



# OTA Antenna Performance Data Summary

|                       |                               |
|-----------------------|-------------------------------|
| APPLICANT             | : M5Stack Technology Co., Ltd |
| EQUIPMENT             | : M5DualKey                   |
| BRAND NAME            | : M5Stack                     |
| MODEL NAME            | : DualKey                     |
| ANTENNA TYPE          | : PCB Antenna                 |
| DEVICE RECEIVING DATE | : Aug. 28, 2025               |
| TEST DATE             | : Aug. 28, 2025               |

Tested by:

*Jinshan Zheng*

Jinshan Zheng / Senior Engineer

Reviewed by:

*Johnny Chen*

Johnny Chen / Manager

***Sporton International Inc. (Shenzhen)***

***1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055***

***People's Republic of China***



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## Revision History

| DATA NO. | VERSION | DESCRIPTION                   | ISSUED DATE   |
|----------|---------|-------------------------------|---------------|
| OQ582718 | 1.0     | Initial issue of Data Summary | Aug. 29, 2025 |
|          |         |                               |               |
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|          |         |                               |               |

## 1. Administration Data

### 1.1 Testing Laboratory

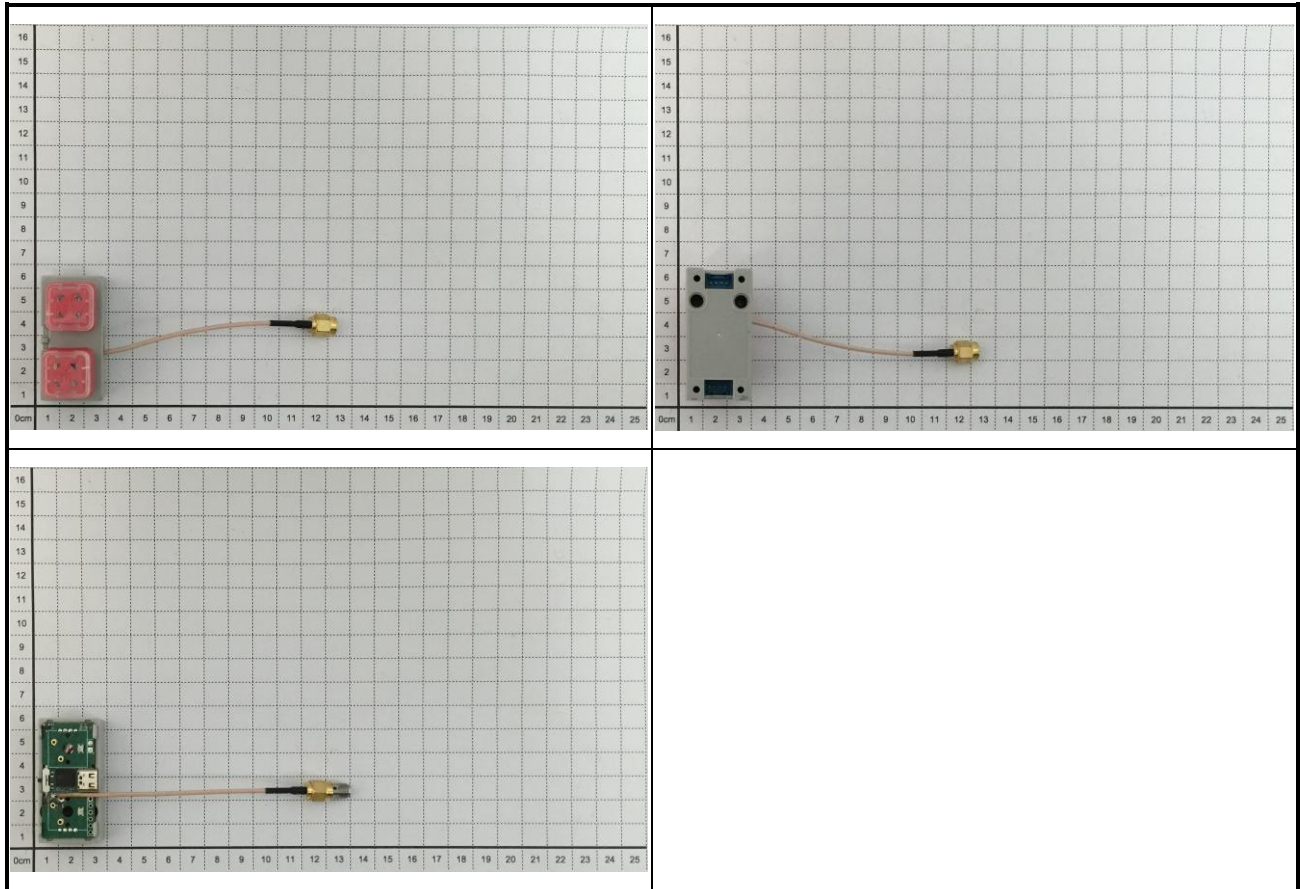
|                    |                                                                                                                                                                          |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Site          | Sporton International Inc. (Shenzhen)                                                                                                                                    |
| Test Site Location | 1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055, People's Republic of China<br>TEL: +86-755-86379589<br>FAX: +86-755-86379595 |
| Chamber            | <input type="checkbox"/> OTA01-SZ <input checked="" type="checkbox"/> OTA02-SZ <input type="checkbox"/> OTA03-SZ                                                         |

■: Indicates the chamber(s) used in this data summary.

### 1.2 Applicant

|              |                                                                                               |
|--------------|-----------------------------------------------------------------------------------------------|
| Company Name | M5Stack Technology Co., Ltd                                                                   |
| Address      | 5F, Tangwei Stock Commercial Building Youli Road, Bao'an District, Shenzhen, Guangdong, China |

## 2. Product Photo



### 3. Measurement Environment

#### 3.1 Ambient Condition

|                   |        |               |      |
|-------------------|--------|---------------|------|
| Temperature (°C): | 25±5°C | Humidity (%): | <60% |
|-------------------|--------|---------------|------|

#### 3.2 Measurement Uncertainty

The maximum expanded measurement uncertainty (k=2, at a 95% confidence level) as below:

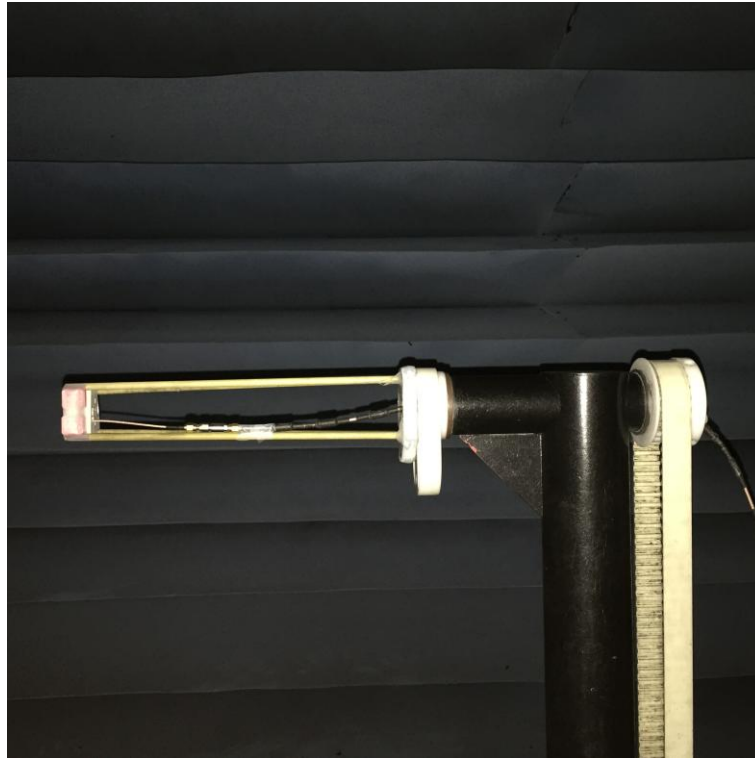
| TRP        |                |                |                |                  |                  |                  |
|------------|----------------|----------------|----------------|------------------|------------------|------------------|
| Normal     | 617-698<br>MHz | 699-798<br>MHz | 814-894<br>MHz | 1695-1780<br>MHz | 1850-2020<br>MHz | 2300-2800<br>MHz |
| Free Space | 1.45           | 1.38           | 1.26           | 1.40             | 1.47             | 1.52             |
| TIS        |                |                |                |                  |                  |                  |
| Normal     | 617-698<br>MHz | 699-798<br>MHz | 814-894<br>MHz | 1850-2020<br>MHz | 2110-2180<br>MHz | 2300-2800<br>MHz |
| Free Space | 1.91           | 1.86           | 1.77           | 1.92             | 1.88             | 1.96             |

#### 4. Summary of Test Result of Antenna Gain

| Test / Position | Antenna Gain / Free Space |                   |               |                |                |
|-----------------|---------------------------|-------------------|---------------|----------------|----------------|
|                 | Frequency (MHz)           | Directivity (dBi) | Avg Gain(dBi) | Efficiency (%) | Peak Gain(dBi) |
| 2.4G WIFI       | 2400                      | 6.84              | -4.18         | 38.23          | 2.67           |
|                 | 2410                      | 6.84              | -3.88         | 40.96          | 2.97           |
|                 | 2420                      | 6.88              | -3.70         | 42.69          | 3.18           |
|                 | 2430                      | 6.83              | -3.64         | 43.23          | 3.19           |
|                 | 2440                      | 6.88              | -3.66         | 43.01          | 3.22           |
|                 | 2450                      | 6.85              | -3.78         | 41.86          | 3.07           |
|                 | 2460                      | 6.87              | -3.97         | 40.07          | 2.89           |
|                 | 2470                      | 6.81              | -4.22         | 37.86          | 2.59           |
|                 | 2480                      | 6.78              | -4.48         | 35.67          | 2.30           |
|                 | 2490                      | 6.64              | -4.74         | 33.59          | 1.91           |
|                 | 2500                      | 6.57              | -5.07         | 31.15          | 1.50           |

## 5. Description for EUT Testing Position

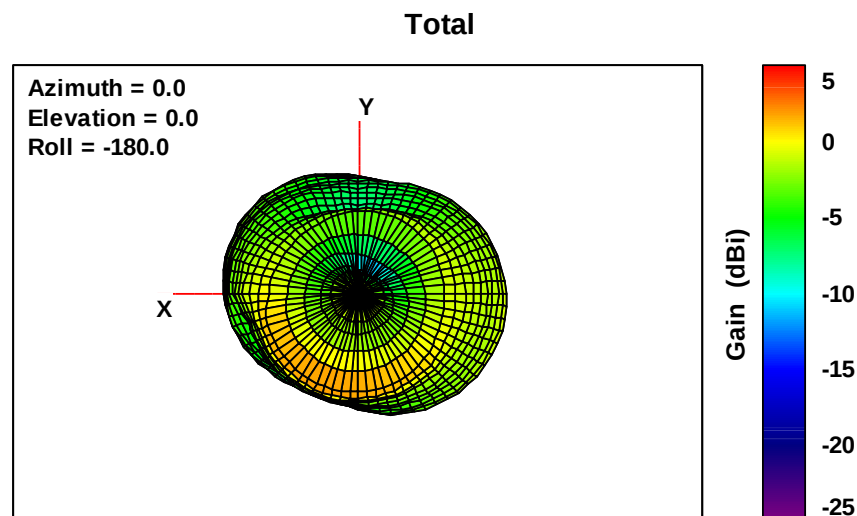
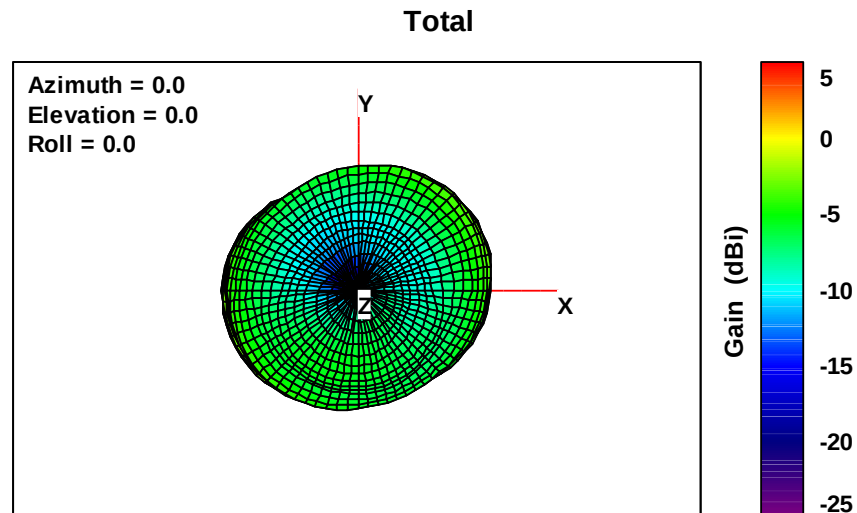
Placed and fixed with tape shown as below.



Free Space

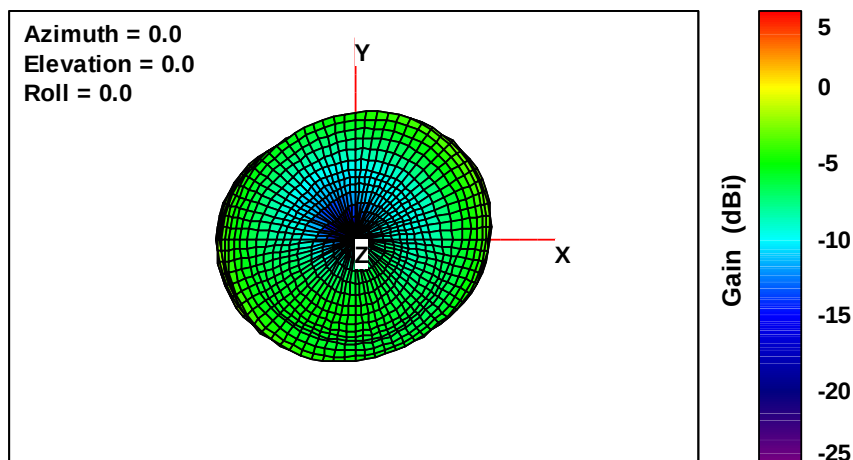
## 6. Free Space Position Antenna Gain Patterns

Please refer to as below.

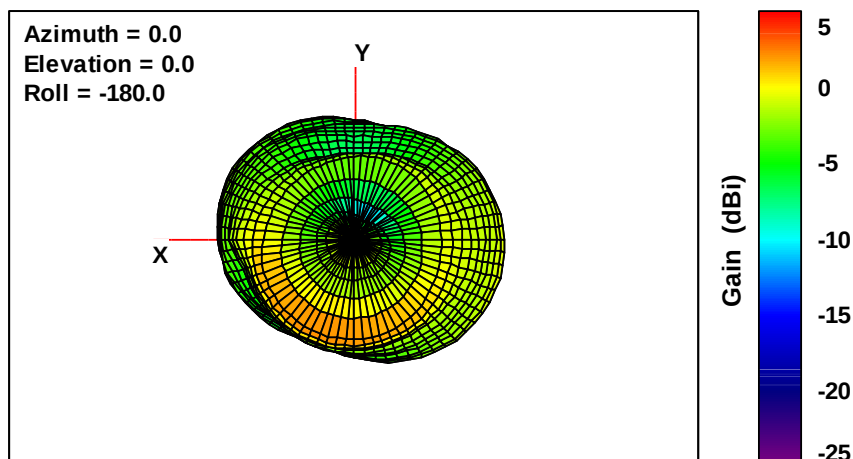


Free Space for 2400MHz

Total

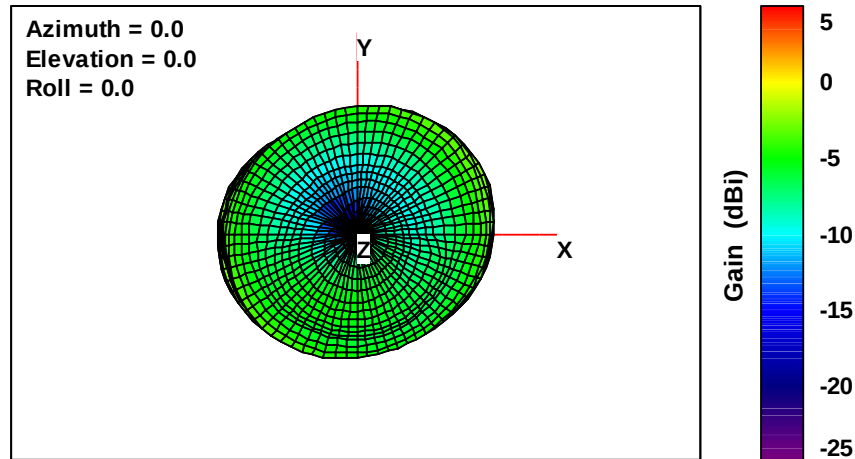


Total

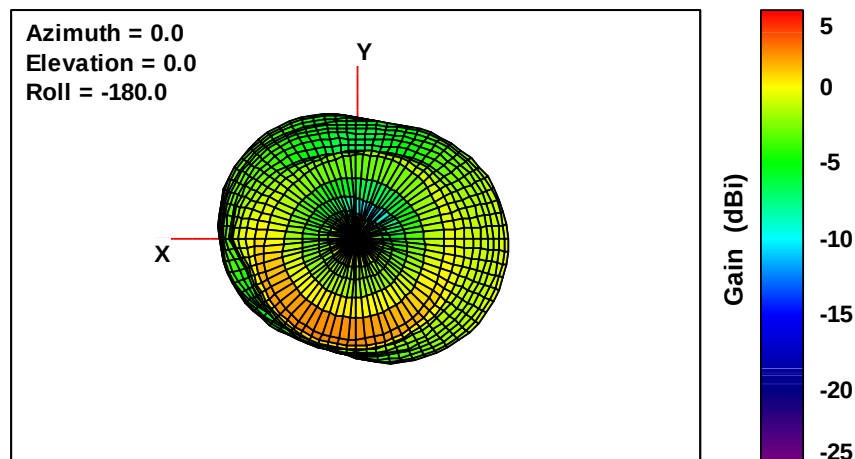


Free Space for 2410MHz

Total

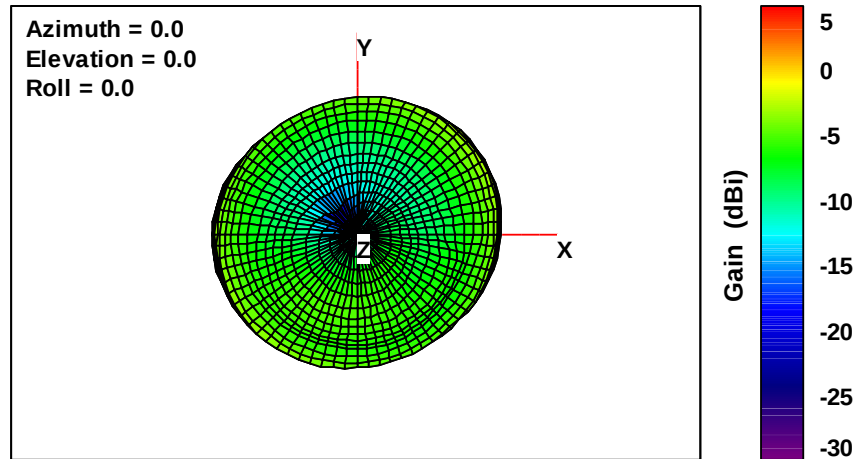


Total

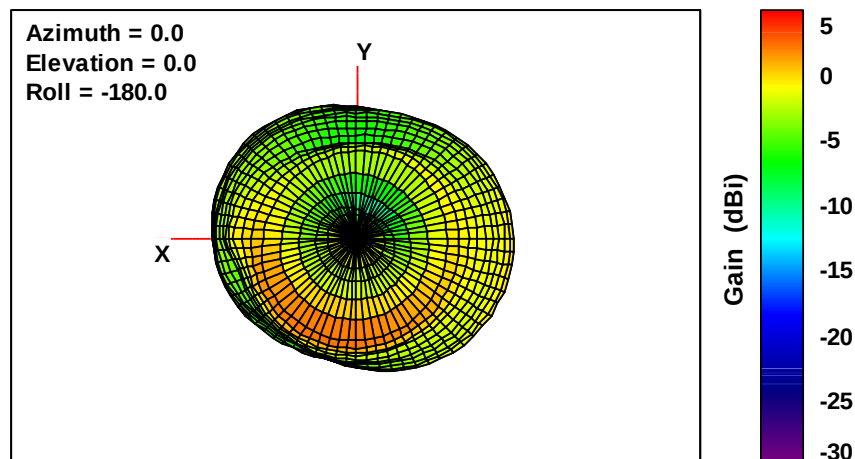


Free Space for 2420MHz

Total

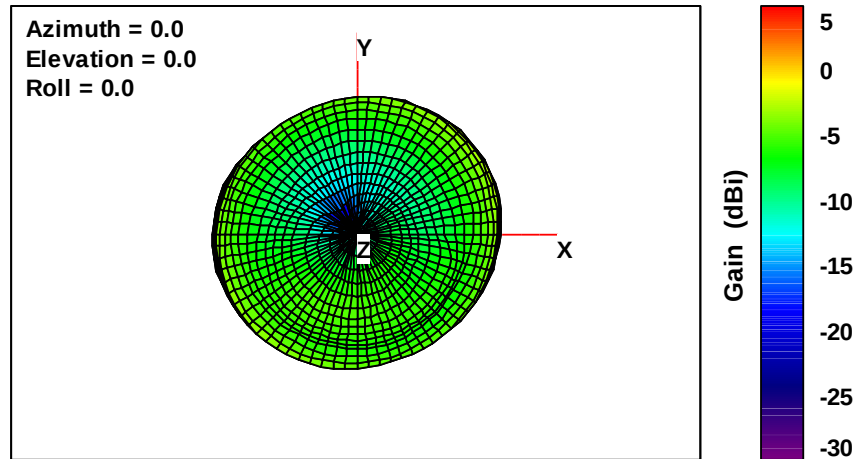


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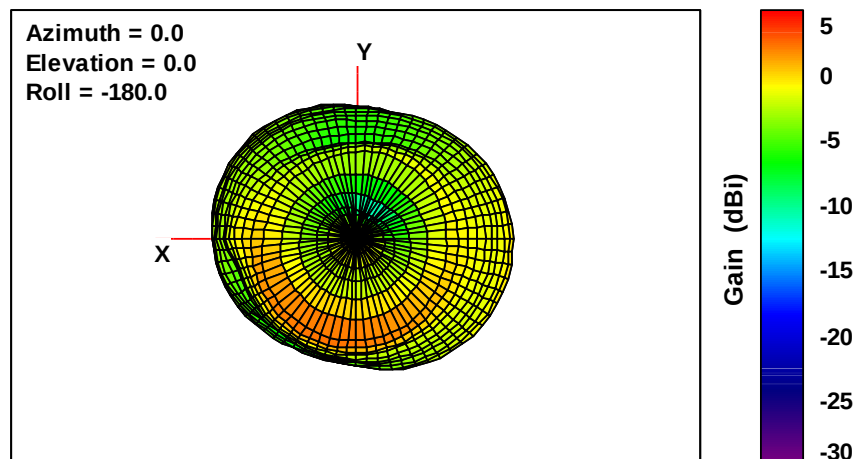


Free Space for 2430MHz

Total

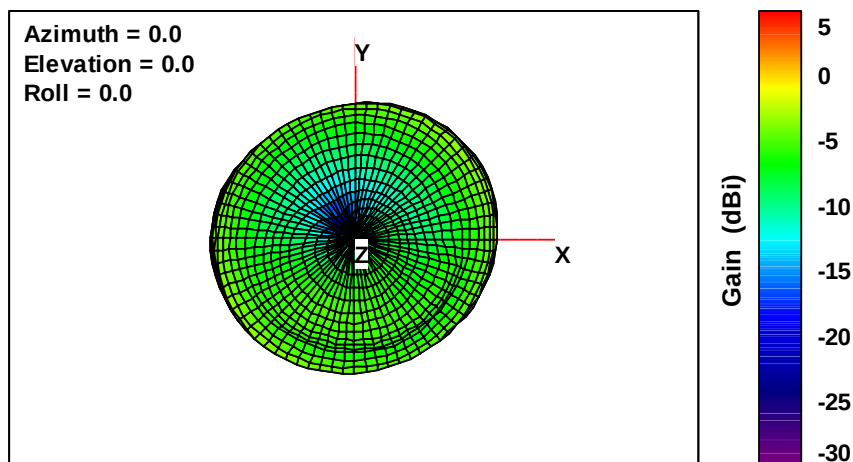


Total

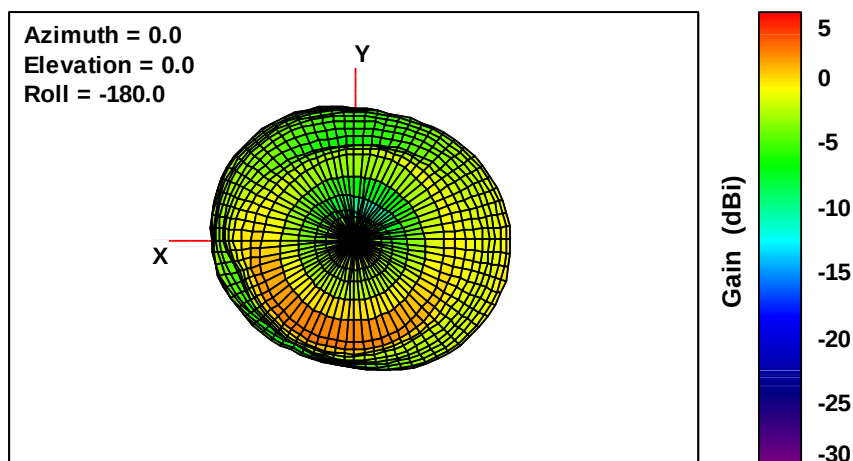


Free Space for 2440MHz

Total

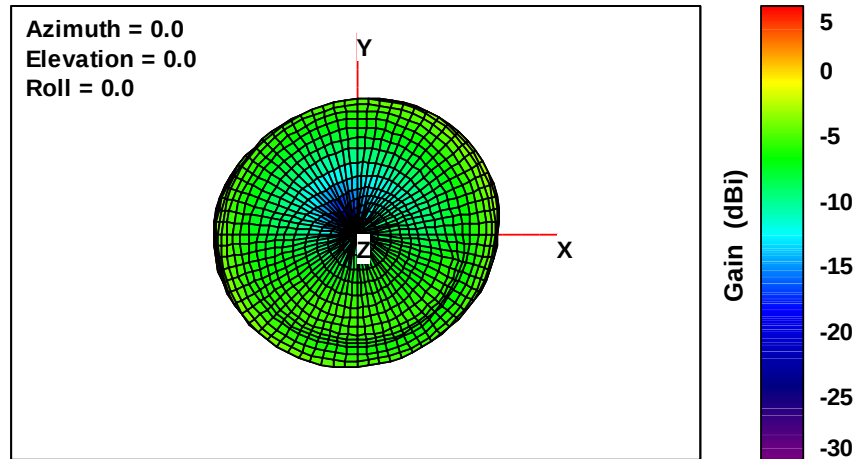


Total

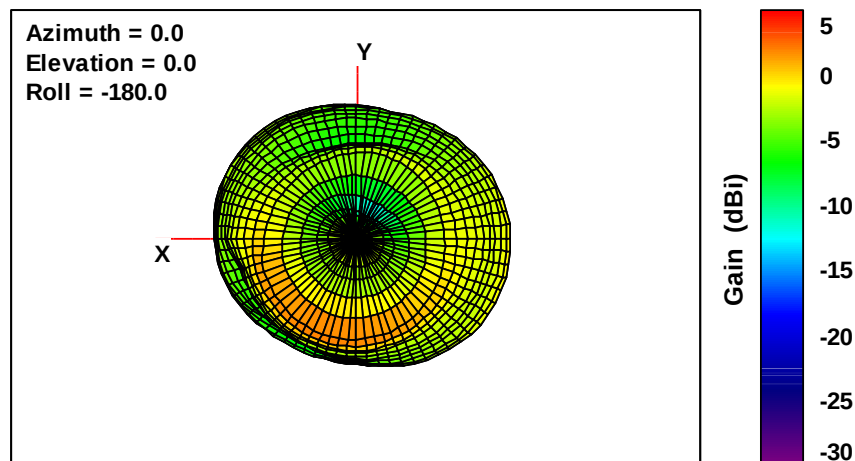


Free Space for 2450MHz

Total

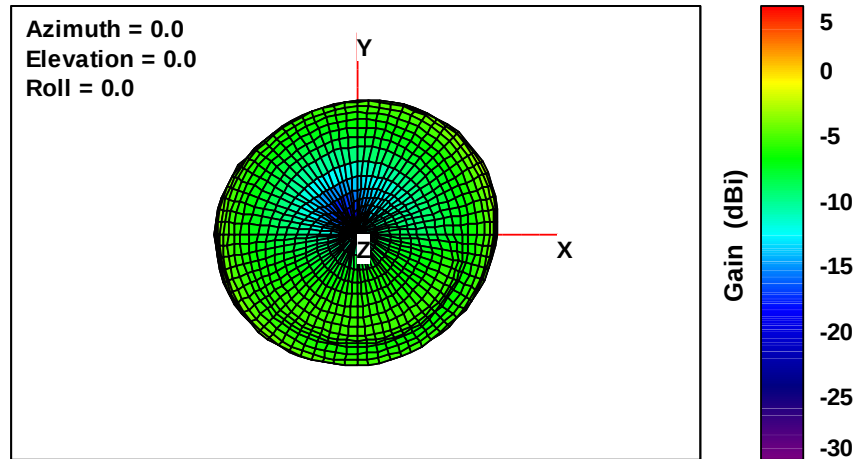


Total

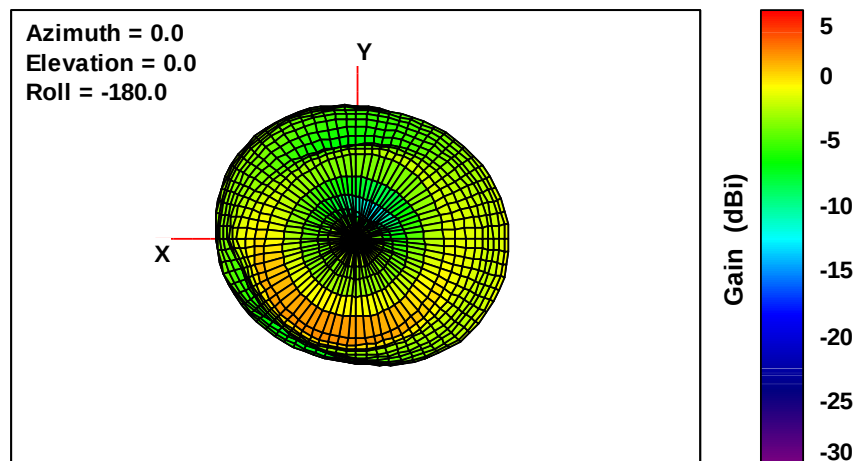


Free Space for 2460MHz

Total

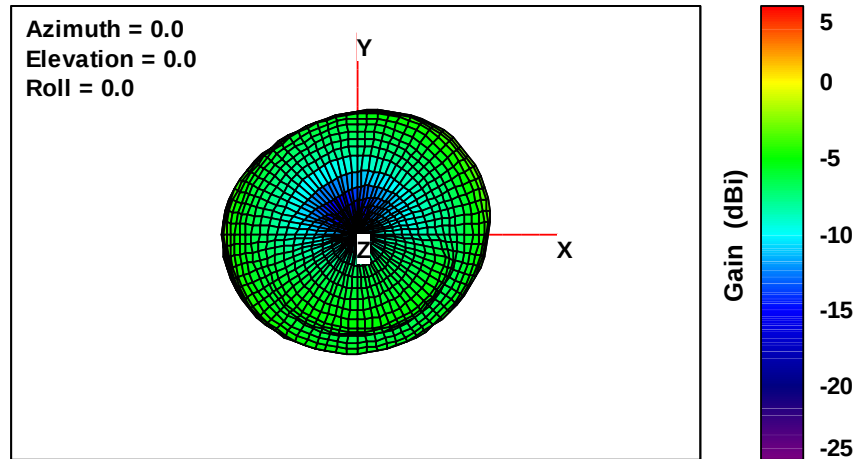


Total

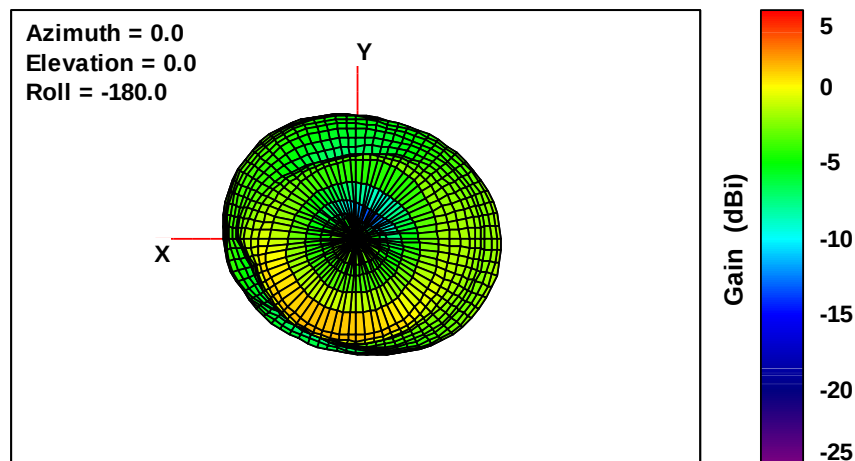


Free Space for 2470MHz

Total

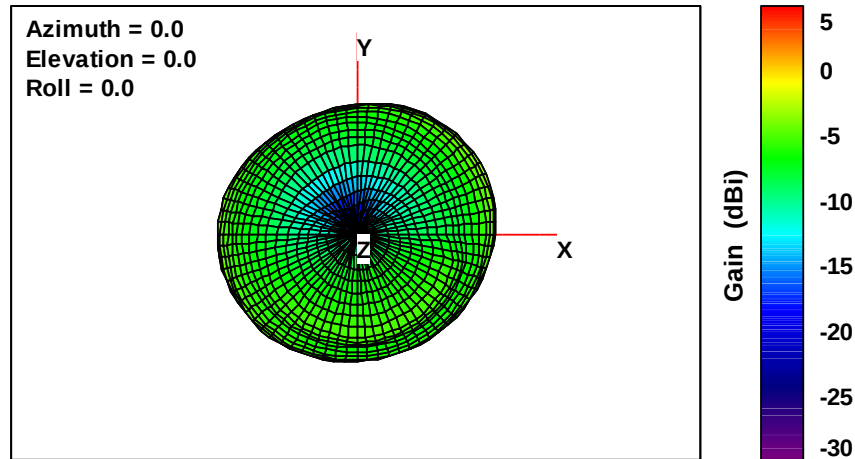


Total

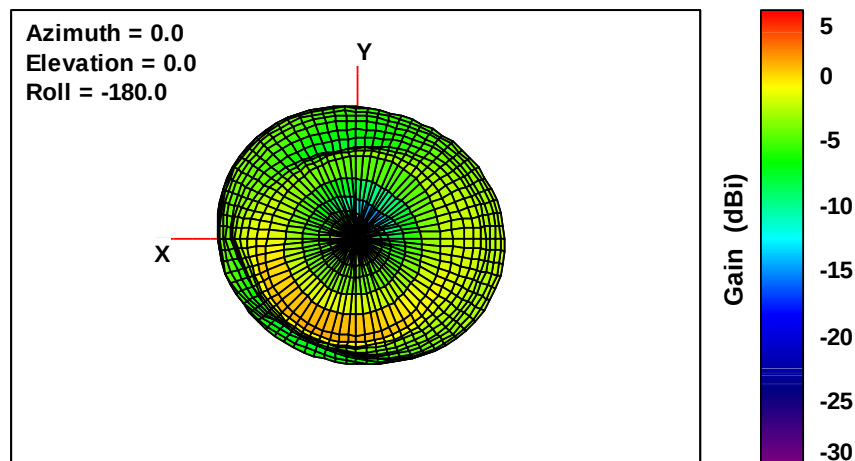


Free Space for 2480MHz

Total

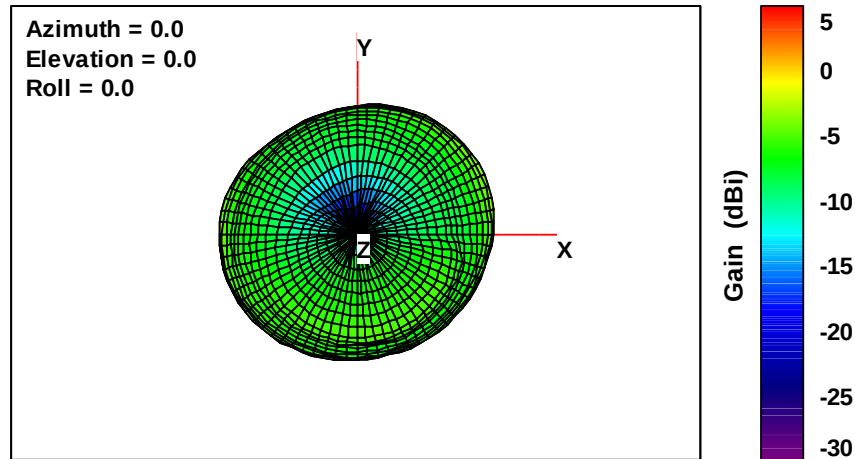


Total

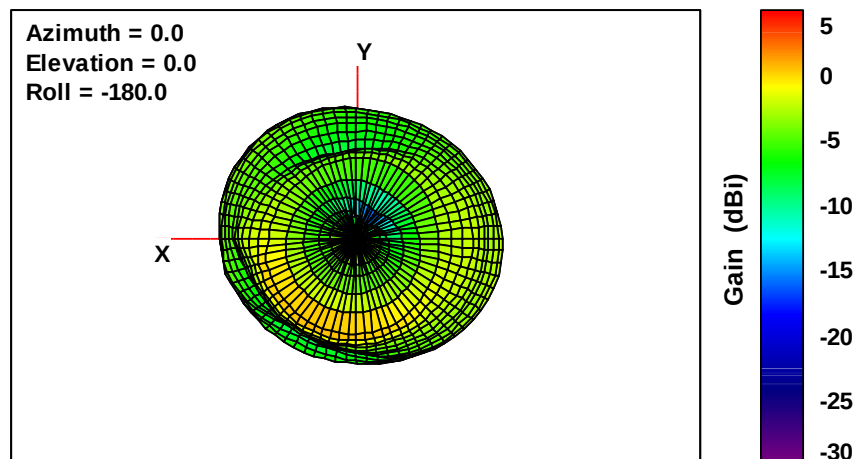


Free Space for 2490MHz

Total



Total



Free Space for 2500MHz

--THE END--