

Regulatory WLAN Antenna Information

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)						
DELL	Wistron	P168G	Yes	Convertible NB	2.65						
****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)				
SPEED	PIFA			(F-0G-FS-6139-001)			(F-0G-FS-6139-002)				
Peak gain w/ cable loss (dBi)*_NB Mode											
	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	2.62	1.46	1.45	3.38	3.74	2.92	3.98	3.43	2.19	3.63	
Aux	2.03	1.98	2.61	3.69	3.21	3.98	3.58	2.65	3.32	3.77	
Peak gain w/ cable loss (dBi)*_Tablet Mode											
	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	2.00	2.25	1.40	2.76	1.70	2.91	1.79	2.39	0.48	2.44	
Aux	1.03	1.93	2.53	0.98	1.05	1.89	2.40	0.60	1.01	1.62	
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	5.9GHz 5850-5895MHz	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	5.00	
PIFA	3.24	3.64	3.73	4.77	4.97	4.72	4.83	4.30	5.37	5.59	
Dipole	2.89	2.92	3.19	4.41	4.22	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>

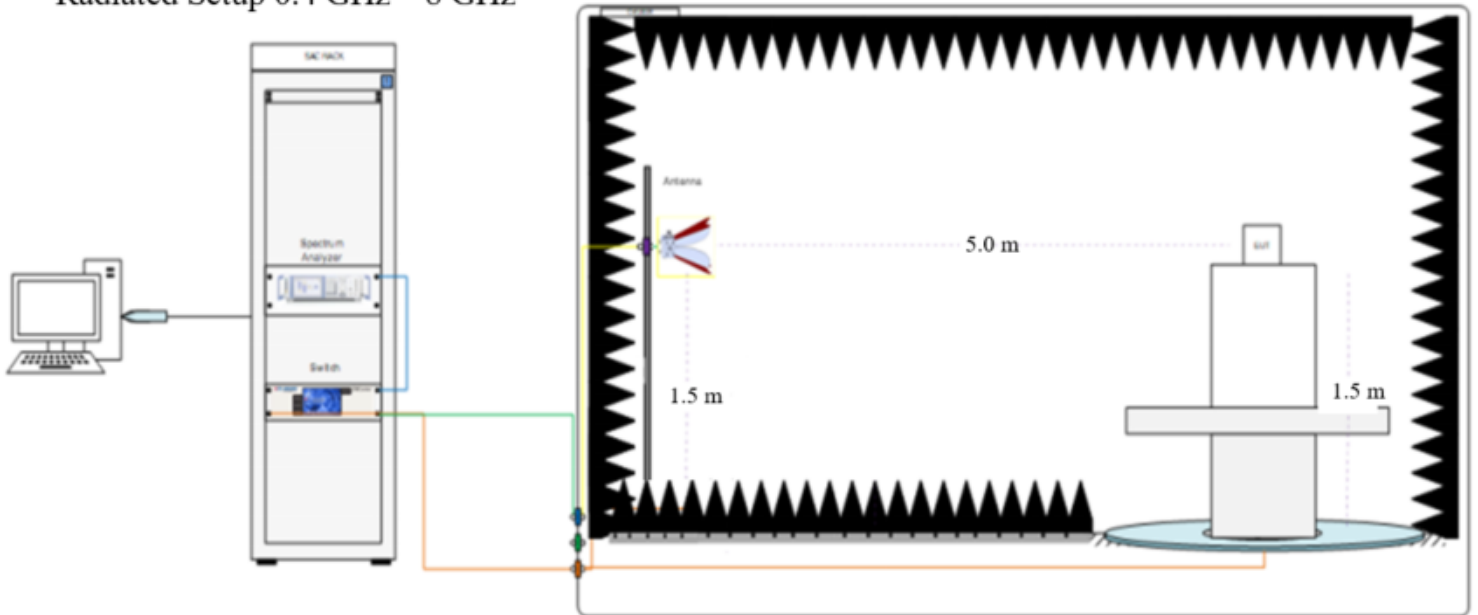
[example] This test report is prepared for host antenna testing under a Full Anechoic Chamber.

2. **Test & System Description**

a. Test setup

<insert test diagram here for test site utilized>

Radiated Setup 0.4 GHz – 8 GHz

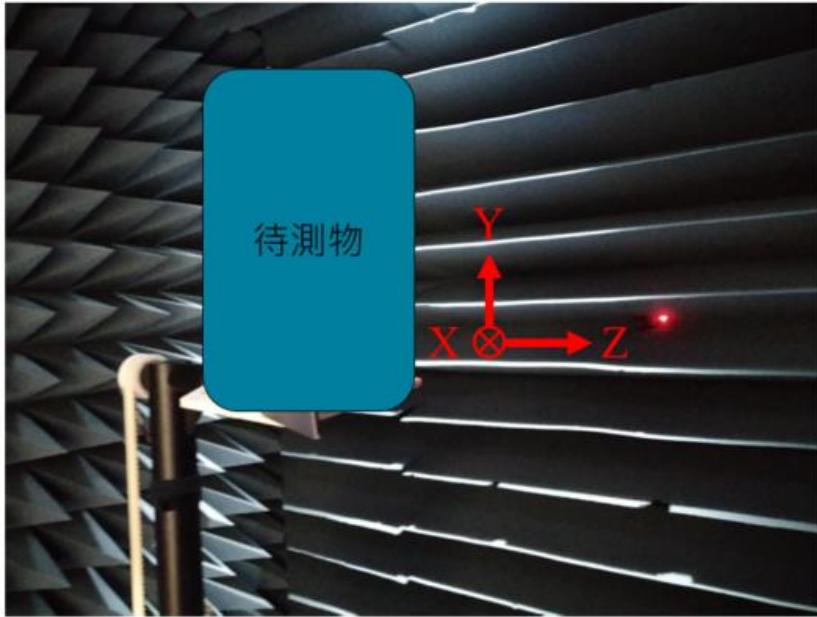


b. Equipment list

<insert test diagram here for test site utilized>

Item	Device	Type/Model	Serial#	Manufacturer	Cal. Date	Cal. Due Date
1	Anechoic Chamber	ETS-AMS	8500	ETS-Lindgren	2022-03	2023-03
2	Turn Table	ETS	-	ETS-Lindgren	2022-03	2023-03
3	Multi-Device Positioning Controller	Model 2090	00142407	ETS-Lindgren	2022-03	2023-03
4	Network Analyzer	E5071C	0171E5485A6J	Keysight	2022-05	2023-05
5	Horn antenna	3164-08	00140264	ETS-Lindgren	2022-03	2023-03
6	Cable 7.5m 400MHz to 18GHz (H-pol)	SS402	00100A1F5A1XXS	WOKEN	2022-03	2023-03
7	Cable 7.5m 400MHz to 18GHz (V-pol)	SS402	00100A1F5A1XXS	WOKEN	2022-03	2023-03
8	Cable 14m 400MHz to 18GHz	SS402	00100A1F5A1XXS	WOKEN	2022-03	2023-03
9	Temperature & Humidity Meter	HTC-01	-	METRAVI	2022-03	2023-03

3. Setup photo



Antenna Information

Section 1. Antenna Assembly Specifications

NB Mode

1A Antenna Part Number	1B Manufacturer	1C Antenna Type	1D Cable Assembly Part Number and Information	Freq Range MHz	1E * Peak Gain W/ Cable loss (dBi)	1F Peak Gain w/o Cable Loss (dBi)	1G Max VSWR	1H Cable Loss (dB)
Main Antenna F-0G-FS-6139-001	SPEED	PIFA	50 ohm Coaxial length:46 mm diameter: 1.13 mm Connector : IPEX	2400-2483.5	2.62	2.74	3	0.12
				5150-5250	1.46	1.65	3	0.19
				5250-5350	1.45	1.65	3	0.20
				5470-5725	3.38	3.58	3	0.20
				5725-5850	3.74	3.94	3	0.20
				5850-5895	2.92	3.13	3	0.21
				5925-6425	3.98	4.19	3	0.21
				6425-6525	3.43	3.65	3	0.22
				6525-6875	2.19	2.41	3	0.22
				6875-7125	3.63	3.86	3	0.23
Aux Antenna F-0G-FS-6139-002	SPEED	PIFA	50 ohm Coaxial length: 429mm diameter: 1.13 mm Connector : IPEX	2400-2483.5	2.03	3.19	3	1.16
				5150-5250	1.98	3.79	3	1.81
				5250-5350	2.61	4.44	3	1.83
				5470-5725	3.69	5.56	3	1.87
				5725-5850	3.21	5.11	3	1.90
				5850-5895	3.98	5.89	3	1.91
				5925-6425	3.58	5.55	3	1.97
				6425-6525	2.65	4.68	3	2.03
				6525-6875	3.32	5.4	3	2.08
				6875-7125	3.77	5.91	3	2.14

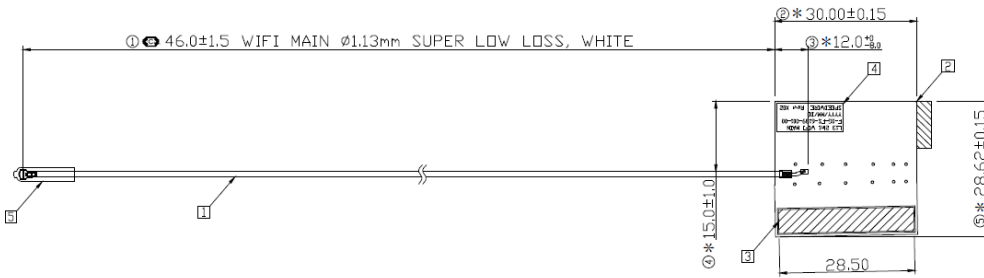
Tablet Mode

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)
Main Antenna F-0G-FS-6139-001	SPEED	PIFA	50 ohm Coaxial length:46 mm diameter: 1.13 mm Connector : IPEX	2400-2483.5	2	2.12	3	0.12
				5150-5250	2.25	2.44	3	0.19
				5250-5350	1.4	1.6	3	0.20
				5470-5725	2.76	2.96	3	0.20
				5725-5850	1.7	1.9	3	0.20
				5850-5895	2.91	3.12	3	0.21
				5925-6425	1.79	2	3	0.21
				6425-6525	2.39	2.61	3	0.22
				6525-6875	0.48	0.7	3	0.22
				6875-7125	2.44	2.67	3	0.23
Aux Antenna F-0G-FS-6139-002	SPEED	PIFA	50 ohm Coaxial length: 429mm diameter: 1.13 mm Connector : IPEX	2400-2483.5	1.03	2.19	3	1.16
				5150-5250	1.93	3.74	3	1.81
				5250-5350	2.53	4.36	3	1.83
				5470-5725	0.98	2.85	3	1.87
				5725-5850	1.05	2.95	3	1.90
				5850-5895	1.89	3.8	3	1.91
				5925-6425	2.4	4.37	3	1.97
				6425-6525	0.6	2.63	3	2.03
				6525-6875	1.01	3.09	3	2.08
				6875-7125	1.62	3.76	3	2.14

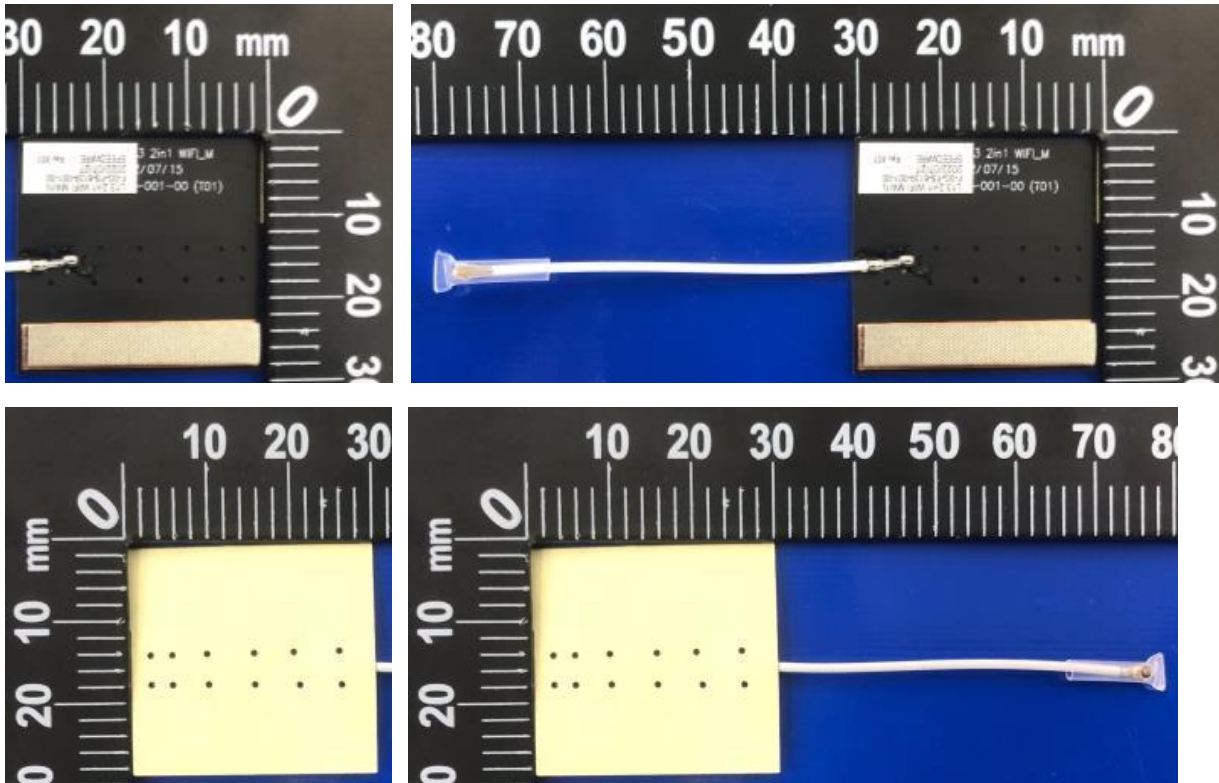
3D Antenna Peak Gain required being test in system basis.

Section 2. Dimensioned Photos and Drawings of Antennas

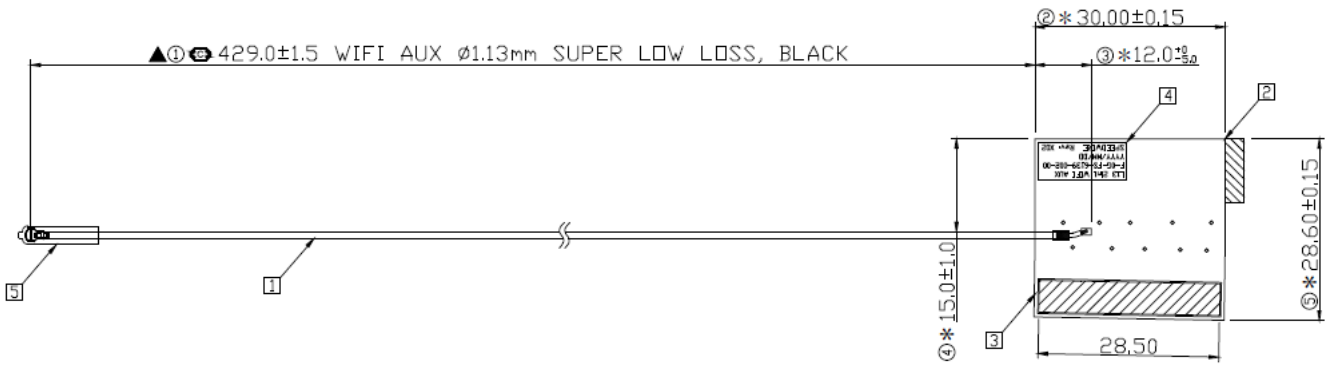
Main Antenna Drawing:



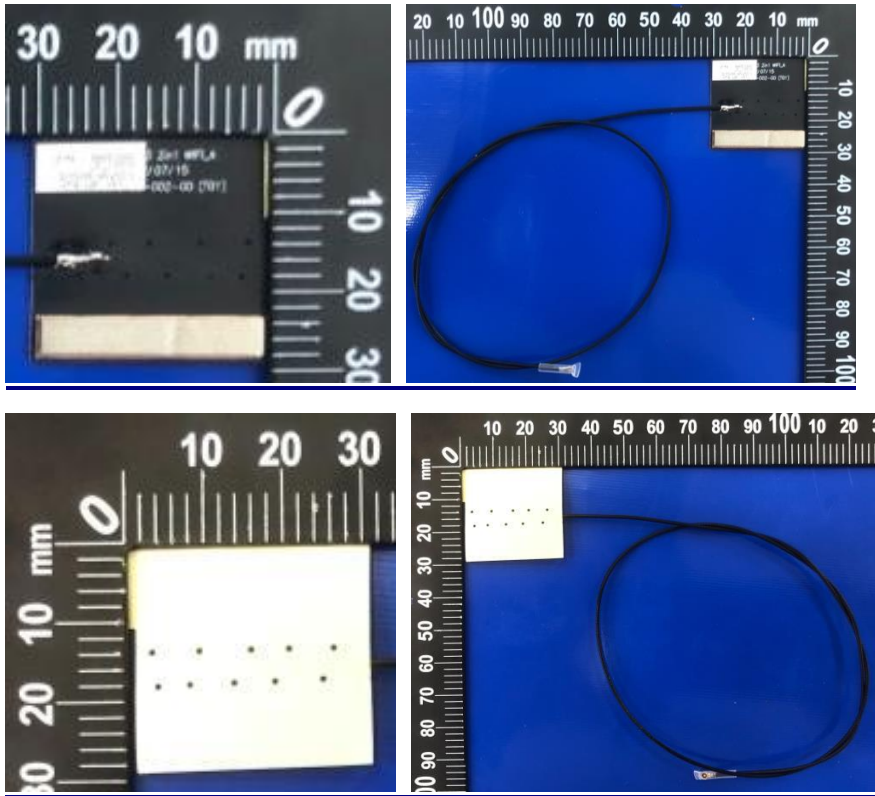
Main Antenna Photo (Front/Back):



Aux Antenna Drawing:



Aux Antenna Photo (Front/Back):



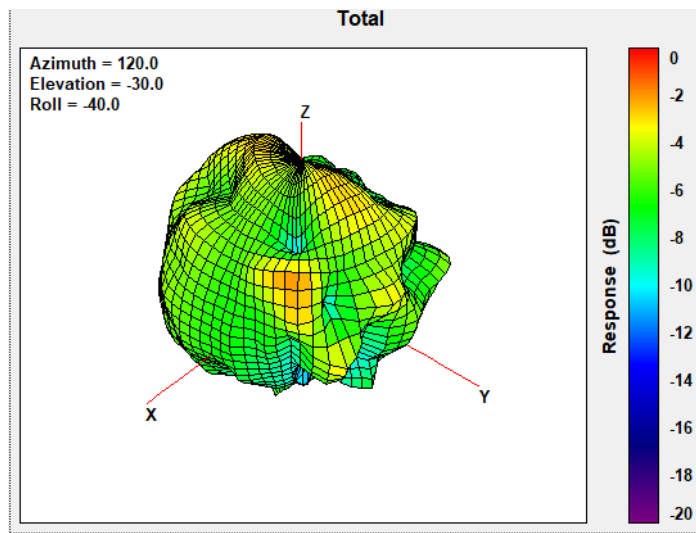
Note: antenna photo should include L type ruler

Section 3. Radiation characteristics of antenna loaded in Host Platform NB Mode

Main Antenna

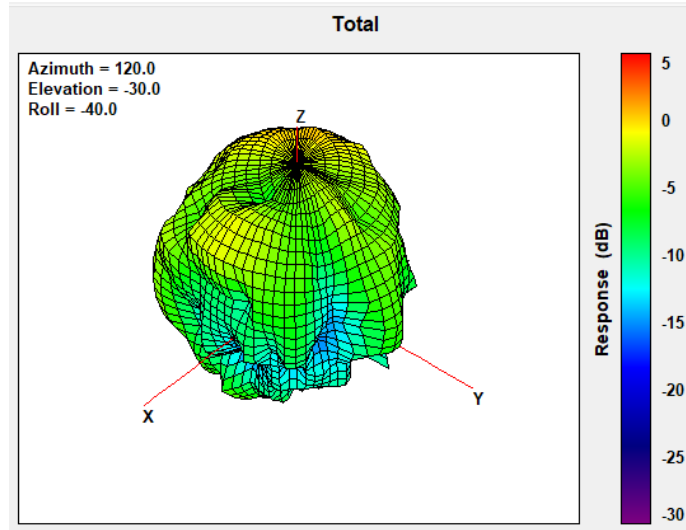
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.62



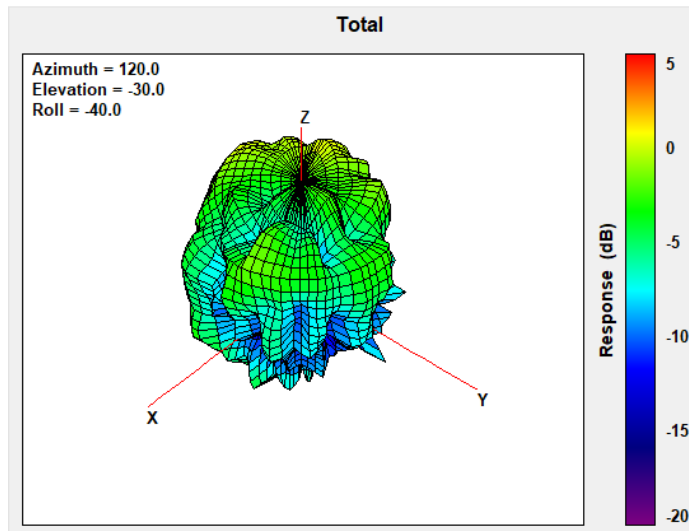
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.46



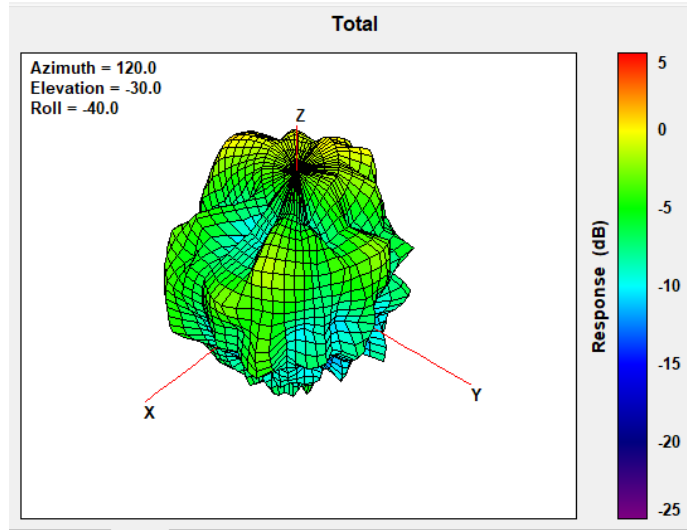
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	1.45



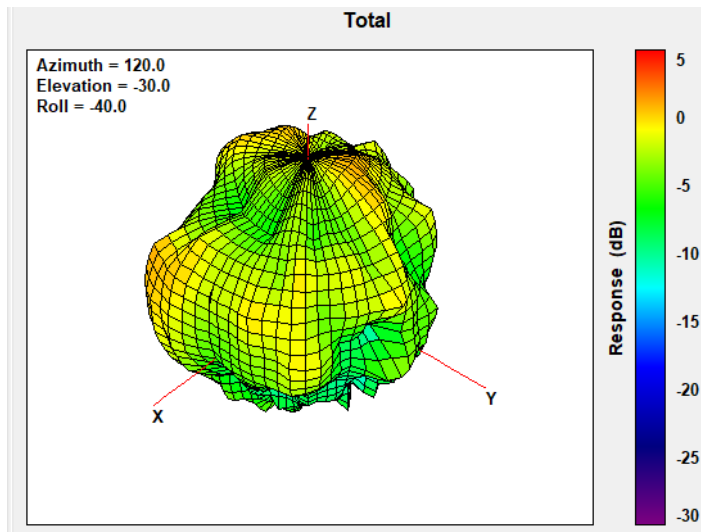
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	3.38



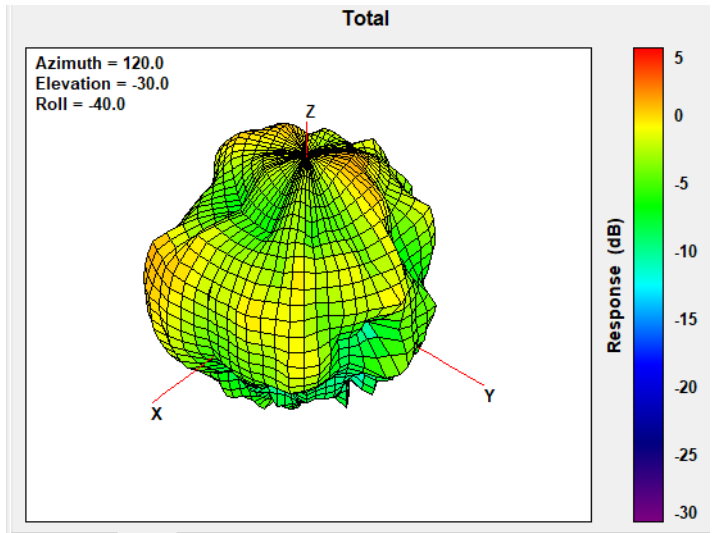
Max Antenna 3D Radiation Pattern 5725-5850 MH

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	3.74



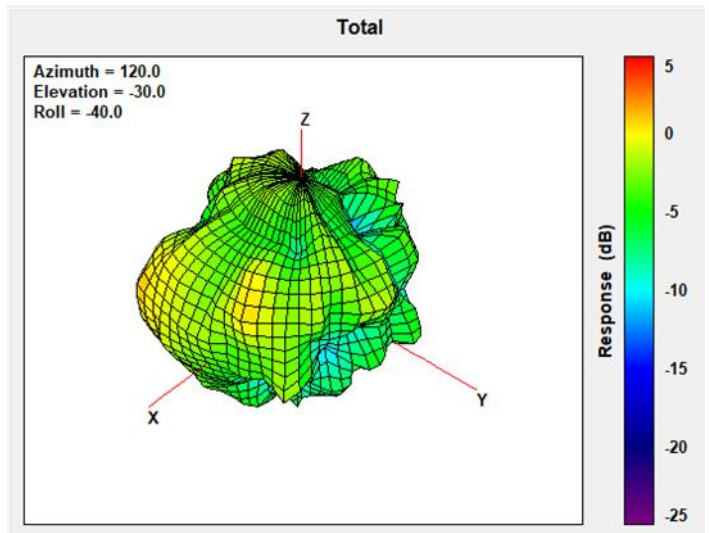
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.92



Max Antenna 3D Radiation Pattern 5925-6425 MHz

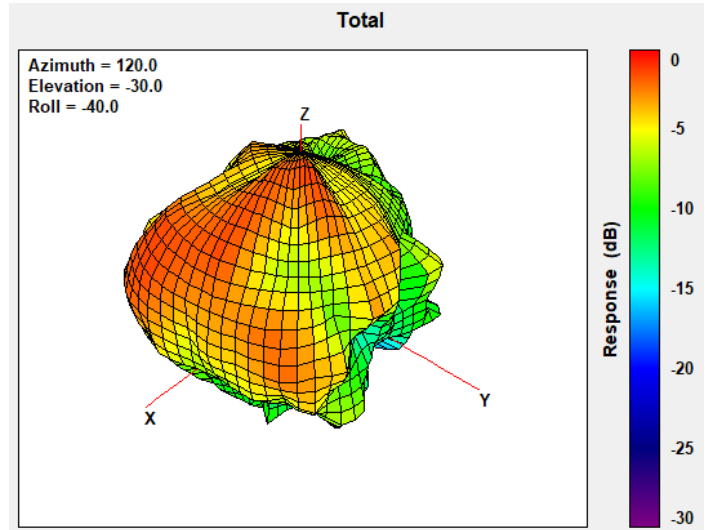
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	3.98



Max Antenna 3D Radiation Pattern 6425-6525 MHz

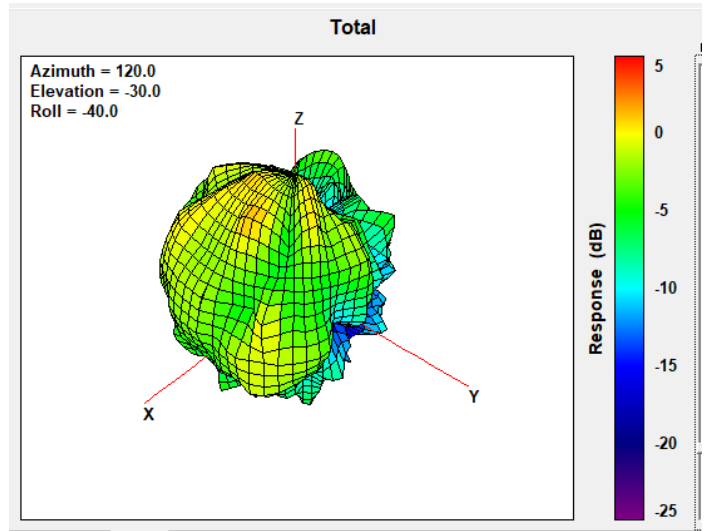
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
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6425-6525	3.43
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Max Antenna 3D Radiation Pattern 6525-6875 MHz

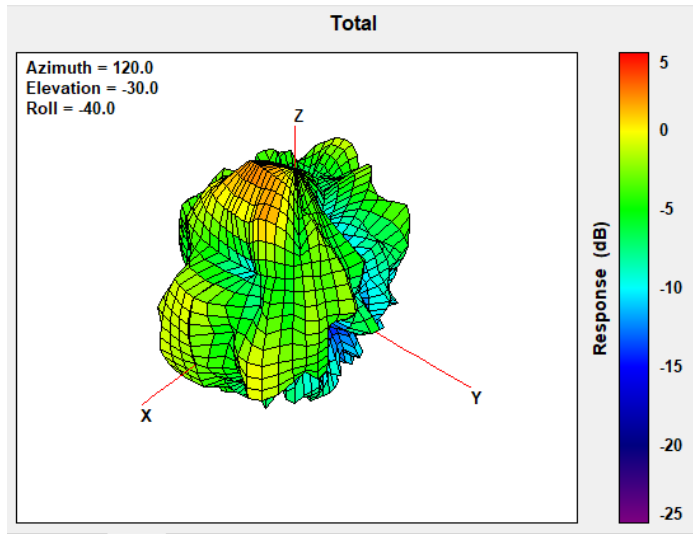
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.19



Max Antenna 3D Radiation Pattern 6875-7125 MHz

Frequency	Peak Gain w/ Cable Loss
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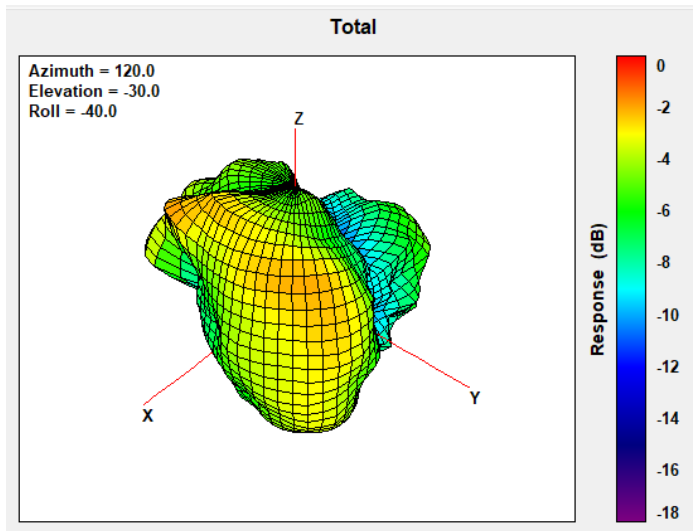
(MHz)	(dBi)
6875-7125	3.63



Auxiliary Antenna

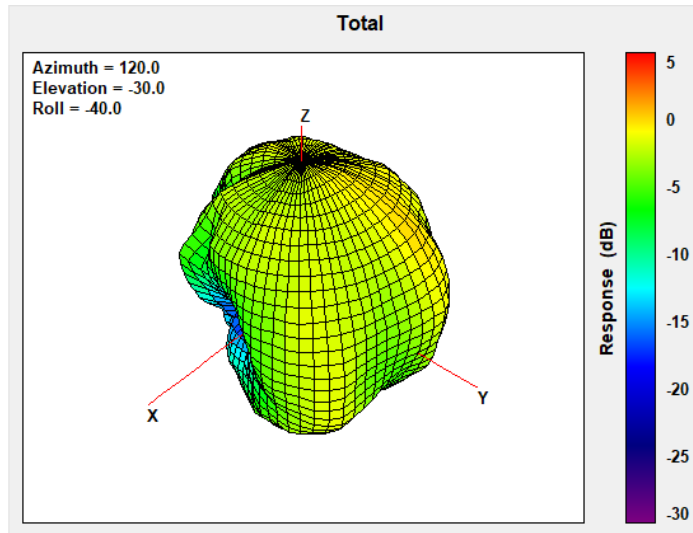
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.03



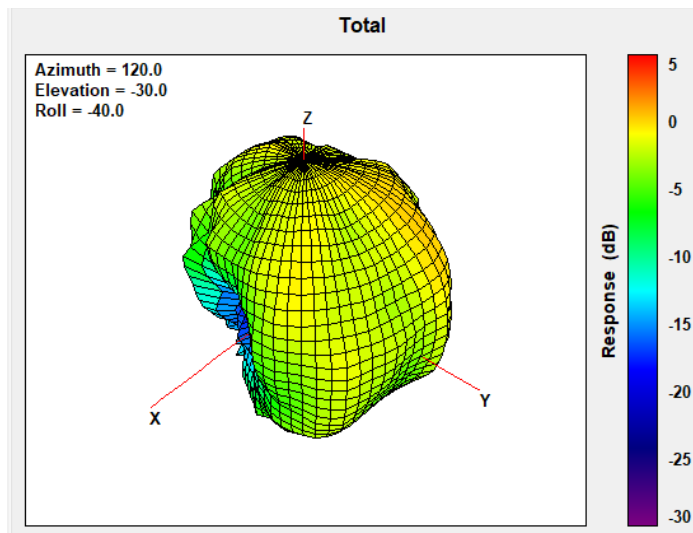
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.98



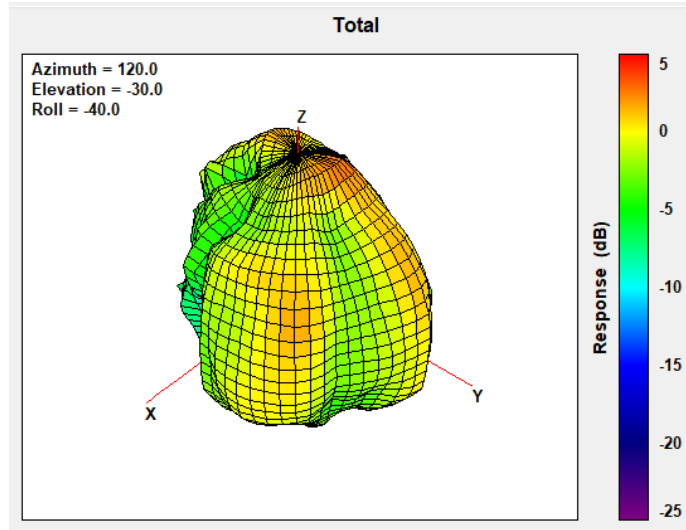
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.61



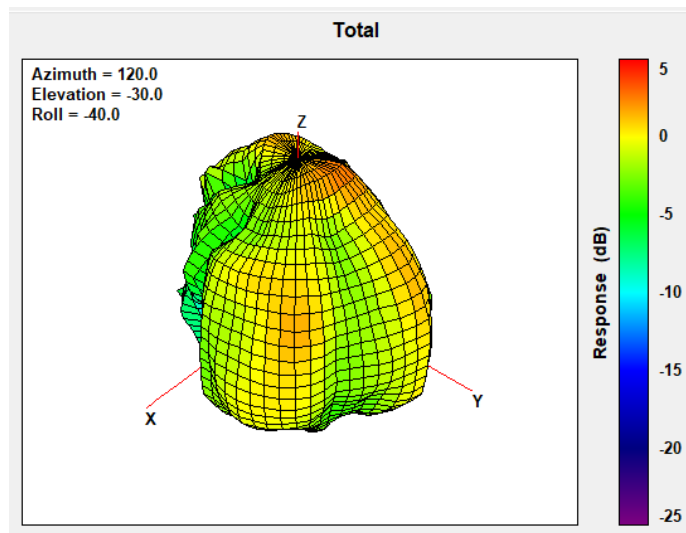
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	3.69



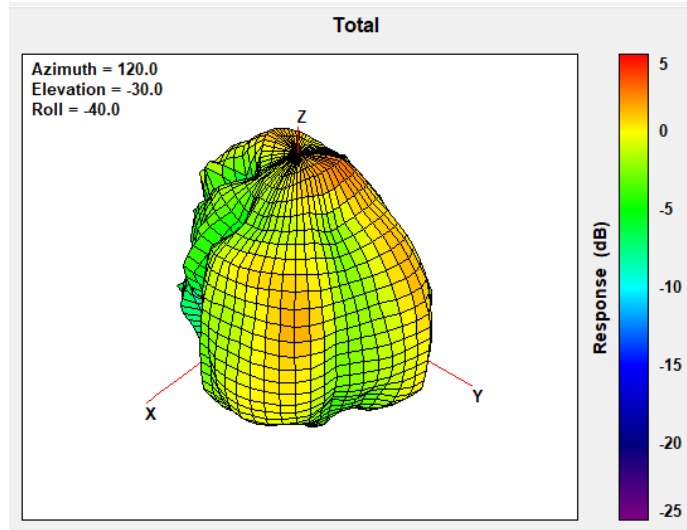
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	3.21



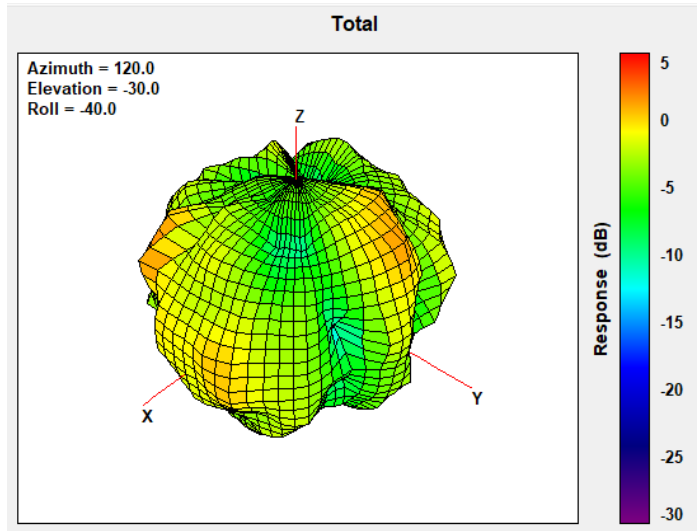
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	3.98



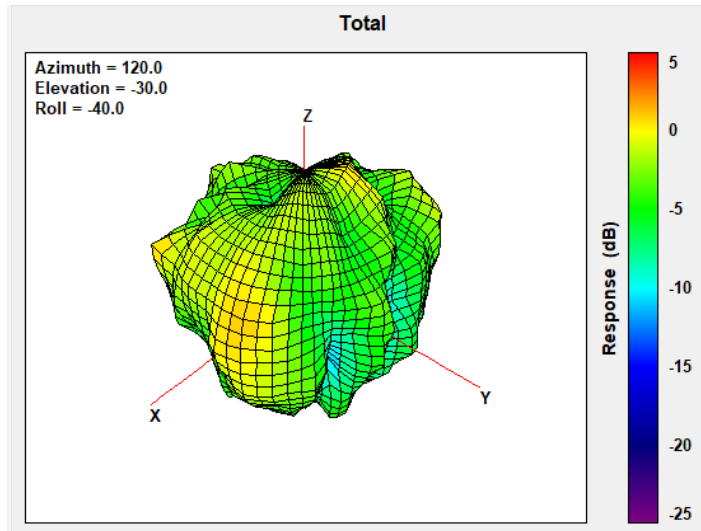
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	3.58



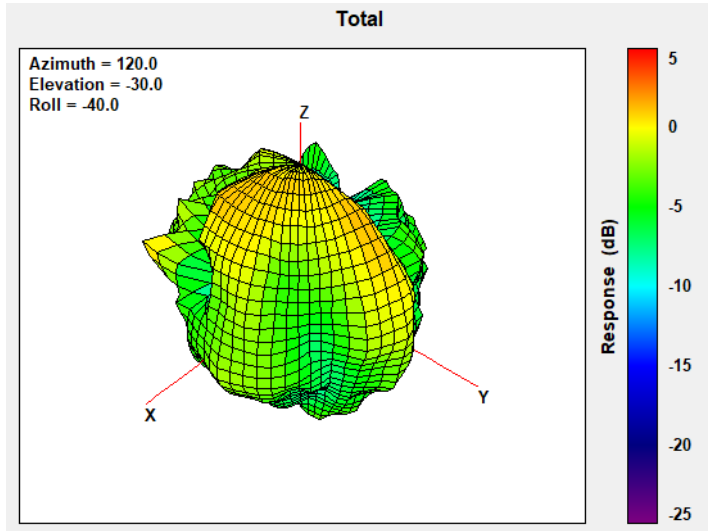
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	2.65



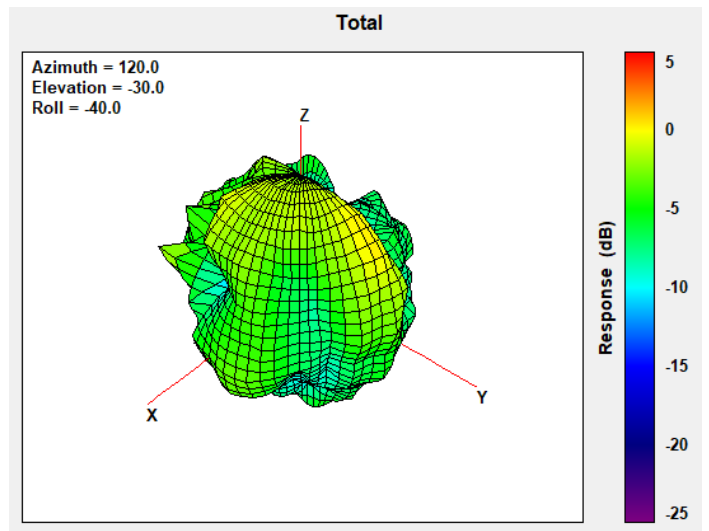
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	3.32



Max Antenna 3D Radiation Pattern 6875-7125 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	3.77

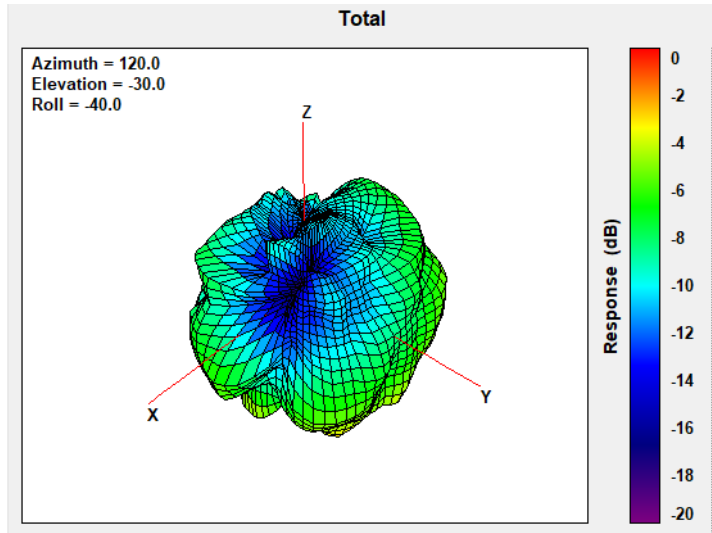


Tablet Mode

Main Antenna

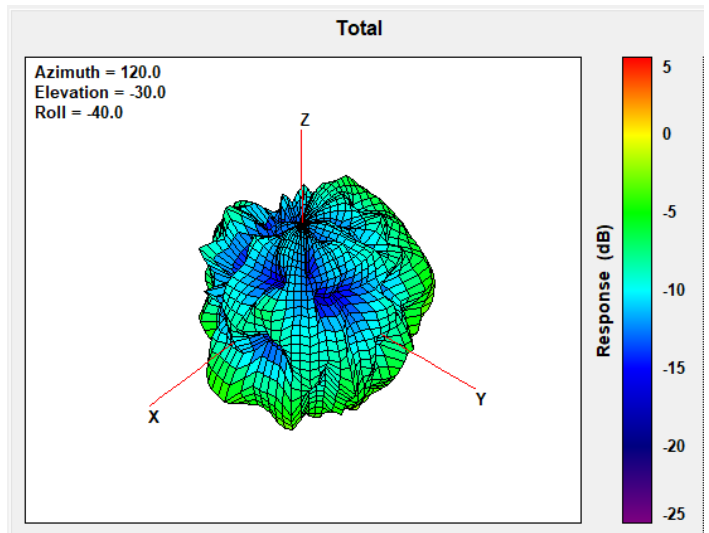
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.00



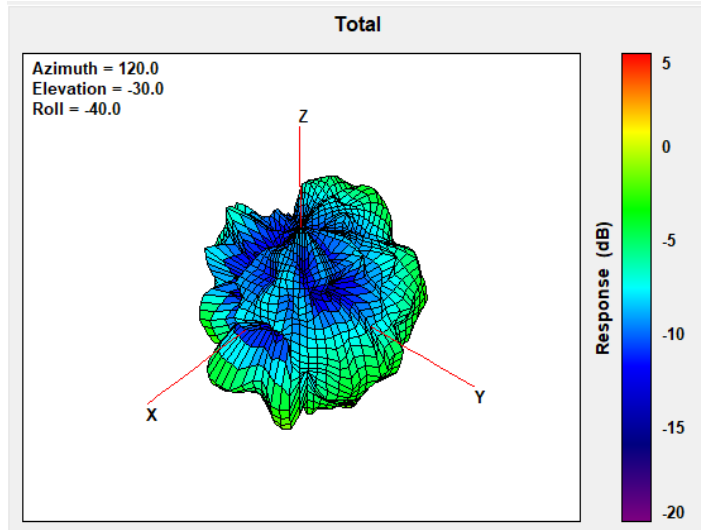
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.25



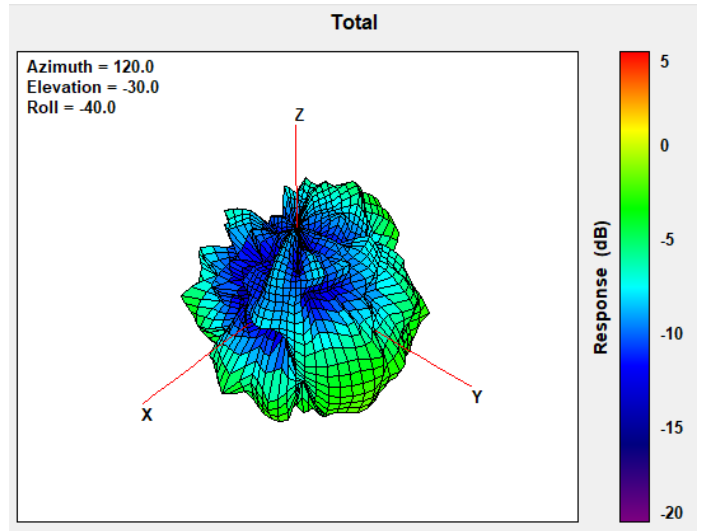
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	1.40



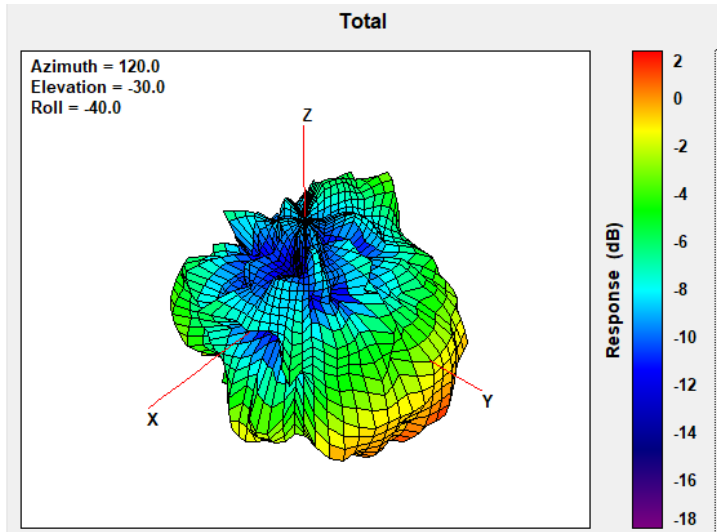
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.76



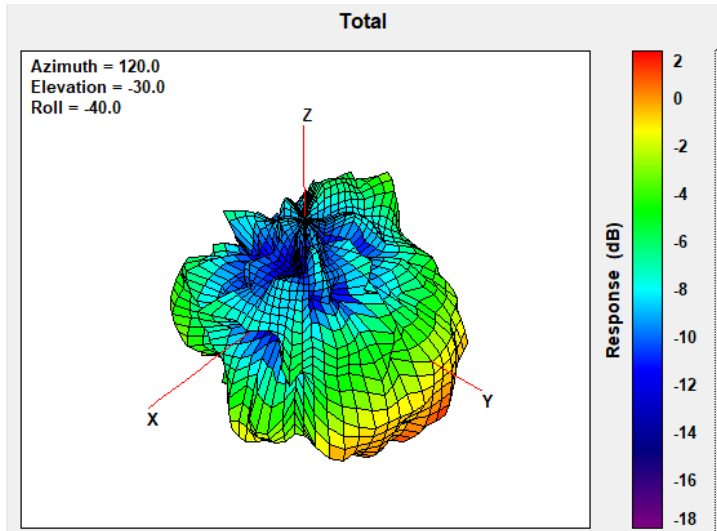
Max Antenna 3D Radiation Pattern 5725-5850 MH

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	1.70



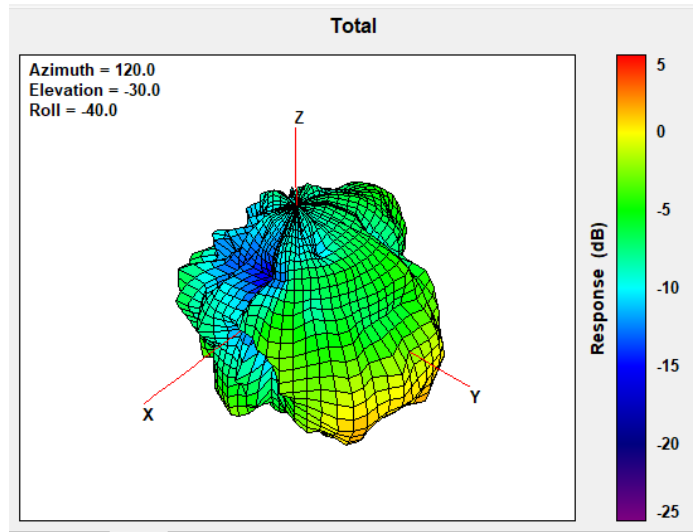
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.91



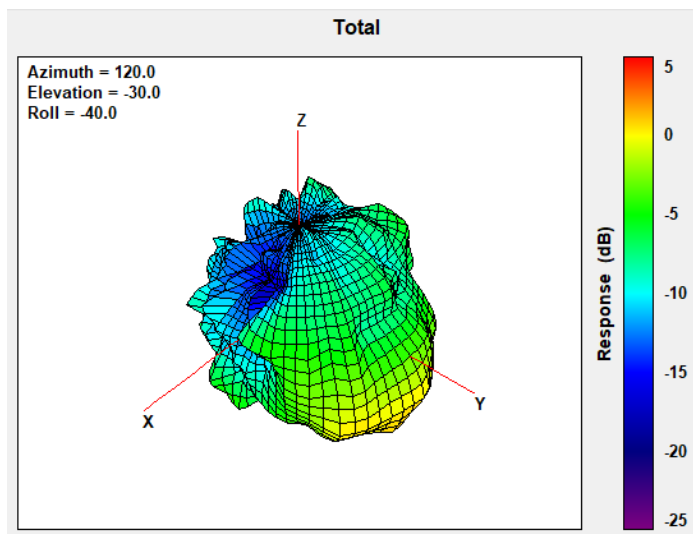
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	1.79



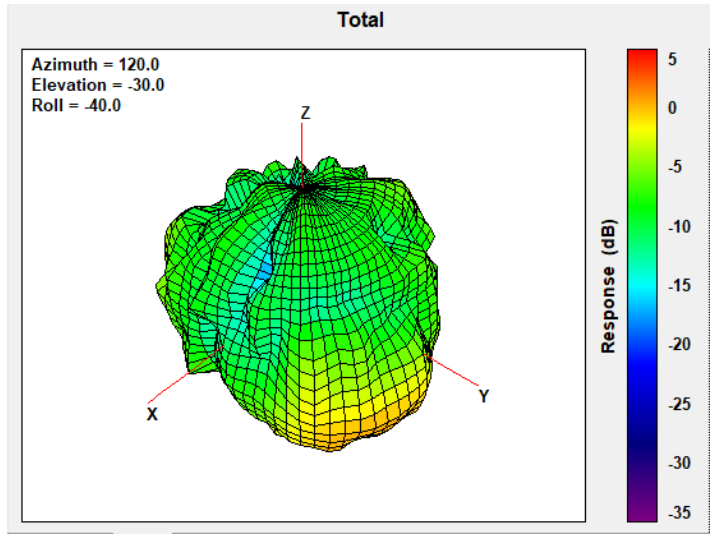
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	2.39



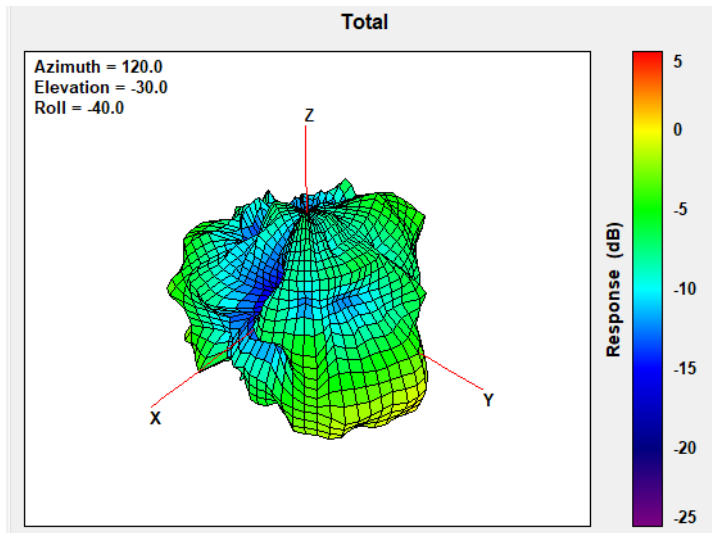
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	0.48



Max Antenna 3D Radiation Pattern 6875-7125 MHz

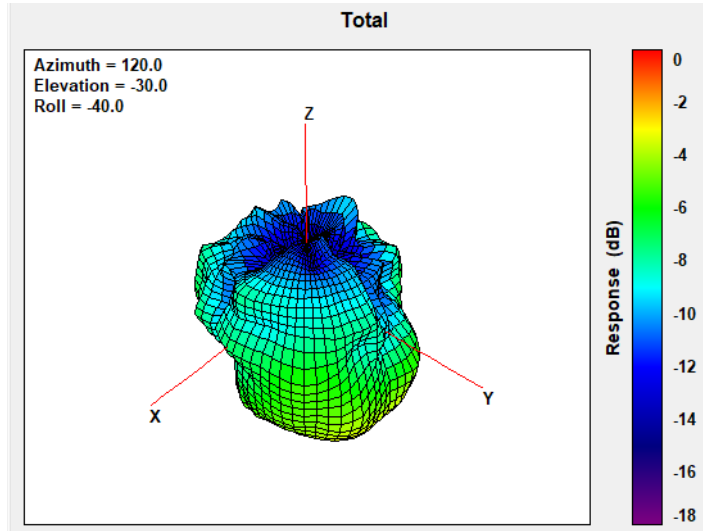
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.44



Auxiliary Antenna

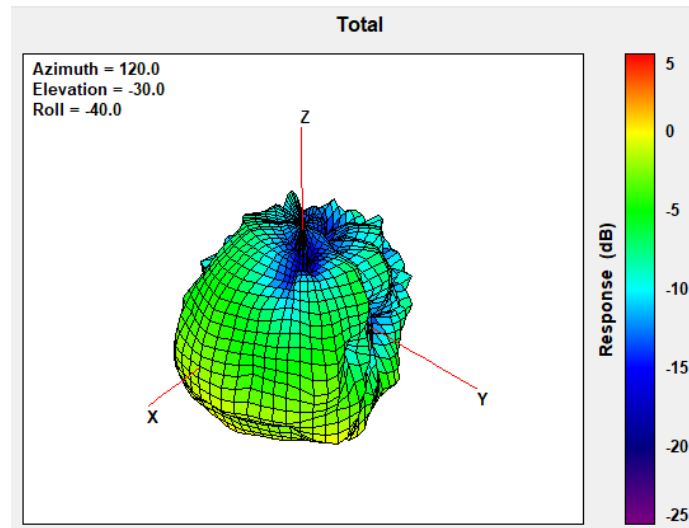
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.03



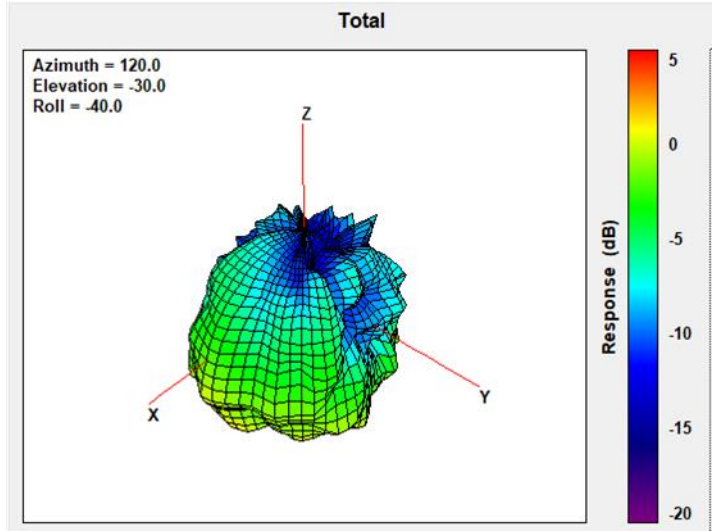
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.93



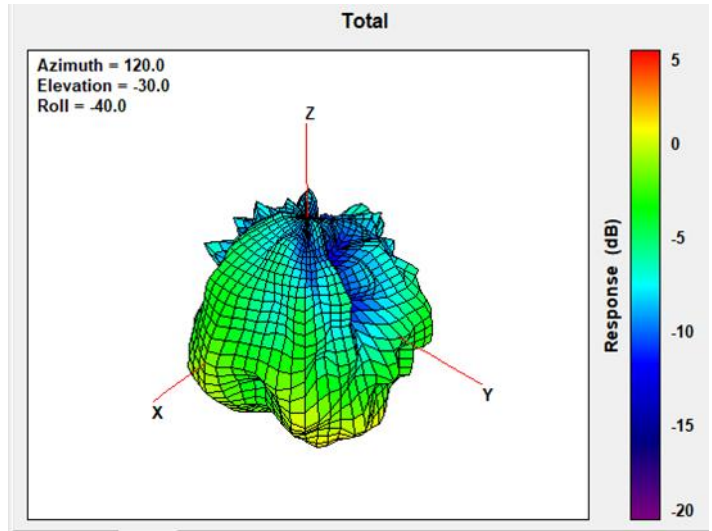
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.53



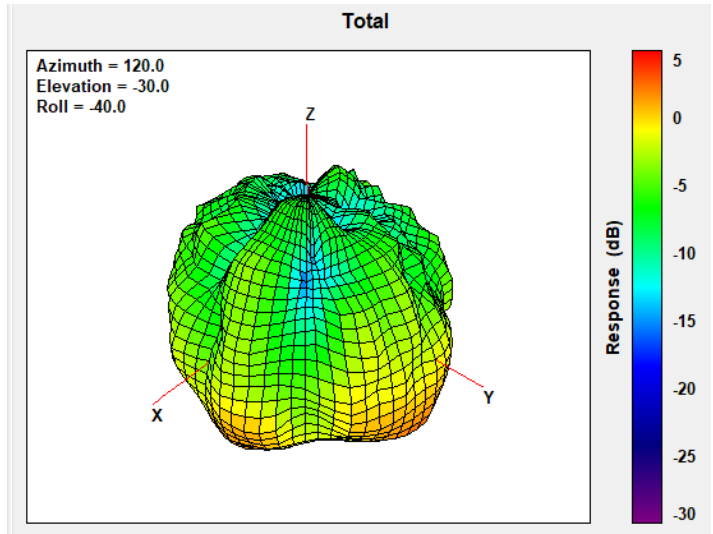
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	0.98



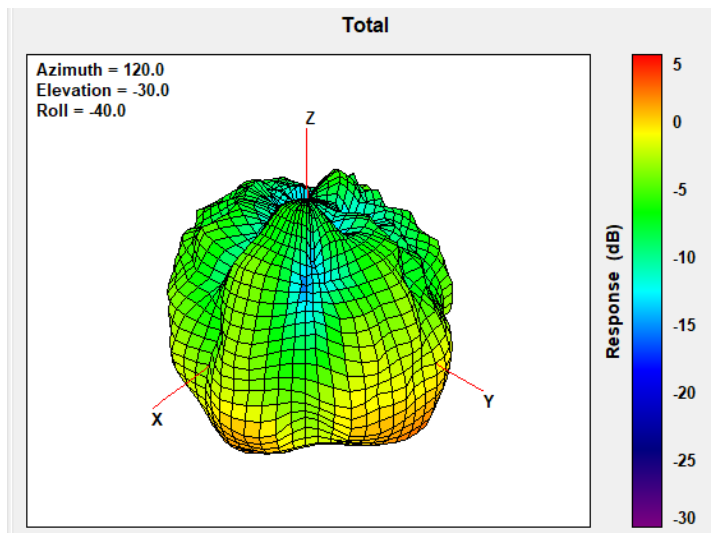
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	1.05



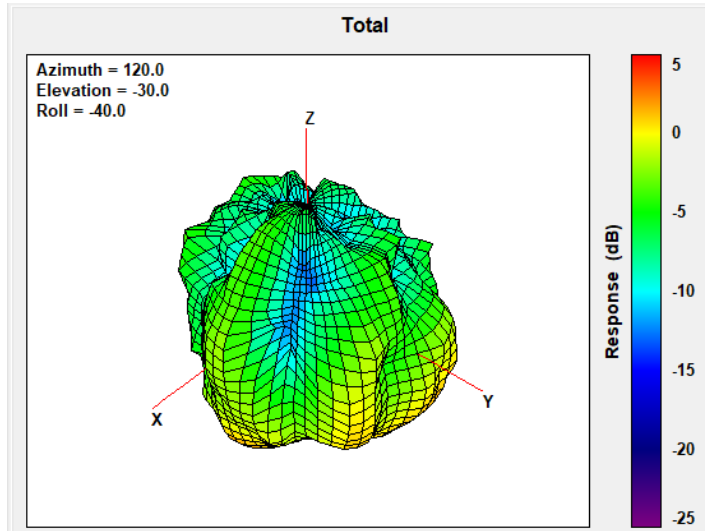
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	1.89



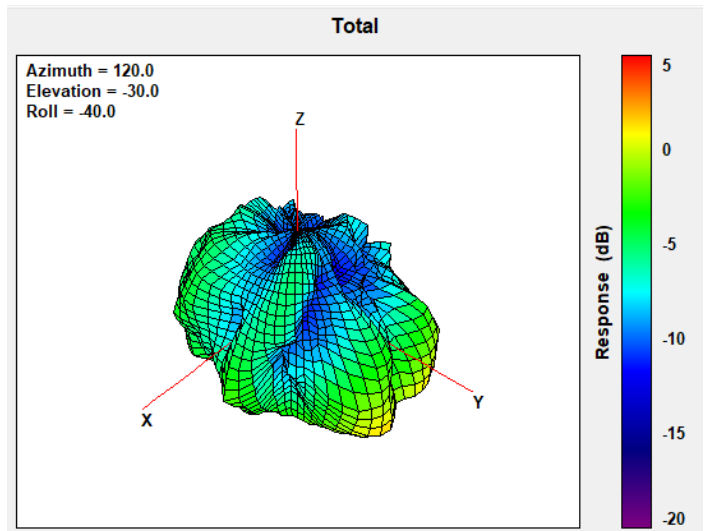
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.40



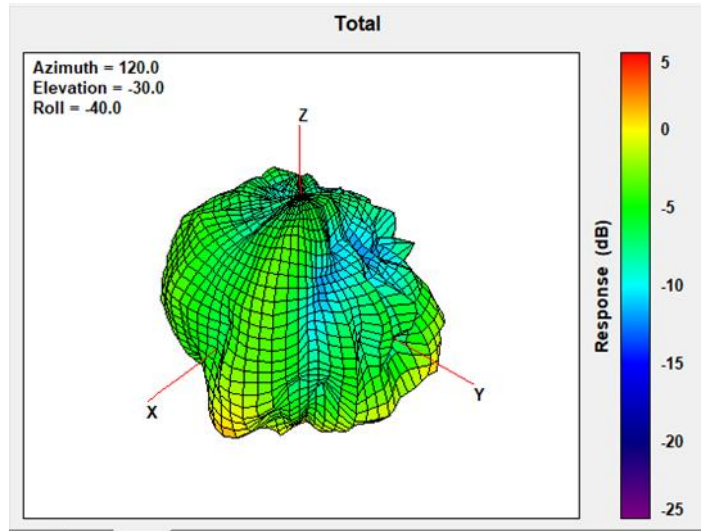
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	0.60



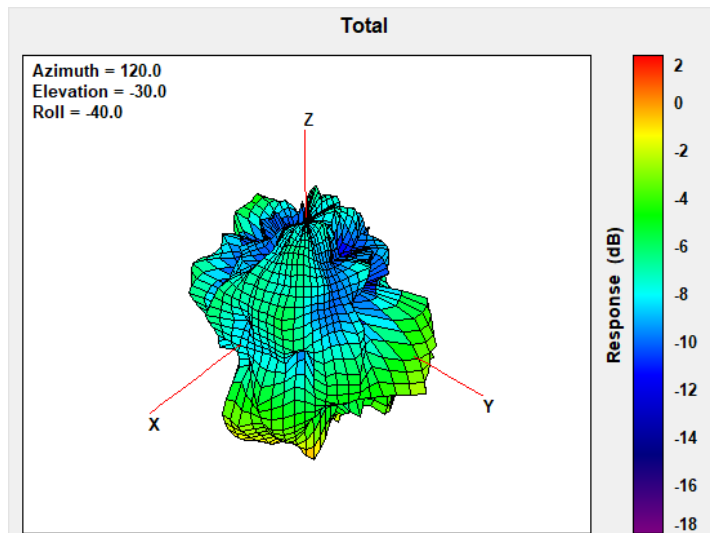
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	1.01

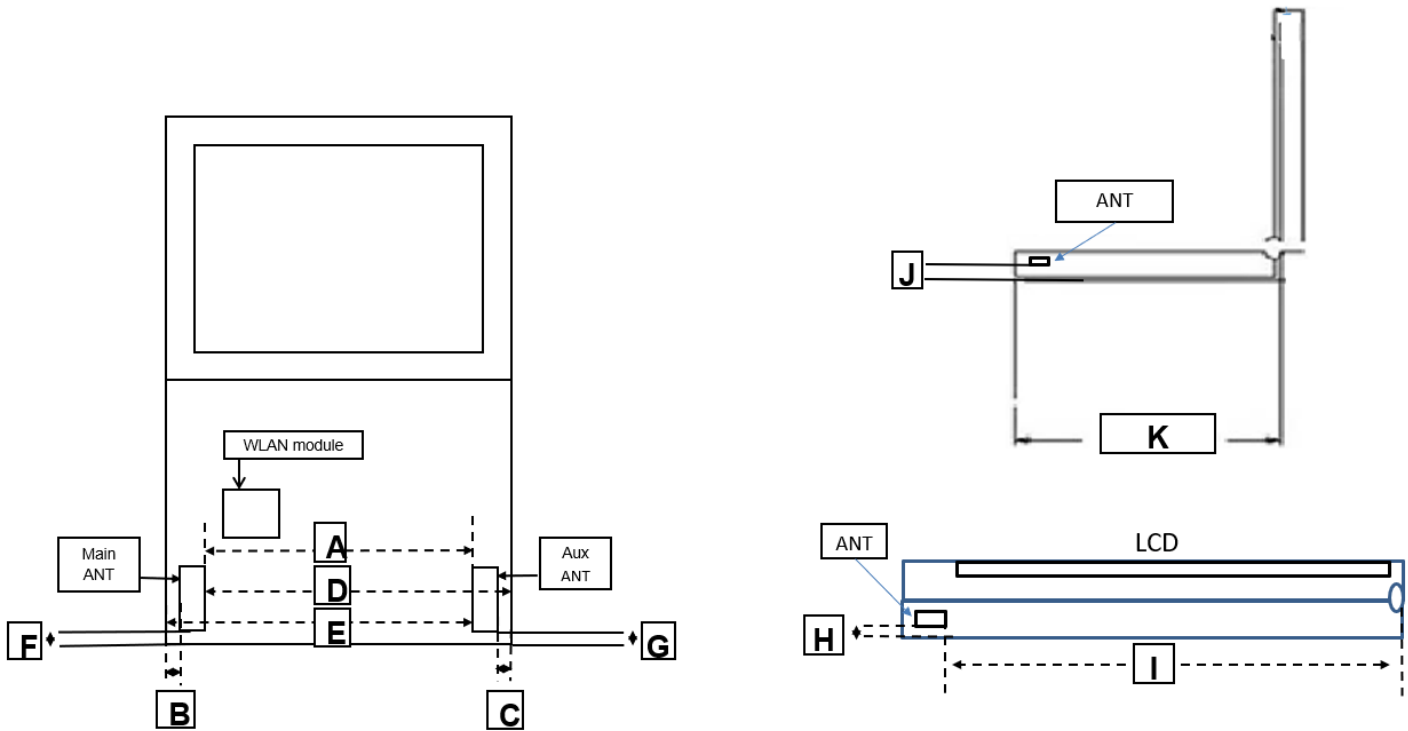


Max Antenna 3D Radiation Pattern 6875-7125 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	1.62

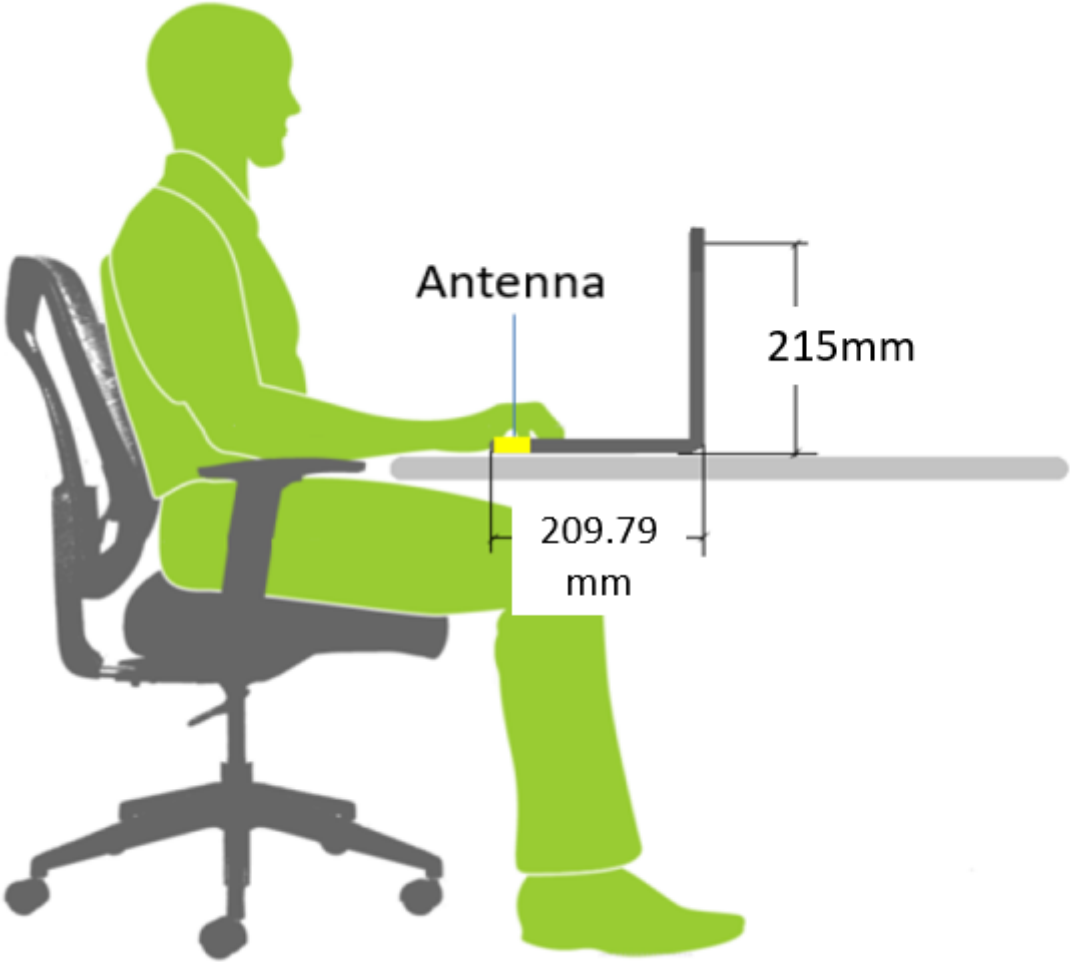


Section 4. Antenna Host Platform Location Information

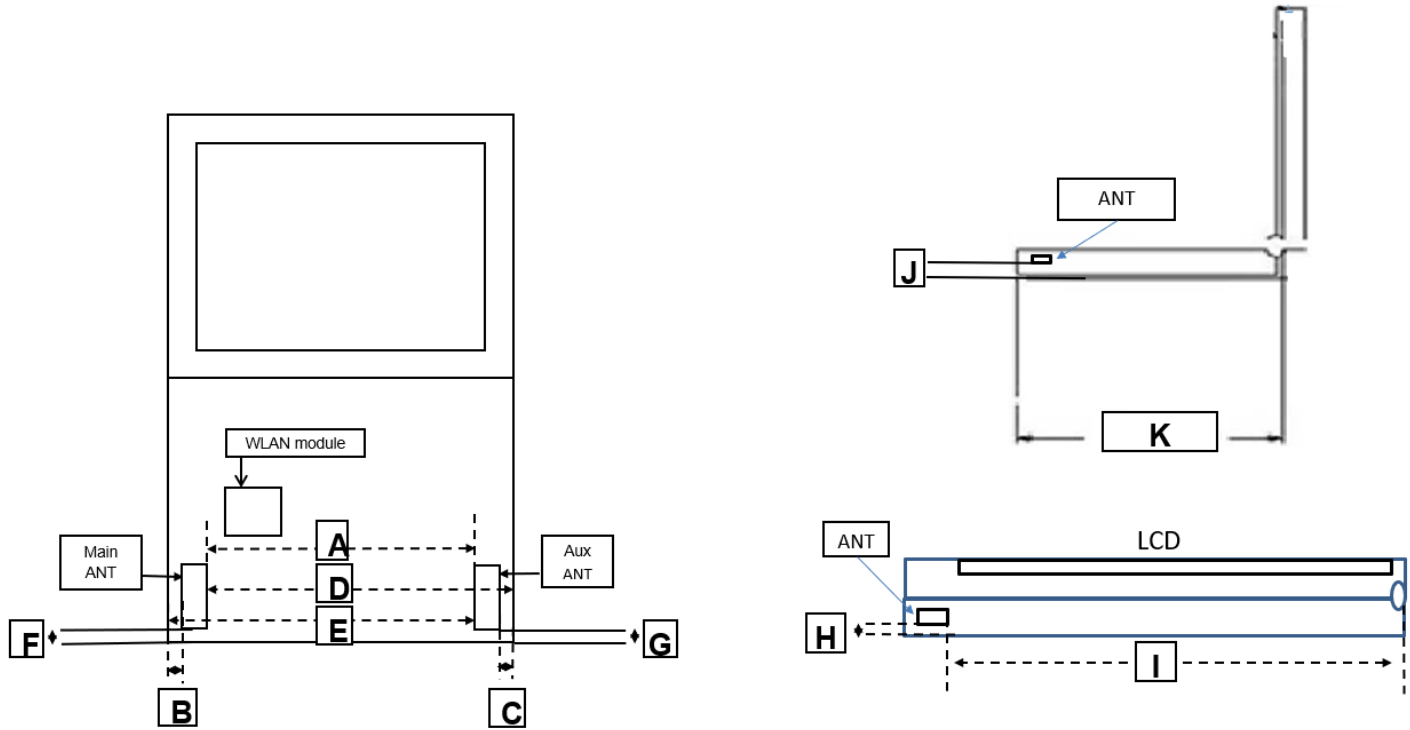


Item	Location	Distance (mm)
A	ANT to ANT	274.9
B	ANT to edge	4.80
C	ANT to edge	4.7
D	ANT to edge	290.43
E	ANT to edge	290.43
F	ANT to edge	52.39
G	ANT to edge	52.39
H	ANT to edge	2.65
I	ANT to edge	127.4
J	ANT to edge	(有腳墊)3.78 (無腳墊)3.14
K	SYSTEM	209.79

Section 5. Antenna dimensional information for SAR evaluation



Section 6. Diagram Example of Co-Location Antenna Separation



Item	Location	Distance (mm)
A	ANT to ANT	274.9
B	ANT to edge	4.80
C	ANT to edge	4.7
D	ANT to edge	290.43
E	ANT to edge	290.43
F	ANT to edge	52.39
G	ANT to edge	52.39
H	ANT to edge	2.65
I	ANT to edge	127.4
J	ANT to edge	(有腳墊)3.78 (無腳墊)3.14
K	SYSTEM	209.79