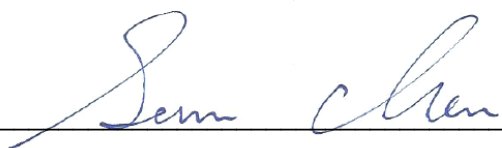


Antenna Composite Gain Test Report

FCC ID	2ADZRBGW321
Equipment	BGW320-505
Brand Name	NOKIA
Model Name	BGW320-505
Applicant	Nokia Shanghai Bell Co. Ltd. No. 388, Ningqiao Rd. Pilot Free Trade Zone Shanghai , China 201206
Manufacturer	Nokia Shanghai Bell Co. Ltd. No. 388, Ningqiao Rd. Pilot Free Trade Zone Shanghai , China 201206
Sample Received	Jul. 06, 2022
Start Test Date	Jul. 07, 2022
Final Test Date	Jul. 08, 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.)



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History of this test report

[illegible]

1. Operation Mode and Antenna Information

Antenna Position	RF Port		Brand Name	Model Name	Ant. Type	Connector	Modes of Operation
	2.4GHz	5GHz					
2G5GLAnt1	4	1	Airgain	N2430ARJYW Rev A-PK1-L-G1X165BUR2	PCB	I-PEX	2.4GHz, 5GHz UNII 1~2A
2G5GLAnt2	3	2	Airgain	N2430ARHYN Rev A-PK1-L-Y1X140BUR2	PCB	I-PEX	2.4GHz, 5GHz UNII 1~2A
2G5GLAnt3	2	3	Airgain	N2435ARHYN Rev A-PK1-L-B1X155BU	PCB	I-PEX	2.4GHz, 5GHz UNII 1~2A
2G5GLAnt4	1	4	Airgain	N2420ARHYW Rev A-PK1-L-A1X195BU	PCB	I-PEX	2.4GHz, 5GHz UNII 1~2A
5GH Ant1	-	1	Airgain	N5X20QSYN Rev A-PK1-L-B50UR2	PCB	I-PEX	5GHz UNII 2C~3
5GH Ant2	-	2	Airgain	N5X20QSYE Rev A-PK1-L-A55UR2	PCB	I-PEX	5GHz UNII 2C~3
5GH Ant3	-	3	Airgain	N5X20QSYN Rev A-PK1-L-Y1X190BU	PCB	I-PEX	5GHz UNII 2C~3
5GH Ant4	-	4	Airgain	N5X20QSYE Rev A-PK1-L-G1X160BU	PCB	I-PEX	5GHz UNII 2C~3

Note:

2.4GHz and 5GHz UNII 1, 2A Operation Mode (4TX/4RX)

2G5GLAnt1~4 can be used as transmitting/receiving antenna.

2G5GLAnt1~4 could transmit/receive simultaneously.

5GHz UNII 2C, 3 Operation Mode (4TX/4RX)

5G Ant1~5G Ant4 can be used as transmitting/receiving antenna.

5G Ant1~5G Ant4 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



3. Testing Location

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

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	05CH03-HY	Rex Liao	23.5-24.5 / 50-55	Jul. 07, 2022 ~ Jul. 08, 2022

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

Characteristic: Fully Anechoic Chamber

4. Test Facility and Configuration

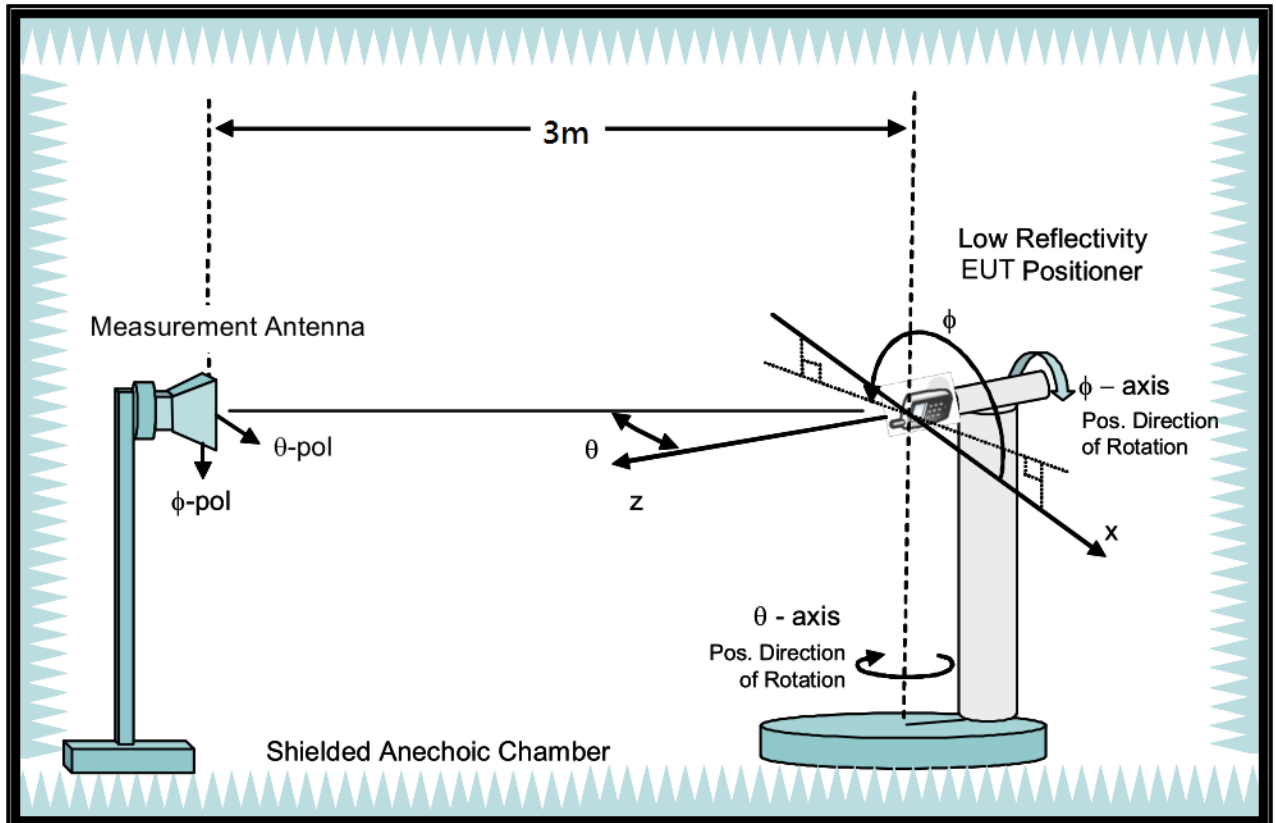
Test configuration: Reference to CITA OTA distributed-axes system configuration.

Chamber: Fully Anechoic Chamber.

Measurement antenna: Dual Polarization Horn antenna

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

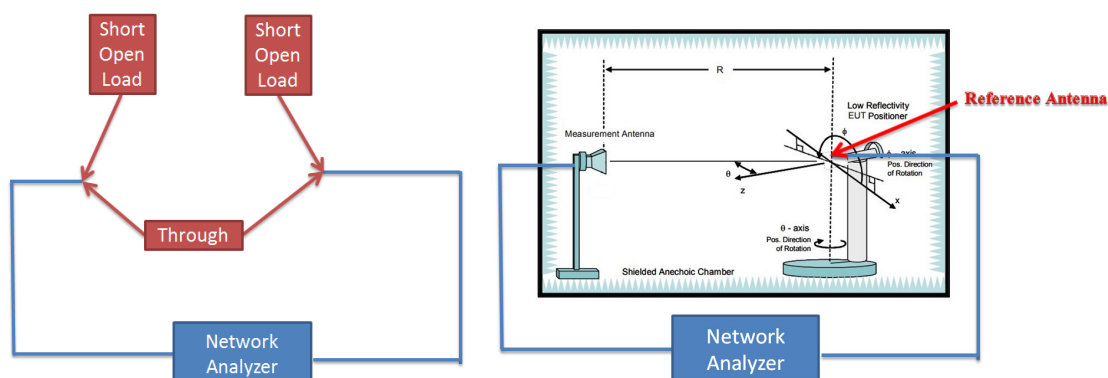
#Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1"



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	7500
G reading (dB)	-31.4	-31.4	-31.3	-31.3	-31	-30.7	-30.1	-30.5	-30.5	-30.8	-31.3	-32.8	-34.4	-35.4
Reference gain (dBi)	10.2	10.4	10.6	12.4	12.8	13.4	13.4	13.3	13.3	13.1	13.2	12.3	11.7	11.1
Factor (dB)	41.34	41.55	41.68	43.24	43.56	43.68	43.79	43.91	43.99	44.43	44.49	45.24	46.12	46.31

Note:

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

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

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

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

6. Test Method

EUT set on multi-axis positioner and adjust EUT's physical center to measurement reference center. Measurement antenna set at phi polarization and 1.5 meter height. Port 1 of Network analyzer connect to antenna 1 of EUT. Record G value every 10 degree from 0 to 350 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/5GHz UNII 1, 2A

DG_1SS max value position

Frequency (Hz)	2.45G	5.2G	5.3G
Ant. 1 (dBi)	-5.26	-7.48	-4.24
Ant. 2 (dBi)	2.31	3.45	-1.2
Ant. 3 (dBi)	3.09	1.12	-0.08
Ant. 4 (dBi)	-10.99	-14.94	-5.11
DG [1SS] (dBi)	5.01	4.16	3.61
Polarization	Phi	Phi	Theta
$\Theta(^{\circ})$	20	30	30
$\Phi(^{\circ})$	350	180	220

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
Ant. 1 [$10^{(G/20)}$]	$10^{(-5.26/20)}$	$10^{(-7.48/20)}$	$10^{(-4.24/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(2.31/20)}$	$10^{(3.45/20)}$	$10^{(-1.2/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(3.09/20)}$	$10^{(1.12/20)}$	$10^{(-0.08/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(-10.99/20)}$	$10^{(-14.94/20)}$	$10^{(-5.11/20)}$
Ant. 1 [$10^{(G/20)}$] value	0.546	0.423	0.614
Ant. 2 [$10^{(G/20)}$] value	1.305	1.488	0.871
Ant. 3 [$10^{(G/20)}$] value	1.427	1.138	0.991
Ant. 4 [$10^{(G/20)}$] value	0.282	0.179	0.555
Sum All Antenna [Amax]	3.56	3.227	3.031
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	5.01	4.16	3.61

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 5GHz UNII 2C, 3

DG_1SS max value position

Frequency (Hz)	5.6G	5.785G
Ant. 1 (dBi)	-2.19	-4.78
Ant. 2 (dBi)	-1.07	0.9
Ant. 3 (dBi)	-3.31	1.01
Ant. 4 (dBi)	-0.48	-7.19
DG [1SS] (dBi)	4.32	4.21
Polarization	Theta	Theta
$\Theta(^{\circ})$	50	50
$\Phi(^{\circ})$	320	130

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

DG_1SS max value position calculation

Frequency (Hz)	5.6G	5.785G
Ant. 1 [$10^{(G/20)}$]	$10^{(-2.19/20)}$	$10^{(-4.78/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(-1.07/20)}$	$10^{(0.9/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(-3.31/20)}$	$10^{(1.01/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(-0.48/20)}$	$10^{(-7.19/20)}$
Ant. 1 [$10^{(G/20)}$] value	0.777	0.577
Ant. 2 [$10^{(G/20)}$] value	0.884	1.109
Ant. 3 [$10^{(G/20)}$] value	0.683	1.123
Ant. 4 [$10^{(G/20)}$] value	0.946	0.437
Sum All Antenna [Amax]	3.291	3.246
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	4.32	4.21

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

8. Summary of Test Result

For 2.4GHz/5GHz UNII 1, 2A

Frequency (Hz)	2.45G	5.2G	5.3G
Ant. 1 Max Gain (dBi)	2.7	2.45	2.78
Ant. 2 Max Gain (dBi)	4.27	3.45	2.83
Ant. 3 Max Gain (dBi)	3.57	2.34	2.4
Ant. 4 Max Gain (dBi)	2.86	2.92	3.38
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/80/30	Theta/90/200	Theta/90/200
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/110/150	Phi/30/180	Theta/40/80
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/40/350	Theta/40/250	Theta/70/280
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/50/10	Theta/120/260	Theta/120/260
Max Gain (dBi)	4.27	3.45	3.38
DG [1SS] (dBi)	5.01	4.16	3.61
DG [2SS] (dBi)	4.27	3.45	3.38
DG [4SS] (dBi)	4.27	3.45	3.38

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.

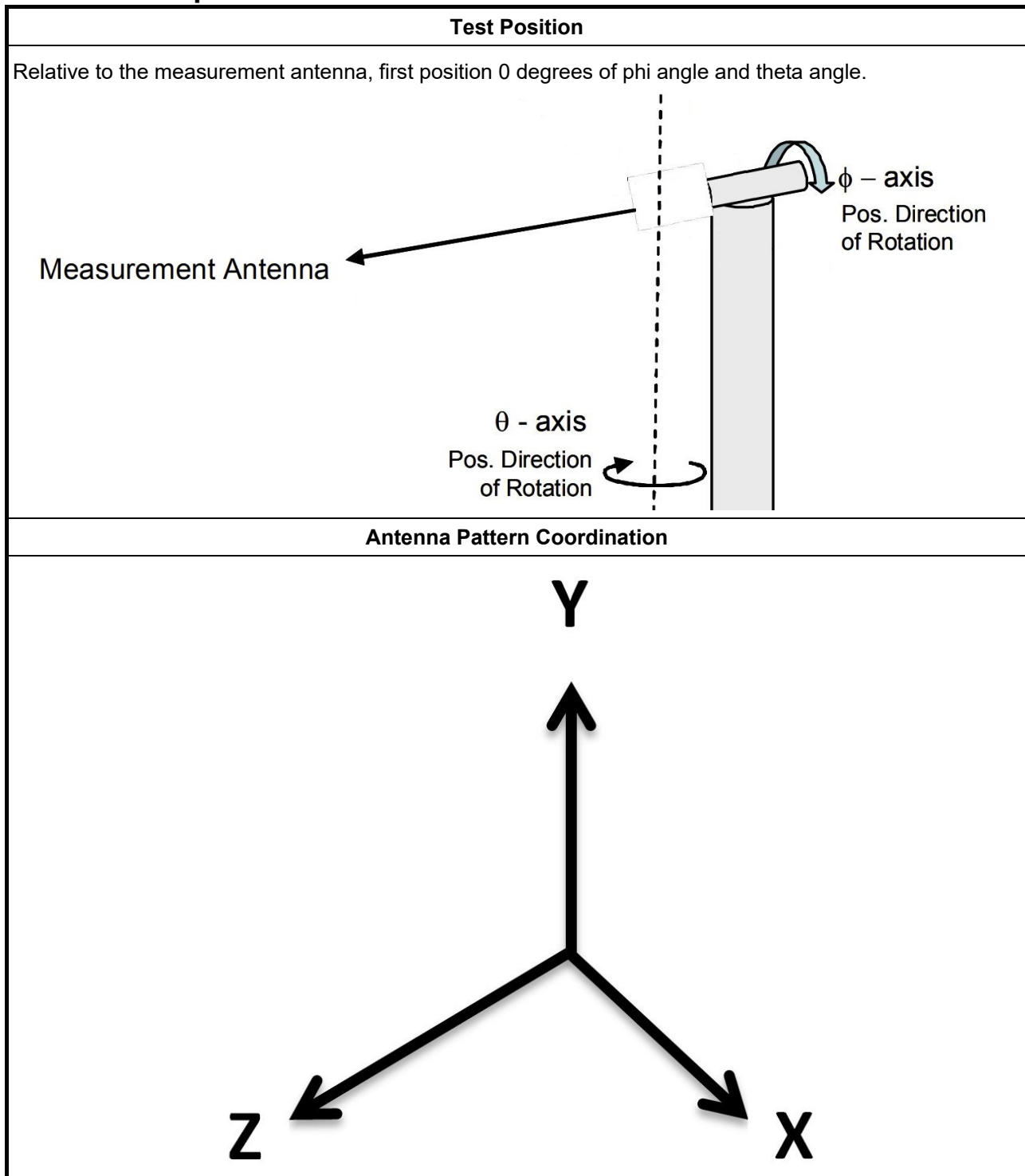
For 5GHz UNII 2C, 3

Frequency (Hz)	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.16	2.63
Ant. 2 Max Gain (dBi)	2.5	3.69
Ant. 3 Max Gain (dBi)	3.24	2.05
Ant. 4 Max Gain (dBi)	2.18	2.44
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/60/200	Phi/50/220
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/80/320	Theta/90/300
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/50/70	Phi/50/70
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/80/240	Theta/80/280
Max Gain (dBi)	3.24	3.69
DG [1SS] (dBi)	4.32	4.21
DG [2SS] (dBi)	3.24	3.69
DG [4SS] (dBi)	3.24	3.69

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-1292	1GHz~18GHz	Aug. 04, 2021	Aug. 03, 2022
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, 5GHz U-NII 1 and U-NII 2A.....	Page 16
Appendix B – Radiated Composite Gain of 5GHz U-NII 2C and U-NII 3.....	Page 24
Appendix C – Antenna Pattern of 2.4GHz, 5GHz U-NII 1 and U-NII 2A.....	Page 29
Appendix D – Antenna Pattern of 5GHz U-NII 2C and U-NII 3.....	Page 34
Appendix E – Test Photos.....	Page 38



Freq(Hz)	2.45G	5.2G	5.3G
Ant. 1 Max Gain (dBi)	2.7	2.45	2.78
Ant. 2 Max Gain (dBi)	4.27	3.45	2.83
Ant. 3 Max Gain (dBi)	3.57	2.34	2.4
Ant. 4 Max Gain (dBi)	2.86	2.92	3.38
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/80/30	Theta/90/200	Theta/90/200
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/110/150	Phi/30/180	Theta/40/80
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/40/350	Theta/40/250	Theta/70/280
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/50/10	Theta/120/260	Theta/120/260
Max Gain (dBi)	4.27	3.45	3.38
DG [1SS] (dBi)	5.01	4.16	3.61
DG [2SS] (dBi)	4.27	3.45	3.38
DG [4SS] (dBi)	4.27	3.45	3.38



Radiated Composite Gain Data of 2.4GHz, 5GHz U-NII 1 and U-NII 2A

Appendix A

DG 1SS Result

Freq(Hz)	245GPol.	PhiL	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
DG(dB)	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(°)	4.46/4.34	3.96/2.61	2.67/0.7	-0.66/-2.26	-0.01/-3.28	3.17/3.3	2.21/2.74	0.91/6.1	3.17/3.3	3.4/3.17	2.73/2.53	1.64/-0.2	1.32/-2.22	-0.34/-3.63	-1.34/-0.63	0.58/1.66	2.72/3.52	3.98/4.27
Theta(10°)	4.68/3.95	3.32/6.3	2.09/0.32	-1.36/-3.41	-5.17/-4.45	-2.18/-0.79	0.58/1.07	1.52/2.44	2.94/3.33	3.71/3.14	3.15/2.43	1.47/0.23	-1.32/-3.37	-3.91/-2.45	-1.38/-0.03	1.27/2.15	3.06/3.99	4.54/4.67
Theta(20°)	4.98/4.35	3.67/2.78	1.91/0.05	-1.64/-3.77	-6.67/-7.13	-5.39/-3.28	-2.14/-0.52	0.59/1.28	2.16/3.05	2.82/2.84	2.71/2.9	1.77/0.07	-0.74/-3.04	-4.43/-2.93	-0.7/0.8	2.13/2.88	3.41/4.28	4.68/5.01
Theta(30°)	4.77/3.93	3.08/2.28	0.71/-1.32	-2.86/-3.58	-4.24/-5.54	-6.66/-6.01	-0.07/-2.41	-0.84/1.26	2.62/3.32	3.46/3.35	2.81/2.2	1.8/0.76	-0.06/-2.04	-3.85/-3.21	-0.48/1.33	2.56/3.4	3.92/4.09	4.69/4.81
Theta(40°)	4.02/3.29	2.69/1.57	0.05/-1.5	-2.29/-3.23	-4.28/-6.07	-7.36/-6.05	-3.71/-1.74	-0.49/0.53	1.46/2.7	2.82/2.72	1.94/2.12	1.72/1.2	0.92/-2.09	-4.88/-3.79	-1.71/0.34	2.23/2.1	3.86/4.23	4.34/4.26
Theta(50°)	2.74/2.22	2.18/1.48	0.1/-1.57	-2.52/-3.73	-5.2/-5.73	-5.38/-4.1	-2.73/-0.93	-0.66/0.05	1.52/2.46	2.06/1.9	1.61/2.49	2.18/2.12	0.77/-1.71	-3.68/-5.6	-2.62/-0.16	1.86/2.71	3.16/3.69	3.33/2.93
Theta(60°)	1.81/1.69	1.66/0.33	-1.32/-1.91	-2.41/-3.48	-5.31/-7.4	-6.67/4.66	-3.5/-1.35	-0.36/-0.82	-0.2/0.52	1.2/1.28	0.91/1.39	1.51/1.11	0.18/-3.37	-7.06/-7.48	-5.07/-1.53	0.84/2.25	3.02/2.49	2.85/1.74
Theta(70°)	1.46/2.14	1.34/0.18	-1.1/-1.89	-1.83/-2.56	-4.17/-8.33	-11.23/-7.18	-3.45/-1	0.13/-0.5	-1.96/-0.67	-0.55/-0.62	-0.54/0.33	0.84/1	1.07/-1.1	-6.16/-8.71	-5.97/4.52	-2.06/-0.02	1.38/2.1	1.55/1.16
Theta(80°)	0.39/0.95	0.87/-1.59	-2.47/-2.58	-3.14/-4.7	-6.04/-8.19	-8.98/-5.69	-2.18/-0.14	0.35/-0.52	-1.88/-1.35	-1.93/-2.8	-2.3/-1.66	-0.63/0.09	-1.3/-3.59	-6.61/-6.06	-3.93/-2.47	-1.25/-0.87	0.11/0.38	1.18/0.76
Theta(90°)	0.03/0.11	0.66/-1.54	-3.67/-3.19	-3.86/-5.77	-5.95/-5.46	-5.25/-25	-0.09/0.82	0.6/0.25	-0.17/-2.05	-3.45/-4.32	-3.47/-1.61	-1.44/-1.85	-4/-6.59	-8.36/-7.68	-4.44/-1.79	-0.32/-0.25	0.4/1.83	1.56/0.54
Theta(100°)	-0.85/-0.69	0/-3.13	-4.53/-3.29	-3.04/-4.07	-4.3/-4.11	-3.95/-0.94	1.27/1.64	1.47/2.03	2.22/0.78	-0.43/-1.9	-2.6/-2.72	-1.56/-1.69	-2.46/-4.12	-5.8/-8.09	-5.55/-2.68	-1.24/-0.96	-0.58/0.39	0.97/0.9
Theta(110°)	-1.59/-2.54	-1.25/-1.8	-3.2/-2.44	-4.23/-4.02	-3.6/-3.54	-1.6/-0.24	1.37/2.23	2.67/3.05	3.06/1.97	0.95/-0.77	-3.68/-4.52	-3.19/-2.77	-3.44/-3.98	-4.79/-5.45	-5.84/-4.08	-0.94/0.56	0.88/-0.73	-0.55/-0.5
Theta(120°)	-1.46/-3.41	-4.61/4.68	-3.84/-2.08	-1.36/-1.09	-1.76/-2.76	-2.21/-1.29	0.15/1.56	1.94/1.71	2.29/1.85	-0.1/-3.46	-6.95/-6.35	-4.97/-4.8	-5.18/-3.72	-1.54/1.04	-4.13/-4.94	-1.54/1.04	-0.13/-0.57	
Theta(130°)	-1.83/-2.52	-2.26/-2.65	-1.82/-1.39	-1.28/-1.18	-1.71/-3.12	-3.47/-2.69	-1.16/-0.23	0.46/0.76	1.62/1.35	0.42/-1.05	-2.61/-3.4	-3.95/-4.95	-4.85/-3.22	-2.25/-2.26	-3.47/-3.91	-1.27/1.28	2.65/1.68	-0.3/-2.01
Theta(140°)	-3.57/-2.92	-2.06/-2.44	-2.17/-1.16	-1.1/-1.74	-2.42/-3.43	-3.37/-2.29	-0.89/0.73	1.75/2.24	2.51/2.45	2.1/0.6	-2.34/-3.8	-4.53/-4.24	-3.48/-3.04	-2.96/-4.36	-4.73/-5.49	-2.5/0.19	1.45/0.6	-0.58/-2.8
Theta(150°)	-3.28/-3.54	-3.4/-4.03	-4.44/-3.83	-3.91/-4.63	-5.16/-5.84	-4.73/-3.24	-0.95/0.81	1.62/1.75	1.27/0.43	0.17/-1	-2.09/-2.98	-3.93/-4.03	-3.68/-3.69	-4.36/-5.44	-4/-2.58	-1.6/-1.44	-2.05/-2.82	
Theta(160°)	-3.49/-4.03	-4.86/-5.33	-5.97/-5.56	-4.68/-4.12	-4.43/-4.06	-2.77/-1.52	-0.71/0.01	0.18/0.18	-2.27/-1.32	-4.49/-4.4	-5.86/-5.94	-6/-5.87	-6.22/-6.71	-7.17/-7.37	-5.77/-3.97	-2.68/-2.64	-2.94/-2.86	
Theta(170°)	-5.68/-5.82	-6.37/-6.45	-6.08/-5.75	-5.33/-4.95	-5.43/-5.01	-6.04/-4.85	-4.87/-4.66	-5.96/-6.79	-7.65/-6.94	-6.75/-7.34	-7.61/-8.29	-8.27/-7.8	-8.42/-8.69	-8.4/-8.71	-8.59/-8.19	-6.47/-6.61	-5.8/-5.37	-5.33/-5.28
Theta(180°)	-6.89/-6.61	-6.71/-6.94	-7.01/-7.06	-7.53/-7.81	-8.55/-9.11	-8.62/-10.45	-10.66/-10.46	-9.58/-8.3	-7.99/-7.67	-7.52/-7.06	-6.51/-6.8	-7.24/-7.21	-7.64/-8.03	-7.76/-7.66	-6.99/-6.36	-5.82/-5.98	-6.25/-6.82	-7.14/-7.39
Freq(Hz)	245GPol.	ThetaL	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
DG(dB)	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(0°)	-2.27/-1.88	-0.41/0.82	1.75/2.58	3.09/3.44	-3.03/-3.26	3.49/3.4	3.07/2.65	-0.07/-1.9	2.04/0.99	-1.84/-0.45	3.39/3.51	2.27/2.85	3.33/3.31	1.52/1.61	1.02/-0.99	1.52/1.61	1.02/-0.99	1.52/1.61
Theta(10°)	-2.74/-0.94	0.38/1.63	2.57/3.29	3.76/4.09	4.12/3.99	3.78/3.35	2.82/1.65	0.82/-0.12	-1.47/-2.32	-1.27/0.37	1.07/1.33	2.2/2.62	3.17/3.11	3.0/3.9	2.81/2.71	1.44/0.25	-0.9/-1.92	-3.83/-4.44
Theta(20°)	-0.63/0.78	1.82/2.57	3.11/3.54	3.88/3.94	3.77/3.45	3.07/2.63	2.24/1.58	1.06/0.39	-0.07/-0.44	0.11/0.44	1.08/1.85	2.39/3.07	3.63/4.8	2.31/5.6	0.67/-0.21	-1.87/-3.37	-5.31/-3.51	
Theta(30°)	0.65/1.91	2.71/3.34	3.36/3.08	2.68/2.15	1.79/1.44	1.12/0.64	-0.17/-0.47	-0.01/-0.61	0.08/0.24	0.79/1.71	2.76/3.41	3.61/3.84	3.68/3.11	2.62/2.21	0.84/0.14	-1.86/-2.57	-2.54/-2.13	
Theta(40°)	0.96/2.62	3.56/3.96	3.74/2.91	1.94/1.29	1.78/2.09	1.61/1.24	0.18/-0.49	-1.83/-1.35	-0.36/0.04	0.31/5.4	2.59/3.29	3.83/3.57	2.96/2.14	3.83/3.85	4.09/4.09	2.96/2.14	1.31/-0.28	-1.53/-1.05
Theta(50°)	1.73/4.49	3.84/4.14	3.88/3.37	2.31/2.19	2.39/1.94	1.78/2.02	1.65/0.61	0.06/0.17	-0.5/-1.08	-0.2/-0.28	0.05/-1	2/2.9	3.41/3.56	3.874	4.41/4.09	4.16/3.16	2.57/1.52	0.29/0.39
Theta(60°)	1.91/2.99	3.63/3.24	1.21/1.07	1.46/2.16	2.13/1.64	1.22/1.43	1.57/0.71	0.41/1.23	0.41/-0.56	-0.89/-0.8	-0.17/0.97	1.61/2.66	3.16/2.86	2.28/2.29	2.31/2.6	2.81/2.79	2.54/2.4	1.92/2.02
Theta(70°)	2.14/2.51	2.63/1.96	0.91/1.21	2.47/3	2.63/1.93	0.41/-1.2	1.25/0.95	1.34/0.71	-0.33/-0.19	1.17/1.65	3.21/3.29	3.08/2.44	3.04/2.91	3.15/3.32	3.21/3.29	3.08/2.44	2.06/1.95	2.08/2.19
Theta(80°)	0.75/0.4	1.35/2.37	1.11/2.29	3.09/3.1	2.24/1	0.46/0.66	1.5/0.91	1.69/2.19	1.37/0.68	1.54/1.64	2.76/2.29	1.68/2.14	2.03/2.84	3.43/3.51	3.37/2.68	1.97/2	2.51/1.86	
Theta(90°)	0.31/0.42	0.6/0.45	-0.03/1.09	1.31/0.77	-0.5/-1.42	-1.11/0.49	1.82/2.08	1.67/2.25	2.09/2.43	1.96/1.85	1.36/1.39	2.39/2.14	0.89/-0.29	0.81/2.06	2.49/2.66	3.18/2.87	1.57/0.44	0.63/0.42
Theta(100°)	-0.57/-1.01	-0.38/-0.92	-2.42/-0.95	-0.97/-2.27	-3.18/-2.09	-2.04/0.41	-1.19/-1.31	1.96/2.47	0.79/0.54	0.68/1.16	2/2.43	0.13/-1.38	-0.27/1.63	2.5/2.68	2.32/0.82	-0.19/-0.71	0.41/0.12	
Theta(110°)	-0.38/-0.99	-0.73/-2.8	-3.49/-2.6	-1.94/-1.37	-1.72/-2.42	-3.02/-2.38	-2.4/-1.6	-0.84/0.63	1.3/0.47	0.13/-1.62	-0.86/-1.59	1.17/2.69	0.92/-0.02	-0.41/-4.8	2.54/2.91	3.29/0.6	-2.09/-1.32	-0.03/0.81
Theta(120°)	0.41/-0.28	-0.16/-0.85	-1.61/-1.2	0.12/0.29	-0.28/-1.54	-1.9/-0.89	-0.93/-1.66	-0.69/-0.47	0.37/0.94	-0.01/-1.79	-0.77/-1.5	0.57/1.39	0.74/-0.22	-3.07/-1.74	0.13/0.73	1.81/0.69	-0.69/-0.24	0.61/1.39
Theta(130°)	-0.54/-1.15	-0.76/0.26	0.64/0.04	0.14/0.39	0.32/0.59	1.35/2.09	-0.22/0.14	2.41/0.94	1.06/0.97	-0.22/0.14	1.06/0.97	-0.29/-1.9	-2.81/-2.96	-0.37/-0.5	0.17/0.75	1.15/1.31	0.52/-0.25	
Theta(140°)	-4.86/-3.78	-2/-0.75	-0.06/-0.13	0.3/0.52	1.24/1.94	2.59/2.86	2.67/2.38	1.42/-0.54	-2.59/-1.31	-0.4/-0.07	-0.17/-0.84	-1.71/-3.28	-3.38/-3.52	-2.58/-1.09	-0.02/-0.41	-0.6/0.45	1.84/1.52	-0.95/-4.19
Theta(150°)	-7.96/-7.01	-5.57/-4.85	-3.97/-3.18	-2.07/-1.18	-0.26/0.57	1.15/0.84	0.65/0.38	-0.84/-0.66	-0.14/0.72	0.59/0.28	-1.76/-2.86	-3.27/-3.26	-3.73/-3.14	-2.81/-1.95	-1.1/-1.09	0.71/0.9	0.77/-0.57	-2.45/-5.94
Theta(160°)	-9.56/-9.19	-8.3/-8.63	-8.06/-4.44	-6.85/-4.96	-3.27/-1.87	-2.96/-3.28	-2.97/-1.29	-1.96/-2.15	-2.84/-2.21	-2.96/-3.58	-5.3/-5.15	-1.68/-2.12	-2.84/-2.12	-2.38/-2.14	-1.68/-2.79	-4.5/-6.77	-7.93/-9.28	
Theta(170°)	-10.31/-9.65	-7.99/-7.39	-5.87/-5.09	-4.43/-3.91	-3.48/-3.14	-3.16/-3.64	-4.07/-4.87	-5.54/-6.1	-7.14/-8.35	-9.99/-9.24	-8.69/-7.08	-5.24/-4.01	-3.27/-2.78	-3.21/-2.59	-3.04/-3.88	-4.61/-5.31	-6.81/-8.93	-10.33/-11.71
Theta(180°)	-7.33/-7.46	-6.94/-6.58	-6.15/-5.94	-5.88/-5.95	-5.69/-5.9	-6.37/-7.21	-7.85/-7.99	-7.72/-6.79	-6.71/-6.82	-7.01/-7.49	-7.96/-8.01	-7.8/-7.32	-5.72/-4.84	-4.57/-3.99	-4.13/-5.15	-5.48/-6.22	-6.85/-7.43	-7.72/-7.75
Freq(Hz)	5.3GPol.	PhiL	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
DG(dB)	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(0°)	0.99/0.33	-0.64/-1.21	-0.86/-0.49	-1.53/-1.3	-1.3/-0.79	-0.23/0.54	1.53/1.82	1.78/1.76	1.55/1.02	0.1/-0.62	-0.74/-1.26	-1.15/-1.29	-1.21/-1.59	-1.68/-1.01	-0.16/0.46	1.25/1.7	2.21/2.25	1.59/0.98
Theta(10°)	-0.85/-1.15	-0.76/-1.42	-1.67/-1.84	-2.62/-3.51	-3.35/-2.6	-1.67/-0.49	1.02/2.02	3.01/3.56	3.51/3.18</									



Radiated Composite Gain Data of 2.4GHz, 5GHz U-NII 1 and U-NII 2A

Appendix A

Θ (60°)	-3.79/-1.11	1.91/2.08	2.08/2.31	2.61/2.09	2.11/1.14	-0.24/-1.08	-1.45/-1.91	-0.88/-0.41	-1.03/-2.05	-1.72/-3.26	-1.37/1.55	0.49/0.34	1.02/0.36	-0.47/1.16	1.95/2.19	1.17/-0.18	-1.82/-1.93	-0.51/-0.95
Θ (70°)	-0.7/-0.02	2.4/2.83	2.73/3.07	3.48/2.77	2.25/1.35	1.14/0.04	-1.17/-1.15	0.93/0.11	0.58/-0.43	0/-1.57	0.63/1.19	-0.48/1.69	2.29/-1.08	-1.17/0.6	3.18/3.48	2.13/0.28	-0.54/-0.86	0.02/1.18
Θ (80°)	0.62/-0.32	1.72/2.33	2.29/2.42	2.37/1.94	1.39/0.01	-0.08/-0.4	0.75/-0.54	-0.43/-1.3	0.86/0.42	1.86/-0.7	-0.34/2.25	1.09/2.71	2.8/0.37	-0.46/0.21	2.52/2.29	2.18/0.57	0.9/0.82	1.67/2.43
Θ (90°)	0.08/0.5	1.18/1.31	1.56/2.75	2.83/2.42	1.53/0.69	0.52/0.8	0.13/-0.86	1.1/-0.11	1.51/0.79	0.93/0.61	1.22/2.59	2.21/3.48	2.92/1.47	0.02/0.01	1.37/1.84	0.63/-1.15	-1.42/-0.15	0.83/1.21
Θ (100°)	-0.06/-0.75	0.59/0.57	0.5/-0.6	-1.55/0.16	-0.03/-0.32	-0.4/-0.35	-1.03/-1.56	-0.11/-0.53	2.49/1.91	1.45/1.8	0.4/1.49	2.19/0.25	-0.66/-0.63	0.76/-2.24	-4.44/-2.59	-3.5/-3.4	-0.95/-1.01	1.03/-1.63
Θ (110°)	-0.06/-0.65	-0.8/-1.28	-0.39/-0.71	-1.07/-0.96	-0.91/-0.96	-0.52/-1.16	-2.25/-1.79	0.47/-1.1	1.31/-0.35	1.14/0.74	-0.67/0.85	2.01/1.8	-1.52/1.17	0.63/-3.13	-0.72/-1.9	-1.09/-2.52	-4.49/-4.63	0.51/-1.11
Θ (120°)	-1.81/-2.15	-2.57/-2.5	-3.15/-2.43	-3.84/-3.43	-2.42/-1.59	-1.9/-3.13	-2.13/-1.12	-0.88/-0.35	1.07/-0.73	0.89/-1.06	-3.6/-1.6	-0.76/-0.28	-2.86/-0.81	1.36/-5.19	-0.83/-2.11	-2.43/-3.96	-6.5/-2.01	-1.68/-2.19
Θ (130°)	-3.74/-4.11	-5/-5.43	-4.17/-4.42	-4.69/-4.34	-2.21/-1.26	-1.44/-1.18	-0.35/-1.57	-2.34/-3.34	-3.36/-4.02	-3.56/-3.38	-4.56/-6.2	-1.36/-5.79	-6.81/-0.22	0.18/-4.26	-1.56/-2.46	-2.19/-7.11	-6.08/-3.37	-3.03/-3.22
Θ (140°)	-3.55/-4.3	-5.52/-8.19	-8.63/-6.79	-4.85/-3.19	-3.11/-2	-0.85/-0.98	0.29/1.62	1.7/0	-1.9/-3.12	-4.32/-4.19	-5.44/-4.51	-4.53/-4.93	-1.32/0.72	-0.6/-6.08	-4.54/-2.78	-3.64/-4.45	-7.64/-6.98	-9/-6.43
Θ (150°)	-4.89/-5.02	-7.07/-9.93	-10.32/-6.2	-3.98/-2.84	-2.33/-3.06	-3.18/-3.7	-3/-2.39	-2.99/-2.24	-3.32/-5.55	-6.51/-3.27	-2.77/-3.8	-5.54/-5.25	-4.01/-2.03	-2.21/-2.92	-3.6/-3.21	-4.26/-4.51	-6.25/-6.68	-7.82/-6.07
Θ (160°)	-9.38/-7.75	-5.96/-4.8	-5.03/-5.01	-5.7/-6.03	-4.41/-4.15	-4.34/-4.36	-4.31/-5.31	-5.62/-4	-2.93/-2.48	-2.05/-3.02	-4.53/-6.6	-9.02/-8.02	-7.71/-5.95	-6.69/-8.33	-8.14/-5.97	-6.03/-7.45	-8.45/-8.24	-7.84/-8
Θ (170°)	-9.32/-9.5	-9.37/-7.89	-7.95/-7.58	-7.12/-6.37	-5.57/-5.34	-4.63/-4.02	-3.7/-4.66	-5.34/-7.56	-9.25/-10.47	-9.46/-7.87	-6.27/-5.42	-5.09/-4.25	-4.16/-5.44	-6.81/-6.91	-6.26/-5.28	-4.76/-5	-6.99/-10.13	-12.29/-11.29
Θ (180°)	-6.15/-6.13	-5.74/-6.4	-7.97/-7.38	-7.3/-8.12	-9.02/-9.17	-10.13/-11.21	-10.18/-9.68	-9.48/-8.59	-7.8/-6.92	-6.14/-5.35	-4.67/-4.12	-4.53/-5.38	-6.31/-6.62	-6.63/-6.46	-6.85/-6.97	-7.54/-7.3	-7/-7.22	-7.21/-6.41



Radiated Composite Gain Data of 2.4GHz, 5GHz U-NII 1 and U-NII 2A

Appendix A

Gain Result

Freq(Hz)	2.45GPol.	PhiAnt. 1	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-4.93/-4.03	-2.57/-3.45	-2.66/-3.59	-3.61/-5.49	-6.29/-7.71	-8.84/-10.51	-13.04/-14.64	-12.92/-10.25	-7.94/-6.48	-5.35/-4.5	-4.2/-5.31	-4.55/-4.93	-5.83/-6.28	-8.04/-10.36	-1.97/-16.53	-13.07/-9.86	-7.34/-5.46	-
Θ(10°)	-4.78/-4.62	-5.04/-3.4	-3.01/-3.74	-4.8/-6.49	-8.9/-11.12	-12.38/-13.69	-14.81/-18.24	-17.12/-10.21	-7.08/-5.32	-5.53/-5.06	-3.4/-3.52	-4.31/-4.27	-6.63/-7.87	-7.54/-7.2	-9.31/-11.4	-10.94/-11.6	-10.36/-8.93	-7.04/-5.54
Θ(20°)	-4.84/-4.48	-4.73/-4.88	-6.34/-5.92	-8.89/-13.26	-18.55/-17.51	-14.13/-13.14	-16/-17.75	-15.71/-12.72	-9.61/-4.12	-5.02/-4.59	-3.72/-3.85	-4.14/-4.59	-5.5/-6.47	-8.05/-8.2	-7.32/-8.77	-7.99/-8.11	-8/-5.79	-6.16/-5.26
Θ(30°)	-5.04/-7.05	-7.34/-7.49	-8.99/-13.08	-17.59/-16.07	-12.68/-11.45	-12.27/-14.21	-14.6/-18.33	-16.47/-9.21	-5.41/-3.62	-4.62/-3.8	-5.71/-5.54	-5.58/-5.18	-5.33/-5.89	-5.96/-6.59	-6.68/-6.22	-5.79/-6.49	-6.07/-5.75	-
Θ(40°)	-7.43/-9.55	-13.47/-13.89	-15.34/-13.17	-10.3/-9.17	-9.57/-11.73	-16.27/-18.79	-18.24/-16.75	-16.2/-14.41	-9.66/-5.86	-6.13/-6.42	-7.21/-7.01	-5.8/-5.35	-6.85/-6.03	-5.78/-5.1	-5.01/-6.62	-6.46/-7.56	-7.66/-5.64	-6.93/-7.19
Θ(50°)	-9.87/-16.18	-15.36/-12.27	-13.35/-12.01	-9.69/-9.35	-9.81/-11.75	-18.42/-18.83	-18.28/-12.48	-14.52/-17.29	-8.52/-6.17	-6.65/-7.22	-7/-4.91	-3.55/-3.74	-5.88/-8.41	-7.78/-5.43	-3.8/-3.58	-4.2/-5.74	-9.39/-8.08	-8.64/-10.05
Θ(60°)	-12.85/-18.22	-17.07/-13.43	-11.8/-11.05	-10.82/-10.16	-9.33/-11.42	-14.99/-17.93	-13.29/-7.22	-10.79/-7.35	-5.24/-5.87	-8.69/-7.12	-5.53/-6.19	-8.43/-11.72	-18.73/-14.44	-9.08/-4.82	-3.08/-3.17	-5.54/-9.8	-10.31/-11.8	-
Θ(70°)	-15.84/-14.77	-18.88/-15.07	-14.07/-14.87	-14.49/-11.94	-10.47/-15.17	-17.66/-13.82	-7.33/-4.36	-4.97/-11.12	-17.44/-10.72	-9.92/-12.62	-14.5/-10.85	-8.73/-8.09	-8.05/-8.9	-10.95/-15.55	-18.97/-19.22	-12.81/-7.81	-6.71/-7.23	-9.43/-10.96
Θ(80°)	-18.6/-13.98	-14.62/-19.28	-17.81/-14.4	-16.31/-17.64	-16.81/-18.23	-17.43/-9.35	-5.67/-4.03	-5.07/-9.75	-19.02/-12.79	-11.64/-18.7	-18.53/-12.51	-9.76/-10.09	-13.76/-15.49	-12.56/-9.7	-9.06/-10.25	-12.18/-18.62	-12.22/-9.16	-8.48/-14.53
Θ(90°)	-18.92/-10.63	-9.05/-15.78	-17.99/-12.81	-12.5/-18.56	-18.42/-18.34	-16.81/-9.5	-4.92/-3.52	-12.97/-18.08	-18.36/-17.18	-12.46/-11.02	-15.55/-18.13	-13.55/-16.68	-15.55/-18.13	-13.55/-16.68	-11.35/-8.75	-8.99/-15.62	-18.08/-9.15	-8.61/-13.88
Θ(100°)	-17.93/-15.13	-8.66/-15.18	-19.11/-13.88	-9.88/-12.84	-18.73/-18.12	-15.29/-9.04	-6.05/-5.25	-5.51/-5.61	-6.2/-11.29	-11.85/-11.22	-12.39/-18.97	-10.19/-9.22	-9.3/-10.24	-9.99/-12.97	-16.38/-13.31	-12.25/-16.93	-17.88/-10.6	-7.86/-8.65
Θ(110°)	-15.98/-16.6	-8.32/-7.6	-10.23/-15.75	-18.29/-19.12	-18.62/-17.29	-11.87/-7.97	-5.28/-4.41	-3.73/-5.44	-4.33/-6.28	-6.94/-10.05	-19.29/-12.93	-6.84/-6.02	-5.93/-5.77	-6.5/-9.38	-15.84/-18.04	-15.7/-14.21	-9.86/-12.98	-9.79/-9.84
Θ(120°)	-9.74/-16.3	-15.37/-11.91	-9.76/-10.74	-15.74/-19.04	-18.12/-18.94	-15.56/-11	-7.76/-5.08	-3.84/-3.32	-3.95/-4.38	-5.69/-14.09	-17.43/-10.06	-5.19/-4.23	-4.04/-3.9	-4.71/-6.85	-18.63/-18.2	-18.43/-12.9	-7.08/-7.18	-9.25/-9.1
Θ(130°)	-8.82/-7.92	-7.89/-8.2	-7.52/-5.82	-5.51/-6.49	-7.96/-10.31	-9.67/-8.25	-7.58/-8.01	-7.67/-9.14	-8.85/-8.55	-13.5/-15	-14.11/-13.95	-9.37/-7.04	-5.72/-4.74	-5.02/-6.73	-10.05/-15.33	-11.94/-5.66	-3.9/-6.24	-11.89/-17.07
Θ(140°)	-9.22/-10.62	-9.66/-11.1	-7.87/-5.07	-3.81/-3.84	-4.67/-5.97	-6.84/-7.09	-6.72/-4.81	-3.99/-3.75	-3.68/-3.63	-4.53/-7.4	-14.8/-18.93	-13.09/-8.57	-5.98/-4.51	-4.81/-8.7	-11.66/-15.44	-7.57/-4.04	-1.89/-5.04	-8.82/-15
Θ(150°)	-9.82/-9.96	-11.31/-12.88	-12.49/-9.78	-7.42/-6.22	-5.94/-5.44	-6.07/-7.41	-11.28/-10.1	-12.07/-6.9	-12.67/-13.32	-11.76/-13.77	-7.11/-5.77	-4.58/-4.13	-4.64/-6.18	-8.55/-5.5	-11.76/-13.99	-8.55/-5	-4.27/-5.92	-9.79/-10.75
Θ(160°)	-7.83/-6.85	-6.47/-6.46	-6.63/-6.3	-5.19/-3.78	-2.63/-1.96	-1.63/-2.21	-3.17/-4.37	-5.85/-7.56	-9.8/-10.62	-13.99/-18.21	-13.7/-10.17	-8.13/-6.61	-5.8/-5.58	-6.35/-8.19	-12.5/-18.46	-13.02/-9.17	-8.27/-8.73	-10.03/-8.86
Θ(170°)	-7.32/-6.38	-6.09/-5.91	-5.74/-5.8	-5.7/-5.2	-4.6/-4.08	-3.96/-4.54	-5.76/-7.3	-9.12/-13.99	-17.95/-17.48	-19.06/-19.44	-19.21/-17.68	-15.02/-13.05	-12.75/-12.93	-14.65/-18.33	-17.69/-18.89	-16.46/-14.18	-12.02/-10.4	-9.62/-8.25
Θ(180°)	-6.91/-6.46	-7.48/-7.76	-9.21/-9.89	-10.63/-11.18	-11.96/-12.81	-14.09/-16.5	-18.82/-19.08	-18.08/-18.05	-17.49/-17.4	-18.84/-17.92	-16.96/-17.23	-18.33/-19.05	-18.53/-18.65	-16.09/-13.41	-11.71/-10.95	-10.41/-10.53	-10.09/-9.91	-9.43/-7.88
Freq(Hz)	2.45GPol.	ThetaAnt. 1	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-8.63/-4.39	-15.86/-15.53	-15.98/-12.73	-10.04/-7.68	-5.94/-4.69	-3.85/-3.47	-3.43/-5.56	-4.2/-4.77	-5.53/-6.73	-8.36/-11.19	-18.01/-17.32	-12.96/-10.68	-8.56/-7.32	-4.69/-3.79	-4.69/-3.79	-4.69/-3.79	-4.69/-3.79	-4.69/-3.79
Θ(10°)	-15.72/-13.96	-12.15/-9.99	-8.31/-6.87	-5.59/-4.39	-3.55/-2.81	-1.9/-1.67	-1.41/-1.9	-1.7/-2.19	-2.74/-4.62	-6.73/-6.42	-8.8/-12.16	-13.89/-12.57	-10.66/-11.68	-9.21/-11.1	-8.8/-8.08	-6.72/-7.11	-8.01/-7.49	-12.52/-16.65
Θ(20°)	-7.92/-7.24	-6.12/-5.16	-4.27/-3.47	-2.36/-2.35	-2.64/-3.03	-3.17/-3.05	-2.58/-2.05	-1.53/-1.33	-1.4/-1.84	-2.66/-4.16	-6.12/-7.75	-10.28/-14.07	-10.16/-11.52	-11.35/-18.34	-18.89/-12.94	-12.9/-12.86	-13.21/-14.95	-14.49/-10.97
Θ(30°)	-3.87/-3.5	-2.89/-1.73	-0.99/-1	-1.52/-2.47	-3.35/-3.83	-4.15/-4.28	-4.89/-4.43	-3.27/-2.91	-1.64/-2.94	-1.95/-3.1	-5.28/-5.71	-5.65/-6.07	-7.53/-8.76	-10.22/-16.33	-18.84/-11.94	-12.36/-5.62	-8.14/-8.28	-5.12/-5.59
Θ(40°)	-3.07/-2.21	-1.45/-0.21	0.73/-0.48	-1.57/-1.77	-2.96/-2.35	-1.25/-0.88	-4.91/-4.4	-2.06/-3.7	-3.58/-3.7	-3.72/-4.53	-5.62/-4.53	-4.76/-4.46	-11.86/-11.98	-10.26/-11.98	-7.14/-4.58	-3.55/-4.02	-4.08/-3.94	-
Θ(50°)	-3.25/-2	-1.56/-0.98	-0.9/-0.75	-1.11/-1.03	-0.88/-2.07	-1.8/-0.63	-0.44/-1.6	-2.46/-3.5	-4.73/-4.87	-2.81/-2.54	-3.18/-3.26	-4.24/-4.97	-6.73/-9.01	-8.67/-8.72	-8.77/-6.86	-3.15/-2.84	-1.56/-1.04	-1.3/-2.41
Θ(60°)	-0.6/-0.7	0.1771/-19	-0.71/-0.6	-0.86/-0.7	-1.49/-1.98	-2.03/-1.1	-0.31/-0.33	-0.82/-1.68	-4.63/-5.03	-3.71/-2.17	-2.2/-2.77	-4.22/-3.36	-6.03/-6.57	-11.35/-14	-11.5/-5.74	-4.27/-2.06	-0.590/86	0.740/-9
Θ(70°)	0.721/23	2.512/45	0.90/68	0.860/71	0.850/67	0.850/67	0.850/67	0.850/67	0.850/67	0.850/67	0.850/67	0.850/67	0.850/67	0.850/67	0.850/67	0.850/67	0.850/67	0.850/67
Θ(80°)	-0.6/-0.01	2.12/7	0.64/-142	1.68/185	1.790/43	0.43/-0.96	0.280/8	1.09/1.31	-1.29/-3.26	-2.4/-1.73	-1.47/-3.32	-1.71/-1.97	-4.91/-6.12	-7.71/-5.06	-2.56/-1.45	-0.27/-0.12	-0.30/22	1.080/55
Θ(90°)	-2.64/-1.71	0.170/56	-1.78/-1.05	-1.39/-0.91	-0.020/06	-0.55/-0.29	0.451/08	1.351/65	0.29/-0.75	-1.01/-1.11	-2.25/-3.42	-4.38/-5.91	-6.57/-8.29	-7.18/-5.24	-3.85/-2.72	-1.39/-0.52	-1.45/-1.34	0.25/-0.47
Θ(100°)	-5.03/-4.63	-2.34/-1.04	-3.47/-1.31	-2.47/-2.66	-3.81/8.18	-2.47/-2.66	-3.81/8.18	-2.47/-2.66	-3.81/8.18	-2.47/-2.66	-3.81/8.18	-2.47/-2.66	-3.81/8.18	-2.47/-2.66	-3.81/8.18	-2.47/-2.66	-3.81/8.18	-2.47/-2.66
Θ(110°)	-3.92/-4.03	-1.57/-0.56	-2.98/-3.63	-2.78/-2.84	-3.41/-5.99	-10.39/-10.49	-4.81/-2.26	-2.05/-0.71	-1.33/-3.18	-0.78/-2.25	-2.35/-5.49	-4.74/-1.33	-2.94/-2.38	-5.01/-5.92	-4.54/-3.6	-1.87/-4.63	-9.21/-4.82	-1.67/-1.51
Θ(120°)	-2.94/-3.16	-1.340/0.1	-1.77/-2.36	-0.81/-2.58	-3.22/-4.21	-4.96/-4.5	-4.02/-4.9	-4.28/-1.97	-3.95/-4.58	-3.37/-6.02	-4.27/-5.48	-4.15/-2.88	-4.79/-7.74	-17.05/-7.66	-3.42/-2.25	-0.37/-2.41	-4.71/-2.16	-1.13/-1.21
Θ(130°)	-3.69/-3.19	-1.45/-0.29	-1.31/-3.55	-2.47/-1.68	-5.36/-7.4	-2.1/-2.05	-1.54/-0.38	0.05/-0.21	-0.05/-1.59	-5.54/-5.68	-3.93/-5.47	-3.33/-2.74	-3.33/-2.74	-3.33/-2.74	-3.33/-2.74	-3.33/-2.74	-3.33/-2.74	-3.33/-2.74
Θ(140°)	-7.2/-4.85	-3.72/-2.15	-1.7/-2.82	-1.97/-2.6	-1.76/-1.01	-0.29/-0.06	-0.33/-1.12	-3.18/-7.53	-13.69/-7.76	-3.96/-3.07	-3.59/-6.68	-13.2/-18.35	-10.05/-9.04	-6.11/-5.17	-6.23/-9.31	-9.3/-4.94	-2.79/-2.32	-5.38/-9.55
Θ(150°)	-17.72/-13.62	-11.9/-28	-8.27/-7.56	-6.89/-6.06	-5.34/-4.1	-3.68/-4.54	-4.64/-4.94	-7.9/-9.47	-2.98/-1.72	-2.17/-3.48	-6.84/-12.31	-19.02/-12.42	-8.53/-7.71	-7.82/-9.6	-12.94/-10.42	-7.36/-6.37	-5.69/-7.12	-10.19/-17.65
Θ(160°)	-15.15/-16.27	-14.55/-11.97	-10.6/-10.03	-9.75/-9.53	-8.62/-7.07	-3.94/-3.3	-3.19/-3.09	-8.62/-6.41	-8.4/-6.41	-11.28/-14.9	-9.76/-14.9	-9.62/-11.1	-11.49/-9.5	-8.42/-6.99	-7.62/-10.61	-10.37/-10.43	-9.62/-11.1	-16.31/-15.01
Θ(170°)	-15.65/-12.12	-8.9/-7.45	-5.54/-4.71	-4.02/-3.51	-3.34/-3.24	-3.58/-4.29	-4.4/-5.27	-5.84/-6.79	-7.42/-9.06	-10.77/-11.62	-13.75/-15.76	-16.24/-14.99	-11.85/-12.18	-13.63/-12.33	-13.02/-14.28	-16.93/-18.94	-17.88/-18.19	-18.32/-17.61
Θ(180°)	-13.98/-13.45	-12.14/-11.31	-9.79/-8.56	-8.23/-8.16	-8.27/-8.86	-9.97/-11.65	-12.85/-13.23	-13.27/-12.99	-12.26/-13.44	-14.31/-16.33	-17.51/-18.11	-19.23/-17.54	-14.28/-12.68	-11.59/-10.92	-10.49/-11.16	-10.16/-10.61	-11.31/-12.44	-13.62/-14.43
Freq(Hz)	5.2GPol.	PhiAnt. 1	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-11.77/-14.21	-18.27/-18.49	-10.31/-6.69	-7.87/-5.19	-5.98/-5.44	-5.54/-5.46	-4.65/-5.16	-6.81/-8.12	-9.33/-10.52	-13.32/-17.95	-17.08/-18.75	-13.37/-9.55	-7.47/-8.67	-6.25/-5.13	-4.94/-5.73	-5.64/-5.45	-6.03/-6.92	-8.02/-9.72
Θ(10°)	-17.73/-18.28	-17.16/-26.39	-15.5/-13.23	-10.62/-9.32	-6.44/-8.63	-7.43/-6.72	-10.25/-12.68	-15.17/-17.78	-18.72/-18.16	-10.25/-12.68	-15.17/-17.78	-18.72/-18.16	-10.25/-12.68	-15.17/-17.				



Radiated Composite Gain Data of 2.4GHz, 5GHz U-NII 1 and U-NII 2A

Appendix A

Θ(60°)	-7.73/-3.74	-1.39/-4.22	-6.63/-2.06	-3.11/-5.03	-3.52/-2.1	-1.9/-3.39	-5.67/-9.39	-6.39/-4.96	-5.37/-6.7	-6.24/-6.6	-2.81/-0.21	-0.78/-2.85	-2.44/-5.26	-14.62/-17.56	-11.26/-7.54	-5.15/-6.14	-15.06/-18.95	-8.01/-5.39
Θ(70°)	-2.17/-0.7	0.93/-1.71	-5.07/-0.19	-0.52/-1.75	-1.01/-0.28	-0.11/-1.62	-4.74/-5.88	-3.48/-2.92	-3.03/-2.93	-3.65/-2.37	1.03/1.63	-1.58/-2.67	-2.81/-8.26	-17.3/-15.7	-8.3/-7.98	-5.74/-4.47	-5.85/-13.41	-6.54/-1.45
Θ(80°)	-3.16/-1.98	-1.14/-1.38	-1.11/-0.93	-1.68/-1.67	-0.17/-0.35	0.72/-0.38	0.52/-3.19	-3.03/-1.46	-1.09/-0.97	0.27/-1.34	0.47/1.2	-0.2/-0.57	-0.5/-8.84	-11.33/-9.98	-3.72/-5.04	-7.28/-4.18	-5.17/-6.78	-5.37/-4.52
Θ(90°)	-3.46/-1.53	-0.06/-1.72	-2.29/-1.91	0.88/-0.17	0.34/-0.7	1.33/-1.77	1.26/-1.97	-0.41/-0.23	0.71/-0.02	-0.45/-0.19	2.78/2.19	0.43/-1.82	-1.38/-5.48	-9.45/-7.63	-5.48/-5.04	-7.4/-7.74	-6.73/-10.16	-4.44/-3.93
Θ(100°)	-3.93/-3.61	-1.35/-1.21	-1.74/-0.94	-0.91/-0.41	0.85/-1.82	2.07/2.02	0.61/-0.34	-0.37/-0.01	1.01/-0.76	-0.79/-0.26	1.80/-13	-0.53/-4.53	-5.2/-8.91	-7.97/-13.69	-9.91/-9.04	-10.1/-8.57	-4.54/-6.23	-5.1/-7.41
Θ(110°)	-4.33/-5.13	-2.75/-3.19	-2.31/-0.62	-0.99/-0.87	-0.04/-0.56	1.63/-1.36	2.21/-0.17	-0.05/-1.12	2.29/-0.38	0.66/-0.96	-1.78/-6.09	-12.05/-16.85	-8.14/-8.5	-11.51/-14.05	-12.05/-16.85	-13.78/-11.86	-11.34/-11.58	-7.61/-9.2
Θ(120°)	-5.51/-5.58	-3.46/-4.77	-4.55/-3.31	-1.1/-1.27	-1.66/-0.24	1.01/-0.44	1.14/-1.55	0.47/-0.81	0.38/-0.75	-1.79/-3.15	-2.4/-4.18	-9.02/-19.27	-18.37/-17.97	-18.81/-15.72	-17.11/-12.33	-18.75/-14.82	-11.41/-7.57	-7.01/-8.64
Θ(130°)	-5.74/-9.08	-7.03/-7.63	-7.67/-6.97	-4.03/-2.38	-1.02/-0.24	-0.41/-0.01	1.51/-0.7	0.74/-0.08	-0.94/-5.64	-9.52/-7.26	-6.77/-8.07	-11.71/-18.58	-17.67/-18.21	-17.34/-17.18	-18.01/-18.56	-18.81/-17.9	-13.62/-9.57	-14.25/-10.53
Θ(140°)	-4.48/-6.21	-8.24/-10.68	-11.58/-10.89	-5.76/-3.94	-2.88/-0.67	0.86/-0.79	1.23/-0.99	0.01/-1.37	-1.74/-4.1	-10.23/-9.13	-10.05/-6.85	-8.34/-7.45	-9.24/-18.38	-14.92/-19.32	-16.61/-17.95	-11.37/-7.09	-8.04/-9.49	-18.71/-9.52
Θ(150°)	-7.78/-7.75	-9.07/-13.63	-12.93/-9.49	-8.21/-6	-5.31/-4.55	-3.31/-4.22	-4.92/-4.67	-5.89/-5.19	-6.71/-8.08	-7.17/-4.88	-4.93/-8.59	-14.57/-14.95	-18.78/-14.55	-18.13/-19.24	-13.44/-11.31	-18.62/-13.31	-17.83/-13.14	-9.19/-8.62
Θ(160°)	-16.04/-12.04	-9.35/-9.35	-14.84/-18.61	-18.48/-15.76	-9.24/-8.46	-8.69/-8.29	-8.46/-10.35	-13.54/-10.5	-6.52/-4.52	-4.47/-7.44	-9.71/-14.94	-18.34/-14.75	-18.87/-14.77	-13.85/-15.84	-18.27/-18.37	-19.34/-18.89	-17.3/-18.13	-18.52/-15.48
Θ(170°)	-13.41/-14.52	-14.2/-13.04	-8.81/-9.46	-11.25/-13.04	-14.23/-19.48	-14.89/-17.94	-13.44/-16.53	-18.63/-16.45	-11.46/-9.83	-9.99/-10.03	-10.8/-16.1	-19.03/-16.97	-18.84/-18.79	-18.72/-18.47	-18.79/-18.8	-19.26/-16.55		
Θ(180°)	-10.35/-10.5	-10.05/-10.07	-11.03/-12.73	-14.29/-15.98	-16.97/-17.66	-17.69/-18.09	-17.98/-19.3	-18.51/-18.61	-19.46/-17.05	-14.53/-11.23	-8.95/-9.11	-12.53/-17.55	-18.33/-18.35	-19.54/-17.04	-18.62/-18.03	-16.51/-13.23	-12.09/-11.75	-11.41/-11.04
Freq(Hz)	2.45G/Pol.	PhiAnt. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	2.56/2.48	1.56/-0.36	0.22/-2.92	-4.3/-5.98	-6.35/-5.41	-3.61/-1.95	-0.70/-1.7	0.68/-0.91	0.91/-0.77	0.39/-0.17	-0.94/-0.24	-1.71/-4.01	-4.52/-4.87	-5.34/-4.25	-2.48/-1.13	0.22/-1.32	2.06/2.08	2.29/2.73
Θ(10°)	2.16/-1.61	0.96/-1.03	-1.11/-3.72	-5.39/-6.12	-6.01/-6.11	-3.7/-2.49	-1.4/-0.68	0.62/-0.96	2.03/-0.41	0.57/-0.54	-1.83/-3.4	-3.29/-4.42	-4.94/-3.81	-2.2/-0.56	0.75/-1.75	2.3/-2.81	5.28/2.72	
Θ(20°)	1.72/-0.75	0.18/-1.06	-1.5/-5.14	-6.82/-6.53	-6.24/-5.81	-5.37/-4.7	-1.36/-0.48	0.76/-0.31	0.39/-0.17	-2.31/-4.7	-1.15/-3.76	-6.72/-5.09	-6.72/-5.09	0.64/-1.54	2.13/-2.38	2.48/2.31		
Θ(30°)	0.57/-0.05	-0.99/-2.79	-5.03/-8.13	-9.01/-8.31	-8.11/-8.64	-9.17/-7.89	-5.22/-2.9	-1.76/-0.23	0.64/-0.81	1.83/-1.01	1.65/-0.6	-0.68/-2.29	-3.31/-6.03	-8.98/-6.88	-3.58/-1.22	0.19/-1.24	1.39/-1.32	1.33/-1.16
Θ(40°)	-0.4/-0.84	-1.28/-2.72	-4.82/-8.1	-9.97/-11.36	-13.34/-17.51	-18.48/-11.19	-5.56/-2.26	-0.19/-0.8	0.81/-1.8	1.31/-39	0.74/-1.63	0.07/-1.41	-2.81/-6.64	-13.17/-12.97	-6.16/-2.47	-0.46/-0.42	0.51/-0.21	-0.28/-0.39
Θ(50°)	-3.15/-2.49	-2.66/-3.27	-4.3/-5.9	-6.79/-7.78	-9.4/-11.15	-9.93/-7.78	-4.63/-1.75	-0.35/-1.29	1.71/-1.72	1.46/-13	1.21/-1.68	-10.45/-5.5	-4.07/-7.66	-13.71/-12.97	-10.45/-5.5	-3.03/-1.9	-1.03/-1.52	-2.82/-3.11
Θ(60°)	-4.06/-3.84	-3.47/-5.1	-6.26/-6.45	-5.88/-6.18	-7.82/-10.14	-10.1/-7.13	-4.5/-2.26	-0.13/-1.28	1.87/-1.3	1.54/-1.23	1.45/-1.45	0.84/-0.78	-2.93/-6.47	-11.48/-13.26	-9.69/-7.59	-6.11/-5.01	-3.36/-4.26	-2.96/-4.66
Θ(70°)	-4.52/-2.58	-2.49/-4.96	-6.17/-6.57	-6.34/-5.32	-6.96/-10.56	-17.63/-9.56	-5.31/-2.26	-1.35/-1.03	0.09/-1.07	0.53/-0.72	1.44/-1.6	1.87/-0.81	-0.26/-3.55	-11.93/-17.73	-10.33/-9.16	-8.72/-8.29	-6.64/-5.97	-6.67/-7.17
Θ(80°)	-6.98/-5.11	-4.01/-7.79	-9.41/-9.74	-7.94/-7.94	-8.48/-10.23	-10.55/-6.71	-3.21/-1.5	-0.65/-0.39	-0.17/-0.01	0.06/-0.34	-0.76/-1.28	-1.18/-1.36	-4.09/-6.57	-13.67/-18.47	-14.74/-11.08	-9.04/-7.61	-9.08/-6.67	
Θ(90°)	-9.44/-8.46	-5.07/-9.39	-18.03/-12.17	-10.32/-11.44	-10.11/-7.65	-5.54/-3.14	-1.05/-0.21	0.76/-0.57	0.12/-1.36	-1.74/-2.66	-3.75/-3.38	-3.51/-3.91	-6.84/-11.68	-18.92/-17.48	-18.82/-14.74	-11.22/-8.72	-6.28/-5.2	-6.37/-9.36
Θ(100°)	-11.57/-6.1	-7.42/-16.76	-17.76/-10.19	-9.46/-8.74	-7.68/-0.54	-2.89/-1.01	0.83/-1.57	2.24/-2.56	2.46/-1.67	0.06/-1.81	-3.04/-2.98	-3.09/-2.6	-3.28/-6.28	-14.48/-19.23	-15.38/-16.1	-13.74/-16.61	-13.68/-10.12	-10.41/-9.59
Θ(110°)	-18.47/-18.23	-15.61/-17.49	-11.57/-9.66	-6.25/-6.12	3.97/-3.17	-3.15/-1.1	0.78/2.4	3.56/4.27	1.89/-0.3	-1.94/-5.58	-5.95/-5.92	-12.19/-17.42	-6.76/-10.17	-11.91/-7.76	-8.12/-12.35	-19.07/-19.17		
Θ(120°)	-15.81/-17.76	-18.82/-16.35	-16.22/-9.76	-6.99/-5.4	-4.73/-3.86	-2.55/-1.03	0.78/-1.84	2.37/-2.69	2.72/-1.77	0.56/-1.69	-6.78/-9.44	-10.89/-13.06	-18.27/-11.18	-7.37/-7.81	-11.74/-18.15	-9.41/-5.11	-4.57/-6.96	-11.3/-13
Θ(130°)	-15.11/-16.63	-9.25/-6.24	-6.34/-9.79	-12.95/-10.37	-8.06/-6.41	-4.79/-3.23	-1.83/-0.9	0.39/-1.84	2.73/-2.84	2.45/-0.53	-2.13/-3.23	-5.04/-8.93	-11.2/-7.93	-6.03/-7.33	-13.16/-13.23	-8.99/-6.57	-4.36/-5.76	-7.23/-9.77
Θ(140°)	-17.85/-13.48	-7.03/-4.78	-4.14/-5.51	-8.53/-10.45	-9.04/-7.51	-6.23/-4.85	-3.86/-2.34	-0.63/-1.3	2.34/-2.55	2.08/-0.77	-1.18/-2.63	-5.87/-7.13	-6.81/-5.7	-5.69/-7.86	-10.16/-18.89	-18.24/-9.39	-8.04/-7.56	-8.59/-12.51
Θ(150°)	-18.12/-16.17	-9/-6.27	-5.8/-7.3	-10.63/-13.2	-12.92/-11.28	-9.15/-6.96	-4.22/-2.41	-0.44/-1.15	1.79/-1.17	1.31/-0.42	-0.74/-2.01	-5.7/-7.6	-8.1/-8.38	-8.96/-10.8	-11.59/-13.03	-9.13/-9.87	-8.27/-7.59	-9.26/-13.07
Θ(160°)	-17.68/-18.43	-18.35/-13.74	-13.36/-15.19	-17.98/-17.81	-19.18/-18.55	-13.6/-9.59	-6.93/-4.08	-2.87/-1.28	-0.99/-1.17	-1.82/-2.49	-4.04/-5.11	-8.75/-11.42	-12.31/-12.54	-13.19/-13.29	-14.56/-14.39	-13.45/-11.73	-10.49/-10.61	-11.87/-13.32
Θ(170°)	-18.91/-18.17	-18.57/-18.49	-18.07/-19.23	-19.69/-18.04	-18.86/-18.53	-18.99/-14.99	-11.86/-9.59	-8.46/-8.04	-8.02/-8.04	-9.05/-9.98	-10.26/-12.04	-12.72/-11.88	-11.59/-11.3	-11.11/-12.05	-13.26/-15.22	-17.13/-18.25	-17.21/-18.58	-19.24/-19.27
Θ(180°)	-15.04/-17.21	-18.91/-18.48	-18.91/-18.48	-19/-17.67	-16.18/-15.19	-14.73/-14.36	-14.28/-14.86	-14.92/-14.78	-13.56/-12.3	-10.48/-10.88	-10.92/-9.92	-10.48/-11.42	-13.44/-13.64	-13.88/-14.22	-14.71/-16.24			
Freq(Hz)	2.45G/Pol.	ThetaAnt. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	-3.06/-1.93	-1.07/-0.17	0.74/-1.17	1.44/-1.49	1.29/-0.88	0.28/-0.1	-0.63/-3.02	-4.7/-6.05	-6.16/-4.62	-2.85/-1.47	-0.59/-0.34	0.83/-1.1	1.42/-0.9	0.86/-1.29	-0.13/-0.79	-1.93/-0.88	-1.92/-4.27	-3.99/-4.02
Θ(10°)	-2.87/-1.73	-0.93/-0.2	0.40/-8.7	1.06/-1.04	0.86/-0.6	0.16/-0.38	-1/-2.65	-4.3/-5.9	-6.44/-5.67	-4.13/-6.29	-1.6/-0.5	0.38/-0.84	1.24/-1.01	0.69/-1.55	0.72/-0.45	-2.18/-4.32	-6.43/-7	-4.73/-8.32
Θ(20°)	-4.01/-2.75	-1.69/-0.96	-0.76/-0.55	-0.89/-1.18	-1.47/-1.44	-1.51/-1.64	-2.01/-2.88	-4.06/-5.51	-7.7/-8.56	-7.91/-6.27	-4.37/-2.29	-0.84/-0.35	1.21/-0.84	-0.33/-2.41	-4.57/-4.6	-9.83/-10.2	-10.9/-6.97	
Θ(30°)	-6.45/-5.08	-3.55/-2.65	-2.91/-3.67	-5.44/-6.86	-6.26/-4.81	-3.49/-3.06	-0.98/-4.03	-5.21/-6.84	-9.37/-12.13	-12.28/-11	-1.62/-0.97	-6.19/-9.46	-14.82/-16.65	-12.75/-11.99				
Θ(40°)	-10.06/-9.67	-4.47/-3.39	-4.51/-5.72	-10.11/-19.47	-13.29/-8.54	-6.27/-5.19	-5.17/-5.43	-6.85/-8.02	-9.71/-12.39	-13.75/-12.42	-9.68/-5.35	-2.52/-0.69	0.66/-0.25	0.12/-0.24	-0.93/-2	-3.4/-4.48	-10.21/-13.17	-17.93/-16.72
Θ(50°)	-11.92/-7.35	-3.75/-3.29	-2.76/-5.42	-10.18/-17.51	-13.81/-10.09	-8.39/-7.82	-8.06/-9.37	-11.33/-12.18	-16.21/-15.45	-10.1/-5.83	-2.54/-0.98	-0.3/-0.09	-0.44/-0.92	-1.31/-2.09	-3.45/-4.5	-6.08/-10.56	-18.48/-17.83	
Θ(60°)	-15.28/-13.38	-5.33/-4.37	-7.33/-12.88	-14.98/-10.93	-8.33/-1.07	-11.85/-16.39	-19.02/-12.58	-6.6/-6.67	-16.67/-11.54	-18.23/-18.91	-4.36/-6.19	-6.28/-1.96	-1.52/-2.73	-4.36/-6.48	-8.28/-8.24	-8.25/-9.2	-9.96/-11.23	-14.45/-17.64
Θ(70°)	-12.96/-12.06	-10.04/-8.55	-11.52/-13.78	-10.98/-8.34	-7.42/-7.13	-8.06/-8.76	-9.4/-13.62	-18.78/-18.01	-14.9/-9.93	-10.73/-11.67	-9.22/-6.35	-2.5/-1	-1.19/-1.65	-2.75/-3.73	-3.71/-3.82	-4.29/-6.09	-8.78/-10.75	-13.61/-14.63
Θ(80°)	-10.76/-14.94	-16.81/-10.39	-11.51/-10.33	-9.74/-9.05	-9.95/-11.52	-15.27/-18.47	-18.97/-18.58	-13.43/-13.4	-10.29/-5.85	-6.11/-7.18	-8.91/-9.25	-5.16/-3.6	-3.23/-3.9	-5.44/-4.97	-4.38/-4.26	-4.73/-6.35	-8.03/-9.56	-9.01/-10.16
Θ(90°)	-10.58/-16.93	-17.73/-9.92	-8.07/-9.08	-17.73/-12.84	-16.43/-17.59	-13.58/-10.7	-8.95/-6.57	-6.69/-6.63	-11.44/-6.6	-5.68/-8.13	-10.17/-18.61	-10.11/-6.4	-5.44/-6.6	-7.05/-7.53	-8.61/-8.8	-9.48/-13.05	-12.83/-12.51	
Θ(100°)	-18.89/-18.8	-11.98/-10.49																



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Radiated Composite Gain Data of 2.4GHz, 5GHz U-NII 1 and U-NII 2A

Appendix A

Θ(50°)	-0.85/-0.48	-0.31/-2.2	-5.31/-7.12	-6/-3.54	-3.04/-3.92	-6.76/-13.86	-18.78/-11.01	-6.69/-3.57	-1.97/0.5	-0.95/-1.76	-1.56/-2.45	-2.93/-1.85	-2.61/-5.01	-7.79/-7.53	-5.54/-3.02	-2.53/-1.58	-0.15/0.45	0.17/-1.21
Θ(60°)	-2.03/-1.42	-0.88/-2.27	-4.73/-14.07	-5.95/-2.62	-2.92/-5.01	-7.71/-13.58	-16.39/-7.59	-6.04/-5.64	-4.09/-0.51	-0.28/-0.58	-2.31/-4.24	-4.21/-2.06	-0.86/-2.97	-4.71/-7.12	-5.69/-3.35	-1.42/-1.63	-0.33/0.68	-0.15/-1.8
Θ(70°)	-3.49/-3.43	-1.66/-3.73	-5.46/-8.57	-5.69/-3.52	-3.98/-3.89	-9.01/-12	-10.8/-8.97	-5.63/-5.51	-3.15/-1.03	-0.83/-9.85	-8.74/-3.07	-8.74/-3.07	-1.88/-3.5	-1.41/-1.57	-2.65/-1.75	-2.85/-1.03	-1.41/-1.57	-1.73/-3.72
Θ(80°)	-3.47/-2.39	-0.66/-2.48	-3.1/-6.72	-10.88/-9.95	-6.97/-6.63	-9.49/-12.42	-8.34/-6.82	-8.43/-14.32	-10.92/-4.63	-4.36/-4.1	-7.25/-7.32	-6.38/-2.51	0.25/-3.11	-5.45/-10.89	-9.48/-8.37	-4.99/-2.92	-0.68/-1.01	-1.91/-3.85
Θ(90°)	-5.45/-3.9	-2.51/-5.52	-4.49/-6.06	-9.53/-12.93	-8.97/-9.52	-13.08/-17.27	-12.26/-7.53	-8.68/-15.38	-13.8/-7.97	-6.55/-7.44	-10.49/-17.79	-9.32/-4.16	-3.62/-7.92	-8.84/-15.39	-18.57/-15.96	-8.14/-3.98	-3.22/-1.62	-1.39/-4.34
Θ(100°)	-1.62/-1.36	-0.84/-2.63	-2.01/-4.13	-10.36/-18.08	-14.48/-11.06	-13.53/-18.6	-18.13/-19.29	-17.61/-17.97	-12.61/-7.26	-17.56/-10.69	-12.54/-17.59	-14.1/-9.1	-10.13/-17.58	-13.86/-8.6	-12.52/-18.1	-13.86/-8.6	-4/-2.37	-0.25/-0.48
Θ(110°)	-0.43/-0.67	-1.57/-3.25	-3.44/-6.06	-8.51/-8.5	-13.03/-14.75	-14.18/-18.31	-17.94/-17.71	-14.02/-11.51	-12.84/-11.43	-13.78/-5.86	-12.51/-7.49	-9.2/-8.02	-4.89/-18.18	-17.76/-7.93	-10.02/-14.08	-13.86/-7.67	-6.3/-3.81	-2.14/-1.18
Θ(120°)	1.41/0.73	-0.12/-0.59	-2.29/-5.37	-9.16/-12.37	-17.62/-19.18	-18.74/-18.01	-15.56/-9.91	-10.53/-19.01	-16.12/-12.81	-11.88/-3.57	-8.27/-9.34	-6.73/-8.32	-7.11/-11.48	-15.83/-14.54	-9.73/-15.11	-16.64/-8.77	-3.91/-1.67	0.91/0.36
Θ(130°)	0.471/0.6	1.13/-0.33	-3.01/-6.1	-6.59/-6.36	-10.66/-18.21	-19.03/-18.12	-18.06/-15.95	-10.6/-14.2	-19.15/-15.74	-9.43/-6.7	-10.33/-11.03	-9.03/-13.36	-10.06/-16.57	-18.37/-11.97	-12.52/-18.1	-13.86/-8.6	-4/-2.37	-1.38/-0.45
Θ(140°)	-1.99/-2.03	-0.4/-3	-7.88/-7.81	-13.4/-17.77	-13.23/-11.72	-9.65/-11.85	-13.68/-17.99	-18.11/-18.17	-19.04/-18.47	-13.82/-10.33	-14.81/-11.79	-13.92/-18.95	-12.36/-18.03	-17.41/-11.18	-10.42/-10.33	-15.96/-6.91	-3.13/-1.76	-1.89/-2.65
Θ(150°)	-2.52/-2.14	-2.88/-2.6	-3.59/-5.3	-8.31/-12.88	-11.43/-7.83	-7.26/-9.13	-13.69/-18.33	-19.22/-19.07	-16.34/-9.14	-6.07/-6.77	-9.68/-18.87	-18.51/-18.04	-16.11/-16.43	-16.34/-18.53	-14.96/-10.15	-12.38/-13.13	-10.59/-7.74	-4.71/-13.13
Θ(160°)	-5.16/-4.15	-3.71/-4.26	-3.26/-2.85	-4.6/-8.62	-17.44/-18.65	-14.19/-13.08	-15.43/-18.27	-16.66/-17.43	-15.92/-17.43	-16.68/-18.7	-17.94/-12.48	-10.9/-12.47	-15.35/-15.51	-16.98/-18.46	-16.83/-9.82	-8.27/-9.22	-7.62/-6.55	-5.83/-5.26
Θ(170°)	-11.08/-9.23	-7.37/-6.02	-6.36/-7.31	-8.35/-11.72	-15.91/-18.14	-16.38/-16.22	-18.39/-18.4	-19.39/-16.14	-12.31/-10.45	-12.02/-12.86	-14.41/-14.59	-15.34/-14.73	-15/-14.5	-13.25/-13.03	-13/-13.99	-18.12/-19.17	-18.76/-15.48	-14.46/-12.69
Θ(180°)	-9.56/-8.64	-8.52/-7.72	-7.18/-7.83	-8.91/-11.63	-14.5/-17.73	-18.71/-17.69	-18.19/-18.29	-18.33/-17.55	-17.77/-17.02	-15.31/-13.96	-12.83/-11.65	-10.47/-9.45	-8.43/-7.94	-7.9/-7.78	-7.97/-9	-11.21/-14.68	-16.69/-15.87	-13.9/-11.86
Freq(Hz)	5.3GPol.	ThetaAnt. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-10.49/-9.55	-7.47/-6.38	-5.31/-4.4	-4.11/-3.59	-3.16/-3.33	-3.27/-3.66	-4.84/-6.54	-7.9/-10.64	-11.62/-11.81	-10.99/-9.1	-7.14/-5.8	-4.83/-4.45	-3.51/-2.96	-2.59/-2.92	-3.41/-3.92	-4.84/-5.23	-6.85/-8.33	-9.57/-10.72
Θ(10°)	-8.46/-7.59	-7.05/-6.32	-5.02/-4.43	-3.4/-2.28	-1.9/-1.91	-1.1/-1.41	-3.86/-5.5	-1.71/-1.78	-2.13/-3.24	-3.92/-7.49	-1.36/-2.16	-2.02/-1.59	-2.58/-4.1	-1.32/-2.84	-5.53/-3.45	-8.81/-9.51	-11.06/-10.99	-10.91/-10.99
Θ(20°)	-7.09/-6.37	-6.42/-6.05	-7.02/-6.62	-5.67/-4.68	-3.92/-3.37	-2.1/-1.68	-1.94/-2.59	-4.23/-7.17	-14.22/-17.95	-12.85/-9.42	-6.96/-5.01	-3.1/-1.41	-0.83/-0.41	-0.34/-0.94	-2.1/-3.52	-5.2/-6.86	-7.92/-8.45	-10.38/-9.08
Θ(30°)	-5.81/-5.23	-4.8/-4.86	-6.15/-7.37	-8.37/-6.93	-4.95/-3.62	-2.99/-2.36	-1.85/-2.27	-3.39/-7.67	-18.37/-14.68	-9.12/-5.67	-2.71/-1.18	-0.08/0.5	0.86/0.13	1.45/1.75	1.63/0.4	-2.14/-4.38	-6.11/-7.87	-9.86/-8.55
Θ(40°)	-5.76/-4.15	-3.43/-4.35	-11.74/-18.57	-11.31/-8.01	-5.87/-3.9	-3.43/-3.65	-3.84/-4.43	-6.46/-9.09	-18.87/-11.19	-5.57/-4.74	2.37/1.68	0.52/1.98	4.35/-6.14	0.77/0.4	-0.46/-6.53	-9.6/-12.22	-10.33/-8.28	-10.33/-8.28
Θ(50°)	-9.54/-11.89	-7.35/-10.54	-11.19/-9.82	-8.2/-6.78	-6.5/-5.89	-5.14/-5.07	-6.04/-7.25	-8.64/-10.6	-19.06/-8.71	-6.21/-6.93	-3.25/-0.13	-0.24/-0.8	-1.77/-1.53	-0.37/0.05	-0.46/-4.07	-7.11/-6.01	-7.49/-7.71	-11.57/-8.35
Θ(60°)	-17.26/-15.64	-14.22/-17.87	-18.35/-17.41	-9.77/-8.89	-7.88/-11.08	-14.59/-12.02	-10.09/-12.38	-18.82/-8.97	-6.15/-8.67	-9.2/-3.75	-4.33/-2.48	-0.96/-3.66	-3.43/-0.4	0.4/-0.78	-3.71/-4.06	-4.14/-6.33	-15.7/-18.55	-15.7/-18.55
Θ(70°)	-13.47/-14.63	-17.21/-12.14	-9.13/-5.65	-4.05/-5.75	-8.89/-13.36	-15.66/-18.57	-17.99/-16.1	-12.73/-18.34	-6.46/-4.32	-7.75/-5.49	-4.33/-3.97	-4.31/-0.82	2.41/81	-2.74/-7.47	-4.82/-6.5	-12.14/-0.66	-12.14/-0.66	-12.14/-0.66
Θ(80°)	-10.08/-12.84	-15.76/-10.79	-14.89/-10	-6.32/-6.46	-8.58/-13.81	-19.12/-16.75	-14.08/-19.06	-18.54/-18.89	-19.15/-9.91	-7.43/-9.07	-13.34/-6.03	-7.13/-8.59	-4.16/-3.74	-5.9/-3.71	0.28/-0.13	-2.73/-7.47	-5.12/-3.31	-3.98/-6.43
Θ(90°)	-14.49/-13.39	-15.86/-12.28	-12.17/-17.41	-6.92/-6.52	-11.68/-18.28	-18.74/-18.95	-17.31/-18.56	-16.73/-15.81	-17.93/-14.94	-10.05/-5.45	-9.37/-4.16	-4.39/-6.79	-8.19/-4.98	-6.28/-6.77	-2.71/-9.94	-6.23/-10.54	-6.76/-7.28	-10.92/-11.77
Θ(100°)	-9.63/-13.55	-8.93/-9.55	-13.37/-18.28	-14.98/-9.75	-10.47/-12.43	-17.63/-15.46	-15.31/-17.67	-14.74/-14.86	-9.74/-6.97	-7.11/-10.24	-4.61/-8.83	-1.05/-1.99	-17.02/-10.97	-14.35/-10.94	-13.82/-18.82	-17.05/-9.97	-5.99/-9.55	-5.99/-9.55
Θ(110°)	-9.68/-6.6	-10.36/-14.7	-17.44/-11.26	-12.38/-16.03	-18.55/-18.46	-18.81/-18.2	-16.72/-12.83	-14.02/-18.18	-16.75/-19.04	-12.84/-6.27	-7.6/-6.58	-4.08/-6.96	-15.37/-8.46	-8.42/-14.55	-11.07/-7.61	-8.24/-18.07	-18.14/-15.11	-7.5/-9.21
Θ(120°)	-11.83/-12.54	-10.11/-8.38	-10.78/-13.4	-18.21/-18.5	-11.78/-12	-14.35/-18.99	-17.9/-13.4	-10.85/-10.66	-18.54/-18.35	-11.39/-6.63	-6.93/-12.29	-8.43/-5.13	-11.97/-8.39	-5.38/-12.59	-8.01/-12.88	-8.23/-8.36	-17.53/-15.89	-18.48/-13.27
Θ(130°)	-19.62/-9.99	-8.68/-9.97	-14.52/-18.1	-19.08/-17.81	-19.29/-18.17	-16.13/-18.35	-13.22/-16.01	-18.77/-17.33	-16.97/-18.94	-17.5/-8.09	-12.09/-19.16	-7.08/-16.05	-11.26/-6.81	-9.07/-9.2	-6.38/-12.42	-10.02/-11.5	-15.13/-7.56	-18.42/-11.89
Θ(140°)	-8.65/-12.23	-16.62/-18.23	-17.87/-14.4	-13.4/-12.37	-15.06/-17.03	-18.1/-16.88	-8.71/-6.3	-9.3/-14.22	-13.15/-8.45	-9.74/-15.22	-13.78/-7.82	-15.28/-12.45	-6.54/-8.43	-12.23/-17.62	-14.28/-10.15	-10.38/-13.26	-15.28/-14.95	-13.59/-9.74
Θ(150°)	-15.99/-15.97	-15.62/-17.26	-16.95/-12.82	-10.64/-8.63	-7.49/-7.87	-8.58/-10.38	-11.73/-17.49	-17.84/-12.28	-14.84/-18.98	-18.44/-10.21	-8.04/-7.5	-6.1/-4.62	-11.18/-15.72	-11.17/-8.8	-18.59/-16.69	-9.44/-6.63	-7.33/-10.75	-17.48/-15.17
Θ(160°)	-14.63/-12.43	-13.48/-18.45	-15.68/-13.51	-13.52/-15.21	-15.01/-17.52	-17.54/-18.23	-18.19/-17.82	-16.27/-15.07	-11.76/-9.1	-9.04/-8.89	-8.78/-10.57	-19.77/-18.24	-18.57/-17.21	-19.07/-19.1	-19.06/-14.75	-15.81/-16.98	-13.51/-10.91	-10.02/-12.43
Θ(170°)	-13.26/-12.24	-14.05/-13.49	-15.17/-13	-16.57/-15.02	-13.33/-11.79	-15.94/-16.71	-11.77/-13.53	-19.15/-17.83	-15.05/-13.25	-11.91/-12.87	-13.62/-11.19	-9.9/-9.44	-11.34/-15.77	-11.34/-15.77	-11.34/-15.77	-11.34/-15.77	-18.55/-16.37	-18.55/-16.37
Θ(180°)	-9.87/-11.74	-11.62/-12.41	-18.35/-18.53	-18.09/-17.74	-17.04/-14.32	-19.14/-18.61	-11.79/-9.89	-9.26/-8.44	-8.39/-8.11	-8.79/-9.67	-10.43/-10.84	-11.37/-12.94	-16.29/-18.26	-17.93/-18.21	-13.71/-11.39	-9.25/-8.16	-8.43/-8.47	-9.51/-9.52
Freq(Hz)	2.45GPol.	PhiAnt. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-13.52/-14.6	-18.06/-18.93	-19.08/-18.09	-17.02/-15.78	-14.87/-11.83	-10.22/-9.94	-10.71/-12.3	-15.38/-17.69	-17.96/-19.87	-17.41/-17.95	-17.81/-18.31	-17.96/-19.12	-18.67/-13.6	-12.61/-13.61	-11.82/-12.43	-13.46/-14.94	-14.23/-12.41	-13.14/-15.81
Θ(10°)	-10.65/-15.01	-15.3/-17.66	-18.22/-19.11	-17.77/-19.06	-18.26/-13.87	-10.96/-10	-9.76/-18.7	-13.4/-16.21	-16.63/-18.1	-18.22/-18.63	-18.35/-19.05	-19.03/-17.62	-17.96/-19.09	-15.16/-14.97	-17.21/-18.48	-18.87/-14.15	-12.13/-13.82	-12.13/-13.82
Θ(20°)	-8.36/-9.29	-10.04/-10.95	-11.85/-13.22	-13.65/-15	-19.11/-18.37	-18.58/-16.99	-13.97/-12.57	-15.94/-15.37	-17.8/-18.68	-16.92/-15.86	-18.18/-16.68	-18.54/-17.73	-14.36/-15.4	-13.28/-11.28	-11.87/-10.57	-11.25/-13.73	-10.23/-14.51	-13.94/-10.99
Θ(30°)	-8.05/-8.05	-9.49/-9.24	-10.49/-10.48	-11.26/-11.76	-12.21/-12.75	-14.17/-16.54	-19.31/-18.94	-16.4/-14.22	-12.71/-11.49	-12.03/-13.07	-16.32/-17.11	-12.83/-12.43	-10.79/-10.46	-10.06/-12.85	-9.28/-8.94	-9.83/-11.44	-12.8/-14.61	-10.46/-9.95
Θ(40°)	-9.3/-10.08	-8.23/-8.93	-10.36/-12.34	-13.88/-13.53	-10.49/-8.87	-8.27/-8.21	-8.33/-9.1	-11.93/-13.6	-13.42/-11.25	-14.76/-18.98	-14.87/-11.13	-6.34/-9.96	-10.47/-9.73	-14.56/-12.87	-11.01/-9.09	-7.87/-8.31	-7.73/-8.72	-7.73/-8.72
Θ(50°)	-10.52/-10.48	-9.05/-9.77	-13.34/-18.11	-18.1/-14.77	-11.42/-8.59	-6.77/-6.02	-6.31/-3.35	-9.54/-13.25	-12.03/-9.27	-11.62/-11.83	-14.47/-13.19	-9.31/-8.46	-5.08/-5.45	-11.24/-12.45	-9.31/-7.87	-7.02/-6.66	-7.95/-9.38	-7.95/-9.38
Θ(60°)	-15.17/-11.27	-8.74/-11.3	-18/-16.25	-14.99/-16.4	-18.58/-16.09	-10.65/-8.24	-8.86/-9.86	-12.03/-17.17	-18.72/-15.97	-18.04/-14.49	-15.28/-15.28	-13.31/-10.36	-6.32/-9.02	-8.18/-10.84	-19.05/-14.91	-10.44/-8.7	-7.81/-6.75	-8.87/-15.17
Θ(70°)	-14.03/-12.23	-11.17/-11.97	-14.1/-15.78	-16.01/-17.96	-18.44/-18.93	-16.16/-13.07	-											



Radiated Composite Gain Data of 2.4GHz, 5GHz U-NII 1 and U-NII 2A

Appendix A

Θ(150°)	-7.48/-11.15	-10.41/-12.12	-18.7/-15.3	-10.12/-10.57	-11.6/-17.96	-17.98/-17.28	-19.2/-12.32	-9.02/-6.21	-4.51/-5.68	-13.79/-15.2	-12.24/-10.75	-13.74/-19.06	-8.94/-3.15	-3.23/-5.72	-8.47/-8.92	-8.53/-9.17	-7.98/-8.55	-8.17/-5.99
Θ(160°)	-17.59/-15.23	-10.53/-7.68	-7.7/-8.1	-9.42/-8.6	-7.32/-7.73	-11.1/-15.43	-15.62/-14.55	-9.76/-8.02	-11.83/-17.84	-16.47/-10.86	-10.37/-9.48	-9.45/-9.21	-6.96/-4.43	-5.2/-7.6	-8.96/-9.17	-9.07/-12.6	-18.49/-11.06	-9.02/-15.96
Θ(170°)	-17.93/-18.06	-15.04/-14.37	-17.23/-18.77	-18.04/-17.93	-18.92/-17.47	-18.79/-18.73	-15.55/-13.48	-14.72/-16.74	-16.7/-11.98	-9.84/-8.84	-7.91/-6.51	-6.72/-7.24	-7.91/-7.67	-7.57/-8.31	-8.14/-7.6	-7.25/-8.94	-10.64/-15.65	-18/-18.32
Θ(180°)	-17.12/-13.08	-11.95/-11.7	-13.67/-12.03	-12.93/-12.57	-12.3/-11.72	-13.94/-16.85	-17.86/-18.44	-17.63/-16.83	-14.09/-11.3	-9.78/-9.58	-9.12/-7.63	-6.87/-7.15	-7.75/-8.13	-7.94/-9.02	-12.13/-15.78	-18/-17.79	-18.51/-18.58	-18.16/-18.97
Freq(Hz)	5.3G/Pol.	Phi/Ant. 4	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	-15.85/-16.3	-13.02/-10.29	-7.59/-5.95	-5.23/-4.27	-4.27/-3.86	-3.52/-3.75	-5.2/-5.86	-6.7/-8.64	-12.51/-18.08	-17.51/-17.96	-16.01/-11.62	-8.94/-6.99	-5.97/-5.44	-4.99/-4.8	-4.81/-5.43	-5.42/-6.53	-9.65/-11.34	-11.36/-15.21
Θ(10°)	-19.62/-15.73	-19.33/-19.19	-16.22/-11.69	-8.88/-5.72	-5.91/-5.68	-5.79/-4.96	-5.39/-6.27	-6.98/-7.18	-7.99/-8.89	-10.75/-10.9	-9/-5.75	-3.85/-2.49	-1.7/-1.32	-1.21/-1.72	-1.51/-2.63	-4/-6.03	-7.44/-9.83	-13.09/-17.72
Θ(20°)	-19.22/-19.14	-17.26/-15.51	-12.55/-8.64	-6.81/-6.09	-5.67/-5.65	-5.4/-6.08	-7.01/-6.14	-5.45/-6.29	-7.91/-9.73	-13.67/-12.51	-7.6/-5.64	-4.69/-3.79	-3.15/-3.2	-3.17/-3.29	-3.7/-4.75	-5.78/-6.21	-7.8/-12.04	-12.21/-15.28
Θ(30°)	-11.1/-8.79	-11.62/-14	-14.01/-12.1	-8.73/-6.48	-4.56/-2.84	-3.17/-4.4	-4.57/-4.85	-6.3/-7.25	-7.74/-9.32	-13.16/-13.64	-8.52/-5.25	-4.55/-4.8	-5.68/-6.29	-7.22/-8.19	-10.21/-11.88	-12.61/-14.55	-19.17/-18.15	-18.62/-14.23
Θ(40°)	-14.23/-12.17	-13.21/-16.74	-11.77/-7.47	-4.9/-2.96	-2.89/-4.96	-6.57/-5.94	-5.21/-6.06	-7.24/-9.19	-10.37/-13.65	-19.14/-16.71	-8.93/-6.27	-5.69/-6.88	-7.17/-8.63	-9.23/-10.89	-12.47/-16.09	-17.35/-18.53	-18.86/-18.15	-18.86/-15.52
Θ(50°)	-13.25/-11.67	-18.26/-17.33	-12.65/-8.51	-5.11/-4.55	-6.31/-7.99	-6.42/-5.57	-6.3/-7.83	-9.77/-14.52	-15.34/-15.72	-13.81/-16.47	-10.26/-8.43	-7.29/-4.7	-5.68/-11.62	-17.99/-10.72	-11.82/-12.45	-18.42/-18.99	-17.3/-13.4	-12.85/-19.33
Θ(60°)	-17.18/-12.77	-13.16/-18.57	-17.71/-7.48	-5.9/-5.89	-5.54/-4.8	-4.55/-2.89	-3.88/-7.61	-10.4/-9.73	-18.7/-19.49	-11.43/-12.67	-16.44/-17.78	-8.84/-5.95	-9.32/-18.67	-12.59/-10.71	-11.53/-14.29	-11.76/-11.86	-11.83/-9.8	-7.6/-11.53
Θ(70°)	-12.93/-15.2	-17.73/-13.25	-18.3/-13.57	-7.16/-6.59	-7.46/-6.12	-4.21/-3.98	-4.71/-8.49	-19.37/-18.29	-17.63/-16.95	-10.38/-18.98	-13.73/-14.85	-11.82/-10.96	-18.5/-12	-5.81/-6.97	-9.16/-12.82	-9.44/-9.49	-7.76/-7.71	-8.12/-7.81
Θ(80°)	-8.35/-11.05	-19.62/-19.05	-18.66/-11.55	-7.79/-7.94	-11.07/-10.15	-9.9/-5.62	-4.53/-7.58	-19.14/-18.97	-16.29/-18.3	-10.3/-14.21	-16.54/-19	-18.92/-16.04	-18.92/-8.58	-4.12/-3.72	-4.49/-8.02	-10.99/-10.43	-5.43/-8.84	-10.51/-8.84
Θ(90°)	-10.52/-13	-18.28/-11.58	-12.12/-12.42	-11.5/-12.67	-11.73/-11.37	-12.3/-11.31	-7.92/-7.12	-15.46/-18.53	-18.38/-16.88	-14.59/-18.92	-16.47/-18.58	-19.14/-15.49	-17.66/-16.59	-9.18/-12.56	-11.31/-9.43	-10.2/-6.87	-8.74/-8.21	-9.15/-7.43
Θ(100°)	-16.61/-6.73	-7.99/-18.01	-17.99/-9.9	-12.37/-15.93	-18.98/-16.81	-10.97/-13.26	-16.97/-17.83	-18.88/-18.41	-18.41/-17.65	-14.85/-18.59	-18.45/-16.2	-11.44/-10.81	-18.44/-18.58	-12.73/-14.63	-14/-16	-16.06/-11.61	-7.89/-8.07	-7.95/-12.82
Θ(110°)	-10.97/-15.41	-11.8/-17.56	-16.07/-14.49	-15.9/-18.64	-17.76/-18.81	-18.96/-13.54	-14.77/-16.53	-16.48/-18.99	-18.38/-16.42	-11.02/-14.5	-17.14/-17.32	-12.17/-18.95	-10.85/-18.84	-18.24/-18.89	-17.54/-16.31	-12.13/-7.75	-8.34/-13.71	-12.09/-13.72
Θ(120°)	-15.98/-18.72	-10.37/-12.05	-14.35/-15.15	-18.79/-14.84	-18.58/-18.32	-18.89/-17.35	-19.03/-18.47	-18.77/-19.08	-16.33/-17.35	-8.18/-12.61	-18.27/-16.39	-17.12/-9.04	-11.45/-10.76	-4.94/-4.47	-4.56/-8.85	-9.58/-9.47	-7.37/-6.17	-18.96/-10.7
Θ(130°)	-8.26/-12.28	-16.62/-17.61	-16.27/-15.66	-10.39/-9.84	-15.99/-19.26	-17.65/-17.24	-13.98/-17.77	-11.84/-18.64	-18.81/-10.38	-10.4/-13.1	-12.99/-18	-11.47/-18.38	-10.39/-11.52	-6.72/-6.17	-4.65/-5.57	-6.94/-18.32	-15.99/-8.31	-17.96/-6.7
Θ(140°)	-17.93/-13.38	-10.63/-18.73	-18.66/-18.82	-17.74/-19.32	-19.06/-11.74	-18.64/-15.65	-18.94/-8.85	-8.95/-18.86	-17.94/-13.56	-9.22/-8.66	-14.29/-9.55	-17.99/-12.17	-10.43/-15.55	-9.44/-6.99	-7.85/-10.34	-12.1/-14.53	-15.43/-7.98	-11.62/-15.51
Θ(150°)	-9.15/-8.42	-11.27/-11.35	-12.28/-10.65	-9.71/-15.56	-17.94/-16.19	-17.4/-17.21	-16.28/-16.32	-17.63/-14.54	-8.69/-8.43	-7.51/-10.26	-14.84/-19.11	-17.79/-16.23	-16.92/-15.39	-10.92/-9.29	-11.03/-11.05	-12.81/-18.79	-17.13/-19.08	-13.24/-10.33
Θ(160°)	-5.46/-8.3	-10.32/-9.99	-9.81/-12.01	-17.47/-19.07	-18.26/-18.21	-17.42/-17.26	-19.47/-16.67	-14.16/-17.25	-18.8/-16.73	-16.67/-16.54	-18.74/-17.84	-13.49/-11.91	-14.26/-17.21	-11.33/-10.86	-9.3/-7.56	-9.02/-7.4	-4.17/-4.52	
Θ(170°)	-5.8/-11.04	-15.82/-15.06	-16.04/-16.47	-16.57/-17.49	-18.76/-19.24	-17.9/-15.98	-11.45/-9.62	-8.79/-6.91	-6.26/-6.17	-7.76/-10.6	-13.71/-15.12	-15.89/-16.23	-15.64/-17.34	-18.44/-18.77	-16.31/-11.53	-8.68/-7.29	-4.92/-4.09	-3.88/-4.05
Θ(180°)	-18.89/-17.83	-16.71/-16.94	-16.54/-15.31	-12.68/-11.31	-12.96/-15.17	-14.23/-10.67	-10.47/-10.51	-9.69/-8.91	-8.73/-9.78	-11.26/-14.57	-18.02/-18.85	-18.08/-16.59	-14.45/-12.17	-10.04/-7.88	-6.9/-7.29	-6.45/-5.78	-5.8/-7.73	-10.25/-14.94
Freq(Hz)	5.3G/Pol.	Theta/Ant. 4	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	-3.98/-4.47	-4.73/-6.32	-7/-7.68	-9.31/-12.95	-18.86/-18.49	-14.99/-13.28	-10.31/-7.85	-6.08/-5.59	-5.03/-4.07	-4.16/-4.75	-5.28/-6.55	-7.24/-8.83	-11.53/-14.98	-18.21/-18.8	-14.42/-11.34	-9.01/-6.7	-6.03/-5.37	-5.57/-4.45
Θ(10°)	-7.69/-7.1	-6.65/-7.27	-6.48/-6.86	-9.72/-13.92	-17.77/-18.22	-18.43/-12.22	-10.22/-8.61	-6.69/-5.48	-4.42/-3.6	-3.03/-3.08	-3.61/-3.9	-4.26/-5.73	-7.95/-11.36	-13.98/-16.05	-11.09/-9.27	-7.43/-5.58	-5.55/-5.53	-5.87/-7.06
Θ(20°)	-14.55/-14.98	-12.72/-12.95	-13.25/-14.4	-17.99/-19.07	-18.41/-16.02	-14.38/-11.73	-9.46/-8.53	-7.24/-5.75	-4.19/-3.89	-3.6/-4.45	-4.98/-4.48	-3.73/-4.18	-5.21/-6.82	-9.52/-12.76	-16.46/-17.72	-19.15/-18.85	-14.48/-14.3	-13.53/-14.29
Θ(30°)	-18.57/-15.53	-13.96/-10.29	-8.16/-6.26	-7.06/-8.73	-12.24/-16.49	-17.17/-16.81	-15.96/-15.24	-19.17/-16.39	-9.18/-7.53	-7.26/-6.25	-4.89/-3.61	-5.11/-6.98	-7.84/-7.84	-6.61/-6.57	-8.76/-9.18	-8.3/-9.15	-9.3/-12.49	-17.9/-19.27
Θ(40°)	-7.45/-6.01	-4.87/-3.97	-3.72/-2.67	-3.54/-7.94	-10.23/-13.38	-12.22/-10.1	-9.98/-16.05	-13.82/-10.76	-10.12/-8.68	-9.16/-11.52	-7.99/-5.09	-5.69/-8.07	-9.43/-10.26	-11.59/-10.98	-8.52/-7.34	-8.95/-8.74	-4.69/-5.79	-7.54/-12.34
Θ(50°)	-4.14/-3.86	-4.39/-4.36	-2.78/-1.29	-2.39/-5.15	-7.71/-9.95	-9/-8.46	-7.92/-7.22	-6.53/-6.84	-7.67/-10.58	-9.31/-14.24	-9/-10.29	-12.46/-8.49	-8.66/-9.27	-7.36/-6.92	-6.73/-5.69	-5.85/-5.15	-2.61/-1.98	-1.87/-3.89
Θ(60°)	-4.18/-5.7	-4.27/-1.9	0.55/0.01	-1.21/-2.83	-4.57/-7.77	-10.53/-9.37	-9.13/-9.41	-10.61/-9.32	-5.68/-9.91	-8.28/-7.71	-7.46/-8.95	-12.67/-9.51	-9.18/-5.7	-4.5/-4.02	-3.65/-2.64	-3.84/-4.7	-3.27/-1.01	1.08/0.14
Θ(70°)	-5.44/-3.85	-2.39/-1.2	0.49/-1.82	-2.5/-5.19	-6.56/-10.25	-10.07/-9.49	-11.32/-14.4	-10.86/-14.02	-7.14/-11.22	-2.53/-7.37	-8.2/-8.83	-5.58/-1.49	-2.45/-5.89	-4.52/-4.07	-2.3/-1.72	-1.03/-2.98	-3.43/-0.83	0.41/-1.15
Θ(80°)	-0.82/-2.57	-1.32/-2.23	0.23/-3.35	-2.35/-4.49	-8.61/-16.77	-14.12/-14.91	-11/-10.46	-8.51/-18.48	-5.29/-12.67	-1.56/-5.69	-5.97/-1.6	-3.21/-0.37	-1.86/-1.8	-0.68/-1.05	-2.27/-1.72	0.25/-0.8	-0.05/-1.6	-0.62/2.1
Θ(90°)	-1.35/-1.27	-2.15/-2.36	-1.86/-3.48	-2.21/-4.52	-6.19/-9.39	-9.61/-7.29	-9.66/-11.5	-5.97/-13.51	-4.04/-4.61	-2.19/-6.62	-6.64/-3.36	-2.65/2.03	-1.31/-2.37	-0.1/-0.8	-1.55/-0.64	-0.83/-0.86	-3.87/-0.54	0.64/1.14
Θ(100°)	-3.38/-2.38	-2.77/-5.11	-3.2/-5.61	-10.15/-9.19	-12.51/-16.23	-11.96/-13.03	-17.35/-17.94	-7.16/-13.84	-3.59/-4.93	-1.4/-1.37	-7.35/-2.15	-3.81/-2.18	-4.75/-2.1	0.24/-0.72	-4.93/-3.07	-2.98/-3.57	-2.37/-2.57	-1.12/-2.69
Θ(110°)	-2.13/-3.03	-3.38/-4.7	-3.15/-7.04	-8.03/-9.72	-12.04/-11.98	-10.49/-8.98	-10.67/-16.75	-8.92/-10.69	-5.32/-6.81	-1.16/-5.52	-12.33/-4.17	-1.94/1.56	-4.53/-0.17	1.25/-2.41	-0.8/-1	-1.68/-0.13	-3.3/-4.57	0.45/-1.4
Θ(120°)	-3.8/-3.61	-8.29/-7.65	-10.65/-7.94	-15.73/-15.66	-15/-14.24	-17.99/-18.5	-15.04/-11.13	-8.9/-6.69	-2.29/-9.5	0.21/-6.2	-18.93/-3.87	-1.91/-0.82	-3.76/0.29	3.38/-4.57	1.3/-3.32	-0.96/-6.52	-11.1/-3.46	-1.08/-2.48
Θ(130°)	-7.26/-8.84	-18.16/-12.92	-6.17/-5.83	-10.48/-19.6	-15.22/-14.6	-14.88/-12.56	-18.96/-18.28	-16.94/-18.45	-14.13/-8.07	-5.62/-14.8	-10.74/-8.88	-1.16/-4.17	-8.34/1.26	1.75/-6.53	-0.66/-1.91	-0.81/-8.55	-6.69/-7.09	-2.08/-5.02
Θ(140°)	-13.33/-12.73	-11.98/-13.5	-17.03/-19.2	-18.82/-15.55	-16.39/-18.56	-16.96/-18.88	-19.37/-11.78	-6.6/-9.6	-10.49/-6.9	-6.63/-11.1	-17.75/-11.15	-7.55/-14.66	-4.14/2.61	0.88/-5.4	-3.47/-1.63	-4.52/-7.6	-17.45/-11.13	-11.41/-15.86
Θ(150°)	-7.27/-8.48	-12.05/-15.79	-19.4/-17.04	-12.72/-13.98	-13.61/-17.88	-18.03/-18.12	-17.09/-11.59	-12.19/-9.04	-7.44/-11.21	-14.31/-10.93	-9.16/-9.98	-15.73/-18.08	-7.01/-1.62	-1.81/-4.27	-5.66/-7.07	-10.53/-16.39	-12.2/-10.86	-13.04/-9.49
Θ(160°)	-19.05/-15.56	-12.23/-8.22	-8.43/-9.55	-12.36/-13.28	-12.96/-12.68	-15.88/-18.2	-17.54/-18.03	-13.57/-10.92	-14.37/-19.19	-12.68/-9.03	-8.99/-9.33	-9.01/-9.56	-8.52/-7.05	-8.12/-8.51	-7.59/-7.01	-8.38/-10.49	-11.44/-13.29	-11.63/-13.76
Θ(170°)	-17.98/-17.98	-15.24/-16.77	-18.15/-19.59	-19.33/-17.98	-17.78/-18.04	-16.84/-13.36	-12.38/-12.86	-12.79/-14.24	-16.2/-14.									



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Freq(Hz)	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.16	2.63
Ant. 2 Max Gain (dBi)	2.5	3.69
Ant. 3 Max Gain (dBi)	3.24	2.05
Ant. 4 Max Gain (dBi)	2.18	2.44
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/60/200	Phi/50/220
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/80/320	Theta/90/300
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/50/70	Phi/50/70
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/80/240	Theta/80/280
Max Gain (dBi)	3.24	3.69
DG [1SS] (dBi)	4.32	4.21
DG [2SS] (dBi)	3.24	3.69
DG [4SS] (dBi)	3.24	3.69



Radiated Composite Gain Data of 5GHz U-NII 2C and U-NII 3

Appendix B

DG 1SS Result

Freq(Hz)	5.6GPol.	Phi(-)	-/-	-/+	+/-	+/+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
DG(dBi)	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(0°)	0.75/2.25	2.79/3.05	3.62/3.14	2.62/1.89	1.05/0.28	-2.13/-3.66	-4.4/-4.8	-5.09/-4.06	-2.45/-0.91	0.59/1.75	2.52/89	2.95/2.76	3.02/2.23	1.36/-0.12	-2.19/-3.41	-4.86/-6.11	-6.56/-4.73	-2.42/-0.06
Theta(10°)	1/1.82	2.12/2.4	2.52/2.66	2.66/1.6	0.38/0.33	-1.27/-3.15	-5.68/-6.64	-5.45/-4.58	-2.55/-0.48	0.99/2.05	2.62/2.9	2.81/2.65	1.91/0.72	-0.61/-1.4	-2.69/-4.71	-5.7/-5.27	-4.94/-3.63	-2.18/-0.36
Theta(20°)	-1.64/-1.32	-0.01/-1.07	1.6/2.04	1.98/1.63	1.33/0.57	-0.01/-0.74	-2.77/-4.49	-4.6/-3.65	-1.73/0.07	1.47/1.89	2.06/1.96	1.43/0.81	0.11/-0.87	-2.68/-4.32	-6.46/-9.98	-9.41/-7.47	-6.4/-4.81	-2.13/-1.68
Theta(30°)	-3.07/-0.64	0.87/1.43	1.71/1.94	2.27/1.68	1.08/0.29	-1.96/-1.78	-1.74/-2.41	-2.69/-2.25	-0.98/0.56	0.67/0.51	0.94/1.72	2.11/1.24	0.02/-1.04	-0.82/-1.14	-2.47/-5.41	-8.69/-6.38	-3.64/-3.01	-1.51/-1.77
Theta(40°)	-0.45/0.81	1.25/2.13	2.06/1.81	1.38/1.17	1.22/0.51	-1.18/-2.36	-2.89/-3.22	-2.84/-2.8	-1.50/3.1	0.74/1.43	2.71/4.11	3.78/2.14	0.51/-1.08	-2.02/4.14	-4.18/-2.65	-3.8/-7.66	-4.45/-3.03	-1.38/-1.11
Theta(50°)	-0.43/0.63	1.21/1.48	1.97/2.25	2.52/2.6	1.9/-0.02	-2.93/-4.97	-5.3/-5.42	-5.18/-2.88	-1.13/-0.2	-0.81/1.08	3.62/4.12	3.16/2.47	1.53/0.25	-1.81/-2.43	-2.71/-3	-3.3/-5.93	-6.45/-3.33	-1.4/-0.96
Theta(60°)	0.61/1.24	1.24/1.89	1.76/0.85	1.27/1.95	1.76/1.45	0.67/-1.56	-5.1/-3.89	-3.41/-3.53	0.45/2.3	-1.81/-1.76	4.32/3.65	2.29/1.65	-0.18/-0.99	-1.81/-1.76	-3.29/-4.91	-5.55/-7.81	-6.52/-4.91	-1.34/0.28
Theta(70°)	-0.84/-0.58	1.02/1.01	0.11/0.1	-0.26/0.34	0.69/-0.32	-1.01/-2.11	-3.93/-7.52	-4.61/-2.63	0.17/0.7	0.78/2.44	3.52/3.14	2.27/1.94	0.83/-0.65	-2.11/-2.37	-1.43/-3.89	-4.58/-8.23	-8.74/-5.2	-2.26/-1.24
Theta(80°)	-0.05/-0.64	-0.51/-0.49	-1.63/-0.79	0.53/0.62	-0.46/-1.94	-3.11/-3.74	-3.86/-8.89	-5.15/-4.29	-1.52/-0.95	-0.53/1.84	1.72/0.49	0.87/-0.23	-0.02/-0.69	-2.54/-2.99	-1.05/-0.94	-4.48/-7.17	-7.15/-6.21	-1.76/-1.52
Theta(90°)	-1.85/-0.66	0.12/-0.88	-0.94/-1.88	-0.94/-1.88	-1.3/-0.53	-2.43/-2.78	-4.24/-3.16	-1.16/-1.21	-3.75/-0.75	-1.16/1.21	1.48/-0.14	-0.87/-0.58	-0.14/-0.1	-2.47/-4.64	-1.18/-1.44	-2.99/-8.29	-8.78/-5.52	-4.29/-1.98
Theta(100°)	-0.27/-0.45	-1.45/-1.97	-1.87/-1.76	-0.81/-1.19	-3.26/-3.76	-4.9/-3.18	-4.2/-8.11	-6.69/-6.86	-4.06/-2.61	-1.82/-0.66	-0.67/-1.76	-2.4/-2	-1.15/-0.5	-2.77/-4.88	-4.72/-4.88	-4.95/-5.42	-6.66/-5.06	-4.05/-1.02
Theta(110°)	-2.04/-0.19	-1.83/-2.18	-1.97/-1.89	-1.76/-2.23	-1.86/-1.97	-2.29/-2.16	-5.74/-6.21	-2.54/-7.53	-4.57/-3.96	-3.81/-1.37	-0.36/-2.82	-3.31/-5.6	-4.22/-2.6	-4.72/-5.63	-5.35/-7.13	-7.33/-7.88	-6.67/-7.31	-6.33/-2.95
Theta(120°)	-0.8/-0.85	-2.33/-1.76	-1.82/-2.68	-2.48/-1.98	-2.48/-1.98	-1.82/-1.23	-2.69/-5.41	-4.01/-4.56	-5.21/-2.49	-5.53/-4.26	-2.69/-2.28	-4.43/-4.08	-1.27/-3.24	-7.28/-9.76	-7.45/-7.04	-7.45/-7.33	-7.54/-7.04	-6.72/-0.05
Theta(130°)	0.25/-2	-2.88/-3.68	-2.38/-2.96	-4.56/-2.75	-0.96/-2.03	-5.17/-7.04	-9.82/-9.26	-6.54/-6.75	-3.65/-3.06	-6.64/-4.01	-2.64/-4.49	-7.79/-2.29	-0.5/-1.6	-3.35/-6.7	-6.19/-5.71	-10.47/-4.84	-6.23/-4.71	-3.13/-2
Theta(140°)	-1.21/-1.29	-2.23/-2.35	-3.58/-3.32	-3.9/-4.15	-3.76/-4.21	-5.87/-3.9	-4.18/-8.4	-6.91/-5.53	-4.98/-5.12	-6.72/-6.07	-3.74/-3.5	-4.82/-1.97	0.18/-1.63	-5.27/-6.82	-4.47/-2.54	-4.89/-8.09	-8.48/-8.14	-6.27/-2.71
Theta(150°)	-2.31/-1.45	-2.61/-3.37	-3.04/-3.51	-4.5/-6.59	-8.53/-8.11	-6.78/-5.02	-5.86/-6.34	-6.87/-9.19	-7.58/-6.31	-3.13/-6.57	-3.79/-2.08	-2.63/-2.67	-3.13/-6.37	-7.67/-6.91	-5.54/-4.7	-4.68/-6.33	-6.26/-6.12	-6.47/-5.13
Theta(160°)	-6.85/-5.33	-3.68/-2.82	-3.48/-5.19	-5.98/-6.86	-7.95/-7.39	-5.92/-5	-6.36/-6.66	-6.66/-7.4	-8.17/-7.3	-7.13/-6.89	-6.93/-5.5	-3.88/-2.75	-3.61/-5.25	-7.46/-7.47	-7.62/-6.51	-6.9/-6.93	-6.43/-4.97	-5.56/-6.32
Theta(170°)	-9.37/-9.29	-7.33/-6.53	-6.38/-6.88	-7.78/-7.42	-6.57/-5.3	-4.9/-5.87	-6.94/-9.26	-11.02/-11.25	-10.02/-7.99	-7.58/-7.43	-7.28/-6.46	-5.99/-6.2	-7.59/-8.44	-9.54/-9.81	-8.62/-9.47	-8.77/-7.23	-6.55/-5.68	-6.63/-8.05
Theta(180°)	-10.4/-10.7	-11.14/-10.16	-11.31/-10.16	-10.59/-10.17	-7.9/-7.64	-10.85/-11.16	-11.95/-12.49	-11.83/-10.63	-11.18/-12.71	-12.59/-12.51	-11.28/-10.08	-9.99/-9.53	-9.68/-9.04	-7.25/-8.35	-10.9/-8.2	-9.85/-10.03	-10.53/-10.14	-10.3/-9.36
Freq(Hz)	5.6GPol.	Theta(-)	-/-	-/+	+/-	+/+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
DG(dBi)	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(0°)	-1.1/-2.62	-4.06/-5.39	-6.53/-5.39	-3.86/-1.97	-4.03/1.31	2.22/57	2.36/0.17	3.11/2.85	2.36/0.97	0.43/1.73	-3.52/-5.32	-6.64/-4.88	-3.09/-1.55	2.46/0.04	3.54/3.72	3.39/2.72	1.74/0.54	
Theta(10°)	-0.47/-2.25	-4.6/-7.36	-7.13/-5.73	-4.27/-1.8	-0.09/1.25	1.65/1.72	2.32/2.34	3.07/2.63	2.16/1.35	-0.14/-2.01	-4.9/-6.52	-6.41/-5.33	-3.6/-1.73	-0.09/1.37	1.73/2.06	2.57/2.57	2.42/1.81	1.17/0.52
Theta(20°)	-1.49/-3.29	-5.55/-6.89	-7.72/-9	-6.46/-3.04	-0.95/0.77	1.63/2.06	2.42/2.01	1.59/1.47	1.19/0.82	-1.15/-4.16	-7.28/-8.12	-7.75/-5.7	-2.72/-2.08	0.39/0.59	0.32/-0.16	-0.26/-0.38	-0.23/-0.77	
Theta(30°)	-4.19/-4.26	-5.24/-8.9	-4.91/-2.68	-2.08/-0.67	0.52/1.15	1.27/1.64	2.28/2.55	1.78/-0.36	-1.8/-1.73	-3.37/-2.19	-3.04/-3.4	-3.95/-2.88	-1.55/0.09	1.43/1.33	0.67/1.21	1.6/0.51	-0.81/-1.87	-2.15/-2.96
Theta(40°)	-1.82/-3.61	-2.4/-2.02	-2.85/-2.69	-1.99/-0.99	0.66/2.27	2.24/1.31	1.08/2.77	2.67/1.16	0.64/-2.11	-2.95/-1.16	-1.85/-2.58	-1.53/-0.44	-0.01/0.89	1.54/1.55	0.73/1.41	2.21/3.68	3.5/2.29	0.14/-0.61
Theta(50°)	-0.12/-1.65	-1.12/-1.36	-2.5/-2.89	-2.46/-2.31	-0.9/0.56	1.84/1.94	0.51/2.2	3.02/1.94	2.39/0.46	1.15/-1.68	-2.87/-0.39	-0.51/-0.63	-1.11/-0.33	0.53/1.61	1.74/1.61	1.61/3.62	4.32/2.96	0.62/0.39
Theta(60°)	-0.95/-0.47	-0.16/0.05	-0.69/0.53	-0.06/-0.26	-0.03/0.55	1.94/2.38	1.32/1.91	3.26/1.54	2.44/0.4	0.81/-1.24	-1.82/0.18	-1.66/-0.54	-0.42/0.97	1.72/1.79	0.53/1.51	2.17/2.85	3.35/3.02	0.63/-0.37
Theta(70°)	-1.3/-0.05	0.49/-0.9	-0.7/-0.64	-1.37/-0.92	-0.49/-0.95	0.59/2.11	1.51/2.24	2.95/1.43	1.7/0.26	0.61/-2.34	0.74/0.8	-1.07/1	-0.65/0.1	0.46/0.56	0.45/1.47	2.2/2.1	3.33/3.41	1.56/0.96
Theta(80°)	-1.16/-1.74	-1.68/-0.85	-0.69/-1.45	-2.7/-1.79	-1.84/-1.6	-0.25/0.31	-0.19/1.13	1.32/0.2	0.77/-0.35	-0.62/-5.16	-0.04/0.56	0.04/0.19	1.67/1.2	1.68/1.36	1.82/0.96	3.05/2.82	3.13/2.63	0.58/0.98
Theta(90°)	-2.72/-1.04	-4.01/-2.68	-1.58/-1.95	-1.68/-1.68	-2.68/-3.34	-0.9/-0.92	-0.89/0.19	0.99/-0.45	-0.54/-0.88	-1.09/-1.82	-0.43/-2.43	-2.1/0.1	1.11/-0.25	0.5/1.6	1.24/0.8	2.25/0.44	1.87/1.78	0.31/-1.74
Theta(100°)	-1.03/-4.06	-2.69/-2.09	-3.04/-4.93	-3.02/-3.04	-3.22/-2.73	-3.11/-4.19	-2.07/-0.31	-0.26/-3.11	-1.96/-0.74	-1.37/-5.32	-2.05/-0.94	-2.71/-0.77	0.04/-0.28	-2.71/-2.16	-0/-1.52	0.86/-0.9	-0.11/-2.83	-0.66/-0.17
Theta(110°)	-3.66/-3.38	-4.47/-3.69	-2.94/-3.26	-3.24/-3.42	-2.54/-1.06	-0.79/-1.64	-2.91/-2.5	0.72/-2.34	-1.72/-0.96	-1.14/-2.88	-3.01/-5.83	-7.42/-3.14	-2.2/-3.71	-2.66/-3.45	-2.25/-4.66	-2.89/-3.22	-1.05/-1.76	-2.59/-0.36
Theta(120°)	-2.93/-3.69	-3.58/-4.25	-5.42/-4.32	-2.82/-2.25	-4.42/-5.01	-5.28/-5.61	-3.63/-0.83	-1.04/-1.35	-2.71/-1.11	-3.33/-3.51	-1.05/-1.82	-1.71/-5.82	-4.5/-6.95	-3.57/-9.94	-1.34/-2.89	-2.64/-4.26	-4.55/-1.92	-3.45/-1.09
Theta(130°)	-2.11/-4.56	-6.38/-4.87	-6.31/-6.76	-6.01/-3.2	-2.7/-3.46	-3.14/-0.3	-1.95/-4.16	-3.89/-3.51	-3.43/-1.53	-1.95/-4.54	-5.25/-3.54	-8.02/-10.5	-4.56/-1.96	-4.51/-3.32	-5.31/-5.41	-4.84/-4.96	-0.56/-2.88	-2.51/-0.71
Theta(140°)	-2.44/-2.46	-3.34/-5.37	-5.82/-6.01	-3.96/-2.36	-1.94/-0.98	-1.43/-3.13	-2.28/-1.74	-2.57/-3.68	-3.2/-3.05	-2.79/-3.33	-2.2/-3.34	-6.65/-7.58	-6.39/-2.94	-5.13/-5.77	-0.34/-2.59	-4.47/-6.4	-4.52/-4.78	-5.92/-5.69
Theta(150°)	-0.94/-2.52	-3.63/-3.82	-4.09/-3.72	-3.55/-4.52	-3.32/-4.16	-5.54/-3.6	-2.05/-1.6	-2.51/-4.41	-5.26/-4.74	-5.08/-5.81	-5.42/-5.27	-7.12/-9.47	-11.36/-9.51	-11.17/-6.82	-2.32/-1.35	-1.91/-1.91	-5.93/-5.78	-4.69/-2.64
Theta(160°)	-6.74/-6.04	-6.08/-6.7	-7.97/-7.69	-7.03/-6.23	-5.24/-4.87	-4.26/-4.09	-3.88/-3.28	-1.95/-1.87	-3.8/-5.43	-5.68/-7.61	-9.5/-10.2	-10.31/-10.18	-9.19/-9.45	-10.18/-6.66	-2.88/-2.27	-5.31/-5.41	-4.84/-4.96	-5.97/-7.3
Theta(170°)	-9.66/-9.53	-8.81/-8.51	-8.13/-8.39	-7.31/-9.37	-6.03/-5.38	-4.63/-4.61	-4.93/-5.64	-5.97/-6.1	-6.51/-7.75	-8.64/-9.8	-10.22/-10.36	-11.85/-12.08	-12.04/-10.1	-9.02/-9.36	-8.32/-6.7	-5.59/-5.2	-5.62/-7.21	-8.98/-9.61
Theta(180°)	-10.42/-11.12	-12/-10.46	-9.98/-9.39	-9.52/-9.23	-8.35/-9.59	-10.13/-11.13	-10.69/-9.64	-8.24/-7.37	-7.69/-8.54	-9.69/-9.91	-10.47/-10.05	-9.59/-9.1	-8.63/-9.33	-9/-9.24	-9.52/-10.48	-10.25/-9.77	-9.95/-9.51	-9.89/-9.87
Freq(Hz)	5.785GPol.	Phi(-)	-/-	-/+	+/-	+/+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
DG(dBi)	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(0°)	0.65/1.71	2.83/3.36	3.3/3.03	3.02/2.51	1.34/0.33	-2.29/-5.29	-8.07/-10.59	-8.6/-5.21	-2.61/-0.71	0.55/1.54	2.39/2.86	2.95/2.94	2.66/2.04	1.25/-0.1	-2.44/-4.59	-6.39/-8.59	-9.02/-6.09	-3.3/-0.99
Theta(10°)	0.75/1.65	2.07/2.32	2.53/2.83	2.86/2.74	1.85/0.8	-0.6/-2.72	-5.13/-7.14	-8.53/-6.15	-2.17/2.7	0.24/1.39	-3.82/-6.42	-2.42/2.07	1.51/0.98	-0.23/-1.62	-7.08/-6.42	-9.5/-9.73	-2.48/-0.49	
Theta(20°)	-1.01/-0.2	1.44/2.76	3.49/3.6	3.56/3.6	3.42/3.03	0.55/-1.15	-3.71/-7.03	-7.01/-5.43	-3.27/-1.35	0.42/1.68	2.38/2.82	2.96/2.49	1.82/1.05	0.05/-1.26	-3.38/-6.79	-10.73/-10.8	-7.18/-3.57	-1.55/-0.23
Theta(30°)	-1.55/0.47	2.44/3.75	3.72/2.91	1.61/1														



Radiated Composite Gain Data of 5GHz U-NII 2C and U-NII 3

Appendix B

Gain Result

Freq(Hz)	5.6GPol.	PhiAnt. 1	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-3.61/-2.5	-2.05/-1.87	-1.78/-2.04	-2.19/-2.82	-4.15/-1.1	-2.97/-2.15	-1.68/-1.42	-1.61/-1.81	-2.54/-3.84	-4.58/-6.05	-9.07/-12.21	-1.61/-1.81	-2.54/-3.84	-4.58/-6.05	-9.07/-12.21	-1.61/-1.81	-2.54/-3.84	-4.58/-6.05
Θ(10°)	-2.95/-2.52	-2.87/-2.93	-3.39/-4.1	-4.02/-3.72	-5.07/-6.08	-6.41/-8.88	-11.81/-11.4	-9.77/-8.01	-6.38/-4.66	-3.48/-2.62	-2.21/-2.18	-2.43/-3	-3.45/-4.4	-5.94/-6.59	-8.31/-14.33	-19/-16.59	-11.64/-7.57	-5.47/-3.97
Θ(20°)	-3.59/-4.14	-3.94/-3.28	-2.79/-2.5	-3.1/-2.84	-2.82/-5.01	-7.07/-6.78	-7.91/-8.73	-7.41/-5.88	-4.61/-2.87	-2.22/-1.97	-1.32/-0.88	-1.26/-2.3	-3.03/-3.52	-5.39/-8.6	-10.96/-16.67	-18.46/-17.56	-14.92/-9.71	-5.83/-4.23
Θ(30°)	-3.63/-4.06	-2.57/-1.71	-1.31/-1.43	-2.17/-3.43	-4.71/-6.8	-8.71/-9.94	-9.31/-7.17	-5.33/-3.56	-1.93/-0.28	-0.19/0.05	-0.10/0.05	0.06/-1.01	-2.4/-3.6	-4.84/-6.44	-7.51/-9.14	-11.79/-11.79	-9.04/-6.58	-4.52/-3.1
Θ(40°)	-2.33/-2.13	-1.55/-1.19	-1.61/-2	-2.53/-3.05	-2.52/-3.17	-6.23/-8.78	-11.49/-11.88	-6.82/-4.55	-2.25/0.29	0.74/0.22	0.74/1.45	1.10/51	-1.17/-2.25	-3.22/-6.21	-7.64/-7.22	-7.73/-10.16	-10.38/-7.55	-4.33/-2.59
Θ(50°)	-2.9/-2.34	-0.96/-0.63	-1.24/-1.42	-1.54/-2.2	-1.97/-3.38	-6.32/-7.19	-12.13/-14.99	-8.59/-4.37	-1.16/0.34	-0.35/0.52	1.14/1.77	1.21/0.17	-0.03/-0.96	-3.52/-4.25	-5.77/-7.82	-8.83/-10.52	-10.44/-7.44	-4.4/-3.56
Θ(60°)	-1/-1.46	-0.32/-1.16	-2.25/-2.43	-1.86/-1.66	-3.03/-4.98	-4.94/-7.8	-10.24/-10.52	-0.98/-1.14	-0.98/1.14	0.42/1.29	2.16/1.78	1.28/1.35	0.3/-0.57	-2.94/-4.25	-5.21/-10.23	-10.71/-18.52	-13.92/-8.12	-2.54/-1.71
Θ(70°)	-1.2/-0.99	-1.01/-1.97	-2.66/-1.72	-0.94/-0.79	-1.28/-4.52	-7.46/-11.1	-14.11/-19.16	-15.19/-8.02	-1.41/0.09	-0.64/1.07	1.41/1.14	0.78/0.73	0.23/-1.72	-4.64/-3.92	-5.18/-11.74	-14.06/-17.76	-14.06/-8	-3.9/-2.19
Θ(80°)	-0.32/0.47	0.14/-0.89	-2.25/-1.27	-0.13/-0.06	-1.28/-3.42	-6.62/-7.82	-8.75/-17.89	-1.73/-7.61	-2.52/-1.8	-1.5/-0.18	-0.12/-0.86	-0.67/-1	-1.69/-3.75	-6.05/-6.89	-5.03/-11.12	-16.29/-12.52	-10.18/-6.29	-3/-0.74
Θ(90°)	-0.45/0.75	0.03/-0.59	-0.23/-0.63	0.61/0.78	-0.11/-2.69	-5.74/-7.19	-8.78/-12.07	-14.36/-8.22	-4.02/-1.3	-1.64/-1.56	-1.16/-1.72	-2.4/-2.66	-3.26/-3.83	-6.77/-7.91	-6/-10.69	-16.78/-12.17	-9.31/-5.72	-4.19/-0.24
Θ(100°)	-0.61/0.6	0.83/-0.98	-0.66/-0.04	0.95/0.23	-0.43/-2.17	-6.79/-3.81	-6.56/-10.14	-13.98/-10.75	-8.25/-5.66	-6.16/-5.79	-4.86/-6.06	-6.65/-7.23	-3.19/-3.07	-5.5/-8.07	-10.94/-10.81	-9.87/-9.29	-6.02/-5.6	-3.7/0.33
Θ(110°)	0.33/0.4	0.34/-0.19	-0.72/-0.19	0.26/-0.05	-0.94/-2.68	-3.71/-3.49	-6.53/-8.09	-10.86/-19.59	-15.71/-9.97	-9.69/-9.43	-7.01/-8.86	-9.32/-16.09	-10.09/-8.19	-11.56/-13.61	-18.52/-13.58	-13.76/-11.07	-8.72/-6.66	-5.66/-0.94
Θ(120°)	0.09/0.56	0.25/-0.18	-0.22/-0.65	-1.28/-1.49	-1.4/-0.84	-1.46/-2.99	-5.7/-10.83	-10.68/-12.75	-14.25/-10.29	-11.66/-15.82	-14.55/-14.31	-16.43/-13.17	-10.78/-13.29	-17.6/-19.41	-17.83/-13.21	-13.15/-10.1	-9.71/-7.26	-5.48/-2.25
Θ(130°)	-0.51/0.08	-0.28/-1.48	-1.43/-2.28	-2.57/-2.15	-2.85/-4.26	-6.87/-10.38	-15.49/-18.42	-14.82/-11.26	-10.86/-11.54	-18.38/-17.45	-18.66/-18.56	-18.9/-15.56	-11.65/-9.92	-10.16/-16.36	-18.35/-14.25	-18.45/-15.75	-16.56/-7.7	-5.46/-2.53
Θ(140°)	-0.68/0.47	0.96/0.37	-1.17/-1.98	-3.04/-5.48	-7.94/-9.11	-12.01/-11.02	-11.37/-14.97	-15.61/-11.79	-7.87/-8.72	-14.03/-18.85	-18.86/-17.28	-17.52/-18.31	-14.31/-15.76	-14.88/-16.41	-12.19/-10.22	-13.51/-12.1	-19.1/-11.55	-7.08/-3.72
Θ(150°)	-4.05/-0.88	-0.03/-0.08	-0.96/-3.72	-6.17/-8.83	-12.64/-12.97	-16.07/-11.98	-17.84/-15.68	-12.77/-11.98	-9.67/-11.37	-13.01/-17.32	-16.64/-18.6	-15.74/-17.03	-16.89/-16.62	-13.01/-17.75	-15.29/-11.48	-9.51/-6.48	-8.15/-7.09	
Θ(160°)	-6.24/-4.17	-2.88/-3.12	-4.01/-4.97	-6.29/-8.43	-11.1/-15.39	-15.23/-10.89	-12.03/-13.78	-11.44/-11.33	-14.07/-12.72	-12.49/-13.45	-16.4/-18.66	-16.49/-16.26	-14.03/-12.49	-13.18/-13.89	-14.86/-12.93	-10.56/-10.53	-11.07/-9.58	-8.15/-7.02
Θ(170°)	-11.07/-10.56	-8.59/-7.06	-6.69/-6.51	-6.85/-7.16	-7.86/-9	-11.08/-11.99	-12.7/-15.71	-17.94/-17.75	-18.36/-18.93	-18.77/-18.55	-18.7/-18.99	-19.13/-14.72	-18.75/-17.52	-15.84/-14.93	-14.38/-16.09	-16.89/-17.01	-16.67/-14.95	-13.19/-12.22
Θ(180°)	-14.83/-15.18	-16.64/-16.17	-14.57/-11.92	-12.31/-14.05	-10.12/-10.9	-17.6/-18.88	-19.25/-18.55	-18.52/-15.49	-17.34/-18.94	-18.99/-18.56	-17.47/-16.05	-15.3/-14.78	-15.17/-13.27	-11.32/-12.49	-14.95/-16.14	-17.66/-18.14	-17.78/-17.23	-17.11/-15.34
Freq(Hz)	5.6GPol.	ThetaAnt. 1	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-7.57/-10.41	-13.35/-16.45	-15.36/-10.85	-7.68/-5.91	-4.93/-2.63	-1.28/-1.12	-1.26/-1.32	-1.06/-1.58	-2.38/-3.93	-3.67/-2.98	-2.48/-3.1	-2.51/-2	-7.89/-5.66	-5.67/-2.98	-2.51/-2	-1.71/-1.65	-2.48/-3.3	-3.99/-5.58
Θ(10°)	-5.47/-8.71	-12.54/-14.74	-11.73/-9.52	-8.94/-6.87	-5.65/-5.83	-5.49/-3.9	-3.2/-3.39	-3.77/-4.33	-4.93/-5.57	-6.21/-8.26	-12.9/-16.16	-13.08/-10.59	-7.94/-7.07	-5.17/-3.04	-3.11/-3.26	-2.1/-1.28	-1.39/-1.91	-2.72/-3.48
Θ(20°)	-5.66/-10.51	-14.36/-12.06	-12.6/-12.69	-11.15/-8.14	-6.66/-6.14	-5.74/-4.45	-4.92/-5.57	-5.82/-4.82	-5.97/-10.28	-16.41/-17.85	-19.01/-16.51	-11.63/-10.68	-9.21/-6.88	-5.53/-5.07	-4.4/-4.12	-3.18/-2.56	-3.08/-3.81	
Θ(30°)	-8.61/-15.23	-14.85/-14.28	-15.14/-11.35	-8.74/-8.33	-8.54/-5.63	-4.19/-4.66	-7.17/-5.54	-8.37/-10.61	-13.84/-16.43	-12.98/-8.46	-6.53/-5.58	-5.35/-7.09	-8.01/-6.53	-4.59/-4.24	-4.53/-3.86	-4.03/-4.62		
Θ(40°)	-10.07/-15.7	-17.98/-15.57	-12.5/-10.45	-9.82/-11.68	-9.83/-7.98	-6.26/-7.18	-9.65/-12.27	-17.43/-13.95	-9.84/-7.12	-5.87/-6.45	-5.24/-4.32	-4.36/-4.85	-5.72/-3.33	-1.93/-2.94	-4.33/-5.89			
Θ(50°)	-7.56/-12.57	-17.35/-15.48	-11.7/-9.23	-8.73/-9.24	-10.76/-12.13	-14.12/-15.33	-9.34/-6.81	-5.03/-5.72	-5.58/-6.32	-7.29/-13.87	-18.98/-19.39	-16.3/-10.01	-6.35/-5.06	-5.64/-5.35	-6.67/-7.55	-5.88/-4.6	-2.19/-4.18	-4.98/-6.88
Θ(60°)	-10.87/-14.19	-18.02/-14.68	-16.8/-11.88	-9.89/-9.71	-8.04/-6.93	-9.54/-13.58	-9.87/-6.5	-5.09/-7.53	-7.94/-8.31	-7.83/-15.52	-18.11/-19.09	-18.45/-9.6	-6.96/-5.2	-5.43/-5.51	-7.08/-7.66	-5.72/-3.73	-2.21/-3.12	-5.78/-8.18
Θ(70°)	-7.57/-10.66	-19.39/-15.06	-13.07/-13.84	-14.96/-11.79	-8.97/-10.09	-11.67/-13.22	-12.97/-8.91	-7.37/-9.08	-9.71/-11.65	-13.69/-18.52	-14.87/-17.64	-16.44/-13.81	-14.45/-10.33	-6.76/-7.84	-8.51/-10.38	-9.4/-6.86	-7.48/-4.1	-4.66/-7.39
Θ(80°)	-7.59/-13.75	-18.84/-18.69	-17.87/-17.64	-19.1/-17.44	-17.78/-15.84	-10.85/-12.55	-17.48/-10.69	-10.02/-13.82	-15.21/-17.09	-18.89/-17.9	-18.6/-15.35	-14.8/-16.29	-18.67/-12.41	-8.79/-12.63	-11.63/-12.03	-8.82/-7.65	-3.31/-4.06	-9.56/-13.21
Θ(90°)	-10.34/-12.35	-17.99/-17.07	-17.55/-18.99	-17.4/-14.41	-14.61/-16.46	-17.15/-19.25	-18.86/-16.6	-11.79/-17.92	-19.35/-16.58	-15.37/-13.34	-18.33/-16.27	-17.47/-15.78	-14.25/-14.04	-9.27/-9.03	-9.41/-12.25	-14.33/-12.96	-13.91/-10.55	-8.71/-15.12
Θ(100°)	-13.55/-16.18	-16.06/-16.01	-18.07/-18.81	-14.74/-16.57	-18.13/-18.16	-18.08/-18.27	-17.76/-18.16	-13.52/-15.68	-11.37/-11.87	-15.83/-13.02	-13.48/-13.17	-13.28/-15.82	-7.91/-12.62	-10.81/-18.17	-13.28/-15.82	-7.91/-12.62	-16.31/-17.65	
Θ(110°)	-18/-18.26	-15.9/-12.49	-13.3/-18.97	-18.43/-18.76	-17.27/-18.67	-17.72/-15.55	-18.81/-13.89	-12.22/-13.92	-13.74/-9.66	-8.18/-9.33	-15.59/-18.33	-16.41/-16.02	-14.27/-13.3	-17.78/-16.45	-18.8/-17.63	-15.16/-17.82	-18.46/-19.45	-17.41/-12.7
Θ(120°)	-15.35/-19.15	-18.14/-18.76	-17.74/-16.91	-11.07/-9.53	-12.19/-15.82	-16.25/-15.42	-18.29/-14.24	-15.03/-12.63	-10.59/-8.1	-10.79/-11.1	-13/-11.93	-10.82/-19.02	-18.7/-18.16	-18.87/-19.16	-19.05/-18.73	-17.56/-16	-13.55/-14.06	-18.03/-12.07
Θ(130°)	-8.28/-8.8	-10.75/-11.46	-12.15/-14.28	-13.41/-11.81	-14.47/-16.49	-13.65/-18.51	-8.77/-9.86	-10.97/-13.86	-9.38/-6.79	-8.77/-9.29	-12.57/-17.82	-16.7/-16.11	-18.97/-16.62	-11.63/-11.67	-18.97/-16.62	-11.63/-11.67	-8.97/-8.83	
Θ(140°)	-8.37/-10.05	-10.93/-16.31	-17.74/-17.97	-11.8/-7.68	-7.4/-7.38	-8.16/-10.95	-10.17/-9.44	-10.2/-11.42	-8.62/-5.05	-7.6/-17.96	-13.15/-12.84	-18.87/-18.09	-16.14/-11.28	-17.91/-18.65	-12.12/-15.47	-9.8/-17.8	-14.71/-10.96	-13.33/-8.53
Θ(150°)	-7.47/-9.9	-16.09/-19.42	-15.95/-10.08	-9.12/-9.3	-7.81/-8.4	-11.6/-13.61	-15.85/-12.13	-9.16/-10.93	-18.53/-14.62	-13.58/-15.47	-13.49/-10.89	-11.15/-16.76	-15.78/-13.19	-16.9/-12.12	-9.34/-10.98	-8.1/-8.32	-8.92/-8.14	-8.44/-6.98
Θ(160°)	-8.49/-7.85	-9.55/-12.3	-14.43/-13.7	-12.43/-10.21	-9.39/-9.73	-9.13/-11	-6.15/-5.72	-10.89/-6.17	-9.12/-13.93	-10.89/-6.17	-17.51/-9.62	-17.33/-19.09	-19.29/-18.26	-12.38/-17.99	-6.64/-7.72	-6.64/-7.51	-8.05/-9.31	
Θ(170°)	-10.15/-10.43	-10.75/-11.54	-11.84/-14.82	-18.37/-14.71	-13.79/-10.6	-7.88/-7.43	-6.54/-7.66	-10.07/-12.7	-12.97/-15.12	-15.16/-15.53	-18/-18.93	-18.33/-17.83	-19.2/-18.14	-17.97/-18.23	-17.46/-17.8	-17.56/-13.35	-11.66/-13.12	-12.44/-11.46
Θ(180°)	-15.89/-17.55	-18.81/-18.85	-19.18/-18.24	-16.55/-15.15	-13.52/-14.75	-15.58/-18.38	-17.89/-16.67	-10.55/-8.86	-10.08/-13.05	-17.49/-17.91	-18.29/-18.39	-18.87/-17.97	-18.05/-18.33	-15.28/-14.89	-15.99/-15.62	-14.91/-13.5	-12.42/-13.44	-13.85/-14.48
Freq(Hz)	5.785GPol.	PhiAnt. 1	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-4.89/-3.02	-2.41/-1.31	-1.29/-1.18	-0.87/-1.26	-2.71/-3.64	-4.86/-8.07	-12.2/-16.52	-16.01/-11.03	-7.43/-5.42	-4.39/-3.55	-2.34/-1.71	-1.36/-1.32	-1.74/-2.22	-2.79/-3.87	-5.45/-7	-9.83/-14.66	-18.39/-13.31	-9.58/-6.84
Θ(10°)	-3.76/-3.26	-2.5/-1.88	-1.74/-1.36	-0.93/-0.91														



Radiated Composite Gain Data of 5GHz U-NII 2C and U-NII 3

Appendix B

Θ(60°)	-8.1/-3.41	-0.89/-0.84	-0.12/0.08	-0.44/-2.3	-2.04/-0.34	1.22/0.93	-1.94/-3.79	-4.92/-5.47	-2.7/-3.26	-3.54/-5.6	-3.09/-1.11	-2.41/-4.78	-5.65/-4.8	-3.77/-4.08	-5.53/-3.92	-2.61/-0.69	-0.11/-1	-6.32/-5.99
Θ(70°)	-6.11/-2.8	-0.97/-1.94	-1.57/-0.94	-1.49/-2.36	-1.73/-0.52	0.90/67	-2.68/-3.03	-3.06/-4.62	-2.41/-1.81	-1.43/-5.82	-1.78/-1.22	-3.65/-4.4	-5.81/-7.44	-6.04/-6.68	-6.82/-2.59	-0.61/0	1.02/0.19	-1.68/-1.65
Θ(80°)	-3.41/-3.83	-2.32/-1.69	-1.07/-1	-1.01/-1.07	-1.03/-0.04	1.08/-0.66	-4.79/-3.45	-4.42/-4.48	-3.4/-2.01	-3.76/-9.29	-3.27/-2.16	-2.57/-2.24	-1.7/-2.5	-2.63/-2.52	-2.42/-1.1	2.50/81	-0.39/-0.53	
Θ(90°)	-2.06/-1.58	-3.74/-2.85	-0.93/-0.68	-1.14/-1.16	-1.75/-1.69	0.24/-1.07	-5.09/-4.12	-2.58/-2.21	-2.94/-1.99	-3.85/-9.39	-4.69/-4.89	-5.59/-2.83	-3.02/-6.72	-5.74/-4.58	-5.15/-2.5	1.32/-0.05	0.55/-1.14	0.39/-2.34
Θ(100°)	-3.84/-3.08	-2.65/-2.59	-2.61/-2.61	-2.27/-2.7	-2.04/-0.56	-0.35/-4.48	-6.76/-3.31	-2.46/-5.32	-3.76/-1.18	-5.61/-9.8	-12.63/-5.62	-7.54/-7.51	-4.88/-5.4	-13.28/-10.16	-6.35/-2.19	-0.42/-0.95	-0.18/-5.21	-0.27/0.59
Θ(110°)	-4.02/-3.8	-4.73/-4.7	-2.79/-1.93	-2.29/-2.84	-3.63/-2.98	-0.06/-5.99	-6.94/-4.55	-3.04/-6.59	-2.94/-1.51	-4.81/-11.64	-6.15/-9.88	-5.91/-4.74	-5.52/-10.6	-5.73/-3.36	-5.91/-4.91	0.48/-0.65	-2.67/-1.25	
Θ(120°)	-4.58/-2.18	-2.73/-2.88	-3.26/-4.32	-4.47/-4.96	-6.99/-6.12	-7.11/-9.53	-8.34/-5.12	-7.52/-7	-4.95/-5.16	-10.12/-18.38	-12.5/-10.13	-6.38/-18.03	-17.62/-14.79	-6.61/-15.22	-7.24/-4.43	-4.7/-8.37	-3.7/-1.5	-1.68/-2.01
Θ(130°)	-5.32/-7.77	-6.41/-6.15	-6.12/-6.43	-7.04/-5.69	-4.75/-5.02	-4.44/-5.12	-9.63/-11.69	-9.07/-7.18	-6.68/-5.8	-7.04/-18.1	-16.03/-8.75	-13.67/-15.13	-10.16/-8.9	-18.92/-12.51	-8.63/-15.32	-19.06/-6.56	-3.14/-5.08	-3.02/-0.94
Θ(140°)	-6.3/-5.82	-4.71/-5.12	-5.75/-5.45	-3.99/-3.07	-2.95/-3.95	-7.93/-18.28	-10.1/-6.73	-10.59/-9.99	-6.98/-5.49	-9.01/-14.14	-10.73/-15.13	-17.74/-12.78	-11.17/-6.73	-8.47/-8.39	-4.29/-9.53	-10.08/-18.83	-6.81/-5.22	-8.16/-10.63
Θ(150°)	-5.01/-5.04	-2.53/-2.07	-2.25/-4.33	-6.08/-7.91	-8.97/-13.64	-18.83/-11.48	-5.73/-4.63	-6.14/-11.39	-12.36/-9.69	-8.37/-10.73	-8.98/-10.1	-12.45/-17.59	-18.49/-16	-18.5/-15.7	-7.72/-3.04	-1.27/-2.17	-8.73/-9.81	-7.54/-7.62
Θ(160°)	-10.86/-9.8	-9.06/-9.3	-11.23/-10.19	-8.05/-7.42	-6.28/-6.34	-7.05/-9.27	-14.18/-14.24	-9.91/-8.38	-10.69/-15.58	-13.12/-12.1	-15.28/-18.88	-18.47/-15.75	-12.71/-13.42	-14.16/-13.05	-8.39/-6.16	-6.99/-7.57	-7.61/-7.49	-9.13/-10.61
Θ(170°)	-18.41/-18.4	-17.49/-17.92	-18.81/-15.94	-11.18/-9.19	-9.99/-11.74	-13.55/-15.12	-18.46/-16.64	-13.31/-15.45	-17.26/-15.28	-18.46/-16.64	-14.31/-15.45	-17.97/-18.44	-17.65/-15.09	-14.34/-15.91	-16.8/-16.05	-16.04/-15.68	-14.95/-14.46	-15.72/-18.21
Θ(180°)	-18.03/-17.88	-17.64/-14.5	-12.38/-10.79	-10.63/-10.6	-10.39/-12.17	-15.79/-18.21	-18.53/-18.53	-19.27/-18.48	-18.82/-17.65	-18.49/-18.65	-19/-19.12	-18.35/-15.3	-14.71/-13.93	-13.71/-13.82	-14.45/-14.98	-14.48/-13.99	-14.98/-16.55	-19.34/-18.01
Freq(Hz)	5.785GPol	PhiAnt. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	-6.59/-5.25	-4.03/-3.45	-4.16/-4.68	-4.72/-4.16	-4.81/-7.72	-9.51/-11.87	-14.77/-18.41	-14.95/-11.36	-8.85/-7.22	-6.29/-5.76	-5.21/-5.4	-5.56/-5.91	-6.59/-7.26	-7.78/-9.83	-13.43/-15.13	-19.6/-18.26	-17.94/-13.9	-9.55/-7.24
Θ(10°)	-8.01/-7.34	-8.48/-10.13	-10.8/3	-7.93/-7.55	-8.82/-9.78	-13.29/-18.8	-19.14/-17.35	-18.26/-13.77	-9.9/-7.55	-5.6/-4.49	-3.87/-3.17	-2.93/-2.83	-3.11/-3.42	-5.52/-6.49	-8.38/-10.92	-14.59/-16.49	-14.69/-11.35	-9.58/-7.94
Θ(20°)	-16.1/-13.26	-8.6/-6.63	-5.76/-6.18	-6.88/-5	-4.96/-6.96	-8.14/-9.4	-11.81/-15.41	-15.02/-11.56	-3.86/-2.77	-2.22/-2.12	-1.97/-2.23	-3.34/-5.04	-6.22/-7.14	-9.44/-13.54	-17.1/-18.46	-13.4/-9.45	-8.53/-10.57	
Θ(30°)	-17.47/-8.34	-5.87/-4.68	-5.28/-6.84	-7.89/-9.29	-11.08/-12.81	-12.59/-12.46	-11.15/-9.93	-11.17/-9.82	-7.09/-4.55	-2.4/-2.41	-4.45/-7.56	-9.6/-9.23	-10.18/-10.85	-11.75/-13.14	-17.19/-12.9	-10.67/-10.65	-10.71/-8.64	-9.29/-13.69
Θ(40°)	-13.17/-7.65	-5.91/-6.69	-13.9/-18.05	-17.79/-11.63	-10.2/-12.66	-13.76/-10.32	-8.87/-10.6	-10.85/-12.85	-11.91/-8	-4.76/-5.05	-7.73/-8.4	-10.77/-18.84	-17.22/-18.47	-16.63/-18.36	-19.4/-17.99	-12.46/-10.89	-13.4/-14.37	-13.87/-15.52
Θ(50°)	-7.76/-6.88	-7.34/-10.99	-19.3/-16.35	-11.45/-9.18	-7.84/-9.11	-11.42/-11.53	-13.97/-10.23	-9.87/-10.39	-11.19/-10.93	-8.77/-12.1	-13.97/-10.71	-18.69/-18.49	-12.56/-10.67	-4.2/-8.86	-16.98/-16.91	-12.56/-10.9	-18.58/-17.39	
Θ(60°)	-8.05/-7.4	-11.2/-17.32	-15/-14.02	-15.33/-19.01	-18.92/-16.98	-16.35/-11.81	-10.92/-18.36	-17.76/-19.03	-18.77/-13.52	-13.31/-17.98	-10.79/-10.45	-11.52/-9.17	-10.83/-18.59	-18.07/-15.34	-11.71/-14.38	-17.16/-9.86	-11.85/-16.17	-13.51/-11.37
Θ(70°)	-10.41/-13.64	-17.46/-18.61	-19.02/-19.17	-14.76/-14.73	-17.74/-18.3	-12.2/-7.11	-5.75/-7.21	-7.68/-11.09	-9/-9.85	-12.98/-14.49	-9.11/-10.73	-10.39/-12.51	-15.86/-18.06	-15.26/-13.57	-13.76/-12.56	-13.99/-16.99	-15.49/-12.87	-18.08/-12.08
Θ(80°)	-7.53/-9.94	-17.74/-18.05	-14.03/-13.44	-17.5/-19.33	-15.11/-18.77	-17.89/-10.83	-8.84/-7.46	-6.79/-15	-11.19/-10.93	-17.47/-16.36	-9.48/-7.10	-11.38/-13.29	-10.11/-15.82	-17.02/-13.63	-15.93/-8.45	-7.09/-6.87	-13.88/-14.23	
Θ(90°)	-12.12/-12.53	-18.88/-18.18	-17.85/-18.79	-19.01/-16.07	-18.06/-14.19	-12.41/-16.08	-10.55/-7.75	-6.27/-13.29	-13.39/-18.82	-14.01/-18.98	-10.32/-13.54	-18.67/-12.78	-12.29/-12.38	-17.11/-16.48	-6.67/-5.02	-11.76/-17.71	-17.41/-11.95	-13.05/-13.55
Θ(100°)	-17.73/-18.59	-15.58/-11.79	-11.96/-18.49	-18.31/-19.03	-18.99/-19.03	-16.28/-12.21	-12.57/-16.15	-12.65/-10.36	-9.83/-19.12	-10.7/-17.44	-15.08/-19.09	-17.73/-19.86	-18.87/-19.01	-18.21/-19.48	-12.26/-9.54	-10.18/-9.8	-17.41/-5.54	-6.19/-11.6
Θ(110°)	-16.61/-15.01	-19.05/-18.9	-18.28/-14.71	-18.89/-16.13	-15.01/-12.84	-10.16/-10.99	-18.86/-14.01	-14.17/-16.87	-11.69/-18.14	-12.16/-18.27	-18.66/-17.01	-13.27/-16.91	-18.82/-12.69	-15.47/-8.75	-17.43/-13.31	-15.43/-10.87	-17.88/-12.42	
Θ(120°)	-18.21/-15.62	-18.77/-13.81	-17.3/-17.85	-19.24/-12.4	-10.59/-8.13	-6.74/-6.22	-6.22/-10.33	-18.88/-14.48	-8.67/-10.41	-17.74/-16.28	-18.98/-18.97	-18.48/-12.45	-11.55/-19	-13.66/-19.05	-15.68/-10.81	-15.04/-10.65	-8.56/-7.59	-15.16/-13.48
Θ(130°)	-12.87/-12.88	-17.92/-13.69	-13.87/-18.76	-10.16/-9.15	-6.09/-6.38	-8.88/-11.63	-14.78/-18.25	-15/-10.95	-8.56/-11.32	-17.87/-18.33	-18.53/-11.05	-11.58/-13.75	-11.28/-10.15	-7.44/-13.96	-16.57/-14.42	-10.95/-6.07	-7.1/-7.04	-10.17/-12.82
Θ(140°)	-12.58/-12.72	-18.3/-18.59	-12.76/-13.68	-11.01/-8.75	-7.29/-6.93	-7.54/-8.12	-9.07/-12.76	-16.8/-12.3	-13.89/-11.69	-18.29/-18.1	-14.72/-15.88	-18.72/-12.47	-8.42/-8.95	-12.32/-18.35	-15.84/-10.92	-12.33/-18.08	-17.21/-9.79	-9.75/-12.4
Θ(150°)	-16.69/-17.47	-18.69/-18.21	-17.49/-18.21	-17.79/-13.7	-7.26/-6.01	-14.71/-9.55	-5.5/-9.35	-11.99/-18.56	-13.74/-10.56	-14.71/-18.78	-18.38/-19.19	-13.27/-6.17	-4.85/-7.73	-10.84/-10.26	-7.83/-5.83	-3.64/-4.81	-7.39/-11.8	-1.69/-18.93
Θ(160°)	-18.18/-18.93	-14.37/-12.96	-13.77/-10.91	-7.94/-6.97	-6.98/-5.79	-4.8/-5.98	-10.51/-13.3	-12.94/-18.48	-18.93/-13.91	-13.93/-17.86	-18.9/-13.91	-10.61/-11.38	-11.73/-12.89	-11.57/-9.98	-9.2/-8.61	-6.38/-6.59	-8.57/-12.15	-15.81/-16.86
Θ(170°)	-18.66/-18.5	-18.68/-15.77	-16/-18.64	-18.04/-18.27	-14.18/-12.91	-9.21/-8.65	-8.48/-9.75	-13.02/-17.84	-18.18/-17.44	-18.18/-19.37	-18.62/-17.78	-18.31/-18.05	-17.6/-19.53	-16.61/-11.74	-9.59/-8.62	-9.46/-11.95	-14.62/-16.53	-16.55/-18.49
Θ(180°)	-12.15/-15.45	-15.67/-16.94	-17/-15.68	-12.23/-10.9	-14.10/-10.38	-14.58/-18.23	-18.14/-19.11	-18.71/-15.98	-12.8/-12.03	-13.71/-14.66	-15.41/-17.26	-18.76/-18.8	-14.61/-17.26	-18.72/-16.46	-14.66/-14.14	-13.81/-12.63	-11.01/-10.52	
Freq(Hz)	5.785GPol	ThetaAnt. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	-9.41/-11.24	-14.01/-17.41	-18.57/-17.89	-12.22/-9.53	-7.5/-6.16	-4.86/-3.37	-3.19/-3.45	-3.93/-4.57	-5.5/-7	-8.69/-9.7	-12.57/-16.52	-17.77/-13.49	-10.99/-8.2	-6.97/-6.19	-5.5/-5.07	-4.08/-3.81	-3.91/-4.51	-5.64/-6.97
Θ(10°)	-17.53/-18.37	-16.43/-16.29	-15.21/-13.17	-10.32/-9.52	-8.19/-6.16	-4.6/-3.63	-2.73/-2.78	-2.71/-2.81	-3.26/-3.95	-4.51/-5.46	-7.79/-11.62	-18.88/-18.44	-15.58/-10.19	-7.41/-5.95	-5.02/-4.42	-4.24/-4	-4.66/-5.67	-7.68/-11.53
Θ(20°)	-18.67/-13.79	-11.05/-10.8	-8.11/-7.11	-5.35/-3.72	-2.93/-2.01	-1.47/-0.69	-0.31/-0.59	-2.43/-2.56	-3.97/-6.84	-11.92/-18.71	-19.17/-16.87	-15.43/-13.18	-9.94/-7.56	-6.47/-6.23	-6.44/-6.06	-7.46/-11.57	-17.2/-18.67	
Θ(30°)	-17.88/-13.5	-7.25/-3.58	-1.22/-2.65	-3.46/-1.91	-0.09/0.2	0.39/1.45	-0.78/-1.26	-2.21/-4.25	-0.01/-0.64	-7.36/-10.26	-12.05/-9.98	-12.43/-19.57	-19.07/-18.82	-16.87/-10.45	-9.2/-10.08	-13.06/-9.98	-8.64/-9.56	-13.86/-18
Θ(40°)	-9.82/-9.5	-2.26/-0.84	-1.78/-2.54	-2.19/-1.86	-1.93/-0.41	1.67/2.43	2.01/1.74	0.81/-0.33	-2.07/-3.19	-3.97/-7.39	-7.36/-15.37	-13.86/-8.78	-9.34/-10.91	-8.96/-7.89	-7.16/-6.3	-8.33/-9.53	-5.45/-5.12	-4.12/-5.94
Θ(50°)	-15.52/-6.4	-2.42/-1.41	-1.31/-1.29	-1.67/-3.35	-3.38/-1.77	0.21/2.48	3.2/0.9	-0.81/-0.85	-0.82/-0.47	-0.6/-3.08	-8.32/-5.06	-2.9/-5.3	-6.42/-6.54	-5.19/-3.95	-3.58/-4.28	-4.68/-3.31	-2.06/-2.99	-6.82/-7.77
Θ(60°)	-13.29/-3.29	-1.41/-1.57	-0.29/0.41	-0.89/-2.66	-2.49/-1.04	-0.70/0.65	1.66/0.57	-1.41/-0.95	-1.36/-0.77	-0.05/-4.34	-4.51/-1.74	-5.62/-5.14	-6.82/-6.89	-5.45/-3.22	-3.33/-2.55	-1.43/-10.97		
Θ(70°)	-9.78/-1.33	-1/-2.09	1.28/1.77	-0.16/-0.59	-1.14/-0.3	1.33/1.63	2.05/0.51	-2.46/-1.61	-1.37/-1.73	-3.16/-4.5	-0.67/-1.05	-3.16/-3.08	-4.09/-7.31	6.23/-3.88	-3.51/-2.18	0.94/0.96	1.07/0.86	-3.41/-3.53
Θ(80°)	-5.22/-0.94	-1.79/-2.84	-2.3/-2.94	-3.35/-2.52	-2.66/-1.51	-0.39/-1.51	-1.83/-1.18	-2.68/-1.79	-2.19/-3.49	-4.5/-6.76	-2.46/-3.07	-2.29/-2.21	-0.17/-2.2	-2.24/-1.72	-1.67/-1.59	-0.14/-1.35	0.61/-8.8	-3.02/-4.52
Θ(90°)	-3.79/-0.98	-0.97/0.08																



Radiated Composite Gain Data of 5GHz U-NII 2C and U-NII 3

Appendix B

Θ(160°)	-17.65/-19.01	-18.31/-18.31	-17.77/-18.07	-18.12/-16.5	-14.85/-14.19	-12.93/-10.72	-8.24/-9.41	-12.68/-14.55	-14.05/-12.54	-9.41/-7.41	-4.92/-4.37	-5.43/-7.09	-8.78/-12.97	-18.02/-17.27	-13.4/-12.41	-16.34/-12.95	-11.4/-10.86	-13.18/-16.18
Θ(170°)	-17.21/-17.87	-18.79/-17.57	-13.75/-13.23	-13.59/-14.34	-13.62/-12.54	-13.28/-13.83	-14.79/-16.43	-16.69/-17.11	-13.87/-10.72	-9.23/-9.29	-8.5/-5.96	-5.62/-6.76	-9.35/-13.77	-17.25/-19.08	-15.63/-17.31	-19.56/-15.18	-12.73/-12.46	-13.94/-17.09
Θ(180°)	-18.84/-15.59	-18.26/-15.95	-17.66/-17.99	-18.24/-18.43	-18.89/-17.65	-18.9/-18.21	-17.73/-19.16	-18.4/-17.43	-18.88/-17.83	-18.4/-17.43	-18.5/-19.6	-18.08/-16.67	-18.38/-11.22	-11.07/-13.07	-15.05/-12.58	-17.38/-17.96	-18.57/-19.15	-17.38/-18.49
Freq(Hz)	5.785GPol	ThetaAnt. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	-7.38/-11.83	-18.29/-18.68	-14.01/-9.69	-17.01/-4.65	-2.96/-2.24	-1.8/-1.13	-1.28/-1.09	-1.82/-2.59	-2.96/-4.47	-1.38/-1.23	-17.06/-18.77	-13.39/-8.07	-1.53/-2.59	-5.67/-4.25	-2.92/-1.83	-1.56/-1.38	-1.8/-2.01	-2.69/-4.4
Θ(10°)	-5.59/-7.77	-10.4/-11.83	-12.39/-9.85	-7.37/-5.89	-4.43/-2.46	-1.9/-1.51	-0.9/-1.27	-1.74/-3.09	-4.31/-6.31	-7.75/-10.27	-14/-18.66	-13.93/-9.43	-5.93/-3.44	-2.38/-1.95	-1.27/-1.4	-1.76/-1.78	-1.78/-1.81	-2.69/-3.95
Θ(20°)	-4.16/-5.33	-7.6/-10.66	-16.3/-18.19	-13.44/-8.61	-7.66/-5.72	-4.31/-3.5	-2.95/-2.49	-2.79/-3.6	-4.03/-4.96	-6.68/-10.07	-18.57/-15.91	-11.17/-7.51	-5.17/-3.36	-1.92/-0.75	0.721/0.4	0.41/-0.51	-1.87/-2.66	-3.02/-3.24
Θ(30°)	-3.43/-4.69	-7.95/-12.3	-16.01/-18.75	-18.05/-11	-8.63/-6.25	-3.61/-1.78	-1.38/-1.75	-2.64/-4.09	-5.8/-7.11	-12.02/-18.35	-18.85/-16.69	-12.37/-11.06	-9.13/-6.6	-4.41/-3.44	-2.77/-0.29	1.510/5.6	-2.24/-4.19	-4.11/-3.79
Θ(40°)	-5.49/-5.58	-8.51/-12.39	-12.3/-9.72	-6.58/-4.69	-2.56/-2.63	-4.78/-4.72	-1.14/-0.08	-0.95/-2.83	-4.71/-8.7	-14.14/-17.43	-17.71/-15.19	-15.09/-16.18	-14.08/-10.37	-7.62/-4.61	-3.26/-2.48	-0.78/-0.08	-1.69/-2.73	-3.23/-5.45
Θ(50°)	-6.1/-7.41	-8.38/-18.22	-18.74/-12.69	-9.16/-5.8	-3.29/-1.39	-1.56/-5.87	-3.02/-1.01	0.87/-1.27	-4.01/-8.39	-16.71/-17.9	-14.79/-14.08	-18/-17.71	-15.86/-10.94	-7.93/-6.45	-5.46/-4.87	-3.25/-1.74	-1.72/-5.2	-5.29/-5.14
Θ(60°)	-6.32/-5.37	-9.39/-14.53	-13.67/-11.94	-12.5/-10.5	-7.14/-4.09	-2.33/-2.32	-4.82/-0.82	0.82/-0.9	-3.33/-10.02	-18.07/-15.9	-18.77/-16.39	-13.52/-8.83	-5.46/-5.82	-5.8/-4.39	-3.96/-2.55	-3.44/-7.38	-4.46/-4.75	
Θ(70°)	-8.33/-7	-8.54/-11.6	-13.79/-19.82	-18.67/-16.47	-12.7/-9.76	-6.15/-4.88	-7.22/-2.74	-1.02/-1.71	-3.59/-10.2	-19.18/-16.12	-13.6/-17.68	-18.98/-16.3	-12.45/-11.39	-8.24/-7.05	-9.34/-6.97	-7.03/-7.65	-6.44/-5.82	-6.95/-5.84
Θ(80°)	-9.32/-8.02	-14.34/-8.99	-9.09/-15.36	-18.55/-15.08	-9.99/-17.56	-8.93/-6.95	-8.06/-4.95	-3.09/-3.55	-3.9/-9.06	-18.99/-16.76	-11.65/-13.6	-18.24/-16.89	-13.3/-12.89	-13.05/-7.65	-4.9/-5.93	-8.71/-4.79	-6.14/-8.62	-9.17/-6.84
Θ(90°)	-18.38/-13.92	-14.34/-11.05	-13.5/-18.5	-19.23/-19.12	-18.33/-15.64	-7.26/-7.06	-7.37/-12.17	-17.43/-12.51	-14.72/-17.76	-19.08/-18.69	-18.71/-17.2	-13.08/-12.31	-14.02/-8.74	-11.77/-10.87	-13.88/-12.39	-11.77/-10.87	-18.33/-16.94	
Θ(100°)	-18.29/-18.36	-14.68/-10.34	-12.79/-18.26	-17.84/-19.01	-12.1/-8.44	-10.59/-10.89	-11.25/-17.21	-13.65/-13.33	-11.43/-18.61	-19.03/-18.52	-13.62/-12.8	-18.44/-19.15	-18.06/-18.16	-19.23/-17.81	-10.33/-17.52	-11.44/-10.75	-15.34/-17.69	-18.12/-19.18
Θ(110°)	-14.95/-15.45	-17.06/-15.07	-18.82/-12.73	-14.01/-12.81	-13/-16.59	-14.31/-11.74	-13.9/-9.99	-15.83/-15.85	-18.13/-17.29	-19.11/-17.45	-19.17/-18.6	-19.43/-17.83	-18.66/-17.7	-14.14/-9.85	-12.16/-12.92	-13.77/-17.87	-14.84/-13.11	-11.17/-13.72
Θ(120°)	-11.92/-18.52	-12.43/-12.72	-17.83/-18.28	-17.88/-10.87	-10.78/-13.97	-13.88/-10.96	-10/-12.91	-8.23/-12.92	-13.73/-17.98	-19.15/-18.62	-13.73/-13.29	-13.89/-12.83	-17.08/-17.06	-18.67/-12.47	-13.49/-18.3	-17.63/-14.66	-18.67/-19.29	-9.42/-11.92
Θ(130°)	-7.25/-15.84	-9.01/-17.72	-18.39/-18.83	-17.5/-17.99	-17.92/-14.4	-10.74/-17.11	-14.15/-13.17	-8.6/-7.47	-9.21/-10.62	-12.4/-10.96	-11.03/-14.79	-14.8/-18.32	-19.11/-9.5	-12.13/-12.16	-6.78/-9.82	-10.55/-9.3	-18.46/-8.03	-18.1/-14.82
Θ(140°)	-7.49/-15.52	-17.88/-16.62	-18.75/-18.8	-17.84/-15.75	-11.71/-11.43	-13.61/-11.39	-9.54/-13.39	-10.51/-13.02	-15.43/-16.7	-14.48/-7.63	-11.09/-12.82	-12.69/-16.46	-18.09/-13.31	-11.92/-6.77	-3.14/-5.95	-17.06/-6.56	-8.97/-15.95	-8.1/-10.67
Θ(150°)	-9.16/-13.52	-16.26/-11.44	-10.89/-11.25	-10.59/-10.62	-9.91/-9.72	-10.57/-10.19	-5.6/-6.74	-8.67/-5.34	-9.97/-7.39	-15.47/-11.64	-6.83/-9.44	-15.5/-7.92	-14.41/-10.97	-11.75/-11.92	-6.58/-9.83	-11.75/-11.92	-14.17/-17.72	-18.59/-15.55
Θ(160°)	-14.21/-11.9	-19.03/-13.5	-10.3/-10.21	-11.35/-15.14	-16.46/-14.63	-14.82/-14.35	-9.37/-4.8	-3.48/-5.07	-8.63/-9.57	-11.54/-12.03	-11.17/-14.81	-18.57/-16.58	-12.07/-10.6	-9.49/-7.56	-6.97/-7.45	-12.79/-19.04	-17.97/-18.69	-17.9/-18.32
Θ(170°)	-18.72/-19.02	-17.92/-19.81	-18.05/-19.2	-18.58/-19.03	-18.43/-19.11	-16.29/-12.84	-12.57/-11.84	-9.48/-8.59	-8.28/-9.92	-12.22/-15.5	-16.82/-16.27	-15.88/-13.28	-11.62/-11.22	-12.29/-13.83	-12.74/-9.5	-6.18/-6.54	-6.81/-8.23	-11.01/-15.71
Θ(180°)	-18.72/-18.64	-17.62/-18.12	-19.11/-18.65	-18.43/-17.37	-18.11/-18.51	-17.73/-16.88	-18.11/-17.24	-14.56/-12.99	-13.5/-15.07	-15.82/-16.43	-16.64/-17.14	-17.07/-16.12	-15.01/-14.33	-13.18/-14.06	-18.61/-17.47	-16.83/-15.72	-12.45/-17.56	-17.8/-18.41
Freq(Hz)	5.6GPol	PhiAnt. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	-15.23/-6.62	-6.33/-6.78	-4.36/-4.26	-4.19/-5.86	-6.25/-4.94	-14.11/-10.36	-9.52/-10.54	-12.1/-15.79	-7.88/-7.29	-7.13/-7.11	-	-	-3.23/-3.34	-18.24/-18.24	-6.92/-7.77	-1.36/-9.91	-16.56/-18.73	-18.1/-13.55
Θ(10°)	-12.09/-9.31	-6.86/-5.42	-4.9/-4.67	-4.75/-6.56	-7.84/-7.85	-9.37/-10.84	-12.46/-13.41	-14.43/-18.18	-17.2/-13.12	-10.52/-8.65	-7/-5.77	-5.03/-4.32	-5.66/-6.11	-6.03/-5.77	-6.94/-8.19	-9.02/-10.24	-14.53/-19.26	-18.91/-15.43
Θ(20°)	-19.43/-14.61	-7.1/-4.51	-4.87/-6.56	-7.5/-12.25	-14.48/-15.55	-16.4/-17.18	-15.86/-13.55	-13.97/-16.2	-14.66/-15.17	-11.47/-10.37	-11.84/-14.45	-18.36/-18.33	-16.21/-15.12	-17.96/-18.16	-19.07/-18.49	-12.63/-11.41	-12.69/-14.28	-13.24/-13.72
Θ(30°)	-18.22/-7.77	-7.71/-9.22	-13.15/-16.93	-10.55/-8.45	-7.98/-8.1	-19.26/-16.16	-6.62/-8.44	-12.39/-16.16	-9.71/-12.4	-18.74/-18.98	-14.14/-7.65	-16.72/-16.85	-10.75/-18.14	-11.18/-9.68	-10.75/-18.14	-5.48/-5.96	-8.31/-12	
Θ(40°)	-10.96/-10.09	-12.45/-12.22	-17.75/-17.92	-18.62/-19.34	-12.73/-8.64	-6.81/-6.01	-6.17/-7.91	-11.82/-17.7	-17.66/-18.75	-16.71/-10.17	-5.26/-3.65	-6.1/-11.7	-11.63/-18.67	-18.08/-18.45	-12.12/-7.15	-10.54/-18.9	-6.85/-6.34	-7.98/-9.96
Θ(50°)	-10.91/-4.97	-12.9/-18.83	-16.55/-17.03	-18.44/-17.62	-17.82/-16.57	-17.99/-17.21	-9.64/-9.41	-17.65/-12.48	-10.27/-10.6	-17.86/-7.96	-4.6/-8.64	-15.16/-9	-12.25/-16.15	-14.98/-15.98	-14.19/-4.63	-4.93/-12.83	-12.32/-5.88	-6.51/-9.22
Θ(60°)	-18.72/-8.23	-15.34/-14.92	-16.1/-18.67	-9.71/-8.97	-8.13/-9.76	-10.12/-5.83	-8.44/-11.13	-9.08/-13.32	-15.46/-14.14	-13.31/-12.73	-17.43/-16.47	-15.46/-14.14	-13.31/-12.73	-14.8/-10.57	-9.08/-13.32	-12.36/-7.97	-6.81/-6.35	
Θ(70°)	-18.7/-19.03	-18.53/-18.83	-18.88/-12.64	-12/-12.84	-11.65/-9.71	-7.73/-7.76	-11.64/-14.65	-7.97/-6	-6.78/-6.83	-8.14/-7.43	-9.98/-11.17	-9.61/-9.07	-18.91/-18.6	-15.28/-15.89	-10.28/-11.71	-6.68/-13.91	-16.33/-11.1	-8.21/-11.19
Θ(80°)	-18.42/-19.12	-17.36/-18.63	-18/-12.02	-7.58/-8.73	-15.05/-18.5	-10.66/-6.66	-9.53/-9.17	-9.02/-9.36	-9.37/-9.95	-10.47/-9.87	-16.79/-19.22	-12.24/-17.83	-16.05/-12.94	-15.94/-14.6	-10.33/-9.72	-8.19/-15.14	-18.47/-12.32	-9.65/-10.52
Θ(90°)	-19.05/-17.41	-13.56/-17.69	-12.32/-9.88	-9.45/-12.07	-14.12/-10.44	-13.15/-7.34	-11.66/-18.24	-8.38/-7.79	-11.46/-9.71	-17.71/-11.22	-10.44/-14.39	-8.37/-16.76	-11.46/-9.71	-13.32/-12.3	-14.8/-10.57	-18.81/-13.88	-13.39/-17.41	
Θ(100°)	-11.11/-16.06	-18.56/-19.01	-15.62/-12.67	-11.4/-12.7	-18.32/-18.07	-18.91/-10.89	-12.24/-18.11	-16.74/-14.05	-12.59/-11.2	-9.74/-13.81	-17.58/-12.75	-14.02/-12.34	-11.92/-10.44	-12.82/-13.29	-13.74/-18.45	-13.42/-13.59	-18.85/-15.18	-19.44/-15.57
Θ(110°)	-13.27/-8.6	-12.79/-19.32	-9.08/-10.5	-15.14/-17.57	-8.97/-18	-9.74/-8.68	-15.17/-13.77	-7.85/-14.82	-13.25/-15.31	-19.24/-15.96	-15.67/-18.86	-12.32/-15.49	-16.66/-12.95	-18.62/-16.19	-15/-17.72	-17.16/-14.64	-13.25/-18.75	-18.45/-14.51
Θ(120°)	-15.32/-10.95	-16.85/-18.58	-17.91/-13.32	-8.71/-9.97	-14.79/-18.03	-17.08/-11.27	-13.71/-10.36	-9.32/-11.39	-18.26/-11.72	-18.85/-15.68	-10.61/-14.45	-7.77/-7.27	-18.88/-18.2	-13.88/-13.48	-17.77/-18.85	-17.52/-16.98	-19.03/-11.37	
Θ(130°)	-7.3/-15.23	-12.71/-17.56	-10.81/-8.27	-15.9/-15.51	-16.37/-12.19	-7.97/-8.05	-15.32/-14.33	-16.48/-12.99	-12.62/-17.78	-16.37/-12.19	-19.04/-16.03	-16.48/-15.33	-17.53/-14.82	-6.1/-10.6	-16.3/-16.51	-17.73/-10.07	-11.68/-14.95	-7.63/-9.84
Θ(140°)	-11.82/-11.39	-18.31/-13.67	-15.6/-17.83	-18.96/-9.08	-6.24/-8.56	-18.86/-13.17	-11.32/-18.79	-16.56/-18.89	-18.22/-15.59	-13.08/-18.33	-8.82/-5.48	-4.97/-5.74	-3.75/-6.31	-10.63/-13.8	-10.69/-4.89	-5.02/-11.15	-10/-18.65	-17.29/-9.99
Θ(150°)	-7.28/-10.12	-16.99/-18.23	-13.66/-12.41	-17.27/-17.92	-18.26/-18.26	-12.72/-8.59	-11.43/-18.19	-19.45/-18.12	-13.38/-12.27	-12.12/-11.88	-13.25/-6.38	-5.72/-7.64	-10.35/-14.63	-14.31/-13.06	-9.47/-7.85	-12.63/-18.75	-12.71/-16.34	-16.89/-10.97
Θ(160°)	-18.28/-19.59	-16.02/-12.74	-12.07/-13.25	-15.67/-17.44	-16.91/-13.47	-17.72/-14.38	-13.51/-18.31	-18.69/-18.27	-19.13/-18.31	-17.72/-14.38	-13.51/-11.74	-9.48/-7.15	-8.85/-11.15	-15.01/-18.16	-17.92/-18.82	-12.17/-8.42	-10.73/-10.32	
Θ(170°)	-18.94/-18.48	-18.5/-18.12	-17.56/-18.24	-18.14/-18.72	-14.19/-11.64	-11.27/-13.61	-16.54/-19.07	-17.76/-15.61	-14.32/-13.83	-16.93/-14.81	-13.98/-10.7	-9.11/-9.56	-10.61/-11.58	-14.55/-14.62	-13.81/-13.64	-12/-8.79	-6.99/-6.89	-10.23/-14.37
Θ(18																		



Antenna Pattern of 2.4GHz, 5GHz U-NII 1 and U-NII 2A

Appendix C

Total Gain Data

Freq(Hz)	2.45GPol.	TotalAnt. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Φ(0°)Ψ(10°)	Φ(20°)Ψ(30°)	Φ(40°)Ψ(50°)	Φ(60°)Ψ(70°)	Φ(80°)Ψ(90°)	Φ(100°)Ψ(110°)	Φ(120°)Ψ(130°)	Φ(140°)Ψ(150°)	Φ(160°)Ψ(170°)	Φ(180°)Ψ(190°)	Φ(200°)Ψ(210°)	Φ(220°)Ψ(230°)	Φ(240°)Ψ(250°)	Φ(260°)Ψ(270°)	Φ(280°)Ψ(290°)	Φ(300°)Ψ(310°)	Φ(320°)Ψ(330°)	Φ(340°)Ψ(350°)
Θ(0°)	-3.39/-3.65	-2.37/-3.19	-2.46/-3.09	-3.52/-3.44	-3.10/-2.93	-3.52/-2.69	-2.95/-3.23	-3.65/-3.69	-3.56/-3.59	-3.88/-3.66	-4.02/-5.04	-3.96/-3.91	-3.97/-3.76	-3.88/-3.83	-3.04/-4.27	-4.53/-3.56	-2.67/-3.94	-3.26/-3.86
Θ(10°)	-4.44/-4.14	-4.27/-2.54	-1.89/-2.02	-2.17/-2.30	-2.44/-2.21	-1.53/-1.41	-1.22/-1.80	-1.58/-1.55	-1.38/-1.95	-3.08/-2.68	-2.30/-2.96	-3.86/-3.67	-5.18/-6.36	-5.28/-5.72	-6.03/-6.42	-5.33/-5.79	-6.02/-5.14	-5.96/-5.22
Θ(20°)	-3.10/-2.63	-2.36/-2.01	-2.17/-1.51	-1.48/-2.01	-2.53/-2.88	-2.84/-2.64	-2.39/-1.93	-1.37/-1.03	-0.79/-0.18	-0.67/-1.36	-1.75/-2.37	-3.19/-3.59	-4.22/-5.29	-6.38/-7.80	-7.03/-7.36	-6.77/-6.86	-8.66/-5.29	-5.56/-4.23
Θ(30°)	-1.41/-1.91	-1.56/-0.71	-0.35/-0.74	-1.41/-2.28	-2.87/-3.14	-3.53/-3.86	-3.07/-2.00	-0.12/-0.26	-0.07/-0.43	-2.48/-2.61	-2.60/-2.59	-3.28/-4.08	-5.64/-5.65	-6.47/-5.55	-5.64/-3.36	-3.80/-4.28	-2.56/-2.66	
Θ(40°)	-1.71/-1.47	-1.19/-0.03	0.84/-0.25	-1.02/-1.04	-0.65/-0.54	-1.86/-1.96	-2.50/-2.19	-4.60/-3.99	-2.12/-0.75	-0.62/-1.84	-2.02/-2.04	-1.63/-1.91	-2.63/-3.68	-4.46/-4.29	-4.19/-5.04	-3.78/-2.81	-2.13/-1.74	-2.25/-2.26
Θ(50°)	-2.39/-1.84	-1.38/-0.67	-0.66/-0.44	-0.55/-0.43	-0.36/-1.63	-1.71/-0.56	-0.37/-1.26	-2.20/-3.32	-3.21/-2.46	-1.31/-1.27	-1.67/-1.00	-0.87/-1.30	-3.27/-5.69	-5.19/-3.76	-2.60/-1.91	-0.63/-1.04	-0.90/-0.26	-0.56/-1.72
Θ(60°)	-0.35/-0.62	0.25/-1.34	-0.38/-0.23	-0.26/-0.23	-0.83/-1.51	-1.82/-1.01	-0.10/-0.48	0.17/-1.26	-3.69/-3.03	-1.40/-0.63	-1.32/-1.41	-1.82/-1.54	-3.40/-5.41	-10.62/-11.20	-7.11/-2.96	-0.62/-0.43	0.62/-1.22	1.07/-1.13
Θ(70°)	0.81/-1.34	2.54/-2.53	1.04/-0.80	0.98/-0.94	0.45/-0.52	-1.41/-1.44	-0.50/-0.13	0.49/-0.00	-2.69/-2.90	-1.84/-2.11	-2.46/-3.24	-2.51/-1.43	-2.98/-4.71	-6.54/-7.07	-5.87/-3.67	-2.69/-1.78	-0.44/-0.62	1.30/-1.22
Θ(80°)	-0.53/-0.16	2.19/-2.73	0.70/-1.53	1.75/-1.90	1.85/-0.49	-0.34/-0.37	1.26/-0.23	2.03/-1.64	-1.91/-1.64	-1.39/-2.83	-1.08/-1.35	-4.38/-5.64	-6.48/-3.78	-1.68/-0.91	0.00/-0.06	-0.03/-0.69	1.54/-0.68	
Θ(90°)	-2.54/-1.19	0.66/-0.66	-1.68/-0.77	-1.07/-0.84	0.04/-0.12	-0.45/-0.20	1.56/-2.37	2.34/-2.01	0.49/-0.67	-0.93/-1.00	-1.85/-2.72	-3.59/-4.84	-6.30/-7.86	-6.24/-4.66	-3.14/-1.75	-0.69/-0.39	-1.36/-0.67	0.78/-0.28
Θ(100°)	-4.81/-4.26	-1.43/-0.88	-3.35/-2.76	-1.75/-2.26	-2.38/-2.57	-3.07/-2.84	-0.97/-1.18	2.19/-2.52	1.62/-1.68	-1.43/-1.49	-1.48/-2.67	-4.35/-2.06	-2.95/-3.76	-3.80/-4.78	-6.69/-6.82	-7.98/-10.92	-6.20/-3.17	-0.64/-1.60
Θ(110°)	-3.66/-3.80	-0.74/-0.22	-2.23/-3.37	-2.66/-2.74	-3.28/-5.68	-8.06/-6.04	-2.03/-0.19	0.20/-0.55	0.43/-1.45	0.16/-1.58	-2.26/-4.77	-2.65/-0.06	-1.17/-0.74	-2.68/-4.30	-4.23/-3.45	-1.69/-1.48	-6.51/-4.70	-1.05/-0.91
Θ(120°)	-2.12/-2.95	-1.17/-0.28	-1.13/-1.77	-0.67/-2.48	-3.08/-4.07	-4.60/-3.62	-2.49/-1.98	-1.04/-0.42	-0.94/-1.88	-1.37/-5.39	-4.07/-4.18	-1.63/-0.49	-1.39/-2.40	-4.46/-4.23	-2.67/-2.14	-0.30/-2.04	-0.72/-0.97	-0.51/-0.56
Θ(130°)	-2.53/-1.93	-0.56/-0.36	-0.38/-1.53	-0.72/-0.44	-1.10/-1.45	-0.92/-0.28	0.74/-0.46	0.64/-0.89	-3.75/-4.93	-6.56/-5.20	-3.53/-4.89	-6.54/-6.06	-4.99/-4.34	-3.60/-2.58	-2.62/-4.48	-2.77/-0.80	0.11/-0.32	-1.89/-3.96
Θ(140°)	-6.08/-3.83	-2.73/-1.35	-0.76/-0.66	0.22/-0.17	0.03/-0.19	0.58/-0.73	0.57/-0.43	-0.56/-2.23	-3.27/-2.21	-1.23/-1.74	-3.27/-4.63	-10.13/-8.14	-4.54/-3.20	-2.40/-3.28	-5.14/-8.36	-5.34/-4.72	0.69/-0.46	-3.76/-4.86
Θ(150°)	-9.17/-8.41	-8.14/-7.71	-6.88/-5.52	-4.14/-3.13	-2.62/-1.88	-1.70/-2.73	-2.54/-2.80	-4.57/-3.74	-1.86/-3.03	-2.93/-4.97	-5.51/-8.06	-6.84/-4.92	-3.11/-2.55	-2.93/-4.07	-9.30/-8.84	-4.90/-2.62	-1.91/-3.47	-6.98/-9.94
Θ(160°)	-7.09/-6.38	-5.84/-5.38	-5.17/-4.77	-3.89/-2.76	-1.65/-0.79	-0.10/-0.09	-0.50/-1.05	-1.78/-1.92	-2.33/-2.38	-4.31/-6.13	-9.31/-8.91	-6.48/-4.81	-3.91/-2.62	-3.93/-6.22	-8.30/-9.68	-7.99/-7.25	-7.07/-8.19	-9.11/-7.92
Θ(170°)	-6.72/-5.35	-4.26/-3.60	-2.63/-2.21	-1.77/-1.26	-0.91/-0.63	-0.75/-1.40	-2.02/-3.16	-4.17/-6.03	-7.05/-8.48	-10.17/-10.96	-12.66/-13.60	-12.58/-10.90	-9.27/-9.53	-11.10/-11.36	-11.75/-12.99	-13.68/-12.93	-11.02/-9.73	-9.07/-7.77
Θ(180°)	-6.13/-5.67	-6.20/-6.12	-6.48/-6.16	-6.26/-6.40	-6.72/-7.39	-8.55/-10.42	-11.87/-12.23	-12.03/-11.81	-11.12/-11.97	-13.00/-14.04	-14.22/-14.64	-15.75/-15.22	-12.89/-11.70	-10.27/-9.98	-8.05/-8.04	-7.27/-7.56	-7.65/-7.98	-8.03/-7.01
Freq(Hz)	5.2GPol.	TotalAnt. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)Ψ(10°)	Φ(20°)Ψ(30°)	Φ(40°)Ψ(50°)	Φ(60°)Ψ(70°)	Φ(80°)Ψ(90°)	Φ(100°)Ψ(110°)	Φ(120°)Ψ(130°)	Φ(140°)Ψ(150°)	Φ(160°)Ψ(170°)	Φ(180°)Ψ(190°)	Φ(200°)Ψ(210°)	Φ(220°)Ψ(230°)	Φ(240°)Ψ(250°)	Φ(260°)Ψ(270°)	Φ(280°)Ψ(290°)	Φ(300°)Ψ(310°)	Φ(320°)Ψ(330°)	Φ(340°)Ψ(350°)
Θ(0°)	-4.69/-4.07	-4.44/-4.27	-3.96/-3.21	-4.28/-3.32	-4.73/-4.97	-4.51/-5.25	-4.46/-4.36	-4.50/-4.91	-4.46/-4.34	-4.46/-4.56	-5.13/-4.72	-4.80/-4.67	-4.58/-4.57	-4.77/-5.52	-5.01/-3.59	-4.58/-4.82	-5.13/-4.38	
Θ(10°)	-7.30/-5.89	-5.97/-7.03	-6.49/-6.12	-4.94/-4.58	-3.89/-4.23	-4.04/-3.33	-3.45/-3.96	-3.95/-3.94	-4.48/-4.93	-4.86/-5.28	-5.09/-4.82	-5.45/-6.55	-6.94/-6.40	-6.57/-6.00	-5.72/-5.89	-6.44/-6.05	-5.36/-5.96	-6.52/-6.44
Θ(20°)	-6.78/-7.21	-8.00/-8.23	-6.36/-8.78	-8.66/-7.16	-5.56/-3.83	-2.64/-2.21	-2.76/-3.02	-3.59/-4.04	-4.99/-6.16	-5.79/-6.89	-6.30/-5.92	-5.73/-5.44	-6.05/-7.35	-6.34/-5.07	-6.75/-6.62	-7.75/-8.73	-10.07/-9.29	-7.99/-8.21
Θ(30°)	-5.32/-2.98	-3.19/-4.35	-6.67/-11.87	-11.57/-7.17	-3.68/-2.00	-1.89/-3.69	-4.51/-3.66	-4.87/-5.21	-5.68/-6.54	-6.75/-6.89	-7.34/-6.18	-5.56/-4.64	-5.11/-5.31	-4.89/-3.93	-4.45/-5.20	-4.78/-5.40	-9.43/-12.49	-11.53/-9.89
Θ(40°)	-6.43/-3.50	-1.65/-2.92	-8.67/-11.64	-2.63/-0.51	1.50/-1.90	1.31/-0.32	-6.28/-7.23	-6.41/-5.49	-5.21/-7.19	-8.04/-7.63	-6.28/-3.70	-4.64/-9.18	-10.15/-9.29	-9.90/-7.72	-5.96/-4.11	-4.69/-3.97	-5.21/-7.90	-10.83/-10.98
Θ(50°)	-4.74/-1.31	0.09/-1.00	-9.16/-5.56	-0.08/-1.47	1.19/-0.24	0.59/-0.36	-2.06/-2.98	-5.52/-5.17	-4.77/-8.05	-10.24/-6.21	-2.60/-2.00	-5.91/-7.75	-4.89/-4.44	-7.95/-5.66	-5.48/-4.07	-2.13/-3.13	-5.77/-6.70	-6.94/-5.56
Θ(60°)	-6.10/-1.38	1.18/-2.70	-8.17/-1.32	-0.46/-2.43	-3.50/-3.44	-2.63/-3.03	-4.48/-3.49	-4.15/-3.57	-2.54/-4.84	-6.84/-5.66	-0.07/-0.24	-2.37/-2.47	-0.59/-3.07	-6.31/-7.24	-6.46/-6.86	-6.58/-2.90	-6.60/-14.25	-6.04/-4.75
Θ(70°)	-1.35/-0.51	2.23/-0.24	-4.88/-0.04	0.08/-2.71	-2.20/-1.75	-2.67/-3.38	-1.51/-1.92	-0.30/-3.11	-4.11/-3.08	1.70/-0.23	-5.51/-4.21	-2.72/-3.41	-5.50/-2.47	-1.10/-4.41	-2.72/-4.35	-5.50/-2.47	-2.58/-9.72	-6.05/-2.82
Θ(80°)	-3.42/-2.34	-0.66/-0.62	-0.98/-1.88	-0.46/-2.25	-0.75/-1.33	0.04/-1.03	-4.88/-1.60	-1.30/-2.35	0.46/-4.18	-2.92/-0.92	2.03/-1.26	-0.94/-0.06	0.98/-3.22	-4.46/-4.70	-2.39/-3.49	-5.02/-4.17	-4.57/-5.24	-3.77/-3.76
Θ(90°)	-3.41/-3.31	0.39/-0.04	-1.69/-1.22	0.51/-0.73	-0.79/-0.64	0.74/-1.27	-0.38/-0.58	0.22/-0.43	1.25/-1.56	0.51/-1.03	2.57/-0.94	-2.54/-2.92	-2.12/-4.12	-7.39/-6.01	-2.01/-4.61	-7.94/-6.16	-6.57/-6.68	-3.40/-3.32
Θ(100°)	-3.46/-3.84	-1.11/-1.42	-0.73/-0.17	-0.80/-0.23	0.43/-0.41	1.31/-1.68	1.07/-0.31	-1.25/-0.99	0.97/-1.58	-0.51/-0.13	1.20/-0.37	-2.73/-4.33	-5.05/-3.27	-8.29/-11.83	-7.53/-6.97	-8.61/-7.38	-5.32/-6.37	-2.31/-6.59
Θ(110°)	-3.53/-2.65	-2.48/-0.91	-2.19/-0.44	-0.85/-2.34	-1.59/-0.19	1.08/-1.43	0.52/-1.12	0.43/-1.38	1.65/-0.06	2.09/-0.73	0.16/-1.49	-2.58/-9.46	-8.23/-10.31	-9.54/-11.75	-9.48/-12.63	-15.08/-7.28	-11.12/-8.28	-4.03/-6.49
Θ(120°)	-3.48/-4.15	-3.05/-4.28	-3.40/-2.79	-0.40/-0.13	-1.50/-2.37	-0.44/-1.37	2.21/-2.02	0.06/-0.09	0.94/-0.46	-1.03/-1.37	-0.94/-1.95	-5.46/-10.36	-10.99/-13.02	-14.26/-12.82	-15.90/-8.42	-10.11/-13.19	-12.95/-5.67	-3.30/-4.20
Θ(130°)	-3.68/-5.63	-4.82/-3.84	-4.23/-5.79	-3.88/-1.87	-1.70/-3.62	0.77/-2.39	2.76/-3.09	1.77/-0.58	-5.00/-7.17	-4.92/-6.37	-9.76/-13.50	-10.68/-15.05	-13.39/-8.31	-14.05/-12.70	-10.68/-15.05	-14.34/-15.21	-11.55/-8.75	-6.56/-6.62
Θ(140°)	-4.22/-3.99	-4.93/-5.39	-6.27/-7.76	-5.04/-3.00	-2.44/-1.41	-0.15/-0.14	1.37/-1.41	1.27/-0.02	-1.76/-2.87	-5.59/-7.69	-7.63/-6.57	-5.95/-3.20	-10.32/-14.16	-8.95/-9.18	-9.33/-12.13	-9.76/-5.62	-5.36/-5.91	-11.60/-7.20
Θ(150°)	-6.57/-5.72	-6.36/-7.16	-9.12/-8.61	-7.82/-6.69	-5.52/-4.98	-4.27/-4.16	-3.94/-3.60	-4.67/-5.06	-5.95/-5.39	-4.87/-4.98	-5.38/-7.46	-6.44/-7.71	-11.28/-13.85	-15.95/-15.60	-8.79/-9.46	-14.69/-12.52	-11.13/-7.33	-8.30/-7.60
Θ(160°)	-13.56/-11.03	-8.10/-7.41	-8.68/-11.55	-15.54/-13.93	-4.58/-4.75	-0.97/-7.25	-6.72/-10.95	-8.68/-6.38	-15.46/-11.58	-13.65/-13.44	-10.26/-15.40	-13.28/-14.78	-15.16/-12.48	-12.26/-15.43	-14.99/-15.42	-15.16/-12.48	-11.86/-12.64	
Θ(170°)	-13.93/-12.95	-13.76/-11.15	-10.92/-10.64	-11.42/-12.11	-10.62/-9.05	-8.83/-9.50	-8.75/-8.78	-9.93/-14.07	-14.91/-14.91	-15.91/-14.64	-10.52/-8.00	-7.45/-8.98	-11.06/-12.54	-14.32/-13.50	-15.14/-14.47	-15.08/-15.27	-14.73/-15.17	-14.47/-15.68
Θ(180°)	-12.53/-12.11	-12.48/-13.14	-14.52/-14.55	-13.37/-12.14	-12.10/-12.02	-13.66/-14.20	-12.19/-12.56	-14.25/-15.41	-14.61/-13.31	-13.39/-12.79	-12.01/-12.69	-13.35/-12.80	-13.37/-14.55	-12.96/-11.79	-10.78/-11.53	-13.01/-11.42	-10.93/-10.99	-12.89/-13.37
Freq(Hz)	5.3GPol.	TotalAnt. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)Ψ(10°)	Φ(20°)Ψ(30°)	Φ(40°)Ψ(50°)	Φ(60°)Ψ(70°)	Φ(80°)Ψ(90°)	Φ(100°)Ψ(110°)	Φ(120°)Ψ(130°)	Φ(140°)Ψ(150°)	Φ(160°)Ψ(170°)	Φ(180°)Ψ(190°)	Φ(200°)Ψ(210°)	Φ(220°)Ψ(230°)	Φ(240°)Ψ(250°)	Φ(260°)Ψ(270°)	Φ(280°)Ψ(290°)	Φ(300°)Ψ(310°)	Φ(320°)Ψ(330°)	Φ(340°)Ψ(350°)
Θ(0°)	-4.56/-4.63	-4.04/-3.36	-3.90/-3.33	-4.16/-3.29	-4.67/-4.88	-4.77/-4.71	-4.79/-5.16	-5.02/-4.98	-4.59/-4.47	-4.81/-5.08	-4.76/-4.80	-4.94/-5.37	-5.76/-5.29	-4.80/-4.81	-5.12/-4.81	-4.87/-4.39	-4.91/-4.14	-3.71/-3.82
Θ(10°)	-6.47/-5.79	-5.74/-6.01	-5.30/-4.04	-3.28/-3.54	-4.69/-4.48	-4.21/-4.49	-4.28/-5.27	-4.85/-4.35	-4.21/-4.49	-4.28/-4.53	-4.79/-3.76	-3.18/-4.25	-4.84/-4.66	-4.91/-6.16	-4.59/-5.78	-4.91/-6.16	-4.79/-3.76	-3.71/-3.82
Θ(20°)	-8.26/-8.50	-7.79/-6.76	-4.29/-6.46	-8														



Antenna Pattern of 2.4GHz, 5GHz U-NII 1 and U-NII 2A

Appendix C

Θ(60°)	-2.24/-1.53	1.032/0.8	1.38/-0.69	-0.58/-0.43	-0.96/-1.36	-1.44/-0.56	0.75/-1.66	1.46/0.93	0.79/-1.39	1.51/-1.32	-0.20/-1.90	-3.89/-5.67	-4.37/-3.80	-4.79/-4.16	-5.42/-5.76	-6.55/-5.15	-2.16/-1.79	-1.92/-1.45
Θ(70°)	-3.72/-4.39	-1.48/-0.28	-0.49/-2.48	-1.75/-0.81	-1.03/-0.60	0.21/0.24	0.852/4.44	3.39/2.48	1.25/-0.42	-0.22/0.84	-0.67/-0.84	-1.57/-3.52	-1.22/-2.14	-3.67/-5.62	-5.74/-4.94	-6.97/-5.38	-3.28/-3.87	-3.80/-2.55
Θ(80°)	-7.68/-10.59	-3.53/-1.73	-3.43/-3.58	-3.91/-3.79	-3.87/-4.10	-0.00/0.01	-0.38/-1.16	1.32/0.11	-0.47/-0.27	-1.74/-3.07	-2.27/-3.19	-5.30/-4.54	-1.74/-3.07	-11.97/-11.68	-7.82/-6.77	-4.49/-4.41	-4.49/-4.41	-5.15/-5.60
Θ(90°)	-8.86/-8.71	-5.55/-4.36	-3.90/-5.22	-6.42/-4.74	-4.31/-3.67	-3.70/-3.85	-2.89/-0.41	0.33/-0.47	-1.14/-0.30	1.46/0.28	-2.04/-2.53	-4.44/-3.50	0.04/-2.36	-9.82/-11.86	-10.75/-12.48	-8.99/-13.02	-8.12/-5.12	-5.98/-7.40
Θ(100°)	-8.86/-12.59	-12.15/-8.92	-7.05/-0.95	-9.86/-6.86	-5.83/-1.74	-7.35/-4.58	-3.72/-3.26	-3.86/-3.81	-0.96/0.94	1.09/-0.19	-2.47/-5.37	-3.14/-4.14	-4.19/-4.05	-6.76/-13.22	-9.76/-14.29	-8.59/-7.57	-8.13/-9.01	-7.21/-9.72
Θ(110°)	-9.96/-13.20	-7.75/-9.36	-8.04/-12.84	-11.55/-6.99	-6.29/-6.80	-5.84/-4.83	-5.40/-4.04	-2.41/-0.39	-0.03/-0.44	-2.41/-0.39	-3.08/-2.58	-6.65/-5.35	-13.23/-9.37	-6.89/-14.06	-8.65/-12.54	-10.59/-11.39	-10.59/-11.39	-10.59/-11.39
Θ(120°)	-12.67/-14.59	-12.68/-15.15	-12.24/-11.34	-10.93/-7.77	-6.49/-6.48	-6.33/-5.85	-5.24/-3.99	-5.29/-5.43	-3.97/-3.30	-3.34/-1.57	-1.71/-1.93	-1.17/-3.60	-6.53/-8.39	-10.74/-15.76	-11.62/-6.13	-15.59/-12.02	-8.51/-6.84	-11.29/-10.85
Θ(130°)	-9.97/-8.80	-8.60/-8.68	-7.39/-8.06	-9.55/-9.52	-5.49/-3.20	-2.62/-1.98	-1.30/-1.17	0.18/0.48	-1.29/-3.22	-3.91/-4.92	-8.86/-7.12	-5.75/-7.79	-9.37/-6.20	-7.75/-10.58	-14.80/-7.62	-14.14/-15.74	-14.07/-13.96	-9.17/-9.85
Θ(140°)	-14.67/-10.82	-10.10/-12.88	-11.30/-8.90	-9.84/-8.72	-8.55/-6.75	-4.79/-4.02	-3.64/-1.46	0.01/0.12	-0.76/-0.52	-1.58/-4.05	-6.62/-7.10	-9.65/-11.82	-8.93/-6.94	-8.12/-12.22	-11.59/-12.34	-14.13/-14.80	-15.38/-15.76	-15.92/-14.90
Θ(150°)	-14.57/-13.28	-12.71/-11.05	-9.49/-7.17	-6.49/-7.15	-8.07/-9.98	-12.01/-10.03	-5.76/-3.66	-2.54/-2.63	-2.60/-2.30	-3.07/-3.79	-4.86/-5.24	-7.20/-8.18	-7.09/-7.56	-8.59/-8.09	-6.15/-5.49	-6.26/-8.15	-13.18/-15.34	-15.92/-15.63
Θ(160°)	-9.79/-9.96	-9.86/-8.08	-6.66/-5.54	-5.56/-6.26	-6.54/-5.77	-4.79/-4.02	-3.54/-3.65	-3.45/-2.34	-1.21/-0.90	-1.36/-2.15	-3.71/-5.54	-9.05/-13.69	-12.12/-11.47	-12.21/-15.38	-14.98/-10.98	-8.73/-9.91	-14.32/-13.33	-13.07/-10.37
Θ(170°)	-11.83/-13.03	-13.40/-12.91	-11.01/-8.05	-6.57/-5.88	-5.21/-4.37	-11.37/-12.92	-2.85/-3.34	-4.18/-5.34	-7.03/-9.36	-11.37/-13.94	-14.19/-12.99	-11.57/-10.74	-10.12/-11.47	-13.01/-13.78	-12.40/-11.63	-10.99/-12.01	-14.86/-13.52	-12.80/-11.84
Θ(180°)	-10.01/-10.29	-10.92/-11.34	-12.38/-11.75	-10.81/-10.44	-11.10/-12.66	-12.58/-12.83	-14.05/-14.49	-14.25/-13.61	-13.75/-15.24	-13.84/-12.37	-11.73/-11.23	-11.31/-11.91	-12.40/-11.50	-9.72/-8.11	-8.89/-9.68	-11.54/-12.36	-12.10/-12.11	-11.26/-10.89
Freq(Hz)	2.45G/Pol.	TotalAnt. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	2.03/1.79	2.11/2.02	2.18/2.09	2.07/1.99	1.55/-1.25	0.89/0.93	1.02/-1.52	1.90/-1.92	1.97/2.03	2.04/2.10	2.14/2.33	2.44/2.15	2.04/1.86	1.78/1.17	0.96/-1.51	1.50/-1.46	1.37/1.73	1.75/-1.58
Θ(10°)	2.22/2.05	1.87/2.20	1.91/-1.82	1.64/-1.56	1.21/0.62	0.20/-0.01	0.37/0.58	0.87/-1.17	1.20/-1.26	1.43/-1.89	1.78/2.00	2.23/2.04	1.96/2.03	1.78/1.90	1.94/-1.90	1.75/-1.96	2.22/2.32	2.30/2.46
Θ(20°)	2.96/2.64	2.22/-1.94	1.87/-1.45	1.46/-1.02	0.32/-0.52	-1.40/-1.85	-2.08/-1.32	-0.74/-0.43	-0.46/0.19	1.32/-1.58	1.99/-1.85	1.94/2.03	1.99/-1.85	1.94/2.03	1.90/-1.84	1.94/2.21	2.45/2.82	3.02/3.12
Θ(30°)	3.33/2.86	2.38/2.12	1.38/0.69	0.48/0.00	-0.89/-2.36	-3.67/-5.20	-5.32/-4.29	-2.97/-1.87	-1.24/-0.70	-0.62/0.11	0.26/0.56	0.91/0.93	1.11/-1.28	1.37/-1.59	1.80/-1.67	2.13/2.07	2.54/3.05	3.38/3.57
Θ(40°)	3.41/3.08	2.66/-1.83	1.04/0.44	-0.03/-0.83	-2.08/-3.93	-5.73/-7.99	-9.61/-8.10	-5.72/-3.81	-2.58/-1.75	-1.68/-1.78	-1.40/-1.08	-1.01/-0.94	-0.34/-0.39	-0.39/0.23	0.74/-1.43	1.40/-1.79	2.52/2.63	3.29/3.60
Θ(50°)	3.20/3.09	2.85/-1.76	1.09/0.07	-1.32/-2.90	-4.73/-6.52	-11.00/-10.68	-8.01/-9.61	-8.01/-5.21	-4.67/-4.20	-3.92/-3.81	-4.00/-3.42	-3.22/-3.06	-2.51/-2.66	-2.35/-1.62	-0.63/-0.20	0.88/-1.06	1.96/2.75	3.32/3.54
Θ(60°)	3.26/3.13	2.36/0.89	-0.60/-1.89	-3.63/-5.60	-7.40/-8.77	-9.66/-10.37	-11.86/-11.85	-9.95/-7.67	-7.49/-8.01	-7.05/-6.34	-5.70/-4.63	-4.95/-4.63	-5.19/-4.59	-3.22/-1.93	-1.26/-0.91	-0.44/0.77	2.01/2.15	3.01/3.18
Θ(70°)	3.12/3.00	1.71/0.53	-0.97/-1.70	-2.03/-3.61	-5.97/-8.08	-11.09/-13.74	-8.77/-5.71	-8.67/-8.81	-8.32/-6.85	-6.08/-4.54	-5.88/-6.45	-5.75/-4.64	-3.54/-2.06	-1.02/-0.78	-0.49/0.21	1.52/2.91	1.50/2.91	3.54/3.43
Θ(80°)	2.42/2.10	1.40/-0.05	-0.51/-0.91	-1.98/-3.51	-11.00/-15.32	-15.18/-15.86	-8.14/-6.68	-8.86/-8.62	-12.00/-11.04	-7.75/-7.18	-6.47/-6.81	-7.11/-6.15	-4.61/-3.12	-1.44/0.20	1.14/-1.60	2.10/2.23	3.13/2.54	
Θ(90°)	2.41/1.58	0.27/-0.98	-0.97/-1.59	-3.41/-6.96	-10.48/-10.12	-10.29/-11.87	-13.99/-12.87	-9.77/-6.56	-7.01/-8.94	-12.10/-11.85	-7.97/-5.17	-4.39/-5.92	-7.80/-9.16	-8.10/-5.19	-1.96/0.71	2.54/2.96	3.07/2.98	2.94/2.78
Θ(100°)	2.42/0.94	0.04/-1.03	-1.44/-2.37	-5.30/-8.93	-9.42/-9.18	-10.33/-12.34	-13.57/-10.12	-7.56/-7.14	-8.44/-9.32	-8.94/-9.56	-6.83/-5.01	-4.74/-6.87	-9.41/-9.91	-7.21/-5.17	-1.82/-1.03	2.90/3.57	3.44/3.03	3.19/3.08
Θ(110°)	2.14/0.37	-0.50/-1.68	-3.22/-5.99	-6.93/-5.29	-4.11/-5.34	-9.48/-15.74	-15.12/-10.09	-7.23/-7.74	-7.53/-9.70	-9.88/-10.83	-7.72/-7.54	-12.76/-9.49	-6.31/-4.93	-2.80/-0.04	2.18/2.86	2.61/2.36	2.68/2.74	
Θ(120°)	0.78/-0.41	-2.19/-3.56	-5.40/-6.88	-5.59/-3.99	-4.18/-5.90	-9.15/-15.38	-15.53/-11.53	-10.13/-14.03	-11.46/-8.25	-10.12/-11.77	-13.12/-12.75	-5.23/-3.93	-6.23/-7.97	-7.97/-7.07	-3.76/-1.00	1.10/2.44	2.18/0.91	0.90/-1.22
Θ(130°)	-0.16/-1.57	-3.49/-5.98	-7.51/-8.37	-7.51/-6.32	-5.81/-6.55	-8.20/-10.70	-13.48/-15.93	-14.01/-11.98	-8.69/-9.02	-11.85/-10.80	-8.43/-6.25	-3.55/-3.72	-4.85/-5.36	-7.39/-6.67	-3.67/-1.31	0.55/-1.82	2.27/-1.42	0.40/-1.12
Θ(140°)	-2.07/-2.68	-4.24/-6.69	-8.44/-8.09	-7.15/-6.69	-6.48/-6.84	-7.52/-9.24	-11.69/-12.76	-12.90/-12.85	-13.28/-11.25	-8.90/-6.28	-4.19/-4.56	-4.68/-4.70	-5.30/-5.22	-3.54/-2.22	-1.41/-0.42	0.09/-0.70	-1.42/-2.09	
Θ(150°)	-3.44/-3.93	-5.23/-7.05	-8.04/-9.33	-10.38/-10.87	-10.61/-10.35	-9.83/-10.47	-10.88/-9.10	-9.09/-9.89	-12.07/-12.50	-13.15/-11.78	-10.80/-8.53	-6.74/-7.14	-8.35/-7.47	-7.14/-6.85	-4.08/-3.05	-2.38/-2.18	-2.18/-2.03	-2.23/-3.03
Θ(160°)	-6.07/-6.92	-8.90/-10.46	-12.41/-14.72	-15.08/-12.77	-11.94/-11.34	-10.44/-9.26	-8.94/-8.72	-8.51/-9.27	-10.58/-11.57	-12.75/-12.91	-11.54/-10.36	-8.19/-8.48	-8.52/-8.41	-8.75/-9.99	-7.55/-6.88	-6.42/-5.84	-5.34/-5.68	-4.98/-5.29
Θ(170°)	-10.50/-11.94	-13.99/-13.94	-12.91/-11.91	-11.03/-9.94	-9.31/-9.04	-9.77/-10.79	-11.99/-12.59	-13.99/-12.44	-13.17/-13.54	-13.40/-12.76	-12.06/-9.90	-8.45/-8.90	-8.96/-9.04	-8.88/-10.30	-11.14/-10.40	-10.27/-10.82	-10.62/-10.56	-9.70/-9.37
Θ(180°)	-14.21/-14.17	-12.84/-11.64	-10.22/-9.52	-9.66/-9.82	-10.05/-10.19	-10.84/-12.87	-13.40/-14.21	-12.22/-12.63	-12.87/-13.05	-12.74/-12.39	-11.80/-10.93	-9.61/-9.40	-8.43/-8.20	-8.60/-8.66	-9.05/-10.14	-10.59/-11.43	-12.52/-12.88	-12.43/-13.46
Freq(Hz)	5.2G/Pol.	TotalAnt. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	-0.20/-0.05	-0.22/-0.20	-0.13/0.41	-0.06/0.21	-0.16/-0.58	-0.59/-0.83	-1.12/-1.19	-0.86/-0.75	-0.66/-0.62	-0.57/-0.42	-0.16/-0.16	-0.07/-0.17	-0.13/-0.52	-0.55/-0.36	-0.25/-0.25	-0.51/-0.34	-0.49/-0.80	
Θ(10°)	-1.21/-1.04	-1.22/-1.16	-1.29/-0.96	-1.02/-1.17	-1.58/-1.85	-1.66/-1.74	-1.63/-1.03	-0.25/0.23	-0.16/-0.05	0.00/0.32	0.24/0.09	0.21/0.08	0.17/-0.41	-0.85/-1.38	-1.43/-1.11	-0.68/-0.58	-1.36/-1.64	-1.45/-1.27
Θ(20°)	0.28/0.07	-0.81/-1.02	-1.03/-1.75	-2.45/-2.78	-2.88/-2.01	-1.53/-1.96	-2.35/-1.44	-0.45/-0.05	-0.30/-0.09	0.69/-1.23	1.30/-1.43	1.21/-1.17	0.63/-0.07	-1.38/-1.95	-2.10/-2.88	-2.52/-2.02	-1.43/-1.00	-0.31/0.29
Θ(30°)	1.07/0.53	-0.01/-0.45	-1.67/-3.83	-4.66/-3.63	-6.69/-6.04	-1.86/-0.84	-0.33/-0.64	-1.37/-1.26	-0.69/0.66	1.48/-1.77	2.04/-2.49	3.04/-2.80	2.18/-1.99	2.16/-0.02	0.47/-0.30	-0.60/-0.43	-0.11/-1.12	
Θ(40°)	0.25/0.51	-0.22/-1.87	-4.84/-7.10	-7.06/-5.94	-4.31/-3.26	-3.18/-2.97	-3.71/-4.39	-4.13/-2.78	-0.83/-1.78	2.20/-1.61	1.73/-2.29	3.24/-4.88	3.48/-3.61	3.10/-2.41	1.54/-0.19	-0.80/-0.43	-0.46/-0.14	-0.54/-0.67
Θ(50°)	-0.20/0.55	-0.62/-2.14	-2.64/-4.00	-4.92/-2.49	-1.89/-3.34	-6.50/-8.74	-6.14/-5.18	-5.02/-3.75	-1.05/-1.47	1.24/-1.08	1.13/-1.49	2.19/-2.56	1.61/-1.52	1.37/-1.67	1.43/0.74	0.20/-0.72	-0.38/-0.34	0.16/-0.90
Θ(60°)	-0.72/-2.30	-1.24/-2.76	-3.89/-6.02	-4.69/-3.90	-4.33/-7.63	-12.60/-3.1	-10.95/-11.24	-4.65/-4.67	-2.92/0.43	-1.03/-0.46	1.10/-1.55	1.95/0.02	1.32/0.99	1.59/0.02	0.34/0.44	-0.52/-1.70		
Θ(70°)	-2.12/-1.82	-2.12/-3.27	-2.60/-2.78	-1.28/-2.12	-4.60/-9.28	-15.80/-15.55	-10.65/-7.37	-5.56/-6.40	-4.97/-0.69	-0.42/-2.44	-3.88/-2.66	-3.24/-2.07	0.21/0.79	0.20/0.85	2.37/2.55	0.89/0.13	-0.02/-0.53	-2.05/-2.99
Θ(80°)	-2.47/-0.84	-1.28/-2.67	-2.39/-2.48	-6.35/-5.65	-5.70/-8.47	-10.75/-9.04	-8.15/-9.72	-9.87/-10.26	-9.46/-3.85	-3.41/-3.14	-6.61/-5.68	-2.59/-0.94	0.43/-0.92	-0.00/-0.20	0.69/0.96	0.78/0.15	0.91/0.69	-0.17/-2.18
Θ(90°)	-2.35/-2.23	-2.63/-4.21	-2.32/-2.45	-6.13/-6.33	-6.28/-10.87	-13.84/-15.90	-8.17/-8.34	-10.19/-14.14	-6.03/-6.04	-5.29/-4.08	-2.68/-3.13	-3.63/-4.87	-4.50/-5.66	-2.39/-0.99	-2.05/-0.49	-3.09		

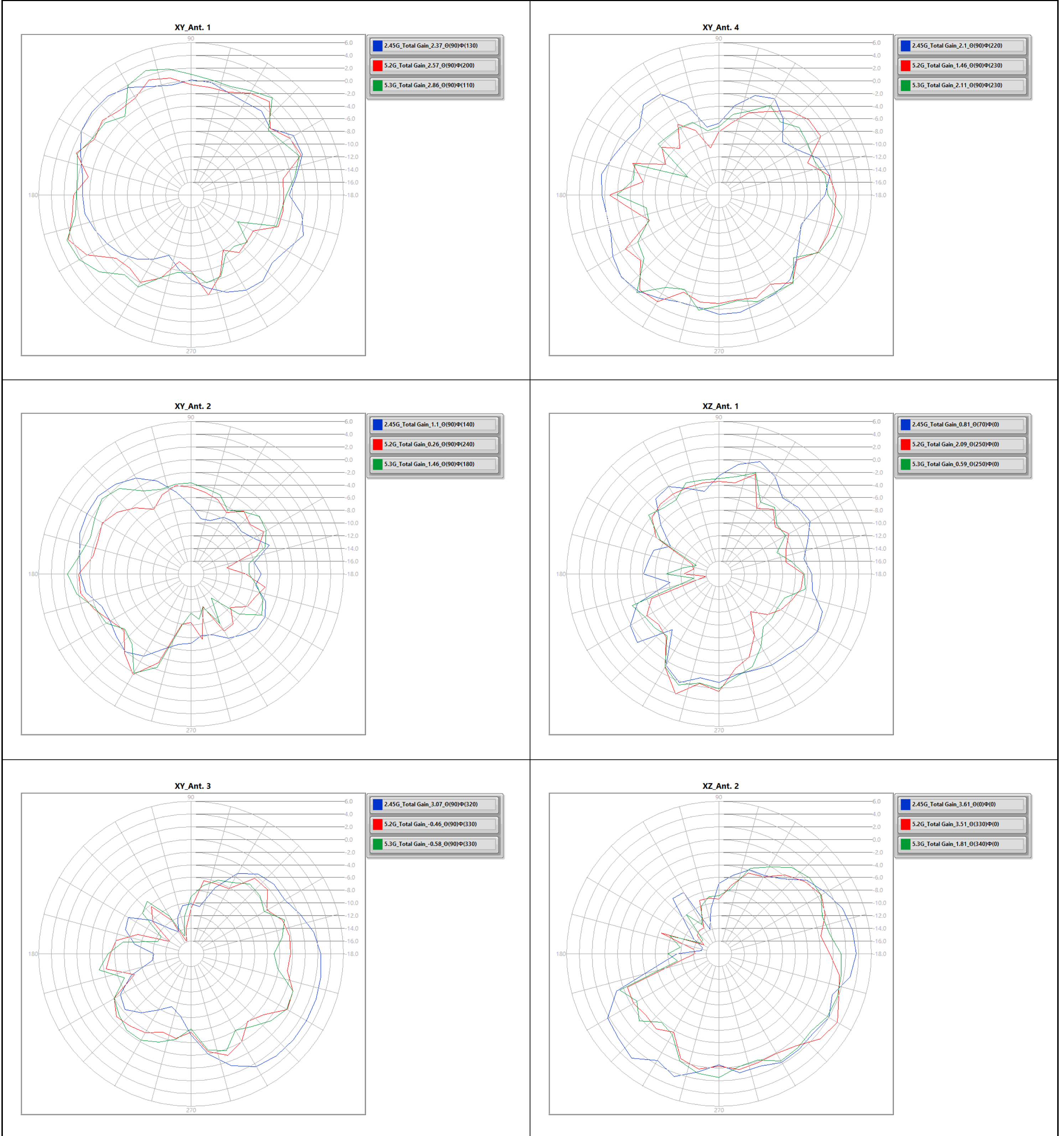


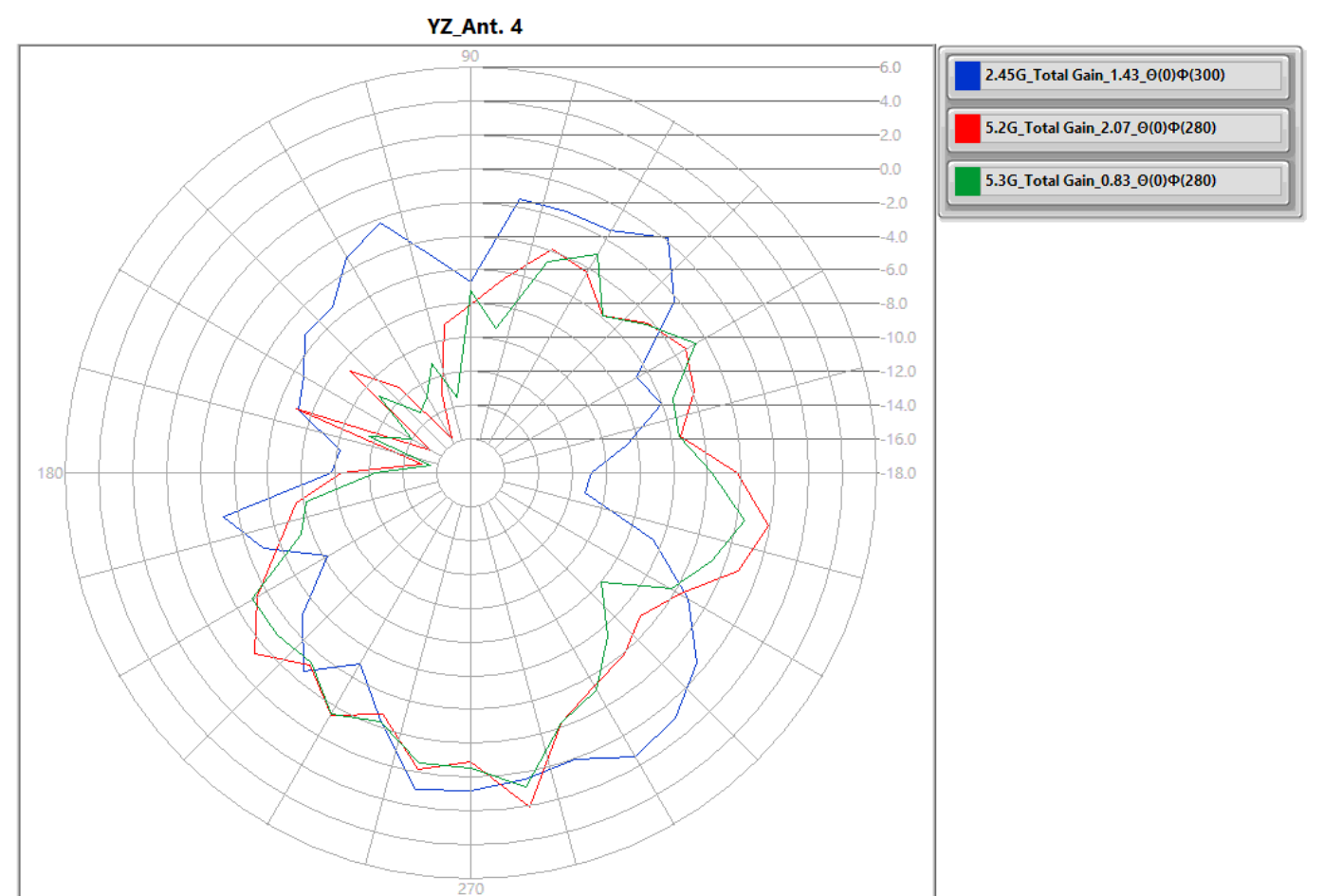
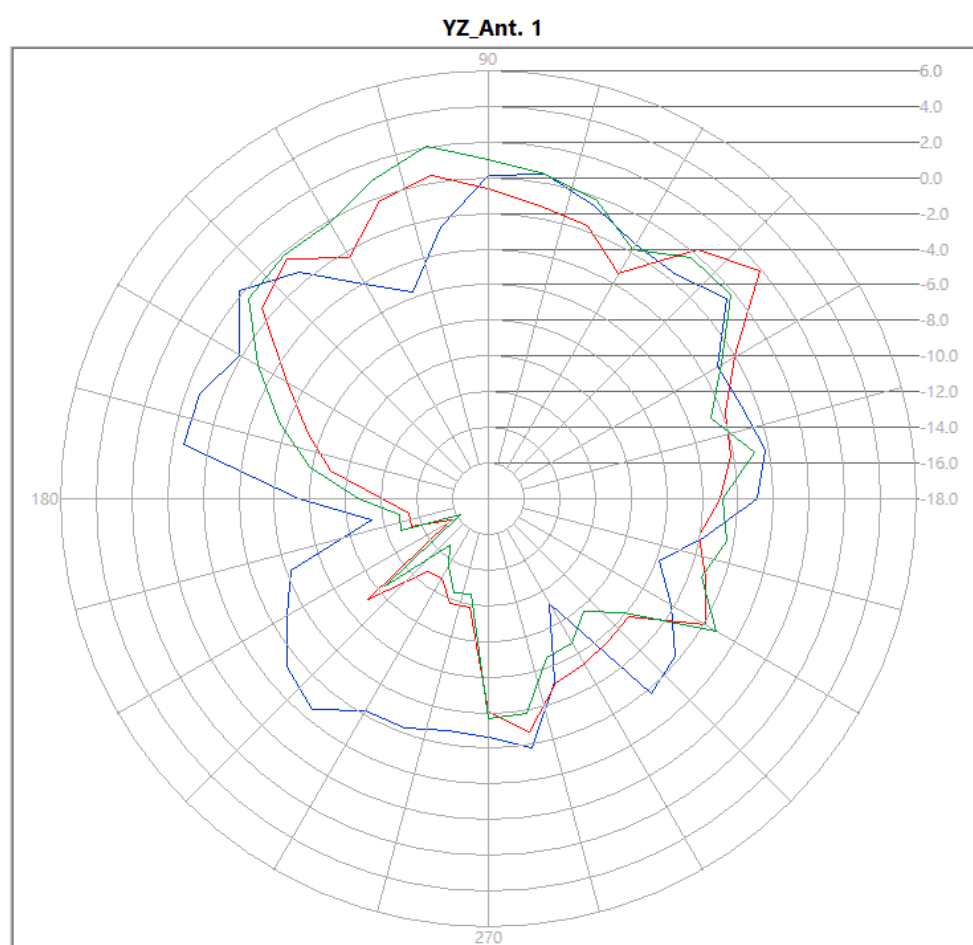
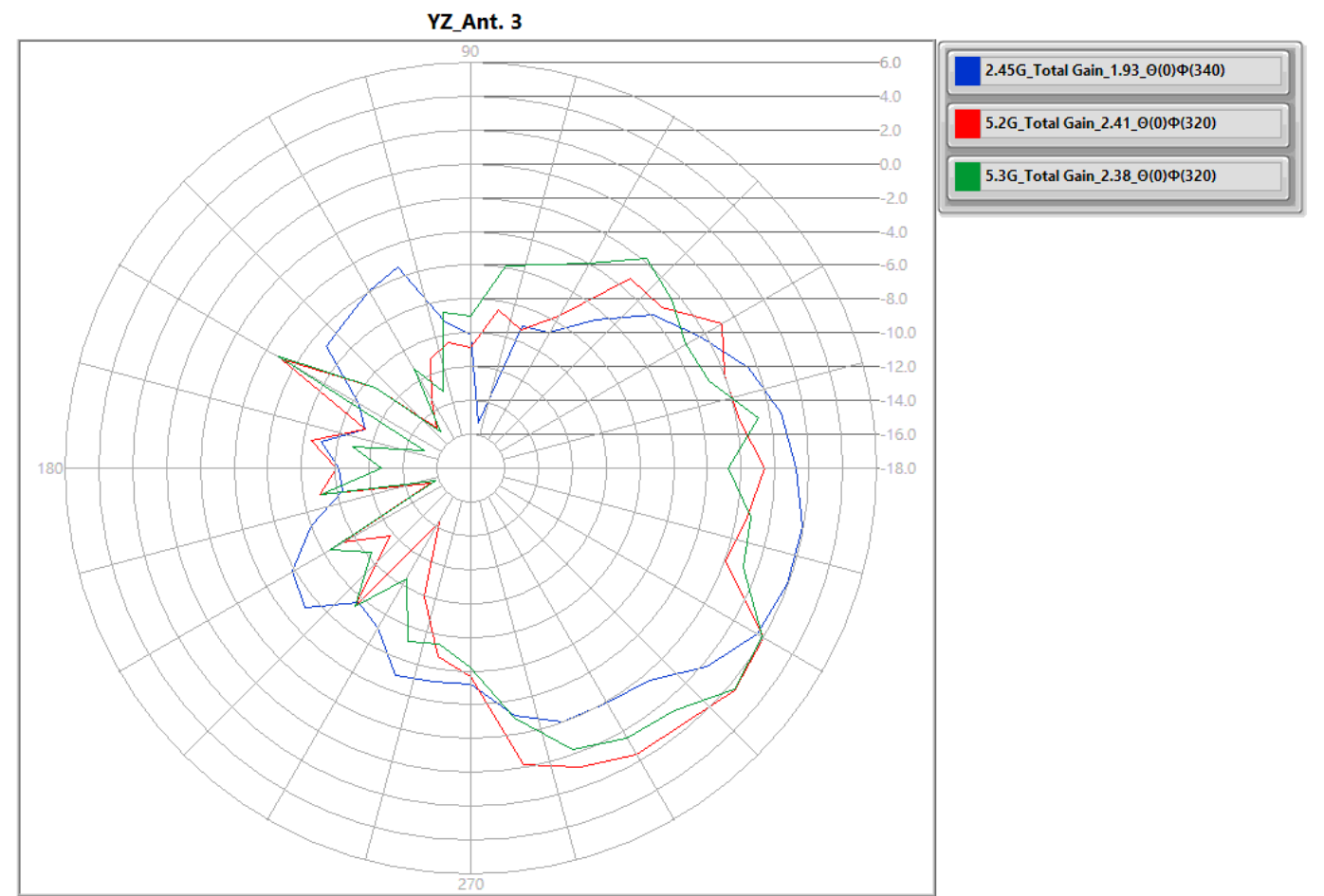
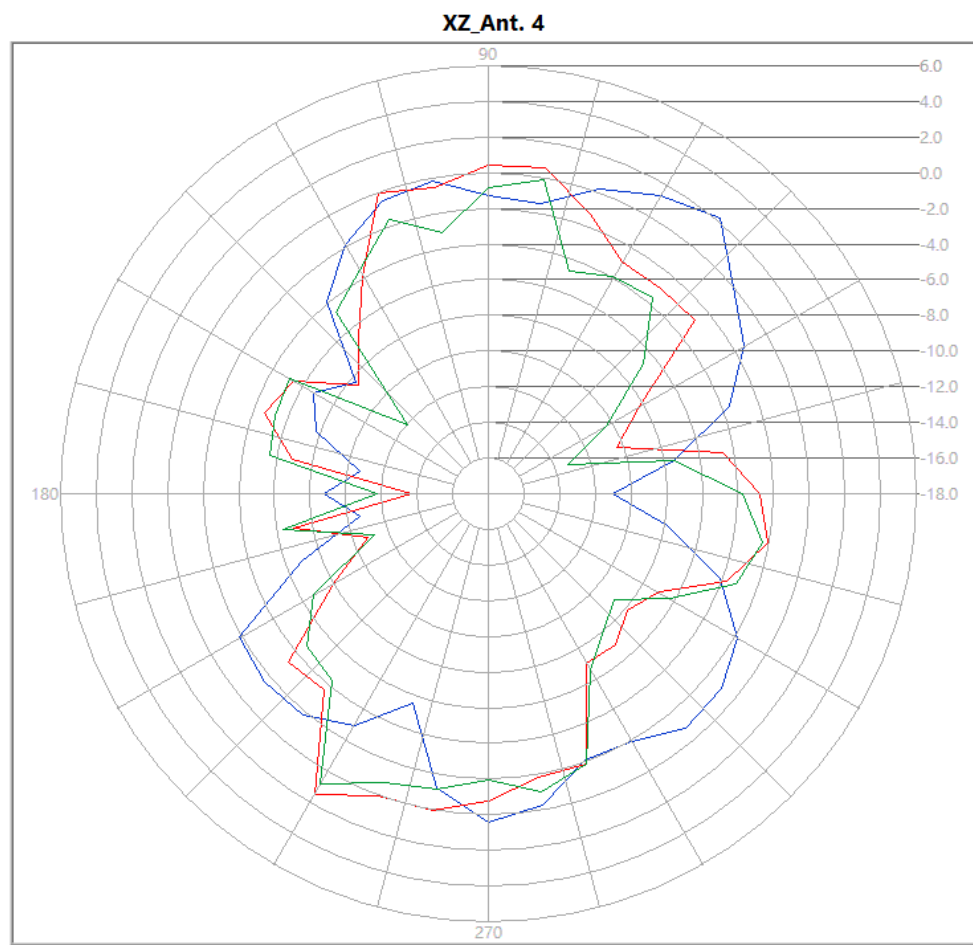
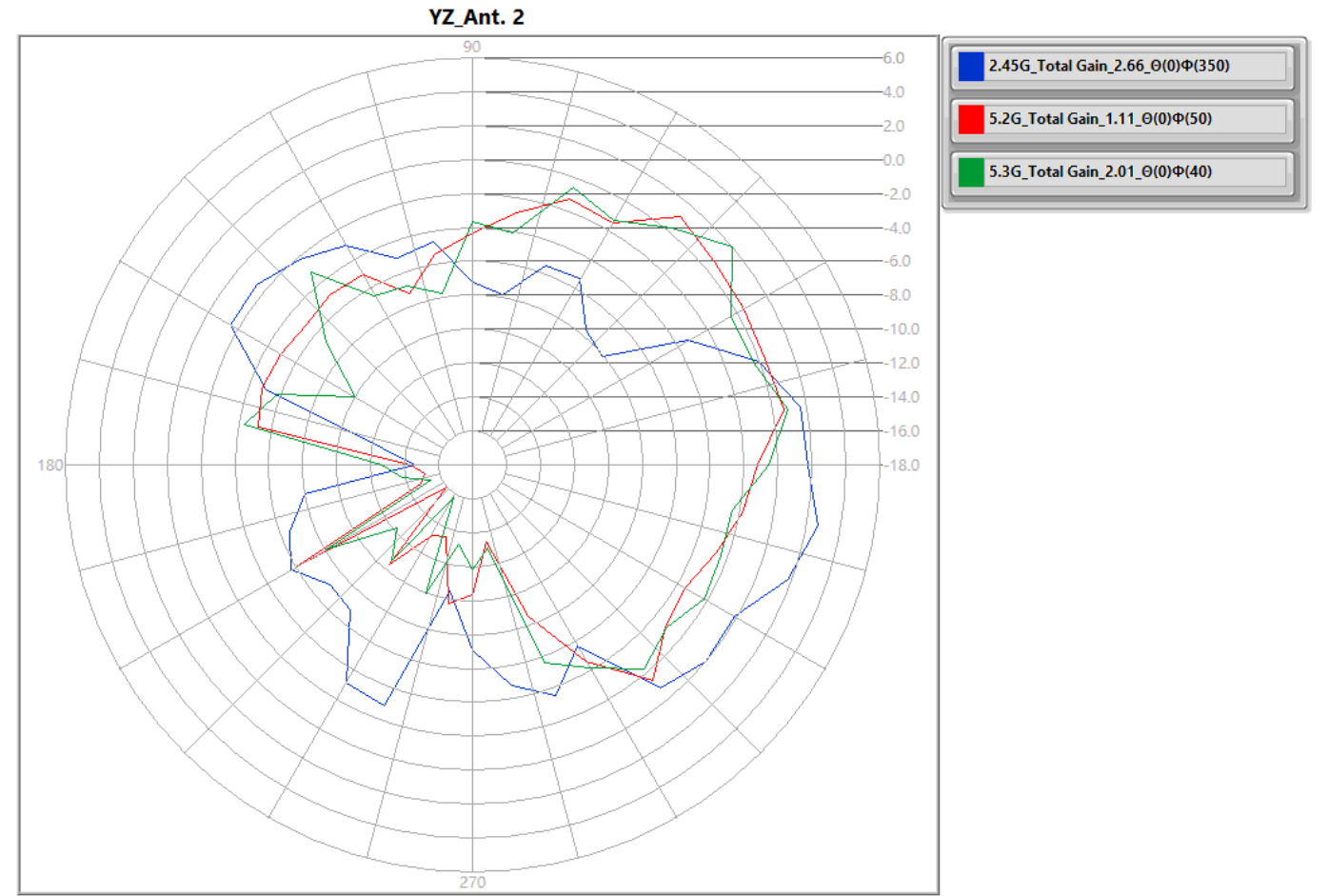
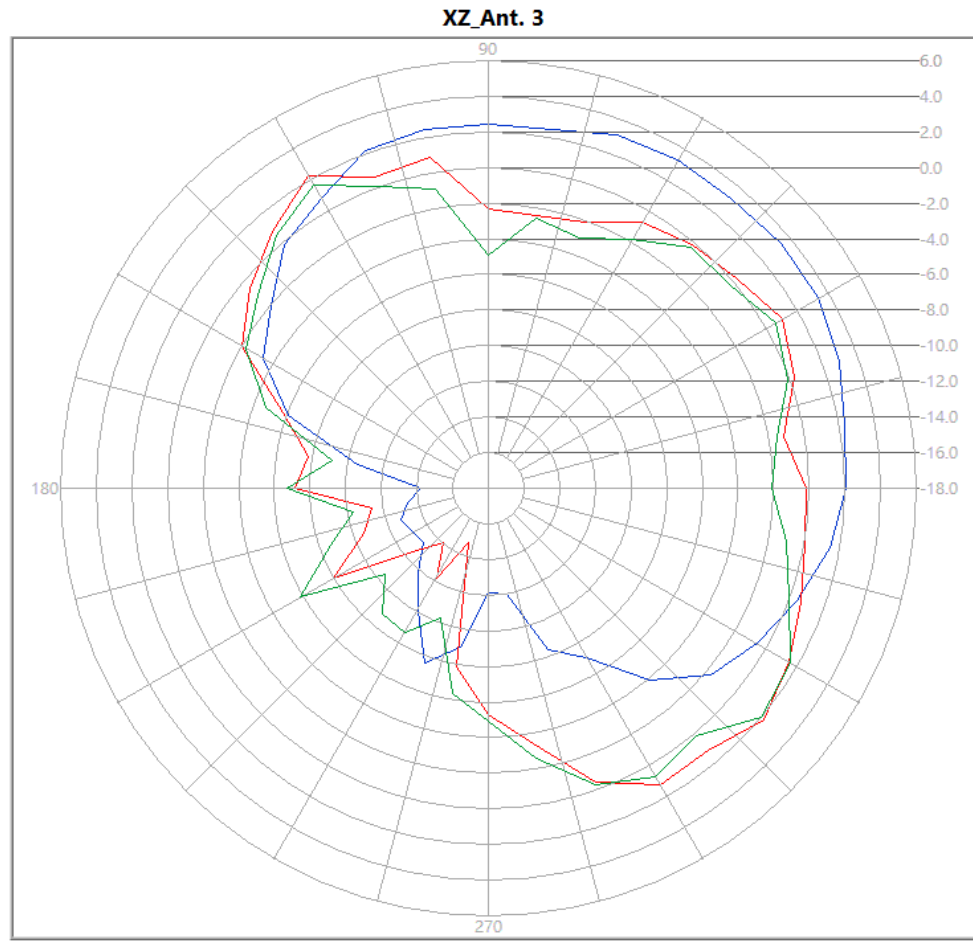
Antenna Pattern of 2.4GHz, 5GHz U-NII 1 and U-NII 2A

Appendix C

Θ (160°)	-4.65/-7.71	-7.21/-5.28	-5.87/-6.97	-8.50/-7.49	-5.93/-7.00	-10.46/-13.74	-13.05/-11.71	-7.21/-5.45	-7.93/-10.72	-10.82/-8.94	-9.04/-9.02	-8.73/-7.47	-6.10/-4.29	-4.85/-5.96	-5.33/-5.23	-5.29/-6.45	-7.45/-5.16	-2.52/-4.04
Θ (170°)	-6.87/-9.72	-8.49/-8.93	-12.30/-15.32	-14.98/-15.11	-15.54/-15.05	-15.08/-11.71	-9.23/-7.65	-8.06/-8.27	-7.49/-6.64	-6.88/-7.37	-7.51/-6.27	-6.45/-6.92	-7.61/-7.33	-6.92/-7.54	-7.60/-6.39	-4.79/-5.23	-3.81/-3.18	-3.71/-4.83
Θ (180°)	-13.69/-12.06	-11.09/-10.93	-12.44/-11.14	-11.61/-11.45	-11.50/-10.34	-11.57/-13.40	-12.35/-10.13	-9.33/-9.24	-8.06/-7.29	-7.62/-8.53	-8.68/-7.28	-6.52/-6.64	-6.86/-6.72	-6.19/-5.95	-6.40/-6.34	-6.55/-5.71	-5.73/-6.66	-10.34/-13.42
Freq(Hz)	5.3G/Pol	Total/Ant. 4	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ (0°)	-3.71/-4.19	-4.13/-4.86	-4.27/-3.72	-3.80/-3.72	-4.12/-3.71	-3.22/-3.29	-4.03/-3.73	-3.37/-3.84	-4.32/-3.90	-3.96/-4.55	-4.93/-5.37	-5.00/-4.80	-4.90/-4.98	-4.79/-4.63	-4.36/-4.44	-3.84/-3.60	-4.46/-4.39	-4.55/-4.10
Θ (10°)	-7.42/-6.54	-6.42/-7.00	-6.04/-5.63	-6.27/-5.11	-5.64/-5.44	-5.56/-4.21	-4.16/-4.27	-3.82/-3.24	-2.84/-2.47	-2.35/-2.42	-2.51/-1.72	-1.04/-0.80	-0.78/-0.91	-0.99/-1.56	-1.06/-1.78	-2.37/-2.79	-3.38/-4.16	-5.12/-6.70
Θ (20°)	-13.28/-13.57	-11.41/-11.03	-9.88/-7.62	-6.49/-5.88	-5.44/-5.27	-4.88/-5.03	-5.05/-4.16	-3.24/-3.00	-2.65/-2.88	-3.19/-3.82	-3.09/-2.01	-1.17/-0.97	-1.05/-1.63	-2.26/-2.83	-3.48/-4.54	-5.58/-5.98	-6.96/-10.01	-9.81/-11.75
Θ (30°)	-10.38/-7.96	-9.62/-8.75	-7.16/-5.25	-4.80/-4.45	-3.88/-2.66	-3.00/-4.16	-4.27/-4.47	-6.08/-6.75	-5.39/-5.32	-6.27/-5.52	-3.33/-1.34	-1.81/-2.74	-3.62/-3.99	-3.89/-4.29	-6.41/-7.31	-6.93/-8.05	-8.87/-11.45	-15.23/-13.05
Θ (40°)	-6.82/-5.07	-4.28/-3.75	-3.09/-1.43	-1.16/-1.76	-2.15/-4.38	-5.52/-4.53	-3.96/-5.65	-6.38/-6.89	-7.23/-7.48	-8.74/-10.37	-5.42/-2.63	-2.68/-4.42	-5.14/-6.36	-7.24/-7.92	-7.05/-6.80	-8.36/-8.31	-4.53/-5.54	-7.23/-10.63
Θ (50°)	-3.64/-3.19	-4.22/-4.15	-2.35/-0.54	-0.53/-1.83	-3.94/-5.85	-4.51/-3.77	-4.02/-4.50	-4.84/-6.16	-6.98/-9.42	-7.99/-12.20	-6.57/-6.25	-6.14/-3.18	-3.91/-7.28	-7.00/-5.41	-5.56/-4.86	-5.62/-4.97	-2.46/-1.68	-1.54/-3.77
Θ (60°)	-3.97/-4.92	-3.74/-1.81	0.61/0.72	0.06/-1.09	-2.02/-3.03	-3.57/-2.01	-2.75/-5.41	-7.49/-6.51	-5.47/-9.46	-6.57/-6.51	-6.94/-8.42	-7.34/-4.36	-6.24/-5.49	-3.87/-3.18	-2.99/-2.35	-3.19/-3.94	-2.70/-0.47	1.63/0.43
Θ (70°)	-4.73/-3.54	-2.26/-0.94	0.55/-1.54	-1.22/-2.82	-3.98/-4.70	-3.21/-2.90	-3.85/-7.50	-10.29/-12.64	-6.77/-10.19	-1.87/-7.08	-7.13/-7.86	-4.65/-1.03	-2.34/-4.94	-2.11/-2.27	-1.49/-1.40	-0.44/-2.10	-2.07/-0.02	0.98/0.30
Θ (80°)	-0.11/-1.99	-1.26/-2.14	0.29/-2.74	-1.26/-2.87	-6.66/-9.29	-8.51/-5.14	-3.65/-5.78	-8.15/-15.71	-4.96/-11.62	-1.02/-5.12	-5.60/-1.52	-2.91/-0.25	-1.78/-0.97	0.94/0.83	-0.23/-0.81	0.56/-0.35	1.06/-0.85	-0.18/2.54
Θ (90°)	-0.85/-0.99	-2.05/-1.87	-1.47/-2.96	-1.73/-3.90	-5.12/-7.26	-7.74/-5.84	-5.69/-5.77	-5.51/-12.32	-3.88/-4.36	-1.95/-6.37	-6.21/-3.23	-2.55/2.11	-1.21/-2.21	0.41/-0.52	-1.11/-0.10	-0.35/0.11	-2.65/0.15	1.07/1.71
Θ (100°)	-3.17/-1.79	-1.63/-4.89	-3.06/-4.24	-8.11/-8.36	-11.63/-13.50	-8.43/-10.13	-14.15/-14.87	-6.88/-12.54	-3.45/-4.70	-1.21/-1.29	-7.03/-1.98	-3.12/-1.62	-4.57/-2.00	0.45/-0.55	-4.42/-2.85	-2.77/-2.94	-1.30/-1.49	-0.30/-2.29
Θ (110°)	-1.60/-2.79	-2.80/-4.48	-2.93/-6.32	-7.37/-9.20	-11.01/-11.16	-9.91/-7.68	-9.24/-13.63	-8.22/-10.09	-5.11/-6.36	-0.73/-5.00	-11.09/-3.96	-1.55/1.60	-3.62/-0.11	1.30/-2.31	-0.71/-0.87	-1.31/0.56	-2.12/-4.07	0.69/-1.15
Θ (120°)	-3.54/-3.48	-6.20/-6.30	-9.11/-7.18	-13.99/-12.22	-13.42/-12.81	-15.41/-14.88	-13.58/-10.39	-8.47/-6.45	-2.12/-8.84	0.80/-5.31	-15.58/-3.63	-1.78/-0.21	-3.08/0.62	3.98/-1.51	2.30/-2.25	-0.40/-4.74	-5.84/-1.60	-1.01/-1.87
Θ (130°)	-4.72/-7.22	-14.31/-11.65	-5.77/-5.40	-7.42/-9.40	-12.58/-13.32	-13.04/-11.29	-12.78/-15.01	-10.67/-15.53	-12.86/-6.06	-4.37/-10.86	-8.71/-8.38	-0.77/-4.01	-6.23/-1.48	2.33/-3.34	0.80/-0.36	0.14/-8.11	-6.21/-4.65	-1.97/-2.77
Θ (140°)	-12.04/-9.54	-8.24/-12.36	-14.84/-16.00	-15.24/-14.03	-14.51/-10.92	-11.16/-13.96	-16.14/-7.06	-4.61/-9.11	-9.77/-6.05	-4.72/-6.70	-12.67/-7.27	-7.17/-10.23	-3.22/2.68	1.27/-3.11	-2.12/-1.08	-3.82/-6.80	-13.31/-6.27	-8.50/-11.52
Θ (150°)	-5.10/-5.44	-8.63/-10.02	-11.51/-9.75	-7.95/-11.69	-12.25/-13.94	-14.69/-14.63	-13.66/-10.33	-11.10/-7.96	-5.01/-6.59	-6.69/-7.57	-8.12/-9.48	-13.63/-14.05	-6.59/-1.44	-1.31/-3.08	-4.48/-5.61	-8.51/-14.42	-10.99/-10.25	-10.13/-6.88
Θ (160°)	-5.27/-7.81	-8.16/-6.01	-6.06/-7.60	-11.19/-12.26	-11.84/-11.61	-13.57/-14.69	-15.39/-14.29	-10.84/-10.01	-13.03/-14.78	-11.22/-8.32	-8.55/-8.76	-7.69/-7.57	-7.49/-6.65	-7.38/-7.31	-6.06/-5.51	-5.81/-5.77	-7.05/-6.40	-3.45/-4.03
Θ (170°)	-5.54/-10.24	-12.51/-12.82	-13.96/-14.75	-14.72/-14.72	-15.23/-15.59	-14.33/-11.47	-8.88/-7.93	-7.33/-6.17	-5.84/-5.52	-6.29/-7.12	-8.04/-7.53	-7.23/-7.12	-7.99/-8.59	-8.82/-8.13	-6.70/-5.22	-4.11/-3.77	-3.17/-3.58	-3.72/-3.91
Θ (180°)	-11.77/-9.51	-8.67/-10.34	-11.42/-9.80	-8.67/-9.07	-10.89/-12.34	-11.13/-9.66	-9.86/-9.95	-9.30/-8.36	-7.70/-7.69	-7.86/-7.93	-7.77/-6.25	-5.45/-5.19	-5.71/-5.79	-5.89/-5.82	-5.67/-6.13	-5.83/-5.50	-5.52/-7.35	-9.41/-11.04

E1(XY plane) – $\Theta(90)\Phi(0-360)$
 E2(XZ plane) – $\Theta(0-180)\Phi(0)$ and $\Theta(0-180)\Phi(180)$
 E3(YZ plane) – $\Theta(0-180)\Phi(90)$ and $\Theta(0-180)\Phi(270)$







Antenna Pattern of 5GHz U-NII 2C and U-NII 3

Appendix D

Total Gain Data

Freq(Hz)	5.6GPol.	TotalAnt. 1	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-2.14/-1.85	-1.74/-1.72	-1.59/-1.50	-1.11/-1.09	-1.51/-0.68	-0.84/-0.58	-1.10/-1.17	-0.81/-0.82	-0.84/-1.06	-1.09/-1.24	-1.38/-1.26	-1.38/-1.25	-1.43/-1.65	-1.64/-1.60	-1.47/-1.61	-2.02/-2.03	-2.01/-2.24	-2.01/-2.24
Θ(10°)	-1.02/-1.58	-2.43/-2.65	-2.80/-3.00	-2.81/-2.01	-2.34/-2.94	-2.92/-2.70	-2.64/-2.75	-2.80/-2.78	-2.58/-2.08	-1.62/-1.57	-1.85/-2.01	-2.07/-2.30	-2.13/-2.52	-2.53/-1.45	-1.96/-2.93	-2.01/-1.15	-1.00/-0.87	-0.87/-0.71
Θ(20°)	-1.49/-3.24	-3.56/-2.74	-2.36/-2.10	-2.47/-1.72	-1.32/-2.53	-3.37/-2.45	-1.84/-2.63	-2.98/-2.71	-2.16/-0.73	-0.69/-1.37	-1.19/-0.79	-1.19/-2.14	-2.47/-2.76	-3.88/-4.65	-4.44/-4.78	-4.23/-3.93	-2.90/-1.79	-1.23/-1.00
Θ(30°)	-2.43/-3.74	-2.32/-1.48	-1.12/-1.01	-1.31/-2.21	-3.21/-3.17	-2.87/-3.53	0.76/0.41	0.09/0.15	-0.79/0.85	-0.98/-1.47	-2.08/-3.74	-4.74/-4.63	-0.98/-1.47	-0.98/-1.47	-0.98/-1.47	-0.98/-1.47	-0.98/-1.47	-0.98/-1.47
Θ(40°)	-1.65/-1.94	-1.45/-1.03	-1.27/-1.42	-1.79/-2.49	-1.78/-1.93	-4.70/-6.24	-4.80/-4.45	-2.06/-1.36	-0.80/-1.01	1.12/0.46	0.81/-1.57	1.44/-1.20	0.27/-0.15	-0.74/-2.47	-3.66/-3.70	-3.60/-2.51	-1.35/-1.65	-1.32/-0.92
Θ(50°)	-1.62/-1.95	-0.86/-0.49	-0.87/-0.75	-0.78/-1.42	-1.43/-2.84	-5.65/-6.57	-7.50/-6.20	-3.44/-1.98	0.18/-1.19	0.45/0.68	1.18/-1.80	1.29/0.57	0.88/0.47	-1.44/-1.75	-3.19/-4.67	-4.10/-3.61	-1.58/-2.50	-1.67/-1.90
Θ(60°)	-0.57/-1.23	-0.25/-0.97	-2.10/-1.96	-1.23/-1.03	-1.84/-2.84	-3.65/-6.78	-7.04/-5.05	-4.10/-4.59	-0.18/-1.61	1.03/-1.38	2.20/-1.82	1.33/-1.69	1.05/0.72	-1.00/-1.82	-3.03/-5.75	-4.52/-3.59	-1.93/-1.93	-0.85/-0.93
Θ(70°)	-0.30/-0.55	-0.95/-1.76	-2.28/-1.46	-0.77/-0.46	-0.60/-3.46	-6.06/-9.02	-10.49/-8.52	-6.71/-5.51	-0.81/0.37	-0.43/-1.12	1.51/-1.20	0.86/0.88	0.38/-1.16	-2.56/-2.44	-3.52/-8.00	-8.12/-6.52	-4.30/-2.62	-1.25/-1.04
Θ(80°)	0.43/0.63	0.19/-0.82	-2.13/-1.17	-0.08/0.02	-1.18/-3.18	-5.23/-6.56	-8.20/-9.93	-9.34/-6.64	-2.29/-1.67	-1.42/-0.11	-0.06/-0.71	-0.51/-0.87	-1.60/-3.20	-4.20/-5.86	-4.17/-8.54	-8.10/-6.43	-2.50/-2.02	-2.13/-5.00
Θ(90°)	-0.03/0.96	0.10/-0.49	-0.15/-0.57	0.68/0.91	0.04/-2.51	-5.44/-6.93	-8.37/-10.76	-1.46/-1.28	-3.89/-1.17	-4.83/-4.52	-2.27/-2.45	-2.27/-2.45	-4.83/-4.52	-4.37/-8.39	-12.37/-9.54	-8.02/-4.49	-2.87/-0.10	-2.87/-0.10
Θ(100°)	-0.39/-1.14	0.92/-0.85	-0.58/0.02	1.07/0.32	-0.36/-2.06	-6.53/-3.66	-6.25/-9.19	-11.34/-10.03	-7.12/-5.25	-5.02/-4.83	-4.34/-5.26	-6.37/-6.90	-2.80/-2.67	-3.80/-6.05	-7.86/-10.08	-8.24/-8.42	-3.85/-4.81	-3.47/0.40
Θ(110°)	0.39/0.46	0.44/0.06	-0.49/-0.13	0.32/0.01	-0.84/-2.57	-3.54/-3.08	-6.28/-7.08	-8.48/-12.88	-11.60/-6.80	-5.86/-6.37	-6.45/-8.40	-8.54/-13.04	-8.69/-7.02	-10.63/-11.79	-15.65/-12.14	-11.39/-10.24	-8.28/-6.49	-5.38/-0.66
Θ(120°)	0.21/0.61	0.31/-0.12	-0.14/-0.55	-0.85/-0.86	-1.05/-0.70	-1.32/-2.75	-5.47/-9.20	-9.32/-9.68	-9.04/-6.47	-8.19/-9.84	-10.70/-9.95	-9.77/-12.17	-10.13/-12.07	-15.18/-16.27	-11.81/-9.11	-11.81/-9.11	-5.25/-1.82	-5.25/-1.82
Θ(130°)	0.16/0.61	0.09/-1.06	-1.08/-2.01	-2.23/-1.70	-2.56/-4.01	-6.04/-9.76	-11.24/-10.99	-12.19/-9.13	-7.05/-5.54	-8.32/-8.67	-10.29/-15.44	-14.68/-13.53	-10.92/-6.79	-8.17/-12.17	-14.44/-12.07	-15.69/-13.15	-10.42/-6.24	-3.86/-1.62
Θ(140°)	0.00/0.84	1.23/0.46	-1.08/-1.87	-2.50/-3.43	-4.65/-5.15	-6.66/-7.97	-7.72/-8.37	-9.10/-8.59	-5.22/-3.21	-6.71/-15.37	-12.12/-11.51	-15.13/-15.19	-11.55/-9.96	-13.13/-14.38	-9.14/-9.09	-8.26/-11.06	-13.36/-8.23	-6.16/-2.48
Θ(150°)	-2.42/-0.37	0.08/-0.03	-0.82/-2.82	-4.39/-6.05	-6.58/-7.10	-10.27/-12.15	-13.72/-10.54	-7.59/-8.41	-11.76/-7.68	-8.19/-9.94	-10.08/-8.51	-10.07/-14.57	-12.75/-11.69	-13.88/-9.80	-7.79/-10.15	-7.34/-6.61	-6.19/-5.41	-5.28/-4.02
Θ(160°)	-4.21/-2.62	-2.03/-2.62	-3.63/-4.42	-5.34/-6.22	-7.15/-8.69	-8.18/-7.93	-7.29/-6.33	-5.02/-4.67	-6.64/-7.88	-8.61/-11.67	-14.54/-15.48	-13.88/-14.44	-12.90/-11.47	-12.03/-12.46	-7.36/-5.89	-5.30/-5.41	-5.09/-5.01	-5.09/-5.01
Θ(170°)	-7.58/-7.48	-6.53/-5.74	-5.53/-5.91	-6.55/-6.46	-6.87/-6.72	-6.18/-6.13	-5.60/-7.03	-9.41/-11.52	-11.87/-13.61	-13.99/-13.77	-15.33/-15.95	-15.70/-14.64	-15.96/-14.81	-13.77/-13.26	-12.64/-13.85	-14.20/-11.80	-10.47/-10.93	-9.79/-8.81
Θ(180°)	-12.32/-13.19	-14.58/-14.30	-13.28/-11.01	-10.92/-11.55	-8.49/-9.40	-13.46/-15.61	-15.51/-14.50	-9.91/-8.01	-8.33/-12.05	-15.17/-15.21	-14.85/-14.05	-13.72/-13.04	-13.37/-12.09	-9.85/-10.52	-12.25/-12.86	-13.06/-12.22	-11.31/-11.92	-12.17/-11.88
Freq(Hz)	5.785GPol.	TotalAnt. 1	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-1.71/-1.58	-1.30/-0.90	-1.15/-0.81	-0.40/-0.22	-0.83/-0.66	-0.47/-1.32	-1.38/-0.21	-0.30/-0.66	-0.94/-1.95	-1.64/-1.41	-2.17/-1.13	-1.26/-1.13	-1.81/-1.69	-1.92/-2.00	-1.92/-2.00	-1.92/-2.00	-1.92/-2.00	-1.92/-2.00
Θ(10°)	-1.20/-1.63	-1.63/-1.48	-1.63/-1.26	-0.82/-0.51	-0.15/-0.34	-1.03/-1.07	-1.28/-1.81	-2.04/-1.72	-1.55/-1.80	-1.95/-1.69	-1.87/-1.97	-2.10/-2.43	-2.08/-1.83	-1.81/-1.06	-1.20/-1.07	-0.32/-0.45	-0.83/-0.92	-0.75/-0.94
Θ(20°)	-1.10/-1.63	-1.10/-0.56	-0.11/0.04	0.45/-1.16	1.75/-1.62	1.32/-1.16	0.68/-0.86	-1.83/-1.36	-1.63/-1.78	-4.59/-3.48	-2.56/-2.33	-1.96/-2.38	-3.31/-3.97	-5.06/-5.47	-2.26/-1.43	-0.66/-0.17	-0.13/-0.50	-0.13/-0.50
Θ(30°)	-2.38/-2.50	-1.92/-1.08	-0.82/-1.22	-1.24/-0.26	0.43/0.69	0.98/0.14	-0.13/-0.24	-1.42/-0.21	-2.46/-1.28	-0.62/-0.40	-0.45/-0.08	0.91/-1.04	0.34/-0.60	-2.06/-4.54	-6.06/-6.14	-4.00/-2.51	-2.24/-1.30	-0.56/-1.69
Θ(40°)	-3.48/-2.98	-1.98/-2.39	-2.96/-2.90	-2.32/-0.61	0.43/0.79	0.41/-0.24	-1.45/-1.99	-1.55/-1.43	-2.01/-1.08	0.07/-1.36	2.07/-2.23	2.07/-2.23	1.92/0.97	-0.32/-1.36	-3.21/-4.56	-1.05/-0.96	-0.88/-1.66	-0.88/-1.66
Θ(50°)	-4.04/-3.90	-3.04/-4.06	-4.26/-2.55	-1.31/-0.77	0.74/-1.23	0.29/-1.27	1.73/-2.15	-1.72/-2.15	-1.16/-1.07	1.23/-1.21	1.73/-2.27	2.66/-1.96	1.24/0.88	-0.03/-1.01	-3.32/-5.04	-3.49/-1.54	-0.76/-1.19	-1.26/-1.74
Θ(60°)	-5.33/-5.02	-4.00/-5.58	-6.06/-2.77	-0.55/0.74	1.32/0.92	-0.75/-2.42	-4.03/-4.94	-2.72/-2.81	-1.52/0.76	1.03/-1.05	1.51/-1.81	1.25/-1.58	1.72/-1.20	-0.04/-0.95	-2.04/-5.04	-5.10/-1.81	-0.57/-2.09	-1.85/-3.75
Θ(70°)	-2.84/-3.00	-2.86/-3.47	-3.16/-1.25	-0.11/0.08	1.57/0.49	-2.04/-4.33	-6.48/-6.57	-4.02/-3.48	-0.11/0.53	1.19/0.53	0.54/0.90	-0.02/-1.86	-0.02/-1.86	-4.96/-3.43	-4.84/-5.87	-3.96/-3.55	-1.07/-1.81	-1.30/-1.76
Θ(80°)	-2.86/-2.19	-0.76/-2.68	-1.96/-0.60	0.64/-1.39	1.47/-1.19	-6.21/-9.38	-7.43/-10.87	-7.71/-4.60	-4.03/-1.48	-1.04/-0.35	0.24/-0.50	-0.84/-1.14	-1.41/-2.53	-2.97/-4.58	-5.10/-6.99	-7.16/-5.32	-1.51/-2.22	-3.35/-1.98
Θ(90°)	-0.99/-0.30	-0.71/-0.20	-0.68/-1.02	0.51/-1.18	-0.46/-2.36	-7.47/-8.62	-11.34/-13.91	-11.50/-8.05	-3.77/-1.75	-2.53/-1.41	-1.39/-1.33	-3.22/-2.38	-0.58/-0.57	-2.11/-4.70	-5.45/-12.25	-8.91/-9.14	-3.25/-3.84	-2.08/-1.56
Θ(100°)	-1.34/0.43	0.12/-0.54	-0.24/0.33	0.91/0.75	0.24/-1.38	-10.07/-9.57	-12.61/-10.36	-9.53/-11.98	-5.00/-4.19	-3.94/-3.40	-3.55/-4.43	-6.24/-5.20	-4.15/-5.76	-13.28/-14.44	-7.28/-7.04	-2.86/-2.84	-2.92/-1.56	-2.92/-1.56
Θ(110°)	-0.38/-0.43	-0.76/-0.54	-1.20/-0.40	0.34/0.41	-0.12/-3.20	-7.30/-5.57	-6.87/-10.11	-9.79/-11.29	-11.08/-7.45	-7.51/-6.78	-6.74/-7.37	-6.16/-13.51	-8.81/-5.79	-10.34/-12.66	-13.42/-12.06	-14.68/-6.92	-7.61/-3.50	-4.10/-1.35
Θ(120°)	-0.42/-0.12	0.37/-0.40	-0.68/-1.32	-1.77/-0.79	-0.52/-2.56	-3.71/-4.70	-6.20/-7.14	-9.53/-11.98	-9.65/-7.31	-7.91/-7.42	-9.12/-9.38	-8.41/-12.77	-8.94/-11.24	-15.40/-15.91	-15.32/-12.91	-10.92/-7.13	-5.01/-4.11	-4.41/-3.10
Θ(130°)	-0.59/-0.66	-0.58/-0.53	-1.87/-2.29	-2.38/-2.76	-3.08/-4.29	-7.46/-9.03	-8.84/-10.36	-8.85/-10.56	-9.96/-7.71	-8.82/-10.92	-10.79/-12.26	-12.94/-11.11	-10.49/-9.88	-9.65/-13.04	-10.90/-13.36	-12.74/-10.93	-8.09/-5.19	-5.45/-0.44
Θ(140°)	0.47/-1.46	1.32/0.66	0.01/-1.09	-2.19/-3.14	-5.12/-8.78	-7.32/-9.16	-8.86/-9.24	-8.01/-8.08	-5.89/-3.89	-4.71/-10.82	-15.38/-13.22	-15.82/-16.10	-12.01/-12.21	-14.74/-15.87	-9.71/-9.78	-7.83/-11.32	-14.09/-8.78	-4.80/-1.45
Θ(150°)	-1.23/0.87	1.56/0.22	-0.81/-1.69	-2.35/-3.43	-5.26/-6.10	-6.12/-8.51	-9.64/-9.94	-7.07/-5.26	-6.29/-7.91	-7.09/-7.11	-9.23/-8.28	-10.18/-15.57	-14.02/-10.92	-12.10/-9.50	-7.97/-11.92	-7.19/-4.74	-3.87/-4.46	-5.58/-4.25
Θ(160°)	-2.42/-2.42	-1.43/-1.34	-2.70/-4.48	-5.55/-4.78	-8.24/-8.56	-1.17/-13.78	-10.20/-6.53	-5.55/-4.13	-4.12/-5.25	-15.19/-12.03	-9.48/-12.53	-15.08/-14.87	-15.25/-14.74	-9.48/-7.85	-5.94/-5.62	-1.91/-4.81	-4.10/-2.86	-4.10/-2.86
Θ(170°)	-6.88/-6.56	-5.87/-4.63	-3.89/-4.15	-5.86/-6.66	-7.20/-6.97	-6.08/-5.09	-5.11/-7.49	-9.29/-10.23	-10.27/-10.43	-10.90/-11.40	-12.43/-13.60	-13.22/-15.63	-15.43/-15.22	-15.38/-14.49	-15.07/-14.74	-13.88/-12.11	-11.43/-8.41	-7.54/-7.53
Θ(180°)	-12.88/-13.08	-13.43/-13.43	-12.92/-11.58	-10.91/-10.66	-8.82/-9.41	-11.85/-13.13	-13.37/-13.53	-12.01/-11.02	-10.92/-13.00	-14.30/-14.54	-14.57/-14.22	-13.35/-10.56	-10.37/-10.81	-9.89/-11.58	-13.47/-13.82	-13.46/-13.81	-13.45/-12.28	-11.75/-12.97
Freq(Hz)	5.6GPol.	TotalAnt. 2	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-
Gain	Φ(0°)Φ(10°)	Φ(20°)Φ(30°)	Φ(40°)Φ(50°)	Φ(60°)Φ(70°)	Φ(80°)Φ(90°)	Φ(100°)Φ(110°)	Φ(120°)Φ(130°)	Φ(140°)Φ(150°)	Φ(160°)Φ(170°)	Φ(180°)Φ(190°)	Φ(200°)Φ(210°)	Φ(220°)Φ(230°)	Φ(240°)Φ(250°)	Φ(260°)Φ(270°)	Φ(280°)Φ(290°)	Φ(300°)Φ(310°)	Φ(320°)Φ(330°)	Φ(340°)Φ(350°)
Θ(0°)	-0.64/-0.42	-0.99/-0.93	-0.81/-1.66	-1.95/-1.23	-0.96/-1.34	-1.59/-1.47	-1.17/-1.50	-1.65/-1.81	-1.58/-1.71	-2.17/-2.15	-1.75/-1.63	-1.79/-1.56	-1.43/-1.01	-0.85/-0.73	-0.67/-0.38	-0.52/-0.77	-1.08/-0.85	-1.08/-0.85
Θ(10°)	-4.38/-4.24	-4.68/-5.14	-4.42/-3.06	-3.17/-1.60	-0.61/-0.68	-0.50/-0.17	-0.22/0.43	-0.62/-0.43	-0.71/-1.06	-3.22/-3.02	-3.64/-3.74	-4.03/-4.48	-2.80/-3.32	-3.64/-3.48	-4.03/-4.48			



Antenna Pattern of 5GHz U-NII 2C and U-NII 3

Appendix D

Θ(60°)	-1.03/-0.61	0.29/-0.13	0.51/-1.44	1.55/0.87	1.07/-1.29	0.42/-0.95	-1.67/0.49	1.46/-0.10	-1.22/-4.87	-3.86/-0.42	0.64/-1.33	-3.57/-4.13	-4.23/-3.48	-3.23/-4.37	-4.37/-2.81	-2.61/-2.02	-3.11/-7.11	-2.96/-2.34
Θ(70°)	-1.60/-1.19	0.06/-1.55	-0.63/-0.44	0.11/0.42	0.29/-1.03	-2.53/-2.11	-5.31/-1.94	-0.19/-0.76	-1.92/-4.67	-2.08/-0.66	0.26/-2.04	-3.72/-3.12	-2.12/-1.18	-2.02/-3.95	-6.07/-4.31	-5.12/-6.77	-5.58/-5.28	-4.73/-3.03
Θ(80°)	-2.46/-1.13	-3.86/-2.44	-2.03/-5.15	-4.31/-3.10	-2.75/-2.43	-5.84/-5.53	-5.54/-4.60	-2.93/-3.17	-2.75/-5.60	-2.40/0.08	0.30/-2.48	-3.64/-2.77	-1.68/-1.13	-3.00/-4.54	-4.11/-2.97	-6.18/-4.55	-5.40/-7.53	-4.51/-3.18
Θ(90°)	-6.41/-4.99	-4.66/-3.27	-4.37/-5.72	-5.55/-4.06	-5.87/-6.10	-10.83/-12.59	-6.37/-10.73	-6.22/-4.95	-5.57/-6.48	-2.03/-1.83	-0.22/-2.55	-2.13/-1.15	-0.28/-1.42	-2.57/-6.31	-6.59/-3.50	-6.33/-7.44	-10.84/-8.85	-8.74/-7.94
Θ(100°)	-7.57/-6.53	-7.75/-6.88	-9.10/-10.88	-10.96/-6.86	-7.84/-6.69	-8.02/-10.19	-7.80/-12.42	-10.70/-8.49	-8.71/-5.61	-5.06/0.75	-0.57/-2.96	-2.92/-1.99	-3.05/-3.23	-4.44/-7.17	-6.44/-7.88	-6.81/-9.76	-13.32/-12.51	-12.34/-7.49
Θ(110°)	-10.93/-8.10	-12.83/-11.54	-14.12/-11.63	-11.69/-7.73	-8.87/-13.99	-12.62/-11.02	-12.75/-8.36	-9.09/-8.68	-8.57/-5.66	-3.26/0.83	1.38/-2.23	-4.53/-3.77	-2.08/-2.24	-5.94/-4.48	-3.51/-8.42	-8.91/-12.69	-10.34/-12.16	-10.02/-11.81
Θ(120°)	-8.12/-9.94	-11.44/-11.82	-15.20/-15.09	-14.54/-10.24	-10.09/-12.48	-12.22/-9.51	-7.80/-8.21	-6.74/-5.79	-5.83/-5.19	-3.67/-1.30	0.51/-1.60	-2.44/-1.04	-0.95/-3.36	-8.80/-6.12	-4.12/-11.81	-12.19/-12.84	-15.33/-15.48	-8.20/-9.74
Θ(130°)	-6.51/-13.95	-8.44/-15.39	-14.73/-15.67	-15.00/-12.94	-10.95/-12.58	-10.08/-14.75	-12.45/-10.62	-7.84/-5.82	-4.09/-3.61	-3.54/-0.18	0.15/-3.78	-6.53/-3.40	-1.82/-1.78	-5.01/-5.73	-2.52/-6.91	-9.88/-6.97	-12.93/-7.70	-15.23/-12.89
Θ(140°)	-7.19/-12.61	-15.37/-13.46	-11.20/-13.35	-13.51/-13.53	-10.87/-10.60	-10.60/-7.90	-8.84/-12.14	-6.64/-8.91	-4.06/-4.78	-5.86/-2.83	-4.38/-9.16	-9.32/-4.78	-4.06/-4.23	-8.79/-5.10	-0.95/-5.03	-14.57/-5.96	-8.26/-12.82	-7.66/-10.05
Θ(150°)	-7.47/-10.68	-10.65/-9.65	-9.98/-9.16	-7.84/-9.12	-9.40/-9.22	-8.58/-8.55	-8.00/-4.85	-4.12/-6.34	-7.51/-10.53	-7.88/-2.92	-2.82/-4.97	-4.41/-4.48	-4.90/-6.60	-10.31/-8.18	-6.07/-6.56	-8.08/-11.06	-12.86/-12.88	-9.64/-7.92
Θ(160°)	-12.59/-11.13	-15.64/-12.26	-9.58/-9.55	-10.52/-12.76	-12.57/-11.39	-10.76/-9.16	-5.76/-3.51	-2.99/-4.61	-7.53/-7.80	-7.34/-6.12	-4.00/-3.99	-5.22/-6.63	-7.11/-8.61	-8.92/-7.12	-6.08/-6.25	-11.20/-11.99	-10.54/-10.20	-11.92/-14.11
Θ(170°)	-14.89/-15.40	-15.32/-15.54	-12.38/-12.25	-12.39/-13.07	-12.38/-11.68	-11.52/-10.30	-10.53/-10.54	-8.72/-8.02	-7.22/-7.29	-7.46/-8.36	-7.90/-5.57	-5.23/-5.89	-7.33/-9.30	-11.09/-12.70	-10.94/-8.83	-5.99/-5.98	-5.82/-6.84	-9.22/-13.34
Θ(180°)	-15.77/-15.60	-14.92/-13.89	-15.31/-15.30	-15.47/-14.50	-15.48/-15.35	-15.17/-14.69	-14.91/-15.08	-13.01/-11.90	-12.39/-13.22	-13.91/-13.89	-14.46/-15.19	-14.54/-13.38	-11.28/-9.49	-8.99/-10.53	-13.46/-14.98	-14.09/-13.69	-11.50/-15.27	-14.57/-15.44
Freq(Hz)	5.6GPol.	TotalAnt. 4	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	-6.31/-5.43	-4.71/-5.28	-4.00/-4.08	-4.06/-5.47	-5.56/-5.07	-5.27/-5.38	-5.11/-4.38	-4.93/-4.68	-3.84/-5.32	-4.99/-4.14	-4.49/-5.02	-6.11/-6.42	-3.05/-3.21	-3.86/-4.95	-4.69/-3.96	-3.19/-3.10	-3.60/-3.85	-4.38/-4.59
Θ(10°)	-5.25/-4.87	-4.67/-4.77	-4.73/-4.50	-4.36/-5.23	-5.46/-4.63	-5.88/-4.33	-8.22/-7.81	-4.71/-4.98	-4.96/-4.83	-5.24/-5.74	-5.81/-5.51	-4.86/-4.01	-4.89/-4.66	-4.01/-3.22	-3.58/-3.85	-3.37/-3.15	-3.69/-4.42	-4.97/-4.42
Θ(20°)	-8.41/-8.60	-6.17/-4.23	-4.31/-4.77	-5.70/-6.45	-5.82/-5.31	-6.12/-9.79	-11.13/-10.80	-10.55/-10.51	-9.07/-8.65	-9.10/-9.31	-9.34/-8.83	-6.06/-6.93	-8.68/-9.71	-10.87/-11.61	-8.27/-5.82	-5.71/-6.66	-6.79/-7.84	-6.79/-7.84
Θ(30°)	-15.51/-7.48	-6.15/-5.60	-6.72/-6.22	-5.16/-4.00	-4.03/-4.58	-5.55/-5.35	-6.38/-7.82	-9.44/-12.94	-12.58/-14.81	-11.04/-5.43	-3.13/-1.53	-2.11/-3.84	-3.95/-4.04	-3.61/-5.25	-8.01/-9.09	-7.93/-6.30	-4.64/-5.52	-7.30/-10.95
Θ(40°)	-5.02/-5.73	-6.24/-6.45	-10.14/-11.76	-11.21/-9.45	-6.15/-3.45	-3.23/-4.39	-5.92/-4.82	-5.15/-6.06	-6.33/-13.92	-6.21/-1.50	0.36/0.43	-0.64/-1.72	-2.05/-1.71	-1.52/-7.16	-4.21/-3.99	-4.98/-3.80	-3.10/-3.95	-5.60/-4.17
Θ(50°)	-4.91/-3.84	-6.66/-6.18	-9.34/-9.35	-6.13/-7.80	-8.66/-6.88	-4.57/-4.69	-1.44/-2.60	-3.65/-3.25	-2.28/-6.14	-2.14/-1.88	-1.44/-0.40	-0.83/-0.75	-2.09/-3.25	-2.03/-0.50	-0.52/-1.86	-2.27/-1.24	-0.20/-0.49	-3.12/-4.57
Θ(60°)	-4.00/-2.85	-3.90/-3.98	-4.99/-2.47	-1.94/-3.86	-6.26/-7.43	-5.75/-3.02	-4.87/-1.33	-0.15/-3.72	-0.52/-2.99	-0.01/0.45	-0.93/-0.47	-3.65/-2.35	-3.52/-2.18	-1.25/-0.14	-1.10/-2.04	-1.57/-3.36	-2.15/-1.63	-2.83/-2.92
Θ(70°)	-6.79/-3.72	-3.67/-4.48	-3.34/-3.44	-4.13/-3.77	-5.76/-8.49	-5.88/-1.63	-0.35/0.42	0.90/-0.64	-0.57/-1.07	0.48/0.87	-0.78/-1.66	-0.54/0.12	-0.97/-0.15	-0.34/-1.00	-0.45/-4.20	-2.76/-1.08	-2.94/-5.65	-4.15/-2.47
Θ(80°)	-5.46/-3.44	-5.29/-3.01	-3.27/-4.46	-5.38/-5.48	-7.34/-11.41	-8.77/-3.27	-1.19/-0.68	0.06/-1.63	-1.18/-3.73	-0.23/-4.03	0.69/0.46	-0.02/-1.86	2.24/0.31	0.24/0.07	1.39/-0.40	0.83/-1.87	-4.66/-4.65	-4.62/-3.05
Θ(90°)	-11.22/-6.27	-7.86/-5.87	-5.39/-5.48	-4.14/-6.04	-9.50/-11.37	-5.02/-1.88	0.03/0.80	1.25/-2.32	-2.43/-3.84	-1.40/-1.07	-0.46/-3.59	-2.11/0.16	1.88/-1.33	0.91/0.23	2.12/-0.07	1.07/-3.87	-1.99/-2.30	-4.61/-4.82
Θ(100°)	-3.72/-11.40	-10.28/-6.11	-7.37/-10.89	-7.18/-6.46	-8.58/-11.69	-14.19/-8.04	-4.42/-1.90	-1.18/-3.91	-5.40/-2.86	-1.26/-4.07	0.65/-0.70	-1.74/-1.56	1.06/0.83	-2.17/-1.41	1.12/-4.33	-1.81/-4.73	-6.56/-4.86	-4.15/-2.47
Θ(110°)	-8.37/-6.67	-8.89/-8.36	-7.35/-8.44	-9.42/-9.85	-5.55/-2.10	-2.07/-1.89	-3.03/-1.38	-0.51/-4.05	-4.53/-5.62	-3.46/-2.87	-1.51/-3.36	-5.48/-3.21	-2.84/-2.90	-2.55/-3.04	-1.91/-8.85	-4.21/-6.90	-5.49/-8.04	-8.04/-4.11
Θ(120°)	-7.70/-8.84	-14.01/-11.30	-14.67/-7.91	-4.65/-6.29	-10.21/-10.29	-9.47/-6.51	-3.90/-1.95	-2.73/-2.79	-8.11/-3.33	-4.82/-3.01	0.08/-0.11	-2.13/-3.67	-0.84/-3.80	-3.82/-11.11	-0.62/-4.41	-4.48/-6.48	-11.88/-9.00	-13.79/-3.77
Θ(130°)	-6.91/-11.46	-9.92/-14.51	-10.17/-7.85	-11.22/-6.48	-4.44/-5.70	-7.45/-7.99	-12.30/-6.09	-6.13/-8.50	-10.98/-7.10	-5.31/-6.54	-6.50/-3.24	-9.13/-5.53	-1.81/-1.54	-3.14/-3.16	-3.17/-4.19	-8.05/-5.94	-2.15/-10.56	-5.88/-5.89
Θ(140°)	-6.37/-5.35	-8.57/-10.67	-10.24/-11.85	-10.83/-7.73	-5.94/-4.86	-3.15/-2.88	-4.89/-6.82	-6.31/-7.72	-12.02/-13.15	-5.64/-4.69	-1.81/-1.04	-1.98/-4.07	-2.35/-2.97	-4.85/-10.40	-6.32/-2.37	-2.91/-6.94	-8.91/-15.11	-15.19/-8.10
Θ(150°)	-5.63/-3.38	-11.39/-12.04	-12.19/-11.44	-14.91/-15.23	-10.54/-7.56	-4.88/-3.28	-5.54/-11.15	-15.76/-11.58	-7.92/-7.58	-11.05/-11.14	-12.06/-5.45	-5.10/-6.25	-9.58/-11.99	-12.51/-9.53	-5.73/-5.99	-11.39/-12.46	-11.81/-14.22	-12.50/-7.94
Θ(160°)	-15.59/-14.30	-13.34/-11.56	-11.33/-12.01	-14.24/-14.73	-13.54/-10.59	-8.37/-7.65	-8.83/-11.17	-11.43/-11.40	-12.85/-15.00	-15.13/-13.05	-12.30/-10.11	-8.10/-6.27	-8.01/-10.08	-12.60/-8.59	-7.22/-9.55	-15.02/-15.34	-11.19/-7.94	-10.18/-11.99
Θ(170°)	-15.89/-15.67	-13.73/-11.27	-10.09/-9.66	-8.46/-8.45	-7.75/-7.18	-6.81/-7.86	-9.07/-10.76	-11.25/-11.04	-11.84/-12.64	-14.54/-13.20	-12.68/-9.60	-8.71/-9.02	-9.75/-9.42	-9.87/-9.47	-8.85/-8.40	-7.78/-6.31	-5.54/-5.97	-9.13/-12.37
Θ(180°)	-13.33/-14.93	-14.95/-13.11	-13.95/-14.22	-16.16/-15.43	-13.98/-13.45	-12.69/-12.79	-13.64/-14.25	-15.24/-13.64	-12.00/-12.39	-11.82/-11.66	-11.07/-10.54	-10.02/-9.66	-9.56/-11.07	-10.41/-10.73	-11.32/-12.58	-12.20/-12.39	-14.37/-14.87	-14.63/-12.96
Freq(Hz)	5.785GPol.	TotalAnt. 4	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
Gain	Φ(0°)/Φ(10°)	Φ(20°)/Φ(30°)	Φ(40°)/Φ(50°)	Φ(60°)/Φ(70°)	Φ(80°)/Φ(90°)	Φ(100°)/Φ(110°)	Φ(120°)/Φ(130°)	Φ(140°)/Φ(150°)	Φ(160°)/Φ(170°)	Φ(180°)/Φ(190°)	Φ(200°)/Φ(210°)	Φ(220°)/Φ(230°)	Φ(240°)/Φ(250°)	Φ(260°)/Φ(270°)	Φ(280°)/Φ(290°)	Φ(300°)/Φ(310°)	Φ(320°)/Φ(330°)	Φ(340°)/Φ(350°)
Θ(0°)	-4.08/-5.00	-5.02/-5.00	-4.92/-4.69	-4.36/-5.26	-6.07/-6.47	-6.28/-5.99	-5.62/-5.05	-5.90/-5.47	-4.31/-6.35	-5.53/-4.36	-5.19/-5.07	-5.71/-5.12	-3.89/-3.60	-3.85/-3.45	-3.53/-3.08	-2.70/-2.70	-2.62/-2.48	-2.55/-2.95
Θ(10°)	-3.81/-4.08	-3.86/-4.13	-3.30/-3.07	-3.23/-3.20	-3.66/-3.16	-2.80/-1.83	-2.22/-2.70	-4.23/-4.39	-5.65/-6.66	-7.32/-8.02	-8.35/-7.18	-8.41/-8.35	-8.94/-8.24	-8.03/-6.81	-6.02/-6.49	-5.98/-5.37	-5.04/-5.07	-4.60/-3.88
Θ(20°)	-10.62/-8.26	-6.72/-5.10	-3.95/-3.58	-3.47/-4.33	-3.64/-4.04	-5.09/-5.66	-7.28/-9.31	-10.06/-9.71	-11.38/-14.70	-14.30/-10.36	-5.70/-4.24	-3.94/-4.82	-4.88/-5.78	-6.62/-7.51	-8.56/-8.22	-9.03/-11.43	-9.19/-9.90	-9.99/-7.62
Θ(30°)	-8.95/-6.60	-5.29/-3.34	-3.15/-4.26	-7.12/-5.16	-3.91/-4.16	-5.85/-7.23	-7.28/-8.70	-12.30/-9.62	-11.12/-6.15	-2.92/-1.38	-1.80/-3.11	-4.85/-4.37	-2.66/-2.35	-3.65/-5.48	-6.01/-7.25	-9.88/-13.53	-15.51/-15.70	-15.17/-8.76
Θ(40°)	-6.86/-5.58	-3.93/-5.54	-8.20/-8.97	-9.30/-7.23	-7.12/-6.65	-8.31/-8.66	-6.30/-4.80	-5.30/-4.84	-5.88/-5.81	-2.12/-2.57	-3.21/-4.43	-3.32/-1.31	-1.15/-4.18	-4.95/-3.34	-2.74/-3.64	-4.84/-6.04	-4.92/-6.02	-9.61/-7.32
Θ(50°)	-6.15/-4.19	-4.47/-6.57	-6.03/-7.07	-9.08/-10.21	-10.20/-6.03	-3.75/-4.01	-6.61/-5.91	-3.18/-0.43	-3.64/-4.16	-2.33/-4.04	-3.75/-0.36	-0.41/-1.62	-3.56/-5.56	-6.67/-6.68	-4.02/-3.24	-4.14/-4.37	-2.86/-0.42	-2.14/-5.05
Θ(60°)	-6.54/-4.18	-4.79/-3.67	-4.66/-3.08	-4.54/-7.71	-9.65/-6.28	-4.10/-2.99	-3.45/-1.79	-3.28/-2.69	-2.54/-2.01	-0.46/-3.81	-1.39/0.84	0.02/-0.21	-3.73/-3.30	-2.91/-1.92	-2.71/-2.54	-1.84/-3.04	-2.36/-1.14	-2.65/-4.35
Θ(70°)	-4.76/-4.35	-2.62/-2.37	-2.20/-2.46	-1.39/-2.23	-5.57/-8.39	-2.93/-0.38	-0.41/-0.30	-0.94/-0.06	-2.92/-1.49	-0.80/-2.94	0.09/0.30	-1.33/0.24	0.09/-0.33	-1.11/-1.05	-2.67/-3.19	-1.27/-3.36	-5.74/-3.86	-3.15/-7.44
Θ(80°)	-4.79/-6.24	-3.50/-4.89	-3.07/-3.66	-7.31/-8.69	-10.31/-12.74	-8.42/-2.59	-0.67/-1.20	-1.18/-1.56	-2.55/-1.86	-1.50/-1.65	-0.15/-0.06	-0.92/0.56	0.45/-1.92	-0.11/0.74	2.51/-0.64	-0.36/-0.50	-5.88/-3.77	-5.01/-7.10
Θ(90°)	-6.49/-8.02	-7.87/-11.11	-4.80/-4.83	-2.57/-4.72	-7.12/-8.22	-6.05/-2.16	-0.24/0.34											

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

