



2012 - SVHFS Conference

Antenna Range Operations

Intent:

Home-brew antennas are tested and compared to reference antennas of known gain and characteristics on a relatively "clear field" antenna range.

Results are expressed in dBd and reflect the relative performance of a submitted antenna to a reference antenna under similar conditions and in the same time frame.

Because of environmental factors beyond the control of the range operators, absolute gain, directivity nor elevation performance cannot be accurately determined.

Commercial antennas will be tested **only** if time allows after all home-brew antennas have been tested.

Organization:

1. A range will be assembled and used for 144-2304 MHz, where 'beam' type antennas prevail. It will be approximately 120-150 feet (36-45 meters) long.
2. If enough volunteers are available to organize, assemble and operate a second range covering the 3450-24000 MHz frequencies, test equipment will be made available for testing of 3450-24000 MHz antennas where 'dish' type antennas prevail. It will be approximately 10 feet (3 meters) long.
3. Testing will occur on both ranges simultaneously.

Test Frequencies:

144.200 MHz (2 Meters)	222.100 MHz (1.25 Meters)
432.100 MHz (70 CM)	902.100 MHz (33 CM)
1,296.100 MHz (23 CM)	2,304.100 MHz (13 CM)
3,301.000 MHz (9 CM)	5,651.000 MHz (5 CM)
10,368.000 MHz (3 CM)	24,100.000 MHz (1.2 CM)

Sign-in:

1. All antennas to be tested **MUST** be signed in on a registration sheet with the builder's name, call-sign, type, number of elements and whether they are of home-brew or commercial manufacture.
2. Commercial antennas can be submitted for measurement, but are **not** eligible for SVHFS antenna competition awards.



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Mounting an antenna prior to testing:

1. Mounting jigs will be provided to allow the antenna submitter to mount a 144 MHz-2304 MHz antenna for testing.
2. 3400-24000 MHz antenna submitters will be required to furnish their own mounts, source and reference antenna, and possibly feed lines for connecting to the signal source antenna and stands for holding the antennas.

Test Method:

1. Signal generator is set for stated frequency for the band to be tested.
2. Reference antenna is removed from its protective storage container.
3. Reference antenna is raised into position and a reasonable reference reading at the specified frequency is taken and entered into the spreadsheet. **DO NOT ADJUST THE SIGNAL GENERATOR AGAIN UNTIL ALL ANTENNAS AT THIS FREQUENCY HAVE BEEN TESTED.**
4. Reference antenna is returned to its protective storage container.
5. Submitted antenna's mounting jig is inserted into the mast and the mast raised into position.
6. A reading (using peak hold, if possible) at the specified frequency is taken and entered into the spreadsheet.
7. Mast is lowered and the submitted antenna and jig removed.
8. If there are more antennas to test at this frequency, return to step 5.

Dismounting an antenna after testing:

1. Remove the submitted antenna from the jig and place the jig in the staging area.
2. Remove the antenna from the antenna range area.

Test Results:

1. Results of the antenna competition will be available after all measurements have been completed.
2. Submitters whose home-brew antennas have the highest gain as compared to the reference antennas on each specified frequency will be recognized at the SVHFS conference banquet.
3. Results of this year's antenna competition will be published in next year's SVHFS conference proceedings.