

Antenna Regulatory Information

• Product type	• WWAN antenna
• Model number	• Minicooper
• Revision	• Rev. X02
• Manufacturer Part No. : Main / Aux	• 021020205NC3793 / 0210202056NC3793
• Dell Part No. : Main / Aux	•

Galtronics Wuxi Ltd.
No.1 XiShi Road,Wuxi New High
Technology & Development Zone,
Wuxi, Jiangsu Province 214028, PRC

Template Revision 062008

1. Specifications

Antenna Specifications

Antenna Type (Material, Technology)	Metal element on carrier, IFA
Antenna Model Number	Minicooper
Operating Frequency Range(s)	824MHz ~ 960MHz and 1710MHz ~ 2170MHz
Peak Gain (Low Band) (dBi)	Main -0.23 / Aux -1.48
Peak Gain (High Band) (dBi)	Main 1.44 / Aux 1.50
Radio Connector Type	IPEX 20278-111R-13
Mid-Line Connector Type (If Applicable)	N/A

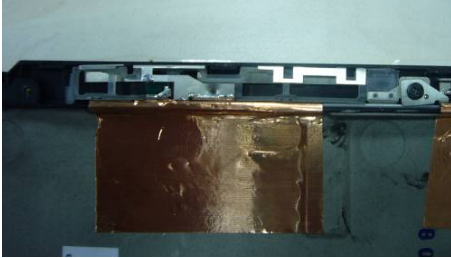
Remark: Peak Gains include all system losses (connector, cable, etc)

Cable Specifications

Cable Parameters	Main			Aux		
	LCD Side	Base Side	Total	LCD Side	Base Side	Total
Length (mm)	N/A	N/A	368	N/A	N/A	566
Loss (Including Connectors) (dB, 0.9GHz / 2GHz)			0.53 / 0.8			0.82 / 1.24
Description (Color, Diameter, Manufacturer)	Color: White with a gray stripe OD: 1.13 mm (low loss) Vendor: Kurabe/GBE/Sumitomo/Axon			Color: Black with a gray stripe OD: 1.13 mm (low loss) Vendor: Kurabe/GBE/Sumitomo/Axon		

2. Antenna Assembly

Main



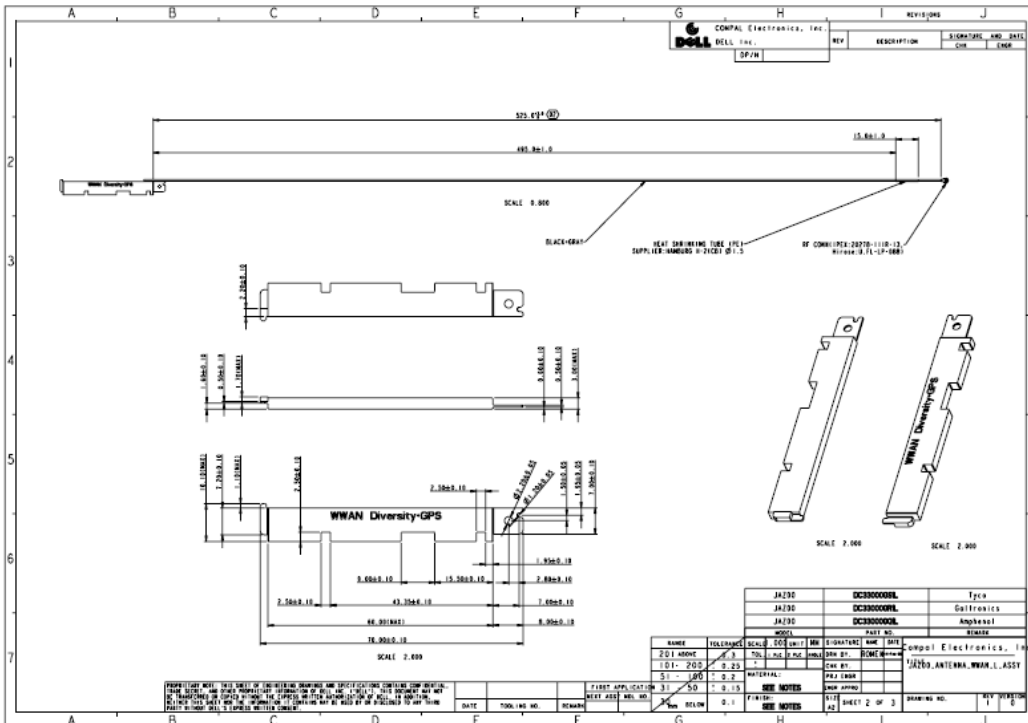
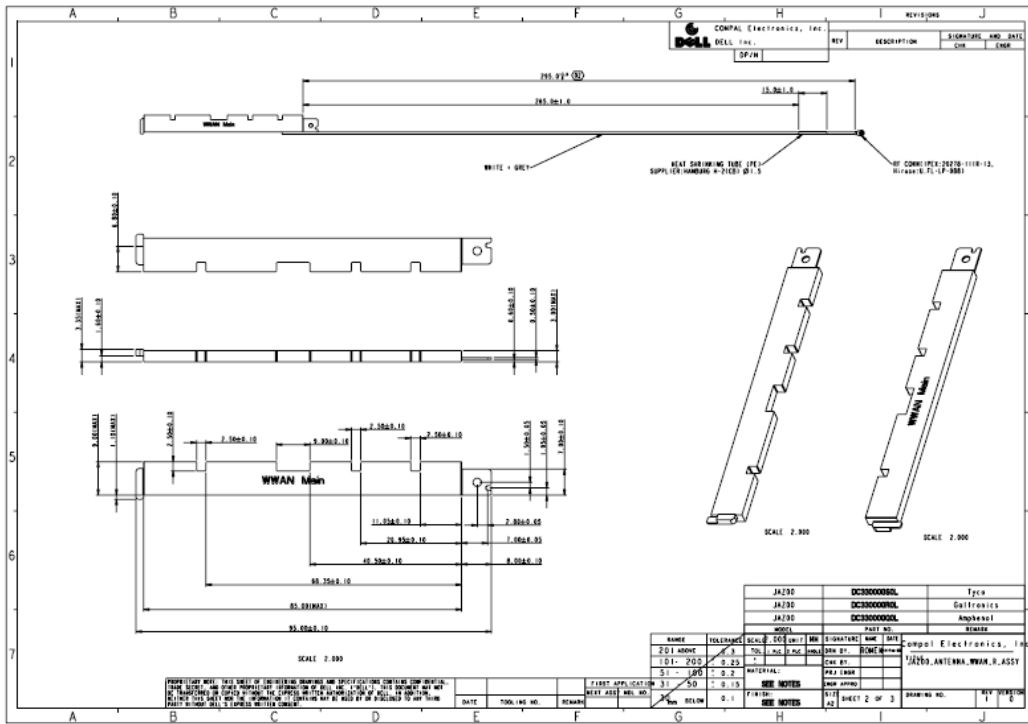
Aux



3. Antenna Assembly Installed in The Notebook



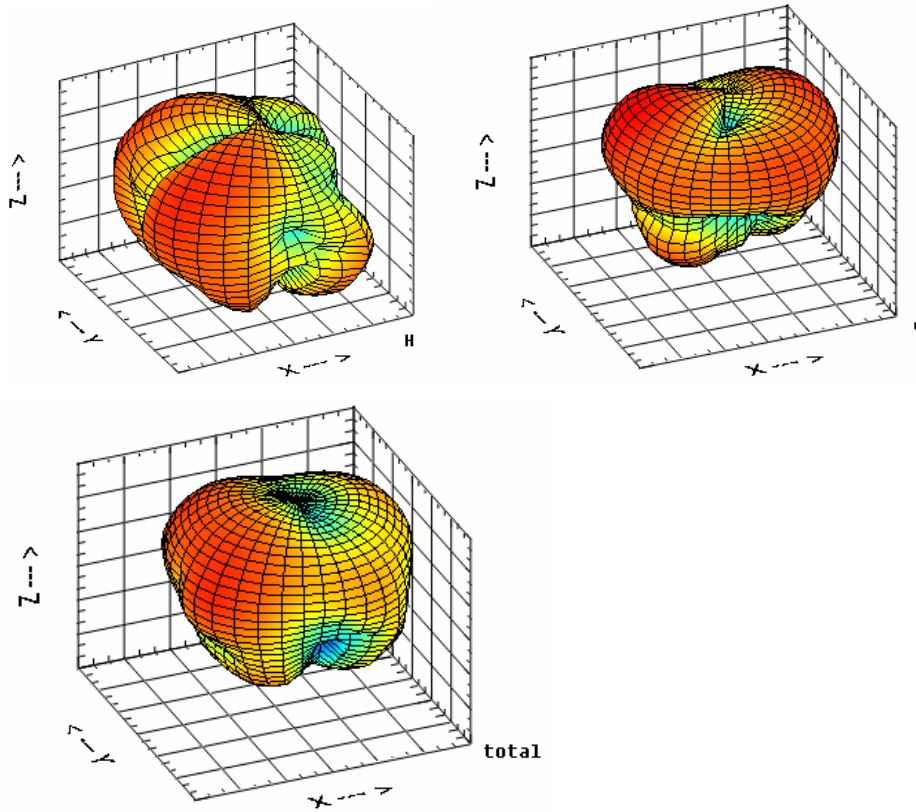
4. Mechanical Drawing of Antennas



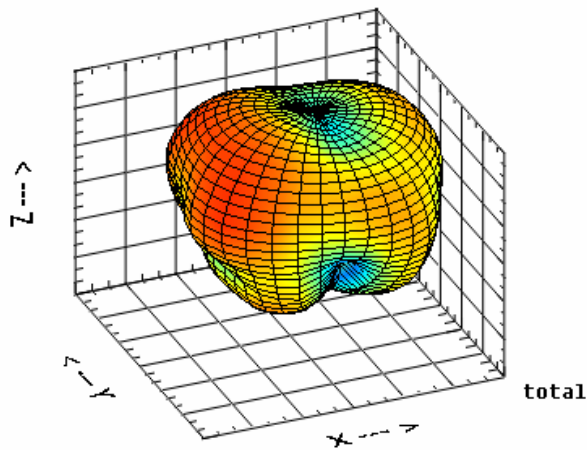
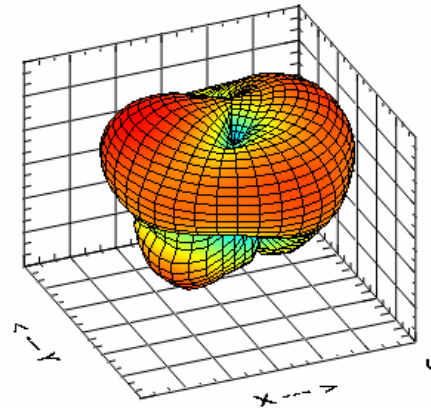
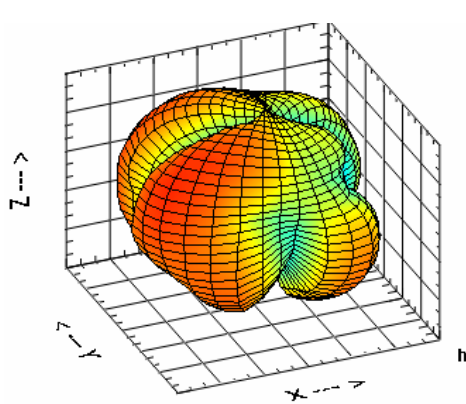
5. Gain Patterns

- Main Antenna

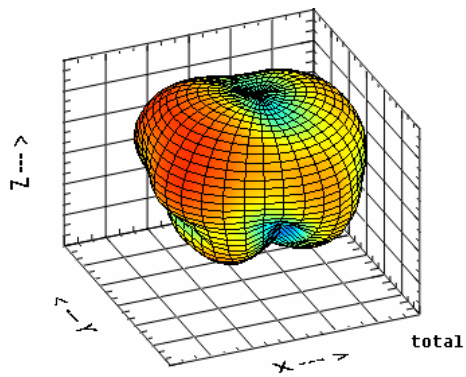
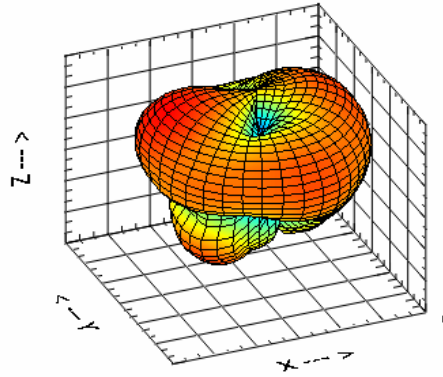
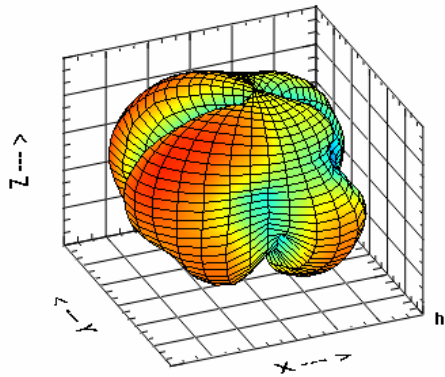
824 MHz	H	V	H+V
AV gain (dB)	-6.09	-5.83	-2.94
Peak gain (dB)	-0.23	-0.57	1.09
Theta (deg)	105	45	90
Phi (deg)	120	165	120



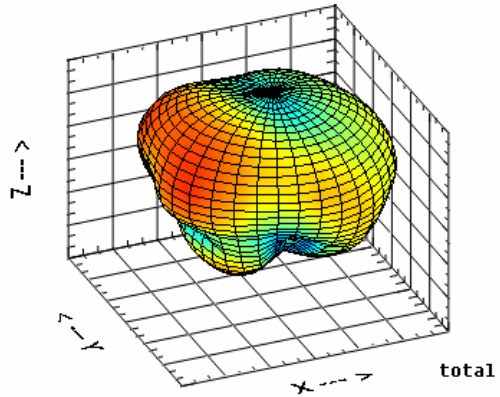
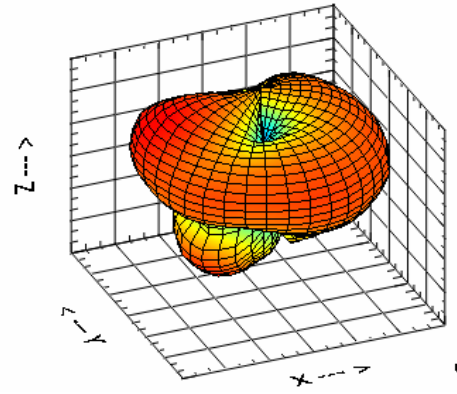
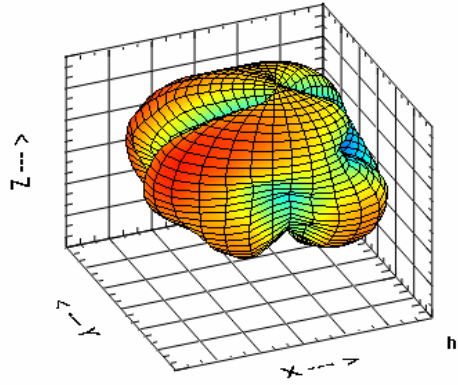
836 MHz	H	V	H+V
AV gain (dB)	-6.33	-5.92	-3.11
Peak gain (dB)	-0.6	-0.58	0.85
Theta (deg)	105	45	90
Phi (deg)	120	165	120



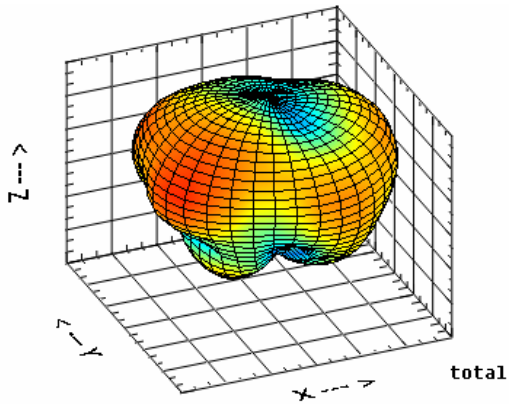
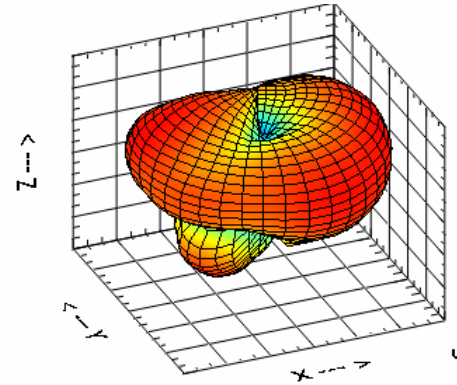
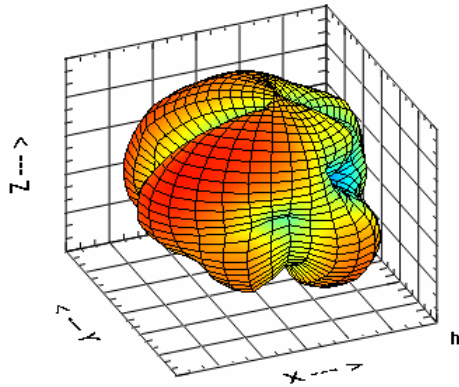
849MHz	H	V	H+V
AV gain (dB)	-6.16	-5.62	-2.87
Peak gain (dB)	-0.51	-0.32	1.09
Thetha (deg)	105	45	90
Phi (deg)	120	180	120



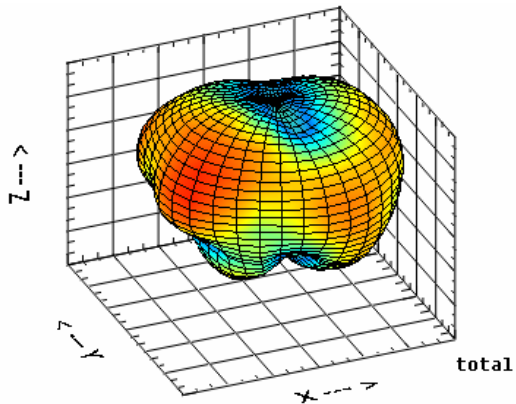
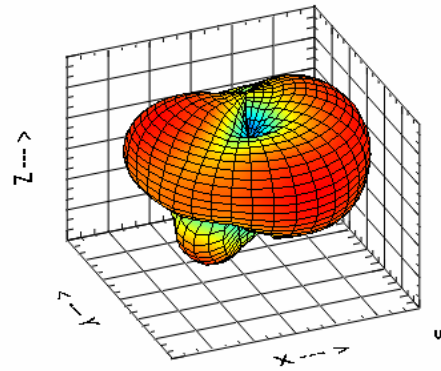
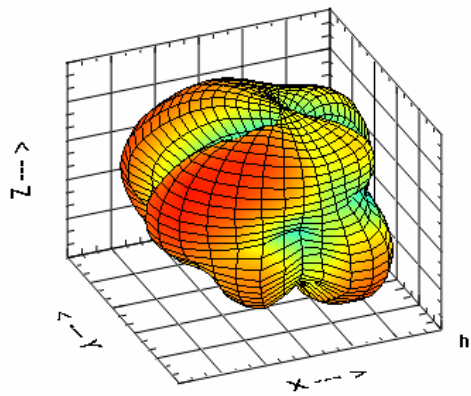
869MHz	H	V	H+V
AV gain (dB)	-7.03	-6.11	-3.53
Peak gain (dB)	-1.04	-1.1	0.65
Thetha (deg)	105	150	90
Phi (deg)	120	195	120



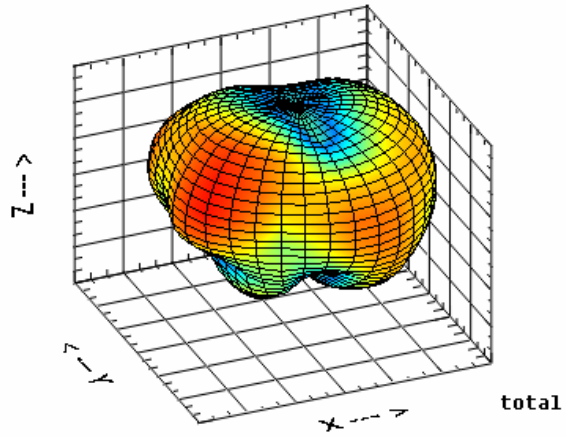
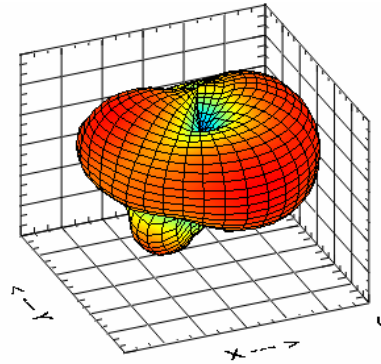
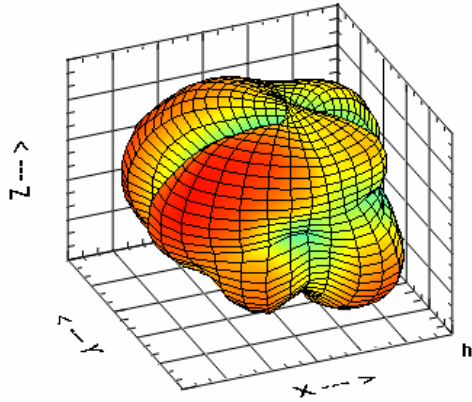
880MHz	H	V	H+V
AV gain (dB)	-7.29	-6.04	-3.61
Peak gain (dB)	-1.18	-1.59	0.36
Theta (deg)	105	150	90
Phi (deg)	120	195	120



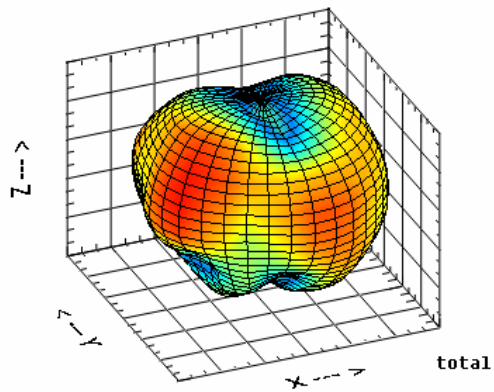
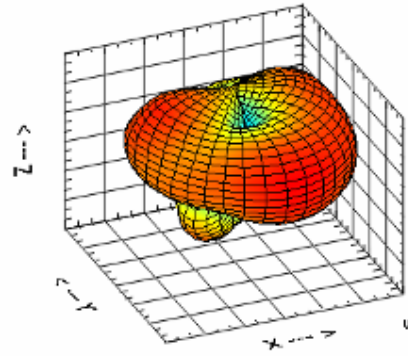
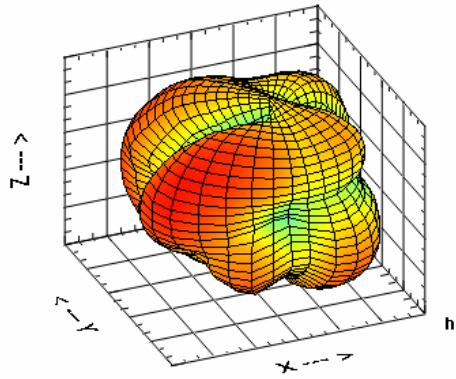
894MHz	H	V	H+V
AV gain (dB)	-7.43	-6.60	-3.99
Peak gain (dB)	-1.22	-2.71	-0.29
Thetha (deg)	105	75	90
Phi (deg)	120	285	120



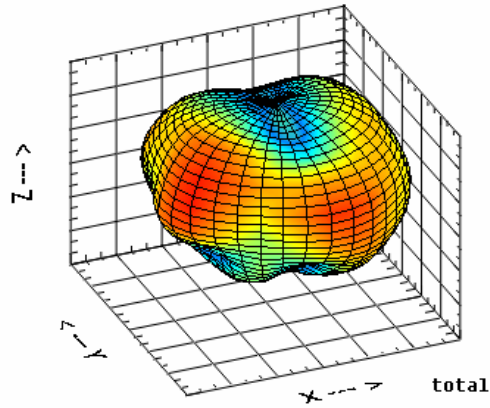
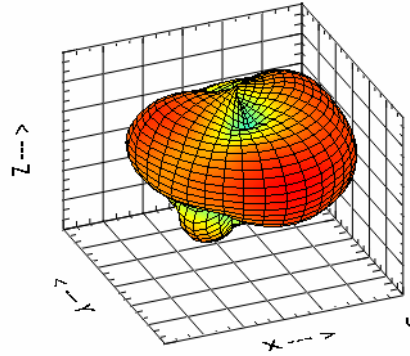
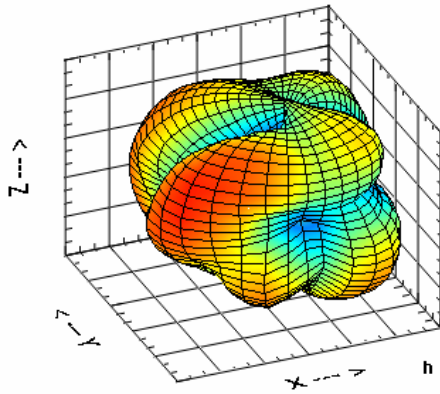
900MHz	H	V	H+V
AV gain (dB)	-7.44	-6.67	-4.02
Peak gain (dB)	-1.49	-2.31	-0.55
Thetha (deg)	105	75	90
Phi (deg)	120	285	120



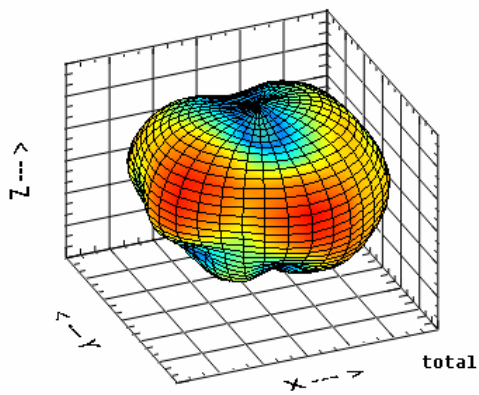
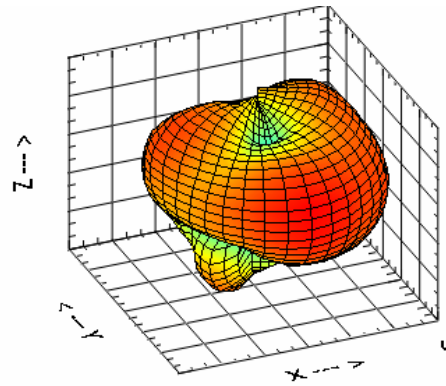
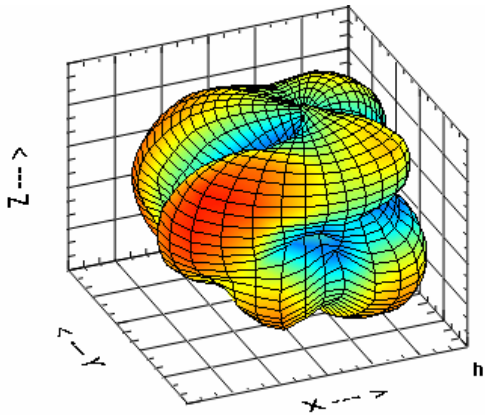
915MHz	H	V	H+V
AV gain (dB)	-7.23	-6.25	-3.70
Peak gain (dB)	-1.1	-1.63	-0.33
Thetha (deg)	120	75	105
Phi (deg)	120	285	120



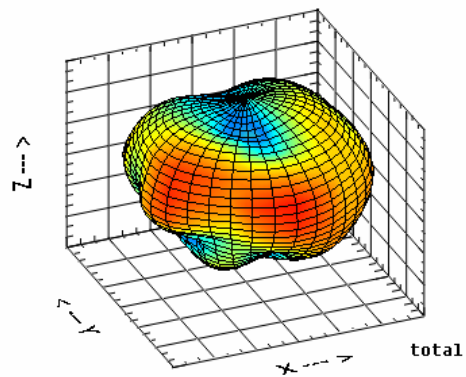
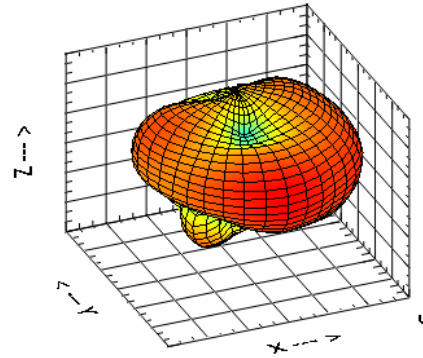
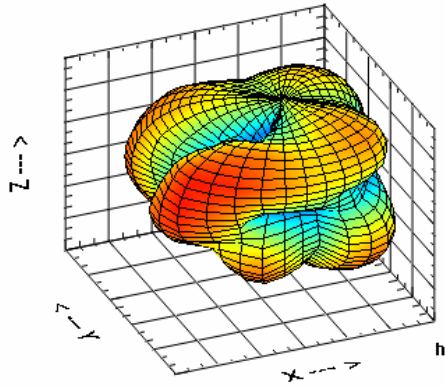
925MHz	H	V	H+V
AV gain (dB)	-7.58	-6.33	-3.90
Peak gain (dB)	-1.66	-1.66	-0.78
Thetha (deg)	120	75	105
Phi (deg)	120	270	120



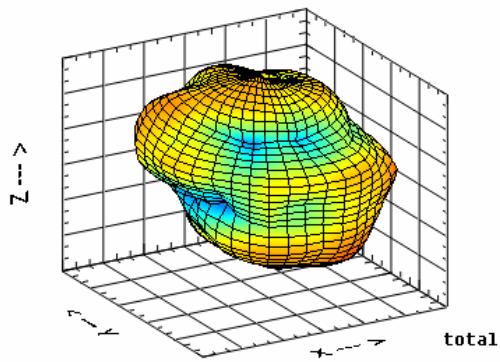
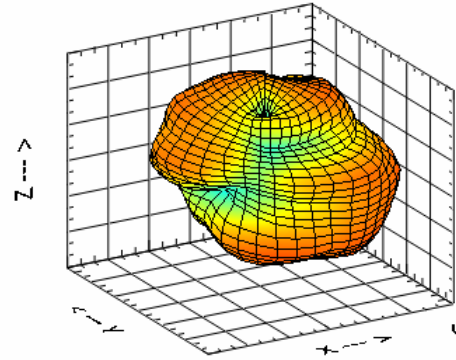
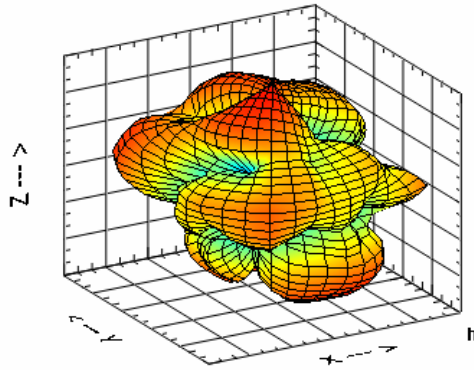
940MHz	H	V	H+V
AV gain (dB)	-7.98	-6.52	-4.18
Peak gain (dB)	-2.15	-1.49	-1.21
Thetha (deg)	120	75	75
Phi (deg)	120	270	270



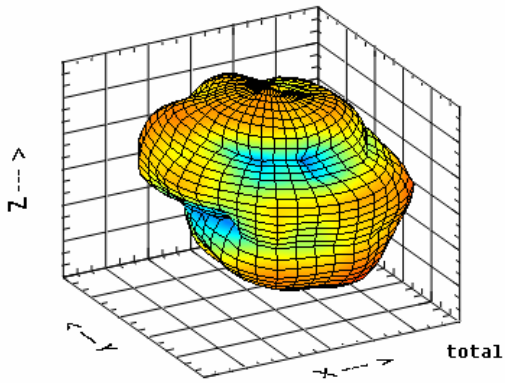
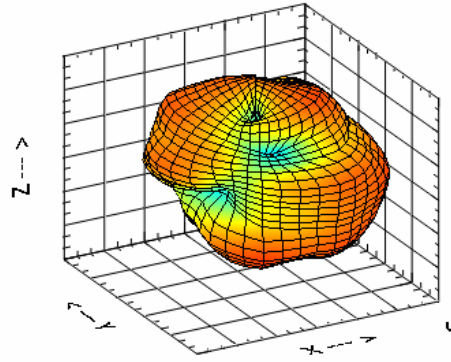
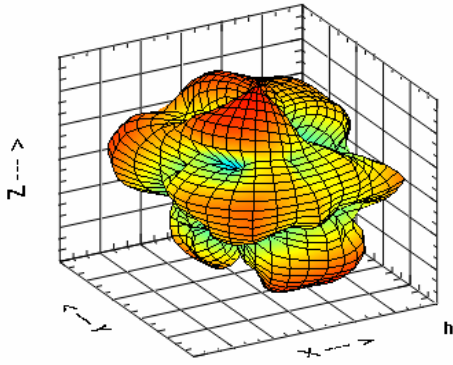
960MHz	H	V	H+V
AV gain (dB)	-8.67	-6.69	-4.56
Peak gain (dB)	-2.84	-2.03	-1.33
Thetha (deg)	120	75	120
Phi (deg)	120	270	60



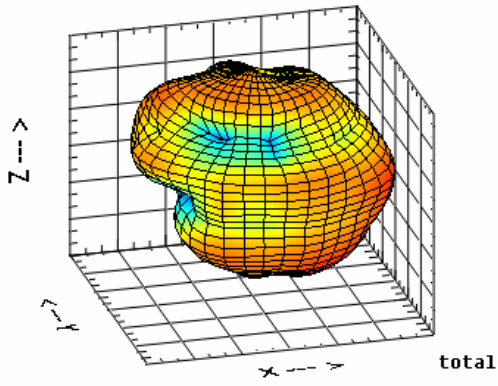
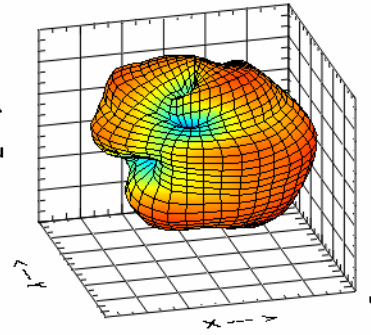
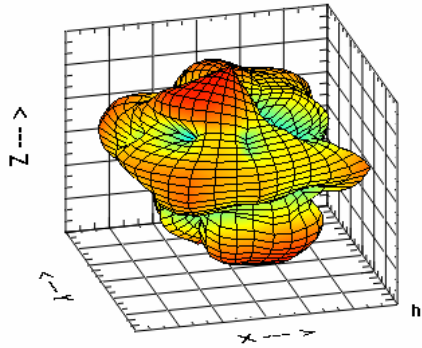
1710MHz	H	V	H+V
AV gain (dB)	-8.34	-4.79	-2.21
Peak gain (dB)	-1.34	1.44	1.88
Theta (deg)	165	150	150
Phi (deg)	300	345	330



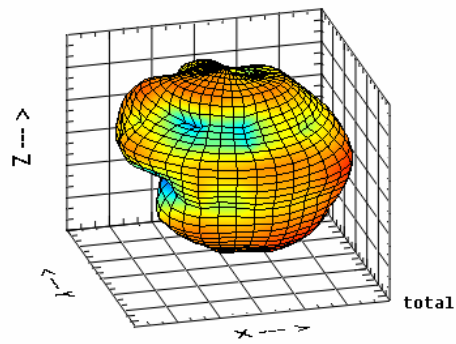
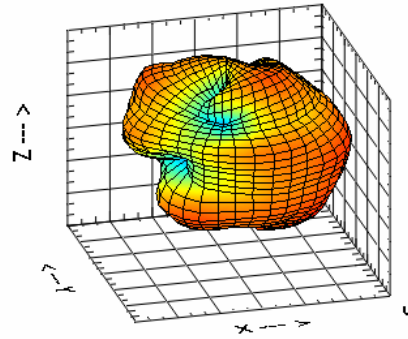
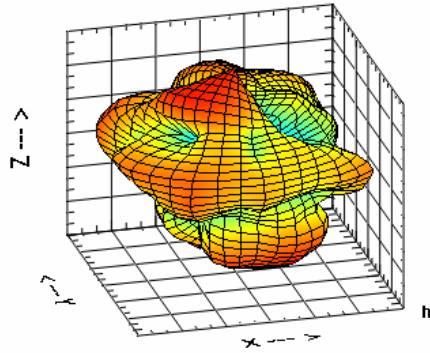
1750MHz	H	V	H+V
AV gain (dB)	-8.28	-4.93	-3.28
Peak gain (dB)	-1.15	0.72	1.4
Thetha (deg)	165	150	150
Phi (deg)	300	345	330



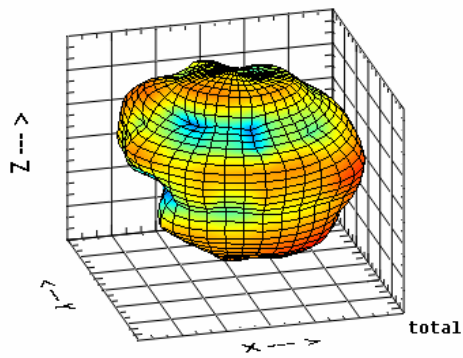
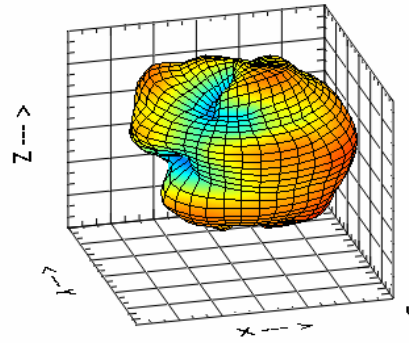
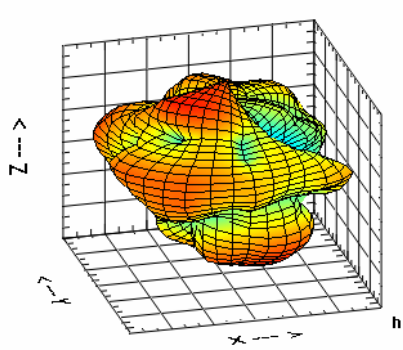
1785MHz	H	V	H+V
AV gain (dB)	-8.24	-4.72	-3.12
Peak gain (dB)	-1.09	0.49	1.05
Thetha (deg)	165	165	150
Phi (deg)	300	30	330



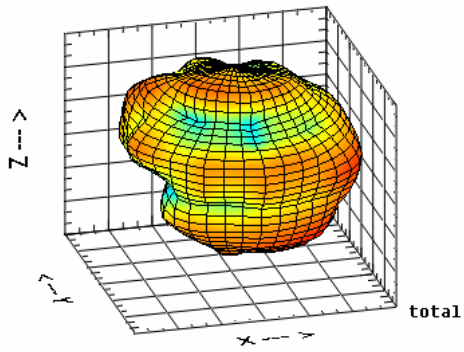
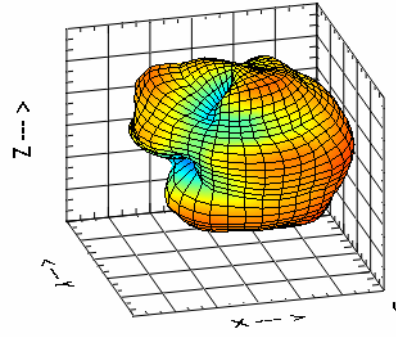
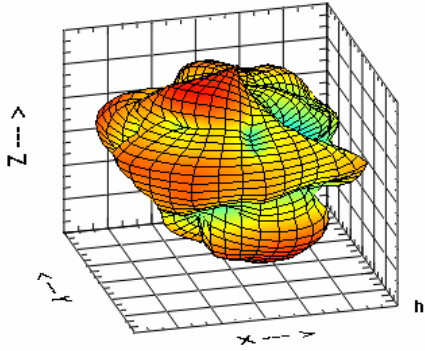
1805MHz	H	V	H+V
AV gain (dB)	-7.61	-4.41	-2.71
Peak gain (dB)	-0.75	0.9	1.25
Thetha (deg)	165	165	150
Phi (deg)	300	0	330



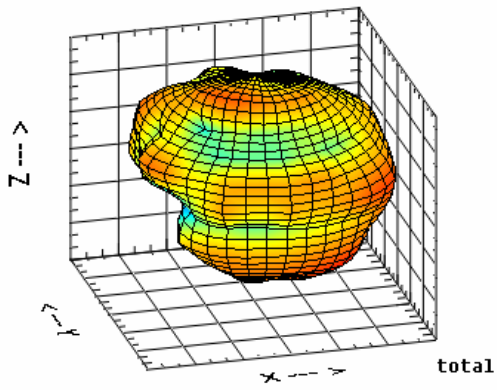
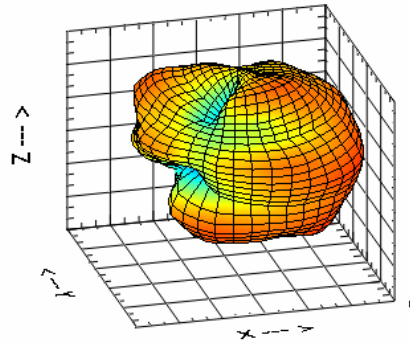
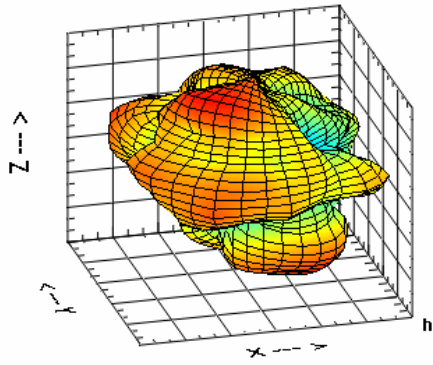
1840MHz	H	V	H+V
AV gain (dB)	-7.41	-4.37	-2.63
Peak gain (dB)	-0.54	1.13	1.36
Thetha (deg)	165	165	135
Phi (deg)	300	0	315



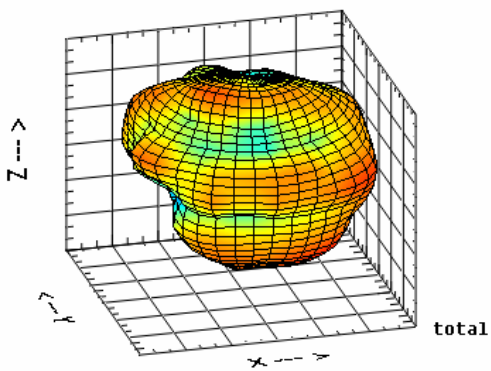
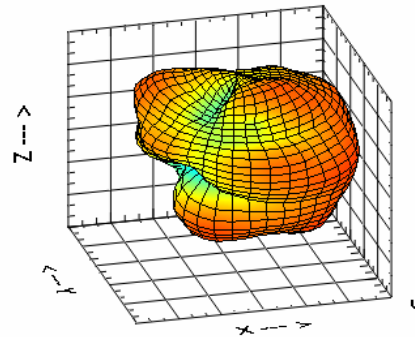
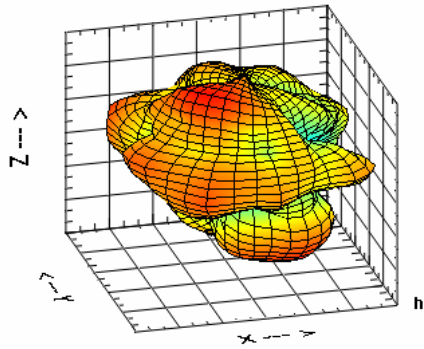
1850MHz	H	V	H+V
AV gain (dB)	-7.46	-4.36	-2.63
Peak gain (dB)	-0.61	1.16	1.29
Thetha (deg)	165	165	165
Phi (deg)	300	0	0



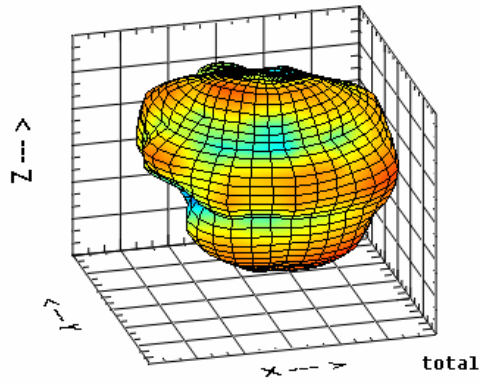
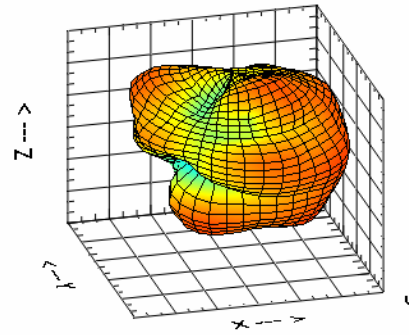
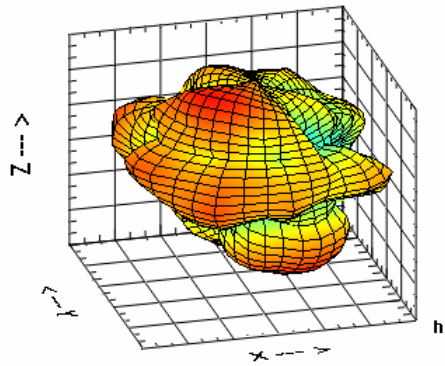
1880MHz	H	V	H+V
AV gain (dB)	-7.30	-4.34	-2.56
Peak gain (dB)	-0.14	0.91	1.43
Thetha (deg)	165	165	150
Phi (deg)	300	0	330



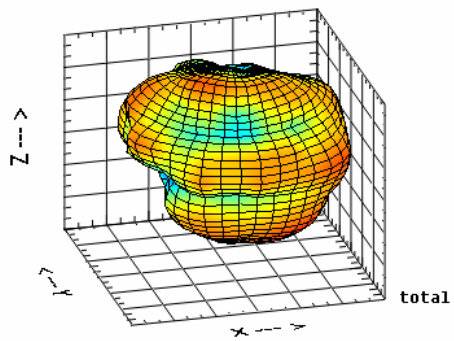
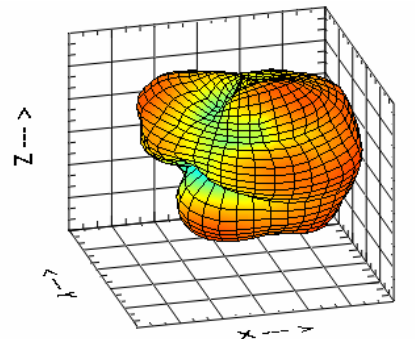
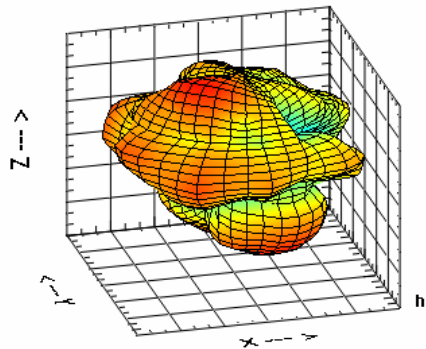
1910MHz	H	V	H+V
AV gain (dB)	-8.58	-5.74	-3.92
Peak gain (dB)	-1.23	-0.25	-0.02
Thetha (deg)	165	165	165
Phi (deg)	300	0	0



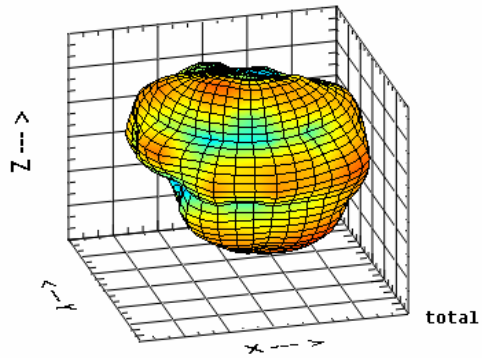
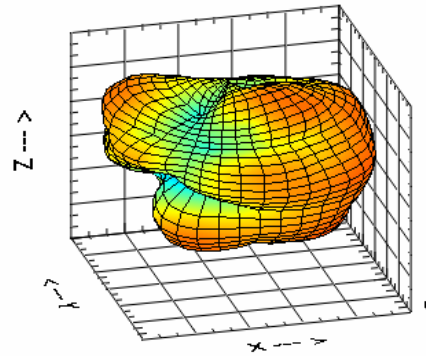
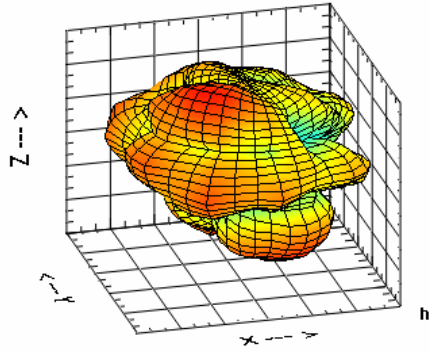
1920MHz	H	V	H+V
AV gain (dB)	-8.67	-5.84	4.02
Peak gain (dB)	-1.34	-0.23	0.04
Thetha (deg)	165	165	165
Phi (deg)	300	0	60



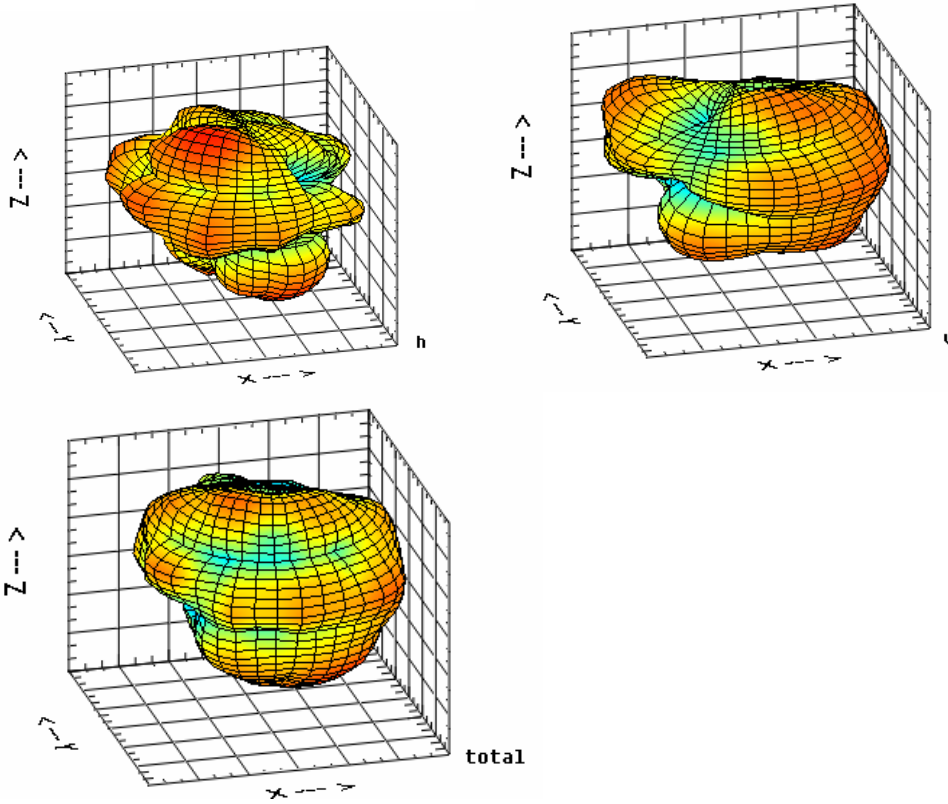
1930MHz	H	V	H+V
AV gain (dB)	-9.07	-6.29	-4.46
Peak gain (dB)	-1.78	-0.55	-0.38
Thetha (deg)	165	165	165
Phi (deg)	300	0	0



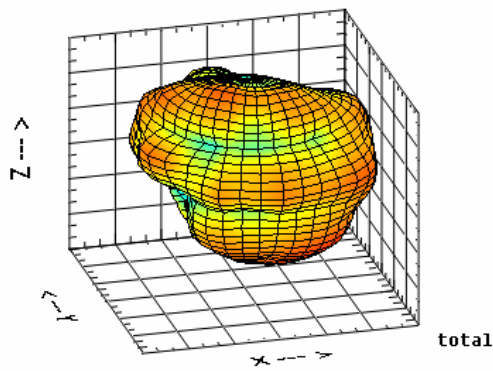
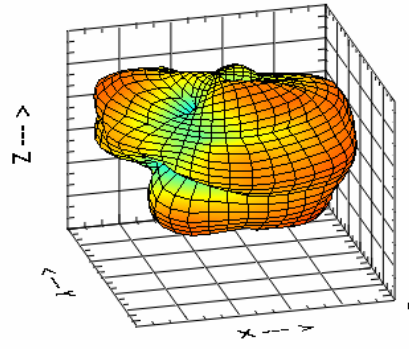
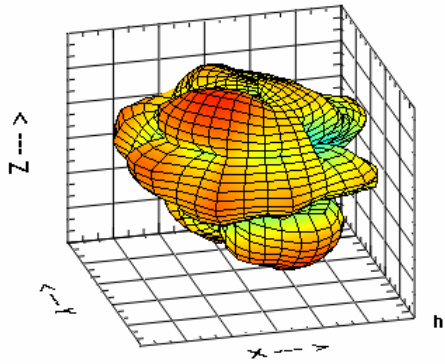
1950MHz	H	V	H+V
AV gain (dB)	-9.05	-6.44	-4.54
Peak gain (dB)	-1.52	-0.18	-0.1
Thetha (deg)	165	165	165
Phi (deg)	300	0	0



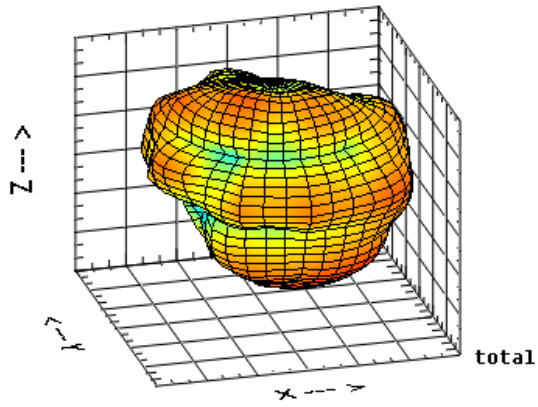
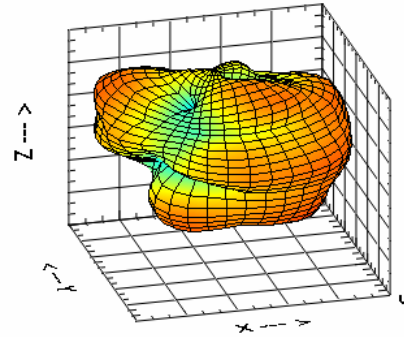
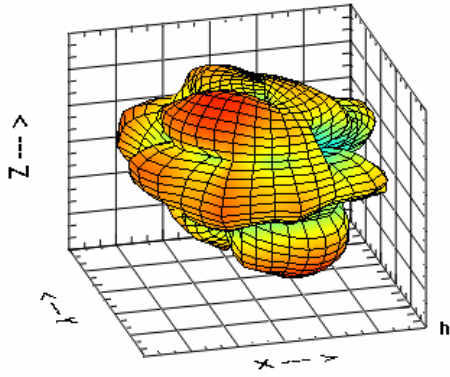
1960MHz	H	V	H+V
AV gain (dB)	-8.93	-6.27	-4.39
Peak gain (dB)	-1.25	0.19	0.22
Thetha (deg)	165	165	165
Phi (deg)	300	0	0



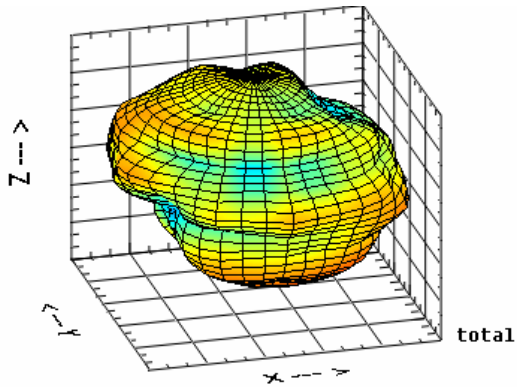
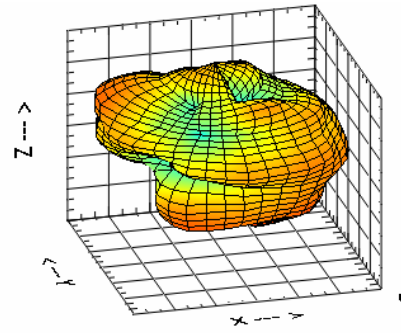
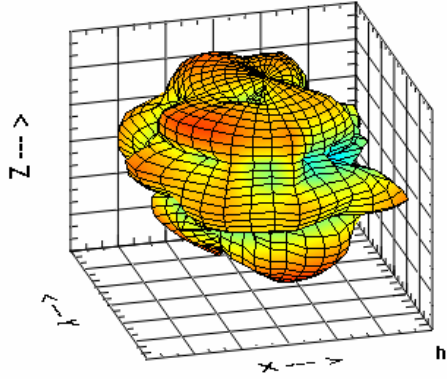
1980MHz	H	V	H+V
AV gain (dB)	-8.92	-6.25	-4.37
Peak gain (dB)	-1.06	0.25	0.28
Thetha (deg)	165	165	165
Phi (deg)	300	0	0



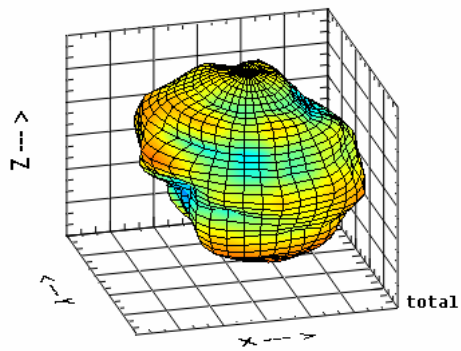
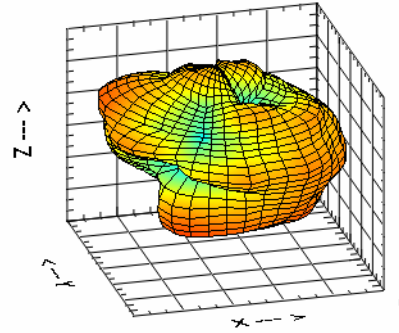
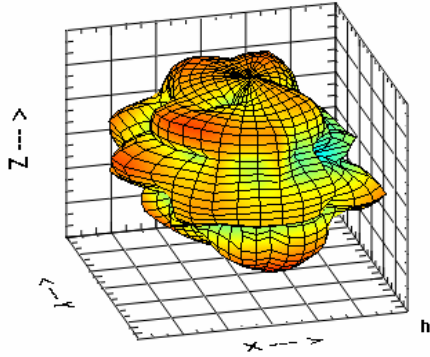
1990MHz	H	V	H+V
AV gain (dB)	-8.79	-6.21	-4.3
Peak gain (dB)	-0.95	0.32	0.35
Theta (deg)	165	165	165
Phi (deg)	300	0	0



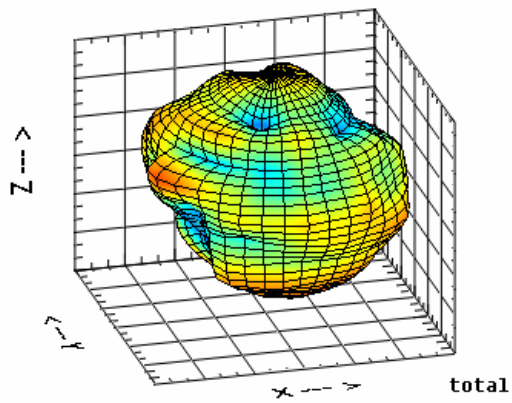
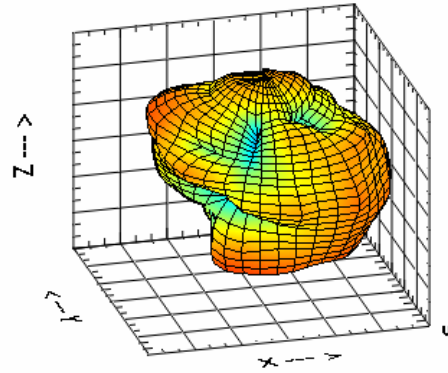
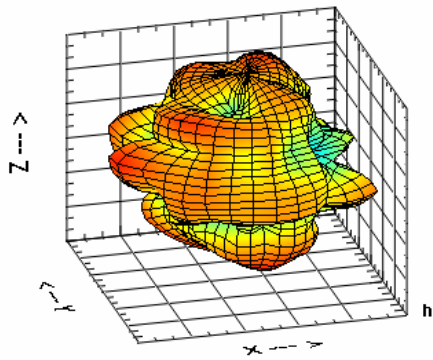
2110MHz	-9.73	V	H+V
AV gain (dB)	4.80	-7.08	-5.2
Peak gain (dB)	-1.7	0.52	0.57
Thetha (deg)	165	165	165
Phi (deg)	285	0	330



2140MHz	H	V	H+V
AV gain (dB)	-9.71	-7.02	-5.15
Peak gain (dB)	-1.91	0.32	0.41
Thetha (deg)	165	165	165
Phi (deg)	285	0	345

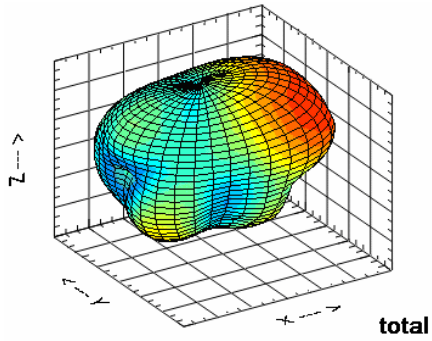
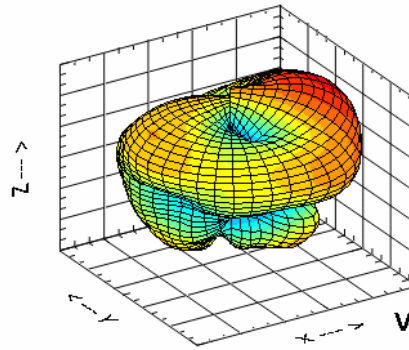
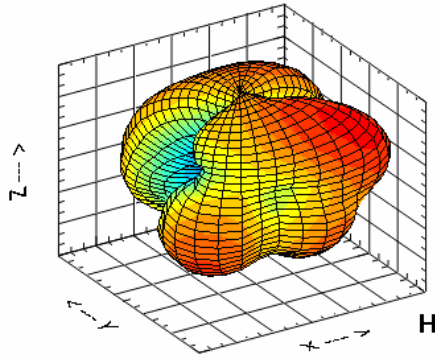


2170MHz	H	V	H+V
AV gain (dB)	-9.75	-7.49	-5.46
Peak gain (dB)	-2.63	-1.06	-0.79
Thetha (deg)	165	165	165
Phi (deg)	285	0	330

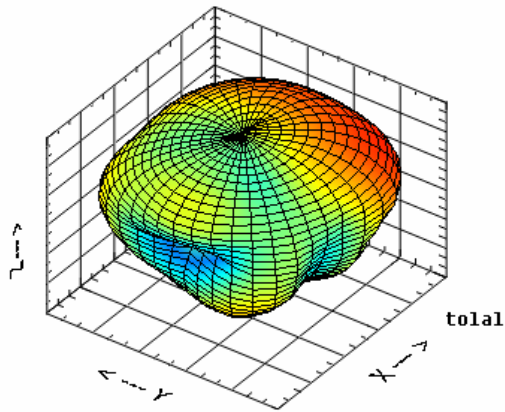
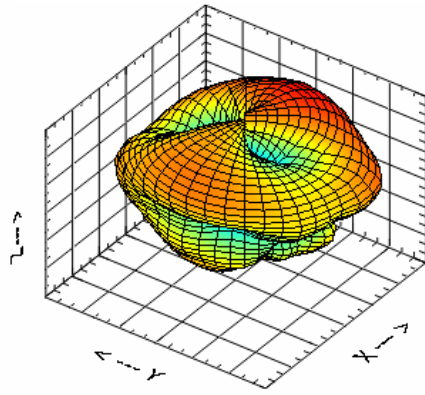
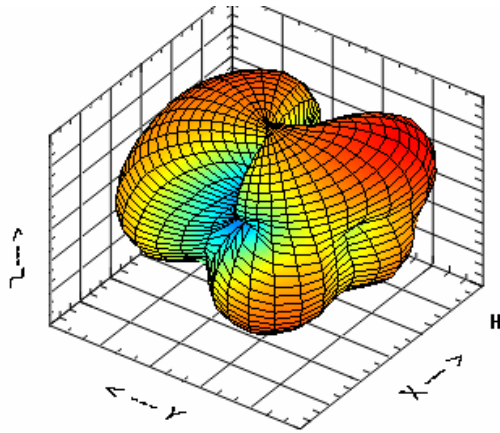


AUX Antenna

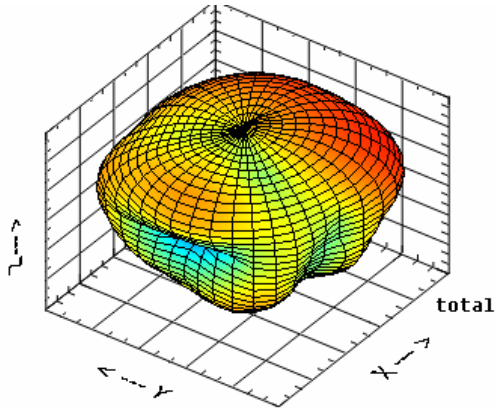
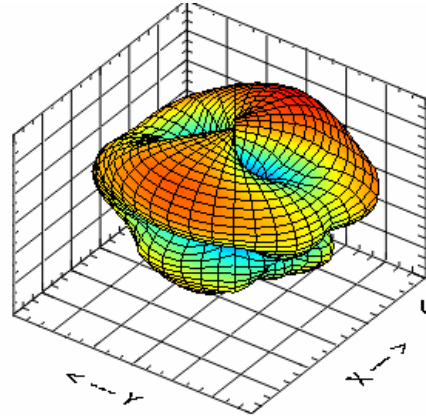
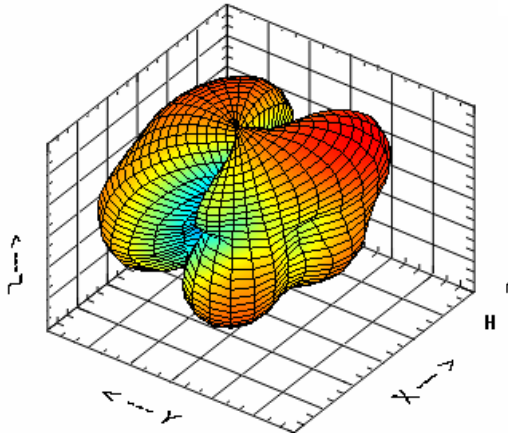
869MHz	H	V	H+V
AV gain (dB)	-7.87	-8.65	-5.05
Peak gain (dB)	-2.23	-1.48	0.08
Thetha (deg)	105	45	90
Phi (deg)	45	0	45



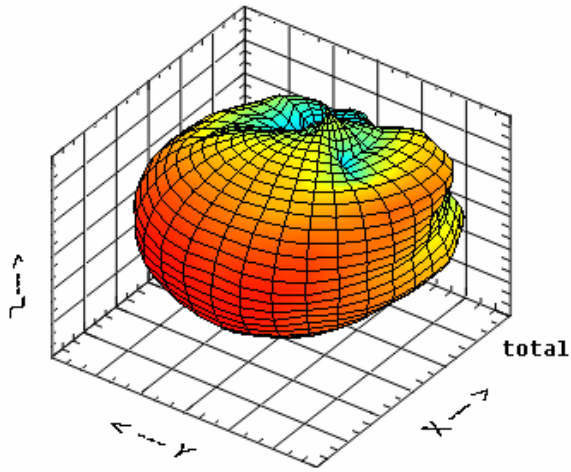
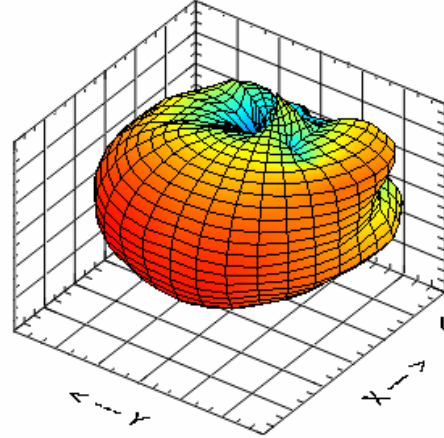
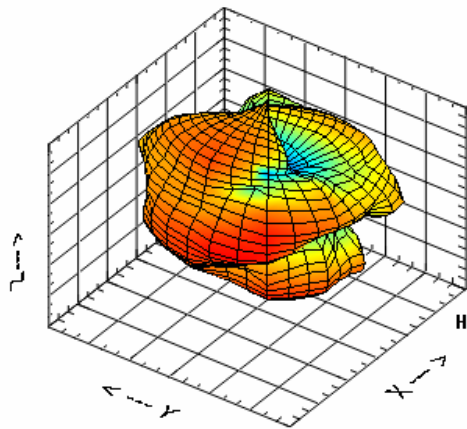
880MHz	H	V	H+V
AV gain (dB)	-8.20	-8.22	-5.24
Peak gain (dB)	-2.68	-2.03	-0.35
Thetha (deg)	45	45	90
Phi (deg)	300	0	45



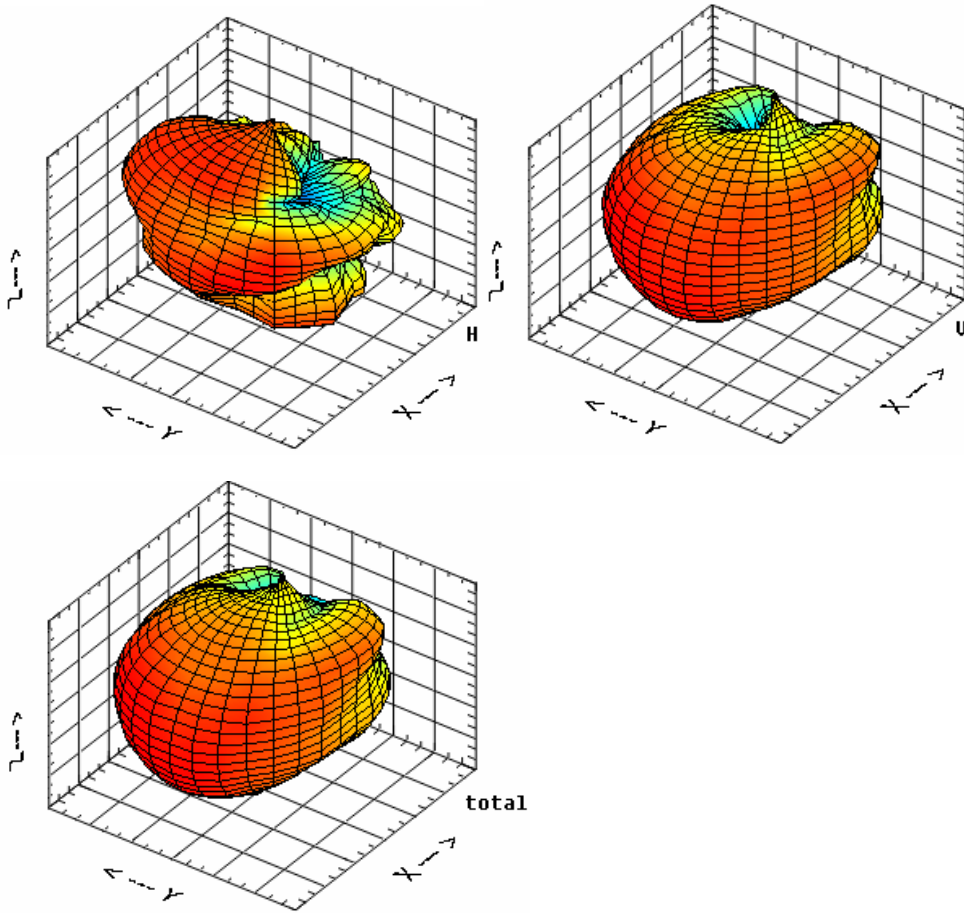
894MHz	H	V	H+V
AV gain (dB)	-9.72	-9.93	-6.68
Peak gain (dB)	-4.04	-3.74	-1.86
Thetha (deg)	60	45	90
Phi (deg)	315	0	45



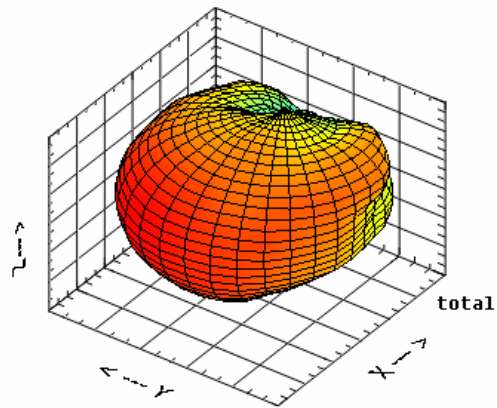
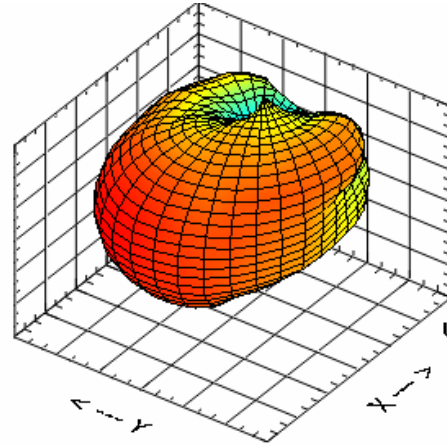
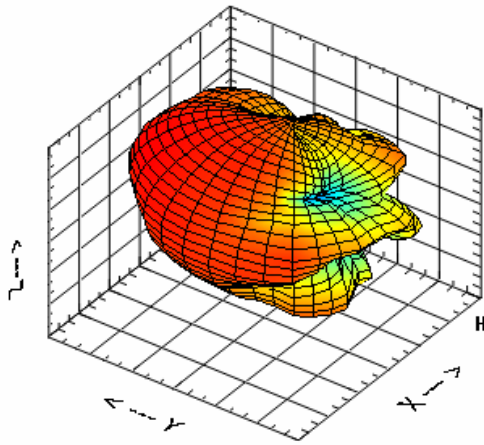
1930MHz	H	V	H+V
AV gain (dB)	-13.87	-5.58	-4.82
Peak gain (dB)	-5.85	1.47	1.72
Thetha (deg)	90	105	105
Phi (deg)	195	150	150



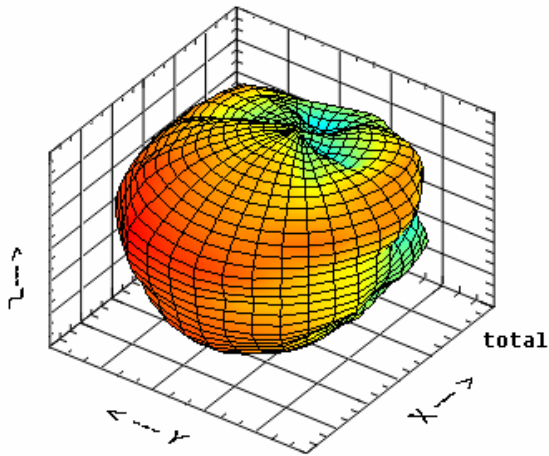
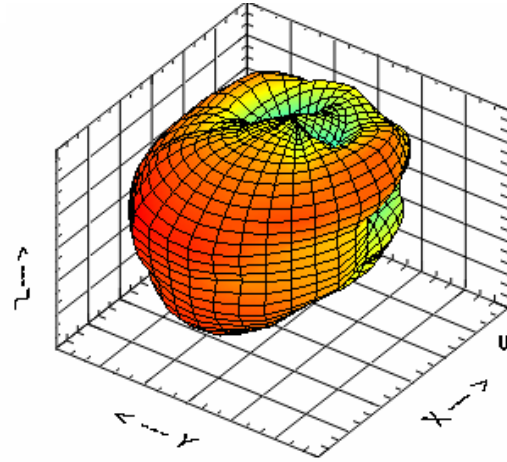
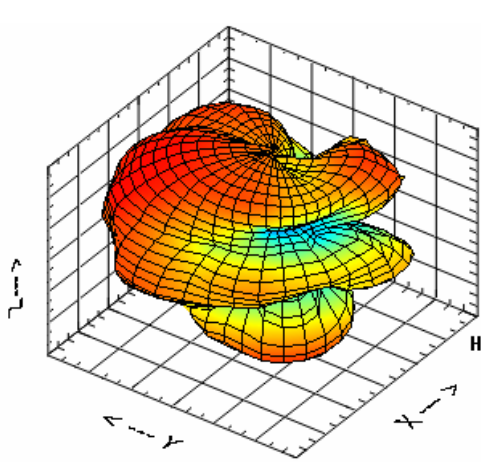
1960MHz	H	V	H+V
AV gain (dB)	-13.40	-4.65	-4.11
Peak gain (dB)	-6.07	1.08	1.30
Thetha (deg)	90	90	105
Phi (deg)	195	135	150



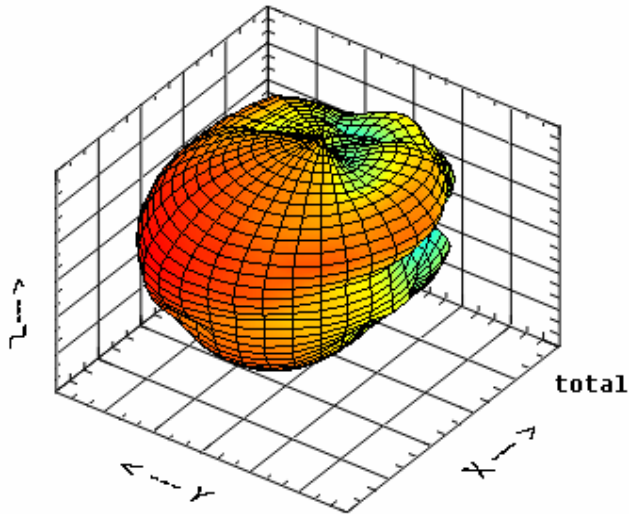
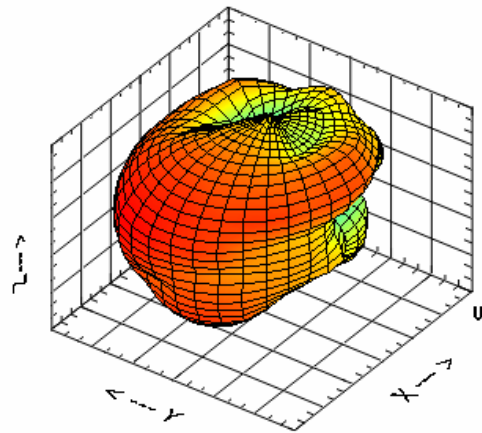
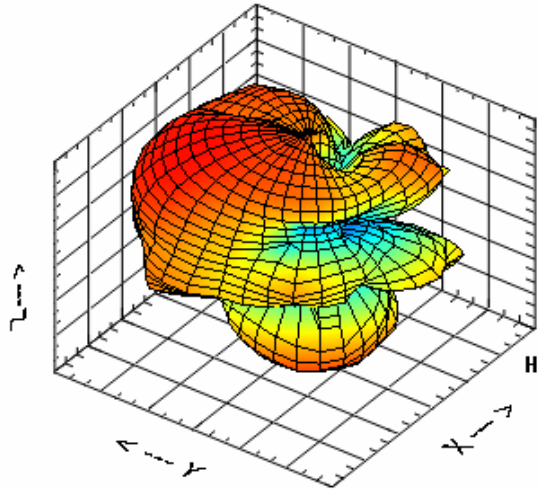
1990MHz	H	V	H+V
AV gain (dB)	-13.96	-5.87	-4.36
Peak gain (dB)	-6.98	1.50	1.87
Thetha (deg)	60	90	90
Phi (deg)	135	150	150



2110 MHz	H	V	H+V
AV gain (dB)	-16.1	-9.34	-8.52
Peak gain (dB)	-9.08	-2.62	-2.47
Thetha (deg)	60	75	75
Phi (deg)	135	150	150



2140 MHz	H	V	H+V
AV gain (dB)	-16.08	-9.9	-8.96
Peak gain (dB)	-8.1	-4.3	-3.85
Theta (deg)	165	75	75
Phi (deg)	225	150	150



2170 MHz	H	V	H+V
AV gain (dB)	-15.68	-10.866	-9.47
Peak gain (dB)	-7.57	-3.23	-2.7
Thetha (deg)	15	75	75
Phi (deg)	135	150	150

