



# ROUND TABLE

September 2007

The Denver Radio Club Newsletter

Since 1917

## President's Message

Hello DRC Members,

I hope you are all having a good summer. Soon we will be getting into fall, which is hard to believe the summer is going so fast. I for one have several outside antenna projects at the home QTH to complete prior to cold weather.

This month I would like to welcome new members, Jeremy Bronson, KD0BDZ, Josh Church, K9KOP, Don Idler, KC0ZRM, Jim Lillard, WA6FIG, Gerald Meltzer, W0FFC, Geno McGahey, AL7GQ, Jerry Taylor, KD0BIK, Jim Thurman, KD0ASQ, and Robert Wyant, N4YHI, to the DRC. Thank you for choosing the Denver Radio Club as your club. Please come to the meetings and activities and be an *active* member.

Thanks to all who participated in our DRC Hamfest in August. Especially thanks to Bryan, KC0CUA, for organizing and directing it and to our Ladies for helping in the kitchen. We had very few problems thanks to Bryan having it so well organized. I don't have the final numbers because some of our staff had vacation plans immediately afterwards, so the final numbers will come later. I can tell you we had more folks attending this year than in 2006. We also had a larger than expected number for VE testing. I believe the total number was 20 and we ended up testing 17 because 3 did not come prepared with all their ID's and required paperwork. Thanks to Wally, AC0T, and his team for doing the testing. I would like to thank those who donated prizes, Ham Radio Outlet, ARRL (courtesy of Jeff Ryan, K0RM), Aurora Marketing and World Radio.

First thanks to Mike Gelski, KB0PVD, from The Salvation Army for arranging our August program. It was very informative and I understand several DRC members signed up with the idea of learning more and assisting with their field operation.

Our program for September 19<sup>th</sup> will be a real special one presented by John Zimmerman, K4ZI. John's presentation is titled "Radio Interference, a Pilots Perspective". John is a retired United Airlines Captain and was head of the Airline Pilots Association, Radio Frequency

Interference Group. John will have a slide presentation complete with audio clips of many different types of interference that troubles aviation communication and navigation.

Additionally, our September meeting will be elections of officers for the next term. Of the 8 member board 4 are up for election each year. If you have an interest in a board position, please contact me. Elections are very short so don't let this keep you away from a great program.

I want to let you know we have set the first of the month for the deadline for articles and information for the Round Table. If you have news items, for sale or trade items or anything you think may be of interest for the Round Table (RT); please have it to George, AG0S, or myself by the first day of the month. Our goal is to have the RT out approximately 2 weeks before the next meeting.

As we discussed at the last meeting, we will have a buy, sell or trade section in the RT for use by our membership. Please comply with the above-mentioned deadline. It should go without saying, but I will say it anyway; only items of a ham radio related nature will be accepted. Buy, sell and trade items will only run for one issue per request. This will make it easier for us to manage; so the burden is on you if your request was not filled to have it run in the next issue.

We are requesting members to sponsor Saturday morning breakfasts around the city. The idea is to have these in the different geographic locations around town, have fellowship and learn more about our great hobby from each other. Rob, AJ0C, is planning on adding some demonstrations of different communications modes, when he is available to participate. All you have to do to sponsor a breakfast is find a location in your part of town, and be the contact point. We will advertise it on the nets and in the RT.

See you all at the next meeting!

73,  
Gerry, W0GV

## Inside The Round Table

Technical Committee Report	Pg 2	Calendar	Pg 6
A moment In Time - DRC History	Pg 3	DRC Information	Pg 7
DRC Hamfest	Pg 4	Crossword Puzzle	Pg 8
Cross Word Answers	Pg 5		

## Technical Committee Report

This report provides an overview of Technical Committee activities for the past month and a list of ongoing projects.

### ACTIVITIES IN AUGUST

#### TSA (The Salvation Army) projects

**NVIS antenna system** – The system was originally installed using an SGC tuner loaned by N1ETV. The club has received a replacement SGC tuner. N1ETV will swap out the tuners at the next TSA work party. He is redesigning the NVIS power control system to include an SGC "Retune" switch. When he rewires the power control system, he will also install ferrites on the antenna control line.

**HF transceiver** – The Kenwood 940 is a complex transceiver which presents a challenge to a lot of TSA operators. The committee has decided to exchange the 940 with the Kenwood 430 transceiver located at Site 4. By moving the KW 940 with its advance signal processing to Station 4 the committee expects it to improve the effectiveness of the 2m/20m packet gateway. Likewise the simplicity of the KW 430 makes it an excellent rig for the TSA station.

### ON GOING PROJECTS

#### 449.35 Repeater

The new Kenwood repeater is working well. The original Master2 repeater is back in place next to the Kenwood to act as backup. WA9TVH is building a switching arrangement to allow remote switching between the Kenwood and the Master2 in case the need should rise.

#### 220 MHz Repeater

The repeater is presently out of service. KC0CUA repaired the repeater by replacing a bad diode. He is in the process of installing a new controller in the repeater.

#### Salvation Army Ham Station

During Field Day activities the operators reported interference between the Kenwood and Drake HF rigs even while on different bands. The Drake is normally on the NVIS antenna and the Kenwood is on the R7 vertical. N1ETV is investigating building roll off filters for each of the rigs which should alleviate the interference problem.

Additionally, the tech committee is considering possible future antenna additions for the station. This installation will require the use of a rotor; at the present time we have two rotors which need to be

repaired. Gerry suggested we repair one of them with a new bearing set and is taking the idea to the



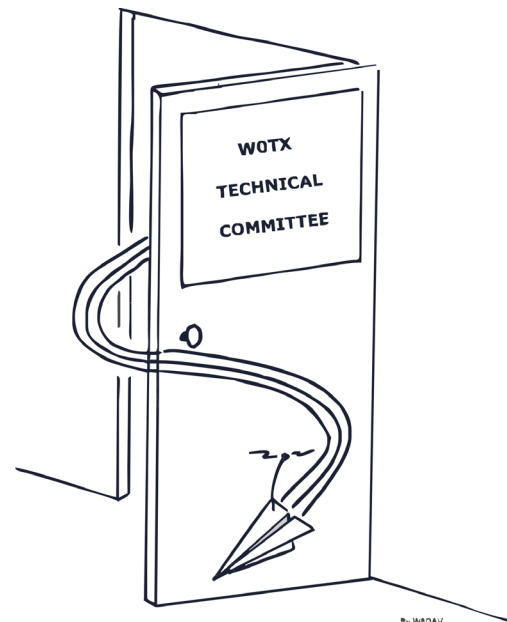
Note the RX Signal Optimizer on the rabbit ears.

board for approval. If you have a working rotor you'd like to donate contact Gerry-W0GV.

Bryan-KC0CUA donated a hub so the club station computer is now connected to the Salvation Army network fulltime. This allows the use of the computer without having to swap the CAT5 cables.

#### Lakewood EOC

Lakewood EOC is moving to a new communications facility. K0TOR and WG0N are analyzing the facility and will make recommendations for antennas, radios, TNCs, etc.

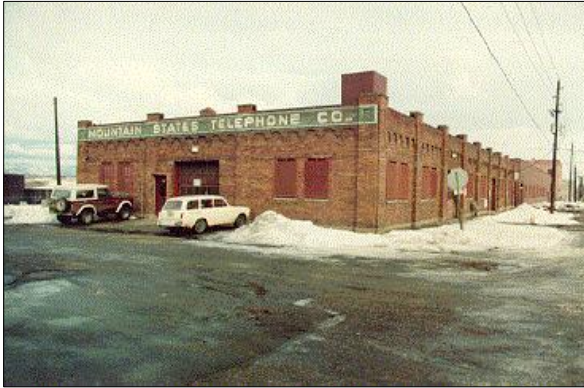


## A Moment in Time

By Woody - W0UI

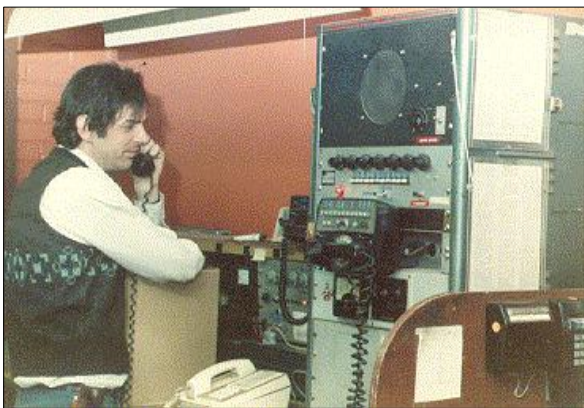
### A "NEW" REPEATER FOR THE DENVER RADIO CLUB (1982)

A quarter of a century ago I worked as a radio technician in the Mountain Bell Two-Way Radio Shop in downtown Denver (11<sup>th</sup> and Osage). Three of the four of us were licensed hams and we were looking for a way to communicate on the way to and from work.



Above: The south end of our Bell System garage at 1125 Osage in downtown Denver.

We found a quiet repeater that never seemed to have any activity and started using it during our drive times. After several days of fairly regular use, the repeater went dead. As I recall, the owner of the repeater contacted one of our little group with a stern rebuke that his was a private repeater and we were no longer welcome. One of my coworkers, Wayne (ABØE) knew of another local two-meter repeater that did not see a lot of activity. its frequency was 147.33MHz and we switched over there.



Above: Former DRC member Wayne ABØE works with the old IMTS Mobile-Telephone testing console.

This machine seemed to have a thermal problem, however, because after 10 or 15 minutes of use it, too, would shut down. This time it wasn't due to a human touch but rather due to technical difficulties.

We found out that the repeater was owned by the Denver Radio Club. By joining the club, it gave us access to the machine to perhaps help perform some maintenance on it. From memory I believe it was a GE Progress Line (Prog Line) machine full of tubes. I believe Ron (WBØHWP) was a good source of required parts.

Back at the radio shop, our manager mentioned to us that a group of Motorola Motrac base stations were scheduled to be hauled off by the junk trucks the next day. The best of these units was snagged and a new project began. A timer and CW identification board was built for it as well as a repeater controller to convert it from base station use.

This Motorola base-station-turned-repeater was moved to the Green Mountain home of an active club member. Lys (KØPGM) allowed us to install a number of antennas on his roof for it.

After several years of constant use, that machine was eventually re-crystaled to 145.49 and retired from front line service. A newer state-of-the-art machine was bought for use with the 147.33 frequency. With the 5.49 Motorola remaining on Green Mountain, the 7.33 machine was moved to a new location at a telephone company building in downtown Denver.

In the years that followed, my involvement with the Denver Radio Club intensified as I went on to become a club officer and, eventually, president. I also edited the DRC Round Table magazine for several years. Not as active anymore on two-meters, it is great to know that we still maintain them for amateur use. Those three Bell System radio shop technicians were all grateful to the Denver Radio Club for making the resources available to us.

Woody Linwood (WØUI) will be the History Editor for the Denver Radio Club Round Table. Contact him at [w0ui@arrl.net](mailto:w0ui@arrl.net)



# Hamfest 2007

Well, after months of planning and the frantic days just before the DRC 2007 Hamfest is now in the history books. Once again it was a popular event with great participation by the local ham community. Our attendance reached a new high with over 400 enthusiasts showing up. We sold almost all our tables (80 out of 85) with vendors coming from as far away as Cheyenne and Colorado Springs.



Lining up to search for the good stuff.

More thanks to the many members who showed up Saturday night to assist in setting up the kitchen and exhibit hall. And, again to those, in many cases the same, members who helped us check in vendors, run the kitchen, sell tickets to those waiting in line and cleaning up afterwards.

Finally, a big *THANK YOU* to the ham community for supporting us by making this year's event a resounding success.



The addition of a second conference room for testing allowed us to present four technical forums. Bill, W6OAV, presented two sessions. The first was on HF Digital modes and the second on Radials Demystified. Bill, KØZL, explained how to take a Systemic Approach to ham gear repair. And, Rob, AJØC, had a session for the new ham. All the sessions had a nice size audience attending.

VE Testing started at 10 AM with a major glitch – too many examinees! We had to move the session to a larger room to accommodate the 25 wishing to take exams. Wally, ACØT, and his VE team did a great job, as usual, with about 75% of the test takers passing their exams.

Our kitchen staff presented a delicious assortment of tasty tidbits. From fresh donuts (Gerry, WØGV, was at the bakery by 7 AM to get them right out of the oven), and home made chili to top the hot dogs. As well as the chips and sodas a new addition this year was the nachos which seemed to be well received. So I offer thanks to our kitchen workers, most of whom were spouses of club members, for their dedication and support.

Mark your calendars, next year's event is on Sunday, August 17<sup>th</sup> 2008. Same time/same place. It's already less than a year away.

Bryan KCØCUA

## Congratulations Bob



"I want to thank the Denver Radio Club for the great door prize, Yaesu FT-1802M VHF Transceiver, I won at the Hamfest, Sunday, August 19th. I know a lot of hard work went into planning, organizing and coordinating the event from DRC members,

spouses and others because the Hamfest went so well.

Thanks again for the VHF radio."  
 Bob Willson  
 KCØCZ



## Broadband over Power Line

### What is Broadband over Power Line?

BPL is the delivery of broadband Internet signals using electrical wiring to conduct high-speed digital signals to homes and businesses. BPL systems are designed to deliver Internet services using medium voltage power lines as the distribution medium and generally use the frequency range between 1.7 and 80 megahertz (MHz).

### Why Amateurs are Concerned about Its Deployment?

Radio amateurs are not opposed to broadband services. On the contrary, they tend to be early adopters of new technology. However, there are ways to deliver broadband that do not pollute the radio spectrum as Broadband over Power Line (BPL) does. These include fiber-to-the-home, cable, DSL, and wireless broadband. The ARRL--The National Association for Amateur Radio-- is supportive of broadband access for all Americans; however, it opposes BPL as a way to achieve this goal because of its high potential for causing interference to radio communication.

### The Concern: *Broadband + Power Lines = Interference*

Because power lines are not designed to prevent radiation of RF energy, BPL represents a significant potential interference source for all radio services using this frequency range, including the Amateur Radio Service. Overhead electrical power lines and residential wiring act as antennas that unintentionally radiate the broadband signals as radio signals throughout entire neighborhoods and along roadsides. Interference has been observed nearly one mile from the nearest BPL source. *Excerpted from www.arrl.org*

The DRC is an ARRL Affiliate Club.

Join the ARRL today and help support your hobby and your club.

**ARRL** The national association for AMATEUR RADIO

225 Main Street, Newington, CT 06111-1494 USA  
 860-594-0200 or Toll-Free 1-888-277-5289  
 Get online at <https://www.arrl.org>



September 2007						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5 Learning Net 7pm	6	7	8  ARRL VHF QSO Party Starts 1800 UTC
9  VHF QSO Party	10  ARRL VHF QSO Party Ends 0300 UTC	11	12 Learning Net 7pm	13	14	15  ARRL 1GHz & Up Contest Starts
16 ARRL 1GHz & Up Contest End	17	18	19 DRC Meeting Elmer 6:30pm General 7:30pm Board Elections	20	21	22
23 BARCfest  30 EME Comp.	24	25	26 Learning Net 7pm	27	28	29  ARRL Int'l EME Comp.

*DRC Net Sunday 8:30pm Local*

## DRC Board of Directors

President	W0GV	Gerry Villhauer	303-467-0223	W0GV@hotmail.com
Vice-President	WG0N	Dave Baysinger	303-987-0246	WG0N@arrl.net
Secretary	WA9TVH	Orlen Wolf	303-2791328	owolf@mines.edu
Treasurer	K0TOR	Jim Beall	303-798-2351	K0TOR@arrl.net
Board Member	KC0CUA	Bryan Steinberg	303-987-9596	KC0CUA@arrl.net
Board Member	KC0OUQ	Bob Proctor	303-986-0612	KC0OUQ@att.net
Board Member	N1ETV	Lance Wilson	303-750-0630	Immonty@comcast.net
Board Member	N6LD	Charles Wright	303-347-0188	cwright@haxsystems.com

## DRC Staff and Volunteers

Trustee	WA9TVH	Orlen Wolf	303-279-1328	owolf@mines.edu
Net Control	K0TOR	Jim Beall	303-7982351	K0TOR@arrl.net
Emergency Coordinator	K0SSE	Oscar Hall	303-375-0627	oscarh@aol.com
Membership	KC0OUQ	Bob Proctor	303-986-0612	KC0OUQ@att.net
Club Librarian	WG0N	Dave Baysinger	303-987-0246	WG0N@arrl.net
VE Team	AC0T	Wallis Gamble	303-202-0339	wallygamble@comcast.net
Swapfest Mgr	KC0CUA	Bryan Steinberg	303-987-9596	KC0CUA@arrl.net
Field Day	N6LD	Charles Wright	303-347-0188	cwright@haxsystems.com
Tech. Committee Chair	W6OAV	Bill Rinker	303-741-2537	W6OAV@arrl.net
APRS Chair	KB0MQQ	Lloyd Plush	303-277-0785	LloydPlush@aol.com
Benevolent		Carolyn Wolf	303-279-1328	
RT Editor	AG0S	George McCray	303-751-7246	AG0S@arrl.net
Education Chairman	AJ0C	Robert Rude	303-841-6443	AJ0C@comcast.net

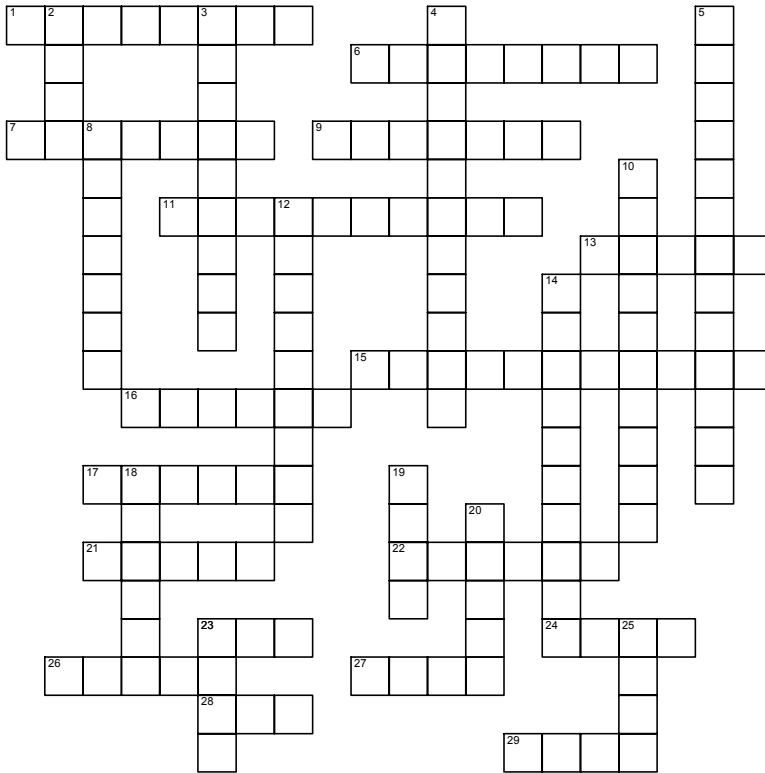
## DRC Repeaters

BAND	Freq / Shift / PL Tone	Additional Information
<b>10m</b>	29.620MHz (-100kHz) FM	<b>Temporarily Off The Air</b>
<b>6m</b>	53.090MHz (-1MHz)	
<b>Packet</b>	145.05MHz<>14.105MHz	
<b>2m</b>	145.490MHz (-) 100Hz PL	<a href="#">Linked to the 70cm - 448.625MHz machine.</a>
<b>2m</b>	147.330MHz (-) 100Hz PL	Members Auto-Patch
<b>1.25m</b>	224.380MHz (-) 100Hz PL	
<b>70cm</b>	448.625MHz (-) 100Hz PL	<a href="#">Linked to the 2m - 145.490MHz machine.</a>
<b>70cm</b>	449.350MHz (-) 100Hz PL	<a href="#">Wide area coverage with Echolink Node # 4140.</a>

## 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 and sole 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 [DRC\\_RT@comcast.net](mailto:DRC_RT@comcast.net). **Editor***

# Ham Hash



## Words

AND	Node
Antenna	N-Type
Aurora	Packet
Butterworth	Paracitics
CMOS	Peak
Contest	Phase
decibel	Piezoelectric
Drain	PLL
Electric	Selectivity
Gate	Skin
IARP	Telemetry
Inverter	Terminator
Joule	Toroid
Loop	Traps
Moonbounce	
Multipath	

**NOTE: Answer key is located on page 5.**

### ACROSS

1. Logic circuit with one input and one output.
6. A push or pull (force) exerted through space by an electrically charged object on another.
7. One tenth of a Bel.
9. An electrical circuit designed to radiate the energy applied to it in the form of electromagnetic waves.
11. A band around the Earth that separates night from day.
13. Unit of energy in the metric system of measure.
15. Filter whose pass-band frequency is as flat as possible.
16. A semiconductor material that has been treated with impurities to give it an excess of electrons.
17. A form of (radio) digital communication that includes error checking and correction.
21. The point at which the charge carrier exits an FET.
22. A coil wound on a donut-shaped ferrite or powered iron core.
23. Phase-Locked Loop
24. A condition (effect) in which ac flow in the outer portions of a conductor.
26. A representation of the relative time or space between two points in a waveform.
27. Complementary Metal-Oxide Semiconductor.
28. A logic circuit (gate) whose output is 1 only when both inputs are 1.
29. An antenna configured in the shape of a halo, may be vertical or horizontal.

### DOWN

2. A point where a satellite crosses the plane passing through the Earth's equator.
3. A one way transmission of measurements at a distance from the measuring instrument.
4. A measure of the ability of a receiver to distinguish between a desired signal and an undesired one at some different frequency.
5. The physical deformation (effect) of a crystal when a voltage is applied across the crystal surface.
8. An amateur Radio operating activity in which operators try to contact as many other stations as possible.
10. Common name for EME communications.
12. A fading effect caused by the transmitted signal traveling to the receiver by more than one path.
14. Undesired oscillations or other responses in an amplifier.
18. Can disrupt HF radio communications and enhance VHF communications.
19. Control terminal of an FET.
20. Parallel LC networks inserted in an antenna element to provide multi-band operation.
23. The product (power) of peak voltage and peak current in a resistive circuit.
25. International Amateur Radio Permit.