

# 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	Huaqin	Halzan_ADN	YES	Regular NB	>200					
****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			HQ20605054000 (81EABU15.G19)	HQ20605054000 (81EABU15.G19)					
Peak gain w/ cable loss (dBi)*( open)										
	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	1.26	1.69	1.77	0.79	1.06	N/A	N/A	N/A	N/A	
Aux	2.91	1.52	0.73	0.95	1.27	N/A	N/A	N/A	N/A	
Peak gain w/ cable loss (dBi)*( tablet)										
	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	0.90	1.11	1.11	1.23	0.94	N/A	N/A	N/A	N/A	
Aux	2.91	0.82	0.82	1.16	1.37	N/A	N/A	N/A	N/A	
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
Design	3.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	Mid-power: ≥ 8 mm
PIFA	3.24	3.64	3.73	4.77	4.97	4.83	4.30	5.37	5.59	Low power: ≥ 5 mm
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>

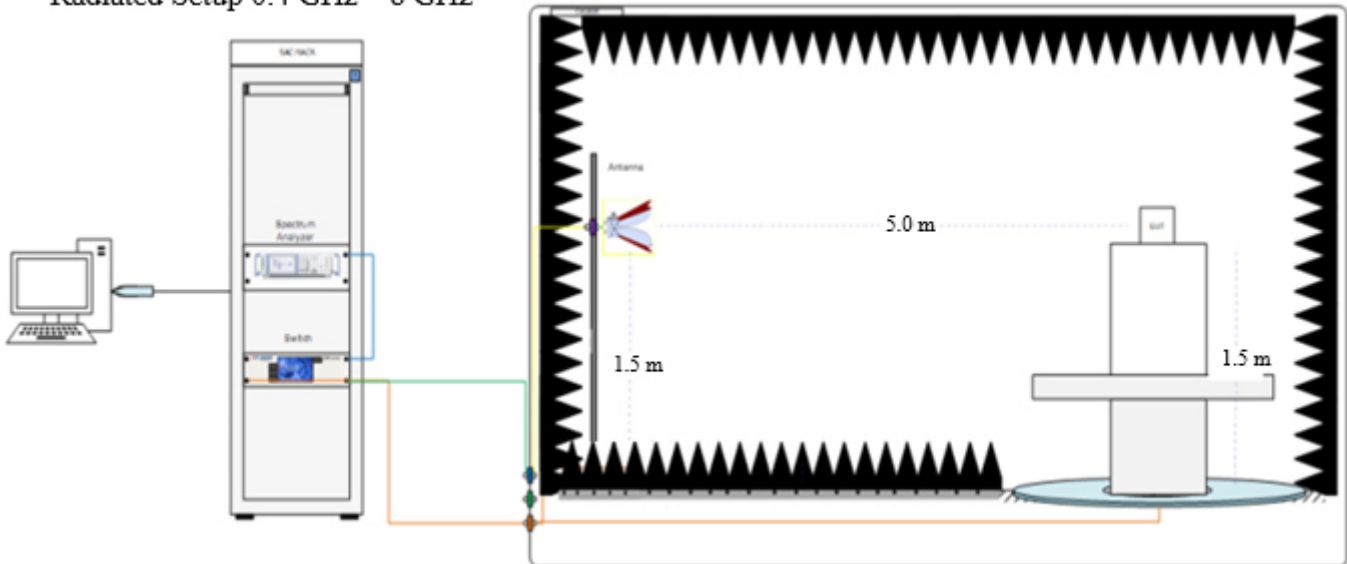
This test report is prepared for host antenna testing under a Full Anechoic Chamber(WNC's ETS 8500).

2. **Test & System Description**

a. Test setup

<insert test diagram here for test site utilized>

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

# Antenna Information

## Section 1. Antenna Assembly Specifications

open

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: HQ20605054000 (81EABU15.G19) Main Antenna	WNC	PIFA	50 ohm Coaxial Low Los Cable length: 56.65cm diameter: 1.13mm I-pex MHF4L (P/N:20565-001R-13)	2400-2483.5	1.26	3.30	2.5	2.04
				5150-5250	1.69	4.67	2.5	2.98
				5250-5350	1.77	4.77	2.5	3.00
				5470-5725	0.79	3.89	2.5	3.10
				5725-5850	1.06	4.22	2.5	3.16
				5925-6425	N/A	N/A	N/A	N/A
				6425-6525	N/A	N/A	N/A	N/A
				6525-6875	N/A	N/A	N/A	N/A
P/N: HQ20605054000 (81EABU15.G19) Aux Antenna	WNC	PIFA	50 ohm Coaxial Low Loss Cable length: 82.15cm diameter: 1.13mm I-pex MHF4L (P/N:20565-001R-13)	2400-2483.5	2.91	5.19	2.5	2.28
				5150-5250	1.52	4.90	2.5	3.38
				5250-5350	0.73	4.13	2.5	3.40
				5470-5725	0.95	4.45	2.5	3.50
				5725-5850	1.27	4.82	2.5	3.55
				5925-6425	N/A	N/A	N/A	N/A
				6425-6525	N/A	N/A	N/A	N/A
				6525-6875	N/A	N/A	N/A	N/A
6875-7125	N/A	N/A	N/A	N/A				

## tablet

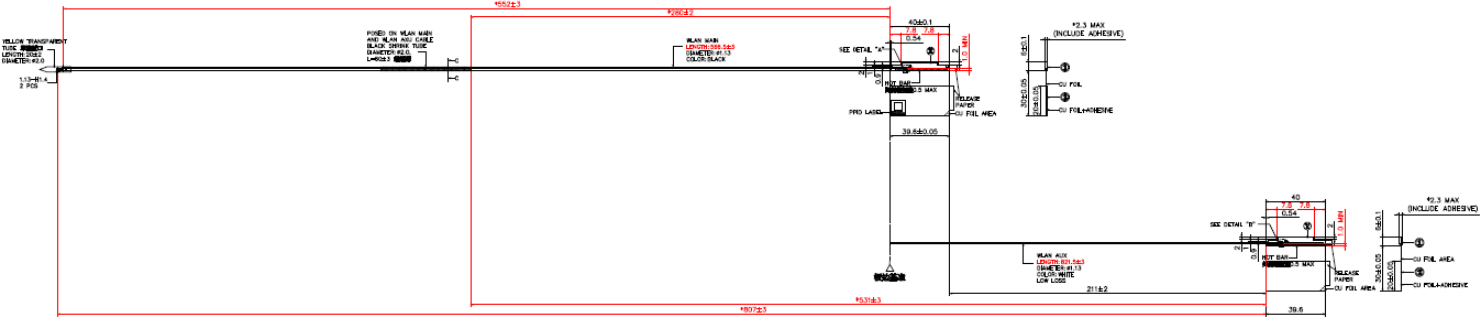
1A Antenna Part Number	1B Manufacturer	1C Antenna Type	1D Cable Assembly Part Number and Information	Freq Range MHz	1E * Peak Gain W/ Cable loss (dBi)	1F Peak Gain w/o Cable Loss (dBi)	1G Max VSWR	1H Cable Loss (dB)
P/N: HQ20605054000 (81EABU15.G19) Main Antenna	WNC	PIFA	50 ohm Coaxial Low Los Cable length: 56.65cm diameter: 1.13mm I-pex MHF4L (P/N:20565-001R-13)	2400-2483.5	0.90	2.94	2.5	2.04
				5150-5250	1.11	4.09	2.5	2.98
				5250-5350	1.11	4.11	2.5	3.00
				5470-5725	1.23	4.33	2.5	3.10
				5725-5850	0.94	4.10	2.5	3.16
				5925-6425	N/A	N/A	N/A	N/A
				6425-6525	N/A	N/A	N/A	N/A
				6525-6875	N/A	N/A	N/A	N/A
				6875-7125	N/A	N/A	N/A	N/A
P/N: HQ20605054000 (81EABU15.G19) Aux Antenna	WNC	PIFA	50 ohm Coaxial Low Loss Cable length: 82.15cm diameter: 1.13mm I-pex MHF4L (P/N:20565-001R-13)	2400-2483.5	2.91	5.19	2.5	2.28
				5150-5250	0.82	4.20	2.5	3.38
				5250-5350	0.82	4.22	2.5	3.40
				5470-5725	1.16	4.66	2.5	3.50
				5725-5850	1.37	4.92	2.5	3.55
				5925-6425	N/A	N/A	N/A	N/A
				6425-6525	N/A	N/A	N/A	N/A
				6525-6875	N/A	N/A	N/A	N/A
				6875-7125	N/A	N/A	N/A	N/A

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

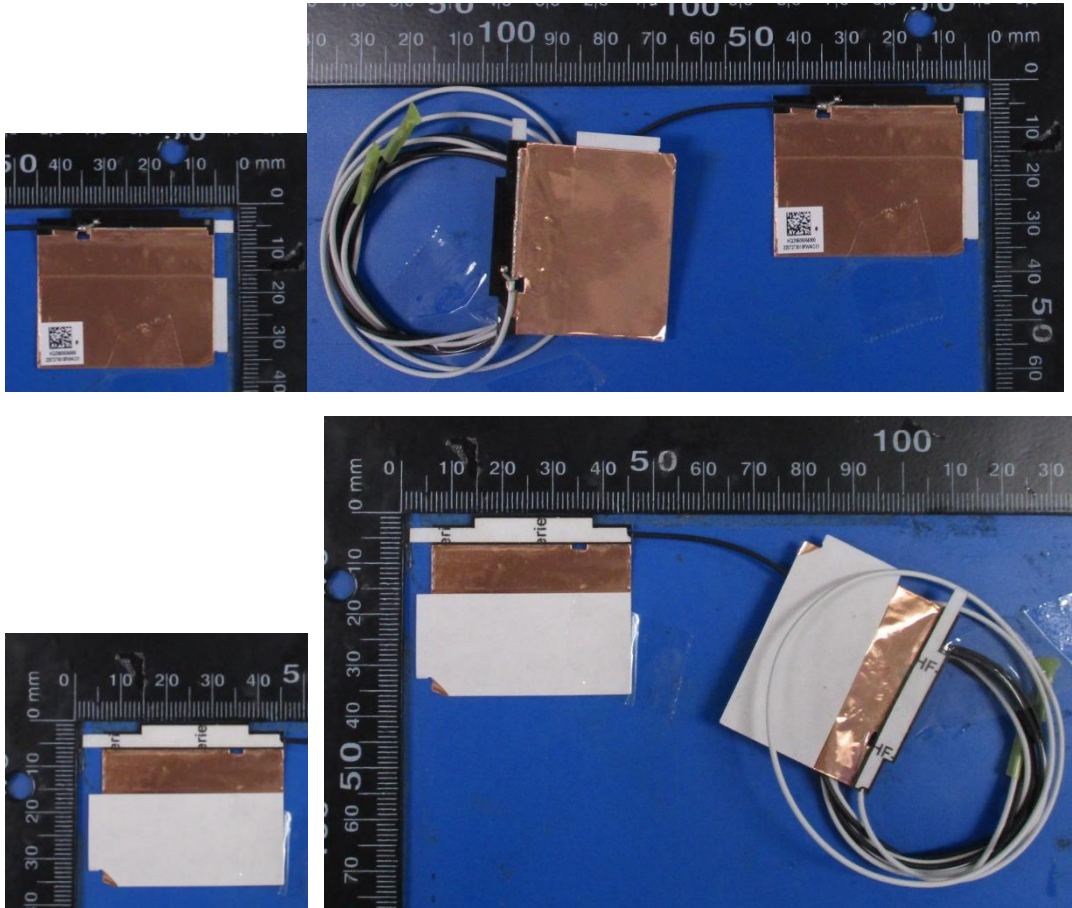
# Section 2. Dimensioned Photos and Drawings of Antennas

Include the dimensioned photo and drawing of Main antenna here.

## Main Antenna Drawing:



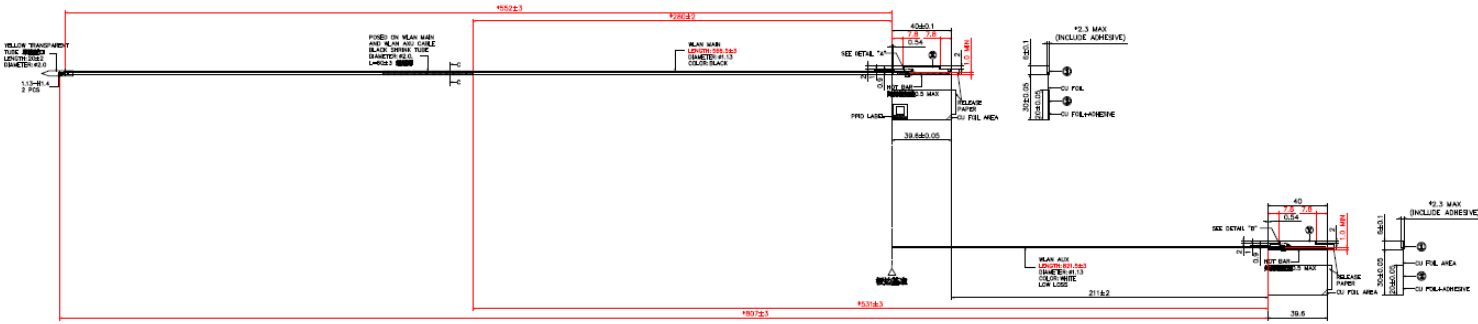
## Main Antenna Photo (Front/Back):



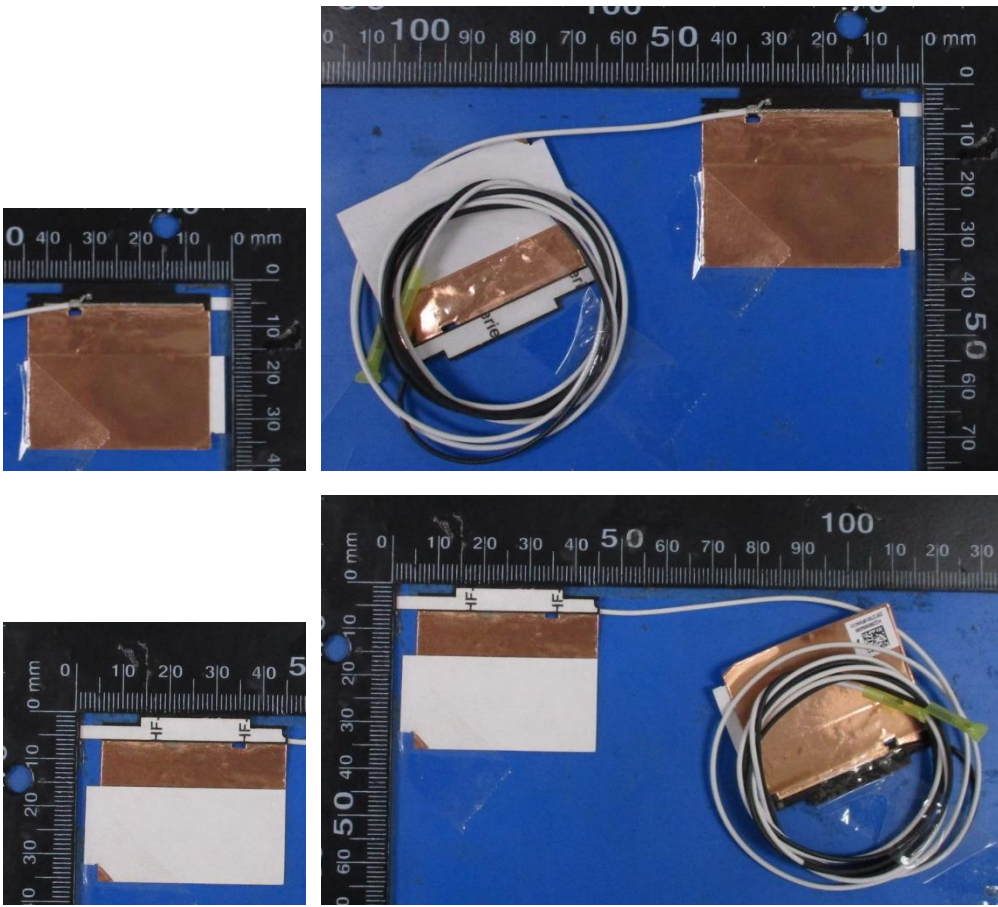
**Note:** antenna photo should include L type ruler

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

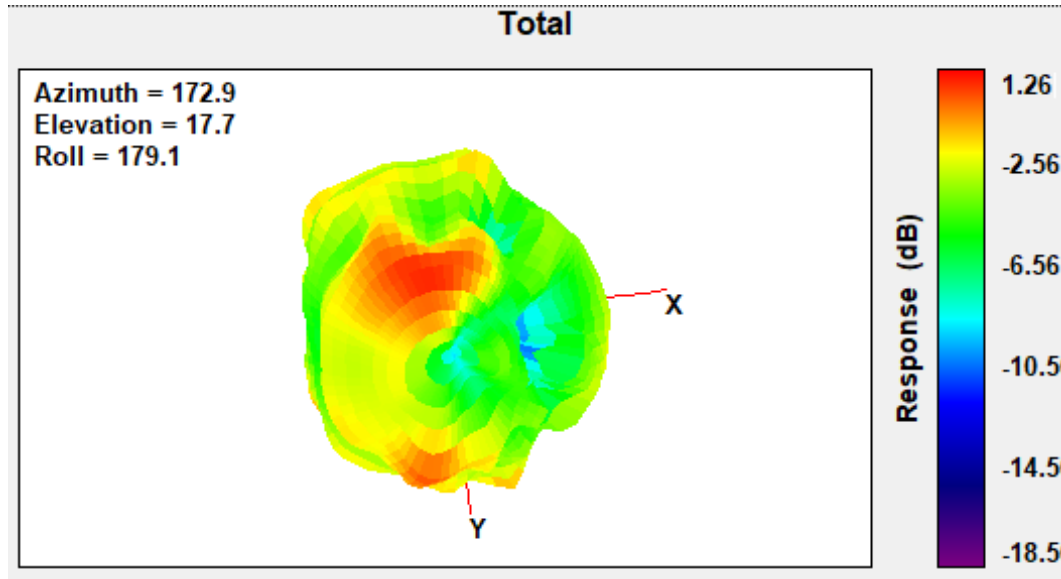


## Section 3. Radiation characteristics of antenna loaded in Host Platform open

### Main Antenna

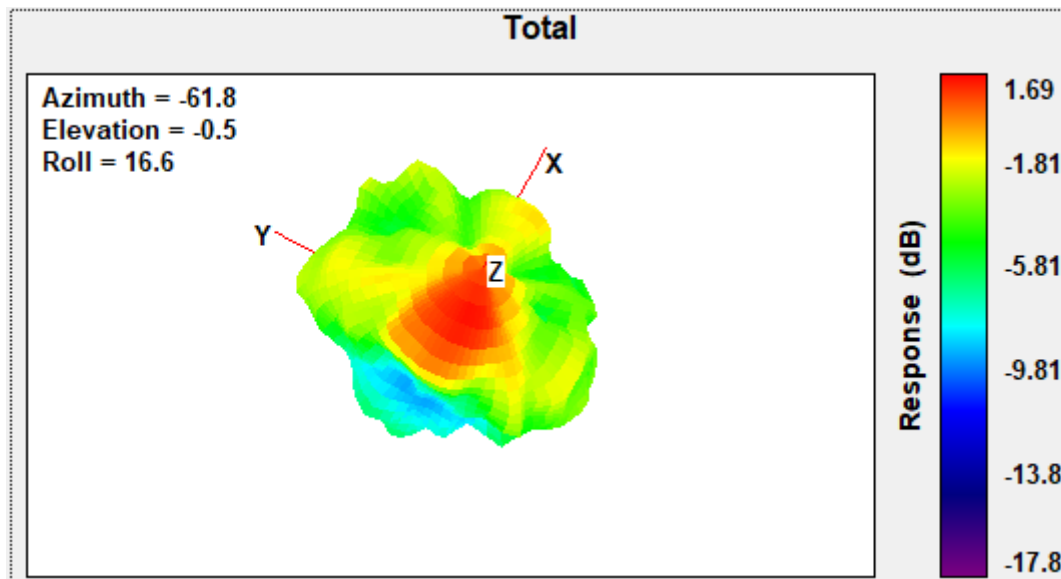
#### Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.26



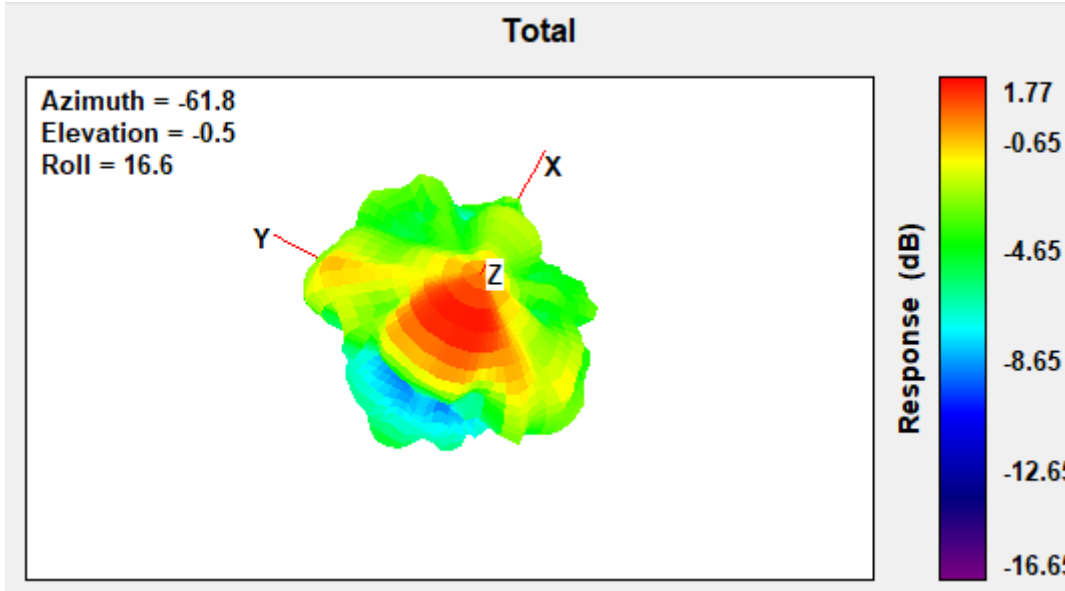
#### Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.69



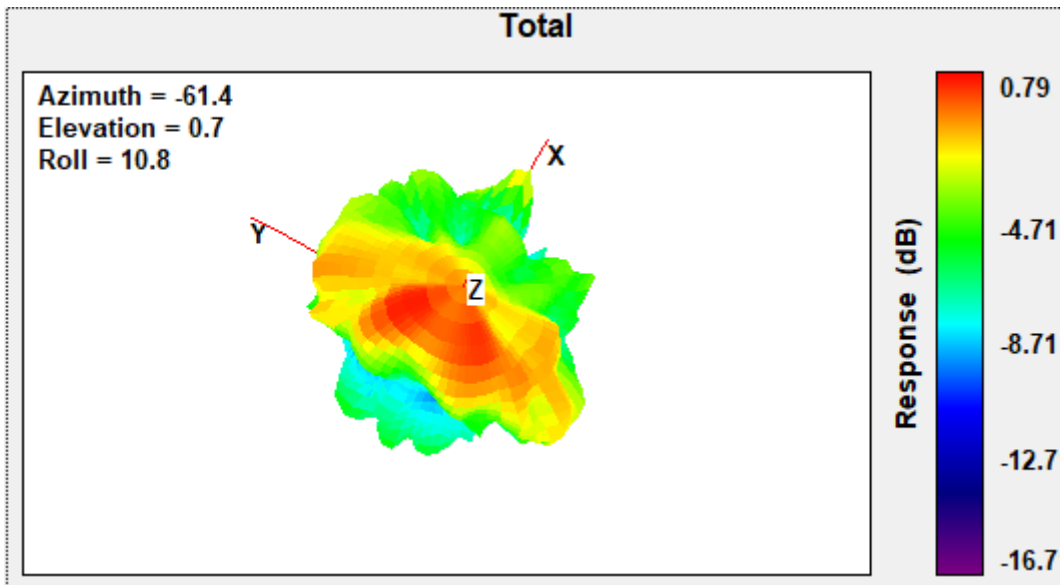
### Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	1.77



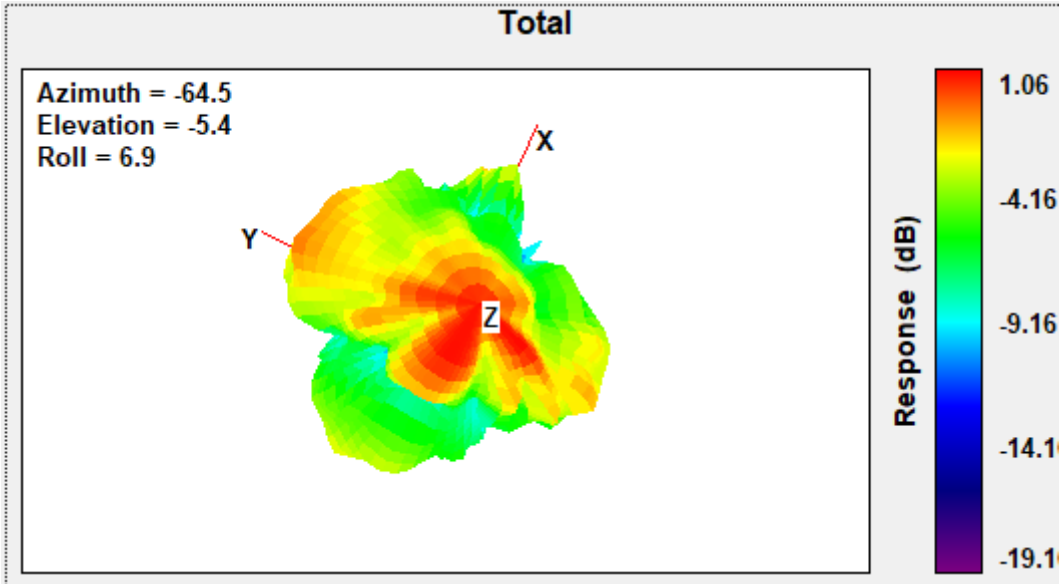
### Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	0.79



## Max Antenna 3D Radiation Pattern 5725-5850 MHz

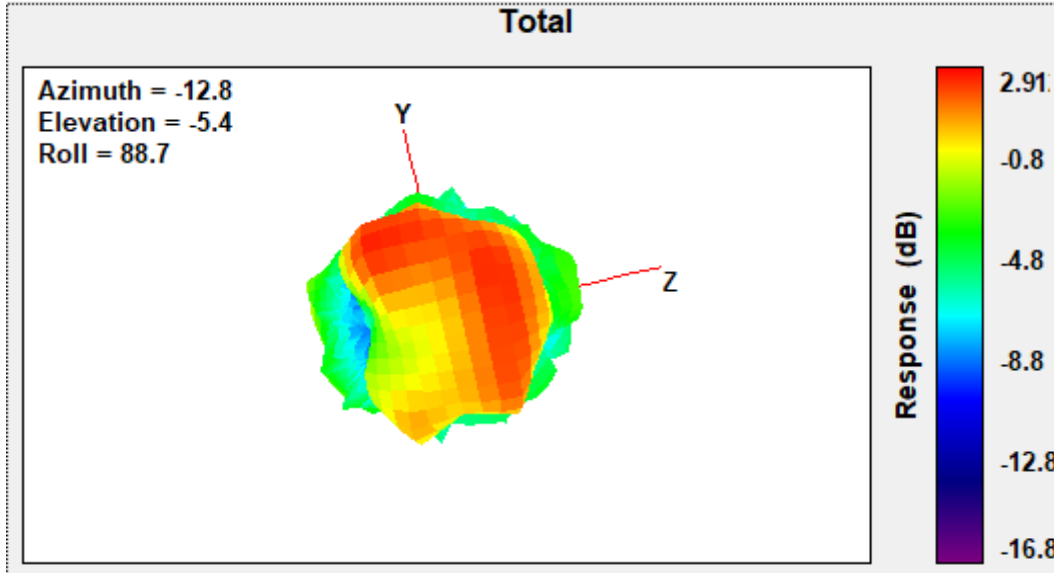
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	1.06



## Auxiliary Antenna

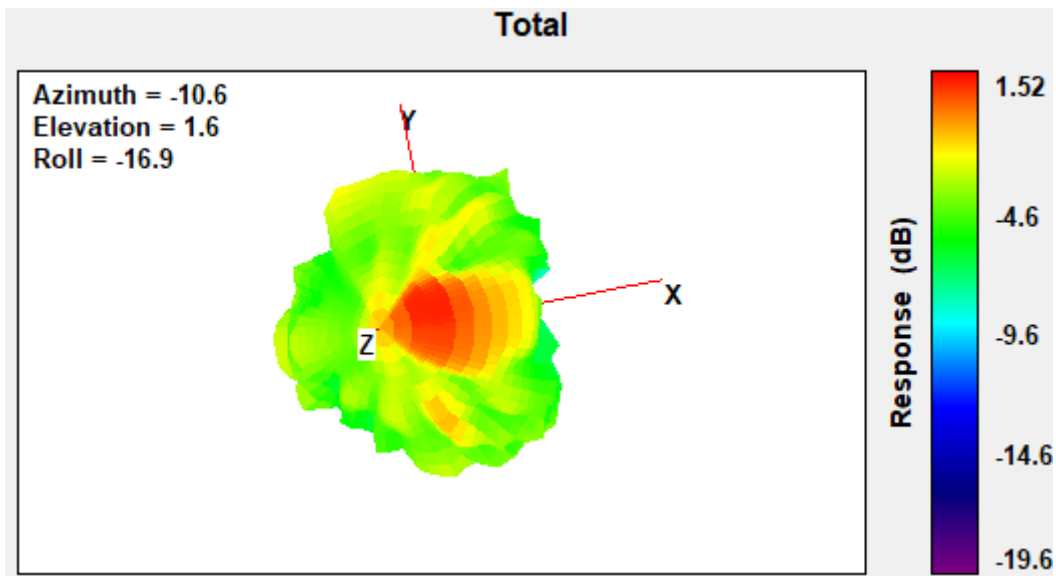
### Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.91



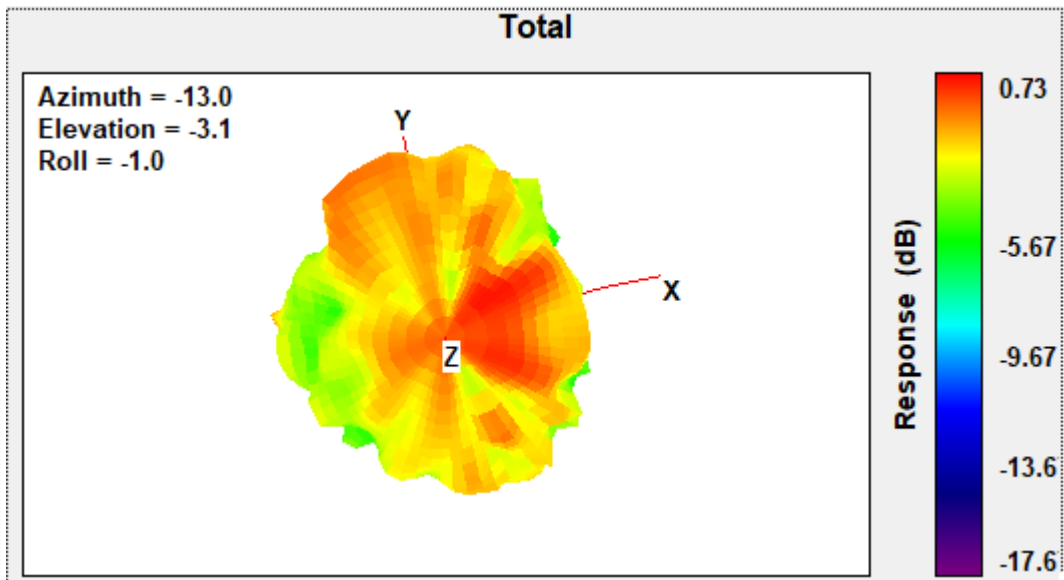
### Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.52



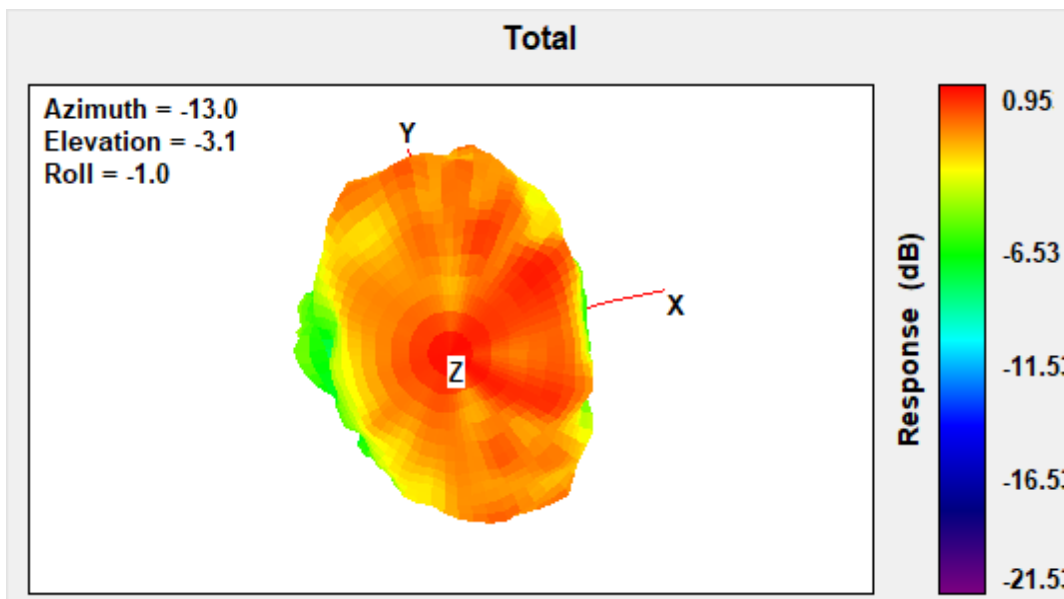
### Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	0.73



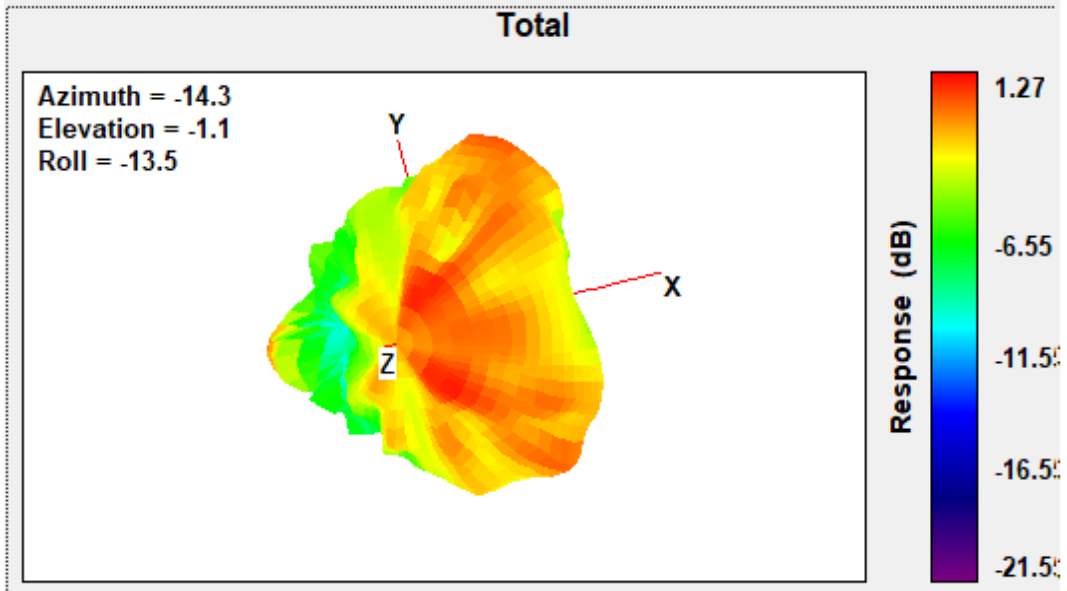
### Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	0.95



## Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	1.27

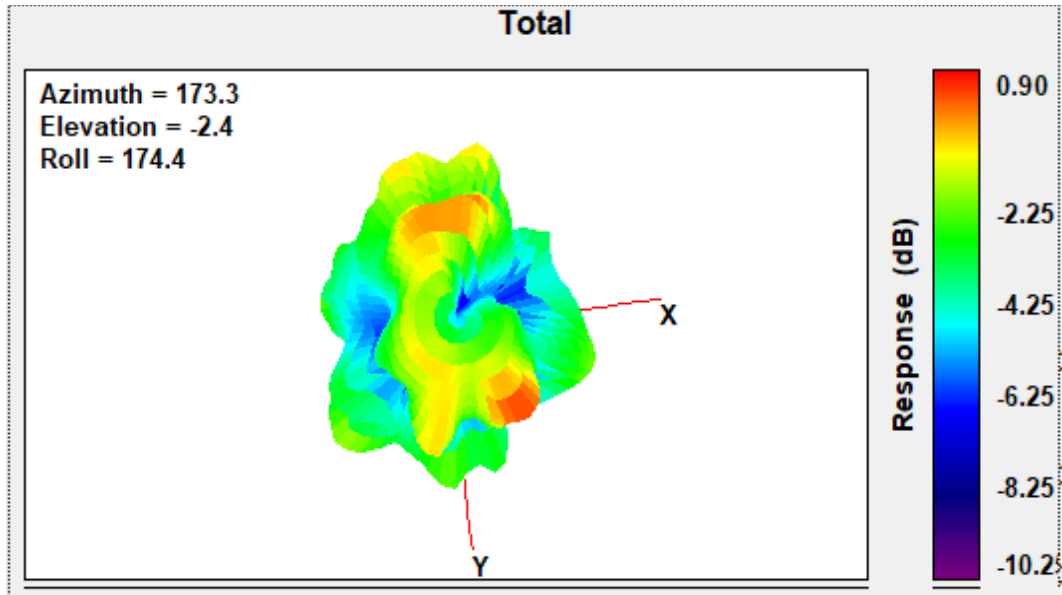


**tablet**

**Main Antenna**

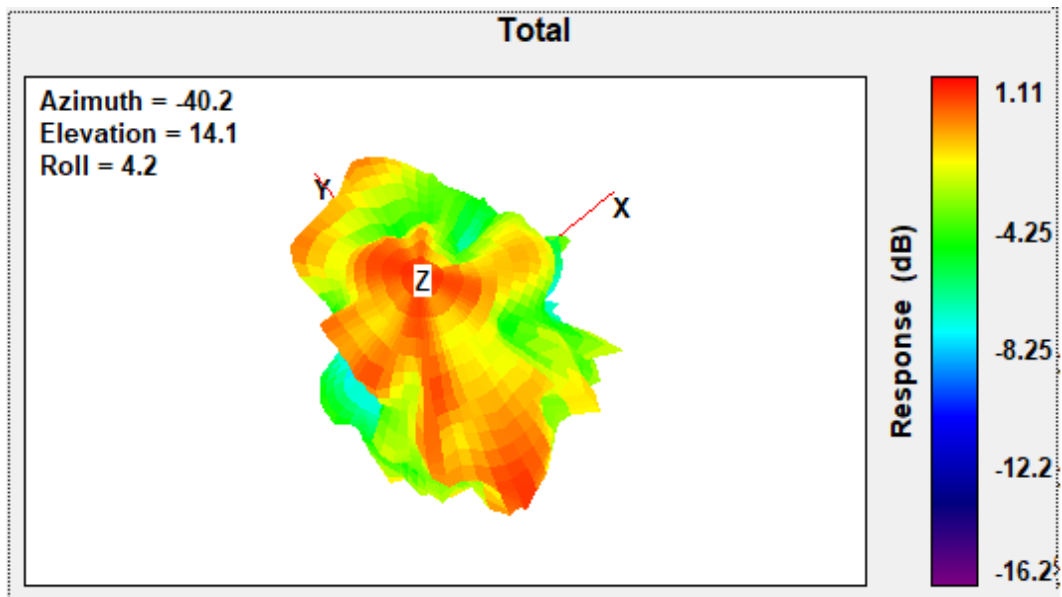
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	0.90



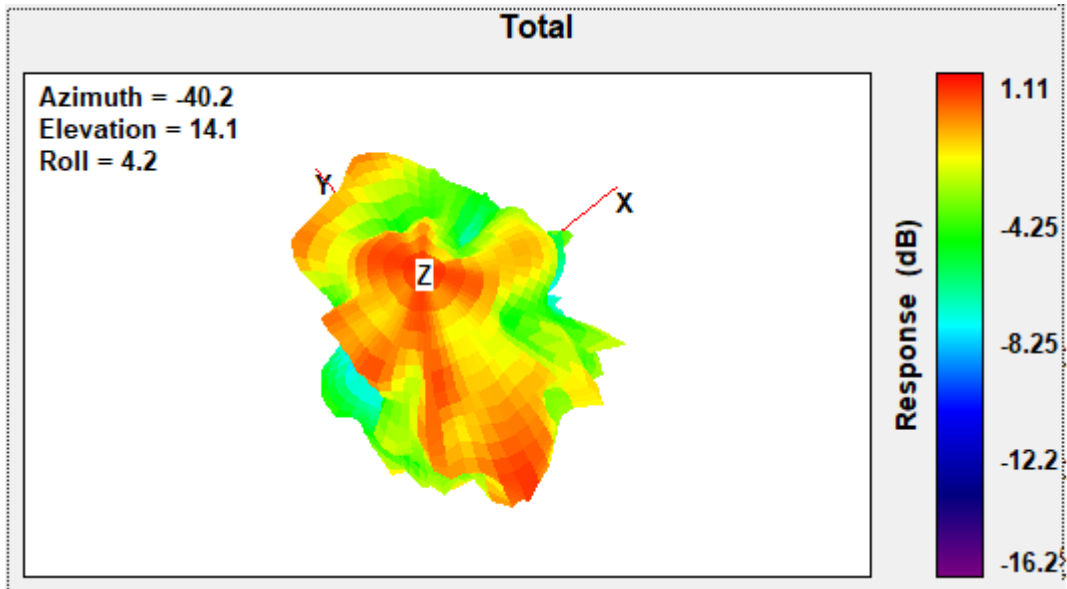
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.11



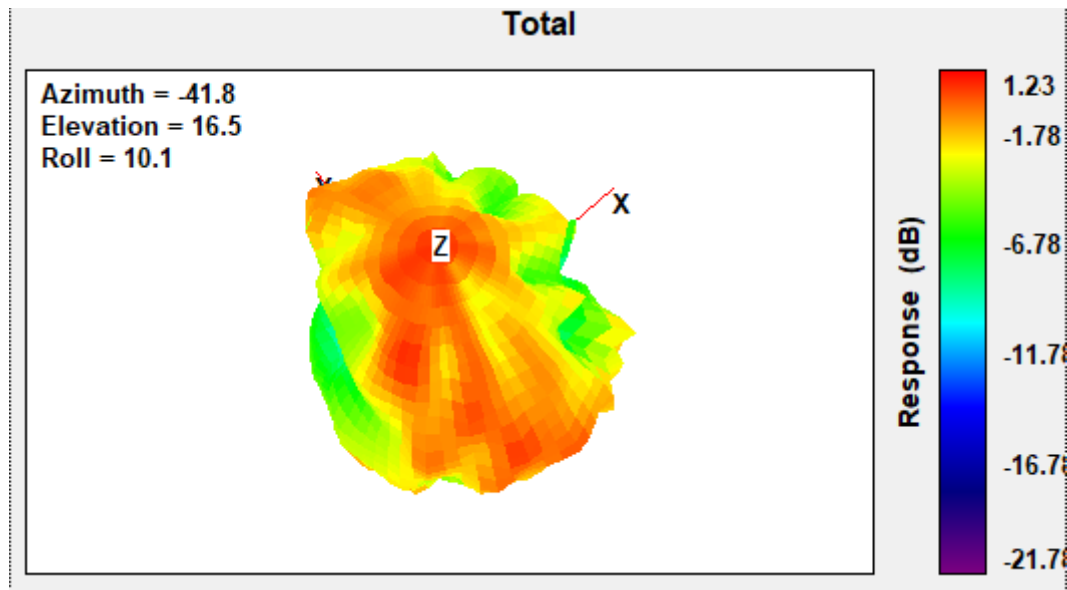
### Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	1.11



### Max Antenna 3D Radiation Pattern 5470-5725 MHz

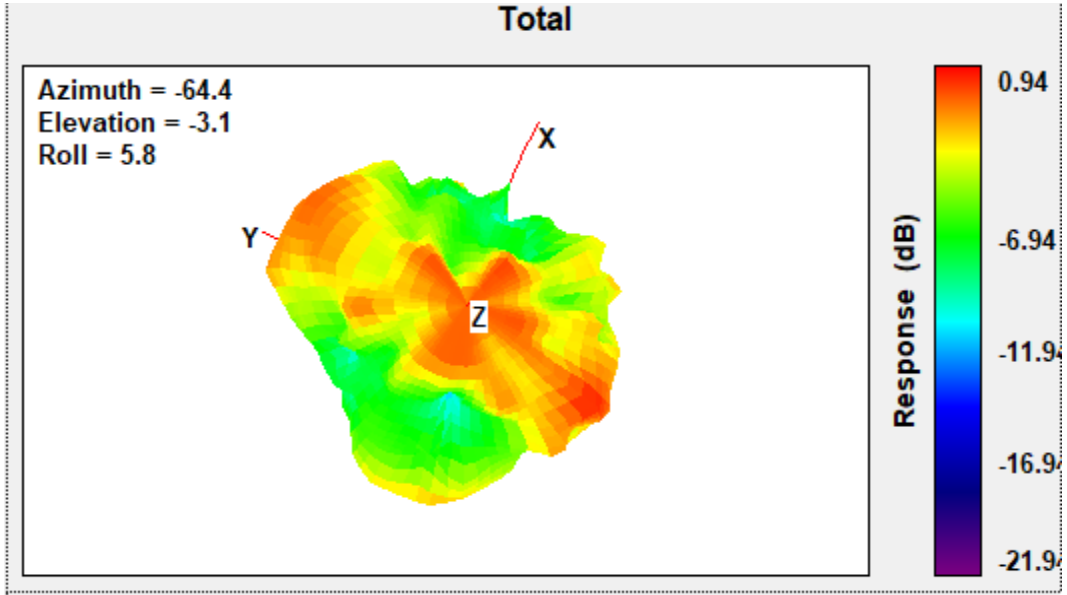
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	1.23





## Max Antenna 3D Radiation Pattern 5725-5850 MHz

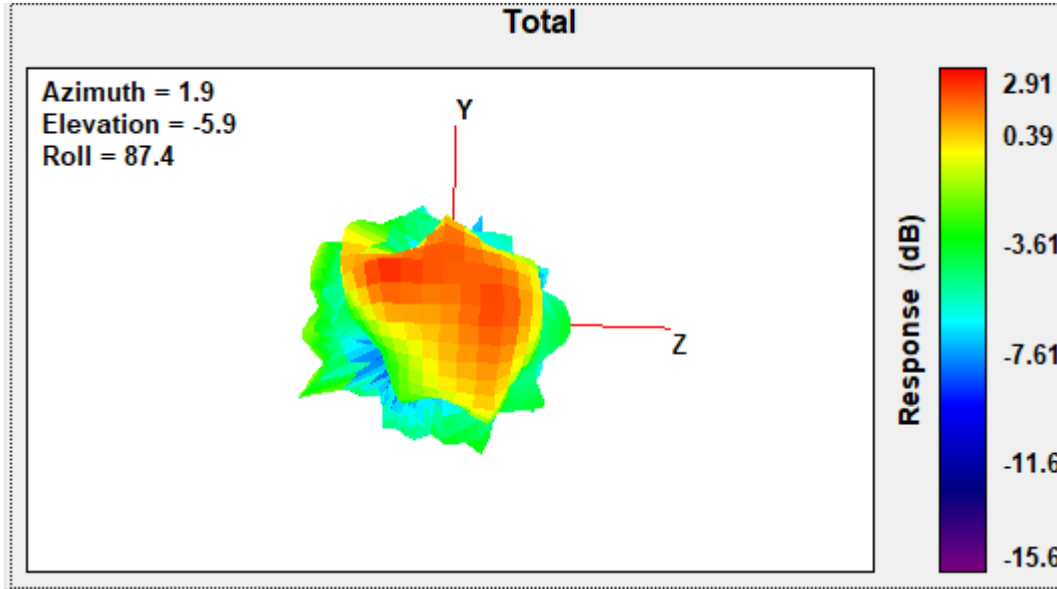
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	0.94



## Auxiliary Antenna

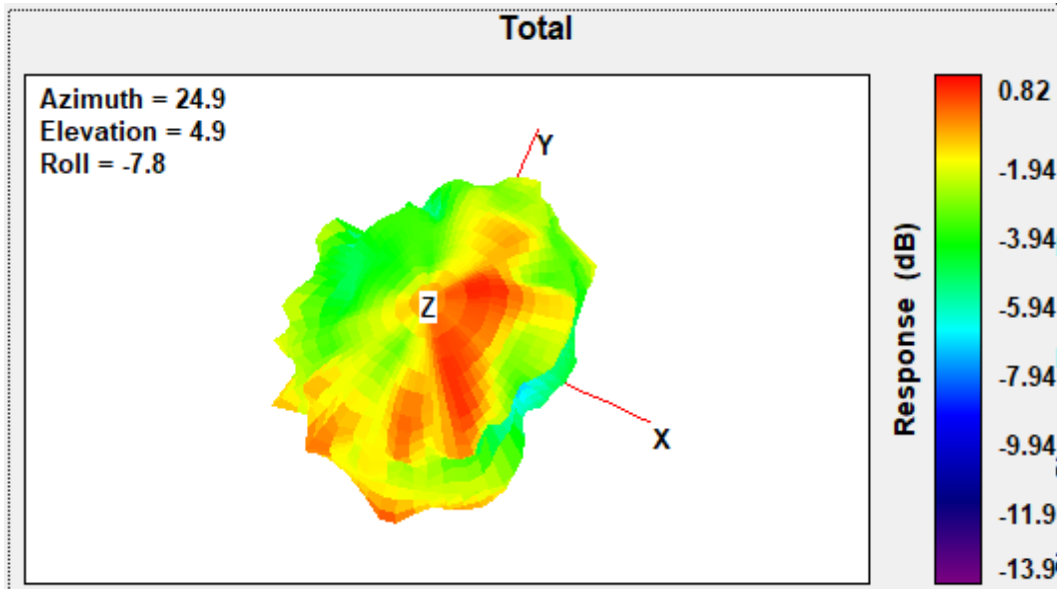
### Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.91



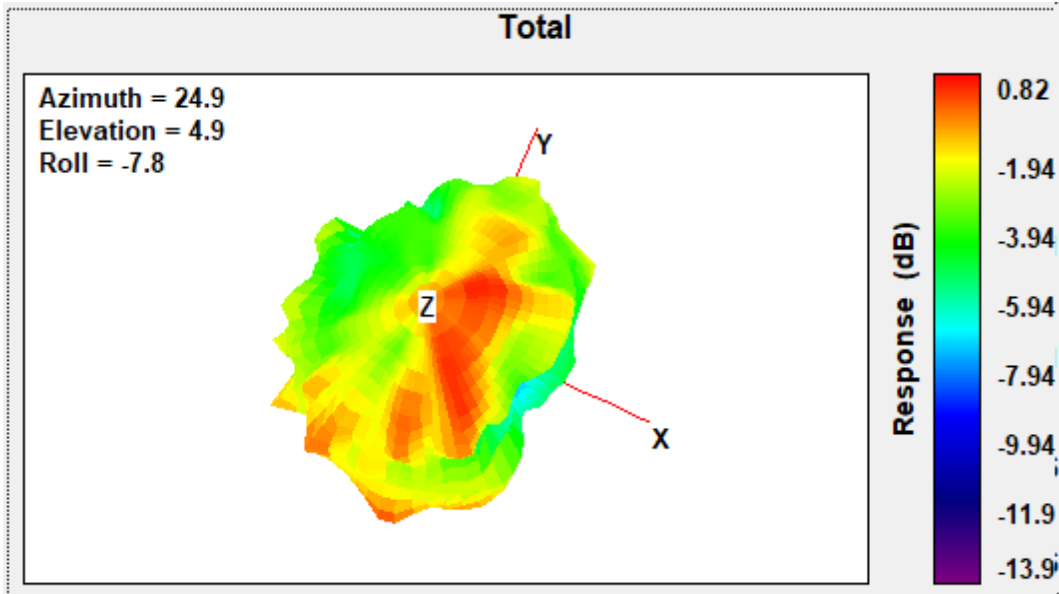
### Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	0.82



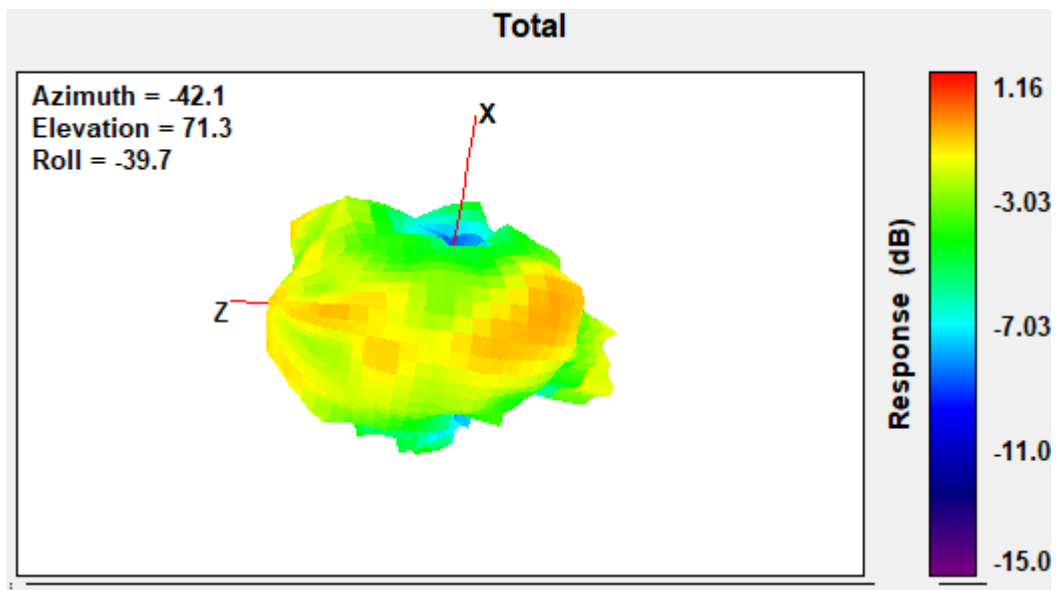
### Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	0.82



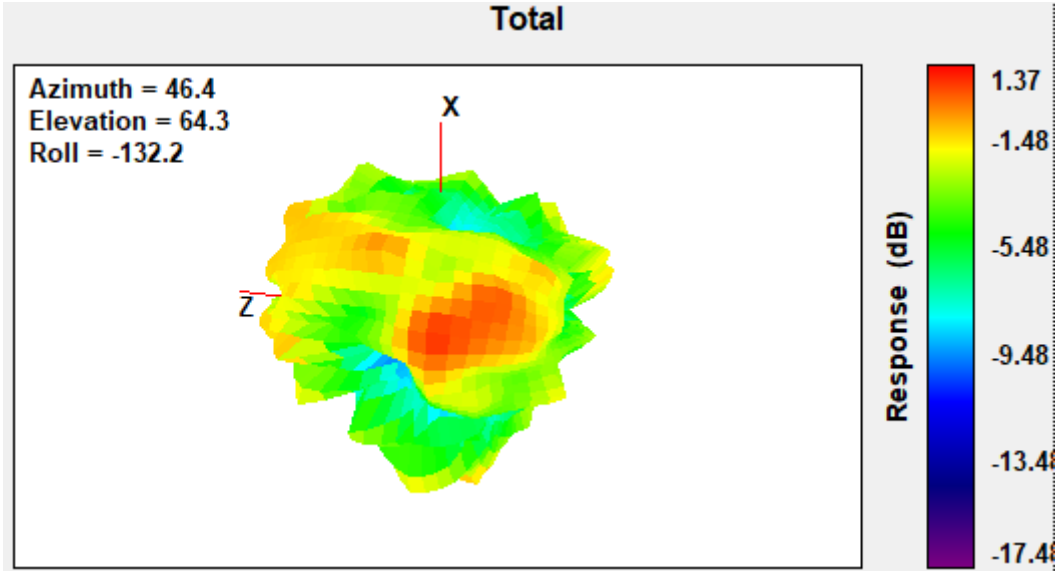
### Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	1.16



## Max Antenna 3D Radiation Pattern 5725-5850 MHz

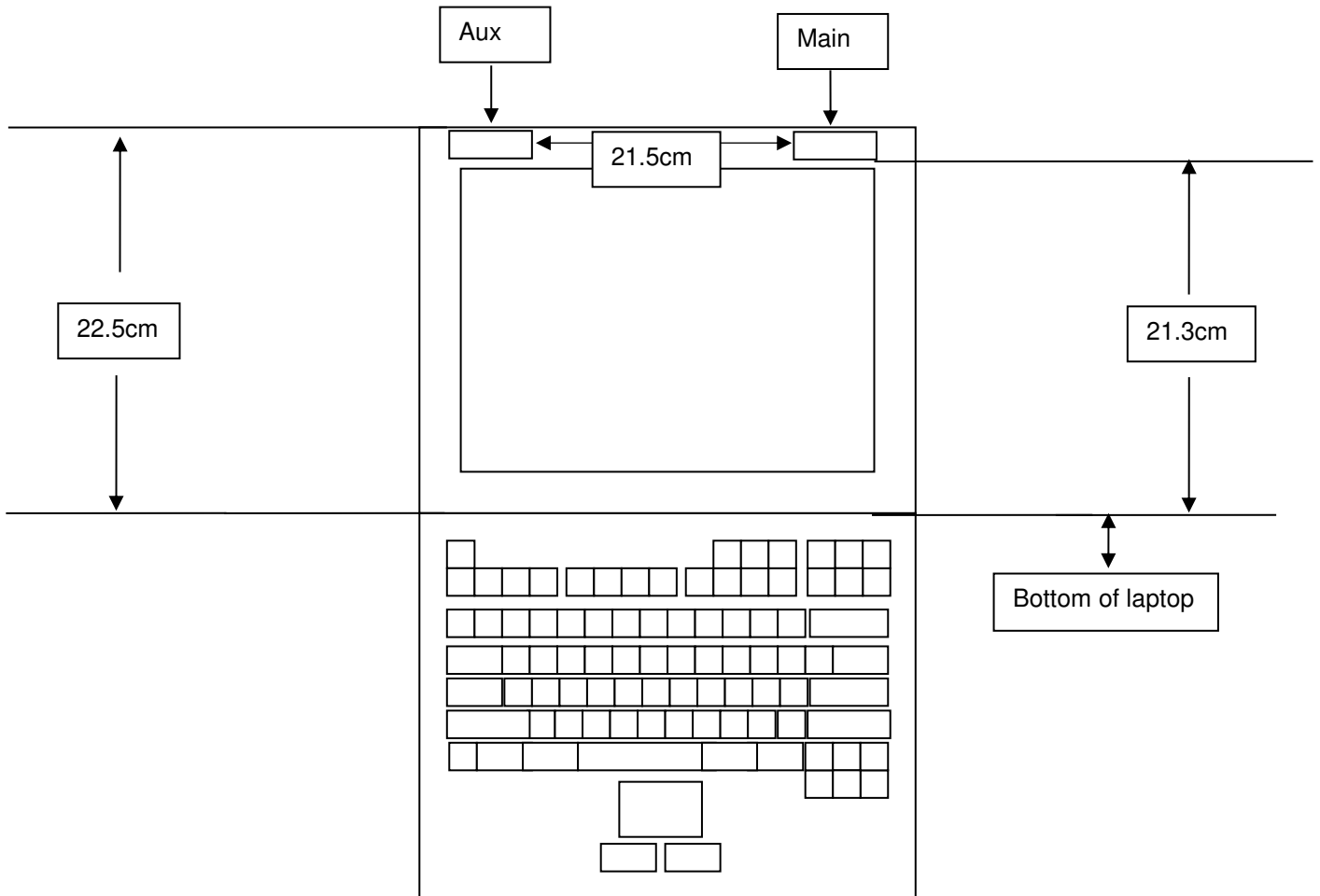
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	1.37



## Section 4. Antenna Host Platform Location Information

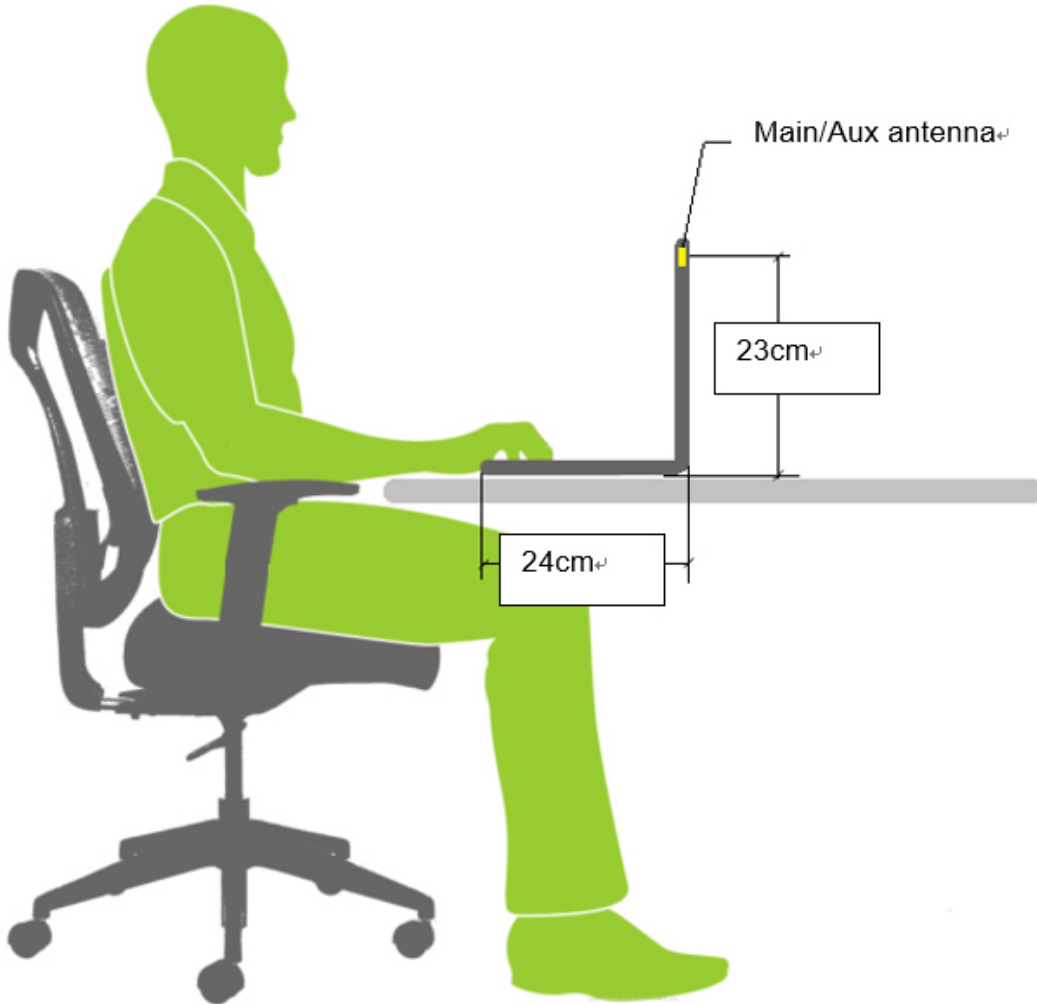
Include a **dimensioned photo(s) or dimensioned drawing(s)** of Main and Aux antenna placements (measurements are not required for receive-only antenna).

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)

