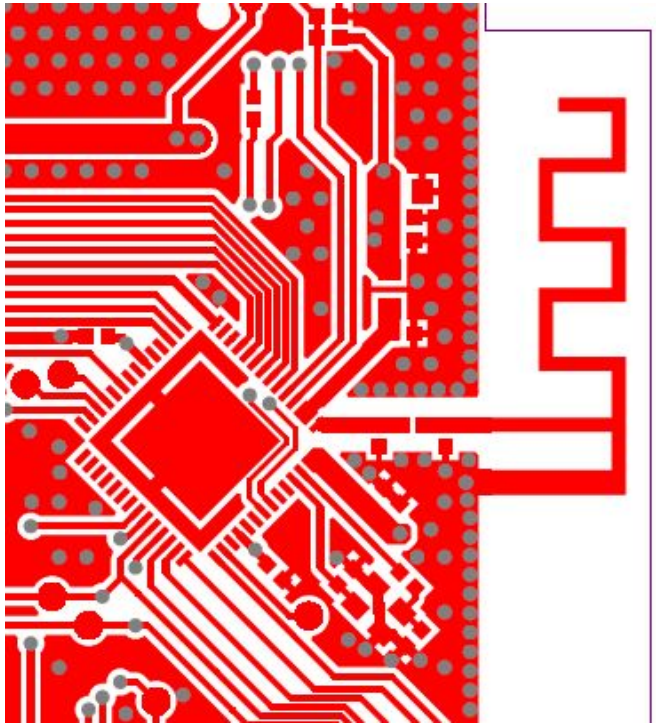
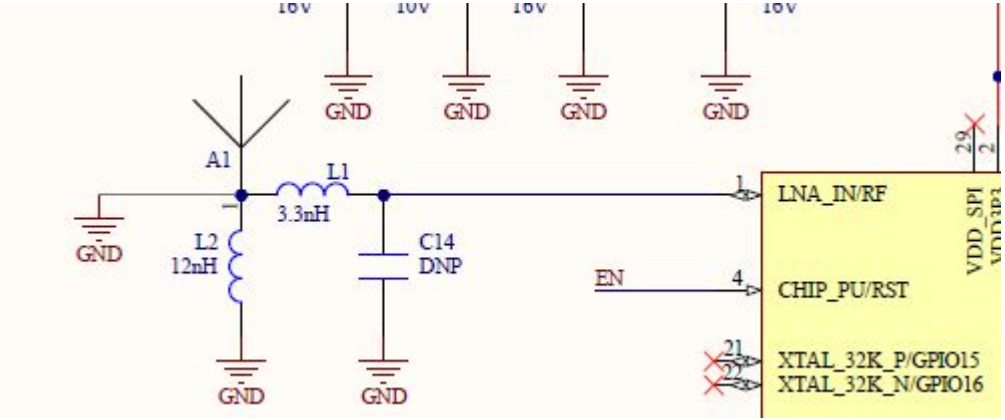
Paotscan - Antenna specification

OMWAVE
18 chemin de la Violette - Bat C1 - 31240 L'Union
France





Model	Integrated antenna
Reference	A15257-2G4
Wave Pattern	2,4 GHz (see chart)
Antenna gain	4,3 dBi
Name and address of Manufacturer	Safe PCB
Antenna size	15 * 11,5 *1,6 mm

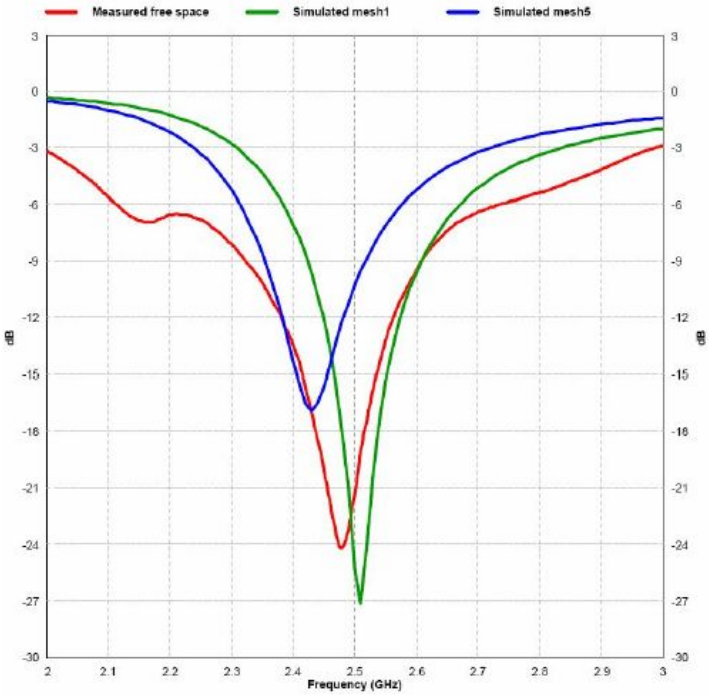


Figure 2: Comparison of Simulation and Measurements Results

OTA Test Results for Frequency 2400.000 MHz

OTA Evaluation Results:

Total Radiated Power	-1.70 dBm
Peak EIRP	4.33 dBm
Directivity	6.03 dBi
Efficiency	-1.70 dB
Efficiency	67.59 %
Gain	4.33 dBi
NHPRP 45°	-3.56 dBm
NHPRP 45° / TRP	-1.85 dB
NHPRP 45° / TRP	65.24 %
NHPRP 30°	-5.29 dBm
NHPRP 30° / TRP	-3.59 dB
NHPRP 30° / TRP	43.77 %
NHPRP 22.5°	-6.55 dBm
NHPRP 22.5° / TRP	-4.85 dB
NHPRP 22.5° / TRP	32.71 %
UHRP	-3.24 dBm
UHRP / TRP	-1.54 dB
UHRP / TRP	70.18 %
LHRP	-6.96 dBm
LHRP / TRP	-5.26 dB
LHRP / TRP	29.82 %
Front/Back Ratio	9.89
PhiBW	171.4 deg
PhiBW Up	129.7 deg
PhiBW Down	41.7 deg
ThetaBW	80.0 deg
ThetaBW Up	39.9 deg
ThetaBW Down	40.1 deg
Boresight Phi	45 deg
Boresight Theta	45 deg
Maximum Power	4.33 dBm
Minimum Power	-11.30 dBm
Average Power	-1.41 dBm
Max/Min Ratio	15.63 dB
Max/Avg Ratio	5.74 dB
Min/Avg Ratio	-9.89 dB
Best Single Value	3.68 dBm
Best Position	Phi = 30 deg; Theta = 60 deg; Pol = Ver

Test Report

OTA Test Results for Frequency 2400.000 MHz

OTA Evaluation Results:

Total Radiated Power	-1.70 dBm
Peak EIRP	4.33 dBm
Directivity	6.03 dBi
Efficiency	-1.70 dB
Efficiency	67.59 %
Gain	4.33 dBi
NHPRP 45°	-3.56 dBm
NHPRP 45° / TRP	-1.85 dB
NHPRP 45° / TRP	65.24 %
NHPRP 30°	-5.29 dBm
NHPRP 30° / TRP	-3.59 dB
NHPRP 30° / TRP	43.77 %
NHPRP 22.5°	-6.55 dBm
NHPRP 22.5° / TRP	-4.85 dB
NHPRP 22.5° / TRP	32.71 %
UHRP	-3.24 dBm
UHRP / TRP	-1.54 dB
UHRP / TRP	70.18 %
LHRP	-6.96 dBm
LHRP / TRP	-5.26 dB
LHRP / TRP	29.82 %
Front/Back Ratio	9.89
PhiBW	171.4 deg
PhiBW Up	129.7 deg
PhiBW Down	41.7 deg
ThetaBW	80.0 deg
ThetaBW Up	39.9 deg
ThetaBW Down	40.1 deg
Boresight Phi	45 deg
Boresight Theta	45 deg
Maximum Power	4.33 dBm
Minimum Power	-11.30 dBm
Average Power	-1.41 dBm
Max/Min Ratio	15.63 dB
Max/Avg Ratio	5.74 dB
Min/Avg Ratio	-9.89 dB
Best Single Value	3.68 dBm
Best Position	Phi = 30 deg; Theta = 60 deg; Pol = Ver

RP_2400.000_tot

Azimuth (deg)	Elevation 0 deg (dB)	Elevation 15 deg (dB)	Elevation 30 deg (dB)	Elevation 45 deg (dB)	Elevation 60 deg (dB)	Elevation 75 deg (dB)	Elevation 90 deg (dB)	Elevation 105 deg (dB)	Elevation 120 deg (dB)	Elevation 135 deg (dB)	Elevation 150 deg (dB)	Elevation 165 deg (dB)	Elevation 180 deg (dB)
0.00	0.13	0.26	1.32	0.96	1.59	1.57	1.73	1.17	0.33	-1.68	-4.21	-9.33	-5.84
15.00	0.43	1.11	2.42	2.64	3.36	2.94	2.86	1.67	-0.17	-2.17	-4.56	-9.45	-5.35
30.00	0.67	1.97	3.22	3.98	3.83	3.26	2.18	0.71	-1.52	-3.14	-4.71	-9.77	-5.14
45.00	0.66	2.70	3.76	4.33	3.47	2.59	0.67	-1.20	-2.42	-3.43	-4.16	-9.68	-5.47
60.00	0.76	3.17	3.83	3.98	2.31	1.08	-1.62	-3.13	-3.08	-3.70	-3.90	-9.03	-5.43
75.00	0.87	3.28	3.75	3.02	0.55	-1.47	-4.65	-4.98	-4.34	-3.97	-3.35	-7.83	-5.39
90.00	0.88	3.17	3.64	2.20	-0.63	-3.66	-6.12	-6.83	-5.86	-4.32	-3.20	-6.94	-5.14
105.00	0.85	2.80	3.79	1.73	-0.52	-4.50	-7.87	-8.69	-7.50	-5.42	-3.27	-6.01	-4.56
120.00	0.78	2.42	3.97	2.05	0.13	-4.88	-8.61	-7.31	-7.60	-7.25	-3.52	-5.40	-4.03
135.00	1.02	2.35	4.04	2.54	0.95	-4.46	-8.26	-6.25	-7.57	-8.44	-4.76	-4.96	-3.79
150.00	1.41	2.44	3.66	2.95	1.29	-3.41	-7.24	-6.49	-6.94	-7.98	-6.76	-4.94	-3.79
165.00	1.61	2.42	2.83	2.44	0.28	-3.07	-6.43	-6.46	-5.10	-8.61	-9.15	-5.42	-3.76
180.00	1.68	1.93	1.51	0.71	-1.78	-5.03	-7.76	-6.75	-4.36	-8.83	-11.30	-6.04	-3.87
195.00	1.63	1.12	-0.26	-2.43	-4.28	-7.10	-6.65	-7.14	-5.39	-7.02	-11.13	-6.83	-4.49
210.00	1.35	0.03	-2.08	-4.69	-4.97	-4.66	-3.28	-3.82	-4.33	-5.39	-8.33	-7.02	-4.99
225.00	1.15	-0.89	-3.23	-4.14	-3.73	-2.97	-2.37	-2.28	-3.49	-5.57	-6.00	-6.91	-5.00
240.00	0.90	-1.44	-3.34	-3.63	-3.00	-2.31	-2.63	-2.71	-5.00	-6.83	-4.99	-6.37	-4.99
255.00	0.83	-1.63	-3.56	-4.26	-3.63	-2.75	-3.37	-3.53	-7.50	-7.32	-4.36	-6.30	-5.17
270.00	0.79	-1.78	-3.72	-5.54	-4.84	-3.87	-4.64	-4.85	-8.30	-6.19	-3.95	-6.91	-5.93
285.00	0.43	-2.22	-3.75	-6.52	-5.24	-4.34	-4.79	-5.46	-7.19	-5.00	-3.37	-7.91	-6.42
300.00	-0.02	-2.65	-3.61	-7.01	-5.70	-4.01	-4.57	-4.88	-5.86	-4.45	-2.87	-9.01	-7.11
315.00	-0.34	-2.74	-3.14	-7.02	-5.95	-4.10	-4.75	-5.05	-4.73	-4.30	-2.92	-10.03	-7.23
330.00	-0.44	-2.33	-1.90	-5.66	-5.01	-4.58	-4.37	-5.00	-3.02	-3.89	-3.01	-10.41	-6.92
345.00	-0.31	-1.25	-0.33	-2.81	-1.78	-2.30	-1.25	-2.33	-0.72	-2.42	-3.27	-9.84	-6.14
360.00	0.02	-0.14	0.89	0.03	0.64	0.80	1.00	0.55	0.14	-1.40	-3.55	-9.29	-5.84

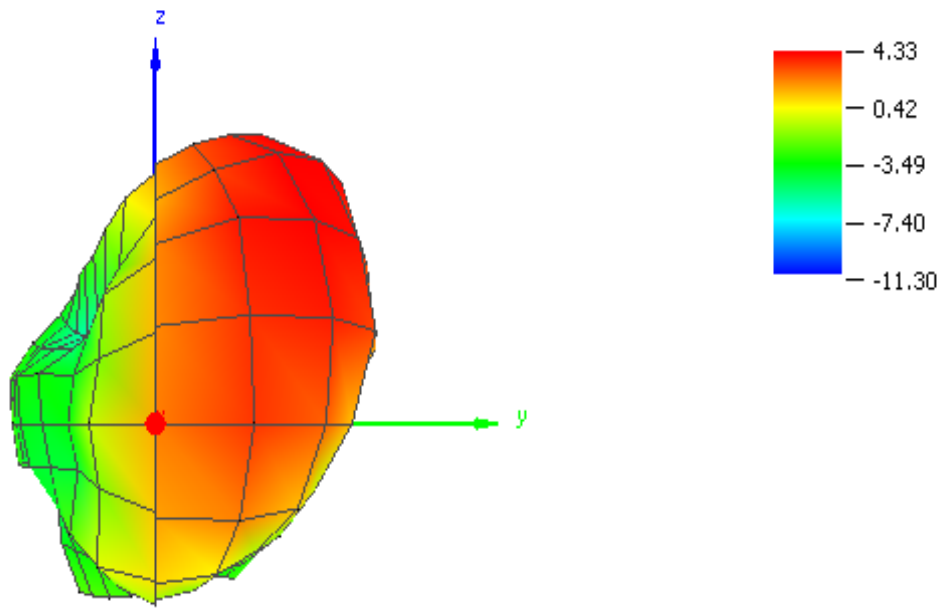
RP_2400.000_hor

Azimuth (deg)	Elevation 0 deg (dB)	Elevation 15 deg (dB)	Elevation 30 deg (dB)	Elevation 45 deg (dB)	Elevation 60 deg (dB)	Elevation 75 deg (dB)	Elevation 90 deg (dB)	Elevation 105 deg (dB)	Elevation 120 deg (dB)	Elevation 135 deg (dB)	Elevation 150 deg (dB)	Elevation 165 deg (dB)	Elevation 180 deg (dB)
0.0	-6.33	-7.74	-10.01	-17.39	-18.10	-12.82	-9.34	-6.18	-5.64	-8.61	-8.98	-13.83	-6.86
15.0	-5.78	-6.23	-9.06	-12.35	-17.09	-12.83	-7.88	-5.80	-6.66	-10.18	-9.26	-13.84	-6.78
30.0	-4.69	-3.80	-5.26	-6.10	-10.78	-11.94	-7.96	-7.04	-8.80	-11.53	-9.31	-14.00	-7.77
45.0	-3.46	-1.25	-1.80	-3.20	-7.19	-10.61	-8.36	-9.51	-9.78	-11.37	-8.30	-15.22	-9.66
60.0	-2.21	0.57	0.21	-1.61	-5.46	-9.41	-9.18	-10.61	-9.62	-10.50	-8.47	-16.15	-12.00
75.0	-1.11	1.80	1.74	-0.32	-4.00	-8.00	-9.66	-11.07	-10.43	-10.20	-8.62	-14.68	-13.20
90.0	-0.57	2.32	2.49	0.52	-2.98	-7.67	-9.57	-12.99	-12.19	-9.33	-7.65	-11.89	-11.17
105.0	-0.53	2.07	2.70	0.51	-2.91	-8.19	-10.31	-14.14	-14.25	-8.94	-5.78	-9.02	-8.44
120.0	-1.02	1.09	2.08	-0.32	-3.68	-8.79	-10.97	-12.85	-20.34	-10.80	-5.13	-7.40	-6.43
135.0	-1.59	-0.39	0.77	-2.24	-4.65	-9.04	-11.26	-10.13	-13.53	-12.70	-5.91	-6.01	-5.36
150.0	-2.20	-1.77	-1.06	-3.61	-5.27	-8.23	-10.73	-8.19	-8.15	-9.55	-7.53	-5.52	-4.77
165.0	-3.32	-2.83	-2.62	-3.55	-4.91	-7.28	-9.86	-8.17	-6.67	-9.03	-9.63	-5.70	-4.39
180.0	-4.21	-3.39	-3.66	-3.68	-4.54	-7.18	-8.83	-9.72	-7.87	-11.40	-12.25	-6.32	-4.65
195.0	-4.82	-4.21	-4.78	-5.47	-5.71	-8.46	-9.40	-11.36	-11.19	-13.20	-12.00	-7.42	-5.95
210.0	-4.88	-5.40	-6.86	-8.32	-9.07	-10.73	-10.93	-11.28	-14.42	-13.44	-10.37	-8.41	-7.78
225.0	-4.11	-6.92	-8.89	-9.65	-9.16	-10.21	-11.14	-11.44	-16.60	-19.66	-10.22	-8.89	-9.86
240.0	-3.21	-7.39	-9.95	-9.51	-7.72	-9.07	-9.77	-13.16	-16.57	-18.74	-11.10	-8.71	-11.58
255.0	-2.21	-6.93	-11.26	-10.37	-8.05	-8.43	-9.17	-14.60	-15.85	-17.66	-11.90	-8.86	-14.19
270.0	-1.49	-6.03	-11.76	-11.22	-8.74	-8.25	-8.92	-12.32	-16.63	-19.56	-10.47	-9.28	-16.22
285.0	-1.43	-5.44	-10.88	-11.81	-9.88	-8.61	-8.62	-9.74	-15.49	-13.62	-8.12	-9.75	-13.92
300.0	-2.02	-5.36	-9.07	-12.42	-11.65	-9.79	-8.54	-8.56	-11.52	-9.35	-6.83	-10.39	-11.83
315.0	-3.07	-5.74	-7.96	-12.49	-14.33	-10.84	-8.45	-8.14	-7.82	-7.41	-6.44	-11.33	-9.98
330.0	-4.38	-6.35	-7.45	-12.13	-15.36	-12.22	-8.84	-7.92	-6.02	-7.26	-6.62	-12.39	-8.49
345.0	-5.72	-7.27	-8.13	-12.93	-15.37	-12.41	-9.03	-7.55	-5.23	-7.78	-7.31	-13.06	-7.18
360.0	-6.22	-7.77	-10.03	-15.51	-16.55	-12.39	-9.11	-6.65	-5.50	-8.31	-8.25	-13.40	-6.75

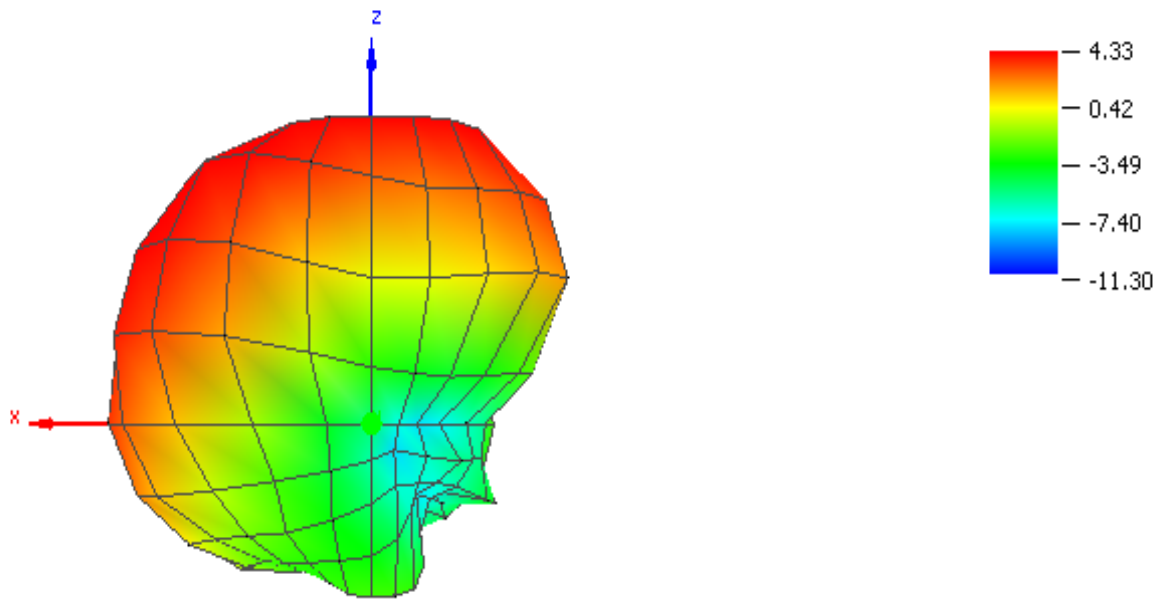
RP_2400.000_ver

Azimuth (deg)	Elevation 0 deg (dB)	Elevation 15 deg (dB)	Elevation 30 deg (dB)	Elevation 45 deg (dB)	Elevation 60 deg (dB)	Elevation 75 deg (dB)	Elevation 90 deg (dB)	Elevation 105 deg (dB)	Elevation 120 deg (dB)	Elevation 135 deg (dB)	Elevation 150 deg (dB)	Elevation 165 deg (dB)	Elevation 180 deg (dB)
0.0	-0.98	-0.49	0.99	0.89	1.54	1.41	1.37	0.29	-0.93	-2.66	-5.96	-11.24	-12.66
15.0	-0.75	0.22	2.10	2.50	3.32	2.83	2.48	0.81	-1.27	-2.91	-6.36	-11.41	-10.85
30.0	-0.82	0.64	2.56	3.53	3.68	3.12	1.74	-0.09	-2.42	-3.83	-6.55	-11.84	-8.57
45.0	-1.46	0.45	2.34	3.48	3.07	2.38	0.09	-1.89	-3.31	-4.20	-6.27	-11.10	-7.55
60.0	-2.29	-0.28	1.35	2.57	1.52	0.68	-2.46	-3.99	-4.17	-4.72	-5.76	-9.96	-6.51
75.0	-3.48	-2.11	-0.57	0.32	-1.33	-2.56	-6.30	-6.21	-5.56	-5.15	-4.88	-8.83	-6.17
90.0	-4.57	-4.34	-2.69	-2.75	-4.42	-5.85	-8.72	-8.03	-7.01	-5.96	-5.13	-8.61	-6.39
105.0	-4.81	-5.31	-2.76	-4.40	-4.26	-6.93	-11.53	-10.15	-8.53	-7.98	-6.84	-9.03	-6.85
120.0	-3.93	-3.38	-0.55	-1.72	-2.20	-7.14	-12.38	-8.74	-7.84	-9.78	-8.63	-9.73	-7.74
135.0	-2.42	-0.95	1.28	0.79	-0.45	-6.31	-11.28	-8.53	-8.83	-10.48	-11.10	-11.65	-8.97
150.0	-1.07	0.37	1.87	1.86	0.20	-5.14	-9.83	-11.38	-13.09	-13.19	-14.69	-13.97	-10.73
165.0	-0.07	0.88	1.37	1.18	-1.28	-5.15	-9.07	-11.34	-10.29	-19.02	-19.02	-17.45	-12.47
180.0	0.38	0.42	-0.06	-1.25	-5.06	-9.11	-14.37	-9.79	-6.91	-12.33	-18.37	-18.09	-11.71
195.0	0.51	-0.38	-2.15	-5.41	-9.81	-12.79	-9.93	-9.20	-6.71	-8.22	-18.53	-15.78	-9.92
210.0	0.17	-1.44	-3.84	-7.15	-7.12	-5.89	-4.10	-4.68	-4.78	-6.13	-12.59	-12.65	-8.23
225.0	-0.38	-2.13	-4.60	-5.58	-5.19	-3.88	-2.99	-2.84	-3.71	-5.74	-8.06	-11.29	-6.71
240.0	-1.23	-2.71	-4.41	-4.92	-4.78	-3.34	-3.57	-3.12	-5.31	-7.12	-6.21	-10.16	-6.06
255.0	-2.16	-3.15	-4.36	-5.48	-5.57	-4.12	-4.69	-3.88	-8.18	-7.74	-5.20	-9.82	-5.75
270.0	-3.10	-3.83	-4.46	-6.90	-7.12	-5.84	-6.66	-5.70	-8.99	-6.40	-5.05	-10.69	-6.36
285.0	-4.15	-5.02	-4.68	-8.04	-7.07	-6.37	-7.11	-7.49	-7.88	-5.64	-5.14	-12.51	-7.28
300.0	-4.35	-5.98	-5.07	-8.48	-6.98	-5.35	-6.79	-7.32	-7.24	-6.14	-5.10	-14.68	-8.89
315.0	-3.64	-5.76	-4.88	-8.48	-6.63	-5.13	-7.17	-7.99	-7.65	-7.21	-5.48	-15.88	-10.52
330.0	-2.69	-4.53	-3.31	-6.77	-5.43	-5.40	-6.29	-8.10	-6.03	-6.56	-5.49	-14.77	-12.10
345.0	-1.78	-2.49	-1.12	-3.25	-1.98	-2.75	-2.05	-3.89	-2.61	-3.91	-5.45	-12.65	-12.85
360.0	-1.16	-0.96	0.53	-0.09	0.55	0.59	0.55	-0.37	-1.25	-2.39	-5.35	-11.42	-13.11

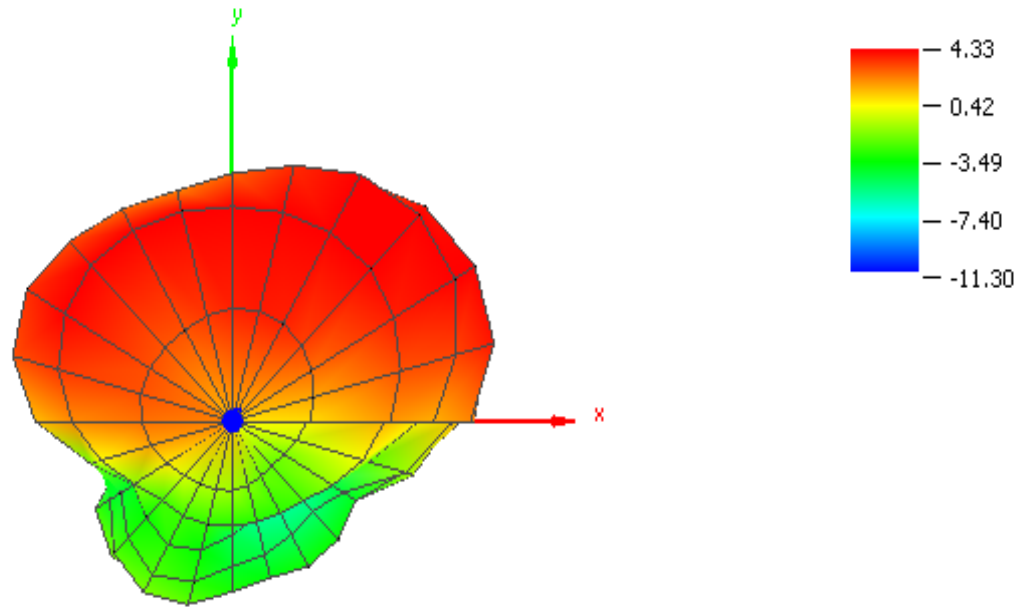
Theta = 90, Phi = 0



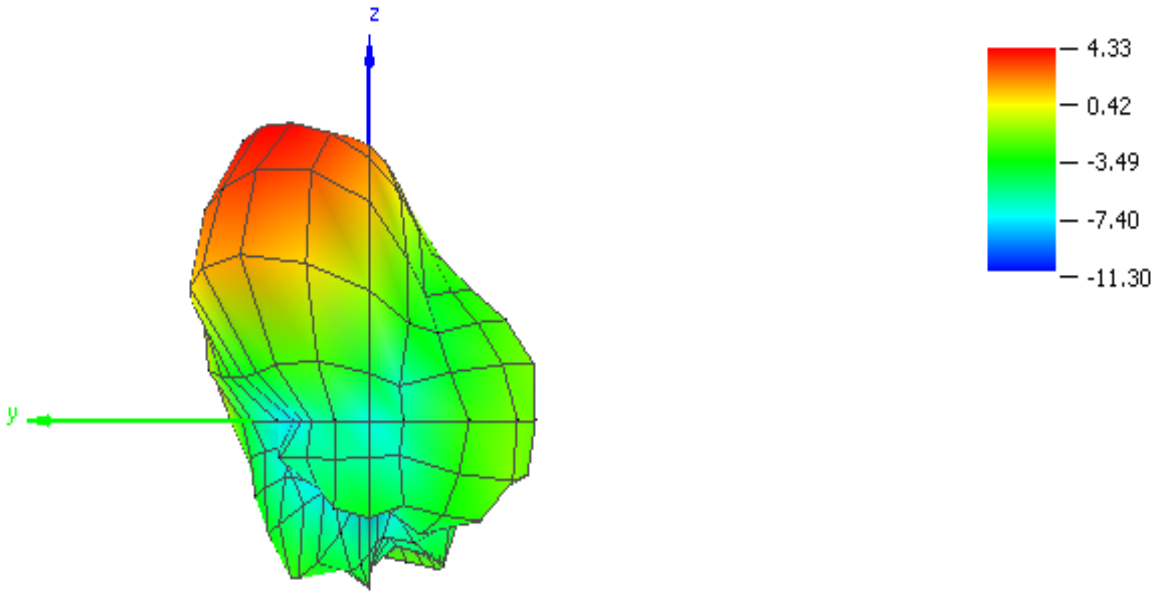
Theta = 90, Phi = 90



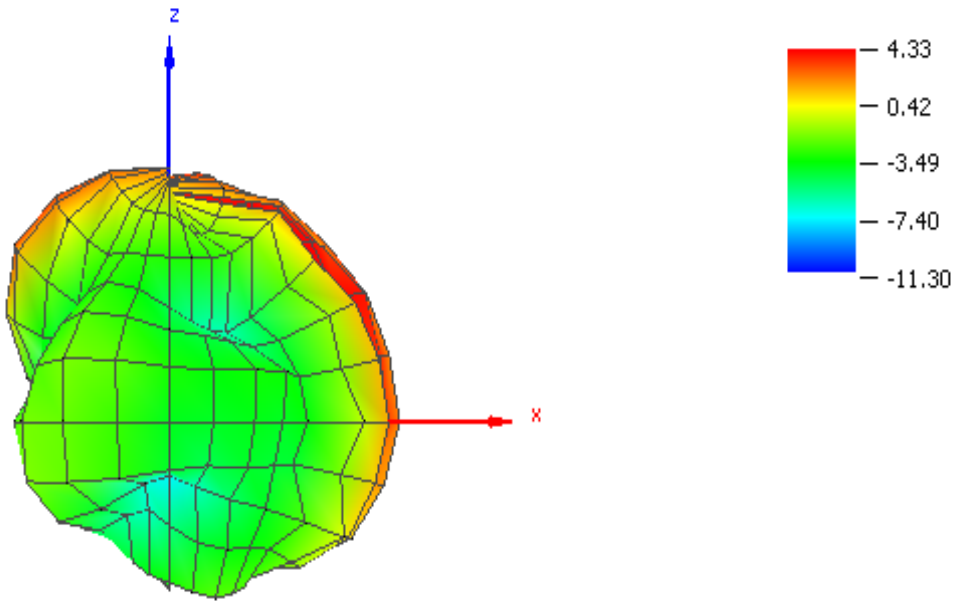
Theta = 0, Phi = 0



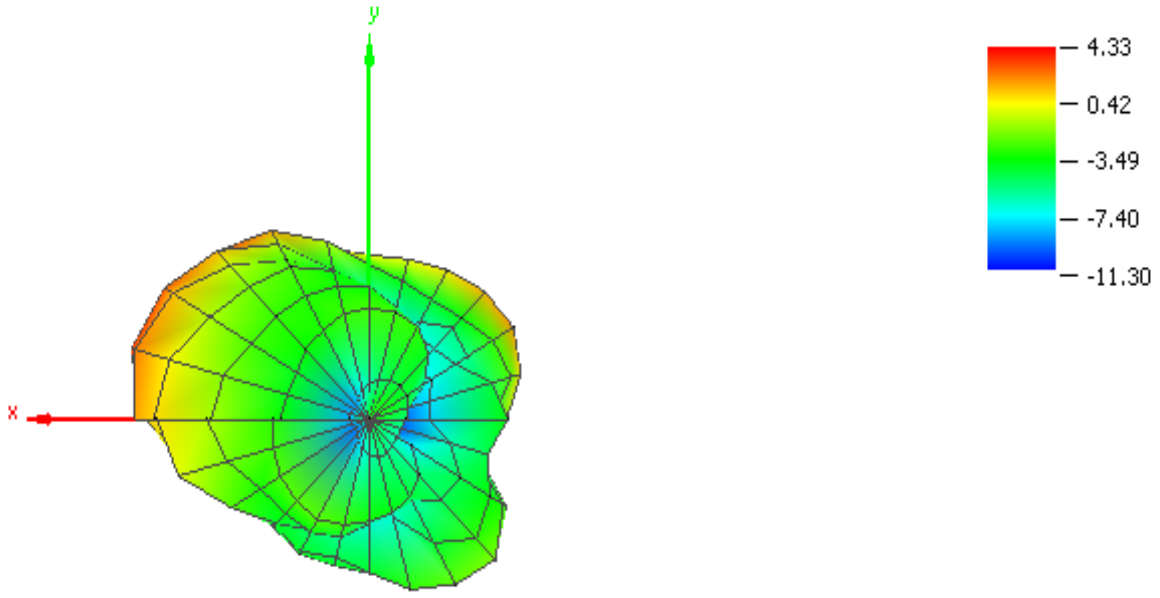
Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 180, Phi = 0



OTA Test Results for Frequency 2440.000 MHz

OTA Evaluation Results:

Total Radiated Power	-1.71 dBm
Peak EIRP	4.09 dBm
Directivity	5.81 dBi
Efficiency	-1.71 dB
Efficiency	67.42 %
Gain	4.09 dBi
NHPRP 45°	-3.61 dBm
NHPRP 45° / TRP	-1.90 dB
NHPRP 45° / TRP	64.55 %
NHPRP 30°	-5.36 dBm
NHPRP 30° / TRP	-3.65 dB
NHPRP 30° / TRP	43.15 %
NHPRP 22.5°	-6.61 dBm
NHPRP 22.5° / TRP	-4.90 dB
NHPRP 22.5° / TRP	32.37 %
UHRP	-3.20 dBm
UHRP / TRP	-1.48 dB
UHRP / TRP	71.04 %
LHRP	-7.09 dBm
LHRP / TRP	-5.38 dB
LHRP / TRP	28.96 %
Front/Back Ratio	8.60
PhiBW	188.0 deg
PhiBW Up	75.9 deg
PhiBW Down	112.1 deg
ThetaBW	45.9 deg
ThetaBW Up	24.9 deg
ThetaBW Down	21.0 deg
Boresight Phi	120 deg
Boresight Theta	30 deg
Maximum Power	4.09 dBm
Minimum Power	-11.41 dBm
Average Power	-1.53 dBm
Max/Min Ratio	15.50 dB
Max/Avg Ratio	5.62 dB
Min/Avg Ratio	-9.88 dB
Best Single Value	2.88 dBm
Best Position	Phi = 90 deg; Theta = 30 deg; Pol = Hor

RP_2440.000_tot

Azimuth (deg)	Elevation 0 deg (dB)	Elevation 15 deg (dB)	Elevation 30 deg (dB)	Elevation 45 deg (dB)	Elevation 60 deg (dB)	Elevation 75 deg (dB)	Elevation 90 deg (dB)	Elevation 105 deg (dB)	Elevation 120 deg (dB)	Elevation 135 deg (dB)	Elevation 150 deg (dB)	Elevation 165 deg (dB)	Elevation 180 deg (dB)
0.00	0.18	0.15	0.44	0.57	0.68	0.70	1.13	0.43	-0.88	-2.63	-5.16	-10.36	-6.30
15.00	0.22	1.01	1.68	2.11	2.60	2.27	2.36	1.27	-0.77	-2.43	-4.63	-9.66	-6.57
30.00	0.33	1.93	2.64	3.28	3.08	2.71	2.10	0.90	-1.53	-2.45	-4.50	-8.77	-6.83
45.00	0.61	2.63	3.35	3.58	2.75	2.10	0.71	-0.67	-2.66	-2.84	-4.64	-8.87	-7.06
60.00	0.72	3.05	3.70	3.55	1.87	0.44	-2.07	-2.97	-3.88	-3.72	-4.50	-9.94	-7.24
75.00	0.70	3.09	3.80	3.04	0.50	-2.24	-4.63	-5.38	-5.32	-4.65	-4.00	-11.02	-7.10
90.00	0.29	2.86	3.77	2.33	-0.58	-3.66	-5.39	-7.13	-6.18	-4.58	-3.80	-11.36	-7.41
105.00	-0.09	2.47	3.84	1.84	-0.29	-3.23	-5.83	-7.99	-6.65	-5.29	-4.18	-10.90	-7.63
120.00	-0.41	2.10	4.09	2.05	0.60	-2.61	-6.49	-7.47	-6.45	-6.33	-5.11	-9.50	-7.47
135.00	-0.20	1.80	4.09	2.48	1.39	-1.81	-6.35	-6.26	-5.91	-6.22	-5.81	-8.22	-7.89
150.00	0.11	1.75	3.81	2.90	2.03	-0.79	-5.18	-5.63	-5.94	-5.96	-6.17	-6.59	-7.93
165.00	0.57	1.76	3.06	2.82	1.67	-0.35	-4.07	-5.40	-6.28	-6.95	-6.95	-5.71	-7.46
180.00	0.75	1.66	2.16	1.86	-0.09	-1.78	-5.11	-5.91	-6.97	-9.17	-8.14	-5.33	-6.45
195.00	0.46	1.11	1.15	-0.05	-2.88	-6.00	-8.35	-9.14	-9.91	-8.74	-7.63	-5.64	-5.47
210.00	-0.02	0.40	0.21	-1.97	-4.33	-6.37	-5.56	-9.27	-11.41	-7.43	-5.64	-6.22	-4.80
225.00	-0.44	-0.37	-0.32	-2.20	-3.22	-3.88	-3.78	-6.84	-8.77	-7.49	-4.22	-6.54	-4.81
240.00	-0.43	-0.80	-0.60	-2.11	-2.40	-2.80	-2.64	-5.44	-7.03	-7.00	-3.44	-6.47	-5.00
255.00	0.00	-0.99	-1.08	-2.36	-3.16	-2.60	-1.97	-3.46	-4.56	-5.00	-2.92	-6.64	-5.22
270.00	0.77	-0.98	-1.67	-3.28	-4.98	-3.69	-2.36	-2.79	-2.86	-3.47	-2.79	-7.74	-5.28
285.00	1.41	-1.00	-2.57	-4.57	-7.08	-4.84	-3.01	-2.71	-2.45	-3.48	-3.46	-9.64	-5.76
300.00	1.46	-1.27	-2.93	-5.53	-8.15	-5.99	-3.90	-3.04	-2.71	-4.61	-4.50	-10.79	-6.23
315.00	1.35	-1.57	-3.11	-6.07	-9.03	-6.88	-5.18	-3.71	-3.20	-6.57	-5.09	-10.83	-6.43
330.00	1.12	-1.43	-2.26	-5.30	-6.79	-6.80	-5.23	-4.61	-3.22	-6.49	-5.23	-11.31	-6.55
345.00	0.63	-0.92	-0.93	-3.11	-3.32	-4.30	-2.23	-2.91	-2.02	-4.66	-5.21	-11.06	-6.55
360.00	0.27	-0.14	-0.04	-0.28	-0.40	-0.37	0.39	-0.15	-1.09	-3.13	-5.22	-10.81	-6.20

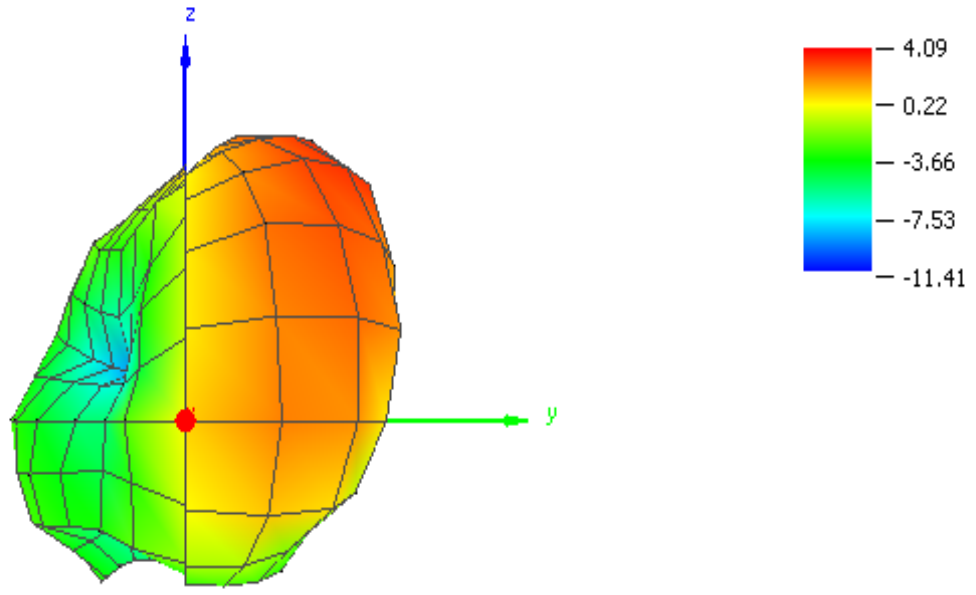
RP_2440.000_hor

Azimuth (deg)	Elevation 0 deg (dB)	Elevation 15 deg (dB)	Elevation 30 deg (dB)	Elevation 45 deg (dB)	Elevation 60 deg (dB)	Elevation 75 deg (dB)	Elevation 90 deg (dB)	Elevation 105 deg (dB)	Elevation 120 deg (dB)	Elevation 135 deg (dB)	Elevation 150 deg (dB)	Elevation 165 deg (dB)	Elevation 180 deg (dB)
0.0	-5.94	-7.79	-10.66	-18.15	-16.37	-11.29	-8.87	-7.65	-7.54	-7.39	-8.79	-13.71	-6.86
15.0	-5.79	-6.11	-8.46	-10.59	-13.82	-10.84	-7.83	-6.13	-7.48	-7.42	-8.64	-13.56	-6.99
30.0	-4.19	-3.24	-3.70	-4.57	-7.82	-9.42	-7.35	-6.11	-8.01	-8.29	-9.16	-12.29	-7.58
45.0	-2.59	-0.86	-0.50	-1.74	-5.14	-8.61	-7.51	-8.17	-9.51	-8.52	-8.57	-11.67	-8.77
60.0	-1.39	0.88	1.34	-0.14	-3.94	-7.74	-8.67	-9.19	-8.83	-7.89	-7.60	-13.11	-10.26
75.0	-0.80	1.70	2.42	0.67	-3.08	-7.02	-8.59	-9.80	-8.82	-7.93	-7.47	-15.17	-12.17
90.0	-0.94	1.91	2.88	0.94	-2.92	-6.87	-9.05	-11.74	-10.65	-8.13	-7.48	-18.20	-16.43
105.0	-1.46	1.57	2.71	0.47	-3.53	-7.80	-9.80	-14.74	-12.70	-8.95	-7.18	-16.09	-20.67
120.0	-2.22	0.73	1.96	-0.58	-4.43	-8.16	-10.28	-14.28	-18.07	-10.28	-6.83	-11.79	-15.17
135.0	-3.08	-0.86	0.49	-2.06	-5.01	-7.24	-10.13	-11.10	-15.00	-10.31	-6.97	-9.74	-11.91
150.0	-4.44	-2.60	-1.15	-3.40	-4.38	-6.09	-9.43	-8.82	-9.50	-8.60	-7.28	-7.93	-9.53
165.0	-5.63	-4.04	-2.14	-3.44	-3.42	-4.98	-8.32	-8.61	-7.98	-8.46	-8.16	-7.28	-7.92
180.0	-6.23	-4.44	-2.49	-3.10	-3.06	-5.09	-7.99	-10.52	-9.18	-10.43	-9.85	-7.65	-7.21
195.0	-5.81	-4.47	-3.13	-4.18	-4.39	-6.83	-8.79	-13.69	-11.89	-9.49	-10.72	-9.33	-6.89
210.0	-4.68	-4.57	-4.58	-6.41	-7.61	-9.79	-10.49	-13.77	-14.03	-8.93	-10.80	-12.52	-6.92
225.0	-3.70	-5.11	-6.17	-8.10	-8.25	-9.92	-10.93	-14.66	-17.21	-11.65	-12.95	-18.03	-7.78
240.0	-2.71	-5.48	-7.89	-10.13	-8.48	-9.91	-10.06	-15.78	-18.63	-13.84	-15.99	-18.15	-9.05
255.0	-1.52	-5.18	-8.92	-13.05	-10.48	-10.33	-10.49	-17.87	-16.16	-11.57	-11.90	-14.69	-10.47
270.0	-0.47	-4.35	-8.54	-13.15	-13.24	-10.93	-11.04	-15.58	-13.92	-10.05	-9.45	-15.48	-11.57
285.0	0.14	-3.65	-7.59	-11.41	-13.95	-11.05	-10.45	-12.13	-10.62	-9.49	-9.25	-17.57	-14.26
300.0	-0.10	-3.62	-6.80	-9.82	-13.57	-10.94	-9.62	-9.90	-8.76	-9.75	-10.05	-16.80	-14.98
315.0	-0.81	-4.00	-6.52	-8.96	-12.94	-10.66	-9.38	-8.87	-7.11	-10.37	-10.86	-15.21	-11.68
330.0	-2.02	-4.83	-6.79	-8.80	-11.90	-10.54	-9.65	-8.70	-7.04	-9.73	-10.36	-14.36	-9.24
345.0	-3.89	-6.43	-7.89	-10.41	-12.26	-11.05	-9.28	-8.56	-7.33	-8.65	-9.28	-13.87	-7.75
360.0	-5.45	-7.66	-10.19	-14.61	-15.02	-11.33	-8.77	-7.90	-7.64	-8.06	-8.78	-14.09	-6.93

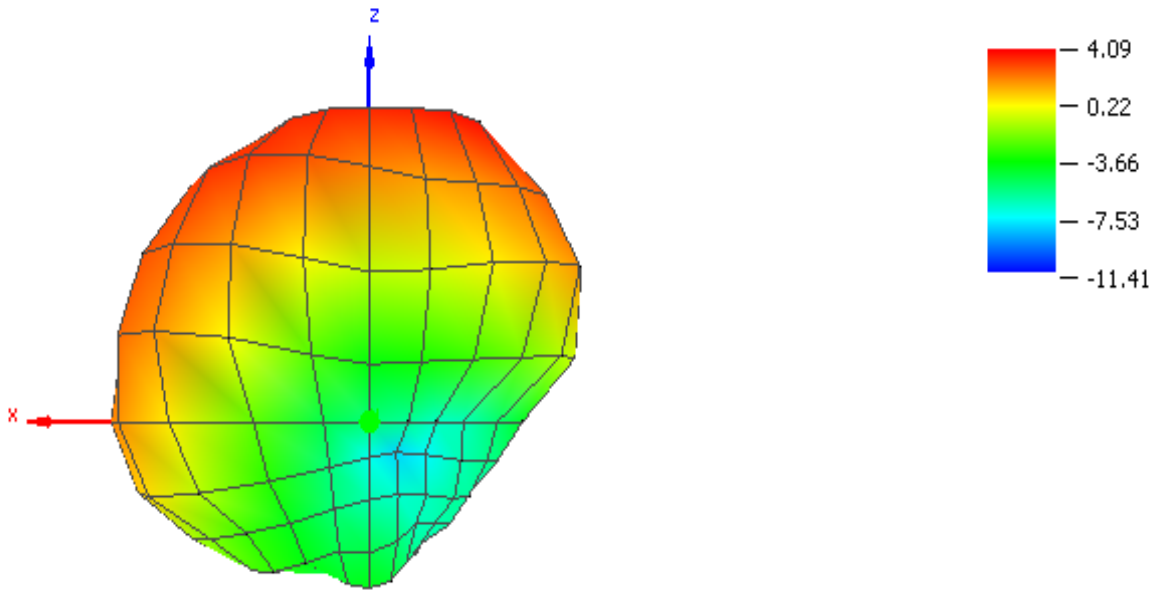
RP_2440.000_ver

Azimuth (deg)	Elevation 0 deg (dB)	Elevation 15 deg (dB)	Elevation 30 deg (dB)	Elevation 45 deg (dB)	Elevation 60 deg (dB)	Elevation 75 deg (dB)	Elevation 90 deg (dB)	Elevation 105 deg (dB)	Elevation 120 deg (dB)	Elevation 135 deg (dB)	Elevation 150 deg (dB)	Elevation 165 deg (dB)	Elevation 180 deg (dB)
0.0	-1.04	-0.61	0.09	0.51	0.59	0.42	0.67	-0.30	-1.94	-4.40	-7.62	-13.06	-15.53
15.0	-1.03	0.07	1.24	1.87	2.50	2.06	1.92	0.40	-1.82	-4.08	-6.83	-11.93	-16.94
30.0	-1.56	0.36	1.49	2.50	2.71	2.44	1.58	-0.07	-2.64	-3.76	-6.32	-11.32	-14.85
45.0	-2.22	0.05	1.04	2.06	1.98	1.71	0.00	-1.52	-3.66	-4.21	-6.89	-12.09	-11.93
60.0	-3.42	-1.01	-0.07	1.14	0.55	-0.27	-3.14	-4.15	-5.55	-5.81	-7.42	-12.81	-10.25
75.0	-4.63	-2.53	-1.86	-0.72	-2.01	-4.00	-6.86	-7.33	-7.89	-7.41	-6.59	-13.12	-8.72
90.0	-5.80	-4.20	-3.56	-3.29	-4.37	-6.48	-7.84	-8.97	-8.10	-7.11	-6.23	-12.37	-7.99
105.0	-5.78	-4.81	-2.56	-3.86	-3.09	-5.10	-8.06	-9.02	-7.88	-7.74	-7.21	-12.46	-7.85
120.0	-5.08	-3.59	-0.02	-1.38	-1.04	-4.03	-8.83	-8.49	-6.76	-8.56	-9.98	-13.36	-8.27
135.0	-3.35	-1.59	1.60	0.61	0.26	-3.28	-8.70	-7.98	-6.48	-8.37	-12.09	-13.52	-10.08
150.0	-1.77	-0.24	2.14	1.74	0.90	-2.30	-7.22	-8.47	-8.47	-9.36	-12.60	-12.34	-13.04
165.0	-0.62	0.43	1.50	1.64	0.06	-2.18	-6.11	-8.22	-11.17	-12.25	-13.11	-10.90	-17.45
180.0	-0.22	0.43	0.34	0.19	-3.15	-4.51	-8.25	-7.76	-10.97	-15.17	-13.00	-9.16	-14.40
195.0	-0.71	-0.30	-0.88	-2.16	-8.20	-13.60	-18.51	-11.01	-14.27	-16.72	-10.57	-8.07	-11.00
210.0	-1.83	-1.27	-1.55	-3.91	-7.08	-9.01	-7.24	-11.18	-14.85	-12.76	-7.21	-7.37	-8.95
225.0	-3.21	-2.15	-1.63	-3.49	-4.85	-5.12	-4.71	-7.62	-9.44	-9.60	-4.84	-6.85	-7.87
240.0	-4.31	-2.60	-1.50	-2.86	-3.63	-3.74	-3.51	-5.86	-7.34	-8.01	-3.69	-6.77	-7.18
255.0	-5.32	-3.07	-1.85	-2.75	-4.04	-3.40	-2.63	-3.62	-4.88	-6.08	-3.51	-7.37	-6.75
270.0	-5.28	-3.66	-2.67	-3.75	-5.68	-4.60	-2.99	-3.03	-3.22	-4.54	-3.85	-8.54	-6.45
285.0	-4.56	-4.40	-4.21	-5.58	-8.08	-6.03	-3.88	-3.24	-3.17	-4.73	-4.79	-10.41	-6.42
300.0	-3.74	-5.07	-5.22	-7.55	-9.62	-7.67	-5.25	-4.04	-3.95	-6.19	-5.92	-12.04	-6.85
315.0	-2.73	-5.27	-5.76	-9.21	-11.29	-9.24	-7.26	-5.29	-5.47	-8.91	-6.43	-12.80	-7.98
330.0	-1.77	-4.09	-4.15	-7.87	-8.38	-9.18	-7.17	-6.76	-5.55	-9.29	-6.82	-14.28	-9.90
345.0	-1.26	-2.36	-1.91	-4.01	-3.92	-5.32	-3.18	-4.29	-3.53	-6.87	-7.37	-14.29	-12.75
360.0	-1.09	-0.99	-0.48	-0.45	-0.55	-0.73	-0.17	-0.94	-2.18	-4.82	-7.73	-13.56	-14.32

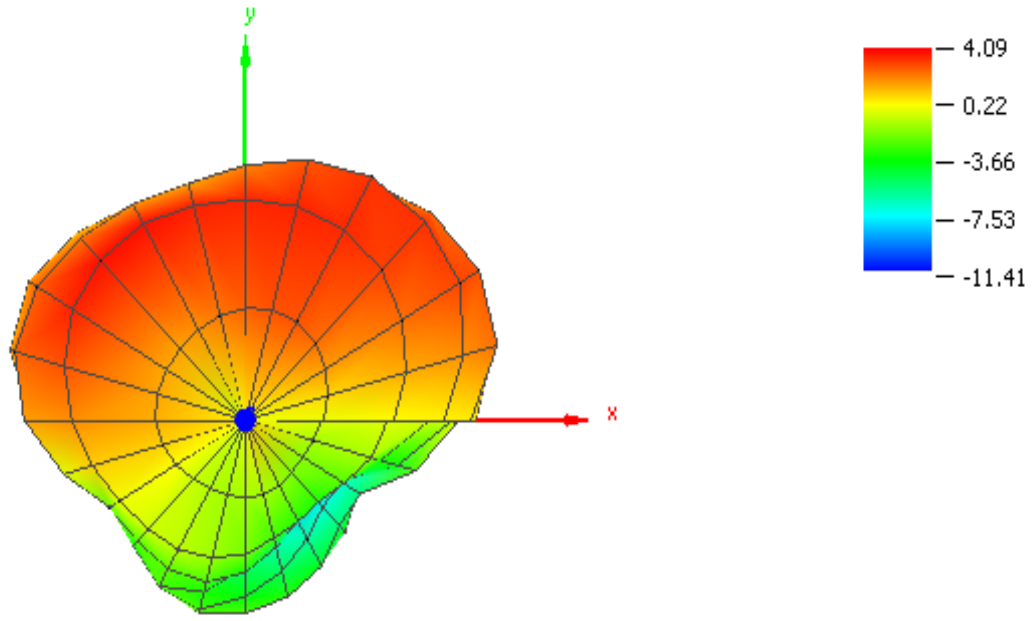
Theta = 90, Phi = 0



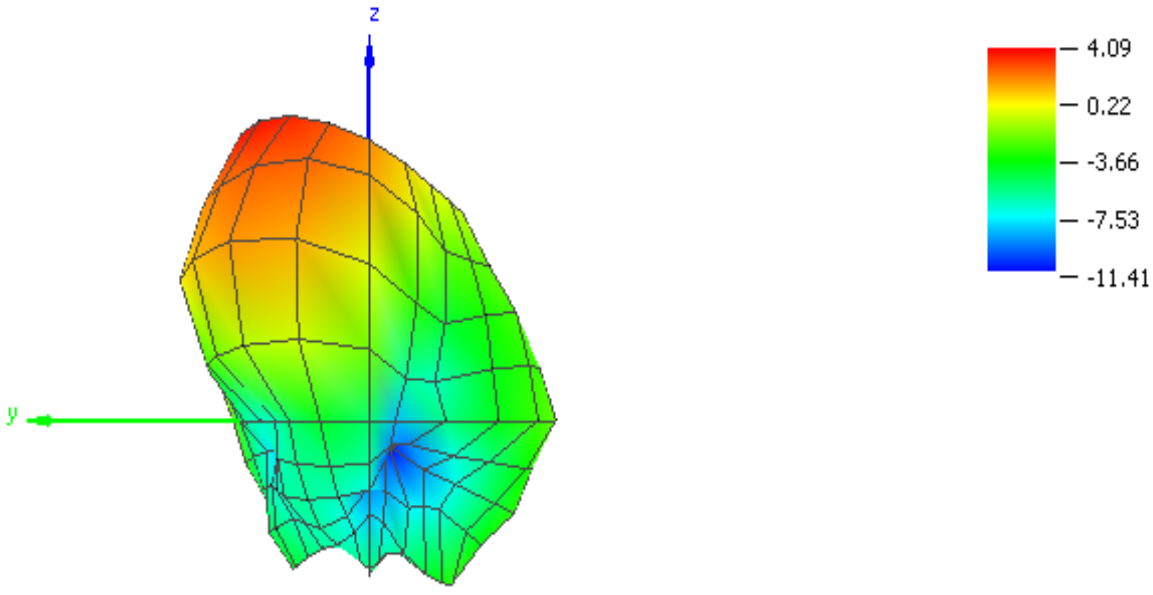
Theta = 90, Phi = 90



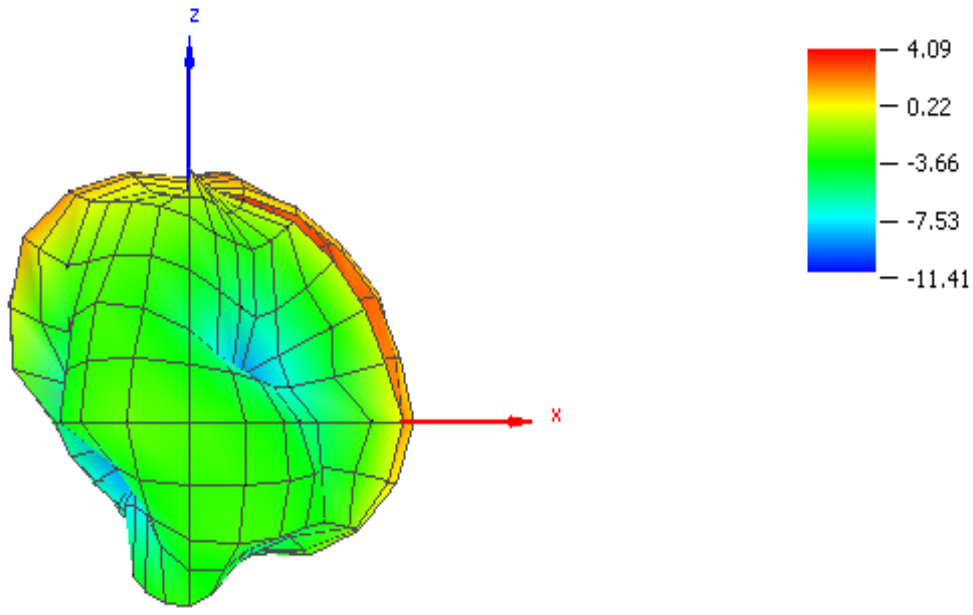
Theta = 0, Phi = 0



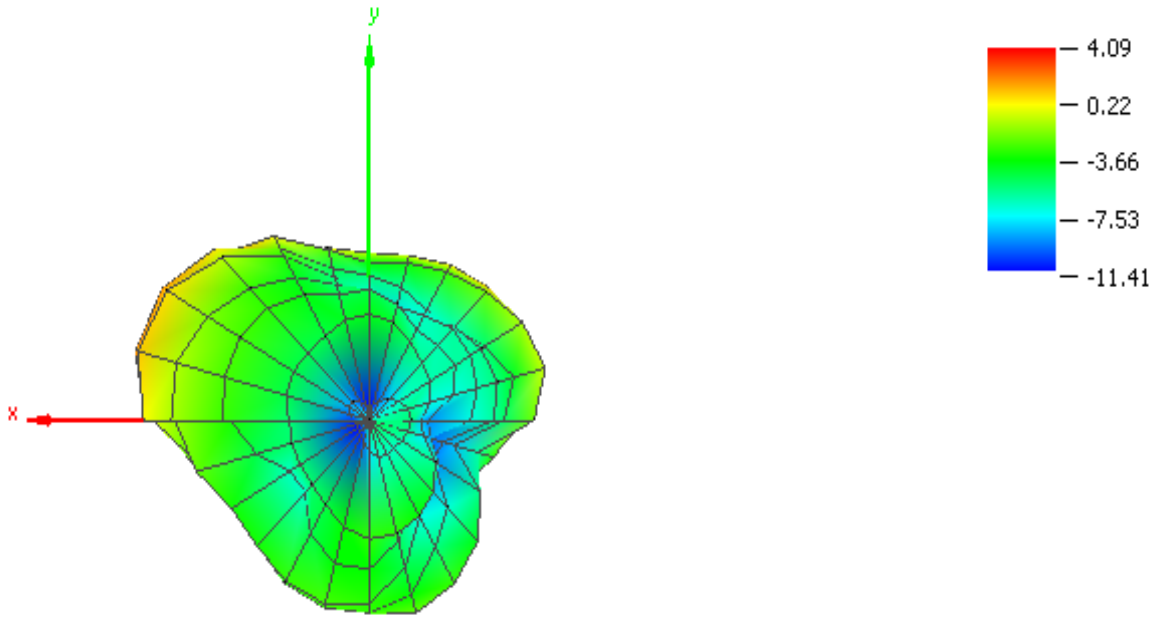
Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 180, Phi = 0



OTA Test Results for Frequency 2480.000 MHz

OTA Evaluation Results:

Total Radiated Power	-1.97 dBm
Peak EIRP	3.66 dBm
Directivity	5.63 dBi
Efficiency	-1.97 dB
Efficiency	63.57 %
Gain	3.66 dBi
NHPRP 45°	-3.69 dBm
NHPRP 45° / TRP	-1.72 dB
NHPRP 45° / TRP	67.33 %
NHPRP 30°	-5.41 dBm
NHPRP 30° / TRP	-3.44 dB
NHPRP 30° / TRP	45.30 %
NHPRP 22.5°	-6.65 dBm
NHPRP 22.5° / TRP	-4.68 dB
NHPRP 22.5° / TRP	34.00 %
UHRP	-3.58 dBm
UHRP / TRP	-1.62 dB
UHRP / TRP	68.93 %
LHRP	-7.04 dBm
LHRP / TRP	-5.08 dB
LHRP / TRP	31.07 %
Front/Back Ratio	10.41
PhiBW	183.2 deg
PhiBW Up	50.8 deg
PhiBW Down	132.4 deg
ThetaBW	55.8 deg
ThetaBW Up	27.6 deg
ThetaBW Down	28.2 deg
Boresight Phi	135 deg
Boresight Theta	30 deg
Maximum Power	3.66 dBm
Minimum Power	-12.11 dBm
Average Power	-1.85 dBm
Max/Min Ratio	15.77 dB
Max/Avg Ratio	5.52 dB
Min/Avg Ratio	-10.25 dB
Best Single Value	3.23 dBm
Best Position	Phi = 30 deg; Theta = 60 deg; Pol = Ver

RP_2480.000_tot

Azimuth (deg)	Elevation 0 deg (dB)	Elevation 15 deg (dB)	Elevation 30 deg (dB)	Elevation 45 deg (dB)	Elevation 60 deg (dB)	Elevation 75 deg (dB)	Elevation 90 deg (dB)	Elevation 105 deg (dB)	Elevation 120 deg (dB)	Elevation 135 deg (dB)	Elevation 150 deg (dB)	Elevation 165 deg (dB)	Elevation 180 deg (dB)
0.00	-0.55	-0.10	0.46	0.97	1.44	1.24	0.72	-0.42	-1.52	-2.04	-3.31	-7.07	-4.83
15.00	-0.90	0.47	1.64	2.29	3.13	2.84	2.61	1.13	-0.69	-1.88	-3.41	-6.74	-5.09
30.00	-1.38	0.98	2.31	3.18	3.41	3.36	2.67	0.99	-0.89	-2.12	-2.84	-6.53	-5.20
45.00	-1.59	1.45	2.59	3.19	2.53	2.46	1.33	-0.16	-1.31	-2.10	-3.32	-6.85	-5.05
60.00	-1.59	1.81	2.55	2.68	0.97	0.77	-1.33	-1.97	-2.63	-3.11	-3.77	-6.98	-4.72
75.00	-1.56	1.99	2.52	2.09	-0.81	-1.98	-4.78	-4.65	-5.02	-4.45	-3.66	-6.86	-4.66
90.00	-1.03	2.05	2.60	1.42	-1.86	-5.21	-7.07	-8.49	-7.15	-4.77	-3.72	-7.17	-5.37
105.00	-0.36	2.06	3.04	1.57	-1.02	-5.41	-7.40	-9.69	-8.95	-5.97	-4.27	-8.32	-6.56
120.00	0.22	1.95	3.48	2.20	-0.18	-4.77	-7.18	-7.47	-9.57	-8.85	-5.72	-9.68	-7.80
135.00	0.50	1.83	3.66	2.67	0.28	-4.22	-6.72	-5.78	-8.11	-8.46	-7.72	-10.52	-8.21
150.00	0.68	1.65	3.40	2.62	0.49	-3.11	-6.44	-5.80	-6.47	-6.14	-8.44	-10.16	-7.43
165.00	0.77	1.50	2.72	2.07	0.67	-1.96	-5.89	-7.05	-5.73	-5.62	-7.34	-8.39	-6.35
180.00	0.84	1.01	1.33	0.68	-0.30	-2.28	-6.26	-8.21	-6.31	-5.25	-6.66	-6.64	-5.44
195.00	0.74	0.23	-0.39	-1.25	-2.53	-4.74	-8.01	-8.04	-5.68	-4.36	-6.43	-5.86	-4.77
210.00	0.62	-1.00	-1.61	-2.60	-3.59	-6.02	-5.95	-6.48	-4.09	-3.42	-5.82	-5.65	-4.52
225.00	0.44	-2.28	-2.26	-2.47	-2.28	-3.25	-3.38	-4.40	-3.07	-3.36	-5.10	-6.42	-4.75
240.00	0.18	-3.50	-2.86	-2.16	-1.57	-1.68	-1.56	-2.71	-2.59	-3.60	-5.12	-8.34	-5.48
255.00	-0.07	-3.99	-4.03	-2.40	-2.34	-1.53	-1.19	-1.70	-2.26	-3.76	-6.25	-11.07	-5.80
270.00	-0.12	-3.96	-5.53	-3.26	-4.11	-2.83	-2.19	-2.00	-2.51	-4.81	-8.49	-12.11	-5.46
285.00	0.26	-3.44	-6.11	-4.60	-6.05	-4.76	-4.10	-3.40	-3.97	-6.79	-9.68	-10.57	-5.26
300.00	0.61	-2.71	-5.80	-5.78	-7.57	-6.75	-5.74	-4.99	-6.21	-8.75	-8.97	-8.99	-5.34
315.00	0.60	-2.33	-4.86	-5.99	-8.02	-7.76	-6.60	-5.98	-7.18	-7.97	-6.74	-8.53	-5.31
330.00	0.44	-1.74	-3.09	-5.17	-6.56	-6.95	-6.09	-6.27	-6.28	-6.54	-4.76	-8.07	-5.05
345.00	0.14	-1.02	-1.25	-2.55	-2.33	-3.86	-3.12	-4.54	-4.21	-4.32	-3.77	-7.99	-4.78
360.00	-0.37	-0.20	-0.14	0.28	0.36	0.30	-0.34	-1.31	-2.26	-2.52	-3.55	-6.98	-4.80

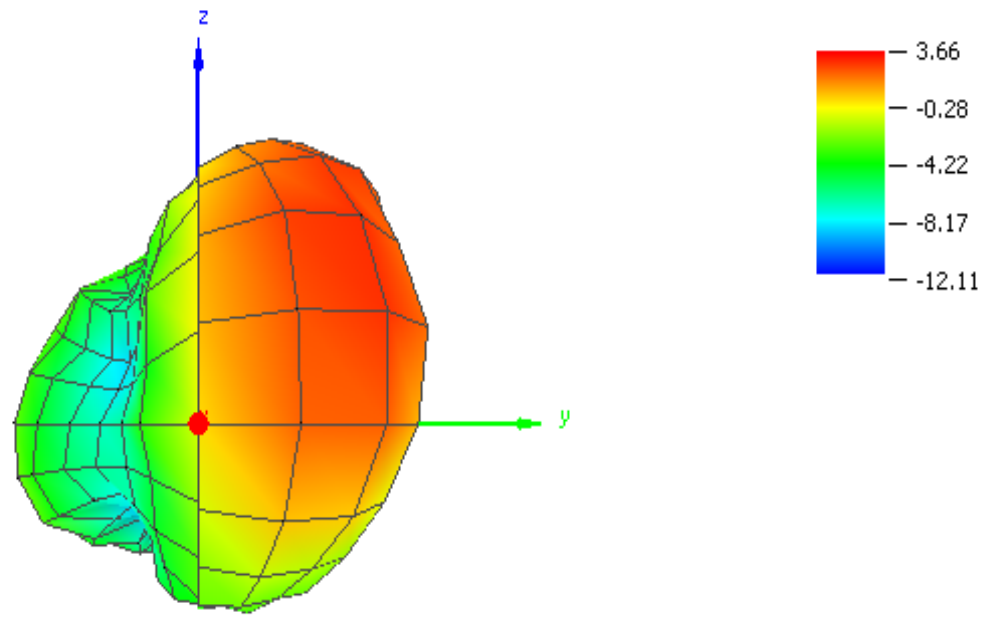
RP_2480.000_hor

Azimuth (deg)	Elevation 0 deg (dB)	Elevation 15 deg (dB)	Elevation 30 deg (dB)	Elevation 45 deg (dB)	Elevation 60 deg (dB)	Elevation 75 deg (dB)	Elevation 90 deg (dB)	Elevation 105 deg (dB)	Elevation 120 deg (dB)	Elevation 135 deg (dB)	Elevation 150 deg (dB)	Elevation 165 deg (dB)	Elevation 180 deg (dB)
0.0	-6.66	-8.68	-11.01	-17.92	-17.00	-12.42	-9.65	-7.41	-6.72	-7.02	-6.54	-11.10	-5.82
15.0	-7.56	-8.38	-11.04	-15.54	-15.40	-11.38	-8.90	-6.50	-6.76	-7.53	-7.56	-10.77	-5.88
30.0	-7.15	-5.30	-6.36	-7.24	-10.60	-10.63	-8.45	-7.32	-8.01	-9.18	-7.56	-10.50	-6.47
45.0	-6.00	-2.72	-2.85	-3.50	-7.58	-10.08	-9.56	-10.30	-10.23	-10.39	-8.27	-11.15	-7.48
60.0	-4.81	-0.66	-0.42	-1.51	-5.95	-9.08	-11.40	-11.30	-10.81	-10.18	-8.08	-12.04	-8.30
75.0	-4.08	0.37	1.00	-0.37	-4.71	-8.39	-11.42	-11.62	-11.39	-9.71	-8.09	-12.76	-9.24
90.0	-3.26	0.90	1.80	0.21	-3.98	-8.86	-11.55	-15.24	-12.52	-9.23	-7.65	-12.34	-10.71
105.0	-2.57	0.83	1.85	-0.04	-4.36	-10.36	-12.42	-17.97	-13.29	-9.19	-6.93	-11.75	-12.21
120.0	-2.53	-0.08	0.94	-1.24	-5.26	-12.19	-13.53	-15.46	-17.73	-12.09	-7.11	-11.58	-13.10
135.0	-3.09	-1.66	-0.78	-2.94	-6.86	-11.92	-13.19	-12.43	-15.28	-11.53	-8.26	-12.29	-12.51
150.0	-4.41	-4.13	-3.40	-4.92	-7.74	-9.74	-11.85	-10.62	-8.91	-7.84	-9.42	-13.22	-10.51
165.0	-6.06	-6.17	-4.98	-5.71	-6.86	-8.12	-10.86	-10.97	-7.46	-7.66	-10.79	-13.07	-8.45
180.0	-7.66	-6.84	-4.82	-5.79	-5.61	-7.69	-10.92	-12.86	-9.03	-9.54	-13.85	-12.69	-6.77
195.0	-7.68	-6.65	-5.17	-6.92	-6.16	-8.63	-12.33	-13.22	-11.18	-11.23	-15.67	-12.63	-5.56
210.0	-5.83	-6.39	-6.26	-9.20	-8.24	-10.25	-13.90	-12.83	-13.50	-13.36	-14.34	-12.34	-4.86
225.0	-4.06	-6.71	-8.48	-11.89	-9.00	-9.52	-12.71	-14.78	-14.92	-15.07	-13.71	-12.43	-5.00
240.0	-2.66	-7.48	-11.70	-15.50	-9.84	-9.50	-11.44	-18.29	-14.53	-12.01	-13.26	-13.39	-6.09
255.0	-1.76	-7.81	-16.21	-17.59	-12.76	-9.56	-11.70	-18.96	-12.27	-10.20	-12.91	-16.35	-7.57
270.0	-1.18	-7.43	-14.91	-15.62	-15.05	-9.39	-11.33	-16.17	-10.97	-11.13	-14.43	-15.59	-8.42
285.0	-0.64	-6.20	-11.84	-15.48	-16.91	-9.93	-10.89	-13.00	-10.47	-13.82	-19.42	-12.92	-9.29
300.0	-0.50	-5.09	-9.44	-14.76	-18.25	-11.20	-10.27	-10.57	-10.06	-13.53	-15.67	-11.91	-9.98
315.0	-1.02	-4.96	-7.68	-12.79	-17.06	-12.01	-9.78	-9.43	-8.94	-9.93	-10.80	-10.99	-8.73
330.0	-2.08	-5.37	-6.67	-11.34	-14.43	-12.24	-9.54	-8.59	-8.08	-7.82	-7.99	-10.28	-7.35
345.0	-3.57	-6.43	-7.28	-11.68	-13.54	-12.93	-9.64	-8.04	-7.35	-6.88	-6.81	-10.73	-6.34
360.0	-5.85	-7.69	-9.91	-14.38	-16.29	-13.06	-9.89	-7.96	-6.80	-6.97	-6.37	-10.35	-5.88

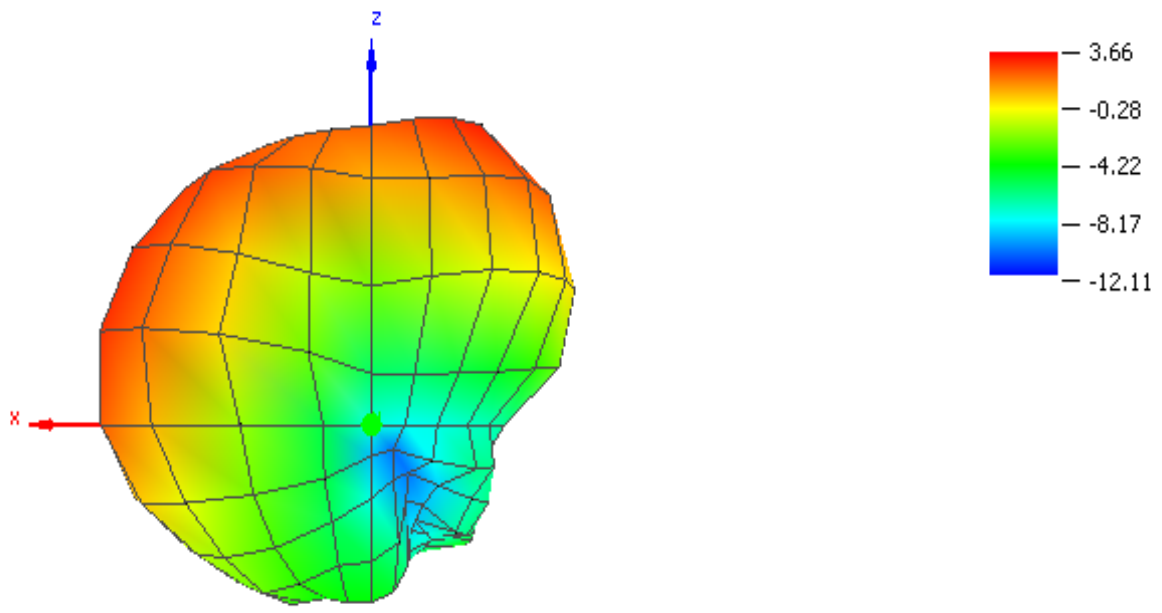
RP_2480.000_ver

Azimuth (deg)	Elevation 0 deg (dB)	Elevation 15 deg (dB)	Elevation 30 deg (dB)	Elevation 45 deg (dB)	Elevation 60 deg (dB)	Elevation 75 deg (dB)	Elevation 90 deg (dB)	Elevation 105 deg (dB)	Elevation 120 deg (dB)	Elevation 135 deg (dB)	Elevation 150 deg (dB)	Elevation 165 deg (dB)	Elevation 180 deg (dB)
0.0	-1.77	-0.75	0.14	0.91	1.38	1.04	0.31	-1.39	-3.08	-3.70	-6.12	-9.26	-11.74
15.0	-1.95	-0.14	1.39	2.22	3.06	2.68	2.29	0.31	-1.92	-3.26	-5.52	-8.92	-12.87
30.0	-2.71	-0.19	1.68	2.76	3.23	3.18	2.32	0.30	-1.83	-3.08	-4.63	-8.75	-11.17
45.0	-3.55	-0.65	1.13	2.14	2.08	2.21	0.96	-0.60	-1.90	-2.79	-5.00	-8.87	-8.73
60.0	-4.40	-1.81	-0.50	0.60	-0.02	0.30	-1.78	-2.51	-3.34	-4.06	-5.78	-8.61	-7.22
75.0	-5.11	-3.07	-2.76	-1.55	-3.08	-3.11	-5.84	-5.63	-6.16	-5.99	-5.61	-8.16	-6.52
90.0	-5.01	-4.27	-5.13	-4.71	-6.00	-7.66	-8.99	-9.53	-8.64	-6.69	-5.97	-8.74	-6.87
105.0	-4.36	-4.02	-3.15	-3.52	-3.73	-7.08	-9.04	-10.39	-10.95	-8.79	-7.66	-10.94	-7.94
120.0	-3.06	-2.34	-0.06	-0.41	-1.80	-5.64	-8.33	-8.22	-10.29	-11.63	-11.35	-14.20	-9.32
135.0	-2.00	-0.74	1.73	1.28	-0.65	-5.03	-7.84	-6.83	-9.04	-11.41	-17.03	-15.27	-10.22
150.0	-0.93	0.32	2.38	1.78	-0.22	-4.17	-7.92	-7.54	-10.14	-11.02	-15.39	-13.12	-10.37
165.0	-0.24	0.68	1.91	1.28	-0.17	-3.16	-7.55	-9.30	-10.57	-9.87	-9.94	-10.19	-10.50
180.0	0.18	0.24	0.12	-0.43	-1.82	-3.76	-8.08	-10.03	-9.62	-7.28	-7.58	-7.88	-11.23
195.0	0.07	-0.77	-2.15	-2.62	-4.99	-7.02	-10.01	-9.61	-7.13	-5.36	-6.98	-6.89	-12.59
210.0	-0.49	-2.49	-3.42	-3.67	-5.41	-8.08	-6.71	-7.63	-4.62	-3.88	-6.48	-6.70	-15.77
225.0	-1.47	-4.23	-3.44	-3.00	-3.32	-4.42	-3.92	-4.81	-3.36	-3.66	-5.75	-7.68	-17.32
240.0	-3.00	-5.71	-3.47	-2.37	-2.27	-2.46	-2.03	-2.83	-2.88	-4.28	-5.85	-9.97	-14.31
255.0	-4.97	-6.33	-4.31	-2.54	-2.76	-2.28	-1.60	-1.78	-2.72	-4.88	-7.31	-12.60	-10.57
270.0	-6.78	-6.55	-6.06	-3.52	-4.48	-3.92	-2.76	-2.17	-3.18	-5.97	-9.77	-14.70	-8.53
285.0	-7.04	-6.71	-7.46	-4.97	-6.42	-6.33	-5.12	-3.90	-5.08	-7.76	-10.17	-14.36	-7.44
300.0	-5.85	-6.46	-8.27	-6.37	-7.96	-8.69	-7.63	-6.40	-8.52	-10.50	-10.01	-12.10	-7.16
315.0	-4.45	-5.77	-8.06	-7.01	-8.60	-9.80	-9.44	-8.59	-11.95	-12.37	-8.91	-12.17	-7.94
330.0	-3.13	-4.22	-5.60	-6.37	-7.34	-8.48	-8.71	-10.11	-10.97	-12.48	-7.57	-12.06	-8.92
345.0	-2.27	-2.49	-2.49	-3.12	-2.68	-4.43	-4.21	-7.12	-7.09	-7.84	-6.76	-11.28	-9.99
360.0	-1.82	-1.05	-0.63	0.13	0.27	0.09	-0.85	-2.37	-4.14	-4.45	-6.76	-9.66	-11.38

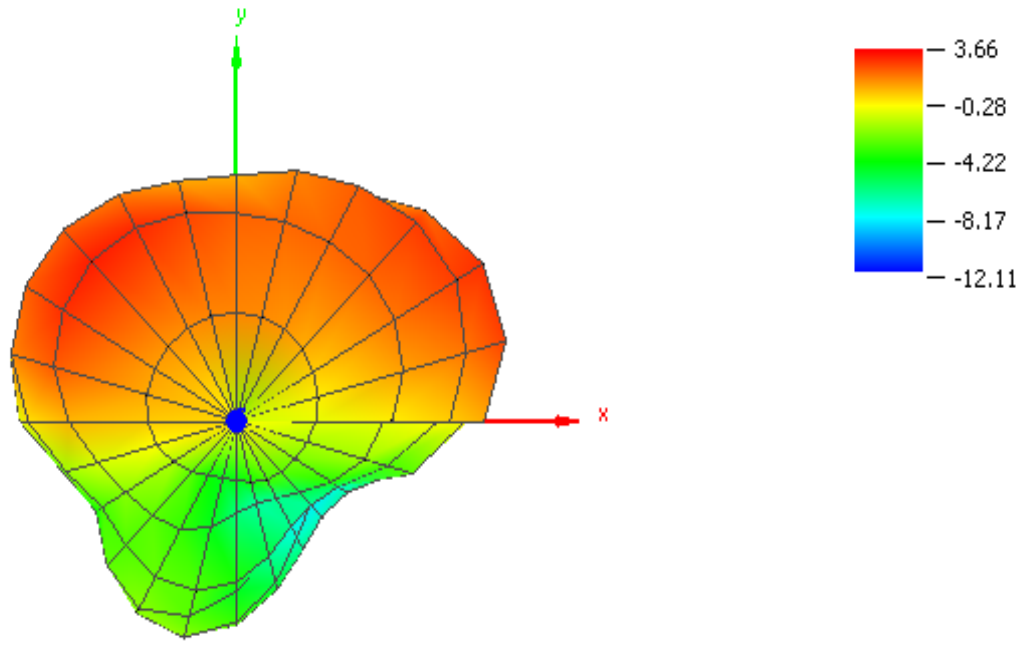
Theta = 90, Phi = 0



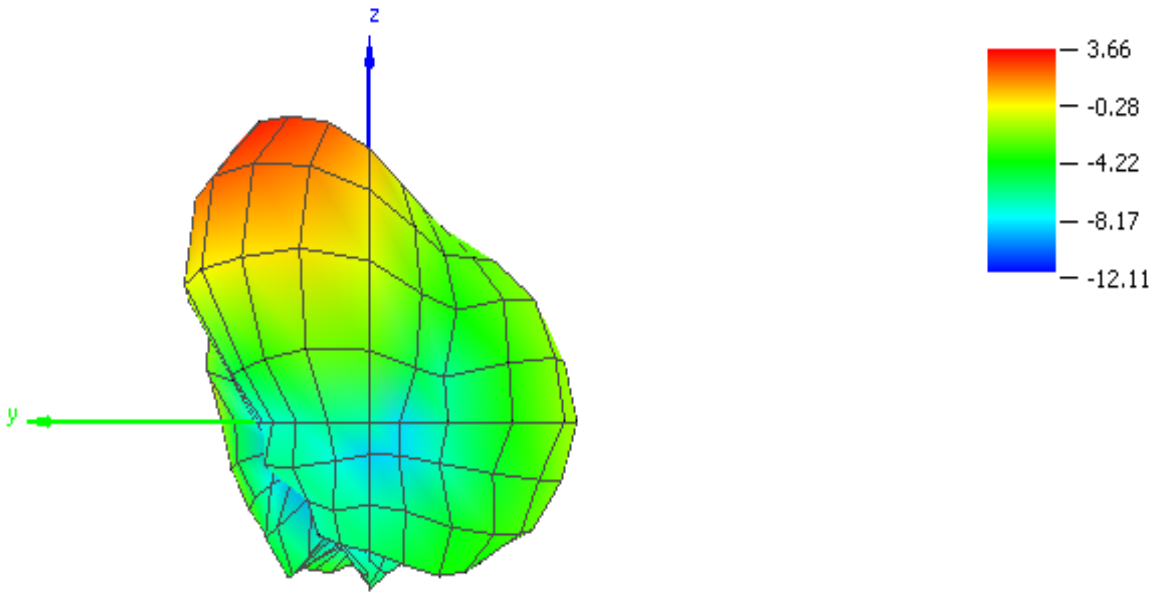
Theta = 90, Phi = 90



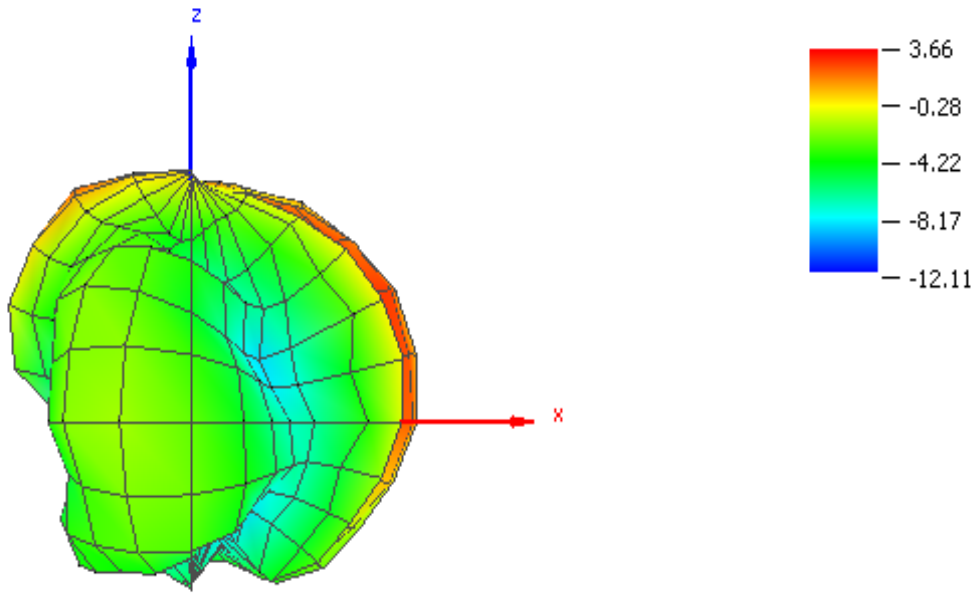
Theta = 0, Phi = 0



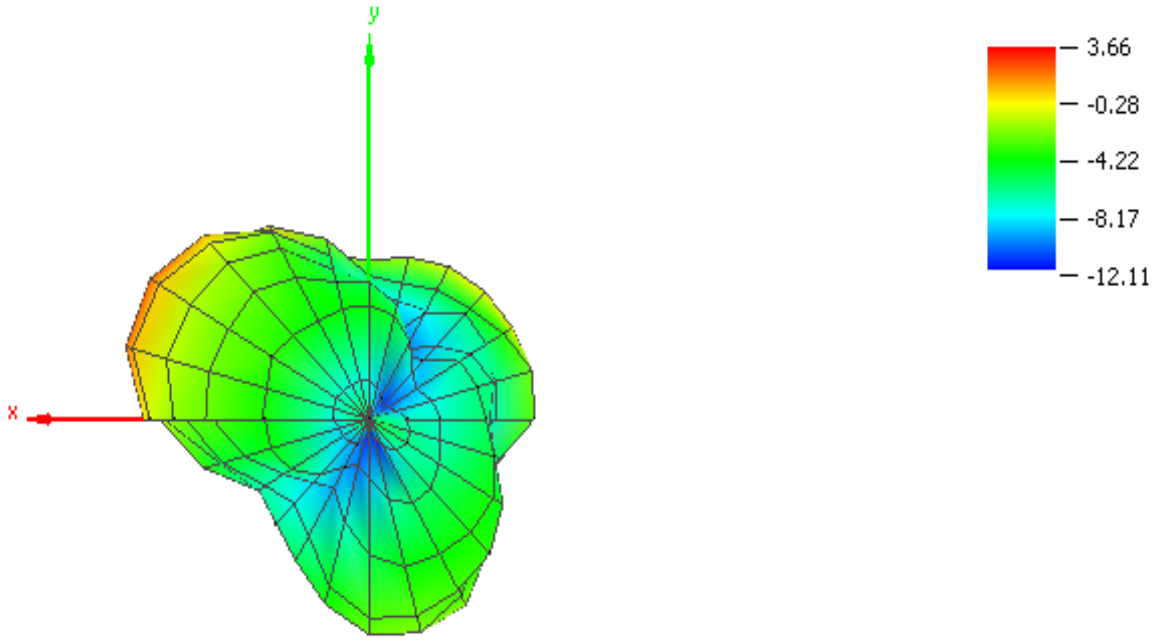
Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 180, Phi = 0



IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products		**Applications**	
Amplifiers	amplifier.ti.com	Audio	www.ti.com/audio
Data Converters	dataconverter.ti.com	Automotive	www.ti.com/automotive
DLP® Products	www.dlp.com	Communications and Telecom	www.ti.com/communications
DSP	dsp.ti.com	Computers and Peripherals	www.ti.com/computers
Clocks and Timers	www.ti.com/clocks	Consumer Electronics	www.ti.com/consumer-apps
Interface	interface.ti.com	Energy	www.ti.com/energy
Logic	logic.ti.com	Industrial	www.ti.com/industrial
Power Mgmt	power.ti.com	Medical	www.ti.com/medical
Microcontrollers	microcontroller.ti.com	Security	www.ti.com/security
RFID	www.ti-rfid.com	Space, Avionics & Defense	www.ti.com/space-avionics-defense
RF/IF and ZigBee® Solutions	www.ti.com/lprf	Video and Imaging	www.ti.com/video
		Wireless	www.ti.com/wireless-apps

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2010, Texas Instruments Incorporated