

# ANTENNA INFORMATION

|                                                           |                                         |
|-----------------------------------------------------------|-----------------------------------------|
| OEM                                                       | DELL                                    |
| ODM                                                       | Compal                                  |
| Platform model name                                       | P189G                                   |
| Intel platform (ex: Yes, No or NA)                        | Yes                                     |
| Platform type (ex: regular NB, convertible PC, AIO...etc) | Regular NB                              |
| SAR minimum separation (mm)                               | 2.68mm (w/bumper)<br>0.9mm (w/o bumper) |

|                                       |                                                                          |
|---------------------------------------|--------------------------------------------------------------------------|
| Antenna manufacturer                  | Hong-Bo                                                                  |
| Address                               | 4F.,No.143,Xinhu 1 <sup>st</sup> Rd.,Neihu Dist,Taipei City 11494,Taiwan |
| Antenna Part number                   | Main: 330-24039(DC33002UO09)      Aux: 330-24039(DC33002UO09)            |
| Antenna type (ex: PIFA, Dipole...etc) | Monopole                                                                 |

| Antenna Peak gain w/ cable loss (dBi)* |                                  |                               |                               |                               |                               |                               |                               |                               |                               |                                |
|----------------------------------------|----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|
|                                        | <b>2.4GHz</b><br>2400-2483.5 MHz | <b>5.2GHz</b><br>5150-5250MHz | <b>5.3GHz</b><br>5250-5350MHz | <b>5.6GHz</b><br>5470-5725MHz | <b>5.8GHz</b><br>5725-5850MHz | <b>5.9GHz</b><br>5850-5895MHz | <b>6.2GHz</b><br>5925-6425MHz | <b>6.5GHz</b><br>6425-6525MHz | <b>6.7GHz</b><br>6525-6875MHz | <b>7.0 GHz</b><br>6875-7125MHz |
| Main                                   | 2.71                             | 2.94                          | 2.48                          | 2.63                          | 2.82                          | 2.92                          | 3.60                          | 1.63                          | 2.03                          | 2.45                           |
| Aux                                    | 2.63                             | 2.63                          | 2.67                          | 2.97                          | 1.94                          | 1.66                          | 1.40                          | 0.79                          | 1.58                          | 1.58                           |

| Cable Assembly Part Number and Information |                                 |                         |                           |                       |                                 |
|--------------------------------------------|---------------------------------|-------------------------|---------------------------|-----------------------|---------------------------------|
|                                            | <b>Cable PN</b>                 | <b>Cable length(mm)</b> | <b>Cable diameter(mm)</b> | <b>Impedance(ohm)</b> | <b>Connector type</b>           |
| Main                                       | White 1.13SLLS<br>SY113L/50-143 | 20mm                    | 1.13                      | 50 ohm                | I-PEX MHF-<br>4L(20565-001R-13) |
| Aux                                        | Black 1.13SLLS<br>SY113L/50-118 | 44mm                    | 1.13                      | 50 ohm                | I-PEX MHF-<br>4L(20565-001R-13) |

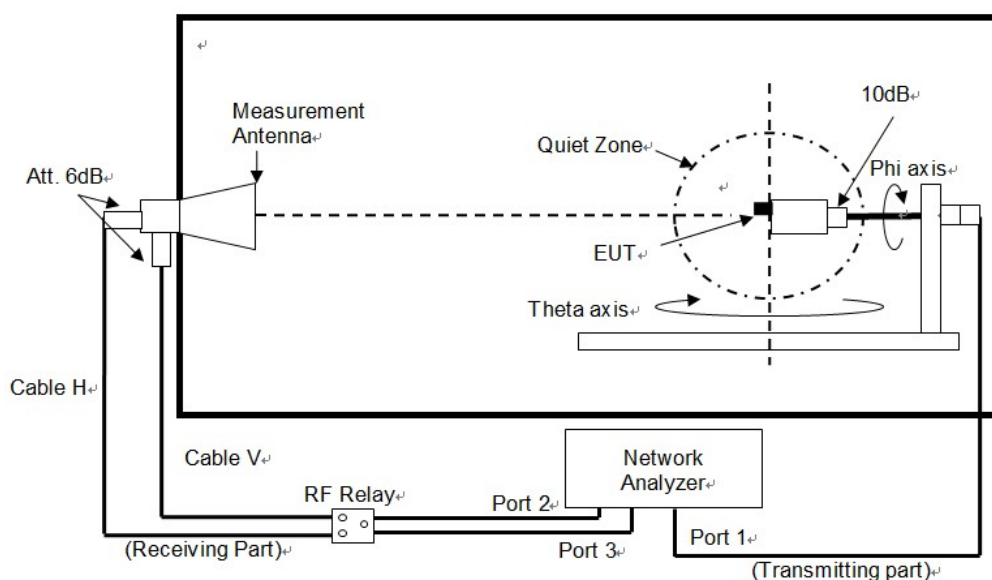
\* 3D Antenna Peak Gain required being test in system basis.

## 1. Test & System Description

### 1.1 Measurement Method and System

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

### 1.2 Test setup



### 1.3 Equipment list

<insert test diagram here for test site utilized>

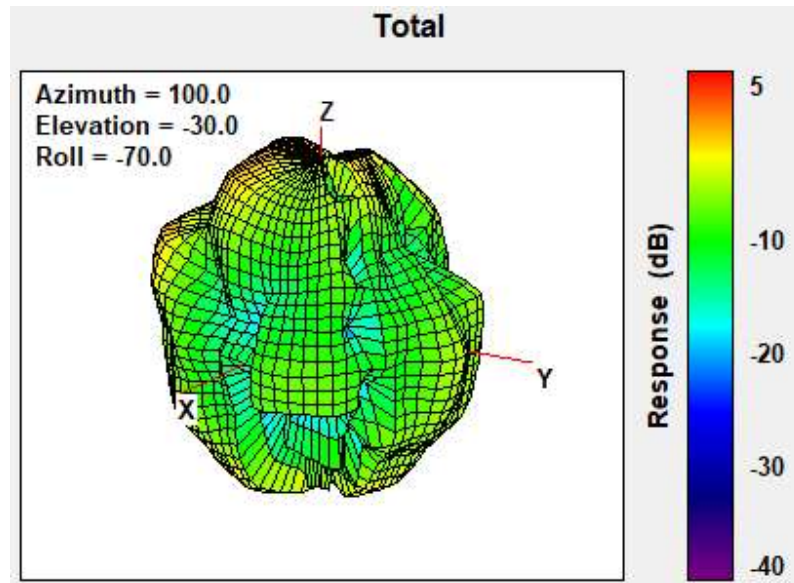
| Name                             | Manufacturer | Type/Model | Serial Number |
|----------------------------------|--------------|------------|---------------|
| ENA Series Network Analyzer      | Keysight     | E5080B     | MY59101211    |
| RF Switch                        | Keysight     | 3499A      | MY42000955    |
| Multi-Axis Positioner Controller | ETS-Lindgren | 2090       | N/A           |
| Medium-Duty Positioner           | ETS-Lindgren | 2015       | N/A           |
| Measurement Horn Antenna         | EMCO         | 3164-08    | 00086722      |

## 2. Radiation characteristics of antenna loaded in Host Platform

### Main Antenna

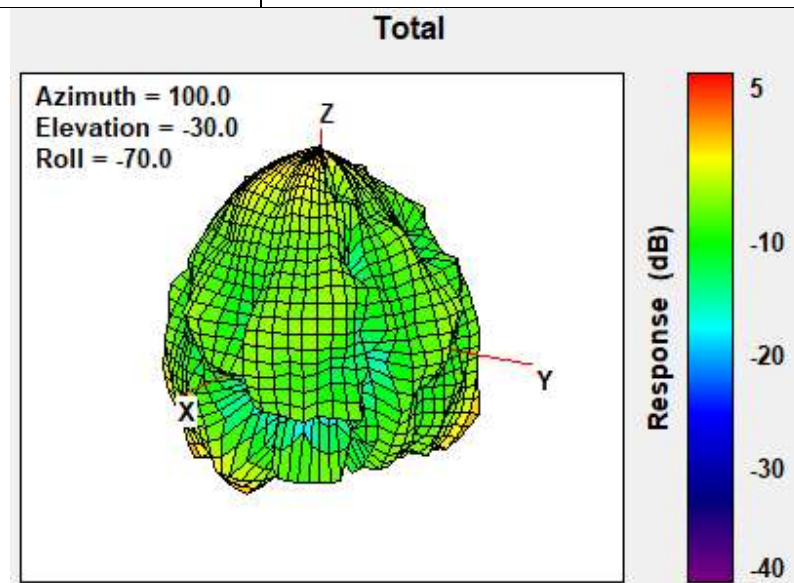
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 2400-2483.5     | 2.71                          |



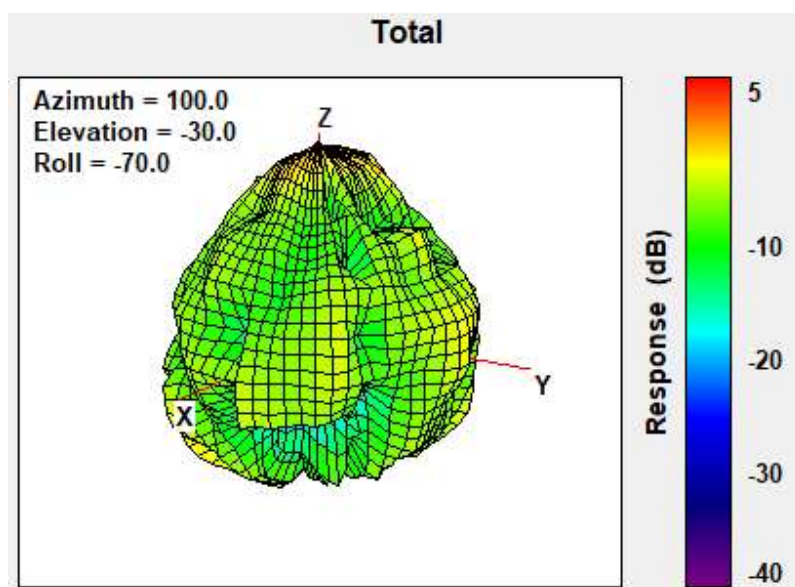
Max Antenna 3D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5150-5250       | 2.94                          |



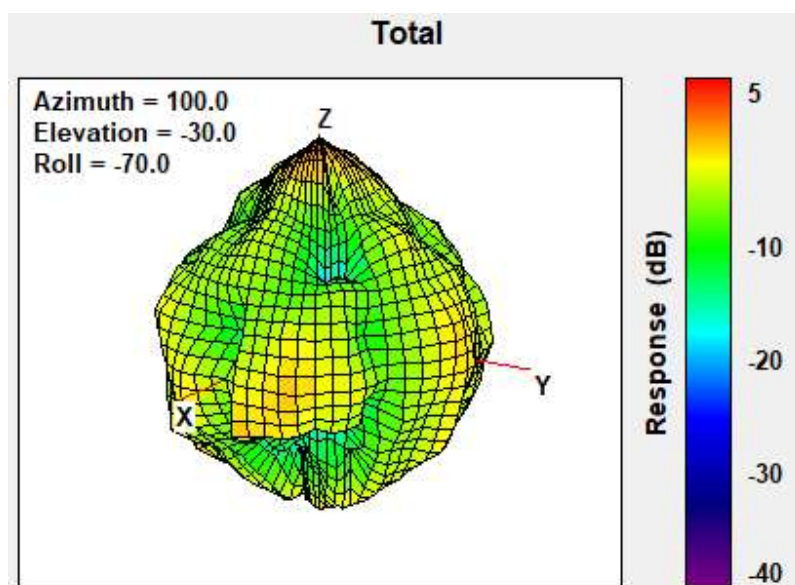
## Max Antenna 3D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5250-5350       | 2.48                          |



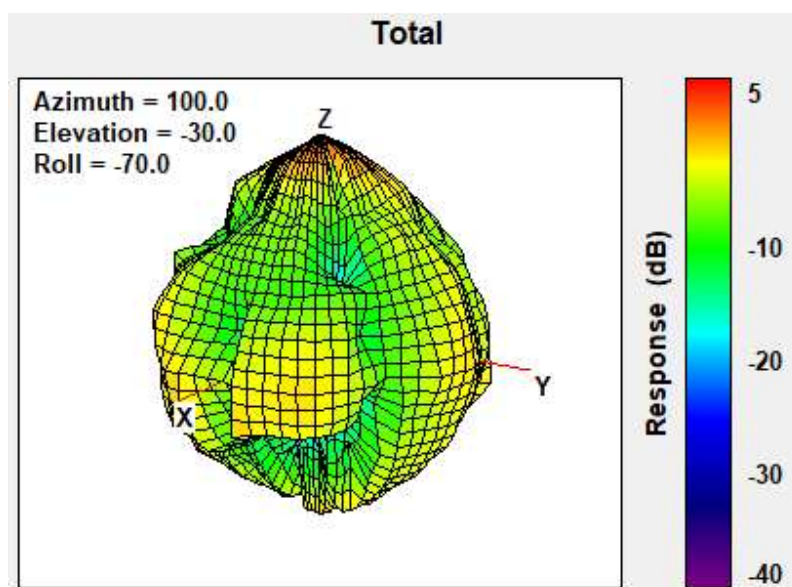
## Max Antenna 3D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5470-5725       | 2.63                          |



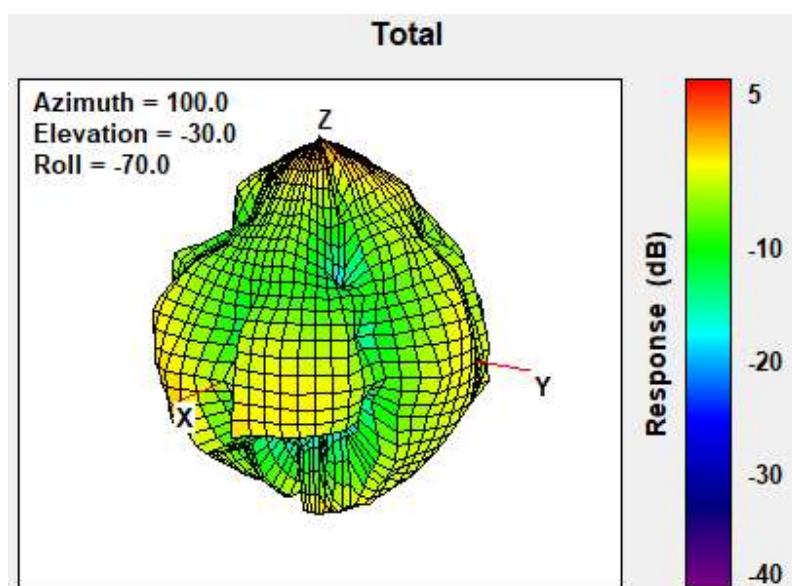
## Max Antenna 3D Radiation Pattern 5725-5850 MHz

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



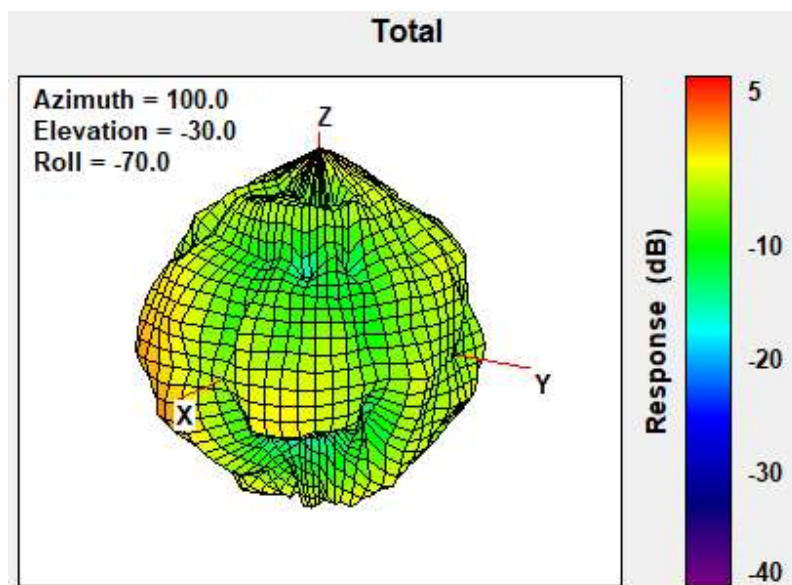
## Max Antenna 3D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5850-5895       | 2.92                          |



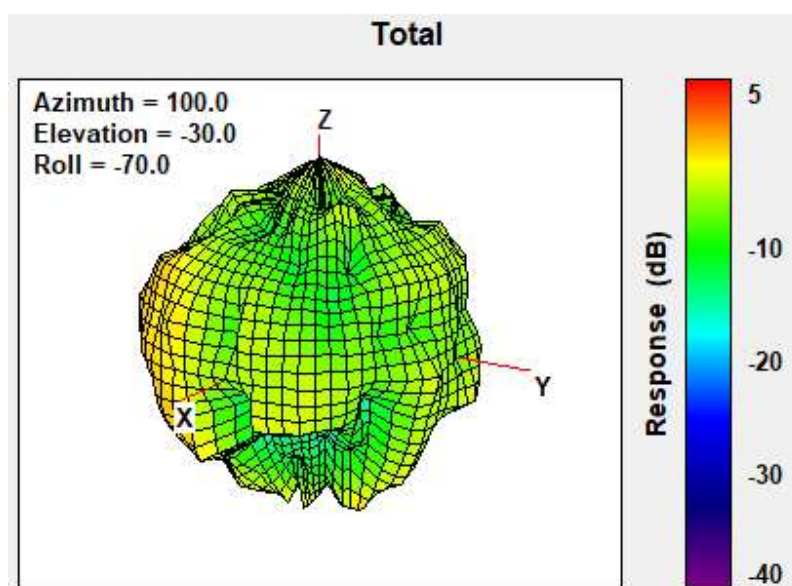
## Max Antenna 3D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5925-6425       | 3.60                          |



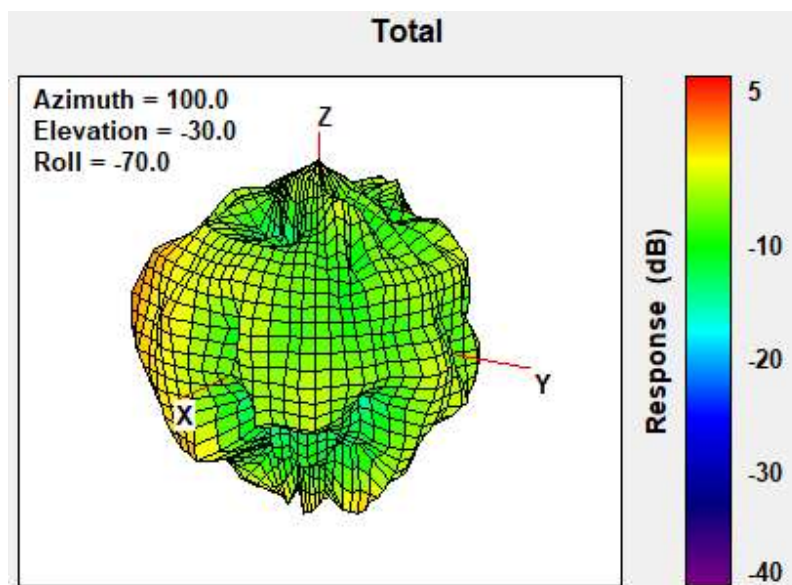
## Max Antenna 3D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6425-6525       | 1.63                          |



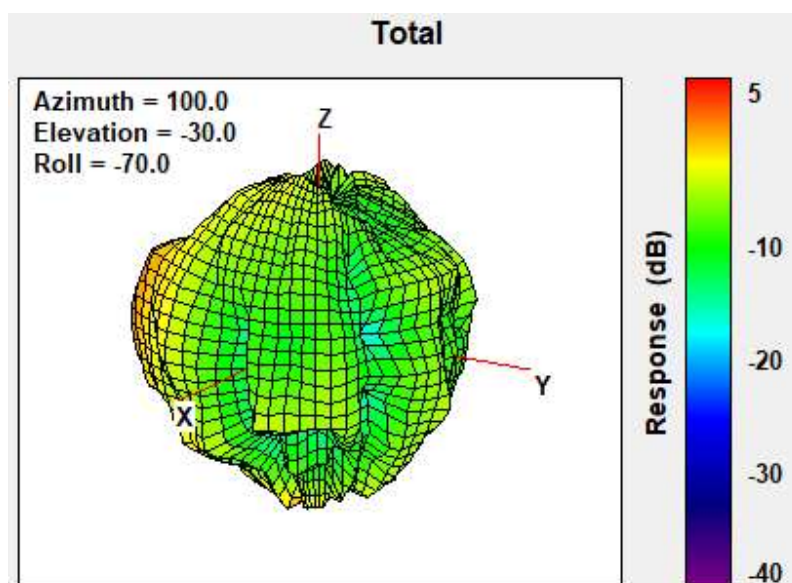
## Max Antenna 3D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6525-6875       | 2.03                          |



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

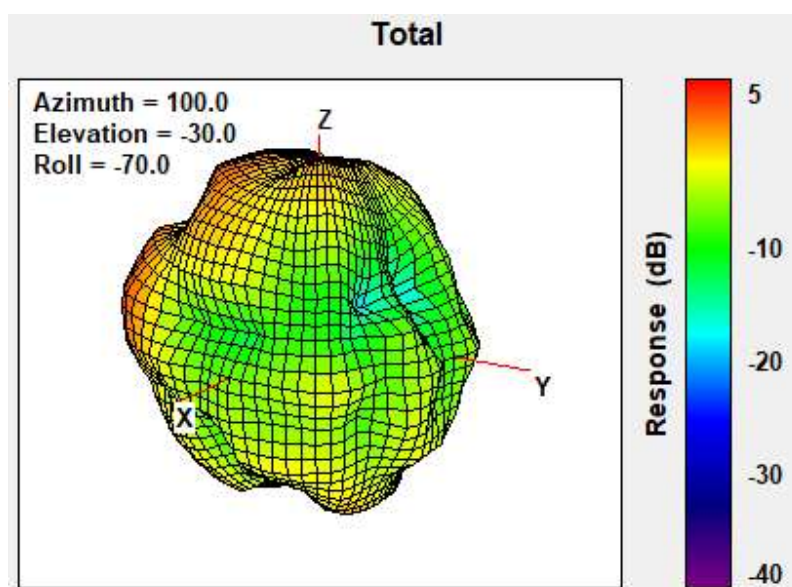
| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6875-7125       | 2.45                          |



## Auxiliary Antenna

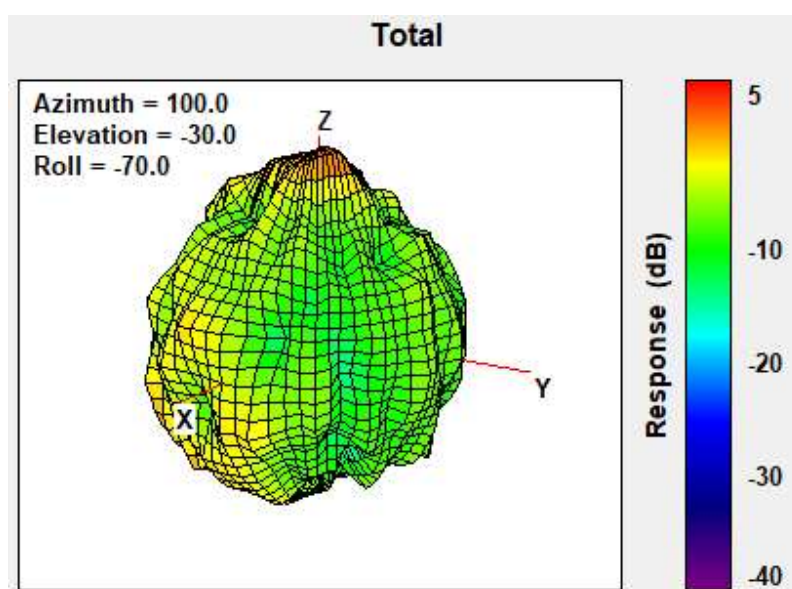
### Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 2400-2483.5     | 2.63                          |



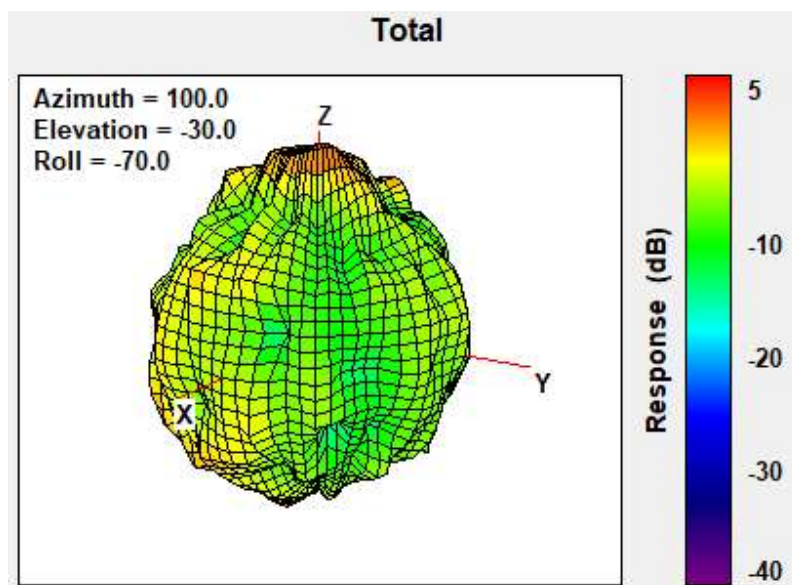
### Max Antenna 3D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5150-5250       | 2.63                          |



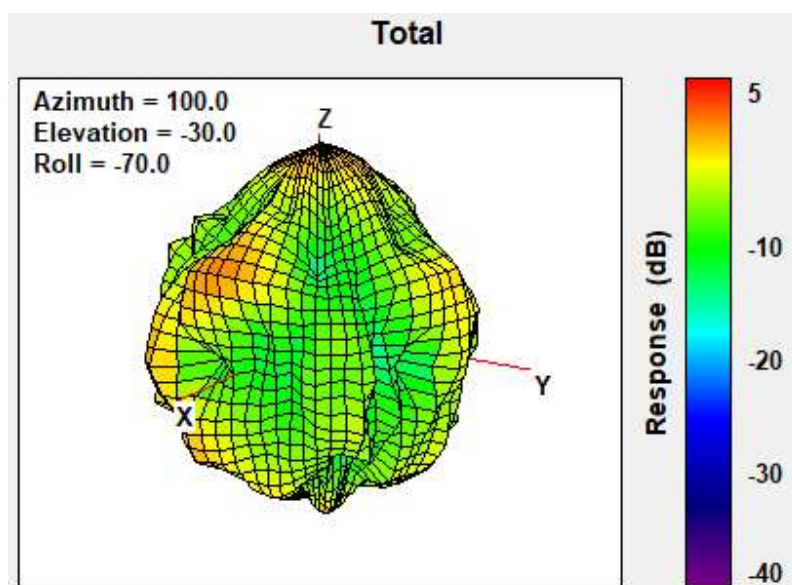
## Max Antenna 3D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5250-5350       | 2.67                          |



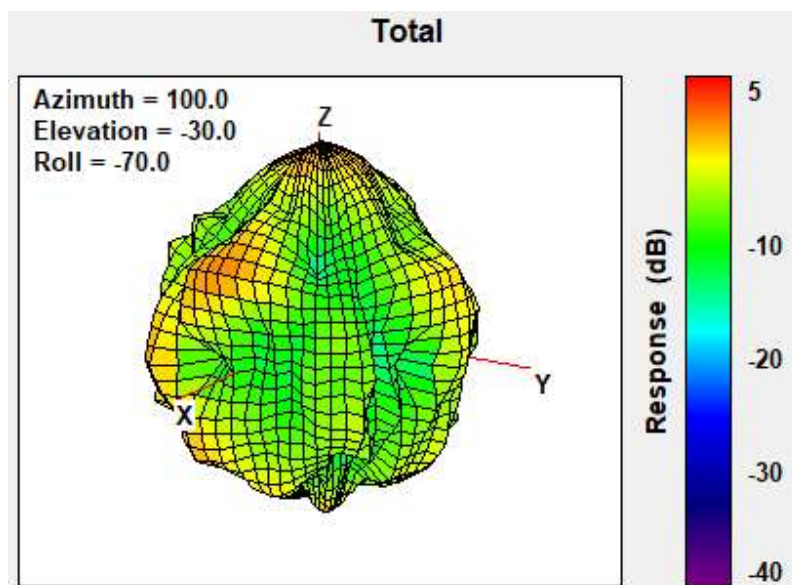
## Max Antenna 3D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5470-5725       | 2.97                          |



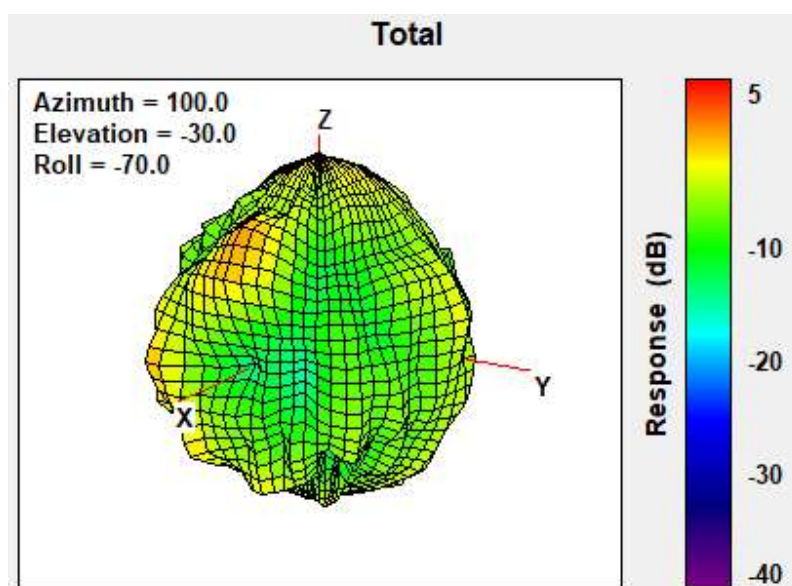
## Max Antenna 3D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5725-5850       | 1.94                          |



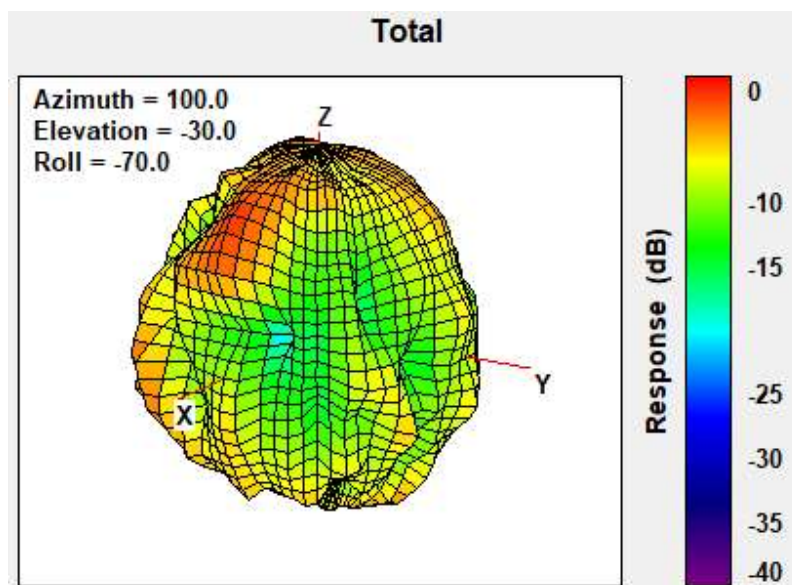
## Max Antenna 3D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5850-5895       | 1.66                          |



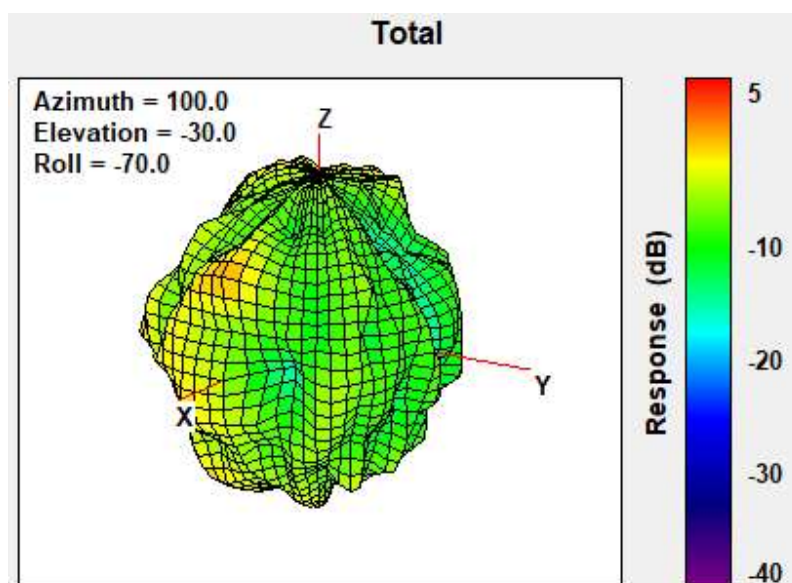
## Max Antenna 3D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5925-6425       | 1.40                          |



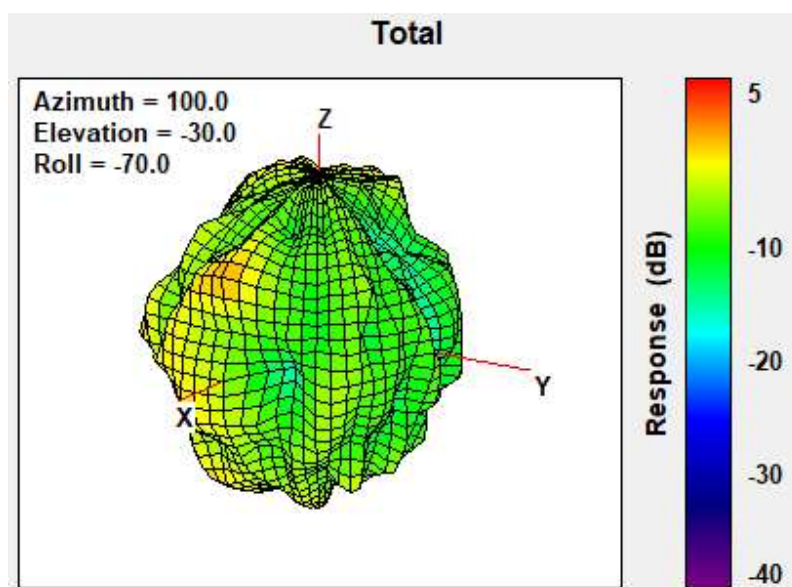
## Max Antenna 3D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6425-6525       | 0.79                          |



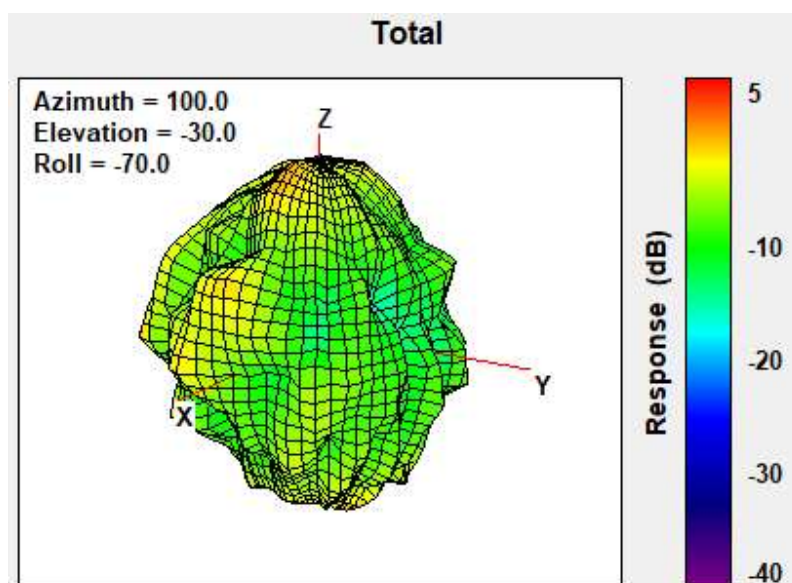
## Max Antenna 3D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6525-6875       | 1.58                          |



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

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6875-7125       | 1.58                          |



# Annex A. Photographs

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## A.1 Setup Photo

<insert test diagram here for test site utilized>

