

Northern Colorado Amateur Radio Club

P.O. Box 272956

Fort Collins, CO 80527-2956

The Tribander

The monthly Newsletter of the Northern Colorado Amateur Radio Club

**Club Meetings are held on the 3rd Saturday of each month
At the Golden Corral, 901 E. Harmony Rd, Fort Collins, CO.**

All are welcome and encouraged to attend.

**Bring yourself and your appetite at 8:00 am.
The Meeting begins at 9:00 am.**

NCARC Club Information

Club Officers

President	Steve Henry	N7GN	(970)226-2817	n7gn@arrl.net
Vice President	Eric Slutz	N0EAS	(970)282-3752	eric@redginger.com
Secretary	Dave Langenberg	KC9FOO	(773)612-8435	dave@thelangenbergs.com
Treasurer Membership Chair	Willis Whatley	WA5VRL	(970)407-6599	whatley@frii.com
Interference Coordinator	Mike Bates	N7DQ	(970)219-3225	n7dq@comcast.net
Newsletter	Willis Whatley	WA5VRL	(970)407-6599	whatley@frii.com
Technical Chair	George Salzmann	AB0SF	(303)961-0841	ab0sf@yahoo.com
Hamfest Chair	Michael Robinson	N7MR	(970)225-7501	michael@frii.com

NCARC Repeaters

W0UPS: 145.115 MHz – (144.515 MHz Input) 100 Hz CTCSS Subtone (1* on, 0* off) Autopatch (40-32.926N, 105-11.898W, 7229 ft) Horsetooth Mountain, west of Fort Collins, CO
W0UPS: 447.275 MHz – (442.275 MHz input) 100 Hz CTCSS Subtone Autopatch (40-32.926N, 105-11.898W, 7229 ft) Horsetooth Mountain, west of Fort Collins, CO
W0UPS: 146.625 MHz – (146.025 MHz Input) 100 Hz CTCSS Subtone (40-50.266N, 105-3.017W, 5600 ft) SW of the Rawhide Power Plant, 17.5 miles north of Fort Collins, CO
W0UPS: 146.850 MHz – (146.250 MHz Input) 100 Hz CTCSS Subtone (1* on, 0* off) (40-25.341N, 104-44.182 W) Greeley, CO
W0UPS-5: 144.390 MHz – APRS Digital Repeater (40-32.926N, 105-11.898W, about 7229 ft) Horsetooth Mountain, west of Fort Collins, CO

Nets

ARES District 10 Information Net	Wednesday	9:00 pm	145.115 MHz
ARES Statewide Net	Sunday	8:30 pm	145.310 MHz
Central Colorado Traffic Net	Daily	7:30 pm	145.310 MHz
Tech Net	Tuesday	7:00 pm	145.115 MHz

Web Page

<http://www.ncarc.net>

TECH NET Announcement!

This is a reminder that the 145.115 TECH NET is held Tuesday evening 07:00 PM.
It is hosted by N0W1Q, Kerry. All amateur radio operators (with 2M privileges) are welcome to check in. It is an open forum net with Questions, Answers and Topics of interest.

If the 145.115 repeater is not available, the net will be held on the 447.275 repeater

CW Practice Session!

This is a reminder that the 145.115 CW Practice Session is held Friday evening 06:00 PM.
It is hosted by W0EP, Chris. All amateur radio operators (with 2M privileges) are welcome to check in or listen.

Local Area Swaplists:

For those who can not wait or can not attend the area swapmeets, below are the websites for some of the regional swaplists found on the internet. These are updated weekly.

Aurora Repeater Assn. Swaplist: <http://www.qsl.net/n0ara/swaplist.html>
Colorado Repeater Assn. Swaplist: <http://www.w0cra.org/swap/craswaplist.htm>
Wyoming Swap Shop: <http://www.qsl.net/n0ara/wss.htm>
New Mexico Swaplist: <http://bc-ares.org/swapnet/listings.html>

New and renewing members for September:

KC0YAD – Raymond KC0FWB – Kent KC0RBX – Kevin W0DDX – John KC0PVF – Mary KC0WZT – Gordon
W0XYZ - Dennis

The NCARC thanks you for your support.

Loveland Repeater Association

Upcoming meeting on Saturday, October 14, 2006

Buffet at 8:00 am, meeting at 9:00 am

Dorothy's Catering
(the **old** Schmidt's Bakery building)
2248 W. 1st Street
Loveland, Colorado 80537

At the October, a decision will be made as to whether this will be a permanent location for the meeting.

Amateur Radio Technician License Class

Beginning on October 5th from 7 to 9 pm. This class is open to all persons.

To be held at The Church of Jesus Christ of Latter-day Saints
600 E. Swallow Rd. - Fort Collins, CO
40.32.77N – 105.03.95W

The class is free of charge but those taking it will need to have a copy of "The ARRL Ham Radio License Manual - Level 1 Technician Class" (\$24.95... from Barnes and Noble as a special order, Amazon, or direct from the ARRL). This book covers the new technician class license material in seven chapters. The class will meet each Thursday, except for Thanksgiving and possibly the first Thursday in November. There will be a VE test session conducted by Mike Hickerson, W0MBH, at the end of this roughly 8-week course.

If you are interested in being part of this class, please contact either:

Steve Henry, N7GN, n7gn@arrl.net at 226-2817 evenings / 420-5317 cell or Greg Averill, K0GSA, gsa@averill.org at 420-6397

ARRL VE TEST SESSION SATURDAY 14 OCT 2006 at 1:00 PM

FARR BRANCH LIBRARY - 1939 61st AV, GREELEY, CO.
\$14.00 - BRING CHECK OR CORRECT PAYMENT.

CONTACT OJ K0OJ AT (970) 353-7094, OR k0oj@msn.com

Northern Colorado Amateur Radio Club (NCARC) Presents

WINTER HAMFEST 2007

Admission \$5 (children under 12 free)
6 ft Tables \$5 ea. (includes 1 admission)

Saturday, January 20, 2007
Open to public 8:00 am to 1:00 pm!

Talk in: 145.115 (-offset 100 Hz CTCSS)
146.520 Simplex

Vendors Setup beginning at 6:00 am
The Lincoln Center – Canyon West Room
417 W. Magnolia, Ft. Collins, Co.

<http://www.ncarc.net>

On-site ARRL VEC EXAMS 9:00 am Prompt !

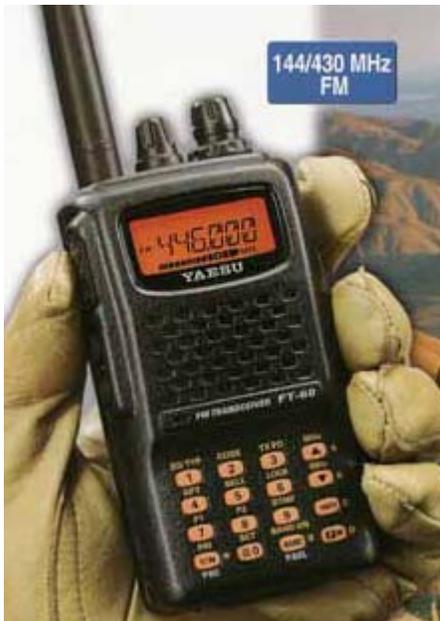
Coffee, donuts and catered lunch !



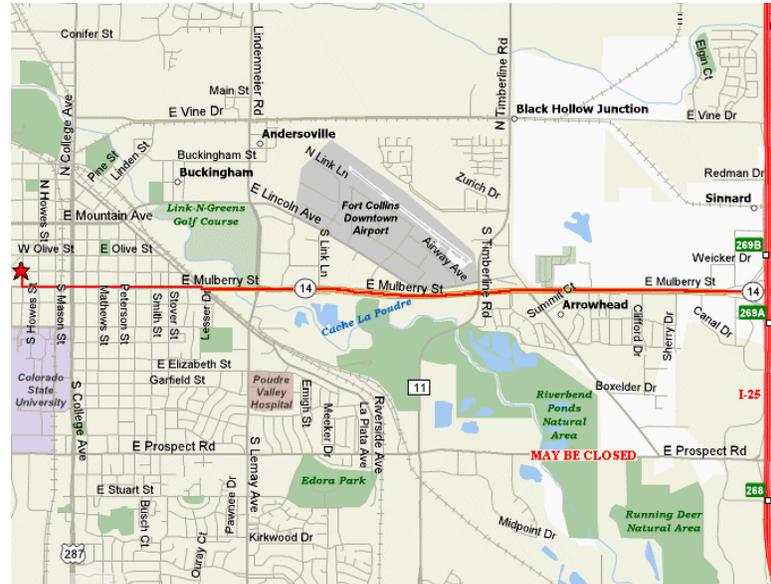
1st Prize: Yaesu FT-8800



2nd Prize: Yaesu FT-7800



3rd Prize: Yaesu FT-60
Dual Band HT



From I-25, take the CO Hwy 14 Exit (exit 269) west into Fort Collins. After crossing Riverside Avenue, CO Hwy 14 becomes Mulberry Street. Continue west on Mulberry Street three blocks past College Avenue. Turn right onto Meldrum Street. The Lincoln Center is on the west side of Meldrum between Mulberry and Magnolia. The formal address is 417 West Magnolia Street.

GPS: 40.34.94N 105.04.99W

Hourly door prizes...donated by HRO, Denver

See you there !
73, NCARC

For Advance Table Reservations contact:
--- Willis Whatley, WA5VRL
(970) 407-6599

DRAWING at NOON
You must be present to win !

Fun ! Friends ! Food !
Make checks payable to NCARC
P.O. Box 272956 Fort Collins, CO 80527-2956

Amateur Radio

Rules and Regulations – Questions and Answers

Most hams know that the Amateur Radio Service has, for many decades, been under the jurisdiction of the FCC. As stated in §97.5 Station license grant required.

- (a) **The station apparatus must be under the physical control of a person named in an amateur station license grant on the ULS consolidated license database or a person authorized for alien reciprocal operation by §97.107 of this part, before the station may transmit on any amateur service frequency from any place that is:**
- (1) **Within 50 km of the Earth's surface and at a place where the amateur service is regulated by the FCC;**
 - (2) **Within 50 km of the Earth's surface and aboard any vessel or craft that is documented or registered in the United States; or**
 - (3) **More than 50 km above the Earth's surface aboard any craft that is documented or registered in the United States.**

(Many hams do not know that the FCC is just one of six governmental entities that have issued United States Amateur Service Licenses. The others are the Air Force, Army, Department of the Interior, National Science Foundation and the Navy. Some of the places that this has occurred are Antarctica, the Pacific Trust Territories and Guantanamo Bay as well as several other locations around the world.)

The FCC used to maintain the question pool used for all Amateur Radio examinations, but relinquished that task in the late 1990s at the request of the Amateur Service community. That task now falls on our Volunteer Examining system to create and maintain the question pool for each class of license in the Amateur Radio Service. Part 97.507(b) requires that each question set administered at the examination come from the applicable question pool but there is NO requirement that the question pool contains any answers (either correct or incorrect). So what about the answers? Well, 97.509(h) places the responsibility for determining the correctness of the examinee's answers on the VECs and VEs who administer the examination.

There are those in the Amateur community who believe that a license should be granted upon receipt of a completed application and with no test whatsoever. This is probably based on the assumption that a person with adequate interest will proceed to learn all of the operational and technical aspects needed to become a proficient Amateur Radio operator. There are also others in the Amateur community who believe that a license should only be granted following the administration of rigorous testing and a blood oath. As expected, the majority of the Amateur community beliefs fall between these two extremes. But, there has been an obvious movement toward reduction of the requirements for licensing in an effort to bolster the number of licensees in the Amateur Service.

The Element 2 question pool for the Technician Class License was recently revised (effective 01 July 2006). The NCVEC stated that this would "better position the Amateur Radio Service for growth in the years ahead". The reasons for making any change remain questionable since the former Technician License question pool required only a modest level of study and the average passing rate for it was extremely high. Speculation: The questions in the new pool seem to be geared toward making it easier to memorize the answers just long enough to pass the exam. Fact: There certainly have not been any recent amendments to Part 97 that would justify a major overhaul of any of the Amateur License question pools.

There have already been numerous concerns raised covering a range of issues regarding the new Technician question pool. Some of the basics seem to have been overlooked while other questions are included that have nothing to do with the technical setup or proper operation of an Amateur Radio Station. It is intentional that Part 97 begins by defining the basis for the existence of the Amateur Radio Service but the new question pool seems to address only 3 of the 5 principles (a, d and e) listed in that section which is shown below. Included in the pool, however, are questions having very limited value such as "the length of time that a CSCE is valid for upgrade purposes". There is also a noticeable absence of math, diagrams and other aids for use in understanding the technical aspects of radio. The wording used on some of the questions is quite ambiguous leaving doubt as to the correct answer and there is even a group of five questions, which seem to give the impression that, the relationship between frequency and wavelength is established by rulemaking and not mathematics.

There are also concerns that some study materials created for the Element 2 questions in this revised pool have included answers that are not clear as well as other that are incorrect. Since this is not a violation of 97.507(b), it will fall upon course instructors, Elmers, etc. to insure that the material is presented correctly. Rumors have already circulated about a recall of the new "Element 2" question pool, but until a recall actually occurs or the question pool is revised again, the VECs and VEs will have to work diligently to overcome the potential problems that are being created by this change. Also, interested individuals should be encouraged to study with organized training classes if possible.

§97.1 Basis and purpose.

The rules and regulations in this Part are designed to provide an amateur radio service having a fundamental purpose as expressed in the following principles:

- (a) **Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications.**
- (b) **Continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art.**
- (c) **Encouragement and improvement of the amateur service through rules which provide for advancing skills in both the communications and technical phases of the art.**
- (d) **Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.**
- (e) **Continuation and extension of the amateur's unique ability to enhance international goodwill.**

A Word from the President

Hi folks-

As probably most of you know, we're still plagued with intermittent intermod interference on the 145.115. With the best data we had available, the NCARC a few months back approved funds to put up a new antenna and jumper cables as well as to eliminate any potential sources of this problem on the tower. The other intent of the new antenna was to improve our performance under windy conditions. This antenna was installed on September 11th.

Since that time, there has been a decrease in the input sensitivity of the repeater, which may or may not be related to the new antenna, and there has been no difference in the intermod. I've sought guidance from Virgil Leenerts, W0INK (ARRL recommended technical specialist) to guide some of the experiments. Also George, AB0SF our technical committee officer has had a lot of good suggestions as well.

This last Sunday Eric Slutz (W0EAS) and I went to the repeater site and tried out the first of perhaps several experiments to investigate and remove this noise. We swapped out a Polyphaser lightning protection unit so we could examine the old one, made sure cables were tight, and improved the grounding on the 7K to repeater interface box. Since the intermod usually happens in the transmitter tail and seems to have 100 Hz tone encode associated with it, we also migrated the CTCSS encoder functionality into the Vertex repeater rather than having this out in the more exposed control box. This was to eliminate this device being part of the noise source since it could be contributing the 100 Hz signal.

Unfortunately, these changes have made little difference in the intermod problem, nor very much difference in the receiver sensitivity (e.g. hoping to eliminate a front-end overload problem).

The next experiment will be made this weekend to eliminate the interface box and replace it with well-shielded cabling between the 7K repeater and the repeater, and to migrate the CTCSS decoder function into the repeater. This will result in probably the best isolation and prevention of intermod that we know how to do at this time. The other experiment will be to swap in the backup 145.115 Vertex repeater to see if the cause of the repeater input sensitivity loss is due to a problem in the front end of the existing repeater. That will allow us to do some bench testing of the current 145.115 repeater also. We will be taking the repeater down Sunday afternoon (Oct 1) to make these changes.

If these changes don't make the needed improvements, we will know that the interference is likely outside of our equipment. We will need to do some detailed and time-consuming data gathering to find the issue and will seek additional guidance from both Virgil and of course George, AB0SF. Based on that study, we may identify a likely problem transmitter and work with the owner to make changes. We may need to install a crystal filter on the receive input or may want to try a couple of bandpass cavities on the RX side as a less costly option.

73,

Steve, N7GN
NCARC President

Addendum to original message:

The intermod happens most of the time in the transmitter tail. Since there is no 100 Hz tone coming in from a ham transmitter into the repeater during this tail, that means that somehow 100 Hz is still coming in as part of the intermod contamination signal. (I've confirmed that during the transmitter tail portion of the repeater operation, 100 Hz PL input is still required to re-trigger the repeater input being mixed in. For a while I thought there might be a bug in the 7K code due to changes made in the most recent firmware ROM).

One major source of 100 Hz is the CTCSS encoder signal we have been generating in the interface box. I've historically turned this signal off (prevented the 7K repeater controller from mixing it in), but unfortunately this only shuts it off from getting mixed in with the transmit signal. This tone is still being generated and is still a possible signal source. With the changes we're making this weekend, it will be easy to turn this signal off and on and have it not be a potential signal contaminant (we're using an entirely different CTCSS encoder generation circuit that is in the repeater itself, not in the interface box).

73

Steve, N7GN

NCARC Meeting - August 19, 2006 - Location: Golden Corral

Meeting was called to order by Steve Henry at 0900 hrs. - There were 27 members and 7 guests present.

REPORTS

Secretary: Approved as read.

Treasurer: Savings unchanged -- checking balance of \$10044.82. 8 new / renewing members. Note that Newsletters go out at first of the month

Ham Fest:

- Sent mail requesting quotes for prizes, got 1 response.
- Thought was to just give away cash.
- Discussion was leaning toward giving a gift certificate rather than cash.
- The Lincoln Center is reserved for the event.

Tech Committee:

- New antenna for 145.115 has arrived and is ready to go up.
- George is on vacation and will work on getting it put up once he gets back.

Control Op: there was a small glitch on the 85 machine but it got cleared up. Announcement for the Greeley VE test needs to be squared away.

Interference: nothing new.

OLD BUSINESS:

Events Center repeater: -- stalled out -- repeater is at Rich Walters house. As soon as Steve gets it back it's gonna go up.

Tour de Cure:

- A sign-up sheet was sent around the room.
- Looking for more help.
- Moved Start/Finish to Boulder County fairgrounds.
- Adding 7 Saturns as SAG wagons -- don't really need coverage.
- A cross-band repeater will be setup on Storm Mountain.
- Bill is putting together portable APRS stations to run in the vehicles.
- Need hams to baby sit the APRS stations.

MS-Walk-about:

- Fri-Sat-Sun 25-27.
- 2-hour shift on the bike trails in Fort Collins.
- See Steve after meeting. 0800 - 1400hrs.

Gannett Foundation for Library Books:

- We got turned down for that.
- Going to re-submit again and modify the application a bit.

NEW BUSINESS

Fall Tech Class:

- About 20-30 people interested in a class. -- Looking for instructors -- class most likely to be on a Thursday night.
- Jerry needed an antenna put up in Ridgewood Hills. -- To get it passed by the HOA, he included in the application a photo of how it will look and also Haney's talk to Congress about emergency services.

ARES D-10: There have been some changes; stay tuned to the Wednesday night net for more info.

Tech Net: Kerry N0W1Q: on the 145.115 repeater at 1900 hrs Tuesday night. General information sharing net.

LRA: Meeting at Wayside Inn for the last time on the 1st Saturday in September - LRA looking for a meeting location.

Pizza Bash is coming up again: September 4th or 11th ? -- Preference is toward the 4th held at Woody's Wood-fired Pizza ~\$7-8/person.

NCARC Meeting - September 16, 2006 - Location Golden Corral
Called to order at 0900 hrs by Steve Henry - There were 14 members and 2 guests present.

REPORTS

Secretary: Minutes approved as read.

Treasurer: Savings was unchanged. Checking \$9293.71. We had 2-3 membership renewals (still early in month).

Tech committee:

- VHF repeater antenna installed on Monday - Took 3 guys 5 hrs to put it up - Coverage is a little diminished especially up in Estes Park.
- One noise problem has been cured (the wind). All antenna equipment up there is new except for the feed-line.

Control Op: no changes -- everything works -- still need to change the announcement for Greeley.

Interference: No report -- no complaints.

Fest:

- Have prizes in hand (FT8800, FT7800, FT60R and the usual books, clocks, etc).
- Flier is 99.9% complete - Date is January 20th, 2007 at the Lincoln Center.
- We still need to look for a food vendor or option for the event.

OLD BUSINESS

Events Center Repeaters:

- Steve is still having trouble reaching Rich Walters. Registered mail is not even being accepted.
- For news on ARES, listen to the Wednesday night net at 2100 hrs on 145.115.

Fall Tech Class:

- We have instructors.
- If you know of anybody who wants to get their tech license, have them contact Steve.
- Class will meet from 1900-2100 on Thursdays.

Tour de Cure:

- Relocated from Loveland to Longmont (Boulder County Fairgrounds).
- We were not as successful with the repeater on Storm Mountain as in the past.
- Repeater coverage into Estes Park was also a problem.
- We are attempting to get the Longmont club to take over the event.
- We ran APRS in the vehicles. Would like to see that expanded.
- It rained twice during the event.

MS 150 Walkabout:

- Canceled ham participation due to lack of volunteers (they were all at Tour de Cure)

Pizza Bash:

- 22 folks showed up at the last Pizza Party.
- Early December party will be at Woody's Wood-Fired Pizza.

Tech Net:

- Would like to have more folks participate - 1900hrs on Tuesday 145.115 - Thinking of proposing a group project that everybody can work on and discuss during the net.

NEW BUSINESS

LRA:

- Wayside Inn is now closed. - Next LRA meeting 2nd Saturday of October at Dorothy's Catering on W. 1st St in Loveland. (old Schmidt's Bakery)

Next month's program:

- Senior field engineer FCC Denver office will talk to us.
- We are looking for folks to present at club meetings, so please volunteer.

