

Cascadia RF Antenna Specifications

1.0 Summary

This document covers the Cascadia C25 and CMT antenna specifications required for regulatory documentation. Cascadia C25 is a DECT base (FP) device and the CMT is a DECT handset (PP) device. The antenna specifications included in this document are:

- Physical Description
- Frequency Range
- Antenna Gain
- Antenna Pattern
- S11 measurements (Log Mag, Impedance, SWR)

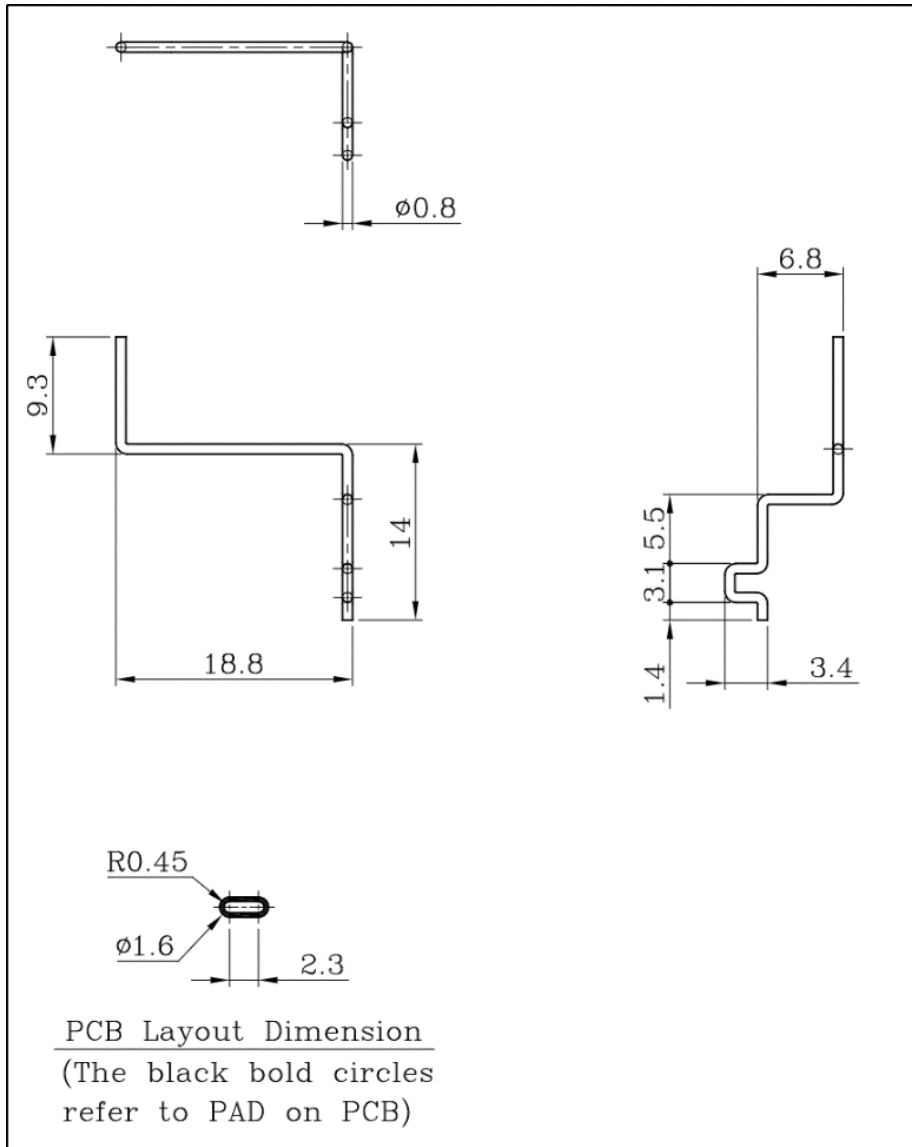
2.0 CMT Antenna Specification

The CMT is a DECT PP device and uses a single monopole quarter wavelength wired antenna.

2.1 Physical Description

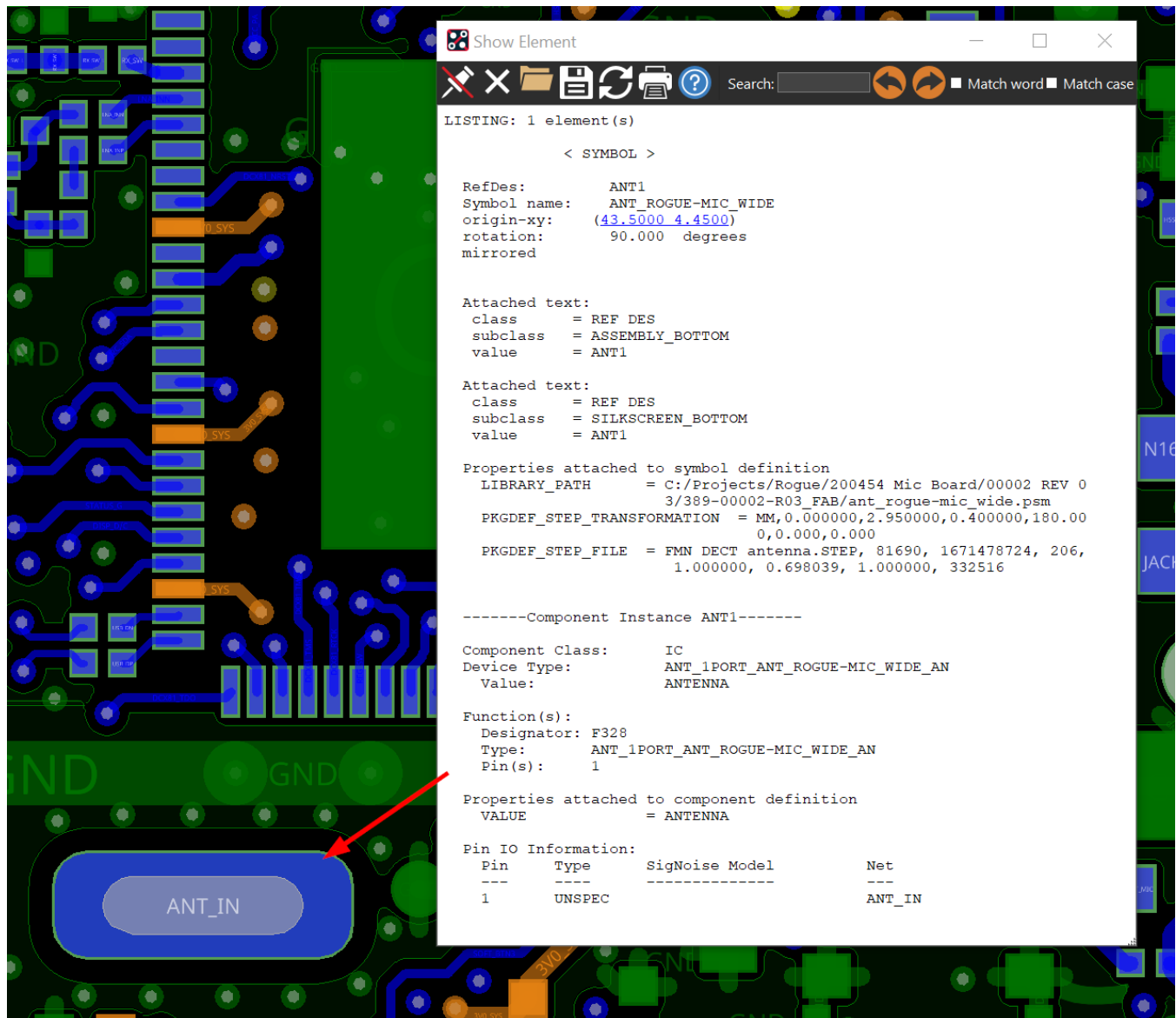
Antenna Type: Single quarter wavelength wired bent monopole.

Drawing: Dimensions are in mm



PCB Footprint

The antenna mounts on the bottom side of the PCBA. This image shows the mounting hole specifications.



2.2 Frequency Range

The antenna design is optimized for DECT US and EU carrier frequencies.

- DECT US: 1.92GHz to 1.93GHz (5 carriers)
- DECT EU: 1.88GHz to 1.90GHz (10 carriers)

2.3 Antenna Gain

These measurements were made by Synapse as part of the RF lab evaluation.

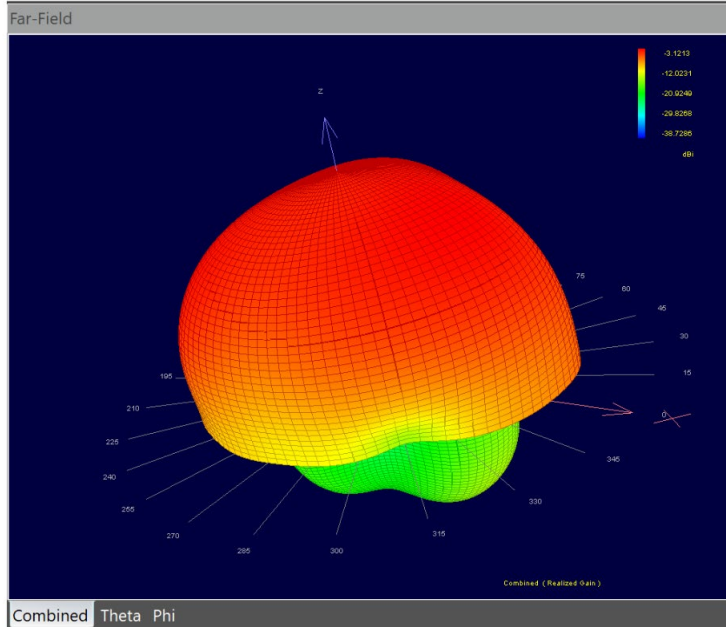
Average Gain: -4.6 dBi

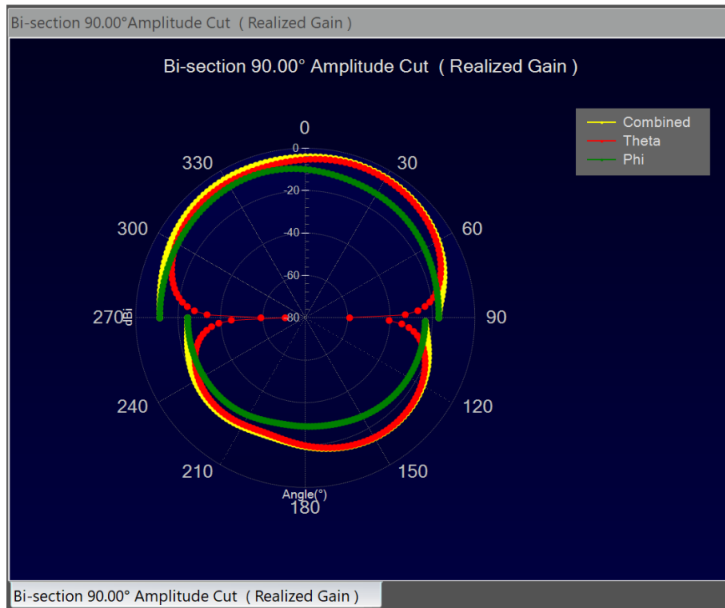
	Low 1921.536 MHz	Middle 1924.992 MHz	High 1928.448 MHz
Efficiency	13 %	13.25 %	13.33 %
Gain	-4.9 dBi	-4.31 dBi	-4.45 dBi

2.4 Antenna Pattern

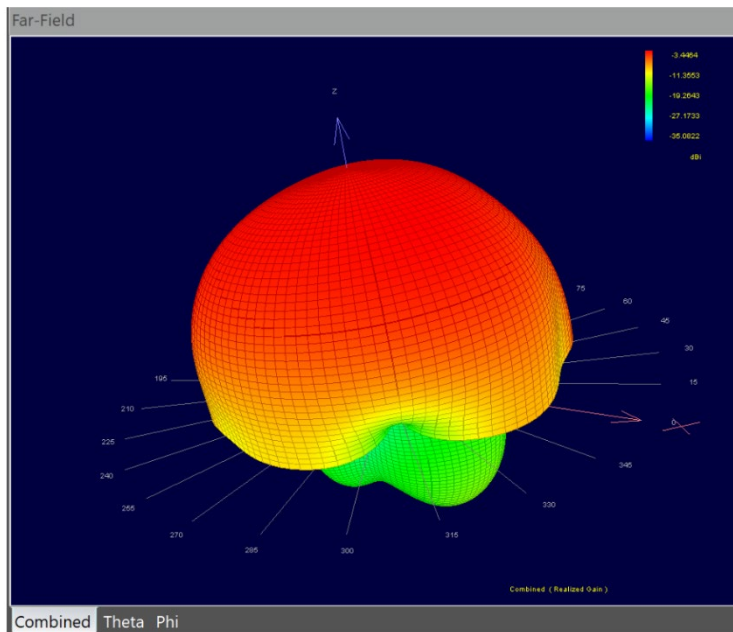
These measurements were made during lab evaluation of the RF performance in a chamber.

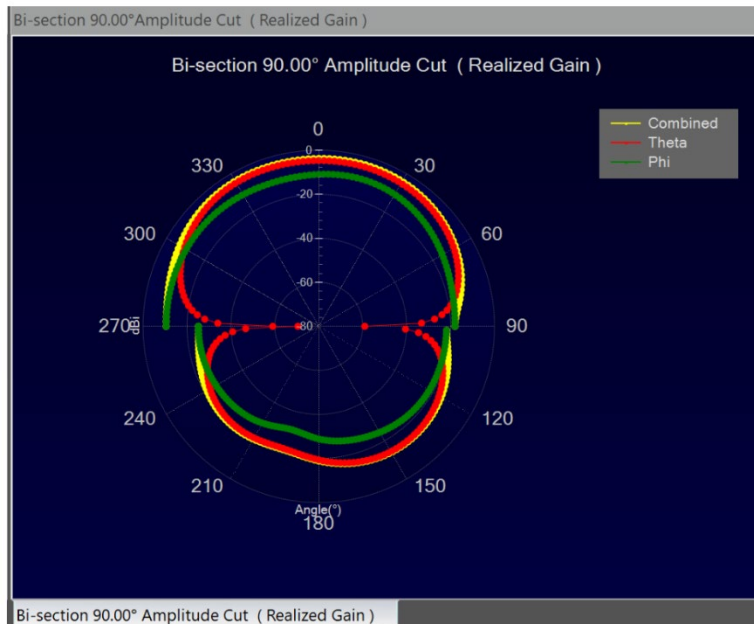
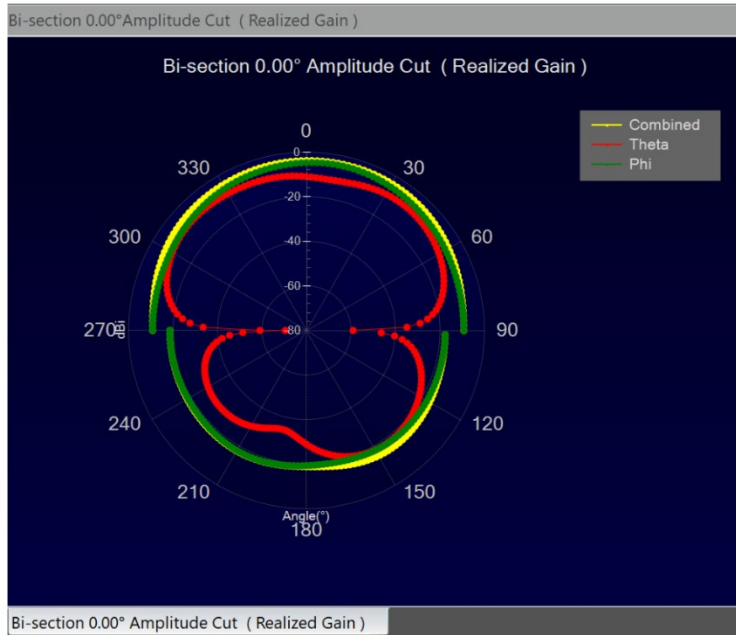
Low Channel: 1921.536 MHz



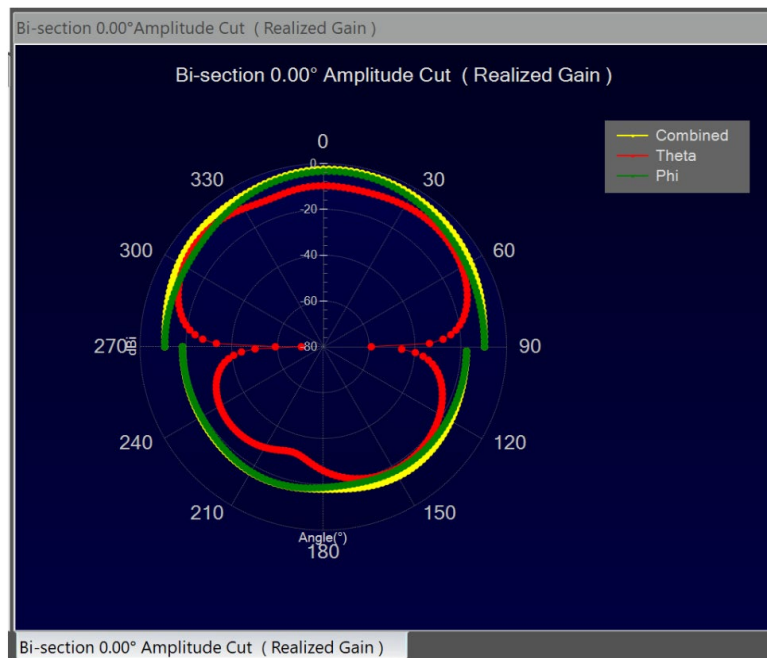
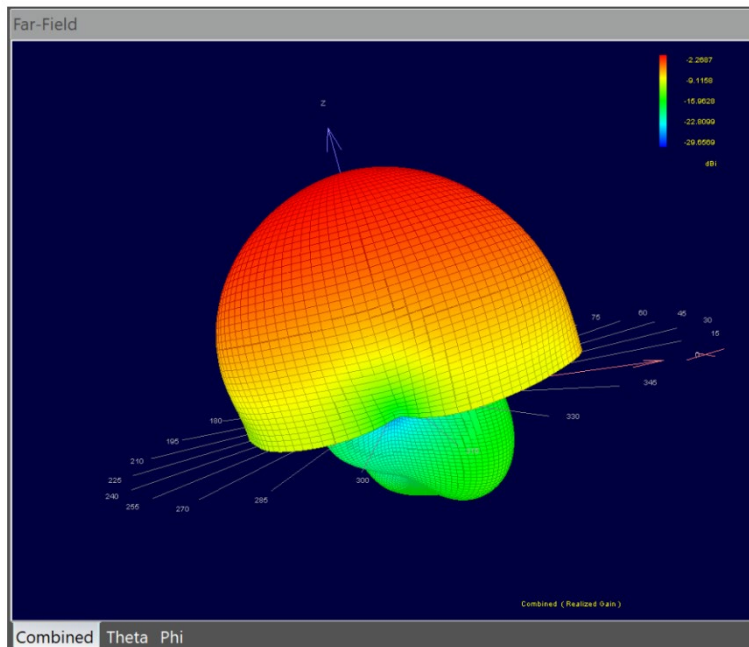


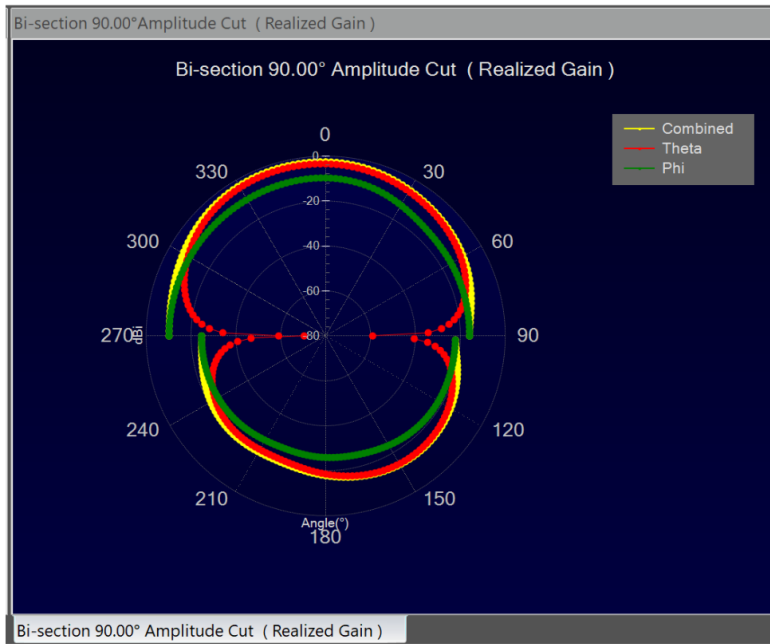
Mid Channel: 1924.992 MHz





High Channel: 1928.448 MHz





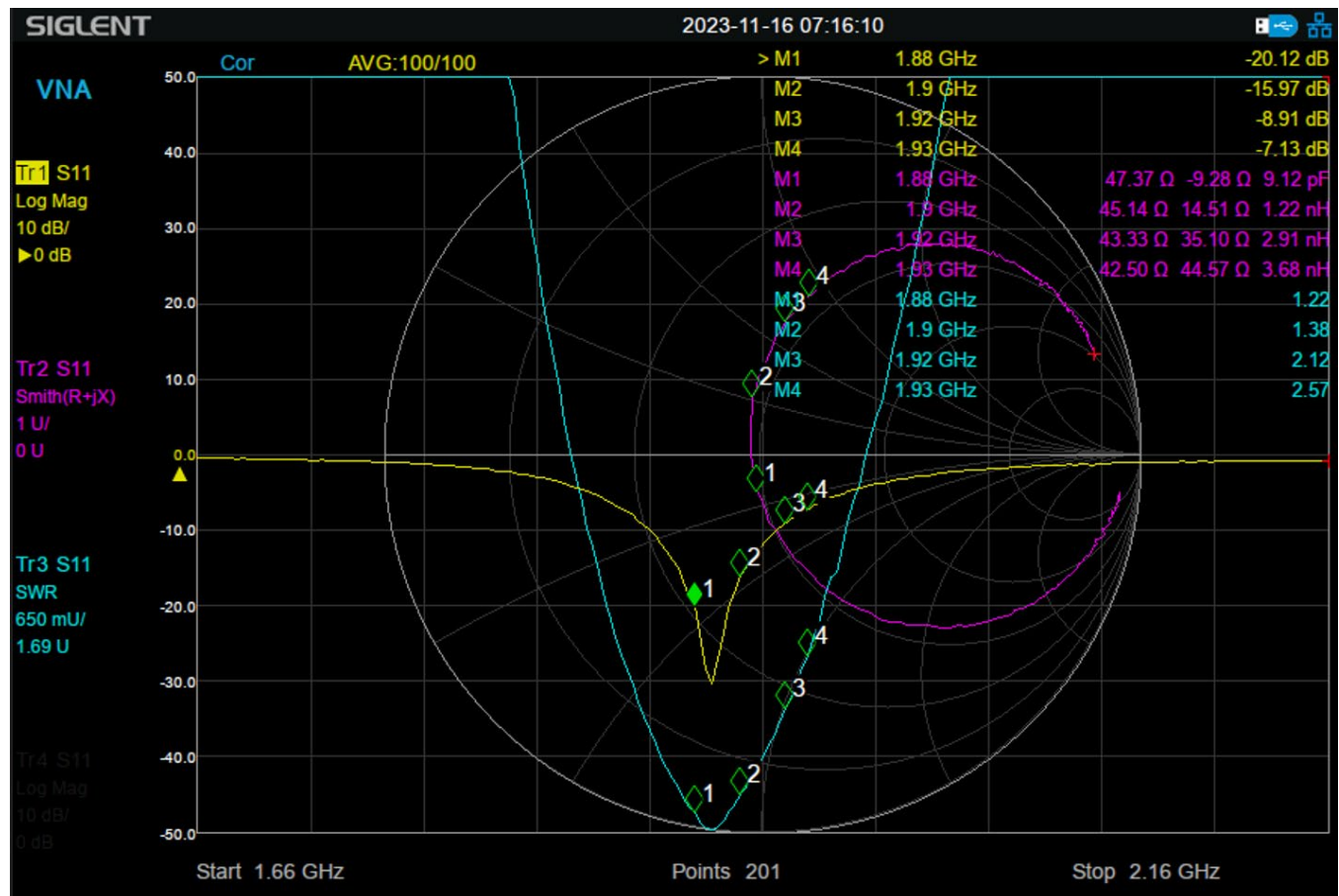
VNA Measurements

The S11 log magnitude, SWR and Impedance of the antenna is shown below for the CMT.

Measurement Instrument: Siglent SSA 3075X-R

Legend:

- Yellow trace is S11 Log Mag
- Magenta trace is Impedance
- Cyan trace is SWR



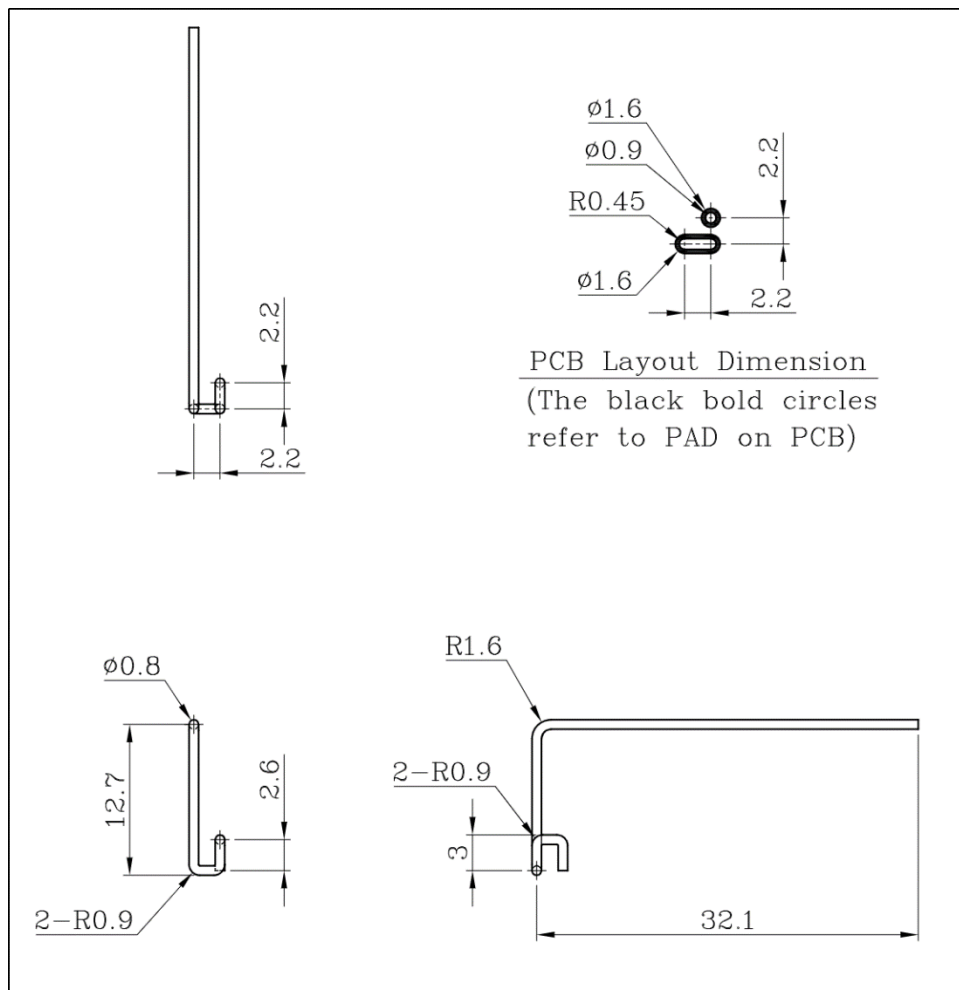
3.0 C25 Antenna Specification

The C25 is a DECT FP device and utilizes DECT antenna diversity with dual monopole quarter wavelength wired antennas. Note that ANT1 is defined as the antenna at the front of the C25 and ANT2 is the antenna on the side of the unit.

3.1 Physical Description

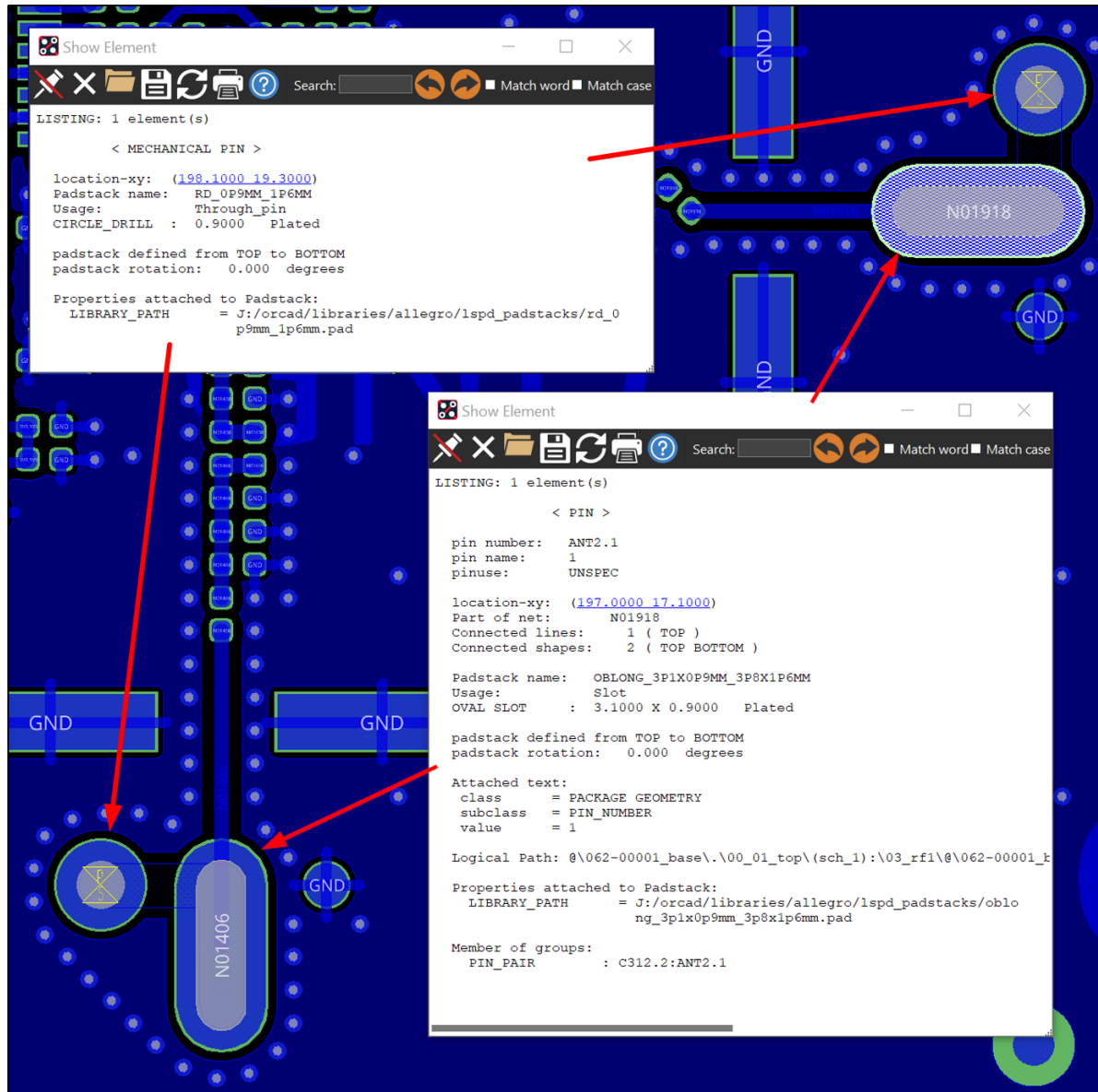
Antenna Type: Dual quarter wavelength wired bent monopole.

Drawing: Dimensions are in mm



PCB Footprint

The antennas mount on the top side of the PCBA. The image below shows the mounting specifications on the PCB.



3.2 Frequency Range

The antenna design is optimized for DECT US and EU carrier frequencies.

- DECT US: 1.92GHz to 1.93GHz (5 carriers)
- DECT EU: 1.88GHz to 1.90GHz (10 carriers)

3.3 Antenna Gain

These measurements were made during lab evaluation of the RF performance.

Antennas Type: Bent Monopole
Average Gain: ANT1 (6.7 dBi) ANT2 (6.6 dBi)

ANT1	Low 1921.536 MHz	Middle 1924.992 MHz	High 1928.448 MHz
Efficiency	86 %	84 %	84.3 %
Gain	6.5 dBi	6.7 dBi	6.6 dBi

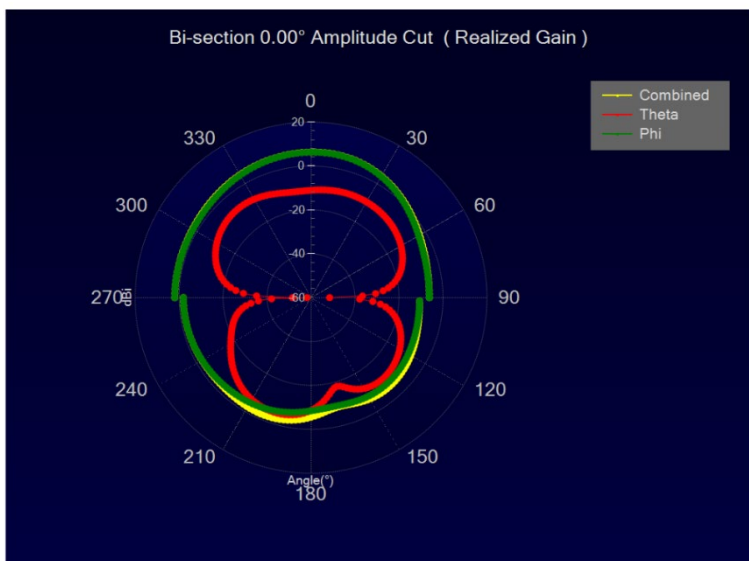
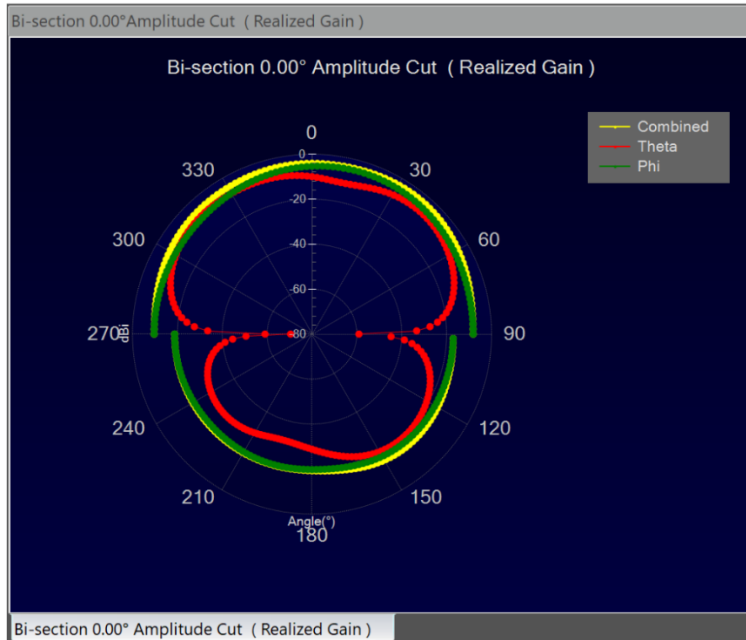
ANT2	Low 1921.536 MHz	Middle 1924.992 MHz	High 1928.448 MHz
Efficiency	99 %	99 %	99.3 %
Gain	6.5 dBi	6.4 dBi	6.6 dBi

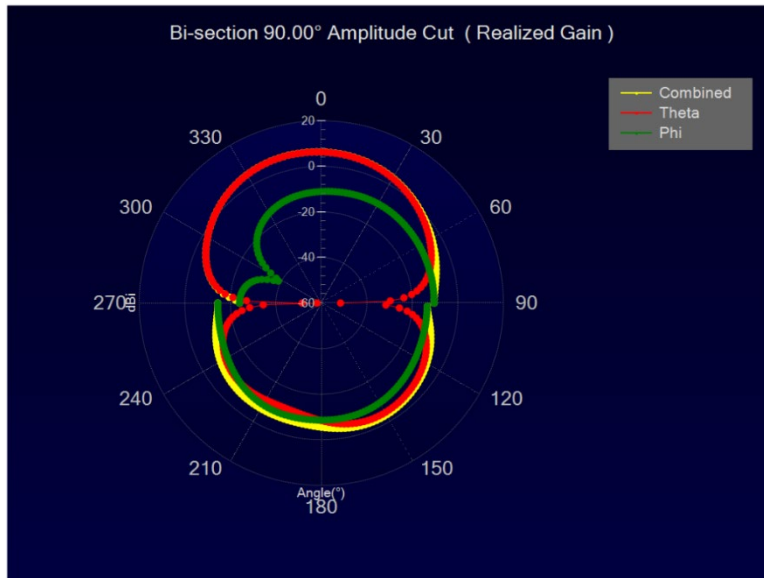
3.4 Antenna Pattern

These measurements were made during lab evaluation of the RF performance in a chamber.

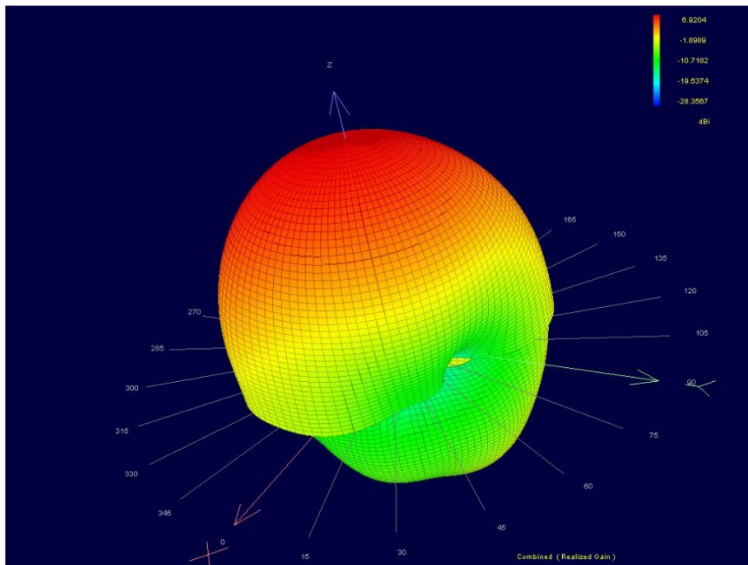
ANT1

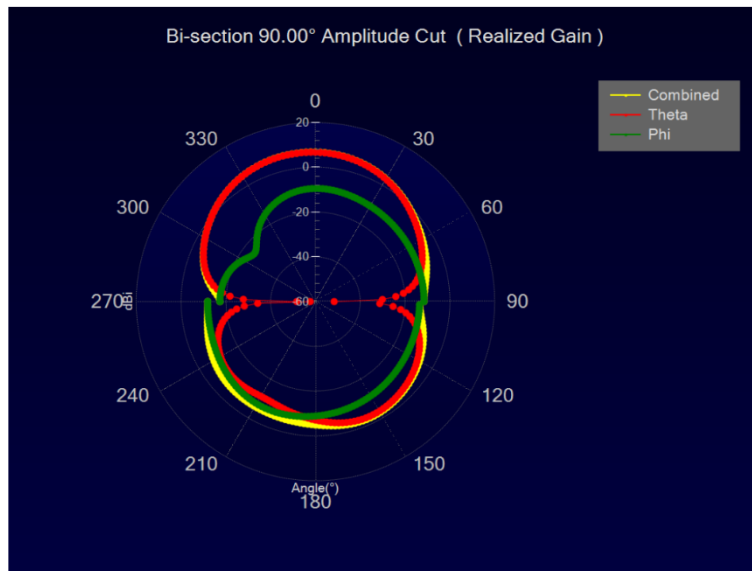
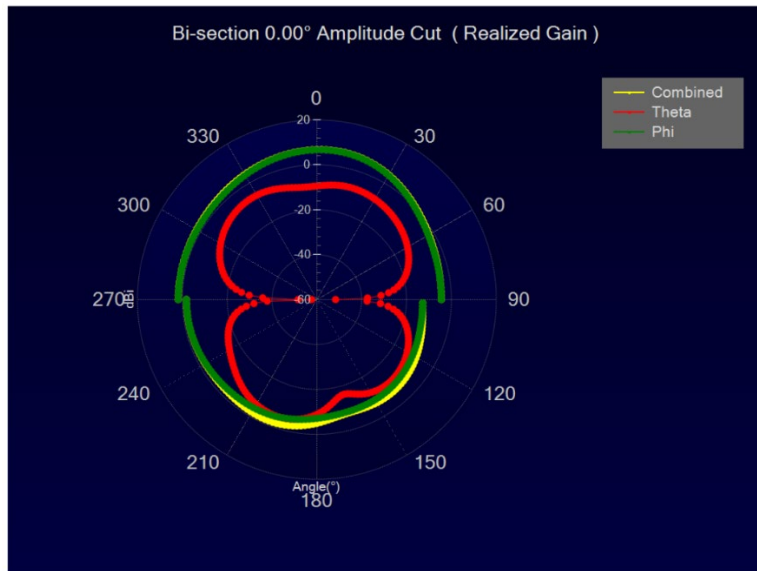
Low Channel: 1921.536 MHz



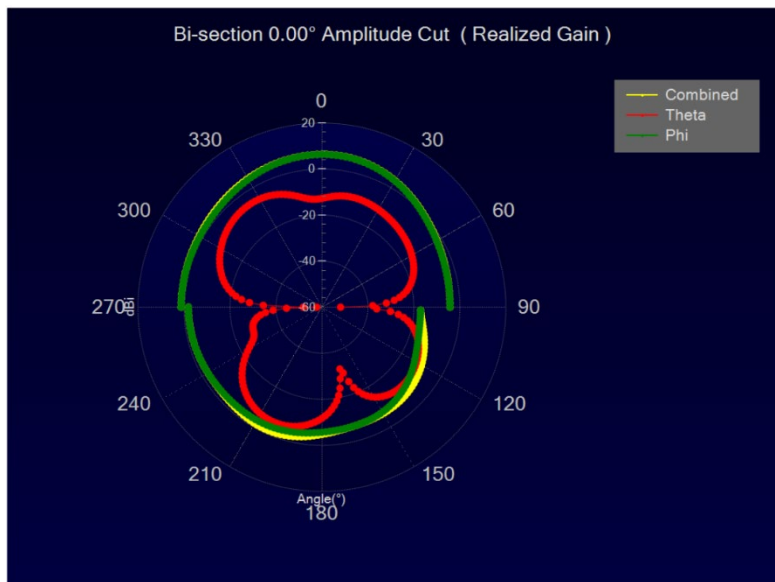
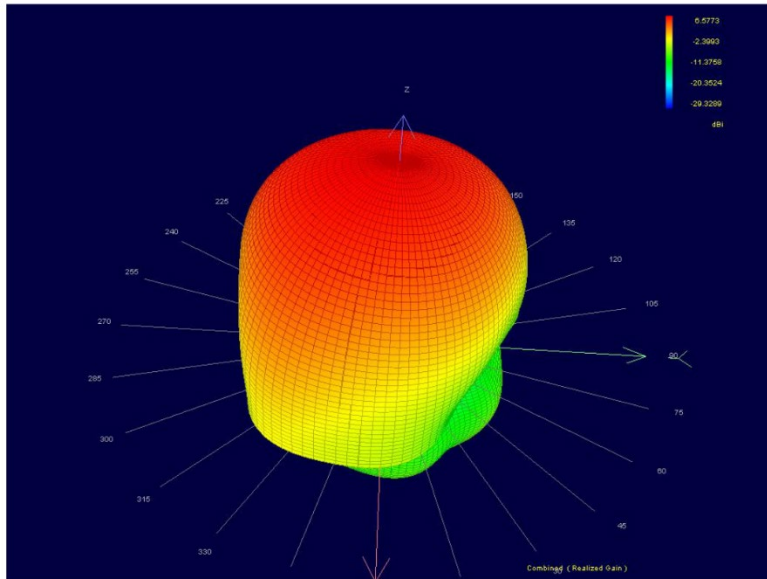


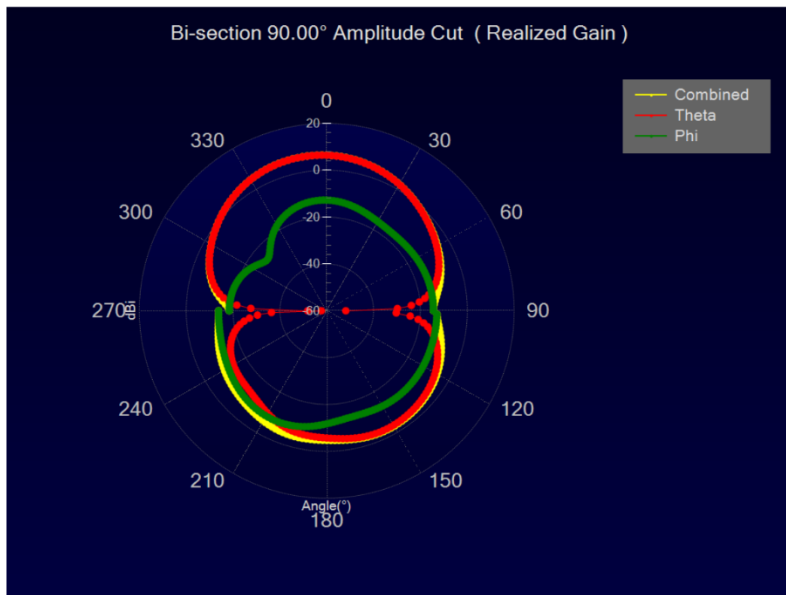
Mid Channel: 1924.992 MHz





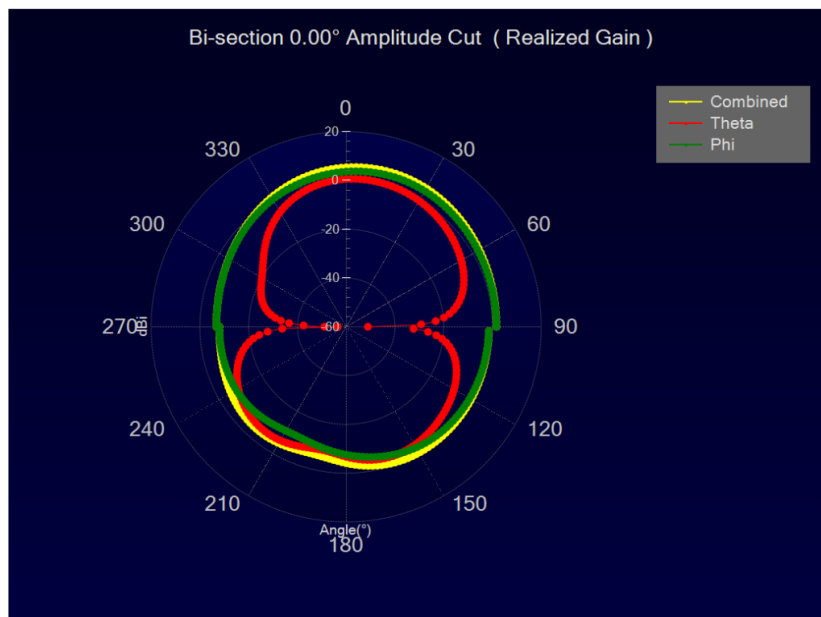
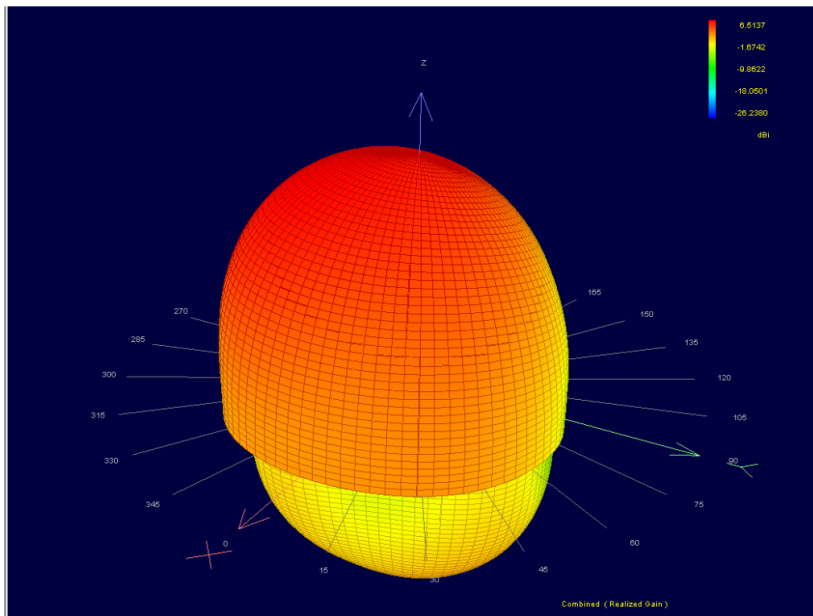
High Channel: 1928.448 MHz

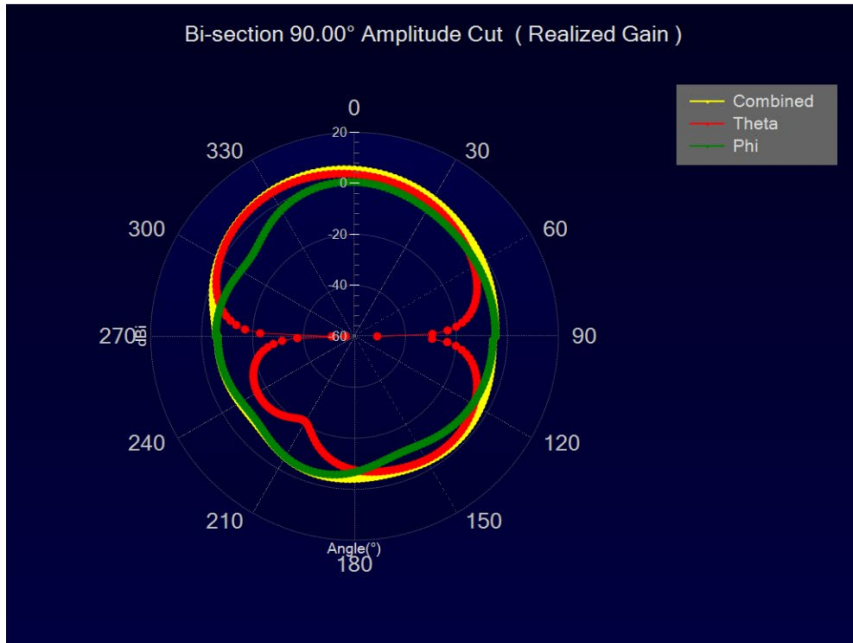




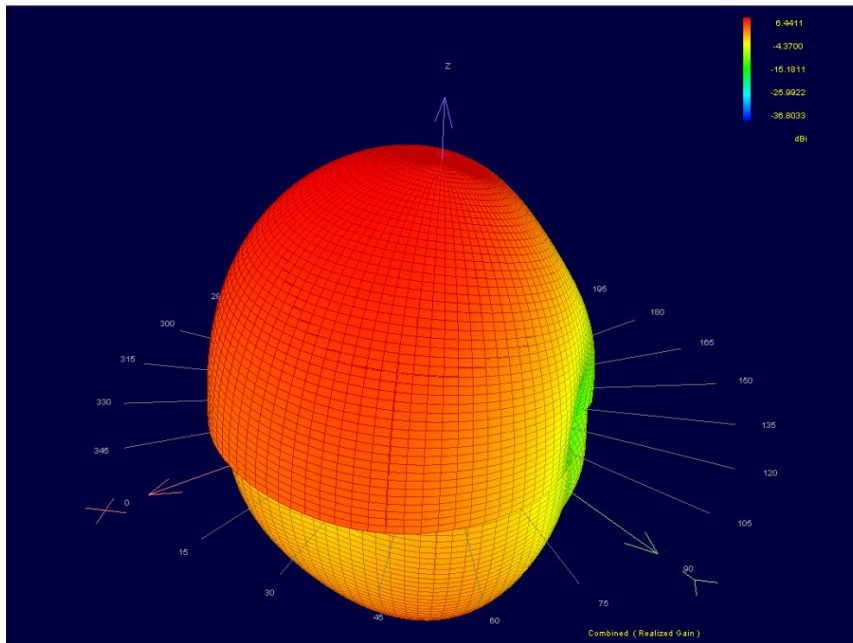
ANT2

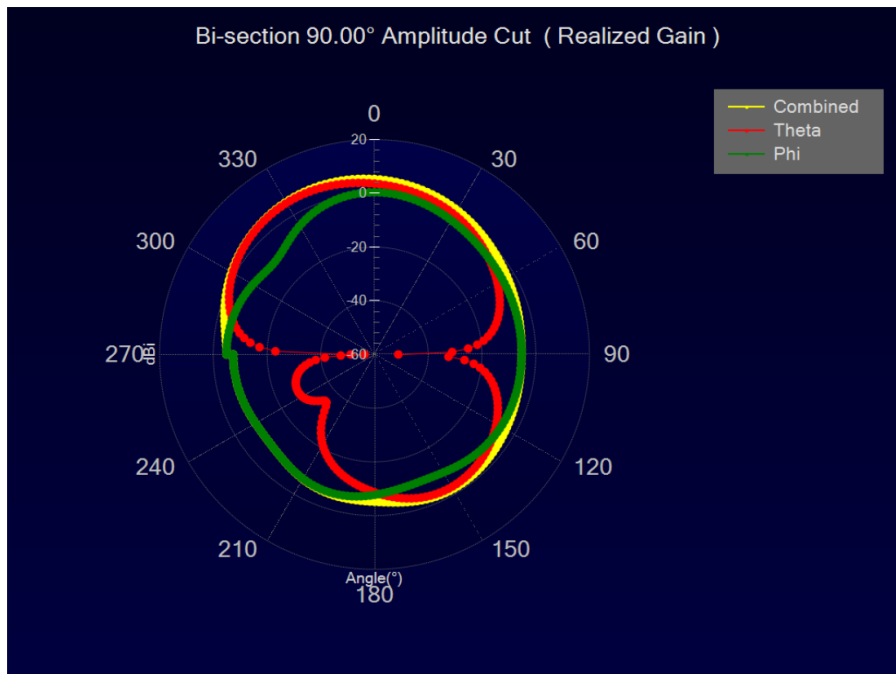
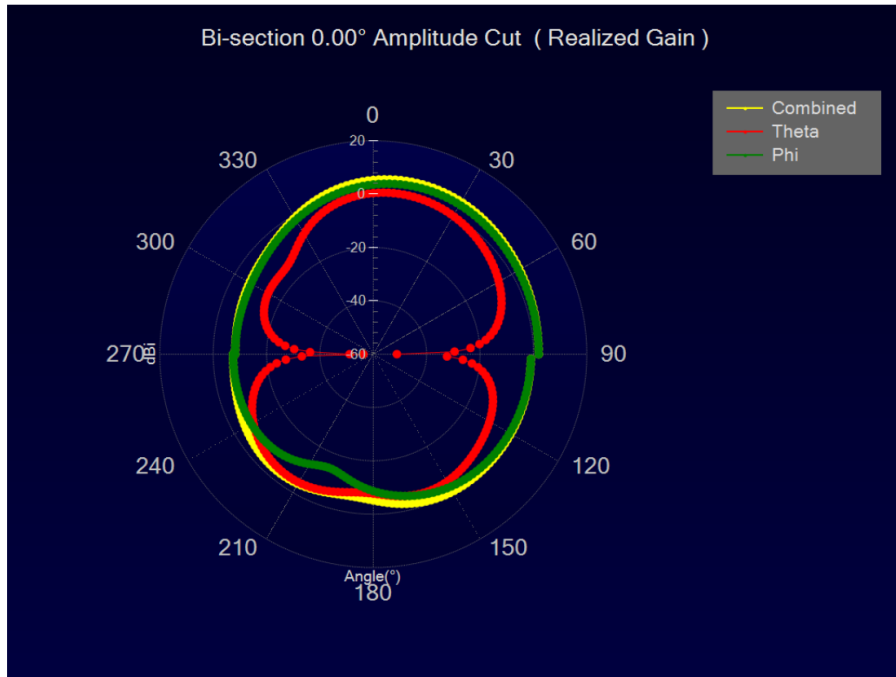
Low Channel: 1921.536 MHz



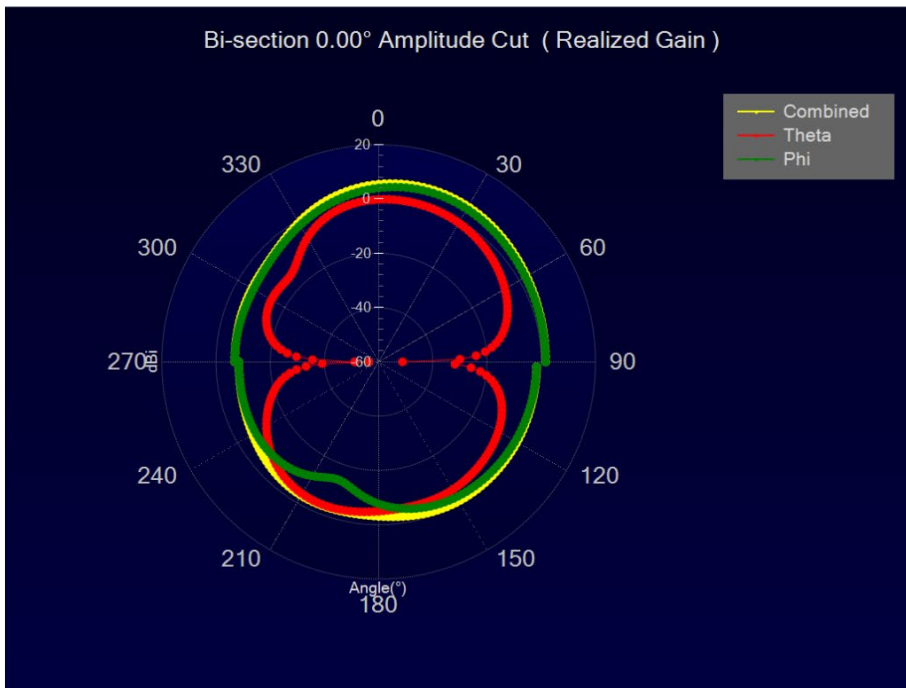
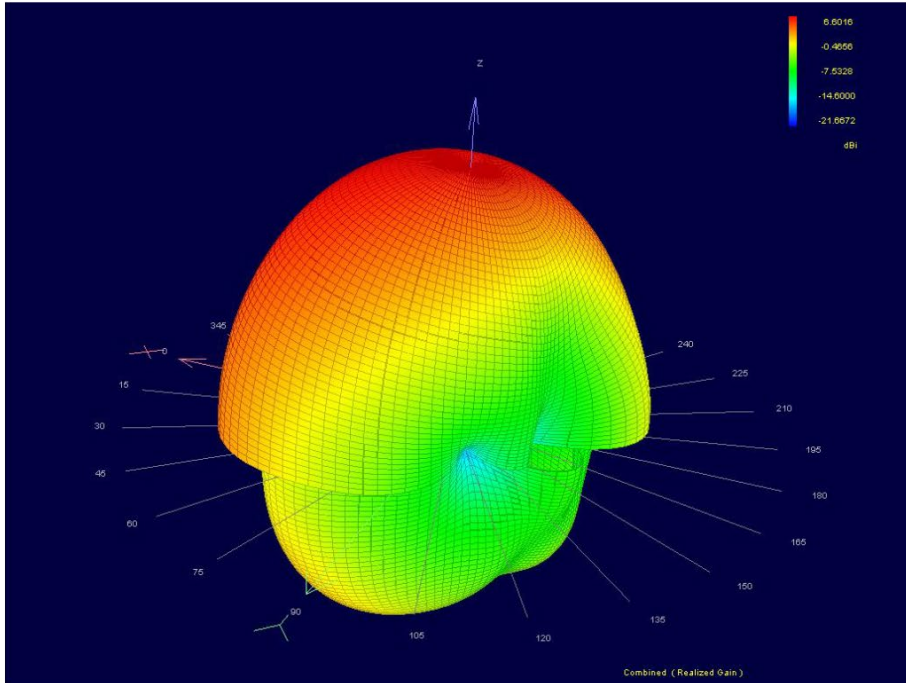


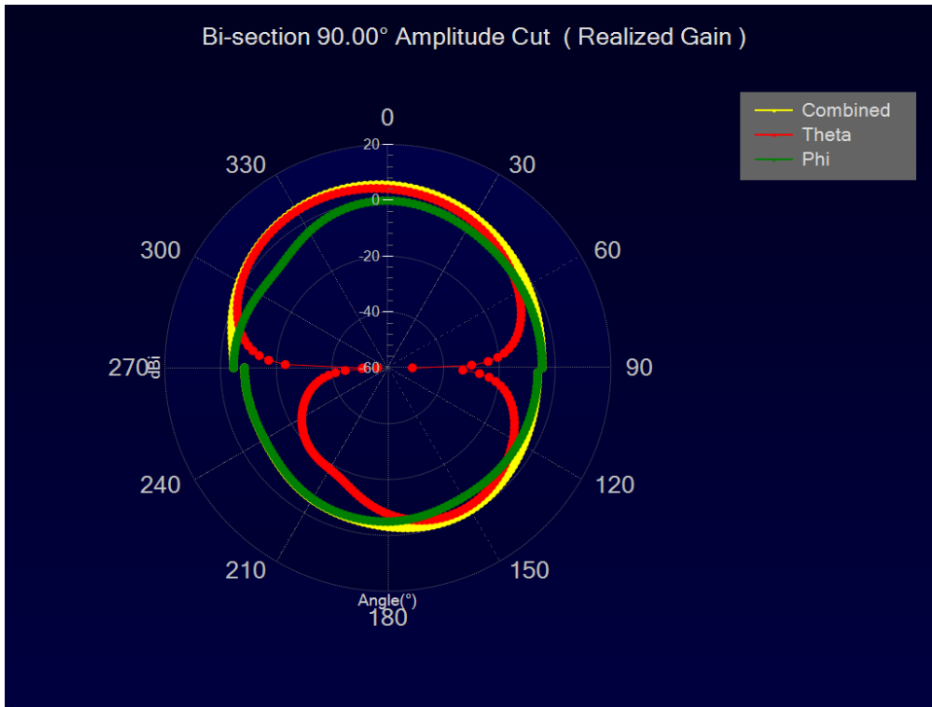
Mid Channel: 1924.992 MHz





High Channel: 1928.448 MHz





VNA Measurements

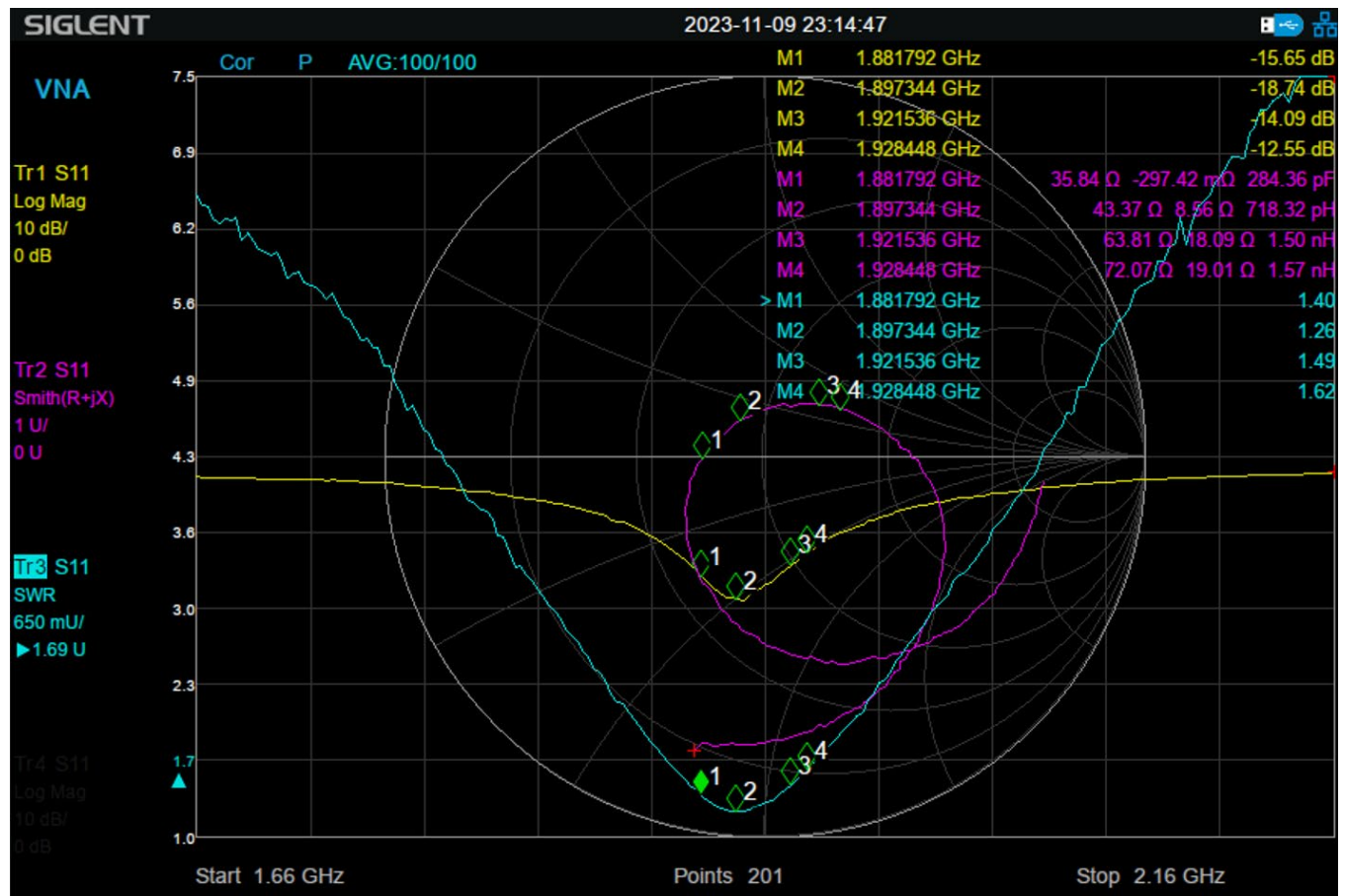
The S11 log magnitude, SWR and Impedance of the antenna is shown below for the C25 ANT1 and ANT2.

Measurement Instrument: Siglent SSA 3075X-R

Legend:

- Yellow trace is S11 Log Mag
- Magenta trace is Impedance
- Cyan trace is SWR

ANT1



ANT2

