



OTA Antenna Performance Data Summary

APPLICANT : ESPRESSIF SYSTEMS (SHANGHAI) CO., LTD
EQUIPMENT : ESP8684-WROOM-06C
BRAND NAME : ESPRESSIF
MODEL NAME : ESP-ANT E
DEVICE RECEIVING DATE : Aug. 11, 2023
TEST DATE(S) : Aug. 11, 2023

Reviewed by:

Feynman Liu / Vice Manager

Approved by:

Kevin Chu / Manager

Sporton International Inc. (Kunshan)

***No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China***



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Revision History

DATA NO.	VERSION	DESCRIPTION	ISSUED DATE
OQ381713	1.0	Initial issue of this report	Jan. 25, 2024
OQ381713	2.0	1. Add General Information 2. Add Test Engineer and Measurement Environment 3. Add Test procedure	Mar. 11, 2024
OQ381713	3.0	Revise section 2.1. about Antenna Type This report is an update version, replacing the report issued on Mar. 11, 2024.	Sep. 23, 2024



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
Test Engineer	Emma Zhou

1.2 Applicant

Company Name	ESPRESSIF SYSTEMS (SHANGHAI) CO., LTD
Address	Suite 204, Block 2, 690 Bibo Road, Zhang Jiang Hi-Tech Park, Shanghai, China

2. General Information

2.1 Description of Device Under Test (DUT)

Product Feature & Specification			
Equipment	ESP8684-WROOM-06C		
Brand Name	ESPRESSIF		
Model Name	ESP-ANT E		
DUT Dimension (mm)	L: 15.80	W: 5.57	H: 1.00
Antenna Type	PCB Antenna		
HW Version	v1.0		
SW Version	v1.0		



3. Measurement Environment

3.1 Ambient Condition

Temperature (°C) :	25±5°C	Humidity (%) :	<60%
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3.2 Test Equipment List

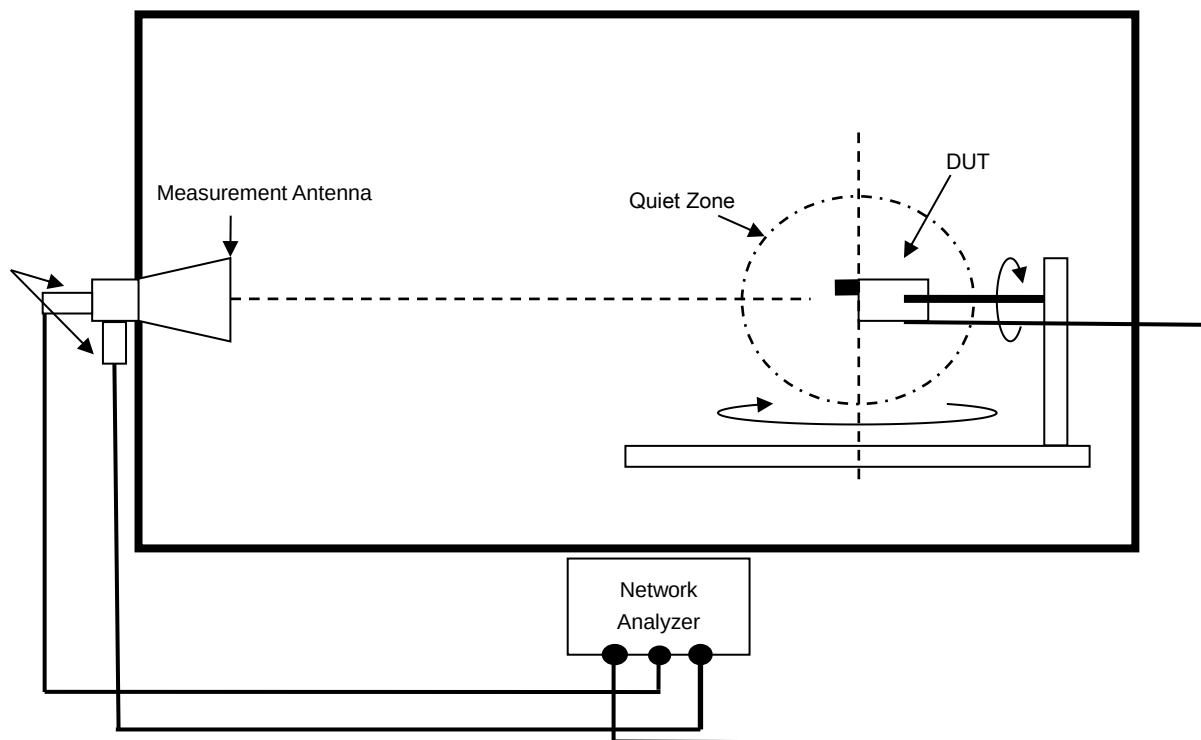
Name	Manufacturer	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
Network Analyzer	Agilent	E5071C	MY46317418	2023/01/05	2024/01/04
Switch Control	ETS-Lindgren	EMCenter	00160100	NCR	NCR
Diagonal Dual Polarized Horn	ETS-Lindgren	3164-08	00099205	NCR	NCR
Multi-Devices Controller	ETS-Lindgren	2090-OPT1	00066604	NCR	NCR
Medium Duty Holder	ETS-Lindgren	2015	N/A	NCR	NCR
Sleeve Dipole Antenna	ETS-Lindgren	EMCO 3126-2500	00203963	2022/10/7	2024/10/6

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

4. 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

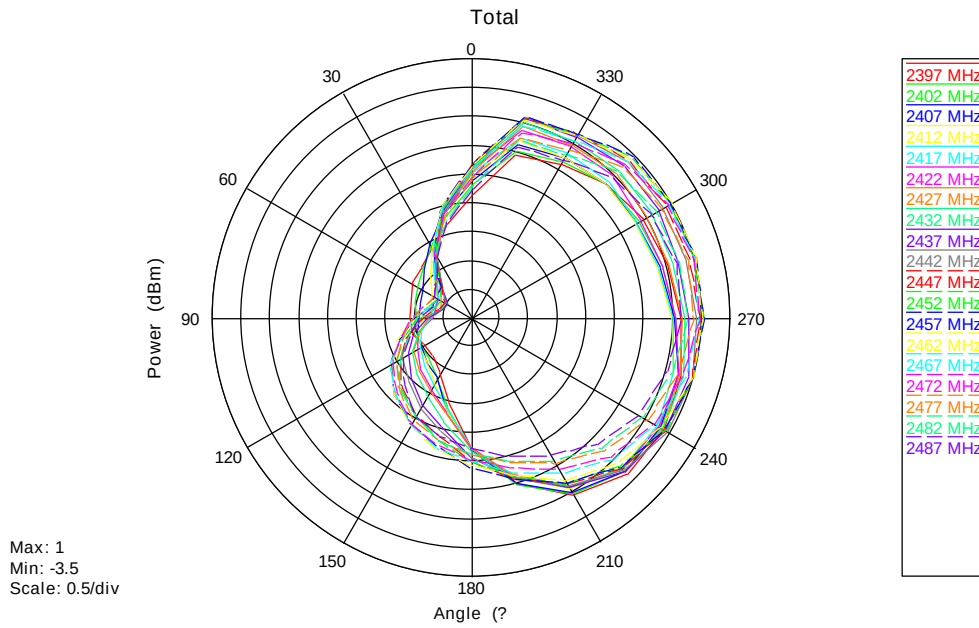
5. Summary of Test Results

Test / Position	Gain / Free Space																		
Frequency (MHz)	2397	2402	2407	2412	2417	2422	2427	2432	2437	2442	2447	2452	2457	2462	2467	2472	2477	2482	2487
Avg Gain	-1.7	-1.7	-1.6	-1.7	-1.6	-1.6	-1.5	-1.5	-1.4	-1.4	-1.3	-1.3	-1.2	-1.2	-1.3	-1.3	-1.4	-1.4	-1.5
Peak Gain	1.4	1.5	1.5	1.5	1.6	1.7	1.8	1.9	2.1	2.2	2.3	2.4	2.5	2.6	2.6	2.6	2.7	2.7	2.7
Directivity	3.1	3.1	3.1	3.2	3.2	3.3	3.4	3.4	3.5	3.5	3.6	3.7	3.7	3.8	3.9	4.0	4.1	4.1	4.2
Efficiency	-1.7	-1.7	-1.6	-1.7	-1.6	-1.6	-1.5	-1.5	-1.4	-1.4	-1.3	-1.3	-1.2	-1.2	-1.3	-1.3	-1.4	-1.4	-1.5
Efficiency (%)	67.3	68.0	68.5	68.3	68.5	69.5	70.1	71.0	72.4	73.1	73.9	74.4	75.3	75.1	74.2	73.7	72.3	71.6	70.6

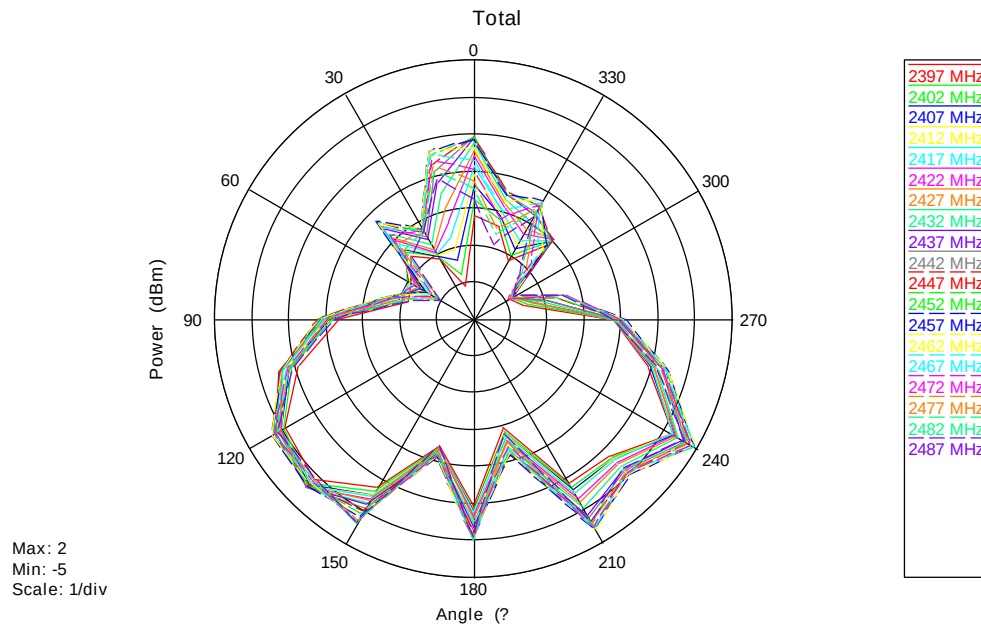
6. 2D/3D Free Space Pattern Plots

Please refer to as below.

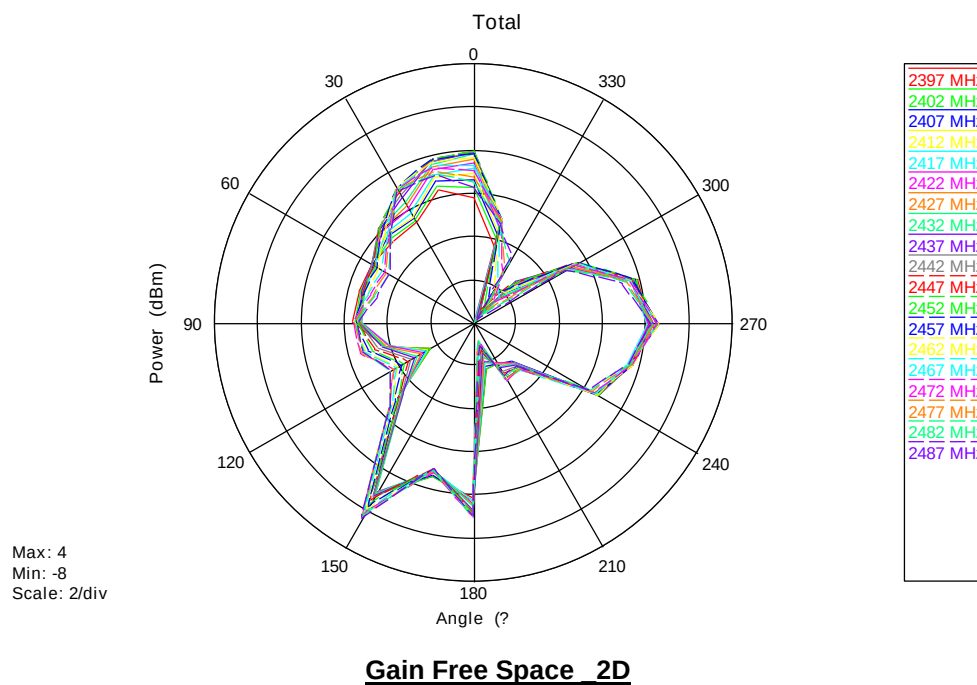
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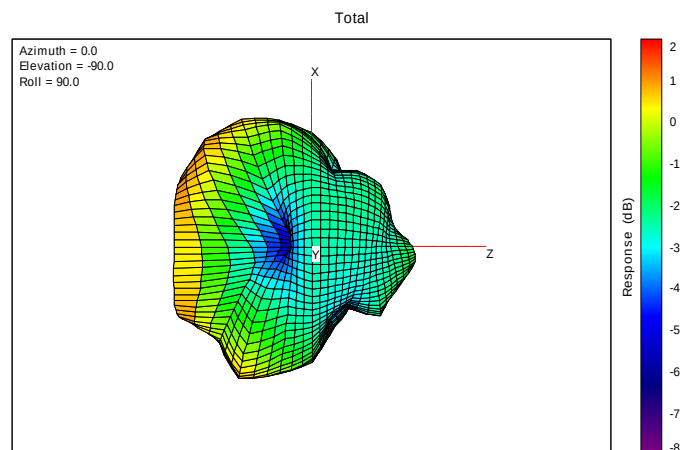
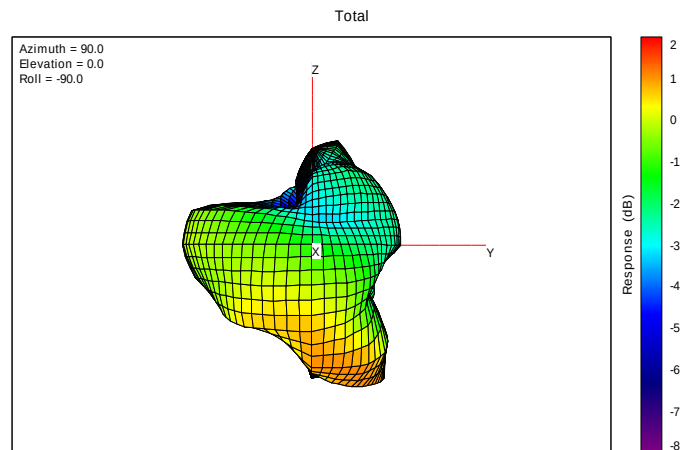
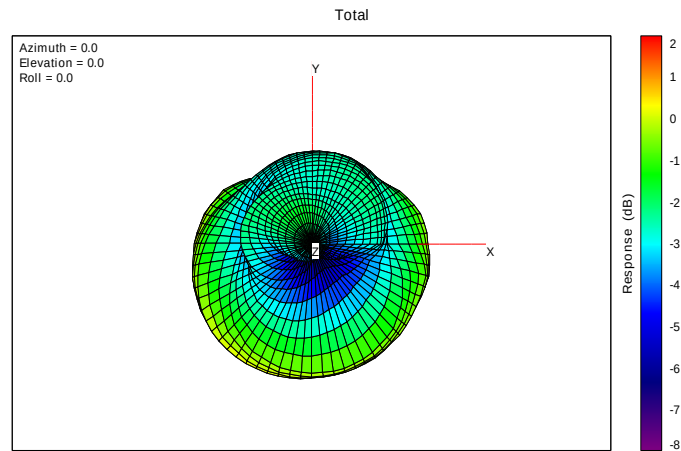


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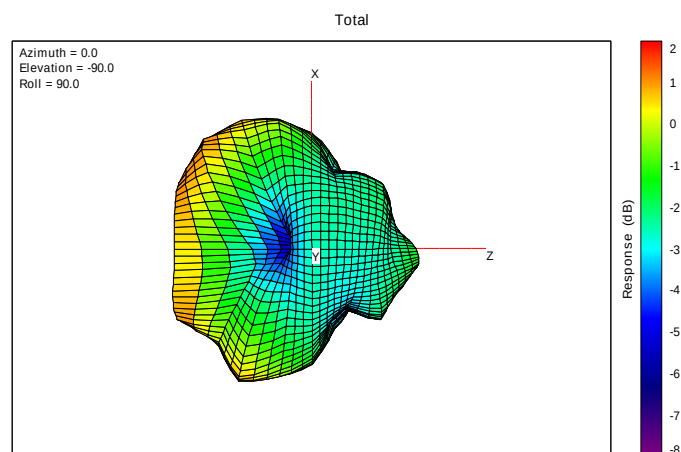
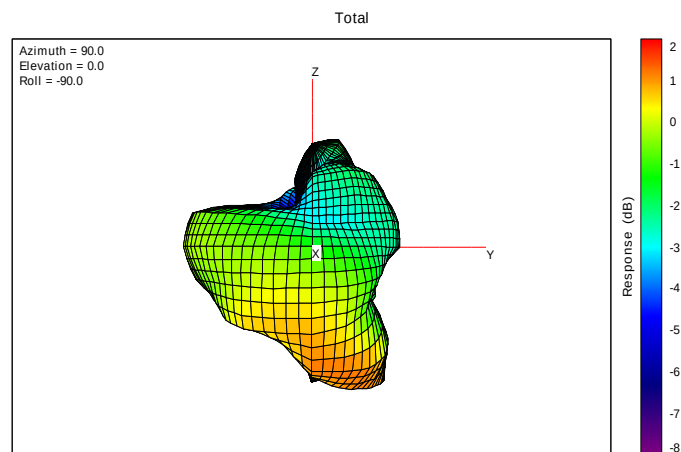
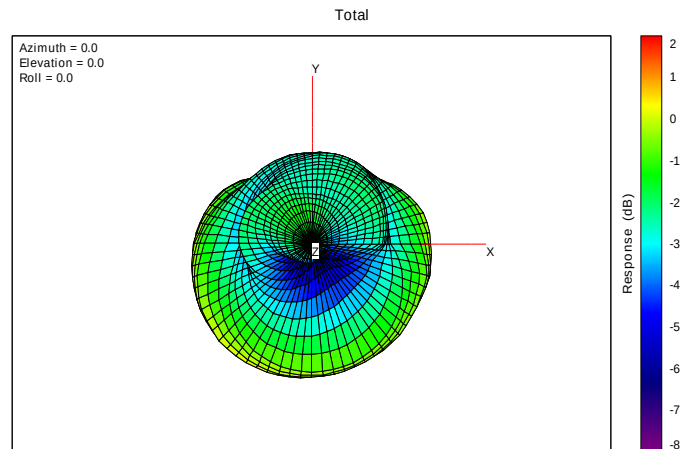


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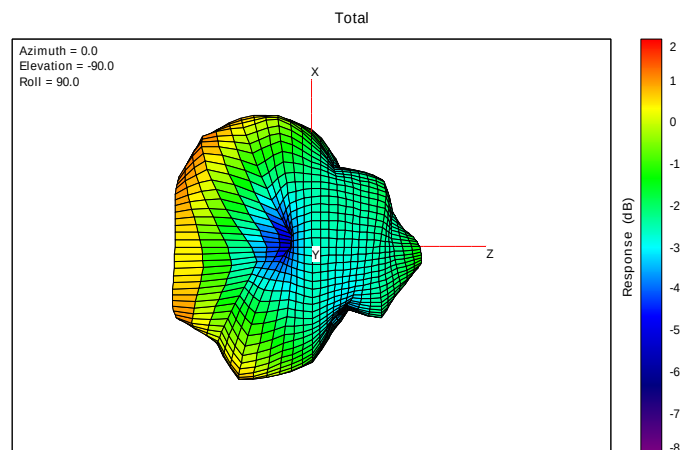
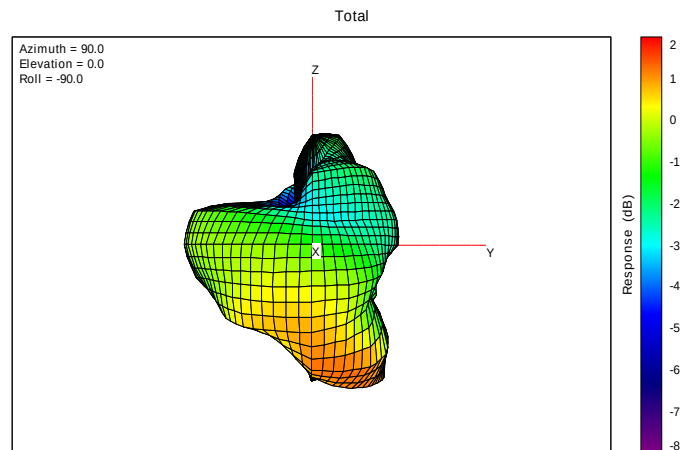
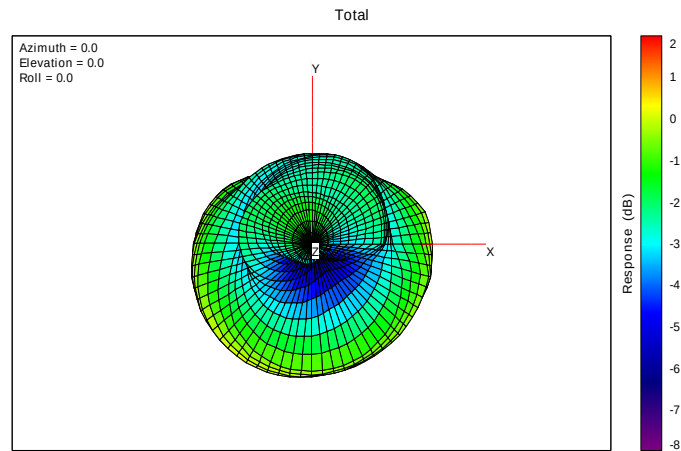




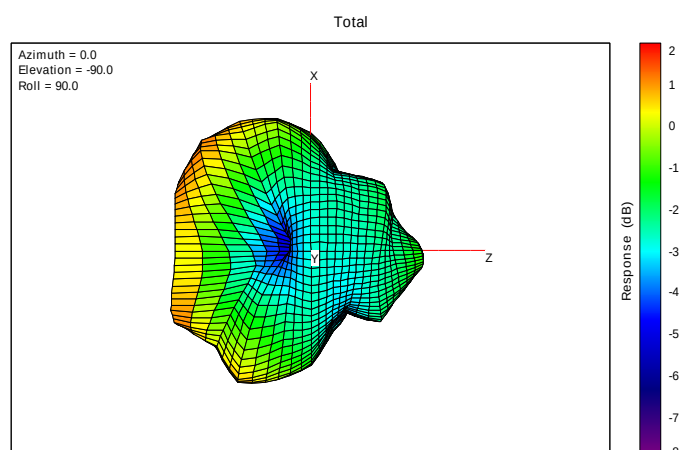
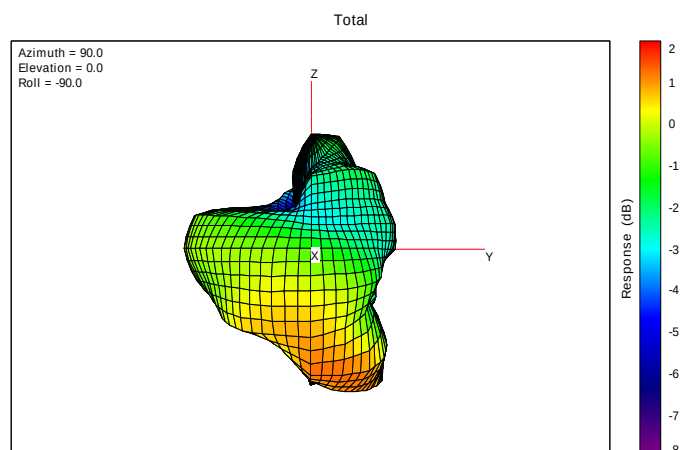
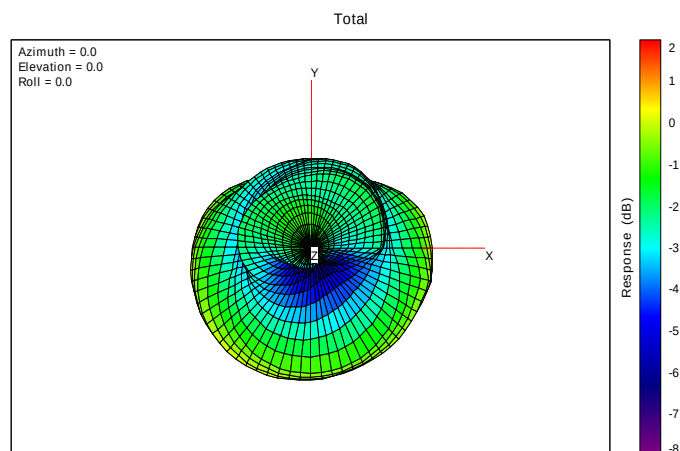
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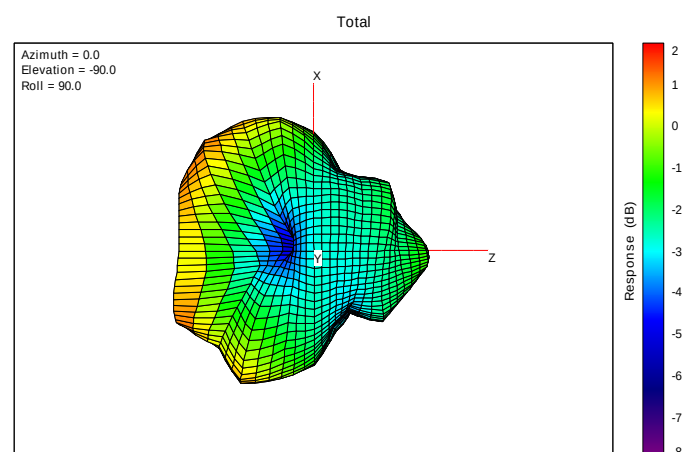
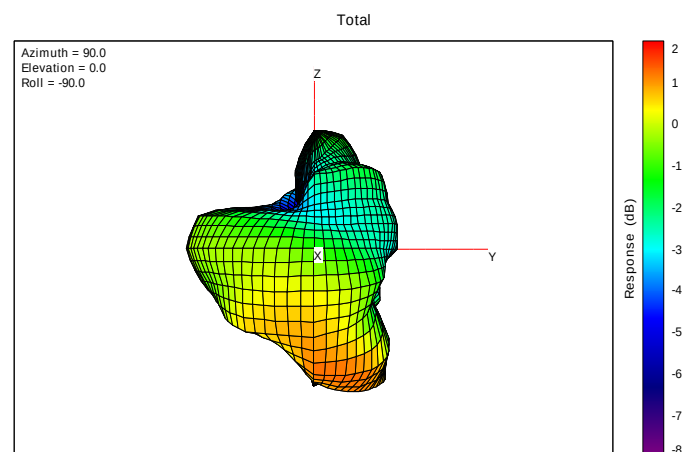
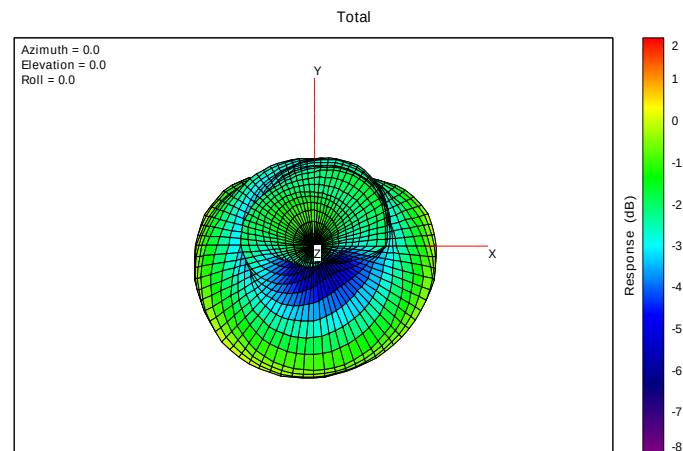
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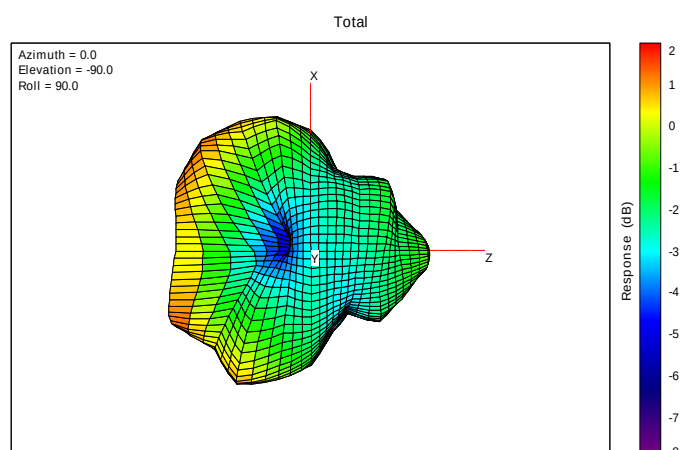
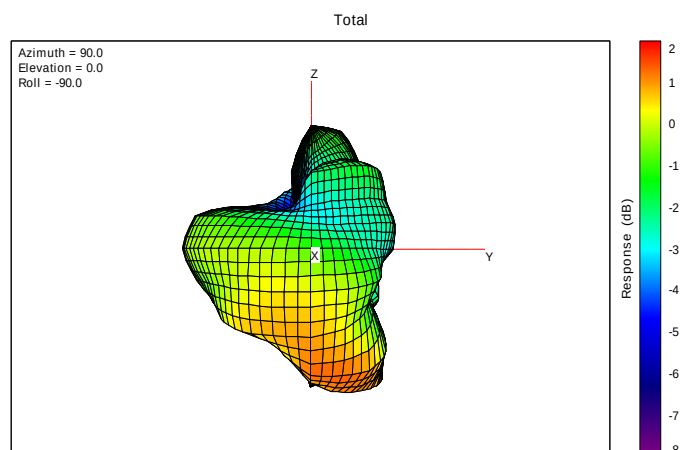
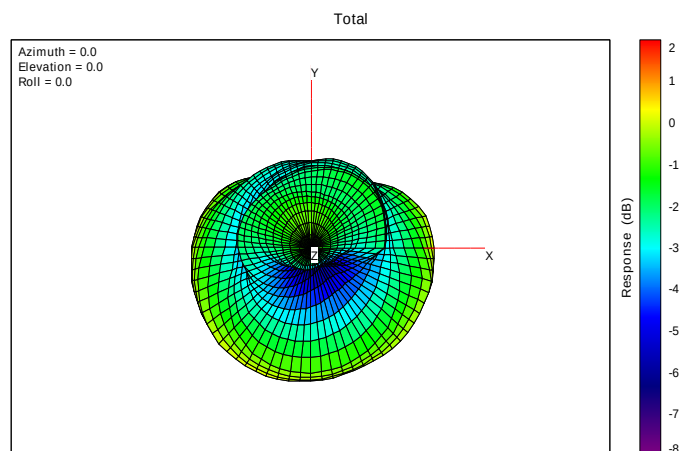
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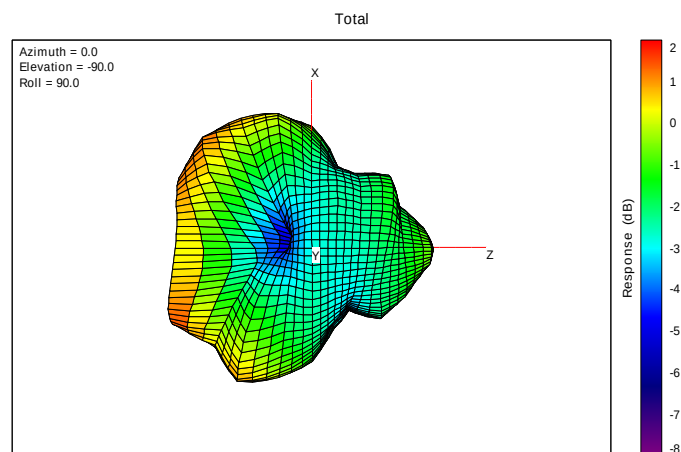
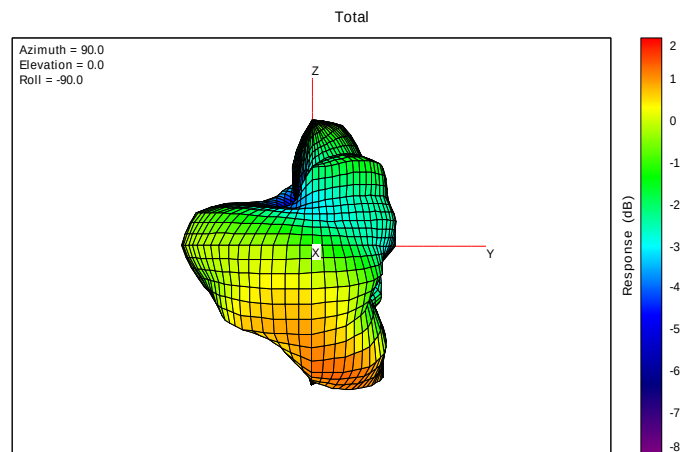
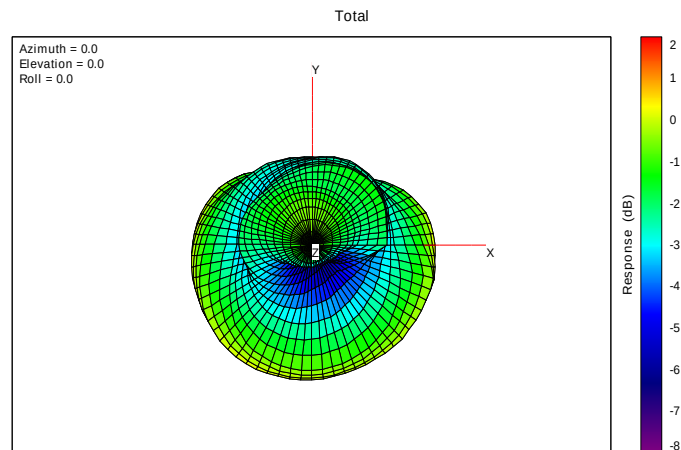
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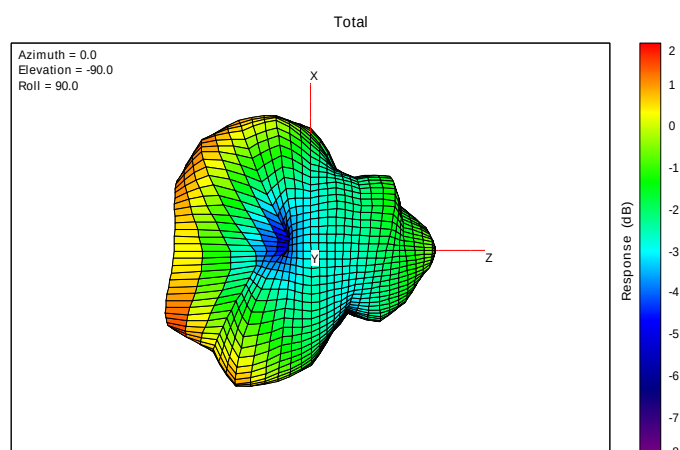
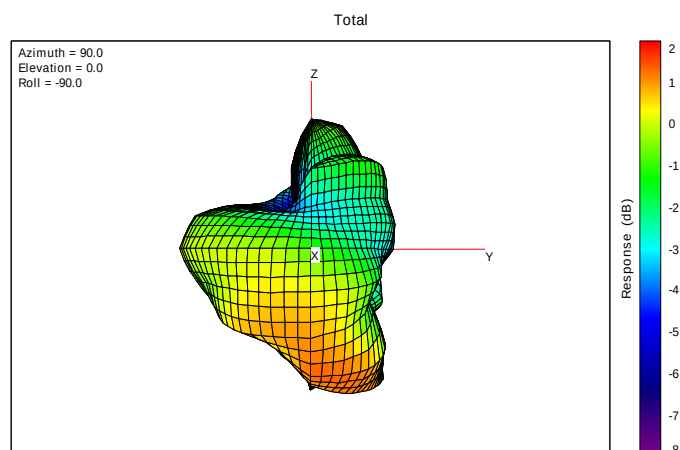
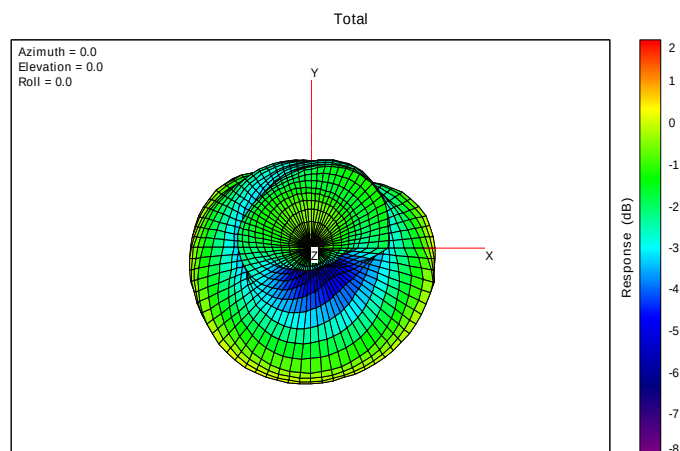
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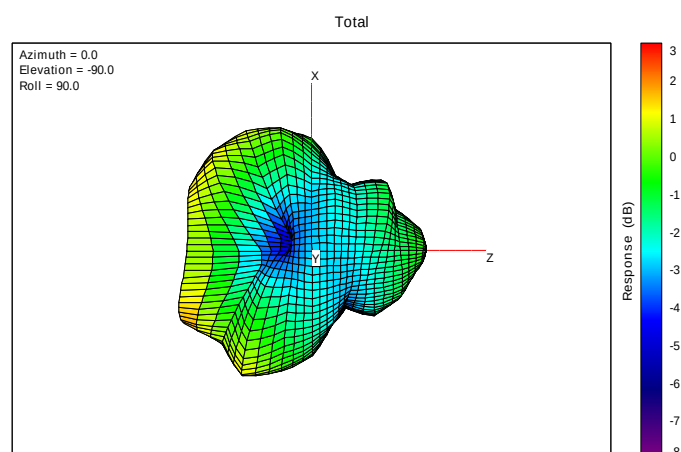
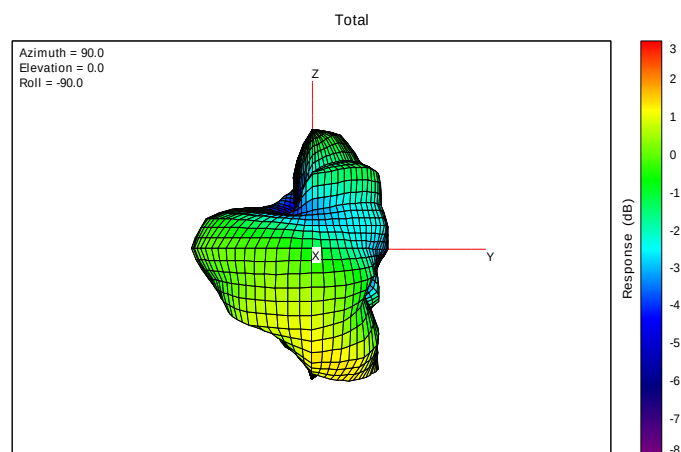
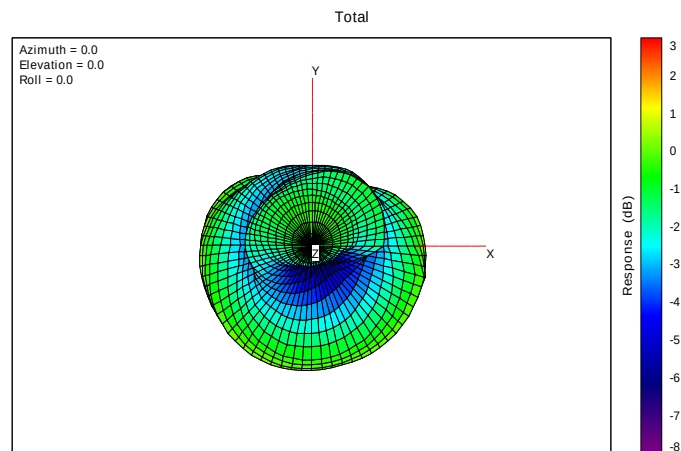
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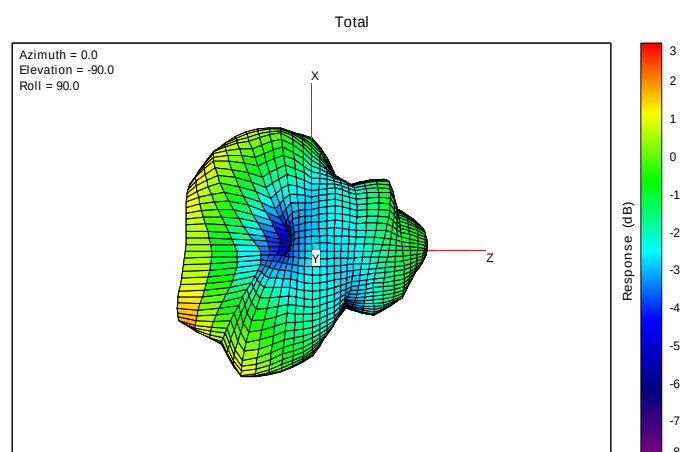
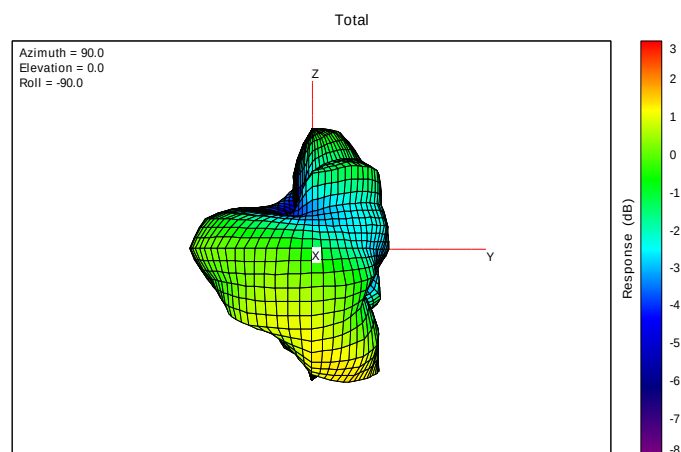
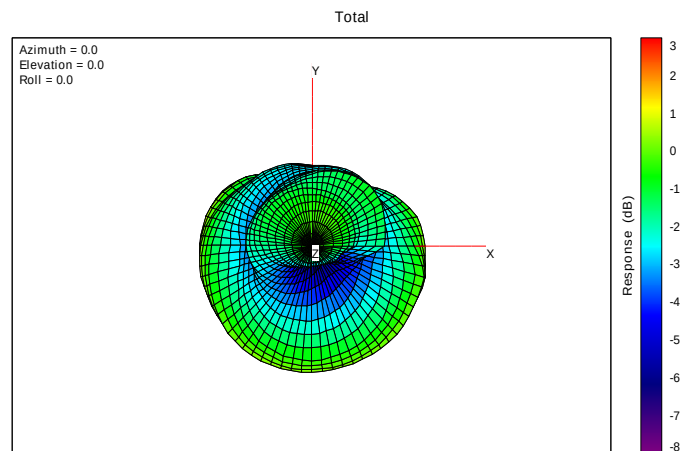
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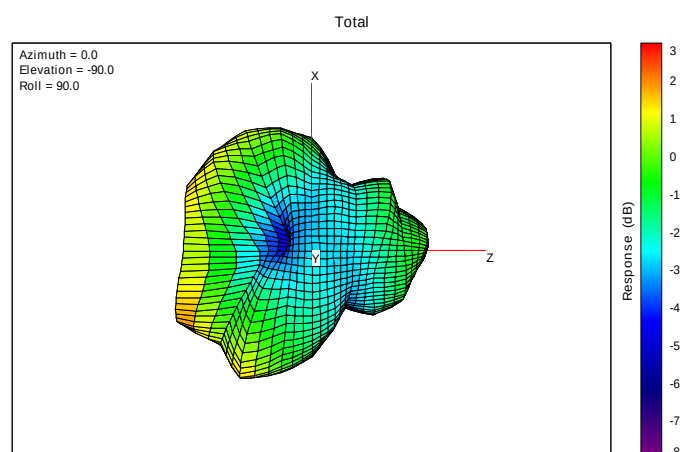
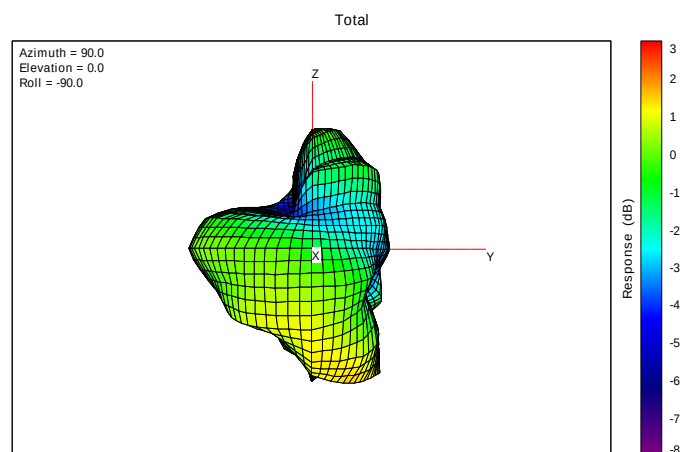
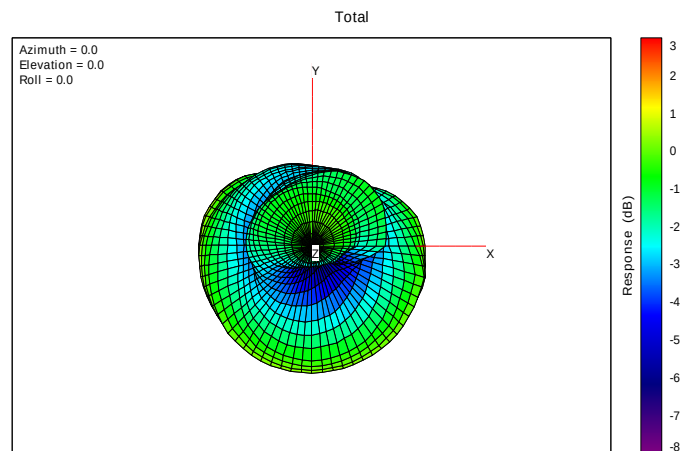
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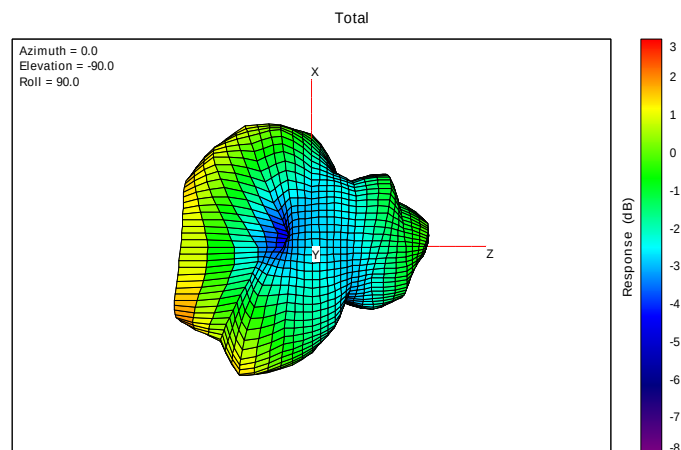
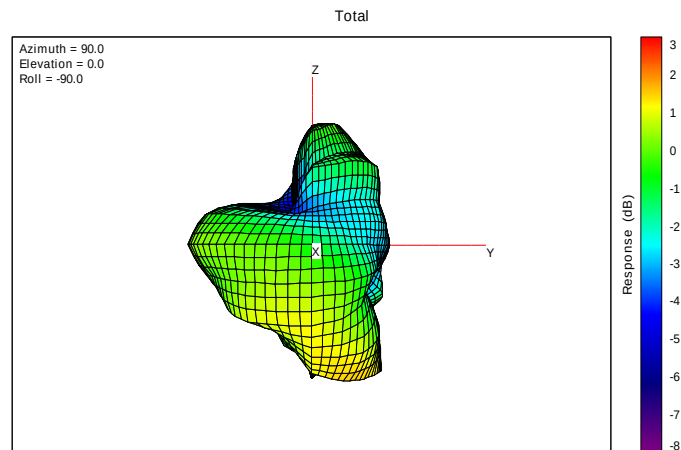
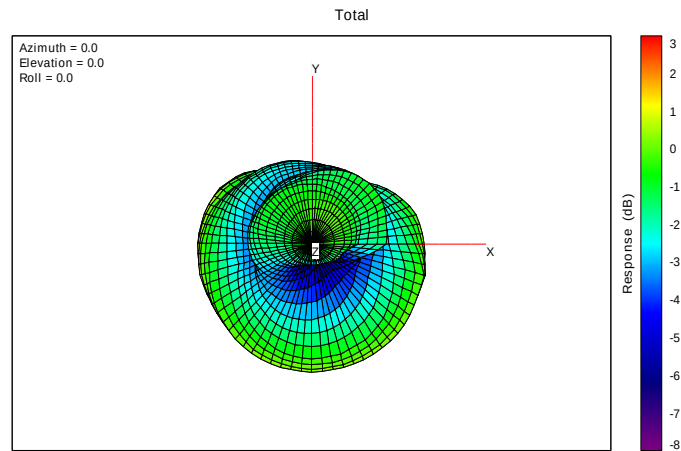
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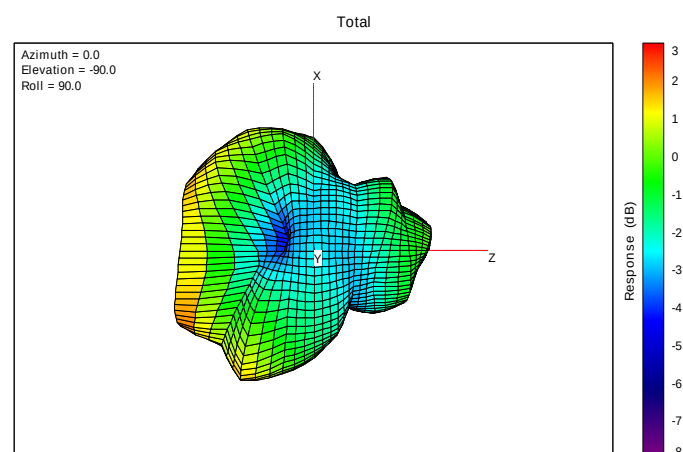
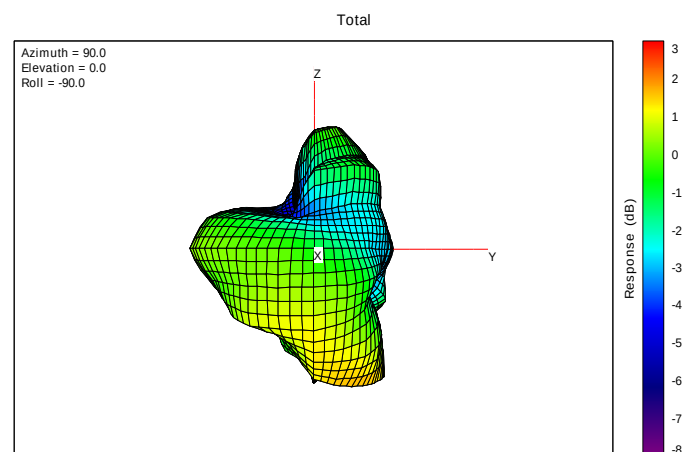
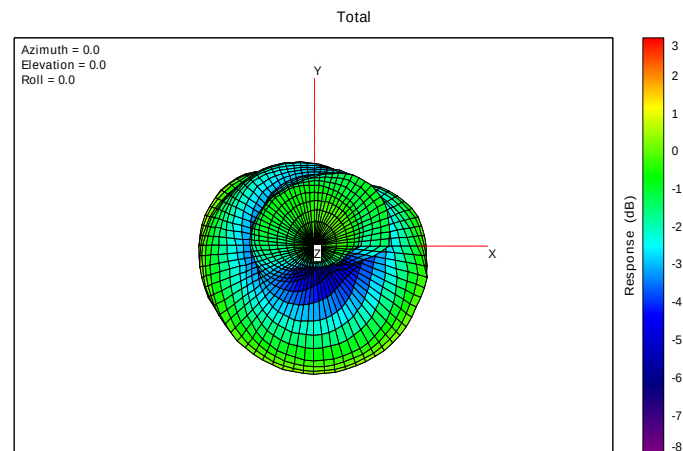
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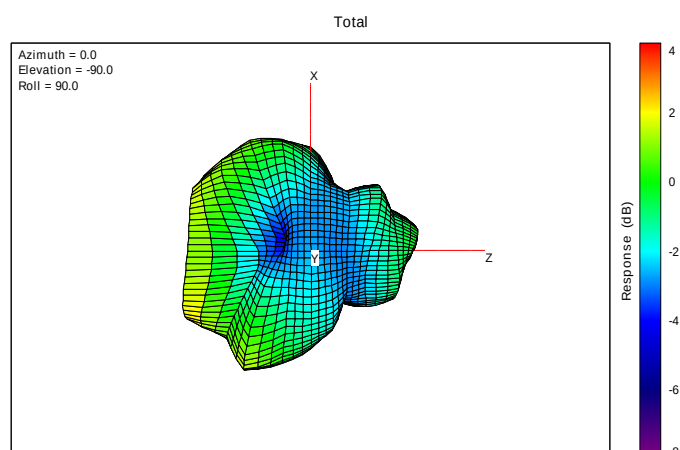
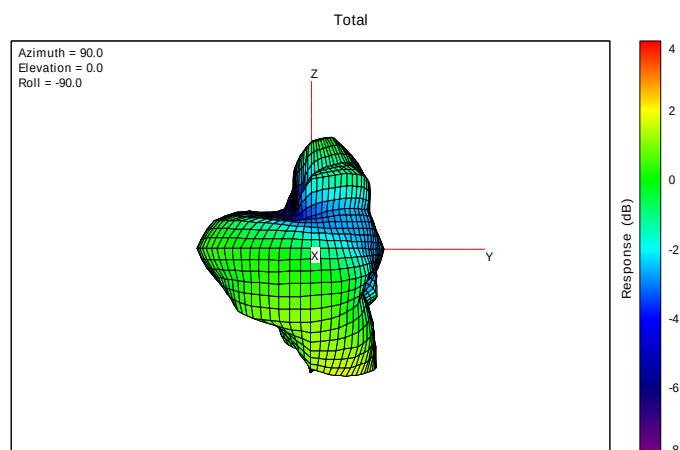
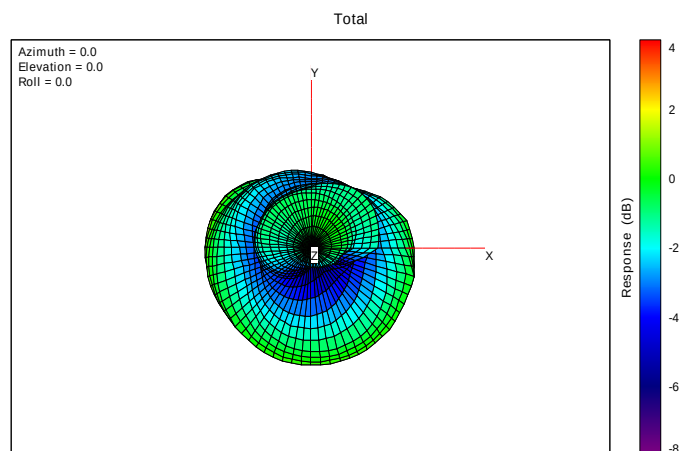
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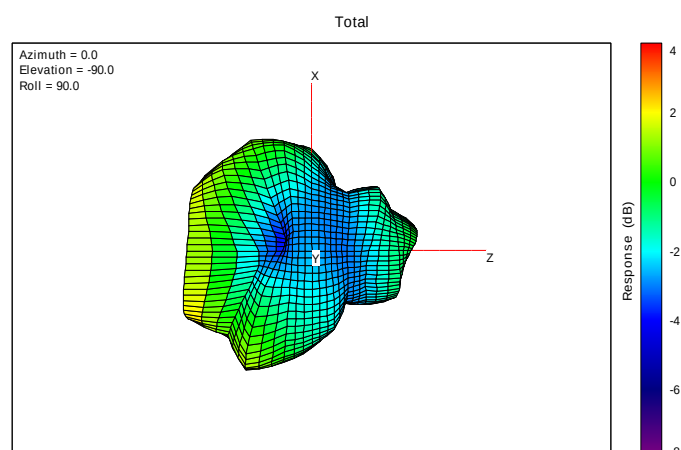
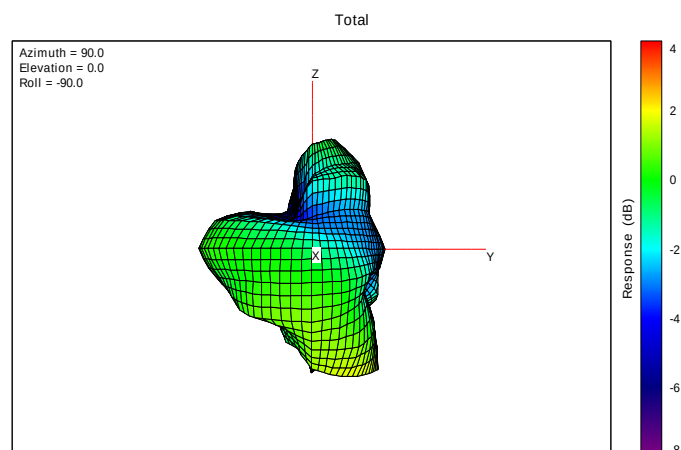
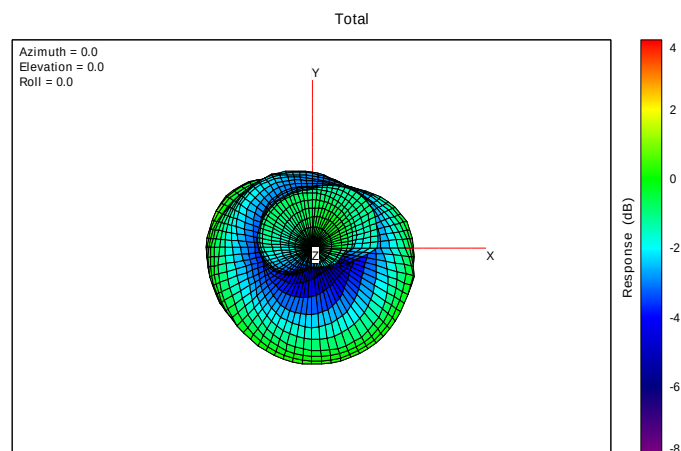
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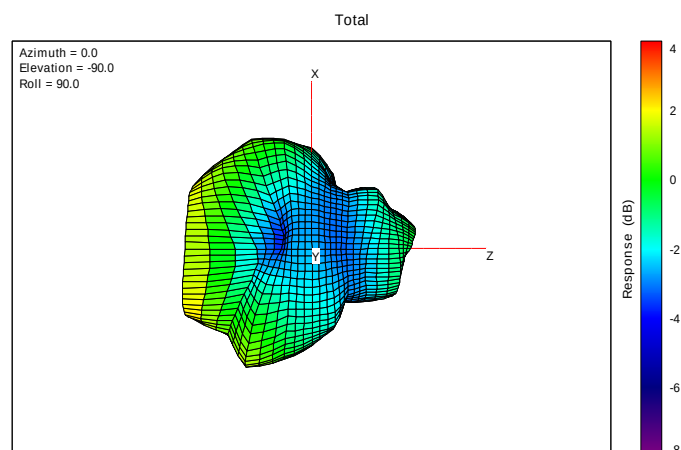
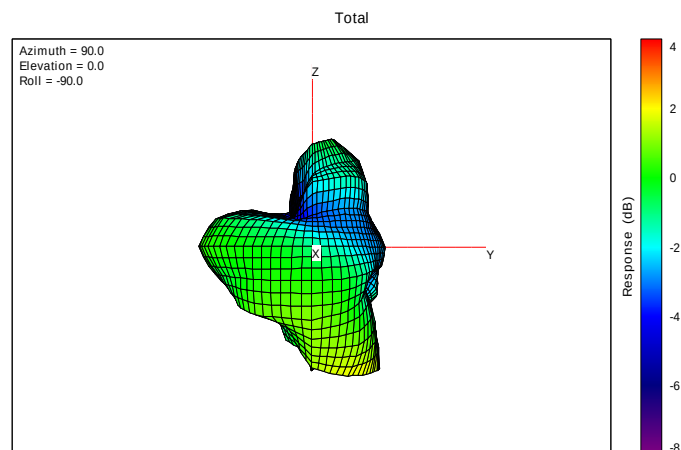
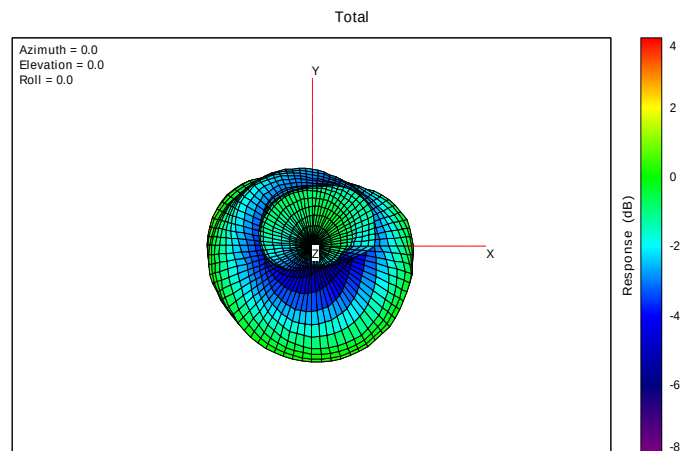
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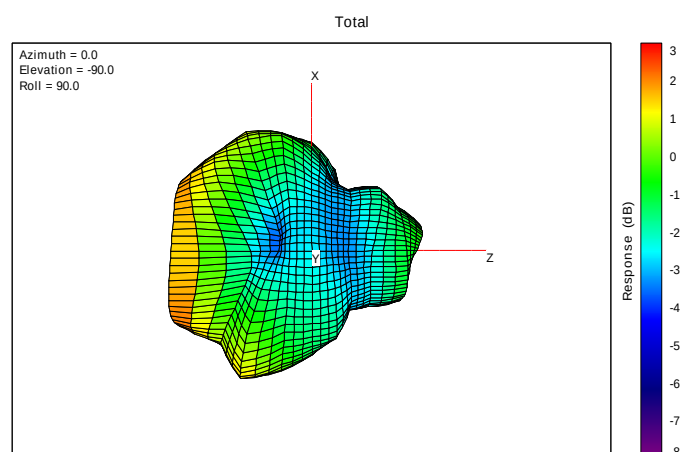
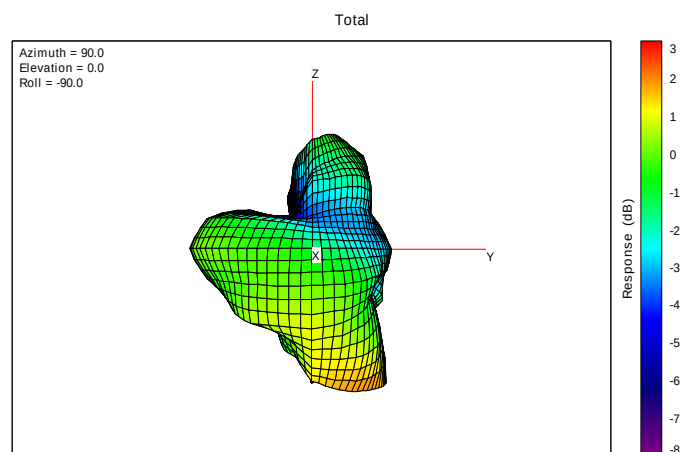
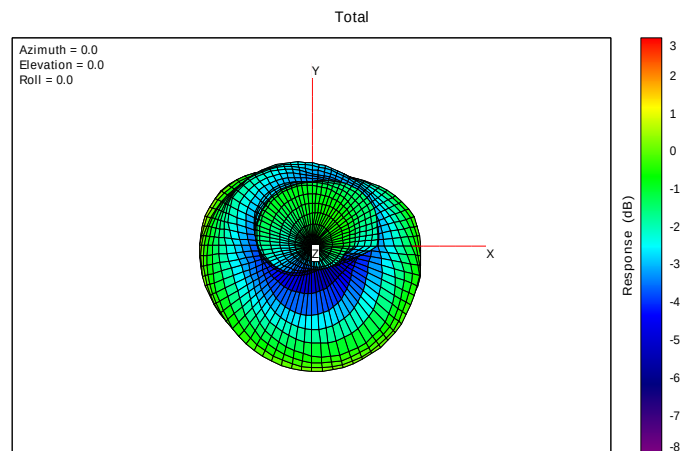
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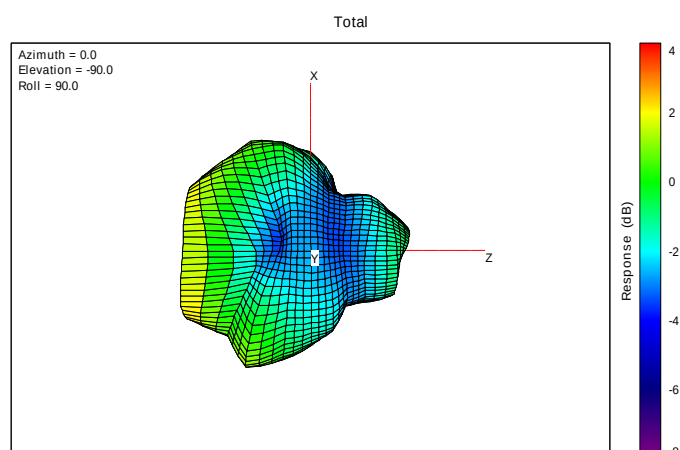
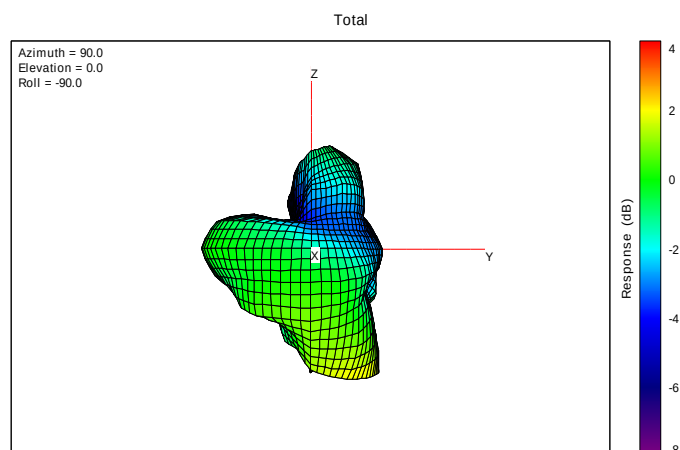
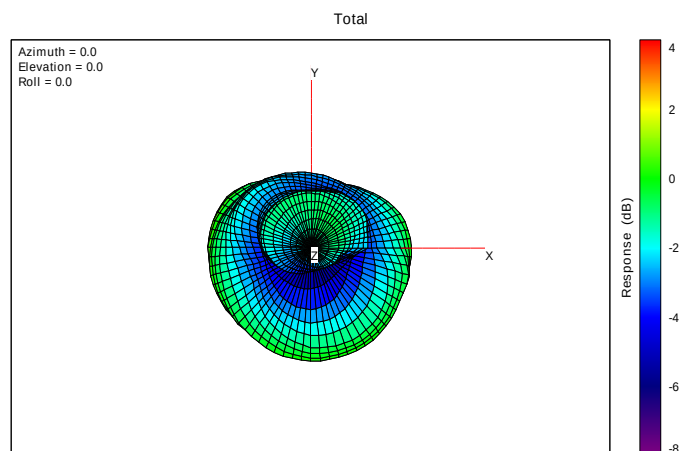
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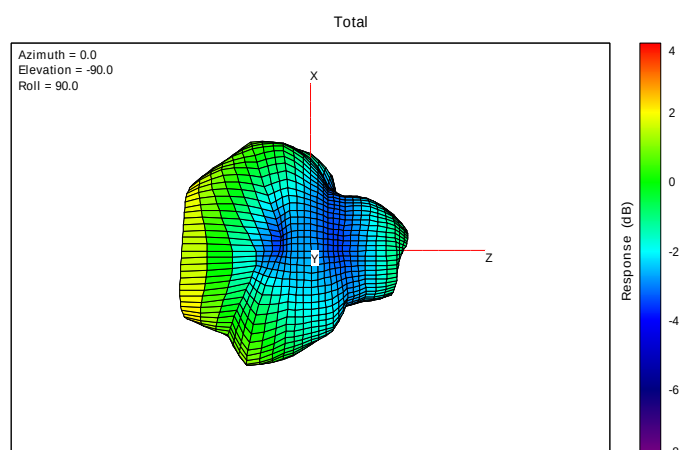
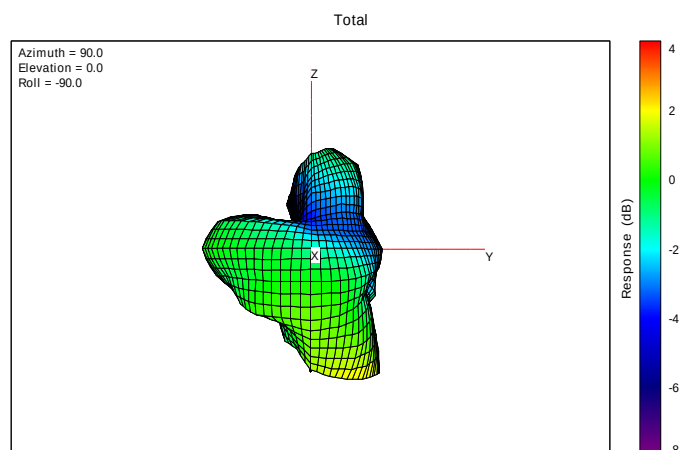
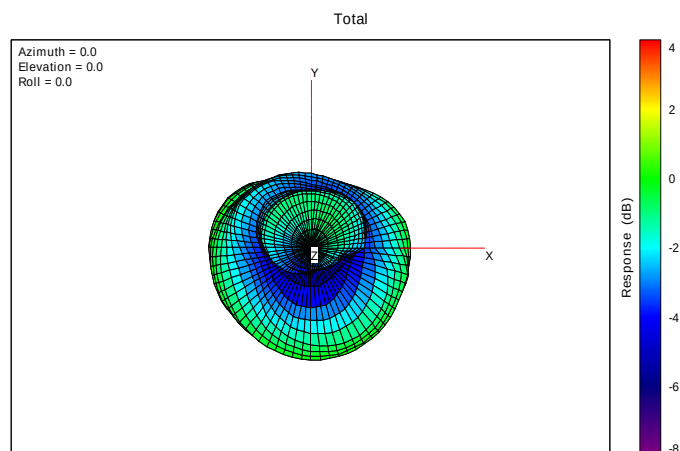
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Gain Free Space 2477



Gain Free Space 2482



Gain Free Space 2487

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