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To: EDGES Group

From: Alan E.E. Rogers

Subject: Initial Test of EDGES-3 antenna S11

The EDGES-3 system was tested on a 10×15 ft metal ground plane as in memo 166 on the concrete pad near the Haystack 37 m antenna. Figure 1 shows the measured S11 which was made with box separation of 1.4” and pipe length of 20.5”. The measurement was made without any adjustment of the separation. Furthermore, the pipe length of 20.5” was based on early FEKO simulations. Figure 2 shows the FEKO simulation results for 1.4” separation and 20.5” pipe length (thin line) and for 1.6” separation and 13.5” pipe length (thick line). Another check may be performed, in any event the shorter pipes will be made available for any deployment. Figures 3 and 4 are photos of the interconnection between antenna boxes and EDGES-3 on the concrete pad. The S11 was measured and calibrated using the internal Fieldfox VNA built into EDGES-3. See memo 300 for details of the EDGES-3 prototype.

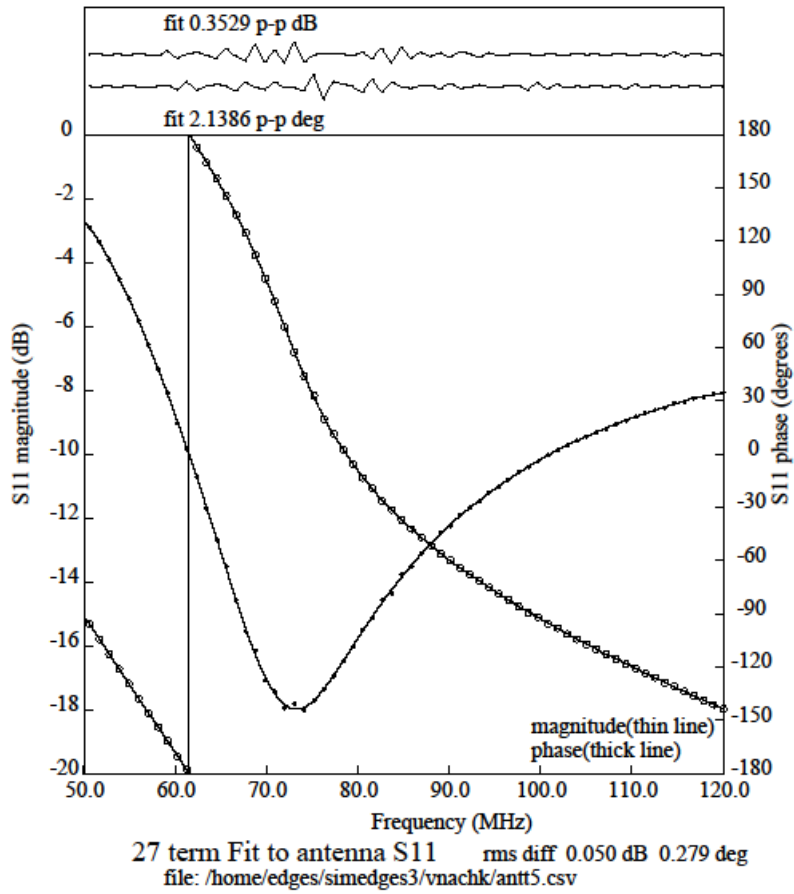


Figure 1. Measured S11 of EDGES-3 prototype.

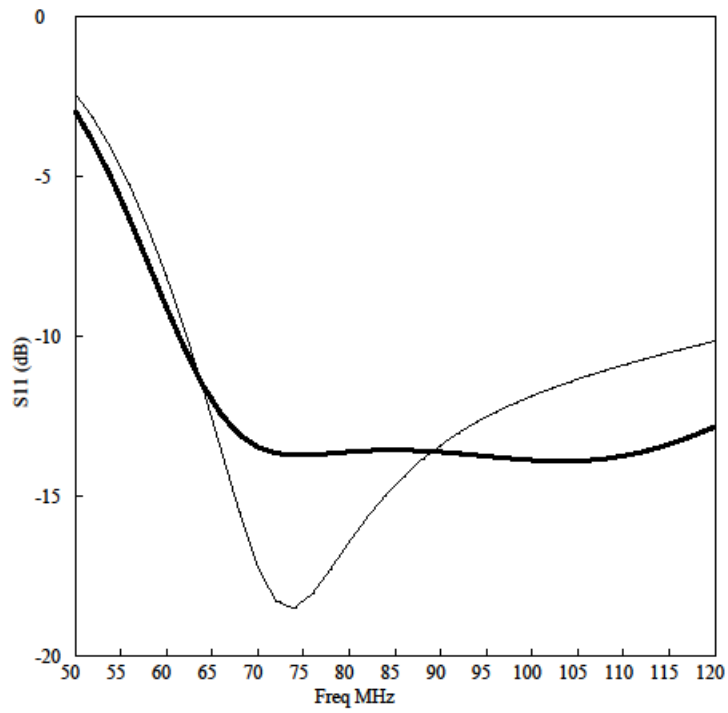


Figure 2. FEKO simulations of antenna with 1.4" box separation and 20.5" long pipes thin line and 1.6" separation and 13.5" long pipe thick line.



Figure 3. Connection to receiver.



Figure 4. EDGES-3 S11 test at Haystack.