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Audio file

20231015.newswest.mp3

Transcript

00:00:06 Speaker 1

This is VK6 ARN, news West. We are a community organisation and we've been serving up the best amateur radio news in Australia since 1931.

00:00:23 Speaker 1

Hi, this is Clinton, VK 6 FCRC and welcome to News West for the 15th of October 2023. Now with the show.

00:00:32 Speaker 2

Hi, I'm Steve. VK6SJ, with this week's episode of did you know?

00:00:37 Speaker 2

Last week we looked at how a simulcast system with multi sites on a single frequency pair worked from a base transmission perspective.

00:00:46 Speaker 2

Key principle was how we align all transmitters such that any station receiving that signal will receive any signals that are similar signal level in phase, hence negating interference at the receiver.

00:00:58 Speaker 2

One thing we didn't touch on was the difference between analogue and digital modes of transmission. If we use analogue FM for transmission, we can only rely on the accuracy of transmission and tailoring of coverage to negate interference.

00:01:12 Speaker 2

Most digital protocols also have mechanisms to combat bit error rate, caused, caused loss and bit error rate is the first symptom of the of a less than similar cast of reception.

00:01:25 Speaker 2

This means that most digital modes of transmission will produce a more robust network than any analogue system.

00:01:32 Speaker 2

Now that P25 networks in Australia have been used in public safety for a few decades, we're starting to see older generation P25 repeaters on the market at reasonable prices and mobile radios as well.

00:01:45 Speaker 2

And I know there are a couple of repeaters or beacons in Perth capable of using P25 already.

00:01:52 Speaker 2

This would need to be weighed against the fact that almost every home in Perth has an analogue radio capable of being used in a 70 centimetre band. It may be that it's worth putting up with a slightly less robust network in exchange for a greater percentage of the community having access to it.

00:02:07 Speaker 2

Next issue on a network like this is that it's not just the transmitters that need to be In Sync. The audio being rebroadcast from every site must also be presented to the network In Sync. This means that the backhaul network.

00:02:21 Speaker 2

Used to bring audio paths together. Needs to be highly reliable and with latencies in the order of 20 microseconds or so.

00:02:29 Speaker 2

This pretty much precludes the use of the Internet as a reliable medium strength of the Internet is that it's a large mesh network, but this also means that the latency is highly variable to the path being taken also being variable.

00:02:44 Speaker 2

The fact that we're exploring a network that is made up of lots of small coverage microcells also means that using dedicated links between sites is also quite feasible.

00:02:54 Speaker 2

We could also look at possibly using other networks around such as or similar to free net. Not sure if that's still a thing, but I'm sure you get my drift.

00:03:03 Speaker 2

A simple Wi-Fi point to point or mesh network would work well for this application, providing the links are planned well and it isn't riding on the cusp of its coverage, which will also generate latency.

00:03:15 Speaker 2

Now what about the receive end of the network? We need a means of picking only the best received signal and then presenting that to all base stations for retransmission.

00:03:24 Speaker 2

Two ways of doing this. We could use a central voting arbitrator.

00:03:29 Speaker 2

This would only work for an analogue network and also needs to be as quick as the latency to be useful.

00:03:34 Speaker 2

This also means that we need to get that audio back to a central point, which could also be problematic.

00:03:40 Speaker 2

The other way of managing this is to use a digital backhaul with distributed voting, IE with no central voter.

00:03:48 Speaker 2

Each site can then send an RSSI measurement with each packet, and all sites can choose the packet.

00:03:53 Speaker 2

With the highest RSSI and only retransmit those packets.

00:03:58 Speaker 2

The downside to this is that with no standard for this style of backhaul, we either need to settle on a single brand of repeater or as a community we develop our own protocol, load it into a box that each repeater uses.

00:04:12 Speaker 2

We could also potentially use a combination of both with the network starting with a common.

00:04:16 Speaker 2

Metre, while a separate box is designed in the background and the network being able to migrate to a more open protocol at a later stage.

00:04:25 Speaker 2

Plenty of examples of hams working together to produce a new mode of communication protocol as a collaborative effort like FT-8, for instance. And to be honest, I think Perth could use a project like this to bring the community closer together.

00:04:40 Speaker 2

So what brands can we use to look at to start a project like this? First one that comes to mind for me is Motorola. I suspect there are a few camps in the community who might see the first generation of Motorola P25 repeat is being shipped off to the dump with a hammer embedded in them.

00:04:58 Speaker 2

I think there have been quite a few radio network refresh projects within the public safety space over the past five to 10 years.

00:05:06 Speaker 2

The network that sparked my interest in this about 10 years ago was built in exactly this way.

00:05:12 Speaker 2

Another option is are if technology Eclipse 2 which are in use already and a couple of repeaters in Perth.

00:05:19 Speaker 2

And at least one government department is using them, and I've already seen and purchased a few at auction here in Perth.

00:05:27 Speaker 2

These actually are very well suited to the application as they can be connected in a completely distributed form factor out of the box and have designed and or installed a few commercial networks using this model.

00:05:39 Speaker 2

I think our own local brand of transceiver from Spectra Engineering could also do a similar task.

00:05:45 Speaker 2

Maybe rather than looking for the for old stuff, we approach a manufacturer and negotiate a price for a common model of radio that just does the job.

00:05:53 Speaker 2

To fund it, look at crowdfunding options or clubs could look at grant options from places like Lotto and the Big property developers and the like.

00:06:02 Speaker 2

Crowdfunding means that a commuter might drop in a few dollars into potential sites along the route to work.

00:06:08 Speaker 2

You get 50 people doing the same thing and you can build a repeater.

00:06:13 Speaker 2

So interesting concept, why not bring it up at your next club meeting for discussion? Get your club management to start engaging with other clubs.

00:06:21 Speaker 2

See if you can design a small network within your club membership and start experimenting with the concept. Start with just getting 2 transmitters In Sync and move forward from there. The fun is actually as much in the journey as it is in.

00:06:33 Speaker 2

The use of the end product.

00:06:35 Speaker 2

Ohh, thanks for listening again. This has been Steve Kennedy VK success Jay with another episode of did you know?

00:06:46 Speaker 3

In WA and beyond, News W is available on air, online and on demand. Visit our website vk6.net to find out how this is VK 6 amateur radio news.

00:07:07 Speaker 4

Foundations of amateur radio recently, I explained some of the reasons why I've shifted to using DBM to discuss power.

00:07:16 Speaker 4

You might recall that one Watt is defined as 1000 milliwatts, and that's represented by 30 DBM. 10 watts is 40 DBM 400 watts. The maximum power output in Australia is 56 DBM and 1500 watts. The maximum in the USA is just under 62 DBM.

00:07:36 Speaker 4

My favourite power level 5 watts is 37 D.

00:07:42 Speaker 4

I mentioned that using DBM allows us to create a continuous scale between the transmitted power and the received signal. On HF, an S9 report is defined as -73 DBM between each S point lies 60 DB, so an S8 signal is -79 DBM.

00:08:02 Speaker 4

S7 is -85 DBM and so on to S0, which is -127. DBM said differently, to increase the received signal by 1 S point, you need to quadruple the power output.

00:08:19 Speaker 4

Now let's consider a contact with a 100 Watt station, 50 DBM. Let's imagine that the receiver reports an S8 signal. That means that between a transmitter output of 50 DBM and a received signal at -79 DBM, there's a loss of 129 DB.

00:08:38 Speaker 4

If we dial the power down to 5 watts, our 37 DBM will be received at -92 DBM and earn an S6 report which in my experience is pretty common.

00:08:52 Speaker 4

If we instead use the maximum power permitted in Australia, we'd gain 60 B and end up at -73 DBM or S9. The maximum power output permitted in the United States, 62 DBM is only 60 DB higher, and not even enough to get you 10 / 9 at the other end.

00:09:11 Speaker 4

At this point I could say see QRP when you care to send the very least and be done with it. Well, it's true in my not so humble opinion. That's not where I'm going with this.

00:09:23 Speaker 4

That 129 DB of loss is made up of a bunch of things. For example, there's the coax loss at either end, the antenna gain at either end, and a big one. The path loss between the two antennas.

00:09:37 Speaker 4

Let's assume for a moment that coax loss and antenna gain cancel each other out. You might think that's nuts, but consider that 100 metres of RG58 coax on the 10 metre band has a loss of around 8 DB and a dipole has an isotropic gain of 2.15 DBI. In case you're not sure what that means.

00:09:58 Speaker 4

A dipole has a gain of 2.15 DB over the ideal radiator as theoretical isotropic antenna.

00:10:06 Speaker 4

Now, it's unlikely that you're going to connect a dipole to 100 metres of RG 58. So let's say 1/4 or 25 metres instead.

00:10:17 Speaker 4

The coax loss is also quartered, or about two DB, which pretty much means that your dipole gain and your coax loss essentially cancel each other out.

00:10:27 Speaker 4

Sorry as a working number, assuming both stations are similar and ignoring SWR mismatch, preamplifiers, philtres and all manner of other tweaks in the signal path, 129 DB loss is a good starting point to work with.

00:10:42 Speaker 4

If you use a free space path loss calculator, that's the equivalent of the loss for a 2 1/2 thousand kilometre contact on HF on the 10 metre band.

00:10:52 Speaker 4

Now, if you were to replace the RG58 with something like RG213 coax, the loss drops from around 2 DB to 0.9 DB. So your signal just increased in strength by 1.1 DB.

00:11:07 Speaker 4

Or not enough to make any difference in this example.

00:11:10 Speaker 4

Of course, there's a benefit in using lower loss coax. I mean 1.1 DB gain isn't nothing, but it really only matters when the conditions are met.

00:11:20 Speaker 4

Original If you're going to run your coax to the other side of a paddock queue might discover that your signal changes by a whole S point, but realistically, most of the time you're not going to notice. Similarly, and perhaps more importantly, in the scheme of things, your antenna is also just fiddling around the edges when compared to the path loss of 100 and.

00:11:40 Speaker 4

29 DB.

00:11:41 Speaker 4

For example, if you double your antenna gain, you're only seeing an improvement of half an S point, and most likely you won't actually notice.

00:11:50 Speaker 4

And before you grab the nearest chicken to pluck feathers to come after me with, I'd like to point out that each element on their own has a minimal impact on the total system. But that doesn't mean that improving your station is useless. Far from it.

00:12:05 Speaker 4

If you use quality coax, have an antenna that is performing well, is a good match to your transmitter and coax, use appropriate.

00:12:13 Speaker 4

Philtres in pre amplification, you're likely to make more contacts more.

00:12:16 Speaker 4

Often, but the bottom line is that you actually need to be on air to make noise, and ultimately that's going to represent the biggest improvement in your station performance. Case in point. The other day, my whisper or weak signal reporter beacon with 10D BM output was reported 7808 kilometres away by Delta.

00:12:37 Speaker 4

Copper 0G Victor November the club station of the German Antarctic Research station. Noi Meyer 3IN Dronning Maud Land, Antarctica. A first for me.

00:12:49 Speaker 4

Whisper reported that as a signal of -26 DB.

00:12:53 Speaker 4

Previously I proved that when Whisper reports -31 DB about 75% of D codes are successful. In other words, we can think of my report as being 5DB above the minimum decode level.

00:13:07 Speaker 4

This is interesting for several reasons, least of which is that a report of -26 DB doesn't appear to have a relationship to anything else, something which I've observed before. Looking further, if we use our notion of 100 and 2090 B loss figure and start at the beacon power of 10 DBM, we end up at -119 DBM.

00:13:28 Speaker 4

Which is between S1 and S.

00:13:31 Speaker 4

In reality, the path loss for that contact is more likely to be in the order of 10 DB. Worse, making the signal at the receiver -129 DBM or around 0 in those kinds of marginal conditions where there's five DB between being heard and not finding an extra DB or two in better coax or antenna is.

00:13:51 Speaker 4

Absolutely worth the investment, but if you're in a contest making points, you're not gonna care being on the right band, pointing in the right direction and being on air, making contacts is going to be much more important.

00:14:06 Speaker 4

That said, I'll leave you with a question.

_00:14:08 Speaker 4

Given our obsession with antennas, what might the impact be of adding an 18 DBI yagi to your station? I'm Onno VK6FLAB.

_____00:14:23 Speaker 5

This is Roger Harrison VK2ZRH, Editor in Chief of Amateur Radio magazine, Journal of the Wireless Institute of Australia.

In the event you've not heard, this month Amateur Radio magazine celebrates 90 years of continuous publication.

To mark this milestone ON-AIR, we have obtained a Special Event call sign – VK90AR – with which to get on the bands and make some noise.

The call sign is for use by any member of the WIA as well as any affiliated club.

Getting to use VK90AR is a simple process. Apply on the WIA website Online Event Calendar, where you can book a roster to suit yourself.

If you already know where that is, go straight there. Otherwise, look up the news item featured prominently on the WIA website home page.

VK90AR expires on 31 December 2023. So, get online, book a roster, and don't miss out.

That's it from me. I'm Roger Harrison VK2ZRH.

00:15:36 Speaker 6

This is news West from VK6ARN, produced by amateurs for amateurs purely about the hobby of amateur communication and experimentation.

00:15:47 Speaker 7

AMATEUR RADIO HELPLINE 15th OCTOBER 2023

PLEASE Have your HELPLINE requests into me by 07:00 hrs WST Friday to be in the next broadcast

to email ; <roy.watkins@bigpond.com> or (vk6xv@bigpond.com)

Contact me and keep our equipment in Amateur hands, 73 Roy. vk6xv@bigpond.com

**Please enter “DISPOSALS or HELPLINE” in the
subject NEW ITEMS THIS WEEK.**

=====

Here is this weeks helpline.

Don VK6UT Deceased Estate

Dear Roy. Thanks very much for all your help. However, I still have a heap of (many old and unknown) accessories my father (Don VK6UT) collected. Here is an update which is for sale or possibly (free for bits and pieces) and any reasonable offer will be seriously considered for remainder. Sorry, but I am unsure of the accuracy of some the items listed, Pickup please

Gumtree / Market Place

- 1) Power Supply 13.8 volt 20 amp DC Soft Start (Working) and 20v DC Battery \$100 ono.
- 2) Bush Radio EU35 (EZUROPE) with spare magic eye. London 1955?'s works \$200 ono
- 3) Pioneer Dynamotor Gen-E-Motor SP 175 Input 18v output 450v
No
13068
- 4) Pioneer Dynamotor Gen-E-Motor E2 12V to 250V DC
- 5) 15 small approx. ½ to 1HP electrical motors \$30 each ono
- 6) Typewriter Brother AX-325 Electronic with Keyboard Cover and Manual and some accessories - in working condition
Manual and some accessories - in working condition
- 7) Compressor (home made) to 100lbs
- 8) VSWR Power Meter
- 9) Metal capping - Hard Fence (58mm x 76mm x 58mm) 3.8mtr length crimped one end. 8 pieces. \$25.00 ono

Radio Electronic

- b) Power Supply Codan Type 7113
- c) Power Supply Model LBR-800
- d) Voltage Regulator 250v?
- e) Several 10+ Small and whip type and a large TV (Type of) antennas' including The ARRL Antenna Book. 15th Edn. 1988
USA and Co-Axial
Relay Construction pamphlet
- f) YARGI ? type antenna (Stainless)

g) 3 hand held ICOM's Details Below

i) ICOM IC-2E 2M FM Transceiver Hand Held with ;annual and Schematic BATTERY DAMAGE Seems to work? \$40.00 ono

ii) ICOM IC-2E 2N 144MHZ FM TRANSCEIVER hand held with battery Seems to work? \$40.00 ono

iii) Standard C528 .144 /430 Mhz FM Handy Transceiver and Manual (No Battery case) Seems to work \$40.00 ono

h) Wind Meter and Instruction, Plans / Schematic Project 556 Dismantled

i) Many Battery power supply Chargers free

j) Rectifiers old approx. 20 + very cheap

k) Many of the following. 50+ meters / gauges (frequency, amperes, volts, etc), many connectors many diodes, old and new resistors, transistors, capacitors. Heaps of Cable (co-ax?) and fittings etc

l), Heaps of vintage electrical, radio, wireless bits and pieces including 10+ transistor radios, T-Shaped glass tube valve unknown Chinese writing etc

writing etc

m) RF Amp Meter

n) Transformer Step Down 250 to 110v

o) Transformer – unknown Specs to be advised

p) DC Meter 12v

q) DC Meter 18v

r) Variable Transistor AC 0-300?

s) Meter (Heathbrit)

Publications

Special Collectors Auction Old Valve Radios Garside & Webb Sale
January 1997

Upgrade 40MHz digital frequency meter, including Cat. K-
3437Artical

FT-101 Instruction Manual

HF-SSB Transceiver Kenwood TS-120S and TS-120V (Photo copy)

FT-301(D) YAESU x 2 (1 x Photo copy) Manual

IC-706 ICOM Manual

IC-706 MKII ICOM Manual

IC-706MKIIG ICOM x 3 Manual

AT-120 TRIO Antenna Tuner Manual

Precision SWR-Power Metre Instructions

SWR 200 & Meter instruction in Chinese with Charts in English

FT-901 Schematic

Miscellaneous

SONY TapeCorder Mdl TC-105 plus 2 reels with a tape Untested

Microphone Super Cardioid Dynamic 33-992A with instructions

Drawing Board

Lamp light

Lamp light

Portable lights

Aluminium Extension Ladder

Stereo TEAC Radio Cassette (small)

Refrigerator Centrex

VALVES LIST.

6SJ7GT 8 PIN AWA

Vibrator Nissin 6Z – 2A D 6v 7amp 60cycle

Vibrator Ferrocart M337 6v 4 Pin 150cycle

Vibrator Ferrocart M437 6v 4 Pin 150cycle

Vibrator V5123 OAK 4 Pin

COIL 34975 5590KC Antenna 3 pin.

Coil 4510kc Antenna 3 pin

Several unknown valve type items with pins

BOOKS

a) TORANA Series HB Sedan, S and SL Sedan- Scientific Pub Manual #72 (1977) \$20 ono plus postage

Military Books

ABOVE THE WAR FRONTS A Record of the British Two-Seater Bomber Pilot and

Observer Aces, the British Two-Seater Fighter Observer Aces and the Belgian, Italian, Austro-Hungarian and Russian Fighter Aces 1914-1918 by Russell Guest,

Norman Franks and Gregory Alegi (1st.edn 1997 Hardcover) Very good condition. Used \$25.00 ono

BATTLE OF THE ARDENNES 1944 (1) ST VITH AND THE NORTHERN SHOULDER. [Osprey Campaign Series 115] 2003. 96 pages by Steven J. Zaloga, Very good condition. \$15 ono plus postage.

KURSK 1943 The Tide Turns in the East, [Osprey Campaign Series 16] 1992. 96 pages by Mark Healy Very good condition. \$14 ono plus postage.

ARNHEM 1944 - Operation Market Garden [Osprey Campaign Series 24] Stephen Badsey \$15.00 ono Plus postage

The Greatest Battle : The Fight for Moscow 1941-42 by Andrew Nagorski. 25 Photo's. Paper Back 2008. \$15 ono plus postage.

Photo's. Paper Back 2008. \$15 ono plus postage.

LEGS ELEVEN. Story of the 11th (WA) Battalion (AIF) in the Great War of 1914-

1918(pub.1940 1st Edn) Capt Walter C Belford. Previous owner's name on front end paper otherwise a very good condition copy of an exceptionally scarce title. \$1800

120 plus books on World War I

Kind Regards
Stephen Truscott

1xxB Stock Rd Attadale WA

Hi Roy , I have a Realistic amplified desk mike for sale. Asking price \$50.00

Barrie vk6adi



Hi Roy, I still have the Hallicrafters HT33 for sale , requires 1.5 to 2kv power supply,have filament and bias xformer on main unit.

Will send top and bottom images of linear to interested parties. Asking price now. ... \$250.00

Barrie vk6adi



Hi Roy ,I have a classic Radiola mantel radio for sale to a collector of vintage radios..it has dual mf and sw bands and works well and is original..the wooden crafted case is in immaculate condition. Any genuine offers is considered....Selling on behalf of Gerry vk6gw

73's. Barrie vk6adi



FOR SALE

Daiwa controller & rotator..

\$350.00 Vacuum tube voltmeter ...

\$50.00

Contact Barrie vk6adi on email. b.j.burns@bigpond.com or mobile 0428 959 771

**Thanking
you Barrie
vk6adi**

Wanted – is there a Collins 51J4 general coverage receiver out there, needing love and affection?
Prefer good working condition, but am happy to administer some TLC. Please email Steve, VK6VZ with
price and details at: stevevk6vz@tpg.com.au

**WANTED: Antenna Analyzer that covers FROM 100 KHZ to 600 MHZ. Such as a Rig Expert or other
brands that can sweep the spectrum.**

Not after a Nano VNA.

Mark VK6BSA email vk6bsa@gmail.com

FOR SALE

An item for your helpline -

I have a Kenwood TS-450S for sale. Excellent condition, asking \$700.

Phone Wayne Douglass VK6NW at 0499 450 505.

Thanks

Regards

Wayne Douglass

VK6NW



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Netwest's Radio and Electronics Repair Centre

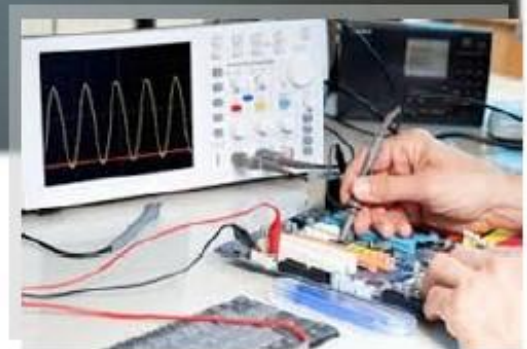
- Transceivers, Auto tuner repairs, Power supplies
Codan antenna repairs
- Commercial electronic devices can be quoted

Services

Contact Bruce Ingham

08 92255522 or 0418 376 541

41 Kensington St
East Perth WA 6004



**Please have your items in to me by 07:00 AM
Friday for inclusion the following Sunday
broadcast.**

**The email address is vk6xv@bigpond.com
Don't forget YOUR phone number and email
address. Please include HELPLINE as the
"SUBJECT" Thank you.**



Hi there. I'm Clinton, VK6FCRC and I'd like to thank our newest team of volunteers and broadcasters each week and those regularly submitting content each week. I'd also like to thank our readers and you for listening. Please stand by now for callbacks after the ident or if nobody is taking callbacks, please fill out the form on the vk6.net website.

00:20:43 Speaker 1

So we know how many people are listening or reading news west each week.