# Radio Station WCAI
# Woods Hole, MA

**Dielectric LLC**
**May 15, 2014**
**Prepared by: David Schlegel**
**Senior RF Technician**

# Introduction

The following statements and attached exhibits have been prepared to document the performance of the WCAI antenna with the addition of the WMEX 7/8” antenna cabling added to the tower to meet Form 302 FCC requirements.

An azimuth pattern similar to WCAI was measured in the following manner. The antenna was measured with tower information provided. A 7/8” cable was added to the inside of the 20 degree leg and a pattern generated. An additional pattern was generated after moving the same 7/8” cable to the inside of the 140 degree leg. The 140 degree leg location showed the least amount of change in the pattern. Both patterns showed a negligible change.

A single 4.4 to 1 scale model “DCRH” bay radiator was mounted on a similarly scaled model of the tower according to information provided to Dielectric by the customer; refer to Dielectric Document. The antenna under test, all parasitics, all known tower appurtenances, and the tower section were rotated through 360 degrees while receiving a signal at the appropriate frequency from a linear cavity-backed source antenna. Both the horizontal and vertical polarization azimuth patterns were measured in an anechoic test range.

The transmit and scale model antennas are mounted at identical elevations and at opposite ends of the chamber. A Hewlett Packard model 8753ET network analyzer was used to supply the RF signal to the source antenna at 4.4 times the fundamental FM frequency and to receive the signal intercepted by the antenna under test. The received signal was converted to a relative level, referenced to the source. This level was stored on a computer acting as the master controller. The computer controls the measurement system via IEEE-488 control bus through a GPIB card.

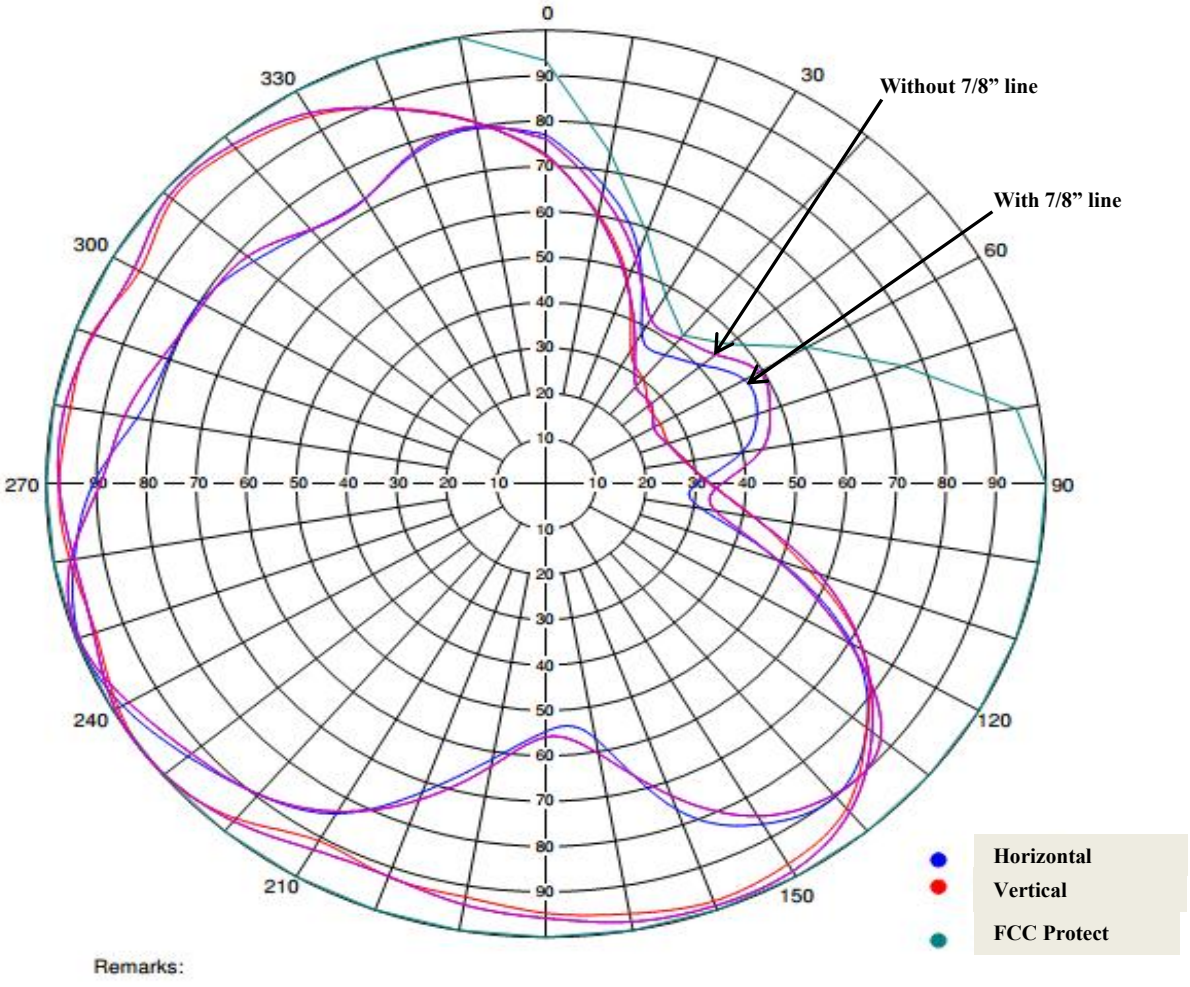
Date May 14, 2014
Call Letters WCAI
Location Woods Hole, MA

Antenna Type DCRH2E

## AZIMUTH PATTERN

Calculated / Measured **Measured**

Frequency **90.1 Mhz**
Drawing #




Remarks:

**Horizontal and vertical polarizations with and without additional 7/8" line. Measured with the 7/8" line added to the inside of the tower leg at 20 degrees**

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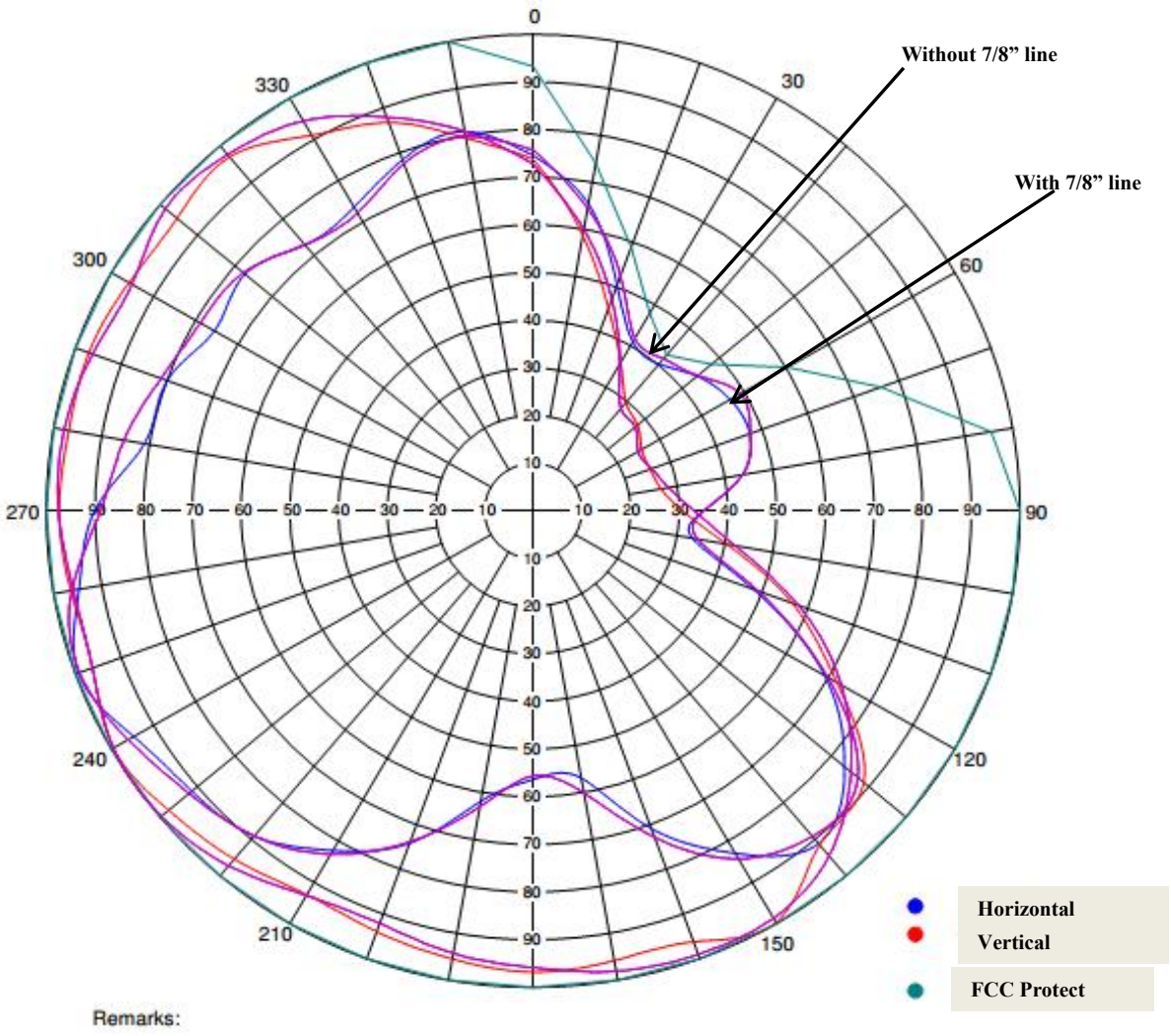
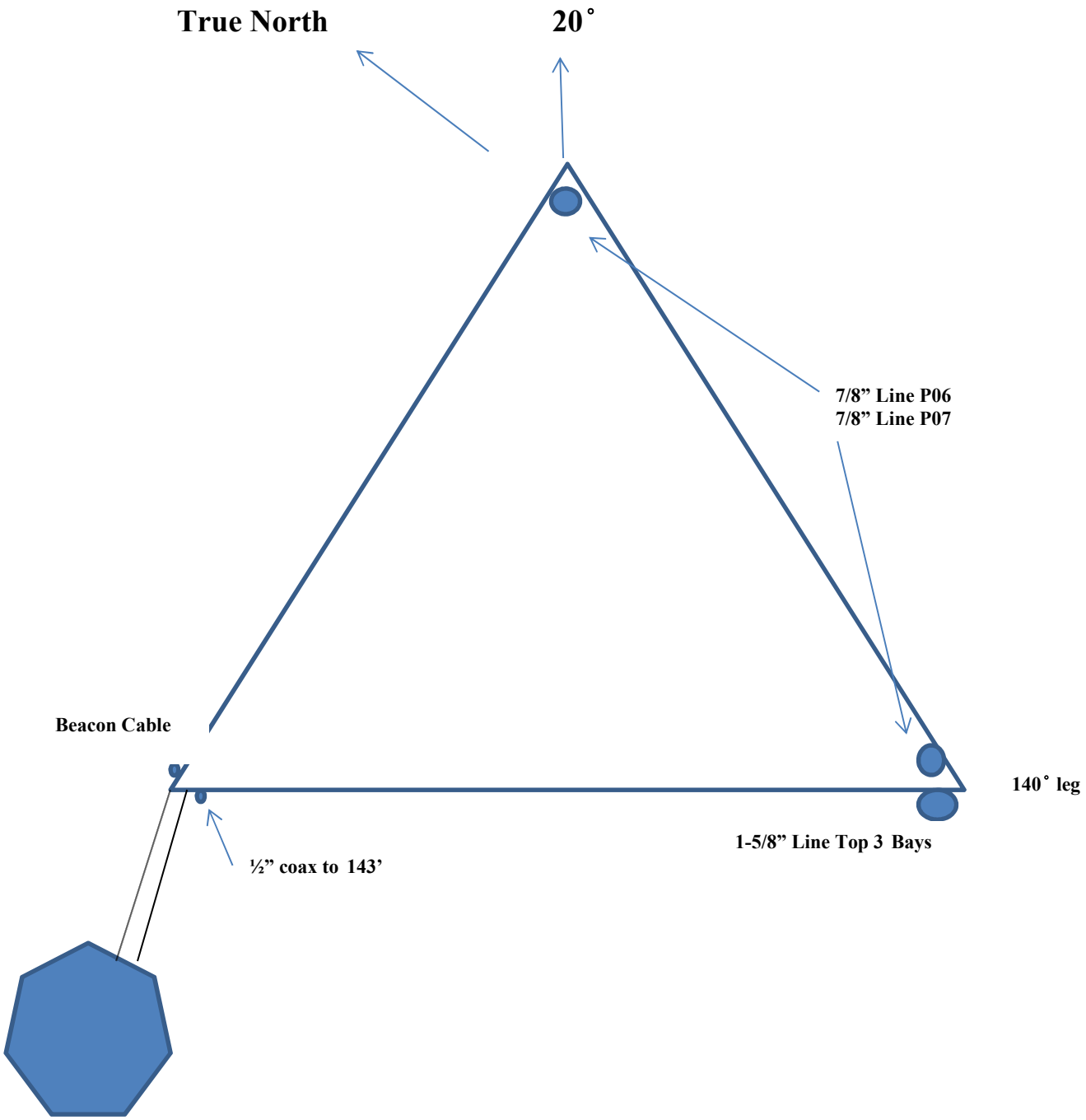



Remarks:

**Horizontal and vertical polarizations with and without additional 7/8" line. Measured with the 7/8" line added to the inside of the tower leg at 140 degrees**




**Sketch showing where 7/8” line was installed for tests**

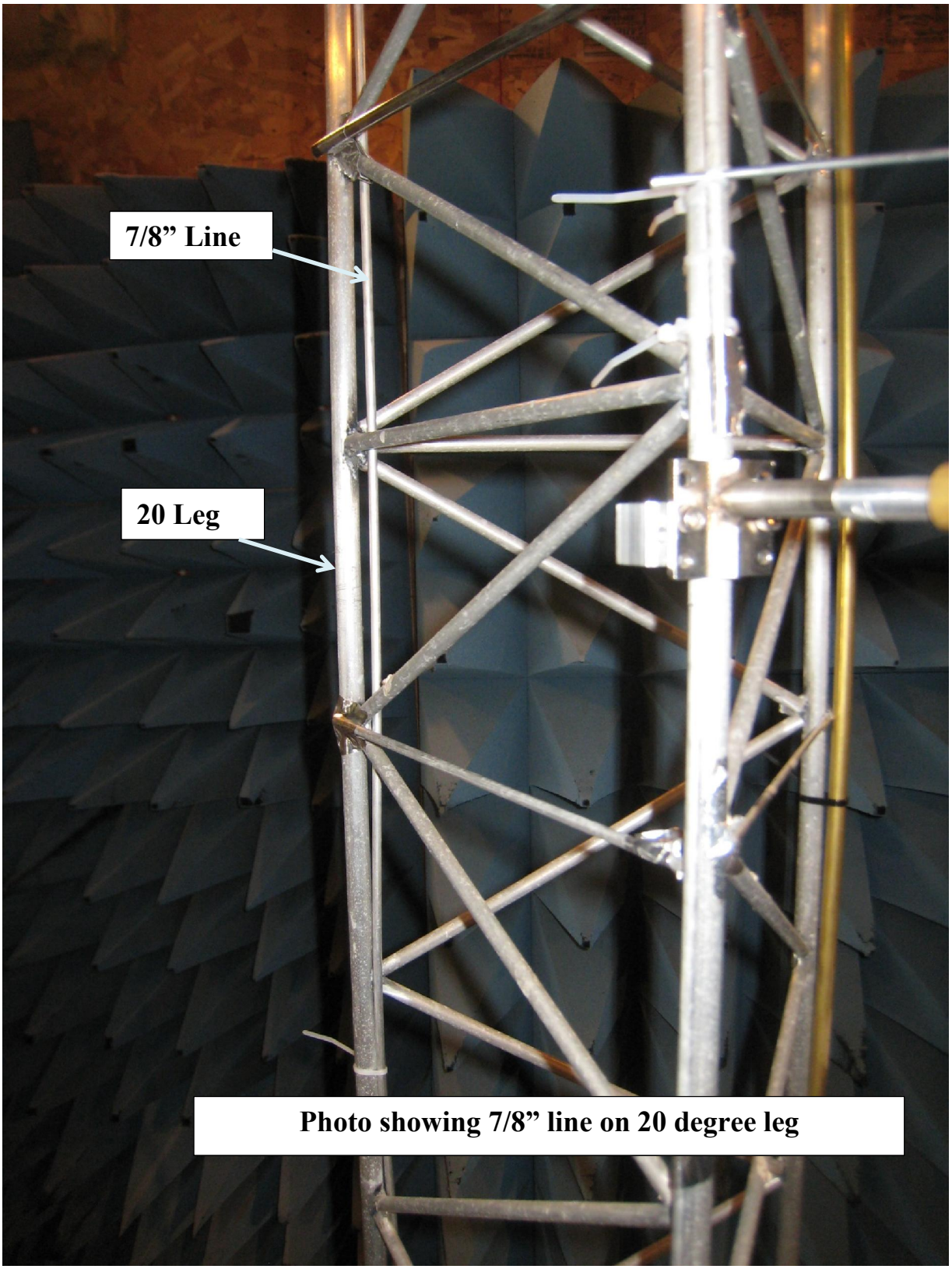



Photo showing 7/8” line on 20 degree leg

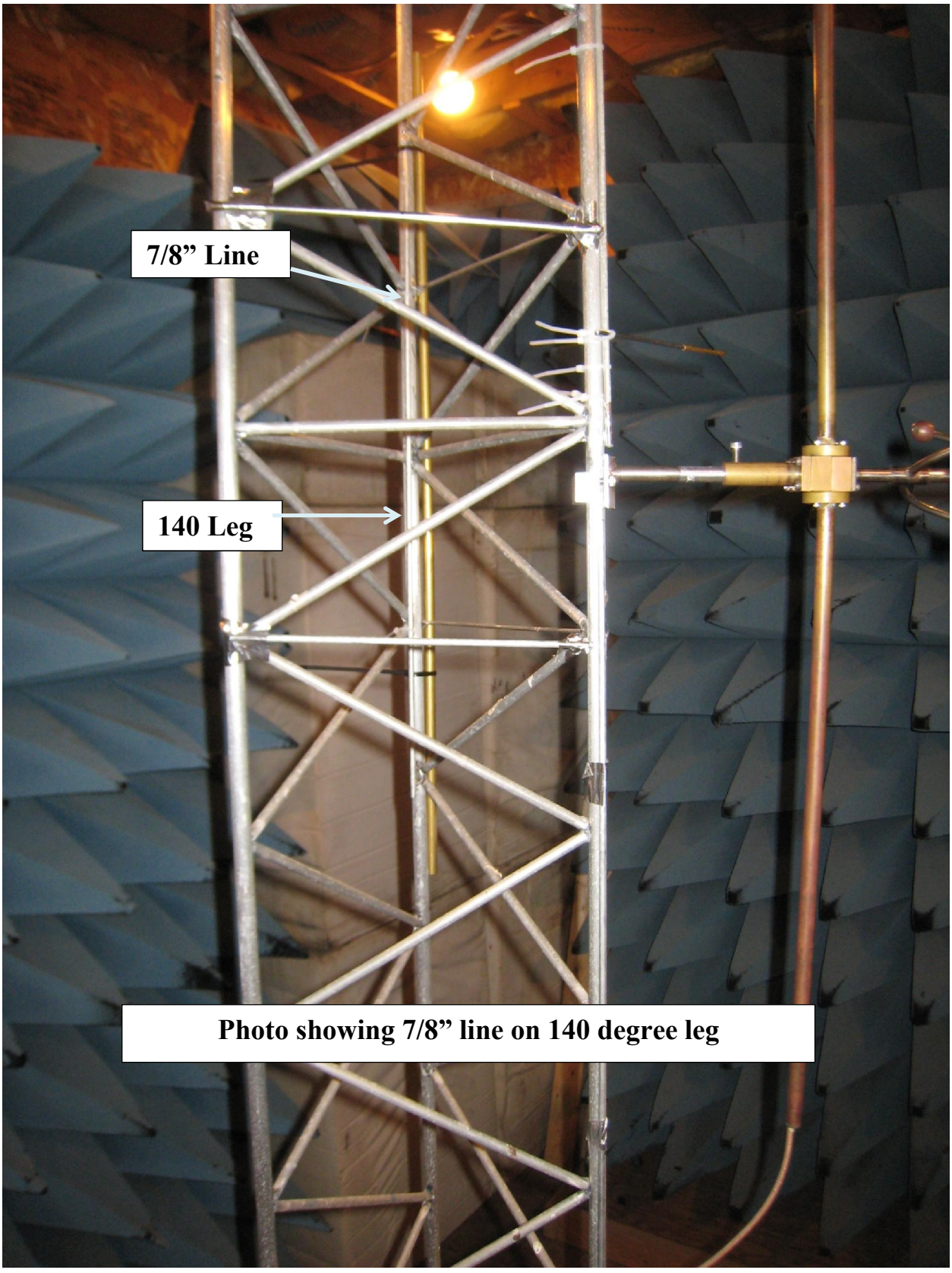



Photo showing 7/8” line on 140 degree leg