THE ROUND TABLE

Monthly Newsletter Of The Denver Radio Club

Since 1917 September 2023

President's Message

By Gerry Villhauer, W0GV

Hello DRC Members.

Our DRC Hamfest has come and gone. All in all it was a great success. Thanks to all who helped make it successful and especially to Cathy, N0CRZ for the many hours she spent with reservations and the event planning. Thanks also to my daughter Marcy and her friend Anthony and granddaughter Kaylea for a great job with snack bar duties. And all members who attended Thank You! We will have attendance totals when they are all tallied up.

Our program for September is still not finalized, more on that as it develops. Please always keep on the lookout for subjects and presenters that you believe would be a good monthly meeting program. Thanks to Dave, WG0N for stepping in and narrating the video about the Squaw Mountain radio site from many years ago. I heard positive comments about it from members at the Hamfest.

Our next and final DRC Saturday for this year will be on September 16th. The subject will be WinLink and we plan to have a working WinLink station on the air. Make sure to put the date in your calendar and come learn about this interesting form of communication. See the DRC website under "Events" for location and any other details.

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

The DRC needs you!

Please contact W0GV (president@w0tx.org) if you are interested in helping with the open positions.

See the list at the end of the newsletter.

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:

Ben Krech -KFØJWX
Craig Thighe -WØCLT
Brian Souders -KEØZYA

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.

King Soopers Rewards Program & Helping the DRC

Provided By Cathy Villhauer, N0CRZ

The DRC is now registered with the Kings Soopers Reward program. If you register your loyalty card with the DRC in their system, the club benefits. Here are their instructions:

For King Soopers Stores - go to kingsoopers.com
For City Market Stores - go to citymarket.com

Once logged into their King Soopers or City Market account they can search for The Denver Radio Club either by name or VK146 and then click Enroll. New users will need to create an account which requires some basic information, a valid email address and a loyalty card.

*Customers must have a registered King Soopers or City Market loyalty card account to link to your organization.

*King Soopers or City Market loyalty cards are available at the customer service desk.

Purchases will not count for your organization until after your participants register their loyalty card. Participants must swipe their registered card or use the phone number that is related to their registered card when shopping, for each purchase to count.

Seeking DRC Website & WordPress Admin Volunteer

By Mark Thomas, N0XRX

Are you familiar with web site management and more importantly WordPress? Do you want to be more involved with the club? Do you have some knowledge or drive to learn web hosting and management techniques?

If so, we have the opportunity for you!!

The Denver Radio Club's WordPress Administrator role doesn't take a lot of time as our content doesn't change much. We have some initiatives that will take a few more hours to complete but once finished the site only needs general maintenance. If you don't know WordPress but have been interested in learning, and are a fast learner, please let us know.

Job duties (generic):
- Responsible for implementation and management of the website
- Offering site recommendations or improvements
- Review and manage plugins
- Troubleshoot and correct issues
- Backup, creation, transfer and restoration of a WordPress site

We would like to have multiple people in this role to provide backup and support if possible.

If interested or know someone that is, please contact Mark Thomas, n0xrx@w0tx.org

Question of the Month

By Bill Rinker, W6OAV

What is a Slim Jim and how do you build it?

The answer can be found on page 4 of the March 2008 issue of the *Roundtable*:
https://w0tx.org/RoundtableArchive/2008-RoundTables/RT200803(MAR).pdf

Calling All QSL Cards

By Brennan Pate, AD0UZ

If you would like to have your QSL card featured in an upcoming edition of the Roundtable please send a copy of it (i.e. PDF or JPG) to roundtable@w0tx.org.

Alternatively, if you have received a unusual or exotic one in the past and would like to share it, then send it on over.

2023 DRC Hamfest VE Exam

By Tom Kocialski, KC2CAG

Which is Better, a Ground Plane or a J Pole?

By Bill Rinker, W6OAV

A subject often discussed on the repeaters is “Which is better, a vhf/uhf ground plane or a vhf/uhf J Pole?” This article will attempt to answer that question and also provide information on building either antenna.

Antenna descriptions

Figure 1 illustrates the two antennas discussed in this article. The ground plane has sloping 45˚ radials. Why wasn’t a ground plane with horizontal radials included in this article? Well, according to EZNEC, rotating the radials from horizontal to 45˚ downward does nothing more than provide a better match to the transmission line. The radiation pattern and gain efficiency remain unchanged. Thus we don’t need to compare both types of ground planes to a J Pole. For the home brewers, a nice publication discussing the affects of the length of radials and the angles of radials is available at reference [1] below.

The J Pole shown in Figure 1 is the standard configuration. It consists of a 1/2λ radiator matched to the transmission line by a 1/4λ **non** radiating matching section. The RF currents in the matching section are equal and opposite and thus self cancel. The 50 ohm feed point is determined by tapping up from the base of the J Pole. Radials are not required. For home brewers, a very nice publication discussing J Poles is available at [2] below.

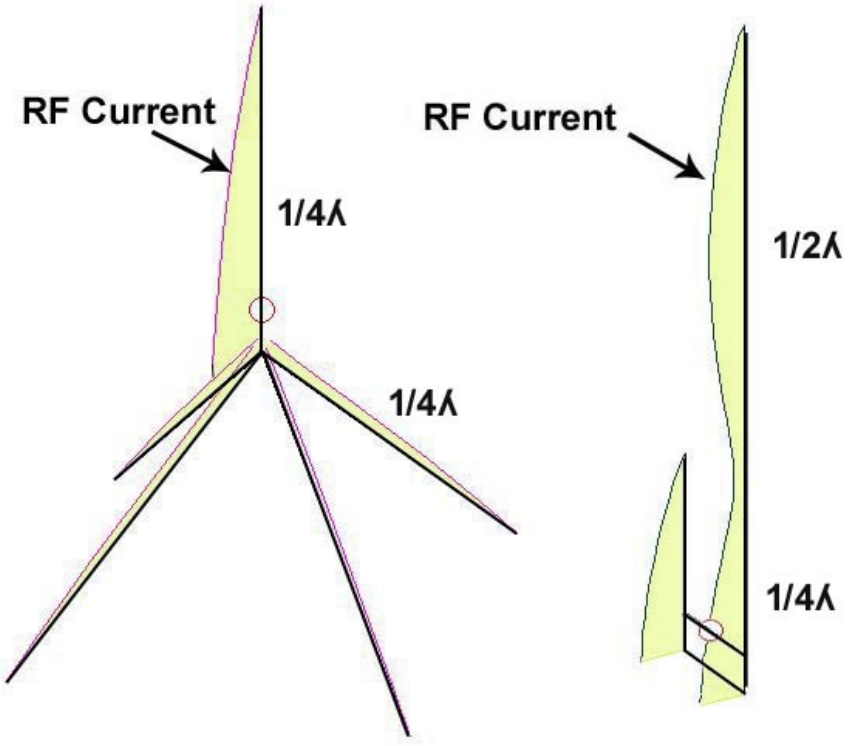


Figure 1 - Groundplane and J Pole compared

Comparing the antennas

Figure 2 shows the theoretical radiation patterns of a 2 meter ground plane compared to that of a 2 meter J Pole. (The patterns are valid for any vhf/uhf band). In this example, both antennas are mounted 25' above ground. Note that the J Pole has a slight gain over the ground plane at most angles. This relationship is the same whether the antennas are in space or mounted at any height above ground.

So, are there any advantages of a J Pole over a ground plane? Yes, there are a few:

- Very slight gain improvement, especially at lower physical elevations.
- Slender design as radials are not required.
- Entire antenna is at same dc potential allowing a grounded mount to dissipate static charges.
- Can be "stuffed" into a PVC pipe (Class 200), good for "anti-HOA" installations. Also very good for portable operation. [3]

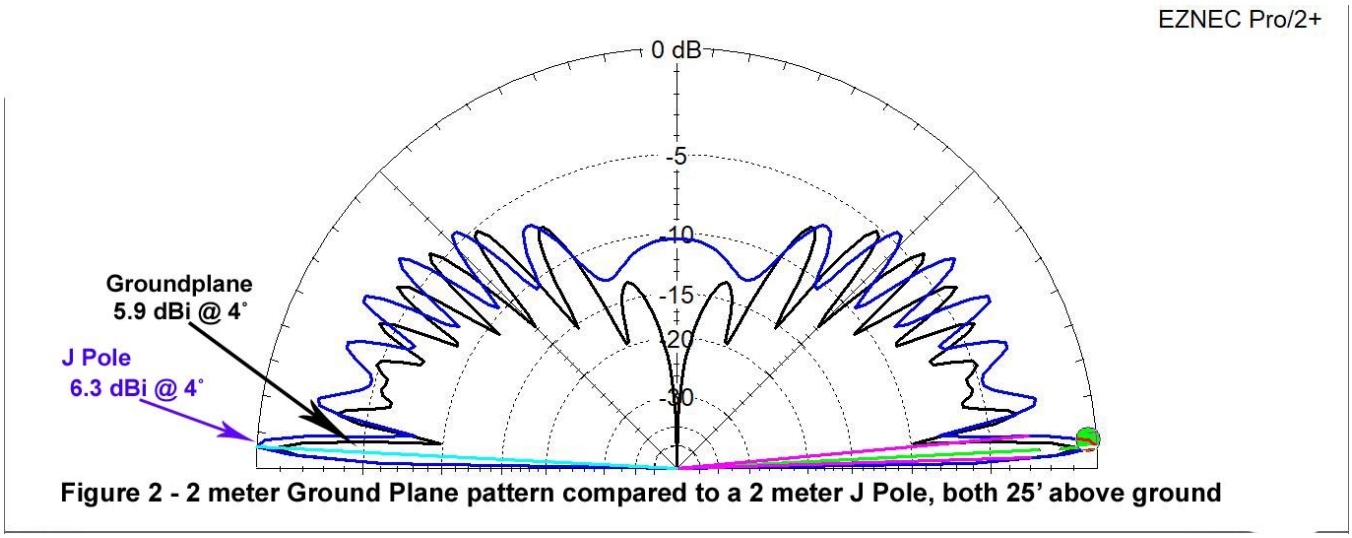


Figure 2 - 2 meter Ground Plane pattern compared to a 2 meter J Pole, both 25' above ground

Additional Notes

A vertical 2 meter dipole, a vertical 2 meter coaxial dipole and a 2 meter Slim Jim folded vertical dipole were not discussed in this article. EZNEC shows that they have identical patterns to within a db of those for a ground plane and the J Pole. Also, these antennas are a little more difficult to build. So, if you want additional gain over simple vertical antennas a beam is in order, or you can build a Super J Pole! [4]

The ground plane and J Pole are easy to build. Nice ground plane and J Pole dimension calculators can be found at [5] and [6] below.

[1]. W5ALT Antenna Radial Notes: https://www.hamuniverse.com/w5altradialnotes.html

[2]. Some J-Poles That I Have Known, W4RNL (SK): http://on5au.be/content/a10/vhf/jp2.html

[3]. Build a PVC Pipe J Pole: w0tx.org/RoundtableArchive/2013-RoundTables/RT201301 (JAN).pdf

[4]. Super J-Pole Antenna: https://hamuniverse.com/superjpolecal.html

[5]. J Pole calculator: https://www.hamuniverse.com/jpole.html?

[6]. Ground Plane calculator: https://m0ukd.com/calculators/quarter-wave-ground-plane-antenna-%20%20%20%20%20calculator

DISTRACTED MOBILE DRIVING

BY BILL RINKER, W6OAV

Figure 1 is a 1950's ad that I came across the other day. It's from a long defunct ham magazine. In today's world can you imagine driving down the highway while reaching out to change bands!

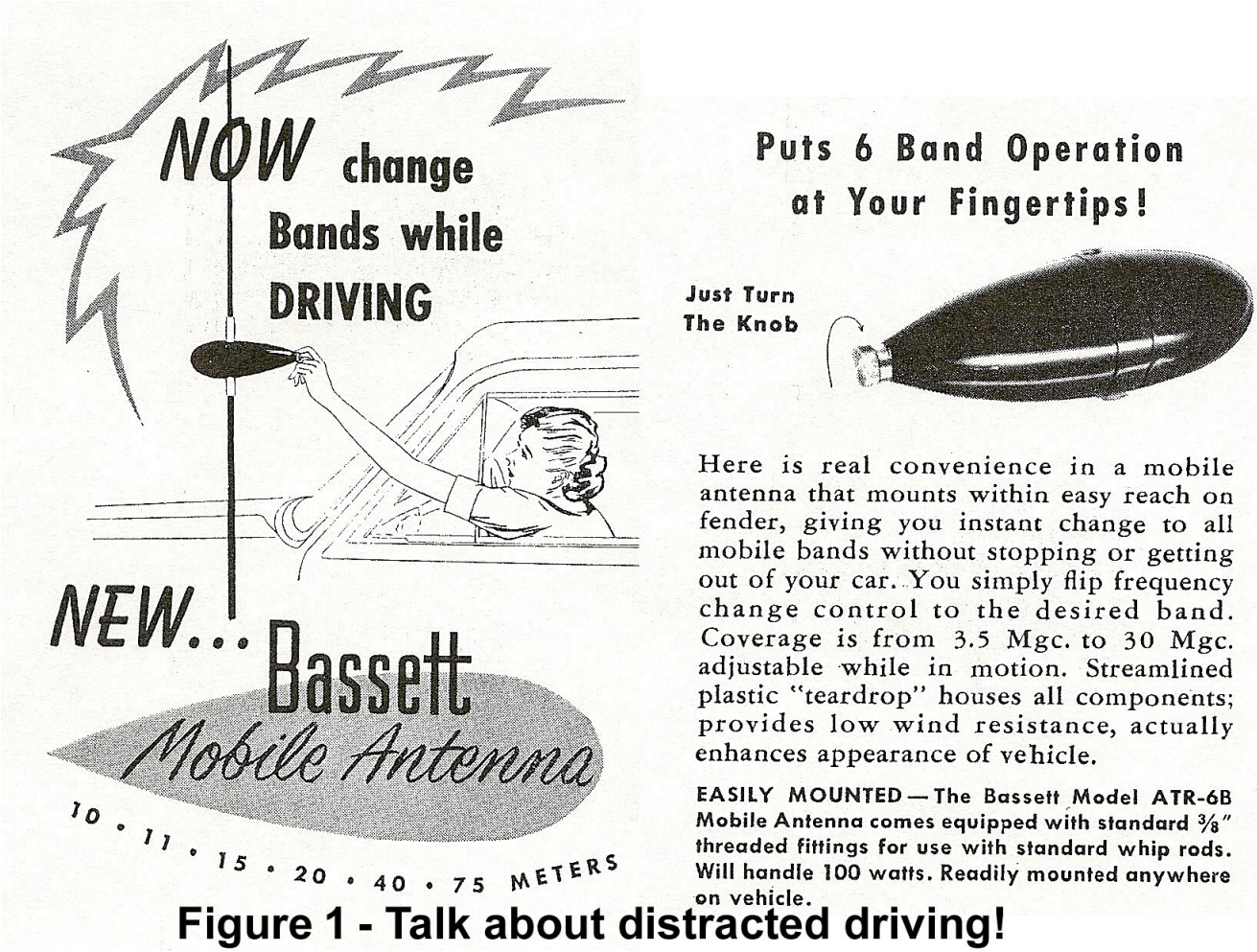


Figure 1 - Talk about distracted driving!

THE EFHW

BY BILL RINKER, W6OAV

There is a very efficient antenna which is easy to setup (takes only one support point) making it ideal for portable and for base station operation. It occupies a minimum amount of space and is almost invisible (great for HOA issues!). This antenna is an end fed 1/2λ antenna (EFHW) which provides either single band or multiband operation without the use of traps or stubs.

Figure 1 shows a typical EFHW. For single band use a broad-band balun matching network transforms the high impedance of the EFHW's feed point to approximately 50Ω for standard coax cable. For multiband use the balun network provides an approximate 50Ω feed point on the even and odd harmonics of the fundamental 1/2λ antenna frequency. For example, an EFHW cut for 40 meters can be used on 20, 15 and 10 meters without a tuner. A tuner is required for use on 30, 12 and 24 meters.

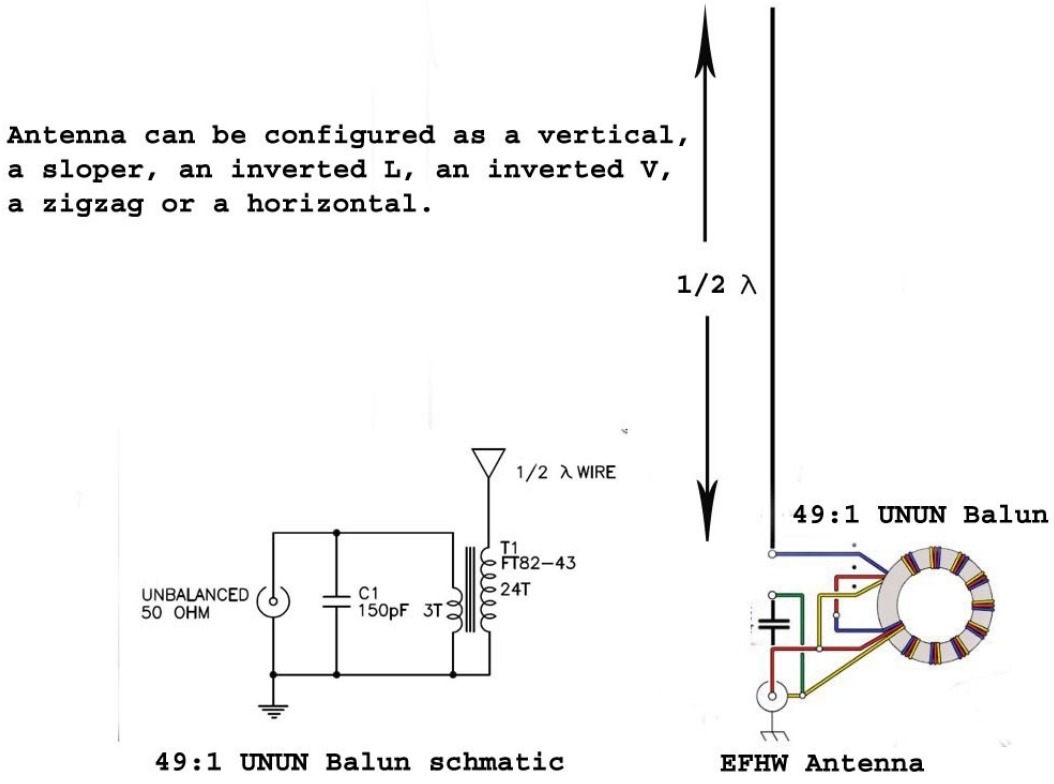


Figure 1 - A typical EFHW antenna

One might wonder how the EFHW compares to a ground mounted 1/4λ ground plane antenna. Let's compare the two antennas.

Space Requirements

The 1/4λ ground plane requires a fair amount of horizontal space and wire for radials. The radial-less EFHW requires minimal horizontal space. The latter is good for small yards.

Current Distribution

Figure 2 shows the current distribution on the two antennas. The 1/4λ ground plane's maximum radiation is from the base area of the antenna. The EFHW's maximum radiation is from the center of the antenna. This can be important as will be discussed later.

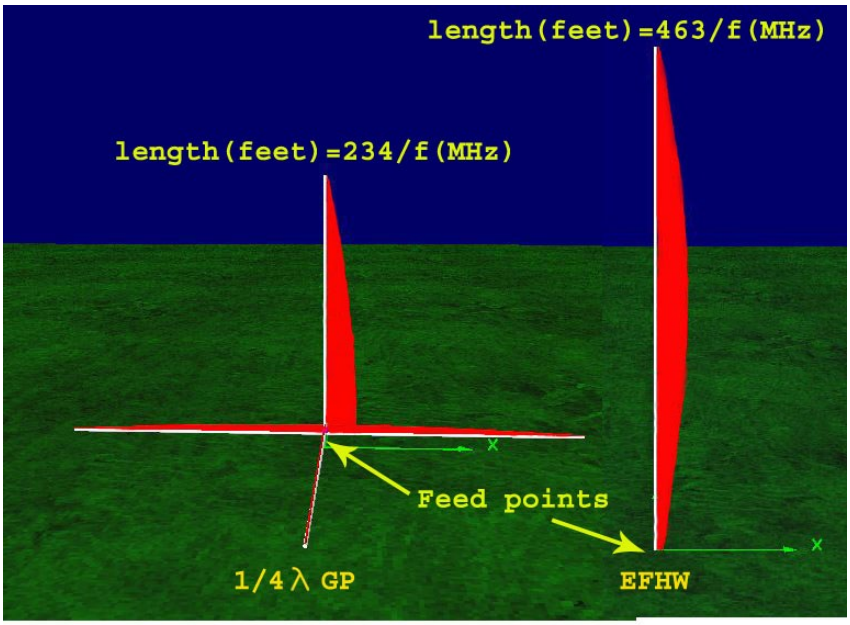


Figure 2 - Current distributions

Radiation Patterns

Figure 3 shows that the EFHW theoretically has 0.86 dB gain over a 1/4λ ground plane on average earth. On poor earth, the gain difference is larger since the 1/4λ ground plane is affected by the earth's conductivity around it. More importantly as shown in Figure 3, the EFHW on its 1/2λ frequency has a radiation angle of 18 degrees above the horizon compared to the 1/4λ ground plane's radiation angle of 27 degrees. The lower radiation angle will provide longer skip distances, important for working DX. A multiband EFHW will have higher radiation angles on bands above the fundamental 1/2λ frequency band.

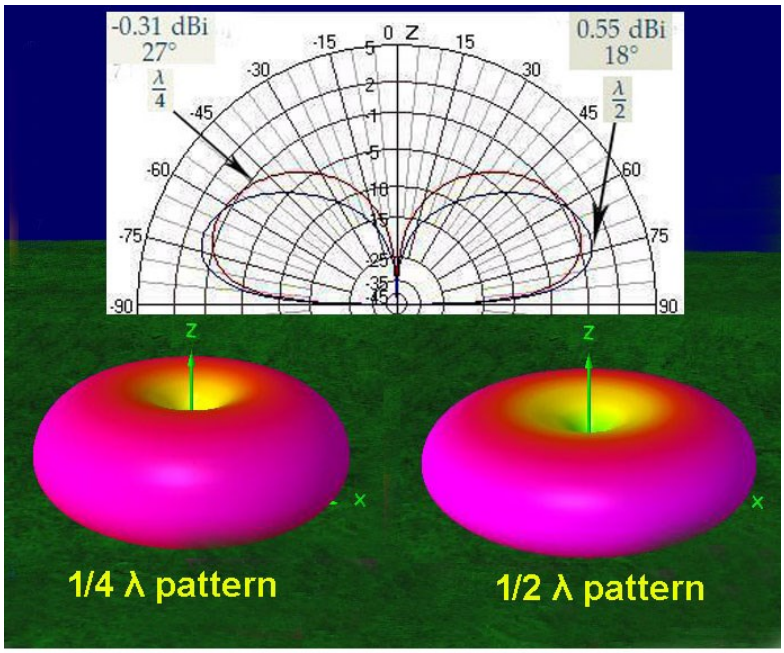


Figure 3 - Antenna radiation patterns

Noise
Unlike the 1/4 ʎ ground plane, the EFHW is DC grounded preventing static build up.

Test Results
I built both a ground mounted 20 meter 1/4ʎ ground plane and a 20 meter EFHW in my back yard, one on the north end of my yard and the other 75' to the south end of my yard. They were 75' apart. Both antennas had an SWR of close to 1.0 to1.4 in the middle of the 20 meter band.

I found that on both receive and transmit the ground waves and sky waves on the EFHW were generally one to two S units better than on the 1/4ʎ ground plane. I attribute this to two facts: 1). The maximum radiation from the EFHW was 16 feet above the ground and cleared the houses surrounding the yard whereas the 1/4ʎ ground plane's maximum radiation was from ground level and had to pass through the surrounding houses causing some RF absorption. 2). Unlike the EFHW, the 1/4ʎ ground plane's efficiency is affected by the ground loss around the base of the antenna. Since the lossy ground acts as the other half of the 1/4ʎ ground plane (Figure 2), some RF power is dissipated there.

There are many good EFHW references on the Internet, some of which are listed below:

Theory
https://www.electronics-notes.com/articles/antennas-propagation/end-fed-wire-antenna/multiband-end-fed-half-wave-efhw-antenna.php
https://www.sotabeams.co.uk/efhw/
http://www.aa5tb.com/efha.html

Commercial Sources for EFHWs
http://www.vibroplex.com/contents/en-us/d9175.html
https://mfjenterprises.com/products/mfj-1982mp
https://myantennas.com/wp/product-category/antennas/

Home Brewing References
https://qrpguys.com/wp-content/uploads/2019/05/hwwa_assy_052919.pdf
https://www.norfolkamateurradio.org/pdf/G0KYA%20EFHW%20Ant%20+%20shopping%20list.pdf
https://www.youtube.com/watch?v=0zF7bDoqkG4
http://hamfest.w7yrc.org/wp-content/uploads/2019/06/EFHWslides.pdf
https://static1.squarespace.com/static/5b1576d036099b603985500c/t/5c5236b57924e85a9a1ccd62/1548891830343/19-End+Fed+Half+Wave.pdf

~Editor's Note: We would love to publish a monthly column profiling DRC members' stories about how they got into the ham radio hobby, their interests and backgrounds. You may be boring but your story is probably interesting! Please submit your story to roundtable@w0tx.org.

DRC's Trading Post

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

Past Round Table Pages

Provided By Woody Linwood, W0UI

From the October 1960 edition.

CLUB CHARACTERS

By Lys, KØPGM

Can you imagine a Competent amateur radio station with an antenna at an elevation of 11,500 feet and doesn't work dx stations unless he's called first by them. Well Bob Swandlund, better known as WØWYX, is just that. Space in this publication does not permit a full explanation of Bob's activities, but it all leads back to radio communications.

We all would envy Bob's QTH as far as radio reception is concerned, for he's on top of Squaw Mountain and can look down in all directions. It's no problem to work Cheyenne, Wyo. or Pueblo, Colo. on ten meters.

Let's say it's winter and about six feet of snow on the peak and closed in. You would think all Bob has to do is ham and have the gracious wife Margaret, bring him lunch. Not so. He and Margaret both have work to do all year 'round.

Bob and Margaret lease the mountain top from the forestry service and have built a fine stone cabin for their residence. It also houses a multitude of equipment for various services for radio relay such as Denver Water Co., State Patrol, REA power service and even the FBI.

Margaret is the fire lookout for the forestry service. Her duty quarters are a few hundred feet from the cabin which is also radio equiped and operated by her. She doesn't have a ham ticket but could pass the theory at any time if she so desired. Now who can say that Margaret isn't an integral part of radio station WØWYX?

Bob takes fire readings and also does some maintenance work for the various radio services that have transmitters in his QTH. DX and traffic? No, Bob would rather ragchew with locals and build. You can hear WØWYX on all bands 6 through 160 and this winter will get the surplus gear converted and be on 2 meters.

Antennas "Oh Boy"—there are sixteen for the services ranging from beams, verticals and dipoles to microwave dishes. Then there are seven for ham use with two more to be added soon.

You may have thought band hopper when you tried to check into RACES, but what happens is this: he picks up all stations on RACES net frequency 29.624 and retransmits on 28.7 on his home brew rig (or he may just use the DX-40), therefore serving a valuable service to the area RACES and CD nets. We can not say "thanks" enough for this, in addition to it being a privilege to hear all the stations on the net.

For 12 years Bob was chief radio engineer for the Highway Patrol and 5 years for the Denver Police Dept. Bob has worked WAS on 160 meters and accomplished the fete twice on ten, since getting his ticket in 1936 as "9WYX."

Bob and Margaret will tell you humorously that they mow the lawn once a week with a stick of dynamite. Grass doesn't grow fast in a rock garden, huh? So Margaret raises some inside in flower pots.

Visitors are plentiful, particularly on a summer weekend. (The day of the interview, there were 218 visitors to the lookout station) yet Bob and Margaret always

(Continued on Page 11)

IS YOUR ADDRESS CORRECT?

The second edition of the Colorado Ham Directory is definitely in the making. In order to get everyone listed correctly, please send any information to Howard Eldridge, KØDCW, 3156 W. 25th Ave., Denver 11, Colo., that is if you are not presently correct in the Colorado Ham Directory. We prefer a post card to telephone. If Howard had to take some three hundred phone calls, it could be quite difficult with bits of scratch paper scattered all over the shack.

Page Two

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

Random Site Of The Month

Halifax Amateur Radio Club

The Round Table Archive

Go to: w0tx.org/roundtable

The Round Table Article Index

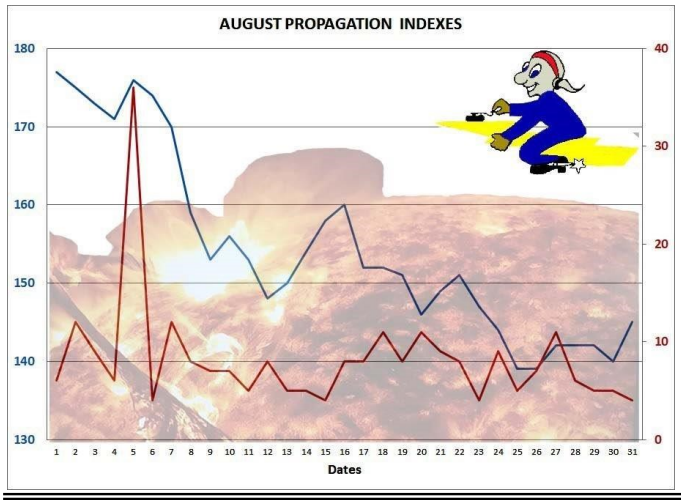
Go to: w0tx.org/RoundtableArchive/-RoundTables-Index.pdf

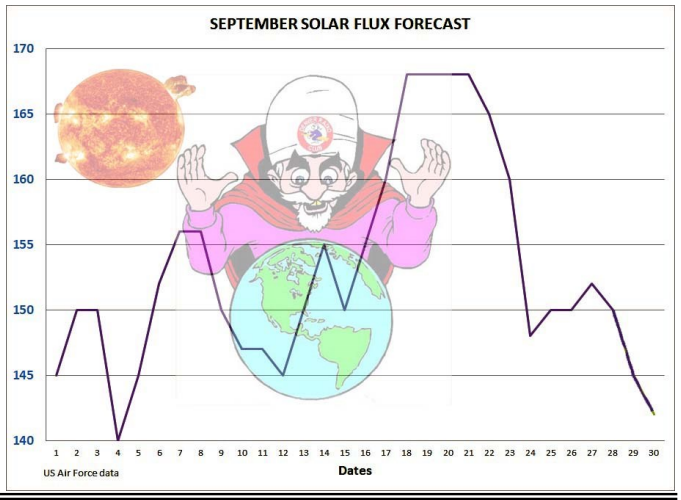
Past & Future Propagation Conditions

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
BARCfest Hamfest	10/08/23	Boulder County Fairgrounds Exhibit Bldg	qsl.net/w0dk/barcfest.html
TechFest	11/4/23	Bridge Church at Bear Creek	na0tc.org

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
Colorado	09/02/2023	09/03/2023	Pikes Peak Radio Amateur Association	
Tennessee	09/03/2023	09/04/2023	Tennessee Contest Group	
Alabama	09/09/2023	09/10/2023	Alabama QSO Party	
Iowa	09/16/2023	09/17/2023	Story County ARC	
New Hampshire	09/16/2023	09/17/2023	Port City Amateur Radio Club	
New Jersey	09/16/2023	09/17/2023	Burlington County Radio Club	
Texas	09/16/2023	09/17/2023	Texas DX Society	
Washington	09/21/2023	09/22/2023	Western Washington DX Club	
Maine	09/23/2023	09/24/2023	Wireless Society of Southern Maine	
Nevada	10/06/2023	10/08/2023	Sierra Nevada Amateur Radio Society	
California	10/07/2023	10/08/2023	California QSO Party	

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

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**

SEPTEMBER 2023

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 	5	6 **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)  Last Quarter	7	8	9 **September VHF & EME - 2.3 GHZ & Up**
10 **September VHF & EME - 2.3 GHZ & Up**	11 **September VHF & EME - 2.3 GHZ & Up**	12	13 **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	14  New Moon	15	16 **10 GHz & Up**
17 **10 GHz & Up**	18	19	20 **DRC Online Meeting** Elmer 6 p.m. Meeting 7 p.m.	21	22  First Quarter	23
24	25	26	27 **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	28	29  Full Moon	30

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

DRC Board of Directors

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Board Member	KB0CHT	Jeff Irvin	Check Roster	Check Roster

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EmComm Coordinator	KE0HFH	Michael Vespoli	303-215-8862	emcomm@w0tx.org
EmComm Coordinator	AD0UZ	Brennan Pate	*Check Roster*	emcomm@w0tx.org
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Trustee	WW0LF	Orlen Wolf	303-279-6264	trustee@w0tx.org
VE Team	K0RAP	Robert Pickett	720-336-0114	k0rap@w0tx.org
Website & YouTube	K1DBC	Doron Ben Chaim	720-254-1561	websiteadmin@w0tx.org

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