

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)						
Acer	Quanta	Piccolo Z8WC	Yes	Convertible PC	8						
*****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)				
WNC		PIFA	81EABU15.GAF DQ6U15GAF00				81EABU15.GAF DQ6U15GAF00				
Peak gain w/ cable loss (dBi)*											
Open 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	2.39	2.51	2.51	2.89	2.66	2.46	2.93	2.04	2.75	2.94	
Aux	1.4	1.01	0.63	1.75	1.76	1.76	1.03	-0.45	0.15	0.07	
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	2.43	2.86	2.86	2.97	2.97	2.89	2.76	1.88	2.74	2.93	
Aux	1.22	0.08	0.23	1.6	1.6	0.68	0.48	-0.07	-0.07	-0.82	
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		
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**

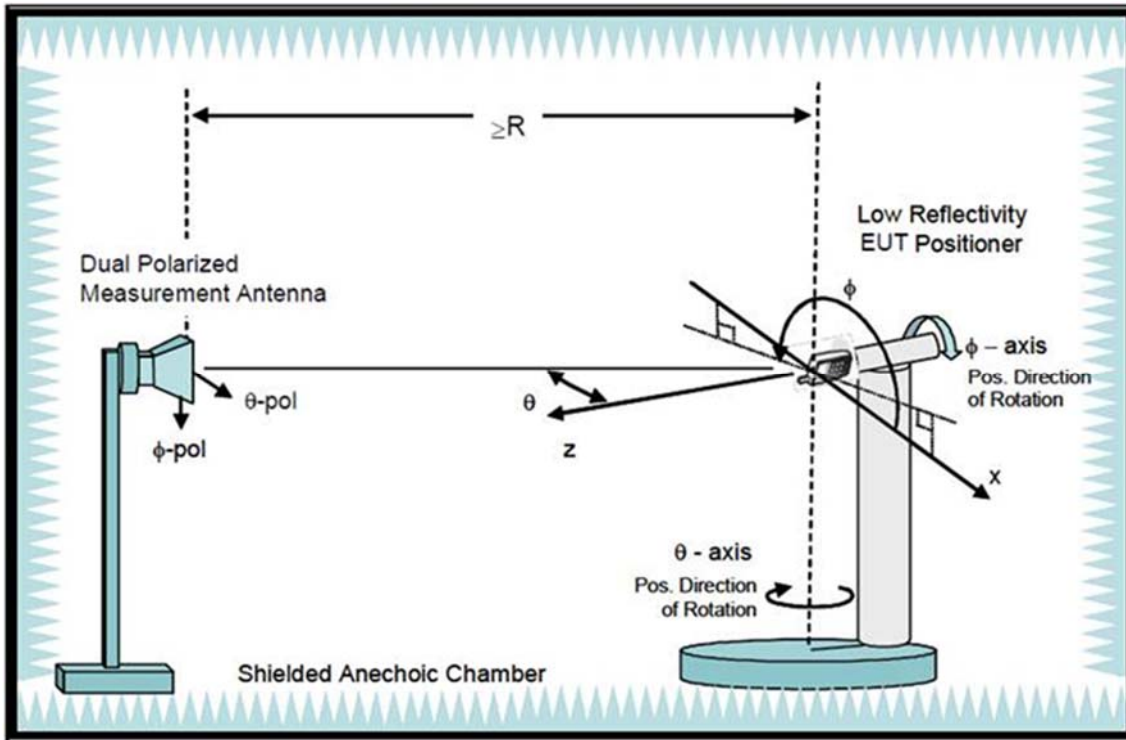
<insert test description here for test method>

This test report is prepared for host antenna testing under a Full Anechoic Chamber(WNC's ETS 8500).

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>

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

Antenna Information

Section 1. Antenna Assembly Specifications

Open 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)
P/N: DQ6U15GAF00 (81EABU15.GAF) Main Antenna	WNC	PIFA	50 ohm Coaxial Low Loss Cable length: 16.95cm diameter: 1.13mm I-pex MHF4L (P/N:20565-001R-13)	2400-2483.5	2.39	3	2.5	0.61
				5150-5250	2.51	3.39	2.5	0.88
				5250-5350	2.51	3.41	2.5	0.9
				5470-5725	2.89	3.82	2.5	0.93
				5725-5850	2.66	3.61	2.5	0.95
				5850-5895	2.46	3.42	2.5	0.96
				5925-6425	2.93	3.92	2.5	0.99
				6425-6525	2.04	3.06	2.5	1.02
				6525-6875	2.75	3.8	2.5	1.05
6875-7125	2.94	4.03	2.5	1.09				
P/N: DQ6U15GAF00 (81EABU15.GAF) AUX Antenna	WNC	PIFA	50 ohm Coaxial Low Loss Cable length: 45.95cm diameter: 1.13mm I-pex MHF4L (P/N:20565-001R-13)	2400-2483.5	1.4	3.06	2.5	1.66
				5150-5250	1.01	3.43	2.5	2.42
				5250-5350	0.63	3.07	2.5	2.44
				5470-5725	1.75	4.27	2.5	2.52
				5725-5850	1.76	4.32	2.5	2.56
				5850-5895	1.76	4.33	2.5	2.57
				5925-6425	1.03	3.7	2.5	2.67
				6425-6525	-0.45	2.32	2.5	2.77
				6525-6875	0.15	3	2.5	2.85
6875-7125	0.07	3.01	2.5	2.94				

Tablet 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)
P/N: DQ6U15GAF00 (81EABU15.GAF) Main Antenna	WNC	PIFA	50 ohm Coaxial Low Loss Cable length: 16.95cm diameter: 1.13mm I-pex MHF4L (P/N:20565-001R-13)	2400-2483.5	2.43	3.04	2.5	0.61
				5150-5250	2.86	3.74	2.5	0.88
				5250-5350	2.86	3.76	2.5	0.9
				5470-5725	2.97	3.9	2.5	0.93
				5725-5850	2.97	3.92	2.5	0.95
				5850-5895	2.89	3.85	2.5	0.96
				5925-6425	2.76	3.75	2.5	0.99
				6425-6525	1.88	2.9	2.5	1.02
				6525-6875	2.74	3.79	2.5	1.05
6875-7125	2.93	4.02	2.5	1.09				
P/N: DQ6U15GAF00 (81EABU15.GAF) AUX Antenna	WNC	PIFA	50 ohm Coaxial Low Loss Cable length: 45.95cm diameter: 1.13mm I-pex MHF4L (P/N:20565-001R-13)	2400-2483.5	1.22	2.88	2.5	1.66
				5150-5250	0.08	2.5	2.5	2.42
				5250-5350	0.23	2.67	2.5	2.44
				5470-5725	1.6	4.12	2.5	2.52
				5725-5850	1.6	4.16	2.5	2.56
				5850-5895	0.68	3.25	2.5	2.57
				5925-6425	0.48	3.15	2.5	2.67
				6425-6525	-0.07	2.7	2.5	2.77
				6525-6875	-0.07	2.78	2.5	2.85
6875-7125	-0.82	2.12	2.5	2.94				

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

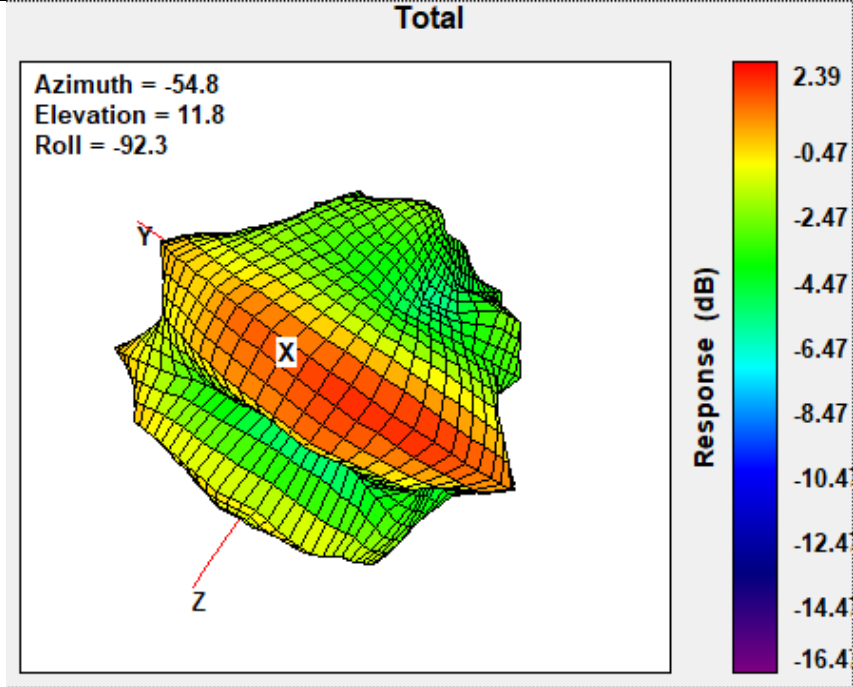
Section 3. Radiation characteristics of antenna loaded in Host Platform

Open mode

Main Antenna

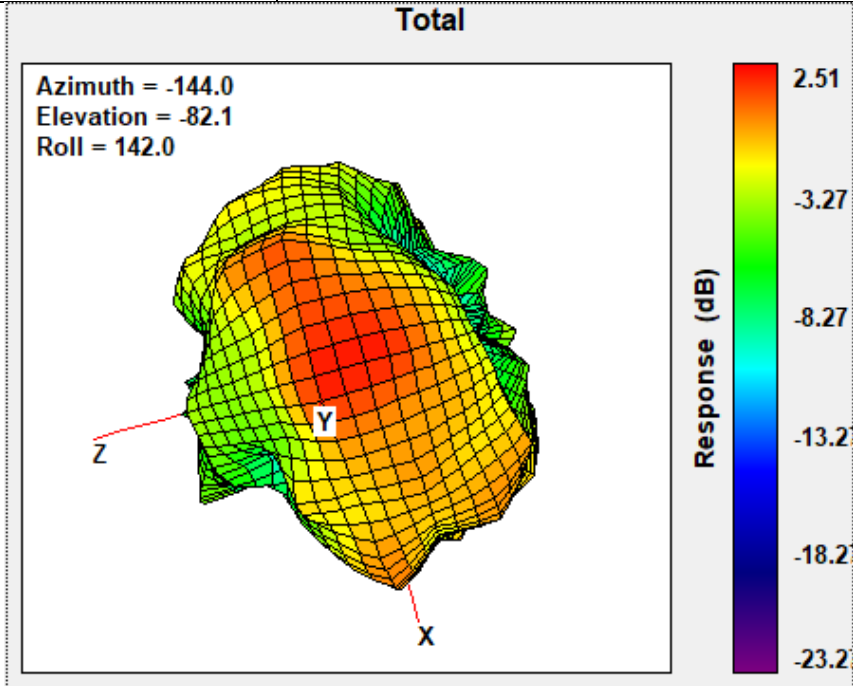
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.39

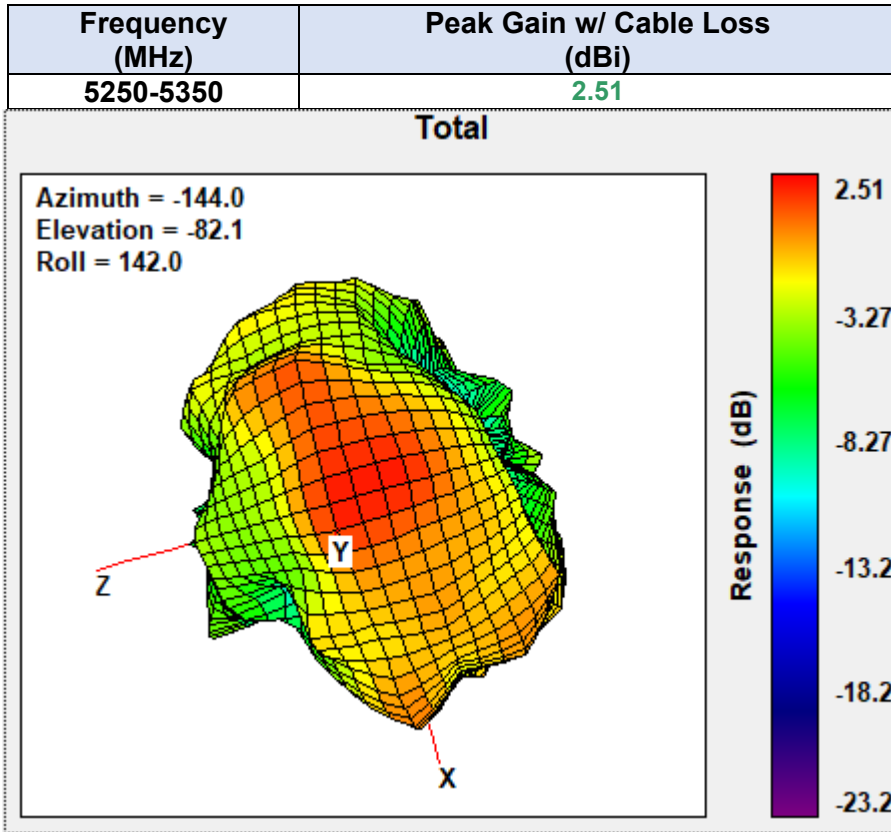


Max Antenna 3D Radiation Pattern 5150-5250 MHz

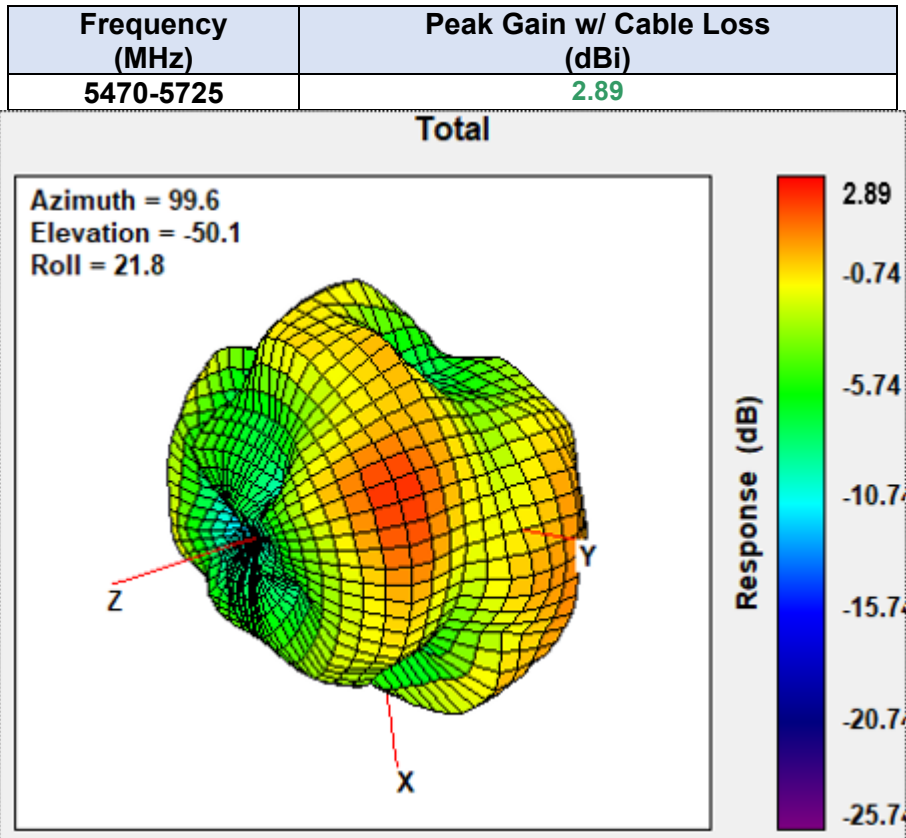
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.51



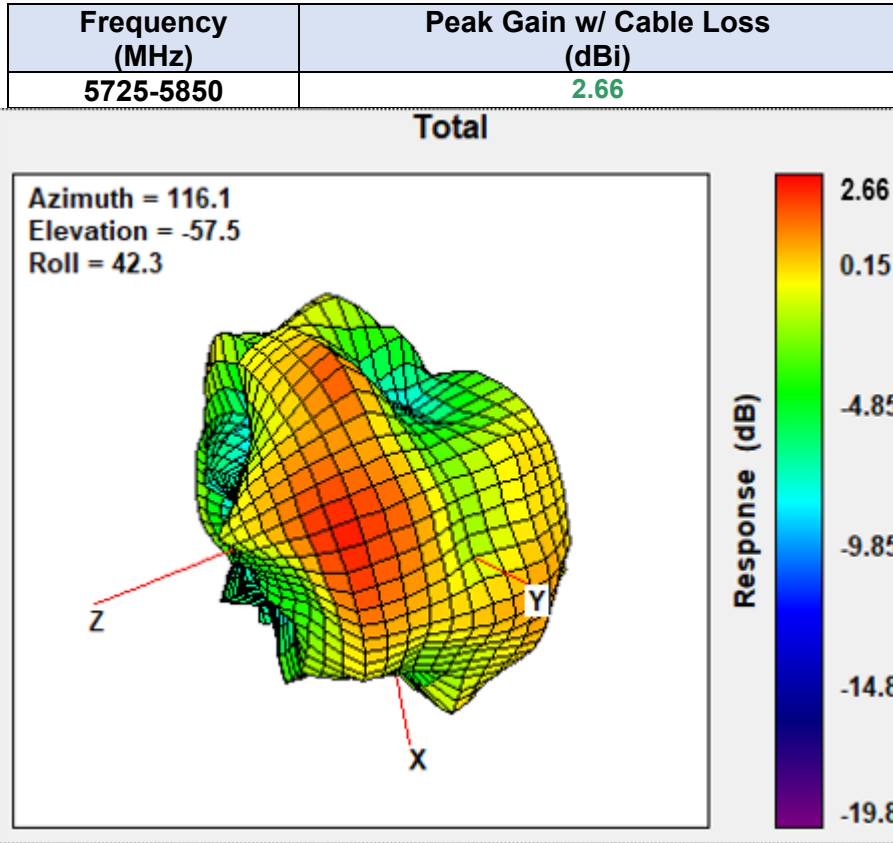
Max Antenna 3D Radiation Pattern 5250-5350 MHz



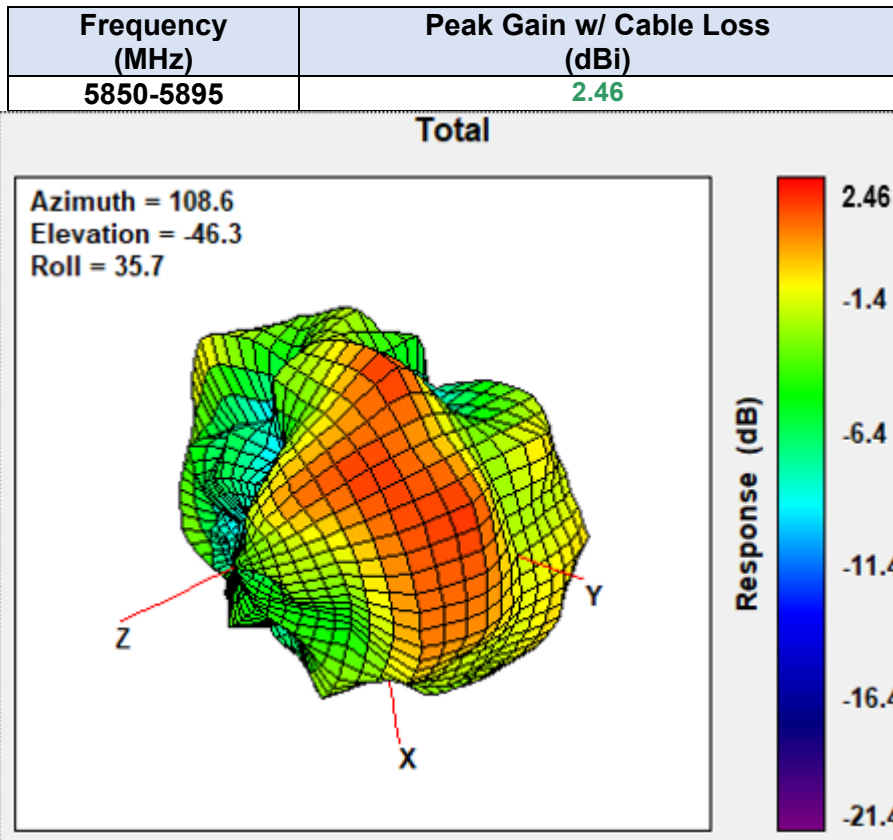
Max Antenna 3D Radiation Pattern 5470-5725 MHz



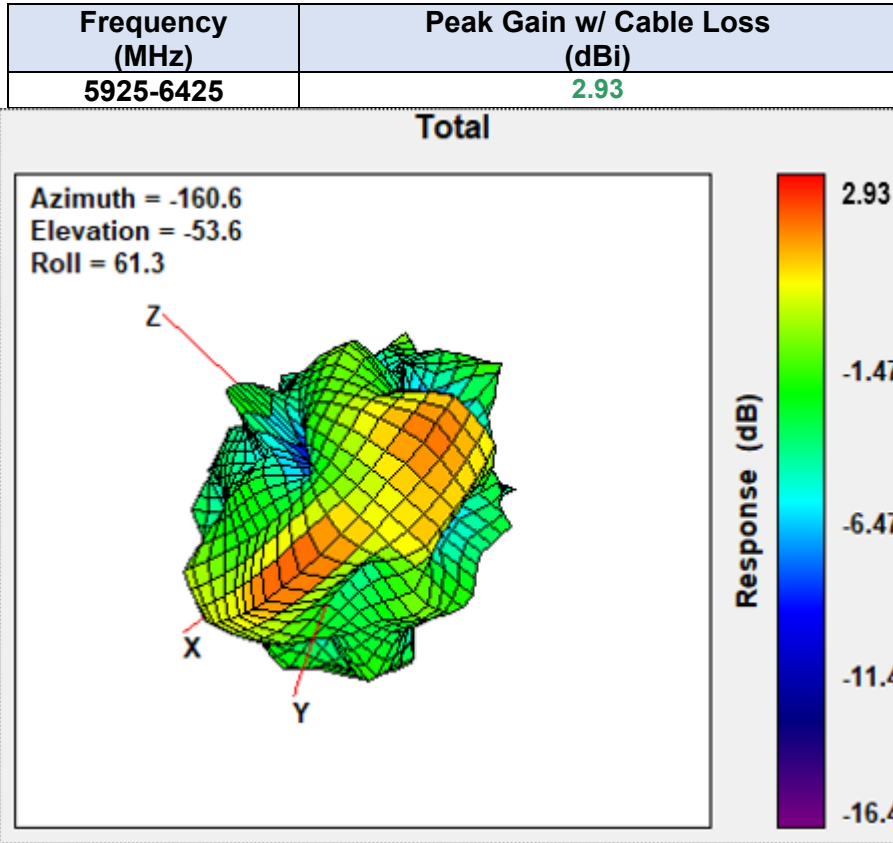
Max Antenna 3D Radiation Pattern 5725-5850 MHz



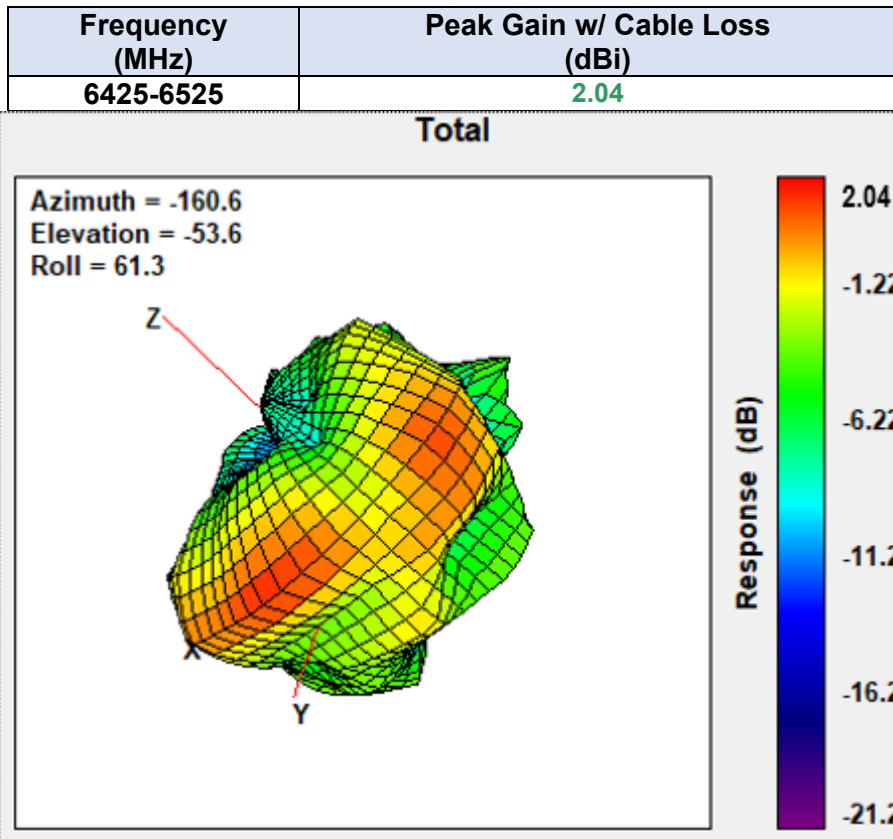
Max Antenna 3D Radiation Pattern 5850-5895 MHz



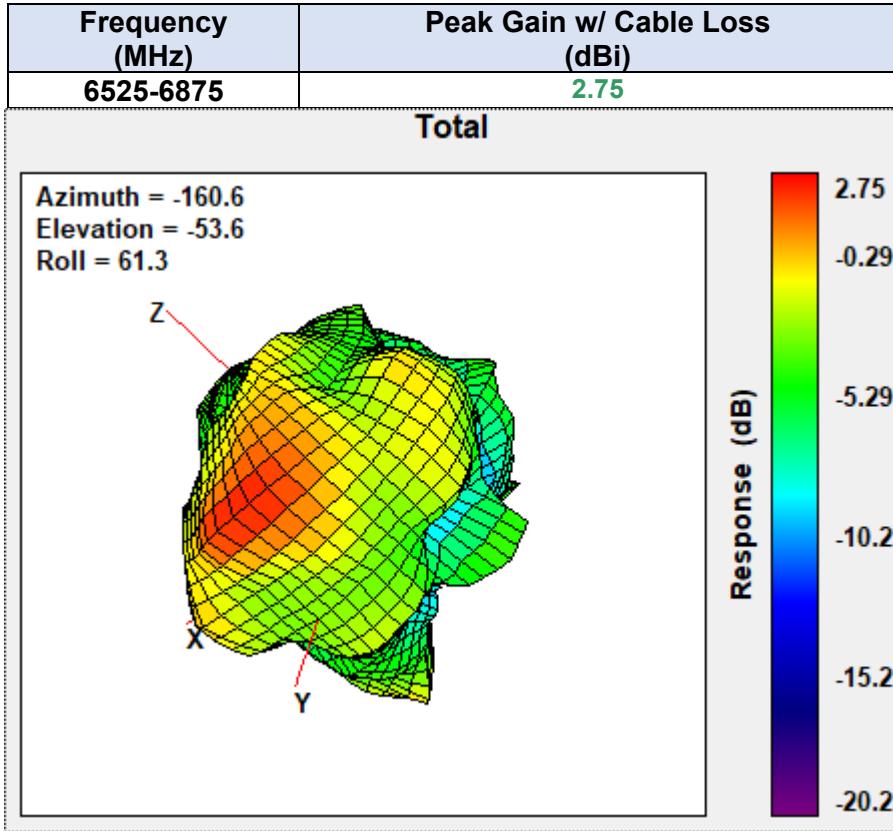
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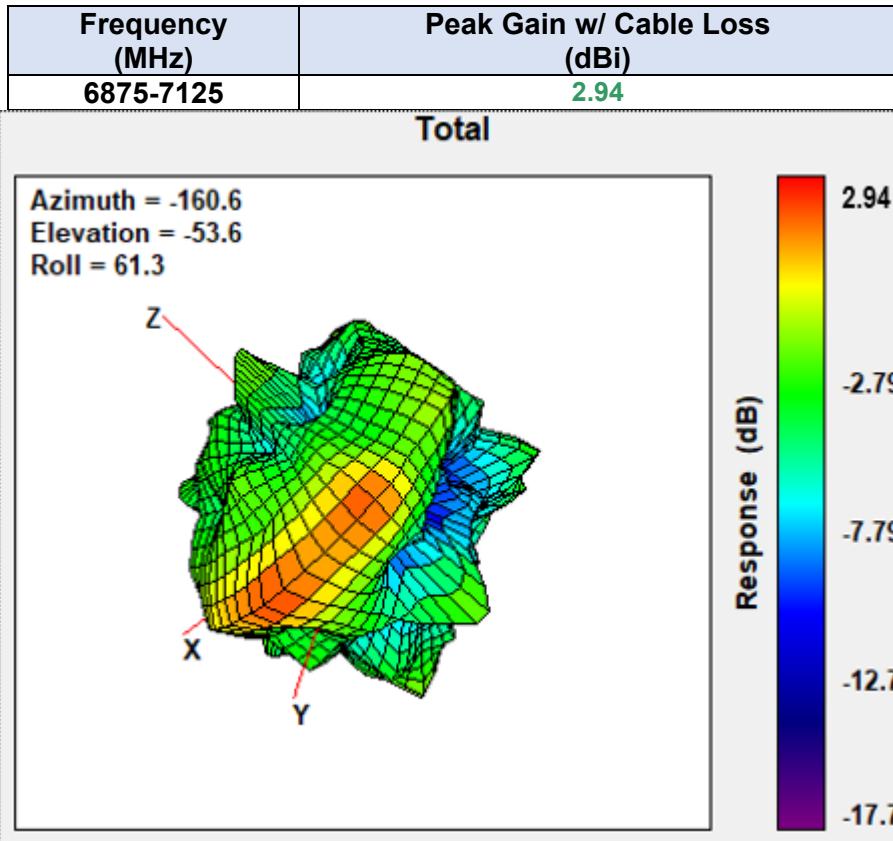
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Max Antenna 3D Radiation Pattern 6525-6875 MHz

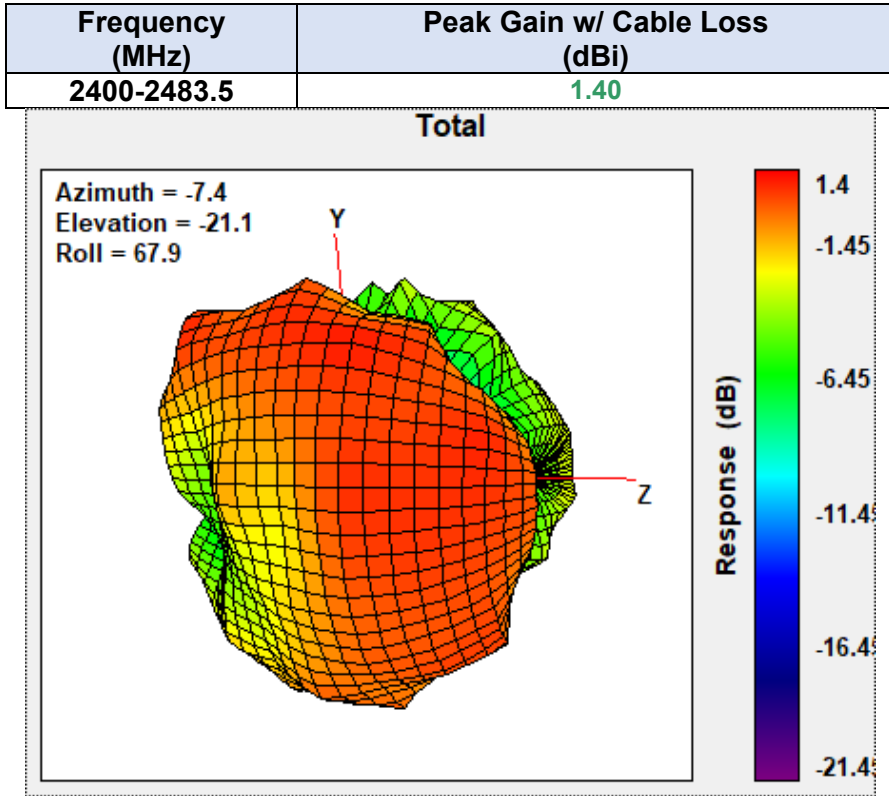


Max Antenna 3D Radiation Pattern 6875-7125 MHz

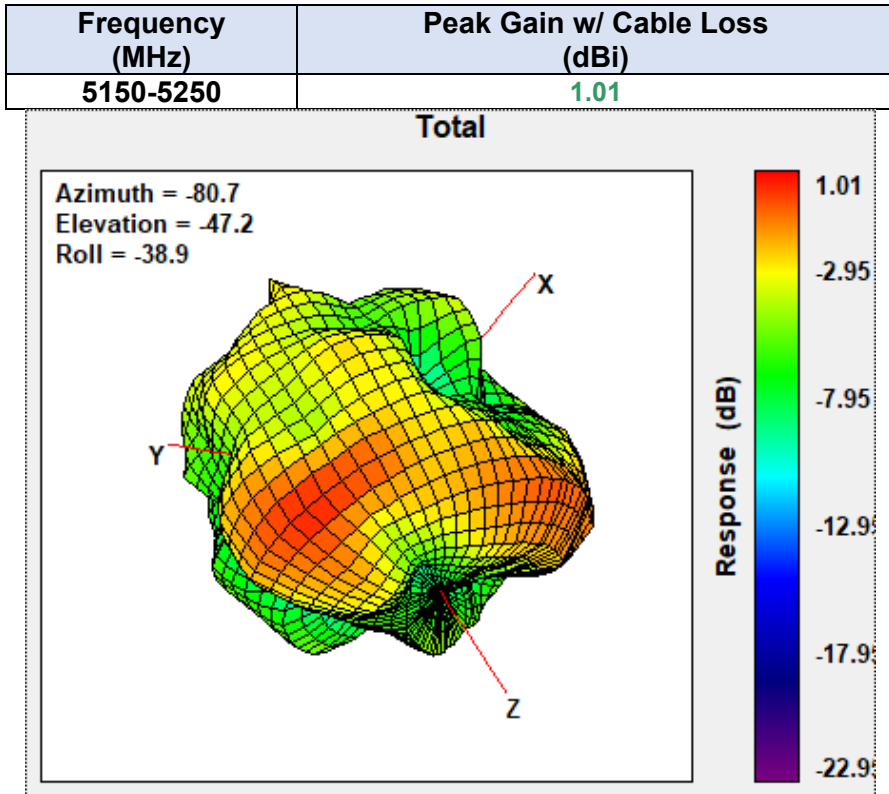


Auxiliary Antenna

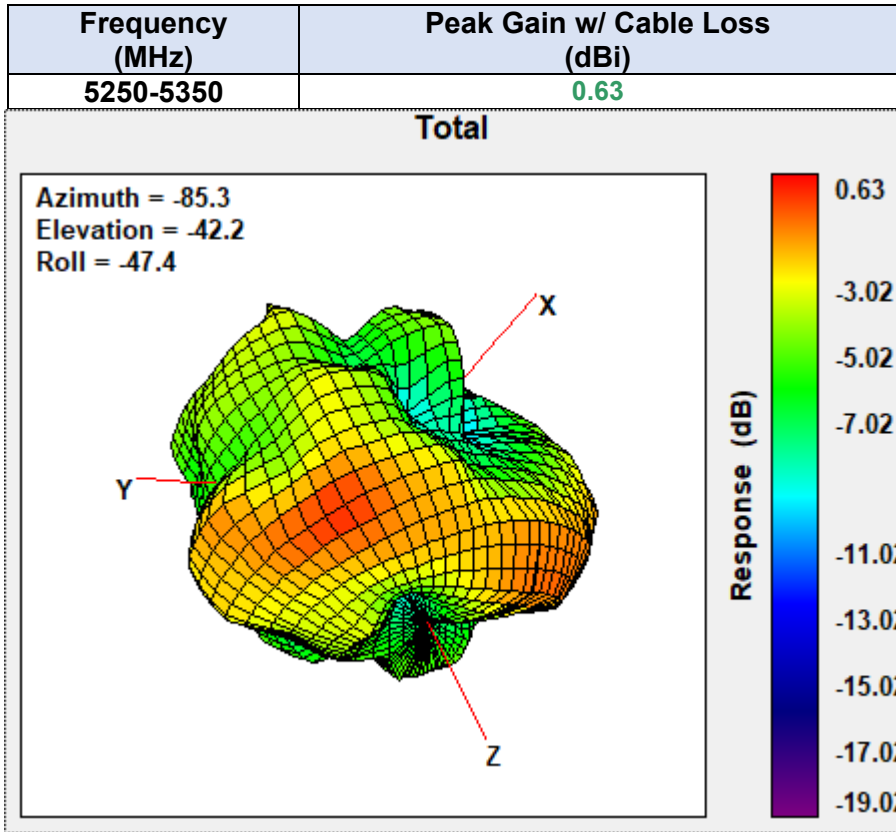
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz



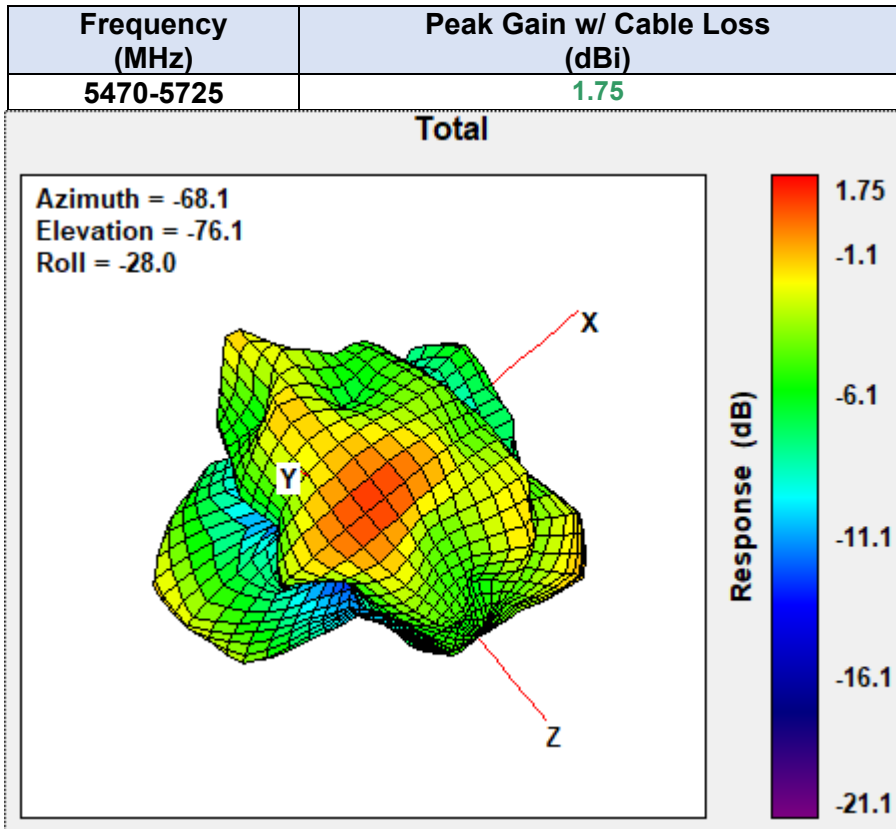
Max Antenna 3D Radiation Pattern 5150-5250 MHz



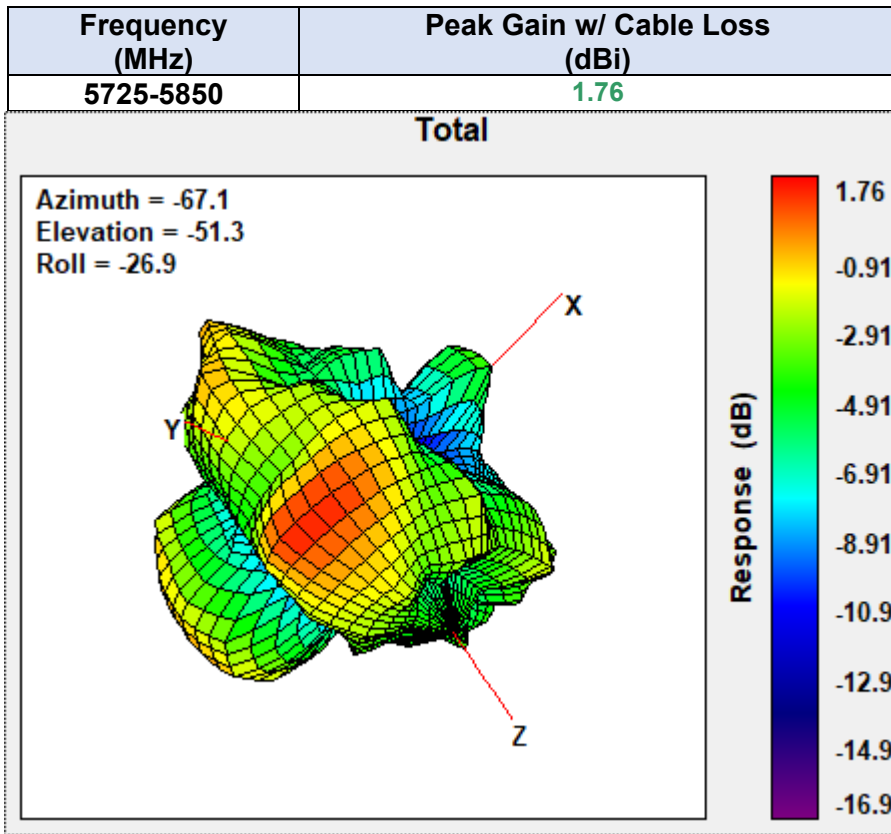
Max Antenna 3D Radiation Pattern 5250-5350 MHz



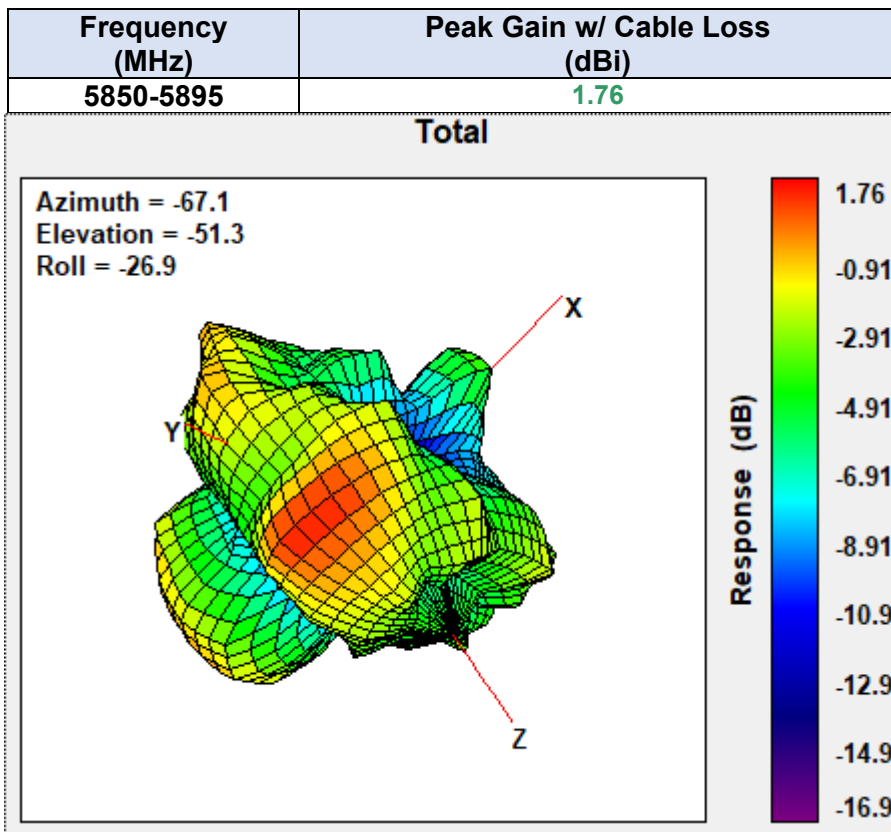
Max Antenna 3D Radiation Pattern 5470-5725 MHz



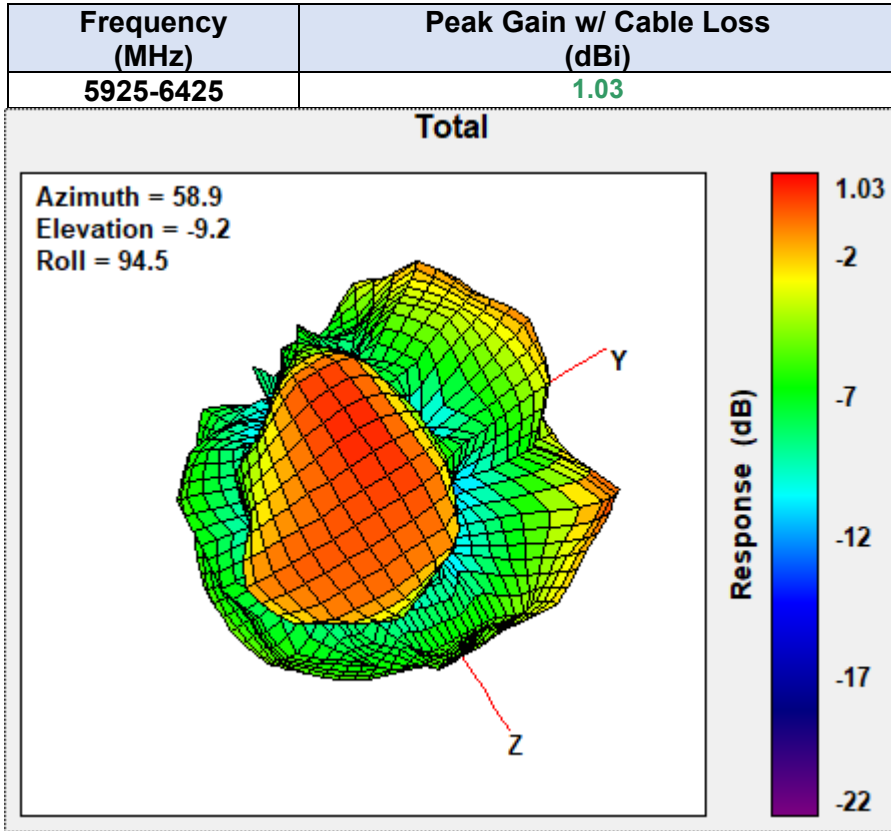
Max Antenna 3D Radiation Pattern 5725-5850 MHz



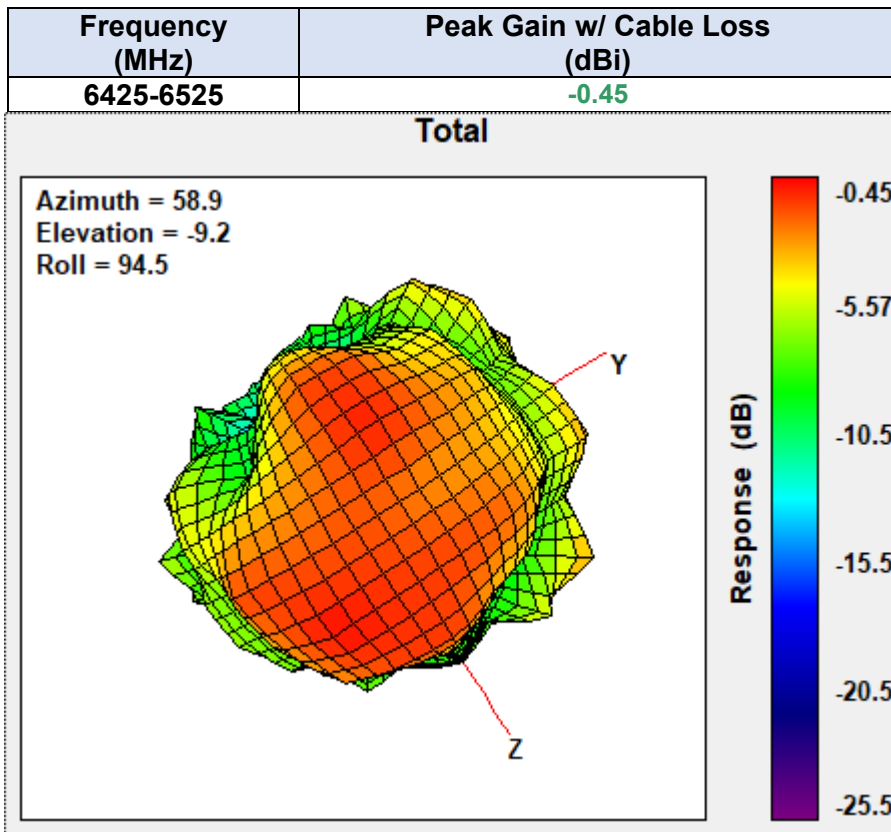
Max Antenna 3D Radiation Pattern 5850-5895 MHz



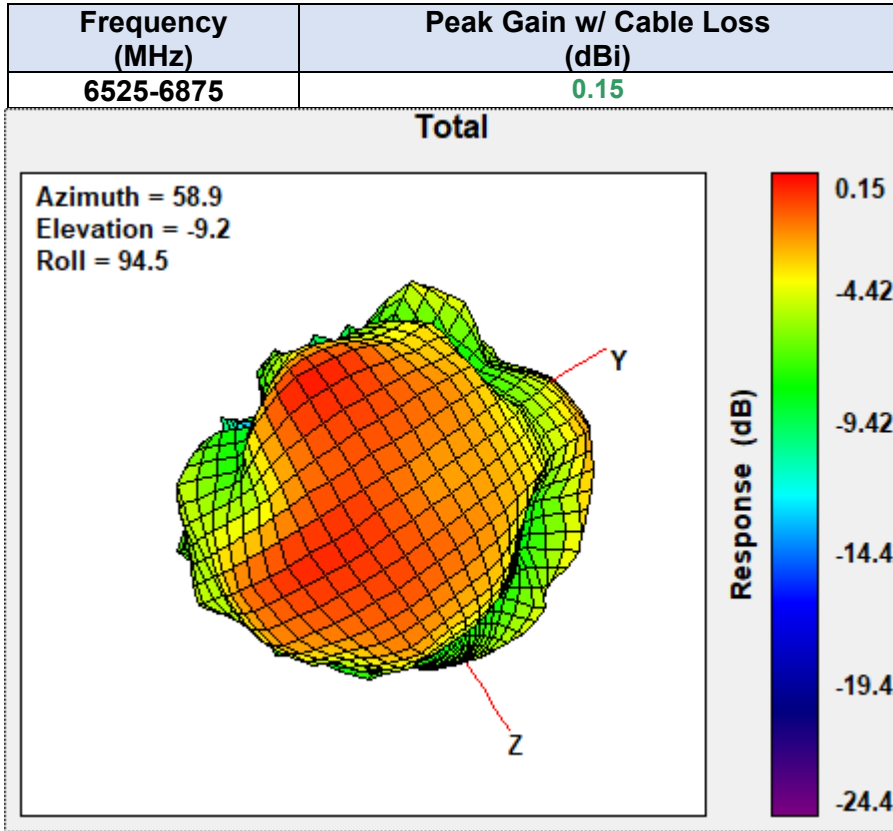
Max Antenna 3D Radiation Pattern 5925-6425 MHz



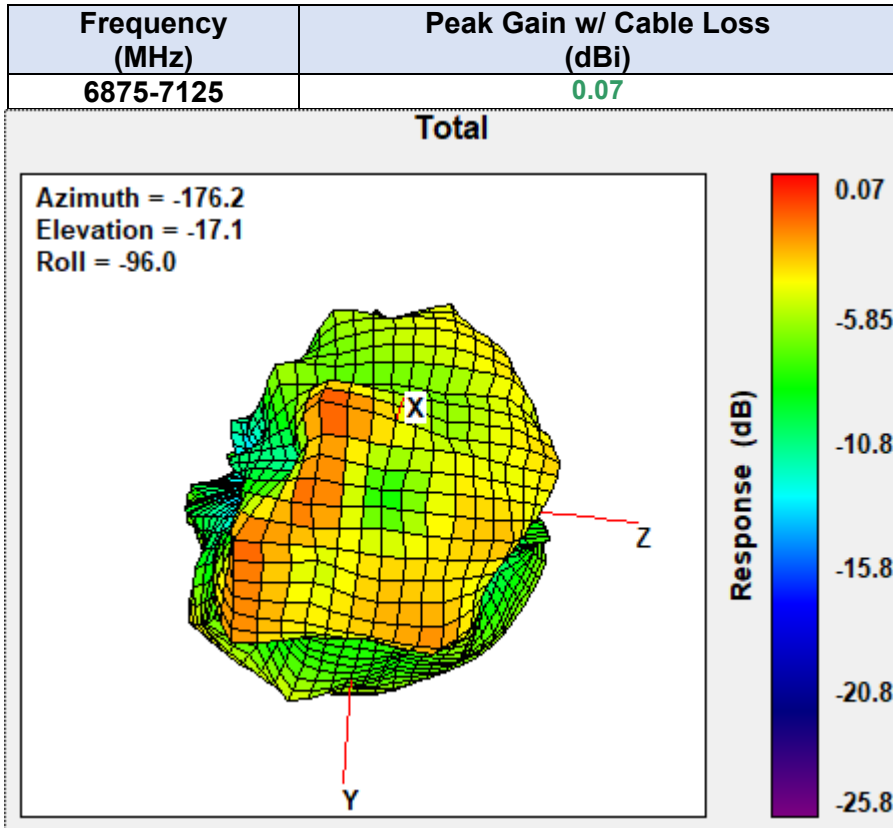
Max Antenna 3D Radiation Pattern 6425-6525 MHz



Max Antenna 3D Radiation Pattern 6525-6875 MHz



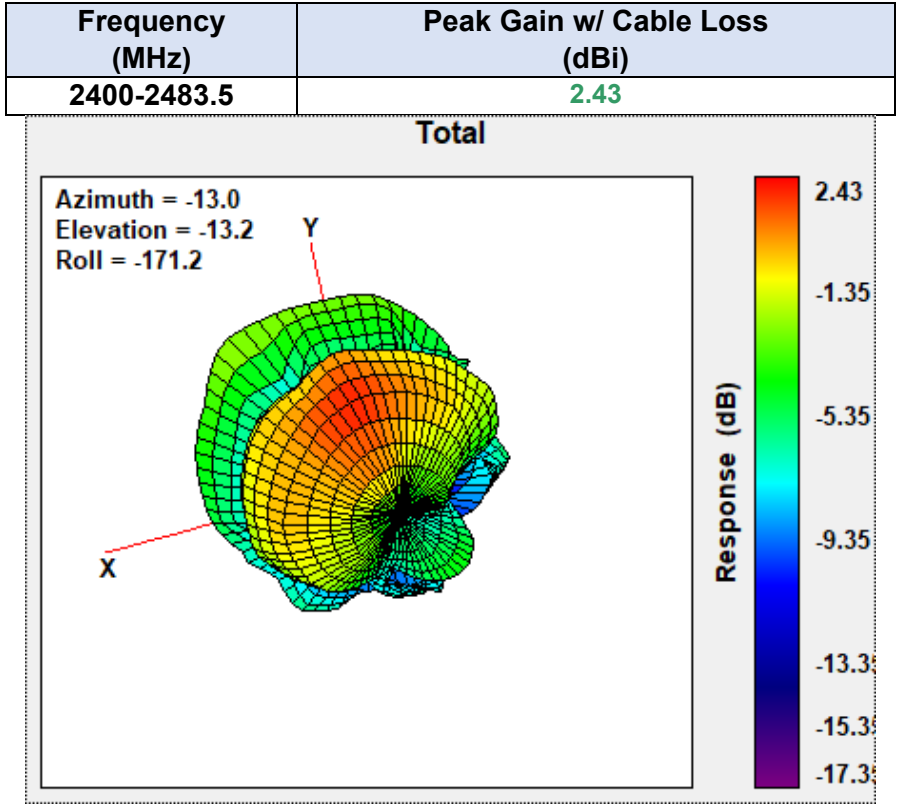
Max Antenna 3D Radiation Pattern 6875-7125 MHz



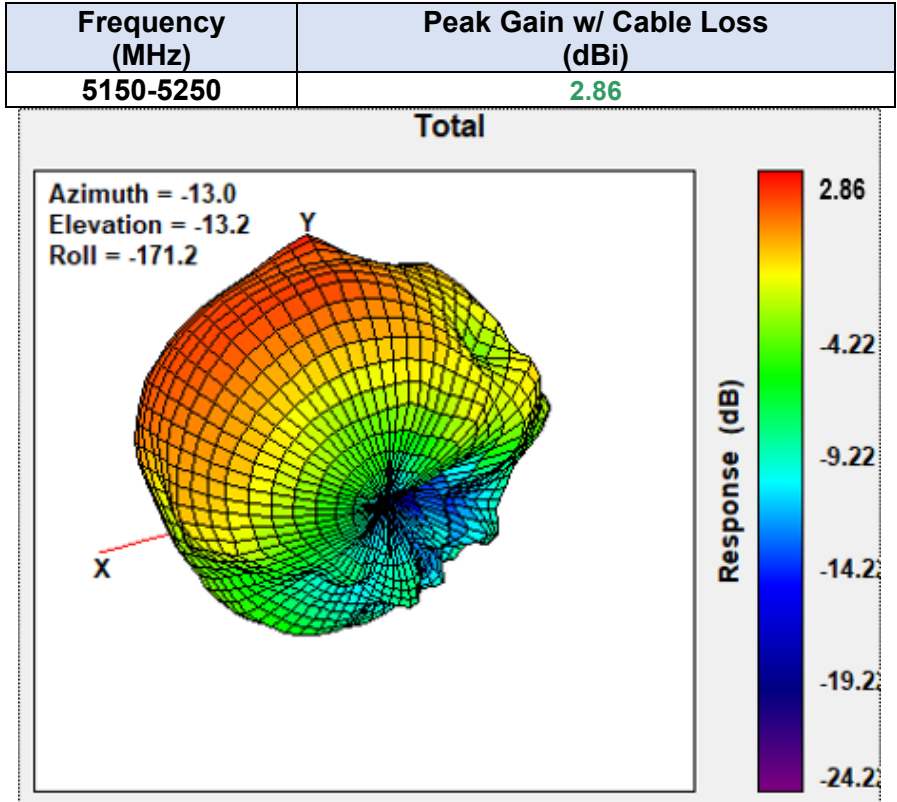
Tablet mode

Main Antenna

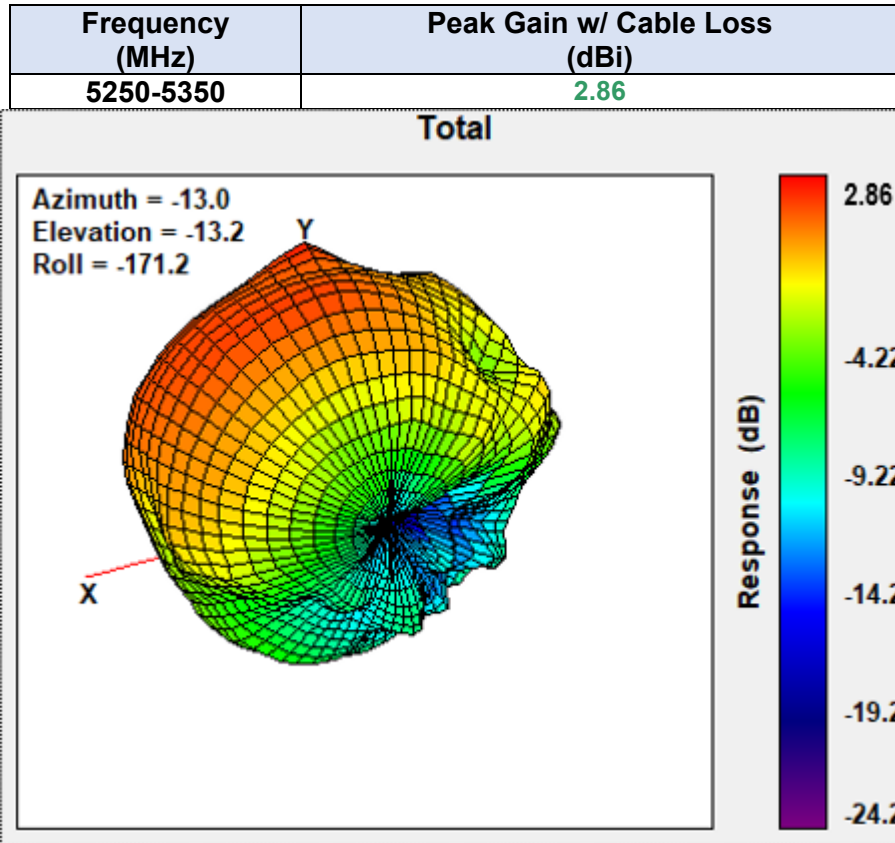
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz



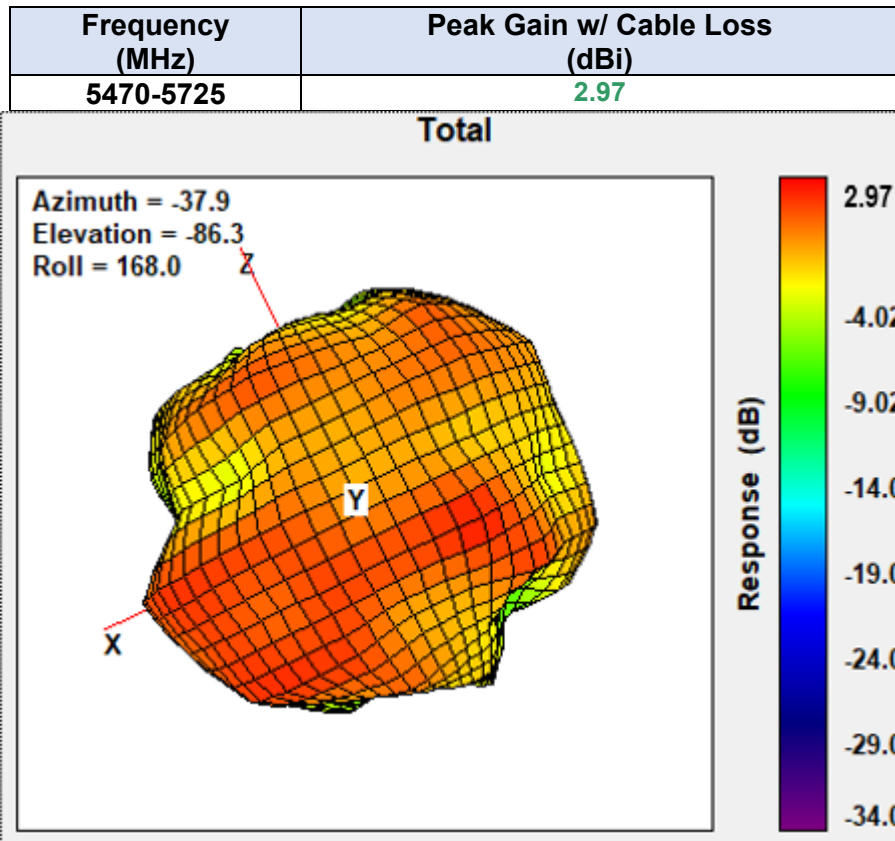
Max Antenna 3D Radiation Pattern 5150-5250 MHz



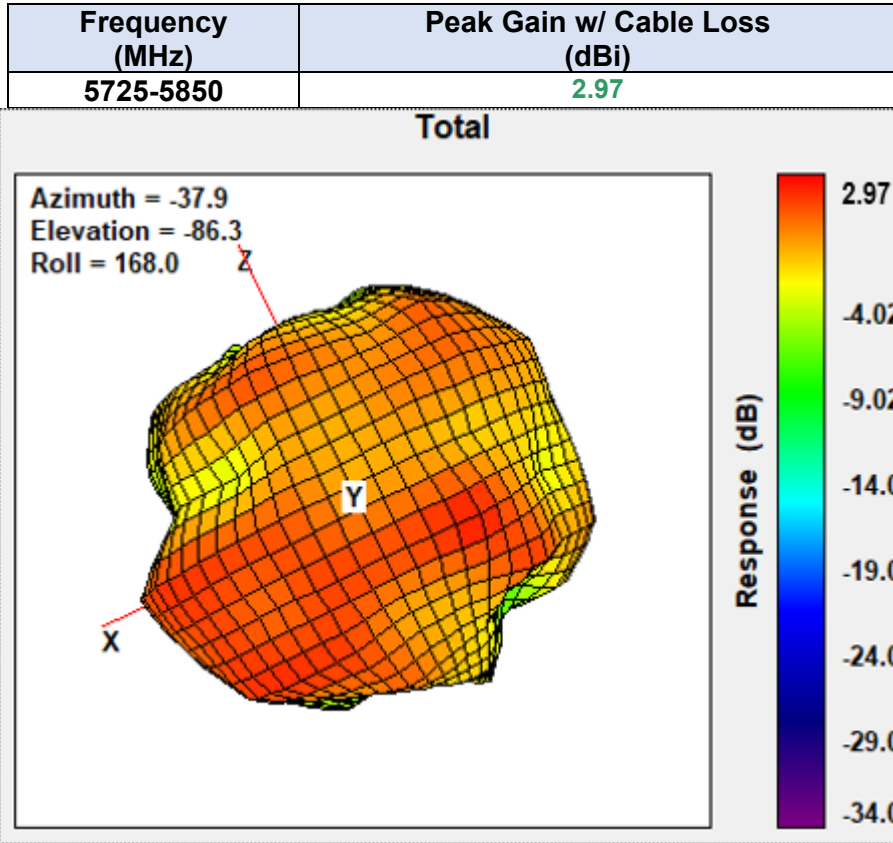
Max Antenna 3D Radiation Pattern 5250-5350 MHz



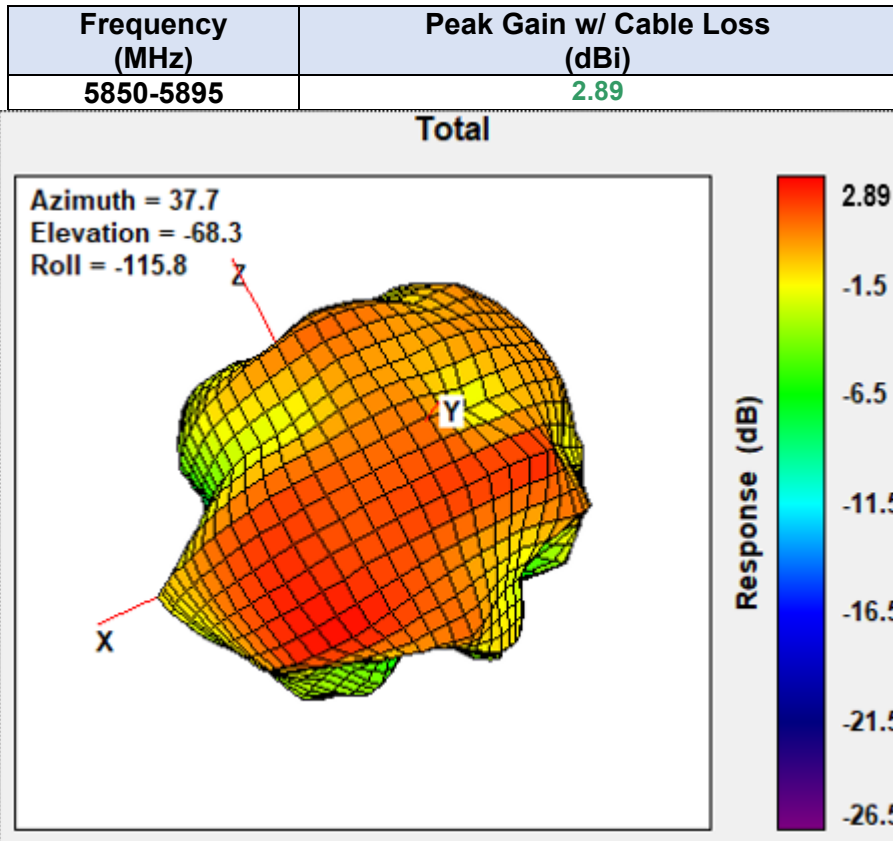
Max Antenna 3D Radiation Pattern 5470-5725 MHz



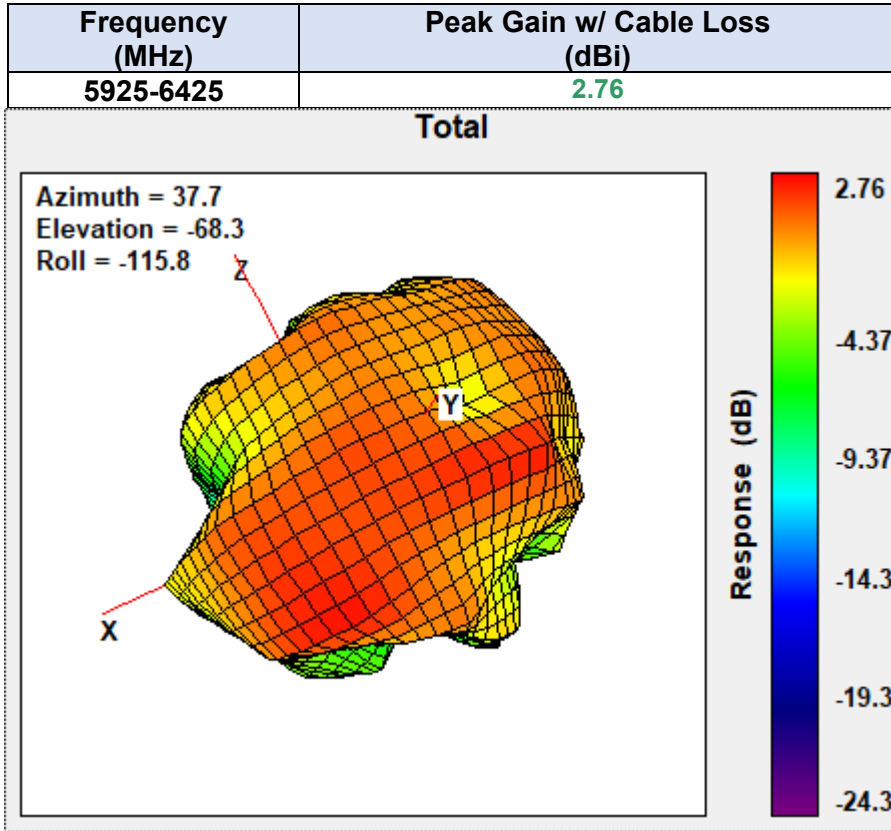
Max Antenna 3D Radiation Pattern 5725-5850 MHz



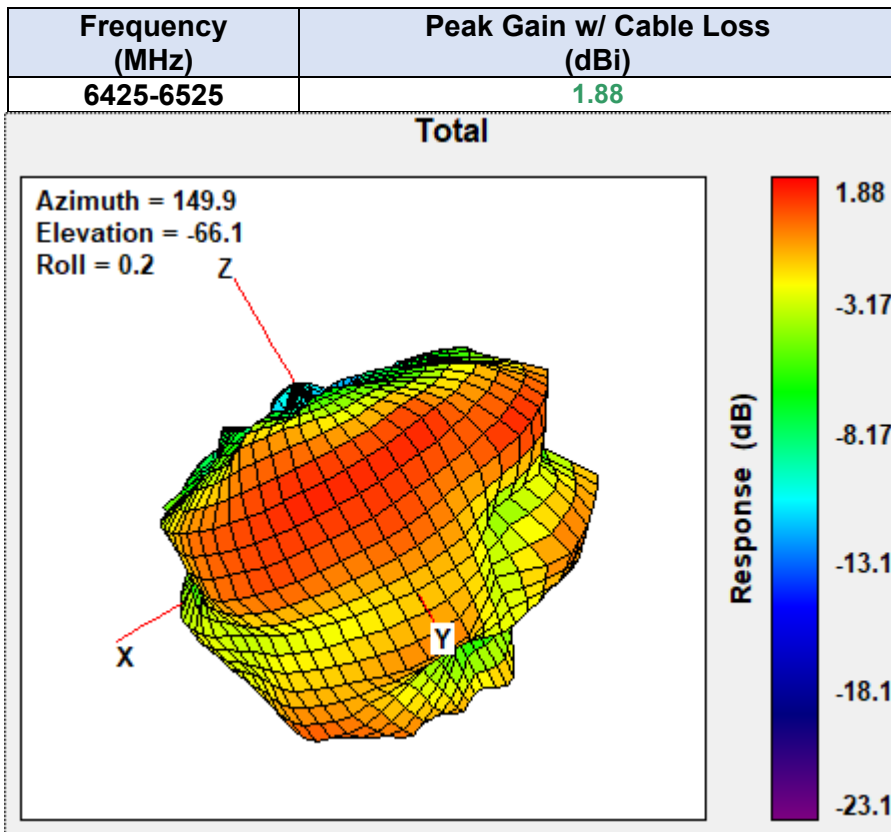
Max Antenna 3D Radiation Pattern 5850-5895 MHz



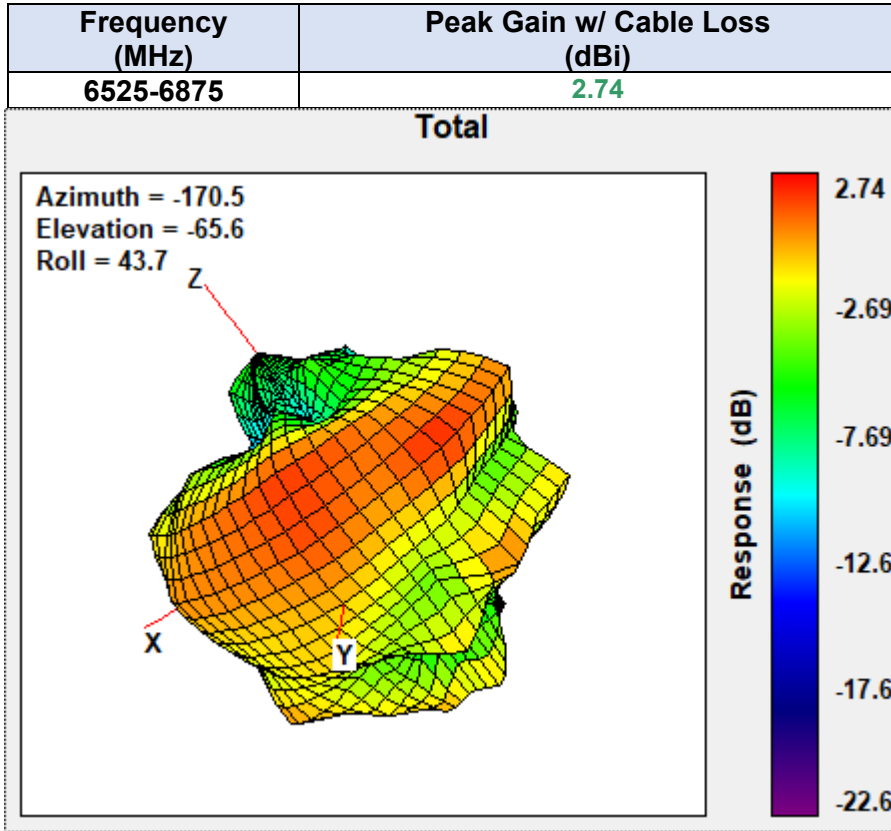
Max Antenna 3D Radiation Pattern 5925-6425 MHz



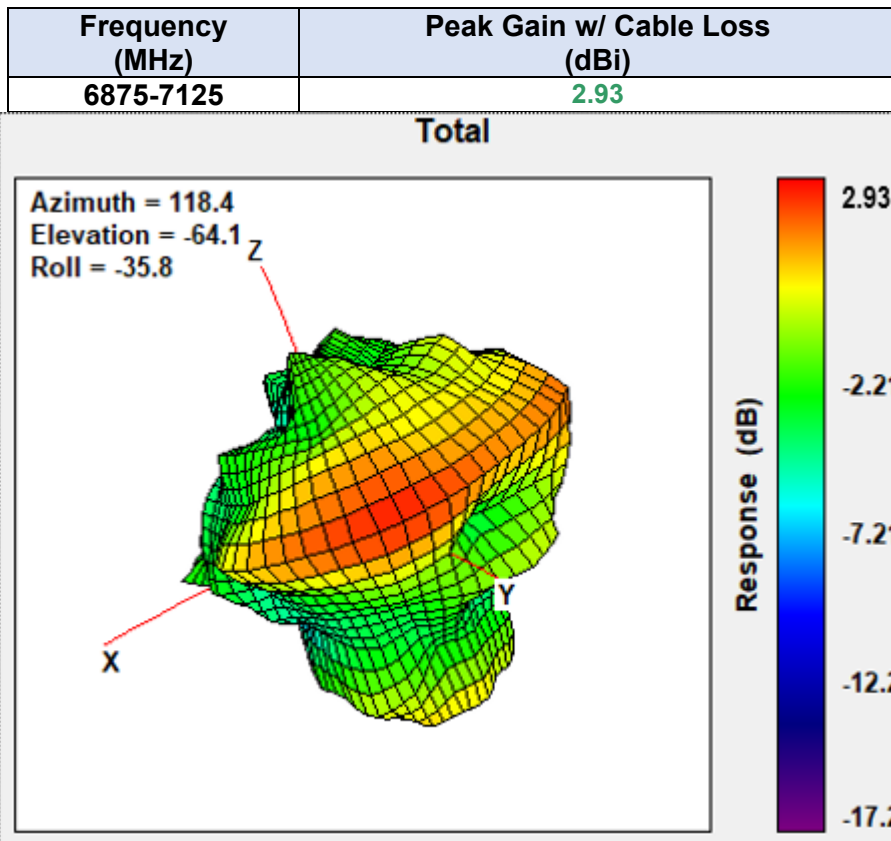
Max Antenna 3D Radiation Pattern 6425-6525 MHz



Max Antenna 3D Radiation Pattern 6525-6875 MHz

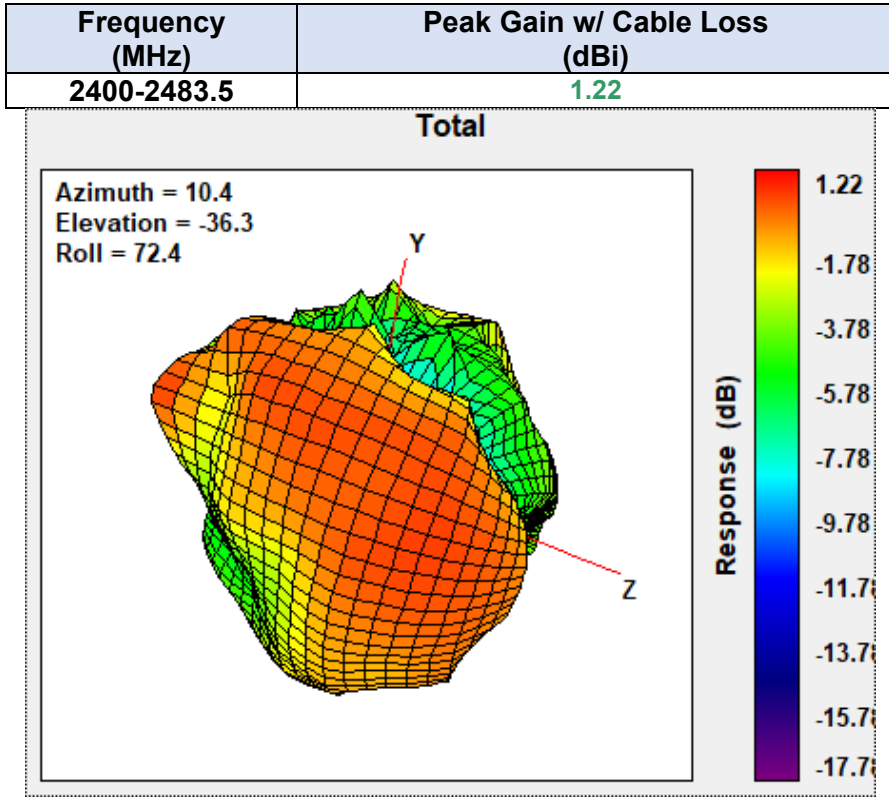


Max Antenna 3D Radiation Pattern 6875-7125 MHz

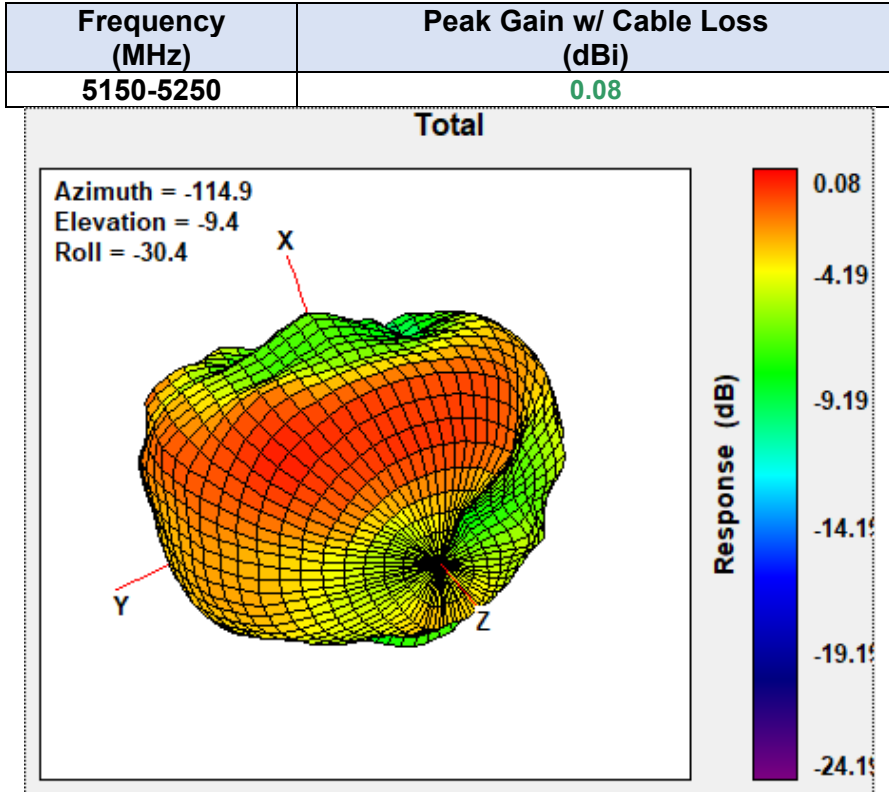


Auxiliary Antenna

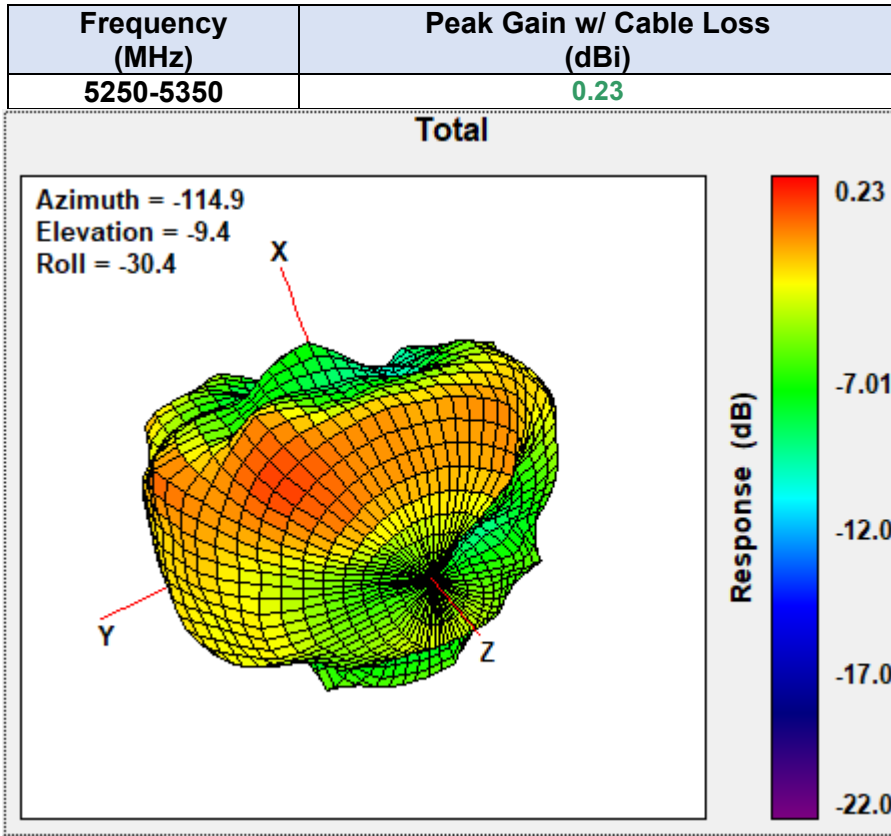
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz



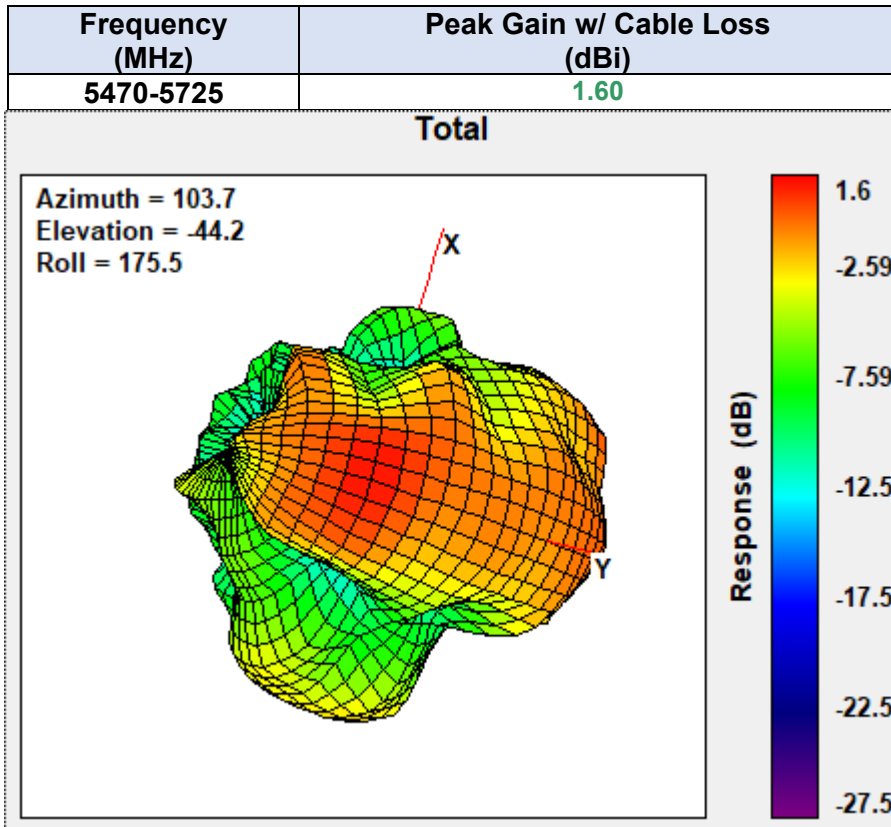
Max Antenna 3D Radiation Pattern 5150-5250 MHz



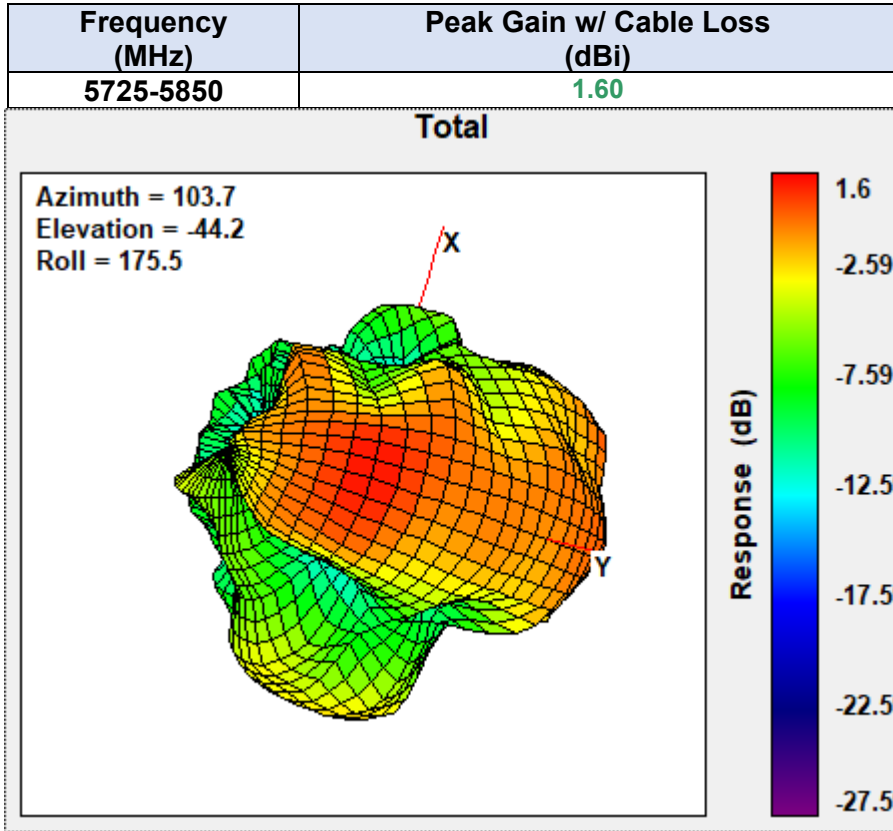
Max Antenna 3D Radiation Pattern 5250-5350 MHz



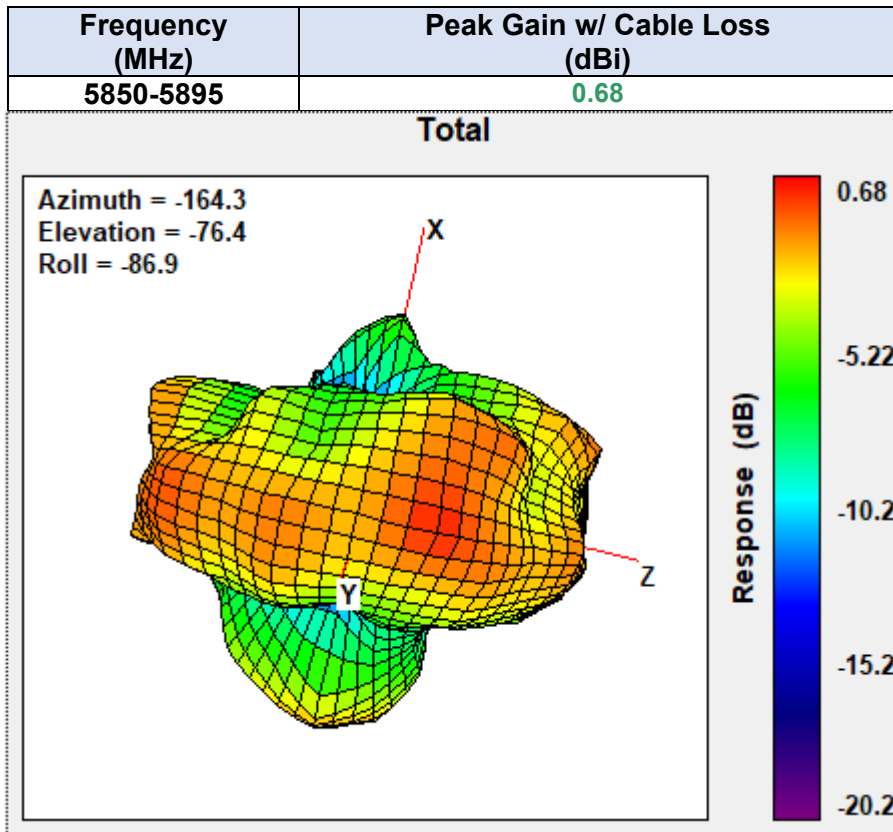
Max Antenna 3D Radiation Pattern 5470-5725 MHz



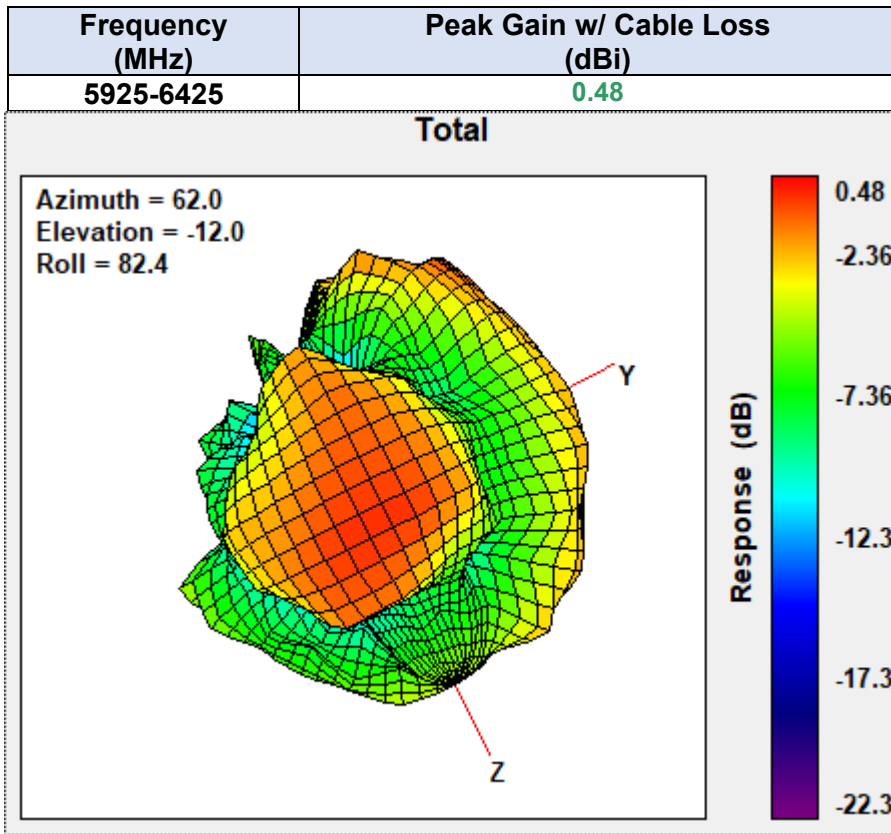
Max Antenna 3D Radiation Pattern 5725-5850 MHz



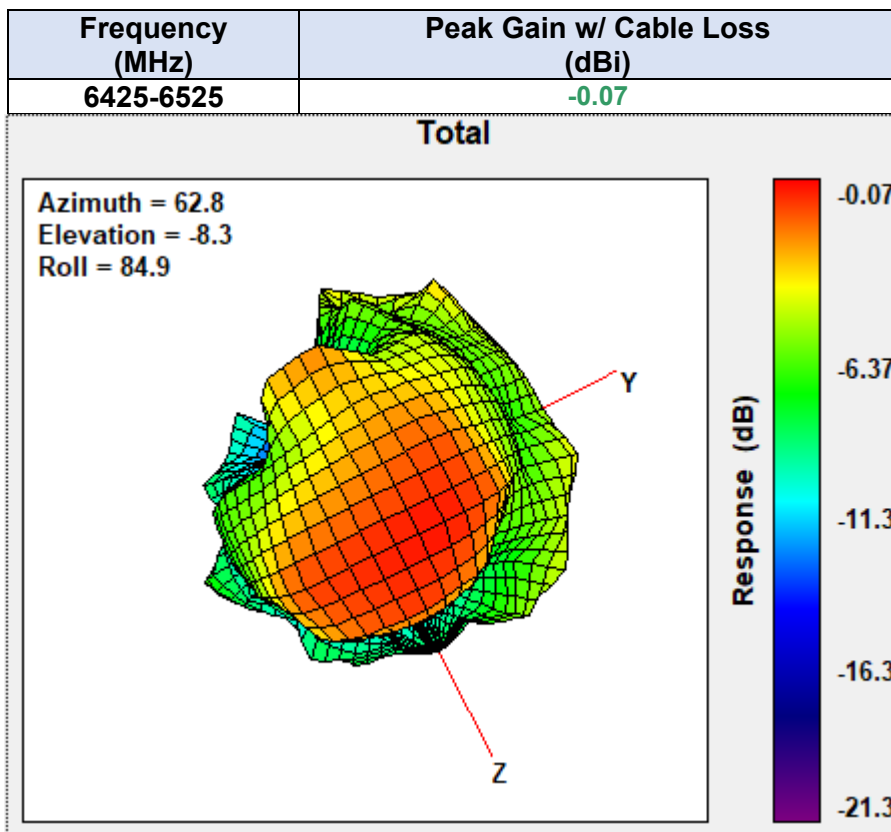
Max Antenna 3D Radiation Pattern 5850-5895 MHz



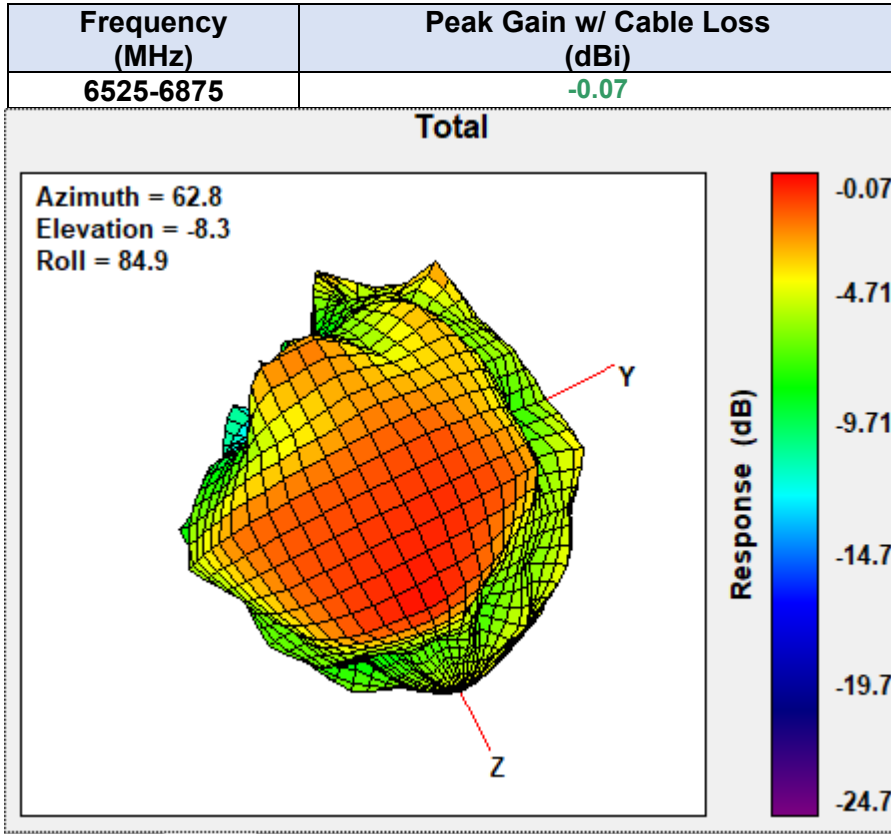
Max Antenna 3D Radiation Pattern 5925-6425 MHz



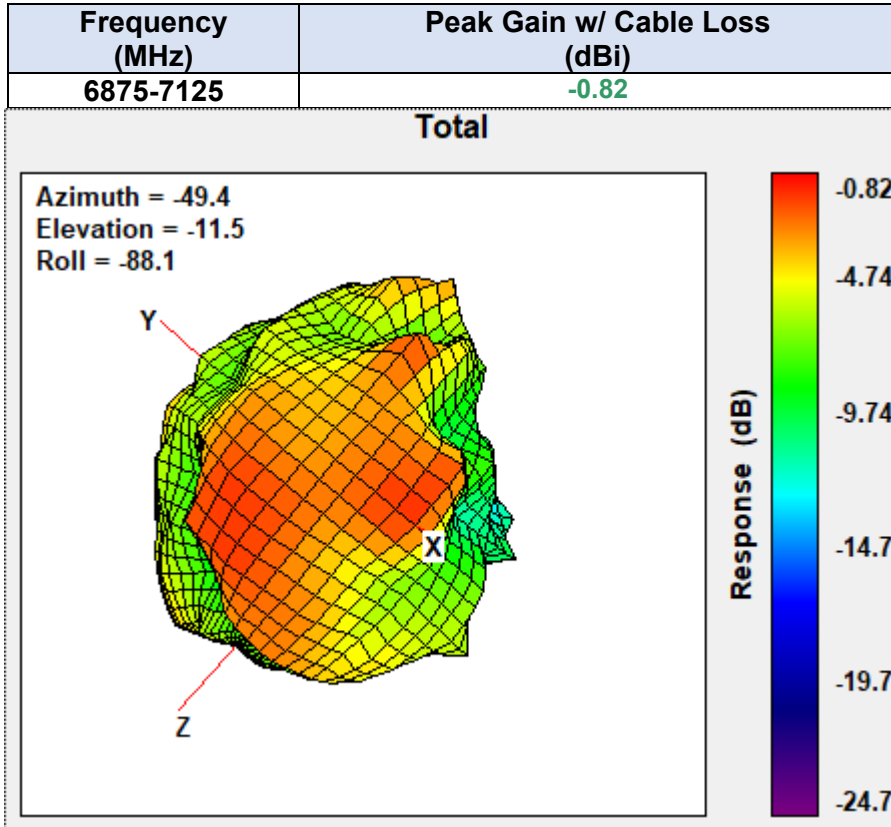
Max Antenna 3D Radiation Pattern 6425-6525 MHz



Max Antenna 3D Radiation Pattern 6525-6875 MHz



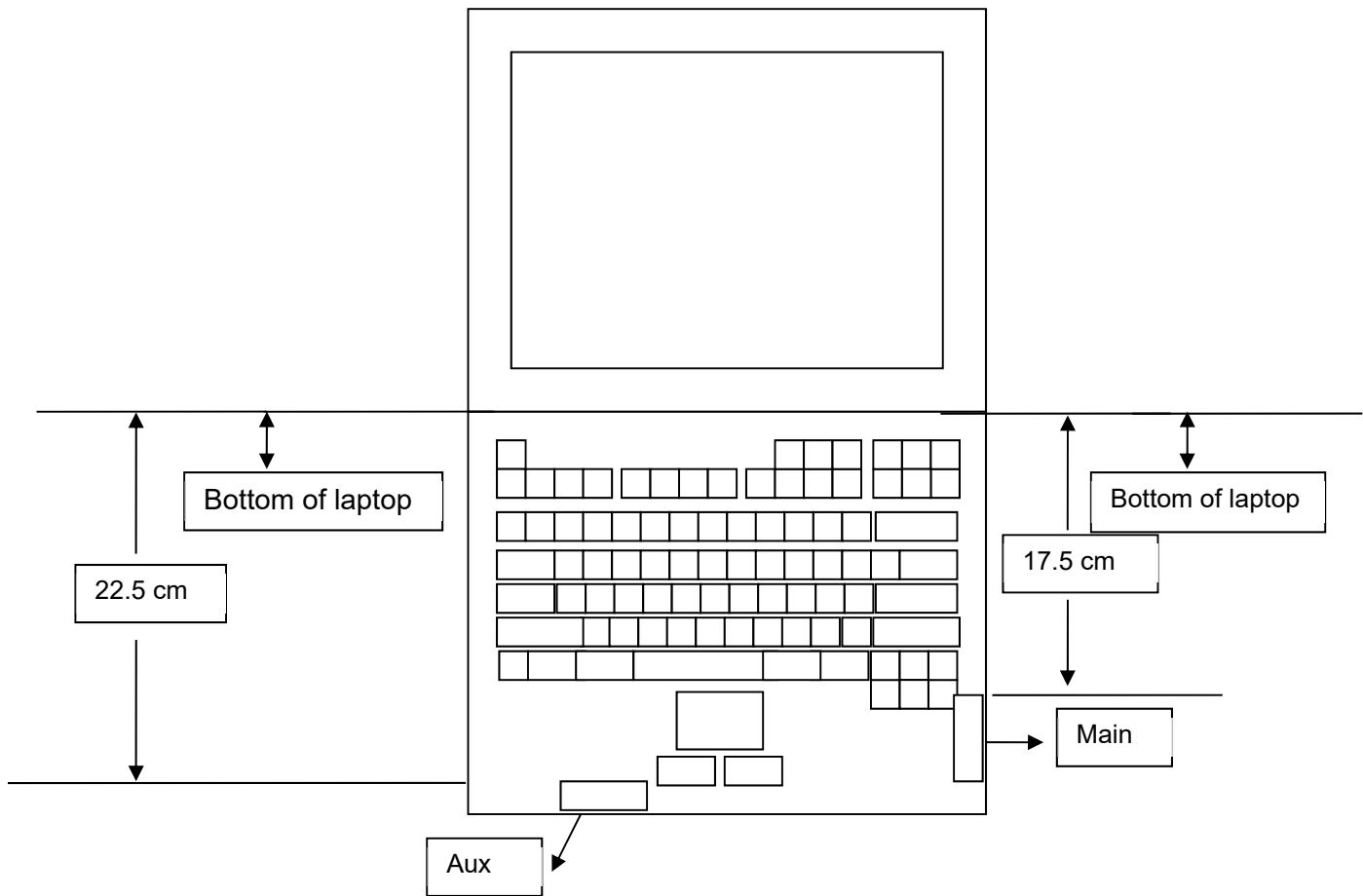
Max Antenna 3D Radiation Pattern 6875-7125 MHz



Section 4. Antenna Host Platform Location Information

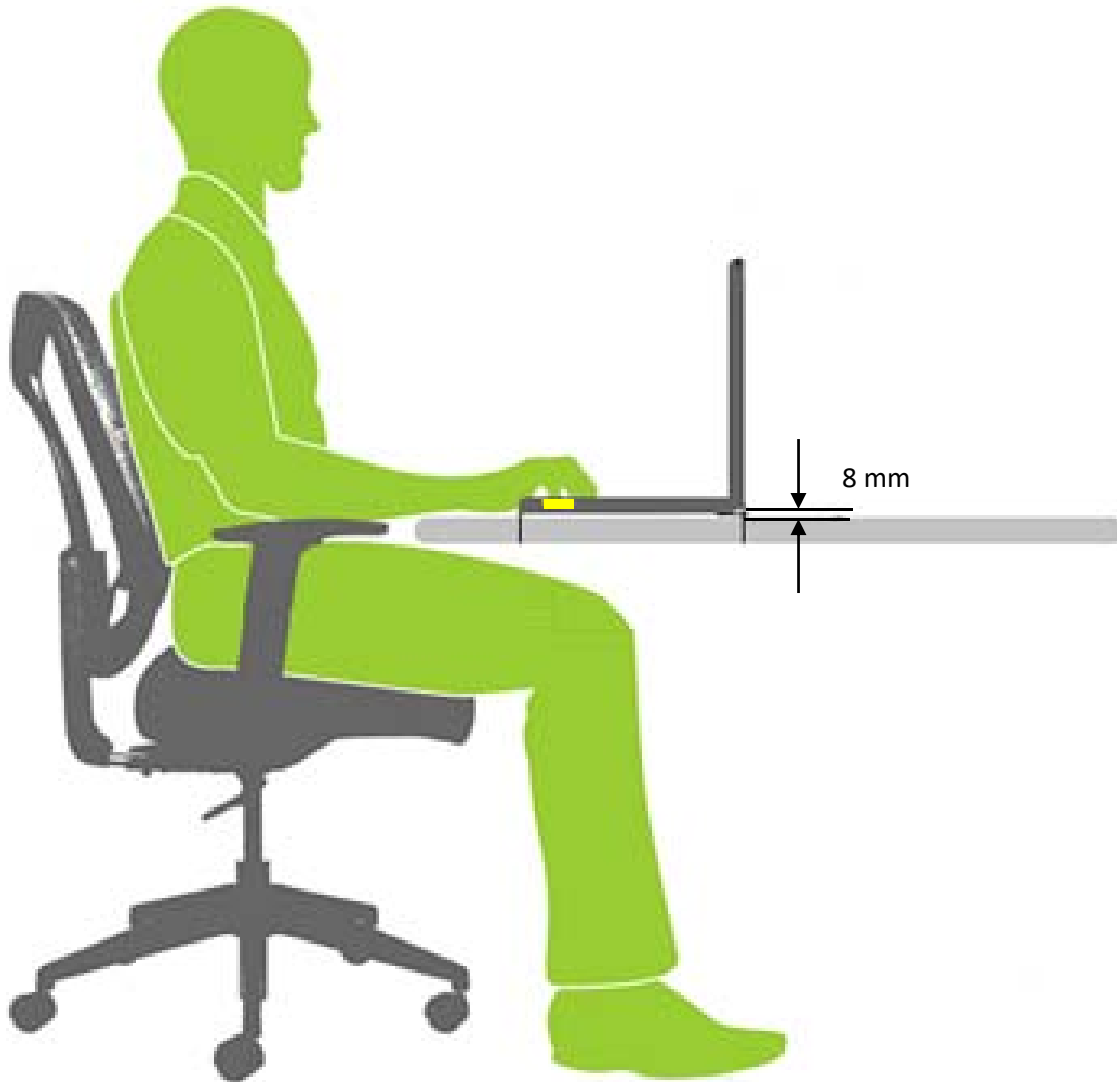
Include a **dimensioned photo(s) or dimensioned drawing(s)** of Main and Aux antenna placements (measurements are not required for receive-only antenna).

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

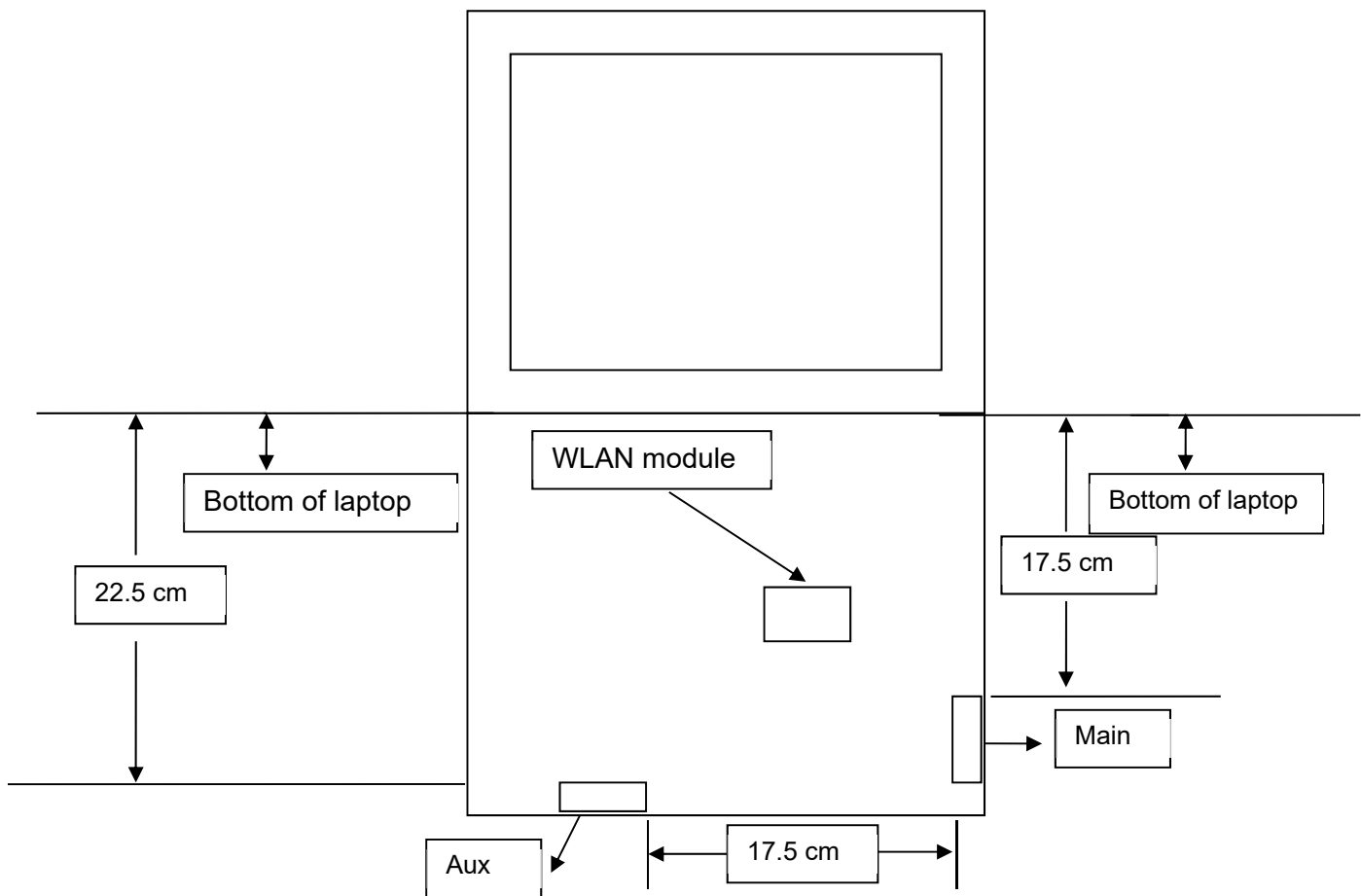
Include a **dimensioned photo(s) or dimensioned drawing(s)** showing the distance (mm) between the transmit antennas and the user. For notebook/laptop hosts show lapheld position (example below). For tablet hosts show all orientations including lapheld, primary & secondary portrait, primary & secondary 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)



Revision History

Revision	Description	Date
10.3	<u>Page2-5</u> Add Applicable test method, Test & System Description and Setup photo	July 24, 2022
10.4	<u>Cover page</u> Add Intel 5.9GHz reference antenna gain <u>Cover page/Section1/Section3</u> Add 5.9GHz antenna gain information	September 15, 2022