THE ROUND TABLE

Monthly Newsletter Of The Denver Radio Club

Since 1917 July 2025

President's Message

By Gerry Villhauer, W0GV

Hello DRC Members,

I hope your summer is going well and you are adjusting to the very hot weather.

Our DRC Field Day has come and gone. It was a very successful event. Our scores are yet to be announced and I believe as a group, we scored higher than last year. Having a good time is more important than a high point score and I believe all in attendance will agree we had a great time. First off, a big thank you to Dick Nelson, N6WHV, for heading up Field Day. Dick did a great job of planning the event. Also a big thank you to his wife Kathy for doing a fantastic job with the food and refreshments with the able help of their grandson. All of this takes a lot of time and work. Please take time to thank both of them. Our Pico Balloon was launched around 9 o'clock Sunday morning. The launch went well and the balloon took a Southern course and obtained an altitude of 39,500 feet. After that it made a slow descent until it disappeared from the tracking software. It's unknown why that happened. If you would like to see the track, you can still see it by going to w0tx.org/track I am not sure how long it will remain visible online. Thank you to Peter, AB8WN, for preparing and launching the balloon.

Our next meeting will be a Hybrid Meeting. The in person portion will be held at the Lakewood Police Department. The meeting and program will also be available online, the same as our meetings have been held for the last 5 years. So, you will have a choice to attend in person or online. There will be an email blast or two coming to the membership with all the details. Please watch for that in your email inbox. If you have questions, please feel free to contact any of our board members. The program will be on antennas but at my late writing, I do not have the details. That will be in the email blast.

We are also planning to have 4 DRC Saturdays this summer. These activities were very popular and well attended by our membership…More on that later.

Other upcoming events are: The RMHam Radio Summer Swapfest on August 24, 2025 at the Adams County Fairgrounds. See their website for more information.

And finally, HamCon Colorado in Grand Junction, CO October 24, 25 and 26. See their website hamconcolorado.com for more information. This is a great event with lots of programs, speakers, food and fun. Discount hotel rooms are also available…See the website.

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

Monthly DRC Lunch - Reminder

By Pete Sobanski, AB8WN and Kevin Schmidt, K0KPS

The address for the monthly lunch has changed. It is now at Sunrise Sunset. It's still on the third Wednesday of each month at 11:30 a.m. The address is 1424 S Wadsworth Blvd, Lakewood, CO 80232. No reservations are required. If you are interested in meeting and talking about radio, or other topics, don't hesitate in coming by. w0tx.org/2024/06/09/denver-radio-club-lunch

DRC Saturdays

By Pete Sobanski, AB8WN

Last year our club hosted summer DRC Saturdays. After great turnout and discussions on Sunday nets, we're planning on running that program again.

Stay tuned for updated information here: https://w0tx.org/drc-saturday/

DRC Recipes

Provided By Cathy Villhauer, N0CRZ

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

BAKED CHICKEN BREASTS — Bill Rinker W6OAV

2 c. sour cream
4 tsp. Worcestershire sauce
2 tsp. paprika
1/2 tsp. pepper
1/4 c. lemon juice
1 T. celery salt
1/4 tsp. garlic powder
10 deboned chicken breasts
2 1/2 c. dry bread crumbs
1/2 c. melted butter

Mix sour cream, sauce, paprika, pepper, lemon juice, celery salt and garlic powder together. Roll deboned chicken in mix and refrigerate overnight. Roll chicken in crumbs. Put in baking dish. Pour butter over. Bake at 350° for 45 minutes. If dry, add more butter; bake 15 minutes more.

Question of the Month

By Bill Rinker, W6OAV

What type of HF antenna works well in an attic?

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

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

Ham Radio on Mars?

By Bill Rinker, W6OAV

If NASA has its way man will soon be on Mars. Surely, some will be hams. So, what would ham radio be like on Mars compared to on earth? What types of antennas would be useful on Mars?

While ham radio is possible on Mars, it would be very different from ham radio on Earth. The main reason is the differences in signal degradation between Earth's and Mars' atmospheres for radio communications caused by:

1. Atmospheric Density:
Mars' atmosphere is much thinner than Earth's, with a surface pressure of only about 0.6% of Earth's. This lower atmospheric density results in significantly less signal attenuation and degradation on Mars compared to Earth.

2. Gaseous Absorption:
Earth's atmosphere contains higher concentrations of gases like water vapor and oxygen, which can absorb radio signals, especially at higher frequencies. In contrast, the Martian atmosphere has very low concentrations of these gases, leading to minimal gaseous absorption.

3. Ionospheric Effects:
Earth's ionosphere can cause signal refraction, scattering, and absorption, particularly for VHF and higher frequencies. Mars' ionosphere is much thinner, about one-tenth the density of Earth's, resulting in less severe ionospheric effects on radio signals. The Martian ionosphere has a lower critical frequency (about 4 MHz) compared to Earth. (Does this mean a ham should bring only an 80 meter antenna for HF?).

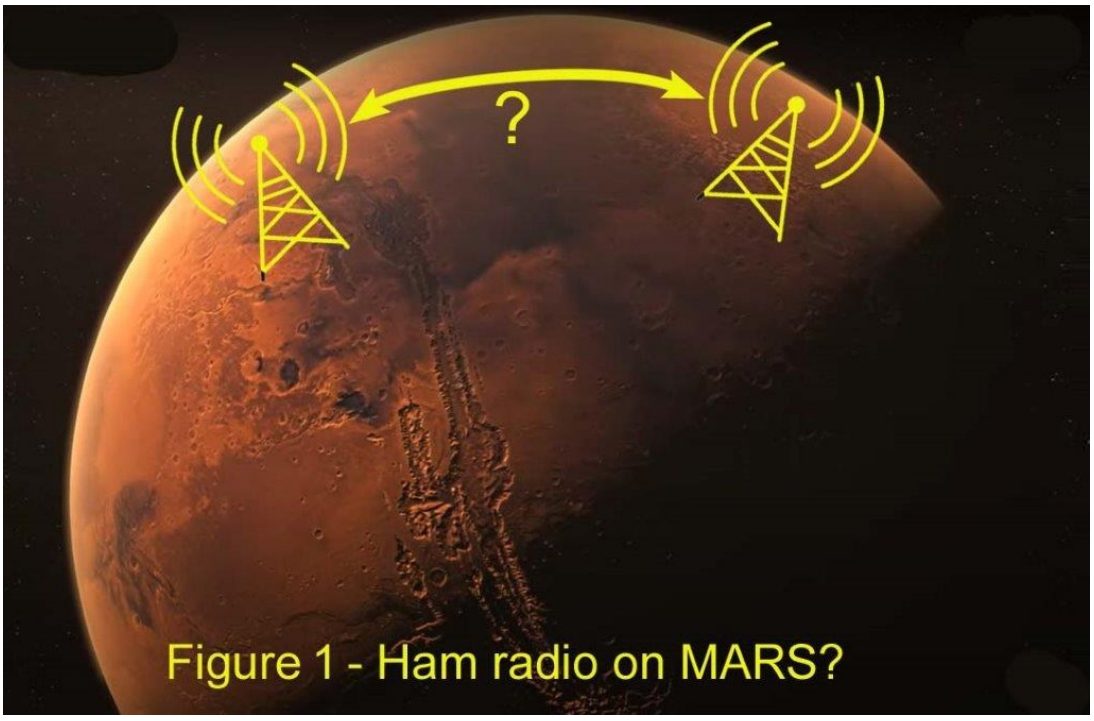


Figure 1 - Ham radio on MARS?

4. Dust and Aerosol Scattering:
While dust storms on Mars can scatter radio waves and cause signal attenuation, especially at higher frequencies, the overall impact is expected to be less than on Earth due to the lower atmospheric density.

5. Multipath Interference:
Both planets experience multipath interference due to signal reflections from terrain features. However, the lower atmospheric density on Mars may result in less severe multipath effects compared to Earth.

6. Atmospheric Refraction:
The refractive index of Mars' atmosphere is about two orders of magnitude smaller than Earth's, leading to negligible atmospheric refraction and bending of radio waves.

7. Radio Horizon:
Mars has a smaller radius than Earth (about 53% of Earth's), which affects the radio horizon. The formula for calculating the radio horizon must be adjusted to account for this radius difference. For example, a 100-foot high antenna on Mars has a radio horizon of 8.93 miles whereas a 100-foot high antenna on earth has a radio horizon of 14.15 miles.

These factors combined result in different radio propagation characteristics on Mars compared to Earth. While the thinner atmosphere generally leads to less signal attenuation, other factors like dust storms and terrain irregularities can significantly impact radio communications on the Martian surface. Also, the radius of Mars does limit the line of sight of radiated signals.

References:
Radio Wave Propagation on Mars - by Mike N2MAK :
https://www.youtube.com/watch?v=_Sz0lzwmV34

Radio Wave Propagation Handbook for Communication on and Around Mars:
https://descanso.jpl.nasa.gov/propagation/mars/MarsPub020318.pdf

Martian Atmosphere and Its Effects on Propagation:
https://descanso.jpl.nasa.gov/propagation/mars/MarsPub_sec3.pdf

Atmosphere of Mars:
https://en.wikipedia.org/wiki/Atmosphere_of_Mars

Note to DRC Members:

Our club depends on the involvement and participation of YOU, our members. Do you have a skill or interest that could help the club? There are positions that need to be filled. See the last page of the newsletter for open positions. Please reach out to president@w0tx.org if you're interested in helping the club!

QSL Card - AF0E

The Story of Ohm's Law

By Bill Rinker, W6OAV

We often apply Ohm's law in electronics without giving much thought to its origins. However, this fundamental law has a fascinating and tumultuous history behind its development. Below is a brief overview of that history.


Georg Simon Ohm
3-16-1789 7-6-1854

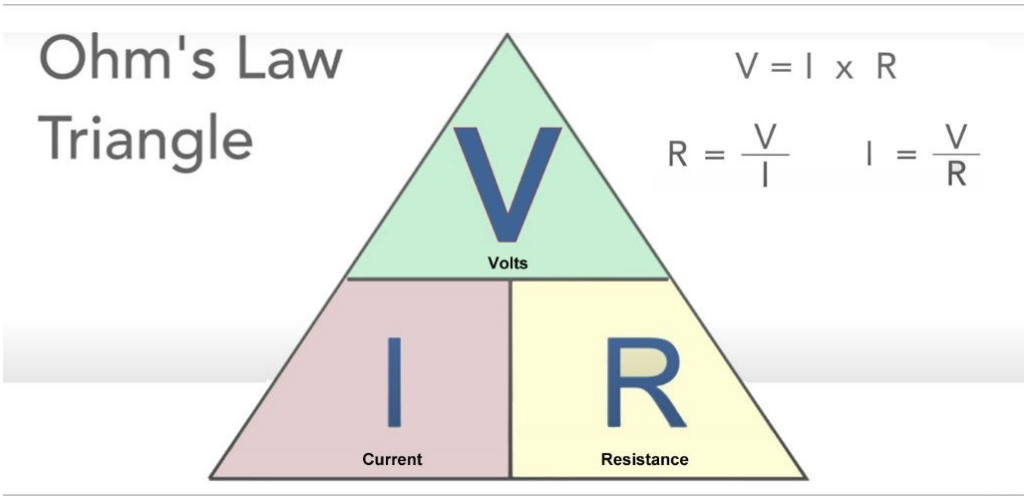
The development of Ohm's law [1] is a fascinating journey through the history of electrical science, spanning several decades and involving multiple scientists. While Georg Ohm is credited with formulating the law, the groundwork was laid by earlier researchers.

In 1781, Henry Cavendish [2] conducted experiments with Leyden jars and glass tubes filled with salt solutions, measuring current by the strength of the shock he felt. Cavendish observed that the "velocity" (current) varied directly with the "degree of electrification" (voltage). However, he did not publish his findings, and they remained unknown until James Clerk Maxwell discovered and

published them in 1879.

Francis Ronalds [3] made further progress in 1814 when he distinguished between "intensity" (voltage) and "quantity" (current) using a dry pile (an early type of electric battery) and a gold-leaf electrometer (two thin strips of gold leaf suspended from a metal rod inside a glass container). Ronalds noted that under certain meteorological conditions, the relationship between these parameters was not proportional.

The pivotal work on electrical resistance came from Georg Simon Ohm in 1825 and 1826. Ohm, a German physicist and mathematician, conducted extensive experiments on electrical circuits, drawing inspiration from Jean-Baptiste Joseph Fourier's work on heat conduction. Initially using voltaic piles for his experiments, Ohm later switched to thermocouples as they provided a more stable voltage source.



Ohm published his findings in 1827 in a book titled "*Die Galvanische Kette, Mathematisch Bearbeitet*" ("*The Galvanic Circuit Investigated Mathematically*"). In this work, he presented the mathematical relationship between voltage, current, and resistance that would become known as Ohm's law. As we all know, Ohm's law states that the current flowing through a conductor is directly proportional to the voltage applied across it and inversely proportional to the resistance of the conductor.

Despite its fundamental importance to electrical science, Ohm's work was initially met with skepticism and hostility. Critics dismissed it as a "web of naked fancies," and the German Minister of Education even declared that a professor promoting such ideas was unworthy of teaching science. This resistance was partly due to the prevailing scientific philosophy in Germany at the time, which emphasized deductive reasoning over experimental evidence.

It wasn't until the 1840s that Ohm's law gained widespread acceptance in the scientific community. In 1841, the Royal Society in London recognized the significance of Ohm's discovery and awarded him the Copley medal. The following year, they admitted him as a member.

The discovery of the electron by J.J. Thomson [4] in 1897 provided further support for Ohm's law. In 1900, Paul Drude proposed the first classical model of electrical conduction, known as the Drude model [5] which offered a scientific explanation for Ohm's law based on the move-

ment of electrons in a conductor.

Today, Ohm's law is recognized as one of the most important early quantitative descriptions of electricity. It serves as a cornerstone in electrical engineering and has applications in various fields, from designing simple circuits to developing complex electronic systems.

References:
[1]. Ohm's Law: History and Biography: https://www.youtube.com/watch?v=fk_BpXlfZ8U&t=11s
[2]. Henry Cavendish: https://www.youtube.com/watch?v=dHkBx8mA834

[3]. Francis Ronalds: https://www.youtube.com/watch?v=Ad2AQrsiENE

[4]. J.J. Thomson: https://www.youtube.com/watch?v=n3c77C-69wg

[5]. Drude model: https://www.youtube.com/watch?v=c6K-kDzhAnA

HamCon Colorado is Coming!

From John Maxwell, W0VG

The Rocky Mountain Division Convention is coming back to Colorado after nearly 9 years! We're going to have a great convention with some fantastic speakers and forums on every topic imaginable. We look forward to seeing you all October 23-26, 2025 in Grand Junction.

Thank you for your interest in HamCon Colorado. If you would like more information, go to hamconcolorado.com.

From the Archives

ticularly interested in getting a good, reliable station in Denver to answer roll call every Sunday.

RONALD A. MILLER

Ron Miller, WØQVJ, joined the Air Force in June. During his first few weeks of basic training, he suffered a broken ankle and is now in the base hospital in Illinois. His address there is: Airman 3/C Ron Miller, AF26257935, 3310th Field Hospital, c/o Ward A-1, Scott Air Force Base, Illinois. He would appreciate hearing from any of his buddies in the club. So, come on some of you fellows. Turn loose of those mikes and keys long enough to drop Ron a line.

FOR SALE

Viking I with VFO, has been TVI'd. Includes high-pass brute force filter in AC line. Has separate speech amplifier and modulation indicator, also crystal mike. 10-meter amphenol beam with modified prop-pitch motor and transformer, two Selsyn motors, 26 ft. of 8-wire control cable and 65 ft. of RGU-13. Call George Harriman, WØEMQ, at FL. 5-4128 or drop over to 260 Colorado Blvd.

ROGERS RADIO CO.

Mel, WØGQY, and Betty, WØTYB, have gotten moved into their new location at 1648 Wazee. The move was accomplished without too much difficulty. However, in the process, Mel forgot that his climbing days are waning, and proceeded to step off

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

citymarket.com/i/community/community-rewards

Random Site Of The Month

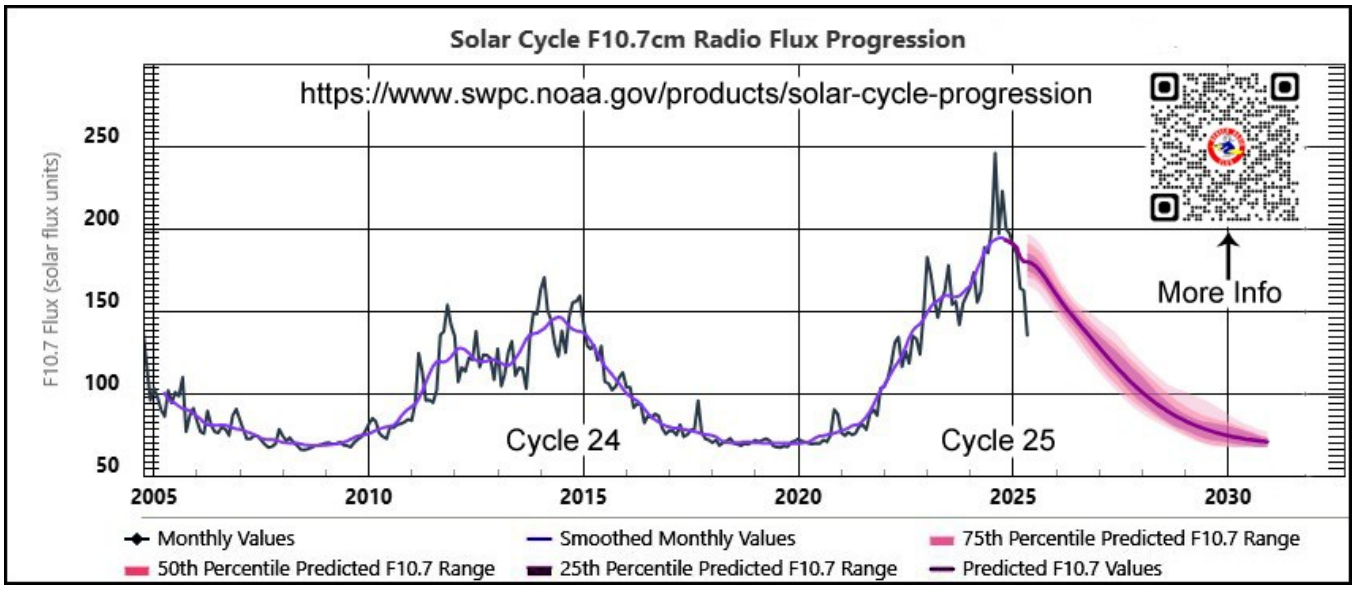
Royal Omani Amateur Radio Society

The Round Table Archive and Article Index

w0tx.org/roundtable

Propagation Forecast

By Bill Rinker, W6OAV



Upcoming Events

Hamfests & Conventions

Event	Date	Location	Sponsor Website
Western CO ARC Hamfest	Aug 9th	Grand Junction	w0rrz.org
Summer Swapfest	Aug 24th	Brighton	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
Alabama	07/26/2025	07/27/2025	Alabama QSO Party	
Maryland-DC	08/09/2025	08/10/2025	Anne Arundel Radio Club	
Hawaii	08/22/2025	08/24/2025	Hawaii QSO Party	
Ohio	08/23/2025	08/24/2025	Ohio QSO Party	
Colorado	08/30/2025	08/31/2025	Pikes Peak Radio Amateur Association	
Kansas	08/30/2025	08/31/2025	Kansas QSO Party	
Tennessee	09/07/2025	09/08/2025	Tennessee Contest Group	
Iowa	09/20/2025	09/21/2025	Story County ARC	
New Hampshire	09/20/2025	09/21/2025	Port City Amateur Radio Club	
New Jersey	09/20/2025	09/21/2025	Burlington County Radio Club	
Texas	09/20/2025	09/21/2025	Texas DX Society	
Washington	09/20/2025	09/21/2025	Western Washington DX Club	
Maine	09/27/2025	09/28/2025	Wireless Society of Southern Maine	
California	10/04/2025	10/05/2025	California QSO Party	
Arizona	10/11/2025	10/12/2025	Arizona QSO Party	

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 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

JULY 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 **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL) First Quarter	3	4 	5
6	7	8	9 **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	10 Full Moon	11	12 IARU HF World Champi-onship
13 IARU HF World Champi-onship	14	15	16 **DRC Lunch** 11:30 @ Sunrise Sun-set, Lakewood **DRC Meeting** Elmer 6 p.m. General 7 p.m.	17 Last Quarter	18	19
20	21	22	23 **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	24 New Moon	25	26
27	28	29	30 **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	31		

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	WW0LF	Orlen Wolf	303-279-6264	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	AB8WN	Peter Sobanski	720-884-7470	ab8wn@w0tx.org
Board Member	N6WHV	Dick Nelson		n6whv@w0tx.org
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	Open			digital@w0tx.org
Education Coordinator	Open			elmer@w0tx.org
EmComm Coordinator	Open			emcomm@w0tx.org
Field Day Chairman	N6WHV	Dick Nelson	Check Roster	fieldday@w0tx.org
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Net Control	KS0E	Alex Acerra	Check Roster	net@w0tx.org
Public Relations	K0AXP	Dave Verlinde	248-515-2371	publicrelations@w0tx.org
RT Managing Editor	AD0UZ	Brennan Pate	Check Roster	roundtable@w0tx.org
RT Associate Editor	W6OAV	Bill Rinker	Check Roster	Check Roster
Hamfest Manager	KE0YKV	Bill Worthington	720-626-5485	drcfest@w0tx.org
Tech. Committee Chair	N0XRX	Mark Thomas	720-438-0848	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