Wireless Device Over the Air Performance Data Summary

REPORT NO.	:	**OQ391301**
MANUFACTURER	:	**Vantiva USA LLC**
BRAND NAME	:	**Vantiva**
MODEL NAME	:	**CGM4981COM2**
ANTENNA TYPE	:	**PCB Antenna**
DEVICE RECEIVING DATE	:	**Sep. 28, 2023**
TEST DATE(S)	:	**Oct. 11. 2023 ~ Oct. 27. 2023**

Reviewed by:

Feynman Liu

Feynman Liu / Vice Manager

Approved by:

kevin chu

Kevin Chu / Manager

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

Table of Contents

Revision History

DATA NO.	VERSION	DESCRIPTION	ISSUED DATE
OQ391301	1.0	Initial issue of data summary	Dec. 13, 2023

1. Administration Data

1.1 Testing Laboratory

Test Site	Sporton International Inc. (Kunshan)
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL: +86-0512-5790-0158
Chamber	□ OTA01-KS □ OTA02-KS □ OTA03-KS ■ OTA04-KS □ OTA05-KS

■: Indicates the chamber(s) used in this test report.

1.2 Manufacturer

Company Name	Vantiva USA LLC
Address	4855 Peachtree Industrial Blvd. Suite 200 Norcross, Georgia 30092

2. Test Equipment List

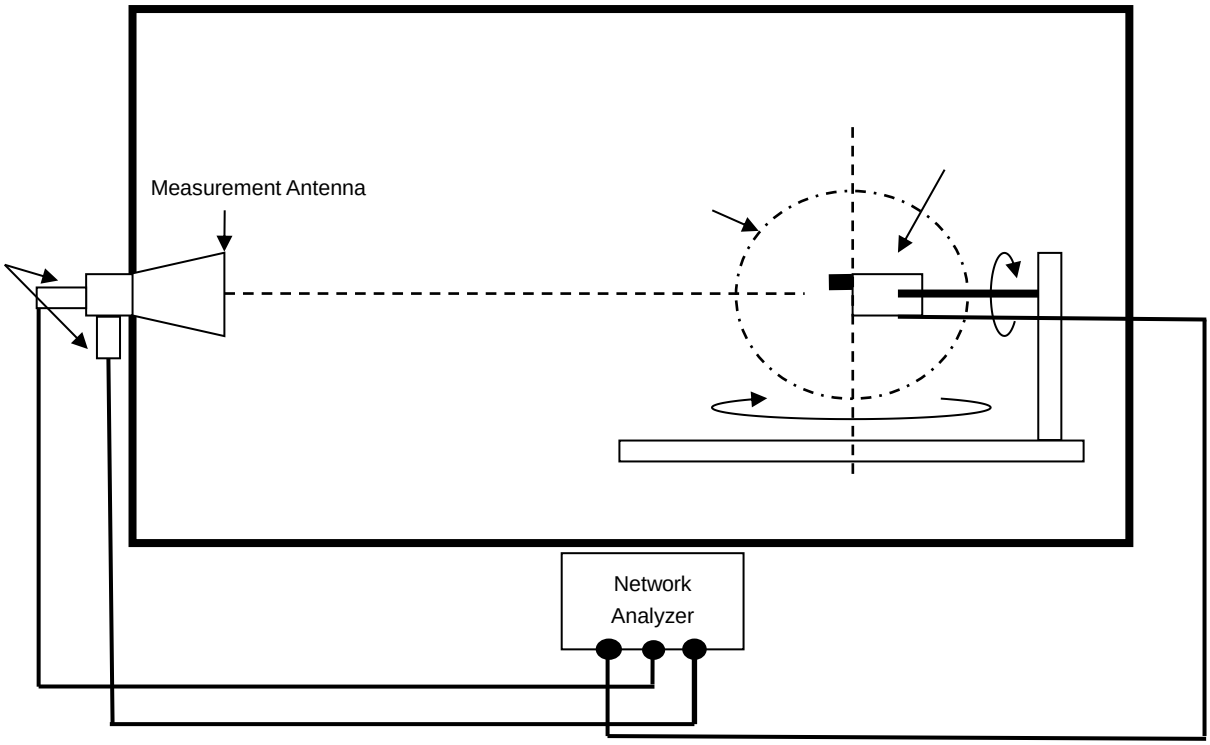
Name	Manufacturer	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
Network Analyzer	Agilent	E5071C	MY46317418	2023/01/05	2024/01/04
Switch Control	ETS-Lindgren	EMCenter	00160100	NCR	NCR
Diagonal Dual Polarized Horn	ETS-Lindgren	3164-08	00099205	NCR	NCR
Multi-Devices Controller	ETS-Lindgren	2090-OPT1	00066604	NCR	NCR
Medium Duty Holder	ETS-Lindgren	2015	N/A	NCR	NCR

Note: Antenna gain was measured in the anechoic chamber (Measurement System: ETS-Lindgren AMS-8500, SW Version: EMQuest 100 V1.08).

3. Test procedure

1. Setup for testing facility:

   Connect all the equipments according to the figure below：



2. Run ETS-Lindgren EMQuestTest software script，Hit Run button to execute measurement.

3. Save Measurement result

4. Summary of WLAN Antenna Gain Test Results

Remark: For detailed raw data please refer to Appendix A.

Summary of BLE Test Results

Test Position	Free Space		
Antenna	2.4GHz		
Frequency (MHz)	2402	2440	2480
Peak Gain	2.23	2.14	3.04
Polarization	Theta	Theta	Phi

Summary of ZigBee Test Results

Test Position	Free Space		
Antenna	2.4GHz		
Frequency (MHz)	2405	2440	2480
Peak Gain	5.26	4.87	4.67
Polarization	Phi	Theta	Theta

Summary of WLAN 2.4GHz Test Results

Test Position	Free Space					
Antenna	2.4GHz Antenna 1			2.4GHz Antenna 2		
Frequency (MHz)	2412	2442	2462	2412	2442	2462
Peak Gain	4.62	5.19	5.22	2.56	2.62	2.98
Polarization	Phi	Phi	Phi	Theta	Theta	Theta

Test Position	Free Space					
Antenna	2.4GHz Antenna 3			2.4GHz Antenna 4		
Frequency (MHz)	2412	2442	2462	2412	2442	2462
Peak Gain	2.22	3.15	3.57	3.41	3.69	3.73
Polarization	Theta	Phi	Phi	Phi	Phi	Phi

Summary of WLAN 5GHz Test Results

Test Position	Free Space											
Antenna	5GHz Antenna 1											
Frequency (MHz)	5180	5220	5240	5260	5300	5320	5500	5580	5700	5745	5785	5825
Peak Gain	3.90	3.80	4.10	4.23	4.65	4.41	5.13	5.19	5.36	5.31	4.97	4.64
Polarization	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi

Test Position	Free Space											
Antenna	5GHz Antenna 2											
Frequency (MHz)	5180	5220	5240	5260	5300	5320	5500	5580	5700	5745	5785	5825
Peak Gain	3.93	3.57	3.22	3.28	2.77	2.67	3.40	4.38	2.45	0.95	0.66	0.23
Polarization	Theta	Theta	Theta	Theta	Theta	Theta	Theta	Theta	Theta	Theta	Theta	Theta

Test Position	Free Space											
Antenna	5GHz Antenna 3											
Frequency (MHz)	5180	5220	5240	5260	5300	5320	5500	5580	5700	5745	5785	5825
Peak Gain	2.18	1.73	1.91	2.00	1.10	1.24	2.47	2.39	3.02	3.26	2.93	2.12
Polarization	Theta	Theta	Theta	Theta	Theta	Theta	Theta	Theta	Theta	Theta	Theta	Theta

Test Position	Free Space											
Antenna	5GHz Antenna 4											
Frequency (MHz)	5180	5220	5240	5260	5300	5320	5500	5580	5700	5745	5785	5825
Peak Gain	2.43	2.45	2.48	2.16	2.34	2.24	1.84	2.65	2.50	3.00	3.46	3.32
Polarization	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi

Summary of WLAN 6GHz Test Results

Test Position	Free Space										
Antenna	6GHz Antenna 1										
Frequency (MHz)	5955	6175	6415	6435	6475	6515	6535	6695	6875	6995	7115
Peak Gain	2.82	1.72	3.84	3.44	3.25	2.73	3.68	3.50	3.62	2.39	4.14
Polarization	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi

Test Position	Free Space										
Antenna	6GHz Antenna 2										
Frequency (MHz)	5955	6175	6415	6435	6475	6515	6535	6695	6875	6995	7115
Peak Gain	1.94	2.07	2.85	2.41	2.17	2.05	2.62	4.23	3.46	2.18	5.44
Polarization	Phi	Phi	Phi	Phi	Theta	Theta	Theta	Theta	Theta	Phi	Phi

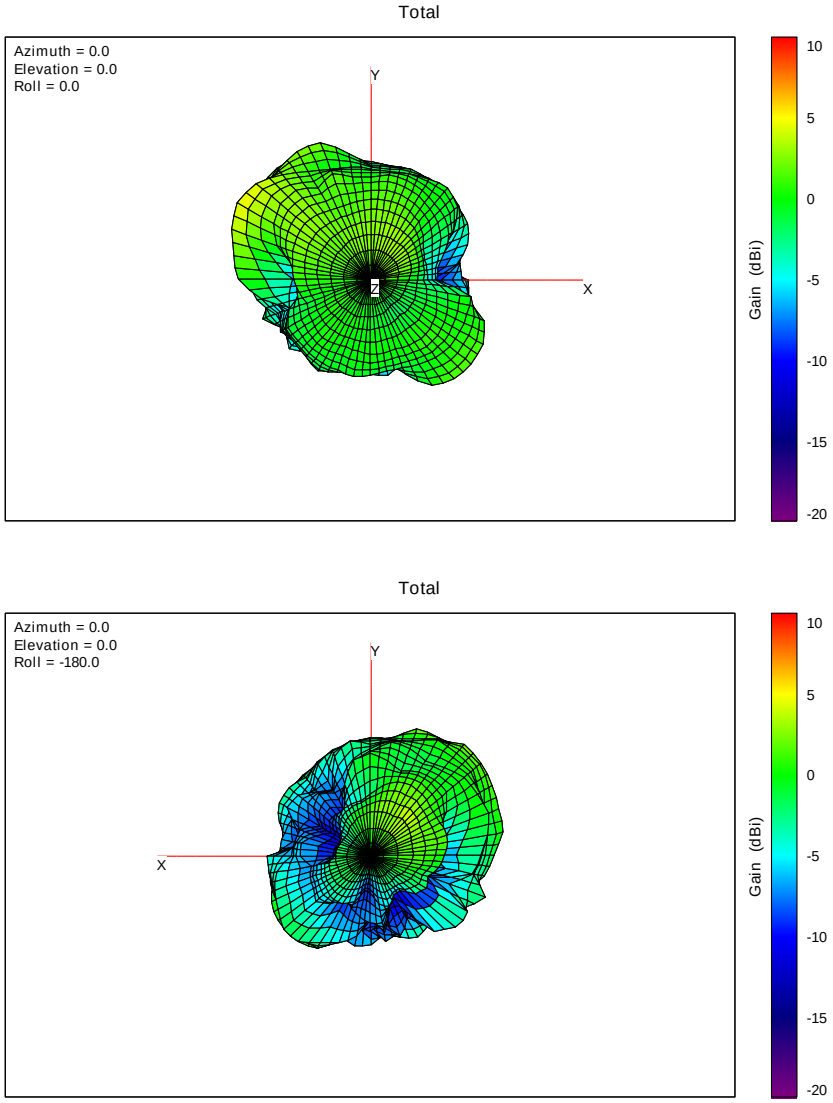
Test Position	Free Space										
Antenna	6GHz Antenna 3										
Frequency (MHz)	5955	6175	6415	6435	6475	6515	6535	6695	6875	6995	7115
Peak Gain	4.10	3.21	3.82	3.72	3.24	3.07	3.04	4.08	4.90	4.07	5.98
Polarization	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi

Test Position	Free Space										
Antenna	6GHz Antenna 4										
Frequency (MHz)	5955	6175	6415	6435	6475	6515	6535	6695	6875	6995	7115
Peak Gain	5.37	4.89	5.90	5.44	5.12	5.25	5.55	3.83	4.91	3.88	6.09
Polarization	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi

5. FS Pattern

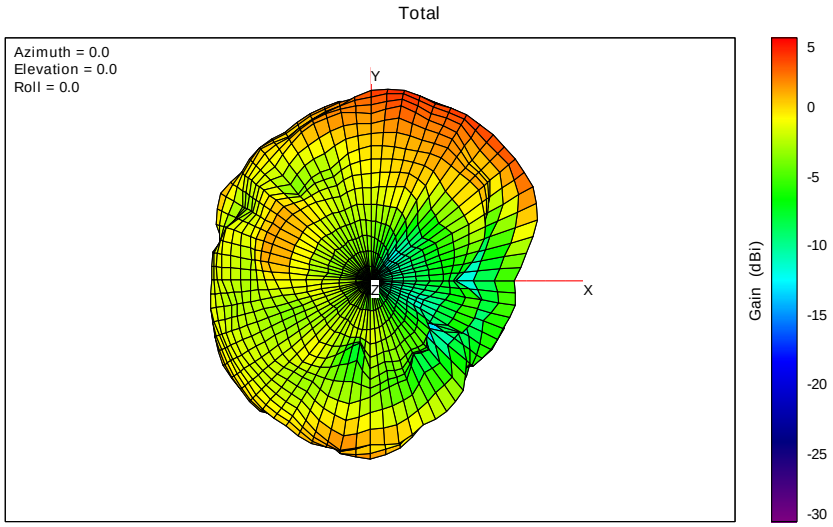
Note: Only the peak gain patterns of each Band were recorded as below:

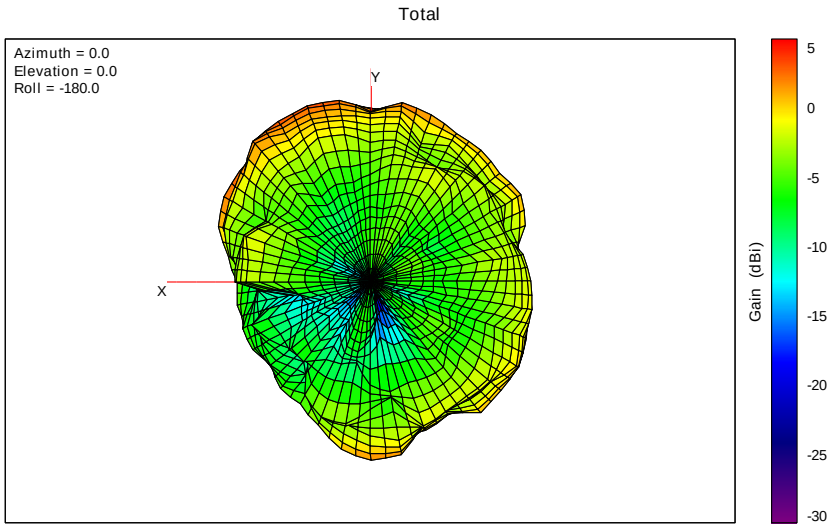
WLAN 2.4GHz Antenna 1



3D Free Space Gain Pattern 2442MHz

5GHz Antenna 1





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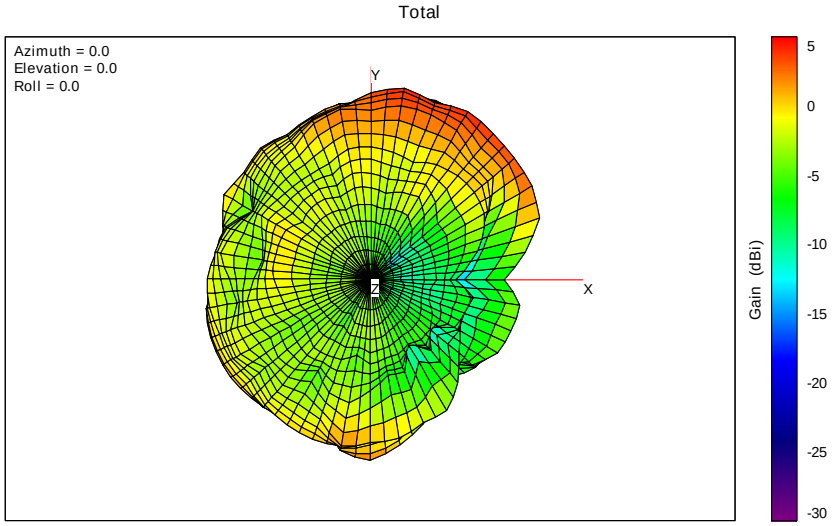
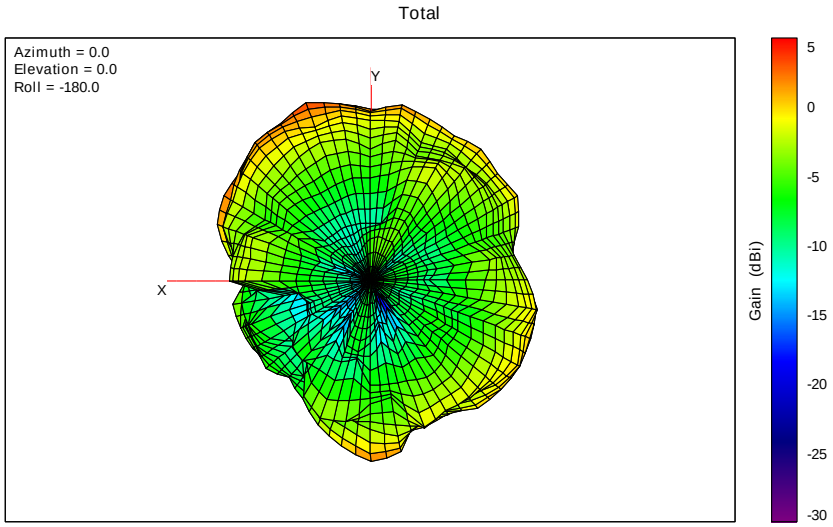
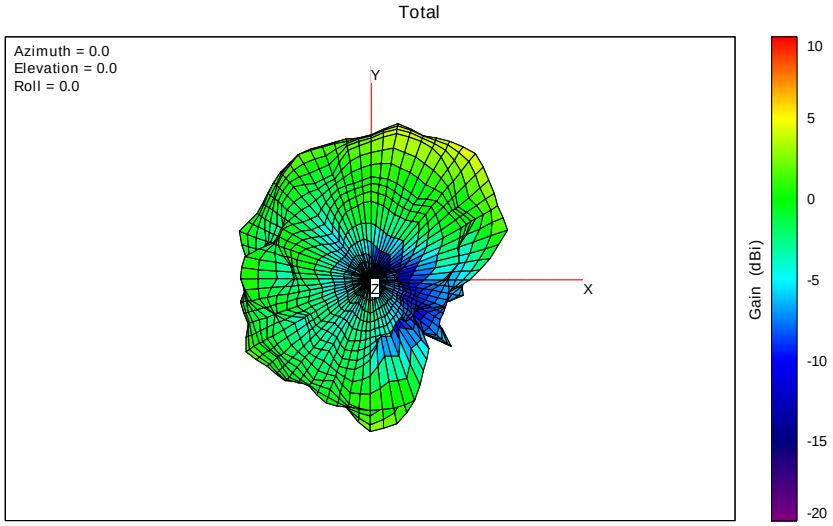
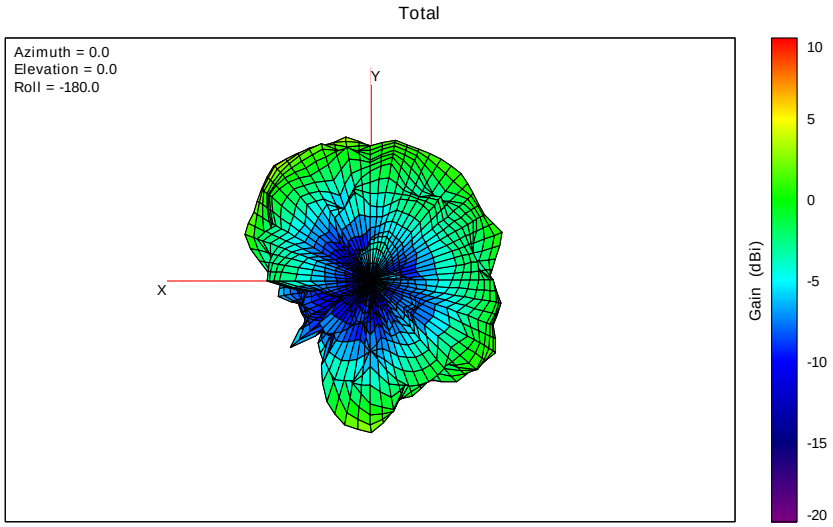


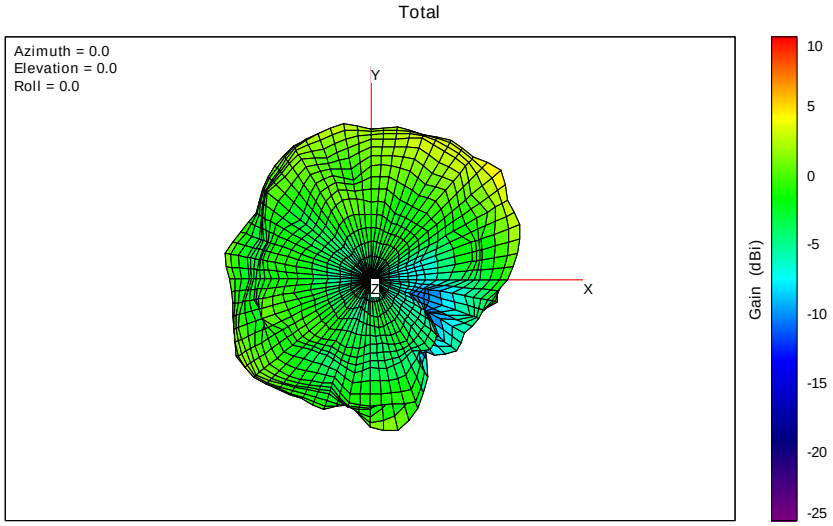


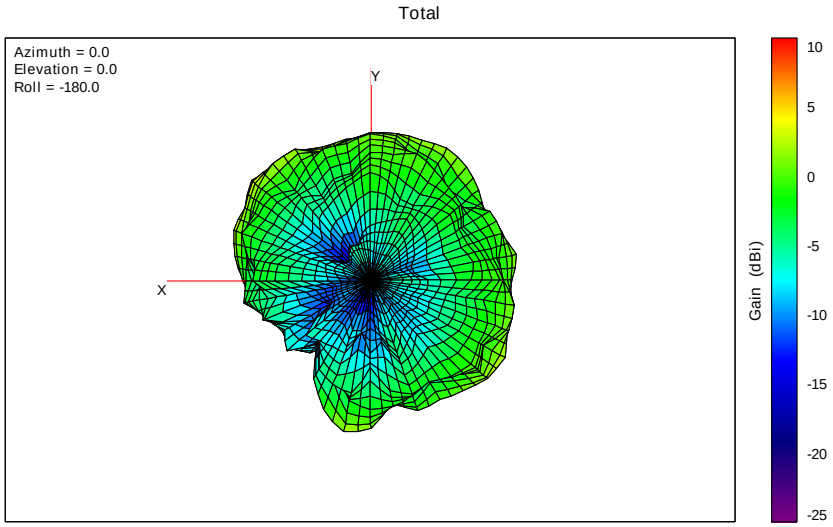
3D Free Space Gain Pattern5320MHz



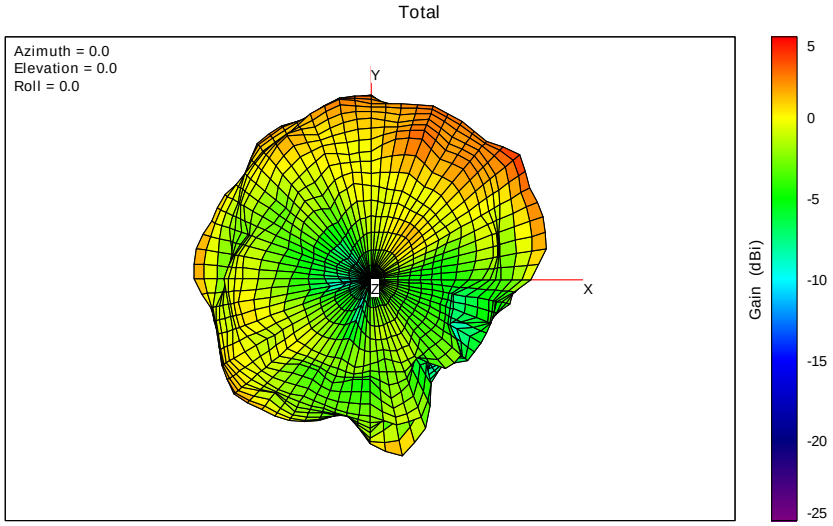


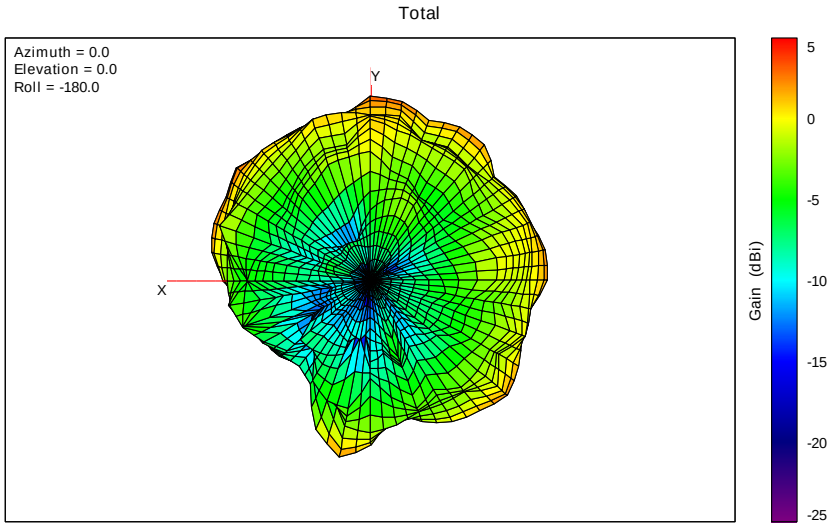
3D Free Space Gain Pattern5500MHz





3D Free Space Gain Pattern5700MHz





3D Free Space Gain Pattern 5825MHz

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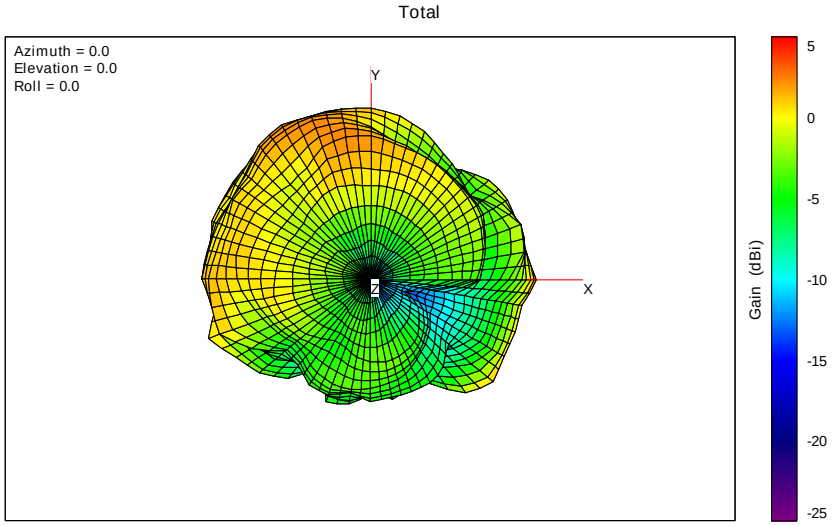
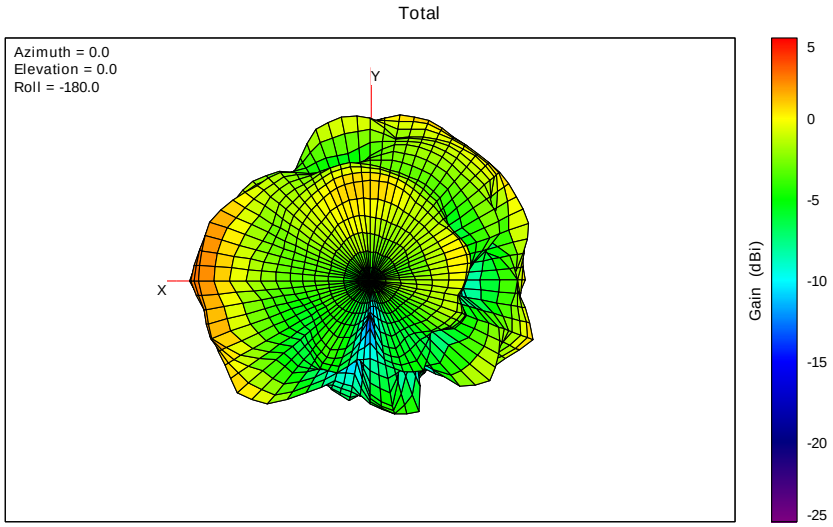
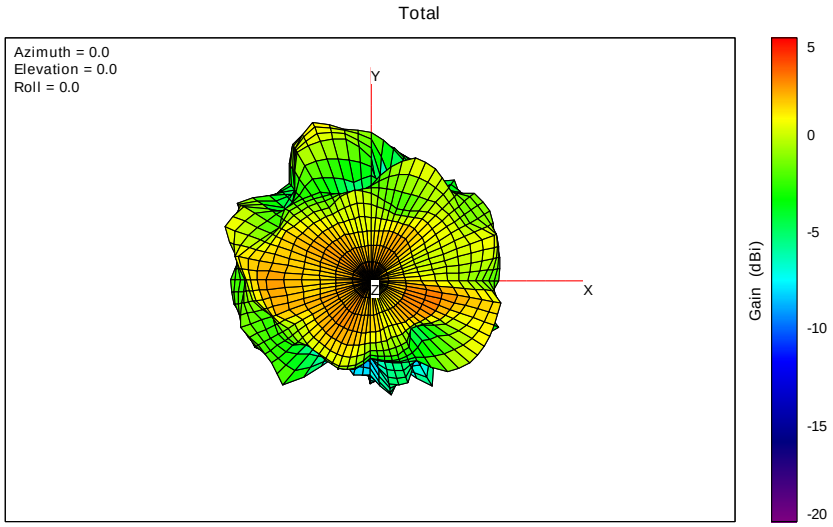
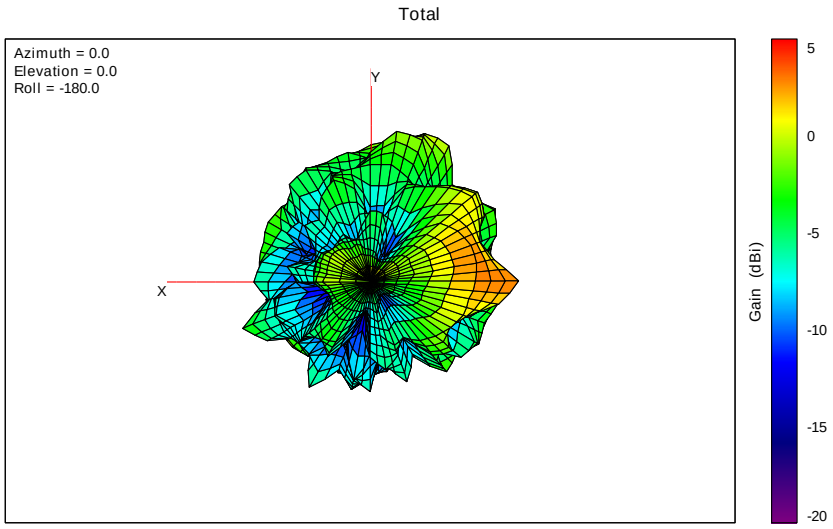




3D Free Space Gain Pattern 2442MHz

WLAN 5GHz Antenna 2





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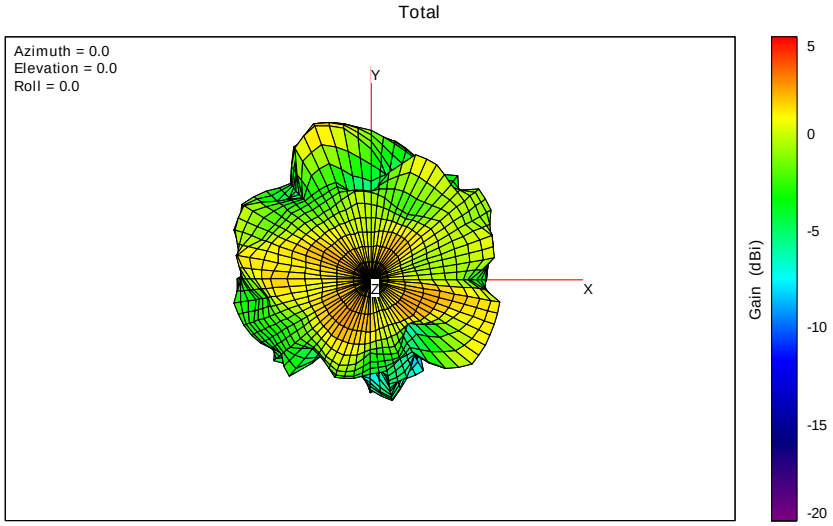

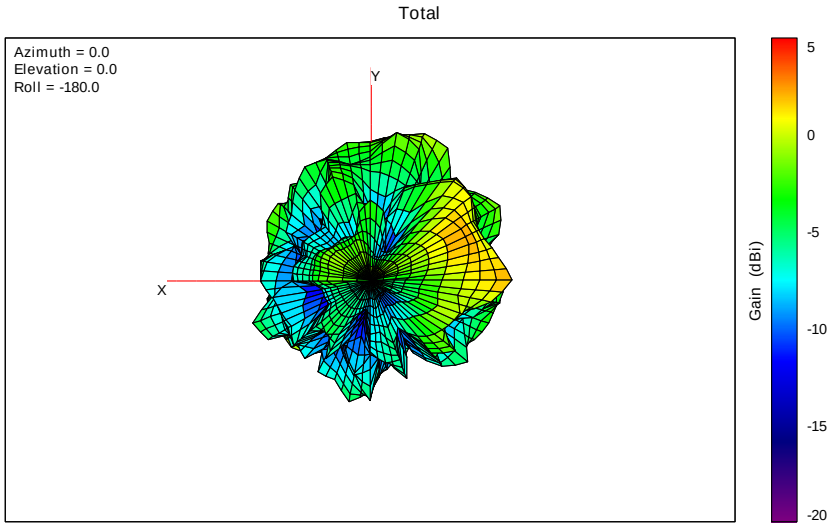

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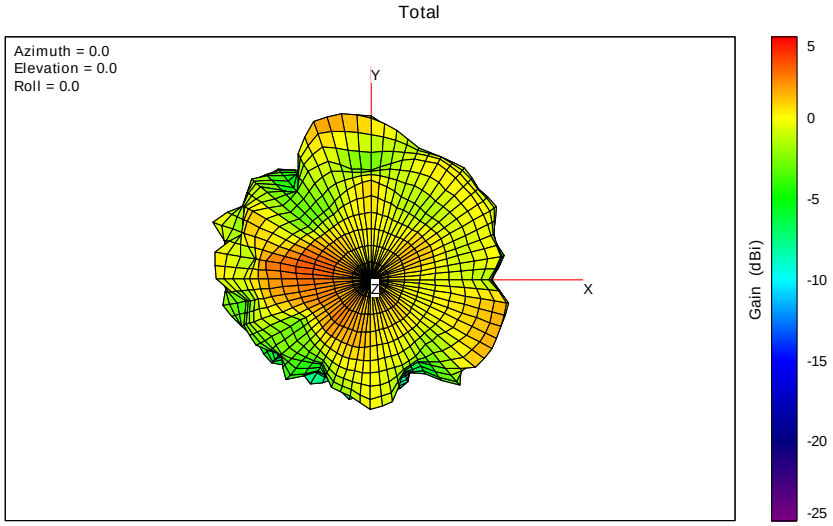

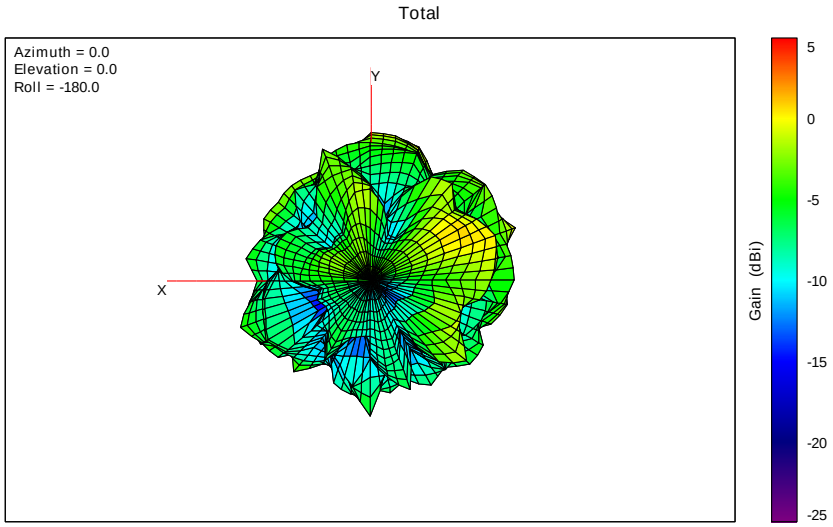

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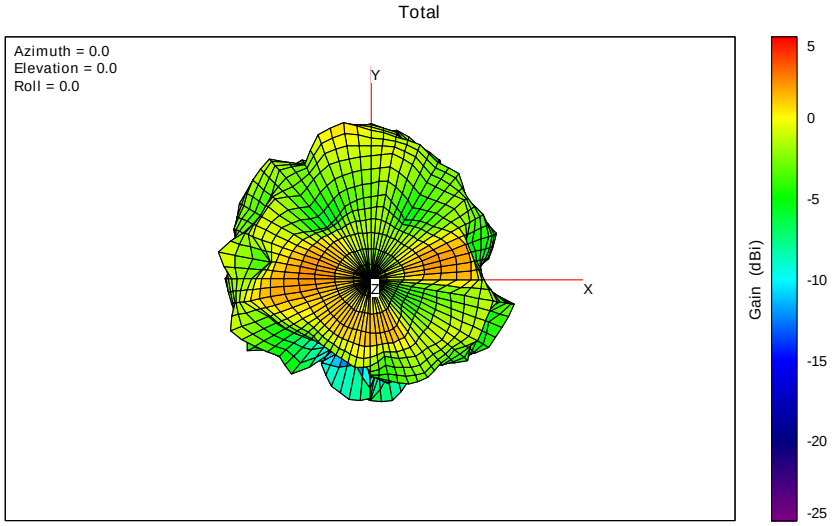
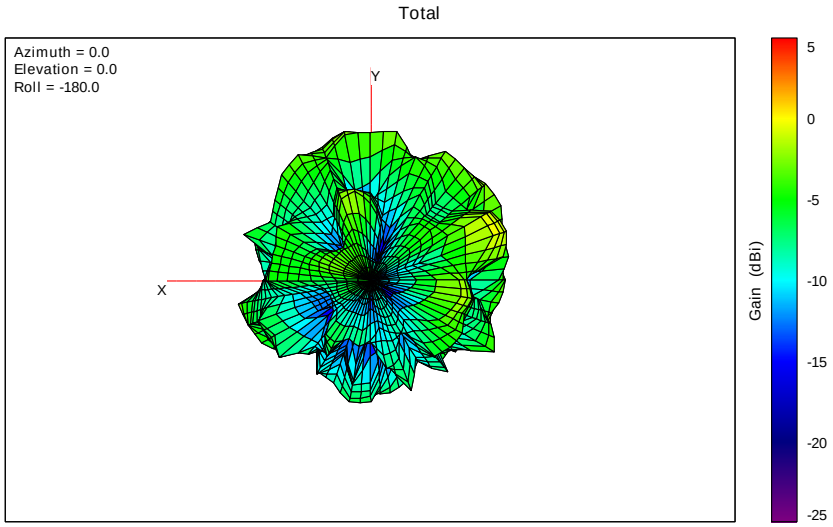
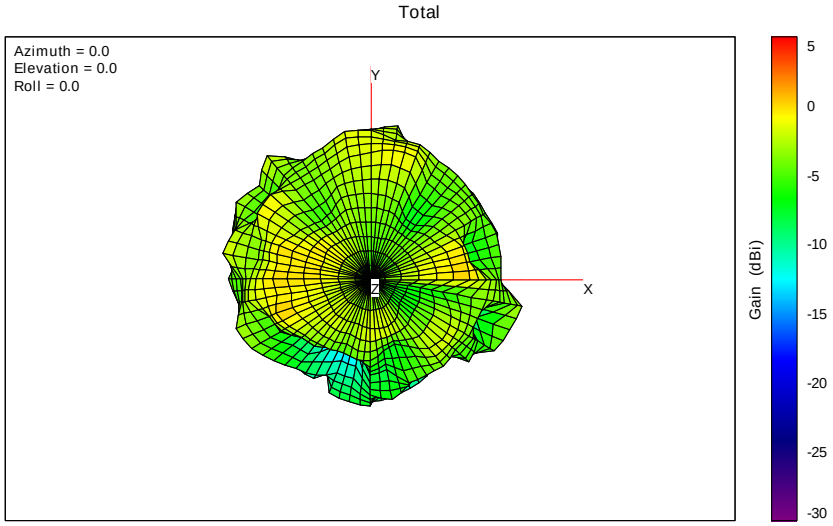
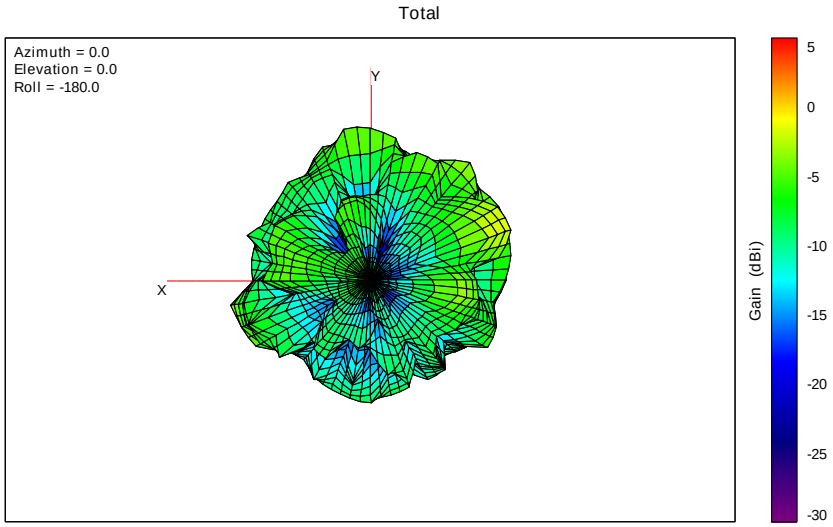




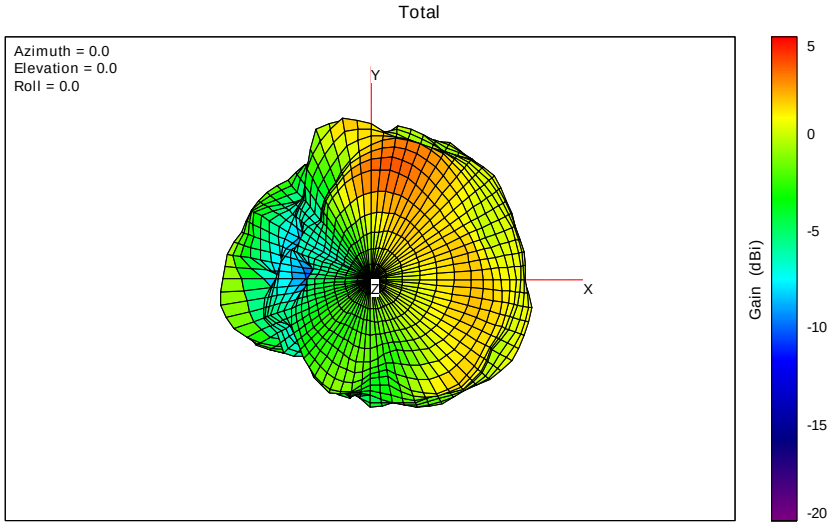
3D Free Space Gain Pattern 5700MHz

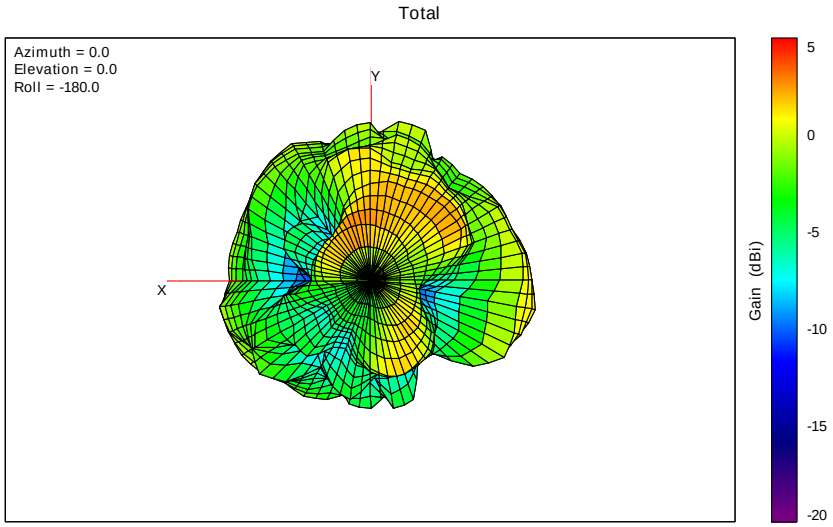




3D Free Space Gain Pattern 5825MHz

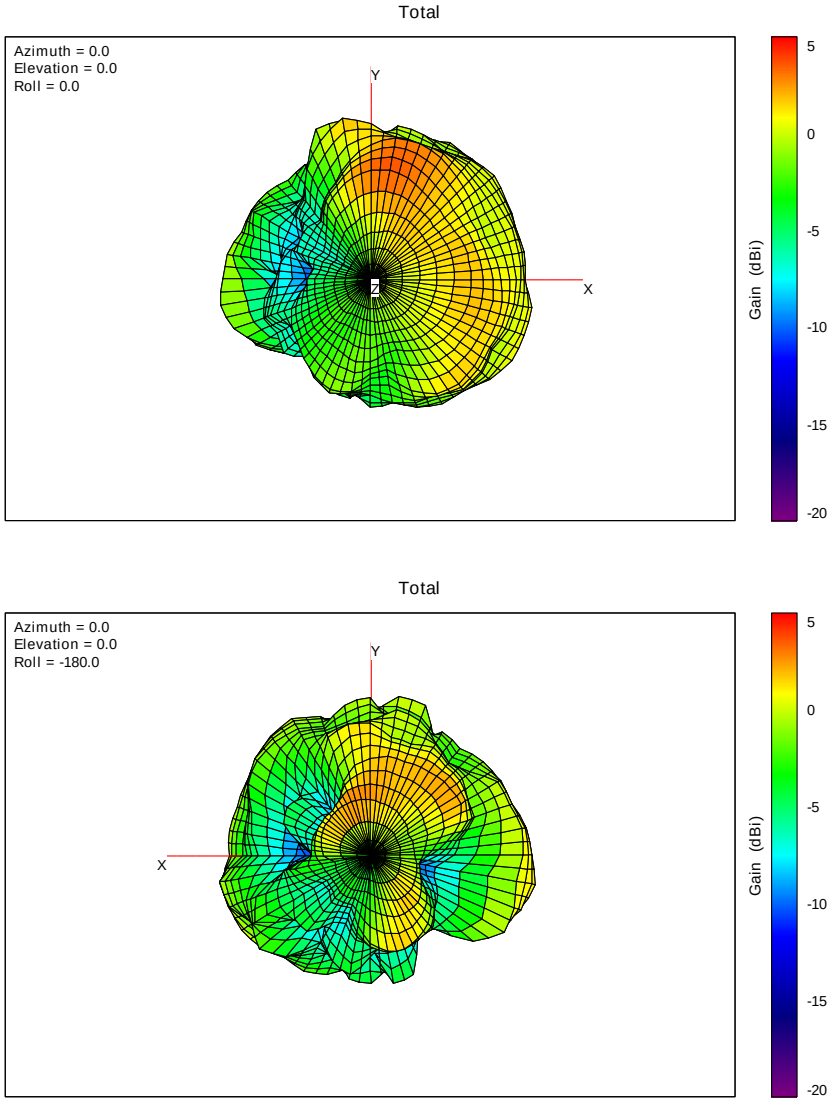
WLAN 2.4GHz Antenna 3





3D Free Space Gain Pattern 2442MHz

WLAN 5GHz Antenna 3



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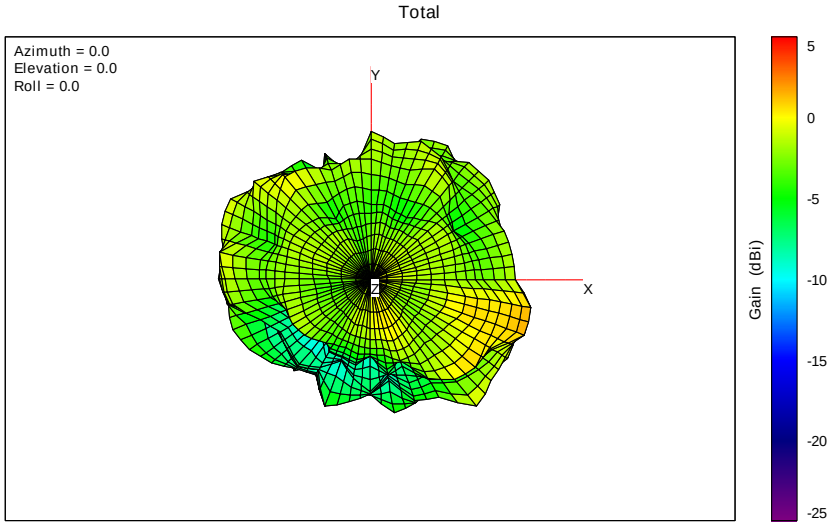

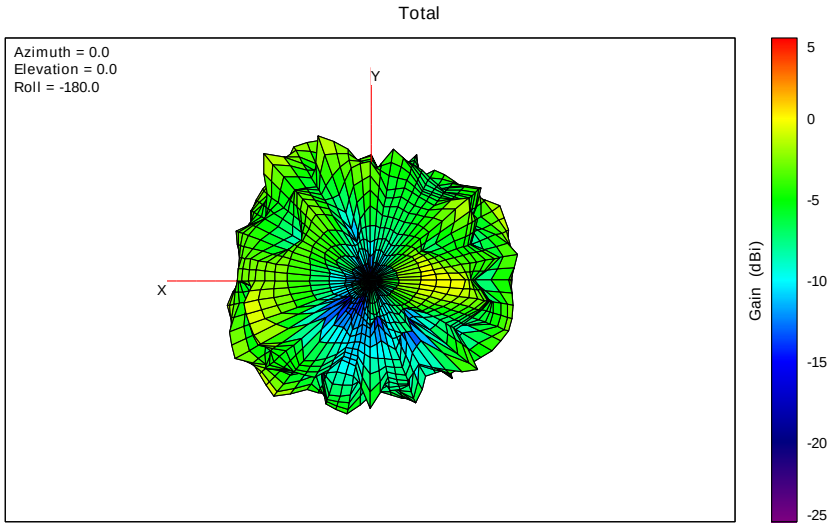

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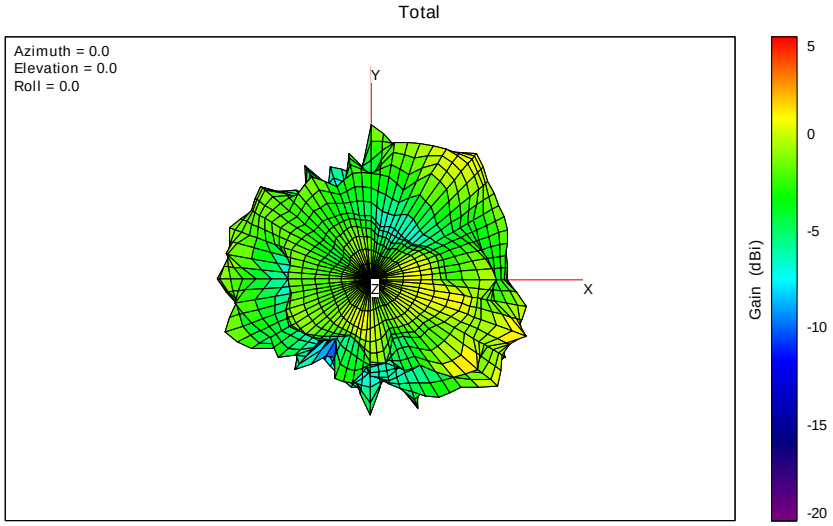

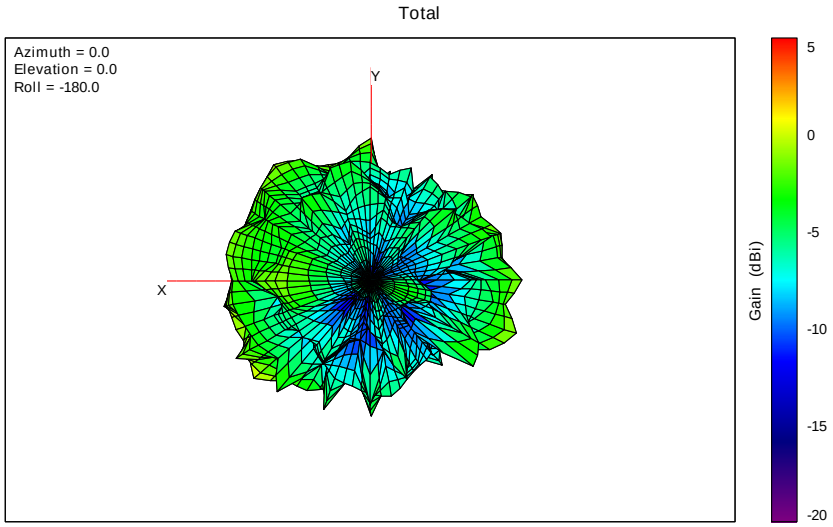

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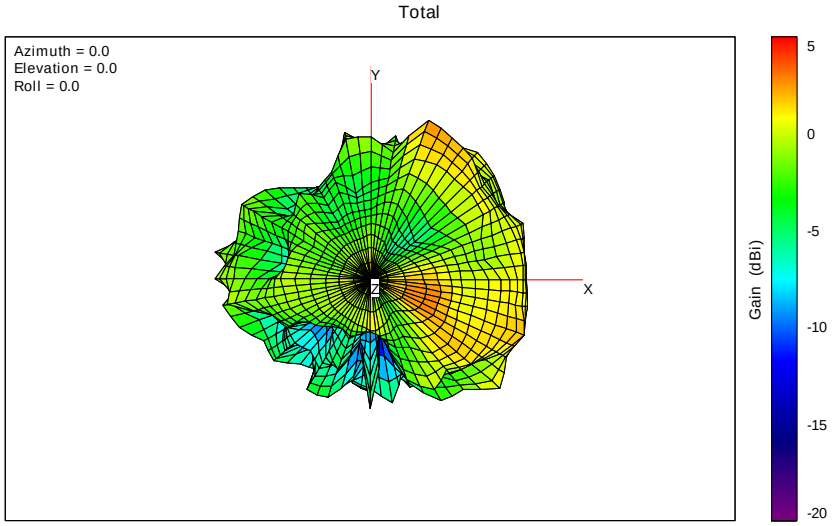
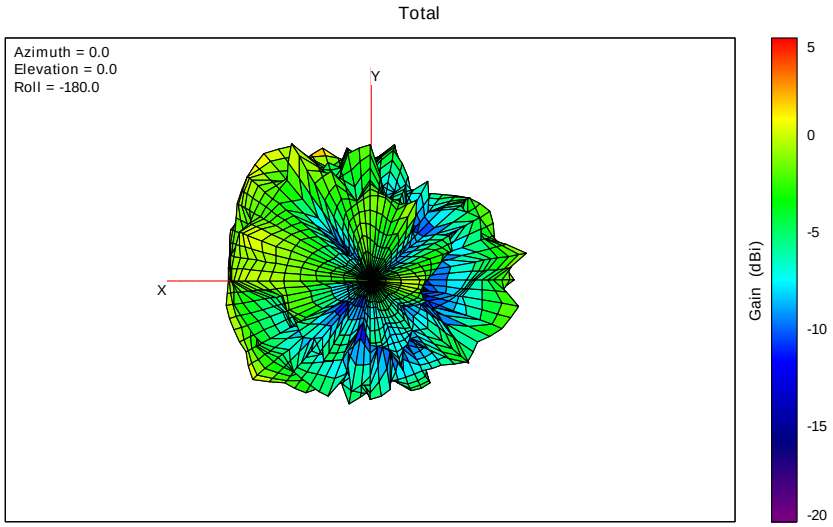
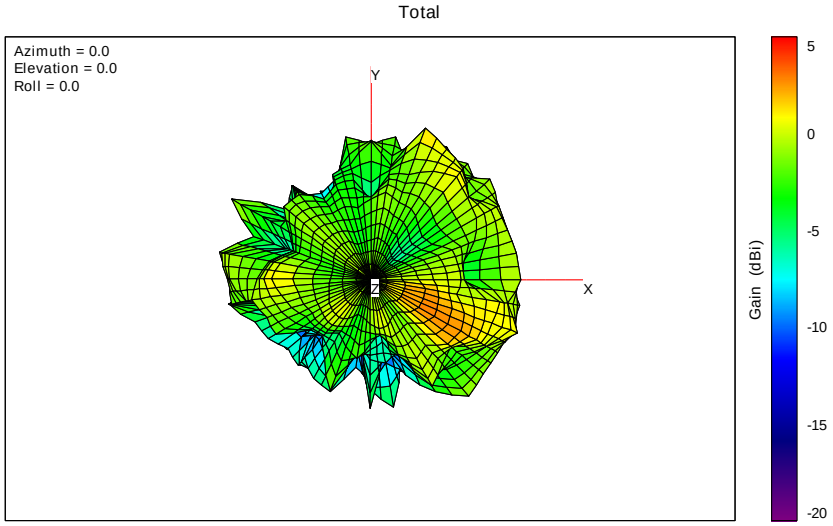
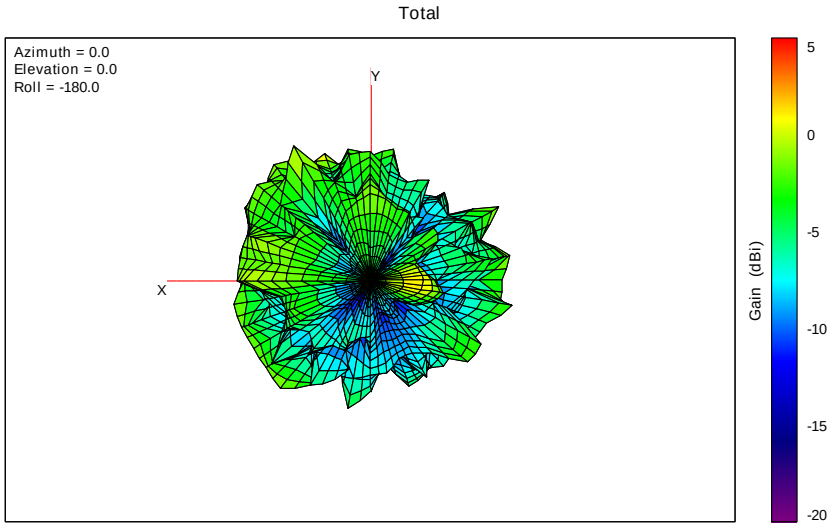




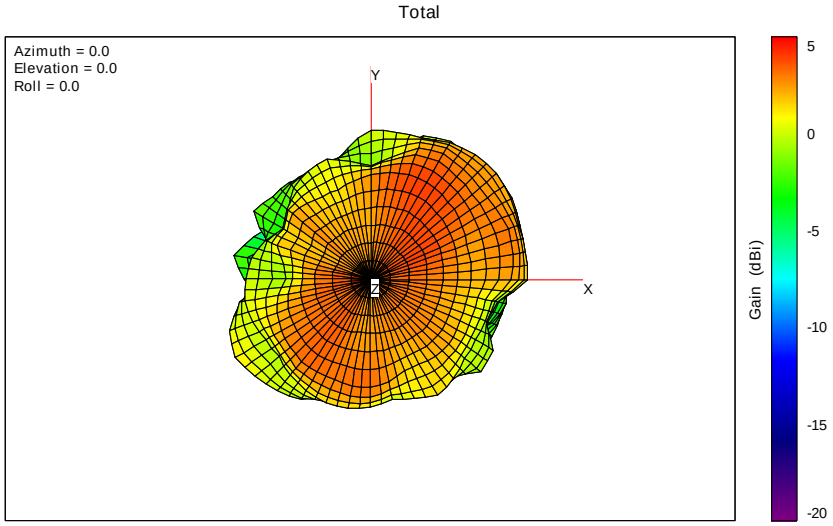
3D Free Space Gain Pattern 5700MHz

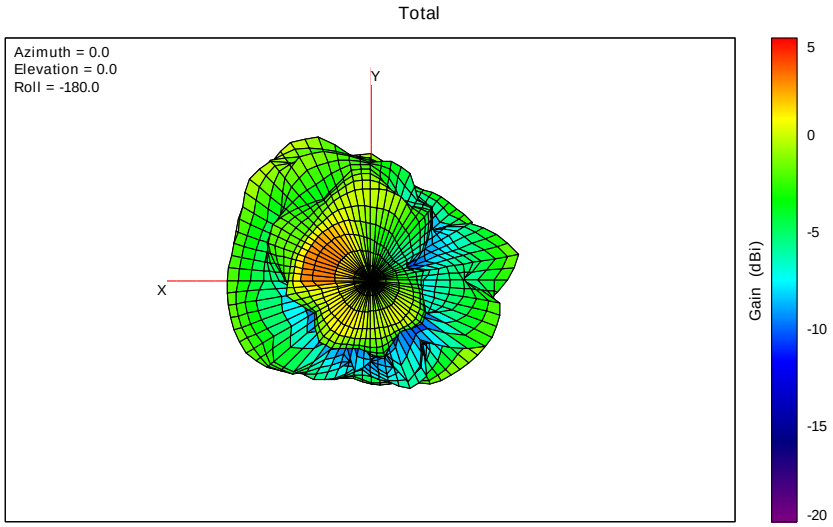




3D Free Space Gain Pattern 5825MHz

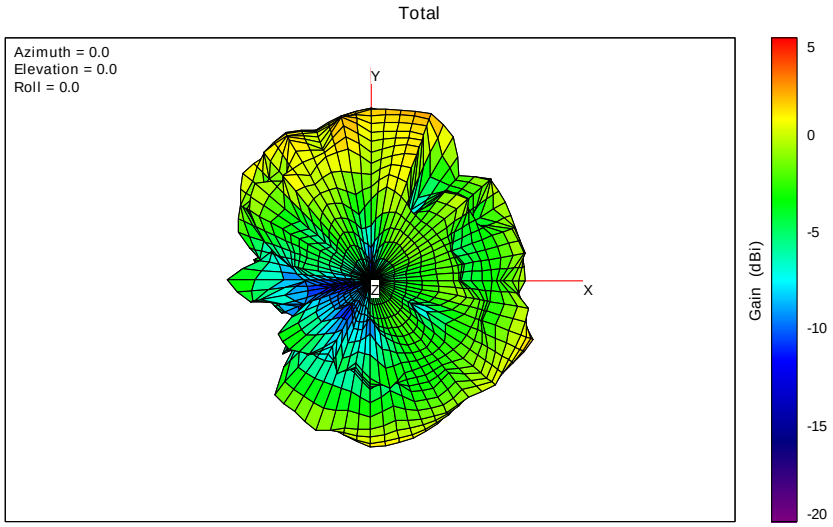
WLAN 2.4GHz Antenna 4

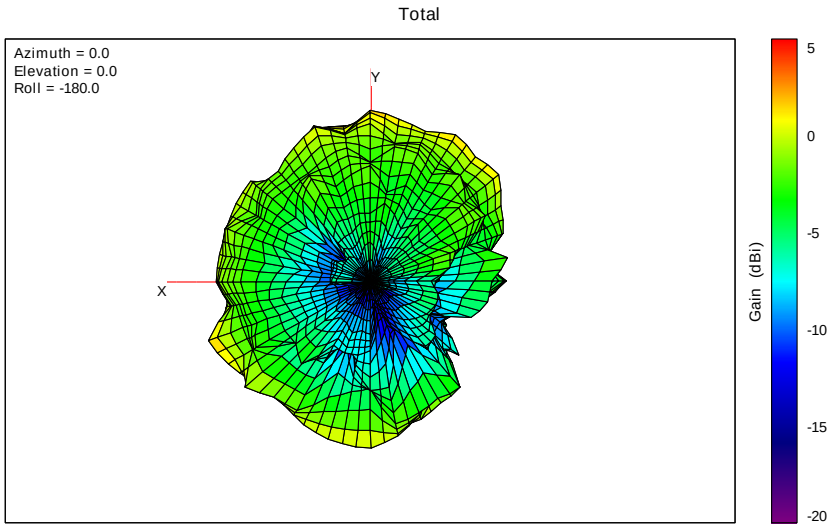




3D Free Space Gain Pattern 2442MHz

WLAN 5GHz Antenna 4





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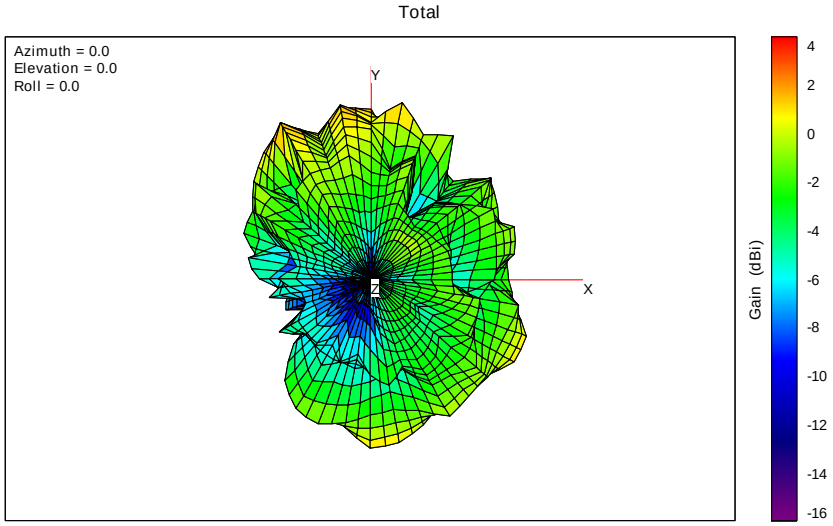

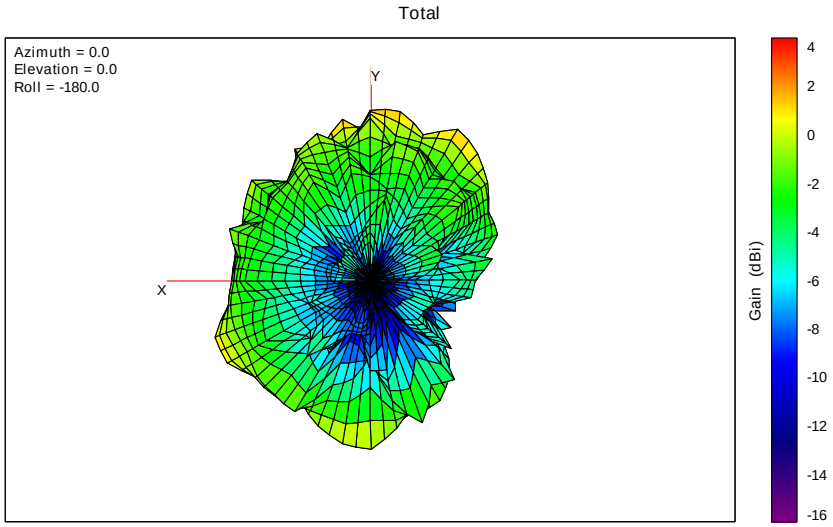

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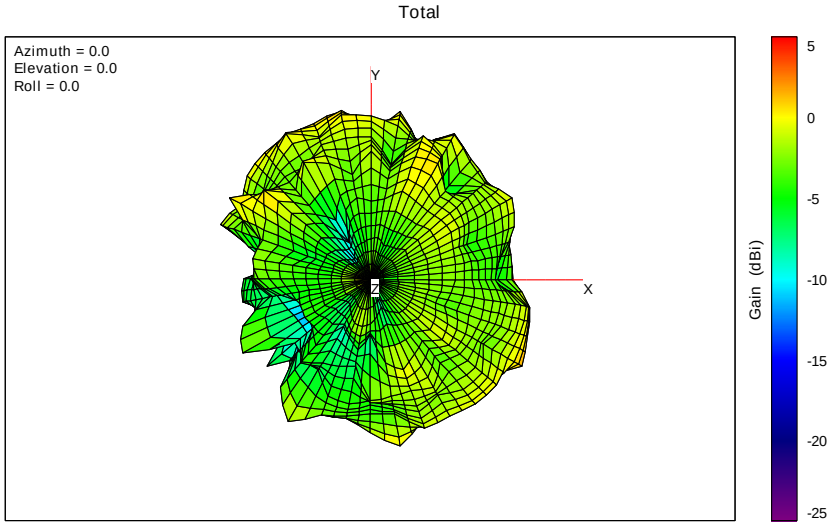
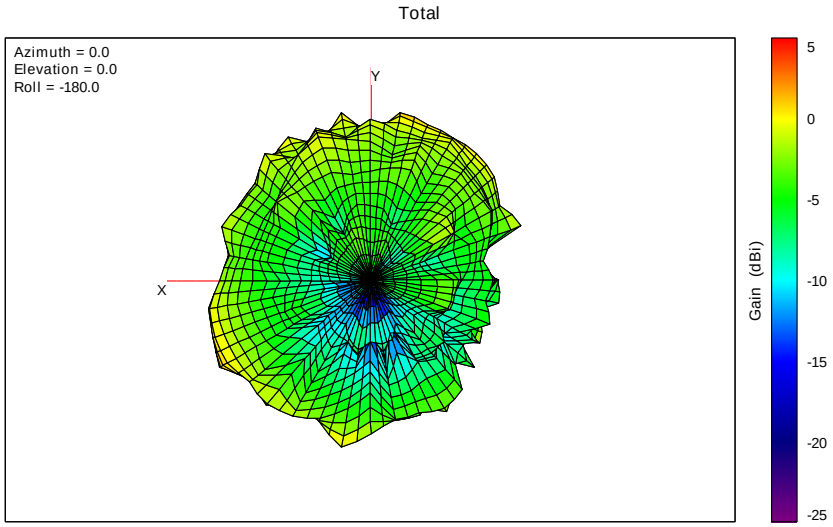
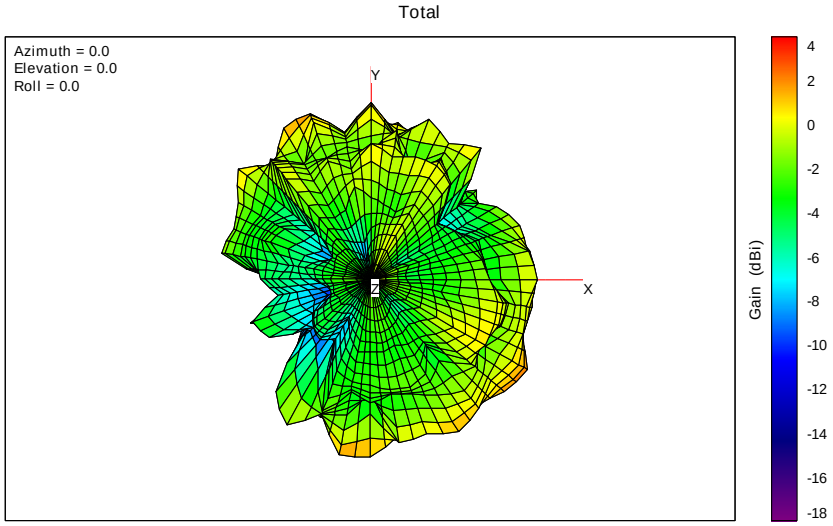
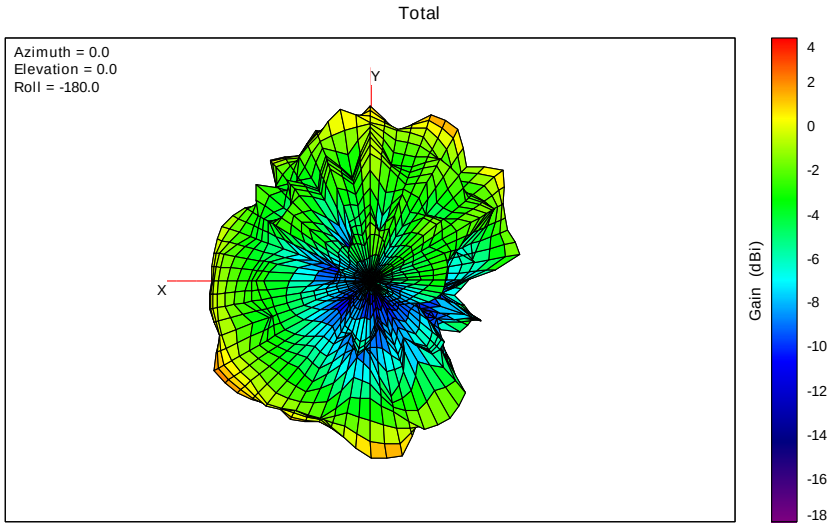


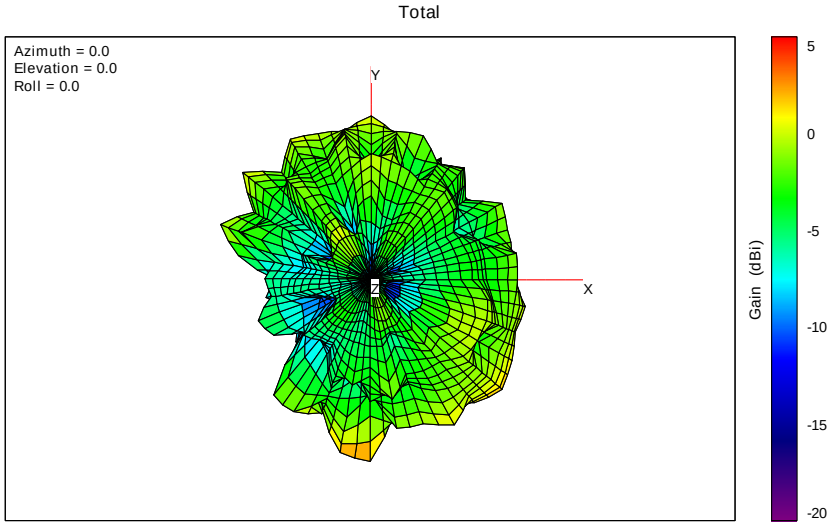


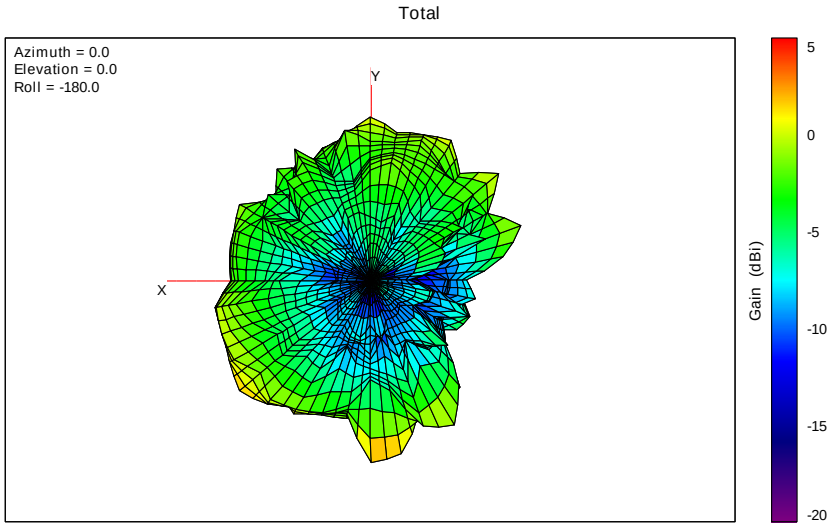
3D Free Space Gain Pattern 5500MHz





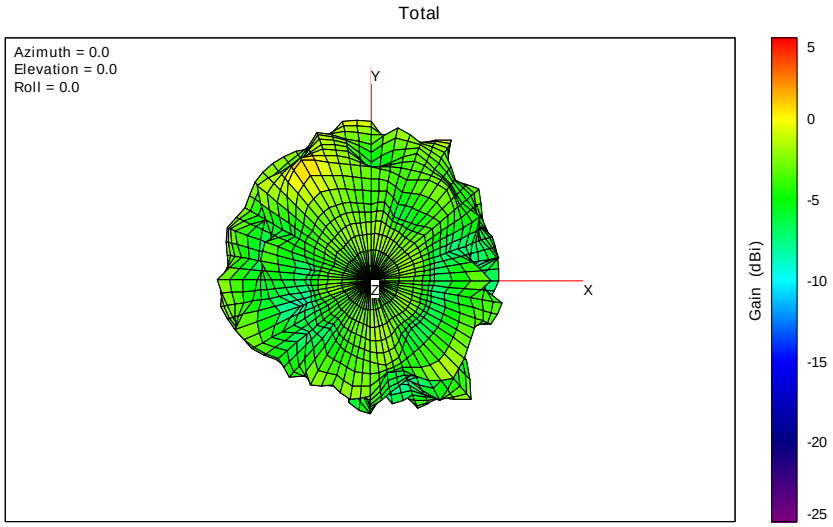
3D Free Space Gain Pattern 5700MHz

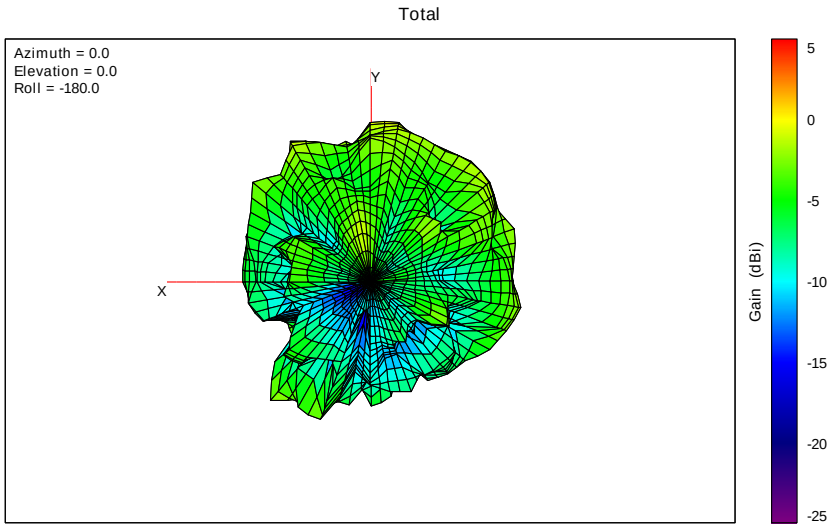




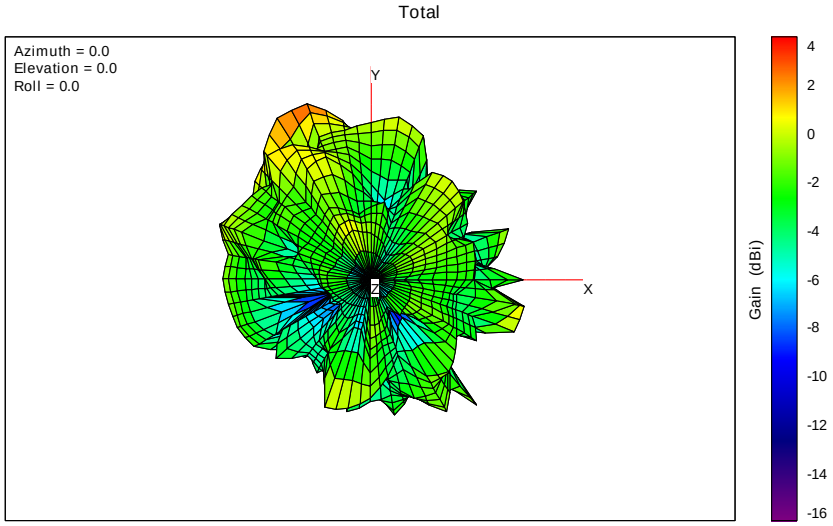
3D Free Space Gain Pattern 5825MHz

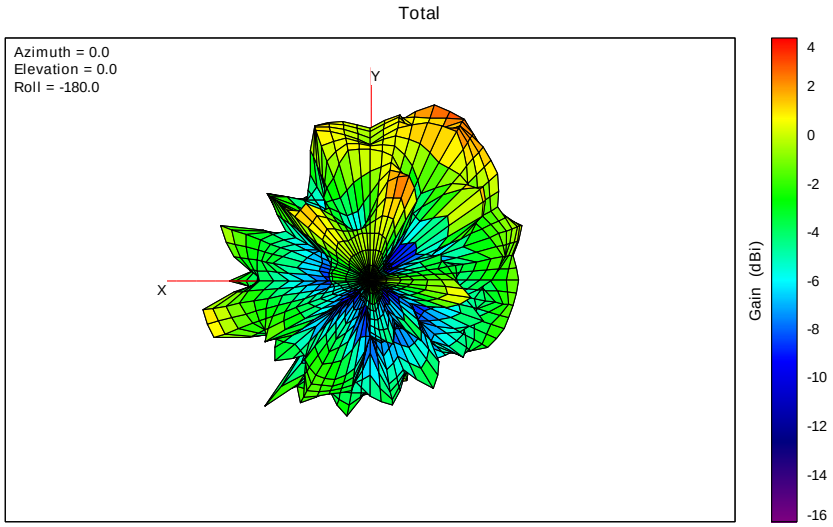
WLAN 6GHz Antenna 1



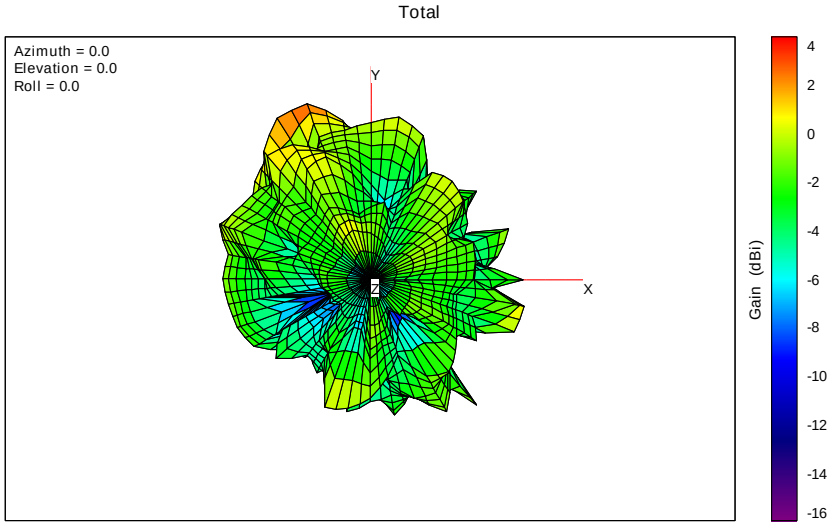


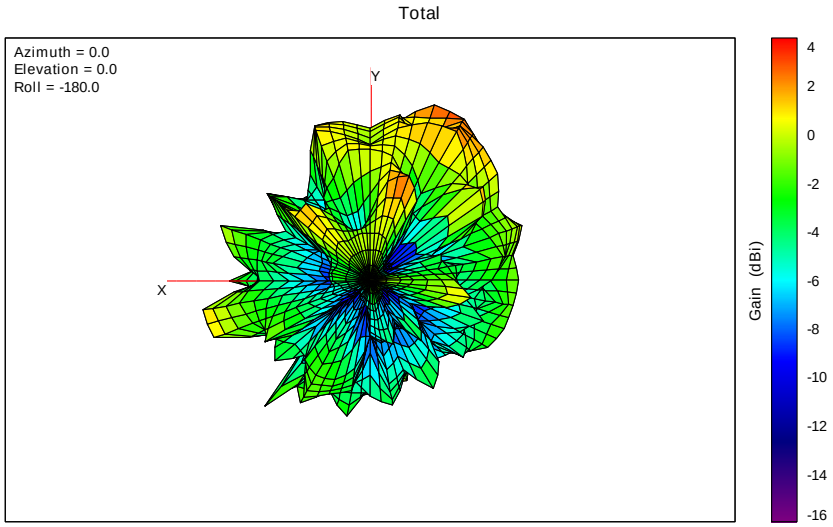
3D Free Space Gain Pattern 6175MHz



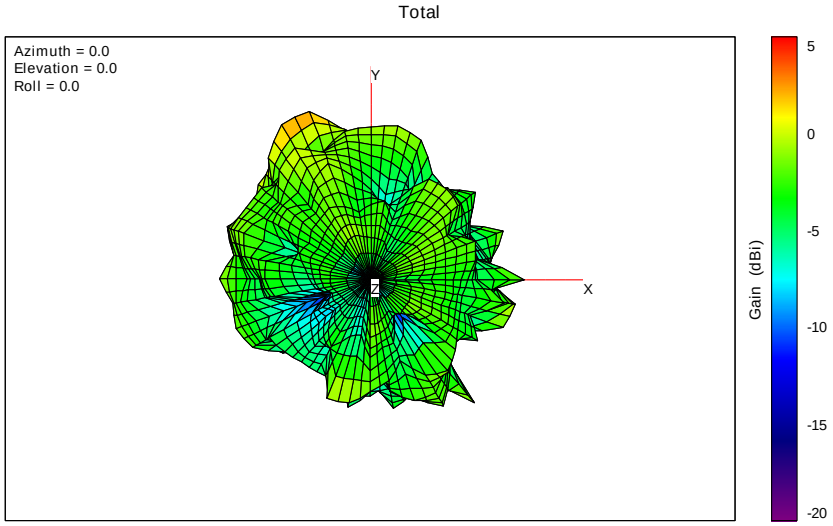


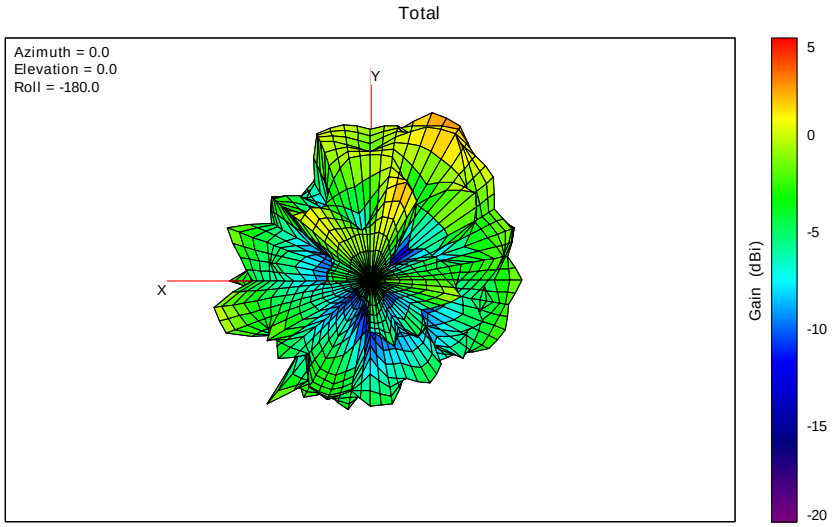
3D Free Space Gain Pattern 6435MHz



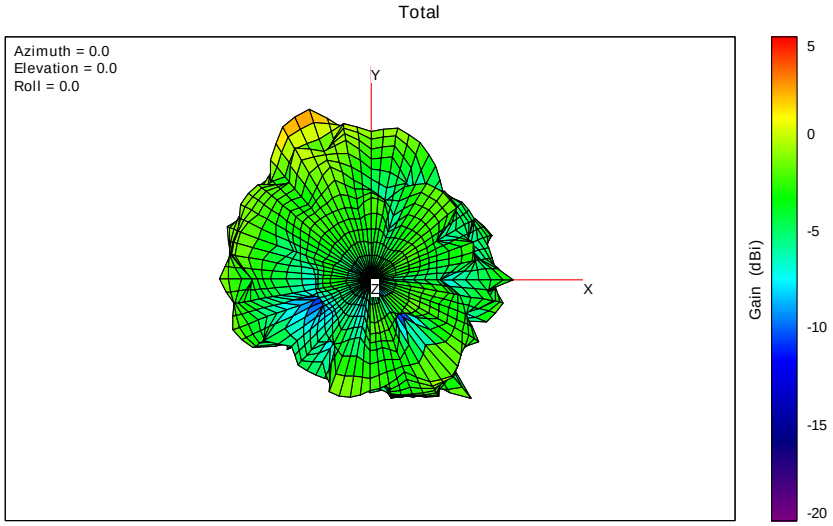


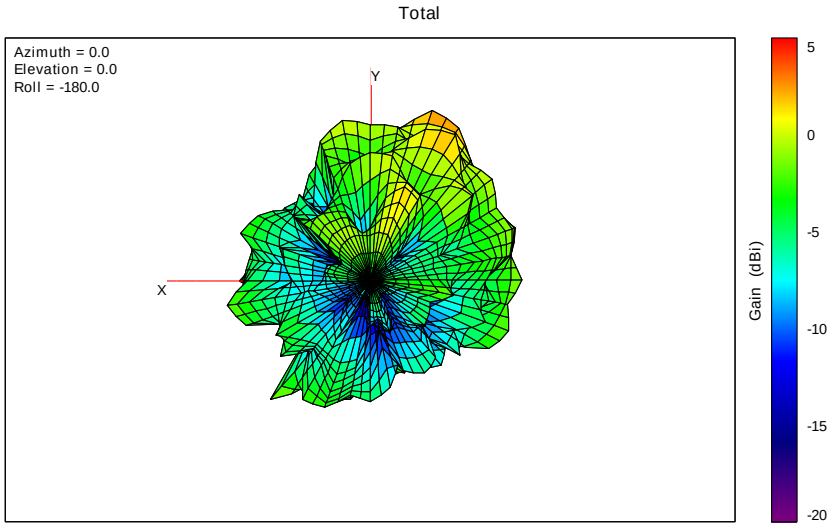
3D Free Space Gain Pattern 6475MHz



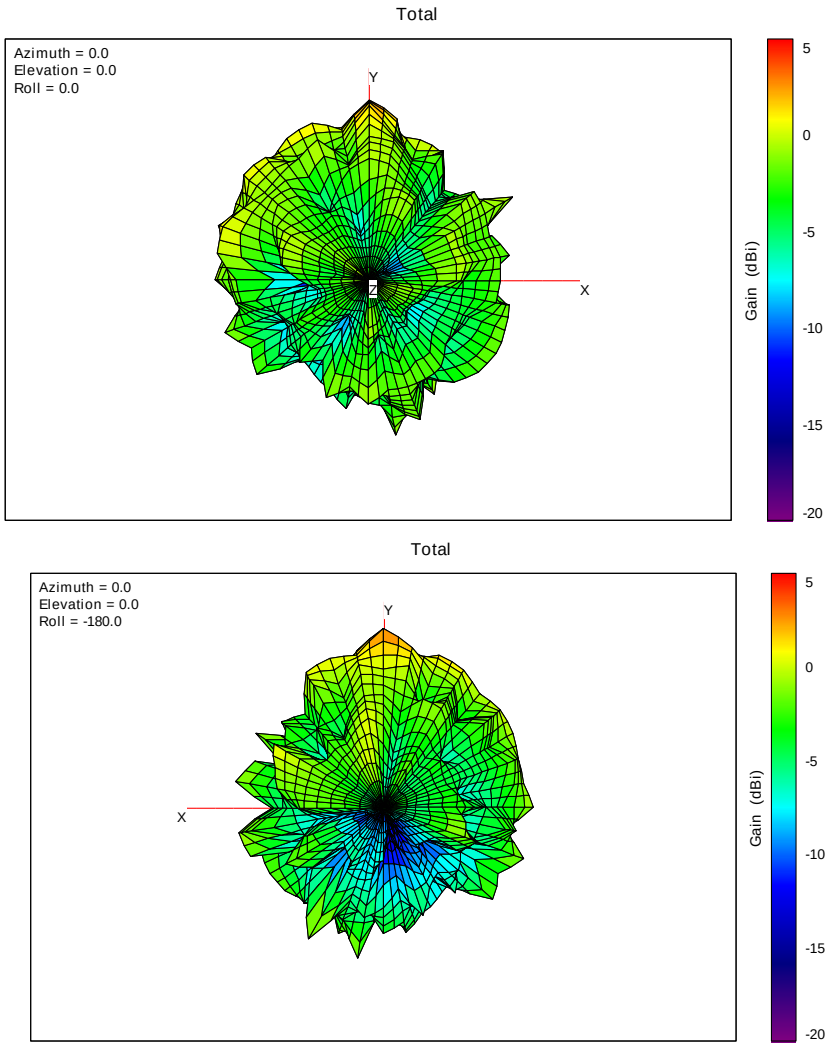


3D Free Space Gain Pattern 6535MHz

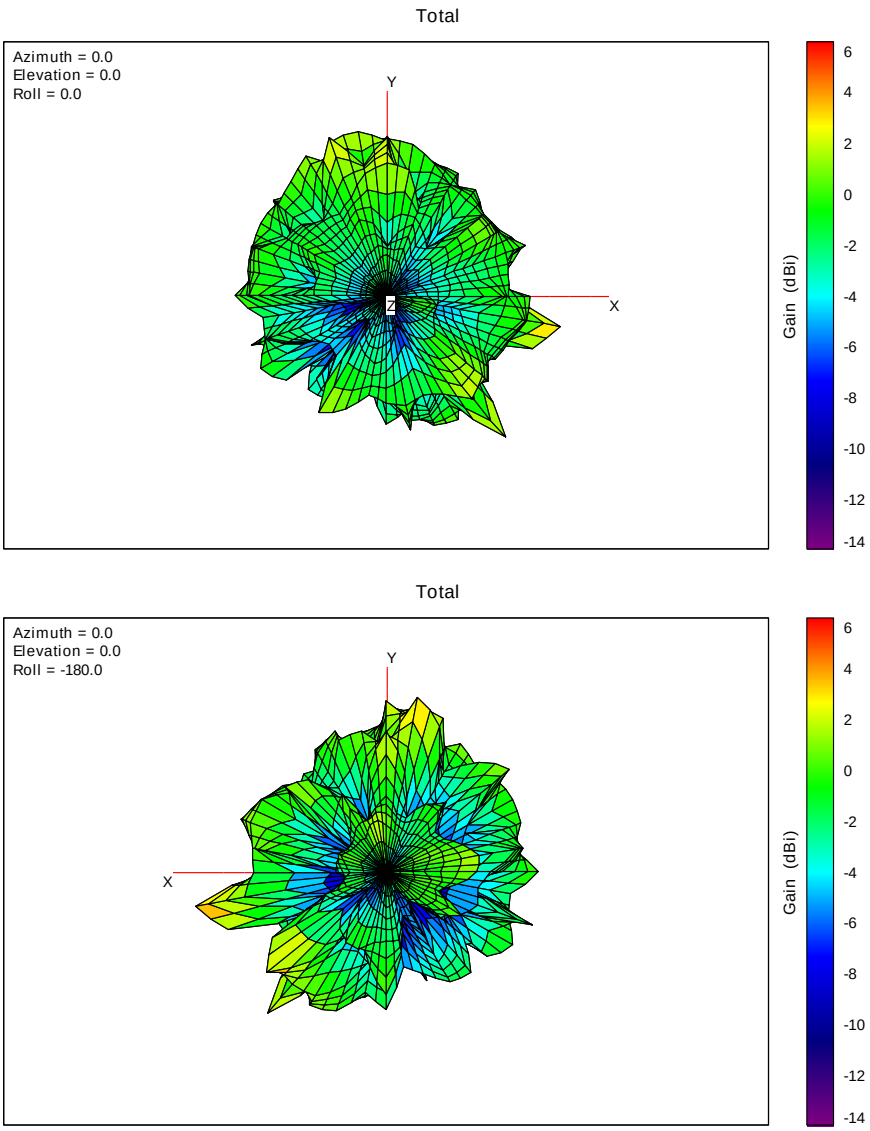




3D Free Space Gain Pattern 6695MHz

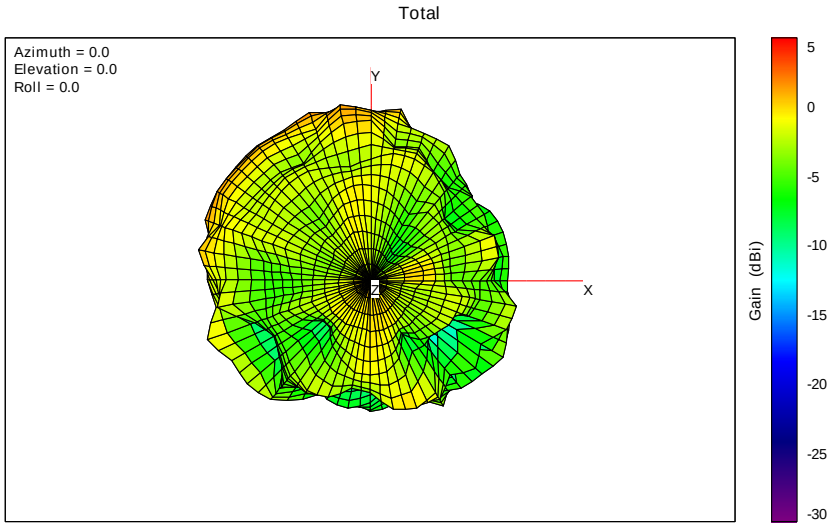


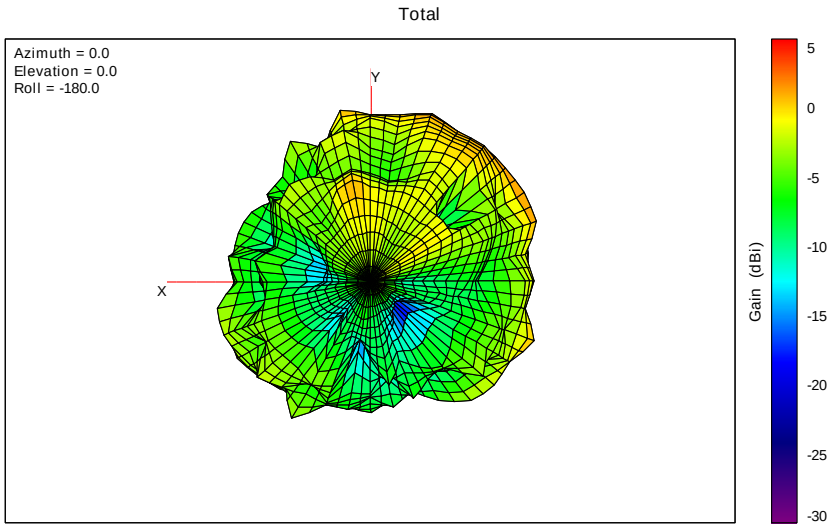
3D Free Space Gain Pattern 6875MHz



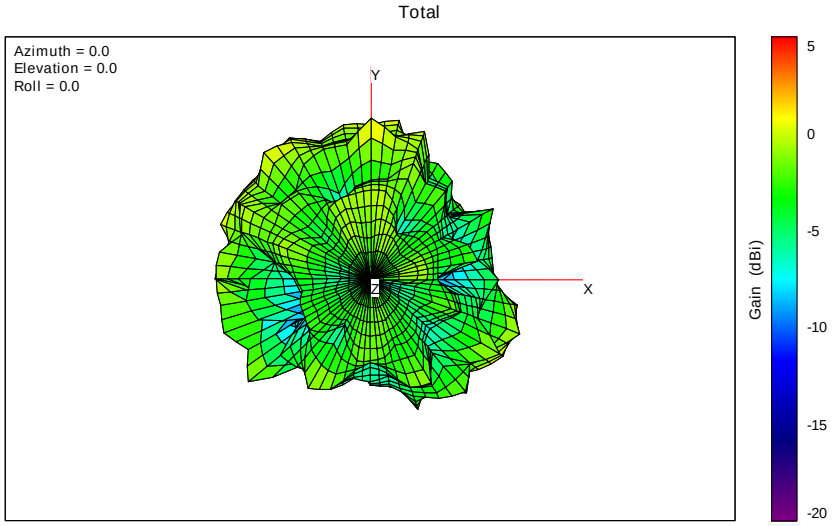
3D Free Space Gain Pattern 7115MHz

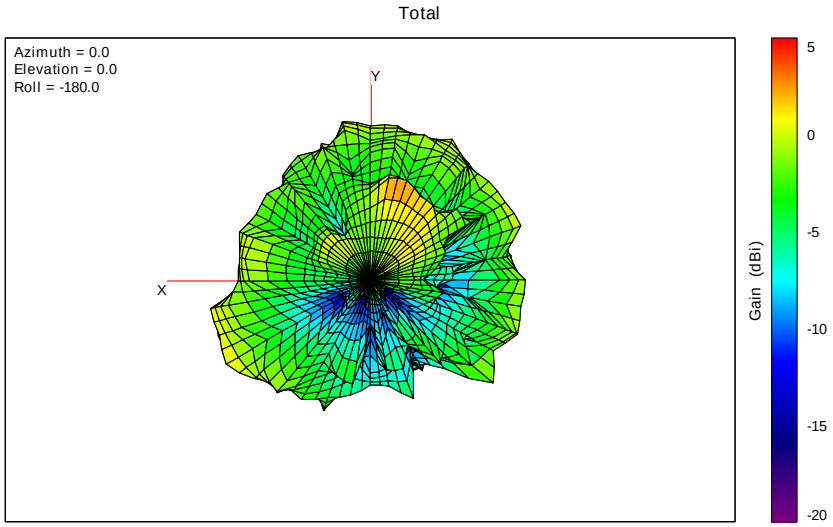
WLAN 6GHz Antenna 2



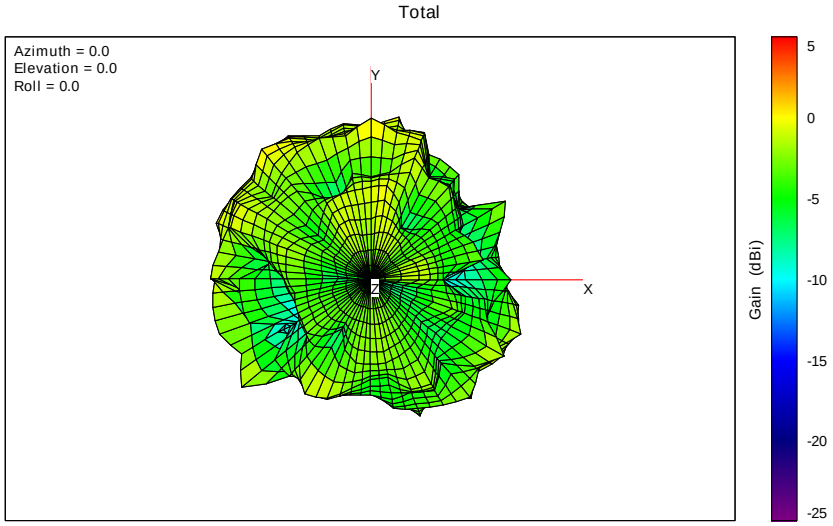


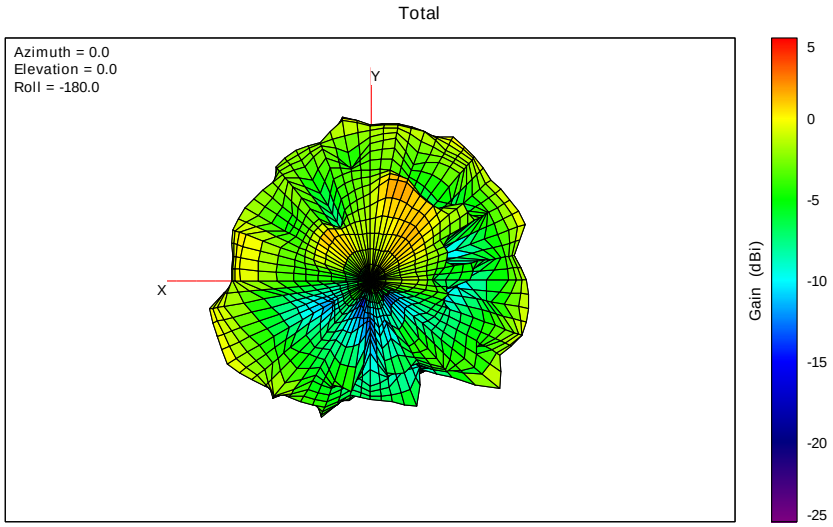
3D Free Space Gain Pattern 6175MHz



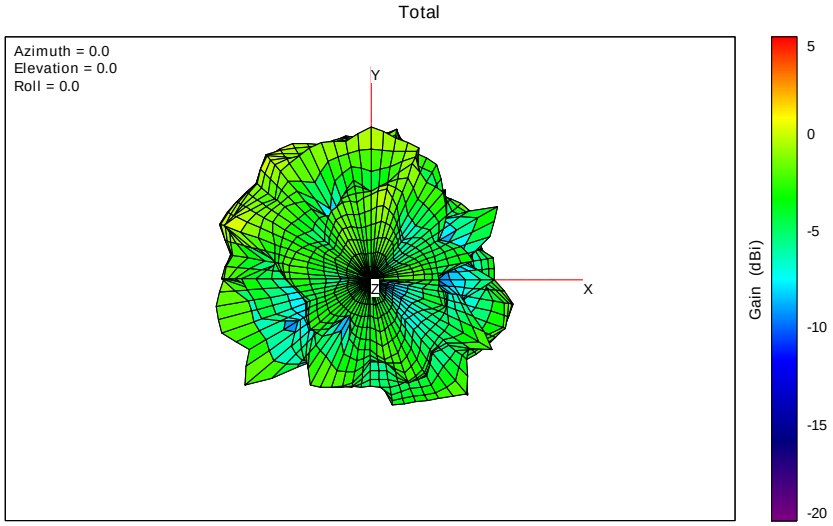


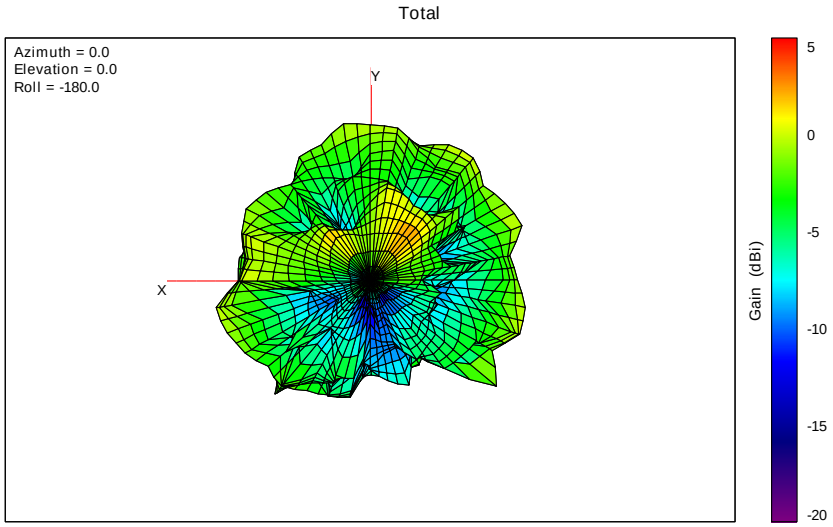
3D Free Space Gain Pattern 6435MHz



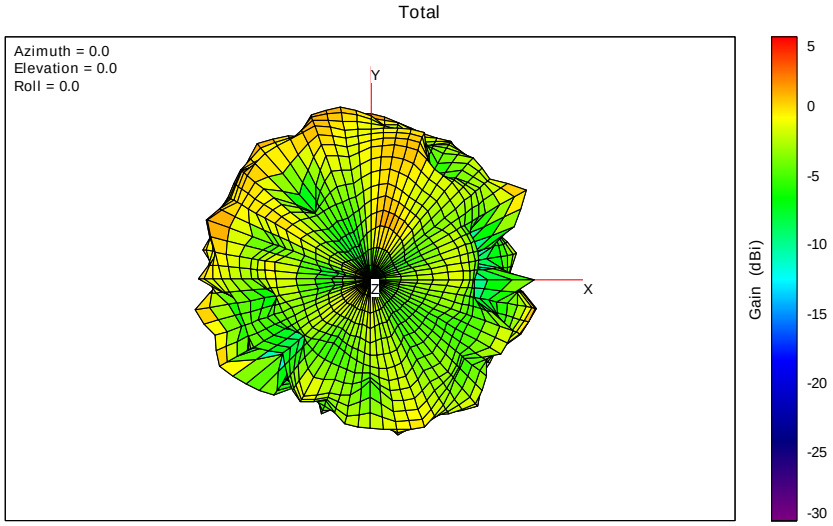


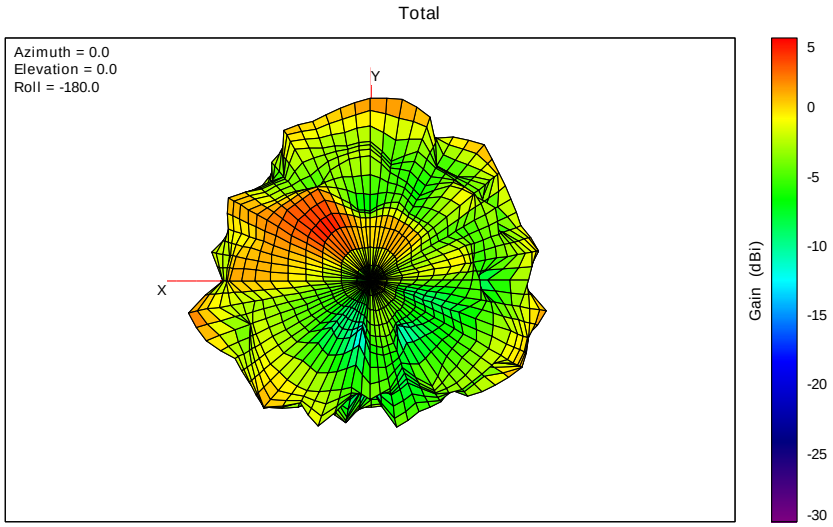
3D Free Space Gain Pattern 6475MHz



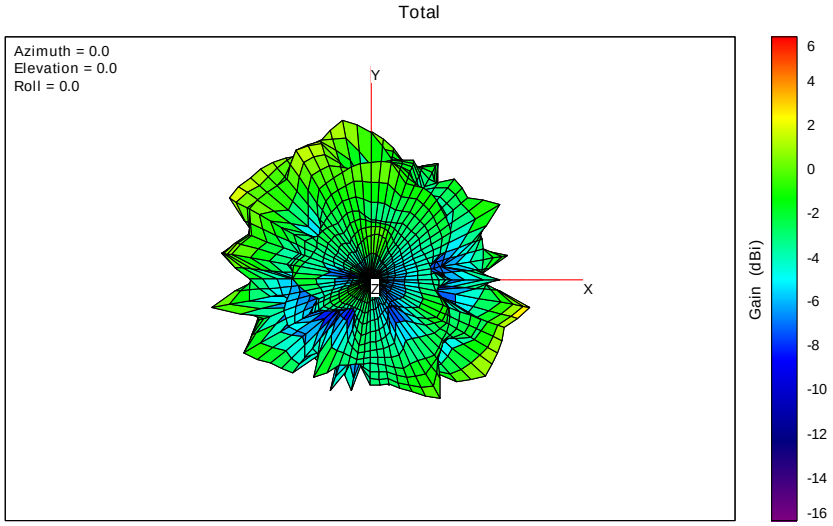


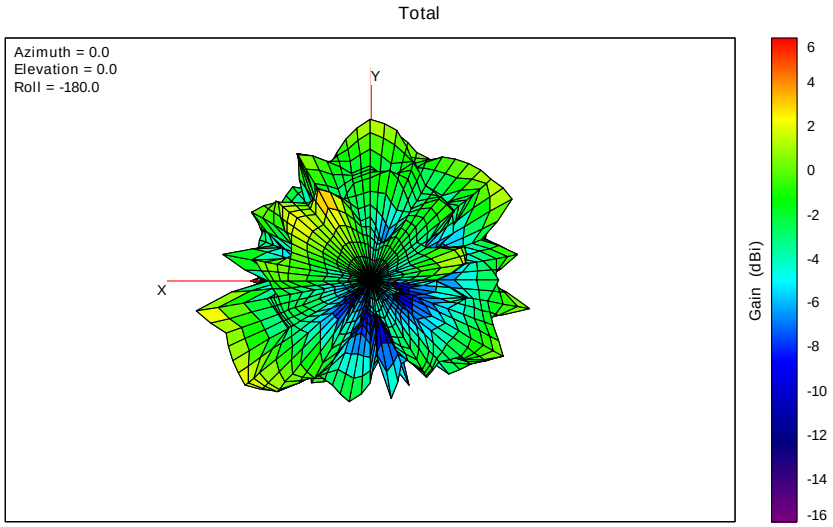
3D Free Space Gain Pattern 6535MHz



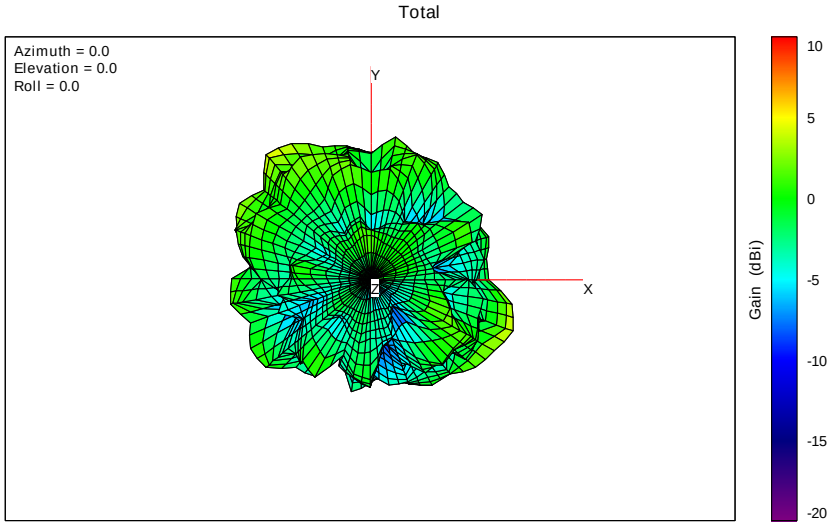


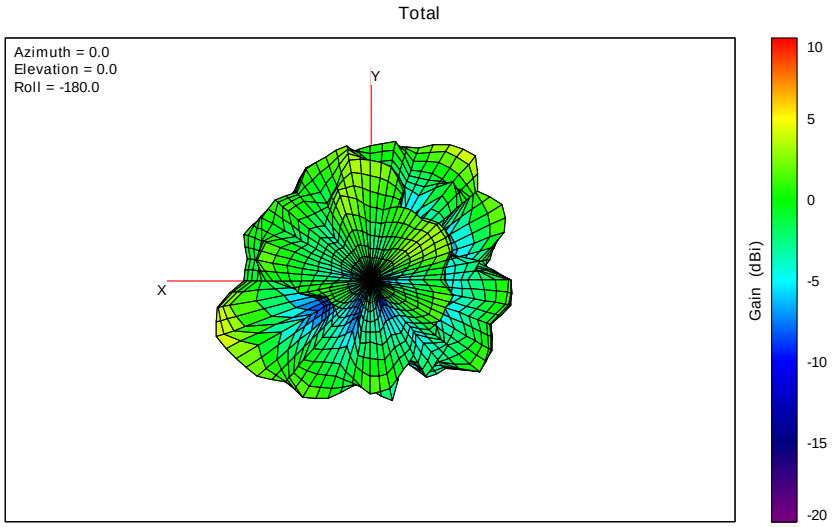
3D Free Space Gain Pattern 6695MHz





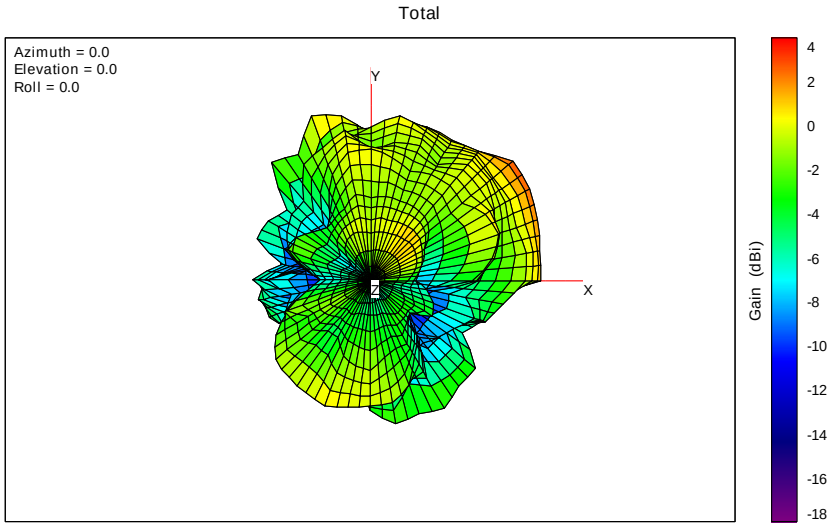
3D Free Space Gain Pattern 6875MHz

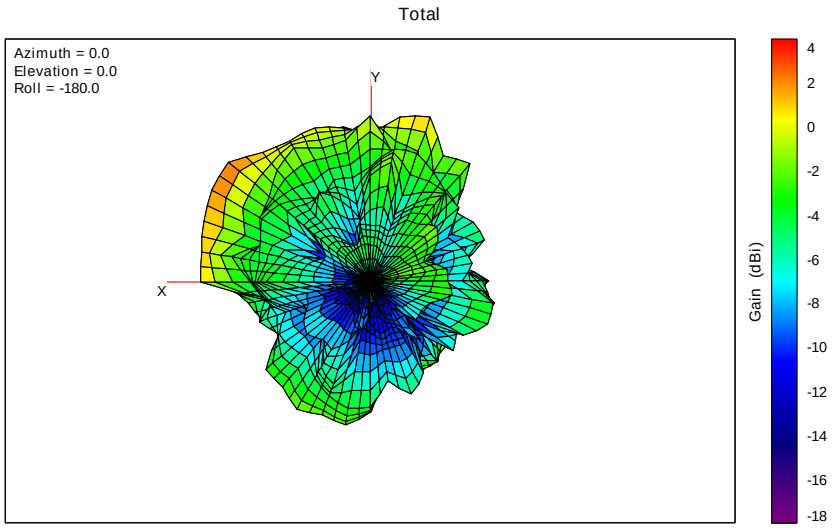




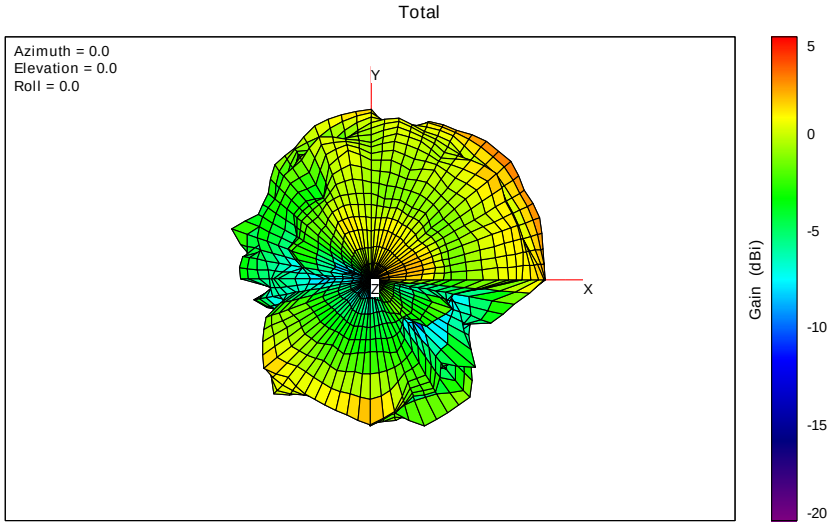
3D Free Space Gain Pattern 7115MHz

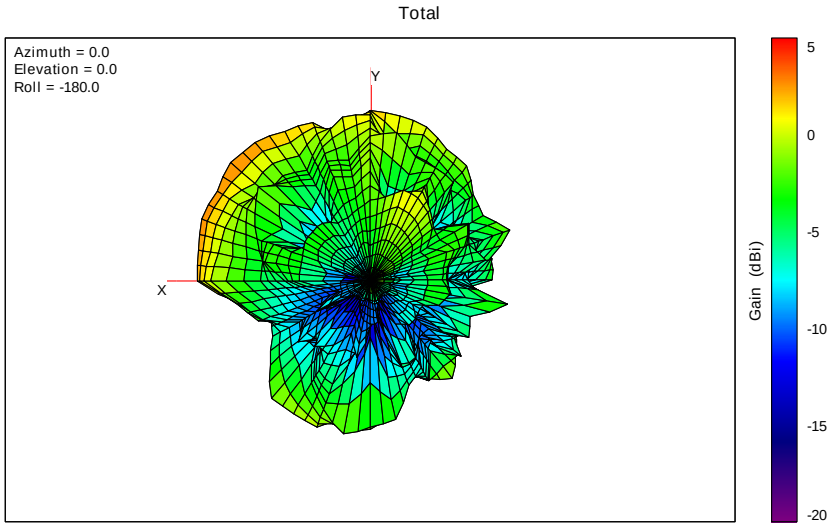
WLAN 6GHz Antenna 3



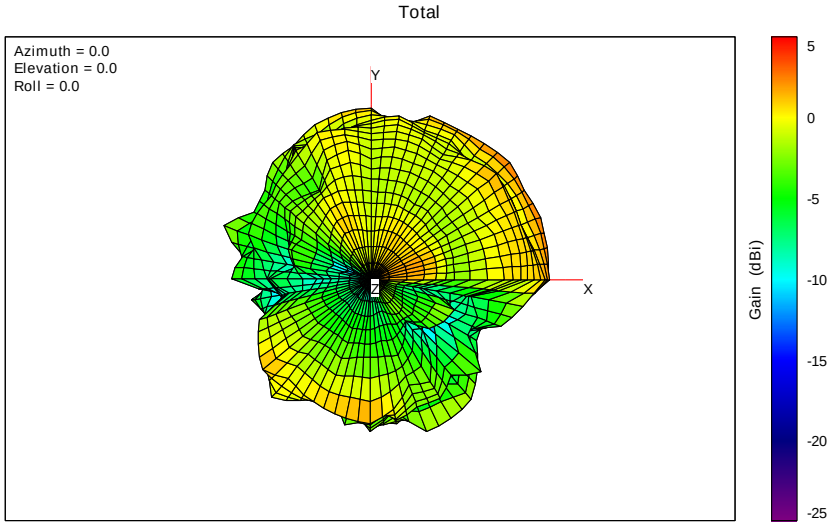


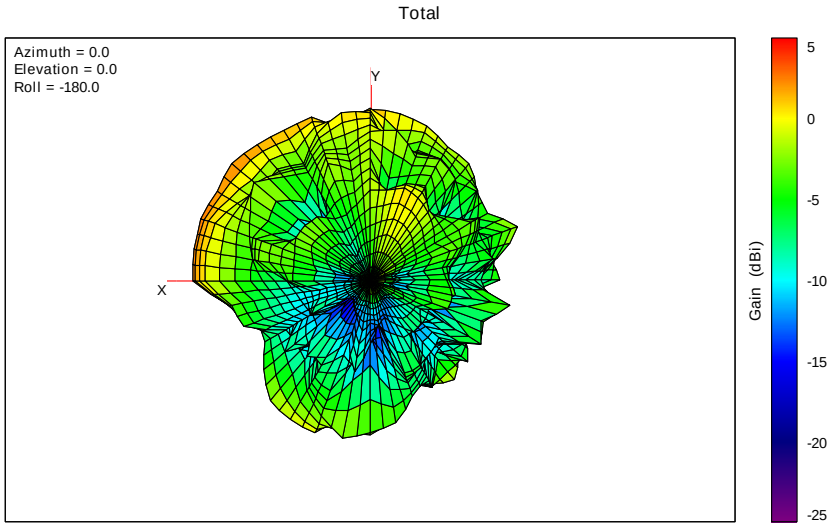
3D Free Space Gain Pattern 6175MHz



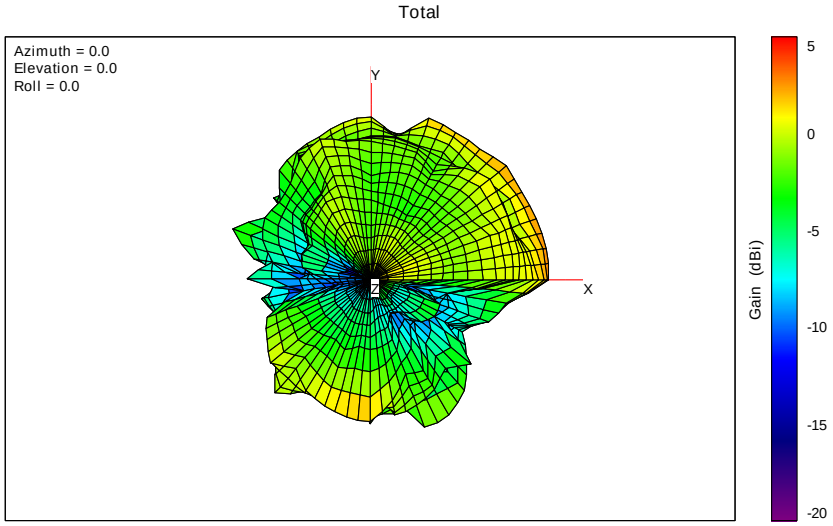


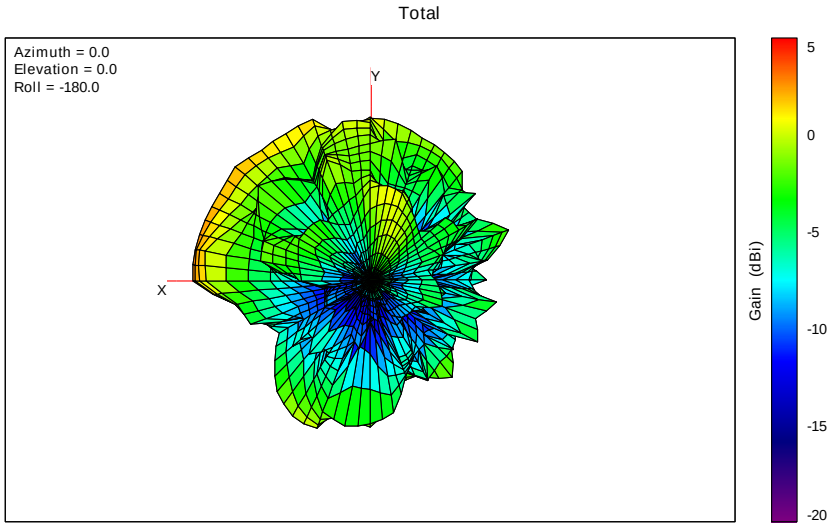
3D Free Space Gain Pattern 6435MHz



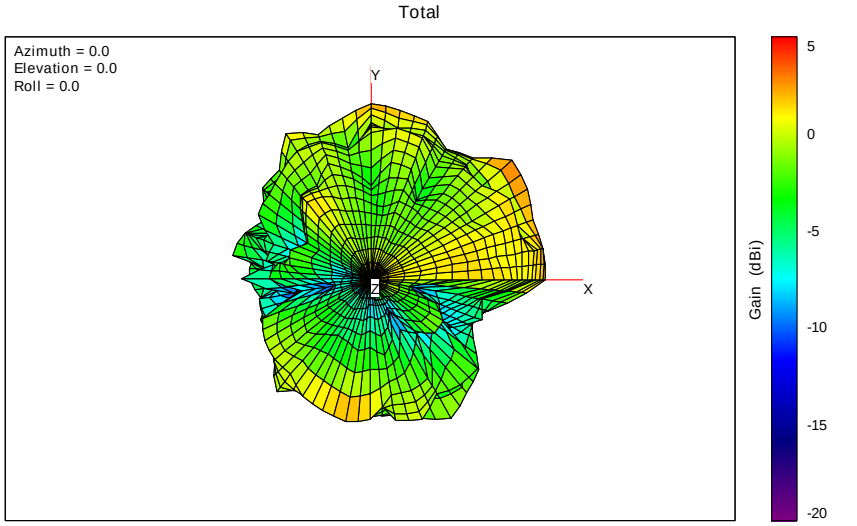


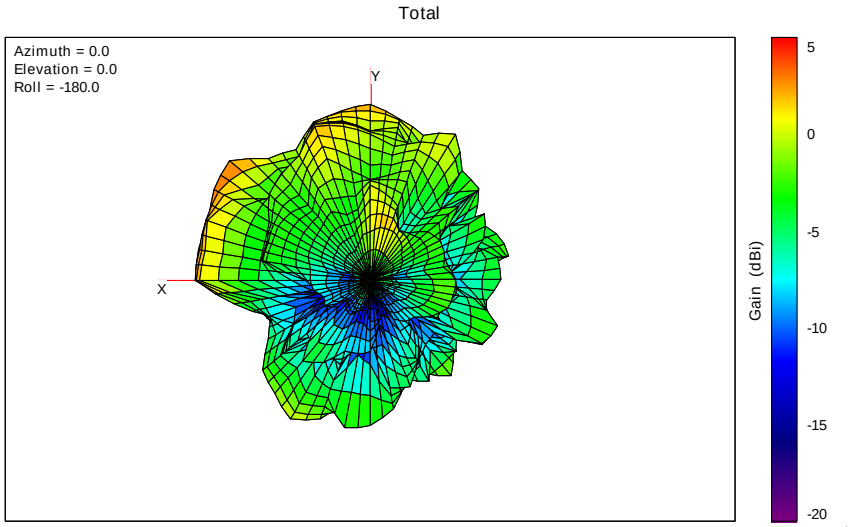
3D Free Space Gain Pattern 6475MHz



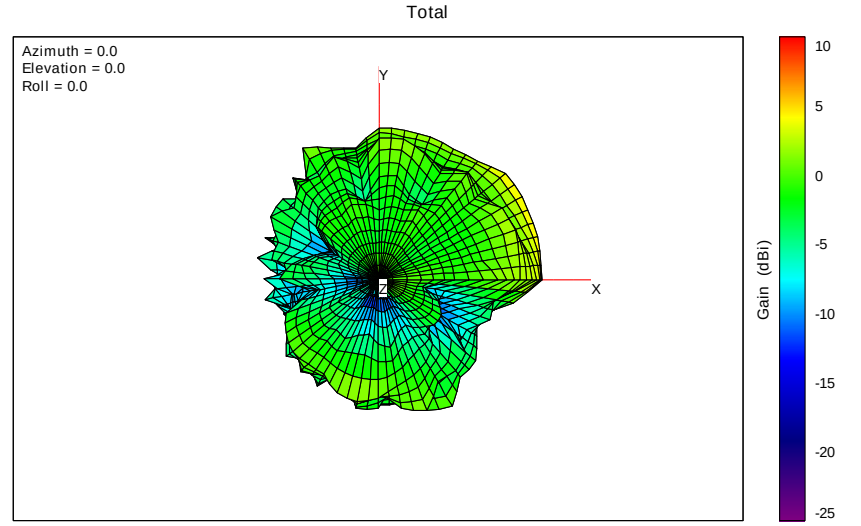


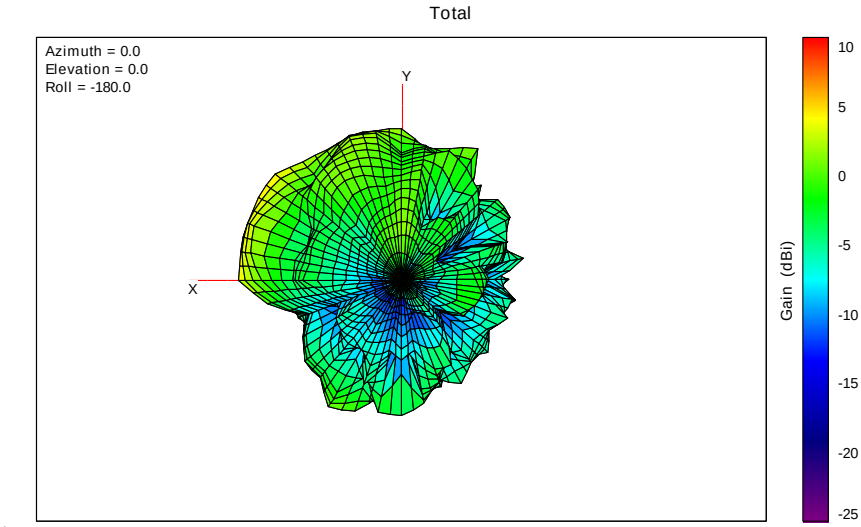
3D Free Space Gain Pattern 6535MHz



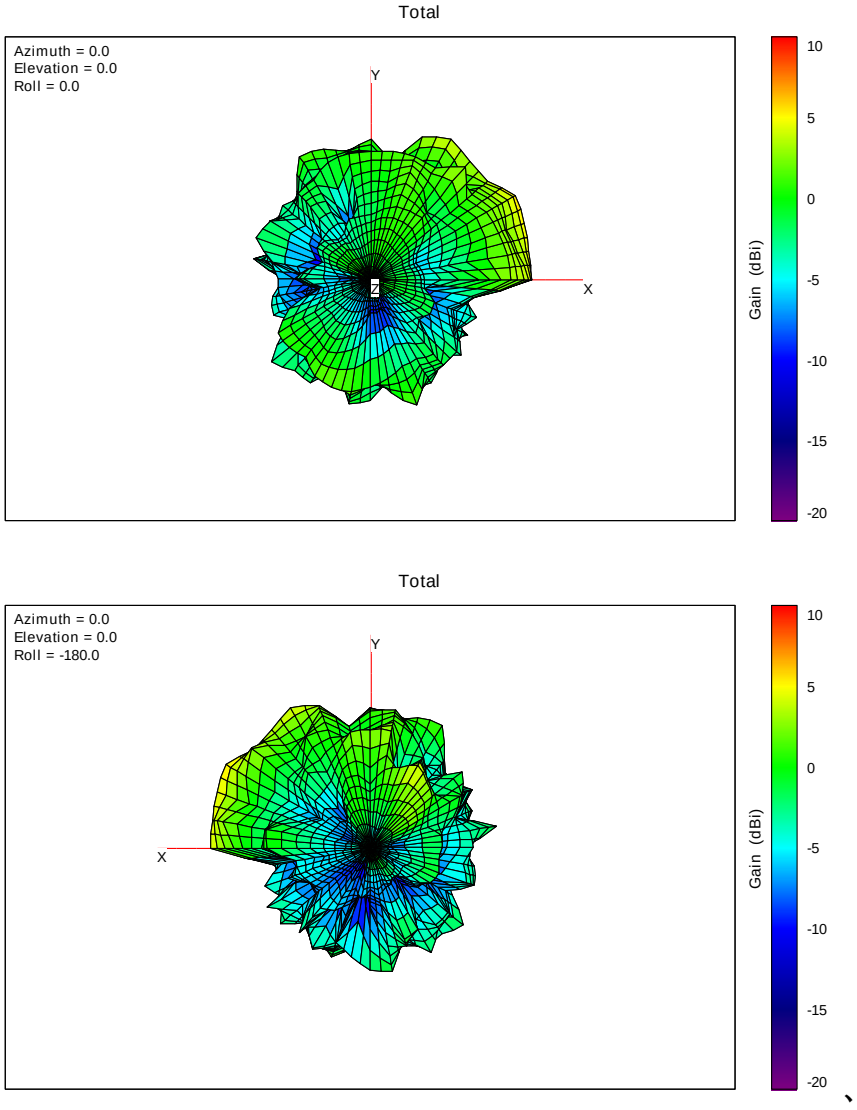


3D Free Space Gain Pattern 6695MHz



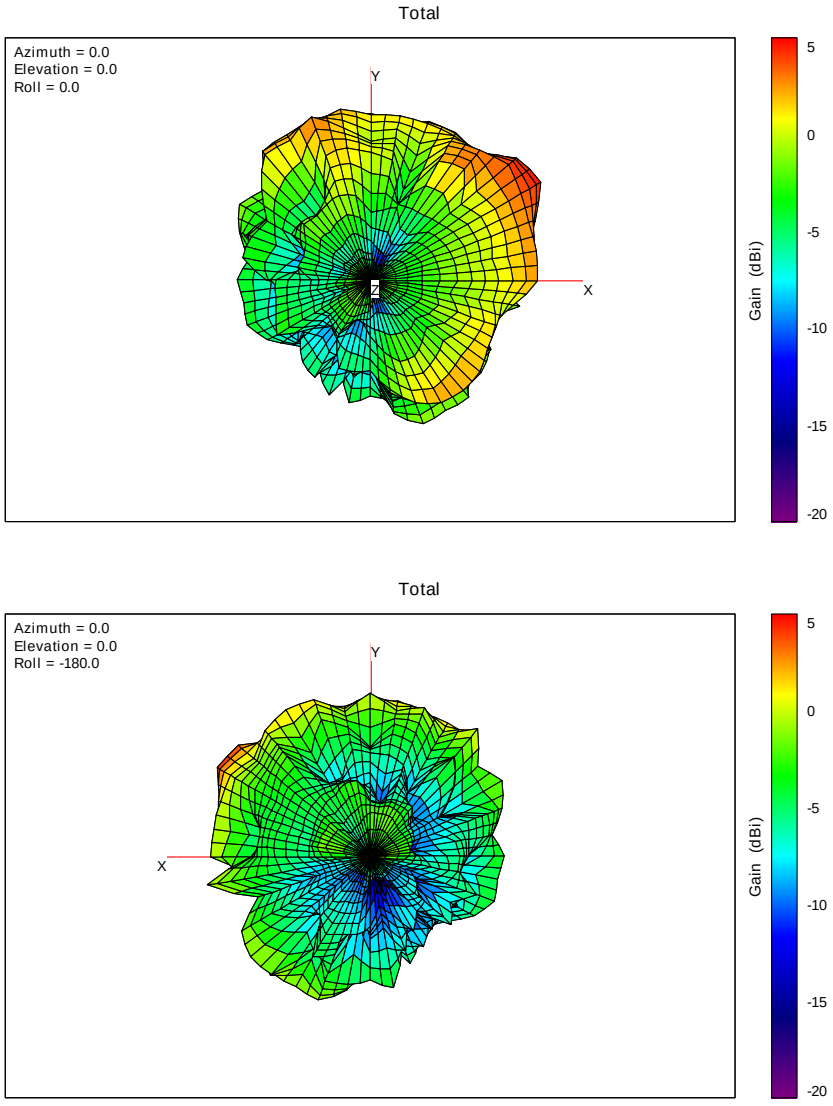


3D Free Space Gain Pattern 6875MHz

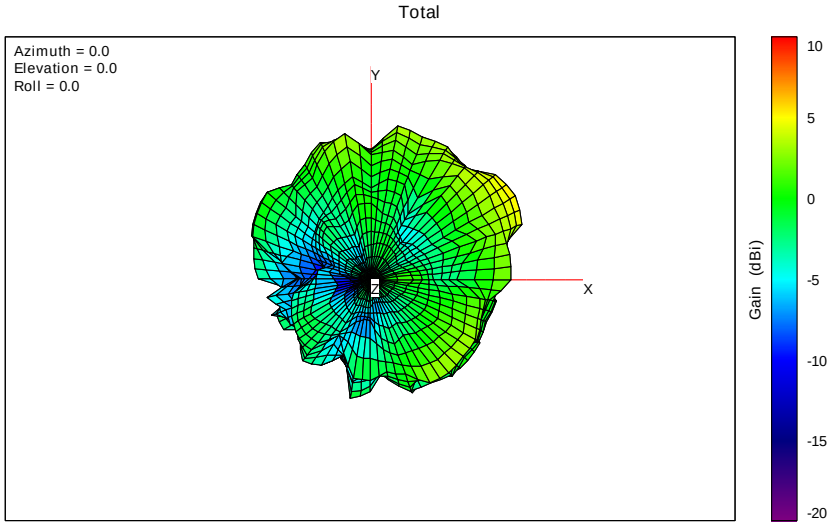


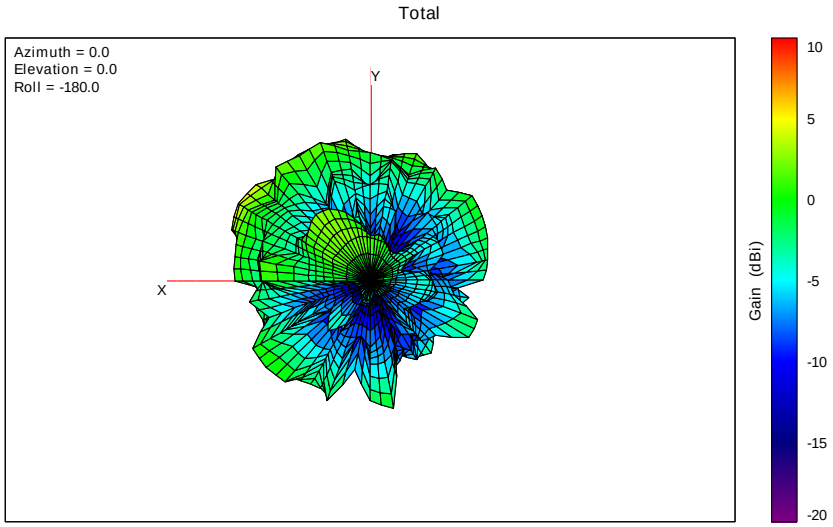
3D Free Space Gain Pattern 7115MHz

WLAN 6GHz Antenna 4

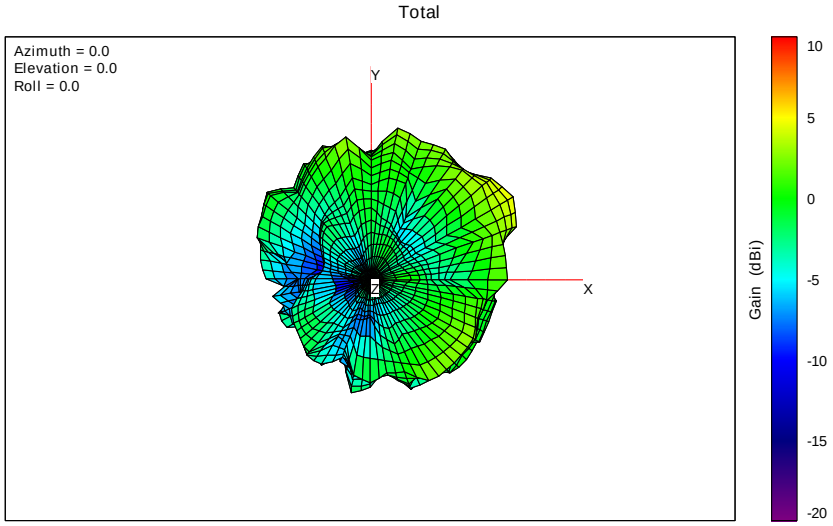


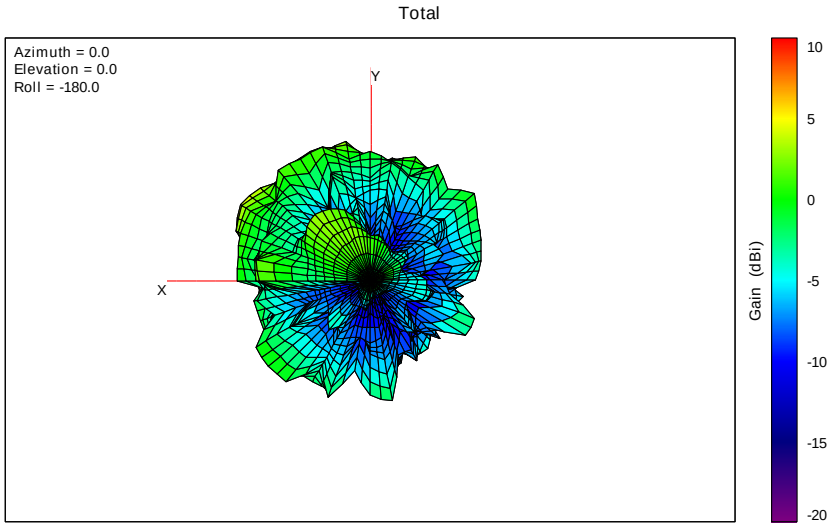
3D Free Space Gain Pattern 6175MHz



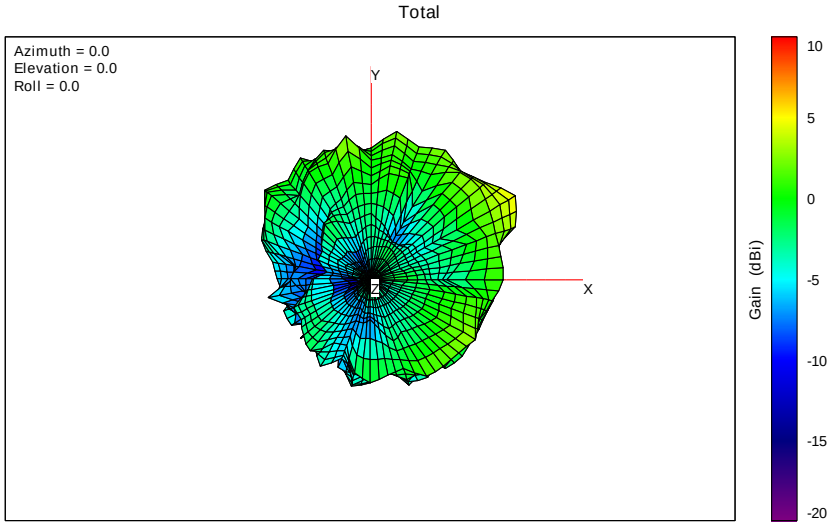


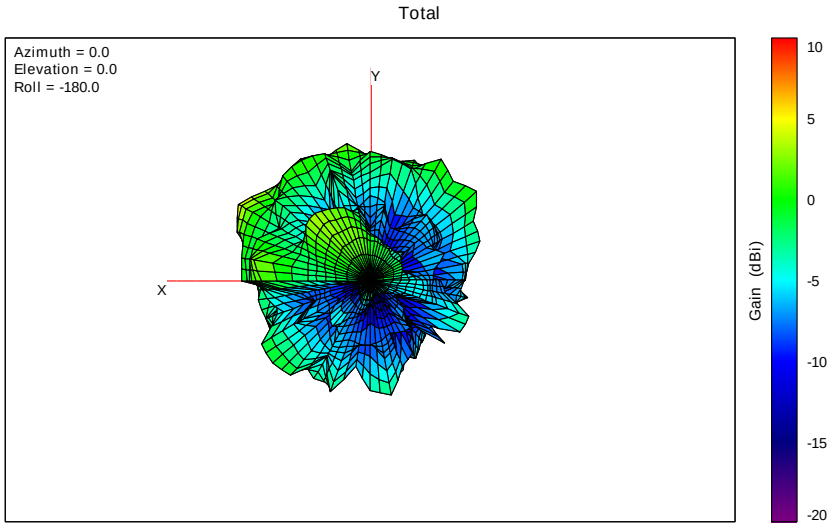
3D Free Space Gain Pattern 6435MHz



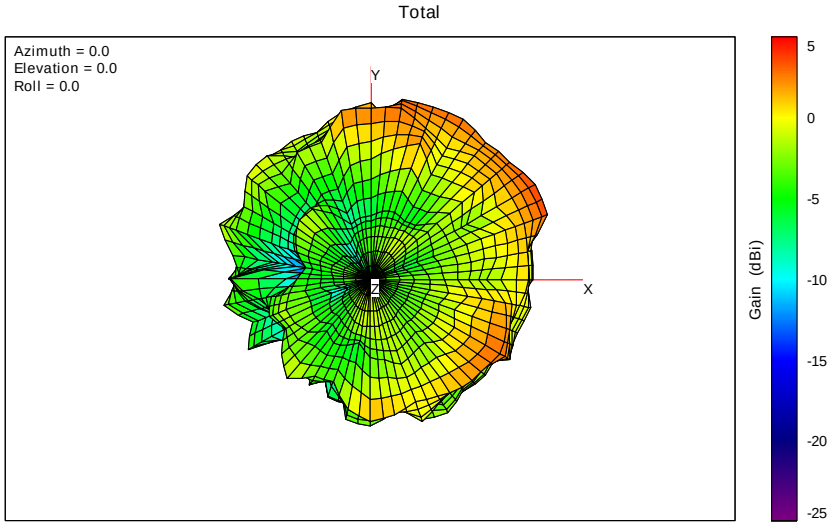


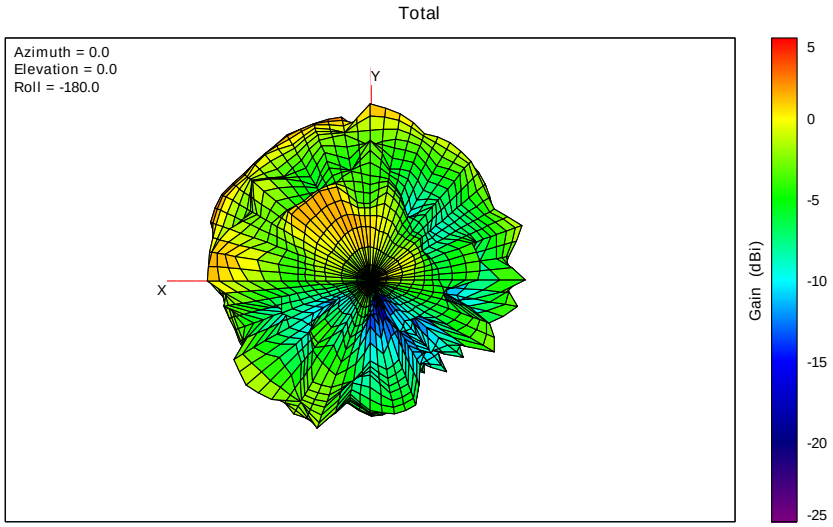
3D Free Space Gain Pattern 6475MHz



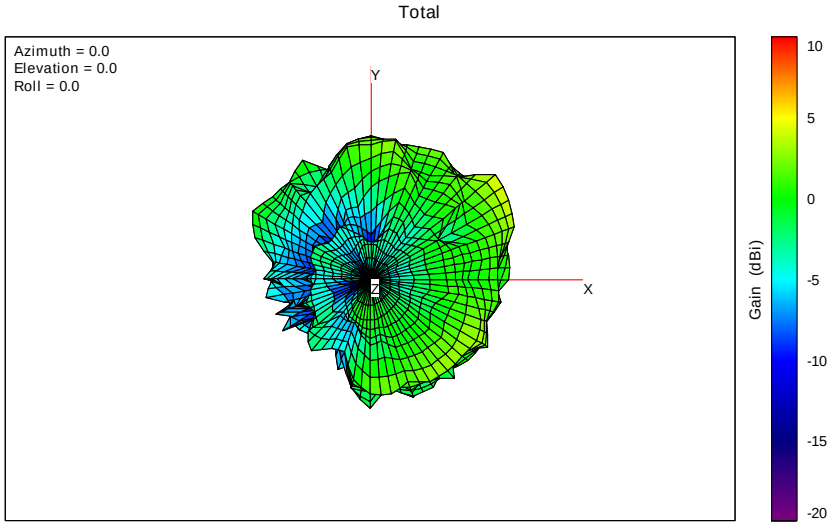


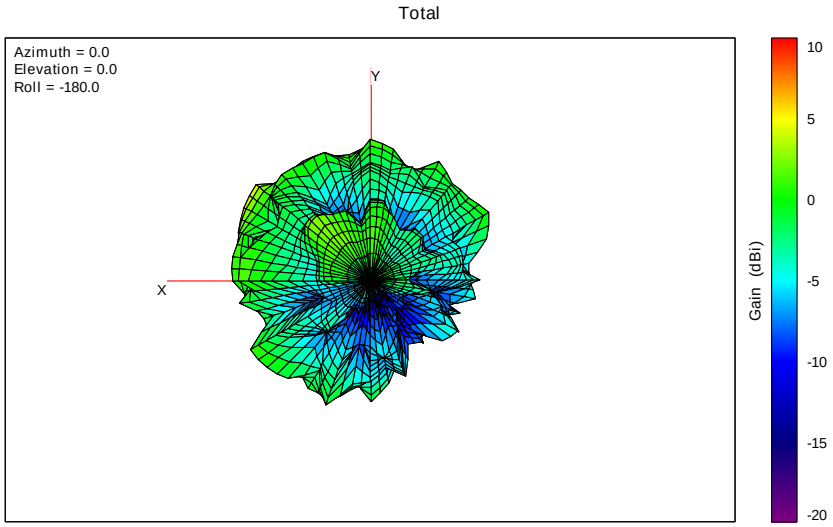
3D Free Space Gain Pattern 6535MHz



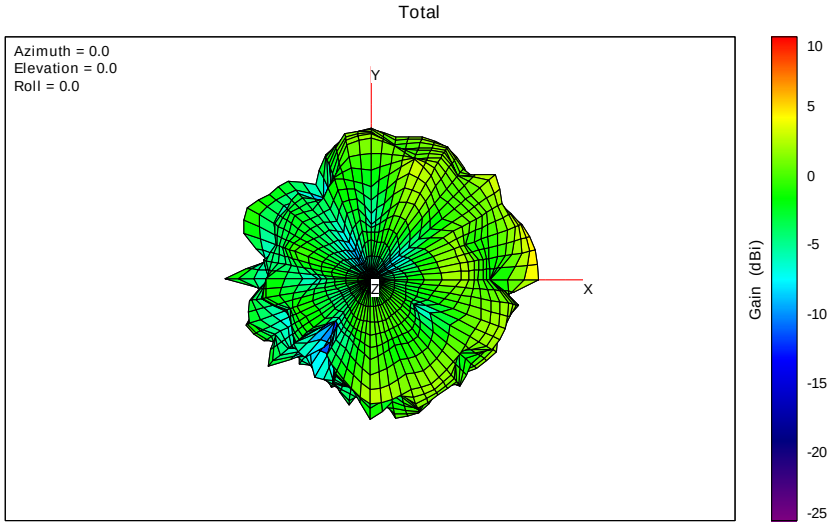


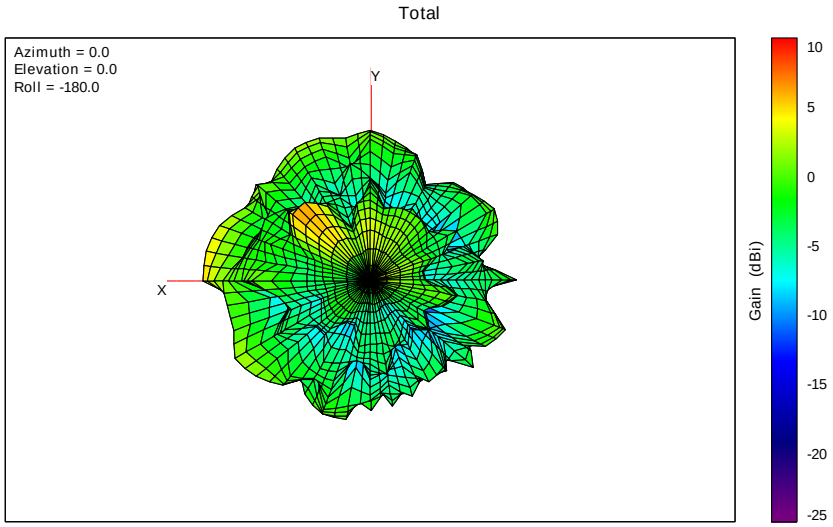
3D Free Space Gain Pattern 6695MHz





3D Free Space Gain Pattern 6875MHz





3D Free Space Gain Pattern 7115MHz