

Regulatory WLAN Antenna Information (Template)

English Language Required for Qualcomm Regulatory Review / Approval

(OEM/ODM or antenna vendor is required to complete this document with platform antenna information.)

Platform information											
Brand	ODM	****End product model name	Qualcomm platform (ex: Yes, No or NA)	Platform type (ex: regular NB, convertible PC, AIO...etc)	*SAR minimum separation (mm)						
ASUS	Inventec	TP5408QA/J5408Q A/R5408QA TP5408Q/J5408Q/R 5408Q, TP5407QA	Yes	Convertible PC	FCC(1g) 4.12 ISED(1g) 4.12 ISED(10g) 4.3						
****Please fill in exact product model name and make sure the model name is visible on product cover or any parts for end users recognize for authority inspection.											
Antenna information											
Vendor		Type		Antenna Part number (Main)			Antenna Part number (Aux)				
INPAQ		PIFA		14008-06820000 WA-P-LE-02-509			14008-06820100 WA-P-LE-01-155				
Peak gain w/ cable loss (dBi)*											
	2.4GHz 2400-2483.5 MHz	5.2GHz 5150-5250MHz	5.3GHz 5250-5350MHz	5.5GHz 5470-5725MHz	5.8GHz 5725-5850MHz	5.9GHz 5850-5895MHz	6.2GHz 5925-6425MHz	6.5GHz 6425-6525MHz	6.7GHz 6525-6875MHz	6.9 GHz 6875-7125MHz	
Main	0.9	2.21	2.21	2.78	2.84	2.56	2.63	1.4	2.44	2.47	
Aux	0.87	2.22	2.27	1.91	2.1	1.73	2.15	1.49	2.4	2.18	
Qualcomm Reference Gain/Type/ Separation distance											
Antenna Type	Antenna Peak gain (In dBi)*										Distance to the end user (mm)
	2.4GHz 2400-2483.5 MHz	5.2GHz 5150-5250MHz	5.3GHz 5250-5350MHz	5.5GHz 5470-5725MHz	5.8GHz 5725-5850MHz	5.9GHz 5850-5895MHz	6.2GHz 5925-6425MHz	6.5GHz 6425-6525MHz	6.7GHz 6525-6875MHz	6.9GHz 6875-7125MHz	Generic: refer to modular FCC SAR report
PIFA	3.53	3.06	3.07	4.81	4.2	5.09	5.14	5.09	5.16	5.12	Mid-power: ≥ 8 mm
Dipole	3.22	3.35	3.42	4.77	4.72	4.71	4.75	4.29	4.81	4.74	Low power: ≥ 5 mm
Notes (marked with *)											
* SAR minimum separation (mm)											
- Regular NB: Minimum antenna-to-body (from antenna bottom to the bottom of the device)											
- Tablet / Convertible PC: Minimum antenna-to-edge (5 sides of the device)											
- Mini-tablet: Minimum antenna-to-edge (6 sides of the device)											
* 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.											

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1. Test & System Description

1.1 Measurement Method and System

<insert test description here for test method>

ETS-Lindgren AMS-8500 system is 3D fully anechoic chamber, it is applied to the “Conical Cut test method”, the detail description is described as below.

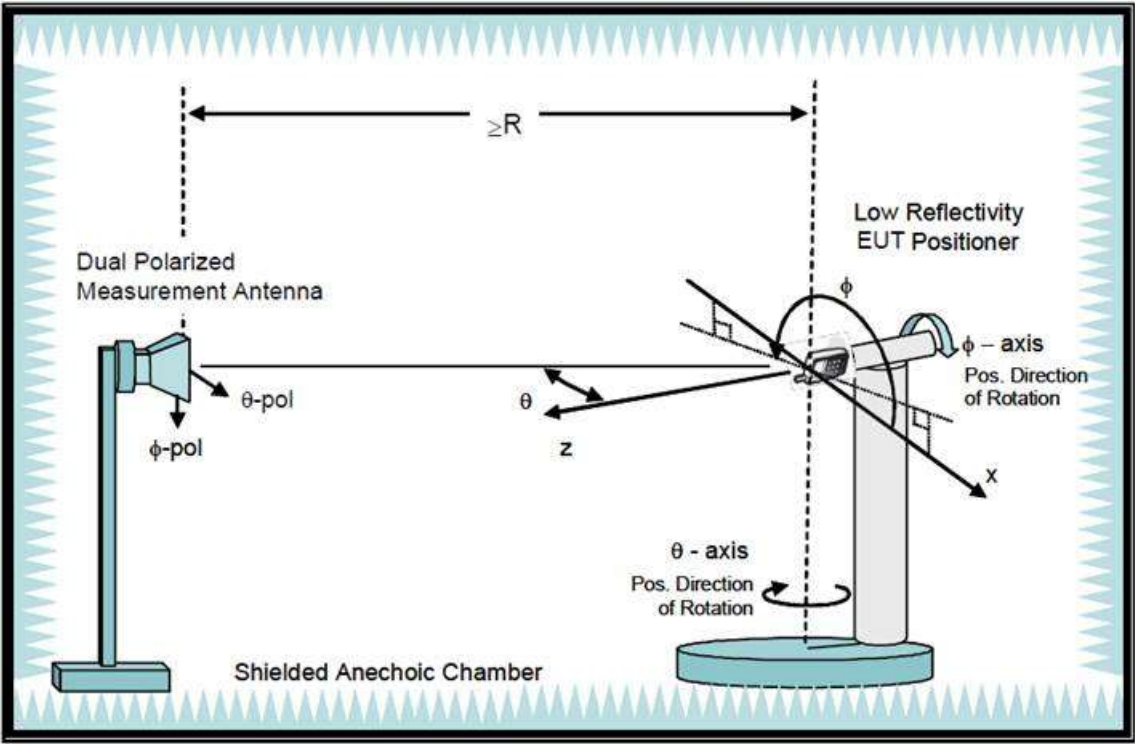
The Conical Cut method requires the ability of the Measurement Antenna to be physically rotated in the theta plane (overhead) of the EUT for implementations using a single Measurement Antenna, Eleven conical cuts are required to capture data at every 15 degrees from the EUT, with the top (0 degrees) and bottom (180 degrees) cuts not being measured. Typically, the EUT will remain affixed to a turntable during the entire measurement process. The Measurement Antenna will be positioned at a starting theta angle. The EUT will then be rotated around the full 360 degrees of phi rotation. The Measurement Antenna will then be positioned at the next theta angle, and the process repeated.

		θ -Axis	Φ -Axis
Passive	Step size	15°~165° step: 15°	0°~345° step: 15°
	N / M (Points)	12	24

1.2 Test setup

<insert test diagram here for test site utilized>

Typical Setup for ETS-Lindgren AMS-8500:



1.3 Equipment list

<insert test diagram here for test site utilized>

Equipment Description↕	Manufacturer↕	Identification no.	Current calibration ↕ date↕	Next calibration date↕
Network analyzer↕	Agilent↕	E5071C↕	2026/01/07↕	2027/01/06↕
Measurement software↕	ETS-Lindgren↕	EMQuest↕	2026/03/03↕	2027/03/03↕
Multi axis positioning system(MAPSTM)↕	ETS-Lindgren↕	EMCO 2115↕	2026/03/03↕	2027/03/03↕
Multi axis positioning system(MAPSTM)↕	ETS-Lindgren↕	EMCO 2110↕	2026/03/03↕	2027/03/03↕
MAPSTM controller↕	ETS-Lindgren↕	EMCO 2090↕	2026/03/03↕	2027/03/03↕
Horn antenna↕	ETS-Lindgren↕	3164-10↕	2026/03/03↕	2027/03/03↕
Cable 40cm 18 GHz↕	Jmtt↕	201EH012010400	2026/04/07↕	2027/04/08↕
Cable 6m 18 GHz↕	Jmtt↕	201EH012016000	2026/04/07↕	2027/04/08↕
Cable 6m 18 GHz↕	Jmtt↕	201EH012016000	2026/04/07↕	2027/04/08↕
Cable 3.5m 18 GHz↕	Jmtt↕	201EH012013500	2026/04/07↕	2027/04/08↕
Cable 1.5m 18 GHz↕	Jmtt↕	201EH012011500	2026/04/07↕	2027/04/08↕

Antenna Information

Section 1. Antenna Assembly Specifications

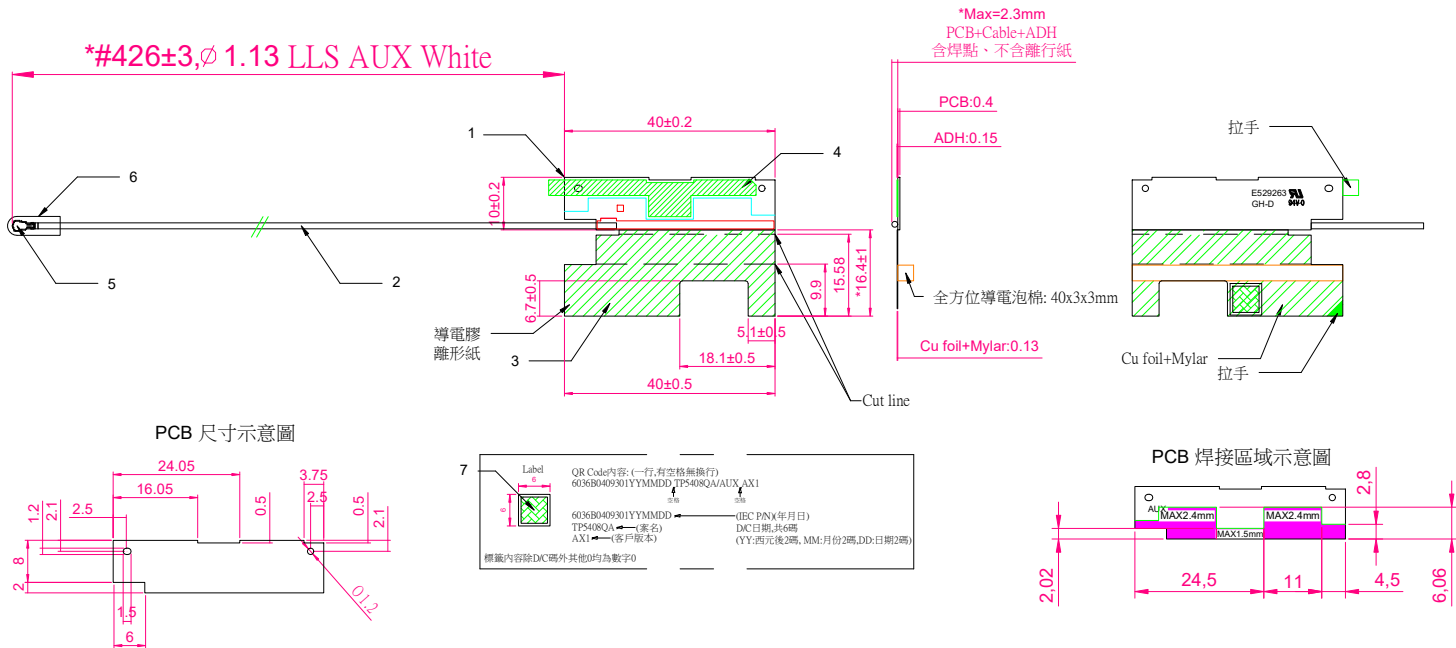
1A	1B	1C	1D		1E	1F	1G	1H
Antenna Part Number	Manufacturer	Antenna Type	Cable Assembly Part Number and Information	Freq Range MHz	* Peak Gain W/ Cable loss (dBi)	Peak Gain w/o Cable Loss (dBi)	Max VSWR	Cable Loss (dB)
(P/N: 14008-06820000) (WA-P-LE-02-509) Main Antenna	INPAQ	PIFA	50 ohm Coaxial Length: 285 mm Diameter : 1.13 mm Low Loss Connector: Caimei	2400-2483.5	0.90	1.69	3	0.79
				5150-5250	2.21	3.39	3	1.18
				5250-5350	2.21	3.40	3	1.19
				5470-5725	2.78	3.99	3	1.21
				5725-5850	2.84	4.07	3	1.23
				5850-5895	2.56	3.80	3	1.24
				5925-6425	2.63	3.92	3	1.29
				6425-6525	1.40	2.72	3	1.32
				6525-6875	2.44	3.79	3	1.35
				6875-7125	2.47	3.86	3	1.39
(P/N: 14008-06820100) (WA-P-LE-01-155) Aux Antenna	INPAQ	PIFA	50 ohm Coaxial Length: 426 mm Diameter : 1.13 mm Low Loss Connector: Caimei	2400-2483.5	0.87	2.05	3	1.18
				5150-5250	2.22	3.98	3	1.76
				5250-5350	2.27	4.05	3	1.78
				5470-5725	1.91	3.72	3	1.81
				5725-5850	2.10	3.94	3	1.84
				5850-5895	1.73	3.59	3	1.86
				5925-6425	2.15	4.08	3	1.93
				6425-6525	1.49	3.46	3	1.97
				6525-6875	2.40	4.42	3	2.02
				6875-7125	2.18	4.26	3	2.08

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

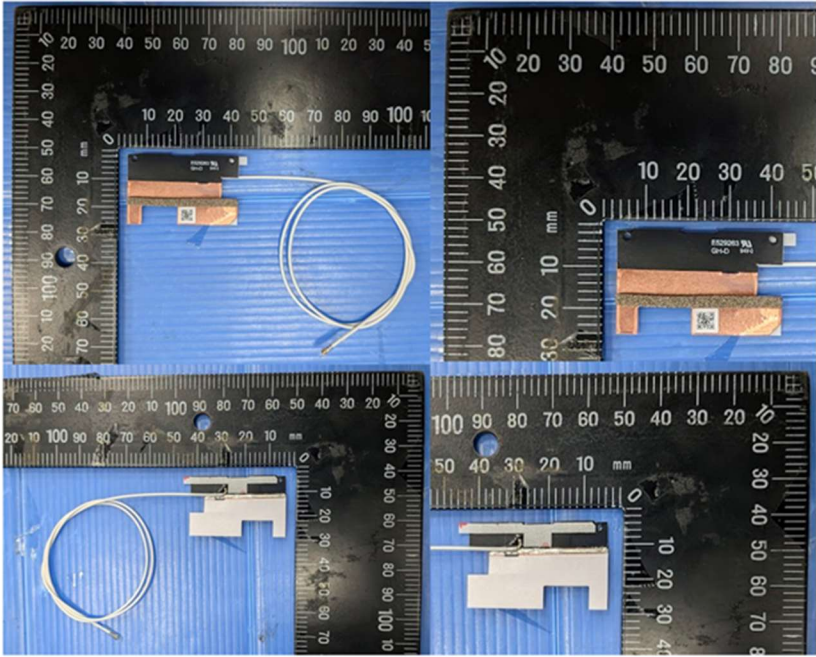
Main Antenna Drawing:



Aux Antenna Drawing:



Aux Antenna Photo (Front/Back):



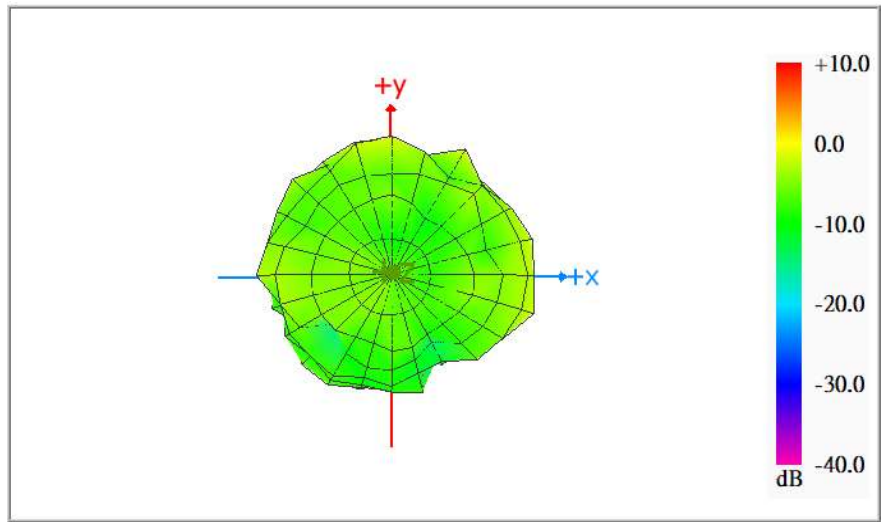
Note: antenna photo should include L type ruler

Section 3. Radiation characteristics of antenna loaded in Host Platform

Main Antenna

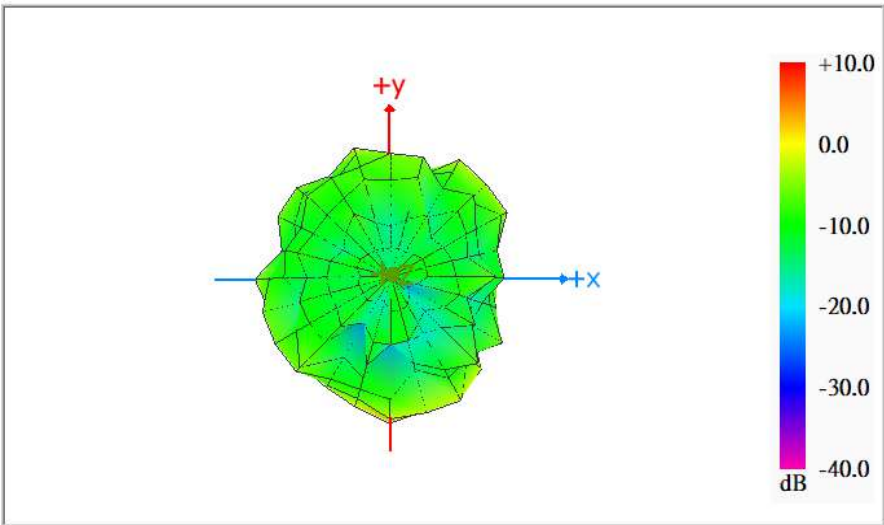
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	0.9



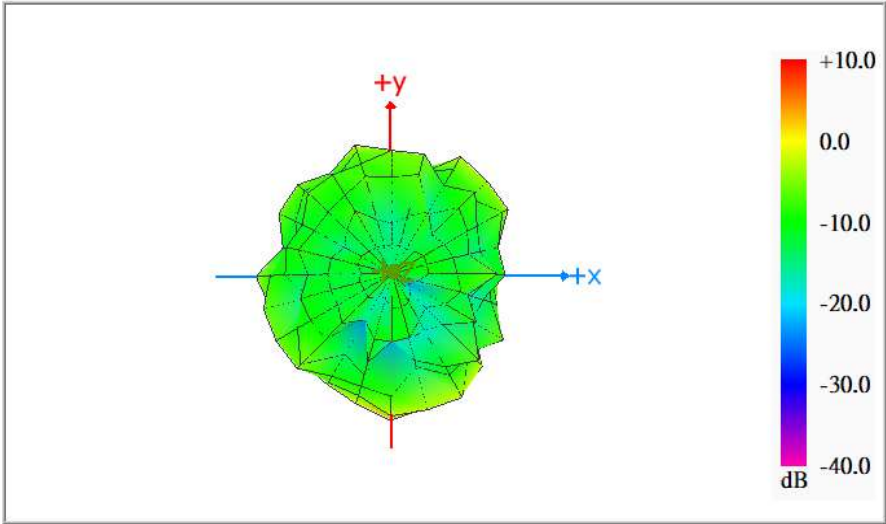
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.21



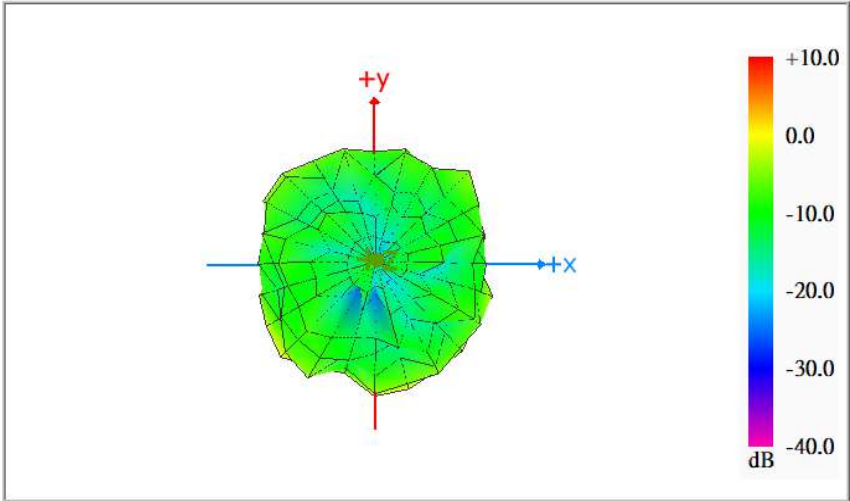
Max Antenna 3D Radiation Pattern 5250-5350 MHz

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



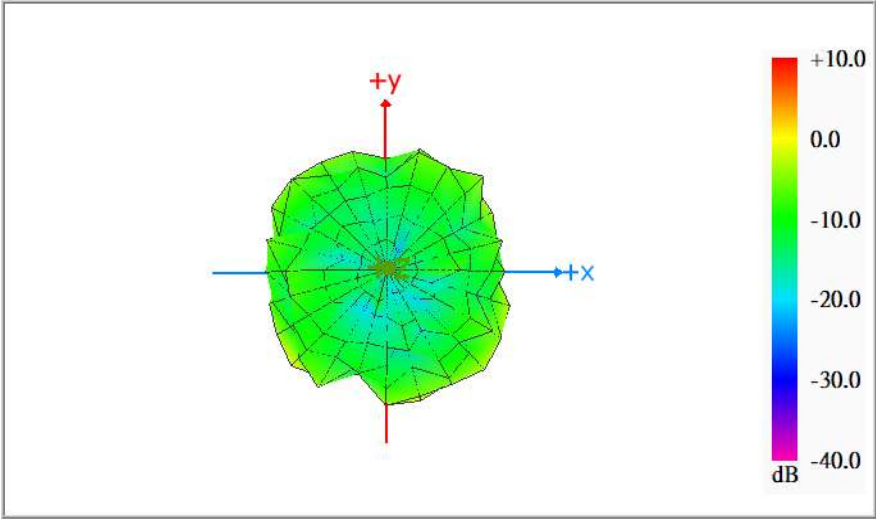
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.78



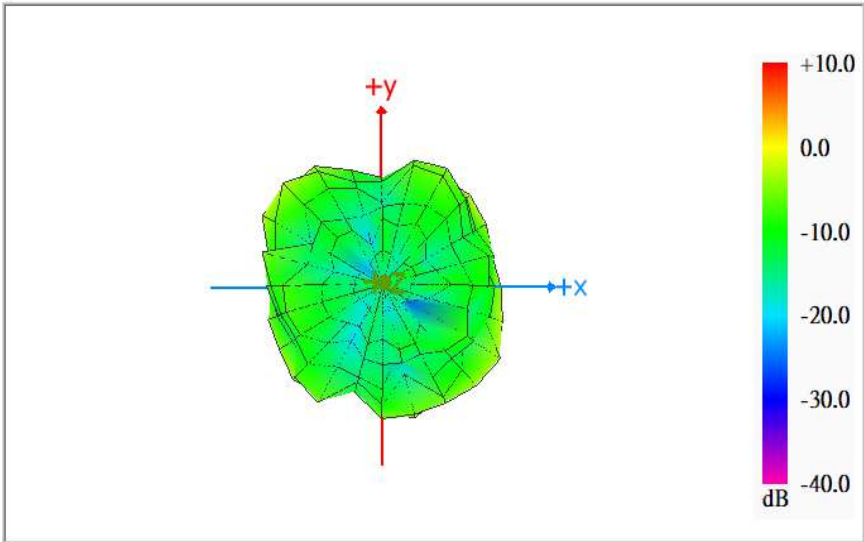
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.84



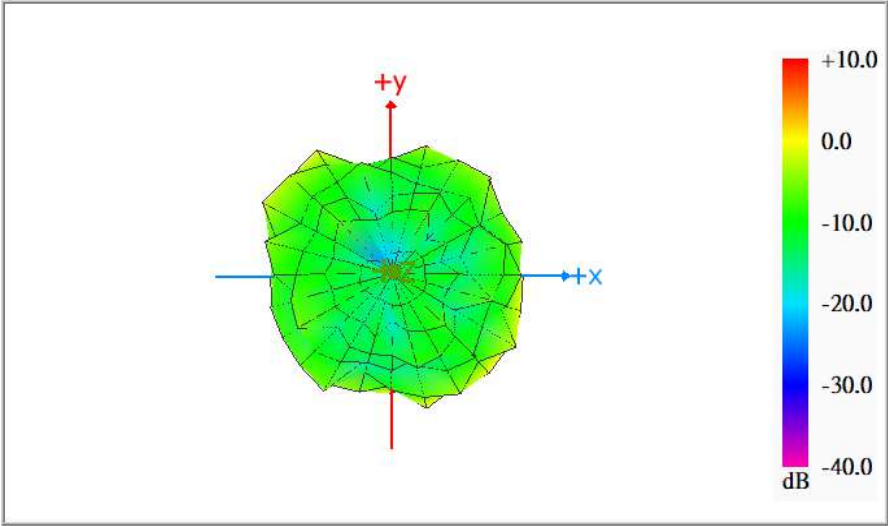
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.56



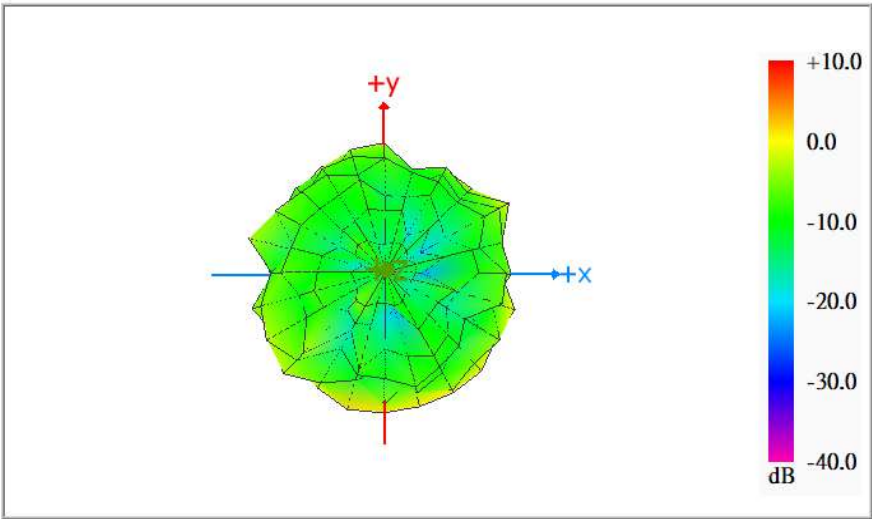
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.63



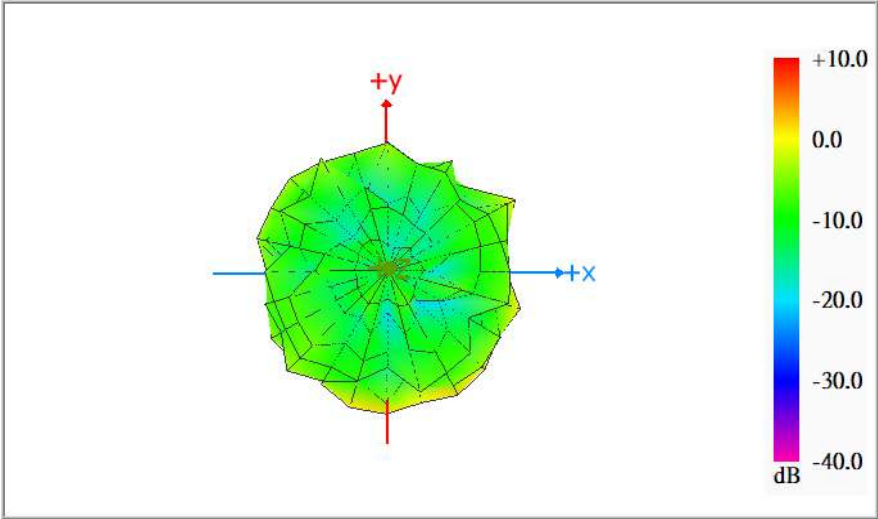
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	1.4



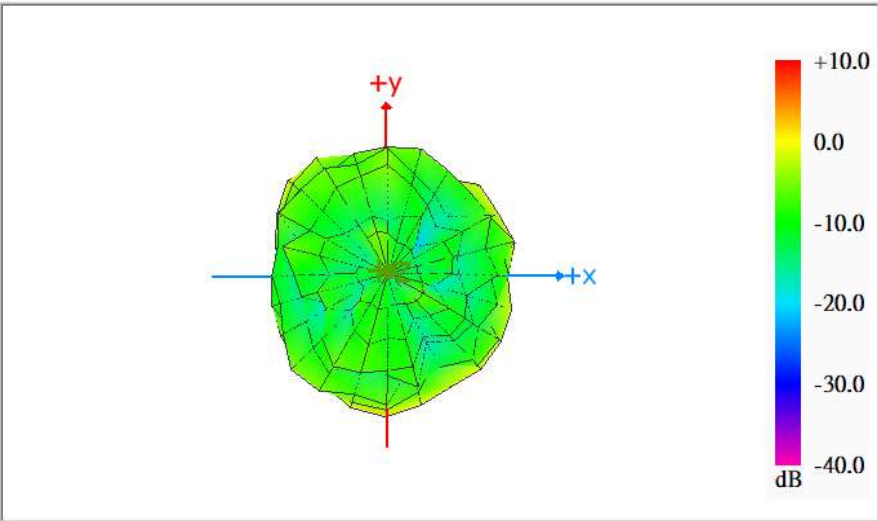
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.44



Max Antenna 3D Radiation Pattern 6875-7125 MHz

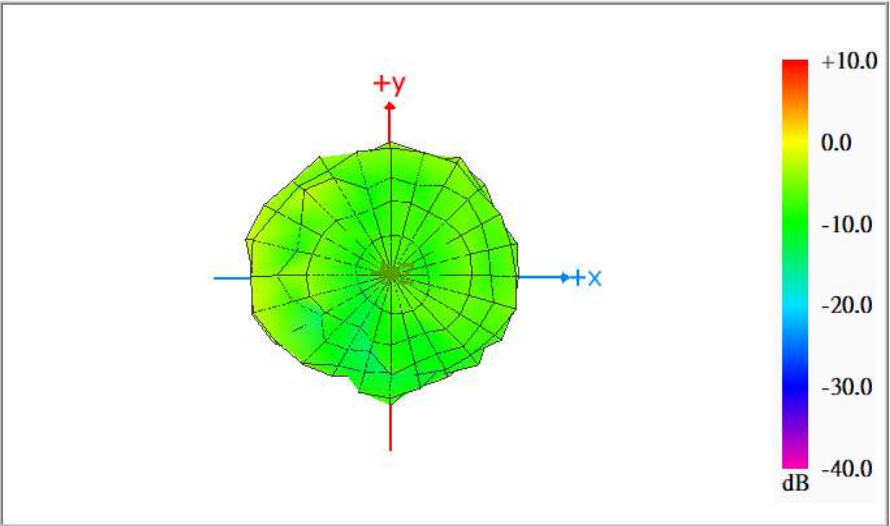
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.47



Auxiliary Antenna

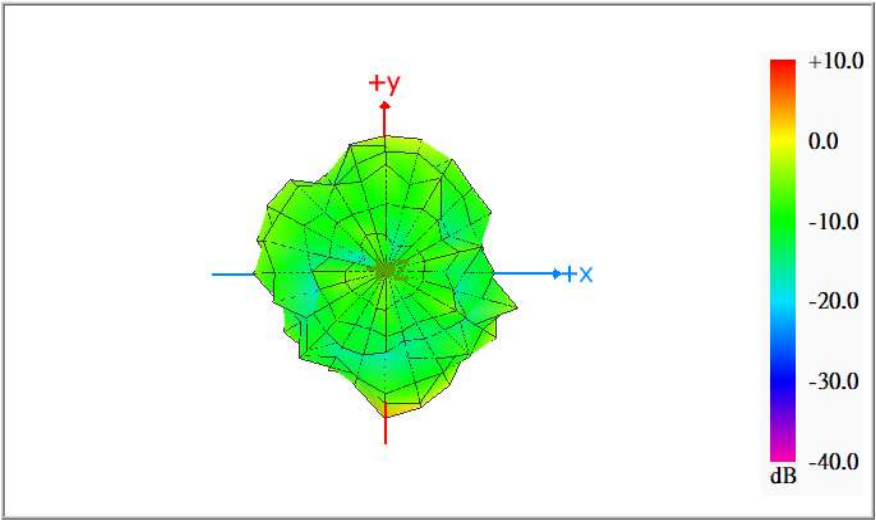
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	0.87



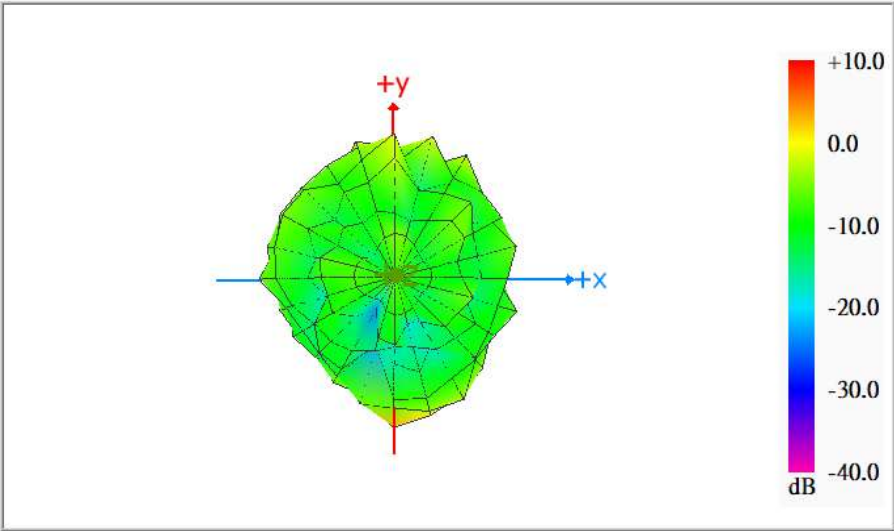
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.22



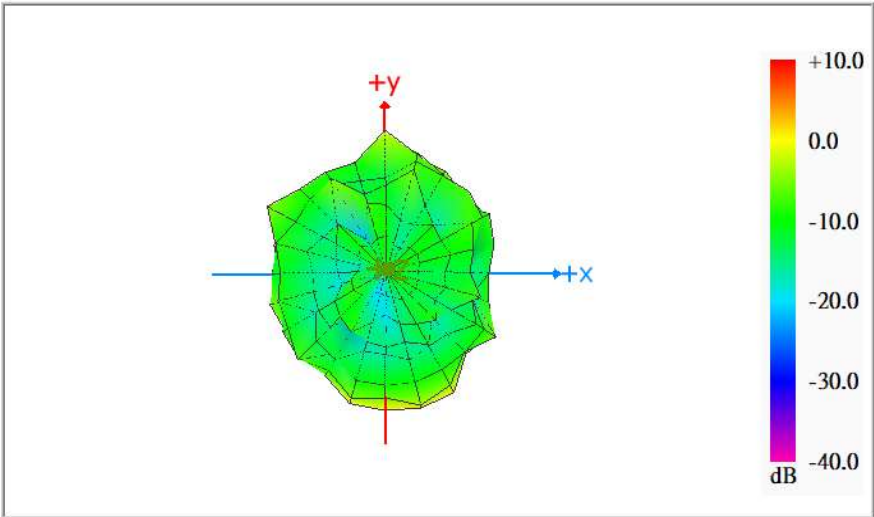
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.27



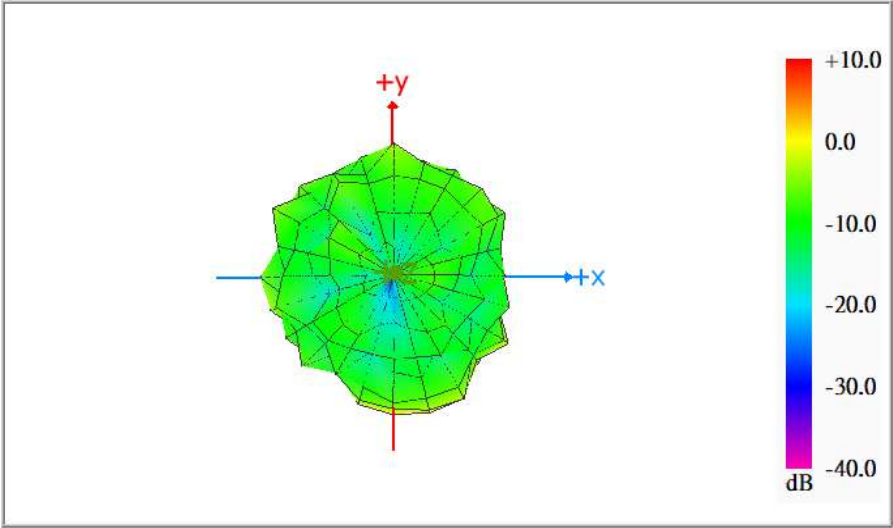
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	1.91



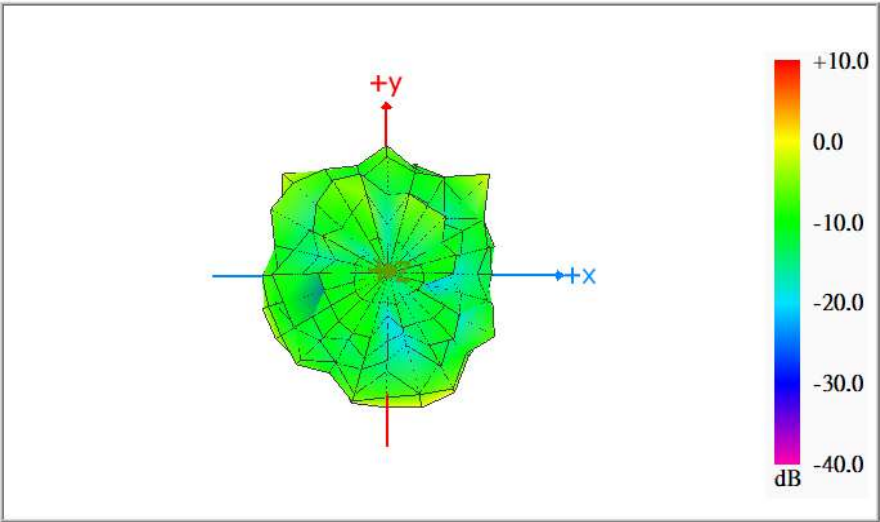
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.1



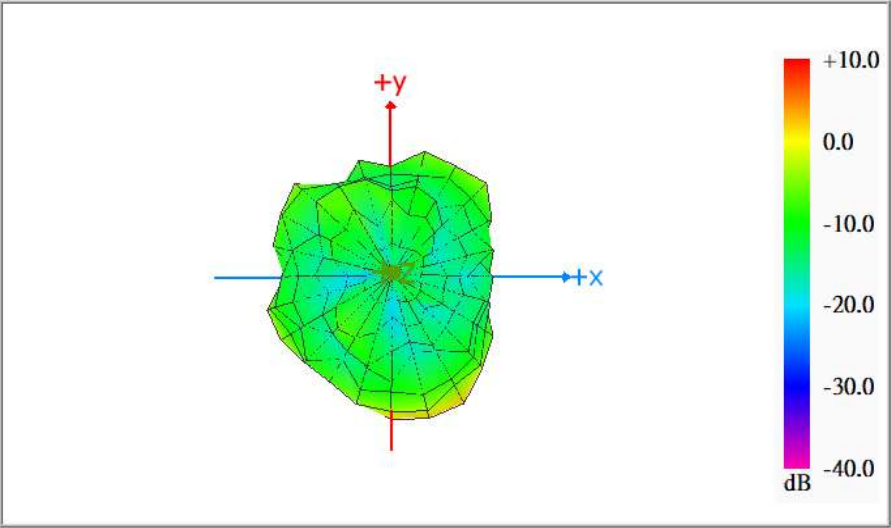
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	1.73



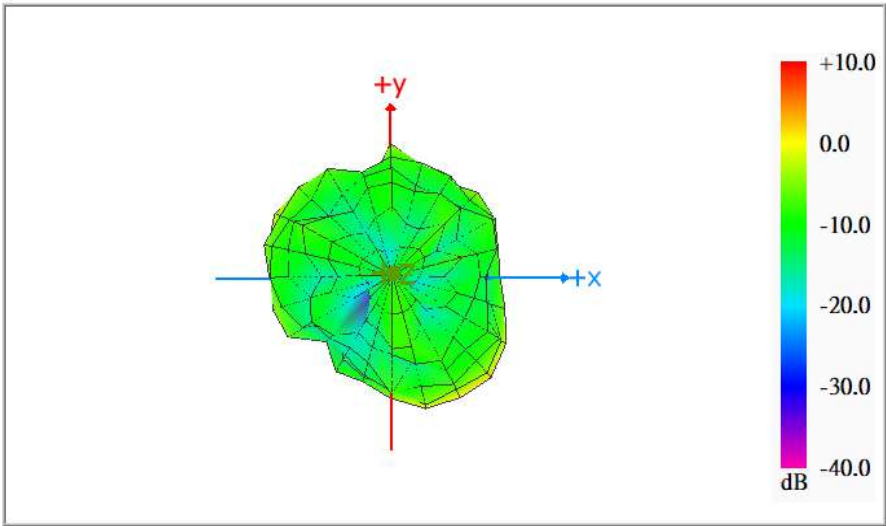
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.15



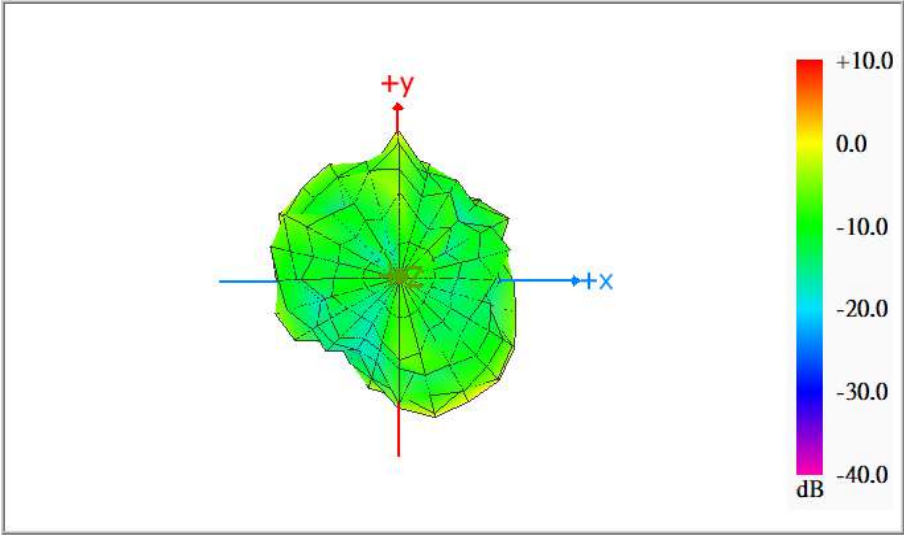
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	1.49



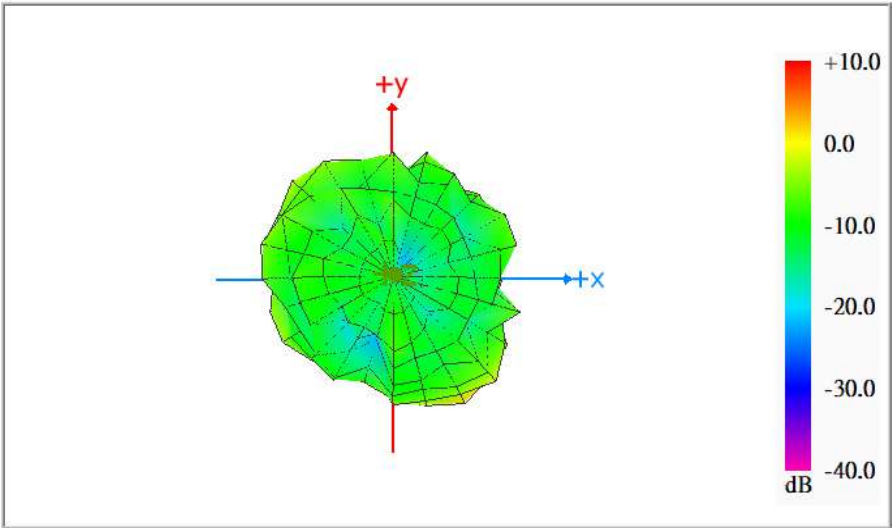
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.4



Max Antenna 3D Radiation Pattern 6875-7125 MHz

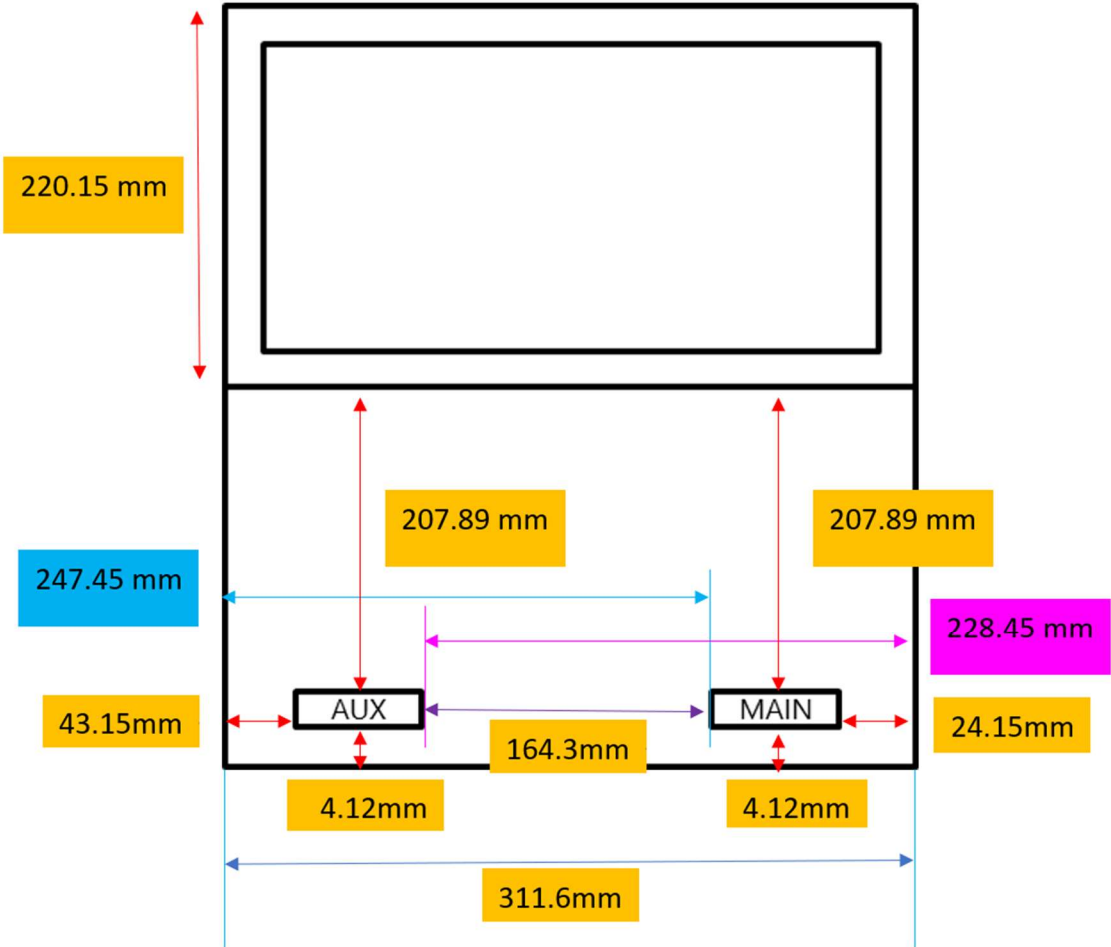
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.18



Section 4. Antenna Host Platform Location Information

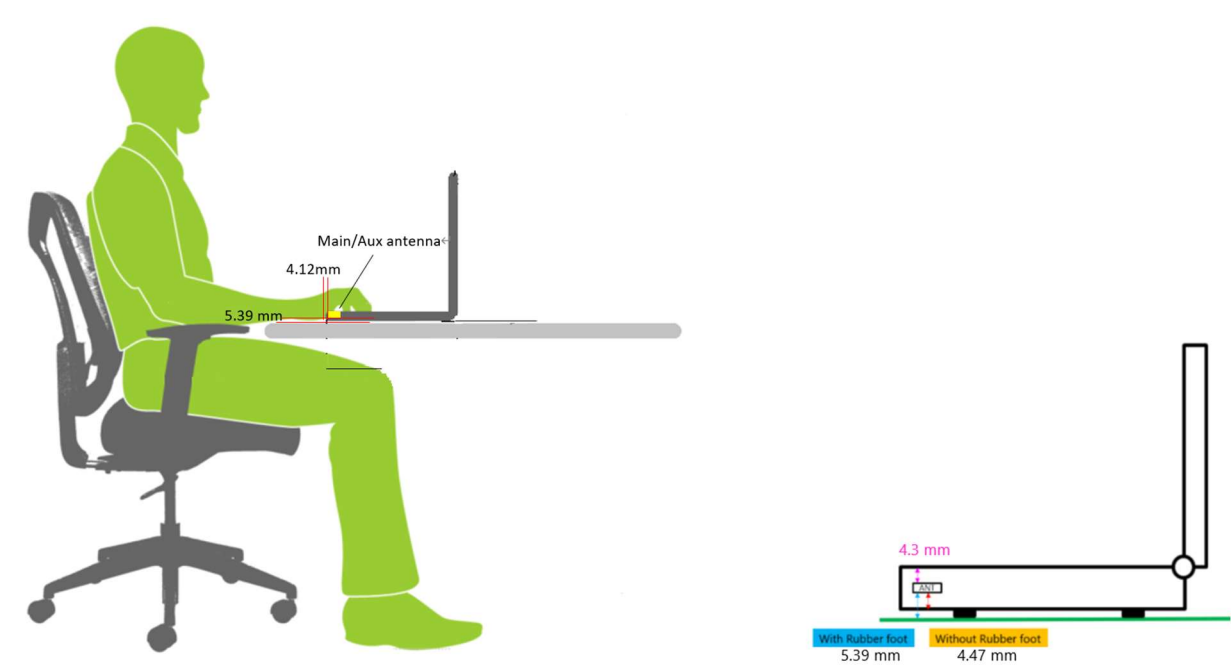
Include a **dimensioned photo(s) or dimensioned drawing(s)** of Main and Aux antenna placements (measurements are not required for receive-only antenna).

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.



Section 5. 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.

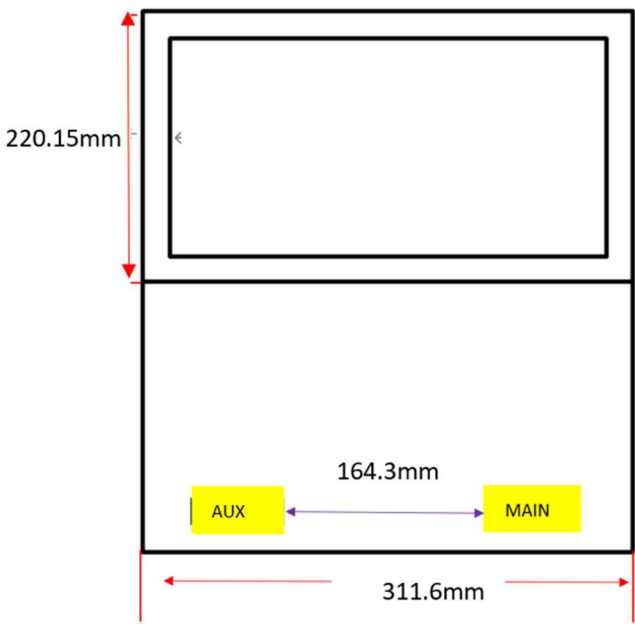


Measuring Surface	Antenna	Separation Distance(antenna-to- Surface)(mm)	1g SAR
Edge Side	Main	4.12	FCC/ISED
	Aux	4.12	FCC/ISED

Section 6. Diagram Example of Co-Location Antenna Separation

Include a **dimensioned photo or dimensioned drawing** showing the distance (mm) between all WLAN transmit antennas and other co-located radiator transmit antenna such as Bluetooth, WWAN,..

(Note: Due to the evolving rules regarding co-location, each platform will need to be reviewed on a case by case basis)



Antenna↵	WLAN Main↵ (Tx1)↵	WLAN Aux↵ (Tx2)↵
WLAN Main↵ (Tx1)↵	NA↵	164.3 mm↵
WLAN Aux↵ (Tx2)↵	164.3 mm↵	NA↵