



Antenna Pattern of 2.4GHz and 5GHz U-NII 1 ~ U-NII 3

Appendix C

θ (15°)	5.01/5.10	5.75/6.40	7.06/7.33	8.22/7.00	6.54/6.13	6.23/5.66	4.70/4.03	3.31/3.33	3.48/4.28	4.16/3.67	3.33/3.23	3.32/3.47	3.41/3.38	3.13/2.78	2.41/2.29	2.13/1.96	1.92/1.74	1.79/1.89	2.15/2.36	2.81/3.43	3.50/3.42	3.46/3.52	4.26/4.55	4.78/5.35	
θ (22.5°)	3.08/2.72	2.93/4.49	6.28/6.52	6.11/5.67	5.63/6.06	7.54/7.76	10.09/9.42	7.33/4.92	2.99/1.88	1.41/1.22	1.63/2.07	2.21/2.10	1.95/1.94	1.92/1.74	1.51/0.99	0.63/0.66	0.84/0.86	0.74/0.55	0.28/0.50	1.58/2.63	2.83/2.57	1.82/1.81	2.55/2.68	3.38/3.77	
θ (30°)	2.24/1.66	1.75/2.63	4.14/5.13	4.89/5.16	5.64/6.98	8.59/11.05	11.94/11.08	8.10/3.50	2.63/1.00	0.070/0.37	1.41/1.52	1.14/1.52	1.54/1.96	2.85/3.81	3.52/1.80	0.94/0.91	0.62/0.09	0.05/0.54	0.76/1.31	1.67/1.70	2.13/1.69	1.00/1.21	2.26/2.61	3.23/3.27	
θ (37.5°)	4.34/4.48	4.45/4.71	6.20/8.07	6.57/7.35	8.73/9.17	9.74/7.67	5.61/3.87	3.30/3.20	3.11/2.57	1.87/1.31	0.74/0.16	0.12/0.46	0.48/0.31	0.82/2.11	2.85/2.70	2.25/1.99	1.58/0.99	0.81/0.16	0.33/0.85	0.85/0.48	0.87/2.40	3.27/2.87	1.50/1.18	2.27/3.74	
θ (45°)	4.78/4.22	4.69/4.38	4.68/5.61	4.66/4.85	6.05/7.33	8.35/10.37	8.80/6.47	4.17/2.46	2.19/2.99	3.96/3.29	1.14/0.19	0.30/1.42	1.34/0.63	0.63/2.34	4.37/4.69	4.68/6.00	6.61/5.58	4.53/4.44	3.78/2.96	3.78/4.66	4.72/5.37	6.43/5.52	3.89/4.69	5.86/6.22	
θ (52.5°)	6.28/4.92	4.99/6.40	7.98/11.27	13.79/14.09	8.62/6.03	4.44/9.41	9.93/7.48	4.82/3.56	3.59/4.05	5.04/4.96	2.37/1.09	1.85/2.23	2.07/2.07	1.47/2.30	5.22/7.92	1.07/10.33	6.60/3.94	4.01/5.35	6.72/6.93	6.11/6.39	6.90/6.62	8.75/7.43	5.50/6.13	7.20/7.65	
θ (60°)	8.38/5.36	4.38/5.75	4.79/5.42	8.12/8.51	5.56/4.01	3.92/6.89	10.26/7.33	4.71/4.59	4.26/2.71	2.53/3.39	1.82/0.50	2.47/3.02	2.74/4.00	3.89/3.80	6.34/6.22	5.58/7.79	10.08/4.89	3.32/3.11	4.64/5.66	6.55/9.92	13.08/8.94	8.99/10.26	5.47/5.19	5.55/6.29	
θ (67.5°)	7.03/5.17	3.46/4.42	2.76/3.19	3.45/4.87	3.98/3.66	3.82/7.01	8.99/7.91	5.98/6.26	6.04/4.21	3.02/2.63	2.97/2.37	3.41/2.48	2.23/5.44	4.62/4.26	6.18/3.80	4.77/5.62	5.13/3.41	0.86/0.34	0.65/2.63	4.72/4.45	6.23/5.25	3.40/5.03	6.32/6.06	3.91/4.18	
θ (75°)	5.15/3.36	1.33/2.83	0.48/1.05	1.43/5.63	6.20/6.24	8.76/13.01	9.06/10.76	11.31/10.14	11.15/10.66	12.16/8.53	5.38/3.23	4.06/6.18	1.44/2.06	4.05/3.46	2.08/2.21	0.22/0.16	1.17/1.42	0.41/0.06	0.24/1.23	2.41/1.57	2.89/4.58	3.07/2.92	4.08/3.24	1.83/1.20	
θ (82.5°)	4.76/3.66	0.02/4.83	1.91/1.52	1.72/6.15	7.14/4.74	8.36/10.51	15.00/9.71	6.51/6.55	8.24/13.85	8.14/6.59	3.81/1.67	4.33/11.39	2.19/0.92	1.62/1.30	0.78/1.65	1.33/2.23	0.74/1.88	1.87/0.27	0.92/0.07	2.02/1.60	0.98/1.78	1.85/1.03	0.230/66	0.80/1.51	
θ (90°)	0.02/1.85	3.80/1.20	1.67/0.93	0.17/3.80	5.09/4.98	9.06/3.87	8.01/10.07	7.17/7.01	8.49/11.91	12.43/4.38	5.13/1.77	2.10/9.10	2.57/0.54	0.12/0.23	0.57/0.83	2.27/2.16	1.24/2.15	2.28/0.77	1.11/2.13	2.04/1.38	1.13/1.27	0.55/1.29	1.67/0.57	0.46/2.15	
θ (97.5°)	1.11/1.89	2.19/0.04	0.97/0.79	0.21/5.46	3.35/2.28	3.50/3.69	6.71/8.85	11.59/7.29	6.71/8.85	11.59/7.29	6.71/8.85	11.59/7.29	6.71/8.85	11.59/7.29	6.71/8.85	11.59/7.29	6.71/8.85	11.59/7.29	6.71/8.85	11.59/7.29	6.71/8.85	11.59/7.29	6.71/8.85	11.59/7.29	6.71/8.85
θ (105°)	4.930/28	0.230/25	1.010/76	1.54/4.84	1.960/47	0.97/5.08	8.59/8.69	12.36/13.59	9.42/6.48	4.22/4.68	8.25/4.28	3.03/4.14	1.28/0.84	2.00/6.55	8.58/1.12	1.952/52	0.94/1.66	1.40/1.98	2.62/1.77	1.100/50	2.562/12	1.24/2.51	-1.01/1.73	1.26/2.01	
θ (112.5°)	9.98/4.80	0.700/33	0.21/0.35	0.95/3.67	9.03/8.35	12.58/13.72	8.88/7.65	6.52/7.66	12.92/8.22	2.41/3.26	3.00/4.51	9.32/6.88	3.40/5.91	1.71/7.00	4.00/4.00	0.11/1.23	0.40/0.65	3.08/0.03	0.780/1.9	2.852/10	1.94/6.04	7.00/1.52	2.33/2.87	1.33/2.87	
θ (120°)	10.25/11.95	3.20/3.22	2.68/1.87	2.99/8.38	5.72/5.88	12.08/11.29	5.48/5.68	6.50/8.18	6.88/2.79	1.94/1.80	2.53/8.67	9.10/5.76	11.99/7.18	2.04/7.59	8.67/3.27	3.70/1.89	0.73/2.45	0.283/69	3.22/3.95	1.82/2.64	0.721/83	6.20/5.65	11.54/0.69	2.45/14.98	
θ (127.5°)	7.03/8.78	13.73/15.29	11.31/13.26	10.16/7.46	5.40/5.41	8.72/10.01	8.89/8.36	6.49/4.06	2.14/1.74	2.25/1.28	0.96/2.42	3.27/6.34	3.79/2.29	1.13/2.24	5.44/1.92	0.66/4.50	4.71/1.78	1.67/3.44	2.23/5.46	5.16/3.95	1.84/0.14	4.74/11.27	12.58/4.22	5.11/8.02	
θ (135°)	14.98/6.82	8.70/11.33	15.44/15.86	14.20/14.94	8.23/7.04	8.65/11.51	11.61/9.15	5.92/3.81	4.09/4.78	4.04/2.13	0.36/0.23	0.83/0.76	0.14/1.20	0.56/0.56	1.21/2.66	6.01/3.09	4.80/2.34	1.45/1.41	0.24/6.91	8.30/3.82	2.33/4.68	8.53/4.37	10.35/4.68	9.68/10.11	
θ (142.5°)	9.99/8.35	7.11/10.56	11.19/8.53	17.00/6.64	5.69/5.36	5.42/6.06	6.03/7.57	9.09/7.36	4.85/3.95	4.46/3.37	3.29/4.14	3.45/3.32	2.58/3.87	5.36/6.78	8.96/6.28	3.91/4.00	4.59/4.14	2.94/4.41	8.87/5.81	2.41/4.24	5.44/4.51	7.49/8.38	7.36/7.26	7.36/7.26	
θ (150°)	7.70/12.23	12.82/12.93	11.54/8.64	6.39/5.43	5.53/6.31	7.86/7.63	8.43/9.59	13.40/15.25	12.74/9.25	6.95/6.89	8.08/11.65	9.93/9.13	11.34/10.66	9.08/6.57	5.09/4.62	3.56/3.63	4.99/4.05	1.29/2.27	5.96/7.39	4.65/3.88	4.38/4.38	6.92/6.04	3.83/2.91	2.20/3.52	
θ (157.5°)	7.68/6.99	10.85/14.29	14.50/13.20	14.09/14.11	13.10/12.82	11.64/12.77	13.33/12.67	10.90/10.12	8.77/6.35	4.73/4.11	4.08/4.84	5.97/6.30	4.92/4.33	3.46/4.85	6.32/6.04	5.82/3.35	8.54/7.85	6.60/6.87	5.83/4.16	3.22/2.14	1.74/1.82	1.18/1.06	0.910/98	0.56/3.69	
θ (165°)	13.93/12.85	9.77/7.77	6.77/7.18	8.57/10.88	12.09/14.38	14.34/15.06	15.58/14.50	11.20/9.84	10.57/12.77	15.48/14.01	9.82/7.35	6.00/5.10	4.26/3.65	3.58/3.88	4.10/4.34	4.22/4.41	4.54/4.83	5.74/6.78	6.76/5.70	4.49/4.10	4.09/3.86	3.46/3.27	3.51/4.09	6.28/10.30	
θ (172.5°)	9.88/11.00	11.58/12.55	14.76/15.27	16.14/15.62	14.89/13.43	12.81/12.51	13.54/12.86	12.31/10.94	10.28/10.35	10.15/10.01	9.61/8.98	8.87/9.11	9.16/9.25	9.66/9.82	9.94/9.74	9.54/8.22	7.07/6.27	5.75/5.70	5.96/5.02	4.61/4.85	4.42/3.92	3.95/4.53	5.58/6.39	7.28/8.86	
θ (180°)	8.84/10.00	9.77/8.84	10.17/10.13	9.37/9.63	9.23/8.75	8.91/9.63	10.38/10.74	10.44/10.57	10.53/10.44	10.07/9.33	9.45/9.70	9.83/10.14	9.85/9.83	9.89/9.40	8.94/9.13	9.88/10.80	11.61/11.56	11.29/10.08	9.14/7.91	7.15/6.17	5.69/6.25	7.31/8.99	10.26/10.68	10.47/9.57	
Freq(Hz)	2.450Pol	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°)	9.37/9.20	9.01/8.31	7.81/6.74	7.51/7.89	8.12/8.37	8.84/9.43	10.14/10.85	10.99/11.01	11.26/11.20	12.10/12.30	12.56/12.98	13.19/13.53	13.74/13.64	13.15/13.33	12.64/12.38	12.06/12.02	12.11/12.53	13.05/12.32	11.45/10.66	10.26/9.60	9.55/9.70	9.63/9.38	9.36/9.47	9.46/9.23	
θ (7.5°)	11.59/11.07	10.51/9.64	8.99/6.80	8.50/8.59	8.76/9.94	9.17/9.51	9.49/9.29	9.38/9.56	9.68/9.86	10.01/9.78	9.94/9.07	9.42/9.95	10.42/10.40	10.51/10.42	10.82/10.78	11.09/11.87	11.49/11.45	12.34/13.31	11.49/11.32	11.42/11.75	11.69/11.98	12.23/13.03	13.16/12.08	13.16/12.08	
θ (15°)	8.97/8.74	8.45/8.21	8.13/8.13	8.26/8.55	8.73/8.67	8.20/8.03	8.23/8.23	8.17/8.04	7.92/7.61	7.23/6.73	6.18/5.71	5.45/5.46	5.68/6.08	6.60/7.09	7.37/7.60	7.84/8.10	8.40/8.82	9.43/10.22	10.68/10.80	10.68/10.48	10.21/9.87	9.66/9.62	9.72/9.74	9.62/9.40	
θ (22.5°)	6.69/6.75	6.78/6.66	7.03/7.37	7.07/7.91	7.70/7.04	6.73/6.74	7.49/7.80	7.81/7.29	6.29/5.18	4.21/3.52	3.20/2.34	3.50/4.00	4.68/4.52	6.20/6.81	7.35/7.71	7.77/7.75	7.84/8.02	8.06/9.99	7.85/7.67	7.27/6.68	6.22/6.20	6.51/6.70	6.78/6.73	6.78/6.73	
θ (30°)	4.97/5.11	5.22/5.47	6.02/6.75	7.40/7.58	7.29/6.99	6.80/6.76	6.41/6.43	6.66/7.19	5.64/5.95	4.49/4.93	3.41/2.36	1.78/1.64	1.87/2.51	3.56/5.04	6.60/6.20	9.42/9.98	9.45/8.89	8.30/8.04	7.70/7.39	7.04/6.59	6.08/5.35	4.81/4.61	4.62/4.55	4.56/4.73	
θ (37.5°)	2.86/2.87	2.96/3.22	3.78/4.52	5.15/5.55	5.97/6.47	6.68/6.28	5.80/5.39	5.32/5.58	5.99/5.86	4.66/2.92	1.36/0.30	0.230/2.28	1.31/1.04	2.38/4.02	5.64/6.84	7.95/9.04	9.73/9.66	9.18/8.25	7.28/6.37	5.51/4.81	4.17/3.72	3.59/3.60	3.33/2.79	2.82/2.57	
θ (45°)	1.08/1.01	1.03/1.04	1.09/1.33	1.67/2.24	3.04/4.15	4.91/4.80	4.23/4.49	2.83/2.49	2.40/2.41	2.02/1.16	0.09/0.85	1.40/1.44	0.97/0.00	1.48/3.05	4.34/5.10	6.23/7.77	9.39/10.29	9.73/9.96	6.13/4.66	3.59/2.80	2.11/1.64	1.83/2.27	2.35/1.79	1.19/0.95	
θ (52.5°)	0.010/0.1	0.22/0.13	0.26/0.59	0.69/0.34	0.54/1.66	2.48/2.74	2.41/1.69	1.03/0.64	0.51/0.55	0.43/0.4	0.73/1.39	1.50/0.90	0.37/2.40	4.83/6.21	6.20/6.38	7.13/8.19	9.60/9.98	12.09/10.75	8.53/6.53	5.15/4.16	3.11/2.10	1.45/1.40	1.50/1.16	0.53/0.09	
θ (60°)	1.43/1.54	1.00/0.34	1.40/0.92	1.59/1.65	1.40/0.92	0.26/0.57	1.27/1.45	1.33/1.35	1.72/1.95	1.78/1.26	0.49/0.31	0.34/0.96	3.64/7.08	4.83/6.21	4.21/3.62	3.95/4.65	5.63/6.67	7.34/7.44	6.89/6.85	4.62/3.59	2.61/1.40	0.290/2.8	0.500/7.1	0.94/2.1	
θ (67.5°)	2.05/0.30	2.94/2.06	1.59/1.63	1.49/1.27																					



Antenna Pattern of 2.4GHz and 5GHz U-NII 1 ~ U-NII 3

Appendix C

θ (°)	0.000 42	0.330 46	-1.13/3.70	-5.53/6.66	-4.40/4.01	-2.94/2.48	-1.78/1.31	-0.83/0.34	0.14/0.77	-1.27/1.45	-2.10/1.72	-1.55/0.25	-0.69/1.74	-1.10/2.87	-3.24/2.17	-1.28/4.10	-8.30/11.98	-11.80/7.28	-3.06/0.01	-0.11/3.37	-5.80/6.24	-6.22/6.01	-4.30/1.89	-0.30/5.2
φ (75°)	2.773 19	3.402 69	1.14/-1.19	-1.79/-1.64	-1.38/-0.83	-0.62/-0.15	0.38/0.65	1.29/1.58	2.16/2.08	1.29/-0.15	-0.37/0.03	0.31/1.18	0.99/-0.82	-0.36/0.09	-5.47/-7.59	-3.35/-4.09	-7.42/-10.62	-8.26/-3.02	1.82/2.81	2.40/-0.00	-5.67/-7.41	-3.44/-1.49	-0.69/3.31	-2.46/2.45
φ (82.5°)	3.973 12	3.063 16	2.20/0.37	-0.85/-0.75	-0.35/-0.09	0.93/1.14	0.40/0.54	2.19/3.35	3.91/3.10	2.10/1.14	1.08/0.96	0.78/1.55	1.05/-1.20	1.19/-1.04	-2.84/4.15	-1.81/1.14	-4.25/-8.58	-9.72/-7.26	-1.83/0.02	0.29/2.27	-5.88/8.37	-2.27/0.78	0.89/2.71	4.06/3.51
φ (90°)	2.322 52	4.024 29	2.330 27	0.36/-1.19	-0.66/0.51	2.04/6.62	2.46/0.86	0.08/0.11	3.18/3.78	2.69/2.85	0.73/0.93	0.40/0.93	1.59/0.25	-0.55/2.08	-3.71/3.94	-2.39/0.51	0.84/1.67	-0.97/-1.71	-2.57/-1.43	-3.63/8.06	-6.65/4.43	-1.55/0.63	0.14/2.50	3.87/3.04
φ (97.5°)	3.563 51	3.754 09	2.971 38	1.13/0.33	0.72/0.65	1.84/1.87	1.57/0.33	-3.00/0.65	1.72/2.49	2.37/2.92	0.74/0.83	-1.19/-0.60	1.28/-2.13	-2.18/-4.43	-3.92/4.83	-4.14/0.12	0.50/2.50	-4.24/-5.88	-6.90/-6.95	-7.83/-9.15	-8.96/-1.43	-2.07/0.80	0.43/1.28	2.14/3.73
φ (105°)	-0.162 39	2.922 44	1.582 27	3.48/2.65	1.52/0.85	0.97/1.36	1.71/1.92	1.30/0.18	-0.38/0.13	0.11/0.38	-1.58/2.56	-4.99/-2.34	-0.76/-2.27	-2.41/4.07	-5.61/9.23	-8.69/4.73	-2.76/7.51	-6.64/3.91	-6.38/6.94	-6.88/4.36	-2.18/-1.25	-0.01/0.53	1.05/0.13	
φ (112.5°)	-2.03/-1.57	-0.87/-0.67	0.62/1.67	2.09/1.73	0.58/0.19	-0.15/0.41	1.52/1.90	1.70/1.00	1.37/0.55	-1.07/-3.25	-6.52/9.72	-8.55/5.51	-4.81/6.13	-6.81/6.97	-9.06/8.13	-5.29/-1.48	-3.96/5.78	-3.55/-3.09	4.40/7.11	-5.87/-11.52	-10.41/4.87	-0.81/0.45	1.32/1.46	1.30/-1.32
φ (120°)	5.00/2.68	-2.07/-4.26	-4.10/-3.15	-1.76/-0.83	-0.87/-0.68	-0.75/-0.52	0.51/1.54	2.26/1.59	0.77/0.25	0.10/0.30	-2.84/-1.68	-11.93/9.05	-4.84/-1.96	-0.99/0.80	-2.22/4.29	-2.78/-0.78	-1.27/-1.49	0.06/4.39	-3.21/-6.10	-5.99/-3.60	0.63/2.62	-6.57/-4.10	-1.92/0.13	-0.95/-13.44
φ (127.5°)	6.49/-6.15	-6.15/-4.55	-7.96/-7.86	-5.83/-1.84	-0.48/-0.21	0.10/0.19	-0.18/0.10	-0.27/0.26	0.72/0.16	0.16/0.64	-3.00/-3.48	-1.42/-2.32	-4.28/3.48	-0.15/0.49	-7.20/-5.78	-3.28/10.83	-8.15/-5.62	-5.30/-3.39	-5.90/6.60	-0.38/-2.65	0.38/1.46	-7.26/7.35	-7.59/2.42	-4.39/9.64
φ (135°)	-4.32/8.35	-10.70/9.80	-9.29/7.59	-6.12/3.79	-2.11/-1.60	-1.39/-1.72	-1.67/-1.17	-0.57/-0.26	-0.20/0.27	-0.03/-0.63	-0.36/-0.44	1.29/1.13	-0.64/-3.24	-2.42/0.72	-0.01/1.44	-0.99/8.92	-9.90/4.18	-3.18/-5.03	-8.10/7.35	-11.13/9.21	-5.93/-3.76	-2.32/5.52	-9.47/5.53	-4.36/2.38
φ (142.5°)	4.44/-5.90	6.49/-5.74	-4.02/-2.07	-1.50/-4.25	-3.03/-2.89	-2.32/-1.82	-1.67/0.78	0.03/0.56	1.07/0.91	0.35/0.39	-1.48/-2.18	-1.68/0.34	1.59/2.18	1.19/0.69	-1.80/-3.32	-6.82/-10.59	-7.19/-3.36	-6.96/9.57	-13.11/-14.19	-11.37/-3.99	-4.27/-1.90	-1.86/3.73	-7.65/-15.87	-10.71/5.01
φ (150°)	-5.72/6.49	-7.24/6.50	6.31/6.40	-4.87/3.49	-2.44/-1.70	-1.78/-1.83	-1.58/1.44	-1.11/0.45	0.21/0.55	0.57/0.03	-0.42/-1.85	-3.24/-8.04	-2.70/3.03	-6.37/7.66	-1.83/0.54	-6.80/0.91	0.30/0.09	-2.70/3.60	-3.28/5.72	-10.77/-7.24	-3.60/-1.80	-5.75/0.08	-8.40/-14.98	-9.16/6.31
φ (157.5°)	-8.19/-10.98	-10.57/8.90	-7.31/6.04	-4.97/3.03	-1.27/0.20	1.10/1.09	0.28/-0.65	-1.26/-1.69	-2.05/3.31	-4.56/4.74	-3.76/2.89	-2.13/-1.56	-1.10/-1.05	-1.79/2.89	-3.49/3.53	-4.59/5.37	-4.64/5.32	-6.22/6.09	-8.19/12.63	-12.51/9.58	-6.10/3.95	-3.43/4.02	-4.99/6.00	-5.79/6.12
φ (165°)	4.25/2.27	-1.27/0.75	-0.79/0.80	-0.27/1.30	-1.44/-1.41	-1.07/-1.25	-1.94/2.75	-3.66/4.71	-5.26/-5.16	-4.71/4.48	-4.50/-4.79	-5.43/6.86	-8.63/-10.10	-11.67/-11.94	-9.74/7.68	-6.88/5.21	-3.84/4.07	-5.33/7.26	-9.54/11.96	-12.27/-11.78	-10.11/6.62	-7.96/7.67	-7.60/7.74	-7.43/5.76
φ (172.5°)	6.19/-4.47	-3.55/-2.56	-2.03/1.58	-1.21/1.34	-1.49/-1.91	-2.01/-2.42	-3.03/3.33	-3.62/3.87	-3.74/-3.61	-4.21/5.65	-7.53/9.17	-10.68/10.66	-9.96/9.47	-7.68/6.02	-4.69/3.75	-2.98/2.41	-2.47/3.40	-4.85/7.17	-6.17/5.98	-5.21/5.08	-5.54/7.38	-9.35/-10.65	-10.11/9.75	-8.10/6.94
φ (180°)	4.81/4.67	-5.01/5.30	-6.16/6.68	-7.20/7.63	-7.59/6.93	-6.74/6.59	-6.45/6.07	-5.66/6.26	-7.80/10.20	-12.78/-14.71	-14.50/-14.19	-12.46/-10.92	-10.02/8.94	-8.01/7.29	-7.14/7.04	-7.17/7.26	-8.05/8.42	-7.75/6.00	-5.04/4.46	-3.85/3.56	-3.96/4.71	-5.33/5.41	-5.11/4.92	-4.23/4.38
Freq(Hz)	5.785GPol	TotalAnt.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	φ(0°)φ(75°)	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°)
φ (0°)	-2.70/3.09	-3.45/3.31	-2.91/3.03	-3.02/3.22	-3.95/4.41	-4.64/4.61	-4.55/4.13	-4.00/4.09	-4.16/4.40	-4.70/4.77	-4.93/5.06	-5.19/5.23	-5.12/4.87	-4.42/4.04	-3.55/3.40	-3.53/3.67	-3.95/3.75	-3.59/3.56	-3.66/3.74	-3.77/3.80	-3.78/3.55	-3.75/3.68	-3.19/2.49	-2.21/2.24
φ (7.5°)	-3.05/3.30	-3.16/2.82	-2.82/3.17	-3.30/3.27	-3.29/3.02	-3.49/3.53	-3.66/3.76	-3.40/2.69	-2.54/2.97	-3.31/3.31	-3.28/3.27	-3.38/3.52	-3.62/3.90	-4.31/4.42	-4.41/4.58	-4.82/4.68	-4.16/3.53	-3.24/3.54	-3.71/3.61	-3.89/3.68	-3.35/3.28	-3.14/2.88	-2.70/2.83	
φ (15°)	-1.28/1.23	-1.29/1.43	-1.74/1.96	-2.13/2.09	2.65/4.46	-3.63/3.46	-3.28/1.32	2.92/2.94	-2.78/2.70	2.54/2.11	-1.70/1.45	-1.44/1.73	2.13/2.60	3.06/3.91	-4.79/5.66	6.05/6.53	-6.87/6.82	-6.14/5.32	-4.37/4.07	-3.67/3.33	3.11/2.31	-1.49/0.79	-0.25/0.42	-1.03/1.34
φ (22.5°)	0.66/0.61	0.38/0.51	-0.44/-3.09	-0.47/-1.62	-2.82/3.48	-4.58/5.29	-4.98/4.44	-3.56/2.95	-2.84/2.76	-2.26/-1.65	-1.23/0.95	-1.32/2.09	2.35/2.28	2.95/4.26	-4.24/2.49	-1.28/1.17	-1.56/2.32	-3.61/5.80	-4.87/2.98	-6.90/5.80	-4.87/2.98	-1.49/0.06	1.02/1.02	0.18/0.83
φ (30°)	-0.15/0.30	0.30/0.51	-0.11/0.34	-0.48/-1.90	-1.39/-1.96	-3.23/3.73	-3.96/4.29	-4.74/4.77	-3.77/2.53	-1.46/0.61	0.13/0.11	-0.40/0.78	-1.66/3.06	-3.68/3.11	-0.50/0.46	0.98/0.63	-0.77/2.73	-4.52/6.21	-6.32/6.01	-5.66/3.90	-2.13/1.40	-1.26/0.49	0.77/1.19	1.00/0.43
φ (37.5°)	-1.62/0.79	-0.07/0.19	-0.89/-1.39	-1.37/-1.10	-1.00/-1.98	-2.76/2.40	-5.78/5.85	-4.13/-3.01	-2.15/-1.36	-1.34/-1.94	-1.19/0.24	-0.23/0.27	-6.04/8.29	-8.78/7.59	-3.77/1.55	-1.28/2.47	-2.40/2.79	-3.45/2.98	-2.83/2.54	-1.64/0.91	-1.58/1.94	-2.30/3.05	-2.65/1.97	-3.27/3.53
φ (45°)	-9.35/6.60	-5.40/3.69	-2.30/-1.16	-1.64/2.72	-4.42/7.18	-8.72/9.38	-7.87/5.97	-4.69/3.49	-2.29/-1.63	-0.36/0.09	-0.54/-1.19	-0.63/0.67	-3.41/9.25	-7.01/3.46	0.96/0.13	-1.84/2.80	-3.30/1.41	-1.21/2.62	0.00/0.20	0.11/1.49	-5.34/10.75	-13.91/10.63	-11.33/10.54	
φ (52.5°)	-7.38/8.92	8.34/3.76	-7.51/8.23	-9.71/11.56	-10.64/8.48	-8.98/7.38	-6.86/4.04	-5.91/1.93	-2.57/1.95	-1.56/1.95	-0.79/1.09	-2.20/4.99	-1.87/0.58	-0.40/0.82	-2.24/6.21	-6.14/7.04	-7.83/4.83	-1.06/0.22	0.72/1.40	-6.83/3.99	-7.88/8.95	-7.75/6.62	-6.92/7.69	
φ (60°)	4.79/4.79	-4.67/3.87	-4.48/5.37	-7.21/10.27	-10.74/8.16	-5.76/4.06	-3.64/3.00	-1.76/0.41	0.42/0.05	-1.40/2.47	-2.58/2.21	0.22/1.21	-1.41/3.98	2.79/2.75	-2.84/0.24	0.41/0.44	5.53/7.28	-5.22/2.03	-0.19/1.31	1.30/1.38	-3.82/6.45	-7.68/5.30	-4.42/4.89	-6.64/5.53
φ (67.5°)	0.69/0.22	0.30/0.27	-0.96/-2.07	-3.15/-5.87	-7.41/5.32	-3.42/2.25	-2.52/3.09	-2.53/-1.31	-0.16/0.25	-1.11/2.23	-2.51/2.35	-0.60/0.76	-1.17/2.10	-4.86/5.12	-6.13/2.70	-0.40/3.91	-8.48/9.19	-8.41/3.37	-1.32/2.62	-4.05/6.95	-8.64/4.76	-3.77/2.88	-1.89/0.30	
φ (75°)	3.13/3.27	2.40/2.06	1.16/0.42	-1.53/-2.95	-3.87/4.03	-6.27/2.20	-3.82/3.56	-2.92/0.97	1.02/1.99	2.08/1.20	0.65/0.36	-0.62/0.01	1.39/0.40	-0.98/0.73	-6.35/10.69	-9.98/6.04	-10.19/9.55	-8.42/3.73	-1.32/0.25	-0.89/5.29	-7.40/12.05	-6.22/0.93	0.40/0.69	0.37/1.95
φ (82.5°)	2.95/3.10	2.80/3.02	1.61/0.26	0.58/0.09	-1.74/-1.36	-0.60/0.53	-0.43/1.50	-3.01/1.67	1.14/2.84	2.92/2.43	0.35/0.79	-1.20/0.74	1.14/0.50	1.08/1.85	-2.67/6.95	-4.59/2.13	-7.09/12.51	9.50/8.98	-1.08/0.45	2.54/8.99	-13.41/8.82	2.48/0.55	-0.62/0.78	1.19/2.22
φ (90°)	3.63/3.80	2.62/1.66	0.72/0.17	0.56/0.17	0.74/0.56	1.72/2.00	1.51/0.22	-1.92/-8.20	-0.84/0.74	1.05/0.64	0.42/0.24	-0.45/-2.42	-0.92/2.15	1.54/2.45	-9.42/4.35	-4.94/5.32	-2.52/4.51	-2.67/2.24	-7.75/12.27	-4.52/2.21	0.77/0.74	-2.33/0.49	1.21/2.68	
φ (97.5°)	3.11/1.55	1.46/0.48	-0.01/0.94	2.18/1.51	0.69/0.54	0.98/1.27	1.43/0.42	-2.09/5.54	-5.12/3.08	-1.87/0.35	0.07/0.19	-1.72/7.86	-1.06/1.16	-1.99/2.09	-5.14/3.57	-6.94/4.89	-0.11/0.19	-1.24/4.98	-10.24/12.60	-12.59/5.53	-5.80/1.71	-3.75/0.91	-1.48/-1.06	2.24/4.04
φ (105°)	2.322 27	0.87/0.88	0.58/1.99	2.58/2.00	1.95/0.34	-0.56/0.53	1.63/2.39	1.91/0.71	-1.39/-1.64	-1.43/3.28	-5.84/5.39	-4.69/6.87	-3.39/-1.89	-5.12/6.77	-7.36/6.29	-8.18/7.56	-1.92/4.27	-5.71/4.07	-8.68/6.56	-8.19/7.59	-4.73/4.61	-2.43/0.91	-0.91/2.01	0.56/2.37
φ (112.5°)	0.54/0.64	-1.46/-2.80	-2.09/0.66	1.04/1.57	1.93/1.18	0.61/0.26	1.25/2.13	2.07/2.48	1.44/0.75	-1.46/3.25	-4.22/8.00	-12.84/10.66	-6.73/6.35	-7.36/7.75	-7.42/6.04	-2.26/2.01	-4.89/5.04	-5.27/3.98	-4.76/8.16	-11.68/8.48	-6.27/5.21	0.59/1.68	0.79/0.31	0.31/0.73
φ (120°)	0.18/0.42	-4.69/4.09	-6.25/3.90	-0.87/1.33	2.07/1.47	-0.03/0.75	1.01/1.33	2.78/2.94	2.28/1.12	1.31/1.41	-0.50/0.72	-1.25/8.69	-6.39/3.35	-1.83/0.37	-2.01/5.05	-1.41/1.57	-3.06/7.47	-2.21/5.05	-1.41/4.48	-2.31/2.27	0.81/1.			



Antenna Pattern of 2.4GHz and 5GHz U-NII 1 ~ U-NII 3

Appendix C

θ (112.5°)	-1.30/0.79	-1.43/4.00	-9.05/11.06	-9.86/9.76	-9.98/8.53	-6.42/6.06	-6.63/7.23	-7.57/6.04	-5.40/5.22	-4.69/4.38	-4.10/3.04	-1.52/0.33	-2.56/2.09	-1.70/3.01	-5.46/13.73	-8.23/6.54	-4.35/8.13	-8.05/8.67	-8.76/8.93	-5.75/3.44	-1.85/1.66	2.75/1.45	0.57/0.17	-1.71/1.53	
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°)	
Gain	2.63/2.85	3.00/3.00	2.85/2.94	2.96/3.06	3.00/3.08	2.89/2.54	2.23/2.04	1.88/1.81	1.83/1.94	1.97/1.82	1.80/1.69	1.58/1.43	1.35/1.33	1.11/1.05	0.78/0.77	0.76/0.78	0.84/0.68	0.69/0.56	0.69/1.00	1.15/1.17	1.20/1.25	1.62/2.06	2.54/2.51	2.41/2.28	
Gain	1.52/1.58	1.28/1.01	0.94/0.83	1.05/1.00	0.81/0.90	0.86/0.56	0.49/0.59	0.75/0.87	1.26/1.52	1.67/1.71	1.87/2.12	2.52/2.79	2.93/3.00	3.14/3.41	3.45/3.47	3.40/3.35	3.30/3.29	3.47/3.57	3.31/2.94	2.98/2.98	3.02/2.95	2.78/2.43	2.12/1.96	1.68/1.34	
Gain	2.00/1.58	1.17/0.90	0.77/1.03	1.36/1.44	1.63/1.64	1.52/1.26	1.10/1.03	1.19/1.53	1.90/2.57	3.27/3.82	4.11/4.24	4.30/5.56	6.47/6.46	6.19/5.35	5.69/5.68	5.07/4.36	3.96/3.85	3.89/3.62	3.46/3.03	3.28/3.62	2.53/2.18	1.97/1.92			
Gain	1.68/1.88	1.90/1.41	0.95/0.90	0.86/0.87	1.28/1.57	2.15/2.62	3.04/4.01	5.12/5.69	5.81/6.25	6.54/6.92	7.30/8.00	8.44/8.25	7.18/6.32	6.33/6.79	7.01/7.06	6.72/6.48	6.18/5.87	5.46/4.62	3.92/3.13	2.27/1.76	1.29/0.85	0.52/0.25	0.16/0.21	0.84/1.46	
Gain	1.98/3.16	3.42/3.06	2.27/1.77	0.97/0.62	0.57/1.25	2.23/3.27	4.31/4.82	4.45/3.60	3.48/4.14	5.67/7.65	9.14/10.51	11.57/12.49	11.54/9.81	8.77/8.59	8.23/7.49	7.04/7.34	7.98/8.03	6.53/4.32	2.67/1.62	0.80/0.50	0.37/0.06	0.14/0.38	0.33/0.34	-0.25/0.80	
Gain	3.12/4.51	5.79/5.54	3.32/1.49	0.18/0.45	0.67/0.30	0.49/1.71	2.27/1.19	1.57/1.13	1.22/2.10	3.70/6.28	8.68/8.93	9.08/7.28	5.98/6.62	5.47/5.49	5.81/6.92	7.81/8.05	7.63/7.50	6.85/5.54	5.42/5.11	4.08/4.21	1.03/0.90	1.05/0.37	0.28/0.38	0.28/1.50	
Gain	1.75/3.19	4.01/4.54	3.05/1.51	0.70/0.50	1.02/0.68	0.29/0.50	0.91/1.14	1.02/1.01	1.22/1.12	3.51/5.15	6.04/6.80	5.41/5.02	4.33/4.39	3.92/2.93	3.12/3.71	4.99/7.07	9.70/9.69	8.81/6.23	3.63/1.37	0.86/2.38	3.19/2.10	2.03/2.27	1.65/0.79	0.42/0.54	
Gain	1.92/0.96	0.10/1.51	1.50/1.55	0.76/0.79	1.04/0.93	0.90/0.47	0.12/0.32	0.87/1.53	2.06/2.69	2.52/2.56	2.98/3.89	4.08/4.47	3.32/1.76	2.22/2.50	3.15/2.93	3.09/4.58	7.47/11.66	12.81/10.06	8.50/8.59	6.59/3.98	3.49/2.54	1.26/1.29	1.23/0.24	0.51/1.83	
Gain	3.02/2.35	1.56/1.20	2.63/3.23	1.11/1.14	1.75/2.12	1.80/1.39	1.08/0.53	0.78/2.70	4.06/4.49	1.33/0.09	0.62/0.63	1.08/1.55	0.50/0.66	0.27/0.79	2.62/4.04	4.30/8.13	10.83/10.16	8.66/6.06	4.59/5.40	4.01/3.41	3.50/3.12	2.64/2.27	1.59/0.19	1.00/2.67	
Gain	3.503/6.1	2.601/4.9	0.46/1.61	1.99/0.75	1.01/1.78	1.43/1.49	2.00/3.73	0.95/0.71	2.45/1.42	1.37/2.96	2.97/1.29	0.06/0.66	0.20/0.45	6.00/4.31	4.84/7.43	9.20/7.83	5.37/3.32	3.14/2.42	1.52/1.79	1.82/2.53	2.89/2.14	1.02/0.41	0.39/0.41	1.64/3.69	
Gain	3.26/2.57	2.08/1.51	0.84/0.86	2.24/2.83	-1.80/1.13	0.96/0.77	0.50/0.34	1.50/3.4	2.13/3.35	1.86/0.49	0.65/1.06	1.44/0.65	1.00/0.66	2.52/5.21	5.31/4.71	8.13/14.08	7.19/4.29	2.72/3.20	3.06/1.03	0.50/0.14	1.07/1.54	-0.19/0.98	1.54/3.59		
Gain	2.65/2.12	2.92/2.59	1.34/1.30	3.86/4.01	2.16/1.79	2.42/3.20	2.62/2.91	4.18/3.36	3.60/2.05	0.32/0.05	2.38/4.39	4.56/1.01	1.16/0.89	1.93/4.47	4.19/6.33	8.01/12.42	5.33/1.69	2.49/2.52	4.17/3.16	0.70/0.55	0.09/0.68	0.32/0.24	0.72/2.69	2.75/2.61	
Gain	2.35/3.7	4.53/3.79	1.45/1.96	4.32/5.52	4.26/2.25	3.48/1.84	1.79/2.66	1.52/0.19	0.39/0.08	0.21/1.21	4.72/7.13	2.98/0.59	3.07/0.58	0.92/0.84	7.91/4.72	6.72/13.24	6.89/3.34	6.81/6.34	5.23/4.41	1.34/0.28	0.16/0.21	0.30/0.22	0.58/0.96	0.92/0.63	
Gain	0.56/2.27	4.12/3.33	0.28/3.17	4.91/2.86	2.78/5.48	5.85/4.13	4.45/5.15	6.59/3.75	2.25/2.02	2.40/4.00	7.47/8.00	2.84/0.04	0.96/0.96	1.54/4.91	1.29/4.72	4.54/9.91	1.02/4.63	3.49/4.72	0.64/2.00	0.99/0.60	0.80/0.46	0.19/0.80	2.24/2.72		
Gain	0.06/0.38	2.03/0.93	1.30/5.66	5.76/5.07	4.63/5.29	8.54/9.22	5.78/2.62	6.57/3.94	3.96/0.45	5.91/7.58	8.18/7.67	2.94/2.32	0.29/0.91	1.63/2.59	7.11/6.56	9.35/8.14	6.26/3.74	5.02/3.55	3.14/4.74	0.60/0.21	0.10/0.93	1.18/0.05	1.33/0.71	1.28/1.76	
Gain	2.27/0.54	1.77/0.61	4.69/11.49	13.48/11.51	12.59/11.47	7.67/7.53	7.66/7.21	8.09/7.31	5.23/5.18	4.89/4.76	3.63/2.35	0.44/4.11	4.05/4.34	6.19/9.56	8.21/6.42	4.41/7.27	7.95/8.78	2.05/0.33	0.03/0.86	1.77/0.30	0.03/0.86	1.77/0.30	1.04/0.08	2.18/2.77	
Gain	3.57/0.56	0.57/0.16	4.85/9.65	12.62/12.82	11.68/13.51	9.23/7.32	7.85/11.23	14.01/10.00	7.03/7.27	7.04/6.28	4.00/2.65	0.35/0.11	0.33/1.76	4.19/5.91	5.74/15.26	6.31/11.20	6.82/9.36	4.75/6.91	8.07/8.29	3.62/2.22	1.72/0.56	3.39/2.28	1.23/1.40	3.38/4.35	
Gain	4.45/2.24	3.31/3.25	6.86/8.29	9.51/13.80	10.93/7.91	7.61/9.48	11.22/11.31	9.04/7.73	8.89/10.18	11.22/5.51	3.21/1.23	0.96/2.89	1.27/1.65	3.32/0.77	2.10/1.06	11.80/6.10	5.73/7.19	7.89/4.98	8.84/10.36	7.39/3.51	5.37/9.95	9.12/6.94	2.80/3.36	4.97/4.57	
Gain	7.43/5.22	4.64/4.14	4.99/7.20	7.82/8.41	8.43/9.67	12.07/14.56	13.16/8.77	8.72/9.38	9.72/8.32	5.38/4.67	5.86/8.08	8.78/8.68	13.21/10.12	9.58/3.11	4.10/10.04	5.00/5.53	5.46/5.42	7.20/8.99	8.78/2.27	6.33/6.63	9.10/6.90	5.53/2.54	7.45/6.27		
Gain	5.95/7.26	6.62/4.62	3.45/4.85	7.87/11.87	12.83/13.62	14.14/12.87	10.84/8.98	7.64/6.90	5.24/5.27	6.34/5.49	4.61/5.53	7.26/9.07	9.84/6.33	5.62/5.66	4.78/6.06	2.46/1.54	3.53/4.81	5.85/8.08	10.23/8.94	8.95/5.68	7.47/6.17	5.23/6.67	6.98/8.19	7.60/6.07	
Gain	9.34/7.92	6.89/5.80	5.19/5.60	6.55/6.86	6.16/6.77	8.70/9.39	9.01/7.71	5.88/5.21	5.78/6.93	5.10/3.05	2.89/3.04	2.41/1.49	2.40/4.29	2.34/0.22	0.09/2.05	6.14/8.53	8.62/9.47	11.17/13.06	13.76/10.72	14.41/11.38	6.88/4.85	4.04/3.65	4.19/5.53	7.81/9.14	
Gain	4.04/5.45	7.45/9.67	9.25/8.75	9.80/12.50	15.54/12.50	9.59/7.99	7.25/7.04	7.04/6.16	4.34/2.96	2.62/3.62	6.84/10.11	9.61/6.48	5.23/4.99	4.43/2.76	1.19/0.99	1.95/3.45	6.23/10.01	14.11/15.21	12.24/8.84	8.65/10.14	9.29/6.06	3.82/2.43	1.61/1.70	2.34/3.28	
Gain	3.43/5.43	7.72/9.05	8.28/8.10	8.44/8.66	9.68/8.29	6.81/6.98	6.86/6.26	5.65/5.06	4.42/4.09	6.11/6.68	6.34/5.19	4.17/3.67	3.31/2.60	2.20/2.40	3.73/5.82	8.84/11.29	11.58/11.83	12.57/12.65	12.27/10.78	8.34/6.56	4.92/3.77	2.71/2.27	2.16/2.50		
Gain	6.31/6.70	6.90/6.95	6.94/6.96	7.42/8.08	8.92/9.21	9.06/8.92	8.40/8.11	7.20/6.49	6.04/6.11	6.26/6.58	6.83/6.83	6.86/7.12	7.43/7.55	8.22/9.44	11.58/14.17	15.07/13.20	11.22/9.21	7.98/7.49	7.79/8.55	8.66/7.97	7.34/6.12	5.57/5.39	4.97/4.95	5.29/5.71	
Gain	10.86/11.37	12.04/11.63	11.48/11.99	12.21/12.51	13.23/13.25	13.83/13.26	12.82/12.54	12.26/12.05	11.39/11.63	12.78/13.72	15.16/15.70	15.46/13.99	12.65/11.29	10.64/9.69	9.01/8.52	8.11/7.44	6.82/6.62	6.90/7.58	8.19/8.96	9.58/9.80	10.21/10.31	10.51/10.65	10.14/10.21	10.43/10.77	
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°)	
Gain	4.26/4.14	4.03/3.84	3.51/3.31	3.33/3.44	3.69/4.16	4.86/5.09	5.23/5.59	5.24/5.06	4.82/4.54	4.45/4.63	4.68/4.64	4.65/4.49	4.12/3.92	3.47/3.45	3.45/3.29	3.40/3.48	3.55/3.55	3.36/2.85	2.87/2.97	3.48/3.32	3.80/3.54	3.76/3.48	4.68/4.46	4.48/4.25	
Gain	3.99/4.00	4.02/4.52	4.40/4.41	4.08/4.04	3.74/3.76	4.12/4.44	4.62/4.61	4.43/4.21	4.34/4.57	4.48/4.33	4.27/4.36	4.48/4.61	4.62/4.46	4.50/4.93	4.40/4.85	4.83/4.84	4.76/4.63	4.32/3.99	3.77/3.84	4.07/3.93	3.60/3.30	3.39/3.81	4.10/4.35	4.21/4.14	
Gain	4.59/4.52	4.77/4.76	4.86/4.51	4.27/3.91	3.51/3.74	4.03/4.50	4.68/4.56	3.82/3.04	2.71/2.67	2.82/2.99	3.33/3.57	3.70/3.91	4.09/4.37	4.83/5.43	5.74/5.69	5.46/5.40	5.21/4.75	4.10/3.85	4.01/4.07	3.70/3.27	3.23/3.56	4.14/4.77	5.12/4.50	5.15/4.98	
Gain	5.86/5.94	4.72/3.83	3.63/3.40	2.74/1.94	1.74/2.51	3.30/4.60	5.79/6.27	5.80/5.18	4.48/4.06	4.04/4.29	4.53/4.63	4.57/4.42	4.49/5.07	5.75/6.43	6.57/5.85	5.21/4.98	4.50/3.92	3.25/2.77	2.27/1.73	1.41/1.90	0.65/0.83	1.21/1.16	2.15/3.02	4.00/4.99	
Gain	5.37/5.29	4.80/4.55	4.40/3.81	2.61/4.45	1.20/1.24	1.75/2.79	3.82/4.85	5.34/5.15	6.90/7.63	7.54/7.50	6.34/5.77	5.82/6.63	6.01/6.68	6.84/6.63	8.01/7.72	8.86/8.48	8.60/7.29	5.86/4.88	4.38/3.62	2.79/1.26	2.00/1.75	1.32/0.82	1.07/1.39	1.36/1.72	2.38/3.52
Gain	5.40/6.58	7.84/7.17	6.00/3.57	1.11/0.34	0.93/1.38	1.15/0.06	1.46/3.10	4.37/4.59	4.16/4.36	5.47/7.45	7.10/5.68	5.73/5.39	4.19/4.91	6.61/8.22	8.88/8.12	8.12/8.21	8.46/8.36	5.83/3.27	2.03/1.26	0.48/0.02	0.29/0.68	0.55/1.14	1.50/2.13	3.03/4.79	
Gain	2.10/2.64	3.86/5.22	7.60/6.49	2.95/0.37	0.94/1.19	0.45																			

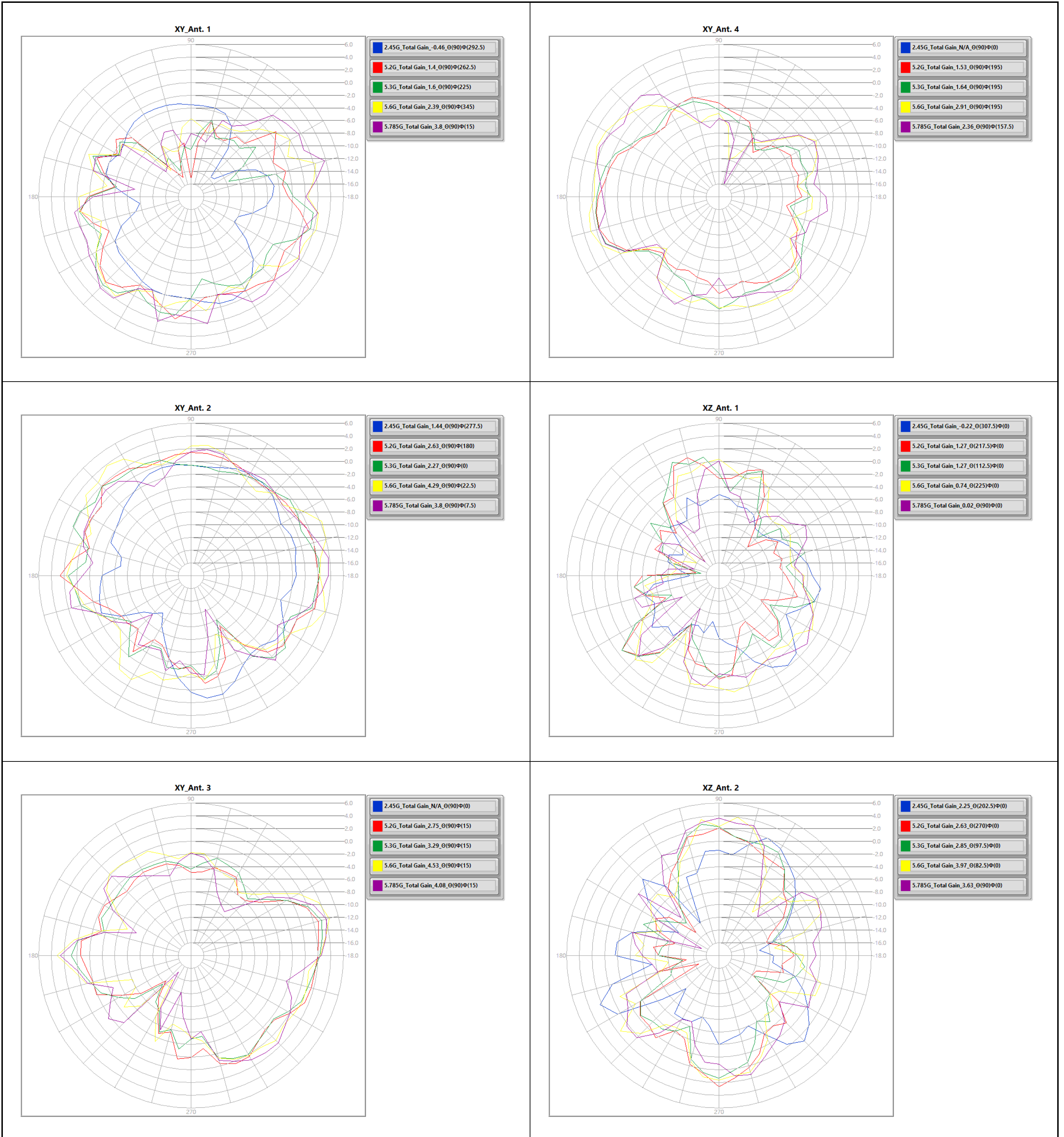


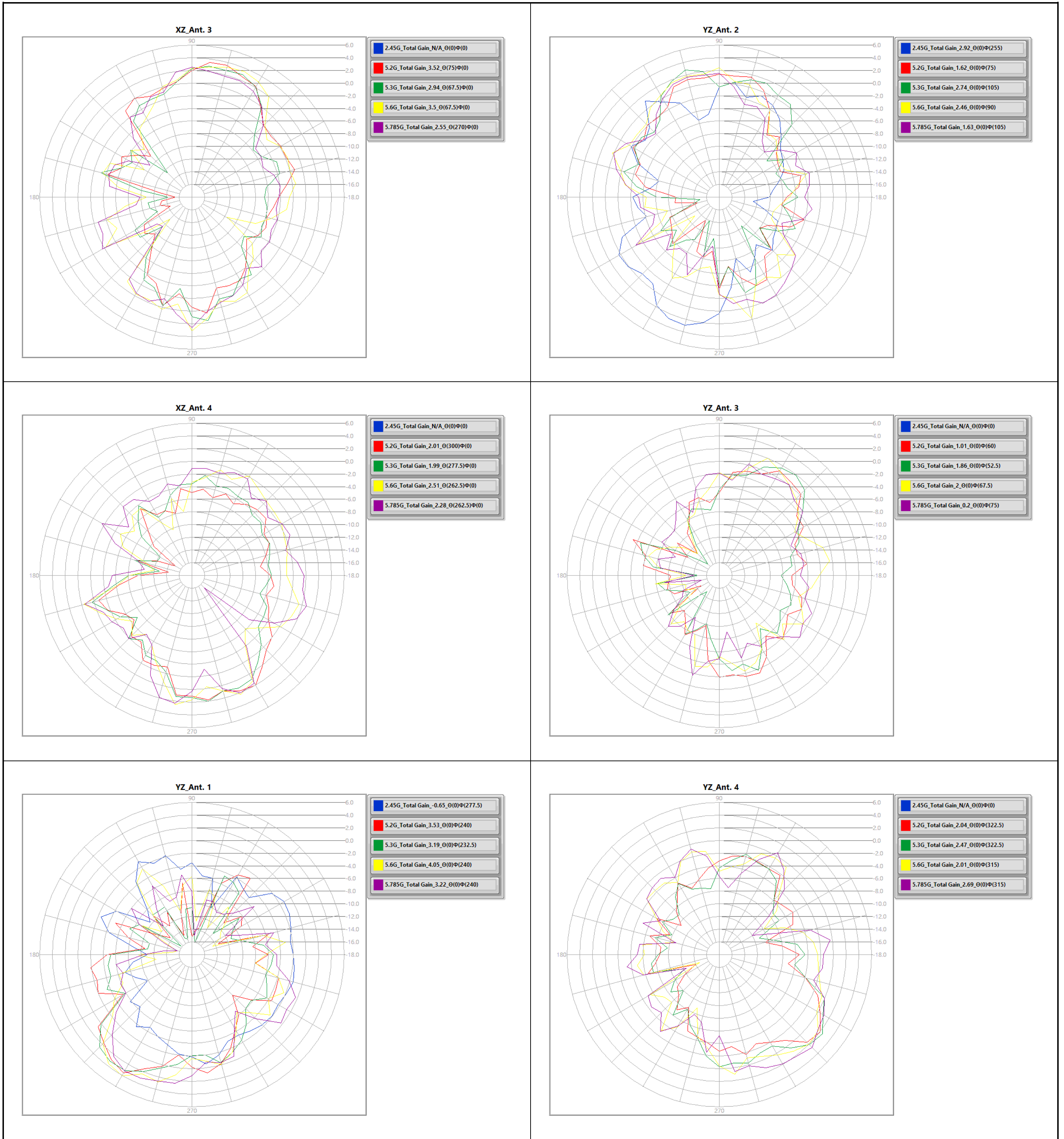
Antenna Pattern of 2.4GHz and 5GHz U-NII 1 ~ U-NII 3

Appendix C

Theta (°)	15.01/11.87	6.51/6.03	5.92/5.01	7.13/12.55	11.51/9.20	9.75/8.22	6.63/5.24	4.47/4.41	4.78/4.92	4.32/3.52	2.93/2.77	2.87/3.62	5.80/9.40	11.77/11.32	8.67/10.04	9.62/8.95	12.63/15.44	11.90/10.91	11.75/12.44	12.09/9.57	8.31/8.91	8.64/8.04	7.90/8.03	9.88/12.55	
Theta (157.5°)	-11.99/-8.56	-6.02/-5.95	-7.37/-7.51	-8.01/-11.12	-14.83/-12.26	-13.00/-12.24	-9.58/-7.50	-6.74/-6.33	-5.70/-4.71	-3.60/-2.53	-2.10/-2.07	-2.32/-2.98	-3.67/-4.85	-5.14/-4.11	-3.53/-3.37	-3.12/-4.53	-8.42/-14.12	-15.33/-15.42	-13.96/-13.37	-13.19/-11.92	-9.36/-6.85	-5.16/-4.60	-4.84/-5.09	-7.30/-9.79	
Theta (165°)	-9.15/-9.15	-7.51/-6.87	-7.81/-9.21	-9.45/-9.83	-9.82/-8.79	-7.38/-6.90	-6.58/-5.85	-5.65/-5.38	-4.94/-4.00	-2.91/-2.06	-1.48/-1.29	-1.65/-2.23	-2.80/-3.27	-3.69/-4.10	-4.99/-6.63	-9.07/-11.58	-6.42/-7.50	-8.60/-9.14	-8.29/-6.69	-5.68/-5.49	-5.60/-6.12	-4.92/-4.90	-5.60/-6.12	-7.54/-8.94	
Theta (172.5°)	-14.28/-13.64	-11.53/-10.95	-11.87/-12.66	-12.36/-11.58	-11.30/-10.27	-9.13/-8.73	-8.73/8.04	-7.31/6.63	-6.20/5.90	-5.66/5.42	-5.37/5.28	-5.32/5.68	-6.33/7.18	-8.78/10.45	-14.15/14.84	-13.62/10.62	-8.12/6.74	-6.46/6.83	-7.85/9.38	-10.05/10.38	-10.03/9.53	-9.19/9.61	-11.15/13.09	-15.84/15.26	
Theta (180°)	9.56/9.35	9.31/9.60	9.67/8.93	8.69/9.62	9.98/9.69	8.78/8.55	8.65/8.52	7.99/7.44	7.22/7.15	7.34/7.77	8.13/8.51	9.41/10.70	11.27/12.18	12.31/11.98	10.59/9.77	8.97/8.76	8.74/8.88	9.28/10.23	11.30/11.93	11.74/11.03	10.63/10.59	10.81/11.47	11.35/10.83	10.03/9.89	
Freq(Hz)	5.3GPol	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°)	
Theta(0°)	5.46/5.63	5.61/5.46	5.58/5.75	6.06/5.79	5.88/5.50	4.94/4.63	4.47/4.51	4.44/4.61	4.85/4.93	4.95/5.08	5.31/5.45	5.73/5.89	5.97/6.17	6.37/6.43	6.37/6.43	5.98/5.66	5.67/5.53	5.59/5.63	5.65/5.72	5.74/5.44	5.32/4.99	4.91/5.13	5.19/5.21	5.07/5.08	5.28/5.59
Theta(7.5°)	5.84/5.92	6.23/6.37	6.44/7.07	7.38/7.09	6.96/6.81	6.45/6.16	5.66/5.76	5.43/5.54	5.58/5.64	5.50/5.34	5.40/5.53	5.88/6.09	6.22/6.54	6.92/6.77	6.14/5.62	5.15/4.90	4.65/4.47	4.76/5.43	5.99/6.43	6.33/5.95	5.53/5.46	5.39/5.06	4.92/4.90	5.06/5.42	
Theta(15°)	5.31/5.35	5.67/6.60	8.02/8.85	10.17/11.25	11.36/10.87	10.80/10.53	9.21/8.23	7.20/6.59	6.11/5.56	5.13/5.00	5.11/5.50	6.05/6.66	6.94/7.21	6.94/6.09	4.63/4.08	3.57/3.26	2.89/2.74	2.99/3.61	3.95/4.18	4.14/3.49	3.14/3.01	2.98/2.97	3.51/4.25	4.35/4.81	
Theta(22.5°)	4.77/5.28	5.08/5.91	7.22/8.29	8.96/10.29	11.52/11.54	11.86/11.80	11.16/9.00	7.52/6.16	5.07/4.27	3.77/3.59	3.87/4.04	4.34/4.79	5.23/5.50	4.89/3.76	2.77/1.96	1.31/1.75	0.48/0.46	0.66/0.55	0.08/0.26	0.53/0.42	0.33/0.09	0.28/0.74	1.52/2.53	3.54/4.35	
Theta(30°)	5.21/5.68	5.49/5.30	5.98/6.75	6.03/4.89	4.88/6.02	6.93/7.30	7.09/6.54	5.33/3.88	2.33/1.24	0.63/0.64	0.99/1.55	2.46/3.70	4.97/5.32	4.55/3.42	1.74/0.40	0.34/0.66	0.91/1.21	1.47/1.29	0.89/0.51	0.33/0.40	0.79/0.05	0.88/0.70	0.16/0.77	2.32/4.32	
Theta(37.5°)	4.34/4.37	4.15/4.30	4.21/4.34	4.22/3.92	4.81/6.65	8.87/9.14	7.36/5.78	4.07/2.71	1.63/0.73	0.05/0.12	0.12/0.57	1.67/3.55	4.83/4.80	3.91/2.50	0.99/0.36	0.05/0.59	1.44/1.71	1.44/1.79	2.47/2.76	2.34/1.49	0.59/0.03	0.64/1.17	1.16/1.20	1.51/2.82	
Theta(45°)	4.56/4.71	3.53/3.92	3.94/3.62	4.14/5.71	7.95/8.50	7.89/7.40	5.83/4.30	3.14/2.39	2.06/1.55	0.82/0.29	0.32/0.35	0.52/1.41	2.60/2.80	3.46/3.31	2.23/0.99	0.50/1.69	2.44/2.81	2.91/2.60	2.03/1.82	1.99/1.79	0.88/0.97	2.44/3.26	3.00/2.91	3.34/3.37	
Theta(52.5°)	3.46/4.48	3.67/3.48	3.72/5.19	7.89/8.30	6.52/5.34	4.02/3.47	3.26/2.46	2.02/1.72	1.26/1.14	1.57/2.02	2.33/2.05	0.53/0.90	0.90/0.97	4.16/4.89	4.81/3.50	1.80/0.36	0.68/0.74	0.77/0.68	0.56/0.68	0.46/0.12	0.52/1.30	2.34/3.04	2.98/2.51	3.03/2.98	
Theta(60°)	3.58/3.21	2.07/1.98	3.19/5.00	7.64/6.92	5.83/5.16	4.22/3.34	2.41/1.29	0.84/0.38	0.29/0.08	0.09/0.74	1.41/2.64	1.77/0.15	0.87/1.74	0.38/3.65	5.90/4.15	2.15/1.10	0.54/0.46	0.70/0.99	1.36/2.05	2.04/1.93	2.69/3.77	3.43/1.31	0.12/0.18	1.88/3.59	
Theta(67.5°)	3.12/2.58	2.79/3.70	6.46/9.02	8.86/6.69	6.14/5.56	4.85/3.07	2.31/2.24	1.73/1.59	1.84/1.52	0.78/1.08	1.66/2.40	2.07/0.01	1.22/2.49	4.89/3.22	7.95/5.82	3.65/2.50	1.62/1.10	0.83/1.70	1.22/1.10	2.27/3.37	3.62/3.12	1.55/0.06	0.83/0.31	1.89/3.15	
Theta(75°)	3.40/2.67	3.65/4.98	7.51/9.18	9.41/8.64	9.78/8.01	4.52/2.68	1.65/1.01	1.05/2.35	3.16/3.07	1.63/0.12	0.62/0.81	0.87/1.17	2.22/2.59	3.05/7.18	6.14/5.11	3.73/3.18	2.45/1.68	0.27/0.39	0.29/0.83	1.51/2.28	2.03/1.46	0.99/1.69	3.45/3.61		
Theta(82.5°)	2.14/2.24	2.56/4.32	5.74/7.87	8.67/10.02	8.49/6.46	5.14/4.38	3.04/3.15	2.91/2.87	2.70/2.96	2.11/1.32	0.31/0.64	0.84/0.98	1.99/2.78	2.64/1.91	1.36/4.79	6.12/3.63	3.20/2.57	2.03/1.57	0.77/0.29	0.01/0.91	1.37/1.38	0.55/1.11	1.31/2.00	3.51/3.82	
Theta(90°)	3.56/4.29	3.55/4.02	3.39/4.85	7.61/8.62	7.03/6.01	5.90/5.04	4.35/3.22	2.43/2.26	2.26/3.15	3.62/2.65	1.74/0.27	0.43/0.86	1.28/1.57	1.64/3.11	0.96/3.99	4.91/4.50	3.95/3.66	1.96/1.64	0.30/1.24	2.29/2.12	2.08/1.81	1.41/1.75	2.78/3.39	5.24/2.72	
Theta(97.5°)	3.54/4.19	2.66/3.81	4.29/7.82	7.43/8.62	7.50/8.44	4.75/5.03	7.54/5.56	3.93/3.54	3.40/3.99	4.40/3.12	2.23/1.24	3.93/3.37	1.91/1.71	1.10/0.07	1.45/6.95	5.90/4.27	3.65/2.71	1.87/2.35	3.56/5.60	4.46/4.35	4.84/2.00	2.99/3.95	5.30/5.70	5.91/0.05	
Theta(105°)	4.93/6.39	3.88/4.57	5.41/10.10	8.46/7.02	6.57/8.29	10.45/9.88	7.14/4.69	2.65/2.55	2.39/3.13	4.03/2.35	1.89/1.49	2.29/3.29	2.22/0.27	0.09/1.36	3.18/4.71	5.52/3.25	1.91/2.24	2.86/5.58	4.51/3.92	5.97/7.84	6.59/7.21	8.19/11.44	5.26/2.66	2.74/6.55	
Theta(112.5°)	7.01/2.57	4.21/4.82	5.92/6.24	6.62/5.57	6.59/8.93	8.79/8.60	5.13/4.22	3.58/3.72	3.03/2.39	1.37/1.33	2.02/3.28	3.41/1.10	0.79/2.34	1.80/3.97	7.35/4.77	2.77/3.85	4.53/11.70	9.98/14.49	12.86/8.68	5.26/3.04	4.42/4.14	13.26/13.13	11.36/10.14		
Theta(120°)	7.41/6.05	3.64/4.98	6.58/11.76	10.09/6.83	7.25/7.48	7.49/6.17	5.08/4.63	3.56/3.17	3.47/4.01	3.93/3.30	2.20/1.47	1.90/2.18	1.13/2.64	2.83/3.29	2.03/3.90	10.32/13.16	5.06/5.65	4.43/8.80	8.05/9.77	7.52/4.27	4.50/2.64	3.84/2.81	6.14/3.76	9.44/8.87	
Theta(127.5°)	4.18/4.40	3.51/6.83	12.27/12.18	6.99/6.63	5.89/7.79	7.22/7.61	6.62/4.87	3.99/4.16	4.33/3.80	3.64/2.52	2.15/1.28	1.40/3.21	5.21/7.00	5.78/6.47	4.67/6.17	6.83/11.14	9.30/9.32	8.47/12.40	5.99/8.60	10.65/6.13	4.27/4.21	4.31/8.04	13.18/8.41	8.54/8.77	
Theta(135°)	6.07/9.00	9.09/11.94	11.36/8.62	4.55/2.92	4.22/5.67	7.82/9.69	9.06/8.33	6.88/5.62	4.92/5.58	5.69/4.15	2.54/0.69	0.86/2.42	3.95/10.26	9.61/9.18	7.40/9.61	5.27/8.10	6.30/13.55	11.64/11.70	9.98/14.49	12.86/8.68	5.26/3.04	4.42/4.14	13.26/13.13	11.36/10.14	
Theta(142.5°)	7.97/7.20	8.66/7.78	5.68/5.57	6.62/6.40	3.67/6.41	7.95/9.06	8.82/7.48	5.61/4.18	3.96/3.72	3.64/4.58	4.40/3.00	3.11/4.38	7.11/10.06	10.47/12.29	10.87/7.61	10.80/9.97	5.13/6.91	7.64/7.48	8.40/8.53	6.46/4.35	4.47/6.36	7.86/7.15	10.14/14.88		
Theta(150°)	12.23/10.87	7.09/7.03	5.74/4.66	7.29/11.28	7.89/7.48	8.41/8.30	7.64/6.50	5.49/5.50	5.87/6.00	5.31/4.15	3.16/2.80	3.18/3.67	4.95/7.95	12.03/12.30	8.64/9.34	12.57/11.82	12.07/11.85	10.84/10.53	9.86/9.52	10.09/9.43	9.99/11.02	9.41/8.11	7.53/8.15	9.90/10.90	
Theta(157.5°)	12.08/7.73	5.95/6.24	7.11/6.81	7.69/11.41	12.08/11.28	13.53/13.64	9.86/7.76	6.93/6.74	6.28/4.91	3.31/2.03	1.50/1.57	2.25/2.93	3.62/3.52	7.02/6.09	4.62/4.18	4.22/5.69	8.98/13.55	13.17/13.32	12.08/11.16	11.16/11.14	9.83/7.33	5.26/4.23	4.30/5.33	7.47/10.77	
Theta(165°)	8.71/7.92	6.70/6.31	7.68/9.08	10.55/11.24	10.63/8.86	7.86/7.99	7.53/7.27	6.72/6.19	5.41/4.48	3.30/2.15	1.43/1.00	0.99/1.28	1.73/2.44	3.11/3.71	4.59/6.07	8.42/11.39	12.25/9.80	7.55/6.75	7.26/8.47	9.67/9.59	8.89/7.18	5.82/5.07	5.36/6.05	7.11/8.39	
Theta(172.5°)	12.83/11.96	10.66/10.45	11.88/12.51	12.00/11.52	11.10/10.73	9.64/10.08	9.76/9.09	8.73/8.29	7.89/7.67	7.46/7.11	6.61/6.14	5.27/5.46	5.48/5.90	7.12/8.95	11.81/13.56	13.21/10.09	12.72/6.58	6.20/6.54	7.20/7.93	7.97/8.25	8.83/8.08	7.92/8.41	10.34/12.82	14.02/13.24	
Theta(180°)	8.01/7.38	7.36/7.75	8.18/7.40	7.55/8.58	8.92/8.98	8.75/8.48	8.31/7.98	7.55/7.04	6.56/6.51	6.60/7.04	7.46/7.77	8.01/8.29	8.71/8.90	9.08/9.69	10.44/10.48	10.52/10.15	9.43/8.88	8.90/9.27	9.83/10.14	9.75/9.54	10.53/11.64	12.20/11.94	11.42/10.41	9.08/8.38	

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 U-NII 5 ~ U-NII 8

Appendix D

θ (75°)	0.67/0.38	-0.47/-1.01	-0.32/0.46	-1.85/-6.63	-2.27/6.66	-8.86/5.31	-4.63/4.03	-3.43/2.91	-1.04/-0.71	-0.60/0.52	-0.02/0.78	-0.37/1.61	-3.94/4.82	4.02/3.62	-3.08/1.56	0.01/2.64	-3.44/0.61	-0.93/2.99	2.71/2.17	4.78/10.33	9.34/5.76	-1.56/-1.58	-0.43/-2.01	2.21/2.29	
Gain	Φ(0°)Φ(75°)	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°)	-1.99/-2.15	0.61/2.06	-3.30/0.44	-0.95/-3.84	-4.43/-5.77	-7.84/-7.09	-6.48/-5.27	-3.64/-2.26	-0.78/-0.81	0.70/0.80	2.70/2.75	3.21/3.20	0.07/1.05	-0.84/-3.09	-1.05/-1.22	-0.80/-2.22	-7.16/3.14	1.25/1.03	0.18/-1.64	3.33/5.81	-4.78/-3.34	-1.50/-0.23	1.07/-1.61	-2.59/-0.68	
θ (7.5°)	-1.11/3.66	0.50/-3.03	-5.70/1.42	-1.92/-3.10	-4.94/-4.79	-5.66/5.73	-6.35/6.12	-4.99/3.75	-2.12/0.83	0.96/2.32	1.77/2.09	2.55/1.97	0.56/0.64	0.29/0.10	0.42/0.20	-0.52/5.55	-4.21/7.07	2.30/0.92	0.53/3.93	-3.22/1.07	-2.64/1.11	2.07/0.04	0.12/0.57		
θ (15°)	0.95/1.21	-0.18/-3.44	8.92/4.85	-7.21/7.19	6.68/3.83	-2.52/1.70	2.58/3.55	4.77/3.74	-1.77/-1.26	-0.64/0.08	-1.93/2.08	0.06/0.36	0.21/2.13	1.30/0.86	-0.36/0.05	-0.15/0.57	-3.10/1.49	2.30/0.34	0.27/0.53	-2.06/8.48	-1.68/2.46	3.34/0.45	0.65/0.38	1.72/2.69	
θ (22.5°)	1.26/1.43	-3.04/-2.08	4.08/7.04	6.03/-6.55	8.22/-10.44	-9.02/-2.33	-1.82/-3.07	4.51/-0.99	0.74/0.64	0.79/0.27	-3.65/-4.04	-3.07/1.93	-2.34/-4.58	-3.06/-2.06	-0.42/-5.23	-4.15/1.41	1.18/0.53	1.99/3.62	-0.83/-6.86	-2.05/-4.90	-11.41/3.68	0.04/0.62	1.04/0.83		
θ (30°)	-3.08/4.26	-3.15/-2.37	-0.63/-2.93	-4.87/-5.28	-6.53/-4.94	-6.18/-7.21	-5.53/5.16	-2.66/-0.38	-0.53/5.50	0.86/0.31	-1.46/-1.41	-1.81/3.82	-6.56/5.66	-4.21/4.92	-5.00/2.33	0.33/-3.97	-4.50/-1.48	0.20/-1.12	-3.96/-3.43	0.70/6.95	-6.67/1.50	-6.87/3.46	-1.55/-0.22	0.10/-1.50	
θ (37.5°)	4.24/4.74	-3.47/0.57	-0.34/-1.98	-2.93/-2.71	-3.09/-3.17	-2.45/-5.24	5.74/3.42	2.02/-1.26	0.88/1.77	2.78/2.17	1.08/1.75	1.70/0.09	-1.20/2.22	4.89/5.75	-3.72/0.31	0.86/5.30	-7.49/3.70	-3.67/-1.99	6.71/2.77	-0.86/4.84	9.35/3.36	4.56/5.19	-5.21/5.68	4.48/3.63	
θ (45°)	4.39/3.07	-1.18/-0.94	-1.86/-1.03	-2.15/-3.31	-2.74/-2.63	-3.25/-2.91	-4.17/5.98	5.52/3.12	-1.65/0.13	0.68/0.95	1.85/2.41	3.04/2.07	0.56/0.74	-1.24/-1.26	-1.32/-1.42	-1.44/-0.49	-7.61/2.93	-3.42/6.58	-12.91/5.59	-0.95/-4.69	8.34/6.08	9.37/2.93	-7.44/-13.32	-11.62/-12.76	
θ (52.5°)	-3.05/2.14	-0.80/0.92	-1.54/-1.35	-1.50/-2.19	-0.80/-5.97	-4.52/4.97	-3.46/3.02	-3.80/4.37	4.23/3.18	-2.60/-2.58	1.49/0.73	0.82/1.51	2.32/1.20	2.11/2.81	1.20/0.90	-4.70/-5.24	-6.41/9.81	-7.41/15.15	-12.69/7.13	-7.78/4.34	-3.79/6.42	-12.15/11.62	-8.72/-11.15	-10.62/8.39	
θ (60°)	-3.81/3.78	-2.77/-1.97	-2.43/-3.57	-4.02/5.00	-5.67/5.24	-4.35/-3.74	-2.90/-2.93	-3.86/3.57	-2.85/3.00	-3.12/-1.87	-0.16/1.30	1.32/1.00	1.23/1.22	-0.03/2.31	-1.87/1.75	-2.83/5.53	-6.97/13.08	-10.28/8.61	-7.32/8.12	-11.02/8.31	-3.56/6.35	-6.50/14.57	-12.86/13.09	-10.05/7.19	
θ (67.5°)	-8.07/9.25	-8.19/-5.10	-3.48/-3.45	-4.81/-7.01	-7.26/6.72	-7.17/-5.71	-5.05/4.39	-4.40/-5.14	-5.08/3.90	-2.56/-1.23	-0.30/-0.25	-0.99/-1.31	-1.78/-1.61	-2.74/4.00	-3.26/-3.61	-5.04/-4.38	-2.71/-1.09	-5.00/-13.91	-14.43/9.52	-11.45/-6.09	-2.78/4.02	-6.80/10.09	-10.14/6.32	-4.80/5.27	
θ (75°)	4.80/5.33	-2.71/1.03	-0.49/0.51	-1.31/-3.24	-5.72/4.78	-2.65/-1.47	-0.60/1.11	0.21/0.59	1.02/1.50	0.91/0.03	-1.32/3.29	-5.86/7.96	-8.32/4.18	-1.05/0.54	-1.18/1.80	-2.33/3.04	-3.63/4.86	-7.90/11.95	-12.46/11.73	-13.67/9.98	-5.63/9.93	-6.22/10.62	-3.61/4.06	-2.88/-2.91	
θ (82.5°)	-2.84/2.04	-0.85/-0.33	0.07/0.25	0.16/0.79	-2.25/4.20	-6.25/6.39	-5.33/-3.67	-1.76/0.95	-0.79/1.01	-1.23/-1.62	-2.20/2.45	-2.33/1.86	-1.59/-1.18	-0.84/0.83	-1.13/1.65	-3.43/6.79	-10.21/11.64	-14.04/12.64	-10.70/10.11	-13.10/12.76	-8.07/5.82	-4.58/3.97	-4.20/3.82	-3.24/3.05	
θ (90°)	-7.43/6.02	5.06/-1.48	-3.42/-2.58	-2.42/-3.83	-3.61/-6.61	-5.38/5.36	-5.23/3.34	-3.50/3.30	-3.65/-4.40	-4.63/4.79	5.58/6.94	-8.05/7.82	-7.23/6.91	-6.86/6.89	-7.09/7.70	9.29/10.56	-11.14/12.97	-15.06/15.51	-15.54/15.28	-15.38/16.10	-15.08/15.07	-12.70/9.73	-7.13/6.43	-6.70/7.12	
θ (97.5°)	9.82/9.33	-10.79/-12.75	-14.24/-15.37	-13.50/-13.84	-13.36/13.62	-13.09/-13.41	-14.41/-14.11	-13.51/15.35	-12.32/10.25	-9.92/10.22	-11.21/10.80	-10.16/10.21	-9.65/9.02	-8.24/7.89	-8.02/8.58	-9.14/9.92	-11.05/11.94	-11.89/8.68	-8.66/9.87	-11.22/11.12	-12.07/14.08	-14.70/13.74	-12.74/13.31	-11.91/10.88	
θ (105°)	6.475GPol	TotalAnt.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
θ (112.5°)	Gain	Φ(0°)Φ(75°)	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 (120°)	7.98/8.27	-8.38/8.56	-7.94/7.98	-8.57/8.69	-8.02/6.52	-6.66/6.14	-7.71/7.52	-6.68/5.74	-5.62/6.48	-6.60/5.94	-5.45/5.75	-6.52/7.42	-7.91/7.84	-7.65/7.52	-7.82/6.67	-9.65/10.16	-9.42/8.14	-8.10/8.79	-9.67/9.99	-10.66/9.24	-8.64/8.23	-9.32/10.10	-9.70/8.18		
θ (127.5°)	-7.38/7.25	-8.27/8.80	-9.17/9.44	-9.62/9.21	-8.75/8.75	-8.55/8.53	-9.74/10.63	-10.36/9.42	-8.94/9.31	-9.61/9.39	-8.58/7.96	-7.69/7.83	-8.37/8.96	-9.54/8.90	-8.66/8.27	-7.97/7.86	-7.33/6.67	-6.38/6.29	-6.12/6.29	-6.00/6.04	-7.03/6.99	-6.67/6.20	-6.00/7.05	8.09/7.38	
θ (135°)	-6.15/4.76	-8.43/7.98	-8.14/8.77	-9.26/9.17	-9.65/10.02	-10.79/10.53	-10.59/10.91	-12.22/13.49	-10.51/8.54	-7.72/7.15	-6.99/6.39	-6.31/7.22	-8.27/8.50	-8.26/7.90	-7.30/6.71	-5.80/6.89	-6.00/6.15	-5.79/5.53	-5.07/4.82	-4.33/3.94	-4.69/5.71	-5.82/4.57	-5.62/5.84	6.73/5.96	
θ (142.5°)	-7.37/7.71	-7.18/7.99	-7.25/6.69	-6.88/7.99	-9.32/12.93	-15.19/12.95	-10.10/10.01	-11.64/11.63	-8.34/8.89	-5.07/4.90	4.44/3.78	-5.59/5.87	-5.81/6.05	-4.84/3.84	-2.79/2.90	-2.62/2.29	-1.79/2.31	-3.96/3.81	-2.78/3.21	-3.41/3.31	-4.17/4.86	-4.85/5.00	-6.21/4.74		
θ (150°)	-3.46/5.68	-6.11/5.56	-5.17/5.52	-7.53/9.77	-11.57/13.73	-10.69/9.18	-7.62/6.96	-6.71/7.10	-6.27/4.43	-3.87/3.76	-3.19/2.34	-2.25/1.89	-1.41/1.72	-2.06/2.45	-2.40/1.99	-1.86/1.52	-1.21/1.29	-1.01/0.46	-0.41/0.67	-0.96/1.80	-2.72/3.64	-3.56/3.09	-2.92/3.52	-3.83/3.49	
θ (157.5°)	-3.48/3.28	-3.26/3.41	-4.49/5.59	-7.53/11.05	-14.42/13.74	-14.40/14.34	-13.15/13.21	-9.26/6.23	-4.03/2.37	-1.81/0.30	1.04/0.93	0.67/0.12	-0.33/0.75	-0.52/2.40	-0.13/-1.17	-1.65/0.74	-0.39/0.29	-0.50/-0.84	-2.15/3.93	-4.55/4.56	-2.87/3.29	-2.50/3.37	-2.87/3.29		
θ (165°)	-2.65/2.82	-3.20/2.49	-2.65/3.49	-4.12/5.77	-8.97/11.69	-11.14/9.07	-8.10/8.29	-9.10/8.00	-6.42/3.84	-1.39/3.07	0.44/0.63	1.40/1.52	1.67/1.56	1.50/1.21	1.04/0.69	-0.24/0.72	-1.46/1.10	-0.48/0.73	0.15/-1.38	-1.63/3.12	-4.57/3.66	-4.28/4.64	-3.20/1.08	-1.41/1.80	
θ (172.5°)	-1.83/1.74	-1.95/-2.15	-2.55/3.14	-3.63/5.23	-6.71/8.40	-9.22/10.42	-9.23/6.71	-5.27/5.03	-4.71/3.23	-1.55/-1.37	-1.22/0.05	1.39/1.44	1.11/1.69	2.28/2.05	2.21/1.58	-0.16/0.90	-2.34/2.09	-1.48/0.62	0.28/0.10	-1.52/3.24	-4.13/5.69	-4.92/5.02	-4.04/3.10	-3.72/2.81	
θ (180°)	-0.29/2.83	-3.26/2.45	-2.61/3.98	-5.27/7.23	-7.17/10.64	-11.24/14.30	-14.99/9.95	-6.16/5.37	-3.33/4.47	-3.13/1.72	-1.55/-1.46	-0.46/0.82	0.59/0.72	1.37/2.12	3.05/2.72	2.09/0.71	-0.36/0.95	-0.81/1.24	-1.64/-1.60	-2.54/3.17	-3.43/3.63	-4.61/5.69	-4.29/2.43	-3.01/1.02	
θ (187.5°)	0.62/0.39	0.49/0.85	-1.77/3.45	-5.23/5.00	-5.43/6.08	-9.38/9.36	-12.31/11.81	-7.78/5.08	-3.68/4.10	-2.64/2.03	-0.79/0.65	-2.23/2.18	-0.50/1.11	0.03/0.99	2.19/1.52	1.85/1.45	-0.74/3.35	-3.76/1.43	-6.46/8.98	-7.86/5.37	-4.53/4.04	-6.86/6.08	-9.33/6.48	-1.48/0.70	
θ (195°)	2.38/2.96	2.28/1.26	0.14/2.16	4.40/3.79	4.27/3.31	-3.42/4.21	-5.97/5.65	-3.31/2.08	-3.13/1.88	-0.19/0.27	0.22/0.78	-0.46/2.38	-2.66/5.01	4.78/1.99	-2.14/1.43	0.49/0.83	-2.63/2.00	-2.71/3.69	-7.65/8.16	-7.46/9.23	-7.39/5.44	-6.75/4.48	-4.60/2.83	-0.11/1.84	
θ (202.5°)	1.59/2.28	0.27/0.01	0.36/0.78	-0.40/4.87	-3.78/4.88	-6.83/7.02	-5.45/4.05	-2.18/1.77	-2.31/0.98	-0.33/0.15	0.90/1.49	1.38/0.84	0.02/0.32	-3.89/5.06	-3.99/2.73	-2.02/2.01	-3.26/2.73	-1.79/1.27	-5.33/1.11	-6.75/10.23	-5.88/5.43	-2.75/1.91	-0.89/2.09	-1.76/0.31	
θ (210°)	0.63/1.65	-0.28/0.64	-0.26/0.11	-2.78/2.82	-3.18/4.41	-7.31/7.92	-5.81/5.52	-2.13/1.09	-1.04/0.27	0.90/1.33	2.31/2.41	2.61/2.82	3.46/1.32	0.04/1.92	-3.11/3.04	-2.32/3.43	-8.57/0.76	-1.34/1.64	-3.48/0.44	-1.65/4.23	-2.70/3.40	-6.47/1.92	1.46/4.02	0.83/1.56	
θ (217.5°)	-0.17/0.63	-0.06/2.68	-2.81/2.50	-3.64/4.82	-5.48/4.18	-3.72/5.87	-7.06/4.99	-2.78/1.45	-1.54/0.05	-0.24/0.03	0.33/0.42	0.50/2.39	2.14/0.54	0.47/0.14	-3.29/2.32	-2.93/3.18	-7.40/0.57	2.62/0.69	-4.47/1.02	-1.11/3.06	-1.95/3.13	-4.27/0.63	1.33/0.08	1.36/0.39	
θ (225°)	1.11/1.01	0.83/1.91	-3.38/3.58	-6.47/9.63	-10.65/6.04	-2.12/4.00	-2.65/1.32	0.28/0.25	-0.06/0.10	-1.12/0.75	-0.87/2.40	-5.40/0.63	0.46/0.92	-1.23/0.62	-1.11/3.89	-0.42/1.25	-5.81/3.99	3.73/4.07	0.52/1.38	0.88/3.57	-1.78/6.07	-8.61/3.31	1.04/1.63	1.25/1.24	
θ (232.5°)	2.67/2.07	-3.59/1.76	-1.12/3.62	-3.90/4.21	-6.59/8.09	-3.69/2.98	-3.05/1.61	-1.51/1.04	1.40/0.58	1.38/0.82	0.32/1.14	-3.44/2.80	-3.51/6.40	-5.06/6.72	-6.43/7.14	-1.59/4.37	6.21/2.05	-0.44/3.45	-5.73/3.15	-0.66/1.02	-6.56/7.00	-6.41/0.99	-1.69/0.21	0.54/1.77	



Antenna Pattern of 6GHz U-NII 5 ~ U-NII 8

Appendix D

θ (127.5°)	-3.830.11	-1.861.443	-12.671.182	-7.701.649	-7.571.861	-9.321.467	-1.681.155	-0.991.037	-0.921.149	-4.031.475	-2.981.245	-3.621.300	-2.321.347	-4.181.408	-3.201.595	-7.081.854	-12.481.917	-6.741.1137	-2.341.330	-3.801.133	-1.151.305	-4.261.1061	-3.601.809	-8.581.312
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°)	2.56/2.60	2.51/2.77	2.78/2.77	2.69/2.92	2.92/2.80	3.00/3.11	3.15/2.99	2.92/3.93	2.85/2.73	2.43/2.29	1.99/2.02	1.88/1.64	1.31/1.12	0.73/0.39	0.36/0.36	0.24/0.16	0.23/0.46	0.58/1.00	1.28/1.41	1.42/1.31	1.38/1.42	1.55/1.68	1.76/1.85	2.06/2.36
θ (7.5°)	1.39/1.28	1.22/1.26	1.11/1.02	0.90/0.93	0.67/0.82	0.99/0.99	0.98/0.98	1.07/1.06	1.12/1.27	1.46/1.68	1.91/2.02	2.13/2.30	2.53/2.65	2.61/2.75	2.82/2.92	3.00/3.03	3.01/2.89	2.95/3.15	3.33/3.26	3.18/2.93	3.18/2.93	2.39/2.15	1.85/1.45	1.50/1.49
θ (15°)	-1.91/2.34	-1.83/1.35	-1.19/1.09	-1.00/1.01	-1.05/1.02	-1.22/1.51	-1.85/2.17	-2.45/2.26	-2.14/2.13	-1.90/1.47	-1.00/1.56	0.20/1.19	2.20/3.05	3.43/3.63	3.59/3.51	3.45/3.55	3.59/3.27	2.85/2.77	2.59/2.34	1.90/1.43	1.43/1.31	0.88/0.39	0.19/0.52	-1.10/1.50
θ (22.5°)	-6.49/6.40	-5.75/4.78	-3.75/3.38	-3.26/2.66	-2.05/2.15	-1.97/2.17	-2.46/3.00	-3.89/4.62	-4.88/4.90	-4.87/5.48	-5.08/4.17	-3.25/1.64	0.11/1.37	1.92/1.65	1.24/1.27	1.73/1.96	1.50/1.05	0.62/0.27	-0.87/1.65	-2.36/2.98	-3.82/4.46	-5.23/5.72	-5.62/5.44	-5.68/6.21
θ (30°)	-10.48/9.10	-9.99/9.04	-4.31/4.09	-4.21/4.21	-4.39/4.52	-4.03/3.84	-3.43/3.06	-3.10/3.64	-4.18/4.23	-5.11/6.87	-9.12/7.62	-7.13/4.80	-0.11/0.85	-0.94/1.02	-0.17/0.87	1.18/1.09	0.80/0.24	-1.95/3.26	-4.22/4.28	-4.17/4.03	-3.56/3.71	-4.86/6.97	-11.67/15.14	-9.93/9.20
θ (37.5°)	-6.54/4.67	-3.65/4.31	-3.80/3.04	-4.09/5.89	-8.49/11.06	-11.52/11.15	-9.47/6.28	-4.05/2.91	-2.62/2.97	-3.70/5.40	-8.45/9.24	-6.88/3.73	-1.34/1.05	-1.52/3.50	-4.76/2.66	-0.62/1.17	0.86/0.74	0.14/0.85	-0.47/0.06	-1.03/2.00	-2.22/2.88	-3.72/4.90	-6.01/7.18	-9.44/8.78
θ (45°)	-3.99/1.96	-0.95/0.57	-0.82/1.02	-0.96/0.51	-1.49/1.53	-2.36/4.11	-8.33/13.67	-5.71/1.99	-1.17/0.27	-2.56/3.59	-6.51/3.77	-9.21/9.28	-4.12/1.53	-2.01/2.76	-6.34/4.27	-0.75/1.47	2.28/2.21	1.43/1.10	-0.18/0.98	-0.37/1.16	-2.74/4.27	-5.59/4.73	-4.83/4.31	-3.64/3.90
θ (52.5°)	0.07/0.97	0.15/1.55	-1.32/0.09	-0.00/1.46	-2.37/1.96	-1.98/3.34	-7.54/9.45	-3.87/0.55	0.19/1.32	-3.54/3.16	-4.04/6.16	-7.28/6.44	-3.46/2.46	-3.44/2.94	-5.96/7.64	-2.36/3.00	0.65/0.90	2.58/1.69	-0.00/2.76	3.93/2.95	2.02/2.09	-1.30/2.25	-1.30/3.21	-3.64/3.90
θ (60°)	-0.00/0.50	0.75/2.31	-0.53/0.82	-1.52/5.37	-7.19/5.00	-4.46/5.79	9.73/8.65	3.24/0.29	0.66/0.17	-2.55/4.29	-5.43/7.15	-6.63/5.48	-2.52/2.25	-5.17/5.37	-5.05/4.92	-5.97/0.11	1.66/2.39	1.68/0.98	-0.58/1.72	-3.51/3.37	-3.59/1.92	0.78/2.49	1.93/0.25	2.40/0.94
θ (67.5°)	-1.82/1.01	-3.53/4.40	-2.09/1.97	-5.35/6.59	-3.58/2.61	-2.89/7.77	9.09/6.64	4.05/1.01	0.29/0.08	0.44/0.53	-4.23/6.09	-5.20/7.11	-7.43/7.45	-4.75/4.58	-4.82/2.29	-3.19/0.06	1.94/2.24	1.08/1.55	-3.32/2.52	-2.47/2.51	-3.32/1.69	0.64/1.27	0.64/0.96	-2.16/0.48
θ (75°)	-1.42/1.90	-3.60/1.39	-0.50/3.10	-2.79/5.50	-3.69/2.26	-7.29/5.50	0.39/0.41	0.17/1.57	2.31/1.57	-2.00/5.06	-4.53/1.68	-4.57/7.74	-3.41/8.12	-4.05/3.87	-4.10/1.18	2.77/2.33	0.77/0.82	-1.41/1.90	-2.85/1.51	-1.14/1.90	-0.40/0.64	0.43/0.55	-1.76/3.06	-2.62/0.05
θ (82.5°)	-1.90/2.28	-2.09/0.28	0.08/3.77	-6.14/5.96	-5.10/8.44	-4.30/0.66	2.51/3.28	2.40/1.55	1.71/1.74	1.85/0.47	-2.61/3.80	-2.21/0.18	-1.42/9.33	-5.75/6.97	-4.63/4.05	-2.12/0.43	1.31/1.81	0.34/1.65	-1.87/1.35	-1.51/0.60	0.80/1.81	2.29/0.39	-5.51/4.23	-3.55/1.06
θ (90°)	-0.56/0.28	-1.64/2.01	-3.47/6.64	-4.42/8.93	-6.44/7.99	-1.09/1.24	2.67/3.21	3.12/0.86	1.86/2.20	3.48/1.51	-0.54/0.79	-1.01/1.65	0.33/5.04	6.18/11.86	-4.48/2.21	-2.28/4.25	-5.19/1.41	-1.19/5.48	-5.54/2.29	-3.09/2.25	1.11/0.17	-0.28/2.78	-5.41/4.64	-2.97/0.01
θ (97.5°)	-0.74/0.27	-3.92/3.48	-4.12/5.79	-4.59/3.21	-2.68/6.34	-3.16/1.57	-1.29/0.09	1.81/0.56	2.54/2.27	3.20/1.48	0.18/0.13	-0.66/0.50	-0.33/2.29	-6.88/2.66	-4.07/3.24	-3.88/2.66	-7.05/4.82	-4.41/11.13	-10.45/9.01	-9.57/1.53	-2.84/0.53	-4.54/5.45	-4.81/5.02	-5.63/0.59
θ (105°)	-0.67/1.32	-4.92/6.34	-5.94/5.01	-3.77/6.25	-3.00/8.12	-5.69/5.55	-3.01/1.19	-0.70/1.01	1.86/1.91	2.46/1.91	0.27/0.26	0.65/3.05	2.68/1.05	-6.95/6.00	-6.71/7.94	-5.23/5.98	-4.06/2.84	-4.49/14.95	-10.57/4.77	-11.38/3.22	-1.61/2.63	-2.98/3.95	-2.65/10.19	-7.13/2.27
θ (112.5°)	-1.51/4.12	-4.02/6.11	-6.06/3.05	-4.45/7.79	-3.32/3.63	-4.98/5.68	-3.59/4.29	-1.24/0.03	0.67/0.11	2.68/4.63	-2.20/2.15	3.04/4.12	6.94/11.24	-8.50/9.49	-12.88/11.27	-6.76/5.57	-2.04/5.60	-3.53/5.65	-15.36/6.20	-2.33/0.59	-0.46/1.29	-3.51/5.60	-5.67/2.68	-2.97/0.01
θ (120°)	-1.66/4.76	-2.98/6.08	-4.21/3.11	-4.52/4.78	-9.07/4.24	-4.47/3.89	-5.53/2.21	-0.60/0.20	-0.36/0.37	-0.74/1.55	-4.49/6.28	-6.93/2.86	-0.41/1.75	-5.59/6.88	-4.07/3.24	-11.65/6.72	-4.37/8.73	-11.67/7.75	-11.17/7.75	-1.91/4.06	-5.93/2.22	-5.15/6.26	-0.86/0.87	-0.86/0.87
θ (127.5°)	-3.29/0.27	-2.25/3.83	-5.14/8.20	-11.51/11.34	-9.82/8.41	-7.68/6.91	-5.06/2.74	-1.60/1.09	-1.45/2.02	-3.00/5.02	-6.28/8.42	-8.34/6.99	-3.96/3.09	-3.05/3.97	-2.36/2.46	-4.17/6.04	-9.60/5.22	-14.45/9.47	-4.34/3.23	-3.71/0.86	-0.60/2.32	-6.80/11.49	-5.11/10.97	-4.92/3.06
θ (135°)	-8.18/4.79	-8.46/1.99	-12.55/14.76	-9.35/5.33	-6.78/5.06	-4.10/4.88	-5.77/6.08	-4.07/2.63	-2.06/1.93	-2.38/2.02	-3.26/2.06	-7.48/8.46	-6.39/4.59	-1.56/2.87	-3.89/7.74	-9.30/7.81	-13.48/8.53	-9.73/8.23	6.01/9.05	-9.85/4.84	-1.22/6.22	-6.21/9.77	-4.49/7.75	-5.64/3.44
θ (142.5°)	-8.28/8.41	-10.55/13.39	-9.00/6.00	-4.05/4.53	-6.73/10.67	-8.90/5.86	-3.25/3.03	-2.14/2.46	-2.65/3.24	-3.25/3.32	-5.25/8.49	-10.69/7.39	-7.31/10.45	-9.48/9.17	-7.86/5.95	-4.80/5.22	-9.45/7.60	-10.41/8.53	-5.11/5.17	-7.61/9.65	-7.31/7.85	-8.15/8.94	-10.31/7.99	-7.44/6.06
θ (150°)	-3.98/6.20	-6.61/6.65	-7.78/3.36	-1.31/1.53	-1.71/4.19	-10.14/8.06	-4.36/3.02	-2.81/2.98	-3.91/5.51	-7.48/8.38	-10.74/12.86	-3.68/4.10	-4.21/5.97	-6.13/10.18	-7.44/7.45	-6.98/10.27	-7.78/5.16	-5.99/6.62	-4.46/3.31	-4.57/6.95	-8.92/8.75	-9.42/8.70	-6.26/3.70	-6.26/3.70
θ (157.5°)	-4.24/5.14	-5.41/7.27	-14.85/10.62	-6.50/5.01	-5.54/8.65	-13.86/11.12	-8.74/7.06	-5.63/5.54	-6.57/8.96	-9.18/7.75	-6.19/4.24	-3.06/2.79	-2.16/1.64	-3.58/3.60	-3.08/4.38	-6.89/10.19	-14.36/12.55	-11.77/9.24	-6.83/4.66	-5.57/1.71	-9.74/12.26	-11.15/6.86	-4.13/3.27	-4.13/3.27
θ (165°)	-9.33/8.80	-8.50/9.56	-10.07/10.42	-9.77/8.44	-6.92/6.06	-5.60/3.99	-2.82/4.25	-2.44/2.89	-3.71/5.00	-5.48/5.38	-4.70/3.88	-2.85/1.94	-1.62/1.93	-2.28/2.33	-2.41/3.13	-4.87/7.47	-11.78/15.09	-13.81/10.09	-7.88/7.25	-6.54/6.06	-6.89/8.04	-8.41/8.30	-8.15/7.60	-7.78/8.75
θ (172.5°)	-13.32/13.63	-10.89/9.08	-8.45/8.92	-9.24/8.95	-8.38/7.34	-6.76/5.92	-5.75/6.07	-6.65/7.04	-7.44/7.65	-7.12/6.74	-6.11/5.28	-4.61/3.77	-3.38/3.58	-3.75/4.56	-5.29/6.00	-7.05/7.68	-8.22/8.69	-9.59/9.78	-9.37/9.35	-9.73/9.78	-9.52/9.24	-7.91/7.02	-7.59/9.28	-11.55/13.39
θ (180°)	-8.70/8.65	-7.85/6.45	-6.10/5.66	-5.87/6.17	-6.43/6.34	-7.33/8.73	-8.57/8.37	-8.19/7.64	-6.97/6.26	-6.12/6.28	-6.79/7.01	-7.07/7.35	-7.37/7.90	-8.24/8.49	-8.39/8.09	-7.70/7.08	-6.87/7.13	-7.30/8.09	-8.23/8.29	-8.43/8.80	-9.86/11.37	-11.44/11.98	-11.48/11.34	-11.42/9.90
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°)	1.22/1.54	1.97/2.27	2.76/2.86	2.99/3.07	3.05/3.14	3.20/3.11	3.02/2.91	2.70/2.61	2.44/2.34	2.26/2.01	1.77/1.76	1.65/1.52	1.30/1.14	1.05/0.87	0.79/0.60	0.40/0.16	-0.08/0.17	-0.21/0.28	-0.62/0.64	-0.26/0.06	-0.28/0.25	-0.00/0.09	0.28/0.61	0.73/1.19
θ (7.5°)	0.66/0.62	0.22/0.08	0.18/0.20	-0.37/0.87	-0.95/0.74	-0.70/0.81	-0.83/0.99	-1.09/1.02	-0.85/0.71	-0.46/0.15	0.41/0.74	1.08/1.51	1.89/2.43	2.71/3.02	3.40/3.68	3.78/3.85	3.79/3.66	3.61/3.47	3.32/3.14	3.02/2.82	2.54/2.19	1.88/1.48	1.12/0.99	0.84/0.82
θ (15°)	-1.14/1.68	-1.73/1.45	-1.52/1.61	-1.86/1.88	-1.99/2.26	-4.21/3.62	-4.24/4.53	-4.71/4.89	-4.94/4.90	-4.59/3.40	-2.84/1.93	-2.13/0.55	0.50/1.81	2.98/3.85	3.49/3.57	4.37/4.40	4.30/4.12	3.00/3.62	3.19/2.67	2.28/1.85	1.42/0.96	0.78/0.48	0.08/0.05	-0.45/0.80
θ (22.5°)	-4.74/4.63	-3.97/3.98	-4.74/4.56	-3.34/2.63	-2.50/2.51	-2.41/2.32	-2.18/2.68	-3.25/3.35	-3.07/2.59	-2.07/2.07	-1.77/1.25	-0.84/3.00	0.51/1.46	2.06/2.54	2.59/2.12	1.73/1.59	1.40/0.94	0.48/0.18	-0.22/1.10	-2.41/3.46	-4.30/5.62	-5.96/4.59	-4.61/3.72	-3.61/3.92
θ (30°)	-8.30/7.45	-8.86/9.97	-9.53/7.06	-4.66/4.17	-4.07/4.05	-3.76/3.01	-2.71/2.40	-2.75/3.14	-3.10/2.35	-1.30/1.09	-1.24/0.99	-0.63/0.75	0.12/0.85	0.42/0.79	-1.07/0.57	0.29/0.81	0.77/0.18	0.42/1.39	-3.33/4.74	-5.11/5.61	-6.35/7.68	-8.77/10.66	-13.83/13.92	-9.99/8.50
θ (37.5°)	-11.47/13.78	-12.06/12.91	-4.66/3.22	-2.91/4.14	-5.26/8.16	-12.25/12.38	-8.39/4.63	-2.45/1.65	-1.79/2.04	-1.86/2.33	-													

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

