

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	Bill Beach	K0UT	(970)224-1958	k0ut@earthlink.net
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	Chris Howard	W0EP	(970)493-2309	chris@yipyap.com
Technical Chair	Dan Magro	W7RF	(970)295-4200	w7rf@radiodan.com
Hamfest Chair	Matt Kassawara	KG0W	(307)220-3110	battery@writeme.com

NCARC Repeaters

W0UPS: 145.115 MHz – (144.515 MHz Input) 100 Hz CTCSS Subtone (1* on, 0* off) Autopatch Echolink Node 4236 (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: 224.520 MHz – (222.920 MHz input) 100 Hz CTCSS Subtone IRLP Node 3902 (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	Thursday	7:00 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
220 MHz Informal Net	Tuesday	7:00 pm	220.520 MHz
Tech Net	Wednesday	7:00 pm	145.115 MHz

Web Page

<http://www.ncarc.net>

New and renewing members for the current month: Rick - W0RCY
The NCARC thanks you for your support.

Other Upcoming Area Swapmeets

August 2 Jackson Hole Area ARC Swapfest (Jackson, WY)
August 17 Denver Radio Club Swapfest (Golden, CO)
September 28 BARCFEST (Longmont, CO)

Upcoming NCARC Meeting presentations:

July: Colorado 14'er Event – Information about this annual event (scheduled for Sunday, August 10th this year).

Notice: NCARC Name Badges are now available for only \$10 each.

Just send your name; as you want it on your badge to W5WIW Willie Williams, 434 Magnolia Ct, Eaton, CO 80615, W.I.Williams@msn.com. It can be your full name, your first name, or your nickname and your call sign. Mail your payment for the Name Badge(s) to the NCARC P.O. Box (or bring it to the club meeting) and allow 3 to 4 weeks for processing. To view a sample of the name badges, just come to the club meeting.

For Sale: Mosley Pro-57-A High Performance HF Beam 5 Bands, 7 Elements

This Pro-57-A antenna has NEVER been used and is has been stored out of the weather in Loveland, CO. The antenna covers 20, 17, 15, 12 and 10 meters and will handle more than the full legal power on all bands. The longest element is 29.9 feet long. It has a 2-inch boom that is 24 feet long (turning radius ~ 19 ft). It was assembled and SWR tests done, but never put it up.

If interested, contact N7CG, Clyde Glass at: ceglass@wwdb.org or 970-667-7415

Testing Your Own SSB Audio

Chip Margelli, K7JA
Heil Sound, Ltd.

Testing your own SSB audio is a simple task, but it's amazing to see how many Hams don't know how to do an effective job of it. Here are Chip Margelli's recommendations for fail-safe evaluation of your SSB audio quality.

Don't Use the Built-in Monitor!

The "Monitor" circuit provided on your rig is very unreliable as a way of evaluating your station's audio characteristics. The bandwidth in which you're listening probably is restricted, so you might make adjustments that over-compensate for this, leaving you with too much treble, too much bass, or both!

Also you don't have the benefit of hearing all the *net* effects AGC, etc. like other stations' receivers are employing

It's much better to listen in a separate receiver because that is the only way you can get a "real-world" appraisal of your audio passband characteristics.

Think of the "Monitor" as the equivalent of a CW Sidetone feature. It's great for keeping track of prerecorded "CW Contest" type messages and to confirm that your microphone is connected. Beyond that its utility is very limited. Use a separate receiver instead.

Setting Up Your Monitor Receiver

It's important that you configure your monitor receiver properly so you can get the full benefits of this technique for audio evaluation.

The first step is to disconnect the antenna. You may need to shove a very short piece of wire (an unfolded paper clip for example) into the antenna jack depending on the shielding of your transmitter's dummy load. The objective is to listen to a signal of about an "S7" strength on the monitor receiver's S-meter. This is strong enough to allow you full evaluation of the audio characteristics without being so loud that your perspective on audio punch is lost.

The next step is to turn off the Noise Blanker and any DSP Noise Reduction systems, as well as any DSP bandwidth or shaping features (such as Yaesu's "Contour" control). The Noise Blanker will hopelessly distort your signal, by its nature, and DSP features will perturb the received envelope and you'll never know what your signal truly sounds like.

Finally, if you have the ability to select the SSB bandwidth of the monitor receiver set it as wide as possible. Use 2.4 kHz if that's all you have, but 2.8 kHz, 3.1 kHz, or even 6 kHz will be better. Remember, you're listening in a QRM-free environment trying to hear all aspects of your signal. A narrow receiver bandwidth impairs your ability to get the full picture.

Now connect your headphones to the monitor receiver. Don't even *try* to listen to yourself using a speaker – feedback does not help you optimize your signal.

Now try a test transmission. It's always best to do this at moderate power (say, 50 Watts) into a dummy load so you aren't trashing other operators as you test. If you can't get enough signal on the monitor receiver (again, about S7 is optimum), try increasing the power output or add some wire to your temporary antenna. If the signal is too strong disable your receiver's preamplifier (Yaesu calls this feature "IPO") and/or engage the attenuator so as to get the S7 level you want as you speak into the microphone at your normal operating voice level.

One thing I also do is to back off on the monitor receiver's RF Gain control. If you do this to where the S-meter hangs up at about S6, it will quiet the background hiss and make it easier to hear subtle changes you make. Turn up the AF Gain as needed to achieve a comfortable listening level.

Testing Your Audio

It's always best to start with all transmitter audio adjustments (Equalizers, etc.) turned off or at factory defaults. This will serve as your starting point. Engage the PTT (or VOX) and speak into the microphone in a normal voice level while listening in your headphones. Adjust the Mic Gain so your transmitter's ALC meter is deflecting to about halfway up the ALC scale (no more). You may at this point find the audio sounding a bit "flat" or "muddy" especially if you are using a wide-range microphone like the PR 781 or the "Wide" element in a GM-4 or GM-5 desk mic. That's OK, we'll brighten it up in a jiffy.

After you have a good idea of your current audio sound it's time to experiment! If you're using a "modern generation" rig with some form of on-board equalization, let's first roll off the low side. On an Icom Pro series or the IC-7700/7800 set the Bass tone adjustments to -4 for starters. On the modern Yaesu DSP rigs with Parametric Equalizers, set EQ1 to -8 dB at 200 Hz (Bandwidth of 2). Now transmit and listen to yourself and you'll notice quite a difference!

Now let's increase the high frequency articulation. On the Icom rigs, set the Treble to +4 or +5 and on the Yaesu Parametrics set EQ3 to 18 dB at 2100 Hz (again, Bandwidth set to 2). You might also want to set EQ2 on the Yaesu to -6 dB at 900 Hz, although many operators like a "positive" setting here. Adding this treble content will really make your signal sparkle!

Now let your adjustments go wild. Listen as you reduce and increase both the treble and bass adjustments. You'll marvel at how the modern rigs let you create a wide variety of audio quality selections just with the twist of a knob.

Once you've found a setting that sounds good try modifying the transmitter bandwidth if this feature is available. On the above-mentioned Icom rigs you have Wide/Mod/Nar selections. On the Yaesu rigs there is an SSB TX BW selection in the Menu allowing selections of 100-2900, 200-2800, 300-2700 (default), and 400-2600 Hz. Start with 100-2900 Hz then try the other settings. You'll find that you can use a wide setting for rag chewing and then switch to a narrow setting if you need to bust through a DX pile-up.

Finally, engage the Speech Processor and set the Compression level for about 5 dB of compression. You may want to make minor tweaks to the treble/bass/bandwidth settings, but usually you'll leave them alone.

What About Me? My Rig Doesn't Have DSP Equalization!

Not to worry. Yaesu for many years has included something called USB TX CAR and LSB TX CAR (transmit carrier point) adjustments in their menu systems (FT-1000MB, FT-817/847/857/897/920 and all newer rigs). Setting these to +100 or +150 Hz will roll off bass and enhance treble by those amounts, just like your receiver's "IF Shift" features does *exactly* the same things when you're listening.

Kenwood has features like "Bandshift", TX EQ, and transmit bandwidth controls on rigs like the TS-870/2000, and TX envelope limiting selections on the TS-950SDX (Menu #20/21). You can easily hear the effects of these features as you listen to yourself.

And Elecraft has included a parametric Equalizer on the new K3, so the radio manufacturers are not blind to your needs.

Summary

Setting up your rig for great-sounding audio is not difficult. Just be sure *you* listen to yourself, because only *you* know what you want your signal to sound like. Ask five other Hams for an opinion on your audio and you'll get *ten* opinions! You know your voice, you know your objectives for audio, and only you can make the on-the-fly adjustments you need to sound the best you can. With guidelines described above, you'll be sure to succeed.

Good Luck! And if you find a particularly "sweet" setting you'd like to share with us please email the information to me (chip@heilsound.com)

(Submitted by W7LRY, used with permission)

Newsletter Submissions

Being new to the newsletter editor's chair, it may take me awhile to come up with something fit to read. I appreciate your patience. If you have suggestions or submissions for the newsletter please let me know. Printing items from online or other printed sources requires that we have permission from the original author or source.

Willis will still be handling the copies of the newsletter that go out via US-Mail, so if you have an address change make sure he gets it.

You can contact me via email at chris@yipyp.com or w0ep@arrlnet

Editor's Corner : Are you Somebody?

Field day is today! Happy Field Day

There sometimes is consternation in a club like ours about events and opportunities. Some of them slip up on the calendar and go right on past. Last week I helped work communications for the Colorado Bicycling Classic. Before that we had Willie's Kid's Day in Eaton, Cast for Kids, The Fort Collins Marathon (I did not work on all of those!). And there are contests, ARES events, the list goes on. That's part of the beauty of amateur radio: the wide breadth of activities. Some people like to hide away in their basement with headphones on. Others are chasing tornadoes, or "foxes". Some dummies like me are even spending Field Day typing on the computer.

Great! Lots of choices. The problem comes when the Oughtas show up. You've heard of them. The head of the Oughta family is Somebody Oughta. His wife is They Oughta. Their son is a nasty little brat: You Oughta. I'm glad to say that we don't see the Oughtas in our club meetings very often.

I guess what I'm trying to say is: if you find an activity that is really important to you it pretty much falls on your shoulders to make it happen... or not. That's not a condemnation, it's just the way things work.

Here are some hints for making something happen, take them for what they are worth:

Plan Ahead – this is a hobby, so people can't just drop things and spend half of their weekend on your pet project. You might get some of their time if you ask for it in advance, call them and remind them, maybe even buy a few donuts to lure them in.

Be Patient – It may take awhile to get things to fit together. See Plan Ahead.

Ask for Help -- I think you'll be pleasantly surprised.

Be Flexible – Maybe your idea of a hamfest or a field day isn't the same as what others are thinking. Maybe you'll have to scale back or add or subtract some features. Try to custom fit your expectations to the circumstances instead of the other way around. You'll sleep better.

Be Willing To Sacrifice – For sure somebody is going to have to spend some time, maybe even some money. Are you asking people to do more than you are willing to do yourself? Depending on what the activity is, you may be able to write some of your expenses, miles etc. off as a charitable contribution. (Check with your tax accountant because I am not the one who will be holding your hand at an IRS audit!)

Be Thankful -- Thanks Willie for running Kid's Day and the Buttons. Thanks Willis for being the Treasurer. Thanks repeater team. Thanks club officers.

“Somebody Oughta” do that. Are you Somebody?

VHF Activity

June and July are the time of year for 6 meter and 2 meter SSB and CW activity. Did you participate in the ARRL June VHF contest? If you are just getting started with VHF SSB/CW, remember that antennas need to be horizontally polarized. This website might be of interest: <http://www.k0nr.com/rwite/2Mssb.html>

Also, check out the Rocky Mountain VHF Plus net on Monday evenings at 8:00 pm local time 144.220 Mhz Upper Sideband. See their website at: <http://www.rmvhf.org/>

