

# Results of simplex testing at Waldo EOC

**The Goal of this test was to determine if VHF simplex could be used across our area.**

On Saturday, 25 November 2023, Mike Martell KK4KRZ, Tom Gause W4YGT, and Shannon Boal K4GLM conducted 2-meter simplex testing at the Waldo EOC. We tested two different radios and two different antennas to determine if VHF (146.550MHZ) simplex communication was possible from Waldo EOC to several parts of Alachua County.

Ham radio operators located in Newberry, Archer, La Cross, and Gainesville participated in VHF simplex testing. The operators operating from their home stations were;

Berry Nason KD0QIX	Gainesville
David Kaufman K9OBW	Newberry
Karyn Shander KQ4JBR	Newberry just north of the Town of Tioga
Eric Pleace KO4ZSD	Gainesville
John Troupe KM4JTE	Gainesville near North Florida Hospital
Dave Dockus KO4GGZ	Archer
Robert Hu	La Cross

Dave Dockus was the only operator (in Archer) that heard a transmission from Waldo EOC using simplex. However, the communication could not be duplicated. At no time did Waldo EOC hear any transmission from the test operators. We did test the antennas and radios using an HT in the building to make sure our radios and antennas were working both in receiving and transmitting modes.

Two antennas were used. The Waldo repeater antenna (vertical antenna about 40 feet above ground) and a 4 element yagi antenna (Vertical polarized about 25 feet above ground). Using antenna switches the two antennas were switched between two radios (Anytone 50 watt mobile radio and a Yaesu 25 watt base station).

Using the Alachua map in the Waldo EOC we determine the position for aiming the yagi antenna at the location of the test operators.

Some operators were able to communicate between their home stations using simplex. This data will be collected to determine possible improvements for home station antennas/radios. Also possible relay station locations.

## Lessons learned

1. Simplex communication on VHF band could not be accomplished with current equipment at the Waldo EOC to reach a large area of Alachua County.
2. Future testing needs to be better organized.
3. During testing the use of a repeater (146.820) should be used to broadcast the start of testing and what is being accomplished. Also operators can confirm if transmissions was received in real time using the repeater.

4. Since we used the Waldo EOC 2-meter base station we did not have a designated 146.820 radio for using the repeater during simplex testing. We tried using HT with the repeater but got mixed results.

## **What's next**

1. Further testing (possible involving other bands and non-ham band radios).

## **Suggestions, questions, and comments by the operators participating in the test are;**

1. Increase the height of the antenna at Waldo EOC. Possible hoisting a J-pole antenna to top of the light pole behind the Waldo EOC. This will add an additional 25 feet of height.

2. Conduct a test with mobile operators starting out at the Waldo EOC and driving away to see how far you can go before losing the signal.

3. Determine if a better 2 meter Yagi antenna would help.

4. Look at the possibility of establishing relay stations at certain points in the county.

5. Test other platforms for Simplex testing at the same time as we test VHF (HF, GMRS, CB etc.).

6. Have operators at their location (home, etc.) attempt to contact each other recording their results, antenna, radio, and power level.

7. Would it be possible to install relay stations on the west side of Gainesville, since many of us live there?

8. My HOA has restrictions on outdoor antennas in Newberry, and I will be relying on my portable J-pole for my HT for communication.

9. I'd love to test my GMRS radio to find out its range with my mag mount antenna. I know that the range won't be very far.

10. I like the idea of setting up a specific time like what you did for the testing. It would be nice that once we get this setup fixed, to have a small pocket sized laminated emergency protocol made for GARS members to keep with our station or wallet:

\*During Emergency have set times to broadcast, such as even hours from :00 to :30 (to conserve battery usage)

\* Designate a primary simplex frequency with a back-up secondary frequency (for high traffic volume)

\* Maintain a list of call signs/contacts by quadrant or area of town or outside city location

\* List GMRS call signs

11. In the event of an emergency, ARES and SARnet would be activated, but it still would be beneficial to be able to communicate between GARS members (Hams, GMRS, CB etc.) who live near by.