# ANTENNA INFORMATION

| | |
|---|---|
| OEM | Quanta |
| ODM | ASUS |
| Platform model name | M5606 NA / M5606 UA / M5606 WA |
| Intel platform (ex: Yes, No or NA) | No |
| Platform type (ex: regular NB, convertible PC, AIO...etc) | regular NB |
| SAR minimum separation (mm) | 3.3mm |

| | | |
|---|---|---|
| Antenna manufacturer | Luxshare-ICT | |
| Address | No.568, Sec. 1, Minsheng N. Rd., Gueishan Dist., Taoyuan City 338 ,Taiwan (R.O.C.) | |
| Antenna Part number | Main: LA9RF560-CS-H | Aux: LA9RF561-CS-H |
| Antenna type (ex: PIFA, Dipole...etc) | PIFA | PIFA |

| Antenna Peak gain w/ cable loss (dBi)* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2.4GHz** 2400-2483.5 MHz | **5.2GHz** 5150-5250MHz | **5.3GHz** 5250-5350MHz | **5.6GHz** 5470-5725MHz | **5.8GHz** 5725-5850MHz | **5.9GHz** 5850-5895MHz | **6.2GHz** 5925-6425MHz | **6.5GHz** 6425-6525MHz | **6.7GHz** 6525-6875MHz | **7.0 GHz** 6875-7125MHz |
| Main | -0.32 | 3.57 | 3.69 | 3.66 | 3.66 | 1.66 | 2.62 | 2.44 | 0.75 | 2.38 |
| Aux | 1.52 | 3.59 | 3.37 | 2.96 | 2.96 | 0.78 | 2.16 | 2.15 | 1.53 | 2.34 |

| Cable Assembly Part Number and Information | | | | | |
|---|---|---|---|---|---|
| | **Cable PN** | **Cable length**(cm) | **Cable diameter**(mm) | **Impedance**(ohm) | **Connector type** |
| Main | SY113L/50-048 | 28 | 1.13 | 50 | 20565-001R-13 |
| Aux | SY113L/50-049 | 51 | 1.13 | 50 | 20565-001R-13 |

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

# Table of Contents

## 1. Intel Reference Gain and Type

| Antenna Peak gain w/ cable loss (dBi) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Band/Frequency | | **2.4GHz** 2400-2483.5 MHz | **5.2GHz** 5150-5250MHz | **5.3GHz** 5250-5350MHz | **5.6GHz** 5470-5725MHz | **5.8GHz** 5725-5850MHz | **5.9GHz** 5850-5895MHz | **6.2GHz** 5925-6425MHz | **6.5GHz** 6425-6525MHz | **6.7GHz** 6525-6875MHz | **7.0 GHz** 6875-7125MHz |
| Design | EU/UK | 3.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| PIFA | For WiFi 6E and earlier | 3.24 | 3.64 | 3.73 | 4.77 | 4.97 | 4.72 | 4.83 | 4.30 | 5.37 | 5.59 |
| | From WiFi 7 | 2.95 | 5.11 | 4.55 | 5.15 | 5.13 | 4.45 | 5.02 | 5.02 | 4.96 | 4.96 |
| Dipole | For WiFi 6E and earlier | 2.89 | 2.92 | 3.19 | 4.41 | 4.22 | 4.22 | 4.83 | 4.30 | 4.49 | 5.34 |
| | From WiFi 7 | 2.95 | 4.03 | 4.11 | 5.15 | 5.13 | 4.45 | 5.02 | 4.71 | 4.49 | 4.96 |

**3D Peak Antenna gain should be equal or greater than -2 dBi**

If a host integrator plans to use a lower gain antenna of the same type, additional CBP(FCC)/EDT(EU) testing need to be performed while the module is installed in the host.

## 2. Document Revision History

| Revision # | Revision Details | Issued Date |
|---|---|---|
| Rev. 00 | First Issue | 2023.06.20 |

# 3. Test & System Description

## 3.1 Measurement Method and System

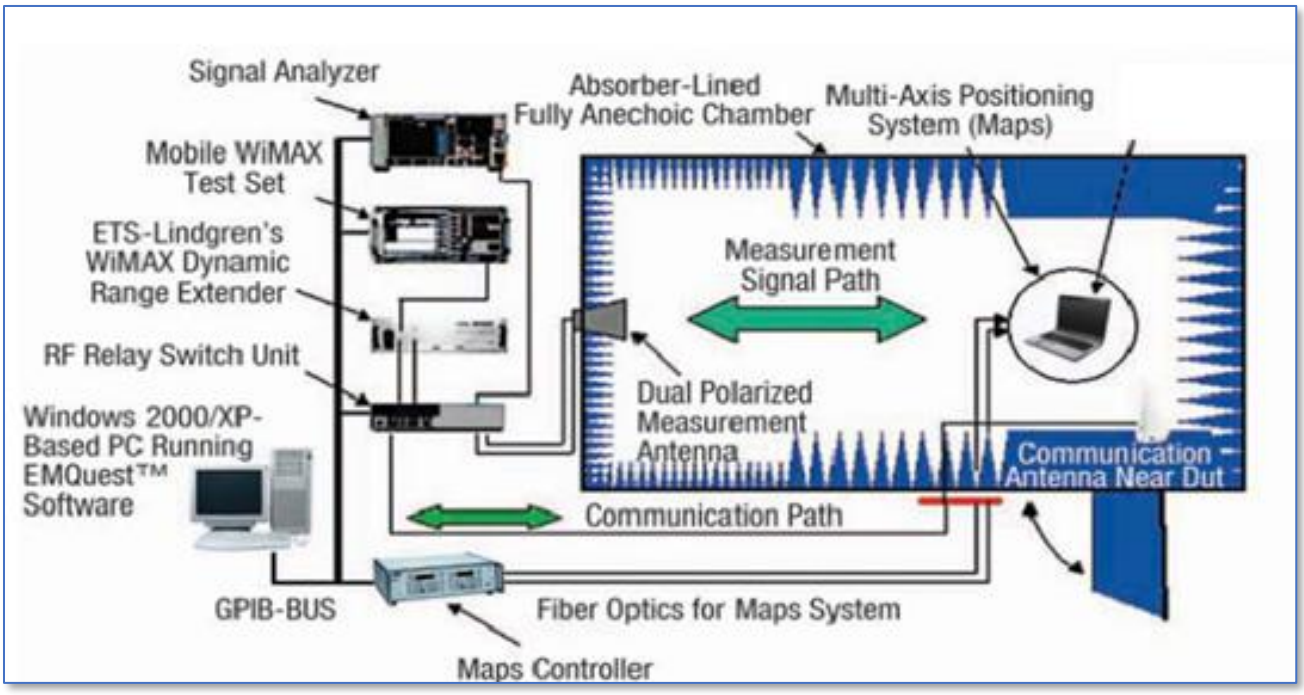
*<insert test description here for test method>*

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

This test with host with fixed position and allow to UUT turn different angels.

## 3.2 Test setup

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



## 3.3 Equipment list

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

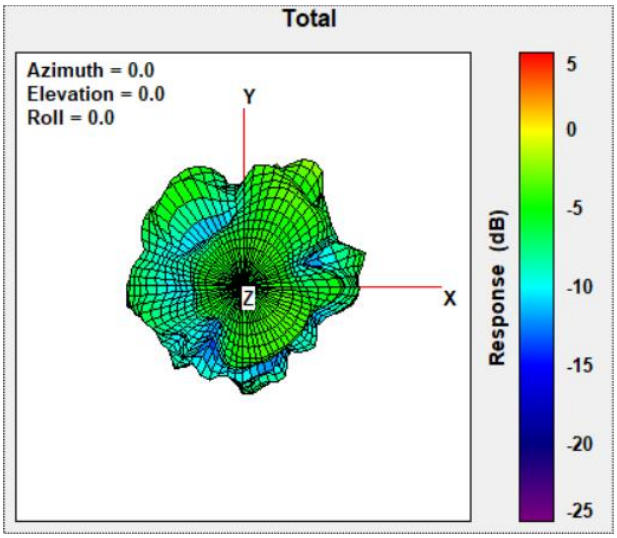
| Device | Type/Model | Serial# | Manufacturer | Cal. Date | Cal. Due Date |
|---|---|---|---|---|---|
| Anechoic Chamber | AMS-8500 | 1191 | ETS-Lindgren | 2022/3/9 | 2024/3/9 |
| Turn Table | 2090 | - | ETS-Lindgren | N/A | N/A |
| Switch & Positioning systems | 7001-002 | 116599 | ETS-Lindgren | N/A | N/A |
| Measurement SW | EMQuest v1.0.8 | 1352 | ETS-Lindgren | N/A | N/A |
| Boresight antenna mast | 2090 | - | ETS-Lindgren | N/A | N/A |
| Spectrum Analyzer | N9010A | X16-96096 | Agilent Technologies | 2022/7/25 | 2024/7/25 |
| Horn antenna | 3164-08 | 00143257 | ETS-Lindgren | 2022/4/3 | 2024/4/3 |
| Horn antenna + Amplifier + HPF6.4 | 115195 | 00117614 | ETS-Lindgren | 2022/8/18 | 2024/8/18 |
| Cable 2.5m - 30MHz to 18GHz | 0500990992500KE | 19.23.395 | Radial | 2022/1/10 | 2024/1/10 |
| Cable 1.2m - 18 to 40GHz | UFA147A-0-0480-200200 | MFR 64639223720-003 | Micro-caox | 2022/1/10 | 2024/1/10 |
| Cable 1m - 1GHz to 18GHz | UFA147A | - | Utillflex | 2022/1/10 | 2024/1/10 |
| Cable 2m - 26.5MHz to 40GHz | 794-9191-200A | E00327 | Atem | 2022/1/10 | 2024/1/10 |
| Cable 1m - 30MHz to 18GHz | UFB311A-0-0590-50U50U | MFR 64639223230-001 | Micro-caox | 2022/1/10 | 2024/1/10 |
| Cable 7m - DC-18GHz | 0501051057000GX | 19.35.850 | Radial | 2022/1/10 | 2024/1/10 |
| Cable 7m - 18GHz to 40GHz | R286304009 | - | Radial | 2022/1/10 | 2024/1/10 |
| Cable 1.5m - DC-18GHz | CBL-1.5M-SMSM+ | 202879 | Mini-Circuits | 2022/1/10 | 2024/1/10 |
| Temp & Humidity Logger | GM-108A | - | | 2022/5/2 | 2024/5/2 |

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

### Main Antenna

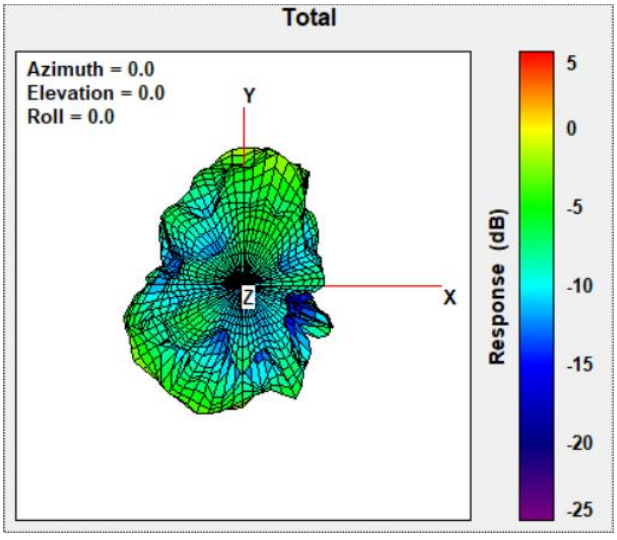
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 2400-2483.5 | -0.32 |



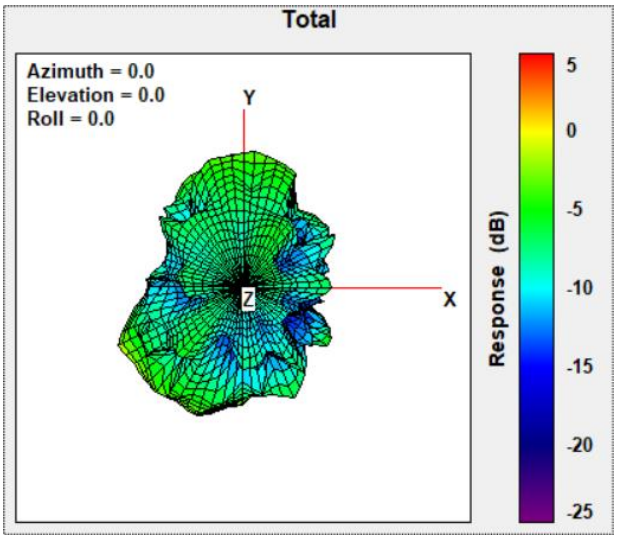

Max Antenna 3D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5150-5250 | 3.57 |



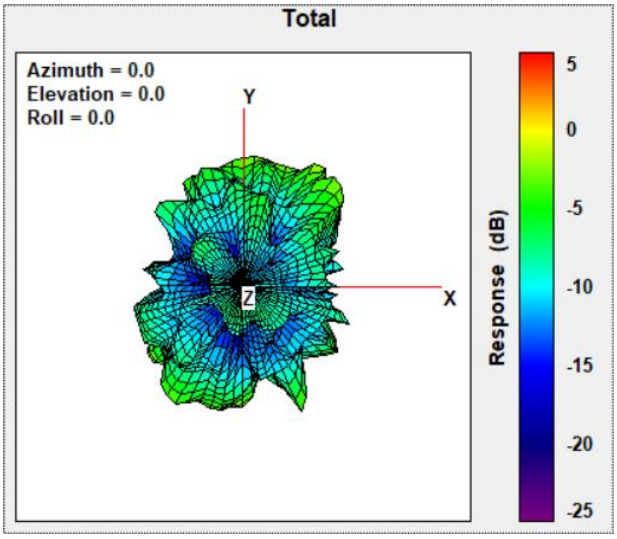
## Max Antenna 3D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5250-5350 | 3.69 |



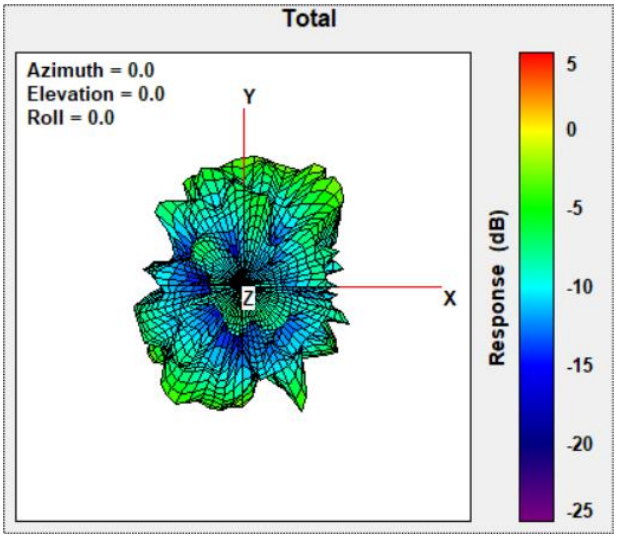

## Max Antenna 3D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5470-5725 | 3.66 |



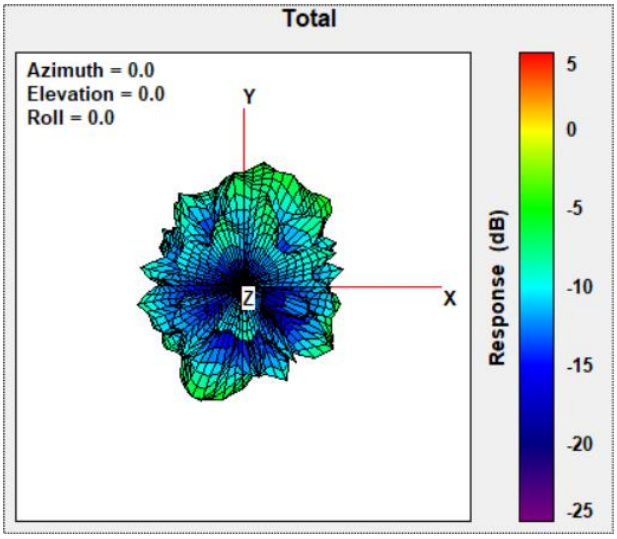
## Max Antenna 3D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5725-5850 | 3.66 |



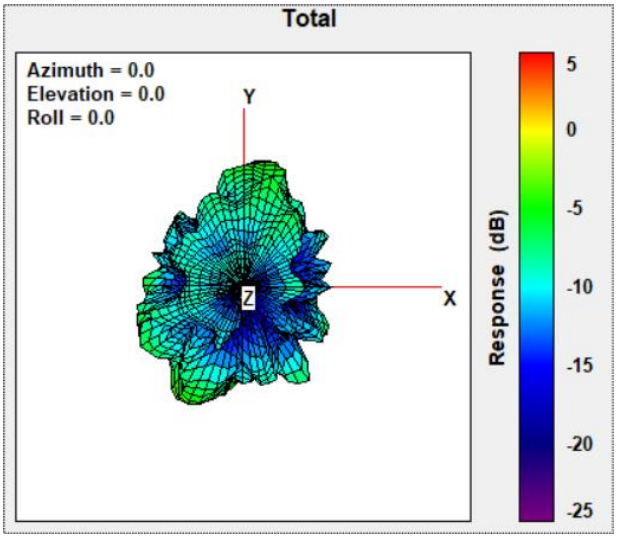

## Max Antenna 3D Radiation Pattern 5850-5895 MHz

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



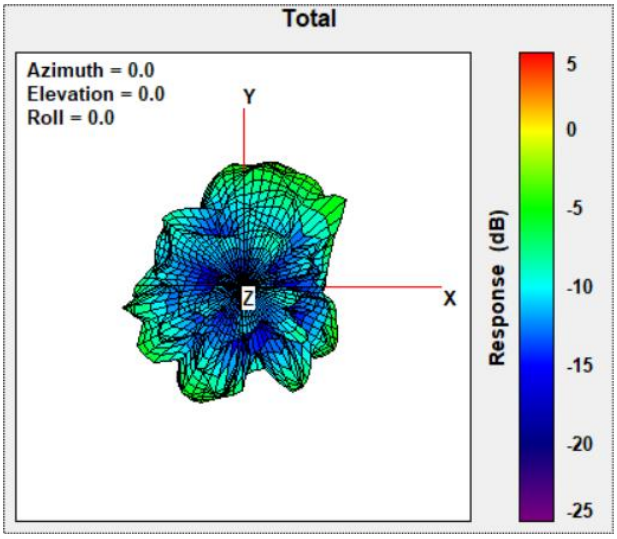
## Max Antenna 3D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5925-6425 | 2.62 |



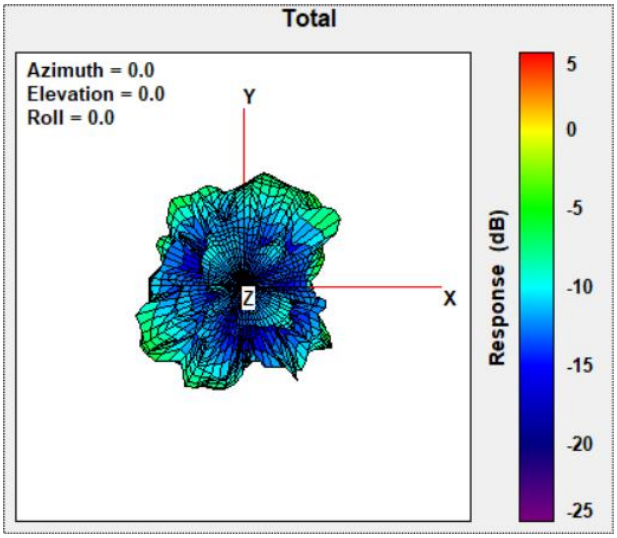

## Max Antenna 3D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 6425-6525 | 2.44 |



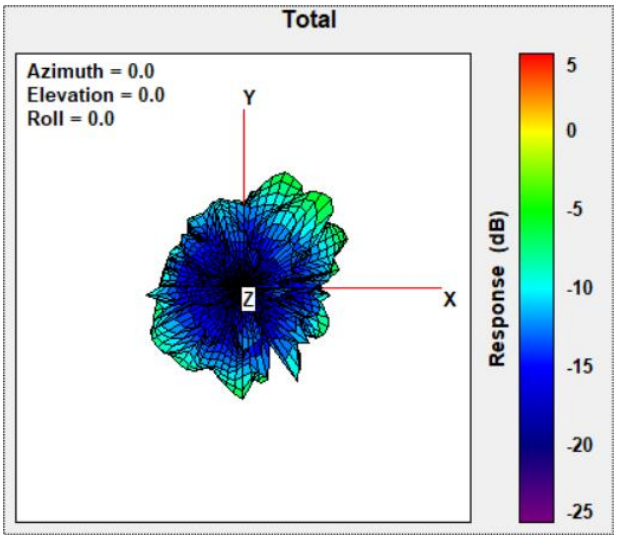
## Max Antenna 3D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 6525-6875 | 0.75 |




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

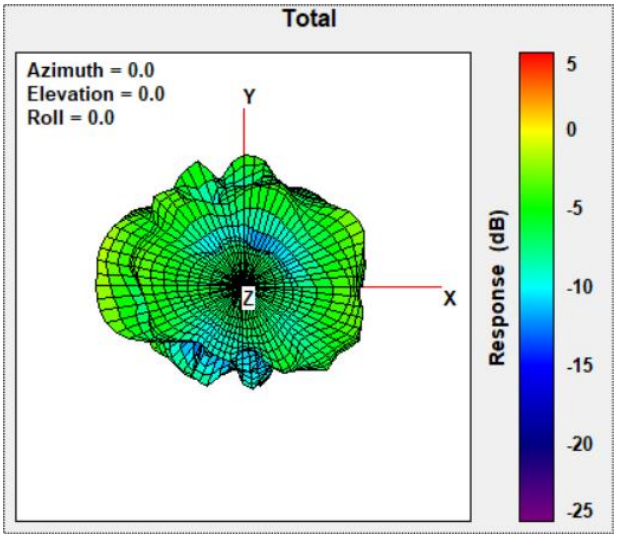
| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 6875-7125 | 2.38 |



## Auxiliary Antenna

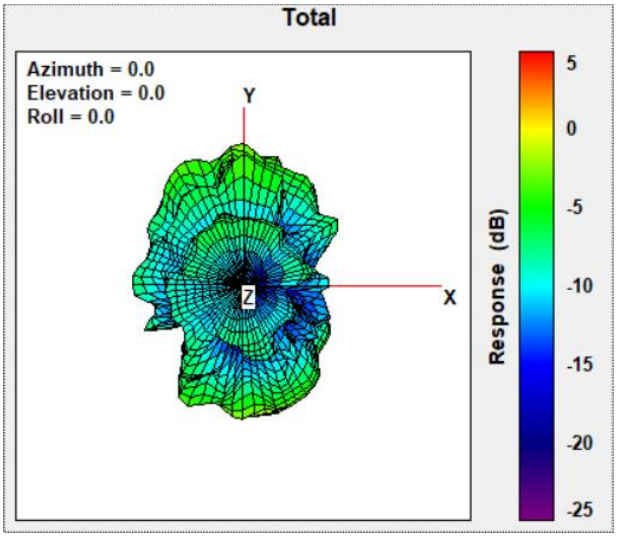
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 2400-2483.5 | 1.52 |



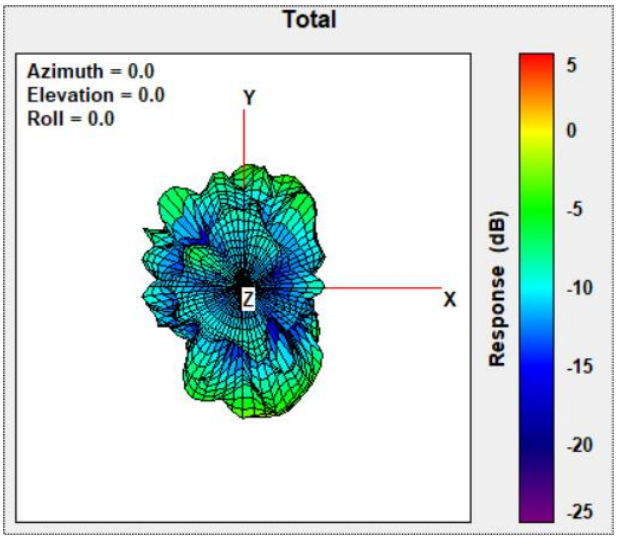

Max Antenna 3D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5150-5250 | 3.59 |



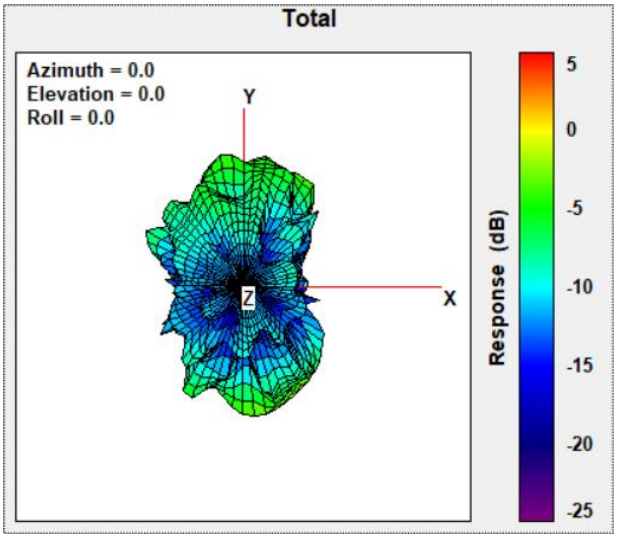
## Max Antenna 3D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5250-5350 | 3.37 |



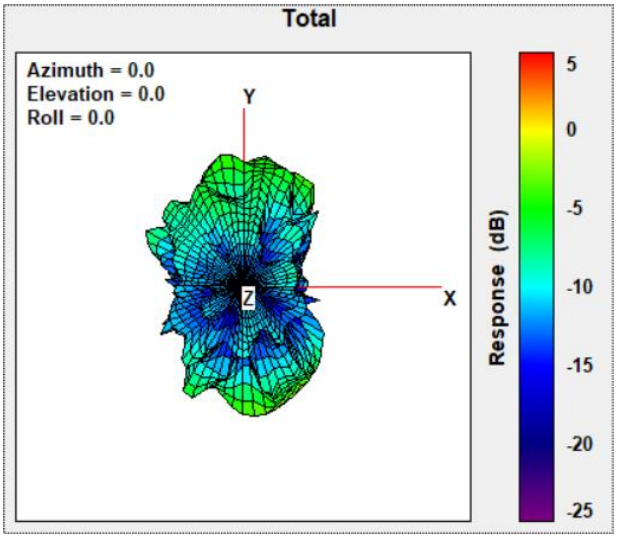

## Max Antenna 3D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5470-5725 | 2.96 |



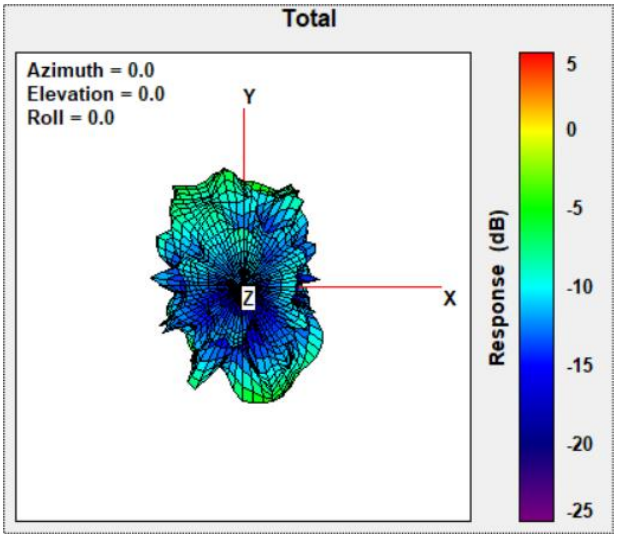
## Max Antenna 3D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5725-5850 | 2.96 |



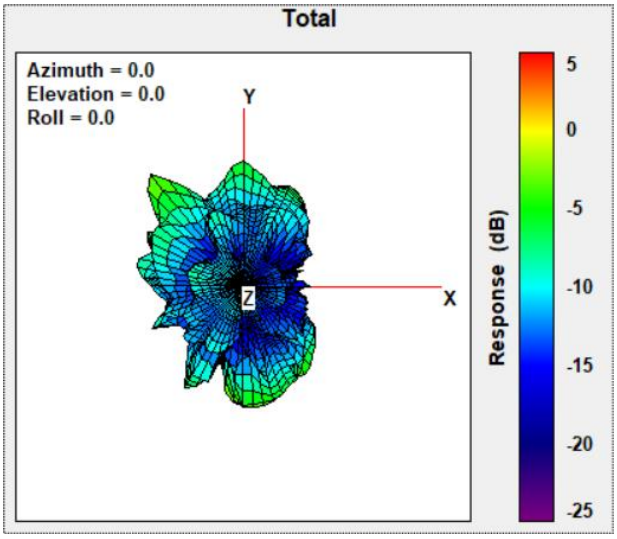

## Max Antenna 3D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5850-5895 | 0.78 |



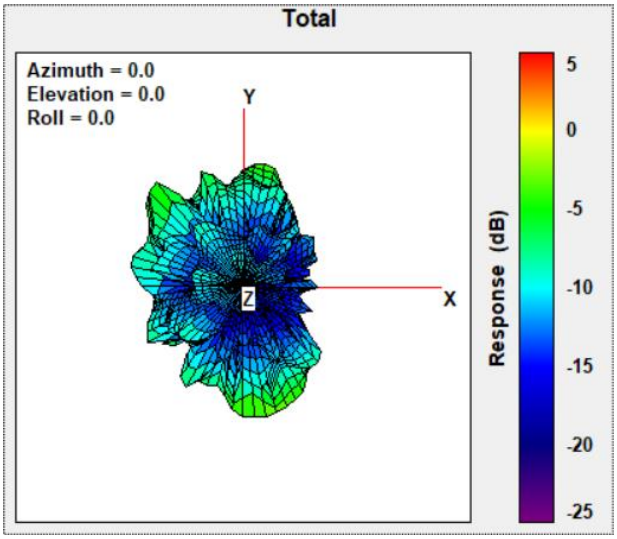
## Max Antenna 3D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 5925-6425 | 2.16 |



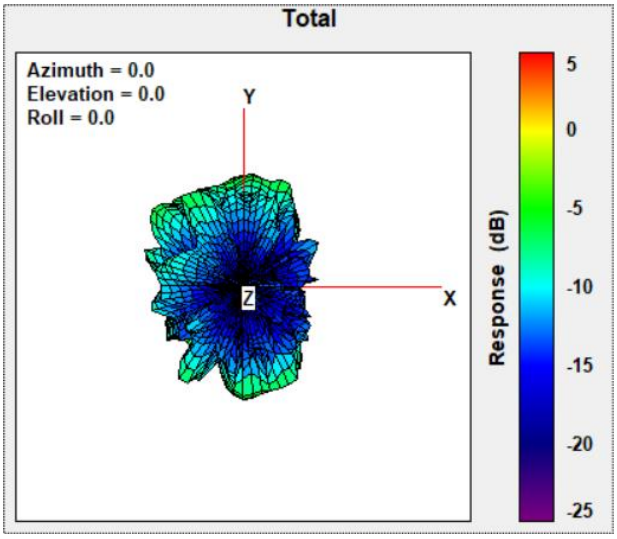

## Max Antenna 3D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 6425-6525 | 2.15 |



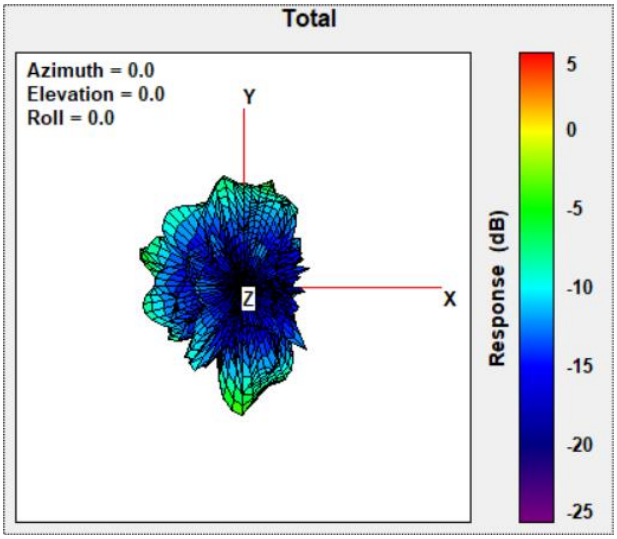
## Max Antenna 3D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 6525-6875 | 1.53 |




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

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|---|---|
| 6875-7125 | 2.34 |

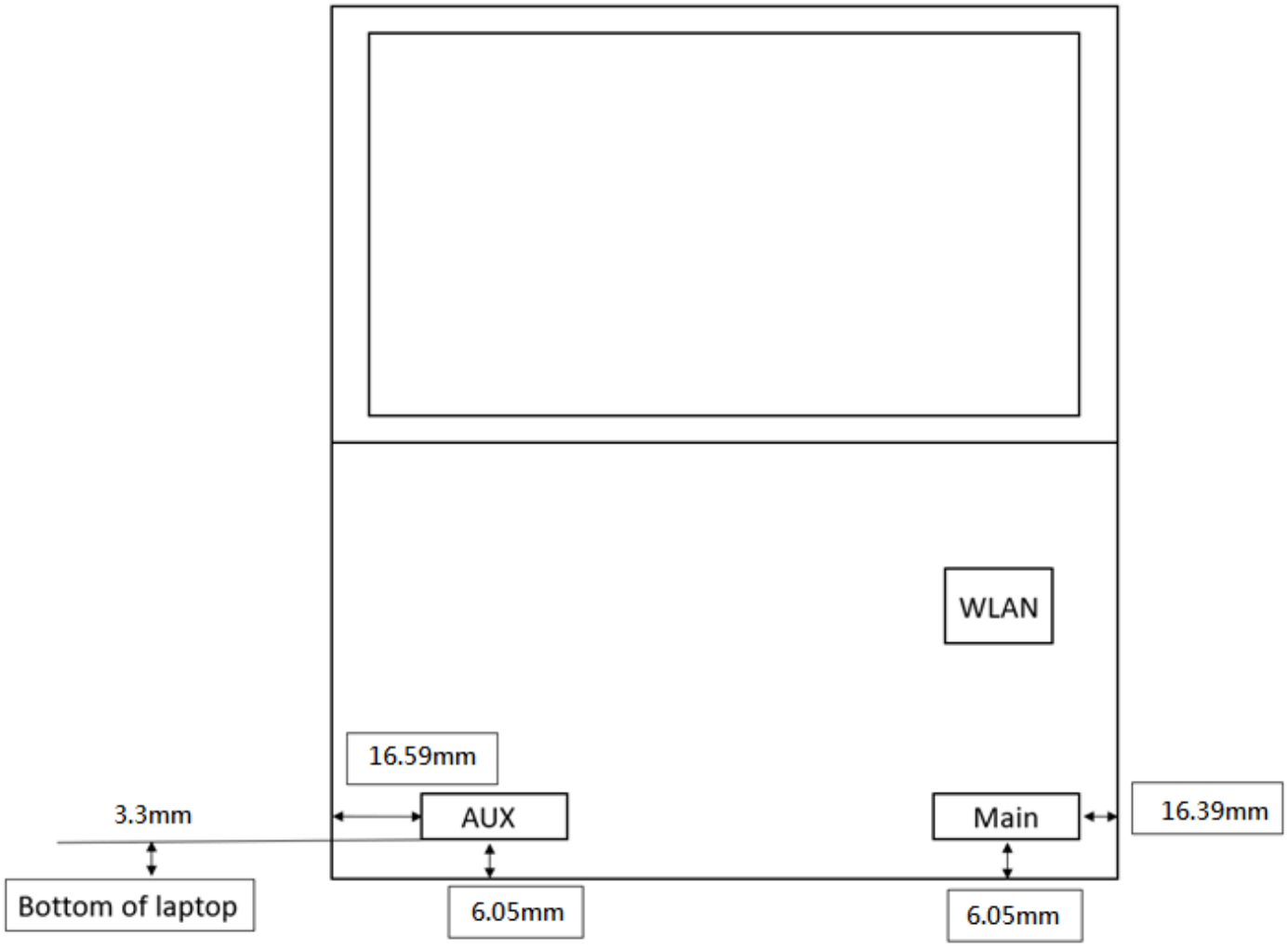


# Annex B. Antenna Location

### B.1 Antenna Host Platform Location Information

Include a dimensioned photo(s) or dimensioned drawing(s) of Main and Aux antenna placements (measurements are not required for receive-only antenna).

Any antenna that transmits must show dimensions to bottom of laptop. Provide a description of the materials that are used for supporting or surrounding transmit antennas; for example, non-conductive plastics vs. conductive coated plastic or metallic materials.



## B.2 Antenna dimensional information for SAR evaluation

Include a dimensioned photo(s) or dimensioned drawing(s) showing the distance (mm) between the transmit antennas and the user. For notebook/laptop hosts show lapheld position (example below). For tablet hosts show all orientations including lapheld, primary & secondary portrait, primary & secondary landscape positions. Include a description of any proximity sensors or power throttling implementations that limit or exclude use of any host orientation.