



THE ROUND TABLE

Monthly Newsletter Of The Denver Radio Club

Since 1917

June 2023

PRESIDENT'S MESSAGE

BY GERRY VILLHAUER, W0GV

Hello DRC Members.

For the most part, good weather has finally arrived; with the exception of some fairly severe weather in parts of the area. So far, we have avoided the hail storms at our QTH. I hope your summer vacation plans are going well.

I will highlight some of the many activities the club has planned for the next few months:

Saturday June 3rd. Our second is a series of [DRC Saturdays](#) to be held at Prospect Arena, 13805 W. 52nd Ave. Please see the Events tab on the DRC website for what is upcoming.

June 7th. The Lakewood [Siren Test](#) has been rescheduled for this date. If you have participated before, you should be getting a reminder call. If you would like to help, see the Event tab on the website for more information.

June 24 and 25, DRC [Field Day](#). Same location as last year. (See location in above paragraph.) This is a great opportunity to get out in the field and get on the air or just come observe and have some refreshments. There is plenty of parking and you are welcome to bring your RV, Tent Camp or just come out for the day. Help setting up and tearing down is always appreciated; come early and give a hand.

July 15th. Our third in a series of DRC Saturdays (Same location as above) See the Event Tab on the website for the planned activities.

Sunday August 27th. THE BIG ONE! Our [DRC Hamfest](#). This is our Big money making event for the year and we need your support to make it happen. Details are on the website under the Event tab. Table and Admissions are available NOW on the website. Early reservations help us a lot in planning the event.

Several members have requested more in person meetings. Listed above are several opportunities to get out and socialize with DRC members and other hams. Please get out and have fun with our great hobby.

Thanks to Desiree Baccus, N3DEZ, for her very interesting presentation on her affiliation with the ARRL, NASA and Ham Radio. She is very passionate about these subjects and presents very well. We look forward to having her back at a future date.

The presentation for our June virtual meeting will be given by Bill Worthington, KE0YKV. The presentation title is: The Earth's Magnetic Field, Magnetic Observatories, and K-Indices. You will see where these observations fit into ham radio, especially for High Frequency Operation. Bill holds several degrees in Geophysics, including a Doctorate in Geophysics from the Colorado School of Mines. Bill says his discussion will clear up a few misconceptions that have been noted in some ARRL publications. This will be a very interesting and informative program. Mark your calendar for Wednesday Jun 21,



2023 DRC virtual meeting.

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:

Lyle Strachan KE0ZNV
Joseph Butkovich -N0RTD
Ben Rutledge -M5AFO
Douglas Hoyt -KF0MOM
Erik Dyce -W0ERX

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.

FIELD DAY INFORMATION

FROM MISCELLANEOUS PEOPLE

Thanks is due to Dick Nelson, N6WHV, for taking on the role of Field Day Coordinator.

Current Field Day Information:

June 24 - 25
Prospect Arena
13805 West 52nd Avenue
Arvada, CO 80002
[Google Map](#)
[View Venue Website](#)

If you have questions you can reach Dick via fieldday@w0tx.org.

2023 SIREN TESTS

BY EDITOR, AD0UZ

A big thank you to all those who participated in the Wheat Ridge siren test on May 24th. They were:

KE0WWW	KE0GXB	KD0NRO	WG0N
AE5IT	G7LWN	KD0WMO	W0GV
K0LAI	N0GWM	N0DBS	AE0YR
K6HJV	AC0T	K0AFQ	KD0DUJ
K0AXP			

The rescheduled Lakewood test takes place next Wednesday, June 7th. The original test was cancelled due to a storm on the morning of.

If you are interested in helping, or just want pizza as compensation, contact AD0UZ (w0tx.org/officers). We can always use the help and it is a great opportunity to practice your radio skills while helping a local community. If you can't help but know of someone who may be able to, please pass this along.

The cities of Wheat Ridge and Lakewood really appreciate the time and effort of those who help with the tests.

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

1/4λ HF VERTICAL ANTENNAS VS DIPOLES

BY BILL RINKER, W6OAV

A common perception is that HF 1/4λ verticals radiate equally poor in all directions. This is not true if they are properly configured. This article will discuss a vertical's performance compared to horizontal dipoles and how to not only improve a vertical's performance but also how to give it gain. Years ago I did construct the antennas described in this article. They definitely do work as described!

The Standard 1/4λ Vertical

One of the primary advantages of HF vertical antennas is that they are omni-directional, meaning they transmit and receive in all directions. (This will be discussed later in this article). With a good set of radials (between 4 and 16), a 1/4λ vertical will produce a good low angle of radiation in all directions. This low angle reduces the number of lossy hops that HF radio signals must make to reach their destination which makes a vertical antenna a good choice for DX—especially on the lower ham bands. Vertical antennas are normally easy to mount, requiring a single mount at the base. They can be hung from tree branches and be virtually hidden when made of wire which is good in HOA situations. It is also common to build a vertical out of a mobile whip. Articles in [1] below discuss building efficient 1/4λ vertical antennas.

Figure 1a shows the typical RF radiation pattern of a 1/4λ vertical. Note that the RF current is maximum at the base of the vertical. Since the amount of RF radiation is proportional to the amount of RF current, this means that the bulk of the radiation is from the lower half of a ground mounted vertical. Thus the

radiation must propagate through structures around the vertical possibly resulting in extra loss to the signal. This will be important in the discussions later in this article. Figure 1b shows the typical RF elevation (red) and azimuth (blue) radiation patterns of a $1/4\lambda$ vertical.

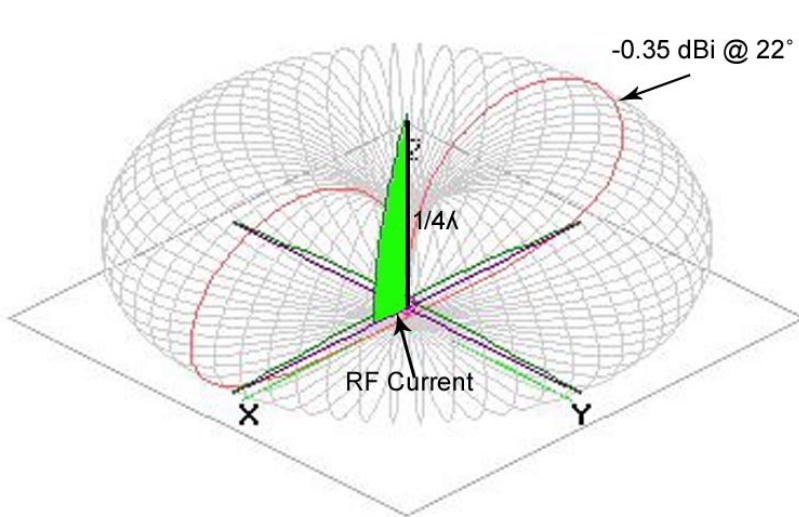


Figure 1a - The $1/4\lambda$ vertical

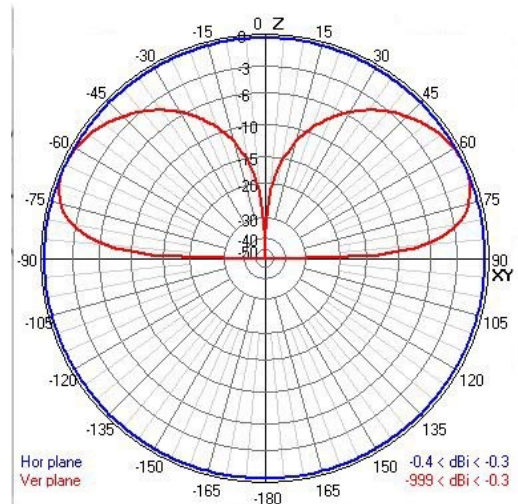


Figure 1b - Radiation patterns of a $1/4\lambda$ vertical

1/4λ Verticals vs Horizontal Dipoles

Table 1 summarizes the pros and cons of a ground mounted $1/4\lambda$ vertical verse a horizontal $1/2\lambda$ dipole.

Perimeter	Table 1 - $1/4\lambda$ Vertical vs Horizontal Dipole
Noise	About the same as a dipole at 20 meters and above. Noisier below 20 meters.
RF Pattern	Omni whereas dipoles have figure 8 patterns.
Installation	Easier to install and usually more economical as a dipole normally requires 3 supports.
Visibility	Stealthier compared to a dipole (Good for HOA situations).
DX Angle*	Favors DX angle. Dipole must be high for same radiation angle. (An issue at 40m and below).

*A horizontal dipole needs to be $1/2\lambda$ above ground to have better low-angle performance than a $1/4\lambda$ vertical. Getting a horizontal dipole that high could be an issue on 40 meters and below. See Figure 2a which compares the elevation radiation patterns of a 40 meter $1/4\lambda$ vertical with those of 40 meter dipoles at $1/4\lambda$ and $1/2\lambda$ heights. Note that the vertical's pattern in the DX angle is approximately 2 dB less than that of a dipole $1/4\lambda$ high and approximately 6 dB less (1 S Unit) than that of a dipole at $1/2\lambda$ high. However, a $1/4\lambda$ vertical does have gain over a horizontal dipole when looking at the radiation pattern off the ends of the dipoles. Figure 2b shows that the vertical's radiation pattern is stronger and at a lower angle then those off the ends of the dipoles.

These patterns are valid when extrapolated to any ham band.

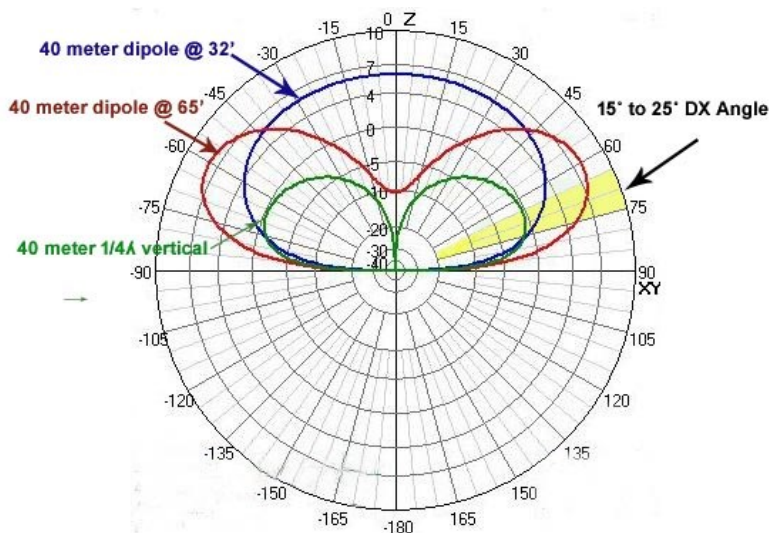


Figure 2a - A vertical vs a horizontal dipole radiation patterns

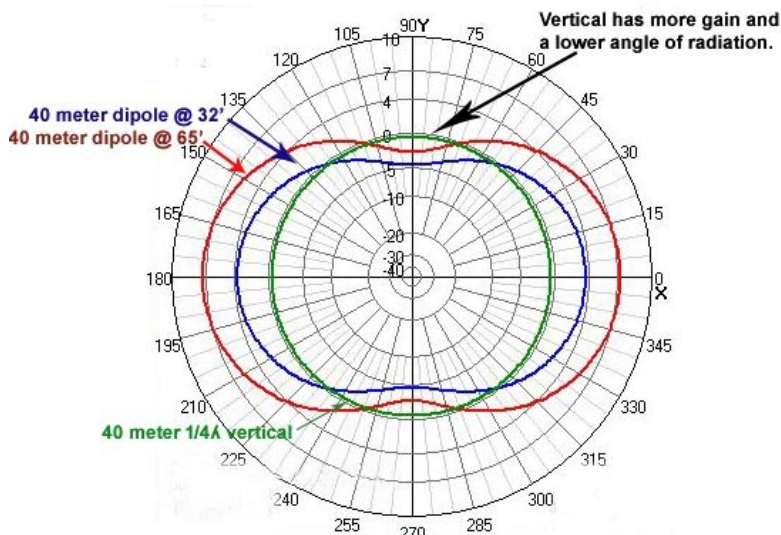


Figure 2b -The azimuth patterns of a vertical vs horizontal dipoles

The Half Square Vertical

The Half Square antenna is a bidirectional, vertically polarized, phased-array 2 element beam that has gain and a low angle of radiation. The Half Square antenna is a great wire antenna for DX, especially on 40 meters and below where very high horizontal antennas would otherwise be required. Also, radials are not required.

The Half Square has two vertical in phase $1/4\lambda$ radiators spaced $1/2\lambda$ apart and connected at their tops by a $1/2\lambda$ non radiating phasing wire (The RF currents there cancel each other). See Figure 3a. The antenna can be fed at either the top or at the bottom of one of $1/4\lambda$ verticals. The top feed point is 50 ohms meaning that a coax can be directly connected with the center conductor connected to the $1/2\lambda$ wire and the shield connected to the vertical wire. To get the coax to the top of the antenna, some hams have used metal tubes as vertical radiators to support the horizontal $1/2\lambda$ phasing wire. The coax is fed up the center of one tube to the top where the shield is connected to the tube and the center connector is connected to the horizontal wire. The bottom feed point is high Z meaning that a matching net-

work such as that shown in Figure 3a is required. See Figure 6 in reference [2] for more details on a matching network and more details on Half Square antennas.

Note in Figure 3a that the Half Square’s RF current is maximum at the tops of the $1/4\lambda$ verticals. This means that, unlike a $1/4\lambda$ vertical whose maximum RF current is at its base, the RF radiation from a Half Square antenna is high above the ground. This means that the RF radiation doesn’t have to pass through structures around the antenna resulting in less local loss.

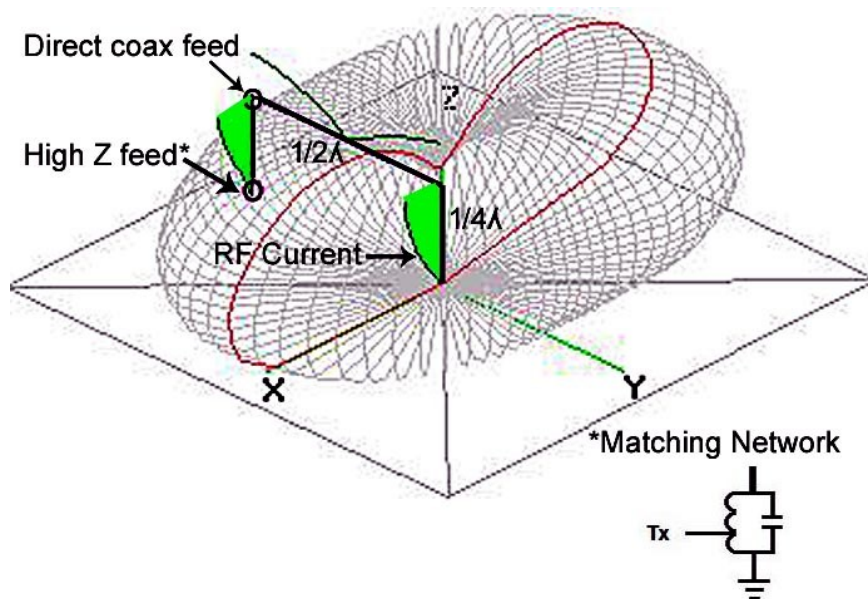


Figure 3a - The Half Square antenna

The Half Square will produce a low angle bidirectional radiation pattern with approximately 3 dB gain over a single $1/4\lambda$ vertical. See Figure 3b. Refer to [3] for complete information on the Half Square.

Several other bands may be “squeezed” out of the antenna by using a 9:1 Unun and tuner to feed the bottom of one of the verticals. In this configuration the antenna acts as a random wire antenna on all but the “designed” band. Radials here would improve performance for the “un-designed” bands.

The Bobtail Antenna

The Bobtail antenna is a bidirectional, vertically polarized, phased-array antenna that has two horizontal non radiating $1/2\lambda$ wires that connect the tops of three $1/4\lambda$ verticals. See Figure 4a. As with the Half Square, the RF current is maximum at the tops of the verticals. This means that the RF radiation doesn’t have to pass through structures around the antenna resulting in less local loss. The Bobtail does not require radials.

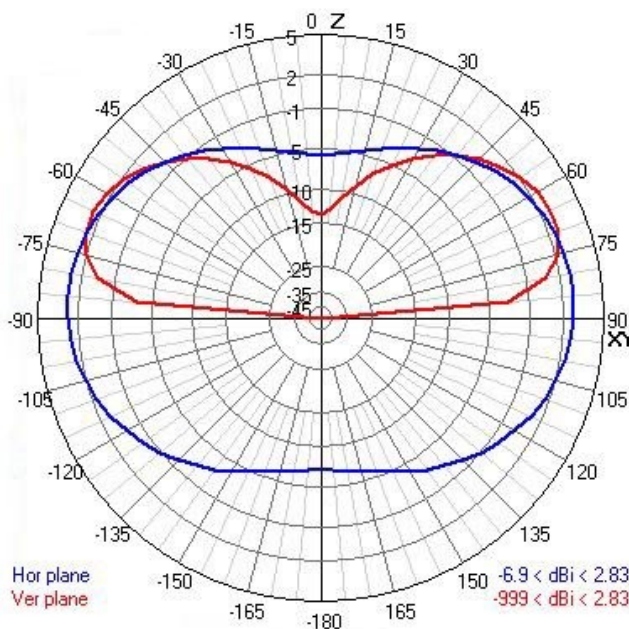


Figure 3b - Patterns of a Half Square antenna

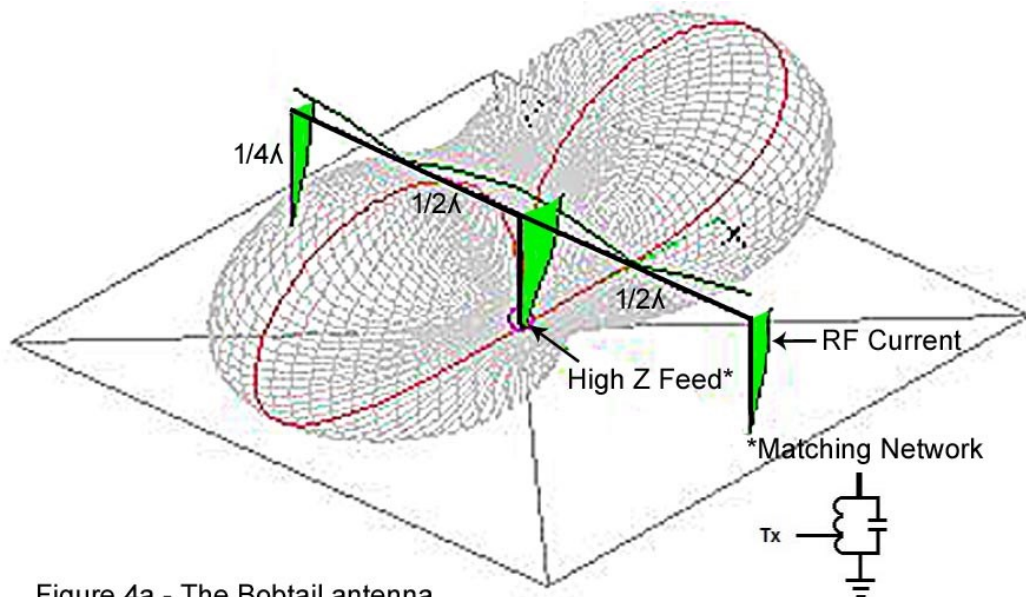


Figure 4a - The Bobtail antenna

The Bobtail is most effective for low angle signals and makes an excellent long-distance antenna. The Bobtail will produce a low angle bidirectional radiation pattern with approximately 5 to 6 dB gain over a single $1/4\lambda$ vertical. See Figure 4b.

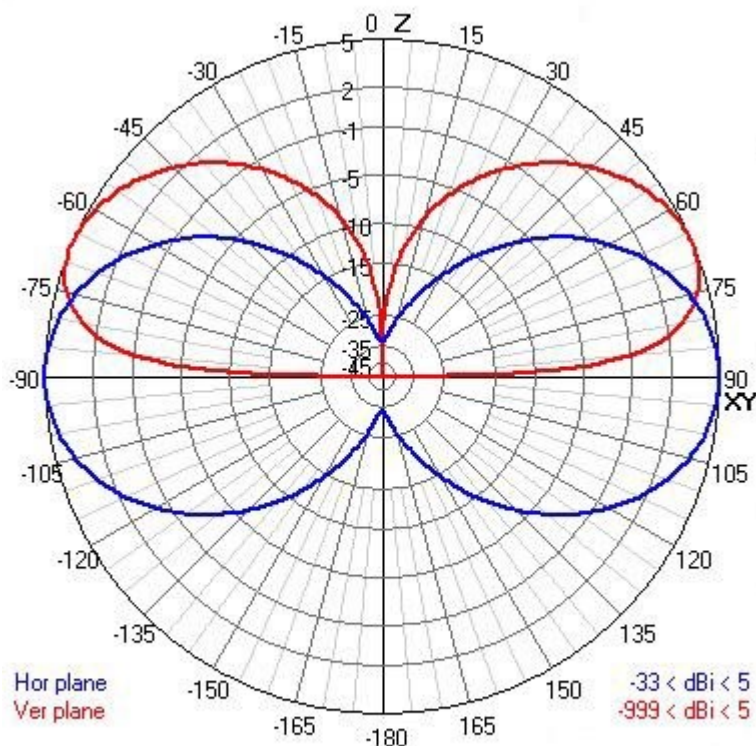


Figure 4b - Patterns of a Bobtail antenna

Like the bottom fed Half Square, the Bobtail requires a matching network for the transmitter. Reference [5] shows not only how to match a Bobtail antenna but also how to make it work on other bands. Reference [6] shows a homebrew matching network. Google “end fed antenna matching network” for commercial step down matching networks for both the Half Square and the Bobtail. An MFJ907 is a typical example.

Additional Comments

Some hams have built Half Square and Bobtail beams by using two antennas in parallel. The Half Square beam has a gain of 7dBi and the Bobtail beam has a gain of 10 dBi. Reference [7] details a Half Square beam. I’ve never tried these beams due to lack of real estate space! However, one time I came across a ham who had a 2 element Bobtail 40 meter beam. He was quite impressed with its performance.

Some hams will build “upside down” Half Square or Bobtail beams, especially for vhf/uhf. I don’t know if there is any advantage to these “upside down” antennas. Refer to [8] for a vhf examples.

References

[1]. Radials Demystified:

[https://w0tx.org/RoundtableArchive/2008-RoundTables/RT200804\(APR\).pdf](https://w0tx.org/RoundtableArchive/2008-RoundTables/RT200804(APR).pdf), Page 3.

[https://w0tx.org/RoundtableArchive/2008-RoundTables/RT200805\(MAY\).pdf](https://w0tx.org/RoundtableArchive/2008-RoundTables/RT200805(MAY).pdf), Page 3

[https://w0tx.org/RoundtableArchive/2008-RoundTables/RT200806\(JUN\).pdf](https://w0tx.org/RoundtableArchive/2008-RoundTables/RT200806(JUN).pdf), Page 4

[2]. Voltage Feeding Half Squares and Bobtails: <http://www.antentop.org/w4rnl.001/scv1.html>

[3]. Using the Half-Square Antenna for Low-Band DXing: https://rudys.typepad.com/ant/files/antenna_halfsquare_array.pdf

[4]. Bobtails and Half Squares: <https://www.angelfire.com/md/k3ky/page38.html>

[5]. 40 meter Bobtail as an All Band Antenna: <http://on5au.be/content/a10/scv/bc40ab.html>

[6]. A 20 Meter Bobtail: <https://www.n5oe.net/index.php?id=20m-bobtail-curtain>

[7]. A Half Square Beam: <https://ndl-dx.se/qth/The%20HSQB%20-%20A%20half-square%20beam.pdf>

[8]. 2 Meter (2 Element) Bobtail Beam Project. <https://hamuniverse.com/2meterbobtailbeam.html>

Half Square 2 Meter beam: <http://www.antentop.org/w4rnl.001/hs2.html>

Bobtail 2 Meter Beam <http://www.antentop.org/w4rnl.001/hs3.html>

DRC’s Trading Post

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



The Denver Radio Club
is an ARRL Special Service Club

your hobby and *join the ARRL today!*

<http://www.arrl.org/>



Sunday August 27, 2023
**DENVER RADIO CLUB
HAMFEST**



Adams County Fairgrounds
9755 Henderson Road in Brighton
Sunday August 27, 2023
9:00 am – 1:00 pm

\$6.00 Admission
(Children under 13 free w/adult)

Exact Change appreciated

Doors open to the Public at 9am
Six-foot tables Advance Purchase..... \$13.00 each
Tables at the Door..... \$20.00
No guarantee of availability of "at the door" tables!

Vendor Setup begins at 7:30 on August 27th
Table assignment will be available at check-in
License Testing/VE Exams at 10 am

Talk-In: 145.490 or 448.625 PL 100.0Hz
GPS: Lat 39d 43' 19" N Lon 105d 10' 15" W
Handicapped Parking & Access Available

Visit our website for table reservations or email our Hamfest manager Bill Worthington at
drcfest@w0tx.org

PAST ROUND TABLE PAGES

PROVIDED BY WOODY LINWOOD, W0UI

From the November 1960 edition.

NET SKEDS

COLORADO EMERGENCY PHONE

0800 Sunday—3590 kc.

SIX METER

2000 Sunday and Thursday—56.3 mc.

LCL-YL

0900 Monday—7235 kc.

COLORADO STATE 2 METER

2130 every night—146.25 mc.

HI NOON

1200 Monday-Saturday—7240 kc.

COFFEE CLUB

0600 Monday-Saturday—3995 kc.

COLORADO WEATHER (CWKN)

0650 Monday-Saturday—3945 kc.

DENVER AREA RACES

0900 Sunday—29.624 mc.

1830-2000 Tues., informal (members & non-members welcome)

SIX METER CD

1900 Tuesday 50.35 mc.

ENGLEWOOD CD

2000 Wednesday—29.500 mc.

COLORADO CW

1900 Monday-Friday—2652 kc.

NEW MEXICO BRASSPOUNDERS (NMBP)

1900 Mon., Wed., Fri.—3570 kc.

12th REGIONAL (TWN)

2000 Mon.-Sun.—3570 kc.

BEEHIVE UTAH NET (BUN)

1230 Mon.-Sun.—7272 kc.

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6 Meters . . .

(Continued from Page 5)

through California, received a certificate entitled "Royal Order of Hootowls" for having worked a member for one hour after midnight on a Saturday night.

Anyone wanting such a certificate should contact John any Saturday between midnight and 1 a.m.—if you can get him out of bed.

The six meter mobile transmitter hunt held in October was a surprising success. Approximately 20 members in 10 mobiles attempted to find KQOTY, and an unidentified co-pilot won in about a half hour. A little later, KQDTX was seen heading for Colorado Springs and WQIJR for Wyoming. In spite of all this, everyone had a lot of fun.

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Deadline for *The Round Table* is the day preceding the first Thursday of each month. All advertising and copy must be in by that time.

Ham Directory

(Continued from Page 1)

Smith, WQBWJ, is assisting in advertising sales.

Several new features will be added to the 1961 directory. A completely redesigned, two-color cover will make the publication worthy of any shack desk. In addition, the committee has announced a plan to include an outstanding feature not found in any other publication of its type; the first few pages of the book will be devoted to listing the information every amateur uses every day. Instead of cluttering the shack with books, pamphlets, and scraps of paper, the user of the Colorado Ham Directory will be able to find lists of the amateur bands, RACES frequencies, National Calling and Emergency frequencies, third-party traffic countries, banned countries and many other valuable tables under one cover. This feature alone will make the directory worth its price of \$1.00.

Target date for release of the Colorado Ham Directory is mid-January of 1961. Deadline for material is December 1, 1960.

Need CASH or SMALLER MONTHLY PAYMENTS?



R. J. "ROG" ROGERS WONNI

HERE'S a place you can talk ham radio or learn how to work Asia on 10 watts while you make your payments! I make personal loans or do any kind of financing in amounts of \$30 to \$3000, or more. Just phone me at RAce 2-2847.

SERVICE LOAN CORPORATION

73 South Broadway
Just South of J. C. Penney

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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](#)



THE ROUND TABLE ARCHIVE

Go to: w0tx.org/roundtable

THE ROUND TABLE ARTICLE INDEX

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

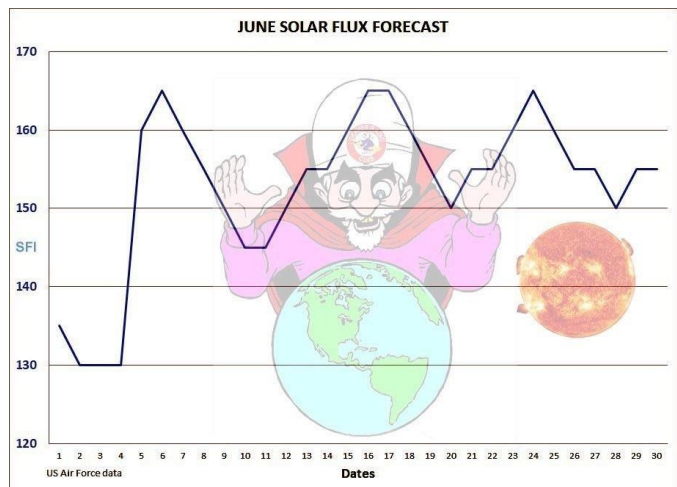
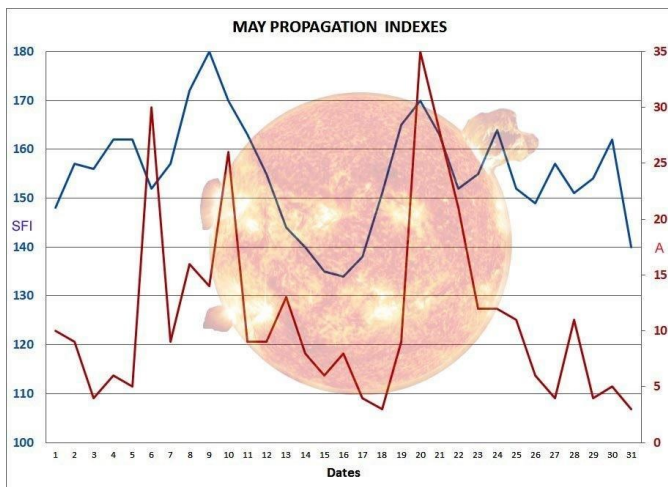
RANDOM SITE OF THE MONTH
[Rudolf Klos, DK7PE, Mainz, Germany](#)

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](http://www.w0tx.org/RoundtableArchive/2010-RoundTables/RT201009(SEP).pdf)



UPCOMING EVENTS

HAMFESTS & CONVENTIONS

Event	Date	Location	Sponsor Website
Montrose ARC Tail Gate Party	6/3/23	Delta Lions Club Pavillion	montrosehamradio.org
Megafest	7/22/23	CSU-Pueblo Occhiato University Center	ppraa.org/megafest

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
Kentucky	06/03/2023	06/04/2023	Kentucky Contest Group	
West Virginia	06/17/2023	06/18/2023	West Virginia State Amateur Radio Council	
Maryland-DC	08/12/2023	08/13/2023	Anne Arundel Radio Club	
Hawaii	08/25/2023	08/27/2023	Hawaii QSO Party	
Kansas	08/26/2023	08/27/2023	Kansas QSO Party	
Ohio	08/26/2023	08/27/2023	Ohio QSO Party	
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

**HAM
RADIO
OUTLET**

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 TOLL FREE: 800.444.9476 | DIRECT: 303.745.7373 | EMAIL: DENVER@HAMRADIO.COM
HAMRADIO.COM

JUNE 2023		<i>DRC Net Sundays at 8:30 p.m. on 145.490 / 448.625 (no PL)</i>				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3 International Digital Contest - Begins 1800 UTC  Full Moon
4 International Digital Contest - Ends 2359 UTC	5	6	7 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	8	9	10 June VHF - Begins 1800 UTC  Last Quarter
11 June VHF - Ends 0259 UTC Monday	12	13	14 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL) 	15	16	17 Kids Day 1800 - 2359 UTC  New Moon
18 	19	20	21 DRC Online Meeting Elmer 6 p.m. Meeting 7 p.m.	22	23	24 
25 	26  First Quarter	27	28 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	29	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
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Board Member	N0XRX	Mark Thomas	720-438-0848	n0rx@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...

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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