



Total Gain Data

Table with columns for Freq(Hz), 2.45GPol, TotalAnt, and 24 directional gain values (Phi(0) to Phi(345)). Rows include Gain, 5.2GPol, and 5.6GPol sections.





# Antenna Pattern

# Appendix B

Theta (°)	8.93-10.67	-9.70-11.02	-10.24-9.01	-8.48-8.93	-8.45-9.48	-12.45-10.95	-8.99-7.51	-6.78-6.44	-6.71-7.96	-8.80-9.29	-4.60-2.72	-7.86-2.94	-0.88-2.97	-6.47-6.99	-4.27-2.64	0.171-2.29	0.540-9.1	2.342-0.6	0.40-1.19	-2.78-2.09	-1.60-3.89	-4.21-4.01	-4.25-3.91	-3.65-5.84
Theta (75°)	-7.71-8.11	-9.46-8.82	-7.43-8.97	-10.10-9.03	-10.06-12.70	-12.18-9.58	-6.90-6.49	-8.09-8.54	-10.22-11.51	-6.08-7.88	-4.04-1.25	-7.08-2.88	-1.22-3.58	-6.91-9.98	-4.10-3.81	-0.171-5.9	0.850-2.0	1.232-2.4	1.27-0.30	-0.130-1.3	0.94-0.51	-1.18-2.37	-4.23-4.20	-3.34-9.47
Theta (82.5°)	-8.62-8.16	-8.88-8.23	-5.82-7.38	-12.61-15.22	-15.41-12.39	-8.29-5.50	-5.26-5.53	-7.21-8.91	-9.35-9.53	-2.98-3.74	-1.36-0.85	-5.64-2.19	-3.25-6.98	-5.11-3.21	-2.39-0.84	1.502-0.2	0.22-0.21	-0.310-6.2	2.241-1.2	1.412-6.3	2.602-2.6	1.02-1.58	-5.23-6.56	-7.50-9.68
Theta (90°)	-5.38-7.01	-5.35-4.55	-6.24-5.16	-9.85-15.34	-15.07-10.40	-5.75-4.29	-5.04-6.54	-7.69-6.25	-7.56-8.70	-4.15-3.71	-2.76-1.77	-4.79-2.28	-3.95-4.20	-3.42-2.94	-2.240-9.8	1.300-3.3	0.780-0.5	-1.10-1.14	1.360-6.7	0.422-1.9	2.022-5.4	0.82-2.36	-6.58-8.82	-8.28-6.29
Theta (97.5°)	-3.82-4.32	-4.33-4.07	-5.74-4.80	-7.96-9.51	-11.81-12.81	-7.31-5.73	-7.08-7.11	-4.37-3.12	-4.29-4.43	-6.74-9.61	-5.80-9.41	-7.24-6.58	-5.32-1.92	-2.89-0.95	-1.01-2.62	-1.13-0.45	-0.841-2.3	2.100-9.0	0.511-6.3	1.671-1.8	0.98-5.30	-7.80-7.27	-4.28-3.68	
Theta (105°)	-4.09-3.76	-3.77-3.36	-5.22-5.59	-6.45-10.23	-9.20-13.50	-10.54-11.7	-9.09-5.44	-1.41-3.74	-5.83-6.16	-6.53-6.01	-6.36-10.01	-9.35-6.68	-2.11-3.55	-4.02-5.20	-4.63-3.42	-3.95-6.51	-2.89-0.59	-0.382-1.4	3.131-1.6	1.451-7.5	3.161-6.4	-1.61-7.80	-6.85-5.21	-3.03-3.45
Theta (112.5°)	-3.21-3.41	-4.62-6.14	-7.52-5.94	-4.49-7.07	-10.02-9.42	-11.39-10.67	-4.38-3.32	-4.10-5.03	-7.00-4.23	-3.13-5.27	-7.95-13.35	-13.68-7.19	-2.69-3.23	-6.04-7.23	-4.74-2.71	-3.39-2.92	-6.91-6.28	-1.011-6.0	2.22-0.15	0.242-1.3	2.731-6.4	-2.99-4.56	-8.44-3.64	-0.91-1.41
Theta (120°)	-4.56-4.34	-2.99-3.69	-4.42-6.19	-6.16-5.49	-5.45-5.56	-5.51-6.75	-10.21-5.25	-2.33-3.72	-3.31-1.85	-0.31-1.18	-3.12-6.90	-5.38-6.95	-0.690-0.8	-2.14-5.52	-3.26-4.39	-2.11-0.88	-7.36-6.72	0.850-4.4	-1.07-0.49	-0.151-6.4	2.710-1.4	-2.37-6.96	-7.90-2.32	0.67-0.06
Theta (127.5°)	-2.92-2.37	-1.99-3.77	-4.49-4.56	-4.89-3.93	-1.97-2.32	-3.88-8.32	-8.95-5.48	-3.89-1.92	-1.94-3.07	-3.75-4.37	-6.59-7.27	-6.45-5.91	-0.40-1.0	-6.58-1.95	-1.78-5.41	-5.14-3.82	-8.31-3.61	2.291-8.2	-1.82-0.69	1.111-4.3	2.801-2.7	-2.671-6.9	-8.73-2.77	1.360-6.5
Theta (135°)	-4.57-8.80	-4.90-4.90	-5.89-5.63	-3.49-2.99	-2.18-1.61	-3.78-5.80	-6.56-5.80	-5.02-7.07	-6.27-4.22	-3.92-5.23	-6.73-7.25	-10.52-6.13	-1.70-2.59	-3.89-3.78	-7.04-4.78	-4.21-5.60	-8.75-2.76	0.430-2.8	-2.94-2.05	-1.680-0.5	-0.800-1.6	-2.31-5.60	-5.98-7.07	-1.62-0.57
Theta (142.5°)	-2.33-4.73	-5.08-4.39	-2.55-1.77	-0.91-0.34	-1.45-2.33	-3.18-3.57	-8.07-9.62	-9.27-6.30	-4.82-4.83	-5.52-8.72	-9.60-7.46	-5.02-1.87	-0.74-1.46	-4.05-8.99	-7.76-4.07	-4.41-10.43	-5.91-3.40	-2.73-2.96	-4.40-5.47	-6.94-2.89	-3.48-0.55	-4.74-8.60	-6.32-3.93	-1.98-1.15
Theta (150°)	-0.39-6.82	-9.17-12.25	-11.30-7.56	-5.42-5.06	-4.92-4.92	-5.14-4.60	-4.27-5.07	-6.51-8.17	-10.68-14.66	-13.68-10.09	-7.85-5.66	-3.81-1.89	-1.21-1.92	-4.57-8.81	-12.90-11.64	-10.37-12.00	-3.27-3.72	-6.21-8.34	-7.26-9.19	-3.80-4.39	-4.62-3.43	-3.24-3.03	-1.64-1.52	
Theta (157.5°)	-0.65-0.63	-0.66-1.23	-2.78-5.38	-6.43-5.67	-4.96-4.86	-5.64-6.67	-6.71-6.43	-6.41-6.82	-8.29-11.32	-13.05-10.82	-8.73-7.47	-6.76-7.20	-10.32-15.31	-14.98-13.31	-13.47-14.73	-12.06-8.60	-6.90-6.49	-6.60-7.42	-10.00-12.48	-10.72-9.81	-8.95-7.67	-7.35-5.81	-3.12-1.68	-1.06-0.54
Theta (165°)	-3.44-4.03	-4.99-6.14	-6.59-5.71	-5.85-6.83	-6.96-6.12	-5.50-5.46	-5.39-5.71	-6.87-8.11	-9.73-10.85	-9.46-7.37	-6.36-5.92	-5.77-5.32	-6.67-7.86	-8.88-9.33	-9.59-9.00	-7.98-7.39	-7.07-7.42	-8.43-9.88	-14.37-12.24	-14.37-12.24	-9.43-6.66	-4.86-4.22	-3.23-2.23	-2.32-0.32
Theta (172.5°)	-5.00-4.54	-4.33-4.50	-4.39-4.76	-6.62-8.60	-9.19-8.55	-8.22-8.71	-8.12-7.29	-7.41-7.90	-8.77-9.18	-8.49-7.62	-7.21-6.81	-6.29-5.86	-5.41-4.99	-4.62-4.56	-4.50-7.47	-1.61-6.48	-8.19-10.06	-12.42-13.36	-11.74-10.22	-9.15-8.32	-7.69-7.21	-7.05-6.77	-7.98-7.76	-7.84-6.76
Theta (180°)	-7.06-6.49	-5.91-5.61	-5.57-5.01	-4.84-5.51	-6.51-7.41	-8.36-9.31	-9.62-9.51	-9.85-10.37	-11.37-12.37	-11.82-11.58	-11.15-11.29	-11.34-11.45	-11.88-12.55	-13.21-13.35	-13.08-12.74	-12.45-12.24	-11.58-12.36	-12.69-13.17	-12.40-12.97	-12.33-11.28	-10.49-9.13	-9.27-9.32	-8.28-7.10	-7.70-7.79
Freq(Hz)	5.785GPol.	TotalAnt. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Phi(0°)Phi(7.5°)	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
Theta (0°)	-5.49-5.54	-4.97-4.08	-3.94-3.62	-3.56-4.07	-4.31-4.24	-4.50-4.71	-5.27-5.43	-5.28-5.20	-5.30-5.61	-5.79-5.52	-5.29-5.08	-4.77-4.83	-4.95-4.97	-4.90-4.94	-5.00-4.69	-4.58-4.63	-4.67-4.17	-3.70-3.71	-3.98-4.29	-4.65-4.77	-5.43-5.49	-5.02-4.47	-4.40-4.77	-5.37-5.69
Theta (7.5°)	-5.46-3.36	-5.51-5.08	-4.57-6.48	-4.76-5.31	-5.29-4.40	-4.14-4.01	-4.37-4.16	-3.85-3.90	-4.06-4.11	-4.06-3.99	-4.10-4.19	-4.10-3.46	-4.45-4.86	-5.11-4.98	-4.64-4.53	-4.51-4.67	-4.40-4.09	-3.83-3.85	-3.98-3.68	-3.98-3.47	-4.94-6.16	-5.62-6.26	-6.33-6.46	-6.16-6.03
Theta (15°)	-5.54-6.36	-7.56-7.52	-7.57-7.80	-6.56-6.00	-5.68-4.68	-4.75-4.21	-4.37-4.43	-3.75-3.24	-2.41-2.41	-2.10-2.28	-2.74-2.71	-2.97-2.61	-2.97-2.61	-2.97-2.61	-2.97-2.61	-2.97-2.61	-2.97-2.61	-2.97-2.61	-2.97-2.61	-2.97-2.61	-2.97-2.61	-2.97-2.61	-2.97-2.61	-2.97-2.61
Theta (22.5°)	-8.71-9.92	-11.29-11.74	-13.58-13.83	-9.42-7.27	-6.49-5.41	-4.82-4.55	-4.39-4.70	-4.88-4.76	-4.55-3.39	-2.17-1.32	-1.06-1.14	-1.59-2.21	-2.58-2.51	-1.99-1.16	-0.52-0.45	-0.56-1.20	-2.09-2.78	-2.99-2.48	-1.76-0.98	-0.57-0.53	-1.06-1.84	-2.57-3.43	-4.78-5.32	-6.26-7.52
Theta (30°)	-6.57-6.49	-7.44-11.43	-16.12-15.00	-12.05-9.09	-7.84-6.31	-5.34-5.40	-4.62-4.06	-3.59-3.94	-4.36-4.50	-3.82-3.76	-1.72-1.45	-2.28-3.63	-4.52-4.44	-3.07-1.28	0.050-0.0	0.840-0.6	-0.98-1.42	-1.15-0.81	-0.71-0.97	-1.42-1.69	-2.52-3.55	-2.83-4.22	-3.19-3.33	-5.98-6.29
Theta (37.5°)	-5.58-5.84	-7.58-8.30	-7.67-8.07	-9.01-8.34	-7.00-6.16	-6.09-6.28	-6.05-6.09	-4.48-5.33	-4.12-3.87	-4.12-3.87	-1.42-1.85	-1.14-1.01	-0.41-3.28	-2.98-2.57	-1.80-0.87	-0.50-0.76	-1.34-3.90	-2.90-2.61	-3.14-3.53	-4.54-5.38	-4.27-3.30	-3.10-3.23	-4.27-5.74	
Theta (45°)	-5.78-7.04	-6.88-5.95	-4.71-5.30	-7.84-8.80	-6.72-5.04	-5.30-7.16	-8.89-9.53	-8.86-7.43	-5.86-3.98	-2.89-2.16	-0.290-6.6	0.11-0.47	-0.20-0.30	-1.30-2.57	-3.33-2.94	-2.25-1.34	-1.17-2.23	-3.76-4.05	-2.87-2.74	-3.89-4.87	-6.26-7.79	-7.45-5.39	-4.44-3.54	-3.44-4.10
Theta (52.5°)	-6.06-8.49	-7.40-6.13	-5.63-7.15	-8.77-7.54	-5.25-5.47	-5.59-7.92	-10.35-9.05	-7.36-6.17	-5.98-4.38	-2.64-2.75	-0.93-0.67	-3.28-3.17	-1.16-0.65	-1.55-1.97	-1.72-1.79	-2.20-3.34	0.50-0.62	-1.82-2.79	-2.68-2.41	-2.71-3.33	-4.70-5.64	-3.63-2.12	-2.12-1.28	-2.18-4.0
Theta (60°)	-9.22-9.61	-11.39-12.32	-9.18-6.41	-5.13-5.18	-5.93-5.36	-5.63-7.94	-10.20-7.92	-6.68-6.59	-5.98-10.57	-2.04-2.03	-4.92-3.89	-1.35-0.90	-1.01-1.44	1.691-8.8	1.42-0.05	-0.49-0.75	-1.85-2.17	-3.37-5.33	-3.42-2.48	-3.43-4.31	-4.75-6.66			
Theta (67.5°)	-9.02-9.78	-11.03-10.87	-8.52-7.08	-5.43-3.72	-3.78-4.15	-5.48-7.07	-5.78-5.02	-6.11-6.53	-7.81-12.45	-12.03-10.16	-8.05-2.77	-5.76-4.83	-0.52-1.61	-6.10-7.26	-4.04-2.01	0.372-0.1	1.481-4.5	2.622-4.8	0.93-0.69	-1.48-1.41	-1.89-4.65	-4.66-4.81	-5.58-5.06	-4.06-5.77
Theta (75°)	-8.49-8.03	-7.22-6.70	-7.98-8.46	-6.59-6.52	-4.78-4.20	-6.24-7.33	-5.28-4.22	-5.02-6.79	-7.45-8.45	-11.22-12.38	-6.94-1.95	-6.60-4.99	-2.17-3.87	-6.03-4.85	-4.04-3.82	0.442-2.3	0.570-7.8	3.055-6.6	3.192-2.6	1.471-6.5	1.433-0.28	-2.08-5.40	-6.94-5.98	-5.04-7.10
Theta (82.5°)	-7.07-7.38	-6.35-3.96	-4.89-5.05	-8.06-9.39	-7.67-7.01	-7.73-5.56	-3.30-3.55	-6.98-10.57	-11.36-10.42	-3.72-3.32	-1.64-0.02	-4.13-3.03	-4.95-6.52	-4.56-2.94	-3.07-1.89	1.021-3.8	3.482-1.0	2.642-7.2	2.841-7.5	0.61-1.80	-4.40-5.78	-5.58-7.89		
Theta (90°)	-4.29-5.66	-4.49-4.21	-5.64-5.04	-8.09-12.31	-12.51-11.63	-8.59-4.67	-4.31-3.50	-6.60-7.11	-14.06-12.64	-4.94-2.46	-2.15-1.07	-5.05-3.06	-5.07-4.85	-3.50-1.71	-2.130-4.5	1.130-1.0	-0.11-0.04	0.030-8.4	3.251-8.7	0.992-1.4	1.662-0.9	0.52-2.33	-5.50-5.42	-3.51-0.43
Theta (97.5°)	-2.62-3.91	-3.07-2.99	-5.06-5.13	-11.62-11.16	-11.51-8.95	-6.25-3.47	-10.62-6.59	-2.41-2.45	-6.63-7.31	-7.78-7.17	-5.80-6.62	-11.39-8.95	-8.71-2.42	-2.095-2.4	-2.470-1.1	-0.11-0.75	-0.150-3.4	0.011-7.1	2.510-6.3	-0.441-2.5	1.412-1.5	0.04-2.21	-3.55-1.71	-1.82-2.29
Theta (105°)	-0.81-1.36	-2.32-2.42	-4.93-6.08	-7.75-8.06	-8.25-13.99	-13.33-10.96	-10.47-4.90	-1.72-1.89	-4.45-5.11	-6.08-7.45	-8.00-													



# Antenna Pattern

# Appendix B

θ (112.5°)	0.22/-3.34	-5.72/-6.13	-7.53/-5.61	-2.84/-1.68	-3.14/-9.73	-15.88/-13.78	-8.85/-4.28	-1.73/-0.02	0.79/0.79	1.77/1.48	0.10/0.49	0.25/0.83	-0.10/0.01	1.47/3.84	2.24/0.98	-4.31/-3.79	-2.73/-0.53	-1.41/0.78	-3.01/-4.14	-0.99/-4.01	-9.78/-8.57	-0.35/-0.21	0.60/0.54	-0.50/-0.03
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
θ (0°)	-0.69/-0.12	-0.58/-0.64	-0.94/-1.19	-1.20/-0.91	-0.58/-0.26	0.06/0.04	-0.46/-0.56	-0.92/-0.73	-0.18/0.23	0.59/0.72	0.75/0.65	0.51/0.38	0.41/0.43	0.32/0.23	0.23/0.00	-0.31/-0.80	-0.86/-0.52	-0.19/-0.21	-0.34/-0.39	-0.20/0.03	-0.05/-0.15	-0.34/-0.79	-1.04/-1.21	-1.30/-1.26
θ (7.5°)	2.22/1.93	2.07/2.41	2.35/1.69	1.02/0.72	0.71/0.91	0.81/0.02	-0.74/-1.04	-1.02/-0.63	-0.40/-0.10	0.12/0.39	0.58/0.51	0.14/-0.23	-0.24/-0.00	0.05/-0.12	-0.35/-0.59	-0.63/-0.68	-0.53/-0.14	0.06/0.11	0.22/0.38	1.10/1.80	2.23/2.54	2.50/2.19	1.97/2.05	2.47/2.39
θ (15°)	1.58/1.45	1.96/2.27	1.99/1.25	0.41/0.51	0.95/1.40	1.61/1.60	1.33/0.89	0.30/-0.28	-0.49/-0.63	-1.05/-1.47	-1.67/-2.20	-3.16/-4.05	-4.52/-4.17	-3.20/-4.23	-2.01/-1.62	-1.22/-1.20	-1.49/-1.68	-2.22/-2.25	-1.81/-0.68	0.72/1.71	2.14/2.33	2.17/1.64	0.97/0.61	1.44/1.68
θ (22.5°)	1.51/1.00	0.43/0.12	0.41/0.23	-0.48/-0.84	-0.81/-0.82	-0.62/-0.23	-0.33/-0.71	-1.17/-1.83	-3.03/-4.23	-5.12/-5.93	-7.10/-9.45	-11.32/-10.95	-8.55/-7.01	-6.27/6.87	-8.39/-9.30	-5.74/-4.35	-5.00/-6.63	-6.36/-4.39	-2.61/-1.51	-1.04/-0.69	-0.29/0.42	1.11/1.51	1.72/1.17	1.79/1.86
θ (30°)	-4.52/-5.51	-6.37/-4.52	-2.06/-1.08	-1.24/-1.76	-2.58/-3.93	-4.49/-3.79	-3.33/-3.35	-3.87/-5.20	-6.15/-4.96	-3.16/-3.06	-3.62/-4.62	-5.50/-6.37	-6.58/-6.26	-5.15/-5.00	-6.00/-5.76	-4.73/-4.71	-6.53/-9.41	-10.18/-10.29	-9.89/-9.88	-7.31/-3.79	-1.77/-1.25	-1.24/-1.25	-1.31/-2.43	-2.51/-3.74
θ (37.5°)	-12.79/-15.13	-13.06/-8.46	-5.85/-8.45	-4.99/-5.17	-6.64/-6.87	-4.20/-1.72	-1.54/-2.51	-3.61/-5.46	-7.41/-5.99	-4.34/-4.11	-3.53/-2.15	-0.80/-0.22	-0.70/-1.66	-1.62/-1.45	-1.38/-1.63	-2.12/-2.52	-4.07/-7.13	-8.53/-9.91	-14.36/-9.01	-7.27/1.15	-2.24/-1.96	-4.19/-6.58	-9.37/-8.74	-7.74/-8.88
θ (45°)	-8.47/9.52	-6.32/-3.75	-3.69/-4.12	-4.77/-3.86	-3.58/-3.13	-2.16/-2.04	-2.54/-3.25	-3.81/-3.92	-4.63/-5.21	-5.55/-6.63	-7.27/-5.40	-3.42/-1.84	-1.04/-0.74	-1.10/-1.84	-3.17/-5.29	-5.43/-5.29	-9.39/-11.93	-9.11/-7.10	-6.79/-6.49	-1.97/-1.81	-1.17/-1.25	-1.24/-1.25	-1.09/-1.82	-7.78/-7.59
θ (52.5°)	-11.90/-13.75	-6.39/-3.59	-4.53/-3.17	-2.61/-2.73	-2.73/-1.46	-1.08/-2.30	-3.36/-5.63	-5.73/-3.85	-4.45/-4.88	-3.07/-1.94	-1.52/-0.93	-0.99/-2.53	-2.87/-1.77	-1.83/-2.27	-2.98/-4.76	-6.05/-5.16	-4.51/-4.35	-6.57/-9.23	-10.78/-7.52	-7.02/-4.80	-4.62/-3.38	-6.07/-5.83	-8.67/-11.77	-12.60/-15.59
θ (60°)	0.26/0.83	-4.25/-3.69	-5.68/-4.96	-6.89/-8.16	-4.95/-2.72	-3.77/-4.46	-4.09/-3.60	-3.68/-3.12	-3.74/-3.44	-2.49/-1.25	-0.83/-0.28	0.02/0.37	-0.07/0.36	0.30/0.49	-0.17/-1.13	-4.56/-6.35	-7.39/-5.52	-6.77/-6.00	-6.70/-14.79	-7.48/-4.00	-3.12/-3.20	-5.86/-6.76	-9.32/-8.08	-4.49/-1.60
θ (67.5°)	-0.44/-0.77	-2.59/-1.55	-2.82/-2.24	-3.54/-6.11	-10.30/-5.33	-7.09/-7.44	-5.01/-2.15	-2.33/-5.77	-6.45/-4.18	-1.60/-0.21	-0.45/-0.20	-0.64/-1.64	-1.11/-3.13	-2.11/2.95	-4.60/-6.67	-5.38/-10.41	-10.99/-9.69	-6.98/-5.77	-8.68/-10.80	-8.41/-4.96	-2.96/-3.70	-8.29/-11.73	-11.91/-3.21	-1.17/-1.06
θ (75°)	-6.68/-7.29	-12.29/-7.74	-6.70/-5.45	-2.65/-5.22	-8.19/-9.56	-7.67/-7.06	-3.93/-3.15	-2.99/-1.74	-6.31/-1.89	-0.84/-0.04	-0.32/0.33	0.94/0.67	-0.84/-0.19	-1.89/-2.20	-3.72/-4.94	-5.79/-4.99	-4.68/-5.39	-7.71/-8.46	-10.60/-6.89	-4.68/-3.79	-7.38/-8.86	-6.90/-8.79	-10.33/-10.13	-9.24/-8.94
θ (82.5°)	-8.18/-8.84	-12.80/-9.07	-3.34/0.03	-0.37/-3.74	-13.08/-10.47	-9.69/-9.42	-7.64/-3.34	-4.27/-6.26	-7.45/-3.12	-2.27/0.97	1.05/2.09	1.91/1.34	0.32/0.80	-1.07/-2.22	-4.20/-5.39	-8.73/-6.68	-3.40/-3.14	-4.97/-13.20	-8.19/-4.95	-0.88/-3.25	-10.89/-9.59	-6.00/-7.66	-9.31/-10.89	-13.80/-11.99
θ (90°)	-3.17/1.42	-8.51/-9.97	-5.97/-5.02	-4.82/-3.61	-5.12/-9.25	-10.39/-10.47	-7.30/-5.25	-3.10/-4.23	-4.86/-3.33	-5.15/-6.07	-1.94/-0.22	0.44/0.63	-0.65/-2.06	-2.21/2.73	-2.58/-6.62	-15.34/-8.82	-4.44/-4.08	-4.80/-6.27	-5.54/-5.83	-1.95/-4.79	-5.71/-3.12	-4.04/-4.94	-9.76/-5.42	-4.90/-3.83
θ (97.5°)	1.77/1.42	-2.19/-6.09	-9.00/6.67	-3.75/-4.12	-3.60/-4.88	-10.73/-13.22	-5.89/-3.42	-1.92/-2.05	-1.50/-2.06	-4.87/-4.68	-2.44/-0.76	-0.81/-1.20	-0.77/-2.37	-5.63/-4.79	-4.81/-5.50	-3.84/-5.49	-3.71/-9.56	-3.64/-5.12	-8.17/-6.27	-0.99/-3.76	-7.56/-3.81	-4.55/-1.66	-8.95/-5.76	-1.32/0.08
θ (105°)	1.04/-1.34	-0.74/-2.19	-6.07/-6.73	-5.34/-5.83	-7.70/-5.10	-4.01/-3.64	-4.00/-3.37	-2.16/-0.64	0.61/0.03	-3.00/-3.41	-3.03/-4.78	-4.93/-7.10	-7.50/-7.08	-5.20/-3.16	-2.16/-2.34	-3.62/-2.01	-1.26/-3.20	-2.83/-3.06	-5.38/-5.10	-1.02/-3.48	-13.38/-12.44	-7.61/-5.71	-0.19/0.65	0.54/1.64
θ (112.5°)	-0.49/-3.96	-3.81/-5.35	-4.46/-5.81	-5.50/-4.00	-3.49/-6.79	-7.88/-9.70	-7.02/-9.12	1.21/2.61	2.69/1.44	0.74/-1.31	-4.36/-4.47	-2.48/-2.04	-1.51/-2.62	-2.41/1.92	1.84/-3.41	-5.22/-4.19	-1.31/-3.00	-1.11/-3.07	-6.10/-3.39	0.03/-4.42	-6.42/-5.90	-4.47/-4.33	0.23/0.91	-0.71/-0.35
θ (120°)	-0.65/-4.34	-3.31/-3.86	-3.11/-3.86	-1.71/-1.34	-1.24/-3.35	-4.46/-3.38	-10.00/-6.60	-1.31/-1.24	-1.51/-0.88	0.90/0.67	0.81/0.11	-3.21/-2.08	-0.37/0.52	1.82/0.96	0.83/1.71	-0.52/-1.79	-1.28/-0.52	-0.26/-0.94	-3.79/-2.34	-4.61/-1.36	0.84/-5.06	-0.40/-0.94	-3.46/-4.91	-6.73/-2.87
θ (127.5°)	3.83/1.79	-0.47/-1.90	-4.75/-6.69	-6.35/-8.17	-7.63/-5.09	-4.87/-5.99	-7.21/-3.77	-1.75/-0.31	0.67/1.78	1.79/0.71	-0.53/-3.36	-8.75/-8.76	-5.10/-5.10	-5.28/-3.46	-1.75/-3.32	-1.47/-0.13	0.48/-0.46	-5.01/-11.95	-7.34/-1.25	0.11/0.16	-3.69/-5.65	-3.48/-6.28	-4.92/-0.87	2.04/3.62
θ (135°)	0.55/0.71	-0.41/-2.86	-9.52/-6.41	-4.81/-3.91	-1.86/-1.82	-4.74/-3.48	-2.85/-3.89	-3.09/-2.33	-2.87/-2.78	-2.25/-2.66	-2.98/-3.36	-4.45/-5.82	-6.25/-5.57	-2.13/-0.81	4.11/-4.76	-5.27/-9.01	-2.68/-1.51	-1.45/-3.95	-6.73/-3.53	-0.53/0.27	-3.99/-11.71	-8.52/-7.67	-4.59/-3.57	-3.38/-1.35
θ (142.5°)	-0.21/-0.96	-3.27/-6.64	-13.71/-14.23	-13.45/-6.23	-3.43/-1.91	-3.45/-7.24	-1.02/-13.47	-8.97/-3.79	-2.13/-1.76	-0.15/-1.55	2.29/2.87	3.20/2.55	1.28/0.36	-0.22/-0.93	-0.51/-1.54	-5.50/-5.44	-4.52/7.48	-9.87/-10.11	-6.53/-5.16	-2.94/-0.60	-0.76/-3.96	-5.31/-5.61	-11.24/-11.09	-4.31/-0.85
θ (150°)	-8.43/-9.52	-9.68/-8.44	-7.31/6.01	-5.47/-7.47	-8.18/-5.64	-3.42/-2.53	-2.09/-2.37	-3.89/-5.85	-5.52/-3.64	-2.28/0.88	0.67/1.49	1.44/0.73	-0.05/-0.47	-0.61/-1.35	-3.28/-4.13	-2.41/-3.13	-6.00/-6.62	-3.35/-2.48	-2.02/-1.22	-0.48/-0.45	-1.39/-3.52	-5.45/-5.76	-6.16/-6.65	-7.48/-8.44
θ (157.5°)	-4.59/-3.88	-3.28/-3.65	-2.76/-1.85	-1.54/-2.64	-3.98/-5.18	-6.35/-8.11	-11.85/-10.22	-7.91/-6.40	-2.47/-1.33	-1.35/-1.17	-0.28/0.81	1.35/1.17	0.43/-0.76	-1.94/-1.76	-0.34/0.83	0.48/-0.26	-5.93/-6.72	-5.49/-1.90	0.39/0.91	-0.14/-2.43	-5.99/-0.99	-12.06/-12.90	-10.86/-8.93	-7.28/-4.59
θ (165°)	0.10/0.05	-0.63/-1.79	-2.63/-3.48	-3.94/-4.02	-4.00/-4.66	-6.33/-10.15	-16.15/-14.59	-13.37/-12.44	-11.08/-8.90	-5.96/-3.87	-2.93/-2.44	-2.13/-1.72	-0.18/-0.46	-0.20/0.50	-1.04/-0.60	-2.59/-5.01	-0.80/-9.48	-10.02/-7.94	-4.47/-2.59	-2.36/-3.54	-6.48/-13.90	-12.00/-6.84	-4.60/-2.85	-1.83/-0.74
θ (172.5°)	-9.11/-8.64	-7.45/-5.46	-4.59/-3.90	-3.06/-3.08	-3.97/-5.93	-9.00/-12.21	-13.38/-11.43	-10.72/-11.13	-11.54/-12.52	-11.88/-9.72	-8.63/-7.99	-7.20/-6.32	-5.60/-5.46	-6.09/-6.83	-7.46/-9.18	-11.38/-11.48	-11.88/-11.57	-10.81/-8.27	-4.83/-2.83	-2.38/-2.67	-3.42/-5.12	-6.74/-5.62	-5.14/-5.67	-5.89/-6.77
θ (180°)	-3.61/-4.08	-4.22/-3.93	-4.11/-4.54	-5.41/-7.05	-9.29/-11.77	-14.95/-16.14	-15.43/-13.92	-13.07/-13.89	-14.14/-13.32	-12.20/-11.04	-10.26/-9.58	-9.03/-8.95	-8.81/-9.23	-10.45/-10.90	-10.55/-10.22	-10.86/-11.37	-11.12/-10.57	-9.98/-9.46	-8.00/-7.51	-8.19/-9.04	-9.35/-10.11	-10.04/-7.69	-5.64/-4.76	-4.33/-4.26
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
θ (0°)	-0.17/-0.39	-0.58/-0.61	-0.33/-0.30	-0.12/-0.09	-0.11/0.31	-0.57/-0.72	-0.77/-0.52	-0.38/-0.42	-0.71/-1.12	-1.39/-1.54	-1.64/-1.92	-2.32/-2.69	-2.66/-2.31	-1.80/-1.74	-1.74/-1.57	-1.47/-1.11	-1.17/-1.29	-1.20/-0.74	-0.36/-0.21	-0.26/-0.25	0.01/0.17	0.27/0.32	0.28/0.31	0.41/0.15
θ (7.5°)	-0.14/-0.04	-0.31/-0.80	-1.21/-1.00	-0.95/-0.83	-0.61/-0.55	-0.46/0.08	0.31/0.39	0.35/0.50	0.67/0.78	1.19/1.12	0.97/1.03	1.12/1.25	1.38/1.36	1.16/0.94	0.80/0.82	0.60/0.27	-0.30/-0.84	-1.47/-1.23	-3.06/-3.88	-4.09/-3.91	-3.59/-2.89	-2.12/-0.97	-0.66/-0.60	1.55/0.20
θ (15°)	3.16/3.23	2.99/2.63	1.84/1.37	1.26/1.36	1.55/1.29	0.80/0.54	-0.28/-1.11	-0.10/0.64	-0.52/-0.53	-0.72/-0.90	-1.23/-1.49	-1.17/0.80	-0.48/-0.49	-0.49/-0.79	-1.24/-1.64	-1.59/-0.74	0.70/0.47	-0.00/-0.96	-2.24/-3.70	-4.08/-2.76	-0.97/0.43	1.31/1.83	1.99/2.78	3.15/3.20
θ (22.5°)	2.11/1.95	2.26/2.15	1.70/1.45	1.39/1.02	0.77/0.21	0.21/0.08	-0.27/-1.01	-2.57/-4.13	-3.77/-2.88	-2.44/-2.64	-2.88/-2.44	-1.67/-0.41	0.62/1.02	0.96/0.36	-0.81/-2.40	-4.02/-4.10	-2.70/-1.78	-2.33/-3.66	-5.15/-6.30	-4.76/-2.35	-1.18/-0.36	0.45/1.31	1.29/1.77	2.05/2.26
θ (30°)	1.02/-0.60	-0.89/-0.52	0.17/0.73	0.83/0.27	-0.78/-1.82	-1.96/-2.15	-1.93/-2.67	-5.08/-7.24	-5.69/-3.57	-2.59/-2.98	-4.20/-4.76	-3.93/-2.51	-1.63/-0.97	-0.29/0.58	0.89/0.19	-1.21/-2.90	-4.10/-5.64	-9.08/-6.68	-7.77/-9.03	-10.71/-5.64	-1.33/0.57	1.27/1.57	0.85/0.36	0.32/0.81
θ (37.5°)	-6.63/-5.74	-4.66/-5.49	-5.12/-6.11	-3.73/-3.13	-3.48/-4.38	-4.47/-5.01	-5.05/-4.75	-4.43/-4.61	-2.72/-1.54	-2.28/2.98	-3.16/-3.42	-3.96/-3.50	-2.83/-2.95	-3.19/-1.90	-0.75/-1.26	-2.29/-2.29	-2.15/-0.02	-7						



# Antenna Pattern

# Appendix B

Theta (°)	Phi (°)	Gain	Phi(0°)	Phi(15°)	Phi(30°)	Phi(45°)	Phi(60°)	Phi(75°)	Phi(90°)	Phi(105°)	Phi(120°)	Phi(135°)	Phi(150°)	Phi(165°)	Phi(180°)	Phi(195°)	Phi(210°)	Phi(225°)	Phi(240°)	Phi(255°)	Phi(270°)	Phi(285°)	Phi(300°)	Phi(315°)	Phi(330°)	Phi(345°)			
0	0	0.79065	0.071-0.72	-2.34-4.85	-7.95-10.74	-11.96-12.20	-11.42-9.46	-8.09-7.70	-7.44-7.74	-8.78-10.65	-11.42-9.13	-6.31-3.83	-2.11-1.28	-1.49-2.75	-4.66-6.76	-8.45-8.79	-9.72-10.87	-12.99-9.93	-7.30-6.44	-7.69-9.19	-8.18-6.43	-5.14-3.35	-1.72-0.95	-0.85-0.42	0.340.73				
0	15	1.27107	0.581-0.70	-2.27-3.64	-5.30-7.30	-8.77-9.36	-8.80-7.10	-5.55-4.90	-5.09-5.64	-6.58-7.84	-9.42-10.47	-10.02-8.68	-7.83-7.46	-7.19-6.63	-6.16-5.96	-6.55-8.29	-11.59-14.74	-13.28-9.34	-7.29-6.91	-7.92-9.59	-10.49-9.59	-8.41-6.67	-4.46-2.78	-1.72-0.79	0.260.99				
0	30	2.08220	1.89129	0.61006	-0.33-0.70	-1.12-1.88	-1.99-1.76	-1.76-1.61	-1.43-1.42	-1.37-1.69	-1.99-2.02	-1.96-1.91	-2.08-2.19	-2.34-2.56	-2.72-2.58	-2.28-2.02	-1.80-1.58	-1.26-1.07	-0.96-0.98	-1.34-1.60	-1.49-0.90	-0.200.40	0.901.28	1.301.49	1.631.78				
0	45	1.55168	1.18065	0.15-0.58	-1.13-1.59	-1.99-2.31	-1.99-2.07	-2.72-3.09	-3.34-3.25	-2.73-2.65	-2.87-3.15	-3.24-3.15	-3.07-2.90	-2.78-3.00	-3.59-4.43	-5.27-5.61	-4.90-3.61	-2.25-1.36	-0.92-0.90	-1.23-1.68	-2.04-1.86	-1.16-0.48	0.110.51	0.540.97	1.231.34				
0	60	3.28317	2.77215	1.30049	0.110.01	-0.09-0.47	-1.06-2.10	-2.82-2.67	-2.31-2.11	-2.14-2.14	-1.91-1.85	-2.11-2.10	-1.77-1.30	-1.09-1.15	-1.47-1.79	-1.96-2.38	-3.06-3.59	-3.64-3.31	-3.19-2.82	-2.27-1.51	-1.22-1.14	-0.720.34	1.562.45	2.693.01	3.323.45				
0	75	2.97303	2.71215	1.40065	0.170.02	-0.40-1.25	-1.62-1.44	-0.77-0.26	0.060.22	0.180.20	0.310.13	-0.62-1.36	-1.37-1.70	-2.85-4.78	-5.63-6.65	-2.97-2.17	-2.04-2.74	-4.54-6.27	-6.15-4.76	-3.83-2.74	-1.52-1.09	-0.780.24	1.732.80	3.072.91	2.612.72				
0	90	2.49244	1.74132	1.51170	1.73139	0.711-0.17	-0.39-0.56	-0.77-0.53	0.341.10	1.130.68	0.41-0.04	-0.85-1.09	-0.260.13	-0.98-3.12	-3.61-3.66	-5.34-6.79	-5.16-3.64	-4.34-4.94	-4.13-2.89	-2.47-2.66	-1.84-0.13	1.151.49	1.621.97	2.553.06	2.952.59				
0	105	0.44132	1.63145	1.66192	1.410.19	-0.91-1.03	-0.200.50	1.141.51	1.661.48	1.341.54	1.701.28	0.12-0.66	0.381.16	0.850.81	0.83-0.70	-3.53-4.49	-8.22-10.16	-8.42-6.50	-7.90-8.19	-5.64-3.32	-1.88-1.64	-1.33-0.52	0.100.15	0.130.46	0.580.33				
0	120	2.25243	2.74285	3.18322	2.310.88	-0.14-0.53	-0.040.99	1.932.20	2.352.58	2.081.25	0.500.38	0.260.21	0.31-0.68	-1.41-1.21	-1.28-1.87	-2.48-4.54	-9.14-12.96	-9.53-7.37	-6.77-6.49	-5.43-3.41	-1.61-0.61	-0.42-0.54	0.000.48	0.551.31	2.142.22				
0	135	1.45199	2.93292	2.34158	0.53-0.45	-1.21-0.75	1.051.71	1.181.11	1.701.64	0.98-0.12	-1.71-3.06	-4.41-4.46	-4.46-5.14	-4.09-2.95	-2.98-2.85	-2.50-3.17	-4.63-6.39	-7.63-5.54	-3.30-3.76	-5.07-5.04	-4.29-4.03	-4.80-3.67	-2.57-1.62	-0.60-0.31	0.090.92				
0	150	2.57260	2.58267	2.35156	-0.05-1.53	-1.43-0.39	-0.43-0.70	0.111.27	2.192.55	1.650.34	-0.57-1.58	-3.46-4.45	-4.87-4.49	-2.65-1.92	-2.67-3.24	-3.66-3.93	-3.44-4.24	-5.39-3.31	-3.90-4.80	-6.99-9.61	-7.79-5.58	-4.42-4.01	-2.67-2.25	-0.87-1.08	2.072.27				
0	165	0.93112	0.70009	0.03-0.61	-1.87-2.46	-1.92-2.43	-3.26-3.54	-2.74-0.18	1.091.32	1.471.24	0.52-0.48	-0.75-0.16	-1.07-1.88	-1.43-1.84	-3.30-3.56	-2.78-3.25	-3.93-5.76	-7.21-9.24	-6.37-4.66	-6.38-8.21	-9.08-5.01	-2.81-2.62	-2.77-3.20	-2.17-0.80	0.761.16				
0	180	-0.37-0.52	-0.57-1.66	-2.40-2.58	-2.94-3.88	-3.85-3.62	-4.90-4.96	-2.76-1.23	-0.020.84	0.900.69	0.43-0.09	-0.470.61	0.790.82	1.09-0.66	-2.05-3.08	-6.11-9.06	-9.07-9.30	-7.75-8.82	-8.86-6.29	-4.66-6.30	-5.39-6.33	-4.56-4.34	-3.27-2.61	-1.90-0.94	0.000.62				
0	195	0.45045	0.06-0.70	-0.08-0.98	-1.86-3.10	-4.25-5.51	-5.35-3.99	-2.21-1.61	-0.04-0.68	-2.82-2.80	-1.16-1.10	1.512.25	2.271.05	-1.58-4.52	-7.56-7.99	-8.47-7.46	-6.82-6.20	-4.03-5.77	-8.96-5.91	-5.60-4.77	-4.90-3.00	-2.99-2.44	-1.84-0.55	1.021.23					
0	210	-2.82-2.60	-1.55-0.62	0.07-1.05	-2.78-4.85	-7.19-7.20	-6.87-6.07	-5.72-6.60	-2.26-1.23	-1.94-4.57	-4.78-3.86	-2.90-4.48	1.581.48	0.66-1.04	-1.69-2.91	-5.60-5.94	-6.79-6.45	-7.43-9.99	-2.21-3.97	-6.30-5.43	-6.41-5.12	-6.11-5.96	-7.30-4.91	-1.95-0.57	-1.55-2.11				
0	225	-2.42-2.29	-2.39-3.16	-3.05-3.45	-6.44-8.41	-8.37-8.45	-9.58-9.25	-6.57-4.11	-3.49-3.16	-2.93-4.74	-4.56-4.37	-1.57-0.86	-1.00-0.20	-0.21-1.04	-3.97-4.56	-3.72-4.84	-5.49-8.85	-5.87-2.86	-2.42-3.28	-5.48-6.60	-9.20-6.74	-6.02-6.36	-7.74-8.78	-7.67-6.31	-3.66-2.70				
0	240	-1.91-0.57	-0.33-0.78	-2.61-4.55	-5.14-5.75	-4.77-4.32	-6.31-8.61	-8.50-7.20	-3.89-3.24	-4.01-4.70	-2.74-5.16	-2.13-2.11	-1.61-1.52	-3.00-4.72	-8.07-6.33	-9.70-9.06	-11.57-9.79	-8.24-6.80	-4.67-5.72	-4.93-4.48	-3.40-1.73	-1.31-1.98	-1.31-1.98						
0	255	0.330.02	-0.77-1.39	-1.91-3.86	-5.73-4.19	-2.74-2.85	-3.92-5.64	-7.29-9.44	-7.77-9.28	-1.31-1.91	-2.93-3.56	-4.25-4.99	-4.99-4.21	-6.98-15.76	-10.68-5.98	-7.38-9.11	-5.85-4.06	-3.70-5.25	-8.00-4.22	-6.91-14.00	-6.88-7.60	-9.47-8.89	-8.40-9.09	-8.00-2.75	-0.250.77				
0	270	-2.13-1.66	-2.22-4.02	-5.09-2.99	-1.18-1.09	-1.33-1.49	-1.51-2.17	-3.84-4.09	-2.66-1.35	-0.130.67	0.890.52	-0.98-3.80	-6.91-5.21	-5.38-6.40	-4.55-5.64	-8.37-9.79	-10.61-4.89	-4.49-5.58	-3.83-1.15	-1.21-5.30	-6.67-8.83	-11.83-9.49	-8.01-7.94	-9.15-3.71	-2.59-2.68				
0	285	-6.75-7.18	-5.61-3.63	-2.38-1.83	-1.84-1.44	-0.85-1.52	-3.91-3.52	-4.95-5.00	-6.20-6.22	-4.25-2.51	-2.74-4.56	-5.86-6.27	-4.11-1.57	-1.81-4.15	-7.91-9.84	-9.22-13.49	-4.95-1.58	-2.28-3.44	-4.58-2.65	-3.93-8.31	-11.79-8.28	-6.68-4.49	-6.11-6.47	-4.24-5.09	-4.36-5.14				
0	300	-10.60-10.98	-12.05-13.04	-14.40-14.06	-11.46-10.84	-11.63-13.94	-14.10-12.68	-12.12-12.34	-13.04-13.30	-13.47-13.87	-15.38-15.41	-15.15-15.19	-16.20-15.31	-15.42-14.51	-13.94-12.69	-13.08-12.80	-13.01-12.64	-13.09-14.23	-15.99-14.93	-15.95-16.06	-16.03-16.12	-15.31-15.40	-15.14-14.22	-12.10-11.12	-11.18-11.00				
0	315	5.66Pol.	TotalAnt.4																										
0	330	Phi(0°)	Phi(15°)	Phi(30°)	Phi(45°)	Phi(60°)	Phi(75°)	Phi(90°)	Phi(105°)	Phi(120°)	Phi(135°)	Phi(150°)	Phi(165°)	Phi(180°)	Phi(195°)	Phi(210°)	Phi(225°)	Phi(240°)	Phi(255°)	Phi(270°)	Phi(285°)	Phi(300°)	Phi(315°)	Phi(330°)	Phi(345°)				
0	345	-1.51-1.19	-1.51-1.79	-1.80-1.76	-1.55-1.38	-1.11-0.94	-0.57-0.17	-0.02-0.23	-0.43-0.65	-0.89-1.06	-1.16-1.21	-1.20-1.23	-1.36-1.58	-1.82-1.99	-2.07-2.04	-1.73-1.36	-1.10-1.02	-0.97-0.83	-0.71-0.82	-0.85-0.68	-0.64-0.71	-0.92-1.13	-1.10-1.11	-1.08-1.36	-1.47-1.57				
15	0	-2.36-1.65	-1.60-1.91	-2.01-1.93	-1.84-1.64	-1.36-1.25	-1.37-1.61	-1.67-1.79	-2.08-2.54	-3.00-3.36	-3.63-3.80	-3.93-4.21	-4.47-4.53	-4.69-4.59	-4.29-3.93	-3.55-3.70	-2.49-1.89	-1.51-1.30	-1.33-1.24	-1.22-1.38	-1.62-1.67	-1.56-1.56	-1.74-2.22	-2.20-2.51					
15	15	-0.96-0.58	-0.95-1.26	-1.20-1.37	-1.43-1.49	-1.83-2.04	-2.45-3.24	-4.22-4.58	-4.58-4.25	-3.61-3.07	-2.49-2.04	-1.64-1.36	-1.32-1.53	-2.03-2.78	-3.58-4.31	-4.98-5.88	-6.83-7.21	-6.63-4.50	-4.20-3.58	-3.19-2.77	-2.41-2.22	-2.35-2.32	-1.99-1.54	-1.31-1.30	-0.94-1.14				
15	30	0.780.36	-0.080.11	0.01-0.12	0.210.23	-0.26-0.69	-1.50-2.55	-2.56-2.23	-2.14-1.69	-1.07-0.68	-0.58-0.49	-0.220.18	0.360.25	-0.07-0.51	-1.08-1.49	-1.71-2.03	-2.77-4.03	-5.64-7.05	-7.52-6.33	-4.34-2.95	-2.10-1.62	-1.43-1.15	-0.70-0.14	-0.030.09	0.410.61				
15	45	1.100.86	0.770.68	0.791.41	1.881.55	0.50-0.51	-1.48-2.21	-2.43-3.14	-2.24-1.54	-1.75-2.24	-2.43-2.18	-2.08-2.28	-2.36-2.27	-2.11-1.93	-1.76-1.21	-3.26-3.55	-6.72-6.37	-4.96-3.22	-2.40-2.44	-2.43-1.91	-0.99-0.26	0.260.48	0.390.43	0.701.13					
15	60	2.321.85	1.431.07	1.301.40	1.320.93	0.731.09	1.020.27	-0.70-0.95	-0.43-0.30	-0.29-0.75	-1.97-2.71	-2.34-2.20	-2.22-2.36	-2.59-2.33	-1.86-1.47	-1.86-2.80	-2.72-2.44	-3.06-3.88	-3.77-2.65	-1.65-0.63	0.350.68	0.981.34	1.832.48	2.722.67					
15	75	1.351.84	2.412.55	2.322.01	1.881.54	1.310.88	-0.18-1.09	-0.95-0.50	-0.48-0.67	-0.34-0.09	-0.120.01	-0.12-0.47	-0.57-1.30	-2.36-2.62	-3.33-4.90	-4.97-3.43	-3.20-3.86	-4.50-5.20	-4.49-3.09	-2.48-2.14	-2.43-3.22	-2.46-0.91	0.391.15	1.351.43	1.531.50				
15	90	0.670.72	0.560.83	1.201.43	2.032.55	2.351.31	-0.53-1.78	-1.99-2.03	-2.41-2.47	-2.20-2.19	-1.78-1.02	-0.360.44	-0.25-1.21	-2.32-2.20	-3.29-4.06	-4.71-6.51	-6.45-5.37	-6.34-7.07	-6.90-5.86	-5.01-4.50	-3.48-3.22	-2.13-1.37	-0.190.60	1.201.77	1.650.82				
15	105</																												

E1 (XY plane) –  $\Theta(90)\Phi(0-360)$   
 E2 (XZ plane) –  $\Theta(0-180)\Phi(0)$  and  $\Theta(0-180)\Phi(180)$   
 E3 (YZ plane) –  $\Theta(0-180)\Phi(90)$  and  $\Theta(0-180)\Phi(270)$



