

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)					
GETAC		V110G7		Convertible PC	0mm					
****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)					
AWAN	PIFA			422GA2100011	422GA2100012					
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	2.79	1.96	1.65	1.88	1.90	0.56	2.99	2.99	2.76	
Aux	2.31	1.76	1.31	2.07	2.90	2.92	1.48	2.29	2.29	
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	
Design	3.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	Generic: refer to modular FCC SAR report Mid-power: ≥ 8 mm Low power: ≥ 5 mm
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.										

Antenna Information

Section 1. Antenna Assembly Specifications

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: 422GA2100011) Main Antenna	AWAN	PIFA	50 ohm Coaxial length: 35.2cm diameter: 1.13mm	2400-2483.5	2.79			
				5150-5250	1.96			
				5250-5350	1.65			
				5470-5725	1.88			
				5725-5850	1.90			
				5925-6425	0.56			
				6425-6525	2.99			
				6525-6875	2.99			
(P/N: 422GA2100012) Aux Antenna	AWAN	PIFA	50 ohm Coaxial length: 38.2cm diameter: 1.13mm	2400-2483.5	2.31			
				5150-5250	1.76			
				5250-5350	1.31			
				5470-5725	2.07			
				5725-5850	2.90			
				5925-6425	2.2			
				6425-6525	1.48			
				6525-6875	2.29			
6875-7125	2.29							

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

WLAN Main Antenna Gain Table

Frequency	2400	2425	2450	2475	2500
Ant. Port Input Pwr. (dB)	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-4.29	-4.15	-2.59	-2.35	-3.15
Peak EIRP (dB)	0.95	1.95	2.79	2.78	2.08
Directivity (dBi)	5.24	6.10	5.38	5.13	5.23
Efficiency (dB)	-4.29	-4.15	-2.59	-2.35	-3.15
Efficiency (%)	37.27	38.43	55.10	58.17	48.42
Gain (dBi)	0.95	1.95	2.79	2.78	2.08

Frequency	5150	5175	5200	5225	5250	5275	5300	5325	5350
Ant. Port Input Pwr. (dB)	0	0	0	0	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-3.79	-3.90	-4.05	-4.04	-3.84	-3.78	-3.65	-3.67	-3.81
Peak EIRP (dB)	1.96	1.51	0.87	0.80	0.96	1.13	1.22	1.62	1.65
Directivity (dBi)	5.75	5.40	4.92	4.84	4.80	4.91	4.87	5.28	5.46
Efficiency (dB)	-3.79	-3.90	-4.05	-4.04	-3.84	-3.78	-3.65	-3.67	-3.81
Efficiency (%)	41.80	40.75	39.39	39.48	41.30	41.90	43.19	42.98	41.62
Gain (dBi)	1.96	1.51	0.87	0.80	0.96	1.13	1.22	1.62	1.65
NHPRP $\pm\pi/4$ (dB)	-5.03	-5.13	-5.26	-5.22	-4.98	-4.89	-4.74	-4.77	-4.94

Frequency	5375	5400	5425	5450	5475	5500	5525	5550	5575
Ant. Port Input Pwr. (dB)	0	0	0	0	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-4.06	-4.26	-4.50	-4.66	-4.63	-4.57	-4.24	-3.84	-3.86
Peak EIRP (dB)	1.36	1.25	0.94	0.26	0.12	0.65	1.38	1.86	1.88
Directivity (dBi)	5.42	5.51	5.44	4.92	4.75	5.22	5.62	5.70	5.73
Efficiency (dB)	-4.06	-4.26	-4.50	-4.66	-4.63	-4.57	-4.24	-3.84	-3.86
Efficiency (%)	39.30	37.49	35.45	34.22	34.43	34.92	37.70	41.28	41.16
Gain (dBi)	1.36	1.25	0.94	0.26	0.12	0.65	1.38	1.86	1.88

Frequency	5600	5625	5650	5675	5700	5725	5750	5775	5800
Ant. Port Input Pwr. (dB)	0	0	0	0	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-4.08	-4.59	-5.10	-5.45	-5.71	-5.66	-5.39	-5.06	-4.65
Peak EIRP (dB)	1.75	1.44	1.08	0.67	0.15	0.50	0.93	1.33	1.80
Directivity (dBi)	5.83	6.02	6.18	6.12	5.86	6.16	6.32	6.40	6.45
Efficiency (dB)	-4.08	-4.59	-5.10	-5.45	-5.71	-5.66	-5.39	-5.06	-4.65
Efficiency (%)	39.10	34.79	30.93	28.48	26.88	27.16	28.90	31.18	34.28
Gain (dBi)	1.75	1.44	1.08	0.67	0.15	0.50	0.93	1.33	1.80

Frequency	5825	5850	5875	5900	5925	5950	5975	6000	6125
Ant. Port Input Pwr. (dB)	0	0	0	0	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-4.49	-4.94	-5.75	-6.62	-7.06	-7.28	-7.12	-6.70	-6.11
Peak EIRP (dB)	1.90	1.15	-0.18	-0.45	-0.46	-0.43	-0.31	-0.16	-1.18
Directivity (dBi)	6.39	6.09	5.57	6.17	6.60	6.86	6.82	6.54	4.92
Efficiency (dB)	-4.49	-4.94	-5.75	-6.62	-7.06	-7.28	-7.12	-6.70	-6.11
Efficiency (%)	35.60	32.04	26.63	21.76	19.68	18.70	19.39	21.39	24.50
Gain (dBi)	1.90	1.15	-0.18	-0.45	-0.46	-0.43	-0.31	-0.16	-1.18

Frequency	6225	6325	6425	6525	6625	6725	6875	6925	7125
Ant. Port Input Pwr. (dB)	0	0	0	0	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-6.60	-4.76	-6.69	-4.49	-4.83	-4.25	-4.17	-4.81	-3.53
Peak EIRP (dB)	-1.07	0.56	-0.48	2.99	0.97	2.42	2.34	2.00	2.76
Directivity (dBi)	5.54	5.32	6.21	7.48	5.80	6.67	6.51	6.81	6.29
Efficiency (dB)	-6.60	-4.76	-6.69	-4.49	-4.83	-4.25	-4.17	-4.81	-3.53
Efficiency (%)	21.87	33.40	21.42	35.54	32.90	37.56	38.30	33.07	44.40
Gain (dBi)	-1.07	0.56	-0.48	2.99	0.97	2.42	2.34	2.00	2.76

WLAN Aux Antenna Gain Table

Frequency	2400	2425	2450	2475	2500
Ant. Port Input Pwr. (dB)	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-3.05	-2.77	-2.54	-2.37	-2.54
Peak EIRP (dB)	1.24	1.43	1.56	2.12	2.31
Directivity (dBi)	4.29	4.20	4.10	4.49	4.85
Efficiency (dB)	-3.05	-2.77	-2.54	-2.37	-2.54
Efficiency (%)	49.55	52.89	55.78	57.95	55.73
Gain (dBi)	1.24	1.43	1.56	2.12	2.31

Frequency	5150	5175	5200	5225	5250	5275	5300	5325	5350
Ant. Port Input Pwr. (dB)	0	0	0	0	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-3.49	-3.32	-3.38	-3.55	-3.68	-3.93	-3.96	-3.93	-3.76
Peak EIRP (dB)	1.75	1.76	1.65	1.53	1.31	1.02	0.90	0.93	1.11
Directivity (dBi)	5.24	5.08	5.03	5.08	4.99	4.95	4.85	4.87	4.87
Efficiency (dB)	-3.49	-3.32	-3.38	-3.55	-3.68	-3.93	-3.96	-3.93	-3.76
Efficiency (%)	44.80	46.55	45.92	44.20	42.84	40.46	40.21	40.44	42.08
Gain (dBi)	1.75	1.76	1.65	1.53	1.31	1.02	0.90	0.93	1.11

Frequency	5375	5400	5425	5450	5475	5500	5525	5550	5575
Ant. Port Input Pwr. (dB)	0	0	0	0	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-3.58	-3.43	-3.44	-3.48	-3.56	-3.73	-3.69	-3.56	-3.54
Peak EIRP (dB)	1.34	1.45	1.66	1.64	1.61	1.47	1.39	1.50	1.61
Directivity (dBi)	4.92	4.88	5.09	5.12	5.18	5.21	5.08	5.06	5.15
Efficiency (dB)	-3.58	-3.43	-3.44	-3.48	-3.56	-3.73	-3.69	-3.56	-3.54
Efficiency (%)	43.89	45.35	45.31	44.83	44.02	42.36	42.76	44.02	44.24
Gain (dBi)	1.34	1.45	1.66	1.64	1.61	1.47	1.39	1.50	1.61

Frequency	5600	5625	5650	5675	5700	5725	5750	5775	5800
Ant. Port Input Pwr. (dB)	0	0	0	0	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-3.45	-3.45	-3.50	-3.57	-3.71	-3.76	-3.69	-3.67	-3.62
Peak EIRP (dB)	1.81	1.91	1.91	1.86	1.98	2.07	2.13	2.36	2.56
Directivity (dBi)	5.26	5.36	5.41	5.44	5.69	5.83	5.82	6.03	6.18
Efficiency (dB)	-3.45	-3.45	-3.50	-3.57	-3.71	-3.76	-3.69	-3.67	-3.62
Efficiency (%)	45.15	45.17	44.70	43.94	42.53	42.10	42.73	42.95	43.46
Gain (dBi)	1.81	1.91	1.91	1.86	1.98	2.07	2.13	2.36	2.56

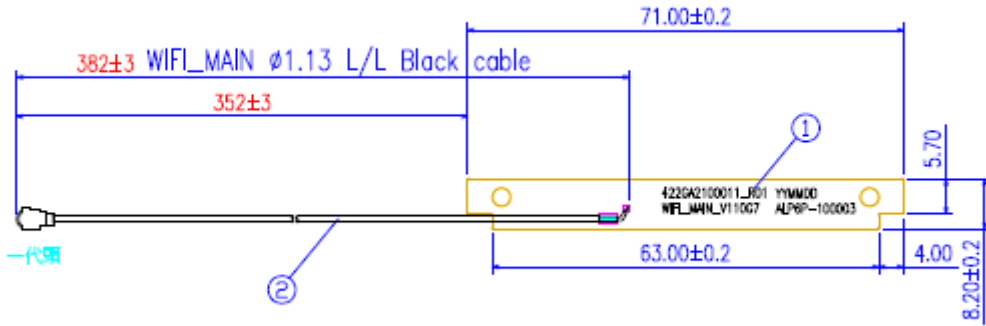
Frequency	5825	5850	5875	5900	5925	5950	5975	6000	6125
Ant. Port Input Pwr. (dB)	0	0	0	0	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-3.48	-3.48	-3.56	-3.78	-3.86	-3.96	-3.96	-3.91	-3.29
Peak EIRP (dB)	2.81	2.90	2.97	2.84	2.85	2.76	2.70	2.60	2.92
Directivity (dBi)	6.29	6.38	6.53	6.62	6.71	6.72	6.66	6.51	6.21
Efficiency (dB)	-3.48	-3.48	-3.56	-3.78	-3.86	-3.96	-3.96	-3.91	-3.29
Efficiency (%)	44.92	44.86	44.01	41.89	41.10	40.18	40.18	40.64	46.89
Gain (dBi)	2.81	2.90	2.97	2.84	2.85	2.76	2.70	2.60	2.92

Frequency	6225	6325	6425	6525	6625	6725	6875	6925	7125
Ant. Port Input Pwr. (dB)	0	0	0	0	0	0	0	0	0
Tot. Rad. Pwr. (dB)	-3.36	-3.66	-3.94	-3.59	-3.83	-3.79	-4.23	-4.47	-4.84
Peak EIRP (dB)	2.05	1.43	1.48	1.35	0.57	1.60	2.29	2.18	1.37
Directivity (dBi)	5.40	5.09	5.42	4.94	4.40	5.39	6.52	6.64	6.21
Efficiency (dB)	-3.36	-3.66	-3.94	-3.59	-3.83	-3.79	-4.23	-4.47	-4.84
Efficiency (%)	46.17	43.04	40.40	43.73	41.39	41.82	37.75	35.75	32.83
Gain (dBi)	2.05	1.43	1.48	1.35	0.57	1.60	2.29	2.18	1.37

Section 2. Dimensioned Photos and Drawings of Antennas

Include the dimensioned photo and drawing of Main antenna here.

Main Antenna Drawing:

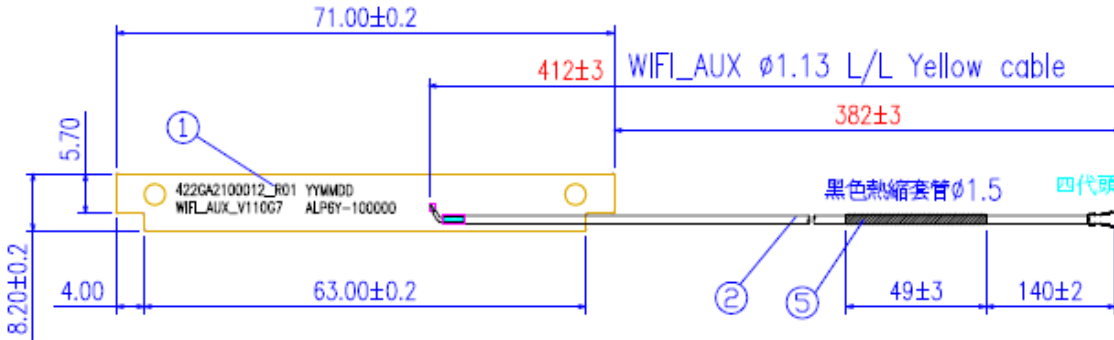


Main Antenna Photo (Front/Back):

Note: antenna photo should include L type ruler

Include the dimensioned photo and drawing of Aux antenna here.

Aux Antenna Drawing:



Aux Antenna Photo (Front/Back):

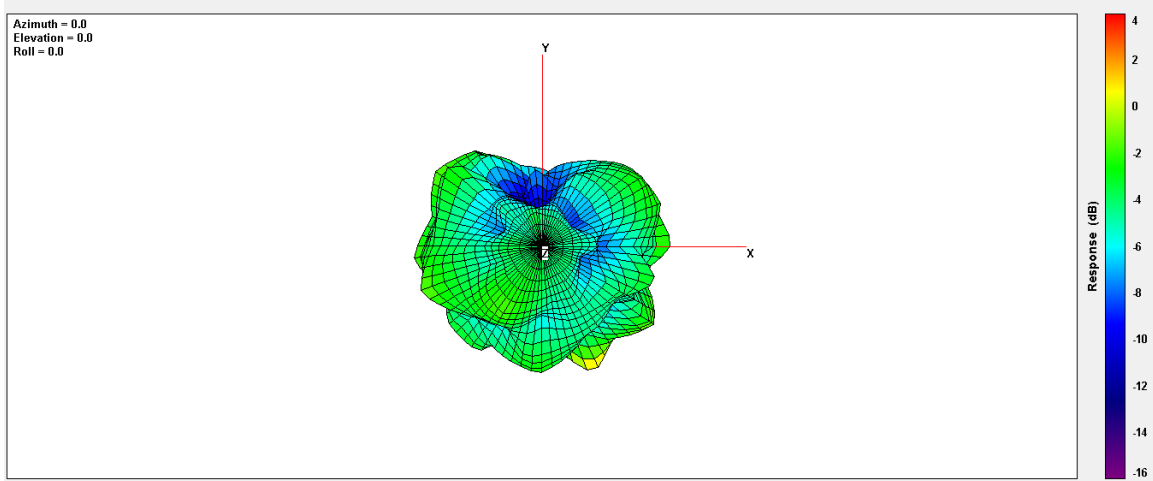
Note: antenna photo should include L type ruler

Section 3. Radiation characteristics of antenna loaded in Host Platform

Main Antenna

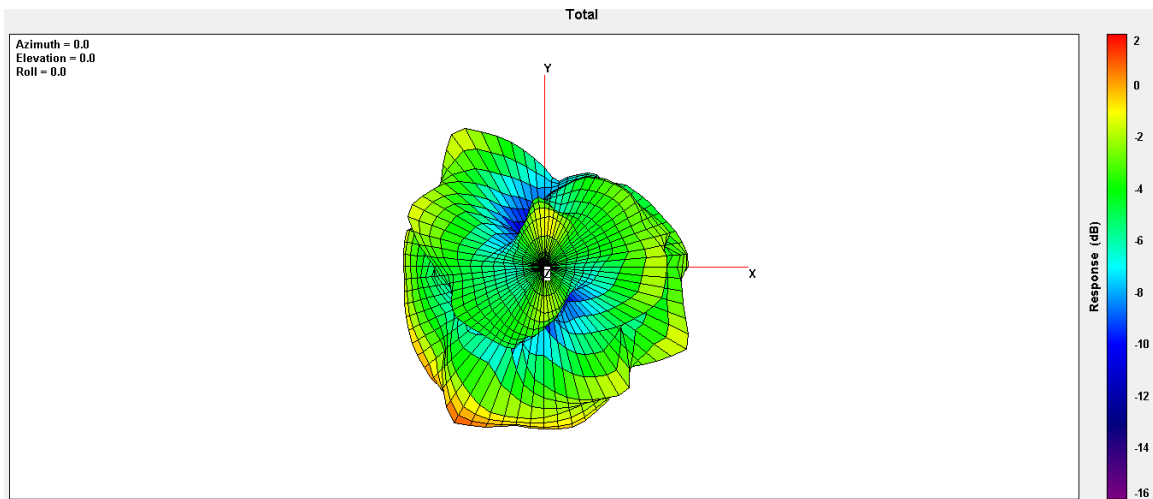
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.79



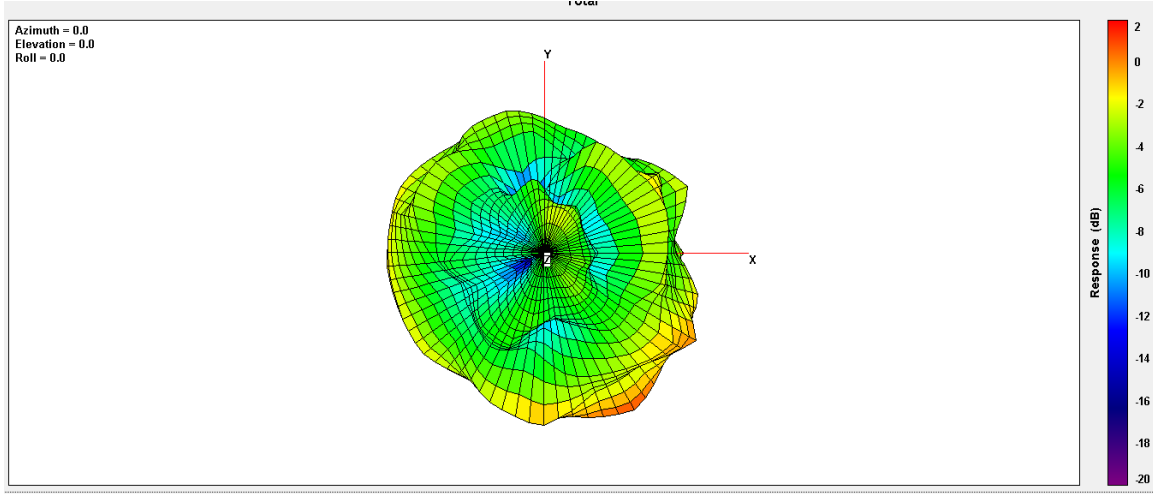
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.96



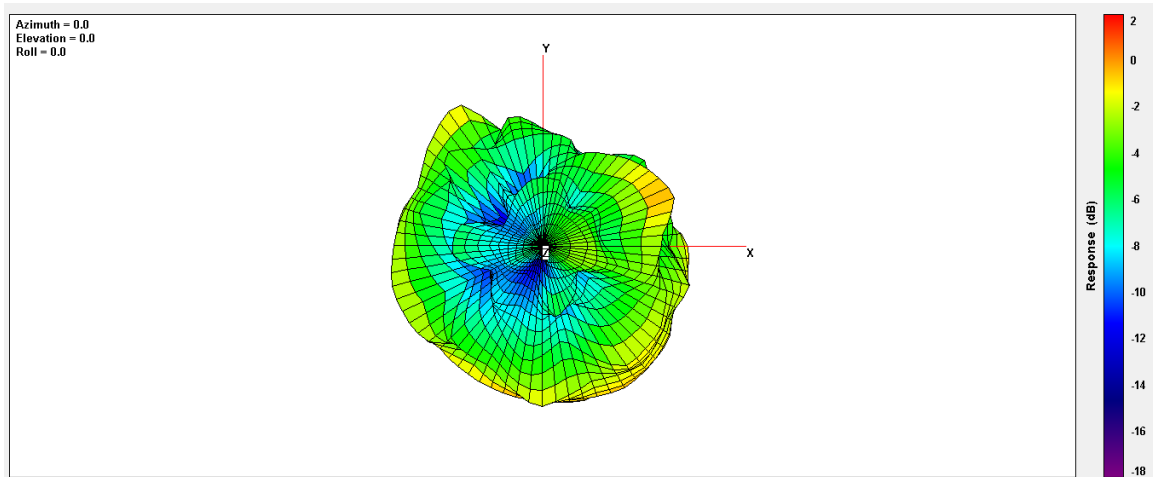
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	1.65



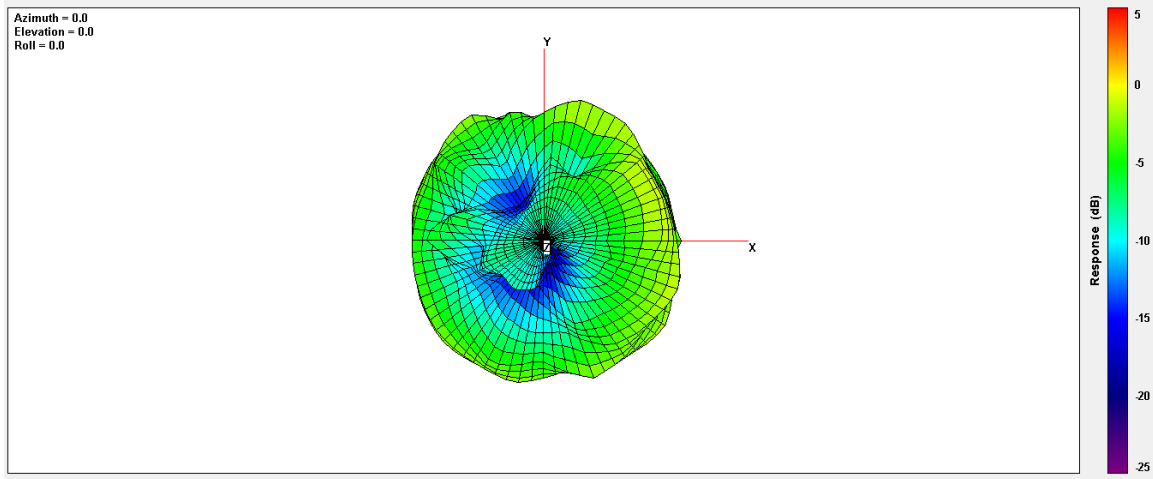
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	1.88



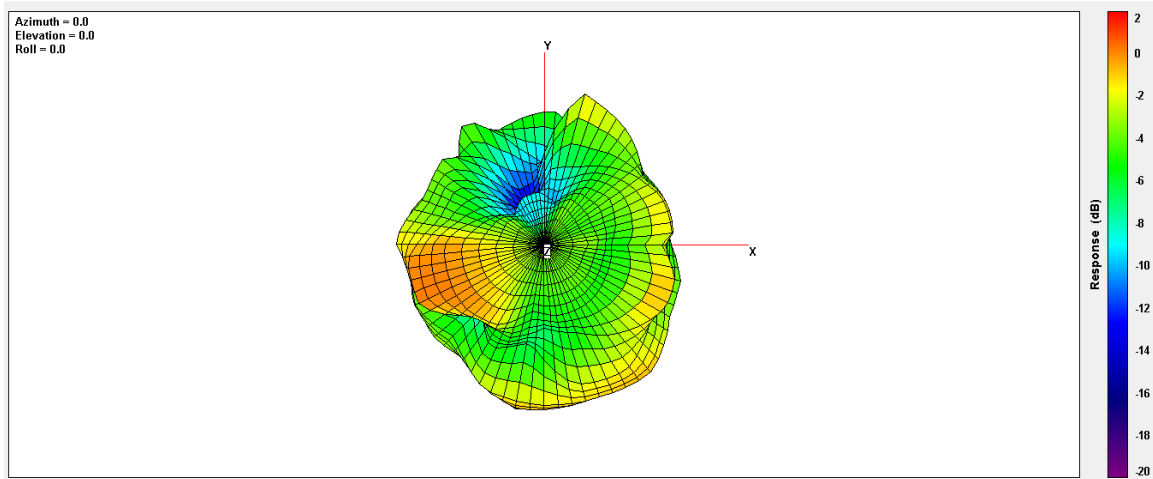
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	1.90



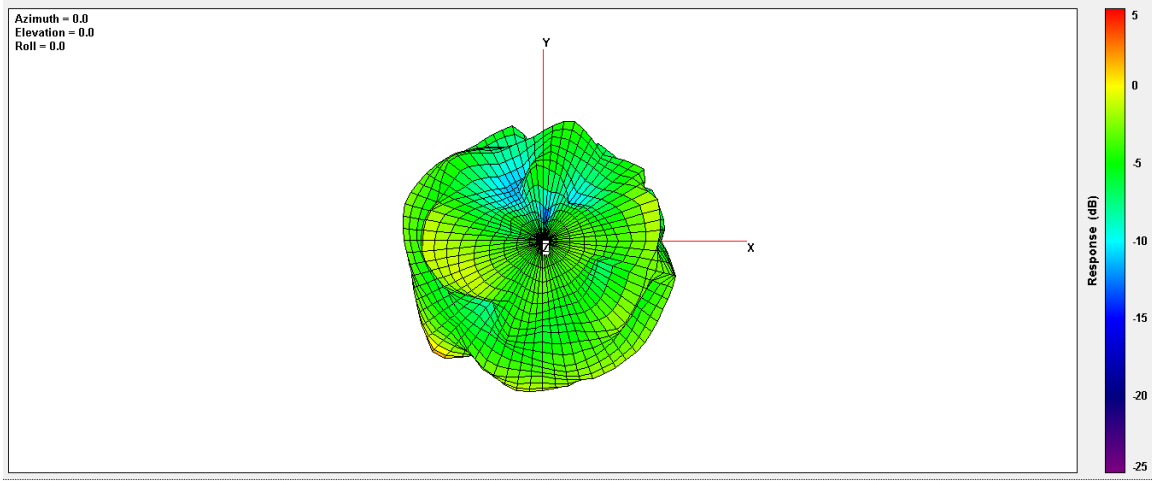
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	0.56



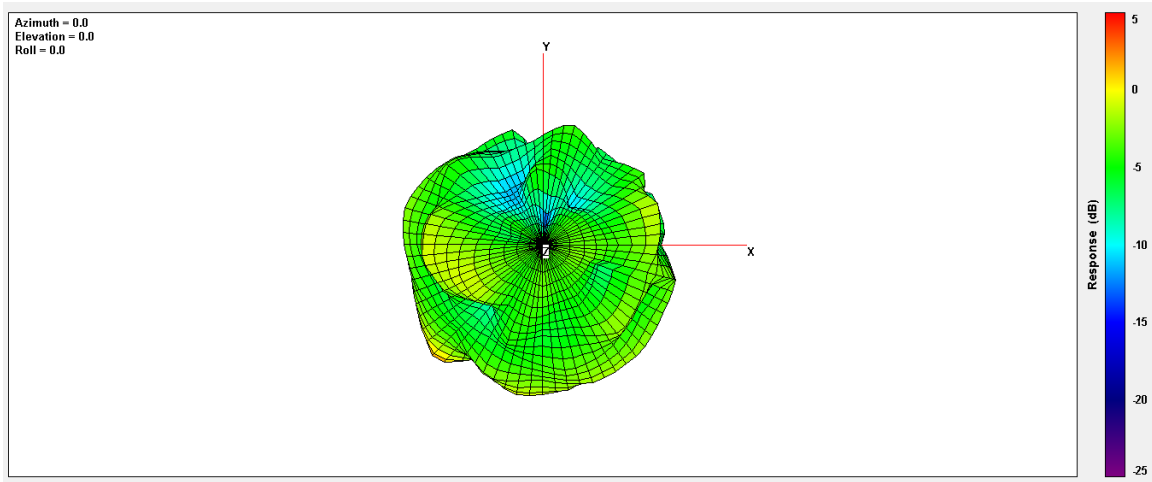
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	2.99



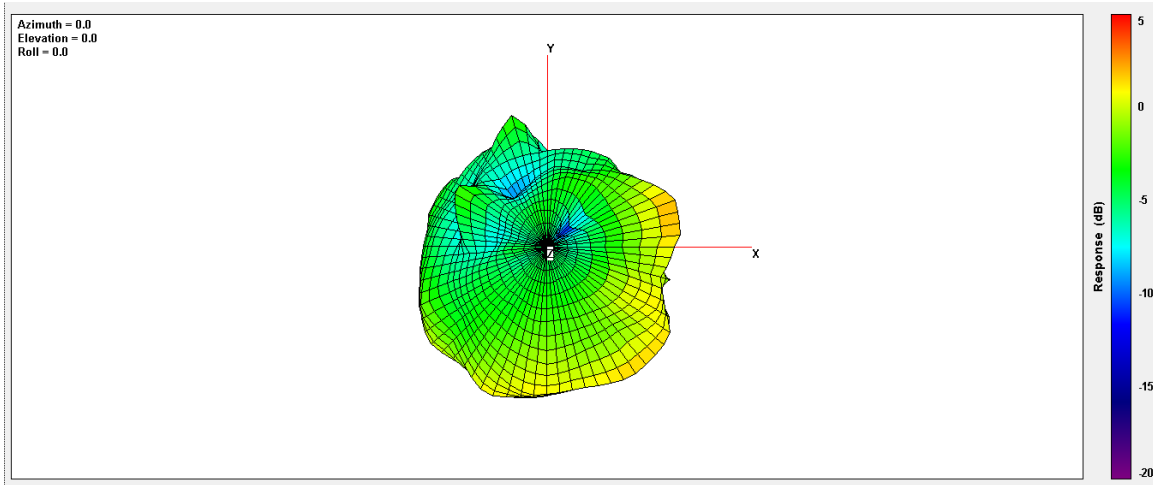
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.99



Max Antenna 3D Radiation Pattern 6875-7125 MHz

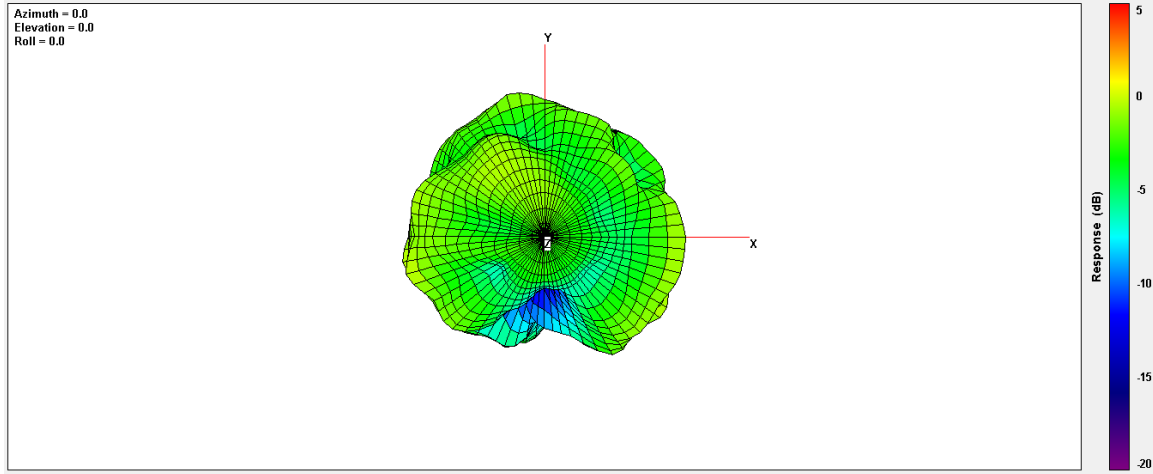
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.76



Auxiliary Antenna

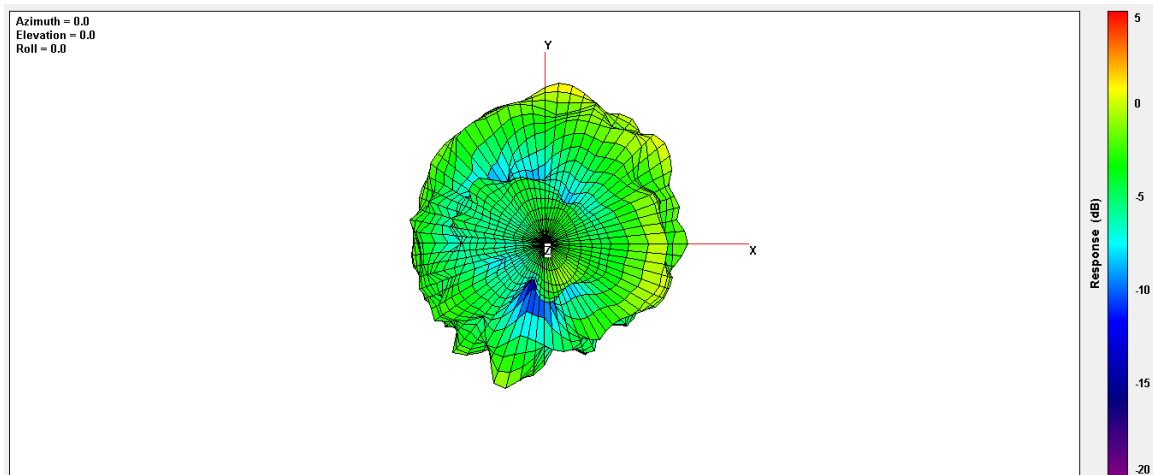
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.31



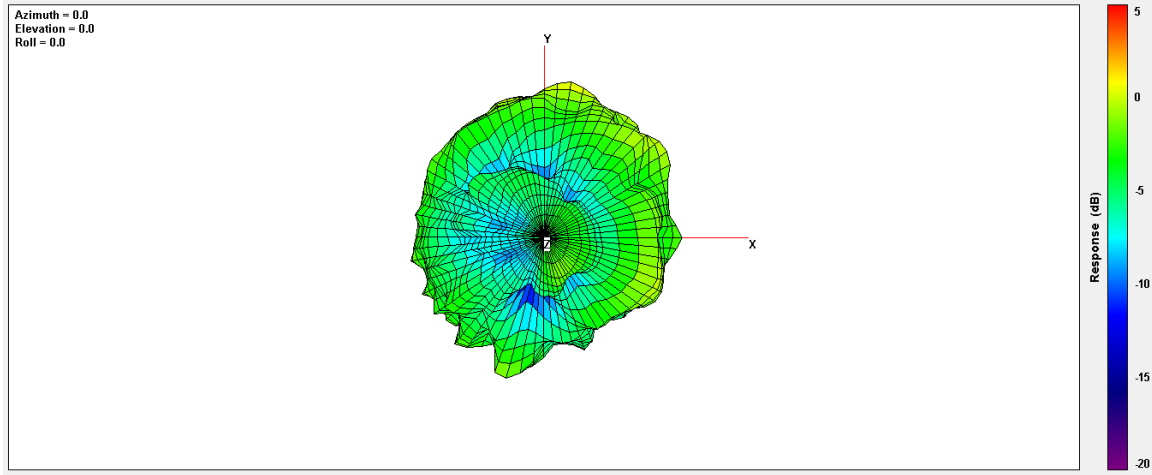
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.76



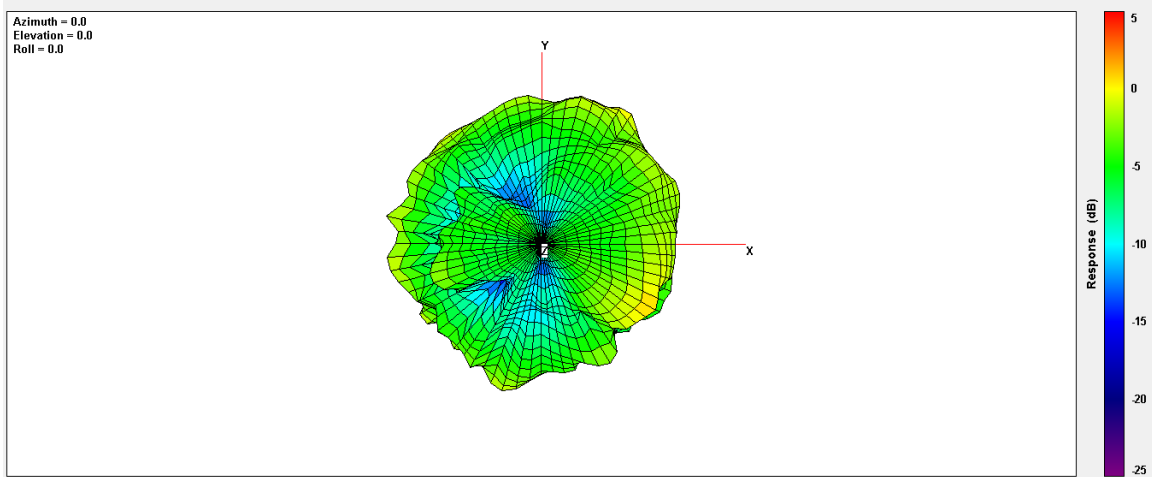
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	1.31



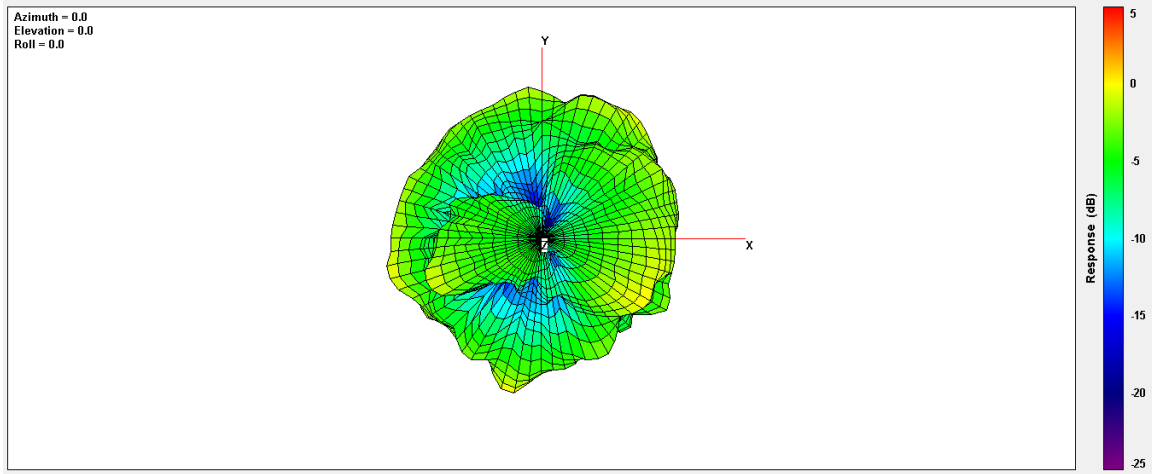
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.07



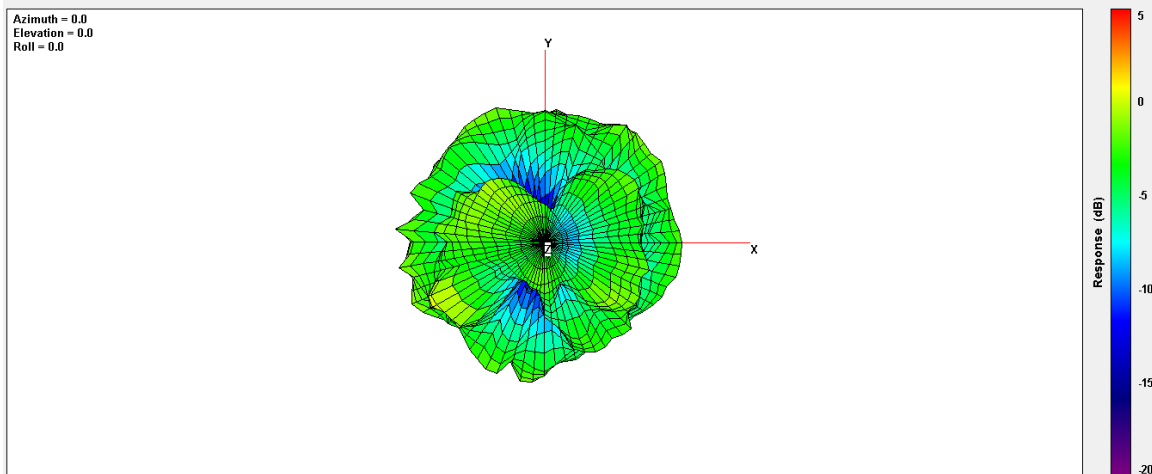
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.90



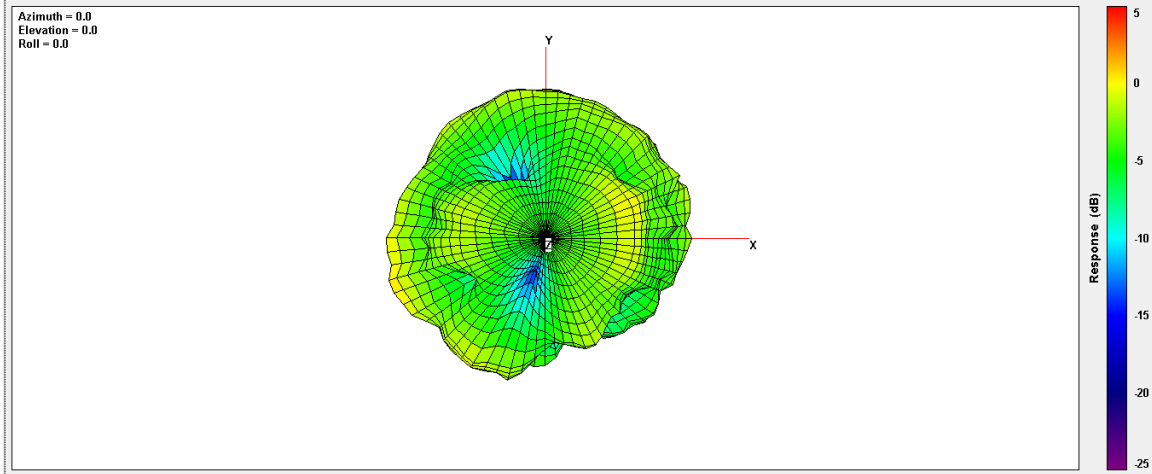
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.92



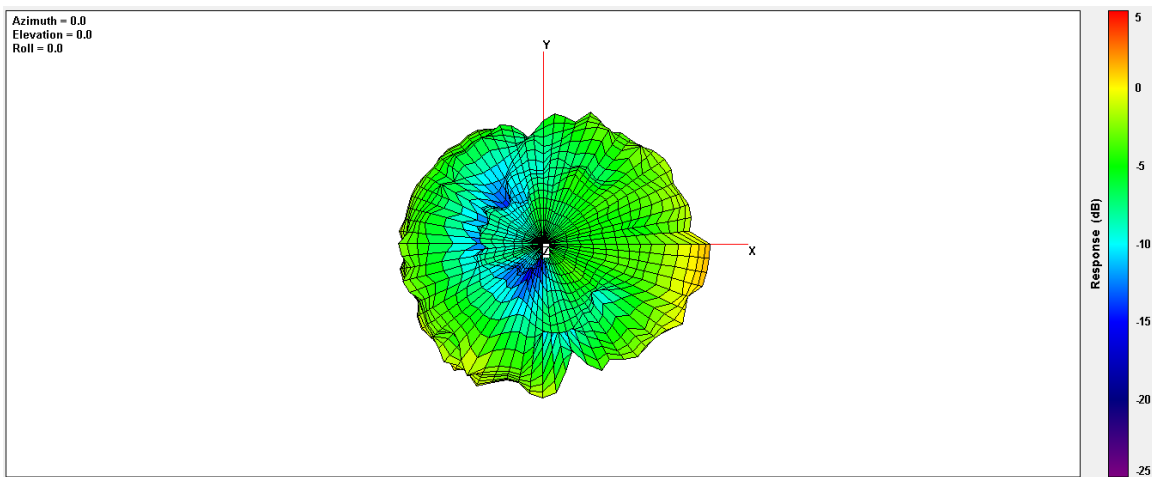
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	1.48



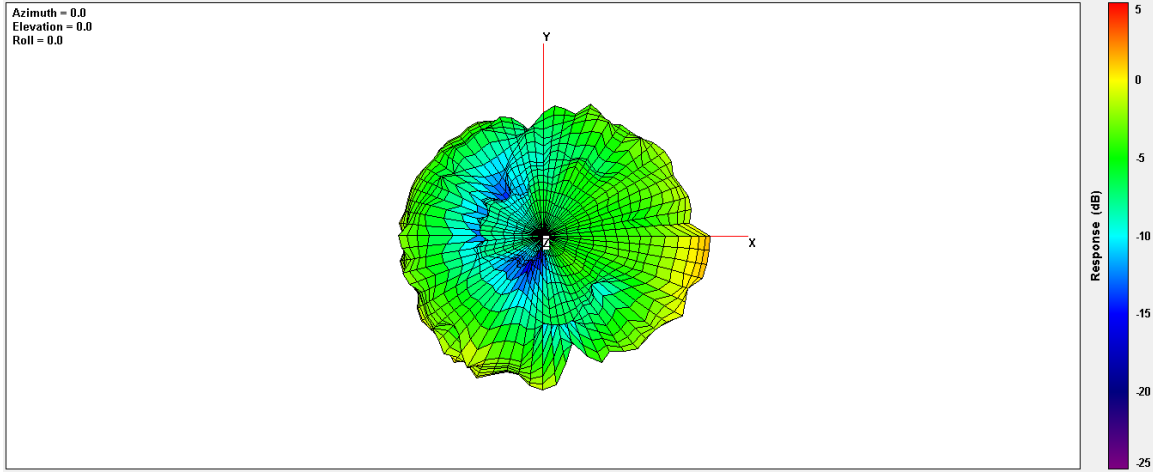
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.29



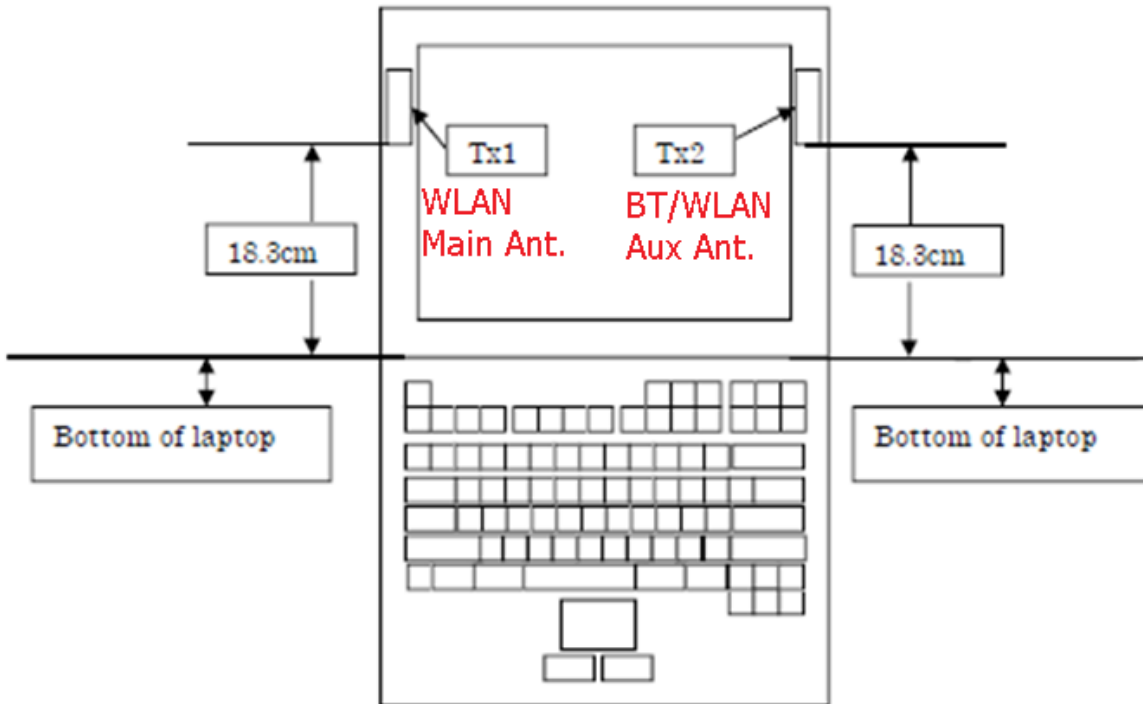
Max Antenna 3D Radiation Pattern 6875-7125 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.99



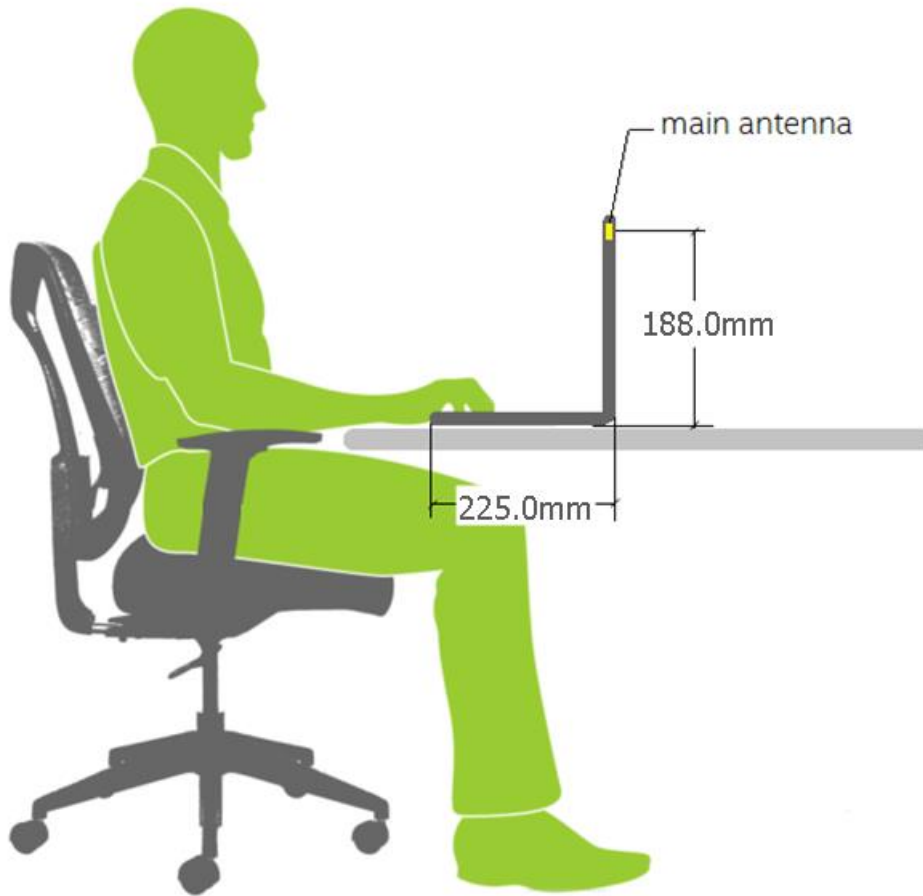
Section 4. Antenna Host Platform Location Information

Include a **dimensioned photo(s) or dimensioned drawing(s)** of Tx1, Tx2 and Tx3 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)

