

Genesis AI Custom wireless CIC Antenna Description

The Bluetooth 2.4 GHz antenna is a center fed monopole.

The peak gain of the antenna in the assembled DUT is -4 dBi.



Figure 1 2.4 GHz Antenna (scale in mm)

Antenna shown on faceplate before hearing aid is removed from excess plastic around faceplate and custom case molded to patient ear canal is placed on it. Half of antenna shown above faceplate in photo, other half is wire below faceplate.

Date of antenna pattern measurement: April 18, 2023

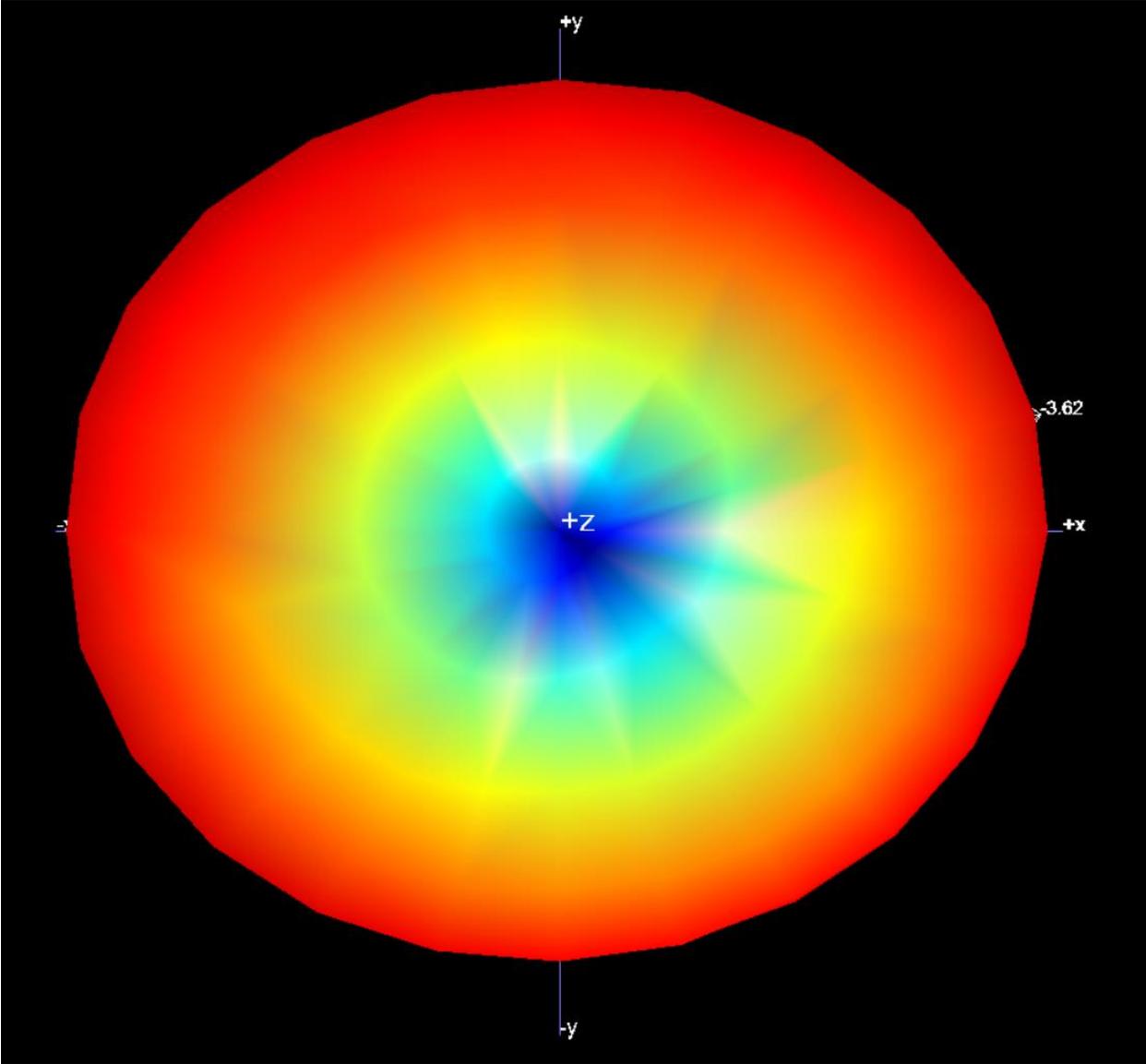


Figure 2 Hearing Aid Antenna Pattern

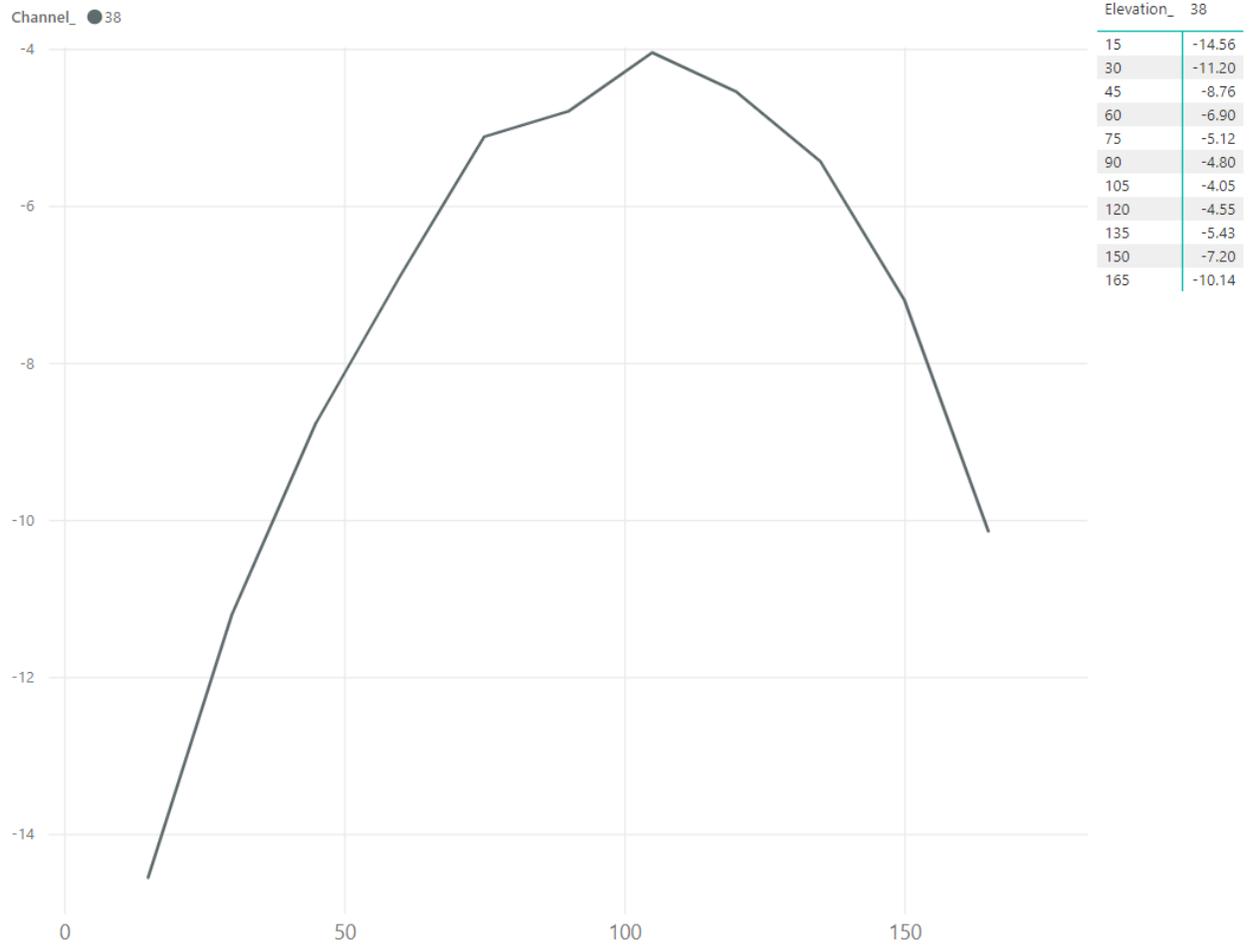


Figure 3 Hearing Aid Elevation cut @ 0 degrees from X axis. Scale in dBm

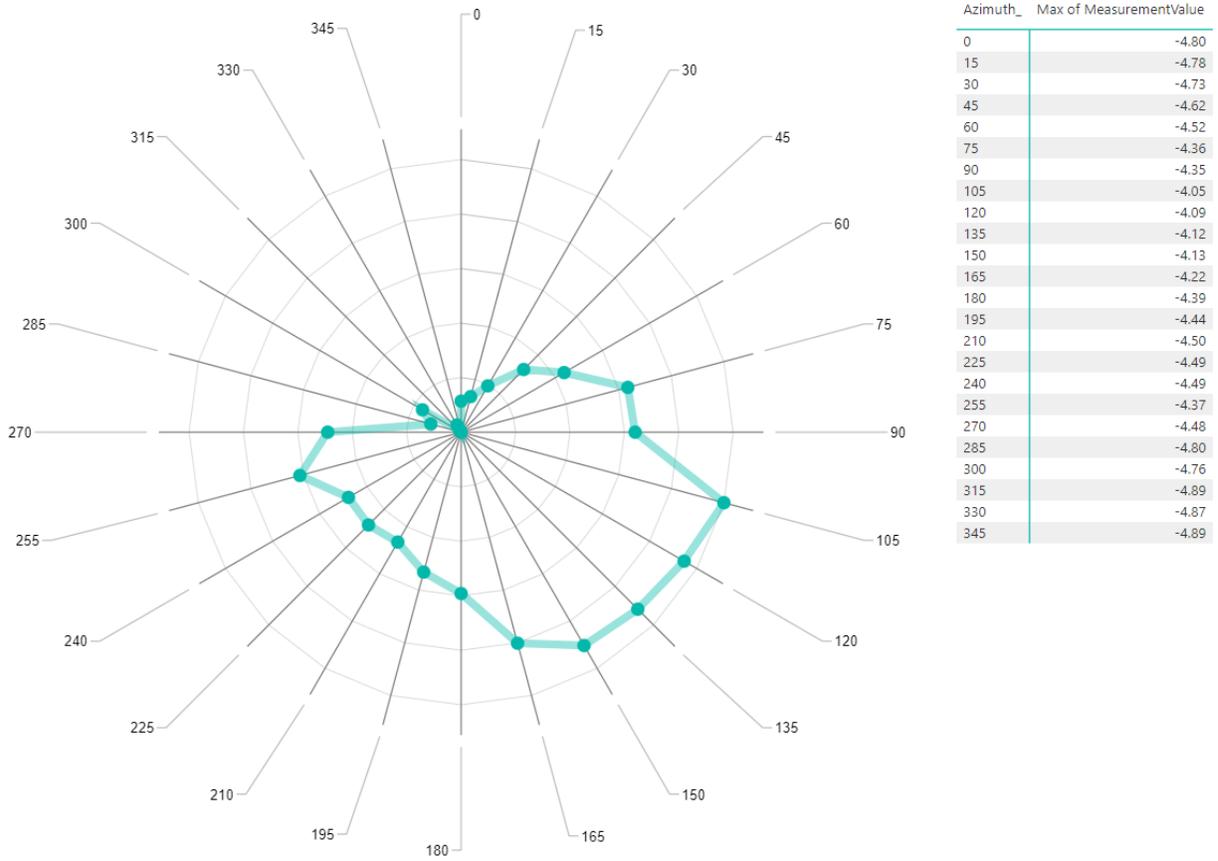


Figure 4 Hearing Aid Antenna Azimuth Cut @ 90 degrees from Z axis. Scale in dBm.

Antenna Pattern Measurement Information

The antenna pattern shown in Figure 2 was measured using a MVG SGL24L antenna test system, serial number ATL0232S located at Starkey Laboratories, Inc., 6600 Washington Avenue, South, Eden Prairie, MN 55344 System was calibrated on September 9, 2021 and September 16, 2022, due for calibration in September 2023.

Signal levels were measured using an Agilent N9020A MXA Signal Analyzer (Spectrum Analyzer). serial number MY50410289, calibrated on July 19, 2021 and October 26, 2022, due for calibration on October 31, 2024.

The antenna pattern plot in Figure 2 is generated by the SG24L test system software.

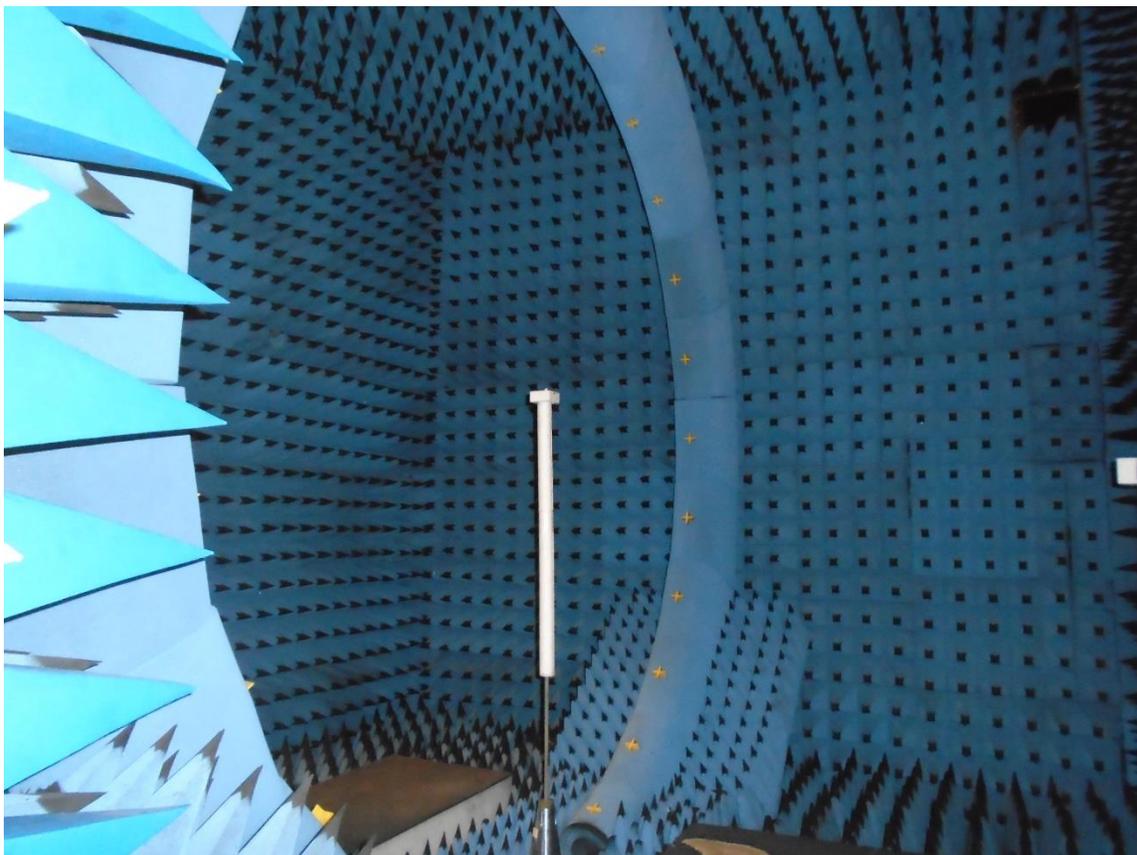


Figure 5a Overall view of SG24L test chamber, showing ring of receiving antennas

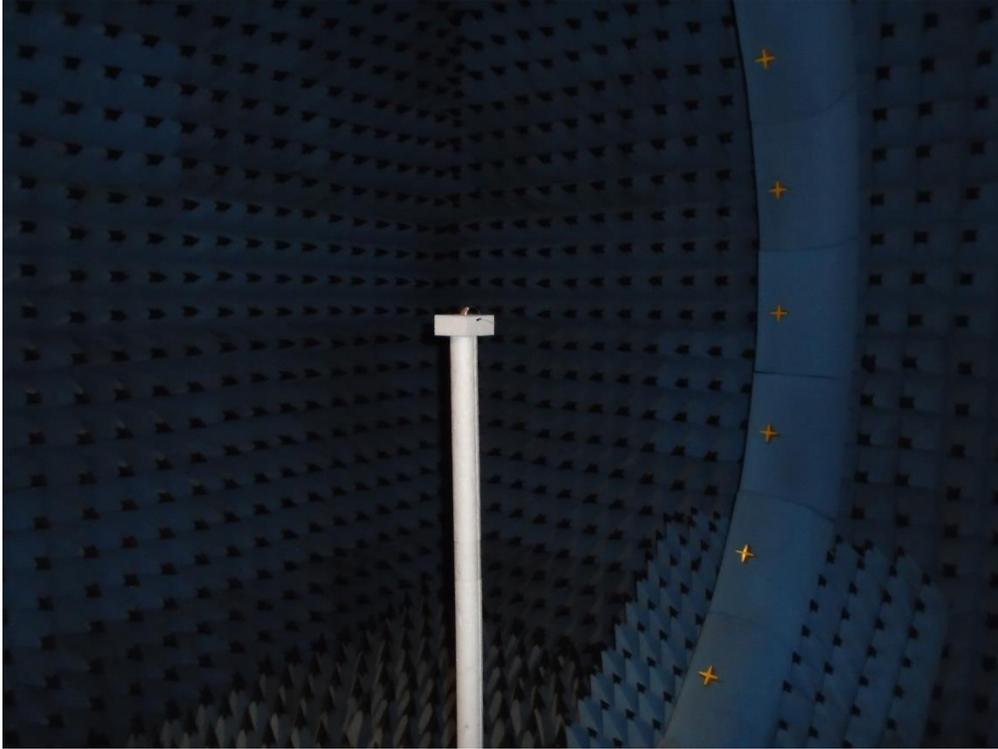


Figure 5b Test stand in SG24L test chamber



Figure 5c close-up of unit under test in test chamber

Antenna Gain Measurement Information

The MVG SGL24L antenna test system runs internal scripts that yield the maximum EIRP from each radiated power measurement. From there, the following equation could be used to calculate the antenna gain in dBi.

$$\text{Max Antenna Gain} = \text{Max EIRP} - \text{Power at antenna pads}$$

Where,

$$\text{Power at antenna pads} = \text{BLE Chipset Power Setting} - \text{Simulated PCB Insertion Loss}$$

Subtracting the conducted power at the antenna pads from the EIRP value, yields the antenna gain as follows:

- Max Antenna Gain = -4.0 dBi