



Antenna Composite Gain Test Report

FCC ID	Z3WAIR4981
Equipment	AT&T ALL Fi Booster
Brand Name	AirTies
Model Name	Air4981-41
Applicant	AirTies Wireless Networks Sehit Mehmet Mikdat Uluunlu Sokagi No:23 Esentepe, Sisli Istanbul, 34394 Turkey
Manufacturer	AirTies Wireless Networks Sehit Mehmet Mikdat Uluunlu Sokagi No:23 Esentepe, Sisli Istanbul, 34394 Turkey
Sample Received	Jul. 21, 2022
Start Test Date	Aug. 24, 2022
Final Test Date	Aug. 24, 2022

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.)



Table of Contents

History of this test report.....	3
1. Operation Mode and Antenna Information	4
2. Test Frequency	5
3. Testing Location.....	5
4. Test Facility and Configuration.....	6
5. Reference Calibration	7
6. Test Method	8
7. Measured Values and Calculation of Maximum Gain Positions.....	9
8. Summary of Test Result	11
9. Test Setup	12
10. Test Equipment and Calibration Data	13
11. Test Results	14



1. Operation Mode and Antenna Information

Antenna Position	RF Port	Brand Name	Model Name	Ant. Type	Connector	Modes of Operation
2G 5GAnt1	1	Galtronics	A00	Off-Board Internal Dipole	I-PEX MHF (u.FL)	2.4GHz, 5GHz UNII 1~3
2G 5GAnt2	2	Galtronics	A11	Off-Board Internal Dipole	I-PEX MHF (u.FL)	2.4GHz, 5GHz UNII 1~3
6G Ant1	1	Galtronics	A0X	Off-Board Internal Dipole	I-PEX MHF (u.FL)	6GHz
6G Ant2	2	Galtronics	A1X	Off-Board Internal Dipole	I-PEX MHF (u.FL)	6GHz
6G Ant3	3	Galtronics	A2X	Off-Board Internal Dipole	I-PEX MHF (u.FL)	6GHz
6G Ant4	4	Galtronics	A3X	Off-Board Internal Dipole	I-PEX MHF (u.FL)	6GHz

Note:

2.4GHz and 5GHz Operation Mode (2TX/2RX)

2G 5GAnt1~2 can be used as transmitting/receiving antenna.

2G 5GAnt1~2 could transmit/receive simultaneously.

6GHz Operation Mode (4TX/4RX)

6G Ant1~4 can be used as transmitting/receiving antenna.

6G Ant1~4 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	2450
5150-5250	5200
5250-5350	5300
5470-5725	5600
5725-5850	5785
5850-5895	5885
5925-6425	6175
6425-6525	6475
6525-6875	6695
6875-7125	6995

3. Testing Location

Testing Location		
Sporton International Inc. Hsinhua Laboratory		
<input checked="" type="checkbox"/>	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	Rex Liao	23-24 / 40-50	Aug. 24, 2022

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

Characteristic: Fully Anechoic Chamber

4. Test Facility and Configuration

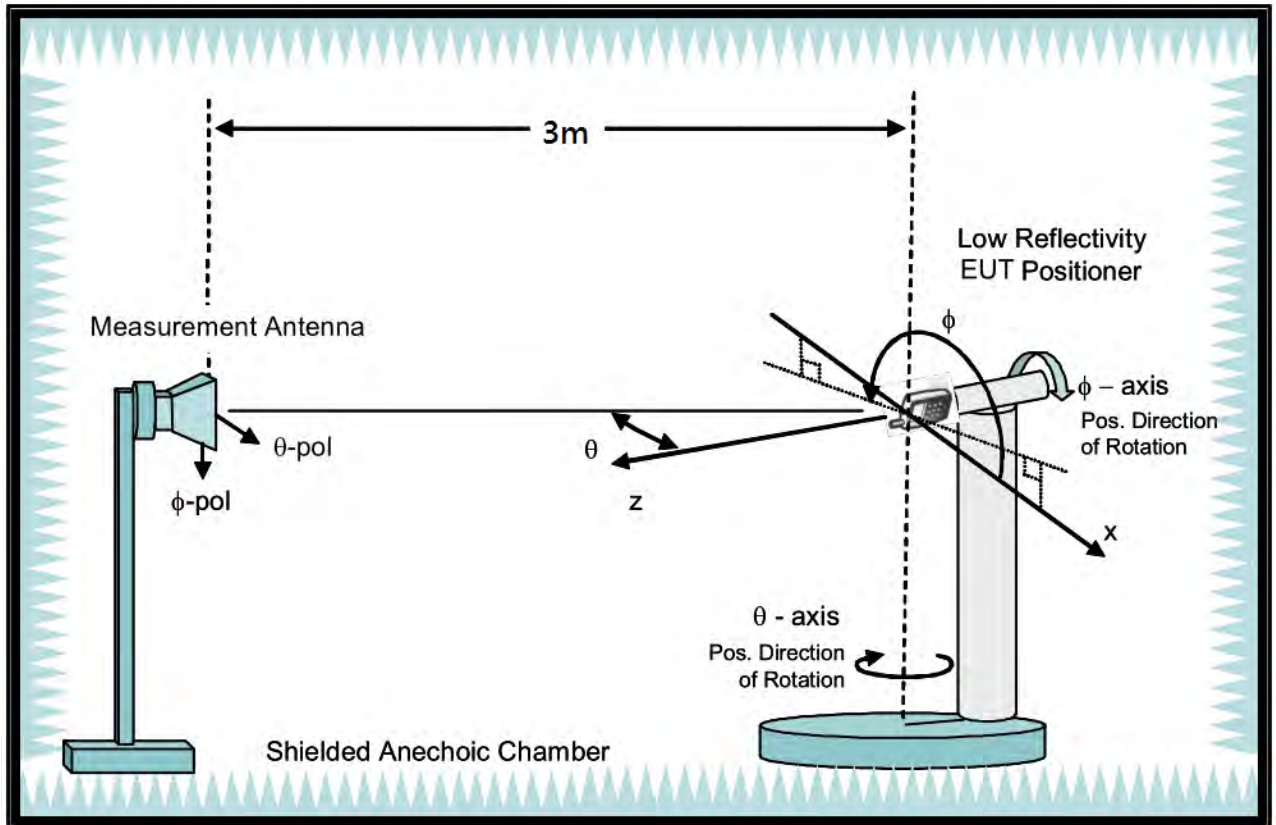
Test configuration: Reference to CITA OTA distributed-axes system configuration.

Chamber: Fully Anechoic Chamber.

Measurement antenna: Dual Polarization Horn antenna

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

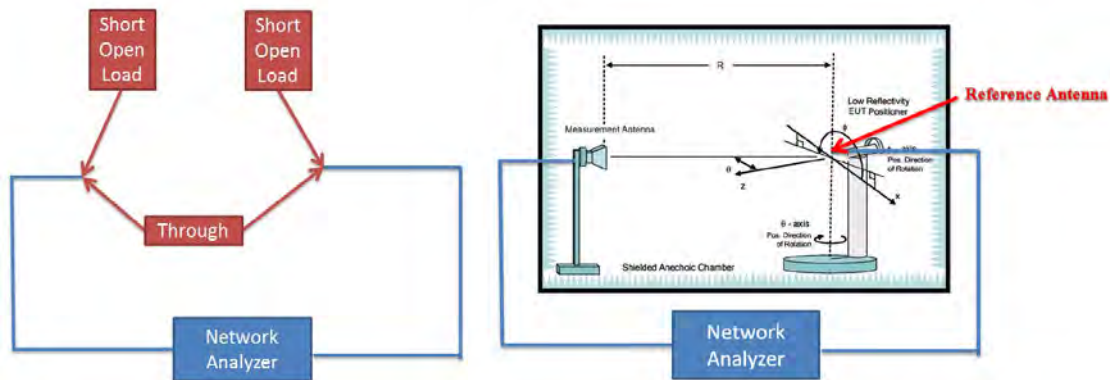
#Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1"



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	-33.27	-32.92	-32.91	-32.73	-32.02	-32.67	-32.82	-32.98	-33.18	-32.8	-33.92	-34.62	-35.57
G(phi) reading (dB)	-33.15	-32.7	-32.41	-32.61	-32.43	-31.72	-32.37	-32.51	-32.52	-32.66	-32.5	-33.62	-34.32	-35.48
Reference gain (dBi)	10.1	10.4	10.7	12.5	12.7	13.5	13.4	13.3	13.3	13.2	13.4	12.5	12.1	11.4
Factor(theta) (dB)	43.65	43.67	43.62	45.41	45.43	45.52	46.07	46.12	46.28	46.38	46.2	46.42	46.72	46.97
Factor(phi) (dB)	43.25	43.1	43.11	45.11	45.13	45.22	45.77	45.81	45.82	45.86	45.9	46.12	46.42	46.88

Note:

$$G \text{ reading (dB)} = 20 \cdot \log(V2/V1) = 10 \cdot \log(P2/P1)$$

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

<For 2.4GHz and 5GHz>

DG_1SS max value position

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 (dBi)	4.84	5.06	3.9	5	4.33
Ant. 2 (dBi)	-0.87	-2.41	-1.96	-1.7	-1.86
DG [1SS] (dBi)	5.46	5.11	4.47	5.29	4.79
Polarization	Phi	Phi	Phi	Phi	Phi
Θ (°)	97.5	135	135	150	150
Φ (°)	180	157.5	172.5	150	150

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)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 [$10^{(G/20)}$]	$10^{(4.84/20)}$	$10^{(5.06/20)}$	$10^{(3.9/20)}$	$10^{(5/20)}$	$10^{(4.33/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(-0.87/20)}$	$10^{(-2.41/20)}$	$10^{(-1.96/20)}$	$10^{(-1.7/20)}$	$10^{(-1.86/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.746	1.791	1.567	1.778	1.646
Ant. 2 [$10^{(G/20)}$] value	0.905	0.758	0.798	0.822	0.807
Sum All Antenna [Amax]	2.651	2.548	2.365	2.601	2.454
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	5.46	5.11	4.47	5.29	4.79

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



<For 6GHz>

DG_1SS max value position

Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 (dBi)	-2.05	2.79	-3.93	2
Ant. 2 (dBi)	-1.14	-6.77	1.97	-4.93
Ant. 3 (dBi)	-1.94	-13.53	-0.48	-9.85
Ant. 4 (dBi)	-1.73	0.91	-6.81	0.01
DG [1SS] (dBi)	4.31	3.97	4.33	3.94
Polarization	Theta	Phi	Theta	Phi
Θ (°)	52.5	0	135	37.5
Φ (°)	120	22.5	157.5	22.5

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)	6.175G	6.475G	6.695G	6.995G
Ant. 1 [10^(G/20)]	10^(-2.05/20)	10^(2.79/20)	10^(-3.93/20)	10^(2/20)
Ant. 2 [10^(G/20)]	10^(-1.14/20)	10^(-6.77/20)	10^(1.97/20)	10^(-4.93/20)
Ant. 3 [10^(G/20)]	10^(-1.94/20)	10^(-13.53/20)	10^(-0.48/20)	10^(-9.85/20)
Ant. 4 [10^(G/20)]	10^(-1.73/20)	10^(0.91/20)	10^(-6.81/20)	10^(0.01/20)
Ant. 1 [10^(G/20)] value	0.79	1.379	0.636	1.259
Ant. 2 [10^(G/20)] value	0.877	0.459	1.255	0.567
Ant. 3 [10^(G/20)] value	0.8	0.211	0.946	0.322
Ant. 4 [10^(G/20)] value	0.819	1.11	0.457	1.001
Sum All Antenna [Amax]	3.286	3.159	3.293	3.149
DG [10*log(Amax^2/Nant)]	4.31	3.97	4.33	3.94

Note:

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

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



8. Summary of Test Result

<For 2.4GHz and 5GHz>

Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	5.41	5.06	4.26	5.01	4.76
Ant. 2 Max Gain (dBi)	2.96	2.91	3.33	3.97	3.8
Ant. 1 Polarization/ Θ (°)/ Φ (°)	Phi/157.5/150	Phi/135/157.5	Phi/135/165	Theta/150/232.5	Theta/150/232.5
Ant. 2 Polarization/ Θ (°)/ Φ (°)	Phi/52.5/30	Theta/30/105	Theta/30/112.5	Theta/22.5/120	Phi/45/15
Max Gain (dBi)	5.41	5.06	4.26	5.01	4.76
DG [1SS] (dBi)	5.46	5.11	4.47	5.29	4.79
DG [2SS] (dBi)	5.41	5.06	4.26	5.01	4.76

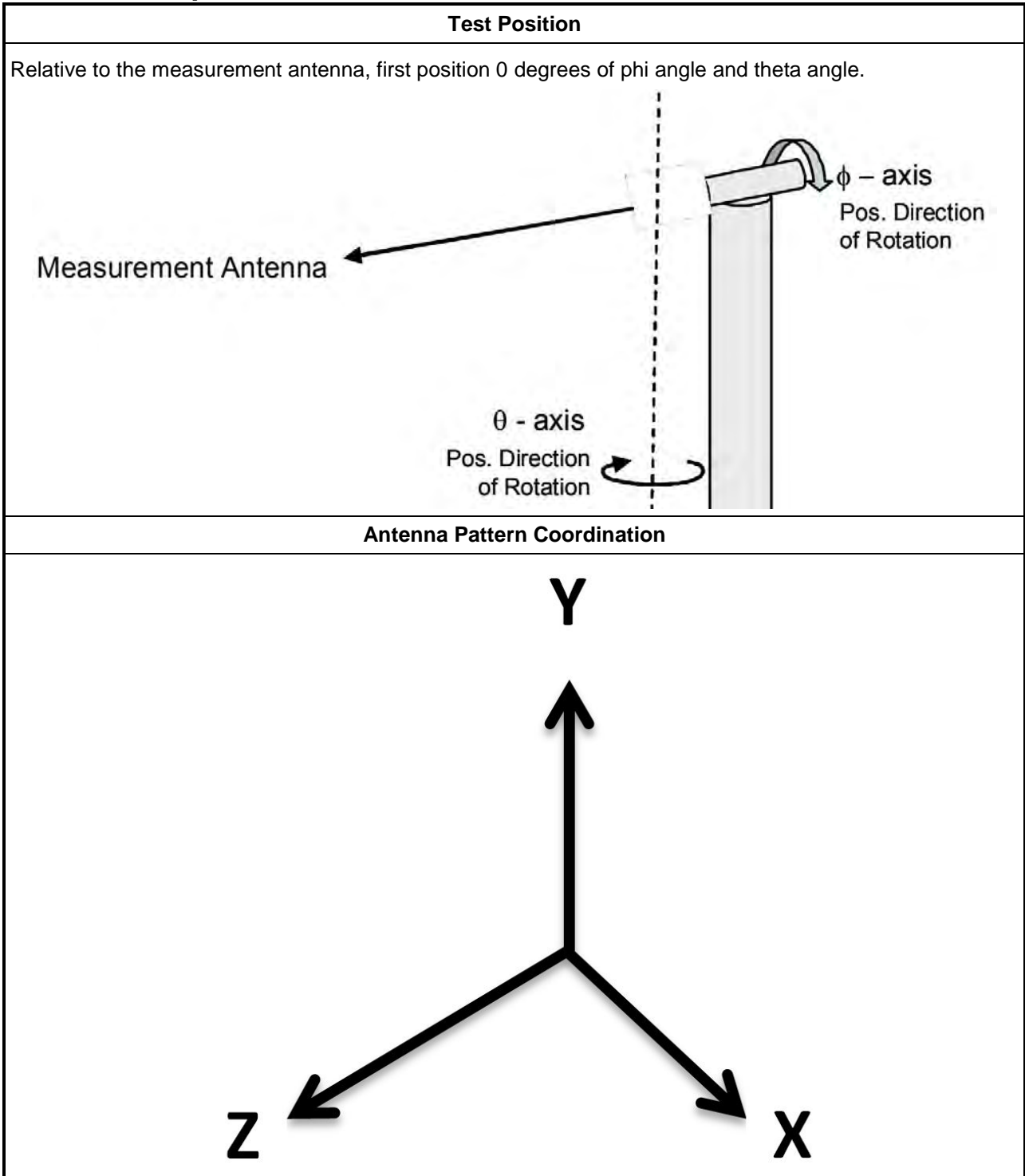
<For 6GHz>

Freq(Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	4.06	3.64	4.3	3.51
Ant. 2 Max Gain (dBi)	1.65	1.44	2.31	2.08
Ant. 3 Max Gain (dBi)	2.58	1.31	2.03	2.7
Ant. 4 Max Gain (dBi)	2.51	2.82	3.53	3.79
Ant. 1 Polarization/ Θ (°)/ Φ (°)	Theta/150/247.5	Phi/112.5/330	Phi/127.5/322.5	Theta/157.5/240
Ant. 2 Polarization/ Θ (°)/ Φ (°)	Theta/127.5/142.5	Theta/105/142.5	Theta/105/142.5	Theta/105/15
Ant. 3 Polarization/ Θ (°)/ Φ (°)	Theta/127.5/37.5	Theta/120/30	Theta/82.5/172.5	Theta/97.5/172.5
Ant. 4 Polarization/ Θ (°)/ Φ (°)	Phi/60/202.5	Phi/52.5/202.5	Phi/37.5/165	Phi/30/165
Max Gain (dBi)	4.06	3.64	4.30	3.79
DG [1SS] (dBi)	4.31	3.97	4.33	3.94
DG [2SS] (dBi)	4.06	3.64	4.30	3.79
DG [4SS] (dBi)	4.06	3.64	4.30	3.79

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.
4. Directional Gain (4SS) = Directional Gain (1SS) – 6dB. If directional gain is less than max gain, use max gain as directional gain.

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-1543	1GHz~18GHz	May 31, 2022	May 30, 2023
Dual Polarization Horn Antenna	Sporton	S0209DP	S0209DP-001	2GHz~9GHz	N.C.R.	N.C.R.
ENA Series Network Analyzer	AGILENT	E5071C	MY46419201	100kHz~8.5GHz	Feb. 21, 2022	Feb. 20, 2023
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 and 5GHz UNII 1~UNII 3.....	Page 15
Appendix B – Radiated Composite Gain of 6GHz UNII5~UNII8.....	Page 24
Appendix C – Antenna Pattern of 2.4GHz and 5GHz UNII 1~UNII 3.....	Page 35
Appendix D – Antenna Pattern of 6GHz UNII5~UNII8.....	Page 39
Appendix E – Test Photos.....	Page 45

Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	5.41	5.06	4.26	5.01	4.76
Ant. 2 Max Gain (dBi)	2.96	2.91	3.33	3.97	3.8
Ant. 1 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/157.5/150	Phi/135/157.5	Phi/135/165	Theta/150/232.5	Theta/150/232.5
Ant. 2 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/52.5/30	Theta/30/105	Theta/30/112.5	Theta/22.5/120	Phi/45/15
Max Gain (dBi)	5.41	5.06	4.26	5.01	4.76
DG [1SS] (dBi)	5.46	5.11	4.47	5.29	4.79
DG [2SS] (dBi)	5.41	5.06	4.26	5.01	4.76



Radiated Composite Gain Data (2.4GHz and 5GHz UNII 1~UNII 3)

Appendix A

DG 1SS Result

Freq(Hz)	2.45GPol.	PhiH	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(°)	0.091-0.2	-0.19-0.61	-1.11-2.9	-0.95-0.65	-0.43-0.53	-0.77-1.01	-1.44-1.84	-2.58-3.24	-4.44-3.93	-6.37-2.5	-1.49-0.59	0.030.58	0.931.08	1.040.97	0.820.48	0.280.06	0.04-0.2	-0.39-0.84	-1.45-2.22	-3.32-2.47	-4.53-3.91	-2.83-1.82	-1.16-0.77	-0.33-0.04	
Theta(7.5°)	1.1401.29	1.1401.91	0.640.43	0.310.39	0.440.52	0.470.28	-0.20-0.61	-1.21-1.9	-3.13-2.47	-1.98-1.36	-0.91-0.36	-1.89-1.27	-1.26-1.65	-1.96-1.92	-1.89-2.17	-2.54-3.07	-0.39-0.84	-1.45-2.22	-3.32-2.47	-4.53-3.91	-2.83-1.82	-1.16-0.77	-0.33-0.04		
Theta(15°)	2.652.76	2.672.54	2.311.81	1.390.88	0.630.48	0.390.24	-0.1-0.41	-0.84-1.37	-1.81-2.42	-2.69-2.24	-1.66-0.92	-0.360.14	0.420.43	0.08-0.73	-1.74-3.03	-3.91-4.59	-5.05-5.79	-6.82-7.82	-8.77-7.71	-6.94-6.17	-5.42-4.24	-2.61-1.26	0.121.17	2.052.56	
Theta(22.5°)	3.232.33	3.393.43	3.132.57	1.881.06	0.740.66	0.630.41	0.280.03	-0.48-1.02	-1.8-2.48	-2.62-1.76	-0.93-0.06	0.721.41	1.841.89	1.400.57	-0.82-2.45	-4.34-5.39	-6.31-7.24	-8.19-8.9	-8.79-7.28	-6.51-4.35	-3.68-3.07	-1.9-0.62	0.671.76	2.463.04	
Theta(30°)	2.462.8	3.233.3	3.270.72	2.051.32	0.860.77	0.470.56	0.550.51	0.260.45	-1.49-2.39	-2.29-1.42	-0.440.46	1.121.8	2.352.55	2.391.73	0.64-1.03	-3.29-5.38	-6.45-7.59	-8.46-8.85	-6.65-7.01	-5.22-4.28	-3.71-0.9	-3.51-1.61	-0.390.76	1.652.15	
Theta(37.5°)	1.271.88	2.52.81	2.872.58	1.921.23	0.890.7	0.610.44	0.460.88	1.030.69	0-0.71	-0.84-0.06	0.250.48	0.711.12	1.631.78	1.771.48	0.49-1.11	-3.35-5.61	-7.11-8.41	-8.59-8.56	-7.69-6.51	-5.51-4.77	-4.76-5.22	-4.75-2.93	-1.53-0.31	0.360.82	
Theta(45°)	0.771.16	2.492.93	3.042.79	2.371.8	1.411.14	0.970.63	0.831.13	0.930.73	0.921.2	1.060.7	0.32-0.16	-0.160.43	0.760.93	0.41-0.86	-0.48-1.42	-3.34-5.52	-6.75-7.03	-6.35-6.17	-6.4-6.6	-6.26-5.78	-8.02-11.52	-12.04-8.94	-5.39-3.48	-2.31-1.81	
Theta(52.5°)	0.701.8	2.112.88	3.383.42	3.132.62	2.352.1	2.031.75	1.431.08	1.021.16	1.361.72	2.22.31	1.961.43	0.63-0.42	-1.41-1.83	-1.17-0.37	-0.46-1.42	-3.43-5.52	-6.56-6.26	-6.4-6.6	-6.26-5.78	-8.02-11.52	-12.04-8.94	-5.39-3.48	-2.31-1.81		
Theta(60°)	0.310.1	0.351.41	2.453.11	3.022.72	2.392.19	2.11.86	1.591.46	1.491.65	1.862.11	2.692.85	2.762.25	1.36-0.11	-2.11-3.89	-3.29-1.95	-1.66-2.99	-5.83-7.93	-7.55-5.94	-5.65-6.26	-6.4-7.44	-7.01-5.95	-7.47-8.8	-4.67-1.86	-0.370.38	0.830.62	
Theta(67.5°)	3.122.49	1.640.78	0.961.76	1.911.78	1.691.57	1.421.24	1.121.41	2.032.32	2.823.18	3.73.78	3.572.96	2.271.03	-0.03-0.7	0.06-0.82	-1.11-3.04	-6.17-7.55	-6.06-4.28	-4.7-6.52	-6.86-6.72	-7.33-5.85	-1.830.82	2.112.77	3.213.25		
Theta(75°)	4.378	3.221.4	1.561.61	1.621.41	1.120.98	0.780.82	1.11.54	2.192.62	3.153.66	3.964.02	2.572.49	2.491.87	0.7-0.1	0.7-2.14	-6.84-8.64	-6.33-9.26	-4.11-4.91	-6.25-9.36	-8.84-9.3	-9.09-8.42	-4.39-0.91	1.192.15	3.063.73		
Theta(82.5°)	3.723.73	3.171.97	1.491.45	1.210.92	0.490.23	0.230.6	1.131.45	1.682.15	2.582.97	2.962.73	2.522.53	3.541.2	4.153.47	1.850.19	-0.57-1.76	-5.5-12.43	-8.21-4.09	-2.46-1.9	-2.54-4.86	-5.49-5.25	-5.51-5.97	-4.89-2.83	-0.740.72	1.973.04	
Theta(90°)	2.773.34	2.931.95	1.521.21	0.870.58	0.350.35	0.831.61	2.222.46	2.542.71	2.963.06	2.892.81	2.933.43	4.094.68	4.794.31	2.770.96	0.36-0.43	-3.08-1.92	-12.3-7.2	-3.53-1.56	-1.4-3.12	-4.63-4.68	-7.04-3.33	-4.81-3.15	-2.36-0.9	0.641.79	
Theta(97.5°)	2.254	2.221.75	1.962.13	2.041.79	1.521.43	1.662.28	2.732.96	3.393.32	3.13.17	3.333.6	4.334.97	5.464.74	3.171.09	0.1-0.52	-2.7-6.87	-9.97-6.45	-3.91-2.81	-2.88-5.08	-6.14-6.33	-10.77-10	-3.92-1.8	-2.07-1.31	0.281.39		
Theta(105°)	1.922.29	2.011.13	0.880.91	0.620.26	0.080.27	0.562.1	1.61.78	2.012.34	2.752.85	2.813.09	3.443.43	3.994.48	4.734.25	2.991.3	0.22-0.08	-1.66-6.07	-9.37-6.68	-4.31-2.98	-3.7-6.85	-8.71-8.45	-8.93-8.94	-5.76-3.01	-1.31-2.82	-0.041.38	
Theta(112.5°)	1.251.66	1.891.79	1.711.59	0.810.14	0.090.36	0.520.68	0.881	1.21.62	2.172.43	2.643.04	3.2.85	3.74.58	4.924.81	4.022.47	0.83-0.25	-2.95-8.85	-11.81-7.67	-4.92-4.2	-5.02-8.32	-10.54-12.6	-11.06-10.69	-9.38-6.68	-5.12-4.53	-1.520.39	
Theta(120°)	1.301.96	0.940.98	1.471.56	1.060.25	-0.050.28	0.570.71	0.630.58	0.741.13	1.892.56	3.093.56	3.623.26	4.174.78	4.664.81	3.40.61	-2.91-4.36	-6.9-12.67	-14.51-8.57	-5.66-4.72	-5.62-7.19	-6.82-6.78	-7.84-7.76	-5.42-3.08	-1.72-0.96	0.031.01	
Theta(127.5°)	3.132.87	2.582.2	2.171.86	1.280.66	0.530.88	1.361.65	1.631.69	1.852.24	2.663.19	3.693.92	3.984.21	4.353.77	2.691.04	0.16-0.31	-3.23-3.28	-4.53-7.33	-9.13-9.79	-8.29-8.8	-12.23-12.09	-7.245.4	-4.86-4.16	-1.92-0.04	1.131.88	2.552.99	
Theta(135°)	2.993.32	3.313.21	3.062.66	1.810.3	0.550.59	0.851.28	1.521.62	1.912.39	2.93.53	3.964.17	4.174.14	3.652.66	1.580.84	0.11-0.56	-0.98-2.04	-4.45-7.66	-11.33-8.41	-5.22-4.99	-7.53-11.37	-12.8-12.21	-14.77-10.25	-5.86-2.39	-0.40.81	1.792.53	
Theta(142.5°)	1.341.84	2.12.06	1.550.83	-0.31-1.68	-2.18-1.87	-1.48-1.11	-0.62-0.35	0.250.96	1.872.54	3.073.28	3.222.98	2.551.98	1.511.31	0.73-0.05	-1.45-3.56	-6.58-11.03	-11.69-8.68	-5.6-5.1	-5.7-6.46	-6.16-6.41	-7.27-8.7	-8.33-6.57	-4.09-2.41	-0.880.42	
Theta(150°)	-0.22-0.01	-0.16-0.47	-1.21-2.04	-3.39-3.48	-2.46-1.6	-0.86-0.39	0.120.4	0.821.28	1.912.43	3.053.37	3.563.53	3.263.99	2.41.84	1.310.43	-0.58-2.03	-3.56-5.91	-6.08-6.67	-6.99-6.19	-4.87-3.54	-1.94-1.5	-1.06-0.86	-0.67-0.35			
Theta(157.5°)	1.070.45	-0.67-1.05	-1.66-1.21	-1.250.91	-0.78-0.17	0.090.44	0.81.26	1.782.35	2.212.9	3.443.84	3.883.65	3.162.62	2.232.54	2.011.18	0.34-0.79	-1.67-2.35	-3.08-3.96	-5.23-6.1	-6.53-6.04	-4.75-3.29	-2.45-1.28	-0.270.34	0.931.28	1.421.36	
Theta(165°)	1.370.6	-0.33-1.44	-1.44-1.56	-1.14-1.27	-1.31-1.57	-2.08-2.23	-2.17-1.62	-0.81-0.3	1.022.02	2.753.09	3.263.22	2.762.25	1.660.92	0.22-0.51	-0.92-1.29	-1.76-2.38	-3.34-4.49	-5.84-6.48	-6.23-5.19	-4.18-2.42	-1.99-1.22	-0.330.55	1.221.66	1.871.67	
Theta(172.5°)	-0.05-0.94	-1.86-2.81	-4.54-3.62	-4.74-9.8	-5.43-6.32	-6.76-7.69	-7.92-9.56	-5.36-4.13	-3.06-2.5	-1.62-1.12	-2.92-1.61	-1.89-2.33	-1.21-0.9	-1.83-1.56	-1.58-2.04	-1.62-1.12	-1.73-6.82	-5.51-4.35	-4.16-2.64	-1.81-1.51	-1.05-0.37	0.270.55	0.670.43		
Theta(180°)	-1.54-1.95	-2.9-3.58	-4.7-5.96	-7.36-9.73	-11.48-11.59	-10.43-9.14	-7.83-6.98	-6.14-6.03	-5.75-5.41	-5.14-3.38	-3.73-3.04	-2.56-1.91	-1.62-1.57	-1.71-2.15	-2.83-4.12	-5.86-7.99	-9.86-9.66	-7.51-6.26	-5.17-4.72	-4.59-4.36	-3.85-3.62	-3.27-2.63	-2.06-1.62	-1.46-1.52	
Theta(187.5°)	1.370.6	-0.33-1.44	-1.44-1.56	-1.14-1.27	-1.31-1.57	-2.08-2.23	-2.17-1.62	-0.81-0.3	1.022.02	2.753.09	3.263.22	2.762.25	1.660.92	0.22-0.51	-0.92-1.29	-1.76-2.38	-3.34-4.49	-5.84-6.48	-6.23-5.19	-4.18-2.42	-1.99-1.22	-0.330.55	1.221.66	1.871.67	
Theta(195°)	-0.05-0.94	-1.86-2.81	-4.54-3.62	-4.74-9.8	-5.43-6.32	-6.76-7.69	-7.92-9.56	-5.36-4.13	-3.06-2.5	-1.62-1.12	-2.92-1.61	-1.89-2.33	-1.21-0.9	-1.83-1.56	-1.58-2.04	-1.62-1.12	-1.73-6.82	-5.51-4.35	-4.16-2.64	-1.81-1.51	-1.05-0.37	0.270.55	0.670.43		
Theta(202.5°)	-1.54-1.95	-2.9-3.58	-4.7-5.96	-7.36-9.73	-11.48-11.59	-10.43-9.14	-7.83-6.98	-6.14-6.03	-5.75-5.41	-5.14-3.38	-3.73-3.04	-2.56-1.91	-1.62-1.57	-1.71-2.15	-2.83-4.12	-5.86-7.99	-9.86-9.66	-7.51-6.26	-5.17-4.72	-4.59-4.36	-3.85-3.62	-3.27-2.63	-2.06-1.62	-1.46-1.52	
Theta(210°)	1.370.6	-0.33-1.44	-1.44-1.56	-1.14-1.27	-1.31-1.57	-2.08-2.23	-2.17-1.62	-0.81-0.3	1.022.02	2.753.09	3.263.22	2.762.25	1.660.92	0.22-0.51	-0.92-1.29	-1.76-2.38	-3.34-4.49	-5.84-6.48	-6.23-5.19	-4.18-2.42	-1.99-1.22	-0.330.55	1.221.66	1.871.67	
Theta(217.5°)	-0.05-0.94	-1.86-2.81	-4.54-3.62	-4.74-9.8	-5.43-6.32	-6.76-7.69	-7.92-9.56	-5.36-4.13	-3.06-2.5	-1.62-1.12	-2.92-1.61	-1.89-2.33	-1.21-0.9	-1.83-1.56	-1.58-2.04	-1.62-1.12	-1.73-6.82	-5.51-4.35	-4.16-2.64	-1.81-1.51	-1.05-0.37	0.270.55	0.670.43		
Theta(225°)	-1.54-1.95	-2.9-3.58	-4.7-5.96	-7.36-9.73	-11.48-11.59	-10.43-9.14	-7.83-6.98	-6.14-6.03	-5.75-5.41	-5.14-3.38	-3.73-3.04	-2.56-1.91	-1.62-1.57	-1.71-2.15	-2.83-4.12	-5.86-7.99	-9.86-9.66	-7.51-6.26	-5.17-4.72	-4.59-4.36	-3.85-3.62	-3.27-2.63	-2.06-1.62	-1.46-1.52	
Theta(232.5°)	1.370.6	-0.33-1.44	-1.44-1.56	-1.14-1.27	-1.31-1.57	-2.08-2.23	-2.17-1.62	-0.81-0.3	1.022.02	2.753.09	3.263.22	2.762.25	1.660.92	0.22-0.51	-0.92-1.29	-1.76-2.38	-3.34-4.49	-5.84-6.48	-6.23-5.19	-4.18-2.42	-1.99-1.22	-0.330.55	1.221.66	1.871.67	
Theta(240°)	-0.05-0.94	-1.86-2.81	-4.54-3.62	-4.74-9.8																					



Radiated Composite Gain Data (2.4GHz and 5GHz UNII 1~UNII 3)

Appendix A

Theta (deg)	1.99/1.74	1.85/1.2	0.67/1.1	-0.17/-1.92	-3.07/-4.03	-4.1/-2.27	-0.85/-0.49	-0.78/-1.22	-0.74/0.46	1.56/1.75	2.11/1.86	1.79/2.87	3.47/3.12	2.11/1.63	0.1/-2.42	-4.01/-3.1	-2.64/-6.28	-10.63/-8.55	-10.7/-14.61	-15.73/-13.37	-10.06/-5.08	-3.65/-3.15	-0.87/-0.1	-0.01/1.2
Phi (deg)	1.55/0.88	1.34/1.63	1.55/1.06	0.25/-0.24	-1.52/-2.4	-1.6/-1.6	-2.6/-3.32	-2.64/-1.99	-1.01/0.4	1.23/1.65	1.28/0.89	1.33/1.52	1.64/1.7	1.78/0.43	-0.73/-1.64	-1.67/-3.23	-6.2/-7.02	-7.95/-9.59	-8.81/-13.29	-14.01/-8.98	-13.73/-7.27	-3/-2.41	-1.77/0.09	-0.17/1.49
Theta (deg)	0.25/-0.84	-0.11/1.45	1.39/-0.44	-1.17/-1.32	-0.93/-1.84	-2.48/-1.97	-1.63/-2.08	-2.62/-2.43	-2.26/-0.51	0.54/0.83	0.47/-0.01	1.28/2.1	1.90/3.3	0.47/1.89	0.49/-1.94	-6.08/-7.25	-5.51/-6.7	-13.93/-10.81	-10.14/-13.54	-10.84/-14.14	-8.74/-4.16	-6.08/-6.87	-4.63/-2.28	-0.55/0.44
Theta (deg)	-1.61/-0.92	0.99/1.26	0.8/-0.77	-0.93/-0.89	-0.29/-1.03	-1.91/-2.29	-2.49/-1.83	-2.92/-3.72	-2.68/-1.11	-1.19/-0.96	-0.10/0.65	1.84/2.23	1.87/0.03	-1.05/0.58	1.64/-0.22	-4.22/-5.27	-6.97/-9.46	-12.16/-9.37	-13.86/-8.2	-7.4/-10.26	-6.52/-1.78	-1.12/-4.58	-5.31/-2.51	0.04/-0.12
Theta (deg)	-2.61/0.6	1.45/1.52	0.9/-1.01	-1.81/-0.31	-0.98/-2.32	-2.08/-2.06	-2.07/-2.1	-3.12/-2.64	-1.41/-1.5	-1.64/0.18	1.94/1.43	2.07/2.02	1.35/0.21	-1.52/-3.37	-3.34/-5.17	-2.93/-6.74	-11.74/-10.15	-14.95/-11.99	-11.8/-11.78	-8.07/-14.97	-3.42/-3.64	-4.76/-7.35	-4.05/-1.57	1.1/-0.58
Theta (deg)	-1.21/1.26	0.56/-0.77	-0.54/-0.72	-1.41/-1.89	-1.74/-1.9	-2.17/-2.69	-2.08/-1.43	-3.07/-2.1	-0.84/-0.68	0.37/1.39	1.79/1.54	1.57/2.27	1.44/-0.36	-1.65/-4.83	-3.65/-3.6	-5.86/-4.53	-8.54/-13.95	-11.74/-8.86	-15.47/-11.75	-9.25/-12.57	-6.95/-5.92	-5.29/-6.39	-4.48/-1.64	0.58/-1.14
Theta (deg)	-2.49/0.06	0.29/0.44	-0.4/-2.18	-1.83/-1.74	-3.01/-2.87	-3.35/-3.23	-2.09/-1.65	-2.79/-2.16	0.28/0.77	0.88/1.63	2.68/1.55	-0.12/0.07	1.71/1.4	0.02/-5.46	-6.7/-4.64	-7.21/-4.62	-5.22/-8.94	-13.66/-9.57	-12.44/-12.08	-7.64/-7.96	-10.6/-4.21	-4.2/-5.04	-7.23/-1.79	-0.71/-1.38
Theta (deg)	-2.96/-1.94	-0.26/-1.89	-1.72/-1.48	-2.25/-2.32	-2.67/-1.65	-2.94/-3.86	-3.48/-1.91	-2.32/-0.95	-0.12/2	2.55/3.44	2.78/1.3	0.35/-0.77	0.37/1.52	1.59/-1.13	-3.59/-6.74	-9.45/-6.23	-6.45/-7.32	-15/-10.81	-11.93/-12.27	-9.73/-13.09	-7.57/-6.29	-6.43/-9.7	-7.85/-4.79	-1.22/-0.3
Theta (deg)	-1.12/0.22	-1.26/-2.07	-2.04/-3.18	-2.92/-3.06	-4.07/-3.58	-3.18/-2.84	-2.83/-2.27	-1.78/-0.28	0.74/1.33	1.97/2.8	2.37/2.18	2.68/0.63	-2.63/-2.97	-2.69/-2.74	-5.75/-7.7	-8.64/-8.87	-8.24/-12.43	-13.35/-10.87	-13.17/-13.59	-11.37/-11.17	-11.46/-1.81	-6.83/-6.64	-4.44/-5.28	-5.87/-4.15
Theta (deg)	-2.72/-3.03	-1.38/-0.77	-1.35/-2.17	4.77/4.84	-4.48/-4.55	-4.42/-5.08	-3.7/-2.62	-1.05/0.05	0.84/0.72	2.03/3.54	2.81/-0.8	0.28/0.74	-1.39/-1.03	-2.7/-5.41	-5.52/-8.01	-4.81/-6.14	-9.17/-10.59	-11.99/-13.77	-9.68/-14.78	-6/-6.92	-9.94/-5.71	-6.22/-7.56	-6.51/-3.98	-2.34/-1.98
Theta (deg)	-2.68/-1.23	0.41/-0.56	-4.29/-5.16	-3.85/-4.72	-5.4/-5.67	-5.42/-3.77	-2.91/-2.63	-3.39/-1.42	0.95/2.12	2.46/2.06	2.24/2.27	1.37/0.82	-0.38/-4.33	-0.49/-0.76	-2.54/-6.58	-12.47/-9.47	-9.17/-9.6	-8.76/-9.42	-10.92/-10.01	-10.3/-7.16	-11.7/-15.42	-9.35/-6.16	-3.72/-0.96	-6.02/-1.07
Theta (deg)	-1.59/-1.52	-0.03/0.79	-0.51/-3.02	-5.09/-6.57	-7.09/-10.43	-9.09/-7.49	-5.27/-3.91	-2.66/-0.95	1.12/1.6	1.46/1.61	2.86/2.46	0.79/0.36	1.36/-0.35	-2.96/-0.57	-1.34/-6.44	-10.08/-14.76	-12.99/-12.11	-10.31/-10.59	-13.45/-11.65	-9.4/-9.21	-15.1/-14.41	-15.29/-9.58	-6.46/-2.85	-0.69/-0.73
Theta (deg)	-1.18/0.14	1.11/1.79	0.37/-1.73	-3.14/-3.91	-4.68/-6.14	-6.7/-6.43	-6.15/-3.56	-1.68/-0.33	1.52/4.8	2.77/2.43	2.85/3.67	3.49/2.76	2.31/1.99	0.66/-2.97	-9.6/-5.87	-5.54/-7.78	-11.38/-10.77	-9.22/-12.8	-15.42/-15.45	-12.27/-9.18	-8.68/-7.4	-7.4/-5.4	-5.01/-4.89	-4.86/-2.27
Theta (deg)	-3.54/-2.39	1.14/2.93	2.73/1.31	-1.64/-4.68	-7.61/-8.73	-9.64/-7.63	-4.97/-2.75	-2.1/-1.17	-0.22/1.66	2.78/3.84	4.79/3.68	2.63/1.38	-1.24/-2.54	-4.15/-4.56	-4.45/-5.21	-4.34/-5.82	-10.9/-8.03	-6.12/-7.25	-7.91/-8.62	-6.33/-6.27	-5.47/-7.21	-9.71/-6.99	-3.51/-1.67	-1.37/-2.4
Theta (deg)	-4.33/-3.52	-1.78/-0.47	0.49/0.12	-0.33/-0.61	-1.89/-4.24	-5.86/-8.32	-7.05/-4.83	-2.42/-1.57	-0.43/1.25	2.43/3.13	2.61/0.95	-1.21/-2.26	-2.43/-2.75	-2.99/-3.94	-4.69/-4	-5.41/-8.42	-11.51/-13.54	-14.74/-16.2	-14.92/-11.3	-11.63/-14.86	-11.39/-6.74	-5.07/-3.07	-1.64/-0.61	-0.49/-1.44
Theta (deg)	-1.87/-1.7	-1.4/-1.3	-1.1/-1.61	-1.87/-2.51	-4.2/-6.2	-6.98/-5.69	-4.68/-3.66	-1.93/-0.43	0.61/2.6	1.63/1.34	-0.04/-1.09	-1.63/-1.01	-0.34/-0.26	-0.66/-1.47	-3.07/-5.56	-9.76/-15.73	-15.29/-15.63	-13.37/-13.59	-14.4/-13.12	-10.32/-8.32	-6.28/-4.16	-3.62/-2.57	-1.69/-1.49	-2.05/-2.15
Theta (deg)	-3.9/-3.62	-2.45/-2.02	-1.82/-2	-2.85/-4.49	-6.38/-7.5	-6.75/-5.96	-5.8/-6.49	-5.6/-4.53	-3.25/-2.65	-2.6/-2.1	-1.45/-0.99	-0.68/-0.61	-1.1/-2.03	-3.35/-5.29	-8.07/-11.25	-11.74/-12.45	-12.02/-11.64	-11.76/-12.35	-12.95/-13.73	-12.71/-11.34	-10.09/-9.98	-9.33/-6.72	-6.15/-5.12	-4.6/-4.15
Theta (deg)	-2.17/-2.5	-2.77/-2.87	-3.78/-4.25	-5.04/-6.41	-8.38/-10.2	-10.1/-10.09	-9.37/-8.87	-7.75/-6.12	-5/-4.27	-3.65/-2.92	-3.03/-3.13	-3.98/-5.25	-6.42/-7.04	-8.63/-10.42	-10.02/-9	-8.68/-8	-10.06/-12.38	-13.81/-14.94	-15.48/-13.48	-11.39/-8.49	-7.79/-6.18	-5.18/-3.88	-2.67/-1.99	-1.88/-2.15
Freq(Hz)	5.785G/Pol.	Theta	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi
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 (deg)	-8.54/-9.36	-9.2/-6.86	-4.12/-2.72	-1.89/-0.61	-0.06/0.33	0.66/0.47	0.88/1.48	1.64/1.62	1.31/0.68	-0.25/-1.29	-2.58/-4.08	-5.61/-6.93	-6.95/-7.29	-7.2/-6.29	-4.58/-3.52	-1.79/0.02	1.06/1.81	2.14/2.59	2.53/1.91	1.53/1.33	1.33/0.45	-0.65/-1.98	-2.95/-4.38	-6.14/-7.24
Theta (deg)	-6.4/-6.92	-6.89/-6.19	-3.79/-2.43	-1.42/-0.58	0.48/1.6	1.84/2.2	2.38/2.35	2.36/2.17	1.54/1.1	-0.09/-1.55	-3.06/-4.34	-5.66/-5.87	-6.71/-7.13	-7.11/-5.93	-5.1/-3.86	-2.82/-0.96	-0.31/0.39	0.92/2	2.41/1.81	1.06/0.67	0.68/0.03	-1.06/-2.26	-2.67/-3.65	-5.44/-6.19
Theta (deg)	-5.68/-5.38	-5.53/-5.89	-5.42/-3.74	-2.08/-0.79	0.31/1.55	2.37/3.02	3.14/2.91	2.73/2.67	2.31/1.67	0.87/-0.58	-1.63/-2.6	-3.44/-3.97	-4.4/-5.22	-6.48/-6.54	-5.43/-4.37	-2.77/-0.92	-0.14/-0.08	0.32/0.34	0.39/0.76	0.62/0.54	-0.05/-0.33	-0.95/-1.77	-3.06/-4.28	-5.42/-6.03
Theta (deg)	-7.07/-6.99	-7.38/-8.36	-7/-2.08	-0.20/7.7	1.52/5.55	3.27/3.36	2.85/2.79	2.81/2.48	2.06/1.37	0.35/-0.83	-1.57/-2.14	-3.25/-4.03	-3.96/-4.93	-5.92/-5.96	-5.11/-4.09	-2.57/-1.29	-0.69/-0.57	-0.58/-1.5	-0.90/0.5	0.42/0.22	-0.33/-1.76	-2.58/-3.07	-4.18/-5.42	-5.4/-5.88
Theta (deg)	-6.51/-7.37	-9.9/-11.06	-6.22/-2.91	-0.88/0.65	1.86/2.71	2.58/2.32	2.25/2.98	3.58/3.42	2.63/1.45	0.45/-1.02	-2.37/-4.11	-5.53/-5.82	-7.05/-6.81	-6.46/-5.67	-3.63/-3.71	-4.19/-3.6	-1.91/-1.63	-2.41/-1.88	-0.62/-1.35	-1.99/-2.35	-3.8/-4.47	-4.83/-5	-5.73/-6.22	
Theta (deg)	-8.85/-11.38	-10.4/-5.9	-3.57/-3.45	-2.21/-0.38	0.34/0.06	0.06/0.9	2.47/3.07	3.16/2.78	2.08/1.38	0.94/-1.54	-3.37/-4.69	-4.52/-4.89	-7.17/-10.48	-7.52/-3.78	-2.49/-3.07	-3.67/-2.82	-2.7/-2.86	-2.15/-2.22	-1.69/-0.66	-0.64/-1.74	-2.91/-3.35	-3.55/-3.99	-4.25/-4.47	-6.24/-7.58
Theta (deg)	-10.46/-15.39	-12.09/-6.65	-4.52/-4.55	-2.02/-0.34	-0.26/-0.37	0.21/4.8	2.11/1.78	1.46/0.83	0.50/1.3	-0.58/-2.43	-4.47/-3.97	-3.05/-4.75	-9.47/-7.57	-6.41/-4.59	-5.66/-7.74	-9.43/-11.55	-7.25/-3.33	-4.26/-8.09	-5.39/-4.81	-5.05/-4.2	-4.41/-2.65	-2.2/-3.03	-3.86/-4.95	-7.41/-8.22
Theta (deg)	-13.75/-12.91	-9.5/-7.91	-6.1/-4.74	-2.27/-1.16	-0.99/0.12	0.95/1.24	1.11/1.4	1.61/3.9	0.1/-1.1	-2.5/-3.83	-5.07/-2.62	-2.72/-6.03	-7.48/-6.05	-5.8/-7.9	-7.21/-8.09	-7.49/-6.4	-5.97/-4.66	-4.38/-5.99	-7.75/-4.4	-4.82/-9.89	-6.68/-4.41	-3.58/-4	-4.85/-6.25	-7.38/-9.25
Theta (deg)	-10.15/-6.35	-9.77/-8.96	-5.1/-2.71	-0.55/-0.71	-1.31/0.07	0.41/-0.18	0.37/0.98	0.44/-0.92	-2.2/-1.96	-2.69/-5.51	-8.57/-7.95	-7.93/-8.67	-6.6/-8.71	-11.14/-10.1	-5.5/-5.67	-11.2/-12.61	-14.91/-11.22	-8.71/-7.8	-9.91/-8.85	-7.38/-7.34	-6.95/-4.1	-5.43/-5.91	-6.61/-5.29	-7.08/-10.27
Theta (deg)	-8.39/-6.01	-10.45/-10.17	-4.35/-2.62	-3.53/-2.76	-1.92/-0.84	-1.48/-1.91	-0.61/-0.98	-2.33/-3.94	-4.71/-4	-6.19/-9.03	-6.85/-8.04	-8.18/-6.95	-6.29/-8.25	-11.75/-9.02	-6.93/-7.5	-12.79/-13.94	-11.34/-8.28	-10.28/-11.64	-10.35/-7.01	-9.96/-12.43	-7.08/-7.48	-8.18/-8.98	-6.41/-8.62	-5.13/-11.18
Theta (deg)	-7.59/-8.75	-11.74/-5.76	-3.83/-3.95	-3.89/-2.88	-2.78/-2.26	-3.21/-2.89	-2.71/-3.37	4.19/-6.68	-8.72/-4.55	-5.29/-11.24	-8.79/-7.29	-8.21/-7.37	-7.43/-12.77	-15.02/-10.63	-7.76/-10.66	-11.95/-13.81	-9.92/-5.24	-8.44/-12.17	-8.63/-7.55	-6.31/-11.72	-14.68/-9.48	-11.65/-11.59	-7.94/-9.76	-8.96/-7.46
Theta (deg)	-11.65/-12	-7.88/-6.1	-5.89/-4.72	-4.89/-6.06	-6.89/-5.09	-2.1/-1.36	-3.16/-5.48	-7.88/-8.99	-12.94/-6.61	-5.79/-9.61	-5.52/-3.7	-5.59/-7.02	-6.81/-9.67	-15.39/-9.03	-7.11/-11.65	-13.17/-11.4	-9.78/-4.13	-6.83/-11.33	-5.08/-8.29	-7.78/-10.17	-13.05/-14.7	-9.86/-13.26	-12.2/-10.81	-10.36/-7.7
Theta (deg)	-11.8/-10.04	-7.55/-7.94	-7.32/-4.44	-4.63/-4.99	-5.17/-4.64	-4.51/-4	-3.46/-5.94	-8.73/-5.32	-7.3/-8.86	-5.15/-3.31	-2.63/-4.55	-6.42/-5.47	-7.15/-6.88	-7.84/-10.2	-7.14/-3.33	-6.83/-9.06	-8.51/-9.65	-13.28/-7.24	-8.06/-6.18	-9.1/-10.93	-8.69/-12.18	-15.48/-12.69	-14.78/-8.82	-8.25/-9.45
Theta (deg)	-8/-6.65	-8.43/-5.82	-5.04/-6.15	-4.4/-2.47	-3.07/-4.87	-6.74/-7.46	-5.74/-5.55	-4.54/-4.68	-5.67/-8.08	-3.96/-4.23	-4.32/-3.94	-5.78/-6.61												



Radiated Composite Gain Data (2.4GHz and 5GHz UNII 1~UNII 3)

Appendix A

Theta (22.5°)	-9.13-12	-10.69-10.42	-9.85-10.84	-11.87-14.68	-17.39-19.18	-14.79-10.3	-7.74-6.26	-4.79-3.71	-3.62-3.22	-2.81-1.97	-1.71-2.1	-2.91-3.1	-4.12-4.45	-5.33-6.51	-8.59-11.5	-16.03-19.55	-17.74-16.14	-12.08-11.39	-10.77-12.39	-14.51-13.64	-10.68-6.64	-4.86-4.51	-5.19-5.65	-5.87-7.16
Theta (30°)	-11.91-17	-9.77-10.51	-9.59-12.43	-15.81-17.88	-18.11-17.87	-18.71-13.51	-9.31-6.38	-4.76-3.4	-2.86-2.49	-2.13-1.71	-1.39-1.73	-2.38-2.49	-3.09-5.37	-7.71-7.72	-6.73-6.94	-9.75-13.87	-17.39-18.49	-18.75-16.3	-14.61-13.01	-10.55-9.69	-9.51-9.45	-7.92-9.5	-8.75-8.6	-9.35-9.9
Theta (37.5°)	-9.91-15.81	-16.62-9.93	-8.16-10.57	-16.07-18.38	-17.94-18.1	-18.31-12.21	-8.52-6.55	-4.56-3.78	-3.16-2.46	-2.44-1.32	-3.72-4.12	-3.88-3.33	-3.95-5.45	-6.04-6.73	-8.24-9.24	-11.66-15.83	-18.12-16.21	-12.25-9.83	-10.29-12.51	-11.10-28	-7.73-7.08	-8.06-7.74	-9.02-8.09	-7.07-7.42
Theta (45°)	-8.55-9.46	-12-14.45	-13.42-14.13	-18.93-19.2	-16.09-18.62	-16.79-10.1	-6.65-5.59	-4.87-4.22	-3.46-3.46	-3.96-3.97	-4.07-3.4	-2.69-2.35	-2.83-4.88	-8.04-8.66	-7.06-6.37	-8.89-14.78	-18.01-19.07	-18.22-17.15	-18.16-16.32	-9.78-8.02	-11.28-15.47	-14.39-15.4	-15.01-17.37	-18.51-12.43
Theta (52.5°)	-10.05-9.64	-13.61-14.64	-13.47-17.11	-17.74-18.55	-18.17-19.08	-14.41-11.72	-8.34-5.42	-2.94-2.05	-1.71-1.71	-1.66-0.96	-0.47-0.08	-1.12-1.46	-4.49-2.96	-3.63-6.27	-10.97-17.02	-19.02-19.19	-19.06-19.09	-16.65-15.47	-16.46-16.92	-18.24-12.91	-7.85-6.14	-5.75-7.42	-8.91-9.3	-9.51-13.31
Theta (60°)	-8.31-7.93	-10.46-16.01	-16.75-17.02	-18.21-17.82	-18.29-16.35	-10.96-10.95	-8.94-6.03	-3.93-3.5	-3.61-3.6	-3.96-2.65	-3.22-5.34	-7.14-4.36	-2.09-1.22	-2.58-6.19	-10.89-13.53	-12.44-12.07	-18.17-13.4	-17.96-19.19	-18.18-16.83	-10.78-11.01	-8.63-10.09	-18.75-16.33	-11.64-8.09	-10.95-11.67
Theta (67.5°)	-16.74-10.73	-10.12-13.03	-17.29-17.57	-19.26-18.55	-15.71-10.98	-9.99-8.21	-5.21-3.36	-2.24-1.89	-1.92-1.77	-1.71-1.82	-1.47-0.87	-0.31-1.02	-2.69-5.94	-4.86-5.11	-5.89-7.79	-7.57-10.59	-18.74-19.46	-18.81-17.58	-18.83-14.34	-13.59-11	-11.12-10.76	-11.63-19.03	-12.32-10.39	-10.79-18.79
Theta (75°)	-13.37-11.43	-11.88-13.37	-17.47-18.3	-19.27-18.26	-17.68-10.59	-9.56-6.85	-3.67-6.23	-1.69-1.12	-1.28-1.63	-0.85-0.23	0.26-1.24	-3.48-1.12	-2.91-2.46	-2.92-9.46	-6.08-11	-17.82-16.5	-12.62-10.11	-11.96-13.32	-16.87-13.32	-10.76-9.17	-4.23-2.29	-14.43-11.75	-9.27-12.72	-17.48-17.48
Theta (82.5°)	-10.31-12.55	-12.31-15.21	-10.51-9.36	-16.06-18.91	-13.68-10.04	-9.29-6.72	-5.31-3.46	-1.61-1.22	-2.44-2.65	-2.18-2.4	-2.49-1.55	-0.41-0.09	-1.92-5.03	-4.78-4.27	-7.36-8.09	-9.66-12.22	-17.91-11.32	-10.12-12.56	-16.58-9.67	-18.06-12.26	-9.45-4.85	-3.27-3.99	-2.71-14.65	-8.41-9.2
Theta (90°)	-5.06-11.22	-7.92-8.07	-11.84-9.78	-13.47-19.35	-12.73-10.9	-9.92-4.66	-3.03-2.73	-0.74-0.3	-0.21-0.27	0.38-0.25	-0.69-1.81	-3.27-2.26	-1.1-1.17	-2.95-5.46	-7.89-11.1	-8.31-11.08	-15.39-17.35	-16.58-18.83	-15.87-12.62	-10.51-18.44	-8.71-12.84	-11.39-12.66	-10.53-9.16	-4.93-3.7
Theta (97.5°)	-10.27-5.57	-3.94-11.19	-9.89-7.27	-12.55-15.85	-13.29-11.23	-7.51-4.57	-5.63-3.93	-1.24-0.43	-1.03-1.16	0.19-1.06	0.68-0.3	-0.91-0.82	-2.38-4.44	-3.78-1.95	-4.31-12.61	-16-12.61	-10.71-11.1	-17.34-15.57	-17.99-18.42	-14.37-16.17	-17.44-8.38	-9.43-8.57	-10.29-5.93	-2.31-3.56
Theta (105°)	-8.86-5.04	-3.85-8.13	-11.32-9.1	-13.03-10.97	-11.73-12.71	-9.94-5.35	-4.47-3.9	-1.18-0.03	0.03-0.39	0.97-0.12	-0.36-0.35	-0.19-1.43	-2.47-2.47	-3.28-5.59	-6.83-6.6	-6.53-10.43	-9.83-5.66	-10.38-15.92	-18.79-9.74	-11.12-12.21	-10.04-13.12	-13.54-13.58	-14.32-9.16	-3.33-3.12
Theta (112.5°)	-8.17-3.98	-3.66-9.44	-0.09-6.4	-8.51-11.18	-12.23-11.76	-9.11-6.34	-5.31-3.98	-1.34-0.26	0.04-0.41	0.11-1.2	2.02-0.2	0.93-0.46	-2.8-3.6	-3.01-2.12	-4.28-7.78	-7.08-8.64	-14.39-18.82	-18.13-18.34	-15.82-12.83	-11.01-14.5	-12.63-3.96	-9.23-15.29	-13.84-10.59	-5.23-5.52
Theta (120°)	-8.02-4.16	-3.76-7.96	-10.92-6.83	-5.49-7.1	-11.09-12.53	-10.92-8.18	-6.92-4.9	-1.84-0.17	0.77-1.46	2.14-2.3	1.32-0.59	0.52-0.56	0.08-1.93	-2.45-1.52	-1.86-1.61	-7.14-17.12	-18.04-14.11	-18.04-14.11	-18.04-14.11	-18.04-14.11	-18.04-14.11	-18.04-14.11	-18.04-14.11	-18.04-14.11
Theta (127.5°)	-15.16-8.89	-4.82-2.83	-3.95-1.92	-10.16-9.17	-11.35-12.79	-10.89-7.98	-5.21-2.83	-0.56-1.15	2.12-2.66	3.11-3.36	3.83-7.6	2.85-1.01	0.46-1.12	-0.15-2.34	-5.23-8.44	-8.55-14.27	-12.85-18.14	-17.61-14.77	-14.68-16.19	-15.45-13.04	-16.34-18.17	-10.27-5.78	-3.4-2.27	-2.61-2.97
Theta (135°)	-3.56-3.26	-4.06-3.34	-4.31-5.52	-6.03-7.57	-12.22-16.27	-10.99-5.61	-3.47-1.98	-0.54-0.06	0.23-0.01	0.24-1.49	2.87-3.8	4.26-3.9	2.51-0.68	-0.65-1.46	-5.71-10.59	-12.43-15.25	-13.23-15.61	-18.72-19.33	-18.96-18.13	-14.39-14.52	-13.83-13.35	-14.34-13.4	-9.03-10.43	-8.38-3.66
Theta (142.5°)	-1.96-8.43	-0.73-0.25	-1.68-1.77	-10.99-9.93	-11.25-15.13	-14.84-6.44	-6.44-4.48	-0.30-1.25	-1.13-0.11	1.11-1.98	2.61-2.77	2.54-1.78	1.57-1.48	0.21-1.94	-3.34-5.8	-11.38-12.04	-16.81-9.89	-9.55-13.3	-18.76-17.97	-10.64-8.33	-9.13-10.59	-9.34-7.12	-3.29-3.95	-3.47-8.1
Theta (150°)	-9.64-9.09	-3.89-1.4	-1.02-6.52	-4.45-3.77	-16.68-17.7	-18.19-15.92	-7.94-3.63	-1.04-0.46	1.55-2.25	2.73-1.8	3.25-3	2.61-1.49	-0.52-2.96	0.94-1.29	-3.15-4.87	-9.11-11.92	-10.21-14.32	-17.95-18.66	-17.55-13.88	-12.44-11.42	-9.34-7.58	-3.29-3.85	-3.68-6.1	
Theta (157.5°)	-5.98-6.64	-5.62-4.33	-3.38-3.4	-4.56-7.54	-12.35-15.89	-11.75-8.09	-5.42-3.16	-1.21-0.34	1.63-2.6	3.06-2.83	2.07-8.3	-0.07-0.75	-0.17-0.65	0.94-1.24	1.33-0.77	-1.12-3.51	-12.81-17.69	-17.41-15.21	-17.61-18.15	-19.14-16.79	-12.64-9.39	-7.78-6.91	-5.91-5.03	-4.85-5.27
Theta (165°)	-4.91-4.76	-4.02-2.57	-1.98-2.11	-3.15-5.5	-8.8-14.36	-15.64-10.33	-7.09-4.33	-2.13-0.98	-0.09-0.41	0.58-0.69	0.49-0.17	0.23-0.76	1.13-1.53	1.36-0.81	-0.66-3.26	-7.36-12.75	-16.66-16.08	-13.57-13.37	-13.03-14.77	-13.54-10.24	-6.58-4.56	-3.38-3.75	-3.32-3.2	-3.31-3.98
Theta (172.5°)	-6.65-6.07	-4.27-3.06	-2.88-3.78	-5.7-7.25	-10.67-18.19	-16.39-9.74	-6.35-4.67	-3.72-2.84	-1.89-1.2	-0.47-0.23	-0.21-0.21	0.94-1.09	0.68-0.7	-2.91-6.61	-11.38-17.12	-16.65-17.24	-18.84-19.11	-18.23-15.52	-17.63-13.77	-12.39-10.68	-9.07-8.92	-9.31-9.62	-8.11-7.47	-7.43-7.01
Theta (180°)	-8.83-3.92	-4.54-4.9	-5.59-6.56	-8.27-10.57	-12.54-16.16	-18.65-14.23	-7.83-6.18	-4.53-3.04	-2.52-2.82	-3.09-3.05	-3.43-4.77	-6.53-9.6	-12.21-16.23	-12.72-11.91	-11.43-12.66	-18.94-19.02	-18.79-18.58	-17.61-16.27	-13.22-10.53	-9.11-8.03	-5.91-4.29	-3.09-3.28	-3.51-3.34	
Freq(Hz)	5.30Pol.	Theta(Ant. 1)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	Phi(0°)Phi(7.5°)	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
Theta (0°)	-9.98-8.67	-7.2-6.11	-6.18	-6.53-6.35	-6.29-5.31	-5.33-5.01	-5.51-6.31	-7.24-7.88	-8.83-9.1	-12.41-17	-19.25-17.97	-18.95-18.31	-17.51-14.81	-12.26-10.26	-7.81-6.79	-5.78-5.53	-5.46-5.89	-6.37-7.18	-6.67-6.3	-6.32-7.27	-8.91-10.79	-11.11-12.57	-13.99-15.2	-14.04-12.44
Theta (7.5°)	-17.52-13.6	-11.29-9.16	-8.47-8.13	-7.76-5.8	-6.48-5.38	-5.36-5.32	-5.44-6.49	-7.89-9.09	-9.71-10.38	-13.78-18.22	-16.88-18.62	-14.54-12.84	-12.23-10.04	-7.98-5.67	-4.32-3.53	-2.38-2.93	-2.93-4	-4.89-5.67	-6.9-8.27	-9.57-10.89	-12.42-14.31	-16.18-18.79	-14.42-17.53	-14.37-17.53
Theta (15°)	-15.97-14.82	-13.2-10.99	-9.84-5.57	-8.27-6.18	-5.08-4.79	-5.08-5.51	-5.74-5.34	-6.22-7.78	-9.35-9.95	-11.09-14.03	-18.36-17.87	-16.39-12.33	-10.04-8.26	-6.03-4.1	-3.25-6.21	-2.21-1.65	-1.39-1.58	-2.22-2.59	-3.48-5.26	-8.07-9.07	-9.88-11.55	-15.48-18.62	-18.47-19.04	-17.19-15.13
Theta (22.5°)	-11.51-10.39	-10.62-10.42	-9.49-5.58	-7.34-6.18	-5.32-4.29	-3.91-3.87	-3.84-3.67	-3.91-5.06	-7.2-8.19	-9.84-14.03	-18.36-18.99	-18.23-11.55	-9.51-8.31	-7.78-6.47	-5.42-5.15	-5.24-5.32	-5.38-5.77	-6.47-9.54	-12.71-15.36	-13.38-12.16	-12.55-13.64	-15.79-18.53	-18.11-16.26	-18.11-16.26
Theta (30°)	-17.55-17.4	-13.44-9.74	-6.43-7.1	-8.94-8.84	-7.3-5.11	-4.36-4.29	-4.27-3.97	-5.51-7.62	-9.96-10.55	-13.03-17.68	-17.83-18.99	-16.95-14.05	-13.45-12.47	-10.99-9.85	-9.35-10.5	-10.41-8.55	-6.61-5.86	-6.79-6.65	-11.84-13.44	-12.03-14.4	-18.76-18.24	-16.53-17.36	-17.42-17.46	-18.75-19.18
Theta (37.5°)	-16.75-17.39	-18.06-17.51	-8.49-3.32	-8.96-7.49	-7.43-5.77	-5.54-5.86	-6.27-5.66	-6.79-8.36	-11.22-15.78	-18.82-18.62	-17.28-18.42	-17.23-18.49	-18.48-15.71	-12.73-11.92	-10.18-9.43	-7.23-5.78	-3.83-5.58	-4.15-4.34	-5.89-9.65	-13.44-14.99	-15.41-19.02	-17.36-17.82	-17.77-18.44	-18.97-18.1
Theta (45°)	-14.41-11.61	-11.14-14.32	-14.13-12.41	-9.16-8.2	-5.3-6.74	-8.64-7.36	-5.95-5.33	-6.65-8.61	-11.06-13.41	-18.39-18.1	-18.57-18.18	-17.61-18.41	-17.48-13.95	-12.99-13.31	-11.18-11.91	-8.67-9.19	-8.41-9.61	-11.21-11.4	-12.58-14.11	-13.51-14.44	-13.35-14.74	-18.24-18.23	-18.11-16.26	-17.02-18.54
Theta (52.5°)	-13.55-10.59	-14.09-11.23	-6.48-9.99	-17.47-8	-5.42-6.74	-11.52-11.82	-9.47-7.5	-6.68-6.63	-9.03-12.42	-13.94-15.56	-18.24-19.04	-18.11-17.39	-17.96-19.34	-16.08-11.2	-14.71-9.11	-9.11-10.57	-12.58-14.27	-16.25-18.29	-17.71-19.24	-17.71-19.24	-17.71-19.24	-17.71-19.24	-17.71-19.24	-17.71-19.24
Theta (60°)	-14.54-7.93	-7.74-12.55	-12.12-9.73	-11.42-9.59	-10.54-11.43	-11.83-10.88	-13.49-17.97	-13.21-12.89	-14.25-14.16	-12.81-14.2	-17.67-19.39	-17.91-18.83	-18.69-18.84	-17.13-18.33	-18.62-18.23	-17.98-10.66	-11.09-14.09	-18.44-19.19	-18.62-15.79	-12.83-9.13	-12.32-16.47	-14.46-18.9	-17.51-11.69	-10.96-18.26
Theta (67.5°)	-13.69-11.89	-18.78-11.7	-7.93-9.06	-12.37-15.35																				



Radiated Composite Gain Data (2.4GHz and 5GHz UNII 1~UNII 3)

Appendix A

Theta (112.5°)	-9.03/-7.62	-4.89/-2.96	-2.03/-2.4	-3.17/-2.71	-1.99/-1.57	-2.45/-3.97	-5.26/-6.39	-7.74/-10.19	-11.5/-10.75	-6.23/-6.18	-7.73/-6.48	-3.53/-4.59	-3.88/-4.2	-4.25/-9.17	-18.53/-18.93	-9.62/-13.75	-14.89/-9	-10.67/-14.68	-18.19/-18.61	-17.97/-15.09	-14.13/-12.01	-12.24/-11.55	-8.35/-8.35	-8.78/-7.14
Theta (120°)	-12.26/-13.02	-7.77/-5.05	-3.24/-2.73	-3.31/-3.46	-2.91/-3.42	-4.47/-4.85	-5.28/-6.33	-8.22/-9.3	-11.67/-9.48	-7.31/-11.81	-13.76/-13.68	-3.5/-5.04	-6.27/-6.04	-9.26/-17.14	-16.66/-18.4	-10.46/-14.63	-14.5/-17.46	-14.8/-13.85	-14.45/-18.61	-15.22/-15.88	-12.15/-13.15	-14.37/-8.42	-9.75/-7.05	-7.98/-9.46
Theta (127.5°)	-9.4/-9.12	-8.3/-6.91	-3.99/-3.3	-2.61/-2.18	-2.23/-2.85	-4.75/-7.09	-9.21/-10.2	-8.32/-8.25	-10.98/-13.25	-11.06/-10.48	-8.28/-7.74	-10.75/-13.92	-8.33/-5.68	-9.81/-7.7	-7.18/-8.42	-16.88/-16.91	-11.92/-19.09	-18.52/-15.31	-12.29/-14.04	-16.72/-15.18	-14.43/-18.84	-13.88/-13.59	-10.09/-8.88	-10.65/-8.46
Theta (135°)	-6.51/-6.2	-6.92/-9.98	-14.67/-13.84	-10.71/-7.87	-6.47/-5.92	-6.47/-6.7	-9.81/-10.64	-12.33/-12.69	-10.08/-8.33	-7.33/-6.7	-3.75/-4.24	-3.92/-4.47	-7.69/-8.83	-6.29/-5.05	-7.85/-11.44	-13.49/-18.88	-8.01/-7.22	-9.92/-12.96	-16.87/-14.81	-17.01/-15.98	-15.51/-17.26	-16.35/-14.87	-14.21/-13.56	-11.63/-9.72
Theta (142.5°)	-6.32/-7.01	-7.45/-8.6	-10.84/-11.97	-12.23/-10.84	-10.1/-10.73	-13.82/-12.81	-18.55/-18.14	-18.45/-13.62	-11.73/-12.08	-13.68/-9.7	-6.77/-4.94	-4.78/-5.36	-6.04/-6.6	-5.6/-6.29	-3.79/-4.04	-6.72/-13.96	-13.56/-10.51	-11.74/-13.42	-16.31/-13.66	-17.74/-15.88	-16.29/-17.84	-19.35/-12.47	-11.54/-10.05	-7.87/-6.38
Theta (150°)	-11.12/-11.89	-10.5/-8.86	-6.59/-5.97	-5.48/-6.99	-9.49/-10.63	-11.23/-11.7	-13.56/-16.02	-15.8/-14.1	-10.89/-10.2	-7.56/-8.3	-6.08/-7.29	-9.02/-7.86	-7.06/-7.25	-10.27/-9.79	-9.17/-8.79	-10.22/-10.62	-10.51/-12.53	-14.72/-14.91	-12.02/-13.61	-11.95/-13.05	-16.65/-16.87	-14.91/-12.45	-10.92/-13.21	-12.45/-11.61
Theta (157.5°)	-5.15/-5.46	-6.21/-7.58	-8.53/-8.34	-7.74/-7.86	-8.79/-11.19	-16.17/-18.46	-17.45/-17.29	-19.2/-18.21	-12.44/-9.32	-9.02/-8.82	-9.51/-11.06	-13.85/-17.62	-18.21/-15.71	-11.21/-11	-11.73/-13.98	-17.02/-16.93	-15.53/-13.79	-12.4/-12.72	-12.16/-11.87	-11.22/-12.36	-17.06/-18.73	-17.29/-12.71	-9.95/-9.18	-7.1/-5.58
Theta (165°)	-7.03/-8.01	-9.76/-11.21	-13.01/-13.02	-12.68/-12.51	-12.49/-12.71	-12.32/-14.04	-16.43/-18.7	-18.04/-17.15	-13.03/-10.49	-10.34/-10.55	-11.02/-13.36	-17.43/-19.18	-18.95/-15.64	-11.17/-9.82	-10.64/-12.07	-13.01/-12.69	-13.51/-13.89	-13.69/-13.6	-12.34/-10.02	-9.67/-11.45	-14.87/-19.13	-18.1/-10.7	-12.52/-10.25	-8.26/-7.18
Theta (172.5°)	-6.59/-6.6	-6.45/-7.05	-7.71/-9.4	-8.88/-8.93	-8.1/-8	-9.61/-11.01	-14.14/-17.27	-18.44/-15.67	-13.12/-12.64	-12.85/-13.98	-15.75/-18.64	-17.17/-18.68	-15.43/-15.32	-14.79/-14.76	-14.84/-14.23	-13.81/-13.19	-13.43/-14.26	-13.72/-13.68	-15.36/-17.63	-18.81/-17.76	-14.93/-14.85	-11.63/-9.6	-8.15/-7.43	
Theta (180°)	-9.71/-9.94	-10.63/-10.68	-11.06/-11.76	-12.59/-14.08	-16.33/-18.01	-18.69/-16.71	-16.9/-19.44	-18.26/-17.95	-17.64/-18.68	-18.57/-18.25	-17.83/-17.13	-19.14/-18.45	-18.11/-18.51	-18.53/-17.43	-15.86/-14.48	-14.68/-13.52	-13.27/-15.27	-18.51/-18.41	-18.11/-18.02	-17.78/-17.46	-19.11/-18.91	-17.04/-13.9	-12.1/-8	-10.41/-9.83
Freq(Hz)	5.20Pdb	Theta/Ant 2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	Phi(0°)Phi(7.5°)	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
Theta (0°)	9.72/-14.15	17.88/-19.18	12.94/9.31	7.03/-4.87	3.19/-2.01	1.54/-1.17	-0.84/-0.41	-0.16/0.08	-0.05/-0.06	-0.49/-1.24	-2.11/-3.65	-5.65/-8.27	-11.73/-16.46	-17.93/-18.81	-22.23/-9.15	7.36/-4.99	-3.17/-7.8	-1.56/-1.43	-0.86/-0.33	-0.3/-0.51	-0.87/-1.06	-1.62/-2.21	-3.02/-4.16	-5.29/-5.88
Theta (7.5°)	-11.41/-15.51	-18.28/-18.37	-16.1/-11.91	-9.67/-6.55	-4.27/-2.64	-2.45/-2.14	-1.48/-0.58	0.02/0.46	0.34/0.09	-0.49/-0.81	-1.49/-2.69	-4.08/-5.66	-9.53/-13.32	-18.12/-18.81	-12.08/-8.02	-6.57/-4.33	-2.65/-1.3	-0.61/-0.49	-0.61/-0.48	-0.49/-0.61	-1.01/-1.6	-2.34/-2.76	-3.83/-4.72	-6.46/-9.24
Theta (15°)	-12.4/-14.28	-16.41/-15.58	-11.33/-8.47	-7.48/-6.23	-4.05/-1.74	-2.79/-0.99	-0.92/-0.44	0.35/0.83	0.82/0.52	-0.02/-0.27	-0.77/-1.34	-2.13/-3.95	-6.49/-10.64	-18.74/-17.99	-13.45/-8.07	-6.92/-1.66	-0.54/-0.38	-0.71/-0.85	-0.94/-1.09	-1.53/-2.19	-2.59/-3.11	-3.81/-4.94	-6.59/-7.07	
Theta (22.5°)	-13.89/-16.8	-13.77/-9.84	-6.33/-4.16	-2.72/-1.79	-1.01/0.06	0.91/1	1.05/1.04	1.23/1.36	1.21/1.2	0.83/0.26	-0.44/-1.04	-1.83/-3.35	-6.67/-12.71	-18.29/-17.99	-11.99/-8.68	-7.11/-5.95	-5.15/-3.94	-3.19/-2.64	-2.82/-2.77	-2.28/-2.24	-2.44/-2.55	-2.28/-2.66	-3.49/-4.84	-6.74/-9.71
Theta (30°)	-12.87/-17.65	-13.25/-8.68	-5.91/-3.62	-1.87/-1.25	-0.88/-0.59	0.16/1.23	2.22/2.9	2.91/3.26	1.59/0.69	0.47/0.36	-0.41/-1.08	-2.43/-5.59	-11.02/-18.7	-18.49/-12.77	-11.17/-11.23	-10.76/-9.69	-8.27/-8.78	-7.86/-7.63	-6.58/-5.61	-5.44/-5.25	-4.27/-3.28	-3.32/-4.08	-4.58/-5.66	-6.85/-9
Theta (37.5°)	-11.67/-16.22	-15.02/-11.06	-8.25/-4.67	-3.51/-2.29	-1.69/-1.9	-2.09/-0.54	1.32/0.6	1.86/1.79	1.83/1.58	0.88/0.5	-0.47/-2.94	-5.43/-8.07	-9.14/-10.17	-14.27/-16.14	-19.17/-17.12	-17.78/-18.69	-18.71/-17.13	-13.69/-11.43	-9.66/-8.1	-4.86/-4.34	-3.83/-4.88	-6.59/-7.07	-8.11/-8.38	
Theta (45°)	-12.15/-14.04	-12.73/-11.33	-9.15/-6.08	-3.81/-2.24	-1.37/-1.95	-2.32/-1.26	0.23/0.64	0.41/0.87	1.39/1.02	0.02/-2.03	-3.59/-6.16	-5.87/-5.01	-5.31/-7.49	-12.83/-16.83	-15.71/-12.13	-12.52/-14.72	-14.59/-10.64	-10.85/-12.28	-12.17/-12.97	-18.29/-7.3	-3.69/-4.34	-6.75/-6.84	-6.65/-6.67	-6.62/-9.15
Theta (52.5°)	-11.71/-11.19	-9.52/-7.29	-5.69/-3.98	-2.86/-1.63	-0.61/0.05	-0.3/-0.55	0.13/0.31	0.83/-1.69	-0.39/0.03	-1.12/-3.52	-4.5/-4.14	-5.08/-4.5	-6.61/-9.56	-18.31/-17.54	-9.89/-10.69	-14.49/-10.77	-18.35/-17.68	-15.12/-45	-13.61/-15.17	-11.68/-9.89	-6.89/-8.82	-7.93/-8.35	-7.28/-8.1	-8.44/-10.17
Theta (60°)	-12.34/-13.62	-9.87/-7.75	-5.45/-3.98	-3.11/-2.71	-2.37/-1.7	-1.44/-1.15	-0.56/0.27	0.01/-1.42	-3.25/-3.17	-3.19/-5.72	-6.34/-5.2	-8.52/-9.77	-15.08/-11.62	-8.21/-9.74	-17.41/-17.41	-18.65/-14.91	-11.46/-10.78	-16.94/-10.77	-6.66/-8.21	-4.79/-11.26	-7.61/-7.4	-6.17/-6.74	-9.17/-12.27	
Theta (67.5°)	-13.34/-11.06	-8.1/-7.04	-5.35/-5.25	4.65/-4.4	-4.18/-4.14	-3.87/-3.27	-0.87/-0.61	-2.43/-2.93	-3.41/-3.71	-5.33/-5.01	-5.34/-6.68	-7.79/-9.41	-10.31/-15.33	-14.93/-11.45	-10.66/-8.96	-12.61/-14.91	-17.96/-12.9	-8.48/-7.01	-6.69/-8.91	-18.07/-14.88	-9.16/-9.69	-15.48/-10.72	-8.31/-10.28	-11.94/-15.14
Theta (75°)	-17.03/-11.03	-9.35/-7.45	-6.25/-5.19	-4.01/-3.98	-4.06/-4.48	-5.46/-4.9	-3.73/-3.26	-3.85/-2.99	-4.6/-4.41	-9.81/-12.75	-13.56/-16.03	-15.84/-12.34	-11.34/-9.89	-12.08/-15.4	-11.95/-8.4	-6.92/-6.35	-7.42/-9.68	-13.22/-11.73	-7.92/-12.3	-17.48/-13.36	-10.05/-8.49	-12.07/-14.43	-9.01/-9.32	-11.95/-11.7
Theta (82.5°)	-15.9/-12.07	-9.44/-6.97	-4.15/-6.91	-3.31/-3.52	-1.45/-8.7	-5.6/-6.1	-5.38/-6	-5.87/-3.67	-3.71/-9.27	-9.08/-6.02	-7.29/-7.83	-8.04/-11.56	-13.38/-14.09	-18.59/-12.23	-15.53/-8.35	-8.36/-8.21	-8.88/-6.26	-7.67/-7.28	-9.4/-10.52	-11.82/-13.7	-14.14/-14.65	-12.87/-10.75	-14.21/-14.57	
Theta (90°)	-11.87/-8.14	-7.25/-7.6	-5.51/-5.07	-4.23/-4.5	-5.07/-6.32	-7.82/-7.73	-7.23/-7.54	-7.09/-7.44	-7.49/-7.65	-7.67/-8.96	-11.21/-7.62	-6.1/-8.84	-9.26/-8.63	-11.07/-18.19	-14.72/-10.2	-7.36/-18.12	-14.19/-6.84	-12.94/-15.48	-12.91/-10.5	-9.54/-9.92	-13.89/-11.6	-11.85/-11.84	-11.74/-11.6	-13.92/-12.96
Theta (97.5°)	-11.14/-8.73	-6.73/-6.1	-5.23/-5.02	-4.51/-4.63	-5.25/-6.43	-6.65/-4.73	-9.97/-11.62	-10.02/-9.62	-8.64/-7.89	-8.99/-13.16	-10.16/-6.52	-6.22/-6.69	-7.42/-8.14	-9.34/-17.66	-15.09/-8.34	-7.56/-10.57	-12.3/-12.73	-15.67/-16.27	-10.88/-16.35	-10.79/-10.42	-17.96/-13.52	-9.49/-12.01	-12.63/-12.41	-11.95/-11.7
Theta (105°)	-9.98/-8.36	-7.28/-7.34	-5.64/-8.4	-4.51/-5.5	-6.59/-8.75	-8.69/-8.79	-11.11/-14.84	-10.05/-9.42	-14.6/-12.23	-8.23/-11.27	-7.22/-9.36	-17.73/-10.97	-10.51/-11.02	-10.39/-7.57	-10.17/-14.04	-11.97/-18.45	-19.05/-17.1	-14.18/-18.18	-9.68/-8.51	-18.31/-12.6	-8.53/-11.8	-7.17/-10.7	-9.61/-9.99	
Theta (112.5°)	-6.85/-5.56	-5/-5.49	-6.24/-6.46	-6.7/-8.47	-11.54/-11.56	-8.71/-8.85	-12.51/-14.48	-15.2/-19.47	-18.23/-14.73	-11.09/-16.8	-15.58/-12.44	-9.84/-10.04	-12.96/-18.8	-17.82/-19.85	-10.17/-9.1	-10.95/-19.16	-11.98/-18.31	-17.57/-19.11	-18.14/-16.34	-11.15/-17.96	-15.82/-10.32	-11.56/-14.13	-6.75/-10.06	-9.07/-11.08
Theta (120°)	-6.07/-6.75	-6.88/-6.58	-5.81/-6.64	-8.28/-10.8	-15.24/-12.86	-9.84/-10.69	-12.94/-15.04	-15.39/-18.1	-18.05/-17.51	-16.95/-17.56	-18.73/-18.47	-18.2/-15.88	-12.78/-18.12	-19.12/-18.6	-13.77/-13.9	-5.18/-18.91	-14.57/-9.47	-16.94/-15.25	-18.19/-13.21	-11.2/-17.15	-13.29/-14.18	-9.73/-7.01	-6.71/-8.3	-10.46/-9.72
Theta (127.5°)	-6/-7.21	-7.76/-9.95	-9.10/-6.45	-13.23/-18.26	-17.9/-14.66	-13.61/-14.62	-18/-18.68	-15.28/-12.38	-10.71/-12.52	-15.13/-17.27	-17.65/-16.06	-13.35/-11.52	-16.18/-15.59	-10.9/-11.1	-10.39/-7.57	-11.31/-10.4	-18.03/-17.02	-14.01/-17.84	-6.14/-16.21	-13.86/-9.12	-10.14/-7.08	-7.41/-6.23	-7.21/-7.65	
Theta (135°)	-7.54/-7.37	-7.97/-9.62	-9.72/-11.63	-14.14/-17.51	-17.49/-19.29	-19/-17.85	-18.05/-18.53	-14.45/-9.93	-7.9/-7.48	-8.24/-11.93	-15.71/-18.12	-16.17/-10.47	-15.23/-17.95	-10.51/-7.47	-8.11/-10.89	-9.5/-17.38	-11.19/-8.88	-17.25/-18.29	-17.9/-18.44	-14.05/-17.8	-11.92/-16.93	-14.62/-12.35	-8.86/-9.74	-10.41/-10.24
Theta (142.5°)	-11.48/-9.79	-10.19/-11.34	-10.93/-11.05	-12.56/-13.49	-14.24/-13.93	-12.95/-12.88	-14.22/-11.15	-7.07/-5.65	-5.95/-9.12	-15.75/-12.99	-8.27/-10.47	-14.34/-14.11	-10.05/-11.11	-15.28/-14.35	-15.95/-13.67	-13.06/-14.81	-10.83/-18.16	-12.47/-9.79	-15.38/-10.44	-5.77/-11.7	-9.44/-13.4	-19.08/-12.92	-12.95/-12.21	-13.42/-15.41
Theta (150°)	-18.72/-19.05	-18.34/-17.81	-17.41/-17.9	-19.11/-17.46	-16.44/-17.96	-17.49/-17.21	-14.6/-13.78	-10.88/-9.67	-5.69/-5.45	-4.58/-4.14	-4.56/-5.28	-8.09/-13.78	-15.65/-16.71	-17.36/-18.4	-19.09/-17.39	-9.37/-12.52	-14.23/-12.2	-19.08/-12.7	-7.21/-7.01	-4.66/-3.38	-5.4/-7.72	-10.08/-10.21	-12.41/-17.03	
Theta (157.5°)	-11.74/-12.08	-13.09/-14.75	-18.96/-18.49	-17.91/-17.67	-14.04/-11.27	-10.87/-11.59	-13.12/-10.04	-6/-3.73	-3.41/-4.19	-5.51/-8.26	-12.19/-13.16													



Radiated Composite Gain Data (2.4GHz and 5GHz UNII 1~UNII 3)

Appendix A

Theta (157.5°)	-7.07/-7.11	-5.83/-5.39	-4.56/-4.32	-4.28/-4.08	-5.41/-8.53	-17.11/-17.39	-13.73/-16.83	-19.19/-12.22	-8.04/-6.08	-4.52/-4.53	-5.59/-6.4	-7.74/-9.82	-13.52/-17.74	-17.04/-15.99	-18.44/-17.22	-13.85/-13.91	-12.68/-15.24	-17.45/-17.21	-18.25/-19.05	-18.49/-18.66	-13.38/-8.91	-6.33/-5.9	-5.32/-5.29	-6.08/-6.86
Theta (165°)	-4.62/-4.35	-4.56/-4.62	-4.18/-3.53	-3.37/-4.08	-5.59/-6.93	-6.83/-7.82	-8.62/-12.51	-18.31/-14.21	-9.14/-8.09	-7.26/-8.45	-10.55/-13.18	-14.65/-15.82	-17.44/-15.98	-16.48/-18.26	-18.33/-18.38	-17.54/-18.5	-19.08/-18.24	-19.31/-18.47	-16.59/-18.41	-18.19/-18.48	-18.2/-10.82	-7.81/-6.01	-4.82/-4.19	-4.62/-4.55
Theta (172.5°)	-7.43/-7.25	-7.33/-7.73	-7.23/-6.58	-6.62/-5.65	-5.97/-7.02	-7.66/-9.06	-11.05/-14.18	-14.4/-13.11	-11.19/-10.44	-10.49/-9.96	-10.61/-11.75	-12.75/-13.66	-15.07/-15.97	-16.19/-14.51	-12.08/-11.55	-12.83/-12.59	-11.83/-11.35	-13.44/-18.15	-18.36/-18.49	-18.89/-18.19	-18.66/-13.51	-10.02/-9.58	-8.77/-7.86	-7.33/-7.2
Theta (180°)	-6.67/-6.58	-7.06/-6.87	-7.51/-7.98	-8.28/-9.17	-9.87/-12.44	-14.57/-18.02	-18.84/-17.8	-16.39/-14.98	-14.12/-11.42	-11.12/-10.4	-9.65/-12.12	-15.12/-14.67	-12.81/-10.52	-9.15/-8.73	-7.91/-6.78	-6.92/-7.69	-8.48/-9.41	-11.31/-13.26	-17.14/-18.44	-18.9/-18.79	-17.12/-9.5	-10.72/-9.19	-7.27/-7.21	-6.88/-6.77
Freq(Hz)	5.65GPol.	Theta/Ant 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Phi(0°)Phi(7.5°)	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
Theta (0°)	-7.86/-11.35	-16.55/-17.55	-16.51/-12.56	-9.04/-5.44	-3.76/-3.05	-2.92/-2.24	-1.57/-0.3	0.60/0.95	0.81/0.63	0.24/-0.45	-1.61/-2.7	-4.51/-6.36	-9.46/-14.52	-18.09/-15.89	-11.51/-7.85	-5.29/-3.42	-2.31/-1.58	-0.53/0.2	0.51/0.97	0.93/0.53	0.54/0.13	-0.18/-1	-1.71/-2.74	-3.85/-5.82
Theta (7.5°)	-9.82/-13.95	-18.29/-13.85	-8.74/-6.52	-4.29/-2.1	-0.26/0.3	0.27/0.51	1.24/1.84	2.41/2.41	2.16/1.88	1.30/87	0.04/-1.22	-2.68/-4.71	-6.89/-10.83	-18.35/-18.42	-15.42/-10.64	-7.19/-4.73	-2.99/-2.89	-2.51/-1.33	-0.47/-0.28	-0.07/-0.54	-0.78/-1.14	-1.38/-2.18	-2.51/-3.63	-5.47/-7.37
Theta (15°)	-9.34/-14.93	-19.37/-13.17	-7.11/-5.42	-3.56/-1.71	-0.38/0.48	0.40/1.8	1.25/2.62	3.61/3.59	2.83/2.35	1.41/0.56	-0.62/-1.36	-2.52/-3.97	-5.38/-7.85	-11.14/-18.26	-17.69/-8.82	-5.56/-3.89	-2.91/-1.72	-0.96/-1.1	-0.91/-0.48	-0.37/-0.38	-0.84/-1.11	-1.56/-1.99	-2.59/-3.63	-4.78/-6.88
Theta (22.5°)	-6.82/-9.35	-14.11/-19.02	-14.77/-9.47	-5.43/-2.66	-1.35/-0.33	0.25/0.48	0.35/1.25	2.79/3.66	3.97/3.18	2.10/88	-0.82/-2.08	-2.26/-3.19	-4.85/-7.46	-10.98/-14.64	-14.63/-9.93	-6.14/-4.8	-3.72/-2.59	-1.84/-2.34	-2.11/-1.66	-1.71/-1.52	-0.81/-0.88	-0.91/-1.63	-2.54/-3.73	-4.85/-6.11
Theta (30°)	-9.26/-10.68	-17.71/-18.8	-11.22/-6.26	-3.35/-1.09	-0.06/0.88	1.48/1.82	1.44/1.78	2.57/2.88	3.07/2.47	1.18/-0.21	-1.56/-2.27	-1.87/-3.86	-6.72/-11.08	-17.49/-12.6	-8.89/-7.4	-6.89/-8.45	-7.15/-5.54	-4.43/-3.35	-2.79/-2.63	-1.87/-1.23	-0.86/-0.84	-1.4/-2.1	-2.72/-3.07	-4.85/-7.16
Theta (37.5°)	-13.21/-17.44	-18.31/-11.43	-7.17/-4.26	-2.87/-1.18	0.02/1.23	1.92/2.52	3.01/2.83	1.66/0.95	1.08/2.03	2.25/1.33	0.12/-1.09	-1.33/-3.46	-6.91/-11.36	-17.91/-13.11	-10.53/-12.51	-13.46/-13.52	-10.8/-8.54	-8.39/-7.67	-6.33/-5.59	-2.91/-2.28	-2.96/-3.41	-3.66/-2.59	-3.12/-3.8	-5.95/-9.55
Theta (45°)	-11.06/-16.92	-17.63/-10.3	-6.16/-3.95	-3.56/-3.26	-2.36/-0.78	0.69/1.4	1.21/1.55	1.83/1.89	0.77/0.12	0.06/-1.18	-2.72/-3.27	-2.96/-6.24	-7.59/-11.07	-13.08/-16.82	-17.95/-14.32	-13.09/-13.73	-18.36/-17.82	-12.19/-9.83	-11.81/-4.86	-5.11/-5.33	-4.33/-6.28	-4.73/-2.47	-3.34/-4.99	-8.82/-10.85
Theta (52.5°)	-9.28/-14.76	-13.59/-6.36	-3.8/-2.93	-2.29/-1.3	-1.48/0.1	0.87/0.8	1.58/0.37	-2.21/-2.05	-1.17/-1.56	-3.14/-5.8	-5.67/-7.85	-9.01/-9.92	-10.58/-18.14	-17.33/-13.01	-13.13/-15.69	-11.8/-9.38	-10.13/-11.57	-10.74/-11.89	-6.44/-6.09	-8.63/-6.22	-3.97/-2.46	-3.27/-6.75	-11.66/-11.91	-11.66/-11.91
Theta (60°)	-14.71/-18.8	-12.54/-8.66	-6.25/-4.05	-0.83/-0.51	0.79/1.14	-0.06/-0.86	-0.43/-1.2	-2.88/-2.63	-2.91/-3.97	-5.67/-6.01	-7.53/-8.3	-7.39/-8.66	-11.21/-9	-7.78/-7.02	-10.38/-11.84	-19.66/-17.82	-18.05/-15.91	-7.65/-10.25	-11.15/-9.5	-4.64/-2.6	-3.17/-1.6	-15.21/-14.05	-15.21/-14.05	-15.21/-14.05
Theta (67.5°)	-16.49/-18.93	-12.87/-8.73	-5.26/-3.29	-1.83/-1.21	-0.76/0.09	0.11/0.17	-1.31/-1.59	-2.51/-3.61	-3.9/-3.57	-3.83/-4.75	-4.62/-6.75	-8.35/-7.16	-10.32/-11.74	-17.03/-17.47	-8.32/-9.24	-10.83/-18.41	-12.99/-10.16	-12.64/-15.39	-17.37/-10.87	-9.67/-9.6	-16.29/-8.49	-4.93/-3.75	-5.31/-11.35	-19.31/-16.33
Theta (75°)	-18.08/-16.53	-11.55/-8.07	-5.13/-4.14	-2.93/-2.14	-1.92/-1.85	-0.72/-0.35	-1.55/-1.79	-5.45/-10.85	-3.26/-2.22	-5.64/-5.95	-3.32/-4.2	-6.84/-8.59	-11.31/-17.22	-18.32/-18.72	-13.04/-7.3	-11.42/-17.83	-9.15/-19.2	-9.64/-9.31	-16.54/-10.73	-10.22/-13.67	-15.29/-8.54	-7.07/-6.51	-8.71/-17.7	-17.83/-18.55
Theta (82.5°)	-18.47/-17.18	-12.46/-8.95	-3.3/-3.94	-3.06/-3.47	-0.77/-2.59	-3.17/-3.11	-3.77/-3.82	-4.34/-11.67	-6.1/-2.21	-3.99/-4.49	-2.69/-5.03	-7.56/-7.24	-11.65/-12.49	-16.06/-17.65	-13.78/-12.22	-14.16/-12.96	-10.16/-11.89	-6.69/-8.66	-17.65/-17.72	-9.22/-10.13	-19.04/-13.44	-12.5/-8.95	-10.75/-15.24	-19.36/-18.37
Theta (90°)	-18.89/-13.5	-10.25/-8.06	-6.78/-7.32	-7.35/-5.19	-4.02/-3.75	-5.5/-6.26	-7.79/-7.73	-8.84/-7.59	-8.05/-6.65	-6.35/-2.36	-1.61/-4.23	-5.99/-5.94	-9.82/-6.84	-9.03/-18.49	-11.8/-6.85	-7.06/-17.58	-7.71/-10.89	-11.72/-13.04	-17.18/-10.91	-11.36/-12.75	-18.83/-19.17	-13.07/-12.49	-14.77/-14.37	-18.99/-16.61
Theta (97.5°)	-18.16/-16.06	-9.93/-7.47	-7.08/-8.31	-11.12/-9.07	-6.25/-7.1	-8.86/-11.29	-8.39/-8.51	-9.29/-8.84	-9.61/-8.13	-5.43/-4.47	-4.34/-4.25	-6.37/-6.74	-7.46/-5.47	-7.26/-14.07	-9.64/-9.49	-7.84/-18.28	-14.61/-10.02	-18.37/-17.58	-14.73/-9.46	-14.49/-18.39	-18.15/-13.81	-17.23/-12.47	-18.81/-17.52	-18.53/-13.57
Theta (105°)	-15.14/-12.83	-8.27/-8.5	-11.73/-13.13	-12.46/-9.46	-5.64/-5.8	-8.8/-13.68	-15.32/-11.04	-11.14/-10.07	-9.18/-12.99	-10.05/-5.18	-4.49/-5.06	-8.2/-7.38	-6.99/-9.9	-10.81/-13.42	-16.88/-15.52	-11.87/-13.57	-14.24/-13.71	-13.82/-15.47	-12.29/-16.68	-11.99/-16.2	-12.29/-16.68	-17.52/-12.95	-11.59/-11.33	-11.59/-11.33
Theta (112.5°)	-16.64/-11.63	-9.24/-11.64	-17.24/-18.53	-16.95/-9.46	-6.21/-7.39	-11.35/-16.65	-19.29/-19.16	-14.11/-8.78	-8.2/-12.43	-15.83/-10.36	-7.45/-6.37	-11.83/-11.44	-10.29/-13.27	-11.17/-17.95	-9.28/-5.32	-4.82/-5.6	-8.55/-17.84	-17.43/-18.44	-11.21/-11.43	-18.85/-12.66	-17.57/-15.61	-15.88/-14.88	-19.11/-19.34	-15.33/-11
Theta (120°)	-12.59/-14.11	-11.06/-12.08	-19.15/-18.92	-17.18/-11	-8.9/-10.44	-13.38/-15.84	-18.41/-18.23	-16.44/-15.1	-11.39/-14.17	-17.89/-12.76	-17.05/-17.41	-14.11/-18.76	-18.35/-14.17	-9.57/-11.61	-13.58/-6.05	-4.72/-13.27	-18.56/-67	-9.01/-15.46	-16.17/-11	-11.18/-17.62	-17.14/-12.61	-6.31/-10.26	-15.11/-12.22	-7.95/-9.2
Theta (127.5°)	-10.51/-12.09	-11.28/-14.59	-17.49/-16.49	-13.49/-10.77	-11.86/-13.17	-12.68/-10.34	-10.11/81	-18.74/-18.15	-13.15/-11.17	-14.49/-17.18	-17.88/-18.46	-18.09/-15.28	-12.02/-18.72	-17.87/-8.77	-5.31/-9.91	-6.14/-8.1	-9.81/-8.86	-9.93/-18.44	-12.76/-11.92	-16.08/-11	-11.26/-13.42	-9.92/-10.03	-13.88/-9.63	-7.91/-8.4
Theta (135°)	-7.63/-8.7	-12.42/-17.84	-18.92/-18.63	-16.62/-16.16	-13.27/-12.59	-12.23/-13.11	-12.57/-10.87	-7.99/-8.98	-18.99/-12.18	-10.19/-11.75	-11.81/-11.19	-16.47/-12.43	-9.22/-14.7	-18.07/-9.93	-4.7/-8.11	-8.54/-14.84	-9.86/-9.92	-15.32/-18.93	-19.06/-19.05	-19.41/-13.18	-18.38/-14.88	-15.92/-11.49	-9.38/-12.67	-8.18/-7.91
Theta (142.5°)	-8.03/-9.03	-11.78/-14.16	-13.49/-13.56	-13.83/-14.24	-17.42/-15.1	-12.24/-11.89	-13.99/-10.97	-8.76/-9.79	-9.32/-6.97	-10.49/-14.6	-12.07/-9.96	-11.27/-13.03	-12.89/-16.31	-10.96/-9.79	-7.92/-10.04	-10.92/-7.01	-6.38/-14.71	-16.91/-15.94	-17.77/-9.6	-7.88/-14.44	-14.54/-18.47	-10.95/-10.24	-10.45/-11.73	-12.37/-8
Theta (150°)	-16.37/-15.44	-18.03/-18.62	-18.63/-18.89	-15.65/-12.59	-9.55/-8.21	-7.05/-6.42	-4.96/-3.61	-4.12/-5.92	-7.36/-7.7	-5.84/-6.85	-8.73/-7.13	-12.11/-13.19	-16.45/-15.46	-19.55/-17.98	-11.76/-16.57	-12.17/-6.54	-5.88/-10.13	-16.08/-11	-12.75/-14.53	-14.84/-12.54	-9.92/-9.39	-10.39/-12.06	-9.81/-11.95	-13.68/-17.32
Theta (157.5°)	-9.61/-12.57	-13.25/-14.08	-16.19/-14.2	-10.52/-7.94	-6.58/-5.5	-5.08/-4.81	-5.78/-6.5	-5.98/-2.87	-11.0/72	-2.35/-4.66	-6.74/-10.34	-13.37/-13.17	-16.01/-18.63	-18.53/-14	-11.56/-12.9	-11.93/-10.55	-11.92/-11.51	-10.44/-10.36	-9.71/-8.65	-11.25/-8.71	-4.72/-2.94	-3.64/-3.94	-4.41/-5.75	-6.39/-7.65
Theta (165°)	-10.43/-13.36	-14.91/-19.01	-18.91/-15.72	-12.31/-9.62	-8.01/-8.53	-6.53/-9.44	-3.57/-1.78	0.18/0.48	-0.27/-2.24	-5.35/-9.22	-16.96/-12.57	-18.17/-17.57	-19.06/-17.96	-19.38/-18.66	-17.56/-15.53	-13.83/-12.67	-13.67/-13.1	-15.99/-18.81	-12.65/-8.32	-7.85/-7.22	-5.29/-5.35	-3.66/-4.73	-5.29/-5.75	-8.99/-10.38
Theta (172.5°)	-10.97/-14.15	-17.24/-18.68	-18.65/-18.59	-18.98/-14.85	-11.08/-8.54	-6.72/-3.85	-2.87/-2.68	-3.75/-6.14	-10.04/-16.31	-18.68/-19.45	-14.71/-12.57	-12.42/-12.61	-15.69/-18.78	-18.02/-18.67	-17.98/-17.52	-16.77/-13.9	-12.62/-10.36	-9.07/-8.15	-6.93/-6.04	-5.91/-6.21	-5.82/-6.12	-4.24/-4.55	-5.15/-5.64	-7.15/-9.64
Theta (180°)	-18.17/-18.69	-18.81/-17.69	-14.31/-11.65	-11.97/-11.42	-11.32/-8.84	-8.03/-9.43	-12.42/-18.12	-18.39/-11.22	-8.41/-7.74	-8.14/-8.87	-10.21/-13.22	-16.83/-17.45	-17.72/-18.3	-17.94/-19.12	-18.22/-13.95	-11.66/-8.69	-7.19/-6.6	-5.85/-5.58	-5.56/-6.34	-6.91/-7.62	-7.77/-5.8	-6.91/-7.41	-8.81/-9.66	-12.87/-16.5
Freq(Hz)	5.785GPol.	Theta/Ant 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Phi(0°)Phi(7.5°)	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
Theta (0°)	0.32/0.69	0.90/53	0.22/-0.23	-1.17/-2.29	-3.33/-3.88	-5.13/-7.77	-11.96/-14.81	-16.26/-13.96	-9.															



Radiated Composite Gain Data (6GHz UNII5~UNII8)

Appendix B

Freq(Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	4.06	3.64	4.3	3.51
Ant. 2 Max Gain (dBi)	1.65	1.44	2.31	2.08
Ant. 3 Max Gain (dBi)	2.58	1.31	2.03	2.7
Ant. 4 Max Gain (dBi)	2.51	2.82	3.53	3.79
Ant. 1 Polarization/ θ (°)/ ϕ (°)	Theta/150/247.5	Phi/112.5/330	Phi/127.5/322.5	Theta/157.5/240
Ant. 2 Polarization/ θ (°)/ ϕ (°)	Theta/127.5/142.5	Theta/105/142.5	Theta/105/142.5	Theta/105/15
Ant. 3 Polarization/ θ (°)/ ϕ (°)	Theta/127.5/37.5	Theta/120/30	Theta/82.5/172.5	Theta/97.5/172.5
Ant. 4 Polarization/ θ (°)/ ϕ (°)	Phi/60/202.5	Phi/52.5/202.5	Phi/37.5/165	Phi/30/165
Max Gain (dBi)	4.06	3.64	4.3	3.79
DG [1SS] (dBi)	4.31	3.97	4.33	3.94
DG [2SS] (dBi)	4.06	3.64	4.3	3.79
DG [4SS] (dBi)	4.06	3.64	4.3	3.79



Radiated Composite Gain Data (6GHz UNII5~UNII8)

Appendix B

DG 1SS Result

Freq(Hz)	6.175GPol.	PhiL	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°)
DG(dB)	0.91103	1.27148	2.11204	2.08169	1.28105	0.30496	-1.17161	-0.9001	0.6099	1.3121	1.3121	0.97107	1.38174	2.2427	2.72252	2.51223	1.29051	-0.0309	-2.29167	-0.65026	0.0407	1.15143	1.1913	0.83072	1.1913
Theta(75°)	1.41147	1.82229	2.57236	2.522	1.61096	0.16401	-1.37186	-1.25164	-0.16019	0.57128	1.36111	0.84093	1.09122	1.59171	1.87171	1.53171	1.11036	-0.64147	-1.8119	-0.92025	0.41102	1.65212	2.34212	1.67151	
Theta(15°)	1.07108	1.42258	2.96276	2.94271	2.53197	0.86024	-0.05063	-1.1140	0.36073	0.87112	1.38137	0.89088	0.65033	1.01016	1.12151	0.35036	0.37106	-0.53194	-4.03166	-4.4945	-4.53267	-0.78032	1.33195	2.28247	2.1143
Theta(22.5°)	0.37106	0.15127	1.5817	1.82176	1.4108	0.88042	-0.12062	-0.46015	0.2033	0.3043	1.09	0.98098	0.65059	0.24018	0.6105	0.91027	-0.18038	-0.98146	-1.69193	-1.78085	-0.90126	2.19238	1.5075	1.5075	
Theta(30°)	-1.23145	-0.71036	0.64163	2.39239	1.46124	0.57036	-0.83046	-0.4105	-0.51029	0.08019	0.27034	-0.69007	0.57042	0.07019	0.24019	-0.78227	-3.69373	-2.79279	-4.1442	-3.38202	-1.98039	0.19051	1.37146	0.63027	
Theta(37.5°)	0.42018	0.29054	0.83073	0.39048	0.0509	1.05085	0.99092	-0.091	-1.48181	-0.65001	-0.36161	0.8083	0.48049	-0.58115	-1.12151	-1.12151	-1.6223	-3.41426	-3.79343	-3.26156	-0.55046	0.40431	-0.13046		
Theta(45°)	0.36008	0.41034	-0.48026	-0.33083	21.63	0.5045	0.6027	-0.38102	-1.17107	-1.18192	-1.27111	-1.05078	-0.68012	0.17074	-1.67175	-1.33127	-3.31639	-6.27467	-2.7103	-0.35161	1.53033	0.32096			
Theta(52.5°)	0.31012	-0.32044	-0.55078	-0.99014	-0.08032	0.57004	-0.3203	-0.91059	-0.84036	-1.51366	-2.65203	-0.9212	-0.99015	-0.01128	0.56132	0.62034	0.05144	-3.57055	-0.42259	-3.83221	-0.92086	-0.6302	-0.81075	-1.21067	
Theta(60°)	1.05125	0.9603	0.07136	0.52042	-1.11141	-1.193	-2.82218	-1.35252	-4.09246	-1.99063	-1.23084	-1.0209	-1.21053	0.41056	-0.03079	1.63016	-1.73018	-1.93152	-1.92034	-2.98324	-0.06035	-0.34099	0.51061	0.28124	
Theta(67.5°)	1.70159	0.8706	-1.52156	-1.22038	-1.82262	-3.2135	-3.73326	-3.53459	-3.73351	-3.4217	-1.71256	-2.49282	-2.15172	0.03053	0.09066	-0.44049	-1.03183	0.16054	-2.21294	-0.65085	-0.30477	0.81088	0.6147		
Theta(75°)	1.65124	-0.41063	-0.13002	-1.94353	-3.2224	-3.277	-3.24306	-3.76576	-5.19405	-4.54321	-3.29352	-3.43366	-2.0219	-0.97135	-0.17063	-1.38236	-1.62116	-0.48027	-2.32133	-0.22112	-0.05067	1.13076	-0.18089	1.22163	
Theta(82.5°)	0.92121	-0.92011	0.34001	-1.92359	-4.16143	-0.39275	-2.7614	-2.76405	-4.8532	-3.42419	-2.96198	-0.53215	-1.27028	-1.06073	-0.36181	-3.06288	-1.02166	0.86158	-1.96038	0.42156	0.24026	0.67123	1.36181		
Theta(90°)	0.26091	0.61313	-1.72326	-3.84564	-5.69461	-4.9482	-3.8834	-3.3254	-3.76446	-2.05093	-2.66167	-0.85127	-2.31266	-2.54006	-0.18193	-1.75147	0.67215	0.94091	-2.02329	-2.42113	-1.34044	0.68016	-0.1083	-0.2411	
Theta(97.5°)	0.75187	0.52285	-1.92316	-4.86702	-6.27481	-7.41879	-6.87391	-3.78461	-3.19409	-2.95131	-0.95296	-1.44112	-0.82118	-0.62058	-0.98295	-3.02109	-1.09036	-0.5486	-2.15149	1.6057	-0.38124	1.3103	1.13105	0.25169	
Theta(105°)	0.11009	-0.52186	-4.24383	-3.46195	-7.12377	-3.06355	-4.21322	-2.58121	-4.01514	-4.35247	-2.81278	-1.77125	-1.48038	-1.83203	-1.79125	-0.71264	-3.29236	-2.79288	-1.84146	-0.51196	0.2073	1.73168	0.74093	-0.39142	
Theta(112.5°)	-0.29007	0.51056	-3.68153	-0.57361	-5.98376	-3.72136	-1.11732	-1.57361	-1.13188	-3.59252	-3.78181	-1.1125	0.63045	-0.9316	-0.09127	-1.1006	0.18148	-0.91354	-2.1089	1.51186	-1.86145	-0.07711	1.91032	-0.39146	
Theta(120°)	0.69028	-0.71147	-3.17169	-0.29083	-3.37278	-1.9504	0.07113	-1.1908	0.45021	-0.83219	-4.15315	-2.61266	-3.39289	-3.35161	-1.1402	-1.53208	0.86052	-0.78055	-7.01212	0.99094	-0.06238	-1.94129	-1.31169	-1.22058	
Theta(127.5°)	-2.27078	-0.93247	-1.76072	1.49171	0.21152	-1.84038	-2.0202	0.77064	1.18182	0.77042	-1.07192	-0.49336	-5.15419	-4.4911	0.14133	-3.76052	-0.28339	-4.15243	-4.54256	-3.99354	-0.77235	0.03073	0.74049	-0.40421	
Theta(135°)	-2.91039	0.14023	-0.97045	0.9827	2.82171	0.67167	-3.61173	-0.1129	2.3704	1.43054	2.02022	-0.89066	-1.42156	-1.4414	-2.31024	-0.91108	-6.56193	-4.04256	0.17108	-0.31116	-2.67076	-1.44184	-1.45108		
Theta(142.5°)	-2.74211	-0.8025	0.64107	-0.06	0.74085	0.24058	-1.3309	-0.75032	0.79073	1.2083	-0.62169	-1.1122	-2.0305	-0.54911	-0.79064	-1.91189	-1.54197	-2.69653	-6.0144	-3.2125	-1.16236	-2.74339	-4.67548	-3.88265	
Theta(150°)	-3.67147	-3.39118	-1.17025	0.18	-1.97042	0.68196	1.83124	0.5601	-0.56083	-0.74103	-1.48178	-3.18634	-7.85136	-0.3702	-1.06262	-1.88109	-0.56182	-4.36118	-6.22454	-4.24325	-2.15092	-1.52244	-3.89349	-2.2195	
Theta(157.5°)	-6.87484	-2.79005	1.31117	1.67184	0.1408	-0.98098	-1.114	-0.71027	0.55407	-1.86279	-2.9134	-5.78623	-4.39253	-0.89007	-0.2109	-2.22332	-3.41348	-4.78611	-4.12472	-5.5516	-4.16292	-2.25242	-2.79447		
Theta(165°)	-2.6823	-0.63057	0.96201	2.78303	3.05238	1.20646	0.1022	-0.15027	0.47035	0.5309	0.82046	-0.28122	-2.34251	-0.66072	1.08076	0.52077	0.93019	-1.33324	-4.05464	-3.9836	-3.241	-1.21213	-1.42235		
Theta(172.5°)	-4.25377	-4.01331	-1.17074	-0.01086	1.48146	0.9038	-0.13013	-0.3209	-0.92055	-0.4104	-2.27349	-4.9368	-7.98735	-6.91592	-5.29485	-4.26447	-4.42497	-6.37113	-7.31742	-7.77119	-5.88491	-5.34558	-5.41543	-4.71435	
Theta(180°)	-3.89147	-3.57299	-1.93151	-1.53156	-2.01206	-2.06186	-1.37104	-1.03145	-1.96139	-4.52538	-6.15748	-8.67395	-10.09926	-7.356	-5.14474	-3.99337	-3.02202	-1.63154	-1.88214	-2.4328	-2.98309	-3.06334	-3.19136		
Theta(187.5°)	-0.04064	-0.11406	0.48032	0.28083	1.00	0.33082	1.21135	2.43246	2.27215	1.9819	1.28055	-0.08085	-1.36117	-0.45022	0.45127	1.45099	0.43029	0.44068	0.99095	1.56188	1.88177	1.69151	0.93057		
Theta(195°)	-0.41026	-0.6704	-0.61061	0.2615	1.44113	0.83089	1.08109	1.3514	1.7417	1.4911	0.36034	-0.43118	-1.76118	-1.45082	-0.51005	0.76058	0.33033	0.5506	0.87107	1.43187	1.78187	1.8214	0.7304		
Theta(202.5°)	-1.61118	-1.08084	-0.77025	1.42181	1.73153	1.43176	1.8519	2.3217	2.11161	0.83058	0.067	-1.52194	-2.39347	-3.84379	-3.09227	-1.2604	-0.1706	-0.5054	1.36121	0.94071	0.68061	0.31033	-0.58088		
Theta(210°)	-1.58192	-2.08174	-0.82051	1.17142	1.36167	1.64174	2.09236	2.8294	2.98273	1.59106	-0.39068	-2.39378	-3.75265	-1.05007	0.39067	0.78008	-0.76056	0.21076	0.72066	1.26168	1.74081	-0.43134	-1.61131		
Theta(217.5°)	0.39063	-1.65103	-0.2101	0.11002	0.01016	0.0802	-0.26037	0.13033	2.73252	1.55121	2.04239	1.4902	-2.99325	-2.94302	-1.82123	-0.51026	1.34151	-0.97142	-0.51018	0.64125	0.9114	2.04219	0.87031		
Theta(225°)	-0.19057	0.1608	0.3028	0.32024	-0.05037	-1.14092	-0.03151	2.54275	2.82273	2.55169	1.49194	1.24049	-2.58301	-2.84216	-2.2624	-2.79183	-1.56152	-1.13059	-0.08072	-0.46058	0.79059	-0.10262	0.03074		
Theta(232.5°)	-0.86059	1.33121	1.64237	1.57027	-1.6425	-2.67179	-1.01026	0.83194	1.82263	2.72211	1.14081	0.85012	-1.5335	-2.43213	-3.26275	-2.21221	-2.65368	-2.47259	-2.75167	-0.51001	-0.87054	0.95146	0.6105		
Theta(240°)	0.47203	1.23105	2.77251	1.43238	-3.58219	-0.3704	1.32075	4.3131	3.01219	1.72131	1.72131	3.56054	-3.2127	-3.2127	-3.15133	-2.77153	-5.49421	-2.91292	-1.34033	2.33164	1.48029	-0.63039	0.82038		
Theta(247.5°)	-0.11022	1.65088	1.8076	0.86048	-0.48128	-3.37146	-3.927	-0.52181	3.12292	2.31176	1.34077	-0.51133	-2.91486	-2.9121	-5.87273	-2.2928	-3.2863	-5.95451	-4.48459	-3.31044	1.77151	-0.63033	-0.95058		
Theta(255°)	-0.7206	0.56071	0.01098	1.16175	0.88135	-4.16243	-5.5158	-2.91033	1.47226	1.5191	1.24043	-0.2038	-3.1	-0.23152	-2.66159	-3.11271	-4.32259	-4.67825	-5.76788	-4.3049	0.34003	-2.24273	-2.02194		
Theta(262.5°)	-1.2143	-0.6811	0.0126	2.39056	4.47225	-5.13557	-4.4488	-2.17036	1.75111	1.409	0.51336	0.29049	-4.45203	1.020	-0.29127	-1.11358	-0.484375	-0.64123	0.95022	-1.77175	-1.52182	-1.71107			
Theta(270°)	-0.34059	-0.82083	0.48065	-0.23027	-0.78179	-6.187	-4.77376	-2.76061	1.72182	0.39095	-0														



Radiated Composite Gain Data (6GHz UNII5~UNII8)

Appendix B

Theta (30°)	-0.380/0.94	1.582/0.24	1.582/0.04	2.942/0.97	2.371/0.86	0.980/0.05	-0.150/-0.18	-1.071/-1.68	-1.140/0.07	1.111/0.58	2.182/0.81	2.612/1.29	1.621/0.61	2.422/0.89	2.652/2.42	1.880/0.97	0.177/-0.57	-1.071/-1.96	-3.971/-4.48	-2.921/-1.04	-0.561/0.74	-0.070/0.55	0.930/0.73	0.1/-0.87
Theta (37.5°)	0.240/1.07	0.451/1.49	1.752/6.2	2.592/32.2	1.551/0.6	0.720/0.69	0.38/-0.15	-1.071/-2.12	-1.64/-0.15	0.280/0.13	0.351/0.29	1.541/0.55	1.121/1.1	1.260/0.88	1.111/3.4	1.430/5.1	-0.52/-1.49	-2.4/-2.8	-3.92/-4.7	-5.07/-3.09	-1.42/-0.76	-1.03/-1.63	-0.340/0.5	0.190/0.57
Theta (45°)	-0.061/-0.68	-0.45/-0.12	1.062/4	2.621/7.7	1.109/3	1.090/35	0.380/0.69	-0.891/2.32	-3.45/-2.36	-0.110/0.92	0.160/0.23	0.581/0.6	1.492/0.8	1.811/1.5	2.883/0.2	1.141/-	-0.51/-0.06	-1.26/-4.22	-6.32/-5.95	-7.24/-7.06	-7.12/-3.88	-2.61/-4.4	-0.96/-0.94	-0.21/-0.12
Theta (52.5°)	-1.13/-1.7	-1.640/0.83	1.991/4.6	-0.510/2.5	1.181/4.8	0.710/3.6	-0.54/0.26	-1.181/3.29	-2.821/2.33	-1.490/0.62	0.270/4.6	1.320/8.8	0.531/1.7	0.170/7.7	1.581/6.4	2.422/0.4	0.771/0.69	-1.281/3.9	-4.1/3.48	-3.031/2.1	-2.341/2.7	-1.891/0.4	-1.61/1.67	-2.331/2.03
Theta (60°)	-0.421/-1.19	-1.451/-0.71	0.281/0.73	-1.361/1.8	-0.630/2.7	-1.111/0.89	-0.861/1.58	-2.431/3.4	-3.321/3.22	-1.471/0.67	-0.111/0.6	0.320/7.1	-0.210/8.1	0.220/7.6	0.181/3.2	1.061/0.7	0.211/3.2	-3.571/2.04	-1.941/2.34	-2.91/2.9	-2.151/3.26	-2.281/1.16	-1.771/2.45	-2.21/0.7
Theta (67.5°)	0.371/-0.7	-0.840/6	-1.311/1.14	-1.271/1.37	-1.161/1.63	-2.761/1.05	0.210/0.2	-3.261/4	-3.341/1.78	-0.971/0.76	1.170/6.6	0.571/4.9	1.642/4.1	1.860/9.2	-0.450/5.7	2.592/0.4	-0.741/2.21	-1.181/0.3	-0.441/4.9	-3.791/1.98	-0.921/0.14	0.651/0.31	0.761/1.5	-0.750/2.6
Theta (75°)	0.560/4.1	0.120/3.5	-2.251/0.75	-1.511/3.36	-4.221/4.56	-4.781/4.51	-3.321/3.89	-2.711/6.36	-6.551/5.07	-3.481/2.82	-0.910/5	-0.940/1.1	-0.780/5.5	1.701/9.7	-0.111/0.72	-0.581/1.41	-1.981/1.42	-1.541/0.59	-1.661/1.95	-2.221/2.57	-0.070/0.72	0.490/6.8	1.411/0.2	-0.750/7.3
Theta (82.5°)	0.180/6.7	-2.331/2.25	-1.931/2.48	-4.381/4.3	-6.341/8.21	-7.711/3.83	-4.461/6.23	-3.471/4	-5.561/6.59	-4.791/2.6	-3.351/1.14	-0.351/1.07	-0.741/1.43	-0.631/1.53	-1.251/0.78	-1.911/1.01	0.652/2.1	1.531/1.99	-4.531/4.05	-2.541/1.54	-1.621/0.76	-1.010/2.6	1.510/3.6	1.630/6.5
Theta (90°)	1/0.58	-1.451/-1.59	-1.121/3.29	-3.91/4.6	-6.881/9.48	-9.891/6.67	-3.591/4	-6.161/3.23	-5.21/5.06	-1.070/0.2	-0.91/2.66	-0.621/0.2	-0.370/1.5	-2.051/1.25	-1.391/2.51	-2.931/0.27	1.931/9.6	0.581/1.21	-0.821/3.44	-3.471/3.67	-0.711/0.5	-1.091/0.28	1.310/1.7	1.990/7.8
Theta (97.5°)	-0.201/9.9	0.781/1.36	-1.731/2.66	-4.031/5.33	-8.811/11.45	-8.821/9.08	-6.661/4.35	-3.81/3.77	-4.871/3.17	-0.511/3.1	0.181/2.38	-2.921/1.23	-1.211/0.92	-2.751/1.52	-0.551/2.27	-3.431/2.3	-0.721/1.85	-2.671/0.69	0.460/4	-0.081/0.53	1.150/0.2	-0.890/7	-0.181/0.06	0.870/8.5
Theta (105°)	-0.191/1.9	-0.411/1.77	-0.691/1.03	-3.21/2.77	-6.421/5.54	-3.521/5.1	-5.151/5.43	-1.771/3.2	-3.531/3.11	-0.901/0.8	-0.081/1.56	-3.051/3.54	-3.961/2.84	-3.271/2.82	-1.191/1.79	-2.341/2.96	-3.911/6	-1.491/2.56	-3.141/2.22	1.161/1.01	-0.440/0.64	1.230/5.9	-0.961/0.66	-1.211/0.76
Theta (112.5°)	0.091/0.03	-0.130/6.6	-1.011/0.53	-3.461/4.75	-3/2.04	-2.441/2.47	-2.721/0.49	-0.561/4.18	-4.451/3.61	0.031/0.72	0.341/0.53	-0.511/0.5	-1.091/3.01	-2.211/2.62	-1.481/0.77	-2.221/3.44	-3.241/3.49	-1.481/2.25	-6.911/3.4	0.321/0.72	-2.651/0.1	2.642/8.1	0.450/2.6	-1.611/0.74
Theta (120°)	-0.150/0.9	0.951/1.8	-2.771/3.13	-2.551/2.5	-2.651/0.17	-1/2.74	-1.611/1.12	-1.361/2.09	-0.711/1.14	-0.201/5	-0.511/2.92	-0.821/0.87	-1.241/2.91	-1.931/3.75	-2.241/2.3	-2.691/1.97	-2.251/1.8	-1.291/2.3	-4.221/3.51	0.931/1.21	-3.431/0.88	-0.091/0.98	-0.371/0.28	-1.331/0.22
Theta (127.5°)	-1.147/-0.83	1.190/2.9	-2.391/2.33	-1.282/0.9	1.471/0.59	-0.91/0.34	-1.181/2.23	-1.310/0.67	2.260/7.2	0.920/8.9	0.061/1.12	-1.301/1.2	-3.871/5.87	-7.071/2.51	-0.611/0.96	-3.841/6.05	-5.021/6.7	-2.571/5.73	-3.591/0.9	1.791/8.8	-1.621/1.6	-1.621/1.6	-0.121/1.61	-0.121/1.61
Theta (135°)	0.911/3.7	-0.151/0.51	-1.641/0.11	1.461/0.92	1.960/8.1	0.831/0.4	-1.320/0.56	0.861/2.1	2.111/5.5	-0.1401/0.5	-0.631/1.8	0.620/6.2	0.041/1.99	-3.451/1.93	-1.041/1.32	-2.061/0.93	0.071/2.64	-9.051/5.89	-3.021/3.51	-1.691/3.7	-1.651/2.79	1.340/3.7	-0.81/0.56	0.430/4.9
Theta (142.5°)	0.71/0.48	-1.831/2.21	-1.071/0.47	0.420/6.9	0.721/0.2	0.631/0.19	-0.010/7.7	1.572/5.9	2.840/8.5	-0.890/2.8	-0.250/0.5	-0.031/1.27	-1.561/3.45	-4.991/1.66	-0.220/4.6	0.521/0.72	-1.261/4.58	-3.411/5.22	-7.971/3.04	-1.021/0.29	-1.881/1.7	-2.431/2.92	-1.851/1.62	-0.130/5.6
Theta (150°)	-2.781/1.96	-0.461/0.9	-0.781/1.38	-2.21/2.07	-2.491/2.89	-2.41/2.42	-1.631/0.17	0.440/3.1	-0.531/0.59	0.370/2.1	-1.381/3.07	-2.061/1.52	-1.861/2.99	-1.661/0.08	0.410/4	-0.650/6.8	-0.051/5.2	-6.711/3.71	-5.061/6.08	-4.251/3.35	-1.961/2.21	-3.361/4.69	-5.571/5.76	-5.081/3.38
Theta (157.5°)	-6.71/4.2	-2.381/1.24	-1.081/0.92	-21/2.02	-1.071/0.78	-0.2401/0.6	-0.541/0.85	-0.781/1.33	-1.891/2.15	-1.3401/3	0.451/0.58	-2.551/4.8	-4.641/3.23	-1.971/1.53	-0.621/1.01	-0.671/1.1	-1.351/2.72	-2.681/3.79	-4.491/4.3	-3.341/2.87	-1.261/1.53	-2.811/3	-6.881/6.78	-8.141/10.38
Theta (165°)	-3.371/2.62	-2.31/0.76	0.451/3.7	1.761/1.29	0.291/0.56	-1.171/2.04	-2.471/2.4	-1.441/1.02	-0.751/0.94	0.090/1.3	-0.481/1.51	-2.331/2.44	-1.101/1.1	0.370/1.2	0.231/0.06	0.061/0.95	-2.271/2.21	-3.051/3.96	-5.271/4.9	-2.921/2.05	-1.941/1.93	-2.821/3.13	-2.961/3.11	-4.361/4.63
Theta (172.5°)	-3.361/1.92	-1.131/0.29	0.1801/9.7	0.6901/5.7	0.3201/4.9	1/1.15	0.7601/4	0.381/0.15	-0.951/1.27	-1.611/2.92	-4.21/5.2	-5.961/0.68	-6.071/5.37	-5.281/5	-4.271/5.48	-4.681/5.17	-5.051/6.62	-4.941/6.12	-7.891/7.53	-6.611/5.5	-4.541/5.45	-5.411/6.87	-6.521/5.9	-5.381/4.03
Theta (180°)	-5.931/5.02	-6.41/3.62	-2.781/1.81	-1.091/0.73	-0.571/0.45	-0.891/1.57	-1.671/2.28	-2.561/3.61	-4.141/5.25	-6.811/5.89	-6.671/7.21	-7.71/7.86	-7.491/7.29	-7.341/6.33	-5.311/4.85	-4.051/4.7	-2.211/1.71	-1.61/2.66	-3.731/4.17	-6.211/6.58	-6.791/7.44	-7.041/6.19	-5.711/4.91	-5.341/5.48
Freq(Hz)	6.895GPol.	Theta	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi
DG(dB)	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°)
Theta (0°)	-0.531/0.77	0.090/8.3	1.632/0.3	2.562/2.7	2.851/2.1	2.873/3.1	3.613/8.5	3.643/6.8	3.613/3.8	3.620/3.3	2.381/7.8	0.951/0.11	-0.520/0.03	0.771/3.7	1.892/3.8	2.731/2.1	3.042/2.2	2.532/6.2	3.232/6.2	3.153/4.2	3.683/5.8	3.293/1.4	2.521/9.4	1.210/2.5
Theta (7.5°)	-0.220/2.9	1.141/1.8	2.072/6.7	3/2.93	2.772/4.8	2.472/4.5	2.512/6.6	3.113/3.6	3.723/7.4	3.452/8.1	2.251/5.8	0.781/0.32	-0.961/0.77	0.180/7.8	1.522/2.7	2.732/9.5	2.422/3.5	2.192/3	2.953/3.7	3.613/8.6	3.743/4	3.092/9.9	2.721/3.8	1.340/2.6
Theta (15°)	-0.341/0.17	0.290/3.1	0.991/0.5	1.181/1.3	0.910/4.9	0.690/8.3	1.921/7.3	3.593/9.6	3.743/4.1	2.932/0.7	0.950/4.1	-0.231/0.75	-1.171/1.07	-0.390/2.9	1.571/9.9	2.062/1.5	1.822/0.1	2.542/7.5	2.953/1.1	3.131/3.9	3.012/5.9	2.512/3.4	1.710/6.4	1.710/6.4
Theta (22.5°)	0.071/0.66	-0.81/0.31	0.611/2.9	1.110/7.9	2.021/0.52	-0.891/0.55	0.2501/8.7	1.452/1.5	2.813/2.8	3.032/3.6	1.091/0	-0.381/0.3	-0.891/1.64	-1.531/1.18	-1.351/0.97	-0.2601/8	0.510/2	0.361/2.5	1.821/6.2	1.280/9	1.111/3.7	1.451/5.9	2.011/9.7	1.520/7.3
Theta (30°)	0.320/3.3	0.160/2.5	0.540/7.3	-0.231/0.3	-0.071/0.52	-1.071/0.86	-0.550/2.2	0.921/7.6	2.421/7.2	2.872/8.5	2.081/1.1	-0.021/1.62	-2.821/3.35	-4.521/4.2	-2.911/2.06	-0.641/0.12	-0.281/0.48	-0.320/5.4	1.972/0.1	1.411/6.7	2.141/8.9	1.490/3.9	0.210/7.6	-0.271/0.11
Theta (37.5°)	0.450/3.8	-0.401/6	0.641/0.6	0.090/0.1	0/0.54	-1.521/1.74	-1.101/0.84	-0.181/1.62	2.382/6.4	2.662/0.5	1.180/6.6	-0.891/2.26	-2.391/1.24	-2.351/4.02	-3.611/3.27	-2.071/1.9	-0.621/1.82	0.881/5.2	1.420/7.3	0.410/7.7	0.1801/0.7	-1.191/0.23	-0.271/0.29	-0.271/0.29
Theta (45°)	0.71/0.38	0.350/6.5	2.172/4.8	1.041/0.26	-1.291/2.78	-3.681/3.26	-3.471/3.36	-0.991/3.33	2.372/8.5	2.932/3.1	0.840/6.6	1.410/3.1	-2.171/4.4	-5.561/5.21	-3.371/3.25	-2.581/1.96	-1.331/1.44	-1.791/1.8	-0.011/0.57	-1.5101/0.3	-0.281/1.05	0.111/0.1	-0.3301/9.7	-0.091/0.85
Theta (52.5°)	1.421/0.14	0.061/4.2	2.012/0.4	1.210/5.4	-0.081/2.15	-3.011/3.15	-3.891/3.35	-1.151/0.01	1.052/0.4	2.082/4.8	1.770/6.3	0.231/1.52	-1.641/3.43	-5.251/5.66	-5.871/4.43	-5.161/4.53	-3.181/4.45	-3.261/1.81	-2.611/2.62	-1.81/2.28	-1.661/2.25	-1.251/0.64	0.2301/9	-1.2701/6
Theta (60°)	0.121/0.5	0.771/0.3	1.190/6.9	0.380/6.3	-0.631/1.77	-3.961/5.68	-4.191/3.22	-2.61/0.69	2.222/6.5	1.751/0.1	0.160/1.6	0.761/0.69	0.111/2.77	-5.61/5.24	-6.981/6	-5.61/6.46	-3.791/5.79	-2.341/2.3	-2.081/3.1	-1.141/0.58	-0.771/1.1	0.1901/43	-2.2201/1.7	-2.2201/1.7
Theta (67.5°)	0.71/0.18	-0.040/9.7	0.420/7.4	1.450/7.7	-0.791/3.49	-5.861/8.22	-7.11/6.65	-4.561/0.99	0.410/2.4	1.042/2.1	0.930/7.4	1.180/7.5	1.361/1.12	-3.371/4.05	-4.731/3.88	-4.991/3.69	-2.131/6.12	-1.041/3.35	-0.861/4.72	0.131/1.77	-0.661/2.23	-0.451/1.79	-2.091/0.91	-3.0901/2.2
Theta (75°)	-0.260/0.4	-0.110/7.5	0.941/4.4	1.050/9.6	-0.811/3.97	-6.221/7.75	-6.641/7.95	-8.941/6.13	-1.1801/0.3	-1.021/0.7	0.030/4	1.262/3.3	1.441/5.9	-1.081/1.2	-1.541/3.05	-2.611/3.54	-1.411/3.82	0.291/1.67	0.391/3.41	-0.071/2.72	-1.261/4.85	-1.091/1.64	-4.081/1.92	-1.501/33
Theta (82.5°)	0.421/0.51	-0.331/1.3	1.621/1.1	1.4401/1.5																				



Radiated Composite Gain Data (6GHz UNII5~UNII8)

Appendix B

Theta (°)	0.85/-0.1	-0.31/+0.5	-1.53/+2.77	-4.05/+5.66	-6.62/+8.33	-12.16/+13.75	-16.28/+11.02	-8.19/+6.45	-4.97/+3.23	-1.99/+1.03	-0.26/+0.18	0.49/0.08	-0.34/-0.52	-1.21/-1.88	-3.41/+3.99	-4.98/+5.46	-7.16/+9.35	-12.46/+16.29	-17.21/+13.42	-8.09/-5	-2.93/-1.2	0.09/0.49	1.45/1.83	1.48/1.03
Theta (30°)	-0.31/-0.08	-0.93/-2.86	-3.19/-2.99	-2.48/-3.33	-5.53/-9.67	-13.29/-14.56	-13.34/-11.72	-8.38/-7.74	-6.13/-4.12	-2.24/-1.13	-0.68/-0.08	-0.22/-0.25	-0.89/-1.84	-2.46/-2.58	-3.27/-4.53	-6.03/-7.34	-8.8/8.5	-10.92/-16.58	-19.15/-17.15	-12.09/-7.54	-5.56/-3.42	-1.83/-0.35	0.36/0.85	0.5/-0.22
Theta (45°)	0.79/-0.02	-0.78/-3.08	-3.27/-1.85	-1.93/-0.6	-5.85/-10.75	-18.08/-19.34	-13.89/-3.95	-7.64/-6.8	-9.3/-8.03	-5.52/-2.44	-4.65/-5.96	-6.64/-4.28	-2.48/-1.61	-3.15/-9.7	-4.5/-5.65	-6.61/-7.97	-6.53/-9.1	-9.63/-11	-14.74/-18.22	-15.91/-10.24	-7.79/-4.02	-4.49/-1.75	-0.91/0.06	1.07/0.67
Theta (60°)	-1.74/-2.49	-2.57/0.01	0.74/-1.25	-3.51/-4.87	-6.2/-10.6	-19.58/-17.87	-15.19/-9.76	-8.95/-13.3	-12.98/-9.61	-8/-9.98	-6.71/-5.41	-5.02/-6.72	-7.47/-7.18	-8.63/-6.91	-4.81/-6.56	-6.71/-5.4	-8.06/-9.45	-8.59/-12.55	-18.92/-14.03	-8.84/-6.82	-4.6/-3.81	-1.09/0.71	1.05/0.02	-1.55/-2.43
Theta (75°)	-0.66/-0.99	-2.24/-2.21	-1.09/-1.73	-3.33/-3.1	-4.02/-6.4	-11.33/-14.38	-11.63/-10.96	-8.38/-8.19	-10.22/-9.89	-15.34/-18.36	-12.76/-8.96	-6.32/-6.3	-10.77/-13.55	-10.62/-9.75	-14.45/-9.93	-9.58/-11.3	-11.01/-13.86	-11.78/-10.53	-14.35/-17.99	-10.12/-7.55	-6.24/-4.9	-2.36/-0.3	-0.46/-2.12	-3.67/-1.78
Theta (90°)	-0.51/0.76	-0.45/-0.97	-2.93/-1.32	-1.8/-2.48	-4.79/-8.02	-15.17/-15.67	-9.39/-7.32	-9.36/-10.01	-9.06/-11.56	-14.9/-9.52	-6.95/-7.15	-5.26/-6.81	-6.84/-7.31	-6.17/-8.62	-17.04/-13.88	-11.73/-10.1	-13.8/-17.86	-17.48/-17.24	-17.36/-18.59	-7.27/-3.81	-1.94/-1.24	-0.13/0.56	0.79/-1.76	-2.65/-0.43
Theta (105°)	0.35/0.46	1.09/0.53	-3.89/-1.25	-2.37/-4.66	-5.74/-9.5	-12.28/-17.98	-18.77/-19.34	-18.17/-16.76	-13.26/-16.77	-17.45/-16.7	-8.23/-9.06	-17.23/-12.7	-15.95/-9.76	-6.83/-7.26	-6.55/-6.47	-12.55/-12.54	-7.56/-8.22	-16.25/-16.23	-18.92/-16.41	-6.82/-3.94	-1.41/-0.68	0.48/2.47	2.58/0.13	-2.31/0.48
Theta (120°)	-1.51/-0.52	-1.04/-1.79	-3.97/-3.78	-6.16/-6.27	-7.77/-10.02	-9.5/-12.63	-18.11/-17.96	-16.67/-17.48	-18.22/-14.78	-17.09/-11.29	-8.85/-7.99	-6.03/-6.86	-8.94/-12.16	-9.61/-5.45	-12.94/-8.84	-7.34/-6.2	-13.96/-10.76	-12.08/-14.88	-6.79/-2.86	-1.05/0.4	1.23/1	1.74/-0.56	-1.5/-1.9	-2.10/1.49
Theta (135°)	-0.38/-1.14	-2.09/-4.1	-3.38/-2.91	-5.41/-5.64	-10.13/-15.89	-18.66/-12.77	-10.62/-10.2	-16.26/-18.25	-15.64/-15.85	-8/-5.86	-11.68/-11.24	-7.83/-5.14	-3.88/-2.92	-6.79/-7.71	-12.28/-8.65	-12.57/-8.97	-11.17/-11.18	-15.01/-11.27	-11.13/-11.74	-5.3/-2.88	-1.12/0.06	-0.56/0.43	0.77/0.53	1.05/1.33
Theta (150°)	-1.21/0.07	-1.71/-4.58	-3.08/-0.49	-6.64/-7.1	-17.36/-18.42	-15.29/-10.3	-11.32/-18.42	-17.09/-16.34	-17.53/-13.34	-7.86/-6.67	-12.73/-10.66	-16.14/-9.27	-6.25/-4.23	-8.46/-10.1	-8.96/-5.47	-11.31/-16.72	-18.08/-18.53	-10.22/-13.45	-9.34/-5.73	-3.85/-4.4	-1.81/-0.69	-0.41/0.95	1.93/-1.92	2.06/1.03
Theta (165°)	-0.253/-1.21	-4.6/-5.35	-5.81/-2.75	-5.64/-11.68	-15.16/-12	-12.94/-43	-11.89/-19.23	-8.25/-12.35	-17.94/-17.52	-8.18/-47	-17.65/-12.05	-10.74/-11.8	-10.52/-12.42	-10.74/-11.8	-9.54/-13.8	-17.07/-17.8	-9.68/-10.62	-9.79/-5.06	-1.3/-2.3	-1.23/0.36	0.84/1.27	2.01/8.22	1.06/0.59	
Theta (180°)	0.78/0.22	-1.98/-3.87	-5.72/-4.81	-7.61/-8.69	-6.04/-8	-11.97/-17.87	-14.3/-16.17	-11.11/-16.59	-14.46/-13	-8.42/-12.05	-10.21/-6.19	-5.7/-9.38	-6.35/-14.45	-8.28/-10.98	-15.19/-8.52	-7.21/-12.5	-13.47/-16.66	-10.6/-9.54	-17.82/-4.28	-1.95/-1.61	-1.85/-2.27	1.24/3.78	3.34/2.14	0.65/0.04
Theta (20°)	0.91/0.28	-0.48/-2.74	-8.52/-3.96	-7.09/-14.17	-13.17/-6.27	-5.58/-13.3	-9.06/-13.73	-12.55/-11.71	-14.12/-3.69	-3.85/-11.16	-17.31/-13.57	-10.66/-17.24	-8.82/-16.24	-18.84/-17.52	-7.68/-6.23	-13.52/-10.16	-17.11/-15.56	-18.78/-6.55	-4.63/-1.91	-2/-2.77	-0.22/2.4	2.48/1.54	1.21/0.89	
Theta (25°)	-0.34/-1.04	0.76/-0.06	-3.46/-4.55	-6.81/-2.62	-3.98/-9.28	-7.75/-6.51	-12.34/-16.09	-12.29/-18.04	-5.19/-3.14	-6.25/-17.53	-16.08/-12.81	-8.5/-12.52	-16.86/-17.76	-18.87/-18.39	-12.45/-9.11	-9.43/-15.79	-10.97/-4.1	-10.62/-16.66	-6.81/-7.02	-4.38/-4.21	-6.18/-2.25	1.69/3.4	1.25/0.05	0.83/0.38
Theta (30°)	2.43/2.59	1.09/1.44	-0.67/-0.13	-0.21/-3.57	-5.73/-7.59	-5.29/-9.41	-19.36/-14	-10.56/-11.3	-9.78/-12.64	-17.75/-18.26	-17.59/-12.8	-5.02/-8.13	-6.04/-7.54	-10.56/-10.65	-19.46/-12.79	-13.59/-17.66	-7.66/-8.02	-16.76/-19.01	-8.1/-3.55	-2.1/-2.78	-6.7/9	1.13/2.9	2.19/1.35	3.09/1.9
Theta (35°)	2.21/1.56	-2.09/-3.77	-0.84/-2.01	-2.3/-2.2	-3.04/-3.85	-6.99/-16.42	-19.17/-17.92	-18.16/-11.97	-9.36/-11.58	-11.76/-10.65	-8.51/-9.57	-5.66/-8.88	-9.44/-8.22	-6.27/-3.17	-6.59/-14.51	-6.69/-15.24	-10.03/-14.01	-10.86/-3.66	-3.46/-2.24	-7.35/-8.1	-8.01/-2.3	-0.42/0.98	3.07/2.57	
Theta (40°)	-2.91/-1.61	0.28/-0.04	-0.96/-3.43	-6.77/-7.76	-6.91/-13.88	-6.16/-16.03	-15.15/-17.92	-17.14/-18.59	-18.55/-16.19	-10.19/-47	-7.35/-9.57	-6.87/-6.38	-7.52/-5.66	-2.88/-2.66	-5.81/-8.16	-8.08/-6.05	-6.69/-11.27	-10.91/-6.65	-7.55/-5.1	-3.53/-4.32	-4.18/-2.22	-8.66/-7.93	-6.81/-4.1	
Theta (45°)	-12.07/-9.78	-6.78/-4.43	-2.94/-2.8	-4.06/-5.62	-6.01/-7.24	-8.97/-12.21	-16.99/-18.94	-17.13/-19.19	-19.08/-15.76	-10.84/-6.73	-4.72/-5.53	-7.96/-14.4	-16.34/-9.2	-3.85/-2.22	-2.17/-2.56	-1.89/-1.18	-2.68/-6.55	-10.28/-13.87	-13.67/-9.65	-6.43/-5.61	-3.65/-3.72	-6.63/-11.66	-17.61/-19.14	-17.86/-18.34
Theta (50°)	-2.66/-1.56	-1.73/-1.03	-0.87/-1.19	0.22/0.78	-2.98/-6.1	-9.95/-16.8	-18.05/-17.55	-17.57/-19.87	-18.78/-17.19	-11.11/-8.17	-6.8/-6.32	-8.32/-9.06	-6.17/-2.96	-0.65/-1.06	2.09/2.3	1.81/0.82	-0.93/-3.23	-6.51/-11.62	-19.23/-13.81	-8.62/-5.67	-5.17/-4.12	-3.37/-3.22	-2.78/-2.99	-3.77/-4.22
Theta (55°)	-1.22/0.66	-0.84/-2.01	-2.95/-3.32	-5.9/-9.97	-11.52/-14.71	-15.78/-15.84	-16.78/-18.4	-17.41/-13.28	-12.46/-11.69	-11.54/-14.67	-15.14/-13.22	-11.1/-10.3	-9.15/-8.46	-8.32/-7.29	-5.76/-5.52	-10.01/-4.43	-9.62/-6.84	-9.85/-14.34	-18.19/-17.68	-15.52/-12.27	-10.08/-11.08	-9.66/-8.91	-5.81/-4.8	-4.15/-2.13
Theta (60°)	-5.8/-6.09	-8.15/-8.12	-7.01/-5.74	-7.21/-6.69	-7.79/-8.98	-11.22/-12.99	-13.66/-17.61	-17.12/-18.67	-17.22/-18.87	-16.89/-15.63	-14.18/-12.01	-10.35/-10.79	-10.66/-9.77	-10.03/-9.75	-8.48/-8.91	-9.99/-8.57	-9.42/-7.77	-8.04/-8.99	-18.07/-11.91	-13.6/-16.25	-15.96/-15.87	-11.07/-8.48	-6.89/-5.87	-5.45/-6.1
Theta (65°)	6.95/6.95	ThetaAnt.1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	Phi(0°)Phi(7.5°)	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
Theta (0°)	-14.76/-10.82	-6.66/-4.93	-2.37/-0.62	0.39/1.28	1.88/2.47	2.98/3.49	3.53/3.2	2.41/1.77	0.9/0.4	-1.2/2.5	-4.38/-7	-10.36/-16.14	-15.29/-10.46	-6.89/-4.12	0.04/0.86	1.48/1.49	1.78/1.93	1.86/1.7	1.22/0.89	0.15/-0.99	-1.87/-3.43	-5.06/-7.3	-10.65/-15.78	
Theta (7.5°)	-15.46/-10.37	-6.91/-6.62	-3.54/-1.53	-0.41/-0.21	0.03/0.5	1.09/1.32	1.63/1.71	0.83/1.56	0.96/0.11	-1.32/-3.13	-4.91/-7.45	-11.77/-14.42	-13.01/-9.38	-6.56/-4.4	1.41/1.82	1.88/2.11	1.98/1.8	1.41/1.24	0.74/0.11	-1.12/-2.77	-4.76/-7.64	-11.81/-18.34		
Theta (15°)	-17.46/-12.21	-9.11/7.71	-5.11/3.87	-3.27/-3.99	-2.92/2.07	-0.77/0.17	0.31/0.85	0.82/0.47	-0.42/-1.23	-2.91/5.23	-8.22/-13.65	-16.86/-18.99	-14.56/-10.61	-7.71/5.36	-3.59/-2.71	-1.81/-1.19	-0.59/0.03	0.71/1.19	1.41/1.18	0.71/0.38	0.11/0.57	-1.28/-2.56	-4.37/-5.74	
Theta (22.5°)	-15.41/-18.11	-18.57/-12.05	-7.08/-4.67	-3.95/-3.8	-3.08/-2.57	-2.77/-2.06	-1.33/-0.93	-1.3/-2.65	-3/-3.21	-3.82/-5.3	-7.01/-10.25	-18.25/-17.82	-13.88/-10	-7.77/-6.43	-5.5/-5.02	-4.44/-3.33	-2.43/-1.38	-0.71/-0.1	0.68/0.81	0.53/-0.29	-0.62/-1.38	-2.09/-3.16	-5.66/-8.32	-9.51/-10.25
Theta (30°)	-18.53/-18.72	-16.87/-10.05	-6.74/-4.27	-3.65/-4.39	-3.66/-4.53	-3.29/-1.78	-1.81/-2.52	-3.3/-6.8	-4.14/-3.85	-4.37/-5.75	-8.55/-13.65	-19.13/-19.03	-13.04/-11.15	-11.82/-17.3	-11.96/-10.38	-8.33/-7.22	-5.36/-4.21	-2.57/-1.09	0.71/0.6	0.16/0.47	-1.53/-2.85	-6.62/-8.43	-11.41/-12.48	
Theta (37.5°)	-16.39/-13.93	-9.65/-7.76	-7.43/-5.85	-4.37/-3.46	-3.21/-3.8	-4.73/-4.06	-4.01/-5.41	-7.27/-5.05	-3.92/-4.34	-6.79/-12.59	-14.76/-16.73	-17.22/-14.4	-16.07/-16.52	-13.59/-12.44	-11.77/-8.9	-4.34/-3.88	-3.71/-2.78	-1.57/-0.44	-0.09/0.81	-1.45/-2.24	-2.89/-4.38	-7.03/-9.22	-9.45/-13.81	
Theta (45°)	-12.22/-11.15	-7.32/-8.85	-7.38/-5.22	-4.39/-4.06	-3.94/-5.68	-6.05/-5.44	-7.18/-8.66	-7.12/-7.3	-7.21/-7.3	-10.33/-10.72	-12.77/-11.04	-11.46/-13.97	-17.81/-15.58	-14.67/-16.41	-18.31/-17.09	-11.02/-8.13	-7.24/-6.86	-6.36/-3.9	-2.65/-1.71	-2.05/-2.43	-1.72/-1.69	-2.89/-3.97	-6.55/-7.27	-9.58/-13.33
Theta (52.5°)	-17.31/-12.83	-11.61/-11.54	-8.98/-6.73	-6.36/-6.03	-6.02/-6.9	-7.97/-7.18	-7.95/-6.95	-8.12/-9.73	-11.15/-9.49	-10.59/-10.36	-14.81/-17.12	-18.61/-17.53	-18.94/-18.45	-10.85/-14.76	-12.87/-9.87	-9.65/-9.61	-8.17/-6.96	-5.4/-5.71	-4.81/-5.36	-6.63/-6.51	-6.02/-6.58	-9.17/-12.51	-10.47/-13.71	
Theta (60°)	-17.68/-13.55	-13.77/-17.59	-11.88/-11.57	-16.73/-9.5	-7.73/-6.45	-8.37/-9.91	-9.66/-10.53	-15.18/-11.41	-5.38/-3.73	-7.22/-14.16	-10.69/-12.22	-10.51/-13.75	-11.26/-14.49	-18.91/-18.64	-19.41/-16.42	-5.94/-4.3	-3.77/-5.37	-7.31/-7.38	-9.34/-10.42	-8.47/-10.86	-9.41/-12.4	-18.04/-16.77		
Theta (67.5°)	-10.68/-12.64	-19.04/-19.05	-15.83/-18.03	-16.53/-11.57	-1																			



Radiated Composite Gain Data (6GHz UNII5~UNII8)

Appendix B

Theta (°)	-12.06:4.67	-4.23:5.11	-9.57:13.91	-19.18:14.22	-10.17:9.48	-10.29:11.19	-9.07:6.37	-4.75:4.23	-4.69:5.94	-7.74:9.37	-9.39:15.89	-15.31:13.44	-13.82:13.76	-17.68:18.97	-12.81:8.82	-17.71:11.52	-9.1:2.1	-10.8:1.1	-5.15:16.2	-3.14:8.48	-18.19:7.66	-8.95:9.77	-10.97:17.79	-11.19:11.4
Theta (120°)	-10.41:5.7	-7.17:8.61	-18.99:14.6	-12.59:10.18	-5.97:5	-5.68:6.31	-6.11:5.44	-4.21:1.58	-4.04:9.84	-8.75:6.73	-8.63:10.4	-11.05:9.25	-15.23:19.16	-19.22:15.88	-14.8:13.89	-14.74:14.58	-8.79:11.68	-10.36:9.69	-9.13:13.13	-8.16:15.67	-11.24:9.68	-8.33:11.76	-17.77:13	-9.96:15.44
Theta (135°)	-6.34:9.8	-8.5:12.03	-18.11:9.02	-10.96:8.29	-6.13:4.7	-3.67:3.11	-6.14:4.52	-3.89:5	-6.28:6.75	-6.21:5.32	-9.42:10.4	-7.55:8.73	-14.25:17.34	-14.11:16.55	-6.62:7.77	-7.39:12.65	-8.51:6.63	-18.13:6.66	-7.05:15.37	-8.51:5.63	-4.23:6.27	-8.73:18.16	-12.37:11.98	-15.53:14.5
Theta (142.5°)	-11.97:18.12	-17.91:13.04	-7.73:6	-5.07:5.08	-5.15:2	-5.95:3.96	-3.52:2.4	-1.44:1.49	-2.49:7.01	-18.65:6.57	-4.97:4.33	-5.62:11.15	-12.96:13.91	-17.85:9.23	-9.22:5.56	-5.12:14.7	-17.75:10.42	-8.21:4.82	-13.13:10.17	-14.59:7.5	-3.75:4.43	-8.21:18.49	-18.62:17.28	-15.97:13.61
Theta (150°)	-10.82:7.52	-7.2:10.17	-15.53:11.8	-11.27:12.76	-17.7:15.62	-13.89:12.48	-8.38:4.17	-1.66:1.1	-1.77:3.38	-4.7:5.17	-7.49:8.13	-5.9:4.49	-6.29:11.21	-13.96:9.55	-7.42:1.56	-6.5:5.68	-7.2:16.23	-10.54:5.41	-8.26:14.22	-13.94:9.95	-4.77:2.92	-6.07:13.33	-18.57:12.48	-15.08:17.53
Theta (157.5°)	-13.67:8.3	-6.42:5.15	-6.64:9.15	-10.78:11.02	-10.01:10.31	-5.82:5.63	-5.21:4.56	-4.45:8.08	-13.33:9.72	-7.13:3.92	-10.37:4.41	-5.23:6.59	-6.27:7.74	-11.26:18.7	-17.2:15.82	-18.16:14.62	-9.81:7.84	-4.89:3.64	-4.56:6.64	-8.95:12.54	-10.82:9.24	-8.22:10.32	-16.81:19.07	-19.12:18.94
Theta (165°)	-11.29:9.78	-7.27:5.24	-4.71:4.79	-5.58:6.46	-7.01:7.5	-8.35:9.7	-11.9:10.03	-7.74:5.89	-4.01:3.86	-3.92:5.98	-8.01:10.55	-6.85:5.42	-6.02:8.12	-12.81:18.75	-17.94:17.57	-12.71:10.11	-9.83:9.46	-9.18:8.32	-7.93:9.11	-10.17:11.09	-13.61:15.02	-14.75:14.62	-16.79:14.81	-13.75:12.04
Theta (172.5°)	-12.28:8.86	-5.71:4.16	-3.32:2.21	-1.19:1.44	-2.38:1.69	-1.17:1.53	-1.77:1.04	-2.08:1.71	-5.3:5.51	-6.41:7.81	-9.15:9.86	-11.19:14.29	-18.02:17.77	-18.92:19.02	-17.07:18.61	-18.38:18.62	-17.69:14.41	-12.61:15.7	-13.04:16.1	-19.12:18.1	-17.54:17.1	-17.93:18.07	-18.53:18.69	-18.38:14.76
Theta (180°)	-11.39:9.59	-7.1:5.93	-5.03:3.7	-3.12:3.65	-3.21:2.72	-3.03:4.12	-3.94:4.66	-6.15:7.74	-7.66:9.88	-11.61:10.97	-10.81:10.7	-11.61:11.87	-12.59:14.17	-13.04:10.02	-8.02:7.24	-6.34:5.77	-4.84:4.5	-5.62:6.75	-6.98:8.53	-9.71:9.5	-10.22:12.06	-15.43:16.92	-17.44:15.86	-13.91:12.9
Gain (0°)	3.3:55	-3.83:4.24	-4.61:6.11	-7.21:8.24	-11.38:14.73	-15.26:15.32	-14.03:14.46	-9.3:9.14	-7.94:6.2	-2.25:2.29	-2.51:2.28	-2.52:2.29	-2.56:4.11	-4.96:5.6	-7.6:12.2	-13.73:15.44	-18.17:18.51	-14.16:9.23	-7.18:6.27	-5.27:3.81	-3.88:3.2	-2.88:2.8	-2.37:2.8	-1.51:1.08
Gain (7.5°)	-1.06:0.75	-0.17:0.88	-1.34:2.46	-3.61:5.16	-7.67:11.13	-15.62:17.93	-18.37:14.72	-10.89:8.34	-6.44:5.84	-5.67:5.32	-5.11:4.84	-5.3:5.92	-5.99:5.99	-6.17:6.41	-6.6:7.02	-8.02:8.99	-11.78:13.95	-16.26:15.56	-12.1:10.39	-9.38:7.86	-6.97:5.66	-5.56:4.51	-3.42:2.2	-1.33:1.23
Gain (15°)	-1.22:1.13	-1.53:2.3	-3.3:4.46	-5.93:7.13	-8.28:9.94	-13.36:14.84	-12.48:9.39	-6.94:5.08	-4.81:4.46	-4.85:5.55	-7.42:7.03	-7.47:7.31	-6.65:5.66	-5.22:4.52	-7.04:9.06	-11.3:13.4	-13.81:14.78	-19.78:18.94	-17.15:17.27	-12.66:11.33	-9.26:7.66	-7.55:6.92	-4.91:2.35	-0.73:0.74
Gain (22.5°)	-1.2:2.55	-2.29:1.87	-1.34:1.76	-2.46:3.76	-5.32:8.27	-12.02:17.99	-18.04:18.5	-14.8:15.9	-6.75:4.76	-5.6:5.89	-8.8:7.96	-4.47:3.61	-4.81:5.92	-7.16:9.36	-13.67:15.83	-18.01:18.45	-14.68:16.12	-18.72:17.55	-18.11:18.45	-17.94:17.29	-13.83:10.31	-9.54:7.37	-4.69:2.35	-1.1:1.08
Gain (30°)	-1.04:1.16	-1.16:0.36	-0.63:1.51	-3.88:5.93	-7.01:9.91	-17.5:18.52	-16.69:11.46	-11.35:9.73	-6.35:5.88	-5.67:5.32	-4.44:3.77	-3.04:4.11	-8.62:15.21	-18.55:17.38	-16.26:15.35	-11.21:9.46	-10.32:9.75	-11.54:18.29	-12.45:12.76	-18.94:18.74	-11.52:6.81	-7.08:13.16	-7.58:2.78	-2.26:1.54
Gain (37.5°)	-0.89:0.56	-1.62:1.28	-1.68:1.52	-3.21:4.88	-7.22:8.27	-10.36:16.76	-18.99:17.39	-12.81:7.27	-6.5:4.58	-2.84:2.24	-3.31:4.79	-6.34:5.73	-7.54:6.6	-8.01:7.9	-12.91:16.78	-17.93:17.72	-18.37:19.12	-17.25:15.07	-18.03:11.06	-8.38:9.98	-17.71:18.7	-8.82:6.61	-7.3	-3.92:1.6
Gain (45°)	-0.95:2.73	-1.97:0.66	0.09:0.03	-1.55:4.63	-7.15:8.01	-9.43:15.42	-17.69:17.87	-12.12:8.01	-4.82:9.21	-1.94:2.48	-3.28:2.22	-1.23:3.81	-7.11:15.08	-6.66:17.23	-9.5:6.33	-7.38:7.74	-6.63:5.66	-7.89:17.9	-15.53:14.88	-11.71:9.74	-7.65:11.88	-8.93:7.39	-4.26:1.23	-2.78:2.54
Gain (52.5°)	0.22:2.47	-3.53:1.07	-1.07:1.47	-2.24:2.49	-2.94:6.33	-8.75:12.43	-18.34:18.86	-10.94:6.47	-5:3.33	-1.62:0.75	-1.83:3.18	-3.8:7.96	-6.08:10.25	-11.66:17.92	-18.31:9.45	-17.62:12.47	-9.26:10.95	-10.28:11.19	-16.17:12.94	-13.44:19.32	-7.31:7.87	-8.06:7.78	-3.28:1.4	-3.87:0.9
Gain (60°)	-2.21:2.2	-1.78:1	-0.97:0.35	-3.35:2.42	-3.37:5.41	-10.81:16.92	-17.62:15.75	-14.47:11.99	-4.27:4.2	-2.38:0.6	-1.32:3.3	-3.43:10.29	-5.9:7.2	-12.76:16.34	-18.02:12.98	-12.46:12.31	-10.23:13.17	-9.86:15.7	-18.87:8.73	-5.17:11.8	-7.22:7.43	-4.31:3.47	-2.6:2.68	-2.04:0.24
Gain (67.5°)	0.18:2.41	-2.98:1.29	-2.02:2.27	-2.19:1.89	-2.67:5.01	-9.39:14.03	-14.07:17.24	-18.07:13.41	-5.62:4.75	-2.60:0.1	-5.5:3.53	-5.51:4.93	-3.5:8.2	-7.47:10.09	-9.74:18.99	-7.5:10.57	-4.97:13.03	-7.31:19.19	-4.29:4.45	-2.56:2.99	-2.36:0.23	-4.33:0.77	-2.78:2.54	-2.04:0.24
Gain (75°)	-0.73:1.62	-1.73:0.96	-0.95:1.03	-1.17:2.47	-3.42:8.84	-8.66:14.05	-13.03:9.77	-16.17:15.84	-6.12:7.29	-3.43:0.78	-1.08:2.07	-4.07:13.2	-2.65:0.99	-5.13:4.63	-6.65:6.4	-5.27:4.29	-1.66:7.06	-3.72:5.77	-1.42:9.37	-1.59:4.93	-5.16:6.16	-0.76:1.78	-2.89:2.77	-1.26:0.77
Gain (82.5°)	-0.49:1.23	-1.44:0.78	-1.45:1.59	-0.53:1.36	-4.57:6.5	-8.06:6.4	-10.52:14.88	-18.71:19.22	-7.5:3.87	-0.97:0.44	0.92:2.69	-1.09:0.03	-3.24:5.02	-2.73:2.63	-7.14:0.8	-2.35:5.15	-1.97:6.07	-4.57:5.07	1.72:3.4	-3.32:1.42	-2.69:4.27	-1.23:1.41	-0.96:1.28	-3.28:0.38
Gain (90°)	-0.43:0.48	-0.98:0.11	-1.71:3.38	0.06:2.27	-5.69:6.01	-6.64:8.24	-13.16:8.5	-19.09:5.96	-1.64:1.24	1.51:1.77	-0.310:39	-12.75:6.32	-5.06:2.39	-9.25:4.22	-11.63:5.39	-8.37:2.22	-11.95:15.8	-0.05:5.87	-11.63:5.58	-6.26:3.47	-4.0:7.9	-3.04:2.1	-3.58:0.73	-2.78:2.54
Gain (97.5°)	0.7:0.26	0.24:0.09	-0.72:1.16	0.66:2.72	-0.04:7.77	-8.29:8.8	-8.63:12.46	-17.29:17.63	-6.62:4.32	-1.050:7.6	1.6:0.01	-0.220:15	0.94:6.09	-6.4:5.47	-9.13:5.81	-9.14:9.78	-4.68:5.37	-7.66:12.8	-8.85:15.55	-6.8:5.79	-3.51:3.19	-5.51:2.2	-1.04:2.6	-5.02:1.36
Gain (105°)	1.35:0.71	0.1:0.61	0.43:0.37	-0.1:3.81	-7.68:11.31	-8.63:9.96	-12.78:14.14	-15.03:13.85	-12.86:7.26	-0.612:3.1	2.25:0.05	1.010:29	-3.03:8.9	-7.61:9.47	-9.86:12.26	-18.32:7.39	-7.21:6.91	-15.78:7.54	-19.7:7.87	-5.8:7.35	-6.22:3.09	-3.09:1.6	-2.73	-3.79:0.94
Gain (112.5°)	1.05:1.92	-1.57:1.49	0.50:0.37	-0.73:3.77	-8.96:8.93	-7.02:11.08	-12.98:17.75	-10.9:14.74	-0.532:1.4	0.978:0.77	0.290:0.29	-2.59:1.99	-6.82:18.92	-18.19:9.4	-11.84:12.22	-18.29:9.33	-15.28:10.99	-5.17:3.34	-6.41:4.56	-6.04:6.32	-4.17:3.72	-2.21:0.57	-1.47:3.72	-2.21:0.57
Gain (120°)	-2.15:2.84	-0.75:1.26	0.92:1.12	-0.94:5.34	-8.57:8.64	-7.17:7.74	-10.79:7.65	-11.5:18.43	-7.02:1.13	-1.93:1.43	1.95:1.26	-0.8:1.19	-0.82:4.71	-12.45:18.1	-11.03:13.61	-9.58:9.7	-5.2:9.94	-8.9:14.49	-11.97:9.01	-11.7:3.46	-7.63:12.26	-11.6:4.83	-2.36:3.7	-2.26:0.22
Gain (127.5°)	-3.58:0.19	0.07:2.02	-1.5:1.2	-1.84:4.69	-8.91:9.18	-10.41:13.74	-18:8.51	-12.48:10.8	-4.93:2.72	-3.77:1.13	2.1:0.14	-1.280:1	0.45:2.93	-14.38:13.8	-13.45:12.8	-7.29:17.52	-11.64:12.1	-15.89:8.58	-13:18.11	-10.45:12.26	-10.1:10.99	-15.16:8.23	-9.21:13.1	-0.68:1.98
Gain (135°)	-4.11:0.94	-1.79:5.31	-3.64:3.17	-3.99:4.67	-4.93:4.39	-4.93:6.39	-13.95:17.35	-13.88:14.25	-5.23:0.53	0.1:6.9	0.031:97	1.6:11.41	-7.49:2.51	-3.63:5.17	-4.5:4.03	-5.08:6.92	-14.88:14.26	-10.61:7.29	-18.14:8.33	-16.76:10.02	-4.03:3.84	-10.27:14.75	-9.75:3.04	-1.81:3.85
Gain (142.5°)	-2.16:0.5	-2.17:4.45	-2.66:1.25	-1.29:2.87	-4.4:3.6	-5.68:6.63	-10.37:18.24	-13.77:8.65	-5.58:3.6	-2.19:0.85	-1.23:0.77	1.43:1.06	-3.65:8.1	-5.31:2.36	-1.24:1.53	-6.66:2.25	-19.05:14.1	-11.48:17.33	-10.17:10.25	-11.3:5.76	-4.85:5.95	-7.61:14.83	-13.03:9.42	-10.38:7.19
Gain (150°)	-1.93:6.49	-4.02:1.46	-4.53:0.66	-5.15:4.75	-6.2:5.74	-6.01:9.36	-12.39:10.5	-8.39:6.06	-3.3:0.55	0.620:0.67	0.79:0.92	-1.14:1.58	-2.07:3.27	-1.91:3.06	-2.78:4.29	-4.29:6.41	-9.63:9.94	-4.35:10.35	-14.25:10.52	-11.77:12.21	-10.61:14.1	-5.15:5.97	-10.68:14.35	-11.53:11.44
Gain (157.5°)	-4.91:4.46	-5.63:6.19	-8.04:9.36	-9.49:9.27	-11.3:9.78	-8.11:8.14	-8.26:7.14	-5.8:5.06	-4.48:1.97	-0.420:1.1	0.981:35	0.71:1	-3.26:7.79	-8.49:9.84	-13.77:15.46	-13.79:14.13	-13.82:9.8	-9.13:14.31	-13.11:13.17	-17.89:17.29	-13.73:10.49	-8.9:6.7	-9.64:18.41	-18.14:8.93
Gain (165°)	-7.92:6.37	-7.25:10.48	-13.19:15.31	-15.59:12.12	-11.31:10.59	-10.34:8.85	-8.18:7.47	-6.14:5.33	-3.13:1.89	-0.860:0.2	0.750:3	-1.9												



Radiated Composite Gain Data (6GHz UNII5~UNII8)

Appendix B

Theta	18.43-19.1	18.85-16.71	9.61-5.64	3.19-1.78	0.83-0.34	0.48-0.9	-1.22-1.14	-1.66-2.63	-3.22-2.95	-3.04-3.84	-5.28-7.35	-10.11-13.37	-19.05-18.43	-19.16-17.35	-17.99-18.34	-17.85-18.4	-17.19-14.71	-16.14-16.08	-14.74-12.48	-11.09-10.34	-9.15-9.77	-12.11-16.88	-17.19-14.85	-15.93-15.61
Freq(Hz)	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol	18.175GPol
Gain	Phi(0°)Phi(7.5°)	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
Theta(0°)	-2.58-2.35	-2.63-3.06	-4.39-5.71	-7.28-8.74	-9.9-12.1	-18.13-18.66	-17.98-19.28	-12.37-11.48	-10.58-7.47	-8.84-4.84	-6.55-3.75	-2.89-2.43	-2.54-2.48	-2.61-2.61	-3.56-4.52	-6.38-8.55	-10.84-13.45	-16.61-18.47	-17.26-18.13	-12.94-9.91	-8.77-7.91	-7.5-4.3	-4.12-3.22	-2.71-2.32
Theta(7.5°)	-3.09-3.27	-3.68-4.88	-6.18-7.36	-8.95-8.12	-8.25-10.1	-12.96-13.03	-13.41-15.67	-16.73-18.48	-14.16-10.62	-8.17-6.91	-5.59-3.92	-3.03-2.73	-2.62-2.09	-5.42-6.67	-8.2-10.01	-12.41-13.3	-13.99-16.45	-16.97-11.46	-19.23-17.93	-16.66-8.5	-9.95-6.1	-7.3-5.85	-4.24-3.72	-2.88-2.52
Theta(15°)	-4.39-5.31	-6.11-7.58	-7.44-6.26	-5.71-4.69	-5.56-7.09	-8.09-8.03	-10.51-13.08	-13.13-17.68	-15.35-13.45	-12.99-9.72	-7.85-6.25	-5.08-3.89	-3.57-1.54	-6.04-6.24	-6.51-7.04	-7.07-7.71	-9.08-12.06	-13.12-11.72	-11.44-15.74	-15.76-17.34	-17.64-18.35	-19.04-17.6	-10.38-9.65	-5.23-4.16
Theta(22.5°)	-5.09-8.16	-8.75-8.17	-7.74-5.31	-4.31-5.26	-8.25-10.31	-12.96-13.3	-12.11-10.95	-11.54-11.3	-9.89-9.11	-10.43-7.62	-5.57-4.2	-3.61-7.35	-4.88-6.03	-6.93-5.87	-4.77-4.33	-4.33-6.77	-7.16-9.22	-14.02-19.32	-17.38-13.57	-9.63-8.29	-7.98-6.97	-6.33-7.26	-9.16-7.18	-5.42-3.86
Theta(30°)	-3.09-4.55	-6.96-6.49	-7.07-5.29	-5.54-9.85	-14.88-18.08	-18.07-18.32	-18.13-12.17	-9.01-7.43	-5.99-6.01	-6.84-7.55	-4.12-9.2	-2.34-3.89	-6.03-5.29	-3.46-1.96	-1.56-2.5	-2.85-3.77	-7.69-11.68	-12.94-18.16	-19.23-17.93	-16.86-8.5	-5.54-5.34	-5.71-5.19	-6.44-6.28	-5.81-4.45
Theta(37.5°)	-3.23-3.39	-4.09-4.21	-5.78-5.08	-5.77-7	-8.76-10.25	-15.09-17.44	-12.67-9.92	-6.67-2.44	-4.17-4.48	-4.27-6.08	-5.66-3.95	-3.53-3.32	-4.51-3.48	-3.14-4.73	-4.77-9.93	-6.92-8.94	-12.24-17.65	-18.49-13.7	-13.81-18.43	-12.12-18.48	-9.43-10.3	-9.2-8.46	-6.77-7.15	-7.34-6.21
Theta(45°)	-4.97-1.05	-1.05-2.34	-2.94-1.72	-2.71-4.94	-6.92-11.08	-14.38-12.65	-10.23-7.06	-5.83-6.37	-5.3-3.4	-4.34-6.42	-4.25-3.96	-2.75-2.84	-4.29-5.95	-3.89-3.7	-5.49-4.32	-5.86-6.85	-10.15-10.85	-10.06-15.3	-13.44-8.95	-9.27-8.62	-10.52-10.98	-14.3-7.46	-7.34-2.88	-4.26-6.72
Theta(52.5°)	-3.63-1.29	-1.31-1.75	-0.3-0.67	-2.77-4.64	-6.68-9.73	-19.07-10.33	-6.55-6.62	-4.81-3.31	-1.94-3.66	-6.05-6.31	-5.33-2.33	-4.9-2.76	-5.68-3.98	-3.03-4.59	-5.59-5.39	-7.91-15.89	-16.27-18.32	-12.76-8.79	-6.92-7.02	-4.46-7.06	-5.6-7.56	-8.98-4.65	-3.62-6	
Theta(60°)	-5.52-2.14	-2.32-0.84	0.38-0.68	-1.92-2.95	-4.36-6.03	-10.82-10.69	-6.25-4.93	-4.38-2.59	-1.53-2.07	-3.05-2.23	-4.35-3.04	-1.66-2.39	-5.1-6.13	-2.13-2.29	6.41-1.93	-3.86-4.38	-6.82-14.25	-12.89-14.74	-13.49-10.14	-7.5-4.31	-2.87-2.89	-8.33-9.77	-8.03-7.34	-3.25-4.17
Theta(67.5°)	-7.36-3.82	-4.49-1.25	-0.51-0.76	-0.79-1.55	-2.97-5.3	-10.12-10.27	-8.38-6.79	-3.79-2.52	-1.51-1.54	-3.24-3.97	-4.04-4.03	-0.67-1.5	-4.64-4.13	-1.55-2.86	4.84-1.29	-4.07-2.13	-5.52-7.72	-13.72-18.05	-10.64-16.18	-11.32-8.38	-2.54-4.68	-7.12-10.17	-14.53-11.14	-5.31-9.49
Theta(75°)	-6.47-6.56	-5.44-3.33	-2.60-0.34	0.13-2.04	-2.69-5.95	-9.05-11.55	-8.88-7.08	-3.79-1.26	-0.65-2.55	-3.36-1.48	-3.43-2.23	-0.99-1.35	-4.21-2.5	-1.15-1.58	-3.01-5.03	-4.32-6.12	-9.11-7.53	-4.42-7.99	-5.97-14.63	-1.46-3.43	-12.53-10.34	-12.43-15.54	-7.97-6.41	
Theta(82.5°)	-4.17-5.01	-3.4-4.89	-2.71-2.18	-2.36-2.78	-3.51-5.79	-11.94-16.33	-6.97-4.41	-3.84-0.65	0.4-0.74	-3.77-5.55	-3.33-0.92	-0.63-0.35	-3.63-1.17	-0.15-3.28	-1.74-2.99	-6.32-4.54	-3.29-2.73	-3.88-2.96	-2.47-2.12	-1.46-7.9	-4.89-3.66	-6.2-8.56	-10.75-9.07	-4.43-4.53
Theta(90°)	-1.95-2.12	-3.11-5.19	-1.91-2.99	-2.52-2.66	-5.99-8.08	-11.55-11.63	-8.37-5.4	-5.08-1.59	-0.42-0.42	-1.9-4.1	-2.84-1.9	-1.25-1.5	-0.98-2.24	0.43-1.4	-3.3-5.45	-4.94-6.28	-2.93-2.76	-4.41-1.48	-0.93-5.76	-1.37-3.82	-6.12-1.35	-7.59-4.7	-7.34-3.77	-3.87-3.57
Theta(97.5°)	-2.61-1.05	-2.72-2.28	-1.88-3.39	-2.32-5.28	-9.95-12	-9.58-12.25	-7.93-5.69	-5.04-2.13	-1.87-0.68	-1.92-5.24	-1.11-0.99	-0.77-1.78	-0.51-3.48	-2.95-5.6	-4.21-6.28	-7.97-5.57	-5.77-2.18	-4.49-6.66	-1.35-3.32	-5.74-2.02	-8.29-3.78	-6.07-2.4	-3.51-3	
Theta(105°)	-2.36-0.05	-3.61-0.18	-0.32-2.29	-1.08-2.45	-8.34-13.57	-10.41-12.01	-10.39-8.66	-6.99-3	-0.51-0.04	-1.58-2.86	-1.69-0.51	0.31-3.44	-1.18-0.64	-1.25-2.81	-4.61-3.29	-5.01-5.17	-9.07-1.12	-11.31-4.64	-10.16-15.83	-5.58-0.69	-15.66-7.59	-14.18-7.45	-4.01-1.48	-4.21-2.82
Theta(112.5°)	-2.78-2.67	-2.05-1.09	0.74-0.99	-0.04-1.4	-6.86-6.74	-12.5-19.3	-9.72-11.4	-7.69-3.99	-1.02-0.8	-1.32-1.23	-1.68-0.15	0.88-0.72	-2.12-1.9	-1.59-1.75	-1.02-0.58	-2.4-8.1	-19.02-6.11	-12.47-1.3	-7.35-7.37	-4.63-2.16	-11.19-9.94	-16.68-9.48	-11.86-5.33	-6.17-7.4
Theta(120°)	-3.97-3.31	-0.75-0.84	0.21-0.97	1.04-1.24	-3.53-5.1	-9.02-14.88	-10.84-6.84	-4.27-1.95	-0.57-0.57	-0.41-4.48	-4.33-0.75	0.84-0.45	-3.53-3.33	-3.52-5.91	-12.62-15.28	-9.22-11.9	-4.39-5.42	-16.93-16.11	-7.68-13.48	-15.96-9.45	-11.46-10.7	-8.76-7.95	-11.47-10.2	-8.56-5.63
Theta(127.5°)	-5.13-3.61	-1.03-0.46	1.72-5.8	1.71-0.92	-2.24-4.32	-10.81-18.86	-11.62-10.33	-6.39-2.59	0.02-0.01	-0.29-1.14	0.89-1.26	-1.44-0.27	-0.13-1.56	-1.73-1.48	-3.56-7.72	-8.03-7.3	-8.62-17.82	-10.24-11.54	-7.46-7.09	-8.12-11.47	-7.46-9.78	-15.31-15.03	-10.23-9.04	-18.93-7.01
Theta(135°)	-4.37-2.62	-0.67-0.11	0.66-0.75	0.31-0.83	-1.47-4.1	-11.62-17.53	-11.16-9.29	-7.3-6.1	-1.34-1.04	0.03-0.7	0.18-1.18	-1.44-0.54	1.47-1.24	-4.49-3.58	-1.34-3.6	-7.46-15.77	-9.52-18.36	-9.17-3.88	-8.1-18.08	-14.25-7.04	-5.02-6.61	-9.95-11.06	-8.76-8.58	
Theta(142.5°)	-1.49-0.08	0.96-0.61	0.07-0.01	-1.16-0.11	-1.46-4.55	-10.25-17.64	-12.53-9.01	-9.51-2.89	-1.34-0.57	-0.58-1.99	0.48-0.98	1.08-0.11	-0.58-1.76	-2.49-4.89	-3.89-2.38	-2.5-6.15	-7.45-18.21	-15.63-18.98	-10.28-7.34	-10.92-13.6	-9.86-7.31	-9.36-14.41	-13.47-7.51	-6.37-8.99
Theta(150°)	-1.98-2.61	-1.93-0.82	0.01-0.79	-1.2-2.39	-3.12-4.77	-9.09-16.1	-17.96-19.02	-11.96-6.6	-3.94-3.14	-2.31-0.58	0.07-0.62	1.58-1.06	-0.29-4	-3.72-2.04	-0.63-1.72	-4.7-10.51	-19.2-11.37	-9.28-17.77	-13.06-9.89	-10.96-13.85	-14.72-17.37	-11.35-9.89	-7.4-4.01	-5.79-5.63
Theta(157.5°)	0.31-1.35	-2.51-3.63	-2.58-3.09	-1.82-4.24	-5.48-9.31	-13.09-18.85	-19.98-18.19	-10.72-5.46	-4.73-4.08	-1.82-0.15	1.38-1.94	1.24-0.22	-1.89-3.78	-2.71-4.06	-7.81-13.63	-11.28-12.35	-14.57-12.7	-12.04-17.89	-18.66-15.74	-11.1-10.63	-10.79-12.8	-12.08-9.12	-6.81-3.28	
Theta(165°)	-4.17-4.58	-3.93-3.37	-1.81-0.78	-1.17-2.28	-3.98-5.93	-13.13-13.75	-18.32-16.78	-12.53-8.78	-6.07-4.11	-2.54-1.17	-0.10-0.57	-0.53-1.11	-6.3-2.4	-6.27-11	-12.69-13.54	-14.91-12.44	-19.12-12.25	-19.31-17.94	-14.43-13.79	-15.96-13.57	-12.66-11.57	-8.97-9.47	-13.98-11.5	-6.12-4.03
Theta(172.5°)	-7.52-6.8	-7-6.3	-4.83-4.18	-4.19-6.55	-8.5-10.73	-13.17-16.8	-19.18-18.92	-17.86-11.72	-9.39-8.27	-5.95-2.88	-1.18-0.68	-1.14-2.26	-4.52-7.88	-8.43-9.11	-9.22-10.22	-13.25-17.35	-18.86-17.67	-18.01-17.41	-19.19-17.43	-18.27-13.49	-11.53-9.93	-8.43-9.95	-11.71-10.48	-9.56-8.91
Theta(180°)	-6.42-3.57	-6.06-4.68	-6.31-8.04	-8.75-10.59	-11.79-13.3	-13.92-16.73	-18.57-18.05	-14.43-10.68	-8.81-8.19	-6.87-5.85	-6.27-5.9	-7.96-7.6	-8.86-4.17	-3.84-2.22	-4.79-6.96	-9.65-12.66	-16.01-16.99	-18.99-17.96	-17.73-18.08	-13.91-11.21	-10.18-9.38	-8.05-7.35	-6.98-6.2	-5.79-8.47
Freq(Hz)	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol	6.475GPol
Gain	Phi(0°)Phi(7.5°)	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
Theta(0°)	-18.28-18.93	-15.62-13.53	-13.03-10.35	-8.66-7.31	-5.92-4.89	-4.64-6.64	-5.06-5.03	-4.61-6.45	-4.89-5.86	-7.89-9.4	-12.33-16.22	-18.91-18.4	-19.13-17.86	-15.48-12.21	-10.4-10.3	-9.19-7.66	-6.52-7.61	-5.67-6.81	-5.66-6.12	-6.51-6.88	-6.74-7.43	-8.14-9.81	-11.31-13.17	-15.88-18.89
Theta(7.5°)	-18.16-15	-12.11-8.8	-11.59-9.33	-8.25-7.76	-7.91-7.28	-6.02-4.74	-4.94-5.95	-5.62-5																



Radiated Composite Gain Data (6GHz UNII5~UNII8)

Appendix B

Theta (°)	-18.32/-17.83	-11.16/-9.83	-12.89/-16.86	-9.95/-8.99	-8.94/-18.12	-13.91/-12.78	-10.16/-8.17	-10.41/-13.01	-13.45/-18.32	-12.65/-8.28	-5.71/-8.44	-11.16/-11.48	-17.83/-14.27	-11.29/-13.28	-14.35/-12.39	-10.12/-6.73	-7.02/-8.52	-14.9/-18.9	-14.04/-7.99	-11.93/-19.38	-17.34/-18.67	-16.34/-17.11	-18.8/-13.24	-18.95/-15.92
Theta (127.5°)	-17.11/-14.96	-15.64/-11.42	-12.77/-16.68	-14.29/-8.51	-9.19/-17.6	-10.69/-7.73	-6.53/-3.33	-8.87/-8.66	-8.29/-17.82	-17.5/-8.16	-7.2/-9.37	-13.84/-12.26	-16.87/-16.84	-15.1/-14.97	-9.05/-10.03	-10.94/-9.83	-8.58/-9.69	-9.61/-17.61	-18.31/-5.46	-3.26/-17.04	-12.17/-7.29	-13.98/-15.63	-11.95/-17.97	-8.99/-16.63
Theta (135°)	-12.88/-10.62	-9.52/-12.96	-18.6/-14.89	-13.3/-17.17	-14.07/-12	-12.89/-17.45	-7.84/-5.2	-6.66/-5.18	-4.89/-7.9	-10.69/-9.43	-7.41/-6.81	-9.61/-12.23	-17.41/-18.7	-19.09/-12.63	-9.37/-9.47	-18.9/-10.36	-14.05/-4.37	-10.63/-13.09	-18.71/-2.85	1.26/-12.76	-9.3/-5.84	-2.9/-14.47	-10.98/-6.4	-5.55/-9.4
Theta (142.5°)	-6.51/-5.84	-8.82/-9.57	-18.86/-13.96	-10.08/-11.47	-16.02/-16.96	-18.4/-15.89	-6.26/-6.02	-8.76/-7.5	-6.33/-8.17	-11.2/-13.47	-10.08/-8.13	-9.07/-11.24	-14.8/-17.14	-18.76/-18.47	-11.2/-14.35	-14.81/-13.63	-4.94/-5.6	-6.09/-13.29	-10.1/-3.59	0.85/-3.63	-18.6/-12.14	-6.28/-10.27	-12.69/-6.17	-14.02/-18.45
Theta (150°)	-7.5/-7.28	-10.62/-12.32	-14.68/-19.29	-18.45/-17.9	-16.63/-17.73	-17.69/-11.99	-9.88/-10.11	-11.51/-11.94	-11.62/-10.94	-11.53/-10.98	-12.36/-11.8	-10.1/-9.71	-12.39/-14.01	-18.61/-17.89	-13.83/-18.94	-18.22/-11.95	-9.73/-7.77	-6.71/-8.64	-11.69/-7.48	-3.75/-3.6	-6.99/-9.72	-10.14/-10.8	-9.31/-7.7	-15.45/-8.54
Theta (157.5°)	-11.63/-17.1	-16.08/-13.89	-17.49/-16.73	-14.84/-16.22	-17.52/-19.11	-19.5/-18.96	-14.99/-9.3	-5.95/-5.1	-6.93/-11.49	-11.72/-9.96	-9.67/-10.29	-11.16/-13.63	-16.57/-14.24	-18.3/-13.96	-6.05/-3.42	-3.07/-4.46	-6.59/-8.07	-8.86/-9.14	-7.35/-3.71	-1.55/-1.43	-2.07/-4.3	-8.94/-11.21	-9.99/-8.08	-9.01/-10.84
Theta (165°)	-15.19/-18.29	-17.34/-14.67	-13.78/-13.83	-14.19/-14.8	-17.16/-19.09	-18.08/-16.14	-14.51/-11.81	-11.24/-9.59	-8.28/-7.87	-8.45/-9.84	-10.93/-12.67	-13.69/-14.82	-17.53/-17.97	-19.27/-14.62	-11.49/-11.78	-9.5/-6.96	-7.58/-8.71	-9.9/-9.33	-8.21/-7.25	-7.08/-4.06	-1.89/-1.68	-3.15/-5.58	-7.58/-8.95	-12.54/-17.9
Theta (172.5°)	-18.45/-19.02	-15.75/-17.19	-17.24/-13.22	-11.02/-10.64	-12.29/-13.23	-14.16/-13.79	-14.13/-13.48	-13.71/-14.55	-15.09/-17.39	-18.16/-19.22	-16.34/-13.53	-11.66/-11.71	-12.03/-12.44	-13.13/-14.49	-13.99/-13.54	-12.93/-11.26	-10.56/-8.53	-7.64/-8.66	-8.04/-8.09	-7.3/-6.71	-6.41/-6.7	-7.72/-10.31	-14.48/-18.97	-18.21/-18.13
Theta (180°)	-17.95/-14.99	-16.05/-15.37	-14.08/-16.72	-17.26/-17.58	-18.25/-17.72	-18.13/-18.44	-16.36/-15	-15.86/-15.27	-13.37/-11.38	-10.81/-10.2	-10.04/-10.68	-11.62/-12.86	-14.04/-14.96	-16.64/-18.06	-17.71/-17.78	-18.11/-19.11	-12.11/-16.53	-13.62/-12.69	-17.89/-19	-17.54/-14.98	-11.55/-11.34	-12.77/-16.88	-18.29/-19.43	
Freq(Hz)	6.995GPol.	PhiAnt. 4																						
Gain	Phi(75°)Phi(75°)	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 (7.5°)	0.790/94	1.360/99	0.8/-0.12	-0.66/-1.75	-3.6/-5.29	-7.58/-12.02	-14.76/-11.39	-8.56/-5.88	-3.52/-1.37	-0.40/-7.6	1.532/44	2.842/9	3.063/01	2.592/44	1.70/94	-0.07/-1.31	-2.73/-5.2	-8.68/-11.29	-15.4/-18.61	-13.1/-8.09	-4.96/-2.77	-1.52/-0.77	-0.29/0.6	0.81/4
Theta (15°)	2.21/17.9	0.99/0.5	0.2/-0.51	-1.22/-2.55	-2.8/-4.23	-6.62/-9.37	-13.23/-14.24	-10.72/-7.76	-4.71/-2.43	-0.56/0.74	1.732/18	2.693/11	3.112/58	2.21/67	0.98/0.2	-0.47/-1.85	-3.88/-5.82	-7.13/-10.39	-10.98/-16.3	-14.26/-8.49	-4.69/-2.47	-1.61/-0.73	0.1/1.8	1.06/1.8
Theta (22.5°)	1.720/96	0/-1.22	-0.80/0.4	-0.05/-0.09	-0.73/-2.02	-4.1/-5.72	-9.24/-13.32	-12.94/-10.63	-7.61/-4.11	-1.490/58	1.893/06	3.223/38	3.342/99	2.932/86	2.642/19	-1.703/33	-2.52/-5.06	-7.71/-11.21	-17.03/-18.98	-15.4/-9.57	-6.06/-4.45	-2.98/-1.79	-0.69/0.68	1.07/1.39
Theta (30°)	-0.76/-1.37	-0.51/0.27	-0.01/-0.72	-1.15/-2.2	-3.97/-5.33	-7.28/-9.35	-15.51/-19.41	-19.25/-10.34	-7.22/-4.6	-2.22/0.25	2.353/42	3.793/44	2.943/12	3.413/61	2.61/69	0/2.21	-5.42/-9.18	-16.46/-14.62	-13.67/-18.3	-14.17/-9.16	-7.56/-8.2	-7.03/-5.85	-3.68/-2.07	-1.05/-0.64
Theta (37.5°)	-1.88/-1.02	-0.28/0.01	-0.37/-1.57	-2.92/-4.02	-4.6/-3.76	-4.51/-6.67	-8.06/-9.91	-10.7/-9.06	-5.46/-2.76	-1.32/0.01	1.463/01	3.272/91	2.552/97	3.623/54	2.521/21	0.2/-1.44	-2.92/-4.01	-5.07/-7.8	-11.21/-11.16	-10.02/-15.09	-10.46/-11.01	-9.53/-6.71	-4.39/-3.63	-3.47/-3.16
Theta (45°)	-3.06/-2.08	-1.66/-0.95	-1.65/-3.46	-4.88/-5.21	-4.13/-3.88	-4.3/-4.51	-5.03/-7.79	-10.15/-16.86	-10.12/-4.53	-1.79/-1.23	-0.41/4.8	2.872/97	2.232/33	3.063/09	1.811/22	1.130/26	-1.02/-2.37	-2.87/-4.29	-6.23/-9.37	-14.66/-17.39	-11.07/-8.2	-8.59/-4.79	-2.71/-2.96	
Theta (52.5°)	-5.71/-5.54	-3.44/-3.3	-4.47/-5.02	-5.91/-5.09	-4.09/-2.26	-1.86/-2.21	-3.51/-5.68	-13.71/-18.52	-11.75/-6.21	-3.01/-1.6	-1.97/-1.05	1.652/38	1.890/59	1.552/61	2.071/89	0.67/0.72	-2.37/-3.1	-3.18/-5.29	-7.5/-9.42	-13.56/-13	-13.64/-9.74	-8.18/-10.59	-7.32/-4.21	-6.03/-6.56
Theta (60°)	-8.85/-7.71	-5.73/-7.68	-7.57/-9.17	-9.13/-9.03	-7.48/-4.23	-3.15/-2.82	-3.28/-5.21	-12.37/-17.81	-5.89/-3.39	-2.91/-0.83	-0.18/-1.71	-0.571/98	3.31/57	2.022/22	1.41/-0.45	-1.21/-2.07	-3.03/-5.06	-5.9/-3.38	-6.5/-8.74	-10.17/-13.61	-16.6/-14.5	-18.85/-10.88	-4.53/-8.83	-6.52/-8.1
Theta (67.5°)	-8.77/-8.63	-7.31/-11.72	-10.51/-13.7	-13.21/-13.4	-6.74/-4.48	-5.98/-7.15	-4.09/-4.54	-11.94/-17.32	-8.45/-4.33	-2.86/-1.04	0.830/54	2.151/54	2.391/55	1.793/09	2.01/-0.82	-1.72/-0.48	-1.88/-5.45	-5.93/-5.35	-7.4/-8.33	-10.82/-16.26	-13.76/-11.38	-12.71/-6.2	-7.6/-8.37	-5.07/-12.89
Theta (75°)	-8.2/-13.87	-17.52/-9.8	-13.5/-17.46	-18.72/-17.6	-11.57/-10.08	-12.14/-12.07	-13.79/-12.78	-10.24/-18.05	-11.33/-5.94	-5.83/-2.74	-0.28/0.01	-1.78/-2.69	0.41/0.38	-0.26/0.04	1.89/-0.1	-2.61/-1	-1.2/-4.68	4.13/-1.54	-5.51/-6.03	-8/-19.17	-18.83/-10.1	-12.85/-13.35	-7.02/-4.83	-6.34/-7.18
Theta (82.5°)	-11.21/-10.01	-10.63/-15.68	-18.5/-15.53	-16.79/-16.2	-17.12/-16.6	-15.67/-18.19	-12.33/-15.24	-18.48/-13.41	-12.96/-6.81	-5.14/-4.92	-2.35/0.61	-0.91/-3	0.56/0.64	-0.78/0.31	0.41/-1.75	-2.80/1.9	0.19/-3.2	-2.32/-2.36	-3.41/-5.76	-13.74/-14.12	-19.42/-11.4	-19.17/-18.9	-5.6/-8.69	-5.23/-6.34
Theta (90°)	-4.79/-6.65	-16.87/-14.24	-11.94/-12.74	-14.98/-10.94	-9.92/-10.01	-12.21/-13.43	-7.59/-6.47	-9.65/-9.96	-11.08/-5.19	-3.31/-1.84	-3.97/0.66	0.15/-1.59	-1.52/0.64	0.06/0.1	-0.45/-4.59	-1.97/0.97	0.37/0.68	-0.09/-4.8	-5.14/-5.49	-14.17/-15	-17.17/-17.96	-13.47/-11.62	-5.77/-3.61	-0.65/-0.5
Theta (97.5°)	-3.14/-9.11	-4.7/-11.99	-9.56/-17.65	-10.59/-11.75	-16.33/-18	-18.66/-8.96	-9.12/-7.35	-12.51/-10.12	-8.52/-3.89	-1.71/-0.31	-2.14/-2.01	-0.52/-1.61	-3.84/-0.87	-3.77/-0.34	-0.53/-2.4	-2.09/-1.2	-1.54/-0.18	-2.29/-9.46	-12.89/-11.35	-18.82/-16.31	-15.74/-13.08	-10.84/-8.56	-7.69/-3.43	-1.54/-3.32
Theta (105°)	-5.46/-6.43	-3.32/-17.87	-12.3/-10.8	-7.53/-18.35	-15.26/-4.02	-8.06/-5.67	-9.2/-10.46	-15.22/-12.39	-7.61/-5.04	-3.39/-0.85	-2.76/-2.72	-2.2/-1.67	-4.15/-0.87	-1.88/-2.38	-3.62/-4.56	-4.61/-2.87	-2.13/-12.7	-1.27/-8.6	-10.66/-11.91	-9.95/-10.74	-8.2/-15.67	-15.38/-7.54	-5.14/-3.1	
Theta (112.5°)	-16.7/-6.48	-15.46/-8.09	-13.53/-11	-8.64/-19.07	-13.1/-13.27	-3.65/-4.48	-4.5/-8.07	-3.76/-3.48	-6.41/-2.55	-2.64/-2.73	-1.76/-3.26	-4.08/-4.09	-2.26/-2.43	-1.34/-1.62	-3.79/-6.51	-1.86/-1.42	-2.29/-11.08	-12.28/-5.61	-4.82/-9.9	-11.32/-11.31	-7.63/-6.69	-12.32/-11.87	-13.99/-9.32	
Theta (120°)	-9.75/-10.02	-8.7/-4.46	-11.39/-8.55	-10.55/-10.3	-13.08/-8.4	-9.09/-2.63	-3.28/-3.28	-3.81/-1.8	-4.84/-1.27	-0.71/-3.99	-4.06/-4.36	-1.42/-1	-1.65/-2.19	-0.58/-3.01	-2.3/-1.77	-5.71/-6.74	-0.88/0.79	-1.04/-9.64	-8.79/-4.26	-4.99/-11.73	-16.9/-13.92	-12.1/-8.48	-15.08/-9.7	-15.38/-17.71
Theta (127.5°)	-9.45/-10.18	-6.09/-8.01	-14.47/-11.64	-4.83/-2.69	-12.58/-8.23	-11.99/-13.2	-5.49/-1.4	-4.04/-3.25	0.44/0.02	-0.45/0.07	-3.77/-3.87	-3.41/-2.2	-6.74/-7.44	-4.91/-2.22	1.41/-6.33	-7.59/-5.44	-2.21/-3.39	-3.65/-19.16	-12.55/-11.87	-7.21/-15.24	-10.98/-12.94	-4.77/-8.2	-19.23/-15.49	-18.66/-12.25
Theta (135°)	-18.67/-12.86	-10.62/-10.85	-16.59/-11.62	-5.34/-2.94	-5.89/-6.36	-7.12/-9.59	-8.67/-6.75	-6.3/-8.07	1.17/0.42	0.34/-2.14	-1.3/-3.8	-3.15/-0.28	-2.04/-0.74	-2.89/-1.81	0.72/-3.23	-12.77/-7.44	-3.07/-3.89	-4.39/-17.67	-10.92/-10.74	-9.17/-8.62	-9.94/-11.3	-8.59/-13.67	-17.56/-16.58	-8.57/-10.91
Theta (142.5°)	-12.61/-18.15	-8.69/-6.48	-8.48/-12.47	-14.51/-18.34	-18.05/-12.4	-9.72/-13.57	-15.16/-9.49	-7.81/-4.9	-2.43/-2.69	-5.51/-5.57	-4.09/-5.36	-3.37/-2.86	-2.64/-3.3	-8.77/-8.4	-6.48/-10.96	-15.54/-7.66	-8.53/-8.99	-13.21/-10.01	-18.76/-16.3	-8.95/-8.23	-9.08/-4.1	-13.71/-11.68	-14.12/-13.66	-15.02/-10.03
Theta (150°)	-9.91/-13.06	-1.02/-9.61	-10.91/-12.57	-14.87/-15.65	-13.73/-9.14	-7.17/-9.42	-14.78/-18.5	-18.16/-9.09	-7.2/-9.17	-10.57/-8.43	-6.13/-5.52	-8.27/-10.26	-8.12/-7.44	-8.56/-8.1	-6.48/-4.27	-7.44/-11.8	-9.56/-12.6	-15.2/-12.25	-18.42/-11.58	-6.22/-6.69	-13.02/-14.01	-12.59/-10.25	-8.41/-10.52	-13.79/-3.4
Theta (157.5°)	-9.48/-7.55	-6.03/-6.86	-10.18/-11.25	-11.21/-10.17	-9.44/-13.92	-19.36/-17.11	-15.14/-17.77	-17.93/-18.76	-14.47/-11.86	-8.35/-7.51	-5.83/-4.78	-4.64/-6.06	-7.77/-8.24	-6.44/-3.88	-3.17/-4.21	-6.65/-8.53	-10.32/-8.83	-9.63/-10.82	-1					



Antenna Pattern (2.4GHz and 5GHz UNII 1~UNII 5)

Appendix C

Total Gain Data

Freq(Hz)	2.45GPol.	TotalAnt.1	0	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345
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°)	
0	-2.20-2.38	-2.54-2.77	-2.89-2.77	-2.49-2.17	-2.13-2.32	-2.58-2.64	-3.06-2.95	-2.67-2.57	-2.07-1.81	-1.87-1.82	-1.85-1.68	-1.64-1.55	-1.46-1.56	-1.76-1.98	-1.94-1.97	-1.85-1.58	-1.62-1.62	-1.54-1.95	-2.33-2.76	-2.91-2.85	-2.71-2.60	-2.53-2.36	-2.17-2.30	-2.12-2.05	
0(7.5°)	-1.60-1.82	-1.87-1.80	-1.71-1.67	-1.53-1.31	-1.07-0.98	-1.05-1.18	-1.51-1.60	-1.53-1.44	-1.49-1.53	-1.68-1.77	-2.36-2.41	-2.64-2.60	-2.75-2.93	-3.49-3.33	-3.94-1.0	-3.99-3.82	-3.48-3.35	-3.38-3.43	-3.66-4.10	-3.99-3.92	-3.83-3.51	-3.19-2.85	-2.56-2.21	-1.88-1.64	
0(15°)	-0.27-0.50	-0.26-0.19	-0.20-0.56	-0.55-0.71	-0.62-0.44	-0.46-0.44	-0.68-0.64	-0.65-0.60	-0.60-0.70	-0.84-0.87	-1.21-1.59	-1.72-1.99	-2.15-2.34	-2.87-3.44	-4.09-5.06	-5.28-5.60	-5.59-5.55	-5.10-4.95	-4.52-3.99	-3.55-2.97	-2.39-2.20	-1.75-1.53	-1.11-0.80	-0.38-0.17	
0(30°)	0.15-0.42	0.82-0.97	0.75-0.47	0.24-0.23	0.32-0.29	0.43-0.55	0.57-0.47	0.40-0.18	0.13-0.01	0.03-0.04	-0.10-0.23	-0.21-0.08	0.61-0.93	0.84-0.21	-0.76-2.41	-4.09-5.15	-5.01-4.88	-3.98-3.24	-2.54-2.23	-2.16-2.18	-1.84-1.55	-1.44-1.01	-1.03-0.71	-0.36-0.13	
0(45°)	-0.72-0.50	-0.11-0.17	0.15-0.15	0.39-0.66	0.76-0.91	1.22-1.36	1.47-1.63	1.76-1.79	1.81-1.81	1.48-1.21	0.82-0.23	0.65-1.20	1.34-0.13	0.15-1.41	-3.39-5.14	-5.78-5.67	-5.23-3.48	-3.76-3.52	-3.20-2.97	-2.65-2.20	-1.71-1.30	-1.29-1.21	-1.01-0.94		
0(60°)	-1.82-1.50	-1.14-0.90	-0.80-0.72	-0.27-0.18	0.49-0.73	1.08-1.49	1.88-2.36	2.68-0.09	3.38-2.29	3.10-2.63	2.02-1.13	0.29-0.54	-0.59-1.90	0.69-1.02	0.56-1.11	-8.41-6.97	-5.21-3.80	-2.81-1.64	-1.02-0.83	-0.10-1.23	-0.60-1.23	-1.38-1.75	-2.01-1.97		
0(75°)	-5.52-4.58	-3.50-2.69	-2.04-1.37	-0.95-0.82	-0.60-0.04	0.72-1.42	1.88-2.36	3.02-3.62	4.00-4.09	3.90-3.60	3.05-2.19	1.16-0.22	-1.34-1.65	-0.52-0.42	0.42-1.11	-4.10-6.72	-5.80-4.58	-4.05-3.64	-3.08-2.41	-2.51-2.99	-3.62-4.45	-4.41-4.43	-4.55-4.83	-5.34-5.92	
0(90°)	-4.17-6.41	-6.83-5.49	-3.71-1.92	-1.18-1.51	-1.78-1.40	-3.90-4.44	1.16-2.04	2.81-5.52	4.00-4.17	4.31-4.03	3.76-3.20	2.38-1.17	-0.56-1.88	-1.22-0.17	0.59-0.86	-3.16-5.55	-5.86-5.97	-6.92-7.85	-7.42-6.31	-5.80-5.35	-5.08-3.88	-2.30-1.16	-0.49-0.41	-0.88-2.05	
0(105°)	-3.01-1.67	-4.22-5.99	-5.69-3.21	-1.66-1.65	-2.30-2.05	-1.28-0.41	0.47-1.69	2.99-3.63	4.25-4.33	4.42-4.19	4.03-3.69	3.28-2.18	0.63-0.77	-1.04-0.31	-0.40-1.99	-5.31-9.98	-12.49-13.27	-13.02-10.98	-7.28-4.77	-3.68-3.40	-3.26-2.99	-1.65-0.01	0.99-1.64	1.74-2.11	
0(120°)	-0.18-1.29	-3.13-5.88	-6.86-5.10	-3.22-2.68	-2.75-2.08	-1.45-0.81	0.05-1.41	2.59-3.21	3.74-3.98	3.97-4.00	3.95-4.12	4.01-5.2	2.55-1.03	-0.76-1.74	-2.31-3.27	-6.12-9.04	-7.88-6.26	-6.62-8.52	-7.85-5.99	-5.31-5.04	-4.73-5.20	-5.04-3.43	-1.62-0.46	0.16-0.21	
0(135°)	-0.42-1.43	-3.29-6.22	-6.34-5.37	-4.22-3.67	-3.33-2.37	-1.24-0.29	0.73-1.67	2.35-2.89	3.02-3.10	3.07-3.30	3.74-4.12	4.50-4.26	3.49-1.82	-0.58-2.55	-2.44-2.61	-4.31-5.93	-5.14-4.46	-5.56-5.69	-5.20-3.96	-4.01-4.85	-4.96-4.56	-4.32-3.99	-3.11-1.71	-0.63-0.28	
0(150°)	-1.31-1.13	-2.14-3.91	-4.03-3.72	-3.65-3.97	-4.47-3.77	-1.75-0.10	1.81-2.99	3.74-3.94	3.92-3.63	3.46-3.40	1.81-0.47	4.24-0.36	4.24-0.36	3.97-1.12	-0.31-4.45	-5.24-6.55	-8.39-8.27	-6.48-6.70	-9.63-15.25	-11.76-9.81	-8.37-8.83	-9.17-10.38	-6.29-4.30		
0(165°)	-2.55-4.24	-4.50-4.48	-2.89-1.18	-0.48-0.57	-0.37-0.04	0.67-1.39	1.88-2.36	2.90-3.22	3.56-3.93	4.23-4.49	4.71-4.19	4.71-5.04	4.74-4.96	3.54-1.08	-2.24-4.09	-3.75-3.52	-3.96-4.63	-6.20-6.62	-6.00-5.53	-6.02-6.62	-6.42-5.97	-4.97-3.69	-3.41-3.22	-2.23-1.83	
0(180°)	0.68-0.29	-1.21-2.19	-2.56-2.00	-1.23-0.65	0.17-1.20	2.22-2.09	3.65-3.96	4.23-4.43	4.40-4.43	4.29-4.17	4.28-4.52	4.67-4.33	3.47-2.35	1.20-0.14	-0.27-0.14	-0.54-1.72	-3.12-4.29	-6.15-3.62	-9.46-9.43	-7.97-5.57	-3.40-1.87	-0.70-1.22	0.41-0.76	1.16-1.19	
0(195°)	0.44-0.69	0.85-0.87	0.65-0.54	0.42-0.62	0.90-1.78	2.82-3.83	4.66-5.05	5.31-5.30	5.04-4.78	4.46-4.22	4.06-3.97	3.61-3.27	2.44-2.36	2.32-1.11	1.96-1.78	1.20-0.49	0.08-0.32	-1.20-2.85	-5.10-9.06	-14.84-14.11	-9.92-7.01	-4.84-2.96	-1.69-1.09	-0.26-0.18	
0(210°)	-3.06-1.84	-6.10-6.21	-6.91-6.24	-7.32-7.23	-2.66-2.92	3.25-3.62	3.96-4.20	4.24-0.08	3.74-3.33	3.40-2.74	2.51-2.23	2.10-2.29	2.79-3.41	3.80-3.95	3.95-3.59	2.95-2.25	1.49-0.60	-0.78-2.40	-4.04-4.85	-4.96-4.70	-5.44-7.04	-6.88-8.98	-7.89-7.42	-6.41-4.74	
0(225°)	-7.77-8.17	-5.98-3.79	-1.77-0.00	1.68-0.66	4.11-4.87	5.29-5.55	5.65-5.52	5.19-4.80	4.26-3.83	3.61-3.60	3.52-3.94	4.40-4.80	5.26-5.49	5.57-5.41	4.88-3.93	2.71-1.22	-0.52-3.23	-4.33-2.67	-5.89-4.21	-2.43-1.34	-1.14-1.61	-2.62-3.10	-4.66-6.48	-7.84-9.69	
0(240°)	-6.73-9.07	-11.01-8.97	-5.97-2.75	-0.60-1.39	2.87-4.22	5.08-5.82	6.19-6.50	6.49-6.39	5.69-5.53	5.45-5.49	5.25-5.02	4.74-5.21	4.50-3.48	2.17-0.35	-1.51-3.26	-5.30-4.70	-3.53-2.35	-1.43-0.42	-0.13-0.15	-0.51-1.26	-1.88-2.83	-3.72-5.10			
0(255°)	-3.33-4.86	-6.80-8.30	-6.84-7.66	-5.71-3.81	-1.90-0.00	1.50-2.55	4.62-4.86	5.06-5.39	5.48-5.39	5.15-4.70	3.97-2.91	1.86-0.47	-0.94-2.63	-3.66-3.85	-1.76-2.27	-1.42-0.85	-0.60-0.26	-0.13-0.08	0.25-0.67	0.91-0.95	0.61-0.21	-0.24-0.71	-1.36-2.30		
0(270°)	-1.94-2.90	-3.37-4.03	-4.76-4.82	-5.13-5.19	-4.92-4.77	-3.71-2.97	-2.13-1.22	-0.72-0.17	0.29-0.40	0.45-0.10	-0.70-1.88	-3.09-4.69	-5.27-5.05	-3.82-2.43	-1.31-0.26	0.40-0.67	1.10-1.35	1.18-1.30	1.30-1.28	1.32-1.35	1.28-1.12	0.88-0.56	0.41-0.10	-0.60-1.26	
0(285°)	-1.53-1.62	-2.01-2.09	-1.93-1.81	-1.52-1.54	-1.47-1.51	-1.55-1.83	-1.98-2.07	-2.27-2.72	-3.07-3.61	-4.13-4.35	-4.12-3.61	-2.79-1.75	-0.96-0.18	0.38-0.87	1.06-1.23	1.21-1.10	0.89-0.66	0.50-0.26	0.01-0.11	-0.43-0.89	-1.16-1.54	-1.49-1.45	-1.30-1.24	-1.31-1.54	
5.2GPol.	TotalAnt.1	0	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	
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°)	
0	-4.21-3.88	-4.27-4.98	-5.65-5.96	-5.71-4.92	-4.89-4.72	-4.86-3.47	-3.67-3.06	-3.13-3.93	-4.45-4.60	-4.34-4.70	-4.41-4.37	-4.35-4.01	-4.37-4.59	-4.89-5.28	-5.49-5.50	-6.17-6.05	-5.44-5.44	-3.35-2.99	-3.26-4.45	-5.85-5.88	-4.85-4.63	-4.76-5.48	-5.60-6.18	-6.02-5.04	
0(7.5°)	-4.70-4.43	-5.02-5.78	-6.42-6.06	-6.07-6.05	-6.02-5.63	-4.86-4.95	-4.62-4.52	-3.90-3.86	-4.49-4.75	-4.68-4.33	-4.60-4.92	-5.23-4.96	-4.50-4.03	-4.55-5.07	-5.53-5.90	-5.81-5.56	-5.33-2.61	-2.31-2.63	-3.21-2.63	-3.57-3.59	-3.43-4.02	-4.60-5.36	-5.67-6.83		
0(15°)	-2.64-6.34	-6.69-6.96	-7.07-6.02	-7.54-6.04	-8.17-6.76	-6.58-3.67	-6.41-6.04	-4.69-3.32	-2.48-3.22	-2.61-2.42	-2.62-2.81	-2.78-2.26	-2.01-1.77	-2.29-3.41	-4.89-6.67	-7.88-8.23	-8.10-7.40	-5.62-4.35	-3.55-3.92	-4.95-5.91	-7.28-6.87	-6.17-5.37	-6.01-6.68	-6.64-7.02	
0(30°)	-6.26-6.62	-7.78-8.10	-7.51-7.01	-7.78-7.77	-7.37-7.24	-5.50-4.15	-3.43-2.88	-2.29-1.99	-2.23-2.36	-2.34-2.55	-3.19-3.38	-3.79-4.68	-6.14-7.99	-11.18-12.96	-10.97-9.14	-9.29-9.34	-9.91-10.89	-11.98-11.51	-10.66-8.59	-6.46-5.09	-4.15-5.44	-6.46-6.28			
0(45°)	-8.44-8.28	-8.22-7.78	-6.64-5.88	-6.70-6.08	-6.26-7.32	-5.49-6.75	-4.25-3.83	-3.20-2.82	-2.46-2.63	-3.10-2.89	-3.16-3.86	-5.25-6.53	-7.95-7.40	-5.51-6.67	-4.67-5.52	-6.38-6.27	-6.24-9.81	-11.12-9.73	-9.42-9.63	-9.95-11.89	-10.71-11.60	-10.71-10.16	-11.26-9.33		
0(60°)	-9.95-9.27	-12.45-14.74	-8.97-1.99	-7.12-5.75	-5.11-4.96	-5.24-5.34	-4.78-4.22	-3.70-3.44	-3.82-3.74	-3.30-3.44	-5.58-5.87	-6.49-6.94	-5.40-4.09	-3.88-4.28	-4.91-5.54	-6.26-6.68	-7.38-6.56	-6.84-7.74	-6.53-6.24	-6.56-6.59	-8.66-8.58	-9.86-8.61	-7.77-4.44		
0(75°)	-7.87-6.49	-7.54-9.09	-10.02-12.77	-8.54-5.34	-4.15-0.53	-6.80-6.55	-5.21-2.51	-1.54-1.42	-1.50-1.81	-2.18-2.39	-1.90-0.77	-1.12-0.29	-4.05-8.32	-7.41-4.88	-3.82-5.25	-8.14-9.11	-10.72-10.90	-8.52-10.20	-13.92-16.46	-12.80-8.83	-8.62-9.78	-9.55-9.58	-11.46-13.22	-15.45-13.75	
0(90°)	-6.75-5.71	-10.15-13.68	-6.86-6.62	-9.51-9.20	-6.46-7.01	-8.27-8.92	-7.39-6.20	-4.35-2.56	-1.38-1.49	-1.59-1.68	-2.52-3.18	-3.93-5.15	-1.29-6.55	-3.28-2.09	-3.71-7.69	-									



Antenna Pattern (2.4GHz and 5GHz UNII 1~UNII 5)

Appendix C

Theta (°)	0.00	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0(30°)	-4.00/4.96	-6.67/5.41	-5.00/5.08	-3.98/3.11	-2.33/2.28	-2.77/2.71	-2.41/1.22	-0.24/0.54	0.84/1.16	1.41/1.29	0.53/0.03	-0.72/0.56	0.03/0.14	-0.18/0.96	-0.88/1.60	-2.55/2.52	-1.73/2.41	-4.36/3.30	-3.11/4.28	-6.98/8.04	-7.68/6.96	-6.17/5.20	-4.86/5.12	-6.05/4.68	
0(37.5°)	-9.02/6.16	-5.57/4.36	-4.83/6.61	-6.07/5.20	-5.34/5.25	-4.69/2.96	-0.99/0.14	0.40/0.28	0.20/0.84	1.29/1.11	1.57/2.04	1.45/1.07	0.01/1.13	-0.49/0.17	-0.98/1.98	-1.98/1.98	-2.64/3.71	-2.76/2.76	-4.94/6.58	-6.03/7.70	-9.44/13.72	-13.62/11.08	-13.51/14.67	-10.85/12.12	
0(45°)	-5.78/9.28	-10.58/5.77	-6.98/8.14	-5.99/4.86	-6.21/6.17	-4.96/3.16	-2.43/1.66	-1.00/0.72	-0.53/0.04	0.67/1.19	1.44/1.51	1.47/0.41	-0.41/0.46	-0.01/0.07	-0.83/1.16	-4.04/6.08	-7.40/5.57	-6.47/9.31	-7.35/6.13	-7.59/6.96	-7.44/8.58	-6.52/5.59	-5.51/4.88	-4.84/5.63	
0(52.5°)	-8.26/7.20	-6.99/8.29	-8.35/7.21	-6.88/8.26	-9.07/5.17	-4.08/4.39	-2.32/0.47	0.44/0.75	0.65/1.37	1.75/1.54	1.62/0.97	1.04/1.63	1.24/0.27	-0.58/1.00	-2.66/4.70	-8.14/5.73	-4.81/5.47	-5.83/6.44	-10.00/9.07	-11.57/14.31	-9.59/4.44	-6.71/9.41	-7.12/8.27	-7.54/6.12	
0(60°)	-5.58/5.09	-8.88/8.48	-7.88/7.68	-6.14/6.53	-11.89/6.56	-3.75/3.69	-3.48/2.43	-1.05/0.03	0.59/1.53	1.96/1.90	1.61/1.51	1.53/0.86	0.39/0.04	0.01/1.29	-2.01/2.45	-4.02/7.55	-11.78/9.80	-7.89/8.14	-10.75/14.58	-12.28/10.05	-13.66/12.47	-7.62/5.92	-7.01/4.30	-5.58/5.80	
0(67.5°)	-6.90/5.99	-12.17/11.24	-8.42/9.81	-13.58/10.69	-7.33/6.80	-6.12/4.26	-2.90/1.66	-0.51/0.08	0.02/0.86	1.31/1.51	1.20/1.01	1.63/2.01	1.56/1.03	-2.09/0.93	-3.98/8.75	-15.48/13.42	-12.80/8.97	-9.26/15.31	-12.48/9.86	-11.09/12.15	-11.71/21.21	-11.69/14.83	-9.71/8.78	-6.36/11.39	
0(75°)	-7.52/7.59	-10.38/9.40	-8.94/13.95	-11.61/7.52	-6.64/7.03	-6.30/4.42	-4.26/2.05	-1.19/1.57	-0.58/0.72	0.38/0.35	0.82/0.93	0.56/0.53	1.60/0.22	-2.86/1.07	0.06/1.55	-8.57/13.18	-12.88/9.65	-9.43/12.49	-15.11/11.26	-8.93/9.55	-7.83/3.52	-3.92/9.51	-8.80/6.96	-5.78/7.26	
0(82.5°)	-10.09/6.44	-9.41/10.16	-7.44/9.31	-7.98/8.47	-11.43/10.76	-6.35/5.30	-4.00/1.83	-1.22/0.61	0.67/0.55	1.06/0.23	0.53/0.27	0.23/0.07	-2.51/3.35	-3.25/2.79	-7.81/11.85	-11.48/9.10	-14.07/10.87	-8.14/15.18	-9.25/13.13	-4.91/6.78	-6.19/11.96	-7.91/5.38	-4.57/7.25		
0(90°)	-5.08/3.59	-7.62/11.03	-8.62/7.31	-8.10/9.47	-10.39/7.86	-6.54/5.94	-3.52/1.24	-0.65/0.54	-0.20/0.25	1.23/0.53	-0.37/0.26	0.88/0.99	0.72/0.57	-2.66/2.98	-1.82/1.93	-6.68/6.03	-9.82/10.32	-12.14/9.66	-11.45/12.00	-8.25/8.55	-7.71/11.46	-8.25/8.55	-10.72/10.05	-3.89/6.63	
0(97.5°)	-4.82/4.49	-8.48/5.95	-4.65/8.84	-6.74/4.26	-6.14/8.50	-8.51/4.44	-2.48/1.53	-0.50/0.24	1.63/1.37	0.76/0.76	1.04/0.55	-2.81/2.06	0.85/0.58	-2.10/4.34	-3.55/1.93	-4.27/6.54	-12.96/9.48	-7.14/7.55	-8.66/14.70	-7.85/6.45	-9.18/7.65	-7.72/6.76	-14.84/8.09	-5.68/5.38	
0(105°)	-5.82/3.37	-4.01/6.67	-5.34/6.43	-3.56/2.74	-3.32/5.31	-5.85/4.49	-3.02/0.97	-0.10/0.82	1.13/1.54	2.57/2.44	1.49/0.22	-1.13/0.78	0.32/0.13	-0.85/0.99	-2.66/4.48	-4.21/1.36	-3.87/7.57	-5.81/2.87	-5.96/7.21	-7.86/10.46	-10.69/15.97	-9.26/9.91	-3.85/2.76		
0(112.5°)	-3.57/1.58	-4.23/4.40	-1.64/2.19	-3.91/4.10	-2.88/2.64	-0.98/1.00	-0.94/0.19	0.81/0.21	2.62/0.96	2.92/2.29	2.30/2.03	0.65/1.00	-1.28/1.37	-1.07/2.36	-0.64/2.20	-4.07/2.83	-6.53/11.23	-8.75/6.66	-11.34/8.02	-3.58/6.11	-12.07/1.97	-11.62/4.42	-4.86/13.12	-8.49/4.43	
0(120°)	-5.71/4.80	-3.10/2.25	-2.11/2.36	-1.95/0.21	-0.60/2.34	-1.19/1.10	-0.31/0.99	2.27/2.71	2.73/2.52	2.51/3.12	2.80/1.18	0.04/0.95	0.76/0.24	-0.28/0.94	1.40/1.16	1.56/5.71	-7.82/0.54	-2.78/4.19	-7.74/5.65	-2.31/4.23	-9.23/6.26	-10.16/8.82	-7.57/7.02	-5.10/6.56	
0(127.5°)	-6.32/1.15	1.30/1.19	-4.90/2.05	0.19/0.61	-1.94/1.44	0.97/2.01	1.68/1.39	1.68/2.83	3.35/3.67	2.72/1.90	1.08/1.47	1.88/2.20	2.03/2.76	0.79/0.99	-0.88/2.13	-1.36/3.27	-0.56/1.69	-7.64/2.27	-1.64/6.83	-11.62/14.06	-15.16/5.21	-4.37/2.76	-2.98/5.08		
0(135°)	-4.07/4.26	-1.74/0.05	0.70/0.59	0.65/0.11	-0.40/0.94	1.67/1.91	2.08/2.39	3.18/2.62	3.83/3.36	2.62/2.48	2.99/2.28	2.20/2.29	1.77/0.25	-2.02/3.70	0.26/1.73	-5.53/4.37	-5.04/7.52	-11.61/12.46	-15.26/4.99	-1.03/9.56	-15.39/12.52	-15.13/7.97	-4.18/3.09	-1.40/2.33	
0(142.5°)	-4.21/1.70	-0.06/0.45	-1.41/3.00	0.19/2.41	2.21/0.97	0.16/0.36	1.80/3.10	4.13/4.49	4.44/4.17	4.51/4.62	4.31/4.35	3.63/3.09	2.56/1.52	0.04/2.57	-2.69/0.69	-4.26/4.94	-1.82/0.20	-0.73/5.86	-15.16/10.24	-4.36/2.46	-4.16/6.65	-7.21/3.44	-2.69/4.68	-7.65/5.81	
0(150°)	-7.09/5.97	-0.37/2.61	3.48/2.85	0.77/0.02	0.33/1.74	3.28/1.19	4.43/4.39	4.16/4.06	4.07/4.30	4.44/4.35	4.46/5.51	2.23/1.06	-1.24/3.17	-2.05/2.05	-2.42/1.26	2.39/0.35	4.11/2.08	0.64/2.21	-1.67/0.71	-0.10/4.82	-6.49/5.36	-3.20/1.28	-2.19/5.10		
0(157.5°)	-4.27/4.41	-1.73/0.70	2.53/0.34	3.01/3.33	3.01/1.89	1.34/1.34	2.09/2.39	2.91/2.29	3.35/3.44	3.31/3.08	2.05/3.00	-1.13/1.04	-0.28/0.23	1.00/1.31	2.30/4.15	4.67/0.39	-0.93/4.88	-5.04/9.85	-14.66/9.40	-13.16/10.83	-7.99/6.59	-6.85/4.91	-2.68/1.30	-1.16/3.30	
0(165°)	-5.22/4.42	-2.49/0.81	0.63/1.13	1.50/2.06	2.56/2.63	2.59/2.90	3.49/3.98	4.38/4.70	4.72/4.61	3.85/2.81	1.55/0.64	0.58/0.96	1.61/2.32	2.52/2.54	1.96/0.50	-3.01/8.21	-8.41/4.07	-3.15/5.14	-8.94/9.94	-8.35/5.72	-3.35/2.52	-3.51/3.50	-3.26/3.31	-4.00/5.10	
0(172.5°)	-3.80/3.20	-1.97/1.01	-0.05/0.62	1.13/1.74	2.02/1.73	1.49/1.27	0.90/0.37	0.30/0.00	-0.17/0.10	-0.11/0.34	0.62/0.76	0.81/0.92	0.92/0.11	-1.22/3.76	-6.57/8.12	-6.38/4.40	-2.64/1.90	-2.86/5.27	-9.12/13.84	-12.14/10.93	-11.03/12.36	-11.31/8.96	-7.85/6.83	-5.63/5.00	
0(180°)	-2.40/2.36	-2.29/2.35	-2.29/2.14	-1.58/1.79	-2.21/2.95	-3.58/3.80	-3.71/3.81	-3.38/2.85	-2.57/2.31	-1.95/1.55	-1.69/1.85	-2.24/3.22	-4.47/6.43	-9.47/9.94	-7.02/1.57	-4.31/4.04	-4.90/6.67	-10.09/13.64	-9.17/6.22	-4.52/4.43	-4.62/4.12	-3.98/3.71	-3.12/2.72	-2.82/2.70	
Freq(Hz)	2.45GHz	TotalAnt 2																							
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)	
0(0°)	0.17/0.37	0.66/0.84	0.96/0.92	0.82/0.80	0.81/0.54	0.24/0.24	-0.77/1.22	-1.58/1.76	-1.54/1.18	-0.85/0.69	-0.54/0.39	-0.24/0.04	0.16/0.44	0.67/0.99	1.26/1.25	1.36/1.15	1.01/0.72	0.48/0.39	0.42/0.47	0.28/0.11	0.08/0.05	-0.30/0.29	-0.44/0.51	-0.25/0.00	
0(7.5°)	1.17/1.22	1.46/1.66	1.89/1.93	1.99/1.98	1.87/1.63	1.35/0.85	0.11/0.35	-1.04/1.25	-1.26/1.09	-1.06/1.02	-0.93/0.76	-0.83/0.73	-0.72/0.49	-0.56/0.43	-0.26/0.18	-0.15/0.21	-0.29/0.58	-0.90/1.01	-0.79/0.76	-0.67/0.58	-0.42/0.38	-0.23/0.13	0.06/0.28	0.71/0.95	
0(15°)	1.58/1.78	2.02/2.40	2.70/2.79	2.92/2.84	2.67/2.31	2.01/1.54	0.89/0.17	-0.38/0.75	-0.96/0.82	-0.86/0.89	-0.85/0.64	-0.70/0.60	-0.54/0.60	-0.79/1.11	-1.27/1.43	-1.58/1.78	-1.79/2.09	-2.38/2.58	-2.43/2.04	-1.58/1.47	-1.20/0.87	-0.67/0.22	0.23/0.60	1.10/1.42	
0(22.5°)	1.55/1.88	2.32/2.80	3.15/3.33	3.35/3.22	3.05/2.94	2.60/1.95	1.43/0.69	0.07/0.43	-0.61/0.83	-0.86/0.76	-0.43/0.04	0.29/0.50	0.61/0.21	-0.33/0.75	-1.31/1.75	-2.18/2.50	-2.62/2.89	-3.52/4.08	-4.03/3.78	-3.10/2.67	-2.07/1.80	-1.53/0.95	-0.28/0.38	0.90/1.42	
0(30°)	1.37/1.60	2.23/2.75	3.12/3.50	3.58/3.49	3.25/2.95	2.48/1.94	1.38/0.64	0.27/0.44	-0.15/0.10	0.32/0.29	0.79/1.05	1.20/1.24	1.06/0.70	0.31/0.17	-0.82/1.54	-2.41/3.35	-3.52/4.03	-5.06/6.26	-7.24/7.08	-6.23/4.81	-3.85/3.42	-3.08/2.34	-1.38/0.45	0.32/0.80	
0(37.5°)	1.01/1.10	1.91/2.59	3.12/3.39	3.46/3.26	3.00/2.67	2.21/1.74	1.11/0.64	0.34/0.38	0.32/0.31	0.34/0.50	0.57/0.95	0.97/1.01	0.61/0.02	-0.38/0.75	-1.50/2.24	-3.15/3.95	-4.61/5.39	-6.47/8.17	-9.64/10.52	-9.72/7.64	-5.96/5.36	-4.91/3.96	-2.54/1.34	-0.65/1.03	
0(45°)	-0.17/0.80	1.84/2.51	3.05/3.15	3.16/2.97	2.60/2.36	1.98/1.55	1.04/0.50	0.21/0.17	0.32/0.42	0.15/0.04	-0.07/0.06	-0.20/0.49	-0.53/0.50	-0.80/1.35	-2.09/2.76	-3.35/3.69	-4.32/5.29	-6.20/7.61	-9.07/10.92	-12.25/10.65	-8.27/6.57	-5.32/4.21	-2.85/1.90	-1.35/0.93	
0(52.5°)	-0.30/0.94	1.96/2.57	3.01/3.02	2.89/2.69	2.57/2.43	2.36/2.20	1.85/1.25	0.49/0.16	-0.66/1.07	-1.27/1.36	-1.42/1.57	-1.68/1.61	-1.50/1.50	-1.52/1.99	-2.43/2.92	-3.38/4.05	-4.80/5.68	-6.22/7.88	-10.26/12.68	-13.23/10.45	-8.99/6.96	-5.70/4.52	-3.17/2.48	-1.88/1.36	
0(60°)	-3.04/0.82	1.72/3.33	2.62/2.66	2.36/2.31	2.19/2.29	2.46/2.57	1.84/1.19	-3.00/3.75	-2.37/2.39	-2.74/3.00	-2.84/2.73	-2.52/2.56	-2.67/2.96	-3.83/4.63	-4.61/5.39	-3.94/4.99	-7.87/11.77	-12.79/10.52	-10.02/8.47	-6.23/4.05	-3.02/2.57	-1.93/1.48			
0(67.5°)	0.43/1.02	1.60/1.95	2.00/1.92	1.65/1.66	1.80/1.93	1.91/1.74	1.41/1.70	-0.90/3.00	-5.22/4.86	-2.95/1.74	-1.74/2.51	-3.35/4.28	-4.17/2.82	-2.51/2.46	-2.52/3.32	-4.58/4.68	-3.62/2.32	-2.01/3.58	-6.07/10.24	-11.79/11.28	-10.01/7.64	-4.20/2.12	-1.17/0.98	-0.63/0.25	
0(75°)	2.25/2.60	2.7																							

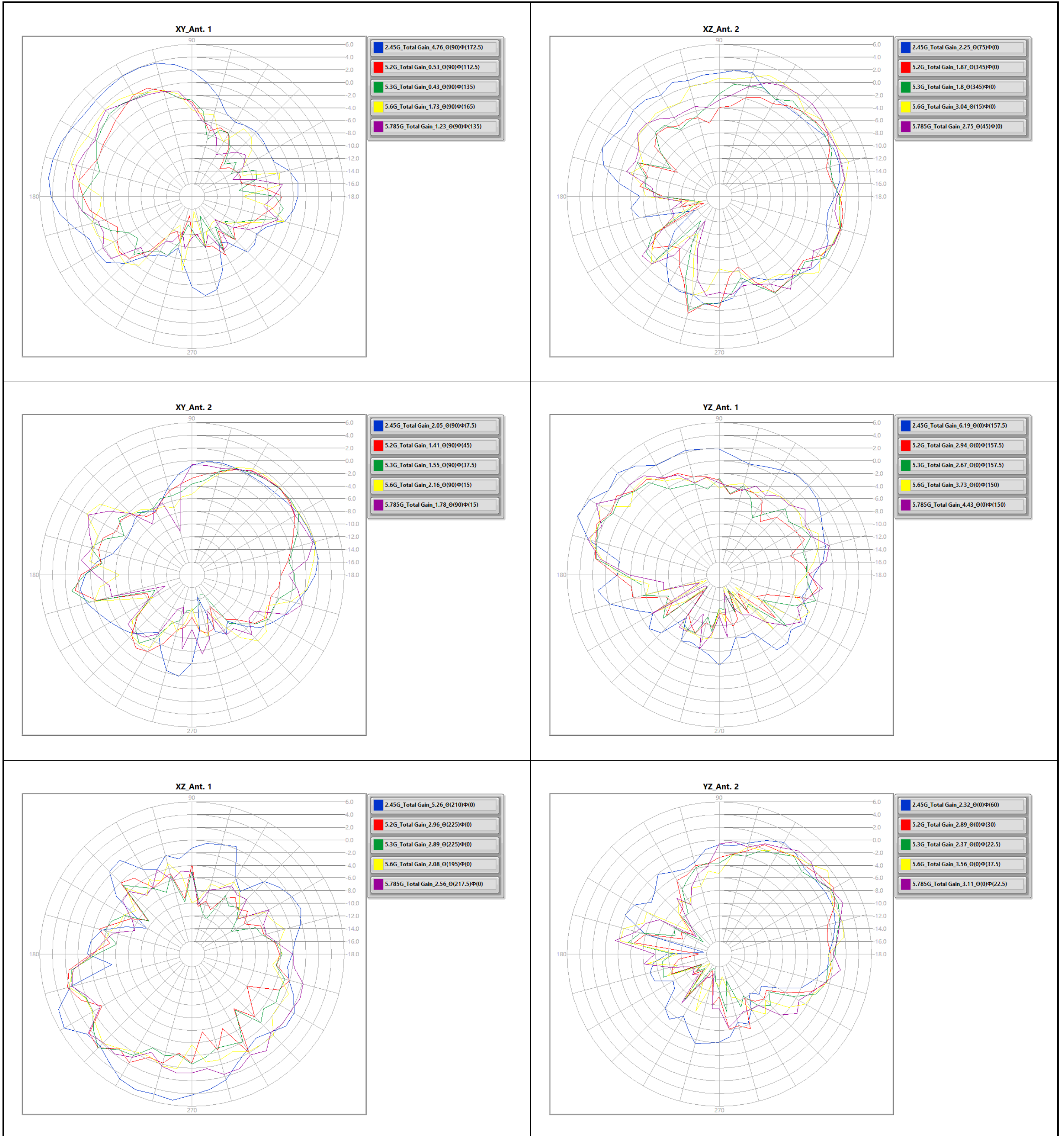


Antenna Pattern (2.4GHz and 5GHz UNII 1~UNII 3)

Appendix C

Theta (°)	150/1.13	2.53/3.42	3.17/2.67	2.49/2.27	2.00/1.56	1.64/1.09	-0.51/0.89	-5.05/10.28	-2.96/2.01	-5.43/4.51	-1.96/2.03	-2.04/3.33	-5.68/8.48	-5.48/3.58	-2.67/3.37	-5.49/5.96	-4.09/5.64	-7.52/8.61	-11.02/10.05	-8.59/12.53	-11.05/6.18	-2.82/1.29	-2.04/3.51	-1.17/1.28
Theta (82.5°)	0.69/0.45	2.00/2.91	2.67/2.26	2.32/2.32	2.06/1.54	0.51/0.82	-2.41/2.82	-3.82/10.53	-5.08/1.69	-3.12/2.85	-1.14/1.25	-1.17/2.56	-6.12/6.95	-8.36/11.62	-7.30/7.90	-6.13/4.33	-6.90/6.09	-5.27/8.19	-14.38/15.31	-8.02/9.51	-14.70/6.95	-3.84/2.98	-4.10/3.57	-0.31/1.59
Theta (90°)	0.62/1.39	2.16/1.79	1.44/1.34	1.53/1.50	1.27/0.36	-1.53/3.44	-5.33/5.64	-7.05/6.34	-6.19/4.99	-4.40/2.26	1.12/1.92	-1.84/1.77	-6.58/3.40	-2.06/8.13	-10.90/6.19	-4.51/4.35	-4.74/10.09	-8.69/10.61	-12.82/9.43	-7.96/11.86	-9.23/5.52	-3.30/3.22	-4.78/5.21	-1.78/0.24
Theta (97.5°)	0.01/0.38	1.02/2.06	1.91/1.19	0.88/0.83	0.98/0.12	-2.51/5.01	-4.83/5.36	-6.93/7.79	-5.90/4.33	-2.35/0.96	-0.45/2.54	-2.52/2.15	-2.98/2.18	-1.62/6.05	-8.81/8.05	-6.59/3.44	-4.33/8.89	-14.24/14.64	-13.55/9.01	-10.32/14.12	-11.02/6.99	-4.33/4.05	-7.33/4.69	-1.29/0.53
Theta (105°)	-0.08/-0.55	0.15/0.16	0.22/0.75	0.67/0.13	0.17/0.71	-3.03/5.34	-6.90/7.33	-8.14/8.16	-5.78/5.22	-3.45/1.33	-0.52/2.72	-5.44/3.81	-1.84/0.64	0.05/3.55	-6.78/12.35	-8.86/8.58	-8.23/9.22	-11.46/10.64	-12.65/13.57	-9.09/11.12	-10.47/7.58	-5.19/7.74	-4.80/4.88	-2.71/0.28
Theta (112.5°)	-1.97/-1.61	-0.64/-0.42	-1.14/-1.42	-0.71/0.25	0.29/1.20	-3.96/5.93	-6.73/8.59	-9.12/7.17	-5.60/5.60	-5.70/4.25	-3.40/2.45	-3.72/5.77	-7.34/7.17	-6.62/9.73	-8.76/5.12	-3.71/5.19	-7.30/13.16	-15.15/13.16	-8.25/10.47	-13.19/11.65	-11.00/8.59	-7.57/5.55	-7.21/6.54	-3.63/2.17
Theta (120°)	-1.75/-2.47	-2.51/-1.71	-2.12/-2.57	-2.64/2.28	-2.38/3.73	-4.48/5.33	-8.86/11.24	-9.40/8.08	-6.15/6.93	-4.87/4.05	-8.94/10.80	-4.86/6.24	-11.26/9.12	-8.48/15.51	-11.57/5.46	-2.85/8.19	-14.09/6.06	-7.85/12.10	-13.00/9.41	-9.42/14.68	-14.29/10.65	-3.64/4.40	-4.36/6.17	-3.42/1.78
Theta (127.5°)	-1.55/-2.58	-3.12/-3.88	-4.34/3.88	-3.67/3.07	-4.16/5.54	-6.12/6.22	-7.46/10.36	-13.05/10.79	-7.25/6.55	-6.73/8.18	-6.19/4.98	-4.80/8.39	-9.99/14.88	-11.39/6.58	-2.41/2.69	-5.74/9.20	-8.31/4.72	-9.01/14.12	-9.39/6.03	-11.58/10.22	-8.44/6.61	-8.68/6.35	-5.50/4.52	-1.92/1.23
Theta (135°)	-1.95/-2.34	-2.73/3.94	-4.86/6.13	-6.51/6.94	-6.39/6.48	-6.85/7.33	-8.88/9.47	-7.32/7.72	-10.03/7.83	-5.65/4.66	-4.04/5.86	-12.13/6.26	-2.77/4.04	-4.30/3.08	-2.27/6.06	-7.39/13.49	-6.87/7.05	-13.32/15.92	-15.91/12.26	-13.47/12.31	-14.32/11.46	-14.21/10.30	-7.33/5.49	-2.44/2.42
Theta (142.5°)	-1.93/0.75	-0.43/1.08	-1.38/2.34	-3.70/4.68	-5.50/5.79	-4.98/7.11	-11.80/10.35	-8.28/6.44	-4.69/4.20	-6.87/8.99	-4.50/3.01	-3.57/4.09	-4.69/4.93	-4.27/4.09	-4.95/5.71	-7.18/6.76	-6.11/12.74	-14.13/13.85	-14.73/8.88	-7.47/13.06	-11.17/10.19	-7.43/7.29	-9.75/9.37	-6.93/3.26
Theta (150°)	-3.42/2.28	-1.29/1.17	-1.78/2.65	-3.31/3.57	-3.64/4.09	-4.93/5.47	-4.75/3.46	-3.91/6.08	-7.24/4.90	-2.97/1.42	-0.85/1.54	-2.88/5.72	-6.61/6.80	-9.54/12.19	-10.55/8.91	-7.18/3.97	-4.66/8.91	-10.56/11.04	-13.65/10.30	-8.92/5.71	-2.55/3.05	-5.07/6.02	-8.15/8.73	-5.96/4.74
Theta (157.5°)	-5.15/6.02	-5.11/4.84	-4.27/3.90	-3.35/2.86	-2.95/3.75	-4.82/4.58	-5.13/6.12	-5.78/2.39	-0.22/0.39	-0.29/1.58	-3.12/4.93	-6.69/8.17	-11.58/15.15	-14.71/11.87	-10.75/11.53	-9.77/9.90	-9.65/9.54	-9.14/8.27	-10.50/8.29	-4.17/1.96	-1.77/1.80	-1.83/2.50	-3.22/4.23	
Theta (165°)	-3.61/3.84	-4.18/4.46	-4.04/3.28	-2.85/3.01	-3.62/3.33	-3.12/3.14	-2.39/1.43	0.24/0.63	0.26/1.24	-3.19/5.81	-9.66/11.94	-13.05/13.60	-15.16/13.85	-14.68/15.45	-14.92/13.71	-12.29/11.66	-12.57/11.89	-14.05/15.55	-11.18/8.11	-7.47/6.91	-5.07/2.80	-2.25/2.31	-2.04/2.45	-3.27/3.54
Theta (172.5°)	-5.84/6.44	-6.91/7.39	-6.93/6.52	-6.37/5.16	-4.80/4.70	-3.57/2.71	-2.26/2.38	-3.39/5.34	-7.57/9.44	-9.88/9.50	-9.17/9.13	-9.57/10.09	-12.36/14.14	-14.00/13.10	-11.09/10.52	-11.36/10.19	-9.20/7.82	-7.72/7.74	-6.63/5.80	-5.70/6.09	-5.60/4.53	-3.22/3.36	-3.61/3.66	-4.23/5.24
Theta (180°)	-6.37/6.32	-6.78/6.52	-6.67/6.43	-6.73/7.14	-7.52/7.27	-7.16/8.87	-11.53/14.95	-14.27/9.69	-7.38/6.19	-6.37/6.56	-6.91/9.62	-12.88/12.83	-11.59/9.85	-8.61/8.35	-7.52/6.02	-5.66/5.15	-4.78/4.77	-4.76/4.90	-5.27/6.08	-6.64/7.30	-7.22/6.47	-5.39/5.20	-4.96/5.25	-5.74/6.33
Freq(Hz)	5.785GPol.	TotalAnt.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Phi(0°)Phi(7.5°)	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
Theta (0°)	0.59/0.77	0.95/0.63	0.60/0.45	-0.03/0.08	0.15/0.58	0.35/0.37	-0.00/1.25	1.76/1.95	1.90/1.95	1.82/1.41	0.89/0.66	0.78/1.18	1.42/1.58	1.53/1.28	1.53/1.28	1.56/1.80	1.58/1.60	1.61/1.28	1.62/1.50	1.44/1.36	1.54/1.63	1.49/1.12	1.33/1.07	0.53/0.46
Theta (7.5°)	1.94/1.77	1.79/1.76	1.58/1.64	1.23/0.91	0.71/1.35	1.28/0.81	0.80/0.88	1.03/1.18	1.25/1.39	1.14/1.36	1.60/1.45	1.36/0.60	0.36/0.53	0.51/0.65	0.44/0.39	0.50/0.65	0.33/0.41	0.37/0.74	1.23/1.15	1.25/1.43	1.83/1.77	1.73/1.80	2.08/1.93	1.84/2.02
Theta (15°)	1.85/1.50	1.81/2.00	1.78/1.51	1.54/1.59	1.68/1.76	2.05/1.95	1.68/1.31	1.34/1.58	1.72/1.63	1.91/1.71	1.89/2.05	2.07/1.91	1.73/1.65	1.29/0.93	0.97/0.90	0.61/0.37	-0.12/0.78	-0.36/0.55	-0.71/0.09	0.56/1.02	1.15/1.40	1.71/1.81	1.91/1.87	2.02/1.98
Theta (22.5°)	2.04/2.32	2.79/2.84	2.56/2.47	2.62/2.50	2.68/3.17	3.65/3.46	3.11/3.17	3.25/3.26	3.06/2.75	2.28/1.96	2.27/2.35	1.97/1.80	1.64/1.31	1.45/1.22	1.23/0.83	0.63/0.24	-0.38/1.05	-1.89/2.65	-2.22/1.14	-0.13/0.54	0.82/0.96	0.88/1.23	1.33/1.51	1.75/1.86
Theta (30°)	1.83/2.24	2.82/3.38	3.73/3.93	3.50/2.82	2.73/3.10	2.85/2.48	2.39/3.02	3.62/3.69	3.09/2.29	1.83/1.53	1.63/1.40	0.54/0.10	-0.88/1.52	-1.02/1.22	-1.89/3.14	-4.28/3.98	-2.85/1.97	-2.75/3.80	-3.48/1.87	-0.10/0.27	-0.10/0.58	-1.07/0.18	1.47/1.86	1.96/2.08
Theta (37.5°)	2.33/2.63	3.28/3.85	3.96/3.61	3.17/2.62	2.47/1.67	0.96/0.35	1.35/2.05	2.27/2.31	2.28/2.01	2.12/0.81	0.65/0.50	0.57/0.47	0.29/1.35	1.35/0.82	0.33/0.38	-0.56/1.67	-2.62/2.66	-2.95/3.40	-2.58/1.03	-1.32/1.34	-1.49/1.20	-0.80/0.11	1.25/2.14	2.26/2.10
Theta (45°)	2.75/3.75	3.89/3.86	3.42/3.19	2.64/2.20	1.84/1.34	1.53/2.18	2.44/1.77	1.34/0.84	0.53/0.25	0.14/0.19	0.85/1.58	1.01/0.52	-1.53/0.62	-0.73/0.28	-0.74/1.48	-1.36/1.96	-3.64/4.00	-4.88/5.63	-4.43/4.53	-3.24/2.40	-3.70/1.44	0.57/1.02	1.48/1.58	1.41/1.72
Theta (52.5°)	2.40/2.50	2.70/2.72	2.90/2.85	2.52/2.39	1.98/1.20	1.48/2.26	2.52/2.07	1.83/1.39	0.24/1.03	-1.28/1.08	-0.72/0.22	-0.42/0.87	0.45/0.93	0.15/0.63	-1.70/2.08	-2.62/2.36	-2.08/5.29	-6.77/5.21	-7.77/5.32	-4.64/8.60	-5.05/2.19	-0.70/0.17	0.84/1.39	1.04/1.59
Theta (60°)	2.19/2.12	2.78/3.21	3.58/3.60	3.79/3.89	3.20/2.39	1.88/1.36	1.41/1.52	1.05/1.00	-2.67/1.90	-1.28/2.36	-4.38/4.59	-4.78/3.62	-2.02/1.65	-2.03/3.12	-2.99/4.02	-4.25/4.16	-6.24/6.71	-8.71/9.08	-7.94/7.52	-7.28/6.18	-5.55/1.45	-1.16/1.75	-1.08/0.24	0.05/1.73
Theta (67.5°)	1.39/0.66	2.23/3.35	3.55/2.95	2.65/2.38	2.24/2.16	0.88/0.51	0.84/0.38	-2.16/3.89	-4.83/3.47	-3.88/5.41	-4.55/5.84	-5.43/3.63	-2.97/2.90	-2.47/0.62	-0.05/0.77	-4.14/6.26	-4.24/6.07	-15.02/8.42	-8.15/8.42	-8.86/14.38	-8.22/3.58	-3.87/3.95	-1.94/0.86	1.34/2.46
Theta (75°)	-0.08/0.15	2.78/3.76	3.31/2.81	2.47/2.17	2.07/1.73	0.47/0.21	-0.52/1.71	-3.31/6.81	-9.01/2.66	-3.31/8.82	-6.08/4.22	-1.86/1.08	-3.45/7.15	-5.04/3.22	-1.95/4.04	-4.91/4.19	-4.82/4.71	-10.07/8.97	-7.30/5.00	-4.99/12.36	-10.12/4.22	-3.61/4.73	-3.26/2.56	0.26/1.18
Theta (82.5°)	-1.78/0.82	3.36/3.67	2.33/1.45	0.93/1.46	1.20/0.44	0.88/1.30	-0.19/3.72	-6.58/7.97	-12.22/5.55	-5.12/5.12	-1.25/1.33	-0.69/0.37	-2.42/5.53	-6.69/7.66	-6.70/6.99	-3.62/4.83	-9.84/3.89	-5.82/11.74	-6.34/6.32	-6.75/10.85	-7.20/5.88	-6.58/6.77	-4.80/2.63	0.70/0.52
Theta (90°)	-2.79/0.33	1.78/1.14	0.75/1.36	1.43/1.00	0.86/0.04	-0.60/0.61	-0.64/3.80	-10.91/5.71	-6.02/7.87	-4.32/1.53	0.91/0.45	-1.74/0.38	-2.84/4.86	-4.90/13.40	-10.06/5.25	-5.04/5.66	-7.21/12.09	-12.73/6.22	-9.36/5.44	-7.52/11.88	-7.10/7.31	-4.61/6.70	-6.59/1.77	-0.03/1.19
Theta (97.5°)	-3.85/0.06	1.46/1.25	-0.11/0.24	0.56/0.61	0.01/0.68	-1.93/4.44	-4.04/4.53	-7.43/7.75	-7.13/6.48	-2.27/1.06	0.24/0.52	-0.75/1.44	-2.28/2.03	-1.78/9.18	-10.61/7.28	-5.88/3.70	-3.86/9.13	-15.76/10.67	-9.29/10.82	-10.12/8.79	-10.06/6.06	-4.81/7.62	-5.11/1.61	-1.14/2.81
Theta (105°)	-3.34/1.99	-0.83/1.82	-0.93/0.10	0.62/0.42	0.11/0.16	-1.87/4.50	-4.94/5.88	-7.66/7.05	-6.27/5.96	-2.94/0.41	-0.40/0.53	-1.54/4.64	-4.44/1.66	0.16/3.86	-6.06/7.88	-5.18/6.44	-6.59/6.75	-14.30/11.92	-14.88/14.20	-9.28/11.50	-11.73/6.99	-5.46/6.71	-5.40/2.70	-3.26/3.41
Theta (112.5°)	-3.54/1.69																							

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 (6GHz UNII5~UNII8)

Appendix D

θ (15°)	-3.07/-2.31	-1.95/-1.91	-2.03/-2.29	-1.86/-1.62	-1.04/-0.97	-0.88/-0.43	-0.07/-1.39	-2.00/-1.71	-2.45/-3.50	-3.78/-3.88	-4.73/-5.05	-5.13/-5.55	-5.64/-6.30	-7.34/-10.65	-12.69/-13.70	-13.29/-13.10	-10.80/-11.37	-13.38/-13.09	-11.20/-12.66	-13.28/-9.89	-7.71/-6.58	-4.66/-4.70	-4.81/-4.65	-4.68/-3.82
φ (22.5°)	-1.81/-1.71	-0.87/-1.42	-1.96/-2.41	-2.91/-1.83	-1.21/-1.25	-1.03/-0.61	-0.24/-0.35	-0.38/-0.08	0.01/-0.80	-3.03/-4.08	-3.57/-4.60	-4.77/-3.80	-4.56/-4.88	-5.71/-6.34	-5.72/-5.78	-6.78/-6.41	-6.97/-4.17	-3.02/-3.32	-3.59/-4.87	-5.79/-4.27	-3.34/-3.89	-2.99/-2.71	-3.23/-3.80	-3.45/-3.07
φ (30°)	-0.10/-0.56	-1.16/-1.21	-1.99/-1.20	-1.01/-1.20	-1.05/-0.52	-0.29/-0.64	-0.97/-1.21	-1.26/-1.14	-1.21/-1.26	-1.82/-2.94	-2.16/-1.69	-2.74/-2.84	-4.09/-5.20	-6.58/-8.11	-6.27/-10.08	-9.50/-9.47	-12.74/-13.31	-11.66/-11.43	-9.71/-8.90	-9.03/-7.57	-7.34/-5.85	-3.64/-2.59	-2.88/-1.96	-1.97/-0.30
φ (37.5°)	0.45/-0.19	0.19/-0.23	-0.09/-0.47	-0.44/-0.86	-0.19/-0.04	0.03/-0.11	0.53/-0.20	-1.07/-1.85	-1.29/-1.00	-1.02/-0.77	-0.84/-1.01	-3.00/-3.91	-5.74/-7.14	-5.65/-4.17	-6.21/-6.46	-8.22/-5.84	-5.41/-6.18	-7.94/-13.81	-13.40/-7.52	-5.33/-3.33	-5.37/-6.38	-7.31/-3.00	-3.33/-2.69	-1.23/-0.04
φ (45°)	-0.69/-0.19	0.50/-0.21	-0.63/-0.19	-0.17/-0.60	-0.32/-0.90	-0.80/-0.33	-0.71/-1.80	-1.78/-1.32	-1.18/-0.05	0.55/-0.03	-0.93/-2.09	-4.05/-4.27	-3.55/-5.46	-5.35/-5.78	-7.37/-8.70	-8.14/-6.39	-6.42/-9.68	-9.35/-11.35	-6.79/-5.96	-6.36/-4.41	-3.85/-2.17	-1.70/-2.64	-0.72/-0.69	
φ (52.5°)	0.28/-0.61	-0.76/-1.29	0.26/-0.37	0.02/-0.39	-0.59/-0.73	-0.72/-1.51	-1.75/-2.15	-2.52/-1.31	0.09/-0.50	-0.44/-0.61	0.24/-0.99	-2.24/-3.66	-5.65/-10.86	-6.27/-9.85	-9.11/-7.87	-4.89/-2.91	-3.23/-6.64	-13.35/-5.87	-2.44/-3.38	-5.60/-3.39	-1.23/-3.07	-2.83/-2.67	-3.06/-2.04	-0.73/-1.62
φ (60°)	0.08/-0.19	-0.03/-1.24	-0.25/-0.05	1.00/-0.23	-0.51/-0.51	-1.30/-3.19	-4.28/-4.22	-2.70/-2.22	-0.48/-0.12	0.61/-0.13	-0.04/-0.85	-5.16/-4.89	-5.22/-7.20	-6.24/-7.51	-14.55/-5.50	-1.98/-1.76	-3.59/-4.57	-6.30/-5.69	-3.90/-6.04	-1.68/-2.17	-0.08/-0.20	-2.36/-1.38	-1.97/-0.72	-0.18/-1.84
φ (67.5°)	0.82/-0.43	-0.22/-1.05	-1.28/-0.10	-0.81/-0.96	-0.42/-0.32	-1.11/-2.25	-5.45/-5.13	-6.31/-3.41	-0.38/-1.62	0.69/-0.70	-1.20/-1.73	-3.45/-3.28	-5.31/-3.05	-2.21/-5.64	-7.25/-9.41	-3.33/-3.39	-2.73/-3.25	-1.94/-2.61	-1.33/-1.68	-2.84/-0.03	-3.12/-0.14	-0.22/-0.52	-3.56/-1.03	
φ (75°)	-0.71/-0.64	0.23/-1.38	-0.90/-0.20	-0.92/-1.37	-0.09/-0.94	-2.02/-4.28	-4.91/-3.93	-2.14/-3.07	-2.25/-0.91	1.30/-0.42	-1.04/-2.34	-2.18/-0.80	-2.83/-4.23	-0.11/-3.72	-3.87/-5.02	-8.22/-3.90	-4.99/-5.36	-0.76/-1.46	1.05/-1.67	-0.81/-3.78	-2.54/-1.37	-0.94/-1.61	-0.33/-0.72	-3.07/-0.18
φ (82.5°)	-0.97/-0.58	-0.72/-0.87	-0.08/-0.56	-2.19/-1.21	-0.50/-0.27	-2.63/-6.25	-5.72/-5.81	-3.31/-2.33	-1.24/-0.87	0.22/-1.09	-0.82/-0.71	-1.08/-1.06	-0.66/-2.96	-1.52/-2.38	-2.55/-4.96	0.48/-5.01	-4.39/-0.87	0.84/-3.12	0.24/-3.19	-0.11/-2.58	-4.19/-2.92	-2.03/-0.88	0.07/-2.55	-1.33/-0.43
φ (90°)	-0.27/-0.17	-0.55/-1.30	-2.62/-3.45	-2.40/-3.09	0.43/-0.68	-4.17/-6.00	-6.31/-3.44	-6.94/-2.53	-0.96/-1.58	0.60/-1.61	-0.91/-1.09	-2.43/-0.72	-1.70/-3.07	-0.45/-0.70	-5.53/-8.78	-3.03/-2.69	-1.56/-5.80	0.23/-3.40	0.70/-3.44	-5.96/-6.64	-4.29/-4.90	-1.80/-1.11	-0.93/-1.96	-1.69/-3.33
φ (97.5°)	-0.84/-0.12	-1.18/-2.14	-2.52/-3.61	-2.60/-0.96	-0.11/-0.48	-5.08/-6.33	-6.96/-6.05	-9.18/-6.04	-2.45/-2.47	-0.93/-1.84	0.08/-1.37	-1.47/-0.68	-3.95/-4.08	-1.18/-2.03	-4.21/-7.87	-3.57/-4.02	-3.98/-0.17	-3.89/-10.39	-6.58/-7.64	-4.67/-1.96	-1.85/-1.06	-2.35/-1.18	-1.90/-2.55	
φ (105°)	-0.10/-1.42	-2.51/-2.33	-3.22/-4.17	-2.79/-1.16	-0.37/-2.17	-4.09/-7.59	-8.71/-4.16	-4.25/-9.28	-3.31/-0.59	-0.32/-1.09	1.44/-0.58	-3.61/-2.22	-3.48/-3.90	-4.45/-5.09	-6.48/-6.29	-6.54/-7.72	-4.52/-4.95	-5.46/-3.78	-3.24/-5.60	-7.99/-7.71	-4.98/-0.37	-1.36/-1.40	-4.06/-1.52	-3.45/-1.87
φ (112.5°)	-1.62/-0.69	-1.48/-3.41	-4.26/-4.44	-3.80/-3.38	-2.16/-4.02	-4.93/-7.43	-9.19/-7.06	-8.03/-7.70	-4.57/-0.70	0.81/-0.30	1.37/-0.95	-0.55/-6.06	-4.83/-2.47	-8.05/-15.03	-7.32/-6.41	-13.03/-7.06	-4.16/-3.16	-2.96/-5.01	-5.90/-3.85	0.27/-4.27	-4.45/-1.65	-1.38/-1.64	-1.96/-3.20	-5.12/-4.55
φ (120°)	-4.32/-2.30	-2.49/-3.76	-5.82/-8.70	-5.80/-2.06	-3.13/-5.98	-9.08/-8.38	-9.03/-5.93	-8.02/-4.49	-3.20/-1.43	0.09/-0.25	1.24/-0.22	-1.76/-1.81	-3.39/-3.33	-6.47/-13.20	-11.52/-5.76	-7.03/-7.83	-4.31/-7.88	-10.46/-7.96	-8.54/-8.85	-5.57/-4.46	-5.93/-4.91	-4.40/-5.76	-3.27/-1.34	-1.69/-5.40
φ (127.5°)	-4.79/-5.85	-6.07/-5.87	-6.50/-6.18	-3.97/-2.21	-2.62/-4.27	-5.57/-9.10	-8.87/-6.38	-4.16/-3.63	-5.50/-2.54	1.22/0.26	0.49/0.24	1.04/0.62	-2.66/-7.90	-8.72/-9.10	-4.36/-3.56	-11.20/-6.63	-7.99/-8.61	-6.31/-4.51	-4.69/-11.69	-9.83/-5.05	-4.81/-6.91	-7.60/-7.10	-4.26/-3.50	-5.76/-3.32
φ (135°)	-5.22/-0.53	-7.15/-6.70	-7.56/-6.34	-3.11/-3.13	-5.37/-7.77	-11.81/-12.38	-10.19/-5.66	-4.85/-1.44	0.81/-0.30	-0.02/-0.90	0.01/0.49	-0.15/-0.27	-0.15/-4.50	-5.09/-3.71	-2.28/-1.15	-0.63/-6.72	-10.38/-9.33	-9.60/-6.77	-7.91/-11.88	-4.73/-1.95	-2.93/-1.66	-1.91/-5.83	-13.31/-6.73	-5.16/-3.29
φ (142.5°)	-9.11/-8.76	-9.82/-7.06	-7.55/-10.00	-5.07/-3.96	-3.53/-3.74	-4.11/-5.37	-5.59/-6.21	-7.28/-4.36	-2.63/-1.78	0.67/0.68	-0.03/1.30	1.09/1.67	-4.11/-3.50	-0.63/-0.24	-0.70/-1.54	-0.64/-6.27	-15.54/-10.24	-4.49/-6.29	-5.69/-6.56	-9.38/-3.76	0.07/1.31	-0.19/-4.29	-9.16/-8.97	-8.04/-7.36
φ (150°)	-6.17/-5.63	-7.92/-11.76	-14.15/-11.32	-9.76/-8.73	-8.44/-6.95	-4.83/-2.84	-2.75/-1.54	-0.10/-0.59	-2.88/-2.28	-1.92/-1.77	-0.87/0.07	0.79/-0.42	-1.38/-2.88	-4.31/-4.23	-4.88/-4.38	-5.89/-9.65	-11.24/-7.79	-3.96/-5.55	-6.78/-7.01	-8.07/-9.62	-5.05/-2.62	-1.17/-0.93	-2.32/-6.69	-11.52/-7.70
φ (157.5°)	-8.61/-7.55	-6.15/-5.45	-5.38/-5.23	-4.50/-4.67	-4.18/-3.95	-4.20/-4.75	-4.87/-4.58	-4.93/-5.75	-3.74/-1.42	-0.86/-1.33	-1.77/-0.47	0.21/-1.03	-2.20/-4.77	-11.04/-13.80	-10.94/-10.32	-11.77/-14.07	-9.98/-6.43	-4.34/-4.02	-4.46/-5.05	-4.92/-5.73	-7.05/-11.01	-8.43/-4.14	-2.58/-7.37	-6.97/-11.12
φ (165°)	-4.15/-3.61	-2.51/-1.04	-1.22/-1.65	-1.87/-1.78	-1.90/-2.07	-2.41/-2.22	-2.68/-2.33	-1.26/-0.36	-0.41/-0.98	-1.14/-1.07	-1.12/-0.98	-1.63/-2.34	-2.87/-4.17	-7.43/-13.58	-15.54/-9.66	-6.94/-5.29	-3.58/-2.81	-2.53/-3.20	-3.82/-5.34	-5.41/-6.47	-9.71/-11.38	-12.19/-11.17	-9.45/-7.85	-6.16/-4.87
φ (172.5°)	-6.58/-6.23	-4.76/-3.95	-2.86/-2.23	-1.90/-1.85	-1.24/-0.97	-0.98/-0.98	-1.07/-1.09	-0.72/-0.17	0.25/0.27	-0.53/-2.33	-4.83/-6.98	-6.96/-5.96	-5.50/-6.55	-8.34/-11.98	-15.16/-12.39	-10.31/-10.17	-8.92/-7.30	-6.54/-7.04	-6.58/-6.64	-8.36/-8.37	-8.69/-9.94	-10.77/-10.02	-8.50/-8.13	-7.96/-7.48
φ (180°)	-4.39/-4.50	-5.50/-5.05	-4.52/-4.08	-4.25/-3.81	-3.50/-2.67	-2.76/-2.09	-1.49/-1.08	-1.07/-1.66	-2.63/-4.65	-6.26/-7.10	-6.21/-5.80	-5.01/-4.62	-4.98/-6.35	-7.62/-9.96	-8.41/-7.52	-6.51/-5.52	-4.42/-3.76	-3.82/-3.61	-3.49/-3.85	-4.83/-5.68	-6.87/-6.58	-6.29/-6.11	-4.94/-4.59	-5.13/-4.74
Freq(Hz)	6.475GPol.	TotalAnt.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	φ(0°)φ(7.5°)	φ(15°)φ(22.5°)	φ(30°)φ(37.5°)	φ(45°)φ(52.5°)	φ(60°)φ(67.5°)	φ(75°)φ(82.5°)	φ(90°)φ(97.5°)	φ(105°)φ(112.5°)	φ(120°)φ(127.5°)	φ(135°)φ(142.5°)	φ(150°)φ(157.5°)	φ(165°)φ(172.5°)	φ(180°)φ(187.5°)	φ(195°)φ(202.5°)	φ(210°)φ(217.5°)	φ(225°)φ(232.5°)	φ(240°)φ(247.5°)	φ(255°)φ(262.5°)	φ(270°)φ(277.5°)	φ(285°)φ(292.5°)	φ(300°)φ(307.5°)	φ(315°)φ(322.5°)	φ(330°)φ(337.5°)	φ(345°)φ(352.5°)
φ (0°)	-5.25/-5.28	-4.70/-3.86	-4.26/-3.65	-3.03/-2.66	-2.70/-2.44	-2.36/-2.30	-1.77/-2.20	-2.70/-2.87	-2.93/-2.88	-2.65/-2.80	-3.21/-3.63	-3.70/-4.04	-4.49/-4.82	-4.79/-4.70	-4.23/-3.54	-3.81/-3.67	-3.01/-2.79	-3.34/-3.29	-3.17/-3.31	-3.04/-3.48	-4.23/-4.50	-4.00/-4.19	-4.54/-4.94	
φ (7.5°)	-4.59/-4.39	-4.67/-3.49	-3.54/-3.29	-3.01/-3.04	-2.67/-2.21	-2.37/-2.34	-2.24/-2.30	-2.59/-2.85	-3.01/-3.18	-3.83/-4.05	-4.30/-4.41	-4.20/-4.18	-4.14/-3.70	-3.12/-3.09	-2.69/-2.21	-2.92/-3.27	-2.81/-2.42	-2.33/-2.61	-1.91/-2.31	-2.45/-3.22	-2.76/-3.18	-3.10/-3.71	-4.01/-3.93	-4.70/-4.97
φ (15°)	-1.90/-2.17	-2.26/-1.93	-1.32/-1.15	-1.24/-1.78	-1.95/-3.16	-1.85/-1.60	-1.57/-0.96	-0.70/-1.33	-2.27/-2.78	-3.45/-3.85	-4.17/-4.88	-4.72/-5.08	-5.23/-5.35	-6.09/-6.89	-7.37/-7.08	-8.37/-10.04	-12.61/-10.16	-9.28/-12.32	-9.32/-7.17	-6.76/-5.19	-4.14/-4.42	-4.90/-5.46	-5.52/-4.67	-3.82/-2.68
φ (22.5°)	-2.02/-2.22	-2.77/-2.59	-1.48/-1.23	-1.84/-0.94	-3.41/-1.27	-2.36/-1.78	-2.17/-2.88	-1.86/-2.25	-2.89/-3.05	-2.82/-4.27	-5.59/-5.79	-5.96/-5.55	-6.27/-11.64	-3.11/-11.80	-11.98/-14.41	-12.77/-10.58	-9.44/-10.81	-9.14/-6.49	-7.22/-8.28	-9.61/-10.88	-9.01/-6.36	-6.14/-6.97	-5.67/-5.65	-4.26/-2.16
φ (30°)	-3.82/-4.17	-2.95/-1.64	-0.80/-0.18	0.46/0.36	-0.55/-0.79	-1.21/-2.19	-2.02/-1.52	-3.09/-3.46	-2.80/-3.53	-4.22/-5.47	-5.62/-6.68	-6.37/-7.16	-7.71/-8.45	-8.77/-9.14	-10.43/-9.92	-10.46/-11.54	-12.76/-13.16	-13.46/-10.65	-8.94/-9.95	-10.23/-11.89	-9.00/-4.47	-3.24/-4.05	-5.03/-5.43	-2.46/-2.17
φ (37.5°)	-3.30/-3.42	-2.64/-2.35	-0.78/-1.19	-1.15/-1.25	-1.60/-1.77	-1.72/-2.71	-4.18/-3.50	-3.58/-3.86	-3.95/-3.29	-3.49/-4.14	-3.98/-3.14	-4.24/-3.57	-9.10/-10.04	-12.90/-12.76	-10.76/-9.40	-10.17/-13.90	-10.00/-9.79	-10.36/-11.57	-11.55/-14.90	-9.03/-9.34	-9.51/-9.29	-5.83/-4.97	-6.22/-4.55	-2.24/-2.98
φ (45°)	-2.10/-2.40	-4.14/-2.66	-1.44/-0.47	0.22/-0.32	-0.74/-1.44	-2.93/-3.55	-4.24/-3.78	-3.44/-3.33	-3.17/-4.66	-3.40/-2.56	-1.42/-1.80	-5.25/-6.67	-1.07/-6.90	-12.77/-8.04	-15.20/-10.05	-8.46/-9.19	-14.31/-14.37	-11.42/-14.49	-8.23/-7.41	-7.12/-7.75	-7.04/-5.90	-6.17/-4.21	-3.00/-4.53	
φ (52.5°)	-1.06/-2.48	-1.91/-2.55	-2.77/-0.52	-0.79/-2.12	-2.72/-3.57	-3.34/-3.54	-4.13/-4.53	-4.57/-4.81	-4.18/-1.59	-0.92/-1.42	-2.35/-2.25	-5.16/-6.30	-5.63/-11.12	-11.21/-9.26	-9.02/-12.56	-8.21/-4.23	-6.12/-9.19	-7.41/-11.41	-8.49/-5.33	-4.55/-4.80	-6.55/-3.51	-5.23/-4.55	-4.88/-2.64	-4.35/-1.71
φ (60°)	0.30/-2.29	-3.26/-3.61	-1.36/-0.89	-1.75/-1.57	-1.09/-1.54	-1.91/-2.72	-3.78/-4.79	-6.36/-5.05	-2.91/-1.58	-1.47/-1.21	-1.73/-2.42	-4.44/-3.68	-4.60/-7.36	-8.09/-7.52	-12.61/-8.49	-5.36/-2.94	-5.00/-0.81	-9.00/-10.45	-14.04/-14.17	-2.45/-2.62	-2.04/-1.43	-3.91/-3.48	-4.76/-2.47	-4.67/-0.64
φ (67.5°)	-1.57/-0.63	-2.93/-3.28	-0.93/-1.27	-2.01/-1.77	-1.53/-1.24	-5.52/-8.39	-7.90/-7.81	-4.56/-3.14	-2.77/-3.14	-3.90/-4.37	-4.57/-7.05	-4.37/-4.45	-8.31/-3.49	-3.79/-7.08	-2.50/-1.91	-1.71/-3.62	-3.03/-4.84							



Antenna Pattern (6GHz UNII5~UNII8)

Appendix D

θ (°)	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(97.5°)	-4.17/2.69	-5.84/-10.78	-9.78/-10.27	-9.52/-15.65	-10.15/-12.71	-12.05/8.81	-10.37/6.09	-3.78/-6.50	-4.22/-3.70	-1.64/-0.72	0.62/0.72	0.94/1.03	1.96/0.12	1.65/2.28	0.38/-1.19	-2.76/-1.64	-0.33/-1.13	-5.02/-8.70	-10.98/-13.00	-6.90/-12.92	-5.55/-1.88	-0.68/-3.53	-3.13/-2.75	-2.38/-0.49
θ(105°)	-5.64/-4.25	-8.03/-8.42	-13.01/-10.54	-8.10/-11.48	-4.23/-3.19	-2.85/-2.73	-3.96/-7.00	-8.33/-13.17	-8.35/-4.46	-1.56/-0.82	-0.00/0.75	0.99/0.82	2.45/1.37	1.91/1.04	0.26/-1.33	-2.85/-1.46	-1.61/-2.03	-4.81/-8.26	-9.44/-5.89	-4.96/-15.11	-6.25/-2.23	-3.07/-4.71	-5.50/-8.25	-5.67/-4.50
θ(112.5°)	-4.34/-3.77	-2.13/-3.70	-11.18/-1.89	-3.58/-14.01	-5.12/-1.32	-3.20/-0.98	-0.78/-2.61	-7.17/-4.32	-4.30/-3.86	-3.52/-1.26	-0.52/-0.10	0.67/1.33	1.24/1.25	1.35/0.88	1.73/-1.18	-3.47/-0.11	0.64/-0.84	-4.86/-9.14	-7.52/-2.53	-3.71/-13.00	-7.57/-10.68	-7.47/-15.71	-7.61/-6.45	-5.50/-5.72
θ(120°)	-4.15/-4.07	-4.25/-2.92	-8.82/-5.48	-1.67/-5.87	-9.54/-6.42	-1.83/-1.49	-0.04/-1.31	-2.30/-2.86	-1.71/-3.29	-2.70/-2.66	-2.93/-1.59	-1.14/-0.38	-1.42/-1.13	-1.90/-0.80	0.38/0.02	-0.71/0.43	2.27/0.45	-0.39/-7.85	-9.25/-3.76	-5.92/-13.33	-7.49/-11.30	-9.15/-11.82	-10.52/-6.83	-9.71/-7.47
θ(127.5°)	-7.94/-8.53	-4.56/-6.66	-8.78/-8.64	-2.14/0.29	-4.31/-11.17	-5.89/-4.60	-4.31/-1.06	-1.18/-2.68	-1.66/0.55	0.13/-0.58	-0.54/-1.95	-1.31/-2.17	-2.94/-5.39	-3.36/0.87	1.52/-1.88	-2.96/-0.58	-0.45/-0.67	-5.81/-4.57	-6.93/-2.75	-6.24/-8.31	-3.52/-4.15	-3.28/-13.90	-9.03/-13.90	-11.65/-10.26
θ(135°)	-5.34/-6.12	-4.21/-5.16	-9.98/-9.48	-6.30/-2.21	-1.28/-4.44	-4.26/-5.54	-7.25/-7.28	-3.62/-1.82	0.14/0.15	0.27/0.81	-0.69/-1.29	-1.32/-1.34	0.48/0.59	0.55/0.07	-1.46/-4.69	-6.08/-2.53	-2.13/-2.60	-1.86/-5.36	-10.41/-3.05	-2.74/-3.54	-3.18/-5.05	-3.49/-7.75	-8.84/-3.86	-7.89/-7.68
θ(142.5°)	-1.48/0.50	0.94/-0.87	-3.52/-6.45	-6.13/-7.37	-9.88/-10.16	-7.17/-4.99	-8.00/-10.31	-4.05/-1.91	-1.99/-2.39	-1.98/-1.64	-1.29/-1.61	-3.60/-4.60	-4.17/-3.34	-1.52/-1.82	-6.18/-10.66	-11.54/-12.99	-4.12/-6.74	-4.81/-10.95	-6.82/-6.14	-1.13/-3.73	-5.03/-9.96	-5.95/-6.74	-5.47/-6.34	-6.55/-1.97
θ(150°)	-0.71/-1.74	0.09/0.28	-0.47/-1.51	-3.50/-6.27	-13.05/-15.56	-11.79/-8.79	-6.78/-7.55	-11.45/-10.39	-7.11/-5.47	-3.60/-3.43	-3.65/-5.02	-6.80/-7.64	-8.26/-6.62	-3.26/-0.93	-1.39/-3.70	-5.29/-7.46	-8.15/-6.89	-7.20/-9.38	-6.19/-3.03	-2.93/-5.10	-7.06/-10.20	-15.77/-6.72	-4.26/-0.49	-2.60/-0.42
θ(157.5°)	-2.52/-3.00	-1.99/-0.50	-1.86/-5.11	-7.62/-9.48	-10.22/-10.67	-13.37/-13.06	-10.42/-9.86	-7.38/-4.66	-2.63/-2.87	-4.43/-6.09	-6.56/-5.70	-4.69/-4.83	-4.57/-4.99	-6.37/-6.58	-4.60/-2.40	-2.70/-4.07	-4.32/-4.63	-5.39/-5.28	-3.20/-2.95	-2.49/-2.94	-3.91/-6.09	-9.84/-10.43	-9.65/-6.86	-4.02/-3.38
θ(165°)	-8.44/-8.01	-9.51/-9.56	-8.48/-9.73	-10.02/-8.81	-7.90/-8.14	-9.75/-11.58	-11.88/-9.93	-9.46/-8.98	-7.63/-5.83	-4.93/-4.65	-4.13/-3.34	-2.89/-2.22	-2.04/-2.03	-1.48/-1.67	-2.16/-3.36	-3.30/-1.98	-1.23/-1.59	-2.88/-5.87	-8.02/-8.48	-7.36/-4.99	-2.52/-1.31	-1.79/-3.39	-6.31/-8.63	-8.25/-8.04
θ(172.5°)	-15.37/-14.13	-16.18/-14.16	-12.36/-12.53	-13.18/-12.02	-11.65/-12.16	-13.77/-14.98	-14.70/-11.29	-9.55/-7.79	-6.23/-4.90	-4.40/-4.22	-4.26/-4.22	-4.34/-4.64	-4.76/-4.92	-5.59/-6.71	-7.70/-8.30	-7.77/-6.53	-5.52/-5.90	-5.94/-6.30	-6.40/-6.78	-6.23/-6.43	-9.18/-12.15	-15.41/-15.38	-15.25/-15.88	
θ(180°)	-9.13/-9.02	-9.48/-10.64	-9.37/-12.52	-15.19/-16.11	-15.36/-15.88	-14.38/-13.64	-13.12/-12.88	-11.67/-11.13	-9.89/-10.48	-11.23/-10.21	-9.42/-10.45	-11.77/-12.49	-11.97/-9.90	-9.54/-9.07	-9.04/-8.94	-8.46/-7.94	-8.90/-9.49	-9.38/-8.37	-8.29/-9.82	-11.50/-11.34	-11.00/-11.91	-12.39/-10.10	-9.11/-8.12	-7.09/-5.98
Freq(Hz)	6.475GPol. TotalAnt. 4																							
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
θ(0°)	0.51/0.80	0.93/1.13	1.41/1.09	0.70/0.31	-0.13/-0.01	-0.06/0.03	-0.20/-0.44	-0.24/-0.27	-0.16/0.00	0.12/-0.04	0.16/0.21	0.24/0.55	0.44/0.21	0.42/0.67	0.82/0.53	0.42/0.26	0.10/-0.21	0.01/-0.09	0.01/0.18	0.01/0.21	0.22/0.40	0.14/-0.00	0.14/-0.00	-0.07/0.63
θ(7.5°)	-0.13/-0.27	-0.36/-0.08	-0.15/-0.19	-0.42/-0.66	-0.63/-0.68	-0.75/-0.53	-0.71/-0.84	-0.69/-0.30	-0.22/0.17	0.46/0.45	0.82/0.92	0.91/0.98	0.78/0.66	0.50/0.86	0.68/0.34	-0.11/-0.03	-0.33/-0.57	-0.53/-0.58	-0.24/-0.30	-0.29/-0.02	0.27/0.34	-0.03/0.04	-0.38/-0.74	-0.28/0.01
θ(15°)	0.20/-0.79	-0.74/-0.88	-1.02/-2.23	-0.57/-0.92	-0.88/-0.72	-0.85/-1.20	-1.53/-1.45	-1.26/-1.15	-0.91/-0.11	0.74/1.43	1.77/1.68	1.78/1.69	1.24/0.66	0.25/0.60	0.75/0.49	0.25/-0.21	-0.80/-1.11	-1.10/-1.18	-1.58/-1.50	-1.31/-0.86	-0.58/-0.24	0.08/0.35	0.04/0.22	0.31/0.36
θ(22.5°)	-2.00/-1.54	-0.98/-1.39	-1.57/-1.40	-0.65/-0.52	-0.83/-0.62	-0.98/-1.03	-1.08/-0.53	-0.47/-0.32	-0.08/0.36	0.77/1.35	1.68/1.13	2.52/2.35	1.67/1.28	1.29/1.89	1.97/1.63	1.10/0.62	-0.59/-1.09	-0.92/-1.31	-2.30/-3.70	-3.02/-1.73	-1.20/-1.45	-1.29/-1.68	-2.38/-2.79	-2.62/-2.63
θ(30°)	-2.42/4.23	-3.65/3.40	-1.96/-1.25	-1.21/-1.48	-1.22/-0.75	-0.78/-1.16	-1.63/-1.71	-1.23/-0.72	-0.53/-0.44	0.07/0.49	0.87/1.42	1.92/2.06	1.87/1.47	1.29/1.42	1.48/1.22	0.64/-0.47	-1.50/-2.22	-2.59/-2.75	-2.44/-2.94	-3.35/-4.14	-5.39/-6.61	-7.05/-7.31	-5.47/-3.66	-2.72/-2.21
θ(37.5°)	-5.03/-4.59	-4.55/-3.93	-3.64/-3.93	-4.38/-1.48	-3.73/-3.84	-4.56/-3.88	-3.36/-1.91	-1.29/-0.46	0.01/0.03	0.18/0.80	1.72/2.37	2.28/1.62	1.23/1.85	2.00/1.96	1.70/0.99	-0.67/-1.64	-2.11/-3.12	-3.84/-3.79	-3.77/-5.85	-7.70/-4.45	-4.69/-4.09	-3.11/-2.31	-3.22/-5.48	
θ(45°)	-3.47/-3.59	-3.91/-4.63	-4.26/-4.44	-3.47/-3.46	-4.07/-4.23	-3.80/-3.59	-4.02/-4.42	-4.57/-4.03	-2.55/-1.82	-0.60/0.05	-0.82/0.51	1.40/2.46	3.24/1.21	2.68/1.93	1.51/0.19	-1.32/-2.15	-3.09/-4.48	-5.52/-4.65	-3.89/-3.74	-3.72/-3.85	-2.88/-2.48	-3.06/-3.29		
θ(52.5°)	-7.09/-6.67	-6.45/-8.34	-6.47/-6.07	-5.90/-5.57	-4.85/-4.83	-4.84/-4.10	-4.21/-3.58	-4.16/-4.09	-3.24/-2.31	-0.75/0.89	0.55/0.09	1.03/2.16	2.95/2.48	2.40/2.88	2.90/2.18	0.15/-0.92	-2.04/-2.46	-2.49/-3.52	-4.47/-5.70	-6.39/-5.82	-5.62/-3.60	-3.45/-3.36	-2.82/-2.89	-3.38/-4.31
θ(60°)	-4.62/-4.57	-9.15/-7.48	-7.32/2.74	-7.22/5.76	-5.36/-4.96	-5.84/-7.74	-5.18/-4.01	-5.95/-5.36	-5.18/-4.01	-1.78/0.09	0.51/1.42	1.84/1.50	0.79/1.12	1.99/1.62	1.36/3.01	-4.67/-6.16	-7.56/-7.88	-6.14/-7.78	-5.67/-6.00	-7.30/-5.10	-7.50/-4.10	-4.43/-6.43		
θ(67.5°)	-4.04/-4.81	-3.17/-4.54	-9.25/9.81	-7.40/6.51	-9.01/9.02	-9.88/8.65	-9.08/7.27	-6.19/-4.46	-3.00/-1.14	0.57/1.76	0.94/0.44	1.35/0.89	0.02/0.46	1.02/1.90	-0.27/0.72	-1.99/2.03	-4.51/-4.65	-5.11/9.06	-10.75/-9.33	-8.87/10.25	-8.37/10.25	-9.54/10.10	-4.88/-2.66	
θ(75°)	-7.40/-4.85	-7.34/-13.24	-9.49/-8.13	-8.74/-10.84	-15.94/-12.36	-13.17/-15.77	-13.70/-10.72	-7.95/-11.00	-8.01/-5.91	-3.81/-3.51	-1.69/0.77	1.73/0.73	0.97/1.38	1.00/0.95	1.06/0.97	0.36/-1.43	-1.41/-0.41	-3.19/-4.43	-6.40/-13.41	-12.17/9.05	-9.93/-12.01	-7.37/-10.88	-6.50/-6.73	-4.52/-5.14
θ(82.5°)	-5.38/-6.06	-12.77/-7.55	-4.21/-6.16	-15.24/-14.91	-13.73/-9.49	-8.67/-7.04	-6.12/-6.27	-3.60/-1.84	-6.92/-5.11	-3.51/-3.07	-1.88/0.44	0.78/0.27	0.43/-1.16	-0.48/0.83	1.53/1.04	0.22/-0.06	-0.07/0.76	0.15/-2.76	-7.61/-11.13	-8.53/-10.74	-10.69/-11.20	-7.22/-5.82	-5.14/-3.22	-2.06/-4.57
θ(90°)	-4.07/-6.97	-5.43/-5.71	-6.90/-12.48	-12.42/-12.54	-13.81/9.37	-8.88/8.79	-7.77/4.82	-3.31/-2.90	-7.59/-6.05	-2.09/-1.59	-1.10/-0.91	-0.21/0.31	-1.79/0.31	-1.93/0.06	0.33/0.06	-0.13/0.65	0.66/1.81	0.83/4.24	-10.57/7.93	-8.87/-16.10	-13.70/8.20	-7.05/-2.49	-4.31/-1.93	-4.69/-2.42
θ(97.5°)	-4.85/-5.15	-3.89/-10.32	-10.74/-11.80	-9.16/-12.59	-13.95/-11.15	-9.91/-10.55	-10.62/-5.00	-4.56/-3.74	-8.70/-5.53	-1.56/-0.06	0.04/0.17	0.73/0.76	1.05/-0.25	-0.22/1.23	-0.12/-0.49	-1.08/-0.61	-1.72/-1.93	-2.20/-6.97	-14.89/-7.78	-9.95/-9.61	-13.08/-5.43	-4.02/-3.86	-4.34/-4.67	-7.71/-2.29
θ(105°)	-6.69/-3.88	-6.94/-12.40	-10.97/-9.72	-6.67/-11.80	-7.58/-5.65	-3.92/-6.66	-6.12/-6.64	-5.89/-6.06	-8.22/-6.73	-3.04/-1.13	0.09/0.08	1.59/0.05	0.07/-1.34	-0.85/0.17	-1.70/-3.90	-0.72/-0.07	-1.40/-2.50	-6.54/-12.92	-10.86/-8.82	-5.35/-9.19	-11.00/-7.50	-6.36/-6.05	-9.11/-9.41	-9.26/-4.32
θ(112.5°)	-8.89/-5.65	-6.72/5.04	-12.23/-4.42	-5.32/-10.55	-5.92/-3.05	-3.53/-1.69	-2.44/-0.00	-10.08/-4.95	-2.46/-0.71	-0.15/0.58	1.39/0.81	-0.02/-1.31	-0.45/0.44	0.48/-1.28	-4.56/-4.22	-0.72/0.50	-3.97/8.90	-10.02/-3.16	-4.31/-11.78	-14.71/9.75	-8.30/-9.65	-14.91/-11.64	-7.47/-5.99	
θ(120°)	-7.23/-8.23	-4.72/-3.42	-9.83/-8.88	-4.17/-6.27	-11.27/-5.63	-3.37/-3.96	-2.23/-3.26	-4.65/-4.71	-2.00/-3.69	-4.84/-1.19	-1.45/-1.57	0.07/1.53	-0.07/-1.26	-1.63/-1.72	0.38/-2.20	-5.75/0.03	0.65/0.47	-1.21/-9.72	-8.09/-3.07	-5.62/-12.49	-9.82/-12.56	-12.61/-14.89	-15.72/-10.22	
θ(127.5°)	-1.63/-9.11	-5.85/-8.40	-13.61/-15.50	-5.52/-1.72	-6.83/-4.43	-7.																		

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

