



# THE ROUND TABLE

Monthly Newsletter Of The Denver Radio Club

Since 1917

May 2025

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## PRESIDENT'S MESSAGE

BY GERRY VILLHAUER, W0GV

Hello DRC Members,

It looks like spring is actually here. Hopefully we will get more moisture than we have had so far or it may be a dry summer.

I would like to thank Karin Thompson, KD4DXX, for her presentation on RT Systems. The huge variety of radio programming software that RT Systems has is really amazing. I know also, they are very helpful when it comes to answering questions. Great customer service.

As of this writing, we do not have a program nailed down for our May meeting, but we continue to look for good programs. Your help would be greatly appreciated if you know of a good program and presenter.

At our April meeting, we elected Dick Nelson, N6WHV to fill our vacant Board of Directors position. We thank Dick for stepping up and accepting this very important club position.

In other Board of Directors news, I have appointed our Secretary Orlen Wolf, WW0LF, to fill our vacant Treasurer position Pro Tem, until our September Regular meeting and election of officers

I also want to thank Cathy Villhauer, N0CRZ, for the years of service she has provided as our DRC Treasurer. Please thank her next time you see her.

The Board made a decision to cancel the Hamfest in August. This decision was mainly due to the projection that the event would be a financial burden on the club instead of a money making event. What also led to this decision is the difficulty the club is having getting members to volunteer to help with the event. A few members cannot successfully pull off an event of this size. As the saying goes "It takes a village". There will still be an event on August 24, 2025. RMHam Radio immediately stepped up and will be holding what they are calling a "Summer Swapfest" on the same day, Aug 24, 2025 at the Adams County Fairgrounds. Any persons who already purchased tables and admissions will be transferred to RMHam without further action on their part.

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



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## WHO'S NEW IN THE DRC?

PROVIDED BY KELLY SOBANSKI, KB8OGP

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:

Peter Alterman - W2CDO	Alison Lytle
Ryan Jimenez - KF0TUW	Ben Barefoot - KD0IRP
Chris Orgill	

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.

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## QUESTION OF THE MONTH

BY BILL RINKER, W6OAV

"What are the best attic HF antennas (when faced with HOA issues)?"

The answer can be found on page 7 of the December 2015 issue of the Roundtable:

[https://w0tx.org/RoundtableArchive/2015-RoundTables/RT201512\(DEC\).pdf](https://w0tx.org/RoundtableArchive/2015-RoundTables/RT201512(DEC).pdf)

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## MONTHLY DRC LUNCH - REMINDER

BY KEVIN SCHMIDT, K0KPS

An informal face-to-face meeting of DRC members meets on the third Wednesday of each month at 11:30 a.m. The location is at the Valley Inn Restaurant, 1997 S Wadsworth Blvd, in Lakewood. This restaurant is on the southern edge of the King Soopers Shopping Center at Jewell and Wadsworth. No reservations are required. If you are interested in meeting and talking about radio, or other topics, don't hesitate in coming by.

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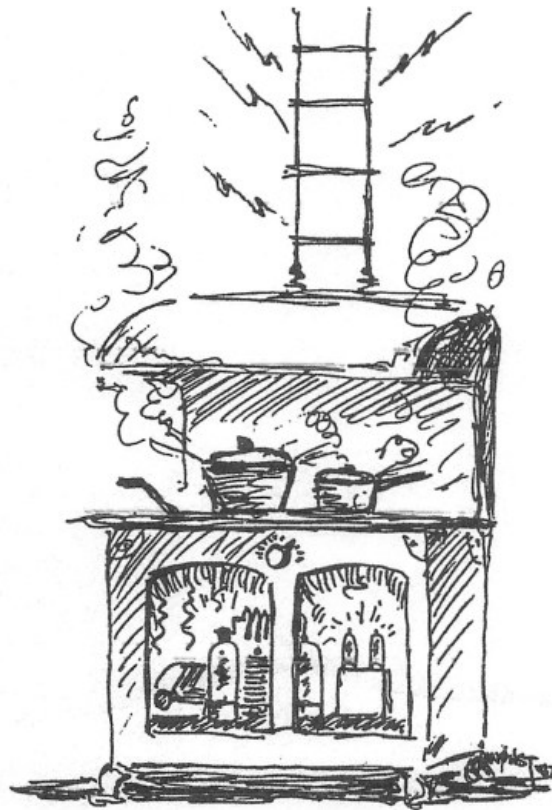
**DRC RECIPES**

PROVIDED BY CATHY VILLHAUER, N0CRZ

Another one from the recipe book that was published by DRC members in 1988.

## COOKIN' OVER THE AIRWAYS

The Denver Radio Club, Inc.



### Now you're cookin'!

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**TACO SALAD**

Sandy Wunder  
KA7USF

1 to 1½ lbs. hamburger  
½ c. chopped onions  
1¼-oz. pkg. taco seasoning mix  
1 (15-oz.) can red kidney beans  
1 c. grated colby cheese  
1 to 2 med. tomatoes, chopped

½ med. head lettuce, chopped  
1 (8-oz.) bottle Thousand Island  
salad dressing  
Approx. ½ (7-oz.) pkg. taco  
chips

Brown hamburger. Drain grease. Add onions and taco seasoning mix. Simmer, covered, for 20 minutes, stirring once or twice. Cool to room temperature. In large bowl, combine meat, kidney beans, cheese and dressing. Add lettuce and tomatoes last. Toss to combine. Just before serving, add broken taco chips. Best served at room temperature or slightly chilled, rather than cold. Good summer meal in itself.

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## THE "LITTLE PISTOLS GUIDE TO HF PROPAGATION"

BY BILL RINKER, W6OAV

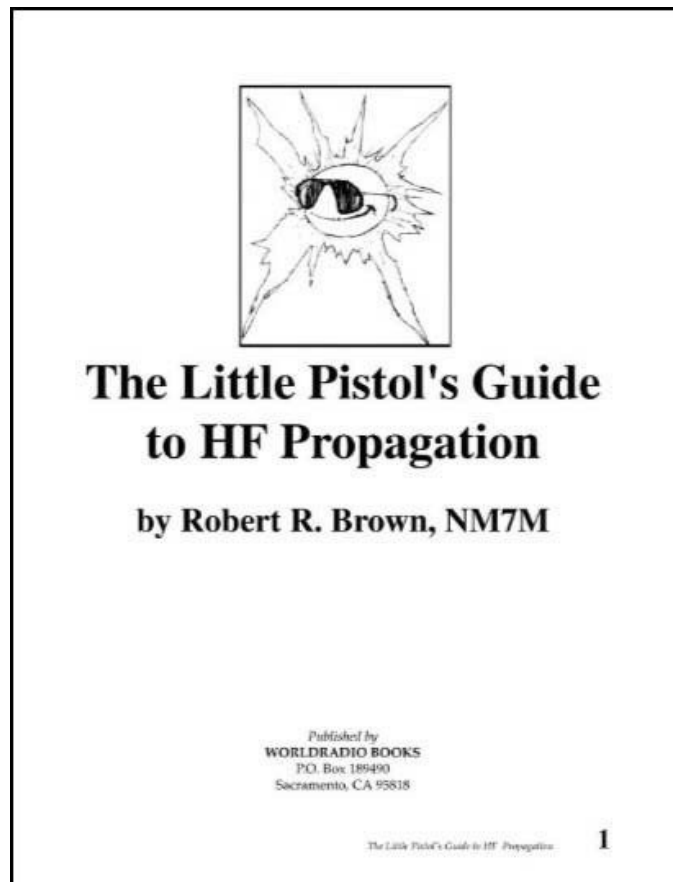
Bob Brown NM7M (SK) was an expert on ionospheric propagation and wrote a great book on HF Propagation which is now available as a free download from either of the URLs listed below.

Bob's "The Little Pistol's Guide to HF Propagation" was published by WORLD RADIO BOOKS in March 1996. This book is tailored specifically for hams, affectionately known as "Little Pistols," who operate with modest equipment setups. Despite its focus on those with limited resources, the guide offers valuable insights for hams of all levels who wish to deepen their understanding of High Frequency radio propagation.

Bob presents complex concepts in two main parts with a total of 23 chapters which make the intricacies of HF propagation comprehensible to the average ham. The book covers a wide array of topics, starting from the fundamental principles of ionospheric refraction and progressing to more advanced subjects. Readers can expect to gain knowledge about solar radiation and its impact on the ionosphere, detailed explanations of the various ionospheric regions (D, E, and F), and methods for analyzing solar and geomagnetic data.

Sources for free download:

[archive.org/details/nm-7-m-the-little-pistol-s-guide-to-hf-propagation/page/n1/mode/2up/k9la.us/NM7M The Little Pistol s Guide to HF Propagation.pdf](http://archive.org/details/nm-7-m-the-little-pistol-s-guide-to-hf-propagation/page/n1/mode/2up/k9la.us/NM7M%20The%20Little%20Pistol%20s%20Guide%20to%20HF%20Propagation.pdf)



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## DRC - BLAST FROM THE PAST

PROVIDED BY WOODY LINWOOD, W0UI

Woody Linwood, W0UI, sent over some photos from various DRC events in the past. This one is from the 1982 Christmas banquet.



1982 DRC Christmas Banquet

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## C4FM ON 10 METERS

BY BILL RINKER, W6OAV

C4FM signals are often heard on 10 meters now that the band is open most days. So, what is C4FM, why operate C4FM on 10 meters and is C4FM legal on 10 meters?

### What is C4FM?

C4FM (Continuous 4-level FM) is a digital voice mode that uses 4-level frequency modulation to transmit encoded voice data, rather than directly modulating the carrier with an analog voice signal like traditional FM.

### Why use C4FM?

Well, C4FM provides voice modes with error correction for improved audio quality, especially in noisy and weak signal conditions compared to analog modes like SSB or FM.

### C4FM Legal on 10 meters?

C4FM is legal on the FM portion of the 10 meter amateur radio band. Specifically:

- Amateur radio operators are permitted to use modes with up to 20 kHz bandwidth on 10 meters. C4FM only has a 12 kHz bandwidth.
- C4FM, being a form of FM, can be used on the FM portion of the 10 meter band (29.5 MHz to 29.7 MHz).
- While just outside the FM allocation of 29.5 to 29.7 MHz, 29.250 MHz has been designated as the standard simplex calling and beaconing frequency for C4FM (DN mode) operation specifically, likely due to its narrower bandwidth allowing it to fit just below the wider analog FM frequencies. Multiple reliable sources confirm the use of 29.250 MHz for this purpose. (Users configure Group Mode with beaconing).

There is some debate around whether pure voice transmissions using C4FM are legal on the voice/SSB portion of 10 meters (e.g. 28.420 MHz), as C4FM always includes a data component. The consensus seems to be that for pure voice, C4FM should be used in the FM portion above 29.5 MHz to comply with regulations.

So, in summary, while C4FM can be utilized on 10 meters thanks to its bandwidth, it is specifically allowed and recommended for use in the FM portion of the band, starting at 29.5 MHz and above, including the calling frequency of 29.250 MHz. There are no sources definitively stating C4FM is illegal below 10m, but its wideband nature means it cannot meet the narrower bandwidth rules on the lower HF bands.

### References:

Did you know? C4FM Fusion on 10 meters:

<https://w3kwh.com/2019/07/09/did-you-know-c4fm-fusion-on-10-meters/>

10 meter C4FM DX:

<https://www.youtube.com/watch?v=JRqSO47gOUI>

10m C4FM DX! Yaesu FT-991A:

<https://www.youtube.com/watch?v=EbdZJEabMn0>

10m C4FM DX! Yaesu FT-991A:

<https://www.youtube.com/watch?v=EbdZJEabMn0>

Yaesu FT-991 - C4FM on 10 meters - Eric VE2MEL:

<https://www.youtube.com/watch?v=9Dw2Q8e8MTs&t=43s>

Listen to 10 C4FM with an HT:

<https://wp.hamoperator.com/fusion/work-10-meters-with-an-ht/>



The Denver Radio Club  
is an ARRL Special Service Club

Support your hobby and join the  
ARRL today!

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





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## MYSTERY ANTENNAS

BY BILL RINKER, W6OAV

I've heard several discussions on the HF bands centering on "What are the top-loaded whip antennas that are appearing on semi-trucks, RVs, and industrial pickups?". Figure 1 shows this intriguing antenna. So, what is this mystery antenna? Well, it is an integral component of a mobile cell booster system.



Figure 1 - Truck with mystery antenna

The purpose of this article is to describe the antenna for hams interested in antennas and to describe the mobile cell booster system for interested RVing hams as well as the legal requirements for them to install and use the system.

The primary purpose of a cell booster system is to capture weak outside cellular signals, amplify them and then rebroadcast the boosted signal inside a vehicle. Likewise, the cell booster system picks up the inside cell phone's signal, amplifies it and retransmits it outside to the cell tower. The system improves voice call quality, increases data speeds, extends coverage, supports multiple users, and enhances cell phone battery life (the cell phone operates with low output power).

Figure 2 shows the antenna before and after assembly. The antenna is a patch antenna. (A simple patch antenna consists of a flat rectangular or circular patch of metal, typically copper, suspended over a ground plane. The patch acts as the radiating element, while the ground plane acts as a reflector.).

### System Description

Figure 3 illustrates a typical mobile cell booster system. The following describes components of the cell booster system.



Figure 2 Antenna Kit

Assembled Antenna

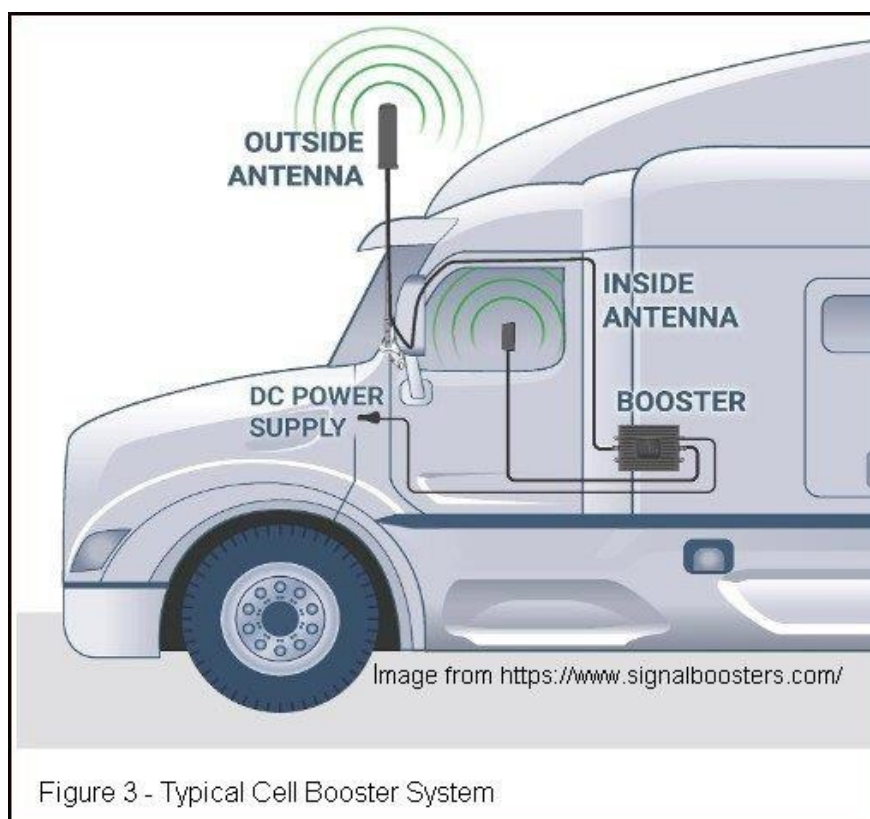


Figure 3 - Typical Cell Booster System

### Outside Antenna

Receives signals from the cell tower and feeds them to a booster in the vehicle and it transmits amplified local cell phone signals from the booster to the tower. Chart 1 describes the antenna characteristics.



Frequency Band (MHz)	698-806	806-960	1710-1880	1850-1990	1910-2170	2300-2700
Peak Gain (dBi)	2.4	2.6	3.8	3.8	3.7	4.3
Gain (dBi), typical @ 2° Elevation	1.4	2.4	3.1	2.7	2.4	2.6
Cable loss LMR-195 15 ft.	1.8	1.9	2.8	2.9	3.0	3.3
Efficiency (%)	>70%		>65%			
VSWR	<2:1		<2:1			
Polarization	Vertical					
Half-Power Azimuth Beamwidth (°)	360	360	360	360	360	360
Half-Power Elevation Beamwidth (°)	70	78	60	70	80	33
Impedance (Ω)	50					

Chart 1 - Antenna Specs (from Wilson Drive OTR Antenna spec sheet)

### Booster

Provides bi-directional amplification. It amplifies the weak incoming signal received by the external antenna and feeds the amplified signal to an internal antenna located inside the vehicle to provide better cellular reception. It also amplifies the outgoing signals from cellular devices inside the vehicle and sends the amplified signals back through the external antenna towards the cell.

To limit interference, while still providing effective signal amplification, the FCC limits the maximum downlink output power to 17 dBm (0.0501 watt) for multi-carrier mobile boosters, while the maximum uplink power is normally around 26 dBm (0.3981 watt) based on the 50 dB gain cap. For single carrier, the uplink is capped at 30 dBm (1 watt).

### Inside Antenna

A typical inside antenna is a patch antenna with 5dB gain which radiates the external boosted signal throughout the vehicle and receives the cell signals from devices inside the vehicle and feeds them to the booster.

## **Requirements Before Using the System**

### Registration with Wireless Carrier

The FCC requires users to register their cell booster with their wireless carrier and obtain the carrier's consent before operating the booster. This registration process typically involves providing information like the owner's name, booster make/model/serial number, and installed location.

### Use FCC-Approved Boosters

Users must only use cell boosters that are approved by the FCC and comply with the agency's

technical standards for preventing interference. Boosters sold after March 1, 2014 must have an FCC label indicating compliance.

### Summary

The ability to boost cell signals in both directions is a key feature that allows mobile cell boosters to provide a more reliable cellular connection while on the move, especially in weak cell signal areas.

### References:

Wilson Signal Booster:

<https://www.wilsonsignalbooster.com/collections/vehicle-cell-phone-signal-boosters>

Drive OTR Antenna Spec Sheet:

[file:///F:/Temp%201/Cell%20Boosters/311229\\_DriveOTRAntenna\\_SpecSheet.pdf](file:///F:/Temp%201/Cell%20Boosters/311229_DriveOTRAntenna_SpecSheet.pdf)

weBoost Installation Guide:

<file:///F:/Temp%201/Cell%20Boosters/weboost-477154-install-guide.pdf>

weBoost Spec Sheet:

<file:///F:/Temp%201/Cell%20Boosters/>

[weBoost\\_Drive\\_Reach\\_OTR\\_Fleet\\_471254\\_Spec\\_Sheet.pdf](weBoost_Drive_Reach_OTR_Fleet_471254_Spec_Sheet.pdf)

The Definitive Guide To Cellular Booster Registration:

<https://www.rvmobileinternet.com/guides/booster-registration/>

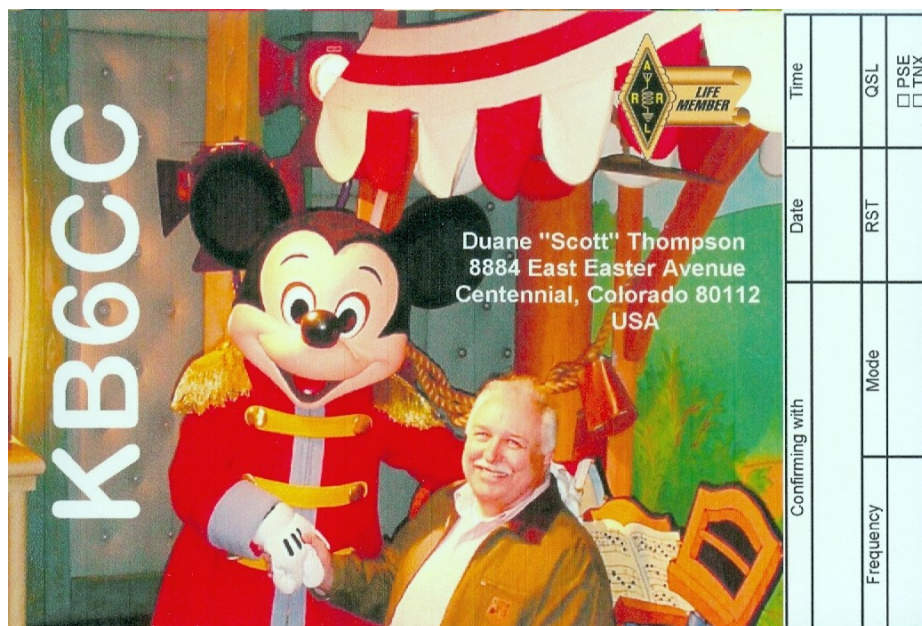
47 CFR § 20.21 - Signal boosters:

<https://www.law.cornell.edu/cfr/text/47/20.21>

## QSL CARDS - KB6CC

By SCOTT THOMPSON, KB6CC

1 - My regular QSL card for KB6CC meeting with the "Big Cheese" himself.

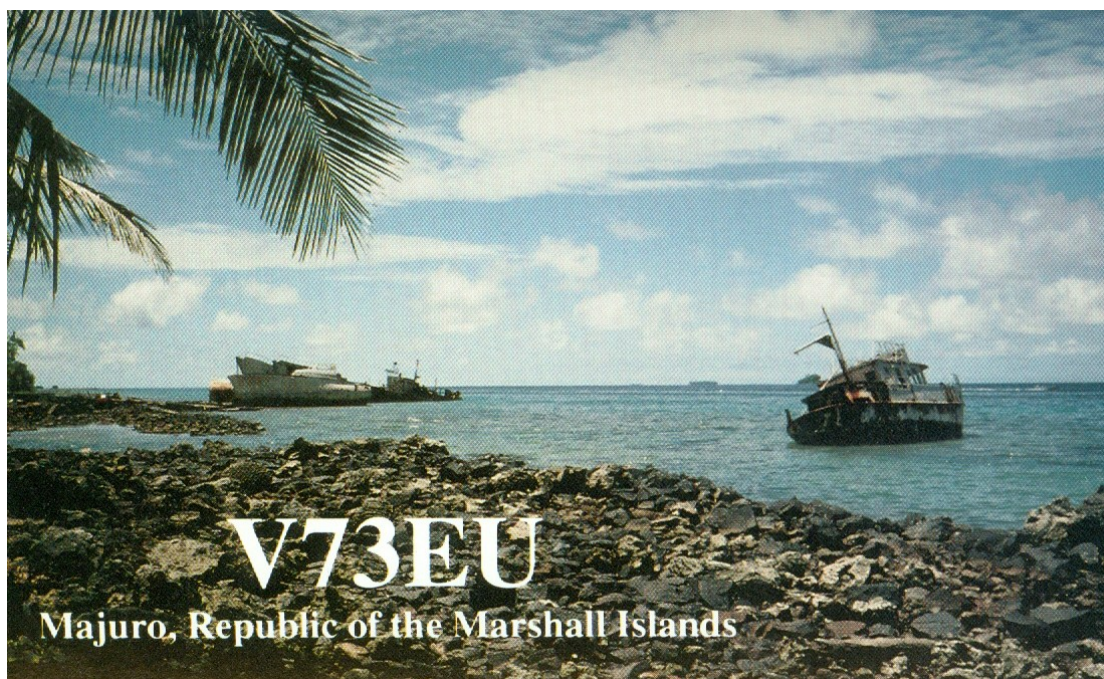




2 - My QSL card for V63ST where I operated at every opportunity while on temporary assignment with FEMA as part of the disaster recovery efforts following Typhoon Owen. This "after hour" DXpedition was located on Moen Island (now WENO) in the Truk Islands (now CHUUK), specifically: 7 degrees 27 minutes North, 152 degrees 52 minutes East.



3 - My QSL card for V73EU where I operated while on a temporary assignment with FEMA as part of the disaster recovery efforts following Typhoon Axel. This unofficial "DXpedition" was located on Majuro in the Marshall Islands, specifically: 7 degrees 0 minutes North, 171 degrees 20 minutes East.



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## DIGITAL VOICE

BY BILL RINKER, W6OAV

The August 2024 issue of the *Roundtable* carried an article titled "Popular Amateur Digital Modes". That article discussed the popular digital data protocols popular among hams. The following article discusses the digital voice protocols popular among hams. The article begins by comparing digital voice to analog voice.

### COMPARING DIGITAL VOICE (DV) TO ANALOG VOICE

When comparing digital voice to analog voice, there are several key differences to consider:

#### 1. Voice Quality:

DV generally provides superior audio quality, especially at the edges of coverage areas. Digital systems use data error correction algorithms to maintain clarity even with RF background noise (QRN) or corrupted signals. Analog transmits all picked-up noise, which can make conversations less intelligible, especially in noisy RF environments.

#### 2. Range and Coverage:

Digital systems tend to perform better at the fringes of coverage areas. While the overall range may be similar, digital signals remain clearer further out, whereas analog signals gradually degrade into static. However, when digital signals reach their limit, they abruptly cut out rather than gradually fading like analog.

#### 3. Capacity:

Digital radios offer greater channel capacity. They can typically fit voice, text, GPS info and callsigns in the same bandwidth as one analog channel.

#### 4. Battery Life:

Digital radios generally have longer battery life, often up to 40% longer than comparable analog radios. This is due to more efficient power usage during transmission.

#### 5. Sound Characteristics:

While digital voice is clearer, some users find it sounds slightly "robotic" or artificial compared to the more natural sound of analog. This is due to the digital encoding and compression used.

#### 6. Signal Behavior:

Analog signals gradually degrade with distance, allowing for some communication even in poor conditions. Digital signals maintain quality until they reach a threshold, after which they abruptly drop off (often called the "digital cliff").

#### 7. Compatibility:

Many modern digital radios offer dual compatibility with analog systems, allowing usage of both analog and digital technologies with one radio.

#### 8. Internet Connectivity:

DV modes like D-STAR, DMR and System Fusion allow for easy integration with internet-linked repeater networks, enabling worldwide communication.

In summary, while digital voice offers numerous advantages in terms of clarity, capacity, and

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features, analog voice still has merits in terms of gradual signal degradation and a more natural sound. The choice between the two often depends on specific use cases and user preferences.

## HOW DO DIGITAL VOICE RADIOS WORK?

A typical digital radio equipped with Forward Error Correction (FEC) can be described using a simplified block diagram. (See Figure 1). Below is an overview of the key components:

### 1. Transmitter side:

- **A/D Converter:** Converts the input analog signal into digital format.
- **Vocoder:** Compresses digital signal and applies FEC by adding redundancy to the data.
- **Modulator:** Converts the encoded digital signal into an analog waveform.

### 2. Receiver side:

- **Demodulator:** Extracts the digital information from the received analog signal.
- **Vocoder:** Decompresses digital signal and applies FEC to correct errors introduced during transmission.
- **D/A Converter:** Converts the corrected digital signal back to its original analog format.

The FEC protected link is crucial in this system, as it helps to detect and correct errors that may occur during transmission due to noise or interference. The channel encoder at the transmitter side introduces controlled redundancy into the data, which the channel decoder at the receiver side uses to identify and correct errors.

## SO, WHAT ARE THE POPULAR DV MODES?

The following provides a brief overview of the popular D-STAR, DMR, System Fusion, FreeDV, and P25 DV protocols.

### D-STAR (Digital Smart Technologies for Amateur Radio)

- **Modulation:** Uses GMSK (Gaussian Minimum Shift Keying), similar to early GSM technology.
- **Error Correction:** Employs Forward Error Correction but is considered less effective in recovering from bit errors compared to DMR and System Fusion.
- **Mixed Mode:** Does not support mixed mode (analog/digital); it is digital-only.
- **Extendability:** Can be extended using Hotspots to access networks. \*
- **Voice Quality:** Generally lower compared to other digital modes, with slower recovery from packet loss resulting in unintelligible audio.
- **Popularity:** Growth has plateaued, and it is not as widely adopted as other modes.
- <https://www.youtube.com/watch?v=yN4L4YTtLE&t=110s>

### DMR (Digital Mobile Radio)

- **Modulation:** Uses two-slot TDMA (Time Division Multiple Access), allowing two simultaneous conversations on the same frequency.
- **Error Correction:** Known for having the best FEC among the compared modes, leading to superior sound quality and quick error recovery.
- **Mixed Mode:** Supports mixed mode but loses some networking capabilities when both analog and digital are used.
- **Extendability:** Like D-STAR, it can use Hotspots for network access. \*
- **Voice Quality:** High quality audio, often considered better than D-STAR and comparable to



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System Fusion.

- **Popularity:** Widely adopted due to availability of affordable radios from multiple manufacturers, including Chinese brands.
- <https://www.youtube.com/watch?v=WE2B6RL>

### System Fusion (Wires-X)

- **Modulation:** Uses C4FM (Continuous 4-Level Frequency Modulation).
- **Error Correction:** Good FEC, with excellent sound quality, especially in Voice Wide mode.
- **Mixed Mode:** Designed to support mixed mode, allowing seamless operation between analog and digital signals. It includes features like transcoding between modes.
- **Extendability:** No access with a Hotspot. Wires-X is Yaesu proprietary.
- **Voice Quality:** Generally better than D-STAR and comparable to DMR.
- **Popularity:** Growing adoption, with affordable radios available from Yaesu.
- <https://www.youtube.com/watch?v=iM7Pr7ZV97k&t=509s>

### FreeDV

- **Modulation:** Uses Codec2, an open-source low-bitrate speech codec.
- **Error Correction:** Includes FEC, but specific performance details compared to other modes are less documented.
- **Mixed Mode:** Typically used on HF bands and does not support mixed mode in the same way as VHF/UHF digital modes.
- **Extendability:** Primarily software-based, allowing flexibility in implementation.
- **Voice Quality:** Designed for low-bitrate communication, so it may not match the audio quality of higher-bitrate modes like DMR or System Fusion.
- **Popularity:** Limited adoption, mainly among enthusiasts of open-source and experimental digital modes.
- <https://www.youtube.com/watch?v=EFkHLjIIAk&t=101s>

### P25 (Project 25)

- **Modulation:** Uses C4FM, similar to System Fusion.
- **Error Correction:** Effective FEC, providing good voice quality.
- **Mixed Mode:** Can operate in both analog and digital modes, but specific capabilities depend on the implementation.
- **Extendability:** Often used in public safety and commercial applications, with extensive infrastructure support.
- **Voice Quality:** High-quality audio, often preferred in professional settings.
- **Popularity:** Widely used in public safety and commercial sectors, but less common in amateur radio compared to DMR and System Fusion.
- [https://www.youtube.com/watch?v=fHF\\_RtvsZTs&list=PLEj-HwZj5SM9V1fafv8IADYe6yc9fQKbo&index=1](https://www.youtube.com/watch?v=fHF_RtvsZTs&list=PLEj-HwZj5SM9V1fafv8IADYe6yc9fQKbo&index=1)

### Summary:

- **D-STAR:** Digital-only, good for dedicated digital networks but has slower error recovery and lower voice quality.
- **DMR:** Versatile with two-slot TDMA, excellent error correction, and high voice quality. Widely adopted due to affordable radios.
- **System Fusion:** Supports mixed mode, excellent voice quality, and affordable radios from Yaesu.

- **FreeDV:** Open-source codec, primarily for HF, with limited adoption.
- **P25:** High-quality audio, used extensively in public safety, less common in amateur radio.

Each protocol has its strengths and is suited to different needs and preferences among hams. These modes are generally not interoperable - a D-STAR radio cannot communicate with a DMR radio, for example. Many digital voice radios maintain backward compatibility with analog FM.

\* Hotspot - A portable device that allows amateur radio operators using a digital voice radio to connect to worldwide digital voice networks over the internet, extending their communication range beyond local repeaters.

#### References:

D-Star vs. System Fusion vs. What Next?:

<https://www.eham.net/article/35876>

D-star, DMR, Fusion, Which is right for you?:

<http://www.mikemyers.me/home/2016/2/19/d-star-dmr-fusion-which-is-right-for-you>

Ham Radio Digital Modes Comparison - DMR, DSTAR or YSF? P25 or NXDN?:

<https://www.youtube.com/watch?v=oBYjPkXJFa8>

DMR DSTAR FUSION Head To Head - Which One Is Best? | K6UDA Radio:

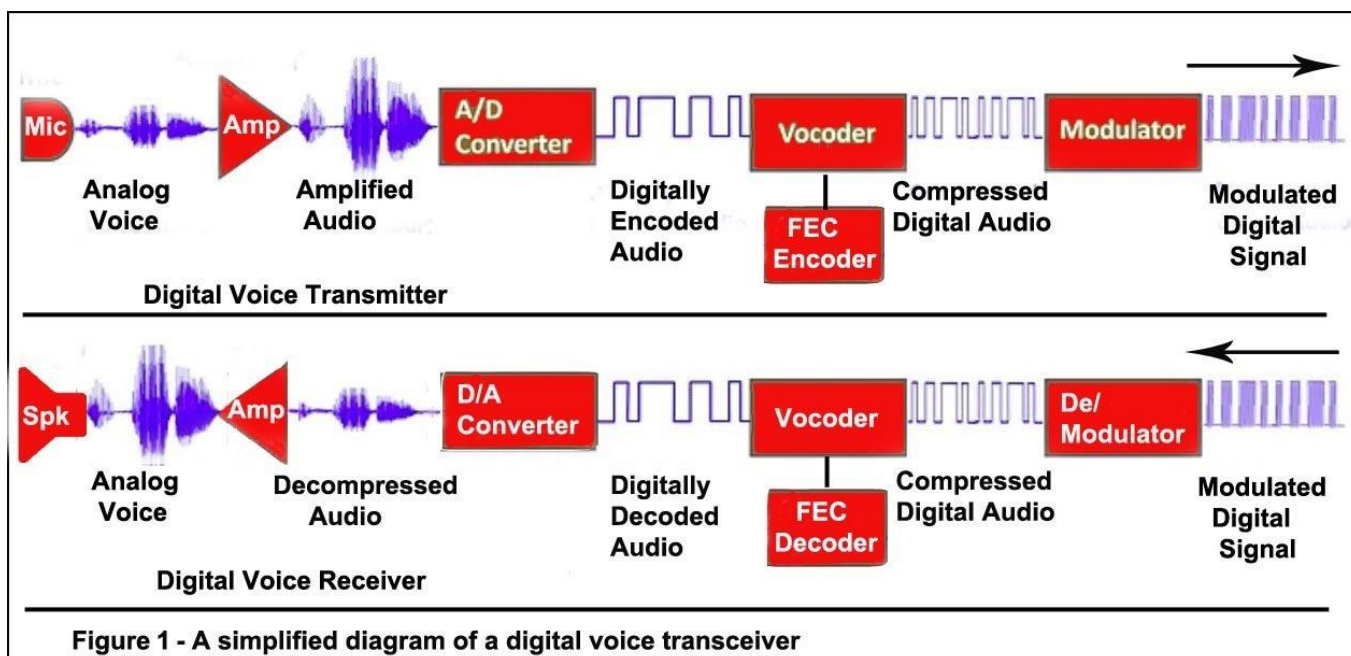
<https://www.youtube.com/watch?v=l3qeWncX5vk>

DMR, D-Star, and System Fusion Still Show No Winner (#916):

<https://www.youtube.com/watch?v=PRpufTmN8NM>

My Thoughts on the Amateur Radio Digital Voice Modes:

<https://www.youtube.com/watch?v=tOjg7k6Hxwc>



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**FROM THE ARCHIVES**

The Roundtable again changed its appearance in '63, from a mimeograph to printed production featuring the Denver skyline on a multi-colored cover. The first class mail rate was only a 4¢ stamp. "Hats Off to a Ham" featured a thumb-nail sketch of a club member each month.

The Feb. issue carried a warning (which needs repeating) - "There is no excuse whatsoever for not replying to any FCC notice. It is for your benefit and for amateur radio to reply <sup>at</sup> ~~to~~ once to such notice. Should you receive a notice for any infraction of any rules, reply at once, in writing."

1963 was the year the FCC was considering restricted v.pice bands - later identified as Docket 15928, but generally known as "incentive licensing". It was also the year the commission ordered fees for handling license applications (to be effective 1/1/64).

WØWYX reported on his 4 circulator element quad antenna for 2 meters featuring a "marvelous front-to-back ratio, no side lobes, and low noise pick-up."

Bill Walker, WØOWP, was elected club president for '63-'64 and the first tower case of the area was filed ~~and~~ against WØJRQ in Lakewood.

News of 1964 included KØATZ as editor of the Roundtable followed by WAOGFI with KØFXE in charge of advertising and production. Eight nets were listed for Denver and Colo. coverage of traffic, RACES, weather, AREC and code practice. Regular contributors of news, technical topics, and some appropriately critical humor were Val, KØZSQ, Kayla, WØHJL, and Elise, YF of KØCNV. WØCXW was elected club pres. and WØBWJ re-elected ARRL Director for a second term.



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**FROM THE ARCHIVES, CONTINUED.**

The next two years ('65 & 66) were relatively smooth with the usual problems of increasing membership and keeping abreast of financial solvency.

KØATZZ was elected president in Sept. '65 followed by Warren Torrington, WØDZN in '66 (the first of his two terms). WØHJL became the editor and for two years made every effort to spark more activity in the club.

Code practice was conducted by Glen, WØFA, and WØIJU and later WØISL conducted theory classes for prospective amateurs. KØEZH wrote a regular DX column and Elise White began her long series of "SWOOP". (Suffering Wives Of Operators) B-A was the largest supporting advertiser and a new store, CW Electronics made its first appearance.

## DRC's Emergency Response Info

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](https://kingsoopers.com/i/community/community-rewards)

[citymarket.com/i/community/community-rewards](https://citymarket.com/i/community/community-rewards)



### RANDOM SITE OF THE MONTH

[Amateur Radio Society of Moldova](#)

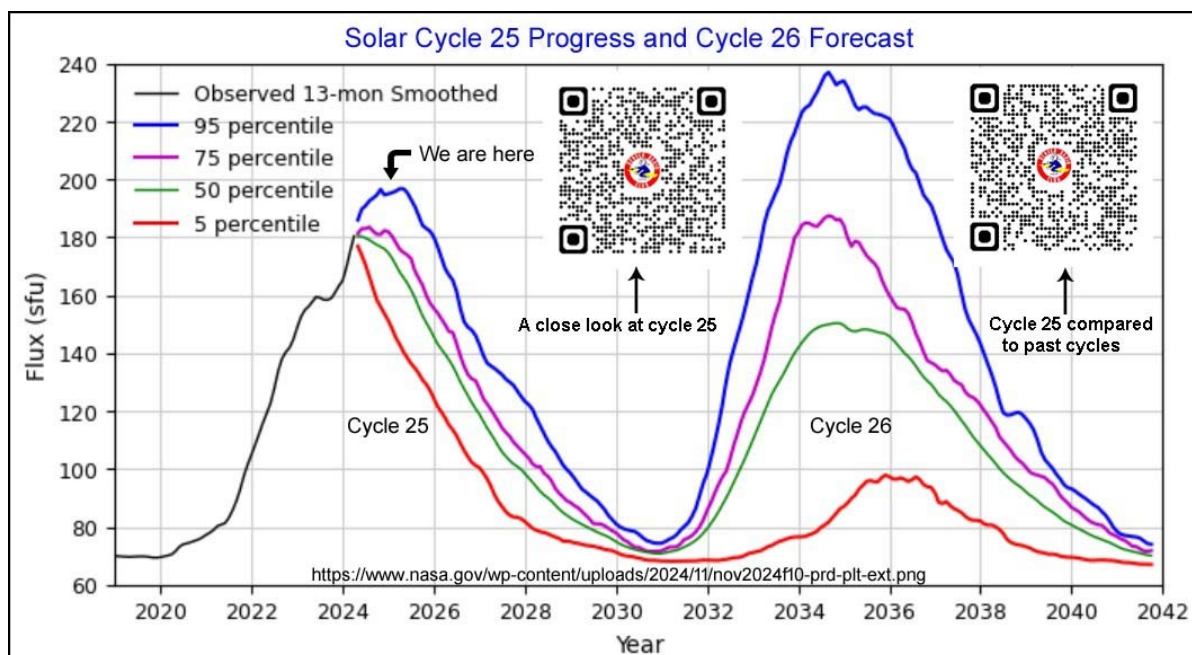


### THE ROUND TABLE ARCHIVE AND ARTICLE INDEX

[w0tx.org/roundtable](https://w0tx.org/roundtable)

## PROPAGATION FORECAST

By Bill Rinker, W6OAV





## UPCOMING EVENTS

### HAMFESTS & CONVENTIONS

Event	Date	Location	Sponsor Website
Montrose ARC Tail Gate Party	Jun 7th	Lions Club Pavillion	<a href="http://montrosehamradio.org">montrosehamradio.org</a>
Western CO ARC Hamfest	Aug 9th	Grand Junction	<a href="http://w0rrz.org">w0rrz.org</a>
Summer Swapfest	Aug 24th	Brighton	<a href="http://rmham.org">rmham.org</a>

## 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
Arizona	05/03/2025	05/04/2025	<a href="#">The 7th Call Area QSO Party</a>	
Connecticut	05/03/2025	05/04/2025	<a href="#">New England QSO Party</a>	
Delaware	05/03/2025	05/04/2025	<a href="#">First State Amateur Radio Club</a>	
Idaho	05/03/2025	05/04/2025	<a href="#">The 7th Call Area QSO Party</a>	
Indiana	05/03/2025	05/04/2025	<a href="#">Hoosier DX and Contest Club</a>	
Maine	05/03/2025	05/04/2025	<a href="#">New England QSO Party</a>	
Massachusetts	05/03/2025	05/04/2025	<a href="#">New England QSO Party</a>	
Montana	05/03/2025	05/04/2025	<a href="#">The 7th Call Area QSO Party</a>	
Nevada	05/03/2025	05/04/2025	<a href="#">The 7th Call Area QSO Party</a>	
New Hampshire	05/03/2025	05/04/2025	<a href="#">New England QSO Party</a>	
Oregon	05/03/2025	05/04/2025	<a href="#">The 7th Call Area QSO Party</a>	
Rhode Island	05/03/2025	05/04/2025	<a href="#">New England QSO Party</a>	
Utah	05/03/2025	05/04/2025	<a href="#">The 7th Call Area QSO Party</a>	
Vermont	05/03/2025	05/04/2025	<a href="#">New England QSO Party</a>	
Washington	05/03/2025	05/04/2025	<a href="#">The 7th Call Area QSO Party</a>	
Wyoming	05/03/2025	05/04/2025	<a href="#">The 7th Call Area QSO Party</a>	
Arkansas	05/17/2025	05/18/2025	<a href="#">The Noise Blankers Radio Group</a>	

Source: [qsoparty.eqth.net/index.html](http://qsoparty.eqth.net/index.html) See [contestcalendar.com/contestcal.html](http://contestcalendar.com/contestcal.html) for a larger QSO parties list.

### ATTENTION

The DRC Board of Directors meetings are held on the 4th Wednesday of each month via Google Meet and are open to any member. If you wish to attend, please contact a board member prior to the 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. Does not TX a PL.
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






**DRC's Trading Post**

Don't forget you can find **locally-sourced, ham-grown** merchandise at: [w0tx.org/trade](http://w0tx.org/trade)

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MAY 2025						
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  First Quarter	5	6	7 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	8	9	10
11 	12  Full Moon	13	14 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	15	16	17
18	19	20  Last Quarter	21 DRC Lunch 11:30 @ Valley Inn Restaurant, Lakewood  DRC Meeting - TBD Elmer 6 p.m. General 7 p.m.	22	23	24
25	26  New Moon	27	28 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	29	30	31

See [arrrl.org/contest-calendar](http://arrrl.org/contest-calendar) for additional details about contests.

## DRC BOARD OF DIRECTORS

President	W0GV	Gerry Villhauer	303-467-0223	<a href="mailto:president@w0tx.org">president@w0tx.org</a>
Vice-President	K0KPS	Kevin Schmidt	303-475-9234	<a href="mailto:k0kps@arri.net">k0kps@arri.net</a>
Secretary	WW0LF	Orlen Wolf	303-279-6264	<a href="mailto:secretary@w0tx.org">secretary@w0tx.org</a>
Treasurer	WW0LF	Orlen Wolf	303-279-6264	<a href="mailto:treasurer@w0tx.org">treasurer@w0tx.org</a>
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Board Member	KB0CHT	Jeff Irvin	Check Roster	Check Roster

## DRC STAFF AND VOLUNTEERS

Benevolent		Carolyn Wolf	303-279-1328	<a href="mailto:benevolent@w0tx.org">benevolent@w0tx.org</a>
Club Librarian	WG0N	Dave Baysinger	303-987-0246	<a href="mailto:wg0n@arri.net">wg0n@arri.net</a>
Digital Committee	W6OAV	Bill Rinker	Check Roster	<a href="mailto:digital@w0tx.org">digital@w0tx.org</a>
Education Coordinator	Open			<a href="mailto:elmer@w0tx.org">elmer@w0tx.org</a>
EmComm Coordinator	Open			<a href="mailto:emcomm@w0tx.org">emcomm@w0tx.org</a>
Field Day Chairman	N6WHV	Dick Nelson	Check Roster	<a href="mailto:fieldday@w0tx.org">fieldday@w0tx.org</a>
Membership	KB8OGP	Kelly Sobanski	Check Roster	<a href="mailto:membership@w0tx.org">membership@w0tx.org</a>
Net Control	KS0E	Alex Acerra	Check Roster	<a href="mailto:net@w0tx.org">net@w0tx.org</a>
Public Relations	K0AXP	Dave Verlinde	248-515-2371	<a href="mailto:publicrelations@w0tx.org">publicrelations@w0tx.org</a>
RT Managing Editor	AD0UZ	Brennan Pate	Check Roster	<a href="mailto:roundtable@w0tx.org">roundtable@w0tx.org</a>
RT Associate Editor	W6OAV	Bill Rinker	Check Roster	Check Roster
Hamfest Manager	KE0YKV	Bill Worthington	720-626-5485	<a href="mailto:drcfest@w0tx.org">drcfest@w0tx.org</a>
Tech. Committee Chair	Open			<a href="mailto:tech@w0tx.org">tech@w0tx.org</a>
Trustee	WW0LF	Orlen Wolf	303-279-6264	<a href="mailto:trustee@w0tx.org">trustee@w0tx.org</a>
VE Team	K0RAP	Robert Pickett	720-336-0114	<a href="mailto:k0rap@w0tx.org">k0rap@w0tx.org</a>
Website & YouTube	K1DBC	Doron Ben Chaim	720-254-1561	<a href="mailto:websiteadmin@w0tx.org">websiteadmin@w0tx.org</a>

### 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](mailto: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](mailto:roundtable@w0tx.org). The submission deadline is the 25th of the Month. ~ Editor*