Alachua ARES/NFARC/NF4AC Clubs

MINUTES

April 8, 2020

Meeting online via ZOOM instead of in person at Gainesville Red Cross, 6th Ave NW and 16th St

Attendance: 21-22 (all participants not included in the names below...apologies to those not included)

Chris Carr
Judith Gardner
Larry Rovak
Jeff Capehart
David Huckstep
Mike Shaffer
Earl McDow
Tommy Boyd
Wendell Wright
Vann Chesney
Leland Gallup
Thomas Gause
Earl Sloan
Shannon Boal
Gordon Gibby
Susan Halbert
John Trites
Jim Bledsoe
Rosemary Jones
Craig Fugate

Meting called to order at 1900
Minutes March Meeting **approved**.

1. **INTRODUCTIONS.** First half an hour; then used Zoom's feature to see participants.

2. **ARES TASK BOOK SIGNOFFS AND COAX CONNECTOR SHOW AND TELL.** Jeff Capehart is the only one who can sign off on Level One. Bledsoe and Gibby can sign off Level Two: only the EC can sign off Level One. Gibby asked for everyone to hold up a coax connector that he/she has made and hold it up to the camera. Earl McDow was able to show that he'd done one. Gibby has to see the connector to sign off. Vann Chesney also showed. Wendell Wright soldered his. COL Huckstep had showed Gibby the ones he had done; by soldering. Shannon Boal showed his connector, which is soldered. Earl Sloan showed one by aiming the camera at the window. Six total able to show completed coax connectors.

3. **LOSSES FROM ANTENNA CLOSE TO GROUND.** Dr Gibby showed results of studies done a long time ago demonstrating antennas and their ability to radiate close to the earth. This is real date. Bottom line....get your antenna really really high up to get NVIS level close in.

Critical frequencies don't support above 40m. The data tends to disprove the conventional wisdom that a wire running horizontal to the earth at about 12' is good for lower band NVIS. Not so. For 20m it would be fine. Optimal height for 80m is ~55' for NVIS without excessive ground loss.

4. **ARDUINO MICROCOMPUTER INTRODUCTION.** Showed UNO, NANO, and METRO arduino-based board chips. Arduinos are perfect device sfor micro-controls. 8 on board a/d converters. The progrramming environments are free to download. There are examples with code built in that are free to use; every program has two parts. Set up and "pin mode" are examples of two simple codes for running simple on/off LED. Gibby showed code that he'd written to use an Arduino for the development of controllers for the emergency ventilator project in which he has been engaged. The integrated development environments makes it easy to write C-like code and identify errors in the coding. The open sourcing and the inexpensive nature of Arduinos means that many can collaborate quickly in development of projects.

5. **TOWER TRAILER SUPERSTRUCTURE UPDATE.** Mike Ridlon is not on this evening, so no input.

6. **APRS Update.** Vann Chesney, AC4QS. APRS stands for Automated Packet Reporting System. If you can do packet radio at your home station you can do APRS...the only thing you'd need different is some frequency. Operates at 145.390. With the software you'll see an icon on a map with your location and call sign indicated. APRS.fi is the URL for the APRS user to see all the APRS activity for the entire world. Besides home stations, tracker stations are used for operating mobile/portable. A tracker TNC and your radio will transmit positions, and this gets gated in to the world wide map tracker. For tracking really to be useful beyond a couple of miles, there has to be a digipeater to get the station from line of sight/couple of miles. Closest APRS digipeater gets 20 to 30 miles. Another station is an igate, or internet gate "out." An igate station is a APRS-equipped facility that then sends APRS info in to the Internet. When it gets a packet it sends the information through the internet to the APRS.fi website and anyone on the APRS network can see the location. Vann AC4QS uses APRSISCE/32 which is free and supported. Other APRS uses include, for example, messaging. APRS can be used for short tactical messaging to any other station you see on the APRS map. If your station is within range of an igate, then it can be put in to the APRS system to send email and WL (as is used in the WL check in net). Also possible to send an APRS message as an SMS text message to a phone. Vann used an APRS tracking map to explain the various icons and their meaning. APRS.org is a good URL for more detail on the APRS system. Vann Chesney's house is in the trees and not very good for an APRS digipeater; that being said a good additional digipeater would be far enough away from the one on the dental tower, and far enough from power lines to bring down power noise. So at KX4Z's urging, Vann AC4QS agreed to attempt putting up an additional digipeater station. More to follow.

7. **PCHANNEL MOSFET and AC BATTERY AUTOSWITCHER.** These are used instead of relays to build the ventilators (project Dr Gibby is managing as a volunteer step he and 200 others are doing to address the ventilaor shortage during the 2020 COVID pandemic). Pchannel MOSFETS are an "enhancement mode" device. When it turns on it has very low resistance. Better than a diode when it turns on. The gate is separated from the channel by a silicon dioxide separator; must be careful with static or the separator will be blown. Negative voltage on the gate will turn it on. Extremely low loss switching device. Very little heat created; small heat sink will support a switch that can allow for considerable current flow. Operation is like a relay

but is instantaneous with very low loss. So this is the beginnings of a battery switcher (for uninterrupted power supply). Arduino controls the Pchannel MOSFET to build a very inexpensive battery switcher and battery charger. Bottom line...ac current interrupted, battery switch in, and the user won't even tell. Could custom build a charger for you particular battery. Possible group project.

8. **ANTENNA TEST RESULTS: RAPID DEPLOY VERTICAL AND EFHW HIGH HANG.** Leland Gallup AA3YB described his experience with end fed half wave 8om antenna being hung in two different locations, and comparing that experience with operating a rapidly deployable vertical. New location has a 132' EFHW running almost entirely vertically in to a tree at about 90-100', limited horizontal run, but enough to get semi-NVIS; on the vertical, on the other hand, close in 75m NCS in Jacksonville could not hear AA3YB at all; while with the EFHW 80m hung as sloper or as quasi vertically with a 25' semi horizontal JAX can hear AA3YB without issue. New AA3YB operating station ("radio shack") is very low noise; startling difference with respect to original **location.** 49:1 balun and cheap wire will, if hung high in a tree will offer superb reception, low angle takeoff for DX, and low noise (if away from ambient domestic home noise generators). Recommended EFHW's with Dr Gibby's revised 49:1 baluns and inexpensive stranded wire as a way to go for low noise and very capable solution for both DX and NVIS operation.

9. **ARDUINO-BASED EMERGENCY VENTILATOR.** Dr Gibby showed video of the ventilator project referenced above. Valves originally made using parts such as bicycyle inner tubes; better ones now operate a million valve cycles without failure. Also showed the flow sensor device...only 2k of them in the entire US. Showed temp/humidity sensors that are vanishingly small...used as a sensor for the ventilator. 9 people today got liability coverage so that progress steps could continue. Showed his project management tables. Likely the production system will be used outside the US as a low cost ventilator system, because in the US there are likely to be enough ventilators to get us through this pandemic. A ventilator group Gordon initiated on 24 March is already up to over 1.5k messages since 24 March. "Everyone and his brother" are collaborating in the development of this device. Showed the FDA requirements, which are staggering in scope and breadth.

10. **GEORGIA RED CROSS EXERCISE**. Not much progress on an exercise, reports KX4Z.

11. **TECH AND/OR GENERAL LICENSE TRAINING DISCUSSION.** Looking for new teachers and new people to head up the project...someone new to be in charge of the program for organizing/managing the course.

12. **CORONVIRUS UPDATE NET**. Jeff Capehart discussed; showed a superb graphic set and the sources for real time updates on the state of the pandemic. He is the net manager for our local COVID 19 net on the .82 repeater. Done every day at 7:00pm. The net has a script, and others are encouraged to take over as NCS, and use the dashboard that Jeff Capehart screen shared. This is a "Gainesvill Florida COVID-19 Situational Awareness" dashboard which is live uupdated. On .82 repeater; looking for additional net controls. 30 minutes prep required....read news, collect stats. Deaths are a lagging indicator, but it appears from the new cases stats that FL is on the downward slope of the curve. Operators looking to sign off on their taskbooks as net controls can use this as an opportunity to get NCS time.

13. **GARS, ARRL, and NWS and miscellaneous**; Our EC, Jeff Capehart ,covered virtual meetings, SKYWARN classes are no online. JAX is running two dates in April for the training. Also went over some ARRL news. There is a section manager election so expect paper ballots in the mail. License testing; next on June 6th[t]. FCC does not offer online testing options, so wait and see to get clarity on whether testing can be done. The test date is on the GARS website. June 6 is the test scheduled, but this could be a moving target, since all VEC still require three VE in person and on site to conduct the testing. Field Day...no changes in the rules; you adapt to Field Day based on your environment. If EOC is in Level One they would not want us to be there. Can't do a club event if everyone is operating from home.

14. Meeting **adjourned** at 9:34 pm.