



The Greensboro Amateur Radio Association

Feed Line

Providing Amateur Radio news for the Triad



Brian Wilson, NX4U, Editor

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GARA Open House 2012

By Brian Wilson, NX4U

Reports are just starting to come in from the GARA Open House 2012, but it appears that everyone had a good time. In the picture to the right, you can see GARA's oldest member, Weldon Fields, W4AJT, surrounded by other GARA members, Greg Spencer, KG4UQV, Ed Henderson, W4CMK, while John Strandberg, W4DX, explains how the new Elecraft KX3 operates.

In the background, David Macchiarolo, AJ4TF, explain the details of another aspect of amateur radio. Thank you to all those who helped make this years Open House a success.



Photo courtesy of Tom Forrest, N4GVK

Exam Time

By David Macchiarolo, AJ4TF

At the last meeting, Donna, KD4WIK, gave us all some brain teasers from the FCC examination question pools. Many people seemed to like this, so we decided to pick some questions out of the pools each month and give the answers. The entire question pools are available for download from the ARRL web site and other places as well. The General and Extra pools have 10 major topic sections. Between the two pools, there are over a thousand questions so we will not get through all of them in a short time, but what I plan to do is each month pick 5 questions from the General pool, and 5 from the Extra pool, see Questions, page 8

NEXT MEETING Monday, October 22

The next meeting of the Greensboro Amateur Radio Association will be Monday, October 22nd, at Captain Bill's Seafood & Steakhouse, 6108 West Market Street, Greensboro, NC 27409, between Guilford College Road and Swing Road. This program for this month's meeting is to be determined.

GARA Meeting Minutes

Regular Meeting Minutes September 24, 2012

The Greensboro Amateur Radio Association held its monthly meeting on September 24th, 2012, at Captain Bill's Seafood & Steakhouse located at 6108 West Market Street in Greensboro. GARA president, Donna Ferguson, KD4WIK, called the meeting to order at 7:15pm.

Officer reports

David Macchiarolo, AJ4TF, said that our equipment is doing fine. David spoke about the remote monitoring he has implemented for the D-Star repeater which allows him to keep tabs on how it is doing.

Craig Bondy, N8STA, said the checking account is good, and we have one new member, Layman Idol, KK4LAY.

Roy Smith, N4BYU, spoke about the bike ride that we worked on Saturday. Roy also said that the Newsline program that we run on the Sunday night net will probably stop being available as a phone in service after the first of the year. He said that we will need to find a way to use an mp3 download to provide Newsline in the future.

Donna said that the ARISS project with McNair Elementary School is looking good and that RF Micro Devices have agreed to assist us.

David said that the N4G special event station planning is being done for the 2013 Battle of Guilford



Courthouse. The date has not been set yet, as we are waiting for the park service to announce the date of the reenactment. David said that the call sign has been reserved. David said we need operators especially for CW. Contact David AJ4TF to volunteer.

Donna asked for every one to identify them selves.

Donna held a Question and Answer session instead of a program; Donna had compiled questions from the technician class license manual. If answered correctly a prize was awarded.

The announcement was made for the annual Doggett cookout that was coming up on September 29th at 6PM.

Donna said that we have a nominating committee consisting of Thomas Fleming, KJ4YDP; Patrick Moore, K2CPR; and Asa Hildreth, KK4EXW.

Roy made a motion to adjourn, David seconded. The meeting ended at 8:13pm.

The Greensboro Amateur Radio Association

President Donna Ferguson, KD4WIK

Vice-President Todd Smith, AK4TS

Treasurer Craig Bondy, N8STA

Secretary Greg Spencer, KG4UQV

Financial Vacant

Engineering Chair David Macchiarolo, AJ4TF

Operations Roy Smith, N4BYU

Member-at-Large Fred Lomax, KK4BAW

Member-at-Large Gaither Frye, W4GCF

Appointed Position:

Webmaster & Newsletter Editor

Brian Wilson, NX4U

The Feed Line is ©2012 by the Greensboro Amateur Radio Association and published monthly. Our address is P.O. Box 7054, Greensboro, NC 27417. The purpose of the newsletter is to provide the club and prospective members information about the club and amateur radio in general. Material and information should reach the editor by the first Friday of the month for the next edition of the newsletter. Opinions expressed in "The Feed Line" do not necessarily represent the views of the officers, directors, editor or members of the Greensboro Amateur Radio Association. Material may be reproduced, provided proper credit is given to GARA.

Respectfully submitted by Greg Spencer, KG4UQV, GARA Secretary.

Board Meeting Minutes October 8, 2012

The GARA board of directors held their monthly meeting on October 8th, 2012, at the Katherine Clay Edwards Branch library. The members present were: Donna Ferguson, KD4WIK; Craig Bondy, N8STA; David Macchiarolo, AJ4TF; and Greg Spencer

Donna called the meeting to order at 7:07pm.

Officer reports

David said that Arch, KT4AT, had 3 of 8 fans go bad recently in his D-Star test controller which has about the same hours on it as ours. Arch suggested that we should change ours to prevent any overheating issues with our controller. The cost to replace all 8 fans would be \$91.76.

Craig said the membership numbers are the same as last month.

Craig also advised that there are no ways to reduce our insurance premium with our current insurer and coverage; He will research other insurance companies for better rates.

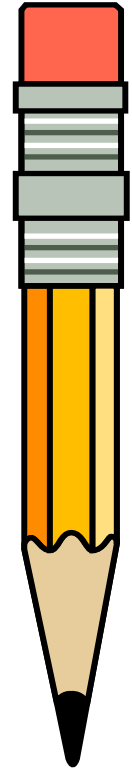
Craig said that he also checked with the ARRL about investment advice and he did not get a reply. Donna suggested that we wait until after the first of the year before doing anything in the way of investments, and everyone agreed.

Greg did not have anything

Donna said that Roy Smith, N4BYU, called her about a ham that wants to donate a used Icom HF radio to GARA. Roy proposed loaning it to the Natural Science Center to replace the radio in the K4NSC exhibit while it is away getting the antenna jack repaired and a tune up. We discussed some options for what to do with the radio, but we did not make any decisions because we did not have enough people present.

Donna made a motion to adjourn Craig seconded, all in favor. The meeting ended at 7:40pm.

Respectfully submitted by Greg Spencer, KG4UQV, GARA Secretary.



7th Annual ARRL On-Line Auction

From ARRL

The Seventh Annual ARRL On-Line Auction opened for preview on Tuesday, October 16, and will open for bidding at 10 AM EDT (1400 UTC) on Thursday, October 25. According to ARRL On-Line Auction Coordinator Lisa Tardette, KB1MOI, there is a large assortment of ARRL Product Review items, including an Elecraft KPA500 HF/6 meter power amplifier, an ICOM IC-7410 HF/6 meter transceiver, a Yaesu FT-450D HF 6 meter transceiver, a Kenwood TM-281A 2 meter FM transceiver and an MFJ-998 RT and MFJ-994BRT remote auto antenna tuner.

The ARRL On-Line Auction also features a wide assortment of books, including ARRL Handbooks from the 1920s and 1930s -- most notably, a first edition of the 1926 Radio Amateur's Handbook -- and a set of three first-day-of-issue covers of the 1964 5 cent stamp highlighting Amateur Radio (see an image of a stamp here).



"Once again this year, bidders will find a large variety of product review equipment, vintage books, novelty items and a number of very special items that have been donated by the crew of the ABC Television's Last Man Standing, starring Tim Allen as Mike Baxter, KA0XTT," Tardette explained. "In order to place a bid, you must register on the ARRL On-Line Auction website. You may browse the website and scope out those 'must-have' items without being a registered bidder, and you can register at any time during the auction. If you are interested in some great bargains -- and some great fun -- you really need to check out the ARRL On-Line Auction." The 2012 ARRL On-Line Auction runs through 11:45 PM EDT on October 31 (0345 UTC November 1).

From the President's Shack

From Donna Ferguson, KD4WIK

I would like to thank all those that helped at with the Expo at the Natural Science Center. Even though they were not that busy, they still talked to several young folks and hopefully sparked an interest in ham radio.

November is election month for both GARA and the country. Please get out and vote. Your vote allows your opinion to be heard. I am not telling you who to vote for. I am just asking you to exercise your right to vote.



John, W4DX and Ed, W4CMK, man a booth at the Expo



If a member of the nomination committee contacts you about serving on the board, please consider serving. This past year as GARA's president has been an interesting experience but I am glad I did it. This year GARA has set up a station at National Greene Park, been asked to partner with McNair Elementary to get ham radio in the schools and help with an ISS contact, and held an Expo at the Natural Science Center.

It has been a good year for GARA and a rewarding experience for me. We also held our annual picnic and soon it will be time for the Christmas party. Hope to see everyone there!

With all that we have done this year, I cannot wait to find out what we are going to come up with next year.

73s,

Donna, KD4WIK



Gaither Frye, W4GCF, helps answer questions at the Expo

Engineering Update for October, 2012

From David Macchiarolo, AJ4TF

VHF Repeater:

Not much to report this month, as usual the VHF FM repeater is running well. I guess I should just cut and paste this response into the column each month HI HI! Seriously, the GE MASTR-II radio is pretty rugged, and is a favorite for amateur repeater use. A few months ago I gave you some technical information on the VHF repeater configuration, I'll repeat that column soon in case some of you missed it..

D-Star Repeater:

As I told you last month, as a result of the gateway hardware difficulties this past summer, I created a web page to monitor the gateway operation. It is updated every 5 minutes. You can see the gateway status by pointing your web browser to: <https://w4gso.dstargateway.org/gwstatus.html> *Be sure to use https (not http).*

Recently Arch, KT4AT, experienced several fan failures on the development machine that he keeps at his QTH. As this computer is identical to the ones we have, and is approximately the same age, the GARA board has decided to go ahead and replace the fans in both the Linux gateway computer, and the repeater controller (the hardware on both is identical). Since both machines use solid-state disk drives, the fans are the only moving parts. Fans are usually the weakest part of any high-reliability electronic system; where ICs and solid-state components can last literally decades under continuous use, you are lucky to get a few years out of a fan. The fans are on order, and we will make a trip to the repeater site soon to get that done.

Today (Saturday 10/13), while monitoring the gateway, I saw evidence that the gateway solid-state disk is starting to fail again (a corrupted file). The machine is still running, and I will try to nurse it along until we go up there in a few weeks to replace the fans; since we will have the computer disassembled, I'll go ahead and replace the disk. (As you recall, we bought a spare a couple of months ago). I have re-imaged it twice already, so "third time is the charm". Despite what I said above about fans, it looks like this disk got hurt when the a/c failed back in July.

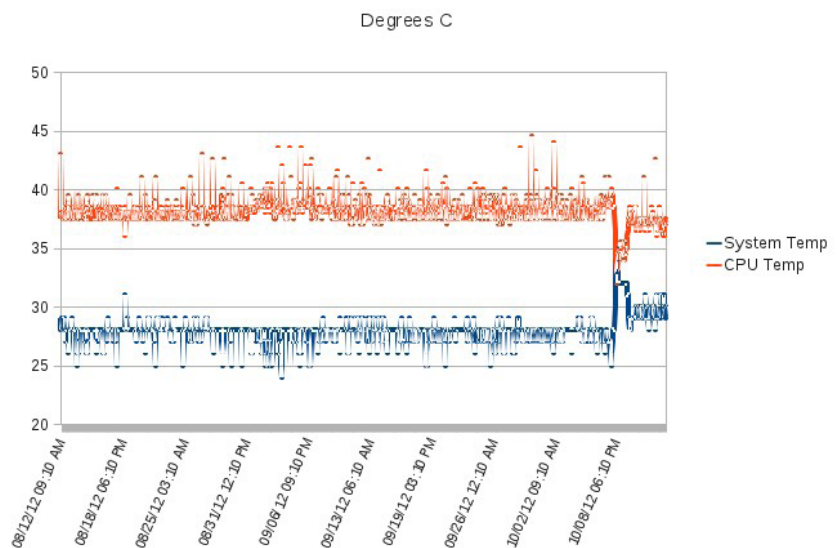
In addition to monitoring the system performance in real time, I am also logging the system temperature and CPU temperature every hour. When I looked at the data, I noticed a change in the average system temperature of about 2 degrees C upward after a period of higher than normal temperatures on Monday Oct. 8th. After scratching my head a little, I remembered that the site owner was conducting an exercise that day, and probably had the door standing open for several hours.

However, this minor temperature excursion is not causing the disk to fail.

As always, if you have any questions or concerns about your club repeaters, either VHF or D-Star, or any other technical topic, please contact me at aj4tf@arrl.net

73, David AJ4TF

W4GSO Linux Gateway Temperature



Congratulations! You Passed!

Every month on the second Saturday, except in March when it is the third Saturday, W4VEC holds a testing session for those who live in the area. This provides an opportunity for individuals to be able to test for their amateur radio license or upgrade. Thanks to Glenda Nicholson, AG4NC, and a group of volunteers, each month there are new or upgraded hams in our area.

In October, we had two (2) individuals who passed their test(s) and earned either their Technician, General or Extra class license.

Next month's testing session will be on November 10th at #3 Centerview Dr, Hickory Building, Greensboro, NC 27407 at 9:00am. While walk-ins are welcome contacting the lead VE is preferred. Please contact Glenda Nicholson at (336) 674-3810 or by email at ag4nc@bellsouth.net

All Photos Courtesy of David Macchiarolo, AJ4TF



*Alan J Grunsky, KK4MBD
Passed Tech*

***No Picture
Available***

*Howard W Cline III, KK4MBE
Passed Tech*



During the testing session the Volunteer Examiners watch while the participants work to answer the questions correctly.

The Weather Channel to Begin Naming Winter Storms

From The ARRL Letter, 4 October 2012

The following article is taken from "The SPARC," the newsletter for the Boston Amateur Radio Club and has been provided by Tom Bertolino, KB1P

Beginning this winter, The Weather Channel will begin naming what it calls "noteworthy winter storms." As The Weather Channel explained on its website, "[a] storm with a name is easier to follow, which will mean fewer surprises and more preparation. In addition to providing information about significant winter storms by referring to them by name, the name itself will make communication and information sharing in the constantly expanding world of social media much easier."

Unlike the National Hurricane Center (NHC) - which has named tropical storms and hurricanes since the 1940s - the National Weather Service (NWS) does not name winter storms. "One of the reasons this may be true is that there is no national center, such as the National Hurricane Center, to coordinate and communicate information on a multi-state scale to cover such big events," The Weather Channel's website said. "The National Centers for Environmental Prediction's Hydrologic Prediction Center does issue discussions and snowfall forecasts on a national scale, but it does not fill the same role as the NHC in naming storms. Historically, many major winter storms have been named during or after the event has occurred, such as 'The President's Day Storm' and 'Snowmageddon.' Yet, until now, there has been no organized naming system for these storms before they impact population centers." In Europe, forecasters have named winter storms since the 1950s, and many local television stations in the US name winter storms, as well.

According to The Weather Channel, a winter storm will be given a name only after a complete assessment of several variables, including snowfall, ice, wind and temperature, as well as taking into account the time of day (rush hour vs overnight) and the day of the week (weekday school and work travel vs weekends). The Weather Channel will name a storm no more than three days before its anticipated impact.

Below is the 2012-13 winter season list of names, along with some information about the origins of the names.

- Athena: The Greek goddess of wisdom, courage, inspirations, justice, mathematics and all things wonderful.
- Brutus: Roman Senator and best known assassin of Julius Caesar.
- Caesar: Title used by Roman and Byzantine emperors.
- Draco: The first legislator of Athens in Ancient Greece.
- Euclid: A mathematician in Ancient Greece, the father of geometry.
- Freyr: A Norse god associated with fair weather, among other things.
- Gandolf: A character in a 1896 fantasy novel in a pseudo-medieval countryside.
- Helen: In Greek mythology, Helen of Troy was the daughter of Zeus.
- Iago: Enemy of Othello in Shakespeare's play, Othello.
- Jove: The English name for Jupiter, the Roman god of light and sky.
- Khan: Mongolian conqueror and emperor of the Mongol empire.
- Luna: The divine embodiment of the moon in Roman mythology.
- Magnus: The Father of Europe, Charlemagne the Great, in Latin: Carolus Magnus.
- Nemo: A Greek boy's name meaning "from the valley," means "nobody" in Latin.
- Orko: The thunder god in Basque mythology.
- Plato: Greek philosopher and mathematician, who was named by his wrestling coach.
- Q: The Broadway Express subway line in New York City.
- Rocky: A single mountain in the Rockies.
- Saturn: Roman god of time, also the namesake of the planet Saturn in our solar system.
- Triton: In Greek mythology, the messenger of the deep sea, son of Poseidon.
- Ukko: In Finnish mythology, the god of the sky and weather.
- Virgil: One of ancient Rome's greatest poets.
- Walda: Name from Old German meaning "ruler."
- Xerxes: The fourth king of the Persian Achaemenid Empire, Xerxes the Great.
- Yogi: People who do yoga.
- Zeus: In Greek mythology, the supreme ruler of Mount Olympus and the gods who lived there.

Questions (continued from page 1)

from different topics sections. If you have not upgraded yet, perhaps you will find this column useful and maybe give you a jump-start into your own studying. Caution: Do not just memorize that the answer to question E0A11 is “C”. The actual tests mix up the order of the answers that are presented, so you need to know which answer is actually the correct one. For each question, I will provide the actual question as it is worded in the pool, and the possible answers that are part of the pool. I will tell you the correct answer, and try to explain why. For each question, the relevant section of the Part 97 rules (if applicable) is given. So,

here we go:

GENERAL

G1A01 [97.301(d), 97.303(s)]

On which of the following bands is a General Class license holder granted all amateur frequency privileges?

- A. 60, 20, 17, and 12 meters
- B. 160, 80, 40, and 10 meters
- C. 160, 60, 30, 17, 12, and 10 meters
- D. 160, 30, 17, 15, 12, and 10 meters

The answer is (C). Look at a band plan chart, or review 97.301(d) and 97.303(s).

G2A01 Which sideband is most commonly used for voice communications on frequencies of 14 MHz or higher?

- A. Upper sideband
- B. Lower sideband
- C. Vestigial sideband
- D. Double sideband

The answer is (A). Standard operating practice for phone uses upper sideband on frequencies above 10MHz. Other modes (such as RTTY or PSK31) can use the same sideband no matter what band you are using. This isn't part of the FCC regulations, it is the generally accepted use of the band.

G3C01

Which of the following ionospheric layers is closest to the surface of the Earth?

- A. The D layer
- B. The E layer
- C. The F1 layer
- D. The F2 layer

The answer is (A). The D layer is the lowest, at altitudes between 50 and 80 km.

It is present during the day when radiation is beaming in from the sun. Above the D layer, the next ionization level is called the E layer. It can be found at altitudes between 100 and 125 km. The E layer virtually disappears at night.

The most important layer for long-distance communication is the F layer. During the day it often splits into sub-layers we call F1 and F2. F-layer altitudes vary considerably and depend on the time of day, the season and the state of the sun. In the summer, the F1 layer may be at 300 km, with the F2 layer at 400 km or more. In the winter, these figures may be about 300 km and 200 km, respectively. At night, the F layer is generally around 250 to 300 km.

G4A01

What is the purpose of the “notch filter” found on many HF transceivers?

- A. To restrict the transmitter voice bandwidth
- B. To reduce interference from carriers in the receiver passband
- C. To eliminate receiver interference from impulse noise sources
- D. To enhance the reception of a specific frequency on a crowded band

The answer is (B). A ‘notch’ filter is named because if you plotted the gain of a notch filter with respect to frequency, at the frequency of interest, there would be a pronounced drop in the gain, which looks like a notch. If you are trying to listen to a weak station, and a strong station is near him, a notch filter on the strong station might allow you to hear the weak station better.

G5A01

What is impedance?

- A. The electric charge stored by a capacitor
- B. The inverse of resistance
- C. The opposition to the flow of current in an AC circuit

D. The force of repulsion between two similar electric fields

The answer is (C). Impedance is the combination of resistance (R) (which does not vary with frequency) and reactance (X) (which can vary with frequency). The magnitude of the overall impedance can be found by taking the square root of the sum of the resistance squared plus the reactance squared. The reactance of an inductor is $2\pi(3.14) \times \text{inductance value}$.

The reactance of a capacitor is $1 / (2\pi(3.14) \times \text{capacitance value})$

EXTRA

E1A01 [97.301, 97.305]

When using a transceiver that displays the carrier frequency of phone signals, which of the following displayed frequencies represents the highest frequency at which a properly adjusted USB emission will be totally within the band?

- A. The exact upper band edge
- B. 300 Hz below the upper band edge
- C. 1 kHz below the upper band edge
- D. 3 kHz below the upper band edge

The answer is (D). A single sideband voice signal is less than 3 KHz wide, so staying 3 KHz below the band edge keeps you legal.

E2A01

What is the direction of an ascending pass for an amateur satellite?

- A. From west to east
- B. From east to west
- C. From south to north
- D. From north to south

The answer is (C). Ascending is when the path crosses the equator from south to north, descending is when it cross the equator from north to south.

E3A01

What is the approximate maximum separation measured along the surface of the Earth between two

stations communicating by Moon bounce?

- A. 500 miles, if the Moon is at perigee
- B. 2000 miles, if the Moon is at apogee
- C. 5000 miles, if the Moon is at perigee
- D. 12,000 miles, as long as both can "see" the Moon

The answer is (D). The circumference of the earth is approximately 24,000 miles, so theoretically two points halfway around the earth (12,000 miles) could both have the moon in sight at the same time.

E4A01

How does a spectrum analyzer differ from an oscilloscope?

- A. A spectrum analyzer measures ionospheric reflection; an oscilloscope displays electrical signals
- B. A spectrum analyzer displays the peak amplitude of signals; an oscilloscope displays the average amplitude of signals
- C. A spectrum analyzer displays signals in the frequency domain; an oscilloscope displays signals in the time domain
- D. A spectrum analyzer displays radio frequencies; an oscilloscope displays audio frequencies

The answer is (C). Although, there are high-end digital oscilloscopes that can also function as a spectrum analyzer by computing the frequency spectrum of the displayed waveform using the Fast Fourier Transform (FFT) mathematical process on the digital data that the scope has captured.

E5A01

What can cause the voltage across reactances in series to be larger than the voltage applied to them?

- A. Resonance
- B. Capacitance
- C. Conductance
- D. Resistance

The answer is (A). Resonance is the frequency at which the value of the inductive reactance is the same as the capacitive reactance. If you know the value of L and C, the resonant frequency is $1 / (2\pi \times \text{root}(L \times C))$

That is all for this month. Let me know how you like this, and whether it is useful for you.

Area Happenings

FOURTH MONDAY – at 6:30pm, the Greensboro Amateur Radio Association have their regular monthly meeting at Captain Bill's Seafood & Steakhouse, 6108 West Market St., Greensboro, NC 27409. Please plan to gather at 6:30pm for dinner. The meeting is scheduled to start at 7:15pm

CLUB NETS:

SUNDAYS – at 7:30pm, the **Technical Forum** on the 145.150;

- at 9pm, the **GARA News and Information Net**. This net features *NewsLine* and is on the 145.150, W4GSO repeater. Roy Smith, N4BYU is always looking for net controls. Contact him if you would like to help.

TUESDAYS – at 8:30pm **The Triad SkyWarn Net** meets on the 147.225, K4ITL repeater, no tone required.

TUESDAYS – at 9pm, the **D-STAR Net** meets on 442.8625 (W4GSO B and Reflector 17C)

WEDNESDAYS – at 8:30pm, **The Guilford Amateur Society Rag Chew Net** holds their weekly net on the 145.250, W4GG repeater with an 88.5 Hz. tone. Jim Hightower, W4JLH is the net control.

THURSDAYS – at 9pm, **The Guilford County ARES Net** meets on the 145.150 repeater (100 Hz. tone).

OTHER ACTIVITIES :

FIRST MONDAY – **The Guilford County A.R.E.S.** monthly meeting is held at 1002 Meadowood St. off W. Wendover Ave, in the EMS building, beginning at 7pm.

THIRD MONDAY – at 6:15pm **The Guilford Amateur Society** holds their monthly meeting at Tex & Shirley's Restaurant in Friendly Shopping Center. Eat at 6:15pm and the business meeting begins at 7pm.

THURSDAY – at 11:15am, Greensboro Hams get together for lunch. Thursday lunch group is meeting at the K&W Cafeteria, 300 Forum VI Mall at Friendly Shopping Center. Talk-in is on the 145.150, W4GSO repeater with a 100 Hz. tone.

EVERY FRIDAY – at 8pm (approximately) Greensboro Hams get together for coffee at Starbucks at Edney Ridge Rd.

The W4VEC Testing Schedule Nov 2012 to Apr 2013

November 10, 2012

December 8, 2012

January 12, 2013

February 9, 2013

March 16, 2013

April 13, 2013

Location: #3 Centerview Dr,
Hickory Building,
Greensboro, NC 27407

Time: 9:00am

Contact: Glenda Nicholson

Phone: (336) 674-3810

E-mail: ag4nc@bellsouth.net

GARA REPEATERS

145.150 MHz - offset, 100 Hz. tone

442.8625 MHz. + offset, Digital D-Star



Greensboro Amateur Radio Association

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