

ANTENNA INFORMATION

OEM	acer	
ODM	Compal Electronics Inc.	
Platform model name	N24C13	
Intel platform (ex: Yes, No or NA)	YES	
Platform type (ex: regular NB, convertible PC, AIO...etc)	Convertible NB	
SAR minimum separation (mm)	FCC (1g)	138.6 (w/bumper) 137.5 (w/o bumper) 2 (TB mode Left/Right side)
	ISED (1g)	138.6 (w/bumper) 137.5 (w/o bumper) 2 (TB mode Left/Right side)
	ISED (10g)	N/A

Antenna manufacturer	Company name	Wistron Neweb Corporation
	Address	20 Park Ave.II , Hsinchu Science Park,Hsinchu 308,Taiwan
Test location	Company name	Wistron Neweb Corporation
	Address	20 Park Ave.II , Hsinchu Science Park,Hsinchu 308,Taiwan
Test Personnel	Name(Full name)	William Yao
	E-mail	William.Yao@wnc.com.tw
	Tel/Mobile	03-6667799
Testing date	2024/09/26	

Antenna Part number	Main	81EACB15.G13 (DC33002ZM00)
	Aux	81EACB15.G14 (DC33002ZM10)
Antenna type (ex: PIFA, Dipole...etc)	PIFA	

Antenna 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	2.63	2.44	2.54	2.71	2.60	2.60	2.88	2.88	2.87	2.78
Aux	1.25	2.63	2.82	2.81	2.77	2.11	2.61	2.85	2.85	2.52

Antenna Peak gain w/ cable loss (dBi)* TB 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	1.23	2.80	2.80	2.57	2.90	2.64	2.79	2.79	2.59	1.20
Aux	1.67	2.27	2.27	1.72	1.58	1.58	2.71	1.86	2.03	1.74

Cable Assembly Part Number and Information					
	Cable PN	Cable length(mm)	Cable diameter(mm)	Impedance(ohm)	Connector type
Main	50.2EL8U.009	429	1.13	50	I-pex
Aux	50.2EL8U.011	295	1.13	50	I-pex

* 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	1.19	1.77	1.78	1.83	1.86	1.87	1.92	1.99	2.03	2.09
Aux	0.82	1.22	1.23	1.26	1.28	1.29	1.32	1.37	1.40	1.44

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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

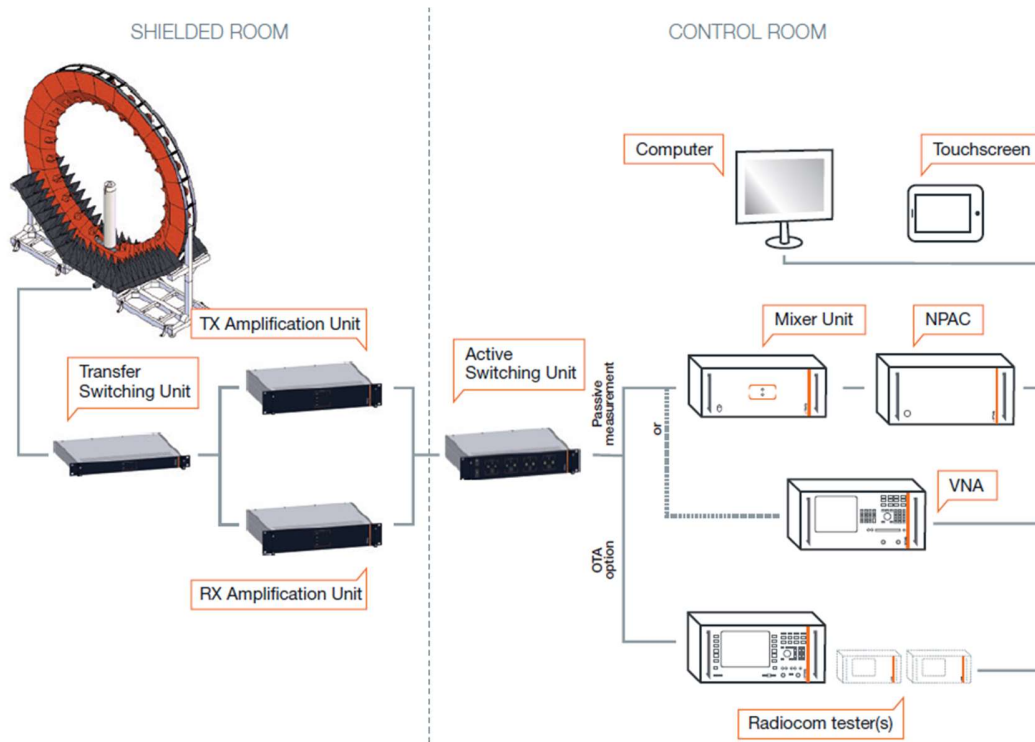
Revision #	Revision Details	Issued Date
Rev. 00	First Issue	2024/09/26

3. Test & System Description

3.1 Measurement Method and System

This B312.2" Celesta test report is prepared for host antenna testing under a Full Anechoic Chamber(WNC's SG24L).

3.2 Test setup



3.3 Equipment list

Device	Type / Model	Serial #	Manufacture	Cal. Date	Cal. Du Date
Anechoic Chamber	555-FAC		ChamPro	2024-07-10	2025-07
Antenna Measurement System	SG24-L		MVG-SATIMO	2024-07-10	2025-07
Network Analyzer	VNA / E5080B	MY59203136	Keysight	2024-07-10	2025-07
Tx Amplifier Unit	SG24 Series Accessories		MVG-SATIMO	2024-07-10	2025-07
Rx Amplifier Unit	SG24 Series Accessories		MVG-SATIMO	2024-07-10	2025-07
Probe Select Unit	SG24 Series Accessories		MVG-SATIMO	2024-07-10	2025-07
Motion Control Unit	SG24 Series Accessories		MVG-SATIMO	2024-07-10	2025-07
Power and Control Unit	SG24 Series Accessories		MVG-SATIMO	2024-07-10	2025-07
Array Control Unit	SG24 Series Accessories		MVG-SATIMO	2024-07-10	2025-07
Turn Table	SG24 Series Accessories		MVG-SATIMO	2024-07-10	2025-07
Goniometer	SG24 Series Accessories		MVG-SATIMO	2024-07-10	2025-07
Control Software	WaveStudio		MVG-SATIMO	N/A	N/A
Uninterruptible Power Supply	FT-130H-U		FTUPS	N/A	N/A
Wide Band Dipole	WD6000		MVG-SATIMO	2024-07-10	2025-07

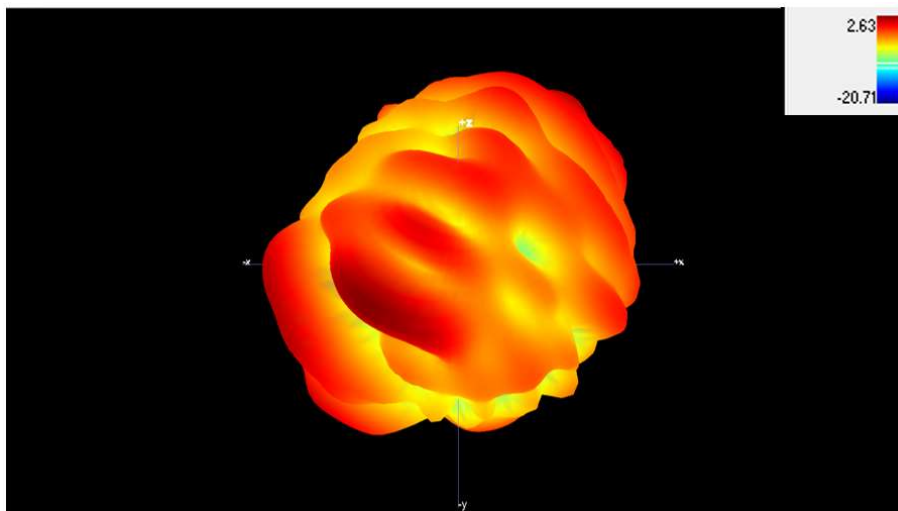
4. Radiation characteristics of antenna loaded in Host Platform

4.1 NB Mode

Main Antenna

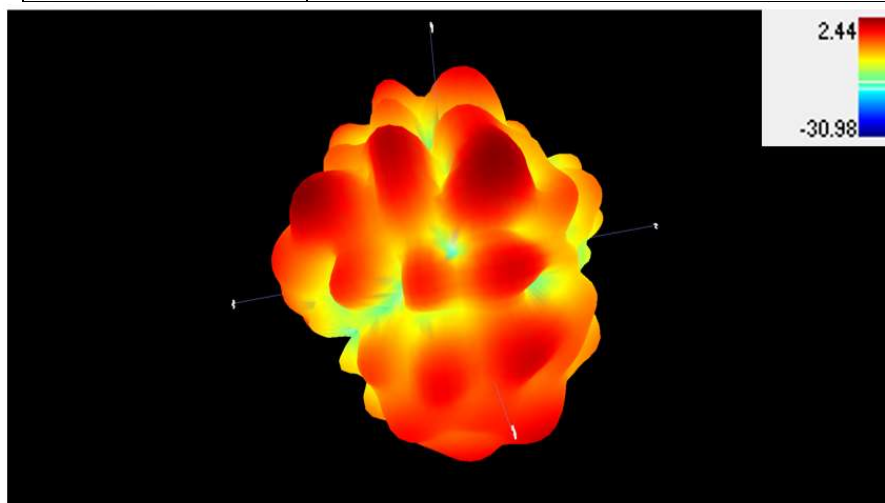
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.63



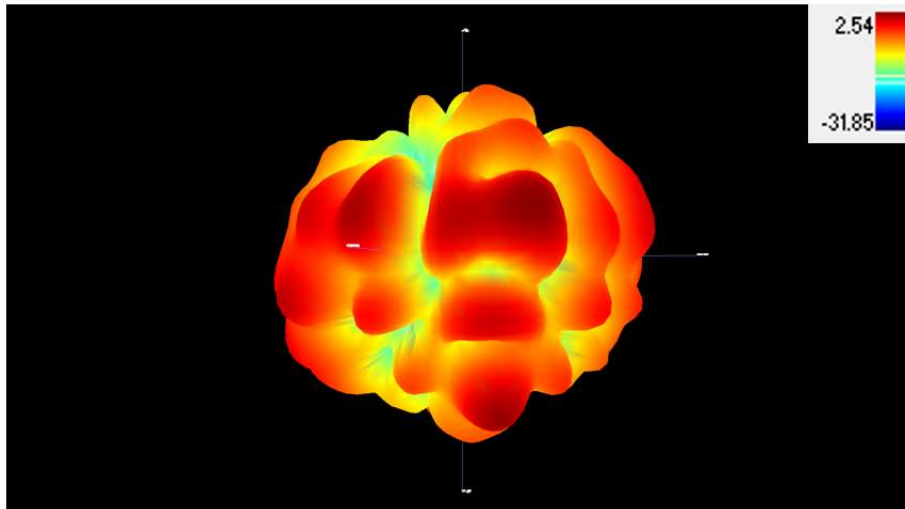
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.44



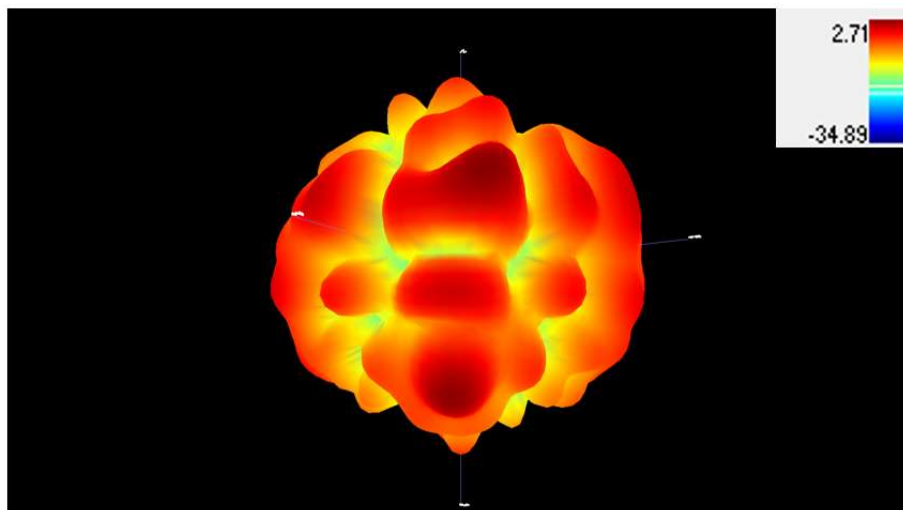
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.54



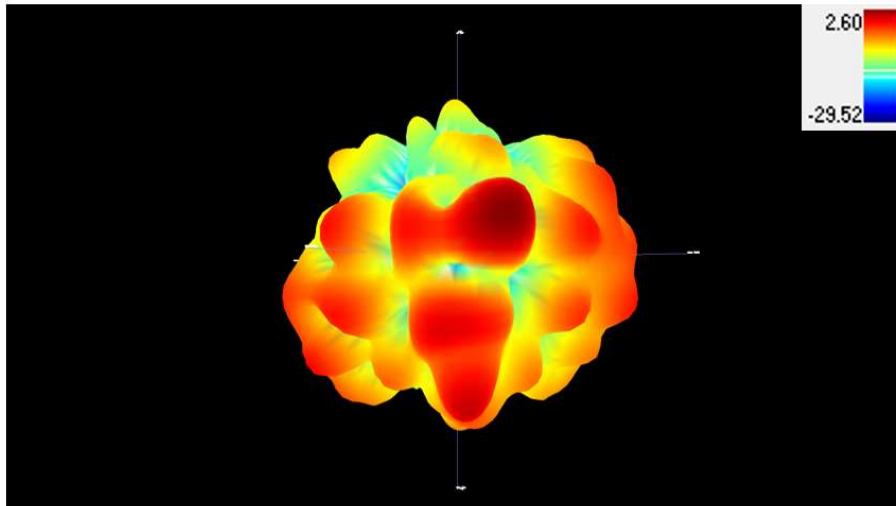
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.71



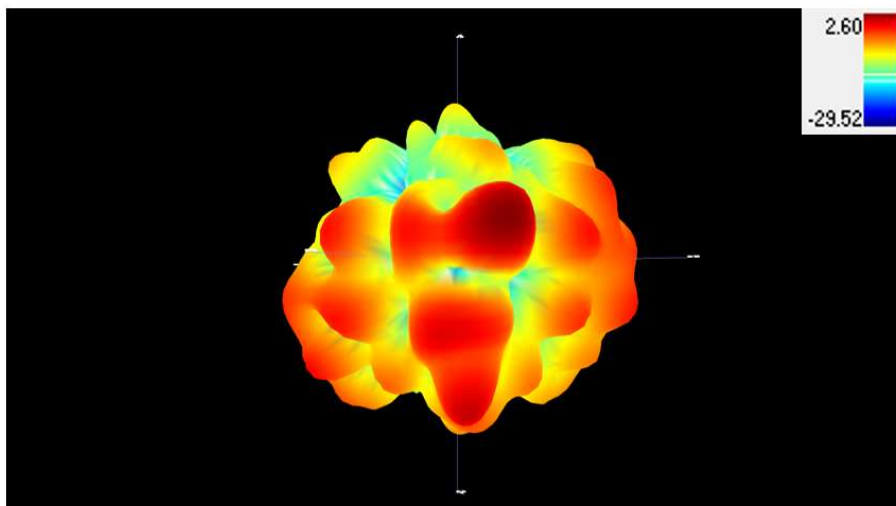
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.60



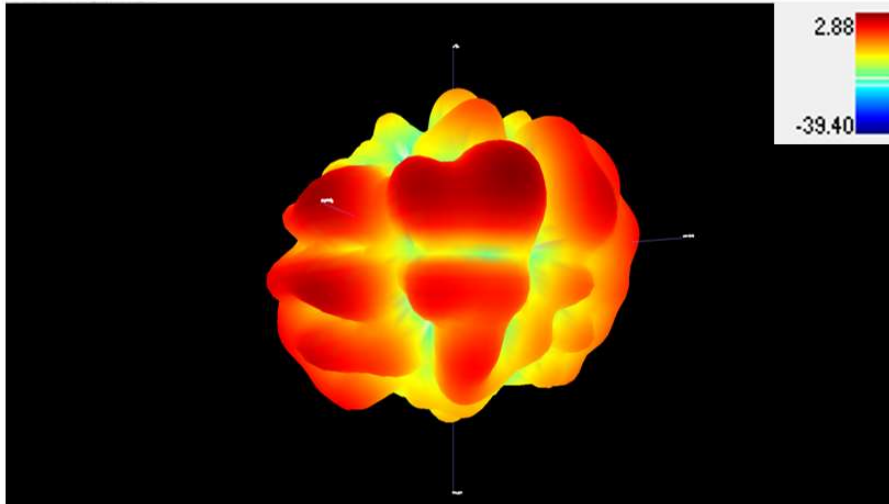
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.60



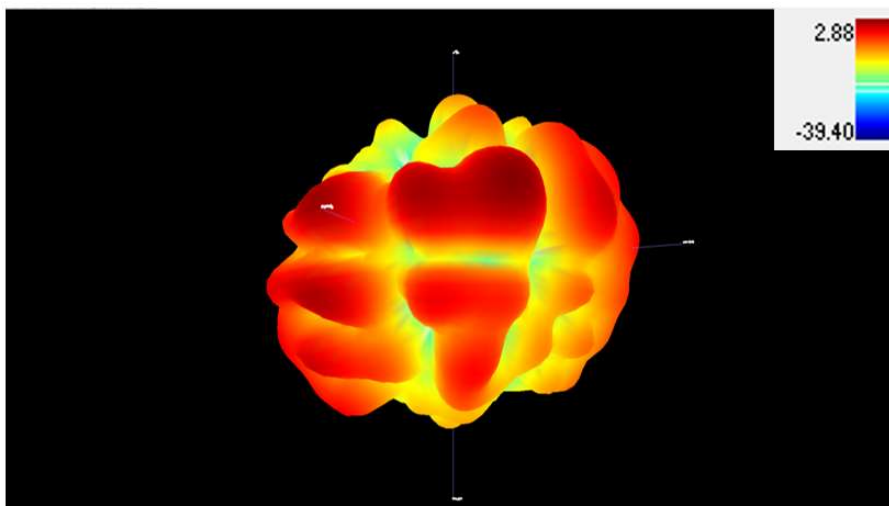
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.88



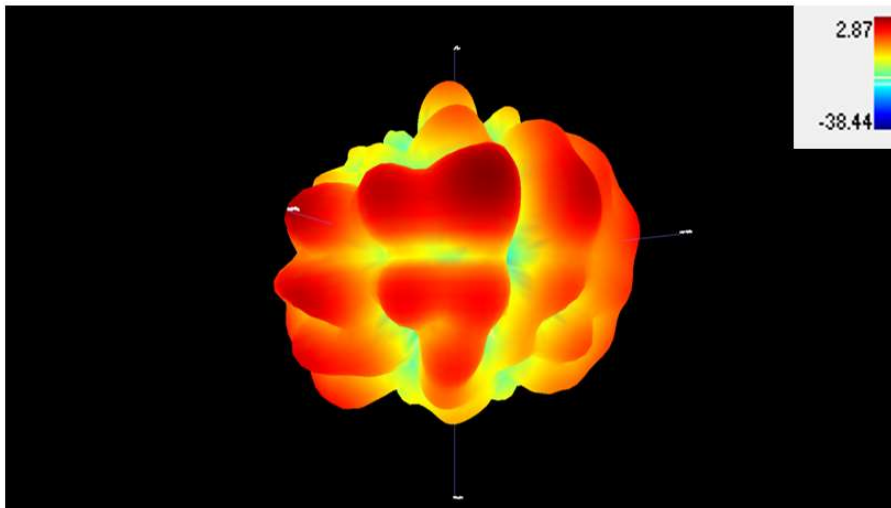
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	2.88



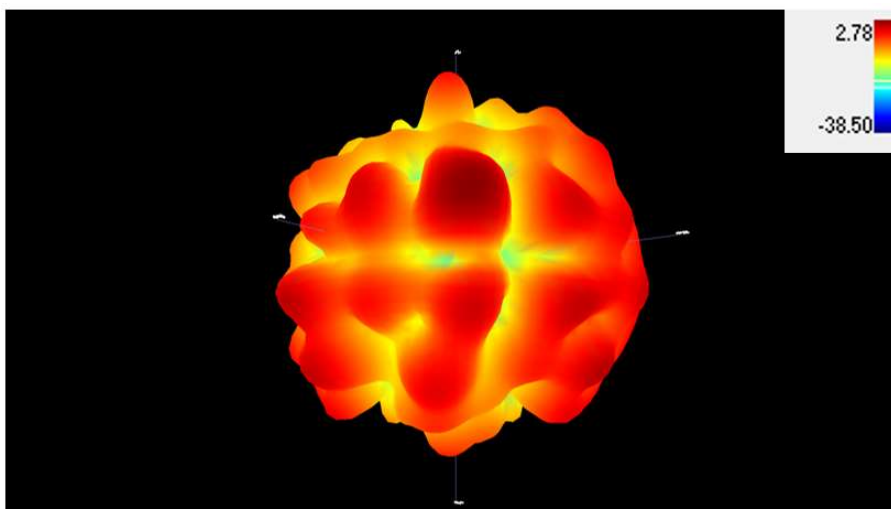
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.87



Max Antenna 3D Radiation Pattern 6875-7125 MHz

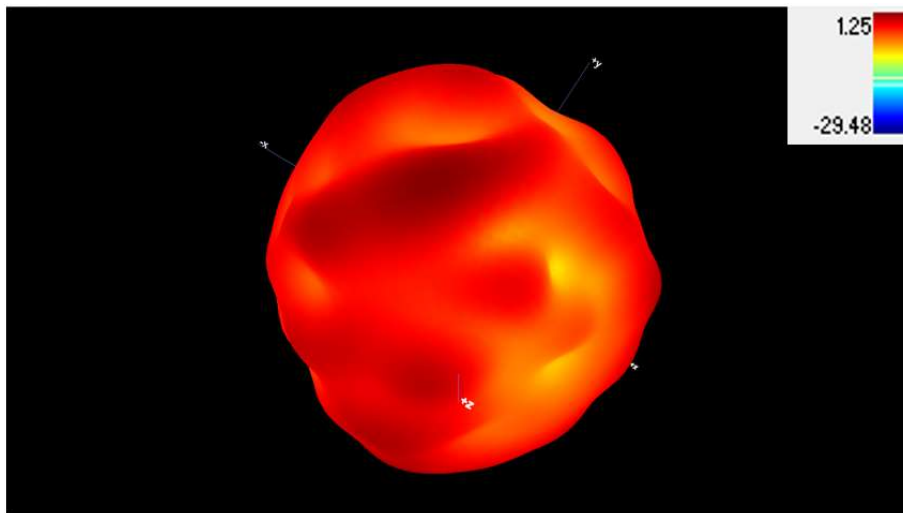
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.78



Auxiliary Antenna

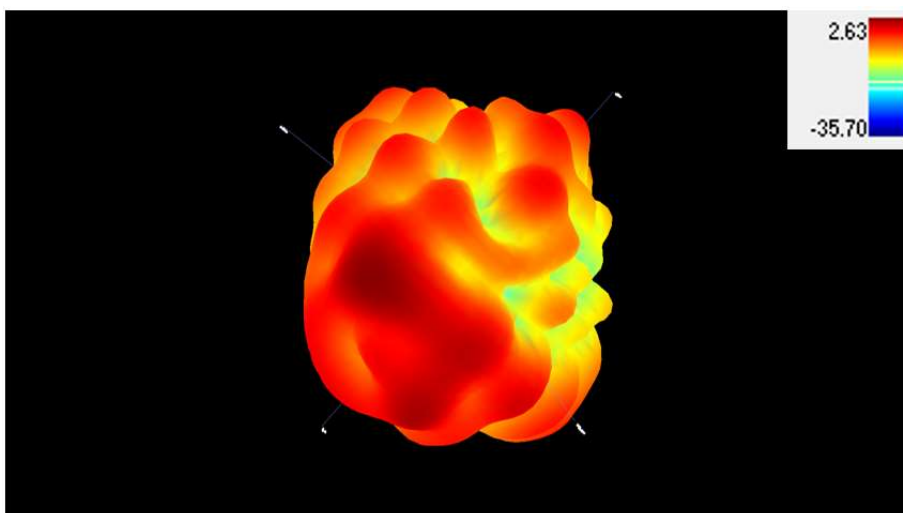
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.25



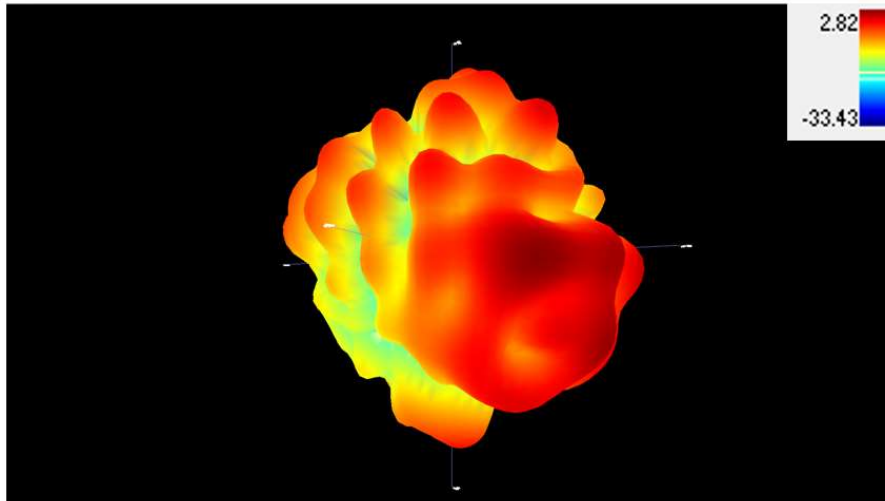
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.63



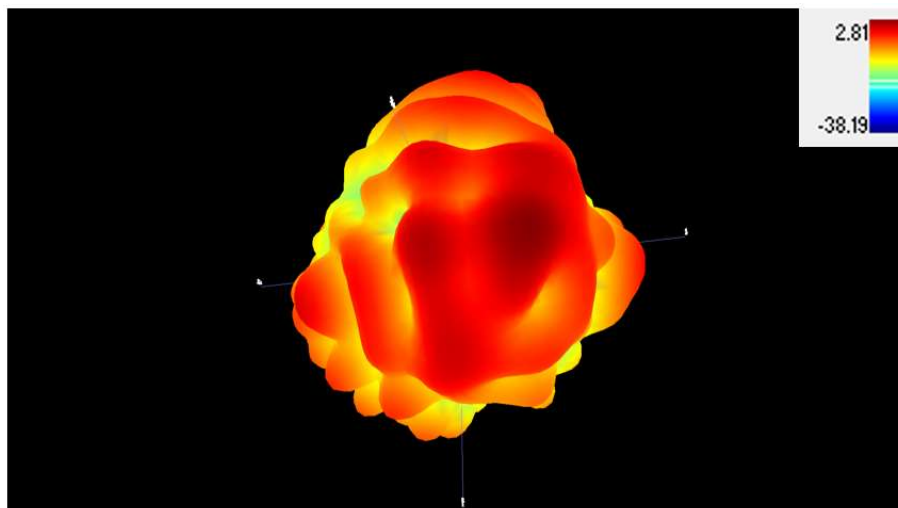
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.82



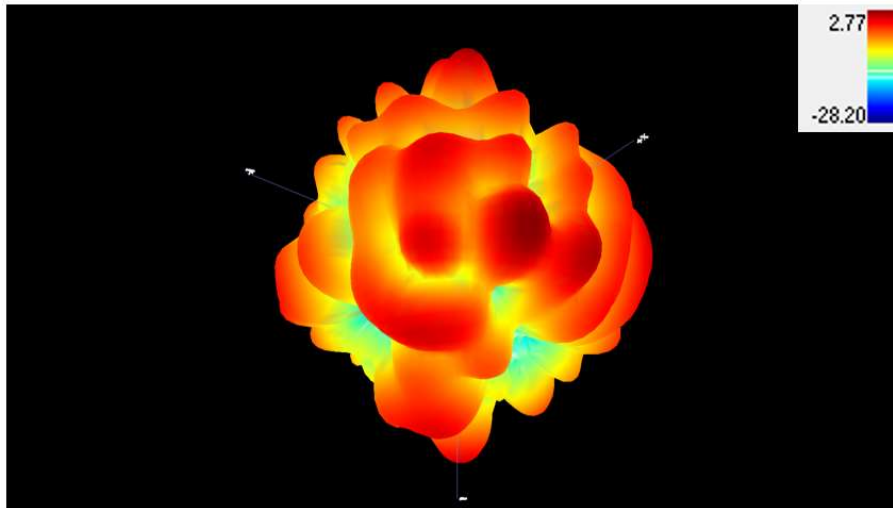
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.81



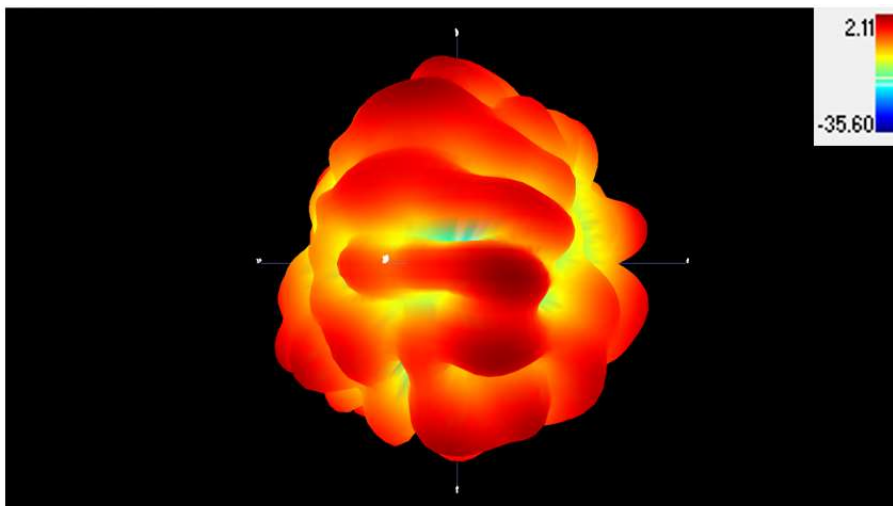
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.77



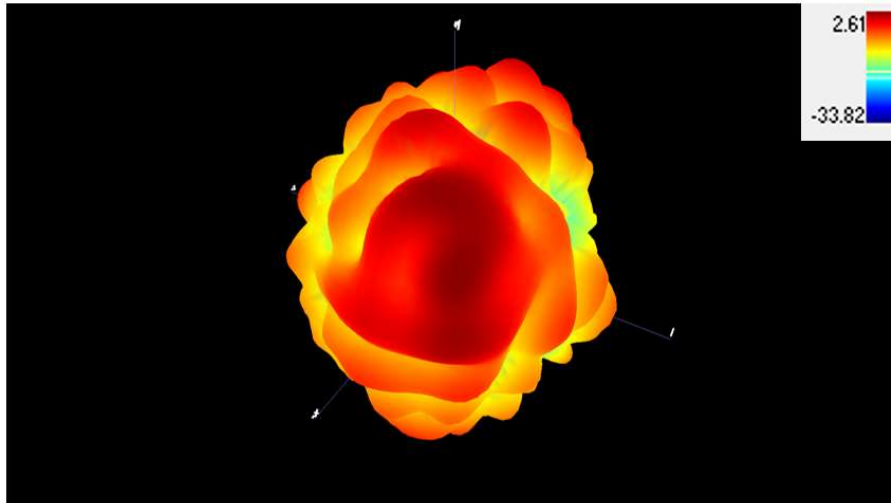
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.11



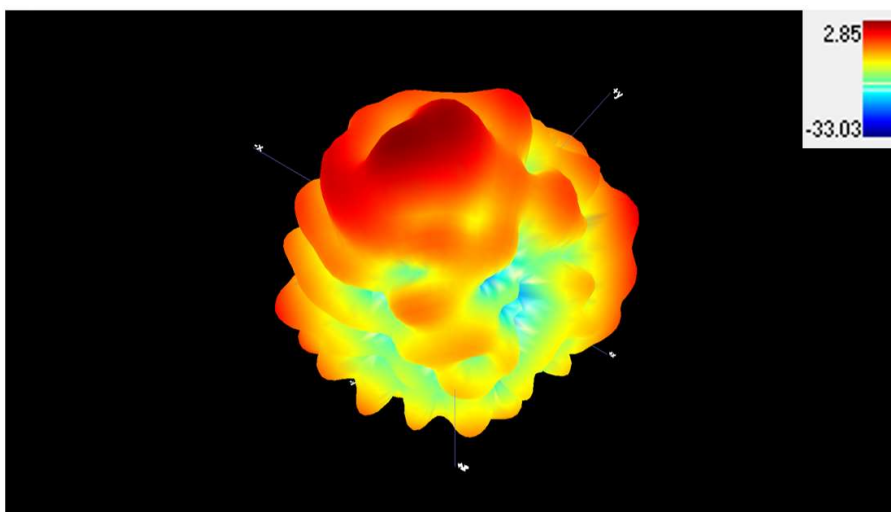
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.61



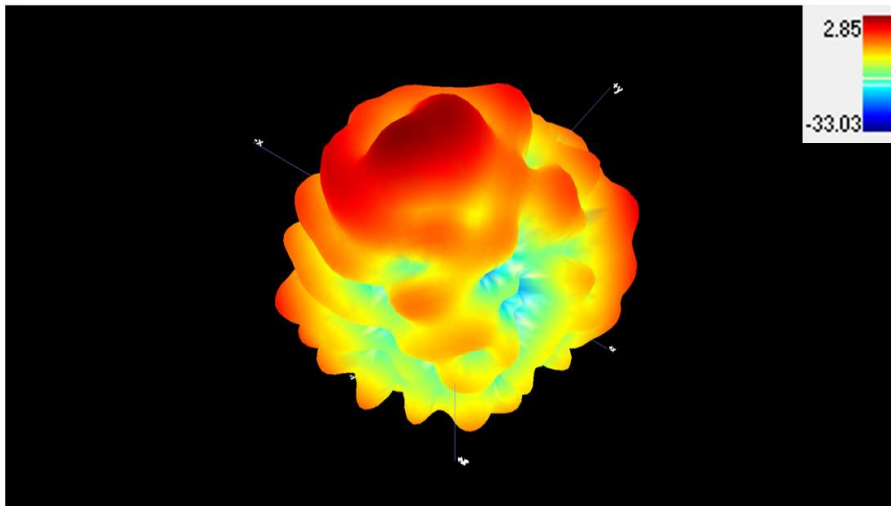
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	2.85



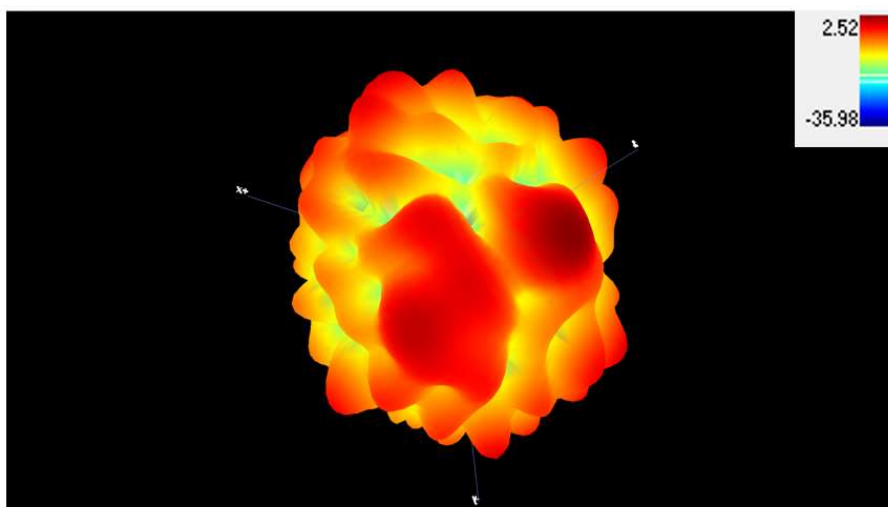
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.85



Max Antenna 3D Radiation Pattern 6875-7125 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.52

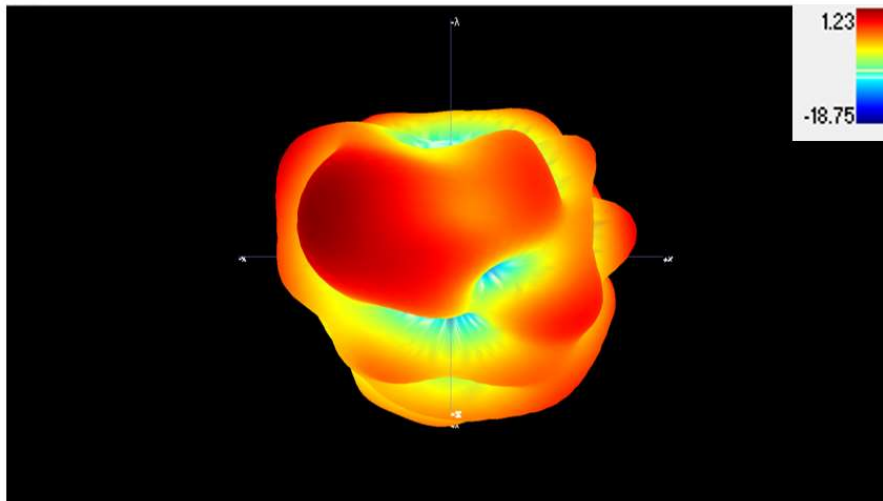


4.2 TB Mode

Main Antenna

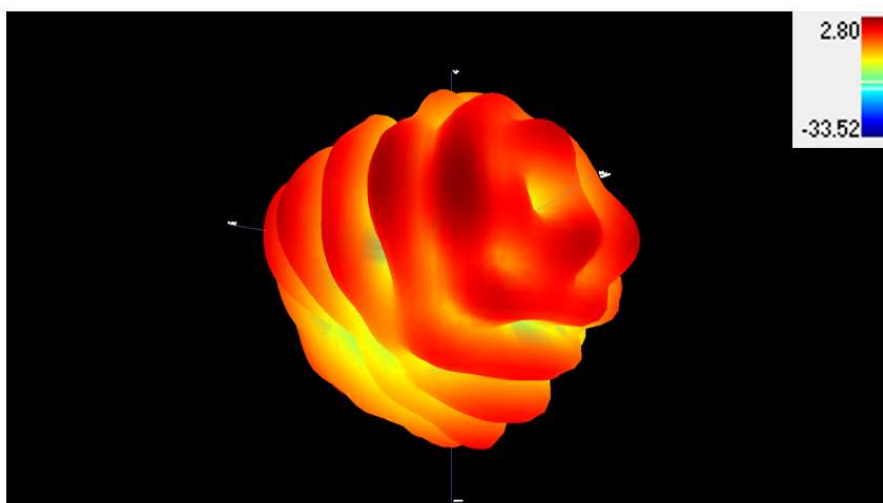
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.23



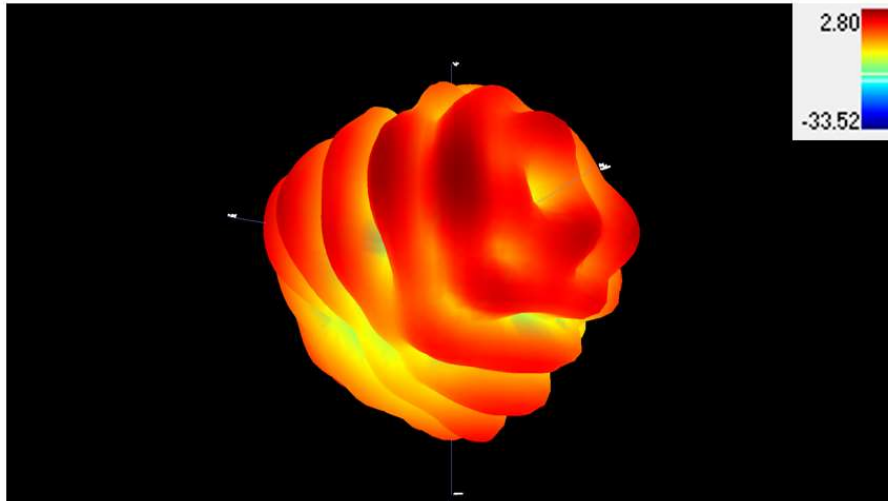
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.80



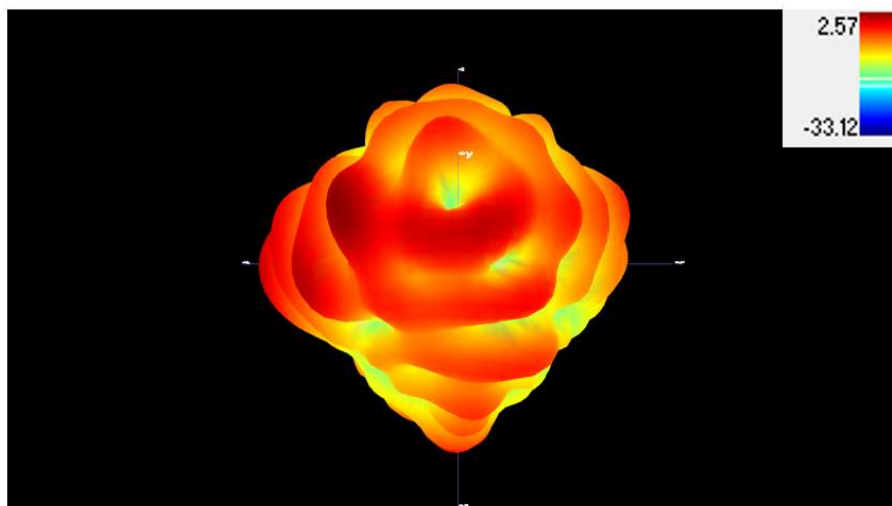
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.80



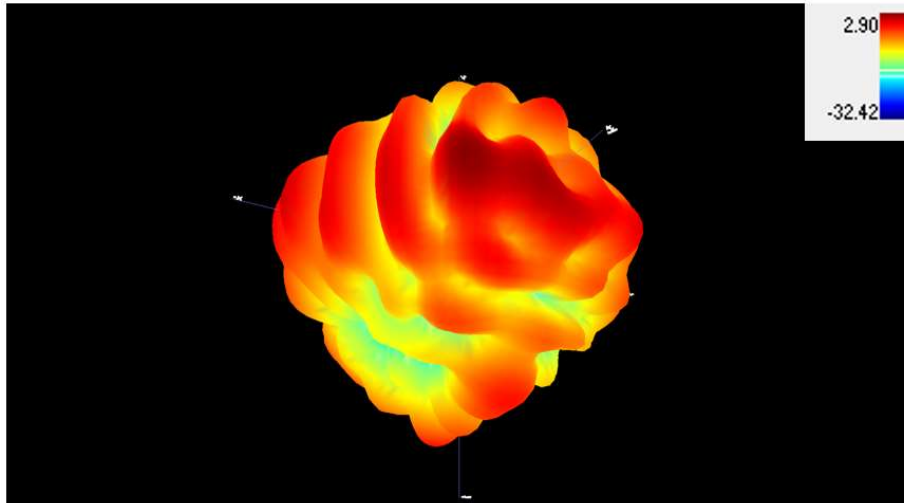
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.57



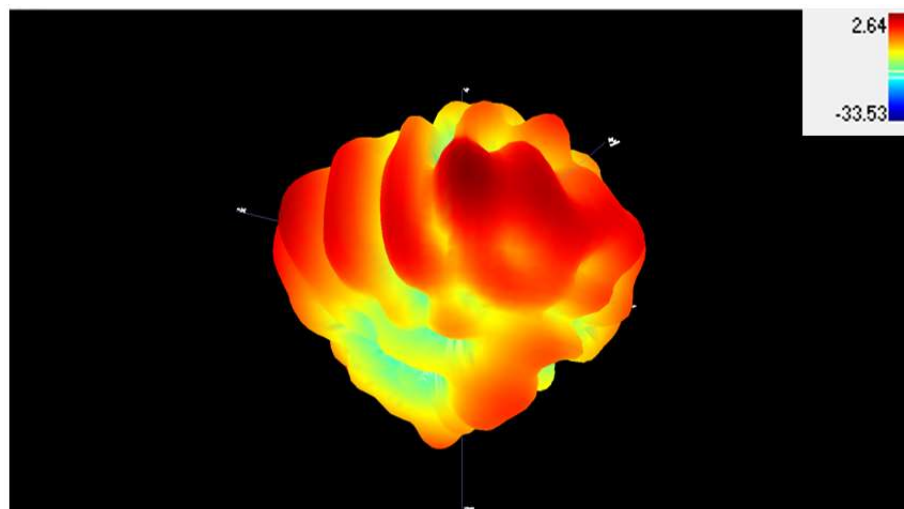
Max Antenna 3D Radiation Pattern 5725-5850 MHz

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



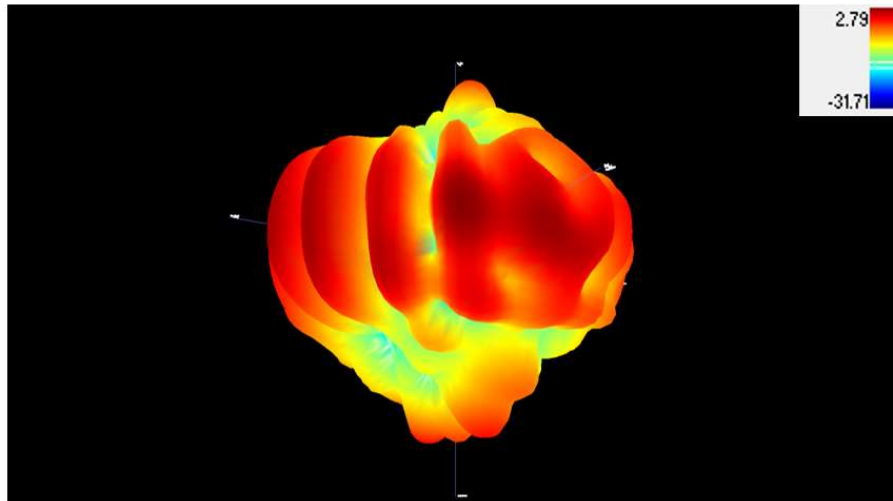
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.64



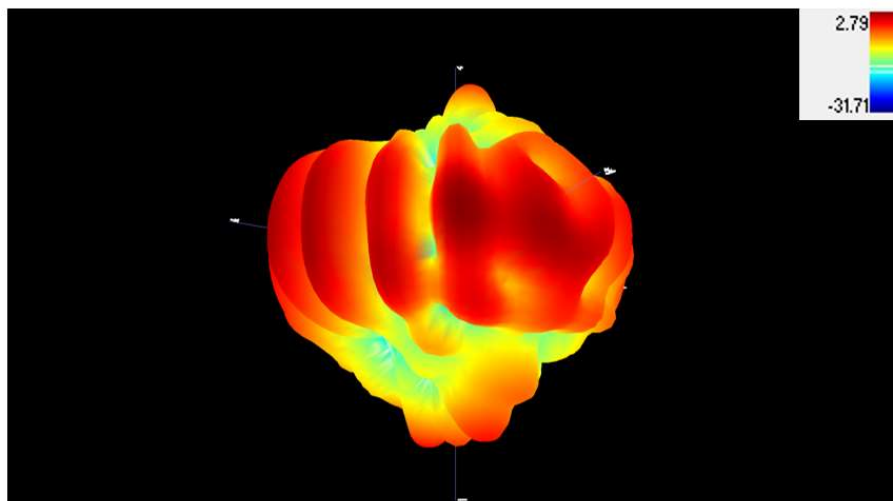
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.79



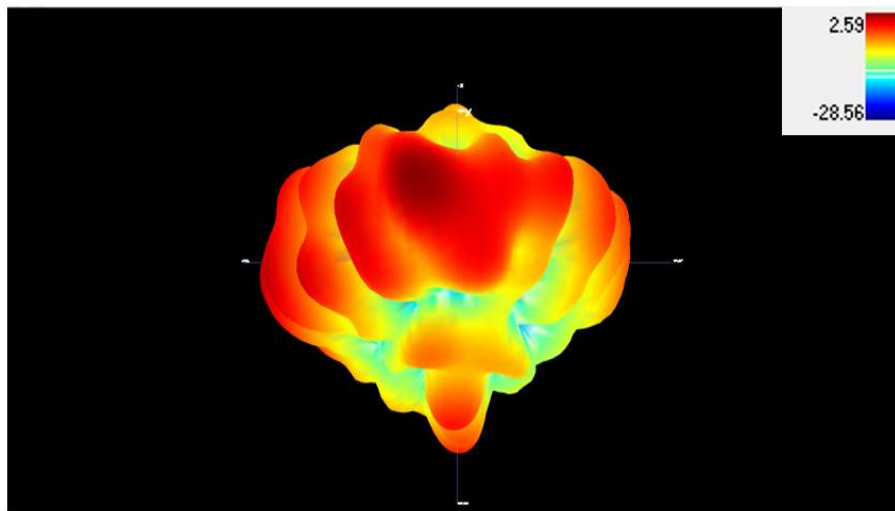
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	2.79



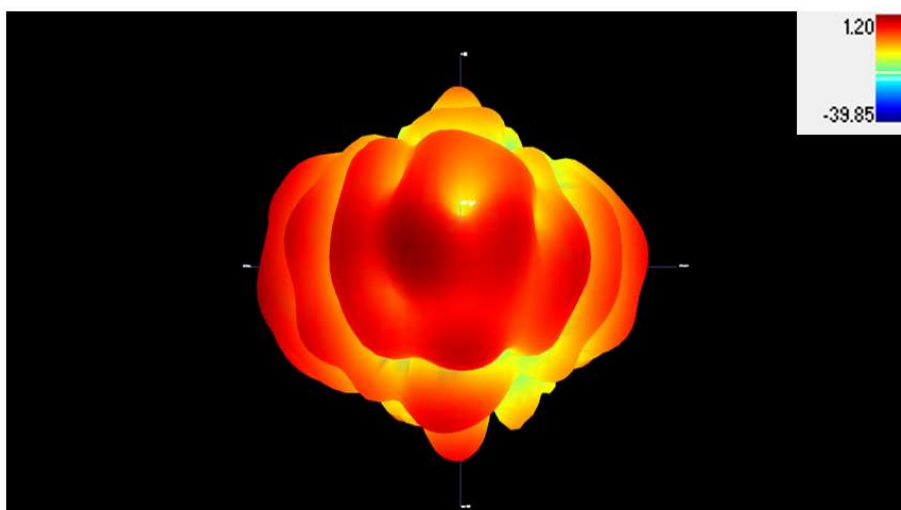
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.59



Max Antenna 3D Radiation Pattern 6875-7125 MHz

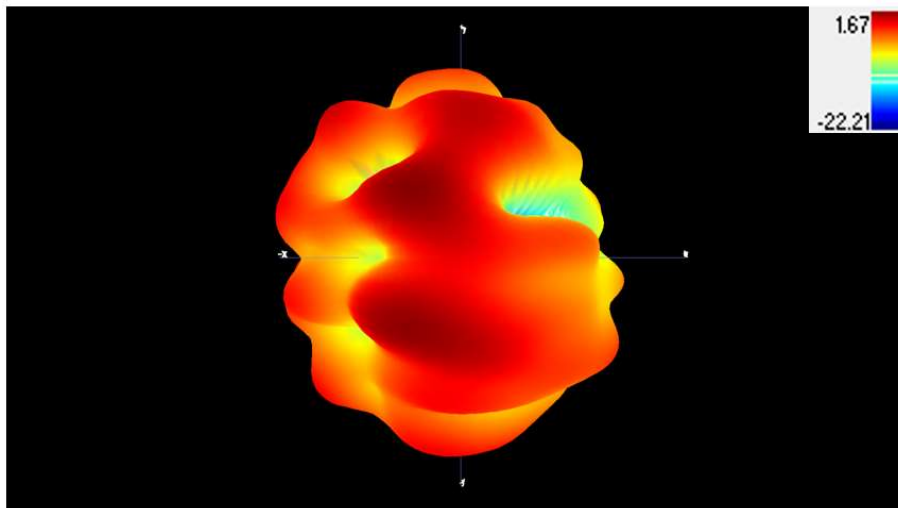
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	1.20



Auxiliary Antenna

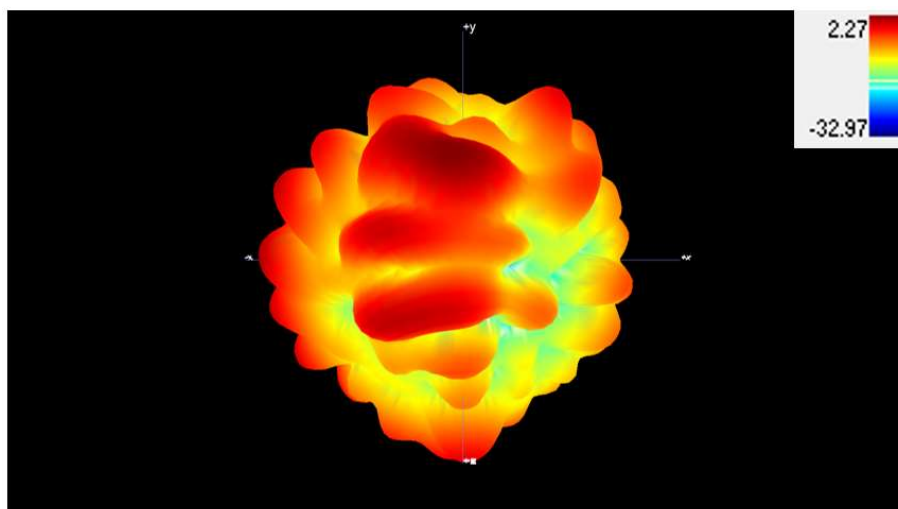
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.67



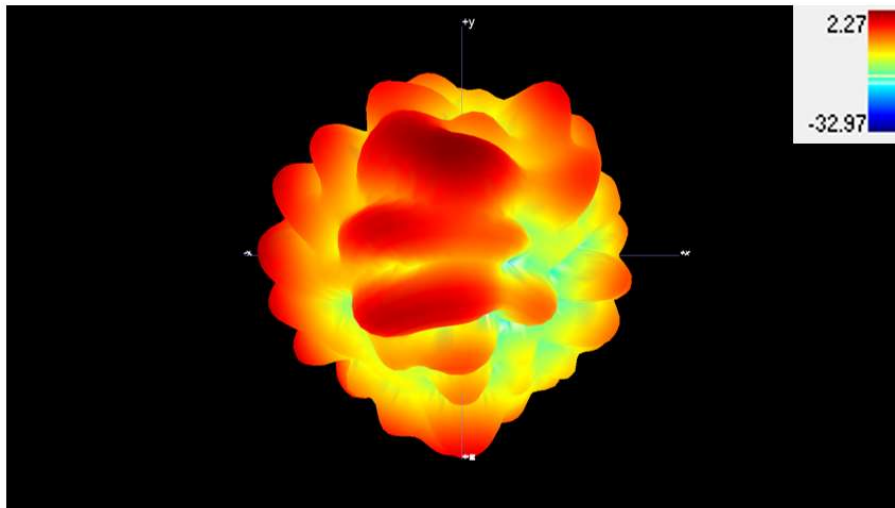
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.27



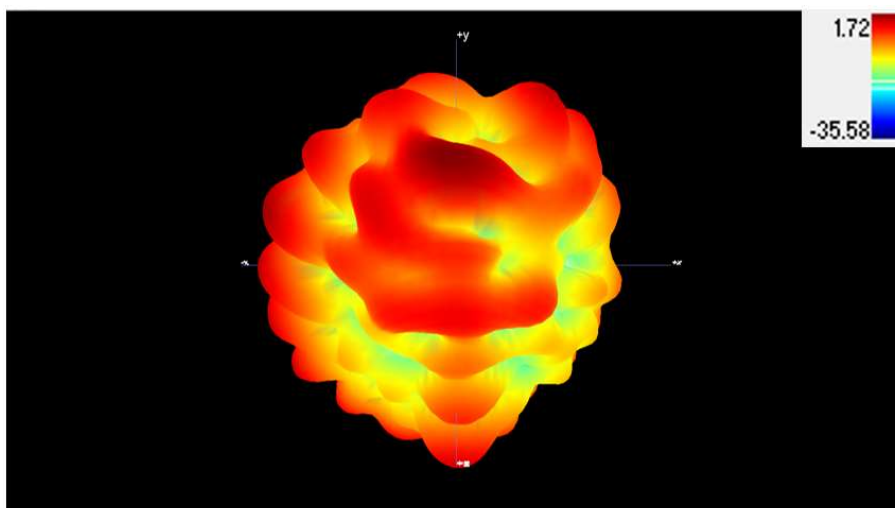
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.27



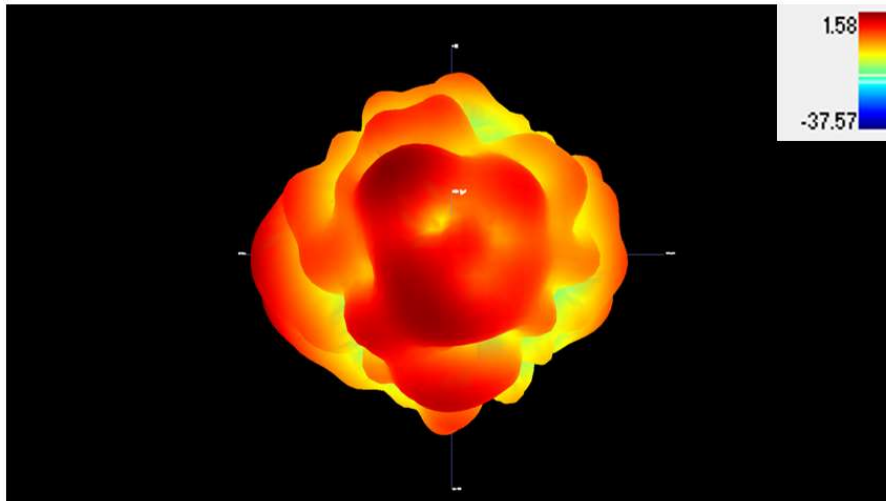
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	1.72



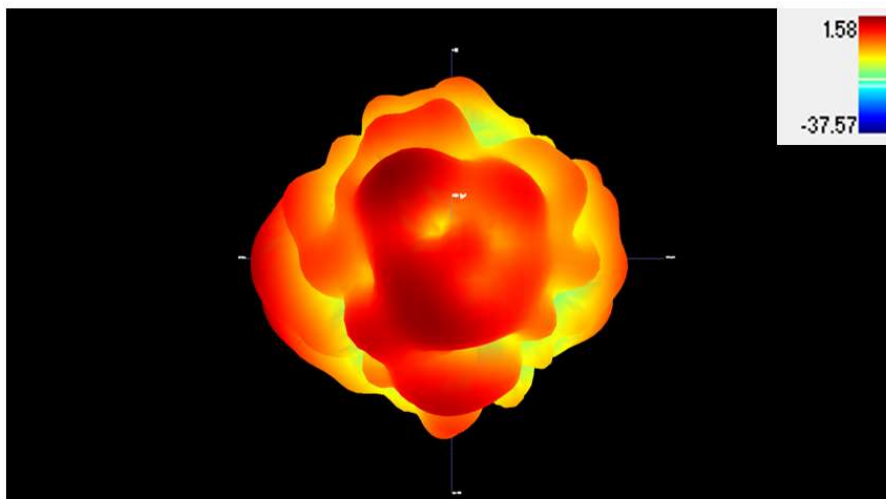
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	1.58



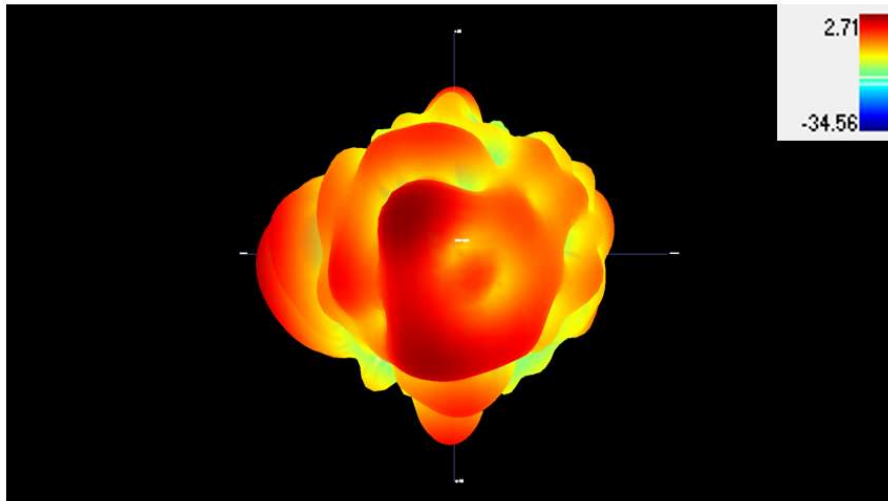
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	1.58



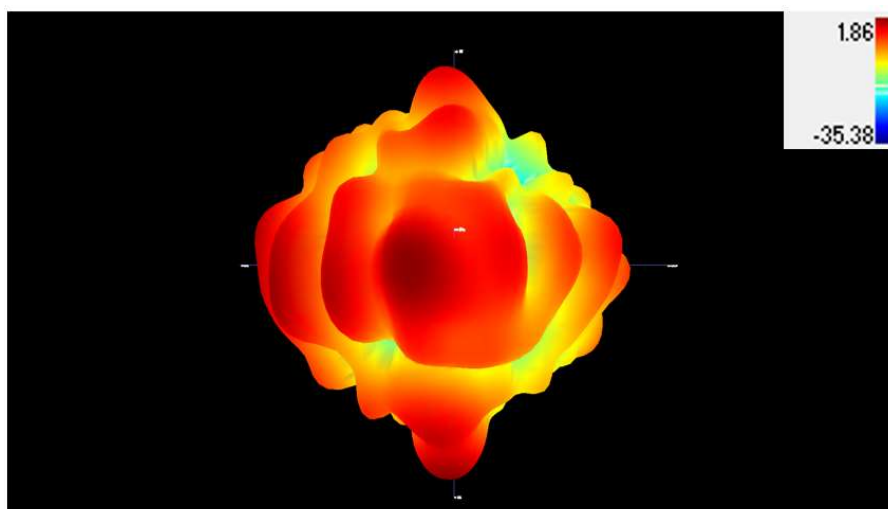
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.71



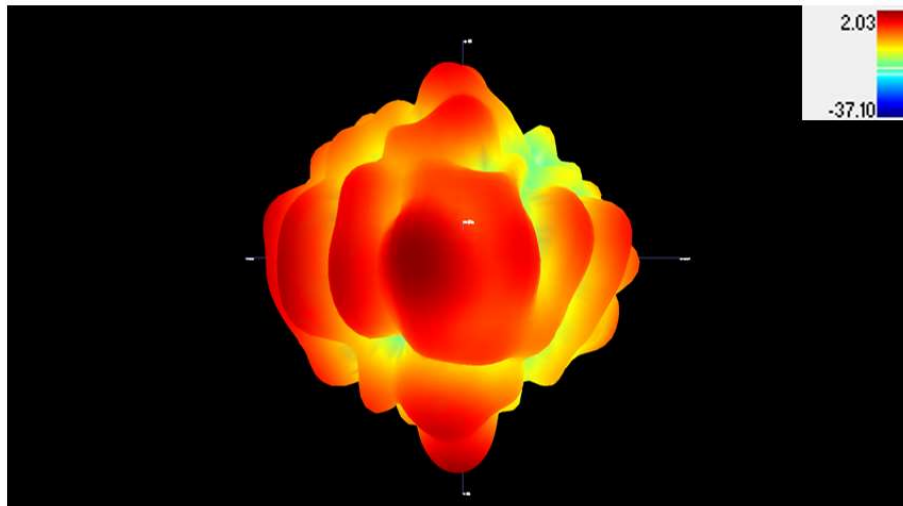
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	1.86



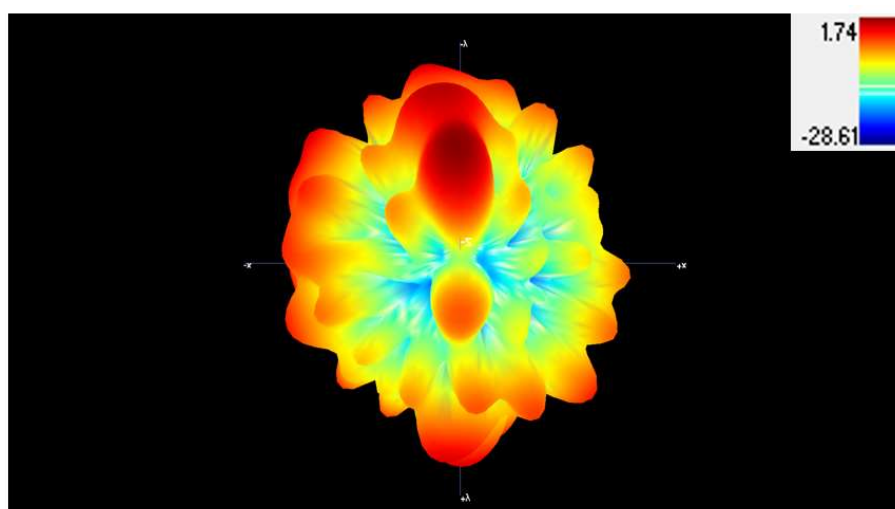
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.03



Max Antenna 3D Radiation Pattern 6875-7125 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	1.74



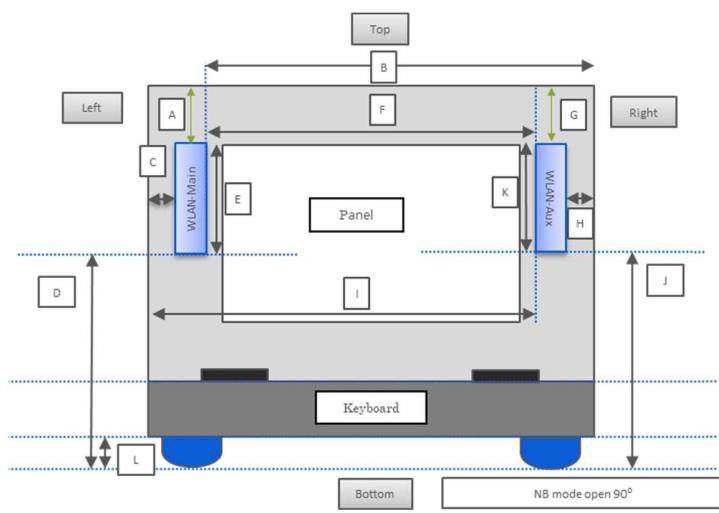
Annex B. Antenna Location

B.1 Antenna Host Platform Location Information

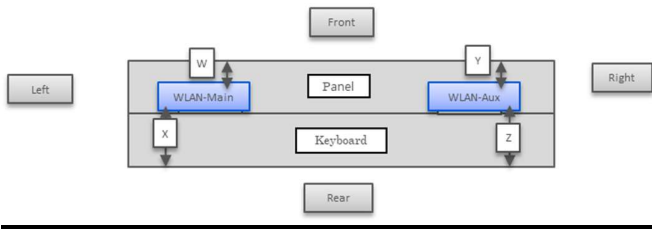
Include a dimensioned photo(s) or dimensioned drawing(s) of Main and Aux antenna placements (measurements are not required for receive-only antenna).

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.

Antennas position (regular NB)



Minimum Separation Distance			
Item	Antenna	Position	Distance (mm)
A	WLAN-Main	to Top	55.5
B	WLAN-Main	to Right	286
C	WLAN-Main	to Left	2
D	WLAN-Main	to Bottom	138.6
E	WLAN-Main	Main Antenna Length	30
F	Main-Aux	Main to Aux	276
G	WLAN-Aux	to Top	55.5
H	WLAN-Aux	to Right	2
I	WLAN-Aux	to Left	286
J	WLAN-Aux	to Bottom	138.6
K	WLAN-Aux	Aux Antenna Length	30
L	NB	Bumper thickness	1.1

TB Mode

Minimum Separation Distance			
Item	Antenna	Position	Distance (mm)
W	WLAN-Main	to Front	4.1
X	WLAN-Main	to Rear	19.5
Y	WLAN-Aux	to Front	4.1
Z	WLAN-Aux	to Rear	19.5

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.

Antennas on the panel section

