



Antenna Pattern of 5GHz

Appendix B.1

Θ(22.5°)	-2.16/-1.69	-0.18/0.07	0.46/1.17	1.88/1.17	0.82/-0.01	-0.77/-0.79	-0.86/-0.82	-0.87/-0.90	-0.92/-0.89	-0.79/-0.62	-0.47/-0.83	-1.41/-2.38	-4.28/-6.96	-9.58/-10.99	-10.29/-9.38	-9.28/-8.44	-6.65/-4.85	-4.04/-4.03	-5.34/-7.27	-8.49/-8.13	-5.69/-3.21	-1.68/-1.32	-1.54/-1.27	-1.82/-1.76
Θ(30°)	-2.35/-1.82	-1.98/-1.51	-0.17/1.01	1.85/1.79	2.25/2.34	2.22/2.01	1.00/0.29	-0.29/-0.78	-1.24/-1.88	-2.44/-2.30	-1.62/-0.60	-0.22/-1.17	-3.17/-4.02	-4.28/-5.93	-9.02/-11.34	-9.29/-8.51	-5.10/-8.72	-11.84/-8.18	-9.35/-10.95	-5.77/-3.61	-3.38/-2.56	-1.04/-0.21	0.06/0.02	0.49/-0.34
Θ(37.5°)	0.22/0.27	-0.03/0.48	1.57/1.86	1.43/0.78	1.32/2.14	2.58/2.72	2.04/1.18	0.05/-0.85	-1.83/-2.73	-3.13/-3.82	-3.50/-2.69	-2.26/-2.87	-3.13/-2.70	-2.98/-3.15	-5.26/-2.39	-3.10/-5.87	-6.45/-3.22	-2.03/-3.02	-5.70/-9.65	-10.79/-8.19	-4.86/-3.39	-2.85/-1.29	0.25/0.86	0.99/1.16
Θ(45°)	-0.96/-1.80	-2.79/-1.72	-0.02/0.62	0.98/1.27	1.43/1.77	2.38/2.65	2.68/2.46	1.93/1.18	0.33/-0.72	-1.59/-2.74	-1.96/-0.44	-1.26/-1.46	-0.22/-0.96	-2.17/-1.77	-3.21/-5.70	-6.25/-4.61	-2.20/-4.63	-9.82/-10.46	-9.63/-7.65	-7.80/-10.14	-9.89/-8.94	-8.29/-8.30	-8.53/-3.69	-1.04/-0.12
Θ(52.5°)	2.74/1.53	-0.54/-1.74	0.11/0.36	-0.83/-1.38	0.11/1.84	2.85/2.77	2.27/1.60	0.74/-0.60	-2.27/-3.11	-3.33/-4.54	-3.83/-1.07	-0.84/-0.20	1.17/-0.21	-2.87/-3.51	-4.76/-6.28	-10.72/-10.63	-14.54/-11.98	-10.23/-7.64	-5.03/-4.39	-4.23/-3.70	-3.02/-1.15	0.15/1.17	2.52/2.64	
Θ(60°)	-1.44/-2.20	-0.93/-0.75	-0.65/-0.02	1.22/2.66	2.87/3.08	3.19/2.94	2.31/1.21	-0.34/-2.47	-8.87/-4.72	-7.93/-7.68	-5.56/-4.68	-5.75/-2.78	-3.14/-4.92	-5.01/-5.25	-2.54/-2.61	-4.35/-6.11	-7.16/-13.76	-13.64/-10.20	-7.53/-5.35	-5.71/-6.12	-5.14/-4.30	-3.05/-2.13	-1.09/-2.08	-1.89/-0.37
Θ(67.5°)	-2.82/-2.53	-1.57/-1.80	-2.05/-1.17	0.16/1.19	1.94/2.85	2.89/2.13	1.27/1.63	1.80/1.08	-0.71/-3.70	-4.88/-5.49	-5.17/-3.54	-1.15/-1.99	-2.88/-1.72	0.05/1.53	-0.55/-3.54	-4.81/-6.98	-10.66/-10.54	-10.15/-10.49	-8.06/-6.29	-5.23/-4.93	-5.02/-3.93	-2.34/-2.44	-1.06/-0.21	-1.28/-1.02
Θ(75°)	0.81/0.50	-0.27/-1.26	-2.21/-1.50	-1.20/0.46	1.11/2.20	2.33/1.45	0.99/0.48	0.36/0.30	-1.29/-4.91	-10.13/-9.59	-10.54/-10.30	-4.19/-3.28	-1.83/-4.77	-4.17/-2.24	-3.19/-4.91	-5.90/-6.34	-7.38/-11.85	-10.13/-8.50	-12.51/-7.63	-6.92/-7.01	-7.01/-5.40	-2.72/-0.58	1.44/1.95	1.62/0.90
Θ(82.5°)	0.20/1.01	0.89/-0.50	0.05/1.04	1.90/1.97	1.50/1.22	1.16/0.67	-0.76/-1.49	-0.51/-0.24	-0.69/-3.76	-7.20/-8.38	-8.95/-12.62	-2.87/-4.76	-2.87/-2.86	-1.93/-3.82	-2.92/-2.89	-4.51/-8.20	-12.81/-10.64	-6.77/-4.29	-2.33/-1.95	-1.08/-2.22	-2.50/-1.55	0.55/1.39	-0.32/0.78	
Θ(90°)	0.47/1.31	2.34/1.05	1.69/0.37	-0.74/-0.88	0.27/1.02	0.72/-0.66	-2.84/-5.22	-6.79/-5.72	-5.37/-8.51	-10.81/-6.41	-6.84/-15.05	-8.43/-8.00	-1.86/-1.65	-0.71/-1.53	-3.82/-6.61	-4.24/-2.80	-5.54/-7.51	-10.19/-7.12	-5.02/-3.45	-0.58/-0.10	-1.27/-1.15	-1.66/-0.80	-0.11/0.64	0.68/-0.32
Θ(97.5°)	2.41/1.94	3.05/1.29	-0.33/-1.92	-1.57/-0.64	0.16/0.21	-2.17/-3.14	-4.76/-7.08	-8.34/-7.35	-7.71/-8.97	-11.40/-6.75	-5.03/-8.78	-12.62/-4.45	-1.37/-0.64	-4.41/-5.14	-5.64/-6.29	-6.69/-3.51	-4.31/-5.83	-4.44/-2.18	-0.66/0.72	1.32/1.17	1.24/0.54	0.76/-0.37	-1.89/0.95	3.17/2.92
Θ(105°)	-0.27/0.38	2.49/1.73	0.36/0.94	-0.72/-1.10	-3.07/-1.51	0.23/-0.20	-1.64/-3.24	-4.06/-4.99	-7.47/-8.71	-7.99/-6.18	-7.12/-12.86	-10.46/-10.60	-1.14/-3.27	-4.33/-5.56	-9.14/-9.27	-8.47/-6.76	-3.71/-3.66	-4.12/0.33	0.44/-0.45	1.71/1.31	1.76/0.76	-0.10/-1.26	1.15/1.63	0.02/0.71
Θ(112.5°)	-0.69/-2.50	-2.53/-0.72	0.52/1.91	0.46/-0.50	-2.29/-3.29	-3.95/-5.76	-5.85/-5.11	-5.18/-7.23	-7.74/-14.95	-7.80/-5.19	-5.70/-10.26	-7.77/-3.62	-0.81/0.77	-3.03/-8.87	-7.55/-14.98	-9.42/-4.95	-1.75/-4.54	-2.62/0.89	-1.60/-3.66	0.56/0.89	0.95/0.11	0.44/-0.15	-1.00/-1.00	-0.05/-0.98
Θ(120°)	-1.12/-1.81	-2.02/-0.22	-2.56/-3.77	-3.85/-5.58	-6.05/-4.37	-4.25/-2.74	-2.26/-3.08	-3.93/-3.48	-5.08/-6.13	-9.32/-11.05	-10.27/-15.68	-11.12/-12.17	-0.76/-3.21	-8.31/-6.35	-2.88/-7.86	-4.68/-1.85	0.94/-4.45	-4.58/0.38	-0.27/-2.88	1.23/1.91	1.18/2.86	0.74/1.55	2.88/4.45	-0.64/-0.02
Θ(127.5°)	3.55/1.38	1.91/0.24	0.63/-1.08	-4.22/-1.41	-15.36/-15.44	-13.53/-13.43	-11.04/-8.14	-7.25/-6.54	-6.47/-10.59	-10.08/-7.03	-7.53/-13.32	-4.27/-5.02	-3.23/-1.93	-7.34/-2.36	-7.50/0.53	-1.44/-6.54	-0.73/3.71	1.14/-0.83	2.62/6.10	3.05/3.13	0.71/0.64	4.83/5.53	3.45/2.48	
Θ(135°)	-0.51/-2.92	-3.38/-0.19	-0.04/0.61	0.82/-0.25	-1.13/-3.78	-6.43/-9.01	-9.53/-5.96	-2.75/-2.09	-3.14/-2.83	-3.00/-3.81	-2.74/-1.35	-1.37/0.47	3.13/1.01	-1.37/-6.07	-6.29/-6.57	-0.28/-0.56	-12.42/-2.70	-1.24/1.49	-0.87/-2.76	-1.42/2.65	3.69/1.35	1.44/-6.43	-0.96/-0.12	-5.44/-2.94
Θ(142.5°)	-2.97/-5.70	-5.72/-1.64	-1.20/-2.11	-1.42/-0.69	-0.46/0.32	0.33/-0.48	-1.48/-1.46	-1.65/-3.13	-6.38/-9.71	-12.54/-11.88	-7.50/-3.96	-3.93/-7.04	-12.18/-3.70	-3.27/-3.68	-5.43/-1.51	0.68/-3.98	0.04/2.54	1.12/-0.12	-4.23/-7.98	-4.75/-0.66	3.13/0.35	-2.26/-4.84	-4.83/-5.63	-6.43/-5.21
Θ(150°)	0.39/0.71	2.55/-2.32	-1.23/-1.62	-3.56/-4.10	-4.96/-4.10	-3.04/-3.46	-4.61/-6.02	-7.72/-9.31	-10.24/-8.09	-6.94/-6.71	-10.17/-9.17	-10.48/-6.97	-0.86/-0.06	-1.68/-1.93	-1.02/-0.30	2.09/2.40	5.27/5.19	4.14/2.67	2.07/3.25	4.09/3.85	3.31/3.63	4.39/4.21	2.91/0.83	
Θ(157.5°)	3.26/2.50	2.11/0.38	-1.37/-1.89	-2.60/-2.87	-2.75/-3.40	-4.55/-3.71	-2.00/-1.32	-2.17/-3.80	-5.11/-5.77	-5.94/-6.39	-6.88/-8.15	-9.86/-9.42	-6.50/-3.80	-2.91/-3.65	-4.26/-3.83	-2.06/0.39	2.73/4.08	4.573.97	2.34/-0.03	-2.34/-2.95	-2.01/0.43	2.76/4.48	5.40/5.46	4.75/4.01
Θ(165°)	3.81/3.51	2.98/1.03	-1.54/-4.14	-6.93/-8.40	-8.72/-9.00	-7.78/-6.54	-6.09/-5.31	-4.51/-3.18	-2.04/-1.14	-0.57/0.03	0.27/0.19	-0.07/-0.38	-0.59/-0.80	-0.58/-0.16	0.10/0.28	0.85/1.89	3.07/3.85	3.94/3.39	2.37/1.09	-0.23/-0.74	0.13/1.93	3.59/4.47	4.47/4.43	4.35/4.15
Θ(172.5°)	-4.52/-4.29	-5.31/-9.39	-10.99/-7.43	-5.43/-4.01	-3.10/-2.48	-1.76/-1.41	-1.90/-2.22	-1.78/-1.14	-0.76/-0.49	-0.29/0.06	0.28/0.29	0.24/0.39	0.46/0.54	0.77/0.97	0.95/0.68	0.03/-0.68	-1.55/-2.70	-4.13/-5.61	-6.42/-6.83	-6.49/-5.40	-4.66/-3.87	-3.32/-3.94	-5.53/-5.40	-4.78/-4.97
Θ(180°)	-5.70/-5.50	-5.81/-4.48	-2.75/-1.44	-0.87/-0.80	-1.03/-1.01	-1.41/-1.89	-2.49/-2.89	-2.72/-2.39	-2.47/-2.22	-1.95/-1.59	-1.32/-1.35	-1.44/-1.54	-1.57/-1.77	-1.59/-1.47	-1.29/-1.31	-1.50/-1.84	-2.27/-2.72	-3.08/-3.52	-3.62/-3.91	-4.09/-4.10	-4.53/-4.66	-5.49/-6.03	-5.83/-5.49	-5.20/-5.15
Freq(Hz)	5.3GPol	TotalAnt.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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°)	-0.65/-1.35	-0.53/-0.12	0.09/0.05	-0.06/-0.31	-0.19/0.35	0.40/0.13	-0.18/-0.15	0.39/0.94	1.37/1.57	1.76/1.77	1.70/1.42	1.32/1.19	1.23/1.34	1.15/1.36	1.46/1.12	1.04/1.11	1.22/1.13	0.90/0.88	0.67/0.69	0.77/0.84	0.75/0.79	0.72/0.44	0.25/0.50	0.39/0.64
Θ(7.5°)	1.43/1.46	2.11/2.48	2.08/1.83	0.99/0.83	1.21/1.49	1.31/1.01	0.21/0.04	0.04/0.03	-0.38/-0.71	-0.66/-0.68	-1.01/-1.43	-1.71/-2.03	-2.18/-2.47	-2.20/-1.84	-1.67/-1.68	-1.40/-0.98	-0.41/-1.11	0.07/0.06	0.53/1.01	1.58/1.91	2.05/2.26	2.06/2.10	1.86/1.93	2.11/2.28
Θ(15°)	1.17/1.06	1.20/0.92	0.72/0.58	0.28/0.77	1.48/1.71	1.97/2.31	2.24/2.07	1.84/1.33	0.74/0.57	0.51/0.02	-0.96/-2.26	-3.45/-4.49	-5.71/-6.72	-8.03/-8.03	-9.79/-5.36	-3.62/-2.56	-1.85/-1.25	-0.50/0.37	1.39/2.33	2.95/3.36	3.63/3.86	3.76/3.57	3.16/2.92	2.46/1.91
Θ(22.5°)	-0.92/-2.44	-4.16/-3.36	-1.73/-0.55	-0.57/0.13	0.48/0.83	1.54/1.75	1.61/1.20	0.88/0.42	0.02/0.17	0.66/1.04	0.97/0.50	-0.45/-1.70	-3.75/-6.55	-8.79/-9.85	-9.21/-8.09	-7.64/-7.63	-6.85/-4.87	-2.61/-1.30	-0.50/-0.50	0.06/0.07	-0.00/0.28	0.49/1.12	0.55/-0.23	
Θ(30°)	-0.26/-0.81	-1.13/0.08	1.20/1.98	1.72/1.53	1.71/1.57	0.84/-0.06	-0.40/-0.71	-0.66/-1.07	-1.85/-2.70	-2.77/-2.03	-1.59/-1.30	-0.78/-1.51	-4.42/-5.57	-10.25/-12.45	-9.76/-7.72	-6.90/-5.43	-4.92/-7.19	-7.02/-5.89	-6.80/-8.12	-7.20/-6.01	-3.50/-1.31	-0.21/0.58	1.29/2.25	1.84/0.26
Θ(37.5°)	-0.40/-1.85	-4.33/-2.93	-1.08/-0.37	0.10/1.06	2.60/3.77	4.07/3.65	2.86/2.14	1.43/0.75	0.32/-0.19	0.11/0.36	0.31/1.21	2.14/1.17	-0.55/-1.14	-2.79/-4.54	-4.90/-5.51	-4.84/-4.53	-7.67/-7.97	-5.51/-5.80	-10.76/-9.53	-8.07/-6.74	-5.89/-3.44	-1.85/-1.45	-0.37/-0.10	
Θ(45°)	0.29/0.21	-1.67/-0.82	-0.18/0.58	1.08/0.73	0.99/1.52	1.80/2.07	1.96/1.37	0.57/0.18	-0.90/-1.82	-2.65/-2.90	-3.24/-1.39	-1.82/-4.89	-5.62/-4.70	-3.34/-0.03	-0.91/-2.98	-2.58/-3.52	-9.29/-12.97	-9.24/-6.11	-5.98/-5.96	-5.23/-5.19	-4.81/-4.50	-2.00/0.38	1.00/0.81	
Θ(52.5°)	2.52/2.45	0.30/1.43	2.49/2.26	1.63/1.10	1.33/2.33	3.09/3.10	2.67/1.88	0.71/0.41	-1.43/-2.44	-2.54/-2.68	-3.13/-0.19	1.00/-0.62	-0.37/-1.44	-1.80/-0.16	-1.21/-2.62	-3.26/-3.09	-5.79/-8.10	-6.36/-6.16	-8.82/-1.29	-10.47/-8.95	-6.80/-5.36	-3.61/-1.37	-0.66/0.63	1.52/3.18
Θ(60°)	-1.33/-3.28	-2.28/-0.59	0.38/0.25	1.07/2.19	3.05/3.68	3.93/3.39	2.60/1.55	0.30/-1.09	-3.28/-5.85	-5.30/-3.96	-2.65/-1.22	-2.10/-2.35	-1.18/-2.13	-1.66/-1.51	-0.76/-1.58	-3.55/-4.82	-5.20/-7.21	-10.10/-7.02	-5.89/-5.63	-5.64/-5.47	-4.72/-3.50	-3.04/-3.22	-3.69/-4.95	-2.13/-1.23
Θ(67.5°)	-1.39/-1.61	-0.41/-0.22	-0.55/-1.17	-0.83/0.42	1.45/1.81	2.11/1.88	1.17/0.43	-0.07/-0.81	-1.78/-4.50	-8.12/-8.41	-6.88/-5.33	-3.39/-3.74	-4.35/-2.81	-1.22/0.08	-2.75/-4.79	-3.50/-4.94	-8.43/-8.82	-7.71/-7.12	-5.20/-3.76	-3.68/-3.34	-3.42/-2.76	-2.90/-3.05	-0.81/0.37	0.12/-0.18
Θ(75°)	0.23/0.56	-0.72/-0.97	-1.53/-1.53	-1.48/-0.67	-0.27/1.39	2.12/1.50	0.49/-0.59	-1.57/-1.58	-3.15/-5.62	-9.22/-10.85	-12.85/-14.15	-3.93/-3.73	-2.93/-4.03	-3.44/-2.41	-4.10/-5.20	-5.11/-6.31	-8.03/-10.00	-9.82/-7.93	-7.63/-5.31	-5.34/-4.96	-3.75/-5.56	-1.84/-1.98	-0.37/0.08	0.88/-0.21
Θ(82.5°)	0.70/1.93	1.48/0.28	-0.96/0.06	0.85/																				



Antenna Pattern of 5GHz

Appendix B.1

θ (75°)	-4.58/-6.14	-4.97/-4.32	-4.77/-3.19	-3.18/-5.72	-8.71/-10.42	-12.05/-12.91	-10.12/-6.89	-5.43/-4.94	-3.80/-2.44	0.22/1.54	1.59/0.72	0.07/0.55	1.55/-1.83	1.12/-0.83	-4.88/-2.54	0.42/2.43	2.41/2.12	2.49/2.15	2.15/1.34	-1.05/-6.22	-12.43/-11.87	-6.61/-4.50	-1.77/-0.94	-3.27/-3.03
θ (82.5°)	-2.48/-7.20	-6.61/-4.01	-3.80/-3.81	-5.83/-9.68	-10.59/-9.20	-7.15/-4.82	-3.62/-3.78	-3.67/-3.00	-2.58/-1.89	0.07/1.00	0.19/-1.67	-2.33/-1.86	-0.40/-0.34	0.40/-0.18	-1.46/-0.95	-0.33/0.37	0.95/2.37	3.61/4.25	4.18/3.36	0.28/-4.50	-5.83/-8.58	-9.86/-5.04	-1.82/-1.14	-2.88/-1.19
θ (90°)	-2.28/-6.31	-6.18/-5.67	-6.24/-4.38	-6.24/-4.38	-10.36/-5.98	-1.54/-0.15	-0.41/-1.98	-3.28/-3.29	-1.68/-0.12	1.75/2.85	2.54/0.27	-2.13/-4.49	-1.74/-1.84	-1.38/-3.25	-3.66/-2.61	-3.34/-2.18	0.23/1.87	3.15/2.14	1.34/-0.58	-4.74/-5.76	-5.72/-3.32	-0.07/-0.20	-1.84/-1.58	
θ (97.5°)	-1.56/-3.13	-6.24/-7.84	-7.75/-8.15	-5.94/-8.09	-12.39/-10.43	-4.04/-1.55	-0.49/-1.01	-2.16/-1.43	-0.05/0.63	2.62/3.63	3.67/1.01	-2.11/-4.03	-3.80/-3.36	-2.81/-4.84	-2.77/-1.52	-2.27/-1.24	-0.19/1.99	2.87/3.75	3.43/3.76	3.13/-0.19	-1.24/-1.56	-5.98/-3.68	-0.44/-0.21	-1.79/-2.56
θ (105°)	-2.16/-3.43	-4.35/-4.88	-6.73/-12.62	-4.81/-3.82	-2.67/-3.49	-0.65/-1.18	1.22/0.28	-0.23/0.77	1.86/2.53	2.94/2.66	2.25/0.46	-1.71/-1.61	-2.55/-2.84	-3.85/-2.90	-0.90/0.07	-3.01/-6.92	-3.21/-0.46	1.04/0.93	0.74/0.93	0.46/-1.27	-1.67/-3.14	-7.96/-2.91	0.30/-0.23	-3.45/-6.69
θ (112.5°)	-1.79/-1.47	-2.99/-5.32	-8.70/-13.30	-2.74/-1.11	-1.79/-1.73	-0.70/0.54	0.21/-0.71	-0.92/0.75	2.07/3.06	3.83/3.27	1.61/-0.39	-2.18/-2.18	-2.21/-2.87	-4.43/-3.08	-3.40/-1.00	-1.40/-4.64	-10.22/-7.86	-5.65/-2.29	-2.67/-2.92	-2.12/-0.42	-5.62/-1.02	-6.16/-0.83	0.13/0.32	-0.62/-5.26
θ (120°)	0.39/0.97	0.59/-3.39	-5.54/-13.10	-5.00/0.28	-0.15/-0.65	-0.87/-1.55	-2.00/-3.19	-3.20/-0.76	1.50/2.96	3.84/3.44	2.11/-0.46	-2.20/-1.59	-0.34/-0.34	-3.00/-1.87	1.52/1.36	0.51/-2.10	-4.08/-9.40	9.27/-8.18	-5.48/-4.11	-4.05/-5.53	-9.00/-7.77	-4.77/-4.44	-2.49/-1.65	-4.22/-10.18
θ (127.5°)	0.28/0.54	-0.35/-1.52	-7.35/-9.70	-3.81/-0.66	-0.04/-0.61	-1.58/-1.94	-1.63/-0.75	0.18/0.41	0.73/0.84	0.40/-0.17	-1.26/-2.50	-3.47/-3.09	-1.38/-0.99	-1.74/0.14	1.09/0.34	-3.70/-3.18	-4.26/-8.49	-6.60/-6.80	-5.96/-6.27	-7.30/-9.51	-4.71/-4.04	-3.03/-1.90	-0.67/-1.44	-4.16/-2.07
θ (135°)	-1.27/-3.39	-5.80/-4.89	-5.72/-5.17	-2.62/-1.94	-1.42/-1.40	-0.55/-0.35	-1.12/-1.54	-1.48/-0.58	-0.26/-0.52	-1.27/-2.93	-3.48/-2.93	-2.86/-2.98	-3.74/-3.58	-4.10/-1.89	0.55/-0.88	-0.63/-1.37	-1.41/-3.25	-6.13/-4.70	-5.91/-7.18	-3.30/-2.60	-0.92/-3.36	-3.40/-5.02	-8.00/-3.69	
θ (142.5°)	-3.55/-2.58	-1.80/-0.67	-3.01/-4.44	-2.09/-0.52	-0.10/-0.34	-1.06/-2.16	-2.93/-2.21	-0.64/0.89	2.10/2.13	0.56/-1.30	-2.79/-3.89	-2.22/-1.49	-2.73/-2.79	-3.17/-2.64	-1.63/-0.19	-2.79/-3.88	-4.64/-2.07	-1.48/-4.44	-8.01/-10.35	-8.38/-5.05	-3.78/-6.95	-6.11/-5.16	-5.52/-5.99	-7.56/-7.20
θ (150°)	-1.40/-2.30	-6.08/-7.94	-8.34/-7.11	-5.24/-5.53	-6.79/-8.86	-10.79/-7.80	-4.73/-2.08	0.07/1.39	1.54/-1.01	0.40/-0.37	-1.47/-2.21	-2.46/-2.75	-2.51/-3.91	-3.85/-1.00	0.69/1.17	-0.08/-0.64	-3.48/-6.87	-5.18/-6.75	-8.79/-6.36	-3.74/-2.20	-2.50/-4.63	-6.49/-4.88	-1.76/-2.06	-0.73/-1.85
θ (157.5°)	-3.01/-4.80	-7.13/-8.13	-10.48/-11.48	-8.02/-8.46	-7.93/-6.85	-5.60/-4.12	-3.73/-7.77	-4.13/-4.58	-5.50/-5.87	-6.88/-8.14	-9.95/-8.83	-6.17/-4.60	-4.71/-4.37	-3.74/-3.06	-1.70/-0.94	-1.61/-3.53	-8.13/-12.24	-7.97/-6.64	-8.24/-10.64	-9.05/-8.07	-8.19/-8.88	-4.41/-8.85	-6.44/-4.76	-3.80/-3.48
θ (165°)	-6.45/-7.85	-9.92/-10.29	-10.66/-11.51	-12.35/-13.99	-15.18/-15.36	-11.78/-9.12	-8.00/-6.71	-5.74/-4.26	-3.13/-2.34	-2.34/-2.57	-2.68/-2.42	-2.12/-1.76	-1.60/-1.91	-2.75/-3.94	-4.98/-5.82	-7.12/-8.69	-8.10/-6.37	-5.32/-5.27	-6.07/-7.12	-7.56/-8.19	-9.26/-10.47	-11.43/-10.63	-8.01/-5.86	-4.58/-5.04
θ (172.5°)	-8.64/-7.98	-7.93/-6.68	-8.92/-9.84	-10.21/-10.23	-10.96/-11.93	-13.62/-14.80	-15.36/-15.76	-15.14/-15.73	-15.29/-12.95	-12.57/-11.69	-11.26/-10.56	-9.93/-9.34	-8.69/-7.77	-7.25/-7.31	-7.38/-4.76	-7.52/-7.08	-6.59/-6.39	-6.49/-6.59	-7.14/-7.67	-8.72/-10.69	-13.41/-15.71	-14.23/-10.61	-9.22/-8.68	-8.31/-6.06
θ (180°)	-6.86/-6.85	-7.32/-8.70	-10.39/-11.64	-13.27/-13.38	-13.64/-13.69	-12.63/-11.35	-10.83/-10.77	-10.01/-9.65	-8.89/-8.10	-7.59/-7.28	-7.30/-7.37	-7.35/-7.70	-7.98/-7.90	-7.90/-7.83	-7.81/-8.04	-8.60/-9.25	-9.28/-9.24	-9.29/-9.03	-7.38/-6.93	-6.89/-6.84	-6.58/-6.87	-7.59/-8.29	-8.17/-7.37	
Freq(Hz)	5.3GPol.	TotalAnt.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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°)	0.01/0.73	0.33/-0.28	-0.98/-1.29	-1.14/-0.83	-0.59/-3.07	-1.10/-0.36	0.51/0.54	0.42/0.22	-0.09/-0.14	-0.15/-0.10	-0.24/-0.62	-0.85/-0.83	-1.60/-1.14	-1.37/-1.45	-1.30/-1.69	-0.76/-1.14	-1.50/-1.06	-0.59/-0.63	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)		
θ (7.5°)	-1.46/-1.33	-1.45/-1.86	-2.66/-3.00	-2.53/-1.82	-1.41/-1.07	-0.89/-0.61	-0.62/-0.60	-0.55/-0.48	-0.41/-0.47	-0.63/-0.63	-0.60/-0.71	-0.62/-0.43	-0.16/-0.03	-0.04/-0.12	0.07/0.12	-0.01/0.03	0.29/0.69	0.98/1.07	0.90/0.76	0.59/0.50	0.40/0.08	-0.05/-0.11	-0.29/-0.74	-1.47/-1.90
θ (15°)	-1.51/-2.10	-2.83/-4.38	-5.18/-6.62	-6.25/-7.27	-7.62/-7.38	-6.76/-6.51	-6.38/-6.04	-5.73/-5.66	-5.64/-5.52	-5.26/-4.93	-4.66/-4.14	-3.40/-2.41	-1.51/-0.88	-0.57/-0.27	-0.01/0.12	0.04/-0.02	-0.01/0.45	0.65/0.53	0.05/0.54	-0.91/-3.33	-1.56/-1.60	-1.53/-1.73	-2.17/-2.21	-1.89/-1.65
θ (22.5°)	-1.49/-2.36	-7.13/-8.13	-10.48/-11.48	-7.90/-9.17	-8.85/-8.01	-6.83/-7.47	-9.02/9.95	-10.55/-11.69	-9.27/-11.70	-9.89/-8.78	-8.05/-7.21	-6.17/-5.34	-3.81/-2.56	-1.42/-0.27	0.59/0.74	0.71/0.34	-0.37/-1.06	-1.53/-1.60	-1.81/-2.20	-2.74/-3.44	-3.87/-3.62	-3.09/-2.60	-2.10/-1.74	
θ (30°)	0.42/-0.55	-2.52/-3.80	-5.89/-8.51	-9.58/-8.96	-7.46/-7.06	-7.02/-6.97	-7.48/-8.50	-10.60/-12.39	-16.01/-15.50	-15.77/-12.50	-10.55/-9.01	-7.81/-5.28	-3.73/-2.48	-1.50/-0.28	0.27/0.18	0.32/0.50	0.63/1.37	1.64/1.06	-0.15/-1.19	-2.19/-3.74	-5.00/-4.77	-3.74/-2.56	-0.65/0.88	1.65/1.46
θ (37.5°)	2.24/0.61	-1.08/-1.64	-2.96/-3.73	-4.05/-0.62	-5.53/-7.20	-7.66/-7.41	-6.99/-6.90	-6.91/-6.86	-4.85/-0.58	-7.55/-11.20	-11.78/-8.33	-4.72/-2.74	-2.21/-2.03	-2.76/-2.39	-2.19/-0.67	0.60/1.87	3.31/3.26	2.35/2.73	3.32/2.74	1.36/0.05	-0.55/-1.16	-1.84/-2.05	-0.24/-0.35	0.78/2.14
θ (45°)	3.32/-1.32	-1.62/-3.88	-6.36/-6.69	-6.02/-6.19	-5.62/-5.76	-6.23/-5.95	-6.24/-7.85	-8.78/-7.67	-5.35/-3.21	-3.12/-5.23	-5.74/-3.99	-2.27/-0.97	-0.82/-0.63	-0.63/-0.94	0.41/1.84	0.41/2.64	3.03/3.53	3.89/3.17	2.48/2.37	1.98/1.26	0.73/-1.02	0.84/0.25	-0.19/1.14	2.91/3.80
θ (52.5°)	3.19/0.72	-1.35/-2.04	-4.42/-6.28	-6.76/-6.04	-5.08/-5.20	-5.63/-6.69	-8.22/-9.32	-7.14/-4.43	-2.27/-0.51	0.52/-1.01	-1.96/-1.76	-1.42/-0.35	-0.46/0.78	0.56/-1.29	-1.79/-1.78	0.54/2.64	4.55/4.65	4.36/3.65	2.67/2.08	1.34/0.45	0.20/-0.09	0.32/0.68	0.49/0.28	0.79/2.11
θ (60°)	2.24/-0.15	-4.46/-0.84	-11.51/-10.06	-9.75/-9.50	-7.26/-7.23	-7.74/-6.31	-5.00/-4.72	-5.83/-7.22	-7.09/-6.46	-3.77/-2.84	-1.55/-1.16	1.01/1.74	2.06/2.03	1.37/-0.11	-1.73/-2.00	1.15/3.27	4.09/4.84	4.65/4.52	3.60/2.47	1.93/0.61	-0.81/-0.80	-0.56/0.82	0.98/0.80	1.59/2.68
θ (67.5°)	-1.22/-3.78	-10.21/-9.32	-8.32/-6.05	-7.38/-9.26	-9.33/-8.72	-9.40/-8.22	-5.89/-5.15	-8.20/-6.11	-5.80/-4.68	-1.83/-1.31	-2.62/-3.44	-2.02/-0.12	2.09/2.21	0.64/-1.98	-4.13/-3.70	0.03/0.05	2.59/2.96	3.07/3.09	3.05/2.12	0.63/-1.27	-2.91/-2.76	-0.88/-0.07	-0.12/-0.20	-0.22/0.37
θ (75°)	-2.06/-6.33	-8.06/-5.41	-4.90/-3.69	-4.58/-6.90	-8.45/-6.07	-5.21/-4.96	-4.74/-4.27	-5.08/-5.88	-6.29/-8.11	-4.07/-0.99	-0.05/-0.78	-1.96/-1.43	0.92/2.75	2.32/-0.10	-3.54/-1.94	-0.37/-1.29	1.96/1.51	2.04/1.82	2.99/2.77	-0.36/-2.82	-4.58/-4.56	-3.77/-2.32	-0.46/-0.41	-1.56/-0.73
θ (82.5°)	-0.93/-3.30	-5.88/-4.08	-4.71/-5.04	-7.03/-12.16	-14.33/-7.22	-3.47/-1.57	-1.05/-2.00	-3.47/-0.47	-4.12/-3.81	-2.83/-1.68	-1.09/-1.34	-2.69/-3.41	-0.41/-1.85	1.93/0.26	-0.85/-0.07	0.58/1.97	2.47/2.21	2.36/3.10	3.35/3.25	1.57/-2.73	-5.71/-6.50	-3.38/-0.40	0.55/0.11	-1.79/0.26
θ (90°)	-4.56/-10.01	-13.07/-4.71	-6.33/-5.91	-8.24/-9.51	-10.19/-3.24	-0.05/0.59	-0.58/-2.00	-2.18/-1.27	-0.58/-1.04	-0.54/0.98	1.23/-0.50	-3.13/-4.70	-1.80/-0.38	-1.20/-3.84	-5.36/-2.27	-1.94/-0.05	0.93/2.04	2.34/2.85	2.71/2.64	-5.07/-5.57	-2.66/-1.46	0.14/-0.36	-2.13/-1.97	
θ (97.5°)	-2.77/-6.71	-8.73/-2.66	-5.30/-8.32	-7.55/-11.64	-12.77/-6.05	-12.78/-0.62	-1.02/-1.77	-1.65/-1.16	-1.30/-1.90	-0.58/0.05	3.46/-1.50	-1.84/-4.74	-0.78/-0.40	-0.05/-4.83	-2.58/-1.99	-1.86/-1.09	-0.46/-1.90	2.01/3.35	4.06/5.04	-2.88/-3.98	-5.97/-4.43	-2.85/-1.81	-1.92/-2.93	
θ (105°)	-1.68/-3.54	-4.30/-2.01	-5.06/-6.62	-3.74/-3.47	-3.29/-2.61	0.41/1.54	0.26/-1.65	-0.49/-1.19	1.74/0.37	0.08/0.16	1.77/0.86	-1.18/-3.49	-3.60/-2.06	-1.53/-1.90	0.35/-1.75	0.34/-2.45	-4.25/-1.48	0.63/-2.17	1.58/2.00	1.23/-2.79	-5.02/-4.94	-5.31/-3.39	-2.35/-2.12	-1.65/-2.54
θ (112.5°)	-1.43/-0.56	-4.31/-4.28	-7.30/-4.70	-1.25/-2.44	-2.54/-2.05	-0.24/0.86	0.92/-0.27	0.06/2.03	2.88/2.40	2.01/1.56	0.75/-0.51	-2.87/-1.65	-0.61/-0.27	-1.85/-2.66	-2.92/-0.27	-0.18/-1.66	-5.24/-9.34	6.38/-2.01	-1.64/-2.38	-2.03/-0.92	-1.11/-5.69	-3.72/-1.96	-2.94/-0.68	0.21/-3.15
θ (120°)	0.16/-0.18	-0.46/-1.97	-5.03/-10.74	-3.93/-0.20	-1.28/-1.60	-3.05/-2.91	-2.68/-2.97	-1.32/-1.27	0.98/2.03	2.94/3.05	1.89/-0.33	-5.52/-2.14	-0.29/0.27	-1.47/-1.29	1.71/1.51	0.83/-0.92	-1.20/-5.58	-6.96/-7.59	-4.36/-3.57	-2.33/-4.04	-11.83/-8.33	-4.41/-8.50	-5.65/-3.68	-6.91/-6.27
θ (127.5°)	-0.25/-0.53	-3.07/-3.55	-8.34/-7.51	-2.91/0.21	-0.19/-0.70	-1.54/-2.34	-2.97/-2.24	-1.22/-1.37	-2.29/-1.56	-1.11/-0.94	-1.17/-1.45	-2.70/-2.80	-1.24/0.04	0.40/-1.13	2.11/0.21	-2.91/-2.23	-2.26/-2.31	-5.43/-7.86	-6.85/-7.87	-6.76/-5.51	-6.75/-6.92	-3.05/-2.14	-2.79/-2.38	-3.37/-1.66



Antenna Pattern of 5GHz

Appendix B.1

Θ(127.5°)	-1.74/-3.39	-5.62/-4.73	-3.37/-1.68	-1.26/-1.25	-1.06/-0.77	-0.98/-1.24	-2.03/-4.07	-10.15/-11.15	-7.38/-3.65	-1.61/-3.48	-5.50/-2.53	-0.71/-2.62	-3.02/-2.13	-3.02/-11.74	-2.62/-2.79	-8.01/-7.16	-10.22/-8.21	-6.09/-2.43	-4.31/-7.07	-5.54/-5.42	-10.89/-6.72	-1.27/0.01	-0.69/-2.75	-4.10/-4.39
Θ(135°)	-0.38/-0.45	-0.33/-0.33	0.08/-1.63	-4.30/-3.43	-0.61/0.68	0.99/0.38	-0.92/-2.39	-4.07/-5.26	-3.35/-1.40	-2.02/-3.40	-5.10/-6.80	-8.91/-3.06	-3.54/-4.95	-4.22/-1.07	-2.74/-4.92	-7.72/-5.52	-8.61/-7.17	-10.10/-6.12	-6.88/-6.21	-2.78/-0.63	-4.76/-8.11	-3.47/0.01	-1.86/-1.79	-1.96/-2.98
Θ(142.5°)	-0.91/-0.86	-1.68/-2.35	-4.20/-2.56	-2.02/-3.01	-4.74/-5.01	-5.50/-6.01	-8.32/-8.88	-5.54/-3.01	-1.98/-1.48	-1.57/-3.47	-4.10/-0.90	-0.44/-4.04	-12.50/-7.43	-4.05/-3.34	-10.90/-6.86	-3.11/-3.48	-6.24/-3.10	-0.06/-0.11	-2.77/-5.56	-4.69/-2.65	-4.89/-4.45	-3.96/-2.66	-1.08/-2.13	
Θ(150°)	-3.94/-2.71	-1.95/-0.94	-1.24/-1.91	-1.82/-2.44	-3.41/-4.43	-5.21/-6.49	-7.90/-8.74	-9.61/-8.72	-7.61/-7.17	-5.36/-2.79	-1.28/-1.02	-1.31/-4.23	-6.69/-0.94	-0.40/-4.44	-14.76/-7.43	-4.09/-3.68	-4.68/-6.68	-5.28/-4.23	-4.72/-4.55	-3.54/-2.36	-3.11/-5.61	-7.89/-9.44	-5.15/-2.80	-3.24/-4.10
Θ(157.5°)	-2.94/-2.94	-3.01/-2.94	-2.84/-2.58	-2.07/-2.18	-2.62/-3.36	-4.53/-5.24	-5.04/-4.89	-5.89/-8.50	-11.07/-9.34	-7.12/-6.28	-6.13/-6.47	-6.06/-4.49	-3.70/-4.72	-6.09/-4.52	-2.25/-1.11	-1.22/-0.29	-2.98/-3.51	-3.63/-3.72	-3.54/-3.03	-2.12/-1.42	-1.92/-3.81	-6.14/-7.72	-7.13/-5.14	-4.28/-3.76
Θ(165°)	-5.69/-5.15	-4.14/-3.73	-3.52/-3.38	-2.89/-2.23	-2.25/-2.58	-3.32/-3.97	-4.29/-4.70	-4.92/-4.66	-3.64/-2.55	-2.07/-1.76	-1.43/-1.39	-1.68/-2.47	-3.65/-4.87	-6.04/-7.25	-7.28/-6.36	-5.28/-4.54	-4.20/-4.13	-4.05/-3.41	-2.32/-1.52	-1.37/-2.12	-3.76/-6.11	-7.17/-5.93	-4.63/-3.67	-3.79/-4.96
Θ(172.5°)	-3.70/-3.60	-3.77/-3.95	-4.00/-3.65	-3.19/-2.89	-2.86/-2.95	-2.72/-1.96	-1.41/-1.06	-1.04/-1.18	-1.54/-2.18	-3.06/-3.95	-4.91/-5.78	-6.30/-6.43	-7.25/-9.29	-12.14/-12.52	-11.02/-7.93	-5.66/-4.59	-4.57/-5.53	-6.70/-7.20	-7.04/-6.58	-6.18/-5.90	-5.44/-5.03	-4.69/-4.64	-4.82/-4.18	-3.79/-3.84
Θ(180°)	-4.83/-4.86	-4.65/-4.45	-4.00/-3.73	-3.50/-3.48	-3.45/-3.22	-2.97/-3.04	-3.38/-3.93	-4.79/-5.67	-6.30/-6.94	-7.81/-8.78	-9.89/-10.24	-10.78/-12.24	-12.99/-12.62	-11.05/-9.72	-9.10/-8.17	-6.92/-6.08	-5.78/-6.04	-6.79/-7.81	-7.80/-7.12	-5.90/-4.99	-4.68/-4.61	-4.58/-4.62	-4.97/-5.11	-5.03/-4.72
Freq(Hz)	5.3GPol.	TotalAnt.4	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
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°)	-2.29/-2.73	-2.74/-2.41	-2.25/-2.37	-2.40/-2.28	-2.32/-2.64	-2.85/-2.79	-2.58/-2.08	-1.84/-1.62	-1.93/-2.46	-2.86/-3.24	-3.18/-2.73	-2.41/-2.16	-2.14/-2.04	-2.15/-2.52	-2.63/-2.54	-2.41/-2.30	-2.30/-2.48	-2.75/-2.83	-2.49/-2.23	-2.16/-2.21	-2.43/-2.74	-2.88/-2.82	-2.57/-2.58	-2.64/-2.62
Θ(7.5°)	-2.70/-3.45	-3.29/-3.36	-3.42/-3.80	-4.00/-4.38	-4.98/-4.98	-4.27/-3.78	-3.32/-3.17	-2.93/-2.59	-2.42/-2.52	-3.20/-4.07	-4.35/-3.86	-3.22/-2.62	-2.13/-1.77	-1.62/-1.43	-1.33/-1.23	-1.10/-1.07	-1.29/-1.94	-2.75/-3.04	-2.81/-2.63	-2.49/-2.38	-2.27/-2.62	-2.70/-2.61	-2.33/-2.39	-2.54/-2.54
Θ(15°)	-5.23/-6.21	-5.60/-4.59	-5.03/-6.59	-9.42/-13.84	-16.14/-15.12	-12.67/-10.20	-10.54/-10.62	-10.15/-7.90	-6.36/-5.76	-5.71/-5.23	-4.25/-3.00	-2.02/-1.15	-0.44/0.10	0.48/0.41	0.26/0.05	0.04/0.21	0.34/0.11	-0.41/-1.05	-1.49/-1.89	-2.38/-2.98	-3.71/-4.73	-6.06/-6.89	-5.99/-4.81	-3.83/-4.18
Θ(22.5°)	-12.11/-15.73	-12.12/-22.27	-9.35/-11.20	-12.23/-11.61	-13.88/-14.48	-15.26/-14.53	-13.66/-13.06	-12.99/-12.90	-12.05/-12.55	-12.32/-8.84	-5.82/-4.12	-3.23/-3.18	-1.98/-3.58	-3.07/-2.24	-1.33/-0.53	0.06/0.34	0.27/0.04	-0.26/-0.53	-0.59/-0.69	-1.15/-1.65	-2.00/-2.25	-2.68/-3.64	-5.71/-8.75	-9.77/-10.43
Θ(30°)	-9.11/-11.24	-11.33/-7.44	-6.09/-6.00	-5.74/-6.63	-7.04/-5.30	-4.98/-5.67	-6.53/-6.51	-4.96/-6.69	-7.17/-7.89	-10.05/-13.95	-11.98/-6.94	-4.59/-4.13	-3.26/-1.92	-1.15/-0.49	0.25/0.36	0.23/0.14	-0.41/-1.38	-2.23/-2.50	-2.14/-1.95	-1.71/-1.35	-2.13/-1.67	-2.55/-3.26	-2.78/-2.75	-3.66/-5.85
Θ(37.5°)	-6.03/-6.50	-5.55/-2.81	-2.52/-2.07	-2.68/-3.23	-2.36/-2.89	-3.67/-4.73	-5.58/-5.95	-6.00/-5.58	-5.49/-5.94	-7.33/-7.69	-7.07/-4.49	-2.94/-3.63	-5.54/-7.38	-4.68/-2.34	-2.51/-2.95	-2.90/-3.34	-4.02/-4.39	-4.60/-3.65	-2.01/-0.85	-0.65/-1.19	-1.91/-2.56	-2.23/-1.84	-2.33/-2.03	-2.30/-3.11
Θ(45°)	-3.57/-4.98	-2.15/-1.12	-2.01/-1.98	-2.35/-1.53	-1.27/-1.63	-1.67/-1.91	-2.19/-2.84	-3.68/-4.76	-7.19/-9.42	-10.46/-7.85	-6.26/-3.61	-2.19/-1.70	-1.98/-3.28	-3.41/-3.32	-2.85/-5.19	-10.46/-15.35	-15.55/-10.25	-6.52/-5.26	-3.97/-2.84	-1.59/-0.92	-0.82/-0.61	-1.66/-2.79	-2.32/-1.89	-0.67/-0.94
Θ(52.5°)	-1.56/-3.42	-1.13/0.61	-0.40/-1.27	-0.15/0.48	-0.58/-1.56	-1.96/-2.84	-3.42/-3.91	-4.77/-6.64	-13.29/-13.49	-5.68/-2.67	-3.89/-5.68	-2.61/-2.52	-2.40/-2.37	-2.64/-4.73	-7.87/-7.82	-10.75/-8.93	-7.82/-7.48	-6.86/-7.56	-7.57/-5.77	-5.05/-4.09	-1.61/0.20	1.34/0.48	-3.43/-3.25	-0.67/-0.13
Θ(60°)	-1.26/-1.93	1.27/2.80	1.69/-0.36	0.31/1.21	0.01/-2.23	-3.50/-2.89	-2.16/-2.25	-3.36/-5.67	-8.99/-10.51	-9.12/-5.71	-1.92/0.30	1.02/0.73	-0.47/-1.15	-1.46/-2.79	-4.11/-6.72	-5.70/-4.61	-2.91/-1.87	-1.20/-1.50	-2.25/-2.07	-1.31/-1.19	-2.38/-3.50	-1.61/-0.48	-1.28/-4.25	-2.83/-0.64
Θ(67.5°)	-1.50/-0.93	1.61/2.48	2.03/0.69	0.44/0.48	0.60/0.09	-0.76/-1.23	-1.59/-1.90	-2.39/-3.14	-5.35/-9.45	-5.94/-3.06	-2.85/-3.24	-0.34/-1.28	1.26/-0.17	-0.62/0.04	-2.31/-4.04	-6.38/-5.56	-2.31/-4.06	0.93/-1.31	1.97/2.51	2.10/-1.80	-0.36/-2.60	-2.22/-0.10	0.17/-1.77	-2.62/-0.94
Θ(75°)	-1.51/0.04	-2.88/2.97	1.35/-1.31	2.03/-1.48	1.09/0.40	0.29/-0.01	-0.81/-1.99	-4.29/-5.83	-4.38/-1.54	-0.29/0.56	1.48/0.39	-0.74/-0.98	-1.01/-1.94	-0.29/-1.99	-0.58/-0.69	-0.37/-0.53	-2.88/0.33	1.00/-1.55	2.39/0.50	1.57/-0.97	-2.88/0.33	0.94/-1.40	-0.60/-0.54	
Θ(82.5°)	0.16/0.27	2.42/3.01	2.12/-1.71	1.88/-1.55	1.62/-1.93	2.28/-1.99	1.99/2.18	1.83/0.10	-3.76/-3.41	-0.25/-0.12	0.73/0.09	3.27/-1.14	-0.27/-2.08	-1.23/-0.76	-2.41/-3.97	-1.85/-2.21	-6.42/-5.23	-3.54/-0.90	-0.90/-0.28	2.41/2.92	1.87/-1.74	-2.82/-1.32	0.72/-0.44	-1.00/-1.38
Θ(90°)	-0.55/-0.82	2.27/-1.85	0.34/0.83	1.63/-1.75	1.80/2.48	2.30/2.22	2.37/2.42	2.05/-1.88	0.81/-4.44	-7.64/0.18	2.69/0.30	2.44/-0.05	-0.33/-0.88	-1.77/-2.36	-2.85/-4.15	-1.94/-5.23	-13.29/-7.46	-1.60/0.47	-1.42/-0.32	1.55/3.45	3.70/0.59	-4.05/-0.82	0.70/-1.77	-1.27/-1.33
Θ(97.5°)	-1.07/-0.95	0.36/-0.05	0.74/-1.55	2.50/-2.21	1.62/2.02	3.08/3.75	3.96/3.67	2.80/0.92	-2.51/-3.02	-1.16/0.44	1.65/-1.15	0.86/-1.52	0.67/-2.04	-1.79/-1.98	-3.74/-2.66	-2.41/-7.20	-9.54/-2.52	0.01/0.63	0.36/0.54	2.09/4.74	4.25/0.65	-3.51/-0.95	-0.29/-1.92	-3.27/-0.48
Θ(105°)	-3.19/-0.99	0.97/-1.50	-0.07/0.30	2.54/0.04	2.98/3.24	4.01/3.72	3.47/3.71	3.83/3.03	0.29/-5.67	-3.07/0.62	0.72/-0.46	-0.82/-1.04	-1.27/-2.08	-1.38/-3.26	-6.60/-8.12	-6.73/-9.70	-9.08/-3.17	0.01/1.39	-0.45/-0.45	1.84/3.41	3.54/0.87	-4.55/-1.08	-0.35/-3.25	-3.95/-3.42
Θ(112.5°)	-4.19/-3.91	-1.88/-4.24	-1.10/-2.58	-1.70/-0.75	-0.69/-1.00	-0.77/0.58	1.30/-1.48	1.04/-0.68	-3.31/-5.18	-0.85/-1.10	1.19/-0.04	-2.54/-2.99	-3.35/-4.71	-2.88/-3.42	-6.88/-11.24	-5.91/-5.14	-3.24/-1.29	1.74/-1.78	0.94/0.94	0.37/-1.77	-3.98/-7.85	-2.24/0.26	-0.79/-2.45	-3.52/-3.93
Θ(120°)	-7.29/-7.97	-6.73/-3.95	-5.78/-5.59	-2.81/-0.02	0.37/0.08	0.06/0.75	1.30/0.81	-1.13/-2.85	-4.25/-3.16	-3.25/-0.88	0.78/-0.96	-1.54/-2.54	-5.05/-4.99	-3.07/-4.75	-7.89/-6.89	-5.33/-6.66	-5.06/-5.51	-4.08/-1.61	-0.96/-3.28	-3.98/-3.99	-5.75/-5.51	-2.34/-1.05	-2.13/-1.33	-4.41/-4.65
Θ(127.5°)	-1.47/-3.28	-4.82/-3.08	-2.71/-2.53	-2.96/-2.19	-0.69/0.30	0.70/0.46	-0.29/-1.55	-4.09/-8.84	-8.84/-6.45	-2.72/-3.08	-3.94/-2.46	-0.69/-1.98	-4.52/-4.78	-4.55/-12.83	-4.32/-6.57	-10.44/-6.72	-12.57/-9.76	-8.64/-3.25	-4.26/-6.41	-3.64/-4.00	-8.02/-6.21	-2.19/-1.84	-3.48/-6.59	-4.40/-3.38
Θ(135°)	-1.48/-1.92	-1.00/-0.50	-0.42/-2.85	-5.07/-3.43	-0.97/0.24	0.48/-0.36	-1.89/-3.13	-4.01/-5.30	-5.70/-3.38	-2.16/-2.43	-4.13/-5.68	-5.16/-4.12	-4.47/-6.49	-3.96/-1.33	-2.90/-5.97	-10.00/-4.15	-7.70/-7.75	-11.93/-6.98	-7.47/-6.46	-2.91/-1.09	-5.22/-7.01	-3.30/-1.20	-3.43/-3.56	-3.53/-3.09
Θ(142.5°)	-1.68/-2.13	-2.75/-3.10	-3.15/-1.69	-1.86/-2.84	-3.65/-3.64	-3.88/-4.27	-5.67/-8.71	-8.31/-4.69	-2.68/-1.91	-2.18/-3.75	-4.31/-0.53	0.67/-1.92	-8.37/-8.61	-4.90/-9.54	-11.26/-5.80	-3.55/-6.80	-5.57/-3.09	-0.58/-1.01	-3.55/-6.42	-5.04/-2.59	-3.63/-6.05	-5.21/-6.04	-6.03/-3.98	-2.59/-2.91
Θ(150°)	-3.74/-2.50	-1.43/-0.72	-0.20/-0.01	-0.41/-1.71	-2.41/-3.45	-4.07/-4.81	-5.83/-7.66	-10.24/-11.44	-9.90/-7.94	-6.17/-3.44	-1.58/-1.54	-2.01/-3.53	-5.61/-1.09	-0.87/-5.15	-15.04/-9.93	-6.51/-5.59	-5.01/-5.52	-2.72/-6.00	-4.14/-4.45	-3.41/-2.20	-2.72/-6.00	-9.83/-11.61	-6.09/-4.02	-3.51/-3.53
Θ(157.5°)	-1.10/-1.38	-2.09/-2.60	-2.26/-1.65	-1.73/-2.56	-3.52/-4.38	-4.47/-4.19	-4.07/-4.89	-6.50/-8.71	-9.71/-10.28	-9.93/-7.62	-5.53/-4.79	-4.62/-3.77	-3.07/-4.64	-6.75/-3.70	-1.33/-0.63	-1.18/-2.61	-4.14/-4.64	-4.20/-3.47	-3.31/-3.45	-3.09/-2.33	-2.57/-4.79	-8.49/-9.67	-6.80/-3.54	-2.00/-1.36
Θ(165°)	-4.05/-3.44	-2.81/-2.79	-3.21/-3.28	-2.92/-2.21	-1.86/-1.93	-2.25/-2.99	-4.21/-5.84	-4.89/-3.90	-3.29/-2.62	-2.00/-0.96	-0.20/0.01	-0.44/-1.38	-2.62/-3.81	-4.73/-6.03	-7.20/-6.79	-5.50/-4.44	-3.80/-3.24	-2.67/-1.98	-1.49/-1.04	-1.11/-1.80	-3.49/-6.58	-8.96/-6.61	-4.52/-3.30	-3.02/-3.86
Θ(172.5°)	-3.39/-3.49	-3.69/-4.08	-4.34/-4.27	-3.99/-3.44	-2.71/-2.31	-2.03/-1.88	-1.61/-1.21	-0.73/-0.69	-0.96/-1.70	-2.67/-3.80	-4.93/-5.78	-5.95/-5.55	-5.41/-6.17	-8.11/-10.95	-10.78/-7.98	-5.67/-4.96	-5.66/-7.37	-8.80/-8.84	-7.44/-6.70	-6.41/-6.47	-6.23/-5.91	-5.14/-4.39	-3.89/-3.35	-2.94/-3.53
Θ(180°)	-3.30/-3.10	-2.71/-2.39	-2.14/-2.13	-2.36/-2.67	-2.63/-2.66	-2.66/-2.62	-2.51/-2.56	-2.82/-3.48	-4.66/-5.99	-7.02/-7.31	-7.24/-7.27	-7.65/-7.59	-7.74/-8.07	-8.09/-7.98	-7.59/-6.93	-6.18/-5.79	-5.89/-6.25	-6.62/-6.54	-6.20/-5.59	-4.74/-4.11	-3.92/-3.96	-		

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



