

Regulatory WLAN Antenna Information (Template)

English Language Required for Intel Regulatory Review / Approval

(OEM/ODM or antenna vendor is required to complete this document with platform antenna information.
Remove Intel references and make this your own document)

Platform information										
Brand	ODM	****End product model name			Intel platform (ex: Yes, No or NA)	Platform type (ex: regular NB, convertible PC, AIO...etc)			*SAR minimum separation (mm)	
Lenovo	闻泰	X80			YES					
****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)		
HUBBLE		PIFA			3.6.04.0157			3.6.04.0158		
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	6.2GHz 5925-6425MHz	6.5GHz 6425-6525MHz	6.7GHz 6525-6875MHz	7.0 GHz 6875-7125MHz	
Main	1.11	1.78	2.07	2.57	2.46	2.03	0.51	0.37	1.73	
Aux	-1.15	-0.98	-1.39	0.67	-0.45	0.29	-0.56	0.07	2.17	
Intel 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	5.6GHz 5470-5725MHz	5.8GHz 5725-5850MHz	6.2GHz 5925-6425MHz	6.5GHz 6425-6525MHz	6.7GHz 6525-6875MHz	7.0GHz 6875-7125MHz	Generic: refer to modular FCC SAR report Mid-power: ≥ 8 mm Low power: ≥ 5 mm
Design	3.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	
PIFA	3.24	3.64	3.73	4.77	4.97	4.83	4.30	5.37	5.59	
Dipole	2.89	2.92	3.19	4.41	4.22	4.83	4.30	4.49	5.34	
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. Applicable test methods

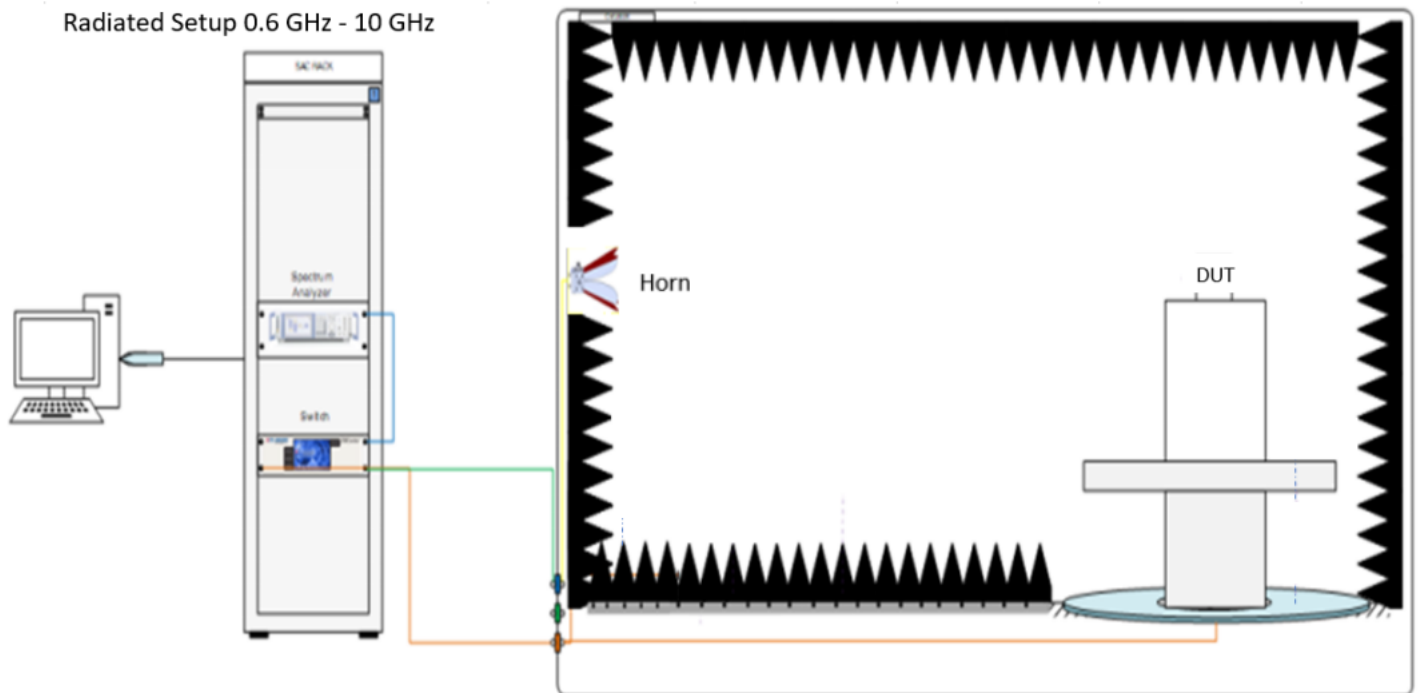
<insert test description here for test method>

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

2. Test & System Description

a. Test setup

<insert test diagram here for test site utilized>



b. Equipment list

<insert test diagram here for test site utilized>

Number	Device	Type/Model	Serial	Manufacturer	Cal. Date	Cal. due. Date
1	Chamber	FATC3	5720	ETS-Lindgren	2023/5/15	2024/3/15
2	Turn table control box	ETS	-	ETS-Lindgren	N/A	N/A
3	Turn table control computer	Desktop	LPTPTOP-JQTTOKRA	LENOVO	N/A	N/A
4	Network Analyzer	5071C	5071C	Keysight	2023/5/18	2024/5/18
5	Horn Antenna	3117	E00157734	Bwant	2022/1/23	2024/1/23
6	Test system host	EMC Center	159757	ETS-Lindgren	N/A	N/A
7	RF Line TX	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2023/5/20	2024/5/20
8	RF Line RX	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2023/5/20	2024/5/20
9	Cable 2m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2023/5/20	2024/5/20
10	Optical fiber line	KXY-00727-1603	-	Jmtt	N/A	N/A
11	Cable 2.5m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2022/8/21	2023/8/21
12	Cable 1.2m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2022/8/21	2023/8/21
13	Cable 1m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2022/8/21	2023/8/21
14	Cable 2m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2022/8/21	2023/8/21
15	Cable 1m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2022/9/13	2023/9/13
16	Temp&Humidity Logger	RA12E-TH1-RAS	RA12-DOEB1A	Avtech	2023/3/20	2024/3/20

3.Setup photo

Refer to HUBBLE X80 Antenna report_setup photo

Antenna Information

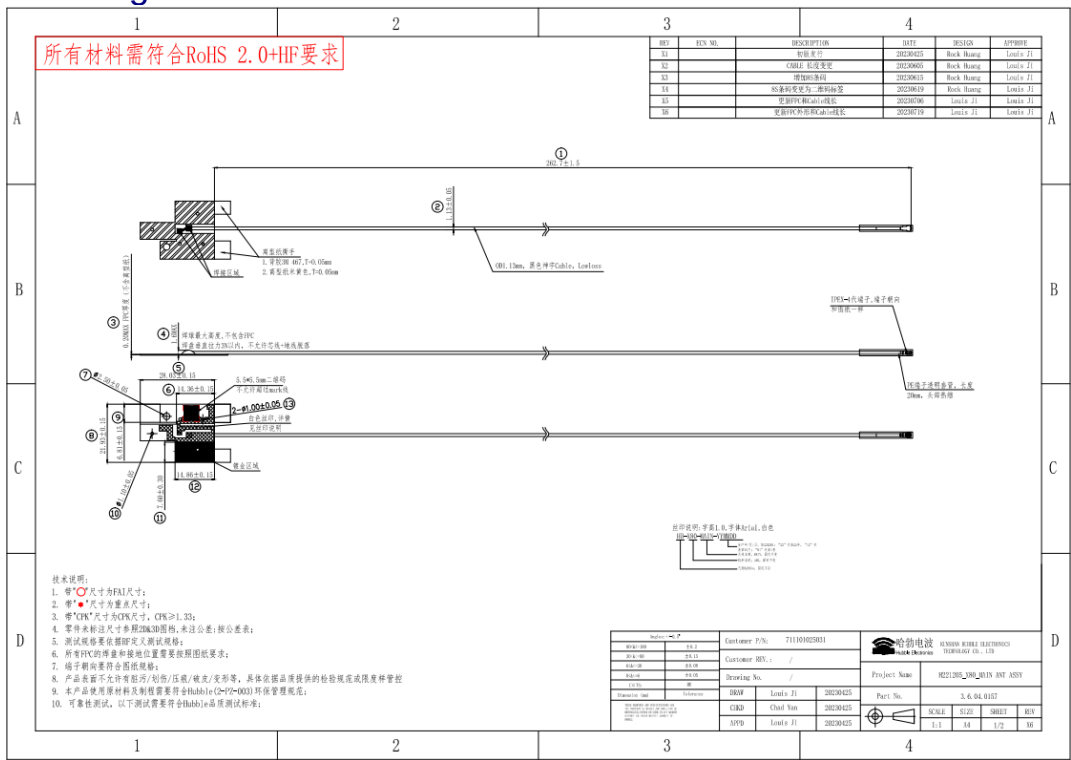
Section 1. Antenna Assembly Specifications

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: F002C4512190001) Main Antenna	HUBBLE	PIFA	1) HUBBLE 2) 50 ohm Coaxial 3) length: 262.7mm diameter: 1.13 LL 4) Connector PN: IPEX-4 代端子 20565-001R-13	2400-2483.5	1.11	1.79	3.0	0.68
				5150-5250	1.78	2.72	3.0	0.94
				5250-5350	2.07	3.02	3.0	0.95
				5470-5725	2.57	3.55	3.0	0.98
				5725-5850	2.46	3.46	3.0	1.00
				5925-6425	2.03	3.05	3.0	1.02
				6425-6525	0.51	1.53	3.0	1.02
				6525-6875	0.37	1.40	3.0	1.03
(P/N: F002C4512590002) Aux Antenna	HUBBLE	PIFA	1) HUBBLE 2) 50 ohm Coaxial 3) length:163.7mm diameter: 1.13 LL 4) Connector PN: IPEX-4 代端子 20565-001R-13	2400-2483.5	-1.15	-0.73	3.0	0.42
				5150-5250	-0.98	-0.39	3.0	0.59
				5250-5350	-1.39	-0.79	3.0	0.60
				5470-5725	0.67	1.28	3.0	0.61
				5725-5850	-0.45	0.17	3.0	0.62
				5925-6425	0.29	0.92	3.0	0.63
				6425-6525	-0.56	0.08	3.0	0.64
				6525-6875	0.07	0.71	3.0	0.64
				6875-7125	2.17	2.82	3.0	0.65

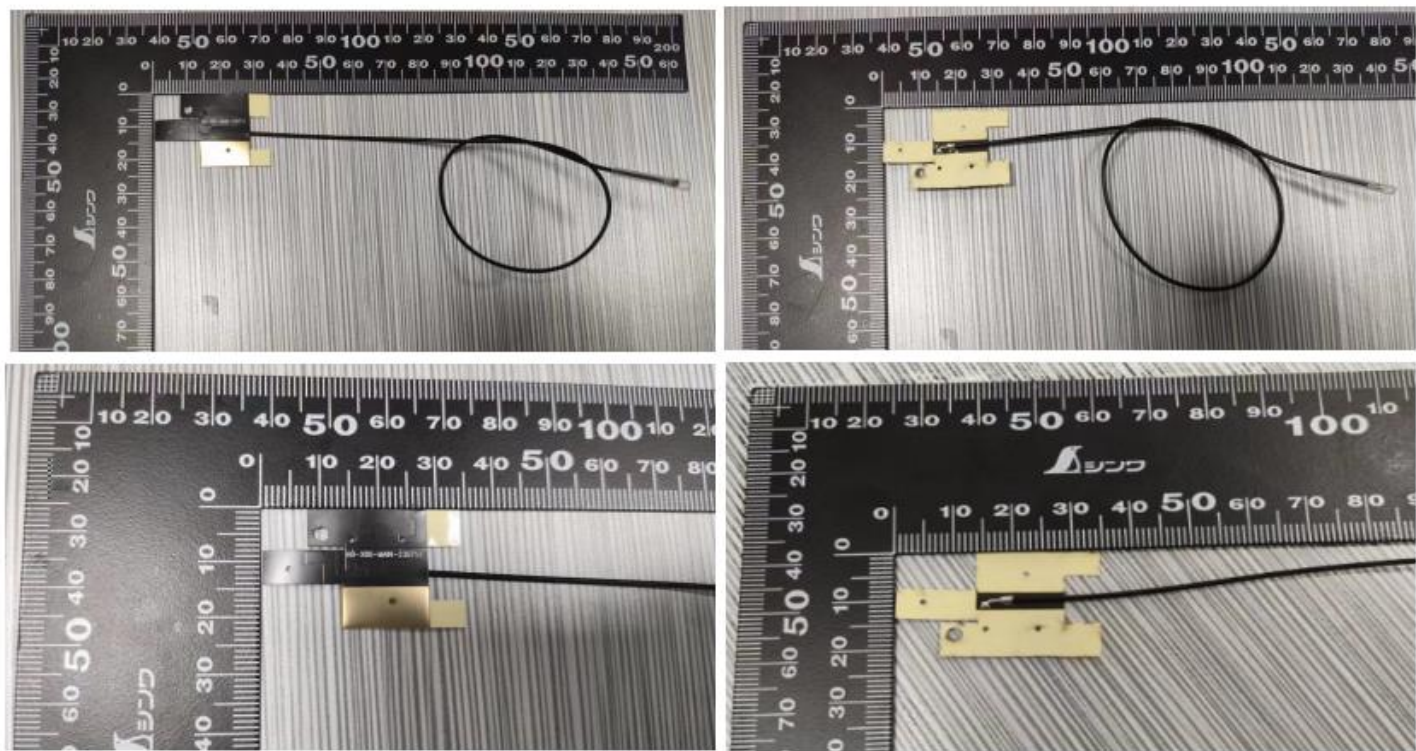
- 3D Antenna Peak Gain required being test in system basis.

Include the dimensioned photo and drawing of Main antenna here.

Main Antenna Drawing:



Main Antenna Photo (Front/Back):



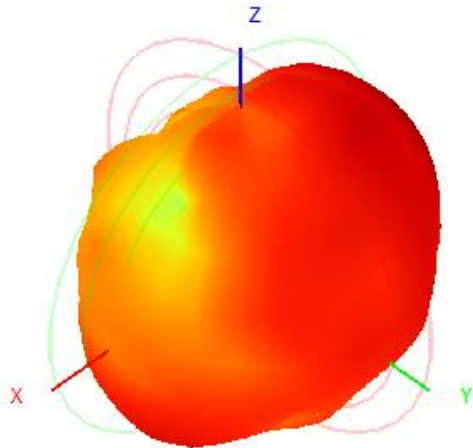
Note: antenna photo should include L type ruler

Section 3. Radiation characteristics of antenna loaded in Host Platform

Main Antenna

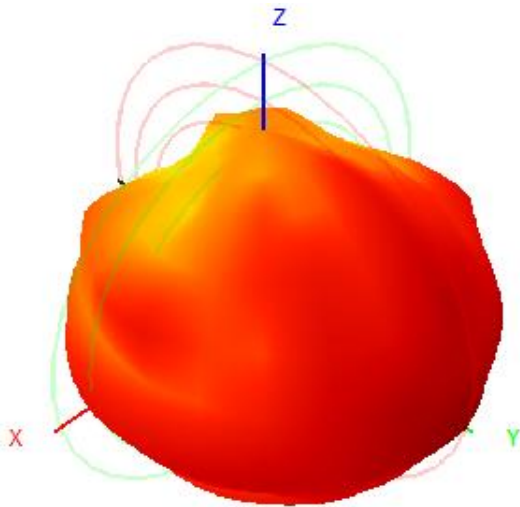
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.11



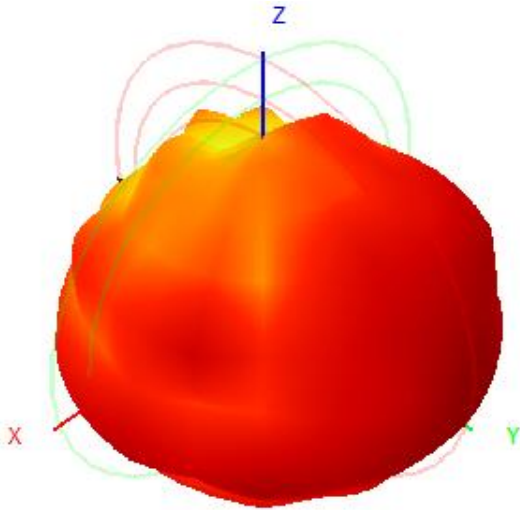
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.78



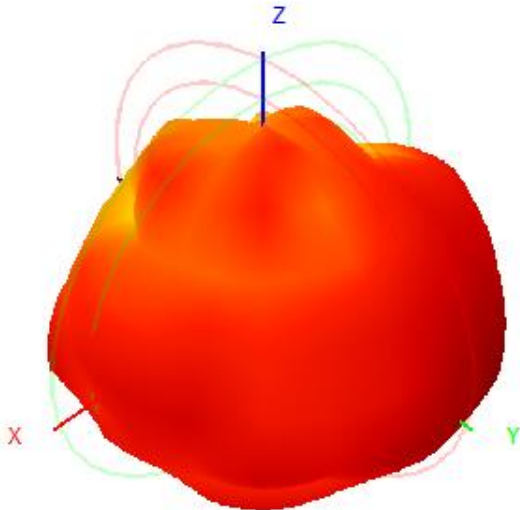
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.07



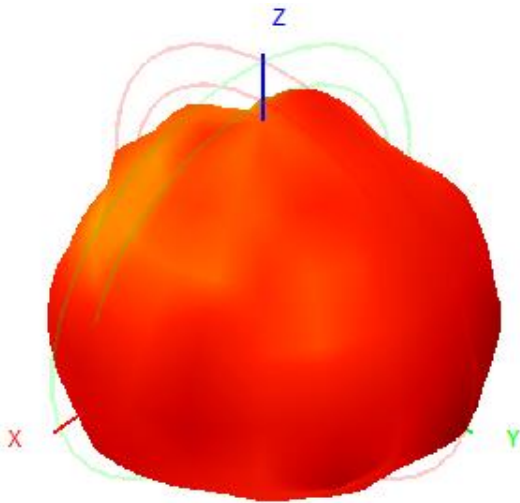
Max Antenna 3D Radiation Pattern 5470-5725 MHz

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



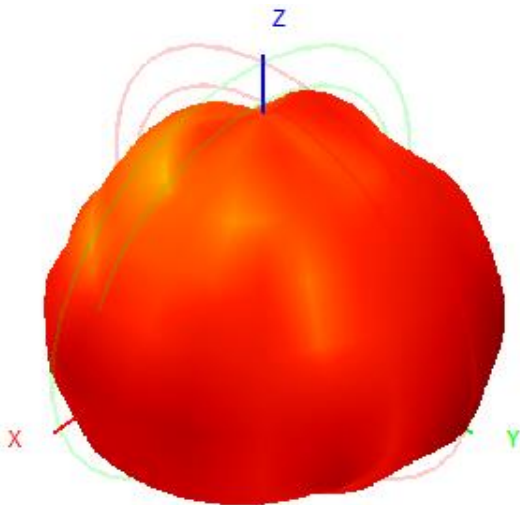
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.46



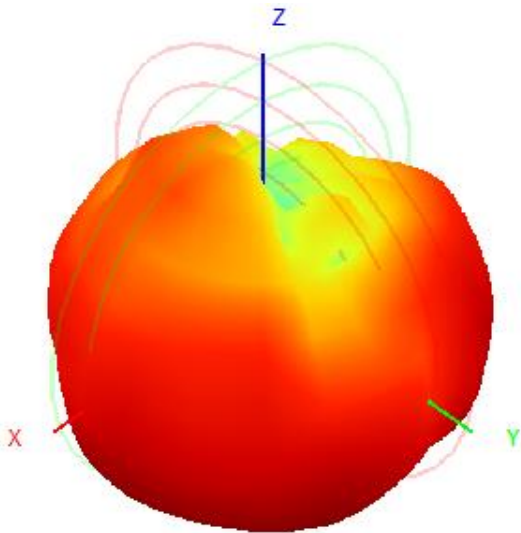
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.03



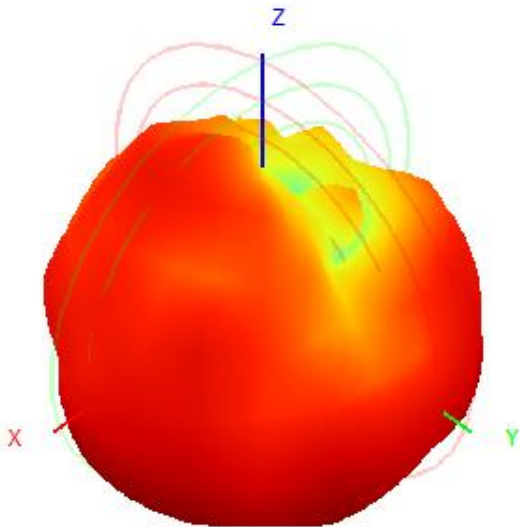
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	0.51



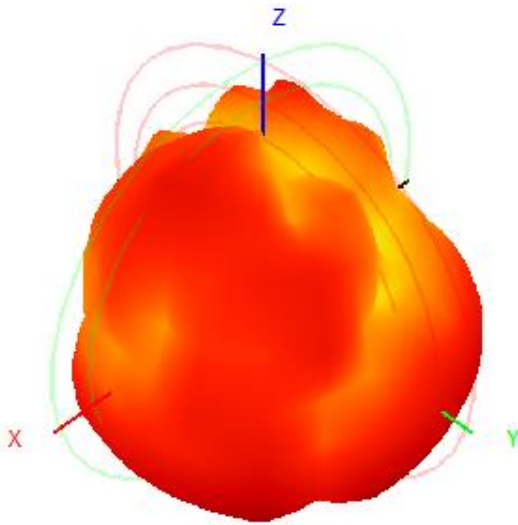
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	0.37



Max Antenna 3D Radiation Pattern 6875-7125 MHz

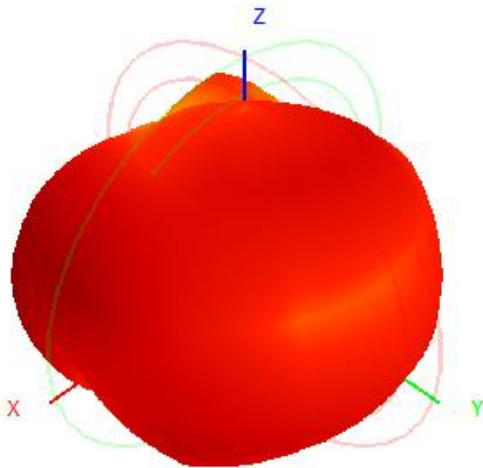
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	1.73



Auxiliary Antenna

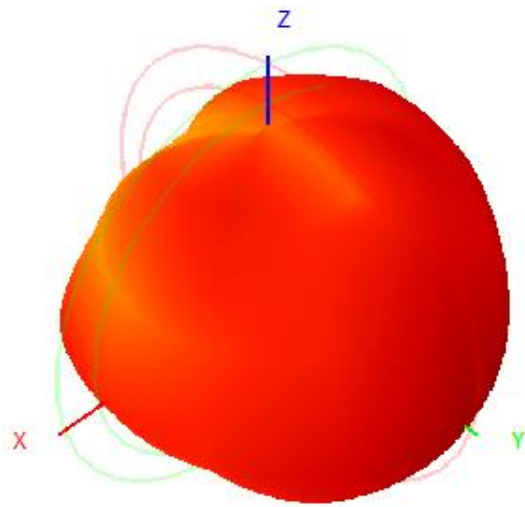
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	-1.15



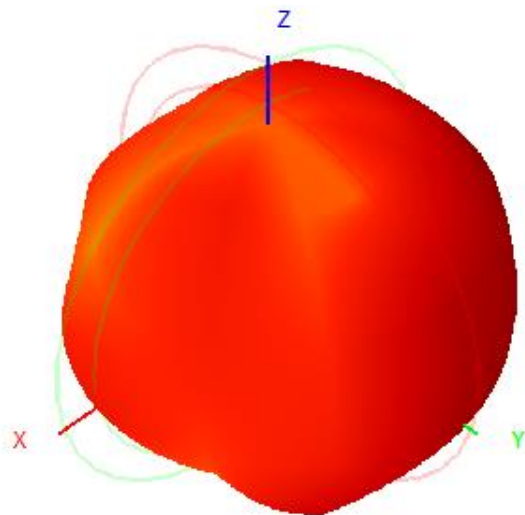
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	-0.98



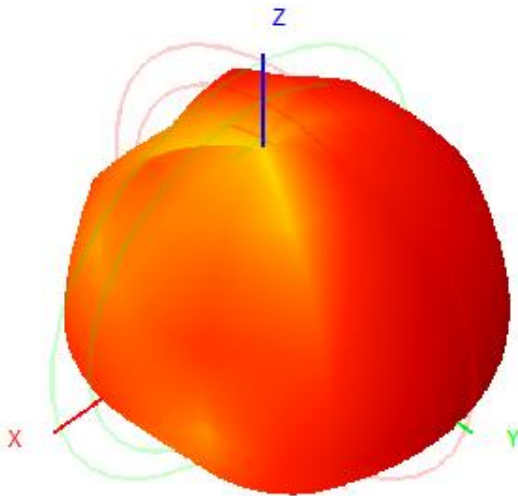
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	-1.39



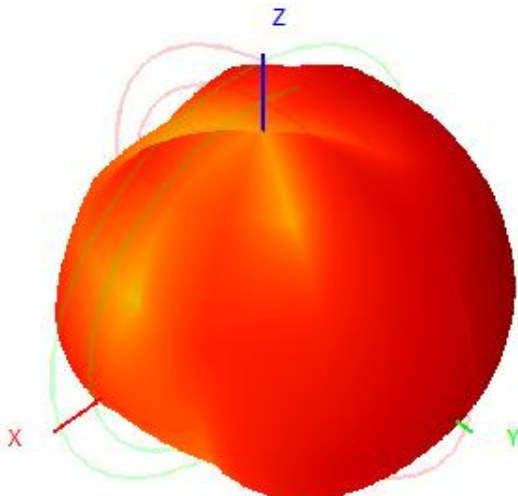
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	0.67



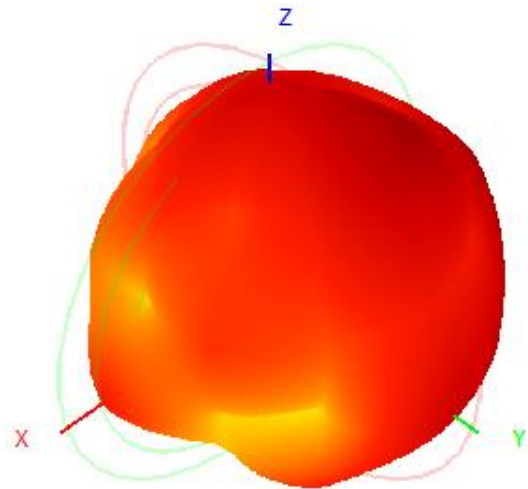
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	-0.45



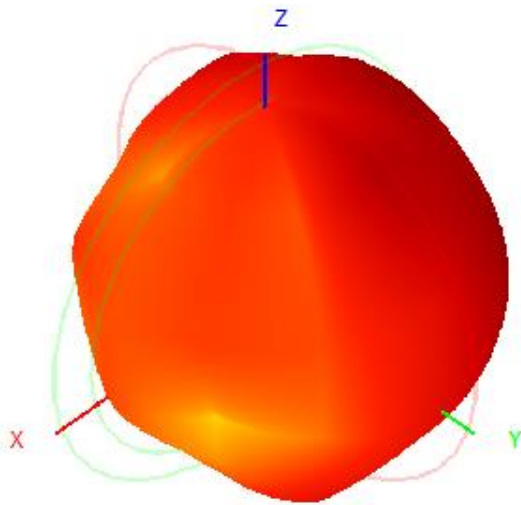
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	0.29



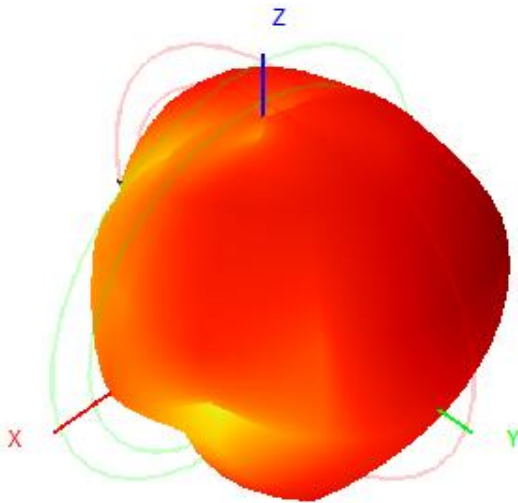
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	-0.56



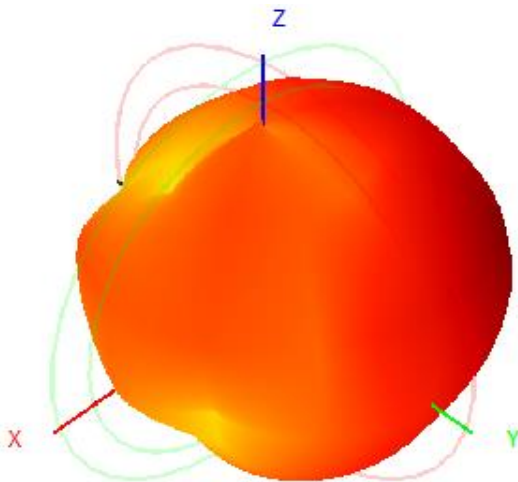
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	0.07



Max Antenna 3D Radiation Pattern 6875-7125 MHz

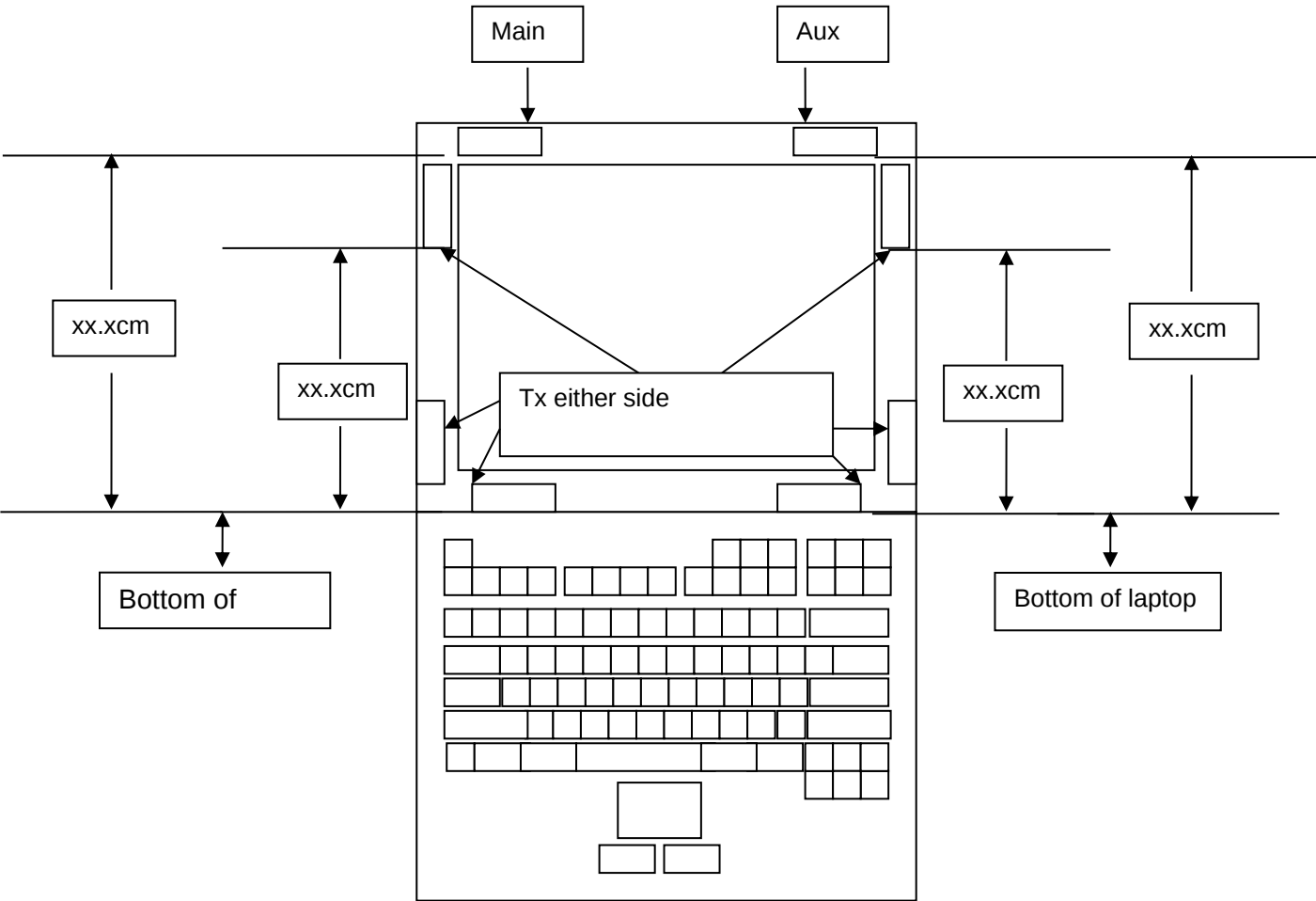
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.17



Section 4. Antenna Host Platform Location Information

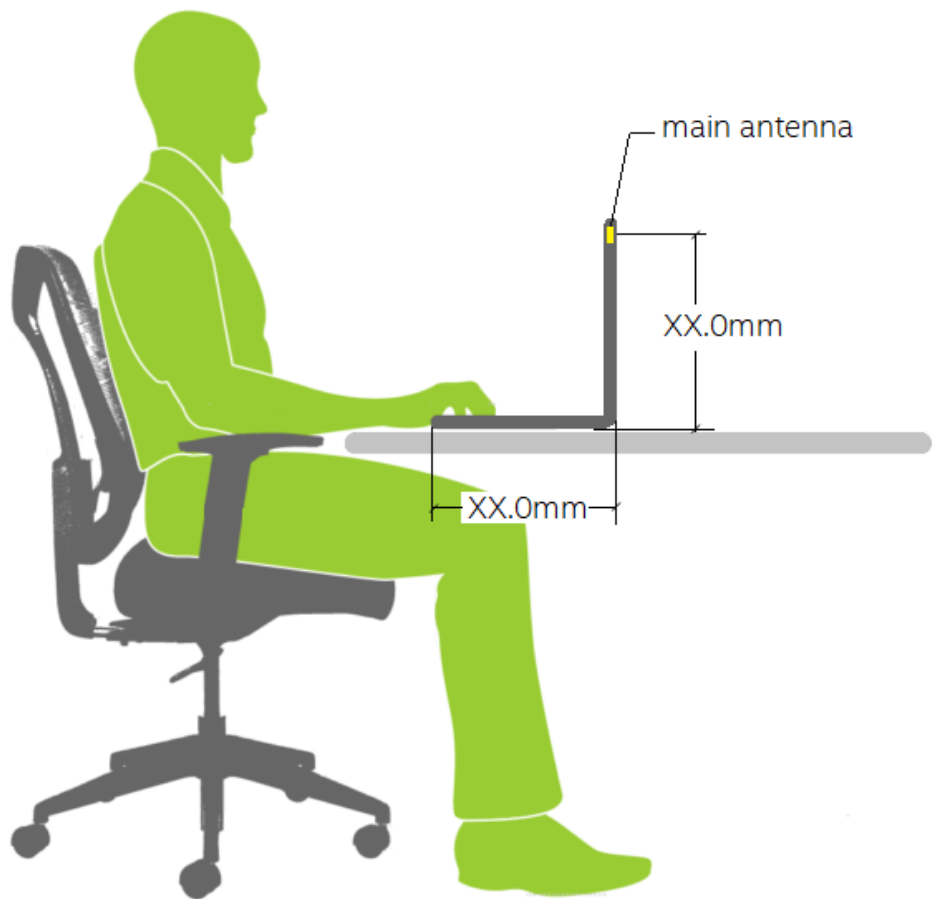
Include a **dimensioned photo(s) or dimensioned drawing(s)** of Main and Aux antenna placements (measurements are not required for receive-only antenna).

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.



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)

