



THE ROUND TABLE

Monthly Newsletter Of The Denver Radio Club

Since 1917

May 2023

PRESIDENT'S MESSAGE

BY GERRY VILLHAUER, W0GV

Hello DRC Members.

Finally some good weather which was especially nice on Saturday April 29 for our first in a series of DRC Saturdays. This being our first event we really had no idea of how many hams would show up. WOW! We were presently surprised. I did not get an exact count, but at the peak we had nearly 30 cars in the parking lot. This event was planned to get members together and "play some radio" and that we did. We had several HF radios on the air comparing different antennas and having a blast. Although we had a generator with us; every station was battery powered. *Thank You* to everyone who came and participated. If you did not make it, we have another DRC Saturday planned for June 3rd. You will get an email reminder about a week before. Each DRC Saturday will have a different theme. Put **June 3rd on your calendar** now so you won't miss it.

Thanks to Jeff Ryan, K0RM our ARRL Rocky Mountain Division Director, for stepping in at the last minute, for our April meeting program. Jeff gave a very interesting presentation of the history and development of radio. We had Amanda Alden, K1DDN, our Rocky Mountain ARRL Section Manager scheduled to talk about ARRL activities. Amanda came down with a serious case of pneumonia and was hospitalized for a few days. She is now home and recovering. We will try to reschedule her at a later date.

Our May meeting program will be presented by Desiree Baccus, N3DEZ. She is very active with both the ARRL and NASA on the air. She will be telling us about her experiences with both these organizations. Desiree is very passionate about both of these organizations and is a very interesting person to listen to. I believe you will really enjoy her presentations. The date for your calendar is May 17, 2023.

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:

D. Michael Gambetta - KFØMCM

Dan Liberatore - KØKSH

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

The siren tests are this month. Lakewood on May 10th and Wheatridge on May 24th.

If you are interested in helping, contact K0TOR or 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. We will be reaching out to those that helped in the past over the next few days. If you can't help but know of someone who may be able to, please pass this along.

CISA INSIGHTS - GPS INTERFERENCE

SOURCE PROVIDED BY MARK THOMAS, N0XRX

Mark sent over a note about the following linked article. It concerns GPS interference around DIA in January 2022. Interesting read.

cisa.gov/sites/default/files/publications/CISA-Insights_GPS-Interference_508.pdf

FUSION CONFUSION

BY BILL RINKER, W6OAV

A question often received by the DRC is “I just installed my new Hotspot but I cannot connect to the DRC Fusion repeater. Why?”

This situation often occurs because of “Fusion Confusion”. “Fusion Confusion” is caused by the fact that there are three independent non compatible Fusion networks which are often referred to as System Fusion Networks. Let’s see if we can clear this confusion up by looking at a few definitions.

SYSTEM FUSION NETWORKS

Yaesu developed System Fusion in 2013. Quoting Yaesu “*System Fusion is Yaesu’s implementation of Digital Amateur Radio, utilizing C4FM 4-level FSK Technology to transmit digital voice and data over the Amateur radio bands*”. In 2017 Yaesu added the WIRES-X internet linking system to their System Fusion network. (Users now connect to WIRES-X “Rooms” to chat.)

In the meantime, hams utilizing the C4FM technology developed two open-source System Fusion networks based on Reflectors (servers). These two networks are known as the System Fusion YSF and FCS networks. These two systems are not compatible with Yaesu’s proprietary WIRES-X network. (YSF and FCS users connect to Reflectors to chat). [1]

HOTSPOTS

Hotspots are digital low power radio transceivers that connect radios to YSF or FCS Reflectors (servers). They are “gateways” that take the digital data from a radio and process it to stream to a Reflector and vice versa. Hotspots cannot connect to the proprietary WIRES-X units. [2] [3]

REFLECTORS

Reflectors are servers that allow Hotspots to connect to stations via the Reflector. Hotspots can only connect to a Reflector and not to each other. [4]

BRIDGES

Bridges are often used to interconnect FCS or YSF networks to the Yaesu WIRES-X network. The bridge does provide Hotspots indirect access to the WIRES-X network. [5]

OVERVIEW OF FUSION NETWORKS

Figure 1 shows a very simplified picture of a WIRES-X network and an FCS network (A YSF network would look similar). User 1 and User 2 have configured their Yaesu radios to connect to WIRES-X units associated with each repeater. They then commanded the WIRES-X units to connect them to the same "Room" within the network where they can chat. In the meantime, User 3 and User 4 have commanded their Hotspots to connect to FCS Reflector FCS-200 where they can chat.

If you hear a station on the DRC Fusion repeater say that he that is using a Hotspot, he's doing it via a bridge. For example, User 5 in Figure 1 may have accessed Reflector FCS-100 and then commanded the Reflector to connect via the bridge to a "Room" in the WIRES-X network.

So, in summary, the answer to the question at the beginning of this article as to why the user's Hotspot cannot connect to the DRC Fusion repeater is because it is not compatible with Yaesu's System Fusion protocol.

REFERENCES

- [1]. How do Fusion, Wires-X, YSF and FCS work?
<https://mawcg.org/2021/01/08/how-does-fusion-wires-x-ysf-and-fcs-work/>
- [2]. What is a Ham Radio Hotspot?
<https://www.youtube.com/watch?v=IN-HA0eSRhA>
- [3]. Digital Hotspots for DMR, D-Star, and C4FM
<https://www.youtube.com/watch?v=dQuuMYNeyyE>
- [4]. Repeater basics Wires-X (HRI-200) vs FCS reflectors
<https://www.youtube.com/watch?v=BYfy86CL5E>
- [5]. The bridge" Wires X/ DV4MINI " *BASIC* walk through:
<https://www.youtube.com/watch?v=3oAfVg2TJDU>

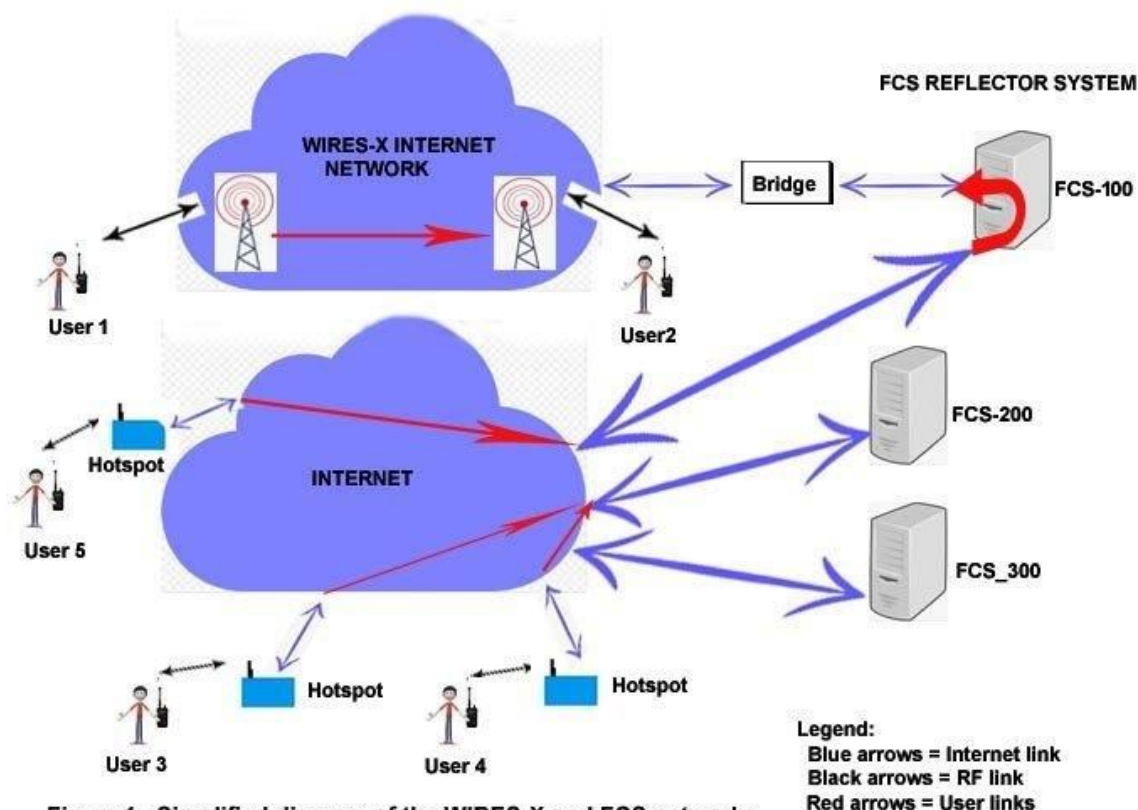


Figure 1 - Simplified diagram of the WIRES-X and FCS networks

A FAKE INDUSTRIES ANNOUNCEMENT

BY BILL RINKER, W6OAV

A new high tech antenna system with an effective receive gain of 53.4 dBi has been announced by Colorado based FAKe Industries. The technology used in the new antenna system is described below.

An antenna is a passive device which absorbs energy from a radio wave that strikes it. Unfortunately, any antenna delivers only half the absorbed energy to its feed point. The other half of that energy is reradiated back into space. Also, an antenna does not absorb energy from that portion of the radio wave passing near it.

Engineers at FAKe Industries have decided to change all that. They have designed the "Synchronous Inverse Retroactive" antenna. The principle is to feed an antenna with a very stable extremely narrow bandwidth signal, whose frequency is locked 180 degrees out of phase with the desired incoming radio wave. This out of phase signal causes the antenna to be negative when desired the incoming radio wave is positive and positive when the incoming wave is negative. Consequently, since opposite polarities attract, the antenna "sucks in" the surrounding same frequency radio wave. The signal must have an extremely narrow bandwidth so that the antenna will "suck in" only the frequency of interest and not affect other users' frequencies.

FAKe engineers still have a few bugs with the new antenna. Fortunately for FAKe, when doing debug testing last month, the world wide radio black outs that occurred were blamed on solar flares. Unfortunately for FAKe, removing the bugs is going to raise the retail price of the antenna from \$29.99 to \$3994.95.

**FAKe Industries, a Division of WACK INC.
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<http://www.arrl.org/>



DRC's Trading Post

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

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.

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.

Mars . . .

(Continued from Page 6)

Radio-Teletype fields, and have efficiently contributed emergency communications services in all of the natural disasters of the last five years. In addition, needed communications facilities have been provided for the military and the Federal Civil Defense agencies in both simulated and real domestic emergencies. These varied MARS activities have contributed to the improvement of military and commercial communications facilities and equipment.

What does MARS do? MARS is intended initially for training in traffic handling and net control as per military procedure. Also a message service to all U.S. Service men and women wherever they may be. This is third party traffic and can not be done on the ham bands. The job of net control is passed around from member to member usually for three months at a time. Every one is aware that he may be the next N.C.S. also the N.C.S. is aware that so and so may be N.C.S. next. So corrections are noted between each other without animosity. It adds up to cooperation and learning. (To be continued)

DOUBLE CROSS

I'm so mad I could eat antennas like spaghetti. That KQZZZ was right on frequency and didn't answer my CQ. "What's so bad about that?", asked the XYL. I thought you weren't going to answer him anymore." That's what makes me mad the ham replied, he didn't answer me before I had a chance not to answer him.



Did U Know . . .

That Saturday and Sunday, October 15 and 16, ten meters was wide open and Europe was coming in better than some locals.



That Valorie, KNQZBQ, has taken over the duties as coffee queen at the regular club meetings. Our thanks to Mrs. Nancy who previously handled the chore with a smile.



That a spinster is a gal who hasn't a gent to her name.



That an optimist is a ham who thinks the final is his last transmission.

2 (SPQR) *
C_e

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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

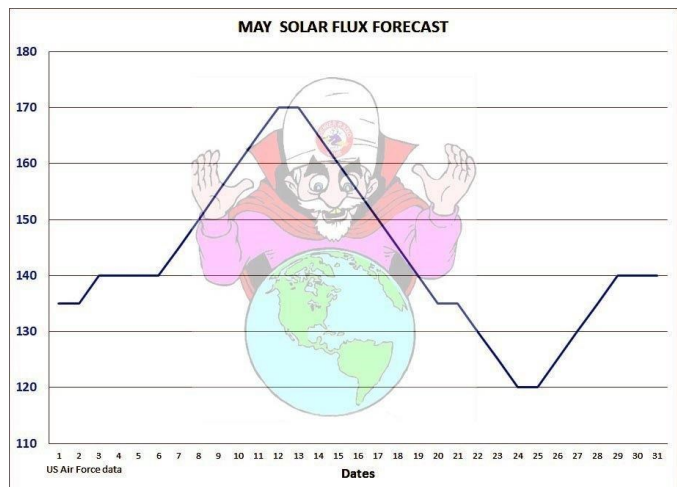
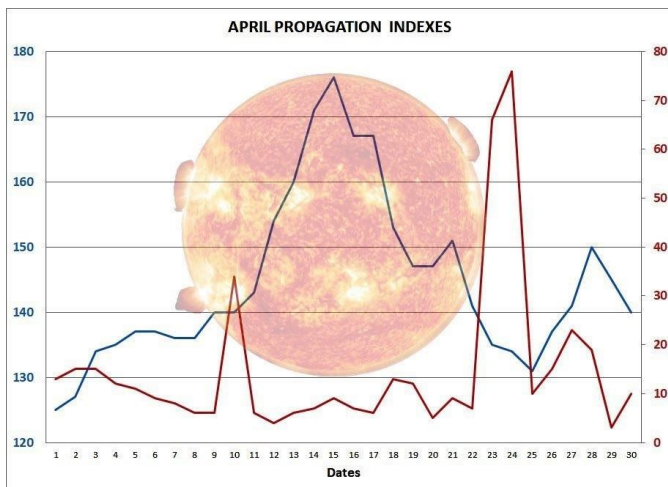
RANDOM SITE OF THE MONTH
[CP1AA ARC La Paz Bolivia](#)

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
Arizona	05/06/2023	05/07/2023	The 7th Call Area QSO Party	
Connecticut	05/06/2023	05/07/2023	New England QSO Party	
Delaware	05/06/2023	05/07/2023	First State Amateur Radio Club	
Idaho	05/06/2023	05/07/2023	The 7th Call Area QSO Party	
Indiana	05/06/2023	05/07/2023	Hoosier DX and Contest Club	
Maine	05/06/2023	05/07/2023	New England QSO Party	
Massachusetts	05/06/2023	05/07/2023	New England QSO Party	
Montana	05/06/2023	05/07/2023	The 7th Call Area QSO Party	
Nevada	05/06/2023	05/07/2023	The 7th Call Area QSO Party	
New Hampshire	05/06/2023	05/07/2023	New England QSO Party	
Oregon	05/06/2023	05/07/2023	The 7th Call Area QSO Party	
Rhode Island	05/06/2023	05/07/2023	New England QSO Party	
Utah	05/06/2023	05/07/2023	The 7th Call Area QSO Party	
Vermont	05/06/2023	05/07/2023	New England QSO Party	
Washington	05/06/2023	05/07/2023	The 7th Call Area QSO Party	
Wyoming	05/06/2023	05/07/2023	The 7th Call Area QSO Party	
Arkansas	05/20/2023	05/21/2023	The Noise Blankers Radio Group	

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







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MAY 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 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	4	5  Full Moon	6
7	8	9	10 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	11	12  Last Quarter	13
14 	15	16	17 DRC Online Meeting Elmer 6 p.m. Meeting 7 p.m.	18	19  New Moon	20
21	22	23	24 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	25	26	27  First Quarter
28	29 	30	31 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)			

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

DRC BOARD OF DIRECTORS

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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