 editions] VK6FLAB
UK Bunkers On The Air
DXpeditions*

Spirally-Loaded Copper Tape and PVC Dipole

Easy to build, ultra-simple, continuously loaded shortened 2 Meter vertical dipole quickly made from PVC pipe and copper tape and only 40% as tall as a J-pole.

By John Portune W6NBC

Here is a remarkably simple, great starter antenna for a new ham. Figure 1. Yet it's one that offers experienced-ham performance. Also, it's stealthy – only 18 in. tall – less visible to neighbors and home-owners associations. It's also a good temporary base station antenna for net control at parades and bike-a-thons. Further, it would be a good radio club build-it-yourself project. Here you see its basic form. It may also be painted or enclosed.

Not many hardware-store Do-It-Yourself materials are more attractive to home-brew hams than PVC pipe and copper. This ultra-simple antenna is made from these only. It is the offspring of a fun rag chew at a recent ham radio breakfast. We joked over coffee and donuts, "What would be the simplest 2m antenna using only these ham favorites?" Enter the Spirally-Loaded Copper Tape and PVC Dipole.

This little gem is an 18 in. tall corkscrew of 1 in. adhesive-backed copper foil tape, wrapped spirally around a 3 ft. length of 1 $\frac{1}{4}$ in. PVC pipe. Voila,

Figure 1. Copper tape
helically-loaded 2m dipole

our coffee-klatch special. The tape is available at most hardware stores, used by gardeners to keep snails out of planters. I was tempted to call it the Snail-Tenna. How about corkscrew, candy cane or barber pole antenna instead? Equally suitable adhesive copper tape, used for RF shielding, is also available from several internet suppliers. Be sure to purchase it in a 1 in. width.

How Does it Work?

Most hams know about using a loading coil to shorten an antenna, such as for an HF mobile whip. Our "candy cane," instead uses "continuous" loading. The entire length is just a stretched-out loading coil, a helix of 1 in. x 1.5 mil copper. The wide tape has low Ohmic resistance, important in a small antenna. Aluminum tape can also be used, though you should select a slightly thicker gauge. Lastly, the 1 in. wide turns are separated by a further 1 in. to minimize skin effect loss, common in loading coils. The result is an antenna with better than 90% efficiency.

Performance

Figure 2 shows the EZNEC Pro-4 radiation patterns. Our barber pole antenna is vertically polarized and omni-directional toward the horizon, with a maximum gain of 1.64 dBi. The familiar much taller 5 ft. copper-pipe J-pole, for comparison, has essentially the same radiation pattern and only trivially half a dB more gain.

The small difference is due to the broader elevation radiation pattern of the short helix.

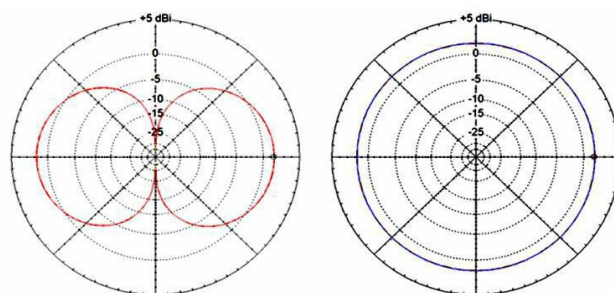


Figure 2: (red) elevation, (blue) azimuth, free-space radiation patterns.

SWR 146 250±2 000 kHz

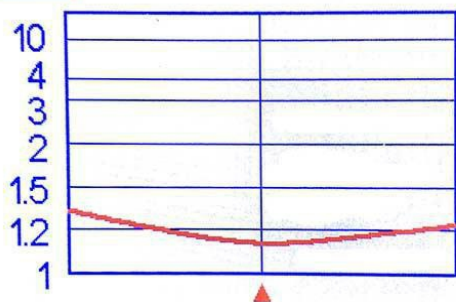


Figure 3

Figure 3 shows the SWR and bandwidth at 2 Meters, plotted with a Rig Expert A-1400. The wide copper tape contributes significantly to the bandwidth shown – excellent at less than 1.5:1 across the entire band.

Cost

I purchased a 45 ft. roll of 1 in. x 1.5 mill copper RF shielding tape from Amazon Prime for \$10.99. Only 5 ft. are needed, at an adjusted cost of \$1.22. The remaining tape is useful for other radio projects. A 10 ft. length of 1 $\frac{1}{4}$ in. PVC pipe is roughly \$20. Some stores sell shorter lengths. This antenna requires 3 ft., at an adjusted cost of \$6.00. 6 ft. of RG-58 on the internet is priced at roughly \$1.20 at \$0.20 a foot. Mini-8 comes in a \$1.50 at \$0.25 a foot. A PL-239 connector is roughly \$2-4. So not considering the useable remaining materials, this antenna has a modest price tag of circa \$10.

Construction

Begin with a 36 in. length of 1 $\frac{1}{4}$ in. Schedule 40 PVC pipe. Schedule 80 and ABS DWV pipe are okay too. The top 20 in. are for the helix, the space at the bottom is for mounting. Alternately, a unique possibility is to seamlessly integrate the antenna with its mast for no visible mounting brackets. CC&R-restricted hams may find this option useful.

Adhesive-backed materials are difficult to position accurately, therefore you will need to make up a temporary guide strip for drawing an accurate guideline on the PVC pipe/mast. This can either be a 54 x 2 in. strip of card-stock or flexible plastic material. If necessary, align and tape together shorter strips. I cut mine carefully to 2 in. on a paper cutter, from the front covers of heavy 8 $\frac{1}{2}$ x 11 in. plastic report folders cut.

Marking the Guideline

Initially, tightly wrap a single turn around the PVC pipe at the lengthwise center of the guide strip, likewise at the lengthwise center of where the helix will be on the pipe. Butt the strip edges of the together and temporally secure this single turn with household tape. Then complete the wrap being careful to keep the edges butted together. [A little rap music, Maestro, if you please.] Secure the entire wrap with tape.

Next draw the guideline along the edge of the strip with a Sharpie permanent marker, unwrapping one end a little at a time. See Figure 4.



Figure 4: Drawing the guideline for accurately applying the copper tape

Now using the guideline marked on the PVC pipe, carefully adhere 54 in. of copper tape along the guideline. Begin 1 in. from the top, progressively folding back the paper backing that protects the copper tape's adhesive only in short lengths as you proceed.

Feedpoint and Feedline Pigtail



Figure 5: Feedpoint detail

Next, remove 1 in. of foil at the lengthwise center of the helix and then drill a $\frac{3}{4}$ in. hole through the PVC pipe in the gap, Figure 5. The feed coax runs coaxially up through the PVC pipe from the bottom and exits at this hole to connect to the helix.

Next prepare a 6 ft. RG-58 or Mini-8 coax feedline pigtail. Separate the center conductor and shield wires into two individual conductors, Figure 6. Weatherproof the ends with heat-shrink tubing.

Add #6 ring terminals for the feedpoint screws, leaving roughly $\frac{1}{2}$ in. of the conductors exposed to facilitate a sharp bend at the feedpoint. Drill and tap the PVC pipe, through the helix ends, for 6-32 x $\frac{3}{8}$ in. stainless screws and flat washers.

Stainless sheet metal screws may also be used.

It is advisable to use heavier coax for the downstream run from the pigtail to the shack: RG-8, RG-213 or LMR-400. At VHF, the loss in small diameter coax is not trivial.



Figure 6: Coax pigtail ends.

Feedline Spacer

We also need to keep the coax centered inside the helix and PVC pipe to prevent it from adversely affecting the antenna. Plastic foam is suitable as a spacer. A better choice is 12 in. of $\frac{3}{4}$ in. PVC pipe with end caps and centered end holes for the coax. Use end caps that will fit and hold tightly the spacer snugly inside the main pipe. Some caps may require a little filing or a drop of PVC glue. Push the spacer snugly right up to the feedpoint. It is just visible at the bottom of the hole in Figure 5.

CAUTION: Be sure to connect the shield wire to the bottom helix turns and the centre conductor to the top turns. If these connections are reversed, tuning will be difficult.

Balun

The antenna needs a 1:1 current choke balun just below the helix. You may use a stack of VHF-mix ferrite beads on the pigtail inside the PVC mast or an external six turn 1 in. ring of bundled coax secured with zip ties. You may alternately drill holes in the PVC pipe for the coax to exit and wrap four times around the PVC pipe for the balun.

Tune and Match

My antenna tuned up at 146 MHz with a good SWR, trimmed to $3\frac{1}{2}$ helix turns on top and $4\frac{1}{2}$ below the feedpoint. The reason for a non-centered feedpoint is this. A shortened dipole has a natural center feedpoint impedance of less than 50 Ohms. A 1:1 match will be found slightly off center on either side.

Tuning will vary with operating conditions. To allow for initial adjustment, the 54 in. length of the copper tape above is intentionally too long. The initial frequency will be low. One merely

removes small amounts until the desired frequency and SWR are achieved. The number of turns on top compared to the number at bottom adjusts the SWR. The total length adjusts the frequency. Consequently, remove (or add) foil only at the top to adjust the SWR. Add or remove similar amounts simultaneously at both ends to change the frequency.

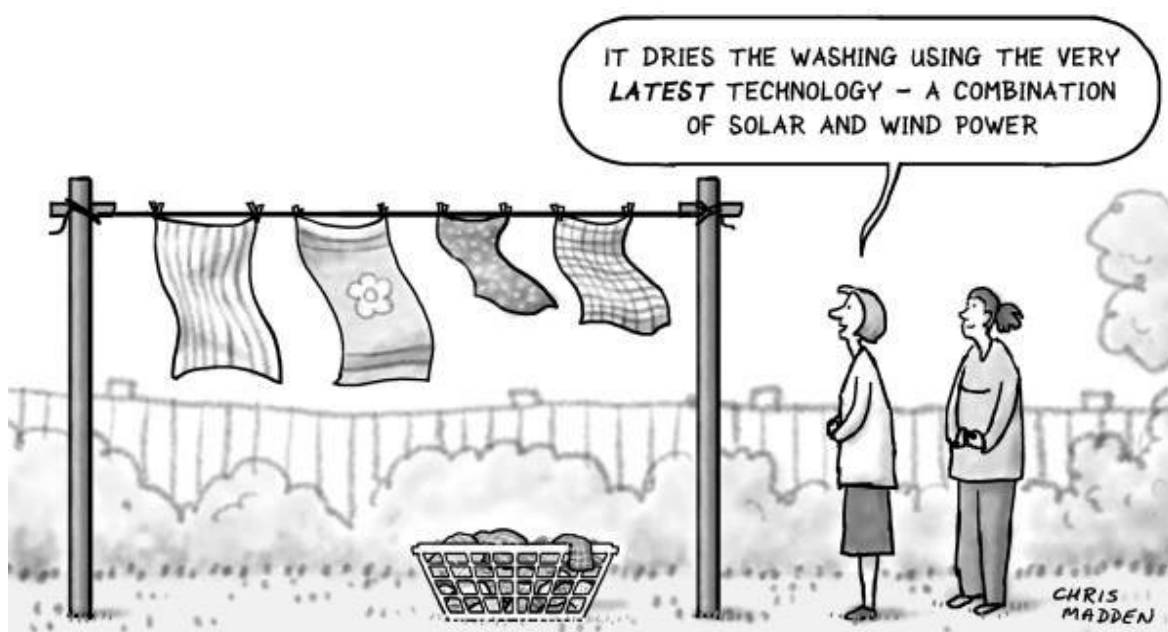
Rule of thumb for all antennas: adjust the SWR first and then the frequency. Once low, the SWR will change little when you next adjust the frequency.

Begin the tune-up of your helix by removing copper tape until there are $3\frac{1}{2}$ turns at the top and $4\frac{1}{2}$ at the bottom. From experience, this ratio puts the initial SWR in the ballpark. From there, fine tune for the best SWR. If you remove too much foil just add back a short piece, overlapping the ends by 1 in. the capacitive coupling of the overlap prevents the tape adhesive from interfering.

Final Issues

Cut off excess PVC pipe at the top and install a cap to keep out the weather. If you wish, you may either paint the antenna or leave it as it is. Painted white it will be less noticeable, however, unless you wish to set up shop as a barber (hi, hi). If left exposed, Figure 1, the copper will darken with time, but will not diminish tuning or performance. Alternately, you can enclose the antenna in a radome of 2 in. PVC. If left exposed, at least the feedpoint should be weatherproofed with self-curing plastic tape, heat-shrink tubing or RTV clear silicone sealant.

This little candy cane or barber pole antenna is an excellent choice for a new ham's first-time DIY antenna project or for a radio club group build-it-yourself session. Despite its simplicity and small size, it is a good performer and moderately stealthy.



Foundations of Amateur Radio

New arrangements for Australian Amateur Radio

From the 19th of February 2024, the ACMA, the Australian Communications and Media Authority, the regulator, is modifying the rules for amateur radio in Australia by moving to an amateur class license where all amateurs will operate under the same license instead of under an individual one.

You must be qualified to operate under the new class license and all currently licensed radio amateurs should now have been issued with a recognition certificate for their current qualification level.

Keep this certificate safe, it authorises you to operate as an amateur and shows which callsigns you currently hold. I've just received a revision that now correctly identifies my callsign VK6FLAB as a four-letter callsign, rather than three-letters which caused concern over the longevity of my call.

There's no annual charge to operate as an amateur, no charge to keep a callsign, and no charge to do an exam, however, if you operate a repeater or beacon, you'll continue to require a transmitter license. There are once-off charges for applications to consider and issue recognition certificates and callsigns but those are not new.

The document that legally defines amateur radio in Australia, colloquially the LCD, is replaced by the Radiocommunications (Amateur Stations) Class Licence 2023. The regulator carefully states that: "To operate an amateur station under the amateur class licence, you must comply with the conditions within it", but doesn't clarify if those conditions have changed or not. External commentary claims they haven't, but it was completely re-written and it's difficult to compare the precise actual wording side-by-side.

This has happened before, for example, when the regulator introduced the Limited license in 1954, the Novice license in 1975, abolished Morse in 2004, and introduced the Foundation, Standard and Advanced licenses in 2005. It was replaced again in 2015 and has been revised since, most recently on the 17th of November 2021.

I suspect lawyers will find potentially unintended but material differences between documents, but to my knowledge, that investigation has not yet occurred. I think this is a perfect example of where the peak bodies claiming to represent amateur radio in Australia have a responsibility.

There are many rules around the who, how and where to conduct a qualification exam. For example, the regulator has decided that online or residential exams are not permitted, leaving venues, printed exams and postal delivery as an ongoing cost and concern.

There are plenty of questions left.

An amateur at Advanced level can hold a club station callsign but it appears that at a Foundation or Standard level you can no longer hold a club station license like VK6BSG and VK7HSD. You still need to log usage of a remote club station. Describing the requirements the regulator uses both "revise their arrangements" and "current arrangements will be retained" in the same paragraph, apparently contradicting itself.

The regulator will ask you every five years if you want to keep your callsign. This infers a system to contact you. What does that look like, how will it be maintained, are there requirements for keeping it current, does it need to have the location of your station, an email address, or just any means of contacting you, and is it public? The official register of

radio communication licenses will no longer hold amateur licenses so it's unclear how you'll be able to contact another amateur, or how we'll be able to know who holds which callsigns at what level in which location and when a reminder is due. The details around the new callsign register are incomplete to say the least.

What does breaking the rules look like? With individual amateur licenses your ability to operate is directly linked to you and if found in breach, your license can be cancelled. Under a class license, your ability to operate hinges on knowledge that cannot be taken away.

The regulator publishes the relationship between some international amateur licenses and qualification levels in Australia and as an international visitor you can apparently operate in Australia for 365 days if your current license is recognised. After that, unless you hold a Harmonised Amateur Radio Examination Certificate or HAREC, you need to apply for a recognition certificate after either paying for recognised prior learning or passing an exam, even though you were already automatically recognised as having the appropriate qualifications when you entered the country. Does the list of recognised licenses get longer as more international amateurs pay for prior learning and if you leave the country and return, will the clock reset?

There's more. For example, the date that you got your US Technician license determines your recognition. Before 23 September 2016 you're recognised at an Australian Advanced level, after that at a Foundation level.

And finally, if I were an accredited unpaid volunteer assessor, authorised to administer an amateur exam on behalf of the regulator, would I be permitted to comment like I am here, or would I be expected to speak directly with the regulator about my concerns? What happens if speaking directly to the regulator breaks down? What's the penalty for speaking out? Is the regulator going to stop you from being an unpaid volunteer?

Before you ask why I didn't put these concerns to the regulator, I'll point out that it's not up to me to fix these issues, nor is it my place to make recommendations. I don't represent anyone and in my opinion this should be a community wide public conversation, not held in secret talks behind closed doors.

As an amateur outside Australia I'd recommend that you pay attention, because I'm sure that bean counters will be taking notes to see if there's money to be saved at your regulator.

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

Foundations of Amateur Radio

In the beginning there was chaos...

Over the weekend I learnt to my chagrin that my shack was not ready for the contest I decided to participate in for an hour. Truth be told, it was probably me who wasn't ready, but I'm going to blame my shack, since it can't argue and besides this is my story.

It started off with turning on the HF radio. That involved turning off my 10m WSPR beacon which is transmitting its little heart out 24 hours a day into the one vertical antenna it shares with my HF radio.

Turning off the beacon was simple enough, reach into the mass of cable and dig out the USB power lead that plugs into the beacon. Then follow the antenna coax to the correct switch. Whoops, that's the GPS coax, the other one, there's the switch, now switching it to the HF radio.

Why didn't the sound change, actually, come to think of it, what sound? Hmm, the audio is going into, nothing, actually, it's going into the audio mixer that's turned off. Turn that on. Then audio at last, nope. Hmm, oh wait, the audio needs to go from the HF radio, not the VHF radio that's configured to do some audio spectrum recording. Turn off the Raspberry Pi at the same time, since there's no more audio going into that and who needs more potential noise? Locate the two audio plugs that go into the radio audio adaptor, disconnect the Pi audio, connect the radio audio, now, which one is the microphone?

Now I've got it all plugged in, still no audio. Hmm, two of the mixer channels are muted. Turn on one, radio goes into TX, that's not good. Turn it off, radio stops transmitting, sigh of relief. Turn on the other channel, finally hear some squeaky sounds. Ahha, it's coming from the headset.

Don the headset, now I've got glorious mono in my brain. Test the microphone, nothing. Hmm, ah the switch on the microphone lead. Now I've got RX and TX going. Yay, victory!

Now turn on the computer so I can do some logging. Fire up my trusty, wait, which tool? The one I normally use for casual contesting hasn't seen a new version since the author became a silent key, no idea if the rules for this contest are still current, fire up the next one, that needs a brand new configuration file, but that means reading the manual and I've got more important things to do.

Try another one, Yes, that's got the rules ready to go. No idea if the rules are current, but at least there's no configuration file to contend with.

At this point I'm two hours into my one hour contesting window and I have to stop. Haven't even tuned the antenna and I'm already out of time.

Hmm, this shack is rigged.

Wonder who I should blame for that?

Some days all good intentions come together. Other days they don't. There's always the next contest.

Lessons learnt, my shack needs a serious rethink on how best to set it up so I can operate daily, experiment and accommodate a casual contest. Looks like I'm off to the hardware store for some brackets and my documentation clearly needs updating, actually, truthfully, needs writing.

I'm Onno VK6FLAB



The banner features a blue sky background with white clouds. In the top left is a circular logo for 'BUNKERS ON THE AIR' with a Bitcoin symbol and 'UNITED KINGDOM'. In the top right is a diamond-shaped logo for 'R S G B'. The main title 'UKBOTA' is in large, bold, orange letters with a black outline. Below it, the text 'INTERESTED IN HISTORY, RADIO, PORTABLE OPS? SOMETHING NEW FOR 2024?' is in green, italicized, bold letters. Further down, 'THEN JOIN THE FASTEST GROWING AWARDS SCHEME IN AMATEUR RADIO!' is in white, italicized, bold letters. At the bottom, there is a green field with a wooden fence. On the left, a Facebook 'like' icon is next to 'BUNKERSONTHEAIR' and 'WWW.BUNKERSONTHEAIR.ORG'. On the right, the text 'OPEN TO ALL RADIO AMATEURS AND SHORTWAVE LISTENERS WORLDWIDE' is in white, italicized, bold letters.

UNITED KINGDOM BUNKERS ON THE AIR
UKBOTA
INTERESTED IN HISTORY, RADIO, PORTABLE OPS?
SOMETHING NEW FOR 2024?
THEN JOIN THE FASTEST GROWING AWARDS SCHEME
IN AMATEUR RADIO!
BUNKERSONTHEAIR
WWW.BUNKERSONTHEAIR.ORG
OPEN TO ALL RADIO AMATEURS AND
SHORTWAVE LISTENERS WORLDWIDE

There is a good article about UKBOTA, by Carl Ratcliffe M0ICR, in the January 2024 issue of RadCom.

Dxpeditons

YJ0AA YJ0MN Efate Island, Vanuatu

JH3QFL and JH3VAA will be active as YJ0AA and YJ0MN from Efate Island, Vanuatu, 4 - 11 February 2024.

They will operate on HF and Green Cube Satellite.

QSL via JH3QFL direct, LOTW.

Address for direct QSL: Takio Hata, 921-25 Rokujio Yasu, Shiga, 520-2412, Japan.

P44W Aruba

John, W2GD will be active from Santa Cruz, Aruba Island, IOTA SA -036, in ARRL DX CW Contest, 17 - 18 February 2024.

He will operate in Single Operator All Band Category.

Before the contest, John will operate some CW on all bands as time permits, with emphasis on the WARC bands.

QSL via LoTW and N2MM.

Address for direct QSL: Carol Richards, 22 MILL RD, SHAMONG, NJ 08088, USA.

H40WA Temotu Province

H40WA Team will be active from Temotu Province, IOTA OC - 065, Solomon Islands, 22 February - 7 March 2024.

Team - N7QT, N6PSE, VE7NY, OE1JUN/JH4RHF, DJ9RR, HA0NAR, W7XU, N6XG.

He will operate on 160 - 10m, CW, SSB, FT8.

QSL via M0URX, LOTW, OQRS.

DXCC Country - Temotu Province, H40.

QTH Locator – RH29vg.

3B8/OK6DJ Mauritius Island

David, OK6DJ will be active as 3B8/OK6DJ from Mauritius Island, IOTA AF - 049, 20 - 27 February 2024.

He will operate on 40 - 10m, mainly CW with some FT8.

QSL via home call, LOTW, ClubLog OQRS.

7O2WX Socotra Island Yemen

Vladimir, OK2WX will be active as 7O2WX from Socotra Island, IOTA AF - 028, Yemen, 25 January - 12 February 2024.

He will operate on HF Bands with focus on 160, 80 and 40m, including activity in CQ WW 160m Contest.

Working condx - ELECRAFT K4X ICOM 7300, PA Expert 1K3, Monoband Verticals 160, 80, 40, Spiderbeam 5 Band.

QSL via IZ8CCW.

Address for direct QSL: Antonio Cannataro, Via Don Minzoni 18, 87040, Marano Marchesato - CS, Italy.

CB0ZA Robinson Crusoe Island

CB0ZA will be active from Robinson Crusoe Island, IOTA SA - 005, Juan Fernandez Archipelago, Chile, 13 - 20 February 2024.

They will operate on 160 - 2m, CW, SSB, RTTY, FT8, and EME on 6 and 2m.

QSL via HA1AG.

FW8GC TX8GC Wallis Island

FW8GC, TX8GC Team will be active from Wallis Island, IOTA OC - 054, Wallis and Futuna, 19 February - 9 March 2024.

Team - LZ1GC, LZ5QZ.

They will operate on 160 - 10m, CW, SSB, RTTY, FT8, FT4.

QSL via LZ1GC, LOTW, ClubLog OQRS.

ZD7W Saint Helena Island

Oliver, W6NV will be active as ZD7W from Saint Helena Island, IOTA AF-022, in ARRL DX CW Contest, 17 - 18 February 2024.

He will operate in SOAB Category.

QSL via W6NV.

Address for direct QSL: Oliver Sweningsen, III, W6NV, PO BOX 90, Orinda, CA 94563, USA.

DXCC Country - St Helena Island.

WAZ Zone - CQ 36.

ITU Zone – 66.

QTH Locator - IH74.

V26CV Antigua Island

Chuck, KG9N will be active as V26CV from Antigua Island, IOTA NA - 100, 6 - 20 February 2024.

He will operate on HF Bands.

QSL via home call, LOTW.

ZF9CW Cayman Brac Island

Stan, K5GO will be active as ZF9CW from Cayman Brac Island, IOTA NA - 016, Cayman Islands, until 20 February 2024.

He will operate on HF Bands.

QSL via home call direct.

Address for direct QSL: Stan H Stockton, PO Box 73, Siloam Springs, AR 72761, USA.

YOUR COMMITTEE



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