



Bonner County Amateur Radio Club

August 14, 2024

VFW Post

1325 Pine Street, Sandpoint, ID 83864

18:00 hrs. – Informal Discussions & Eyeball QSO's

18:30 hrs. - Meeting

Welcome & Pledge of Allegiance

- Welcome
 - New/Upgraded Amateur Radio Operators
 - Guests
 - “Around the room”
- We are using Zoom so, please, no questions or comments *without* a microphone in your hand



BCARC Antenna Farming

- Poll Response
 - 7 replies – “check all that apply”
 - 7 interested in HF antennas for DX, WAS, etc.
 - 1 interested also in antennas for ARES
 - 5 used End-fed wires
 - 3 used Off-center fed dipoles
 - 3 used verticals with or without radials
 - 2 used “other antennas”
 - 6 used trees for supports
 - 4 used pushup masts for supports



BCARC Antenna Basics

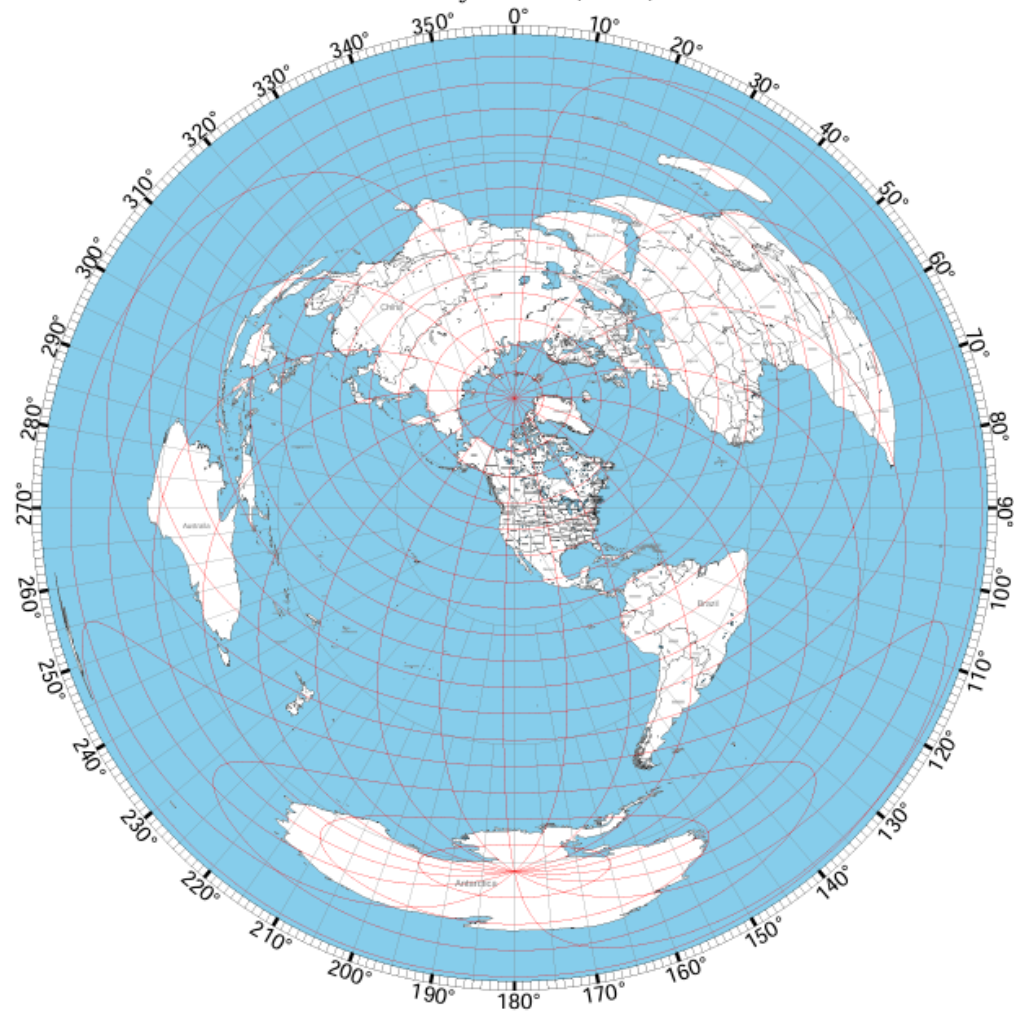
- There is no perfect antenna except one
 - Isotropic radiator is a creature of Electrical Engineering that does not exist in nature
- “It all depends on what you want to do”
- “Your milage may vary”



Azimuthal Map

Center: $48^{\circ}16'15''\text{N}$ $116^{\circ}32'29''\text{W}$

Courtesy of Tom (NS6T)

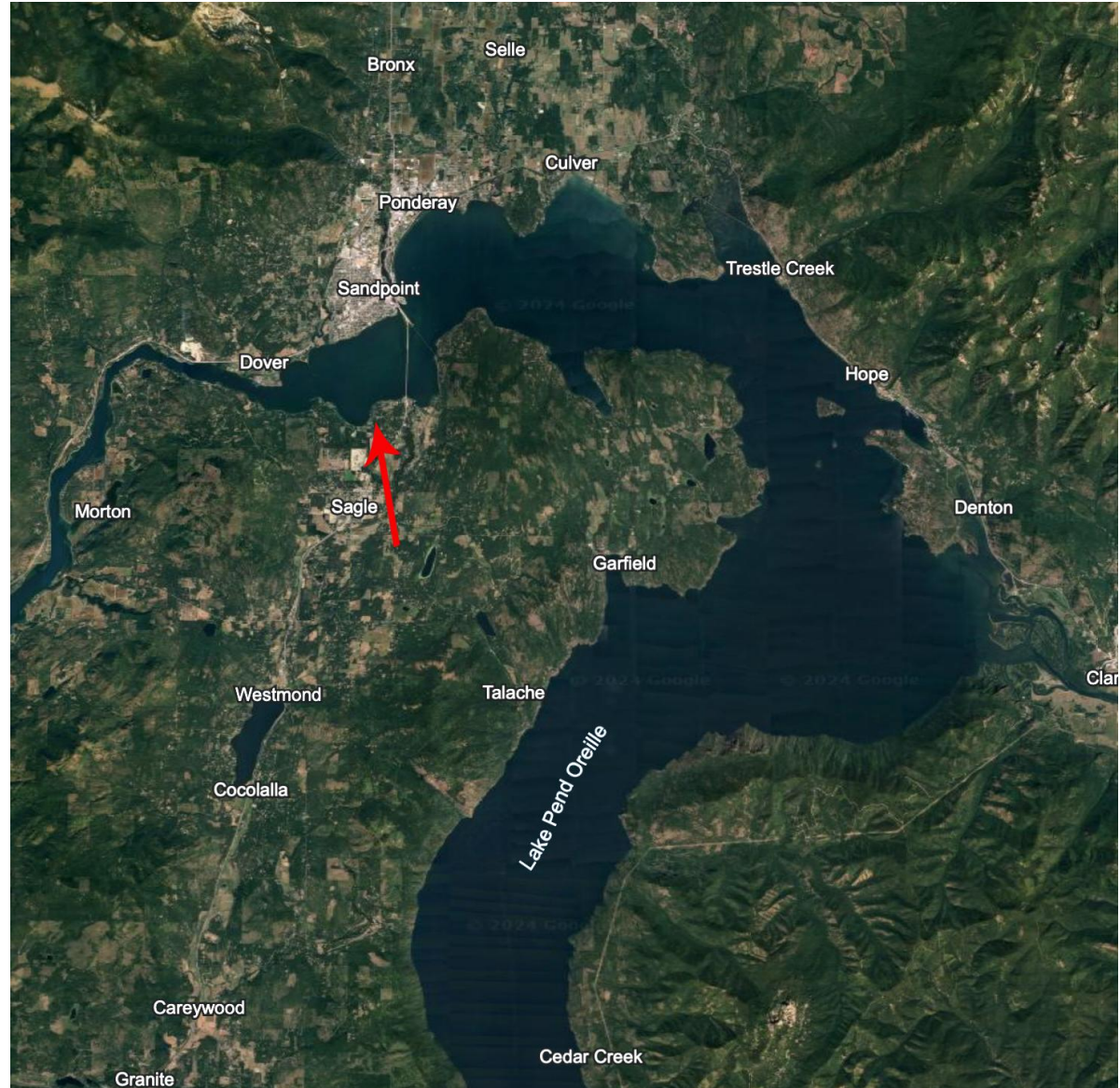


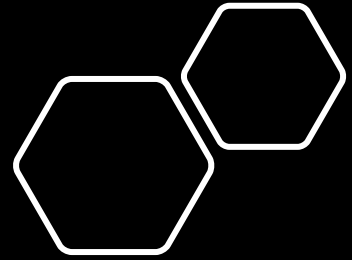
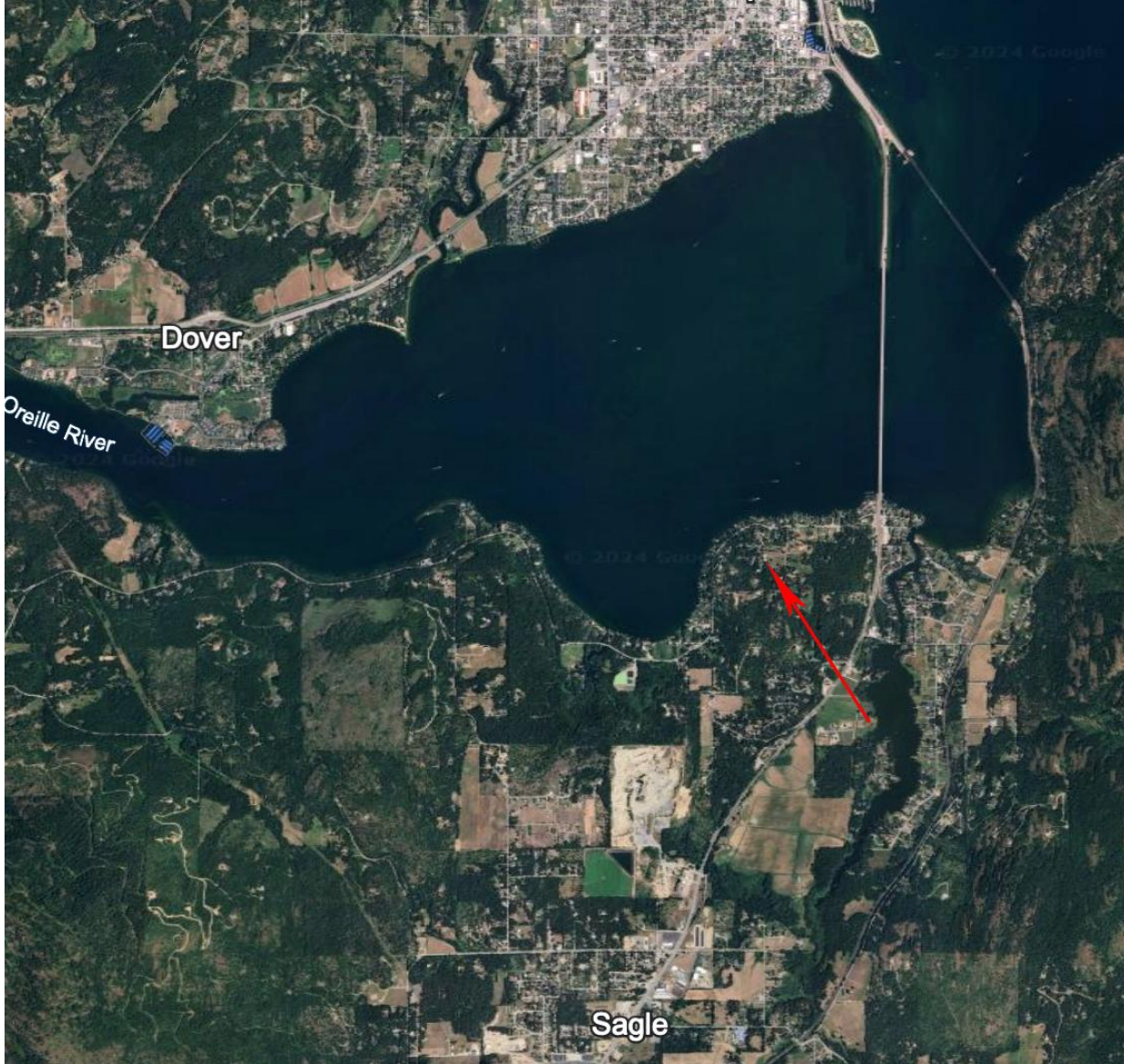
Map from <http://ns6t.net/>

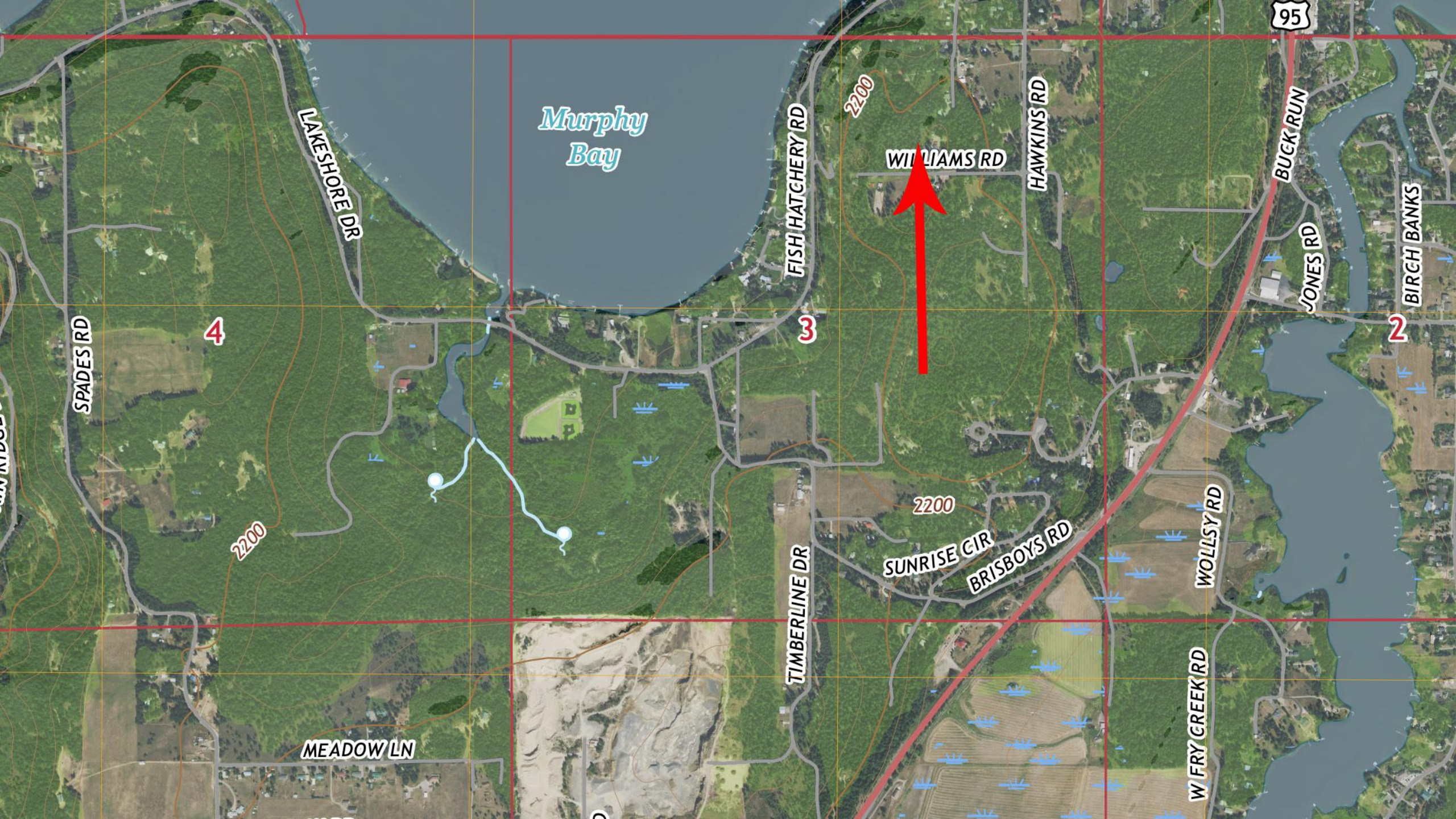
Presenters

- Daryl KK7OAI - Vertical Antenna
- Jim KJ7SEN – End-fed wire & OCF (JK last minute substitute)
- Dave KE4EW – The G5RV antenna
- Mike N7HDD – Hexbeams
- Terry N7BDL – 3 element Yagi antenna on your roof
- Questions and general discussion
- *Please hold questions to the end – lot to get through!*

Verticals – Daryl K6KRG







Murphy Bay

WILLIAMS RD

FISH HATCHERY RD

HAWKINS RD

BUCK RUN

JONES RD

BIRCH BANKS

WOLLSY RD

W FRY CREEK RD

TIMBERLINE DR

SUNRISE CIR

BRISBOYS RD

MEADOW LN

SPADES RD

LAKESHORE DR

95

4

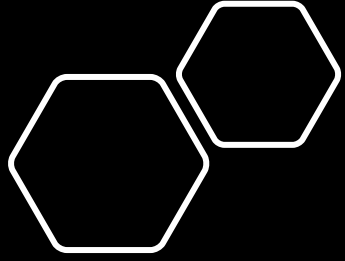
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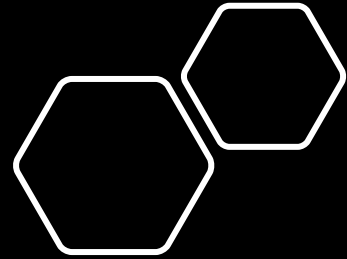
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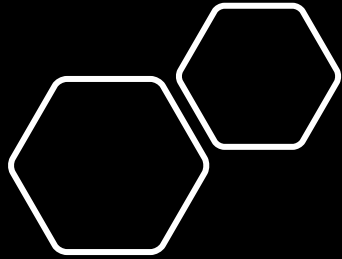


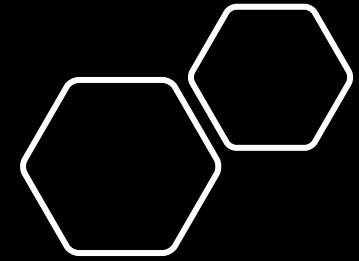














They Are Here



Jim - KJ7SEN End Feed Half Wave Wire

- Very Popular Antenna
 - Easy to make or buy
 - Multi- Band without tuner
 - Simple to erect
- Build
 - [Let's Build an EFHW Antenna! – Brazos Valley Amateur Radio Club \(bvarc.org\)](http://bvarc.org)
 - [End-Fed Half-Wave Antenna Kit \(arrl.org\)](http://arrl.org)
 - Google – plenty of other “How To”

Buy – Lots of sources



Par EndFedz® Antennas EF-20

End Fed Half Wave Antenna, 14.0-14.35 MHz, 100W SSB/CW, 50W AM/DIG, 33 ft. Length, Stainless Steel Hardware, SO-239 Connector, Each

Part Number: PEZ-EF-20

★★★★★ (11)

In Stock (more than 10 available)

Estimated Ship Date: **Tomorrow**

 [Documentation](#)  [Multiple Images](#)

\$69.99

1

Add To Cart



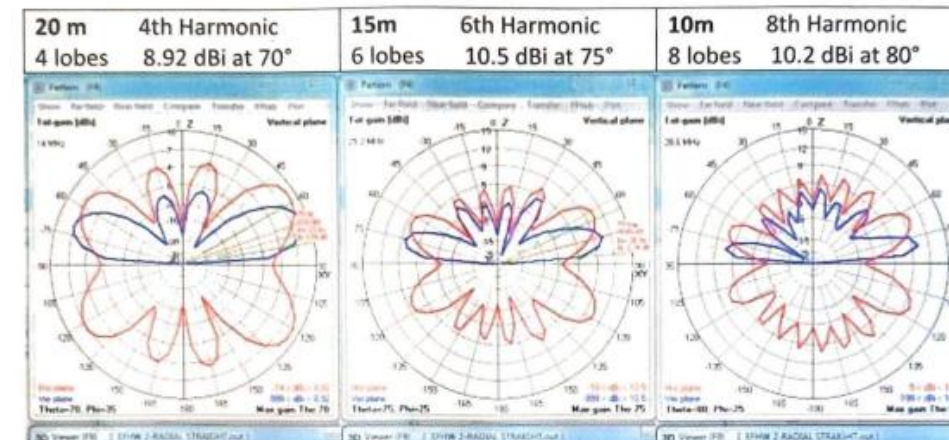
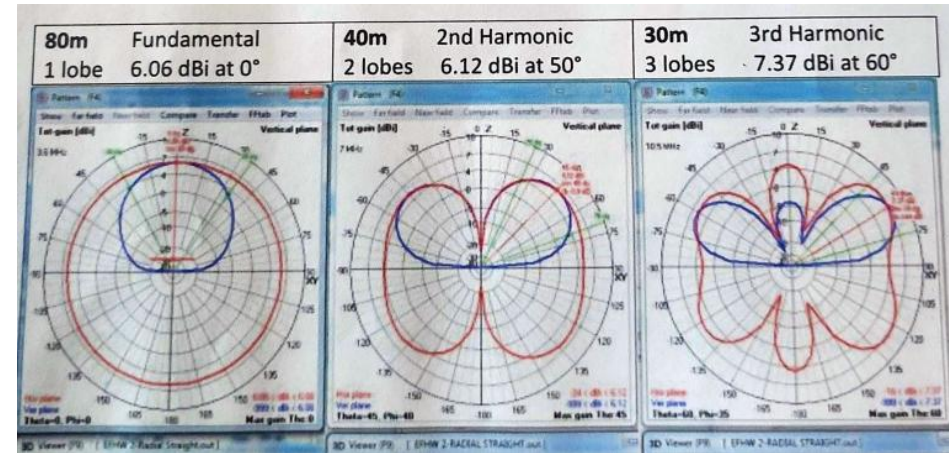
Compare



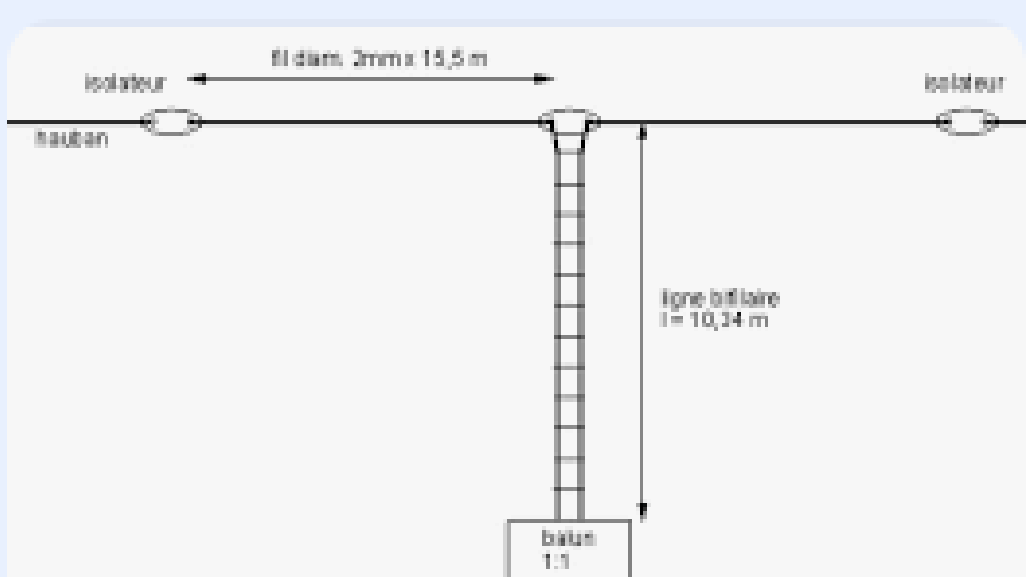
Wish List

Some Things to Remember

- Location versus other antennas
- Metal buildings
- Very high RF voltage at the end
- “RF in the shack”
- Power rating of 49:1 balun
- EFHW on *even* and *odd* harmonics
- OCF on *even* harmonics
- It is a great compromise antenna!




Dave – KE4EW & The G5RV



The diagram illustrates the construction of a G5RV antenna. It features a horizontal wire supported by two insulators labeled "isolateur". The distance between these insulators is marked as "fil diam. 2mm x 15,5 m". A vertical wire is connected to the center of the horizontal wire, extending downwards to a box labeled "balun 1:1". The length of this vertical wire is indicated as "ligne bifilaire l = 10,34 m".

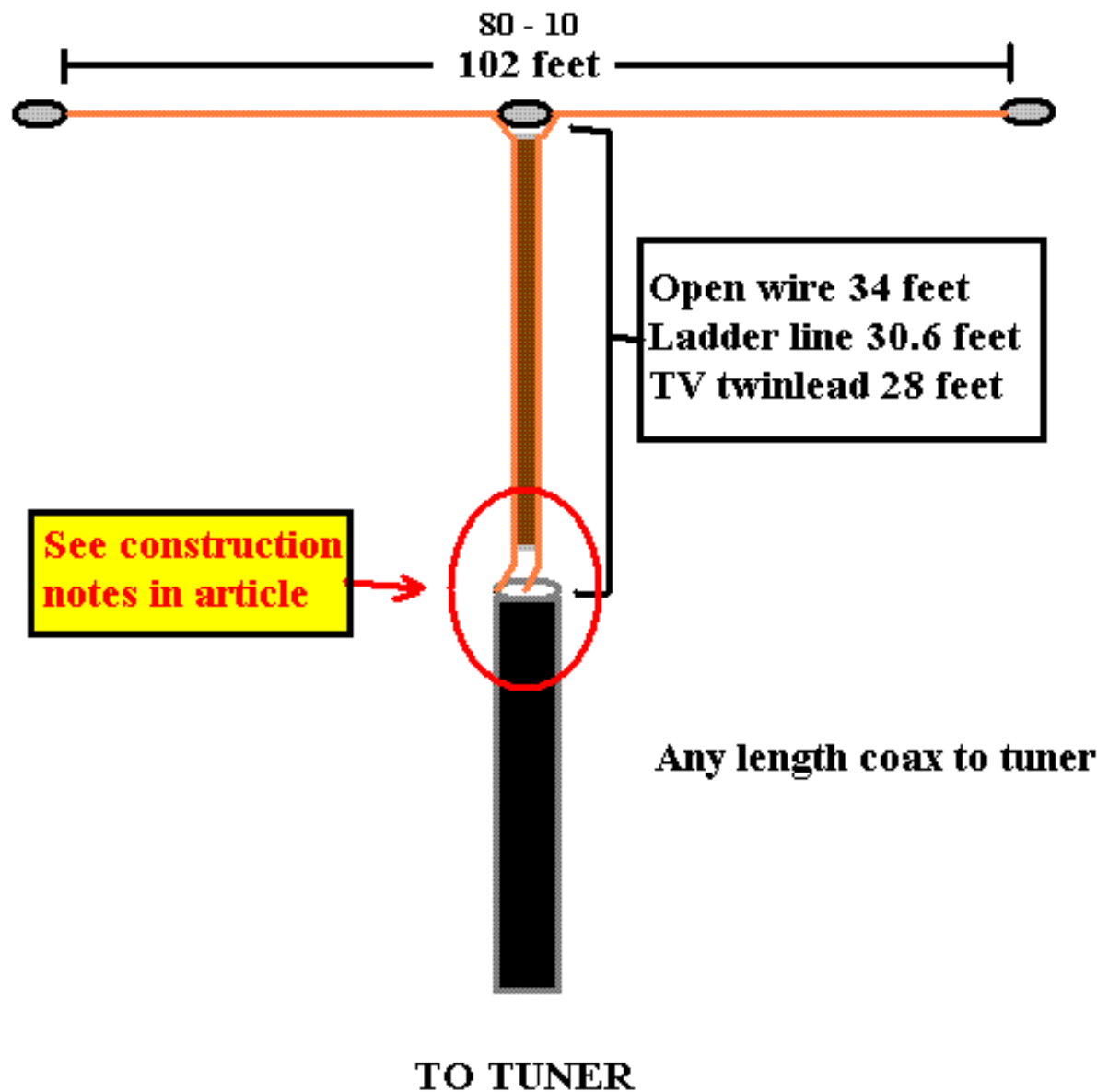
Make your own G5RV

 The DXZone
G5RV multi-band antenna constructio...

- Designed by Louis Varney G5RV of Great Britian in the mid 1940's
- Effective Multiband 10 - 80 meter HF wire antenna at little cost
(Also Available commercially)
- The G5RV antenna is a center fed doublet with a symmetric resonate feeder line, which serves as an impedance matcher for a 50 ohm coax cable to the transceiver
- Yes, it is a compromise antenna



BASIC G5RV CONSTRUCTION



N4UJW



- Radiates broadside to the antenna
- Does not require a balun at the coax to ladder line feed point (however, some instructions may recommend it)
- Radiating patterns are different depending on the band
- The link below has excellent details on the G5RV including history, radiating patterns, etc
- <https://rsars.org.uk/wp-content/uploads/2013/01/louis-varneys-g5rv-rsars-tribute-1-3.pdf>



- Can be configured as a normal dipole or inverted V
- Does not quite require the space of an 80 meter dipole
- There is a smaller version, the G5RV Junior for 10-40 meters
- Requires an antenna tuner
- Some bands may require the use of a wide range antenna tuner beyond what the internal transceiver tuner will handle

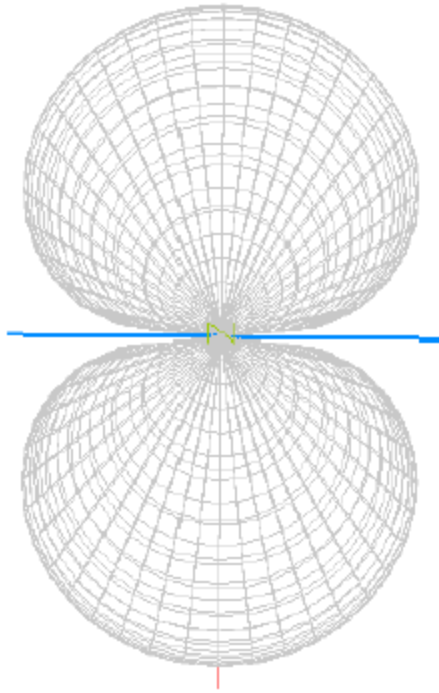




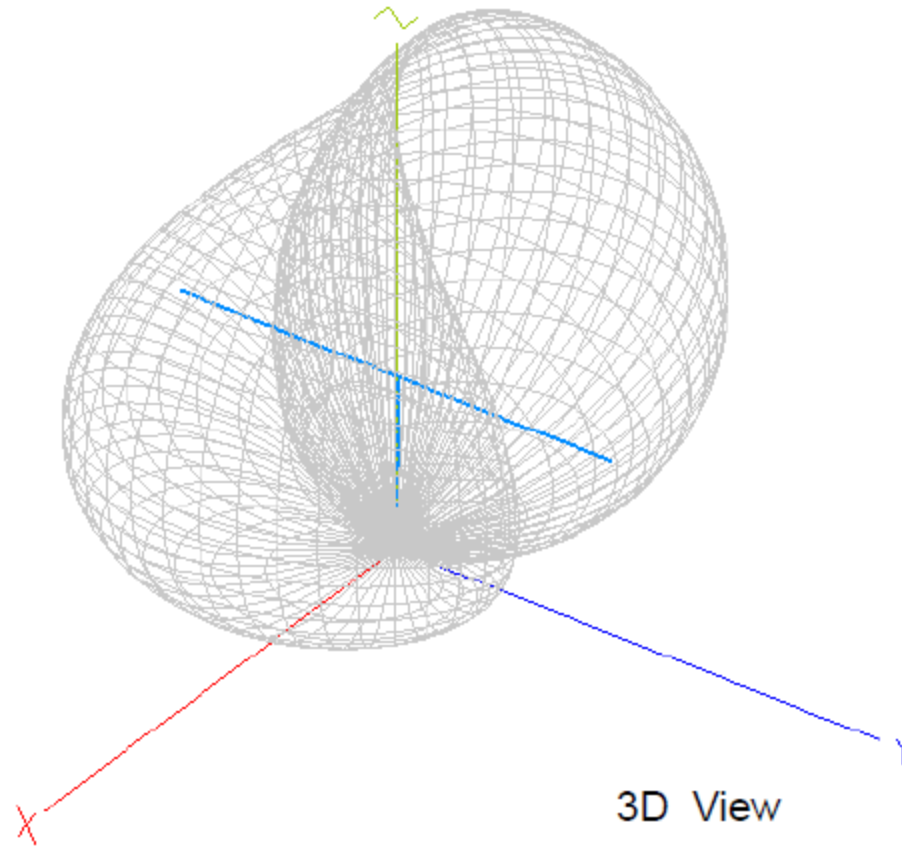




3.75 MHz Horizontal
Radiation Patterns



Plan View

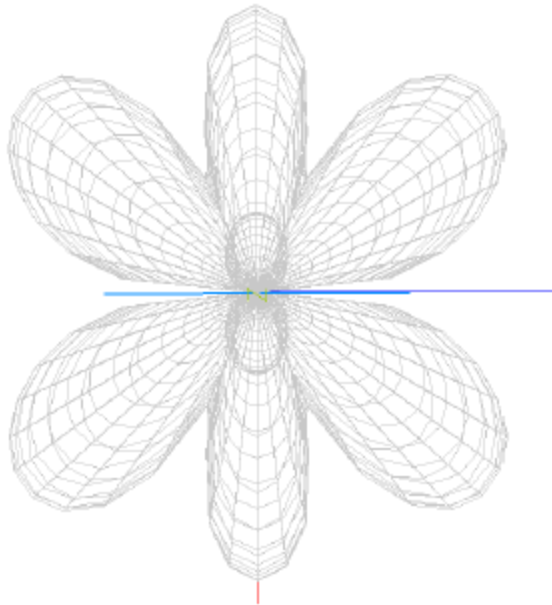


3D View

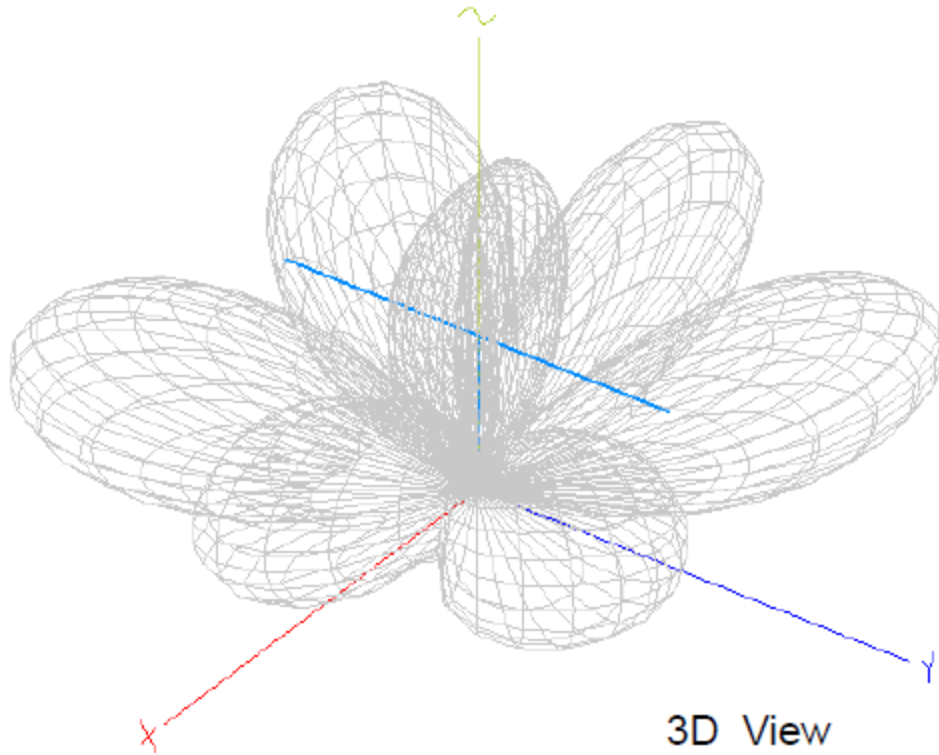
Classic G5RV-Flat top T
Radiation Patterns
300R feeder bottom @ +1m above
"Real" Ground & Antenna optimised
for SWR 1.53:1 @ 14.15 MHz



14.15 MHz Horizontal
Radiation Patterns



Plan View

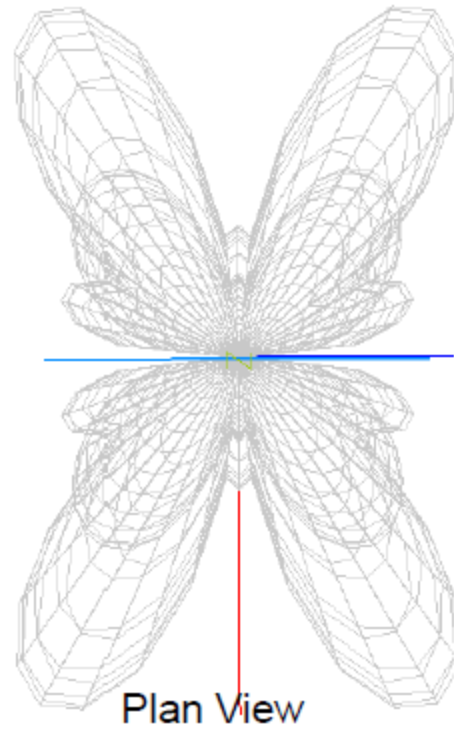


3D View

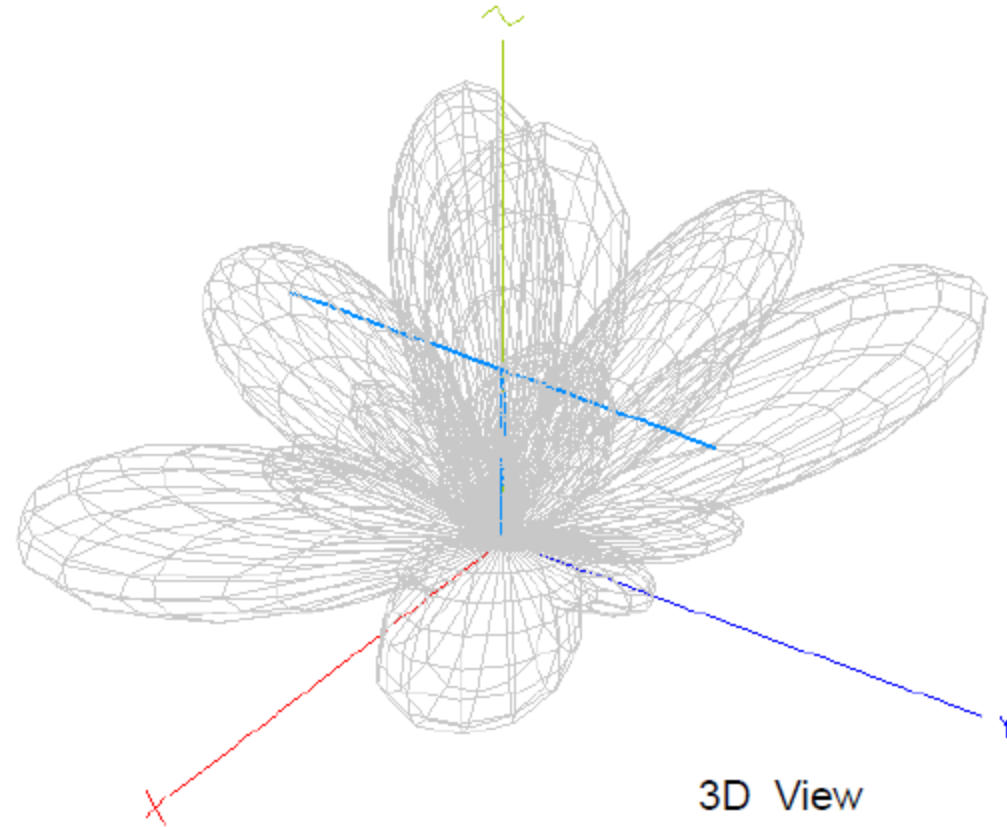
Classic G5RV-Flat top T
Radiation Patterns
300R feeder bottom @ +1m above
"Real" Ground & Antenna optimised
for SWR 1.53:1 @ 14.15 MHz



21.20 MHz Horizontal
Radiation Patterns

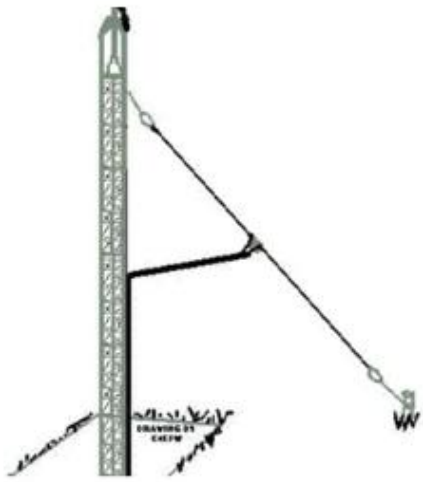


Plan View

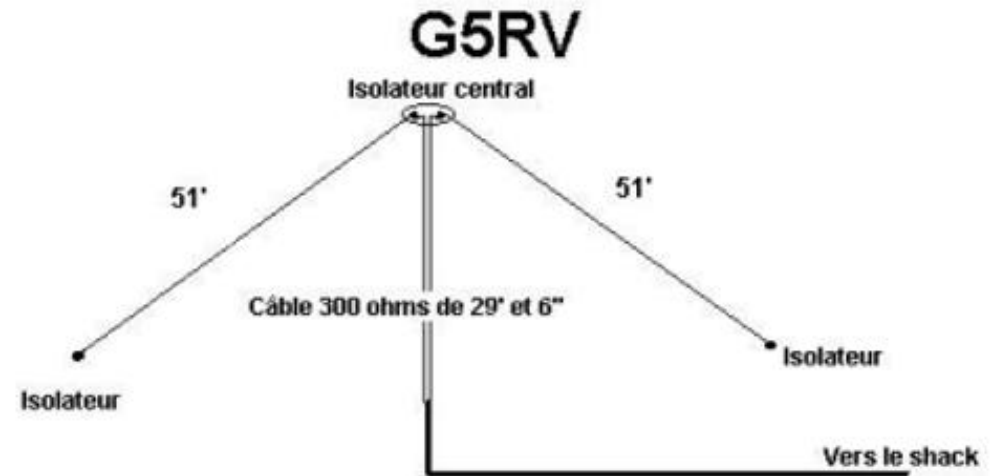


3D View

Classic G5RV-Flat top T
Radiation Patterns
300R feeder bottom @ +1m above
"Real" Ground & Antenna optimised
for SWR 1.53 :1 @ 14.15 MHz



VS



So, my 20 dipole sloper vs the G5RV on 20 meters

The 20 meter dipole sloper always slightly beats out the G5RV
I would expect to see similar results on other bands when
comparing a resonant dipole to the G5RV. It isn't practical for
me to have a resonant dipole for all the bands

ZS6BKW version of the G5RV

The ZS6BKW and G5RV are both HF dipole antennas with similar construction and tuning methods but different dimensions. The ZS6BKW is a modified version of the G5RV, and some say it's better. Here are some differences between the two:



- ❖ Efficiency and gain: Has better efficiency and theoretical gain than the G5RV.
- ❖ Resonance: Can resonate on five bands.
- ❖ Length: Is shorter than the G5RV, but its feed line is longer.
- ❖ Tuner: Doesn't require a tuner if it's installed at least 30 feet high, while the G5RV may need a tuner to work on non-resonant bands.



“the antenna you put up always works better than the one you don’t put up”.

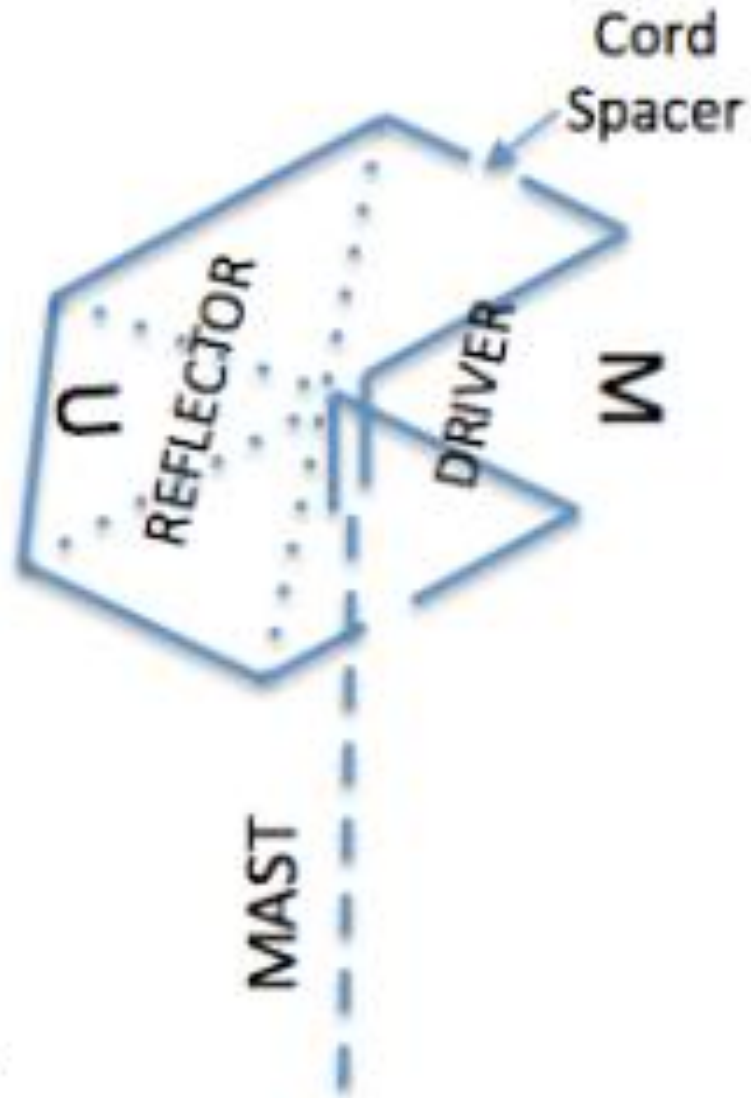
“Is a compromise antenna efficient enough? Well, if you can make contacts with it then heck yes”.



Mike –
N7HDD & the
Hex Beam



Hexagonal beam



KIO Hex Beam Details

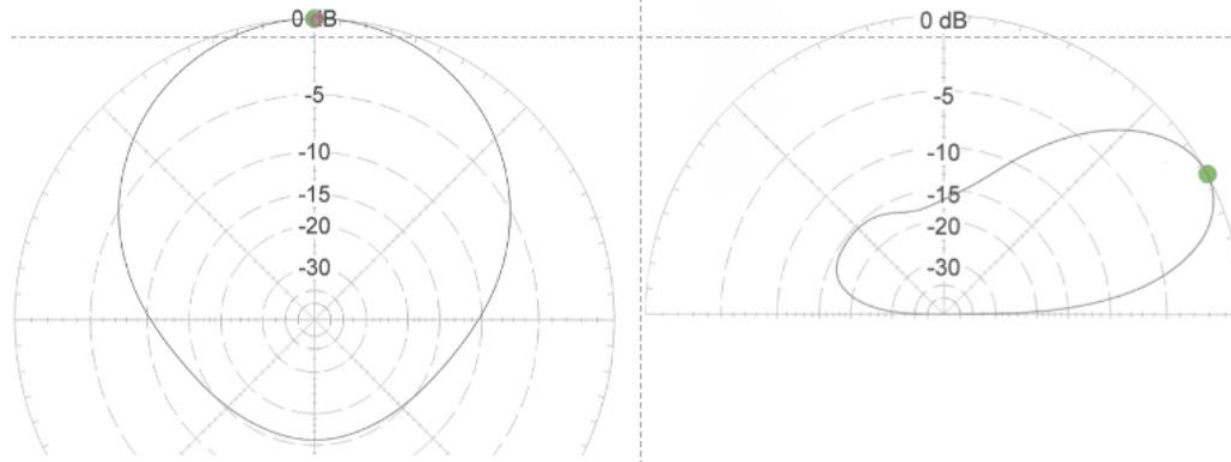
- A hexagonal beam operates exactly the same way but instead of a driven element that is straight like a dipole, it is a wire bent into the shape of the letter M. The reflector, instead of being straight is also a wire bent into a large U shape. On a hexagonal beam there are six arms extending from the center that form a frame on which the wires of the driver and reflector are supported.

Bands	20, 17, 15, 12, 10, 6
Antenna elements	2 per band
Gain	Peak
Approx. 5.4 dBi (See Chart Below)	
Front/Back Gain	Peak > 10 dB (See chart below)
VSWR	Less than 2 1 across all bands
Turning radius	10.8 feet
Diameter Of the beam	21.6 feet
Height if antenna	33 inches
Weight of antenna	25 pounds
Wind load area	5 Square Feet
Maximum power	2000

BAND	20	17	15	12	10	6
Gain (dBi)	9.6	10.1	9.4	9.6	9.3	10.4
F/B (dB)	15.7	11.8	9.8	13.6	13.7	10.9

Data are as modeled for antenna performance at 33 ft over average ground and for the optimal vertical takeoff angle. Free space gain peak is 5.4 dBi.

Below azimuthal and vertical radiation patterns for 20 meters only are shown





Terry – N7BDL Yagi-Uda Beam Antennas

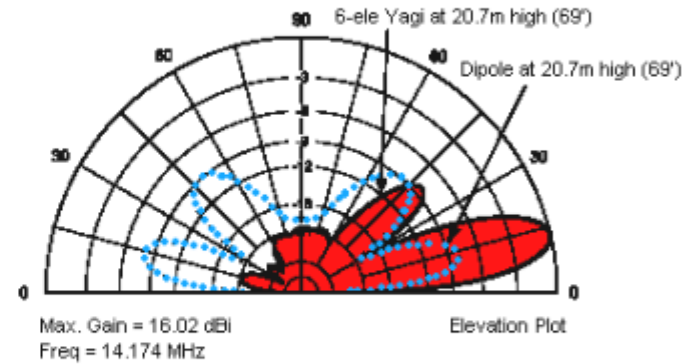
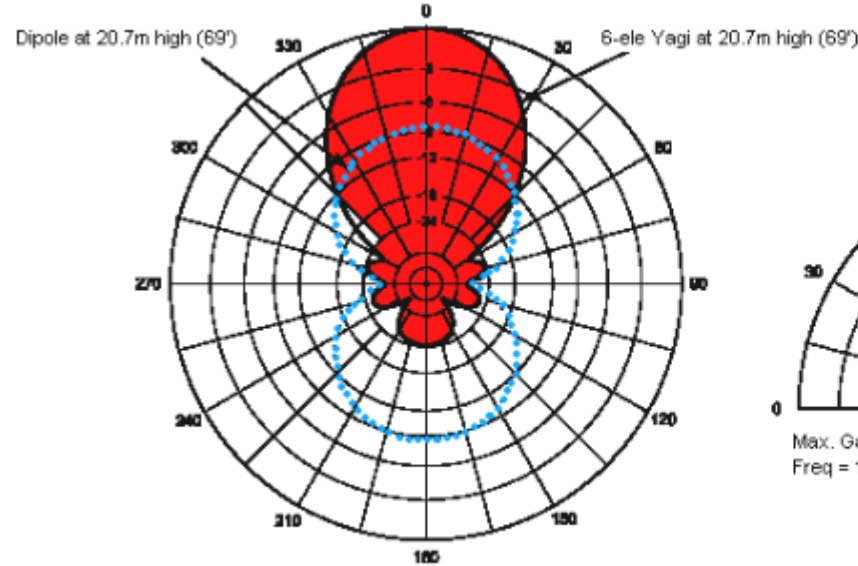


N7BDL Arizona



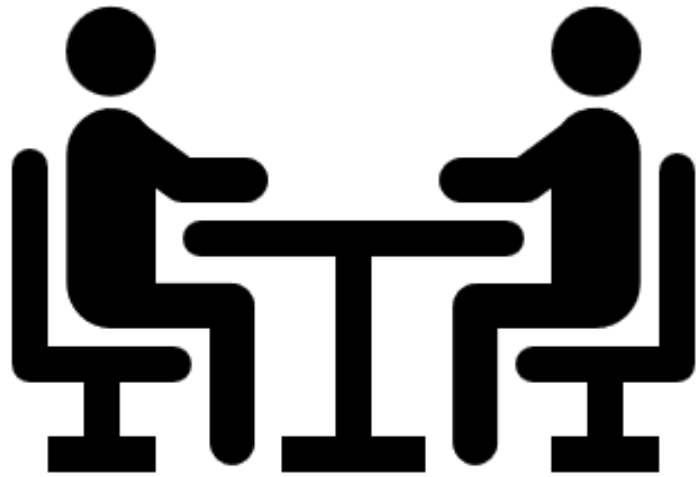
N7BDL Sandpoint

Yagi Specs and Antenna Pattern



Model	TA-31-M	TA-32-M	TA-33-MW
Frequency, MHz	28, 21, 14	28, 21, 14	28, 24, 21, 18, 14
Power Rating, watts CW	1500	1500	1500
Power Rating, watts SSB	2500	2500	2500
Power Rating, AM/FM	600	600	600
Power Rating, RTTY/AMTOR	600	600	600
VSWR at frequency	1.0/1 to 1.5/1	1.0/1 to 1.5/1	1.0/1 to 1.4/1
Forward Gain, dBd / Elements on 10 m	0 / 1	5.5 / 2	8.3 / 3
Forward Gain, dBd / Elements on 12 m	-	-	0 / 1
Forward Gain, dBd / Elements on 15 m	0 / 1	4.6 / 2	7.3 / 3
Forward Gain, dBd / Elements on 17 m	-	-	0 / 1
Forward Gain, dBd / Elements on 20 m	0 / 1	3.8 / 2	6.5 / 3
Front-to-Back Ratio, dB 10 m	0	20	20
Front-to-Back Ratio, dB 12 m	-	-	0
Front-to-Back Ratio, dB 15 m	0	20	20
Front-to-Back Ratio, dB 17 m	-	-	0
Front-to-Back Ratio, dB 20 m	0	20	20

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BCARC
Business Items
and Activities

Long Bridge Swim

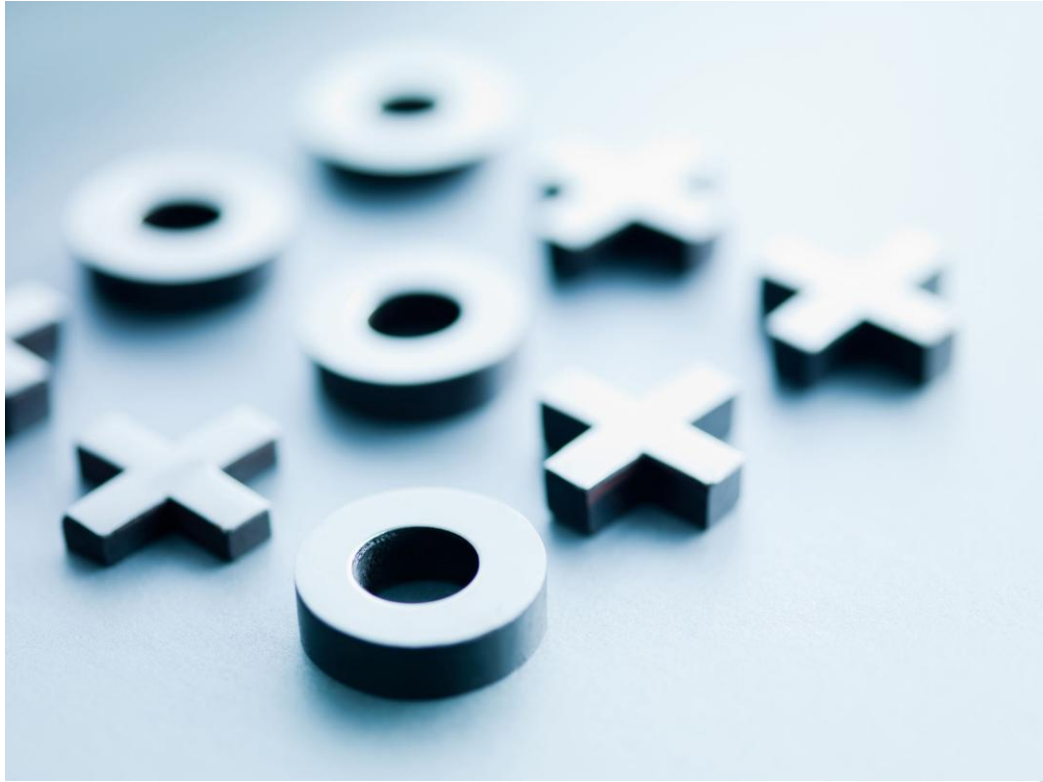
Long Bridge Swim Signups
Judy AC6DY
Keith AI6OO
Dave K7ZDP
JAXTON - GRANDSON AC6DY
Colleen Conradi KK7KNL
Paul N6GEZ
Keith Bansemer K7NEB
Alden Bansemer KK7UKG
Alan KJ7RAH
Jim Morford KJ7SEN

Up coming activities

- August 13th to 17th – Bonner County Fair (BCARES supporting)
 - If you would like to assist BCARES a signup sheet is available
- August 17th – BCARC breakfast at Fairgrounds
- September 14th – VE testing -Library
- Balloon launch
 - Replacement trackers and better balloons ordered
 - Next launch TBD
- October 5 & 6 – Sandpoint Preparedness Expo (BCARC supporting)
- Have a great rest of the summer!

Breakfast at Connie's Cafe
323 Cedar Street, Sandpoint ID
September 28, 2024 09:00 hrs

Next Meeting
September 11, 2024
VFW Post, Sandpoint, ID
18:00 hrs. Informal Discussions and Eyeball QSO's
18:30 hrs. Meeting
Topic: TBD



Tic Tac Code

Guest MC, Daryl, K6KRG