

ANTENNA INFORMATION

OEM	
ODM	Quanta
Platform model name	Craaswell 14 (ZCN)
Intel platform (ex: Yes, No or NA)	
Platform type (ex: regular NB, convertible PC, AIO...etc)	
SAR minimum separation (mm)	

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)	Dave Lai
	E-mail	Dave.Lai@wnc.com.tw
	Tel/Mobile	03-6667799
Testing date		2024/04/10

Antenna Part number	Main	81EAB515.G59 (DQ6515G5901)
	Aux	81EAB515.G59 (DQ6515G5901)
Antenna type (ex: PIFA, Dipole...etc)		PIFA

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	2.81	2.81	2.81	2.70	2.55	2.50	2.39	2.39	2.65	2.81
Aux	2.38	2.86	2.86	2.55	2.19	2.19	2.41	2.41	2.92	2.71

Antenna Peak gain w/ cable loss (dBi)* TB										
	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	2.56	2.25	2.25	2.72	2.58	2.18	2.04	1.92	2.70	2.95
Aux	1.35	2.74	2.74	2.60	2.13	1.78	2.49	2.48	2.95	2.60

Cable Assembly Part Number and Information					
	Cable PN	Cable length(mm)	Cable diameter(mm)	Impedance(ohm)	Connector type
Main	50.2EL8U.009	258	1.13	50	I-pex MHF4L
Aux	50.2EL8U.039	525	1.13	50	I-pex MHF4L

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

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1. Test & System Description

1.1 Measurement Method and System

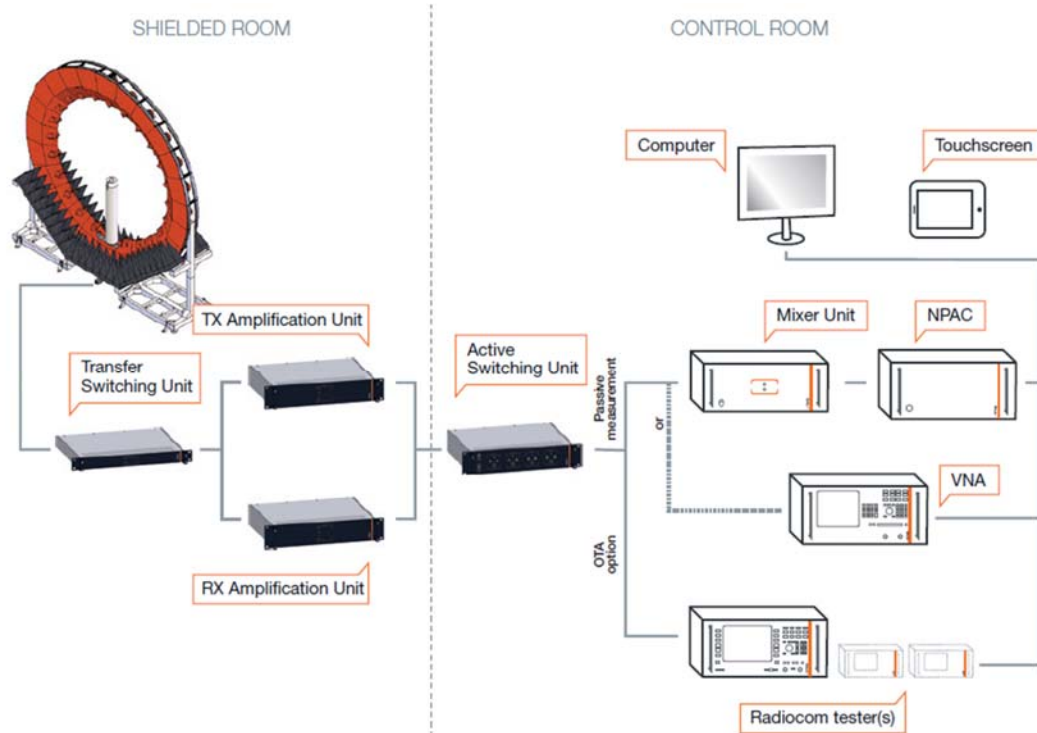
<insert test description here for test method>

This Craaswell 14 (ZCN) test report is prepared for host antenna testing under a Full Anechoic Chamber(WNC's SG24L).

1.2 Test setup

<insert test diagram here for test site utilized>

Typical Setup for ETS-Lindgren AMS-8500:



1.3 Equipment list

<insert test diagram here for test site utilized>

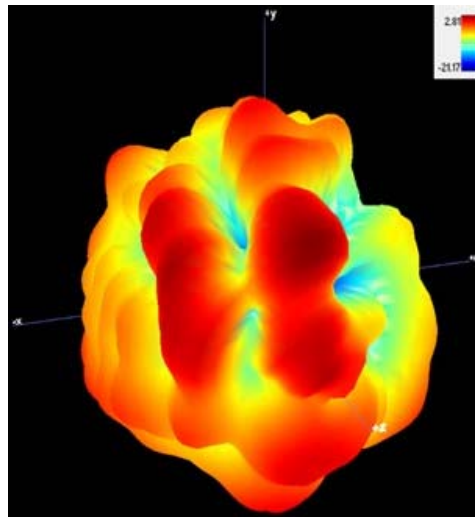
Device	Type / Model	Serial #	Manufacture	Cal. Date	Cal. Du Date
Anechoic Chamber	555-FAC		ChamPro	2023-07-10	2024-07
Antenna Measurement System	SG24-L		MVG-SATIMO	2023-07-10	2024-07
Network Analyzer	VNA / E5080B	MY59203136	Keysight	2023-01-08	2024-07
Tx Amplifier Unit	SG24 Series Accessories		MVG-SATIMO	2023-07-10	2024-07
Rx Amplifier Unit	SG24 Series Accessories		MVG-SATIMO	2023-07-10	2024-07
Probe Select Unit	SG24 Series Accessories		MVG-SATIMO	2023-07-10	2024-07
Motion Control Unit	SG24 Series Accessories		MVG-SATIMO	2023-07-10	2024-07
Power and Control Unit	SG24 Series Accessories		MVG-SATIMO	2023-07-10	2024-07
Array Control Unit	SG24 Series Accessories		MVG-SATIMO	2023-07-10	2024-07
Turn Table	SG24 Series Accessories		MVG-SATIMO	2023-07-10	2024-07
Goniometer	SG24 Series Accessories		MVG-SATIMO	2023-07-10	2024-07
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	2023-07-10	2024-07

2. Radiation characteristics of antenna loaded in Host Platform

Open Mode Main Antenna

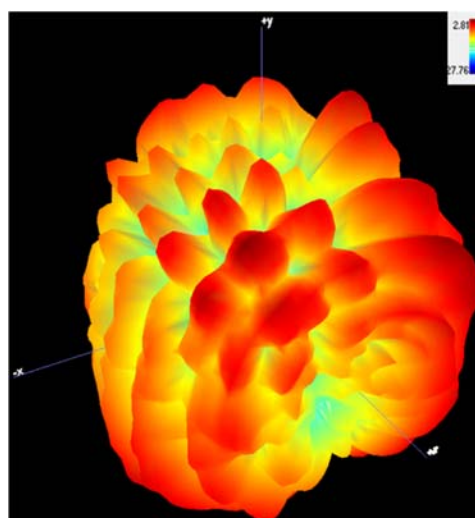
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.81



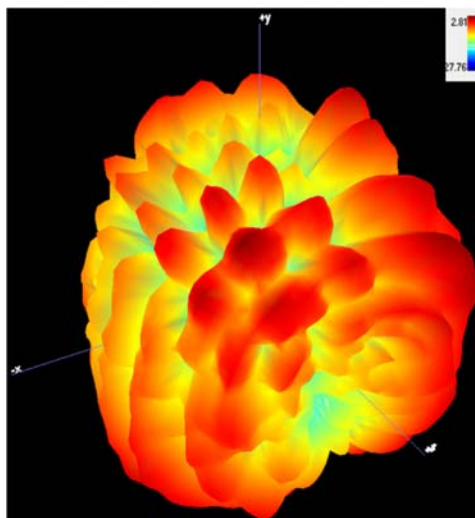
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.81



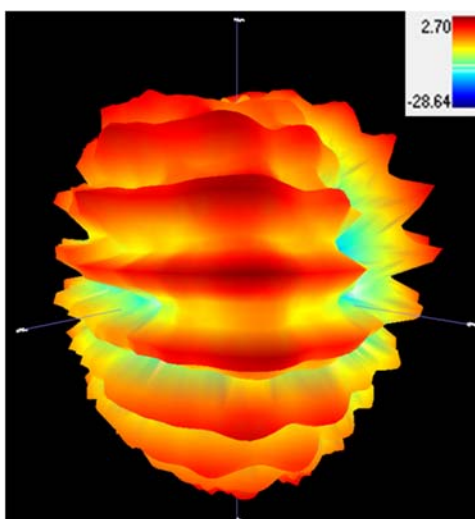
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.81



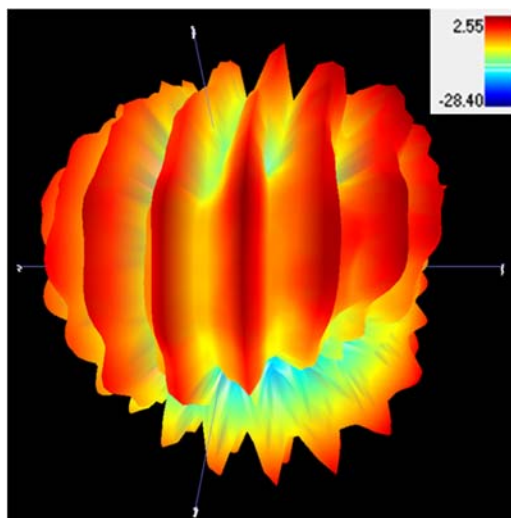
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.70



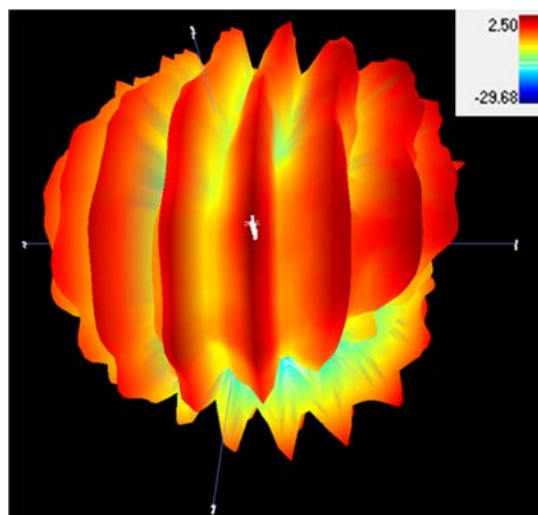
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.55



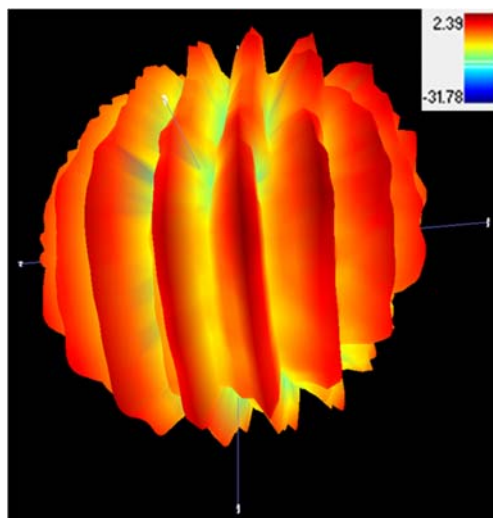
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.50



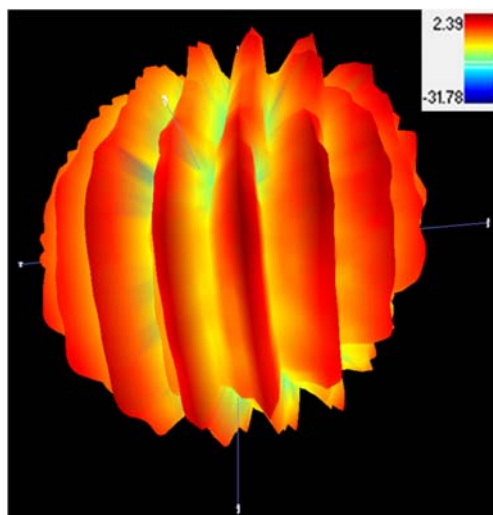
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.39



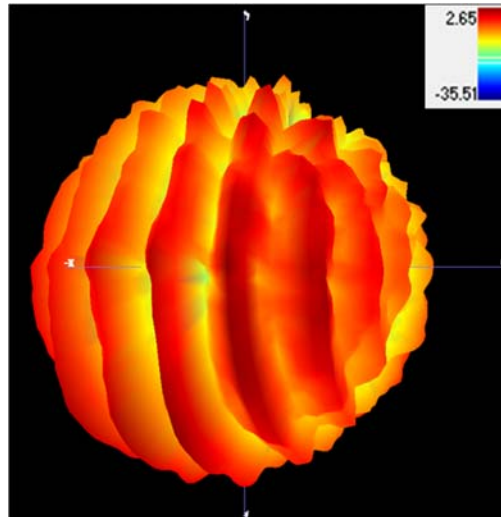
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	2.39



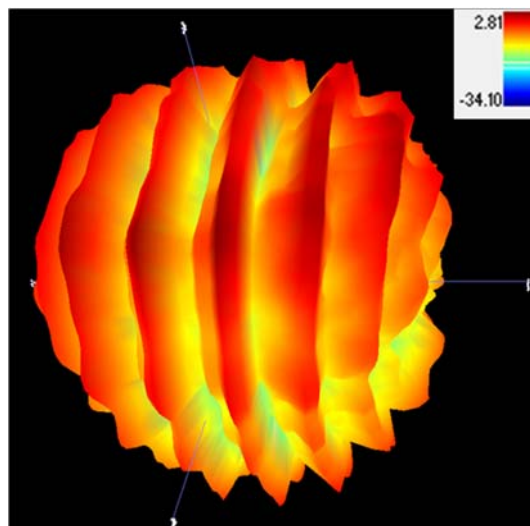
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.65



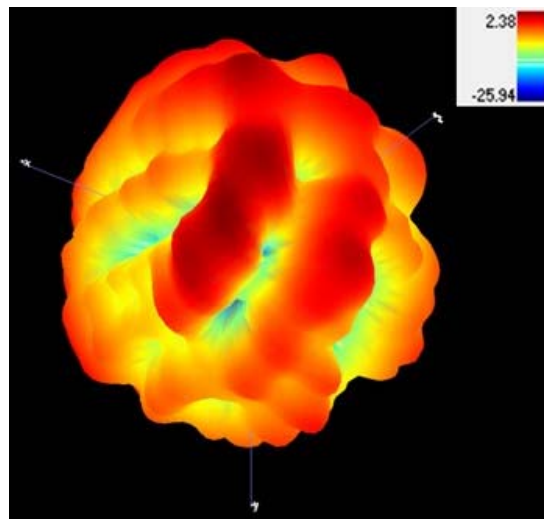
Max Antenna 3D Radiation Pattern 6875-7125 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.81

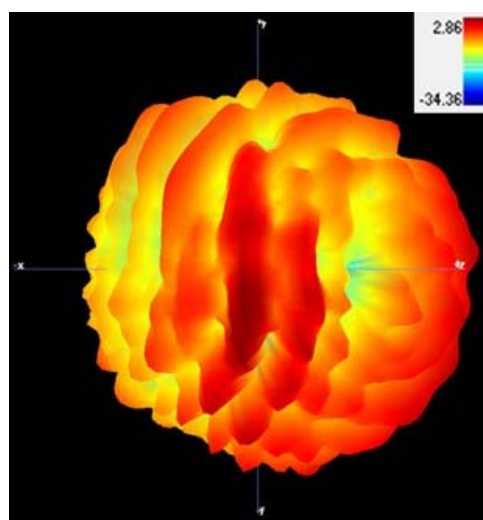


Auxiliary Antenna**Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz**

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.38

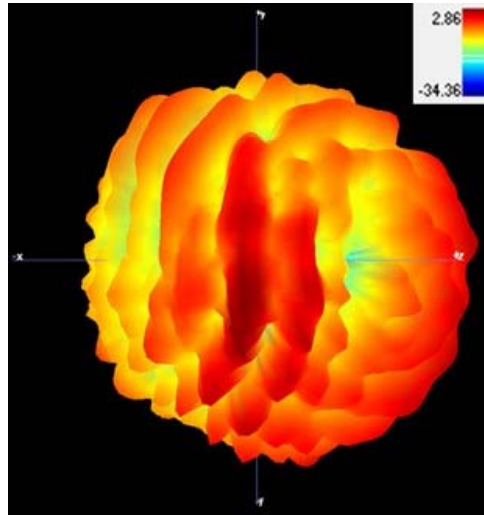
**Max Antenna 3D Radiation Pattern 5150-5250 MHz**

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.86



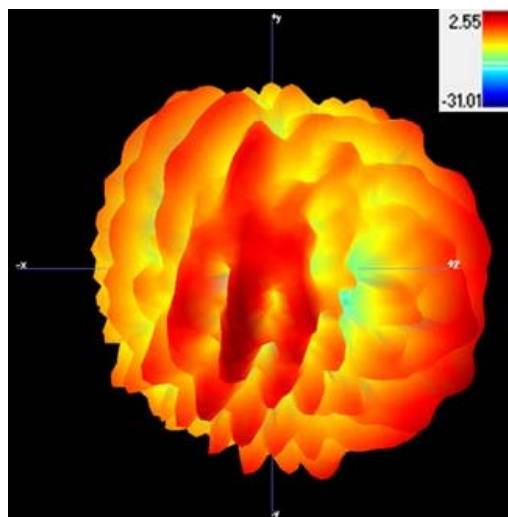
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.86



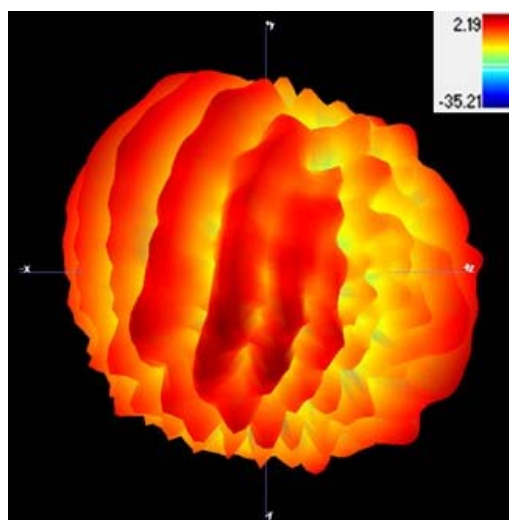
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.55



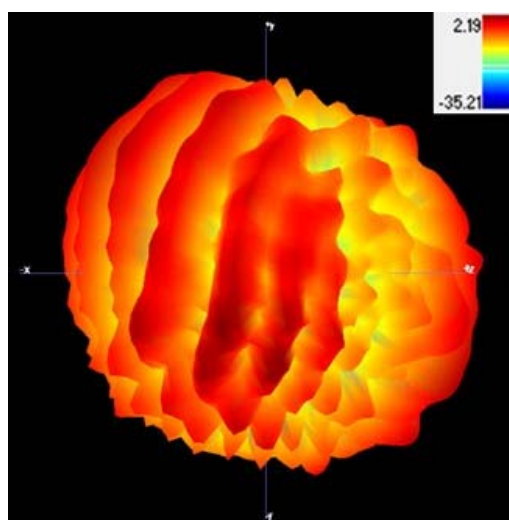
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.19



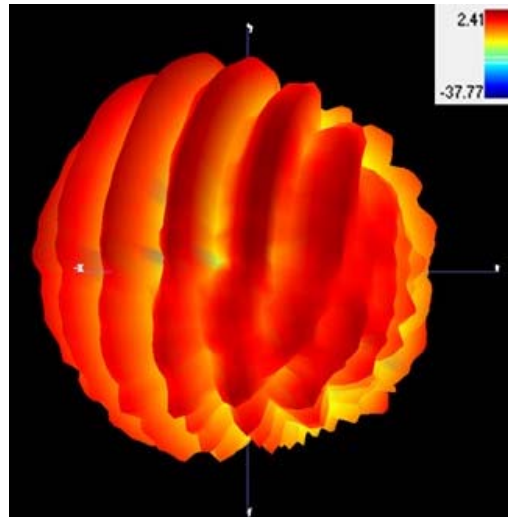
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.19



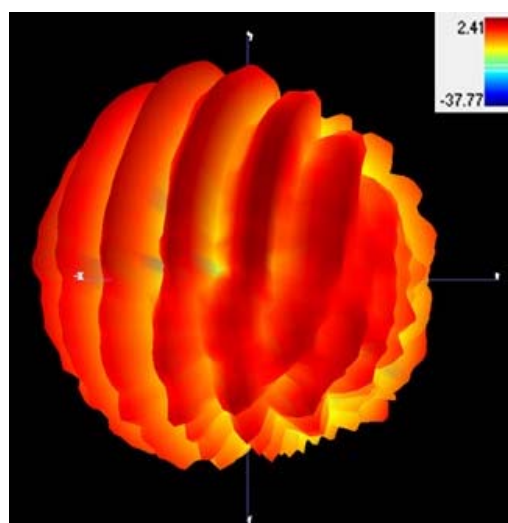
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.41



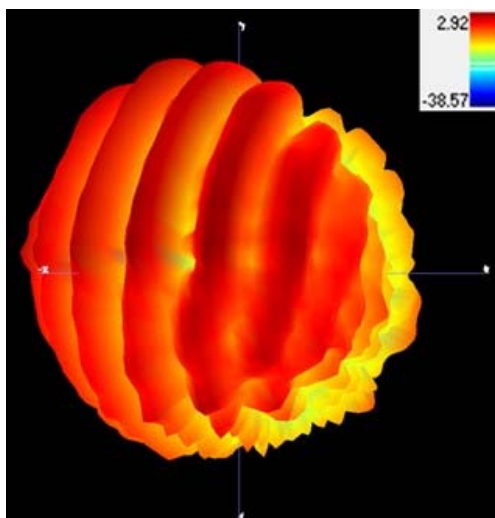
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	2.41



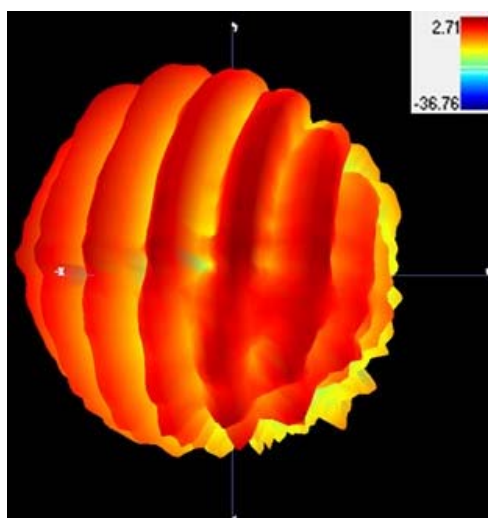
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.92



Max Antenna 3D Radiation Pattern 6875-7125 MHz

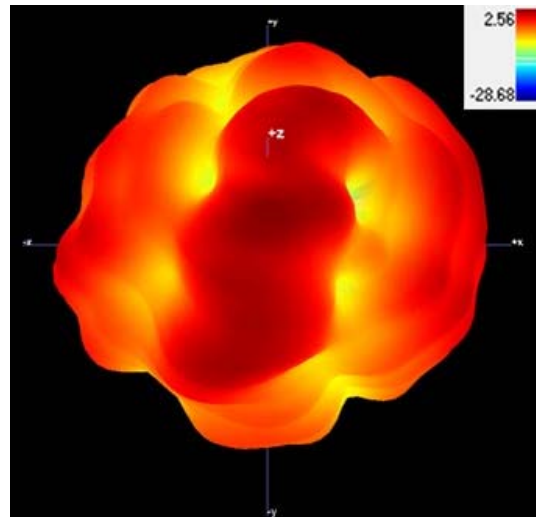
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.71



TB Mode**Main Antenna**

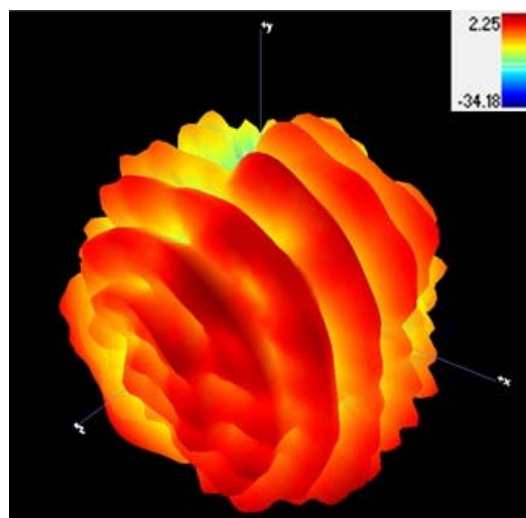
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.56



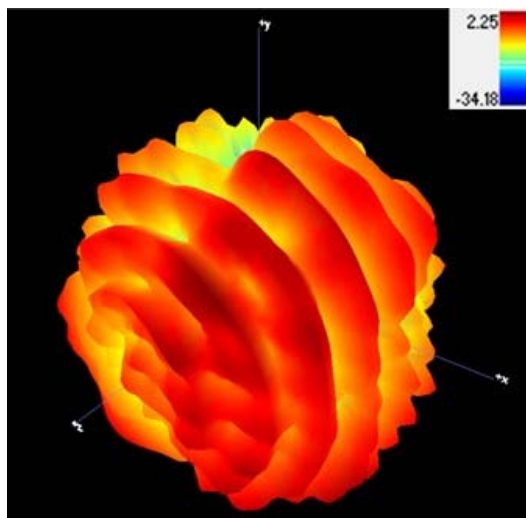
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.25



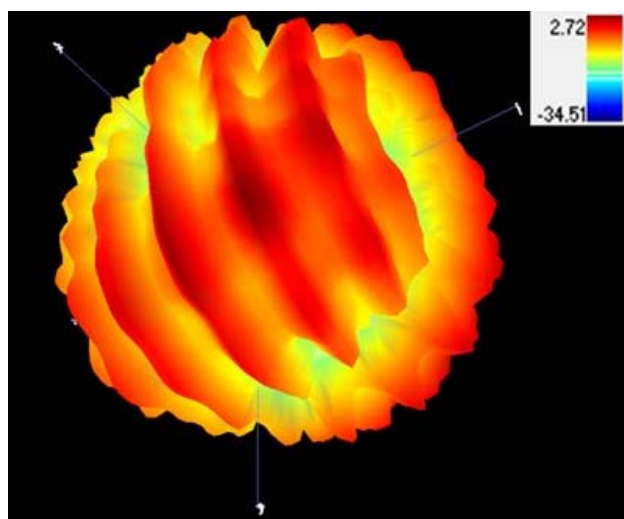
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.25



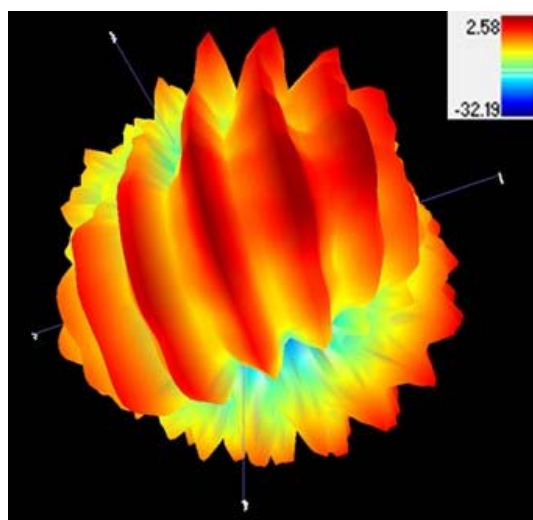
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.72



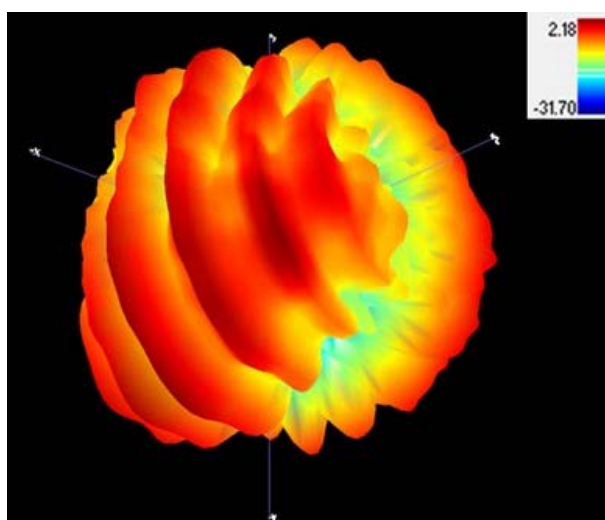
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.58



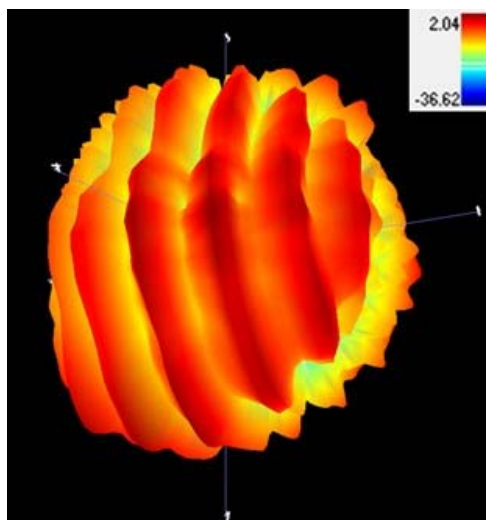
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.18



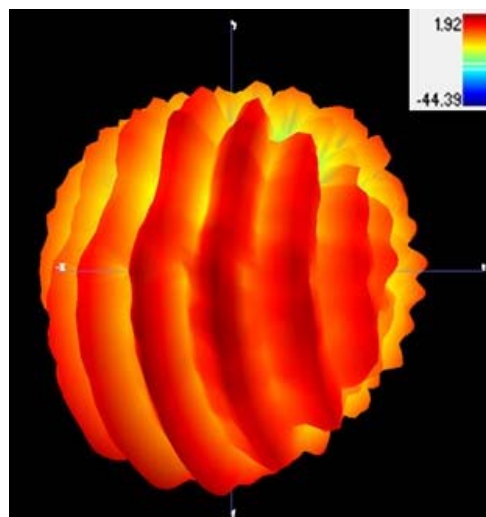
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.04



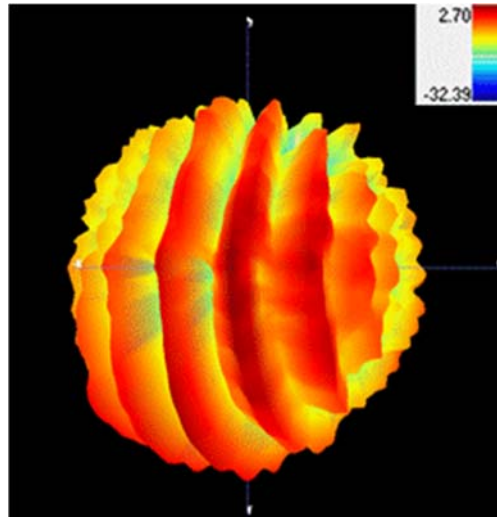
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	1.92



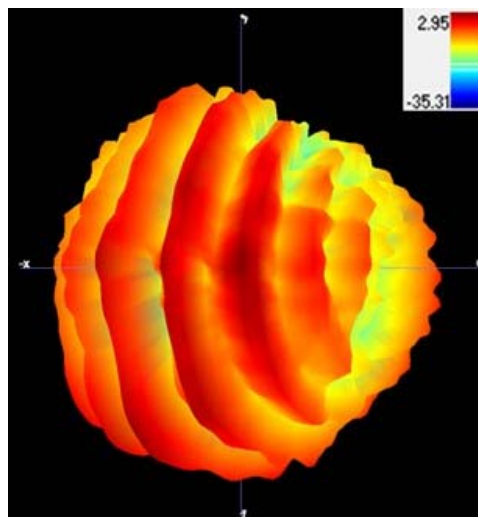
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.7



Max Antenna 3D Radiation Pattern 6875-7125 MHz

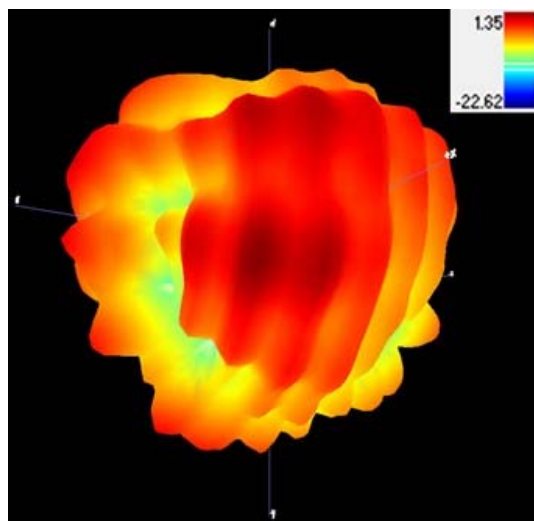
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.95



Auxiliary Antenna

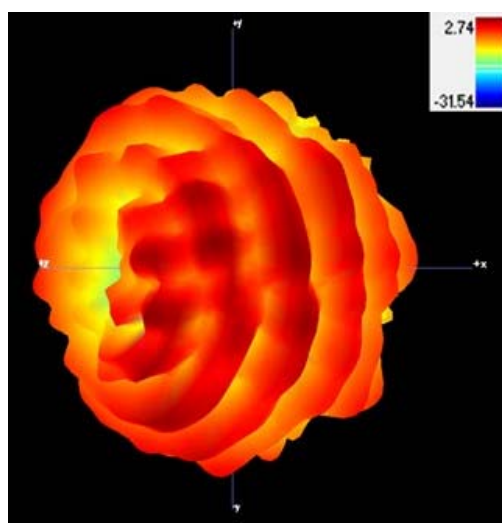
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.35



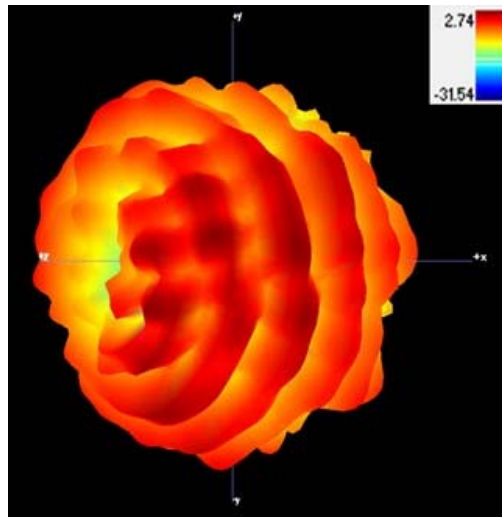
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.74



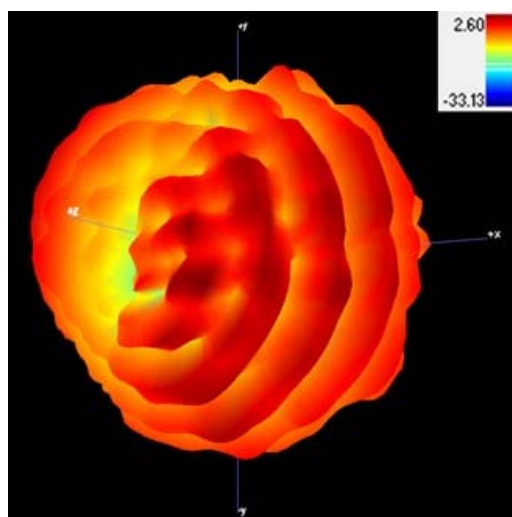
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.74



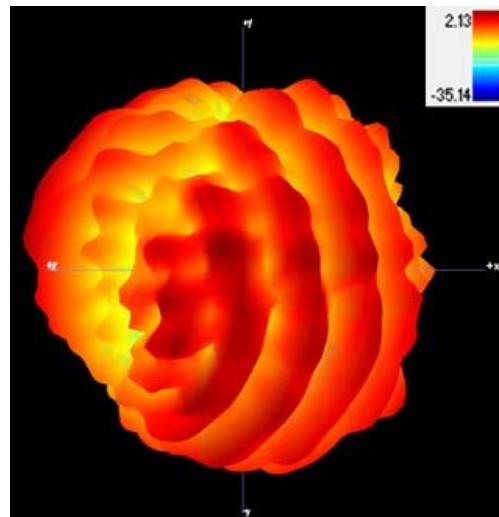
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.60



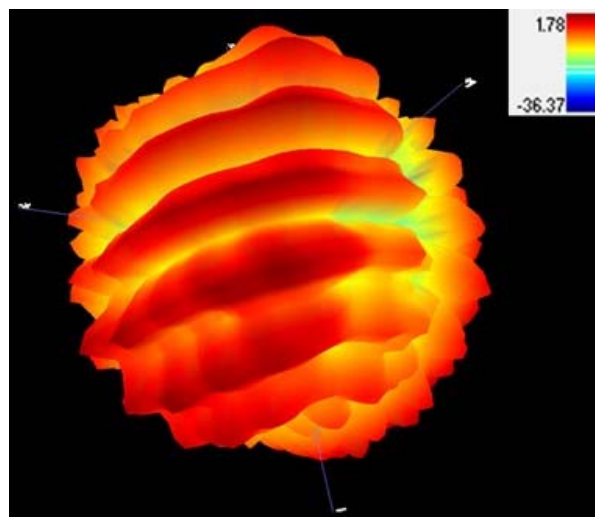
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.13



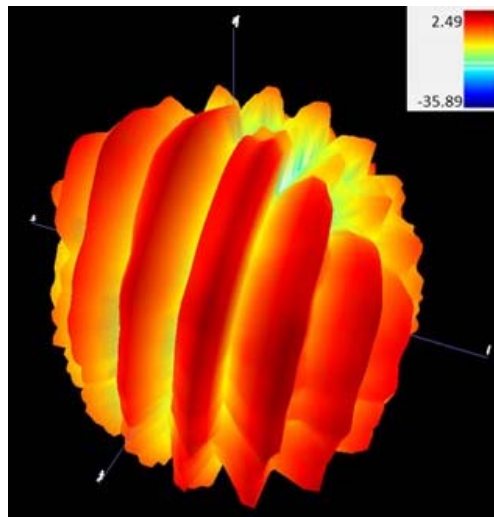
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	1.78



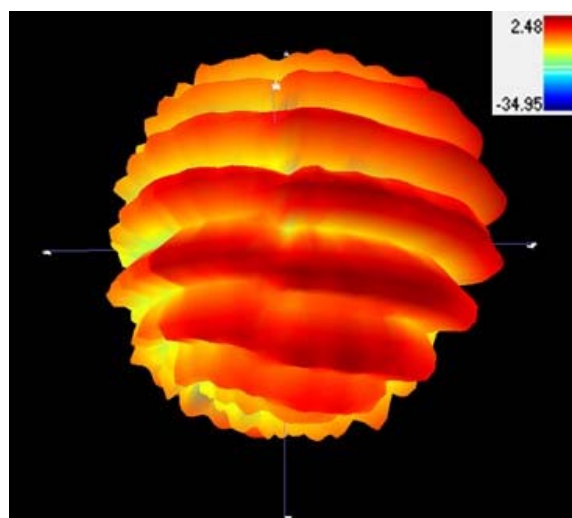
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	2.49



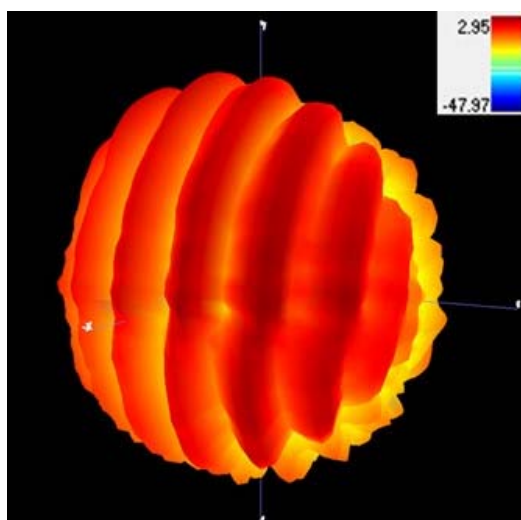
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	2.48



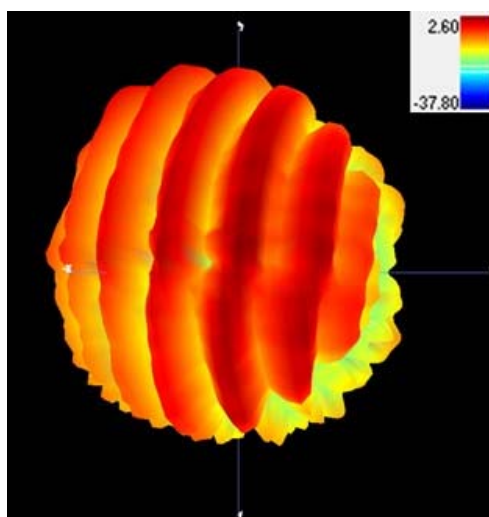
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.95



Max Antenna 3D Radiation Pattern 6875-7125 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	2.60

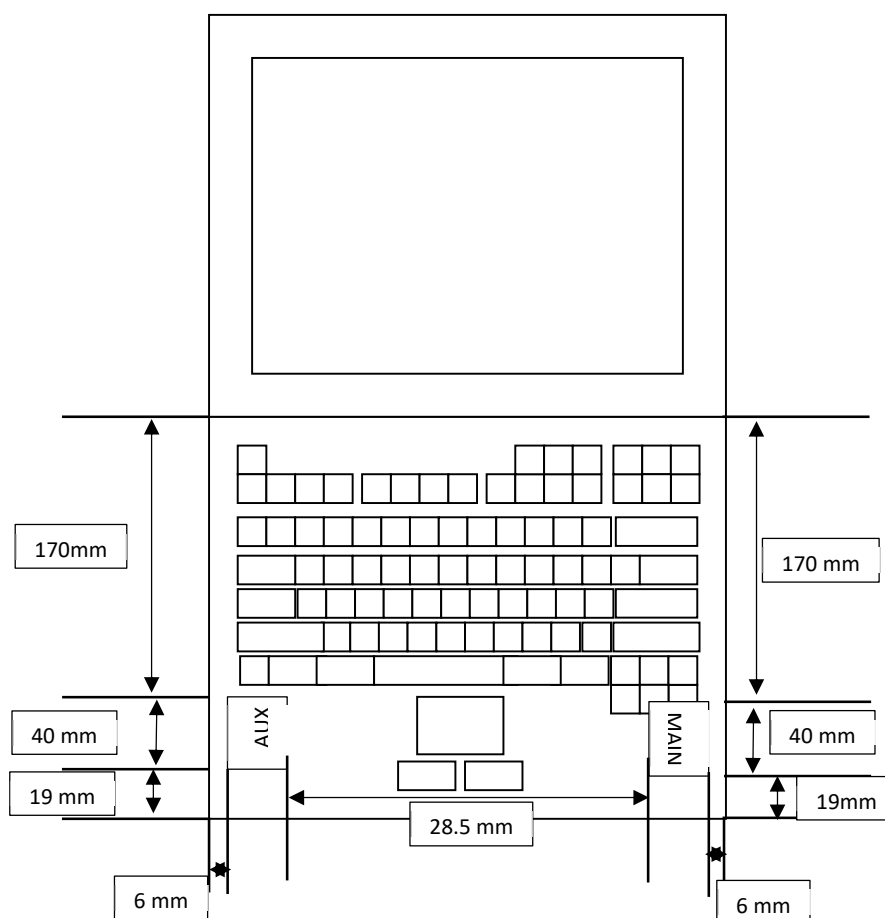


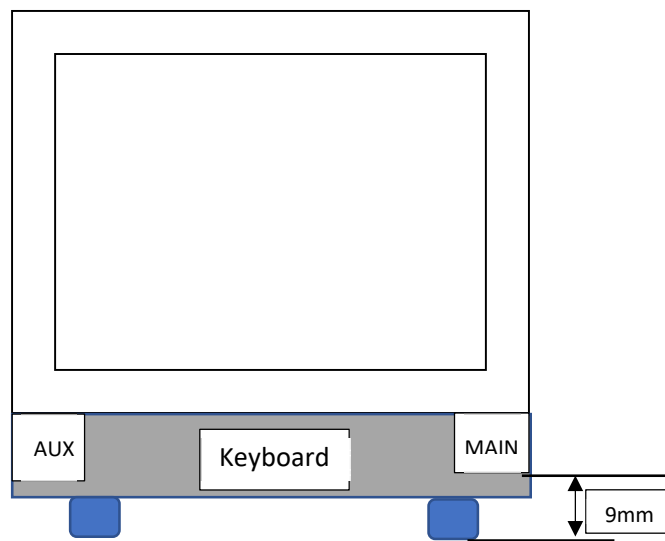
Annex B. Antenna Location

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.



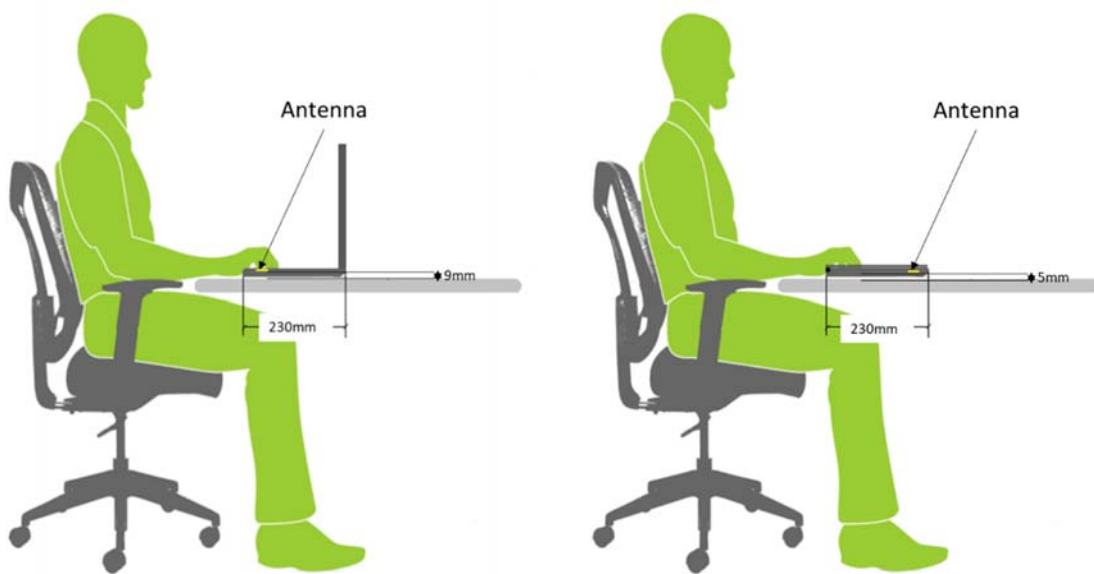


B.2 Antenna dimensional information for SAR evaluation

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.

Open Mode

TB Mode



Annex C. Antenna Information

C.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)
DQ6515G5901 (P/N: 81EAB515.G59) Main Antenna	WNC	PIFA	(P/N: 50.2EL8U.009) I-pex MHF4L 50 ohm Coaxial length: 258mm diameter: 1.13mm	2400-2483.5	2.81	3.73	3.0	0.92
				5150-5250	2.81	4.17	3.0	1.36
				5250-5350	2.81	4.18	3.0	1.37
				5470-5725	2.70	4.11	3.0	1.41
				5725-5850	2.55	3.98	3.0	1.43
				5850-5895	2.50	3.95	3.0	1.45
				5925-6425	2.39	3.89	3.0	1.50
				6425-6525	2.39	3.94	3.0	1.55
				6525-6875	2.65	4.24	3.0	1.59
DQ6515G5901 (P/N: 81EAB515.G59) Aux Antenna	WNC	PIFA	(P/N: 50.2EL8U.039) I-pex MHF4L 50 ohm Coaxial length: 525mm diameter: 1.13mm	6875-7125	2.81	4.46	3.0	1.65
				2400-2483.5	2.38	4.27	3.0	1.89
				5150-5250	2.86	5.62	3.0	2.76
				5250-5350	2.86	5.65	3.0	2.79
				5470-5725	2.55	5.42	3.0	2.87
				5725-5850	2.19	5.11	3.0	2.92
				5850-5895	2.19	5.14	3.0	2.95
				5925-6425	2.41	5.46	3.0	3.05
				6425-6525	2.41	5.57	3.0	3.16
				6525-6875	2.92	6.17	3.0	3.25
				6875-7125	2.71	6.07	3.0	3.36

TB 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)
DQ6515G5901 (P/N: 81EAB515.G59) Main Antenna	WNC	PIFA	(P/N: 50.2EL8U.009) I-pex MHF4L 50 ohm Coaxial length: 258mm diameter: 1.13mm	2400-2483.5	2.56	3.48	3.0	0.92
				5150-5250	2.25	3.61	3.0	1.36
				5250-5350	2.25	3.62	3.0	1.37
				5470-5725	2.72	4.13	3.0	1.41
				5725-5850	2.58	4.01	3.0	1.43
				5850-5895	2.18	3.63	3.0	1.45
				5925-6425	2.04	3.54	3.0	1.50
				6425-6525	1.92	3.47	3.0	1.55
				6525-6875	2.7	4.29	3.0	1.59
				6875-7125	2.95	4.60	3.0	1.65
DQ6515G5901 (P/N: 81EAB515.G59) Aux Antenna	WNC	PIFA	(P/N: 50.2EL8U.039) I-pex MHF4L 50 ohm Coaxial length: 525mm diameter: 1.13mm	2400-2483.5	1.35	3.24	3.0	1.89
				5150-5250	2.74	5.50	3.0	2.76
				5250-5350	2.74	5.53	3.0	2.79
				5470-5725	2.60	5.47	3.0	2.87
				5725-5850	2.13	5.05	3.0	2.92
				5850-5895	1.78	4.73	3.0	2.95
				5925-6425	2.49	5.54	3.0	3.05
				6425-6525	2.48	5.64	3.0	3.16
				6525-6875	2.95	6.20	3.0	3.25
				6875-7125	2.60	5.96	3.0	3.36