ROUNDTABLE

November 2013 The Denver Radio Club Newsletter Since 1917

President's Message

By Gerry Villhauer – W0GV

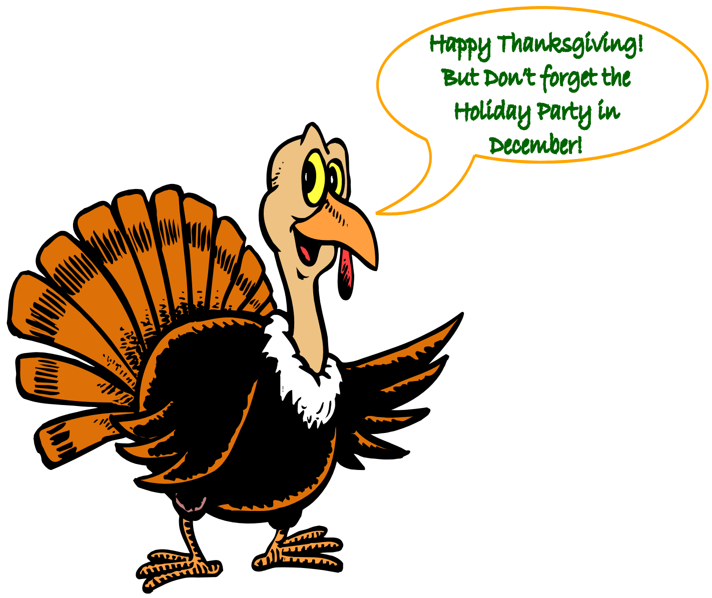
Hello DRC Members,

Fall is here and so far, what wonderful weather. Little time is remaining for those last minute outside antenna projects. The DRC Tech Guys are trying to finish up some of those projects too. The VHF antenna on the North Table Mountain Site was removed from the tower and stored for future use. The North Table Site just wasn't fitting our needs. Although it covered well on the Eastern side of the metro area, it is just not suitable close in to the foothills which is a big portion of our desired coverage area. Sometimes trial and error is the only positive way to evaluate a radio site. We are still in search of a site on the East side of town in the area of Smokey Hill and E-470 or the Hill Top area. If you have any ideas or suggestions in this area, please contact me or one of our technical committee members.

Speaking of technical reminds me of our November program. Have you wondered what standing waves actually look like on a transmission line (coax cable)? Have you wondered how different loads on a transmission line (like your antenna) inter-react with the transmission line? Come to our November meeting and find out. Bill, W6OAV, will be presenting on this very interesting subject in an easy to understand format. Bill will be using animated visuals for easy to understand explanations of this mystery in radio communications.

Last but not least, our annual Holiday Party is coming. Make sure you reserve December 18th, our regular meeting night, for this annual gala event. We will have good food, several prize drawings and a great general interest program. More details in the December Round Table and on the Sunday nets.

73,
Gerry, W0GV
President



Inside The Round Table

OCTOBER MEETING - WHAT'D I MISS

By Bill – W6OAV

There were 55 attendees this month. W0GV began the meeting with introductions. He then covered the following items:

- The club is investigating possibly starting a VHF Salvation Army Net.
- The Christmas Party will be held again at the Golden Corral.
- Paul, WA2YZT, is the new Colorado Frequency coordinator.

The meeting was then turned over to WA2YZT. Paul began by describing the processes he plans to implement as the new frequency coordinator. The goal is to stream line the processes and to spread the work load. Paul gave examples of how critical frequency coordinating is, both in the ham world and in the commercial world, such as for major events such as at NFL games.

Paul then gave a very informative presentation covering the following topics:

- An overview of how ham radio operators used their knowledge and skills to develop early radio broadcasting in the 30's and 40's.
- How radio broadcasting evolved over the years.
- The history of TV development from black and white to color.
- Satellite TV development and the problems that had to be resolved as the technology evolved.
- The problems that had to be resolved in providing HDTV.
- A history of TV development in Denver.
- Stories of behind the scenes activities in radio and TV broadcasting.

WHAT IF THE WEATHER CHANGES?

As every Coloradoan knows our winter weather can take a sudden change for the worse. If we should experience a turn in the weather on the day of our monthly DRC meeting it may be necessary to cancel the meeting. If this should happen listen for meeting status reports on 145.49 or 448.625 MHz repeaters during the afternoon on the day of the meeting.

Who's New In The DRC

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 personally to make them feel welcome.

Dennis E.Berry	KD0WTM
Glenn E.Rollins	N0IDX
Karen Y.Rollins	N0UUX
Michael NealMiller	*Call Pending*
Patrick Shelton	*Call Pending*
Steven W.Rollins	KD0UUX

Welcome to our newest members. 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 7pm. For new hams we have the Elmer session which starts at 6:30pm before the regular meeting.

More information can be found on the Denver Radio Club website at *http://www.w0tx.org.*

THE ROUNDTABLE ARCHIVE

Have you been looking for back issues of the RoundTable? Many are available on the DRC web site.

Scan the QR code
or go to
http://www.w0tx.org/RoundtableAccessPage.htm

The Denver Radio Club
Is an ARRL
Special Service Club
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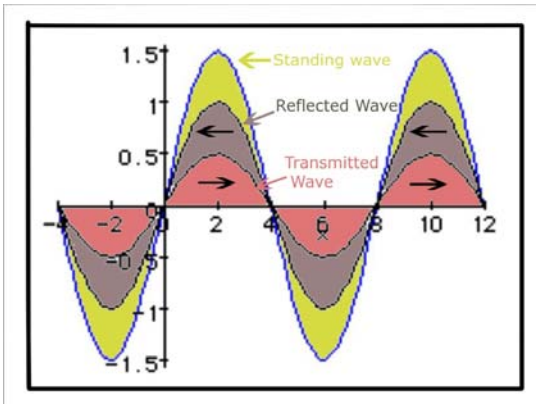
Join the ARRL TODAY

NOVEMBER MEETING ANNOUNCEMENT

By Bill – W6OAV



Interested in seeing actual standing waves on a transmission line and how they inter-react to various types of load terminations? Interested in seeing how transmission line impedance transformers affect waves? If so, plan to attend the November club meeting. Bill, W6OAV, will begin with a short tutorial on:

- An explanation of SWR with an animated visual.
- Wave superposition.
- Wave reflections.
- Wave transformers.
- Why not to worry about SWRs of 3:1 or higher.

After the tutorial Bill will show a video of the Shive Wave Generating Machine. This machine will demonstrate the above items and more.

TECHNECAL COMMITTEE REPORT

BY BILL – W60AV

This report provides an overview of items discussed during the October Technical Committee meeting.

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Discuss Expanding Tech Committee Meeting

Goal: Start meeting at 6 PM to allow more time to discuss issues.

The committee agreed to start at 6 PM.

Convert one of the DRC repeaters to narrow band FM.

Goal: Convert the 448.625 repeater to narrow band.

Conversion completed on October 15th. Announcement to be in Nov Roundtable.

TS-940 Repair – Project Coordinator: K0TOR

Goal: Determine if re-soldering and cleaning connectors will fix radio.

Troubleshooting and repair still in progress.

Voter System Redesign – Project Coordinator: W0GV

Goal: Find a site east of Denver which will provide good coverage into the Denver Metro area and which will support the voter system.

Research is still in progress.

145.49/448.625 Repeater Upgrade – Project Coordinators: WW0LF/AC0UA

Goal: Replace Sytnors with Kenwoods. Replace the S Com 7k with an S Com 7330. Program the 7330 to allow the splitting of the repeaters when D13 ARES uses the 145.49 repeater for emergency activities.

Project is in the planning phase.

Existing Voter System Tune Up – Project Coordinators: W0GV/WA2YZT

Goal: "Tune up" the existing test voter configuration consisting of the Station 4 central voter site and the N1ETV remote receiver site:

- Items to be completed:
  - Install link receiver.
  - Rewire link receiver to voter controller interface.
  - Adjust UHF link transmit antenna
  - Sync the hang times of Station 4 and the remote system.
  - Calibrate the local and remote audio levels and responses.

Project is in the planning phase.

147.33 Auto Patch – Project Coordinator: W0GV

Goal: Install a VOIP system for the autopatch.

Research is in progress for a suitable VOIP system.

Don't forget to join in Wednesday nights at 7:30pm for the DRC Learning Net ! 145.49/448.625 machines

DRC Hard At Work

By Dave – K0HTX

October 26, 2013, Saturday four of us met at Orlen's house and went to the Table Mountain repeater site to get the last of our equipment. The team was Orlen, WW0LF, Gerry, W0GV, Jason, AC0UA, and me, K0HTX.

We previously planned to locate a DRC repeater at the Table Mountain site and had everything in place. But after the coverage pattern was plotted it was determined it wouldn't benefit the club members. Since the tower was originally a microwave site, wide area coverage was not an issue and it was located too far back on the Mesa to give adequate coverage where it was needed.

Also, as you can see in the picture looking east from the tower there is a lot of terrain between the tower and the edge of the mountain. Also due to a number other systems already in place, our antenna would have to be located much lower on the tower which would also make the RF shadow that much larger. *(Note: The picture was taken from the top of the tower.)*

Since the repeater and other equipment had been removed during previous work party all that remained for us was to remove the antenna from about 20 feet up the tower.

Boy Scout Jamboree On The Air

By Woody – W0UI

For two evenings in October, I hosted cub scouts, leaders and parents affiliated with Elbert County Pack 747 to participate in the 56th Annual "Boy Scout Jamboree On The Air" event. The Scouts enjoyed the opportunity to chat with other scouts, leaders, former scouts and just plain-old-hams across the country during their time on the air. For participating the boys earned a patch to wear on their uniforms. Some of the Scouts even indicated an interest in doing it again in 2014. A few of the scouts expressed an interest in trying Morse Code but due to the number of attendees, they exclusively worked SSB during their QSOs.

For information about the Jamboree scan the QR Code or go to the link :

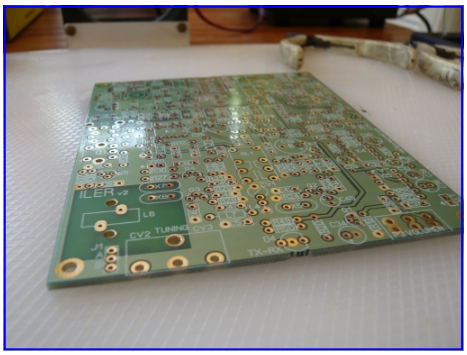
http://www.arrl.org/jamboree-on-the-air-jota

How About A New Kit To Build?

By Paulo – CT1EHO

QRP and Kit building are coming back!
Talking about a new trend, it seems that the new and old hams are embracing a new healthy life style going out to the wilderness, hill climbing, trails, backpack, biking, camping etc... why not combine these sporty activities with radio and discover new pleasant ways to spend some quality leisure time, in relation to that, it's convenient to seek for a compact, light, and low power requirement radio equipment that can be put inside a small rucksack. In way to choose a rig that qualifies for this purpose there are many commercial offers but they can be expensive, too much complex and battery hungry, anyway sometimes is discouraging to put out on the dirt our beloved $1000 rig, so how about build yourself a nice small compact analog, and very power efficient rig? The Internet helped the many worldwide kit manufacturers to be known to the amateur community, they're products are becoming very high quality and easy to build, anyone can get some useful tips for the construction of each one of these kits on the web and in a multitude of technical forums and blogs.

I will talk a little about my experience on building this portable SSB QRP transceiver, due to my tech "background" I always loved to put together some electronic kit circuits, solder smoke can be addictive hi hi, somewhere last year I decided to build something for my amateur radio station, I searched the Internet and became aware of several promising SSB transceiver Kits, the ones closest to me were in the neighbor country Spain, the manufacturer of the ILER SSB QRP transceivers Javier Solans EA3GCY, he is the business owner and a great radio engineer! When I saw his web page, I immediately ordered an ILER-40 QRP SSB transceiver, the price tag was 77€ with shipment to my door! I further contacted Mr. Javier by email and he responded back to me promptly to all my questions. After a few days I had the postal package in my hands, unwrapping the kit unveiled a very high quality double layer PCB, with plated through holes, silkscreen, and component placement printout, all the high quality components were present and separated by type in small plastic bags. The board dimensions are 10x12cm.



The transceiver circuit is inspired on the "Antek-80m" from Andy (Andrzej Janeckzek) SP5AHT, the particular feature of this transceiver is the entire FI strip is shared between the TX and RX, LO and BFO are relay switched to feed signals to a couple of NE602 IC's, in TX one act as a double balanced modulator and the other a TX mixer, on RX one act as an RX mixer and the other as a Product Detector (SSB demodulator). The circuit also counts with an LM386 IC for audio amplification, a LM741 for mic preamp, several voltage regulators and a few more transistors. The receiver is a single conversion superheterodyne balanced mixer, audio stage AGC is also provided on a small daughter board, on it there is a voltage output that can drive an S-meter, the FI filter is made up of four quartz crystals in a ladder configuration, ILER-40 (40m band) IF value is 4.915MHz. The transmitter has an output power of about 4 to 5 watts RF; the circuit comprises a microphone preamp and passband filter. The VFO circuit is a colpitts VXO with dual crystal, the tuning range is determined by the crystals fundamental frequencies, the polyvaricon and the L6 toroidal inductor.
As an aid to assembly, the manual is available in two languages, Spanish and English, its also fully correct, if one follow it thoroughly it will for sure end up with a full functioning ILER transceiver, mine worked fine the first time, I didn't made any mistake!

For the assembly, it's advisable to employ a fine tip high quality solder iron, I had an old JBC 20W iron, I was successful in finding a new tip for it! There is nothing too exotic to have in the desk in order to assemble and align this transceiver, a watt-meter a DMM and a milliamp-meter, it could help to have a frequency counter and an extra digital short wave receiver, I was lucky I had the aid of my SDR (software defined radio), which functioned as a frequency counter and spectrum analyzer!

After I had the transceiver ready and working I had to find a metal enclosure to house my new kit, since there are no radio shack stores around my place I had this crazy idea to use the faulty PC PSU metal box to house my kit, it fitted just like it was made for it!

(Continued on page 6)

(Continued from page 5)

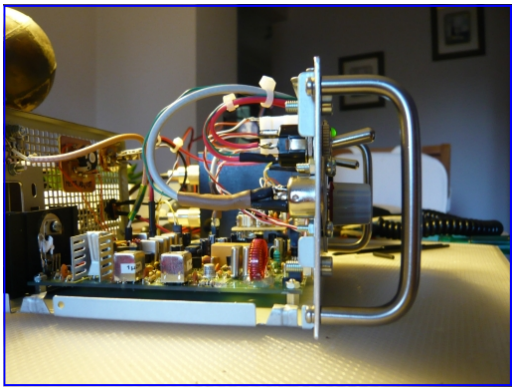
The only thing I had to do was to idealize a panel, the controls and knobs I had to order them from a web store in Portugal, the S-meter I had a little more trouble to find, but managed to get one from a “super-store” in Germany!

I had around my office some old scrap aluminum gray paint coated panels from a Siemens micro-wave link rack, these used to be dummy covers of rack slots for expansions, since there were plenty of those I took one and I even utilized the pretty metal handles, which along the convenience of picking up the radio at hands it protects the knobs against accidental impacts while on the rucksack!

How about his performance? Well to be honest for such a simple and inexpensive radio transceiver, it really impressed me so far, this radios can compare very favorably side by side with other commercial rigs, like for example the Yaesu FT-817 which I also have one, and I've done some A/B comparisons, whatever the Yaesu receives, the ILER-40 can also resolve, the receiver seems to have a nice sensitivity, I don't presently have the means to quantify the MDS (minimum discernible signal) but referring to the manufacturer it can be well down to a good 0.200uV, as for the selectivity chapter I found with the help of my SDR and an audio signal generator a bandwidth around the announced 2,2 – 2,3 KHz.
Although Javier actually has on offer a DDS circuit board to go along with the ILER transceivers, I had preferred the old-school analog VXO, it doesn't drift any appreciable amount of frequency after about 5 minutes warm-up, in bonus there is absolutely no related noises on the reception that are typical of displays and digital circuitry!

This is a neat and very affordable radio, I always surprise myself while using these transceivers, yes I say plural, because I also have the ILER-20 (for the 20m band) and it works great! I have been having a ball even on my car using them with some small base loaded HF antennas! On the field it can run happily on a small capacity gel cell 12V battery for several hours in a row, it drains around 900mA to 1A in TX!!

Please check my YouTube channel, and watch these gems working DX!
http://www.youtube.com/user/Sapinete



Best 73, and have a good time putting together some kit for a change!

ABOUT THE AUTHOR

Paulo Guilherme C. R. S. Pereira - CT1EHO

I was born November 1968, in the city of Aveiro Portugal, but I grew up in the Southern Coast of Portugal.

Soon came the passion for radio stuff, as youngster I spent many hours fixing and playing with broken radios and other electronic toys the neighbors brought in, one day a friend helped me built a galena radio and I got marveled. Around my 17 I bought my first CB radio, after came many more SSB transceivers and the first 10m 3 element Yagi antenna, built by myself based on plans and tips given by an amateur radio friend, some time latter as my knowledge was improving in the vast electronics field, I successfully put together a PLL FM broadcasting transmitter. All this passion about the radio communications and electronics led me to a career on the telecoms business, I've been an employee on one major cellular phone company in Portugal for these last 21 years, I am responsible for the commissioning, integration and first line maintenance of GSM/3G/4G radio base stations and related radiant systems in south Portugal, I do also give support to several other IP back-bone transmission infrastructures on the network.

I met my wife Teresa in 1995 on a business trip, we have a bright and happy 14 year old daughter, Susana. We live in the nice town of Alvor – Portimão.

VE Session Results

By Mel – KØMEL

The VE Session on Saturday October 19th went off with a pretty good result.

Session was 2.5 hours, with moving and re-set tables and chairs. 43 Candidates attended. 30 earned their Technician License, 1 made General, and sad to say, 13 mentioned that they will try again with some more study.

I like to extend a “Special Thanks”, to Dave, ACØEX who did the sign-in and tracking, "Excellent Job" Dave.

DRC and Church member VE's who helped make this a success; Pete, WMØP; Mark, WØBG; Fred, AAØJK; Ron, ACØUV; Mark, W7WNX; Gerry, WØGV; Ron, W1RAP; Curtis, KCØCXJ; William, WZØSE; & Wil, W1ZRV.

Without the crew working well together, we could have been there much longer...Thanks Again to ALL the VE's.

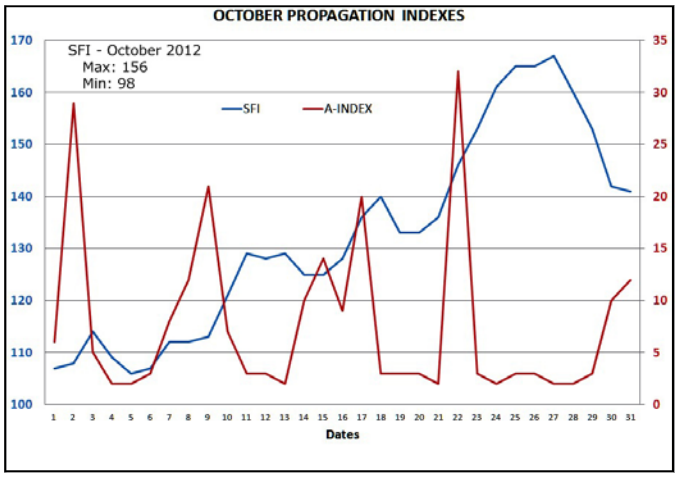
Note to RoundTable readers:
Due to the fact that many ISP's reject documents which contain active hyperlinks, the URLs are inactive when the RoundTable is published. However, this is dependent on the reader you are using. Some readers will recognize the link and make it active in you reader. If the click/link option is not available in your reader simply copy the link and paste it into your browser to view the web content. *Editor*

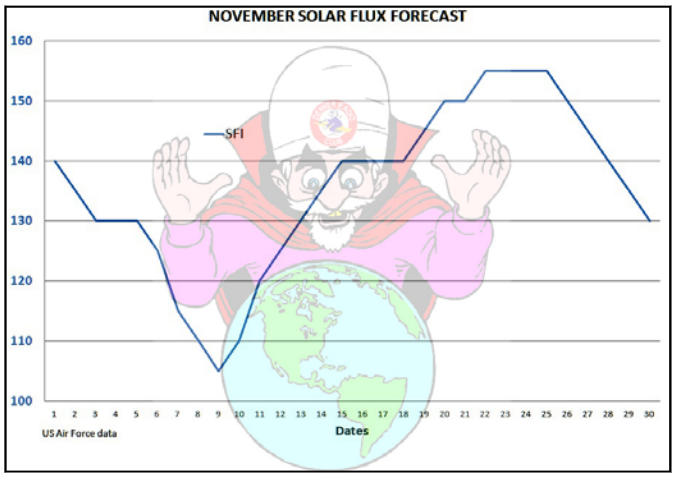
Past & Future Propagation Conditions

By Bill – 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 *Roundtable* for more complete information on interpreting these charts. Issues of the *Roundtable* are available at *http://www.w0tx.org/RoundtableAccessPage.htm.*





UP COMING EVENTS

HAMFESTS & CONVENTIONS

The following are the HAMfests & Conventions which have been registered with the ARRL so far. More information can be found on ***www.arrl.org/hamfests****.*

November 2 – 285TechConnect RC, Fall TechFest
Lakewood Elks (Club See information at left.)
http://www.na0tc.org

2014

January 18 – NCARC Hamfest
Loveland, CO Larimer County Fairgrounds
In the 1st National Bank Building.
http://www.ncarc.net

Rocky Mountain Division Convention
Rocky Mountain Park Inn, Estes Park, Colorado
http://www.hamconcolorado.org

NAØTC – 285 TechConnect Radio Club 2013 Fall TechFest

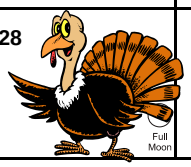
The 285 TechConnect Radio Club (NAØTC) is pleased to announce its 2012 Fall TechFest. This event will be held on Saturday, Nov. 3, 2012: 9:00am. - 3:00pm. Check-In: 8:00 - 8:45am at the Lakewood Elks Club, 1455 Newland Street, Lakewood, CO 80214 Pre-registration is recommended by contacting kd0spq@yahoo.com.

Topics include Lightning Protection, Low-Band Operations with Suburban-Style Antennas, Working DX with Low Power and Restrictions, Using Free Software to Improve a Station and Raspberry PI and Amateur Radio Applications.

For more information go to: ***www.na0tc.org.***

NOVEMBER 2013

DRC Net Sunday's at 8:30pm Local on 145.490 & 448.625 (No PL)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2 ***ARRL*** November *CW* Sweepstakes Begins 2100U
3 **Mountain Standard Time Begins** 	4 ***ARRL*** November *CW* Sweepstakes Ends 0259U	5 ***Election Day*** ***Go VOTE !***	6 ***Learning Net*** 7:30pm Last Quarter	7	8	9
10	11 ***Veteran's Day*** 	12	13 ***Learning Net*** 7:3pm New Moon	14	15	16 ***ARRL*** EME Sweepstakes Begins 0000U ***ARRL*** Nov. *Phone* Sweepstakes Begins 2100U
17 ***ARRL*** EME Sweepstakes Ends 2359U	18 ***ARRL*** Nov. *Phone* Sweepstakes Ends 0300U	19	20 ***DRC Meeting*** Elmer 6:30pm General 7:00pm First Quarter	21	22	23
24	25	26	27 ***Learning Net*** 7:30pm	28  Full Moon	29	30

Check www.ARRL.org for Contests and Rules!

DRC Board of Directors

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Board Member	K0BAT	Art Thayer	303-340-2657	artthayer@comcast.net
Board Member	W0JMC	Jack McComb	303-885-9098	prairiestone@q.com
Board Member	N3PQ	Frank Ortega	303-452-0283	n3pq@hotmail.com

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Web Master	N0LAJ	Bill Hester	*Check Roster*	

DRC Repeaters

BAND	Freq / Shift / PL Tone	Additional Information
6m	53.090MHz (-1MHz) 107.2Hz PL	
Packet	145.05MHz<>14.105MHz	
2m	145.490MHz (-) 100Hz PL	**Linked to the 70cm - 448.625MHz machine.**
2m	147.330MHz (+) 100Hz PL	**Local Area, Members Auto-Patch Does Not TX a PL!**
2m	147.330MHz (+) 131.8Hz PL	**Not in service at this time!**
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 the 2m - 145.490MHz machine.**
70cm	449.350MHz (-) 100Hz PL	**Wide area coverage with Echolink Node # 4140.**
70cm	446.7875MHz (-)	**MotoTRBO Repeater | Slot 1 – DMR-MARC WW, Slot 2 – Local**

Editor's Note

DRC members - this is your newsletter. If there is something which is club or amateur radio related that you'd like to see as a regular feature, email suggestions to the editor. Members are the heart of The Denver Radio Club, 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 AG0S@arrl.net. Submission deadline is the 25th of the Month. **Editor**