



Radiated Composite Gain of 2.4GHz and 5GHz UNII 1~3

Appendix A

Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.87	3.7	3.88	4	2.78
Ant. 2 Max Gain (dBi)	3.24	2.67	2.84	2.05	2.18
Ant. 3 Max Gain (dBi)	2.93	2.76	3.15	2.08	2.38
Ant. 4 Max Gain (dBi)	4.12	3.53	3.97	4.25	4.33
Ant. 1 Polarization/Θ(°)/Φ(°)	Theta/97.5/255	Theta/135/225	Theta/135/232.5	Theta/127.5/232.5	Theta/112.5/232.5
Ant. 2 Polarization/Θ(°)/Φ(°)	Phi/37.5/172.5	Phi/105/262.5	Phi/105/262.5	Phi/30/210	Phi/30/202.5
Ant. 3 Polarization/Θ(°)/Φ(°)	Phi/45/75	Phi/52.5/277.5	Phi/45/277.5	Phi/45/270	Phi/82.5/270
Ant. 4 Polarization/Θ(°)/Φ(°)	Theta/112.5/337.5	Theta/97.5/307.5	Theta/120/307.5	Theta/120/307.5	Theta/120/330
Max Gain (dBi)	4.12	3.7	3.97	4.25	4.33
DG [1SS] (dBi)	4.86	3.85	4.11	4.39	4.64
DG [2SS] (dBi)	4.12	3.7	3.97	4.25	4.33
DG [4SS] (dBi)	4.12	3.7	3.97	4.25	4.33



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(H1°)	2.4573	2.8529	1.95108	2.21037	0.38015	0.33025	0.3802	0.51168	3.44528	4.57174	8.52986	-10.84925	-7.95633	1.18406	2.33142	0.9001	0.35045	0.61058	0.5002	0.67087	-1.14159	2.55289	2.55282	-3.34312
(D22°)	1.74115	-1.26194	-1.59148	-1.31054	0.75076	0.67036	0.37088	-1.91102	-4.08655	7.32019	-8.22866	-7.89514	4.06364	2.81211	-1.44122	-1.11033	0.71111	1.00092	0.88671	0.25027	-0.68119	1.56158	-1.27126	-1.82184
(H3°)	1.65179	-1.78087	0.7711	-1.41151	2.15209	2.06875	-2.55034	-4.07119	5.67058	-5.25666	-5.72639	-6.63979	8.98722	-4.37024	2.98047	-0.62084	-0.2505	0.55066	0.08674	1.37061	-1.71014	2.12149	0.78054	-1.88024
(D25°)	2.21047	-2.89332	-4.5164	6.39453	3.46138	3.98076	-2.10142	-1.91172	3.13035	-4.05167	-5.63646	-6.4914	4.65037	2.98117	-1.13071	0.38048	-0.54063	0.98173	1.79109	0.160128	-2.24154	0.890101	0.481126	-1.56199
(H45°)	3.37149	-3.73738	4.23528	6.08432	41.59	27.187	-1.78183	2.43635	2.59083	3.94414	4.16143	6.76165	6.54421	3.21132	-1.20302	0.13000	0.23027	3.28287	3.2256	1.18023	0.98112	-1.92042	3.31148	-3.86193
(D32°)	4.07152	-5.28124	-1.71124	-4.04332	2.04203	2.33045	-0.86203	-0.87145	3.91044	-1.42035	-3.83033	-2.67123	4.32141	3.41205	-1.35011	-0.28053	1.07139	2.17165	2.24185	0.7501	-0.930701	0.99136	2.8106	-4.67143
(H8°)	6.01258	-3.99136	-1.27142	-1.73166	2.42703	-0.55071	-1.68003	-1.41154	-1.69133	-3.47129	-1.08037	2.13042	3.74013	-1.55117	-1.25018	0.00043	-0.03012	0.61175	2.11192	1.18045	-1.27128	2.11121	-1.21032	-4.4113
(D7°)	3.17035	-2.77148	-1.31157	-1.01091	0.76107	0.84042	2.23192	-2.29126	2.39135	-3.92029	-2.18022	2.20284	4.08134	3.28111	0.51018	0.08055	-0.71063	0.55142	1.97185	0.69143	-2.88024	-1.96027	2.67028	-2.01074
(H15°)	1.15219	-2.19147	4.30010	-0.5208	0.12002	0.12001	-1.38062	0.48021	-1.58077	3.52075	-4.68009	0.1608	-1.88073	3.28044	-2.2603	0.77015	-1.18003	1.64039	1.43089	0.27077	-1.15026	3.28032	0.27035	-1.15075
(D35°)	1.38119	-2.14105	-0.89063	0.99003	0.09069	0.33075	-2.88014	-4.41029	-1.52019	-4.62028	-1.34072	-1.83017	1.55038	-1.86025	-4.03045	-0.67015	-0.68031	0.88024	2.49044	0.82016	-1.22026	-1.88043	4.48034	4.48016
(H25°)	1.06135	-1.71149	-1.19027	3.19028	1.43027	-1.51032	-2.93028	2.480126	2.28038	-4.33017	-3.58038	2.50011	-1.44024	3.31029	-3.52038	0.28045	0.10033	1.96029	2.66014	0.10033	1.96029	2.66014	0.10033	1.96029
(D17°)	0.72126	-0.57133	2.32027	0.71088	0.12001	1.29138	-3.78038	2.91029	-4.25059	8.88065	-6.44074	1.93035	0.95012	2.96013	-1.31017	0.89017	1.5801	2.63011	2.57019	0.82017	1.5801	2.63011	0.82017	1.5801
(H12°)	2.24122	-0.57013	2.78025	0.35071	3.78027	-1.18058	-1.15021	-4.40029	3.43044	4.41053	-7.88084	3.51007	0.35028	3.53028	-0.68004	-1.28019	2.29045	1.53044	2.78015	1.43044	-2.03022	4.21044	3.82044	3.19047
(D12°)	2.23113	-1.94013	0.58019	2.69012	1.38016	-1.82014	3.45019	-4.78013	-2.31014	3.11014	-3.18014	2.53014	1.13014	3.13014	-1.54012	-1.32012	1.91014	2.04014	1.34012	1.03012	1.34012	1.03012	1.34012	1.03012
(H2°)	1.92032	-4.68043	4.48028	3.18014	34.0501	2.34015	2.17021	-4.03023	2.73018	-8.87085	-4.88039	5.21034	2.67034	1.75034	-1.23028	0.28023	-1.51028	0.97015	1.08088	0.92022	3.34041	-4.25041	7.97019	1.28044
(D12°)	1.42034	1.42034	-3.57032	-3.39034	0.74034	0.20034	-2.32034	4.73034	-7.08034	-0.26034	-1.10034	1.11034	0.64034	1.88034	-2.05032	-1.87033	-3.58031	-2.51088	0.07017	-2.57043	2.84043	-4.07043	2.67043	-2.51043
(H12°)	3.16034	-4.02049	-4.59029	-2.19071	-1.16025	-1.02041	-1.46048	-4.47067	-4.59042	-1.68026	2.59074	-6.44038	-1.45015	-1.96049	-4.94045	-2.25043	-6.67042	-1.02025	0.33016	2.33049	-3.81073	-2.48035	1.21041	-4.33021
(D15°)	4.49041	-1.81098	-0.16046	0.68016	-0.78018	0.75017	-1.99045	-3.33045	-4.25042	-1.29026	-4.54038	-1.73018	1.18018	-2.78022	-1.03062	-2.42030	0.12068	-1.03028	-1.68027	-4.09067	-3.79017	6.87046	-5.12041	9.16077
(H15°)	6.54041	-2.89016	-2.15012	-2.01014	7.44078	4.88029	-3.07028	-1.79013	6.16038	-3.88028	-3.11032	-3.64009	2.18094	0.04024	3.47019	-2.74047	-3.42016	-0.95012	-1.32021	2.86026	3.46047	6.14072	2.31029	-5.05019
(D15°)	2.1901	-0.83034	-2.39034	-3.64025	-1.44072	-1.13065	-1.58023	-2.10034	-7.04038	-7.11032	-5.68038	-2.08016	0.62074	0.26074	-0.51074	-0.24039	0.64031	2.41039	0.82026	0.67089	-7.82059	4.62079	5.88036	-5.88036
(H15°)	6.59044	-6.81042	-6.11079	-3.29027	2.16038	4.68043	-8.39051	-6.69047	-7.82033	6.68041	-4.19038	-4.23088	-3.05013	-1.95025	-2.54033	-1.02012	-2.36024	1.28018	-3.29074	-2.2101	-3.70033	-3.64028	-3.47046	-6.64045
(D15°)	6.13044	-6.13044	-2.62024	-2.10044	3.44028	6.84048	-6.45045	-6.41081	-8.48079	-7.19073	-8.62078	6.91027	6.14027	0.37054	-2.33012	-0.91015	-0.73054	2.38018	0.88014	-1.50028	1.11028	1.20044	3.11049	-3.91043
(H12°)	2.38075	-2.73022	-2.84043	6.59026	8.17089	-7.28066	6.36055	-4.11029	2.07016	0.73083	-0.43042	-0.21044	0.23065	-1.23066	-2.02028	-1.38019	-0.93049	0.36021	0.37035	-0.11023	0.84025	-1.81042	2.24019	-2.54034
FreeH4	5.95094	Theta	Phi	Psi	Omega	Gamma	Delta	Epsilon	Zeta	Eta	Theta	Iota	Kappa	Lambda	Mu	Nu	Xi	Omicron	Pi	Rho	Sigma	Tau	Upsilon	Phi
(D50°)	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097	0.97097
(H50°)	0.94092	-1.08042	-3.35033	3.48012	2.9103	-3.11021	-2.83013	3.55022	-1.57013	-6.81069	-6.84007	0.12028	0.59048	-1.86021	-2.01016	-2.12012	-2.12012	-2.77027	-2.77027	-2.36046	-2.71043	-4.91013	3.86014	0.18845
(D45°)	1.17018	-1.25014	-2.03018	1.58022	2.25024	2.25024	3.19024	-1.91027	-3.04008	0.18907	0.21011	0.16044	-1.17018	-2.31035	-3.50035	-4.05035	-4.05035	-2.92039	2.92039	3.40047	-2.82022	-1.57035	0.69019	4.77011
(H45°)	3.71026	-0.51014	0.60037	0.42017	1.89038	3.14039	4.11037	3.11038	2.44011	-1.44012	0.89012	0.20018	0.90014	1.79018	-2.42018	4.85017	5.68015	3.86011	3.71018	0.85011	3.71018	0.85011	1.65017	0.98019
(D45°)	1.11054	0.11054	1.02057	0.43068	0.71064	1.81071	3.75033	4.03045	4.54031	6.51025	3.92035	2.01044	0.86040	0.81013	1.84031	3.54049	4.18047	5.36047	4.47041	1.88014	1.33043	1.66026	1.46014	1.58019
(H35°)	0.99013	0.89019	0.61018	-1.37012	0.97013	2.19038	3.37031	2.91035	2.81036	-1.97012	0.84015	-2.27025	-1.21040	0.06010	0.21012	0.41018	4.12018	4.12018	-1.16079	-1.34035	1.88026	2.78048	2.12017	0.71077
(D35°)	1.34091	0.28019	-1.21047	-1.42024	-1.81014	1.37014	2.83039	2.41021	-1.13018	0.68029	0.82014	-3.81011	-0.95026	0.26010	0.46025	3.73037	2.63014	3.32025	-1.41014	1.82021	1.50015	1.85019	1.25017	1.82017
(H35°)	1.31043	1.85019	0.80045	0.30052	2.86028	-4.03047	5.89042	-2.28017	-1.56024	2.02014	0.13013	-1.98043	0.22045	-1.83029	-1.58076	-1.83077	-4.07047	-1.16035	-1.84041	-3.26012	-1.72043	1.31028	0.93068	1.43017
(D35°)	1.78019	1.29019	2.84019	0.70014	1.09014	1.74014	2.86019	-6.83047	-1.47014	0.71012	0.64012	1.94012	1.11012	-1.58029	-1.47012	-1.00012	-0.81029	-2.12002	-1.35029	-2.24017	-2.91044	5.04028	-1.18014	-1.83014
(H30°)	1.53044	0.81034	1.96021	1.59031	0.43017	0.44012	-3.17039	-3.31073	-0.73023	-1.07016	2.22011	1.87022	2.03017	0.75019	0.81046	-0.61046	-0.56044	-2.23016	0.31085	-0.83045	-1.19028	-0.81042	-0.16015	2.07024
(D30°)	0.68017	0.62036	0.17046	1.89013	-0.97019	0.48011	0.65014	3.44018	4.21033	0.38045	0.61043	-0.86031	1.27012	0.26056	0.14012	1.45011	1.65011	1.45011	1.45011	1.45011	1.45011	1.45011	1.45011	1.45011
(H30°)	0.57062	0.53026	0.58014	0.55028	0.45028	0.13006	0.39019	-4.32014	-4.85034	2.49016	2.07014	1.12016	1.04016	0.51048	0.79048	0.64073	0.68012	1.59055	1.97013	0.38014	-0.29063	0.09017	1.41082	1.59018
(D30°)	1.71012	1.02018	-1.05012	-1.54016	1.36018	-1.23018	-1.16015	-3.30018	-1.64018	-0.53024	-1.57007	0.28016	2.19091	0.21091	0.21091	2.43007	0.55009	1.79016	2.01016	1.16012	1.16012	1.16012	1.16012	1.16012
(H30°)	1.62047	0.21045	-1.67042	-3.44017	-1.19015	-1.06016	-0.87048	-1.02069	2.66035	0.46083	0.41012	0.2809	2.89019	0.16020	-1.51019	0.90018	0.64018	1.32023	3.62023	2.41022	1.71028	2.22022	1.22023	0.64011
(D30°)	0.81025	0.71018	-1.46048	0.89051	0.54013	0.54013	-3.34026	-3.89033	-4.12033	0.78037	-3.77014	2.34016	0.88033	0.30016	-0.52018	0.39035	3.29015	3.29015	3.29015	3.29015	3.29015	3.29015	3.29015	3.29015
(H30°)	-1.91081	-1.11031	-1.78013	1.09088	0.93046	0.85007	-1.41029	-4.28021	5.69031	-3.22016	-1.93089	-2.88014	0.32052	0.15025	0.71053	0.68074	1.28022	3.09038	4.11072	2.61029	1.57054	1.02014	2.24014	-2.24044
(D30°)	1.31066	-2.08024	-0.79077	0.77043	-2.13023	-1.14026	0.23015	-2.74028	-1.46017	-3.34017	-2.34017	-1.83022	-1.87093											



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φ(θ)	2.99/2.61	-2.69/4.41	-5.84/6.04	-2.89/2.61	-1.33/2.64	-4.78/1.81	0.22/0.17	-1.48/2.08	-2.41/4.04	-3.73/3.19	-3.83/2.53	-0.82/1.42	-2.89/3.38	-1.77/0.17	-0.1/4	-6.7/7	-0.49/0.55	-1.20/0.22	0.46/0.29	-0.98/0.17	-0.78/1.88	-1.13/1.52	-4.28/3.74	-2.84/4.38
φ(θ7.5)	-1.67/3.2	-2.36/3.32	-3.69/2.35	-1.39/2.5	2.07/1.89	2.74/1.82	0.39/0.93	-3.06/2.61	-2.17/3.34	6.1/4.49	-2.49/1.97	-2.19/2.39	2.6/0.85	0.23/0.91	0.48/0.87	0.69/0.27	-0.73/1.61	-0.63/0.58	0.58/0.59	-0.47/0.38	0.9/1.73	-2.11/3.24	-2.93/1.37	-3.35/3.38
φ(θ9)	0.32/1.74	-3/3.43	-3.53/1.89	-0.61/1.34	-2.48/0.38	0.44/1.64	0.94/1.15	-2.69/2.14	-6.99/1.75	-2.69/6.32	0.4/0.51	-2.9/5.63	-6.55/3.66	-3.99/0.31	1.95/0.73	-1.57/0.64	0.69/1.18	-1.44/0.78	0.66/1.06	-0.15/1.17	-0.7/2.36	-1.92/2.32	-2.76/1.97	-0.64/0.22
φ(θ12.5)	0.53/0.94	-2.64/1.34	-2.29/1.35	-1.31/2.22	2.21/0.36	2.34/2.28	-0.79/1.94	-2.19/4.54	-1.83/7	8.87/2.27	1.22/0.52	-0.8/1.33	0.9/1.91	2.67/4.94	-1.85/1.37	-0.77/2.22	0.19/1.25	-0.29/1.59	1.11/1.65	-0.56/0.78	-1.92/1.15	-1.88/0.8	-1.12/1.94	-1.46/0.12
φ(θ15)	0.31/0.99	-1.28/1.75	-2.17/3.55	-2.48/2.45	-1.3/0.16	-1.68/4.15	-3.64/5.1	-4.23/2.64	-2.44/6.09	8.87/2.27	1.03/0.89	3.38/3.4	-3.92/0.7	-1/3.33	4.66/0.41	0.84/0.17	1.01/0.36	-1.09/0.39	0.10/0.37	-0.96/0.61	1.1/1.32	-1.44/0.91	8.38/1.46	-1.65/1.65
φ(θ17.5)	0.69/0.25	-0.99/2.08	3.50/3.07	2.96/3.36	2.98/1.04	3.35/1.81	-1.36/1.82	-1.79/0.83	2.22/4.93	-7.1/3.45	-2.02/3.86	2.98/0.43	0.45/1.12	-2.39/3.08	-3.78/0.57	2.55/0.42	0.65/0.28	0.38/1.02	0.70/0.06	0.01/0.11	-1.96/2.01	-0.4/1.37	-1.19/2.02	-3.08/1.97
φ(θ19.5)	-1.88/2.77	-3.07/3.25	-1.1/3.4	-2.9/3.44	-1.6/3.46	-5.64/3.35	2.01/3.54	-1.88/1.52	0.04/1.71	6.42/5.9	-1.12/5.46	5.43/0.53	0.66/0.42	-0.88/0.93	-2.98/1.76	1.46/0.06	0.48/0.52	0.55/0.48	1.90/0.06	0.44/0.6	-0.12/3.27	-1.07/0.58	-1.56/2.89	-3.48/2.24
φ(θ22.5)	-1.91/2.08	-2.1/2.23	-2.15/3.3	-3.14/2.22	-1.57/4.33	-5.2/4.89	2.92/2.66	-1.78/2.53	2.58/2.87	6.25/6.69	-3.66/1.84	7.91/0.24	1.35/3.03	-2.25/2.23	-3.57/0.97	0.73/0.71	0.69/0.02	-1.22/1.72	-0.12/0.51	0.64/0.3	0.98/1.43	-5.16/2.29	-1.88/2.82	-8.37/4.66
φ(θ25)	1.28/4.67	-3.48/2.29	-2.44/1.56	-3.67/3.52	-0.96/2.22	-2.91/4.01	-3.2/3.77	-3.23/2.76	-3.26/5.31	-3.79/5.99	5.36/5.3	-1.30/0.86	-2.77/6.71	-1.18/0.3	3.32/4.16	-2.28/0.6	-0.61/0.01	-1.48/3.03	2.94/2.33	4.63/3	-2.01/4.47	-7.18/4.77		
φ(θ27.5)	4.95/3.37	-3.99/2.98	4.44/4.24	2.94/1.71	-4.63/2.69	0.72/2.34	4.84/3.81	-1.85/2.73	-3.74/3.33	-6.93/4.02	-3.89/3.92	8.16/4.45	3.37/4.25	-6.44/2.45	4.6/3.79	4.22/1.67	3.65/2.25	-2.72/2.88	-3.39/2.09	-5.26/1.07	4.38/1.71	-0.89/2	-0.99/2.87	-4.08/1.96
φ(θ30)	3.03/3.49	-5.67/3.32	4.63/2.92	-1.81/1.07	-4.76/4.27	2.42/0.15	0.59/2.54	4.63/4.16	-4.38/3.52	-3.17/7.42	6.65/1.59	5.01/5.72	2.33/3.11	4.4/4.65	-1.78/2.14	-1.91/1.88	4.37/3.18	4.57/2.48	5.17/4.78	5.95/4.71	3.1/2.32	2.91/1.86	-0.68/4.65	-7.22/3.05
φ(θ32.5)	5.69/5.5	-3.18/2.36	-6.03/4.85	-4.37/2.57	0.07/1.65	0.38/1.13	2.01/3.38	3.34/4.59	-3.68/2.21	0.02/3.83	-5.38/3.33	2.87/3.1	2.52/4.52	-1.71/4.49	-8.95/2.91	0.72/3.3	4.42/3.33	3.68/2.98	-1.85/2.08	-1.98/4.41	6.97/2.18	-1.99/2.28	-1.26/4.31	-4.26/3.3
φ(θ35)	3.89/3.28	-3.08/2.41	2.08/4	-4.12/4.74	3.53/3.58	-4.48/3.5	1.99/2.96	3.38/3.57	3.63/3.57	5.28/7.5	4.18/1.64	5.16/2.25	0.21/0.51	4.4/7.22	-6.98/3.28	5.21/3.56	6.41/2.85	2.55/2.18	-1.57/0.02	-1.88/4.66	8.63/3.85	5.22/2.11	-1.72/1.44	-0.97/3.26
φ(θ37.5)	3.85/3.48	-3.71/4.2	4.18/5.81	6.39/4.31	-3.07/1.6	0.37/0.37	0.5/1.57	-2.86/4.03	4.24/6.07	-5.97/7.05	8/7.61	3.13/0.76	-0.88/1.83	2.83/3.51	-4.69/0.52	5.57/5.11	4.24/3.97	-5.26/7.38	-7.33/7.17	6.94/7.13	6.63/7.93	7.81/4.17	4.47/4.17	-6.96/4.09
φ(θ40)	6.53/4.62	-6.86/7.04	-4.77/3.46	2.72/1.72	0.88/0.14	-1.83/0.5	4.74/5.04	6.11/7.91	8.41/6.77	-5.25/6.78	-6.57/7.26	8.13/6.69	6.57/4.45	-3.81/3.23	-3.28/3.37	-3.78/4.2	5.34/2.22	-7.03/5.85	-4.33/3.58	-3.84/7.77	4.8/4.11	-4.91/5.52	-0.91/5.85	-6.57/7.85
φ(θ42.5)	4.78/5.91	-5.27/3.07	-2.63/2.96	-3.27/3.41	4.16/4.66	-5.26/5.83	-5.74/5.52	-6.95/5.21	-4.88/4.1	-4.28/4.43	-3.97/4.33	4.21/3.23	-2.97/2.23	-1.38/0.72	-0.15/0.09	-0.49/1.05	-1.96/2.06	-2.01/1.73	-1.3/1.2	-1.98/2.55	2.32/1.67	-1.77/2.19	-2.28/2.74	-3.38/3.72
φ(θ45)	2.92/1.98	-2.06/2.04	-3.13/3.88	-0.95/1.76	-7.4/6.08	-5.22/4.53	-3.28/2.14	-2.22/2.58	-1.97/1.17	-2.31/2.91	-3.05/3.12	-3.78/3.84	-3.48/3.72	-1.65/1.16	2.8/2.21	-1.27/1.04	0.52/0.2	0.01/0.27	-0.16/0.92	-1.26/2.28	-2.37/2.65	-2.12/2.37	-1.68/3.3	
φ(θ47.5)	5.785/5.04																							
φ(θ50)	0.07/0.57	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(θ52.5)	0.47/0.24	-0.69/1.14	-1.48/2.14	2.79/3.62	4.67/5.35	6.26/4.02	4.57/3.35	2.38/1.99	1.59/0.94	0.54/0.31	-0.88/0.11	0.59/0.44	0.2/0.29	0.69/1.27	-1.52/2.06	2.39/3.77	4.49/5.21	5.06/4.24	3.45/2.71	-1.7/0.93	0.72/0.14	0.24/0.72	0.128/0.16	0.52/0.58
φ(θ55)	0.23/0.52	0.32/0.58	-1.39/0.86	-1.52/2.05	2.44/3.46	4.64/4.44	3.43/2.68	-1.56/1.47	0.74/0.18	0.21/0.78	0.54/0.55	0.75/0.22	0.18/0.35	-1.01/1.63	-2.04/2.64	3.50/4.51	4.9/5.79	6.28/5.6	-4.19/3.31	-2.64/2.33	-1.71/0.89	-0.36/0.38	0.53/0.29	0.24/0.39
φ(θ57.5)	0.92/0.66	-0.81/0.68	-0.62/0.85	-1.43/2.1	2.49/2.32	2.74/3.01	2.98/3.3	3.14/2.7	3.04/2.77	2.11/1.44	-0.99/0.21	-0.16/0.41	0.96/1.89	-2.74/3.02	-4.42/4.16	3.89/3.52	3.5/3.94	4.06/4.57	-3.82/3.28	-2.83/2.15	-1.72/0.84	-0.01/0.4	-0.17/0.87	-0.53/1.71
φ(θ60)	0.97/0.69	-0.34/0.23	-0.08/0.05	0.46/1.21	-1.63/1.52	-0.9/1.04	-1.27/1.45	2.1/2.25	-1.45/0.62	0.16/0.58	1.27/0.77	0.11/1.07	-1.98/3.11	-3.92/3.35	-4.4/2.4	3.98/4.45	4.81/3.04	2.52/2.73	2.16/1.82	-2.32/2.24	-1.06/0.76	0.99/0.76	0.39/0.41	-1.08/1.28
φ(θ62.5)	1.07/1.85	1.25/1.73	0.74/0.07	-1.36/2.33	-1.72/1.09	0.98/0.66	-1.96/2.94	-1.6/1.01	0.92/1.27	2.1/2.98	2.1/0.89	-0.07/0.07	0.21/0.06	0.1/1.51	-3.26/3.82	3.64/3.48	3.76/2.97	1.43/1.01	-1.57/2.6	4.1/2.79	0.71/0.42	0.11/0.2	0.2/0.29	0.83/1.17
φ(θ65)	0.82/1.5	1.87/0.54	0.3/0.28	-1.52/2.98	-1.51/0.87	-3.01/2.53	4.84/4.93	2.68/1.79	-1.89/2.73	3.2/2.77	0.64/0.02	-1.16/2.49	-1.79/0.85	-1.62/2.49	-2.89/2.59	-3.44/2.71	-1.41/2.76	-2.89/1.16	-6.74/1.99	-3.11/4.26	-1.68/1.21	-1.14/0.75	-0.34/0.81	1.71/2.28
φ(θ67.5)	2.04/1.62	1.78/0.25	-1.35/1.43	0.9/1.64	0.03/1.06	2.4/2.15	4.84/3.77	2.6/1.96	-1/0.92	0.26/0.93	-1.34/0.67	0.8/0.06	1.65/1.75	0.54/1.59	-3.37/4.18	2.18/0.73	0.89/0.06	-1.39/0.94	-1.03/0.68	-1.88/2.08	-1.32/1.19	-2.29/2.48	-0.71/0.94	2.21/1.68
φ(θ70)	1.14/0.99	1.39/1.78	0.73/0.47	0.65/1.77	1.83/1.83	2.02/1.93	4.23/3.71	2.36/0.88	0.24/0.05	0.25/0.58	0.61/0.35	0.61/0.32	1.1/0.28	0.75/0.84	0.48/0.38	2.61/1.94	0.93/0.27	0.66/3.34	0.57/0.03	-1.07/1.35	1.44/0.44	0.11/0.3	0.27/0.32	1.29/0.99
φ(θ72.5)	2.37/1.71	0.78/0.24	-0.71/0.27	-1.2/1.35	1.21/0.95	-2.95/1.58	2.98/3.76	3.11/0.82	-1/0.15	0.92/0.91	0.92/0.25	2.96/2.77	1.6/0.36	0.34/0.28	-0.05/0.39	0.71/2.24	0.46/0.4	1.23/0.62	0.39/1.28	0.61/0.39	-0.73/1.01	1.57/0.47	0.76/1.33	1.38/1.76
φ(θ75)	1.79/2.37	2.22/0.6	-0.99/1.05	1.42/1.22	1.77/1.24	2.86/1.29	0.07/3.02	-2.76/1.15	-1.03/1.21	0.12/0.24	1.89/2.27	2.38/1.86	0.34/0.28	0.75/1.11	0.28/0.21	0.88/0.34	0.07/0.01	0.95/1.61	0.49/1.19	0.84/0.03	-0.21/0.01	1.23/0.42	0.12/0.15	2.81/2.6
φ(θ77.5)	2.45/1.4	1.61/1.63	1.11/0.31	2.43/1.76	0.95/2.99	-1.05/1.11	-1.96/3.88	-3.66/3.49	2.61/1.86	-3.53/3.83	0.96/0.96	1.42/1.56	-0.89/0.7	0.5/0.86	-0.35/0.26	1.69/1.27	0.16/0.83	0.66/2.01	0.51/0.53	2.08/2.4	1.0/0.76	1.96/1.96	0.25/0.31	1.76/1.85
φ(θ80)	3.37/3.12	1.22/0.2	2.03/2.3	1.35/0.47	-0.78/1.82	-1.07/1.47	-3.41/3.43	-2.71/4.99	-2.88/3.32	-4.3/3.55	0.99/0.06	-0.13/0.29	2.15/1.19	-1.42/1.44	-1.13/1.68	1.89/0.82	-0.38/0.26	1.35/2.04	2.43/3.63	3.36/0.2	2.883/2.7	3.42/3.74	3.42/3.8	1.41/2.86
φ(θ82.5)	4.64/3.65	0.84/0.71	0.86/1	0.99/0.48	-3.33/1.51	-0.2/3.39	-2.99/2.28	-1.55/2.65	-3.99/2.63	-0.83/0.99	0.65/0.19	-0.04/1.19	3.13/2.01	0.05/0.93	0.02/0.64	1.11/0.41	-0.51/2.14	1.34/0.86	1.85/2.5	2.37/2.59	3.17/2.53	3.53/3.64	1.65/2.33	2.21/1.69
φ(θ85)	2.24/0.48	-1.89/0.01	-2.07/0.02	-1.46/0.71	-1.82/0.12	-1.73/0.21	-2.86/0.88	-3.29/3.36	-6.77/6.35	-3.97/1.55	-2.19/1.89	-3.45/3.1	3.63/1.6	0.59/1.25	0.65/0.61	2.75/0.28	2.46/2.67	3.61/2.1	1.63/2.48	1.99/0.69	1.74/0.53	-0.89/0.83	-0.28/1.59</	



Radiated Composite Gain of 2.4GHz and 5GHz UNII 1~3

Appendix A

φ(22.5°)	φ(27.0°)	φ(31.5°)	φ(36.0°)	φ(40.5°)	φ(45.0°)	φ(49.5°)	φ(54.0°)	φ(58.5°)	φ(63.0°)	φ(67.5°)	φ(72.0°)	φ(76.5°)	φ(81.0°)	φ(85.5°)	φ(90.0°)	φ(94.5°)	φ(99.0°)	φ(103.5°)	φ(108.0°)	φ(112.5°)	φ(117.0°)	φ(121.5°)	φ(126.0°)	φ(130.5°)	φ(135.0°)	φ(139.5°)	φ(144.0°)	φ(148.5°)	φ(153.0°)	φ(157.5°)	φ(162.0°)	φ(166.5°)	φ(171.0°)	φ(175.5°)	φ(180.0°)	φ(184.5°)	φ(189.0°)	φ(193.5°)	φ(198.0°)	φ(202.5°)	φ(207.0°)	φ(211.5°)	φ(216.0°)	φ(220.5°)	φ(225.0°)	φ(229.5°)	φ(234.0°)	φ(238.5°)	φ(243.0°)	φ(247.5°)	φ(252.0°)	φ(256.5°)	φ(261.0°)	φ(265.5°)	φ(270.0°)	φ(274.5°)	φ(279.0°)	φ(283.5°)	φ(288.0°)	φ(292.5°)	φ(297.0°)	φ(301.5°)	φ(306.0°)	φ(310.5°)	φ(315.0°)	φ(319.5°)	φ(324.0°)	φ(328.5°)	φ(333.0°)	φ(337.5°)	φ(342.0°)	φ(346.5°)	φ(351.0°)	φ(355.5°)	φ(360.0°)	φ(364.5°)	φ(369.0°)	φ(373.5°)	φ(378.0°)	φ(382.5°)	φ(387.0°)	φ(391.5°)	φ(396.0°)	φ(400.5°)	φ(405.0°)	φ(409.5°)	φ(414.0°)	φ(418.5°)	φ(423.0°)	φ(427.5°)	φ(432.0°)	φ(436.5°)	φ(441.0°)	φ(445.5°)	φ(450.0°)	φ(454.5°)	φ(459.0°)	φ(463.5°)	φ(468.0°)	φ(472.5°)	φ(477.0°)	φ(481.5°)	φ(486.0°)	φ(490.5°)	φ(495.0°)	φ(499.5°)	φ(504.0°)	φ(508.5°)	φ(513.0°)	φ(517.5°)	φ(522.0°)	φ(526.5°)	φ(531.0°)	φ(535.5°)	φ(540.0°)	φ(544.5°)	φ(549.0°)	φ(553.5°)	φ(558.0°)	φ(562.5°)	φ(567.0°)	φ(571.5°)	φ(576.0°)	φ(580.5°)	φ(585.0°)	φ(589.5°)	φ(594.0°)	φ(598.5°)	φ(603.0°)	φ(607.5°)	φ(612.0°)	φ(616.5°)	φ(621.0°)	φ(625.5°)	φ(630.0°)	φ(634.5°)	φ(639.0°)	φ(643.5°)	φ(648.0°)	φ(652.5°)	φ(657.0°)	φ(661.5°)	φ(666.0°)	φ(670.5°)	φ(675.0°)	φ(679.5°)	φ(684.0°)	φ(688.5°)	φ(693.0°)	φ(697.5°)	φ(702.0°)	φ(706.5°)	φ(711.0°)	φ(715.5°)	φ(720.0°)	φ(724.5°)	φ(729.0°)	φ(733.5°)	φ(738.0°)	φ(742.5°)	φ(747.0°)	φ(751.5°)	φ(756.0°)	φ(760.5°)	φ(765.0°)	φ(769.5°)	φ(774.0°)	φ(778.5°)	φ(783.0°)	φ(787.5°)	φ(792.0°)	φ(796.5°)	φ(801.0°)	φ(805.5°)	φ(810.0°)	φ(814.5°)	φ(819.0°)	φ(823.5°)	φ(828.0°)	φ(832.5°)	φ(837.0°)	φ(841.5°)	φ(846.0°)	φ(850.5°)	φ(855.0°)	φ(859.5°)	φ(864.0°)	φ(868.5°)	φ(873.0°)	φ(877.5°)	φ(882.0°)	φ(886.5°)	φ(891.0°)	φ(895.5°)	φ(900.0°)	φ(904.5°)	φ(909.0°)	φ(913.5°)	φ(918.0°)	φ(922.5°)	φ(927.0°)	φ(931.5°)	φ(936.0°)	φ(940.5°)	φ(945.0°)	φ(949.5°)	φ(954.0°)	φ(958.5°)	φ(963.0°)	φ(967.5°)	φ(972.0°)	φ(976.5°)	φ(981.0°)	φ(985.5°)	φ(990.0°)	φ(994.5°)	φ(999.0°)	φ(1003.5°)	φ(1008.0°)	φ(1012.5°)	φ(1017.0°)	φ(1021.5°)	φ(1026.0°)	φ(1030.5°)	φ(1035.0°)	φ(1039.5°)	φ(1044.0°)	φ(1048.5°)	φ(1053.0°)	φ(1057.5°)	φ(1062.0°)	φ(1066.5°)	φ(1071.0°)	φ(1075.5°)	φ(1080.0°)	φ(1084.5°)	φ(1089.0°)	φ(1093.5°)	φ(1098.0°)	φ(1102.5°)	φ(1107.0°)	φ(1111.5°)	φ(1116.0°)	φ(1120.5°)	φ(1125.0°)	φ(1129.5°)	φ(1134.0°)	φ(1138.5°)	φ(1143.0°)	φ(1147.5°)	φ(1152.0°)	φ(1156.5°)	φ(1161.0°)	φ(1165.5°)	φ(1170.0°)	φ(1174.5°)	φ(1179.0°)	φ(1183.5°)	φ(1188.0°)	φ(1192.5°)	φ(1197.0°)	φ(1201.5°)	φ(1206.0°)	φ(1210.5°)	φ(1215.0°)	φ(1219.5°)	φ(1224.0°)	φ(1228.5°)	φ(1233.0°)	φ(1237.5°)	φ(1242.0°)	φ(1246.5°)	φ(1251.0°)	φ(1255.5°)	φ(1260.0°)	φ(1264.5°)	φ(1269.0°)	φ(1273.5°)	φ(1278.0°)	φ(1282.5°)	φ(1287.0°)	φ(1291.5°)	φ(1296.0°)	φ(1300.5°)	φ(1305.0°)	φ(1309.5°)	φ(1314.0°)	φ(1318.5°)	φ(1323.0°)	φ(1327.5°)	φ(1332.0°)	φ(1336.5°)	φ(1341.0°)	φ(1345.5°)	φ(1350.0°)	φ(1354.5°)	φ(1359.0°)	φ(1363.5°)	φ(1368.0°)	φ(1372.5°)	φ(1377.0°)	φ(1381.5°)	φ(1386.0°)	φ(1390.5°)	φ(1395.0°)	φ(1399.5°)	φ(1404.0°)	φ(1408.5°)	φ(1413.0°)	φ(1417.5°)	φ(1422.0°)	φ(1426.5°)	φ(1431.0°)	φ(1435.5°)	φ(1440.0°)	φ(1444.5°)	φ(1449.0°)	φ(1453.5°)	φ(1458.0°)	φ(1462.5°)	φ(1467.0°)	φ(1471.5°)	φ(1476.0°)	φ(1480.5°)	φ(1485.0°)	φ(1489.5°)	φ(1494.0°)	φ(1498.5°)	φ(1503.0°)	φ(1507.5°)	φ(1512.0°)	φ(1516.5°)	φ(1521.0°)	φ(1525.5°)	φ(1530.0°)	φ(1534.5°)	φ(1539.0°)	φ(1543.5°)	φ(1548.0°)	φ(1552.5°)	φ(1557.0°)	φ(1561.5°)	φ(1566.0°)	φ(1570.5°)	φ(1575.0°)	φ(1579.5°)	φ(1584.0°)	φ(1588.5°)	φ(1593.0°)	φ(1597.5°)	φ(1602.0°)	φ(1606.5°)	φ(1611.0°)	φ(1615.5°)	φ(1620.0°)	φ(1624.5°)	φ(1629.0°)	φ(1633.5°)	φ(1638.0°)	φ(1642.5°)	φ(1647.0°)	φ(1651.5°)	φ(1656.0°)	φ(1660.5°)	φ(1665.0°)	φ(1669.5°)	φ(1674.0°)	φ(1678.5°)	φ(1683.0°)	φ(1687.5°)	φ(1692.0°)	φ(1696.5°)	φ(1701.0°)	φ(1705.5°)	φ(1710.0°)	φ(1714.5°)	φ(1719.0°)	φ(1723.5°)	φ(1728.0°)	φ(1732.5°)	φ(1737.0°)	φ(1741.5°)	φ(1746.0°)	φ(1750.5°)	φ(1755.0°)	φ(1759.5°)	φ(1764.0°)	φ(1768.5°)	φ(1773.0°)	φ(1777.5°)	φ(1782.0°)	φ(1786.5°)	φ(1791.0°)	φ(1795.5°)	φ(1800.0°)	φ(1804.5°)	φ(1809.0°)	φ(1813.5°)	φ(1818.0°)	φ(1822.5°)	φ(1827.0°)	φ(1831.5°)	φ(1836.0°)	φ(1840.5°)	φ(1845.0°)	φ(1849.5°)	φ(1854.0°)	φ(1858.5°)	φ(1863.0°)	φ(1867.5°)	φ(1872.0°)	φ(1876.5°)	φ(1881.0°)	φ(1885.5°)	φ(1890.0°)	φ(1894.5°)	φ(1899.0°)	φ(1903.5°)	φ(1908.0°)	φ(1912.5°)	φ(1917.0°)	φ(1921.5°)	φ(1926.0°)	φ(1930.5°)	φ(1935.0°)	φ(1939.5°)	φ(1944.0°)	φ(1948.5°)	φ(1953.0°)	φ(1957.5°)	φ(1962.0°)	φ(1966.5°)	φ(1971.0°)	φ(1975.5°)	φ(1980.0°)	φ(1984.5°)	φ(1989.0°)	φ(1993.5°)	φ(1998.0°)	φ(2002.5°)	φ(2007.0°)	φ(2011.5°)	φ(2016.0°)	φ(2020.5°)	φ(2025.0°)	φ(2029.5°)	φ(2034.0°)	φ(2038.5°)	φ(2043.0°)	φ(2047.5°)	φ(2052.0°)	φ(2056.5°)	φ(2061.0°)	φ(2065.5°)	φ(2070.0°)	φ(2074.5°)	φ(2079.0°)	φ(2083.5°)	φ(2088.0°)	φ(2092.5°)	φ(2097.0°)	φ(2101.5°)	φ(2106.0°)	φ(2110.5°)	φ(2115.0°)	φ(2119.5°)	φ(2124.0°)	φ(2128.5°)	φ(2133.0°)	φ(2137.5°)	φ(2142.0°)	φ(2146.5°)	φ(2151.0°)	φ(2155.5°)	φ(2160.0°)	φ(2164.5°)	φ(2169.0°)	φ(2173.5°)	φ(2178.0°)	φ(2182.5°)	φ(2187.0°)	φ(2191.5°)	φ(2196.0°)	φ(2200.5°)	φ(2205.0°)	φ(2209.5°)	φ(2214.0°)	φ(2218.5°)	φ(2223.0°)	φ(2227.5°)	φ(2232.0°)	φ(2236.5°)	φ(2241.0°)	φ(2245.5°)	φ(2250.0°)	φ(2254.5°)	φ(2259.0°)	φ(2263.5°)	φ(2268.0°)	φ(2272.5°)	φ(2277.0°)	φ(2281.5°)	φ(2286.0°)	φ(2290.5°)	φ(2295.0°)	φ(2299.5°)	φ(2304.0°)	φ(2308.5°)	φ(2313.0°)	φ(2317.5°)	φ(2322.0°)	φ(2326.5°)	φ(2331.0°)	φ(2335.5°)	φ(2340.0°)	φ(2344.5°)	φ(2349.0°)	φ(2353.5°)	φ(2358.0°)	φ(2362.5°)	φ(2367.0°)	φ(2371.5°)	φ(2376.0°)	φ(2380.5°)	φ(2385.0°)	φ(2389.5°)	φ(2394.0°)	φ(2398.5°)	φ(2403.0°)	φ(2407.5°)	φ(2412.0°)	φ(2416.5°)	φ(2421.0°)	φ(2425.5°)	φ(2430.0°)	φ(2434.5°)	φ(2439.0°)	φ(2443.5°)	φ(2448.0°)	φ(2452.5°)	φ(2457.0°)	φ(2461.5°)	φ(2466.0°)	φ(2470.5°)	φ(2475.0°)	φ(2479.5°)	φ(2484.0°)	φ(2488.5°)	φ(2493.0°)	φ(2497.5°)	φ(2502.0°)	φ(2506.5°)	φ(2511.0°)	φ(2515.5°)	φ(2520.0°)	φ(2524.5°)	φ(2529.0°)	φ(2533.5°)	φ(2538.0°)	φ(2542.5°)	φ(2547.0°)	φ(2551.5°)	φ(2556.0°)	φ(2560.5°)	φ(2565.0°)	φ(2569.5°)	φ(2574.0°)	φ(2578.5°)	φ(2583.0°)	φ(2587.5°)	φ(2592.0°)	φ(2596.5°)	φ(2601.0°)	φ(2605.5°)	φ(2610.0°)	φ(2614.5°)	φ(2619.0°)	φ(2623.5°)	φ(2628.0°)	φ(2632.5°)	φ(2637.0°)	φ(2641.5°)	φ(2646.0°)	φ(2650.5°)	φ(2655.0°)	φ(2659.5°)	φ(2664.0°)	φ(2668.5°)	φ(2673.0°)	φ(2677.5°)	φ(2682.0°)	φ(2686.5°)	φ(2691.0°)	φ(2695.5°)	φ(2700.0°)	φ(2704.5°)	φ(2709.0°)	φ(2713.5°)	φ(2718.0°)	φ(2722.5°)	φ(2727.0°)	φ(2731.5°)	φ(2736.0°)	φ(2740.5°)	φ(2745.0°)	φ(2749.5°)	φ(2754.0°)	φ(2758.5°)	φ(2763.0°)	φ(2767.5°)	φ(2772.0°)	φ(2776.5°)	φ(2781.0°)	φ(2785.5°)	φ(2790.0°)	φ(2794.5°)	φ(2799.0°)	φ(2803.5°)	φ(2808.0°)	φ(2812.5°)	φ(2817.0°)	φ(2821.5°)	φ(2826.0°)	φ(2830.5°)	φ(2835.0°)	φ(2839.5°)	φ(2844.0°)	φ(2848.5°)	φ(2853.0°)	φ(2857.5°)	φ(2862.0°)	φ(2866.5°)	φ(2871.0°)	φ(2875.5°)	φ(2880.0°)	φ(2884.5°)	φ(2889.0°)	φ(2893.5°)	φ(2898.0°)	φ(2902.5°)	φ(2907.0°)	φ(2911.5°)	φ(2916.0°)	φ(2920.5°)	φ(2925.0°)	φ(2929.5°)	φ(2934.0°)	φ(2938.5°)	φ(2943.0°)	φ(2947.5°)	φ(2952.0°)	φ(2956.5°)	φ(2961.0°)	φ(2965.5°)	φ(2970.0°)	φ(2974.5°)	φ(2979.0°)	φ(2983.5°)	φ(2988.0°)	φ(2992.5°)	φ(2997.0°)	φ(3001.5°)	φ(3006.0°)	φ(3010.5°)	φ(3015.0°)	φ(3019.5°)	φ(3024.0°)	φ(3028.5°)	φ(3033.0°)	φ(3037.5°)	φ(3042.0°)	φ(3046.5°)	φ(3051.0°)	φ(3055.5°)	φ(3060.0°)	φ(3064.5°)	φ(3069.0°)	φ(3073.5°)	φ(3078.0°)	φ(3082.5°)	φ(3087.0°)	φ(3091.5°)	φ(3096.0°)	φ(3100.5°)	φ(3105.0°)	φ(3109.5°)	φ(3114.0°)	φ(3118.5°)	φ(3123.0°)	φ(3127.5°)	φ(3132.0°)	φ(3136.5°)	φ(3141.0°)	φ(3145.5°)	φ(3150.0°)	φ(3154.5°)	φ(3159.0°)	φ(3163.5°)	φ(3168.0°)	φ(3172.5°)	φ(3177.0°)	φ(3181.5°)	φ(3186.0°)	φ(3190.5°)	φ(3195.0°)	φ(3199.5°)	φ(3204.0°)	φ(3208.5°)	φ(3213.0°)	φ(3217.5°)	φ(3222.0°)	φ(3226.5°)	φ(3231.0°)	φ(3235.5°)	φ(3240.0°)	φ(3244.5°)	φ(3249.0°)	φ(3253.5°)	φ(3258.0°)	φ(3262.5°)	φ(3267.0°)	φ(3271.5°)	φ(3276.0°)	φ(3280.5°)	φ(3285.0°)	φ(3289.5°)	φ(3294.0°)	φ(3298.5°)	φ(3303.0°)	φ(3307.5°)	φ(3312.0°)	φ(3316.5°)	φ(3321.0°)	φ(3325.5°)	φ(3330.0°)	φ(3334.5°)	φ(3339.0°)	φ(3343.5°)	φ(3348.0°)	φ(3352.5°)	φ(3357.0°)	φ(3361.5°)	φ(3366.0°)	φ(3370.5°)	φ(3375.0°)	φ(3379.5°)	φ(3384.0°)	φ(3388.5°)	φ(3393.0°)	φ(3397.5°)	φ(3402.0°)	φ(3406.5°)	φ(3411.0°)	φ(3415.5°)	φ(3420.0°)	φ(3424.5°)	φ(3429.0°)	φ(3433.5°)	φ(3438.0°)	φ(3442.5°)	φ(3447.0°)	φ(3451.5°)	φ(3456.0°)	φ(3460.5°)	φ(3465.0°)	φ(3469.5°)	φ(3474.0°)	φ(3478.5°)	φ(3483.0°)	φ(3487.5°)	φ(3492.0°)	φ(3496.5°)	φ(3501.0°)	φ(3505.5°)	φ(3510.0°)	φ(3514.5°)	φ(3519.0°)	φ(3523.5°)	φ(3528.0°)	φ(3532.5°)	φ(3537.0°)	φ(3541.5°)	φ(3546.0°)	φ(3550.5°)	φ(3555.0°)	φ(3559.5°)	φ(3564.0°)	φ(3568.5°)	φ(3573.0°)	φ(3577.5°)	φ(3582.0°)	φ(3586.5°)	φ(3591.0°)	φ(3595.5°)	φ(3600.0°)	φ(3604.5°)	φ(3609.0°)	φ(3613.5°)	φ(3618.0°)	φ(3622.5°)	φ(3627.0°)	φ(3631.5°)	φ(3636.0°)	φ(3640.5°)	φ(3645.0°)	φ(3649.5°)	φ(3654.0°)	φ(3658.5°)	φ(3663.0°)	φ(3667.5°)	φ(3672.0°)	φ(3676.5°)	φ(3681.0°)	φ(3685.5°)	φ(3690.0°)	φ(3694.5°)	φ(3699.0°)	φ(3703.5°)	φ(3708.0°)	φ(3712.5°)	φ(3717.0°)	φ(3721.5°)	φ(3726.0°)	φ(3730.5°)	φ(3735.0°)	φ(3739.5°)	φ(3744.0°)	φ(3748.5°)	φ(3753.0°)	φ(3757.5°)	φ(3762.0°)	φ(3766.5°)	φ(3771.0°)	φ(3775.5°)	φ(3780.0°)	φ(3784.5°)	φ(3789.0°)	φ(3793.5°)	φ(3798.0°)	φ(3802.5°)	φ(3807.0°)	φ(3811.5°)	φ(3816.0°)	φ(3820.5°)	φ(3825.0°)	φ(3829.5°)	φ(3834.0°)	φ(3838.5°)	φ(3843.0°)	φ(3847.5°)	φ(3852.0°)	φ(3856.5°)	φ(3861.0°)	φ(3865.5°)	φ(3870.0°)	φ(3874.5°)	φ(3879.0°)	φ(3883.5°)	φ(3888.0°)	φ(3892.5°)	φ(3897.0°)	φ(3901.5°)	φ(3906.0°)	φ(3910.5°)	φ(3915.0°)	φ(3919.5°)	φ(3924.0°)	φ(3928.5°)	φ(3933.0°)	φ(3937.5°)	φ(3942.0°)	φ(3946.5°)	φ(3951.0°)	φ(3955.5°)	φ(3960.0°)	φ(3964.5°)	φ(3969.0°)	φ(3973.5°)	φ(3978.0°)	φ(3982.5°)	φ(3987.0°)	φ(3991.5°)	φ(3996.0°)	φ(4000.5°)	φ(4005.0°)	φ(4009.5°)	φ(4014.0°)	φ(4018.5°)
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Radiated Composite Gain of 2.4GHz and 5GHz UNII 1~3

Appendix A

(H)E	0.47097	0.6034	-0.63184	-2.4332	-1.44558	-7.80179	-19.41788	-14.18953	6.47433	3.84186	-1.19374	-0.18078	1.69222	2.25185	1.08001	-1.96287	-4.51616	4.177124	-16.711522	-15.181024	4.84444	2.92014	-1.91179	-1.32035
(H)E	0.370141	0.6601	-1.02015	-2.94354	-4.33858	-8.291359	-18.33191	-13.330367	4.87051	3.26141	-1.83125	-0.78014	1.181	2.0891	1.24017	-1.96324	-4.84453	4.846112	-15.75181	-15.21949	6.67133	2.66174	-1.41153	-1.61116
(H)E	1.530166	0.14041	-1.31235	-3.09336	-4.48606	-8.39126	-19.49128	-12.46107	8.94711	5.09243	-1.83125	-0.78014	1.181	2.0891	1.24017	-1.96324	-4.84453	4.846112	-15.75181	-15.21949	6.67133	2.66174	-1.41153	-1.61116
(H)E	2.221167	-1.01479	-1.14136	-2.95337	-4.22178	-8.291359	-18.33191	-13.330367	4.87051	3.26141	-1.83125	-0.78014	1.181	2.0891	1.24017	-1.96324	-4.84453	4.846112	-15.75181	-15.21949	6.67133	2.66174	-1.41153	-1.61116
(H)E	2.33017	-1.48406	-0.93183	-3.14484	-4.67406	-8.291359	-18.33191	-13.330367	4.87051	3.26141	-1.83125	-0.78014	1.181	2.0891	1.24017	-1.96324	-4.84453	4.846112	-15.75181	-15.21949	6.67133	2.66174	-1.41153	-1.61116
(H)E	2.74827	-2.22151	-1.95125	-3.89549	-5.19712	-10.11527	-17.29138	-10.55106	6.19187	3.16183	-1.46108	-0.34123	2.1118	-1.56113	-1.85236	-4.01186	-6.53112	-11.53149	-16.21283	-13.82163	7.76187	6.16172	-2.34137	-3.29128
(H)E	4.8523	-4.01121	-2.96135	-5.13126	-6.11178	-10.11527	-17.29138	-10.55106	6.19187	3.16183	-1.46108	-0.34123	2.1118	-1.56113	-1.85236	-4.01186	-6.53112	-11.53149	-16.21283	-13.82163	7.76187	6.16172	-2.34137	-3.29128
(H)E	8.22152	-5.59148	-4.91163	-8.22105	-10.11527	-17.29138	-10.55106	6.19187	3.16183	-1.46108	-0.34123	2.1118	-1.56113	-1.85236	-4.01186	-6.53112	-11.53149	-16.21283	-13.82163	7.76187	6.16172	-2.34137	-3.29128	
(H)E	10.2811	-7.52112	-6.98139	-10.8111	-13.96117	-22.46112	-30.71112	-19.71112	10.81112	6.46112	-2.18112	-0.81112	3.33112	-2.56112	-3.08112	-6.46112	-10.81112	-16.71112	-22.46112	-30.71112	10.81112	6.46112	-2.18112	-0.81112
(H)E	13.15123	-11.59126	-10.91126	-14.81126	-18.11126	-27.11126	-36.11126	-23.11126	13.11126	8.41126	-2.81126	-1.01126	4.11126	-3.41126	-4.11126	-9.11126	-14.81126	-22.46112	-30.71112	-36.11126	10.81112	6.46112	-2.18112	-0.81112
(H)E	16.29184	-17.86184	-16.98184	-22.11184	-28.11184	-38.11184	-48.11184	-31.11184	16.21184	10.81184	-3.41184	-1.21184	5.11184	-4.41184	-5.11184	-11.11184	-18.11184	-27.11126	-36.11126	-48.11184	13.11126	8.41126	-2.81126	-1.01126
(H)E	19.78189	-21.19189	-20.11189	-26.11189	-33.11189	-44.11189	-55.11189	-36.11189	19.71189	13.11189	-4.11189	-1.41189	6.11189	-5.41189	-6.11189	-13.11189	-22.11189	-33.11189	-44.11189	-55.11189	16.21189	10.81189	-3.41189	-1.21189
(H)E	23.81193	-25.11193	-23.81193	-30.11193	-38.11193	-50.11193	-62.11193	-41.11193	23.81193	16.11193	-4.81193	-1.61193	7.11193	-6.41193	-7.11193	-15.11193	-26.11193	-38.11193	-50.11193	-62.11193	19.71193	13.11193	-4.11193	-1.41193
(H)E	28.41198	-29.11198	-27.41198	-34.11198	-43.11198	-56.11198	-69.11198	-46.11198	28.41198	19.11198	-5.41198	-1.81198	8.11198	-7.41198	-8.11198	-17.11198	-29.11198	-43.11198	-56.11198	-69.11198	23.81198	16.11198	-4.81198	-1.61198
(H)E	33.61203	-34.11203	-32.11203	-39.11203	-49.11203	-63.11203	-77.11203	-51.11203	33.61203	22.11203	-6.01203	-2.01203	9.11203	-8.01203	-9.11203	-19.11203	-32.11203	-49.11203	-63.11203	-77.11203	28.41198	19.11198	-5.41198	-1.81198
(H)E	39.41208	-40.11208	-37.61208	-45.11208	-56.11208	-71.11208	-86.11208	-57.11208	39.41208	25.11208	-6.61208	-2.21208	10.11208	-9.01208	-10.11208	-21.11208	-35.11208	-56.11208	-71.11208	-86.11208	33.61203	22.11203	-6.01203	-2.01203
(H)E	45.81213	-46.11213	-43.31213	-51.11213	-63.11213	-79.11213	-95.11213	-63.11213	45.81213	28.11213	-7.21213	-2.41213	11.11213	-10.01213	-11.11213	-23.11213	-38.11213	-63.11213	-79.11213	-95.11213	39.41208	25.11208	-6.61208	-2.21208
(H)E	52.81218	-53.11218	-49.91218	-58.11218	-71.11218	-88.11218	-106.11218	-71.11218	52.81218	31.11218	-7.81218	-2.61218	12.11218	-11.01218	-12.11218	-25.11218	-41.11218	-71.11218	-88.11218	-106.11218	45.81213	28.11213	-7.21213	-2.41213
(H)E	60.41223	-60.11223	-56.11223	-65.11223	-79.11223	-97.11223	-117.11223	-79.11223	60.41223	34.11223	-8.41223	-2.81223	13.11223	-12.01223	-13.11223	-27.11223	-44.11223	-79.11223	-97.11223	-117.11223	52.81218	31.11218	-7.81218	-2.61218
(H)E	68.61228	-68.11228	-63.11228	-72.11228	-87.11228	-106.11228	-128.11228	-87.11228	68.61228	37.11228	-9.01228	-3.01228	14.11228	-13.01228	-14.11228	-29.11228	-47.11228	-87.11228	-106.11228	-128.11228	60.41223	34.11223	-8.41223	-2.81223
(H)E	77.41233	-77.11233	-71.11233	-80.11233	-96.11233	-116.11233	-140.11233	-96.11233	77.41233	40.11233	-9.61233	-3.21233	15.11233	-14.01233	-15.11233	-31.11233	-50.11233	-96.11233	-116.11233	-140.11233	68.61228	37.11228	-9.01228	-3.01228
(H)E	86.81238	-86.11238	-79.11238	-88.11238	-105.11238	-126.11238	-152.11238	-105.11238	86.81238	43.11238	-10.21238	-3.41238	16.11238	-15.01238	-16.11238	-33.11238	-53.11238	-105.11238	-126.11238	-152.11238	77.41233	40.11233	-9.61233	-3.21233
(H)E	96.81243	-96.11243	-88.11243	-97.11243	-115.11243	-137.11243	-165.11243	-115.11243	96.81243	46.11243	-10.81243	-3.61243	17.11243	-16.01243	-17.11243	-35.11243	-56.11243	-115.11243	-137.11243	-165.11243	86.81238	43.11238	-10.21238	-3.41238
(H)E	107.81248	-107.11248	-98.11248	-107.11248	-126.11248	-149.11248	-179.11248	-126.11248	107.81248	49.11248	-11.41248	-3.81248	18.11248	-17.01248	-18.11248	-37.11248	-58.11248	-126.11248	-149.11248	-179.11248	96.81243	46.11243	-10.81243	-3.61243
(H)E	119.81253	-119.11253	-109.11253	-118.11253	-138.11253	-162.11253	-194.11253	-138.11253	119.81253	52.11253	-12.01253	-4.01253	19.11253	-18.01253	-19.11253	-39.11253	-60.11253	-138.11253	-162.11253	-194.11253	107.81248	49.11248	-11.41248	-3.81248
(H)E	132.81258	-132.11258	-121.11258	-130.11258	-151.11258	-176.11258	-210.11258	-151.11258	132.81258	55.11258	-12.61258	-4.41258	20.11258	-19.01258	-20.11258	-41.11258	-62.11258	-151.11258	-176.11258	-210.11258	119.81253	52.11253	-12.01253	-4.01253
(H)E	146.81263	-146.11263	-134.11263	-143.11263	-165.11263	-191.11263	-227.11263	-165.11263	146.81263	58.11263	-13.21263	-4.61263	21.11263	-20.01263	-21.11263	-43.11263	-64.11263	-165.11263	-191.11263	-227.11263	132.81258	55.11258	-12.61258	-4.41258
(H)E	161.81268	-161.11268	-148.11268	-157.11268	-180.11268	-207.11268	-245.11268	-180.11268	161.81268	61.11268	-13.81268	-4.81268	22.11268	-21.01268	-22.11268	-45.11268	-66.11268	-180.11268	-207.11268	-245.11268	146.81263	58.11263	-13.21263	-4.61263
(H)E	177.81273	-177.11273	-163.11273	-172.11273	-196.11273	-224.11273	-264.11273	-196.11273	177.81273	64.11273	-14.41273	-5.01273	23.11273	-22.01273	-23.11273	-47.11273	-68.11273	-196.11273	-224.11273	-264.11273	161.81268	61.11268	-13.81268	-4.81268
(H)E	194.81278	-194.11278	-179.11278	-188.11278	-213.11278	-242.11278	-284.11278	-213.11278	194.81278	67.11278	-15.01278	-5.21278	24.11278	-23.01278	-24.11278	-49.11278	-70.11278	-213.11278	-242.11278	-284.11278	177.81273	64.11273	-14.41273	-5.01273
(H)E	212.81283	-212.11283	-196.11283	-205.11283	-230.11283	-260.11283	-304.11283	-230.11283	212.81283	70.11283	-15.61283	-5.41283	25.11283	-24.01283	-25.11283	-51.11283	-72.11283	-230.11283	-260.11283	-304.11283	194.81278	67.11278	-15.01278	-5.21278
(H)E	231.81288	-231.11288	-214.11288	-223.11288	-248.11288	-279.11288	-325.11288	-248.11288	231.81288	73.11288	-16.21288	-5.61288	26.11288	-25.01288	-26.11288	-53.11288	-74.11288	-248.11288	-279.11288	-325.11288	212.81283	70.11283	-15.61283	-5.41283
(H)E	251.81293	-251.11293	-233.11293	-242.11293	-267.11293	-298.11293	-346.11293	-267.11293	251.81293	76.11293	-16.81293	-5.81293	27.11293	-26.01293	-27.11293	-55.11293	-76.11293	-267.11293	-298.11293	-346.11293	231.81288	73.11288	-16.21288	-5.61288
(H)E	272.81298	-272.11298	-253.11298	-262.11298	-287.11298	-318.11298	-368.11298	-287.11298	272.81298	79.11298	-17.41298	-6.01298	28.11298	-27.01298	-28.11298	-57.11298	-78.11298	-298.11298	-318.11298	-368.11298	251.81293	76.11293	-16.81293	-5.81293
(H)E	294.81303	-294.11303	-274.11303	-283.11303	-308.11303	-339.11303	-391.11303	-308.11303	294.81303	82.11303	-18.01303	-6.41303	29.11303	-28.01303	-29.11303	-59.11303	-80.11303	-318.11303	-339.11303	-391.11303	272.81298	79.11298	-17.41298	-6.012



Radiated Composite Gain of 2.4GHz and 5GHz UNII 1~3

Appendix A

(EUT)	5.24-5.27	6.47-6.53	5.80-5.78	6.50-6.52	9.13-10.06	8.02-7.59	-19.10-19.51	-13.49-9.95	-10.09-11.89	6.03-6.35	3.11-0.75	0.01-0.2	3.73-4.16	4.26-3.8	5.48-4.42	6.2-6.6	6.97-6.3	8.73-6.16	-10.34-8.38	-11.49-16.92	-11.27-7.9	7.53-9.39	2.78-2.97	2.93-4.67	
(EUT)	5.96-7.12	7.16-7.52	7.71-8.4	7.99-8.62	-12.67-17.52	-11.16-18.88	-16.59-12	-11.93-11.89	-14.64-7.58	4.30-6.39	-4.97-4.96	-4.06-4.41	4.07-2.7	5.61-5.84	6.48-11.78	7.31-6.46	8.69-12.88	6.9-8.08	-10.49-8.88	-10.96-14.44	-12.76-9.4	8.87-7.21	4.21-3.7	3.9-4.8	
(EUT)	5.13-10.02	8.17-8.51	8.50-17.81	10.30-10.2	-18.39-9.86	-13.27-17.55	-10.86-8.4	-10.43-10.66	-12.09-7.96	4.88-5.52	3.93-1.24	0.66-2.7	5.27-6.6	5.77-6.68	9.02-14.52	-10.51-12.03	-10.03-12.99	7.53-9.72	-11.19-7.72	-13.02-15.96	-10.31-15.3	-16.58-11.58	-11.42-11.9	8.71-9.6	
(EUT)	7.22-8.07	8.80-12.18	14.49-14.81	17.28-17.16	-15.09-9.91	-14.19-9.31	-7.82-8.28	19.96-14.34	8.39-12.48	-14.47-5.55	-3.73-5.66	-4.10-3.6	0.31-1.9	5.17-5.76	8.72-11.14	16.22-13.14	10.45-14.35	8.68-12.35	8.92-7.78	-11.38-11.91	-17.12-8.65	-18.24-18.96	-18.22-15.96	-13.91-9.28	
(EUT)	5.10-10.23	-12.81-12.2	-17.45-18.52	-10.88-8.28	-11.91-8.85	5.74-6.93	7.91-8.13	7.91-11.25	14.31-10.32	-10.73-10.7	-10.84-14.65	-10.09-8.62	-15.23-10.16	4.16-5.07	8.17-11.11	-10.24-10.21	-18.21-17.36	-18.32-18.49	8.52-10.06	8.96-10.98	-8.03-7.99	8.71-8.91	-11.85-7.91	8.62-18.13	
(EUT)	-15.23-18.78	-17.75-18.59	8.22-9.77	8.65-6.64	6.29-8.67	6.39-8.13	8.69-13.96	-10.11-12.66	-15.45-14.57	-10.22-12.85	-18.88-14.14	-12.57-14.15	-14.65-15.43	-16.71-16.87	-10.39-15.34	-11.41-11.36	-10.16-10.77	-10.39-15.34	-11.41-11.36	-10.16-10.77	-10.39-15.34	-11.41-11.36	-10.16-10.77	-10.39-15.34	
(EUT)	-12.61-12.28	-10.33-9.31	9.36-11	8.76-5.43	5.87-12.38	6.49-11.66	6.72-11.58	-18.69-18.11	-11.27-12.25	-10.87-8.49	-15.89-16.23	-17.31-18.01	-17.31-18.01	-15.89-16.23	-12.34-12.36	-11.71-16.43	-18.02-17.07	-14.51-10.06	-12.19-14.5	-10.73-12.09	-9.98-9.04	8.58-7.66	8.92-10.05	-11.91-10.66	
(EUT)	-10.91-11.42	-11.21-10.31	8.96-12.54	-10.51-11.42	-11.21-10.31	8.96-12.54	-10.51-11.42	-11.21-10.31	8.96-12.54	-10.51-11.42	-11.21-10.31	8.96-12.54	-10.51-11.42	-11.21-10.31	8.96-12.54	-10.51-11.42	-11.21-10.31	8.96-12.54	-10.51-11.42	-11.21-10.31	8.96-12.54	-10.51-11.42	-11.21-10.31	8.96-12.54	-10.51-11.42
(EUT)	6.48-6.44	8.59-7.94	7.86-6.54	8.96-11.81	-11.28-10.08	-10.09-10.84	8.96-9.79	-12.95-15.13	-11.31-8.92	-11.59-7.75	-11.71-7.16	-14.28-9.58	-10.92-14.78	-12.29-7.25	-11.39-8.46	-16.99-14.8	-16.47-15.94	-10.08-17.05	-15.99-19.07	-12.15-16.84	9.22-14.24	6.52-7.03	8.43-14.38	-11.84-7.98	
(EUT)	7.08-7.24	11.91-10.28	11.30-13.7	17.28-10.9	16.89-10.65	16.24-12.45	14.67-17.98	16.60-15.24	8.36-11.71	-12.34-14.84	-18.19-9.96	6.65-5.29	8.45-8.95	8.91-8.81	4.63-6.62	4.59-6.22	5.61-5.91	-11.57-14.64	-18.19-17.97	-15.02-14.8	-12.72-10.2	6.26-6.46	5.23-5.27	6.26-6.46	
(EUT)	15.14-10.81	6.15-5.02	9.12-10.34	16.22-10.13	9.26-11.96	-15.23-14.89	-17.81-18.67	-18.03-18.92	-19.95-14.98	-14.11-10.91	-11.44-11.13	-14.45-6.44	3.64-4.1	5.11-5.03	5.75-10.41	-10.37-11.74	-12.33-15.41	6.45-12.97	-14.47-17.11	-18.49-16.63	-15.57-15.92	-17.38-14.65	8.44-6.02	9.22-10.33	
(EUT)	-12.18-12.51	11.95-10.02	7.96-8.22	3.99-5.51	10.57-12.58	11.36-11.9	3.84-4	8.46-11.1	19.44-10.77	-15.33-13.22	-10.30-10.48	-11.02-10.86	4.71-4.22	6.38-6.25	6.78-6.49	-10.47-9.78	-11.02-11.27	-11.54-18.11	-18.56-16.58	-16.55-11.05	-12.74-17.4	2.83-3.28	4.87-5.29	2.83-3.28	
(EUT)	8.01-8.08	4.39-4.85	4.93-6.09	8.08-14.76	13.86-13.63	11.86-10.87	-11.22-12.22	12.54-11.39	11.49-8.16	5.59-5.41	3.77-3.1	3.33-3.36	3.29-3.91	4.41-4.42	4.82-5.73	4.24-4.2	4.24-4.28	8.88-11.41	-12.36-13.57	-12.34-10.27	8.27-7.43	5.96-5.39	3.56-3.51	-1.98-2.8	
(EUT)	3.41-4.05	4.33-7.44	7.38-9.77	6.89-8.48	5.56-7.17	-10.09-13.7	-18.44-18.96	-18.14-18.08	-17.74-12.15	-5.75-7.15	4.65-4.99	3.31-3.45	3.26-3.69	2.26-1.98	2.48-3.43	4.24-4.2	4.26-7.54	8.87-11.47	-15.12-19.21	-10.01-7.71	4.54-4.23	2.29-2.25	-1.45-6.85	8.02-1.98	
FreeQ	5.65-6.04	PhatA	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Gain	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	(EUT)	
(EUT)	-11.91-9.5	6.18-6.85	6.48-6.88	3.66-3.36	3.41-3.11	2.15-1.31	-1.55-1.88	2.13-2.23	2.94-3.44	4.99-5.69	5.62-10.64	-10.73-10.94	9.77-6.69	8.91-3.71	2.41-4.7	-11.9-8.7	0.43-1.3	0.00-1.1	0.16-0.74	-1.14-1.38	1.51-1.99	3.37-3.62	4.87-6.97	-7.16-7.10	
(EUT)	-10.53-9.08	6.35-6.28	3.98-2.89	1.92-1.21	1.50-1.25	0.66-0.04	0.50-0.36	0.2-0.57	-1.02-2.37	-3.37-3.81	-8.97-10.67	-8.37-10.93	-12.17-13.77	-11.57-8.49	-10.26-11.43	0.20-0.13	0.00-1.1	-1.17-1.03	-1.62-0.86	2.14-1.43	4.3-4.9	6.69-8.6	-1.48-1.22	-1.48-1.22	
(EUT)	-10.26-7.68	6.13-4.76	-3.59-3.21	3.51-4.43	3.46-2.04	-1.67-1.59	-1.30-1.19	-1.24-1.42	2.03-2.77	3.41-0.52	6.61-7.7	8.91-11.43	-13.12-14.63	-14.93-12.77	-11.34-10.09	6.69-5.22	3.61-1.18	0.46-0.24	0.19-0.44	0.96-1.34	-1.75-2.4	3.74-5.72	8.4-11.11	-10.96-15.2	
(EUT)	-13.72-11.83	-8.26-6.49	6.02-6.49	4.41-4.04	3.74-2.71	2.28-1.71	2.03-2.44	1.98-1.56	1.50-1.92	5.95-6.13	3.42-1.74	14.17-15.79	-14.02-12.63	-8.39-6.26	1.36-0.26	1.16-0.21	0.62-0.23	0.72-0.47	-1.26-1.03	2.7-3.63	4.77-7.17	8.87-11.13	-10.96-15.2		
(EUT)	-13.62-8.31	6.9-8.15	6.49-6.77	4.8-3.9	2.84-2.3	2.78-2.81	3.79-4.29	5.97-7.06	5.48-5.69	-7.37-7.29	-7.84-8.29	8.66-10.13	-13.15-15.65	-19.22-13.34	0.94-0.73	7.73-6.46	4.36-3.81	3.17-1.12	-1.26-1.82	-1.82-1.83	2.7-3.63	4.77-7.17	8.87-11.13	-10.96-15.2	
(EUT)	-13.95-7.42	7.31-8.72	6.94-6.77	4.24-3.73	3.65-4.22	2.08-1.26	2.14-2.35	2.59-2.71	4.04-10.95	9.74-10.27	8.22-10.62	9.9-19.26	-11.79-9.39	-15.84-12.67	3.76-5.51	6.43-4.05	2.87-3.17	0.86-1.59	-1.83-0.67	2.54-3.63	3.29-5.86	4.87-7.13	-13.78-15.85		
(EUT)	-16.18-12.58	-16.91-14.91	-12.34-11.67	7.13-6.34	3.13-3.15	3.48-2.61	2.74-4.18	3.47-3.31	6.87-6.26	-11.75-14.17	-16.42-15.12	-10.95-6.42	-11.11-6.52	-14.06-13.1	7.83-3.46	2.19-2.16	1.91-1.95	0.88-0.45	1.64-1.64	4.07-4.05	6.07-6.08	9.99-14.92	-16.69-18		
(EUT)	-16.29-17.76	-14.94-18.84	-17.59-18.54	6.73-6.43	4.84-4.99	6.05-6.45	3.30-4.49	6.45-6.91	5.43-7.81	8.78-8.66	-10.54-12.75	8.30-8	-10.49-17.77	-17.87-6.07	2.62-4.04	-1.63	4.88-0.65	0.08-1.15	3.65-1.11	-14.12-12.2	2.02-1.87	2.54-6.47	10.71-12	-16.49-19.78	
(EUT)	-11.48-11.02	-11.61-11.79	-16.29-19.6	9.79-9.48	16.29-19.6	4.76-5.22	4.24-5.38	6.27-6.63	6.07-6.48	4.30-5.96	9.89-10.2	8.34-9.9	-8.31-9.71	5.56-7.94	5.56-7.94	11.52-12.6	1.21-0.67	0.51-0.6	0.00-0.15	-1.08-0.44	4.93-4.24	3.78-5.52	-15.83-19.83	-18.19-17.98	
(EUT)	11.34-14.1	-11.39-11.11	-10.22-11.3	8.37-8.34	1.62-1.30	2.71-1.2	2.84-5.13	9.42-7.93	8.61-6.2	5.26-6.76	8.67-10.68	18.98-13.73	17.49-12.14	4.94-4.28	4.34-6.7	4.19-4.23	3.01-0.87	3.00-0.9	1.83-2.34	1.93-2.38	4.09-5.64	-1.22-10.84	-12.58-12.83		
(EUT)	10.56-10.73	14.31-14.12	-11.10-11.5	8.95-8.59	1.02-1.24	2.64-0.74	2.44-0.04	-10.71-9.27	4.89-7.37	3.74-6.02	5.67-5.67	11.22-12.66	16.98-16.45	14.62-13.32	5.93-5.39	4.11-3.24	1.88-1.42	0.69-1.25	1.91-1.46	2.93-2.49	4.29-4.52	10.10-7.4	8.91-10.68		
(EUT)	-14.99-17.18	-18.08-10.43	9.77-12.91	7.04-8.65	1.18	3.89-2.84	5.01-8.91	4.33-4.44	4.57-5.41	3.87-3.45	4.55-6.6	-10.96-8.87	-10.94-9.22	9.06-14.26	7.69-7.59	-1.02-1.21	0.57-0.37	0.45-0.67	1.11-0.66	0.57-1.42	3.25-4.09	5.04-8.65	9.16-10.89	2.77-3.17	
(EUT)	-17.91-19.59	-15.19-11.96	-13.96-11.45	8.30-8.43	4.89-4.07	4.98-2.1	4.03-8.81	6.16-1.99	1.25-2.26	4.03-4.03	4.56-6.37	12.44-9.68	12.44-9.68	9.26-12.49	7.82-8.29	0.12-0.03	0.48-0.01	1.57-0.88	1.31-0.02	0.95-1.38	3.24-4.49	4.65-7.75	5.02-7.72		
(EUT)	-14.71-15.05	-15.81-16.71	8.18-11.34	4.59-1.81	4.26-4.51	-4.31-0.88	4.09-8.67	8.28-4.51	4.21-4.65	-7.76-4.32	-13.90-15.32	-10.74-8.43	8.89-8.88	7.13-4.54	6.91-9.2	1.30-2.29	0.62-0.15	0.84-0.36	1.74-0.73	2.89-3.33	4.47-5.64	8.97-8.38	-7.32-7.11		
(EUT)	-16.91-16.05	-14.11-13	9.14-7.93	9.39-2.69	4.52-4.62	2.38-0.69	2.89-5.5	3.91-2	3.17-1.52	12.84-6.1	9.28-12.52	-15.43-10.42	7.21-13.01	-16.59-4.69	4.67-3.44	0.36-1.05	-0.09-0.15	0.40-0.34	0.20-0.23	2.96-3.34	4.34-4.18	5.72-6.49	-1.27-1.49		
(EUT)	-13.34-18.65	-14.70-14.11	9.54-8.65	6.29-6.42	2.64-0.68	3.19-3.14	3.49-7.1	4.02-4.68	3.46-11.25	-13.89-15.15	-12.20-11.11	-16.16-8.72	11.94-8.16	-11.53-6.42	4.74-3.35	-1.33-1.8	-0.50-0.53	0.79-0.25	-1.06-1.44	-1.11-1.85	4.01-5.29	5.02-6.26	7.55-12.14	-15.94-10.94	
(EUT)	-10.24-16.43	-11.72	6.09-4.62	4.08-5.88	7.04-1.3	0.91-4.12	-10.34-5.28	2.82-4.34	8.91-9.39	-17.83-10.86	6.41-12.77	-10.32-10.47	-18.02-18.12	16.10-13.2	8.41-7.53										



Radiated Composite Gain of 2.4GHz and 5GHz UNII 1~3

Appendix A

(H1212)	18.64-18.07	-19.13-19.94	-10.87-12.56	-6.45-9.79	8.02-8.68	-15.71-14.47	-8.01-8.33	-11.47-15.05	-14.46-11.87	8.02-19.19	-11.26-14.25	-12.61-8.35	8.03-16.57	-17.91-19.09	-7.42-14.15	-8.72-9.86	-6.09-9.96	-15.19-17.03	-10.77-10.51	-7.19-10.11	-11.91-13.83	-18.00-13.93	-18.84-15.04	-17.56-17.51	
(H1202)	12.64-16.57	-19.11-11.17	-8.21-9.33	9.19-10.97	-10.04-12.1	-16.38-17.28	-10.66-17.2	-17.17-17.27	-18.84-9.76	-11.31-14.18	-9.74-12.69	-16.16-16.22	8.66-17.72	-17.12-14.03	-16.96-19.27	-11.76-16.66	8.63-9.78	-17.97-11.11	-18.87-8.93	-18.47-13.12	-14.67-16.29	8.24-11.44	8.44-12.14	-12.01-9.1	
(H1215)	-17.41-15.11	-12.84-14.35	-7.77-6.07	4.19-13.4	-10.91-10.1	-18.90-12.19	-18.41-13.2	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	-14.95-17.23	
(H1425)	9.62-17.4	-7.81-7.96	-7.67-8.13	-14.99-17.8	-18.18-19.55	-15.71-14.87	-18.29-19.32	-10.08-10.96	-17.86-12.54	-19.04-19.89	-17.46-13.4	7.36-13.23	8.99-1.16	9.52-17.3	-7.4-6.50	-14.27-19.29	-19.14-9.2	-13.22-13.18	-17.65-14.83	-12.94-17.3	-17.97-11.11	-18.87-8.93	-18.47-13.12	-14.67-16.29	
(H1527)	7.53-4.93	-8.71-12.3	-11.25-9.14	-10.51-12.88	-13.32-15.4	-14.31-12.78	-16.18-18.48	-12.46-3.7	5.03-7.53	-11.94-17.51	-11.62-17.87	7.6-7.76	7.49-9.34	-17.83-6.06	4.28-24.4	-8.07-7.89	-7.21-6.68	-7.62-8.06	-7.91-17.7	-11.55-11.89	-14.52-13.47	-14.54-17.1	-14.14-3.36	8.21-6.5	
(H1723)	4.37-2.84	-2.86-4.23	-4.54-7.7	9.52-11.71	-11.03-10.92	-12.57-14.19	-14.16-13.05	-11.58-10.58	8.23-7.8	5.71-3.8	2.56-1.83	-1.39-1.29	1.63-1.8	2.39-4	6.38-7.88	8.46-9.22	8.79-10.77	-11.82-14.88	-18.38-18.66	-17.52-16.54	-17.11-15.17	-15.22-12.25	-8.46-15.49	8.19-17.4	
(H1801)	0.11-1.15	-1.68-3.2	-3.81-2.24	4.05-3.56	-3.79-3.14	-7.04-0.32	-10.65-17.77	8.67-8.58	9.19-7.1	-7.48-7.86	-5.72-4.07	-3.26-2.89	2.13-2.1	-3.05-3.48	3.68-4	4.32-4.54	4.87-5.82	-7.16-8.06	-7.89-7.87	-7.22-8.15	-4.4-2.81	-1.88-0.87	0.21-4	2.08-1.52	
FReqHz		PkWatt		dBS		dBS		dBS		dBS		dBS		dBS		dBS		dBS		dBS		dBS		dBS	
Gain	(H1907.5)	(H1912.25)	(H1917.5)	(H1922.5)	(H1927.5)	(H1932.5)	(H1937.5)	(H1942.5)	(H1947.5)	(H1952.5)	(H1957.5)	(H1962.5)	(H1967.5)	(H1972.5)	(H1977.5)	(H1982.5)	(H1987.5)	(H1992.5)	(H1997.5)	(H2002.5)	(H2007.5)	(H2012.5)	(H2017.5)	(H2022.5)	
(H1907.5)	10.02-8.22	7.81-8.44	-10.1-13.38	17.09-18.53	-17.51-19.27	-18.08-18.27	-18.54-17.81	-19.28-17.34	-16.28-12.52	-19.30-10.57	-19.08-11.28	-10.88-10.54	19.76-11.34	-12.06-12.23	-14.21-19.18	-15.69-19	-18.06-17.38	-18.62-18.59	-17.81-18.81	-16.96-15.18	-14.02-14.18	-10.58-10.69	9.76-17.13	-12.21-13.14	
(H1912.25)	-11.69-9.74	8.0-10.66	-12.87-16.54	-17.19-18.68	-18.99-18.66	-17.91-17.37	-17.49-13.17	-19.59-19.51	-16.19-13.54	-11.29-10.73	-11.26-11.12	-11.59-10.84	-10.37-10.39	-10.61-10.48	-12.79-14.32	-15.74-18.53	-17.89-19.06	-17.74-17.89	-15.97-16.63	-16.96-16.11	-15.70-12.33	-11.13-10.99	-11.17-10.41	-14.08-13.85	
(H1917.5)	-17.13-14.1	-12.27-11.65	-12.41-16.88	-16.45-19.17	-17.69-19.16	-18.73-17.82	-17.41-16.28	-16.27-17.33	-15.13-16.08	-13.98-12.22	-12.41-12.33	-15.80-15.25	-13.57-12.37	-12.17-12.12	-13.46-12.47	-14.13-14.81	-15.70-16	-18.24-17.17	-16.68-17.83	-16.57-15.73	-15.34-16.84	-13.60-13.14	-13.11-13.56	-15.05-17.97	
(H1922.5)	-18.14-18.4	-12.83-10.97	-10.58-12.08	-15.06-18.19	-17.62-19.48	-18.41-16.15	-15.33-14.38	-14.19-14.66	-15.33-16.17	-13.06-12.17	-15.66-19.99	-18.52-18.09	-17.46-17.15	-17.48-17.22	-16.85-18.22	-18.14-15	-15.91-17.03	-18.31-19.01	-16.26-13.13	-15.57-16.17	-14.71-16.89	-16.84-16.96	-14.36-13.24	-11.65-12.14	
(H1927.5)	-10.78-11.26	-11.99-11.67	-11.21-11.91	-14.11-17.46	-18.11-17.78	-17.96-16.58	-14.56-13.12	-12.78-12.33	-13.73-16.49	-15.41-18	-18.52-18.09	-18.53-18.65	-18.86-18.34	-17.44-17.11	-17.88-17.63	-18.88-14.98	-15.22-16.83	-19.27-19	-17.48-18.23	-17.88-18.9	-18.81-18.5	-18.77-15.73	-13.12-12.71	-10.97-10.63	
(H1932.5)	-11.12-10.05	-10.46-11.93	-13.53-14.54	-15.62-17.67	-18.04-18.64	-18.63-13.67	-14.57-13.58	-14.26-16.54	-19.26-19.16	-17.91-19.6	-18.83-17.3	-14.92-19.05	-18.21-17.7	-18.57-18.64	-19.11-16.92	-15.29-14.41	-14.74-16.59	-19.11-19.23	-17.75-19.28	-18.88-18.28	-18.66-13.86	-12.66-12.85	-13.33-13.22	-11.67-11.52	
(H1937.5)	-12.16-11.12	-10.63-11.11	-12.14-19.19	-17.08-18.11	-18.81-18.55	-17.67-19.87	-16.29-14.79	-15.78-16.15	-19.09-19.29	-19.15-18.21	-17.08-18.63	-16.83-19.1	-17.82-16.62	-18.26-17.85	-18.21-16.57	-14.27-13.66	-14.34-15.15	-13.84-18.96	-17.14-18.17	-18.18-18.25	-17.64-19.24	-17.78-16.66	-15.31-14.52	-13.86-13.73	
(H1942.5)	-10.26-11.26	-11.15-12.42	-13.41-14.5	-16.51-18.42	-17.11-18.18	-18.71-18.69	-16.29-13.22	-11.51-11.13	-15.13-18.1	-19.17-18.37	-18.18-19.26	-18.84-18.56	-17.17-17.27	-18.11-17.22	-18.44-15.16	-16.97-17.52	-17.96-19	-17.26-18.13	-18.18-18.78	-18.18-18.21	-17.81-18.21	-17.78-16.18	-15.81-17.59	-15.05-13.61	
(H1947.5)	-10.57-13.14	-13.19-15.38	-16.29-14.04	-13.51-15.93	-17.74-18.3	-18.07-17.39	-16.31-16.38	-13.87-17.05	-16.16-15.96	-18.81-18.56	-18.21-19.29	-15.64-14.01	-12.94-12.58	-11.34-13.25	-18.18-18.25	-18.03-18.04	-18.41-18.15	-18.21-18.21	-18.78-18.13	-18.97-18.14	-18.02-18.13	-18.31-18.69	-18.08-17.59	-18.19-18.14	
(H1952.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H1957.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H1962.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H1967.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H1972.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H1977.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H1982.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H1987.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H1992.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H1997.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H2002.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H2007.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H2012.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18.68	-18.07-17.92	-17.73-17.54	
(H2017.5)	-10.86-11.73	-18.19-17.83	-16.69-12.75	-12.31-15.04	-18.39-17.97	-18.29-17.83	-18.77-18.13	-19.27-18.6	-16.86-13.95	-14.88-17.64	-17.95-18.67	-14.83-13.64	-12.83-12.53	-13.52-15.69	-18.83-18.67	-18.22-18.67	-17.82-18.67	-17.82-18.67	-18.41-18.67	-18.51-18.67	-18.09-18.09	-19.21-18			



Radiated Composite Gain of 6GHz

Appendix B

Freq(Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	3.78	3.12	3.87	3.87
Ant. 2 Max Gain (dBi)	2.13	2.61	4.1	4.3
Ant. 3 Max Gain (dBi)	2	2.27	2.94	4.77
Ant. 4 Max Gain (dBi)	3.1	2.54	3.75	3.85
Ant. 1 Polarization/ Θ (°)/ Φ (°)	Phi/75/180	Phi/82.5/187.5	Phi/82.5/187.5	Phi/75/187.5
Ant. 2 Polarization/ Θ (°)/ Φ (°)	Phi/105/292.5	Phi/97.5/277.5	Phi/105/277.5	Phi/112.5/285
Ant. 3 Polarization/ Θ (°)/ Φ (°)	Phi/90/75	Phi/82.5/90	Phi/97.5/90	Phi/90/82.5
Ant. 4 Polarization/ Θ (°)/ Φ (°)	Theta/90/345	Theta/112.5/322.5	Theta/112.5/300	Theta/97.5/337.5
Max Gain (dBi)	3.78	3.12	4.1	4.77
DG [1SS] (dBi)	4.6	4.1	5.71	5.16
DG [2SS] (dBi)	3.78	3.12	4.1	4.77
DG [4SS] (dBi)	3.78	3.12	4.1	4.77



Radiated Composite Gain of 6GHz

Appendix B

(dBS)	0.65074	1.76175	0.34+0.49	-1.51+2.55	-9.93+2.48	-9.13+3.48	-15.41+1.85	-10.17+6.32	-5.75+9.52	4.3+2.57	-16.0+41	0.09064	1.21+3.53	1.170+99	0.60+37	-0.17+7.78	-1.83+5.27	-7.68+1.67	9.12+11.44	-10.14+9.88	-10.94+11.98	-3.31+6.88	-4.48+3.23	-1.85+6.08	
(dBS)	0.81+1.7	-0.25+1.37	-0.96+1.11	-1.40+1.83	-2.44+5.4	-6.21+9.4	-16.27+11.2	-6.33+10.7	-7.42+8.89	-4.51+3.2	-11.0+9.6	-2.71+3.2	-2.89+1.6	-0.87+1.6	0.77+0.9	0.92+0.8	-0.14+1.0	-4.90+7.8	-14.81+17.4	-11.02+12.4	-15.5+13.8	-7.01+8.5	-0.82+1.6	0.70+1.6	
(dBS)	-1.36+2.2	-0.20+1.44	-1.75+2.2	-1.68+2.1	-3.05+7.6	-7.61+10.3	-16.50+17.2	-10.38+15.0	-3.76+4.8	-11.53+2.6	-7.06+3.3	-5.64+4.3	-7.71+5.3	-3.93+1.9	-2.82+1.6	-1.35+2.4	-2.46+1.83	-3.81+1.7	-14.56+17.94	-17.53+17.05	-15.05+16.4	-4.91+2.2	-1.03+0.57	-1.3+0.87	
(dBS)	2.71+2.08	-3.93+3.0	-4.9+2.8	-6.63+7.1	-11.62+17.2	-10.09+13.1	-19.19+19.6	-12.55+16.7	-6.3+9.1	-9.16+9.1	-9.91+9.9	-8.36+5.3	-5.53+1.3	-2.46+2.4	-2.96+1.9	-2.32+0.87	-0.88+2.7	-2.17+1.67	-4.41+11.3	-8.20+11.4	-17.89+12.7	-5.57+3.4	-3.55+2.6	-5.93+2.7	
(dBS)	-5.88+7.09	-0.66+2.52	-5.2+1.6	-8.87+8.6	-7.45+10.3	-8.88+11.7	-19.16+10.8	-9.96+9.8	-6.38+11.3	-6.07+7.1	-9.95+5.2	-2.06+1.1	-1.75+3.1	-3.38+2.3	-3.33+2.6	-2.84+3.6	-1.49+1.59	-1.44+2.2	-10.08+15.1	-13.86+18.8	-10.88+19.2	-7.21+10.7	-8.86+5.8	-5.42+7.5	
(dBS)	6.22+3.27	9.17+6.74	9.66+5.4	-1.75+3.6	0.09+3.2	4.84+7.1	6.83+13.7	-17.07+8.0	-10.28+5.5	-3.34+1.3	5.5+3.2	0.15+0.4	0.15+0.3	0.41+1.5	2.74+2.8	-1.91+1.7	3.88+2.3	3.27+3.5	9.39+7.5	6.46+7.4	-15.45+11.7	6.28+13.2	-13.97+11.8	-10.96+11.3	
(dBS)	5.89+3.72	-5.77+13.1	-13.28+0.4	8.26+7.48	-7.63+7.65	-9.12+10.9	-5.66+4.5	5.74+2.41	-4.90+2.35	-4.01+3.8	-1.22+2.8	1.240+0.4	0.9+2.5	-1.65+1.6	-3.28+1.7	2.71+1.65	4.33+4.8	-5.36+8.7	7.54+16.1	-17.43+18.2	-13.46+18.2	-15.44+18.5	-18.34+1.9	-18.34+1.9	
(dBS)	-11.87+7.5	4.89+3.1	4.37+6.67	8.26+5.42	4.63+2.6	5.97+6.2	7.13+11.68	-13.18+1.5	6.88+8.3	0.31+1.6	2.40+2.7	2.87+2.7	2.42+2.3	0.12+1.0	0.53+1.9	2.79+3.47	3.89+5.41	5.29+4.9	7.06+19.3	-19.19+32	-18.37+16.7	-11.79+15.67	-17.79+11.67	-17.79+11.67	
(dBS)	-18.68+18.08	-11.13+2.68	-13.69+5.3	2.51+1.41	0.22+2.2	11.44+7.1	5.63+11.34	9.63+7.54	1.87+1.2	2.57+1.5	0.23+0.63	0.74+2.7	3.68+3.7	2.71+9.6	1.76+2.8	0.26+2.8	3.24+4.4	5.46+1.36	8.88+14.4	7.78+12.3	-9.34+9.68	-12.77+9.5	-8.32+10.13	-7.94+9.49	
(dBS)	4.93+12.68	-11.59+2.1	-10.58+4.2	7.93+9.1	3.04+3.18	5.68+7.8	-5.48+10.83	-11.92+6.73	-3.83+2.01	-2.52+7.8	-2.49+3.5	-0.25+2.1	2.99+7.5	2.61+7.9	4.27+0.5	-3.73+1.2	4.44+2.23	-4.21+10.4	-2.26+1.6	-7.54+18.6	-10.0+8.4	8.89+7.26	-5.87+8.26	-2.84+7.1	
(dBS)	5.99+14.81	4.21+5.51	-15.80+10.52	9.91+5.08	3.55+3.97	2.58+4.41	4.9+5.2	12.32+5.65	5.49+2.46	-1.44+1.3	0.61+2.2	0.78+2.7	0.78+2.7	2.34+1.9	0.23+2.5	4.77+7.7	0.71+3.89	3.94+5.41	1.93+1.5	7.97+13.3	14.59+12.87	2.70+5.5	4.29+7.4	5.53+6.41	
(dBS)	18.25+12.4	8.55+10.2	-10.68+12.41	6.11+5.14	11.52+5.14	10.15+11.4	9.86+17.9	8.9+8.3	4.4+3.8	4.78+2.5	2.73+2.5	3.74+2.8	3.34+3.6	0.76+2.5	0.84+1.57	7.33+13.08	10.56+7.4	6.29+6.83	4.8+3.1	-1.79+13.2	7.43+13.1	8.84+12.7	-17.71+18.42	-17.71+18.42	
(dBS)	13.25+16.51	-17.17+8.3	8.60+17.4	-16.07+10.8	10.78+12.0	14.10+10.9	-13.78+11.68	12.03+11.01	8.46+3.7	2.33+3.4	1.49+1.9	0.59+1.39	3.19+1.38	1.17+1.34	0.16+1.7	0.93+1.13	0.93+1.13	3.54+1.59	1.85+1.6	-1.35+1.1	1.33+1.27	8.51+13.27	8.21+15.7	-15.52+7.6	
(dBS)	8.65+4.6	4.19+7.85	-1.75+9+13.7	-13.71+5.64	7.21+6.45	-9.12+9.8	-11.48+18.1	-11.76+9.8	6.99+7.46	5.2+5.6	5.3+6.3	-11.10+1.4	-0.26+1.42	5.04+4.5	6.16+3.9	0.13+10.9	8.5+10.51	-11.2+6.3	-15.16+10.9	-19.34+15.2	-10.0+14.3	-18.91+13.2	-15.14+12.8	-10.95+8.8	
(dBS)	-13.28+8.02	-11.86+10.76	-16.10+11.1	-10.64+11.7	8.21+10.81	5.27+4.5	14.69+18.55	-13.12+14.05	8.07+4.21	6.25+4.2	-3.95+5.61	5.89+3.41	-11.71+14.71	-10.50+13.4	-17.8+12.2	-11.89+8.44	-4.81+6.65	7.74+7.47	-12.42+13.2	-16.69+13.6	-14.02+13.9	-13.9+8.2	-5.76+4.85	-5.32+4.41	
(dBS)	-18.25+18.47	-7.91+10.26	-5.07+6.2	4.34+6.86	-10.44+16.68	-6.07+8.1	-7.11+14.04	-18.49+13.42	-10.56+16.87	-0.99+6.7	7.16+4.5	3.9+3.1	2.09+3.3	-4.73+10.2	-4.58+1.4	-19.24+83	-6.38+7.3	7.16+7.3	-10.03+13.43	-18.59+9.8	-6.42+11	-11.31+8.49	-6.35+6.65	-15.12+14.7	
(dBS)	-11.26+8.83	-8.43+13.7	-15.23+1.4	-15.36+13.77	-19.13+0.2	-0.56+0.69	-8.48+17.1	-1.4+8.32	-1.65+1.69	-0.44+0.67	-7.02+14.75	-7.81+7.4	-8.07+5.26	6.49+6.25	6.62+1.7	-7.39+7.55	-10.88+13.3	-10.69+13.38	-10.3+13.62	-14.14+13.96	-8.46+13.24	-7.39+7.4	-14.32+3.41	-8.43+10.1	
(dBS)	9.27+9.91	-14.98+18.8	-16.03+13.24	1.88+11.53	-11.54+15.55	-15.26+23.3	4.86+17.4	9.59+7.95	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8	-13.02+16.8
(dBS)	-17.71+18.91	-18.48+11.92	-10.07+11.67	-10.89+11.37	17.17+4.3	5.47+6.99	-12.29+17.51	-0.67+6.47	6.83+7.44	-4.31+1.0	-0.96+1.0	-1.26+2.7	2.47+2.07	0.01+3.36	4.77+7.53	-9.48+9.91	-7.55+7.9	-10.78+18.7	-13.71+7.74	4.51+2.9	-11.43+10.6	-13.79+4.43	4.11+11.3	-1.75+3.2	
(dBS)	-10.99+15.86	-10.41+10.14	-13.65+14.97	-12.59+10.36	9.28+10.6	-11.61+14.29	-13.71+10.65	-6.45+11.1	6.83+7.44	-4.31+1.0	-0.96+1.0	-1.26+2.7	2.47+2.07	0.01+3.36	4.77+7.53	-9.48+9.91	-7.55+7.9	-10.78+18.7	-13.71+7.74	4.51+2.9	-11.43+10.6	-13.79+4.43	4.11+11.3	-1.75+3.2	
(dBS)	7.06+9.81	6.82+5.74	6.4+6.48	6.77+6.75	-8.77+12.77	-14.89+19.74	-7.61+5.15	-2.69+3.14	1.93+4.41	-1.33+1.65	-3.26+2.5	-2.01+4.2	-1.49+3.61	3.32+2.63	3.22+3.07	2.47+1.56	2.1+1.23	-4.25+7.27	-11.23+11.7	-11.71+13.1	-12.97+12.2	-13.71+15.24	-10.29+7.39	-0.46+0.26+2.48	
(dBS)	-1.150+9.3	1.780+8.4	0.720+8.8	0.24+1.81	4.51+4.34	-4.87+6.8	-7.57+7.22	-5.57+3.33	0.97+0.61	1.38+2.3	2.76+3.0	3.38+3.51	3.32+3.63	3.22+3.07	2.47+1.56	2.1+1.23	-4.25+7.27	-11.23+11.7	-11.71+13.1	-12.97+12.2	-13.71+15.24	-10.29+7.39	-0.46+0.26+2.48	-0.46+0.26+2.48	
Gain	0.65074	ThdAet.1	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
Phi	0°(90°57)	0°(91°00)	0°(91°30)	0°(91°57)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	0°(92°00)	
(dBS)	4.48+3.5	4.07+7.84	9.5+11.3	10.89+9.39	7.58+5.91	4.8+4.1	2.96+1.28	-1.37+0.72	0.34+3.52	0.71+1.11	-1.62+2.55	3.69+4.36	5.98+9.91	-10.79+19.18	-17.42+13.23	-9.88+3.87	-5.84+3.87	-3.07+2.25	-0.84+0.05	0.2+0.21	0.32	0.09+0.58	0.88+1.77	2.46+3.31	
(dBS)	0.89+3.92	-17.49+7.22	-13.71+12.42	0.07+5.65	4.29+3.23	2.50+1.3	-1.88+1.44	-0.89+3.29	2.29+2.08	4.1+10.3	3.39+3.36	4.58+5.32	2.75+9.96	-4.80+7.35	-6.16+9.57	6.59+4.72	4.08+4.51	3.15+9.98	-0.23+0.11	-0.55+1.2	-0.59+1.2	-0.59+1.2	-0.59+1.2	-0.59+1.2	
(dBS)	7.41+3.9	-11.51+9.29	-11.03+9.58	6.06+3.33	1.48+0.64	0.37+1.31	0.90+4	0.23+0.97	1.13+0.75	4.93+6.65	-1.76+3.15	5.71+10.33	13.76+18.16	1.59+8.81	4.32+3.57	1.35+2.38	0.24+0.18	0.49+3.27	2.39+1.96	-0.23+0.4	0.89+0.27	0.74+1.15	1.26+1.97	1.79+2.61	
(dBS)	-19.01+19.11	-12.09+7.5	-7.69+5.15	4.45+2.87	1.51+0.48	0.71+2.2	0.97+0.27	0.72+0.48	2.92+1.21	-1.58+1.61	-4.08+6.44	6.57+13.57	15.74+19.58	-12.29+4.2	6.79+5.3	2.33+0.69	1.01+11	1.78+7.9	0.02+0.4	0.85+0.13	0.43+1.39	-1.79+2.22	1.29+1.63	-11.86+14.7	
(dBS)	-10.02+16.11	-13.04+7.83	-7.01+5.08	3.39+3.91	2.29+1.46	1.25+1.63	2.11+3.07	0.47+1.48	4.89+6.63	4.70+10.6	6.79+8.46	12.71+13.7	19.25+13.09	-11.24+2.64	1.56+1.58	1.29+1.37	1.20+1.33	1.48+1.45	0.89+0.35	0.38+1.05	2.12+3.4	2.23+3.57	2.33+3.57	2.33+3.57	
(dBS)	8.97+14.94	-13.44+16.71	-14.72+15.25	7.73+7.47	4.2+4.21	2.26+1.5	0.81+0.36	-1.02+0.22	4.27+3.43	3.79+7.07	4.83+7.68	6.96+7.1	7.76+10.31	-13.45+17.4	-13.72+12.7	8.4+8.42	4.3+3.06	6.6+0.03	-1.79+1.66	-0.33+0.07	2.34+2.5	2.45+1.64	1.96+1.34	-5.71+10.38	
(dBS)	-15.39+14.83	-15.47+11.22	-10.36+9.02	8.24+7.41	6.81+4.28	-2.2+2.13	-0.72+0.64	-0.32+1.17	6.25+1.73	-4.83+4.63	-5.82+4.66	5.64+5.65	6.99+11.31	-10.32+16.9	-14.31+21.2	-10.37+7.77	-5.07+5	3.74+2.99	-1.35+0.67	-1.23+2.1	-2.33+1.91	-1.63+3.9	4.91+1.76	3.88+1.78	
(dBS)	8.44+9.75	-13.99+15.34	-16.74+17.97	-17.94+19.44	-11.35+9.17	-7.64+5.1	-2.46+1.12	-2.36+3.56	-2.89+2.79	-1.69+1.44	-5.97+9.1	8.91+13.4	9.13+14	-10.91+19.1	-17.91+18.2	-14.48+18.04	-17.87+18.69	-14.89+17.6	2.76+1.48	2.23+2.72	-6.12+4.4	0.31+0.98	3.94+1.67	3.87+1.74	
(dBS)	-10.48+13.83	-13.72+14.1	-10.71+13.38	-18.93+19.2	-10.72+16.9	3.97+3.2	3.71+3.0	0.29+3.37	2.78+3.3	6.88+7.48	5.97+10.1	-14.29+7.6	-11.93+19.1	-13.32+16.1	-17.19+18.2	-14.48+18.04	-17.87+18.69	-14.89+17.6	7.17+1.98	-8.95+1.6	-7.47+4.6	9.9+16.25	7.96+4.67	8.80+7.28	
(dBS)	-																								



Radiated Composite Gain of 6GHz

Appendix B

(H15)	4.531-33	2.831-28	3.26-32	2.64-37	4.25-46	5.33-63	6-13	6.23-69	8.39-8.85	5.68-5.64	5.36-4.34	2.61-3.4	2.921-69	1.141-133	3.63-25	4.01-15	6.58-8.06	6.05-10.23	11.03-11.33	6-9.86	8.82-9.11	8.63-4.2	4.917-106	6.99-6.4
(H22)	2.652-24	3.883-34	2.47-39	3.84-44	7.467-73	6.64-62	6.27-108	7.91-82	8.71-71	7.65-82	7.27-38	4.09-67	1.48-92	1.061-169	2.773-384	4.4-34	4.967-74	11.04-11.49	11.82-883	7.94-8.4	10.29-10.55	8.7-8.8	5.46-4.73	4.811-97
(H33)	3.83-34	2.882-31	3.71-65	4.19-65	4.61-53	6.09-61	6.29-67	8.45-19	8.17-74	6.31-54	5.51-61	6.21-66	4.44-265	1.52-108	1.39-22	3.48-604	11.04-11.49	11.86-154	16.65-978	7.07-87	10.27-10.54	4.62-63	5.19-6.91	5.34-5.96
(H37)	3.54-47	5.66-66	4.68-38	6.79-84	7.13-74	4.95-37	5.93-25	4.98-73	6.69-79	6.19-83	6.79-112	10.31-128	10.88-81	6.75-478	3.57-44	1.471-88	3.34-59	1.207-117	10.2-83	9.92-124	8.4-6.53	5.27-14	3.811-18	3.55-38
(H48)	4.89-54	4.56-19	6.16-26	10.24-122	10.077-63	6.47-68	6.54-31	5.99-71	5.65-73	4.5-73	6.23-18	7.25-6	5.36-48	3.87-63	4.14-321	4.18-47	5.81-62	14.14-125	16.61-138	8.72-134	5.89-48	8.34-56	4.8-71.5	3.88-13
(H52)	6.81-183	14.07-124	9.98-28	7.61-37	7.22-71	8.67-36	8.17-25	7.1-74	5.89-42	7.11-37	6.78-47	3.58-38	1.97-19	1.26-52	6.98-73	4.58-84	8.99-88	11.37-148	10.27-72	10.17-71	5.89-29	3.49-74	4.88-17.5	6.37-69
(H60)	2.81-15	7.59-10.76	14.53-10.99	8.65-65	6.96-79	8.17-78	9.97-75	8.79-68	5.11-43	5.99-68	4.44-22	2.41-46	3.81-31	4.1-33	5.14-102	7.49-86	8.49-82	11.37-183	10.87-103	11.87-71	5.89-29	4.53-29	5.55-71	1.02-17
(H67)	3.64-65	8.73-39	15.47-12.83	12.54-74	8.52-149	10.75-146	11.12-104	13.38-23	8.66-74	11.09-115	10.23-114	10.73-69	7.08-70	6.05-69	6.34-152	8.49-119	18.08-149	13.92-105	17.89-146	15.3-1337	8.99-67	7.86-176	1.36-213	1.71-29
(H71)	8.12-71	5.44-24	12.37-16.14	11.07-145	10.77-122	13.33-142	12.17-59	16.48-178	6.00-73	11.48-105	16.82-116	9.98-128	10.101-425	2.49-58	6.30-146	18.76-115	17.24-188	8.62-174	17.82-182	18.19-536	7.41-62	8.68-78	4.13-237	4.19-57
(H82)	8.99-86	4.17-46	8.98-18	16.82-83	13.95-133	19.34-142	17.98-125	18.77-184	14.31-99	13.79-159	13.38-168	12.26-131	13.87-142	13.66-148	13.46-173	18.93-118	15.24-174	16.29-188	15.59-102	15.59-102	8.57-126	18.80-101	4.69-53	4.19-65
(H91)	11.62-534	3.82-236	12.21-11.85	15.91-11.27	15.59-11.78	13.29-12.79	18.55-19.8	14.4-14.38	15.99-17.26	14.93-18.78	12.28-19.6	11.62-83	10.69-13.36	10.59-144	12.51-1425	10.64-177	18.17-183	12.46-329	10.87-107	12.33-188	13.29-118	1.55-78	11.31-32	1.51-32
(H97)	7.84-47	4.33-12	11.51-10.2	10.54-9.82	10.55-11.78	12.84-10.3	10.54-165	16.14-14	18.4-183	15.23-144	10.97-721	12.93-12.91	13.28-144	12.91-683	17.38-146	6.95-73	18.02-185	7.59-154	15.37-118	14.35-172	12.93-157	8.83-73	11.46-143	11.63-143
(H101)	8.71-186	10.56-176	18.11-189	8.99-138	8.16-186	14.82-87	9.27-125	14.18-172	17.88-114	13.52-146	17.09-197	8.57-84	11.32-125	14.45-874	4.98-1704	8.25-147	8.74-84	10.3-131	15.71-118	15.22-188	5.23-53	8.99-78	11.48-174	16.42-142
(H112)	10.19-1531	18.67-1025	13.78-1131	17.84-817	14.94-1424	12.67-85	9.37-66	4.98-115	18.99-918	11.42-765	16.98-112	9.28-131	6.36-1149	18.11-1028	8.42-16	4.3-14	8.79-645	12.27-98	18.99-106	12.97-138	8.19-44	1.21-69	4.71-69	8.47-19
(H124)	8.66-116	12.37-18.32	10.44-17.39	14.84-16	7.63-103	7.39-73	6.44-46	6.35-1024	13.68-1679	8.819-116	11.81-174	18.43-1597	10.34-103	17.86-1707	10.14-173	10.91-878	6.52-63	6.01-72	8.75-69	8.33-93	7.29-56	5.16-68	3.75-73	6.42-143
(H127)	14.66-117	10.21-86	10.49-59	8.99-92	19.11-221	8.83-71	10.13-874	13.99-1249	17.37-1385	10.63-1477	18.53-1265	18.24-1851	19.39-134	18.76-1144	18.57-131	4.22-73	5.48-379	6.13-1187	8.19-73	7.12-34	7.49-68	6.11-68	4.16-21	8.62-143
(H131)	16.62-146	10.19-69	17.56-11.66	8.4-44	4.93-861	13.67-69	4.69-4	5.34-1037	13.72-181	18.19-1448	7.3-1204	12.37-83	11.53-164	18.01-1138	18.47-443	6.23-1061	7.38-207	2.21-678	4.79-1203	5.669-95	5.14-52	2.29-42	8.62-69	14.68-172
(H142)	5.65-178	12.23-101	11.78-79	8.17-48	6.72-1488	10.50-809	7.23-55	6.69-1246	14.31-782	14.84-802	8.19-1368	18.62-71	3.33-766	15.74-15	16.90-1428	19.19-45	7.79-23	4.27-188	4.79-1248	4.59-138	9.59-1792	4.12-74	5.79-67	7.22-64
(H150)	11.52-106	10.49-1307	13.14-16.68	12.6-34	7.11-165	10.91-866	7.2-547	7.16-125	11.16-1178	12.44-1762	8.96-27	2.475-73	12.17-1237	16.75-1843	19.28-1233	5.19-257	7.94-1262	5.99-349	5.307-49	17.72-1251	11.34-98	6.32-68	8.07-103	10.71-103
(H157)	1.77-112	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126
(H172)	2.591-279	5.64-72	6.22-132	16.53-14.8	13.78-152	17.21-186	18.46-16.68	15.12-19.17	15.19-19	8.32-68	8.67-165	7.06-54	4.57-407	3.53-377	4.07-86	9.81-126	15.39-119	11.82-197	10.68-63	5.54-63	6.66-68	8.86-65	6.73-55	6.77-24
(H175)	2.591-279	5.64-72	6.22-132	16.53-14.8	13.78-152	17.21-186	18.46-16.68	15.12-19.17	15.19-19	8.32-68	8.67-165	7.06-54	4.57-407	3.53-377	4.07-86	9.81-126	15.39-119	11.82-197	10.68-63	5.54-63	6.66-68	8.86-65	6.73-55	6.77-24
(H180)	1.77-112	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126	10.17-126
(H184)	6.999-974	PhatK1_3																						
Gain	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)	(H197)(H75)
(H197)	4.76-598	5.65-237	6.36-272	5.79-491	4.98-746	4.74-733	2.48-177	2.42-189	1.75-97	1.11-24	2.25-37	3.18-48	3.02-27	1.74-658	4.27-23	7.43-72	6.02-477	6.29-75	2.07-152	1.28-134	1.47-133	1.47-133	1.47-133	
(H201)	4.95-774	8.49-839	11.15-97	7.67-621	5.32-447	3.52-285	2.97-141	1.88-153	1.871-218	1.42-125	2.29-251	3.23-28	4.29-443	4.29-443	4.415-72	6.83-838	4.88-33	3.29-271	2.27-187	1.81-158	1.48-132	1.96-79	2.43-104	6.71-88
(H205)	13.85-159	19.27-181	14.34-142	17.11-77	5.56-444	3.49-72	3.95-442	3.87-384	3.81-409	3.72-401	5.52-63	6.97-81	12.52-155	14.03-1028	7.95-526	4.42-42	4.28-409	3.45-358	1.73-108	1.76-749	1.04-141	2.01-72	3.34-51	7.98-113
(H222)	8.60-146	8.32-845	7.99-633	4.85-463	4.36-247	3.36-273	3.42-313	3.42-313	3.98-488	5.51-72	6.33-72	2.94-289	3.37-7	6.11-82	16.38-139	6.98-48	3.17-7	5.35-258	4.32-368	3.94-28	4.47-477	4.74-477	4.11-51	6.81-98
(H231)	5.963-82	5.38-491	5.23-436	3.29-247	1.96-158	2.44-44	4.292-84	4.54-274	4.670-74	2.02-288	2.643-32	5.46-47	4.44-829	8.56-110	17.94-187	4.262-83	4.929-126	2.79-348	3.19-244	2.88-14	1.41-132	3.98-64	8.36-48	16.16-78
(H237)	3.33-931	1.77-136	1.57-129	3.94-61	5.94-33	3.38-642	4.974-69	4.832-228	1.66-275	3.28-281	3.88-4	3.88-4	3.98-245	3.38-736	8.87-164	3.13-394	2.27-164	3.4-102	4.59-243	4.11-248	4.43-14	1.70-42	1.70-42	1.64-43
(H241)	4.589-358	3.64-253	3.36-232	2.95-67	9.25-41	2.13-46	18.915-81	16.74-63	6.74-891	4.79-3	5.97-62	3.99-334	2.171-44	1.894-12	1.819-86	1.57-106	3.96-87	1.161-73	1.58-649	6.997-43	6.99-27	8.57-47	6.23-61	8.88-32
(H252)	1.057-115	4.03-66	4.38-309	2.79-652	6.41-561	4.889-1059	10.86-1040	7.6-666	10.45-872	4.62-65	5.98-65	3.82-14	4.16-293	1.894-12	1.819-86	1.57-106	3.96-87	1.161-73	1.58-649	6.997-43	6.99-27	8.57-47	6.23-61	8.88-32
(H258)	6.43-158	2.94-407	4.24-387	4.3-71	4.82-804	4.02-364	4.43-636	6.48-31	7.33-737	4.91-549	6.85-474	6.52-134	10.27-163	6.713-388	2.04-167	5.42-35	3.18-826	1.51-838	3.08-122	5.51-129	4.31-23	6.53-78	6.95-114	12.91-102
(H261)	5.36-834	4.88-645	3.98-208	1.49-278	1.270-36	1.166-133	3.22-58	2.66-11	4.45-137	4.59-144	4.55-64	3.50-169	11.47-117	9.06-622	13.17-147	4.44-437	5.82-625	6.03-625	6.04-421	6.44-173	4.31-75	6.41-278	6.17-184	13.31-62
(H264)	4.16-652	2.67-387	3.71-33	2.02-211	1.12-273	3.42-824	1.011-79	1.06-641	1.471-14	4.89-69	1.84-54	1.207-36	5.71-471	7.87-145	10.89-83	8.17-44	6.80-472	1.85-145	2.97-456	3.86-278	2.69-219	4.31-89	6.56-178	10.66-13
(H282)	11.72-1074	5.83-362	2.25-114	2.6-112	1.32-149	3.98-36	2.193-27	2.41-61	1.58-112	3.84-129	1.1-124	0.36-34	4.95-112	16.10-156	10.94-117	7.19-146	3.91-79	2.85-109	3.59-355	1.16-117	1.79-230	6.31-89	6.89-125	9.86-31
(H285)	15.14-82	7.72-143	1.2-131	1.34-65	1.432-55	4.024-77	4.624-68	4.712-33	6.88-77	4.15-473	4.19-181	2.23-49	6.54-17	6.52-133	11.41-528	7.31-623	3.79-383	3.79-626	1.49-258	1.310-28				



Antenna Pattern of 2.4GHz and 5GHz UNII 1~3

Appendix C

θ(°)	1330.29	-1.461321	-1.4620	1.25006	2.60324	-4.97565	-3.79241	-0.6930	-1.70737	-12.46420	-2.65042	0.21137	2.65214	4.96112	-2.29279	-5.01432	-4.18456	3.18158	0.71049	-1.96249	-1.76432	1.74955	2.45340	0.32058	
φ(°)	0.444032	0.860331	0.07133	1.40007	0.65112	-3.87522	-6.45597	-1.29051	-5.09303	-12.23875	-1.84041	0.58115	-1.99179	2.67267	-2.51103	-3.95544	-4.67538	5.09232	3.45202	-5.62143	-3.02449	8.43549	0.98150	1.53086	
φ(82.5°)	0.61242	0.37082	0.60075	0.37157	-1.75084	-2.08487	-6.73140	-2.18923	-3.67566	-6.81540	-0.64051	-0.65127	-1.09239	-2.39947	-2.08952	-3.67442	-4.60357	3.14215	-0.11352	-3.28307	-2.30345	6.78936	0.34114	1.90092	
φ(87°)	2.381418	-3.801221	0.971050	0.992433	-1.861169	-3.293308	-7.028737	-5.332338	2.293137	-6.984590	-0.961177	-3.561432	3.671624	-3.803507	-6.452329	-3.891381	-3.281382	2.291101	2.711738	-1.744049	0.752187	6.222711	0.742030	0.331170	
φ(89°)	4.544458	-2.141700	2.431464	-4.943391	-1.551327	-6.114465	-6.166558	-4.371425	-3.991179	-6.786593	-3.697871	-8.281198	-1.392433	-6.651066	-6.804707	-4.051186	-4.511179	0.720203	2.122700	-1.054015	-1.447487	6.092329	-2.722510	-2.473332	
φ(90°)	3.732450	-0.852420	4.268768	0.662176	-2.744551	-3.333937	-6.641709	8.022303	-1.681102	-2.764777	-2.938111	-8.311356	-1.655181	-2.871403	-7.881780	-3.631314	-3.330770	2.801128	0.880105	0.851430	0.501508	8.415443	-2.811604	-5.843340	
φ(112.5°)	-1.191080	-0.580460	8.631816	-4.891445	-2.222700	-2.843366	3.741426	-8.061019	-1.797130	-5.943735	-1.321346	-1.545442	-1.971388	-5.113118	-7.071685	-3.681165	-1.771159	-0.921601	0.882124	-4.841454	0.868113	-5.633155	-5.843340	-5.843340	
φ(127.5°)	7.993303	-1.873351	-5.146068	5.524243	-4.163654	9.298564	-9.074224	-4.813134	-10.191447	-4.441335	-3.637259	-7.740499	-4.153135	-4.711759	-6.820107	-9.688334	-5.963235	0.144878	-1.171117	0.212326	-4.291341	5.469034	0.8081141	8.742020	
φ(135°)	4.621340	-2.393321	-4.193328	-3.989225	-5.855045	-12.986664	-6.286664	-3.981354	-8.275757	-5.541521	-6.575556	-12.571708	-4.198422	-6.167855	-8.120465	-7.928326	-4.994424	-1.353366	-4.121381	-5.598306	0.531346	-6.111450	-6.282362	-8.93382	
φ(142.5°)	6.638494	-7.396655	4.316334	-4.420225	1.559159	0.861121	3.871610	-7.971637	-2.629234	-5.261390	-6.816191	-1.802233	-3.533378	-10.989272	-5.919202	-1.275116	-3.060773	-5.992328	4.869833	6.234424	7.254775	4.262925	-16.539479	-7.822087	
φ(150°)	5.214746	-6.832388	0.803138	-0.605108	3.541160	-10.29432	2.463308	-4.095336	-4.544727	-8.691117	-11.893325	-1.209100	-1.209100	-4.153250	-3.244022	-6.837511	-7.181195	0.111183	3.721320	-2.594883	11.443058	7.786165	-3.791326	-7.791326	
φ(157.5°)	5.159350	-5.993127	1.802777	-3.601432	3.463242	-1.541132	2.153227	-4.114462	-6.009223	-1.141128	-12.341340	-8.893343	-1.141128	-3.834480	-4.954544	-2.901287	-2.731320	-4.439458	0.711352	-3.934605	-3.771016	11.511148	-9.981176	-14.793343	
φ(165°)	5.764000	-3.581427	4.954408	-5.104471	-4.123940	-1.151427	12.059154	-13.061110	-12.351422	3.292523	-2.032229	-3.034420	-4.211742	-1.912408	-2.201126	-1.812408	-2.292523	-1.721126	-1.511189	-3.201126	-3.741144	4.964608	-6.83382	-6.83382	
φ(172.5°)	1.844282	-2.319250	2.742323	-1.621373	3.128286	-3.975683	-7.949090	-11.781230	-10.141148	-10.444880	-6.914442	-2.701176	-1.311122	-0.989022	-0.559162	-0.401403	-0.401403	-0.475303	-0.911401	-1.671158	-1.711183	-1.969118	-2.523371	-3.042334	
φ(180°)	4.644582	-5.963878	6.200491	-6.021155	-11.911145	-7.256449	-4.193447	-3.789341	-4.251949	-4.338220	-5.994442	-3.963257	-3.189227	-2.672446	-2.582742	-2.800239	-1.879170	-1.911213	-2.688339	-3.593654	-3.786578	8.147897	-6.83382	-7.141344	
Gain	5.765094	Table 2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
φ(°)	φ(0°)	φ(87.5°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)	φ(90°)
φ(°)	7.022469	-7.034469	-6.646710	-7.114402	4.311650	-7.227152	6.268258	-5.268407	-6.793577	-5.004455	-4.704488	-4.384445	-4.213300	-3.893334	-4.424485	-4.604462	-4.394479	-5.231661	-5.645447	-5.451255	-5.944738	-7.468115	-7.357122	-7.357122	
φ(7.5°)	3.260420	-2.881317	-3.361331	-3.589289	-3.123680	-4.755109	-4.914497	-4.831611	-4.507450	-4.654445	-4.764694	-4.736761	-4.717479	-4.686442	-4.646444	-4.606445	-4.566446	-4.526447	-4.486448	-4.446449	-4.406450	-4.366451	-4.326452	-4.286453	-4.246454
φ(15°)	0.690176	0.680131	0.630611	0.210200	-0.130489	-1.511209	-2.741427	-5.003745	-6.541499	-6.361557	-5.526426	-5.334499	-4.902472	-4.524465	-4.504416	-3.901389	-3.881413	-4.154405	-4.224011	-3.301228	-3.281178	-1.861178	-1.851158	0.656129	
φ(22.5°)	0.310409	0.730172	0.730172	0.930387	0.730172	-0.131000	-1.713116	-4.231450	-5.441350	-5.071376	-4.301459	-4.032472	-3.620455	-3.620455	-3.101188	-1.391150	-1.391150	-1.391150	-1.831182	-1.671128	-1.113000	-1.113000	0.652129	0.652129	
φ(30°)	0.501176	0.930406	0.410488	-1.121044	-1.541135	-0.340411	-1.192225	-2.631231	-2.481330	-3.222448	-0.950426	0.244115	0.202102	1.812414	1.600172	0.401695	-1.214465	0.790808	-0.292320	-0.681122	0.070116	0.000102	0.570127	0.510171	
φ(37.5°)	2.330151	-2.321298	-3.920334	-3.983355	-4.123388	-2.371027	-3.631570	-5.891581	-3.942442	-4.123388	-2.992480	-1.968382	-1.301422	-1.081422	-1.081422	-0.903168	-0.903168	-0.725300	-0.725300	-0.547438	-0.547438	-0.370576	-0.370576	-0.193714	
φ(45°)	1.750324	-4.644829	-6.807326	-7.147498	-6.204747	-2.391155	-2.320266	-3.293443	-2.015151	0.244001	-0.650482	-1.801440	-0.951165	-2.081166	0.680151	0.980115	0.980115	-1.511078	2.281233	0.680124	0.301172	2.791159	1.010807	0.648012	
φ(52.5°)	-3.393334	-5.007394	-7.799366	-8.331954	-8.331954	-5.517136	-2.711225	-4.930171	-5.951133	-6.864414	-6.624430	-4.474320	-2.760810	-1.929139	-1.689139	-1.689139	-1.689139	-1.689139	-1.689139	-1.689139	-1.689139	-1.689139	-1.689139	-1.689139	-1.689139
φ(60°)	-2.280322	-0.620603	2.301314	2.961134	-3.691669	-7.754747	-3.261148	-6.041128	-2.698433	-5.201395	-3.071108	-0.610442	2.011109	3.041144	-0.110324	-0.110324	-0.110324	-0.110324	-0.110324	-0.110324	-0.110324	-0.110324	-0.110324	-0.110324	
φ(67.5°)	1.180409	3.840403	0.960480	0.770188	-2.381551	-6.771442	2.251843	3.681154	1.790428	-6.791356	0.959189	0.959189	0.959189	0.959189	0.959189	0.959189	0.959189	0.959189	0.959189	0.959189	0.959189	0.959189	0.959189	0.959189	
φ(75°)	0.711316	2.651027	0.510105	0.760173	0.761032	3.481442	3.082499	-1.510001	6.671167	-10.651178	-10.641177	-10.641177	-10.641177	-10.641177	-10.641177	-10.641177	-10.641177	-10.641177	-10.641177	-10.641177	-10.641177	-10.641177	-10.641177	-10.641177	
φ(82.5°)	4.299124	0.070180	0.042025	0.771120	-1.001439	-1.593320	2.552499	-1.170200	4.171110	-13.961554	-0.320889	0.210185	0.613324	2.503987	-1.131022	3.121120	-1.728461	-6.961590	3.881444	-1.941208	-2.891283	-7.838480	-2.891283	-2.891283	
φ(90°)	8.961186	-3.981183	0.961177	-1.281106	-3.021048	-3.011048	-3.011048	-3.011048	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	-4.441180	
φ(97.5°)	1.1721167	-2.101123	-2.782029	-1.975588	-3.023131	-4.874428	-2.002442	-2.142821	-5.159488	-5.869500	-3.975644	-3.546473	-4.077844	-5.675223	0.191113	3.220436	0.610468	-0.610468	-2.752727	-2.930428	-1.763111	-1.437387	-0.963137	-0.818269	
φ(105°)	-4.801323	-2.281127	-2.351227	-3.964448	-4.611619	-4.611619	-6.161512	-4.441180	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	-6.274131	
φ(112.5°)	3.703437	-1.433300	-4.461445	-4.640342	-4.415111	-3.212449	-4.006611	-5.708420	-6.302447	-4.234704	-3.667112	-1.030475	-0.376188	-0.283109	-1.016450	-2.713324	-4.059277	0.260130	-0.021019	1.970149	-1.660553	10.448452	15.155868	16.174944	
φ(120°)	0.940189	-1.550282	-4.611444	-5.420344	-5.621635	-6.981594	-7.294172	-6.418458	-6.130441	-4.201210	-3.294122	-1.444191	-1.444191	-1.444191	-1.444191	-1.444191	-1.444191	-1.444191	-1.444191	-1.444191	-1.444191	-1.444191	-1.444191	-1.444191	
φ(127.5°)	0.615170	-2.891342	-4.191282	-1.802442	-4.892025	-0.874468	-6.481285	-2.742333	-4.713435	-7.741230	-5.251605	-10.091361	-4.171107	-7.695055	-6.954765	-12.061533	-3.065388	-0.533438	-3.359288	-2.364129	-1.711143	-1.844137	-4.371250	-3.794489	



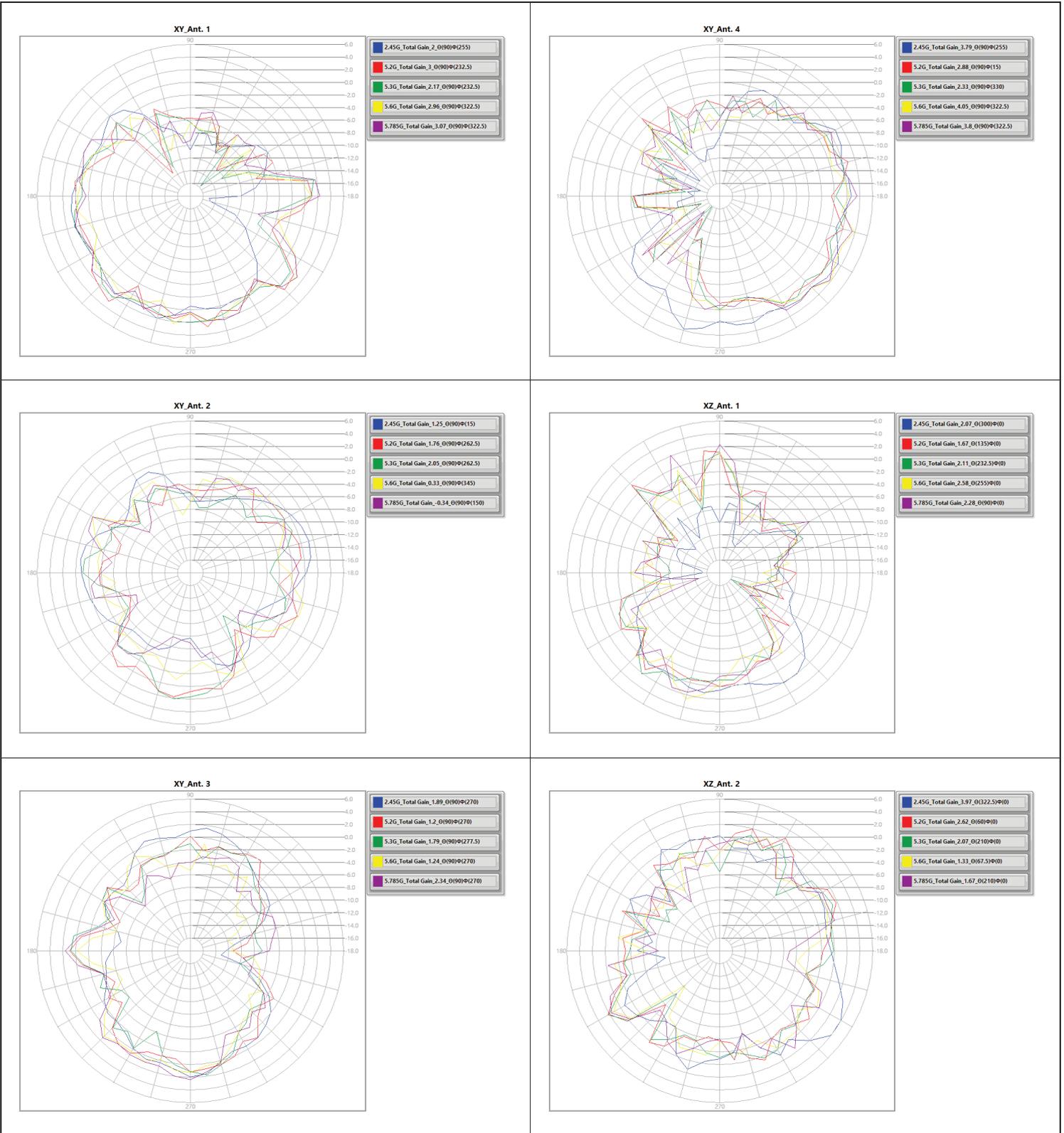
Antenna Pattern of 2.4GHz and 5GHz UNII 1~3

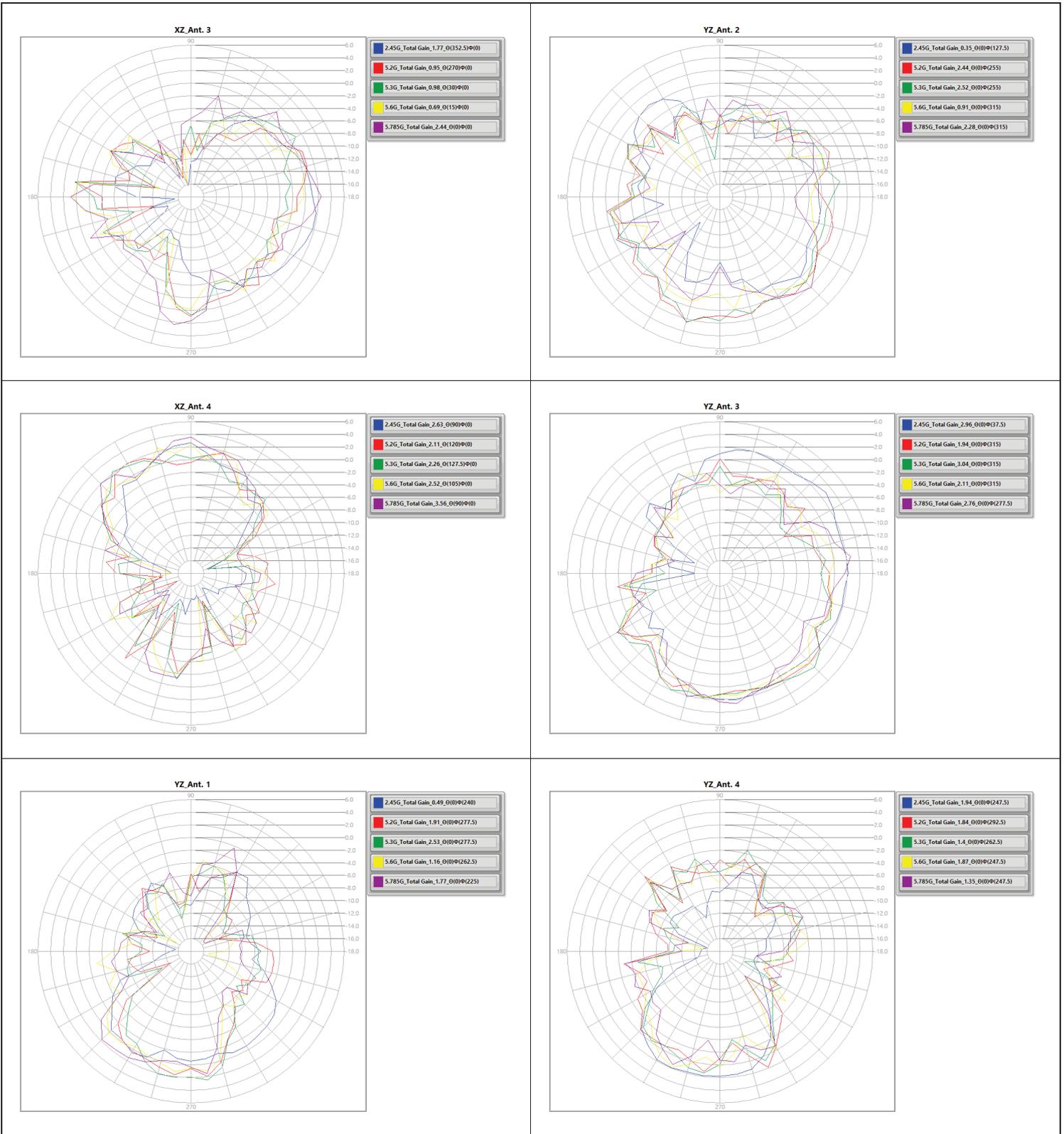
Appendix C

φ(165°)	7:55:6.59	-5:40:3.91	-3:39:3.18	-3:51:4.49	-4:91:4.91	-5:71:4.18	-7:61:10.83	-13:91:14.70	-14:77:11.31	-8:60:4.41	-8:53:7.97	-7:30:4.11	-8:59:7.54	-6:49:0.06	-5:50:4.37	-4:11:5.37	-6:68:7.28	-6:08:4.67	-4:94:6.94	-9:26:10.27	-9:23:8.21	-7:76:4.78	-10:54:6.81	-8:27:10.33	
φ(172.5°)	4:63:5.20	-4:38:3.47	-4:10:5.89	-4:84:7.02	-7:16:7.42	-8:21:8.54	-6:79:12.59	-10:14:8.84	-7:48:7.29	-6:36:11.62	-12:15:11.10	-13:17:14.39	-11:48:13.66	-12:00:11.33	-10:79:11.13	-7:29:5.96	-4:81:4.00	-3:21:2.58	-2:82:3.14	-4:78:1.48	-8:04:7.28	-7:49:1.47	-7:49:1.47	-7:16:4.78	
φ(180°)	6:37:6.57	-4:17:5.31	-6:68:6.86	-7:21:7.44	-7:46:7.58	-8:43:9.15	-6:79:9.89	-6:49:4.76	-5:70:7.66	-6:86:7.20	-6:75:7.62	-6:08:4.88	-4:71:4.23	-4:13:4.28	-4:02:3.87	-3:79:3.45	-3:21:3.47	-3:52:3.26	-3:37:3.13	-4:58:4.16	-4:56:1.56	-5:32:4.72	-4:97:4.74	-4:17:4.97	
φ(Freq)	5.35Pa	Table A.4																							
φ(0°)	8:47:8.32	7:30:8.67	-10:30:6.61	-7:87:1.46	-6:53:6.80	-7:00:7.26	7:23:8.38	-8:91:8.34	6:55:8.55	8:86:7.44	6:04:6.55	8:06:8.69	8:29:8.87	8:52:8.55	8:40:8.38	8:03:8.77	7:41:7.34	8:87:7.80	7:21:8.27	-7:58:7.76	8:11:8.72	8:36:8.58	7:86:8.94	6:49:7.48	
φ(15°)	8:84:8.46	8:78:8.22	8:18:8.27	8:72:8.67	8:66:8.57	-7:27:7.19	7:16:7.25	8:38:8.76	8:68:8.90	8:83:8.76	-7:49:8.13	8:20:8.29	8:21:7.88	-7:29:7.77	-7:48:8.26	-8:45:8.16	-7:99:8.69	8:14:8.26	-8:20:8.10	8:46:8.85	-8:20:8.88	8:30:8.96	-8:30:8.96	-16:78:8.84	
φ(30°)	16:44:13.33	11:51:9.25	7:31:9.07	7:28:9.05	8:41:8.60	5:59:8.02	6:50:8.32	5:51:7.33	5:00:8.32	6:23:8.56	6:09:8.38	6:29:8.56	6:31:7.78	-7:30:7.74	-7:39:8.26	-7:52:8.64	-7:00:8.17	-7:58:8.22	-7:00:8.17	-7:58:8.22	-7:58:8.22	-7:58:8.22	-7:58:8.22	-7:58:8.22	
φ(45°)	11:07:8.52	8:59:7.37	10:24:11.24	8:29:8.14	8:53:8.99	5:52:7.18	4:20:6.42	4:56:6.21	7:34:10.08	11:45:9.76	10:18:9.56	10:27:9.18	7:26:7.67	6:59:8.56	6:47:7.37	7:51:8.53	7:78:8.63	8:76:8.58	8:69:8.48	8:60:8.48	8:54:8.19	8:54:8.19	8:54:8.19	8:54:8.19	
φ(60°)	6:51:7.57	4:53:5.82	7:39:7.89	8:70:8.59	7:59:7.81	8:08:7.22	6:20:6.58	6:02:6.58	6:47:7.67	5:51:8.53	7:78:8.63	8:76:8.58	8:69:8.48	8:60:8.48	8:54:8.19	8:54:8.19	8:54:8.19	8:54:8.19	8:54:8.19	8:54:8.19	8:54:8.19	8:54:8.19	8:54:8.19	8:54:8.19	
φ(75°)	5:49:6.58	3:37:4.08	4:08:6:17	4:37:6.84	4:31:4.24	-13:02:6:42	5:34:3:59	-3:61:5:72	7:54:2:49	6:42:6:30	-7:59:5:54	-11:40:10:10	7:94:6:85	6:42:6:60	-7:49:6:42	-7:59:6:18	-7:59:6:18	-7:59:6:18	-7:59:6:18	-7:59:6:18	-7:59:6:18	-7:59:6:18	-7:59:6:18	-7:59:6:18	
φ(90°)	1:58:0:00	1:29:1:42	-1:29:1:42	-2:71:2:31	-2:89:6:89	-9:76:7:68	7:28:5:06	4:16:5:81	6:28:11:10	6:05:9:36	-10:30:4:34	-8:70:8:50	5:72:5:76	6:19:10:43	-10:76:11:05	-14:03:12:22	9:25:7:89	8:51:4:46	8:30:10:49	-10:39:7:56	6:09:3:95	6:25:3:45	-1:18:1:75		
φ(105°)	1:55:1:60	1:01:0:88	0:58:0:47	0:83:0:28	0:74:3:36	-4:76:5:44	4:91:5:97	-3:05:6:55	-11:05:10:34	6:53:5:05	4:21:0:27	5:94:2:49	4:85:0:35	-14:87:10:24	-15:18:9:88	9:00:10:10	4:49:3:74	4:25:3:82	-4:47:6:51	-3:12:5:48	5:74:1:18	2:70:1:14	4:43:3:24	-3:21:3:04	
φ(120°)	1:59:2:38	0:26:0:65	0:59:1:09	0:89:0:10	1:05:0:62	2:04:1:41	-3:38:0:19	-7:73:0:58	-6:57:1:26	-5:74:2:46	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	-11:75:0:57	
φ(135°)	2:35:1:02	1:08:0:46	-2:59:0:06	-3:50:2:04	-6:05:0:77	-3:04:1:17	-3:10:5:39	-8:22:0:27	-6:16:12:35	-8:02:0:17	-10:13:8:51	-6:16:12:35	-12:09:0:48	-7:37:4:43	-3:82:3:41	-4:30:5:11	-4:10:2:16	1:07:10:33	1:54:10:22	-1:54:10:22	-1:54:10:22	-1:54:10:22	-1:54:10:22	-1:54:10:22	
φ(150°)	-0:04:3:03	0:16:1:13	2:16:0:59	-3:97:0:80	-1:04:2:11	-0:21:0:99	-1:44:3:39	-5:01:8:11	-12:16:11:35	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	-8:22:0:17	
φ(165°)	0:84:1:68	1:30:1:22	0:42:0:45	2:27:1:95	-1:93:2:69	-0:87:3:21	4:54:4:03	-7:49:1:72	-5:99:1:14	4:56:1:89	-6:06:1:25	-6:02:1:74	5:00:0:62	5:54:5:52	6:57:6:66	4:57:4:44	5:04:5:08	3:93:3:27	-3:48:1:45	-1:10:1:13	-1:07:0:55	0:22:1:10	0:87:1:10	0:87:1:10	
φ(180°)	0:17:1:74	1:07:1:38	1:28:0:44	0:21:2:94	0:53:2:82	5:36:2:64	4:84:2:78	2:49:1:79	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	-1:50:0:49	
φ(195°)	0:94:1:49	1:53:1:06	1:49:1:45	1:04:1:62	-0:07:3:20	-2:53:1:72	-6:42:5:85	5:99:1:45	-1:53:0:71	6:46:1:32	-4:06:0:78	-7:51:1:41	-1:15:4:49	-7:39:6:66	-2:34:3:84	-10:13:6:50	5:51:4:61	6:60:0:71	1:40:1:47	-3:86:1:70	-4:30:1:74	1:88:2:74	2:52:1:36	2:72:1:14	
φ(210°)	0:07:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	1:02:1:76	
φ(225°)	1:31:0:76	1:30:0:37	-1:52:1:12	-1:13:1:74	-3:80:2:91	-3:18:3:09	-4:45:4:49	-5:63:0:53	-8:79:5:68	-7:38:0:67	-10:55:1:33	-8:43:1:32	-8:27:1:15	-12:49:1:33	-3:84:0:27	-4:68:3:30	2:19:2:29	1:16:2:62	-3:74:0:57	1:62:0:21	0:57:1:51	1:38:0:13	0:83:0:13	-1:52:0:22	
φ(240°)	8:14:4:60	-8:37:8:33	-8:84:10:11	-10:88:8:87	-8:36:7:38	-6:67:6:63	5:92:4:31	3:44:3:73	5:39:6:73	-8:57:11:87	-11:10:10:58	-10:14:10:58	-7:54:6:05	-6:72:4:47	-6:83:6:88	-1:73:1:26	-12:13:9:47	-6:82:1:26	-6:43:1:74	-6:35:6:82	-6:69:6:77	-6:56:6:42	-6:47:6:02	-6:37:6:33	
φ(255°)	2:76:1:35	3:65:4:44	4:12:4:82	4:94:5:21	4:66:6:24	3:96:6:58	8:44:7:04	6:00:4:73	5:59:6:96	6:52:7:51	5:23:6:44	6:76:4:49	4:92:4:42	6:81:6:90	10:40:10:29	10:16:10:20	10:14:10:20	10:14:10:20	10:14:10:20	10:14:10:20	10:14:10:20	10:14:10:20	10:14:10:20	10:14:10:20	
φ(270°)	1:29:1:29	-1:07:2:12	-1:83:2:20	-1:61:1:77	-3:30:3:30	5:17:6:52	-10:10:7:33	-4:64:4:10	5:81:7:10	8:31:6:68	-7:61:6:45	-10:08:8:33	-8:69:8:42	-7:11:8:81	-11:91:11:48	-11:36:11:18	-11:36:11:18	-11:36:11:18	-11:36:11:18	-11:36:11:18	-11:36:11:18	-11:36:11:18	-11:36:11:18	-11:36:11:18	
φ(300°)	4:44:2:83	-1:99:0:55	-1:30:0:12	0:25:1:27	4:77:0:84	-2:88:4:49	-6:65:11:69	-11:78:7:47	-11:01:13:63	-12:78:8:69	-9:13:7:46	-6:76:5:34	4:91:9:17	-15:58:15:58	9:88:7:33	-7:67:7:23	6:61:4:89	4:37:5:66	-7:59:5:32	-5:71:4:50	4:40:3:34	2:08:2:38	-3:20:1:14	-5:40:4:45	
φ(315°)	3:04:3:31	2:58:2:25	1:50:0:90	1:27:0:78	2:22:0:94	-1:21:1:42	-3:97:1:79	-10:28:0:40	-10:50:10:02	-11:59:8:88	-6:07:6:01	-7:00:5:22	3:79:8:52	-15:10:7:75	6:51:6:54	4:19:6:22	4:00:3:35	3:56:3:08	4:08:0:62	4:10:0:29	4:20:1:40	8:61:0:87	6:54:1:53	-1:20:2:20	
φ(330°)	1:76:0:69	1:54:1:79	2:45:2:02	2:24:1:47	1:81:0:69	-1:16:1:16	3:02:1:24	7:91:6:57	6:42:1:57	-15:41:6:66	15:34:14:49	15:21:13:24	8:23:11:34	8:14:7:77	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	
φ(345°)	8:53:0:53	7:53:1:16	3:37:3:39	3:74:3:42	4:87:4:14	1:34:1:58	9:37:9:16	12:20:10:57	-14:75:11:01	-12:54:11:27	-11:15:10:56	-8:85:10:33	9:20:9:41	7:25:8:35	5:80:6:76	4:32:4:33	5:35:4:31	6:52:7:19	8:56:10:18	-10:75:9:40	-8:89:8:50	-10:52:10:88	-11:82:11:41	-11:68:10:89	
φ(360°)	5:42:0:48	5:09:0:58	5:42:0:55	5:36:0:46	5:76:10:08	11:07:11:18	12:20:10:57	-14:75:11:01	-12:54:11:27	-11:15:10:56	-8:85:10:33	9:20:9:41	7:25:8:35	5:80:6:76	4:32:4:33	5:35:4:31	6:52:7:19	8:56:10:18	-10:75:9:40	-8:89:8:50	-10:52:10:88	-11:82:11:41	-11:68:10:89		
φ(Freq)	5.82Pa	Table A.4																							
φ(0°)	8:07:7:57	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	6:15:7:22	
φ(15°)	8:81:8:17	8:22:8:20	7:51:7:56	7:00:6:11	6:57:6:17	5:25:4:30	-3:10:4:49	6:06:4:47	4:29:6:28	5:23:6:48	-5:02:6:56	6:64:6:54	6:24:7:22	-7:67:7:16	-7:38:7:16	6:70:7:12	8:14:7:85	8:62:8:90	-8:53:9:04	-11:10:11:86	-11:11:10:32	-12:55:10:31	-8:50:8:61		
φ(30°)	8:60:1:13	8:58:1:32	8:06:1:42	8:68:1:74	8:06:1:28	5:72:1:52	-4:50:1:43	4:62:1:58	6:07:1:03	-5:24:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	-8:74:1:33	
φ(45°)	-12:78:11:37	-10:58:9:14	8:07:9:54	8:69:8:58	-7:85:6:69	-5:38:5:22	5:30:5:22	-5:87:5:72	6:43:7:57	8:06:8:63	8:09:8:06	9:76:8:89	8:78:7:66	-7:47:8:94	8:08:8:16	8:52:8:82	-10:48:13:57	-13:44:12:65	9:88:10:08	-10:45:11:41	9:84:10:04	-10:22:8:74	-11:36:13:10	-11:85:12:16	
φ(60°)	4:44:4:45	-4:10:5:84	5:05:6:19	5:31:4:70	4:33:4:48	8:23:9:79	8:44:8:65	6:53:6:71	11:56:16:68	15:34:14:49	15:21:13:24	8:23:11:34	8:14:7:77	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	8:19:8:43	
φ(75°)	8:53:0:53	7:53:1:16	3:37:3:39	3:74:3:42	4:87:4:14	1:34:1:58	9:37:9:16	12:20:10:57	-14:75:11:01	-12:54:11:27	-11:15:10:56	-8:85:10:33	9:20:9:41	7:25:8:35	5:80:6:76	4:32:4:33	5:35:4:31	6:52:7:19	8:56:10:18	-10:75:9:40	-8:89:8:50	-10:52:10:88	-11:82:11:41	-11:68:10:89	
φ(90°)	5:42:0:48	5:09:0:58	5:42:0:55	5:36:0:46	5:76:10:08	11:07:11:18	12:20:10:57	-14:75:11:01	-12:54:11:27	-11:15:10:56	-8:85:10:33	9:20:9:41	7:25:8:35	5:80:6:76	4:32:4:33	5:35:4:3									



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 D

Phi (°)	0.00/0.0	0.61/0.6	1.16/1.2	1.65/1.7	2.09/2.1	2.52/2.6	2.93/3.0	3.32/3.4	3.69/3.8	4.04/4.2	4.37/4.6	4.68/4.9	4.97/5.3	5.24/5.6	5.49/5.9	5.72/6.2	5.93/6.5	6.11/6.8	6.27/7.1	6.41/7.4	6.53/7.7	6.63/8.1	6.71/8.7	6.78/9.4	6.83/10.3	6.87/11.4	6.90/12.7	6.92/14.2	6.93/15.9	6.94/17.8	6.95/19.9	6.95/22.2	6.95/24.8	6.95/27.6	6.95/30.6	6.95/33.8	6.95/37.2	6.95/40.8	6.95/44.6	6.95/48.6	6.95/52.8	6.95/57.2	6.95/61.8	6.95/66.6	6.95/71.6	6.95/76.8	6.95/82.2	6.95/87.8	6.95/93.6	6.95/99.6	6.95/105.8	6.95/112.2	6.95/118.8	6.95/125.6	6.95/132.6	6.95/139.8	6.95/147.2	6.95/154.8	6.95/162.6	6.95/170.6	6.95/178.8	6.95/187.2	6.95/195.8	6.95/204.6	6.95/213.6	6.95/222.8	6.95/232.2	6.95/241.8	6.95/251.6	6.95/261.6	6.95/271.8	6.95/282.2	6.95/292.8	6.95/303.6	6.95/314.6	6.95/325.8	6.95/337.2	6.95/348.8	6.95/360.6															
Theta (°)	0.00/0.0	0.85/0.7	1.71/1.5	2.57/2.3	3.43/3.1	4.29/3.9	5.15/4.8	6.01/5.7	6.87/6.5	7.73/7.4	8.59/8.2	9.45/9.1	10.31/10.0	11.17/10.8	12.03/11.7	12.89/12.6	13.75/13.6	14.61/14.5	15.47/15.4	16.33/16.3	17.19/17.2	18.05/18.1	18.91/19.0	19.77/19.8	20.63/20.7	21.49/21.5	22.35/22.4	23.21/23.3	24.07/24.1	24.93/25.0	25.79/25.8	26.65/26.7	27.51/27.6	28.37/28.4	29.23/29.3	30.09/30.1	30.95/31.0	31.81/31.9	32.67/32.7	33.53/33.6	34.39/34.4	35.25/35.3	36.11/36.2	36.97/37.0	37.83/37.9	38.69/38.7	39.55/39.6	40.41/40.5	41.27/41.3	42.13/42.2	42.99/43.0	43.85/43.9	44.71/44.8	45.57/45.6	46.43/46.5	47.29/47.3	48.15/48.2	49.01/49.1	49.87/49.9	50.73/50.8	51.59/51.6	52.45/52.5	53.31/53.4	54.17/54.2	55.03/55.1	55.89/55.9	56.75/56.8	57.61/57.7	58.47/58.5	59.33/59.4	60.19/60.2	61.05/61.1	61.91/62.0	62.77/62.8	63.63/63.7	64.49/64.5	65.35/65.4	66.21/66.3	67.07/67.1	67.93/68.0	68.79/68.9	69.65/69.7	70.51/70.6	71.37/71.4	72.23/72.3	73.09/73.1	73.95/74.0	74.81/74.9	75.67/75.7	76.53/76.6	77.39/77.4	78.25/78.3	79.11/79.2	80.00/80.0



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

