TeraHop RSI-290 Series Antenna Plots

An Agilent 8714ES Network Analyzer was used in S21 mode, with the product test
antenna connected to port 1, and a broadband log-periodic antenna (source), spaced 1 m
away, connected to port 2. A reference dipole, well matched at 2,450 MHz, was initially
mounted in place of the test antenna to calibrate the path setup prior to measurement.
The antenna was evaluated in three planes of rotation. Figure 1 illustrates the orientation
of each plane. Note semi-rigid coax attached to BT antenna and passed through
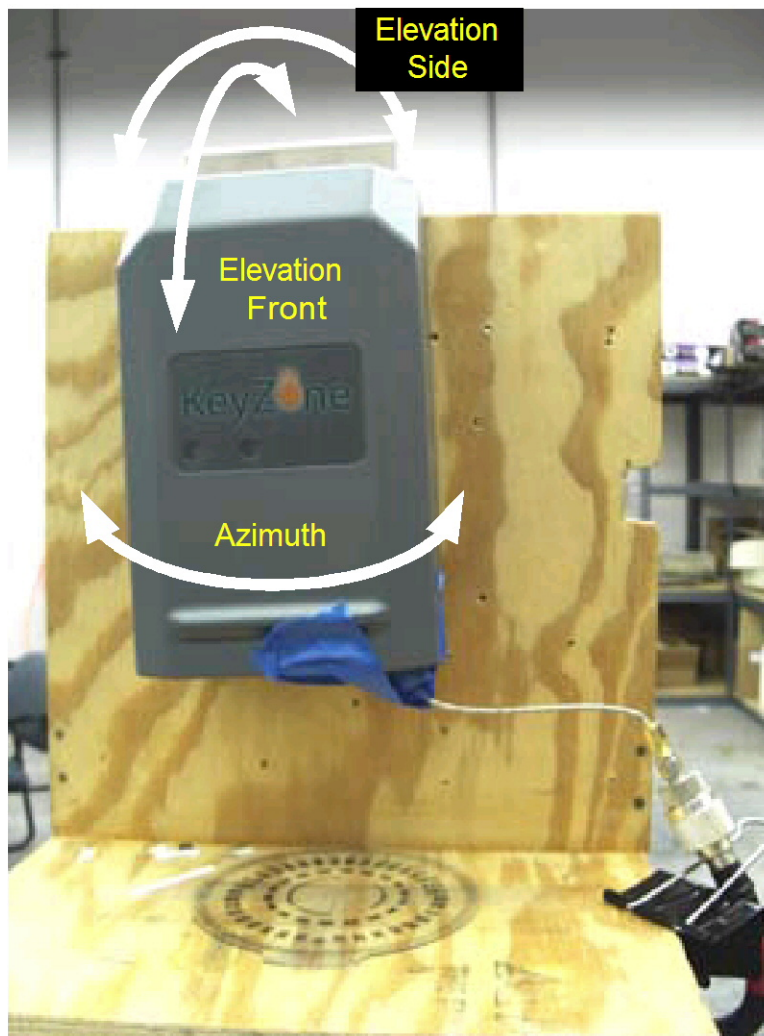decoupling bead for these measurements.

Figure 1 Antenna Polar Plot Orientations

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Figure 2 Attachment of semi-rigid coax to board and antenna, prior to mounting in RSI-290 case.

Figure 3 Ferrite decoupling bead on coax, bottom view of RSI-290 case.

Figure 4. Mounting for azimuth measurements

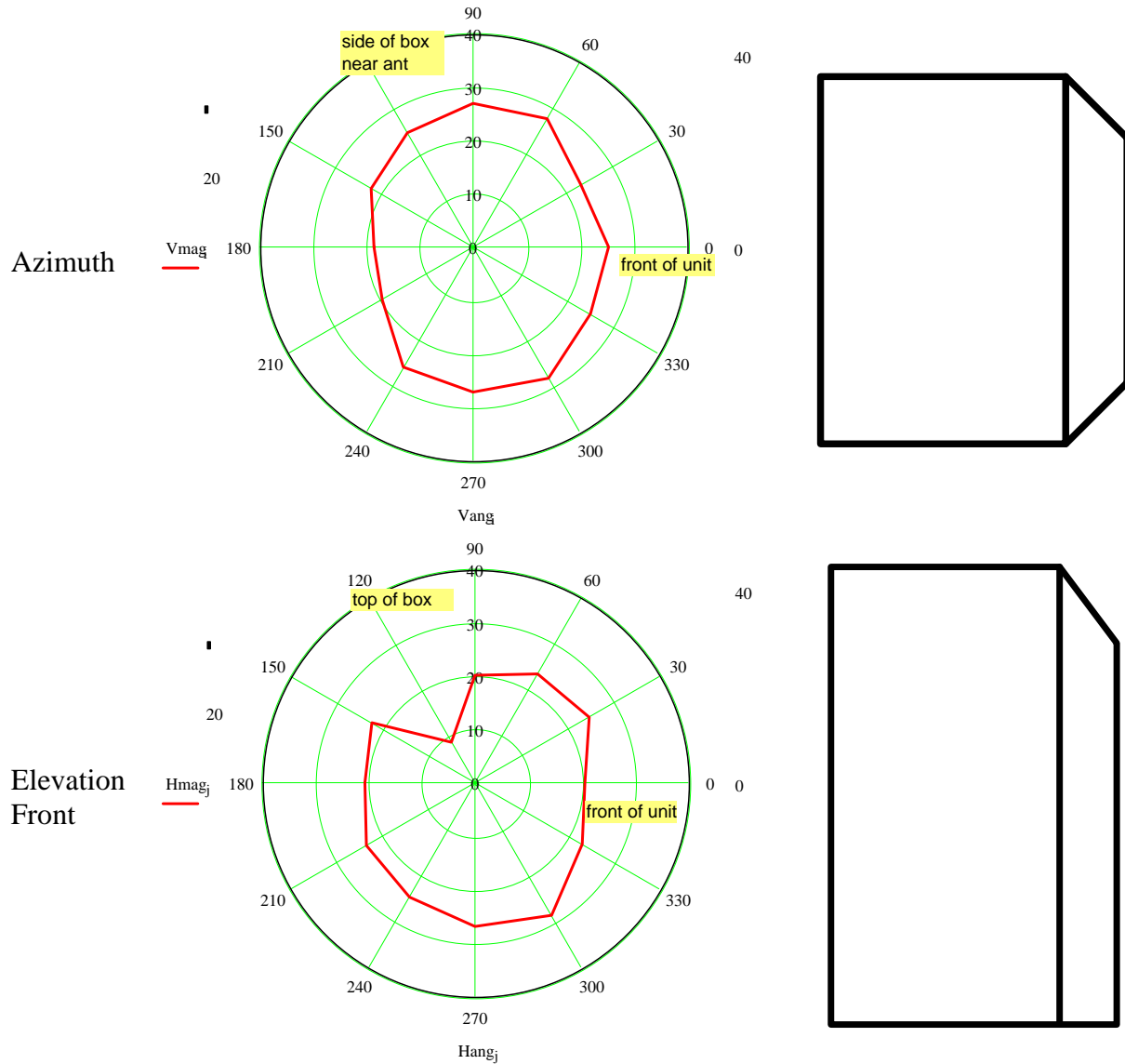Figure 5 Mounting for front elevation measurement.

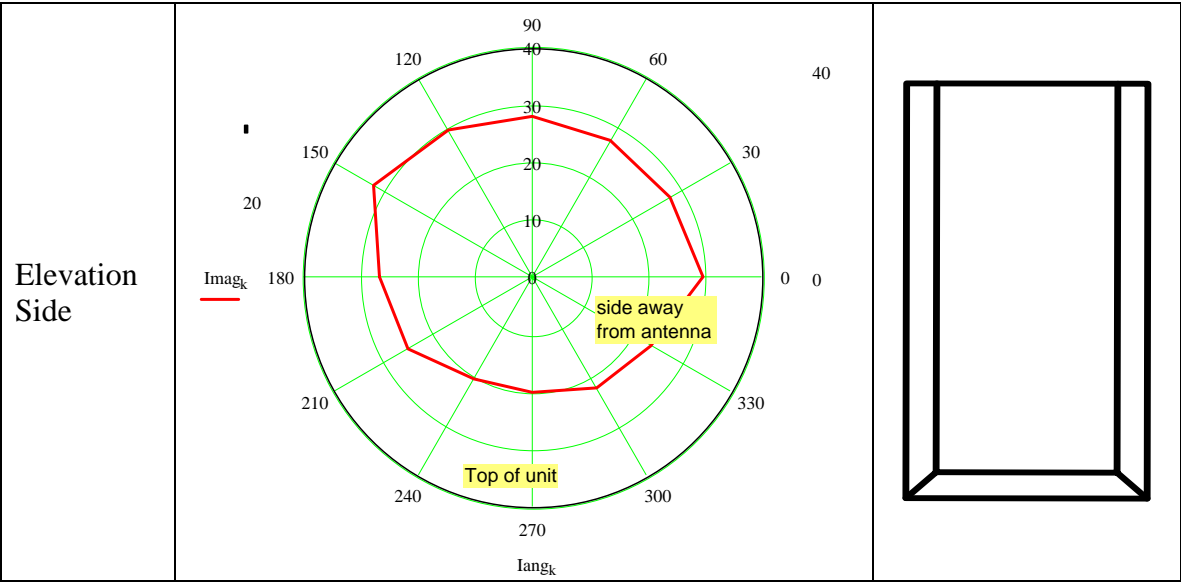Figure 5 Mounting for <u>side</u> elevation measurement

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Polar radiation pattern plots were generated for each axis of rotation. The rotation direction is defined relative to the antenna drawing next to it. Data points were collected at 30° intervals of rotation. The 30 dB line represents the level of gain produced by a reference dipole – this is the 0 dBd reference line.

290 Blue Tooth Antenna, 2.4 GHz Patterns

Azimuth

Vmag

side of box near ant

front of unit

Vang

Elevation Front

Hmag_j

top of box

front of unit

Hang_j

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290 Blue Tooth Antenna, 2.4 GHz Pattern
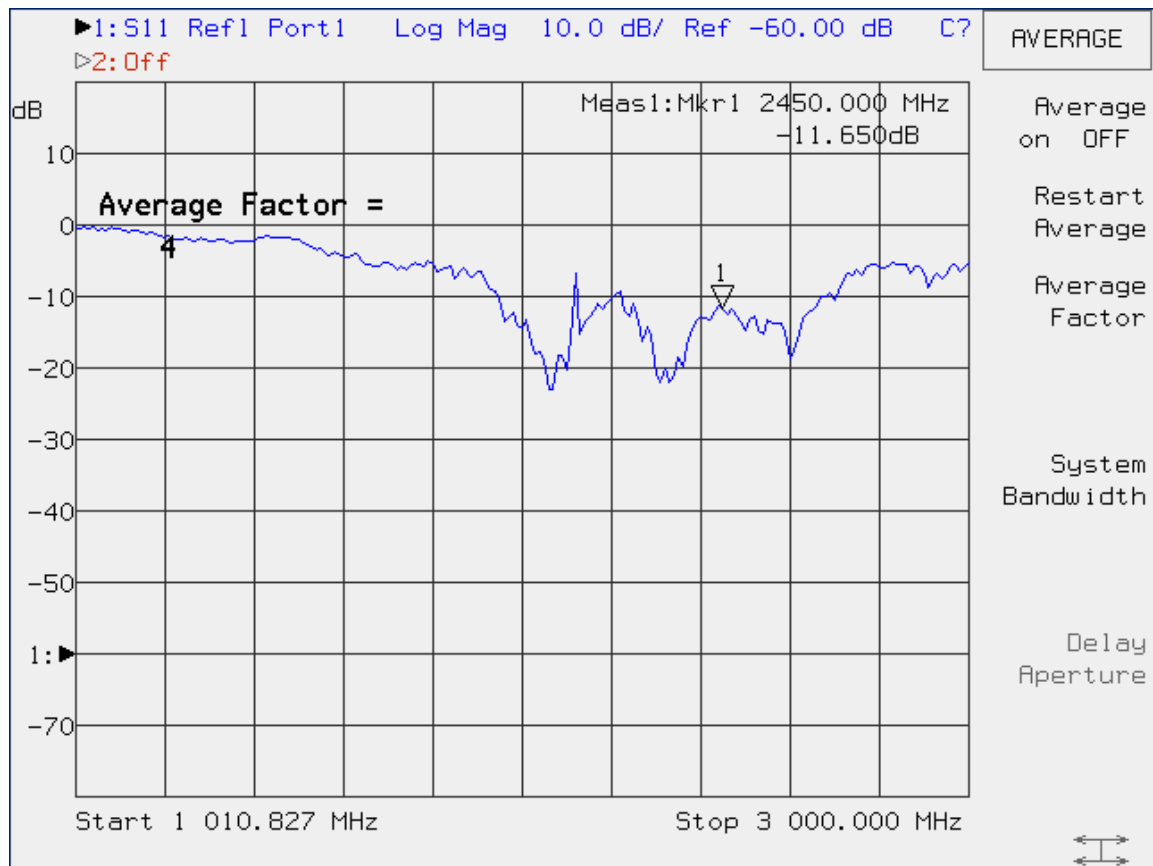
| Elevation Side | | |

Figure 5. BT antenna return loss network analyzer S11 plot – Azimuth Setup

Antenna Gain

Highest gain in any orientation measured is 2.0 dBd, measured in Elevation Side plane at 150° position.