THE ROUND TABLE
Monthly Newsletter Of The Denver Radio Club
Since 1917 February 2023

President's Message

By Gerry Villhauer, W0GV

Hello DRC Members.

Wow, it sure has been a cold January, like you didn't know that! Better wait on those antenna projects for a while. I have a couple on hold myself.

I do not have much news to pass along this month. I believe that is typical for this time of year. The cold weather slows most everything down. There is a Hamfest in February though. The Aurora Repeater Association (ARA) and RMHam Swapfest; to be held at the Adams County Fairgrounds on Feb 19, 2023. You can search their website for details and times. The DRC will have a couple tables there; please stop by and say hello.

Yes, we are planning on going back to face to face meetings. There is a lot of planning involved in making the move back to in person meetings. No, we will not be meeting at our previous location; the Jefferson County Courts Building. We have several times made the request but always have been refused. We have a central location where we are trying to finalize arrangements for our meetings. Hopefully we can make that announcement soon.

Thanks to John Portune, W6NBC for our January program on selecting, designing and winding your own toroid baluns. This was another of John's many very well presented presentations.

Our program for the Feb 15, 2023, meeting is not yet finalized. It will be announced on our nets and published on the DRC website as soon as available. Stay tuned for the announcement.

Thanks to all of our new members who have recently joined the DRC. Your support is very much appreciated. Please come to meetings and events and stay active. Your name and call will be posted in this edition of the Round Table.

73 for now,

Gerry
W0GV
President

Who's New In The DRC?

From Cathy Villhauer, N0CRZ, DRC Membership

The DRC is a very active club in the Denver metro area and we'd like to have all of our members listen for these new calls and welcome them to the club and repeaters. Welcome to our newest members:

Adam Baxter - KFØLCY
Craig Scherer - KCØKP
Mark Cary - KEØNUG
Ryan Frederick - WR7F
Jacob Toland
Robert Kinney - KC4JJ
Jeremiah Bagula - NØKMO
Fred Gilmore - WØLPD

We have a number of activities throughout the year and we'd like very much for you to participate in serving your community. If you have questions please feel free to ask on any of the repeaters or see the contact information on the last page of this publication.

Also, please join us once a month at the regular club meeting on the 3rd Wednesday at 7:00 p.m. For new hams we have the Elmer session which starts at 6:00 p.m. before the regular meeting.

POTA PREDator Antenna

By Greg Mihran, KJ6ER (gmihran@me.com)
Forward By Kevin Schmidt, K0KPS

Forward: Greg is a prolific Parks on the Air (POTA) activator operating mainly out of the San Francisco Bay Area. His activations are typically in the late afternoon into early evenings on multiple bands. He can easily be found on the Parks on the Air | POTA (https://pota.app/#/) site. His multiple contacts each night extend across a wide range and often include coast-to-coast. QSOs. He has had great success with this antenna.

———————-

The **PREDator** (Portable, Resonant, Elevated, Directional) is an elevated vertical antenna for 20M-6M sitting on a tripod (or an extended ground spike) with the feed point about 5' off the ground and two elevated radials. I've modeled it extensively in 4NEC2 (including the tripod) and calculated optimal whip and elevated radial lengths below. You will have to experiment in your own yard to fine-tune these, but I typically get better than 1.1:1 SWR on all bands. I've found through my computer modeling and real experience in the field, this elevated vertical is more efficient than any ground-mounted version with two radials. You can certainly use this type of antenna for 40M with a coil (like the WRC Sport Forty) and get similar results but elevating two 33' radials is a bit cumbersome in the field. Alternatively, you can combine the two 20M 16.5' radials end-to-end to have one 40M radial (that's what I do on POTA).

The two elevated radials are 90 degrees apart to provide some directionality (about 8-12dB or up to 2 S-units) within the 90-degree span. If you prefer an omnidirectional pattern, you can place the two elevated radials 180 degrees apart. Having your radials elevated dramatically reduces near-field ground losses and increases gain versus a purely ground-mounted vertical. This really is a fantastic POTA activator antenna - easily portable and highly efficient. I regularly get comments like "you're the loudest signal on the band" from hunters. It's also a great DX antenna when conditions are right with a very low angle of radiation component around 12-15 degrees.

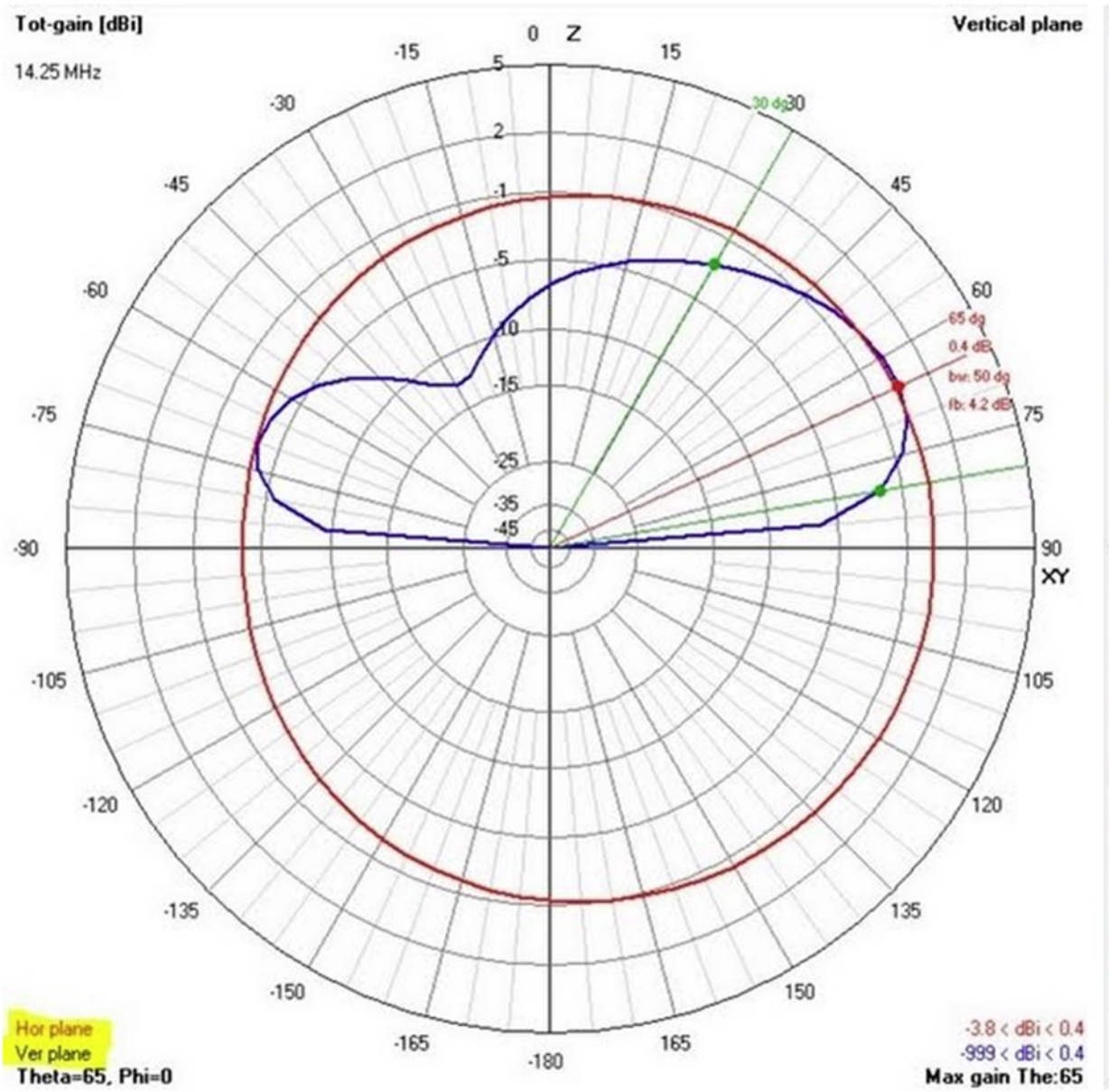
Here are the components I use (you can substitute as you wish):

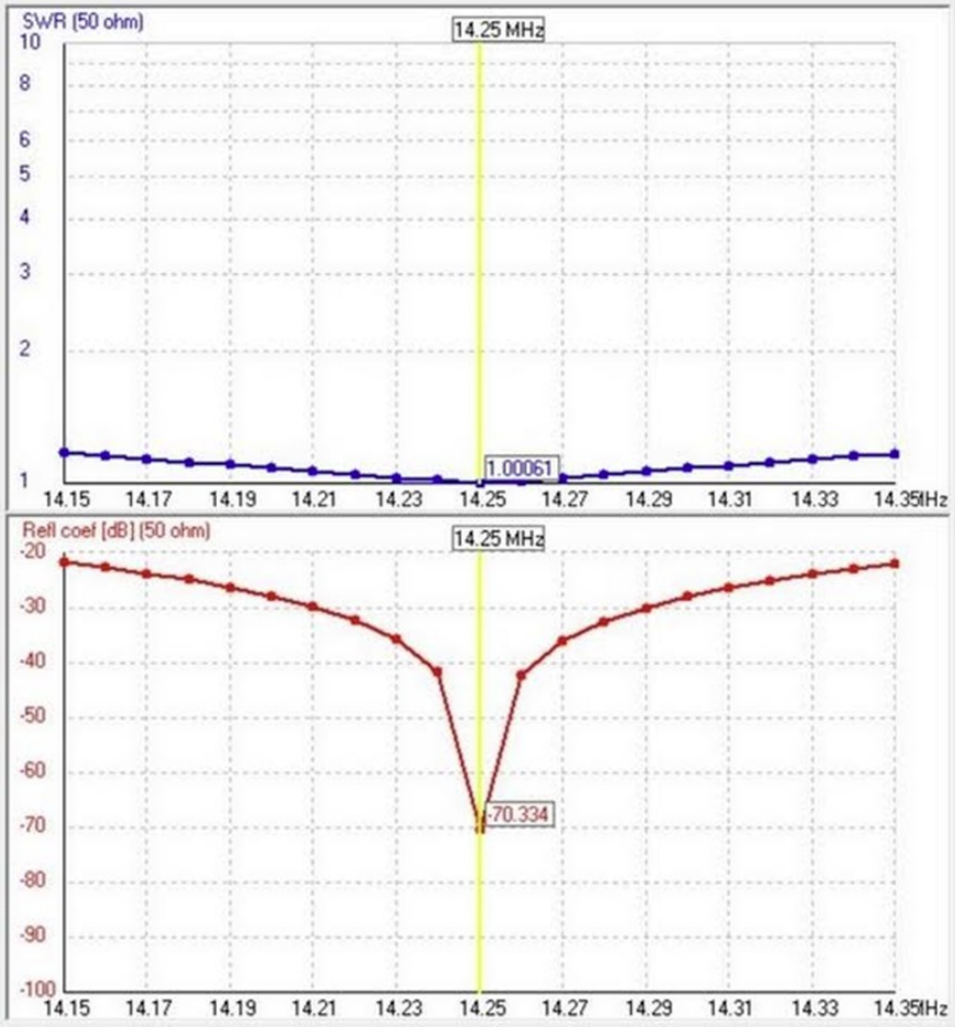
- Chameleon 17' telescoping whip – https://chameleonantenna.com/shop-here/ols/products/cha-ss17
- Aluminum tripod to get feed point up 5' – https://smile.amazon.com/dp/B09FCMS3DP
- Aluminum tubing 1" OD x 2' inserted into tripod – https://smile.amazon.com/dp/B014GXMT7S
- Rubber cap 1" for top of aluminum tubing – https://smile.amazon.com/dp/B07FMFJT5D
- Mirror mount with 3/8x24 to SO-239 stud – https://smile.amazon.com/dp/B01G2QSNDG
- Bright orange 18 AWG radials – https://smile.amazon.com/dp/B01MPZJOYN
- 20A Mueller clips on each end of radials – https://smile.amazon.com/dp/B00LPP8BJQ
- Fiberglass 3' rods to elevate radials – https://smile.amazon.com/dp/B08Q346VJN

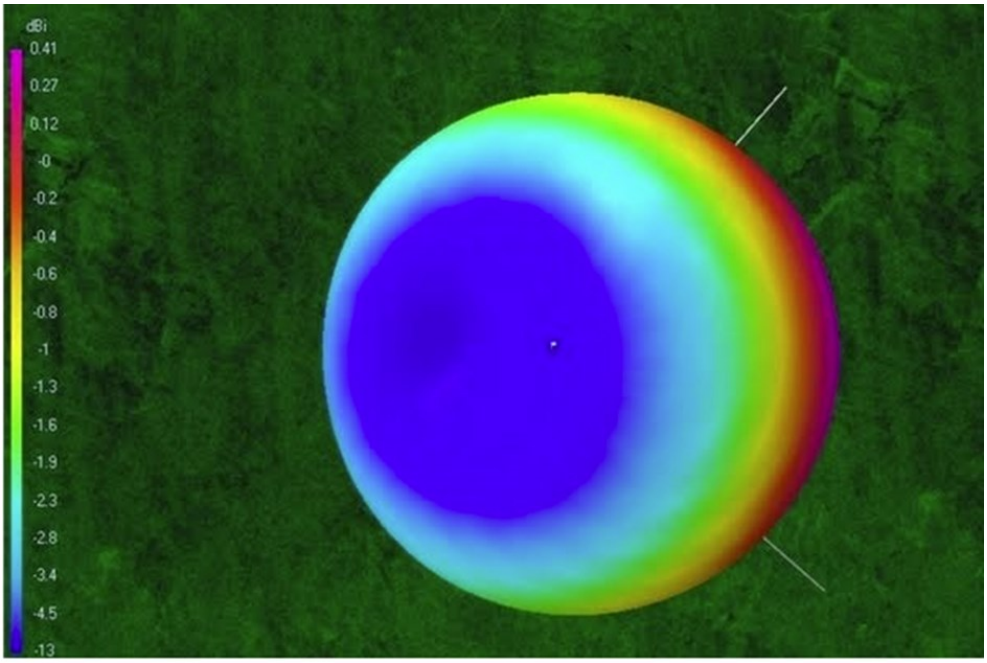
Band	Model Freq	Calc Whip Length	Model Whip Length	Whip Length (ft)	Model vs. Calc	Radial Length (in)	Radial Length (ft)	Radial vs. Vertical Length	Radial End Height	SWR	Ref Coeff
20M	14.250	197.05	**205**	17.1	4.0%	**198**	16.5	96.6%	**19.5**	**1.00**	**-70.3**
17M	18.140	154.80	**165**	13.8	6.6%	**150**	12.5	90.9%	**21.5**	**1.01**	**-42.7**
15M	21.325	131.68	**143**	11.9	8.6%	**122**	10.2	85.3%	**19.2**	**1.01**	**-46.5**
12M	24.960	112.50	**128**	10.7	13.8%	**96**	8.0	75.0%	**18.5**	**1.01**	**-50.0**
10M	28.500	98.53	**117**	9.8	18.8%	**77**	6.4	65.8%	**18.0**	**1.01**	**-45.8**
6M	51.000	56	**56**	4.7	1.7%	**43**	3.6	76.8%	**20.5**	**1.00**	**-52.7**

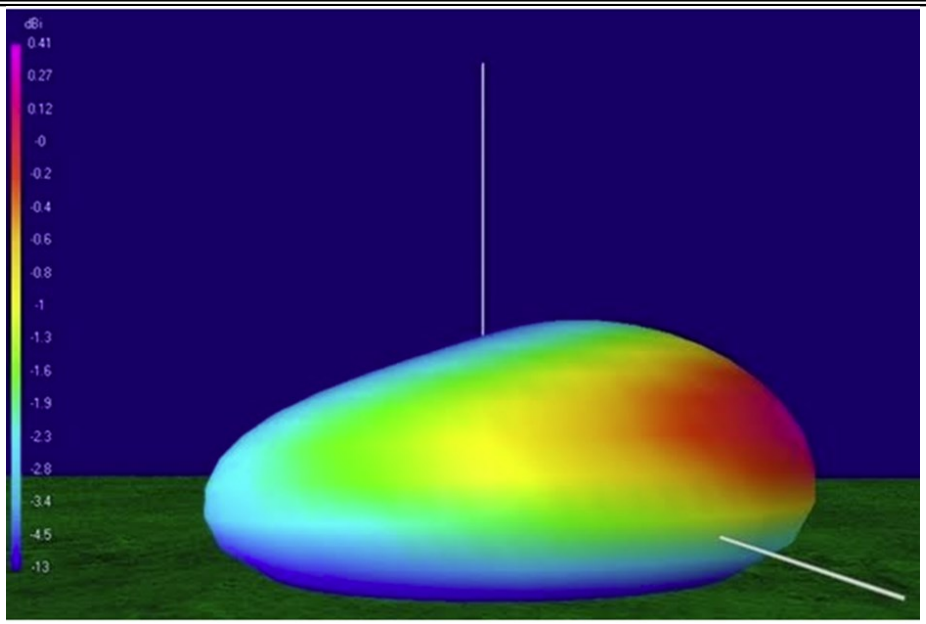
Above are the 4NEC2 calculations but, through experimentation, I found that you will need an individual set of radials for 20M, the 17M radials could work for both 17M and 15M, the 12M radials could work for both 12M and 10M, and you'll need an individual set for 6M. So, if you want to save on packing, you will only need 3 sets of pre-cut radials (20M, 17M, 12M) which will cover 5 bands: 20M, 17M, 15M, 12M and 10M. You tune the antenna with an analyzer by slightly adjusting the length of the whip up/down once you attached the right set of radials. You shouldn't need an external antenna tuner of any kind.

Here are 4NEC2 computer model graphics showing the directionality (vertical, horizontal plane) and reflection coefficient (RC) for 20M. Note the SWR = 1.00:1 at 14.250 MHz with an RC of -70dB.

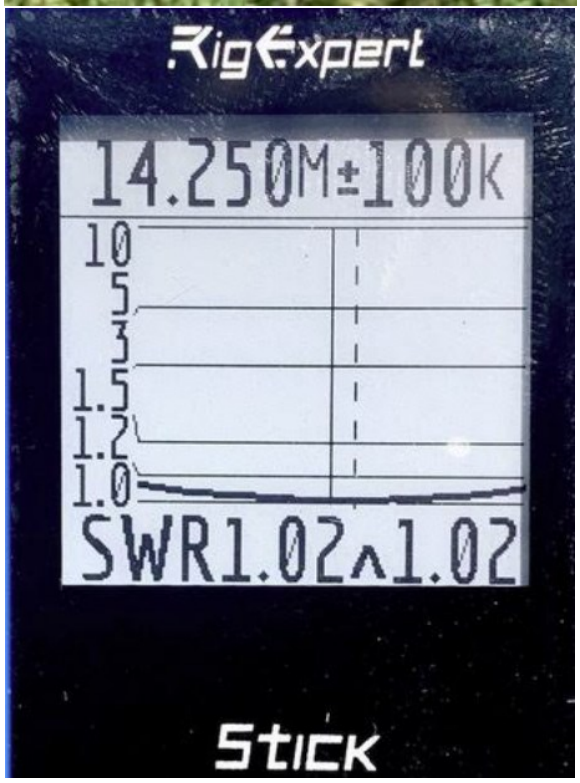








And here are a few photos of the PREDator in my backyard 'antenna proving ground' to show you how the tripod elevates the feedpoint up 5' and the 3' fiberglass stakes elevate the end of the two radials 90 degrees apart. I insert the radial fiberglass stakes at a 60-degree angle into the ground for stability.



The **PREDator** is my primary POTA portable antenna, but it could also be used at your home QTH. Keep in mind, you'll have to keep adjusting the whip length and the set of radials for the band you want to operate on. While that's easy for POTA use, it may be inconvenient for you at home. Of course, if you only want to primarily run on a couple bands (e.g. 20M-15M) that would be easy to manage.

One of my favorite parts of HAM radio is experimentation – especially with antennas. Give it a try and have fun!

73 buddy! 😊

History of Communications

By Bill Rinker, W6OAV

The following sites provide interesting information on the history of radio and telecommunications. Check them out!

The Early History of Radio
http://earlyradiohistory.us/

The History of Ham Radio
https://www.electronics-notes.com/articles/history/amateur-ham-radio/history.php

The History of Fiber Optics
https://www.timbercon.com/resources/blog/history-of-fiber-optics/

The History of the Telegraph
http://www.history.com/topics/inventions/telegraph

The History of Radio
https://transition.fcc.gov/omd/history/radio/documents/short_history.pdf

The History of Tesla
https://www.pbs.org/tesla/ll/ll_whoradio.html

The History of Picture Phone
https://ethw.org/Picturephone

The History of the Internet
https://sciencenode.org/feature/a-brief-history-of-the-internet-.php

The History of the Mobile Phone
https://www.cnn.com/2011/10/05/tech/gallery/mobile-phone-timeline/index.html

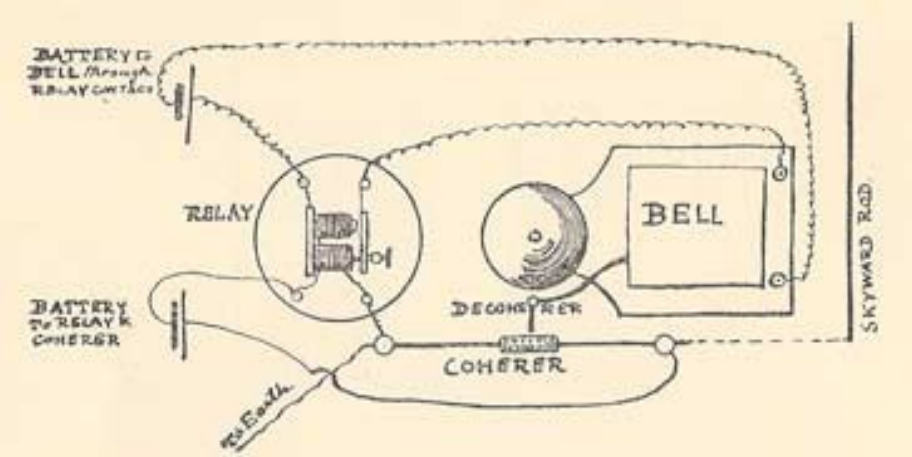


Image Source: electronics-notes.com/articles/history/amateur-ham-radio/history.php

ELMER SESSION START TIME

The Elmer Session Starts at 6 p.m. before the regular 3rd Wednesday DRC Meeting! All are welcome.

Come join in on the sharing of information.

~ GET PUBLISHED ~

We welcome and encourage all members to share their experiences and stories so that we can all learn from one another. It can be long or short. If we can't fit it into one newsletter, we can split it across multiple issues. Not a writer? We have volunteers that will listen to your story and put it into an article, and of course you will have the opportunity to review and approve prior to publication. Your contribution to the club is welcomed and appreciated. ~Editor

The Denver Radio Club
is an ARRL Special Service Club

Support your hobby and *join the ARRL today!*

http://www.arrl.org/

DRC's Trading Post

Don't forget you can find locally-sourced, ham-grown merchandise at:
w0tx.org/trade

ATTENTION

The DRC Board of Directors meetings are held on the 4th Wednesday of the month and are open to any member. Due to scheduling of meeting space, the board does not always meet at the same location and on occasion meetings are held via Skype. Anyone wishing to attend, please contact a board member prior to meeting night for specific information.

Past Round Table Pages

Provided By Woody Linwood, W0UI

From the November 1960 edition.

Trouble . . .

(Continued from Page 4)

spent most of their pages describing the contents of the box and what these super-dooper circuits are supposed to do, meanwhile meticulously avoiding giving you any concrete facts and figures that might be of value to you. The inclusion of "sales pitch" material in an instruction manual is like feeding bait to a fish after it's caught. Perhaps it's intended to be read by the operator at regular intervals so he won't get too discouraged by how the clunker actually works.

I could go on at length about instruction manuals as produced by "ham" gear manufacturers, being a technical writer by trade. On occasion I get wound up enough to go beyond a mere mention in this column. A month or more ago I wrote one manufacturer and described the quality of a certain transmitter instruction manual in a few well-chosen but still printable words.

A good operational checkout procedure should contain the following groups of steps: (1) preliminary set-up, (2) start, (3) equipment performance checks, and (4) stop. The first group makes sure that the set is properly hooked up and that the controls are initially set up so that we can functionally check each control individually. The second and fourth groups are usually a matter of turning on and off the main power switch; however, in some equipments, additional operations may be necessary. The third group is where you manipulate the controls individually or in combination, as required, to give the OK or NG indications.

Since there is considerable variation in the operational controls of the different receivers and transmitters, it will be impossible to cover every set. So I'm going to have to present procedures for what I consider typical gear, and your job will be to adapt them to your specific equipments. Our procedure for a receiver will be based on that of the old Hammarlund Super pro for several reasons, the two most important of which are (1) this receiver has a large variety of controls and (2) I have the technical manual for it in my library.

Looks as though all we'll have time for is the first few steps of the first group. These steps are pretty obvious and are usually taken for granted. But stop for a moment and consider the consequences of omitting any one of them.

1. **Antenna.** The antenna lead-in wire should be connected to the antenna terminal.

2. **Ground.** The ground terminal should be connected to the same ground as used for the transmitter.

3. **Line cord.** The line cord should be plugged into a "live" receptacle.

4. **Speaker.** Connect the speaker cable or cord to the speaker terminals.

NOTE: Did you know that in most receivers the output transformer can be damaged if the receiver is operated for a length of time with no speaker connected? So far I have seen only two receiver manuals that point out this fact. Some receivers, such as the Gonset G-63, have a resistor connected across the output transformer secondary so that a nominal load is provided even though no speaker is connected.

5. **Headphones.** Headphones should **not** be plugged in until late in the third group of steps.

(To be continued)

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DRC's Emergency Responses

In the event of a disaster in the metro area, please monitor our repeaters on 145.490/448.625 (primary) and 449.350 (secondary).

The emergency Net Control Operator will provide information and/or requests to members for assistance.

W0TX Repeater Directory

amazonsmile
You shop. Amazon gives.
Search for Denver Radio Club @ smile.amazon.com

Note to DRC Members:

Our club depends on the involvement and participation of YOU, our members. Do you have a skill or interest that could help the club. Maybe you want to volunteer to be on a committee? Like to write? Have ideas for improving what we do? Speak up and let someone know, all ideas are welcomed and participation is always helpful. ~Editor

Random Site Of The Month
Borneo Amateur Radio Club

The Round Table Archive

Go to: w0tx.org/roundtable

The Round Table Article Index

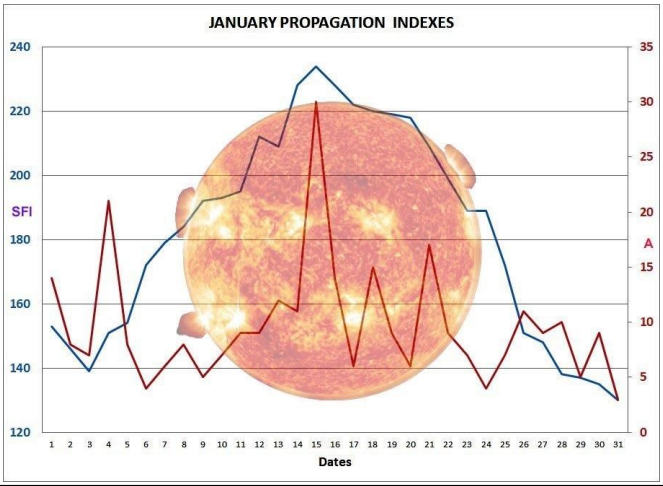
Go to: w0tx.org/RoundtableArchive/-RoundTables-Index.pdf

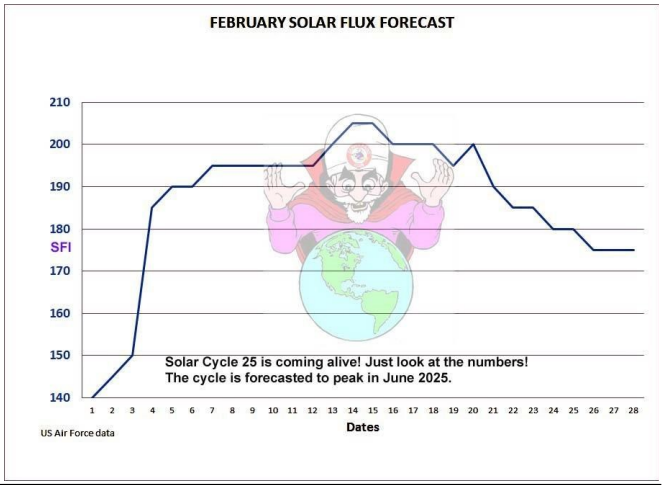
Past & Future Propagation Conditions

By Bill Rinker, W6OAV

The charts below show the Solar Flux and "A" indexes for last month and the forecast for this month's Solar Flux index.

Refer to the September 2010 *Round Table* for more complete information on interpreting these charts, which is available at: http://www.w0tx.org/RoundtableArchive/2010-RoundTables/RT201009(SEP).pdf





Upcoming Events
Hamfests & Conventions

Event	Date	Location	Sponsor Website
The Swapfest	2/19/23	Brighton, CO	rmham.org/swapfest

Upcoming QSO Parties
The following are the Contests not sponsored by the ARRL. Please submit additions for future issues.

State/Province	Start Date	End Date	Sponsor Website	Notes
British Columbia	02/04/2023	02/05/2023	Orca DX and Contest Club	
Minnesota	02/04/2023	02/04/2023	Minnesota Wireless Association	
Vermont	02/04/2023	02/05/2023	Radio Amateurs of Northern Vermont	
South Carolina	02/25/2023	02/26/2023	SC QSO Party	
North Carolina	02/26/2023	02/27/2023	North Carolina QSO Party	

Source: qsoparty.eqth.net/index.html See contestcalendar.com/contestcal.html for a larger QSO parties list.

Attention

SUPPORT THE DRC FROM YOUR AMAZON PURCHASES

You can now support your Denver Radio Club when you make purchases from Amazon.com. Amazon Smile donates 0.5% of your purchase to the non-profit (501.c.3) organization of your choice. This is at no additional cost to you. To support the DRC just visit smileamazon.com. Select Denver Radio Club, Inc. as the organization you want to support and proceed with your order as usual. Amazon Smile will credit the DRC automatically. Thank you for your support.

DRC Repeaters

BAND	Freq / Shift / PL Tone	Additional Information
6m	53.090MHz (-1MHz) 107.2Hz PL	
Packet	145.05MHz	**Metro Denver Area Coverage**
2m	145.490MHz (-) 100Hz PL	**Linked to 70cm / 448.625MHz. Primary frequency during emergency net.**
2m	147.330MHz (+) 100Hz PL	**Local area. Has voting receivers. Does not TX a PL.**
2m	147.330MHz (+) 131.8Hz PL	**Test mode operation. Send signal reports to Tech Committee.**
1.25m	224.380MHz (-) 100Hz PL	
70cm	447.825MHz (-) DCS~073; NB 12.5; +/- 2.5	**Saint Anthony's. Note: This is a narrow band repeater requiring DCS.**
70cm	448.625MHz (-) 100Hz PL	**Linked to 2m / 145.490MHz. 1° disaster net freq.**
70cm	449.350MHz (-) 100Hz PL	**Wide area coverage with Echolink, node # 4140. Secondary frequency during emergency net.**
70cm	449.775 MHz (-)	**Yaesu digital, C4FM, Wires-X, DN, VW & Data. No analog FM. W0TX Room 40931.**
70cm	446.7875MHz (-)	**BrandMeister Repeater: Slot 1 – Wide Area Traffic, Slot 2 – Local Talk Group 310804**

FEBRUARY 2023

DRC Net Sundays at 8:30 p.m. on 145.490 / 448.625 (no PL)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	**2** 	**3**	**4**
5 **RTTY Roundup -** Ends	**6**	**7**	**8** **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL) First Quarter	**9**	**10**	**11**
12	**13** **School Club Roundup**	**14** **School Club Roundup** 	**15** **DRC Online Meeting** Elmer 6 p.m. Meeting 7 p.m. **School Club Roundup**	**16** **School Club Roundup** Full Moon	**17** **School Club Roundup**	**18** **ARRL DX -** Begins 0000 UTC
19 **ARRL DX -** Ends 2359 UTC	**20** 	**21**	**22** **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	**23** Last Quarter	**24**	**25**
26	**27**	**28**	**March 1**	**2** New Moon		

See arrl.org/contest-calendar for additional details about contests.

DRC Board of Directors

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EmComm Coordinator	AD0UZ	Brennan Pate	*Check Roster*	emcomm@w0tx.org
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Please Let Us Know

Over the years we occasionally hear from hams who have read the Round Table in other states and countries around the world. We appreciate the comments and we would like to know where you are located. So if you live outside the Front Range or Denver Metro Area and read the newsletter either online, email or hard copy please send a short note via email with your *City, State* or *City, Country*.
We will publish it at a later date in our new regular feature called Round Table Round World.
To respond to this request send your information to roundtable@w0tx.org.

Subject: I'm located in…

Editor's Note

DRC members - this is your newsletter. Please email your club or amateur radio related suggestions to the editor. Members are the heart of The Denver Radio Club, so if you have an expertise or an interest in a particular segment of ham radio that you'd like to write about, you may email your submissions to roundtable@w0tx.org. The submission deadline is the 25th of the Month. ~ Editor