

ISSN 3021-5641

NEW ZEALAND & AUSTRALIAN AMATEUR RADIO



VOL. 14 AUGUST 2026

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NEW ZEALAND & AUSTRALIAN AMATEUR RADIO MAGAZINE

E25CRF / E2X, IOTA AS-125
DX-World

NEW ZEALAND & AUSTRALIAN AMATEUR RADIO MAGAZINE

A FREE MAGAZINE PUBLISHED BY THE HAM SHACK
AMBRIG LIMITED T/A THE HAM SHACK

Email:
ZL1GUD@proton.me

THANK YOU TO ALL THE AMAZING CONTRIBUTORS.

New Zealand & Australian Amateur Radio Magazine is now being sent to every amateur radio club in New Zealand and Australia ... and it's all for FREE

Our aim is to bring you inspiring stories and news of exciting activations and give you ideas to fuel your amateur radio dreams, whether it is a project, review or DX-Pedition.

New Zealand Amateur Radio magazine is free and includes Product News, International Amateur Radio News, DIY projects, Interviews, POTA and SOTA news and DX Pedition news. Club news is for the clubs and will not be included in the magazine.

If you want to be featured or have a project that you want to feature then email me the details and we will include it.

Greg
ZL1GUD

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All band field day

with great prizes

31st October 2026

**New hams with restricted licences
welcome.**

- **VHF, UHF & HF**
- **Multipliers for 3 bands and more**
- **Multipliers for DX stations**
- **You must be a field station**
- **You MUST send a photo of your field day station (no pic no entry)**
- **Rules will be available nearer the time.**

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**THE HAM
SHACK**





Sunset Lightning Ridge NSW

From the Editor

From the Editor is always an interesting concept. This last month, I've spent almost a month in Australia doing activations, going to club meetings and meeting some really amazing people. It was probably one of the greatest trips I've done, and I've been there a lot, this was my 11th or 12th trip, and I will be back.

Thanks for the friendly QSO's on 7.144 Mhz and the hospitality at the clubs.

The other interesting thing was that I've travelled extensively with my radio, and I've never had a problem. This time, I got interrogated for 45 minutes by armed police at Sydney Airport, asking if I was carrying detonators. I had declared the radio before I'd put it through the X-ray machine, and these guys went absolutely nuts. It's the first time it's ever happened. My gear normally just gets pulled aside, and they ask to look at it, and there we go. This time, it was a full-on interrogation with two policemen and about 11 security, so it was a bit nuts. Definitely, I'll take it out of the bag (against their recommendation) next time, but crazy, crazy.

We've got some events coming up. In October, we've got the all-band field day, which will be fun. In November, we've got something which is really exciting, and that is a competition for NZ locals and VK's to contact as many New Zealand towns as possible over four weekends in November. I have bounced the idea off a few ZLs and they think it will be great.

Let's see how it goes, and

73 Greg — Editor



Pilliga Forest



Pilliga Forest



Gilgandra



TRAVELLING WITH A RADIO

I've travelled for many, many years, and I've never, ever had any issues with the X-ray machines and security. Travelling with a radio often means that your bag gets diverted, and they open it and check it in front of you. That's never been a problem. On my recent flight to Australia, no problem. When I left Australia, I got to the X-ray machine. I started taking the radio out of the bag, and the guy who was putting the bags onto the conveyor said to me, "It was unnecessary, and it wasn't a problem." I said to him, "I've got a radio in my bag," and he still said to me, "I used to be VK2," and he couldn't remember the suffix which was strange. Anyway, it goes through, and I walk straight to the spot where they go through your bags. My bag never came, and it went into an area surrounded by security glass.

I asked the security, there must have been about 11 of them, what was going on, and they said, "We can't talk to you." Eventually, a young security guy from Tonga said to me, "We're waiting for the police." I said, "For what?" They said, "Well, we need to check your bag." I said, "It's got a radio in it." I told the guy when I put it on the conveyor. I said get it and I will show you. He said, "No, you've got to wait for the police." It took about half an hour for them to get there.

They arrive, and they take my passport, and they then call some control room. They check my passport and check that I'm not on a watch list. I wait and wait and wait.

I said, "Look, why don't you just let me open the bag and show you it's a radio? This is getting ridiculous." Eventually, they get the bag. I open the bag and show them it's a radio. The two armed cops say to me, "Well, we didn't know ham radio was a thing anymore. We thought that it died out long ago." These two cops were about 34 or 35. They go through my bag. I tell them that I've got cameras, cables, a hard drive and my PMR171 HF manpack radio." No problem. Have a great day.

That took 45 minutes, and this is an abbreviated version. I told them what it is, I had the radio docs, my license and the airline battery regulations.

Who knows if I'm on a watch list for my next trip, but it's got to the point where I'll probably just leave the radio in Australia at my daughter's place and just avoid all the unnecessary nonsense, because that's really what it is.

Anyway, we'll see what happens. I just thought I'd let you all know it's not quite as much of a walk in the park as you think.

Best 73's

Greg
Editor
ZL1GUD

We are proud to support the..

Remembrance Day contest

Aug 15th and 16th 2026

The annual Remembrance Day Contest—a meaningful on-air event that commemorates amateur radio operators who served and fell during WWII.



REMEMBRANCE DAY CONTEST IS COMING UP ON THE 15TH AND 16TH OF AUGUST

“The Remembrance Day contest commemorates the Amateurs who died during World War II and is designed to encourage friendly participation and help improve the operating skills of participants. It is held on the weekend closest to the 15th August, the date on which hostilities ceased in the southwest Pacific area.”

This year the contest is on the 15th and 16th of August between 0300z Saturday and 0300z Sunday.

Categories include Single Op, Single Op QRP, Multi-1 and Multi-Multi using Phone, CW/RTTY, or Mixed modes.

Valid QSO's include working VK, ZL and P2.

Exchange a signal report and the number of years licenced as a ham.

Submit logs to vklogchecker.com

For more information see <https://www.wia.org.au/members/contests/rdcontest/>

73's

Alan

Alan Shannon VK4SN

A contest with purpose

The Remembrance Day (RD) Contest is more than just a weekend of callsigns and contacts. It was first introduced in 1948 by the Wireless Institute of Australia (WIA) as a way to commemorate amateur radio operators who lost their lives during World War II.

The timing is symbolic—it takes place on the weekend closest to August 15, the date on which hostilities ceased in the Southwest Pacific in 1945. Each year, the contest brings the amateur radio community together to remember, reflect, and enjoy a spirit of friendly on-air competition.



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Antennas & Accessories



Electronics & Components



Club Displays & Demonstrations



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EVENT DETAILS



DATE: 30TH AUGUST 2026
SUNDAY



TIME: 9:00AM – 12:00PM



VENUE: CYRIL JACKSON
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53 Reid Street,
Bassendean WA 6054



ENTRY: \$7.00 ENTRY FEE
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\$2,000 voucher or store credit
to spend at your choice of:



The voucher may select their preferred supplier at
the time the prize is claimed, subject to the
supplier's branded terms and product availability.

RAFFLE TICKETS & INFO: <https://rafflelink.com.au/hamfest-raffle-2026>



2nd PRIZE – VALUED AT \$925

ICOM ID-52A PLUS

VHF/UHF Digital Handheld Transceiver

- 0.61inch Colour & Full Dot Matrix
- Bluetooth® Connectivity
- GPS Positioning
- Colour Display
- IP67 Waterproof

Includes various supplied
accessories from the manufacturer.
No prizeable alternatives are.



3rd PRIZE – VALUED AT \$360

ICOM IC-T10

VHF/UHF Dual Band FM
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- SW RF Output
- VHF 136–174MHz recv/d
- UHF 400–520MHz recv/d
- FM Broadcast Receiver
- Up to 11 Hours Operating Time

Includes various supplied accessories
from the manufacturer.
No available alternatives are.

For product: icomjapan.com.au/products/IC-T10/



4th PRIZE – VALUED AT \$150

\$150 COMTEK RADIO VOUCHER

Redeemable through
Comtek Radio Communications Australian
The voucher may be used towards the future purchase of
amateur radio equipment and accessories.



RAFFLE TICKETS & INFO

VISIT: <https://rafflelink.com.au/hamfest-raffle-2026>



Reverse Beacon Network

The propagation tool you are probably not using

By Don Short, ZL1DRS | Waikato, New Zealand

WSPR tells you where your signal is detectable. RBN tells you where your signal is likely to be workable.

Ask a group of radio amateurs how they check propagation and the answer is often the same: WSPR.

Over the last decade, WSPR has become one of the most successful amateur radio tools ever developed. It allows operators to see where their signals are being received, compare antennas, study propagation, and experiment with low-power operation.

But there is another tool that many operators overlook: the Reverse Beacon Network, usually known as RBN.

While WSPR is excellent for studying propagation, I have increasingly found myself using RBN when I want to answer a more practical operating question:

Where am I likely to make contacts with the station I am running right now?

For many operators, RBN can provide answers faster and in a way that is more directly related to actual on-air operating.

What Is the Reverse Beacon Network?

The Reverse Beacon Network is a worldwide network of automated receiving stations known as skimmers. These stations listen across the amateur bands, decode CW signals, and upload reception reports to a central database.

A typical RBN report may show your callsign, frequency, time, signal-to-noise ratio, receiving skimmer station, and CW speed.

The important point is that you do not need to transmit a special digital mode. RBN uses ordinary CW signals as the beacon. Instead of a dedicated beacon transmitting a signal, the network consists of stations listening to the bands and reporting what they hear, when they hear it, and how well.

Think of RBN as a worldwide network of listeners reporting how well your normal CW signal is being received.



What Is WSPR?

WSPR stands for Weak Signal Propagation Reporter. It is a specialised digital mode designed to test radio propagation paths, often using very low power. The transmitted message normally contains the operator's callsign, grid locator, and power level.

WSPR is extremely efficient. It uses a very narrow signal and strong decoding techniques, allowing receiving stations to detect signals that are well below the noise floor. Signals around -27 to -28 dB can often be decoded successfully.

Think of WSPR as a worldwide network designed to discover where extremely weak signals can be detected. That makes it a brilliant propagation research tool.



Why WSPR Works So Well

One reason WSPR is so successful is timing. WSPR transmissions start at precisely defined times. Receiving stations know exactly when to listen, what type of signal they are looking for, and where in the passband to look.

That timing discipline is a big part of WSPR's power. Everyone transmits the same type of signal, transmissions occur at known times, the signal occupies only a very narrow bandwidth, and sophisticated decoding can pull weak signals out of the noise.

In simple terms: WSPR knows when to listen. This is one of the reasons it has become such a powerful propagation-monitoring system.

RBN Takes a Different Approach

RBN works differently. It does not wait for precisely timed digital transmissions. Instead, skimmer stations continuously monitor the bands and look for CW signals. When they decode a callsign, they upload a report.

So while WSPR knows when to listen, RBN is effectively listening all the time. That makes RBN very useful when you want to know what is happening on the band right now.

WSPR asks: Can this very weak signal be detected? RBN asks: Can this real communication signal be copied? Both questions are useful, but they are not the same.

You Do Not Need to Know Morse Code

One of the common objections to RBN is: That is fine, but I do not know CW. The good news is that you do not need to be a CW operator to use RBN as a station testing tool.

Many modern HF transceivers include built-in CW memories. Radios from Icom, Yaesu, Kenwood, Elecraft, and others allow operators to store a short CW message and send it automatically with the push of a button.

For example, you could use: CQ CQ DE ZL1DRS ZL1DRS K. Or, if you do not want to call CQ when you are only testing, you could use: TEST DE ZL1DRS ZL1DRS.

According to RBN guidance, the skimmer software looks for keywords such as CQ, TEST, or QRZ, together with a valid callsign that it can confidently identify. Depending on the callsign pattern, it may need to see the callsign more than once before generating a spot.

The important point is that the skimmers are not interested in having a conversation. They are listening for a recognised calling keyword and a valid callsign, then reporting what they hear. The radio sends the CW, the skimmers decode it, and the RBN website displays the results.

Where Do I See the Results?

RBN results can be viewed at <https://www.reversebeacon.net>. From there you can search for your callsign, view recent spots, display reports from individual skimmers, see maps showing where your signal was heard, and review historical data and trends.

WSPR reports can be viewed at <https://www.wsprnet.org>. WSPRnet allows operators to search for callsigns, view propagation maps, analyse paths, compare antennas, and review historical reports and longer-term trends. A simple RBN transmission can often produce results within seconds, while WSPR provides a rich dataset for longer-term analysis.

A Simple Analogy

An easy way to understand the difference between WSPR and RBN is to imagine testing how far your voice can be heard.

WSPR is like whispering into a very sensitive worldwide listening system. It may detect your whisper even when it is far too weak for a normal conversation.

RBN is like speaking normally and having listeners report where they could copy what you said.

Both are valuable, but they answer different questions. WSPR tells you that your signal was detectable. RBN tells you that your signal was copied. That distinction matters.

RBN vs WSPR at a Glance

Feature	Reverse Beacon Network (RBN)	WSPR
Primary purpose	Assess real-world operating performance	Study propagation and weak-signal paths
Signal type	CW	Dedicated digital mode
Requires Morse knowledge	No - memory keyers can be used	No
Special software required	No, if your radio can send CW memories	Yes - WSPR/WSJT-X or compatible setup
Typical time to results	Seconds	Usually 2-minute transmission cycles
Measures	How well your normal CW signal is being copied	Whether your very weak digital signal is detectable
Best question answered	Where am I likely to make contacts?	Where can my signal be detected?
Antenna comparison	Excellent for quick real-world checks	Excellent for longer-term data collection
Propagation research	Good	Excellent
Real-time operating decisions	Excellent	Limited
Typical use	Band checks, station testing, antenna evaluation, contesting	Propagation studies, QRP, beaconing, antenna experiments

If WSPR answers "Can I be heard?", RBN answers "Who is likely to hear me right now?"

Detectable Is Not Always Workable

One of the risks with WSPR is that it can make us overly optimistic. Because WSPR can decode extremely weak signals, a spot from another country does not always mean that a normal two-way contact would be practical. It may simply mean that a highly specialised weak-signal decoder was able to extract the signal from the noise.

That is not a criticism of WSPR. It is exactly what WSPR was designed to do. But when I am operating, I often want to know something different.

I am less interested in: Could a specialised decoder detect me? I am more interested in: Where am I likely to make contacts with the power and antenna I am using right now?

That is where RBN becomes especially useful.

Where RBN Really Shines

RBN reports are based on your actual transmitted CW signal using your real station configuration at that moment. That includes your current power output, actual antenna, feedline, operating frequency, current propagation conditions, and a signal mode used for real contacts.

If I press a memory button and send a short CQ or TEST message on 20 metres, and RBN reports me in Japan, Hawaii, California, and Australia, that gives me a very practical indication of where my signal is going.

It does not guarantee a contact, of course. But it does tell me something very useful: stations in those parts of the world are likely to have a chance of hearing me with the power I am running right now.

Understanding Signal Reports

Both RBN and WSPR provide signal reports, but they are measuring different things and the numbers should not be interpreted in exactly the same way. The most important thing is to look for trends and comparisons rather than individual reports.

Understanding RBN Signal Reports

Each skimmer reports how strong your signal was compared with its local noise level. As a rough guide:

RBN SNR	Typical interpretation
Less than 0 dB	Weak but still being copied
0 to 10 dB	Usable signal
10 to 20 dB	Strong signal
20 to 30 dB	Very strong signal
Above 30 dB	Exceptional signal into that location

Comparing RBN Results

Difference	Practical meaning
1-2 dB	Probably insignificant on one report
3 dB	Small but noticeable improvement
6 dB	Significant improvement - often treated as about one S-unit
10 dB	Major improvement
20 dB	Dramatic improvement

For example, if a Delta Loop consistently shows signals 6 to 10 dB stronger than an EFHW into the same region, that is meaningful. One report can be propagation. A consistent pattern across several skimmers is much more useful.

Understanding WSPR Signal Reports

WSPR reports are often negative because the mode is designed to decode signals far below the noise floor. Many operators are surprised to see reports at -20 dB or lower, but in WSPR that can be completely normal.

WSPR SNR	Typical interpretation
-30 to -25 dB	Extremely weak but potentially decodable
-25 to -20 dB	Very weak
-20 to -10 dB	Typical WSPR signal levels
-10 to 0 dB	Strong WSPR signal
Above 0 dB	Very strong WSPR signal

With WSPR, the power comes from collecting many reports over time. A 3 or 4 dB improvement across hundreds of reports can be meaningful, even if any single report is not conclusive.

Antenna Testing Made Easy

One of the most useful applications of RBN is antenna comparison. Suppose you want to compare an EFHW and a dipole, a vertical and a delta loop, a new antenna height, a different feedline arrangement, or a tuner or matching change. A simple RBN test could look like this: set the radio to a clear frequency, send the same pre-programmed CW memory message, record the reports, change to the second antenna, repeat at the same power, and compare reports from similar skimmer locations.

This is not laboratory-grade testing because propagation can change. However, it is very useful real-world information. If one antenna is consistently stronger into the same region or is heard by more skimmers, that tells you something practical.

WSPR is also excellent for antenna testing, particularly over longer periods. If you can collect many reports across several hours or days, WSPR can show consistent patterns that are harder to see from a quick on-air test.

RBN Can Tell You Where You Are Likely to Get

For me, this is the strongest argument for RBN. It can help answer: where am I likely to get with the station I am running right now?

If you are running 10 watts, RBN reports are based on your 10 watts. If you are using a compromise antenna, RBN reports are based on that antenna. If the band is open only in one direction, RBN will often show that very quickly.

This makes RBN a practical operating tool, not just a propagation display.

What About Network Size?

WSPR generally has the larger receiving network. Thousands of receiving stations contribute reports to WSPRnet, while RBN has fewer receiving stations and coverage depends on volunteer skimmer operators around the world.

But the better question is not which network has more receivers. The better question is: what am I trying to find out? If I want to study weak-signal propagation, WSPR is hard to beat. If I want to know where my operating signal is being copied right now, RBN may be the more useful tool.

Use Both

This should not be a debate about which system is better. The answer is not RBN or WSPR. The answer is RBN and WSPR.

I use WSPR when I want to study propagation over time, experiment with very low power, compare antenna performance, or observe weak-signal paths.

I use RBN when I want to check whether a band is open now, see where my current station is being heard, compare antennas quickly, assess whether a station change helped, or work out where I am likely to make contacts.

They are complementary tools. WSPR is excellent for propagation research. RBN is excellent for operational feedback.

Final Thoughts

WSPR tells me where my signal is detectable. RBN tells me where my signal is likely to be workable. WSPR studies propagation. RBN helps me operate.

Most importantly, RBN does not require you to be a CW operator. If your radio has a CW memory function, you already have everything you need to use it.

Within seconds, RBN can provide a useful picture of where your signal is being heard and where you are likely to make contacts with the station, antenna, and power you are using right now.

For me, that makes the Reverse Beacon Network one of the most useful, and perhaps most underused, tools available to radio amateurs.

73,
Don Short, ZL1DRS
Waikato, New Zealand

References and Useful Links

Reverse Beacon Network main site: <https://www.reversebeacon.net>

RBN: How to get spotted by the RBN: <https://www.reversebeacon.net/pages/How+to+get+spotted+by+the+RBN+44>

WSPRnet main site: <https://www.wsprnet.org>

ARRL WSPR technical overview: <https://www.arrl.org/wspr>



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tassiehamconference@gmail.com for more information

PREPPING FOR A POTA ACTIVATION IN SOUTHERN CALIFORNIA

ex Kiwi Neil – K6KWI

Preparing for a So. Cal. POTA activation would seem like something that should be pretty universal for a reasonably experienced ham. Pack a radio, a battery, an antenna & something to log with, perhaps a pad & paper.... Right...?



Well no, operating portable in So. Cal. poses some interesting extra steps. Firstly know where you are going, distances & traffic conditions can make the drive to and from as “exciting” as the actual activation. It always seems to take much longer to get home than it did to get to the park.

Also, most CA state parks charge an entrance fee to drive into the park. This is usually about \$10, so it can add up quickly. If you are planning on working ultra portable you can walk in for free. But let's face it, who wants to do the 2 mile walk beyond the guards gate to the activation site ☹.

Thankfully, the state of California has a program where you can go to any public library and check out a state parks pass for most parks. You can keep the pass for a couple of weeks before returning it. But you can immediately check out another one. This is invaluable & has saved me hundreds of dollars.

Bring water! Most of So. Cal. is desert like, even some of the less urban beach areas are pretty dry & can get hot. Another interesting experience is some of the visitors you may get. Yesterday I had a coyote amble past my operating position. We agreed to ignore each other ☹. In the past I have seen rattle snakes, bob cats, wild cattle & tarantula spiders. Thankfully, no bears, scorpions or mountain lions.... Yet. Still, all a bit of a surprise for someone from Hokitika.



Now that 10 / 12 meters have mostly faded away, the go to bands are 15 meters but more likely 20 meters. 20 is pretty much always open & you can easily expect to work stations on the east coast or further away, DX is always a possibility. In my experience 40 meters for daytime POTA activations has been frustrating. I have had more luck on 40 when doing SOTA.

So for now I have switched from my trustee linked dipole to a chameleon 25' telescoping vertical that's adjusted to be resonant on 20m.

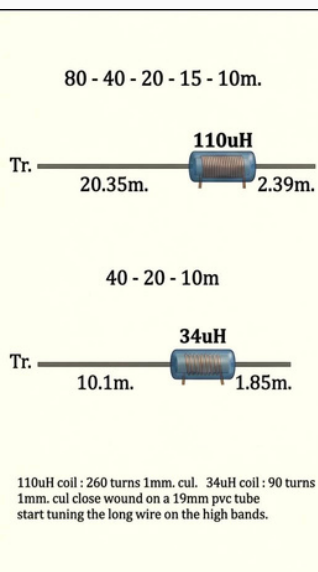
Along with my go to FT891.

I thought the preceding may give Kiwi & Aussie POTA activators a peek into what it's like to operate portable here. Of course for everyone who enjoys this segment of the hobby activating is a huge amount of fun regardless of where you are. I hope one day to get many of you in my log!



Best wishes & 73,

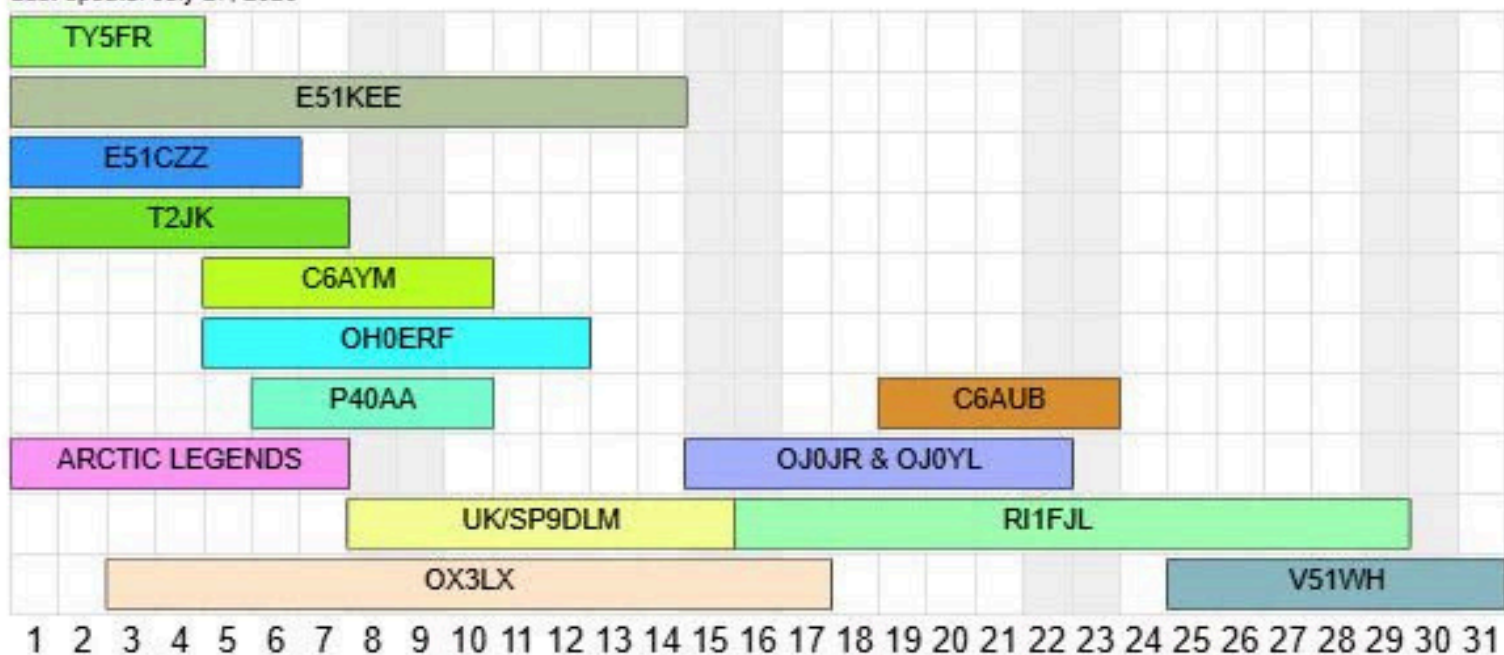
Neil – K6KWI





DX WORLD.net FEATURED DXPEDITIONS TIMELINE

Last update: July 27, 2026



Edited by MM0NDX

AUGUST

© IK8LOV Max Laconca

ON THE SCENE WITH 9A/OM6NM, EU-136 (IOTA CONTEST)



Courtesy of DXworld.net





ARCTIC LEGEND'S IOTA DXPEDITION



The Arctic Legends DXpedition team (RT9K) plan on activating the follow IOTA:

- Chaichiy Island, EU-160 (as RI1PC) during July 4-7.
- Vize Island, AS-055 (as RI0BW) during July 12-16.
- Ugedineniya Island, AS-057 (as RI0BU) during July 18-21.
- Isachenko Island, AS-050 (as RI0BI) during July 23-26.

The journey will last 31 days, travelling over 3500 nm covering four rare Arctic IOTA & RRA locations.

Team: UA9KDF, R3CN, RA8CV, UA6EX, UA1QV & R8KAM.

June 29th

The full expedition team is finally together — and we've been hard at work since early morning! Aboard the yacht "Apostol Andrey", final pre-departure preparations are in full swing:



July 9th

After a delay, the Arctic Legends IOTA DXpedition is ready to set sail on July 10th (approx 0900 Moscow time).

The team of "Russian Robinsons": Igor Znamensky UA9KDF (expedition leader), captain of the yacht "Apostol Andrey," Nikolay Litau, R3CN/mm, Andrey RA8CV, Evgeny UA6EX, Mikhail

UA1QV, Artyom UA9KAM, Vasili R7AA and cook Elena. Note that this is the fourth Marine Radio Expedition of the Arctic Legends team.

Route length is over 3500 nautical miles, taking in four rare islands under IOTA/RRA programs:

- RI1PC – Chaichiy Island (near Cape Mikulkin) – EU-160/RR-03-24.
- RI0BW – Vize Island – AS-055/RR-06-20.
- RI0BU – Uyedineniya Island – AS-057/RR-06-17.
- RI0BI – Isachenko Island (Sergeya Kirova Islands – AS-050/RR-06-18.

From the yacht – RT9K/MM. Also, as part of the Arctic's Legends 2026 expedition, the team will conduct a special activation and will air the anniversary call sign RT25AA from Russian Harbor on the west coast of Severny Island in the Novaya Zemlya archipelago, EU-035/RR-04-02). The call sign is dedicated to the 25th anniversary of the "Russian Television and Radio Broadcasting Network" (RTRS).

July 19

The Arctic Legends report they've been sailing all night (average speed 5 knots) and are now ~130 miles from Russkaya Gavan, northern part of Novaya Zemlya (76.221°N x 62.580°E). Pictures of team members having lunch aboard their yacht, land mass on the horizon and tracker map.



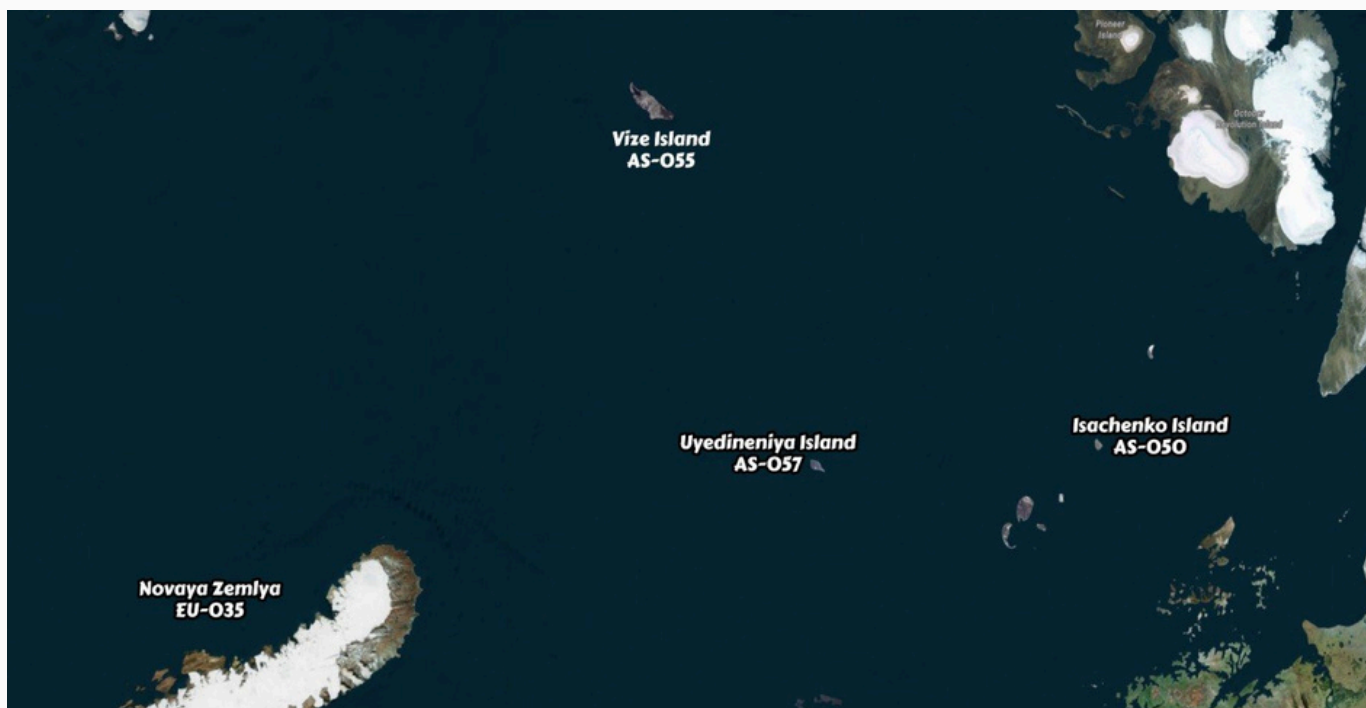
July 20

The team encountered a force 8 gale overnight. All crew are fine although items were thrown about the boat which also sustained a little damage. They have now arrived Russkaya Gavan. Currently unclear if they have set foot on land yet. Remember once they become active the callsign to look out for is RT25AA.

July 24

Making good progress overnight, the Arctic Legends have arrived just offshore Vize Island, AS-055. Currently they can't land yet. The swell is strong, the guys on the dinghy have gone to the island, but they can't get back to the yacht. Swell will have to subside before attempting another landing with gear. Hopefully once QRV, look out for **RI0BW** as the callsign this time.

Note: AS-055 is a rare IOTA with approx 12% claiming the island for their totals to date.



RI0BW is now QRT. Logs to be uploaded to [Club Log](#) thereafter. Team made nearly 8000 QSOs. Next stop for the Arctic Legend's is Ugedineniya Island, AS-057 (as RI0BU) followed by Isachenko Island, AS-050 (as RI0BI).

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- 5 Band Yagi's 10m, 12, 15m, 17m & 20m Kit
- 5 Band Yagi's Pre-assembled
- 5 Band Yagi's Portable Pre-assembled
- 40m add on (use with Spiderbeam yagis)
- GOPAK 12m mast and 404 7 band antenna
- 404 7 band antenna & 807 9 band antenna
- 12m Masts with collars
- 10m Masts
- Mast bags

LOTS OF STOCK

WWW.THEHAMSHACK.CO.NZ

When I moved to New Zealand 11 years ago I sent the authorities a copy of my license and within a few hours they issued me a New Zealand Amateur Radio License.

Move on 11 years and I am spending a lot of time exploring Australia and so enquired about getting a reciprocal license and this was not as easy.

Keep in mind that I have been a licensed ham for almost 40 years and have passed a fairly stringent technical exam and passed a 12 wpm morse code proficiency test. I also hold an aviation radio license and a marine radio license (both of these required attendance of a course and a written and practical exam)

For recognition of prior learning it is suggested that *It may be helpful to provide a copy of the syllabus associated with the qualification you are seeking to have recognised.* (that will be impossible 40 years after the event)

The reply I received is below:

To obtain a ACMA Recognition Certificate Standard or Advanced you have 2 options, you can:

- undertake a recognition for prior learning (RPL) assessment, or*
- sit an examination with an accredited assessor.*

Sitting an examination with an accredited assessor is free so may be a better and faster option for you.

RPL is a lengthier process than sitting the examination and you will need to pay a \$199 fee.

If you wish to continue with the RPL application, please respond to this email with your application (linked above) and we will refer your enquiry on to the relevant line area for a response. Please note that it may take a number of weeks for the line area to respond.

https://www.acma.gov.au/sites/default/files/2024-05/Amateur%20Radio%20Qualification%20Framework_April%202024.pdf

Kind regards

Daniel

Enquiries Officer

Customer Service Centre

Telephone: 1300 850 115

Email: info@acma.gov.au

I am going to submit all the paperwork for RPL, pay the \$199 and see how far this get me.

VK/ZL1GUD

OH NO!! THE SPARC ROSEBUD RADIOFEST HAS BEEN POSTPONED.

(Don't worry, it's only for this year, and SPARC have something special for you, instead.)

SPARC have been advised by Eastbourne Primary School that their much-needed school renovations have begun, which is wonderful news for the school.

So what will SPARC stage in place of this year's event?

SPARC member Paul VK3DPW has generously offered us the use of his Dromana Triple Drive In theatre, the perfect place to stage SPARC's 2026 GIANT CAR BOOT SALE !!

It will take place on Sunday, November 15th, 2026 at the Dromana 3 Drive In, Nepean Highway, Dromana, commencing at 10:00 am

Goods sold will be anything related to Amateur Radio, CB, marine, 4WD radio, etc., aviation, commercial comms, electronics and IT-related items.

Sellers may hire a site at \$10.00 per car/ute, \$20.00 per trailer or truck. Entry for buyers and the general public will be just \$2.00.

Some tables will be available for hire if required, SPARC to be advised by vendors when booking. (Price per table TBA)

The Rosebud Sea Scouts will supply catering on the day.

Bookings / enquiries email John Ross VK3MK, secretary@sparc.asn.au



ZL4AT

ACTIVATIONS

Photographs used with permission of
FaceBook page owner/admin





My Pota experience in Australia in June 2026

I have a daughter in OZ and have been over 11 or 12 times in 3 years, mostly Eastern OZ and driven from Melbourne to Sydney, Sydney to Brisbane, inland as west as Lightning Ridge and driven all over Tassie. Yes I love OZ and the people.

Before I arrived in Australia, I contacted Hayden who had explained that it's a little different to POTA in New Zealand. After landing, I got everything ready, got the battery charged, and in the first few days I went out to a park in Rouse Hill.

I didn't realise that in Australia they use 7.144 MHz, and I was on the New Zealand standard of 7.085MHz. A really nice lady called Norma VK2YL called me and said, "You're on the wrong frequency! Go to 7.144MHz, which I did. The world opened up, the lights came on, and it was fantastic.

One interesting experience while I was at Rouse Hill: I was sitting at one of the little picnic tables with a 6m mast and antenna, there was nobody in the vicinity, just me and a vehicle pulled up right behind me. The guy didn't get out of the car, and I could hear some communications in his vehicle, two way radio stuff. I was busy activating, and I carried on. The next thing, he drove off. He was there for 20 minutes, which was strange.

Norma, VK2YL, and her husband went with me to another park, which we activated. It went really well, and shortly after that I left for the Outback. I first went up to Dubbo, and then I went to Coonabaraban activating the Pilliga and Gilgandra Forests, then Lightning Ridge and then back to Sydney. It went fantastically.

I'm quite interested in paranormal stuff, so the Pilliga was interesting because this is supposed to be the home of one of the Yowies. There's also supposed to be the Pilliga Princess, The "Pilliga Princess" is an Australian urban legend and ghost story rooted in the real-life tragic death of an eccentric homeless woman named Clare Wibson (or Whipsson). She became a fixture of outback folklore along the Newell Highway. I never saw anything, so that was a pity.

The other thing I found amazing is how friendly the people are. Even after the first activation, I guess I'm fairly identifiable with a call sign that is VK/ZL1GUD and after the first activation, every time I called, somebody would say, "Hello Greg, how are you? Where are you? What's happening? How's it going?" That was really great.

I didn't do a lot of activations. I think I did six or seven activations in three weeks. I went to two club meetings and really had a lot of fun, met a lot of people, and Australia has become my second home.

Next trip will be December. I know it's probably not the right time of year, but I will be there for a month and doing more activations. Thanks, guys, for the friendliness and everything else, and I look forward to seeing you in December.

Best 73s from VK/ZL1GUD



VK / ZL Events Calendar updated 26-07-2026

- WINTER RETRO FAIR Sunday August 2nd (Reservoir VK3)
- NORTHERN CORRIDOR RADIO GROUP HAMFEST Sun. Aug 30th (Bassendean VK6)
- SADARC SHEPPARTON HAMFEST Sunday September 13TH (Shepparton VK3)
- SUNSHINE COAST ARC SUNFEST Saturday 19th September (Beerwah VK4)
- Software Defined Conference 29 Sept. to 2 Oct. <https://sdr2026.org> (Adelaide VK5)
- BAREC BENDIGO RADIOFEST Sunday 11th October (Bendigo VK3)
- WESTLAKES ARC FIELD DAY Sunday 18th October (Teralba VK2)
- TASSIE HAM – E- CON November 6th, 7th & 8th (Hobart VK7)
- GOLD COAST HAMFEST Sunday 8th November (Nerang VK4)
- SPARC GIANT CAR BOOT SALE Sunday 15th November (Dromana VK3)
- AREG ADELAIDE CAR BOOT SALE Saturday 21st November (Kilburn VK5)

Find or post event details at Hamfests Australasia Group FB page
<https://www.facebook.com/groups/1675116319317400/>

Hit “JOIN” to stay updated





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SUNDAY 18TH OCTOBER 2026



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HF Band Conditions Forecast: August 2026

Solar Cycle 25 continues to provide amateur radio operators with excellent HF propagation conditions as we move into August 2026. Although the cycle peaked in August 2024 with a remarkable sunspot number of 382, the decline has been gradual and generous. As of late July 2026, the sunspot number sits at 99 with a Solar Flux Index (SFI) of 147, well above the threshold needed to sustain reliable propagation on the higher HF bands. The NOAA Space Weather Prediction Center forecasts a smoothed sunspot number of approximately 100 for mid-2026, with a predicted range of 94 to 107.

What does this mean for operators across Australia and New Zealand? In practical terms, the ionosphere remains sufficiently ionised to support F-layer propagation on bands from 80 metres through to 10 metres during favourable conditions. The SFI of 145–150 is particularly significant because it represents the "sweet spot" where the higher bands (10m, 12m, 15m) remain accessible during daylight hours while the lower bands (40m, 80m) benefit from reduced solar noise during our longer winter nights.

Current Band Conditions Overview

The following table summarises the expected band conditions for August 2026, based on current solar indices and seasonal factors affecting the Southern Hemisphere.

Band	Frequency	Daytime	Nighttime	DX Potential	Best For
80m	3.5–3.7 MHz	Fair	Excellent	Regional/Continental	Winter evening ragchews, trans-Tasman
40m	7.0–7.3 MHz	Good	Excellent	All continents	Workhorse DX band for winter nights
30m	10.1 MHz	Good	Good	All continents	CW/Digital DX, quiet band
20m	14.0–14.35 MHz	Excellent	Good	Worldwide	Primary DX band, open most hours
17m	18.068–18.168 MHz	Good	Fair	Worldwide	Underrated DX band, less QRM
15m	21.0–21.45 MHz	Good	Poor	Worldwide (daytime)	Excellent when open, strong signals
12m	24.89–24.99 MHz	Fair	Poor	Selective openings	Sporadic openings, worth monitoring
10m	28.0–29.7 MHz	Fair	Poor	Selective openings	Best during midday, F2 layer dependent

Band-by-Band Analysis for August 2026

80 Metres (3.5–3.7 MHz)

August represents one of the finest months for 80-metre DX from the Southern Hemisphere. The combination of long winter nights and moderate solar activity creates ideal conditions for this band. Operators in VK and ZL can expect reliable trans-Tasman contacts throughout the evening, with European and Asian paths opening from around 0800 UTC (evening local time). The reduced atmospheric noise typical of winter further enhances signal-to-noise ratios, making weak-signal DX work more productive than during the summer months.

The band typically opens for DX around local sunset and remains productive until sunrise. Operators should pay particular attention to the 0900–1200 UTC window for European contacts, and 1000–1400 UTC for North American paths. The geomagnetic field has been predominantly quiet (K-index 2–3), which favours reliable propagation on this band .

40 Metres (7.0–7.3 MHz)

The 40-metre band continues to be the backbone of HF DX work from Oceania during winter. With the current SFI supporting strong F-layer ionisation, 40m provides reliable worldwide propagation from late afternoon through to early morning. European stations are consistently workable from around 0700 UTC, with signal strengths often reaching S7–S9 on well-equipped stations.

For VK and ZL operators, August on 40m offers outstanding opportunities. The band opens to Japan and Southeast Asia in the late afternoon (0500–0800 UTC), transitions to European and African paths through the evening (0800–1200 UTC), and provides North American openings in the early morning hours (1200–1800 UTC). Contest operators should note that 40m will be the primary band for many upcoming winter contests.

20 Metres (14.0–14.35 MHz)

The 20-metre band remains the undisputed king of DX in August 2026. With an SFI of 147, the F2 layer maintains sufficient ionisation to keep this band open for extended periods, often 18–20 hours per day. From VK and ZL, operators can expect European openings from around 0600 UTC, with the band remaining open to various parts of the world well into the night.

The current solar conditions mean that 20m is particularly productive for working into Africa, the Middle East, and South America—paths that can be challenging during solar minimum. Grey-line propagation around local sunrise and sunset provides enhanced signal strengths and the opportunity to work rare DX that might otherwise be difficult. Digital modes such as FT8 have made this band even more productive, with contacts possible even when signals are below the noise floor for SSB.

15 Metres (21.0–21.45 MHz)

Despite the declining solar cycle, 15 metres remains a viable DX band in August 2026. The SFI of 145–150 is sufficient to support F-layer propagation on this band during daylight hours, particularly along equatorial and low-latitude paths. From VK and ZL, operators can expect openings to Asia (0000–0600 UTC), Europe (0600–1000 UTC), and occasionally to the Americas (0800–1200 UTC).

The band is noticeably more selective than during the solar maximum, meaning that openings may be shorter and more directional. However, when the band is open, signal strengths can be remarkably strong due to the lower background noise. Operators should monitor 15m regularly, as conditions can change rapidly with solar activity.

10 and 12 Metres (24.89–29.7 MHz)

The highest HF bands present a mixed picture for August 2026. While the SFI remains above the minimum threshold for F-layer propagation on these bands, openings are becoming less frequent and more dependent on elevated solar activity. Operators should watch for days when the SFI rises above 150, as these periods often bring surprising openings on 10m and 12m.

Sporadic-E propagation provides an additional mechanism for contacts on these bands, particularly during the transition months. While sporadic-E is more common in the Southern Hemisphere summer, occasional winter events do occur and can provide strong signals over distances of 1,000–2,000 km. The recent SFI spike to 203 in early July demonstrates that the sun remains capable of producing conditions that light up these bands



Special Event: Total Solar Eclipse — 12 August 2026

A significant astronomical event occurs on 12 August 2026 when a total solar eclipse crosses parts of the Northern Hemisphere, with the path of totality passing through Greenland, Iceland, and Spain . While the eclipse will not be visible from Australia or New Zealand, it will have measurable effects on the ionosphere along the eclipse path.

During the eclipse, the sudden reduction in solar UV radiation causes rapid changes in the D and E layers of the ionosphere. For HF operators, this can create unusual propagation effects including temporary enhancement of lower-band propagation (80m, 40m) along the eclipse path, and brief disruptions to higher-band propagation. Operators interested in studying eclipse-related propagation effects should monitor the bands during the event (approximately 1600–1900 UTC on 12 August) and log any unusual signal behaviour.



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November 2026

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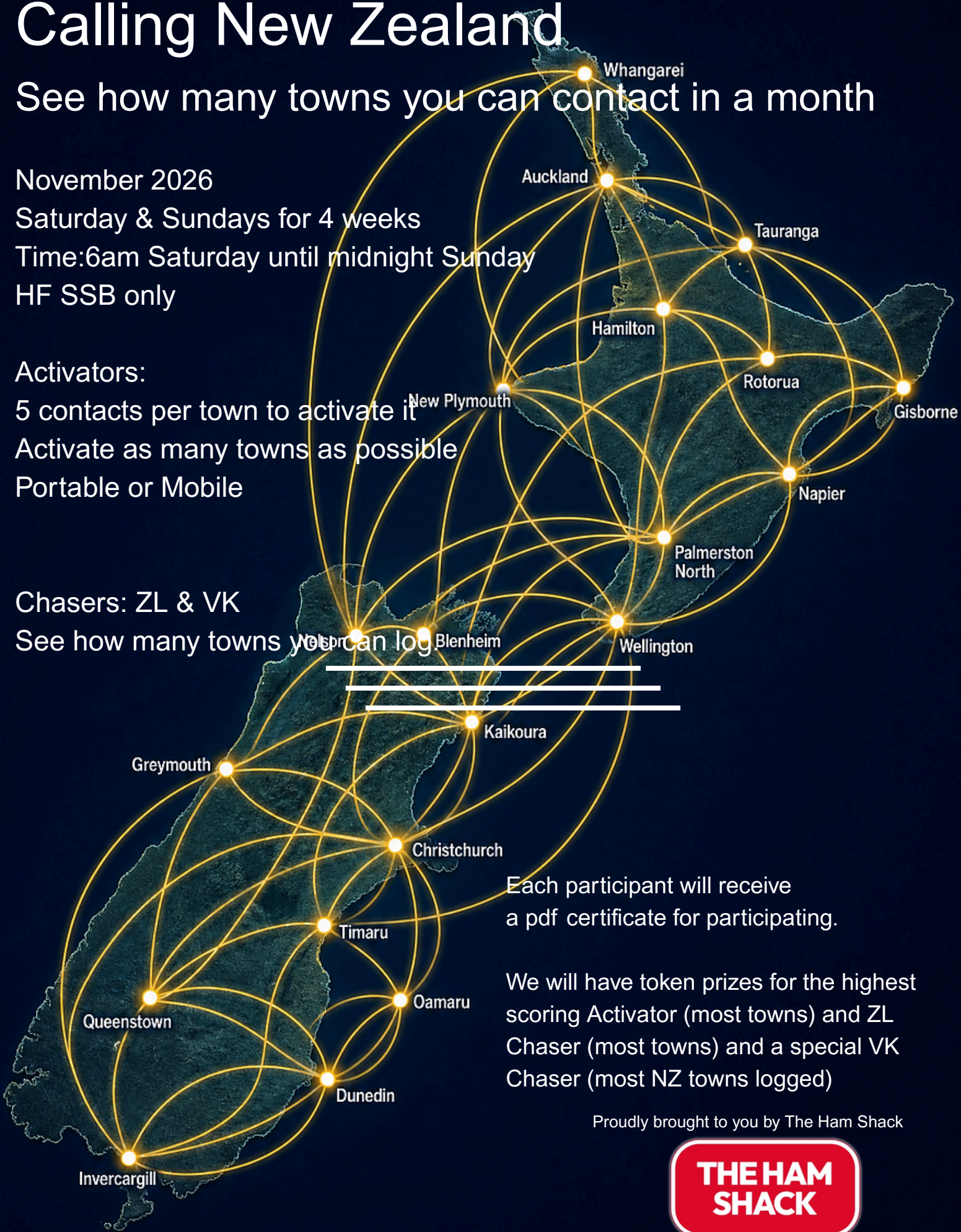
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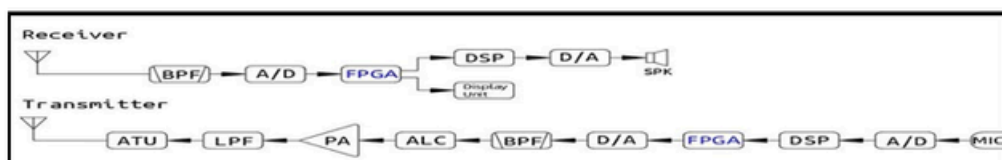
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- The Xiegu G7250 combines a separate display and control head with a main radio unit.
- The two parts can be deployed independently, giving operators more flexibility when arranging a station or adapting the radio to different operating environments.



Built-in adjustable digital filters



Spectrum and waterfall display

XIEGU G7250 100 Watt HF / 50 MHz Base Station Amateur Radio Transceiver



The detachable control head features a 17.8 cm high-resolution capacitive touchscreen together with full physical controls.

Unlike Xiegu's popular portable QRP models, the G7250 is a true desktop-class 100-watt SDR transceiver. Its standout design feature is its split-type architecture, which separates the main RF deck from the control head.

This new model is in the pre-production phase and are currently awaiting pricing and delivery dates for later this year. The following preliminary information is a guideline only and subject to change so will share more information as we receive it.

The new Xiegu G7250 is a split-type, separate controller and RF deck, 100 W HF and 50 MHz SDR transceiver built around a top-tier direct RF-sampling architecture and equipped with powerful baseband and RF units, giving amateur radio enthusiasts a smoother and more convenient operating experience. Its robust RF output power makes contacts feel effortless. It is aimed at radio operators who want flexible installation, touchscreen and physical controls, digital signal-processing tools and a built-in automatic antenna tuner.

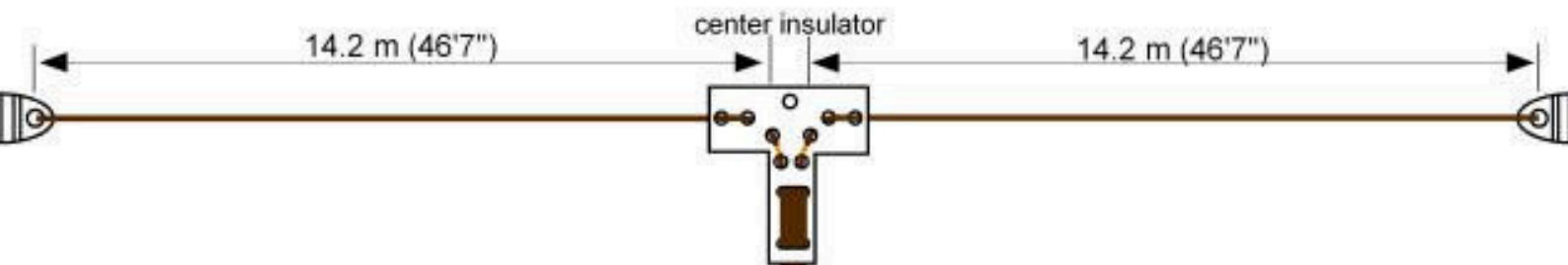
Signal Processing

The G7250 includes adjustable digital filters, digital noise reduction, a noise blanker and a noise-threshold function. Voice recording and playback can be used for calling, while preset CW messages support repeated Morse code calls. The published feature list also includes remote baseband-signal transmission over a network.

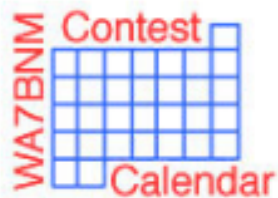
The receiver front end uses multi-stage filtering and high-Q inductors to reduce input loss and support signal selectivity. A two-stage, large-dynamic-range preamplifier is specified to improve front-end dynamic range and IP3 performance. Published receiver figures include 0.2 μV sensitivity for SSB, CW and FM, 2 μV for AM, and an MDS of -138 dBm.

Automatic Antenna Tuner with Band Memory

A built-in automatic antenna tuner compensates for antenna mismatch across a stated impedance range of 20-150 Ω . The tuner stores settings for each band and reloads them when the operator returns to a previously tuned band. Initial tuning is specified at no more than 10 seconds, while memory tuning is specified at no more than 0.1 seconds.



COMPETITION CALENDAR



Powered by ICOM

Contests and Activity Weekends in August 2026

August brings several major contest opportunities that generate high activity levels on the bands, making it easier to work new countries and confirm contacts:

Date	Contest/Event	Bands	Modes
2–3 Aug	European HF Championship	20m–10m	CW/SSB
3 Aug	North American QSO Party (CW)	80m–10m	CW
9–10 Aug	WAE DX Contest (CW)	80m–10m	CW
16–17 Aug	International Lighthouse Weekend	All HF	All
17 Aug	North American QSO Party (SSB)	80m–10m	SSB
23–24 Aug	Ohio QSO Party	80m–10m	CW/SSB

Follow @wa7bnmcalendar



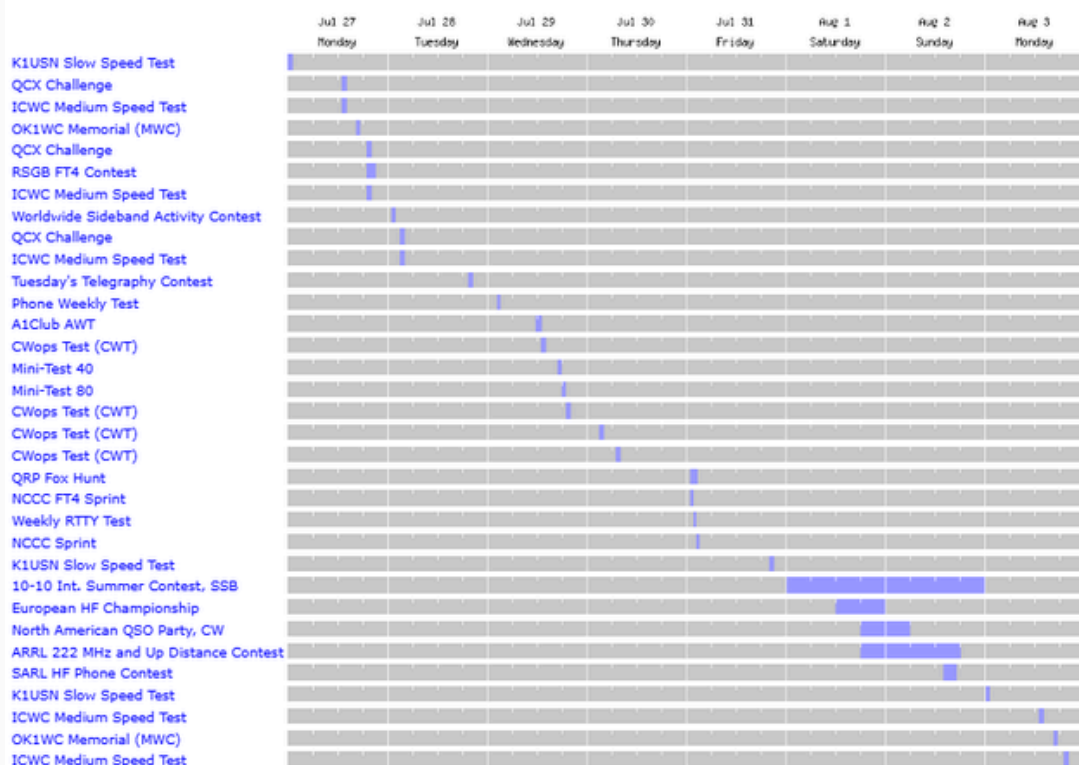
July 19 - 26, 2026

July 27 - August 3, 2026

August 4 - 11, 2026



31



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Price vs Value in RF Testing: Why the [RigExpert AA-650 ZOOM](#) is Worth the Investment

“Price is what you pay; value is what you get.” [Warren Buffett's](#) core principle applies directly to selecting professional RF test gear. [\[1\]](#)

Cheap pocket analysers or basic vector network analysers (VNAs) often look tempting on a webpage. However, they frequently lead to hidden headaches: hours lost tracing ghost faults, fragile plastic casings cracking on-site, and tedious manual field calibration routines. Conversely, investing upfront in a high-grade laboratory instrument can feel intimidating, but it reliably pays for itself over decades of service. [\[1, 2, 3\]](#)

With the [RigExpert AA-650 ZOOM](#), the value formula is clear. It delivers structural reliability and continuous wideband coverage (0.1 to 650 MHz) to seamlessly span HF, VHF, and UHF workloads. [\[1, 2, 3, 4, 5\]](#)

Right now, that decision is even more practical: you can secure this industry-standard analyser with an immediate \$175 discount.

What does "Value" actually look like in the field?

Value isn't just whether the meter powers up on the bench. The true cost of cheap RF tools shows up in hidden operational waste: [\[1\]](#)

- Time lost troubleshooting antenna mismatches that are actually just instrumentation drift.
- Re-testing feedlines because you lack a reliable baseline trace you can trust.
- Complex calibration routines that drain your battery before you even begin your first sweep.
- Downtime when an unsealed keypad or low-tier connector fails in harsh weather. [\[1, 2, 3, 4\]](#)

The RigExpert AA-650 ZOOM eliminates this friction. It features built-in factory calibration so it is highly accurate right out of the bag without manual steps. Its advanced processing tracks up to 5 bands simultaneously on a single colour screen, allowing you to see how adjustments to one band interact with the rest of your system in real time. [\[1, 2, 3, 4, 5\]](#)

Questions to ask about your current analyser setup:

If you are evaluating whether your current gear is pulling its weight, ask yourself these four diagnostic questions:

1. Are you limited by frequency? Budget tools often drop off sharply or lose accuracy before reaching UHF bands. The AA-650 ZOOM scans up to 650 MHz continuously to match modern hardware deployments. [[1](#), [2](#), [3](#), [4](#)]
2. Are you guessing where cable damage is? Instead of systematically swapping out hidden sections of coaxial line, an integrated Time Domain Reflectometer (TDR) mode visually maps out the exact physical location of shorts or breaks along the line. [[1](#), [2](#)]
3. How do you manage field data? Writing down coordinates by hand slows down client reporting. Built-in Bluetooth Low Energy lets you hang the analyzer right at the antenna feed point and pull real-time sweeps directly to your smartphone on the ground. [[1](#), [2](#)]
4. Is it backed by a reliable infrastructure? No-name import electronics offer zero support if an internal board fails. RigExpert protects your investment over the long haul with the comprehensive RigExpertCare 2-year warranty. [[1](#), [2](#)]

Upgrade Your Kit and Save \$175

The goal isn't to replace an analyser that is still serving you perfectly. If your current tool is stable, reliably calibrated, and covers the bands you need, keep it in service.

But if you are fighting intermittent interface bugs, drifting results, or frequency limitations, upgrading ensures you fix problems before they turn into site failures.

Ready to calculate your savings? Reply to this email with your current analyser model and the primary antenna types you build or maintain. We will confirm if the AA-650 ZOOM matches your work and apply your \$175 discount code directly to a custom quote. [[1](#), [2](#)]



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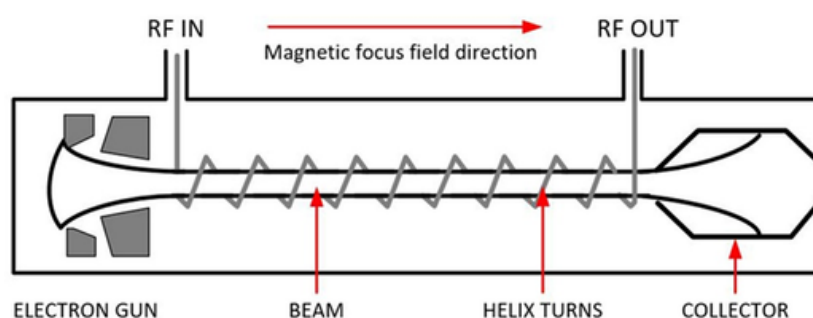


'Portable' VHF helix antenna experiment

Recently I was asked to do a presentation at ARNSW on any type of VHF antenna not discussed in a previous session, so first suggested a Moxon, then thought about experimenting with traveling wave antennas to see if one could be built for the lower bands. This notion seemed crazy given the theory, as most helix-style antennas are designed for UHF and up, mainly with a focus on satellite communications.

Theory

John Kraus experimented with helical designs in 1946. He initially came up with the concept when talking with other researchers who were working on klystrons (having cavities) and other components used in radar technology. He met Dr Reins who had developed an electron beam RF amplifier.



Traveling wave electron beam RF amplifier that inspired John Kraus in 1946.

Kraus wondered if he could apply this idea to a traveling wave antenna for microwave frequencies but Reins stated that he couldn't get a workable outcome. Kraus surmised that the antenna was too small in diameter and stated, "The diameter, and hence circumference, primarily determine the frequency of operation of the helix." He then developed the basic theory for the design of axial-mode helix antennas, where dimensions for a traveling wave antenna would have a circumference of one wavelength at the center frequency with a pitch angle, at the time, proposed of around 12 to 14 degrees.

Kraus defined the formula from the pitch angle α as:

$$\alpha = \tan^{-1} \frac{S}{\pi D}$$

where:

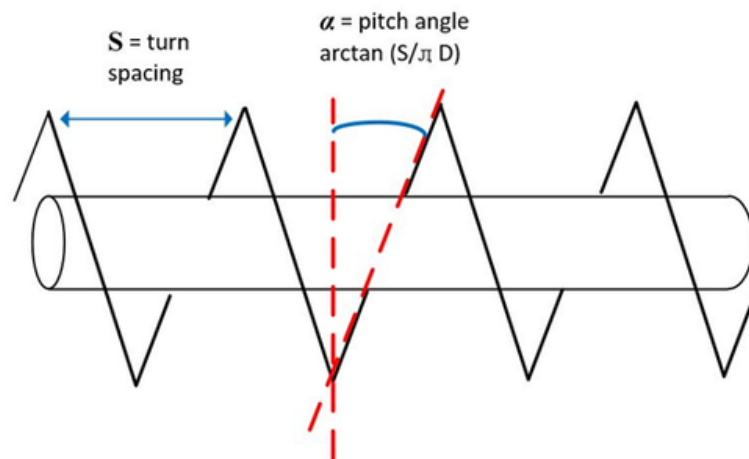
·S is the turn spacing and D is the diameter, that being the circumference divided by π . Kraus stated that the ground plane, that being the reflector, should be at least 0.94λ .

Kraus experimented further with helix antennas for mostly microwave frequencies and wrote his seminal 543-page work simply entitled, 'Antennas' in 1950, which covered much more than helices and reflectors.

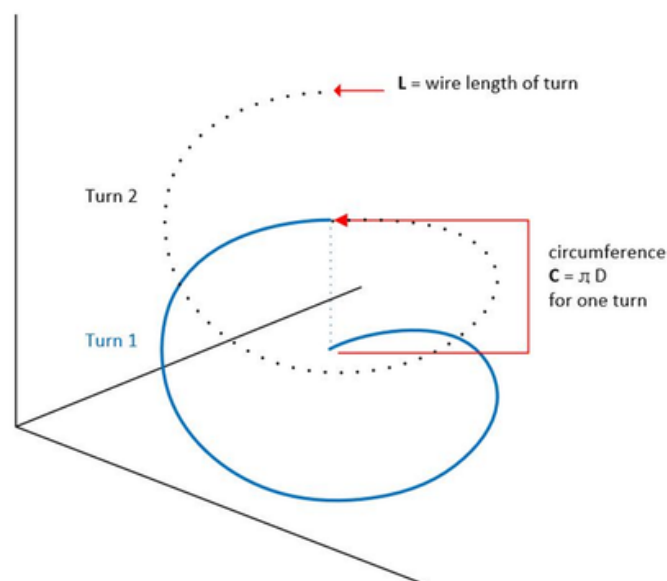
Fundamentally; wavelength, helix turn-spacing and turn pitch all pitch in (so to speak) to make a workable antenna. Dimensions were originally defined as:

- Helix circumference at one wavelength (λ) at center frequency
- Pitch angle (α) 12-14 degrees
- Reflector @ 0.94λ
- 0.2 – 2.5 λ turn spacing

I've drawn the following relationship diagrams showing the cross-section of a helix from one turn to another and how circumference is defined.



Pitch angle and turn spacing.



Circumference is measured by one turn in the helix.

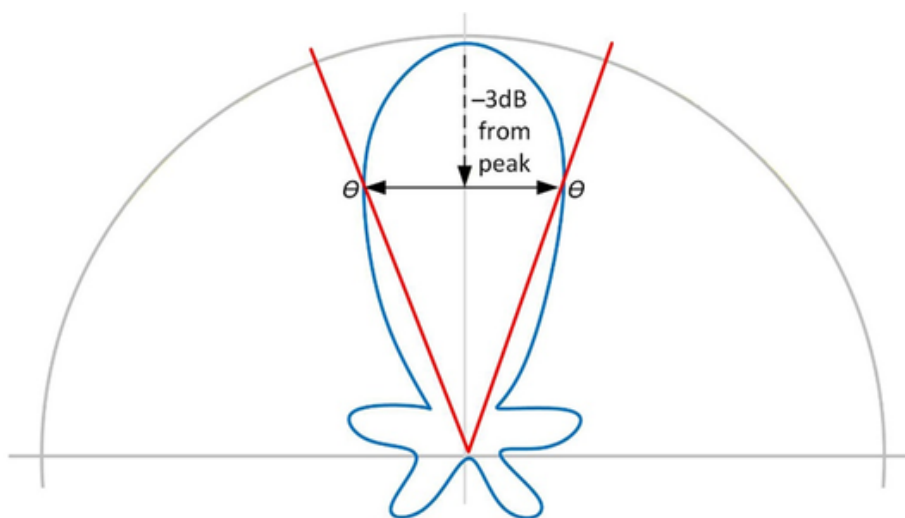
As stated by Kraus, a typical 3 dB relative field pattern, or beamwidth (BW) for a helix with n turns is approximately:

$$BW_{3dB} = \frac{52}{C\lambda\sqrt{n} \cdot S\lambda} \text{ degrees}$$

where:

·circumference $C\lambda$ and turn spacing $S\lambda$ are in wavelengths.

Some also address this as half-power beamwidth because this is where it's typically determined, usually at the widest part of the beamform. Given that power is proportional to the square of the amplitude, halving the power results in -3dB; expressed as, $10 \cdot \log_{10}(0.5) \approx -3\text{dB}$. This means while the helix BW is typically ~3dB across at theta (where the angle is defined), it's also -3dB down from peak power as shown in the following image.



Typical half power beamwidth for a helix antenna. Small side and back lobes are generally present.

Turn spacing

Turn spacing is seen as a crucial aspect for antenna performance, since gain and beamwidth are affected. It's been stated in many papers that you'd need a wider turn spacing in order to maximize gain, otherwise more turns are required. However, given some supposition over helix antenna theory over the years, even now, I've found this to be a modest issue for the lower bands.

Modeling

While most builders of such antennas model for higher frequencies, I decided to do something seen by many as somewhat asinine, that is, if a two-meter helix would be feasible. As Kraus states, you need a circumference of one wavelength for the antenna to work correctly.

·As discussed, circumference is defined as just one turn.

·Since you know the wavelength which is to be the circumference, the main thing to remember in order to estimate wire material quantity is to work out the helix diameter for two meters, so I use this basic formula:

$$C/\pi = D$$

In other words, for VHF, two meters divided by 3.14159... gives you roughly a 64-centimeter diameter helix. "That's huge," you may say, and I've indeed used an oil barrel as a former for a three-turn helix with a diameter close to that specified, but here is where I decided to use a half wave (32cm diameter) helix for so many compact reasons, discussed shortly. From this you decide how many turns given the diameter (in my case 32 cm diameter, i.e., the radius of the one wavelength circumference becomes the halfwave diameter), and then choosing a suitable length of wire. For my final eight-turn helix, I used eight meters of copper tubing. Some builders initially get confused over the formula, simply because they forget that these antennas are axial mode, not normal mode.

Kraus focused on the microwave bands where a full wavelength circumference at those frequencies is best for efficient operation. However, he didn't focus so much on the lower bands for helices so I assumed some latitude for a different kind of helix antenna would work, that being a half-wave directional beam antenna. He does have some half-wave calculations in his original work for other antennas but stated that it was difficult to prove accuracy for helices; same for his fractional wave gain tests (discussed shortly). I hear that some experimenters have built half and quarter wave helices for the higher bands (mostly receive types) but I couldn't find more recent performance evaluations anywhere online regarding transmit, and surprisingly the USPTO had no prior art close to the specifications I had envisaged, that could be found. Besides, any such prior art would probably be considered petty.

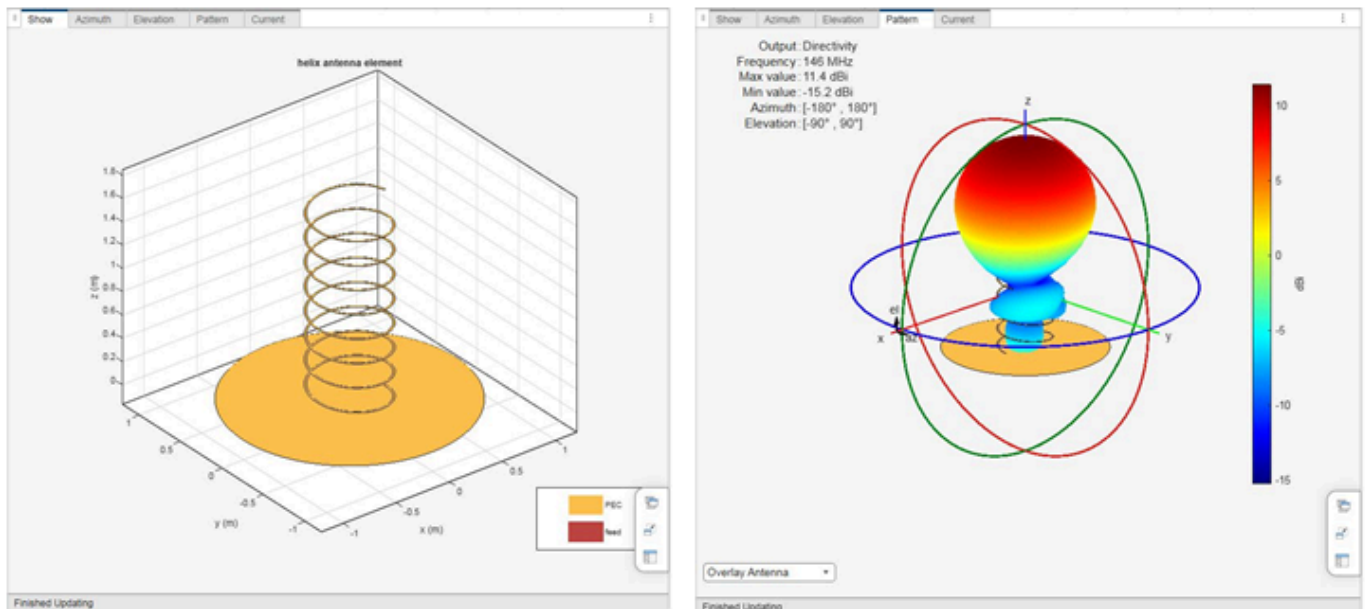
I wanted something large enough to be useful, yet portable enough to also be practical for VHF/UHF field days—and also have a gain that wasn't too compromised at half wave.

Circular Polarization

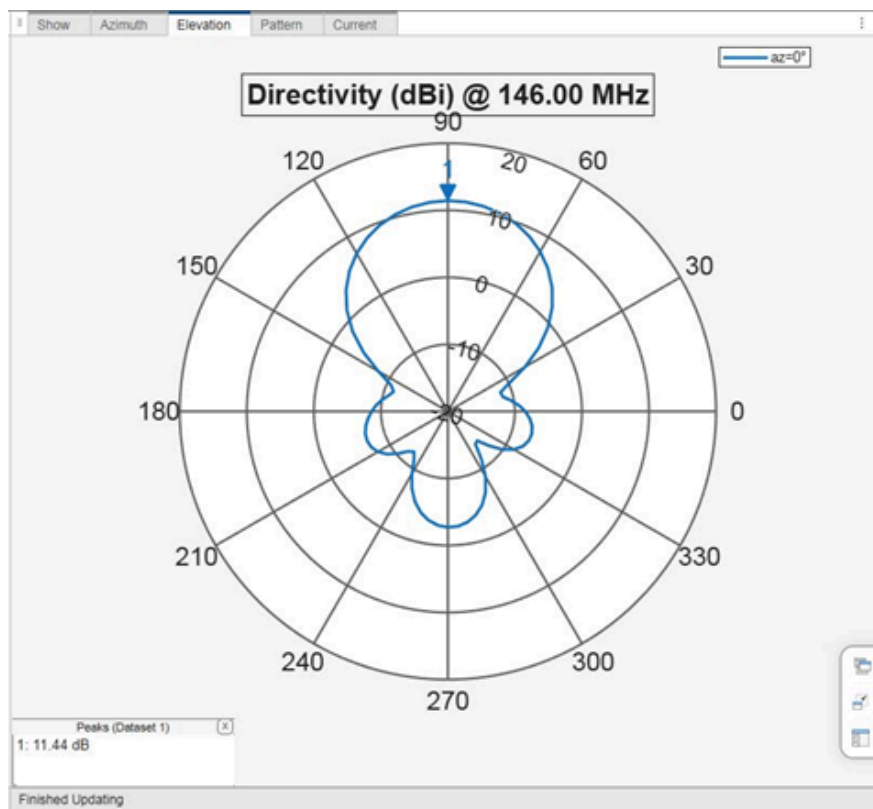
I chose an axial mode that is right-hand circular polarization (RHCP). Many helix antennas are wound this way, in a clockwise direction stemming from an isotropic reflector. Interestingly, left-hand circularly-polarized antennas do not receive a RHCP signal efficiently; and the same for LHCP transmissions to RHCP (unless a dish reflector is used). However, from some research, a horizontal or vertical antenna will equally well-receive a RHCP transmission and vice versa. Some satellite helix antennas are deliberately LHCP to avoid interference etc., such as military helices.

Calculations

Using MATLAB to model a 146 MHz center-frequency helix provided a well-formed beamwidth expectation, showing elevation and azimuth in three dimensions.

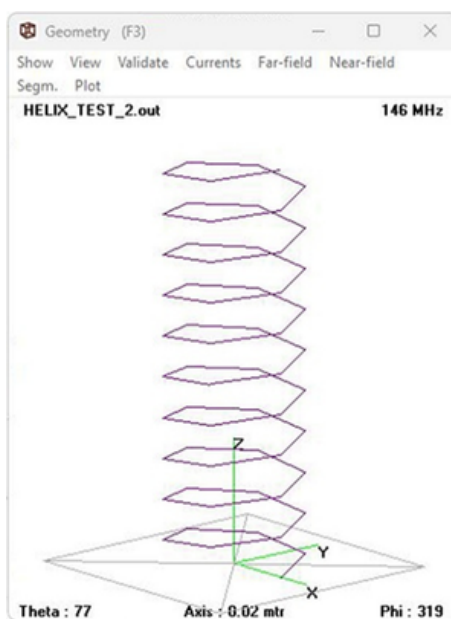


MATLAB estimate for my first eight-turn helix; note the flat reflector, however a conical reflector will help narrow the beamwidth for the first few turns and more turns will improve gain, so long as it's mechanically practical to do so. There were some back lobes (which would show when image is rotated).



2D directivity for 146MHz half-wave 8-turn helix test incorporating 'lumped' impedance (resistance only) matching at the feed. The result was a little better in AN-SOF modeling software. Making the turn spacing wider and using 5-turns in some modeling resulted in smaller back and side lobes, making me aware of the half-wave gain limitations. Back lobes did become smaller when modeled with a half-wave curved reflector but a full-wave was better.

I experimented with NEC, various online calculators, along with a trial of AN-SOF. Results were similarly promising but decided not to rely too much on 'accurate' outcomes due to too many variables; for example, in MATLAB setup, material constraints did not allow for a mix of materials or dielectrics. I had a steel reflector and copper helix, though was only able to choose all copper or all aluminum (not that it would make a great difference). 4NEC2 was a little more work however every element is a straight-line segment, which may pose accuracy issues for some antennas. MATLAB measures close approximation along the curve.



My 4NEC2 ten-turn straight-segmented helix

The problem with some of the various calculators including the online ones was difficulty in achieving correct or sensible results when given the still somewhat brute force Kraus helix formula of starting with one wavelength. For example, one result for a VHF helix recommended a turn pitch of 39 degrees which contradicted the now generally-accepted range between 10 and 24 degrees.

·While a good guide for modeling, I only decided to model the antenna after building it as I realized by trial and error that the theories were flexible.

Not Critical

However, despite the specifics, the crucial most fundamental realization from Kraus' theories that I took to heart is the following statement he made; "Dimensions are not critical." From this, a certain latitude of experimentation allowed for a fun project to come to fruition while departing from his established theory that the circumference must be one wavelength. One-wavelength is expected for microwave frequencies, however for VHF I was able to create a 'half wave helix' that had some surprising results with a small sacrifice in gain, as shown in the circumference verses wavelength diagram in the Gain section.

The measurements for the experimental portable 8-turn helix antenna are:

- Eight meters x 4mm (~6 AWG) copper tubing
- A half wavelength reflector
- 14 cm turn spacing
- ~12-degree pitch
- 32cm half-wave diameter

Gain

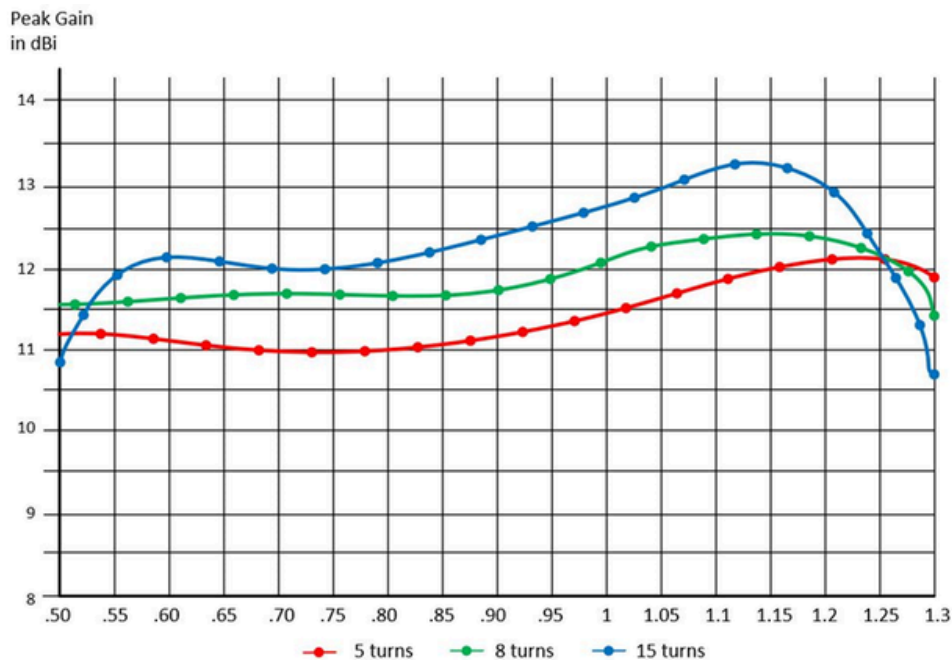
Generally speaking, a larger circumference helix corresponds to a greater gain as it allows the antenna to radiate more energy in the desired direction. Kraus did estimate gain characteristics at various fractional wavelengths down to $.8 \lambda$, with greater gains recorded below and above full wave before dropping off. Kraus plotted gain as a function of C/λ for antennas having different numbers of turns.

Wire radius was generally given as 2mm back then though I'm unsure if other wire types were tried as the data is scant. At least one can now define gauge in the various calculators. The makers of AN-SOF antenna modeling software modeled their own parameters for various turns at different wavelengths, down to $.80$ of a wave length. They state that the simulated gain curves aligned well with Kraus's data, reproducing a close characterization for multiple turns at a 12-degree pitch.

As there was no data anywhere below the base $.8$ of a wavelength as shown in his original diagrams, I managed to cobble up my own simple methods-of-moments cartesian plot based on fractional wavelength beamforming results for two-meters, taking into consideration VSWR across the test wavelengths. This result wound up being similar to the AN-SOF plot that records down $.80 \lambda$. VHF results are scant for Kraus models and frankly there will be differences regardless. When it comes to gain, I discovered the dips are less acute for the lower bands and trail off more gently, much as for the AN-SOF plot, hence the two-meter gain estimate was acceptable for a half wave antenna.

For an 8-turn helix, VSWR was relatively flat across the fractional wavelengths, $\sim 1.5:1$ for 1.2λ for example, and below $1.2:1$ at full wave, peaking sharply at $9:1$ at $\sim .60 \lambda$ (correlating with the sudden drop in gain for 15-turns), while at $.50 \lambda$ dropping back to $1.2:1$.

Gain provided at half wave for eight turns was just over 11dBi.



Estimation of gain (dBi) verses circumference (λ) at 12-degree pitch for 146MHz

Therefore, in my estimation, there is a small cost in gain at the half-wave when compared to a full-wave response but indeed there is gain to be had. I'm uncertain of the accuracy of older estimates, too many variables, and suspect possible erroneous VSWR influence (in traditionally-researched papers too), since handling VHF and above equipment can be a little 'touchy' regarding reflection, nonetheless, it gave more confidence to my half-wave helix experiment.

It's worth noting that in his original research, Kraus modeled gain over 'perfect ground' instead of an artificial reflector, though later, from further research, he did experiment with various reflector types including horn, parabolic and corner.

Mechanical Considerations

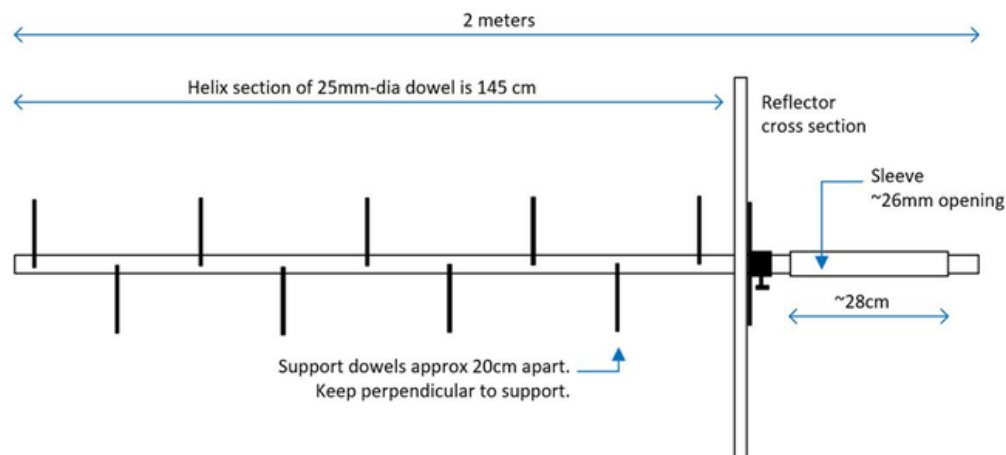
Reflector Types

Reflectors can be constructed using aluminum, steel, metal fly screen in an aluminum frame, etc., and be of any shape (hexagon, round, corner, square etc.). I had considered designing an Origami-style portable folding reflector, somewhat more elaborate than the barn door style you'd see in theater lighting; perhaps that'll be a future project. Then there are the folding 'umbrella' type reflectors used by the military.

As we all know, for a more direct beamwidth, it's recommended to use a reflector that's parabolic/conical, where the initial three or four turns are beam-formed or 'shaped' by the cone in the direction of the helix, the main beamwidth result being narrower with smaller back and side lobes. Gain can be as much as 15 dB for standard helix antennas. Some designers stack many turns for extra gain beyond this, up to 30 dB but the efficiency reduces after seven or so turns, so antennas wind up looking very long with many more turns, as some did in the 1950s.

Components

The real challenge for this project was mechanical. Most of the components used were from a local scrap yard. The reflector was a light shade from a demolished hotel foyer. It bows out at the rim which is not ideal but I took the risk anyway. It's near half a wavelength across and cost just five dollars. The support tube that holds the center dielectric was a cut-off from a pool scoop pipe; old speaker stand support platforms were used, and 4mm copper tubing was found to be in good supply and easy to form. Industrial PVC helix support dowels were purchased which were easy to drill without splitting (as small wooden dowels can often split). A two-meter x 25mm wooden dowel provided the center dielectric but a wooden broomstick would have sufficed if long enough.



Dowel measurements: use a marker pen to mark out the through-position of the dowel which will align with the entry to the reflector. The helix section allows for eight turns at ~14 cm turn spacing.

Bill of Materials for the two meter 'portable' helix antenna are described in the following table. The overall cost to build was less than \$100. Your requirements will probably differ depending on what you can source.

Quantity	Description
8m x 4-5mm copper tubing*	Eight meters of 4-5mm copper tubing that can easily be shaped around a former. For half wave, use a 32cm-wide former such as a round coffee table, barrel, bucket, etc.
2-meter x 25mm wooden dowel	Available at your local hardware chain, or use an old broom stick :)
Center dowel receptor	Approx. 25-30 cm length of aluminum pipe that is ~26-30 mm wide to fit the dowel snugly.
10 x PVC helix stand-offs, 9mm diameter	These were available on eBay in one-meter lengths. Cut to approximately 16cm lengths. When you drill into the dowel support, drill by 10mm. Then drill a 6mm hole on the other end to feed through the copper tubing. PVC is recommended over 10mm wooden dowels so as to avoid splitting. These supports also have a good dielectric constant.
Glue	Use suitable wood glue to affix helix supports to center dowel.
Reflector	Use a half-wave of any style; square, round, mesh but preferably parabolic. The wavelength of the ground reflector is not crucial but do not go below half a wavelength.
Impedance transformer	Use a matching pad, variable type or whatever you can find or build. Support this with a 50cm quarter-wave stub.
2 x copper braces	Usually found at plumber supplies, 5mm clamps for connecting antenna and stub, and for affixing the helix end.
Tripod	A cheap aluminum one will cost around \$50 at any music shop or online.
Adjustable height/angle support	I did not go full doppler tracking for CubeSats using stepper motors etc., but it's easily possible. I simply used an adjustable angle support for wall-mounted speakers. It works well and is strong enough to hold the entire antenna. It's mounted to the speaker platform that sits atop the tripod.
Speaker support platform	Comes with any tripod you buy that holds a speaker. I purchased two more. One allows you to bolt on the adjustable speaker angle platform. One was used to hold the reflector, and the third one was used to hold a radio cradle at the firing end.
Antenna mast clamps and support	Buy two to hold the center dowel pipe to the adjustable-angled speaker stand platform. The dowel slips into the aluminum conduit roughly 25-30cm long. I used a cut-off section from a pool scoop handle. It's 26 mm wide, allowing the 25 mm wooden dowel to sit snug. Materials should be available at the local hardware chain.
Zip ties, buckets, bolts etc.	Various zip ties and junk metal brackets to hold components atop the tripod. The speaker support was mounted to the reflector using junk cage nuts and bolts.
Reflectometer	Include a SWR meter mounted in plain view, since changing frequencies across a large broadband will require adjustment of the stub and/or impedance transformer.
Compass	Use your phone or add an old school compass on the level part of the jig.

* There's nothing stopping you using a wire helix; you just need to determine the support structure. Many helices use a larger center support such as a PVC pipe and for higher frequencies turns are made around the pipe instead of posts. Ideally for portable, you want the antenna to be as lightweight as possible and for loose wire you may need more support posts to help maintain shape.



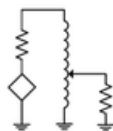
Side view of support jig; the angle platform is bolted on top of the stock speaker platform which slips onto the tripod.



'Firing end' rig showing stub connections to impedance matcher and center dowel support in pipe, mounted to the adjustable-angle speaker-platform. This connects to the radio shelf.

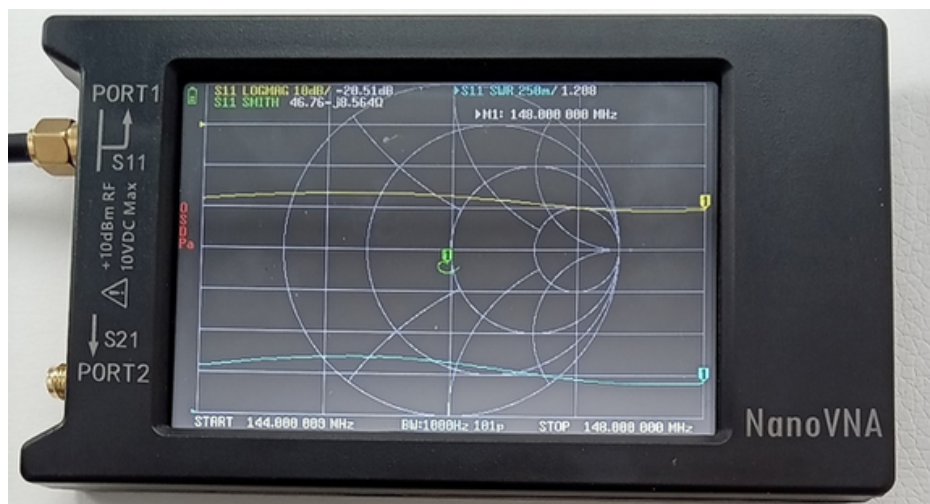
Impedance Matching

Three methods were tried; a 50cm stub (experiment with closed and open), a Mini Circuits-style fixed balun from 120 Ohm to 50 Ohm and a variable impedance matcher. The typical impedance for the homebrew helix was around 145 Ohm. My box of junk provided a variable RL matcher but these sorts of baluns can easily be found online, though making one up and experimenting is worthwhile. These were assembled behind the reflector. Some commercial reflectors have a transformer balun strip on the beam side of the reflector that can act as a capacitor. VHF is a little more forgiving; I found little loss with an L-pad style and variable type but more practicality mounting the whole thing with stub behind the reflector so as to easily adjust on the fly.



3:1 turns ratio in the single winding transformer provided a close-enough ~48.3 Ohm result from native ~145 Ohm helix. A full L-C network wasn't needed. Variable tapped windings were also tried with minimum insertion loss.

The antenna bandwidth stretched from 2-meters to 70 cm; however, the reflection was no so happy at UHF, ranging from 1.25:1 to over 3:1. This was expected, yet many UHF repeaters could be reached. The two-meter result was encouraging.



Reality check: beautiful response for two-meters, with the Smith where it should be close to the center between the L and C fields indicating a good broadband response. By removing part of the quarter-wave stub, I could improve reflection further on the lower end of the band. Note that helices are not resonant antennas but very broadband.

Field Assembly

I found a counterweight was required because much of the weight as you would expect was up-front. Back at the scrapyard I purchased an old paper towel holder for five dollars which could be used as a radio-cradle (as well as countering the weight, and holding a few tissues). I built into this the radio and lithium battery, and bolted yet another speaker support platform which simply slipped on the end of the dowel behind the reflector. All good.

Assembly is straightforward:

·While holding the reflector, slide the central support through the reflector and into the support pipe on the tripod. Connect the stub and antenna feedline and you're ready to go. Takes just a few minutes.



Quarter-wave stub is connected to transformer behind reflector.

·Add the counterweight so the antenna doesn't tip over.



The \$5 paper towel holder was a very handy counterweight shelf for radio and battery.



Completed VHF traveling wave helix antenna



The entire antenna disassembles in five minutes and fits in an average-sized vehicle.

Park Rangers

There was a funny moment while field-testing at the local park. Park rangers are odd folk at times; I saw the guy wave at me from a distance, yelling, "What are you up to?" just as I was aiming the beam in his direction to pick up a distant signal. I peeked around the reflector thinking he was approaching but suddenly couldn't see him anywhere. He must have run off. Very strange. Can't be the antenna, surely.

Why do it?

Probably the reason for building this antenna as a portable is that it's not practically been done before and I wanted to see a new workable outcome. The full-wave VHF antennas are unwieldy, only good for fixed use, and that's why it hasn't been done very often (the more-recent 'stub helix antenna' design is another option for a future article). The Yagi guys think I'm crazy. I didn't wish to just rely on the basic helix theory and be turned off by impracticalities, so blindly tried to see if it would really work as a half-wave. Many amateurs say that these days there are hardly any stations using two-meter SSB or CW but I know persistence will find stations.

Since the antenna is broadband and directional, I've been able to reach distant repeaters as well as VK4 and VK7 SSB on 3-5 watts. Probably some ducting helped, though next I'll try for ZL. This antenna could possibly be the only 'portable' yet reasonably-efficient two-meter helix in the world.

Most operators will prefer their Yagi antennas when going portable. That's fine. Given the great directionality and gain on the helix, I'll persist experimenting for now.

Conclusion

So, is it a new twist to an old theory? I have no idea, haven't seen anyone else do it, but then it was a fun experiment with great results. My conclusion is that you can build a half-wave helix for the lower bands with little compromise in gain. Return losses for VHF were good @ 95% efficiency, UHF @ ~75%.

The bigger the better they say but in practicality this portable half-wave two-meter antenna is a good compromise that doesn't behave like a compromise at all.

References

Antennas by John Kraus, W8JK, 1950

[Antennas by John D. Kraus \(1950-12-23\): John D. Kraus: Amazon.com: Books](#)

Helical Feed Antennas by Paul Wade, W1GHZ, 2002

https://www.w1ghz.org/antbook/conf/Helical_feed_antennas.pdf

VHF Antenna Day lecture by Carmel Morris, VK2NO, on the ARNSW YouTube channel, Dec 2025

[Carmel VK2NO - Moxons, Halos and Helicals](#)



NZ & AUSTRALIAN AMATEUR RADIO MAGAZINE

SHORTWAVE LISTENING GUIDE
New Zealand & Australia — July 2026

Commercial · Utility · Clandestine · Numbers Stations · Military / Enigma

All times UTC. Frequencies shift seasonally — always cross-check with short-wave.info or hqshortwaveradio.com for the current EIBI A-26 schedule. Reception ratings assume a modest indoor or outdoor wire antenna of 5–20 metres.

1. Commercial Broadcast Stations

International shortwave broadcasters audible in NZ & AU

Your Local Station — NZ / Pacific

NZ RNZ Pacific (Radio New Zealand International)

95% signal

Wellington, NZ | 100 kW | Rangitaiki transmitter | English + Pacific languages | 24/7

Frequencies: 5.950 | 7.440 | 9.700 | 11.725 | 13.840 | 15.720

UTC windows: [0000–0559: 11.725/15.720] [0600–0759: 9.700/11.725] [0800–1659: 9.700/7.440] [1700–2359: 5.950/9.700]

The last remaining shortwave voice of the Pacific. Interval signal: New Zealand Bellbird. Broadcasts news, current affairs and Pacific language bulletins 24/7. Note: first Wednesday each month maintenance outage 2230–0600 UTC.

Asia-Pacific Broadcasters

CN China Radio International (CRI)

60% signal

Beijing | 500 kW | English, Cantonese, Mandarin, French + many more

Frequencies: 5.990 | 7.325 | 9.600 | 11.785 | 15.120 | 17.650

UTC windows: [English 0000–0100 on 11.785] [English 1200–1300 on 9.600] [English 2000–2100 on 5.990]

CRI is one of the world's most powerful shortwave operations. English service excellent from NZ on overnight and early morning frequencies. Propagation from Asia to the South Pacific is generally very good, especially on higher bands during daylight.

KR KBS World Radio (Korea)

72% signal

Seoul | 250 kW | English, Spanish, French, Japanese, Mandarin, Arabic

Frequencies: 9.650 | 9.770 | 11.810 | 15.160

UTC windows: [English to Pacific 0800–0900 on 9.650] [English 2100–2200 on 9.770]

Korean cultural content, K-pop, language lessons and news. Very consistent signal from the Korean peninsula into Australia and NZ. Strong service with excellent audio quality.

JP Radio Japan NHK World

88% signal

Tokyo / Yamata | 300 kW | English, Japanese, 17 languages

Frequencies: 6.110 | 9.625 | 11.850 | 15.195**UTC windows:** [English to Oceania 0100–0200 on 11.850] [English 0700–0800 on 9.625]*Superb signal quality into the Pacific. Japan's proximity and transmitter power make NHK World one of the most reliably received international stations in NZ and Australia. High audio fidelity on 9.625 MHz after dark.***IN All India Radio (External Service)**

68% signal

Delhi / Aligarh | 250-500 kW | English, Hindi, Tamil + regional languages

Frequencies: 7.550 | 9.445 | 11.560 | 13.695**UTC windows:** [English to Aus/Pacific 1000–1100 on 11.560] [English 1400–1500 on 13.695]*AIR external service carries news, classical Indian music and cultural programming. Signal strength from India is variable but often excellent at midday from NZ.***Global Broadcasters Reaching NZ/AU****GB BBC World Service**

55% signal

London / various relays | 250-500 kW | English

Frequencies: 5.875 | 6.195 | 9.580 | 11.955 | 15.400**UTC windows:** [Aus/Pacific 0000–0300: 9.580/11.955] [0700–0900: 15.400] [Evening: 5.875/6.195]*BBC coverage of the Pacific has reduced but overnight frequencies via Singapore and Kranji relay remain audible. Propagation from Europe is less reliable than Asia-Pacific. Best received after midnight local NZ time.***US Voice of America (VOA)**

70% signal

Washington / Thailand / Philippines relays | English + many languages

Frequencies: 9.525 | 11.920 | 15.290 | 17.895**UTC windows:** [Pacific/Aus 1000–1100 on 15.290] [0000–0200: 9.525/11.920]*VOA uses relay stations in Thailand and the Philippines making Pacific coverage very effective. English service is news-heavy, with features on current US foreign policy and international affairs.***US Radio Free Asia (RFA)**

75% signal

Washington / Tinian relay | Mandarin, Cantonese, Tibetan, Burmese, Vietnamese

Frequencies: 7.470 | 9.390 | 11.540 | 15.265**UTC windows:** [Mandarin 1200–1400 on 11.540] [Tibetan 0100–0200 on 9.390]*Often jammed by China on some frequencies but clearly audible in NZ/AU. Tinian relay in the CNMI gives excellent Pacific coverage. Not in English but fascinating to monitor given the geopolitical context — you can often hear both signal and jamming simultaneously.*

2. Utility Stations

Time signals, aviation VOLMET and maritime safety broadcasts

Utility stations transmit time signals, weather, VOLMET aviation weather, and maritime safety information. Most operate 24/7 and are among the most reliable signals on the bands.

Time Signals — 24/7 UTC Reference Transmissions

US WWV / WWVH — NIST Time Signal

78% signal

Fort Collins CO (WWV) & Kauai Hawaii (WWVH) | 10 kW each | 24/7

Frequencies: 2.500 | 5.000 | 10.000 | 15.000 | 20.000

UTC windows: [24/7 continuous UTC time ticks] [Solar flux at :18 past each hour]

WWVH (Hawaii) is the better bet from NZ/AU — female announcer vs WWV's male. Transmits exact UTC time ticks, geomagnetic storm warnings, and solar flux announcements at 18 minutes past each hour. 10 MHz and 15 MHz are best during daylight.

CN BPM — China Time Signal

90% signal

Pucheng, Shaanxi | 90 kW | 24/7

Frequencies: 2.500 | 5.000 | 10.000 | 15.000

UTC windows: [24/7 continuous UTC time ticks]

Closer to NZ/AU than WWV, BPM is often the strongest time signal on these frequencies from the South Pacific. Identical format to WWV — UTC ticks plus time announcements in Chinese. Excellent on 10 MHz and 15 MHz at almost any hour.

RU RWM — Moscow Time Signal

45% signal

Taldom, Russia | 8 kW | 24/7

Frequencies: 4.996 | 9.996 | 14.996

UTC windows: [24/7 — frequencies slightly offset from round kHz]

Low power but audible from NZ/AU on favourable propagation. Transmits UTC time codes distinguishable by the offset from the round kHz. A satisfying DX catch from this distance.

Aviation VOLMET — Weather for Pilots

AU Darwin VOLMET

92% signal

Darwin, Australia | Continuous aviation weather | USB mode | 24/7

Frequencies: 6.676 | 13.282

UTC windows: [24/7 continuous — aviation METARs and TAFs]

Continuous broadcast of METAR and TAF aviation weather for Darwin, Alice Springs, Brisbane, Sydney and other Pacific airports. A favourite with SWL hobbyists for its clear synthetic voice and 24/7 operation. Very strong from NZ — often the first signal a new listener tunes in.

3. Clandestine & Numbers Stations

Spy radio, political broadcasts & intelligence communications

WARNING: Numbers stations and clandestine broadcasts are irregular by nature. Frequencies and schedules change without notice. The following represent known active or recently active signals — treat times as indicative only. Monitor only — never transmit on these frequencies.

Numbers Stations — Spy Radio

E06 Yosemite Sam [ACTIVE]

40% signal

Origin: USA (believed) | Automated digital bursts with cartoon interval signal

Frequencies: 6.770 | 8.000 | 10.242

UTC windows: [Irregular — monitor 0800–1400 UTC]

Named after the Looney Tunes character whose voice serves as the interval signal. Believed to be a US government test or marker transmission. Transmits digitally encoded bursts preceded by the cartoon voice clip. Irregular appearances across multiple frequencies.

F06 The French Lady [ACTIVE]

38% signal

Origin: France DGSE (believed) | Automated calm female voice | Regular schedule

Frequencies: 4.785 | 6.210 | 9.194

UTC windows: [Regular at 0200, 0600, 1200, 1800 UTC]

A calm French female voice reading groups of numbers. Believed operated by French intelligence (DGSE). One of the most regular numbers stations still active globally. Audible from NZ/AU on favourable trans-Eurasian propagation, most likely on 9.194 MHz overnight.

M08a Russian Numbers Station [ACTIVE]

35% signal

Origin: Russia (FSB/GRU believed) | Male voice, number groups in Russian | Irregular

Frequencies: 4.060 | 5.120 | 6.840

UTC windows: [Irregular — monitor overnight 1500–2200 UTC]

Russian language number groups, believed FSB/GRU operated. Increased activity noted in 2025-2026 correlating with geopolitical tensions. Best chance from NZ is on 4-6 MHz overnight when trans-polar propagation opens.

Clandestine Political Broadcasts

TW Sound of Hope Radio — Jamming Battle

65% signal

Taiwan | Targeting mainland China | Mandarin | Often jammed by Beijing

Frequencies: 7.470 | 9.900 | 12.124

UTC windows: [Daily 0000–1800 UTC across multiple frequencies]

One of the world's most intriguing broadcasting battles. Sound of Hope transmits democracy and Falun Gong content toward China, which responds with powerful broadband jamming. From NZ/AU you can often hear both the broadcast AND the jamming signal simultaneously — a genuine piece of radio history live on air.

4. Military & Enigma Stations

Unexplained signals, military aviation HF and maritime safety

Monitor only — do not transmit on any of these frequencies. Military transmissions are logged for interest only. Signal quality varies greatly with ionospheric conditions.

The World's Most Famous Mystery Station

UVB UVB-76 'The Buzzer' [24/7 ACTIVE — June 2026: 20 messages in one day]

48% signal

Russia (Naro-Fominsk believed) | Russian Armed Forces | Active since ~1976 | USB mode

Frequencies: 4.625 | 4.810

UTC windows: [24/7 constant buzzing tone (~25 buzzes/minute)] [Voice messages: irregular — June 24, 2026 saw 20 coded messages]

The world's most famous mystery station. Broadcasts a monotonous buzzing tone 25 times per minute, 24/7, interrupted only by occasional cryptic Russian voice messages. In June 2026, UVB-76 transmitted an extraordinary 20 coded messages in a single day between 06:11 and 14:10 UTC — one of its most active periods on record. Purpose officially unconfirmed; widely believed to be a Russian Armed Forces readiness channel. Best received from NZ/AU on 4.625 MHz during evening hours when 60m carries trans-polar signals. USB mode recommended.

M14 The Orthodox Bell [ACTIVE]

33% signal

Origin: Russia (believed) | Interval signal: Orthodox church bell | Irregular

Frequencies: 4.350 | 5.765

UTC windows: [Irregular — monitor 1500–2000 UTC]

Named for its distinctive Orthodox church bell interval signal. Believed to be a Russian military or intelligence station. Less frequently observed than UVB-76 but monitored by the priyom.net community. A genuinely rare catch from NZ/AU — worth attempting on 4.350 MHz overnight.

Military Aviation & Maritime HF

US USAF Global HF Network (HF-GCS)

65% signal

Offutt AFB / Andrews AFB | USB | 24/7 | Callsign: MAINSAIL / OFFUTT

Frequencies: 8.992 | 11.175 | 13.200 | 15.016

UTC windows: [24/7 — 11.175 MHz most active] [EAM broadcasts: short encrypted message groups]

USAF Global HF Network carries voice and digital traffic between military aircraft and ground stations worldwide. 11.175 kHz is the primary frequency — listen for callsigns like MAINSAIL, ANDREW and OFFUTT. EAM (Emergency Action Messages) are short bursts of repeated letter groups. Often very strong from NZ/AU on daytime frequencies.

NZ NZDF / Royal New Zealand Navy Maritime HF

85% signal

New Zealand Defence Force | Various | USB | SAR and maritime safety

Frequencies: 4.149 | 6.215 | 8.294

UTC windows: [24/7 monitoring] [NAVTEX digital safety on 518 kHz (MF) and 4.209 MHz]

Maritime HF working frequencies monitored by Maritime NZ and NZDF. Distress and safety traffic on 4.149 and 8.294 MHz. NAVTEX digital safety broadcasts decoded with a simple interface. Listen for ship-to-shore and SAR coordination during exercises. Excellent signal strength from anywhere in NZ.

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60 metres

The quiet achiever of HF

Propagation · New allocations · Emergency comms · Digital modes

5351.5 – 5366.5 kHz

60 Metres — August Update

Current Solar Conditions and Their Effect on 60 Metres
Solar Cycle 25 is now in its declining phase, having peaked in August 2024 with a sunspot number of 382. As of late July 2026, the key solar indices paint a picture that is highly favourable for 60-metre propagation.

Solar Parameter	Current Value	Impact on 60m
Sunspot Number	99	Moderate — supports F-layer ionisation
Solar Flux Index	147	Good — well above quiet-sun levels
A-Index	7	Low — stable geomagnetic conditions
K-Index	2.33	Quiet — minimal absorption

The 60-metre band sits at approximately 5.3–5.4 MHz, which means it is almost always below the Maximum Usable Frequency (MUF). Unlike the higher bands that can "close" when the MUF drops, 60 metres remains usable under virtually all ionospheric conditions. The current global MUF of 24.6 MHz and LUF of 3.8 MHz place 60 metres comfortably within the propagation window at all times.

The moderate solar activity (SFI 147) provides sufficient F-layer ionisation to support skywave propagation on 60m without the excessive D-layer absorption that can plague lower frequencies during high solar activity. In essence, the current declining phase of the solar cycle creates near-ideal conditions for this band.

Propagation Characteristics in Winter 2026 NVIS (Near Vertical Incidence Skywave)

The 60-metre band is widely regarded as one of the finest NVIS bands available to amateur operators. During daylight hours, signals transmitted at high angles are refracted back to Earth by the F-layer, providing reliable coverage out to approximately 400–600 km with no skip zone. This makes 60m particularly valuable for emergency communications, regional nets, and reliable inter-city contacts.

In the Southern Hemisphere winter (July–August 2026), NVIS propagation on 60m is enhanced by the lower D-layer absorption that occurs during shorter daylight hours. The reduced solar illumination means less ionisation of the D-layer, which in turn means less signal absorption on the lower HF frequencies. Operators in VK and ZL can expect strong, reliable NVIS coverage throughout the daylight hours, with signals often stronger than those on 80m during the same period.



MORSE CODE - STORIES

"Caryn will be back next month, so this is my contribution. Editor

Morse code is not merely surviving in 2026 — it is thriving in ways that would have surprised many who predicted its demise when licensing requirements were dropped nearly two decades ago.

The past few months have seen a remarkable surge in CW activity across the bands. The Long Island CW Club and CW Academy continue to graduate students at a tremendous rate, and we are hearing their fresh fists on 40 and 20 metres every week. There is a certain joy in working a station and then receiving a message that reads "UR MY FIRST CW QSO" — it takes me right back to my own early days of nervous sending and the elation of that first successful exchange.

On the contest front, the CW Ops organisation has been running its regular CWT mini-tests every Wednesday, and participation numbers are up considerably compared to this time last year. These one-hour sprints are perfect for sharpening your skills without committing an entire weekend. I have found them invaluable for building speed and accuracy, and the friendly competition keeps me coming back week after week. If you have not tried one yet, I strongly encourage you to give it a go — even at modest speeds, you will find plenty of operators happy to slow down and complete an exchange.

The digital keyer and decoder debate continues to generate spirited discussion in our community. Personally, I believe there is room for all approaches. Whether you prefer a straight key, a set of paddles, or a keyboard-driven keyer, the important thing is that you are on the air making contacts. Each operator's fist is as unique as their voice, and after a while you begin to recognise regular contacts by their sending alone, long before the callsign is complete.

I have noticed increased activity on 30 metres lately, particularly around 10.116 MHz where the CW calling frequency sits. The band's unique character — no contests permitted, a gentler pace — makes it ideal for ragchewing in Morse. I had a wonderful 45-minute QSO with a station in Japan last Tuesday evening, exchanging details about our respective antenna setups entirely in CW. That kind of extended conversation is becoming rarer in our fast-paced digital world, and I treasure every one.

For those looking to improve their copying speed, I recommend the Koch method trainers available online, combined with regular on-air practice. There is no substitute for real QSOs when it comes to building confidence. Start with the slower operators on 40 metres in the evening, and before long you will find yourself creeping up in speed without even realising it. The art of CW is alive and well. Get on the air, make some noise, and keep those dits and dahs flying.

This article was combined from a number of sources and just proves CW is alive.



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I have just taken my PMR171 on a trip to Australia (NSW & 5 days in the Outback), the radio worked perfectly and using 20 watts I had a lot of QSO's back to NZ and of course a lot of local contacts. I have a few HF radios and this was the first time I did not take a 100 watt radio. I was a bit concerned but the 20 watts was perfect.

I used the Spiderbeam 404 antenna on a 6m SOTABEAMS Tactical mast, a great combination.

Also, the battery back falls within the Air NZ & Qantas battery allowances so no issues flying with it.

Greg ZL1GUD

WWW.THEHAMSHACK.CO.NZ



It's a dark and stormy night in winter.

Suddenly the house shakes, the power goes off, and so does the internet and all cell phone connections, then the water stops!

How do you find out what is happening?

Where is a Radio when you need one?

The purpose of Radiotek2 is to introduce people into the exciting (or some might say the slightly crazy) HAM (Amateur) Radio world.



The questions to ask is - if you are in a major emergency, how do you get the latest updates of information from the outside world and civil defence. A radio may be the last way of finding out what is happening. Don't be caught out at the last minute.

Building an FM Radio receiver is a great way to start learning about radio communication without a mobile phone. We do some building, some talking about how radio actually works and have time using small PRS

handheld radios in a Secret Whispers game transferring a message from one person to another – the resulting end message can be hilarious. The last message this weekend was “there are fluffy koalas are in the kitchen”! Some teams definitely didn't get that as their last message.

We teach people how to solder, how to assemble a FM radio kit and explain what electronic components they will be working with and where they go. Most people have never done anything



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like this before. It is a relaxed unrushed way to learn something new.

I have had my radio license for about a year now, but I knew very little about radio and I hadn't soldered anything. I certainly didn't know what transistors and diodes were! I learnt heaps when I did this workshop and it was fun to build a my own simple receiver.

We have a team of volunteers who support people with their radio builds and can answer any questions. These volunteers have been hams for years and are very knowledgable. It's amazing the skill set we have in our club that we can sometimes take for granted. At the end of the workshop people leave with a working wiggly worm game that they have constructed to practice their soldering skills on and the radio that they have built.



July's Radiotek2 workshop had 12 people attend and there was a great mix of teens (boys and girls) from the age of 13 years up and a number of adults who also built their own radio.

At the end of the day when parents pick up their teenage the excitement they have for their achievement of the day is really cool to see. They take home their wiggly worm, FM receiver radio and a certificate for the day.

Hopefully we may have passed on the spark of HAM radio to the next generation of young HAMS.

Our next workshop is Sunday 13 September 10am-4pm.

To register email our team at radiotektwo@gmail.com

73's Linda ZL3GWX

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Editor/ Greg The Ham Shack*

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Many radio amateurs and non radio amateurs have in house at least a multimeter for various measurements, like the AC voltage in a wall plug, the DC voltage of a power supply and continuity checks – like verifying antenna cables and antenna connectors.

Many of us have several multimeters. One is always the “go and grab it” multimeter, and usually it is not the fanciest one. I am most probably talking about the multimeter from the following picture:



In the moment of writing this article, July 2026, such DT830B multimeter is under 9 CAD, shipping and taxes included on the online Chinese websites. I even saw it with under 6 CAD, and also under 6 CAD in traditional brick and mortar stores, like Canadian Tire (this is a well-known chain of mostly auto motive products in Canada).

There are many variations of the presented multimeter, with more functions, but if you entered the hobby in the last 30 years, I am almost sure you have this model somewhere. It is not the most precise one. It is not very fancy. But it is digital, it has enough digits, highly visible and with contrast for most of us. It is true I am only 61 and I never needed glasses. I measured on my own

multimeter, and the height of the digits (of the numbers on the screen) is 12 mm. It is a generous size.

The multimeter itself, the body, is very solid. There are two wick things with this multimeter that I found on my own that has to be addressed. Unfortunately, those are exactly the same two things to be addressed even with more expensive and fancy multimeters, so one cannot escape from addressing the problems:

- The leads break. Sometimes it is possible to see the connectors detached from the wires. Other times the measuring leads no longer have continuity, it is not so visible, but one can touch and feel the electrical connection is no longer there. **This problem should be addressed before having troubles, not after!** You do not want to be in a hurry, in panic, to do a measurement, just to find out your multimeter itself needs repair.
- The battery. On the particular presented model, DT830B, the battery is a 9V battery, but the same problem appears with other kind of batteries, in other

multimeters. It is not so urgent as the previous problem. The multimeter looks like working normally, just that it becomes a little slow. Slower and slower, with each measurement, in months, even years. The precision is somehow also affected, but not so much to disturb the function of measuring (it has only 4 digits display, anyhow). One might have battery problem in the last 12 months or so, and not to notice.



So, let's start with the multimeter leads. They will break. They will let you down. They cost just some 2 CAD shipping and taxes included – the cheapest ones – and under 7 CAD the more expensive ones. You need to do the measurement NOW. The leads are broken NOW but hey! They are so cheap! You wait 3-4 weeks and you will have new multimeter leads, to do in several weeks the measurement that you needed to do NOW, not in 3-4 weeks from NOW.

CONCLUSION: one should have several pairs of multimeter leads,

at all times.

Buying several pairs of already made, dedicated multimeter leads at once is an economic solution. The disadvantage is that those already made leads cannot be repaired. I personally prefer to make my own multimeter leads, and repair them when they eventually need. They never needed for me, but I periodically verify them.

Luckily, banana connectors match the mother connectors from the multimeter's body. Even when those mother connectors look like not accepting bananas, try and you will – most probably – see that they are compatible with banana father connectors, too, not only with dedicated specialized connectors your initial multimeter leads have.

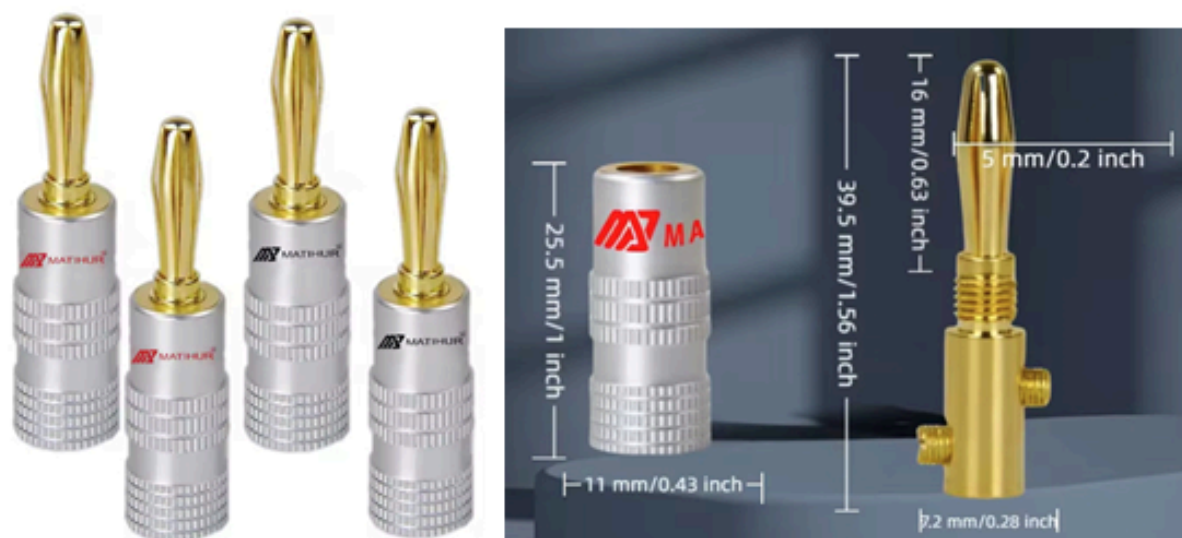


All banana connectors are so cheap, at even under 1 CAD each, just several cents, when one buys 10 or more. We need 4 banana connectors for a pair of multimeter leads.

Because I already hear your comment that those banana connectors do not have thin pointed tips, please look again at the bananas: you can insert thin wires into the metallic ends of the bananas, which are flexible. More, one can fix like this, in the flexible metallic ends, capacitors, inductors, transistors, and do the measurement without having one own hand

touching there, to influence the measurement. The above bananas have screws. We can use thick wire, strong wire, and fix it with screws. No soldering needed. It is easy and fast to verify them and eventually repair them. Such multimeter leads will last forever.

At similar low prices one can find online male banana connectors that have not only one screw for fixing the wire, but two screws. Please see the picture:



I cannot underline enough how important is to solve the multimeter leads problem before you need the leads, not in the moment you have to measure something.

The battery inside the multimeter is the next thing to address. Even if you just bought the instrument and it is brand new for you, it is unknown how long ago the manufacturer made the multimeter, put the battery inside (if it is a 9 Volt battery, do you know anybody having a good opinion about 9 Volt batteries?). The back of the multimeter usually does not encourage you to change the battery because usually – but I saw some different DT830B variants – one has to use a screw driver and unscrew 2 screws, in order to get inside the instrument.



Once you opened the back, the inside looks like in the one of the following pictures:

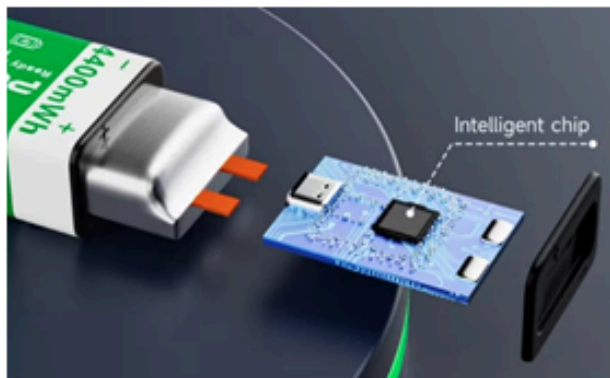


The battery in the DT830B and many of its variants is a small compact 9 Volt battery, which contains inside a sandwich of even smaller batteries, put in series to get to the wanted 9 Volt. It is not capable of generating a lot of mAmps. Being a series of batteries, the internal resistance is already big, and growing in time. That means there is a certain voltage with the multimeter OFF. There is a smaller voltage of the battery once the multimeter is switched ON, and the voltage further has a variation during the measurement. This sequence of various voltages from the battery is not so visible when the battery is brand new. What we can eventually see is that the measurements become slower and slower in time, and it gets so bad that – at the end of usability of the battery – when we make a measurement for voltage of something the multimeter shows several intermediate values before stabilizing at the final value.

Daniel contacted me and has sent through some very interesting articles for the New Zealand and Australian Amateur Radio Magazine.

Thanks Daniel

*Greg
Editor*



All the above problems would be avoided if the battery's voltage

9V-1200
1200mAh
Lithium
1200TIMES
USB-Type-C



would be nailed at 9 Volt or close to it. Instead of taking care every 4-6 months to have a new 9 Volt battery, I preferred to replace it with a LiPo battery and integrated electronics that makes it stay at 9 Volt as long as it works, and dies suddenly when the integrated electronics decides the LiPo source is exhausted and has to be recharged. What I bought looks like this:



One can argue that 6F22 9Volt normal batteries are very cheap, and that spending some 10 CAD is a waste. I cannot argue with that. My answer is that I use the multimeter almost every day, and I want to rely on it. The measurements are faster since I replaced the battery with a USB rechargeable one, with voltage stabilizer in it. I did not know before the measurements

can be faster, but once I know there is no coming back.

Just a final note for the hobbyists: since this multimeter is cheap, one can be tempted to buy the multimeter just to disassemble it, and use the rotary switch (20 positions) in other projects. Unfortunately, the switch is dedicated to this multimeter, made on PCB (not a completely separate switch) and my conclusion is that it cannot be taken out and used for something else.

VE7LCG

Vancouver, Canada, CN89nf

Daniel, QSO with	Date	UTC	F (MHz)	Mode	RST





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- Seven themes + full English / French UI
-

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GitHub: <https://github.com/GregTroar/OpsLog>

Discord: <https://discord.gg/FYM8yw5pT>

73 de F4BPO

prs 477mhz mount climie

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Upper Hutt Branch 63 NZART (Amateur Radio) & RFRN



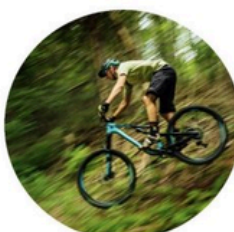
The Project: a new initiative to install a UHF Personal Radio Service (PRS) repeater at Mt Climie summit, as a community-owned and community-operated asset. The Upper Hutt Ham Club is leading this initiative, supported by local PRS radio users and community resilience advocates, including members of the Wellington region RFRN community.

The Vision: Mount Climie is a significant hub for amateur radio (ham) operations in the Wellington region. The summit hosts a variety of key telecommunications infrastructure and is a critical node for local emergency communications and community networking. PRS is a free-to-air citizen's band (477mhz) that does not require a licence to use. Radios are small, portable, affordable and very easy to use, for everyone. In fact many of you will already use them as they are commonly known as Walkie Talkie.

The Benefits:



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HUNTERS
Safety & Coverage



MOUNTAIN BIKERS
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4 x 4 OFF ROAD
Safety & Coverage



MOTORHOMES
COMMUTERS
TRADES
Connectivity



EMERGENCY RESPONSE
COMMUNITY
CONTINGENCY
Range & Back-Up

Where? Mount Climie (860 metres) dominates the skyline south-east of Upper Hutt and forms part of the Remutaka ranges. Due to its high elevation and central location, Mount Climie provides excellent line-of-sight coverage for amateur radio operators across Upper Hutt, the Hutt Valley, Wellington, Porirua and the Wairarapa.

It overlooks large portions of State Highway 2, with commuter and trade vehicles traversing Remutaka Hill daily, between the Wairarapa and Wellington basins.

Mount Climie is adjacent to an extensive nature-trail network including mountain biking tracks and walking paths (Tunnel Gully track), attracting recreational trampers, hunters and day hikers.

Mount Climie is named after pioneer John Climie, an early European settler and 19th-century landowner who was among the first Europeans to farm the surrounding Pakuratahi Forest area.

The Mount Climie PRS initiative has now commenced its funding phase from 1 May 2026. The project is targeting 30th August 2026 to complete the initial funding drive and has one year until 1 May 2027 to be completed. If insufficient funds are received, all monies will return to those who donated, and the project will be retired.

If you would like to support this initiative and assist with its financial backing, Please visit www.zl2vh.nz for further details or contact the ART63 Upper Hutt Ham Club President, Mark Gooding mark@foxtrot.co.nz

To learn more about the PRS community radio network, contact info@prs4climie.nz

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