# Antenna Datasheet

**Product OC:** YEMN400J1AH
**Version:** 1.0
**Date:** 2025-05-20
**Status:** Released

**Product Name:** 5G 4in1 Screw Mount Combo External Antenna
**Key Features:**
Optimized for 5G and 4G Networks
Φ 103.5 mm × 42.5 mm
4 × 4 5G/4G MIMO
Screw Mount-M20
SMA Male Connector
IP Rating: IP67 & IP69K
RoHS & REACH Compliant
Compatible with ECE-R118 cables under demand

# Overview

YEMN400J1AH is a 5G 4in1 combo antenna measuring Φ 103.5 mm × 42.5 mm. This ultra-wide-band 5G antenna provides broad coverage from 600–6,000 MHz whilst offering backward-compatibility to support 3G and 2G networks as well as LTE Cat-M and narrowband IoT (NB-IoT). The antenna is available with connection via 4 cable lengths from 300–5,000 mm, terminated with SMA Male connectors. Ideal for applications where the antenna is required to be discrete this low profile, screw mount omni-directional antenna, is easy to install with maximum durability assured thanks to its IP67 & IP69K and IK09 rated enclosure. It is compatible with Quectel's RM520x Series modules.

YEMN400J1AH has 2 × 5G LMH antennas, 2 × 5G MH/Wi-Fi antennas. It allows high efficiency, stable signal transmission and reception for 5G/4G bands from 600–960 MHz and 1400–6000 MHz. In the meantime, this product also offers high isolation between antennas to avoid self-interference. All in all, this unique product is designed to provide stable and high-speed data connection to 5G applications. The YEMN400J1AH can be used in harsh environments thanks to its robust UV resistant (UL 746c f1) and flame resistant (UL 94 V-0) enclosure.

Typical Applications Include:

- Smart Utilities and Buildings
- Digital Signage
- Warehouses & Logistic systems
- Industrial factory automation, robotic machinery and other M2M systems
- Transport (Busses, Utility & Public Safety)
- Mining Vehicles & Machinery communications, telemetry and automation

Quectel provides comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs. We have regional R & D centers to offer quick response to meet your requirements. Please contact our sales & FAEs if you have any requests.

# Contents

# 1 Specification

**Test Condition: In Free Space & On 320 mm × 240 mm Metal Plane**

## 1.1 Electrical

| Electrical Specifications | | |
|---|---|---|
| **Frequency Range** | **LMHs** | 600–960 MHz, 1400–6000 MHz |
| | **MHs** | 1400–6000 MHz |
| **Radiation Pattern** | | Omni-directional |
| **Polarization** | | Linear |
| **Impedance** | | 50 Ω |
| **Isolation** | | ≤ -6.9 dB |

### 1.1.1 LMHs

| Band / SPEC | Band | B71 | B12 /B13 /B28 | B5 /B8 /B26 | n74 /n75 /n76 | B1 /B2 /B3 | B40 | Wi-Fi 2G | B38 /B41 | B42 /B48 /n77 | n79 | Wi-Fi 5G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Freq. (MHz) | 600–700 | 700–810 | 820–960 | 1420–1520 | 1700–2170 | 2300–2400 | 2400–2500 | 2500–2690 | 3300–4200 | 4400–5000 | 5150–5850 |
| Max VSWR | FS | 9.5 | 2.4 | 5.7 | 2.0 | 1.4 | 1.4 | 1.3 | 1.3 | 2.5 | 1.9 | 1.7 |
| | MP | 8.5 | 3.7 | 5.3 | 2.1 | 1.9 | 1.6 | 1.5 | 1.4 | 2.8 | 2.0 | 1.9 |
| Max Return Loss (dB) | FS | -1.8 | -7.7 | -3.1 | -9.5 | -15.6 | -15.6 | -17.7 | -17.7 | -7.4 | -10.2 | -11.7 |
| | MP | -2.1 | -4.8 | -3.3 | -9.0 | -10.2 | -12.7 | -14.0 | -15.6 | -6.5 | -9.5 | -10.2 |
| AVG Eff. (%) | FS | 20.9 | 37.2 | 28.8 | 55.2 | 69.8 | 73.9 | 73.3 | 66.6 | 60.4 | 55.2 | 46.7 |
| | MP | 14.0 | 39.0 | 34.7 | 50.0 | 64.7 | 60.4 | 64.9 | 57.4 | 48.0 | 48.2 | 44.2 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AVG AVG Gain (dB)** | **FS** | -7.1 | -4.4 | -5.6 | -2.6 | -1.6 | -1.3 | -1.3 | -1.8 | -2.2 | -2.6 | -3.3 |
| | **MP** | -9.0 | -4.2 | -4.7 | -3.1 | -1.9 | -2.2 | -1.9 | -2.4 | -3.3 | -3.2 | -3.5 |
| **Max Peak Gain (dBi)** | **FS** | -1.7 | 0.5 | 0.1 | 1.6 | 2.0 | 1.6 | 2.0 | 2.5 | 5.0 | 3.9 | 3.7 |
| | **MP** | -2.5 | 2.7 | 2.3 | 4.6 | 5.9 | 4.8 | 5.5 | 5.5 | 6.2 | 5.3 | 4.6 |
| **VSWR** | **FS** | ≤ 9.2 | | | | | | | | | | |
| | **MP** | ≤ 8.5 | | | | | | | | | | |
| **Return Loss** | **FS** | ≤ -1.8 dB | | | | | | | | | | |
| | **MP** | ≤ -2.1 dB | | | | | | | | | | |
| **Peak Gain** | **FS** | ≤ 5.0 dBi | | | | | | | | | | |
| | **MP** | ≤ 6.2 dBi | | | | | | | | | | |

- LMHs: LMH antennas
- MHs: MH antennas
- FS: In Free Space
- MP: On 320 mm × 240 mm Metal Plane

### 1.1.2 MHs

| **Band / SPEC** | **Band** | **B71** | **B12 /B13 /B28** | **B5 /B8 /B26** | **n74 /n75 /n76** | **B1 /B2 /B3** | **B40** | **Wi-Fi 2G** | **B38 /B41** | **B42 /B48 /n77** | **n79** | **Wi-Fi 5G** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Freq. (MHz)** | **600–700** | **700–810** | **820–960** | **1420–1520** | **1700–2170** | **2300–2400** | **2400–2500** | **2500–2690** | **3300–4200** | **4400–5000** | **5150–5850** |
| **Max VSWR** | **FS** | - | - | - | 4.0 | 2.8 | 3.8 | 3.3 | 2.9 | 1.9 | 2.2 | 2.4 |
| | **MP** | - | - | - | 2.9 | 2.4 | 4.3 | 4.4 | 3.2 | 2.3 | 3.0 | 2.3 |
| **Max Return Loss (dB)** | **FS** | - | - | - | -4.5 | -6.5 | -4.7 | -5.4 | -6.2 | -9.9 | -8.3 | -7.6 |
| | **MP** | - | - | - | -6.2 | -7.6 | -4.1 | -4.0 | -5.6 | -8.3 | -6.1 | -8.1 |
| **AVG Eff. (%)** | **FS** | - | - | - | 48.7 | 55.7 | 38.0 | 37.0 | 42.1 | 63.0 | 51.8 | 49.2 |
| | **MP** | - | - | - | 39.7 | 60.0 | 36.2 | 34.4 | 39.8 | 64.4 | 45.9 | 53.1 |
| **AVG AVG Gain (dB)** | **FS** | - | - | - | -3.2 | -2.6 | -4.2 | -4.4 | -3.8 | -2.0 | -2.9 | -3.1 |
| | **MP** | - | - | - | -4.1 | -2.2 | -4.4 | -4.6 | -4.0 | -1.9 | -3.4 | -2.8 |
| **Max Peak** | **FS** | - | - | - | 1.2 | 2.5 | 1.2 | 3.2 | 3.5 | 4.9 | 4.4 | 4.9 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gain (dBi)** | **MP** | - | - | - | 3.9 | 6.7 | 2.8 | 2.8 | 4.1 | 8.2 | 3.9 | 5.8 |
| **VSWR** | **FS** | ≤ 4.0 | | | | | | | | | | |
| | **MP** | ≤ 4.4 | | | | | | | | | | |
| **Return Loss** | **FS** | ≤ -4.5 dB | | | | | | | | | | |
| | **MP** | ≤ -4 dB | | | | | | | | | | |
| **Peak Gain** | **FS** | ≤ 4.9 dBi | | | | | | | | | | |
| | **MP** | ≤ 8.2 dBi | | | | | | | | | | |

- LMHs: LMH antennas
- MHs: MH antennas
- FS: In Free Space
- MP: On 320 × 240 mm Metal Plane

## 1.2 Mechanical & Environment

| | |
|---|---|
| **Mechanical** | |
| **Antenna Size** | Φ 103.5 mm × 42.5 mm |
| **Casing Material & Color** | PC & Black |
| **Cable Type & Length** | RG405 Black & 300 mm |
| **Connector Type** | SMA Male<br>(The current state of the SMA connector is not waterproof. If a waterproof connector is required, it can be customized.) |
| **Weight** | Typ. 199 g |
| **Mounting Type** | Screw Mounting (M20) |
| **Environmental** | |
| **Operation Temperature** | -40 °C to +85 °C |
| **Storage Temperature** | -40 °C to +85 °C |
| **Ingress Protection (IP) Rating** | IP67 (After Installation)<br>IP69K (After Installation) |
| **Impact Protection (IK) Rating** | IK09 |
| **RoHS & REACH Compliant** | Yes |
| **Housing Flame Rating** | UL 94 V-0 |
| **Housing UV Resistant** | UL 746c f1 |

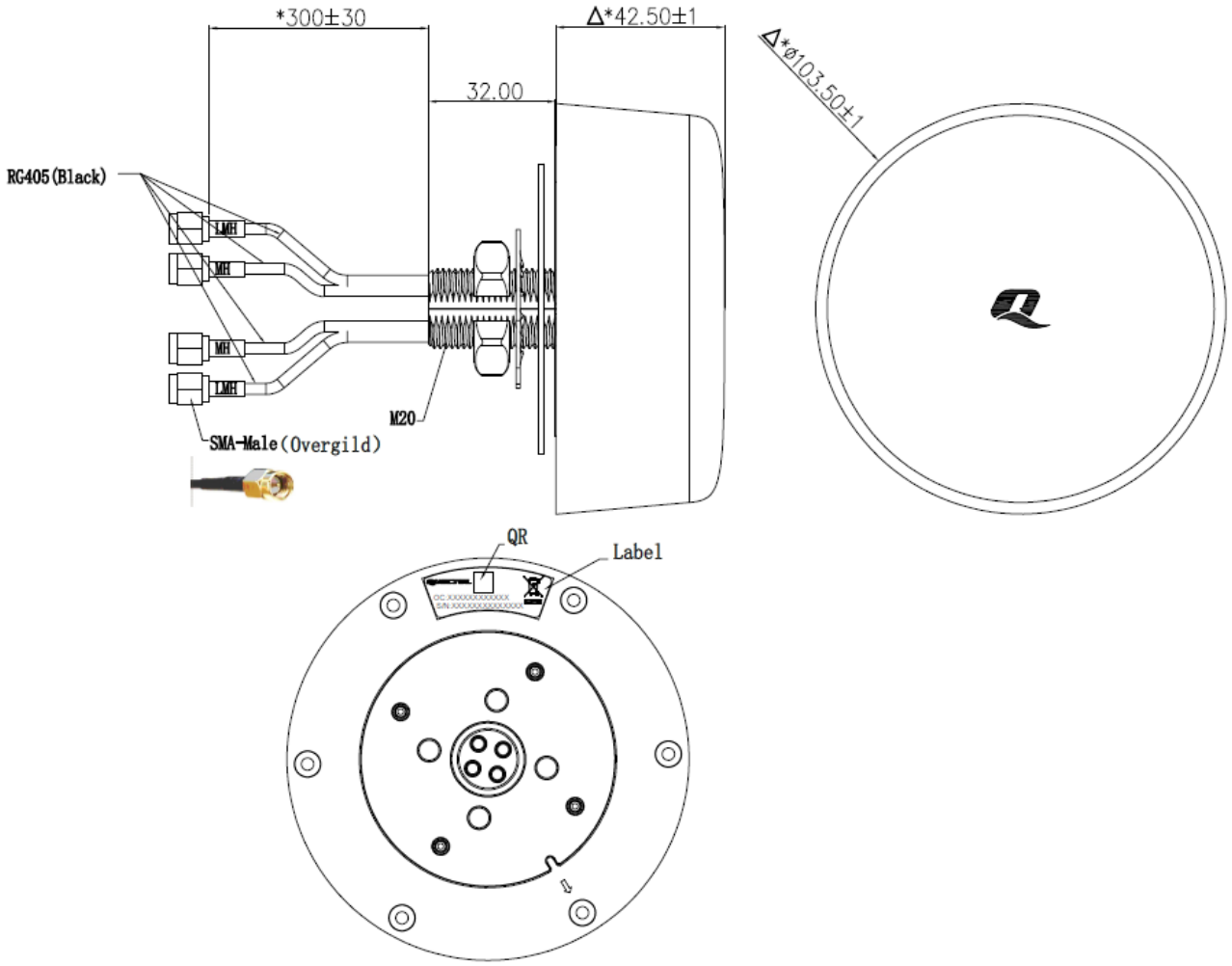
- LMHs: LMH antennas
- MHs: MH antennas
- FS: In Free Space
- MP: On 320 × 240 mm Metal Plane

## 1.3 Supported Bands

| 5G NR/ LTE/ LTE-Advanced/ WCDMA/ HSPA/ HSPA+/ GPRS/ GSM/ NB-IoT | | | | | |
|---|---|---|---|---|---|
| **Band** | **Frequency (MHz)** | **Uplink (MHz)** | **Downlink (MHz)** | **LMHs** | **MHs** |
| 1 | 2100 | 1920–1980 | 2110–2170 | √ | √ |
| 2 | 1900 | 1850–1910 | 1930–1990 | √ | √ |
| 3 | 1800 | 1710–1785 | 1805–1880 | √ | √ |
| 4 | 1700 | 1710–1755 | 2110–2155 | √ | √ |
| 5 | 850 | 824–849 | 869–894 | √ | - |
| 7 | 2600 | 2500–2570 | 2620–2690 | √ | √ |
| 8 | 900 | 880–915 | 925–960 | √ | - |
| 9 | 1800 | 1749.9–1784.9 | 1844.9–1879.9 | √ | √ |
| 11 | 1500 | 1427.9–1447.9 | 1475.9–1495.9 | √ | √ |
| 12 | 700 | 699–716 | 729–746 | √ | - |
| 13 | 700 | 777–787 | 746–756 | √ | - |
| 14 | 700 | 788–798 | 758–768 | √ | - |
| 17 | 700 | 704–716 | 734–746 | √ | - |
| 18 | 850 | 815–830 | 860–875 | √ | - |
| 19 | 850 | 830–845 | 875–890 | √ | - |
| 20 | 800 | 832–862 | 791–821 | √ | - |
| 21 | 1500 | 1447.9–1462.9 | 1495.9–1510.9 | √ | √ |
| 22 | 3500 | 3410–3490 | 3510–3590 | √ | √ |
| 23 | 2100 | 2000–2020 | 2180–2200 | √ | √ |
| 24 | 1600 | 1626.5–1660.5 | 1525–1559 | √ | √ |
| 25 | 1900 | 1850–1915 | 1930–1995 | √ | √ |
| 26 | 850 | 814–849 | 859–894 | √ | - |

| 5G NR/ LTE/ LTE-Advanced/ WCDMA/ HSPA/ HSPA+/ GPRS/ GSM/ NB-IoT | | | | | |
|---|---|---|---|---|---|
| **Band** | **Frequency (MHz)** | **Uplink (MHz)** | **Downlink (MHz)** | **LMHs** | **MHs** |
| 28 | 700 | 703–748 | 758–803 | √ | - |
| 31 | 450 | 452.5–457.5 | 462.5–467.5 | - | - |
| 34 | 2100 | 2010–2025 | | √ | √ |
| 38 | 2600 | 2570–2620 | | √ | √ |
| 39 | 1900 | 1880–1920 | | √ | √ |
| 40 | 2300 | 2300–2400 | | √ | √ |
| 41 | 2500 | 2496–2690 | | √ | √ |
| 42 | 3500 | 3400–3600 | | √ | √ |
| 48 | 3500 | 3550–3700 | | √ | √ |
| 66 | 1700 | 1710–1780 | 2110–2200 | √ | √ |
| 71 | 600 | 663–698 | 617–652 | √ | - |
| 74 | 1500 | 1427–1470 | 1475–1518 | √ | √ |
| 77 | 3500 | 3300–4200 | | √ | √ |
| 78 | 3500 | 3300–3800 | | √ | √ |
| 79 | 4500 | 4400–5000 | | √ | √ |

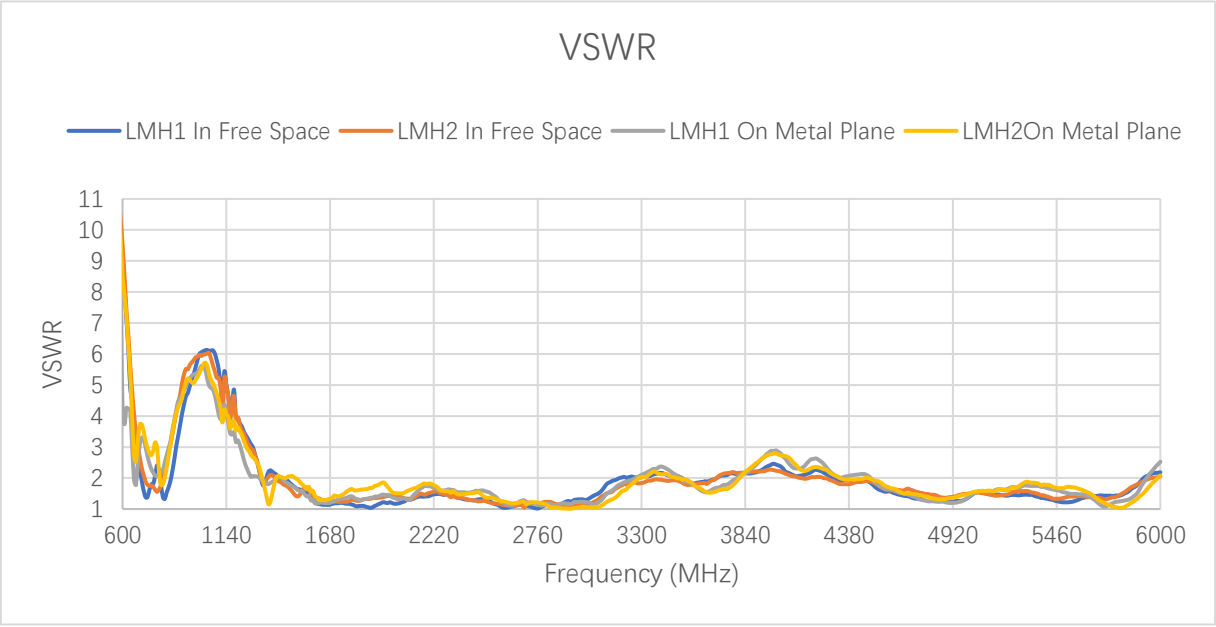
# 2 Drawing

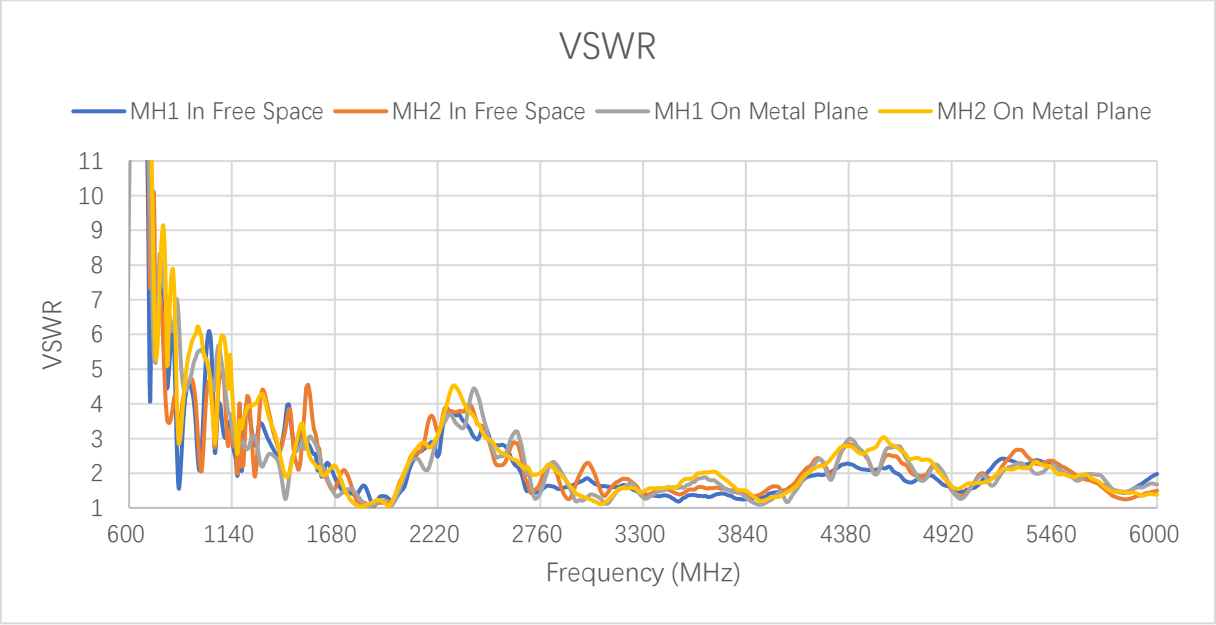

*300±30
Δ*42.50±1
32.00
Δ*ø103.50±1
RG405(Black)
LMH
MH
MH
LMH
M20
SMA-Male(Overgild)
QR
Label

# 3 Detailed Performance

## 3.1 S-Parameter Test

### 3.1.1 VSWR



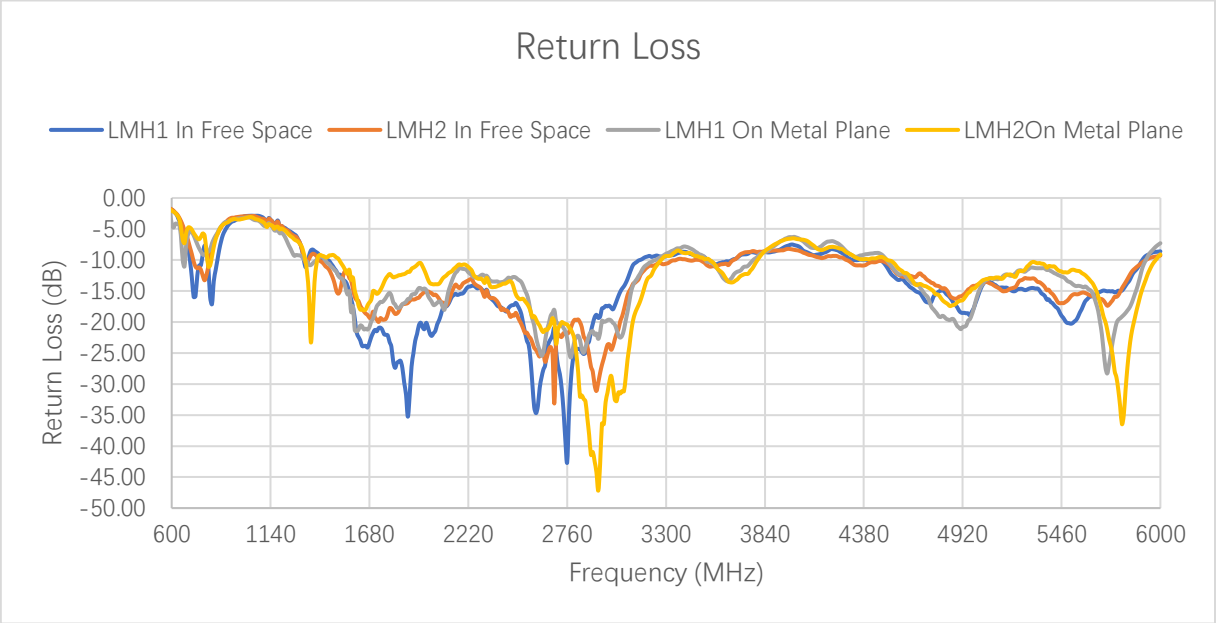
**VSWR – LMHs**

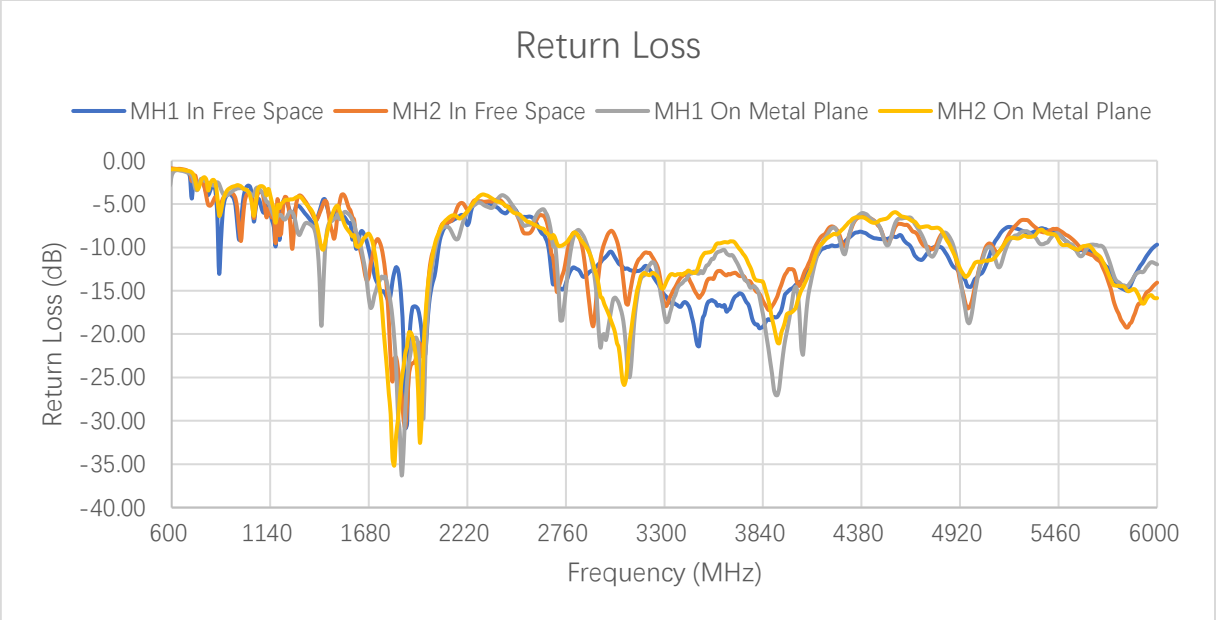
| Frequency (MHz) | | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LMH1 | FS | 9.2 | 6.2 | 1.6 | 1.5 | 3.7 | 5.2 | 2.0 | 1.2 | 1.2 | 1.1 |
| | MP | 4.2 | 4.2 | 3.2 | 2.7 | 4.6 | 5.3 | 1.9 | 1.3 | 1.3 | 1.3 |
| LMH2 | FS | 9.5 | 6.6 | 2.1 | 2.6 | 4.7 | 5.7 | 1.8 | 1.2 | 1.2 | 1.3 |
| | MP | 8.5 | 6.3 | 3.5 | 2.4 | 4.4 | 5.1 | 2.0 | 1.4 | 1.4 | 1.7 |
| Frequency (MHz) | | 1950 | 2140 | 2350 | 2450 | 2600 | 3600 | 4700 | 5000 | 5500 | 6000 |
| LMH1 | FS | 1.2 | 1.4 | 1.4 | 1.3 | 1.0 | 1.2 | 1.4 | 1.4 | 1.2 | 2.2 |
| | MP | 1.5 | 1.6 | 1.5 | 1.6 | 1.1 | 1.3 | 1.4 | 1.4 | 1.5 | 2.5 |
| LMH2 | FS | 1.4 | 1.5 | 1.4 | 1.2 | 1.1 | 1.0 | 1.6 | 1.5 | 1.4 | 2.0 |
| | MP | 1.8 | 1.7 | 1.5 | 1.5 | 1.2 | 1.2 | 1.5 | 1.5 | 1.7 | 2.1 |

**VSWR – MHs**

| Frequency (MHz) | | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MH1 | FS | - | - | - | - | - | - | 4.0 | 1.6 | 1.4 | 1.1 |
| | MP | - | - | - | - | - | - | 1.9 | 1.4 | 1.5 | 1.1 |
| MH2 | FS | - | - | - | - | - | - | 3.8 | 2.0 | 2.0 | 1.1 |
| | MP | - | - | - | - | - | - | 2.0 | 1.9 | 1.4 | 1.2 |
| Frequency (MHz) | | 1950 | 2140 | 2350 | 2450 | 2600 | 3600 | 4700 | 5000 | 5500 | 6000 |
| MH1 | FS | 1.3 | 2.7 | 3.5 | 3.2 | 2.5 | 1.4 | 1.7 | 1.5 | 2.1 | 2.0 |
| | MP | 1.2 | 2.2 | 3.3 | 3.9 | 2.9 | 1.9 | 2.3 | 1.4 | 2.1 | 1.7 |
| MH2 | FS | 1.2 | 2.7 | 3.8 | 3.3 | 2.7 | 1.6 | 2.1 | 1.5 | 2.2 | 1.5 |
| | MP | 1.1 | 2.9 | 4.1 | 3.3 | 2.5 | 2.0 | 2.4 | 1.7 | 2.0 | 1.4 |

### 3.1.2 Return Loss



**Return Loss (dB) – LMHs**

| Frequency (MHz) | | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LMH1 | FS | -1.9 | -2.8 | -12.8 | -13.4 | -4.8 | -3.4 | -9.8 | -21.3 | -20.9 | -31.7 |
| | MP | -4.2 | -4.2 | -5.6 | -6.6 | -3.9 | -3.3 | -10.1 | -18.5 | -16.8 | -16.7 |
| LMH2 | FS | -1.8 | -2.6 | -9.0 | -6.9 | -3.8 | -3.1 | -11.0 | -19.2 | -19.4 | -17.0 |
| | MP | -2.0 | -2.8 | -5.1 | -7.9 | -4.0 | -3.5 | -9.6 | -15.1 | -14.8 | -12.1 |
| **Frequency (MHz)** | | **1950** | **2140** | **2350** | **2450** | **2600** | **3600** | **4700** | **5000** | **5500** | **6000** |
| LMH1 | FS | -20.5 | -15.7 | -16.4 | -17.4 | -33.5 | -21.1 | -15.9 | -16.2 | -20.2 | -8.6 |
| | MP | -14.5 | -12.7 | -13.5 | -13.1 | -23.7 | -18.1 | -14.9 | -15.7 | -13.5 | -7.3 |
| LMH2 | FS | -16.1 | -14.5 | -16.1 | -19.2 | -25.1 | -33.1 | -12.5 | -14.0 | -16.3 | -9.3 |
| | MP | -10.5 | -11.5 | -14.4 | -13.4 | -20.2 | -20.0 | -14.0 | -14.1 | -11.9 | -9.1 |

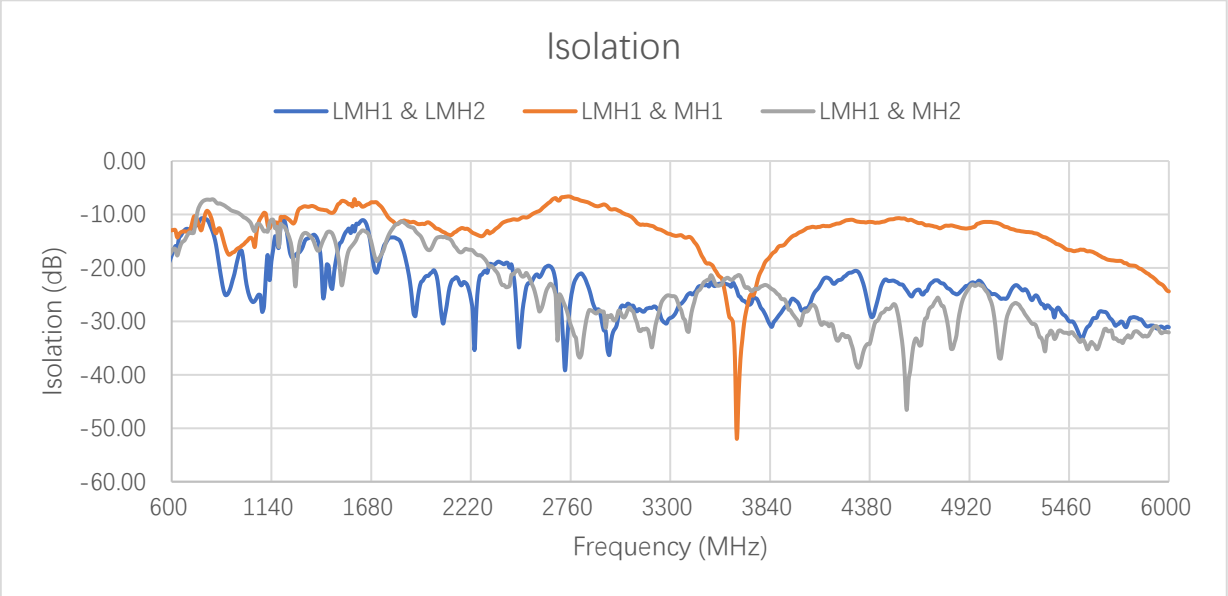
**Return Loss (dB) – MHs**

| Frequency (MHz) | | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MH1 | FS | - | - | - | - | - | - | -4.4 | -12.7 | -15.6 | -26.4 |
| | MP | - | - | - | - | - | - | -10.2 | -15.6 | -14.0 | -26.4 |
| MH2 | FS | - | - | - | - | - | - | -4.7 | -9.5 | -9.5 | -26.4 |
| | MP | - | - | - | - | - | - | -9.5 | -10.2 | -15.6 | -20.8 |
| **Frequency (MHz)** | | **1950** | **2140** | **2350** | **2450** | **2600** | **3600** | **4700** | **5000** | **5500** | **6000** |
| MH1 | FS | -17.7 | -6.8 | -5.1 | -5.6 | -7.4 | -15.6 | -11.7 | -14.0 | -9.0 | -9.5 |
| | MP | -20.8 | -8.5 | -5.4 | -4.6 | -6.2 | -10.2 | -8.1 | -15.6 | -9.0 | -11.7 |
| MH2 | FS | -20.8 | -6.8 | -4.7 | -5.4 | -6.8 | -12.7 | -9.0 | -14.0 | -8.5 | -14.0 |
| | MP | -26.4 | -6.2 | -4.3 | -5.4 | -7.4 | -9.5 | -7.7 | -11.7 | -9.5 | -15.6 |

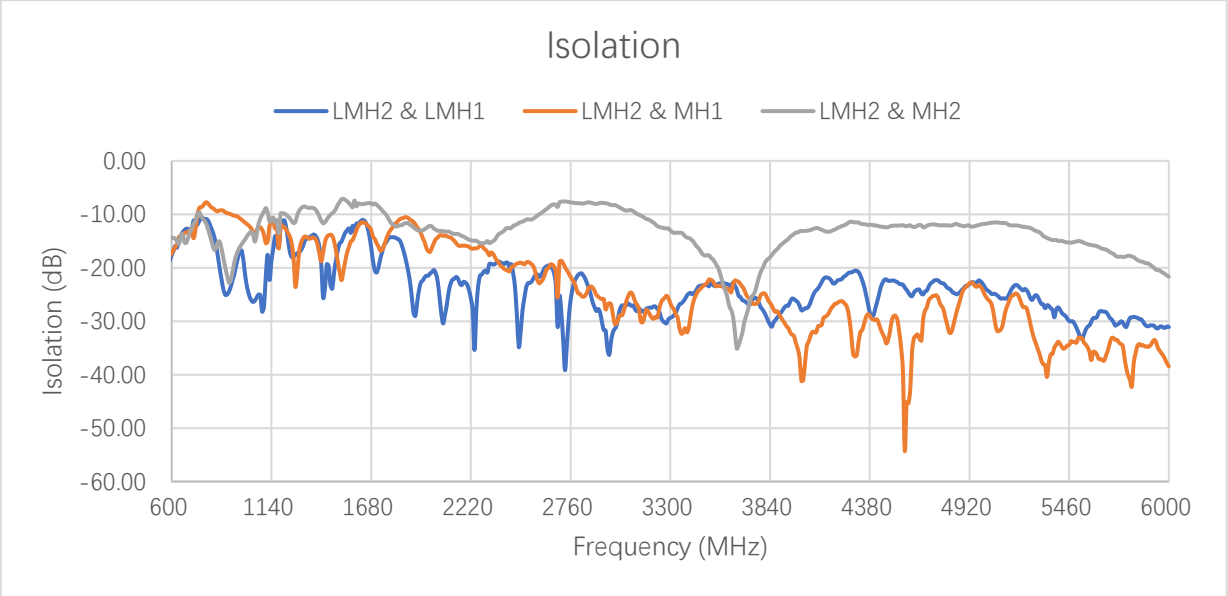
### 3.1.3 Isolation

#### 3.1.3.1 Test Status: In Free Space

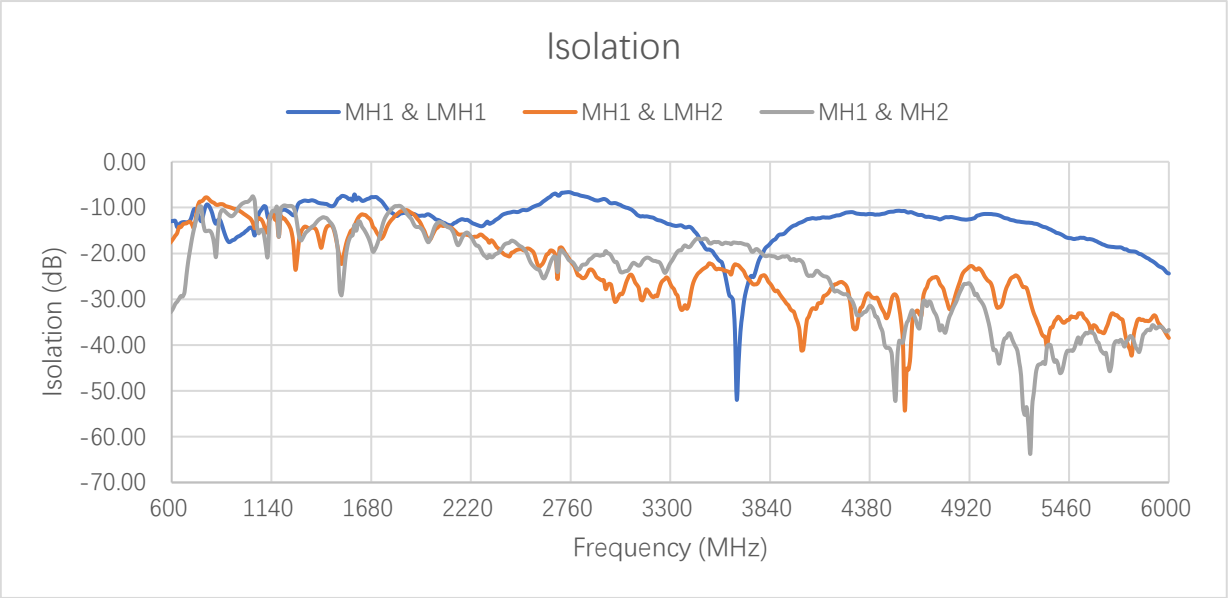
##### 3.1.3.1.1 LMH1



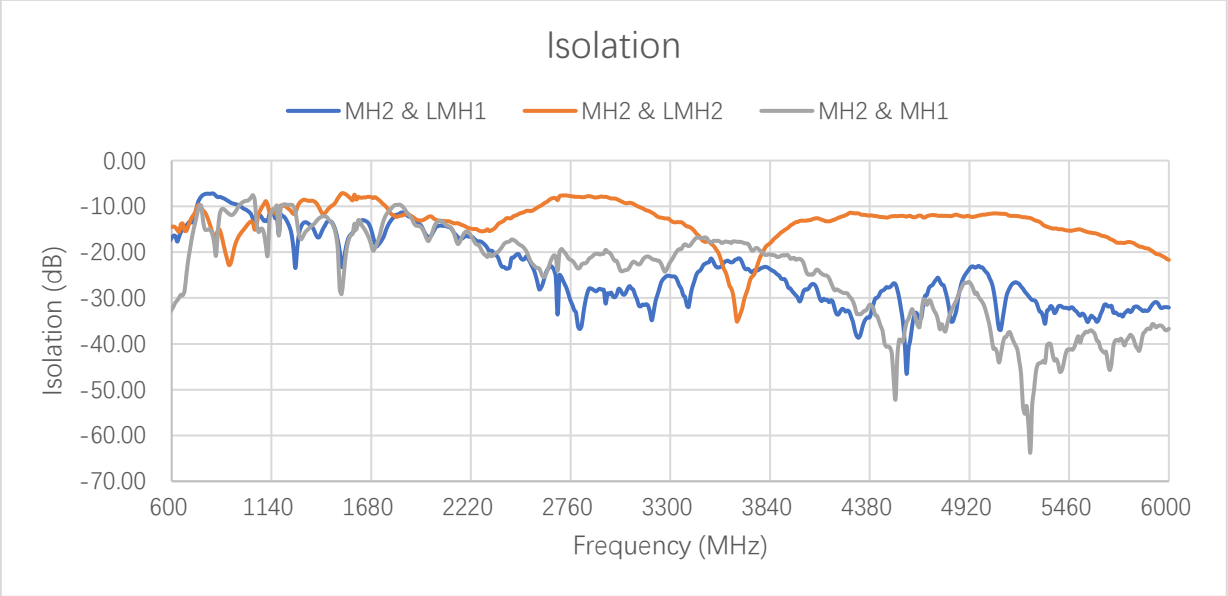

##### 3.1.3.1.2 LMH2



#### 3.1.3.1.3 MH1

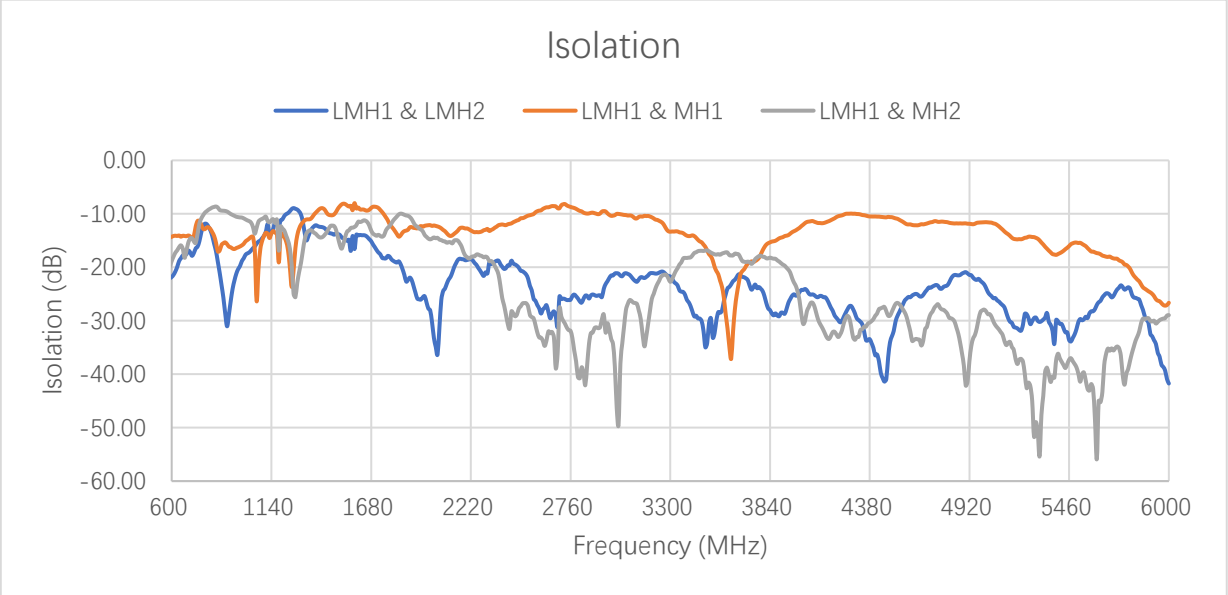



#### 3.1.3.1.4 MH2

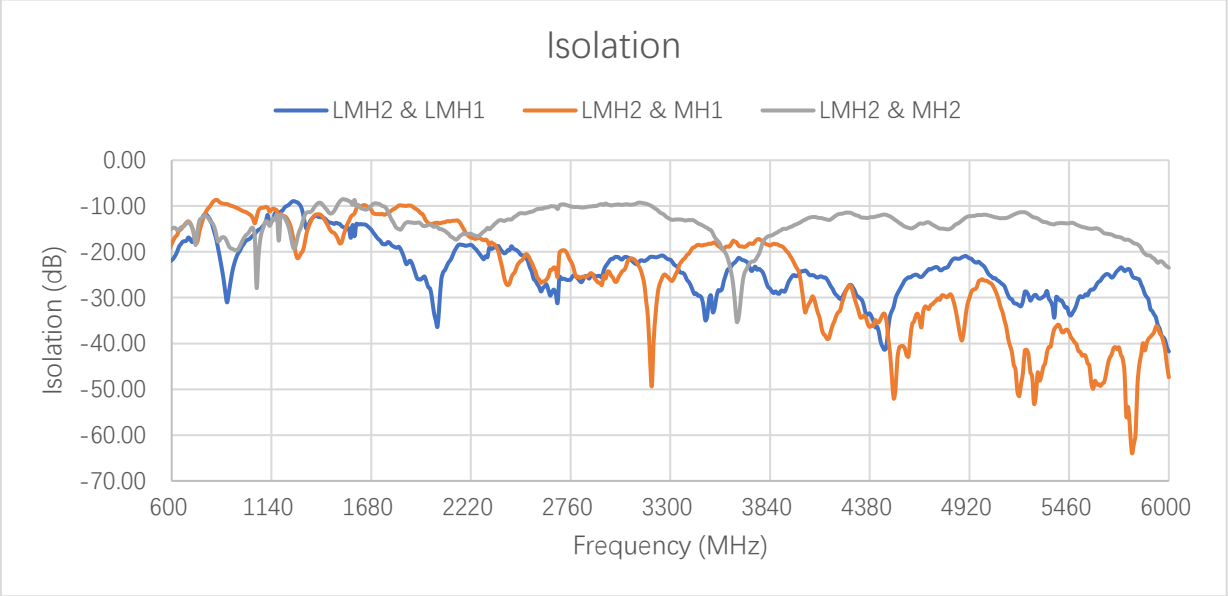


### 3.1.3.2 Test Status: On 320 × 240 mm Metal Plane

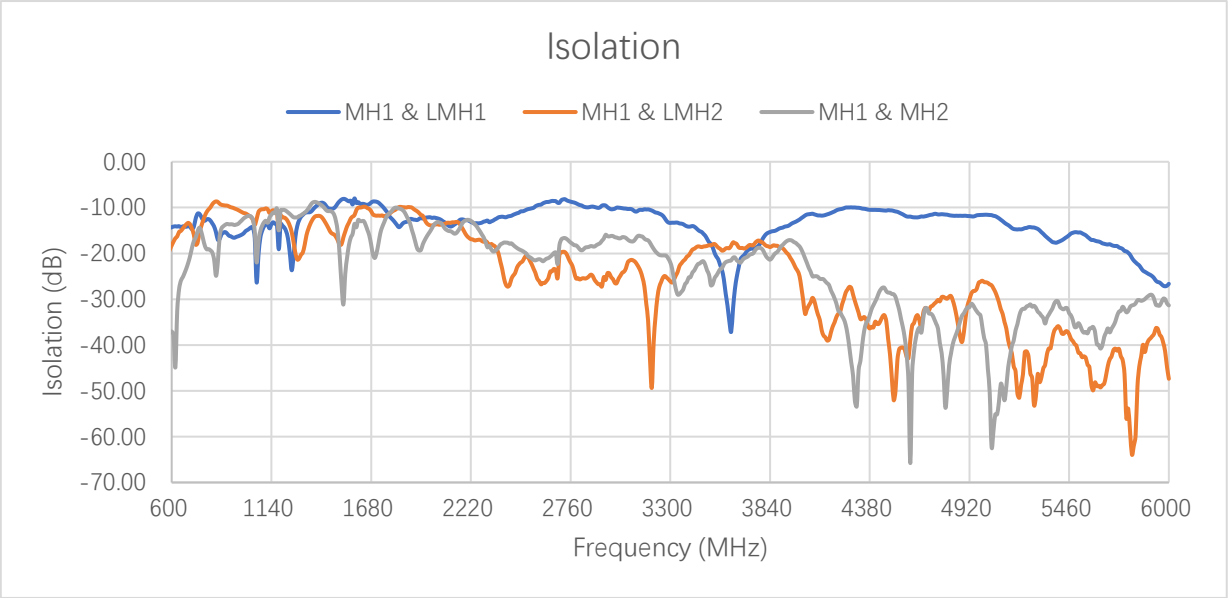
#### 3.1.3.2.1 LMH1



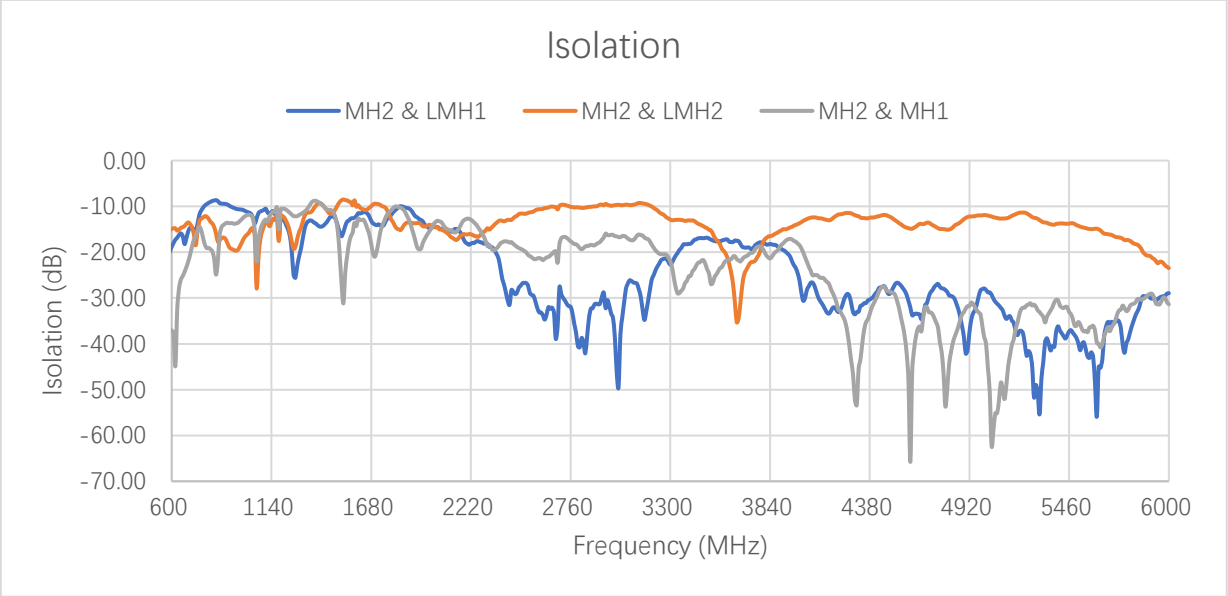

#### 3.1.3.2.2 LMH2



#### 3.1.3.2.3 MH1




#### 3.1.3.2.4 MH2



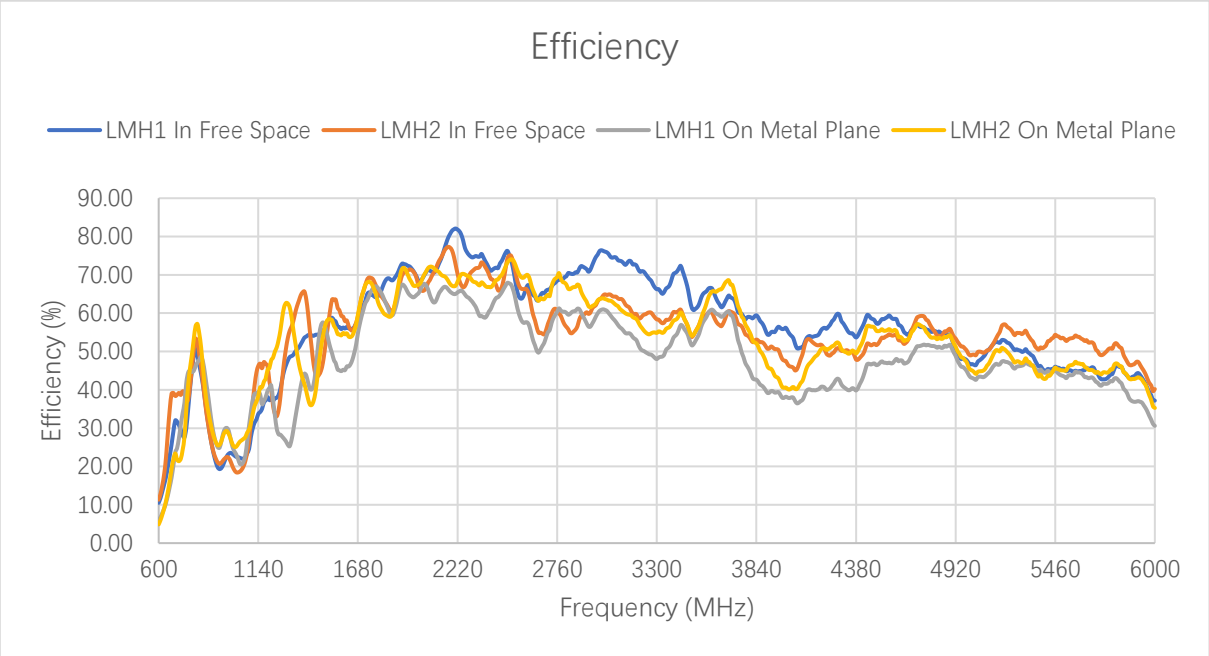
**Max Isolation (dB)**

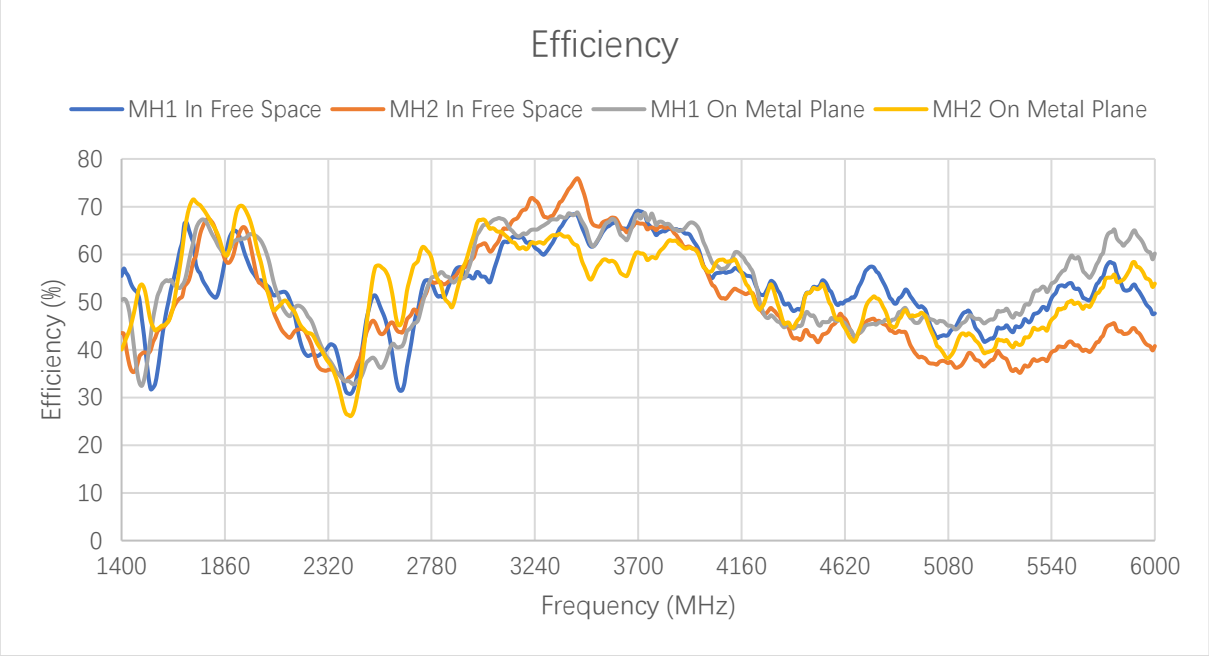
| | Band | B71 | B12/ B13/ B28 | B5/ B8/ B26 | n74/ n75/ n76 | B1/ B2/ B3 | B40 | Wi-Fi 2G | B38/ B41 | B42/ B48/ n77 | n79 | Wi-Fi 5G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Freq. (MHz) | 600–700 | 700–810 | 820–960 | 1420–1520 | 1700–2170 | 2300–2400 | 2400–2500 | 2500–2690 | 3300–4200 | 4400–5000 | 5150–5850 |
| LMH1 | FS | -12.7 | -7.2 | -7.2 | -7.5 | -7.7 | -11.4 | -10.5 | -6.9 | -11.7 | -10.7 | -12.7 |
| | MP | -14.1 | -9.0 | -8.6 | -8.3 | -8.7 | -12.0 | -10.8 | -8.5 | -10.6 | -10.5 | -14.3 |
| LMH2 | FS | -12.7 | -7.8 | -8.8 | -7.2 | -8.2 | -13.1 | -11.4 | -8.2 | -12.6 | -11.8 | -12.1 |
| | MP | -13.3 | -9.9 | -8.7 | -8.7 | -9.4 | -13.1 | -11.6 | -10.0 | -12.0 | -11.9 | -11.3 |
| MH1 | FS | -12.8 | -7.8 | -8.8 | -7.5 | -7.7 | -11.4 | -10.5 | -6.9 | -11.7 | -10.7 | -12.7 |
| | MP | -13.3 | -9.9 | -8.7 | -8.3 | -8.7 | -12.0 | -10.8 | -8.5 | -10.6 | -10.5 | -14.3 |
| MH2 | FS | -13.1 | -7.2 | -7.2 | -7.2 | -8.2 | -13.1 | -11.4 | -8.2 | -12.6 | -11.8 | -12.1 |
| | MP | -13.5 | -9.0 | -8.6 | -8.7 | -9.4 | -13.1 | -11.6 | -10.0 | -12.0 | -11.9 | -11.3 |

- FS: In Free Space
- MP: On 320 × 240 mm Metal Plane

## 3.2 Radiation Performance Test

### 3.2.1 Efficiency



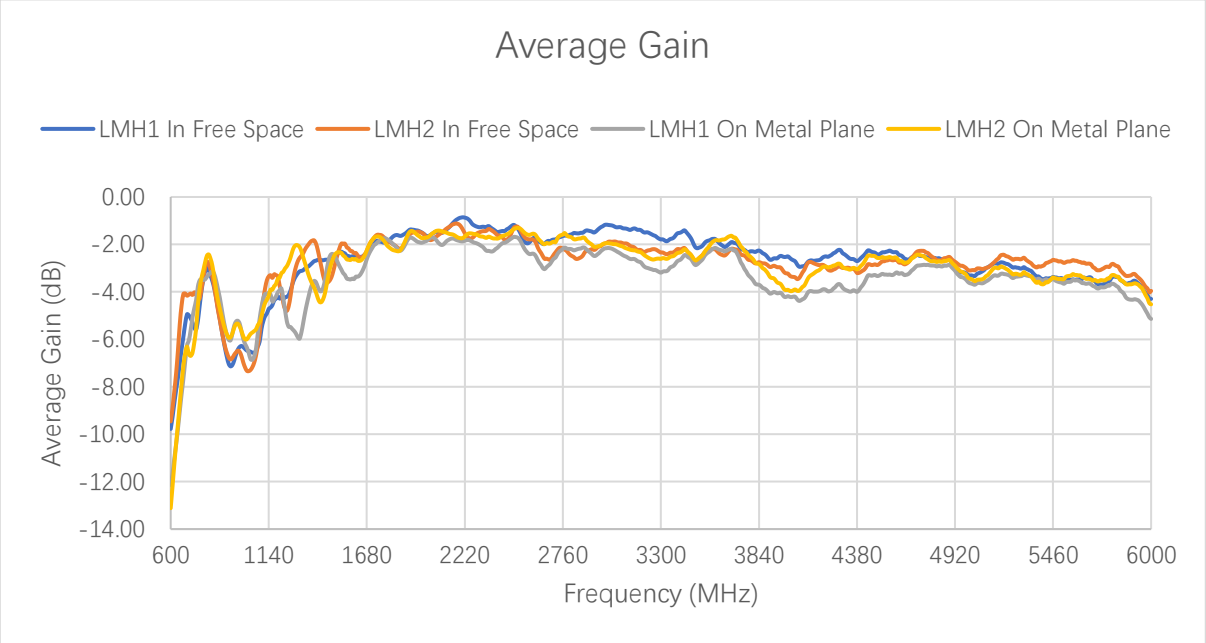
**Efficiency (%) – LMHs**

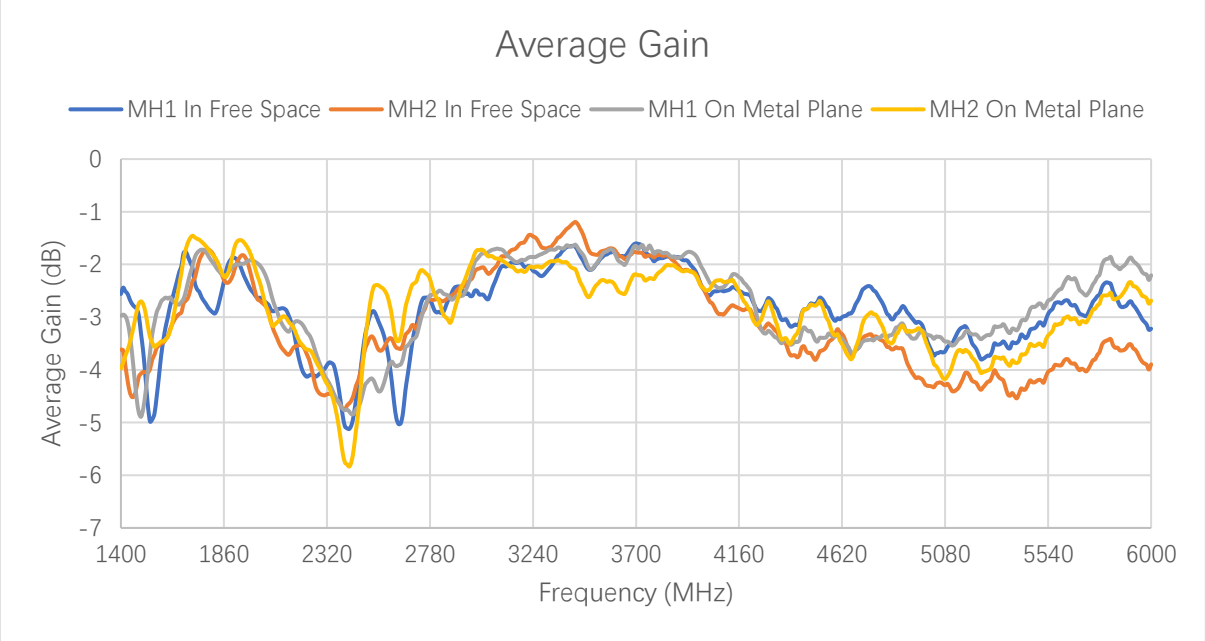
| Frequency (MHz) | | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LMH1 | FS | 10.5 | 15.4 | 30.8 | 44.1 | 22.9 | 21.7 | 54.1 | 62.2 | 65.4 | 69.3 |
| | MP | 6.1 | 9.1 | 27.5 | 48.6 | 28.1 | 29.9 | 41.5 | 60.9 | 64.5 | 60.9 |
| LMH2 | FS | 11.3 | 18.1 | 39.2 | 45.9 | 23.3 | 22.2 | 46.6 | 65.7 | 69.3 | 62.1 |
| | MP | 4.9 | 9.1 | 21.4 | 51.1 | 27.6 | 29.1 | 37.2 | 65.8 | 68.2 | 62.5 |
| **Frequency (MHz)** | | **1950** | **2140** | **2350** | **2450** | **2600** | **3600** | **4700** | **5000** | **5500** | **6000** |
| LMH1 | FS | 72.4 | 75.4 | 75.5 | 73.0 | 67.3 | 66.4 | 56.4 | 46.7 | 45.5 | 37.2 |
| | MP | 65.5 | 66.6 | 59.3 | 64.8 | 57.5 | 60.9 | 50.4 | 43.3 | 43.7 | 30.6 |
| LMH2 | FS | 71.1 | 75.4 | 73.3 | 66.1 | 65.8 | 60.1 | 57.6 | 49.0 | 53.6 | 40.2 |
| | MP | 70.1 | 69.8 | 68.0 | 69.5 | 70.0 | 65.7 | 56.3 | 45.3 | 45.1 | 35.3 |

**Efficiency (%) – MHs**

| Frequency (MHz) | | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MH1 | FS | - | - | - | - | - | - | 54.1 | 63.7 | 56.6 | 63.4 |
| | MP | - | - | - | - | - | - | 46.4 | 60.7 | 66.3 | 60.9 |
| MH2 | FS | - | - | - | - | - | - | 36.1 | 56.4 | 61.9 | 58.3 |
| | MP | - | - | - | - | - | - | 44.9 | 70.9 | 70.6 | 61.0 |
| **Frequency (MHz)** | | **1950** | **2140** | **2350** | **2450** | **2600** | **3600** | **4700** | **5000** | **5500** | **6000** |
| MH1 | FS | 59.9 | 51.5 | 40.6 | 35.0 | 40.6 | 66.8 | 54.9 | 45.2 | 48.9 | 47.6 |
| | MP | 63.3 | 47.3 | 36.0 | 33.5 | 40.8 | 66.9 | 44.1 | 46.4 | 53.2 | 60.2 |
| MH2 | FS | 65.5 | 42.7 | 35.5 | 37.2 | 45.7 | 67.5 | 44.4 | 37.1 | 38.1 | 40.8 |
| | MP | 69.4 | 49.8 | 34.7 | 30.6 | 53.0 | 58.1 | 46.4 | 44.3 | 44.7 | 53.9 |

### 3.2.2 Average Gain



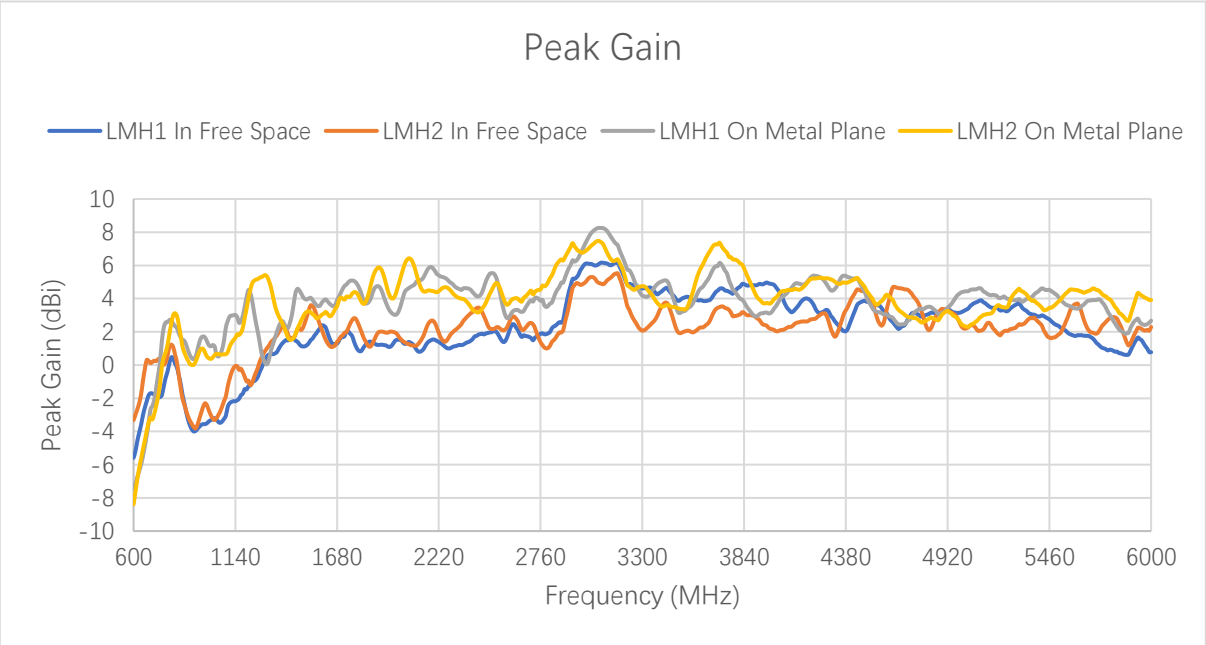
**Average Gain (dB) – LMHs**

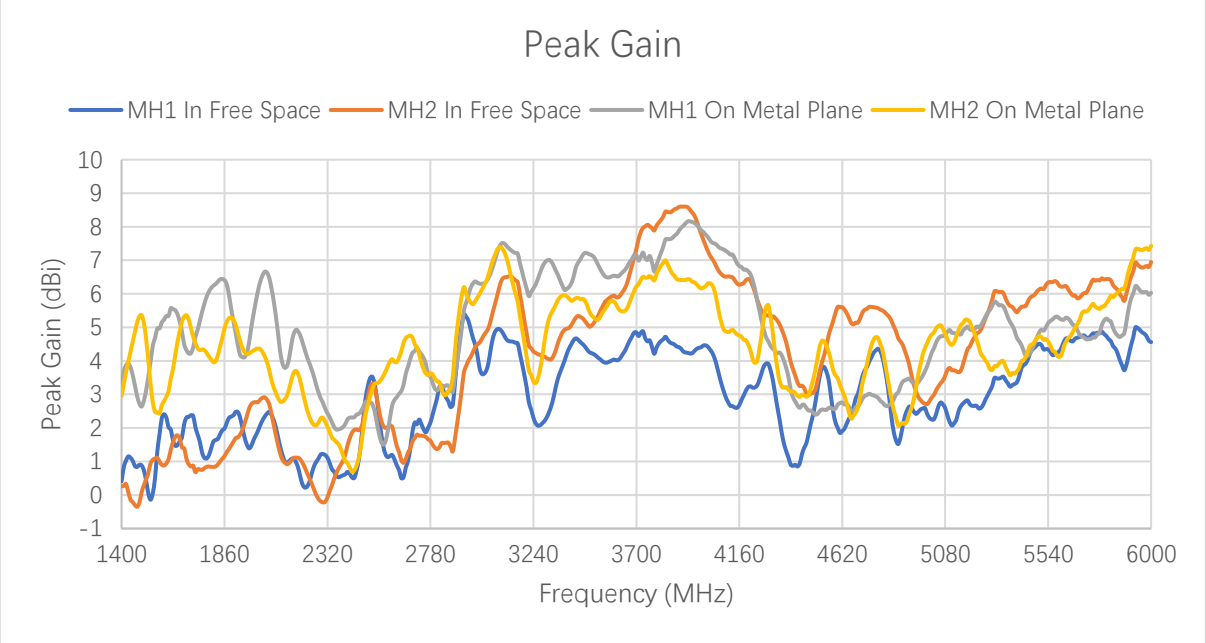
| Frequency (MHz) | | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LMH1 | FS | -9.8 | -8.1 | -5.1 | -3.6 | -6.4 | -6.6 | -2.7 | -2.1 | -1.8 | -1.6 |
| | MP | -12.1 | -10.4 | -5.6 | -3.1 | -5.5 | -5.3 | -3.8 | -2.2 | -1.9 | -2.2 |
| LMH2 | FS | -9.5 | -7.4 | -4.1 | -3.4 | -6.3 | -6.6 | -3.3 | -1.8 | -1.6 | -2.1 |
| | MP | -13.1 | -10.4 | -6.7 | -2.9 | -5.6 | -5.4 | -4.3 | -1.8 | -1.7 | -2.0 |
| **Frequency (MHz)** | | **1950** | **2140** | **2350** | **2450** | **2600** | **3600** | **4700** | **5000** | **5500** | **6000** |
| LMH1 | FS | -1.4 | -1.2 | -1.2 | -1.4 | -1.7 | -1.8 | -2.5 | -3.3 | -3.4 | -4.3 |
| | MP | -1.8 | -1.8 | -2.3 | -1.9 | -2.4 | -2.2 | -3.0 | -3.6 | -3.6 | -5.1 |
| LMH2 | FS | -1.5 | -1.2 | -1.4 | -1.8 | -1.8 | -2.2 | -2.4 | -3.1 | -2.7 | -4.0 |
| | MP | -1.5 | -1.6 | -1.7 | -1.6 | -1.6 | -1.8 | -2.5 | -3.4 | -3.5 | -4.5 |

**Average Gain (dB) – MHs**

| Frequency (MHz) | | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MH1 | FS | - | - | - | - | - | - | -2.7 | -2.0 | -2.5 | -2.0 |
| | MP | - | - | - | - | - | - | -3.3 | -2.2 | -1.8 | -2.2 |
| MH2 | FS | - | - | - | - | - | - | -4.4 | -2.5 | -2.1 | -2.3 |
| | MP | - | - | - | - | - | - | -3.5 | -1.5 | -1.5 | -2.1 |
| **Frequency (MHz)** | | **1950** | **2140** | **2350** | **2450** | **2600** | **3600** | **4700** | **5000** | **5500** | **6000** |
| MH1 | FS | -2.2 | -2.9 | -3.9 | -4.6 | -3.9 | -1.8 | -2.6 | -3.5 | -3.1 | -3.2 |
| | MP | -2.0 | -3.3 | -4.4 | -4.7 | -3.9 | -1.7 | -3.6 | -3.3 | -2.7 | -2.2 |
| MH2 | FS | -1.8 | -3.7 | -4.5 | -4.3 | -3.4 | -1.7 | -3.5 | -4.3 | -4.2 | -3.9 |
| | MP | -1.6 | -3.0 | -4.6 | -5.1 | -2.8 | -2.4 | -3.3 | -3.5 | -3.5 | -2.7 |

### 3.2.3 Peak Gain



**Peak Gain (dBi) – LMHs**

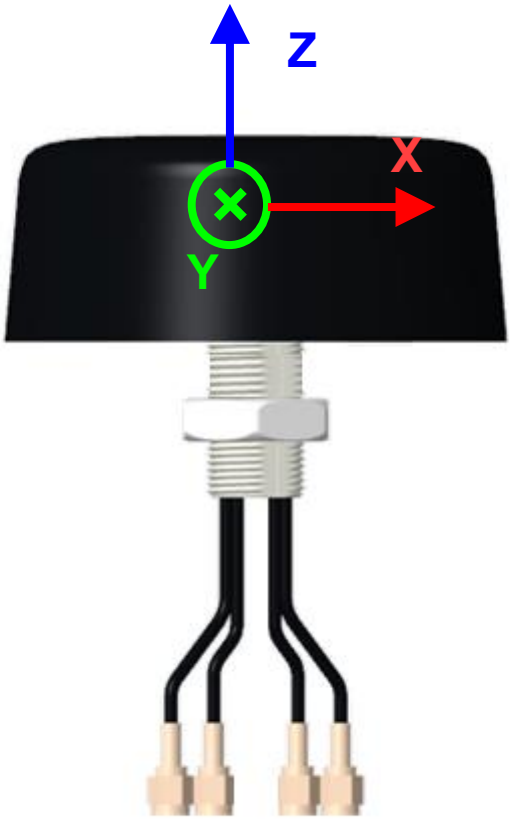
| Frequency (MHz) | | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LMH1 | FS | -5.6 | -4.1 | -1.8 | -0.1 | -3.7 | -3.6 | 1.6 | 1.7 | 2.0 | 1.3 |
| | MP | -7.4 | -6.4 | -2.1 | 2.2 | 0.6 | 1.7 | 3.0 | 4.6 | 5.0 | 4.6 |
| LMH2 | FS | -3.3 | -2.3 | 0.3 | 0.2 | -3.4 | -2.8 | 1.6 | 1.8 | 2.2 | 1.6 |
| | MP | -8.4 | -6.2 | -2.9 | 3.0 | 0.1 | 1.0 | 1.5 | 4.0 | 4.1 | 5.6 |
| **Frequency (MHz)** | | **1950** | **2140** | **2350** | **2450** | **2600** | **3600** | **4700** | **5000** | **5500** | **6000** |
| LMH1 | FS | 1.1 | 1.0 | 1.2 | 1.9 | 2.2 | 3.9 | 2.6 | 3.2 | 2.4 | 0.8 |
| | MP | 3.5 | 5.3 | 4.6 | 4.4 | 3.0 | 4.5 | 2.6 | 4.4 | 4.2 | 2.7 |
| LMH2 | FS | 2.0 | 1.8 | 2.7 | 3.2 | 2.7 | 2.2 | 4.6 | 2.2 | 1.8 | 2.3 |
| | MP | 4.5 | 4.4 | 4.0 | 3.4 | 3.8 | 5.6 | 3.0 | 2.4 | 3.7 | 3.9 |

**Peak Gain (dBi) – MHs**

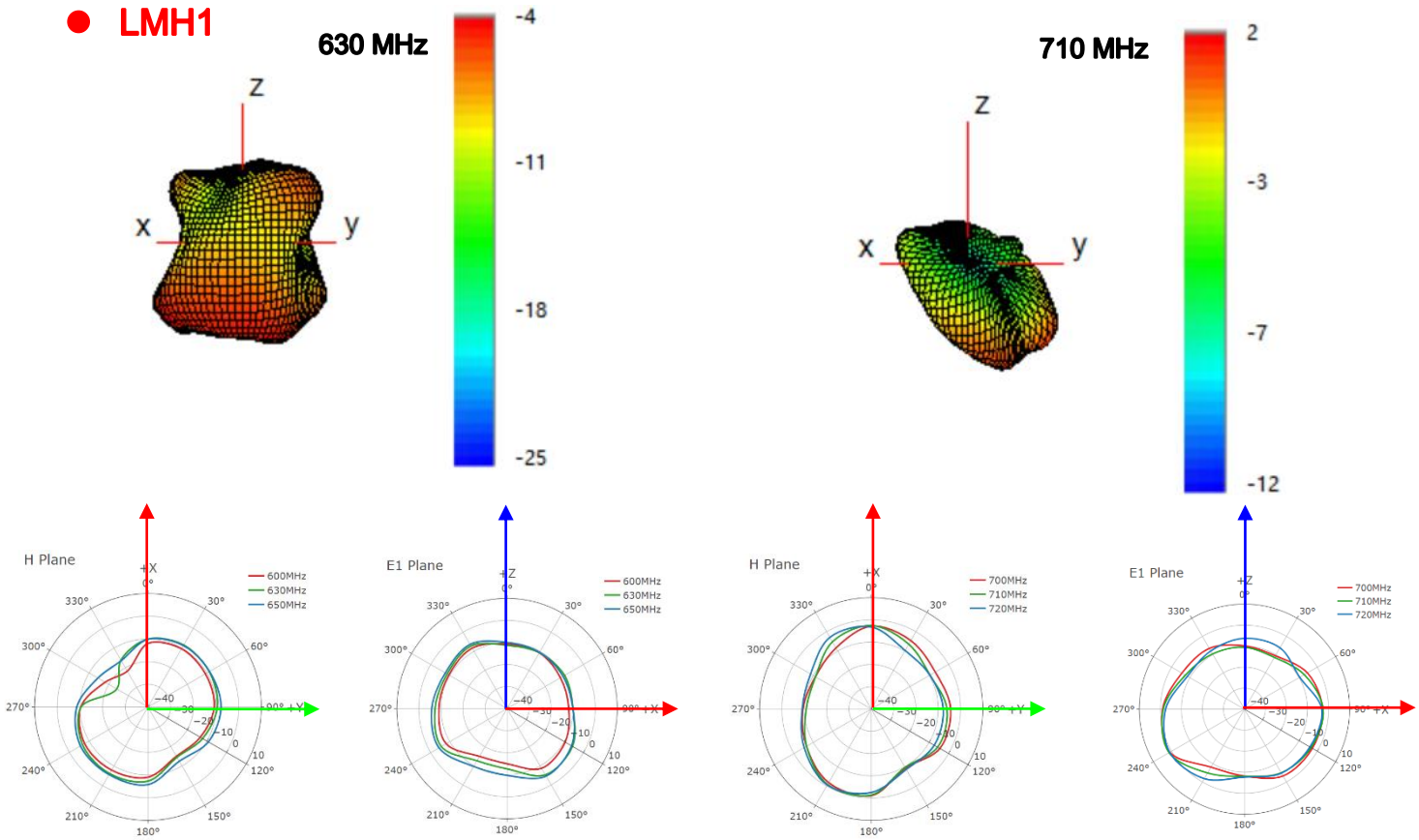
| Frequency (MHz) | | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MH1 | FS | - | - | - | - | - | - | 1.1 | 2.4 | 1.8 | 2.3 |
| | MP | - | - | - | - | - | - | 3.8 | 4.2 | 4.9 | 6.0 |
| MH2 | FS | - | - | - | - | - | - | -0.1 | 0.9 | 0.8 | 1.4 |
| | MP | - | - | - | - | - | - | 4.3 | 5.0 | 4.4 | 5.3 |
| **Frequency (MHz)** | | **1950** | **2140** | **2350** | **2450** | **2600** | **3600** | **4700** | **5000** | **5500** | **6000** |
| MH1 | FS | 1.7 | 1.0 | 0.7 | 0.7 | 1.2 | 4.0 | 3.3 | 2.4 | 4.5 | 4.6 |
| | MP | 4.1 | 3.9 | 2.0 | 2.4 | 2.3 | 6.5 | 2.7 | 3.9 | 4.9 | 6.0 |
| MH2 | FS | 2.1 | 0.9 | 0.5 | 2.0 | 2.1 | 6.0 | 5.3 | 2.7 | 6.1 | 7.0 |
| | MP | 4.3 | 3.0 | 1.7 | 0.9 | 4.0 | 5.8 | 2.9 | 4.5 | 4.7 | 7.4 |

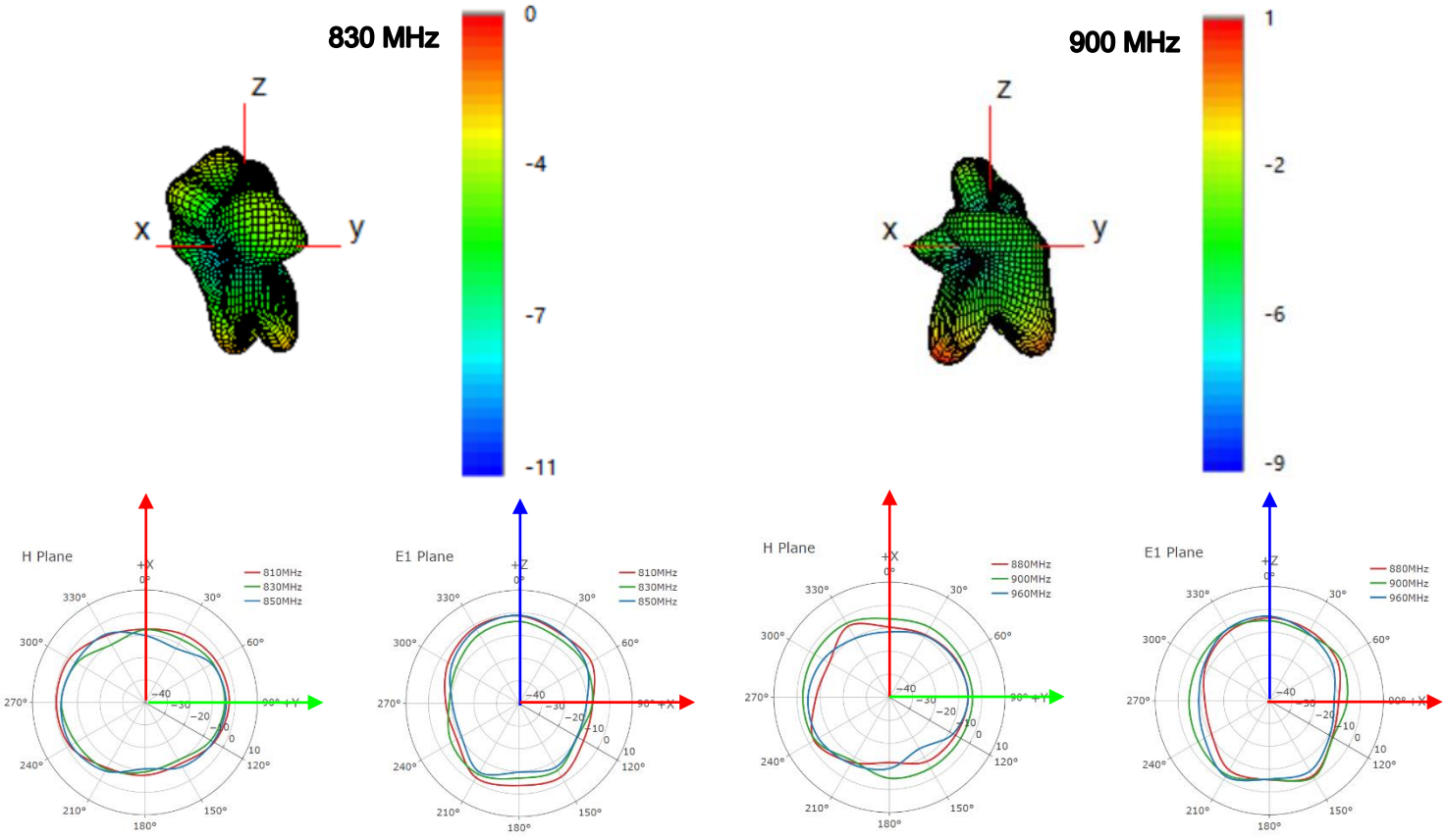
### 3.2.4 3D & 2D Radiation Pattern

#### 3.2.4.1 Test Status: In Free Space



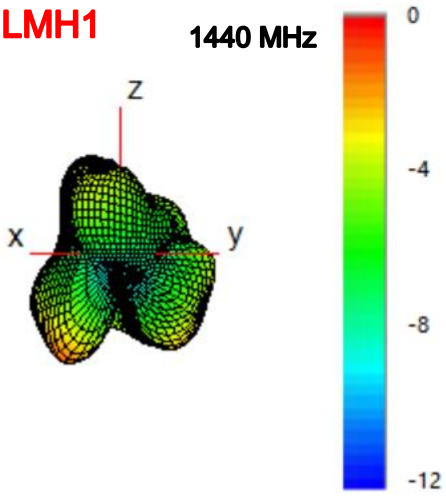
- **LMH1**


630 MHz
-4
-11
-18
-25
710 MHz
2
-3
-7
-12
H Plane
600MHz
630MHz
650MHz
E1 Plane
600MHz
630MHz
650MHz
H Plane
700MHz
710MHz
720MHz
E1 Plane
700MHz
710MHz
720MHz


830 MHz
0
-4
-7
-11
900 MHz
1
-2
-6
-9
H Plane
810MHz
830MHz
850MHz
E1 Plane
810MHz
830MHz
850MHz
H Plane
880MHz
900MHz
960MHz
E1 Plane
880MHz
900MHz
960MHz

## LMH1

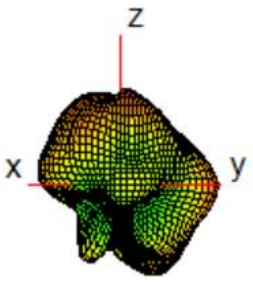
1440 MHz

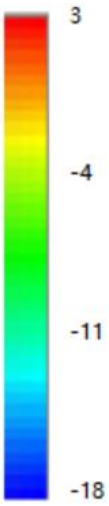


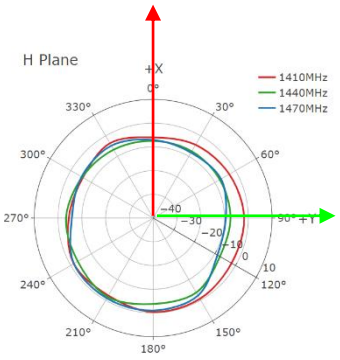


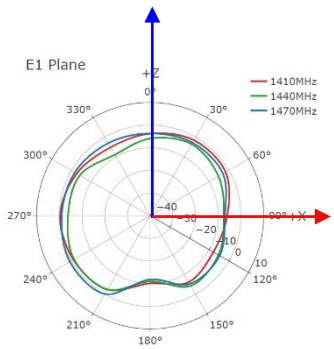


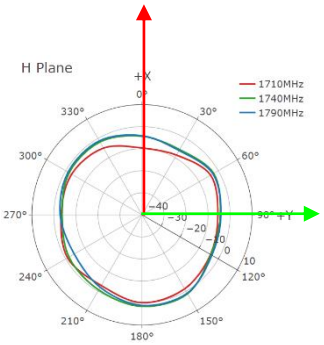
1740 MHz

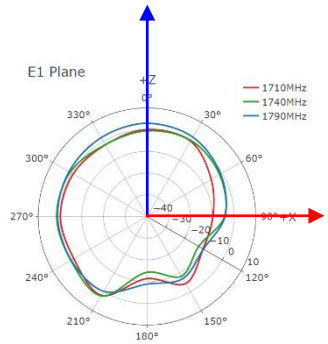


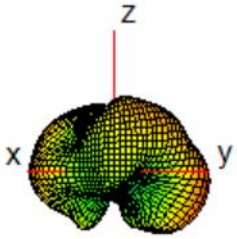



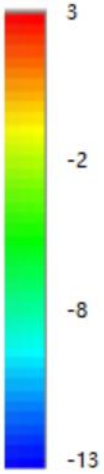



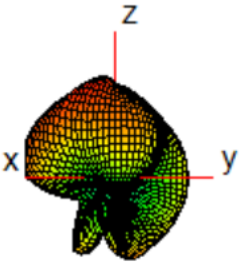



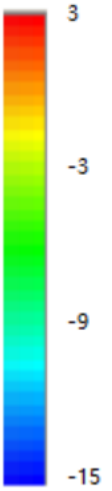

1880 MHz

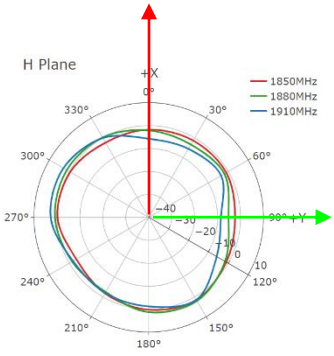


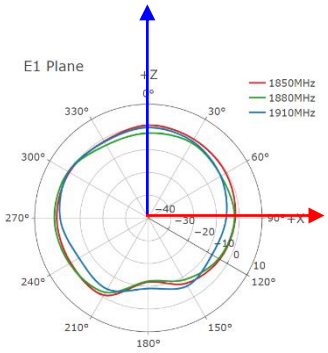



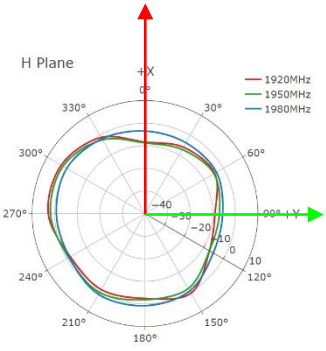

1960 MHz

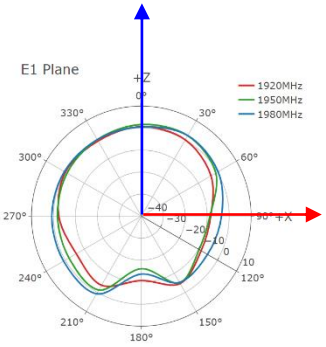


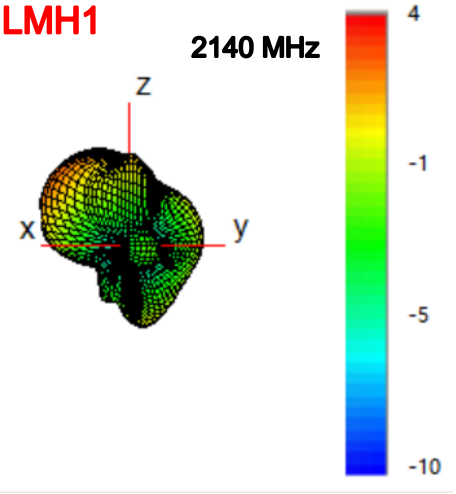



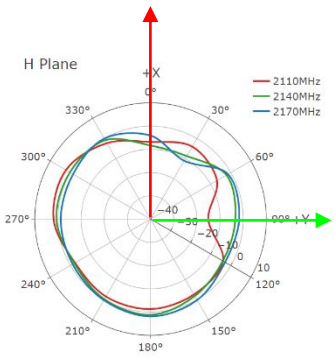



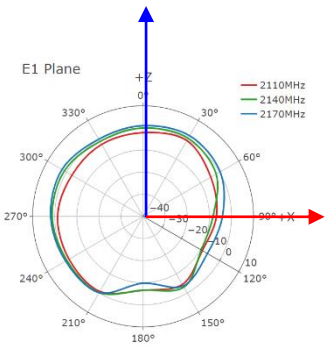



## LMH1

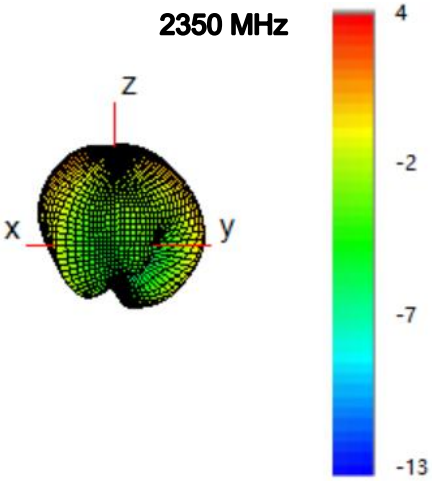
2140 MHz

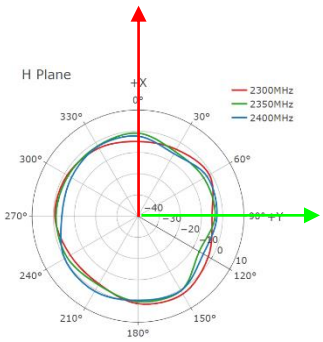


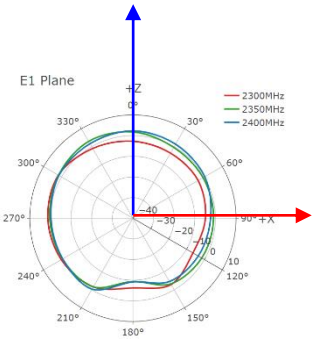



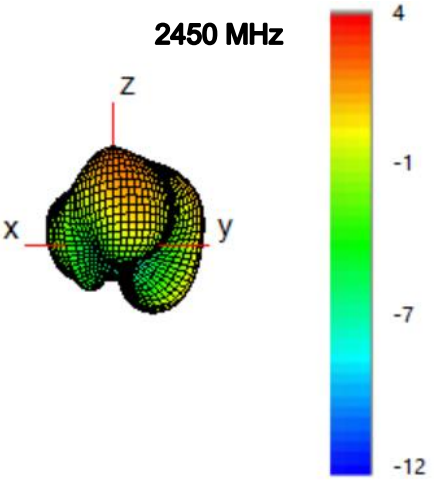

2350 MHz

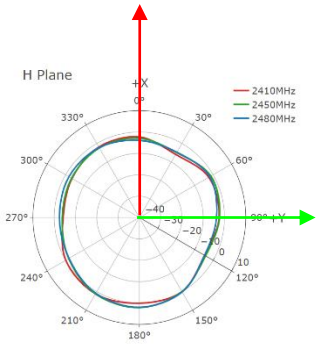


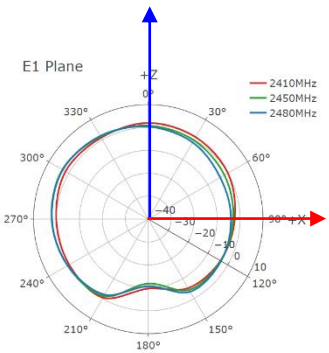



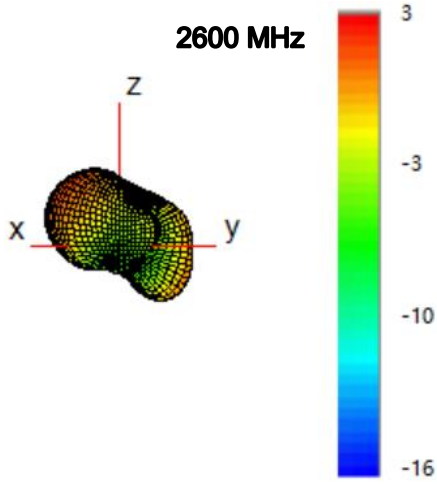

2450 MHz

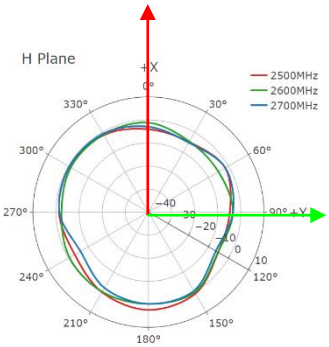


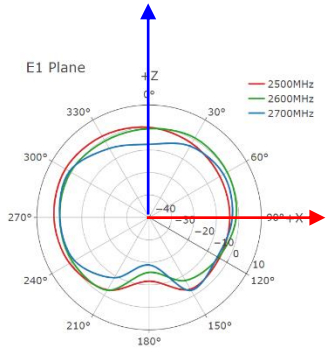




2600 MHz

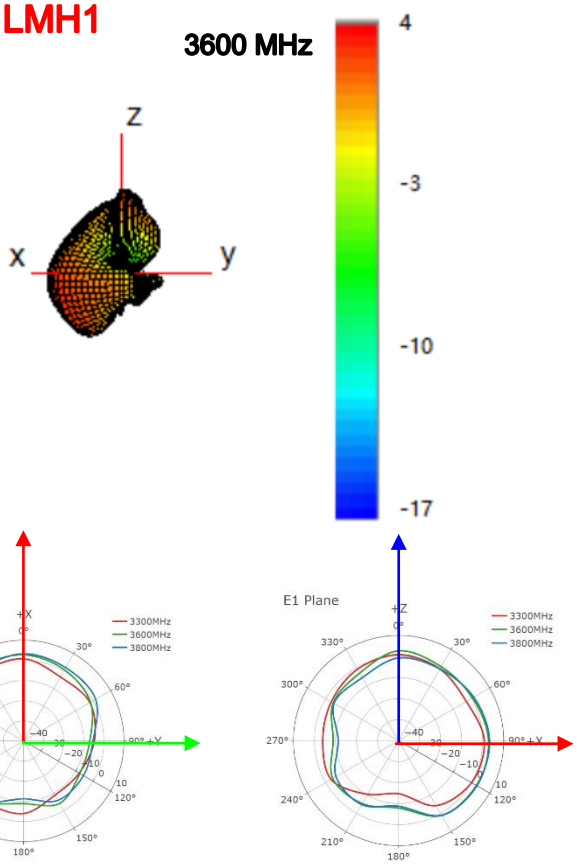


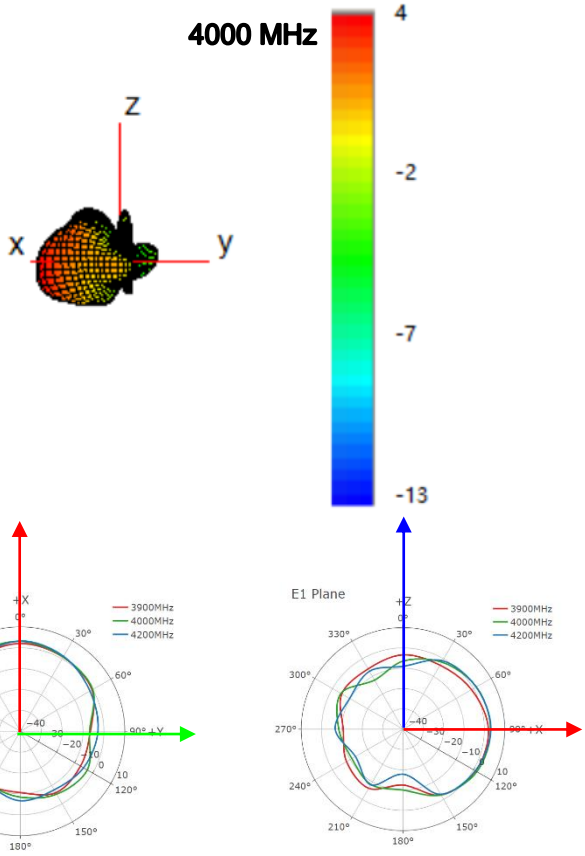



- **LMH1**

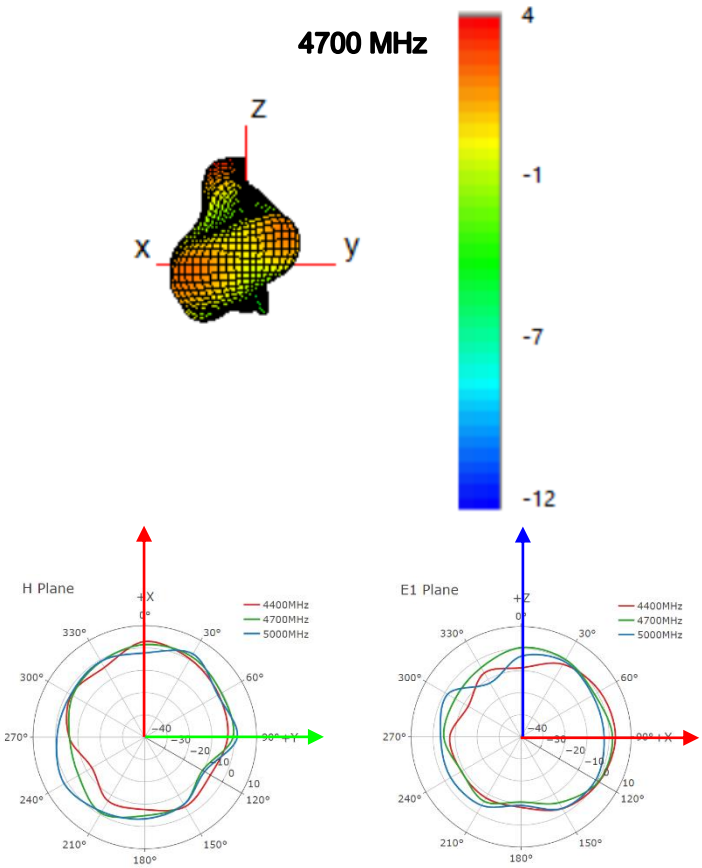
3600 MHz



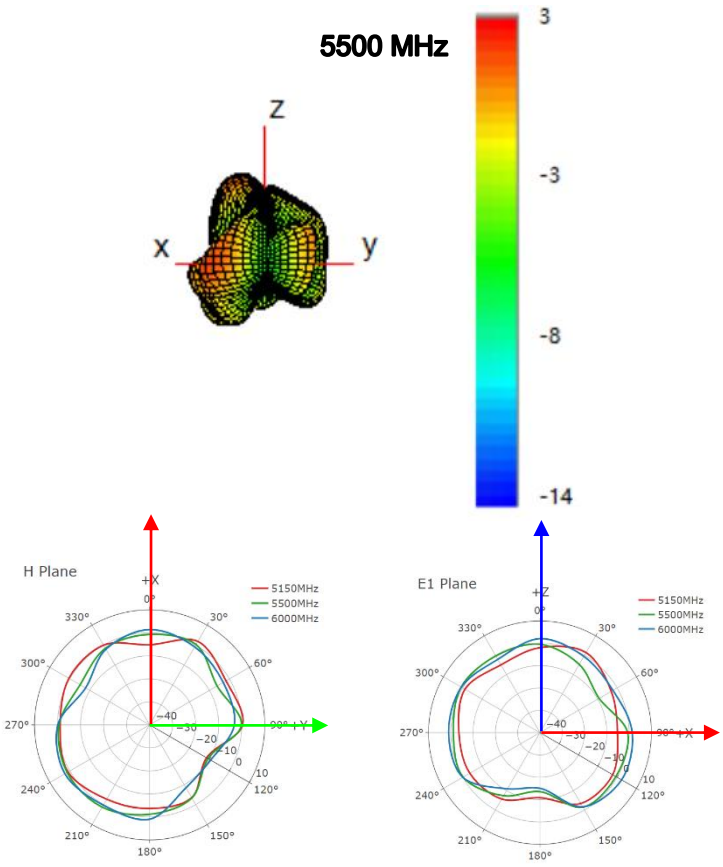

4000 MHz




4700 MHz

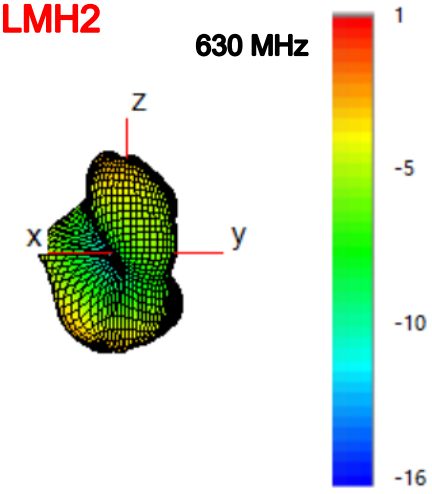



5500 MHz



- **LMH2**

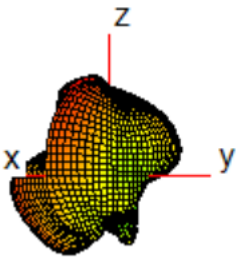
630 MHz

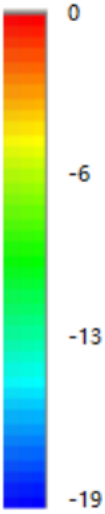


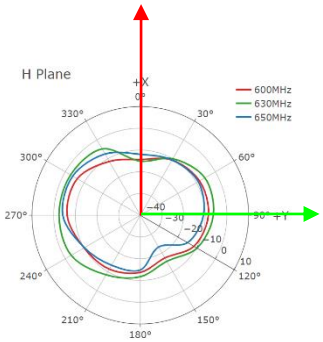


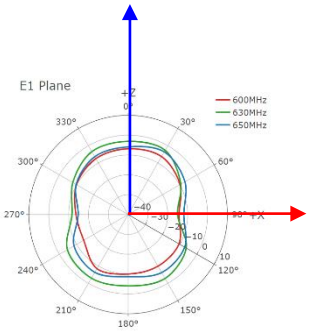


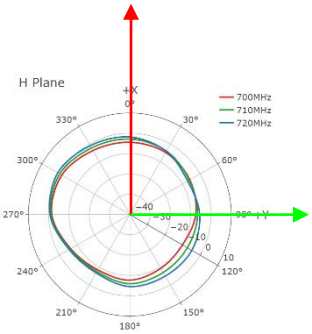
710 MHz

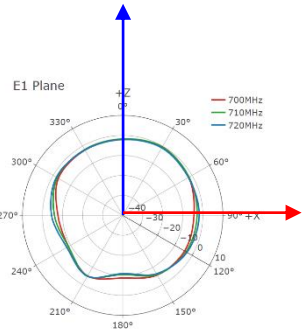


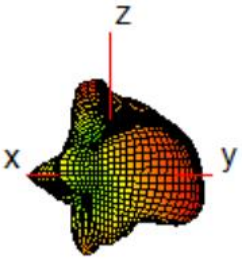



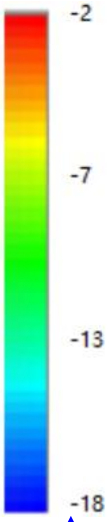



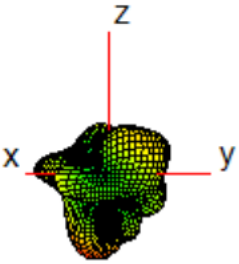



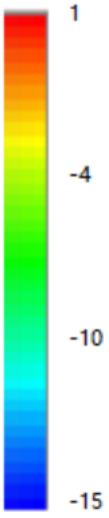

830MHz

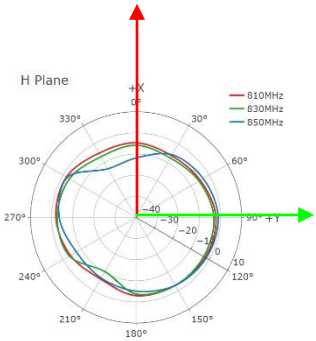


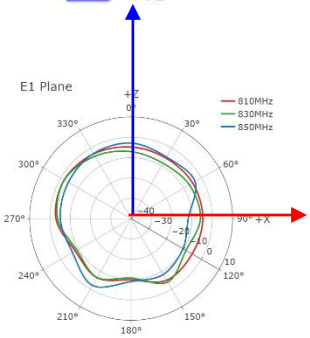



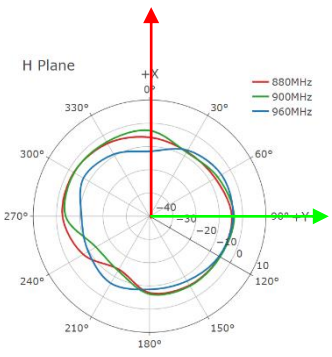

900MHz

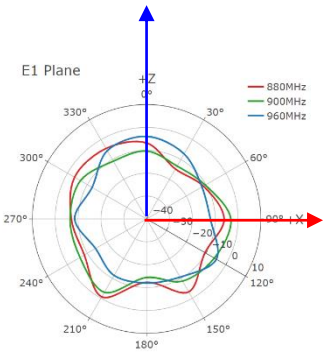


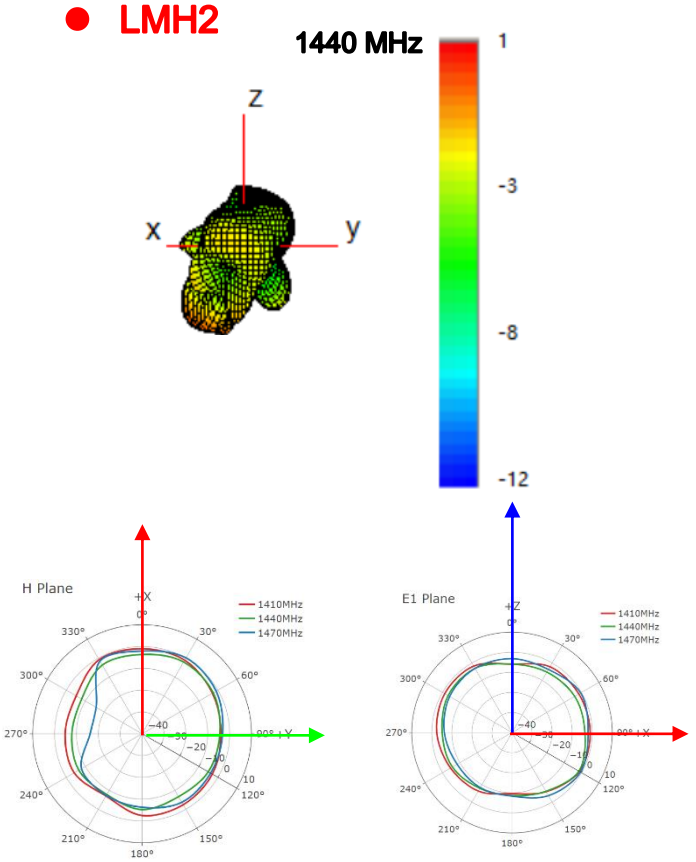



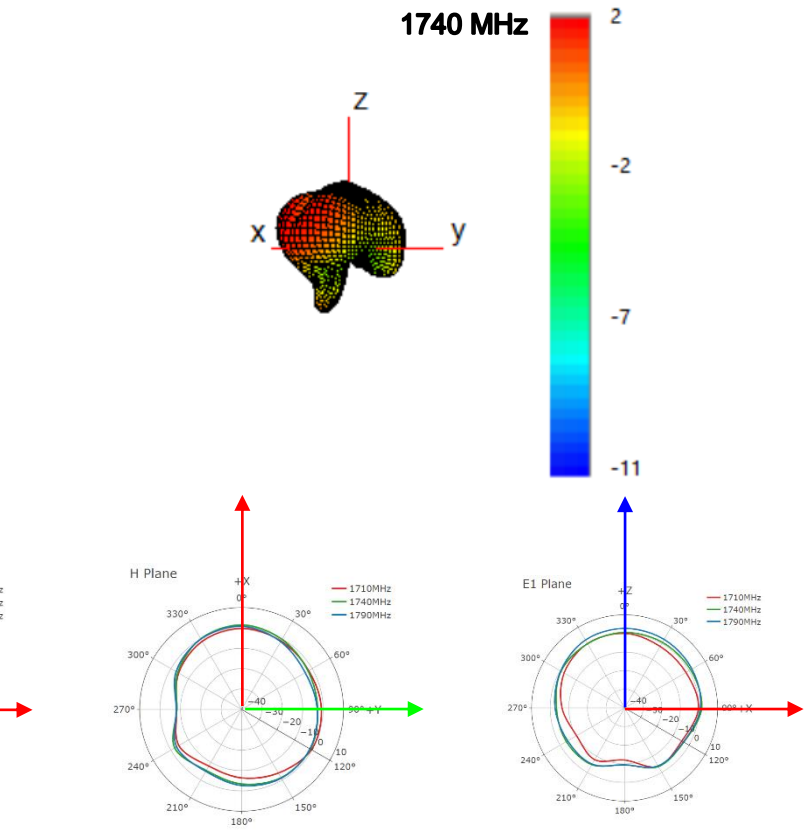



- **LMH2**

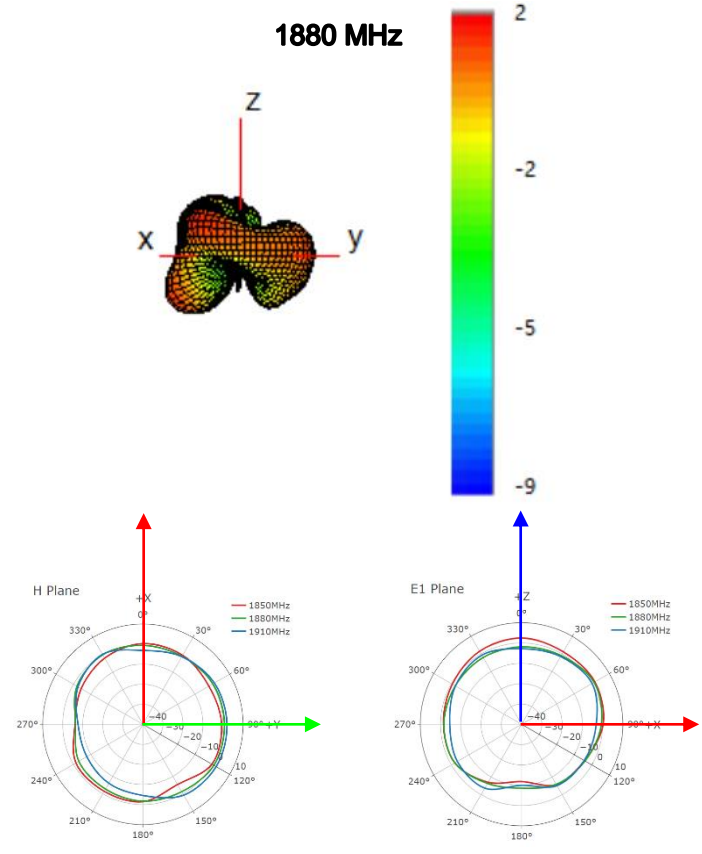
1440 MHz



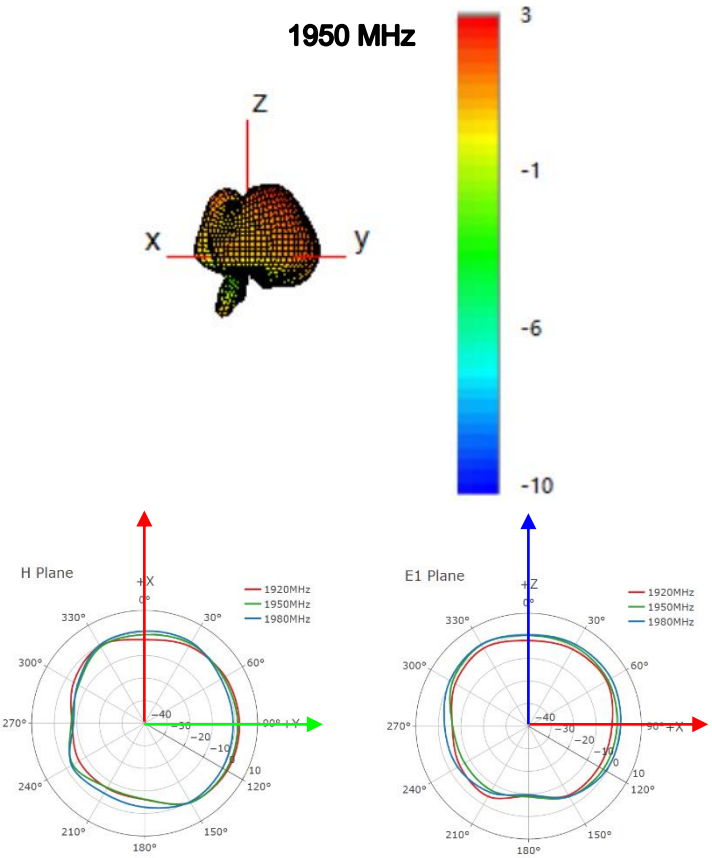

1740 MHz




1880 MHz

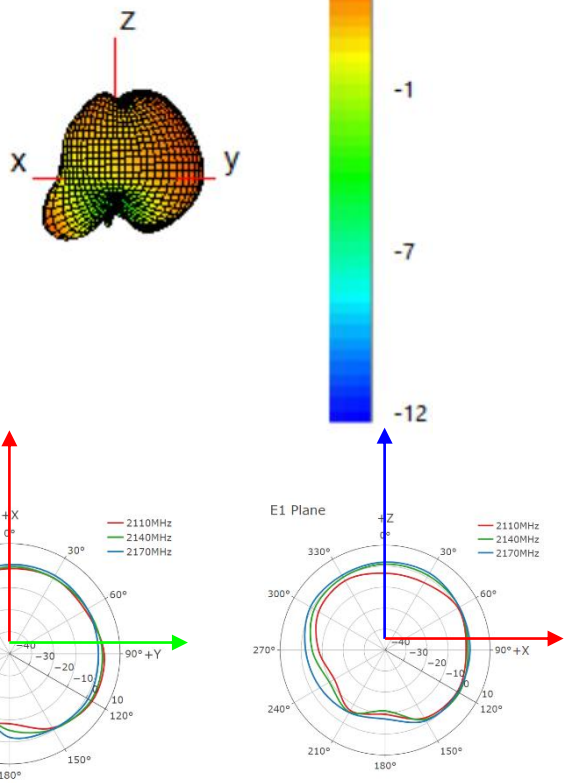



1950 MHz



- **LMH2**

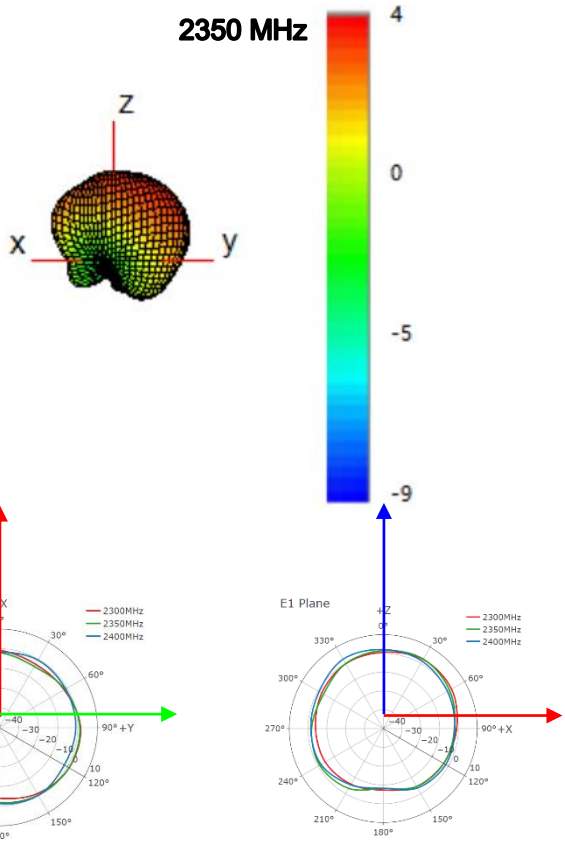
2140 MHz







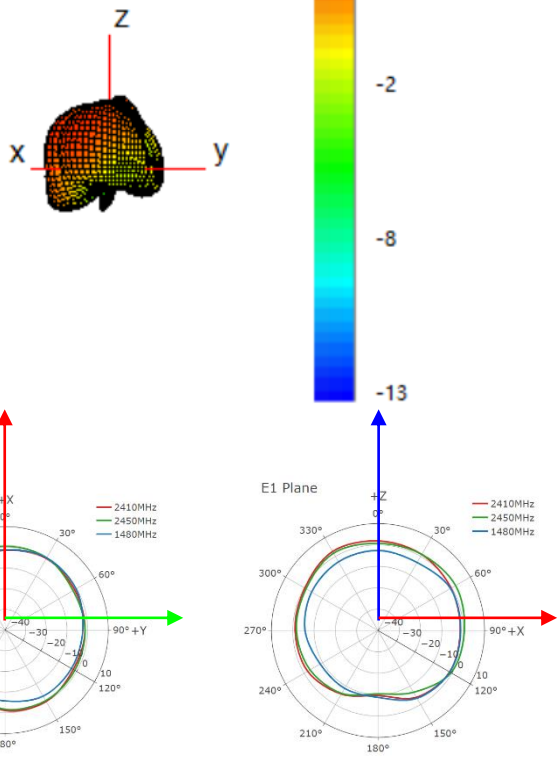
2350 MHz







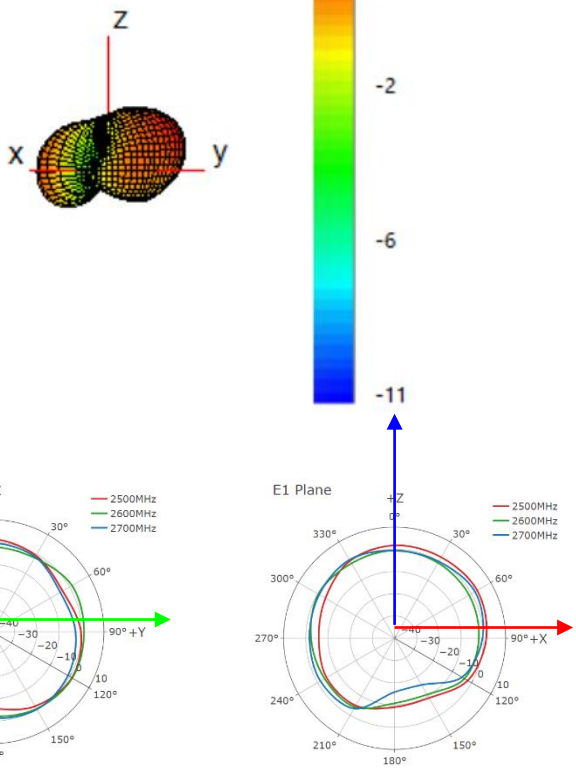
2450 MHz



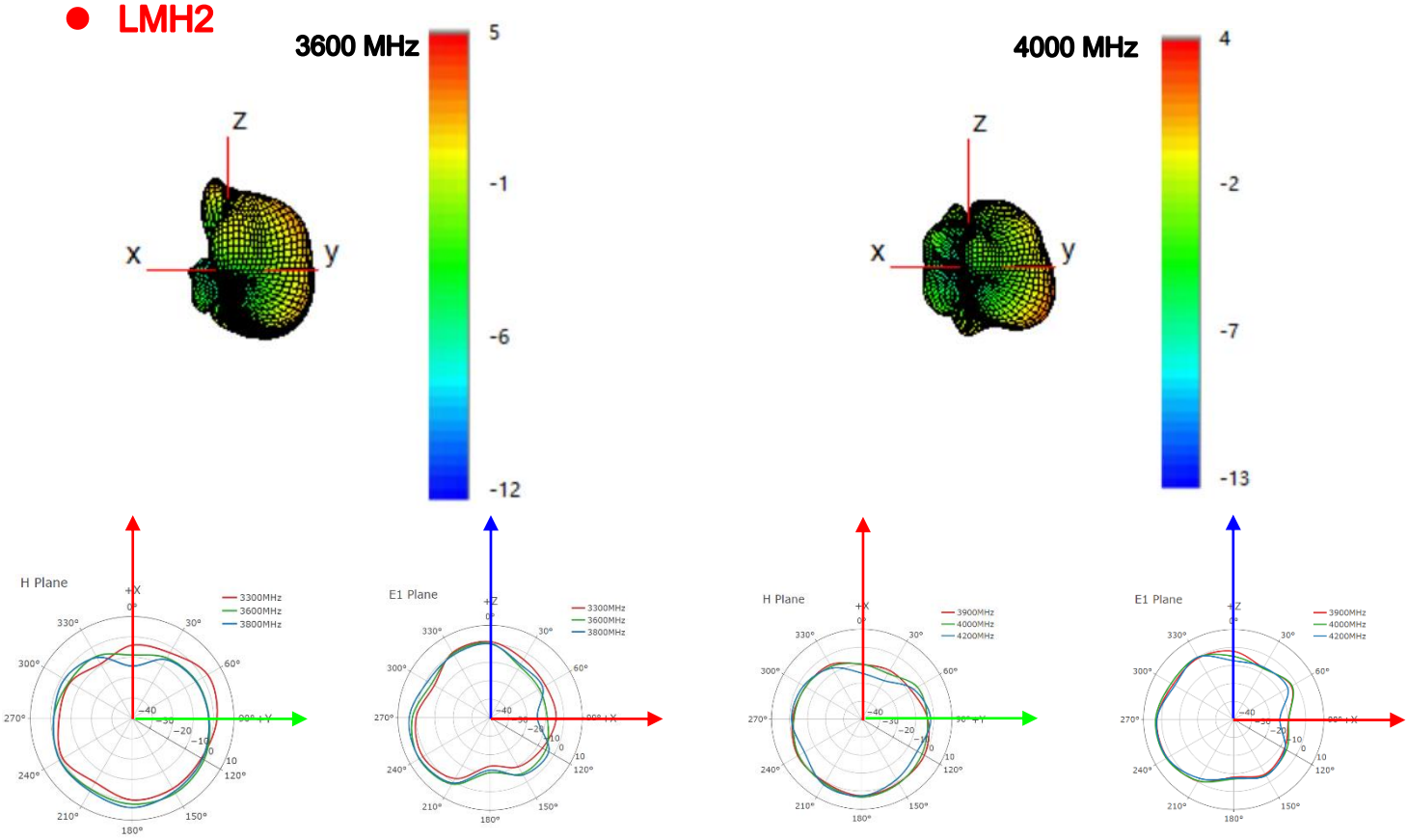


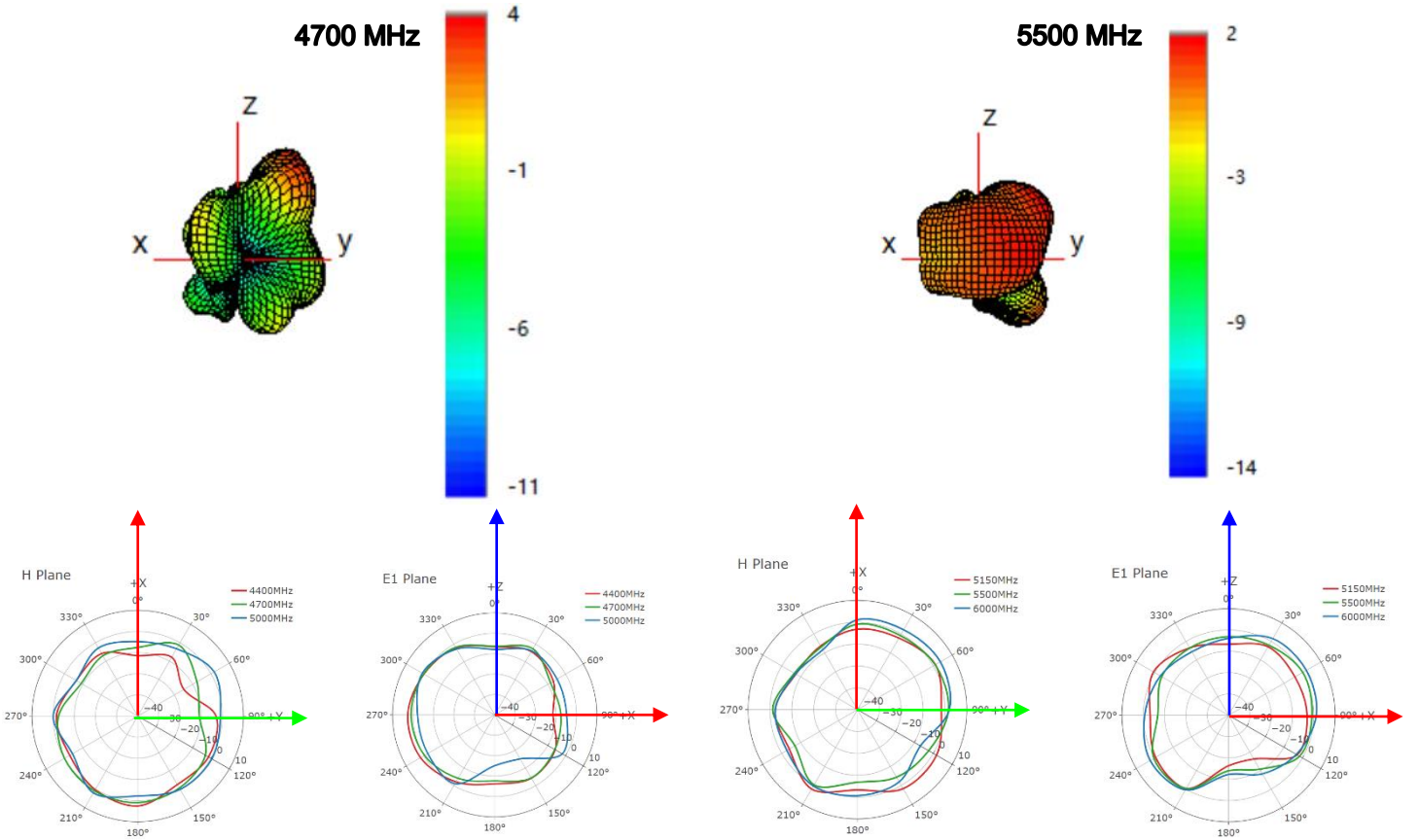


2600 MHz



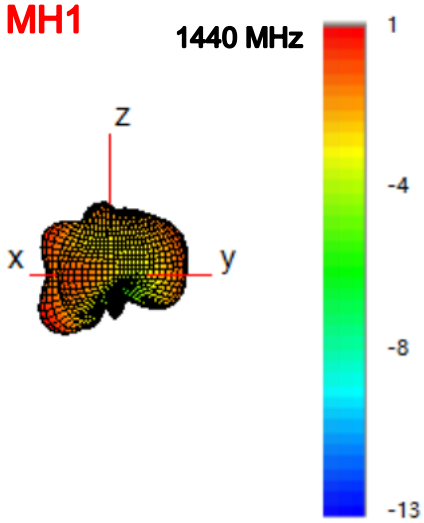
- **LMH2**


3600 MHz
5
-1
-6
-12
Z
x
y
H Plane
3300MHz
3600MHz
3800MHz
E1 Plane
3300MHz
3600MHz
3800MHz
4000 MHz
4
-2
-7
-13
Z
x
y
H Plane
3900MHz
4000MHz
4200MHz
E1 Plane
3900MHz
4000MHz
4200MHz


4700 MHz
4
-1
-6
-11
Z
x
y
H Plane
4400MHz
4700MHz
5000MHz
E1 Plane
4400MHz
4700MHz
5000MHz
5500 MHz
2
-3
-9
-14
Z
x
y
H Plane
5150MHz
5500MHz
6000MHz
E1 Plane
5150MHz
5500MHz
6000MHz

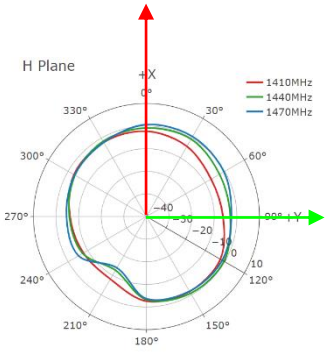
## MH1

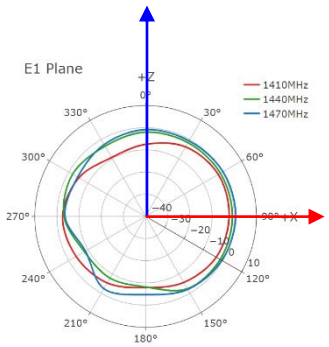
1440 MHz



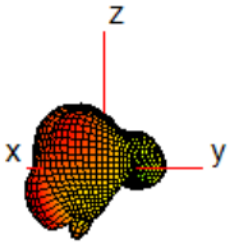


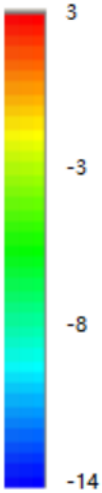


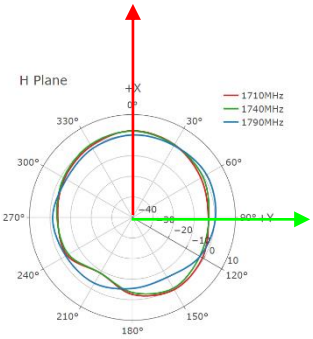


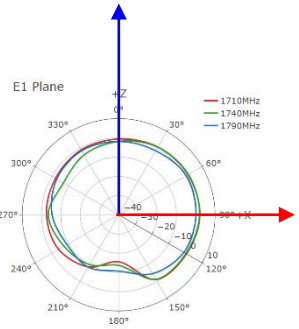




1740 MHz

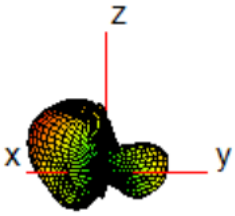


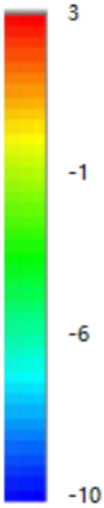



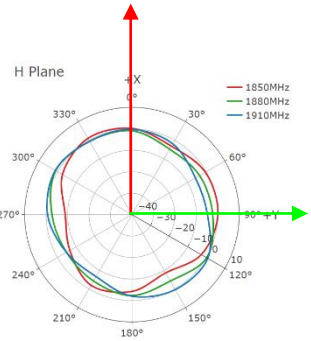



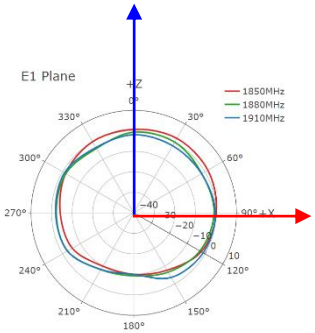




1880 MHz

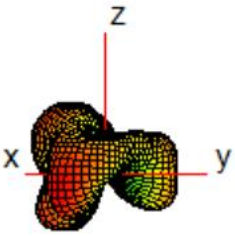


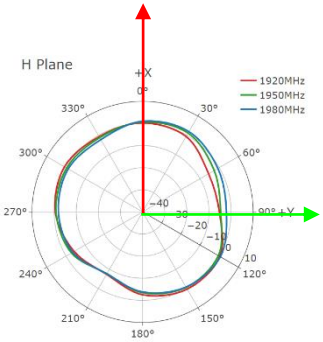



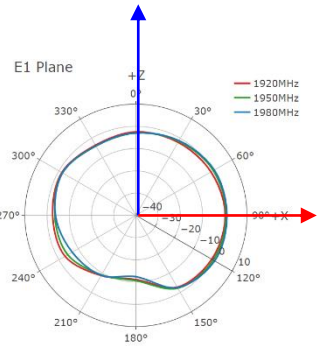




1950 MHz



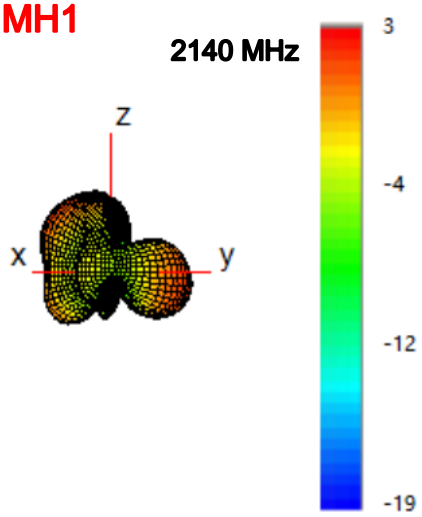


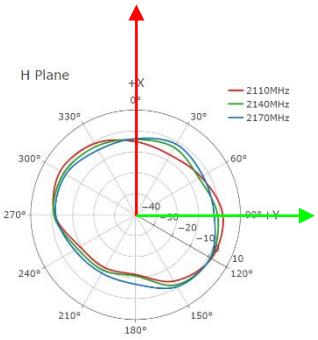


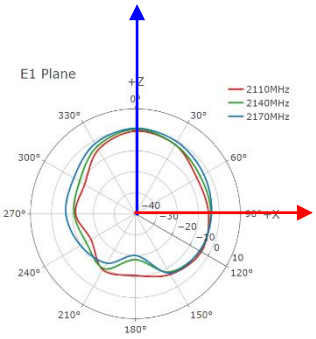



- **MH1**

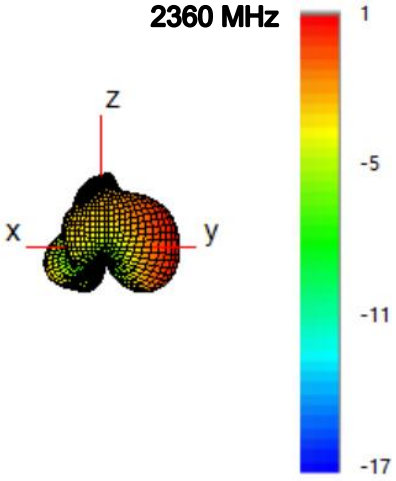
2140 MHz

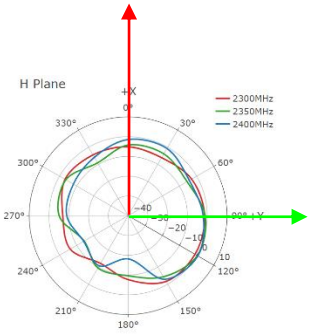


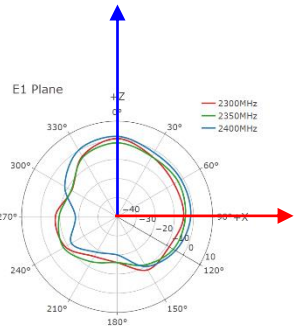



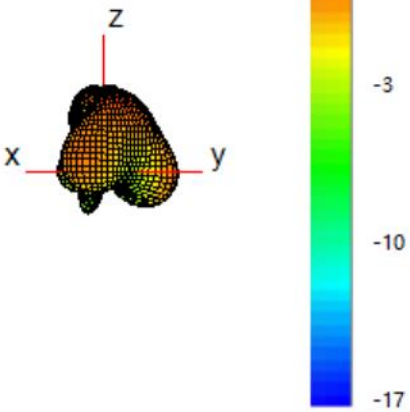

2360 MHz

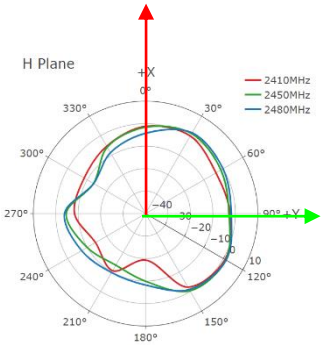


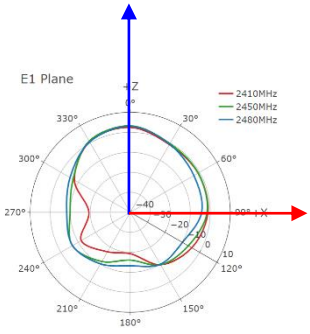



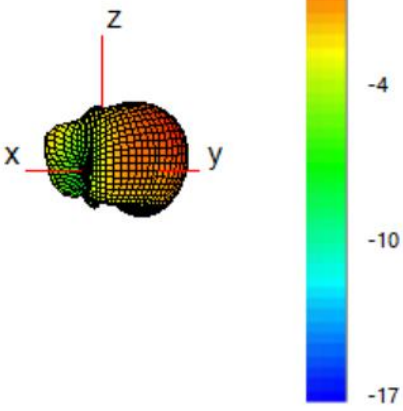

2450 MHz

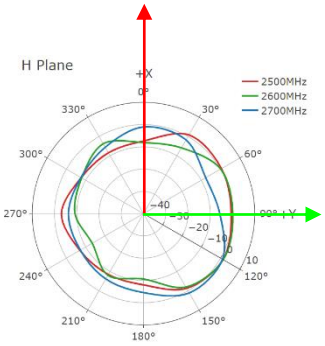


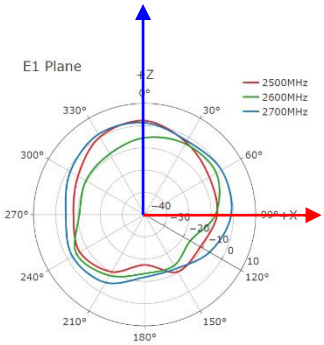




2600 MHz

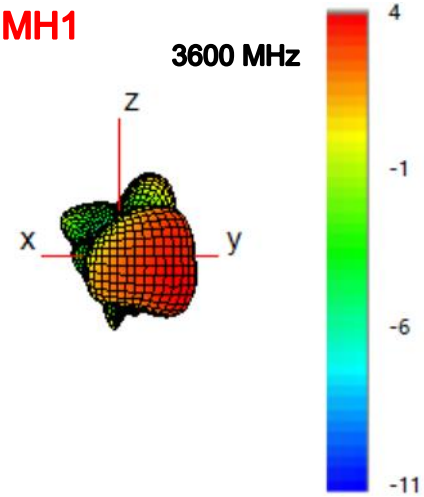


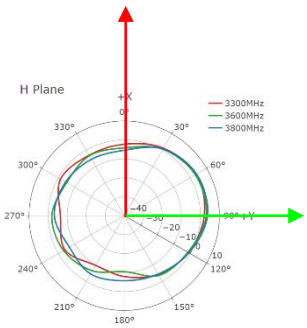



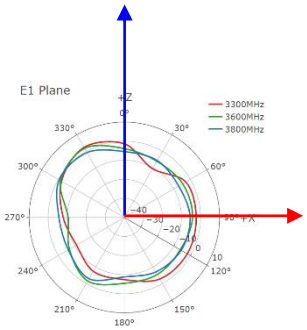



- **MH1**

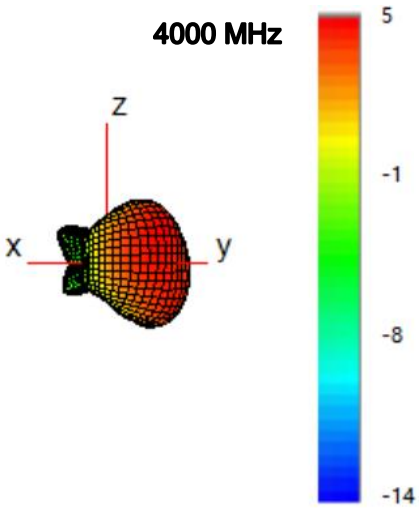
3600 MHz

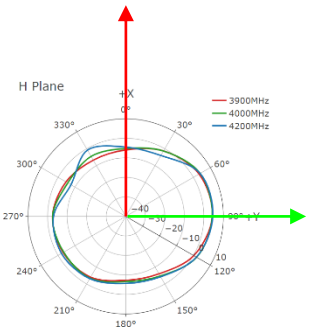


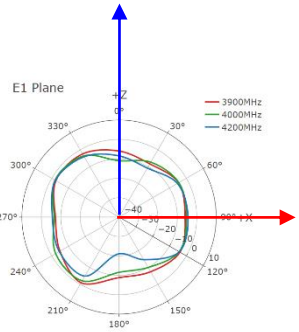



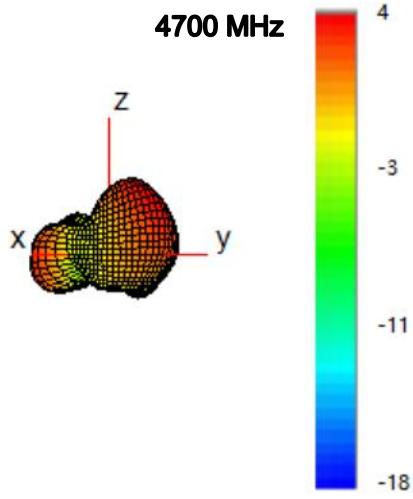

4000 MHz

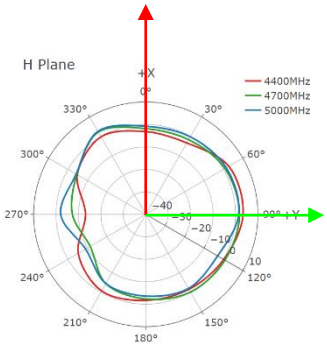


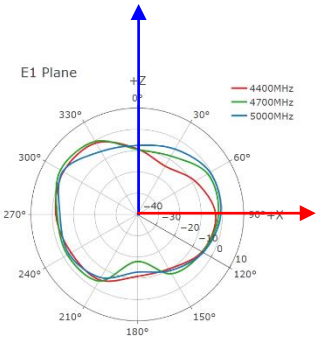



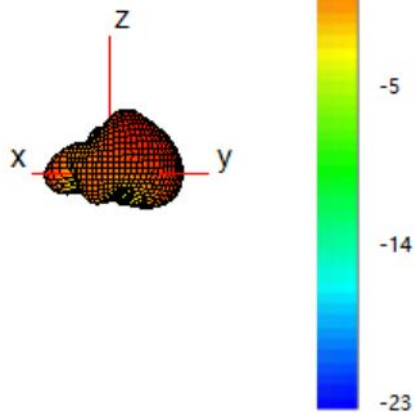

4700 MHz

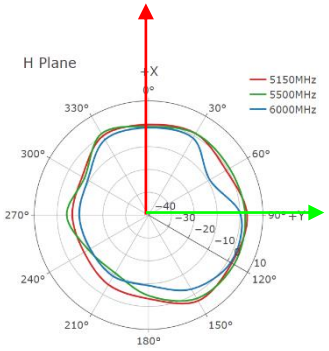


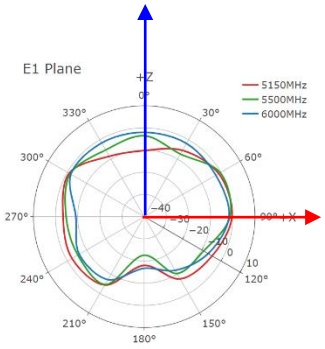



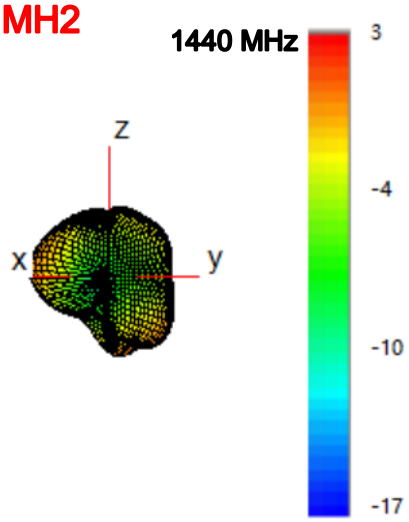

5500 MHz

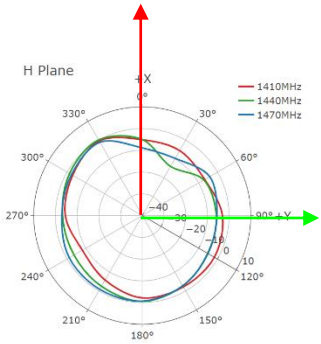


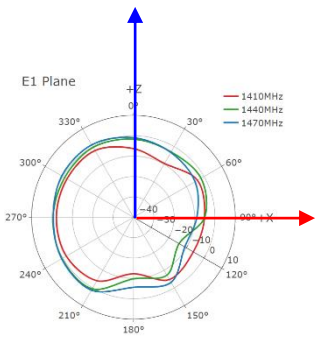



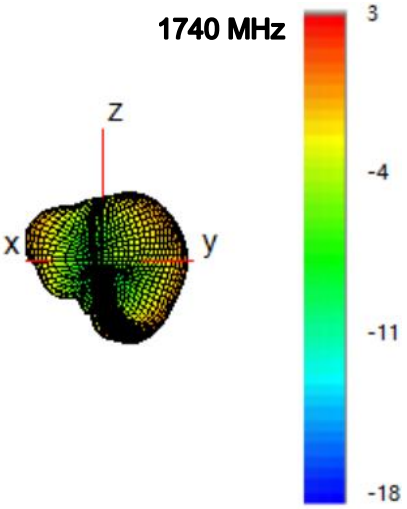



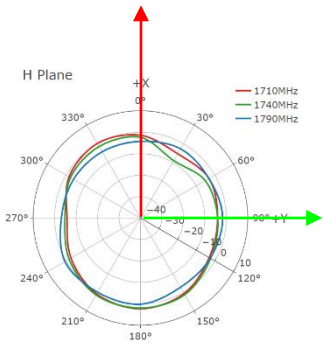
- **MH2**

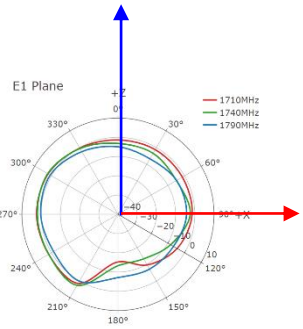

1440 MHz
3
-4
-10
-17
Z
x
y

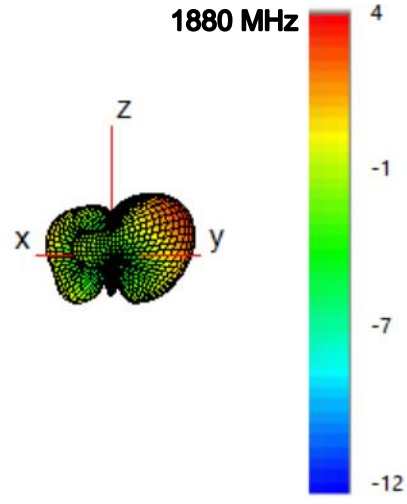

H Plane
1410MHz
1440MHz
1470MHz

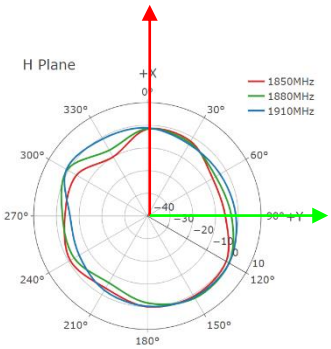

E1 Plane
1410MHz
1440MHz
1470MHz

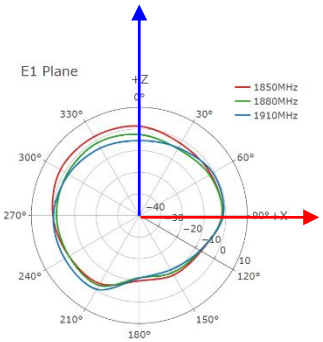

1740 MHz
3
-4
-11
-18
Z
x
y

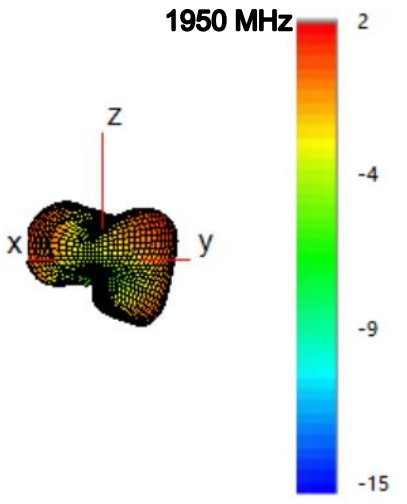

H Plane
1710MHz
1740MHz
1790MHz

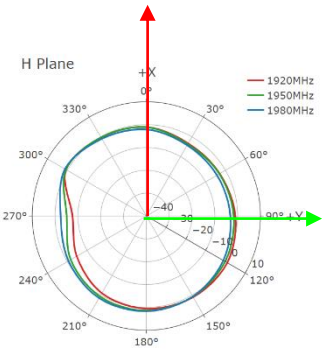

E1 Plane
1710MHz
1740MHz
1790MHz

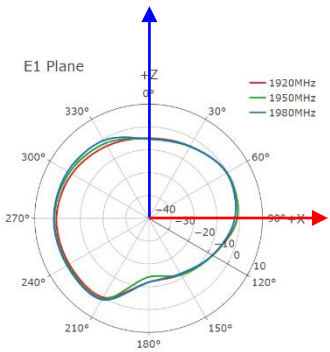

1880 MHz
4
-1
-7
-12
Z
x
y


H Plane
1850MHz
1880MHz
1910MHz

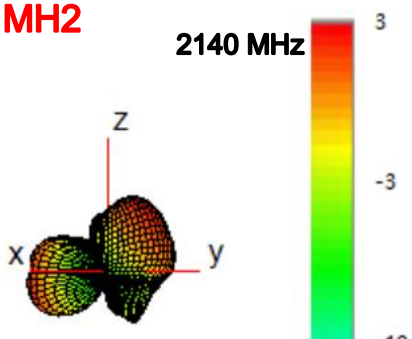

E1 Plane
1850MHz
1880MHz
1910MHz

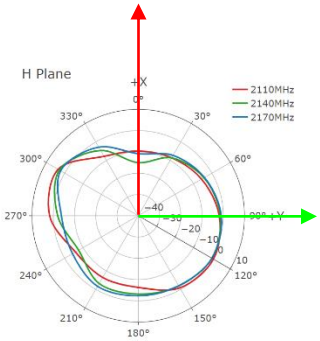

1950 MHz
2
-4
-9
-15
Z
x
y

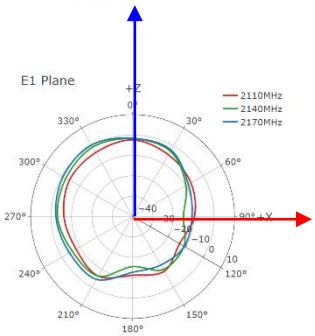

H Plane
1920MHz
1950MHz
1980MHz

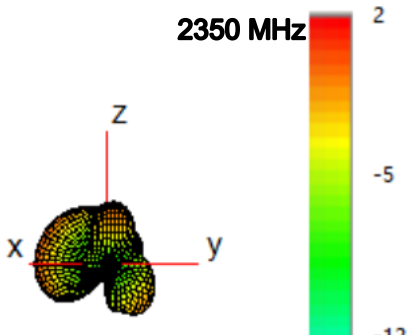

E1 Plane
1920MHz
1950MHz
1980MHz

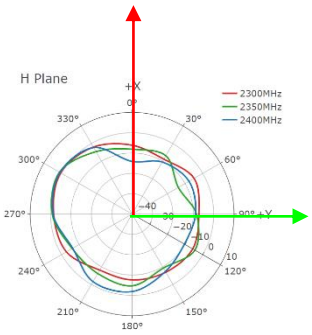
- **MH2**

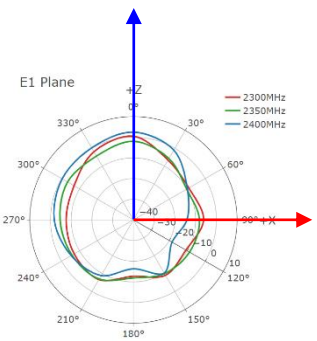

2140 MHz
3
-3
-10
-16
z
x
y

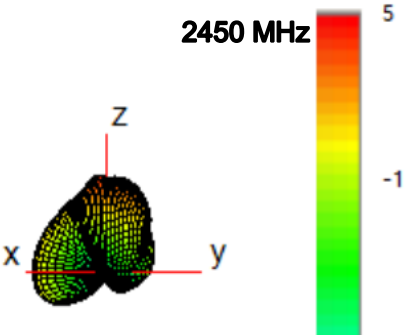

H Plane
2110MHz
2140MHz
2170MHz

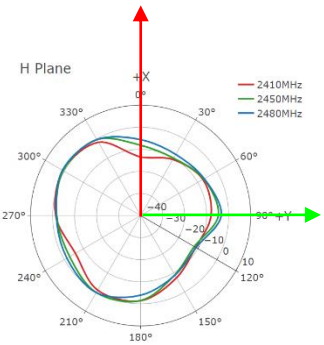

E1 Plane
2110MHz
2140MHz
2170MHz

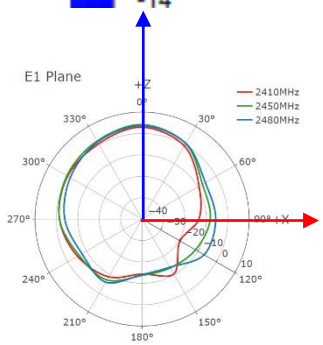

2350 MHz
2
-5
-12
-19
z
x
y

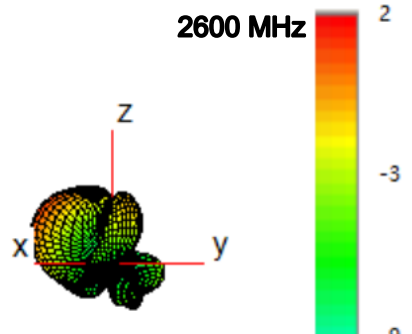

H Plane
2300MHz
2350MHz
2400MHz

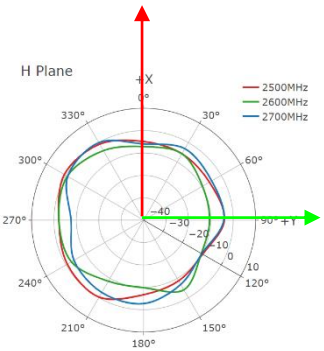

E1 Plane
2300MHz
2350MHz
2400MHz

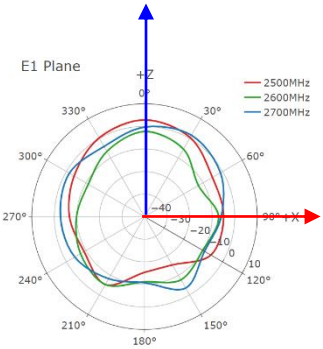

2450 MHz
5
-1
-8
-14
z
x
y


H Plane
2410MHz
2450MHz
2480MHz

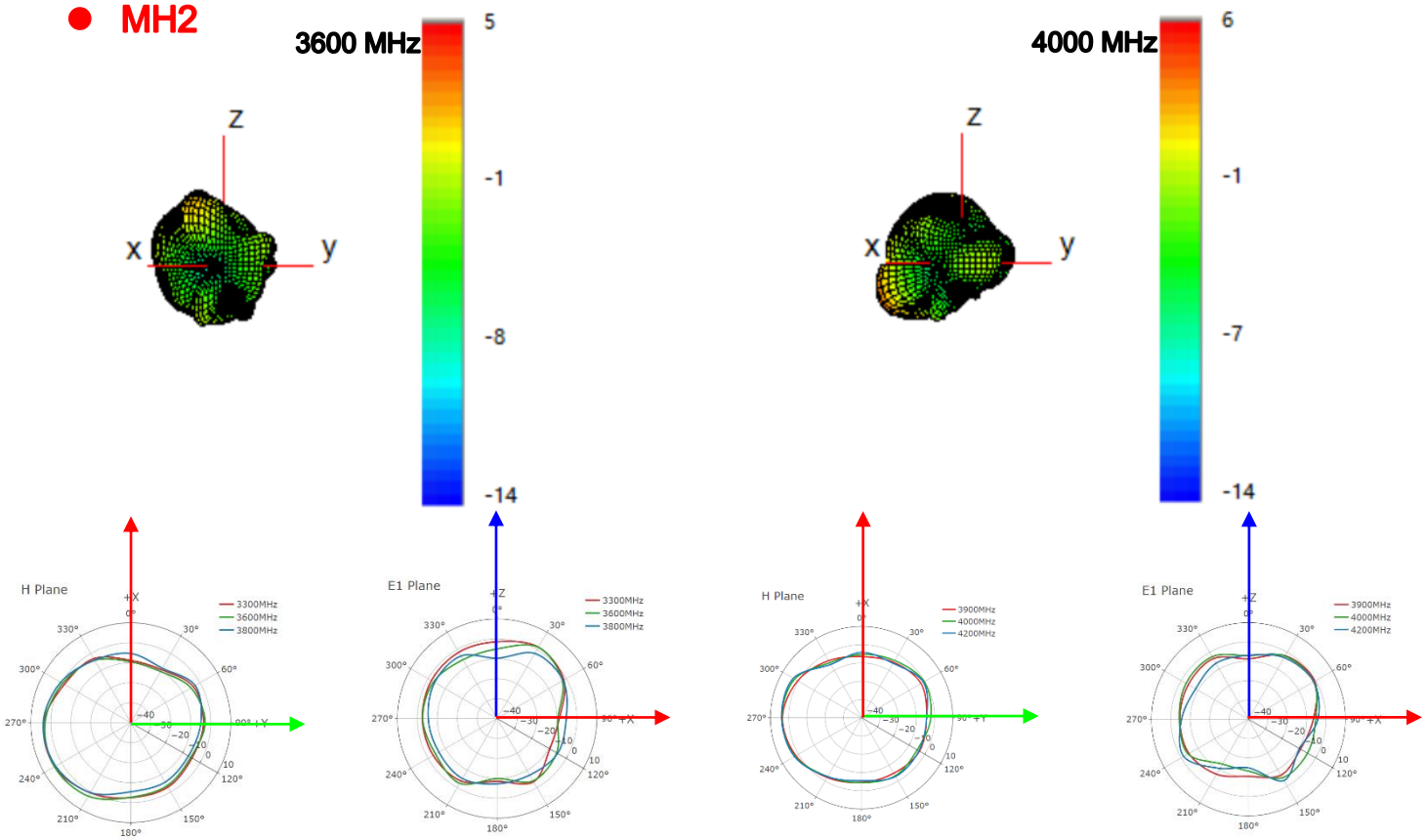

E1 Plane
2410MHz
2450MHz
2480MHz


2600 MHz
2
-3
-9
-14
z
x
y

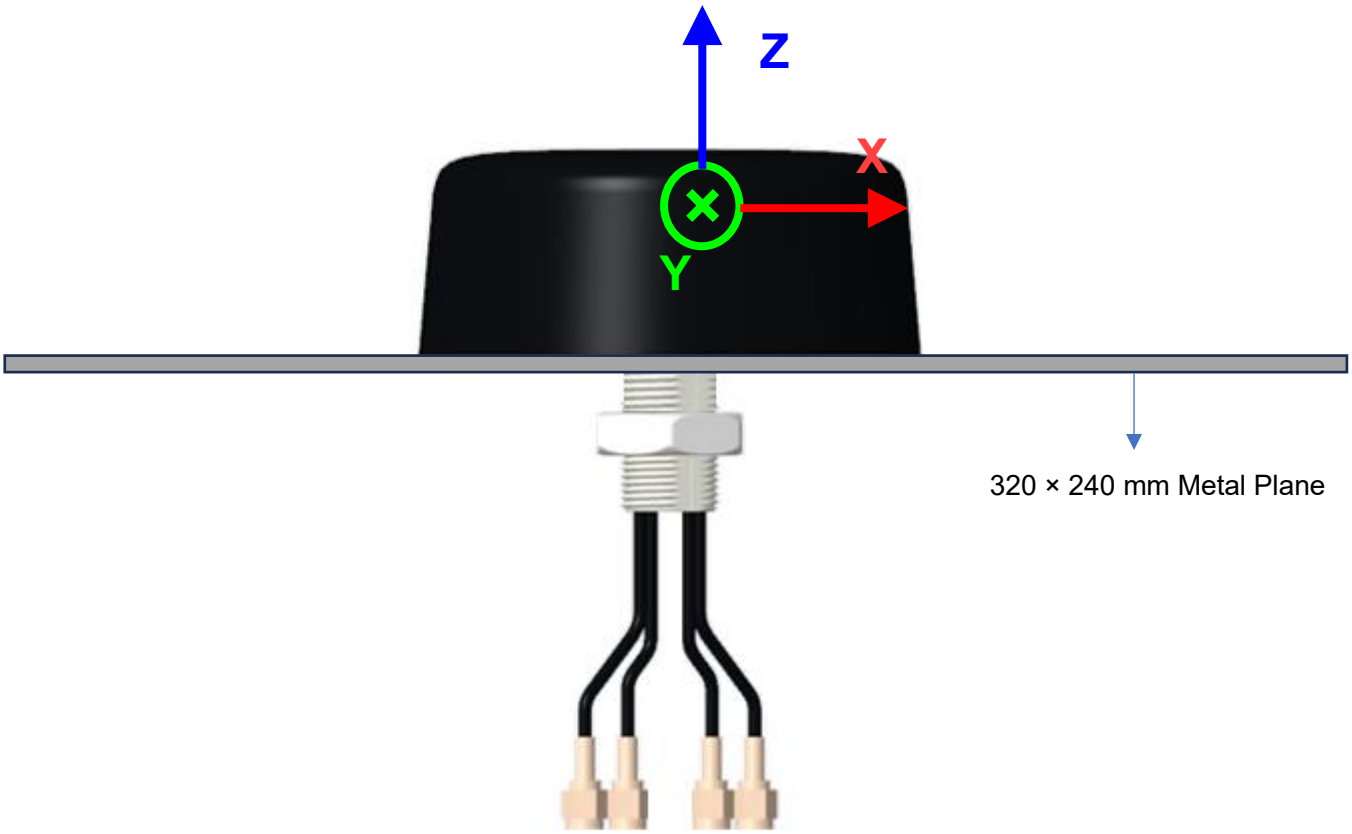

H Plane
2500MHz
2600MHz
2700MHz


E1 Plane
2500MHz
2600MHz
2700MHz

- **MH2**

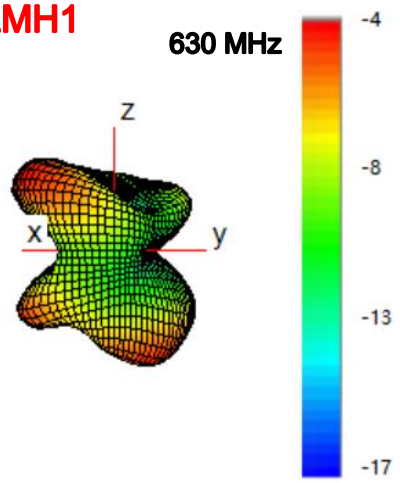

3600 MHz
5
-1
-8
-14
Z
X
Y
H Plane
E1 Plane
3300MHz
3600MHz
3800MHz
4000 MHz
6
-1
-7
-14
3900MHz
4000MHz
4200MHz
4700 MHz
5
-2
-8
-15
4400MHz
4700MHz
5000MHz
5500 MHz
4
-3
-11
-18
5150MHz
5500MHz
6000MHz

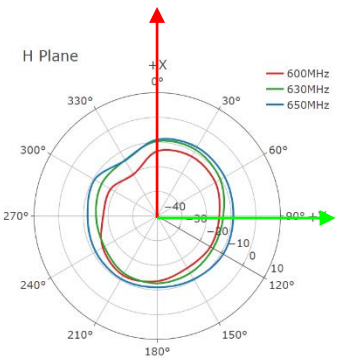
#### 3.2.4.2 Test Status: On 320 × 240 mm Metal Plane

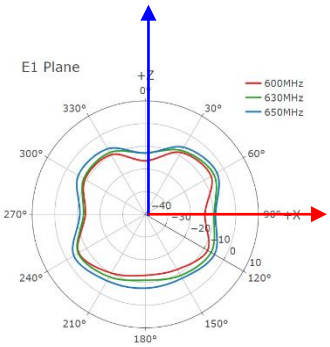


## LMH1

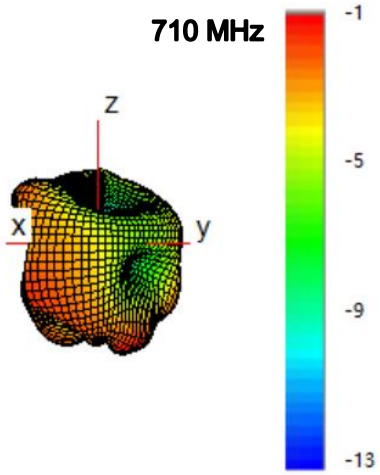
630 MHz

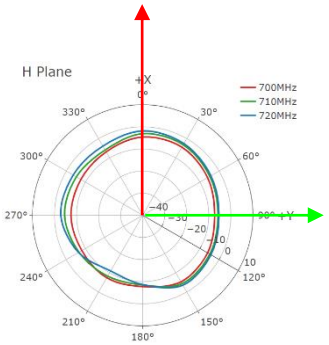


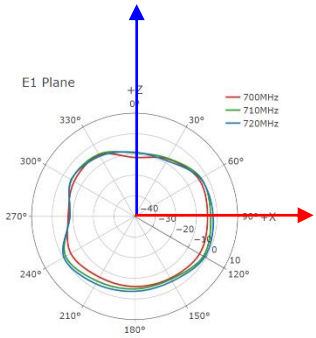



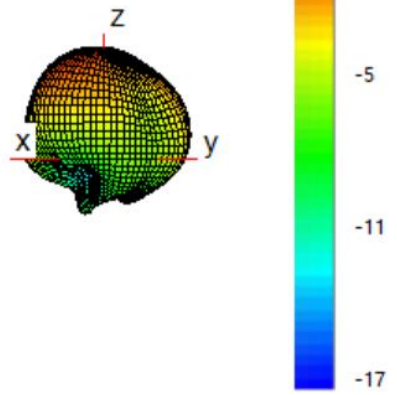

710 MHz

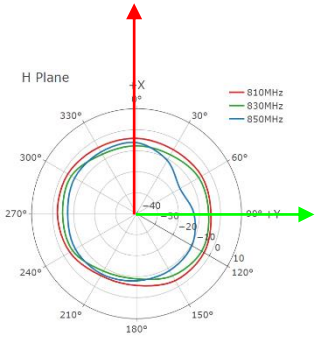


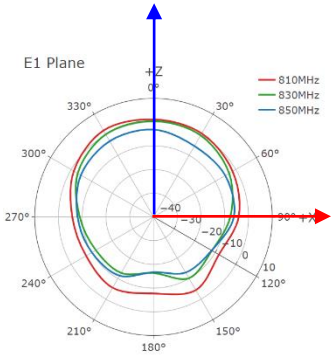



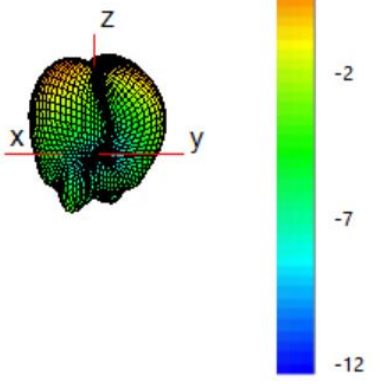

830 MHz

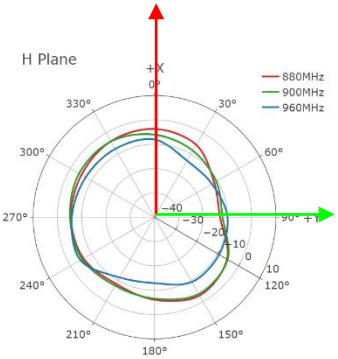


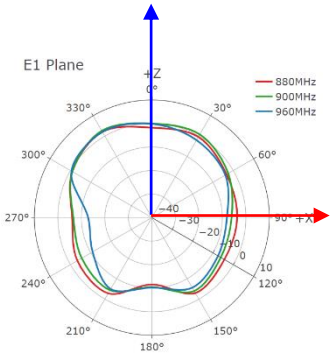



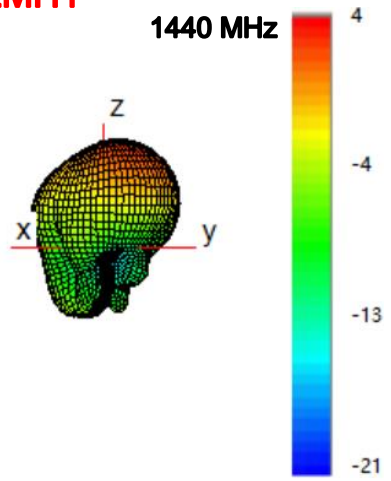

900 MHz

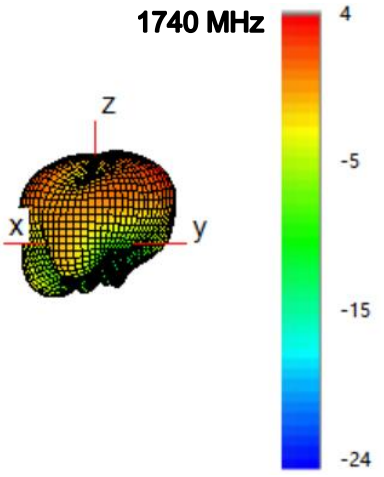


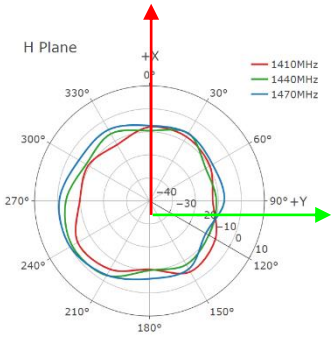



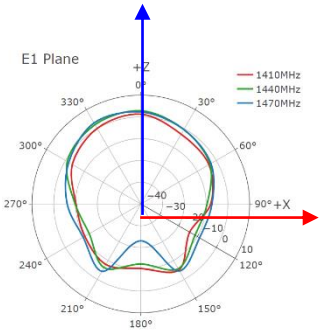



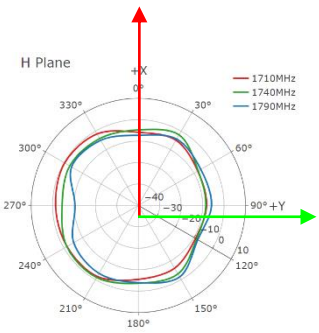
- **LMH1**

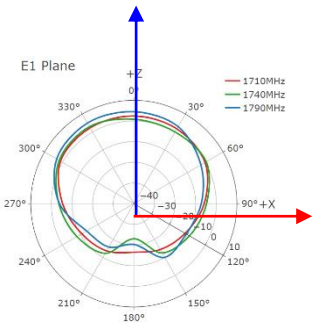

1440 MHz
Z
X
y
4
-4
-13
-21

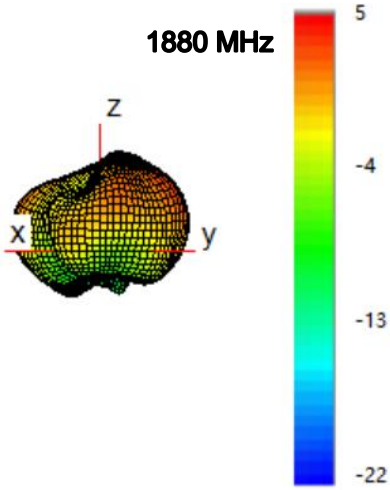

1740 MHz
Z
X
y
4
-5
-15
-24

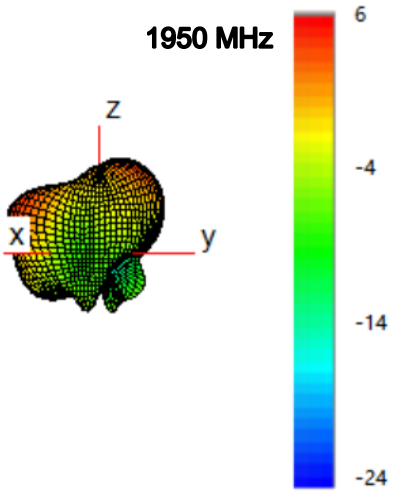

H Plane
1410MHz
1440MHz
1470MHz

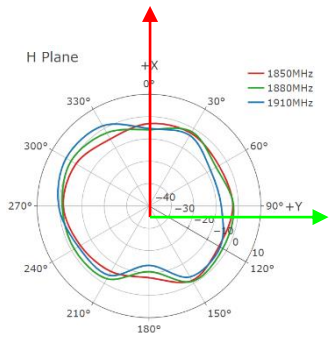

E1 Plane
1410MHz
1440MHz
1470MHz

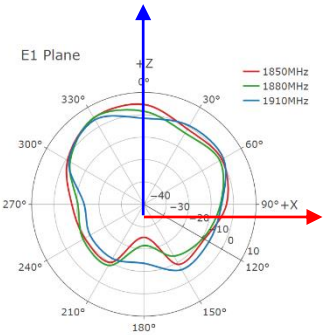

H Plane
1710MHz
1740MHz
1790MHz

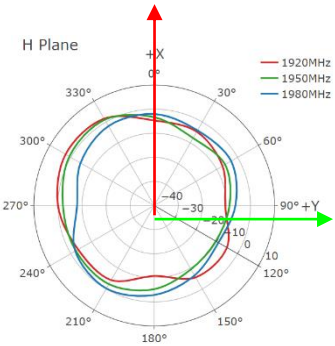

E1 Plane
1710MHz
1740MHz
1790MHz

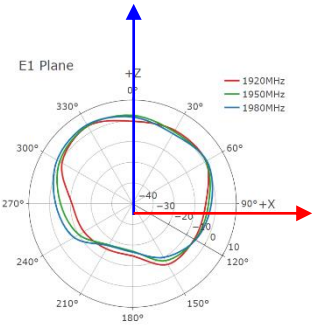

1880 MHz
Z
X
y
5
-4
-13
-22


1950 MHz
Z
X
y
6
-4
-14
-24


H Plane
1850MHz
1880MHz
1910MHz

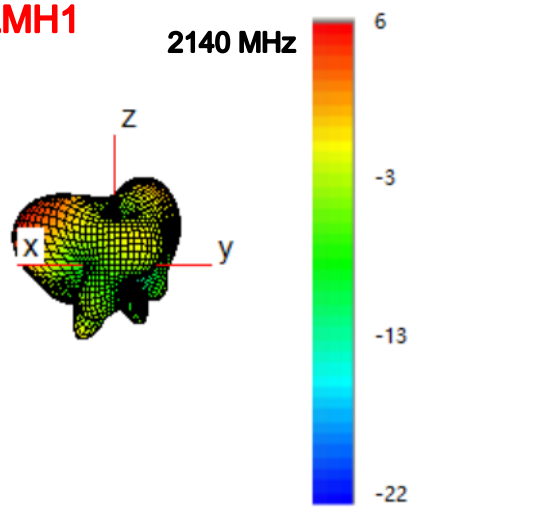

E1 Plane
1850MHz
1880MHz
1910MHz

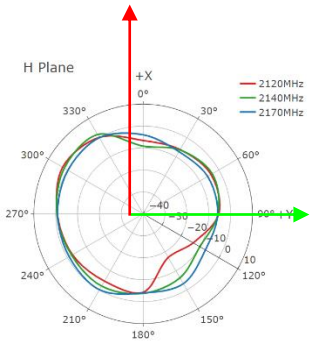

H Plane
1920MHz
1950MHz
1980MHz

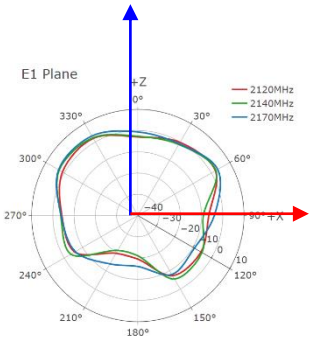

E1 Plane
1920MHz
1950MHz
1980MHz

## LMH1

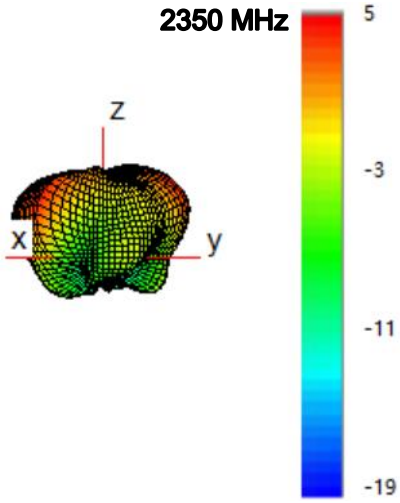
2140 MHz

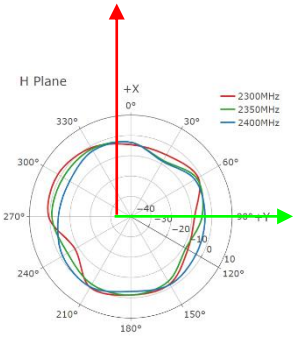


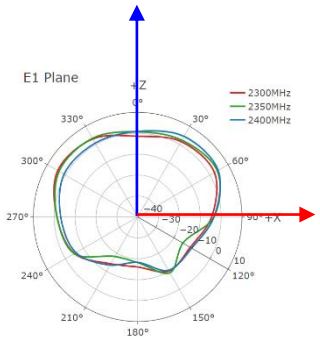



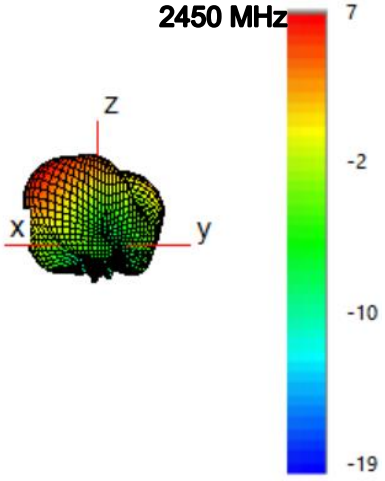

2350 MHz

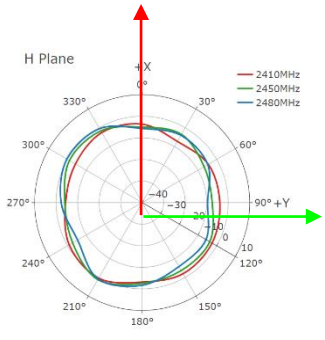


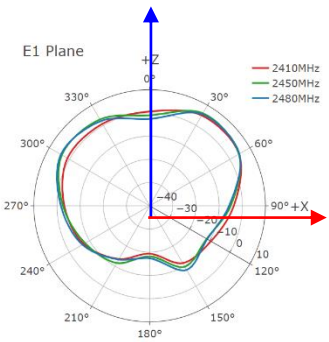



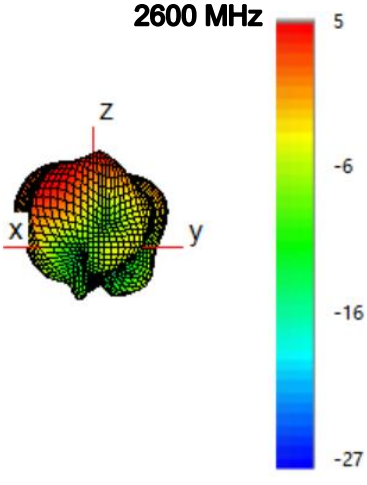

2450 MHz

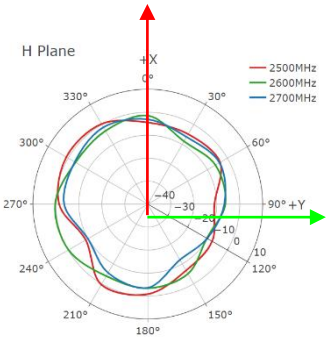


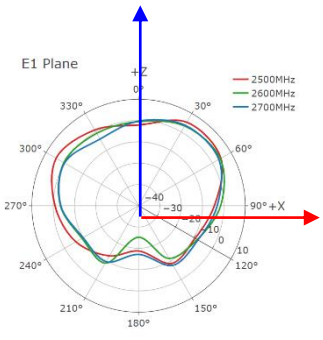




2600 MHz

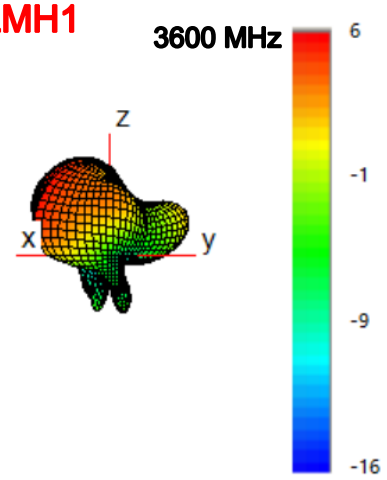


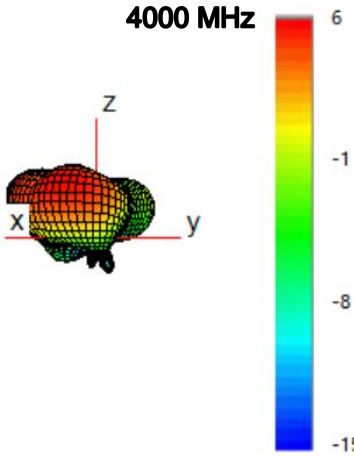



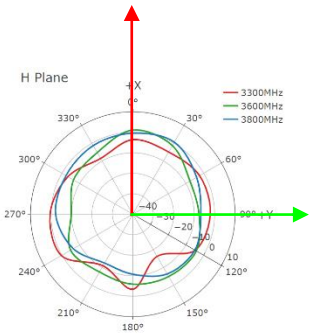
- **LMH1**

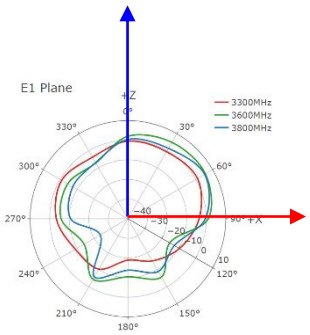
3600 MHz

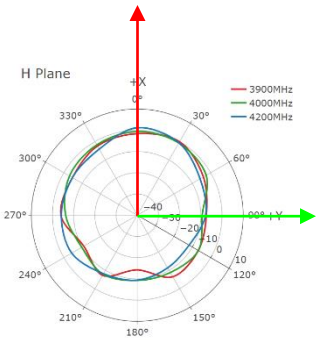


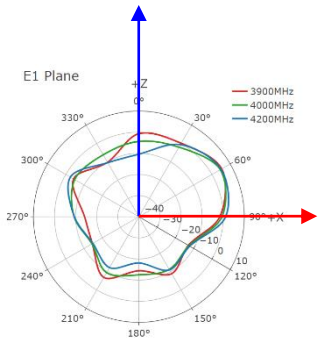

4000 MHz



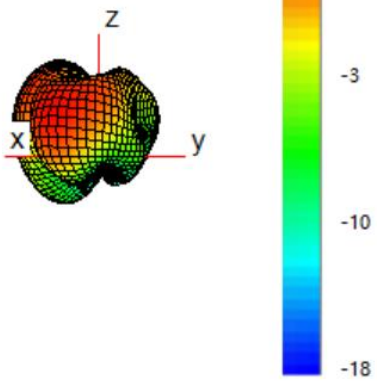



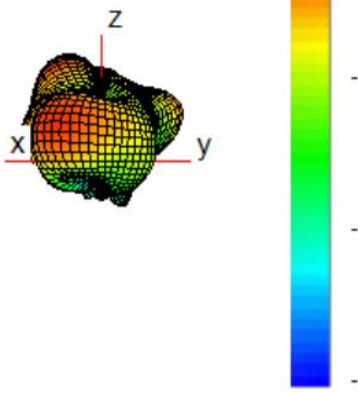



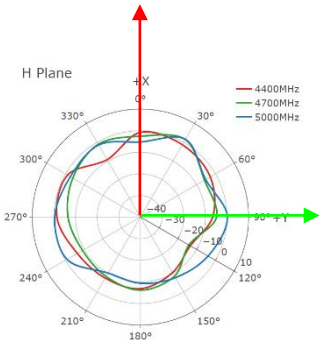



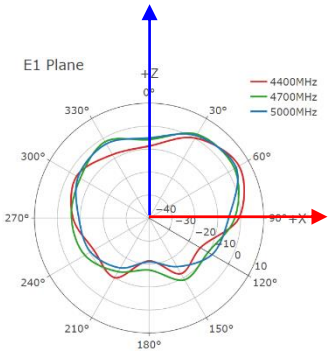

4700 MHz

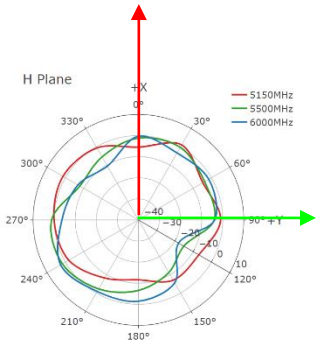


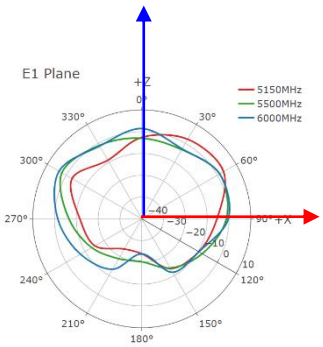

5500 MHz



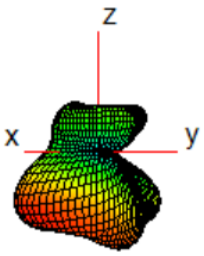



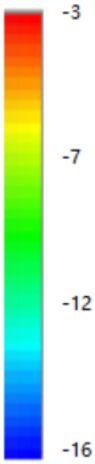



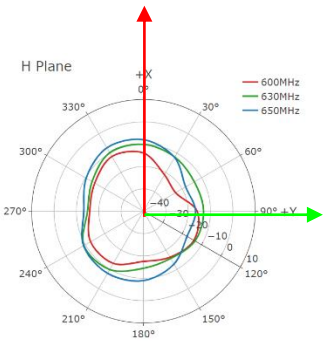



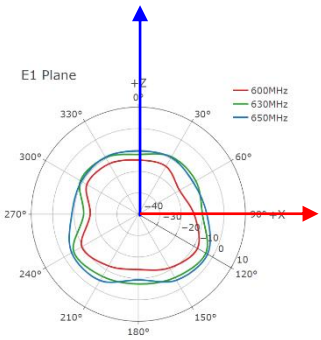
## LMH2

630 MHz

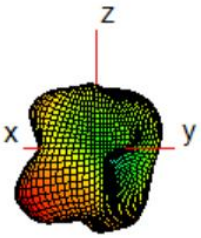


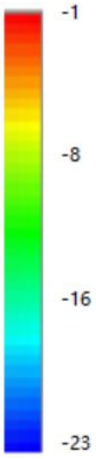



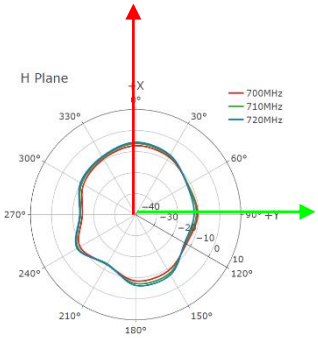



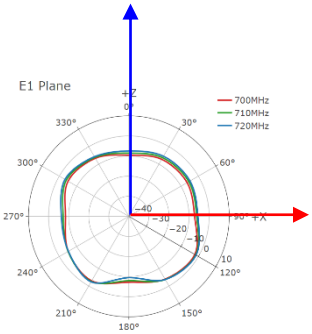




710 MHz

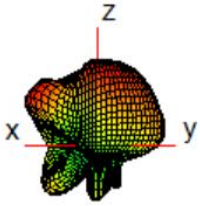


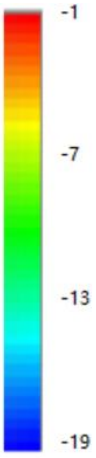



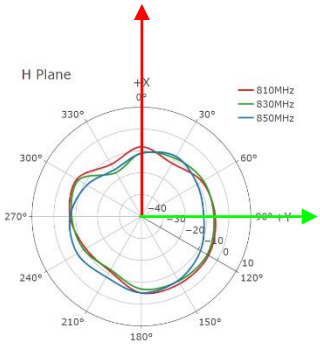



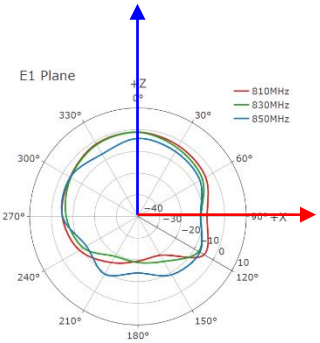




830 MHz

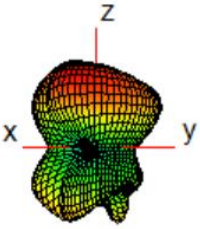


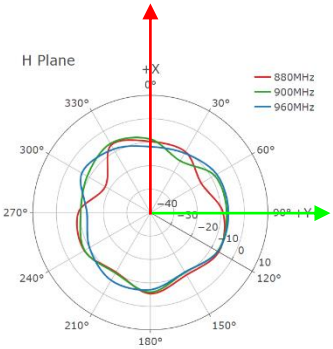



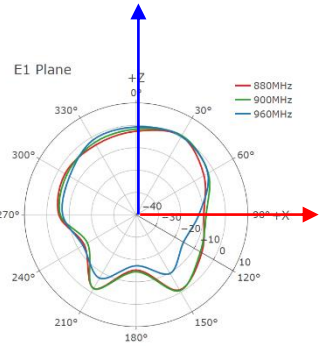




900 MHz



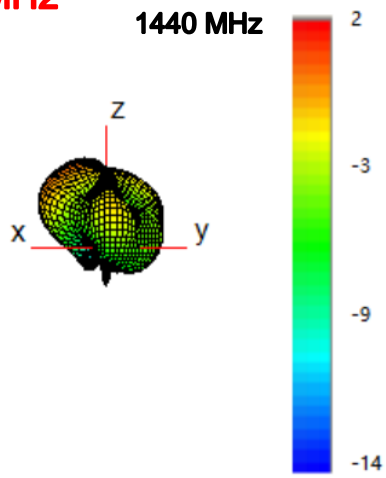


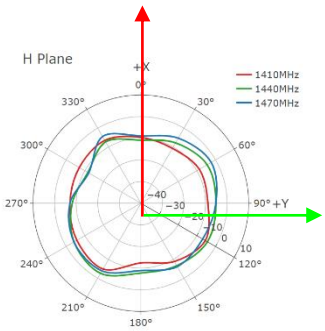


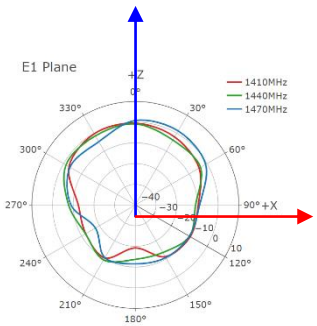



- **LMH2**

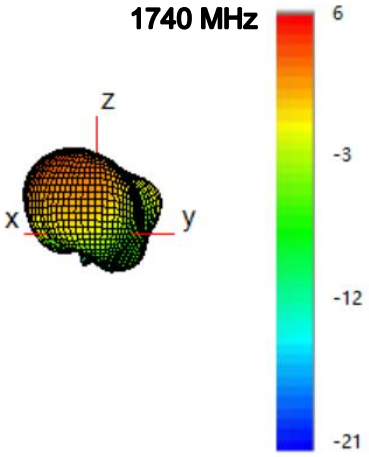
1440 MHz

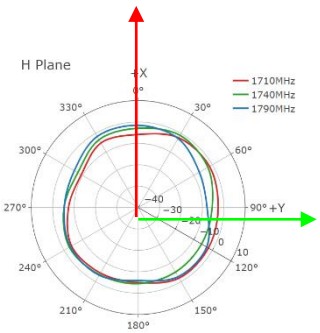


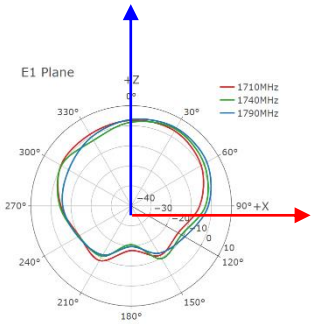



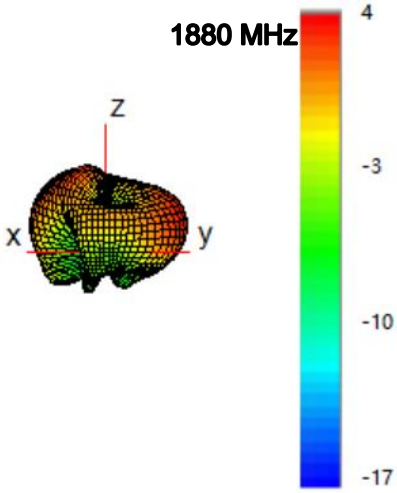

1740 MHz

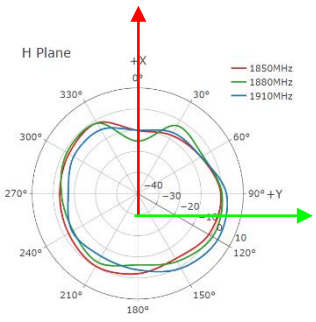


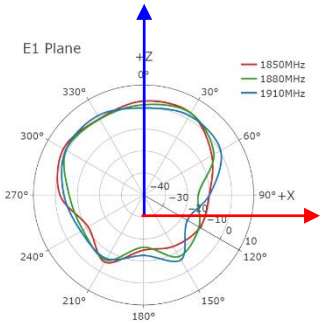



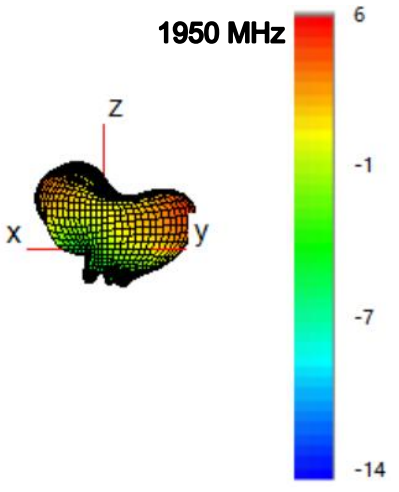

1880 MHz

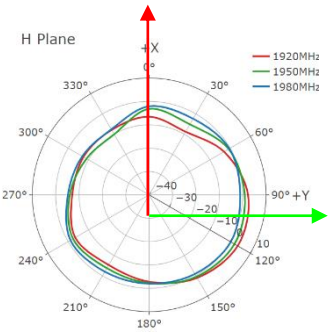


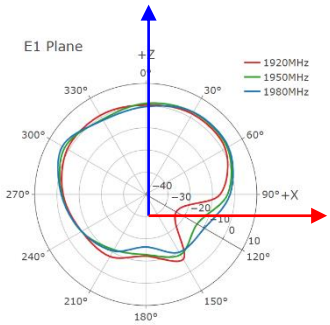




1950 MHz

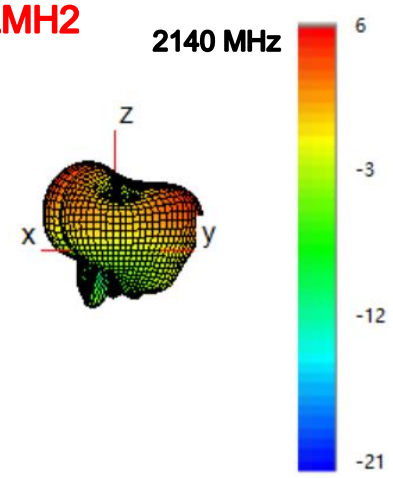


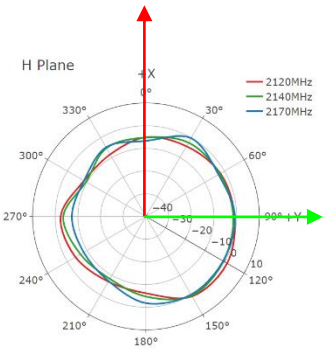



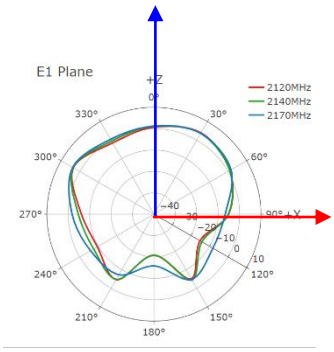



- **LMH2**

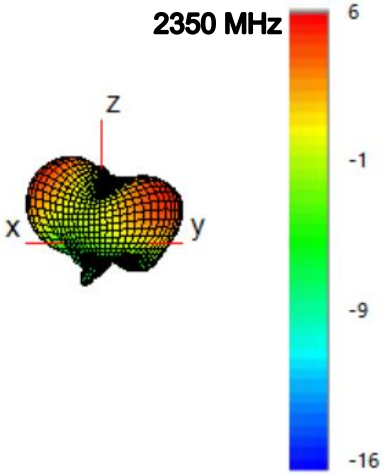
2140 MHz

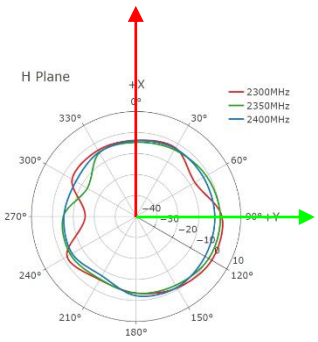


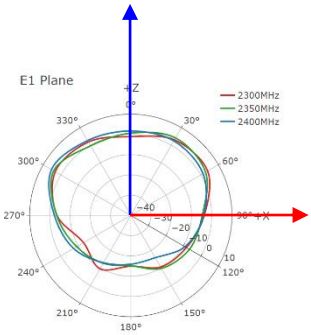



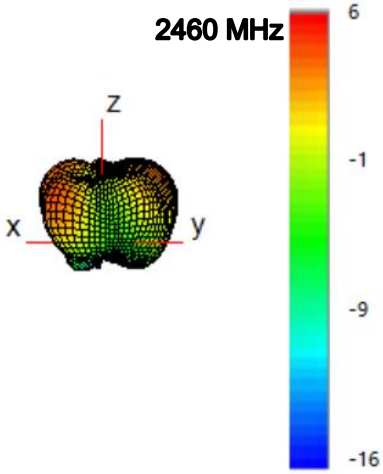

2350 MHz

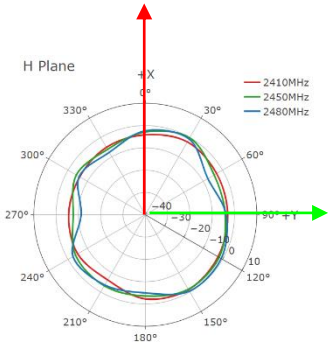


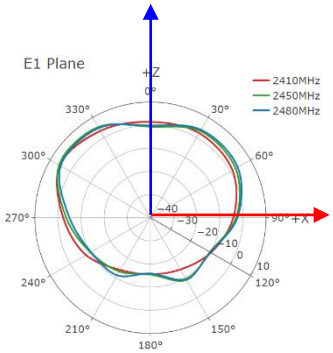



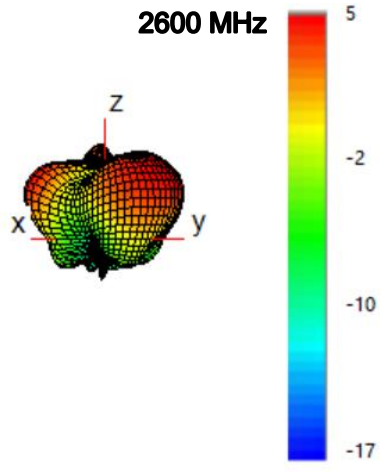

2460 MHz

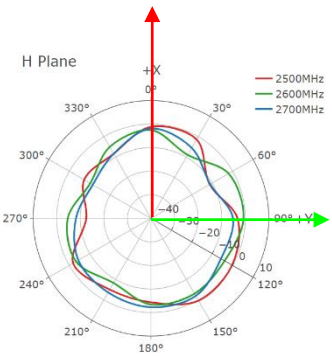


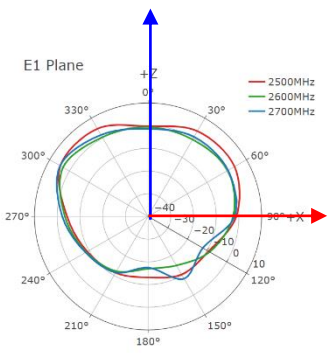




2600 MHz

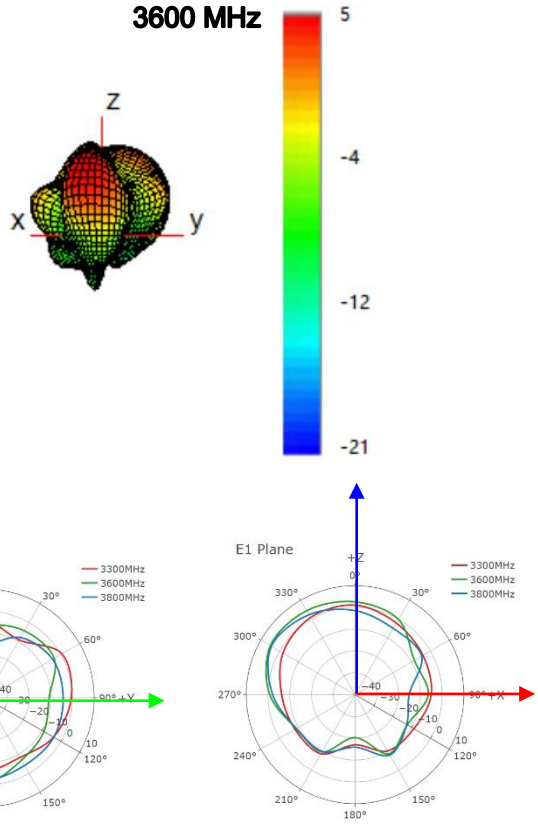


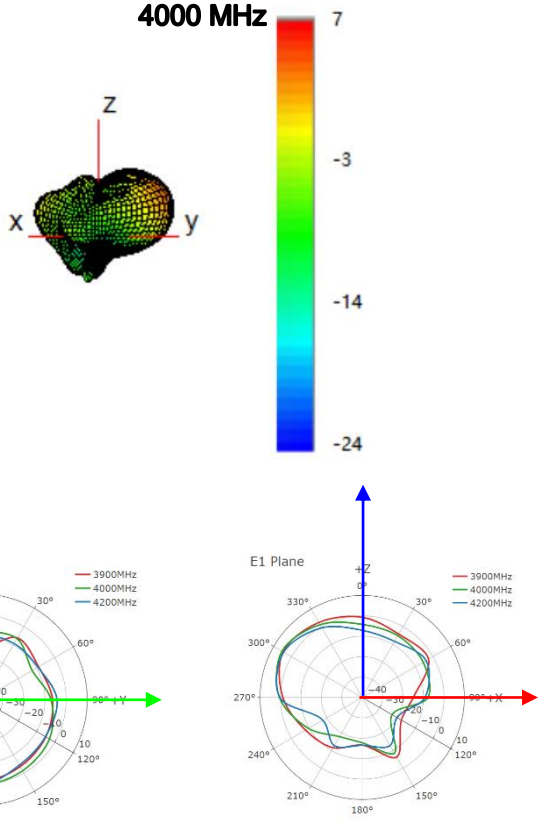



## LMH2

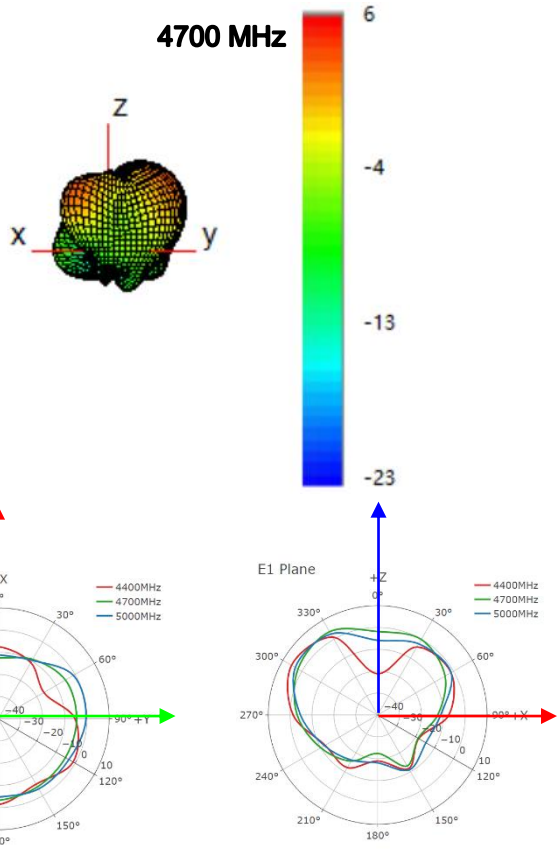
3600 MHz



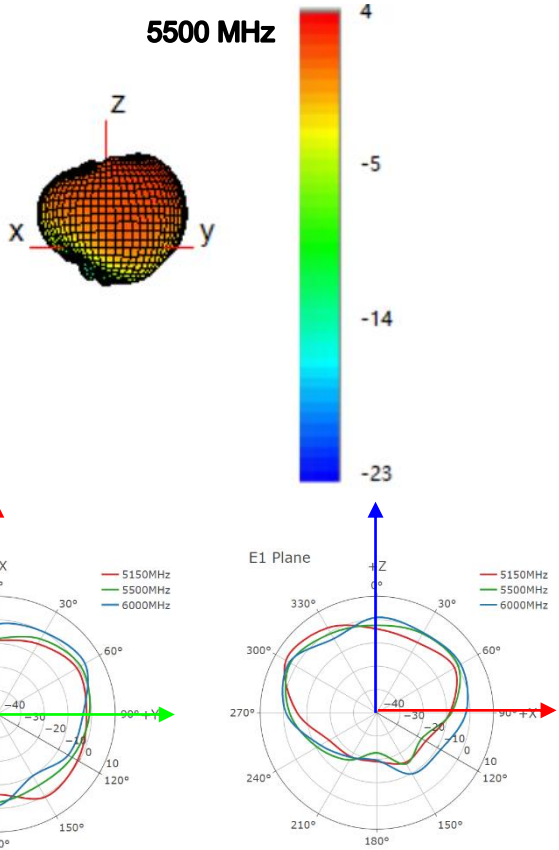

4000 MHz




4700 MHz

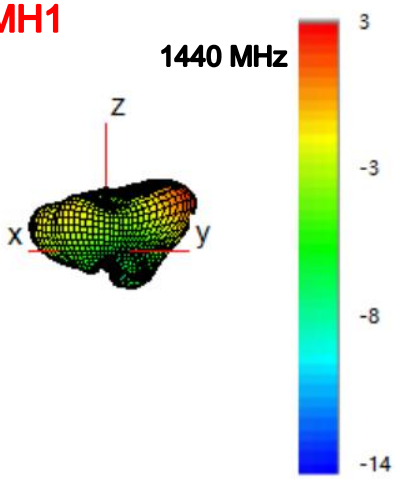


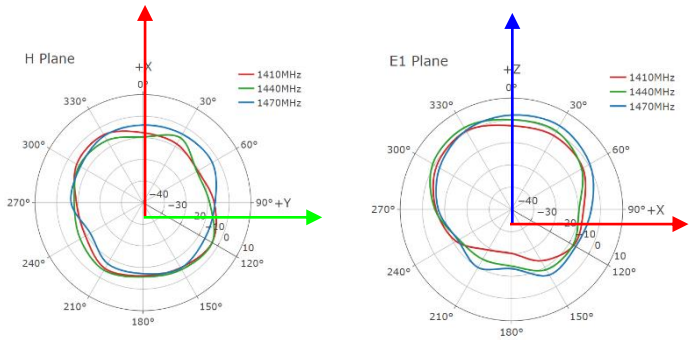

5500 MHz



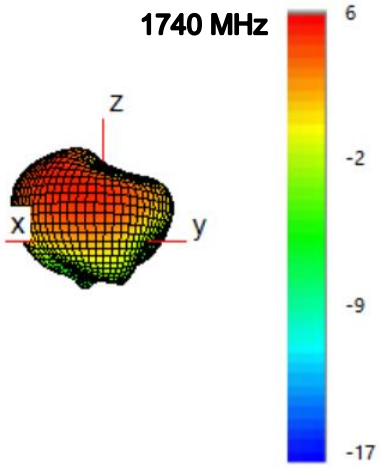
## MH1

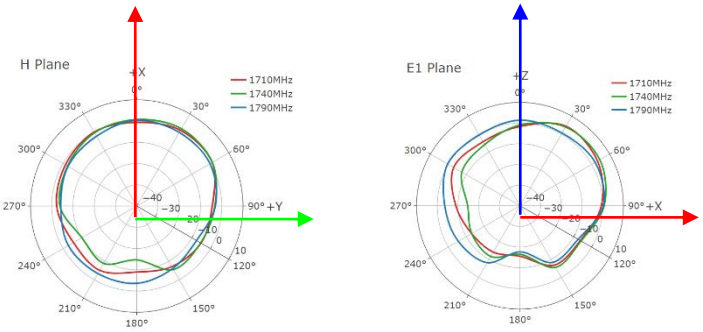
1440 MHz



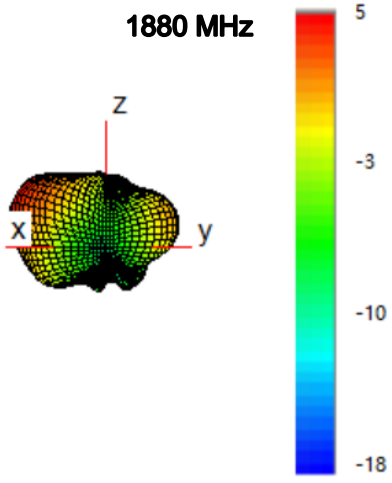



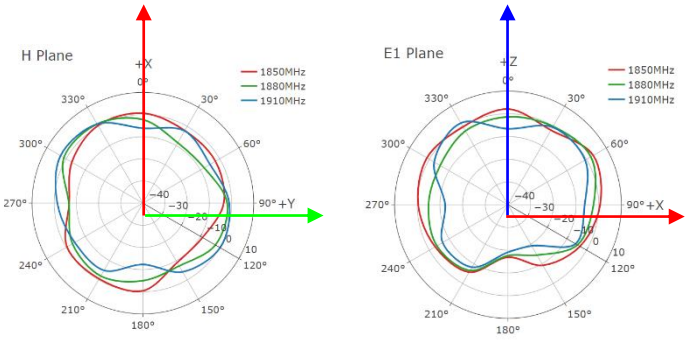

1740 MHz



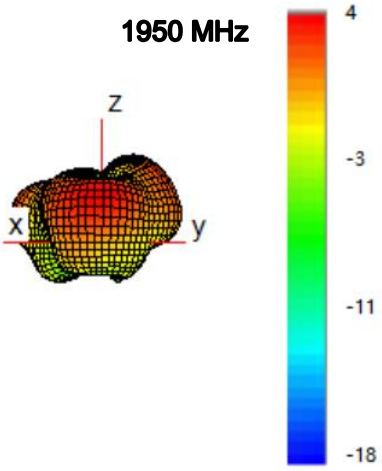



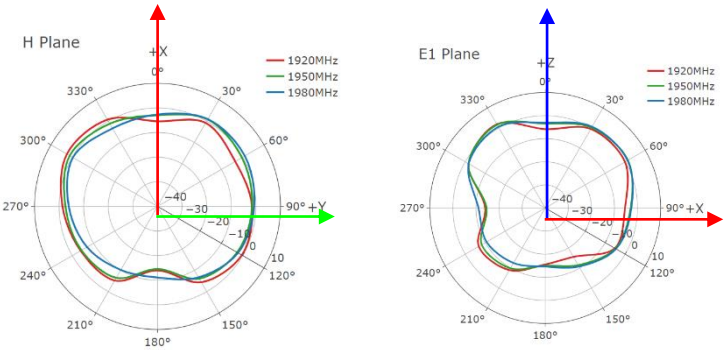

1880 MHz



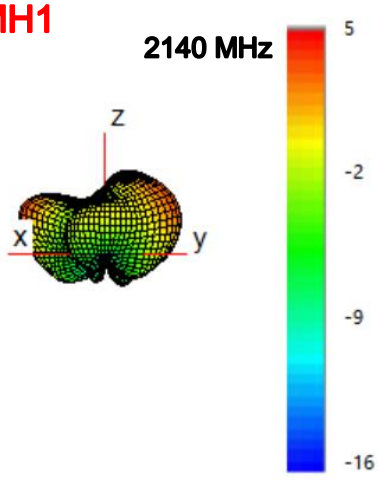

1950 MHz

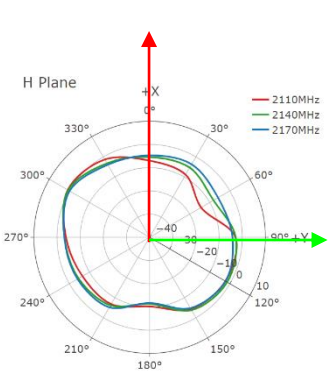


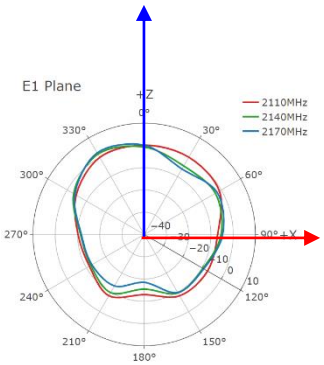



## MH1

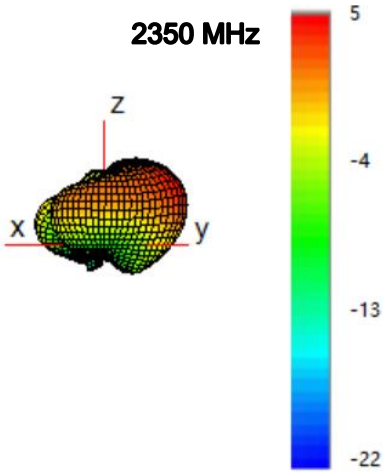
2140 MHz

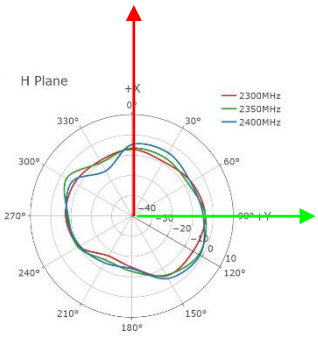


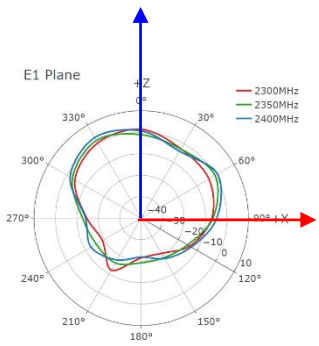



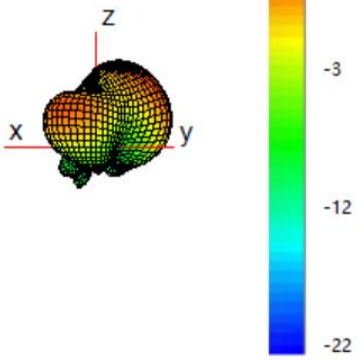

2350 MHz

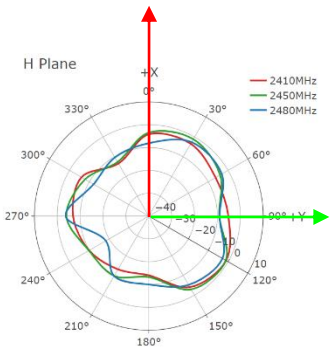


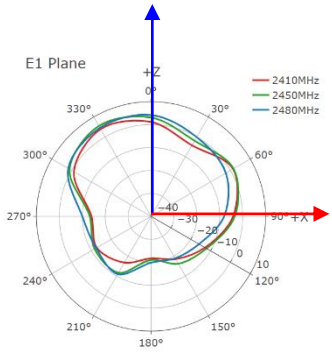



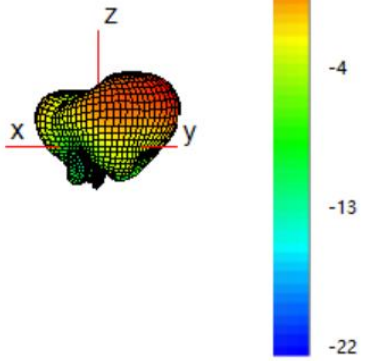

2450 MHz

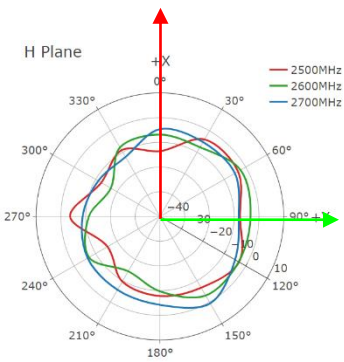


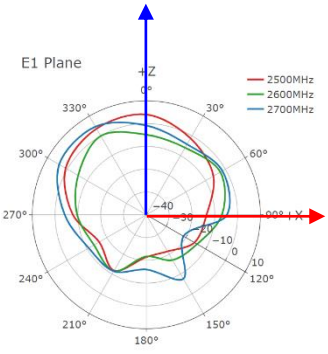




2600 MHz

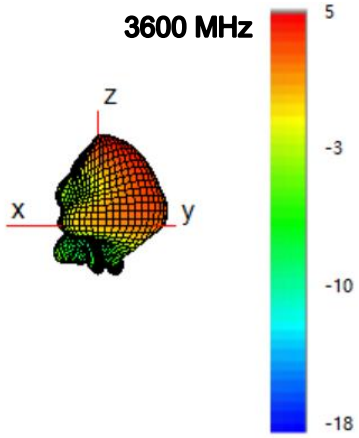


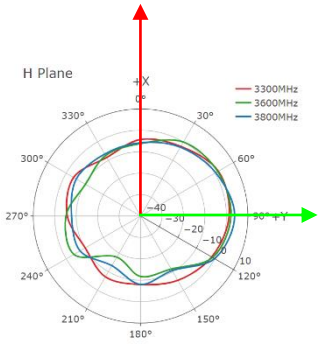



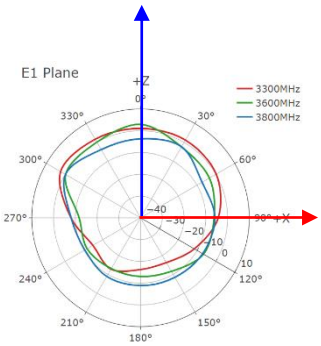



## MH1

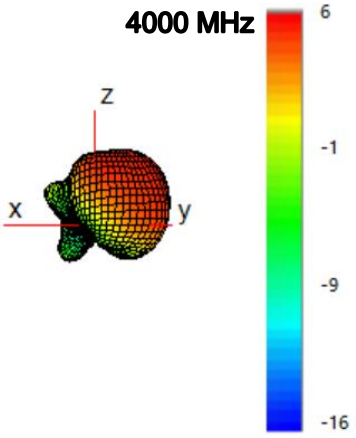
3600 MHz

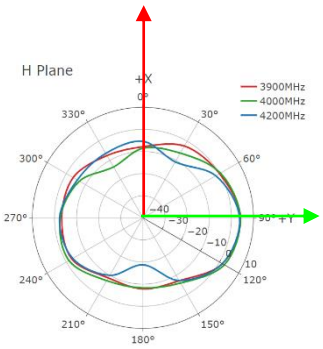


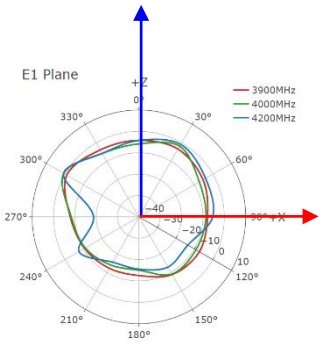



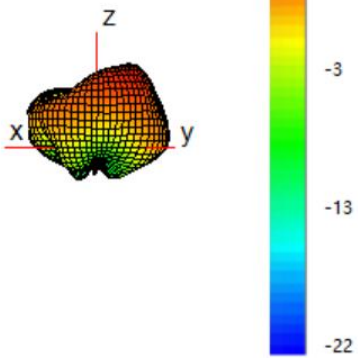

4000 MHz

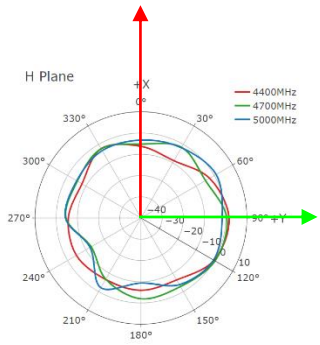


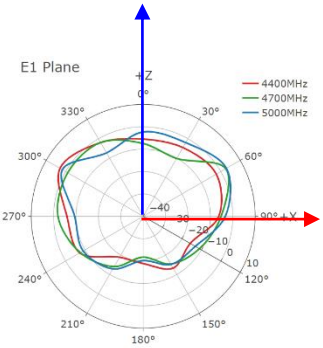



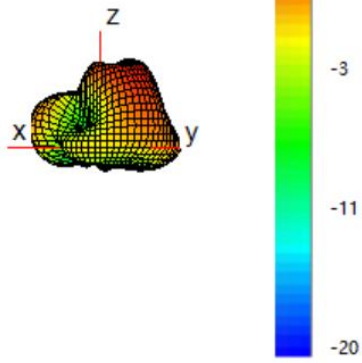

4700 MHz

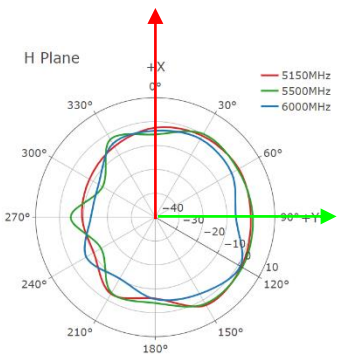


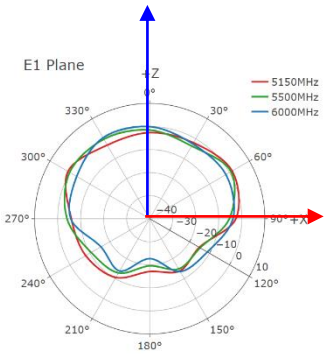




5500 MHz

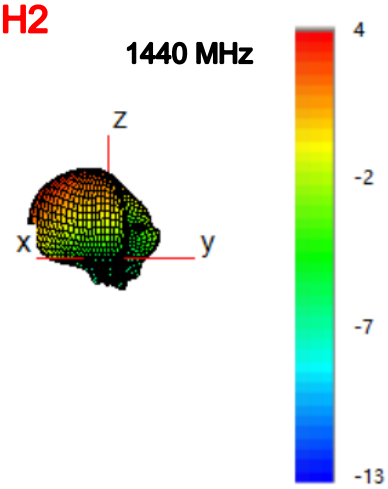


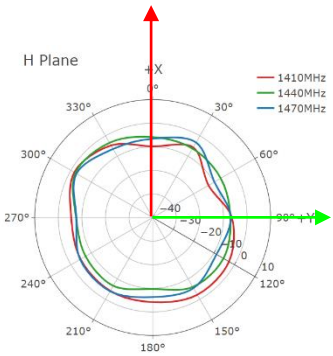



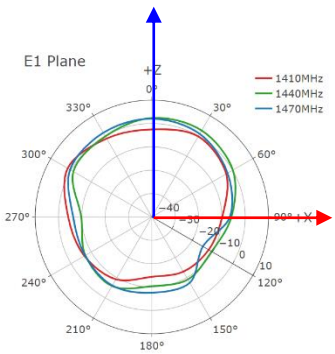



## MH2

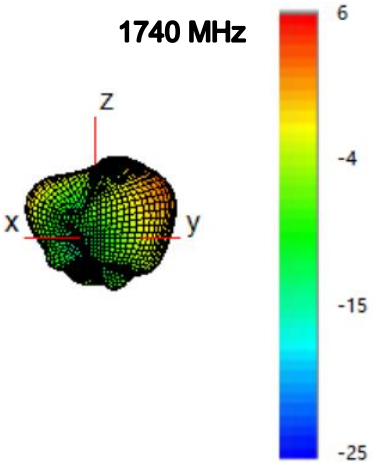
1440 MHz

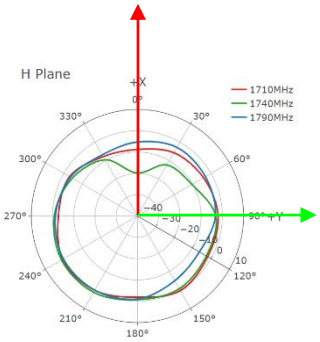


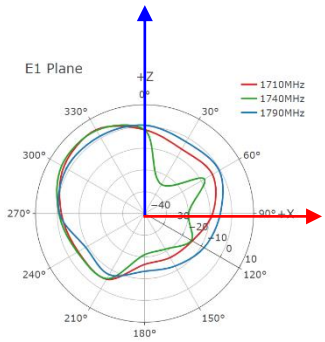



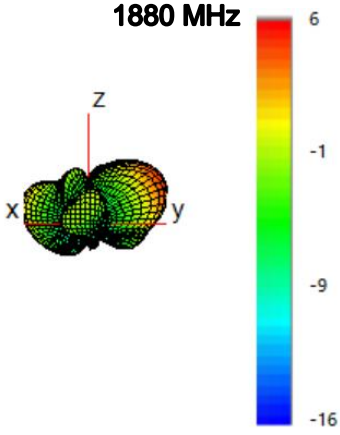

1740 MHz

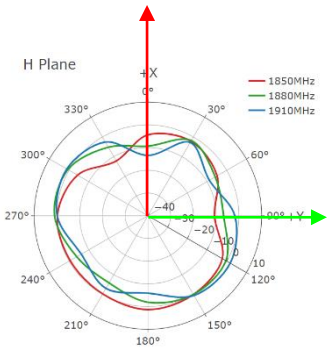


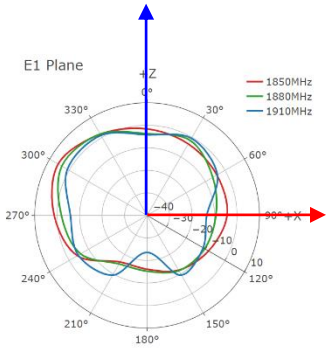



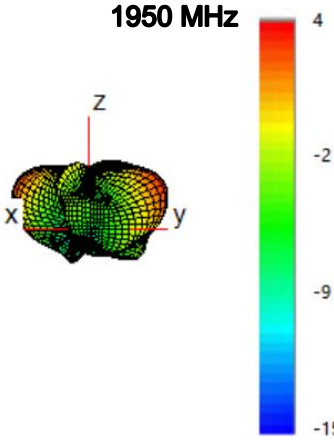

1880 MHz

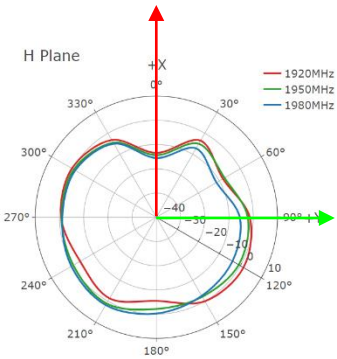


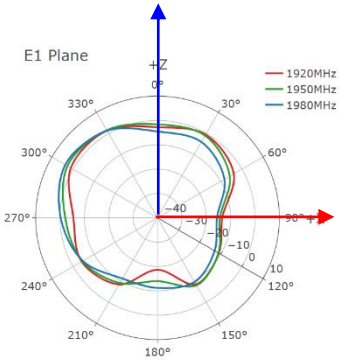




1950 MHz

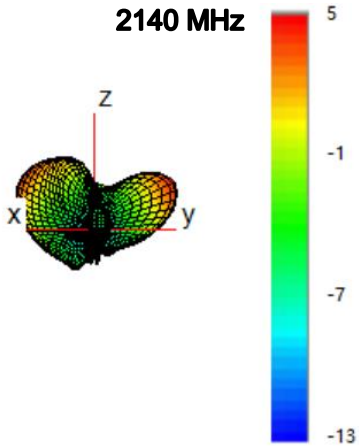


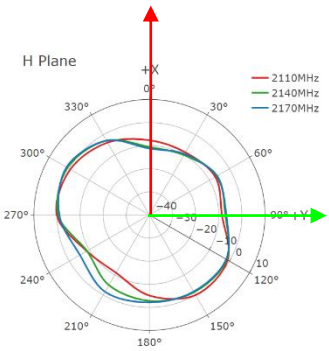



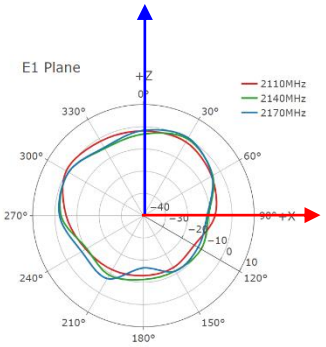



## MH2

2140 MHz

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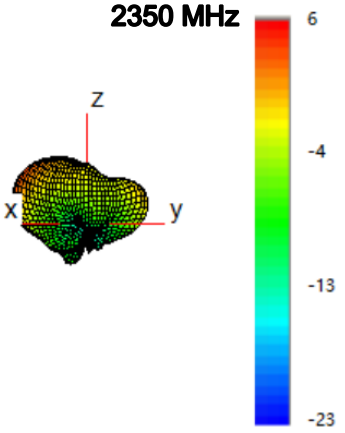


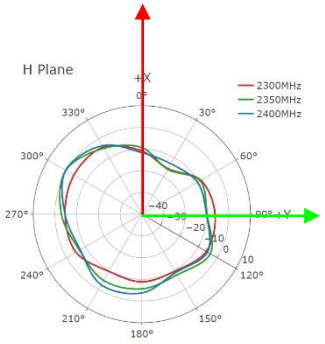


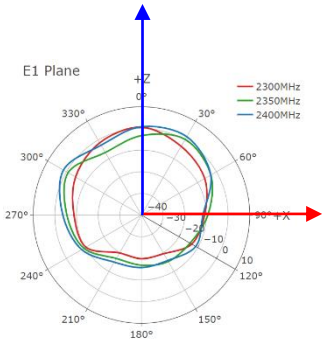


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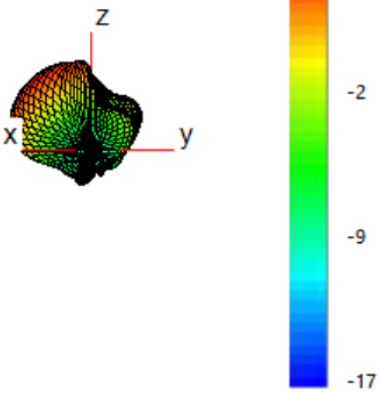
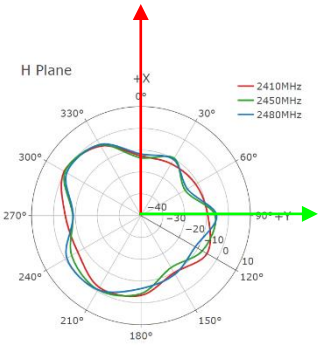
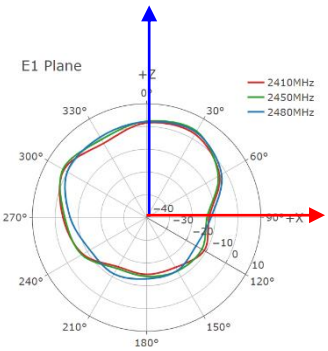
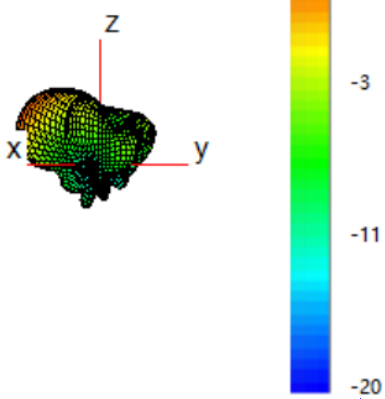
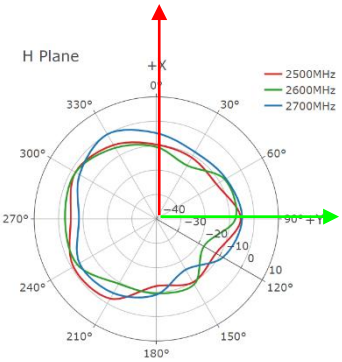


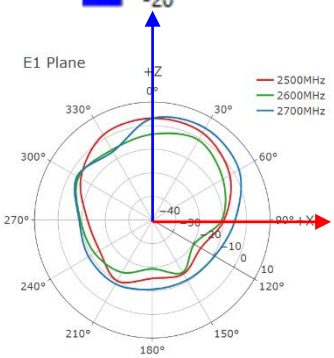



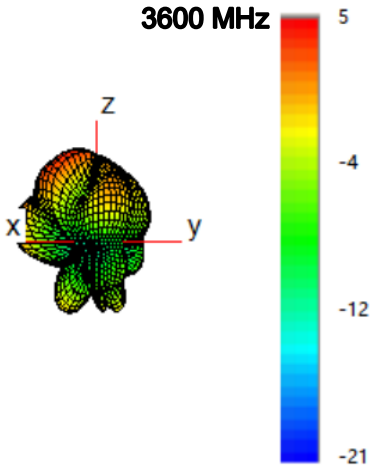

2600 MHz

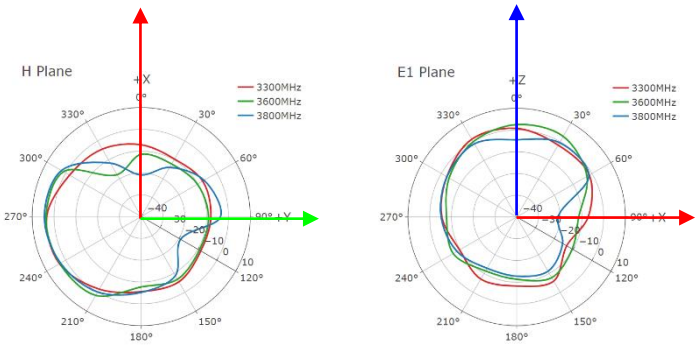


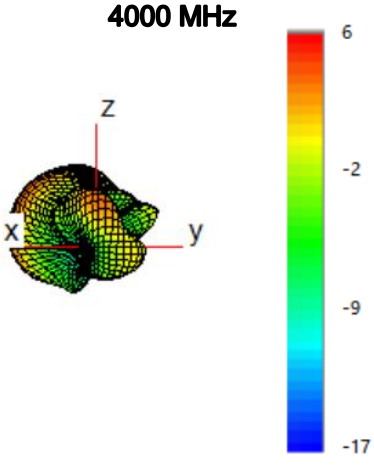



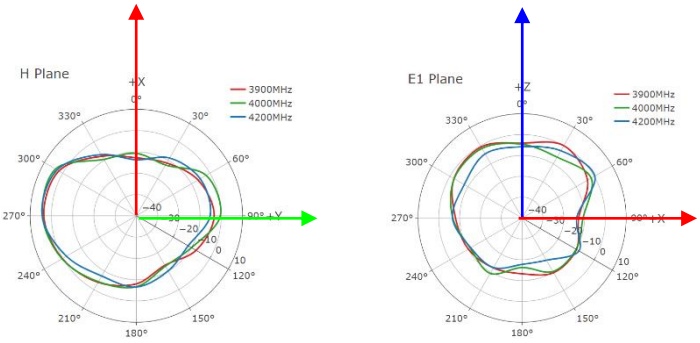
3600 MHz



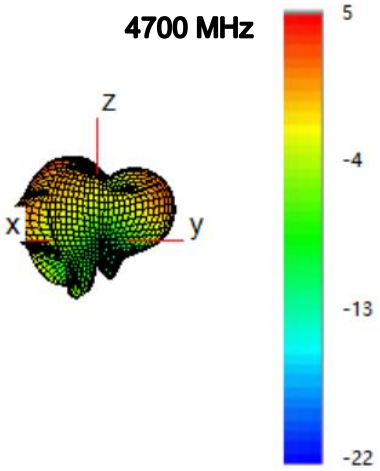



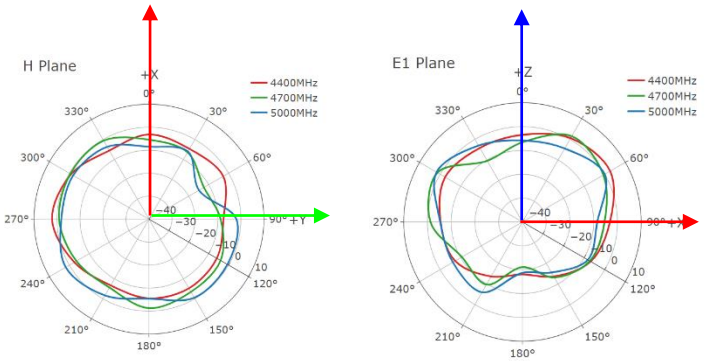

4000 MHz



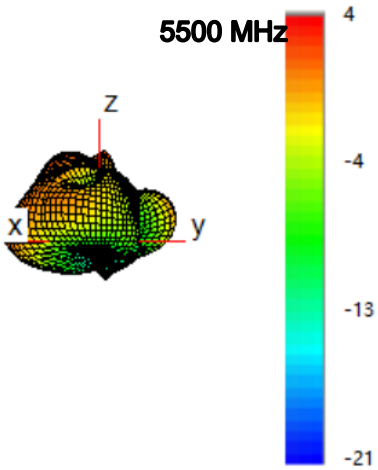



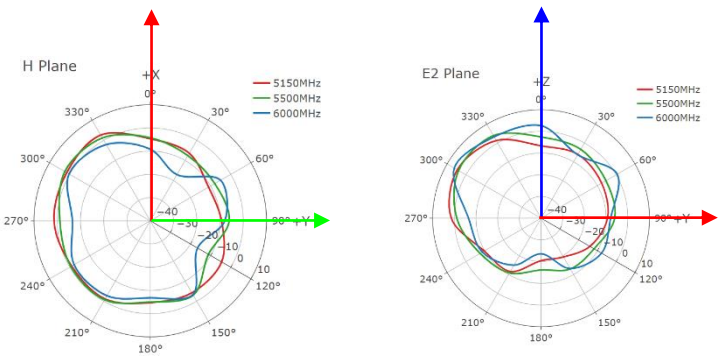

4700 MHz



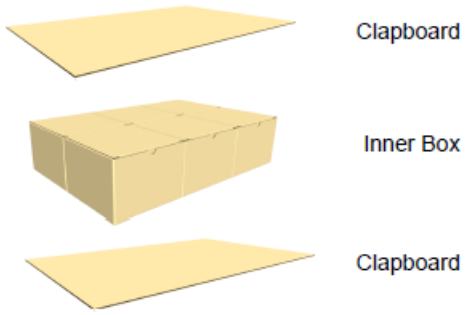
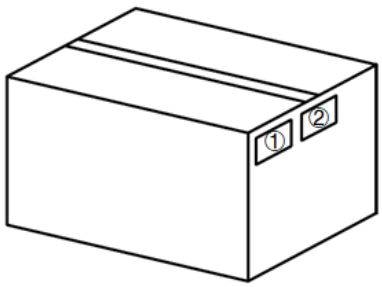



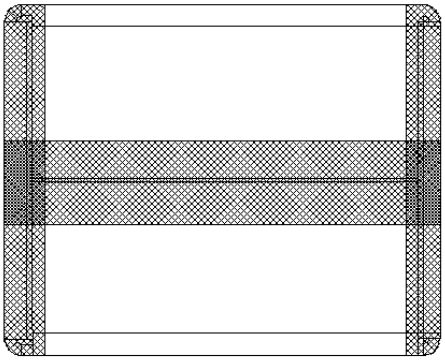

5500 MHz



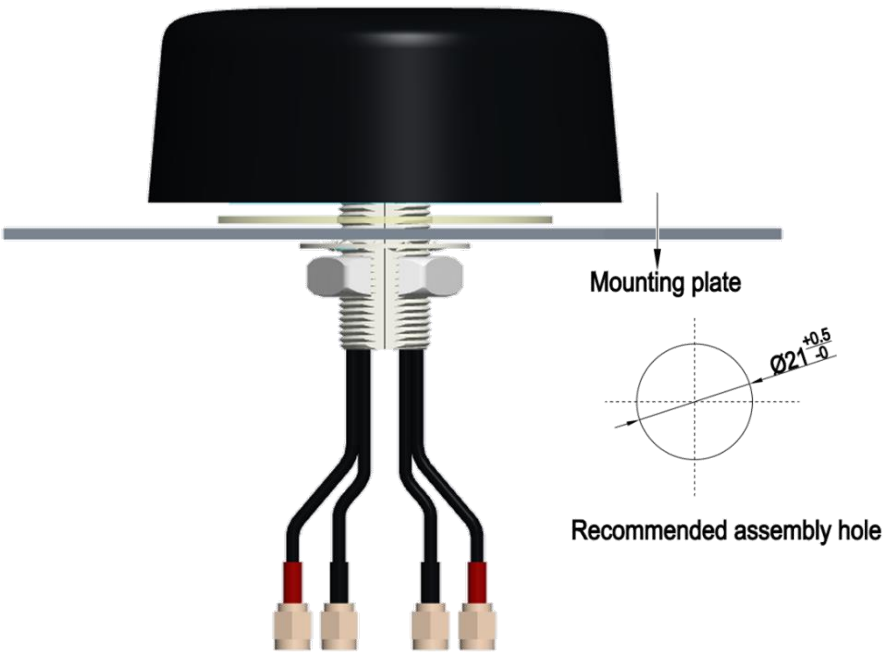
# 4 Packaging

| Step | Packaging Picture / 2D Picture | Description |
|---|---|---|
| 1 |  | 1 pc antenna product lined with cardboard. |
| 2 |  | 1 pc antenna product in an inner box.<br>(1 PC Antenna / Inner Box) |
| 3 |  | (6 Inner Boxes / Carton Box)<br>(6 PCS Antennas / Carton Box)<br>Estimated quantity<br>Products that cannot fill the entire carton box are packed in a suitable size carton box.<br>Carton Size:<br>L × W × H = 600 × 404 × 164 mm |
| 4 |  | **Position for Attaching Labels**<br>① Carton Label<br>② Quality Label |

| | | |
|---|---|---|
| 5 |  | **Sealing Cartons**<br>H-shaped sealing cartons |
| Note | The initial packaging method described above is for reference only, and the final actual packaging method shall be subject to the actual shipping packaging. | |

# 5 Installation

- LMHs and MHs can be connected arbitrarily.
- Recommended hole dimensions as below.
- Recommended mounting plate thickness: 2–10 mm.
- Recommended mounting plate size: ≥ Φ 85 mm




| | | | Installation Instructions | | |
|---|---|---|---|---|---|
| Tube Mark | Tube Color | Cable | Connector | Frequency (MHz) | Technology |
| LMH | Red | RG405 | SMA Male | 600–960 MHz, 1400–6000 MHz | 5G/4G/3G/2G |
| MH | Black | RG405 | SMA Male | 1400–6000 MHz | 5G MIMO/WIFI/BT |

- Note: YEMN400J1AH (4IN1=2 x LMH+2 x MH)

# 6 Appendix Reference

| Abbreviation | Description |
|---|---|
| 5G | 5th-Generation Mobile Communication Technology |
| 4G | 4th-Generation Mobile Communication Technology |
| 3G | 3rd-Generation Mobile Communication Technology |
| 2G | 2nd-Generation Mobile Communication Technology |
| GNSS | Global Navigation Satellite System |
| GLONASS | Global Navigation Satellite System (Russia) |
| GPS | Global Positioning System |
| QZSS | Quasi-Zenith Satellite System |
| IRNSS | Indian Regional Navigation Satellite System |
| LTE | Long Term Evolution |
| LTE-A | LTE-Advanced |
| NB-IoT | Narrow Band Internet of Things |
| LPWA | Low Power Wide Area |
| WCDMA | Wideband Code Division Multiple Access |
| GSM | Global System for Mobile Communications |
| Wi-Fi | Wireless Fidelity |
| GND | Ground |
| LMH | Low-Middle-High Bands |
| LMHs | LMH antennas |
| MH | Middle-High Envelope Bands |

| | |
|---|---|
| MHs | MH antennas |
| FS | In Free Space |
| MP | On Metal Plane |
| VSWR | Voltage Standing Wave Ratio |
| S-Parameter | Scatter Parameter |
| LNA | Low Noise Amplifier |
| GPRS | General Packet Radio Service |
| WLAN | Wireless Local Area Network |
| HSPA | High-Speed Packet Access |
| RHCP | Right Hand Circularly Polarized |
| RoHS | Restriction of Hazardous Substances |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| IP | Ingress Protection |
| IK | Impact Protection |
| ECE R118 | UN Regulation No. 118（ECE R118-approved cables are flame-resistant cables) |

# Contact Us

**At Quectel, our aim is to provide timely and comprehensive services to our customers. If you require any assistance, please contact our headquarters:**

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# Revision History

| Version | Date | Author | Note |
|---|---|---|---|
| - | 2025-05-20 | Christopher YAO/ Blake XIANG/ Riva REN/ Rainey LIAO | Creation of the document |
| 1.0 | 2025-05-20 | Christopher YAO/ Blake XIANG/ Riva REN/ Rainey LIAO | First official release |

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