



The Signal Report

A Publication of the Greenwood Amateur Radio Society

VOLUME 5 ISSUE 7

JULY

[HTTP://WWW.W4GWD.ORG](http://www.w4gwd.org)

W4GWD@ARRL.NET

2009 CLUB

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**The W4GWD
Repeater Network**
147.165+ t107.2
443.900+ t107.2
W4DEW/R
146.910- t123.0

July Meeting

G.A.R.S. will meet Monday, July 20, 2009, at the Turner House on Bailey Circle in Greenwood at 7pm for light refreshments and 7:30pm for the meeting. The club meetings are now listed in the Index Journal on page 2A each month under "Community Calendar" and meetings are also listed in Greenwood's Town Planner which is circulated to most homes in the area.

Field Day 2009



Field Day 2009 was a success for the W4GWD crew. We had a great turnout with many members staying through the night and operating the full 24 hour period. The newsletter staff would like to thank everyone who came out and supported us at Field Day.

We are very gracious to the town of Ninety Six, who have provided us the use of the town park for our Field Day which is perfect for our uses. Now on to the photos!



(Photos by KJ4JGP)

Upcoming Society Events

Chat N' Chew

Every Friday at 11:30am the members of the Greenwood Amateur Radio society meet at Ryan's Steak House, Bypass 25 NE, Greenwood.

Everyone is welcome to have lunch or sip your favorite beverage and chat for a while.

(Dutch treat).

August 04, 2009 VE Exam Session 7:00pm Greenwood Red Cross

GARS ARRL Volunteer Examiners (VE) Team will have an exam session 7:00pm Tuesday, August 4th at The American Red Cross Building, 520 Epting Avenue, Greenwood, SC 29646.

Weekly Net

Every Thursday night at 9pm on 147.165+, The Greenwood Amateur Radio Society holds the weekly 2 meter net.

Help spread the word to check into our net.

If you would like to fill in or be a backup net control please let Buddy Willis, W4DEW know.

Weekly Ladies Net

The GARS Weekly 2 Meter Female Amateur Radio Net began on Tuesday, January 8, 2008 at 8 PM on the GARS 2 Meter Repeater. This net will be held every Tuesday night at the same time.

All interested female amateurs are invited and encouraged to check in. Subjects of discussion will be anything of interest to women.

If you have any questions, please contact Jean (W4KKA) at 864-953-0004 or Jo (KC4UU) at 864-446-7187.

Congratulations

Happy Birthday!

Steven Lyda	KI4ZSY	Jul 4
Homer Banks	WB4MLU	Jul 10
Joe Mimms	K4GBH	Jul 13
Betty Jean Powell		Jul 15
Elizabeth Nason		Jul 21
Mitch Litwer	KJ4JGP	Jul 24
Jeremy Manning	KI4CCZ	Jul 28
Bert Keck	KJ4VJ	Aug 28
Brab Dukes	WB4TRF	Aug 31
Darrell Manning	KI4BST	Aug 31

Happy Anniversary!

Brab (WB4TRF) and Elaine (KA4PLU) Dukes	Jul 6
David (W4MCC) and Brenda McCall	Jul 7
Mitch (KJ4JGP) and Di Litwer	Aug 15
Marion (KC4IAV) and Edna Elledge	Aug 17
Phil (WWW4I) and Jo (KC4UU) Henry	Aug 30

Missing Q signals #1849:

QOK.

- Your last transmission was Okie Dokie.

The Right Tools

Scotty, the engineer on the original Star Trek series, was always fond of saying "How many times do I have to tell you...use the right tool for the right job!" As an amateur radio operator involved in emergency communications, do you know what are some of the right tools of the trade? Let's take a look...

Mobile Radios: While we like the convenience of a 3 or 5 watt walkie, nothing beats the transmitting distance and the receiver qualities of a 50 watt VHF mobile or a solid HF transceiver. A rubber ducky and a handie talkie really won't cut it for most emergencies that rely on direct simplex communications on level terrain over distances greater than about two to three miles. And a mobile radio has better intermod rejection than a handie. Living and working in lard cities, we know what a miserable, frustrating time we get from intermod signals. Antennas If you're insisting on using a rubber duck antenna, you're in big trouble. A rubber duck is really a rubber coated dummy load. To get better performance, you'll need something you can attach to a coax cable and get the antenna closer to a window (if you're inside a sealed air conditioned building) or outdoors to radiate your signal better while you're safe and comfortable inside. For walkies, a collapsible quarter wave or half-wave "hot-rod" antenna is a start. You can also use a ribbon j-pole antenna. But for mobile radios, you need something that will dissipate 50 watts continuous and many of the commercial walkie antennas are designed for about 5 watts. A regular quarter wave ground plane, mobile magnetic mount antennas -- these are good, portable antennas that are small enough to be used to radiate through a window in a office building or school cafeteria being used as an evacuation shelter. If you are using a fixed based station, do not be so quick in getting the highest gain vertical antenna you find. Gain is obtained by sacrificing the antenna's radiation pattern. Rather than choosing a 7 dB vertical that slams your signal 100 feet into the building next door, selecting a 3 dB vertical gives an omni-directional antenna with a boost in gain but still allows sufficient radiation from the side lobes to rise over mountains, condo buildings or bend around other obstructions. A handy item is a portable three or four element beam. A 6 dB gain is worth a four times increase in transmitter power. More importantly, the four times increase in received signal is very handy for pull-

ing out marginal signals. As an example, check out the 146-4 Back Pack from Arrow Antennas (<http://www.arrowantennas.com>).

Coaxial Cables: Let's face it. Without feedline, it's mighty hard to get a signal from your radio to the antenna. You would like to position the antenna near a window if you're high above the surroundings, or at least higher than the surrounding obstructions to get the signal out. If you had a chance, hauling 50 or 100 feet of RG-8U would be an ideal medium loss HF, VHF and UHF feedline cable, but it's mighty bulky and heavy. Using RG-58U is smaller and lighter, but the losses at VHF and UHF starts to cut into your operations.

A compromise is RG-8X, which has the bulk of RG-58U but has loss characteristics close to that of RG-8U. The only "drawback" is that the reducers used with PL-259 coax connectors are the UG-176 variety (for 75 ohm RG-59U) rather than the standard 50 ohm UG-175 for RG-58U but that's a small inconvenience.

Headphones and Other Accessories: Little things make a big difference. Using headphones and a boom mike will cut out the background noise in a busy, cluttered environment and will also keep your audio from blasting around an already noisy room. To speed operations, you may want to also include a foot switch to key your radio with your foot to leave your hands free for writing messages and adjust the radio. Something as simple as a clipboard ensures you'll have a smooth hard surface to write down messages clearly and legibly no matter where you are.

So, there you have it. A quick run through some simple things that make a big difference in responding to emergencies. Now, it's your turn to be like Scotty and say: "Use the right tool for the right job!"

CQ Test with N4XL

Which would you rather listen to – an SSB signal just barely louder than S9 band noise or an almost quiet band with a weak signal that is fairly easy to copy if you just turn your audio gain up a little? I think most of us would choose the latter, especially if you were sitting in front of a radio for hours during a contest. That was the situation I found myself in during Field Day last weekend. I chose the fairly quiet band.

Chose? Yes, I chose to make 40 and 80 meters be quiet so I could listen to people without getting a whopper of a headache. During the first 30 years of my Ham career I didn't know I had a choice and would either turn the radio off or reach for the Excedrin bottle. Then I bought a fairly decent HF radio and began to wonder why it had weird controls in it. Controls that people who get good scores in DX contests seemed to know all about and would frequently use. Things like a front panel RF attenuator switch with three settings (-6, -12, and -18 db), the ability to change the carrier point (IF) offset to match particular filter characteristics, an off position for the AGC, separate receive antenna capability, and knobs for controlling the IF pass-band shift and width. Then there was the Variable RF front end filter and an Interlocked Digital Bandwidth Tracking system. That stuff must be in there for a reason.

I mentioned that Larry Scheff, W4QEJ, had written a good article in QST¹ on this topic. I vaguely remember glancing at it when the magazine first came in the mail, but pulled it out again when I was curious about those weird controls. Larry talks about many things including IF shift, filter slopes, and AGC use, but here are three quotes that pretty much sum up the focus of my message this month. “The first step toward better reception is understanding that undesired signals and noise must be attenuated as much as possible *before they reach the receiver's detector stage.*” “Remember this simple fact: *Filters work best if the signals applied to them are weak.*” And “Often you can use your receiver's attenuation and RF gain controls to reduce the noise level reaching the IF filters to a level so low that the noise will not pass through the filters at all, while the signal you want goes straight through to the detector. Under these conditions, the receiver's filters also do a better job of removing the adjacent frequency interference.”

I know most of you reading this operate like I used to. You are sitting at your rig. It's powered up with the preamp on and you aren't really sure why it even has an RF gain knob. You tune the VFO to a DX station and switch to a narrow filter to fight the QRM from that contesteer 2 KHz away. You turn on the DSP to fight heterodynes and static – but not too much DSP as it makes the audio sound funny. Okay, the noise doesn't really go away but things sound just a little bit better. That's about it for your receiver adjustment. After a few minutes you get disgusted and turn the rig off. It's just too noisy. Maybe tomorrow will be better. Try one or more of the following next time.

Turn your preamp off. It amplifies both band noise (QRN) and that pesky QRM at the same time that it is amplifying

the signal you want to receive. Odds are you will get a better signal to noise (S/N) ratio without the preamp which means you will send an improved signal to your detector. Turn down the RF gain (and/or switch in attenuation) so the offending band noise goes away – or at least is not too distracting – and turn up the audio gain to hear that now weaker station. Play with whatever controls you have to adjust your IF and shift the IF so the signal you want to hear is still in the filters' pass band but the QRM is shifted further down the filters attenuation skirt (Note: this may make the station you are trying to copy sound a bit funny, but at least you should be able to understand them).

Take the time to learn how to use your receiver. Play with it. When I get a new radio I try to find a weak station right next to a strong station and try various combinations of controls to see what they do. Contest weekends are great for this. You aren't going to break your radio. You might have to do a master reset now and then if you adjust something and you can't figure out how to undo it, but that usually isn't hard and you end up with the radio in the same condition as when you took it out of the box.

Read W4QEF's article if you want to know why reducing RF gain or turning off your preamp works. For those of you interested in learning more about your transceiver, I suggest you get ON4UN's excellent book “Low-Band DXing”, 4th edition. Chapter 3 describes the proverbial ‘Everything you wanted to know about Receiving and Transmitting Equipment but were afraid to ask’. Every Ham interested in HF should have a copy of, and study, that book. Although it focuses on 40, 80 and 160 meters it presents a wealth of both theoretical and practical information to the HF enthusiast

One last thing, although these tips WILL help don't expect miracles. Here's a simplistic example to illustrate what I mean. Say you are trying to copy a station that is S9 + 10 dB and the noise level is S9. You adjust your radio so the noise just goes away. You are left with a signal that is 10 dB loud. If you assume an S unit is 6 dB then you are going to be listening to a signal that is less than S2. Most occasional operators would tune right over that saying it is too weak to mess with. The main thrust of this series of articles is contesting. You can copy an S1 signal on a quiet band. If you can copy them you can work them. If you work them then your score is higher and you can get the QSL card.

73's.
N4XL

¹ Larry Scheff, W4QEJ, “How to Maximize Your Receiver's Effective Selectivity”, Parts 1 and 2, QST, February (pp 42-48) and March (pp 44 – 47) 2001

Look to the Skies!

From space.com

Skywatching is typically about looking for natural objects and phenomena, but there are now a host of interesting targets orbiting Earth that anyone can spot, from the space shuttle to the International Space Station to satellites that can briefly outshine the brightest stars. Satellites are visible because they reflect sunlight. A satellite entering the Earth's shadow immediately vanishes from view and pursues an unseen path until it again emerges into full sunlight. For that reason, there are certain times and locations that offer the best viewing. To see these "moving stars," go out during twilight, roughly 45 to 90 minutes after sunset, or 45 to 90 minutes before sunrise.

The International Space Station and the space shuttles are by far the brightest satellites. Orbiting the Earth at an average altitude of 240 miles, they can appear to move as fast as a high-flying airliner, sometimes taking just three to four minutes to cross the sky. They can easily be confused with aircraft lights, though at their brightest they sometimes appear to rival Jupiter in brilliance. With a little scanning during twilight, you should not have to wait more than 15 minutes before you see one of the nearly 10,000 satellites now in orbit around Earth. While most are too faint to be seen with the unaided eye, a few hundred are large enough -- over 20 feet in length (6 meters) and low enough -- 100 to 500 miles (160-800 kilometers) above Earth -- to be seen.

In the past several years, a new fleet of satellites has been put into Earth orbit that can flare to incredible brilliance. The Iridium communication satellites, whose silver-coated Teflon antenna arrays mimic near-perfect mirrors, can cause a dazzling glint of reflected sunlight from their orbits 492 miles up. The flares range in brightness from merely a bright star to, in the most extreme case, 100 times brighter than Venus.

In fact, it is even possible to see some flares during the daytime, if you know exactly where to look!

To see the brief flares, you will first have to know your exact latitude, longitude and local time zone. Then, you'll need tracking information, provided at that web site [Heavens Above](#), which is hosted by the German Aerospace Center (also known as "DLR" - Deutsches Zentrum Für Luft - Und Raumfahrt). There, you can also obtain interesting satellite viewing tips as well as access the very latest predictions on spotting numerous other orbiting satellites, such as the Hubble Space Telescope, a space shuttle or the International Space Station.

NASA also provides Space Station and shuttle sighting data for scores of cities around the world, [at this site](#).

Club News

If you want to see your article here, please send an email to the newsletter staff WJ4X@amsat.org

First off this month, I'd like to thank everyone who has supported us in keeping our net on 165 alive. I understand it's a bit more difficult for a few of you to make the machine in it's temporary location, but it does lead us into the purposes behind nets. Nets were designed to test your equipment and it's limits. Having a repeater right above your head in no way measures your ability to communicate, like when there is no repeater. Keep this in mind over the next few weeks and

think about how to improve your station so that you can better "make the machine"

Field Day. I personally would like to thank everyone who showed up for field day. I had a great time, and everyone that I've talked to has told me what a fantastic time they had. To the "Core Crew" a big Thanks! I'm glad to see that you guys stayed the full 24 and ran with it. Now that 24 hours is a bit of a misnomer, as I think mine was closer to 36, but with a quick nap, it all worked out.

I'd also like to thank the club ladies who provided our refreshments and cooked for us, It was well enjoyed!

I'm glad we had a safe time, and with that, it's time to finish up the score sheets for Field Day 2009, and start thinking about next year!

Vry 73,
-WJ4X

COMING HAMFESTS and EVENTS:

25 Jul 2009

34th Annual Western Carolina Hamfest

Western Carolina Amateur Radio Society

<http://www.wcars.org/hamfest.html>

Talk-In: 146.910 (PL 91.5) & 147.390 (PL 94.8)

Contact: Dean Blair, K2JB
20 Coffey Place

Asheville, NC 28806

Phone: 828-423-3082

Fax: 828-670-9909

Email: k2jb@arrl.net

Waynesville, NC

Haywood County Fairgrounds

758 Crabtree Road (NC 209)

8 Aug 2009

Ellijay Amateur Radio Society (EARS)

<http://www.ngamtn.com/w4hhh/>

Talk-In: 145.170 -600 kHz (PL 100)

Contact: Dave Meadows, K4LDI

401 Vanilla Lane

Ellijay, GA 30536

Phone: 706-276-4043

Fax: 706-276-4043 (call Dave first)

Email:

dmeadows@ellijay.com

Ellijay, GA

Ellijay Lions Club

1729 South Main Street

5-6 Sep 2009

Shelby Hamfest

Shelby Amateur Radio Club
<http://www.shelbyhamfest.org>

Talk-In: 146.88 & 147.12

Contact: Robby Hamrick, WA4RH

Box 1408

Ellenboro, NC 28040

Phone: 828-453-9121

Email: chair-

man@shelbyhamfest.org

Dallas, NC

Gaston County Park

1301 Dallas Cherryville

Highway

3 Oct 2009

York County Amateur Radio Society (K4Y TZ)

<http://www.rockhillhamfest.com>

Talk-In: 147.030 neg (no tone)

Contact:

Sheila Parrish, KG4CDF

2358 J P Dirt Road

Edgemoor, SC 29712

Phone: 803-328-5983

Email: coy@navacore.net

Rock Hill, SC

Faith Assembly of God

2800 Faith Blvd.

IF YOU WOULD LIKE YOUR HAMFEST OR EVENT LISTED HERE, PLEASE CONTACT ADAM, WJ4X@AMSAT.ORG

Club Corner

W4GWD Had a FANTASTIC Field Day

The Hunt is on, Ask about joining Greenwood ARS ARDF

Make sure you get your entry in for the Homebrew Challenge!

Let us know what you're up to by sending an email to:

WJ4X@amsat.org

Classifieds

For Sale or Offer for Entire Lot:

\$ 25.00 2 Ringo ranger antennas (parts missing)

\$ 5.00 Radio Shack 12 v power supply

\$ 20.00 Mirage pre-amp RC I

\$ 10.00 3 amp power supply 12 volt

\$ 5.00 Radio Shack 13.8 power supply

call or email: Dewey "Buddy" Willis W4DEW@arrl.net (864) 445-7574 home (864) 554-3543 verizon

Icom ic-v8000 75 watts on 2 meters. Comes with manual, bracket, and original box. \$125

Email: Joe Mimms k4gbh@arrl.net

If anyone has any Ham radio stuff to sell or trade... list it in this column by

calling Buddy, w4dew@arrl.net, 864-445-7574