THE ROUND TABLE

Monthly Newsletter Of The Denver Radio Club

Since 1917 November 2023

President's Message

By Gerry Villhauer, W0GV

Hello DRC Members.

Well it happened, we got our first snow of the season and it was a fairly good one. Cathy and I missed it, as we were visiting family out of state, where we just got some light rain and 40 degree temperatures.

Our next big event is our annual Holiday Party! The event is on Wednesday, December 20th. It will be a new and very nice venue at the Rocky Mountain Regional Airport (previously the Jeffco Airport) in Broomfield. We will be in the Mount Evans Room, on the second floor of the main terminal building. The room has a beautiful view of the front range mountains and airport activity. And yes, there is an elevator to the second floor. We will enjoy a great meal, prizes, fellowship and a general interest program. (Yet to be confirmed.) Please visit the DRC website at w0tx.org for more information and the menu choices. As you will discover, we are accepting only checks with your reservation. This is to avoid Paypal charges, and keep the cost as low as we can.

If you are a Kings Soopers shopper, as many of us are, please consider joining the Community Rewards Program that King Soopers offers to their customers. There is no cost to you and the club benefits from a small percentage of your purchases. Please go to the Kings Soopers website and sign-up for "The Denver Radio Club" as your designated organization. This will put a few dollars in our treasury and not cost you anything. Thanks in advance for signing up!

Our November virtual meeting will be on Wednesday Nov 15, 2023. The subject of our program has not yet been confirmed.

Thanks to Rob Steenburgh, AD0IU, for a very interesting and informative program on Space Weather, at our October meeting. I always know when a program is of interest to the membership by the amount of questions and comments after the program. Hopefully, we can have Rob back for another session at a future date.

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:

Daniel Ruth - W3ZF	Robert Waite - K0NXT

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.

Question of the Month

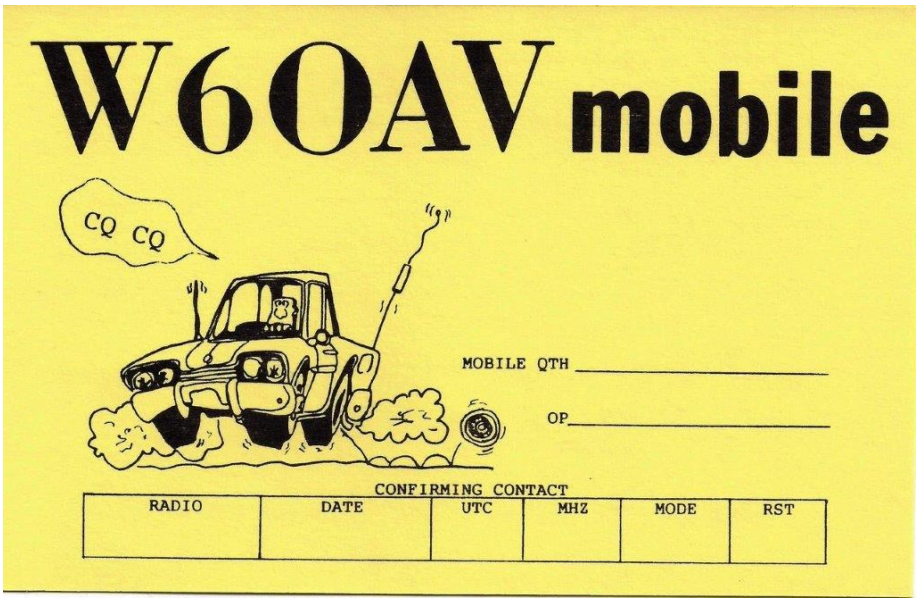
By Bill Rinker, W6OAV

Is the radio horizon the same for all ham bands?

The answer can be found on page 5 of the November 2007 issue of the Roundtable: https://w0tx.org/RoundtableArchive/2007-RoundTables/RT200711(NOV).pdf

QSL Card

If anybody knows a good mechanic, please tell Bill...



Interesting excerpt from the November 2022 *Cherry Juice* Newsletter

PUBLISHED WITH PERMISSION FROM SCOTT, WX1J (CERRYLAND ARC, CHERRYLANDARC.COM/?WPFB_DL=313)

This is Totally Off The Wall!

A Brief story about QRP and the Fence.

One tenant of operating QRP is that you need an antenna that works. Higher is better. I remember having a ton of fun working CW with an A&A Engineering 5W rig mounted in my Volvo Station-wagon, driving home from a work-day in Manhattan, over the George Washington Bridge, in the rain, at night and working CW contact after contact, back to Massachusetts.

Then I ran the radiating wire just tacked along the top of the fence. 20M doesn't use the whole fence, but 40M does, and I tossed a rope over a 10 foot branch to support the end.

I worked that for a while with success, then added a radial, from the ground side of the Balun connection and ran it along the ground. The grounding element is 60 feet lying along the ground. I think Dave, K8WPE, would call it *Severely Compromised.*

That was dumb. Now, I wanted to get on the air while traveling with my family, for either biking, skiing, or visiting our kids. I needed, a multi-band radio and a really portable antenna. I chose the Xiegu X6100, a QRPguys EFHW Balun and a wire for 20 and one for 40. All fits easily into a small back-pack for travel.

At our Cabin in Boyne, I wanted to set up an antenna that I could just plug-into when we are there. So, I saw this fence. It runs 50 feet between me and my neighbor. I placed a hook for the balun and feedline near the house.

None-the-less, I turned the radio on one evening and worked 3 POTA stations one after another. No misses. In the morning, with coffee and overlooking a still lake from my deck, I worked three more stations in the first 15 minutes. Oh, yes, using the internal battery and only one-watt. Both times.

So, now I feel pretty confident that I can take this radio just about anywhere, make contacts at will and wherever I put my antenna wires, I think it will be better "Off Fence", than "De Fence."

By Scott, WX1J

CALL	BAND	RX	TX	QTH
KR8P	40M	599	599	MI
KD3D	40M	599	599	PA
K4GO	40M	559	599	VA
K8RLE	40M	579	599	MI
K4CBW	20M	579	579	NC
KN3A	20M	579	599	PA
K0DME	20M	599	599	CO

Lessons Learned:

1. You will be surprised how a resonant wire will work. It doesn't need to be fancy.
2. You don't need to be perfect, just turn on the radio and transmit.
3. Find something that works, then improve on it.
4. I'm amazed at the signal reports on only one watt.

Does Weather and Topography Affect VHF/UHF Radio Waves?

By Bill Rinker, W6OAV

Have you ever experienced not being able to reliably access a particular repeater, especially a digital repeater? Well, I do when using the W0TX Fusion repeater. Some days I can access it with 5 watts and on other days I have to use 50 watts and even then, the access is not always solid. After a while I noticed that this situation usually occurs when it is raining, snowing, or windy. In other words, weather seemed to be affecting my access to the repeater. These conditions got me to doing some research. Here is what I found.

I began the research by making a land profile between me and the W0TX Fusion repeater. I discovered that there was a small hill with a lot of trees between me and the repeater. Research later showed that I was experiencing diffraction, wind static and refraction. So, what are these phenomena?

Diffraction

The definition of diffraction is: A change of the direction and/or the intensity of a radio wave as it passes over or around an obstacle. Buildings, small hills, and other large objects in the path of the radio wave often cause diffraction.

Figure1 shows the diffraction phenomenon which I always experience with the W0TX Fusion repeater. As the UHF signal crosses close to the hilltop the radio wave closest to the hilltop is affected (slowed) by the different conductivity by and near the hilltop. This causes some of the signal to bend (diffract) down towards the repeater. The opposite diffraction occurs from the repeater to my antenna. The diffracted signals are weak but usable. [1]

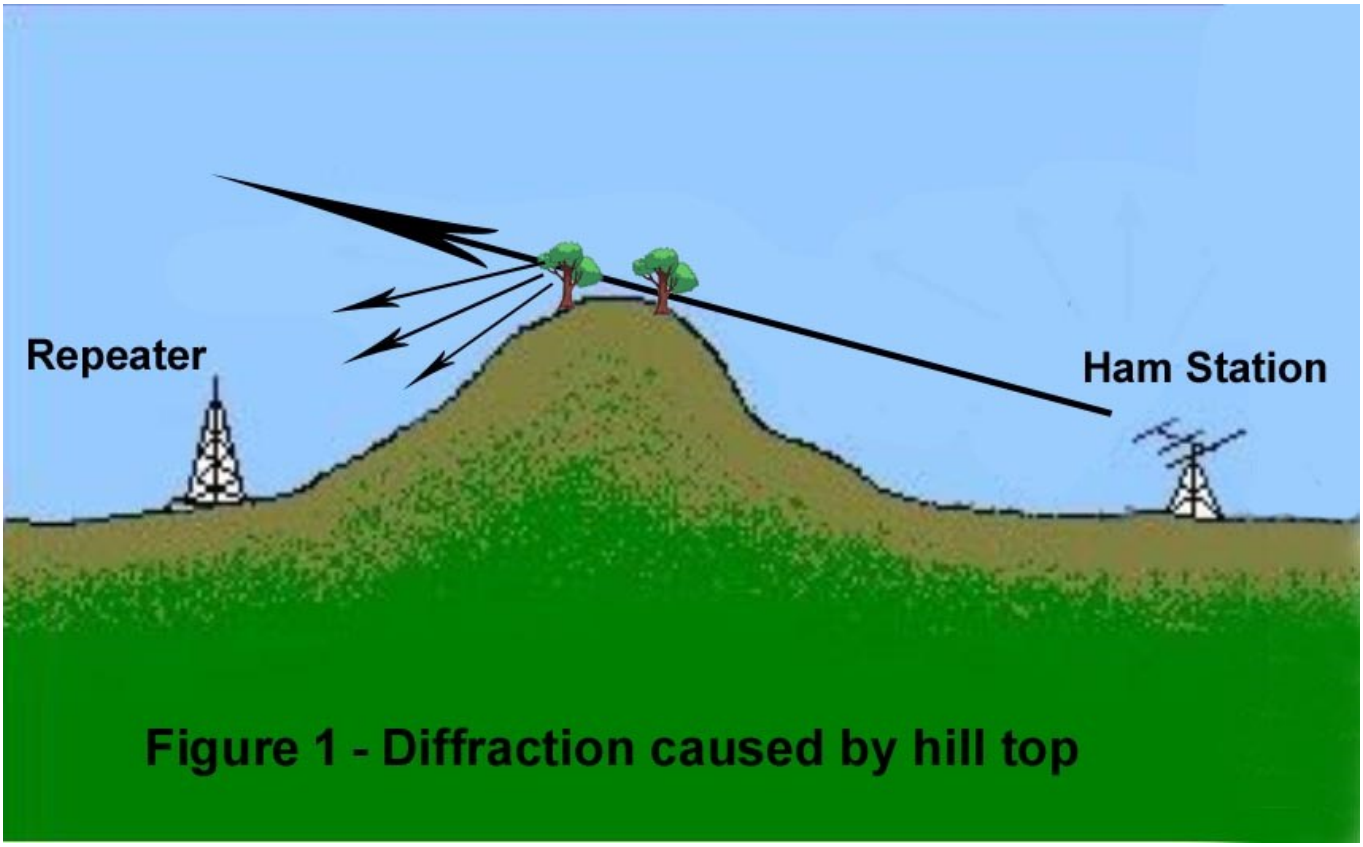


Figure 1 - Diffraction caused by hill top

To visually see diffraction, hold your hand close to a wall; shine a flashlight on your fingers to cast their shadow on the wall. Note that the shadow of the figures is not sharp. That is because the light waves are bending (diffracting) around the edges of the fingers. (Light waves have basically the same propagation properties as radio waves.)

Wind

When the wind blows two issues occur between me and the repeater. First, the UHF signal fluctuates all over the receiver S meter. Second, repeater access is marginal. The fluctuating is caused by the trees moving on top of the hill which changes the propagating medium through them and tends to scatter the radio wave. The antennas are not the issue. My antenna is indoors, and the repeater antenna is well mounted.

The marginal repeater access is caused by the wind creating sand/dirt static. This static degrades the signal to noise ratio. This is a common problem for hams, especially in sandy areas like Arizona. The wind blows sand/dirt particles against the antenna elements which generates static noise. Hence, weak incoming signals, such as my diffracted signal, are buried in the static noise.

Refraction

The definition of refraction is: A change in a radio wave's direction (scattering) as it passes through mediums with different dielectric constants. Heavy rain and snow having different dielectric constants can create changes to the propagation medium that the radio wave passes through. Figure 2 shows how rain/snow can cause refraction. Hence, in my case, heavy rain and snow can scatter some of my weak diffracted radio wave thus attenuating the power that reaches the repeater antenna. [2]

To visually see refraction, stick a straw into a glass of water. The straw will appear to be bent in the water. The bending effect is due to the conductivity of the water being different than that of the air around the glass.

So, yes weather and topography can affect vhf and uhf signals. And we haven't even discussed reflections of radio waves!

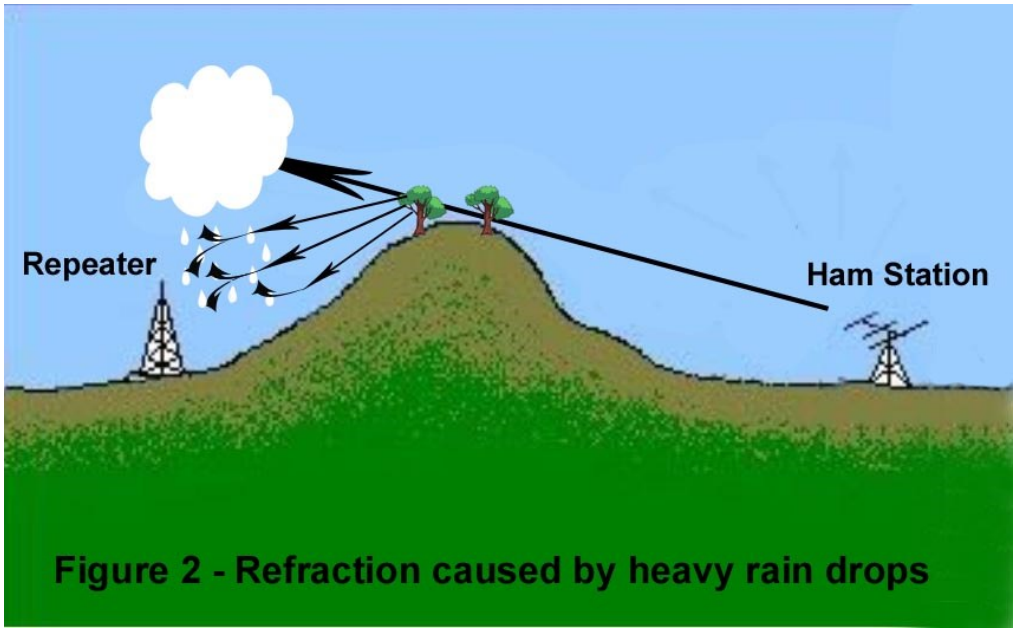


Figure 2 - Refraction caused by heavy rain drops

[1]. Radio Wave Diffraction:
https://www.electronics-notes.com/articles/antennas-propagation/propagation-overview/radio-em-wave-diffraction.php

[2]. Atmospheric Factors that Influence VHF Radio Propagation:
https://vu2nsb.com/radio-propagation/free-space-propagation/atmospheric-vhf-radio-propagation/

[3]. Reflection, Refraction and Diffraction:
https://www.physicsclassroom.com/class/waves/Lesson-3/Reflection,-Refraction,-and-Diffraction

Which is Better, an HF Vertical or Dipole

By Bill Rinker, W6OAV

A discussion often heard on our repeaters is “Which is better on HF, a 1/4ʎ ground plane, an end fed 1/2ʎ vertical or a horizontal 1/2ʎ dipole?”

The purpose of this article is to provide information to help a station owner answer the above question based on that operator’s communications objectives and available facilities. The antenna radiation patterns in this article were developed over 4NEC2’s “Real Ground”. The patterns are appropriate for any frequency band for which that antenna is scaled. The symbol (X) in the text below indicates a particular reference X at the end of this article.

1/4ʎ HF Ground Plane Antennas

Ground Plane (GP) antennas are very well known, easy to build and perform pretty well. (1). Figures 1A and 1B show the radiation patterns of a ground mounted 1/4ʎ GP vertical with four 1/4ʎ radials. The blue line in the figures represents the horizontal radiation pattern and the red line represents the vertical radiation pattern. (2) & (3). Note that the radiation patterns for a ground mounted 1/4ʎ GP are omni directional and peak at -0.31 dBi @ 27˚above the horizon.

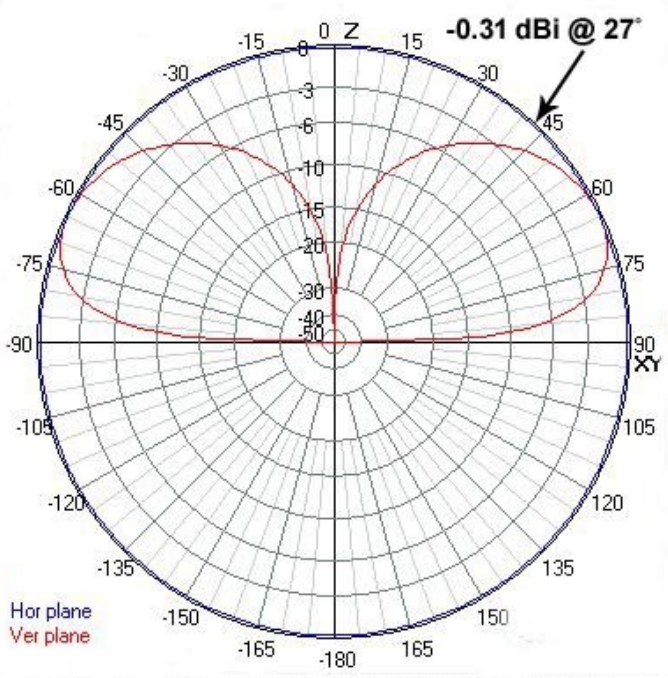


Figure 1A - Patterns of a 1/4ʎ GP on the ground

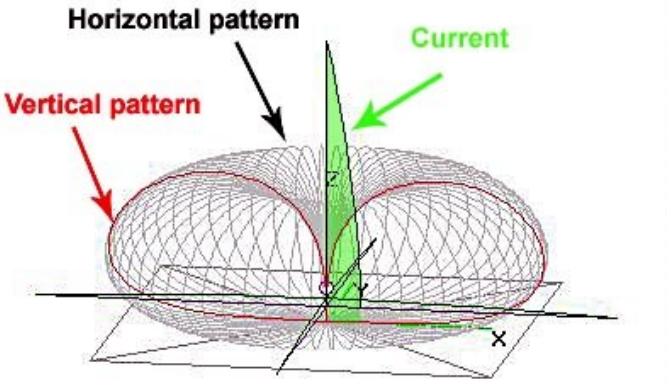


Figure 1B- Patterns of a 1/4ʎ GP on the ground

Figures 2A and 2B show what happens to the radiation patterns when that same GP is raised approximately 1/4ʎ above ground (perhaps on a roof or a pole). Note that the peak gain has increased to 1.50 dBi and has lowered to 16˚ above the horizon. (4).

In actual practice, an elevated 1/4ʎ GP will usually radiate a stronger signal to the horizon than a ground mounted 1/4ʎ GP. The reason is because most of the radiation (indicated by the green RF current line in Figures 1B and 2B) occurs from the bottom 2/3s of the vertical. This means that normally some of the ground mounted GP’s radiation will be absorbed by nearby houses, trees, lossy ground, etc. When the antenna is elevated, most of the radiation will pass over these lossy obstacles.

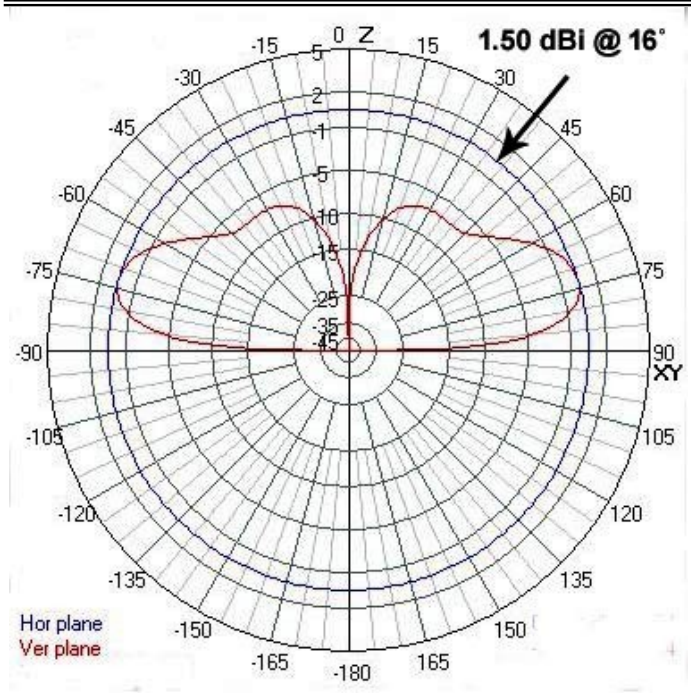


Figure 2A- Patterns of a 1/4λ GP 1/4λ above ground

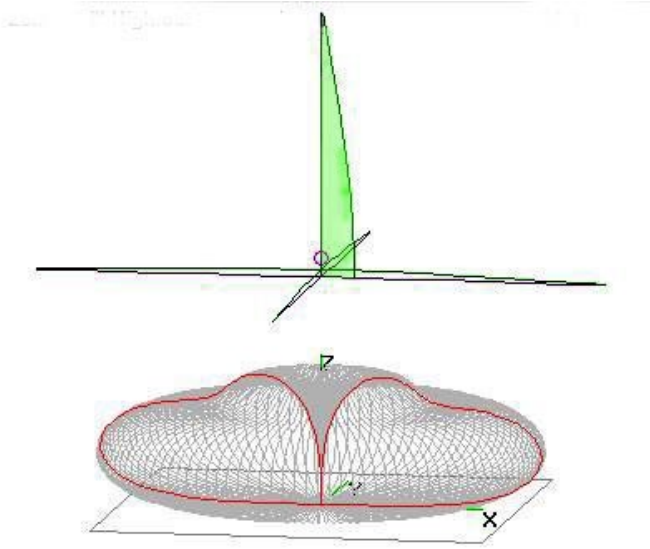


Figure 2B- Patterns of a 1/4λ GP 1/4λ above ground

The advantage of a 1/4λ GP is that it is easy to construct and easy to hide when ground mounted. The disadvantage of a 1/4λ GP is that the required radials increases the necessary horizontal space and can be a safety hazard. The ground system needs to be very effective for the GP to perform satisfactorily. Sixteen 1/4λ radials make for a good ground mounted GP and four 1/4λ radials make for a good elevated GP. Unfortunately, an elevated GP offers more wind resistance and is more obvious to neighbors.

Commercial single band HF verticals are available at:

- https://www.dxengineering.com/search/department/antennas/section/hf-vertical-antennas?SortBy=Default&SortOrder=Ascending&GroupBy=ProductName&N=part-type%3Ahf-vertical-antennas-and-packages

1/2λ HF Vertical Antennas

Figures 3A and 3B show the radiation patterns of a ground mounted end fed 1/2λ vertical. Note that the peak radiation gain for the vertical is 0.55 dBi @ 18˚. These patterns are very close to those of a 1/4λ GP mounted 1/4λ high and much better than those of a ground mounted GP. See Chart 1.

Just as with an elevated 1/4λ GP, the 1/2λ vertical will outperform the ground mounted 1/4λ GP since the maximum current is 1/4λ above ground (Green RF current line in Figures 1B & 3B) thus clearing most surrounding lossy obstacles.

The disadvantage of all vertical antennas is that they are noisier than horizontal antennas. Verticals tend to be more sensitive to vertically-polarized noise generated by machines, lightning, overhead power lines, etc.

Commercial single band end fed 1/2λ HF verticals are available at:

- http://www.parelectronics.com/end-fedz.php
- http://www.earchi.org/92011endfedfiles/Endfed6_40.pdf
- https://mfjenterprises.com/collections/antenna

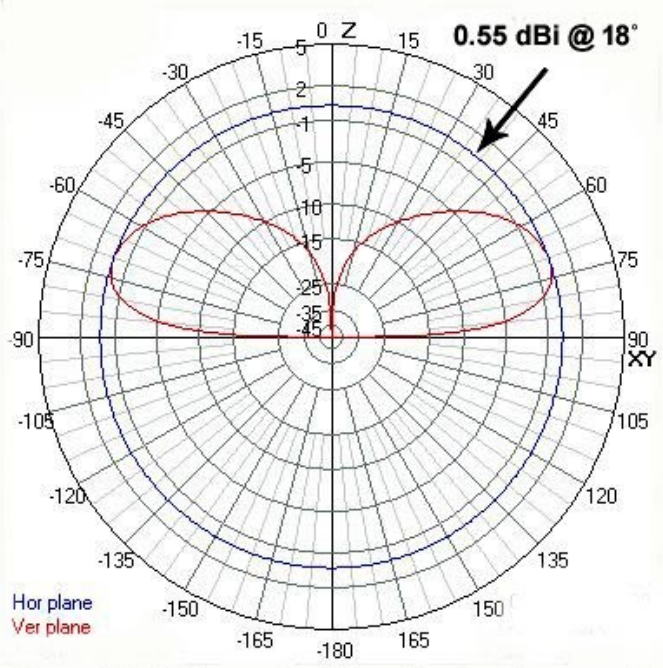


Figure 3A- Patterns of a 1/2λ vertical on the ground

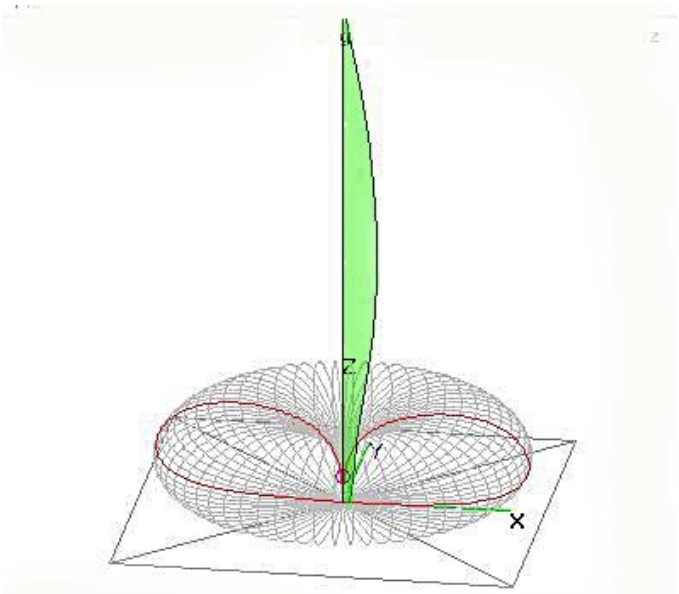


Figure 3B - Patterns of a 1/2λ vertical on the ground

Chart 1 – Comparison of Antennas			
Antenna	Height	dBi @ Degrees	Pattern
1/4λ GP e/w 4 radials	Ground Mounted	-0.31 @ 27°	Omni
1/4λ GP e/w 4 radials	1/4λ	1.50 @ 16°	Omni
1/2λ Vertical	Ground Mounted	0.55 @ 18°	Omni
1/2λ Horizontal Dipole	1/2λ	8.20 @ 28°	Figure 8

Multiband Shortened HF Vertical Antennas

Most hams cannot install 1/2λ tall 40, 60 or 75 meter verticals due to their height. That ham must choose between shortened multiband verticals with or without radials. According to the ARRL verticals without radials will not perform as well as those with radials (http://www.arrl.org/no-free-lunch). However, radial-less verticals are a good solution if there is no space for radials. The old adage is true that the bigger the vertical, the coils and the more the radials, the better the performance!!

A good overview of ten of these verticals is available at https://www.radio4all.org/best-hf-vertical-antenna/

Commercial multiband verticals are available at:

- http://www.parelectronics.com/end-fedz.php
- http://www.earchi.org/92011endfedfiles/Endfed6_40.pdf
- https://palomar-engineers.com/tech-support/tech-topics/best-hf-end-fed-antenna
- https://alphaantenna.com/product/hf-antennas/base-hf-antennas/efhw-end-fed-half-wave-6-80-meter-base-portable-endfed-hf-alpha-jpole-jr-antenna/
- https://www.dxengineering.com/search/department/antennas/section/hf-vertical-antennas?

SortBy=Default&SortOrder=Ascending&GroupBy=ProductName&N=part-type%3Ahf-vertical-antennas-and-packages

Horizontal 1/2λ HF Dipoles

Figures 4A and 4B show the radiation patterns of a horizontal 1/2λ dipole located 1/2λ above the ground**.** A horizontal dipole needs to be at least a 1/2λ above ground to have a fairly low-angle of radiation. As a horizontal dipole is lowered below 1/2λ, the angle of radiation rapidly approaches 90˚ straight up! Raising a dipole will lower the main radiation lobe a bit but will also rapidly direct radiation straight up and create a null around 45˚. Figure 5 shows the patterns for heights of 0.5λ, 0.6λ and 0.8λ. Many folks say that a dipole at 0.6λ high is best for both near and far distance propagation.

Horizontal dipoles have several configuration advantages. One is that they do not have to be straight. They can be bent, sloped; etc. (5).They can also be formed into a Vee. (6). Secondly, horizontal dipoles are easier and cheaper to build and erect. Also, they tend not respond to vertically polarized noise.

Horizontal dipoles do have several disadvantages. One is they are not omni directional as are verticals. This could be an issue if one desired to work in certain directions. Secondly, the lower the design frequency, the more the horizontal space is required. Also, they are harder to hide due to the requirement for two or three supports.

A good dipole radiation pattern reference is available at: https://ventenna.com/files/Rad-Pattern.pdf.

Single band and multiband dipoles are available at:

- https://www.dxengineering.com/search/part-type/wire-antennas
- https://mfjenterprises.com/collections/antenna

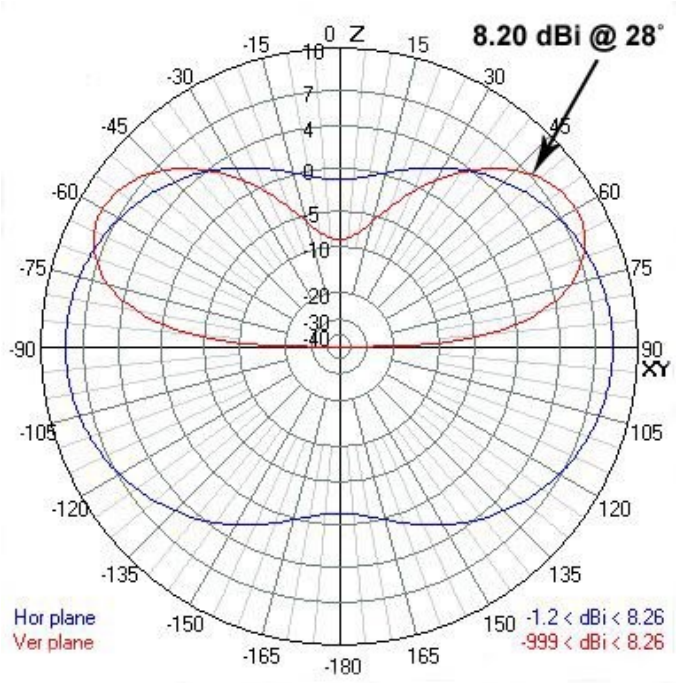


Figure 4A - Patterns of a horzontal dipole up 1/2λ

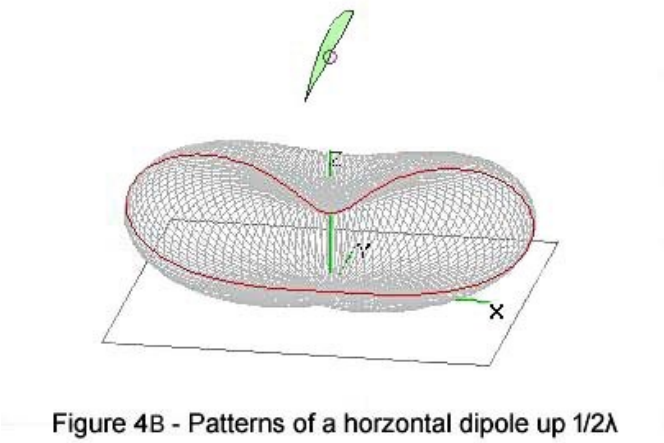


Figure 4B - Patterns of a horzontal dipole up 1/2λ

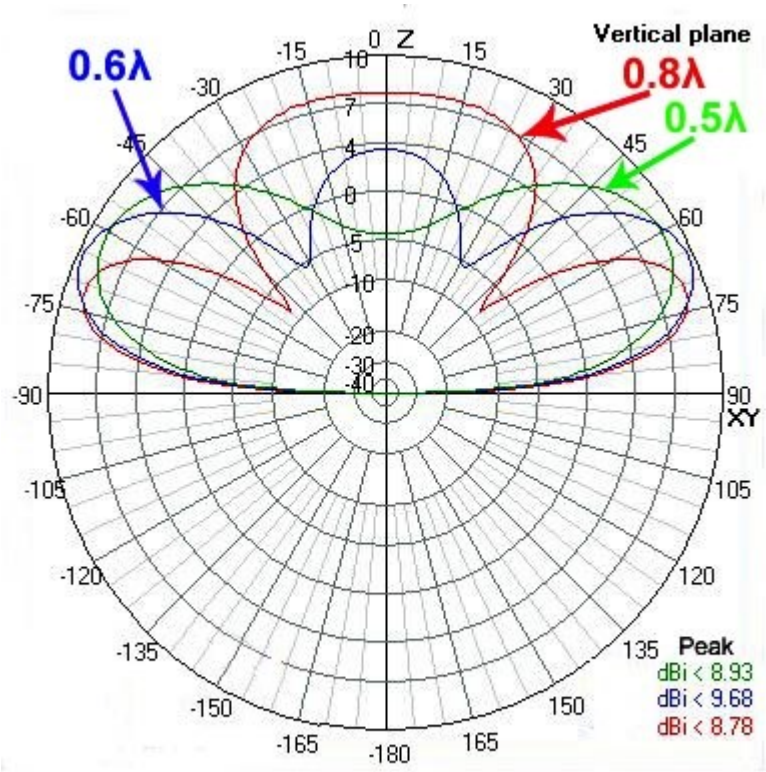


Figure 5 - Dipole patterns at 0,5λ , 0.6λ & 0.8λ high

Summary
As a generality, dipoles for 20 meters and above are easier to install at the proper heights (1/2λ and above) for good DX coverage. However, for bands below 20 meters shortened multiband verticals are normally easier to install for good DX operation.

Since I don't have facilities for a beam, my preferred HF antenna configuration consists of two different antennas. The first antenna is an as large as possible non resonant multiband dipole fed with ladder line. (7). The dipole is at 0.6λ elevation for 20 meters. The second antenna is an as tall as possible end fed multiband ground mounted vertical on a tilt over base with 2 radials per band. (More radials would be better but space is an issue). I prefer to have both antennas for three reasons. The first reason is that I can switch to the antenna that has the best radiation pattern for a particular contact's direction. The second reason is to combat polarization fading. Often, when an incoming signal begins to fade out on one antenna, it is due to incoming signal polarization shift. Switching to the other antenna with the opposite polarization characteristics causes the signal to become stronger. The third reason is that sometimes the vertical puts a stronger signal into a contact's location. However, the vertical's receive signal to noise ratio makes copying the incoming signal tough. The contact's signal may be weaker on the dipole but the signal to noise ratio is better making copying easier. So, in that case, I transmit on the vertical and receive on the dipole.

I use the dipole most times on 20 meters and above. However, I have used the dipole on 40, 60 and 75 meters for NVIS communications where most of the radiation goes straight up. (8). The horizontal dipole fed with ladder line and a good tuner loads up and radiates very nicely on all bands from 75 meters to 10 meters.

Chart 1 summarizes the characteristics of the four antennas discussed above.

Notes:

(1). Building an HF Vertical 1/4λ Monopole
https://www.youtube.com/watch?v=VjI9G0WjiFo
(2). "What is an Antenna Radiation Pattern?", Part 1, *Roundtable*, Oct 2010, Page 3
https://www.w0tx.org/RoundtableArchive/2010-RoundTables/RT201010(OCT).pdf
(3). "What is an Antenna Radiation Pattern?", Part 2, *Roundtable*, Nov 2010, Page 3
https://www.w0tx.org/RoundtableArchive/2010-RoundTables/RT201011(NOV).pdf
(4). "An Experimental Look at Ground Planes"
https://www.nonstopsystems.com/radio/pdf-ant/article-antenna-elevated-radials.pdf
(5). "Don't Load it, Bend it", *Roundtable*, Oct 2017, Page 17
https://www.w0tx.org/RoundtableArchive/2017-RoundTables/RT201710(OCT).pdf
(6). "Vee vs Dipole", *Roundtable*, Dec 2010, Page 3
https://www.w0tx.org/RoundtableArchive/2010-RoundTables/RT201012(DEC).pdf
(7). "An HF Antenna for Small Yards", *Roundtable*, Aug 2021, Page 8
https://www.w0tx.org/RoundtableArchive/2021-RoundTables/RT202108(AUG).pdf
(8). "Near Vertical Incidence Skywave (NVIS)"
https://hamradioschool.com/nvis/
(9). "Which is Better: Vertical or Dipole?", David Casier, KE0OG
https://www.youtube.com/watch?v=pRTo01Qttbc
(10). Vertical vs Horizontal – HF Monopole vs Dipole
https://www.m0spn.co.uk/2020/09/24/vertical-vs-horizontal-hf-monopole-vs-dipole/

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.

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.

Amateur Radio Emergency Corps.

AN ORGANIZATION OF THE AMERICAN RADIO RELAY LEAGUE
DENVER METROPOLITAN AREA

FOR THOSE NEEDING RADIO COMMUNICATIONS
— EMERGENCY OR OTHERWISE — CALL

WØBIN CHARLES COTTERELL	YU 5-0428—Area Emergency Coordinator
WØLO LARRY HODGSON	PE 3-6814—Ass't E.C. & Denver C.D. Radio O.
WØFA GLENN GLASSCOCK	SU 9-9563—Ass't E.C. Englewood Radio O.
WØPG MIKE LYONS	HA 4-4060—Ass't E.C. & Jeffco C.D. Radio O.
WØRQI FONTAINE LaRUE	Ass't E.C. & Adams C.D. Radio O.
KØAOA MAJOR COLEMAN	CR 9-4103—Ass't E.C. on General Comm.
WØVDY RALPH ASBURY	SP 7-2012—Ass't E.C. & Chairman Red Cross
KØHPF HOWARD MOORE	HA 4-8068—Ass't E.C. on 75 Meter Comm.
KØJSD JERRY RITTER	EM 4-2533—Ass't E.C. on v.h.f. Comm.

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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

Kings Soopers Reward Program—Help the DRC.
kingsoopers.com/i/community/community-rewards
citymarket.com/i/community/community-rewards

KING Soopers

Random Site Of The Month

Shenandoah Valley ARC

The Round Table Archive

Go to: w0tx.org/roundtable

The Round Table Article Index

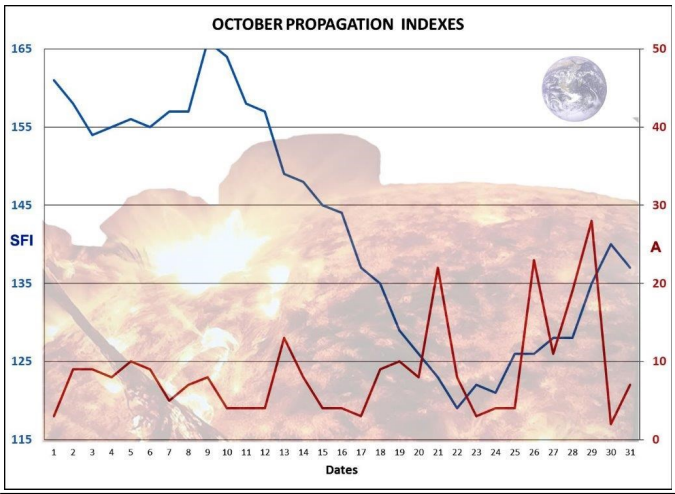
Go to: w0tx.org/RoundtableArchive/-RoundTables-Index.pdf

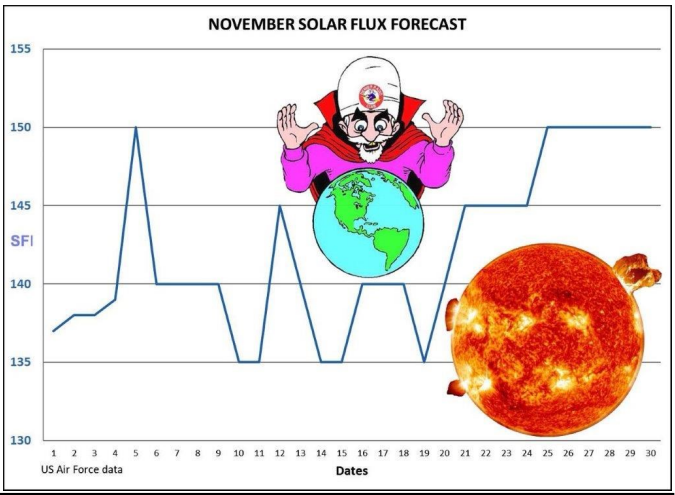
Past & Future Propagation Conditions

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
TechFest	11/4/23	Bridge Church at Bear Creek	na0tc.org
The Swapfest	2/18/24	Adams County Fairgrounds	rmham.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

None for Nov.

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

Attention

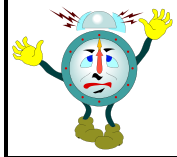
The DRC Board of Directors meetings are held on the 4th Wednesday of the month and are open to any member. Due to scheduling of meeting space, the board does not always meet at the same location and on occasion meetings are held via Skype. Anyone wishing to attend, please contact a board member prior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

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**

NOVEMBER 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** **Nov Sweepstakes - CW**
5 **Nov Sweepstakes - CW**   Last Quarter	**6**	**7**	**8** **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	**9**	**10**	**11** 
12	**13** **School Club Roundup -** Begins 1300 UTC  New Moon	**14** **School Club Roundup**	**15** **DRC Online Meeting** Elmer 6 p.m. Meeting 7 p.m. **School Club Roundup**	**16** **School Club Roundup**	**17** **School Club Roundup -** Ends 2359 UTC	**18** **Nov Sweepstakes - Phone**
19 **Nov Sweepstakes - Phone**	**20**  First Quarter	**21**	**22** **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	**23** 	**24**	**25** **EME Contest - 50 to 1296 MHz** Begins 0000
26 **EME Contest - 50 to 1296 MHz** Ends 2359	**27**  Full Moon	**28**	**29** **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	**30**		

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

DRC Board of Directors

President	W0GV	Gerry Villhauer	303-467-0223	president@w0tx.org
Vice-President	K0KPS	Kevin Schmidt	303-475-9234	k0kps@arrl.net
Secretary	WW0LF	Orlen Wolf	303-279-6264	secretary@w0tx.org
Treasurer	N0CRZ	Cathy Villhauer	303-467-0223	treasurer@w0tx.org
Board Member	N0XRX	Mark Thomas	720-438-0848	n0xrx@w0tx.org
Board Member	K1DBC	Doron Ben Chaim	720-254-1561	k1dbc@w0tx.org
Board Member	WG0N	Dave Baysinger	303-987-0246	wg0n@arrl.net
Board Member	KB0CHT	Jeff Irvin	Check Roster	Check Roster

DRC Staff and Volunteers

Benevolent		Carolyn Wolf	303-279-1328	benevolent@w0tx.org
Club Librarian	WG0N	Dave Baysinger	303-987-0246	wg0n@arrl.net
Digital Committee	W6OAV	Bill Rinker	Check Roster	digital@w0tx.org
Education Coordinator	Open			elmer@w0tx.org
EmComm Coordinator	KE0HFH	Michael Vespoli	303-215-8862	emcomm@w0tx.org
EmComm Coordinator	AD0UZ	Brennan Pate	*Check Roster*	emcomm@w0tx.org
Field Day Chairman	N6WHV	Dick Nelson		fieldday@w0tx.org
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RT Associate Editor	W6OAV	Bill Rinker	Check Roster	Check Roster
Hamfest Manager	KE0YKV	Bill Worthington	720-626-5485	drcfest@w0tx.org
Tech. Committee Chair	Open			tech@w0tx.org
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