

ANTENNA INFORMATION

OEM	DELL
ODM	Compal Electronics, Inc.
Platform model name	P151G
Intel platform (ex: Yes, No or NA)	Yes
Platform type (ex: regular NB, convertible PC, AIO...etc)	Regular NB
SAR minimum separation (mm)	2.68mm (w/bumper) 0.9mm (w/o bumper)

Antenna manufacturer	Company name	Hong Bo Co., Ltd.
	Address	4F., No.143, Sinhu 1st Rd., Neihu Dist., Taipei City, 11494 Taiwan
Test location	Company name	Hong Bo Co., Ltd.
	Address	4F., No.143, Sinhu 1st Rd., Neihu Dist., Taipei City, 11494 Taiwan
Test Personnel	Name(Full name)	Louise Tsai
	E-mail	louisetsai@hong-bo.com.tw
	Tel/Mobile	0982203810
Testing date		2024/03/18

Antenna Part number	Main: Antenna P/N: 330-24005 Compal P/N: DC33002KZ1L	Aux: Antenna P/N: 330-24005 Compal P/N: DC33002KZ1L
Antenna type (ex: PIFA, Dipole...etc)	Monopole	

Antenna 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	5.9GHz 5850-5895MHz	6.2GHz 5925-6425MHz	6.5GHz 6425-6525MHz	6.7GHz 6525-6875MHz	7.0 GHz 6875-7125MHz
Main	0.87	1.78	1.67	2.12	3.51	3.51	3.95	1.95	1.22	1.61
Aux	1.89	1.87	0.08	2.6	3.37	3.37	3.07	0.26	-1.01	-0.92

Cable Assembly Part Number and Information					
	Cable PN	Cable length(cm)	Cable diameter(mm)	Impedance(ohm)	Connector type
Main	51109 (SY113L/50-200(Black))	2.55	1.13	50	IPEX MHF4L
Aux	51109 (SY113L/50-200(Black))	1.85	1.13	50	IPEX MHF4L

* 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	0.12	0.19	0.20	0.21	0.21	0.22	0.23	0.23	0.24	0.25
Aux	0.54	0.89	0.91	0.97	0.99	1.00	1.02	1.04	1.08	1.14

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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

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

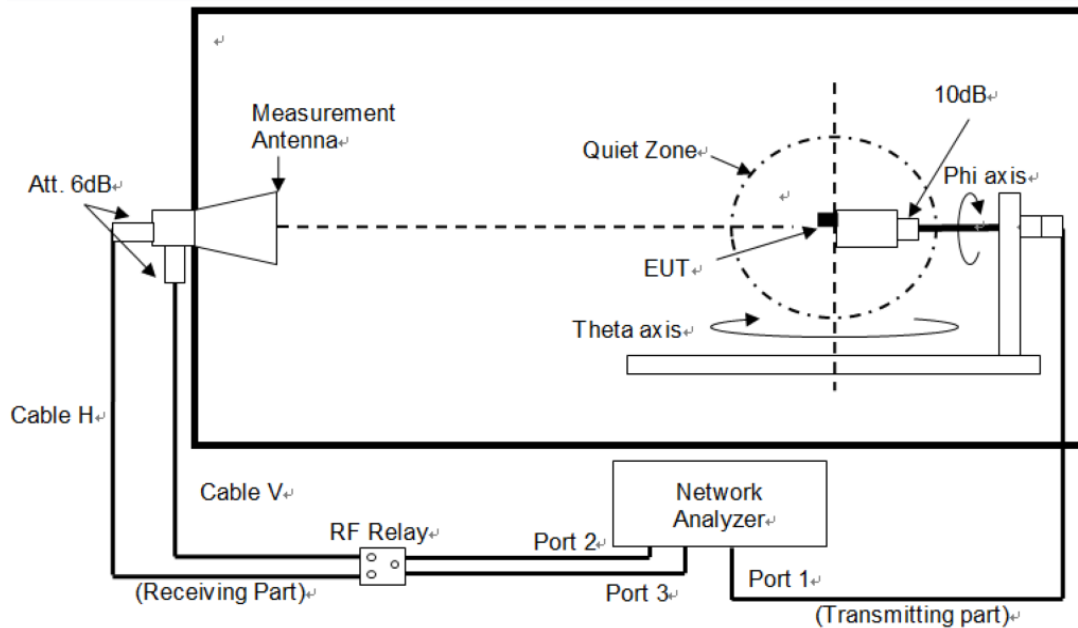
Revision #	Revision Details	Issued Date
Rev. 00	First Issue	2023.06.20

3. Test & System Description

3.1 Measurement Method and System

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

3.2 Test setup



3.3 Equipment list

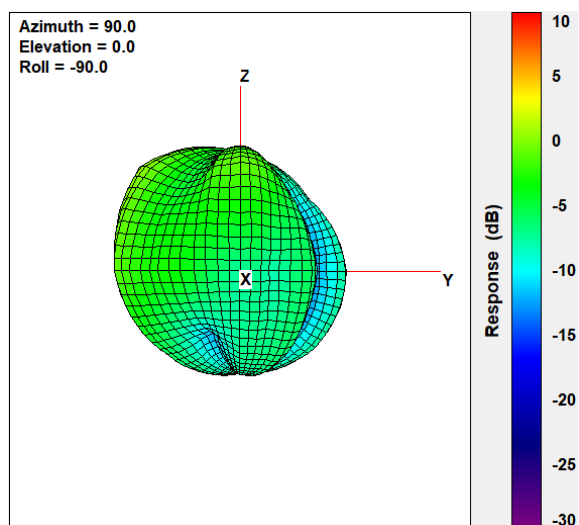
Equipment Description	Manufacturer	Identification no.	Current calibration date	Next calibration date
Base station	Anritsu	MT8821C	2023/1/17	2024/1/17
Spectrum analyzer	Agilent	N9010A	2023/1/11	2024/1/10
Network analyzer	Agilent	E5071C	2023/2/21	2024/2/21
Measurement software	ETS-Lindgren	EMQuest	N/A	N/A
Multi axis positioning system(MAPSTM)	ETS-Lindgren	EMCO 2115	N/A	N/A
Multi axis positioning system(MAPSTM)	ETS-Lindgren	EMCO 2110	N/A	N/A
MAPSTM controller	ETS-Lindgren	EMCO 2090	N/A	N/A
Horn antenna	ETS-Lindgren	3164-08	N/A	N/A
Note:Chamber calibration included full set of implement				

4. Radiation characteristics of antenna loaded in Host Platform

Main Antenna

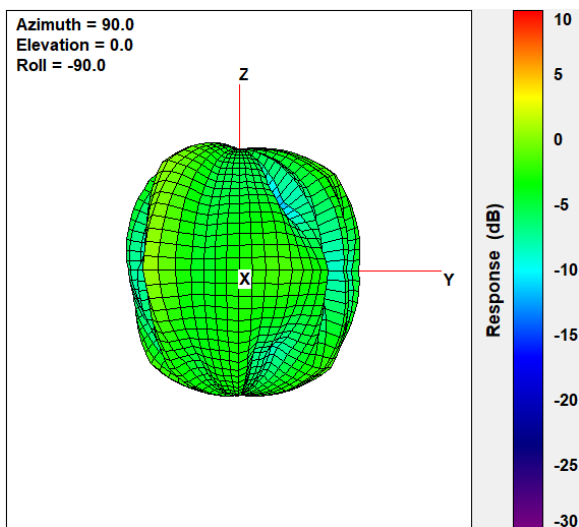
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	0.87



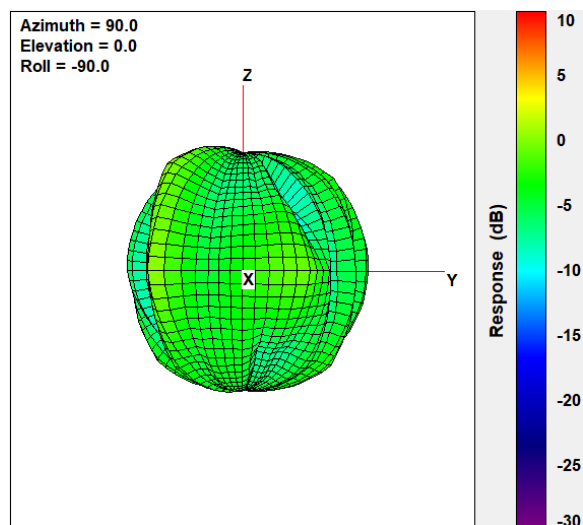
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.78



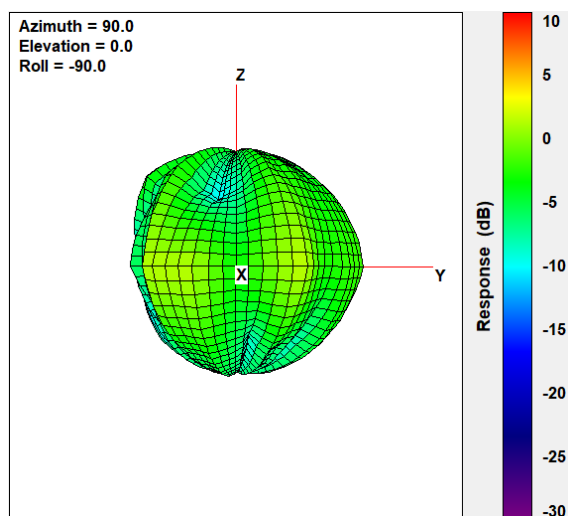
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	1.67



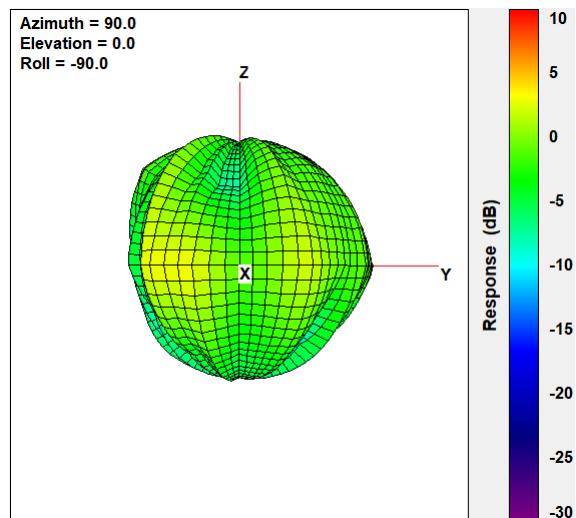
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.12



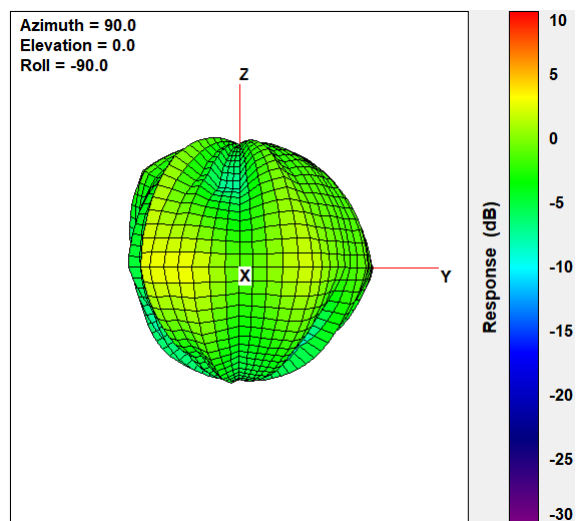
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	3.51



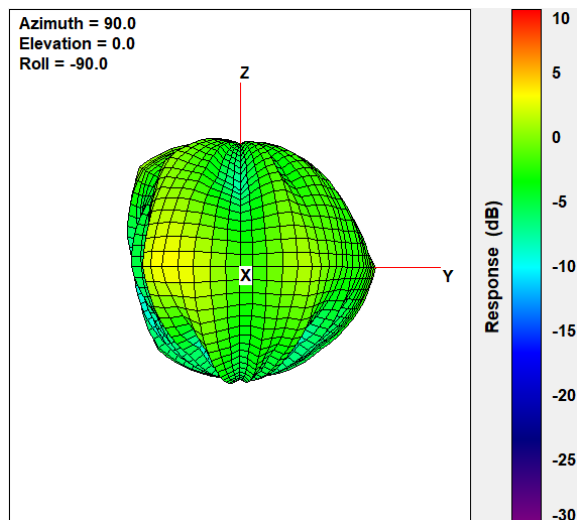
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	3.51



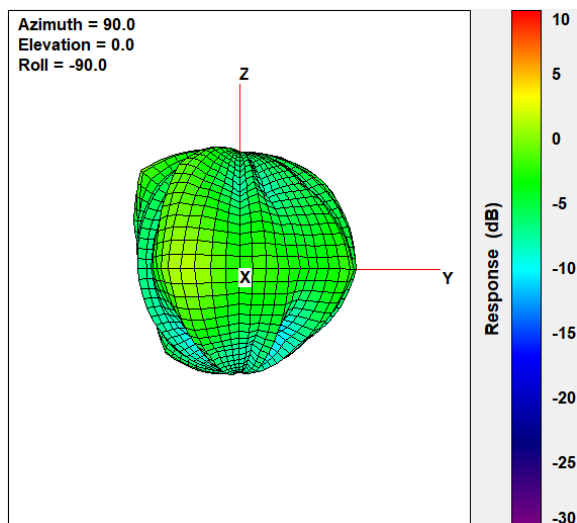
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	3.95



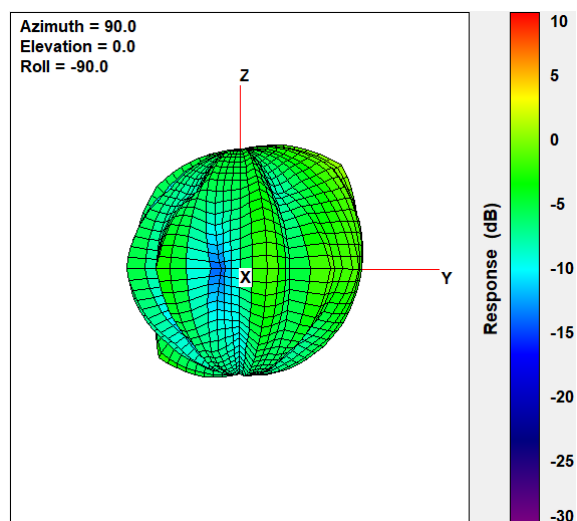
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	1.95



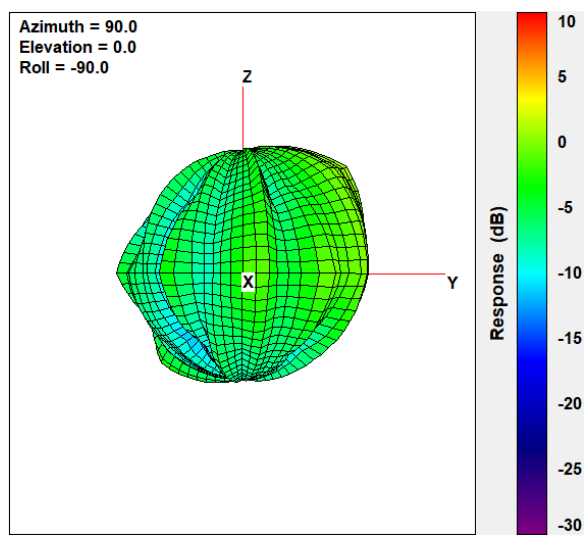
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	1.22



Max Antenna 3D Radiation Pattern 6875-7125 MHz

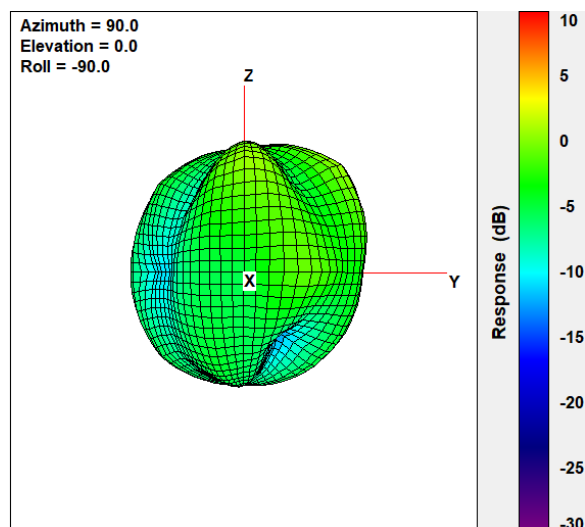
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	1.61



Auxiliary Antenna

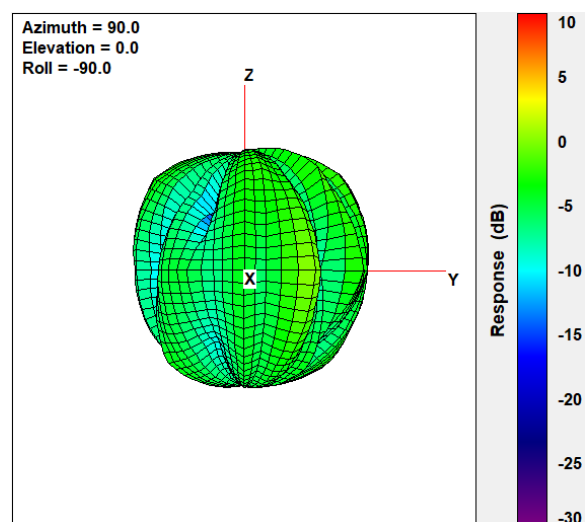
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.89



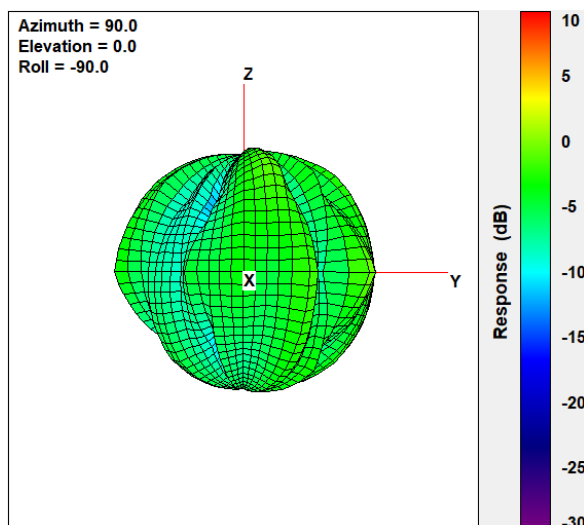
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.87



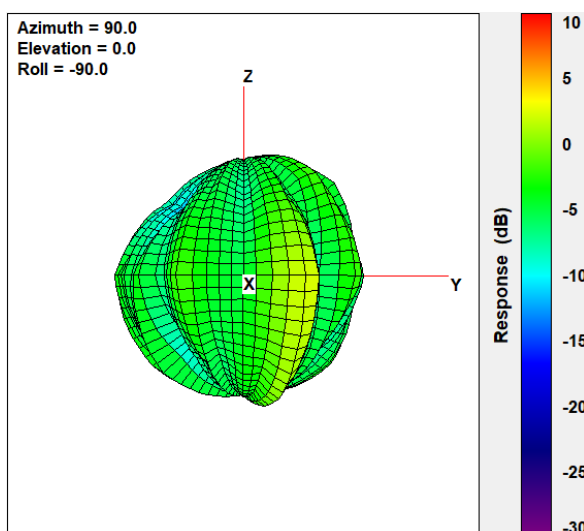
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	0.08



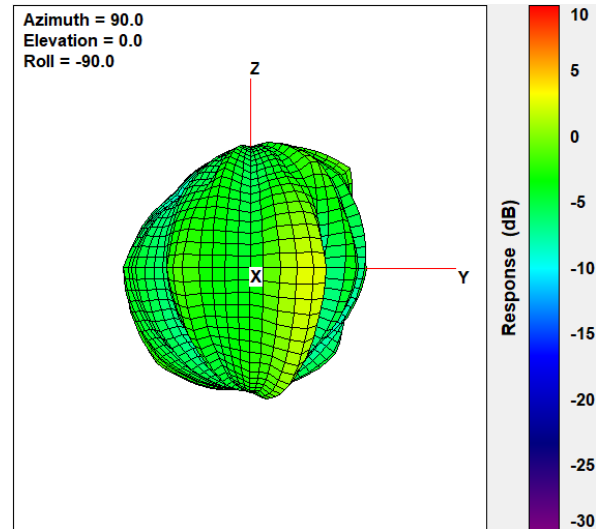
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.6



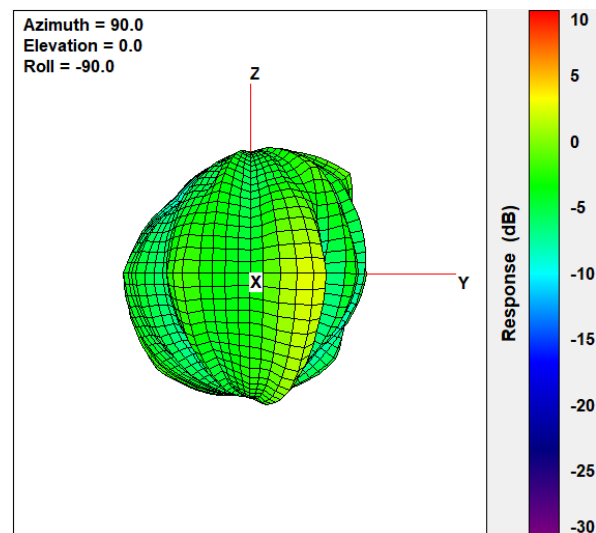
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	3.37



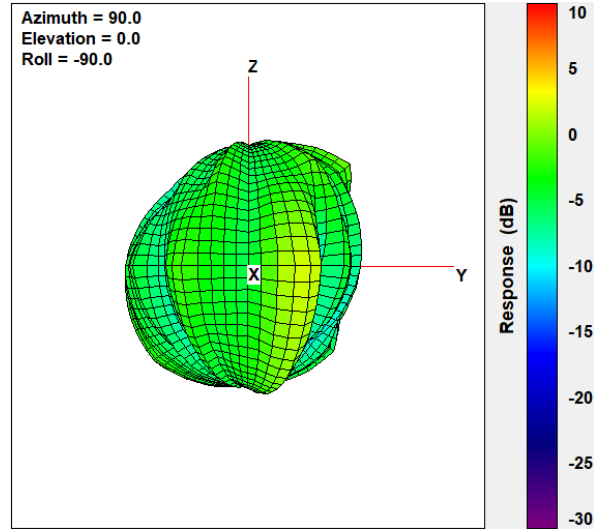
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	3.37



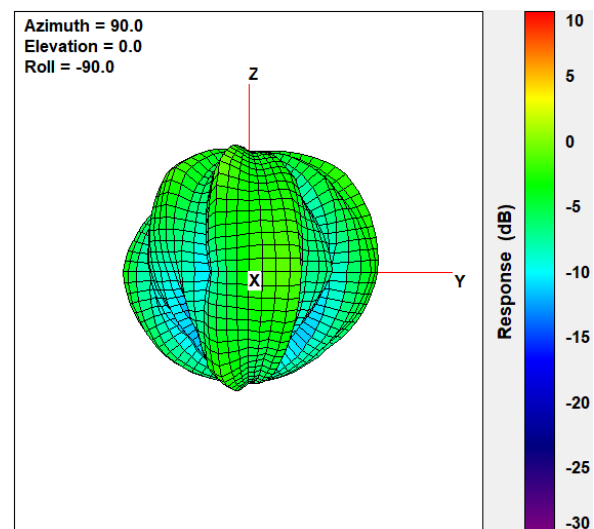
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	3.07



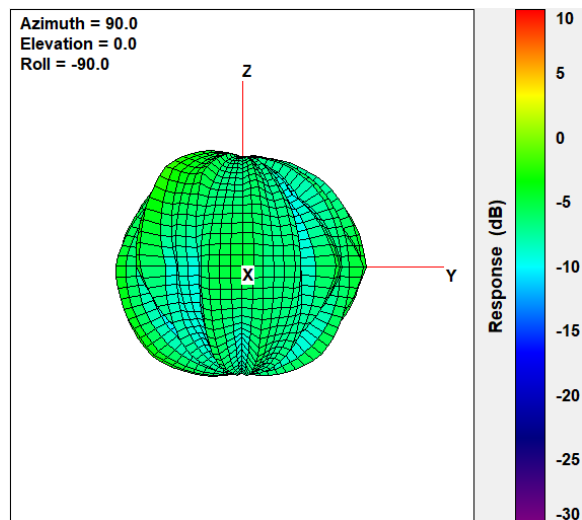
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	0.26



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	-0.92

