



Radiated Composite Gain Data of 6GHz

Appendix B

Table with columns for frequency (Freq(Hz)), antenna angles (Theta/Ant. 4), and various gain metrics for different antenna configurations. The table contains numerical values representing gain data across a range of frequencies and antenna settings.



Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G	5.885G	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	1.76	3.44	3.27	3.16	3.75	5.11	4.19	3.34	4.02	4.41
Ant. 2 Max Gain (dBi)	1.17	2.09	2.62	2.22	2.49	2.91	3.32	2.13	3.01	4.43
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/52.5/202.5	Theta/75/285	Theta/75/285	Theta/75/315	Theta/82.5/277.5	Theta/75/285	Theta/82.5/277.5	Theta/75/270	Theta/52.5/255	Theta/60/262.5
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/45/60	Theta/52.5/172.5	Theta/67.5/120	Theta/52.5/165	Theta/52.5/172.5	Theta/52.5/157.5	Theta/75/180	Theta/75/127.5	Theta/75/127.5	Theta/75/112.5
Max Gain (dBi)	1.76	3.44	3.27	3.16	3.75	5.11	4.19	3.34	4.02	4.43



Radiated Composite Gain Data of scan

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Gain Result

Freq(Hz)	2.45GPol.	PhiAnt.1	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°)
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	7.5	15	22.5	30	37.5	45	52.5	60	67.5	75	82.5	90	97.5	105	112.5	120	127.5	135	142.5	150	157.5	165	172.5
Gain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Theta(°)	175	167.5	160	152.5	145	137.5	130	122.5	115	107.5	100	92.5	85	77.5	70	62.5	55	47.5	40	32.5	25	17.5	10	2.5



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Theta (°)	-12.22 -17.87	-16.11 -7.85	-5.65 -5.76	-6.42 -5.03	-2.92 -1.5	-0.43 -0.04	0.04 -0.35	-1.18 -2.44	-3.5 -3.57	-3.42 -3.9	-4.46 -5.03	-5.45 -6.01	-7.1 -7.65	-7.64 -7.58	-7.02 -5.29	-2.93 -1.74	-0.22 -0.04	0.51 -0.31	0.53 -0.53	0.2 -2.06	-1.01 -2.98	-6.74 -9.25	-10.36 -9.97
Gain	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)



Radiated Composite Gain Data of scan

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Freq(Hz)	ThetaAnt	PhiAnt	Phi(7.5°)	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°)											
75	-11.09	-7.68	-9.69	-12.72	-10.67	-14.03	-18.46	-17.6	-17.16	-10.12	-7.09	-8.23	-8.42	-5.88	-8.46	-15.16	-16.66	-18.29	-13.31	-8.81	-17.65	-19.03	-16.36	-12.96	-7.19	-6.44	-4.44	-4.03	-6.48	-5.11	-6.87	-6.96	-7.88	-4.14	-8.51	-19.11	-15.58
75	-11.09	-7.68	-9.69	-12.72	-10.67	-14.03	-18.46	-17.6	-17.16	-10.12	-7.09	-8.23	-8.42	-5.88	-8.46	-15.16	-16.66	-18.29	-13.31	-8.81	-17.65	-19.03	-16.36	-12.96	-7.19	-6.44	-4.44	-4.03	-6.48	-5.11	-6.87	-6.96	-7.88	-4.14	-8.51	-19.11	-15.58
75	-11.09	-7.68	-9.69	-12.72	-10.67	-14.03	-18.46	-17.6	-17.16	-10.12	-7.09	-8.23	-8.42	-5.88	-8.46	-15.16	-16.66	-18.29	-13.31	-8.81	-17.65	-19.03	-16.36	-12.96	-7.19	-6.44	-4.44	-4.03	-6.48	-5.11	-6.87	-6.96	-7.88	-4.14	-8.51	-19.11	-15.58



Radiated Composite Gain Data of scan

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Theta (°)	-14.45/-8.62	-12.81/-12.13	-14.19/-17.69	-13.71/-17.93	-18.16/-18.41	-12.29/-11.53	-11.66/-18.51	-13.73/-10.07	-15.47/-17.03	-8.33/-10.28	-17.89/-18.43	-6.63/-8.96	-11.33/-18.99	-16.04/-15.99	-13.13/-12.84	-11.01/-15.66	-17.26/-19.04	-18.42/-17.28	-17.92/-17.29	-19.03/-18.71	-18.96/-19.44	-12.27/-15.88	-18.15/-19.07	-12.33/-13.12	
Gain	0.23/1.91	-1.71/-4.12	-1.30/-3.96	-0.65/-0.58	0.86/-1.11	-1.71/-4.12	-1.30/-3.96	-0.65/-0.58	0.86/-1.11	-1.71/-4.12	-1.30/-3.96	-0.65/-0.58	0.86/-1.11	-1.71/-4.12	-1.30/-3.96	-0.65/-0.58	0.86/-1.11	-1.71/-4.12	-1.30/-3.96	-0.65/-0.58	0.86/-1.11	-1.71/-4.12	-1.30/-3.96	-0.65/-0.58	0.86/-1.11
Theta (°)	0/0.29	-0.82/-0.54	-0.28/-0.41	-0.67/-1.24	-1.81/-0.95	-0.35/-0.48	0.10/0.45	0.30/0.71	1.26/0.8	0.88/1.15	0.70/0.7	-0.21/-0.42	-0.68/-0.86	-1.29/-1.97	-2.41/-2.61	-1.84/-2.07	-2.02/-0.92	-1.29/-1.01	0.11/0.5	-0.60/0.29	0.01/0.56	0.47/0.11	0.09/0.93	0.94/0.58	
Gain	0.0/0.29	-0.82/-0.54	-0.28/-0.41	-0.67/-1.24	-1.81/-0.95	-0.35/-0.48	0.10/0.45	0.30/0.71	1.26/0.8	0.88/1.15	0.70/0.7	-0.21/-0.42	-0.68/-0.86	-1.29/-1.97	-2.41/-2.61	-1.84/-2.07	-2.02/-0.92	-1.29/-1.01	0.11/0.5	-0.60/0.29	0.01/0.56	0.47/0.11	0.09/0.93	0.94/0.58	



Radiated Composite Gain Data of scan

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Theta	17.461-15.78	15.791-18.69	17.551-13.28	11.541-11.88	15.711-16.55	16.291-17.97	18.481-17.67	19.011-18.21	18.581-19.08	19.551-15.97	18.651-17.41	19.171-18.21	18.111-16.15	17.831-13.26	13.081-18.66	15.611-18.12	19.211-18.14	18.081-16.75	15.011-17.76	13.571-16.45	18.281-14.38	13.491-13.23	15.651-15.02	13.871-13.18
Gain	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Theta	17.461-15.78	15.791-18.69	17.551-13.28	11.541-11.88	15.711-16.55	16.291-17.97	18.481-17.67	19.011-18.21	18.581-19.08	19.551-15.97	18.651-17.41	19.171-18.21	18.111-16.15	17.831-13.26	13.081-18.66	15.611-18.12	19.211-18.14	18.081-16.75	15.011-17.76	13.571-16.45	18.281-14.38	13.491-13.23	15.651-15.02	13.871-13.18
Gain	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Theta	17.461-15.78	15.791-18.69	17.551-13.28	11.541-11.88	15.711-16.55	16.291-17.97	18.481-17.67	19.011-18.21	18.581-19.08	19.551-15.97	18.651-17.41	19.171-18.21	18.111-16.15	17.831-13.26	13.081-18.66	15.611-18.12	19.211-18.14	18.081-16.75	15.011-17.76	13.571-16.45	18.281-14.38	13.491-13.23	15.651-15.02	13.871-13.18
Gain	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



Radiated Composite Gain Data of scan

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Theta	Phi	Gain	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)	Phi(0)	-2.54/-1.05	-1.66/-3.25	-4.45/-5.18	-3.42/-2.52	-2.71/-1.42	-2.74/-4.52	-1.38/0.2	0.71/0.8	1.95/1.15	0.28/-0.46	-0.84/-0.97	-0.81/0.15	0.54/0.07	-0.61/-1.57	-2.01/-1.3	-1.33/-2.53	-2.98/-3.79	-4.44/-3.79	-4.46/-11.4	-8.04/-6.3	-7.19/-5.39	-2.8/-3.7	-1.92/-4.2	-9.43/-12.63	-10.49/-6.78	Theta(67.5)	Phi(7.5)	-2.93/-0.8	-0.93/-2.35	-6.12/-8.37	-5.51/-2.95	-2.58/-1.52	-2.29/-4.4	-1.63/0.32	0.47/0.92	2.62/1.67	0.71/-0.25	0.11/-0.54	-0.49/0.43	0.27/-0.03	-0.75/-0.92	-0.84/-0.19	-0.34/-2.53	-1.52/-1.37	-2.61/-2.54	-2.57/-9.7	-6.58/-5.09	-7.34/-3.76	-1.92/-4.2	-9.43/-12.63	-10.49/-6.78	Theta(75)	Phi(15)	-3.15/-1.66	-1.04/-2.35	-5.68/-8.07	-7.63/-4.23	-3.1/-2.41	-2.9/-3.66	-2.27/-0.58	-0.47/0.29	1.18/1.65	-0.41/-0.56	0.25/-1.16	-1.08/-0.05	-1.29/-1.03	-1.35/-0.38	-1.28/-0.72	-0.89/-0.82	-1.08/-0.89	-1.48/-1.76	-1.46/-8.62	-5.53/-5.57	-7.81/-4.92	-2.58/-5.92	-11.61/-10.67	-8.54/-5.96	Theta(82.5)	Phi(22.5)	-4.46/-2.87	-1.87/-3.37	-6.37/-9.1	-8.24/-4.77	-3.42/-2.95	-4.11/-4.94	-3.84/-1.26	-1.81/0.68	-0.67/-0.04	-2.73/-1.66	-1.02/-2.73	-2.16/-1.17	-2.53/-3.36	-3.15/-1.26	-2.61/-1.35	0.75/-0.77	-0.42/-1.04	-3.15/-1.62	-1.27/-0.6	-7.09/-4.45	-9.01/-6.43	-4.09/-7.49	-15.56/-12.08	-9.37/-11	Theta(90)	Phi(30)	-6.56/-5.55	-4.13/-5.58	-7.11/-9.77	-9.94/-7.05	-4.42/-4.31	-5.71/-5.47	-6.2/-2.71	-3.56/-1.87	-2.43/-2.71	-5.6/-2.44	-2.36/-4.87	-3.98/-1.88	-2.48/-3.99	-5.42/-3.78	-5.88/-3.94	-0.29/-1.29	-1.95/-1.42	-3.72/-3.36	-2.16/-2.7	-9.58/-7.21	-8.18/-5.95	-6.52/-9.88	-13.53/-10.01	-8.27/-0.7	Theta(97.5)	Phi(37.5)	-8.27/-6.47	-5.24/-6.59	-7.47/-8.9	-10.11/-8.57	-5.52/-6.4	-7.1	-7.49/-3.76	-5.28/-3.27	-4.88/-5.36	-6.2/-2.46	-4.86/-6.36	-6.55/-4.09	-6.22/-4.46	-7.99/-6.66	-8.77/-6.66	-3.95/-4.4	-6.15/-5.06	-6.63/-9.55	-7.71/-7.4	-11.33/-9.68	-7.71/-7.4	-11.33/-9.68	-13.53/-10.76	-9.57/-4	Theta(105)	Phi(45)	-7.45/-6.77	-6.54/-8.58	-8.97/-11.44	-14.96/-9.14	-6.77/-8.26	-7.07/-9.4	-8.16/-4.96	-6.32/-6.04	-7.98/-6.52	-14.08/-7.01	-7.35/-9.06	-9.57/-5.64	-4.62/-6.43	-10.31/-8.8	-11.07/-15	-7.08/-5.45	-7.07/-9.37	-9.44/-8.87	-11.12/-13.18	-11.84/-19.02	-7.91/-7.43	-11.98/-13.94	-15.39/-10.84	-9.71/-7.04	Theta(112.5)	Phi(52.5)	-8.6/-8.68	-9.23/-10.44	-12.04/-16.06	-18.71/-11.12	-8.32/-9.11	-8.48/-11.9	-7.25/-5.5	-8.29/-8.06	-9.81/-7.9	-13.6/-11.25	-11.26/-13.31	-9.66/-7.9	-10.2/-12.79	-15.44/-9.43	-11.97/-17.03	-12.08/-8.01	-11.47/-13.67	-11.55/-11.41	-17.44/-17.96	-12.65/-17.68	-8.81/-6.94	-15.05/-15.18	-16.76/-12.39	-11.94/-8	Theta(120)	Phi(60)	-11.48/-10.63	-10.73/-12.75	-14.47/-17.61	-16.63/-12.64	-14.32/-12.06	-11.12/-13.09	-8.33/-9.64	-11.55/-14.21	-9.81/-8.96	-12.27/-8.51	-12.54/-15.11	-10.26/-6.96	-10.45/-17.52	-12.84/-19.43	-13.71/-13.02	-7.5/-9.79	-12.81/-9.9	-16.45/-12.75	-13.33/-17.1	-18.1/-16.99	-12.35/-17.1	-15.17/-18.97	-16.51/-17.49	-12.82/-13.65	Theta(127.5)	Phi(67.5)	-11.84/-12.59	-12.31/-12.76	-12.23/-14.18	-16.99/-18.44	-18.09/-13.45	-15.64/-15.45	-13.38/-11.1	-9.32/-11.3	-14.41/-7.93	-11.84/-13.28	-8.89/-11.49	-9.81/-17.49	-12.05/-15.53	-15.08/-9.74	-11.57/-10.44	-13.91/-18.36	-18.11/-10.55	-9.31/-13.34	-15.57/-15.89	-18.09/-17.81	-13.59/-19.1	-14.74/-19.35	-15.02/-11.36	Theta(135)	Phi(75)	-9.45/-15.76	-19.23/-17.08	-15.79/-14.56	-17.49/-18.2	-16.52/-17.41	-18.09/-17.66	-15.25/-16.39	-14.87/-15.73	-12.93/-13.7	-18.4/-13.25	-15.12/-17.05	-12.61/-18.33	-17.45/-19.01	-12.09/-15.32	-15.06/-10.19	-12.94/-18.51	-19.09/-17.56	-16.98/-11.23	-11.21/-17.81	-17.06/-16.29	-19.43/-16.46	-17.25/-13.92	-9.44/-13.73	-11.1/-10.47	Theta(142.5)	Phi(82.5)	-14.52/-11.99	-13.83/-14.68	-15.68/-18.7	-18.54/-18.26	-17.91/-18.47	-14.82/-16.71	-17.75/-18.22	-14.98/-17.54	-15.41/-14.77	-15.91/-16.14	-14.25/-11.42	-11.96/-17.37	-18.79/-16	-13.61/-14.16	-18.94/-18.55	-18.82/-18.41	-14.64/-13.27	-12.08/-13.7	-17.86/-17.98	-13.74/-14.65	-16.34/-18.15	-18.77/-17.87	-17.91/-19.01	Theta(150)	Phi(90)	-18.86/-14.49	-12.86/-13.61	-15.1/-15.92	-17.46/-18.31	-19.12/-18.43	-17.27/-17.99	-14.65/-15.22	-17.83/-13.35	-10.91/-12.95	-16.58/-19.03	-17.57/-18.63	-17.72/-19.11	-18.15/-17.12	-19.19/-18.32	-18.87/-18.16	-18.83/-17.53	-15.23/-17.41	-18.9/-19.31	-16.43/-16.65	-18.14/-18.63	-19.17/-18.59	-18.6/-18.95	-18.72/-19.04	-18.52/-19.32	Theta(157.5)	Phi(97.5)	-15.48/-16.34	-15.51/-13.6	-11.84/-12.18	-14.38/-15.1	-14.61/-14.79	-14.83/-14.59	-13.72/-14.91	-18.92/-18.18	-17.58/-17.24	-14.86/-12.75	-12.44/-13.61	-16.17/-17.7	-17.22/-18.82	-18.67/-18.05	-18.07/-18.69	-18.16/-15.7	-13.13/-13.66	-16.61/-16.53	-17.87/-18.84	-17.71/-18.13	-18.08/-18.21	-18.03/-17.97	-17.97/-18.95	-18.87/-16.23	Theta(165)	Phi(105)	-14.71/-16.72	-16.56/-16.57	-18.73/-18.3	-18.4/-18.98	-18.79/-18.29	-19.28/-18.49	-17.98/-19.13	-17.32/-17.48	-18.43/-18.3	-18.91/-18.77	-18.57/-18.95	-18.45/-18.71	-18.48/-18.85	-18.06/-18.17	-18.22/-18.75	-18.01/-18.35	-18.04/-19.61	-17.48/-18	-18.71/-19.02	-17.63/-17.73	-16.11/-17.52	-17.96/-18.95	-15.92/-16.55	-13.59/-10.3	Theta(172.5)	Phi(112.5)	-17.19/-16.09	-16.13/-17.44	-18.58/-17.44	-17.68/-19.05	-17.83/-18.83	-18.27/-15.72	-13.75/-12.69	-12.42/-13.07	-13.71/-14.46	-15.36/-16.1	-16.96/-18.89	-17.37/-17.61	-18.65/-17.99	-19.13/-18.8	-18.96/-18.71	-17.11/-16.88	-16.23/-16.28	-15.17/-14.75	-15.84/-17.43	-17.43/-18.83	-19.24/-18.65	-18.55/-18.41	-16.89/-15.89	-15.74/-16.85	Theta(180)	Phi(120)	-18.11/-18.55	-18.12/-17.88	-19.01/-18.9	-18.67/-18.21	-18.32/-19	-19.37/-17.94	-16.42/-15.97	-15.72/-16.09	-17.49/-18.42	-18.54/-19.16	-18.01/-18.45	-18.83/-18.95	-18.89/-18.07	-17.35/-17.71	-18.18/-18.72	-17.26/-16.56	-16.43/-16.29	-15.37/-14.14	-12.92/-12.26	-12.69/-14.56	-15.61/-15.92	-16.9/-17.7	-18.96/-19.12	-19.27/-18.55	Theta(187.5)	Phi(127.5)	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)



Radiated Composite Gain Data of scan

Appendix C

Theta (°)	150°	157.5°	165°	172.5°	180°	187.5°	195°	202.5°	210°	217.5°	225°	232.5°	240°	247.5°	255°	262.5°	270°	277.5°	285°	292.5°	300°	307.5°	315°	322.5°	330°	337.5°	345°	
Gain	0.0	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	22.5	24.0	25.5	27.0	28.5	30.0	31.5	33.0	34.5	36.0	37.5	39.0	
0°	-2.42	-2.20	-1.98	-1.76	-1.54	-1.32	-1.10	-0.88	-0.66	-0.44	-0.22	0.00	0.22	0.44	0.66	0.88	1.10	1.32	1.54	1.76	1.98	2.20	2.42	2.64	2.86	3.08	3.30	
15°	-2.52	-2.30	-2.08	-1.86	-1.64	-1.42	-1.20	-0.98	-0.76	-0.54	-0.32	-0.10	0.12	0.34	0.56	0.78	1.00	1.22	1.44	1.66	1.88	2.10	2.32	2.54	2.76	2.98	3.20	
30°	-1.49	-1.36	-1.23	-1.10	-0.97	-0.84	-0.71	-0.58	-0.45	-0.32	-0.19	-0.06	0.07	0.20	0.33	0.46	0.59	0.72	0.85	0.98	1.11	1.24	1.37	1.50	1.63	1.76	1.89	
45°	-1.02	-0.99	-0.96	-0.93	-0.90	-0.87	-0.84	-0.81	-0.78	-0.75	-0.72	-0.69	-0.66	-0.63	-0.60	-0.57	-0.54	-0.51	-0.48	-0.45	-0.42	-0.39	-0.36	-0.33	-0.30	-0.27	-0.24	
60°	-0.69	-0.72	-0.75	-0.78	-0.81	-0.84	-0.87	-0.90	-0.93	-0.96	-0.99	-1.02	-1.05	-1.08	-1.11	-1.14	-1.17	-1.20	-1.23	-1.26	-1.29	-1.32	-1.35	-1.38	-1.41	-1.44	-1.47	
75°	-0.53	-0.56	-0.59	-0.62	-0.65	-0.68	-0.71	-0.74	-0.77	-0.80	-0.83	-0.86	-0.89	-0.92	-0.95	-0.98	-1.01	-1.04	-1.07	-1.10	-1.13	-1.16	-1.19	-1.22	-1.25	-1.28	-1.31	
90°	-0.43	-0.46	-0.49	-0.52	-0.55	-0.58	-0.61	-0.64	-0.67	-0.70	-0.73	-0.76	-0.79	-0.82	-0.85	-0.88	-0.91	-0.94	-0.97	-1.00	-1.03	-1.06	-1.09	-1.12	-1.15	-1.18	-1.21	
105°	-0.37	-0.40	-0.43	-0.46	-0.49	-0.52	-0.55	-0.58	-0.61	-0.64	-0.67	-0.70	-0.73	-0.76	-0.79	-0.82	-0.85	-0.88	-0.91	-0.94	-0.97	-1.00	-1.03	-1.06	-1.09	-1.12	-1.15	
120°	-0.32	-0.35	-0.38	-0.41	-0.44	-0.47	-0.50	-0.53	-0.56	-0.59	-0.62	-0.65	-0.68	-0.71	-0.74	-0.77	-0.80	-0.83	-0.86	-0.89	-0.92	-0.95	-0.98	-1.01	-1.04	-1.07	-1.10	
135°	-0.28	-0.31	-0.34	-0.37	-0.40	-0.43	-0.46	-0.49	-0.52	-0.55	-0.58	-0.61	-0.64	-0.67	-0.70	-0.73	-0.76	-0.79	-0.82	-0.85	-0.88	-0.91	-0.94	-0.97	-1.00	-1.03	-1.06	
150°	-0.24	-0.27	-0.30	-0.33	-0.36	-0.39	-0.42	-0.45	-0.48	-0.51	-0.54	-0.57	-0.60	-0.63	-0.66	-0.69	-0.72	-0.75	-0.78	-0.81	-0.84	-0.87	-0.90	-0.93	-0.96	-0.99	-1.02	
165°	-0.21	-0.24	-0.27	-0.30	-0.33	-0.36	-0.39	-0.42	-0.45	-0.48	-0.51	-0.54	-0.57	-0.60	-0.63	-0.66	-0.69	-0.72	-0.75	-0.78	-0.81	-0.84	-0.87	-0.90	-0.93	-0.96	-0.99	
180°	-0.19	-0.22	-0.25	-0.28	-0.31	-0.34	-0.37	-0.40	-0.43	-0.46	-0.49	-0.52	-0.55	-0.58	-0.61	-0.64	-0.67	-0.70	-0.73	-0.76	-0.79	-0.82	-0.85	-0.88	-0.91	-0.94	-0.97	
195°	-0.18	-0.21	-0.24	-0.27	-0.30	-0.33	-0.36	-0.39	-0.42	-0.45	-0.48	-0.51	-0.54	-0.57	-0.60	-0.63	-0.66	-0.69	-0.72	-0.75	-0.78	-0.81	-0.84	-0.87	-0.90	-0.93	-0.96	
210°	-0.17	-0.20	-0.23	-0.26	-0.29	-0.32	-0.35	-0.38	-0.41	-0.44	-0.47	-0.50	-0.53	-0.56	-0.59	-0.62	-0.65	-0.68	-0.71	-0.74	-0.77	-0.80	-0.83	-0.86	-0.89	-0.92	-0.95	
225°	-0.16	-0.19	-0.22	-0.25	-0.28	-0.31	-0.34	-0.37	-0.40	-0.43	-0.46	-0.49	-0.52	-0.55	-0.58	-0.61	-0.64	-0.67	-0.70	-0.73	-0.76	-0.79	-0.82	-0.85	-0.88	-0.91	-0.94	
240°	-0.15	-0.18	-0.21	-0.24	-0.27	-0.30	-0.33	-0.36	-0.39	-0.42	-0.45	-0.48	-0.51	-0.54	-0.57	-0.60	-0.63	-0.66	-0.69	-0.72	-0.75	-0.78	-0.81	-0.84	-0.87	-0.90	-0.93	
255°	-0.14	-0.17	-0.20	-0.23	-0.26	-0.29	-0.32	-0.35	-0.38	-0.41	-0.44	-0.47	-0.50	-0.53	-0.56	-0.59	-0.62	-0.65	-0.68	-0.71	-0.74	-0.77	-0.80	-0.83	-0.86	-0.89	-0.92	
270°	-0.13	-0.16	-0.19	-0.22	-0.25	-0.28	-0.31	-0.34	-0.37	-0.40	-0.43	-0.46	-0.49	-0.52	-0.55	-0.58	-0.61	-0.64	-0.67	-0.70	-0.73	-0.76	-0.79	-0.82	-0.85	-0.88	-0.91	
285°	-0.12	-0.15	-0.18	-0.21	-0.24	-0.27	-0.30	-0.33	-0.36	-0.39	-0.42	-0.45	-0.48	-0.51	-0.54	-0.57	-0.60	-0.63	-0.66	-0.69	-0.72	-0.75	-0.78	-0.81	-0.84	-0.87	-0.90	
300°	-0.11	-0.14	-0.17	-0.20	-0.23	-0.26	-0.29	-0.32	-0.35	-0.38	-0.41	-0.44	-0.47	-0.50	-0.53	-0.56	-0.59	-0.62	-0.65	-0.68	-0.71	-0.74	-0.77	-0.80	-0.83	-0.86	-0.89	
315°	-0.10	-0.13	-0.16	-0.19	-0.22	-0.25	-0.28	-0.31	-0.34	-0.37	-0.40	-0.43	-0.46	-0.49	-0.52	-0.55	-0.58	-0.61	-0.64	-0.67	-0.70	-0.73	-0.76	-0.79	-0.82	-0.85	-0.88	
330°	-0.09	-0.12	-0.15	-0.18	-0.21	-0.24	-0.27	-0.30	-0.33	-0.36	-0.39	-0.42	-0.45	-0.48	-0.51	-0.54	-0.57	-0.60	-0.63	-0.66	-0.69	-0.72	-0.75	-0.78	-0.81	-0.84	-0.87	
345°	-0.08	-0.11	-0.14	-0.17	-0.20	-0.23	-0.26	-0.29	-0.32	-0.35	-0.38	-0.41	-0.44	-0.47	-0.50	-0.53	-0.56	-0.59	-0.62	-0.65	-0.68	-0.71	-0.74	-0.77	-0.80	-0.83	-0.86	-0.89
360°	-0.07	-0.10	-0.13	-0.16	-0.19	-0.22	-0.25	-0.28	-0.31	-0.34	-0.37	-0.40	-0.43	-0.46	-0.49	-0.52	-0.55	-0.58	-0.61	-0.64	-0.67	-0.70	-0.73	-0.76	-0.79	-0.82	-0.85	-0.88



Antenna Pattern of 2.4GHz&5GHz&5.9GHz

Appendix D

Frequency	Total Ant. 2	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 5	Ant. 6	Ant. 7	Ant. 8	Ant. 9	Ant. 10	Ant. 11	Ant. 12	Ant. 13	Ant. 14	Ant. 15	Ant. 16	Ant. 17	Ant. 18	Ant. 19	Ant. 20	Ant. 21	Ant. 22	Ant. 23	Ant. 24	Ant. 25
2.450GHz	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°)	
2.450GHz	Total Ant. 2	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 5	Ant. 6	Ant. 7	Ant. 8	Ant. 9	Ant. 10	Ant. 11	Ant. 12	Ant. 13	Ant. 14	Ant. 15	Ant. 16	Ant. 17	Ant. 18	Ant. 19	Ant. 20	Ant. 21	Ant. 22	Ant. 23	Ant. 24	Ant. 25
2.450GHz	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°)	
2.450GHz	Total Ant. 2	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 5	Ant. 6	Ant. 7	Ant. 8	Ant. 9	Ant. 10	Ant. 11	Ant. 12	Ant. 13	Ant. 14	Ant. 15	Ant. 16	Ant. 17	Ant. 18	Ant. 19	Ant. 20	Ant. 21	Ant. 22	Ant. 23	Ant. 24	Ant. 25
2.450GHz	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°)	
2.450GHz	Total Ant. 2	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 5	Ant. 6	Ant. 7	Ant. 8	Ant. 9	Ant. 10	Ant. 11	Ant. 12	Ant. 13	Ant. 14	Ant. 15	Ant. 16	Ant. 17	Ant. 18	Ant. 19	Ant. 20	Ant. 21	Ant. 22	Ant. 23	Ant. 24	Ant. 25

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(°)	0.150/0.8	0.20/0.9	0.19/0.29	0.09/0.01	0.00/0.07	0.23/0.29	0.12/0.02	-0.23/-0.30	-0.28/-0.30	-0.28/-0.04	0.11/0.28	0.53/0.71	1.04/0.51	0.16/0.03	0.02/0.14	0.25/0.26	0.17/0.14	0.01/0.17	-0.33/-0.31	-0.17/-0.21	-0.33/-0.43	-0.46/-0.44	-0.22/0.10	0.27/0.35
θ(15°)	0.38/0.31	0.23/0.31	0.62/0.84	0.75/0.61	0.47/0.19	0.14/0.05	0.32/0.33	-0.41/-0.30	-0.25/-0.25	0.09/0.03	0.08/0.37	0.82/1.21	0.17/0.93	0.09/0.03	0.49/0.61	0.51/0.24	-0.06/-0.16	-0.13/-0.19	-0.19/0.10	-0.06/-0.20	-0.19/-0.26	-0.28/-0.21	-0.22/0.17	0.36/0.49
θ(30°)	1.14/1.04	0.75/0.27	0.41/1.08	1.49/1.42	1.03/0.34	-0.45/-1.14	-1.47/-1.26	-1.11/0.85	-0.60/-0.42	-0.02/0.38	0.65/0.94	1.39/1.84	1.94/1.83	1.48/1.08	0.95/0.89	0.83/0.54	0.23/0.04	-0.16/-0.42	-0.38/-0.23	0.08/0.16	0.13/0.03	-0.35/-0.53	-0.65/-0.43	0.00/0.83
θ(45°)	1.52/1.50	0.83/0.10	-0.61/-0.25	0.62/1.26	1.43/1.16	0.26/0.80	-1.70/-1.64	-0.98/-0.57	-0.85/-1.36	-1.55/-1.09	-0.56/-0.19	0.46/0.95	1.39/1.66	1.62/1.26	0.94/0.83	0.90/0.90	1.71/1.17	-0.86/-1.72	-2.25/-2.14	-1.95/-1.72	-1.88/-1.26	-2.73/-3.31	-3.18/-2.13	-0.76/0.71
θ(60°)	1.72/1.50	1.07/0.78	0.74/0.59	0.43/0.55	1.07/1.39	1.40/0.83	-0.60/-1.65	-0.40/0.29	0.00/-1.66	-2.55/-2.00	-1.84/-2.66	-2.84/-4.00	0.45/1.59	1.96/1.84	1.46/1.20	1.49/1.85	0.71/0.34	0.52/0.05	-0.18/-0.07	-0.15/0.25	-1.06/-2.32	-3.23/-3.27	-2.86/-1.27	0.61/1.62
θ(75°)	1.53/2.00	2.08/1.79	2.09/2.51	2.36/1.48	0.62/0.63	1.18/1.32	0.46/-1.78	-2.66/-0.77	-0.63/-2.60	-3.10/-1.85	-1.74/-3.90	-6.84/-3.90	-0.13/1.81	2.20/1.93	1.72/1.83	2.06/2.12	1.73/0.83	-0.00/0.26	0.89/1.19	1.01/0.89	0.63/0.13	-0.60/-0.45	-1.10/-1.29	-0.28/0.60
θ(90°)	0.36/0.88	-0.61/-0.80	1.52/2.91	3.74/3.85	3.37/3.15	2.76/2.00	0.95/0.57	-2.62/-4.29	-1.92/-3.22	-4.14/-2.20	-1.50/-2.76	-4.43/-2.81	0.12/1.74	2.09/1.76	2.02/2.67	2.80/2.46	1.72/0.77	-0.02/-0.21	0.44/1.17	1.05/0.36	-0.28/-1.30	-1.57/0.03	-0.30/-1.80	-1.77/-1.72
θ(105°)	-0.89/-1.25	-1.72/-0.57	1.61/1.93	1.95/1.89	2.21/1.90	3.27/1.91	3.27/1.91	3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91	-3.27/1.91

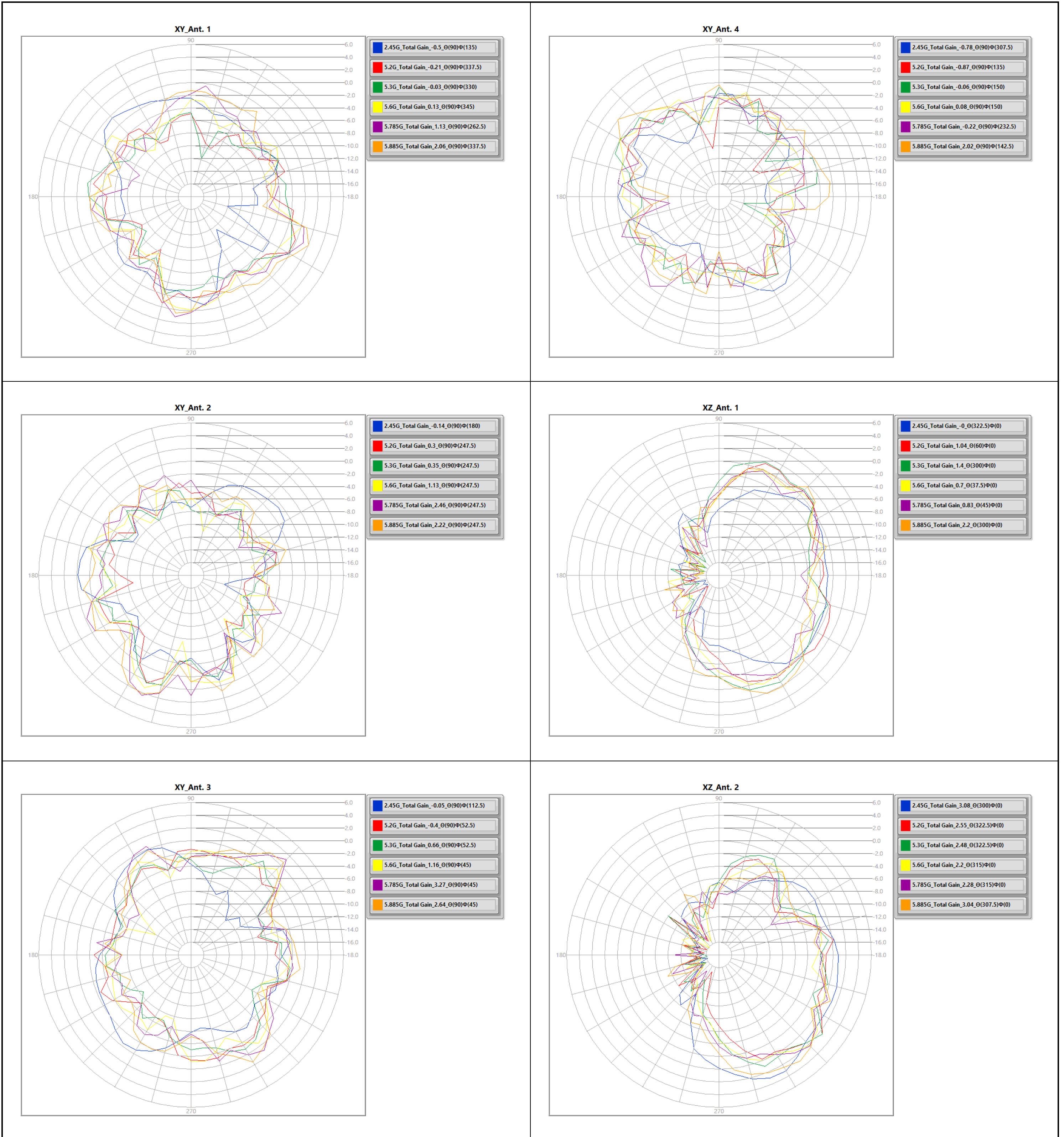


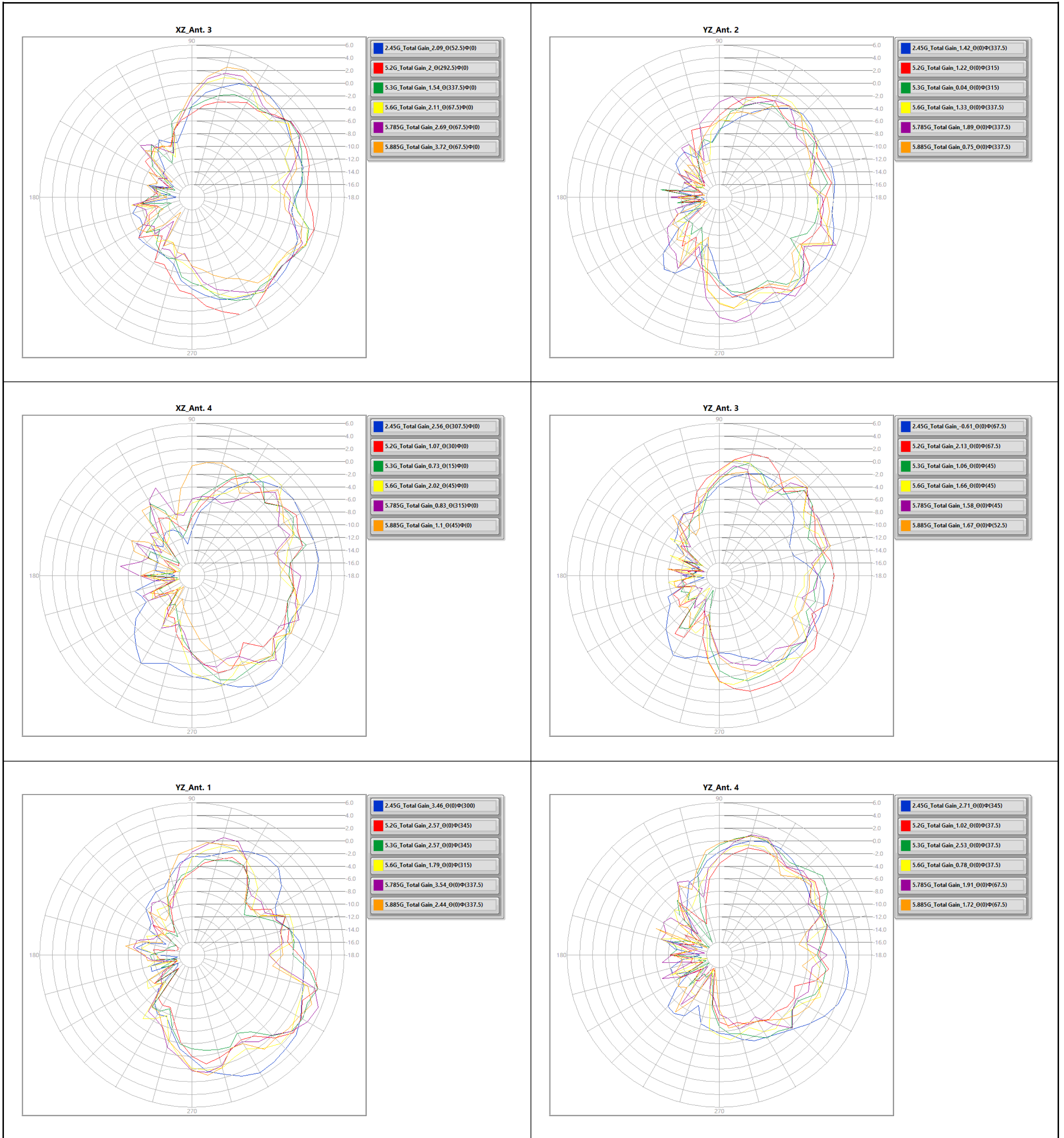
Antenna Pattern of 2.4GHz&5GHz&5.9GHz

Appendix D

Theta	Phi	Gain	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(22.5°)	0	-0.57/-0.88	-0.90/-0.96	-1.31/-1.83	-2.11/-1.84	-0.85/-0.35	-0.49/-0.96	-0.99/-0.64	-0.06/0.27	0.45/0.02	-0.82/-2.00	-3.43/-4.22	-3.47/-1.96	-0.73/-0.29	-0.56/-1.31	-1.97/-1.72	-1.56/-2.00	-3.31/-4.49	-3.84/-2.22	-0.71/-0.21	-0.22/-0.54	-0.85/-1.47	-2.13/-2.36	-1.95/-1.37	-0.87/-0.62																							
0(30°)	0	-0.51/-0.44	0.28/0.69	0.58/-0.04	-1.49/-2.54	-1.64/-1.47	-1.83/-1.34	-0.55/0.31	0.78/0.71	0.07/-0.39	-0.27/-0.05	0.01/-0.29	-0.52/-0.50	-0.24/0.00	-0.40/-2.01	-3.65/-2.98	-2.16/-2.88	-7.11/-14.94	-8.10/-4.38	-2.83/-1.90	-1.31/-0.82	-0.61/-1.16	-2.02/-2.66	-2.89/-2.22	-1.25/-0.69																							
0(37.5°)	0	-1.17/-2.25	-1.73/-1.23	-1.08/-0.51	-1.37/-2.58	-1.02/-0.47	-0.02/0.37	0.78/1.79	2.38/1.84	0.78/0.42	0.59/0.00	-1.18/-1.94	-1.48/-1.59	-1.11/0.22	0.16/-2.17	-4.97/-4.62	-3.96/-5.18	-7.83/-10.26	-8.23/-5.42	-3.77/-1.66	-0.11/0.66	0.67/0.02	-0.86/-0.50	-0.14/0.27	0.56/0.13																							
0(45°)	0	2.02/1.06	-0.73/-0.87	-1.20/-0.93	-1.22/-2.05	0.28/0.54	0.15/-1.15	-0.51/1.81	2.24/1.89	1.84/2.63	2.61/1.52	-0.29/0.33	0.48/0.46	0.27/0.32	-1.25/-2.35	-2.62/-2.71	-3.98/-5.86	-9.55/-15.92	-8.19/-6.96	-4.06/-0.54	0.45/1.00	1.55/1.24	0.46/0.59	0.72/0.86	1.86/2.37																							
0(52.5°)	0	1.90/1.86	-0.07/-0.83	-1.24/-1.69	-0.67/-2.05	-0.42/-0.66	-1.53/-4.35	-1.09/0.33	-0.13/0.74	1.84/2.72	2.74/2.16	1.08/1.15	0.94/0.33	-0.41/-3.35	-5.95/-6.37	-4.17/-2.93	-4.10/-8.22	-11.90/-11.15	-5.89/-5.40	-3.40/-1.19	-0.87/0.24	1.70/1.70	0.60/0.62	0.24/-0.32	-0.44/0.64																							
0(60°)	0	-1.26/-0.21	-0.49/-1.24	-1.48/-3.22	-0.50/-2.01	-1.99/-1.56	-0.36/-1.65	-0.51/-0.31	0.46/1.59	1.76/2.75	3.57/2.52	0.81/-0.04	-0.52/-1.86	-2.35/-2.62	-1.98/2.71	-4.75/-3.56	-3.32/-9.15	-10.08/-7.30	-5.41/-5.55	-4.05/-1.93	-1.86/0.27	1.90/1.59	-0.06/-0.91	-2.33/-3.20	-3.77/-2.18																							
0(67.5°)	0	-3.96/-3.00	-1.43/-1.22	-1.00/-3.11	-0.77/-2.25	-1.74/-0.89	0.84/0.37	0.51/0.42	1.17/2.10	1.61/3.15	4.35/2.56	0.45/-1.53	-0.85/-0.92	-1.05/-0.98	0.71/0.29	-3.65/-2.73	-2.31/-8.70	-7.88/-5.17	-5.61/-5.67	-5.63/-4.62	-2.36/0.13	0.66/0.23	-2.08/-3.36	-5.73/-6.11	-5.80/-4.14																							
0(75°)	0	-4.89/-6.70	-3.66/-1.57	-0.95/-3.00	-2.04/-2.13	-1.14/-0.88	1.29/0.48	-0.05/-0.55	0.18/1.87	1.48/2.61	3.97/2.52	1.32/-0.76	-0.17/-0.23	-0.08/-2.50	0.18/0.41	-1.81/-2.79	-1.47/-6.51	-6.15/-4.02	-4.24/-4.33	-5.17/-5.24	-2.04/-0.61	-0.76/-1.16	-3.83/-3.52	-5.11/-7.79	-7.00/-6.03																							
0(82.5°)	0	-5.97/-8.49	-6.59/-2.61	-2.01/-3.22	-3.39/-2.15	-1.84/-2.04	0.44/-0.52	-0.81/-3.13	-1.74/0.75	0.18/1.26	1.83/0.98	1.24/0.82	-1.53/-1.56	-1.74/-4.28	-1.77/-0.85	-1.81/-4.63	-4.91/-3.98	-5.38/-4.48	-4.52/-5.27	-1.80/-1.20	-1.49/-2.34	-4.31/-3.43	-5.38/-9.91	-7.25/-6.74																								
0(90°)	0	-6.55/-9.40	-10.07/-4.05	-3.96/-4.61	-5.36/-2.66	-3.31/-3.26	-1.00/-2.49	-2.37/-6.26	-4.40/-1.41	-1.83/-0.75	-1.02/-1.45	0.08/-1.64	-2.16/-3.09	-2.66/-5.15	-4.88/-3.77	-3.93/-5.35	-3.50/-5.89	-4.82/-5.74	-5.31/-6.09	-5.33/-6.68	-4.23/-3.19	-3.32/-5.35	-7.26/-5.44	-6.39/-10.35	-6.92/-6.16																							
0(97.5°)	0	-7.88/-8.89	-8.59/-4.29	-6.45/-5.57	-6.37/-3.10	-6.31/-4.06	-2.93/-4.59	-4.66/-8.71	-6.09/-4.60	-3.85/-3.46	-3.30/-3.97	-2.03/-4.60	-7.22/-5.49	-6.71/-5.95	-6.70/-6.31	-7.36/-6.88	-5.99/-5.81	-6.11/-9.59	-7.44/-9.93	-6.09/-8.50	-6.37/-6.08	-4.97/-7.66	-7.68/-6.59	-7.82/-10.48	-7.42/-5.72																							
0(105°)	0	-7.93/-8.09	-6.59/-4.90	-8.00/-6.21	-5.95/-5.24	-8.56/-6.52	-5.45/-5.27	-6.42/-7.70	-7.99/-6.60	-6.09/-6.26	-4.99/-5.78	-4.51/-6.72	-10.83/-10.20	-10.89/-8.24	-6.76/-7.08	-9.95/-11.40	-9.57/-9.21	-9.11/-14.87	-9.21/-12.41	-12.55/-8.37	-11.22/-10.23	-6.75/-8.71	-7.80/-5.63	-9.25/-13.65	-9.54/-8.29																							
0(112.5°)	0	-8.83/-6.90	-6.23/-6.05	-7.29/-8.22	-7.79/-9.24	-11.05/-8.42	-8.21/-6.05	-8.29/-8.07	-10.97/-8.75	-8.53/-11.97	-6.27/-6.69	-10.88/-14.78	-13.62/-9.39	-9.31/-10.46	-7.11/-9.49	-8.39/-13.19	-9.45/-13.05	-15.40/-14.38	-8.97/-10.49	-15.44/-10.74	-9.63/-9.37	-7.68/-8.68	-7.43/-6.84	-11.31/-13.88	-10.70/-12.41																							
0(120°)	0	-10.85/-8.57	-9.74/-11.47	-8.29/-15.12	-12.25/-12.08	-12.11/-12.15	-8.30/-7.52	-9.34/-12.08	-11.60/-12.55	-10.61/-9.33	-8.87/-9.08	-15.33/-14.59	-9.58/-9.87	-8.91/-11.16	-5.93/-3.63	-8.24/-13.50	-15.77/-12.89	-13.17/-9.70	-10.63/-12.26	-9.55/-5.70	-11.30/-8.16	-11.38/-14.07	-14.08/-11.94	-13.68/-11.12																								
0(127.5°)	0	-11.54/-12.39	-15.22/-13.13	-11.54/-14.20	-9.64/-11.38	-13.53/-10.27	-6.99/-11.76	-9.42/-10.45	-11.22/-9.91	-10.20/-8.78	-13.44/-12.85	-10.64/-12.13	-8.64/-12.11	-11.15/-10.18	-9.03/-14.77	-10.82/-14.75	-8.64/-8.23	-12.71/-15.03	-15.33/-10.99	-10.65/-14.25	-11.98/-8.28	-6.69/-7.77	-10.88/-11.94	-11.33/-13.91	-12.99/-10.10																							
0(135°)	0	-9.20/-10.35	-12.39/-9.72	-11.19/-10.39	-12.17/-13.04	-9.83/-10.80	-13.57/-14.18	-7.91/-9.90	-14.77/-12.93	-12.43/-13.28	-11.36/-10.15	-10.77/-13.21	-14.22/-14.54	-15.57/-15.47	-10.31/-11.40	-8.36/-8.96	-8.75/-12.24	-11.49/-13.17	-13.77/-13.52	-12.82/-13.95	-13.53/-13.44	-9.91/-10.30	-11.33/-13.69	-12.31/-15.84	-14.47/-11.18																							
0(142.5°)	0	-10.80/-9.71	-9.52/-12.16	-12.29/-11.92	-12.25/-13.60	-10.46/-15.54	-12.51/-13.35	-9.93/-11.27	-14.09/-13.49	-12.51/-14.04	-10.96/-11.18	-15.31/-13.33	-13.71/-15.44	-12.77/-14.12	-12.54/-12.84	-11.50/-12.83	-12.77/-10.62	-11.02/-14.44	-14.93/-10.68	-8.66/-11.91	-15.53/-14.99	-14.77/-10.71	-9.75/-11.82	-11.44/-11.31																								
0(150°)	0	-12.71/-15.58	-15.27/-14.04	-11.44/-14.06	-16.18/-9.90	-10.22/-13.30	-9.87/-9.63	-11.48/-14.33	-10.71/-12.23	-14.33/-14.63	-10.32/-9.10	-10.03/-12.36	-9.87/-13.79	-10.81/-14.02	-15.40/-15.04	-13.77/-12.47	-15.68/-13.48	-15.18/-11.53	-9.93/-15.01	-13.49/-11.95	-14.02/-12.55	-12.72/-14.43	-15.48/-15.35	-15.57/-13.48	-11.37/-12.39																							
0(157.5°)	0	-16.07/-13.59	-13.34/-13.17	-13.31/-16.22	-14.61/-12.52	-14.06/-15.41	-11.87/-9.51	-11.12/-14.90	-15.86/-12.50	-10.71/-10.83	-11.21/-11.15	-10.82/-11.81	-13.01/-12.02	-11.41/-12.94	-14.37/-15.37	-14.13/-14.74	-15.42/-15.15	-14.80/-12.88	-10.50/-9.53	-9.65/-10.84	-14.51/-15.46	-13.69/-13.54	-13.57/-11.91	-13.08/-14.98	-15.08/-15.55																							
0(165°)	0	-15.40/-15.03	-15.55/-14.51	-14.22/-13.62	-13.59/-13.43	-14.26/-14.44	-12.17/-12.25	-8.36/-8.21	-9.60/-11.57	-11.39/-9.49	-8.88/-9.87	-12.40/-15.36	-15.56/-14.79	-16.00/-14.84	-11.91/-9.68	-10.23/-13.29	-14.64/-15.87	-14.34/-14.94	-15.91/-15.78	-16.04/-14.89	-13.67/-14.60	-15.94/-14.82	-14.37/-15.28	-15.42/-15.14	-15.69/-15.48																							
0(172.5°)	0	-14.34/-14.13	-12.62/-11.22	-10.47/-10.13	-10.35/-10.94	-11.49/-13.36	-13.78/-12.83	-12.83/-12.24	-12.57/-13.37	-14.10/-14.61	-13.87/-13.37	-14.32/-15.81	-14.66/-14.10	-13.08/-12.78	-12.54/-13.29	-14.46/-15.31	-15.04/-14.91	-15.97/-14.88	-14.77/-14.88	-12.76/-11.11	-10.07/-10.34	-10.69/-11.49	-11.39/-11.33	-12.74/-13.72	-13.96/-14.13																							
0(180°)	0	-11.37/-11.51	-11.92/-11.91	-12.08/-13.19	-13.46/-12.67	-12.03/-11.29	-10.80/-11.15	-11.31/-11.76	-11.87/-11.79	-11.70/-11.96	-12.11/-11.61	-11.75/-11.87	-12.38/-13.65	-12.78/-11.21	-9.72/-8.68	-8.13/-8.29	-9.08/-9.71	-10.71/-11.89	-12.35/-13.94	-15.02/-14.71	-14.33/-12.83	-11.73/-10.84	-10.32/-10.15	-10.25/-11.42	-12.27/-12.17																							
Freq(Hz)	5.885GPol.	TotalAnt.4	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+																							
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°)
0(°)	0	-0.87/-0.89	-0.63/-0.45	-0.42/-0.51	-0.55/-0.68	-0.79/-0.72	-0.60/-0.82	-0.99/-1.03	-0.87/-0.76	-0.64/-0.45	-0.84/-0.95	-1.23/-1.26	-1.28/-1.26	-1.18/-1.40	-1.16/-1.01	-0.84/-0.73	-0.81/-0.74	-0.64/-0.50	-0.36/-0.51	-0.47/-0.63	-0.65/-0.69	-0.57/-0.43	-0.52/-0.49	-0.64/-0.79	-0.70/-0.89																							
0(7.5°)	0	-3.35/-3.08	-2.98/-2.74	-2.62/-2.47	-2.68/-2.81	-3.21/-3.38	-3.59/-3.83	-4.06/-3.84	-3.58/-3.20	-2.87/-2.37	-2.17/-1.88	-1.85/-1.50	-1.50/-1.37	-1.18/-1.06	-0.86/-0.74	-0.81/-0.91	-1.26/-1.53	-1.89/-2.24	-2.73/-3.22	-3.22/-3.40	-3.45/-3.31	-3.20/-2.84	-3.09/-3.38	-3.35/-3.38	-3.38/-3.47																							
0(15°)	0	-4.59/-4.60	-4.03/-3.38	-2.86/-1.98	-2.11/-2.47	-3.38/-4.34	-4.89/-4.49	-3.39/-1.95	-1.26/-0.88	-1.19/-1.89	-2.60/-3.07	-2.94/-2.47	-1.96/-1.47	-1.16/-1.23	-1.40/-1.47	-2.07/-2.59	-3.70/-4.68	-4.87/-4.19	-3.25/-2.55	-1.94/-1.86	-1.79/-1.91	-2.23/-2.76	-3.30/-4.12	-4.56/-4.57																								
0(22.5°)	0	-1.28/-1.36	-2.26/-3.02	-3.29/-3.17	-2.59/-1.56	-1.68/-1.44	-0.97/-0.71	-0.49/-0.53	-0.29/-0.15	-0.44/-1.32	-2.60/-3.51	-3.95/-3.94	-2.54/-0.82	-0.24/0.34	-3.20/-2.53	-3.74/-3.45	-3.36/-4.00	-4.32/-3.21	-2.35/-2.36	-2.78/-3.24	-2.66/-1.97	-1.53/-1.27	-1.33/-1.54	-1.68/-1.92	-1.82/-1.60																							
0(30°)	0	-2.27/-2.18	-1.58/-1.29	-2.22/-2.41	-1.65/-2.58	-2.97/-0.85	0.23/-0.28	-1.90/-2.77	-1.89/-0.80	-0.56/-0.80	-0.26/0.83	1.24/0.79	0.00/-1.37	-2.16/-1.27	-0.94/-2.62	-6.64/-0.77	-6.62/-8.78	-8.30/-6.09	-4.93/-4.53	-4.00/-3.74	-2.63/-1.72	-1.62/-2.08	-2.75/-2.61	-0.96/-0.15	-0.38/-1.33																							
0(37.5°)	0	-0.57/-1.35	-2.90/-2.90	-2.50/-2.10	-0.52/-2.26	-2.88/0.43	1.01/0.41	0.39/0.50	0.69/-0.01	-1.82/-2.90	-2.43/-0.64	-0.58/-1.91	-2.67/-1.71	-1.78/-0.55	0.93/-0.30	-4.18/-5.33	-7.48/-13.62	-13.51/-10.32	-7.24/-6.03	-3.47/-1.47	-0.85/-0.72	-0.59/-0.95	-1.51/-1.78	-0.39/0.54	0.69/0.10																							
0(45°)	0	0.65/1.57	0.63/-1.76	-1.14/-2.20	-2.43/-3.71	-1.41/-1.76	1.07/0.02	1.91/3.27	1.73/1.79	1.14/-0.30	0.05/0.68	0.27/0.70	0.17/0.53	0.83/0.23	-0.63/-1.06	-1.23/-1.92	-4.69/-8.03	-9.16/-8.46	-8.67/-4.90	-1.73/-0.97	-1.54/-1.23	0.18/0.35	-0.48/-0.59	-0.29/-0.37	-1.07/-1.08																							
0(52.5°)	0	-1.41/0.81	1.89/-0.71	-1.97/-3.08	-2.99/-1.91	-1.38/0.41	0.31/-0.75	-0.50/0.27	0.30/0.30	0.89/0.08	1.25/1.54	1.60/2.08	2.80/0.73	-0.77/-2.13	-4.70/-3.54	-1.09/-2.10	-6.61/-6.90	-4.94/-4.02	-4.19/-3.43	-2.69/-2.03	1.03/0.20	-0.35/-0.54	-2.55/-3.56	-3.70/-1.95																								
0(60°)	0	-4.43/-0.94	1.82/1.38	-1.34/-1.79	-2.93/-0.60	-3.37/-1.58	0.47																																									

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 $\Theta(0-180)\Phi(270)$







Antenna Pattern of 6GHz

Appendix E

Total Gain Data

Freq(Hz)	6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.		6.175GPol.								
	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°)												
6.175G	0	-12.69	-12.69	-13.18	-13.33	-13.86	-13.09	-12.55	-12.45	-12.20	-12.79	-11.22	-11.35	-12.04	-12.74	-11.73	-11.22	-12.09	-12.28	-11.89	-11.64	-11.61	-12.15	-11.82	-11.73	-11.81	-12.89	-12.90	-11.69	-10.70	-11.78	-12.75	-12.60	-11.65	-11.28	-12.10	-12.84



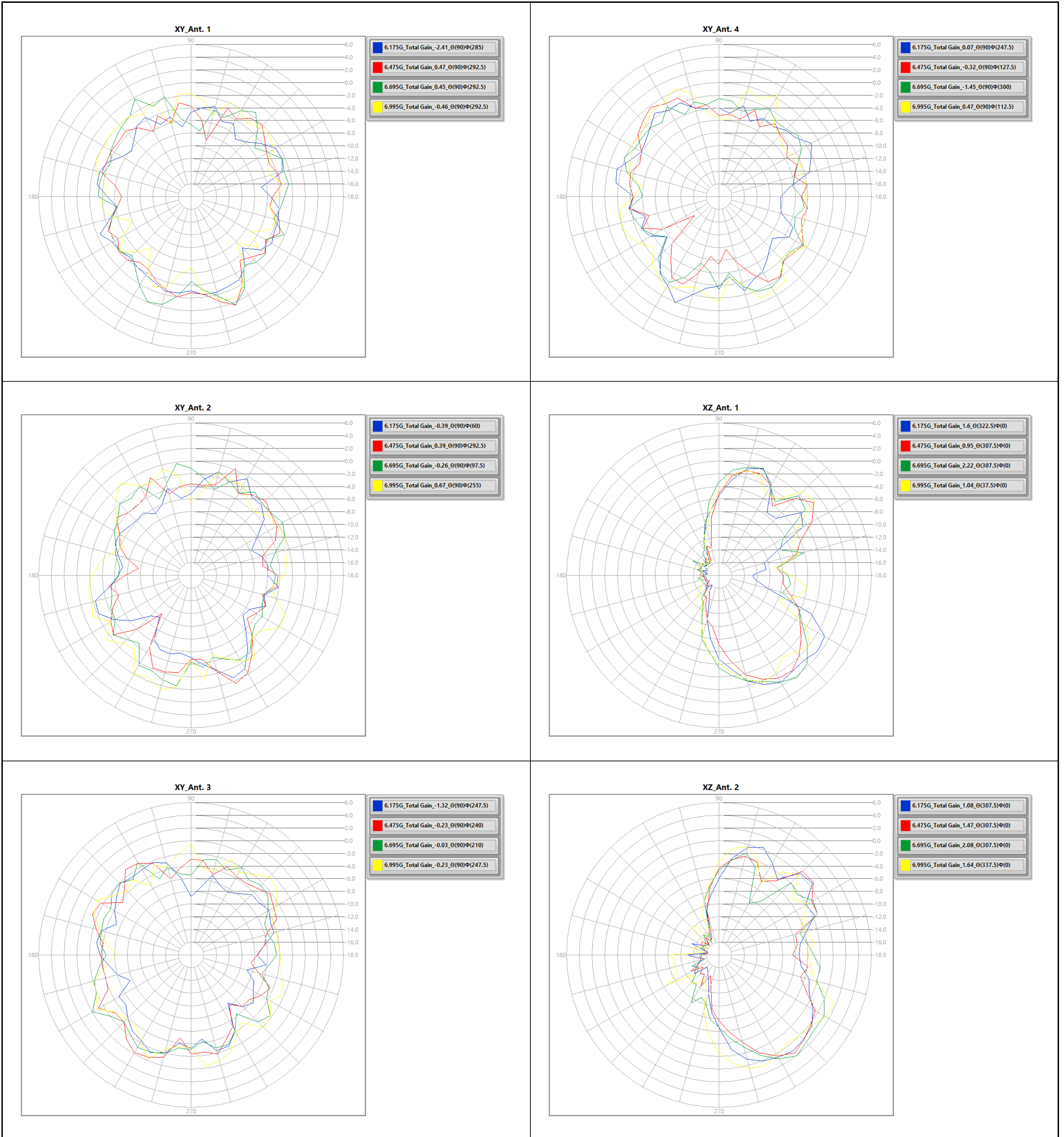
Antenna Pattern of 6GHz

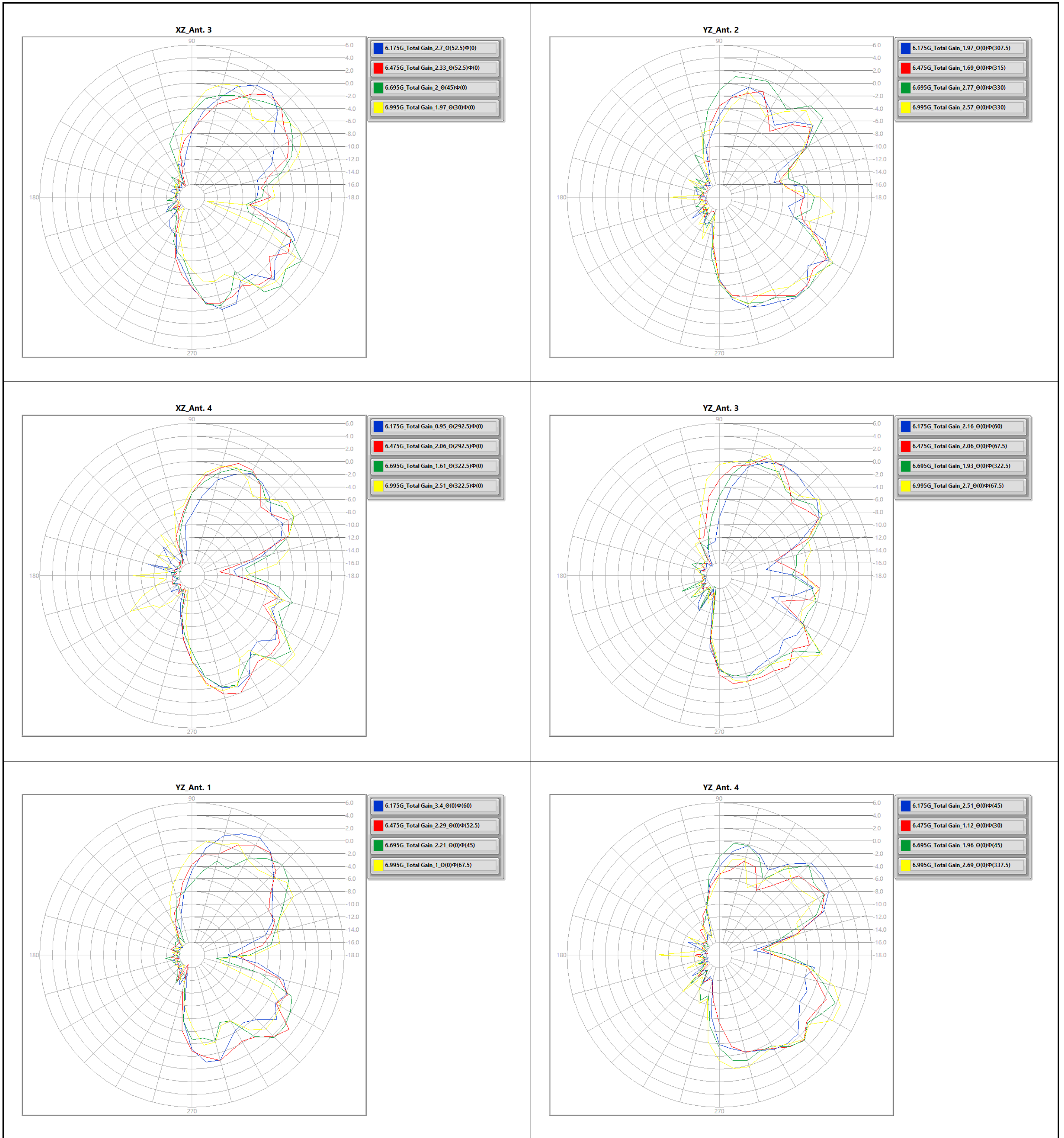
Appendix E

Theta	Phi	22.5	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	
0	0	-1.67	-0.28	0.54	1.06	1.25	0.64	-2.19	-3.72	-5.45	-7.35	-8.61	-9.67	-10.44	-11.24	-12.20	-13.33	-14.54	-15.83	-17.18	-18.56	-19.93	-21.26	-22.52	-23.69

θ (75°)	-1.91-0.75	0.371-1.22	1.80/6.10	0.80/-0.47	-1.88/-2.08	-2.00/-1.10	-0.13/-0.13	0.99/1.59	2.95/1.76	1.31/1.18	1.13/0.48	0.98/1.25	0.28/-0.71	-0.24/-0.21	0.73/1.60	1.07/0.83	1.34/-0.36	-1.99/-0.68	-1.34/-0.34	0.34/0.36	0.81/-0.47	-0.67/-1.38	-0.79/-1.50	-1.45/-1.19	
Gain	0° (0°) (7.5°)	15° (22.5°)	30° (37.5°)	45° (52.5°)	60° (67.5°)	75° (82.5°)	90° (97.5°)	105° (112.5°)	120° (127.5°)	135° (142.5°)	150° (157.5°)	165° (172.5°)	180° (187.5°)	195° (202.5°)	210° (217.5°)	225° (232.5°)	240° (247.5°)	255° (262.5°)	270° (277.5°)	285° (292.5°)	300° (307.5°)	315° (322.5°)	330° (337.5°)	345° (352.5°)	
θ (82.5°)	-4.36/-3.19	-2.04/-1.12	-0.49/-1.16	-1.49/-3.19	-4.56/-4.14	-2.96/-3.43	-3.99/-2.85	-0.34/-1.00	1.17/-0.37	-0.35/-0.68	-0.61/-1.48	-1.01/-0.63	-1.27/-2.79	-2.93/-3.36	-4.19/-1.03	-1.18/-0.69	0.66/0.01	-1.73/-1.96	-1.73/-1.54	-0.63/-1.11	-1.63/-4.42	-3.16/-3.97	-3.76/-3.98	-8.60/-3.40	
θ (90°)	-7.58/-6.29	-4.45/-4.46	-3.85/-4.50	-4.53/-5.82	-6.58/-6.10	-4.99/-7.39	-8.81/-5.73	-3.01/-2.25	-2.51/-2.60	-2.10/-3.24	-4.07/-5.32	-3.34/-3.00	-6.44/-4.96	-6.01/-7.60	-4.91/-1.11	-3.90/-2.85	-2.35/-3.32	-2.11/-3.99	-2.38/-4.65	-2.42/-2.47	-4.14/-8.47	-6.44/-5.67	-7.60/-7.31	-4.92/-6.08	
θ (97.5°)	-10.92/-9.71	-7.49/-8.28	-7.58/-8.12	-7.40/-8.53	-8.75/-8.70	-8.23/-10.00	-12.62/-7.77	-6.65/-5.34	-5.39/-5.05	-5.09/-6.10	-7.46/-8.60	-5.66/-6.11	-6.74/-7.18	-8.96/-11.68	-8.43/-8.86	-7.65/-9.54	-5.95/-2.44	-5.17/-8.12	-6.51/-8.23	-6.61/-5.78	-8.81/-12.23	-9.37/-9.24	-9.38/-9.13	-12.01/-9.39	
θ (105°)	-13.07/-13.45	-10.41/-11.54	-10.86/-10.83	-10.22/-11.70	-11.30/-13.22	-12.74/-11.06	-11.33/-11.35	-12.74/-11.06	-10.20/-9.88	-7.05/-7.12	-8.72/-9.27	-10.13/-11.42	-8.56/-8.85	-8.50/-7.86	-8.42/-13.80	-12.48/-9.52	-9.99/-12.49	-10.70/-10.25	-13.88/-12.91	-14.18/-11.07	-12.98/-13.64	-11.25/-10.51	-12.72/-12.82	-13.86/-12.16	
θ (112.5°)	-12.33/-14.81	-13.03/-11.35	-10.23/-11.56	-13.25/-13.69	-12.90/-12.82	-13.39/-12.17	-12.95/-15.02	-13.28/-11.00	-9.91/-10.10	-14.24/-9.68	-11.26/-13.70	-11.81/-11.69	-11.63/-10.50	-12.61/-14.96	-15.24/-14.86	-14.66/-9.97	-15.07/-15.86	-15.19/-15.29	-15.70/-14.41	-14.13/-13.26	-14.03/-12.29	-12.17/-12.41	-15.22/-13.15	-13.87/-14.32	
θ (120°)	-15.31/-14.47	-13.25/-11.90	-10.64/-12.01	-13.70/-13.76	-12.71/-13.97	-14.68/-14.65	-15.15/-15.86	-12.92/-13.44	-12.67/-12.50	-14.64/-11.87	-13.96/-13.32	-13.81/-14.30	-11.71/-10.24	-11.90/-15.82	-14.99/-14.89	-13.99/-12.58	-10.54/-15.06	-15.43/-11.06	-11.57/-13.22	-11.63/-10.10	-14.31/-12.47	-13.58/-13.68	-15.65/-14.06	-15.91/-15.73	
θ (127.5°)	-15.16/-14.61	-15.67/-15.00	-16.05/-15.08	-14.92/-15.97	-15.03/-15.49	-16.27/-15.01	-16.14/-13.58	-15.24/-14.95	-14.03/-13.50	-13.12/-12.89	-15.59/-14.02	-14.80/-13.90	-12.21/-11.50	-13.03/-15.22	-14.85/-15.51	-15.80/-14.85	-14.36/-13.35	-15.33/-15.36	-12.46/-12.96	-15.55/-15.22	-13.00/-13.61	-13.31/-15.02	-15.45/-16.00	-15.78/-14.60	
θ (135°)	-15.75/-14.52	-15.58/-15.91	-15.06/-15.86	-15.71/-14.77	-15.19/-14.94	-15.31/-15.37	-15.12/-15.00	-15.27/-14.44	-13.14/-15.62	-15.51/-14.93	-14.64/-13.41	-14.51/-13.29	-13.88/-13.82	-14.58/-15.55	-14.72/-14.13	-15.27/-15.04	-15.82/-14.83	-14.43/-14.87	-15.52/-15.78	-15.27/-15.85	-15.71/-14.95	-16.23/-15.49	-15.31/-15.17	-15.99/-15.74	
θ (142.5°)	-15.27/-16.10	-14.24/-15.65	-15.56/-15.69	-15.62/-14.93	-15.53/-14.93	-15.58/-15.92	-15.49/-15.12	-14.71/-15.61	-14.55/-15.68	-15.66/-14.92	-14.95/-14.81	-13.35/-14.04	-15.77/-14.51	-14.91/-13.49	-14.88/-14.23	-13.82/-11.57	-13.55/-15.17	-15.40/-15.23	-14.91/-15.18	-12.95/-15.24	-15.23/-14.90	-15.42/-15.10	-14.08/-15.77	-15.07/-15.74	
θ (150°)	-15.86/-15.18	-15.55/-15.51	-14.75/-15.18	-15.74/-16.14	-15.60/-14.89	-15.64/-15.36	-15.77/-15.24	-15.87/-15.48	-15.76/-15.14	-15.88/-14.52	-15.61/-15.34	-14.54/-13.04	-13.34/-15.72	-15.33/-15.43	-15.57/-14.96	-14.74/-15.64	-15.03/-15.27	-15.57/-15.92	-15.00/-14.24	-15.60/-15.53	-15.55/-15.81	-14.99/-15.85	-13.35/-15.01	-16.11/-14.95	
θ (157.5°)	-14.74/-15.41	-15.09/-15.63	-15.49/-15.06	-14.74/-16.14	-15.44/-15.80	-15.67/-15.55	-15.41/-15.11	-14.32/-14.35	-15.25/-15.50	-15.18/-15.39	-15.43/-15.01	-14.02/-14.07	-15.73/-14.76	-15.99/-14.88	-15.29/-15.40	-14.73/-15.14	-15.63/-14.75	-14.54/-15.53	-15.22/-15.42	-14.88/-15.34	-15.23/-14.65	-15.99/-15.99	-15.99/-15.99	-15.99/-15.99	
θ (165°)	-14.62/-15.05	-14.31/-15.66	-15.47/-15.81	-15.76/-15.22	-14.95/-14.83	-15.57/-14.82	-14.98/-15.68	-15.01/-15.55	-15.17/-14.81	-15.17/-15.86	-14.68/-15.30	-15.13/-15.55	-15.47/-15.62	-14.82/-15.90	-15.05/-14.61	-14.99/-14.79	-15.28/-15.56	-15.90/-15.09	-15.86/-15.37	-14.03/-14.30	-15.96/-15.26	-15.83/-14.92	-14.29/-14.99	-15.03/-15.14	
θ (172.5°)	-15.78/-15.41	-15.41/-15.12	-14.21/-14.72	-14.48/-14.96	-15.43/-15.39	-15.61/-15.55	-14.91/-15.45	-15.37/-15.03	-15.07/-15.63	-15.19/-14.82	-14.96/-15.57	-15.13/-15.04	-15.64/-15.71	-15.15/-15.44	-16.06/-14.44	-14.93/-14.24	-15.15/-15.40	-15.12/-15.01	-15.51/-15.25	-16.05/-15.37	-15.81/-15.37	-15.42/-15.99	-15.88/-15.63	-14.75/-15.53	
θ (180°)	-15.31/-14.97	-15.17/-15.57	-15.19/-15.58	-15.14/-14.67	-15.54/-14.93	-15.77/-15.43	-15.93/-15.01	-14.83/-15.02	-15.65/-16.00	-15.13/-14.60	-14.76/-14.64	-13.45/-12.66	-12.43/-13.44	-15.05/-14.82	-14.71/-15.58	-15.84/-15.14	-14.77/-15.35	-15.47/-14.89	-15.29/-15.28	-15.10/-15.10	-14.91/-15.36	-15.27/-15.43	-16.02/-14.89	-16.02/-14.89	
Gain	0° (0°) (7.5°)	15° (22.5°)	30° (37.5°)	45° (52.5°)	60° (67.5°)	75° (82.5°)	90° (97.5°)	105° (112.5°)	120° (127.5°)	135° (142.5°)	150° (157.5°)	165° (172.5°)	180° (187.5°)	195° (202.5°)	210° (217.5°)	225° (232.5°)	240° (247.5°)	255° (262.5°)	270° (277.5°)	285° (292.5°)	300° (307.5°)	315° (322.5°)	330° (337.5°)	345° (352.5°)	
θ (0°)	-5.50/-5.52	-5.34/-5.23	-5.14/-4.91	-4.66/-4.54	-4.73/-5.03	-5.09/-4.92	-4.64/-4.84	-5.35/-5.94	-6.22/-6.51	-6.44/-5.98	-5.68/-5.47	-5.41/-5.47	-6.40/-5.13	-4.81/-4.68	-4.79/-5.16	-5.44/-5.48	-5.93/-6.04	-6.00/-5.96	-5.96/-6.17	-6.38/-6.35	-6.58/-6.45	-6.82/-6.73	-6.82/-6.66	-6.26/-5.94	
θ (7.5°)	-6.98/-7.16	-7.37/-7.21	-7.20/-7.20	-7.06/-7.10	-7.20/-7.27	-7.33/-7.21	-7.03/-7.02	-7.20/-7.54	-8.22/-8.60	-8.53/-8.59	-8.77/-8.99	-9.15/-9.20	-8.86/-7.74	-6.68/-5.49	-4.75/-4.18	-3.91/-3.44	-2.79/-2.17	-1.73/-1.76	-1.94/-2.19	-2.54/-2.74	-3.08/-3.56	-4.03/-4.65	-5.32/-5.91	-6.52/-6.83	
θ (15°)	-5.53/-6.16	-7.47/-9.04	-10.33/-9.98	-9.13/-8.77	-9.29/-10.03	-10.29/-9.56	-8.90/-8.45	-8.86/-9.46	-8.92/-9.52	-6.80/-5.21	-4.92/-1.60	-5.56/-6.00	-5.98/-5.52	-4.55/-3.76	-3.34/-3.30	-3.37/-3.61	-3.86/-3.38	-3.60/-3.35	-3.24/-3.24	-3.48/-3.78	-4.05/-4.03	-3.93/-3.63	-3.27/-3.34	-3.83/-4.62	
θ (22.5°)	-1.66/-2.73	-4.34/-6.54	-4.34/-6.54	-4.32/-2.89	-4.32/-2.89	-4.32/-2.89	-1.93/-2.14	-2.87/-4.21	-4.32/-2.89	-1.93/-2.14	-2.87/-4.21	-0.76/-1.21	-1.21/-0.20	-1.21/-0.20	-1.21/-0.20	-1.21/-0.20	-0.91/-1.78	-1.21/-0.20	-0.91/-1.78	-1.21/-0.20	-0.91/-1.78	-1.21/-0.20	-0.91/-1.78	-1.21/-0.20	-0.91/-1.78
θ (30°)	-0.39/-0.71	-1.10/-1.61	-1.23/-0.44	1.01/0.30	2.79/2.82	2.34/3.35	0.07/-1.11	-1.65/-1.83	-2.01/-2.19	-2.11/-1.81	-1.44/-1.50	-1.77/-1.33	-0.53/-1.15	-3.02/-4.65	-5.32/-6.17	-6.73/-6.53	-6.35/-5.21	-4.13/-3.29	-2.62/-1.72	-0.93/-0.59	-1.19/-1.89	-2.87/-3.59	-3.22/-2.31	-1.25/-0.59	
θ (37.5°)	0.29/0.65	0.69/0.16	0.23/0.38	0.80/0.99	1.35/1.75	1.83/0.87	-0.87/-0.90	0.13/0.04	-0.87/-0.90	0.13/0.04	-0.87/-0.90	0.13/0.04	-0.87/-0.90	0.13/0.04	-0.87/-0.90	0.13/0.04	-0.87/-0.90	0.13/0.04	-0.87/-0.90	0.13/0.04	-0.87/-0.90	0.13/0.04	-0.87/-0.90	0.13/0.04	-0.87/-0.90
θ (45°)	1.93/2.06	1.60/1.44	1.30/0.85	-0.43/-2.61	1.45/1.10	-3.26/-1.81	-1.80/-0.64	0.35/0.33	-1.07/-0.72	-1.05/-0.42	0.43/1.13	1.62/1.20	-1.28/-0.82	0.37/1.58	1.84/0.64	-1.64/-1.77	-3.28/-0.44	-2.09/-0.48	-2.88/-2.39	-1.43/-2.81	-1.01/-1.37	-1.01/-1.37	-0.97/-0.77	-0.97/-0.77	
θ (52.5°)	2.33/2.20	2.00/2.50	2.73/2.78	1.88/0.00	-1.79/-2.27	-1.21/-0.53	0.01/0.49	0.42/-0.58	-0.29/0.00	-3.29/-2.21	-6.42/-2.99	-1.84/-0.59	-0.62/-1.37	-1.46/-0.37	-0.98/-3.89	-4.55/-3.82	-2.76/-2.54	-2.65/-1.57	0.09/-0.27	-1.63/-0.70	0.28/0.05	0.20/0.94	1.46/0.49	0.12/1.32	
θ (60°)	0.83/0.97	1.91/3.14	3.70/3.89	3.33/2.29	1.31/1.36	1.42/1.42	1.92/1.43	0.07/0.76	2.26/2.10	-1.93/-2.95	-0.08/0.06	-2.19/-2.18	-1.94/-2.23	-2.47/-2.37	-0.74/-0.10	-0.38/-1.61	-2.28/-2.36	-3.67/-2.88	-0.70/0.52	-1.01/1.13	1.73/0.84	1.58/1.74	2.25/2.17	0.16/0.25	
θ (67.5°)	-1.31/-0.30	1.19/2.97	3.63/3.62	3.44/2.60	2.30/1.68	2.29/2.12	2.06/0.93	0.48/1.42	3.74/2.17	1.45/1.46	2.97/2.38	0.73/0.47	-1.12/-0.41	0.49/0.37	1.74/2.48	1.08/1.20	0.84/0.15	-3.16/-3.56	-6.91/7.11	3.00/1.22	0.79/1.04	1.50/1.25	0.78/0.06	-1.14/-1.70	
θ (75°)	-2.85/-1.60	0.05/1.93	2.59/2.55	2.27/0.95	0.74/1.10	1.33/0.00	0.07/0.94	-1.22/1.50	2.30/2.90	2.14/1.41	2.55/2.11	1.22/0.15	-0.68/0.26	0.79/0.98	2.32/2.11	1.40/1.11	1.25/1.29	-0.70/-1.69	-0.76/1.11	1.16/0.88	-1.08/-2.29	-0.00/-0.66	-0.97/-1.91	-3.00/-3.37	
θ (82.5°)	-5.52/-4.00	-2.37/-0.34	0.28/0.56	-0.34/-1.10	-1.06/-0.31	-1.83/-1.63	-0.64/-1.92	-0.46/0.28	0.57/1.64	0.37/-1.23	0.47/0.31	0.08/0.83	-1.08/0.64	-0.45/-0.18	1.29/0.44	-0.42/0.25	0.43/0.45	-0.38/-1.63	-0.87/0.80	-0.04/-0.12	-2.47/-5.11	-2.81/-2.39	-3.11/-3.96	-5.32/-6.23	
θ (90°)	-7.56/-6.33	-6.74/-3.33	-2.97/-2.27	-3.21/-3.78	-3.77/-3.00	-4.91/-3.00	-2.95/-4.30	-5.64/-2.37	-1.36/-1.07	-3.19/-4.40	-1.59/-1.18	-2.52/-3.97	-3.79/-3.91	-4.08/-3.88	-1.20/-2.93	-3.03/-1.26	-0.23/-0.52	-1.31/-4.79	-2.40/-2.58	-1.84/-3.56	-4.89/-8.16	-6.59/-6.45	-5.27/-4.47	-6.90/-8.47	
θ (97.5°)	-8.96/-7.96	-8.27/-5.92	-5.84/-4.93	-6.34/-6.05	-6.90/-6.15	-8.43/-5.40	-5.39/-7.22	-8.21/-4.81	-5.20/-3.51	-6.06/-6.79	-4.50/-4.40	-6.08/-7.08	-6.65/-7.53	-7.79/-7.43	-4.78/-7.65	-8.26/-5.49	-3.61/-3.52	-4.10/-8.50	-7.36/-6.36	-5.51/-7.21	-6.49/-12.91	-8.73/-9.15	-8.45/-6.97	-9.90/-10.14	
θ (105°)	-10.67/-9.32	-9.90/-7.94	-8.67/-8.28	-10.05/-8.37	-10.49/-8.07	-10.42/-10.39	-9.58/-11.07	-11.93/-4.76	-10.92/-6.64	-8.65/-8.51	-7.45/-7.95	-10.41/-10.46	-8.07/-11.18	-11.80/-12.61	-9.53/-10.27	-12.65/-12.04	-10.20/-9.90	-9.60/-12.65	-15.34/-13.88	-10.87/-10.88	-15.02/-13.55	-9.55/-12.51	-11.63/-9.73	-10.76/-11.87	
θ (112.5°)	-14.29/-13.76	-12.81/-12.82	-11.79/-11.34	-10.73/-10.37	-11.69/-11.77	-12.71/-13.89	-11.55/-13.35	-11.63/-11.06	-9.91/-9.66	-12.29/-10.00	-9.93/-9.75	-11.35/-11.36	-11.03/-13.89	-13.18/-12.51	-9.83/-10.17	-10									

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 $\Theta(0-180)\Phi(270)$







Total Gain Data

Table with columns for Frequency (MHz), Polarization, Total Antenna Gain, and 32 directional gain values (Theta/Elevation and Phi/Azimuth). The table is divided into three sections for 2.45GHz, 5.2GHz, and 5.6GHz.