ANTENNA INFORMATION

OEM	DELL
ODM	Compal Corporation
Platform model name	P200G
Intel platform (ex: Yes, No or NA)	Yes
Platform type (ex: regular NB, convertible PC, AIO…etc)	Convertible PC (NB mode)
SAR minimum separation (mm)	5 mm with bumper/ 2 mm without bumper

Antenna manufacturer	Company name	Auden Techno Corp
	Address	NO. 19, Lane 772, Heping Rd., Bade Dist, Taoyuan City, Taiwan (R.O.C)
Test location	Company name	SPORTON INTERNATIONAL INC
	Address	NO. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)
Test Personnel	Name(Full name)	Alex Weng
	E-mail	Alex.weng@auden.com.tw
	Tel/Mobile	+886-3-3631901 #571
Testing date		2024.08.29

Antenna Part number	Main	A23300-30 (DC33002YB1L)
	Aux	A23300-30 (DC33002YB1L)
Antenna type (ex: PIFA, Dipole…etc)		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	-0.93	1.32	0.60	0.69	0.69	0.46	0.53	-1.06	1.34	3.99
Aux	0.25	2.58	2.48	0.55	0.99	0.69	0.70	0.00	1.78	3.35

Cable Assembly Part Number and Information					
	Cable PN	**Cable length**(mm)	**Cable diameter**(mm)	**Impedance**(ohm)	**Connector type**
Main	SY113L/50-143	150	1.13	50	20565-001R-13
Aux	SY113L/50-118	153	1.13	50	20565-001R-13

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

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	0.33	0.53	0.54	0.58	0.59	0.59	0.63	0.62	0.65	0.67
Aux	0.34	0.54	0.55	0.59	0.60	0.60	0.64	0.63	0.66	0.66

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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
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.

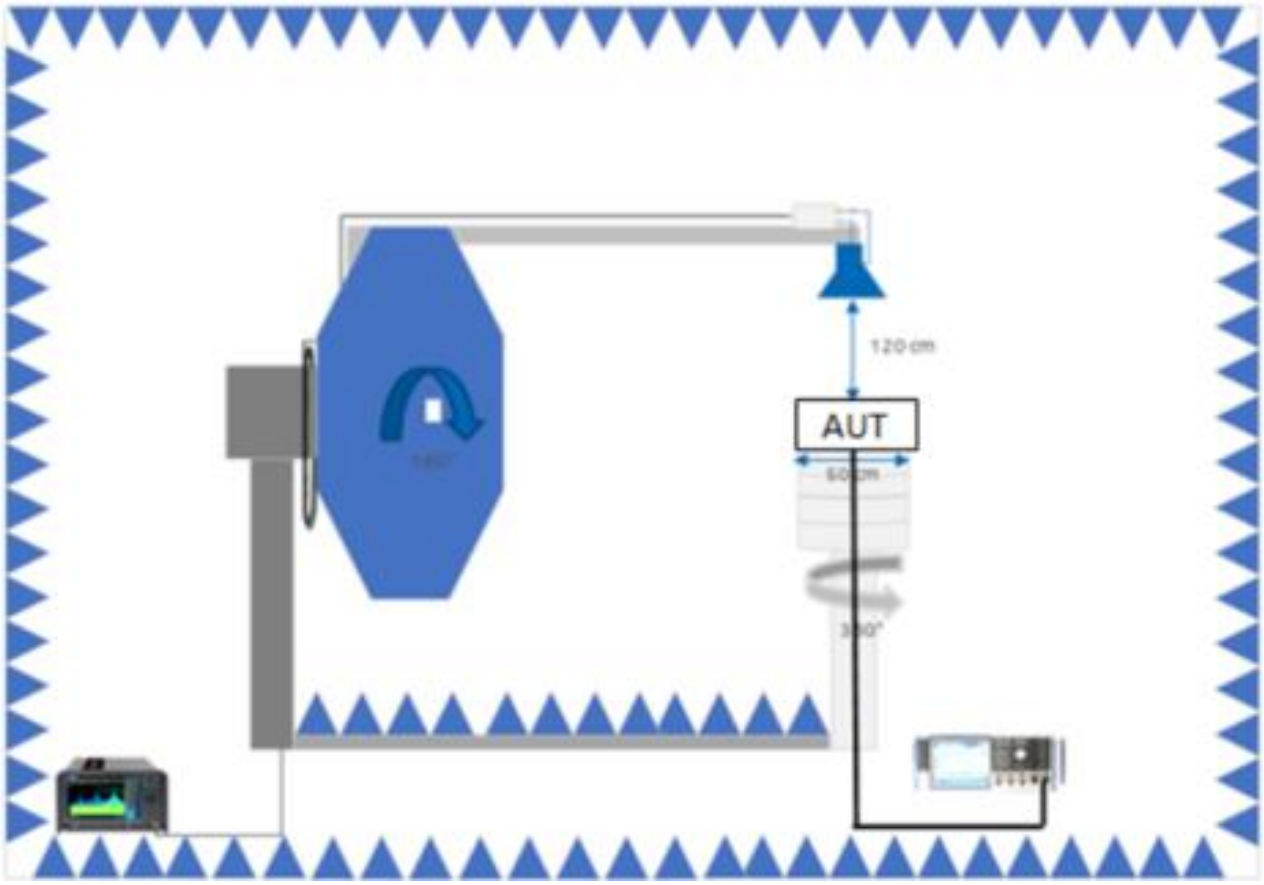
2. Document Revision History

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

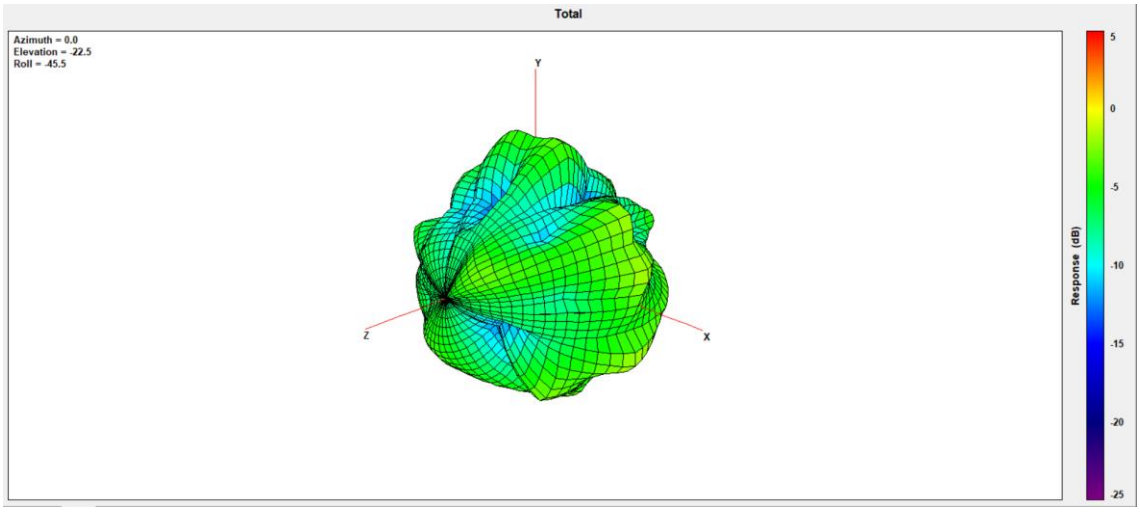
Huaya-Sporton OTA03					
Name	Manufacturer	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
ENA Series Network Analyzer	Keysight	E5071C	MY46100746	2023/9/15	2024/9/14
RF Switch	Keysight	3499A	MY42000955	NCR	NCR
Multi-Axis Positioner Controller	ETS-Lindgren	2090	N/A	NCR	NCR
Medium-Duty Positioner	ETS-Lindgren	2015	N/A	NCR	NCR
Measurement Horn Antenna	EMCO	3164-08	00086722	NCR	NCR
Anechoic Chamber	ETS-Lindgren	AMS-8500	N/A	2024/3/12	2025/3/11
12GHz SMA(M)-SMA(M)+20core for 60cm RG316DS Cable Assembly	Woken Technology Inc.	RG316DS	N/A	N/A	N/A
12GHz SMA(M)-SMA(M)+30core for 300cm RG316DS Cable Assembly	Woken Technology Inc.	RG316DS	N/A	N/A	N/A
Note: Chamber calibration included full set of implement.					

4. Radiation characteristics of antenna loaded in Host Platform

Main Antenna

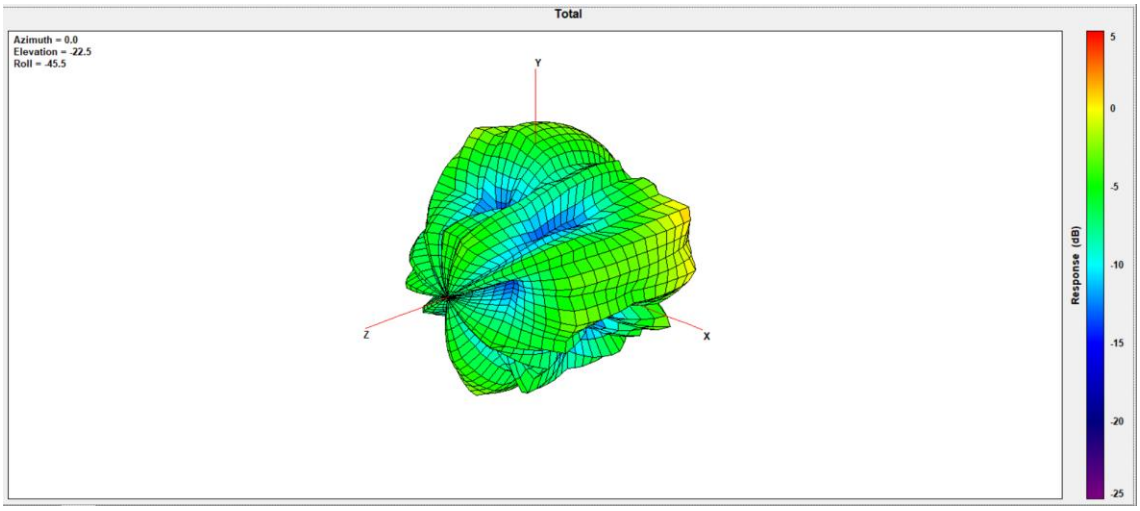
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	-0.93



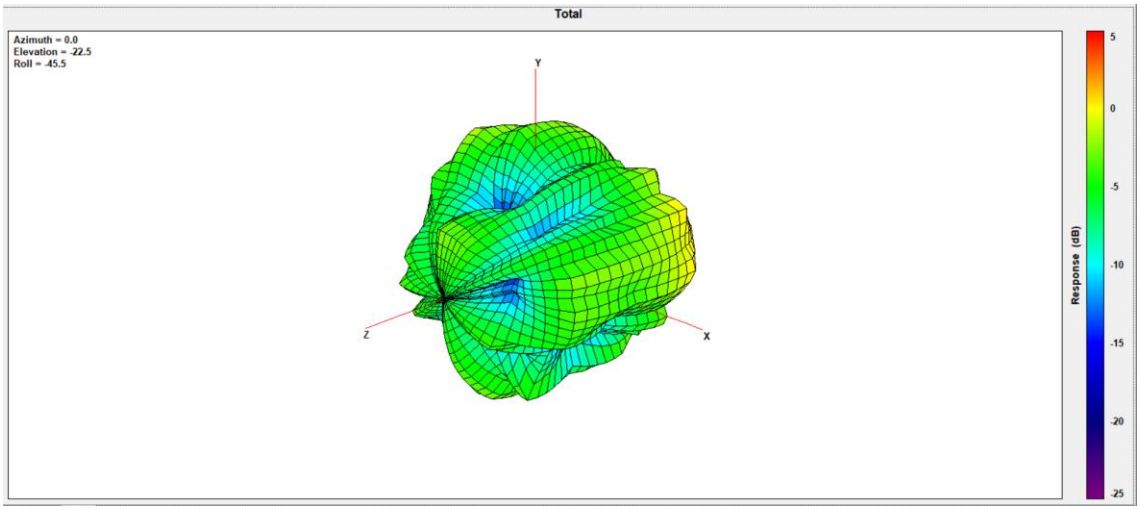
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.32



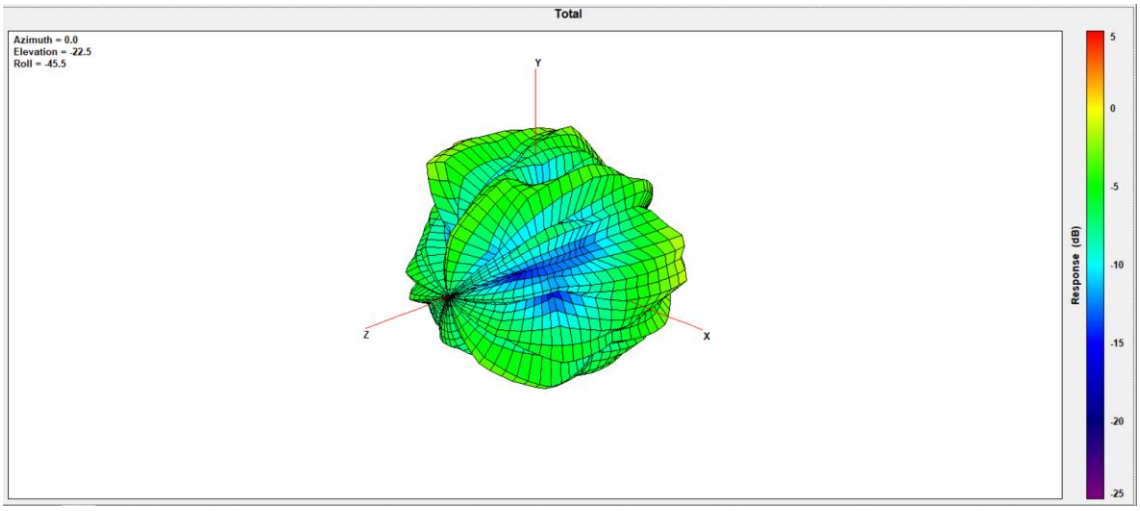
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	0.60



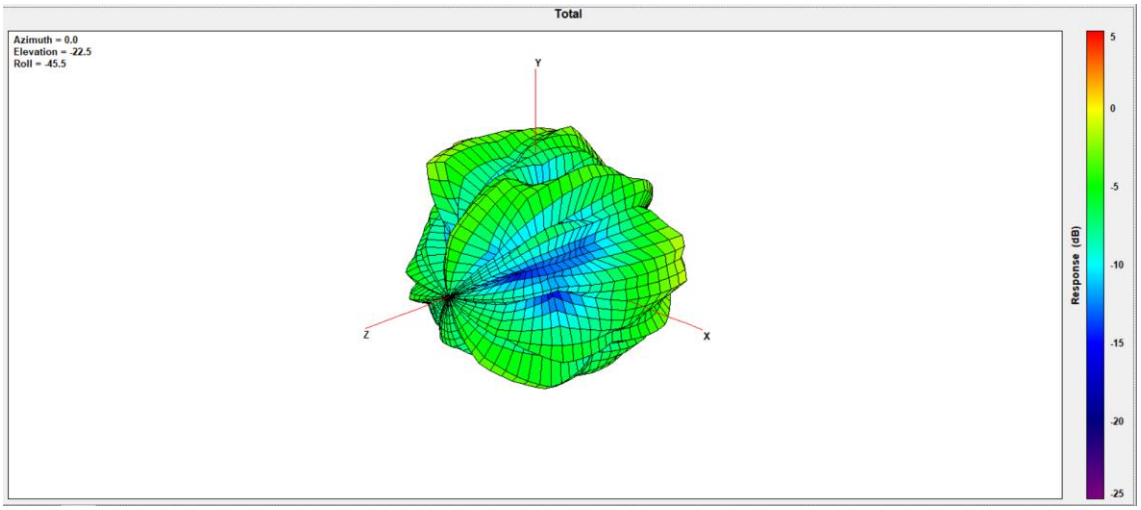
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	0.69



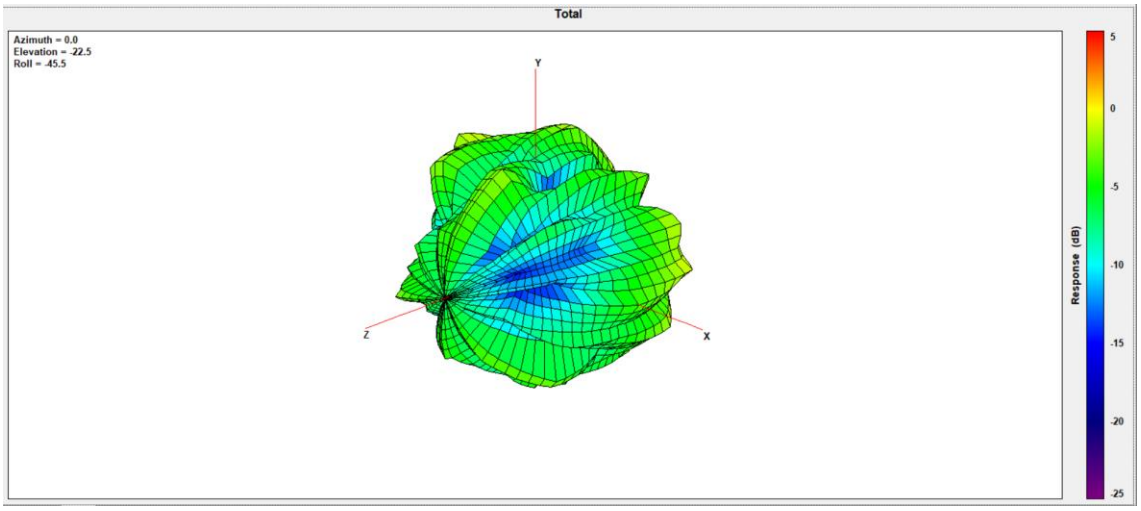
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	0.69



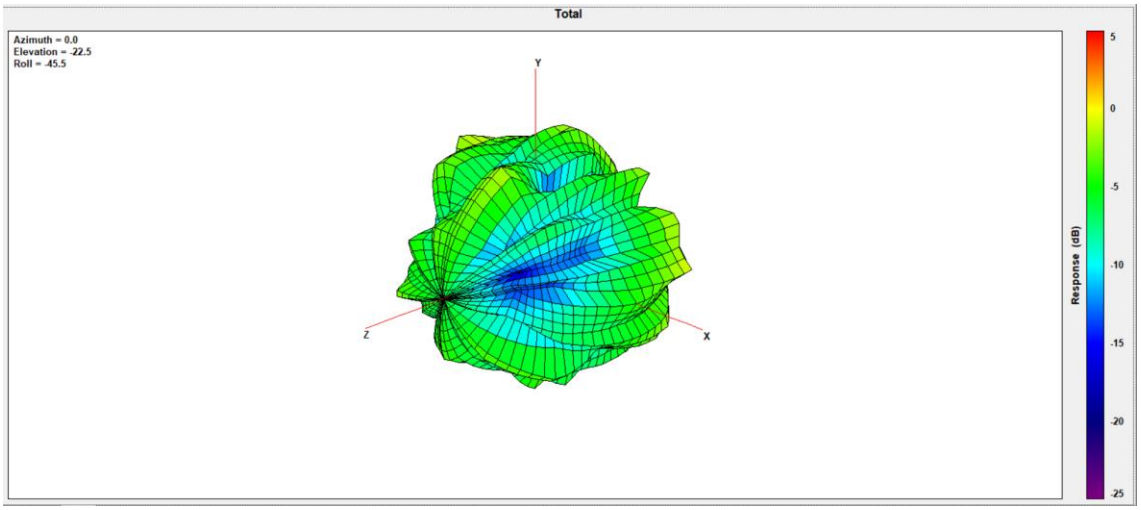
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	0.46



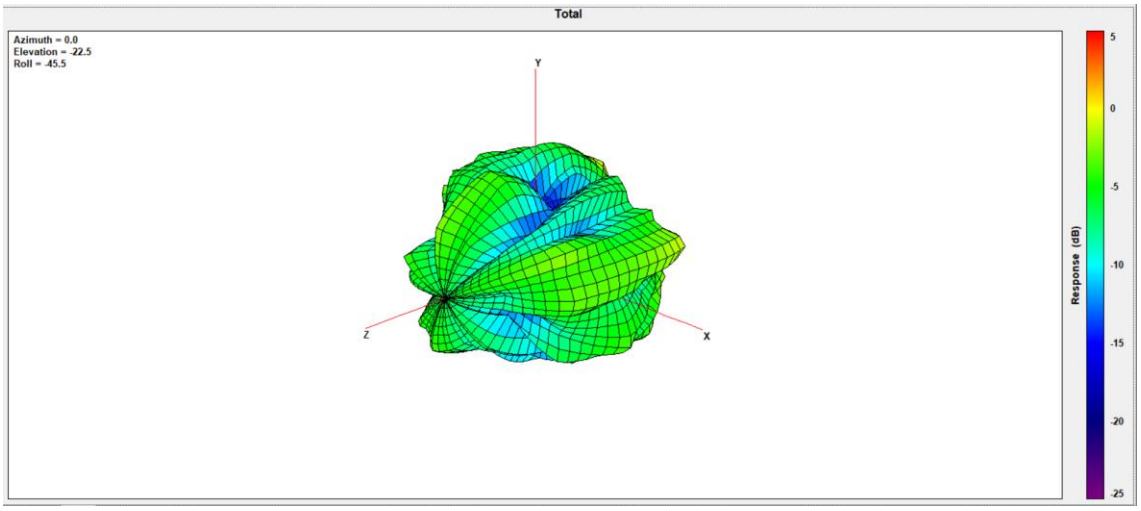
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	0.53



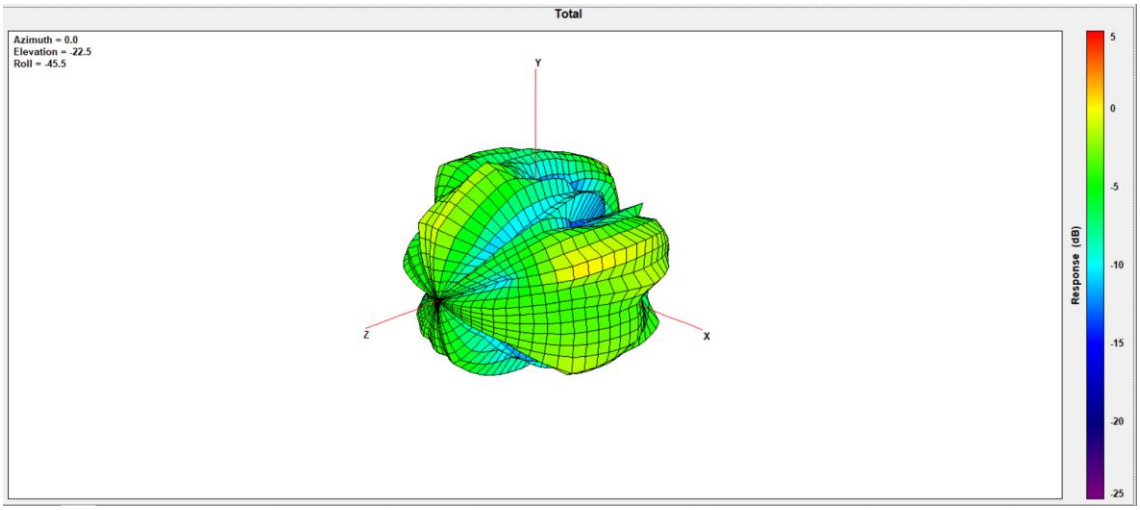
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	-1.06



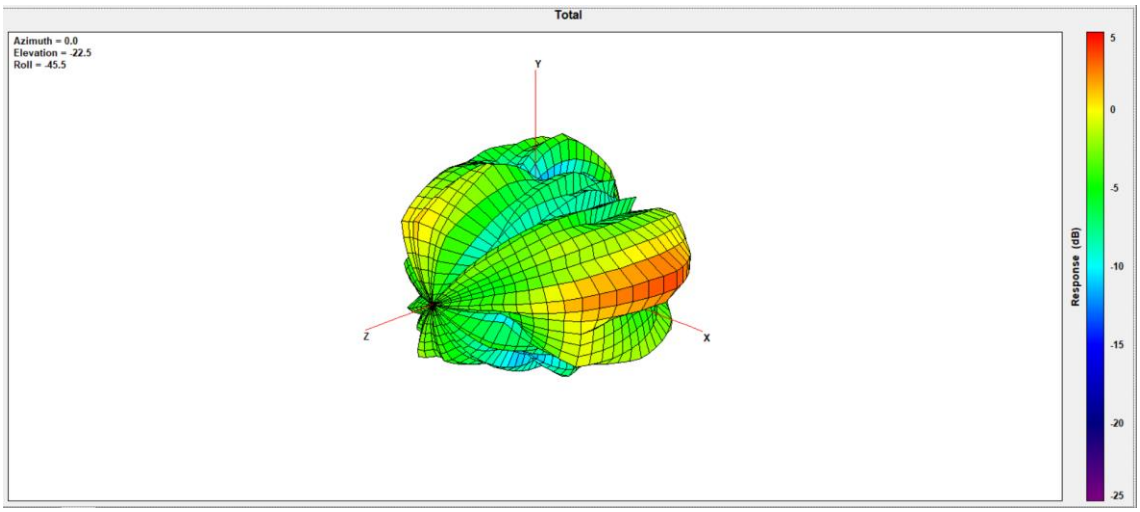
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	1.34



Max Antenna 3D Radiation Pattern 6875-7125 MHz

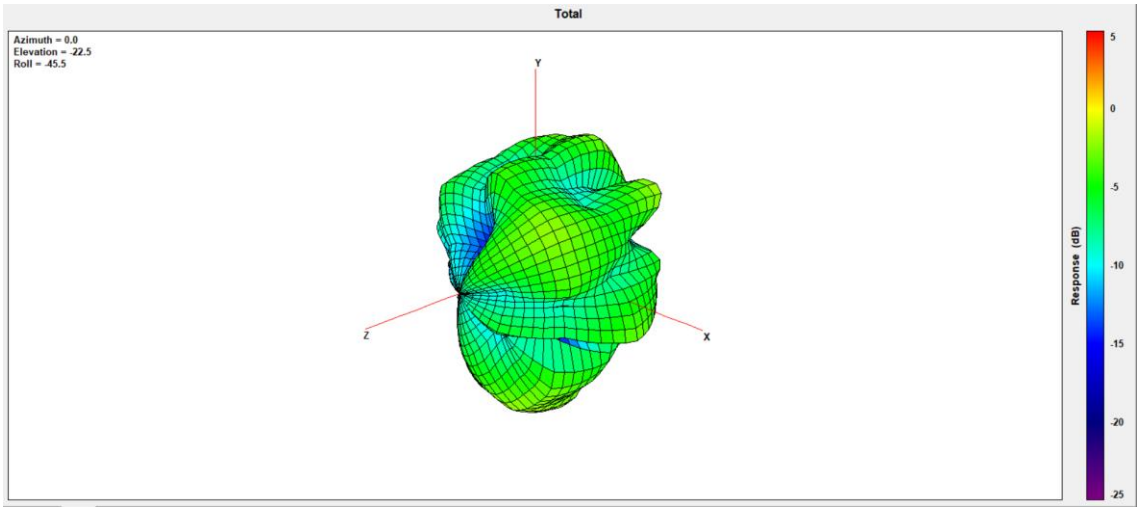
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	3.99



Auxiliary Antenna

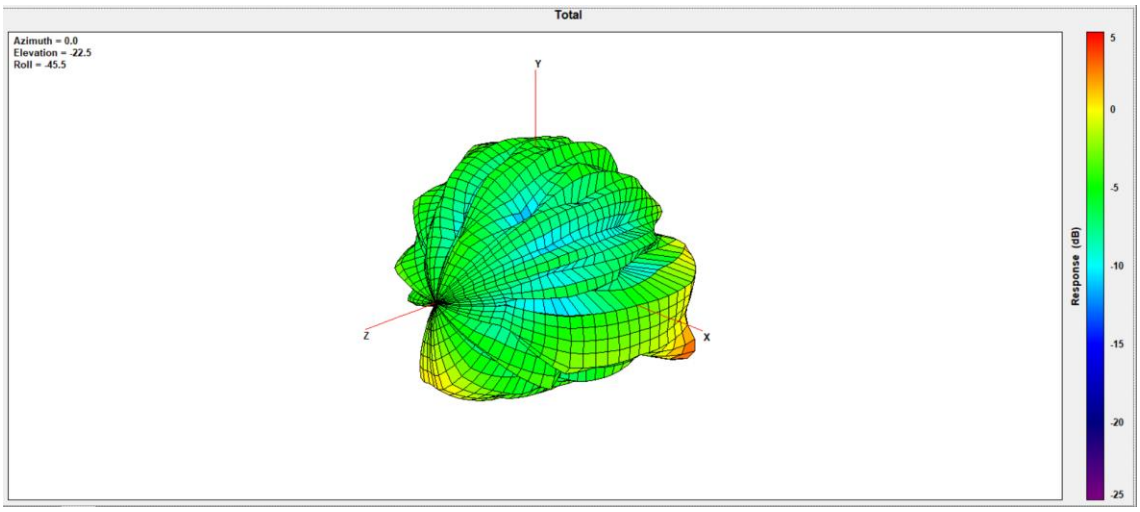
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	0.25



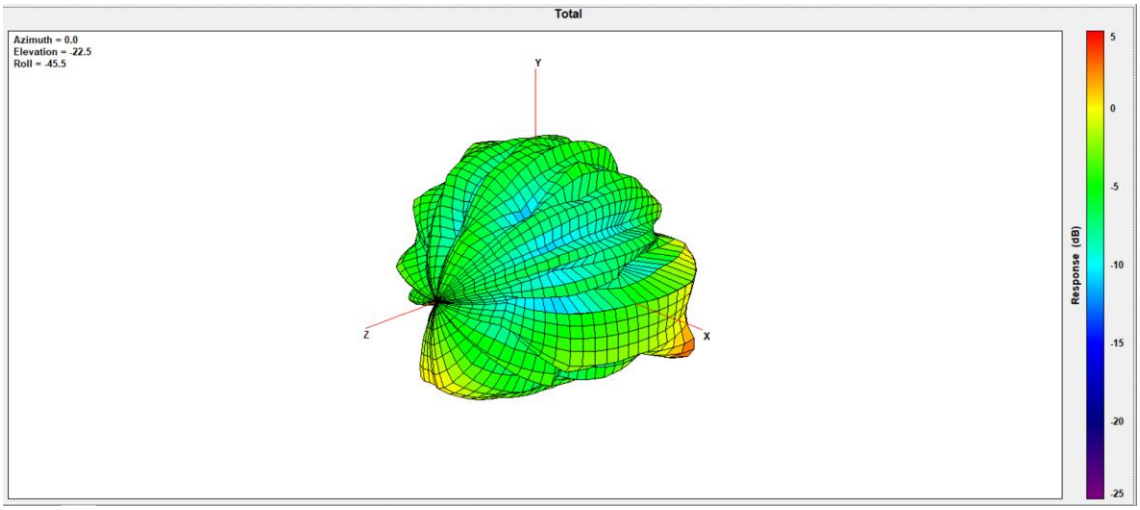
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.58



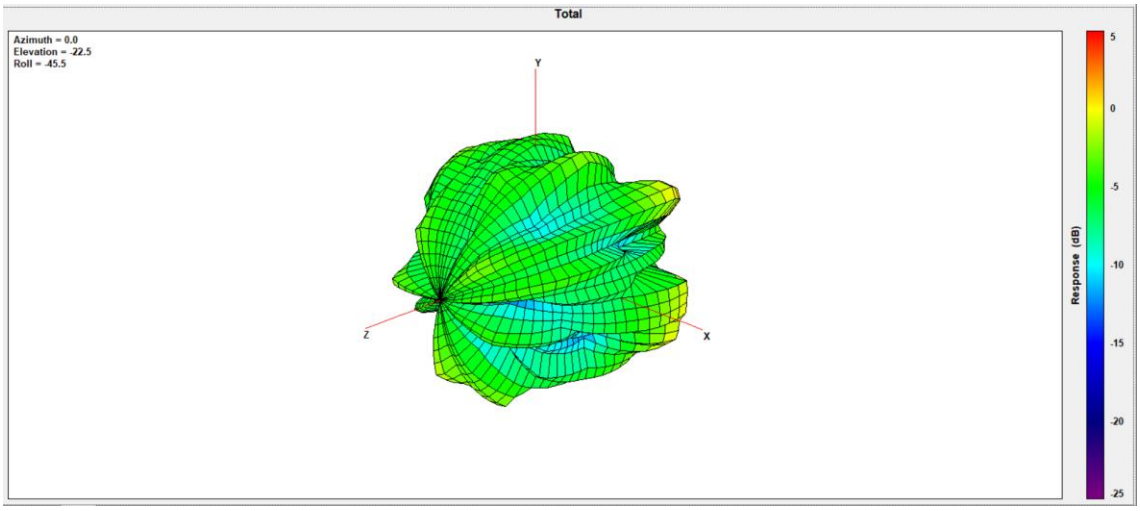
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.48



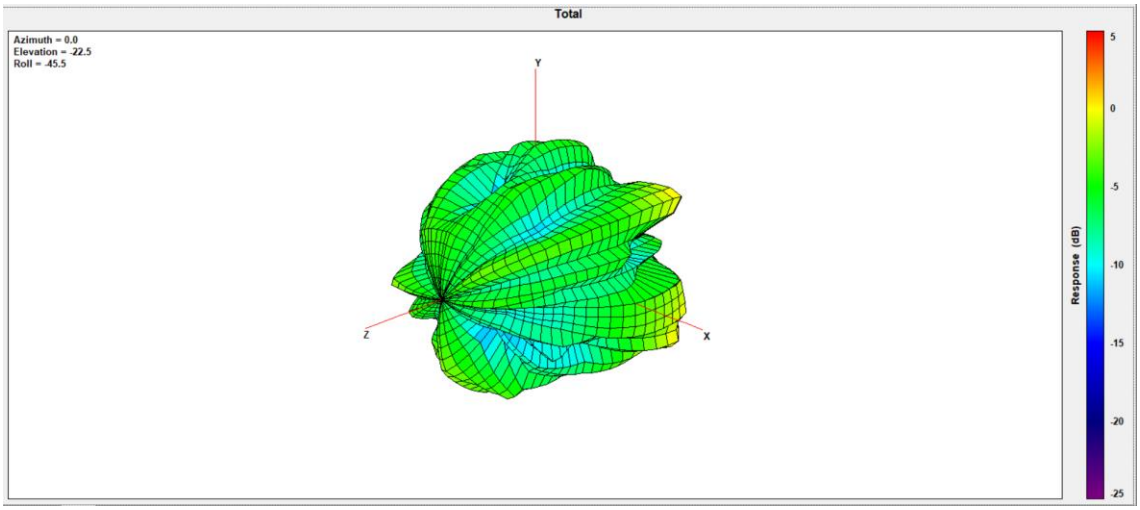
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	0.55



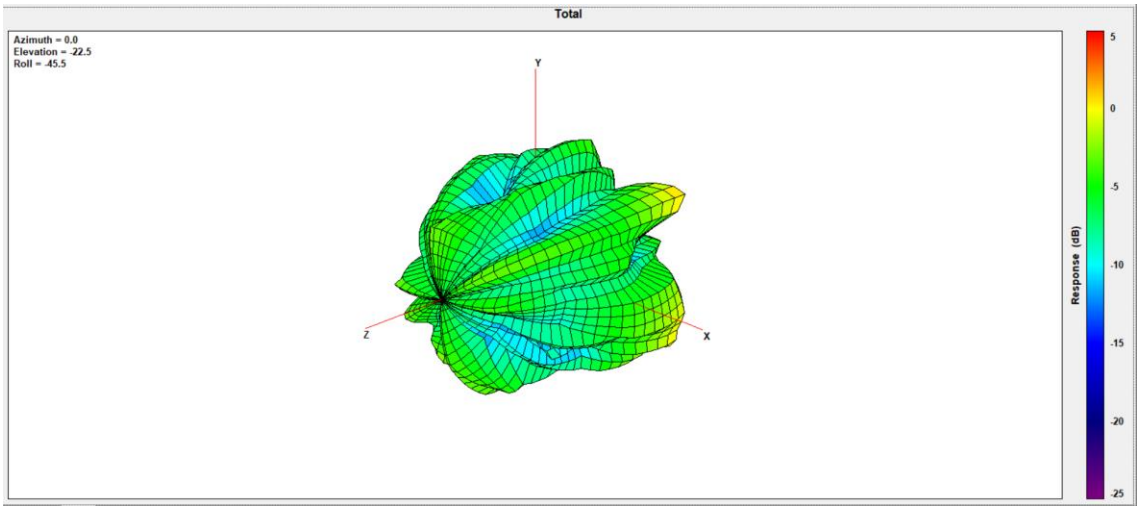
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	0.99



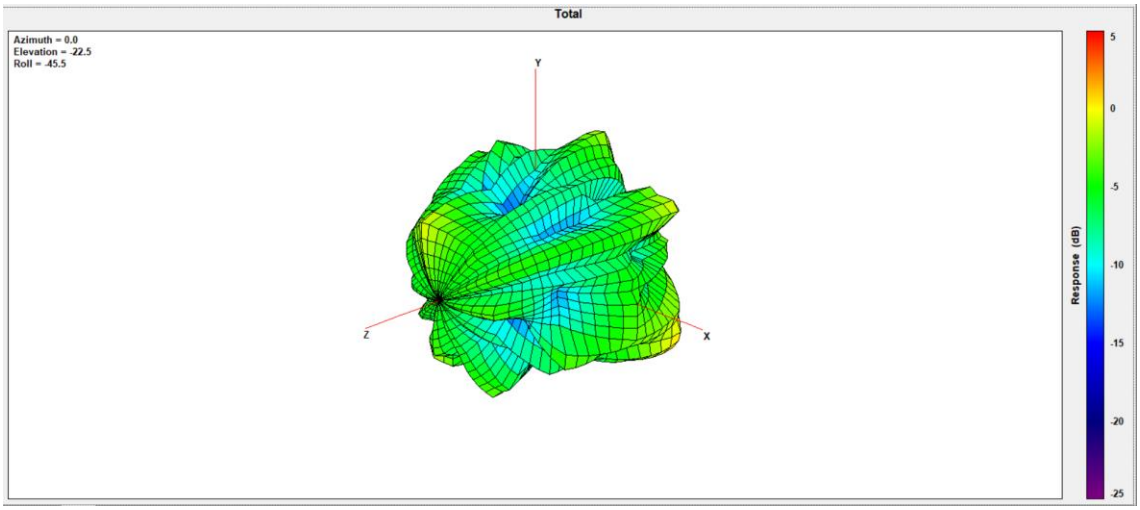
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	0.69



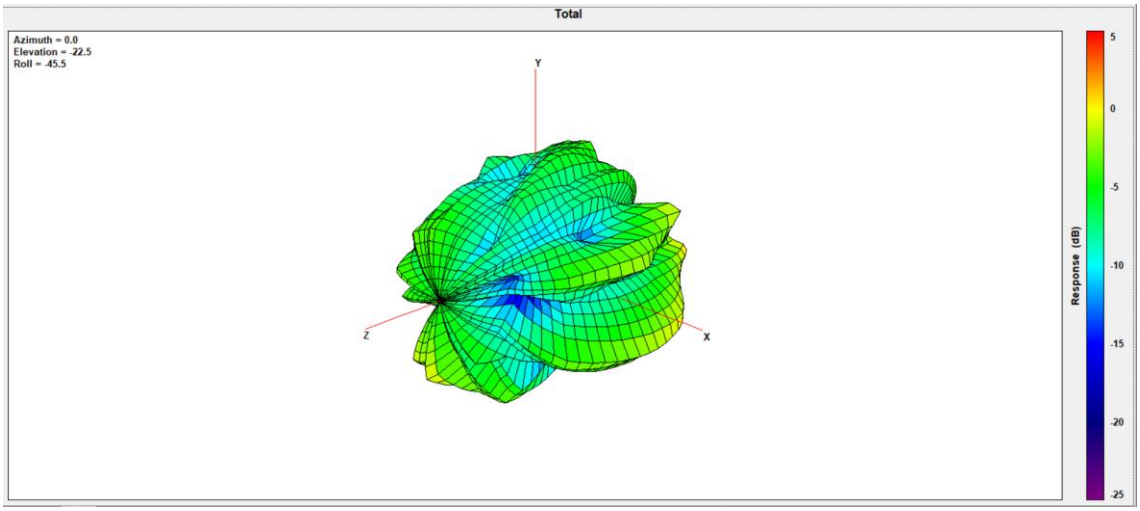
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	0.70



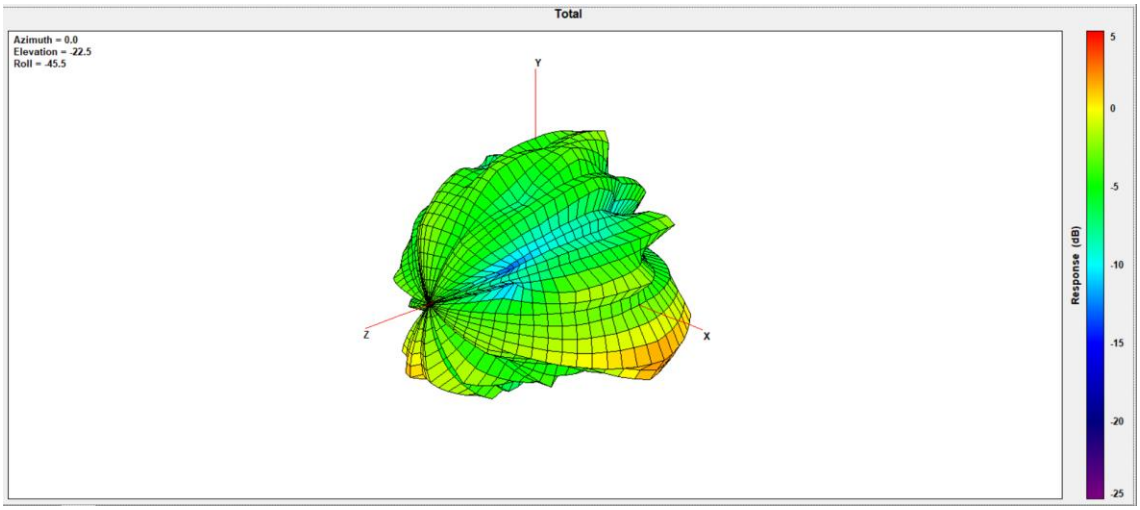
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	0.00



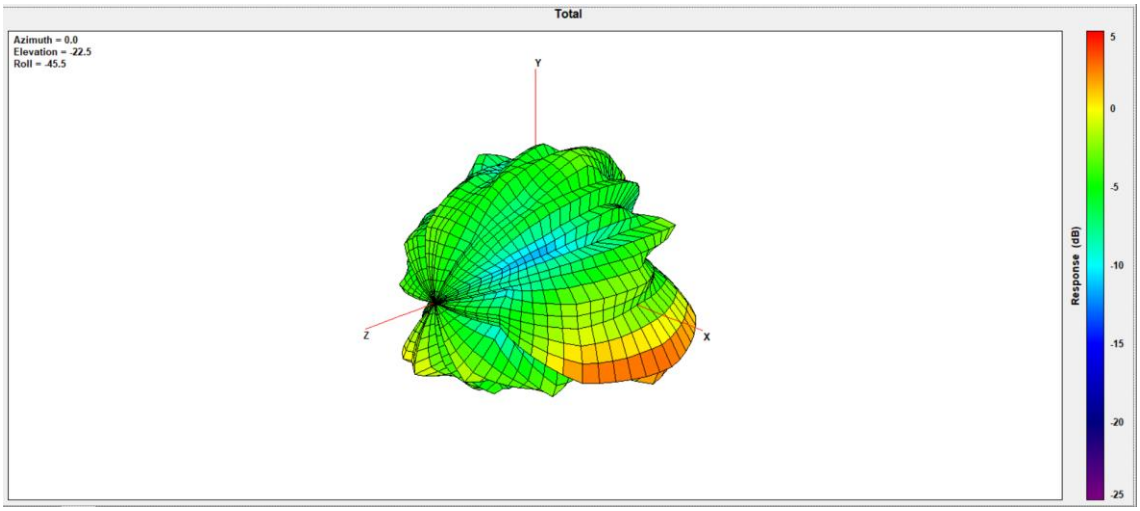
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	1.78



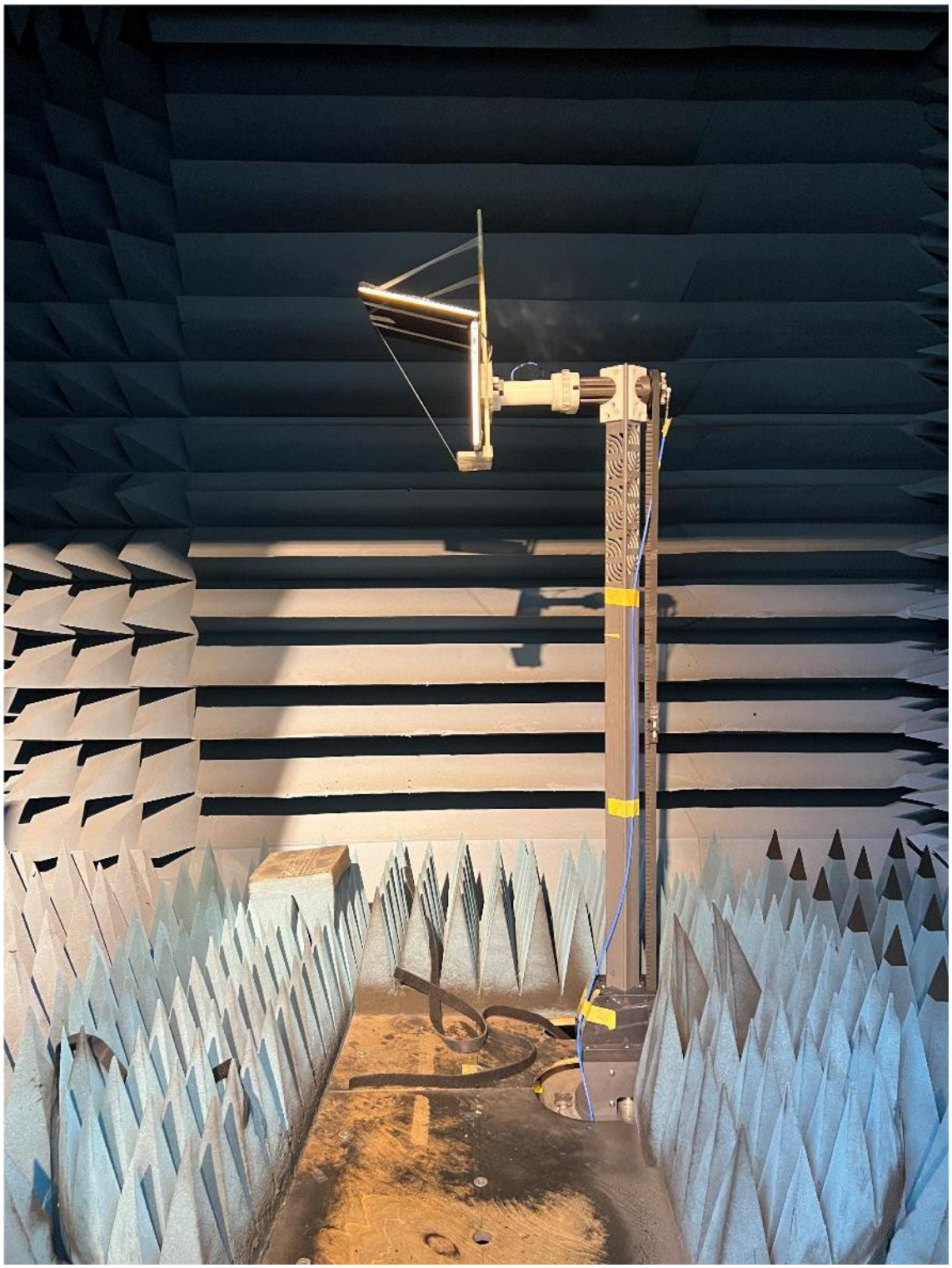
Max Antenna 3D Radiation Pattern 6875-7125 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	3.35



Annex A. Photographs

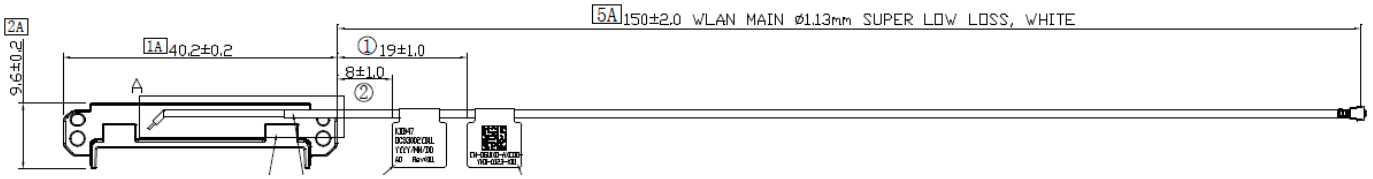
A.1 Setup Photo



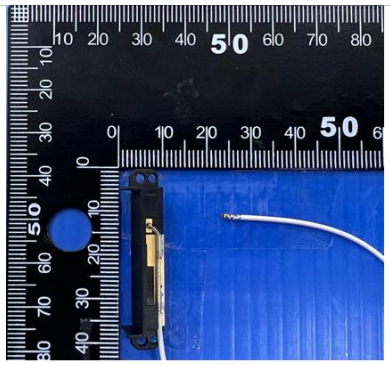
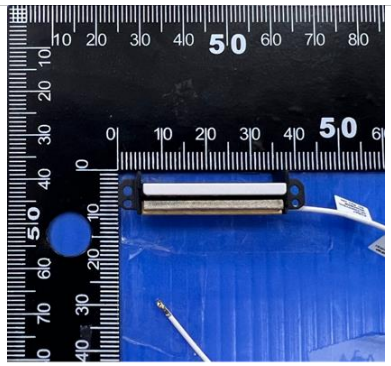
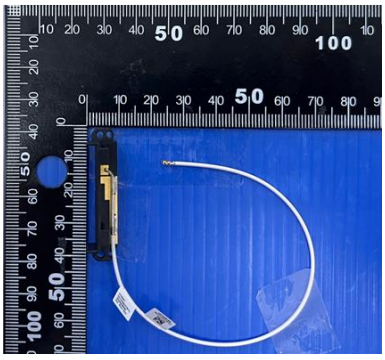
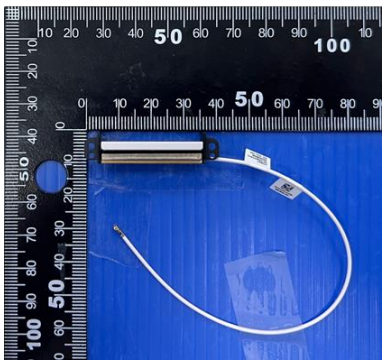
A.2 Test sample

Main Antenna

Antenna Drawing



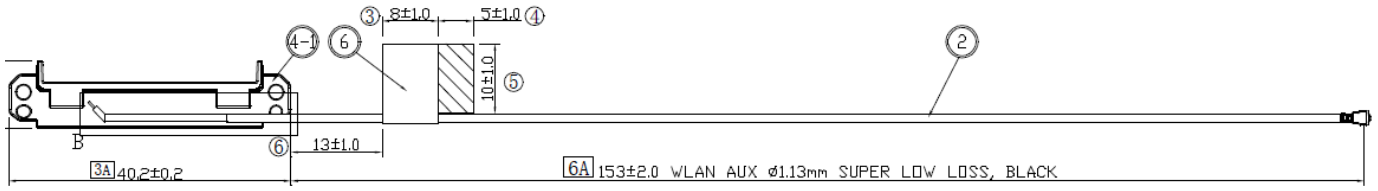
Antenna Photo

Front	Back
	
	

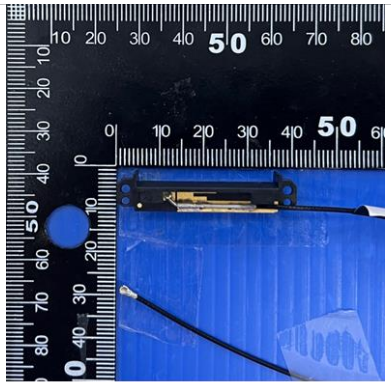
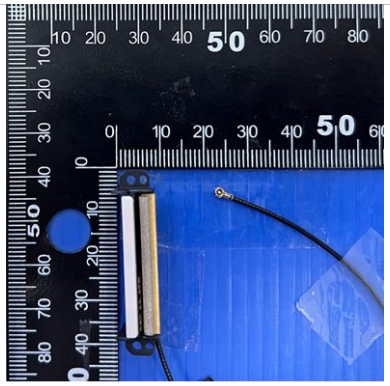
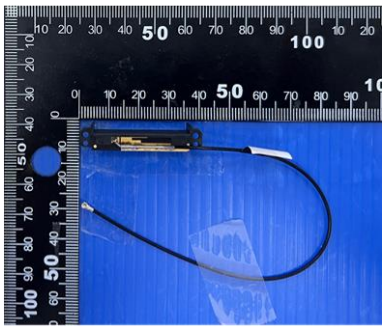
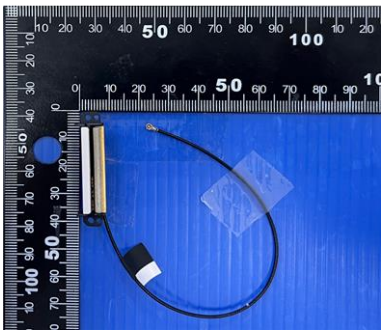
Note: antenna photo should include L type ruler

Aux Antenna

Antenna Drawing



Antenna Photo

Front	Back
	
	

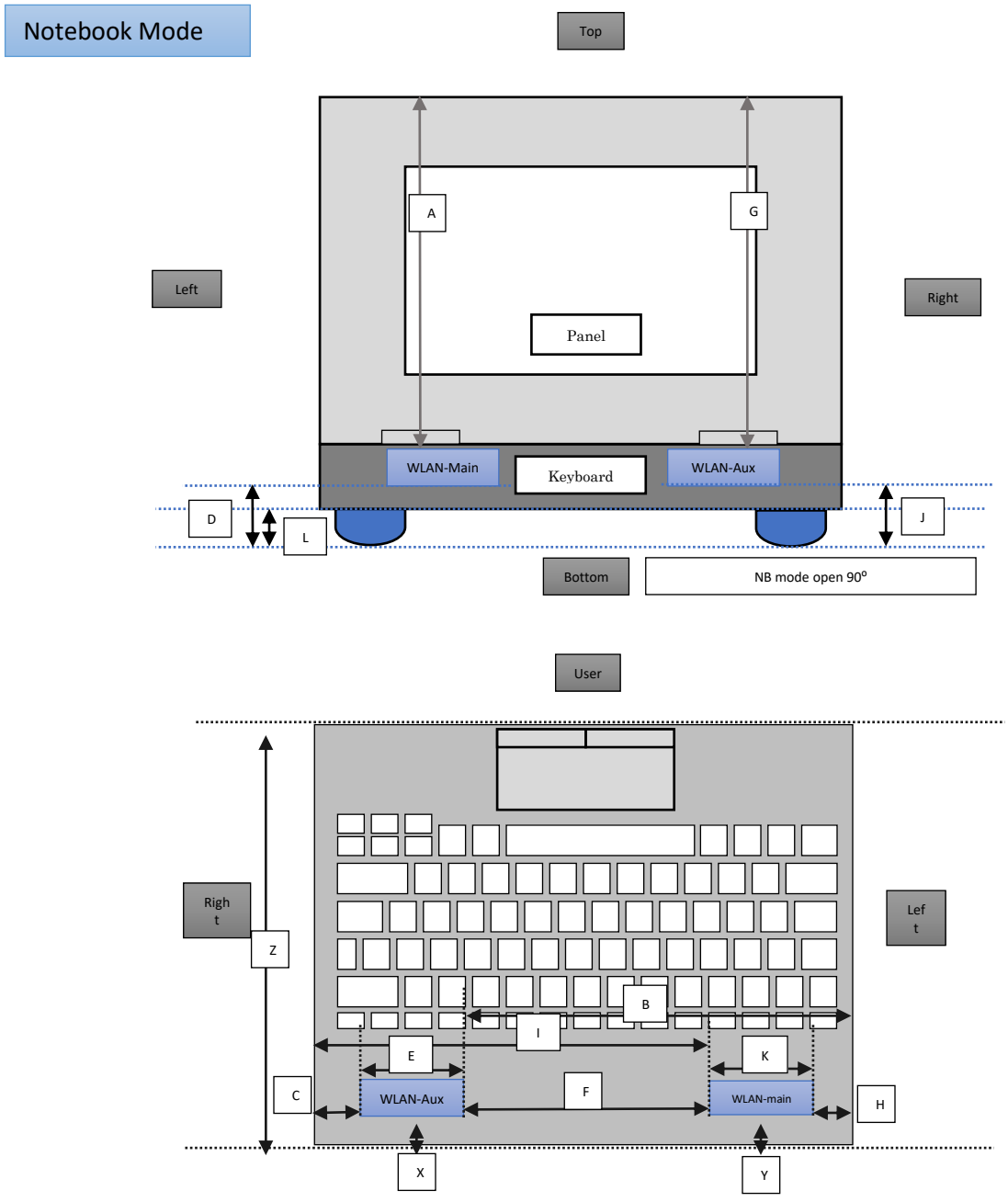
Note: antenna photo should include L type ruler

Annex B. Antenna Location

B.1 Antenna Host Platform Location Information

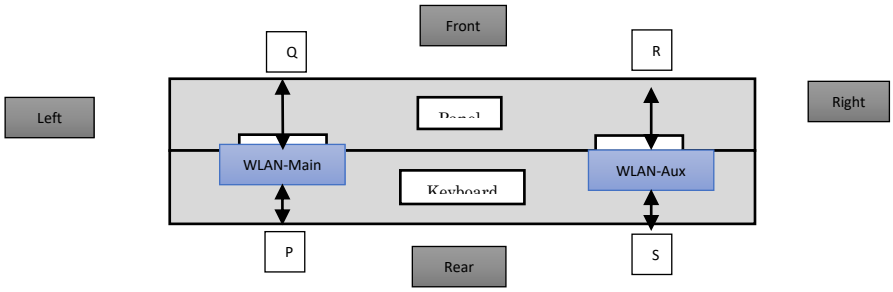
Include a dimensioned photo(s) or dimensioned drawing(s) of Main and Aux antenna placements (measurements are not required for receive-only antenna).

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.



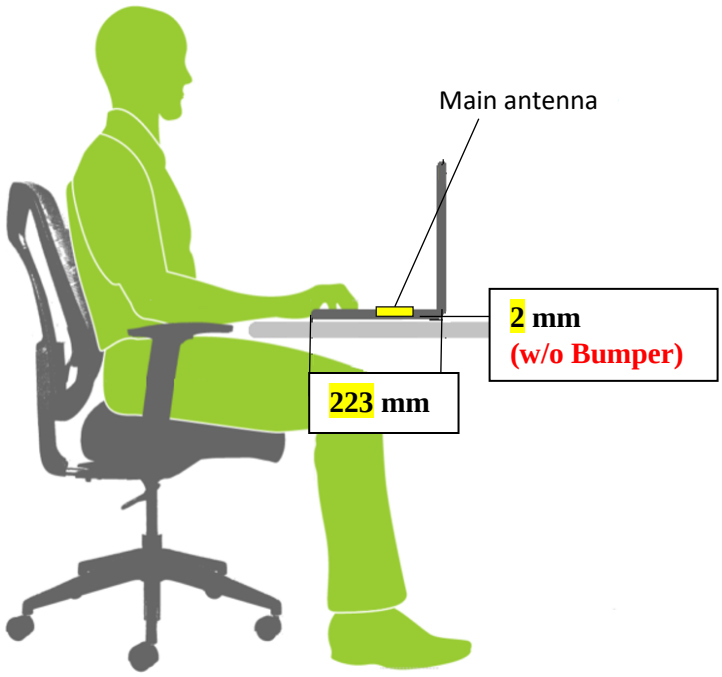
Minimum Separation Distance			
Item	Antenna	Position	Distance (mm)
A	WLAN-Aux	to Top	214
B	WLAN-Aux	to Left	250
C	WLAN-Aux	to Right	20
D	WLAN-Aux	to Bottom	5
E	WLAN-Aux	Main Antenna Length	40
F	Main-Aux	Main to Aux	190
G	WLAN-main	to Top	214
H	WLAN-main	to Left	20
I	WLAN-main	to Right	250
J	WLAN-main	to Bottom	5
K	WLAN-main	Aux Antenna Length	40
L	NB	Bumper thickness	3
X	WLAN-Aux	to hinge	15
Y	WLAN-Main	to hinge	15
Z	NB	Keyboard depth	223

Tablet Mode



Minimum Separation Distance			
Item	Antenna	Position	Distance (mm)
P	WLAN-Main	to Front	10
Q	WLAN-Main	to Rear	0
R	WLAN-Aux	to Front	10
S	WLAN-Aux	to Rear	0

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.

Notebook Mode