Wireless Device Over the Air Performance Test Report and Antenna Specifications

APPLICANT	**:**	**Getac Technology Corporation.**
MANUFACTURER	**:**	**Ability Enterprise Co., Ltd.**
EQUIPMENT	**:**	**Body Worn Camera**

SPORTON INTERNATIONAL INC. (Tao Yuan Hsien I)

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

BRAND NAME	**Getac**
MODEL NAME	**BC-03**
DEVICE RECEIVING DATE	**Dec. 19, 2018**
TEST DATE(S)	**Dec. 26, 2018**

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Tim Kao / Vice Manager

Approved by:

Lorien Chang / Manager

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Revision history

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
OQ660109-09	1.0	Initial issue of report	Feb. 27, 2019

1. Administration data

1.1 Testing laboratory

Test Site	SPORTON INTERNATIONAL INC. (Tao Yuan Hsien I)
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

1.2 Applicant

Company Name	Getac Technology Corporation.
Address	5F., Building A, No. 209, Sec.1, Nangang Rd.,Nangang Dist., Taipei City 11568, Taiwan, R.O.C.
Contact Person	kevin.chiang / kevin.chiang@getac.com.tw
Telephone Number	TEL: +886-2-2785-7888#1145 FAX: +886-2-2652-5865

1.3 Manufacturer

Company Name	Ability Enterprise Co., Ltd.
Address	4F., No.8, Lane7, Wuchiuan Rd, Wugu Dist., New Taipei City 24886, Taiwan, R.O.C.

2. General information

2.1 Description of equipment under test (EUT)

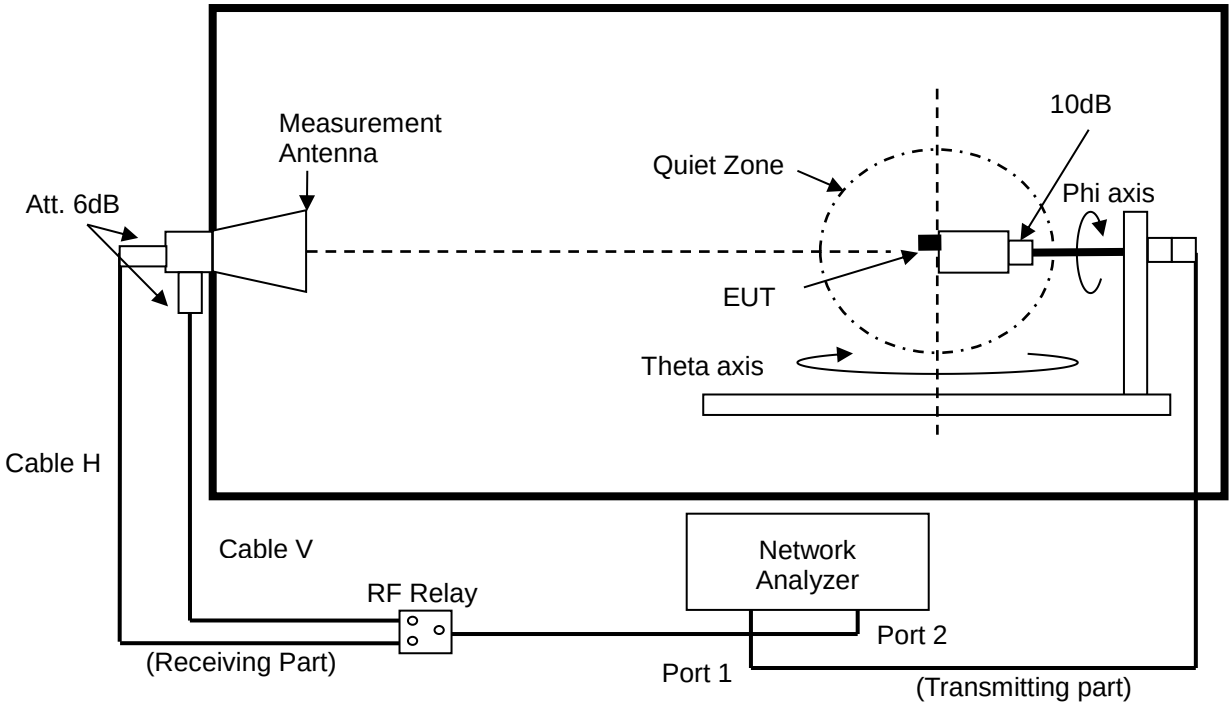
Product Feature & Specification	
Brand Name	Getac
Model Name	BC-03
Antenna Type	Embedded Loop Antenna with extend GND

2.2 Test equipment list

Name	Manufacturer	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
RF Switch	Keysight	3499A	N/A	NCR	NCR
Multi-Axis Positioner Controller	ETS-Lindgren	2090	N/A	NCR	NCR
Medium-Duty Positioner	ETS-Lindgren	2015	N/A	NCR	NCR
Measurement Horn Antenna	EMCO	3164-06	00126510	NCR	NCR
Network Analyzer	Keysight	E5071C	MY46106276	2018/06/06	2019/06/05

3. Measurement Environment

3.1 Passive Measurement Setup



4. Summary of test results

4.1 Declaration

Declaration of Conformity:
The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.
Comments and Explanations:
None

4.2 Ambient condition

Temperature (°C):	24℃	**Humidity (%):**	52%

4.3 Summary table

Getac_BC-03_Gain_FS_650~3800MHz_Cont15_Main (With Antenna)					
Frequency	Ant. Port Input Pwr. (dB)	Peak Gain (dBi)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)
650	0.0	0.23	4.83	-4.60	34.67
680	0.0	0.65	4.82	-4.17	38.30
704	0.0	0.19	4.52	-4.33	36.89
710	0.0	-0.07	4.39	-4.46	35.81
716	0.0	-0.39	4.12	-4.51	35.40
734	0.0	-1.26	3.53	-4.79	33.18
740	0.0	-1.22	3.59	-4.81	33.07
746	0.0	-1.24	3.63	-4.88	32.54
751	0.0	-1.12	3.72	-4.84	32.77
756	0.0	-1.08	3.80	-4.88	32.51
777	0.0	-1.04	3.91	-4.95	32.02
782	0.0	-1.21	3.95	-5.16	30.50
787	0.0	-1.34	3.95	-5.29	29.57
824	0.0	-1.59	3.62	-5.21	30.13
836	0.0	-1.73	3.61	-5.34	29.22
849	0.0	-1.89	3.61	-5.50	28.20
869	0.0	-2.66	3.54	-6.20	23.99
880	0.0	-3.35	3.57	-6.91	20.36
894	0.0	-4.80	3.73	-8.53	14.03
900	0.0	-6.00	3.78	-9.78	10.51
915	0.0	-8.49	3.84	-12.33	5.85
925	0.0	-10.63	3.79	-14.42	3.61
940	0.0	-13.65	3.65	-17.30	1.86
960	0.0	-15.59	3.83	-19.41	1.14
1600	0.0	-0.50	4.80	-5.30	29.52
1650	0.0	-0.40	4.64	-5.04	31.30
1680	0.0	0.03	4.66	-4.63	34.40
1710	0.0	1.35	4.96	-3.61	43.50
1750	0.0	2.67	5.40	-2.73	53.30
1785	0.0	2.85	5.68	-2.83	52.10
1805	0.0	2.63	5.66	-3.03	49.74

1840	0.0	2.24	5.62	-3.38	45.90
1850	0.0	2.22	5.63	-3.41	45.59
1880	0.0	2.41	5.70	-3.29	46.92
1910	0.0	2.60	5.72	-3.11	48.82
1920	0.0	2.58	5.67	-3.09	49.09
1930	0.0	2.38	5.56	-3.18	48.08
1950	0.0	1.56	5.20	-3.64	43.25
1960	0.0	0.99	4.98	-4.00	39.84
1980	0.0	0.30	5.00	-4.69	33.93
1990	0.0	0.07	4.99	-4.91	32.26
2110	0.0	-0.89	5.29	-6.18	24.11
2140	0.0	-0.79	4.95	-5.74	26.66
2170	0.0	-0.80	4.73	-5.53	28.02
2200	0.0	-1.06	5.00	-6.06	24.77
2300	0.0	-6.33	3.53	-9.86	10.33
2350	0.0	-6.00	4.30	-10.30	9.34
2400	0.0	-5.31	4.63	-9.93	10.15
2450	0.0	-3.44	4.84	-8.28	14.86
2500	0.0	-1.65	4.58	-6.24	23.79
2535	0.0	-1.32	4.23	-5.55	27.85
2570	0.0	-1.12	4.19	-5.31	29.44
2620	0.0	-1.88	3.96	-5.84	26.08
2655	0.0	-2.15	4.17	-6.31	23.37
2690	0.0	-2.37	4.43	-6.80	20.90
3300	0.0	-3.47	4.06	-7.52	17.69
3400	0.0	-2.24	4.62	-6.85	20.65
3500	0.0	-0.53	4.31	-4.84	32.85
3600	0.0	-0.10	5.06	-5.16	30.49
3700	0.0	0.65	5.84	-5.19	30.26
3800	0.0	0.21	5.37	-5.17	30.44

Getac_BC-03_Gain_FS_650~3800MHz_Cont15_Aux (With Antenna)					
Frequency	Ant. Port Input Pwr. (dB)	Peak Gain (dBi)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)
704	0.0	0.34	4.58	-4.23	37.71
710	0.0	0.11	4.68	-4.57	34.94
716	0.0	0.02	4.79	-4.77	33.35
720	0.0	-0.11	4.83	-4.94	32.03
725	0.0	-0.28	4.88	-5.16	30.50
734	0.0	-0.56	4.93	-5.49	28.26
740	0.0	-0.64	4.98	-5.61	27.46
746	0.0	-0.79	4.98	-5.77	26.48
751	0.0	-0.84	4.96	-5.80	26.30
756	0.0	-1.00	4.89	-5.89	25.77
777	0.0	-1.44	4.66	-6.10	24.53
782	0.0	-1.81	4.53	-6.34	23.24
787	0.0	-2.02	4.47	-6.49	22.43
791	0.0	-2.19	4.39	-6.58	21.97
806	0.0	-2.27	4.26	-6.53	22.21
821	0.0	-2.01	4.25	-6.26	23.65
824	0.0	-2.02	4.24	-6.25	23.69
832	0.0	-1.91	4.29	-6.21	23.96
836	0.0	-1.96	4.27	-6.23	23.80
847	0.0	-1.78	4.33	-6.12	24.45
849	0.0	-1.77	4.33	-6.09	24.58
862	0.0	-1.58	4.38	-5.96	25.35
869	0.0	-1.49	4.39	-5.88	25.84
880	0.0	-1.36	4.39	-5.75	26.61
894	0.0	-1.62	4.29	-5.90	25.68
900	0.0	-2.10	4.27	-6.37	23.05
915	0.0	-2.68	4.12	-6.80	20.91
925	0.0	-3.23	4.03	-7.26	18.77
940	0.0	-3.75	4.14	-7.89	16.26
960	0.0	-4.56	4.15	-8.71	13.45
1710	0.0	-0.12	5.06	-5.18	30.33

1732	0.0	-0.28	4.66	-4.94	32.03
1750	0.0	-0.88	4.31	-5.20	30.22
1755	0.0	-0.84	4.44	-5.28	29.65
1785	0.0	-1.08	4.89	-5.97	25.29
1805	0.0	-1.25	5.00	-6.26	23.67
1840	0.0	-0.88	4.81	-5.70	26.92
1850	0.0	-0.47	4.90	-5.36	29.09
1880	0.0	0.51	4.81	-4.31	37.10
1910	0.0	1.32	4.82	-3.50	44.66
1920	0.0	1.52	4.81	-3.28	46.95
1930	0.0	1.82	5.03	-3.21	47.79
1950	0.0	1.95	5.29	-3.34	46.38
1960	0.0	1.89	5.37	-3.49	44.81
1980	0.0	1.59	5.36	-3.76	42.03
1990	0.0	1.45	5.24	-3.79	41.82
2110	0.0	-2.07	3.41	-5.48	28.30
2132	0.0	-2.36	3.49	-5.85	26.00
2140	0.0	-2.18	3.63	-5.81	26.27
2155	0.0	-2.10	3.90	-5.99	25.15
2170	0.0	-1.87	4.19	-6.06	24.79
2200	0.0	-1.48	4.66	-6.15	24.29
2250	0.0	-1.32	4.65	-5.97	25.31
2300	0.0	-1.28	4.71	-6.00	25.14
2400	0.0	1.35	5.67	-4.32	36.98

2450	0.0	1.90	5.47	-3.58	43.87
2500	0.0	1.20	4.78	-3.58	43.83
2515	0.0	0.78	4.53	-3.76	42.08
2535	0.0	0.18	4.24	-4.06	39.30
2555	0.0	-0.38	4.06	-4.43	36.03
2570	0.0	-0.65	4.00	-4.65	34.28
2575	0.0	-0.56	4.14	-4.70	33.89
2595	0.0	-0.73	4.40	-5.13	30.69
2620	0.0	-0.65	4.70	-5.35	29.16
2630	0.0	-0.72	4.65	-5.38	29.00
2655	0.0	-0.95	4.78	-5.73	26.75
2680	0.0	-1.17	4.89	-6.06	24.80
2690	0.0	-1.43	4.99	-6.42	22.82
2700	0.0	-1.52	5.04	-6.56	22.06

Frequency with Maximum efficiency					
Main antenna					
Frequency	Ant. Port Input Pwr. (dB)	Peak Gain (dBi)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)
1785	0.0	2.85	5.68	-2.83	52.10
Aux antenna					
Frequency	Ant. Port Input Pwr. (dB)	Peak Gain (dBi)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)
1950	0.0	1.95	5.29	-3.34	46.38

5. Description for EUT testing position

Place and fix it with tape shown as below.

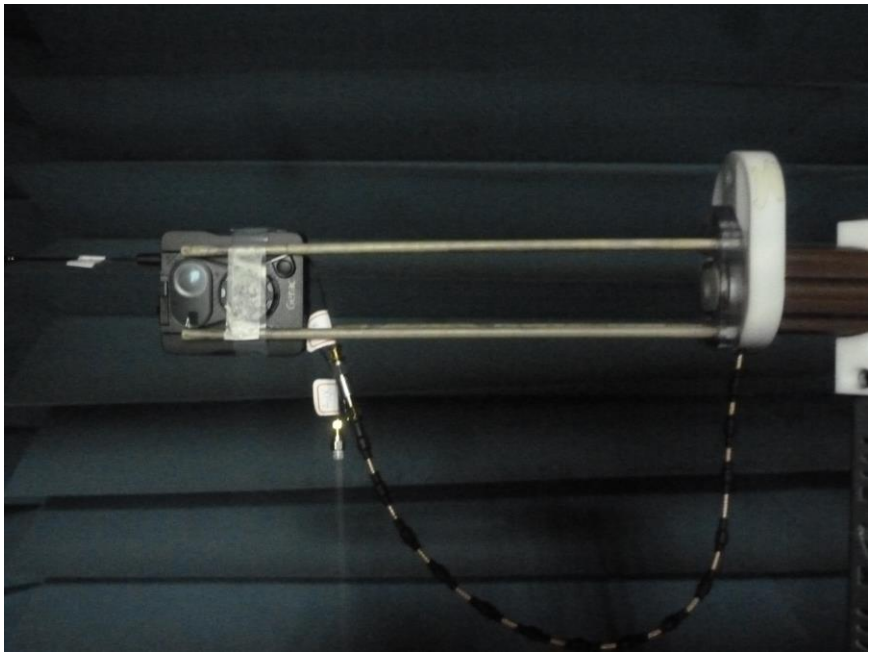


Fig. 5-1 Test position Free Space Front View

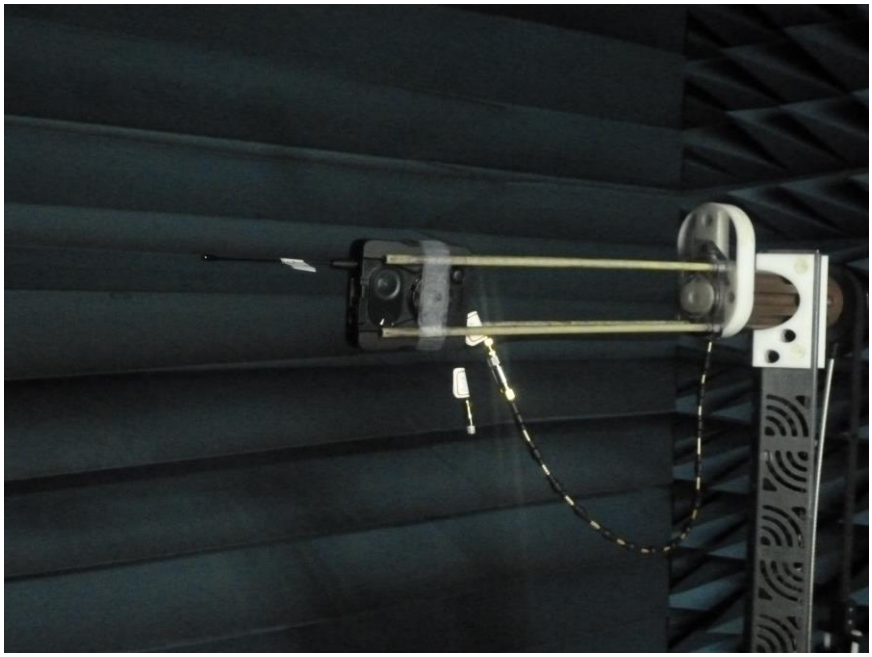
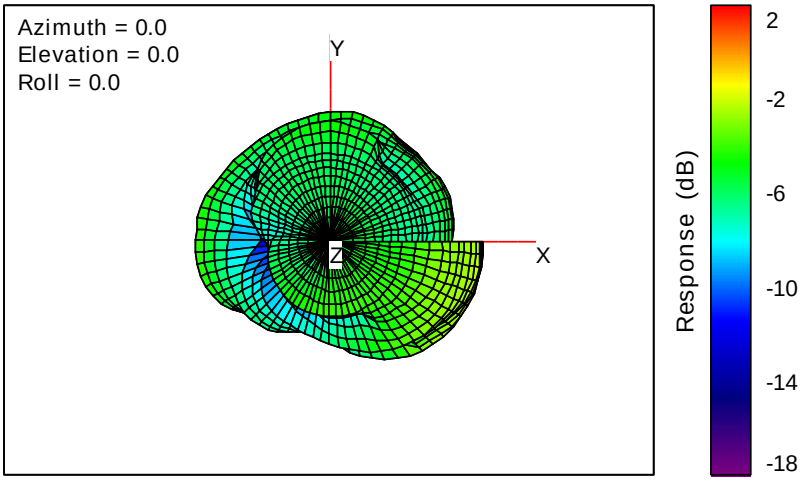
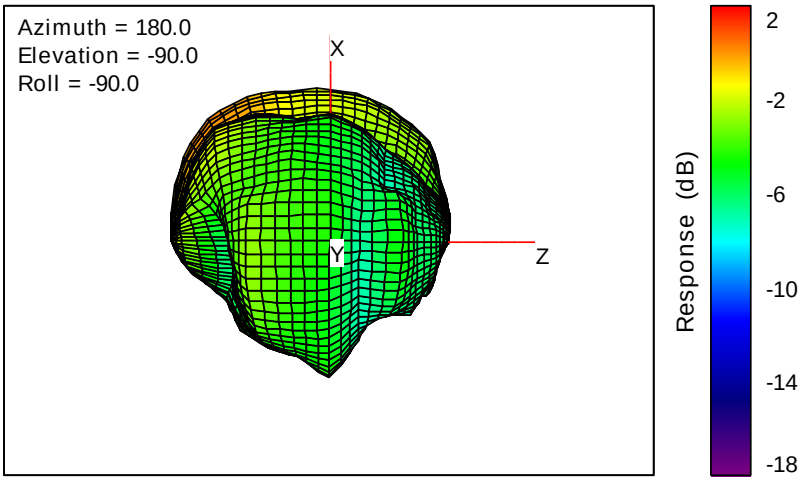


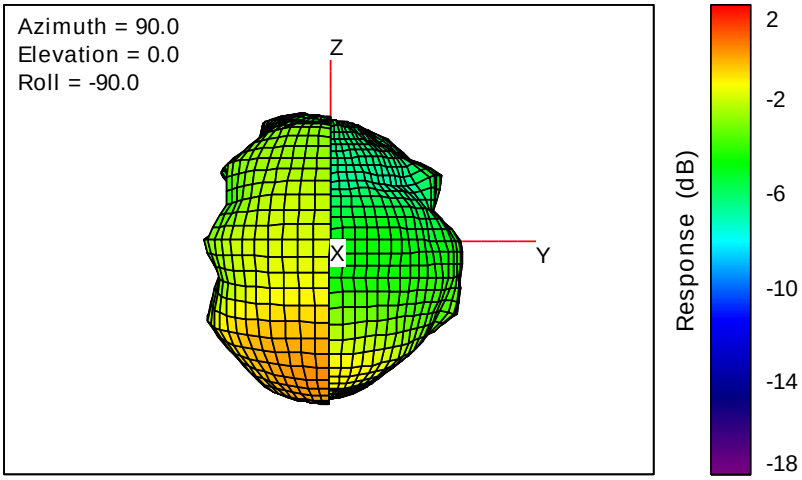
Fig. 5-2 Test position Free Space Side View

Appendix A Pattern Plots

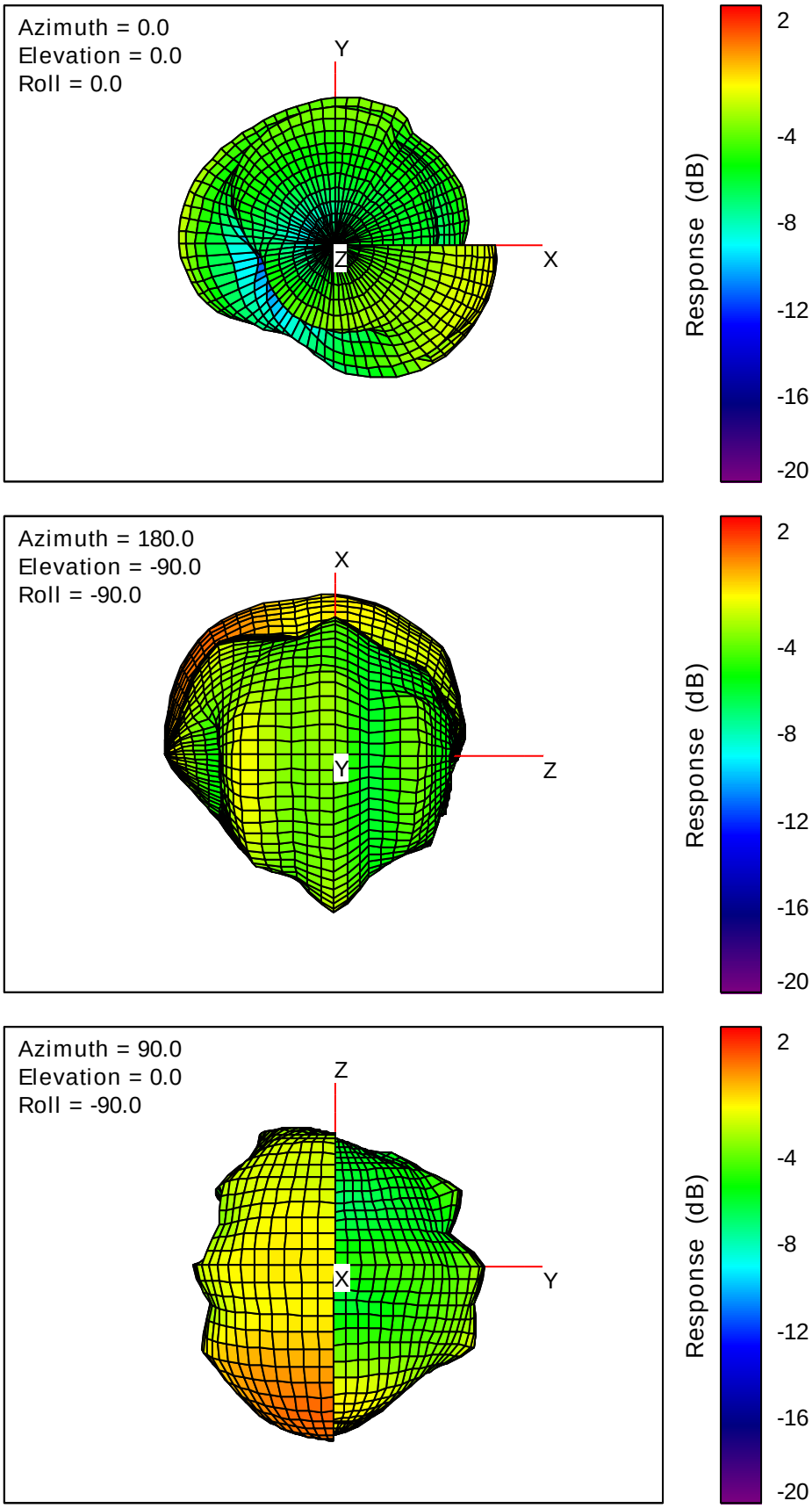
Getac_BC-03_Gain_FS_650MHz_Cont15_Main (With Antenna)



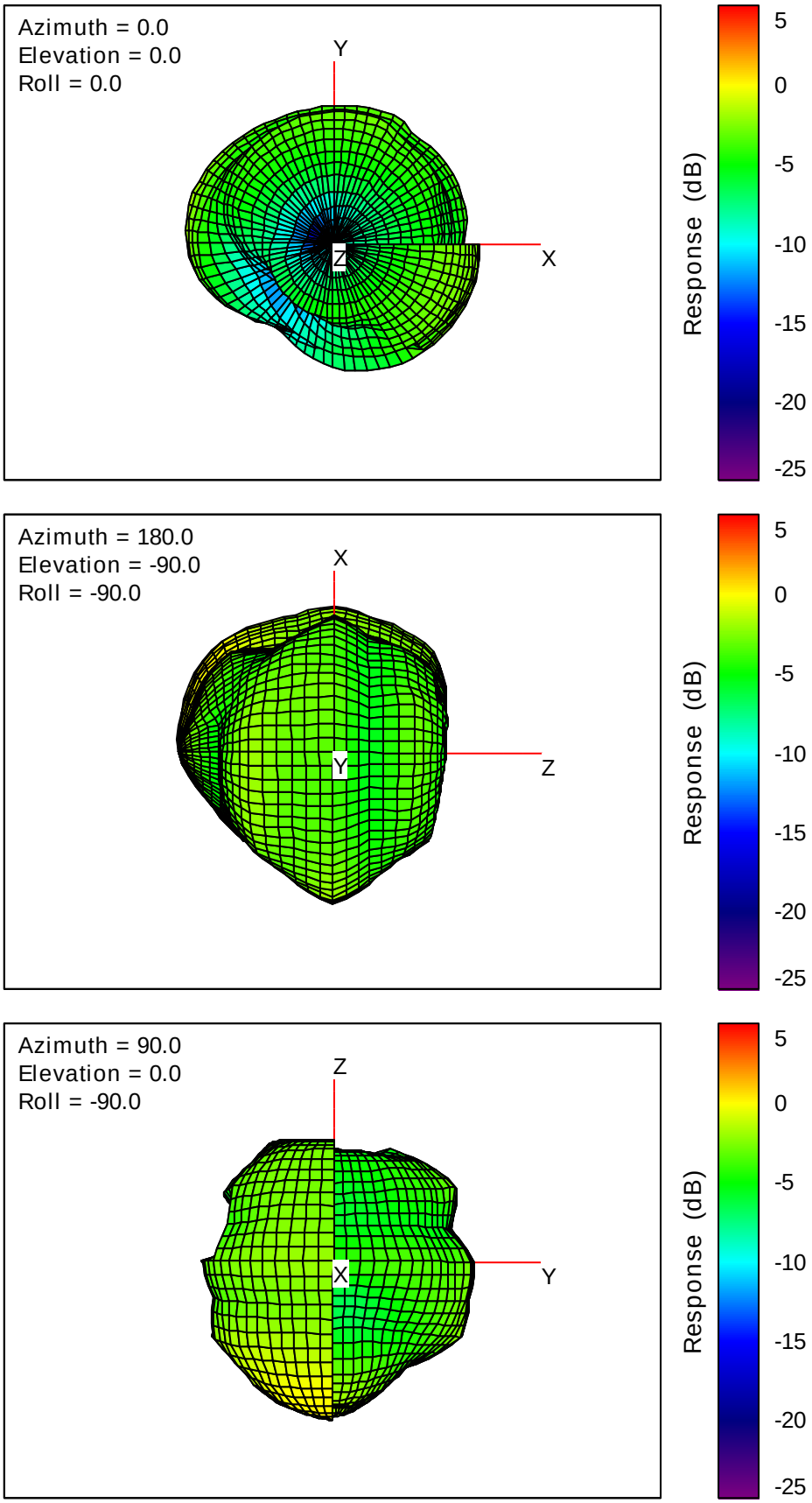




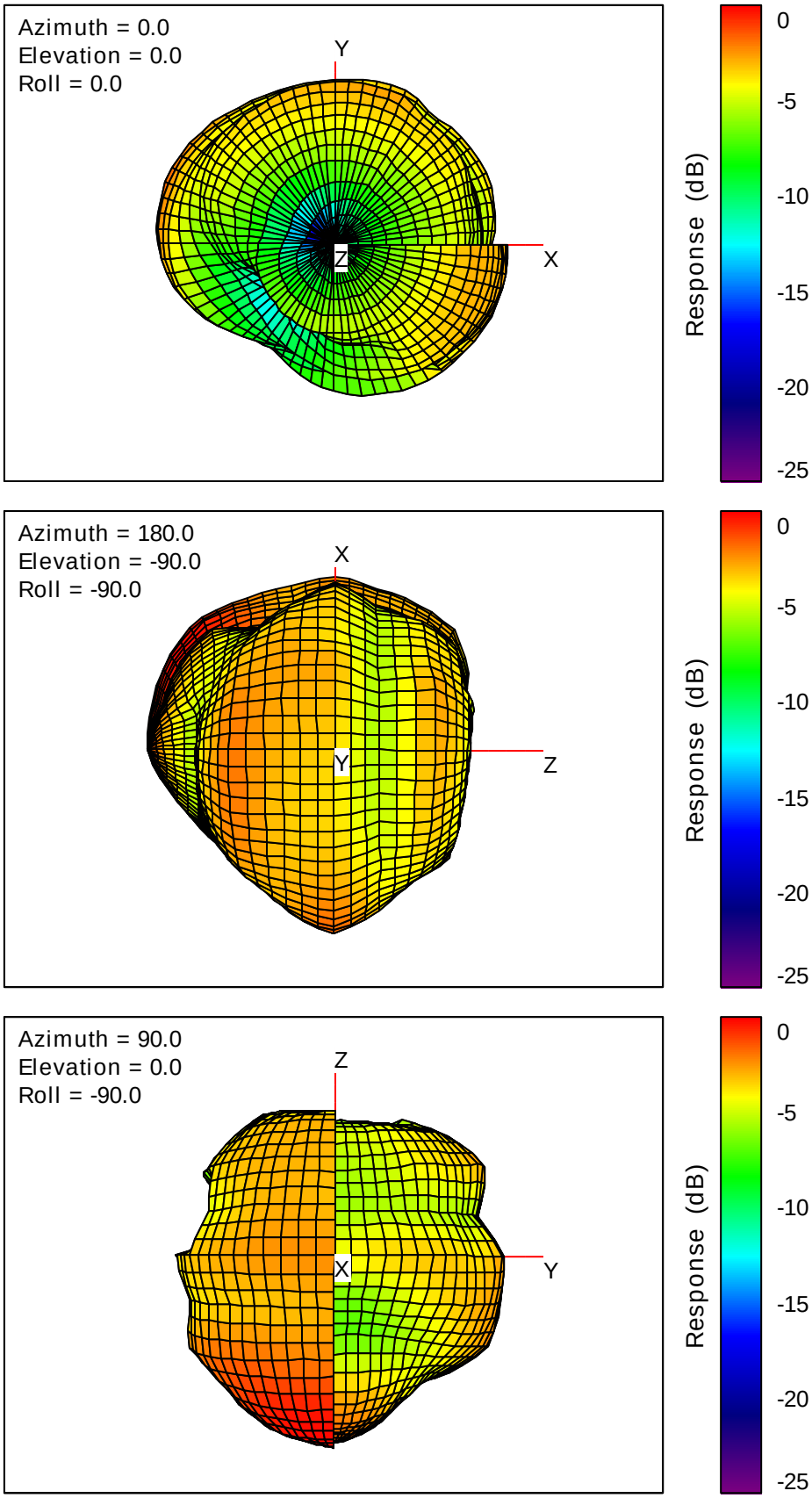
Getac_BC-03_Gain_FS_680MHz_Cont15_Main (With Antenna)



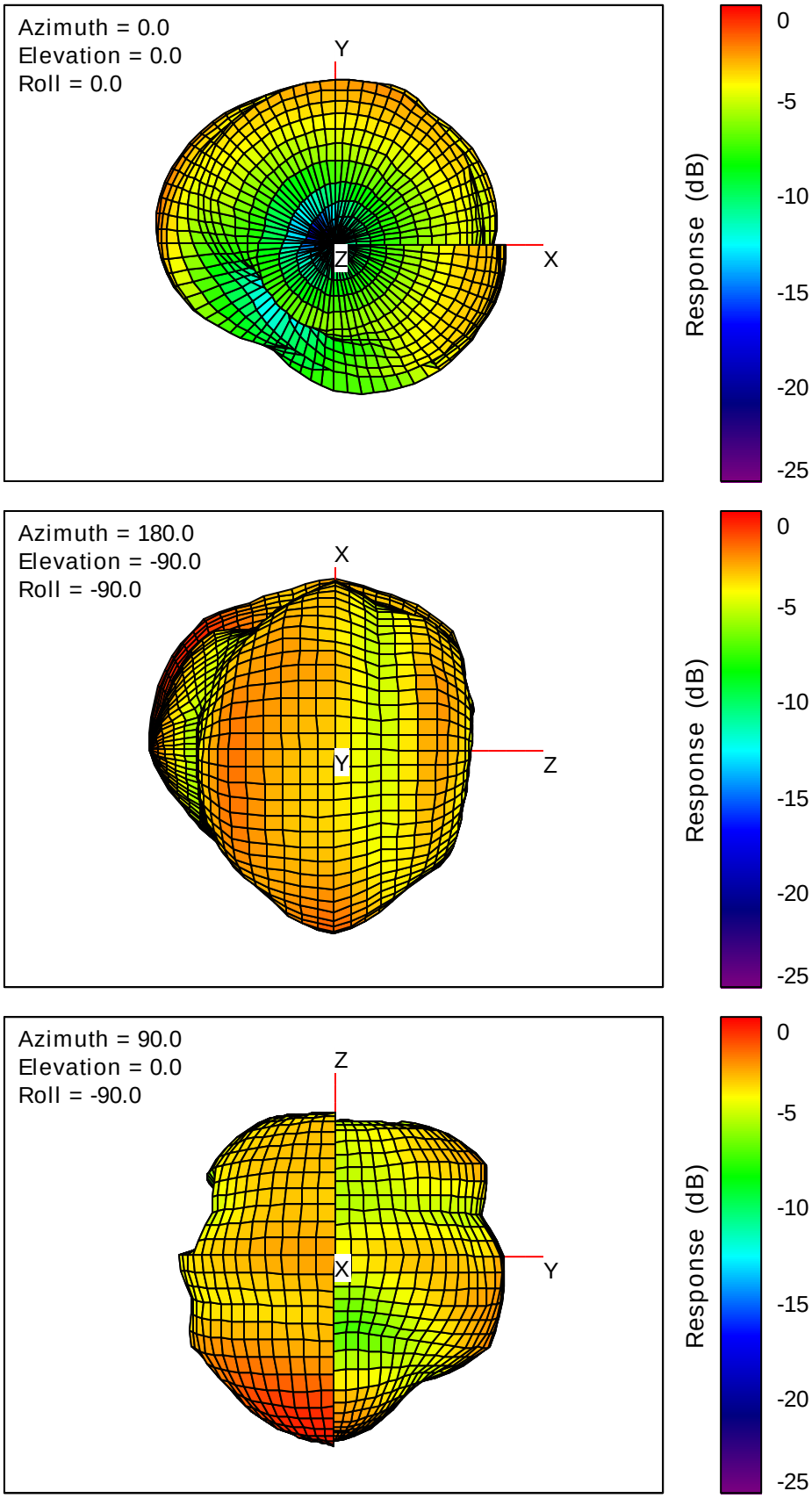
Getac_BC-03_Gain_FS_704MHz_Cont15_Main (With Antenna)



Getac_BC-03_Gain_FS_710MHz_Cont15_Main (With Antenna)



Getac_BC-03_Gain_FS_716MHz_Cont15_Main (With Antenna)



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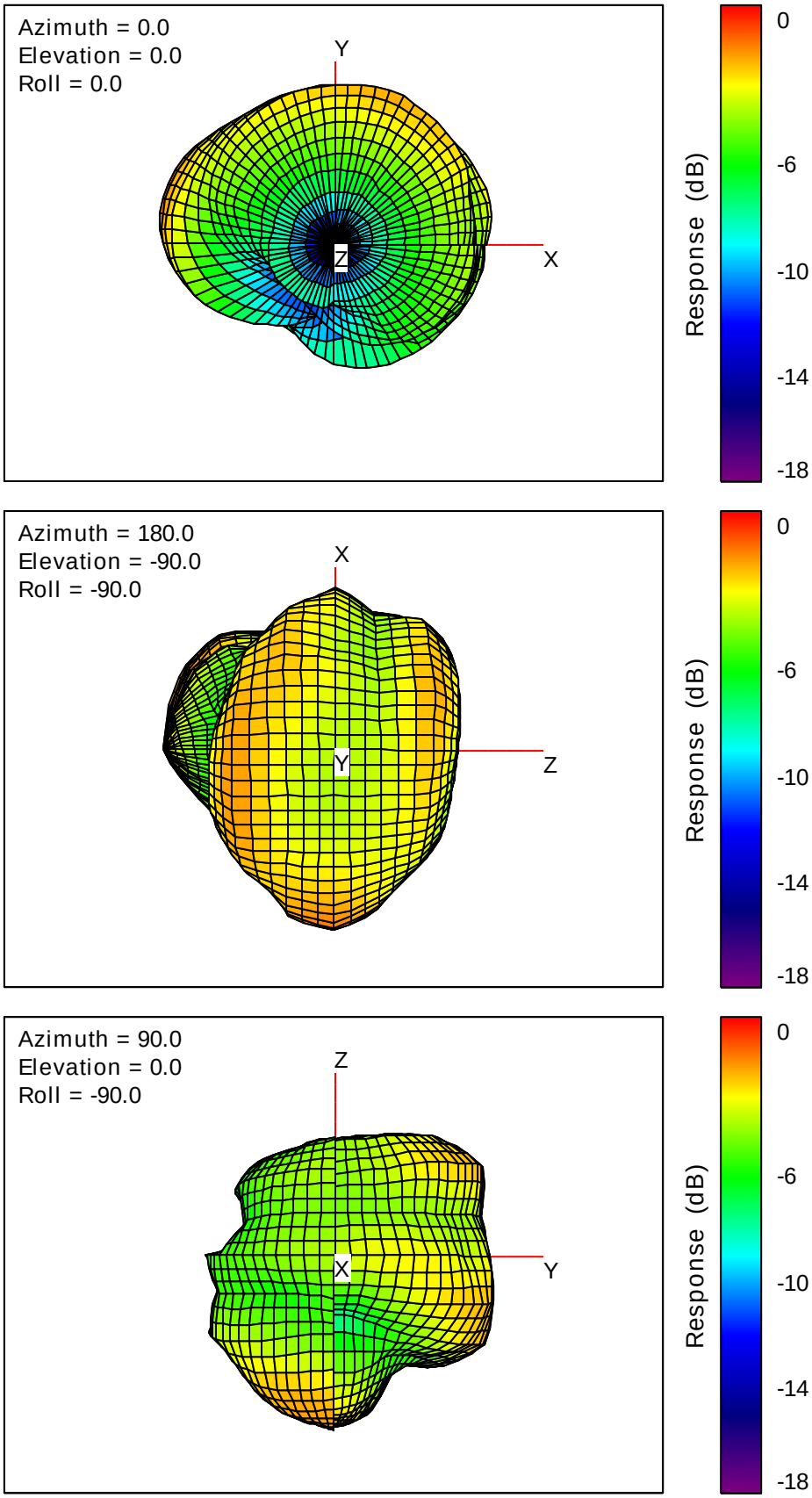
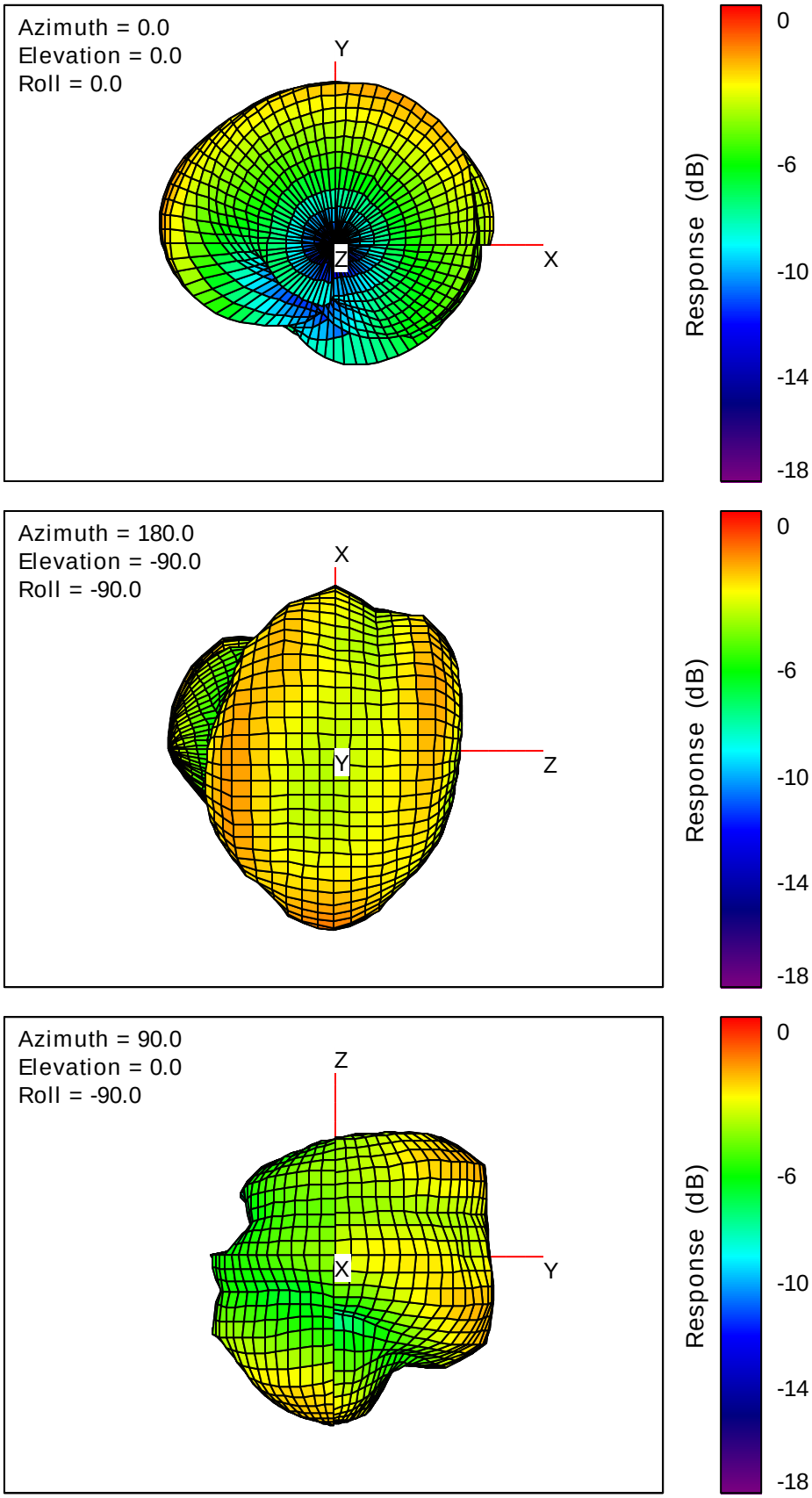
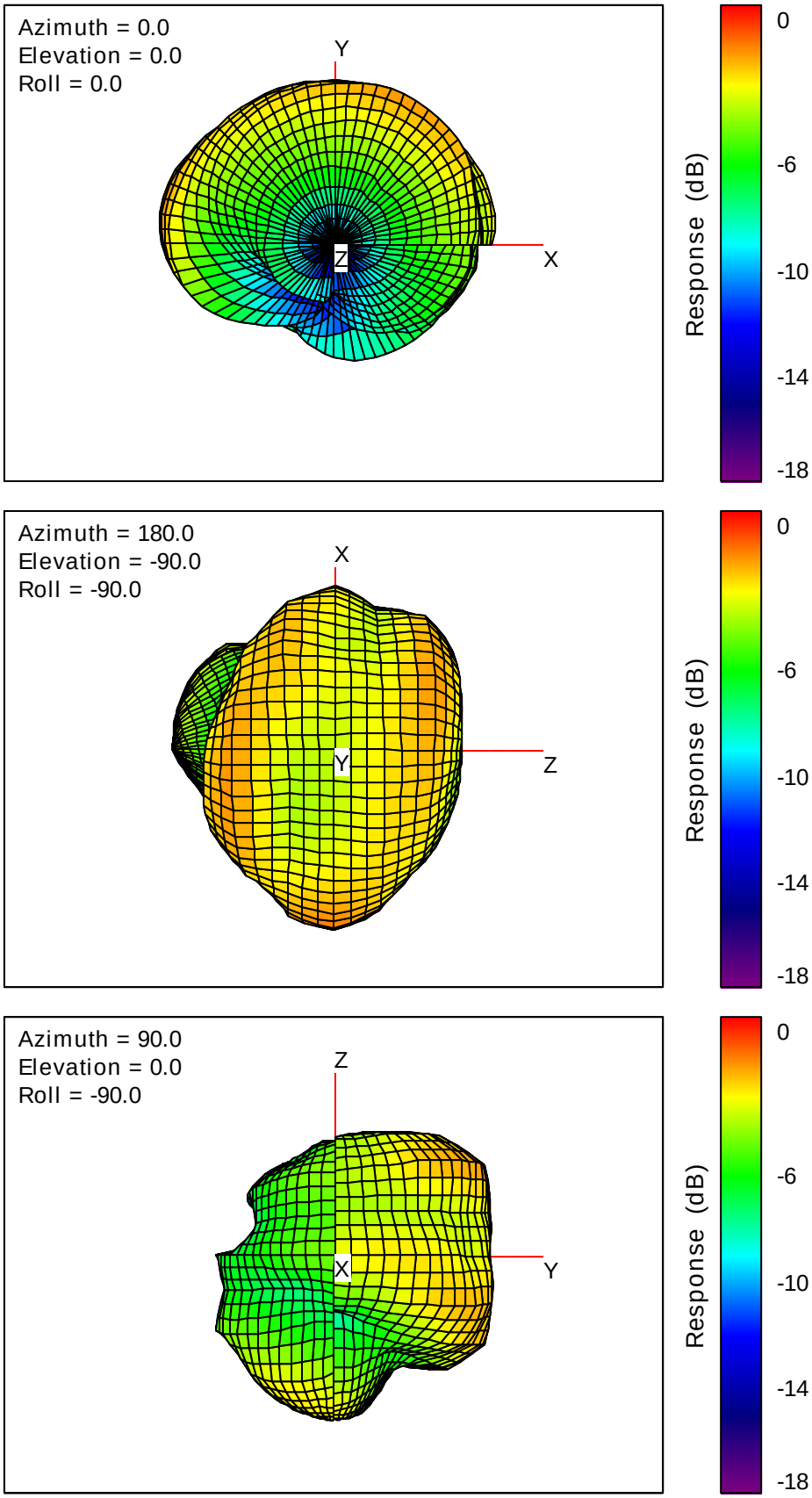


Getac_BC-03_Gain_FS_740MHz_Cont15_Main (With Antenna)



Getac_BC-03_Gain_FS_746MHz_Cont15_Main (With Antenna)



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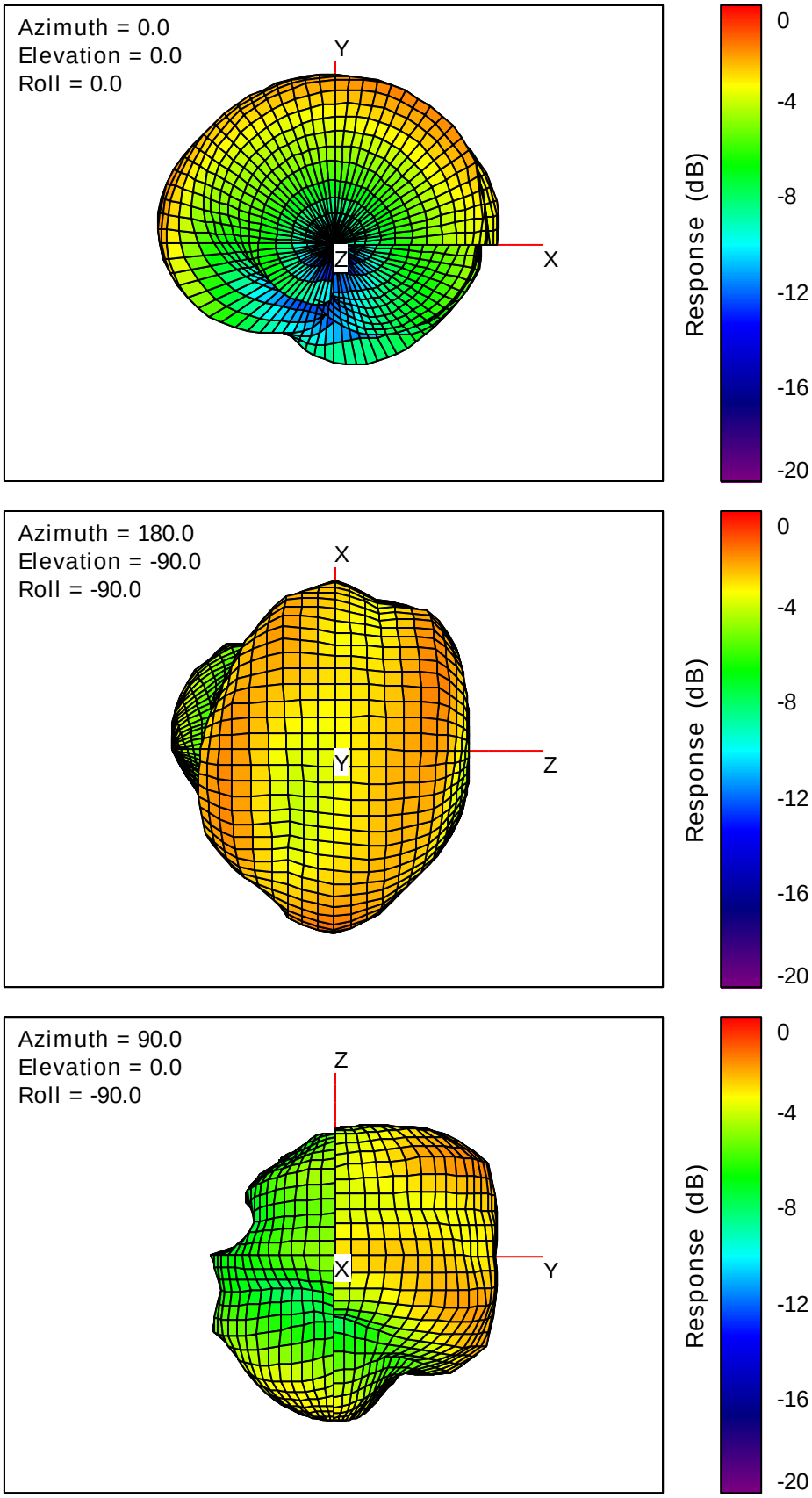
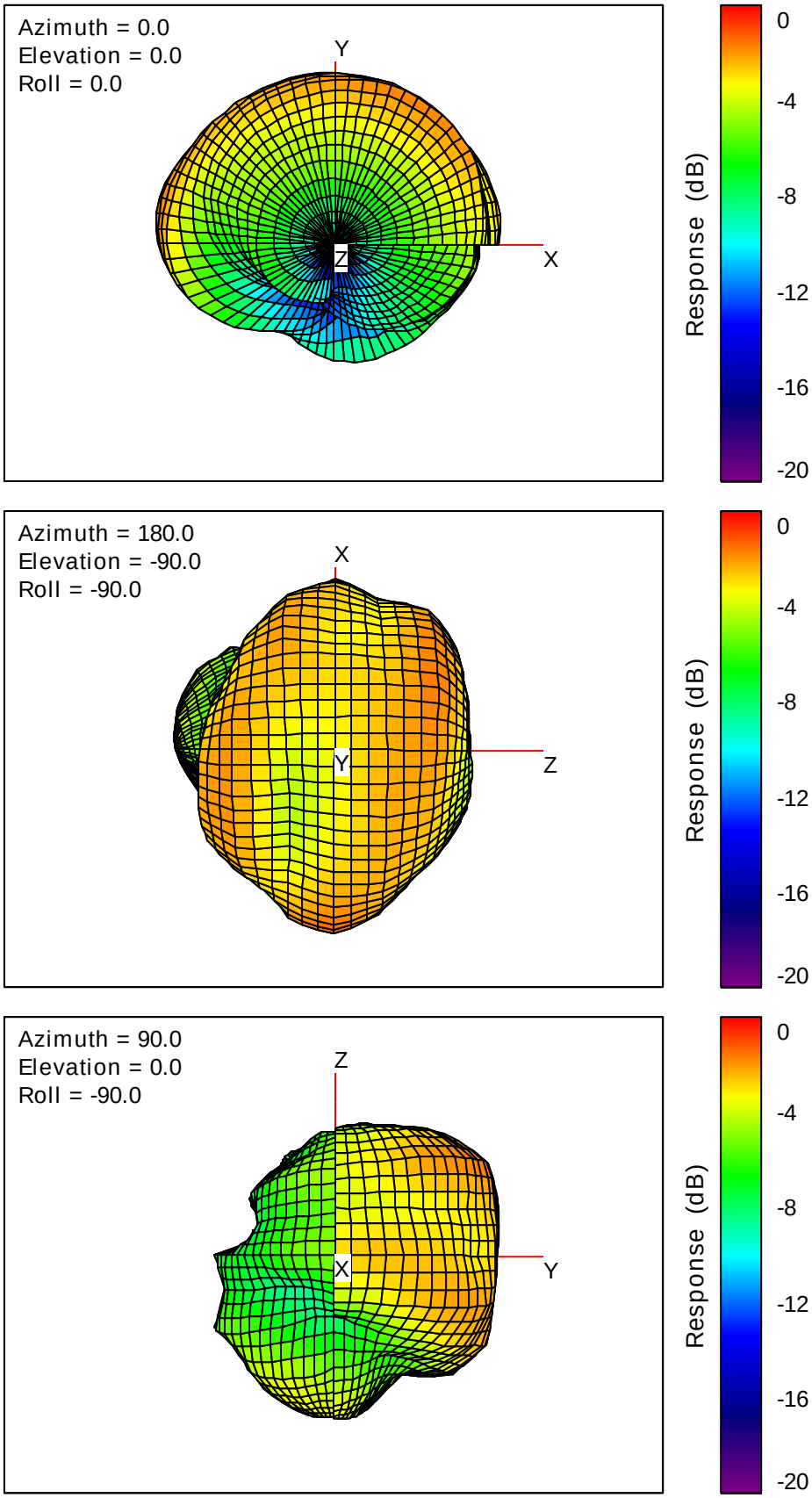
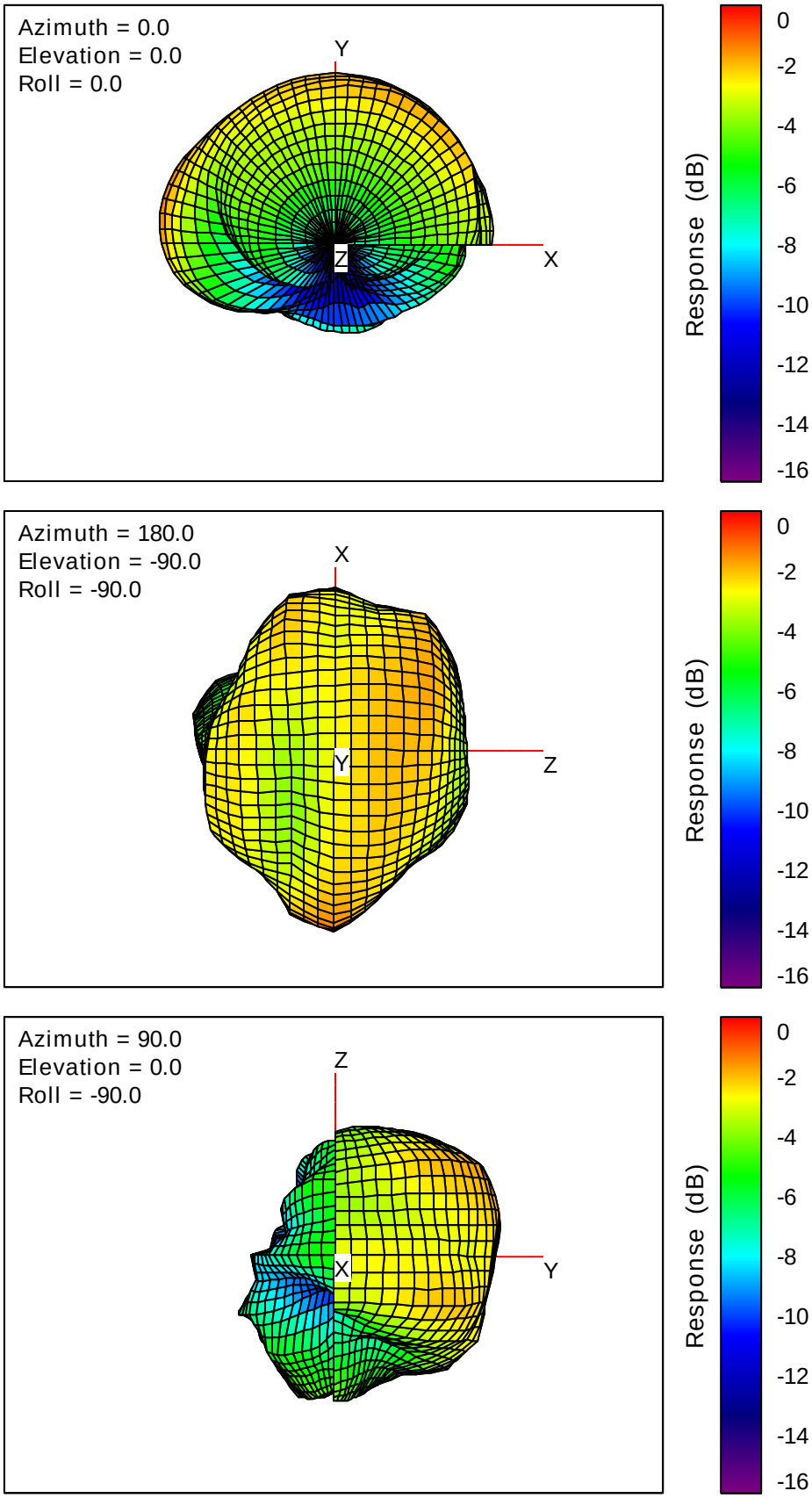


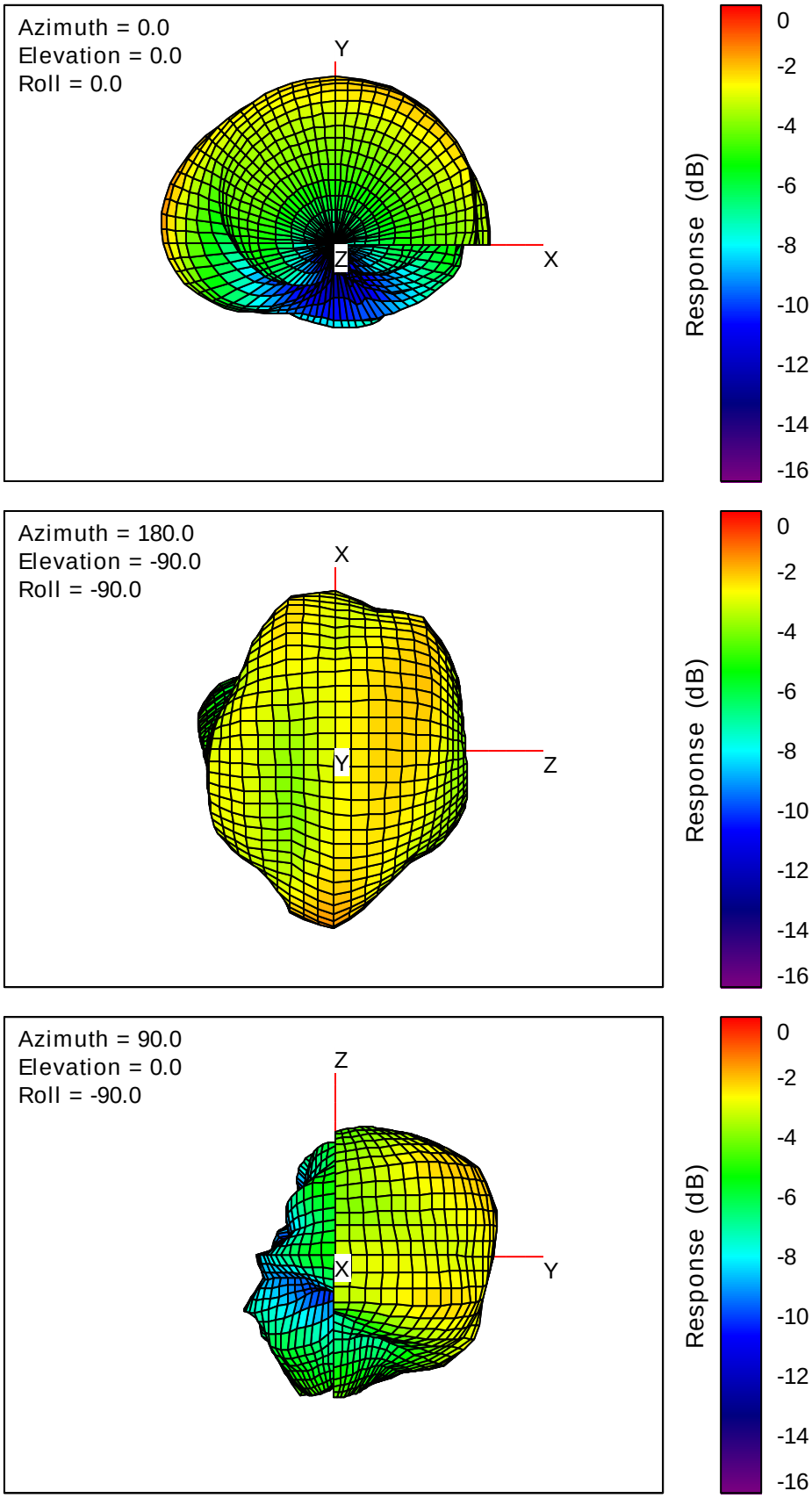
Getac_BC-03_Gain_FS_756MHz_Cont15_Main (With Antenna)



Getac_BC-03_Gain_FS_777MHz_Cont15_Main (With Antenna)



Getac_BC-03_Gain_FS_782MHz_Cont15_Main (With Antenna)



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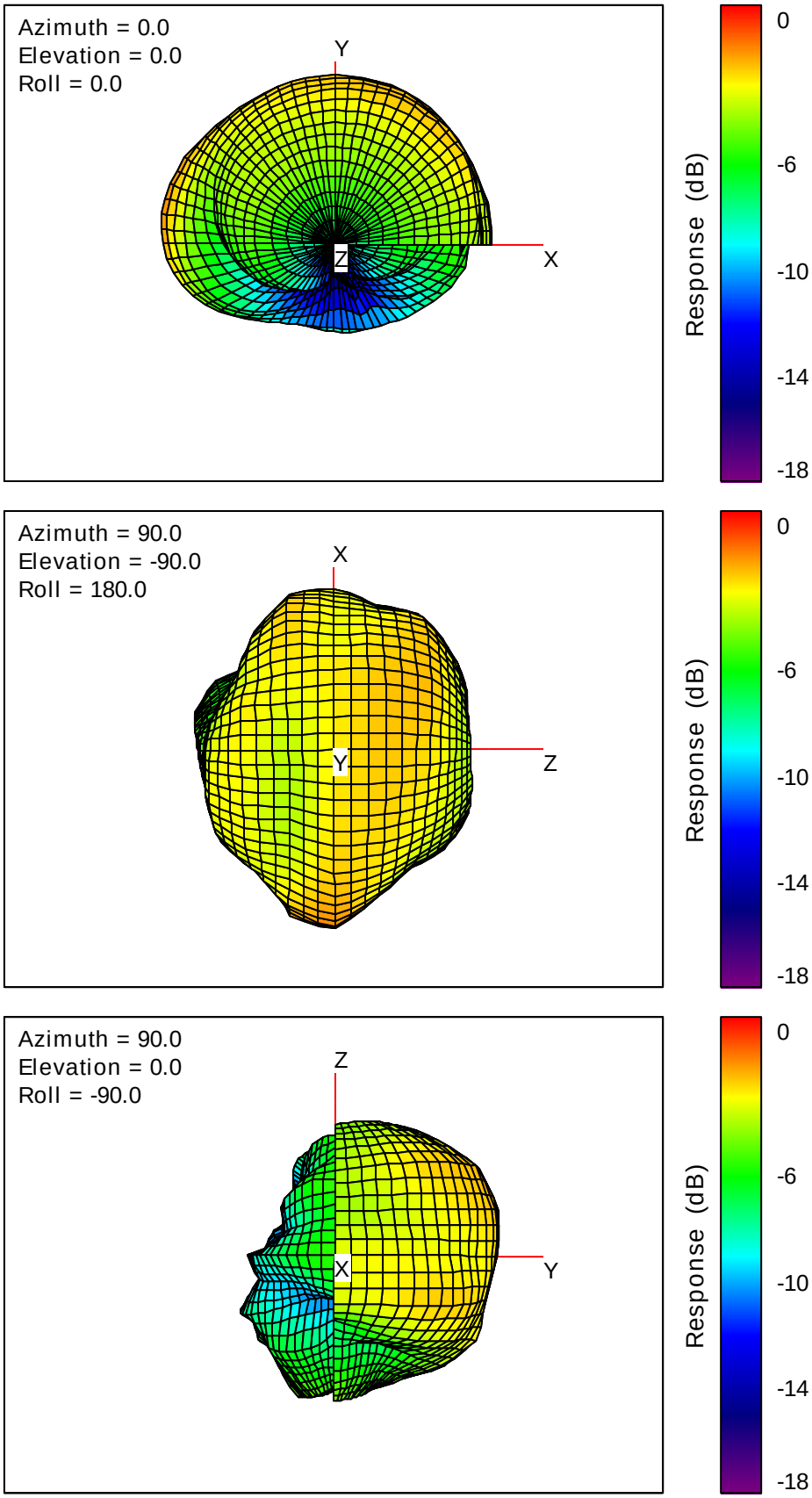

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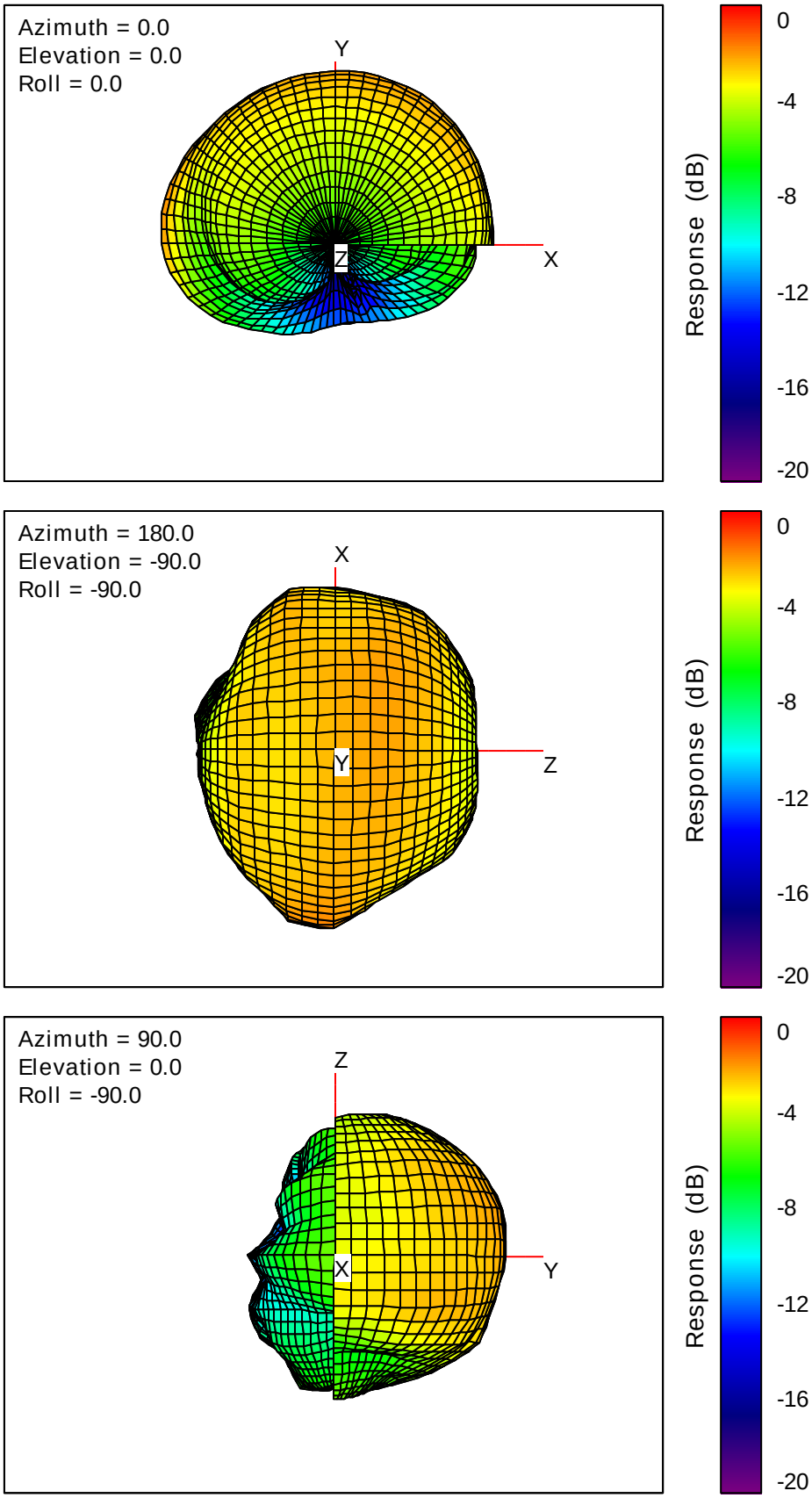

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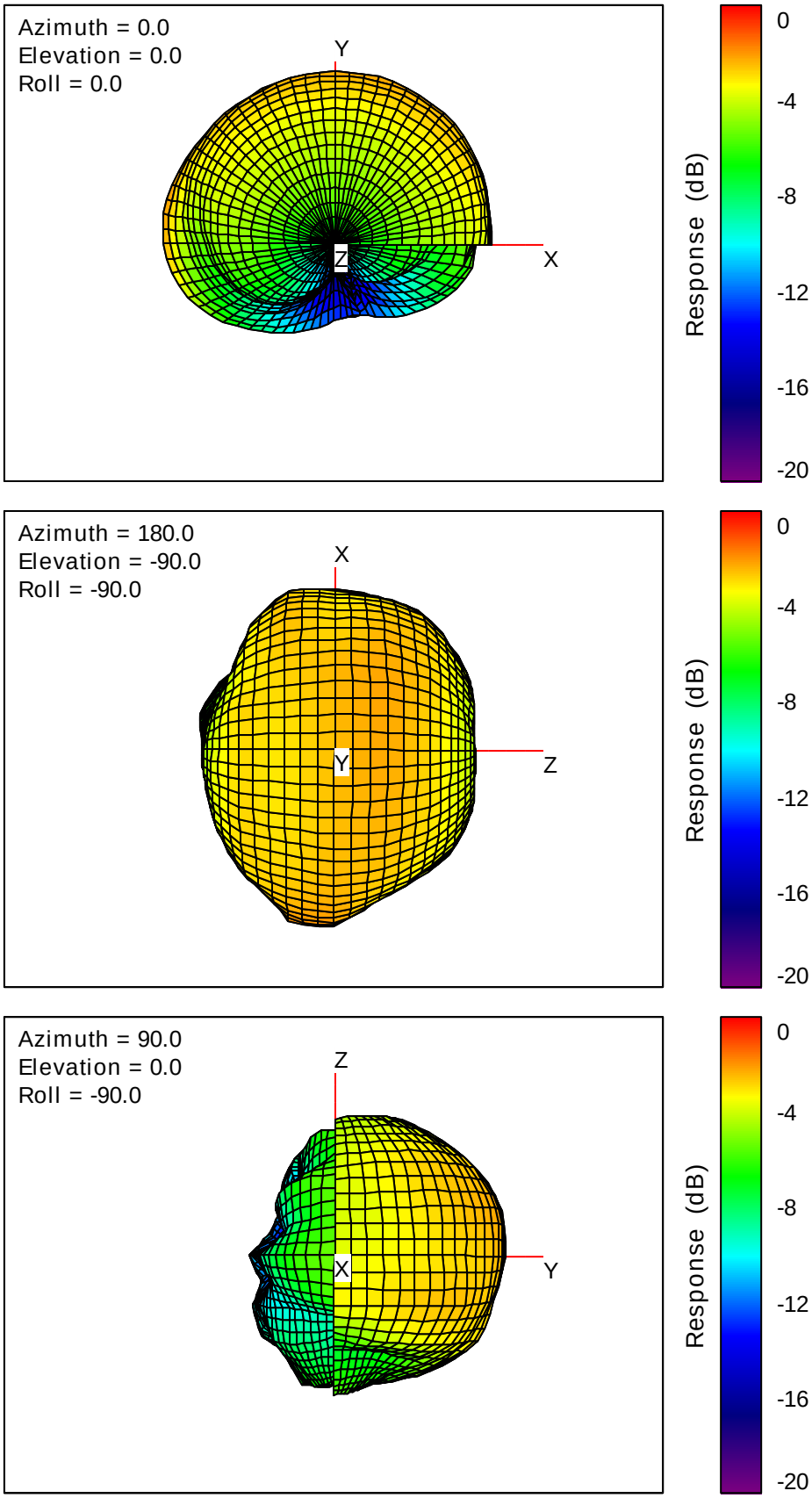

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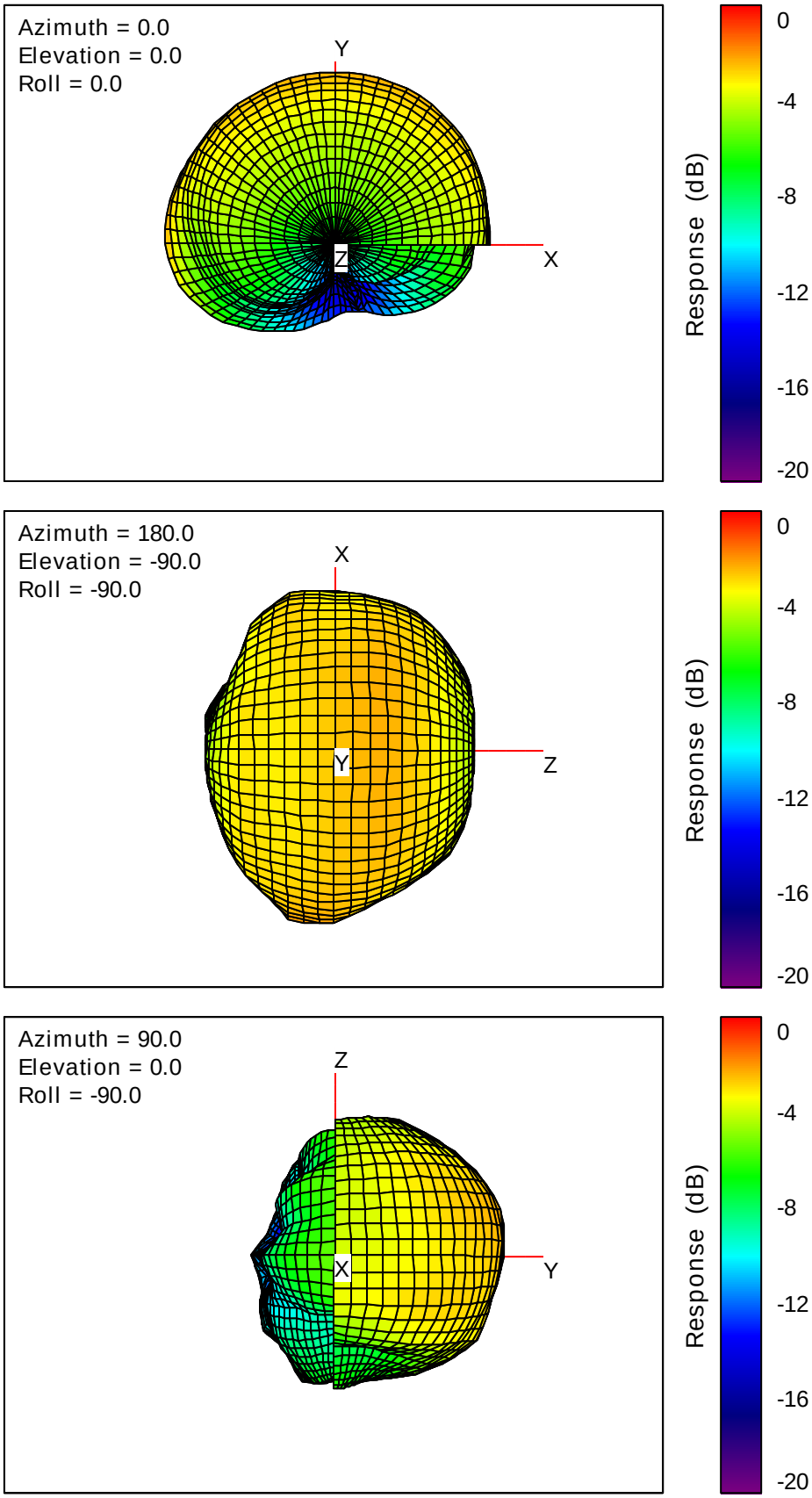
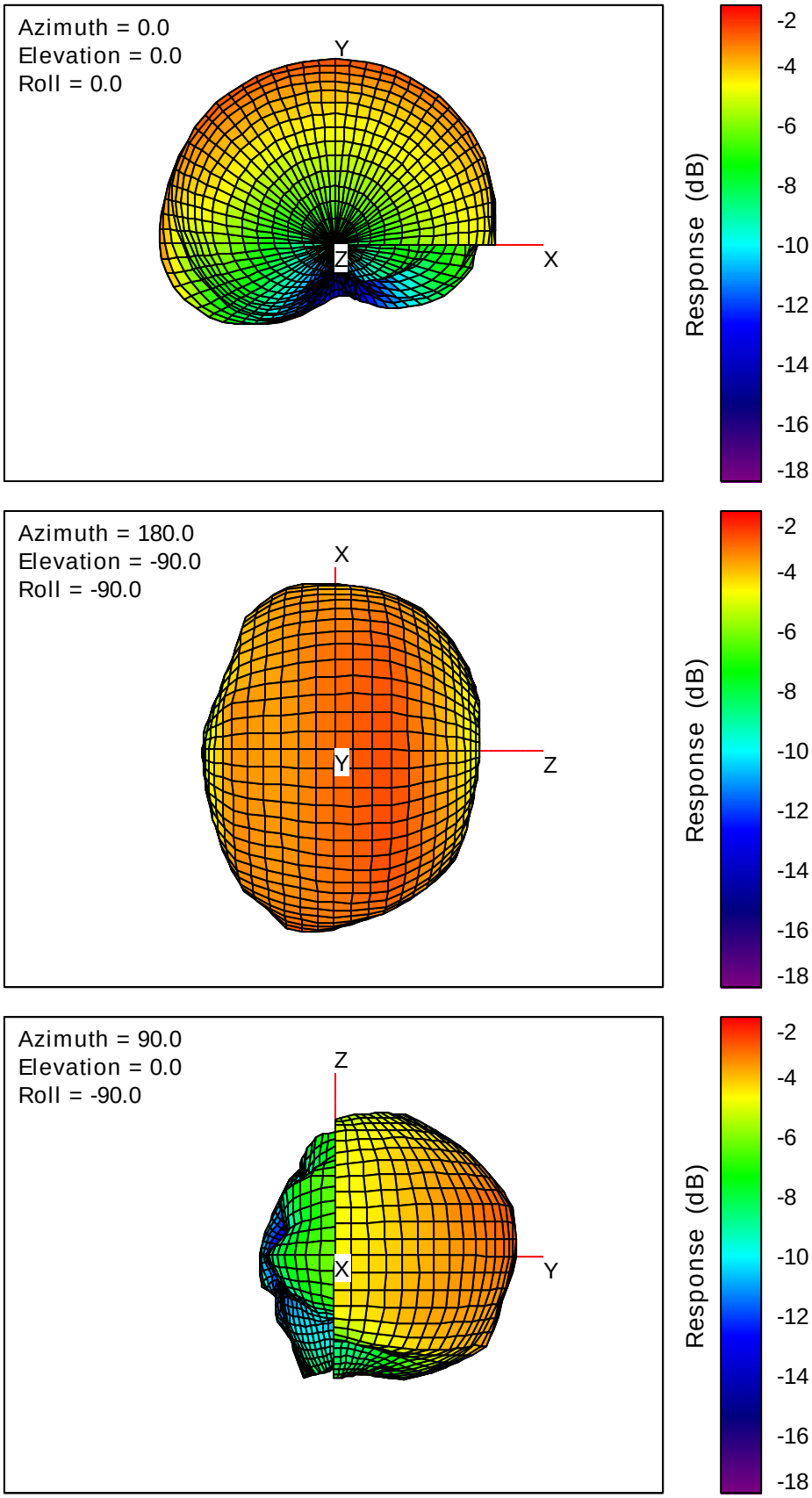
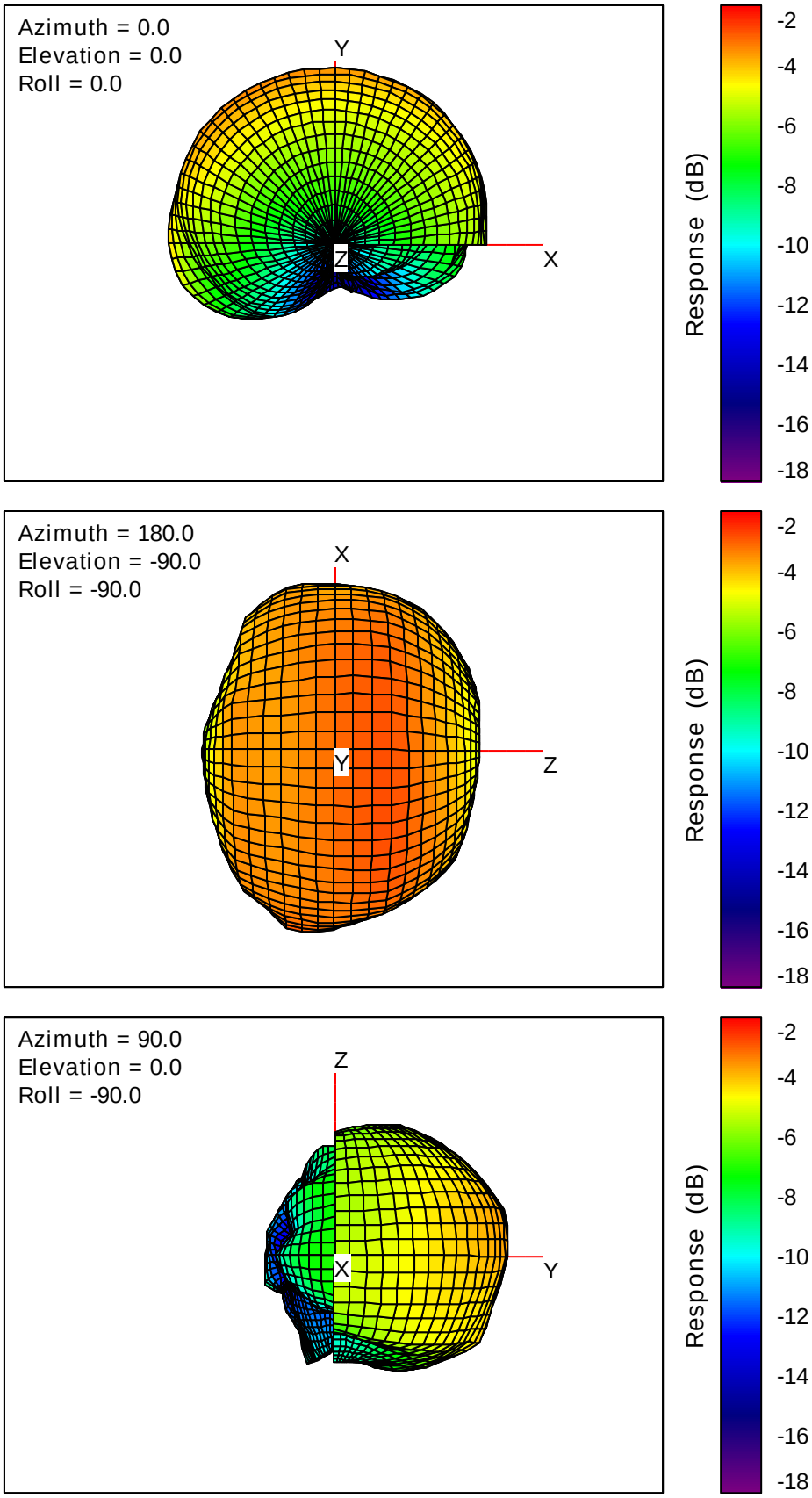


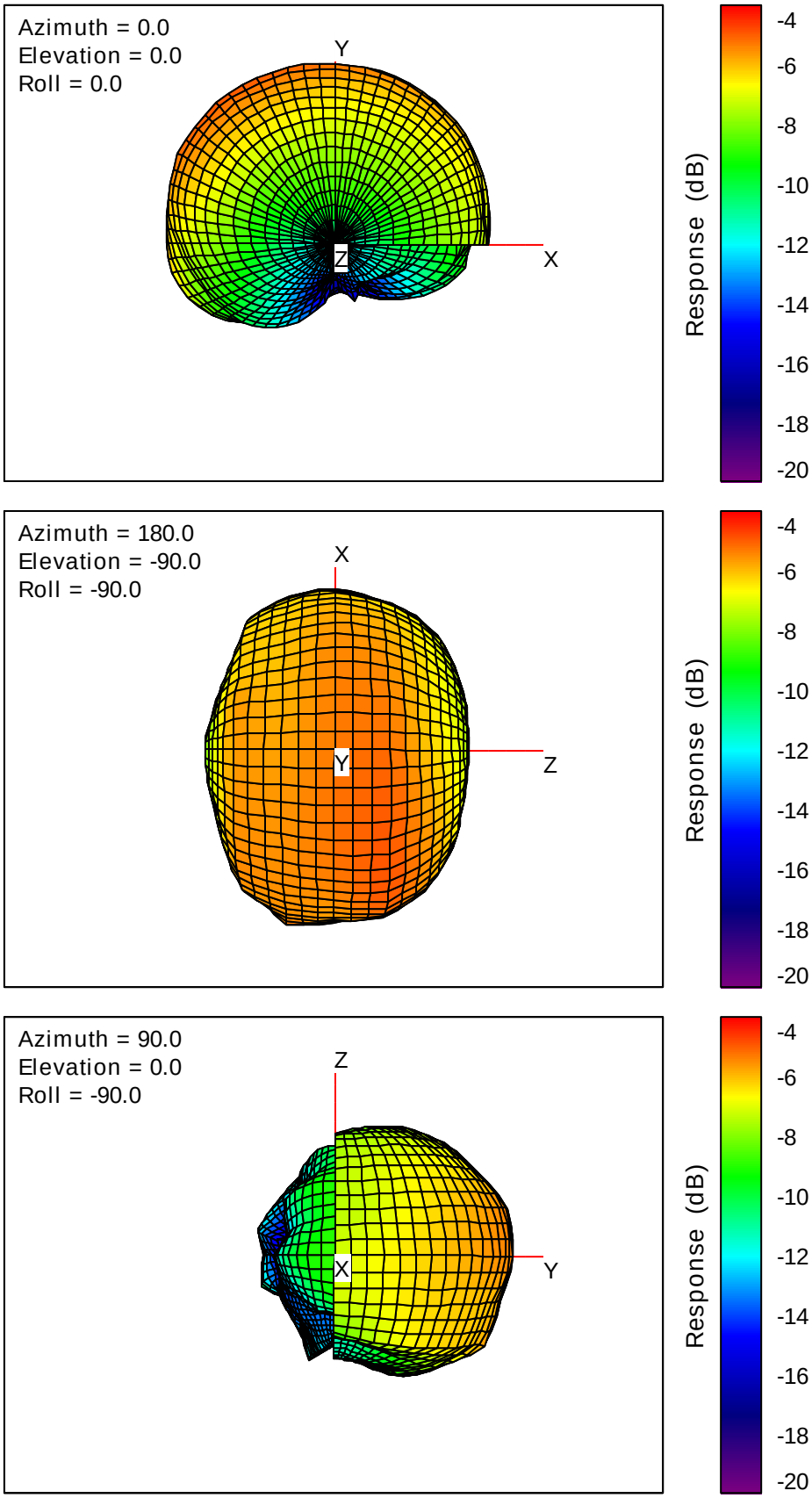
Getac_BC-03_Gain_FS_869MHz_Cont15_Main (With Antenna)



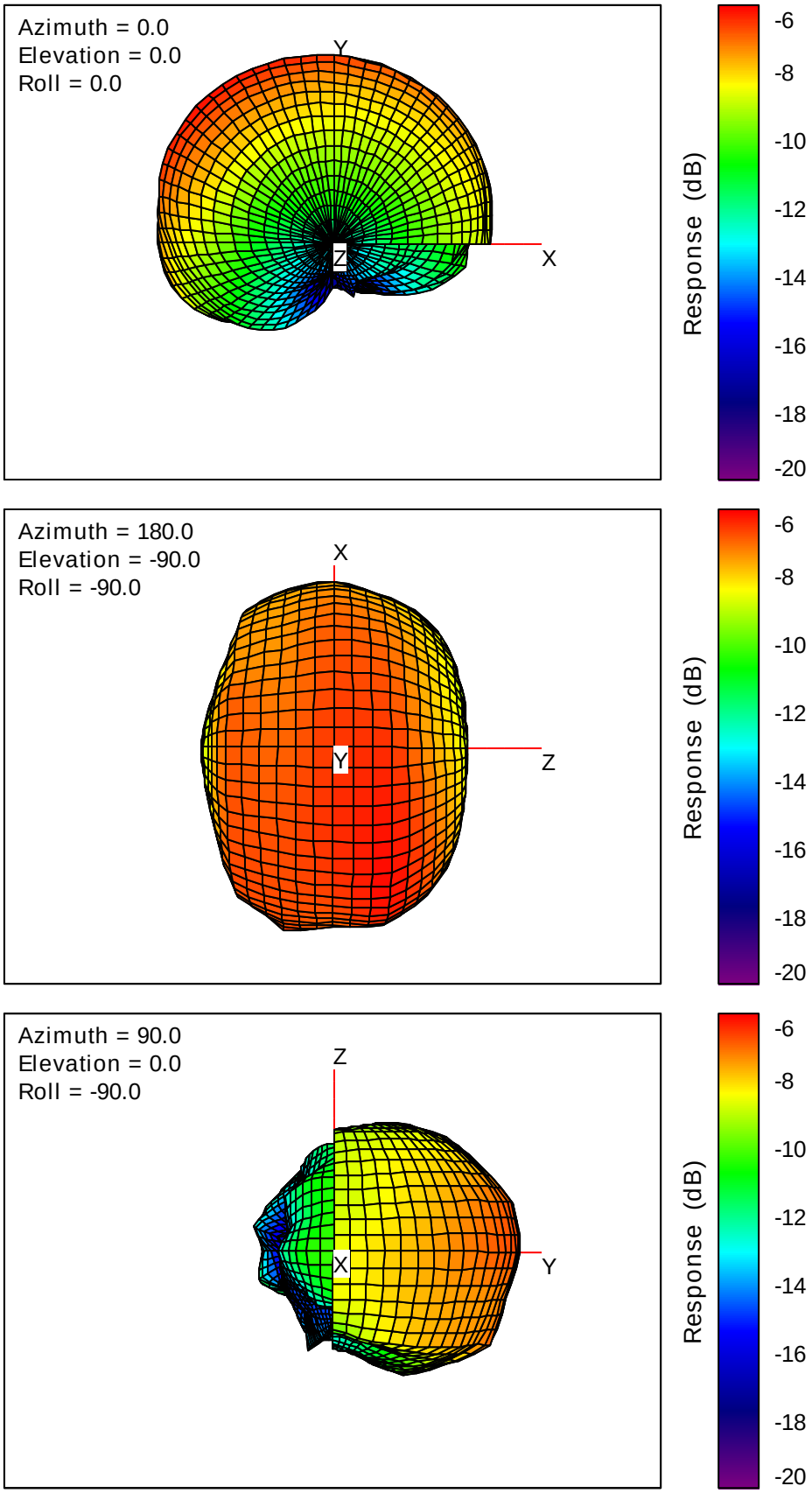
Getac_BC-03_Gain_FS_880MHz_Cont15_Main (With Antenna)



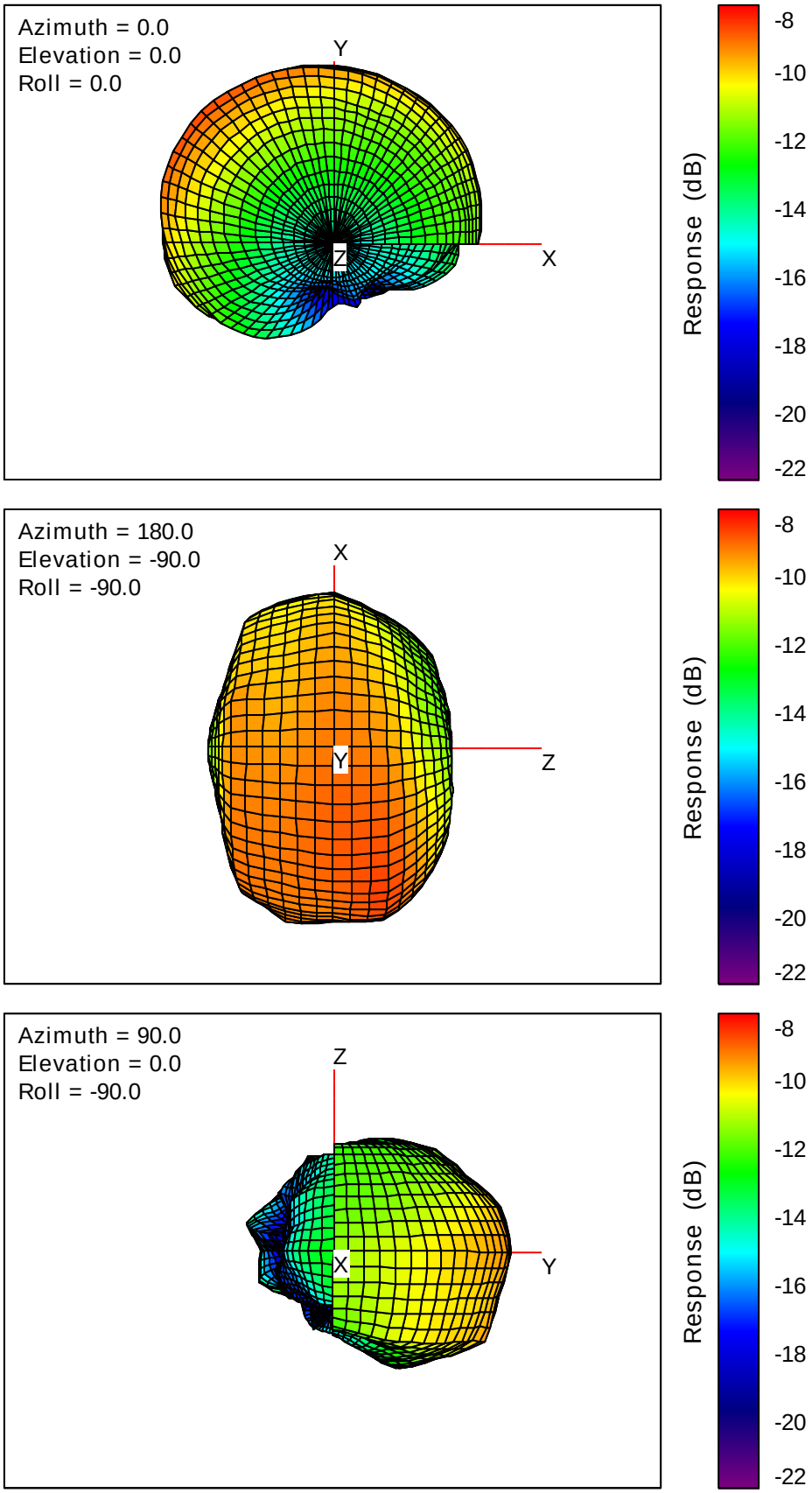
Getac_BC-03_Gain_FS_894MHz_Cont15_Main (With Antenna)



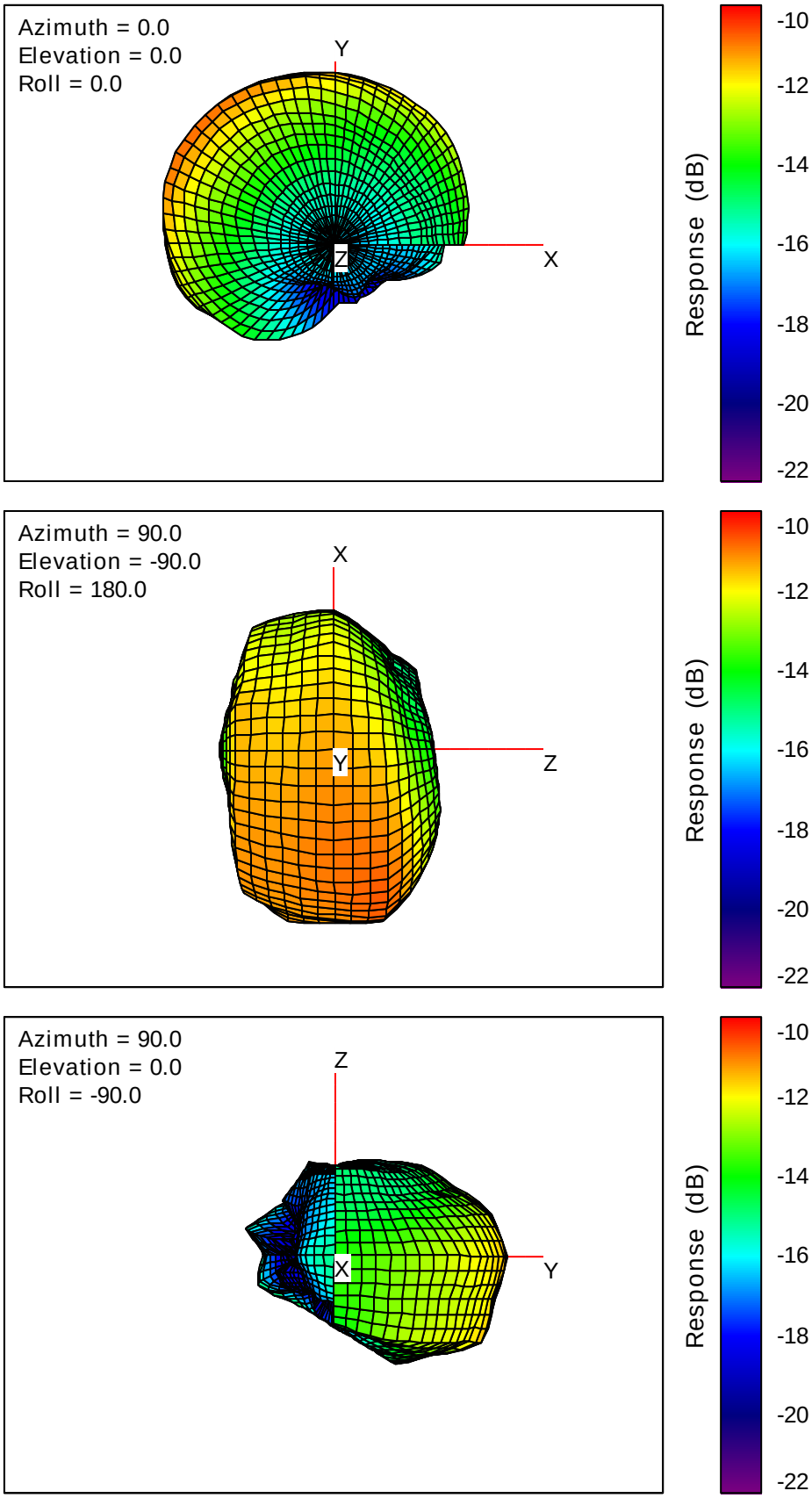
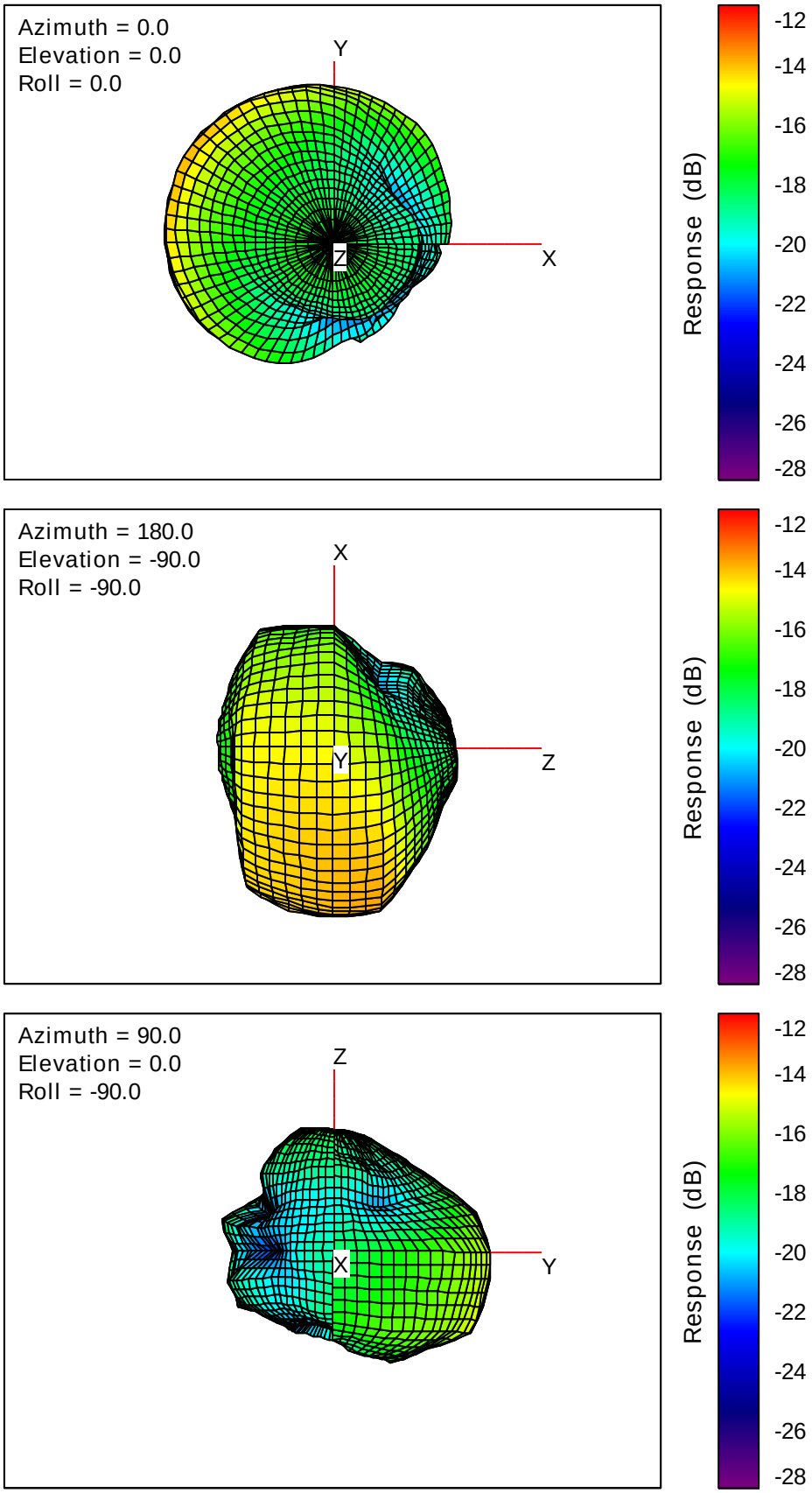
Getac_BC-03_Gain_FS_900MHz_Cont15_Main (With Antenna)



Getac_BC-03_Gain_FS_915MHz_Cont15_Main (With Antenna)



Getac_BC-03_Gain_FS_925MHz_Cont15_Main (With Antenna)



Getac_BC-03_Gain_FS_940MHz_Cont15_Main (With Antenna)