

## **ARES Meeting North Florida Amateur Radio Club**

December 13 2017

Wednesday

Unfortunately it appears I don't have a list of who attended. Sorry!

1. We started off with a brief soliloquy on TEAMWORK, and the 1st (bottom) pillar of teamwork according to Patrick Lencioni, "The Five Dysfunctions of a TEAM." The 1st requirement for an effective team is

TRUST.

The opposite of trust is when people maintain an exterior of INVULNERABILITY--refusing to allow others to actually connect with them, their strengths/weaknesses and the obstacles they are working to surmount in their assigned area of function within the TEAM.

In order to have TRUST between team members, people have to build up a history of FOREBEARANCE --- we "put up" with others' weaknesses and failures. That doesn't mean we ignore them, but we deal with others in a kind, loving manner to help all the team GROW so that the team becomes stronger and stronger.

2. We moved right into one of the best, most thoughtful and team-lead brainstorming sessions on the types of disasters we might face (the common & the uncommon, the mild and the severe) and then came up with multiple CORE CAPABILITIES that we felt were best to concentrate on THIS YEAR, and then we came up with a few possible "scenarios" as a result. I tried to keep quiet and there was excellent discussion!

Core Capabilities (in no particular order)

- a) Mobile Communication assets/skills -- VHF and HF
- b) Skills at using vacuum tube gear for EMP, to make longer-range comms out of county
- c) EOC comms out to the community (somewhat ill-defined)
- d) Becoming better known -- making our capabilities more known to possible clients
- e) Microwave capabilities
- f) Short message communications
- g) FEMA forms abilities to transfer (mentioned were FLMSG)
- h) Last mile communications
- i) Traffic sending ability -- discussed were voice, DTN, PSK31/ FLMSG

Scenarios (with an automatic inclusion of TABLETOPS as per Art Grant)

- a) WILDFIRE -- very big fire with neighborhood involvement, which would require mobile comms, photos (by multiple possible methods), and shelter opening
- b) TORNADOES -- possible multiple, possibly hitting a hospital -- involving Skywarn / weather reporting, deployment to EOC, shelter opening afterwards
- c) EMP -- specifically designating a TABLETOP for this one, discussing practical discussion of what would we really do in such an event?
- d) Also mentioned were doing a public demo at a mall and taking Traffic from the public.

3. I **\*\*FORGOT\*\*** to make specific mention the CHRISTMAS PARTY to which all are invited, at my house, Steeplechase Farms, just north of 39th avenue's end 4 miles west of the freeway, 300 yards north of there on County Road 241, Last house straight ahead FIVE PM til 9 PM --- inside, possibly with a small bonfire and marshmallow roasting if the winds are acceptable; do not HAVE to bring ANYTHING -- can bring finger foods / desserts ; we'll grill something here and there --- Hope to see you there.....these things force me to CLEAN UP THE HOUSE and for that reason Nancy likes them.....

3B. I explained the **FEB24 EMERGENCY SYMPOSIUM** and everyone there agreed to a Motion to have Alachua County ARES Co-Sponsor the event.

4. We then moved into BALUNS and lo- and behold most people hadn't read Part I or Part II over which I slaved so much --- so we did them on the fly on a dry erase board and people were grasping all kinds of advanced physics and electromagnetics and there was huge new understanding of lots of things that show up on General and Extra Class licenses --- and then everyone watched

#### 1:1 CURRENT BALUN FOR TRANSMISSION LINES

as we literally taped wires together, wound a 13 turn Type 43 Ferrite Toroid (FT-140-43 --- 140 mm outside diameter) -- and measured the series impedance an unbalanced current would experience --- HUGE IMPEDANCE at almost all bands --- series resonance destroys the effectiveness around 73 MHz (but good on all HF bands) Then we put a 50 ohm load on it simulating an antenna and measured its SWR --- OK up to about 15 meters and crappy above that, probably needed fewer turns than 13 .... or use the lower mu value of Type 61 material -- so we repeated the experiment with a balun made of Type 61 and it did slightly better at one end.

#### 1:4 VOLTAGE BALUN FOR FEEDING HIGHER IMPEDANCE SYSTEMS

THEN the coup de gras, we literally took the SAME TOROID and the SAME WIRES and rearranged them into an "autotransformer" with the windings in SERIES and Wow!! We had a 4:1 impedance transformer and sure enough it, turned 50 ohms right into 12 ohms (1/4) --- and when we put 200 ohms (off center dipole simulation) it turned it right into FIFTY OHMS and did so across virtually ALL HF HAM BANDS --- This is sometimes called a Routhoff balun -- voltage balun --- and we discussed a

bit the advantages of both and how using both together could be good.... lots of discussion of when these things were EVEN NEEDED and when you DIDNT NEED THEM (basically you need them if you are going to try digital)

5. MULTIPLE TYPES OF HF RIGS We then moved into demonstrating some of the Bitx40 ways of mounting (\$59 + \$10 shipping) 7 watt 40 meter (maybe 80 also) little rig --- discussed the now-available MULTIBAND BITX --- 10watts max at present, \$109 going to \$129 soon --- and then we fired up the VACUUM TUBE SB-100 THAT OUR GROUP REFURBISHED!! and Showed transmission into a lightbulb (dont' try this with a solid state rig -- but a vacuum tube rig handles it fine) --- and THEN we fired up a DIGITALLY SYNTHESIZED VFO made from a Raduino from the Bitx..

Link to SB-100 Specifications:<http://www.qsl.net/nf4rc/SB100Specifications.pdf>

*(this is also on our web page now--and YES, vacuum tube rigs DO consume an extra 100 watts or so of Filament power etc --- so they are NOT optimal for working off batteries(!) but when you transmit 100 watts out of a Solid State Rig it has to use about 200+ watts of AC power to make that 100 watts of RF (50% effic) and a vacuum tube rig will be using 300+ watts to do the same thing, so if you have generator power....there isn't that much difference at all. In BUILDINGS, radio power is generally a small part of the overall consumption of power....Not true if you are running off batteries and flashlights of course!)*

Turns out you apparently should have the Raduino TERMINATED INTO 50 OHMS when you turn it on....little demo screwup.....rebooted it and it was fine (no more wierd signals) --- and WOW! it gives PERFECT TUNING of the VACUUM TUBE rig on all bands..... and THEN we put the icing on the cake and connected up first WINLINK client software and then WINLINK SERVER software and had a computer controlled --- auto-frequency setting Vacuum Tube Radio right there cycling from one frequency to the next just like any WINLINK RMS server....

It being 9:15 we disbanded and there was wonderful teamwork loading all this gear back into my truck. As you can see.....we got an awful lot of stuff done!! We are tracking reasonably well along our "long term meeting plans" here: [LongRangeMeetingPlans](#)