

Alachua ARES/NFARC/NF4AC Clubs

MINUTES

November 10, 2021

Meeting held via ZOOM

Attendance: 22 (participant count on ZOOM)

Gordon Gibby
Susan Halbert
Leland Gallup
Dean Covey
Craig Fugate
Barbara KO4TWS
Wendell KN4TWS
Mike KD4INH
Mike WB2FKO
Jeff Capehart
Mike KD4INH
Dan D'Andrea KF4OJV
Amy KO4IDO
Ron Lewis KN4ZUJ
Jim Bledsoe
David Huckstep
Earl McDow
Dave Huckstep
Vann Chesney
Reid Tillery
Brad Swartz
Stewart Reissner

Introductions. From 1830 until 1859 when the meeting commenced. Although the July 2021 meeting was held in person at the Alachua County EOC (and via Zoom), the return of COVID made an in-person meeting inadvisable. Consequently, the November 2021 meeting was solely by ZOOM.

1. UPDATES ON BADGING NEW VOLUNTEERS; RESULTS OF EOC PLANNING.

Couple of people need a few things. 4 or 5 people have everything. Reid; Dean; Brett Wallace (except for EC001); applications from Barbara for ARES, Joe Macenzie KK4MAC; Amy, but nothing in addition. Asked Capehart for the list. Five year background check validity. Amy will get with W4UFL because she thought she had everything. Still unclear who exactly is fully up to speed for providing the names to the Alachua Emergency Management for purposes of vetting and badging.

2. APPROVAL OF OCTOBER 2021 MINUTES. October 2021 minutes approved. Badging and EOC/EMD requirements. AA3YB described the concept of new volunteer badges as tentatively agreed by ACEM program coordinator and AA3YB. The latter asked for help

preparing a mockup of the design using Microsoft Publisher which can be submitted to the ACEM. K4ZSW agreed to help AA3YB on Friday 12 November. AA3YB described the concept of operations for the Thursday November 11 Op Training Net...Simplex “weaving the simplex net.” Discussed the operation and secured 10 hams as participants, including Mr Dalton Herding of the ACEM. AA3YB will activate the EOC VHF station at 7:30pm and attempt to contact by simplex 146.55 each of the “registered” participant operators. The purpose of the training is to begin developing “ground truth” as to who can hear whom on the everyday VHF gear that would be available at their home locations should a totally disabling comms disaster occur (taking out the repeaters). Each participant asked to listen carefully and write down whom they can hear...and if they can hear NF4AC to respond to NF4AC even if NF4AC cannot hear. Write down all data because these are essential data points for mapping out a simplex network. Participants are the best keepers of their own data and should be strongly motivated to give this a good “blue sky” shot...in prep for when skies are very, very cloudy.

3. **ARRL TASKBOOK OPPORTUNITIES:** GARS volunteers for Veteran's Day and Santa arrival at Santa Fe College. Task book included public service and this is public service. Begins at 0700 and parking fills up. Parachutists and helicopter. GARS will have pop up canopy. Next event is December 4, which is out at Santa Fe field. We will be setting up between 0830 and 1300. Helo will bring in Santa. Need people to talk with kids, and the kids can talk via radio to Santa or Mrs Claus after arrival. Tomorrow's event: we will to use DMR, but we will also use simplex VHF. Sign up is NOT on GARS web site. Just show up before 0730.

4. **NOVEMBER EXTRA CLASS COURSE.** Friday evening, Nov 19, Saturday Nov 20, Sunday afternoon Nov 21. We have approval for teaching at the EOC. Elements are numbered somewhat weirdly. Volunteers sought for instructing the various elements:

Element 0, Safety: Earl McDow/Bledsoe backup
Element 1, Rules: AA3YB
Element 2, Operating Procedures: AA3YB
Element 3, Propagation: Jim Bledsoe KI4KEA
Element 4, Practices/Test equipment: TBD
Element 5, Electrical Principles: Mike Hasselbeck WB2FKO
Element 6, Circuit Components: Mike Hasselbeck
Element 7, Practical Circuits: KX4Z
Element 8, Signals & Emissions: KX4Z
Element 9, Antennas/Transmission lines: AA3YB

KX4Z showed how to find the ARRL questions and answer for the Extra Class test; we take the slides and modify them.

5. **DIGIRIG DIGITAL SOUND CARD INTERFACE.** Digirig.net this is the digirig mobile sound card interface. Requires USB-C. As cheap as our homebrew device and includes an aluminum case. This device, reviewed in the Nov 2021 QST, offers the possibility of very robust and inexpensive, and SMALL, digi sound card interface for any rig using audio to modulate data.

6. **LORA POSSIBILITIES FOR 915 MHz MESH FOR ALACHUA COUNTY EMERGENCY COMMS.LARITY PROTECTORS UPDATE.** LoRa. Dan D'Andrea, presented his efforts on this subject. Dan is a software engineer who has been a licensed ham since he was 18 years old. Has been working with DFU and folks at UF for access to roof at Beatty Towers. Node for LoRa on Beatty Tower will provide it is hoped coverage over a lot of

Gainesville. There is already a group that is working ad hoc on LoRa mesh nodes. This is emergency communications dynamic mesh technology using lo power. Low power and long distance communication, LoRa is a patented digital modulation technique. Trades speed for low power and long distance. Uses spread spectrum. Baud rates as low as 300 and potentially much faster. LoRa is used for “the Internet of things.” LoRa development has a strong DiY community. Operates on 915 MHz. 75wWatts of power in receive mode. Not licensed. 250 mW of power to transmit. Because of spread spectrum can reach down to -20 dB. Typical urban ranges 1-2 miles. 10+miles if LoS. Haven't done anything in town using long line of sight. The group is looking forward to this effort from Beatty Tower. Can be used if no internet. No infrastructure tie in needed. Do you need security? Anonymous, location/ad free? LoRa offers local community based network capability without smart phones and with anonymity. Talks about Waveshark, which is a “mesh flood” device of his prototype manufacture that has an algorithm that permits efficient node repeating. Meshtastic is a YouTube channel for information about LoRa. Dan wanted LoRa to be more like packet/TNC than smart phones. These are stand alone devices that don't need computers attached. Showed a map of a local NW Gainesville with 1000 hours of local LoRa operation. One of the links has 2.3mile leg. (Gainesville hacker space). That with such low power this link can work through all the obstructions of that leg (urban environment) is astonishing. Showed the Waveshark device. 2.4GHz BLE antenna. ESP32 microcontroller is heart. Built in 4000 mAh Li-Po battery with BMS. WiFi disabled on the BLE to keep the internet out. Raspberry pi hook up would allow a BBS. Waveshark has IoS and Android app devices. With the app it will find the nearest Waveshark device. Also PC compatible. Reid asked: what can you do with this? Potential price \$350. Hams in Rocky Mountains are trying it on 432 ism bands with longer range. MyIOTY is a competitor of LoRa using “telegraphing” instead of spread spectrum, with FEQ. Thought is that this might supplant LoRa. Project for Waveshark still in development, but (see following section) steps now underway to put up that all-important long Line of Sight node on Beatty Tower.

- 7. SITE VISIT TO BEATTY TOWERS TO REPAIR DIGIPEATERORA POSSIBILITIES FOR 915 MHz MESH FOR ALACHUA COUNTY EMERGENCY COMMS.LARITY PROTECTORS UPDATE.** Covid restrictions are done. Facilities person should call Susan Halbert next week to get permission to get on to the tower. Susan Hettel is the person in charge of permissions. Susan Halbert asks Dan D'Andrea to get in contact with her for permission so they can install the LoRa node. Could use legs of the mast, and not have to climb the tower. The DFU Beatty Towers digipeater station is down and it's probably a power issue. Visit will probably be on a Saturday.
- 8. JS8 CALL 24/7/365 CACHE STATION FOR ALACHUA COUNTY.** KX4Z and AA3YB talked the concept of a permanent “on” JS8 Call station to operate full time and act as a cache for local operators to send messages to others. Low power HF with low current draw so it can be a permanent non-RMS non Winlink “bulletin board” on HF. Consensus seems to be that the idea of a permanent “on” JS8 Call station is a very good one. Described the concept of a low current draw transceiver, low current draw computer (Raspberry Pi?), potential solar power with LiFePo4 batteries as main 12volt DC power, operating (discussion on this point by the group) on 80 meters. Wire antenna high in to a tree. All sited on AA3YB's property and AA3YB maintaining the station. Will press forward with concept development.
- 9. DIGITAL TRAINING AND NVIS UPDATE.** Reid K9RFT talked about his training of Barbara KO4TWZ in a library study room in a Gainesville library (Millhopper branch),

using acoustic coupling using Olivia and then across a parking lot using HT radios. Barbara has now got her feet wet in digital modes. Amy also up and running on digital modes. Brad Swartz has been using JS8 to leave messages with “the Weasel”. KX4Z talked about our group's goal is to get people well rounded so they can use different techniques for different purposes. Field Day builds skills by forcing us to learn new skills. K9RFT and NH2KW discussed their proof of concept for siting a low power VHF simplex phone station on the high point represented by the top of the P2 garage at North Florida Medical Center on the Newberry Road, just east of I-75 in the northwest section of Gainesville. NH2KW drove to be near the EOC and was able to easily connect with K9RFT on a simple VHF antenna. AA3YB was at the EOC simultaneously and confirmed that K9RFT (located on the parking garage) was able – with five watts! – to execute perfect copy simplex VHF phone, “as if he was in the next room at the EOC.” This demonstrated the adage that height of antenna is all-important for the line of sight VHF modes. One VHF/UHF station on such a high location offers great possibility as a key node in a much larger county simplex (or perhaps digipeater?) network than we had thought possible. Way to go, K9RFT and NH2KW!!

- 10. IPP SUSTAINABILITY.** Chainsaws! If you can't get out of your driveway you can't deploy. Roads may be blocked so we can't move around. KX4Z described the basics of chainsaw anatomy. Poulan makes an electric chainsaw for 50\$. If you have a generator and an extension cord you are good to go. Recommends electric chain saws because if you have a power source (generator, battery with inverter, cordless) you can operate. Avoid pinching the bar; cut with the bottom of the bar, not the tip! Make sure fresh gas.. Bar oil so the chain doesn't jam up. 3KW generator will start the Poulan electric. 50:1 gas/oil for 2 cycle gas. Brett and others stressed that modern 24v electric chain saws are much better for most uses than are gas generators.
- 11. UPDATE: GENERATOR VOLTAGE REGULATOR ADJUSTMENT.** Showed an image of an electric generator voltage regulator, and how he used his to repair his generator.
- 12. UPDATE: MIDDLE SCHOOLERS RECEIVER PROJECT.** Showed his receiver his students are building: even has Icom CI-V CAT controlE
- 13. FINAL: ALACHUA COUNTY 2021 SET AARIP APPROVAL.** KX4Z thanked Brett NH2KW for his work on massaging the SET AARIP. Asked for motion to change or motion to accept final for publication. Motion to to approve seconded. No discussion. Group unanimous approval of AAIRP.
- 14. ADJOURN** at 8:43 EST after discussion of a variety of subjects, including Rosemary's offer to host a Thansksgiving dinner for those interested.