

# ANTENNA INFORMATION

|                                                           |                      |
|-----------------------------------------------------------|----------------------|
| OEM                                                       | ASUS                 |
| ODM                                                       | Quanta Computer Inc. |
| Platform model name                                       | FA808U               |
| Intel platform (ex: Yes, No or NA)                        | N/A                  |
| Platform type (ex: regular NB, convertible PC, AIO...etc) | Regular NB           |
| SAR minimum separation (mm)                               | FCC (1g) 1,8mm       |
|                                                           | ISED (1g) 1,8mm      |
|                                                           | ISED (10g) 1,8mm     |

|                      |                 |                                                                                             |
|----------------------|-----------------|---------------------------------------------------------------------------------------------|
| Antenna manufacturer | Company name    | Luxshare-ICT                                                                                |
|                      | Address         | 7F, No. 568, Sec. 1, Minsheng N. Rd., Guishan Dist., Taoyuan City<br>桃園市龜山區民生北路一段 568 號 7 樓 |
| Test location        | Company name    | Luxshare-ICT                                                                                |
|                      | Address         | 7F, No. 568, Sec. 1, Minsheng N. Rd., Guishan Dist., Taoyuan City<br>桃園市龜山區民生北路一段 568 號 7 樓 |
| Test Personnel       | Name(Full name) | Joe Chou                                                                                    |
|                      | E-mail          | Joe.Chou@luxshare-ict.com                                                                   |
|                      | Tel/Mobile      | +886 2 2657 0707#56665                                                                      |
| Testing date         |                 | 2024/10/17                                                                                  |

|                                       |      |               |
|---------------------------------------|------|---------------|
| Antenna Part number                   | Main | LA9RF613-NB-H |
|                                       | Aux  | LA9RF613-NB-H |
| Antenna type (ex: PIFA, Dipole...etc) |      | PIFA          |

| Antenna Peak gain w/ cable loss (dBi)* |                           |                        |                        |                        |                        |                        |                        |                        |                        |                         |
|----------------------------------------|---------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
|                                        | 2.4GHz<br>2400-2483.5 MHz | 5.2GHz<br>5150-5250MHz | 5.3GHz<br>5250-5350MHz | 5.6GHz<br>5470-5725MHz | 5.8GHz<br>5725-5850MHz | 5.9GHz<br>5850-5895MHz | 6.2GHz<br>5925-6425MHz | 6.5GHz<br>6425-6525MHz | 6.7GHz<br>6525-6875MHz | 7.0 GHz<br>6875-7125MHz |
| Main                                   | 2.42                      | 2.35                   | 3.14                   | 0.85                   | 3.64                   | 3.64                   | 4.05                   | 2.25                   | 2.86                   | 2.90                    |
| Aux                                    | 2.71                      | 1.01                   | 2.21                   | 2.57                   | 2.16                   | 2.16                   | 3.66                   | 2.37                   | 3.46                   | 2.33                    |

| Cable Assembly Part Number and Information |              |                  |                    |                |                                |
|--------------------------------------------|--------------|------------------|--------------------|----------------|--------------------------------|
|                                            | Cable PN     | Cable length(mm) | Cable diameter(mm) | Impedance(ohm) | Connector type                 |
| Main                                       | SY113/50-055 | 206              | 1.13               | 50             | I-Pex NGFF<br>(20565-001R-13)  |
| Aux                                        | SY113/50-063 | 453              | 1.13               | 50             | I-Pex NGFF<br>(20565-001R-13)) |

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

# Table of Contents

|                                                                             |          |
|-----------------------------------------------------------------------------|----------|
| <b>Cover page.....</b>                                                      | <b>1</b> |
| <b>1. Intel Reference Gain and Type.....</b>                                | <b>3</b> |
| <b>2. Document Revision History.....</b>                                    | <b>3</b> |
| <b>3. Test &amp; System Description</b>                                     |          |
| 3.1 Measurement Method and System.....                                      | 4        |
| 3.2 Test setup.....                                                         | 4        |
| 3.3 Equipment list.....                                                     | 5        |
| <b>4. Radiation characteristics of antenna loaded in Host Platform.....</b> | <b>6</b> |
| <b>Annex A. Photographs</b>                                                 |          |
| A.1 Setup Photo.....                                                        | 16       |
| A.2 Test sample.....                                                        | 17       |
| <b>Annex B. Antenna Location</b>                                            |          |
| B.1 Antenna Host Platform Location Information.....                         | 19       |
| B.2 Antenna dimensional information for SAR evaluation.....                 | 20       |

## 1. Intel Reference Gain and Type

| Antenna Peak gain w/ cable loss (dBi) |                         |                           |                        |                        |                        |                        |                        |                        |                        |                        |                         |
|---------------------------------------|-------------------------|---------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| Band/Frequency                        |                         | 2.4GHz<br>2400-2483.5 MHz | 5.2GHz<br>5150-5250MHz | 5.3GHz<br>5250-5350MHz | 5.6GHz<br>5470-5725MHz | 5.8GHz<br>5725-5850MHz | 5.9GHz<br>5850-5895MHz | 6.2GHz<br>5925-6425MHz | 6.5GHz<br>6425-6525MHz | 6.7GHz<br>6525-6875MHz | 7.0 GHz<br>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                    |
| Monopole                              | From WiFi 7             | 2.83                      | 4.57                   | 4.44                   | 4.95                   | 4.95                   | 4.43                   | 4.87                   | 4.91                   | 4.91                   | 4.79                    |

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

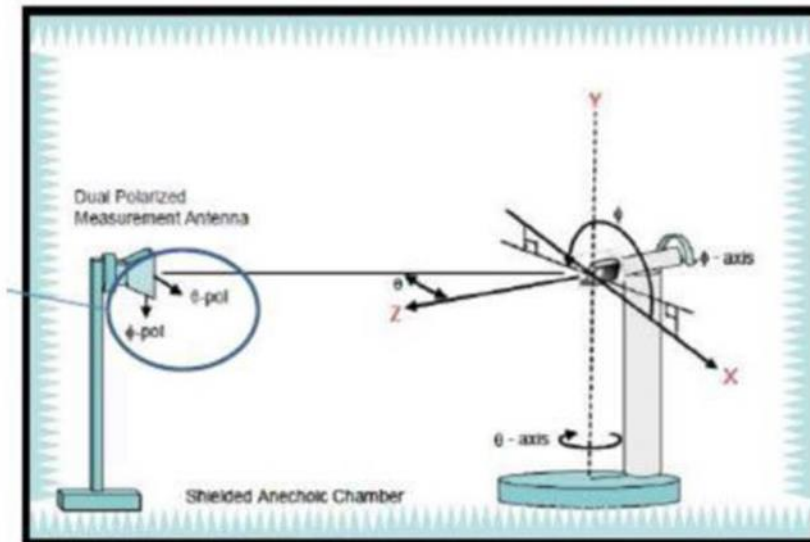
If a host integrator plans to use a lower gain antenna of the same type, additional CBP(FCC)/EDT(EU) testing need to be performed while the module is installed in the host.

## 2. Document Revision History

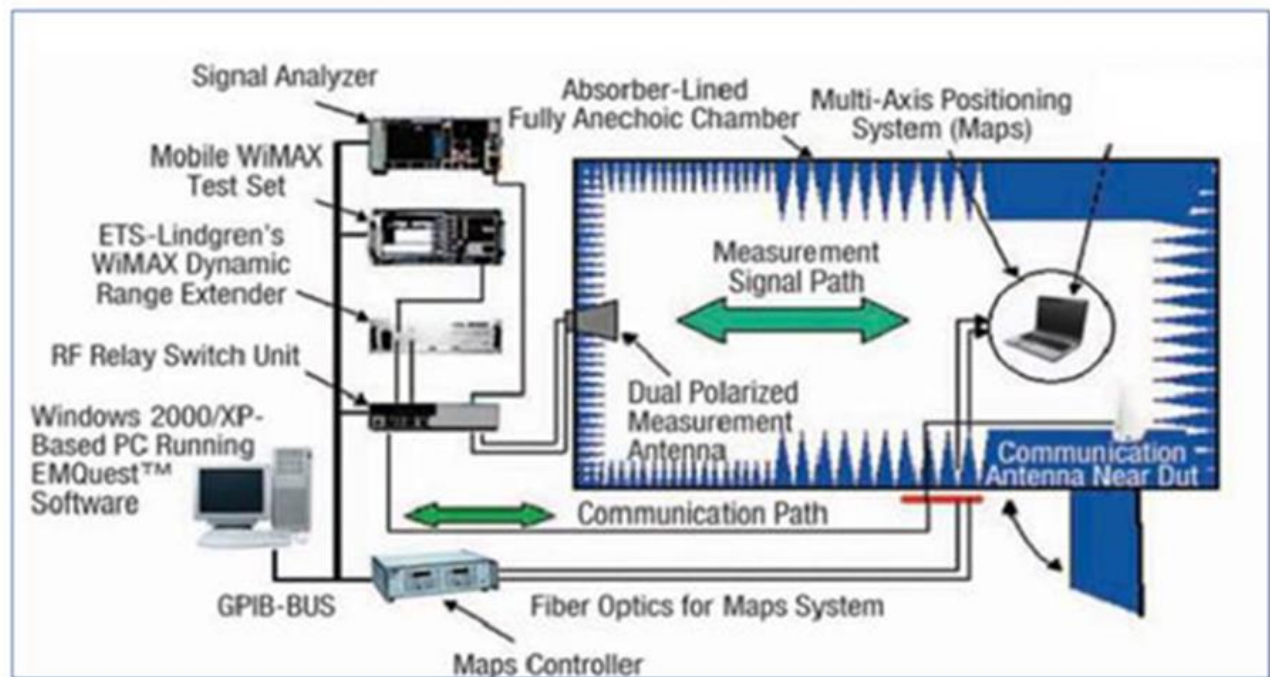
| Revision # | Revision Details | Issued Date |
|------------|------------------|-------------|
| Rev. 00    | First Issue      |             |

## 3. Test & System Description

### 3.1 Measurement Method and System



### 3.2 Test setup



### 3.3 Equipment list

| Device                            | Type/Model            | Serial#                | Manufacturer         | Cal. Date | Cal. Due Date |
|-----------------------------------|-----------------------|------------------------|----------------------|-----------|---------------|
| Anechoic Chamber                  | AMS-8500              | 1191                   | ETS-Lindgren         | 2024/3/9  | 2026/3/9      |
| 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 | 2024/7/25 | 2026/7/25     |
| Horn antenna                      | 3164-08               | 00143257               | ETS-Lindgren         | 2024/4/3  | 2026/4/3      |
| Horn antenna + Amplifier + HPF6.4 | 115195                | 00117614               | ETS-Lindgren         | 2024/8/1  | 2026/8/1      |
| Cable 2.5m - 30MHz to 18GHz       | 0500990992500KE       | 19.23.395              | Radial               | 2024/1/10 | 2026/1/10     |
| Cable 1.2m - 18 to 40GHz          | UFA147A-0-0480-200200 | MFR<br>64639223720-003 | Micro-caox           | 2024/1/10 | 2026/1/10     |
| Cable 1m - 1GHz to 18GHz          | UFA147A               | -                      | Utileflex            | 2024/1/10 | 2026/1/10     |
| Cable 2m - 26.5MHz to 40GHz       | 794-9191-200A         | E00327                 | Atem                 | 2024/1/10 | 2026/1/10     |
| Cable 1m - 30MHz to 18GHz         | UFB311A-0-0590-50U50U | MFR<br>64639223230-001 | Micro-caox           | 2024/1/10 | 2026/1/10     |
| Cable 7m - DC-18GHz               | 0501051057000GX       | 19.35.850              | Radial               | 2024/1/10 | 2026/1/10     |
| Cable 7m - 18GHz to 40GHz         | R286304009            | -                      | Radial               | 2024/1/10 | 2026/1/10     |
| Cable 1.5m - DC-18GHz             | CBL-1.5M-SMSM+        | 202879                 | Mini-Circuits        | 2024/1/10 | 2026/1/10     |
| Temp & Humidity Logger            | GM-108A               | -                      |                      | 2024/5/2  | 2026/5/2      |

# Antenna Information

| 1A<br>Antenna Part Number            | 1B<br>Manufacturer | 1C<br>Antenna Type | 1D<br>Cable Assembly Part Number and Information                           | Freq Range<br>MHz | 1E<br>* Peak Gain W/ Cable loss (dBi) | 1F<br>Peak Gain w/o Cable Loss (dBi) | 1G<br>Max VSWR | 1H<br>Cable Loss (dB) |
|--------------------------------------|--------------------|--------------------|----------------------------------------------------------------------------|-------------------|---------------------------------------|--------------------------------------|----------------|-----------------------|
| (P/N: LA9RF613-NB-H)<br>Main Antenna | Luxshare-ICT       | PIFA               | (P/N: SY113/50-055)<br>50 ohm Coaxial<br>length: 206mm<br>diameter: 1.13mm | 2400-2483.5       | 2.42                                  | 3.03                                 | 3              | 0.61                  |
|                                      |                    |                    |                                                                            | 5150-5250         | 2.35                                  | 3.28                                 | 3              | 0.93                  |
|                                      |                    |                    |                                                                            | 5250-5350         | 3.14                                  | 4.08                                 | 3              | 0.94                  |
|                                      |                    |                    |                                                                            | 5470-5725         | 0.85                                  | 1.82                                 | 3              | 0.97                  |
|                                      |                    |                    |                                                                            | 5725-5850         | 3.64                                  | 4.62                                 | 3              | 0.98                  |
|                                      |                    |                    |                                                                            | 5850-5895         | 3.64                                  | 4.62                                 | 3              | 0.98                  |
|                                      |                    |                    |                                                                            | 5925-6425         | 4.05                                  | 5.07                                 | 3              | 1.02                  |
|                                      |                    |                    |                                                                            | 6425-6525         | 2.25                                  | 3.27                                 | 3              | 1.02                  |
|                                      |                    |                    |                                                                            | 6525-6875         | 2.86                                  | 3.90                                 | 3              | 1.04                  |
|                                      |                    |                    |                                                                            | 6875-7125         | 2.90                                  | 3.95                                 | 3              | 1.05                  |
| (P/N: LA9RF613-NB-H)<br>Aux Antenna  | Luxshare-ICT       | PIFA               | (P/N: SY113/50-063)<br>50 ohm Coaxial<br>length:453mm<br>diameter: 1.13mm  | 2400-2483.5       | 2.71                                  | 4.06                                 | 3              | 1.35                  |
|                                      |                    |                    |                                                                            | 5150-5250         | 1.01                                  | 3.06                                 | 3              | 2.05                  |
|                                      |                    |                    |                                                                            | 5250-5350         | 2.21                                  | 4.28                                 | 3              | 2.07                  |
|                                      |                    |                    |                                                                            | 5470-5725         | 2.57                                  | 4.66                                 | 3              | 2.09                  |
|                                      |                    |                    |                                                                            | 5725-5850         | 2.16                                  | 4.31                                 | 3              | 2.15                  |
|                                      |                    |                    |                                                                            | 5850-5895         | 2.16                                  | 4.31                                 | 3              | 2.15                  |
|                                      |                    |                    |                                                                            | 5925-6425         | 3.66                                  | 5.90                                 | 3              | 2.24                  |
|                                      |                    |                    |                                                                            | 6425-6525         | 2.37                                  | 4.62                                 | 3              | 2.25                  |
|                                      |                    |                    |                                                                            | 6525-6875         | 3.46                                  | 5.75                                 | 3              | 2.29                  |
|                                      |                    |                    |                                                                            | 6875-7125         | 2.33                                  | 4.65                                 | 3              | 2.32                  |

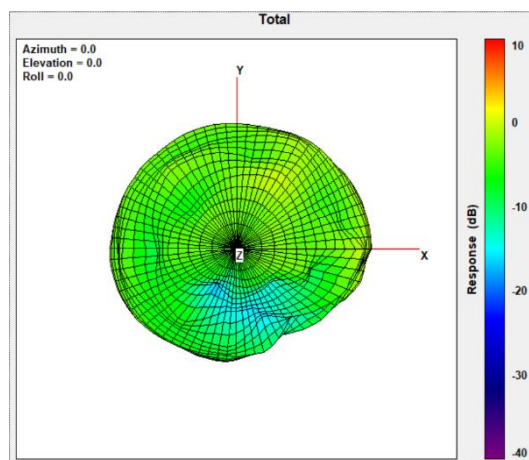
- 3D Antenna Peak Gain required being test in system basis.

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

##### Main Antenna

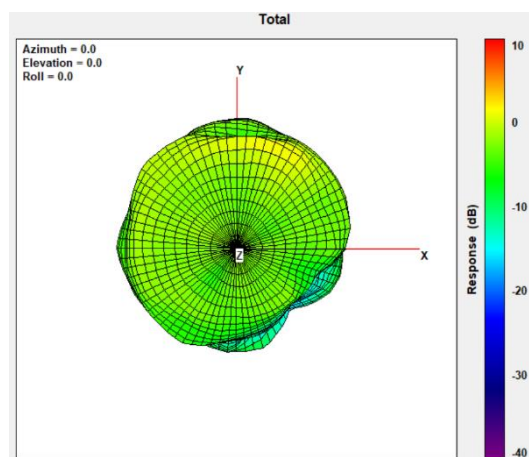
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 2400-2483.5     | 2.42                          |



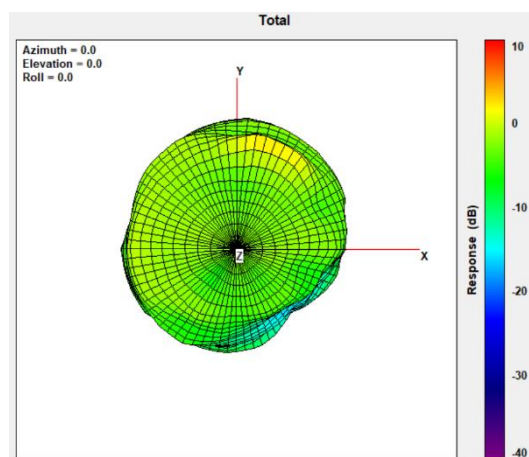
Max Antenna 3D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5150-5250       | 2.35                          |



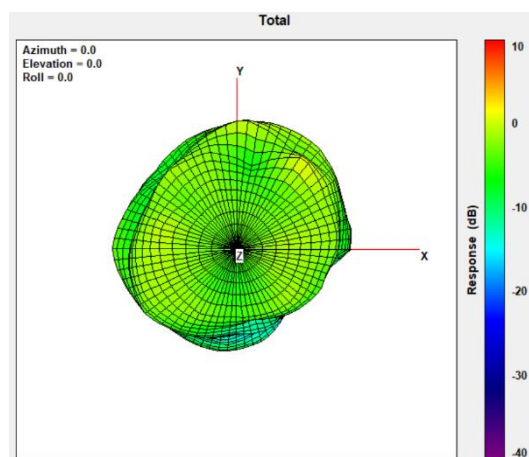
## Max Antenna 3D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5250-5350       | 3.14                          |



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

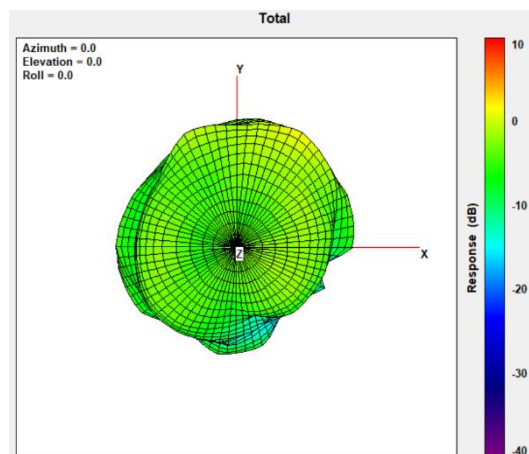
| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5470-5725       | 0.85                          |





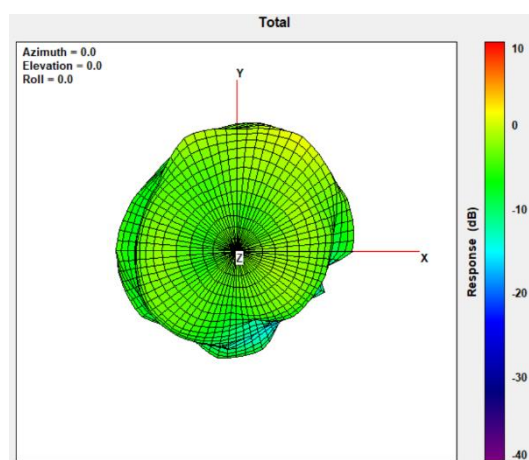
## Max Antenna 3D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5725-5850       | 3.64                          |



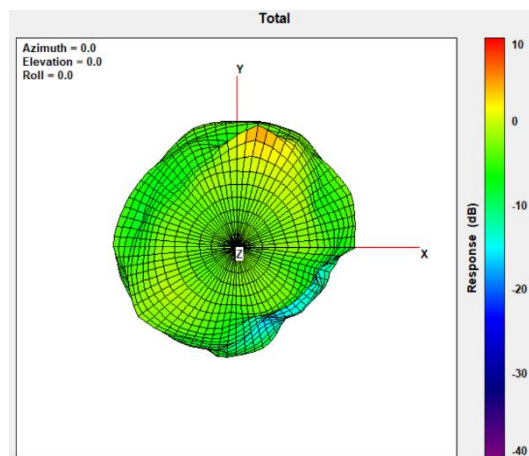
## Max Antenna 3D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5850-5895       | 3.64                          |



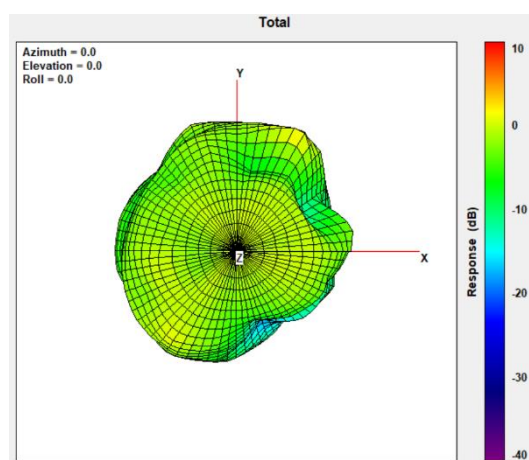
## Max Antenna 3D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5925-6425       | 4.05                          |



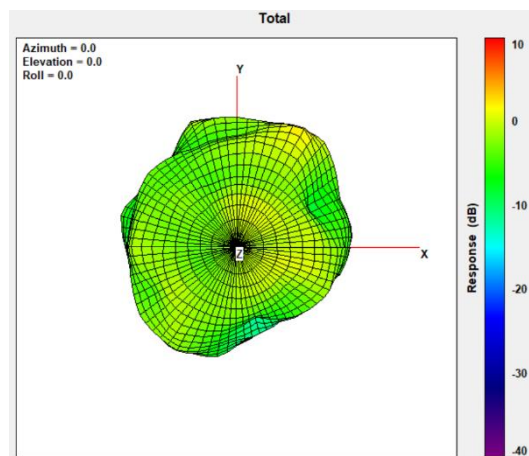
## Max Antenna 3D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6425-6525       | 2.25                          |



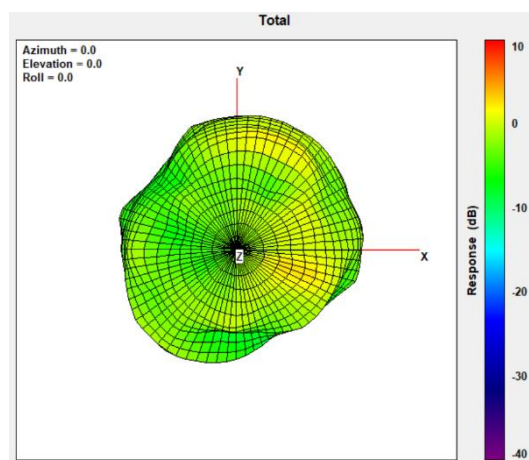
## Max Antenna 3D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6525-6875       | 2.86                          |



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

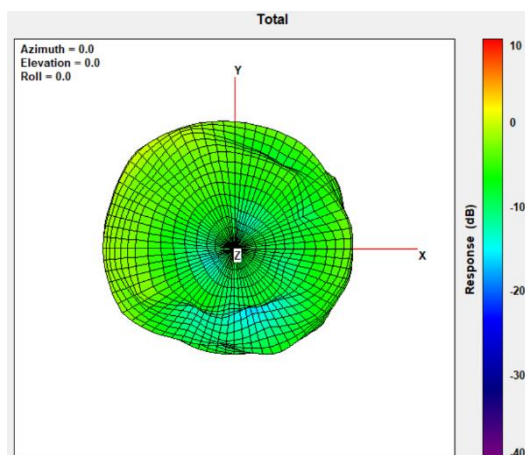
| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6875-7125       | 2.90                          |



## Auxiliary Antenna

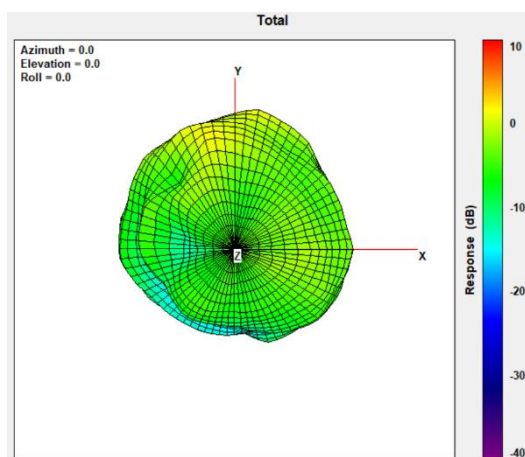
### Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

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



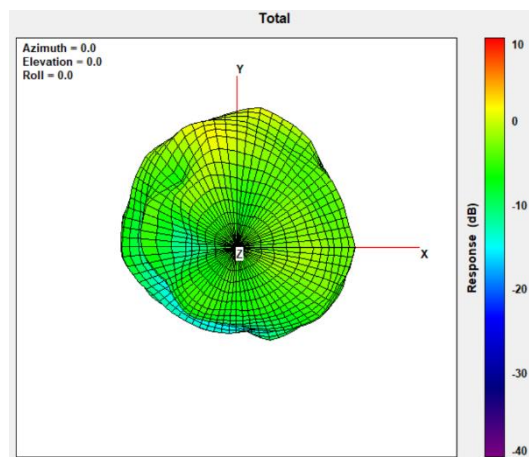
### Max Antenna 3D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5150-5250       | 1.01                          |



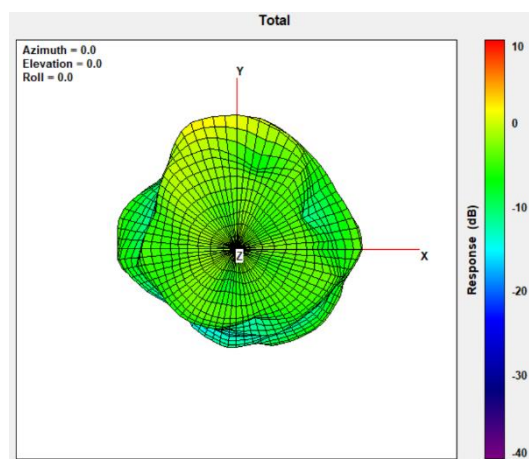
## Max Antenna 3D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5250-5350       | 2.21                          |



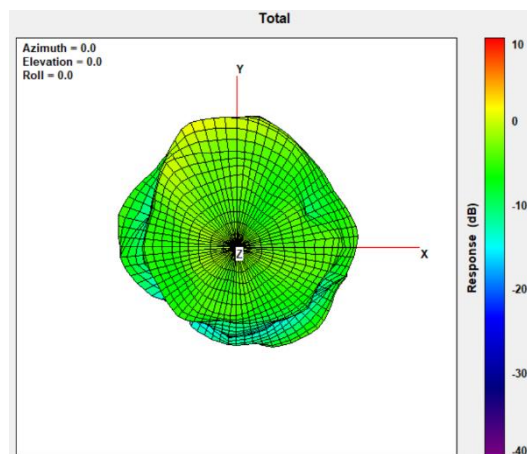
## Max Antenna 3D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5470-5725       | 2.57                          |



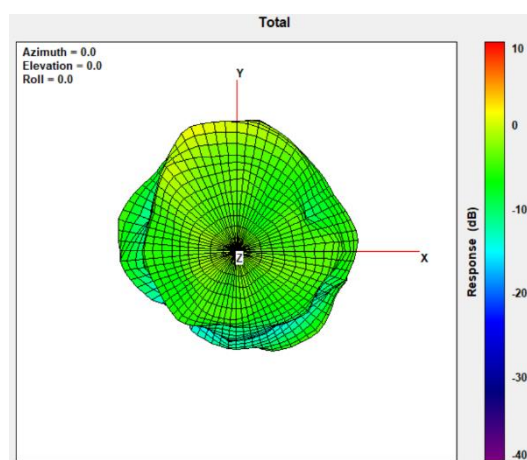
## Max Antenna 3D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5725-5850       | 2.16                          |



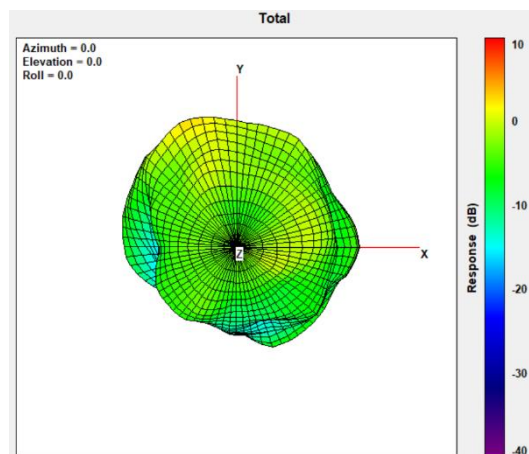
## Max Antenna 3D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5850-5895       | 2.16                          |



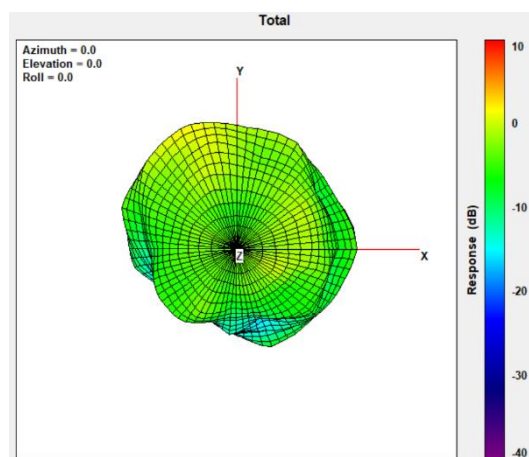
## Max Antenna 3D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5925-6425       | 3.66                          |



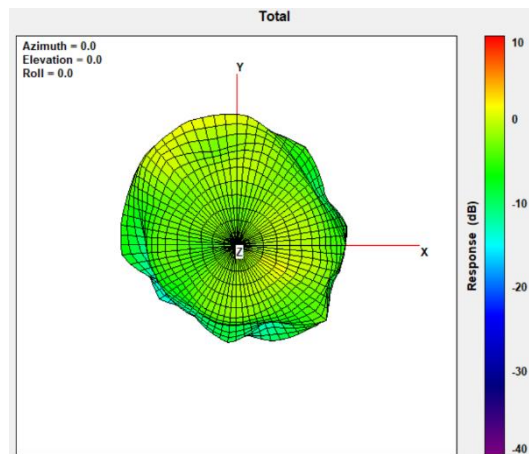
## Max Antenna 3D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6425-6525       | 2.37                          |



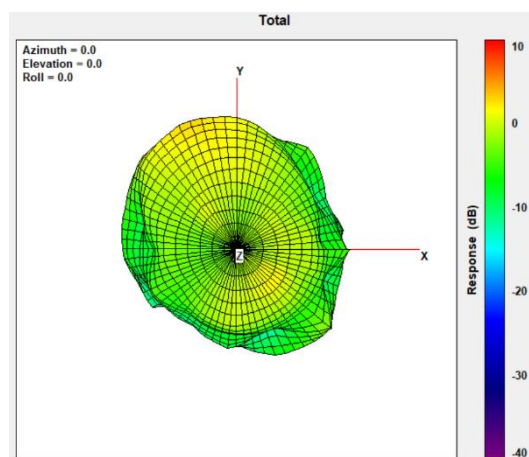
## Max Antenna 3D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6525-6875       | 3.46                          |



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

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6875-7125       | 2.33                          |

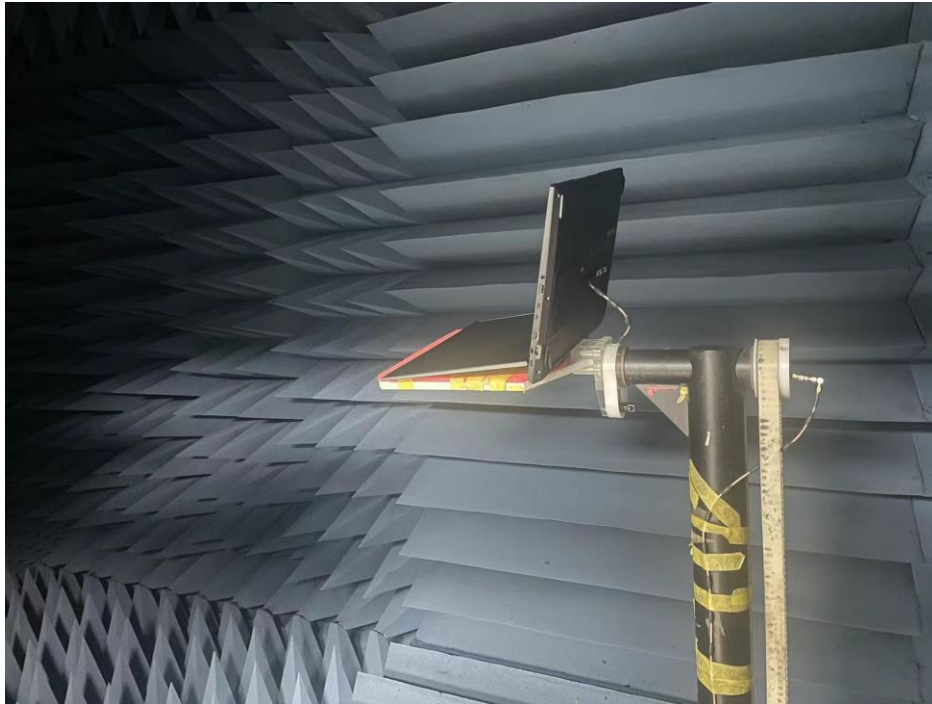




# Annex A. Photographs

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## A.1 Setup Photo

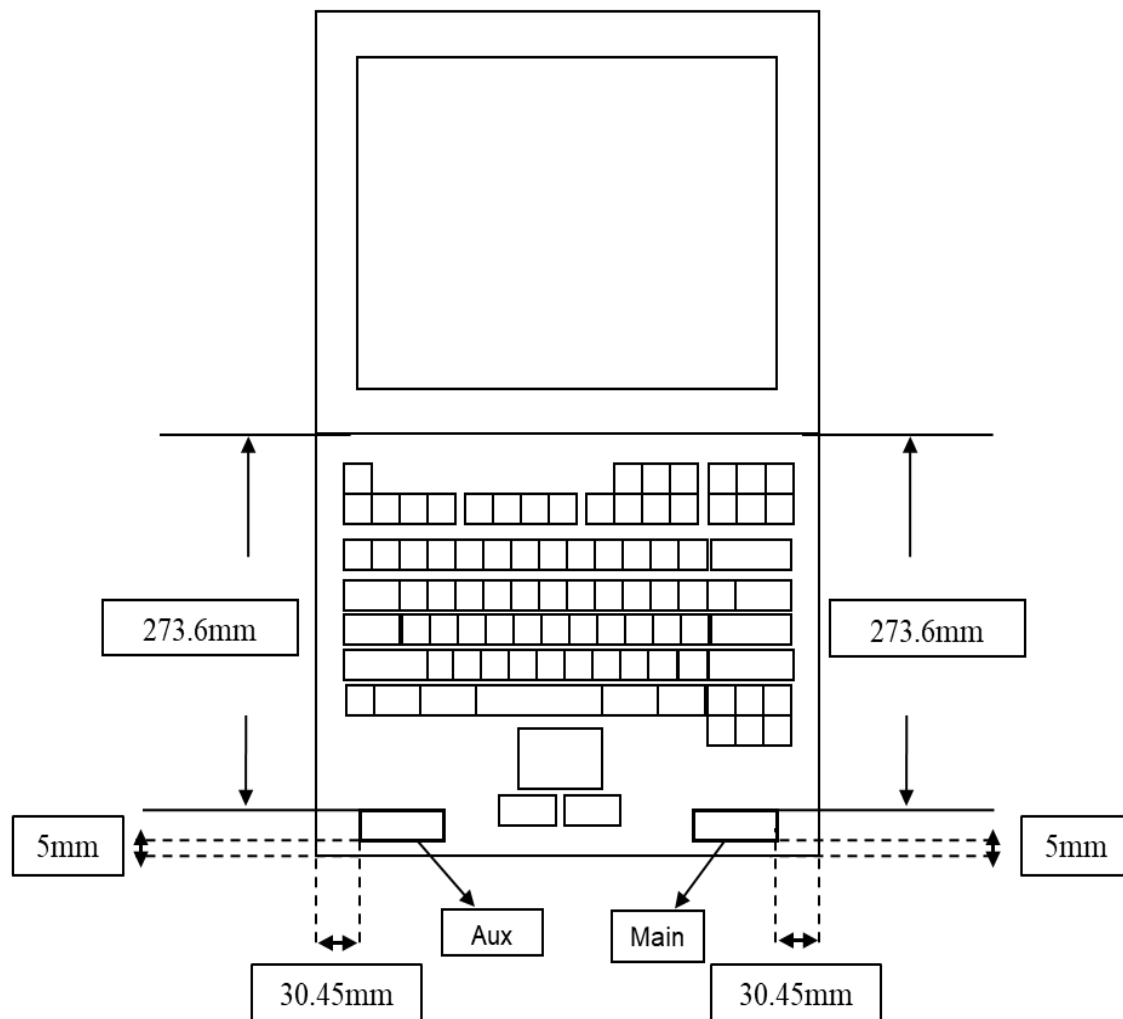


# Annex B. Antenna Location

## 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.

### Antennas on the panel section

