

Alachua ARES/NFARC/NF4AC Clubs

MINUTES

December 14, 2023

Attendance: 13. Meeting held in person at the Queen of Peace Catholic Community; and via Zoom .

Gordon Gibby
Leland Gallup
Craig White
Susan Halbert
Eric Pleace
Vann Chesney
Manish Sahni (Zoom)
Dean Covey
Reid Tillery (Zoom)
Mike Hasselbeck (Zoom)
Jeff Capehart
Lorilyn Roberts
Rosemary Jones

Introductions. From 1830 until 1900 when the meeting commenced. The NFARC/NF4AC radio club met for this month in person at the Queen of Peace Catholic Community and via ZOOM.

- 1. INTRODUCTION/APPROVAL OF NOVEMBER 2023 MINUTES.** We had all participants identify themselves. November minutes approved.
- 2. PRESENTATION NOVEMBER SECTION HOURS.** Using the October hours, we are sort of in a middling pack for NFL Section's gathering of hours in support of our mission. Jeff Caperhart says that the numbers are misleading because all depends on reporting. We are 10% of the section; may sections are not filing reports, and many clubs do not report. Question: how the November Veterans' hours are being collected. The collecting engine doesn't allow one to see if others are reporting for the same thing.
- 3. ARES WINTER LUNCHEON.** All agree that this was a good time. Heartfelt thanks to Susan (Jeff's spouse) for organizing the event. An excellent event, and KX4Z prepared a good summary of all the things that the ARES group accomplished in 2023.
- 4. PART 97.1 TIME.** KX4Z highly recommends the ARRL Handbook as a way of learning some basic electronics. Having sensed a weakness in the masses, Gordon decided to teach some basic theory of electrics. For example, antennas radiate because there are varying charges on the wire, positive and negative, and this is how a electric field is set up. He showed how Hertzian analysis used. Electric field created by a separation of charges, and exerts forces on charges. Moving charges in electrical field generate electric force. Gordon explained what exactly happens with "current flow" in a wire – individual electrons do not "flow" from one end of a wire to another. And with alternating current the individual electrons just vibrate. Explained how insulation works: huge band gaps in conduction states – electrons don't jump to higher

states (“current flow”). Next: series and parallel circuits. Current through all of a series circuit must be the same, but the voltages at each point differ. If devices are connected in parallel, they all experience the same voltage, but have very different currents. Next topic: direct and alternating currents. Described the difficulties of demonstrating voltages in alternating current. We use peak to peak for AC because an “average” is useful. Root mean square (RMS) is a way of quantifying the heat value of various voltages. In the “old days,” power was measured as DC on the input. Nowadays, RMS is used to quantify output power...but this is a kludge and an approximation. Showed how current on output transistors are actually a combination of DC and AC. Same on the receive side with push pull. Oscilloscopes can actually show this. How does conduction work? Worked through the basic physics of Ohms Law, which depends on constants. We can actually predict what is going to happen with linear relationships. Ohms law can be applied to radio waves. The impedance of space is 477...think about. Ratio of E to I field is always 477 (ratio of volts to amps). Conductance is the reciprocal of resistance (hence, C equals Current divided by Voltage). By convention, we use an “artificial” term, “mhos” to describe conductance.

5. **HAGUE TOWER POSSIBILITIES.** Hague Tower is in northwest Gainesville. It is an amateur tower which is available for use. Ryan (formerly of the Alachua Sheriff’s Office radio shop) put three antennas up on this tower at the 60 foot level; one is available for our use. We are not certain, but we think it is a VHF antenna. Brad Swartz has found something similar in southern Columbia County. Question: is it worth our time to investigate frequencies right outside the amateur bands, that are available as SHARES frequencies? We believe that with SHARES licenses we could use them at the EOC operation, as well as at our shelters. So...VARA digipeaters using these frequencies could be used on SHARES VHF for encrypted comms from/to shelters. Our Go Box radios at the EOC require microsurgery on diodes to get outside the amateur bands and hence access those SHARES allotments. Baofengs can do this....so how do we do this? Use illegal Chinese Baofengs? Use commercial radios that are probably illegal to “tune”? The tower is owned by the County, but we don’t know for sure who/how to gain access. Susan suggest that we use this potential asset as a voice repeater antenna if the tower is high up, because this would get maximum bang for buck. So...many unresolved issues of access, status, authority to use, equipment that could send/receive the SHARES frequencies on VHF, etc. So, if we can use any of four Federal 2 m frequencies for VARA FM phone, do we use it for that? Use for another VARA FM digipeater?
6. **CLUB STATION OUTSIDE OF EOC.** The unused fire station in Jonesville has been sold. We have our EOC and that will continue. Suggestion: await the move of the EOC. If that works following the move, then the EOC continues to be our “club” station.
7. **EAST GAINESVILLE RADIO ASSETS.** The issue here is installing new antennas and growing new personnel in the eastern part of the county. It has turned out to be difficult to get personnel trained up as amateurs, who can be vetted by the local fire department. Reid was asked about getting folks licensed by January 27th of 24? He said no, but perhaps sometime in 2024. Reid put together a one hour presentation on use of amateur radio for emergency communications. He’ll present at a variety of locations. Use of GMRS for emergencies, and have one of amateurs monitor the GMRS repeater? AA3YB says that GMRS is a terrific resource, but no one uses/knows about it. A solution in search of a problem.
8. **EQUIPMENT BUILT BY THE ARES GROUP.** This included soundcard interfaces, baluns both 49:1 and 9:1, 1:1 choke balun. 4:1 Guanella balun. Generator trailer. Polarity protectors.

Go-Boxes Tower trailer. Bandpass filters. Tri/quad/quintplexors. Broadcast band filter. An amazing assortment of projects, most under the guidance of KX4Z.

9. **EOC WOES.** We have encountered resistance from Gainesville authorities concerning a proposal to install antennas outside the new EOC. KX4Z showed an overhead photo that illustrates what the building looks like from above. Showed a diagram of the antenna plan; HF antennas, VHF antennas, with tower/flagpoles/trees as the supports. Alachua EM seemed to believe that we wouldn't be allowed to have antennas (?). KX4Z went over the antenna justification. Overview: the county hired a commercial "antenna guy" to be the guru working this issue. Gordon submitted a proposal to him, describing what we do, and what kind of antenna systems would be needed. What would be needed for backup comms, not only amateur but also 800MHz law enforcement, fire and rescue, SLERS, etc. The new EOC location is the highest point in G'ville. KX4Z's submission described the HF needs for comms with adjacent counties and the state. The EM staff is telling us that we will not get permission. Gordon recited an hour long conversation with a person with the City Permits Office. Walked through the City Ordinances which did not at all deal with subjects other than cell phone towers – nothing for emergency services or things needed by the County. Gordon talked through some of the engineering considerations behind towers. Discussion of the permitting ordinance, which had nothing at all on emergency radio, but did indeed have something on amateur radio. The FCC issued an edict that required accommodation for amateur radio (PRB1, and it's in Part 97). Susan recited the cultural reasons that could be a factor in dealing with this issue. KX4Z showed how our antennas meet the requirements set out in the Gainesville ordinance. We'll see how this goes.
10. **WINTER FIELD DAY PLANNING/ANTENNA UPDATE.** Much progress. New balun has been purchased. We need a bug-free cold day to install the balun on the antenna that is behind the EOC. Quintplexor to be installed. LPF has been built and works okay. Band pass filters are being built or repaired. 80M band pass...Gordon ordered kit which should arrive on Dec 18. 40m...paintcan filter worked well. 30M bandpass: paintcan needs solder joint check; otherwise it works. 20M: Gordon and Wendell both ordered kits, which should arrive Dec 18. 15m: Gordon improved to a 2 section paintcan, and it works! 10M bandpass...paintcan is marginal, and Gordon/Wendell have both ordered kits which should arrive 18 Dec. 6m....should work off the 10m tap. It's even possible that we'll use our tower at the EOC if need be, Potential local contacts? Slow going on getting contact data for home participants,
11. **MFSK-16 PRACTICE.** Gordon asked folks to fire up their computers on FLDIGI, in the MFSK-16 mode. Demonstrated by using audio. He transmitted audio from his computer's speaker; participants would use their computer mics to hear the audio and – hopefully – decode. Point: needed mic and speakers to be right next to each other; and also need no ambient noise distractions. When would we need? For people who do not have/use sound cards. Such types include your typical FM user who doesn't use soundcards, etc.
12. **ADJOURN** at 20:51 EDT, 13 December 2023.