# Regulatory WLAN Antenna Information (Template)

*English Language Required for Intel Regulatory Review / Approval*

**(OEM/ODM or antenna vendor is required to complete this document with platform antenna information.**

**Remove Intel references and make this your own document)**

**Platform information**

| Brand | ODM | ****End product model name | Intel platform (ex: Yes, No or NA) | Platform type (ex: regular NB, convertible PC, AIO…etc) | *SAR minimum separation (mm) |
|---|---|---|---|---|---|
| DELL | Compal | P154G | Yes | Regular NB | 6.37 |

*****Please fill in exact product model name and make sure the model name is visible on product cover or any parts for end users recognize for authority inspection.**

**Antenna information**

| Vendor | Type | Antenna Part number (Main) | Antenna Part number (Aux) |
|---|---|---|---|
| Auden Techno Corp. | Monopole | A22453-30 (DC33002NA1L) | A22453-30 (DC33002NA1L) |

**Peak gain w/ cable loss (dBi)***

| | 2.4GHz 2400-2483.5 MHz | 5.2GHz 5150-5250MHz | 5.3GHz 5250-5350MHz | 5.6GHz 5470-5725MHz | 5.8GHz 5725-5850MHz | 5.9GHz 5850-5895MHz | 6.2GHz 5925-6425MHz | 6.5GHz 6425-6525MHz | 6.7GHz 6525-6875MHz | 7.0 GHz 6875-7125MHz |
|---|---|---|---|---|---|---|---|---|---|---|
| **Main** | 1.82 | 0.45 | 1.74 | 2.64 | 2.82 | 2.82 | 2.94 | 2.82 | 2.82 | 2.05 |
| **Aux** | 2.65 | -0.05 | -0.05 | 1.88 | 2.95 | 2.95 | 2.93 | 2.79 | 2.56 | 2.47 |

**Intel Reference Gain/Type/ Separation distance**

| Antenna Type | Antenna Peak gain (In dBi)* | | | | | | | | | | Distance to the end user (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2.4GHz 2400-2483.5 MHz | 5.2GHz 5150-5250MHz | 5.3GHz 5250-5350MHz | 5.6GHz 5470-5725MHz | 5.8GHz 5725-5850MHz | 5.9GHz 5850-5895MHz | 6.2GHz 5925-6425MHz | 6.5GHz 6425-6525MHz | 6.7GHz 6525-6875MHz | 7.0GHz 6875-7125MHz | |
| **Design** | **3.00** | **5.00** | **5.00** | **5.00** | **5.00** | **5.00** | **5.00** | **5.00** | **5.00** | **5.00** | Generic: refer to modular FCC SAR report |
| **PIFA** | **3.24** | **3.64** | **3.73** | **4.77** | **4.97** | **4.72** | **4.83** | **4.30** | **5.37** | **5.59** | Mid-power: ≥ 8 mm |
| **Dipole** | **2.89** | **2.92** | **3.19** | **4.41** | **4.22** | **4.22** | **4.83** | **4.30** | **4.49** | **5.34** | Low power: ≥ 5 mm |

**Notes (marked with *)**

*** SAR minimum separation (mm)**

- Regular NB: Minimum antenna-to-body (from antenna bottom to the bottom of the device)

- Tablet / Convertible PC: Minimum antenna-to-edge (5 sides of the device)

- Mini-tablet: Minimum antenna-to-edge (6 sides of the device)

*** 3D Peak Antenna gain should be equal or greater than -2 dBi**
- If a host integrator plans to use a lower gain antenna of the same type, additional CBP(FCC)/EDT(EU) testing need to be performed while the module is installed in the host.

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1. **Applicable test methods**

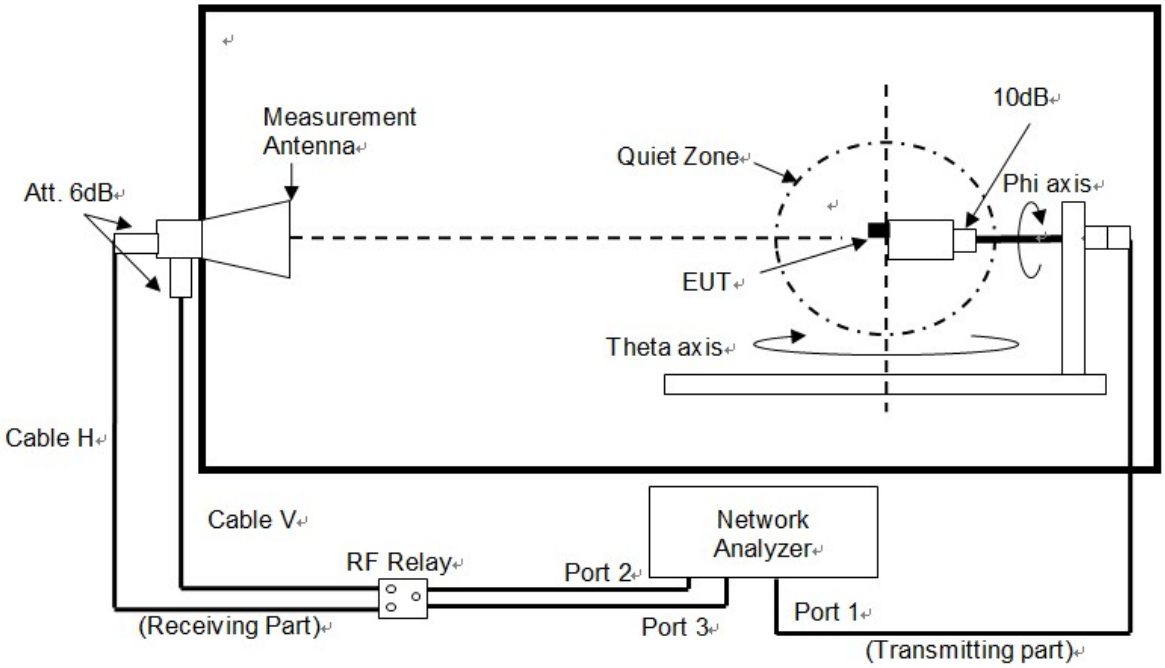
   **Antenna manufacturer company name:** Auden Techno Corp

   **Antenna manufacturer address:** No.19, Lane 772, Heping Rd., Bade District, Taoyuan City, Taiwan

   This test report is prepared for host antenna testing under a Full Anechoic Chamber.

2. **Test & System Description**

   a. Test setup



b. Equipment list

*<insert test diagram here for test site utilized>*

| Huaya-Sporton OTA03 | | | | | |
|---|---|---|---|---|---|
| Name | Manufacturer | Type/Model | Serial Number | Calibration | |
| | | | | Last Cal. | Due Date |
| ENA Series Network Analyzer | Keysight | E5080B | MY59101211 | 2022/5/23 | 2023/5/22 |
| RF Switch | Keysight | 3499A | MY42000955 | NCR | NCR |
| Multi-Axis Positioner Controller | ETS-Lindgren | 2090 | N/A | NCR | NCR |
| Medium-Duty Positioner | ETS-Lindgren | 2015 | N/A | NCR | NCR |
| Measurement Horn Antenna | EMCO | 3164-08 | 00086722 | NCR | NCR |
| Anechoic chamber | ETS-Lindgren | AMS-8500 | N/A | 2022/1/6 | 2023/1/5 |
| 12GHz SMA(M)-SMA(M)+20core for 60cm RG316DS Cable Assembly | Woken Technology Inc. | RG316DS | N/A | N/A | N/A |
| 12GHz SMA(M)-SMA(M)+30core for 300cm RG316DS Cable Assembly | Woken Technology Inc. | RG316DS | N/A | N/A | N/A |
| Note: Chamber calibration included full set of implement. | | | | | |

# Antenna Information

## Section 1. Antenna Assembly Specifications

| 1A<br>Antenna Part Number | 1B<br>Manufacturer | 1C<br>Antenna Type | 1D<br>Cable Assembly Part Number and Information | Freq Range<br>MHz | 1E<br>* Peak Gain W/ Cable loss (dBi) | 1F<br>Peak Gain w/o Cable Loss (dBi) | 1G<br>Max VSWR | 1H<br>Cable Loss (dB) |
|---|---|---|---|---|---|---|---|---|
| (P/N: A22453-30) Main Antenna | Auden | Monopole | 50 ohm Coaxial length: 123mm diameter: 1.13mm | 2400-2483.5 | 1.82 | 2.08 | 3.0 | 0.26 |
| | | | | 5150-5250 | 0.45 | 0.87 | 3.0 | 0.42 |
| | | | | 5250-5350 | 1.74 | 2.16 | 3.0 | 0.42 |
| | | | | 5470-5725 | 2.64 | 3.09 | 3.0 | 0.45 |
| | | | | 5725-5850 | 2.82 | 3.29 | 3.0 | 0.47 |
| | | | | 5850-5895 | 2.82 | 3.29 | 3.0 | 0.47 |
| | | | | 5925-6425 | 2.94 | 3.42 | 3.0 | 0.48 |
| | | | | 6425-6525 | 2.82 | 3.35 | 3.0 | 0.53 |
| | | | | 6525-6875 | 2.82 | 3.35 | 3.0 | 0.53 |
| | | | | 6875-7125 | 2.05 | 2.6 | 3.0 | 0.55 |
| (P/N: A22453-30) Aux Antenna | Auden | Monopole | 50 ohm Coaxial length: 343.5mm diameter: 1.13mm | 2400-2483.5 | 2.65 | 3.35 | 3.0 | 0.70 |
| | | | | 5150-5250 | -0.05 | 1.09 | 3.0 | 1.14 |
| | | | | 5250-5350 | -0.05 | 1.09 | 3.0 | 1.14 |
| | | | | 5470-5725 | 1.88 | 3.09 | 3.0 | 1.21 |
| | | | | 5725-5850 | 2.95 | 4.22 | 3.0 | 1.27 |
| | | | | 5850-5895 | 2.95 | 4.23 | 3.0 | 1.28 |
| | | | | 5925-6425 | 2.93 | 4.24 | 3.0 | 1.31 |
| | | | | 6425-6525 | 2.79 | 4.22 | 3.0 | 1.43 |
| | | | | 6525-6875 | 2.56 | 3.99 | 3.0 | 1.43 |
| | | | | 6875-7125 | 2.47 | 3.96 | 3.0 | 1.49 |

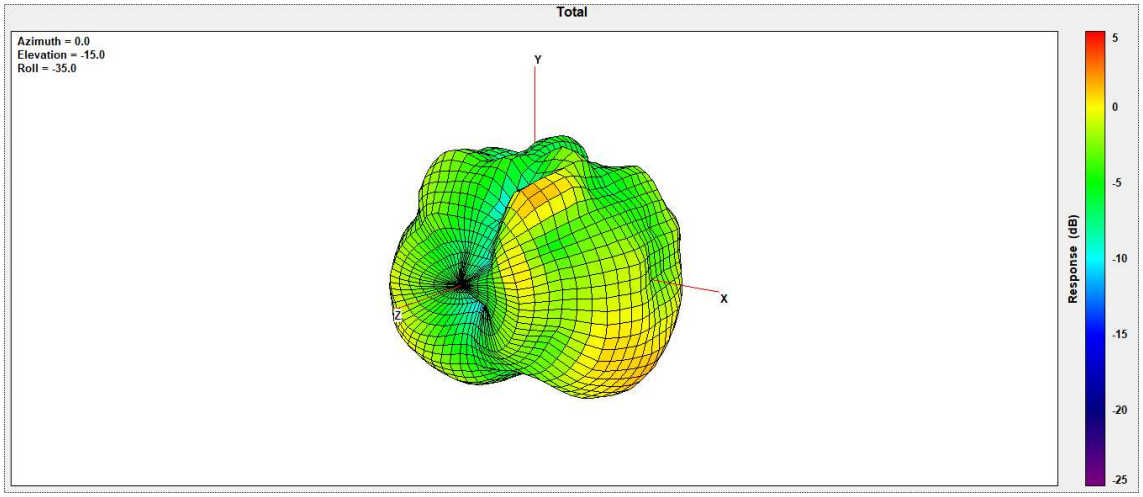
- **3D Antenna Peak Gain required being test in system basis.**

# Section 3. Radiation characteristics of antenna loaded in Host Platform

## Main Antenna

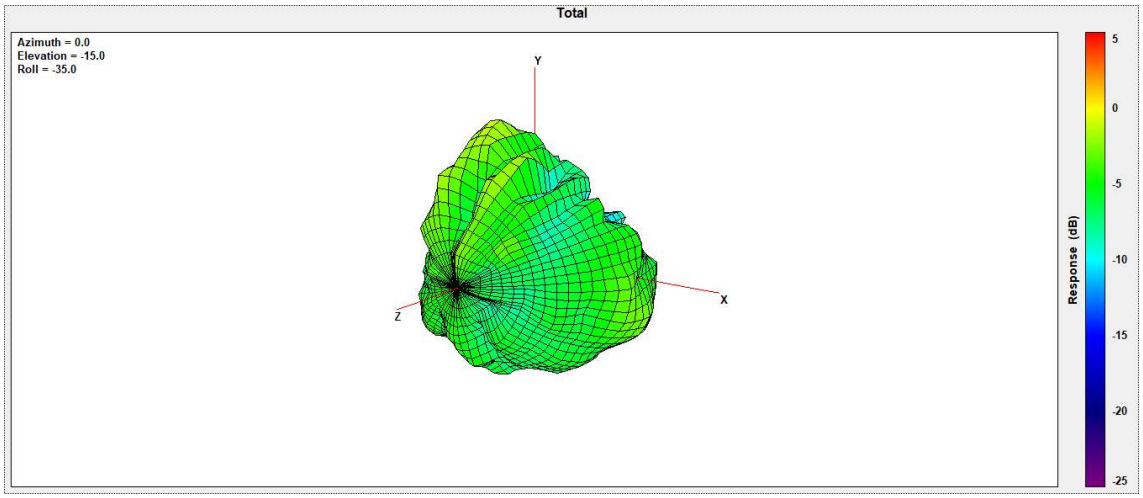
### Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **2400-2483.5** | 1.82 |



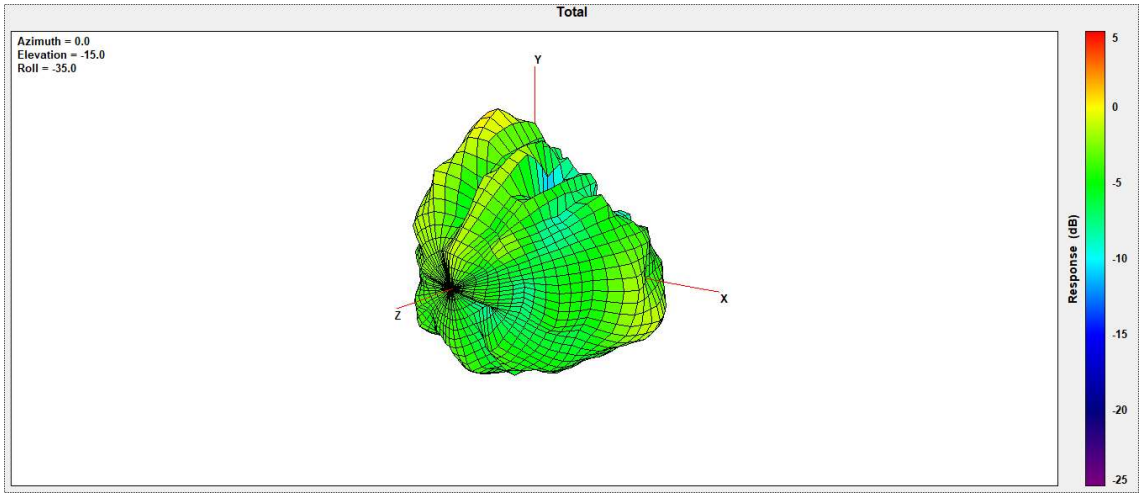

### Max Antenna 3D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5150-5250** | 0.45 |



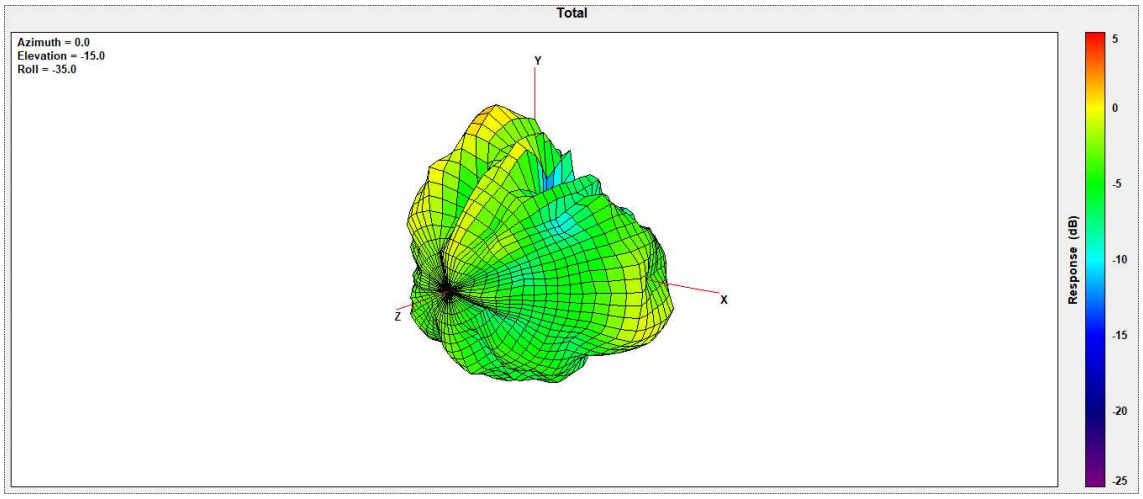
## Max Antenna 3D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5250-5350** | 1.74 |



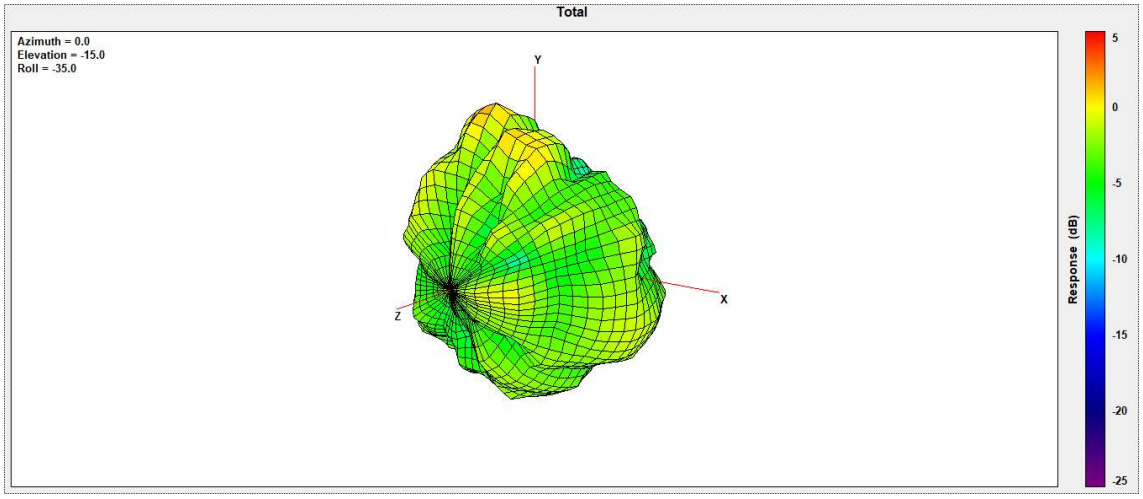

## Max Antenna 3D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5470-5725** | 2.64 |



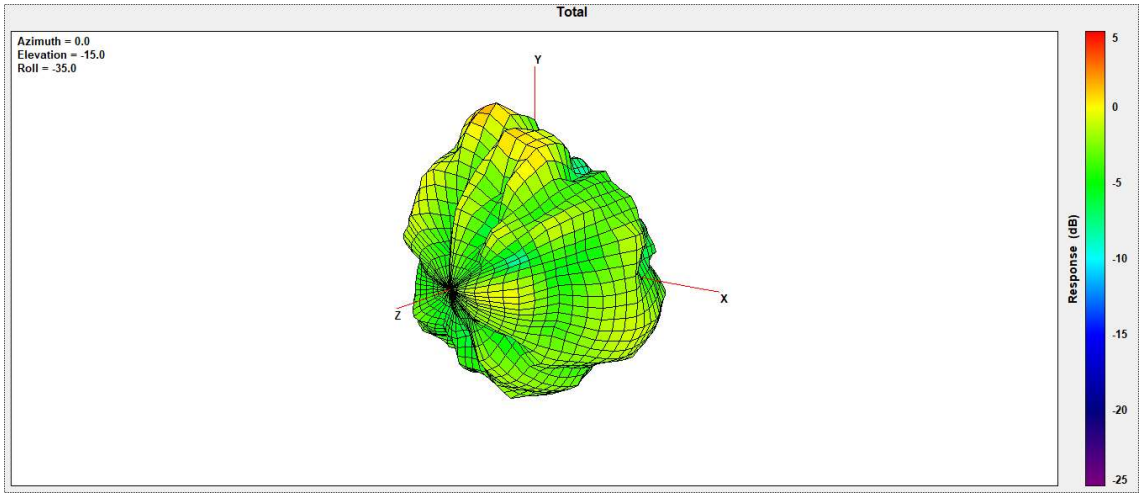
# Max Antenna 3D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5725-5850** | 2.82 |



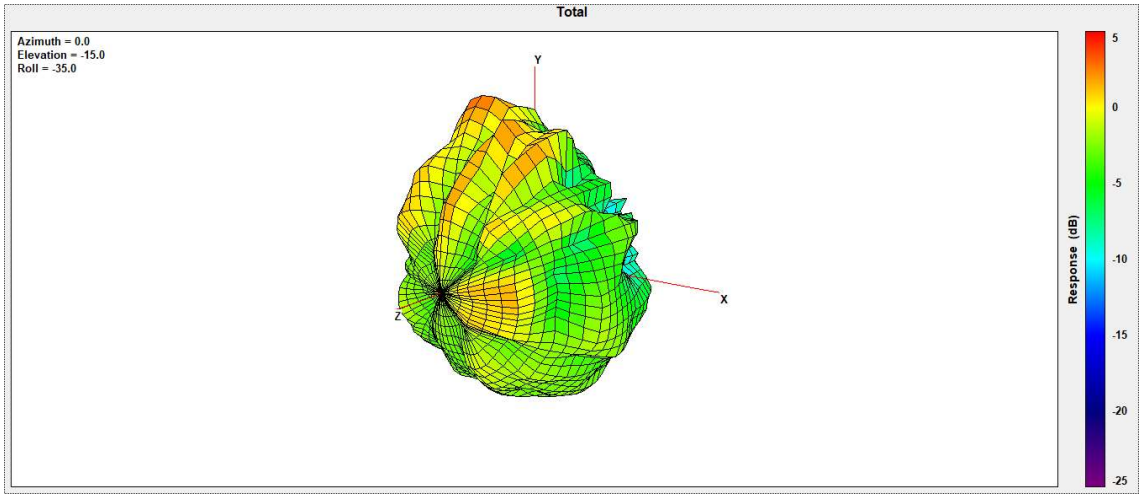

# Max Antenna 3D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5850-5895** | 2.82 |



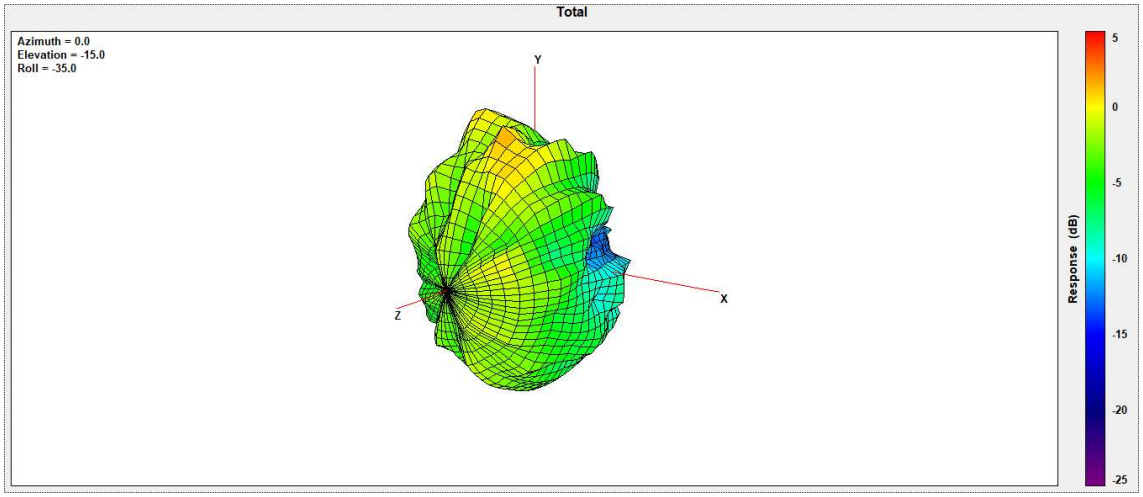
## Max Antenna 3D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5925-6425** | 2.94 |



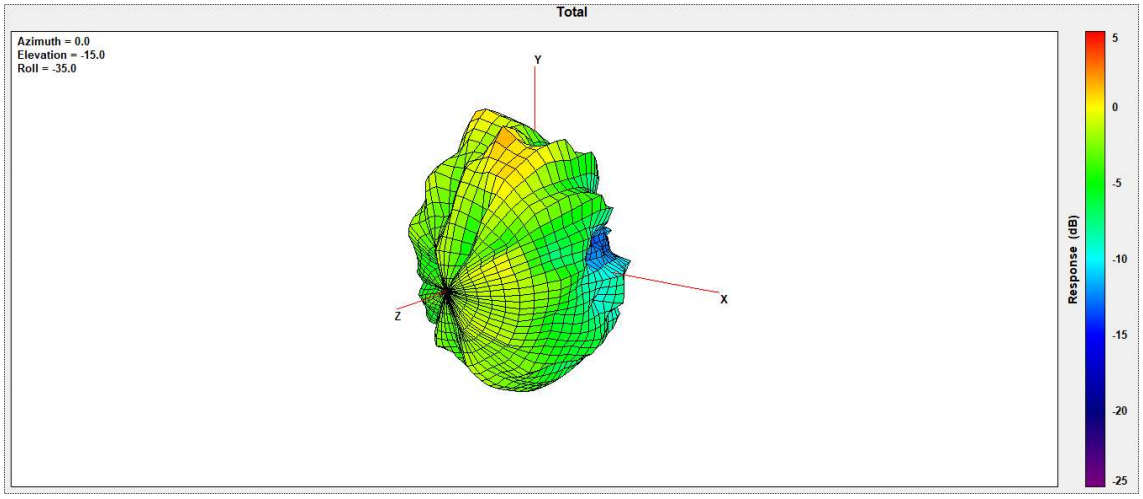

## Max Antenna 3D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **6425-6525** | 2.82 |



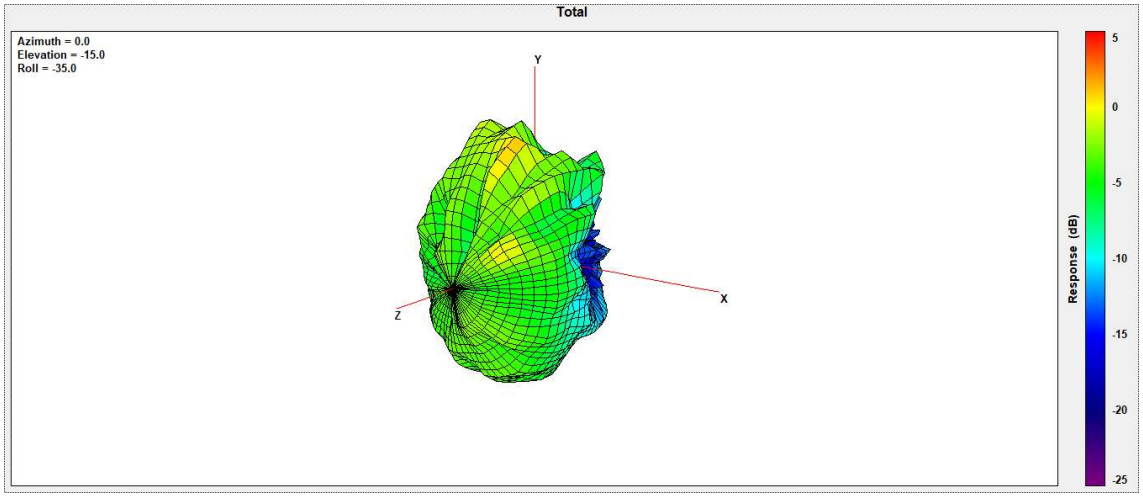
## Max Antenna 3D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **6525-6875** | 2.82 |




## Max Antenna 3D Radiation Pattern 6875-7125 MHz

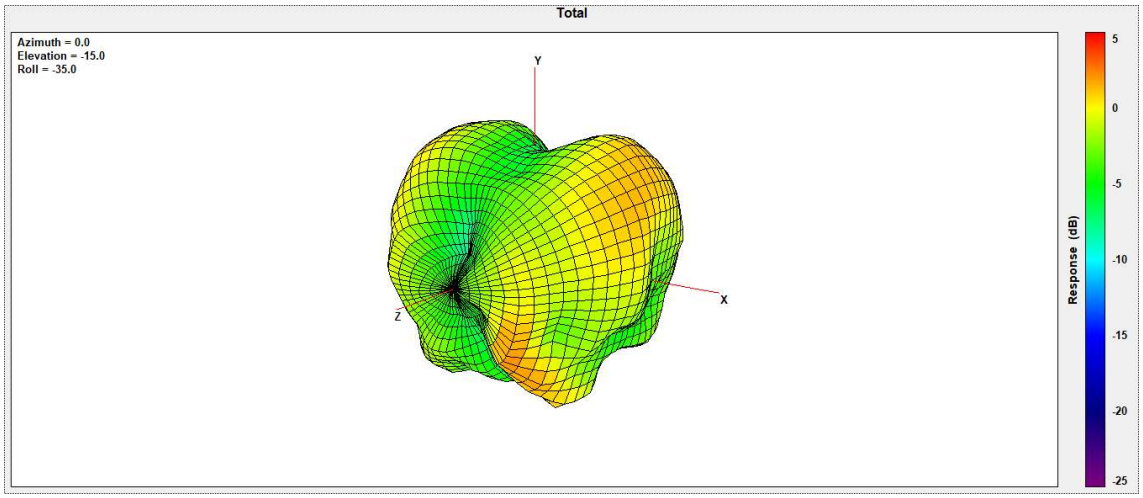
| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **6875-7125** | 2.05 |



# Auxiliary Antenna

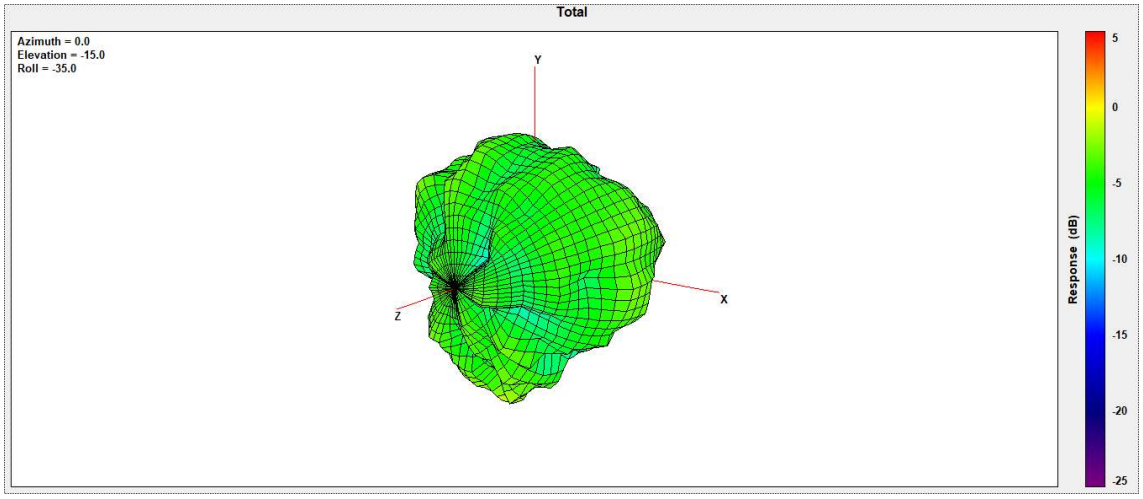
## Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **2400-2483.5** | 2.65 |



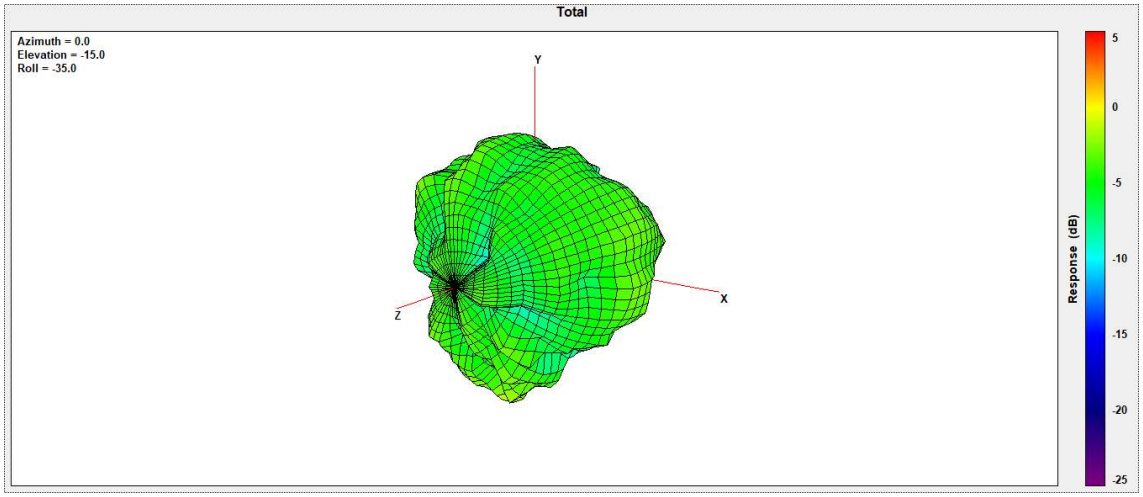

## Max Antenna 3D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5150-5250** | -0.05 |



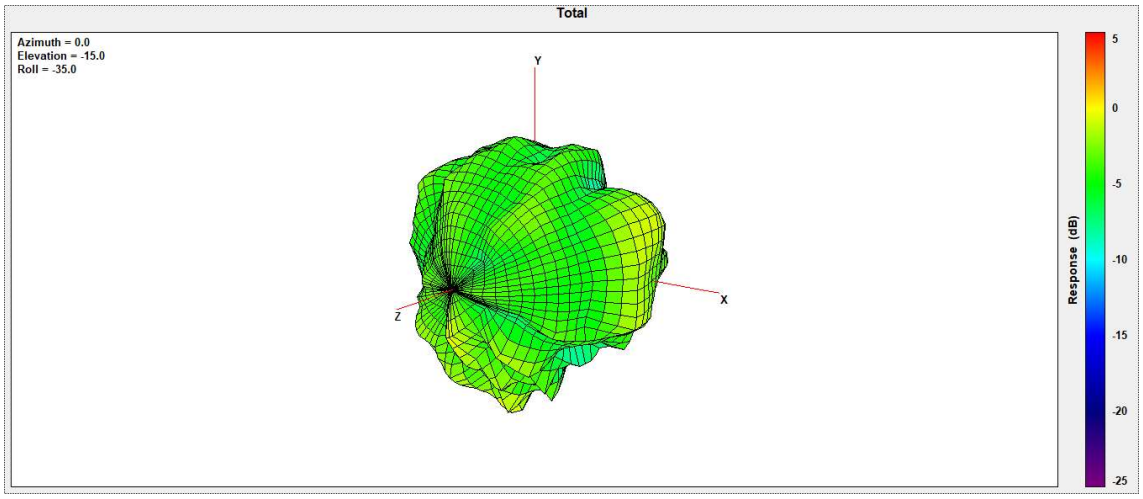
## Max Antenna 3D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5250-5350** | -0.05 |



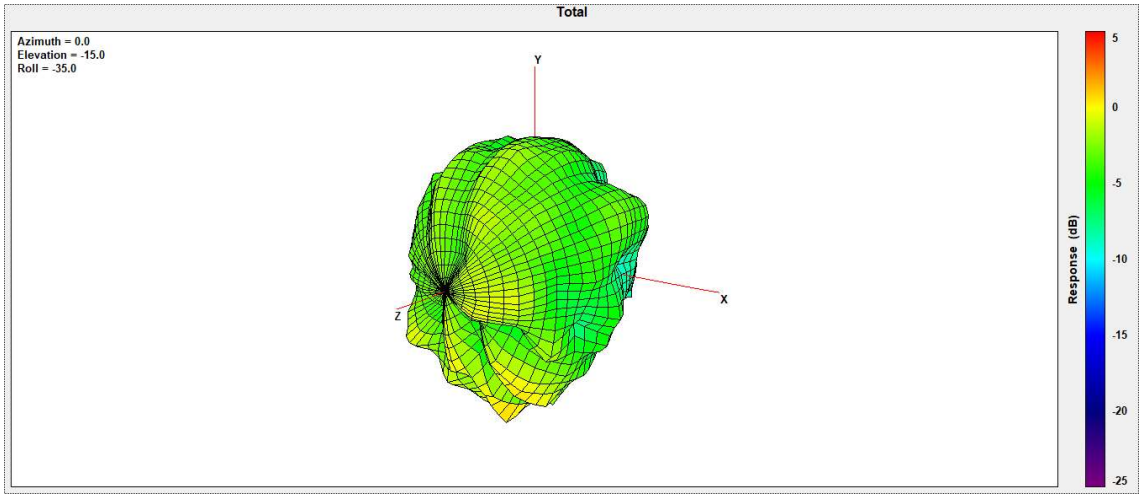

## Max Antenna 3D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5470-5725** | 1.88 |



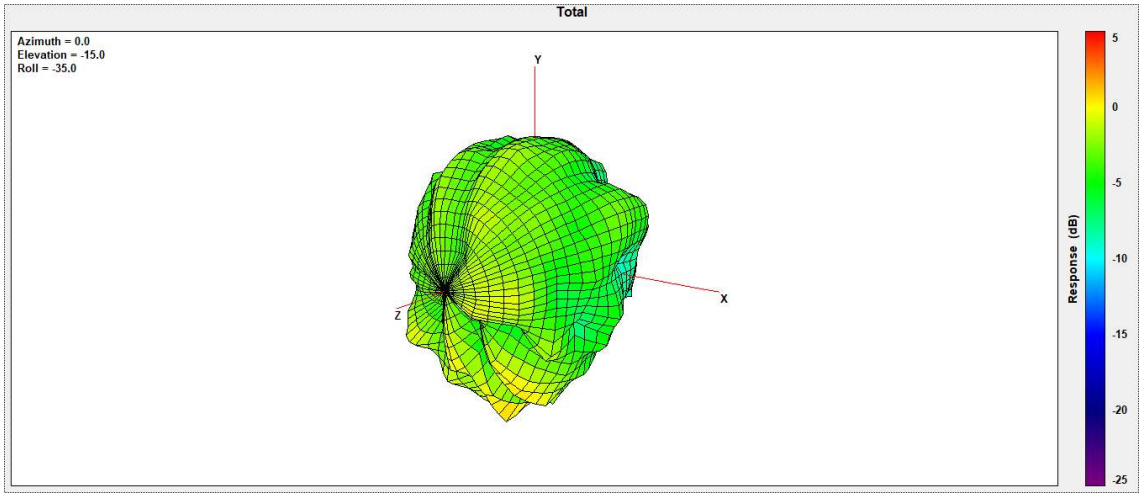
## Max Antenna 3D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5725-5850** | 2.95 |



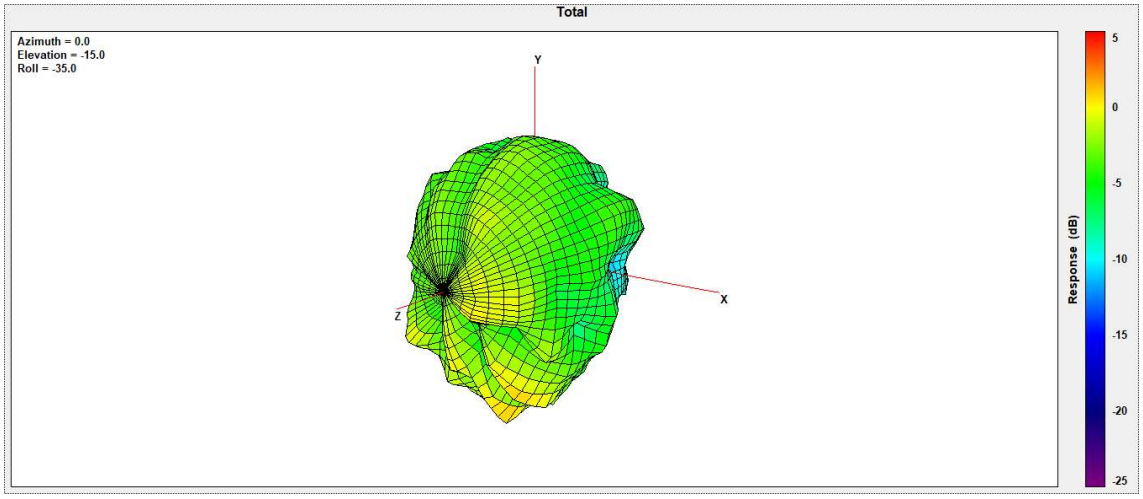

## Max Antenna 3D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5850-5895** | 2.95 |



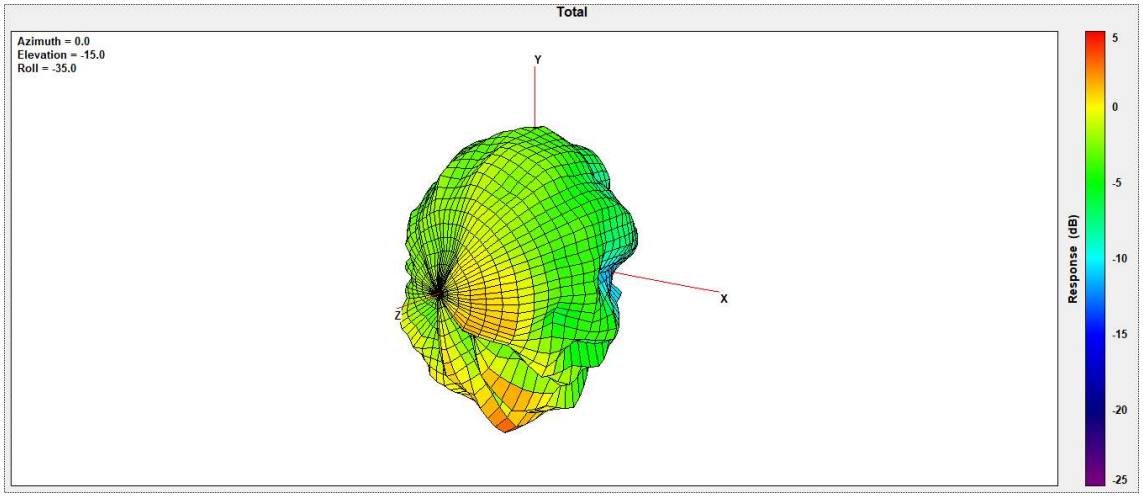
## Max Antenna 3D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **5925-6425** | 2.93 |



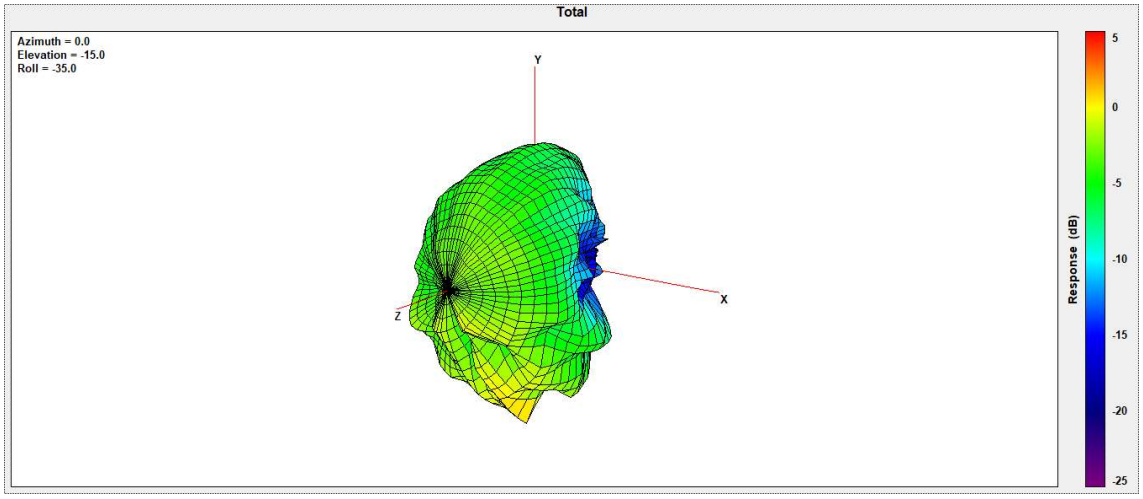

## Max Antenna 3D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **6425-6525** | 2.79 |



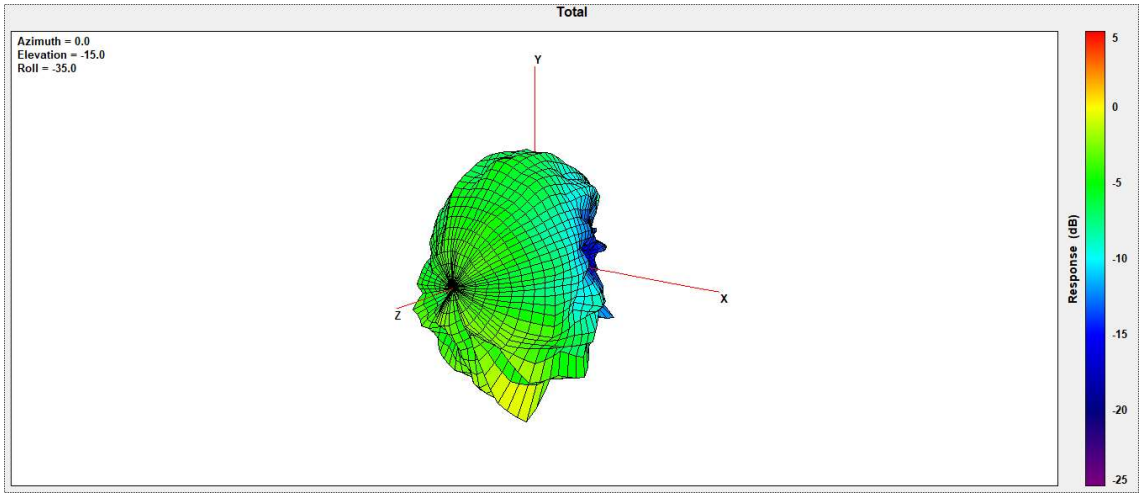
## Max Antenna 3D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **6525-6875** | 2.53 |




## Max Antenna 3D Radiation Pattern 6875-7125 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| **6875-7125** | 2.47 |



# Revision History

| Revision | Description | Date |
|---|---|---|
| 10.3 | Page2-5<br>Add Applicable test method, Test & System Description and Setup photo | July 24, 2022 |
| 10.4 | Cover page<br>Add Intel 5.9GHz reference antenna gain<br>Cover page/Section1/Section3<br>Add 5.9GHz antenna gain information | September 15, 2022 |