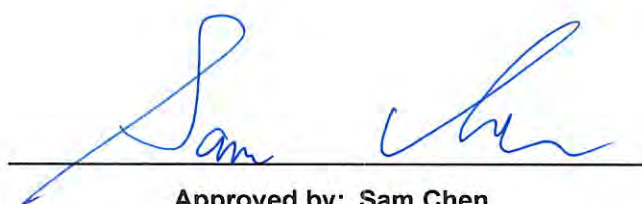


Antenna Composite Gain Test Report

FCC ID	2AHKM-CODA5370
Equipment	Cable AP Gateway(WiFi)
Brand Name	HITRON
Model Name	CODA5370
Applicant	Hitron Technologies Inc. No. 1-8, Li-Hsin 1st Rd. Hsinchu Science Park, Hsinchu 30078, Taiwan
Manufacturer	Hitron Technologies Inc. No. 1-8, Li-Hsin 1st Rd. Hsinchu Science Park, Hsinchu 30078, Taiwan
Standard	KDB662911 D03 v01
Sample Received	Jul. 08, 2024
Start Test Date	Jul. 13, 2024
Final Test Date	Jul. 13, 2024



Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)



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History of this test report

[illegible]

1. Operation Mode and Antenna Information

Antenna Position	RF Port	Brand Name	Model Name	Ant. Type	Connector	Modes of Operation
2G Ant1	1	SPEED	F-0Q-YF-6001-001-00	PCB	I-Pex	2.4GHz
2G Ant2	2	SPEED	F-0Q-YF-6001-002-00	PCB	I-Pex	2.4GHz
5G Ant1	1	SPEED	F-0Q-YF-6001-003-00	PCB	I-Pex	5GHZ
5G Ant2	2	SPEED	F-0Q-YF-6001-004-00	PCB	I-Pex	5GHz

Note:

2.4GHz Operation Mode

For IEEE 802.11 b (1TX/1RX)

2G Ant1 can be used as transmitting/receiving antenna.

2G Ant1 could transmit/receive simultaneously.

For IEEE 802.11 g/n/VHT/ax (2TX/2RX)

2G Ant1~2 can be used as transmitting/receiving antenna.

2G Ant1~2 could transmit/receive simultaneously.

5GHz Operation Mode (2TX/2RX)

5G Ant1~2 can be used as transmitting/receiving antenna.

5G Ant1~2 could transmit/receive simultaneously.

2. Test Frequency

The listed frequency of each bands are selected to represent each frequency bands

Band [MHz]	Test Frequency [MHz]
2400-2483.5	2400
	2450
	2483.5
5150-5250	5200
5250-5350	5300
5470-5725	5600
5725-5850	5785



3. Testing Location

Testing Location		
Sporton International Inc. Hsinhua Laboratory		
☒	HWA YA	ADD : No.13-1 & 14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333, Taiwan R.O.C.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	05CH03-HY	Vivi Jiang	23.5~24.5 / 45~55	Jul. 13, 2024

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

Characteristic: Fully Anechoic Chamber

4. Test Facility and Configuration

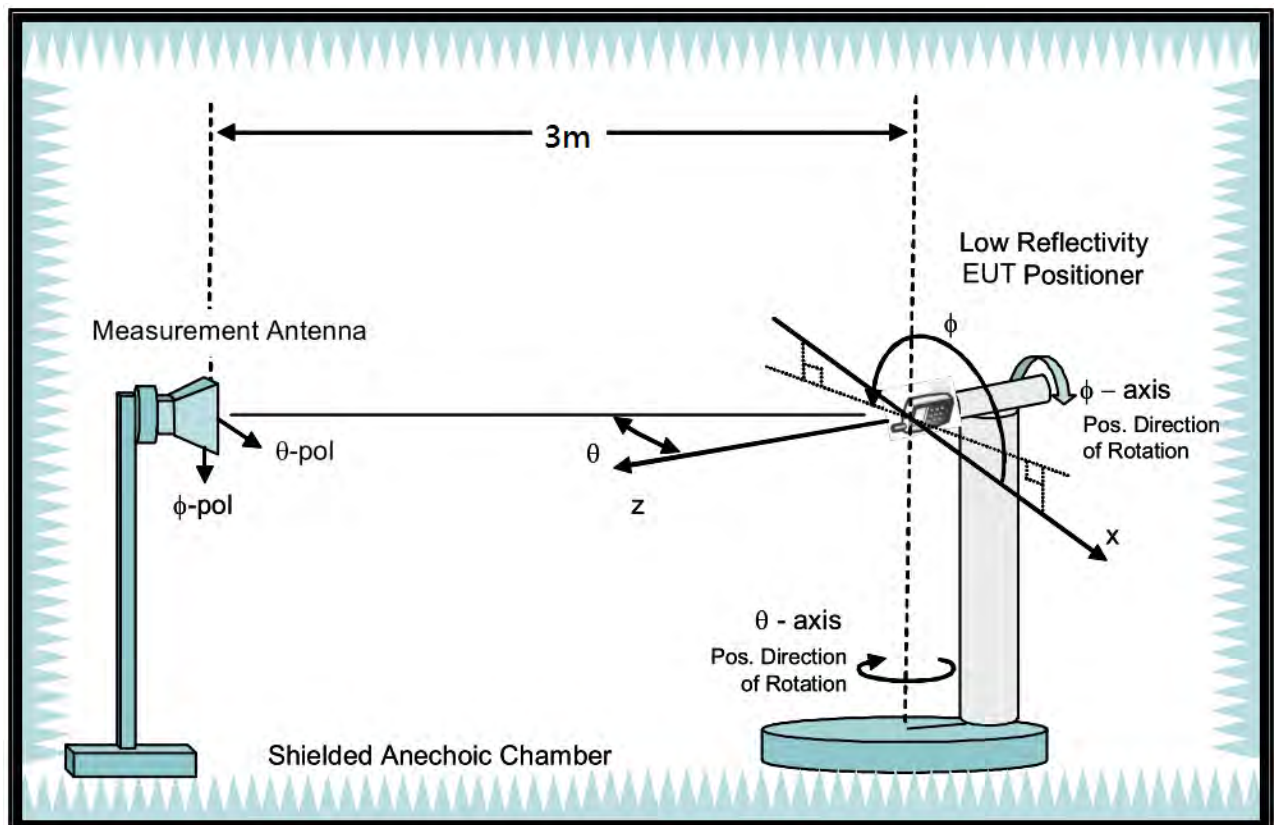
Test configuration: Reference to CITA OTA distributed-axes system configuration.

Chamber: Fully Anechoic Chamber.

Measurement antenna: Dual Polarization Horn antenna

Turntable: Multi-axis positioner (Theta and Phi angle).

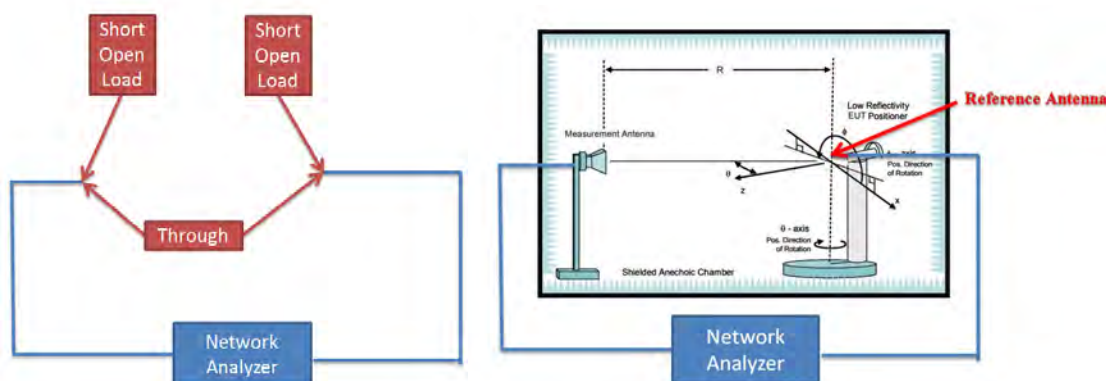
#Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1"



5. Reference Calibration

Connected cables to VNA calibration kit and use network analyzer internal function to do calibration. Do short, open and load to each side. Then connect through to both side and calibrate G values. The cable loss is calibrated and set inside the network analyzer.

Measurement Antenna is connected to port1 of Network analyzer and reference antenna connected to port 2 of Network Analyzer. Record G values and used with reference antenna gain to calculate gain factor.



Frequency (MHz)	2400	2450	2500	5150	5200	5300	5600	5750	5800	5900	6000	6500	7000	7200
G(theta) reading (dB)	-33.55	-33.38	-32.91	-32.29	-32.48	-32.25	-32.33	-32.85	-32.67	-33.37	-32.53	-33.75	-34.72	-35.33
G(phi) reading (dB)	-33.11	-32.68	-32.48	-32.45	-32.85	-31.35	-32.76	-32.68	-32.57	-32.81	-32.85	-33.62	-34.33	-35.29
Reference gain (dBi)	10.3	10.3	10.1	11.1	11.3	11.7	12.1	11.5	11.2	11.1	11.3	11	11.1	10.5
Factor(theta) (dB)	43.85	43.68	43.01	43.39	43.78	43.95	44.43	44.35	43.87	44.47	43.83	44.75	45.82	45.83
Factor(phi) (dB)	43.41	42.98	42.58	43.55	44.15	43.05	44.86	44.18	43.77	43.91	44.15	44.62	45.43	45.79

Note:

$$G \text{ reading (dB)} = 20 \cdot \log(V_2/V_1) = 10 \cdot \log(P_2/P_1)$$

V2 is the voltage of VNA port2 is measured, V1 is the voltage of VNA port1 is the reference source.

P2 is the power of VNA port2 is measured, P1 is the power of VNA port1 is the reference source.

$$\text{Factor} = \text{gain factor} + \text{power gain conversion} = (\text{Reference antenna gain}) - (G \text{ reading})$$



6. Test Method

EUT set on multi-axis positioner and adjust EUT's physical center to measurement reference center. Measurement antenna set at phi polarization and 1.5 meter height. Port 1 of Network analyzer connect to antenna 1 of EUT. Record G value every 7.5 degree from 0 to 352.5 degree on Phi angle and 0 to 180 on theta angle of multi-axis positioner. Then set measurement antenna to theta polarization and repeat process. Repeat process to each antenna of EUT.

DG steps:

1. Each Phi and Theta polarization antenna gain are measured for all test angles.
2. Composite Phi and Theta antenna gain are computed, using formula in KDB662911 D01 d) (i) and e) (ii), for all angles.
3. Composite antenna gain are examined for all angles to determine max gain and Phi/Theta position. Max gain and phi/theta position are listed in section 7 tables.

Note: Antenna gain = G reading + factor, The factor of chapter five includes reference antenna gain factor and power gain conversion.

7. Measured Values and Calculation of Maximum Gain Positions

DG_1SS max value position

Frequency (Hz)	2.4G	2.45G	2.4835G
Ant. 1 (dBi)	-2.42	-1.46	-8.18
Ant. 2 (dBi)	3.32	2.3	4.57
DG [1SS] (dBi)	3.93	3.63	3.36
Polarization	Phi	Phi	Phi
$\Theta(^{\circ})$	105	112.5	97.5
$\Phi(^{\circ})$	292.5	300	255

Note: The DG 1SS max value position is the maximum value of section 11 table DG 1SS Result.

DG_1SS max value position calculation

Frequency (Hz)	2.4G	2.45G	2.4835G
Ant. 1 [$10^{(G/20)}$]	$10^{(-2.42/20)}$	$10^{(-1.46/20)}$	$10^{(-8.18/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(3.32/20)}$	$10^{(2.3/20)}$	$10^{(4.57/20)}$
Ant. 1 [$10^{(G/20)}$] value	0.757	0.845	0.39
Ant. 2 [$10^{(G/20)}$] value	1.466	1.303	1.692
Sum All Antenna [Amax]	2.222	2.148	2.082
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	3.93	3.63	3.36

Note:

Directional Gain (1SS) is the max value of every look angle. Each position value is calculated by KDB662911 D01 d) (i).

Directional gain (1SS) = $10 \cdot \log(10^{(G_{ant1}/20)} + 10^{(G_{ant2}/20)} + 10^{(G_{ant3}/20)} + 10^{(G_{ant4}/20)} + \dots)^{2/N_{ant}}$

DG_1SS max value position

Frequency (Hz)	5.2G	5.3G	5.6G	5.785G
Ant. 1 (dBi)	5.14	0.93	4.5	4.76
Ant. 2 (dBi)	-8.49	1.12	-1.74	-2.51
DG [1SS] (dBi)	3.77	4.04	4.94	4.87
Polarization	Phi	Phi	Phi	Phi
$\Theta(^{\circ})$	135	105	112.5	112.5
$\Phi(^{\circ})$	67.5	45	60	60

Note: The DG 1SS max value position is the maximum value of section 11 table DG 1SS Result.

DG_1SS max value position calculation

Frequency (Hz)	5.2G	5.3G	5.6G	5.785G
Ant. 1 [$10^{(G/20)}$]	$10^{(5.14/20)}$	$10^{(0.93/20)}$	$10^{(4.5/20)}$	$10^{(4.76/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(-8.49/20)}$	$10^{(1.12/20)}$	$10^{(-1.74/20)}$	$10^{(-2.51/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.807	1.113	1.679	1.73
Ant. 2 [$10^{(G/20)}$] value	0.376	1.138	0.818	0.749
Sum All Antenna [Amax]	2.183	2.251	2.497	2.479
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	3.77	4.04	4.94	4.87

Note:

Directional Gain (1SS) is the max value of every look angle. Each position value is calculated by KDB662911 D01 d) (i).

Directional gain (1SS) = $10 \cdot \log(10^{(G_{ant1}/20)} + 10^{(G_{ant2}/20)} + 10^{(G_{ant3}/20)} + 10^{(G_{ant4}/20)} + \dots)^{1/2/N_{ant}}$

8. Summary of Test Result

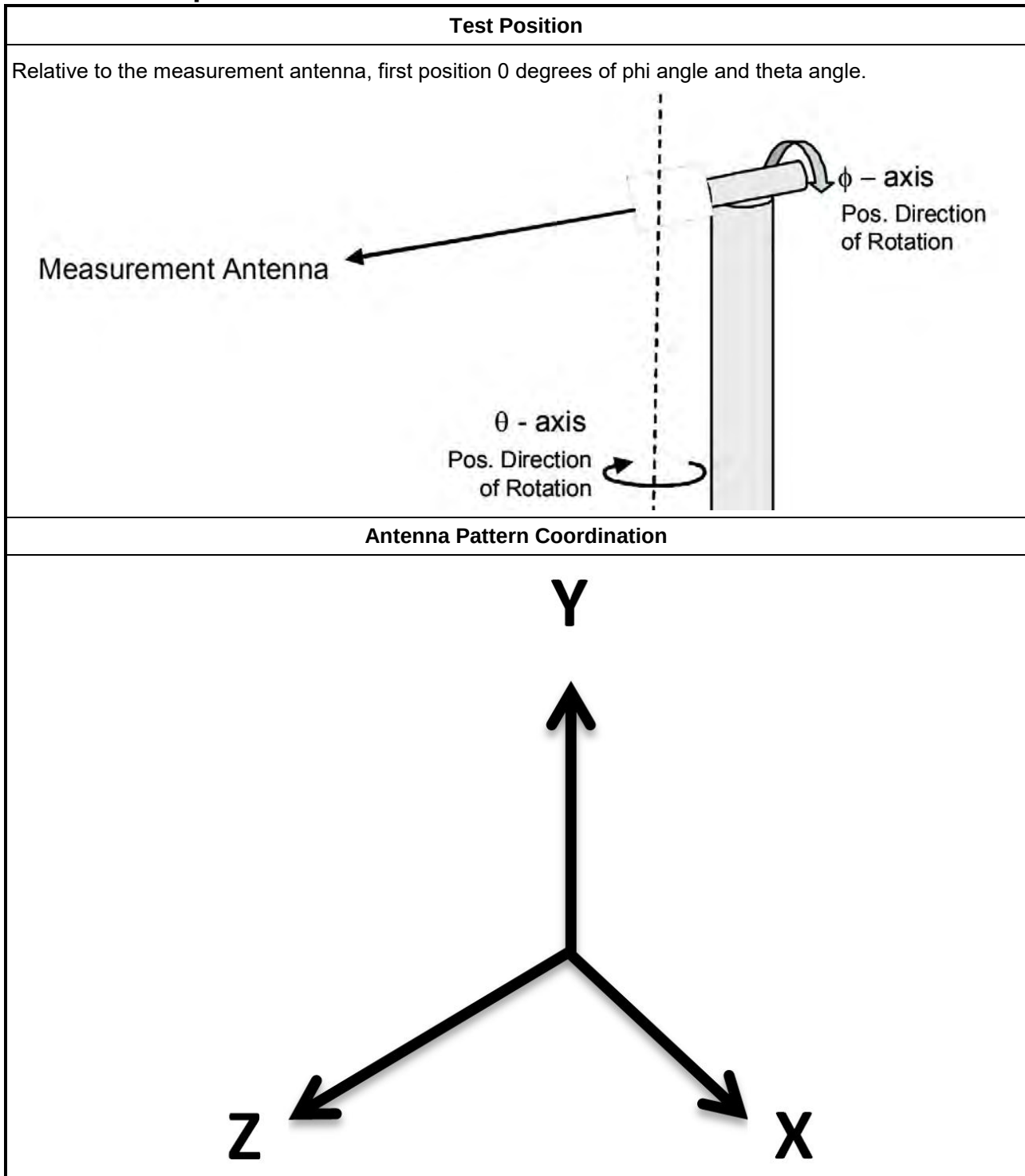
Frequency (Hz)	2.4G	2.45G	2.4835G
Ant. 1 Max Gain (dBi)	2.69	2.86	2.85
Ant. 2 Max Gain (dBi)	5.84	5.16	4.64
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/7.5/337.5	Phi/135/337.5	Phi/135/337.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/97.5/270	Phi/97.5/270	Phi/97.5/262.5
Max Gain (dBi)	5.84	5.16	4.64
DG [1SS] (dBi)	3.93	3.63	3.36
DG [1SS] (dBi) Revised	5.84	5.16	4.64
DG [2SS] (dBi)	5.84	5.16	4.64

Frequency (Hz)	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	5.14	5.1	5.64	5.76
Ant. 2 Max Gain (dBi)	3.9	4.14	3.81	4.14
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/135/67.5	Phi/135/67.5	Phi/142.5/90	Phi/142.5/82.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/90/345	Phi/90/352.5	Phi/172.5/352.5	Phi/120/0
Max Gain (dBi)	5.14	5.1	5.64	5.76
DG [1SS] (dBi)	3.77	4.04	4.94	4.87
DG [1SS] (dBi) Revised	5.14	5.1	5.64	5.76
DG [2SS] (dBi)	5.14	5.1	5.64	5.76

Note:

1. Antenna max gain is the max value of each individual antenna through all measurement angles.
2. The max gain is the max value of all antennas.
3. Directional Gain (2SS) = Directional Gain (1SS) – 3dB. If directional gain is less than max gain, use max gain as directional gain. Refer to KDB662911D01 (F) (2) (e) (ii)

9. Test Setup



Note:

Photos of Test Position: Please refer to the test photos in the appendix.

**10. Test Equipment and Calibration Data**

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1531	1GHz~18GHz	Dec. 20, 2023	Dec. 19, 2024
Dual Polarization Horn Antenna	Sporton	S0209DP	S0209DP-001	2GHz~9GHz	N.C.R.	N.C.R.
ENA Series Network Analyzer	AGILENT	E5071C	MY46419477	100kHz~8.5GHz	Jul. 28, 2023	Jul. 27, 2024
VNA Calibration Kit	TS RF	TS85033E-F	-	DC~9GHz	N.C.R.	N.C.R.
Multi-axis positioner	Sporton	MAPS01	MAPS01-001	Theta / Phi axis	N.C.R.	N.C.R.
Test Software	SPORTON	SENSE-RDG	V1.0.8	-	N.C.R.	N.C.R.

Note: Calibration Interval of instruments listed above is one year.

NCR means Non-Calibration required.



11. Test Results

Please refer to the appendix.

Appendix A – Radiated Composite Gain of 2.4GHz.....	Page 15
Appendix B – Radiated Composite Gain of 5GHz UNII 1~UNII 3.....	Page 21
Appendix C – Antenna Pattern of 2.4GHz.....	Page 28
Appendix D – Antenna Pattern of 5GHz UNII 1~UNII 3.....	Page 31
Appendix E – Test Photos.....	Page 34



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Freq(Hz)	2.4G	2.45G	2.4835G
Ant. 1 Max Gain (dBi)	2.69	2.86	2.85
Ant. 2 Max Gain (dBi)	5.84	5.16	4.64
Ant. 1 Polarization/Θ(°)/Φ(°)	Phi/7.5/337.5	Phi/135/337.5	Phi/135/337.5
Ant. 2 Polarization/Θ(°)/Φ(°)	Phi/97.5/270	Phi/97.5/270	Phi/97.5/262.5
Max Gain (dBi)	5.84	5.16	4.64
DG [1SS] (dBi)	3.93	3.63	3.36
DG [1SS] (dBi) Revised	5.84	5.16	4.64
DG [2SS] (dBi)	5.84	5.16	4.64



Radiated Composite Gain Data of 2.4GHz

Appendix A

DG 1SS Result

Freq(Hz)	2.4GPol.	PhiH	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	
DG(dB)	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(°)	0.08065	1.1551241	1.7183	1.7913	1.61124	0.8612	1.737	2.96318	3.4534	3.27315	2.73214	1.46069	0.59123	1.81225	2.5226	2.53224	1.69109	0.62113	1.85223	2.88299	2.86261	2.13151	0.83022		
Theta(7.5°)	0.8136	1.89224	2.35237	2.2219	1.6101	0.37038	1.03179	2.32268	2.92297	2.8249	2.04141	0.62026	-0.3052	1.2172	2.1238	2.47237	1.97096	0.9114	2.16255	2.85317	3.32343	3.31309	2.77212	1.25066	
Theta(15°)	0.2109	1.542	2.23216	1.92153	1.16061	-0.16404	0.28101	1.572	2.33243	2.33197	1.35048	-0.46134	-1.42045	0.39115	1.7322	2.44241	2.16178	1.4916	2.16283	3.13343	3.61361	3.34307	2.68204	1.11022	
Theta(22.5°)	-0.31041	1.21183	2.25234	2.17192	1.43086	0.25029	-0.104	0.85132	1.68192	1.93168	1.12021	-0.87134	-1.2048	0.25097	1.621	2.4524	2.3169	1.35159	2.19262	3.35337	2.86259	2.15153	0.53056		
Theta(30°)	0.25128	1.87225	2.49267	2.78271	2.54204	1.46078	0.79073	0.7073	1.02114	1.53165	1.33052	-0.47117	-0.88026	0.33089	1.39191	2.35259	2.55221	1.6217	2.15261	2.72258	2.5125	2.6256	2.4194	0.76009	
Theta(37.5°)	0.27153	2.2238	2.5269	2.79281	2.79211	1.45088	0.7065	0.49303	-0.59052	-0.0105	0.64033	-0.3306	-0.17034	0.67101	1.38182	2.19231	2.16175	1.22128	2.03251	2.69245	2.64277	2.79275	2.28164	0.43046	
Theta(45°)	-1.14007	0.69013	1.4517	2.05254	2.55257	0.97026	-0.136191	-1.65098	-0.53049	-0.71072	-0.02049	0.79095	1.12145	1.81196	1.9517	1.24116	1.76218	2.19227	2.53252	2.47213	1.48066	-0.8919			
Theta(52.5°)	-1.62118	-0.48008	0.42089	1.35192	2.31243	2.16118	0.35014	-0.16032	-0.85168	-21.158	-1.2211	-1.04078	-0.22021	0.45056	0.67092	1.02093	0.9807	0.52062	1.64195	2.11208	2.02197	1.76164	1.15072	0.03119	
Theta(60°)	-3.57277	-2.42048	-2.39176	-0.51067	1.29099	0.49101	-2.35227	-1.23025	-0.09043	-1.26168	-1.97227	-2.48199	-1.08033	0.22061	0.76072	0.59074	1.3718	1.54086	1.51192	1.97161	1.57153	1.44128	1.1405	-0.99296	
Theta(67.5°)	-3.07143	-1.32257	-3.83138	-1.33035	1.58168	0.97026	-1.17072	0.03079	0.85012	-0.67087	-0.91237	-0.79164	-0.89004	0.86134	1.31097	0.51088	1.72191	1.63179	2.7427	1.9312	1.46158	1.44074	-0.6224	-4.12478	
Theta(75°)	-0.97063	-1.16189	-2.18231	-2.49163	0.5018	-0.12086	-1.41133	-0.61029	0.68028	-0.63096	-0.43007	-0.09009	0.28066	1.1415	1.58156	1.76211	2.55262	2.15171	2.66212	1.41232	2.87291	2.3814	0.05114	-2.13187	
Theta(82.5°)	-0.36022	0.53033	-0401	-1.04171	-2.24226	-2.28277	-3.81464	-3.81229	-0.94048	-0.69099	-0.79037	-0.06006	0.23058	1.06156	1.9221	2.15214	2.32241	1.81216	2.35227	2.48298	3.06247	1.29014	-0.9138	-1.25074	
Theta(90°)	-0.91018	0.02004	0.04011	-0.11068	-1.71265	-2.78233	-4.61533	-4.22351	-2.83189	-1.27107	-1.0911	-1.24102	-0.66039	0.26099	1.58201	2.15253	3.24352	0.86131	3.2297	2.55267	2.57193	1.12062	0.29054	-1.87173	
Theta(97.5°)	0.15015	-0.61122	-1.35139	-1.6205	-2.58311	-3.75418	-4.71517	-4.22293	-2.14143	-0.58027	-0.61102	-1.2815	-1.31091	-0.17052	1.23194	2.29287	3.11288	2.72318	3.7529	2.78328	3.39035	2.29132	-0.04105	-1.31047	
Theta(105°)	-0.18048	-0.55247	-2.96124	-2.0121	-2.93048	-6.39632	-5.35504	-4.54137	-2.1156	-1.01094	-1.27139	-1.37154	-1.37154	-1.2307	0.15123	2.1426	2.64233	1.96227	2.82262	3.47193	3.67251	1.10135	-0.11046	-0.6026	
Theta(112.5°)	-2.2724	-2.71308	-2.62159	-0.36031	0.1113	-3.39593	-5.154	-3.79271	-1.75125	-0.55033	0.1302	-0.1305	-1.05146	-1.38055	0.61018	2.65318	2.94182	0.86131	3.2326	3.2297	2.55267	1.98112	0.68186	-2.2324	
Theta(120°)	-4.86503	-4.02306	-3.75519	-4.66335	-31415	-6.71979	-8.28639	-5.95542	-4.65369	-1.81041	0.06006	-0.17031	-0.54037	-0.11016	0.49118	2.23274	2.31113	0.21065	1.15105	2.29292	3.12248	1.0115	-3.46327	-3.35397	
Theta(127.5°)	-2.45265	-1.71093	-1.764	-6.64779	-8.23982	-9.64859	-6.44516	-6.31091	-7.55339	-0.91029	-0.78145	-1.511	-0.63036	-0.17046	-0.51004	1.09153	1.2081	0.89096	0.88084	1.36152	1.04042	-0.23068	-0.68015	-0.19108	
Theta(135°)	-1.91236	-2.12145	-1.59264	-4.22557	-6.97829	-8.78671	-7.1567	-7.57118	-11.53582	-2.88188	-1.73133	-0.95041	-0.71151	-2.04188	-0.62067	1.33143	1.41138	1.21072	0.61043	0.51123	1.52158	1.42119	1.12085	0.06101	
Theta(142.5°)	-4.11478	-4.57409	-4.17521	-7.16899	-9.83107	-12.15136	-11.391123	-12.081308	-11.2298	-6.55577	-4.92374	-2.5421	-2.48294	-2.31078	0.4062	0.4301	-0.06002	-0.19007	-0.58069	0.52139	1.58128	0.54032	-1.14203	-2.83158	
Theta(150°)	-7.19164	-5.44545	-4.24749	-6.11783	-8.36688	-9.1397	-9.55096	-8.5758	-6.71567	-5.09522	-5.82062	-6.22617	-6.35635	-5.71466	-4.02394	-4.03368	-2.93237	-2.4436	-3.61285	-1.48072	-0.71127	-2.41428	-6.4828	-8.98775	
Theta(157.5°)	-4.67372	-3.09266	-2.5729	-3.2104	-5.036	-6.575	-7.91795	-7.04576	-4.75399	-3.25277	-2.05155	-1.25107	-1.11147	-2.08271	-2.92244	-1.95164	-1.6822	-3.48456	-4.93425	-3.85383	-4.67169	-8.521042	-10.6993	-6.96566	
Theta(165°)	-2.5322	-1.97191	-2.1128	-3.45418	-5.08611	-6.178935	-9.61027	-9.94852	-7.181592	-4.72363	-2.43162	-0.92031	0.1022	0.18016	0.09003	-3.68102	-2.03321	-4.61576	-6.57659	-6.84723	-8.26713	-1.66533	-4.6442	-3.5331	
Theta(172.5°)	-2.94275	-2.84323	-3.75468	-6.09713	-8.3894	-11.171304	-14.291538	-15.11336	-11.841022	-8.18657	-5.33419	-3.4528	-2.5122	-2.071205	-2.21257	-3.41472	-6.36082	-9.911023	-9.77893	-9.64837	-6.95578	-4.94429	-3.96374	-3.37185	
Theta(180°)	-6.46684	-7.111779	-8.8710	-11.511267	-13.11373	-15.441555	-15.511545	-14.521278	-11.411083	-10.571961	-8.851854	-8.1802	-8.32852	-8.48899	-9.311011	-11.62138	-14.191371	-13.811343	-13.931292	-11.3928	-7.71653	-5.980585	-5.65568	-5.5193	
Freq(Hz)	2.4GPol.	ThetaH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DG(dB)	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°)	-0.78021	0.15042	0.5049	0.44044	0.44028	-0.24115	-2.04204	-1.28092	-0.52023	-0.07015	0.2011	-0.19022	-0.04062	1.01122	1.28913	1.3112	0.92041	0.31104	-1.32102	-1.07158	-0.61061	-0.73107	-1.38129		
Theta(7.5°)	-0.5029	0.64095	1.1111	0.97081	0.66041	0.01068	-1.33144	-0.98066	-0.45039	-0.46051	-0.55064	-0.93071	-0.51031	0.84108	1.08093	0.7066	0.46033	-0.98162	-1.7113	-0.87049	-0.42005	-0.01005	-0.14049	-0.73098	
Theta(15°)	-0.48007	0.38066	0.91105	1.01082	0.51021	-0.16075	-1.16106	-0.6505	-0.45045	-0.65092	-1.13139	-1.64145	-1.22058	0.05035	0.38028	0.17007	-0.14038	-0.91158	-1.65124	-0.74032	-0.02014	0.06008	-0.01026	-0.7408	
Theta(22.5°)	-0.96096	-0.72039	-0.05015	0.180	-0.21051	-0.82128	-1.4084	-0.38022	-0.25056	-0.9119	-1.55195	-2.35204	-1.71081	-0.32013	-0.16034	-0.53074	-0.6912	-1.63025	-1.92133	-0.78046	-0.33026	-0.31033	-0.33036	-0.48091	
Theta(30°)	-1.67184	-1.7113	-0.86057	-0.5063	-1.12161	-2.04231	-2.32144	-1.01068	-0.7709	-1.33177	-2.25288	-3.61307	-2.32119	-0.6029	-0.22042	-0.72097	-1.08108	-1.36177	-1.82177	-1.55133	-1.0809	-0.72057	-0.36035	-0.64119	
Theta(37.5°)	-2.19235	-2.12196	-1.69124	-0.94086	-1.15194	-2.59323	-3.36251	-1.71133	-1.46183	-2.28267	-3.19104	-4.36149	-2.8172	-1.04064	-0.49057	-0.84121	-1.54187	-2.19259	-2.5924	-2.14173	-1.34114	-1.22126	-1.57163	-1.7621	
Theta(45°)	-2.88292	-3.31365	-3.6139	-2.7129	-2.5129	-3.2147	-4.13129	-2.36212	-2.41299	-3.44361	-3.76142	-4.84487	-4.11306	-2.25164	-1.24107	-1.22168	-2.28275	-3.18338	-3.85313	-2.39183	-1.44166	-2.12287	-3.39343	-3.24302	
Theta(52.5°)	-3.84422	-4.97105	-5.49477	-4.37435	-4.63547	-6.17647	-5.46422	-3.28317	-3.65444	-4.8546	-5.2443	-6.48503	-5.13465	-3.9322	-2.72251	-2.74489	-4.54408	-3.57316	-2.71266	-2.88334	-3.95448	-4.82469	-4.3442		
Theta(60°)	-4.92566	-6.55699	-6.22493	-4.17398	-4.12512	-6.95889	-9.05736	-5.82511	-5.25551	-5.85543	-5.21519	-5.3958	-6.15631	-5.94527	-4.67449	-4.92583	-6.24549	-4.57393	-3.71435	-4.94529	-5.18463	-4.42492	-5.42548	-5.12478	
Theta(67.5°)	-5.66176	-8.47873	-7.67629	-5.19468	-4.29449	-5.72734	-8.56096	-8.57103	-8.04803	-7.35663	-6.57122	-7.99809	-7.96173	-6.87064	-5.51548	-5.72625	-6.52068	-5.91575	-6.3176	-7.73463	-5.41523	-5.94705	-7.13069	-5.11497	
Theta(75°)	-8.87942	-9.842	-7.96768	-6.33773	-7.0265	-6.23674	-7.31784	-8.24902	-10.851151	-10.96968	-9.381019	-11.71258	-12.361259	-14.391483	-14.84874	-7.571731	-6.98683	-9.23907	-8.51816	-8.4864	-8.6778	-7.41174	-7.661745	-7.05696	-7.271796
Theta(82.5°)	-9.221027	-10.391009	-9.64951	-9.75958	-8.771841	-8.24772	-8.11763	-7.81849	-10.331321	-14.281346	-12.571242	-12.551304	-13.56137	-12.821											



Radiated Composite Gain Data of 2.4GHz

Appendix A

Θ(22.5°)	0.36/0.22	0.47/0.69	0.78/0.66	0.49/0.35	0.16/-0.03	-0.09/-0.35	-0.36/0.05	0.43/0.68	0.57/0.27	-0.2/-0.52	-0.77/-1.28	-2.13/-2.97	-2.9/-1.63	-0.68/0.05	0.6/0.97	1.18/1.26	1.51/1.32	0.98/0.75	0.34/0.83	1.91/2.28	2.35/2.47	2.25/1.91	1.39/0.88	0.66/0.36
Θ(30°)	0.36/0.06	0.34/1.08	1.62/1.83	1.82/1.56	1.51/1.33	1.05/0.19	-0.02/-0.05	0.91/1.24	1.54/1.05	0.66/0.19	-0.34/-0.96	-1.78/-2.54	-2.42/-1.22	-0.28/0.39	0.78/0.97	1.14/1.31	1.53/1.57	1.28/0.73	0.15/0.96	1.58/1.92	2/1.87	1.82/1.71	1.59/1.47	1.23/0.82
Θ(37.5°)	0.11/-0.37	0.27/1.1	2.11/2.55	2.43/1.89	1.4/0.57	0.15/-0.1	-0.7/-0.86	-0.33/0.54	1.11/1.2	0.94/0.58	0.27/-0.06	-0.52/-1.02	-1.01/-0.1	0.59/1.03	1.24/1.38	1.56/1.87	1.78/1.49	0.92/0.36	0.41/1.13	1.8/1.9	2.16/2.27	2.48/2.65	2.58/2.37	1.91/0.97
Θ(45°)	-2.8/-2.8	-1.84/-0.97	0.16/1.18	1.71/1.68	0.87/0.05	-0.17/-0.08	0.01/-0.52	-1.34/-1.33	-0.79/-0.84	-0.69/-0.51	-0.32/-0.17	-0.22/0.08	0.09/0.74	1.32/1.72	1.86/2.01	2.22/2.41	2.4/2.07	1.41/0.54	0.31/0.97	1.31/1.78	2.61/2.76	3.1/2.98	2.39/1.5	-0.26/-1.74
Θ(52.5°)	-2.42/-2.29	-1.45/-0.61	0.03/0.75	1.32/1.67	1.68/1.53	0.83/-0.27	-0.92/-1.53	-2.43/-3.29	-3.76/-4.14	-4.17/-3.38	-2.29/-1.5	-0.5/0.01	0.30/0.79	1.74/2.01	2.05/1.74	1.39/0.72	-0.07/-0.09	0.6/0.91	1.34/1.89	2.22/2.45	2.14/1.26	-0.4/-1.68	-2.14/-2.27	
Θ(60°)	-1.53/-2.53	-2.89/-2.18	-1.48/-0.64	0.42/1.23	1.44/0.7	-0.19/-1.81	-3.53/-4.08	-3.9/-3.27	-2.87/-2.84	-3.81/-4.5	-4.27/-3.23	-2.04/-1.35	-0.82/-0.42	-0.1/0.28	0.78/1.29	1.53/1.48	1.09/0.44	-0.22/-0.35	0.66/0.19	0.66/1.04	1.5/1.59	1.32/0.77	0.33/0.13	0.05/-0.26
Θ(67.5°)	-4.53/-5.39	-5.73/-5.03	-4.32/-3.54	-1.89/-0.12	1/0.81	-0.53/-2.67	-3.46/-3.71	-4.06/-4.51	-3.73/-3.15	-3.03/-3.12	-3.05/-2.52	-1.79/-1.28	-1.19/-1.02	-0.56/0.17	1.01/1.61	1.45/1.4	1.14/0.58	0.66/0.89	0.35/0.32	1.29/2.03	2.59/2.59	1.91/0.62	-1.1/-2.92	-3.56/-4.08
Θ(75°)	-2.03/-2.12	-1.64/-1.28	-1.4/-2.01	-2.71/-1.82	-0.43/-0.03	0.05/-1.02	-2.13/-2.67	-2.81/-3.26	-4.24/-5.17	-5.62/-4.37	-3.3/-2.28	-1.84/-1.1	-0.77/-0.58	-0.2/0.44	1.06/1.51	1.85/2.09	2.26/2.24	1.93/0.34	0.59/1.06	1.37/2.19	2.6/2.21	0.72/-1.05	-1.97/-1.67	-1.27/-1.32
Θ(82.5°)	-1.02/-1.18	-1.08/-0.78	-0.9/-1.53	-2.38/-2.54	-2.03/-1.76	-2.55/-4.23	-5.37/-6.48	-7.04/-7.02	-6.36/-5.62	-5.63/-4.87	-3.71/-2.08	-1.17/-0.96	-1.01/-0.8	-0.3/0.25	0.67/0.99	1.56/2.05	2.28/2.11	1.15/0.68	0.99/1.24	2.04/2.95	3.16/2.34	0.79/-0.4	-0.74/-0.63	-0.61/-0.98
Θ(90°)	-1.22/-1.29	-0.55/-0.09	-0.38/-1.23	-2.33/-2.7	-2.1/-1.52	-1.7/-3.53	-5.86/-5.79	-5.04/-6.26	-10.08/-10.31	-6.78/-4.68	-3.72/-2.23	-1.18/-0.7	-0.93/-1.21	-1.07/-0.57	0.2/1.22	1.92/2.42	2.85/2.94	2.29/0.96	1.11/1.68	2.67/3.12	2.56/0.52	-1.54/-1.75	-1.01/-0.38	-0.2/-0.42
Θ(97.5°)	-1.69/-1.07	-0.44/-0.49	-1.11/-2.14	-3.13/-3.88	-3.44/-2.43	-2.17/-3.1	-4.59/-5.08	-4.11/-4.49	-7.66/-10.83	-6.29/-3.75	-2.88/-1.96	-0.82/-0.32	-0.42/-0.58	-0.52/-0.22	0.44/1.12	1.26/2.04	3.02/3.32	3.36/2.31	2.23/2.38	2.54/2.1	1.17/0.67	0.57/0.61	0.34/0.31	0.01/-0.98
Θ(105°)	-0.75/0.54	-0.4/-0.83	-1.47/-1.97	-2.69/-3.9	-5.41/-7.06	-5.98/-5.94	-6.72/-7.92	-7.72/-8.29	-6.25/-4.83	-4.5/-3.95	-2.81/-1.76	-1.51/-1.68	-1.5/-1.08	-0.51/0.29	2.88/3.08	2.65/1.86	2.19/2.26	2.03/1.98	2.65/2.05	1.67/1.21	0.81/0.47	-0.27/-0.76		
Θ(112.5°)	-1.49/-1.22	-0.88/-1.92	-2.71/-2.16	-1.28/-1.02	-1.4/-2.52	-4.76/-7.2	-7.59/-7.05	-6.89/-6.38	-7.23/-7.67	-5.5/-3.42	-2.48/-2.29	-1.88/-1.28	-1.18/-1.5	-1.79/-1.55	-0.86/0.11	0.99/2.18	2.96/2.86	2.14/1.18	2.05/2.62	2.37/2.39	2.62/46	1.99/1.63	1.07/0.55	-0.22/-1.34
Θ(120°)	-4.68/-3.61	-3.36/-4.15	-6.2/-7.12	-5.57/-3.94	-3.43/-4	-5.59/-8.13	-8.17/-6.96	-7.01/-7.1	-8.2/-7.12	-4.35/-2.41	-1.46/-1.21	-1.38/-1.02	-0.83/-1.04	-1.1/-0.96	0.43/1.61	2.02/1.31	-0.43/-0.4	1.4/1.59	0.71/1.81	2.8/2.81	2.11/0.98	-0.09/-1.44	-3.64/-5.03	
Θ(127.5°)	-2.26/-1.98	-1.07/-0.89	-1.82/-4.23	-6.4/-7.61	-7.56/-7.91	-8.86/-9.91	-8.11/-7.85	-9.16/-13.06	-10.58/-4.78	-2.55/-2.11	-2.47/-3.02	-3.26/-2.5	-1.35/-0.69	-0.91/-1.83	-2.21/-1.85	0.12/1.23	1.22/0.22	-0.73/-0.78	0.06/0.22	0.36/1.32	1.38/1.16	0.96/0.86	0.58/0.1	-0.6/-1.55
Θ(135°)	-1.63/-1.68	-1.26/-1.16	-2.16/-3.95	-5.52/-6.27	-6.92/-7.59	-7.21/-7.52	-8.62/-8.61	-9.88/-11.9	-6.97/-5.04	-3.17/-2.9	-3.39/-3.48	-3.29/-2.83	-3.01/-3.63	-4.48/-5.38	-4.15/-1.49	0.13/0.62	0.44/-0.13	-0.79/-0.61	-0.26/-0.52	-0.84/-0.02	0.74/1.22	1.71/2.11	2.1/1.54	0.33/-1.04
Θ(142.5°)	-4.14/-4.67	-4.9/-5.16	-5.76/-7.08	-8.12/-9.63	-10.31/-10.33	-10.03/-9.58	-10.54/-10.44	-12.38/-12.76	-9.46/-5.63	-5/-4.56	-4.39/-3.61	-2.42/-1.88	-2.35/-3.41	-3.85/-2.67	-0.99/-0.01	0.30/2.3	-0.03/-0.35	-0.26/-0.12	-0.52/-1.05	-0.01/1.15	1.56/1.61	1.21/0.62	-0.4/-1.74	-2.5/-3.57
Θ(150°)	-6.48/-6.22	-5.54/-4.93	-4.83/-5.5	-6.12/-7.53	-8.96/-10.23	-11.3/-10.17	-9.02/-8.76	-9/-8.75	-8.04/-6.93	-5.7/-5.28	-5.89/-6.65	-6.24/-6.3	-6.13/-6.14	-5.88/-5.37	-4.91/-5.15	-5.36/-5.79	-5.68/-4.48	-3.19/-3.06	-3.51/-3.05	-1.45/-0.33	-0.35/-0.92	-2.17/-3.93	-5.33/-6.52	-7.32/-7.02
Θ(157.5°)	-4.19/-3.44	-2.69/-2.28	-2.25/-2.78	-3.96/-5.36	-6.66/-7.09	-7.39/-8.01	-8.41/-8.24	-7.92/-6.69	-5.62/-4.76	-3.83/-3.11	-2.92/-2.95	-2.76/-2.85	-2.92/-3.1	-3.73/-4.18	-4.81/-5.06	-4.85/-4.01	-3.27/-3.19	-3.71/-4.23	-4.92/-4.73	-3.9/-3.6	-3.97/-5.22	-6.91/-7.76	-7.8/-6.88	-5.69/-4.72
Θ(165°)	-1.98/-1.69	-1.49/-1.35	-1.65/-2.33	-3.47/-4.9	-5.98/-7.02	-8.12/-9.31	-10.61/-10.55	-9.97/-8.08	-6.52/-5.18	-4.13/-4.11	-2.31/-1.74	-1.17/-0.77	-0.6/-0.33	-0.51/-0.4	-0.77/-0.96	-1.24/-1.42	-1.91/-2.85	-4.05/-5.3	-6.04/-6.66	-6.25/-5.72	-5.94/-5.1	-4.32/-4.06	-3.63/-2.99	-2.74/-2.31
Θ(172.5°)	-2.32/-2.38	-2.37/-2.73	-3.22/-4.04	-5.32/-7.32	-8.97/-10.47	-11.96/-14.07	-14.95/-15.93	-15.15/-13.67	-10.47/-8.41	-6.74/-5.42	-4.36/-3.51	-2.89/-2.49	-2.27/-2.2	-2.46/-2.55	-2.95/-3.32	-3.9/-4.43	-5.31/-6.48	-7.58/-8.67	-9.5/-9.08	-8.81/-7.77	-7.11/-6.13	-5.12/-4.29	-3.65/-3.24	-2.91/-2.92
Θ(180°)	-6.22/-6.63	-7/-7.67	-8.55/-9.21	-10.24/-11.55	-12.56/-13.62	-14.68/-15.36	-15.24/-14.63	-14.78/-15.31	-13.8/-12.34	-10.94/-9.59	-8.74/-7.78	-7.37/-7.4	-7.63/-8.32	-9.28/-9.78	-11.01/-11.82	-12.98/-13.77	-13.46/-12.35	-11.94/-12.52	-12.36/-13.57	-12.48/-11.1	-10.04/-8.23	-7.62/-7.1	-6.88/-6.65	-6.59/-6.4
Freq(Hz)	2.4835GPol.	ThetaL	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
DG(dB)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-0.54/-0.32	0.07/0.35	0.55/0.67	0.61/0.28	-0.33/-1.11	-2.16/-3.42	-4.84/-4.74	-3.31/-2.22	-1.27/-0.56	-0.11/0.09	-0.11/-0.64	-0.98/-1.01	-1.24/-0.61	0.02/0.58	0.97/1.02	0.69/0.12	-0.57/-1.14	-1.68/-2.26	-2.87/-2.7	-2.31/-1.81	-1.48/-1.31	-1.39/-1.38	-1.42/-1.33	-1.4/-1.03
Θ(7.5°)	-0.78/0.43	0.96/1.28	1.39/-1.29	1.07/0.59	-0.12/-1.05	-2.17/-3.44	-4.88/-5.01	-3.92/-2.81	-1.92/-1.2	-0.84/-0.59	-0.65/-0.96	-1.48/-1.34	-1.32/-1.13	-0.57/-0.09	0.27/0.4	0.16/-0.2	-0.88/-2	-2.61/-3.08	-3.15/-2.5	-1.66/-1	-0.65/-0.52	-0.71/-0.99	-1.46/-1.68	-1.44/-1.1
Θ(15°)	-0.4/0.6	1.11/1.32	1.32/1.19	0.99/0.69	0.14/-0.5	-1.28/-2.37	-3.72/-4.41	-4.25/-3.8	-3.2/-2.59	-2.16/-1.98	-1.81/-1.79	-2.04/-1.9	-1.7/-1.59	-0.98/-0.49	-0.11/0.1	0.01/-0.49	-1.22/-1.81	-2.36/-2.88	-2.88/-2.09	-1.15/-0.41	-0.05/0.04	-0.32/-0.66	-1.1/-1.36	-1.52/-1.18
Θ(22.5°)	-0.74/-0.22	0.21/0.36	0.33/0.21	0.22/0.19	0.25/-0.02	-0.55/-1.36	-2.48/-3.49	-3.82/-3.83	-3.53/-3.37	-3.27/-3.09	-2.85/-2.64	-2.09/-1.85	-1.9/-1.34	-0.91/-0.53	-0.19/-0	-0.12/-0.82	-1.67/-2.86	-3.61/-3.85	-2.97/-1.63	-0.61/0.02	0.26/0.33	0.08/-0.34	-0.84/-1.13	-1.16/-1.11
Θ(30°)	-2.36/-1.87	-1.41/-1.06	-0.86/-0.79	-0.65/-0.32	-0.09/-0.09	-0.25/-0.62	-1.51/-2.55	-3.13/-3.07	-3/-2.89	-3.11/-3.31	-3.25/-3.04	-2.28/-2.04	-1.81/-1.42	-1.17/-0.87	-0.59/-0.47	-0.62/-1.15	-1.97/-2.76	-3.35/-3.34	-2.62/-1.49	-0.54/0.05	0.44/0.58	0.53/0.13	-0.5/-1.2	-1.96/-2.31
Θ(37.5°)	-3.82/-3.43	-2.79/-2.29	-1.99/-1.91	-1.97/-1.82	-1.41/-1.35	-1.35/-1.6	-2.51/-3.18	-3.22/-2.69	-2.33/-2.35	-2.68/-3.09	-3.3/-3.43	-3.16/-2.59	-2.29/-1.75	-1.38/-1.08	-0.9/-0.83	-0.93/-1.23	-1.74/-2.47	-3.08/-3.27	-2.8/-1.88	-0.98/-0.34	0.05/0.18	0.05/-0.26	-1.14/-2.06	-3.18/-3.73
Θ(45°)	-4.58/-4.07	-3.41/-2.99	-2.72/-2.76	-2.94/-3.16	-3.2/-2.92	-2.75/-3.07	-3.76/-4.32	-4.4/-3.92	-3.5/-3.41	-3.6/-4.11	-4.53/-4.93	-5.38/-4.96	-4.13/-3	-2.22/-1.65	-1.37/-1.14	-0.98/-0.95	-1.05/-1.55	-2.62/-3.84	-4.3/-3.54	-2.27/-1.55	-1.07/-1.12	-1.23/-1.68	-2.27/-3.17	-4.25/-4.84
Θ(52.5°)	-4.63/-4.23	-4.21/-3.94	-3.79/-3.78	-3.87/-4.18	-4.3/-4.51	-4.57/-4.69	-5.38/-5.22	-5.15/-5.02	-5.09/-5.26	-5.6/-5.75	-5.74/-5.97	-6.74/-7.02	-6.33/-4.91	-3.88/-3.18	-2.69/-2.22	-1.92/-1.89	-2.11/-2.86	-4.51/-6.03	-5.58/-4.11	-2.57/-1.83	-1.7/-2.15	-2.6/-2.9	-3.7/-4.51	-4.94/-5.02
Θ(60°)	-5.07/-5.02	-4.9/-4.83	-4.78/-4.69	-4.75/-4.97	-5.43/-6.44	-7.35/-7.5	-7.77/-6.84	-6.68/-6	-5.69/-5.85	-6.94/-7.89	-7.7/-7.04	-7.01/-6.7	-5.88/-5.34	-4.79/-4.19	-3.74/-3.55	-3.7/-4.4	-5.42/-5.88	-4.76/-3.23	-2.29/-2.13	-2.66/-3.32	-3.67/-3.97	-4.15/-4.26	-4.44/-4.88	
Θ(67.5°)	-6.13/-5.38	-4.97/-5.06	-5.32/-5.43	-5.41/-5.15	-5.13/-5.72	-6.72/-8.13	-8.78/-10.87	-12.13/-10.24	-7.69/-6.58	-7.37/-8.96	-10.06/-9.82	-9.18/-7.93	-7.14/-6.68	-6.59/-6.58	-6.31/-5.98	-5.27/-4.62	-4.16/-4.48	-5.16/-5.48	-5.29/-4.82	-4.79/-4.81	-4.97/-4.98	-4.79/-4.77	-5.06/-5.7	-6.5/-6.7
Θ(75°)	-5.2/-5.19	-5.82/-6.86	-7.79/-8.17	-7.72/-6.36	-5.37/-5.19	-5.79/-6.58	-6.81/-8.11	-9.8/-12.38	-12.05/-10.07	-9.58/-9.89	-10.93/-12.79	-13.02/-10.91	-8.13/-6.84	-6.35/-6.31	-5.89/-5.8	-5.84/-5.82	-5.56/-5.61	-6.61/-7.46	-7.81/-7.22	-6.73/-6.19	-5.89/-6.11	-6.87/-7.72	-7.83/-7.41	-6.47/-5.8
Θ(82.5°)	-8.49/-8.93	-8.46/-8.43	-9.65/-11.24	-11.83/-9.85	-7.86/-7.24	-7.14/-7.67	-7.83/-8.65	-9.86/-10.63	-11.87/-12.81	-13.49/-12.78	-11.57/-11.84	-12.77/-13.34												



Radiated Composite Gain Data of 2.4GHz

Appendix A

Θ(22.5°)	1.39/1.41	1.12/0.38	-0.63/1.93	-3.24/-4.45	-5.94/-7.86	-9.4/-11.3	-11.38/-9.03	-6.75/-4.87	-3.77/-3.04	-2.64/-2.22	-1.69/-1.36	-1.12/-1.01	-1.08/-1.37	-1.88/-2.56	-3.39/-4.58	-6.11/-7.77	-9.08/-11.71	-14.62/-18.97	-18.61/-11.15	-6.84/-3.99	-2.13/-0.85	0.0/3	0.54/0.38	0.55/0.89
Θ(30°)	1.75/1.82	1.81/1.77	1.47/0.72	-0.48/-2.18	-3.5/-5.28	-7.4/-8.52	-9.24/-9.41	-5.51/-3.98	-2.41/-2.28	-1.7/-1.24	-0.93/-0.78	-0.68/-0.57	-0.64/-0.98	-1.52/-3.4	-3.43/-4.89	-6.42/-7.63	-8.47/-9.89	-13.07/-18.93	-19.51/-11.07	-6.89/-4.43	-2.87/-1.69	-0.69/0.1	0.76/1.2	1.34/1.56
Θ(37.5°)	1.98/1.64	1.64/1.64	1.68/1.34	-0.16/-1.66	-3.46/-6.56	-9.13/-10.6	-13.27/-13.35	-10.1/-28	-3.84/-2.43	-1.51/-0.68	0.17/0.75	-0.50/1.12	0.87/0.32	-0.47/-1.53	-2.79/-4.09	-5.04/-5.63	-6.43/-9.29	-13.21/-18.17	-18.05/-12.19	-8.28/-5.7	-3.55/-1.62	0.01/1.34	2.13/6.2	2.62/6.26
Θ(45°)	-0.87/-1.25	-1.53/-2.02	-2.06/-1.92	-2.27/-3.07	-5.72/-9.62	-13.22/-15.02	-13.58/-14.62	-16.05/-12.09	-7.24/-5.28	-3.17/-1.44	0.07/1.24	1.88/2.28	2.31/1.92	1.27/0.32	-0.92/-2.16	-3.1/-3.78	-4.87/-7.12	-11.61/-17.79	-19.05/-11.99	-8.39/-4.93	-2.11/-0.06	1.26/1.85	2.01/1.77	0.54/-0.44
Θ(52.5°)	-0.71/-0.64	-0.54/-0.75	-1.21/-1.38	-1.51/-1.86	-2.95/-4.7	-8.61/-15.33	-17.88/-17.48	-17.95/-16.22	-12.04/-8.94	-6.32/-3.6	-1.14/0.61	1.72/2.25	2.25/1.91	1.34/0.45	-0.63/-1.7	-2.75/-3.97	-5.9/-6.98	-15.81/-17.54	-14.09/-9.76	-6.66/-3.8	-1.67/-0.48	-0.15/-0.55	-1.87/-2.15	-1.54/-0.93
Θ(60°)	0.2/-0.58	-1.4/-2.22	-2.93/-3.05	-2.67/-2.35	-2.54/-3.93	-6.82/-11.56	-18.03/-18.78	-15.88/-11.48	-4.85/-6.38	-6.2/-5.47	-3.7/-1.45	-0.08/0.84	1.02/0.68	0.02/-0.79	-1.56/-2.28	-3.55/-2.7	-7.92/-12.16	-18.41/-18.64	-14.49/-12.38	-8.93/-6.37	-4.28/-2.82	-1.91/-1.33	-0.32/0.55	0.89/0.81
Θ(67.5°)	-4.14/-3.82	-4.42/-5.61	-7.44/-9	-7.85/-5.84	-4.49/-5.42	-8.82/-16.8	-19.18/-18.61	-18.55/-16.46	-8.93/-5.06	-3.33/-2.51	-1.6/-0.59	0.25/0.75	0.84/0.49	-0.08/-0.6	-1.01/-1.84	-3.26/-4.86	-6.66/-9.63	-11.18/-14.74	-17.94/-16.96	-9.83/-5.47	-2.75/-1.12	-0.63/-0.86	-1.63/-3.35	-4.57/-4.77
Θ(75°)	-0.27/-0.14	-0.43/-1.3	-3.02/-6.82	-8.85/-8.17	-5.63/-5.02	-5.92/-9.04	-12.69/-13.45	-11.5/-10.29	-8.86/-6.5	-4.28/-2.8	-1.37/-0.2	0.34/1.03	1.36/1.36	1.19/0.87	0.14/-1.25	-3.07/-4.66	-5.81/-6.77	-9.18/-16.93	-18.16/-12.63	-9.09/-5.24	-2.3/-1.28	-1.95/-3.24	-3.49/-2.42	-1.3/-0.55
Θ(82.5°)	1.07/1.01	0.55/-0.43	-1.93/-4.15	-7.26/-9.7	-10.15/-10.44	-13/-18.57	-18.75/-18.88	-18.92/-15.91	-10.48/-6.27	-4.29/-3.27	-1.92/-0.52	0.36/0.8	0.96/1.08	1.03/0.62	-0.4/-1.62	-2.94/-4.16	-5.41/-7.11	-11.5/-18.96	-17.49/-15.9	-8.29/-3.23	-1.17/-1.37	-2.95/-3.47	-2.17/-0.59	0.44/0.75
Θ(90°)	0.52/0.41	0.12/-0.36	-1.41/-3.27	-6.05/-8.15	-7.72/-6.45	-6.97/-9.44	-14.08/-13.94	-12.35/-13.87	-16.85/-9.86	-5.49/-3.56	-2.21/-0.75	0.08/0.64	0.75/0.78	0.74/0.36	-0.28/-0.97	-2.42/-4.25	-5.67/-6.9	-10.56/-19.18	-18.85/-13.16	-6.4/-3.36	-3.28/-5.61	-6.51/-3.66	-1.15/-0.15	0.17/0.53
Θ(97.5°)	0.05/0.04	0.01/-0.22	-0.72/-2.05	-4.74/-9.56	-11.48/-9.4	-7.65/-8.27	-10.93/-12.55	-10.03/-9.06	-10.92/-11.5	-7.06/-4.05	-2.41/-1.06	0.11/0.76	1.05/1.26	1.31/0.96	0.27/-1.06	-3/-4.18	-4.08/-5	-8.18/-17.13	-18.12/-12.92	-9.24/-7.22	-6.39/-4.4	-2.22/-0.83	-0.49/0.02	0.23/0.12
Θ(105°)	1.48/1.42	1.05/0.49	0.05/-0.58	-2.19/-5.31	-10.56/-17.65	-14.22/-10.82	-10.74/-13.28	-12.61/-9.33	-18.04/-8.27	-6.94/-5.09	-3.96/-3.01	-2.08/-1.11	-0.51/-0.15	0.17/0.09	-0.57/-1.75	-3.18/-4.24	-4.86/-6.4	-11.14/-18.18	-16.11/-14.21	-11.65/-7.4	-4.22/-2.29	-1.32/-0.55	0.34/1.07	1.14/1.37
Θ(112.5°)	0.58/0.96	0.93/0.14	-0.69/-0.8	-1.08/-2.41	-4.59/-7.73	-12.72/-17.94	-18.2/-18.86	-18.46/-12.3	-9.45/-8.12	-6.2/-3.82	-2.19/-1.33	-0.50/-29	0.7/0.54	-0.03/-0.73	-1.37/-2.27	-3.41/-3.28	-2.87/-3.95	-8.23/-18.23	-15.87/-12.65	-10.99/-6.94	-3.69/-1.88	-0.68/0.21	0.43/0.59	0.58/0.38
Θ(120°)	-3.03/-1.86	-1.38/-2.31	-4.74/-6.65	-5.96/-5.29	-5.56/-6.59	-9.04/-13.75	-17.71/-18.55	-19.02/-12.97	-8.62/-6.19	-4.55/-2.94	-1.45/-0.55	-0.30/-39	0.89/0.9	0.54/0	-1.04/-2.77	-3.76/-3.05	-3.08/-5.59	-13.99/-16.19	-9.74/-12.1	-18.98/-7.12	-0.44/-0.23	-0.2/-0.74	-2.25/-3.32	
Θ(127.5°)	-0.5/0.16	1.1/1.14	-0.26/-2.83	-5.27/-6.5	-7.25/-8.5	-10.84/-17.36	-17.97/-19.59	-18.59/-16.13	-10.68/-6.83	-4.72/-6.65	-2.9/-2.37	-1.74/-0.6	0.62/1.34	1.16/-0.28	-2.75/-4.04	-2.84/-2.07	-3.37/-0.72	-13.72/-15.32	-13.36/-18.14	-16.61/-8.29	-5.19/-4.02	-2.81/-1.21	0.04/0.7	0.62/0.06
Θ(135°)	0.43/0.34	0.73/0.65	-0.39/-2.25	-4.06/-4.96	-5.57/-6.55	-8.01/-11.52	-18.33/-17.91	-14.88/-12.74	-11.77/-9.68	-7.59/-6.09	-4.84/-3.51	-2.85/-2.08	-1.81/-1.96	-2.99/-4.83	-4.59/-2.42	-1.55/-2.27	-4.47/-8.29	-13.57/-12.44	-11.06/-14.28	-18.56/-10.31	-5.14/-2.17	-0.09/-1.45	2.59/2.85	2.14/-1.13
Θ(142.5°)	-2.57/-3.17	-3.31/-3.56	-4.4/-6.06	-8.19/-6.31	-9.87/-13.3	-11.32/-13.35	-18.58/-17.35	-17.3/-13.19	-11.6/-10.42	-8.92/-7.08	-4.75/-2.54	-1.07/-6.04	-1.16/-2.03	-2.19/-1.21	-0.03/0.4	-0.22/-1.69	-4.01/-6.95	-12.21/-9.88	-11.22/-13.35	-8.74/-3.98	-1.34/0.03	0.67/0.93	0.7/0.18	-0.59/-1.81
Θ(150°)	-5.76/-4.77	-3.96/-3.41	-3.36/-4.04	-5.61/-7.93	-10.12/-12.66	-17.46/-18.82	-18.12/-14.66	-18.03/-14.23	-10.89/-8.69	-6.97/-5.89	-5.51/-5.24	-5.18/-4.92	-4.92/-4.86	-4.41/-3.76	-3.52/-4.12	-5.95/-8.79	-12.21/-13.1	-9.25/-14.11	-18.32/-15.58	-7.9/-4.5	-3.09/-2.81	-3.39/-4.38	-5.46/-6.58	-0.74/0.86
Θ(157.5°)	-2.72/-1.55	-0.77/-0.33	-0.32/-0.89	-2.16/-3.83	-5.9/-8.02	-10.57/-14.45	-18.39/-19.26	-17.33/-11.83	-8.41/-5.66	-3.7/-2.28	-1.42/-1.06	-0.98/-0.98	-1.06/-1.33	-1.79/-2.48	-3.25/-3.65	-3.62/-3.26	-3.17/-4.25	-6.82/-10.05	-13.94/-14.34	-11.73/-10.26	-10.91/-13.59	-17.63/-17.83	-14.51/-10.2	-6.79/-4.29
Θ(165°)	-0.2/0.36	0.66/0.7	0.44/-0.3	-1.62/-3.47	-5.33/-7.37	-9.97/-13.3	-17.36/-17.84	-16.63/-11.74	-8.36/-5.74	-3.83/-2.11	-0.73/0.34	0.91/-39	1.66/1.79	1.751/-59	1.39/1.22	0.91/0.29	-0.88/-2.81	-5.71/-9.49	-14.52/-19.31	-19.31/-19.02	-18.78/-12.68	-8.82/-6.43	-4.65/-3.25	-2.09/-1.01
Θ(172.5°)	-0.51/-0.35	-0.39/-0.69	-1.29/-2.37	-4.03/-6.14	-8.49/-10.4	-12.89/-15.76	-17.38/-19.37	-18.48/-14.78	-10.72/-8.08	-5.92/-4.2	-2.72/-1.63	-0.89/-0.44	-0.28/-0.29	-0.46/-0.7	-0.97/-1.36	-2.07/-3.22	-5.1/-7.7	-11.39/-15.45	-19.36/-18.04	-18.16/-14.12	-10.45/-7.61	-5.57/-4.21	-3.14/-2.33	-1.52/-1.03
Θ(180°)	-5.09/-5.46	-6.03/-6.71	-7.69/-8.77	-10.21/-11.73	-13.14/-15.08	-17.5/-17.53	-18.31/-17.19	-17.62/-18.68	-15.52/-12.54	-10.71/-9.09	-7.83/-6.68	-6.28/-6.27	-6.75/-7.59	-8.64/-9.71	-10.85/-12.32	-14.16/-16.8	-18.96/-18.14	-17.78/-18.46	-17.9/-18.66	-15.63/-12.13	-9.53/-7.71	-6.64/-6.07	-5.78/-5.46	-1.57/-5.07
Freq(Hz)	2.485GPol.	ThetaAnt. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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°)	-18.11/-17.21	-13.59/-10.79	-8.31/-6.28	-4.82/-3.93	-3.54/-3.26	-3.39/-3.63	-4.2/-4.12	-3.59/-3.77	-4.15/-4.78	-5.99/-7.66	-10.59/-15.13	-18.26/-17.31	-18.76/-13.25	-9.55/-6.69	-4.69/-3.5	-2.99/-2.72	-2.43/-2.04	-1.58/-1.3	-1.38/-1.7	-2.37/-2.98	-3.75/-4.77	-6.03/-7.64	-9.84/-12.75	-17.34/-18.01
Θ(7.5°)	-16.78/-16.68	-8.58/-6.49	-4.91/-3.85	-3/-2.57	-2.52/-2.73	-3.16/-3.57	-4.19/-4.26	-4.11/-4.07	-4.34/-4.85	-6.01/-7.75	-10.28/-13.59	-18.54/-17.59	-17.77/-15.08	-11.95/-9.04	-6.89/-5.41	-4.46/-3.77	-3.26/-3.11	-2.4/-1.96	-1.84/-1.96	-2.15/-2.52	-3.21/-4.29	-5.78/-7.65	-10.97/-10.57	-17.94/-17.49
Θ(15°)	-13.73/-9.99	-7.32/-5.65	-4.39/-3.37	-2.47/-1.78	-1.56/-1.49	-1.63/-2.02	-1.73/-3.31	-3.88/-4.4	-5.08/-5.78	-6.92/-8.83	-11.21/-14.04	-18.48/-18.8	-17.69/-14.98	-12.68/-9.76	-7.99/-5.98	-4.91/-4.32	-4.03/-3.29	-2.41/-1.75	-1.45/-1.59	-1.72/-2.02	-3.39/-3.99	-5.74/-7.43	-9.99/-13.01	-17.31/-17.55
Θ(22.5°)	-13.68/-11.59	-9.27/-7.45	-5.92/-4.64	-3.16/-2	-0.98/-0.54	-0.44/-0.58	-1.14/-1.93	-2.86/-4.01	-5.06/-6.43	-8.21/-10.54	-13.92/-18.25	-17.92/-17.71	-18.46/-13.8	-10.96/-8.72	-6.82/-5.26	-4.23/-3.84	-3.81/-3.97	-3.22/-2.42	-1.7/-1.27	-1.3/-1.72	-2.49/-3.63	-4.84/-6.02	-7.58/-9.3	-11.46/-13.5
Θ(30°)	-17.03/-16.29	-13.61/-10.98	-8.63/-6.71	-4.91/-2.99	-1.59/-0.59	0.09/0.3	0.00/-0.52	-1.57/-2.72	-4.12/-5.41	-7.47/-10.43	-14.48/-19.78	-18.66/-19.29	-17.03/-14.39	-11.08/-8.83	-6.86/-5.31	-4.29/-3.96	-3.93/-3.73	-3.25/-2.29	-1.4/-1.02	-0.95/-1.29	-1.89/-2.63	-3.43/-4.36	-5.76/-7.77	-10.88/-14.52
Θ(37.5°)	-19.12/-17.56	-14.58/-12.13	-10.21/-8.71	-7.01/-6.04	-4.09/-2.86	-1.72/-0.95	-0.92/-1.25	-1.96/-2.63	-3.51/-4.72	-6.35/-8.51	-11.5/-15.68	-18.62/-17.33	-16.26/-12.79	-10.29/-8.06	-6.29/-4.86	-3.87/-3.32	-2.95/-2.97	-2.79/-2.39	-1.82/-1.4	-1.2/-1.31	-1.74/-2.4	-3.26/-3.49	-6.69/-9.43	-13.19/-17.3
Θ(45°)	-19.73/-18.53	-15.63/-13.04	-11.24/-9.85	-8.08/-8.31	-7.34/-5.66	-3.92/-2.99	-2.4/-2.55	-3.31/-4.28	-5.04/-5.82	-6.55/-7.76	-9.39/-12.09	-16.9/-18.85	-16.82/-12.46	-9.7/-7.58	-6.14/-4.66	-3.36/-2.39	-1.72/-1.64	-2.28/-3.09	-3.33/-2.9	-2.08/-1.93	-2.22/-2.93	-4.19/-6	-8.45/-11.47	-15.39/-18.46
Θ(52.5°)	-18.15/-16.5	-14.32/-12.06	-10.32/-9.34	-8.92/-9.24	-8.81/-8.06	-6.41/-4.67	-3.84/-3.73	-4.51/-6.06	-7.63/-8.5	-9.9/-15	-9.6/-12.7	-15.49/-19.21	-17.19/-12.17	-9.49/-7.77	-6.38/-4.8	-3.32/-2.28	-1.83/-2.15	-3.53/-4.99	-4.62/-3.14	-1.98/-1.67	-2.12/-3.47	-5.53/-8.27	-12.48/-17.46	-18.96/-19.12
Θ(60°)	-14.47/-15.42	-14.9/-13.13	-11.47/-10.39	-10.28/-11	-12.19/-13.21	-11.24/-8.69	-6.94/-5.85	-5.75/-6.49	-7.38/-6.06	-9.77/-11.5	-12.12/-12.49	-15.1/-18.47	-18.45/-16.68	-13.1/-11.17	-9.4/-17.9	-5.36/-4.13	-3.54/-3.81	-4.68/-4.52	-3.17/-1.87	-1.45/-1.95	-3.54/-6.15	-9.47/-13.1	-14.96/-14.97	-13.54/-13.51
Θ(67.5°)	-16.61/-16.99	-15.34/-12.85	-10.6/-8.85	-7.9/-7.5	-7.56/-8.25	-8.79/-8.87	-9.19/-10.82	-12.85/-12.7	-9.71/-7.87	-8.3/-10.01	-18.47/-18.33	-17.51/-16.52	-15.89/-14.56	-11.88/-9.26	-6.96/-4.99	-3.57/-3.35	-3.62/-3.85	-3.65/-3.39	-3.79/-5.22	-7.39/-9.44	-10.63/-11.18	-11.75/-12.51	-14.35/-15.06	
Θ(75°)	-13.13/-13.34	-13.2/-12.8	-12.26/-11.19	-9.93/-8.29	-6.94/-6.25	-5.74/-5.31	-5.48/-7.01	-10.74/-17.98	-17.75/-12.34	-10.18/-9.82	-10.62/-13.8													



Radiated Composite Gain Data of 2.4GHz

Appendix A

Θ(75°)	-17.6/-15.04	-10.58/-8.87	-7.34/-5.45	-3.83/-2.26	-1.28/-0.92	-0.24/-0.68	-1.14/-1.58	-2.1/-2.97	-4.88/-8.09	-11.87/-14.95	-17.86/-17.98	-17.8/-15.34	-13.83/-12.7	-11.41/-9.15	-5.83/-2.73	-0.44/-1.08	2.17/2.88	3.49/3.26	3.63/3.23	2.59/2.22	1.08/-0.29	-2.27/-3.77	-5/-6.69	-9.82/-15.69
Θ(82.5°)	-18.61/-17.39	-11.39/-8.35	-6.52/-5.13	-3.71/-2.41	-1.69/-1.59	-2.24/-3.43	-4.72/-4.58	-5.53/-5.84	-7.55/-10.75	-13.78/-14.23	-13.79/-12.94	-12.05/-11.91	-12.31/-12.28	-11.2/-9.01	-5.95/-3.18	-0.72/-1.14	2.3/3	3.21/3.86	3.98/3.7	3.02/2.27	1.41/0.17	-1.36/-3.15	-5.42/-8.27	-12.3/-18.83
Θ(90°)	-17.99/-13.71	-9.41/-7.69	-7/-6.14	-4.91/-3.67	-2.88/-2.76	-2.47/-3.46	-4.00/-3.78	-3.42/-4.11	-6.57/-10.34	-11.46/-11.3	-12.94/-14.73	-13.81/-12.6	-12.51/-12.74	-11.71/-9.59	-6.76/-3.56	-0.63/-1.54	3/3.83	4.34/4.5	4.264.07	3.42/2.72	1.82/0.2	-2.11/-4.26	-5.72/-7	-9.32/-14.49
Θ(97.5°)	-16.03/-11.58	-9.86/-10.01	-10.27/-9.24	-6.96/-4.69	-3.37/-3	-3.48/-4.3	-4.75/-4.5	-4.17/-4.86	-7.15/-9.2	-8.24/-7.81	-9.42/-11.84	-12.91/-12.88	-13.42/-14.14	-12.87/-10.08	-6.83/-3.43	-1.06/-1.12	2.68/3.71	4.795.09	5.16/4.59	3.95/2.78	1.54/0.29	-1.07/-2.41	-4.21/-6.71	-10.52/-16.72
Θ(105°)	-19.19/-14.86	-13.11/-13.89	-16.54/-16.13	-12.7/-9.2	-7.07/-6.23	-5.75/-6.68	-7.16/-6.94	-6.94/-7.89	-9.82/-10.86	-9.92/-9.9	-11.65/-13.99	-14.47/-13.05	-12.94/-14.18	-12.81/-9.29	-6.06/-3.12	-0.54/-1.4	2.84/3.72	4.39/4.42	4.59/4.38	3.71/2.81	1.96/0.55	-1.21/-3	-5.38/-8.86	-14.6/-18.57
Θ(112.5°)	-18.44/-15.08	-16.04/-18.46	-18.28/-11.45	-7.93/-5.38	-3.88/-3.5	-4.06/-4.75	-3.41/-4.56	-7.23/-10.07	-10.24/-9.56	-10.17/-12.27	-15.08/-15.73	-16.03/-17.17	-13.46/-8.8	-5.45/-2.91	-0.80/-8.88	1.9/2.42	2.99/3.51	4.19/4.41	3.96/3.22	2.3/0.86	-1.04/-2.84	-4.9/-7.75	-12.43/-19.34	
Θ(120°)	-16.05/-16.14	-18.11/-18.1	-13.69/-11.42	-10.11/-8.38	-7.38/-7.6	-8.31/-8.15	-6.09/-4.38	-4.27/-6.21	-11.69/-18.45	-12.92/-9.95	-10.03/-11.86	-14.29/-15.7	-16.42/-18.31	-16.46/-11.25	-6.67/-3.33	-1.02/0.31	0.93/1.27	1.57/1.86	2.62/3.16	2.94/2.26	1.62/0.27	-1.82/-5.19	-10.24/-18.64	-17.37/-18.09
Θ(127.5°)	-17.96/-17.57	-17.84/-15.85	-13.51/-14.66	-17.67/-17.8	-17.53/-18.27	-13.46/-8.52	-5.66/-4.74	-6.12/-11.14	-17.45/-9.17	-6.68/-7.35	-10.12/-13.9	-17.38/-17.96	-18.87/-17.84	-19.18/-12.75	-7.37/-5.03	-2.68/-1.32	-0.51/0.19	1.18/1.67	2.22/2.76	2.53/1.94	0.72/0.05	-1.96/-4.18	-7.86/-12.9	-18.41/-18.08
Θ(135°)	-18.3/-18.45	-18.56/-19.1	-15.8/-14.16	-14.42/-16.54	-18.07/-18.04	-12.87/-8.59	-6.45/-6.22	-8.44/-13.82	-11.51/-6.61	-5.07/-6.05	-9.1/-12.69	-14.13/-14.62	-16.15/-18.73	-16.96/-12.22	-8.24/-5.25	-3.11/-1.62	-0.44/0.47	1.04/1.06	1.28/1.61	1.66/1	-0.2/-1.7	-3.3/-5.21	-8.58/-13.42	-17.87/-17.84
Θ(142.5°)	-18.39/-17.43	-18.73/-17.82	-16.69/-13.39	-13.2/-15.22	-18.8/-17.45	-17.54/-14.84	-12.63/-13.07	-17.9/-18.95	-12.82/-8.56	-7.41/-8.4	-11.54/-15.22	-15.57/-14.76	-15.11/-16.94	-17.86/-14.23	-10.24/-7.83	-5.52/-3.52	-1.87/-0.67	0.24/0.7	0.8/0.89	1.04/0.48	-0.82/-2.48	-4.74/-7.5	-11.03/-14.82	-16.93/-17.43
Θ(150°)	-18.23/-18.15	-17.59/-18.53	-17.24/-16.58	-16.36/-19.43	-13.25/-11.9	-10.81/-9.56	-8.77/-8.41	-8.58/-9.47	-10.63/-11.48	-12/-12.62	-14.9/-18.8	-17.27/-18.31	-17.46/-18.94	-18.72/-18.94	-17.34/-13.38	-10.28/-7.79	-5.53/-3.84	-2.65/-2.39	-2.22/-2.09	-2.23/-2.42	-3.65/-5.16	-7.19/-10.02	-11.62/-12.78	-14.33/-16.49
Θ(157.5°)	-16.36/-19.06	-17.44/-18.4	-17.05/-17.7	-18.56/-15.93	-12.35/-9.93	-8.23/-7	-6.22/-5.84	-6/-6.83	-8.42/-10.7	-13.52/-15.86	-18.57/-19.36	-18.59/-18.5	-18.72/-17.89	-18.88/-18.95	-18.68/-14.3	-10.22/-10.04	-7.83/-6.07	-4.58/-3.96	-3.71/-3.71	-3.85/-4.15	-4.62/-5.3	-6.12/-7.16	-8.35/-9.74	-11.6/-13.79
Θ(165°)	-15.23/-17.39	-17.81/-18.87	-18.17/-19.04	-18.19/-14.57	-12.26/-10.77	-9.61/-8.82	-8.53/-8.49	-8.72/-9.31	-10.26/-11.82	-13.96/-16.42	-19.51/-17.71	-18.4/-18.78	-18.42/-17.22	-17.58/-18.37	-16.26/-14.45	-12.78/-11.19	-9.48/-8.03	-6.61/-5.71	-4.87/-4.69	-4.6/-4.64	-5.21/-6.1	-7.13/-8.21	-8.09/-9.83	-11.33/-12.77
Θ(172.5°)	-18.66/-17.84	-17.54/-17.99	-17.66/-18.53	-18.92/-18.72	-15.6/-13.97	-13.52/-14.17	-15.63/-17.74	-19.05/-17.7	-18.41/-18.22	-18.8/-18.69	-17.75/-18.34	-17.84/-18.55	-19.08/-18.76	-17.91/-18.32	-16.7/-16.51	-15/-14.05	-12.82/-11.65	-10.12/-9.32	-8.66/-8.27	-8.37/-8.93	-10.16/-11.44	-12.38/-12.67	-12.93/-13.56	-14.78/-17.56
Θ(180°)	-18.43/-17.99	-18.95/-17.86	-18.13/-17.66	-18.88/-18.27	-18.83/-17.77	-17.75/-17.78	-18.47/-18.11	-18.11/-18.45	-18.83/-18.55	-19.41/-17.48	-18.44/-19.37	-19.01/-17.25	-17.94/-17.56	-18.24/-19.13	-17.97/-18.23	-18.08/-17.31	-17/-16.85	-16.43/-15.72	-15.17/-15.54	-16.3/-18.79	-18.51/-17.93	-18.9/-17.92	-18.72/-18.84	-19.24/-18.35
Freq(Hz)	2.45G/Pol.	Theta/ Ant. 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°)	1.68/1.72	1.56/1.27	0.76/0.09	-0.79/-1.95	-3.39/-5.46	-8.14/-11.62	-14.99/-13.87	-10.03/-6.88	-4.47/-2.66	-1.18/0.05	0.97/1.56	1.87/1.95	1.85/1.61	1.27/0.79	0.15/-0.76	-1.87/-3.23	-4.99/-7.1	-10.03/-13.74	-15.24/-11.62	-8.34/-5.95	-4.39/-3.17	-2.25/-1.19	-0.34/0.46	0.94/1.24
Θ(7.5°)	1.63/2.07	1.77/1.28	0.59/-0.29	-1.28/-2.55	-4.09/-6.11	-8.64/-11.9	-15.51/-14.9	-10.69/-7.6	-5.28/-3.54	-2/-0.71	0.34/1.1	1.55/1.74	1.74/1.55	1.25/0.79	0.19/-0.65	-1.84/-3.26	-5.22/-8.16	-11.65/-15.17	-14.62/-10.68	-7.67/-5.51	-4.01/-2.79	-1.9/-1.06	-0.16/0.65	1.29/1.54
Θ(15°)	1.56/1.76	1.33/0.7	-0.11/-0.99	-2.03/-3.2	-4.74/-6.76	-9.14/-12.54	-16.95/-16.44	-11.96/-8.74	-6.45/-4.68	-3.16/-1.88	0.98/1.39	1.54/1.46	1.16/0.7	0.12/-0.67	-1.78/-3.35	-5.3/-7.67	-11.06/-15.07	-14.93/-10.44	-7.23/-5	-3.44/-2.32	-1.84/-1.09	-0.32/0.38	1/1.36	
Θ(22.5°)	1.53/1.3	0.77/0.01	-0.84/-1.73	-2.67/-3.8	-5.22/-7.21	-9.87/-13.85	-18.65/-16.6	-11.83/-8.69	-6.35/-4.67	-3.62/-2.35	-1.26/-0.22	0.61/1.13	1.32/1.23	0.88/0.35	-0.32/-1.21	-2.41/-4.31	-6.26/-8.94	-13.01/-13.65	-14.25/-9.94	-6.93/-4.85	-3.52/-2.02	-1.04/-0.21	0.73/-1.22	
Θ(30°)	0.59/0.61	0.13/-0.38	-0.96/-1.64	-2.53/-3.7	-5.27/-7.49	-10.34/-13.46	-17.48/-15.95	-12.05/-9.05	-6.77/-5.17	-4.06/-3.26	-2.39/-1.31	-0.32/0.39	0.75/0.76	0.45/-0.11	-0.85/-1.77	-2.92/-4.29	-6.09/-8.42	-11.62/-15.62	-14.85/-10.41	-7.29/-5.25	-3.95/-3.19	-2.74/-2.51	-2.09/-1.35	-0.35/0.37
Θ(37.5°)	-0.71/-0.65	-0.74/-1.01	-1.45/-1.98	-2.69/-3.63	-4.83/-6.5	-8.82/-11.98	-15.86/-16.44	-12.56/-9.45	-7.4/-6.02	-5.21/-4.84	-4.31/-3.33	-2.26/-1.45	-0.92/-0.76	-0.92/-1.31	-1.89/-2.62	-3.62/-4.91	-6.78/-9.04	-12.05/-10.92	-15.05/-10.92	-7.82/-5.72	-4.39/-3.6	-3.17/-2.86	-2.72/-2.34	-1.65/-0.99
Θ(45°)	-1.63/-1.35	-1.44/-1.78	-2.24/-2.87	-3.39/-4.17	-4.99/-6.21	-8.34/-11.56	-17.02/-18.66	-14.24/-10.13	-7.94/-6.87	-6.38/-6.27	-6.16/-7.53	-5.16/-4.47	-3.83/-3.37	-3.19/-3.21	-3.41/-3.82	-4.56/-5.73	-7.29/-9.21	-11.91/-15.55	-17.1/-13.48	-10.22/-7.99	-5.86/-5.17	-4.01/-3.53	-3.28/-3.08	-2.74/-2.19
Θ(52.5°)	-2.02/-2.02	-2.71/-3.3	-3.95/-4.47	-4.71/-4.96	-5.59/-6.9	-9.11/-13.12	-18/-17.9	-13.84/-10.3	-8.37/-7.52	-7.24/-7.04	-6.6/-6.16	-5.95/-5.77	-5.58/-5.45	-5.48/-5.62	-5.78/-6.09	-6.89/-8.4	-10.15/-12.18	-15.25/-18.51	-19.06/-15.94	-12.09/-9.43	-7.63/-6.16	-4.91/-4.02	-3.75/-3.62	-3.35/-2.65
Θ(60°)	-2.95/-2.82	-3.47/-4.63	-5.89/-6.47	-6.36/-8.97	-6.68/-6.53	-9.25/-13.52	-18.51/-18.28	-15.07/-11.79	-10.06/-9.29	-9.03/-8.87	-8.59/-8.32	-7.92/-7.27	-6.54/-6.08	-6.09/-5.65	-7.12/-7.73	-8.5/-9.55	-11.09/-13.06	-15.55/-18.07	-17.54/-17.71	-12.87/-9.76	-7.72/-5.92	-4.53/-4.11	-4.58/-4.86	-4.41/-3.42
Θ(67.5°)	-4.14/-0.9	-5.03/-6.96	-8.74/-9.09	-8.37/-5.59	-7.54/-8.63	-11.3/-16.9	-17.96/-16.68	-13.63/-11.63	-10.99/-10.73	-10.64/-10.65	-11.14/-12.05	-12.27/-10.69	-8.77/-7.41	-7.12/-7.65	-6.89/-10.02	-8.56/-11.54	-13.24/-15.85	-18.29/-17.59	-15.07/-10.96	-8.57/-6.07	-6.37/-6.78	-7.67/-7.92	-6.65/-5.04	
Θ(75°)	-5.29/-5.84	-7.64/-9.27	-9.6/-9.42	-9.69/-9.49	-9.51/-10.55	-13.67/-18.8	-18.52/-18.07	-13.38/-12.28	-13.03/-14.76	-15.96/-16.02	-15.71/-16.34	-14/-16.2	-13.6/-11.45	-10.4/-10.49	-10.99/-12.06	-13.74/-15.92	-18.33/-18.8	-18.36/-17.94	-19.12/-18.19	-17.04/-14.66	-12.46/-11.12	-10.29/-9.85	-9.45/-8.71	-7.26/-6.02
Θ(82.5°)	-7.85/-8.88	-8.71/-9.51	-10.34/-11.12	-11.19/-10.82	-10.69/-11.62	-14.2/-18.28	-18.11/-16.07	-14.19/-14.11	-15.64/-18.21	-18.94/-18.01	-18.15/-19.34	-18.86/-17.74	-18.18/-16.61	-15.56/-19.47	-15.32/-16.55	-18.77/-18.04	-19.06/-18.88	-18.4/-18.69	-18.75/-18.65	-17.65/-17.56	-15.86/-13.31	-10.72/-9.37	-8.6/-8.34	-8.25/-8.22
Θ(90°)	-10.14/-10.37	-11.74/-13.52	-13.73/-14.02	-14.42/-14.67	-14.89/-15.18	-18.2/-18.41	-18.96/-16.39	-16/-17.61	-17.65/-18.12	-17.06/-14.48	-13.88/-15.1	-17.41/-18.91	-17.79/-16.21	-14.9/-14.22	-15.45/-17.84	-19.1/-18.77	-19.07/-19.14	-18.37/-18.27	-19.05/-17.22	-19.04/-18.52	-17.92/-15.94	-15.8/-15.05	-13.81/-12.43	-11.28/-10.81
Θ(97.5°)	-13.27/-15.46	-18.88/-17.64	-15.57/-14.62	-14.16/-13.97	-14.29/-15.79	-18.08/-19.13	-17.86/-16.58	-18.41/-19.34	-18.77/-18.92	-18.34/-14.77	-12.61/-11.99	-12.06/-12.4	-13.02/-13.93	-14.89/-15.91	-18.21/-18.39	-18.05/-17.98	-16.08/-16.48	-14.76/-18.42	-19.45/-19.23	-18.24/-18.39	-18.1/-19.14	-18.85/-17.59	-17.37/-12.6	-13.27/-12.6
Θ(105°)	-18.44/-18.82	-16.72/-15.87	-15.77/-15.66	-15.96/-16.71	-18.53/-18.19	-18.3/-18.34	-19.21/-17.85	-19.01/-17.35	-18.37/-18.56	-17.8/-18.24	-15.15/-13	-12/-11.73	-12.28/-12.61	-12.26/-12.47	-13.41/-16.92	-19.09/-15.74	-12.64/-11.58	-12.1/-15.16	-18.98/-18.74	-18.46/-18.05	-17.54/-17.52	-18.97/-18.91	-18.15/-18.22	-18.05/-19.15
Θ(112.5°)	-17.3/-17.58	-16.11/-15.8	-17.19/-18.25	-18.3/-18.33	-17.89/-17.95	-18.41/-16.96	-15.77/-15.34	-16.98/-14.24	-18.23/-18.03	-18.13/-15.87	-13.51/-13.35	-14.53/-17.28	-18.63/-17.99	-16.01/-12.4	-10.64/-10.12	-11.22/-12.86	-14.09/-14.53	-12.39/-15.26	-18.85/-18.49	-16.35/-15.22	-14.82/-13.58	-13.92/-16.11	-17.15/-15.35	-16.99/-18.78
Θ(120°)	-18.44/-15.66	-16.03/-19.35	-18.65/-16.18	-15.62/-18.2	-17.75/-19.27	-17.44/-17.64	-16.85/-16.78	-18.89/-18.82	-17.38/-13.32	-13.95/-16.44	-15.12/-14.41	-14.89/-17.91												



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Freq(Hz)	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	5.14	5.1	5.64	5.76
Ant. 2 Max Gain (dBi)	3.9	4.14	3.81	4.14
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/135/67.5	Phi/135/67.5	Phi/142.5/90	Phi/142.5/82.5
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/90/345	Phi/90/352.5	Phi/172.5/352.5	Phi/120/0
Max Gain (dBi)	5.14	5.1	5.64	5.76
DG [1SS] (dBi)	3.77	4.04	4.94	4.87
DG [1SS] (dBi) Revised	5.14	5.1	5.64	5.76
DG [2SS] (dBi)	5.14	5.1	5.64	5.76



Sporton International Inc.



Radiated Composite Gain Data of 5GHz UNII 1~UNII 3

Appendix B

Θ(22.5°)	-1.56/-1.4	-1.25/-1.56	-0.95/-0.79	-1.76/-2.07	-3.75/-4.62	-6.12/-6.82	-5.4/-3.1	-1.93/-1.66	-1.65/-1.41	-1.83/-2.84	-3.66/-3.89	-4.37/-4.01	-3.9/-3.33	-3.21/-3.32	-3.68/-4.48	-5.55/-5.87	-6.17/-5.25	-3.5/-1.94	-0.92/-0.68	-0.55/-0.2	0.44/0.92	0.95/1.12	0.93/-0.04	-1.53/-2.2
Θ(30°)	-4.72/-4.1	-3.43/-2.6	-0.44/-0.14	0.17/-0.37	-2.91/-4.27	-3.98/-4.82	-5.87/-5.13	-3.36/-3.47	-4.93/-5.45	-5.3/-5.51	-5.17/-4.07	-3.29/-2.55	-1.55/-1.5	-2/-2.64	-2.55/-2.28	-2.89/-3.71	-3.78/-3.38	-2.65/-1.07	-0.06/-0.15	-0.11/0.09	0.52/0.02	-0.42/-0.58	-1.69/-3.14	-3.64/-3.82
Θ(37.5°)	-0.26/-0.94	-1.07/-1.11	-1.4/-0.3	0.70/0.42	-1.58/-4.71	-5.25/-5.7	-5.31/-2.86	-2.08/-3.1	-3.77/-4	-5.74/-5.78	-4.09/2.61	-1.87/-2.03	-1.71/-1.01	-0.64/-0.83	-1.74/-2.5	-2.9/-3	-3.04/-3.32	-3.4/-2.55	-1.9/-2.55	-1.73/0.15	0.92/0.59	0.44/0.63	0.57/0.32	0.99/0.99
Θ(45°)	0.81/2.06	20.33	0.88/0.67	0.2/-0.1	-0.21/-1.55	-3.08/-4.92	-7.04/-5.07	-3.47/-3.11	-3.07/-4.65	-4.97/-3.02	-2.74/-2.43	-2.71/-2.8	-1.89/-0.98	-0.44/-0.13	-0.48/-1.39	-2.16/-2.53	-3.11/-3.44	-2.92/-1.68	-1.78/-2.53	-0.89/0.67	0.73/-0.49	-0.82/-0.1	0.15/0.36	-0.09/-0.06
Θ(52.5°)	0.04/1.09	1.41/1.27	0.03/-0.1	0.36/1.02	-0.44/-3.75	-3.87/-3.71	-4.24/-2.88	-3.71/-5.14	-6.56/-6.76	-4.09/-2.62	-2.26/-2.53	-1.79/-1.31	-1.67/-1.74	-1.18/-0.4	-1.29/-2.72	-1.29/0.1	-0.93/-1.64	-0.32/1.13	0.88/0.08	0.71/1.4	0.82/-0.2	-0.1/0.7	0.09/-1.1	-1.26/-0.89
Θ(60°)	-3.05/-0.74	0.29/0.33	-1.52/-2.54	-2.89/-0.47	-0.59/-3.37	-2.58/-1.31	-0.5/-0.68	-1.79/-2.56	-3.2/-3.67	-3.99/-3.28	-1.74/-0.03	-0.11/-0.51	-0.78/-4.47	-8.63/-4.3	-0.56/0.61	-0.01/-0.16	0.33/-0.71	-0.42/0.22	-1.15/-1.62	0.25/0.12	-1.17/-1.09	0.66/0.92	0.74/-0.42	-1.68/-3.16
Θ(67.5°)	-0/-1.35	-0.69/-1.93	2.25/0.46	-2.38/-0.24	0.6/-2.73	-2.41/-1.86	-0.42/0.37	-1.05/-1.14	-3.63/-3.36	-1.87/-0.63	0.61/1.08	1.53/1.72	0.17/-0.97	-4.77/-6.19	-3.45/-0.85	-0.15/-1.29	1.48/0.19	0.33/1.16	-1.1/-2.79	0.34/0.08	-1.87/-0.42	0.87/0.9	1.21/0.42	0.63/0.73
Θ(75°)	-0.64/0.53	0.03/1.23	2.58/1.38	-1.4/-0.45	0.33/-3.67	-2.31/-1.8	-0.43/-0.55	-1.12/-2.74	-4.29/-2.85	-1.26/0.19	1.81/1.6	0.97/0.04	-1.31/-2.8	-3.3/-3.42	-3.59/-1.87	-2.1/-0.43	1.09/-0.24	-0.32/-0.09	-0.58/-2.76	-0.97/-1.88	-3.17/-1.14	0.62/1.12	0.88/-0.64	-2.48/-2.18
Θ(82.5°)	-0.95/0.14	0.84/0.51	1.92/09	0.11/-1.17	-1.09/-3.92	-3.46/-2.22	-1.86/-1.91	-1.72/-3.14	-3.61/-1.23	0.81/87	1.75/0.37	-1.7/-4.17	-5.24/-3.15	-3.59/-4.95	-1.37/0.67	0.85/0.89	1.36/2.18	0.54/-2.62	-2.37/-2.39	-4.26/-2.1	-0.17/0.52	0.77/-0.35	-0.6/-1	
Θ(90°)	-0.86/-0.35	0.13/1.83	3.51/2.21	1.62/16	0.12/-2.39	-6.18/-3.87	-2.29/-3.22	-1.36/-3.78	-4.32/0.11	1.09/1.57	1.68/1.27	-3.1/-6.21	-5.73/-4.83	-5.54/-3.69	-1.23/-2.25	-2.55/0.69	1.34/1.13	2.13/1.68	-0.71/-0.67	-2.54/-3.78	-2.66/0.5	1.5/-0.04	-0.28/-0.56	-0.2/-0.34
Θ(97.5°)	-0.56/-0.03	0.78/1.44	1.71/0.51	1.57/2.36	1.77/-1.36	-5.07/-4.42	-4.2/-3.05	0.99/-1.26	-1.71/0.22	0.54/0.89	1.33/-3.1	-3.94/-4.26	-3.53/-4.39	-4.57/-1.29	-0.46/-0.4	0.28/0.89	1.9/0.9	0.86/0.55	-0.3/-1.05	-1.39/-5.51	-3.1/-0.42	-1.24/-1.28	-1.2/-1.15	-0.68/-0.43
Θ(105°)	-1.39/-2.39	0.07/1.7	2.55/0.99	1.97/3.41	2.94/0.62	-1.58/-0.21	-1.62/-1.17	1.6/0.09	-2.26/0.84	1.56/0.85	0.52/-4.52	-6.48/-4.19	-1.63/-1.79	-2.86/-4.02	-20.89	1.24/0.14	1.98/1.61	0.29/-0.67	-2.84/-1.94	-3.15/-1.16	-0.44/-0.11	-1.81/-1.68	-0.92/-0.9	-0.68/-0.31
Θ(112.5°)	-0.38/-1.47	1.05/0.75	0.62/1.51	1.54/3.55	4.94/3.39	-0.03/0.46	-0.94/0.96	2.46/-0.13	1.38/1.49	-0.87/-0.22	0.3/-5.57	-3.66/-3.69	-1/-1.92	-2.64/-1.41	-1.07/1.32	1.56/-0.59	2.17/1.97	-0.57/-2.46	-2.94/-1.22	-2.85/-0.9	-0.39/-0.97	-1.96/-2.42	-0.85/-2.46	-2.91/0.09
Θ(120°)	0.44/-2.64	-2.34/-0.12	1.94/2.13	1.72/2.3	4.03/4.31	2.97/3.24	2.57/2.23	1.36/-0.91	-0.82/-6.7	-6.86/-7	-1.4/-0.76	-5.25/-5.62	-3.71/-1.7	-2.6/-3.65	-2.28/-1.98	-4.44/-5.38	-5.09/-1	-4.07/-1.72	-1.05/-2.16	-2.16/-0.78	-2.54/-3.27	-2.09/-0.25	-0.68/-0.43	
Θ(127.5°)	-2.73/-2.98	-2.55/-2.24	0.01/0.74	1.19/2.08	2.41/1.73	2.82/3.2	1.99/1.44	0.13/0.93	2.22/0.72	-0.54/-0.42	-1.34/-4.44	-5.37/-6.21	-3.13/-1.67	-2.4/-1.18	-1.47/-2.91	-5.05/-4.86	-3.46/-4.75	-7.54/-10.67	-11.64/-4.75	-9.53/-4.74	-3.81/-1.35	-1.58/-1.85	-0.94/0.64	
Θ(135°)	-0.96/-0.69	-1.34/-3.47	-3.66/0.1	3.51/4.06	2.34/3.59	4.01/3.63	2.97/3.05	2.16/0.81	0.76/1.57	1.22/0.48	-1.26/-3.4	-8.39/-7.05	-6.45/-8.57	-3.47/-0.42	-0.07/-3.25	-5.02/-4.11	-3.1/-3.05	-7.98/-12.91	-12.97/-3.98	-5.52/-8.44	-5.04/-2.3	-1.47/-5.91	-6.79/-6.29	-6.02/-3
Θ(142.5°)	-2.52/-3.24	-1.22/-1.97	-1.38/-1.36	-1.17/0.79	1.65/2.24	2.98/3.66	4.11/3.99	3.46/2.48	0.94/0.02	-0.55/-1.7	-6.1/-6.92	-3.5/-0.29	0.62/0.26	-1.13/-3.41	-9.33/-11.08	-6.71/-3.18	-3.7/-5.86	-11.44/-9.62	-7.38/-3.93	-3.69/-2.79	-7.27/-3.94	-1.54/-1.02	-0.85/-0.39	-3.83/-2.87
Θ(150°)	-3.29/-3.17	-1.86/-0.37	0.63/1.78	1.69/0.43	-0.14/-1.12	2.19/2.35	1.25/0.35	0.28/-0.84	-1.76/-3.27	-5.24/-6.55	-5.66/-5.12	-4.76/-5.12	-13.97/-9.39	-10.24/-13.1	-11.28/-10.54	-8.23/-6	-8.56/-11.66	-10.79/-9.01	-7.7/-6.67	-6.24/-9.65	-10.59/-9.62	-1.47/-2.03	-1.57/-1.51	-2.12/-3.03
Θ(157.5°)	-3.23/-2.97	-4.5/-6.68	-7.17/-8.09	-6.12/-3.76	-3.13/-2.96	-2.71/-2.72	-2.76/-3.17	-2.52/-1.59	-1.41/-1.64	-2.44/-3.28	-4.12/-4.75	-4.53/-3.31	-3.18/-4.32	-6.78/-7.27	-5.62/-4.58	-5.78/-7.98	-8.32/-7.8	-8.4/-9.29	-8.91/-6.27	-7.51/-9.05	-10.14/-8.7	-9.24/-9.58	-7.31/-6.62	-5.87/-4.36
Θ(165°)	-5.95/-4.38	-3.72/-3.97	-2.78/-2.1	-2.52/-3.08	-3.56/-3.86	-3.85/-3.81	-3.84/-3.78	-3.49/-3.71	-4.09/-4.58	-3.95/-2.51	-1.6/-1.23	-1.48/-2.78	-3.51/-3.54	-3.51/-2.95	-2.75/-3.4	-4.75/-8.57	-6.22/-6.72	-8.12/-8.7	-8.26/-8.29	-8.07/-7.59	-6.25/-5.27	-4.78/-4.86	-5.84/-7.52	-9.42/-7.72
Θ(172.5°)	0.6/-0.01	-0.89/-0.94	-1.51/-3.09	-4.53/-5.66	-5.9/-5.53	-5.32/-5.24	-5.09/-4.16	-3.1/-2.65	-3.07/-3.64	-3.33/-2.6	-2.25/-1.92	-2.23/-3.26	-3.99/-3.91	-4.11/-4.3	-4.1/-4.29	-4.95/-5.61	-6.74/-7.58	-7.77/-7.11	-7.31/-7.37	-6.95/-4.77	-4.83/-3.8	-2.59/-2.19	-0.98/0.46	1.51/-4.4
Θ(180°)	-1.61/-2.26	-2.59/-3.81	-4.94/-5.98	-8.42/-12.64	-15.1/-15.24	-14.54/-14.15	-13.8/-12.93	-12.82/-9.36	-7.14/-7.04	-6.35/-4.69	-3.58/-2.68	-1.98/-1.57	-1.68/-1.73	-1.53/-1.26	-0.93/-0.88	-1.32/-2	-2.74/-3.27	-3.44/-3.94	-5.08/-5.58	-5.07/-4.56	-3.56/-2.27	-1.04/-0.45	0.04/0.31	0.05/-0.86
Freq(Hz)	5.66GPol.	ThetaL	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
DG(dB)	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°)	-2.9/-2.3	-1.88/-2.02	-2.37/-2.64	-2.9/-3.36	-3.49/-4.05	-4.62/-4.96	-5.17/-5.24	-5.58/-6.3	-6.08/-4.5	-3.34/-2.98	-2.8/-2.35	-2.24/-1.71	-1.27/-1.08	-0.97/-1.18	-1.3/-1.55	-1.85/-2.24	-2.7/-3.66	-4.62/-5.55	-6.08/-6.46	-6.77/-7.15	-6.69/-5.81	-5.59/-5.63	-5.56/-4.78	-4.41/-4.03
Θ(7.5°)	-0.77/-0.98	-1.22/-1.22	-1.45/-1.38	-1.69/-2.49	-3.22/-3.5	-3.59/-4.31	-5.15/-3.67	-7.61/-8.44	-7.89/-6.95	-6.59/-5.64	-4.88/-4.31	-3.38/-2.71	-2.2/-1.58	-1.37/-1.63	-1.62/-1.6	-1.43/-1.44	-1.98/-1.35	-4.23/-4.83	-4.72/-4.77	-5.02/-6.41	-3.42/-2.62	-2.44/-2.35	-2.19/-1.95	-1.39/-1.04
Θ(15°)	-1.37/-1.25	-1.27/-0.78	-0.6/-0.77	-0.87/-1.08	-3.87/-4.64	-4.64/-4.76	-4.8/-5.93	-6.69/-6.19	-4.97/-4.6	-4.11/-3.26	-2.75/-1.67	-0.65/0.06	0.61/0.87	0.76/0.18	-0.37/-0.77	-0.87/-0.64	-0.78/-1.22	-2.05/-2.54	-2.58/-2.53	-1.89/-1.28	-0.95/-0.34	0.06/0.03	-0.69/-0.94	-1.37/-1.36
Θ(22.5°)	-1.87/-2.26	-2.99/-3.15	-2.77/-2.38	-3.75/-5.35	-6.36/-7.09	-5.97/-4.92	-4.77/-5.76	-6.15/-5.38	-4.56/-2.89	-1.44/-0.96	-0.91/-0.47	-0.16/0.02	0.55/0.95	0.81/0.31	-0.46/-1.16	-1.61/-2.13	-2.26/-2.23	-1.64/-1.01	-1.49/-2.3	-2/-1.77	-1.67/-1.42	-1.4/-1.32	-1/-0.75	-0.95/-1.37
Θ(30°)	-0.67/-1.13	-1.61/-1.69	-1.76/-2.55	-2.9/-5.51	-6.71/-5.9	-6.51/-4.3	-4.87/-8.41	-7.88/-5.18	-3.7/-2.2	-3.1/-4.61	-3.44/-2.92	-2.95/-2.71	-1.69/-0.99	-0.68/-0.69	-0.68/-1.06	-1.65/-1.82	-1.97/-3.32	-5.37/-5.55	-4.51/-4.06	-4.44/-3.62	-1.86/-2.03	-1.75/-4.01	-0.11/-0.6	-0.68/-1.09
Θ(37.5°)	-3.07/-3.36	-3.21/-2.3	-1.66/-1.45	-1.77/-3.94	-6.66/-8.03	-6.67/-3.65	-4.49/-5.41	-4.95/-4.2	-3.6/-4.02	-4.4/-2.64	-1.46/-1.75	-2.32/-2.51	-1.64/-1.55	-1.09/-0.43	-0.14/-0.27	-1.11/-2.04	-2.55/-3.16	-4.03/-3.71	-5.19/-4.07	-1.77/-0.99	-0.16/-0.39	-0.95/-0.58	-0.69/-1.56	-2.88/-2.96
Θ(45°)	-2.16/-2.3	-3.94/-3.39	-2.24/-2.57	-3.03/-1.56	-1.33/-3.33	-4.65/-6.71	-4.66/-3.05	-2.36/-3.07	-6.92/-6.88	-2.57/-0.12	-0.1/-0.81	-2.27/-3.79	-3.61/-4.05	-2.99/-1.42	-0.58/-0.12	-1.03/-2.16	-3.22/-3.87	-4.61/-6.17	-6.75/-6.8	-3.67/-0.76	-0.56/-1.4	-2.02/-1.93	-1.47/-0.77	-1.25/-1.29
Θ(52.5°)	-2.02/-2.68	-3.31/-4.03	-4.04/-3.53	-4.02/-4.36	-2.02/-2.53	-6.2/-9.59	-4.84/-3.23	-4.77/-8.98	-7.65/-3.54	-1.12/-0.37	-1.06/-1.29	-2.87/-4.12	-4.69/-3.86	-3.31/-3.01	-2.36/-1.22	-0.59/-0.26	-3.49/-2.63	-3.75/-4.19	-3.6/-3.57	-2.27/-2.5	-3.53/-4.46	-3.2/-1.46	-0.39/-0.43	-0.82/-1.63
Θ(60°)	-3.64/-3.67	-2.24/-1.98	-2.48/-2.92	-3.36/-3.73	-4.18/-3.8	-9.65/-11.17	-4.19/-5	-7.01/-5.81	-1.19/-0.01	-0.63/-2.24	-4.21/-4.18	-4.08/-3.21	-2.77/-3.12	-3.73/-4.51	-3.11/-0.94	-0.81/-3.06	-4.41/-5.67	-6.53/-8.03	-6.91/-3.57	-2.14/-2.53	-5.27/-3.73	-2.23/-2.24	-1.91/-2.13	-2.72/-3.1
Θ(67.5°)	-6.18/-5.14	-3.89/-2.81	-2.29/-3.03	-3.42/-3.43	-2.58/-3.64	-9.27/-4.57	0.33/-0.11	-3.45/-2.95	-1.11/-1.03	-1.36/-5.1	-3.95/-4.45	-4.98/-5.16	-5.13/-4.29	-6.62/-5.87	-5.69/-2.56	-2.26/-4.56	-2.69/-5.37	-7.16/-8.49	-8.57/-5.97	-5.36/-7.22	-5.99/-4.91	-4.19/-4.19	-4.07/-4.83	-6.23/-6.23
Θ(75°)	-10.73/-9.28	-5.89/-3.11	-2.39/-2.57	-4.29/-0.66	-4.62/-3.53	-9.43/-6.11	-0.86/-1.93	-7.57/-3.4	-1.9/-3.67	-6.41/-4.69	-3.44/-3.99	-5.28/-6.23	-5.1/-3.41	-3.99/-5.02	-7.43/-5.46	-3.55/-3.57	-7.75/-5.61	-7.05/-14.28	-10.39/-6.73	-9.54/-9.43	-8.21/-7.94	-7.37/-7.47	-10.91/-11.41	-12.06/-11.31
Θ(82.5°)	-11.8/-10.63	-6.07/-3.83	-3.25/-4.8	-6.33/-7.98	-4.12/-3.28	-9.78/-5.03	-2.1/-6.93	-3.3/-0.81	-1.31/-4.08	-6.2/-4.81	-4.61/-6.89	-11.37/-10.48	-9.47/-5.5	-4.59/-7.66	-10									