



Antenna Composite Gain Test Report

Equipment	WiFi 7 Router
Model Name	SBE1V1K
Applicant	ASKEY COMPUTER CORPORATION 10F, No.119, Jiankang Rd., Zhonghe Dist., New Taipei City, Taiwan
Manufacturer	ASKEY COMPUTER CORPORATION 10F, No.119, Jiankang Rd., Zhonghe Dist., New Taipei City, Taiwan
Standard	KDB 662911 D03 v01
Sample Received	Dec. 08, 2023
Start Test Date	Dec. 09, 2023
Final Test Date	Dec. 09, 2023


Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



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1. Operation Mode and Antenna Information

Antenna Position	RF Port	Brand Name	Model Name	Ant. Type	Connector	Modes of Operation
2G5G Ant1	1	NA	N03AKBYA	PCB	I-Pex	2.4G+5G
2G5G Ant2	2	NA	N03AKBYB	PCB	I-Pex	2.4G+5G
2G5G Ant3	3	NA	N03AKBYC	PCB	I-Pex	2.4G+5G
2G5G Ant4	4	NA	N03AKBYD	PCB	I-Pex	2.4G+5G
6G Ant1	1	NA	N06AKBYE	PCB	I-Pex	6G
6G Ant2	2	NA	N06AKBYF	PCB	I-Pex	6G
6G Ant3	3	NA	N06AKBG	PCB	I-Pex	6G
6G Ant4	4	NA	N06AKBYH	PCB	I-Pex	6G
IOT Ant	1	NA	N01AKBYJ	PCB	I-Pex	BT+Thread

Note:

2.4GHz, 5GHz Operation Mode (4TX/4RX)

2G5G Ant1~2G5G Ant4 could transmit/receive simultaneously.

6GHz Operation Mode (4TX/4RX)

6G Ant1~6G Ant4 could transmit/receive simultaneously.

BT Operation Mode (1TX/1RX)

IOT Ant could transmit/receive.

Thread Operation Mode (1TX/1RX)

IOT Ant could transmit/receive.

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
5925-6425	6175
6425-6525	6475
6525-6875	6695
6875-7125	6995



3. Testing Location

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
☒ Wen 33rd.St.	ADD:	No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)		
	TEL: 886-3-318-0787	FAX: 886-3-318-0287		
Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	05CH03-HY	Vivi Jiang	23.5~24.5°C / 50~55%	09/Dec/2023

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

Characteristic: Fully Anechoic Chamber

4. Test Facility and Configuration

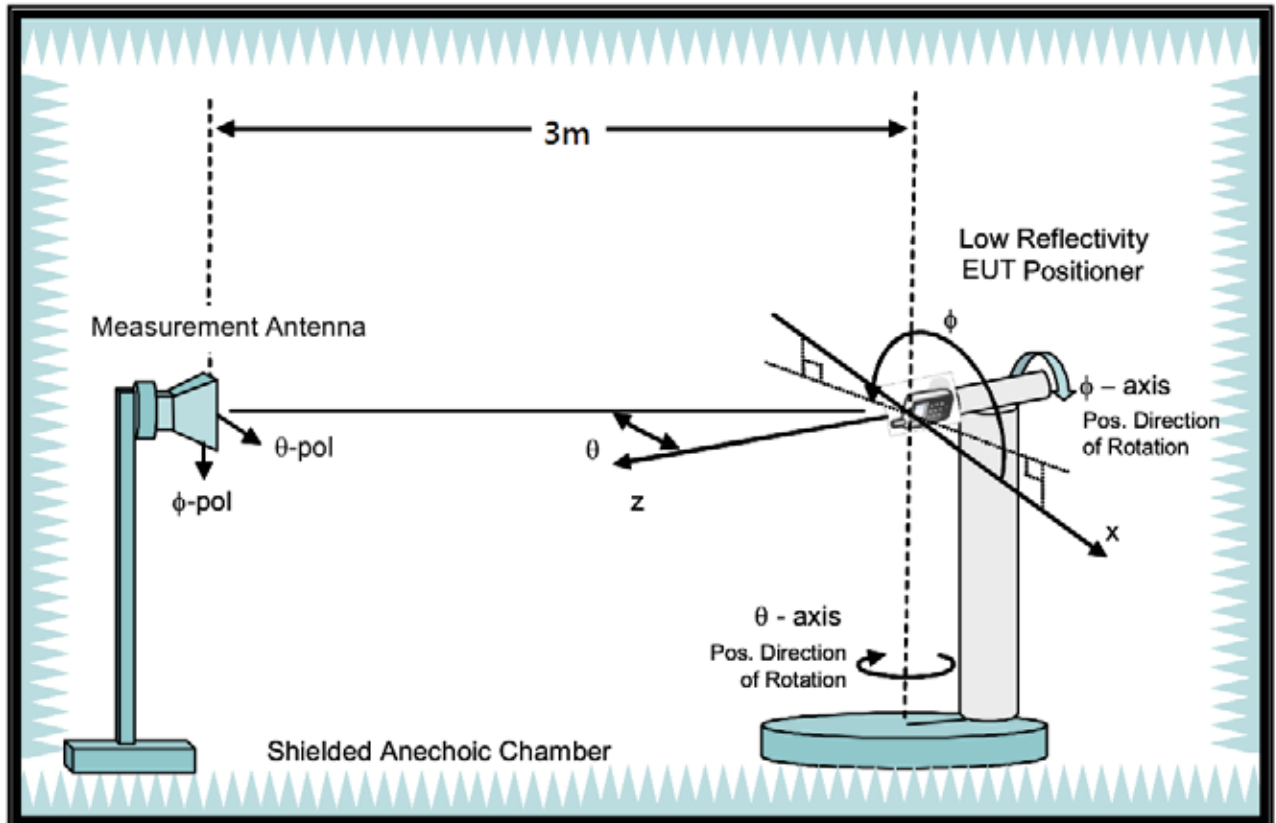
Test configuration: Reference to CITA OTA distributed-axes system configuration.

Chamber: Fully Anechoic Chamber.

Measurement antenna: Dual Polarization Horn antenna

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

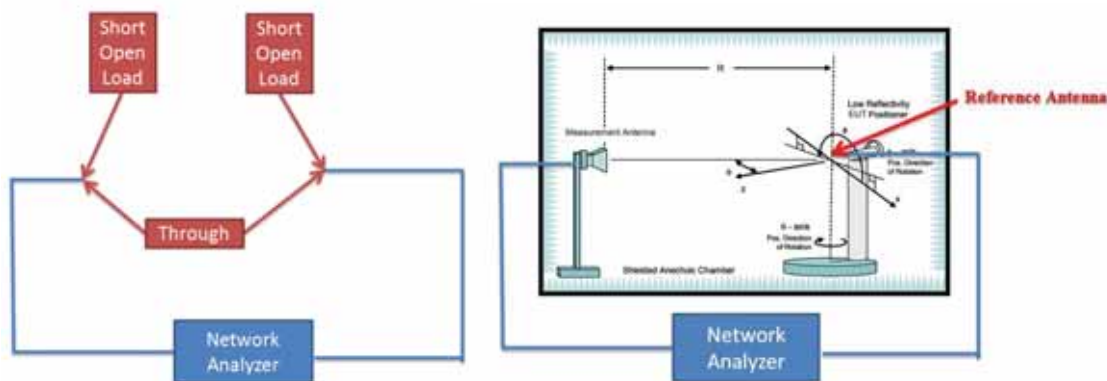
#Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1"



5. Reference Calibration

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

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



Frequency (MHz)	2400	2450	2500	5150	5200	5300	5600	5750	5800	5900	6000	6500	7000	7200
G(theta) reading (dB)	-33.75	-33.64	-32.91	-32.21	-32.45	-32.33	-32.57	-32.94	-32.78	-33.35	-32.91	-33.81	-34.54	-35.64
G(phi) reading (dB)	-33.19	-32.12	-32.48	-32.51	-32.64	-31.68	-32.24	-32.45	-32.45	-32.85	-32.45	-33.62	-34.48	-35.24
Reference gain (dBi)	10	10.4	10.6	12.3	12.5	13.3	13.3	13.2	13.1	13	13.2	12.4	11.8	11.1
Factor(theta) (dB)	43.75	44.04	43.51	44.51	44.95	45.63	45.87	46.14	45.88	46.35	46.11	46.21	46.34	46.74
Factor(phi) (dB)	43.19	42.52	43.08	44.81	45.14	44.98	45.54	45.65	45.55	45.85	45.65	46.02	46.28	46.34

Note:

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

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

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

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



6. Test Method

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

DG steps:

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

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



7. Measured Values and Calculation of Maximum Gain Positions

DG_1SS max value position

2G5G Ant.

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 (dBi)	-0.32	-3.02	-9.45	-5.22	-8.9
Ant. 2 (dBi)	-0.19	1.96	0.36	3.82	2.15
Ant. 3 (dBi)	-6.32	0.9	4.45	2.1	4.43
Ant. 4 (dBi))	-5.15	-5.82	-2.72	-5.37	-2.25
DG [1SS] (dBi)	3.46	5.06	5.53	5.83	6.19
Polarization	Phi	Theta	Theta	Theta	Theta
$\Theta(^{\circ})$	120	52.5	105	127.5	105
$\Phi(^{\circ})$	322.5	172.5	270	240	262.5

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

6G Ant.

Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 (dBi)	-2.97	-1.46	-3.36	-0.71
Ant. 2 (dBi)	1.54	0.92	2.41	-0.54
Ant. 3 (dBi)	2.46	2.73	1	0.38
Ant. 4 (dBi))	0.2	1.07	0.42	0.47
DG [1SS] (dBi)	6.56	6.96	6.38	5.94
Polarization	Theta	Theta	Theta	Theta
$\Theta(^{\circ})$	97.5	97.5	105	105
$\Phi(^{\circ})$	352.5	345	345	352.5

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

**DG_1SS max value position calculation****2G5G Ant.**

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 [10 ^{^(G/20)}]	10 ^{^(-0.32/20)}	10 ^{^(-3.02/20)}	10 ^{^(-9.45/20)}	10 ^{^(-5.22/20)}	10 ^{^(-8.9/20)}
Ant. 2 [10 ^{^(G/20)}]	10 ^{^(-0.19/20)}	10 ^{^(1.96/20)}	10 ^{^(0.36/20)}	10 ^{^(3.82/20)}	10 ^{^(2.15/20)}
Ant. 3 [10 ^{^(G/20)}]	10 ^{^(-6.32/20)}	10 ^{^(0.9/20)}	10 ^{^(4.45/20)}	10 ^{^(2.1/20)}	10 ^{^(4.43/20)}
Ant. 4 [10 ^{^(G/20)}]	10 ^{^(-5.15/20)}	10 ^{^(-5.82/20)}	10 ^{^(-2.72/20)}	10 ^{^(-5.37/20)}	10 ^{^(-2.25/20)}
Ant. 1 [10 ^{^(G/20)}] value	0.964	0.706	0.337	0.548	0.359
Ant. 2 [10 ^{^(G/20)}] value	0.978	1.253	1.042	1.552	1.281
Ant. 3 [10 ^{^(G/20)}] value	0.483	1.109	1.669	1.274	1.665
Ant. 4 [10 ^{^(G/20)}] value	0.553	0.512	0.731	0.539	0.772
Sum All Antenna [Amax]	2.978	3.58	3.78	3.913	4.077
DG [10*log(Amax ² /Nant)]	3.46	5.06	5.53	5.83	6.19

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) = $10 \cdot \log(10^{(G_{ant1}/20)} + 10^{(G_{ant2}/20)} + 10^{(G_{ant3}/20)} + 10^{(G_{ant4}/20)} + \dots)^2 / N_{ant}$ **6G Ant.**

Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 [10 ^{^(G/20)}]	10 ^{^(-2.97/20)}	10 ^{^(-1.46/20)}	10 ^{^(-3.36/20)}	10 ^{^(-0.71/20)}
Ant. 2 [10 ^{^(G/20)}]	10 ^{^(1.54/20)}	10 ^{^(0.92/20)}	10 ^{^(2.41/20)}	10 ^{^(-0.54/20)}
Ant. 3 [10 ^{^(G/20)}]	10 ^{^(2.46/20)}	10 ^{^(2.73/20)}	10 ^{^(1/20)}	10 ^{^(0.38/20)}
Ant. 4 [10 ^{^(G/20)}]	10 ^{^(0.2/20)}	10 ^{^(1.07/20)}	10 ^{^(0.42/20)}	10 ^{^(0.47/20)}
Ant. 1 [10 ^{^(G/20)}] value	0.71	0.845	0.679	0.922
Ant. 2 [10 ^{^(G/20)}] value	1.194	1.112	1.32	0.94
Ant. 3 [10 ^{^(G/20)}] value	1.327	1.369	1.122	1.045
Ant. 4 [10 ^{^(G/20)}] value	1.023	1.131	1.05	1.056
Sum All Antenna [Amax]	4.255	4.457	4.171	3.962
DG [10*log(Amax ² /Nant)]	6.56	6.96	6.38	5.94

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

2G5G Ant.

Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	3.1	4.97	5.15	5.24	5.22
Ant. 2 Max Gain (dBi)	1.08	3.48	3.77	4.84	4.89
Ant. 3 Max Gain (dBi)	1.62	2.48	4.45	4.3	5.28
Ant. 4 Max Gain (dBi)	1.27	1.28	2.25	3.67	4.13
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/82.5/90	Phi/97.5/90	Phi/112.5/90	Phi/105/90	Phi/97.5/90
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/142.5/330	Theta/112.5/247.5	Theta/112.5/255	Theta/112.5/247.5	Theta/112.5/247.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/105/247.5	Theta/120/232.5	Theta/105/270	Theta/105/262.5	Theta/112.5/270
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/322.5	Theta/135/52.5	Theta/120/67.5	Theta/90/135	Theta/120/105
Max Gain (dBi)	3.1	4.97	5.15	5.24	5.28
DG [1SS] (dBi)	3.46	5.06	5.53	5.83	6.19
DG [2SS] (dBi)	3.1	4.97	5.15	5.24	5.28
DG [4SS] (dBi)	3.1	4.97	5.15	5.24	5.28

Note:

1. Antenna max gain is the max value of each individual antenna through all measurement angles.
2. The max gain is the max value of all antennas.
3. Directional Gain (2SS) = Directional Gain (1SS) – 3dB. If directional gain is less than max gain, use max gain as directional gain. Refer to KDB662911D01 (F) (2) (e) (ii)
4. Directional Gain (4SS) = Directional Gain (1SS) – 6dB. If directional gain is less than max gain, use max gain as directional gain. Refer to KDB662911D01 (F) (2) (e) (ii)

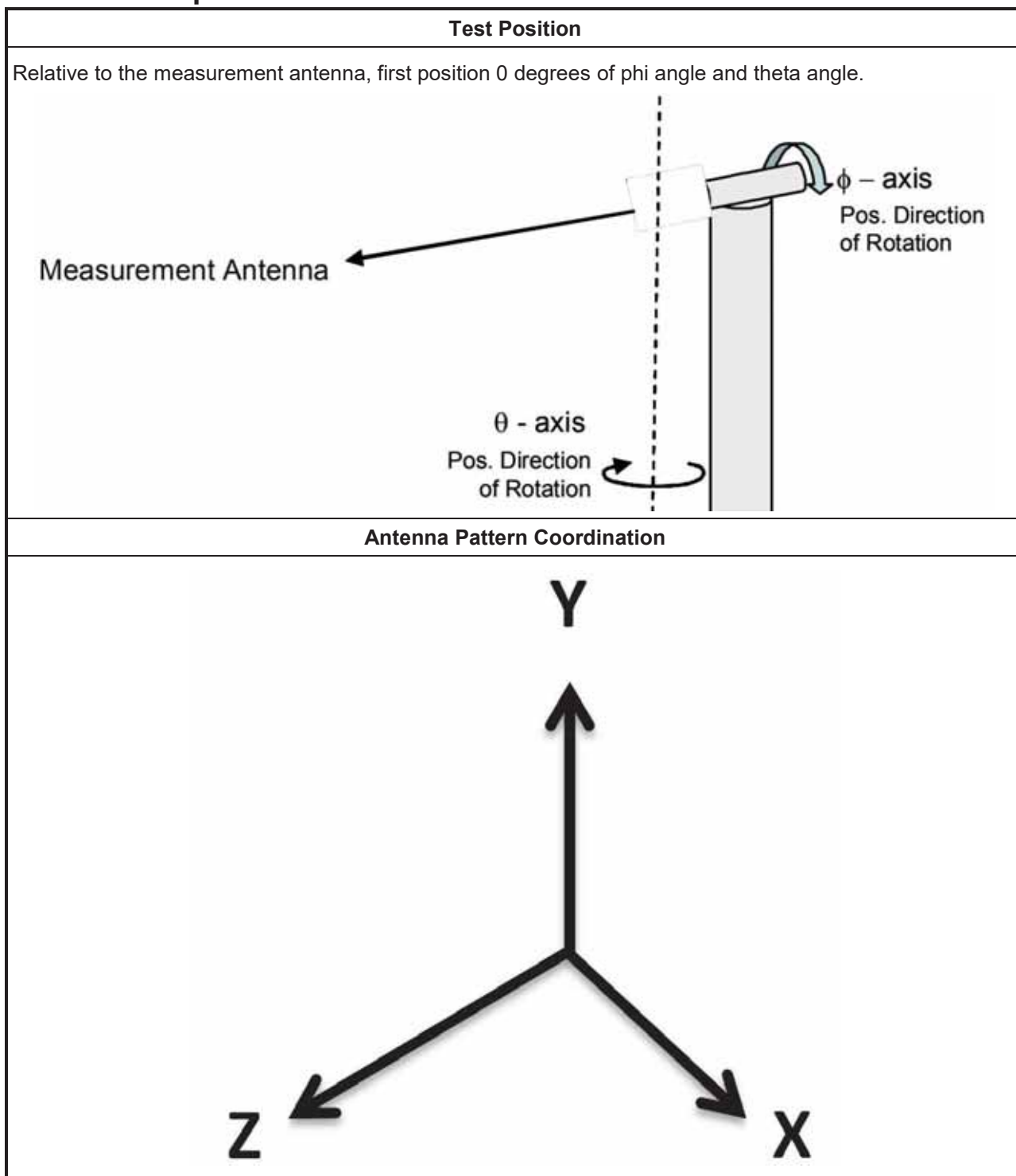
**6G Ant.**

Freq(Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	3.65	2.68	2.4	2.38
Ant. 2 Max Gain (dBi)	3.09	2.54	3.38	1.79
Ant. 3 Max Gain (dBi)	4.21	3.27	3.47	2.7
Ant. 4 Max Gain (dBi)	3.78	3.55	2.51	2.69
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/45/165	Theta/127.5/345	Theta/45/195	Theta/45/187.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/45/30	Theta/127.5/187.5	Theta/127.5/187.5	Theta/75/30
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/82.5/82.5	Theta/90/352.5	Theta/82.5/75	Theta/97.5/75
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/97.5/292.5	Theta/97.5/330	Theta/97.5/105	Theta/75/7.5
Max Gain (dBi)	4.21	3.55	3.47	2.7
DG [1SS] (dBi)	6.56	6.96	6.38	5.94
DG [2SS] (dBi)	4.21	3.96	3.47	2.94
DG [4SS] (dBi)	4.21	3.55	3.47	2.7

Note:

1. Antenna max gain is the max value of each individual antenna through all measurement angles.
2. The max gain is the max value of all antennas.
3. Directional Gain (2SS) = Directional Gain (1SS) – 3dB. If directional gain is less than max gain, use max gain as directional gain. Refer to KDB662911D01 (F) (2) (e) (ii)
4. Directional Gain (4SS) = Directional Gain (1SS) – 6dB. If directional gain is less than max gain, use max gain as directional gain. Refer to KDB662911D01 (F) (2) (e) (ii)

9. Test Setup



Note:

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

**10. Test Equipment and Calibration Data**

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1543	1GHz~18GHz	May 11, 2023	May 10, 2024
Dual Polarization Horn Antenna	Sporton	S0209DP	S0209DP-001	2GHz~9GHz	N.C.R.	N.C.R.
ENA Series Network Analyzer	AGILENT	E5071C	MY46419477	100kHz~8.5GHz	Jul. 28, 2023	Jul. 27, 2024
VNA Calibration Kit	TS RF	TS85033E-F	-	DC~9GHz	N.C.R.	N.C.R.
Multi-axis positioner	Sporton	MAPS01	MAPS01-001	Theta / Phi axis	N.C.R.	N.C.R.
Test Software	SPORTON	SENSE-RDG	V1.0.8	-	N.C.R.	N.C.R.

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

NCR means Non-Calibration required.



11. Test Results

Please refer to the appendix.

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————THE END————



Radiated Composite Gain Data of 2.4GHz&5GHz

Appendix A

Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	3.1	4.97	5.15	5.24	5.22
Ant. 2 Max Gain (dBi)	1.08	3.48	3.77	4.84	4.89
Ant. 3 Max Gain (dBi)	1.62	2.48	4.45	4.3	5.28
Ant. 4 Max Gain (dBi)	1.27	1.28	2.25	3.67	4.13
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/82.5/90	Phi/97.5/90	Phi/112.5/90	Phi/105/90	Phi/97.5/90
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/142.5/330	Theta/112.5/247.5	Theta/112.5/255	Theta/112.5/247.5	Theta/112.5/247.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/105/247.5	Theta/120/232.5	Theta/105/270	Theta/105/262.5	Theta/112.5/270
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/322.5	Theta/135/52.5	Theta/120/67.5	Theta/90/135	Theta/120/105
Max Gain (dBi)	3.1	4.97	5.15	5.24	5.28
DG [1SS] (dBi)	3.46	5.06	5.53	5.83	6.19
DG [2SS] (dBi)	3.1	4.97	5.15	5.24	5.28
DG [4SS] (dBi)	3.1	4.97	5.15	5.24	5.28

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Radiated Composite Gain Data of 2.4GHz&5GHz

Appendix A

φ(80°)	0.03/0.61	-1/2.59	-4.1/-4.61	-3.4/-1.75	-1.3/-1.72	-1.54/0.34	0.55/0.61	0.45/0.33	-1.77/-4.95	-5/-3.07	-2.31/2.55	-2.28/-1.92	-0.95/0.32	0.94/1.05	0.27/0.89	-1.7/-2.25	-2.59/-2.48	-2.95/-1.43	-0.48/0.48	-6.3/0.09	0.96/0.45	0.42/0.14	-0.3/-0.29	-0.49/0.24
φ(87.5°)	-1.17/-0.8	-4.15/0.49	-0.15/-1.43	-4.13/-3.98	-2.65/-1.99	-1.02/-0.03	0.15/-0.95	-0.08/0.07	-2.48/-5.06	-5.94/-4.62	-3.21/-3.1	-2.88/-2.48	-1.85/-0.51	1.34/0.31	1.89/1.15	0.15/0.15	0.18/-0.98	-0.98/-1.09	-1.4/-1.57	-1.03/-1.53	-0.51/0.54	0.58/-0.25	-1.28/-1.9	-1.06/-1.28
φ(95°)	-0.89/-1.73	-3.17/-2.98	-4.1/-5.47	-5.5/-3.79	-3.82/-3.45	-1.59/-0.46	-1.91/-2.18	-0.52/-0.82	-6.08/-5.9	-4.28/-2.77	-2.54/-3.25	-3.1/-1.37	-1.11/-0.13	0.23/0.33	0.66/-0.05	-0.23/-1.41	-1.54/-2.33	-3.12/-2.23	-3.1/3.6	-2.56/-2.81	-3.69/-1.91	-1.38/-1.85	-2.21/-1.5	-0.98/-1.02
φ(82.5°)	0.87/0.11	-2.18/-3.59	-4.45/-4.31	-4.54/-3.48	-2.35/-1.85	-1.69/-1.66	-3.53/-3.8	-3.89/-3.83	-3.4/-2.84	-2.52/-0.53	-2.87/-1.93	-3.8/-3.24	-3.93/-3.29	-4.46/-2.62	-3.88/-0.56	0.19/0.14	-0.87/-1.93	-3.86/-5.23	-5.37/-5.15	-4.46/-3.52	-2.74/-0.63	0.15/-0.54	0.37/-0.75	-0.35/0.84
φ(90°)	-2.1/-2.99	-5.57/0.94	-7.48/-4.44	-3.8/-4.28	-2.85/-2.31	0.63/0.72	0.86/0.16	-1.22/-2.16	-5.17/-7.34	-7/2/6	-4.98/-3.9	-4.98/-4.64	-5.1/-5.18	-2.12/-2.2	-2.13/-1.34	-0.96/0.68	0.28/-1.86	-3.1/-7.49	-5.95/-6.92	-5.94/-2.9	-1.35/0.41	1/0.23	-0.88/0.78	-1.58/-1.15
φ(87.5°)	5.35/5.99	-8.18/-2.44	-2.28/-2.77	-3.31/-4.72	-4.1/-1.6	0.81/72	1.74/0.39	-0.28/-1.54	-5.84/-7.96	-8.49/-6.19	-3.77/-4.25	-4.53/-7.11	-4.47/-2.73	-0.59/-0.6	0.58/-1.06	1.04/2.04	0.86/-1.82	-2.14/-2.06	-3.59/-2.19	-3.21/0.17	2.25/2.46	1.31/0.23	-1.63/-1.51	-2.41/-3.16
φ(105°)	9.12/-3.74	-4.26/8	0.32/0.08	-3.08/-1.69	-1.87/-2.4	-0.071/52	2.61/2.7	0.71/-4.5	6.71/-4.61	-4.57/-2.99	-1.271/-66	-0.83/-3.36	-2.91/4	-0.96/75	1.89/1.64	1.69/1.04	1.03/0.67	0.6/-0.74	-0.88/-2.84	-3.2/-1.16	0.61/1.48	-0.51/2.09	-2.74/-3.51	-3.44/-5.17
φ(112.5°)	-4.1/-3.56	1.51/0.54	-0.73/-3.02	-3.8/-1.52	2.84/-3.4	-1.62/0.67	1.45/0.91	-1.55/-4.78	7.59/-5.11	-2.48/-1.45	-1.54/-2.46	-2.72/-2.98	-2.271/-1.51	-0.531/-49	2.36/2.93	1.36/43	-0.74/0.07	0.35/0.35	0.55/-1.14	-3.55/-1.14	-1.45/-0.84	-0.79/-1.76	-2.33/-1.93	-2.48/-2.48
φ(120°)	2.33/-0.79	0.66/0.75	-1.45/-3.67	-3.48/-4.19	-1.43/-1.58	0.03/3	-0.28/-1.63	-3.64/-7.46	-7.23/-4.25	-2.35/-2.76	-2.86/-2.85	-2/41	-1.62/-1.2	-1.12/-2.43	-1.33/-0.47	-0.28/-1.27	-0.66/-1.24	-2.17/0.15	-0.92/-3.43	-2.81/-1.88	-1.58/-1.61	0.55/3.63	-2.48/-0.3	1.51/-0.03
φ(127.5°)	1.98/-4.23	-1.88/0.84	-0.47/-2.18	-1.19/-2.85	-4.55/-3.18	-1.42/-0.57	-2.8/6.04	-6.44/-7.46	-6.89/-3.03	-1.76/2.03	-1.58/-3.12	-2.23/-2.78	-2.38/-4.17	-3.4/3.97	-3.03/-1.75	-3.45/-2.42	-1.5/-2.9	-4.07/0.41	-1.24/-0.35	-1.96/-1.75	-0.81/-0.94	-0.88/-0.9	-0.65/-1.4	1.31/0.72
φ(135°)	1.48/-0.5	-2.55/-6.18	-4.07/-6.99	-4.10/-2.62	-4.22/-4.56	-4.53/-4.7	5.4/6.72	-4.12/-3.38	2.3/0.1	0.79/0.01	-1.38/-4.06	-4.57/4.93	-3.63/-4.22	-0.33/-0.32	-3.39/-4.62	-4.4/-2.47	-8.18/-1.12	1.07/0.97	-3.47/-2.01	0.02/0.29	0.32/-0.28	1.25/-3.55	-4.64/-3.47	0.66/-2.38
φ(142.5°)	2.94/3.75	-2.59/-2.91	-3.21/-4.5	-5.62/-4.37	-3.41/-3.09	-4.38/-6.25	5.61/0.75	2.07/-0.49	3.22/-2.91	3.36/3.83	-4.32/-4.8	8.44/-3.01	-5.81/-7.02	5.52/-6.52	6.34/-6.8	2.83/-3.1	-4/0.35	1.74/0.36	3.28/-2.23	0.09/1	1.01/-0.52	-1.09/-3.44	-4.27/-4.02	-2.98/-1.97
φ(150°)	1.43/-2.91	-2.27/-2.78	-3.36/-3.13	-3.82/-4.48	-4.86/-4.72	-4.57/-4.13	-3.07/-3.21	-1.88/-1.42	2.68/-5.86	6.53/-74	-1.62/-2.1	-1.74/-1.68	3.7/-5.16	5.61/-5.14	6.63/-6.52	-5.72/-8.06	-8.88/-3.71	0.41/-0.45	-4.47/0.38	-3.24/-3.56	-0.22/-1.49	-3.39/-4.14	-2.41/-3.8	1.37/0.8
φ(157.5°)	-8.61/-18	-3.67/-4.24	-5.96/-7.86	-8.09/-6.25	-6.62/-4.6	-3.53/-3.9	-3.05/-2.87	-3.17/-3.46	-4.39/-6.87	-6.45/-8.65	-3.14/-2.88	-0.02/0.81	0.23/-2.81	-3.34/-2.73	-4.56/-7.79	-10.99/-1.27	-8.83/-6.96	-3.84/-3.53	-5.13/-7.81	-8.25/-7.1	-7.36/-6.81	-8.88/-6.58	-5.51/-5.16	-0.44/-0.01
φ(165°)	-1.07/-2.38	-4.26/-7.25	-8.18/-7.51	-6.72/-6.04	-6.17/-7.25	-8.78/-8.82	-7.24/-6.72	-4.88/-4.37	-5.28/-3.7	-9.81/-8.67	-6.89/-5.1	-4.2/-4.04	-4.97/-4.13	-8.91/-6.84	-5.54/-6.1	-5.39/-6.94	-4.26/-2.88	-1.93/-1.56	-1.58/-2.83	-4.89/-4.28	-7.54/-6.62	-4.38/-2.1	-0.87/-0.92	-0.88/-0.73
φ(172.5°)	-6.01/-6.74	-5.84/-4.92	-4.21/-4.29	-4.39/-5.13	-7.37/-10.16	-11.29/-9.13	-8.95/-7.85	-7.16/-6.4	-6.55/-6.15	-4.36/-3.55	-3.23/-3.3	-3.35/-3.37	-3.75/-4.68	-4.83/-4.35	-3.93/-1.89	-0.88/-0.89	-1.41/-1.99	-2.84/-2.46	-2.57/-2.66	-2.54/-2.23	-1.38/-0.51	-1.06/-2.68	-3.54/-4.23	
φ(180°)	-6.98/-6.85	-7.87/-8.55	-8.72/-6.71	-6.27/-4.37	-4.12/-4.36	-3.91/-3.69	-4.54/-4.85	-4.18/-3.61	-4.01/-4.25	-4.27/-4.33	-4.78/-4.82	-5.1/-6.06	-7.08/-4.91	-6.99/-6.66	-5.02/-4.28	-3.38/-2.63	-2.64/-2.55	-2.49/-2.37	-2.66/-2.93	-2.98/-3.22	-3.1/-3.98	-4.98/-5.39	-6.02/-6.45	-6.73/-6.31
Freq(Hz)	5.785GHz	Thetas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Qd(B)	φ(0°)/φ(97.5°)	φ(15°)/φ(22.5°)	φ(30°)/φ(37.5°)	φ(45°)/φ(52.5°)	φ(60°)/φ(67.5°)	φ(75°)/φ(82.5°)	φ(90°)/φ(97.5°)	φ(105°)/φ(112.5°)	φ(120°)/φ(127.5°)	φ(135°)/φ(142.5°)	φ(150°)/φ(157.5°)	φ(165°)/φ(172.5°)	φ(180°)/φ(187.5°)	φ(195°)/φ(202.5°)	φ(210°)/φ(217.5°)	φ(225°)/φ(232.5°)	φ(240°)/φ(247.5°)	φ(255°)/φ(262.5°)	φ(270°)/φ(277.5°)	φ(285°)/φ(292.5°)	φ(300°)/φ(307.5°)	φ(315°)/φ(322.5°)	φ(330°)/φ(337.5°)	φ(345°)/φ(352.5°)
φ(8°)	-1.64/-1.11	-1.06/-1.07	-0.54/-0.35	-0.68/-1.08	-1.52/-1.85	-2.18/-2.74	-3.25/-3.77	-4.4/-5.01	-5.56/-5.69	-5.18/-4.17	-3.43/-2.67	-2.35/-1.86	-1.57/-1.16	-1.12/-0.92	-0.18/-1.27	-2.03/-2.33	-2.3/-2.61	-2.96/-3.4	-3.74/-4.1	-4.51/-5.38	-6.06/-6.18	-6.41/-5.63	-6.61/-6.31	-2.8/-2.51
φ(17.5°)	-1.74/-1.28	-1.22/-1.1	-1.02/-0.75	-1.41/-1.78	-2.01/-2.77	-3.48/-4.11	-4.81/-5.63	-6.04/-6.77	-7.17/-7.69	-6.87/-6.99	-4.38/-3.61	-2.74/-2.09	-1.81/-1.35	-1.35/-1.18	-1.38/-1.75	-2/1.96	-1.88/-1.82	-1.94/-2.42	-2.87/-2.97	-3.07/-3.4	-3.75/-4.12	-3.8/-3.67	-3.05/-2.38	-2.08/-2.16
φ(15°)	-1.35/-0.29	0.03/-0.55	-1.69/-1.63	-1.66/-1.91	-2.22/-2.82	-3.09/-3.27	-3.41/-3.24	-4.51/-5.3	6.43/-6.94	6.19/-5.73	-4.59/-3.66	-2.81/-2.28	-1.89/-1.71	-1.65/-1.55	-1.89/-2.19	-2.62/-2.43	-2.22/-2.09	-1.97/-1.54	-1.15/-1.03	-1.21/-2.19	-2.71/-3.51	-3.11/-2.79	-2.57/-1.89	-1.93/-1.89
φ(22.5°)	1.231/23	1.471/3	0.211/0.77	-1.43/-2.08	-2.21/-2.55	-2.34/-1.89	-1.88/-2.62	-3.44/-3.78	-4.88/-4.61	-3.88/-3.43	-3.11/-2.37	-1.81/-1.4	-1.53/-1.72	-1.56/-1.67	-1.78/-1.94	-1.3/-0.93	-0.72/-0.38	0.35/0.76	0.52/0.1	-0.44/-1.47	-2.51/-2.37	-1.73/-0.58	0.271/0.9	1.25/0.96
φ(30°)	2.68/2.25	1.69/1.6	1.69/1.23	0.32/-2.16	-4.23/-5.44	-3.57/-1.66	-0.96/-6.26	0.54/-0.88	-2.47/-2.53	-0.64/0.88	1.95/1.74	0.71/0.4	-0.48/-0.57	-0.66/-0.52	-0.31/-0.74	-1.92/-2.38	-2.21/-1.69	-1.12/0.4	-0.11/0.16	6.5/-2.07	-3.66/-2.56	-1.75/-1.19	-0.12/0.91	1.82/39
φ(37.5°)	1.96/1.58	1.45/1.54	1.61/1.33	0.43/-1.47	-3.88/-4.49	-2.16/-6.45	0.89/0.55	-0.17/-0.13	-0.29/-0.49	0.69/1.73	2.11/1.8	1.01/27	0.91/-0.9	-0.54/-0.49	-1.31/-1.74	-0.86/0.02	0.13/-0.54	-1.27/-1.21	-6.22/-6.96	-2.47/-3.94	-4.24/-4.64	-4.09/-2.55	-1.47/-0.3	0.77/1.67
φ(45°)	1.54/2.69	3.17/2.83	2.72/1.79	0.93/-0.6	-2.01/-3.11	-2.54/-3.08	0.46/0.01	0.37/0.6	0.63/-0.01	0.19/0.42	0.38/-0.45	-1.44/-3.35	-4.42/-5.16	-4.29/-1.65	0.15/0.23	-0.79/-1.06	-0.14/0.01	-0.48/-0.69	-1.12/-0.84	0.25/-0.9	-2.96/-4.07	-5.04/-4.61	-2.86/-1.68	-0.78/-1.11
φ(52.5°)	0.41/0.69	1.21/0.37	1.70/0.9	0.37/0.12	0.171/0.99	0.49/1.15	0.88/1.16	1.54/1.38	1/1.14	1.371/43	1.380/73	0.34/0.01	1.68/-2.54	1.96/-0.32	1.42/0.32	1.63/-0.1	0.92/1.93	1.18/0.01	0.48/0.15	0.36/0.32	-1.31/-1.91	-1.46/1	-1.87/-1.9	-1.56/-1.23
φ(60°)	-0.25/0.84	1/1.57	1.51/1.04	1.03/-1.55	2/0.5	3.59/0.5	2.44/-1.91	2.08/1.69	0.85/0.16	1.25/0.6	1.222/17	3.01/-2.91	0.73/-0.93	-0.38/0.06	0.61/-0.29	2.931/32	0.44/-0.03	0.83/-1.53	0.23/0.52	0.34/-0.01	-0.13/0.69	1.82/1.4	1.48/-0	-1.91/-1.74
φ(67.5°)	-3.071/-1.61	-1.8/-1.43	-2.01/-0.82	0.57/2.16	3.37/0.01	4.05/0.6	2.811/-0.2	0.891/-31	1.26/32	0.28/0.85	1.48/2.08	2.52/87	2.32/0.05	2.07/1.77	2.58/1.81	1.571/-71	0.271/-0.81	1.11/0.6	0.14/-0.7	-0.04/0.81	0.41/2.03	2.27/2.23	1.25/-0.93	-3.72/-5.28
φ(75°)	-2.28/0.48	0.12/0.22	0.87/0.24	2.77/2.4	2.76/0.36	3.57/0.07	3.32/0.4	2.42/0.11	2.15/1.75	3.16/2.73	1.941/-36	2.32/83	2.56/0.67	2.08/0.82	4.33/3	0.46/0.98	1.63/0.95	1.41/2.07	0.73/0.18	0.071/0.06	1.441/-58	1.21/-4	0.03/-0.96	-3.34/-94
φ(82.5°)	0.87/1.38	1.171/-46	1.72/0.52	2.671/87	0.852/-19	3.43/3.51	2.37/0.23	2.93/2.09	1.681/67	3.444/-23	3.78/3.14	1.53/0.84	1.46/0.64	2.12/22	4.353/69	1.961/-44	0.561/-09	3.172/87	2.281/0.4	1.432/-21	1.731/-38	2.23/2.07	1.12/0.13	-0.83/-1.54
φ(90°)	0.751/-32	1.28/11	1.984/-08	2.24/0.07	-0.32/-1.46	2.671/71	0.54/0.95	0.1/-0.81	0.641/-98	3.963/-11	1.751/-96	0.221/27	2.17/0.62	0.161/-59	3.63/2.52	0.261/-62	-0.31/-27	2.33/85	4.43/-66	2.92/35	4.003/-59	3.97/89	1.64/0.42	0.03/0.53
φ(97.5°)	1.81/1.8	2.681/9	2.522/-36	0.371/-126	0.021/-48	1.64/0.34	2.342/-06	0.782/73	3.78/3.8	3.362/-81	1.531/-29	0.390/93	2.36/0.88	-1.44/0.13	2.82/21	2.362/-28	1.611/-78	4.155/-52	5.995/-33	3.821/-86	34/54	3.052/-31	0.451/-74	0.67/0.99
φ(105°)	2.352/83	4.62/44	2.062/-28	-1.36/-1.22	1.31/1.1	-0.88/1.07	3.062/-76	2.122/-36	2.72/-58	1.34/0.69	-1.22/0.07	-0.27/-0.51	2.68/1.07	-0.02/0.74	1.122/0.4	0.832/-13	3.645/-88	5.18/-19	5.62/49	3.10/-39	2.84/0.32	3.191/-6	0.44/0.42	1.192/-34
φ(112.5°)	1.731/-41	3.521/99	0/-1.29	-2.27/-1.47	-0.15/-1.75	1.66/0.4	3.36/0.42	2.762/-03	0.2/-2.3	-1.29/-3.22	-2.231/-25	0.531/-67	0.51/0.02	0.79/-0.51	0.911/87	2.632/73	2.885/-24	5.75/-9	5.874/-72	4.42/-38	4.24/2.66	0.24/-0.18	-2.68/-0.95	0.44/-2.34
φ(120°)	1.21/0.37	0.78/0.32	-3.71/-1.45	0.19/-1.21	-0.63/0.26	0.81/-68	1.122/95	2.961/-35	0.15/-0.49	-1.86/-6.07	-3.55/0.33	-1.10/-56	0.17/0.74	-0.24/-0.38	1.391/-56	2.12/1.94	2.73/0.8	4.79/-49	3.41/0.34	4.16/0.51	1.37/2.73	0.35/-1.9	-2.	



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Radiated Composite Gain Data of 2.4GHz&5GHz

Appendix A

(H00*)	0.24(-2.3)	-4.76(-7.37)	-4.76(-5.38)	-3.74(-3.2)	2.84(-1.59)	0.53(2.5)	3.09(3.36)	2.78(5.4)	-3.02(-8.62)	-17.24(-17.79)	-17.91(-18.33)	-18.06(-17.9)	-14.45(-12.09)	-11.01(-7.63)	-4.15(-2.58)	-1.23(-1.77)	-1.89(-1.06)	0.62(4.3)	2.91(2.66)	2.73(2.62)	3.37(3.41)	2.99(2.48)	2.18(2.58)	2.37(1.7)
(H07*)	1.47(-1.38)	-5.46(-7.59)	-8.04(-5.52)	-4.78(-4.28)	2.95(-1.59)	4.07(-2.3)	1.89(-1.48)	0.53(-1.38)	5.44(-3.1)	-10.42(-11.48)	-12.13(-8.88)	-16.17(-14.81)	-11.87(-10.52)	6.17(-6.31)	-3.77(-1.84)	-0.94(-0.16)	-0.77(-0.28)	0.83(0.91)	0.72(2.36)	0.93(2.2)	2.72(2.58)	2.41(3.3)	0.81(-2.7)	4.1(-6.56)
(H10*)	2.25(-5.84)	-8.95(-9.1)	-6.02(-4.16)	-3.71(-3.43)	-1.24(-2.81)	-1.84(-1.66)	-3.04(-6.69)	-8.91(-13.4)	-15.45(-13.6)	-12.36(-9.36)	-9.98(-11.72)	-12.49(-9.35)	-3.86(-7.56)	-7.88(-5.1)	-3.87(-2.38)	-0.94(-0.16)	-2.94(-0.65)	-0.88(-0.42)	-0.071(-0.02)	-1.03(-0.98)	-0.54(-0.88)	-0.47(-0.67)	-0.35(-0.63)	
(H82*)	0.68(-2.26)	-5.87(-6.53)	-8.41(-7.56)	-8.27(-8.1)	5.26(-1.38)	-1.72(-2.9)	-5.89(-6.84)	8.33(-10.3)	9.06(-9.96)	-10.19(-14.6)	-14.57(-14.55)	-18.05(-14.08)	-7.83(-6.48)	7.05(-7.36)	6.93(-2.4)	-2.01(-2.1)	-1.95(-4)	4.45(-3.64)	3.31(-3.09)	-4.23(-1.9)	2.11(-1.7)	0.73(-1.48)	2.06(-1.82)	-0.48(-0.52)
(H90*)	2.35(-5.4)	-10.13(-11.5)	-6.74(-4.79)	-6.1(-5.85)	2.94(-2.9)	1.32(-3.7)	2.51(-1.92)	1.34(-2.71)	8.44(-13.52)	-11.97(-12.72)	-11.37(-10.4)	-14.89(-15.78)	-7.35(-4.05)	-4.37(-6.13)	4.47(-3.9)	6.78(-4.47)	-3.53(-3.48)	-4.78(-5.62)	-8.98(-9.77)	-6.77(-7.32)	-2.48(-2.71)	-2.63(-2.66)	-2.44(-2.65)	-1.07(-1.71)
(H07*)	8.4(-13.98)	-14.48(-2.42)	-6.56(-6.43)	-6.9(-5.95)	3.24(0.27)	3.19(0.7)	5.23(8.63)	0.93(-2.15)	12.32(-12.86)	-10.15(-15.73)	-11.36(-8.91)	-13.22(-18.61)	-17.22(-18.61)	-6.57(-6.48)	-7.13(-9.27)	4.7(-2.7)	-5.21(-6.24)	6.87(-6.25)	4.97(-5.45)	3.1(-9.98)	0.81(0.34)	-1.69(-1.87)	-1.69(-1.87)	-2.13(-9.81)
(H10*)	-11.67(-2.1)	-4.28(-9.93)	-5.67(-7.26)	-5.52(-5.25)	-1.50(-3.1)	3.24(-6.5)	5.12(-6.6)	9.38(-9.64)	-7.36(-7.13)	-7.52(-10.38)	-14.38(-19.04)	-16.4(-19.5)	-11.27(-11.17)	-10.54(-9.06)	-5.74(-4.7)	-4.43(-4.48)	-5.29(-3.14)	-1.80(-2.84)	-1.38(-0.86)	1.02(-1.06)	0.571(-1.75)	-2.79(-3.78)	-1.36(-10.3)	
(H125*)	6.13(-4.31)	-1.52(-3.13)	-4.14(-5.61)	8.01(-6.46)	2.9(-8.6)	1.82(0.29)	3.33(-8.1)	-1.85(-4.9)	7.73(-9.56)	6.72(-6.15)	-7.67(-15.54)	-16.7(-16.62)	-8.78(-12.15)	-18.89(-9.84)	6.42(-2.92)	3.31(-1.83)	3.71(-2.39)	0.48(-1)	-2.21(0.08)	1.96(-1.98)	0.07(-0.9)	0.54(-0.63)	0.35(-1.46)	
(H125*)	6.13(-4.35)	3.78(-5.69)	-10.42(-14.35)	-11.61(-7.87)	2.58(-1.7)	1.25(-1.38)	0.2(-1.65)	-3.57(-6.89)	8.33(-8.52)	-10.53(-14.6)	-16.1(-16.75)	-15.89(-16.03)	-18.87(-17.98)	-19.33(-21.28)	4.3(-3.32)	-4.23(-2.77)	2.57(0.71)	0.59(-1.39)	3.08(-1.88)	1.92(-1.7)	0.64(-3.7)	4.03(-2.75)	-1.85(-4.1)	
(H127*)	7.72(-7.4)	5.35(-6.15)	8.35(-10.46)	-0.95(-8.67)	-8.86(-3.27)	-1.26(-1.34)	-3.89(-6.34)	-8.85(-9.9)	-9.91(-11.39)	-8.88(-7.7)	-17.51(-19.19)	-14.89(-14.22)	-16.42(-13.2)	-13.35(-19.91)	-11.63(-16.3)	-13.48(-9.16)	-4.84(-6.94)	6.61(-6.82)	0.51(-4.37)	-6.93(-7.9)	2.36(-7.5)	-2.64(-8.68)	-2.07(-10.8)	
(H140*)	6.91(-5.88)	4.15(-6.18)	-10.16(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	-10.27(-17.55)	
(H140*)	7.18(-5.1)	7.9(-7.7)	7.17(-10.31)	14.91(-12.23)	6.81(-8.96)	5.72(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	6.91(-16.1)	
(H150*)	12.14(-14.58)	8.84(-8.1)	-10.12(-10.97)	6.16(-11.83)	15.77(-10.46)	9.82(-7.88)	7.94(-7.79)	4.89(-3.27)	5.08(-6.44)	14.34(-15.44)	-10.26(-12.14)	17.21(-12.23)	17.89(-18.98)	18.31(-15.26)	17.91(-10.72)	7.51(-10.33)	11.33(-5.25)	2.78(-9.9)	4.83(-7.6)	-7.87(-3.7)	3.08(-2.72)	4.83(-2.68)	6.94(-6.42)	
(H150*)	5.03(-7.36)	6.6(-7.72)	-10.86(-13.19)	-13.69(-13.09)	-11.11(-9.45)	7.94(-7.79)	4.89(-3.27)	5.08(-6.44)	3.71(-3.02)	10.31(-12.72)	7.9(-5.35)	5.0(-7.48)	5.0(-7.48)	6.95(-10.28)	15.83(-9.77)	-12.84(-8.06)	-6.54(-8.06)	-11.26(-13.78)	-10.82(-13.66)	-12.71(-10.87)	7.47(-14.4)	3.58(-12.6)		
(H150*)	2.48(-3.55)	4.27(-9.38)	-11.52(-11.7)	-12.89(-12.49)	-11.15(-10.68)	-10.95(-10.97)	-10.27(-10.43)	7.25(-7.63)	8.31(-11.87)	-15.26(-17.89)	-18.86(-14.41)	-13.09(-13.31)	-14.96(-15.62)	-14.12(-12.08)	-3.96(-7.83)	4.99(-9.61)	4.74(-9.18)	7.79(-7.46)	9.49(-10.08)	8.94(-10.3)	-11.07(-10.58)	6.36(-7.41)	5.08(-3.33)	
(H172*)	-17.19(-17.87)	-13.67(-16.46)	-8.82(-8.1)	-7.25(-8.68)	-11.40(-13.84)	-15.65(-14.24)	-13.33(-15.43)	-12.85(-12.61)	-11.11(-19.24)	-7.74(-9.67)	6.83(-6.48)	6.38(-6.28)	4.38(-6.68)	6.51(-6.04)	5.44(-6.02)	7.89(-6.81)	5.33(-6.24)	7.17(-5.96)	4.42(-6.94)	4.63(-5.35)	5.35(-4.49)	3.85(-3.43)	4.13(-5.76)	
(H180*)	-18.56(-16.2)	-13.56(-12.88)	-11.65(-9.92)	-8.47(-8.3)	-8.2(-9.49)	8.28(-8.54)	-8.12(-7.43)	-8.65(-6.39)	-7.01(-7.82)	-7.93(-7.48)	-7.53(-7.44)	-7.78(-6.83)	6.95(-10.73)	-11.78(-13.1)	-13.87(-14.39)	-13.72(-12.11)	-10.40(-9.13)	-8.53(-8.05)	-7.51(-6.87)	-7.36(-7.87)	-6.94(-7.84)	-7.87(-8.69)	-11.18(-15.38)	
Freq(Hz)	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	5.785GHz	
Gain	0.07(0.57)	0.15(0.222.5)	0.30(0.137.5)	0.45(0.195.5)	0.60(0.146.5)	0.75(0.196.5)	0.90(0.196.5)	1.05(0.196.5)	1.20(0.196.5)	1.35(0.196.5)	1.50(0.196.5)	1.65(0.196.5)	1.80(0.196.5)	1.95(0.196.5)	2.10(0.196.5)	2.25(0.196.5)	2.40(0.196.5)	2.55(0.196.5)	2.70(0.196.5)	2.85(0.196.5)	3.00(0.196.5)	3.15(0.196.5)	3.30(0.196.5)	
(H07*)	8.81(-2.77)	6.18(-4.1)	-4.95(-3.62)	-3.45(-3.65)	-3.92(-4.75)	6.08(-7.4)	-7.91(-6.87)	-12.78(-17.4)	-18.86(-17.5)	-21.64(-5.1)	-6.81(-4.69)	-14.18(-3.65)	-3.55(-3.32)	-3.39(-3.6)	4.24(-5.3)	5.16(-6.21)	6.84(-7.6)	8.44(-10.1)	-11.82(-10.1)	-18.11(-18.56)	-19.21(-17.98)	-16.43(-13.48)	-11.24(-10.2)	
(H17*)	4.94(-4.2)	4.12(-3.47)	-4.40(-3.84)	-3.84(-3.4)	-4.36(-5.28)	6.52(-7.05)	-7.89(-6.45)	-11.12(-13.26)	-14.96(-16.19)	-18.65(-18.98)	-13.31(-11.23)	-8.45(-8.45)	-7.66(-4.48)	6.51(-4.59)	4.4(-3.4)	-4.04(-3.71)	-4.9(-5.27)	6.22(-7.55)	9.26(-11.7)	-15.06(-16.31)	-17.51(-15.17)	-11.83(-11.02)	8.89(-6.48)	
(H20*)	2.46(-2.98)	2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	-2.65(-3.1)	
(H22*)	3.47(-3.27)	-2.49(-1.7)	-1.8(-2.89)	-4.17(-5.25)	-6.6(-5.1)	-11.69(-12.73)	-13.71(-14.81)	-17.30(-18.28)	-15.53(-10.24)	-4.81(-4.75)	-3.98(-3.26)	-2.63(-2.4)	-2.56(-2.32)	-0.44(-0.48)	-8.8(-8.32)	-5.57(-6.15)	-6.54(-6.1)	1.13(-6.68)	-8.44(-11.35)	-13.91(-14.18)	-15.76(-15.83)	-11.29(-11.43)	-7.51(-12.1)	
(H30*)	5.26(-3.38)	-3.3(-2.57)	-1.72(-2.4)	3.57(-6.1)	6.57(-15.95)	-10.95(-16.7)	-15.09(-12.13)	-13.1(-11.08)	-10.48(-1.1)	-11.11(-9.24)	-7.74(-9.87)	-8.03(-4.84)	-1.53(-4.24)	-2.98(-4.25)	4.27(-6.05)	-10.9(-9.9)	9.34(-9.75)	9.43(-9.61)	-11.81(-15.53)	-13.71(-14.14)	-14.11(-12.94)	-15.07(-15.86)	-10.87(-12.48)	-11.47(-11.87)
(H37*)	5.95(-4.35)	2.46(-1.75)	2.14(-4.35)	7.34(-12.3)	-10.95(-12.48)	-10.05(-9.16)	-11.34(-8.1)	-16.59(-13.48)	-11.07(-9.1)	-7.88(-6.27)	5.13(-4.01)	-3.54(-3.85)	-3.22(-3.69)	4.33(-4.22)	5.47(-11)	8.41(-8.1)	8.59(-6.48)	7.8(-8.15)	-12.67(-18.28)	-18.19(-18.56)	-17.89(-17.43)	-17.66(-13.32)	6.66(-7.71)	
(H40*)	3.59(-2.3)	2.48(-2.15)	-1.81(-3.55)	-3.56(-3.78)	3.24(-3.27)	8.84(-13.8)	-16.78(-15.32)	-18.95(-17.33)	-14.53(-10.16)	-8.68(-6.55)	-6.79(-9.14)	-11.44(-8.12)	-12.85(-8.63)	-8.45(-8.45)	5.81(-7.54)	-7.79(-7.38)	-7.21(-7.46)	6.84(-12.25)	-13.81(-13.8)	-18.91(-18.78)	-12.69(-12.42)	-7.79(-11.7)	6.53(-5.65)	
(H42*)	4.89(-4.22)	2.44(-2.27)	2.98(-4.45)	-5.2(-4.87)	4.42(-4.58)	5.27(-10.3)	6.99(-11.25)	8.89(-7.4)	7.72(-9.1)	8.91(-9.75)	-11.29(-10.3)	-12.36(-7.71)	7.01(-7.1)	6.82(-6.8)	4.67(-7.4)	4.65(-5.3)	4.65(-5.3)	4.65(-5.3)	4.65(-5.3)	4.65(-5.3)	4.65(-5.3)	4.65(-5.3)	4.65(-5.3)	
(H47*)	8.47(-6.8)	6.45(-4.4)	6.25(-5.65)	5.71(-5.36)	3.01(-4.05)	6.44(-5.25)	6.94(-11.9)	8.84(-7.4)	8.44(-6.35)	7.17(-10.3)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	8.44(-6.35)	
(H50*)	15.17(-17.6)	18.29(-19.38)	19.07(-12.35)	6.47(-8.38)	3.96(-5.84)	7.59(-5.1)	17.15(-14.4)	10.89(-7.4)	7.5(-8.4)	10.33(-10.7)	7.91(-11.2)	7.26(-9.3)	10.39(-10.6)	6.51(-7.1)	6.01(-6.1)	7.33(-8.67)	17.99(-19.08)	12.96(-16.71)	17.17(-17.33)	10.89(-9.33)	13.99(-11.2)	9.21(-17.7)	15.94(-16.92)	
(H52*)	1.25(-1.01)	8.74(-4.87)	-11.61(-13.1)	-12.25(-9.42)	9.08(-6.82)	9.29(-9.32)	14.36(-10.59)	-6.02(-3.9)	4.84(-10.94)	-10.99(-16.32)	-13.14(-10.82)	6.83(-9.59)	7.67(-13.36)	-15.45(-7.4)	7.38(-8.8)	-12.99(-9.9)	-12.16(-9.2)	-11.19(-10.43)	-12.23(-16.38)	-14.62(-15.5)	7.24(-9.7)	14.47(-10.58)	-14.72(-13.7)	
(H82*)	7.25(-5.42)	3.74(-2.47)	9.41(-16.28)	-10.42(-16.72)	-17.73(-16.06)	-18.73(-17.94)	-15.67(-5.32)	5.2(-4.82)	7.12(-10.2)	-3.77(-7.76)	-4.95(-13.34)	9.14(-10.38)	-10.36(-19.44)	-13.81(-14.5)	8.52(-5.66)	-9.59(-13.66)	-13.96(-14.3)	-13.01(-16.43)	-15.07(-16.18)	-16.91(-14.5)	6.79(-7.82)	-11.57(-17.09)	-15.12(-17.15)	
(H90*)	4.33(-6.8)	8.34(-10.38)	16.52(-12.23)	13.89(-11.7)	-11.49(-10.78)	-18.78(-16.84)	-13.55(-11.38)	8.71(-6.32)	-12.25(-16.74)	-17.27(-14.4)	-8.57(-7.3)	8.37(-9.67)	-9.47(-16.35)	-14.63(-16.3)	-10.22(-10.48)	-17.48(-19.38)	-14.08(-13.4)	-14.19(-19.27)	-15.76(-19.18)	-17.33(-13.13)	6.43(-6.55)	-10.47(-12.42)	-17.76(-18.02)	
(H97*)	5.44(-15.49)	-18.41(-19.6)	-8.3(-13.28)	-8.89(-13.51)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	-11.67(-15.74)	
(H107*)	-10.37(-9.5)	-3.57(-5.6)	4.59(-9.11)	-15.52(-15.43)	-15.75(-17.77)	-12.01(-19.18)	-16.15(-15.32)	-14.42(-11.76)	-12.07(-10.83)	-11.10(-11.29)	-8.73(-16.3)	-6.73(-4.3)	-6.92(-7.21)	-6.13(-18.34)	-17.19(-18.2)	-12.07(-12.92)	7.59(-10.35)	8.95(-6.87)	-16.41(-14.1)	-11.81(-11.73)	-17.52(-10.82)	-11.19(-11.73)	-16.45(-19.28)	
(H112*)	8.21(-4.26)	4.71(-8.84)	6.72(-13.09)	-17.72(-14.87)	-10.67(-11.78)	-17.54(-17.8)	-16.13(-14.4)	-12.22(-11.1)	7.51(-7.18)	6.33(-6.63)	-8.02(-7.1)	5.25(-6.41)	-4.9(-5.8)	4.13(-10.14)	-19.39(-19.13)	-15.02(-13.69)	6.07(-6.32)	6.95(-6.87)	8.57(-15.38)	-11.81(-11.47)	-14.12(-18.97)	-18.71(-18.6)	-18.65(-12.67)	
(H127*)	6.66(-1.67)	6.06(-6.06)	-13.84(-7)	-10.22(-16.63)	-15.02(-16.06)	-16.74(-17.																		



Radiated Composite Gain Data of 2.4GHz&5GHz

Appendix A

(H17)	-18.18-18.88	-17.88-18.41	-18.72-17.94	-18.89-19.17	-18.74-15.88	-14.13-12.91	-12.54-12.53	-12.72-12.1	-11.45-10.99	-11.14-11.81	-12.67-13.83	-15.45-17.46	-15.38-18.54	-19.11-18.22	-17.01-15.61	-14.91-14.73	-15.13-14.64	-14.18-14.06	-13.89-13.65	-13.84-13.68	-13.72-14.1	-14.45-14.72	-15.33-14.63	-17.58-18.57
(H18)	-15.11-15.01	-14.88-15.09	-15.89-16.73	-18.67-18.28	-18.05-18.88	-17.12-14.38	-13.11-12.52	-12.49-10.26	-11.27-10.68	-11.09-11.83	-12.82-13.91	-15.85-17.29	-17.43-17.12	-18.02-14.57	-13.41-13.23	-11.55-11.18	-11.55-13.58	-13.72-16.85	-15.15-16.04	-15.23-14.45	-13.95-13.88	-13.01-12.98	-13.21-13.65	-14.83-14.98
(H22)	-16.91-10.71	-10.13-10.17	-10.29-10.91	-11.99-14.79	-18.15-19.17	-17.14-17.26	-13.33-13.82	-12.32-12.62	-11.81-11.17	-11.09-11.36	-11.77-12.16	-12.32-12.05	-11.75-11.31	-11.47-10.99	-10.17-10.82	-9.13-8.86	-8.96-9.34	-10.07-10.92	-11.76-12.11	-11.55-11.63	-10.49-9.86	-8.84-8.87	-10.46-10.59	
(H30)	7.86-7.77	7.54-7.45	7.65-8.38	8.25-10.33	-13.87-18.47	-15.18-18.79	-19.03-15.28	-13.12-11.61	-10.02-8.84	8.11-7.6	-7.36-7.33	-7.24-7.23	-7.42-7.66	8.05-8.26	8.49-8.17	-7.85-8.31	8.09-7.74	8.52-8.68	8.45-8.08	8.62-9.36	7.71-8.82	6.12-6.83	8.14-8.24	8.3-7.4
(H37)	5.13-5.27	4.79-4.25	4.06-4.23	4.52-5.34	6.32-7.62	8.78-9.3	9.12-7.99	6.71-5.87	4.82-4.02	3.47-3.04	2.66-2.22	1.76-1.46	-1.41-1.84	2.54-3.38	4.16-5.2	6.37-6.83	8.88-6.35	5.65-5.11	4.79-4.48	4.29-4.09	3.84-3.46	2.81-2.89	2.59-3.38	4.06-4.91
(H52)	3.81-3.41	3.09-2.77	2.57-2.52	2.84-3.63	4.21-5.11	6.32-6.96	7.45-6.88	4.12-3.54	3.25-3.04	2.72-2.18	-1.53-0.94	0.72-0.91	-1.22-1.79	-2.84-3.82	5.19-6.34	6.61-6.31	5.05-4.32	3.81-3.45	-3.18-3.09	3.12-2.95	2.62-2.83	2.92-3.15	-3.38-3.76	
(H67)	4.81-3.79	3.13-2.49	2.34-2.2	1.95-1.82	2.03-2.62	3.24-3.58	6.75-6.71	6.78-6.72	4.48-3.76	3.61-3.56	3.42-3.82	2.39-1.91	1.61-1.36	1.26-1.23	-1.59-2.27	3.31-4.53	5.09-4.88	3.71-3.05	2.68-2.47	2.41-2.53	2.72-2.94	2.28-2.87	3.81-4.46	
(H75)	4.06-2.51	1.54-1.22	1.34-1.33	1.27-1.34	1.86-2.44	3.74-5.47	7.55-6.37	8.62-8.23	8.75-8.03	6.18-6.05	5.19-5.15	3.36-3.51	2.94-2.68	2.07-2.17	1.41-1.18	2.57-3.45	3.84-3.5	2.88-2.37	2.06-2	3-1.96	1.78-1.65	-1.89-2.46	3.85-5.1	6.01-5.15
(H75)	3.29-2.5	1.59-1.14	1.86-1.37	1.81-1.95	2.58-3.49	5.12-5.27	10.14-11.3	-10.51-9	7.89-7.89	8.44-8.36	7.51-6.16	6.93-5.88	5.19-4.18	2.98-1.83	-1.24-1.04	-1.89-1.49	3.53-3.68	3.45-2.8	2.34-2.18	1.58-1.81	1.64-1.86	2.62-3.51	4.23-4.49	4.48-4.9
(H82)	3.32-1.9	1.35-1.11	1.35-1.74	1.96-1.96	2.20-2.41	6.91-6.46	12.24-10.87	12.04-10.52	8.95-9.21	9.19-7.46	6.53-5.12	5.73-5.72	7.52-7.72	4.98-5.2	-1.87-1.01	0.75-1	1.69-2.16	2.54-2.24	1.96-1.77	1.68-1.9	2.12-2.35	4.15-5.13	4.15-5.13	
(H97)	3.29-3.28	2.52-2.58	2.71-3.38	3.74-4.25	4.71-6.68	6.36-11.1	11.71-10.14	9.71-9.24	9.17-8.24	8.29-8.46	5.39-5.18	6.51-6.39	6.89-6.57	74.4-97	3.22-1.83	1.16-0.75	2.20-2.46	2.84-3.02	2.69-2.36	2.61-2.35	2.94-3.44	4.11-5.02	4.11-5.02	
(H97)	6.21-4.99	3.52-3.36	4.77-5.89	4.20-5.24	6.79-8.25	8.97-10.26	-10.65-10.41	8.83-8.92	13.13-9.65	6.97-6.98	-2.24-3.86	6.89-6.65	11.97-13.28	11.48-7.59	5.29-1.3	1.87-1.16	0.80-0.79	1.06-1.45	1.66-1.58	1.77-2.02	4.37-5.64	6.52-6.22	5.38-6.11	7.27-7.41
(H97)	6.96-5.95	4.43-5.45	4.33-9.76	11.19-12.33	11.75-12.79	12.53-14.38	-13.51-12.41	12.88-12.86	14.27-11.1	7.07-6.59	4.54-5.97	6.76-9.34	9.73-10.78	10.82-9.67	3.39-6.65	4.71-3.4	1.61-0.87	4.971-1.93	1.57-1.94	2.51-3.2	3.39-3.16	5.71-7.46	5.71-7.46	8.91-9.3
(H102)	6.78-5.75	4.69-4.48	6-9.3	-13.36-12.46	-12.93-12.45	-14.14-15.4	-15.27-16.04	-14.88-16.29	-15.41-12.55	6.274-8.05	7.43-8.88	7.41-8.71	8.87-12.13	-12.81-10.88	-8.86-7.11	5.61-5.38	2.25-1.09	1.11-1.47	2.07-2.21	2.08-1.73	1.72-2.55	3.79-5.54	7.26-8.33	-2.98-7.8
(H102)	8.83-7.76	8.82-6.66	7.86-10.99	-19.75-18.86	-16.51-15.08	-15.02-16.11	-17.11-15.79	-17.64-18.7	-19.01-12.69	6.294-7.83	8.55-9.33	8.96-9.72	9.31-9.34	-10.01-10.53	-10.58-10.68	8.71-7.29	5.54-4.19	3.88-4.26	4.63-5.14	3.29-3.26	3.76-4.99	6.69-6.47	7.21-7.7	-3.62-8.3
(H127)	-13.13-11.74	6.68-6.43	8.85-10.02	-12.58-14.1	-19.17-16.2	-14.85-15.15	-16.25-17.83	-18.45-19.38	-18.61-12.48	-10.83-10.38	-10.65-10.54	-10.35-10.34	-11.35-13.24	-15.41-15.08	-13.52-11.55	8.21-7.31	4.13-6.77	4.34-6.89	6.75-6.76	4.84-4.72	-4.71-5.47	7.52-9.75	11.35-12.17	-12.86-13.37
(H137)	-8.93-8.8	8.79-8.2	8.23-8.93	-10.95-14.57	-13.83-18.68	-17.41-18.47	-17.11-18.21	-18.84-18.77	-18.65-14.29	-17.96-15.49	-12.33-12.21	-12.31-12.21	-13.68-16.06	-18.88-18.48	-16.52-15.22	-11.1-9.7	8.03-8.26	8.93-8.59	8.31-6.9	5.57-5.72	4.71-5.44	6.54-7.34	7.91-8.42	9.06-9.68
(H142)	-12.15-11.45	-10.25-9.46	-8.08-8.89	-10.16-12.31	-14.55-17.38	-18.16-18.02	-18.98-18.96	-18.42-18.26	-18.50-17.68	-15.33-14.42	-14.44-15.3	-15.05-15.76	-17.29-18.74	-19.06-15.17	-11.84-9.74	8.67-8.61	-7.37-7.1	3.85-5.7	5.17-6.46	4.34-4.47	-4.94-5.76	6.92-8.47	-10.41-11.9	
(H142)	-13.53-12.96	-11.76-10.84	-10.25-10.21	-10.25-12.48	-14.26-15.5	-16.51-18.47	-18.27-15.04	-17.45-18.21	-17.87-18.45	-15.44-17.95	-14.76-15.99	-16.78-17.77	-18.63-17.77	-18.91-17.77	-14.87-12.96	-10.61-10.72	-10.42-9.94	6.45-6.02	8.78-9.01	7.70-7.27	7.92-8.68	6.92-8.17	-13.32-15.25	
(H157)	-12.72-12.48	-12.67-13.02	-13.77-14.26	-16-18.09	-18.57-18.42	-17.36-15.45	-14.34-13.14	-14.84-15.72	-16.75-18.89	-18.22-17.39	-16.76-18.21	-19.34-18.19	-17.78-19.23	-18.16-2	-16.49-17.29	-15.87-14.5	-12.07-12.13	-11.84-11.55	-11.13-10.82	-10.42-10.68	8.99-8.38	8.59-9.29	-10.22-11.25	-12.86-12.96
(H157)	-12.34-14.32	-15.81-17.8	-17.62-17.34	-17.84-17.25	-17.84-17.25	-18.55-17.78	-16.16-16.17	-18.34-18.76	-16.22-19.19	-19.09-18.34	-17.68-18.08	-17.68-18.08	-17.87-18.08	-19.42-17.34	-17.02-18.14	-14.01-13.58	-12.63-11.87	-11.39-11.01	-10.42-10.68	9.79-9.64	9.76-10.54	-11.36-11.99	-12.46-12.91	
(H172)	-18.13-18.18	-18.52-17.81	-18.64-17.84	-18.77-18.95	-17.82-17.19	-18.54-18.56	-17.82-17.19	-17.81-18.37	-18.33-18.39	-18.33-18.39	-17.75-18.31	-18.13-18.95	-18.59-18.57	-19.14-18.42	-18.71-17	-18.32-19.35	-14.89-13.54	-13.71-13.84	-14.06-13.72	-13.76-13.34	-12.89-12.82	-11.28-13.63	-14.36-15.74	
(H172)	-18.11-17.91	-18.35-18.32	-18.61-17.74	-18.28-18.52	-17.21-17.93	-18.13-19.11	-17.82-19.11	-17.82-19.11	-18.11-18.62	-18.84-18.1	-17.86-18.65	-17.96-19.25	-17.46-19.03	-18.71-18.67	-18.51-18.99	-17.16-18.97	-15.90-15.49	-13.47-15.76	-14.03-13.75	-17.98-18.25	-17.53-16.43	-17.89-18.06	-17.81-18.74	
Freq(Hz)	5.230Pch	Phut(3)																						
Gain	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)	(H17)(H75)
(H17)	9.21-8.67	11.01-13.24	-15.52-19.18	-14.88-13.18	8.62-8.6	5.33-5.15	4.91-5.83	2.95-1.59	1.94-2.25	2.25-2.61	3.54-3.42	6.88-6.67	8.35-7.93	14.27-10.77	-17.26-13.27	-10.57-8.1	7.42-6.16	4.62-3.83	3.29-3.77	-3.33-3.32	3.54-3.75	4.14-5.06	6.42-7.6	
(H75)	16.10-10.59	-15.16-15.13	-17.14-16.18	-11.16-9.89	7.93-7.51	4.46-3.38	3.98-4.21	3.69-3.31	3.21-3.5	3.51-3.38	3.82-4.02	4.6-5.52	6.69-6.7	11.64-9.54	-19.41-7.95	-16.96-16.38	7.27-6.11	4.82-5.39	2.97-3.65	3.23-3.12	3.03-3.26	3.98-4.56	6.27-6.49	
(H102)	10.20-10.11	-13.29-16.52	-15.07-17.3	8.29-6.76	4.91-3.91	3.38-2.97	3.26-3.25	4.04-5.11	6.49-7.58	8.54-9.43	7.29-6.68	6.69-6.73	7.34-6.89	10.77-13.88	-16.92-10.49	6.44-6.61	4.24-5.73	3.29-3.75	1.57-1.56	-1.73-2.25	2.93-3.17	4.27-5.47	6.14-6.18	
(H22)	7.94-5.98	8.2-10.44	-10.54-12.32	12.39-15.49	8.44-5.39	3.19-2.46	2.73-2.71	6.78-7.53	8.84-13.43	-16.44-17.08	-16.47-17.65	-18.19-18.06	-16.19-18.04	-10.57-14.88	-14.79-13.82	-12.38-12.32	8.67-9.28	4.94-5.49	3.88-3.99	1.77-1.58	1.04-2.5	3.11-3.29	3.62-5.44	4.91-5.78
(H30)	-17.77-13.11	-12.58-7.66	6.78-6.29	15.16-18.89	8.54-5.94	3.39-2.69	2.96-2.77	4.3-7.4	9.26-15.63	-17.21-18.08	-18.06-18.12	-16.59-14.13	-15.69-16.38	4.82-6.84	-10.82-10.94	-16.95-17.04	13.31-10.09	7.12-6.81	4.48-5.24	2.92-3.27	2.89-3.1	3.94-5.16	6.33-6.10	
(H37)	5.52-8.89	-10.59-10.02	-10.68-13.48	-18.14-16	7.95-7.68	7.26-6.8	6.45-6.85	6.78-6.13	6.56-10.37	-12.28-13.72	-12.65-9.35	7.74-6.62	6.184	4.44-6.6	-10.82-10.82	-14.95-14.99	13.27-10.55	7.65-5.68	4.55-5.35	3.87-3.29	3.53-4.27	4.48-4.61	7.78-7.91	-7.88-9.18
(H37)	6.89-18.63	-11.51-12.69	-11.11-11.95	-12.79-13.97	-13.71-12.68	-11.85-6.31	-7.19-7.91	3.31-10.66	6.89-6.34	-10.87-10.08	-10.88-11.28	-12.14-11.1	-10.78-9.81	-11.53-13.93	-13.74-12.52	-13.54-14.27	-11.86-9.87	6.88-5.84	5.42-6.27	-7.51-7.41	8.2-6.57	4.49-4.61	6.63-6.63	6.13-6.5
(H52)	5.74-6.83	6.97-11.18	-13.61-14.77	-13.71-13.09	-10.59-10.3	8.31-7.72	8.34-7.13	6.23-6.47	7.92-9.16	8.92-8.68	-10.38-10.47	-13.22-13	-15.04-10.69	-19.22-18.03	-13.71-12.87	-13.95-10.47	-7.78-7.11	5.68-4.46	4.79-6.41	-5.09-6.01	8.97-7.61	8.84-9.76	-10.48-9.91	7.16-8.21
(H57)	8.84-7.8	7.96-9.29	-10.26-11.13	-13.61-15.25	7.53-8.48	3.34-3.35	6.04-6.19	-17.11-14.21	-10.50-11.42	8.87-9.43	6.19-7.63	-12.16-14.72	-15.21-12.83	-14.02-14.35	-13.71-11.71	-11.91-11.72	8.33-6.88	6.45-6.43	6.39-7.37	-10.59-11.72	6.53-6.6	3.99-6.87	6.19-6.99	6.05-9.1
(H57)	4.74-4.95	4.21-4.76	5.21-5.3	5.41-5.46	4.46-5.32	2.88-4.02	7.73-13.87	-17.53-18.34	-18.21-19.16	-17.45-18.16	-13.34-13.46	-15.53-13.83	-15.88-8.43	6.91-6.94	6.44-6.89	6.17-7.38	8.77-9.85	6.77-7.26	6.48					



Radiated Composite Gain Data of 2.4GHz&5GHz

Appendix A

(H)S21	6.511448	-4.777102	-11.39-13.16	-10.84-8.48	5.674043	3.49-2.68	-2.65-2.45	-2.52-2.29	2.61-2.63	2.48-2.53	-1.81-26	10.02	-1.33-3.37	6.81-657	8.82-6.34	-3.93-1.24	0.21-0.88	-1.59-1.19	2.62-3.41	-3.87-4.2	-4.19-7.95	-12.41-18	-19.01-10.67	4.71-6
(H)S22	8.866473	6.384399	-13.42-17.81	-10.75-51	3.72-2.46	2.44-3.09	-2.73-2.18	2.2-2.57	3.32-4.44	4.34-6.67	-4.06-1.06	0.15-26	0.13-14	3.43-3.57	2.85-4.55	-6.45-5.46	-1.69-0.4	0.97-2.9	-4.44-2.24	-6.55-6.95	-6.51-6.82	8.46-18.2	-18.24-13.14	-13.24-12.51
(H)S23	4.82-9.34	-7.46-6.9	-6.89-6.8	-4.82-1.45	-4.34-6.6	3.98-1.96	-6.19-8.1	-0.02-2.48	6.03-7.23	4.67-10.6	-4.04-5.33	0.37-1.52	2.84-3.06	-3.38-3.36	-4.61-2.27	2.51-0.73	0.24-1.35	2.76-4.99	-7.32-15.5	-7.61-6.5	4.03-9.25	-14.56-14.1	-6.22-6.93	
(H)S24	-4.99-6.4	-10.11-12.59	-7.97-5.35	-7.73-9.26	-11.54-14.59	6.25-0.37	2.011-6.8	-1.31-6.51	-10.33-10.6	8.51-9.33	-5.58-1.07	-1.74-3.81	-4.22-2.76	3.56-2.46	-4.79-4	-2.59-2.49	3.28-1.5	1.081-3.3	0.481-1.8	-4.93-9.76	-8.94-12.2	-7.26-7.75	-10.56-11.49	-17.12-12
(H)S25	6.17-18.38	-6.41-19.79	-1.88-2.75	8.45-10.37	-11.77-11.7	4.49-6.08	-8.01-2.6	-4.17-4.5	-4.67-10.47	6.58-10.73	-6.52-2.57	-4.71-5.31	-8.17-4.7	-3.62-3.37	-7.49-6	-3.4-0.84	-2.58-2.89	0.641-38	-1.41-6.44	-7.22-13.93	6.49-7.88	-8.07-6.4	-2.72-3.3	
(H)S26	5.31-11.3	-1.71-10.08	0.23-3.61	-17.26-11.11	8.42-7.42	-4.25-0.5	0.96-0.34	-1.54-1.07	1.18-1.68	-4.13-2.41	-2.32-1.5	2.22-6.39	-12.15-10.37	6.24-3.58	8.75-15.88	-13.28-4.45	-0.77-0.08	0.34-2.22	3.11-5.9	0.48-1.4	-2.75-2.95	9-13.5	-3.71-3.47	-1.88-1.28
(H)S27	0.63-3.33	0.67-0.23	-3.62-6.1	9.44-6.86	-6.26-10.94	5.39-9.9	1.321-0.5	-10.21-4.52	5.49-5.56	-10.21-6.75	-6.241-9.7	3.6-2.49	-11.52-11.61	9.96-7.58	-8.83-1.9	-7.39-8.68	-5.00-0.41	2.29-2.54	0.06-0.73	0.88-0.57	-4.02-5.95	-5.51-4.97	-1.88-1.6	
(H)S28	0.13-3.04	-1.54-3.84	-12.24-9.55	5.31-6.7	5.88-5.1	6.16-1.28	0.98-0.9	3.26-10.48	-11.56-7.26	6.23-17.79	-12.81-9.63	-4.76-4.72	8.06-8.86	4.83-9.97	-7.02-9.69	-1.64-0.25	-1.96-2.31	3.23-4.37	1.65-0.94	1.77-1.37	4.55-1.62	-3.37-3.45	-2.84-3.9	
(H)S29	0.83-4.5	2.63-1.71	-5.43-5.15	-4.26-2.22	-1.88-6.87	6.94-5.45	-1.06-0.47	3.43-12.58	8.07-2.2	5.31-17.65	8.26-5.59	-0.52-5.42	-7.49-7.88	4.88-7.17	-7.73-4.68	-5.98-0.4	-0.02-0.21	2.14-0.5	2.45-0.67	1.06-0.35	-5.1-2.7	4.91-4.2	-2.36-7.8	
(H)S30	0.71-3.07	2.68-2.39	-11.32-14.38	-11.79-6.82	4.18-10.74	-10.47-12.39	0.271-0.35	-4.25-11.59	-10.22-4.2	-11.52-11.51	-11.16-11.9	12.86-10.44	-11.78-4.42	-4.96-7.51	8.13-0.44	-0.77-0.83	1.57-1.31	-0.98-2.8	1.39-2.84	-5.95-1.12	-0.07-0.42	5.32-11.55	-15.41-16	-5.42-11.9
(H)S31	0.33-2.82	-1.79-1.06	8.79-17.02	-16.24-4.91	5.53-10.36	6.77-4.66	0.202-2.08	3.45-11.13	-12.94-12.52	-12.24-13.54	-10.33-12.32	-10.47-12.08	4.79-12.59	8.89-5.57	3.10-1.09	1.00-3.02	4.45-1.31	0.571-0.83	3.98	4.44-6.17	5.54-11.57	-10.14-5.03	-1.83-0.35	
(H)S32	0.26-0.58	4.58-5.54	6.78-7.44	-7.29-6.11	7.91-14.74	-1.64-1.3	3.4-3.34	3.59-1.93	16.26-19.24	-16.35-17.5	-13.84-15.29	16.76-17.96	8.01-1.59	3.28-1.61	5.58-1.76	6.57-1.79	3.25-0.69	5.71-1.69	0.82-0.19	5.18-1.98	0.37-0.59	9.21-17.95	-13.26-10.82	-3.31-1.9
(H)S33	3.79-16.39	-14.09-10.55	8.65-12.1	-11.73-12.48	-16.61-18.44	-15.57-17.27	-10.16-3.1	-8.3-16	-4.03-16.87	-15.78-11.30	-15.91-10.02	-10.68-12.30	-4.46-1.21	-12.17-12.03	-13.78-8.77	6.4-6	-7.72-7.27	3.21-1.34	4.15-1.37	2.44-3.97	-0.09-0.41	8.89-13.84	-13.31-10.85	-15.19-12.5
(H)S34	2.03-1.34	7.71-9.61	7.94-6.78	9.58-13.57	-10.77-17.19	-15.77-17.19	-14.52-10.48	-10.23-10.19	-13.1-16	-14.19-13.91	-15.21-16.5	-12.4-12.14	-16.04-11.19	9.58-11.92	-17.16-10.31	-12.38-16.54	-15.56-7.49	2.96-1.15	1.5-2.72	4.42-0.23	9.23-4.71	6.51-6.53	-16.69-16.89	-16.82-15.4
(H)S35	6.91-9.88	-7.84-12	-10.77-10.11	-7.87-1.46	8.84-11.19	-13.69-12.43	-11.77-15.52	-11.32-11.12	8.34-1.16	-0.02-0.63	-0.17-0.64	-5.24-9.9	-7.27-2.49	6.33-10.1	-10.07-10.74	-16.74-13.47	-18.46-12.75	6.31-3.96	8.4-6.44	-6.89-9.47	-8.53-6.9	6.94-11.25	-17.56-12.72	7.6-7.4
(H)S36	-12.22-6.58	-5.81-6.33	8.19-12.28	-10.58-16.14	-11.471-18.52	-17.77-18.04	-18.44-17.07	-17.53-17.93	-17.91-18.24	-15.72-12.58	-14.66-12.82	8.29-8.67	-13.94-18.86	-12.27-13.28	-10.69-10.54	-9.99-9.26	-10.97-13.08	-17.12-18.57	-18.41-18.91	-18.36-18.18	-16.82-16.55	-16.62-16.54	-6.88-12.17	-12.7-18.7
(H)S37	-17.82-17.82	-17.82-17.82	-10.47-4.4	-6.3-5.3	-5.26-5.49	6.81-6.97	-7.57-8.1	-7.3-4.5	-6.89-4.84	-4.76-5.63	-5.97-7.5	-9.94-13.49	-19.21-17.41	-15.81-12.1	-10.07-10.59	-10.22-10.89	-10.54-10.03	-6.83-7.79	-7.72-8.18	-8.22-8.56	-9.09-9.48	-8.28-8.69	-17.72-17.72	-12.82-16.3
(H)S38	-15.11-12.2	-11.46-11.22	-8.02-6.89	-7.14-6.53	-7.34-7.03	-7.79-7.74	-7.68-7.22	-7.17-7.68	-6.71-6.5	-12.52-12.4	-12.86-13.55	-13.54-14.18	-15.69-17.65	-18.81-17.33	-18.72-17.85	-18.98-18.79	-18.52-18.59	-13.83-14.63	-15.11-15.98	-15.43-15.14	-12.82-12.15	-12.88-17.4	-18.19-15.11	
Freq(Hz)	5.650GHz	Phased 3	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Gain	(H)S1	(H)S2	(H)S3	(H)S4	(H)S5	(H)S6	(H)S7	(H)S8	(H)S9	(H)S10	(H)S11	(H)S12	(H)S13	(H)S14	(H)S15	(H)S16	(H)S17	(H)S18	(H)S19	(H)S20	(H)S21	(H)S22	(H)S23	
(H)S1	-12.32-15.92	-18.99-19.49	-18.79-17.19	-17.86-14.39	-11.65-10.66	-6.95-6.48	-7.14-2.4	-6.67-7.28	6.56-5.54	-5.74-1.3	-7.43-7.16	8.67-10.52	-12.43-16.12	-18.32-18.99	-15.46-12.15	-11.48-11.17	-4.02-11.36	6.99-9	8.88-6.8	8.21-6.57	8.84-8.25	-8.89-3.36	-15.44-11.54	
(H)S2	-12.38-15.08	-18.95-15.28	-17.31-19.07	-11.51-19.1	-12.28-11.92	-11.41-11.32	-10.59-9.84	-8.99-8.08	-6.86-9.79	-9.39-15.5	-10.41-11.25	-18.91-18.33	-17.99-18.15	-16.07-16.64	-11.9-18.88	-7.87-10.65	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	
(H)S3	-17.87-19.94	-17.09-14.65	-10.67-10.12	-8.41-8.29	-7.88-7.85	-6.99-9.52	-10.25-10.15	-11.25-10.74	-17.11-13.33	-12.62-13.97	-13.76-15.62	-14.63-16.58	-17.56-16.04	-18.71-18.23	-15.43-13.14	-11.62-10.15	-9.29-8.66	7.86-9.6	6.19-6.23	5.82-5.3	5.26-5.59	6.77-9.79	-11.49-13.38	
(H)S4	-18.02-16.99	-15.13-14.58	-10.32-12.3	-8.07-1.3	-4.08-3.9	4.84-4.62	4.96-7.43	8.15-11.55	-17.11-19.55	-16.41-18.59	-17.73-18.7	-19.16-19.08	-14.79-13.21	-12.66-10.52	8.97-10.3	7.41-10.17	7.32-7.27	6.5-5.42	5.69-5.15	4.48-5.27	4.54-5.53	-10.35-12.23	-12.13-14.16	
(H)S5	-12.32-14.48	-18.68-18.5	-16.52-15.28	-11.19-17.84	5.37-3.97	-3.02-2.18	-4.3-2.59	-5.14-2.23	-14.47-15.88	-18.82-16.55	-17.22-17.31	-17.16-18.64	-17.08-14.64	6.75-7.38	4.58-6.89	4.84-6.76	7.29-7.41	4.78-6.11	4.58-4.8	-3.52-4.32	-7.25-9.91	6.35-11.74	-12.33-15.19	
(H)S6	-12.39-12.11	-13.59-15.92	-16.02-16.13	-14.86-12.5	4.97-7.31	4.46-1.3	3.75-7.07	6.25-7.75	2.62-6.71	7.32-7.55	8.14-10.78	-11.16-12.33	-13.27-13.07	-12.94-17.88	-16.37-11	6.16-6.7	6.98-6.32	5.98-6.31	7.16-15.15	5.21-6.41	6.59-7.25	6.51-12.89	-11.19-12.99	
(H)S7	-12.39-15.08	-18.95-15.28	-17.31-19.07	-11.51-19.1	-12.28-11.92	-11.41-11.32	-10.59-9.84	-8.99-8.08	-6.86-9.79	-9.39-15.5	-10.41-11.25	-18.91-18.33	-17.99-18.15	-16.07-16.64	-11.9-18.88	-7.87-10.65	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	
(H)S8	-17.87-19.94	-17.09-14.65	-10.67-10.12	-8.41-8.29	-7.88-7.85	-6.99-9.52	-10.25-10.15	-11.25-10.74	-17.11-13.33	-12.62-13.97	-13.76-15.62	-14.63-16.58	-17.56-16.04	-18.71-18.23	-15.43-13.14	-11.62-10.15	-9.29-8.66	7.86-9.6	6.19-6.23	5.82-5.3	5.26-5.59	6.77-9.79	-11.49-13.38	
(H)S9	-18.02-16.99	-15.13-14.58	-10.32-12.3	-8.07-1.3	-4.08-3.9	4.84-4.62	4.96-7.43	8.15-11.55	-17.11-19.55	-16.41-18.59	-17.73-18.7	-19.16-19.08	-14.79-13.21	-12.66-10.52	8.97-10.3	7.41-10.17	7.32-7.27	6.5-5.42	5.69-5.15	4.48-5.27	4.54-5.53	-10.35-12.23	-12.13-14.16	
(H)S10	-12.32-14.48	-18.68-18.5	-16.52-15.28	-11.19-17.84	5.37-3.97	-3.02-2.18	-4.3-2.59	-5.14-2.23	-14.47-15.88	-18.82-16.55	-17.22-17.31	-17.16-18.64	-17.08-14.64	6.75-7.38	4.58-6.89	4.84-6.76	7.29-7.41	4.78-6.11	4.58-4.8	-3.52-4.32	-7.25-9.91	6.35-11.74	-12.33-15.19	
(H)S11	-12.39-12.11	-13.59-15.92	-16.02-16.13	-14.86-12.5	4.97-7.31	4.46-1.3	3.75-7.07	6.25-7.75	2.62-6.71	7.32-7.55	8.14-10.78	-11.16-12.33	-13.27-13.07	-12.94-17.88	-16.37-11	6.16-6.7	6.98-6.32	5.98-6.31	7.16-15.15	5.21-6.41	6.59-7.25	6.51-12.89	-11.19-12.99	
(H)S12	-12.39-15.08	-18.95-15.28	-17.31-19.07	-11.51-19.1	-12.28-11.92	-11.41-11.32	-10.59-9.84	-8.99-8.08	-6.86-9.79	-9.39-15.5	-10.41-11.25	-18.91-18.33	-17.99-18.15	-16.07-16.64	-11.9-18.88	-7.87-10.65	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	0.96-14.74	
(H)S13	-17.87-19.94	-17.09-14.65	-10.67-10.12	-8.41-8.29	-7.88-7.85	-6.99-9.52	-10.25-10.15	-11.25-10.74	-17.11-13.33	-12.62-13.97	-13.76-15.62	-14.63-16.58	-17.56-16.04	-18.71-18.23	-15.43-13.14	-11.62-10.15	-9.29-8.66	7.86-9.6	6.19-6.23	5.82-5.3	5.26-5.59	6.77-9.79	-11.49-13.38	
(H)S14	-18.02-16.99	-15.13-14.58	-10.32-12.3	-8.07-1.3	-4.08-3.9	4.84-4.62	4.96-7.43	8.15-11.55	-17.11-19.55	-16.41-18.59	-17.73-18.7	-19.16-19.08	-14.79-13.21	-12.66-10.52	8.97-10.3	7.41-10.17	7.32-7.27	6.5-5.42	5.69-5.15	4.48-5.27	4.54-5.53	-10.35-12.23	-12.13-14.16	
(H)S15	-12.32-14.48	-18.68-18.5	-16.52-15.28	-11.19-17.84	5.37-3.97	-3.02-2.18	-4.3-2.59	-5.14-2.23	-14.47-15.88	-18.82-16.55	-17.22-17.31	-17.16-18.64	-17.08-14.64	6.75-7.38	4.58-6.89	4.84-6.76	7.29-7.41	4.78-6.11	4.58-4.8	-3.52-4.32	-7.25-9.91	6.35-11.74	-12.33-15.19	
(H)S16	-12.39-12.11	-13.59-15.92	-16.02-16.13	-14.86-12.5	4.97-7.31	4.46-1.3	3.75-7.07	6.25-7.75	2.62-6.71	7.32-7.55	8.14-10.78	-1												



Radiated Composite Gain Data of 2.4GHz&5GHz

Appendix A

(H102)	0.21-0.09	0.592-4.05	-3.04-4.2	8.729-4.9	8.25-12.8	8.72-11.1	1.891-7.5	-1.71-4.92	4.714-8.1	5.61-3.3	-0.05-1.7	-3.61-0.08	0.040-8.4	3.13-5.4	4.29-6.3	-4.11-3.1	-3.19-1.01	2.414-4.3	4.542-6.8	1.011-7.2	2.383-8.3	3.61-5.6	-1.68-4.87	1.074-2.8
(H112)	0.24-0.73	2.18-0.78	-5.61-8.95	9.96-13.1	-7.34-12.0	-3.56-4.4	1.330-3.5	-3.79-12.5	-19.26-18.74	9.84-12.76	-7.71-13	-3.14-4.08	-2.31-11	3.52-5.31	-4.65-2.26	-6.0-5.4	-2.33-0.78	3.154-9	1.292-8.2	0.991-95	3.712-16	-0.412-2.36	5.111-30.5	6.190-58
(H120)	1.31-1.26	-4.71-4.5	-12.06-7.32	8.03-11.55	-10.61-9.88	-12.72-1.7	0.94-1.29	4.13-16.97	-10.76-13.1	-16.27-15.41	-8.91-3.75	-5.17-6.62	-2.23-4.55	-4.25-7.18	-5.74-2.01	2.131-48	-1.23-1.96	0.010-56	3.320-92	1.780-72	1.291-37	-1.311-648	-8.755-674	-0.361-71
(H127)	0.51-3.65	-5.75-8.03	-8.25-9.84	-10.54-8.29	-7.87-9.93	-16.67-5.5	-3.54-5.76	-10.86-16.2	-18.86-16.9	-14.27-16.53	-10.32-10.94	-8.07-6.56	-2.21-4.45	-3.76-5.2	-5.9-3.7	1.741-33	0.014-68	-6.30-24	1.8-3.7	-1.270-2.26	-2.53-2.56	8.72-6.05	8.711-72	-0.41-89
(H135)	4.31-4.35	2.94-5.34	-10.94-14.47	-11.11-7.5	7.671-13	-11.23-671	4.99-5.24	-8.81-8.25	-10.99-15.88	-13.84-10.19	-13.77-10.3	-11.75-15.53	5.06-2.94	-4.69-7.4	-4.46-1.91	0.24-0.57	3.04-16.36	-16.12-1.19	-1.974-58	-7.75-0.21	-2.97-4.54	-6.76-18.98	-15.29-9.38	-3.57-2.22
(H142)	1.971-4.75	6.06-8.67	-7.91-13.66	8.79-8.62	-8.73-10.49	-10.38-10.45	-9.18-9.31	-7.91-7.8	8.571-10.77	-12.83-15.08	-11.28-6.75	-7.15-6.23	-5.31-5.4	-4.6-1.6	-4.84-1.6	-13.48-6.38	-8.47-1.16	-1.299-10.5	0.36-3.38	-9.38-4.27	-1.83-1.93	-17.43-16.15	-16.39-13.83	-4.48-1.04
(H150)	0.607-0.67	-17.95-18.13	9.65-7.63	-7.681-7.68	-6.67-10.67	-10.76-6.65	-7.19-6.03	-5.48-6.58	9.19-9.47	-1.61-16.06	-17.92-10.62	-15.44-11.37	-7.89-10.4	-7.9-7.94	-6.041-50.7	-13.78-6.02	-4.37-6.02	-4.20-5.85	0.29-0.9	-0.43-5.99	-4.22-6.23	-16.871-13.41	-14.3-15.83	-8.95-1.2
(H157)	8.4-18.11	-18.43-12.6	-10.1-6.5	-11.11-13.2	-13.33-13.8	-12.52-13.24	-12.61-16.24	-8.61-8.66	-10.23-11.74	-12.04-15.59	-18.34-19.7	-15.83-18.23	-10.09-10.53	-14.28-16.5	-18.51-15.67	-12.46-14.81	-18.52-15.76	8.72-6.6	6.38-1	-12.95-15.1	-14.39-13.86	-13.22-13.03	8.72-4.52	-3.32-8.43
(H164)	-10.24-17.01	6.23-8.03	-10.79-13.14	-12.61-13.96	-17.19-15.85	-13.92-10.03	-13.52-15.26	-16-16.9	-18.47-18.25	-16.30-18.1	-16.11-18.13	-17.71-12.2	-11.36-12.49	-14.49-17.33	-18.31-19.86	-17.16-16.06	-18.44-18.48	-18.27-16.01	-16.45-16.72	-17.47-16.39	-14.71-12.1	8.63-8.88	6.59-12.68	
(H172)	-16.32-16.73	-19.12-19.35	-17.86-17.81	-17.13-19.36	-17.13-18.43	-14.01-14.19	-13.41-11.78	-16.96-11.07	-11.21-10.76	8.86-9.84	-10.51-12.88	-16.81-19.08	-17.91-12.12	8.84-7.9	6.32-6.81	-8.31-9.79	-16.86-12.42	-12.31-12.16	-12.36-11.22	-8.48-8.99	-8.17-7.81	-7.62-6.69	8.71-8.1	8.91-12.68
(H180)	0.739-10.55	9.88-10.58	9.48-9.48	8.61-10.41	-12.38-12.91	-14.10-14.15	-15.41-15.49	-14.21-13.2	-15.13-12.38	-16.43-6.98	-16.97-7.72	-7.6-7.31	-6.45-6.75	5.86-5.75	8.86-9.17	-10.51-12.75	-17.07-19.02	-18.12-16.5	-7.451-13.3	-11.13-9.87	-8.69-9.56	8.41-8.78	-11.09-12.72	
FreqHz	2.450Phz	Phz	4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)	(H107)(H67.5)
(H1)	5.9-5.4	4.79-5.77	-6.81-6.96	-7.47-9.29	-8.02-8.95	-5.4-5.8	-8.33-9.38	-8.01-7.68	-5.39-5.92	-5.71-5.65	-5.10-5.23	-5.01-5.3	-5.61-6.48	-5.37-4.88	-5.36-5.85	-6.31-6.4	-7.19-7.52	8.01-6.64	-8.86-8.28	-8.78-8.2	-7.41-6.87	-6.6-6.47	-6.5-6.46	-5.97-6.19
(H7)	8.61-8.54	4.29-6.42	-6.83-7.18	-7.88-8.5	8.57-8.51	8.35-8.88	7.76-8.82	-5.94-6.41	4.94-4.47	4.01-3.8	-3.89-3.87	-4.12-4.75	-4.75-2.51	-4.86-5.69	-5.67-6.55	-7.14-7.28	-7.16-8.02	-8.21-9.78	-10.12-10.02	-10.13-9.24	-8.78-9.18	-8.4-8.28	-8.65-8.72	-8.16-8.77
(H15)	8.29-8.31	-7.88-7.68	-7.64-7.56	-7.61-8.05	8.22-8.47	8.6-8.47	-8.50-8.67	-5.4-5.82	3.73-3.05	4.23-3.07	-2.96-3.77	-4.3-4.09	-4.85-6.44	5.69-6.11	4.25-6.82	-8.02-8.59	8.861-11.44	-13.47-14.45	-14.03-12.24	-10.96-10.33	-10.41-11.07	-11.81-11.95	-11.39-13.02	
(H22)	-11.27-10.5	-8.92-9.76	-8.34-8.49	-8.28-8.18	7.71-8.54	6.2-9.78	9.25-7.91	6.35-7.47	3.59-2.54	2.90-2.28	-2.74-3.92	4.7-6.5	-7.703-7.59	7.48-7.74	-7.99-8.42	-8.47-8.53	-8.54-8.55	-11.34-14.01	-17.10-18.81	-19.19-17.66	-14.72-13.52	-13.82-14.69	-15.42-15.76	-14.81-13.43
(H30)	8.46-8.74	8.74-8.64	8.61-7.12	-7.44-7.3	6.67-7.7	6.16-6.29	-6.08-7.67	-6.34-7.39	3.64-2.65	2.19-2.42	-3.54-3.92	4.8-5.8	-8.03-7.27	-7.21-8.71	-8.47-8.63	-9.44-10.79	-12.46-14.71	-17.42-17.87	-17.96-18.47	-17.91-17.81	-15.51-15.38	-17.76-17.87	-17.26-19.21	
(H37)	-18.4-18.23	-13.65-8.84	-7.88-6.63	6.23-9.59	6.53-6.52	6.03-6.45	-5.12-3.38	-3.61-2.74	2.53-2.23	2.79-4.41	-5.89-9.19	-11.88-9.1	8.83-3.87	-7.35	-7.02-6.65	-6.9-7.11	-6.87-7.51	3.33-12.85	-16.18-17.5	-17.34-18.5	-17.38-18.3	-18.41-17.59	-18.21-18.58	-18.89-18.97
(H44)	-18.46-17.44	-14.11-18.07	-8.86-7.43	6.11-6.15	4.89-5.48	4.84-4.28	-3.42-3.28	-1.64-1.31	1.49-1.24	-3.78-4.12	-14.66-14.28	-11.24-11.42	-10.36-10.91	8.29-7.1	4.88-4.83	6.05-7.62	-10.66-13.1	-13.71-14.27	-15.21-15.22	-17.88-18.14	-17.85-18.15	-16.37-18.36		
(H52)	-18.44-19.16	-17.82-16.95	-12.62-10.27	-8.11-7.28	8.84-6.68	6.57-5.49	-3.89-2.56	-1.84-1.77	2.44-3.45	-4.47-6.89	-15.51-11.65	-12.44-10.73	8.86-10.28	-17.12-12.85	-14.59-11.85	-7.15-5.98	-4.34-3.4	3.84-4.91	-4.88-6.47	-11.33-12.25	-14.38-18.56	-13.93-18.32	-16.17-13.83	-14.11-14.86
(H59)	-18.91-18.75	-17.57-18.2	-15.93-13.5	-12.19-11.38	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02
(H67)	8.36-10.02	-11.16-14.79	-18.02-17.97	-18.11-15.35	-14.66-13.49	-10.51-12.61	-5.16-4.53	-4.96-6.22	3.87-3.92	-10.86-12	-12.69-12.14	-12.22-11.61	8.4-8.28	-8.33-4.2	4.73-7.1	-14.05-14.97	-8.57-8.44	3.75-3.85	-5.53-6.99	-11.13-8.66	-18.01-19.48	-15.02-17.58	-13.27-15.33	
(H74)	6.16-6.75	9.38-13.71	-16.98-12.34	-12.59-13.29	-8.88-11.98	-10.52-12.64	-6.87-7.1	-9.59-12.27	-15.42-16.1	-14.86-16.3	-17.7-18.4	-19.26-16.19	-13.77-10.74	8.26-5.44	5.89-6.35	-7.46-12.15	-16.86-12.06	-8.4-76	7.45-11.29	-16.21-19.46	-17.87-18.45	-17.87-18.45	-17.87-18.45	
(H82)	8.639-8.36	-11.91-12.54	-16.42-8.81	8.36-8.45	8.85-13.3	-10.68-8.68	4.22-9.82	-12.16-15.11	-18.85-17.89	-18.89-18.54	-18.91-18.43	-13.4-13.15	-17.21-16.48	9.9-8.87	4.4-8.45	8.67-10.33	-15.98-16.02	-11.37-7.4	8.814-85	-12.33-16.68	-17.02-12.43	9.25-8.61	4.46-4.39	-3.87-5.51
(H89)	7.539-8.98	9.73-9.21	9.73-9.21	9.69-9.65	8.42-9.33	7.56-8.25	6.65-6.23	-10.93-10.88	-15.96-13.97	-16.79-16.25	-19.16-19.12	-17.54-13.17	-17.11-19.65	-16.79-16.72	-17.11-19.65	-16.79-16.72	-17.11-19.65	-16.79-16.72	-17.11-19.65	-16.79-16.72	-17.11-19.65	-16.79-16.72	-17.11-19.65	-16.79-16.72
(H97)	8.46-8.74	8.74-8.64	8.61-7.12	-7.44-7.3	6.67-7.7	6.16-6.29	-6.08-7.67	-6.34-7.39	3.64-2.65	2.19-2.42	-3.54-3.92	4.8-5.8	-8.03-7.27	-7.21-8.71	-8.47-8.63	-9.44-10.79	-12.46-14.71	-17.42-17.87	-17.96-18.47	-17.91-17.81	-15.51-15.38	-17.76-17.87	-17.26-19.21	
(H104)	8.61-8.54	4.29-6.42	-6.83-7.18	-7.88-8.5	8.57-8.51	8.35-8.88	7.76-8.82	-5.94-6.41	4.94-4.47	4.01-3.8	-3.89-3.87	-4.12-4.75	-4.75-2.51	-4.86-5.69	-5.67-6.55	-7.14-7.28	-7.16-8.02	-8.21-9.78	-10.12-10.02	-10.13-9.24	-8.78-9.18	-8.4-8.28	-8.65-8.72	-8.16-8.77
(H112)	-11.27-10.5	-8.92-9.76	-8.34-8.49	-8.28-8.18	7.71-8.54	6.2-9.78	9.25-7.91	6.35-7.47	3.59-2.54	2.90-2.28	-2.74-3.92	4.7-6.5	-7.703-7.59	7.48-7.74	-7.99-8.42	-8.47-8.53	-8.54-8.55	-11.34-14.01	-17.10-18.81	-19.19-17.66	-14.72-13.52	-13.82-14.69	-15.42-15.76	-14.81-13.43
(H120)	8.46-8.74	8.74-8.64	8.61-7.12	-7.44-7.3	6.67-7.7	6.16-6.29	-6.08-7.67	-6.34-7.39	3.64-2.65	2.19-2.42	-3.54-3.92	4.8-5.8	-8.03-7.27	-7.21-8.71	-8.47-8.63	-9.44-10.79	-12.46-14.71	-17.42-17.87	-17.96-18.47	-17.91-17.81	-15.51-15.38	-17.76-17.87	-17.26-19.21	
(H127)	-18.4-18.23	-13.65-8.84	-7.88-6.63	6.23-9.59	6.53-6.52	6.03-6.45	-5.12-3.38	-3.61-2.74	2.53-2.23	2.79-4.41	-5.89-9.19	-11.88-9.1	8.83-3.87	-7.35	-7.02-6.65	-6.9-7.11	-6.87-7.51	3.33-12.85	-16.18-17.5	-17.34-18.5	-17.38-18.3	-18.41-17.59	-18.21-18.58	-18.89-18.97
(H135)	-18.46-17.44	-14.11-18.07	-8.86-7.43	6.11-6.15	4.89-5.48	4.84-4.28	-3.42-3.28	-1.64-1.31	1.49-1.24	-3.78-4.12	-14.66-14.28	-11.24-11.42	-10.36-10.91	8.29-7.1	4.88-4.83	6.05-7.62	-10.66-13.1	-13.71-14.27	-15.21-15.22	-17.88-18.14	-17.85-18.15	-16.37-18.36		
(H142)	-18.44-19.16	-17.82-16.95	-12.62-10.27	-8.11-7.28	8.84-6.68	6.57-5.49	-3.89-2.56	-1.84-1.77	2.44-3.45	-4.47-6.89	-15.51-11.65	-12.44-10.73	8.86-10.28	-17.12-12.85	-14.59-11.85	-7.15-5.98	-4.34-3.4	3.84-4.91	-4.88-6.47	-11.33-12.25	-14.38-18.56	-13.93-18.32	-16.17-13.83	-14.11-14.86
(H150)	-18.91-18.75	-17.57-18.2	-15.93-13.5	-12.19-11.38	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02	-11.37-12.02
(H157)	8.36-10.02	-11.16-14.79	-18.02-17.97	-18.11-15.35	-14.66-13.49	-10.51-12.61	-5.16-4.53	-4.96-6.22	3.87-3.92	-10.86-12	-12.69-12.14	-12.22-11.61	8.4-8.28	-8.33-4.2	4.73-7.1	-14.05-14.97	-8.57-8.							



Radiated Composite Gain Data of 2.4GHz&5GHz

Appendix A

e(150°)	-11.14-11.18	-11.33-8.84	-5.82-3.77	-3.33-4.33	-6.23-9.54	-3.31-10.06	-1.27-3.49	-4.8-9.1	-13.9-19.17	-17.44-14.59	-12.55-11.12	-10.52-11.36	-13.41-11.45	-8-8.31	-8.82-8.16	-8.38-10.08	-11.52-11.07	-8.68-8.27	-10.11-13.61	-11.03-12.91	-18.31-13.92	-14.82-16.09	-12.2-12.11	-17.11-11.68
e(157°)	8.99-7.19	-5.82-3.77	-7.18-8.85	-10.37-8.83	-6-17	-3.16-3.35	-3.22-3.76	-4.83-7.48	-10.51-18.86	-18.76-17.82	-18.89-14.81	-14.14-11.85	-8.29-8.88	-5.58-5.3	-6.03-8.3	-10.76-13.45	-13.51-14.8	-17.83-16.85	-17.76-17.32	-18.26-16.28	-19.34-18.55	-14.69-11.53	-10.68-10.77	-10.36-11.13
e(165°)	3.51-3.52	-4.51-14.8	-3.42-3.55	-3.01-3.05	-8.62-4.36	-4.68-6.28	-6.52-6.51	-9.03-11.29	-12.63-12.93	-12.09-11.26	-10.69-10.45	-6.36-6.48	-7.57-8.69	-6.79-7.5	-9.16-12.11	-14.89-17.38	-18.10-18.49	-18.16-15.55	-17.32-17.86	-14.31-16.78	-17.01-8.88	-8.68-8.34	-7.31-6.69	-6.58-6.71
e(172°)	8.91-10.17	-10.38-10.3	-10.46-10.53	-11.03-11.32	-10.18-10.96	-10.75-11.56	-13.71-15.94	-17.82-17.12	-18.47-10.98	-15.39-11.99	-8.91-8.3	-6.92-6.82	-5.92-6.28	-7.09-8.23	-8.96-11.74	-11.99-12.03	-11.77-11.52	-12.44-12.12	-17.96-18.37	-18.01-17.29	-16.79-15.58	-14.12-14.1	-11.57-10.91	
e(180°)	5.99-9.12	-7.1-6.71	-6.49-6.7	-6.86-7.47	-7.98-8.73	-9.15-9.81	-9.78-9.86	-9.36-9.79	-10.54-11.49	-12.85-11.65	-13.83-13.78	-14.36-15.64	-16.84-17.82	-17.87-16.5	-14.96-12.15	-11.55-10.96	-10.38-10.63	-10.78-12.13	-13.4-13.7	-12.06-10.77	-8.83-10.07	-6.87-8.48	-6.48-8.96	
Frequency	5.93Psi	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	
Gain	0°(7°)(9°)	0°(7°)(22°)	0°(31°)(37°)	0°(45°)(50°)	0°(60°)(67°)	0°(75°)(82°)	0°(90°)(97°)	0°(105°)(112°)	0°(120°)(127°)	0°(135°)(142°)	0°(150°)(157°)	0°(165°)(172°)	0°(180°)(187°)	0°(195°)(202°)	0°(210°)(217°)	0°(225°)(232°)	0°(240°)(247°)	0°(255°)(262°)	0°(270°)(277°)	0°(285°)(292°)	0°(300°)(307°)	0°(315°)(322°)	0°(330°)(337°)	0°(345°)(352°)
e(1°)	6.71-6.82	-6.97-7.28	-8.05-8.19	-10.21-12.11	-15.58-18.38	-17.73-18.61	-19.48-18.38	-22.23-9.84	-8.69-9.29	-8.15-8.28	-7.65-7.12	-7.18-6.27	-10.18-12.21	-14.58-13.84	-17.23-17.67	-18.24-17.51	-17.82-16.25	-19.08-19.08	-16.38-15.34	-13.51-11.72	-9.93-9.45	-8.77-8.75	-7.62-7.31	-7.76-7.59
e(7°)	9.99-10.25	-10.52-11.18	-11.08-13.37	-16.07-16.12	-25.33-18.41	-32.53-18.41	-40.71-16.91	-49.16-17.91	-57.75-14.04	-66.44-12.02	-75.18-11.56	-83.97-10.45	-92.86-9.34	-101.75-8.23	-110.64-7.12	-119.53-6.01	-128.42-4.9	-137.31-3.79	-146.2-2.68	-155.09-1.57	-163.98-0.46	-172.87-0.67	-181.76-0.88	-190.65-1.09
e(13°)	8.71-8.38	-8.99-11.42	-14.32-16.96	-18.77-17.65	-28.28-18.91	-38.29-18.91	-48.30-18.91	-58.31-18.91	-68.32-18.91	-78.33-18.91	-88.34-18.91	-98.35-18.91	-108.36-18.91	-118.37-18.91	-128.38-18.91	-138.39-18.91	-148.40-18.91	-158.41-18.91	-168.42-18.91	-178.43-18.91	-188.44-18.91	-198.45-18.91	-208.46-18.91	
e(19°)	7.27-7.68	-8.51-9.38	-10.87-12.84	-15.88-17.11	-18.09-14.75	-10.69-10.92	-8.89-9.45	-11.05-11.2	8.44-9.84	-10.77-9.77	-7.96-8.4	-6.04-6.29	-4.59-6.11	-3.87-5.73	-3.54-7.07	-4.48-10.58	-14.02-18.59	-18.84-13.55	-20.83-9.94	-11.44-13.32	-11.51-9.7	-6.07-8.4	-7.76-7.97	-7.53-7.69
e(25°)	6.68-7.98	-8.51-8.5	-11.38-15.43	-16.84-14.58	-20.98-8.25	-8.64-94	-6.17-7.09	-8.33-13.39	-18.24-15.84	-18.47-18.43	-16.36-13.11	-11.79-7.08	-4.61-3.49	-3.03-3.4	-4.93-8.38	-7.99-8.57	-12.02-17.76	-18.21-13.45	-22.82-13.77	-16.53-17.19	-10.07-11.3	-5.83-4.75	-1.11-4.17	-4.78-7.63
e(31°)	6.38-7.61	-7.74-8.83	-11.74-12.81	-12.03-8.68	-7.37-8.52	-4.98-7.5	-7.85-10.88	-15.74-18.14	-18.73-18.11	-17.71-18.98	-17.07-17.85	-16.02-14.57	-11.61-8.82	-6.76-8.33	-3.96-9.33	-7.05-11	-14.78-16.76	-22.01-8.73	-38.31-18.7	-17.32-17.37	-11.07-8.5	-5.41-5.64	-5.98-7.23	-7.64-7.97
e(37°)	4.68-6.68	-6.86-7.84	-10.27-11.41	-10.4-9.28	-5.54-3.49	-4.95-7.12	-11.46-9.4	-14.46-9.78	-8.11-6.99	-4.29-5.17	-3.82-3.33	-3.96-6.3	-12.04-12.93	-6.04-8.33	-3.77-7.01	-5.94-8.3	-9.88-13.81	-13.88-9.92	-8.38-10.71	-11.96-8.3	-8.68-6.31	-5.53-4.7	-5.97-7.2	-7.48-7.72
e(43°)	7.09-6.61	-5.96-7.01	-8.89-11.8	-12.21-9	-6.65-6.52	-7.02-10.54	-17.01-18.74	-13.89-10.91	-9.51-18.64	-16.27-10.84	-7.55-6.65	-3.38-1.26	-8.02-1.51	-3.87-7.44	-6.4-6.57	-5.07-8.22	-10.04-11.79	-17.54-14.3	-15.69-17.9	-11.37-10.73	-10.89-8.4	-9.39-8.45	-8.91-10.58	-8.51-10.88
e(49°)	6.74-7.44	-6.46-8.01	-10.59-12.29	-12.88-11.4	-11.02-16.82	-17.22-11.72	-7.63-7.12	-9.16-15.86	-18.18-18.82	-14.92-10.67	-8.47-8.72	-7.6-8.29	-14.32-2.76	-3.48-2.76	-5.94-6.58	-7.08	-18.18-15.77	-18.69-15.68	-8.53-9.51	-7.19-7.06	-6.67-7.47	-7.31-6.88		
e(55°)	4.75-7.44	-7.17-8.27	-12.03-10.55	-8.98-13.01	-17.71-17.68	-18.17-17.71	-14.07-10.79	-4.61-5.5	-11.02-17.83	-16.72-13.81	-14.83-18.35	-18.31-16.43	-13.51-10.43	-11.29-16.69	-11.18-7.65	-11.03-13.96	-13.38-16.28	-15.19-8.7	-6.65-15.68	-7.59-5.52	-7.9-10.35	-8.78-6.15	-5.57-5.17	-6.51-6.97
e(61°)	6.52-7.31	-8.09-8.84	-11.89-11.52	-11.56-11.52	-15.62-17.62	-17.22-16.33	-14.71-10.27	-9.39-12.97	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94	-16.82-12.94
e(67°)	8.8-12.54	-14.22-10.18	-8.61-8.17	-10.78-12.59	-17.51-18.84	-18.24-16.37	-18.11-14.72	-13.47-18.37	-17.22-14.09	-11.25-11.3	-10.31-12.2	-10.02-15.25	-17.82-18.88	-11.51-9.69	-12.52-14.5	-13.07-17.66	-19.12-19.44	-18.09-15.42	-7.44-7.92	-12.13-13.4	-8.99-7.05	-6.24-5.58	-8.62-8.48	-7.36-7.15
e(73°)	-13.18-13	-19.03-10.68	-7.24-7.85	-12.08-17.39	-17.71-14.65	-17.84-17.28	-17.78-13.24	-15.71-18.37	-17.22-14.57	-17.11-14.94	-9.53-8.56	-9.63-8.5	-13.78-12.78	-11.88-13.69	-14-17.79	-18.43-18.69	-17.88-13.36	-6.83-6.57	-4.57-11.79	-8.79-12.33	-10.29-7.23	-6.17-5.87	-7.61-7.57	-10.71-10.5
e(79°)	8.79-12.55	-10.73-10.38	-11.60-15.33	-14.24-11.48	-13.87-18.82	-13.78-17.13	-18.79-17.92	-16.82-12.1	8.53-5.41	-4.21-5.3	-3.74-22	-6.32-9.93	-12.18-17.43	-15.89-16	-11.64-11.9	-12.85-10.29	-13.76-15.67	-18.90-17.42	-19.28-18.33	-18.86-14.16	-13.35-11.23	-8.82-8.73	-13.58-13.93	-11.58-13.91
e(85°)	-10.03-5.85	-6.47-7.43	-4.52-5.28	-4.89-6.53	-14.24-17.43	-18.99-13.13	-11.55-11.43	-18.02-14.79	7.55-9.17	-4.21-4.35	-3.13-13.68	-6.89-9.49	-10.06-13.52	-18.32-17.96	-12.83-10.78	-13.13-13.68	-13.12-10.75	-18.94-16.82	-18.46-18.6	-17.91-18.34	-15.02-12.67	-15.49-8.41		
e(91°)	7.29-8.14	-7.01-10.12	-11.21-9.89	-11.01-14.25	-17.86-18.83	-17.18-18.3	-18.45-19.79	-16.53-13.04	7.26-3.98	-2.06-2.41	-3.63-8.34	-5.96-6.07	-11.12-17.87	-18.17-15.95	-12.81-10.19	-15.03-19.05	-17.99-18.83	-13.84-11.72	-18.34-17.8	-19.44-15.45	-11.66-11.39	-8.86-11.31	-3.98-8.71	-10.37-8.6
e(97°)	7.89-5.36	-4.98-6.24	-5.98-6.2	-6.47-6.63	-5.46-7.91	-16.59-18.96	-18.07-18.41	-18.18-13.4	5.92-2	-3.6-1.97	-2.29-2.14	3.28-3.1	-4.77-10.77	-18.17-15.5	-13.96-10.35	-12.35-18.22	-18.17-18.58	-13.78-17.42	-8.91-10.9	-14.18-16.55	-13.42-6.41	-6.07-6.82	-14.47-12.53	-6.26-5.68
e(103°)	6.99-6.8	-6.91-6.84	-6.26-6.74	-6.79-6.85	-6.87-11.15	-10.51-10.28	-12.81-16.19	-13.69-9.13	4.85-17.12	-13.37-77	-5.43-7.72	-8.98-8.73	-7.22-12.35	-12.53-16.1	-18.74-13.91	-17.16-17.84	-8.98-9.38	-12.75-18.94	-18.23-18.67	-13.52-17.86	-18.52-18.31	-19.13-11.68	-7.72-7.86	-7.36-7.9
e(109°)	4.15-5.14	-6.71-7.58	-7.22-6.42	-6.52-7.87	-11.29-14.82	-17.46-16.62	-11.79-9.43	-9.33-9.88	3.75-12.5	-2.03-19.77	-6.17-11.88	-12.72-12.78	-17.94-18.97	-18.79-12.37	-18.26-18.93	-14.71-18.8	-16.86-15.76	-13.48-17.88	-18.91-19.08	-6.85-6.81	-8.19-10.55	-8.71-9.12	-5.45-7.33	
e(115°)	3.71-4.78	-6.11-5.48	-4.88-6.75	-7.88-7.02	-10.72-10.77	-13.88-12.12	-6.02-6.83	-8.71-7.79	5.52-4.2	3.98-3.07	-3.71-6.89	-4.23-3.59	-7.18-7.16	8.53-18.41	-17.47-18.58	-16.71-19.18	-15.54-16.29	-18.89-19.13	-10.98-10.56	-13.98-11.88	-8.51-8.21	-8.44-10.55		
e(121°)	3.54-13.10	-14.12-15.13	-12.44-11.17	-10.21-11.15	-11.51-14.9	-18.14-10.43	-7.51-7.1	-17.24-19.77	5.92-3.98	-2.99-7.29	3.77-5.68	9.46-18.63	-12.47-16.47	-7.72-8.31	-7.94-14.28	-19-19.13	-11.79-18.18	8.88-11.58	-8.48-8.14	-5.14-7.89	-10.81-13.72	-15.99-13.12	-12.22-12.54	
e(127°)	8.77-10.68	-6.53-6.47	-6.71-8.51	-10.53-10.28	-18.96-18.38	-19.24-15.17	-10.65-9.39	-8.05-10.17	-13.83-13.31	9.51-9.08	3.23-3.34	3.97-5.65	8.90-18.95	-17.06-10.37	-12.54-13.18	-12.03-18.55	-8.65-8.68	8.79-7.97	-12.76-17.37	-12.06-17.1	-15.11-17.2	-16.77-14.47	-10.37-10.68	
e(133°)	7.18-6.25	-6.43-6.53	-8.97-7.9	-8.51-10.55	-13.08-17.05	-17.94-18.27	-9.75-8.01	-7.43-7.48	8.22-10.03	-12.51-14.86	-9.36-9.24	-11.22-10.95	-18.18-18.24	-18.02-14.45	-13.32-13.38	-19.07-18.97	-11.36-8.3	-7.24-7.76	-8.61-16	-12.88-15.15	-13.41-18.2	-10.14-8.86	-7.87-8	-6.55-6.54
e(139°)	7.17-7.28	-6.28-6.83	-6.28-10.33	-12.08-16.98	-17.84-18.51	-17.67-15.63	-15.98-18.88	-18.14-16.79	-17.39-16.58	-17.13-13.13	-16.42-9.86	-9.78-10.45	-11.54-13.29	-14.41-13.88	-13.04-12.66	-12.65-12.79	-12.64-10.22	-12.94-10.98	-8.97-10.89	-8.97-10.89	-5.73-7.47	-7.83-8.11		
e(145°)	-12.27-13.15	-14.16-12.47	-11.88-11.15	-11.83-11.56	-11.18-10.91	-10.19-10.55	-11.71-13.44	-15.07-15.88	-15.39-14.38	-14.21-14.58	-15.43-10.67	-16.42-15.76	-14.83-12.56	-10.89-9.58	-6.09-8.75	-8.88-8.71	-9.45-10.86	-11.43-12.52	-12.85-12.98	-12.31-14.2	-10.71-10.53	-10.88-10.5	-10.48-9.78	-10.04-10.72
Frequency	5.93Psi	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	Pinetk.4	
Gain	0°(7°)(9°)	0°(7°)(22°)	0°(31°)(37°)	0°(45°)(50°)	0°(60°)(67°)	0°(75°)(82°)	0°(90°)(97°)	0°(105°)(112°)	0°(120°)(127°)	0°(135°)(142°)	0°(150°)(157°)	0°(165°)(172°)	0°(180°)(187°)	0°(195°)(202°)	0°(210°)(217°)	0°(225°)(232°)								



Radiated Composite Gain Data of 2.4GHz&5GHz

Appendix A

θ(°)	7.8717	4.4759	-5.6155	-5.2149	-4.9161	-5.3161	-7.4592	-10.2710	-11.9215	-18.2518	-14.8612	-10.3807	-7.6143	-5.4315	-4.5812	-4.3145	-4.2133	-4.5315	-5.3743	-6.9674	-8.7192	-10.2711	-12.1144	-11.0348
φ(°)	7.0542	-5.1147	-4.5142	-3.9718	-3.9316	-4.5944	-5.9474	-8.8915	-12.1046	-11.8314	-12.5512	-12.0811	-10.4129	-7.2943	-6.0415	-4.4617	-2.9710	-1.9710	-1.1017	-12.3615	-18.3117	-16.3117	-12.0915	-8.7136
ψ(°)	5.2915	4.8719	-4.0139	-3.9912	-3.9311	-4.4618	-5.8713	-8.9112	-10.4219	-8.3117	-6.9113	-6.6215	-5.7513	-4.8617	-4.1812	-3.6117	-3.2911	-3.0911	-3.0110	-15.0317	-14.1111	-9.9611	-7.9611	-5.3816
θ(22.5°)	5.6614	-3.9712	-3.2215	-3.9117	-4.8614	-6.2716	-8.1915	-13.7815	-12.6311	-12.6212	-12.9111	-8.7819	-6.9314	-6.1518	-5.7313	-11.1811	-10.1317	-10.3112	-16.8917	-16.7115	-8.7117	-9.2219	-8.6517	-8.6148
φ(30°)	7.2715	4.9514	-3.6317	-4.0117	-5.4817	-6.9117	-9.4117	-13.9417	-17.8817	-18.3217	-14.8513	-14.3311	-7.1515	-5.7715	-8.7714	-6.9513	-7.6110	-13.0112	-11.1512	-18.6714	-12.3510	-10.7810	-10.8614	-8.8214
ψ(37.5°)	8.9417	4.7615	-7.2216	-6.1312	-7.1718	-9.7817	-13.8817	-13.1612	-15.3417	-19.0419	-17.8212	-8.5615	-3.6717	-2.9414	-6.3715	-7.2518	-12.6417	-18.2119	-14.4612	-12.4412	-12.8513	-8.0817	-7.7418	-9.8210
θ(45°)	-11.6514	-18.8914	-11.1917	-8.6317	-8.1517	-8.9512	-16.2419	-17.7213	-18.3515	-18.9415	-19.3110	-17.5118	-18.5313	-8.5317	-1.2017	-2.9217	-10.8817	-10.9811	-13.7312	-17.8113	-9.5317	-4.8612	-6.6617	-1.0214
φ(52.5°)	-10.2711	-14.5412	-16.6412	-12.6112	-14.1617	-18.1917	-17.1518	-17.8915	-18.5717	-15.1812	-14.7117	-7.9617	-7.7215	-6.4514	-6.3215	-3.2110	-4.9316	-8.9313	-16.1915	-14.8712	-10.2211	-8.8715	-4.7815	-6.5517
ψ(58°)	-7.5112	8.1815	-13.6712	-12.0912	-16.4117	-18.6911	-9.7312	-13.7118	-8.9418	-12.0217	-12.4814	-3.4812	-2.3911	-4.9115	-5.6217	-7.3418	-18.8613	-12.0912	-14.7012	-8.2512	-9.9810	-10.8110	-9.5617	-7.8310
θ(67.5°)	5.9812	-5.1141	-6.3712	-17.3516	-17.8414	-12.3612	-13.3119	-14.2710	-11.7714	-15.2213	-12.1918	-8.2412	-7.5711	-6.0313	-4.8114	-5.1618	-4.4117	-16.2213	-16.1112	-8.8117	-12.2813	-8.1218	-13.9915	-8.7217
φ(75°)	6.1416	6.9417	-11.0718	-15.2713	-15.6718	-15.3112	-13.0718	-6.2517	-10.9117	-8.4718	-16.7717	-13.1215	-5.0416	-2.5217	-8.9518	-5.5311	-10.7117	-14.4410	-13.9118	-9.9418	-17.8811	-9.4114	-9.2413	-6.2715
ψ(82.5°)	2.2212	-4.2814	-9.6117	-7.1817	-5.5116	-18.6215	-9.3112	-8.8315	-10.3715	-6.8211	-10.5817	-13.6111	-10.1817	-11.0811	-13.9914	-5.6312	-19.4111	-10.2114	-16.6317	-9.4412	-6.1813	-3.4411	-3.5412	-3.5412
θ(87°)	5.3817	-10.4417	-16.4114	-16.0215	-10.4812	-17.8114	-16.8712	-10.4117	-10.8315	-19.0119	-18.9914	-9.0117	-16.8114	-12.6919	-9.9614	-10.7812	-18.8918	-13.3617	-13.9718	-15.7812	-16.8912	-4.7413	-3.8412	-5.1114
φ(97.5°)	8.9118	-13.3714	2.3417	-5.9811	-15.7914	-15.3118	-15.2114	-2.7114	-13.2413	-9.9712	-7.2511	-12.3113	-12.4117	-7.5717	-7.6610	-15.1412	-13.3317	-16.3918	-11.8914	-4.3612	-4.2713	-5.2917	-7.0317	-6.0317
ψ(105°)	-17.3117	-8.1143	-3.8212	-17.7512	-8.8614	-10.9416	-12.7314	-6.7515	-15.5918	-6.0414	2.7119	-4.4713	-8.1513	-9.3518	-5.0512	-13.3618	-8.8514	-7.3415	-18.5617	-19.2912	-14.0811	-11.7910	-13.8617	-13.8617
θ(112.5°)	6.1145	-4.1148	-5.9517	-7.1817	-12.5617	-16.3517	-16.8918	-18.4718	-18.9918	-4.1510	-3.9119	-4.0617	-13.7118	-11.2718	-9.4611	-11.7914	-12.1612	-7.7112	-13.8216	-13.7312	-16.3918	-8.6814	-13.8613	-12.3517
φ(120°)	-4.9814	-3.8914	-7.8313	-10.6718	-13.3217	-7.8714	-15.2114	-11.8812	-12.5814	-1.3310	-1.3112	-2.8714	-6.4311	-10.1217	-10.8812	-16.8117	-9.9514	-12.2912	-15.6917	-14.8218	-17.9411	-15.8814	-9.4815	-5.8612
ψ(127.5°)	7.3143	-11.8913	-10.2218	-10.4310	-7.0613	-10.2711	-11.5818	-10.2711	-3.9319	-6.4514	-6.0813	-10.6912	-10.6912	-10.6912	-10.6912	-10.6912	-10.6912	-10.6912	-10.6912	-10.6912	-10.6912	-10.6912	-10.6912	-10.6912
θ(135°)	6.4613	-6.2718	-5.5214	-3.7114	-4.8817	-10.4610	-12.3718	-8.2210	-6.7202	2.2413	0.9812	-8.0917	-17.9514	-17.4918	-11.7311	-12.3611	-18.6317	-13.8811	-11.1510	-6.8812	-10.2117	-8.8318	-11.8115	-10.0912
φ(142.5°)	-12.9510	-9.0710	-9.6217	-7.9917	-7.9115	-10.8618	-7.5913	-3.6718	-9.3123	-6.8315	-2.8613	-6.2418	-12.8813	-13.8117	-10.8719	-8.2318	-16.7219	-7.9614	-18.2815	-15.0719	-3.9815	-11.6712	-12.8313	-16.3614
ψ(150°)	8.7114	-5.6417	-4.7714	-5.9317	-7.5816	-6.6517	-3.6715	-3.2214	-8.8611	-4.0312	-4.9604	0.1112	-4.7614	-18.9611	-11.0418	-11.7912	-14.8212	-7.4413	-18.9218	-10.2512	-3.9816	-15.6911	-7.2814	-7.8912
θ(157.5°)	-7.4115	6.1916	-6.9218	-14.2916	-19.0512	-7.0817	-4.0513	-3.1314	-6.1516	-13.4519	-2.8412	-2.6214	-6.1811	-12.4719	-12.2317	-18.9215	-12.2911	-10.5511	-13.3818	-12.8714	-6.7113	-13.6118	-15.8517	-12.2617
φ(165°)	5.8217	-8.2210	-14.8113	-12.1111	-11.4412	-13.5811	-10.6718	-5.7915	-6.7119	-17.2813	-9.4813	-7.7718	-10.1513	-15.9318	-13.1110	-10.3148	-7.1514	-5.9216	-8.2315	-10.0510	-12.4613	-10.8817	-6.5218	-6.1617
ψ(172.5°)	4.2510	-5.9617	-6.9614	-9.0511	-15.5218	-17.9713	-12.0710	-8.4317	-7.5219	-12.5314	-13.2712	-16.5918	-18.3210	-17.4418	-16.4713	-10.7419	-7.6614	-6.1615	-5.7212	-4.9411	-4.7214	-3.1518	-2.0612	-2.9314
θ(180°)	-10.8711	-12.5713	-16.0217	-17.3216	-13.5513	-12.2411	-11.6611	-10.7119	-9.4219	-9.2910	-11.4312	-11.4912	-15.0214	-13.3112	-9.9619	-7.9317	-7.4912	-7.2712	-6.3117	-9.0618	-9.0312	-12.9613	-12.1616	-10.1610
Freq(Hz)	5.785GHz	Theta 4	ψ 4	θ 4	φ 4	ψ 4	θ 4	φ 4	ψ 4	θ 4	φ 4	ψ 4	θ 4	φ 4	ψ 4	θ 4	φ 4	ψ 4	θ 4	φ 4	ψ 4	θ 4	φ 4	ψ 4
Gain	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	0(°/90/27.5)	
θ(°)	7.2512	7.2416	-10.2411	-11.9614	-17.2715	-13.9412	-18.3218	-7.2158	5.0814	3.9819	3.6119	4.0214	5.5517	7.2918	8.9911	-15.9611	-16.2814	-13.8412	-11.2914	-7.5123	-6.3616	-5.9517	-4.4918	
φ(°)	5.6217	5.5716	-7.5519	-10.9113	-13.8615	-17.1818	-16.7612	-10.7113	10.0317	8.9712	7.8614	6.9516	8.8610	11.0918	11.5912	-18.3715	-18.3715	-13.3118	-11.8102	-6.2114	-3.2414	-3.1315	-4.0915	
ψ(°)	4.8317	4.9716	-6.8810	-9.7310	-13.3611	-11.6410	-9.7619	-9.7619	9.9619	10.0511	-13.5919	-16.9519	-19.2519	-16.5412	-11.3813	-141012	-10.2616	-9.8617	-5.4715	-1.7810	-0.8917	-2.0125	-3.2213	
θ(22.5°)	4.5212	-4.9913	-6.4810	-11.1312	-10.8310	-10.4115	-12.5115	-14.7112	-12.8414	-14.2618	-17.1717	-19.5518	-19.1812	-13.3102	-7.6914	-5.6516	-5.2713	-2.3815	-0.9811	-2.4513	-2.3112	-4.0814	-3.8103	
φ(27°)	6.5214	-2.4415	-5.5312	-8.2311	-12.1212	-12.1516	-10.2312	-11.8114	-16.4219	-18.0813	-18.8407	-10.7118	-16.0116	-13.2411	-6.2216	-4.1814	-4.4115	-2.4714	-1.1505	-0.7117	-2.5318	-2.9912	-1.0716	
ψ(30°)	-1.2512	-4.1216	-3.3813	-3.9416	-8.3111	-11.6312	-14.4818	-18.4017	-18.4017	-14.0211	-11.9811	-11.7212	-13.3613	-14.3111	-12.7118	-3.7419	-2.8413	-1.0211	-1.2211	-0.3518	-4.7516	-4.0413	-3.7217	
θ(37.5°)	2.3212	-2.1218	-3.3812	-3.9416	-8.3111	-11.6312	-14.4818	-18.4017	-18.4017	-14.0211	-11.9811	-11.7212	-13.3613	-14.3111	-12.7118	-3.7419	-2.8413	-1.0211	-1.2211	-0.3518	-4.7516	-4.0413	-3.7217	
φ(42.5°)	2.2512	-2.2512	-3.9514	-4.4815	-6.9417	-13.8211	-14.9318	-7.2814	-6.4912	-8.8618	-7.9117	-6.6017	-11.8812	-12.4813	-13.8519	-4.5913	-1.5112	-4.6511	-0.7814	-3.2318	-1.4213	-4.9113	-4.1148	
ψ(48°)	3.1812	-1.8012	-4.0112	-4.3817	-8.8619	-6.6317	-11.1470	-3.2134	-4.1314	-6.7114	-12.2218	-6.5814	-7.0613	-18.3519	-4.5913	-1.5112	-4.6511	-0.7814	-3.2318	-1.4213	-4.9113	-4.1148		
θ(52.5°)	5.2517	-5.4118	-6.4814	-7.0213	-5.7181	-4.8217	-4.3619	-1.6916	-6.6117	-10.3113	-7.0917	-14.2815	-17.1312	-7.6127	-3.6917	-5.1619	-4.6912	-1.1412	-0.8615	-4.2314	-6.1312	-1.0611	-4.2417	
φ(57°)	6.6914	-4.5514	-2.1312	-2.3917	-2.9218	-3.0512	-0.9612	-6.0919	-8.8913	-2.8812	-6.0718	-15.3319	-7.8812	-7.0812	-6.8314	-9.5916	-3.3316	-5.1112	-4.5413	-2.0315	-4.5413	-2.2918	-11.4112	
ψ(62.5°)	4.3315	-3.1415	-0.3802	-0.6915	-2.6412	1.1407	-4.9917	-5.0412	-7.3213	-8.1314	1.5213	-13.4117	-11.2514	-8.9915	-3.2914	-6.5215	-3.8816	-7.4313	-2.5112	-2.1714	-3.0213	-2.5812	-3.7115	
θ(67°)	6.6914	-4.5514	-2.1312	-2.3917	-2.9218	-3.0512	-0.9612	-6.0919	-8.8913	-2.8812	-6.0718	-15.3319	-7.8812	-7.0812	-6.8314	-9.5916	-3.3316	-5.1112	-4.5413	-2.0315	-4.5413	-2.2918	-11.4112	
φ(75°)	4.3315	-3.1415	-0.3802	-0.6915	-2.6412	1.1407	-4.9917	-5.0412	-7.3213	-8.1314	1.5213	-13.4117	-11.2514	-8.9915	-3.2914	-6.5215	-3.8816	-7.4313	-2.5112	-2.1714	-3.0213	-2.5812	-3.7115	
ψ(82.5°)	2.4612	-2.9124	-2.9124	-1.8718	-1.6710	-1.9912	-3.8817	-2.2815	-3.7814	-4.9412	-12.2918	-17.1812	-13.4918	-11.1917	-12.1612	-10.4112	-10.4112	-11.7910	-16.9913	-12.8012	-14.7915	-18.7213	-6.0314	
θ(87°)	-10.8012	-8.7413	-2.9819	-1.3413	-4.5316	-1.7012	-1.4813	-7.0914	-13.9718	-18.4117	-16.1616	-12.5310	-7.0919	-3.1714	-4.4219	-3.1413	-16.5118	-10.7619	-12.7216	-18.5518	-18.4913	-10.6417	-7.8210	



Radiated Composite Gain Data of 6GHz

Appendix B

Freq(Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	3.65	2.68	2.4	2.38
Ant. 2 Max Gain (dBi)	3.09	2.54	3.38	1.79
Ant. 3 Max Gain (dBi)	4.21	3.27	3.47	2.7
Ant. 4 Max Gain (dBi)	3.78	3.55	2.51	2.69
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/45/165	Theta/127.5/345	Theta/45/195	Theta/45/187.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/45/30	Theta/127.5/187.5	Theta/127.5/187.5	Theta/75/30
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/82.5/82.5	Theta/90/352.5	Theta/82.5/75	Theta/97.5/75
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/97.5/292.5	Theta/97.5/330	Theta/97.5/105	Theta/75/7.5
Max Gain (dBi)	4.21	3.55	3.47	2.7
DG [1SS] (dBi)	6.56	6.96	6.38	5.94
DG [2SS] (dBi)	4.21	3.96	3.47	2.94
DG [4SS] (dBi)	4.21	3.55	3.47	2.7



Radiated Composite Gain Data of 6GHz

Appendix B

φ(22.5°)	4.89±5.94	7.248	-5.91±3.5	-1.93±1.47	-1.13±1.26	-0.71±0.55	-0.64±1.09	-1.63±1.25	-1.31±2.09	-3.07±3.66	-4.15±4.85	-5.72±6.3	-6.68±5.5	-5.54±2.7	-3.12±2.73	-2.71±1.79	-0.30±1.1	-0.04±0.25	-0.55±0.75	-0.93±1.4	-1.65±1.82	-1.83±2.15	-2.33±2.98	4.12±4.7			
φ(37°)	3.54±4.52	-6.39±3.3	4.50±3.3	2.19±2.21	2.97±2.69	-1.80±1.02	-0.46±0.13	-0.16±0.5	0.92±0.88	-1.49±2.87	-4.43±6.3	-6.13±7.4	-8.24±7.6	-8.05±8.1	-6.14±1.4	-3.06±1.81	-1.14±0.3	-0.63±1.4	-1.41±0.7	-0.51±0.37	-0.76±0.79	-1.30±2.55	-3.57±2.75	-1.95±2.42			
φ(57°)	4.44±7.1	-6.41±5.2	6.46±2.66	-1.72±1.91	2.51±1.64	-1.09±0.55	-0.48±0.38	-0.28±0.26	-0.12±0.47	-1.31±0.65	-4.00±2.63	-6.04±7.61	-7.15±4.38	-4.61±3.02	-2.37±0.27	-2.04±2.05	-2.82±2.66	-2.83±2.66	-2.51±2.04	-0.60±0.28	-0.37±0.56	-1.66±1.72	-2.69±3.99	-4.51±7.1			
φ(82.5°)	3.31±3.84	-6.04±6.8	6.02±3.38	-1.9±1.1	-1.83±0.82	0.04±0.5	0.81±0.19	-1.22±0.26	2.26±2.39	-3.95±2.42	-6.49±3.68	-7.65±8.88	-7.05±5.23	2.31±2.27	-0.91±0.31	-0.01±4.37	2.04±0.82	1.29±0.81	2.41±4.23	-4.35±2.63	-11.06	0.24±1.75	5.01±3.43	3.49±3.1			
φ(87°)	-4.63±5.22	-4.58±4.02	-3.4±2.7	-3.29±2.97	-1.74±1.19	0.82±1.36	1.05±1.06	3.07±0.77	1.22±1.01	-1.51±0.36	-6.42±6.85	-6.55±5.43	-5.25±5.22	-4.85±4.22	-3.74±1.8	-3.75±2.07	-0.93±0.84	-1.21±0.91	-3.45±3.37	-2.62±2.72	-2.14±2.7	-4.89±4.84	-6.53±6.86				
φ(87°)	-5.73±7.9	-2.47±3.43	5.11±5.51	-3.71±0.7	-3.69±2.2	0.69±2.3	2.85±2.47	1.67±0.47	-0.89±1.52	-2.33±4.94	-8.08±8.66	-6.69±5.69	-4.76±4.92	-3.72±4.21	-2.51±2.29	-4.03±5.89	-4.53±3.75	-3.47±3.38	2.08±2.13	-2.87±2.09	-0.99±0.36	-1.17±3.75	-3.31±3.94	-5.26±4.04			
φ(87°)	-8.02±6.15	-5.86±5.01	3.63±3.58	5.31±4.36	-4.95±4.05	-0.51±0.95	11.03	5.0±0.81	-2.53±3.22	-3.95±4.59	-6.98±1.4	8.91±6.86	-5.92±6	-4.86±2.77	-0.81±86	-3.74±5.42	-4.95±5.51	5.07±6.37	-4.44±3.73	-2.63±3.35	-3.20±1.59	-1.58±1.51	-4.12±0.64	-8.3±6.9			
φ(17°)	-10.11±0.04	-8.82±8.99	-8.56±7.8	-5.86±5.68	-6.45±2.63	-1.72±0.92	3.04±0.96	-5.49±1.24	2.23±3.71	4.14±0.46	-5.06±6.31	-7.28±5.92	-5±2.81	-2.39±1.99	-2.51±2.61	-3.84±4.73	-5.51±5.67	4.89±4.17	-3.45±4.11	-4.45±4.52	-2.51±1.89	-3.42±0.35	-4.77±1.46	-7.9±9.71			
φ(82.5°)	5.85±4.24	9.85±11.52	7.91±5.76	5.4±5.74	5.24±3.54	4.38±2.51	2.59±3.98	-1.21±1.91	3.43±4.53	3.58±4.27	4.84±6.76	6.3±5.51	5.85±4.67	-3.49±3.19	3.90±3.59	-3.5±5.6	-3.89±3.55	3.89±2.47	2.84±2.71	2.01±1.89	-1.76±1.42	6.73±7.57	8.52±9.25	8.59±4.9			
φ(87°)	7.44±6.41	-11.79±12.68	-10.89±5.53	7.24±5.35	5.08±2.91	-1.6±1.39	-3.81±2.55	1.99±2.85	4.32±5.13	4.69±5.22	6.4±9.47	4.42±5.83	5.25±4.71	-7.19±5.42	-5.63±6.03	-3.19±3.21	2.89±1.17	1.62±0.79	-2.32±0.91	-0.24	1.76±0.31	5.59±5.51	7.46±6.85				
φ(87°)	7.03±5.08	5.47±8.19	-10.42±9.18	5.14±4.03	5.44±4.48	2.42±2.22	1.99±1.25	1.99±4.22	4.46±3.51	5.97±5.67	6.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96	5.97±5.96			
φ(187°)	7.74±9.37	-9.42±4.2	8.36±7.07	6.56±5.69	5.46±5.53	2.71±1.04	3.01±0.7	2.41±4.69	4.94±1.96	5.36±2.39	7.49±6.15	11.29±10.3	8.91±6.4	8.32±4.56	-2.95±2.45	4.68±4.15	1.92±0.81	1.52±0.66	-1.83±1.51	2.78±1.07	1.64±4.34	6.19±6.34	6.98±6.98				
φ(117.5°)	8.97±7.86	7.2±5.96	7.38±4.7	8.03±43	6.08±5.25	2.15±1.19	-1.26±1.37	2.93±0.34	5.07±4.73	5.09±7.32	7.9±9.12	-11.89±7.5	9.92±6.9	3.98±3.98	2.98±1.2	4.44±2.39	2.33±0.83	1.73±0.8	1.17±1.18	-1.41±1.12	-0.89±2.72	3.23±5.36	3.78±3.43	3.23±6.7			
φ(187°)	9.77±6.66	4.99±5.33	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73	4.96±2.73			
φ(127°)	9.33±10.14	-8.47±5.25	5.79±4.89	4.67±4.89	4.82±6.65	-7.21±4.83	-3.24±4.5	-3.67±3.59	2.71±5.41	5.63±6.3	-7.67±6.65	-7.33±8.92	-8.17±10.3	4.3±5.76	-4.24±5.07	-3.65±3.3	-3.62±4.35	-3.78±3.71	2.01±1.43	-2.36±3.39	-3.27±1.72	3.07±5.02	5.36±4.16	-3.07±6.85			
φ(137°)	8.23±6.36	-7.6±7.3	3.91±6.03	3.97±6.17	6.41±5.89	-4.24±3.64	-3.43±3.2	-3.39±4.83	6.79±3.75	4.44±5.13	-7.25±9.38	8.35±9.87	9.92±9.38	-5.52±5.81	-4.94±5.33	-5.19±3.14	-3.69±2.35	-1.83±2.61	-4.09±1	-5.71±6.88	2.21±3.35	-3.33±2.39	5.18±3.57	2.54±5.69			
φ(187°)	-7.99±7.68	-0.91±7.86	-6.44±5.4	-7.29±5.68	-8.69±6.66	-4.2±2.57	-2.0±2.86	-4.56±7.09	-7.71±5.92	-5.94±4.9	-6.21±2.09	-9.88±1.07	-8.63±3.47	-3.4±6.8	-8.45±5.9	-9.33±5.97	-2.75±1.8	-0.29±4.38	-3.69±0.17	4.37±3.33	-2.53±1.38	-5.78±6.81	-5.41±4.57	-3.51±4.74			
φ(187°)	4.99±11.31	-10.51±9.66	-10.12±10.23	-10.39±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7	-10.74±10.7			
φ(157°)	-3.7±3.34	-6.39±4.94	-7.45±9.22	-10.11±10.67	-10.19±0.86	-8.19±7.03	-5.95±6.52	-7.04±7.56	7.96±5.21	6.81±0.5	-9.13±4.07	-12.44±10.39	-8.83±5.64	5.53±0.51	-5.82±4.24	-3.9±5.2	-7.87±2.73	7.93±7.97	-8.15±0.41	-8.14±0.92	-7.15±0.28	-3.54±4.57	3.3±3.28				
φ(168°)	-3.13±11.11	-10.79±10.49	-9.11±8.2	-8.25±8.85	-8.86±8.41	-8.9±6	-10.45±9.99	-8.91±7.59	7.65±7.35	-1.73±5.11	-10.79±10.49	-8.87±1.4	-4.86±6.69	5.53±0.51	-5.82±4.24	-3.9±5.2	-7.87±2.73	7.93±7.97	-8.15±0.41	-8.14±0.92	-7.15±0.28	-3.54±4.57	3.3±3.28				
φ(172.5°)	-8.95±9.35	-8.63±9.03	-9.05±9.9	-10.63±11.53	-11.09±10.12	-11.36±12.21	-12.35±11.84	-12.42±11.09	-10.84±9.85	-9.24±2.68	-6.75±2.33	-4.43±3.81	-3.51±3.72	-4.42±4.67	-3.41±3.13	-4.24±5.76	-5.06±4.96	-3.47±3.53	-3.47±4.8	-6.54±5.33	-8.34±6.78	-6.69±7.39	-8.04±6.86	-7.66±10.19			
φ(187°)	-8.63±9.2	-8.13±7.9	-7.99±7.96	-7.81±7.8	-7.87±7.83	-7.23±7.39	-7.61±7.44	-6.91±6.19	-6.53±6.57	-5.51±5.33	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09	-5.19±5.09			
φ(187°)	6.85±9.04	Theta	φ(157°φ(22.5°)	φ(157°φ(37°)	φ(157°φ(57°)	φ(157°φ(82.5°)	φ(157°φ(87°)	φ(157°φ(117.5°)	φ(157°φ(127°)	φ(157°φ(137°)	φ(157°φ(142.5°)	φ(157°φ(157°)	φ(157°φ(168°)	φ(157°φ(172.5°)	φ(157°φ(187°)	φ(157°φ(187°)	φ(157°φ(202.5°)	φ(2107°φ(217.5°)	φ(225°φ(22.5°)	φ(240°φ(247.5°)	φ(255°φ(262.5°)	φ(270°φ(277.5°)	φ(285°φ(292.5°)	φ(300°φ(307.5°)	φ(315°φ(322.5°)	φ(330°φ(337.5°)	φ(345°φ(352.5°)
φ(87°)	6.71±6.48	6.42±6.93	1.39±1.86	2.84±3.43	4.06±3.69	4.73±4.9	4.8±5.27	4.62±4.28	3.72±3.19	-2.12±1.31	6.78±6.1	6.0±1.9	6.13±6.37	6.79±6.57	6.31±6.8	-1.72±2.16	2.51±3.27	4.37±5.38	5.08±5.15	-5.01±4.31	4.43±2.35	3.14±2.83	2.16±2.14	-1.81±2.13			
φ(87°)	5.05±5.15	-6.39±5.98	5.49±1	6.99±1.33	1.86±2.26	-3.21±3.54	-4.14±4.81	-4.99±4.59	4.46±3.1	2.2±1.52	-0.72±0.68	-0.44±0.43	-0.69±0.64	-0.55±0.59	-0.79±1.43	-2.23±3.3	3.34±4.67	5.62±5.67	5.26±5.94	-4.714±4.69	-2.88±2.2	2.19±2	7.80±6.48	-6.27±0.13			
φ(187°)	5.98±5.92	1.31±0.79	0.33±0.19	0.07±0.27	1.41±1.34	-3.34±1.4	4.42±5.35	3.61±3.48	2.27±1.32	1.14±0.77	0.47±1.4	0.29±0.85	0.94±0.82	0.92±0.96	-0.07±0.94	-0.07±1.33	2.66±3.64	4.79±4.74	4.68±3.62	-4.89±3.58	-2.35±2.49	2.66±2.39	1.3±2.29	0.02±0.11			
φ(22.5°)	1.03±1.21	2.43±2.65	2.08±1.21	3.2±0.79	1.01±1.2	-1.03±1.34	-1.59±1.34	2.89±3.11	2.89±3.11	0.92±0.1	0.920±3	0.89±0.43	0.89±0.47	0.17±0.27	-0.59±0.77	-0.21±0.58	1.53±2.25	3.34±4.65	4.95±4.14	-3.35±2.39	-2.12±2.11	-1.65±1.57	-1.18±0.59	-0.31±0.76			
φ(87°)	2.98±2.98	2.98±2.4	2.98±2.26	6.45±0.46	5.98±0.91	6.44±0.28	0.09±0.35	3.28±0.34	1.31±1.74	1.67±1.46	1.11±1.62	1.06±1.34	1.06±1.34	1.06±1.34	1.06±1.34	1.06±1.34	1.06±1.34	1.06±1.34	1.06±1.34	1.06±1.34	1.06±1.34	1.06±1.34	1.06±1.34	1.06±1.34			
φ(37°)	2.24±7.8	3.31±3.98	3.12±1.3	1.44±1.53	1.85±1.48	0.96±0.04	-0.26±0.08	-0.06±1.1	0.89±1.83	2.63±2.68	2.81±7.5	1.64±2.17	1.47±0.83	0.25±0.36	0.25±0.46	-0.13±2	-3.59±3.94	2.86±2.53	2.97±3.53	-3.22±0.84	0.89±1.09	0.29±0.04	1.37±1.45	0.77±1			
φ(187°)	1.51±2.16	2.71±2.06	3.57±3.52	2.98±1.94	1.72±1.48	4.07±0.91	-0.77±0.2	0.71±1.49	1.23±1.72	2.52±2.58	1.99±1.86	1.06±1.43	0.93±1.04	0.92±1.06	0.92±1.06	0.92±1.06	0.92±1.06	0.92±1.06	0.92±1.06	0.92±1.06	0.92±1.06	0.92±1.06	0.92±1.06	0.92±1.06			
φ(82.5°)	2.67±0.95	2.62±5	2.75±2.47	2.51±2.74	2.35±1.13	0.21±0.16	-0.62±0.04	0.04±0.37	0.22±0.22	3.27±2.87	1.74±1.99	1.61±0.81	0.21±0.53	1.23±1.52	0.96±0.56	0.10±0.7	0.18±1.68	-3.2±2.31	0.42±1.38	2.17±2.58	2.71±1.48	-0.09±0.38	0.51±1.46	2.02±2.07			
φ(87°)	3.87±0.15	2.89±0.92	1.79±2.34	1.52±0.54	0.04±0.94	2.31±3.96	0.99±1.36	1.83±1.98	0.61±0.22	2.95±2.04	0.70±7.77	1.69±1.69	1.69±1.69	1.69±1.69	1.69±1.69	1.69±1.69	1.69±1.69	1.69±1.69	1.69±1.69	1.69±1.69	1.69±1.69	1.69±1.69	1.69±1.69	1.69±1.69			
φ(87°)	4.26±0.52	2.44±1.66	0.02±0.61	0.01±0.23	0.21±1.39	2.32±0.1	1.69±2.04	2.67±2.94	2.42±0.44	1.44±0.83	0.91±2.27	3.27±0.44	3.18±1.65	1.65±1.19	0.22±0.84	0.75±1.3	1.63±2.3	0.77±0.63	0.51±2.37	2.52±74	2.74±1.98	1.88±1.41	11.95	3.66±4.69			
φ(87°)	4.30±2.24	2.16±1.77	1.52±23	2.03±1.16	0.91±2.9	3.31±1.16	0.19±1.7	0.91±1.7	3.28±2.73	2.58±2.08	2.36±1.38	3.94±9.3	4.22±5.33	2.21±39	0.46±0.71	0.09±1.03	0.14±0.89	3.23±0.93	3.23±0.93	4.61±2.68	4.61±2.68	4.61±2.68	4.61±2.68	4.61±2.68			
φ(82.5°)	4.53±0.86	2.71±7.9	1.22±2.14	2.72±1.99	1.53±0.66	3.52±0.89	-2.21±0.1	3.43±0.85	2.44±1.36	1.99±2.96	2.61±0.15	3.69±6.45	4.15±2.51	2.													



Radiated Composite Gain Data of 6GHz

Appendix B

(H19°)	9.371-11.06	-15.12-17.35	-14.14-12.26	9.037-9.71	6.014-6.47	4.164-4.44	-4.28-0.47	-3.89-4.14	4.43-4.99	4.93-6.28	-5.45-5.52	-6.07-7.81	9.17-10.82	-11.48-9.7	-7.57-6.25	-6.82-6.25	-1.16-0.73	0.62-0.5	0.68-2.74	-3.72-7.35	-5.25-6.62	-4.74-4.94	5.03-5.38	6.71-8.08
(H22°)	-12.35-12.12	-12.47-14.12	-14.65-11.89	9.014-16	6.53-8.49	-3.82-8.42	-2.80-3.61	3.50-3.61	3.64-4.7	5.69-6.43	-7.45-8.04	-10.44-12.81	-11.31-10.89	9.27-7.1	6.5-8.51	-5.98-4.46	-2.86-2.12	2.08-2.19	2.04-2.88	-2.91-3.06	-3.19-3.92	-3.96-5.56	6.52-7.29	6.11-10.77
(H0°)	-6.48-10.01	-13.91-11.38	6.81-7.65	6.81-6.52	4.62-5.14	4.75-4.43	-3.0-2.8	-2.64-2.24	2.5-2.68	-4.05-7.23	-11.04-13.89	-11.59-10.31	-10.55-10.23	-10.04-9.52	6.39-6.26	-4.72-4.6	-4.14-3.45	-3.26-3.01	2.71-2.46	-1.02-1.22	-1.59-1.94	-2.74-4.2	6.33-6.66	5.86-6.77
(H37°)	7.27-8.79	-11.91-12.35	-9.6-9.8	5.42-4.46	4.27-4.25	-4.58-4.49	-4.75-5.15	-3.71-1.73	1.31-1.72	3.44-6.12	-10.88-10.69	-13.44-8.69	6.61-6.34	6.8-6.94	5.32-4.55	-4.49-6.18	7.82-8.17	8.69-6.35	5.12-5.25	-1.04-1.18	-1.18-1.2	-1.37-1.86	3.05-5.68	7.79-8.72
(H45°)	5.82-6.42	-15.72-18.04	-16.19-9.85	5.623-2.77	1.21-1.92	2.68-2.6	2.79-3.06	-3.36-3.25	2.23-3.27	4.81-7.83	-11.51-12.61	-14.56-18.31	-13.05-8.85	6.9-6.74	4.56-4.24	-6.76-8.1	9.55-8.37	9.15-9.37	6.64-7.13	1.68-1.18	-1.39-0.78	-2.72-6.04	6.88-5.36	3.1-3.53
(H52°)	3.13-3.86	-17.82-18.27	-16.77-16.74	6.223-3.88	-3.27-2.76	-1.17-0.53	0.59-0.98	-1.56-2.4	3.81-5.41	6.26-8.61	9.83-9.53	-15.51-11.54	-10.35-14.24	-13.79-9.71	9.18-10.37	8.78-9.48	9.35-8.55	8.76-7.93	5.88-5.94	3.3-3.14	2.66-3.68	-4.94-8.48	-13.82-8.77	4.35-14.08
(H60°)	7.99-9.97	-12.92-18.27	-18.72-16.01	8.50-8.22	-1.4-4.42	-2.71-5.46	1.242-2.7	1.39-7.51	3.25-5.17	6.43-11.32	-12.27-11.32	-11.01-13.12	-11.12-12.57	-10.11-17.73	-10.11-15	9.52-10.29	9.46-9.01	8.84-5.64	-4.63-6.43	-4.07-2.54	-1.39-1.59	-4.92-9.73	-7.16-7.77	6.01-7.03
(H67°)	-11.02-9.99	9.84-11.09	9.39-6.87	6.99-5.50	6.69-6.76	3.26-0.94	0.510-9.1	1.68-0.88	2.56-5.37	6.87-8.66	-11.3-14.55	-16.03-16.21	-18.16-15.79	-16.19-18.94	-14.1-9.81	8.75-10.99	-10.16-9.26	7.87-8.92	6.5-6.26	4.23-3.87	-3.24-4.81	5.42-6.26	7.06-7.41	8.41-9.58
(H75°)	-15.45-11.11	-14.01-18.21	-13.35-11.85	6.84-4.72	4.31-4.36	4.94-3.47	4.07-1.17	0.11-5.53	4.07-5.36	9.44-8.78	7.86-10.83	-10.22-16.2	-15.76-12.55	-14.47-12.55	-15.36-16.96	-13.54-10.28	-11.59-11.24	8.94-8.25	5.05-4.07	5.03-4.96	2.1-5.27	8.26-11.63	-10.5-8.86	6.83-14.08
(H82°)	6.867-9.09	-12.56-11.39	-11.31-4.22	4.4-7.34	-7.21-6.81	-7.68-6.99	3.99-2.76	4.58-12.98	7.26-5.5	6.76-12.86	18.44-18.89	-13.56-13.56	-12.69-15.49	-17.98-18.68	-16.82-12.44	-7.25-6.62	6.48-4.43	-2.75-3.07	-3.25-3.99	-2.86-5.43	-12.25-12.47	-11.33-10.68	-14.89-8.64	
(H89°)	-10.23-14.61	-16.79-19.03	-17.36-15.25	8.99-7.31	7.88-5.73	4.14-4.45	9.69-9.23	9.29-10.42	14.02-9.98	-15.99-17.2	4.25-9.67	8.82-11.64	10.89-7.75	7.78-9.69	6.88-12.71	-10.26-9.48	4.47-4.84	4.14-3.73	2.84-3.52	2.07-2.14	3.98-6.81	17.56-14.57	-13.22-10.69	9.69-9.7
(H97°)	5.66-9.19	-16.61-19.03	-16.76-15.83	6.56-5.35	5.59-5.92	5.59-5.35	6.56-5.92	6.20-13.81	15.10-11.61	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11	-7.26-9.11
(H104°)	13.29-14.27	-18.09-14.44	-17.74-17.52	17.96-14.61	-14.24-13.93	9.1-9.57	4.05-4.31	-5.5-4.2	12.29-12.74	-16.21-19.02	-17.38-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74	-16.69-13.74
(H112°)	13.42-10.18	9.5-13.91	-18.55-15.18	-17.26-9.37	-15.26-10.27	6.3-4.44	5.41-5.68	6.87-7.18	9.27-9.42	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23	-15.71-12.23
(H120°)	11.99-8.62	4.15-9.38	-16.96-10.25	-14.10-10.87	8.72-7.4	7.43-5.01	-1.51-7.8	8.91-10.48	8.32-9.89	-10.62-9.75	-10.71-9.78	-17.86-18.82	-16.54-15.87	-17.96-18.87	-17.96-18.87	-17.96-18.87	-17.96-18.87	-17.96-18.87	-17.96-18.87	-17.96-18.87	-17.96-18.87	-17.96-18.87	-17.96-18.87	-17.96-18.87
(H127°)	-18.05-15.64	-13.92-16.29	-14.42-10.19	6.87-7.27	4.77-5.78	6.35-6.08	5.69-4.31	6.84-11.77	-7.16-11.21	-11.46-16.2	-12.33-18.01	-14.82-18.88	-12.46-13.22	-18.26-11.28	-14.35-10.35	-12.83-17.7	6.88-17.68	-17.92-4.85	4.29-6.93	-11.55-2.41	4.1-1.68	4.01-7.18	6.52-6.67	5.28-13.47
(H135°)	-16.68-13.22	-10.18-8.85	-9.33-12.09	-11.09-12.38	-11.24-8.03	6.57-6.01	-5.86-6.58	-7.89-11.74	-11.54-7.25	-10.14-21	-16.52-18.43	-17.84-17.78	-15.26-18.13	-10.41-10.65	-11.21-12.93	-13.68-12.2	-7.14-7.69	-11.69-10.48	4.01-3.4	8.15-10.72	6.96-6.47	3.97-5.21	6.53-6.57	5.28-13.47
(H142°)	-14.93-18.89	-16.41-18.38	-11.16-12.66	-15.48-11.99	-13.20-18.35	-4.60-11.91	-4.34-8.83	-6.44-12.68	-5.34-8.61	6.81-7.26	-10.91-19.26	-17.72-19.21	-18.54-13.33	-17.72-19.21	-18.75-15.15	-17.33-15.4	-16.14-15.2	2.78-3.45	-18.12-17.6	2.66-5.6	-7.86-7.21	-12.16-16.87	8.16-10.47	
(H150°)	-6.68-18.4	-18.51-14.74	-14.33-14.03	-17.65-18.89	-12.12-13.28	-12.85-9.74	-7.33-6.78	9.11-14.24	-11.64-18.98	-17.77-17.91	-19.04-13.13	-18.51-17.92	-16.89-10.63	-18.26-14.62	-8.27-17.99	-5.98-3.86	6.44-10.56	6.88-6.85	-7.95-9.84	-11.19-11.55	-16.88-12.42	6.79-12.52	-12.63-18.1	
(H157°)	6.14-9.36	-11.44-10.29	-10.49-15.3	-18.71-18.08	-18.26-16.99	-15.77-15.5	-15.36-16.09	-16.89-18.54	-17.39-13.1	-17.22-18.41	-19.79-13.32	-18.67-10.83	-15.06-9.13	7.35-8.6	-10.99-9.29	-8.69-8.73	9.84-10.09	-12.33-15.59	-12.68-12.64	-13.71-14.76	-14.06-12.45	-14.22-15.73	-17.62-18.31	-14.3-8.1
(H165°)	-17.11-15.29	-13.56-15.67	-19.21-18.71	-18.67-18.24	-15.06-12.24	-13.81-12.27	-15.62-18.5	-18.66-13.27	-15.92-9.84	-14.46-13.61	-18.21-17.32	-17.14-14.65	-11.57-8.96	-7.25-11.1	-5.83-7.5	8.54-13.56	-17.73-15.26	-10.97-9.79	-11.55-14.17	-14.49-14.5	-11.10-10.75	8.73-10.81	-14.41-18.31	-19.37-17.31
(H172°)	-13.89-12.32	-13.55-15.14	-13.86-15.5	-16.71-15.46	-13.71-14.72	-18.07-19.13	-19.32-17.99	-18.61-13.08	-19.33-13.13	-18.70-12.32	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72	-17.22-14.72
(H180°)	-10.98-18.46	-19.03-16.05	-15.29-16.29	-18.84-13.24	-13.38-13.23	-11.61-12.06	-11.72-15.1	-18.93-11.71	-13.92-14.65	-15.46-17.88	-19.08-19.51	-18.29-19.16	-16.43-18.88	-17.93-19.72	-18.85-15.41	-13.78-13.51	-12.39-18.95	8.25-7.6	7.49-8.11	6.77-7.14	-7.07-7.34	8.87-10.83	-13.99-18.84	-17.96-17.83
Freq(Hz)	6.8959294	Thetadec1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	0°(H19°/5°)	0°(H19°/22°/5°)	0°(H19°/37°/5°)	0°(H19°/45°/5°)	0°(H19°/52°/5°)	0°(H19°/60°/5°)	0°(H19°/67°/5°)	0°(H19°/75°/5°)	0°(H19°/82°/5°)	0°(H19°/90°/5°)	0°(H19°/97°/5°)	0°(H19°/104°/5°)	0°(H19°/112°/5°)	0°(H19°/120°/5°)	0°(H19°/127°/5°)	0°(H19°/135°/5°)	0°(H19°/142°/5°)	0°(H19°/150°/5°)	0°(H19°/157°/5°)	0°(H19°/165°/5°)	0°(H19°/172°/5°)	0°(H19°/180°/5°)	0°(H19°/187°/5°)	0°(H19°/195°/5°)
(H19°)	4.773-7.31	3.33-3.38	3.89-3.35	5.53-6.77	8.2-7.71	8.85-11.3	12.17-11.58	-8.68-18.75	-16.45-16.19	-12.85-16.21	-8.64-6.33	5.32-4.61	4.83-4.54	4.81-4.16	3.63-4.57	-5.88-6.64	4.63-7.1	8.73-10.28	-11.92-15.03	-17.59-17.69	-16.89-12.57	-12.84-12.65	8.8-10.11	7.74-13.1
(H22°)	5.159-5.28	5.28-6.41	4.90-6.79	6.29-6.64	7.79-8.5	8.76-10.19	-11.10-13.02	-14.70-15.91	-15.20-14.34	-11.53-9.72	4.07-5.53	3.47-3.27	3.27-3.27	3.27-3.27	3.27-3.27	3.27-3.27	3.27-3.27	3.27-3.27	3.27-3.27	3.27-3.27	3.27-3.27	3.27-3.27	3.27-3.27	3.27-3.27
(H37°)	4.602-4.65	4.59-5.15	5.55-5.21	4.84-5.58	5.24-5.16	12.89-15.54	15.29-12.24	-10.07-9.69	7.15-5.91	5.48-6.81	4.03-3.38	3.36-2.44	2.5-6.67	1.33-9.38	3.68-6.28	6.01-6.18	2.86-4.57	7.38-7.65	14.55-12.63	19.85-14.29	13.20-13.44	12.02-12.26	9.56-9.28	5.58-6.43
(H45°)	3.69-2.91	2.32-1.89	2.34-0.99	6.90-7.15	7.95-10.44	13.68-13.65	9.91-7.88	6.89-4.88	4.86-3.73	2.34-1.5	-1.34-1.3	-1.08-0.85	0.27-0.32	0.29-0.23	1.13-1.38	3.22-4.00	4.46-6.91	15.93-14.19	-17.07-17.69	-16.89-12.92	-11.74-10.99	7.77-5.66	5.78-6.66	
(H52°)	3.69-2.91	2.32-1.89	2.34-0.99	6.90-7.15	7.95-10.44	13.68-13.65	9.91-7.88	6.89-4.88	4.86-3.73	2.34-1.5	-1.34-1.3	-1.08-0.85	0.27-0.32	0.29-0.23	1.13-1.38	3.22-4.00	4.46-6.91	15.93-14.19	-17.07-17.69	-16.89-12.92	-11.74-10.99	7.77-5.66	5.78-6.66	
(H60°)	4.61-7.34	5.23-5.1	3.26-5.95	9.41-10.63	-15.86-18.07	-11.57-9.79	7.2-5.45	6.66-5.08	10.07-9.25	10.7-7.73	1.86-1.47	3.94-5.22	2.20-1.73	1.86-1.47	3.94-5.22	2.20-1.73	1.86-1.47	3.94-5.22	2.20-1.73	1.86-1.47	3.94-5.22	2.20-1.73	1.86-1.47	3.94-5.22
(H67°)	8.014-1.4	2.45-1.85	2.48-2.76	4.45-5.35	7.86-8.34	-11.62-15.7	-11.62-15.7	-7.00-6.46	-3.76-2	6.68-6.98	-0.30-3.6	1.08-0.81	0.26-0.98	2.42-2.5	1.24-11	1.03-1.13	1.03-1.13	1.03-1.13	1.03-1.13	1.03-1.13	1.03-1.13	1.03-1.13	1.03-1.13	1.03-1.13
(H75°)	-17.47-13.12	-11.67-14.12	6.74-11.46	-15.86-11.12	-13.27-12.92	-12.75-9.61	-5.29-5.33	-3.49-2.59	8.07-10.08	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09	1.60-2.09
(H82°)	-15.21-13.16	-11.76-12.41	-18.12-18.85	-17.89-15.87	-17.92-18.26	-18.26-18.64	-6.79-3.57	-1.6-0.33	0.82-0.61	0.24-0.1	0.21-0.1	1.61-0.17	1.11-1.28	1.68-0.51	0.81-0.77	3.91-6.48	-6.88-5.74	7.79-6.49	-7.88-10.14	8.5				



Radiated Composite Gain Data of 6GHz

Appendix B

	(H0°)	(-12.11-16.43)	(-18.99-19.04)	(-19.25-8.44)	(-4.51-3.87)	(3.33-2.1)	(2.53-0.4)	(-1.44-0.34)	(-5.89-2.32)	(5.01-7.15)	(8.02-7.43)	(-10.25-14.51)	(-16.17-9.95)	(8.87-8.64)	(-7.69-4.7)	(-17.20-6.7)	(-1.18-2.52)	(-3.21-0.75)	(0.97-2.61)	(3.94-0.55)	(-3.37-2.86)	(-3.34-3.74)	(-4.2-0.9)	(-11.26-11)	(-16.86-16.87)
(H0°)	(-17.67-17.87)	(-16.21-16)	(-8.91-6.64)	(-7.29-5.67)	(-4.75-4.65)	(-5.65-3.93)	(-4.19-3.1)	(-1.74-0.99)	(-5.99-3.4)	(-2.71-3.14)	(5.01-6.55)	(-14.36-15.33)	(-12.89-9.34)	(-5.85-2.56)	(-13.15-6.42)	(-4.48-2.99)	(-1.22-2.35)	(-4.91-1.6)	(-3.16-1.3)	(-4.01-6.55)	(-6.04-1.4)	(-3.89-3.34)	(-4.47-3.5)	(-11.74-10.3)	(-16.87-16.87)
(H0°)	(-14.16-12.97)	(-18.92-13.52)	(-3.37-13.54)	(-13.52-6.61)	(-3.16-4.46)	(-4.19-3.1)	(-1.74-0.99)	(-5.99-3.4)	(-2.71-3.14)	(5.01-6.55)	(-14.36-15.33)	(-12.89-9.34)	(-5.85-2.56)	(-13.15-6.42)	(-4.48-2.99)	(-1.22-2.35)	(-4.91-1.6)	(-3.16-1.3)	(-4.01-6.55)	(-6.04-1.4)	(-3.89-3.34)	(-4.47-3.5)	(-11.74-10.3)	(-16.87-16.87)	
(H0°)	(-10.06-12.16)	(-17.89-11.58)	(-9.71-15.26)	(-16.51-9.28)	(-6.33-6.99)	(-4.02-4.05)	(-5.06-3.77)	(-2.27-1.16)	(-1.89-2.71)	(-5.83-6.7)	(-14.29-16.19)	(-18.66-14.86)	(-11.29-4.72)	(-3.7-5.4)	(-10.24-3.1)	(-1.01-2.99)	(-4.26-2.94)	(-4.27-3.37)	(-4.62-4.17)	(-7.48-6.55)	(-3.86-3.37)	(-3.06-4.65)	(-11.73-15.94)	(-11.85-83)	
(H0°)	(-17.33-18.35)	(-14.16-14)	(-17.53-18.88)	(-15.66-10.46)	(-12.11-9.6)	(-7.19-5.66)	(-4.42-4.1)	(-4.42-3.51)	(-3.19-3.02)	(-4.38-7.1)	(-7.86-11.46)	(-16.15-10.06)	(-11.16-14.35)	(-16.32-9.35)	(-8.96-6.43)	(-3.32-2.33)	(-6.05-4.14)	(-1.54-1.18)	(-1.21-1.61)	(-1.09-6.53)	(-3.99-6.04)	(-5.03-4.61)	(-7.89-17.6)	(-14.11-13.25)	
(H0°)	(-14.82-17.87)	(-16.16-16)	(-18.32-17.61)	(-17.66-14.34)	(-6.17-8.73)	(-6.86-6.88)	(-7.11-3.84)	(-3.21-3.13)	(-4.27-7.56)	(-8.50-10.59)	(-10.85-17.27)	(-18.26-12.12)	(-11.19-11.59)	(-14.59-13.9)	(-9.46-7.3)	(-5.23-4.14)	(-2.77-4.42)	(-2.93-1.35)	(-1.45-1.38)	(-3.06-1.86)	(-3.01-6.84)	(-10.22-7.33)	(-8.02-13.72)	(-19.3-16.12)	
(H0°)	(-10.11-11.28)	(-17.46-13.76)	(-15.28-16.62)	(-6.74-7.47)	(-6.78-12.63)	(-8.02-3.65)	(-5.02-6.27)	(-7.34-13.5)	(-14.32-19.43)	(-13.51-10.63)	(-19.17-14.75)	(-13.71-10.75)	(-10.47-14.8)	(-9.26-13.5)	(-5.97-6.48)	(-4.56-4.41)	(-7.99-2.25)	(-1.45-1.48)	(-1.28-1.63)	(-2.22-2.19)	(-7.15-10.25)	(-10.21-14.2)	(-11.97-17.78)	(-19.3-16.12)	
(H12.5°)	(-18.82-12.24)	(-17.64-14.96)	(-14.77-16.88)	(-14.36-14.66)	(-7.53-7.36)	(-15.63-16.16)	(-7.39-6.68)	(-6.24-5.04)	(-8.48-15.8)	(-17.77-18.54)	(-11.87-15)	(-15.02-18.85)	(-18.02-16.27)	(-9.77-9.33)	(-3.89-2.48)	(-3.17-1.76)	(-5.65-0.49)	(-3.31-2.26)	(-1.91-1.66)	(-5.48-9.35)	(-5.48-9.35)	(-15.91-12.3)	(-11.71-9.72)	(-19.3-16.12)	
(H12.5°)	(-18.86-10.63)	(-18.41-19.29)	(-8.92-10.32)	(-8.1-8.87)	(-8.06-8.26)	(-14.76-14.24)	(-12.96-10.24)	(-8.02-5.3)	(-8.61-13.01)	(-14.68-19.19)	(-16.3-12.24)	(-10.01-7.94)	(-9.56-14.6)	(-18.98-16.48)	(-7.13-5.39)	(-6.49-2.27)	(-2.25-2.79)	(-6.07-5.55)	(-3.43-5.65)	(-9.5-7.67)	(-7.16-9.69)	(-8.84-8.84)	(-10.44-14.19)	(-19.3-16.12)	
(H12.5°)	(-18.81-15.03)	(-17.14-16.05)	(-15.99-13.96)	(-7.49-85)	(-8.23-8.67)	(-12.55-13.04)	(-8.14-6.5)	(-3.84-4.39)	(-4.08-10.12)	(-17.91-18.98)	(-19.16-8.8)	(-7.84-9.35)	(-11.76-15.75)	(-17.25-4.89)	(-2.36-2.45)	(-6.93-6.88)	(-18.4-13)	(-8.167-9.39)	(-8.4-4.17)	(-7.91-19.39)	(-16.84-9.54)	(-8.49-14.35)	(-17.92-19.34)	(-19.3-16.12)	
(H12.5°)	(-18.79-15.94)	(-15.59-14.97)	(-16.93-12.73)	(-9.86-17.73)	(-9.86-17.73)	(-7.42-6.34)	(-4.2-5.57)	(-4.46-5.7)	(-7.42-12.57)	(-14.16-16)	(-8.42-10.8)	(-16.34-16.56)	(-11.93-11.34)	(-12.77-16.25)	(-2.27-1.25)	(-6.01-6.7)	(-18.94-13)	(-8.56-8.68)	(-6.22-7.51)	(-4.02-14.33)	(-14.39-18.15)	(-7.79-8.4)	(-8.11-17.73)	(-19.3-16.12)	
(H12.5°)	(-12.44-15.95)	(-18.29-14.95)	(-18.91-15.9)	(-13.64-15.93)	(-11.7-7.8)	(-9.12-9.5)	(-2.29-1.39)	(-10.74-9.3)	(-5.46-5.14)	(-8.99-11.32)	(-15.76-14.62)	(-15.33-16.64)	(-16.54-15.1)	(-10.55-10.66)	(-10.96-13.32)	(-12.2-1.25)	(-1.66-6.1)	(-3.17-1.98)	(-3.05-5.6)	(-7.91-9.2)	(-6.22-11.65)	(-13.76-14.3)	(-8.56-19.95)	(-19.3-16.12)	
(H12.5°)	(-12.10-137)	(-14.51-19.92)	(-18.91-14.68)	(-14.83-8.85)	(-7.111-8.64)	(-11.43-9.05)	(-17.81-16.56)	(-11.43-9.05)	(-12.29-16.28)	(-12.89-16.28)	(-12.39-16.5)	(-9.32-9.48)	(-11.99-17.77)	(-15.29-16.17)	(-12.61-12.92)	(-11.84-16)	(-3.26-3.78)	(-4.11-3.76)	(-5.34-3.32)	(-8.19-11.3)	(-16.99-16.99)	(-16.99-16.99)	(-6.21-9.72)	(-19.3-16.12)	
(H12.5°)	(-16.14-13.82)	(-14.34-13.83)	(-18.99-14.54)	(-16.39-14.37)	(-11.45-9.48)	(-7.33-9.16)	(-6.07-6.42)	(-11.15-15.17)	(-12.39-16.74)	(-12.59-15.92)	(-10.46-10.41)	(-12.77-13.34)	(-14.93-16.16)	(-16.69-16.4)	(-8.91-10.57)	(-15.45-16.15)	(-10.71-10.48)	(-4.12-6.97)	(-11.11-17.59)	(-12.29-9.89)	(-10.46-13.76)	(-10.46-13.76)	(-6.22-6.63)	(-19.3-16.12)	
(H12.5°)	(-11.46-15.05)	(-15.26-16)	(-16.96-16.7)	(-14.72-18.4)	(-11.81-13.82)	(-15.99-13.82)	(-12.66-14.17)	(-15.85-16.16)	(-16.97-18.6)	(-15.43-13.85)	(-13.9-13.28)	(-12.66-13.37)	(-13.97-19.03)	(-17.87-17.58)	(-13.96-11.86)	(-11.36-16.18)	(-9.21-9.87)	(-8.41-11.58)	(-14.75-16.12)	(-13.34-15.15)	(-12.66-16.16)	(-9.51-11.39)	(-14.76-12.93)	(-14.11-13.23)	
(H12.5°)	(-17.78-16.13)	(-15.91-16.88)	(-18.03-16.26)	(-17.25-17.65)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)
(H12.5°)	(-17.78-16.13)	(-15.91-16.88)	(-18.03-16.26)	(-17.25-17.65)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)	(-17.62-19.74)
FreeRx0	6.1750GHz	Thesat.0	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Gain	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)	(H0°/H0°/5°)
(H0°)	(-4.33-1.6)	(-4.48-0.87)	(-9.11-1.03)	(-1.11-1.7)	(-2.43-7.35)	(-5.6-81)	(-8.02-10.84)	(-2.51-13.17)	(-12.47-10.52)	(-7.84-6.26)	(-4.13-34)	(-2.73-2.02)	(-1.44-1.19)	(-1.48-1.73)	(-2.05-2.1)	(-2.38-3.38)	(-4.47-6.15)	(-7.24-8.4)	(-11.08-15.72)	(-18.98-16.18)	(-13.91-9.85)	(-7.16-6.47)	(-3.87-12.2)	(-13.91-16.87)	(-19.3-16.12)
(H0°)	(-0.89-5.1)	(-0.84-12.1)	(-1.52-3.26)	(-2.36-2.88)	(-3.72-4.91)	(-6.5-8.9)	(-10.37-13.89)	(-10.77-11.61)	(-17.55-13.03)	(-9.99-6.53)	(-5.19-7.22)	(-2.21-1.69)	(-0.96-0.7)	(-0.81-1.5)	(-1.56-1.87)	(-2.05-2.53)	(-3.65-4.71)	(-5.93-6.77)	(-9.01-11.03)	(-11.59-9.78)	(-8.95-6.56)	(-4.3-3.54)	(-3.76-10.32)	(-19.3-16.12)	
(H0°)	(-1.21-1.54)	(-1.02-1.13)	(-0.91-1.69)	(-2.50-2.76)	(-3.26-4.86)	(-7.33-10.48)	(-12.81-18.63)	(-16.13-10.84)	(-8.69-10.48)	(-2.24-2.53)	(-3.73-3.16)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)	(-2.24-2.14)
(H0°)	(-2.72-2.34)	(-1.70-2.14)	(-1.64-0.56)	(-5.64-1.12)	(-5.94-7.16)	(-3.49-6.88)	(-6.47-8.88)	(-10.78-9.85)	(-11.13-10.4)	(-7.26-3.72)	(-5.19-4.26)	(-3.71-3.74)	(-4.85-5.61)	(-5.52-6.46)	(-6.15-8.45)	(-8.47-9.78)	(-7.81-11.79)	(-6.88-7.52)	(-5.49-6.67)	(-7.25-9.54)	(-4.39-5.27)	(-1.63-1.23)	(-1.05-1.12)	(-1.68-1.51)	
(H0°)	(-5.91-4.4)	(-4.73-5.4)	(-1.89-1.01)	(-5.34-1.28)	(-2.47-4.56)	(-5.85-6.11)	(-13.52-12.46)	(-8.89-8.36)	(-3.2-5.64)	(-4.73-4.48)	(-4.57-4.16)	(-1.59-1.94)	(-3.67-5.65)	(-6.15-7.15)	(-13.86-15.17)	(-13.14-15.16)	(-11.39-10.87)	(-8.8-4.6)	(-1.94-2.14)	(-2.9-2.63)	(-1.56-1.24)	(-2.02-2.49)	(-1.16-1.12)	(-1.68-1.51)	
(H0°)	(-1.89-1.13)	(-2.91-2.74)	(-1.91-1.75)	(-1.29-2.9)	(-4.88-2.36)	(-4.77-9.58)	(-15.09-11.38)	(-8.64-6.3)	(-7.77-7.33)	(-7.62-6.84)	(-6.37-6.35)	(-4.07-4.01)	(-4.54-5.51)	(-7.91-10.86)	(-12.96-15.25)	(-15.44-17.23)	(-18.03-16.54)	(-16.77-17.02)	(-14.73-15.2)	(-12.11-13.9)	(-1.64-1.43)	(-1.16-0.58)	(-1.3-1.6)	(-6.88-6.58)	
(H0°)	(-4.99-6.05)	(-1.99-2.72)	(-3.01-3.02)	(-2.99-6.68)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)	(-4.93-2.22)
(H0°)	(-2.91-5.4)	(-2.54-1.6)	(-2.64-2.4)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)	(-5.6-6.7)
(H0°)	(-5.91-0.02)	(-0.71-35)	(-1.31-1.77)	(-1.6-7.1)	(-0.89-8.6)	(-4.92-7.4)	(-6.89-11.26)	(-15.59-12.32)	(-10.14-11.34)	(-7.08-10.77)	(-12.43-16.56)	(-12.96-14.21)	(-16.91-17.69)	(-19.78-19.03)	(-15.33-16.11)	(-11.59-14.65)	(-7.94-7.69)	(-5.36-5.23)	(-2.1-4)	(-2.39-1.72)	(-0.31-0.12)	(-1.97-0.24)	(-5.64-0.02)	(-5.64-0.02)	
(H0°)	(-7.87-9.54)	(-6.89-2)	(-1.61-2.22)	(-1.92-1.58)	(-1.98-1.32)	(-2.39-4.48)	(-4.76-10.19)	(-16.42-12.82)	(-12.43-15.77)	(-10.71-11.9)	(-11.57-15.4)	(-13.71-14.3)	(-16.18-16.96)	(-16.96-16.96)	(-13.56-10.41)	(-7.07-5.1)	(-4.03-6.32)	(-4.94-7.23)	(-3.72-4.34)	(-2.44-1.68)	(-1.54-0.25)	(-0.22-0.68)	(-0.54-0.23)	(-5.64-0.02)	
(H0°)	(-8.31-0.66)	(-2.73-3.99)	(-1.07-1.08)	(-1.47-2.1)	(-7.10-64)	(-3.82-5.25)	(-6.43-11.37)	(-14.16-8.02)	(-8.84-10.58)	(-12.08-8.94)	(-9.92-8.3)	(-18.8-11.37)	(-16.48-11.25)	(-10.15-8.7)	(-7.62-10.48)	(-14.91-15)	(-5.21-5.68)	(-6.8-64)	(-3.72-8.89)	(-9.15-9.29)	(-2.43-1.1)	(-1.6-0.22)	(-3.4-0.81)	(-7.71-17)	
(H0°)	(-0.03-1.01)	(-1.31-1.27)	(-0.82-0.41)	(-1.36-1.34)	(-2.14-1.4)	(-5.43-5.38)	(-1.52-8.33)	(-5.84-6.21)	(-3.84-6.51)	(-6.99-14.98)	(-18.41-16)	(-14.16-16)	(-9.75-6.05)	(-6.86-6.86)	(-6.86-6.86)	(-6.86-6.86)	(-6.86-6.86)	(-6.86-6.86)	(-6.86-6.86)	(-6.86-6.86)	(-6.86-6.86)	(-6.86-6.86)	(-6.86-6.86)	(-6.86-6.86)	(-6.86-6.86)
(H0°)	(-1.42-1.36)	(-6.4-1.36)	(-1.88-0.96)	(-0.35-1.27)	(-2.23-3.67)	(-5.94-6.68)	(-6.29-6.68)	(-6.91-6.63)	(-6.43-6.28)	(-6.96-9.78)	(-10.27-10.3)	(-14.16-17.78)	(-9.24-8.49)	(-5.44-7.83)	(-7.8-7.37)	(-3.28-5.56)	(-5.49-4.82)	(-5.08-5.45)	(-2.63-1.7)	(-9.18-14.03)	(-18.02-15)	(-0.87-0.21)	(-1.63-0.16)	(-0.96-0.32)	
(H0°)	(-0.81-1.36)																								



Radiated Composite Gain Data of 6GHz

Appendix B

(H0°)	2.88-1.92	-1.86-2.88	-3.46-4.84	-7.05-7.99	6.32-4.42	-2.77-2.39	-3.07-3.99	4.16-4.2	8.52-9.11	-12.47-18.64	-13.06-10.8	-8.43-5.98	5.73-6.11	5.24-4.22	-3.21-8.86	-0.74-0.45	-0.81-0.94	-1.65-3.13	5.3-5.41	-2.82-1.3	-0.91-1.84	3.11-2.67	2.01-1.58	-1.84-1.82
(H5°)	3.14-2.23	-1.29-4.7	0.46-2.29	-6.03-8.2	7.77-5.36	3.1-3.2	-2.03-3.3	6.34-6.28	7.15-6.87	8.33-10.7	-10.85-8.1	5.97-7.36	4.21-4.01	4.18-4.9	-5.37-6.06	3.31-0.71	0.91-4.9	1.75-0.63	2.02-4.83	-3.2-0.4	-0.89-3.22	5.1-3.26	0.66-0.86	-2.16-0.82
(H10°)	3.47-2.23	0.43-7.5	1.03-1.4	-1.42-3.1	4.82-4.02	2.67-2.14	-2.36-3.28	-7.36-9.3	7.31-6.72	8.47-10.15	-8.76-5.07	3.27-1.59	0.95-1.63	2.17-3.99	-3.96-2.59	-2.2-0.73	-0.20-5.9	1.16-0.77	0.33-1.94	0.06-2.16	1.45-1.01	4.07-1.44	-0.07-0.51	-2.55-0.26
(H15°)	2.59-6.96	0.86-7.3	1.44-0.2	0.79-3.43	-1.77-3.37	0.99-0.1	0.16-0.9	-3.36-5.33	4.65-3.44	-4.75-1.2	-7.89-5.87	-2.50-2.7	0.23-0.78	-1.09-1.57	-2.73-2.3	-1.22-0.8	-0.81-0.23	0.33-0.53	-1.53-4.01	-0.73-1.25	0.81-1.73	2.08-1.43	0.03-0.34	3.71-3.96
(H20°)	1.26-1.46	0.51-1.1	0.80-0.68	0.48-0.45	-1.47-1.47	-1.07-0.26	0.90-1.05	-1.8-1.3	-4.86-1.35	-4.75-1.48	-8.01-0.86	-2.50-2.13	1.34-1.4	-0.21-3.28	-3.34-3.03	-1.73-0.12	-1.73-0.12	-1.73-0.12	-1.73-0.12	-1.73-0.12	-1.73-0.12	-1.73-0.12	-1.73-0.12	-1.73-0.12
(H25°)	0.19-0.34	-1.25-1.68	-0.30-7.8	3.92-0.2	-2.45-3.89	-1.84-2.3	1.49-1.19	-1.17-0.38	3.91-4.25	4.47-1.74	-18.46-4.01	0.09-0.64	1.33-0.6	0.5-1.2	-5.41-4.85	-4.46-2.89	-4.11-3.76	2.79-1.47	-1.03-1.66	0.80-2.25	2.70-0.84	0.61-0.68	1.27-0.16	-0.72-1.16
(H30°)	0.58-0.56	0.47-0.67	0.32-0.64	0.33-0.25	-1.88-1.25	1.18-6	2.40-2.68	1.52-1.48	-2.52-4.8	-19.34-4.07	0.12-0.57	0.05-0.44	-0.14-2.7	-0.31-1.95	-5.13-9.36	-6.8-2.41	-0.34-2.69	0.83-1.71	3.31-0.29	3.31-0.29	3.31-0.29	3.31-0.29	3.31-0.29	
(H35°)	0.85-0.58	0.21-0.73	0.84-0.6	0.12-0.11	-0.97-0.21	0.15-1.08	-0.74-0.88	0.04-1.73	8.59-8.74	-7.52-5.87	-7.65-5.5	1.89-1.96	0.83-1.92	-0.33-4.06	-1.9-3.29	0.33-0.99	6.86-12.46	6.81-3.84	0.38-0.63	2.03-1.9	1.93-0.52	2.25-0.34	2.23-0.11	0.05-0.2
(H40°)	0.99-0.78	0.07-0.44	0.04-0.6	-0.14-0.87	1.13-0.62	-2.43-3.74	-1.57-0.12	0.54-1.73	5.25-5.77	-12.58-17.36	-8.37-3.32	-1.11-0.06	0.26-1	1.13-0.06	-5.73-4.73	1.41-0.38	3.86-1.34	4.24-4.88	2.55-2.4	2.42-2.07	0.01-0.8	1.74-0.34	2.52-1.52	0.02-0.34
(H45°)	0.36-1.08	0.04-1.84	0.91-1.37	0.54-0.98	0.83-2.26	-4.24-4.14	-3.47-2.51	0.36-1.78	9.95-1.92	6.46-16.55	-8.52-3.3	-2.97-2.48	-0.09-0.3	-1.35-1.2	4.53-4.67	0.82-1.29	-1.27-0.64	4.53-2.91	-3.86-0.01	0.81-0.6	0.36-1.49	0.62-0.21	1.29-0.25	-3.47-0.13
(H50°)	0.09-1.55	1.29-1.24	1.29-1.1	1.27-0.22	0.04-0.56	3.58-1.72	8.75-0.77	7.97-0.82	4.99-5.97	6.58-1.78	-14.42-11.1	4.84-0.48	5.16-0.29	5.55-0.83	7.11-5.33	0.17-3.78	14.84-0.34	5.95-2.77	7.86-1.83	2.47-0.29	4.78-0.13	0.48-0.81	0.31-1.3	4.45-0.45
(H55°)	0.62-0.39	1.55-0.17	0.42-0.28	0.15-0.59	1.96-1.36	-3.25-1.49	0.17-0.73	3.89-2.4	8.37-1.55	6.29-0.44	10.28-0.99	4.26-0.47	1.49-0.48	4.46-1.44	0.18-1.31	1.12-0.12	1.12-0.12	1.12-0.12	1.12-0.12	1.12-0.12	1.12-0.12	1.12-0.12	1.12-0.12	1.12-0.12
(H60°)	0.02-0.33	1.01-1.13	0.28-0.05	-1.46-1.87	1.93-2.86	-4.66-7.41	6.93-4.3	2.18-1.45	2.71-4.1	7.57-0.17	-10.18-24	-18.73-11	11.95-0.84	0.96-1.78	-18.45-173	7.15-2.23	18.17-13.05	4.86-4.35	5.21-0.07	0.81-1.46	4.59-0.43	0.65-0.77	0.96-1.73	-1.59-0.55
(H65°)	3.62-1.04	-1.17-0.59	0.53-1.45	-1.35-1.4	2.29-0.55	7.41-7.91	7.5-6.6	4.59-5.14	5.22-5.34	7.9-8.3	-16.42-18.11	-14.78-16.26	-11.36-9.31	9.31-13.28	-14.29-19.01	6.84-10.96	-1.58-0.13	4.51-7.2	2.21-0.64	4.02-7.74	2.86-1.07	0.59-0.63	-7.59-0.51	
(H70°)	0.58-0.54	-3.76-2.38	-1.52-0.15	1.45-0.46	4.81-0.64	4.52-0.43	-10.57-1.52	4.25-7.38	8.26-10.43	-10.52-12.68	-16.81-12.12	-15.99-12.91	-12.87-12.33	-13.06-16.54	-13.44-0.68	-10.15-18.84	-18.36-12.54	4.37-1.35	-1.35-1.33	8.4-8.1	8.59-3.81	4.19-4.48	4.77-0.12	-7.31-14.14
(H75°)	-1.23-0.27	-7.52-0.88	7.02-0.43	4.56-0.71	4.56-1.17	3.1-1.72	8.96-4.21	-3.28-5.88	2.43-8.85	-8.89-12.37	-17.27-17.37	-18.71-18.21	-12.43-9.33	8.9-14.26	-17.17-18.1	-18.28-12.57	-15.89-11.1	1.45-0.15	1.45-0.15	1.45-0.15	1.45-0.15	1.45-0.15	1.45-0.15	1.45-0.15
(H80°)	-5.57-5.41	-5.16-4.86	-4.33-4.81	-6.1-6.4	4.76-0.18	8.92-9.32	-11.52-10.45	-12.41-16.08	-18.11-14.62	-13.50-11.49	-11.52-13.7	-17.35-19.19	-18.17-18	-13.83-10.22	-8.8-10.24	-15.89-17.1	-13.78-11.99	-12.14-10.41	-16.31-17.32	-13.43-8.46	-7.1-8.8	-8.69-8.5	-8.59-7.15	-8.59-7.15
(H85°)	-4.28-7.05	-7.82-7.23	-7.9-8.23	-6.18-9.42	-11.89-16.24	-18.33-17.71	-18.07-18.57	-17.47-18.38	-15.91-1.851	-18.69-17.45	-14.44-11.71	-8.97-0.99	8.54-10.33	-10.95-10.7	-9.62-8.85	-6.18-8.86	-10.13-10.33	-11.51-12.36	-12.34-16.71	-15.01-13.05	-12.34-13.14	-14.86-13.55	-10.16-12.78	-10.16-12.78
(H90°)	-1.14-13.29	-16.02-12.6	-10.87-9.32	8.58-10.44	6.76-8.61	-10.10-8.6	-11.48-12.39	-14.47-15.15	-17.65-17.81	-8.33-19	-19.11-17.06	-15.13-13.98	-12.83-11.87	-10.5-8.3	-8.45-8.26	-8.45-9.21	-8.91-9.78	8.97-10.5	-11.69-13.56	-16.11-18.21	-17.82-18.25	-18.79-16.24	-17.06-16.24	-14.50-13.72
Frequency	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	6.000GHz	
Gain	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°	110°	
(H0°)	8.72-7.51	8.57-8.2	7.29-7.72	6.91-6.58	5.9-10.28	-11.07-12.03	-11.99-11.63	-13.17-14.75	-15.71-16	-18.53-15.27	-16.15-16.76	-12.74-12.42	-11.19-9.87	8.84-9.55	9.21-10.37	10.19-13.36	12.29-13.13	15.88-18.2	19.17-17.58	18.17-16.98	14.38-12.56	11.88-11.94	10.57-11.11	10.57-11.11
(H5°)	-10.47-10.68	-10.49-10.31	-13.02-13.86	-13.87-12.82	-14.08-12.18	-11.99-12.02	-13.71-10.98	-17.74-16.8	-17.84-16.75	-16.34-13.14	-12.29-11.04	-10.17-7.76	9.46-9.14	4.72-8.53	4.96-9.81	9.52-10.17	11.29-11.87	13.49-14.5	15.27-17.82	16.19-19.21	18.99-18.67	17.79-15.32	-13.71-13.27	-13.02-12.46
(H10°)	-4.78-5.1	-4.78-5.1	-6.36-6.14	-7.13-7.52	-10.42-12.64	-12.48-12.64	-13.71-14.64	-14.86-14.85	-13.39-11.48	-9.58-7.92	-7.71-8.07	-6.54-6.85	3.46-8.95	-10.27-11.63	-12.71-13.67	-13.96-15.58	-12.60-17.87	-10.26-17.44	-19.04-17.75	-19.17-17.2	-14.74-12.78	-10.83-10.88	-6.89-6.81	-6.89-6.81
(H15°)	-12.89-12.3	-15.06-13.97	-13.89-13.05	-11.88-11.49	-8.21-11.17	-12.81-12.02	-10.29-9.74	-6.34-9.39	8.86-9.5	-6.75-8.85	-7.23-9.33	-6.97-9.74	-4.94-8.8	-10.03-11.01	-12.15-13.29	-14.86-13.11	-17.48-18.92	-15.86-15.71	-17.23-16.1	-16.26-14.72	-13.56-14	-16.85-17.73	-17.08-15.53	-14.95-14.5
(H20°)	-11.27-16.59	-18.15-18.17	-14.97-14.26	-11.61-11.38	-6.48-9.24	-10.36-9	-7.69-9.57	-4.68-7.72	7.17-11.63	-9.30-10.96	-11.86-12.53	-14.86-19.42	-16.86-18.55	-16.17-17.1	-17.62-15.35	-12.23-12.15	-12.36-11.32	-11.07-12.67	-13.71-13.26	-12.56-10.38	-19.42-18.94	-17.73-15.13	-14.16-14.5	-14.16-14.5
(H25°)	-8.6-17.5	-11.21-14.07	-15.82-17.01	-16.52-14.32	-13.66-14.13	-11.98-17.78	-4.57-1.26	9.43-11.1	-11.18-13.5	-11.22-12.61	-16.86-17.52	-19.03-17.76	-15.89-16.85	-14.11-13.81	-10.43-12.41	-15.65-14.42	-10.53-10.87	-6.82-12.83	-16.81-12.5	-10.95-10.7	-13.52-10.73	-13.66-11.34	9.18-9.67	9.18-9.67
(H30°)	-4.84-10.7	-13.55-16.85	-18.39-18.83	-18.12-16.47	-14.56-16.16	-11.49-17.87	-8.07-8.1	-10.91-14.23	-15.11-18.06	-11.11-18.08	-11.41-11.81	-10.21-10.83	-11.61-11.81	-7.54-7.16	9.05-8.61	-8.68-11.84	-12.88-10.81	8.71-19.6	-13.38-12.78	-13.14-10.89	-16.71-18.74	-15.10-13.19	-12.07-10.52	-7.44-8.35
(H35°)	-18.9-10.77	-11.01-14.24	-11.98-17.42	-16.89-18.12	-16.82-16.05	-16.82-16.37	-10.2-8.67	-13.12-16.81	-14.64-14.74	6.97-9.36	9.36-11.29	8.92-11.69	-13.79-12.72	-11.63-8.67	6.54-7.9	-10.51-15.81	-18.15-15	-12.02-10.21	8.94-11.9	-12.45-15.57	-17.39-16.41	-15.17-13.61	-14.94-16.78	-12.16-12.5
(H40°)	-8.62-12.7	-8.66-12.59	-19.04-18.41	-18.93-17.86	-18.87-18.23	-16.82-17.87	-16.82-14.13	-12.15-15.84	-17.62-16.04	-8.86-11.24	-11.41-17.76	-14.41-17.76	-19.74-24.34	-15.51-16.77	-7.73-24.34	-15.51-16.77	-18.39-18.27	-16.21-18.31	-12.46-10.48	-16.84-11.55	-11.03-14.67	-11.81-14.38	-13.24-12.13	-13.24-12.13
(H45°)	-14.19-12.78	-11.43-11.75	-13.81-12.5	-19.11-19.07	-17.41-18.3	-18.67-17.43	-14.26-19.18	-18.59-17.6	-12.67-17.78	7.35-10.7	7.3-8.5	-15.9-18.5	-16.23-8.85	8.86-14.4	3.4-29	-13.87-16.16	-18.17-19.8	-19.27-18.51	-16.28-13.13	-15.31-17.88	-15.71-14.9	-14.33-11.17	-12.23-12.59	-11.88-17.8
(H50°)	-14.58-12.78	-14.40-13.78	-17.36-13.71	-19.11-15.15	-17.54-18.82	-17.82-17.18	-12.31-11.48	-12.86-10.17	-6.81-17.76	9.71-18.45	7.91-10.21	-12.42-12.26	-17.37-15.91	7.94-16.37	3.15-8.52	-14.85-18.25	-13.32-14.46	-18.19-15.98	-18.17-17.77	-12.38-14.77	-15.41-10.46	-12.49-12.52	-10.85-13.16	-10.85-13.16
(H55°)	-17.19-14.22	-14.34-16.85	-15.55-14.43	-13.21-13.17	-16.61-17.21	-13.83-11.12	-12.13-14.6	-11.95-11.21	-6.92-18.02	-11.12-12.82	-8.99-18.9	8.43-12.17	-12.65-12.59	9.34-0.9	0-1.5	-10.29-18.46	-11.26-11.97	-17.73-15.75	-16.03-14.85	-12.91-9.67	-14.12-15.86	-17.86-14.63	-11.94-8.93	-8.75-9.94
(H60°)	-8.82-12.77	-16.18-16.26	-17.99-18.42	-15.15-16.11	-13.81-15.2	-13.81-15.2	-11.66-11.21	-6.46-8.36	-10.16-15.89	-16.05-14.17	8.66-10.74	8.59-13.21	-13.41-12.11	-15.34-13.13	-8.79-1.51	-12.95-13.21	-12.97-16.26	-11.01-15.92	9.36-9.47	-14.59-18.03	-16.80-16.73	-15.96-16.78	-12.62-16.15	-12.62-16.15
(H65°)	-15.95-11.4	-15.84-16.74	-17.42-18.21	-16.18-15.49	-15.71-15.77	-17.11-15.87	-18.78-18.1	-16.1-10.4	6.48-17.35	-17.														



Radiated Composite Gain Data of 6GHz

Appendix B

	(H82.5)	1.080.02	0.251.35	-1.621.86	-1.621.53	-1.13.29.2	-5.116.92	-7.571.24	3.331.58	6.751.05	-6.491.18	-5.916.84	-2.841.28	0.211.08	-6.911.54	-17.611.39	-2.311.19	-2.021.183	-1.541.399	6.771.44	-1.481.36	0.411.69	0.541.59	0.111.261	-2.821.42
(H87.5)	1.231.02	-0.121.45	-0.881.13	-0.881.35	-1.311.34	-2.821.32	-6.351.98	2.041.74	3.781.104	4.391.19	-12.021.77	-2.611.65	-0.931.3	0.071.23	-6.991.981	-3.611.03	-1.811.28	-2.131.329	4.671.74	-0.481.87	-1.631.29	-0.811.53	-1.021.457	-2.571.489	
(H92.5)	0.831.07	0.780.52	1.591.67	0.111.185	-2.381.248	-3.871.59	-2.671.0.73	2.511.242	-3.721.598	-7.291.25	-9.691.586	-1.281.219	-5.671.171	-2.621.482	-6.771.65	-0.431.5	-3.021.398	-4.291.42	-7.271.138	1.860.93	0.231.125	-2.771.491	-0.491.504	-2.751.212	
(H125.5)	0.391.71	-0.891.22	-0.501.163	-1.431.21	-1.041.68	-1.111.2	-3.331.186	-0.041.119	7.791.773	-12.491.123	-9.921.56	-0.841.306	-2.040.37	-1.021.32	-4.311.49	-0.231.247	-7.421.635	-1.111.776	6.811.37	0.950.22	0.710.42	0.391.19	0.311.48	0.421.38	
(H125.5)	0.311.39	-0.781.26	0.191.689	-2.121.35	-5.721.21	-0.251.55	-4.351.433	-3.391.43	1.231.55	-12.081.123	-4.781.706	-3.861.244	-5.681.131	-1.881.192	-4.711.18	-1.591.63	-6.141.92	-5.941.138	-1.291.258	-2.511.40	-0.541.173	-0.240.28	-0.671.38	-0.530.1	
(H125.5)	0.680.93	-0.080.96	0.241.648	-3.231.331	-2.971.322	-0.681.16	-4.871.715	-6.881.433	2.111.67	-8.711.03	-17.181.66	-9.731.94	-9.231.64	-7.291.114	-9.371.82	-3.391.722	-9.011.65	-1.761.937	-161.71	-2.741.604	-8.351.311	-1.531.399	-2.591.622	-1.921.475	
(H127.5)	0.981.0	-0.201.04	-0.460	-1.311.307	-2.861.269	-4.061.94	-10.191.75	-9.031.474	4.361.38	-3.291.53	-14.321.191.66	-12.331.1241	-15.331.791	-11.911.67	-12.621.42	-8.681.821	-6.291.1155	-1.891.338	-2.281.297	-6.541.27	0.391.633	-1.271.701	-3.961.35		
(H135.5)	0.501.18	0.881.134	-1.371.254	2.391.268	-2.641.321	5.381.105	-18.511.529	-9.961.22	3.141.266	4.061.31	-9.571.171	-18.621.119	-14.641.604	-6.811.43	-11.471.62	-8.171.294	-7.511.1457	-1.341.289	-11.961.328	-0.951.24	-3.861.698	-3.871.96	3.171.22	-6.881.671	
(H142.5)	-1.541.235	-2.031.21	3.721.243	2.41.22	2.541.38	6.341.1673	-15.361.541	-7.831.323	2.361.23	3.961.413	-10.361.52	-19.081.169	-14.211.65	7.511.681	-9.181.01	-6.811.658	-15.631.1293	-1.41.47	-15.231.546	-0.911.633	-6.481.116	-3.511.517	-4.51.681	-1.511.933	
(H150.5)	0.6021.02	6.591.492	6.261.718	7.331.652	7.181.643	-12.041.137	-14.911.889	-16.451.681	6.521.554	6.371.53	-7.431.1039	-17.411.82	-15.721.788	-7.011.58	-10.121.1654	-12.171.1192	-16.461.426	2.261.579	-12.591.11	-5.271.646	-4.931.648	-6.611.688	-10.891.178	-13.31.48	
(H152.5)	1.5591.995	7.481.637	6.811.61	-0.371.173	-15.691.1444	-14.681.128	-13.221.1874	-19.311.1739	13.781.1035	-12.591.1817	-17.311.106	-15.011.1538	-10.981.451	-2.141.1967	-11.331.1968	-13.391.1387	9.891.626	5.691.694	7.971.865	-11.381.1698	-10.891.119	6.081.412	4.171.66	-10.121.501	
(H165.5)	0.021.661	6.731.29	8.011.635	0.911.1435	-15.991.1848	-18.791.1857	-16.801.103	-18.791.1618	-14.421.1681	-16.771.1831	-14.511.1241	-13.431.1369	-14.611.161	-16.621.1868	-18.291.1822	-12.611.37	7.271.925	-10.031.1098	-12.511.1213	-11.231.955	9.921.614	10.951.1037	7.921.544	-5.681.032	
(H172.5)	6.741.649	4.861.474	8.451.1236	12.491.1195	-13.051.162	-17.311.1899	-18.011.1782	-17.911.1912	-18.71.169	-19.011.1911	-18.291.1818	-18.781.1758	-15.231.1379	-13.841.131	-12.411.125	-9.971.934	-9.431.979	-11.111.19	-11.971.1034	-9.081.113	-12.181.1315	-16.691.1535	-12.281.1096	-2.071.62	
(H187.5)	-12.961.1385	-16.171.1598	-14.511.1073	-16.781.1433	-15.711.1519	-14.631.155	-15.281.1637	-16.571.177	-18.81.1833	-17.421.17789	-15.851.1439	-13.951.12	-10.881.1046	-10.271.1057	-10.671.1032	-10.751.1022	-10.861.1183	-12.721.1456	-18.591.1863	-18.261.1779	-18.181.191	-17.121.1354	-11.691.1235		
Frequency	6.98521.961	Phased 4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Gain	(H71.9/87.5)	(H157.9/222.5)	(H307.9/307.5)	(H457.9/652.5)	(H607.9/607.5)	(H757.9/682.5)	(H907.9/607.5)	(H1057.9/612.5)	(H1207.9/612.5)	(H1357.9/612.5)	(H1507.9/612.5)	(H1657.9/612.5)	(H1807.9/612.5)	(H1957.9/620.5)	(H2107.9/612.5)	(H2257.9/620.5)	(H2407.9/620.5)	(H2557.9/620.5)	(H2707.9/627.5)	(H2857.9/620.5)	(H3007.9/6307.5)	0	(H3157.9/6322.5)	(H3307.9/6337.5)	(H3457.9/6352.5)
(H71.9)	-14.701.144	-14.061.1344	-11.641.1081	-10.061.987	-8.811.93	8.871.1017	-12.461.1219	-11.171.1109	-11.641.1246	-12.871.1382	-16.781.1785	-18.311.1762	-15.861.1377	-12.681.1252	-12.251.1238	-13.911.1408	-14.191.1393	-14.511.1629	-19.231.1715	-19.071.1831	-18.791.1885	-19.091.188	-18.631.1615	-14.631.1358	
(H71.9)	-16.211.1497	-14.731.1813	-16.061.1175	-11.481.112	-12.241.1506	-18.111.1881	-18.511.1893	-18.791.1782	-15.161.1247	-12.441.1233	-14.371.1633	-17.791.1586	-13.271.113	-16.421.1022	-6.861.1032	-11.191.1364	-10.391.1109	-6.841.1105	-12.241.1215	-13.911.1428	-15.011.1632	-16.41.1272	-18.051.1785	-16.891.1682	
(H71.9)	9.391.633	-10.261.1037	6.731.782	7.821.889	6.971.1106	-11.781.1235	-13.751.1495	-13.731.1426	-13.231.1217	-11.381.1068	-10.821.1038	-18.011.1773	-18.531.1517	-13.331.1181	-10.731.101	-11.261.87	-8.681.67	7.761.1685	-10.641.1035	-13.941.1325	-13.971.1465	-17.661.1719	-17.661.1719	-14.921.141	
(H22.5)	6.141.625	7.131.673	7.271.673	6.291.1235	-14.171.1729	-16.421.1496	-12.821.1242	-11.791.1245	-12.261.1205	-11.151.1163	-14.611.161	-18.791.1737	-18.341.1921	-18.831.1969	-18.311.1771	-15.711.1229	-8.681.739	4.841.771	7.501.795	-10.241.1035	-15.991.1638	-18.191.1855	-13.791.102	4.811.65	
(H27.5)	12.711.237	-10.461.1088	-10.221.1038	-12.381.161	-17.761.137	-14.631.1637	-18.691.1634	-13.851.1038	4.271.472	7.281.66	-13.181.1615	-18.081.1837	17.441.1637	-11.741.1616	-18.871.1835	-15.641.1736	-17.871.151	8.261.919	13.151.1858	-18.671.1799	-18.671.1799	-18.221.1374	-10.751.1018		
(H27.5)	-16.911.168	-11.931.699	-4.951.574	5.851.651	-13.231.1808	-17.681.1937	-18.011.1511	-11.911.963	3.311.1649	-10.731.1244	-13.851.1737	-17.851.1776	-18.881.1777	-17.661.1919	-17.761.1734	-11.851.1075	-14.781.1845	-16.341.1287	-12.311.978	-10.531.1037	-17.341.1705	-15.101.1517	-17.981.1903	-15.921.1482	
(H27.5)	-19.251.1354	-10.521.586	4.861.648	7.321.646	-12.611.1863	-17.611.1534	-15.371.191	4.231.675	-11.251.1645	-10.091.1698	-16.771.1848	-19.321.161	-17.671.1776	-13.441.1801	-14.111.1856	-13.291.1887	-18.011.1533	-15.411.1644	-10.121.907	-13.391.1616	-14.411.1339	-12.371.1727	-18.681.1846	-17.331.1826	
(H32.5)	-12.811.45	-11.581.1622	7.531.683	4.031.643	-11.691.1782	-15.621.1543	-14.801.1376	-13.591.1356	-12.081.1376	-13.441.1639	-16.911.1937	-18.151.1738	-18.821.1279	-18.861.975	-13.141.1815	-18.321.16	8.851.938	-11.131.121	-15.351.1739	-18.711.1678	-8.541.643	6.191.842	-17.751.1284	-15.231.1032	
(H37.5)	-4.451.1027	-14.181.136	-17.511.1036	8.621.649	-10.141.48	-17.591.181	-17.511.1736	-12.271.1398	-17.821.113	-8.031.833	-11.891.1817	-17.341.1101	-15.081.1468	-13.171.154	6.711.102	-17.861.1596	-16.051.1347	-15.111.1611	-11.131.1685	-19.081.1877	-14.811.1037	8.581.937	-11.221.1335	-15.041.137	
(H37.5)	-18.311.1159	-11.041.188	-15.021.1025	8.331.682	-11.691.1491	-18.071.1614	-16.991.1563	-14.591.1562	-11.511.1318	6.511.74	-16.471.173	-13.821.1239	6.291.339	-5.251.495	-18.611.1672	-17.821.1455	-16.511.14	-14.691.1858	-18.691.1658	-13.311.1036	-15.431.1244	-14.311.1277	-11.311.1272	-11.611.1278	
(H37.5)	-14.631.1781	-16.431.197	-18.411.184	6.411.672	-11.311.21	-16.951.152	-9.591.639	-11.571.161	-12.51.883	6.171.1074	-14.421.1558	-12.071.1612	-12.391.1612	-10.421.165	-2.241.96	-14.421.171	-12.991.1737	-13.801.1848	-18.771.1324	-14.511.1484	-17.341.1681	-13.771.1372	-15.511.1689	-11.691.1621	
(H82.5)	-19.191.1678	-17.291.1033	-17.671.1623	-13.941.1614	-16.581.131	-16.931.146	-8.591.696	-10.431.179	-17.491.1375	-13.781.1344	-10.841.102	-11.101.1059	-15.191.1467	7.841.348	-2.821.84	-14.151.1407	-18.521.1361	-19.121.1387	-17.311.1486	-17.311.1486	-17.591.1852	-14.611.1779			
(H82.5)	-17.561.1825	-13.811.148	-14.041.1751	-14.491.1532	-18.791.1646	-17.311.1818	-11.211.56	-11.791.1774	-17.821.1624	-16.021.1873	-18.941.1736	-9.461.658	-11.641.1897	-13.371.178	6.871.1581	-10.411.678	6.531.1387	-18.51.127	-17.411.1757	-12.961.1412	-19.231.1734	-18.17	-10.061.1395	-13.141.1685	
(H87.5)	-13.811.1681	-13.511.1417	-12.321.1271	-13.451.1809	-18.831.1649	-17.321.1791	-16.791.158	-13.791.1855	-17.671.1782	-17.931.1775	-17.941.1821	9.461.1334	-12.351.1129	-10.071.876	-12.311.136	6.341.647	-15.641.1776	-16.241.1458	-14.031.163	-12.771.10	-17.681.165	-17.721.16	-19.181.1788		
(H125.5)	-19.911.956	-9.521.102	-10.041.1027	6.641.102	-12.141.175	-18.391.1383	-16.911.1342	-14.911.168	-10.561.1542	-11.911.1234	-12.541.141	-11.911.1024	-14.291.139	-16.551.984	8.131.656	-10.531.13	6.041.1081	-10.421.143	-10.831.1422	-16.561.946	-14.251.1052	-17.741.1421	-11.861.1197	-18.821.1767	
(H125.5)	-17.591.1444	-13.811.154	-13.431.165	-10.271.1315	-11.881.603	-19.791.1008	-15.491.1885	-14.241.1328	-11.741.135	-11.121.1648	6.951.1136	-10.121.1049	-12.011.1406	-14.741.1019	-4.611.1	-1.961.182	-11.971.1218	7.81.681	-11.321.144	-10.261.1578	-14.551.1368	-10.851.172	-11.611.152		
(H125.5)	-18.961.163	-16.081.1472	-18.761.1903	-14.271.946	-18.711.148	-14.271.1766	-18.111.1834	-18.111.1834	-18.811.1161	-7.971.95	-10.071.141	-13.811.1209	-16.111.1885	4.481.15	-5.751.98	-17.891.1385	-18.761.1655	-13.511.1705	-10.891.1425	-14.21.1449	-18.541.1593	-13.061.1344	-6.591.106	-14.511.129	
(H127.5)	-16.341.1669	-18.341.1484	-17.821.1837	-17.791.1821	-14.841.1711	-12.271.1221	-15.841.188	-13.311.1662	-13.351.165	-11.841.126	-9.411.124	-14.031.1885	-17.991.1158	6.491.17											



Antenna Pattern of 2.4GHz&5GHz

Appendix C

(H25)	2.26127	2.22180	-1.63240	2.93348	4.30825	8.941804	-11.451191	-11.791070	8.941633	4.598120	-3.861286	2.511229	2.312150	9.920137	-3.954143	-5.021545	4.531019	2.181022	2.151081	-3.531036	-3.411355	3.091252	2.251171	2.461274
(H26)	1.1712126	3.06124	-1.34115	-1.05128	3.33170	8.961172	-10.40143	4.58152	5.36147	2.671156	-1.141071	-0.491030	0.60111	-1.311171	-2.37134	-3.81145	2.891205	1.991159	-1.361131	-0.741082	-0.931056	0.961138	-1.591185	-1.411417
(H27)	0.601104	-1.061127	-1.421238	2.801239	6.881388	-4.06108	-3.621398	4.291467	5.541595	5.791476	-3.581262	2.341252	2.211177	-1.691129	-1.04113	-1.691228	2.361130	0.33140	1.261128	1.601188	1.380175	1.310108	-1.101072	
(H28)	1.030172	0.301150	-1.211116	0.89147	-1.041182	-2.461149	0.711102	-3.19123	9.021829	5.88107	-6.01112	-10.051170	0.971116	-4.001174	-1.251489	-2.321287	-2.111123	0.271143	1.711168	2.162125	1.891188	1.771173	1.211120	1.800186
(H29)	1.047101	0.221102	2.131216	-1.461084	-0.481027	0.140184	1.361120	0.581057	3.051577	7.64189	-9.271102	-11.711745	6.291702	-7.701176	4.531274	-4.391161	2.391123	2.421302	2.803123	3.102173	2.612344	1.991178	1.982135	
(H30)	0.681124	2.251329	2.961240	-1.36131	0.09136	1.362182	3.303151	3.071132	-1.861547	4.701498	-8.631859	-7.991876	6.621896	-0.691688	-2.751153	0.121020	-0.081014	1.082181	2.972173	2.802194	3.473144	3.11192	2.88129	2.87199
(H31)	-1.291320	-5.241274	7.731470	2.641105	-0.421015	0.6811	2.091152	0.831046	3.34111	-7.361448	-10.421473	-7.351554	5.971646	-4.731442	-1.921609	0.701707	0.100127	0.901905	1.770131	1.082144	2.912184	2.512104	1.221102	0.191046
(H32)	1.951435	4.581517	4.991384	3.131251	2.231180	-1.121117	-2.731012	-3.531256	4.481807	8.61189	-7.861824	-5.791371	4.991648	-7.511273	-2.271221	-0.641153	-2.491289	2.071890	0.671035	-0.501405	-0.341043	-0.331081	0.361046	0.161084
(H33)	0.191035	-1.671332	6.401721	-7.731747	0.501304	-1.671277	-4.871405	-3.491359	5.021728	6.90184	4.29184	5.93167	4.321015	4.461133	-1.311181	-1.691361	3.641342	3.301289	-3.501206	-0.071032	-0.381136	-1.951155	0.401042	
(H34)	0.891033	6.131732	6.291407	6.431471	2.341020	1.342142	2.621212	0.801185	-7.911238	-10.99102	-7.571085	-7.501496	6.581380	-3.981438	-4.941304	-6.461428	-3.951386	4.831817	6.151919	6.401296	-1.171121	1.991231	2.211077	6.931140
(H35)	5.991168	-1.071055	4.211445	5.171025	3.69134	3.25111	3.301177	1.281095	5.931865	-15.971162	6.171445	6.54108	6.201800	4.191449	5.591744	4.491058	5.091222	4.491396	-2.231073	8.971055	1.561179	3.071020	-1.411051	
(H36)	1.740142	-1.291159	3.011058	5.111027	1.421038	3.271037	5.140171	0.911302	4.791178	6.341386	5.251117	6.441116	6.641030	6.331041	8.741057	5.531499	6.791349	3.901251	2.201284	-0.541191	1.071171	0.691160	2.981038	-2.981047
(H37)	4.941127	-0.961127	-3.091303	8.441048	2.371078	1.07132	3.371194	1.561408	4.441014	4.821421	-4.93179	-4.931345	3.411472	3.331443	4.211282	3.191239	2.291112	2.711107	0.891844	-1.761013	2.011123	0.011073	0.471043	-3.171110
(H38)	3.381227	2.951370	4.821042	-7.731273	3.281207	1.321143	-0.321112	-2.191319	4.131331	-4.671075	6.47120	6.441533	6.811401	-10.111158	-10.951109	4.091139	-3.631014	2.211127	1.171042	0.981196	2.271135	0.731257	3.641023	-1.591344
(H39)	6.871560	4.461042	5.291491	-7.291462	4.821269	-0.761044	2.561435	3.961571	7.741080	-14.241271	3.701108	-7.021702	6.68194	7.751909	-10.991703	-7.311395	3.291751	4.402145	0.991295	-0.091109	2.501108	-2.181234	-1.311198	1.051265
(H40)	0.771183	4.911684	9.3911039	-11.291152	-11.191635	-4.041446	-6.451800	-5.691420	5.001680	-10.461333	-11.051117	5.611631	5.831850	-5.051881	-8.371073	-7.091043	1.171143	0.521110	-1.322123	0.861064	-1.001824	4.271331	0.36109	
(H41)	4.001498	3.161361	-6.141101	-11.331150	7.161441	-5.201491	-7.801509	-5.411682	6.161596	-7.641780	-7.531120	8.991366	-10.171078	8.401196	8.121745	-1.311040	-2.071031	1.371101	0.191279	2.731105	2.101200	-2.371497	-5.911217	-1.951477
(H42)	-1.1231795	-5.24131	-6.401408	-8.741897	-10.631224	-8.671897	-3.781257	-6.761433	-4.071139	-13.001173	-6.071104	-10.051105	6.291768	4.961742	-9.861729	-2.81119	-7.181134	0.611070	-3.681011	-1.470108	-2.141261	-1.541234	0.461171	
(H43)	3.501429	4.851724	4.291122	0.721611	6.731703	7.111448	4.951740	8.831922	2.791645	7.201108	-12.061876	-5.571393	-3.651292	3.211143	-5.191515	4.251932	4.101340	3.461707	-10.631105	-12.391058	8.031755	4.751291	-1.511196	
(H44)	-1.641339	-0.601092	-10.6811036	-11.721112	-10.681109	-10.101099	9.231866	5.901440	6.291743	-9.311088	-11.521116	-11.091124	9.741908	0.011486	6.171856	-8.391781	-6.681735	4.641869	-8.721968	4.641869	-8.721968	4.641869	-8.721968	
(H45)	-1.1511031	-10.091462	6.651539	4.881434	-4.761104	-10.56111129	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	-11.07110134	
(H46)	0.841853	0.791187	8.751977	6.461552	4.86118	-7.46149	-6.711448	-5.901598	6.671729	-5.711704	-6.701402	-4.921439	3.891145	-4.461437	-4.441458	-4.301136	-3.971351	3.541381	-4.331464	-6.271201	-6.67131	2.961743	-9.771189	-13.62193
Freq(Hz)	2.450196	Table1.2																						
Gain	(H9)(H27)	(H15)(H2221)	(H30)(H37)	(H45)(H3221)	(H60)(H67)	(H75)(H821)	(H90)(H97)	(H105)(H1121)	(H120)(H127)	(H135)(H1421)	(H150)(H157)	(H165)(H1721)	(H180)(H187)	(H195)(H2021)	(H210)(H2171)	(H225)(H2321)	(H240)(H2471)	(H255)(H2621)	(H270)(H2771)	(H285)(H2921)	(H300)(H3071)	(H315)(H3221)	(H330)(H3371)	(H345)(H3521)
(H1)	4.231403	-3.861400	-3.221486	4.761235	5.291633	6.67131	-7.861747	-7.421738	7.421683	4.751514	-5.67118	-4.861714	4.871518	-5.481588	4.37189	-7.211277	-7.461739	7.871785	-7.661780	-7.721722	6.491562	5.251052	5.271335	4.811411
(H2)	5.481505	4.921514	5.401553	5.511558	6.131675	-7.111717	-7.111717	-7.101748	6.421638	5.621555	-5.201746	-4.411222	-4.001332	-4.401255	-4.791559	6.041624	-6.411655	-7.701735	-6.881740	6.251783	-7.701716	6.751682	6.411638	
(H3)	6.231606	6.291648	6.631642	6.261624	6.451678	6.801638	6.041622	5.991655	5.161458	4.411426	-4.061336	-3.771387	-3.681363	-3.611173	2.86141	-4.271449	-4.691510	5.771421	6.881600	-6.481635	-8.021784	-7.551731	-7.261702	6.661444
(H4)	6.961710	-7.461788	-7.251676	6.331595	6.331595	6.561628	5.091472	-4.401419	3.391438	3.751438	-3.331343	-3.631354	-3.961328	-3.911339	-3.58131	-4.001428	5.351586	6.851007	-6.111005	-8.291587	-8.001770	-7.461720	6.711652	
(H5)	7.221691	6.601689	6.401744	4.541399	3.941368	-3.421035	-2.771239	2.191210	-2.061022	-1.861533	-2.761327	-3.811359	-3.581355	-3.081032	-2.001149	-1.801363	3.901744	5.191592	6.461739	-6.021857	-6.891853	4.941822	-6.521801	7.621740
(H6)	8.231751	6.151498	4.301379	3.331342	2.961238	-1.631177	-0.80142	-0.221033	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	-1.061012	
(H7)	-11.941102	5.39175	6.971588	4.86173	2.861226	-1.301042	0.051025	0.521052	0.321032	0.441011	-1.711248	3.131348	3.191273	-1.891143	-1.331158	-1.971247	3.111130	3.811405	4.721530	-6.171178	-8.48117	-10.111105	-11.0411138	-11.1511335
(H8)	-11.9811386	4.921514	8.351631	4.731223	2.431149	-0.821033	0.091026	0.74146	0.211043	0.451135	-2.251126	-1.981152	-1.311045	-1.311045	-1.461183	-2.281238	3.301153	4.081054	6.251758	-8.911973	-10.1411187	-10.4211238	-12.4811288	
(H9)	-13.4111175	-9.981820	6.431507	4.061326	2.861191	-1.121038	0.071108	1.231078	0.451032	-0.491033	-1.371055	-1.641120	0.211024	0.211024	0.021041	-1.361192	2.401289	-3.44141	-5.67184	8.011869	-11.0311259	-11.9311338	-13.9611337	
(H10)	-11.501140	-10.56112259	8.431569	3.911286	-1.881065	0.571035	0.671035	1.571035	0.431035	1.041039	-1.691212	-1.841106	0.291233	0.291233	0.111015	0.021048	4.921147	1.901264	3.341438	-10.6311257	-13.8011347	-11.6711188	-11.2511116	
(H11)	-4.4611121	-13.6111102	7.461488	2.811161	0.53106	0.231017	-0.321117	-2.001248	2.061151	-1.131139	-1.791185	-1.501102	0.771071	0.771071	0.461102	0.191027	0.981180	2.801321	4.081056	6.651910	-8.98118	6.88162	6.181676	-7.891725
(H12)	4.261171	6.94152	7.451522	3.881271	1.711194	-1.791247	-3.271038	-3.291212	1.111151	-1.341373	-3.261277	-1.621087	0.601070	0.471101	0.161022	0.671038	-1.351213	3.221358	3.911473	5.521551	3.931488	4.341121	4.581140	5.861245
(H13)	4.961515	6.271049	7.031488	3.191288	0.041318	-3.811485	-8.441441	-3.091336	6.131033	6.621181	-2.791299	2.191138	1.701069	6.201105	5.981111	-1.241079	4.891180	2.02131	3.941385	-2.771216	-2.221039	3.911448	4.541438	4.771488
(H14)	5.591521	4.841549	5.841407	3.911349	2.461497	6.041526	5.841524	3.061235	1.951199	2.341384	3.101287	2.291185	1.861183	1.521044	2.281402	2.361183	1.931221	2.511294	2.92140	1.791158	3.981422	4.401417	5.641734	
(H15)	6.021403	4.711246	6.001524	4.231361	2.791432	5.371016	4.721124	1.121080	1.861130	5.69140	6.191039	3.931829	2.911199	2.161130	1.191012	1.971015	2.961330	3.981330						



Antenna Pattern of 2.4GHz&5GHz

Appendix C

Theta (°)	-118.0/4.73	-5.49/0.37	1.47/2.56	1.74/0.47	1.38/2.69	2.97/0.37	1.87/0.88	0.84/0.73	0.53/0.49	0.48/0.40	0.81/0.43	0.43/0.34	0.89/2.28	2.35/0.99	-0.79/3.19	-4.03/-3.88	-1.79/-2.02	-2.69/-3.58	-3.87/-4.04	-4.10/-2.18	0.07/0.83	-0.58/-4.22	-4.13/-9.19	-6.52/-8.88
Phi (°)	-8.55/-5.73	-4.33/-1.92	1.15/2.38	2.48/2.19	1.76/1.58	0.83/0.49	0.07/0.83	0.73/0.53	0.87/0.23	0.08/0.45	0.56/0.19	-0.93/-1.18	0.42/1.18	0.80/1.13	0.53/0.26	-1.59/-0.87	-1.08/-1.86	-1.22/-2.06	-2.63/-3.08	-3.32/-1.85	-0.86/-2.08	-5.51/-7.21	-4.59/-6.53	-7.82/-8.18
Theta (°)	-8.52/-4.41	-6.60/-7.59	-2.45/2.23	1.16/0.01	-0.61/0.30	-0.35/0.48	-1.62/-0.44	-2.74/-1.47	-0.81/-1.19	0.29/2.11	2.08/0.89	-1.38/-1.50	-1.67/-1.85	-0.79/-3.09	-0.85/0.05	0.42/0.84	-0.05/0.16	-0.46/-1.99	-1.91/-2.25	-1.69/-4.01	-7.88/-5.63	-2.94/-2.46	-7.57/-6.83	
Phi (°)	-4.66/-7.05	-8.06/-8.22	-4.00/-0.98	0.11/-1.11	-1.91/-1.31	-2.20/-1.20	-4.99/-0.68	-5.02/-3.23	-3.15/-4.09	-1.07/0.43	0.34/-1.79	-3.22/-2.23	-1.73/-0.39	-0.19/0.13	0.99/1.73	1.70/1.92	1.01/0.99	1.26/0.90	2.45/0.97	-2.10/-0.68	1.43/-0.44	-4.57/-3.73	-2.84/-2.29	-5.25/-4.19
Theta (°)	-0.61/-5.44	-6.17/-5.99	-4.90/-3.02	-2.77/-2.87	-2.29/-1.98	-3.86/-3.01	-3.66/-4.92	-6.14/-6.87	-3.96/-4.70	-2.86/-4.73	-4.14/-5.77	-0.82/-1.12	1.09/0.11	0.37/0.03	3.26/2.39	4.04/4.65	2.88/-1.00	0.26/-0.50	0.06/-0.98	-6.50/-8.17	-5.09/-4.17	-3.81/-3.26	-5.44/-4.13	
Phi (°)	-2.08/-1.33	-2.02/-3.21	-4.33/-1.77	-0.96/-3.96	-3.74/-2.45	-2.98/-2.77	-6.45/-7.93	-7.19/-6.34	-5.77/-5.78	-4.52/-4.92	-3.70/-6.86	-8.22/-6.86	-3.97/-4.92	1.97/4.21	3.69/2.81	2.24/3.23	2.38/0.18	-4.57/0.55	0.73/0.13	-0.12/-4.57	-6.77/-4.83	-3.59/-3.82	-9.58/-8.42	
Theta (°)	-7.90/-5.09	-1.53/-1.91	-0.11/-5.54	-0.74/-0.58	-5.27/-4.86	-5.45/-7.93	-7.19/-7.45	-6.41/-6.96	-4.54/-4.92	-3.60/-3.65	-6.24/-2.65	-4.01/-4.13	1.16/1.97	0.29/-0.52	3.25/2.31	3.94/3.13	1.14/4.00	2.79/-0.57	0.93/0.08	-3.59/-2.16	-4.19/-4.81	-3.88/-3.69	-4.91/-4.81	
Phi (°)	-9.38/-4.86	-5.73/-2.33	-2.89/-6.58	-7.37/0.55	-6.83/-8.26	-6.90/-12.82	-12.80/-7.26	-6.41/-7.98	-10.29/-13.37	-8.84/-10.17	-7.22/0.65	-5.89/-2.14	4.48/-4.02	0.59/1.44	2.10/0.83	3.16/1.29	3.93/4.71	3.55/0.40	2.27/0.48	2.79/-3.75	-2.65/0.87	-0.90/-6.90	-6.59/-4.14	-0.50/-3.10
Theta (°)	-7.04/-6.87	-5.91/-2.44	-2.29/-3.51	-3.22/0.36	-4.18/-8.23	-12.03/-10.76	-6.19/-12.02	-10.04/-14.35	-12.56/-9.71	-7.64/-6.50	-6.88/-4.87	-3.19/-4.16	-2.25/-0.85	1.31/2.53	2.30/-1.48	4.21/2.61	2.97/2.57	4.13/2.63	-1.68/-0.31	-1.60/0.93	-1.55/0.57	-4.66/-5.85	-5.95/-6.20	
Phi (°)	-5.49/6.17	-6.26/2.12	-6.63/6.47	-14.58/6.71	-4.98/9.71	-14.61/-13.48	-14.26/-14.89	-15.06/-15.73	-10.87/-11.47	-11.19/-9.86	-15.74/-17.17	-6.30/-6.77	-3.69/-3.28	-2.91/7.1	0.65/-3.86	-8.10/0.97	2.47/1.24	3.59/-4.92	-6.62/0.18	2.19/1.89	1.03/-4.47	1.20/-2.98	-8.64/-5.22	-1.36/-1.16
Theta (°)	-7.49/0.93	-7.93/0.55	-3.07/0.22	-10.39/-10.32	-9.50/-14.43	-14.72/-15.40	-16.09/-16.89	-15.60/-11.74	-9.09/-5.58	-7.19/-9.34	-7.95/-15.24	-7.59/-13.53	1.62/-2.76	0.12/0.13	-1.54/0.86	-3.16/0.41	0.80/0.32	1.69/0.97	2.49/0.29	0.89/-0.36	3.02/3.37	-3.50/-2.72	-3.07/-1.72	
Phi (°)	-1.98/-4.29	-7.91/-6.11	-7.48/-10.27	-4.80/-12.66	-3.96/-5.58	-12.06/-14.88	-12.06/-14.88	-3.91/-4.27	5.98/-7.58	6.37/0.57	-6.27/0.40	-6.29/-2.54	2.96/-5.60	0.07/0.34	4.22/0.10	4.08/0.58	3.24/-4.14	6.89/-4.54	3.24/-0.84	-0.91/1.11	1.23/0.43	-7.60/-5.61	-3.96/-3.15	-2.47/-1.70
Theta (°)	-6.72/-6.39	-12.75/-13.63	-12.86/-14.66	-11.16/-8.89	-7.83/9.74	-12.78/-14.09	-11.37/0.29	-10.71/0.78	9.72/-6.57	-5.26/0.76	-7.24/4.57	-4.13/0.17	-6.71/7.71	3.26/0.82	-0.28/1.63	4.23/2.51	6.47/-0.97	6.73/-5.57	6.99/-5.60	-5.99/-7.47	-7.93/-10.57	13.84/-10.85	-7.74/-3.97	-3.89/-4.44
Phi (°)	-14.74/-12.13	-15.54/-12.12	-15.09/-12.26	-14.96/-14.95	-15.19/-14.90	-12.75/-12.12	-12.29/-12.12	-12.21/-13.13	-13.81/-12.31	-12.89/-10.21	-9.18/-1.47	8.81/-6.87	6.64/-5.54	6.53/-7.70	4.30/-4.35	4.54/-5.14	3.99/3.16	2.56/-2.81	4.29/-4.87	-3.49/-4.39	-9.39/-10.13	-10.12/-10.48	-10.12/-10.48	
Theta (°)	-15.12/-16.31	-14.43/-12.11	-13.61/-16.18	-12.73/-10.67	-8.62/8.95	-10.81/-14.43	-12.29/-13.92	-14.47/-15.17	-13.12/9.61	-7.48/-6.32	-5.86/4.57	-7.72/7.86	-7.38/-7.04	-7.21/7.47	-7.17/-6.97	-7.38/7.44	-7.58/7.83	-7.58/-6.85	-5.70/6.18	-4.34/0.45	-6.79/-7.24	-7.54/-6.78	-9.48/-9.81	-13.25/-15.42
Phi (°)	-8.12/0.98	-10.87/-8.41	-9.30/-10.80	-10.53/9.14	-7.43/8.64	-6.29/-6.66	-6.91/-6.46	-7.58/-7.90	-6.80/-8.20	-7.47/1.05	-7.52/7.76	-8.24/-8.45	-8.50/-8.20	-7.89/-7.89	-7.71/7.12	-6.99/-6.43	-7.88/7.74	-7.48/7.41	-7.29/7.06	-7.21/7.93	-8.36/7.69	-7.65/6.15	-7.65/6.15	-7.65/6.15
Frequency	5.765/0.94	Total	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Gain	0.07°/0.97 (°)	0.015°/0.22 (°)	0.03°/0.30 (°)	0.045°/0.46 (°)	0.06°/0.67 (°)	0.075°/0.82 (°)	0.09°/0.97 (°)	0.105°/1.06 (°)	0.12°/1.13 (°)	0.135°/1.27 (°)	0.15°/1.39 (°)	0.165°/1.57 (°)	0.18°/1.72 (°)	0.195°/1.87 (°)	0.21°/1.95 (°)	0.225°/2.02 (°)	0.24°/2.07 (°)	0.255°/2.09 (°)	0.27°/2.07 (°)	0.285°/2.02 (°)	0.3°/1.90 (°)	0.315°/1.83 (°)	0.33°/1.67 (°)	0.345°/1.52 (°)
Theta (°)	-8.50/-6.63	-6.35/0.63	-10.39/-10.30	-12.55/-11.67	-11.40/-10.69	-10.26/-10.69	-9.07/0.19	-7.82/0.15	-6.43/-0.55	-5.04/-1.38	-3.66/-3.07	-2.15/-1.83	-0.76/-0.83	0.62/-0.44	1.94/-1.63	3.21/-2.17	4.46/-1.81	5.68/-0.68	6.84/-1.75	-7.16/-7.02	-8.31/-7.04	-7.04/-7.19	-4.16/-4.01	-10.45/-10.10
Phi (°)	-8.82/-4.63	-8.17/-7.75	-8.26/-7.68	-6.19/-8.89	-8.32/-0.68	-7.95/-8.11	-7.81/-8.20	-7.68/-7.27	-7.71/-8.19	-8.94/-8.13	-8.21/-9.03	-11.01/-11.23	-11.27/-11.55	-11.78/-12.29	-12.19/-13.03	-13.00/-12.27	-13.10/-12.27	-13.10/-12.27	-13.10/-12.27	-13.10/-12.27	-13.10/-12.27	-13.10/-12.27	-13.10/-12.27	-13.10/-12.27
Theta (°)	-7.95/-7.28	-7.11/-6.20	-6.07/-7.33	-7.60/-7.13	-6.54/-6.18	-6.42/-7.18	-7.56/-6.32	-5.90/-5.50	-5.71/-6.28	-4.89/-4.25	-8.56/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96	-6.68/-6.96
Phi (°)	-3.81/-3.73	-4.72/-5.03	-5.69/-6.77	-6.43/-5.99	-6.40/-6.24	-3.08/-2.45	-2.47/-2.38	-2.96/-2.91	-3.29/-3.70	-4.06/-4.43	-6.99/-5.36	-10.10/-10.24	-9.97/-9.25	-8.19/-10.10	-11.81/-11.30	-10.36/-12.45	-14.40/-13.48	-13.00/-14.62	-12.07/-13.62	-10.34/-11.49	-8.24/-9.39	-4.23/-3.50	-3.84/-3.39	-4.28/-4.19
Theta (°)	-5.11/-4.03	-3.59/-2.19	-2.48/-3.60	-5.04/0.53	-4.32/-4.19	-3.93/-2.79	-1.74/-0.43	-3.96/-0.69	-1.62/-2.08	-2.21/0.21	-4.71/7.44	-8.49/-8.64	-7.57/-5.51	-4.94/-5.23	-6.69/-4.42	-12.73/-15.33	-18.01/-15.39	-17.04/-14.37	-11.90/-12.37	-7.26/7.69	-6.88/-8.29	-8.19/-9.18	-6.49/-7.56	-6.70/-6.61
Phi (°)	-9.32/-4.89	-6.56/-4.96	-3.67/-6.21	-2.21/-2.84	-3.20/-2.81	-0.98/-0.61	-0.07/0.22	0.23/0.69	0.63/0.60	1.05/-0.29	0.56/-0.60	-1.52/-3.02	-4.46/-3.40	-7.76/-4.54	-10.71/-14.01	-14.90/-13.06	-12.01/-11.51	-6.71/-8.71	-7.49/-7.17	-13.29/-14.43	-12.36/-8.62	-8.88/-8.65		
Theta (°)	-4.20/-5.65	-3.99/-3.91	-3.37/-2.50	-1.19/-1.11	0.02/0.13	0.42/0.36	0.91/0.77	0.99/-1.20	1.88/-1.45	1.44/-1.80	0.97/0.41	0.62/0.17	2.07/-3.47	-3.26/-3.38	-3.40/-4.27	-5.99/-4.86	-6.34/-6.16	-14.91/-13.98	-10.85/-8.62	-5.60/-5.88	-4.60/-7.76	-7.69/-7.57	-6.28/-6.97	-7.70/-7.50
Phi (°)	-2.98/-4.65	-4.26/-2.49	-3.96/-2.28	-1.42/-0.98	0.17/0.96	0.71/0.96	1.11/0.49	0.29/-0.96	0.52/0.20	0.40/0.05	0.09/0.07	0.27/0.17	0.97/-1.47	0.81/-1.45	-0.26/0.24	-0.96/-0.89	-0.92/0.72	-1.42/-1.66	-4.70/-4.16	-3.93/-3.56	-5.68/-5.88	-6.53/-6.82	-6.70/-6.11	
Theta (°)	-4.85/-5.44	-4.59/-1.96	-4.25/0.12	-1.07/-0.27	1.41/1.98	1.02/0.82	0.74/0.85	0.60/-0.19	0.37/0.30	0.41/0.36	0.22/0.28	0.07/0.11	0.46/-0.46	-0.98/-1.86	-3.38/2.14	8.89/-8.25	7.84/-6.16	4.17/1.71	6.59/-4.42	6.59/-4.42	6.59/-4.42	6.59/-4.42	6.59/-4.42	6.59/-4.42
Phi (°)	-10.79/-6.30	-5.26/-2.39	-1.09/0.43	-0.62/0.40	1.22/1.27	0.94/0.59	0.69/0.63	0.06/0.54	0.77/0.68	0.96/0.76	1.16/0.71	0.97/0.73	3.24/2.93	2.64/-1.94	1.96/-0.86	-2.98/-5.94	-7.10/-7.48	-3.09/-1.39	2.11/0.15	-4.54/-4.34	-2.39/-1.09	-0.42/0.47	-1.59/-0.47	-7.21/-1.96
Theta (°)	-7.83/-6.32	-6.20/-3.37	-4.79/-1.57	1.40/0.10	0.04/0.28	0.29/0.25	0.12/0.87	-0.59/0.56	1.03/0.81	0.79/1.39	1.00/1.21	0.32/0.25	0.86/0.28	1.74/0.42	2.23/-1.04	0.15/0.22	2.51/-2.66	2.51/-2.66	2.51/-2.66	2.51/-2.66	2.51/-2.66	2.51/-2.66	2.51/-2.66	2.51/-2.66
Phi (°)	-6.72/7.21	-11.62/6.76	-2.37/0.05	0.31/0.12	-1.48/0.56	-1.07/-1.89	-3.29/-2.49	-1.44/0.70	-1.61/0.16	1.71/1.82	0.98/0.51	-0.90/-0.99	-1.77/-1.86	0.77/1.56	2.43/-1.89	1.26/0.60	-1.79/-2.53	0.22/0.02	-0.46/-1.75	-2.38/2.98	-4.09/-4.27	-1.39/-1.48	-2.10/-2.86	-6.14/-6.91
Theta (°)	-12.13/8.13	-11.02/6.46	-5.68/-1.47	-3.18/-4.19	-3.74/-3.19	-3.53/-4.87	-4.46/-5.53	-5.58/-3.31	-4.61/-3.16	-1.07/-1.21	-12.02/-6.26	-12.04/-3.84	-1.94/-3.63	-1.94/-3.63	-1.94/-3.63	-1.94/-3.63	-1.94/-3.63	-1.94/-3.63	-1.94/-3.63	-1.94/-3.63	-1.94/-3.63	-1.94/-3.63	-1.94/-3.63	-1.94/-3.63
Phi (°)	-9.91/0.63	-5.67/-2.44	-11.74/-7.34	-4.87/0.31	-1.70/-1.66	-3.26/-3.43	-6.08/-10.18	-6.30/-4.29	-5.88/-5.32	-3.16/0.14	-1.94/-1.45	-1.52/0.17	-1.86/0.13	-2.31/0.12	1.72/2.21	4.10/0.44	1.97/0.36	3.59/2.92	2.92/2.69	0.71/0.45	1.11/0.54	1.71/1.74	-4.42/0.79	-6.46/-11.33
Theta (°)	-5.90/-2.34	-2.23/0.53	-7.59/0.91	-1.89/-3.83	-4.72/-2.97	-3.03/-6.45	-5.79/-6.50	-4.87/-4.58	-5.00/-4.56	-3.99/-3.03	-5.00/-4.56	-4.19/-4.60	-2.56/0.17	0.27/0.27	3.34/0.38	4.10/0.44	4.10/0.44	4.10/0.44	4.10/0.44	4.10/0.44	4.10/0.44	4.10/0.44	4.10/0.44	4.10/0.44
Phi (°)	-8.86/0.73	-6.96/-6.33	-7.50/-4.83	-6.84/-6.16	-6.67/-6.15	-6.54/-6.47	-6.59/-6.03	-5.24/-6.83	-6.50/-6.78	-4.69/-4.50	-7.22/-4.25	-6.40/-1.99	-5.40/-1.65	1.91/2.74	3.89/4.49	2.63/2.24	2.78/4.95	3.50/3.75	1.89/-1.97	0.52/-2.85	1.51/1.26	-1.67/-1.65	-6.25/-4.12	-8.80/-8.65
Theta (°)	-11.33/-10.34	-7.46/-5.12	-2.86/-4.72	-8.07/-8.61	-6.97/-6.39	-7.32/-4.81	-11.10/-10.20	-7.89/-6.80	-5.26/-6.43	-6.51/-6.12	-5.07/-6.72	-3.81/-5.65	1.90/1.74	3.26/0.94	0.10/0.30	3.30/4.91	3.48/2.07	1.61/0.50	-5.09/-6.91	-3.90/-4.98	-6.13/-5.54	-6.80/-6.40		
Phi (°)	-5.96/-6.34	-6.21/-1.26	-0.34/-1.66	-2.13/-4.66	-7.62/-1																			

Antenna Pattern of 2.4GHz&5GHz

Appendix C

(1127)	5964.28	2.40.01	533.92	2.08.61	4.611.78	6.441.32	5.080.31	3.709.39	7.750.12	5.080.02	5.084.33	6.504.44	6.756.59	6.214.83	7.434.03	6.142.18	2.210.27	2.584.55	2.801.15	1.100.08	1.330.82	883.131	3.346.62	2.161.08
(1207)	3362.22	1.50.24	312.68	4.21.04	7.784.90	6.820.27	5.040.26	3.888.48	4.820.19	5.080.05	-10.384.2	6.504.70	7.375.06	3.801.61	4.695.19	4.237.02	3.215.98	2.487.57	1.887.55	1.270.73	827.013	1.550.55	9.235.112	4.348.74
(1275)	590.220	1.34.00	8.251.33	-12.42.03	4.293.98	-5.921.84	-1.088.91	5.794.36	4.487.10	7.310.29	-7.637.47	9.267.78	6.942.52	4.571.42	4.671.37	2.400.15	2.027.06	0.302.45	0.634.85	-1.480.55	-2.724.12	6.256.28	5.330.251	3.480.74
(1297)	-1.865.27	-4.893.40	4.040.62	5.050.65	7.791.33	-1.791.33	-1.312.92	-1.314.19	4.364.84	5.512.34	1.5511.16	4.590.16	4.590.16	4.590.16	4.590.16	4.590.16	4.590.16	4.590.16	4.590.16	4.590.16	4.590.16	4.590.16	4.590.16	
(1425)	3.416.12	11.69.70	7.986.44	-10.72.17	13.98.154	-11.861.127	-11.020.69	6.086.79	7.755.104	8.715.42	-7.727.01	-7.758.70	2.143.45	4.531.41	7.265.00	-1.001.63	4.840.632	3.240.71	-1.041.58	0.381.69	0.161.54	-3.671.71	-11.274.55	7.114.48
(1507)	-1.611.83	1.90.17	9.914.08	-80.17.35	-10.13.82	4.784.80	-1.220.58	-10.35.15	9.433.69	-10.35.15	9.433.69	-10.35.15	9.433.69	-10.35.15	9.433.69	-10.35.15	9.433.69	-10.35.15	9.433.69	-10.35.15	9.433.69	-10.35.15	9.433.69	
(1575)	-3.184.97	6.00.78	-10.051.93	6.594.26	7.741.308	-12.231.156	-10.302.103	11.96.104	7.263.57	-3.586.63	-5.024.31	2.751.16	-1.824.08	-7.704.22	6.251.181	-1.021.10	6.981.34	-5.025.35	3.303.71	-4.825.40	-6.843.3	-6.031.051	-1.800.113	5.901.39
(1607)	-5.454.59	5.55.42	4.418.86	6.648.27	7.22.67	6.117.29	-10.032.12	10.032.12	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	9.433.69	
(1725)	-13.991.02	7.69.73	4.750.50	4.00.34	3.744.49	-5.055.14	-6.284.87	6.071.55	5.004.24	4.574.83	5.516.14	6.416.36	6.361.38	6.897.14	-7.63.82	-7.92.57	8.889.80	-8.217.48	-7.301.83	7.871.13	14.424.41	-7.815.45	4.684.23	
(1757)	-10.22.93	8.00.77	6.185.49	6.06.62	5.765.16	-5.055.14	-6.284.87	6.071.55	5.004.24	4.574.83	5.516.14	6.416.36	6.361.38	6.897.14	-7.63.82	-7.92.57	8.889.80	-8.217.48	-7.301.83	7.871.13	14.424.41	-7.815.45	4.684.23	
Feeble	560.94	Tablet 3																						
(1907)	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	
(1975)	5.754.24	4.28.42	6.33.75	4.767.70	7.594.80	7.594.82	8.856.10	9.919.08	4.523.78	7.729.18	8.317.59	7.657.19	7.298.68	4.474.01	5.815.50	5.771.48	8.335.25	5.214.91	7.642.21	5.125.59	4.699.724	4.804.27	4.281.43	5.281.69
(1987)	4.304.49	4.48.45	4.48.45	4.795.97	5.375.61	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	
(2225)	4.304.49	4.48.45	4.48.45	4.795.97	5.375.61	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	6.150.3	
(2307)	-1.771.13	-1.981.92	-1.842.06	-2.905.24	-4.880.31	-2.261.21	-1.502.32	6.689.44	-1.628.56	-1.144.47	-1.180.19	7.884.77	7.845.22	4.752.37	4.884.47	4.304.34	3.240.37	3.439.38	3.389.49	5.549.46	4.752.56	5.604.91	4.771.52	5.771.52
(2375)	2.602.60	2.62.27	2.892.49	3.705.01	6.646.39	-3.871.87	-1.792.17	4.194.58	4.584.46	-4.846.71	-7.698.89	-8.117.48	6.737.48	-7.634.30	-4.521.93	-3.211.23	2.282.36	2.592.57	1.608.05	1.854.25	5.511.47	-5.775.52	5.004.40	4.712.62
(2407)	2.792.43	3.27.42	3.110.34	2.740.35	4.364.71	-3.760.15	-3.201.31	3.074.27	-1.783.12	-5.297.23	-7.846.27	6.247.78	6.750.45	-10.511.64	-6.046.15	-3.212.29	-1.103.35	-2.460.08	-1.070.75	1.824.12	-3.861.69	-1.481.79	-10.051.43	4.317.37
(2527)	4.403.18	3.48.47	4.171.62	5.793.37	2.405.27	2.204.24	-3.320.49	-5.654.20	-3.195.28	2.640.48	-1.160.33	3.042.61	6.375.57	-4.817.48	-8.968.45	-1.861.12	4.761.03	-1.541.43	-0.804.25	0.081.19	-3.024.49	-4.098.46	-10.296.31	4.171.63
(2607)	-2.561.60	2.03.10	4.011.65	4.916.68	-1.907.18	0.381.45	-3.264.37	-4.611.93	-4.471.34	-4.031.40	-2.221.92	-1.160.33	1.008.58	2.061.75	-3.867.95	-4.529.24	2.443.06	0.151.15	-2.774.59	3.390.18	1.090.19	0.231.67	4.094.44	4.071.41
(2675)	-1.840.19	-1.443.77	4.864.43	-2.071.96	3.046.70	-0.030.77	-2.472.37	-1.830.03	6.002.95	-2.751.61	-0.040.09	0.710.87	0.071.04	-1.213.13	-3.701.84	-2.220.28	0.056.36	-1.536.15	-7.515.20	2.171.60	-30.402	-2.814.21	3.964.30	3.541.31
(2707)	-1.602.03	4.043.36	-0.004.04	-0.002.33	6.060.77	0.644.07	0.571.19	1.090.61	-1.295.39	-2.201.08	-2.038.36	0.746.26	0.215.64	0.641.97	-1.970.28	-1.511.37	-1.283.03	0.192.38	7.831.66	2.171.40	4.655.22	-0.663.28	2.718.19	1.813.25
(2827)	0.301.31	-1.240.27	4.780.76	0.512.57	5.646.76	-1.844.08	1.872.49	0.046.38	-0.581.03	-3.431.10	-2.431.61	0.746.18	0.088.16	-2.731.78	-0.5745	1.022.71	1.114.51	0.040.12	-1.461.29	2.161.23	0.541.63	-0.109.19	1.711.05	1.070.19
(2907)	-0.548.13	0.293.25	0.2285	4.114.10	10.98	3.680.46	2.512.86	1.021.34	3.454.12	4.000.40	6.884.18	1.546.15	-1.178.13	-1.193.31	-0.781.01	0.072.01	0.665.08	0.01152	1.747.27	1.880.83	3.240.34	-0.143.69	5.719.05	8.865.78
(2975)	-1.481.87	1.931.44	1.110.49	-1.052.12	7.880.78	4.340.37	2.070.81	1.886.17	3.698.48	4.733.18	-2.791.83	2.425.52	3.892.45	-4.871.03	-3.192.89	-2.951.03	1.801.84	1.601.59	2.211.04	1.824.46	2.983.41	0.780.00	1.210.68	1.901.33
(3007)	5.031.93	1.82.64	3.344.40	1.261.10	5.515.03	7.160.132	5.041.98	3.505.12	1.914.30	5.561.56	-5.554.24	1.261.10	2.465.30	-3.884.23	1.261.10	1.261.10	1.261.10	1.261.10	1.261.10	1.261.10	1.261.10	1.261.10	1.261.10	
(3125)	-3.814.46	6.771.30	3.868.78	-1.836.62	4.519.66	4.766.46	2.853.55	-0.010.36	-1.680.183	-1.220.143	-8.885.67	2.612.25	-3.653.22	-4.265.50	4.441.16	5.010.69	2.866.66	3.883.57	1.781.96	2.851.42	-653.35	1.601.49	7.228.99	7.228.99
(3197)	-1.896.26	3.90.27	5.964.73	3.327.76	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	7.995.28	
(3275)	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	5.950.22	
(3307)	5.257.89	6.76.26	5.997.72	6.305.28	8.881.15	5.998.62	6.294.87	9.067.72	11.467.70	6.297.72	6.305.28	11.467.70	1.681.14	2.371.41	6.306.13	2.240.08	0.795.51	1.362.31	1.920.54	1.880.56	5.962.58	3.978.89	12.843.43	1.071.10
(3425)	2.515.162	7.19.540	1.751.605	6.202.112	16.16.514	-11.48.158	6.294.87	4.243.94	4.647.97	3.958.68	-1.557.158	10.134.52	1.051.34	-3.365.54	7.344.70	3.216.10	1.619.283	-1.417.3	0.361.32	2.601.34	0.261.59	5.699.30	5.299.142	1.071.10
(3507)	-3.174.01	4.001.302	7.448.27	6.646.26	-7.36.67	9.981.127	-11.48.17	6.202.14	5.833.48	-10.350.73	-11.889.11	6.027.77	5.908.65	-10.895.153	8.944.88	-3.381.456	-14.134.49	-2.007.26	0.761.81	5.061.49	-7.967.10	4.009.125	12.028.69	3.673.261
(3575)	-3.795.59	7.217.006	-4.894.821	4.658.67	4.834.21	-10.171.18	-14.835.16	5.958.79	8.888.28	-10.171.18	-14.835.16	5.958.79	8.888.28	-10.171.18	-14.835.16	5.958.79	8.888.28	-10.171.18	-14.835.16	5.958.79	8.888.28	-10.171.18	-14.835.16	5.958.79
(3607)	8.820.43	8.644.03	7.818.44	7.867.52	-7.899.02	-10.307.23	-15.215.61	-14.511.182	-11.420.118	-14.405.151	-10.857.34	-5.942.54	4.684.46	-4.164.84	-8.434.79	-1.250.113	-11.123.178	-1.121.41	-1.951.153	-14.153.132	9.165.75	4.071.43	4.071.43	4.071.43
(3725)	-13.511.13	6.974.18	-10.071.30	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	-11.30.20	
(3807)	-12.941.32	-14.06.1447	8.801.84	-7.448.02	8.878.15	7.714.85	-10.441.86	-8.619.07	9.006.96	8.721.49	-7.847.87	-7.817.88	8.144.83	8.109.80	-0.939.00	8.231.78	7.081.82	-1.816.00	-7.024.58	7.141.70	-7.971.85	8.759.10	8.791.85	-14.13.1428
Feeble	5780.95	Tablet 3																						
(3907)	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	607.907.51	
(3975)	2.492.26	3.55.345	2.673.23	2.792.76	3.061.33	3.027.42	-3.033.39	4.304.734	3.633.344	4.044.45	-4.811.85	5.435.76	5.868.58	5.759.58	5.194.58	5.346.58	4.734.49	4.801.41	4.531.407	3.681.423	5.041.43	4.193.76	3.320.24	2.411.266
(4075)	5.325.51	6.11.621	6.704.524	5.510.45	5.667.54	5.315.43	5.510.45	5.264.73	4.323.387	3.603.378	3.443.40	3.566.34	3.615.315	3.343.49										

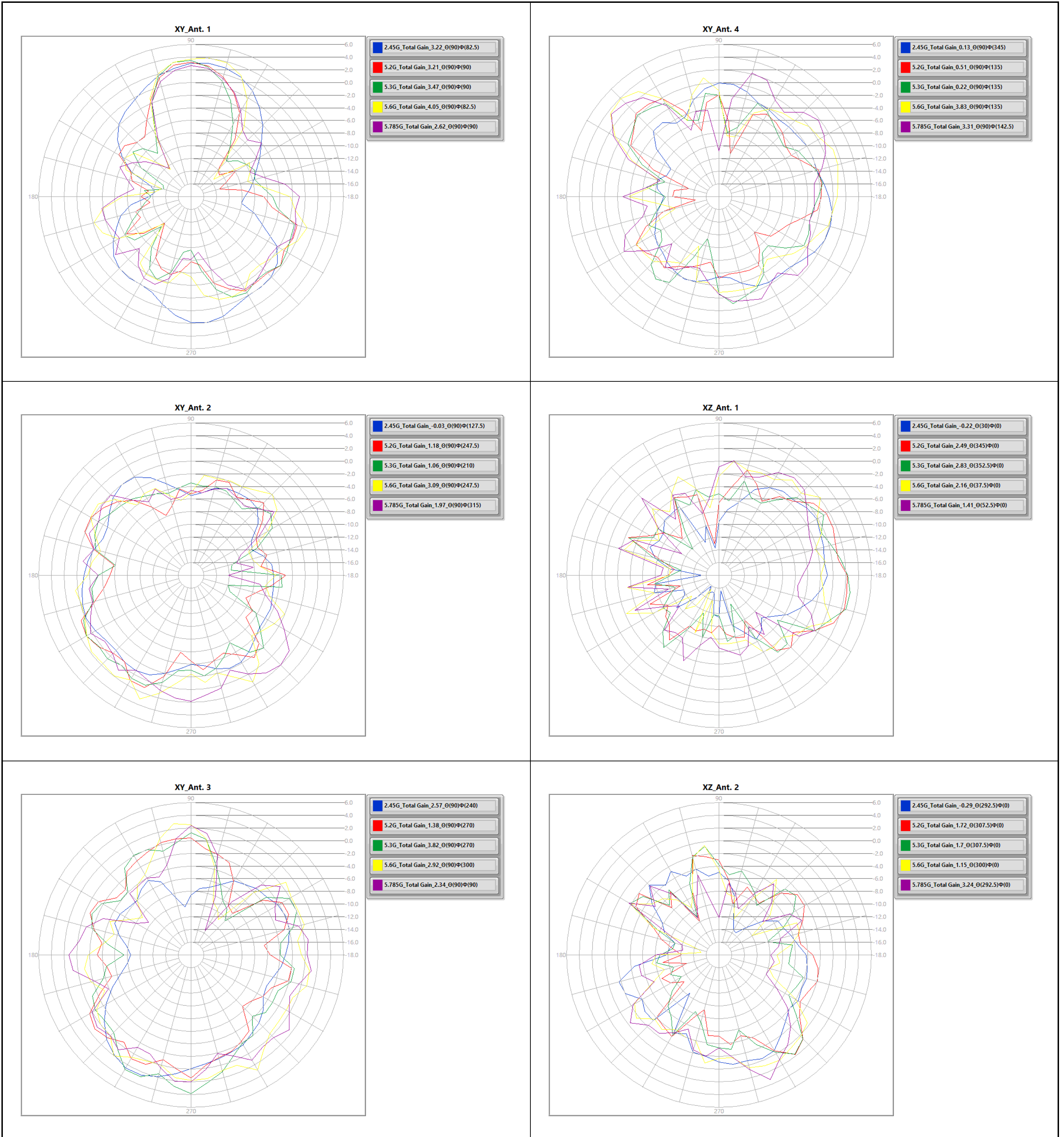


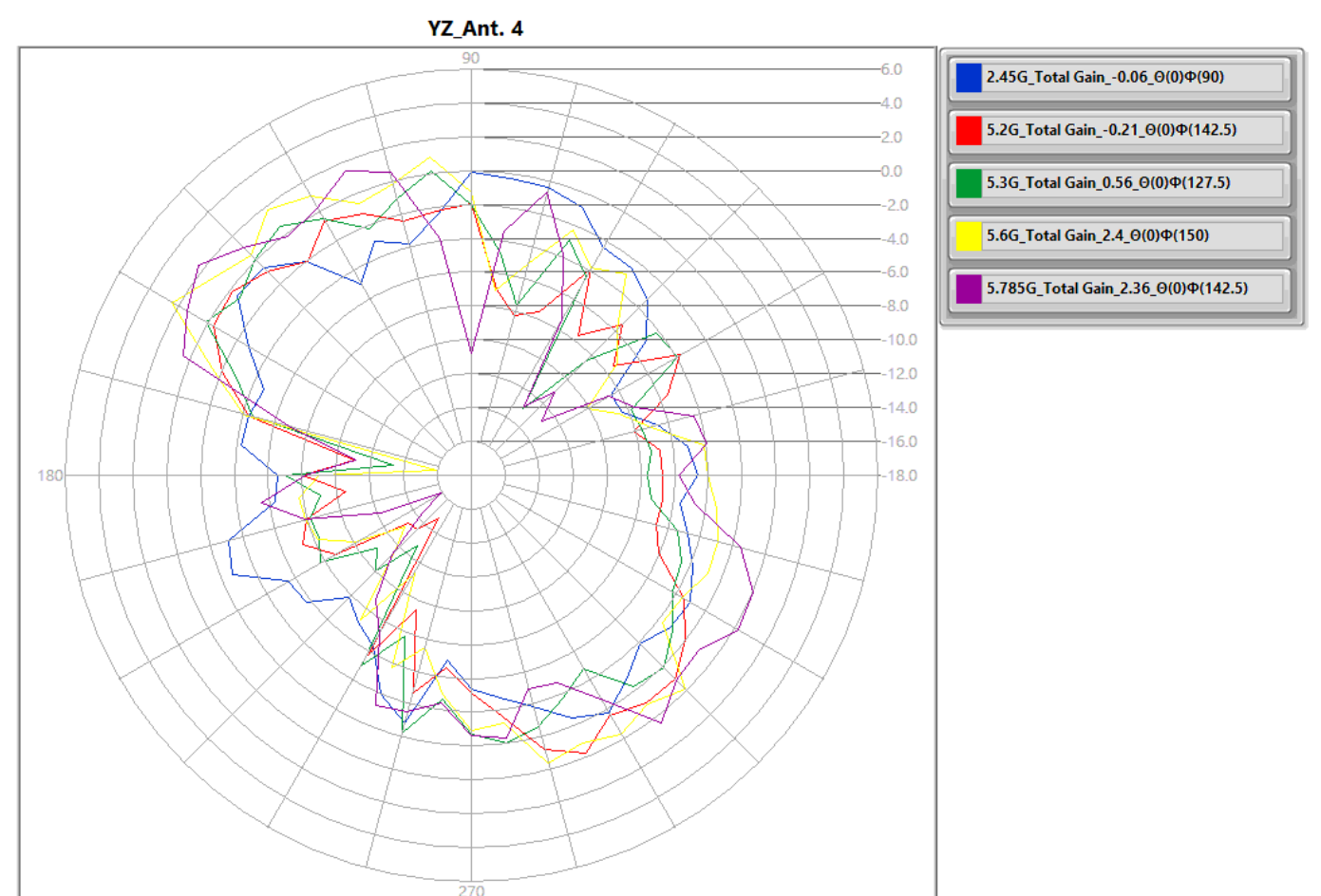
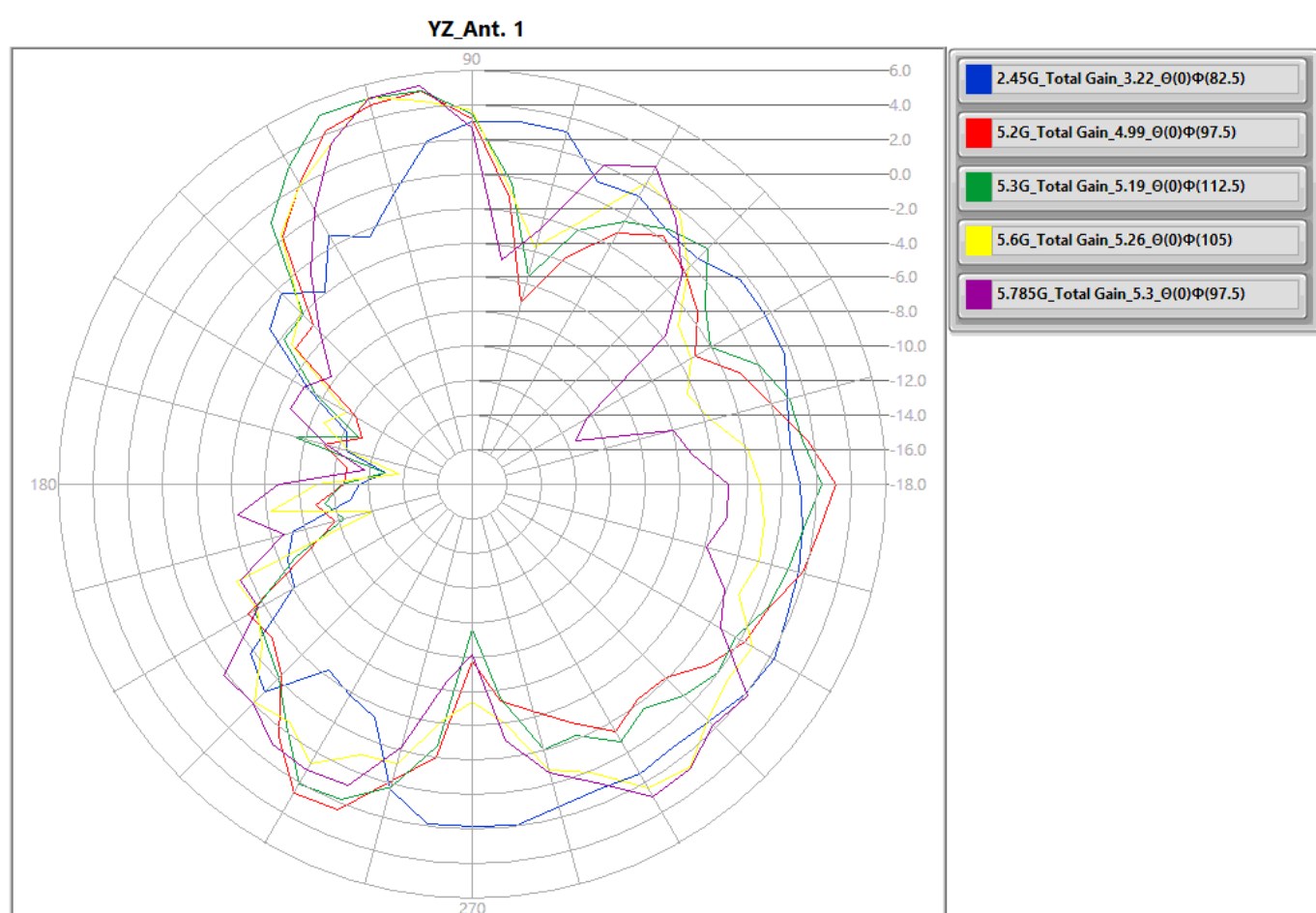
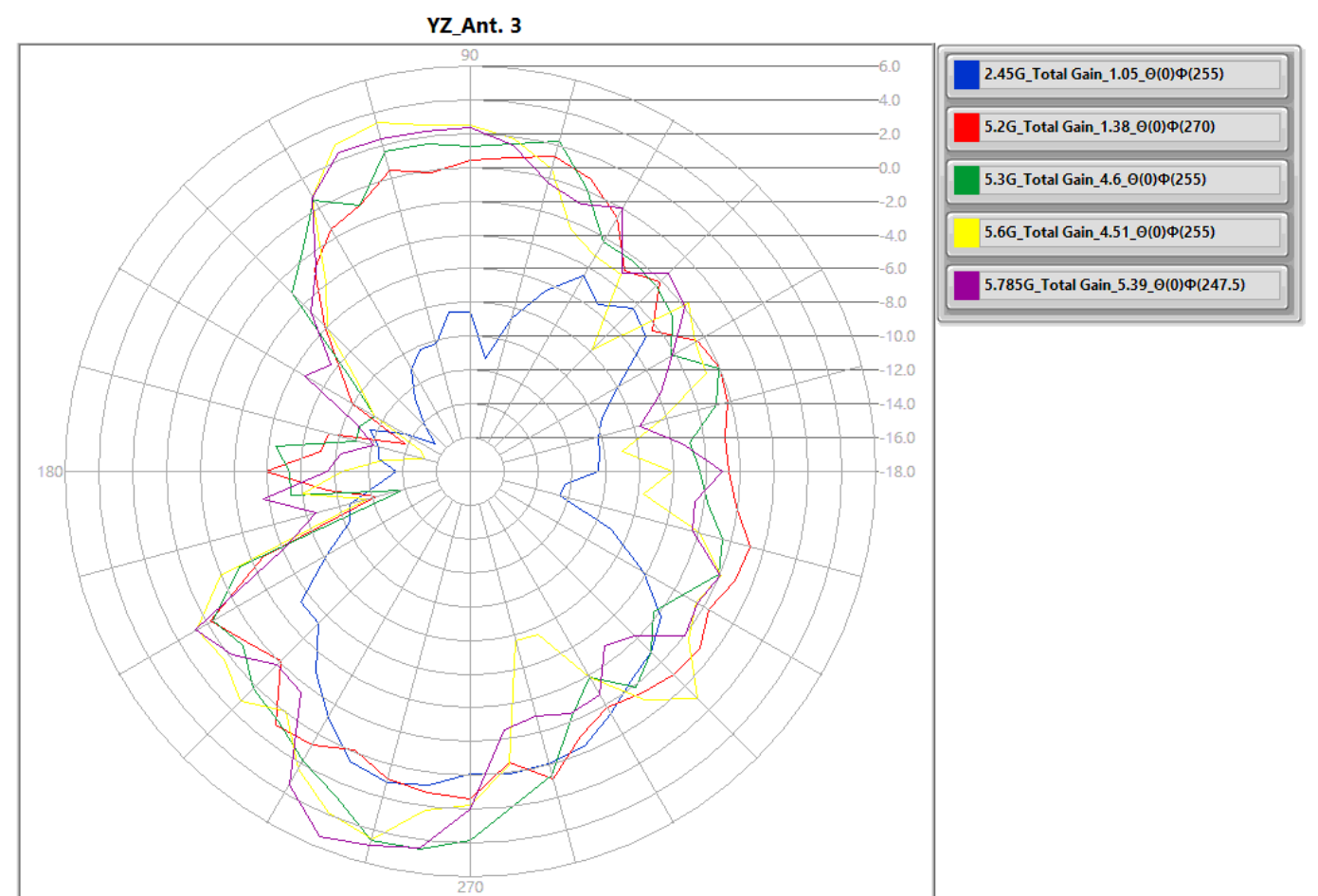
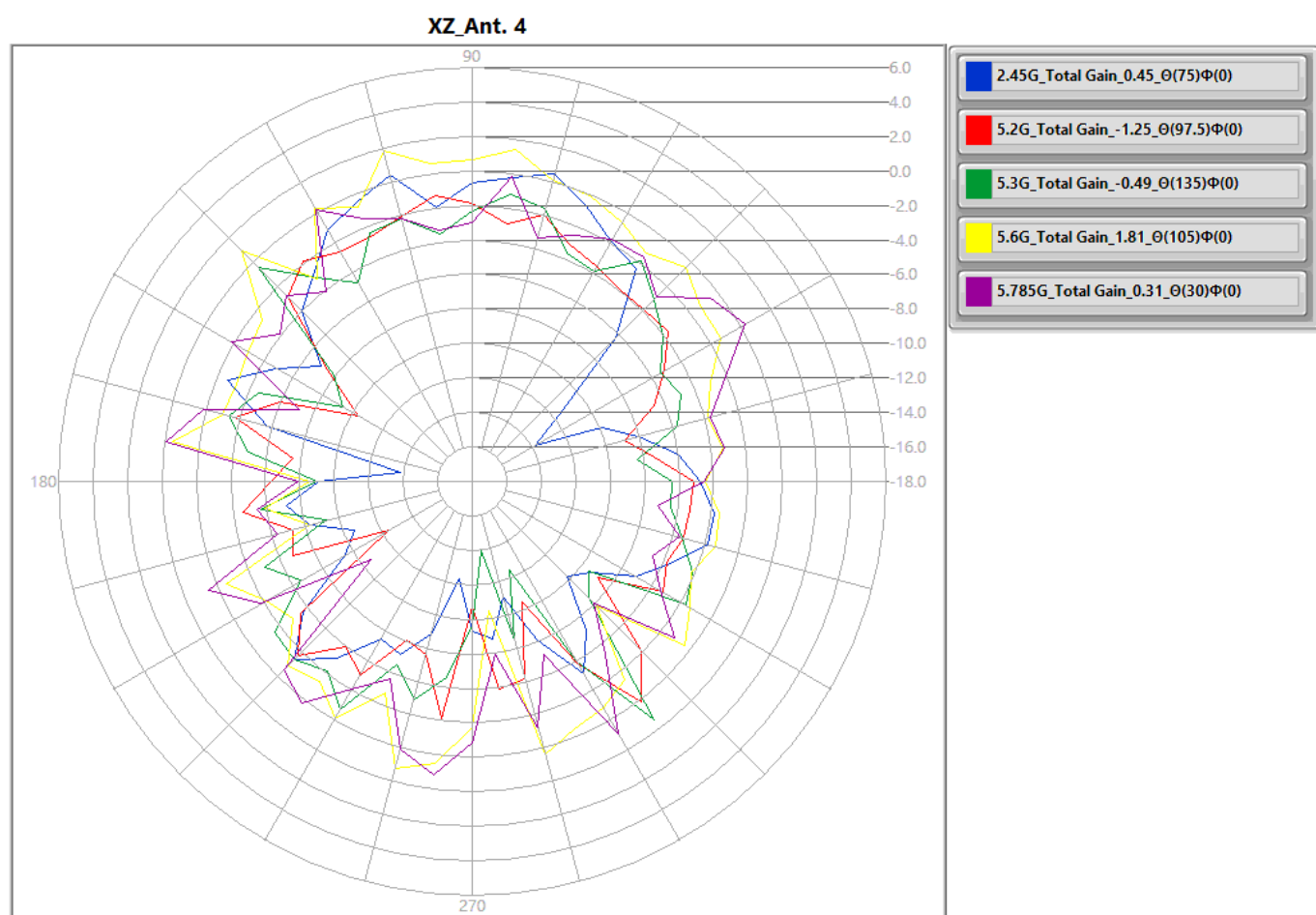
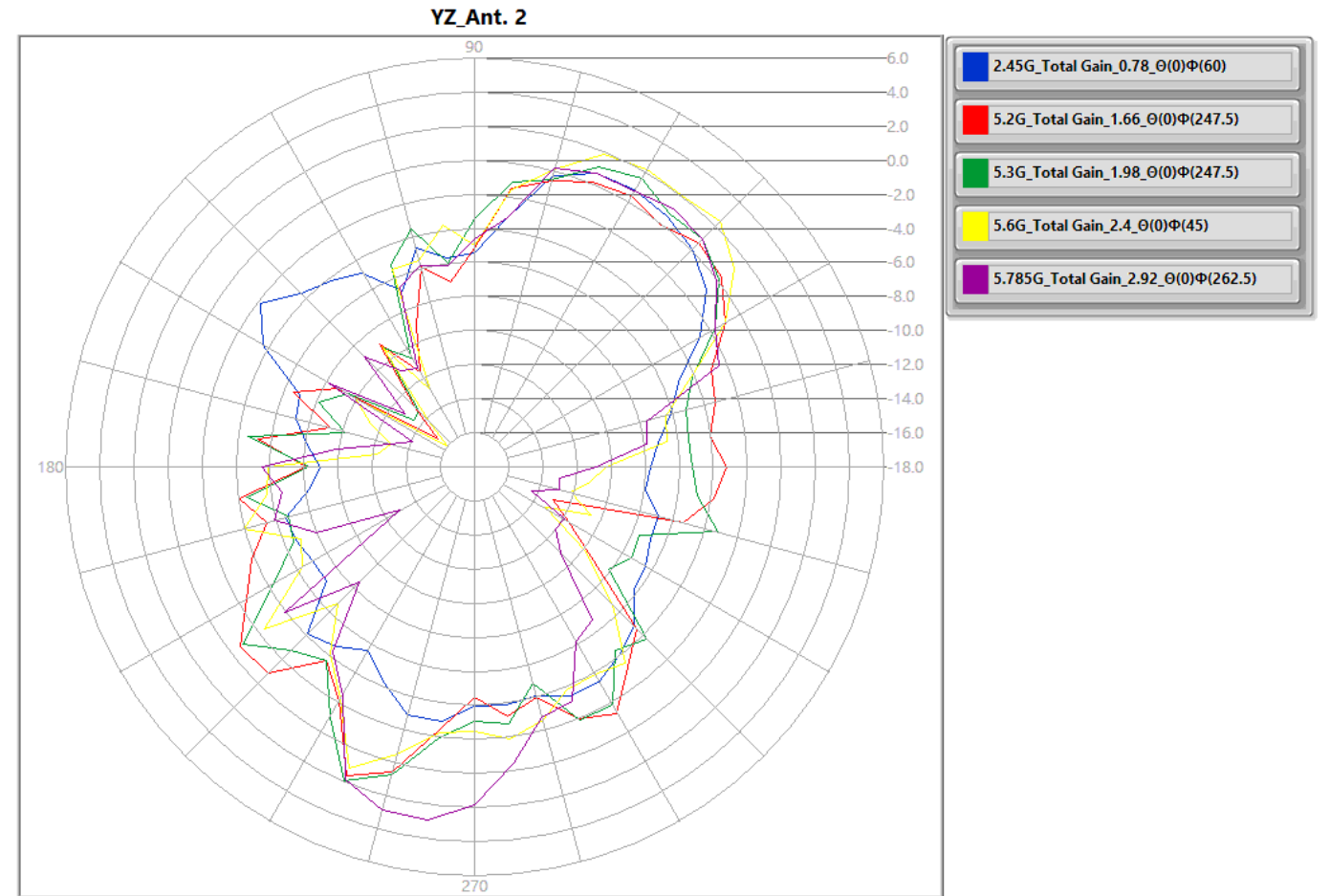
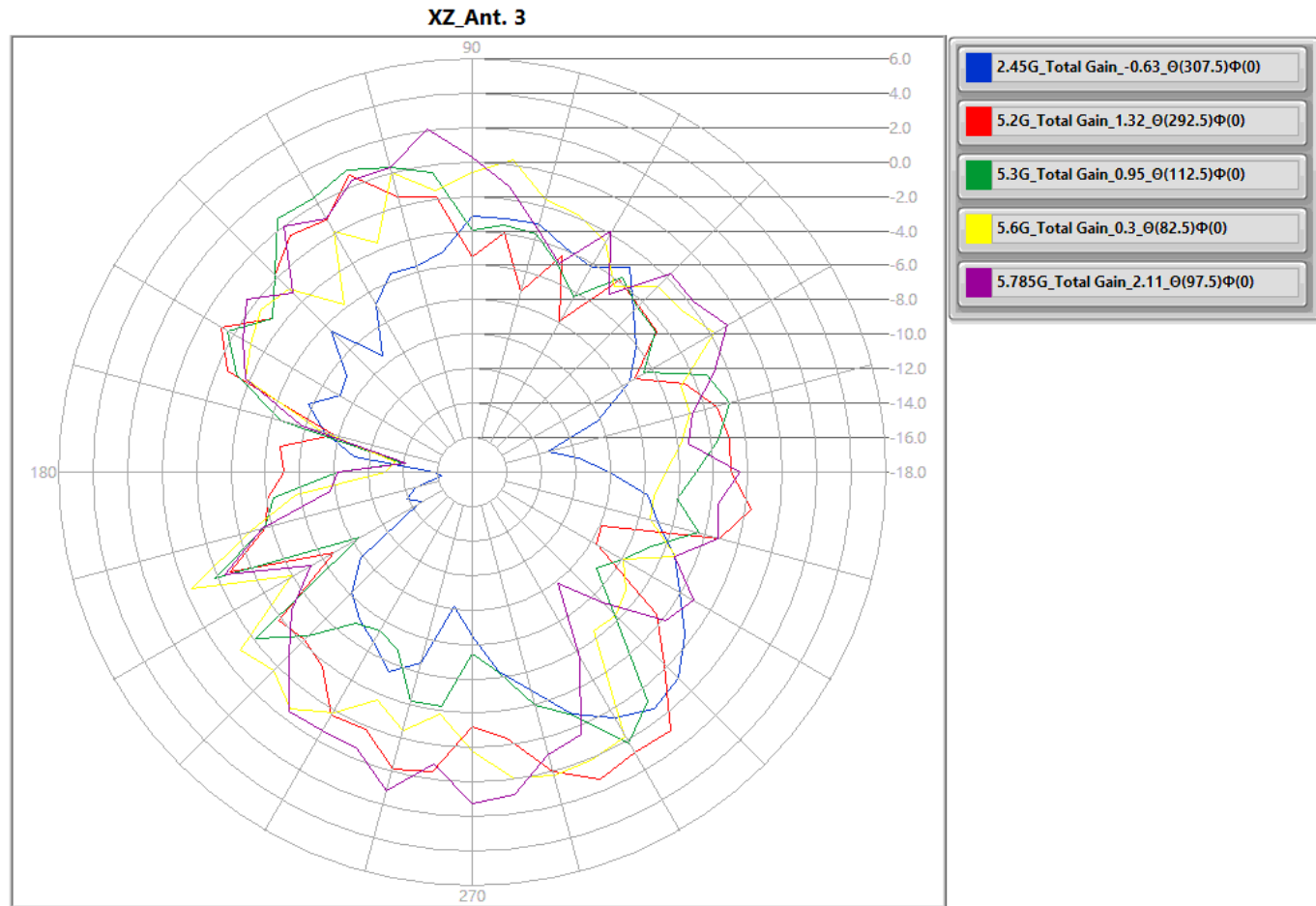
Antenna Pattern of 2.4GHz&5GHz

Appendix C

	0 (180°)	3.76/3.79	3.49/3.35	2.69/2.80	2.47/2.80	3.48/-1.47	4.44/-4.46	-4.39/-4.25	-4.69/-4.43	8.43/-7.77	-8.04/-8.07	-8.33/-8.49	-8.20/-8.11	-7.23/-6.21	5.93/-6.33	-7.81/-10.64	-13.40/-14.81	-11.30/-8.84	7.85/-7.36	7.92/-6.36	-8.61/-1.30	-7.92/-7.40	-7.05/-6.28	-4.86/-1.47	-3.87/-3.69
Gain	0 (172.5°)	7.51/-7.17	7.76/-7.73	8.25/-8.88	8.95/-10.58	-10.15/-10.13	9.74/-10.71	-11.04/-11.07	-12.47/-14.26	-15.20/-15.77	-12.71/-11.85	-10.34/-8.49	-6.70/-4.57	-4.57/-4.23	4.40/-6.56	-6.73/-8.71	-9.46/-11.07	-11.00/-10.99	-10.86/-10.33	-10.53/-11.82	-12.70/-10.10	-12.82/-12.72	-12.16/-10.63	8.78/-7.50	-7.25/-7.75
Freq(Hz)	5.35GPa	5.35GPa2	5.35GPa3	5.35GPa4	5.35GPa5	5.35GPa6	5.35GPa7	5.35GPa8	5.35GPa9	5.35GPa10	5.35GPa11	5.35GPa12	5.35GPa13	5.35GPa14	5.35GPa15	5.35GPa16	5.35GPa17	5.35GPa18	5.35GPa19	5.35GPa20	5.35GPa21	5.35GPa22	5.35GPa23	5.35GPa24	5.35GPa25
Gain	0 (172.5°)	6.35/6.81	7.13/-7.41	7.22/-7.54	7.29/-6.85	6.77/6.93	7.60/-7.94	-7.71/-7.15	8.96/-7.87	8.57/-7.91	7.26/-6.80	6.90/-7.65	6.95/-6.92	6.48/-6.94	6.59/-6.18	6.58/-6.41	6.29/-6.17	7.86/-7.47	7.22/-7.30	7.04/-7.02	6.71/-7.10	6.68/-6.36	6.61/-6.84	7.34/-7.53	
0 (175°)	6.30/-7.89	-7.52/-7.23	-7.49/-6.23	6.94/6.95	6.79/6.85	-7.84/-7.70	-7.84/-7.71	6.03/6.76	7.84/-7.92	8.12/-6.51	-7.72/-6.70	6.37/6.23	6.27/6.14	-7.36/-7.49	6.99/7.31	-7.75/7.96	6.84/6.80	6.87/6.87	6.70/-7.12	6.80/-7.25	-7.07/-7.07	-7.04/-7.21	-7.37/7.50	6.84/6.88	
0 (178°)	5.69/-6.84	6.60/-6.10	6.62/-6.10	-10.72/-10.10	8.80/-6.98	6.50/-7.67	-7.54/6.07	6.54/6.92	6.99/6.96	6.97/6.44	-7.22/6.23	6.93/6.67	6.27/6.47	-6.25/6.41	-6.91/6.47	-6.07/6.44	4.61/4.91	5.50/5.39	5.59/4.94	5.19/5.26	6.49/6.42	6.62/6.52	6.59/6.54	6.59/6.47	
0 (22.5°)	4.89/6.70	7.38/6.14	9.55/-11.03	13.92/14.51	-15.10/-13.47	9.89/6.31	7.01/6.26	8.93/6.77	8.42/6.15	-10.12/9.01	-7.17/6.71	6.50/6.47	4.19/6.36	3.99/6.37	-3.74/6.31	2.92/6.28	2.14/6.21	3.36/6.37	4.53/6.33	4.19/6.33	3.32/6.29	3.17/6.24	4.70/6.46	4.70/6.46	
0 (25°)	6.42/6.60	6.19/6.51	6.31/6.63	10.82/10.60	8.94/6.48	4.44/-3.52	3.97/6.35	7.83/-10.55	14.41/13.67	-17.71/12.94	8.75/6.33	3.71/6.20	6.99/6.63	6.99/6.53	2.92/6.15	2.71/6.10	1.98/6.39	4.29/6.47	4.12/6.76	1.53/6.19	2.19/6.59	2.34/6.54	4.99/6.81		
0 (27°)	4.08/4.35	-4.47/5.06	4.12/7.04	7.36/6.83	6.01/5.25	2.07/6.21	4.26/6.53	8.65/-10.02	-12.52/15.54	-14.51/15.69	-15.51/14.07	-12.70/-11.08	9.48/7.46	-6.42/7.19	-1.60/6.15	0.73/6.15	-0.58/6.27	0.35/6.01	-3.04/6.73	-3.92/6.29	-2.47/6.20	-2.30/6.85	3.68/6.39	-4.12/4.17	
0 (28°)	3.03/3.14	2.95/2.99	3.08/4.54	5.68/4.49	3.15/2.28	2.90/6.07	8.41/-10.87	-10.94/9.27	7.76/6.54	-3.69/6.82	2.44/6.31	-2.86/4.99	8.48/7.78	5.55/6.41	-1.96/6.22	-1.06/6.17	-1.54/6.88	-0.98/6.86	-1.89/6.87	2.22/6.76	-0.44/6.10	-1.26/6.13	2.42/6.32	3.23/6.43	
0 (32.5°)	1.86/2.46	-3.12/3.80	-4.05/4.94	6.57/3.81	3.78/3.43	-5.50/6.11	-13.04/11.86	-11.16/10.28	-9.20/11.37	-6.91/6.43	-4.93/6.58	-2.08/6.61	6.62/6.17	-3.30/6.45	-2.24/6.02	-0.95/6.88	-2.75/6.15	0.48/6.12	2.26/6.19	-2.30/6.12	-1.54/6.20	-2.13/6.76	2.75/6.27	-1.68/6.17	
0 (35°)	3.92/4.32	-3.65/3.33	-3.89/4.40	-5.32/6.22	-4.44/4.08	-5.96/6.43	-4.46/4.30	-3.85/4.78	-6.20/6.13	-10.12/16.51	-10.41/6.87	-6.84/6.37	6.01/6.48	-2.55/6.07	-2.00/6.04	-1.53/6.03	-0.79/6.29	-0.41/6.20	4.75/6.50	-3.42/6.28	-0.51/6.23	-2.94/6.37	-1.51/6.27	2.64/6.28	
0 (37°)	3.70/4.85	-4.19/3.61	-2.99/2.61	-3.58/4.81	-3.90/3.97	-4.35/3.80	-2.94/4.68	-3.57/5.64	6.72/5.68	-4.31/3.98	-5.03/6.83	-13.53/-12.67	-12.44/6.88	6.87/4.49	-1.88/4.40	-1.77/3.82	-3.92/4.03	-4.64/4.23	-3.76/6.59	-3.17/6.63	-0.86/6.16	-2.45/6.35	2.83/6.17	2.66/6.21	
0 (38°)	-1.59/6.11	-1.43/-1.42	-1.84/-1.85	-1.98/-1.97	-1.73/2.86	5.68/6.94	-7.60/6.43	-8.53/6.44	6.68/6.45	-3.34/3.97	-4.88/7.50	-10.82/13.00	-8.44/7.64	6.87/7.04	4.44/2.20	-0.86/3.89	-6.86/4.37	6.94/6.45	2.65/6.46	-3.26/6.06	-0.12/-1.79	-2.48/2.25	0.97/6.06	-1.52/6.14	
0 (40.5°)	-1.19/-1.05	-1.17/-1.28	-2.09/2.74	3.16/3.55	3.28/4.00	-8.30/6.01	4.77/5.66	-6.29/6.07	-6.01/6.51	-2.02/-1.68	-2.12/6.80	-6.97/-1.51	-13.99/4.85	7.49/7.20	-7.06/4.77	-1.87/2.57	-7.63/6.94	7.88/6.70	2.00/2.34	-2.83/2.83	-1.61/-2.94	-2.96/2.46	-2.14/2.21	-1.90/-1.41	
0 (42°)	-2.30/-1.48	-2.06/3.03	-3.55/5.09	-4.62/3.79	-2.62/3.78	-6.73/7.78	-2.90/-1.62	-5.54/4.96	-1.02/4.43	0.22/4.84	-1.48/4.86	-2.64/6.43	-6.57/6.75	-1.45/4.19	-5.29/7.62	-7.44/6.68	-2.89/1.59	-2.39/7.81	-2.73/-1.00	-1.79/6.43	-3.84/6.83	-7.08/4.75	2.54/2.73	-3.20/3.00	
0 (47°)	-3.54/-2.53	-1.29/2.44	-3.00/-3.31	-2.72/6.63	4.25/3.79	-6.09/6.16	0.10/2.40	-7.19/-1.63	1.00/6.15	-1.45/-2.52	-2.11/4.05	-6.13/6.05	-6.53/-10.47	-10.27/-12.15	-8.33/7.84	-4.96/4.29	-6.72/6.89	7.73/6.51	4.68/4.45	-3.47/6.58	-3.19/6.83	-1.56/6.88	6.29/6.51	6.22/6.34	
0 (105°)	-2.26/1.07	-1.03/6.07	2.55/-1.83	-6.43/-1.05	-2.83/-5.65	-2.86/6.05	-1.04/3.30	-3.86/6.71	1.09/6.11	-1.65/-1.81	-0.87/-2.25	-3.80/-7.18	-1.94/4.98	-1.53/6.14	9.94/4.44	-6.39/6.86	-6.39/6.74	-10.47/6.85	2.22/6.17	-2.17/6.44	6.09/6.11	8.84/6.25	6.24/6.24	-5.50/6.47	
0 (112.5°)	-2.42/3.20	-2.67/2.59	-3.62/-2.50	-6.40/6.31	-0.12/1.04	1.27/6.58	2.22/-2.11	-1.46/-1.16	-1.31/1.79	-1.46/-1.86	-1.46/-1.37	-2.34/-6.16	-6.51/-12.41	-1.88/6.73	-7.34/5.73	-6.24/12.09	-10.80/6.47	9.90/6.80	-7.70/7.48	-6.83/4.45	-6.73/6.81	-14.22/-6.76	-6.30/6.47	-5.34/5.87	
0 (120°)	-4.73/-2.32	-1.59/2.97	0.87/1.54	1.96/2.33	2.70/2.65	1.39/6.01	-0.50/0.80	0.02/-1.60	2.23/-1.00	-1.40/-1.59	-1.81/-1.77	-1.19/-1.76	2.71/7.58	-13.13/-11.20	-8.75/6.33	-3.84/-6.11	-11.20/6.16	-11.26/7.18	-0.56/6.61	-10.31/9.81	-6.89/6.89	-6.17/6.99	-11.40/10.89	-8.41/7.50	
0 (127.5°)	-3.12/-1.57	4.15/6.62	1.08/6.62	0.74/6.98	1.77/1.64	0.61/6.08	0.96/6.38	-1.40/6.60	-4.51/-1.46	-1.10/2.43	-3.93/3.00	-3.17/6.82	-1.49/6.97	-11.79/-11.76	8.36/6.46	-4.72/6.43	-4.97/6.17	6.48/-16.25	-12.77/6.49	-12.15/10.12	-11.44/-10.30	-12.81/6.47	-4.21/-2.95	-2.19/6.21	
0 (135°)	-4.85/6.44	6.25/6.67	-1.19/6.72	0.93/2.68	1.82/2.22	0.39/6.55	0.94/-6.32	-4.11/6.30	2.91/6.62	-8.91/7.78	-4.60/6.62	6.75/6.13	3.36/4.91	-8.85/6.44	-13.19/-13.54	-12.60/-15.63	-12.34/-7.77	8.31/6.97	-10.02/-6.59	-6.89/6.62	-5.13/-5.68	-7.42/6.89	-13.16/-11.13	-4.61/-1.35	
0 (142.5°)	-7.85/6.83	-3.40/6.71	1.94/1.85	1.93/1.57	0.57/-1.40	-2.53/-1.72	-0.73/2.39	0.21/5.72	-3.93/3.20	-2.70/2.95	-3.28/4.74	-3.78/-1.96	-3.59/6.59	6.02/-15.72	-11.44/7.85	-2.83/2.16	6.74/-12.08	-11.60/14.18	-10.96/6.31	-10.51/-12.68	-7.84/6.78	6.90/6.21	4.45/4.40	6.53/6.48	
0 (150°)	6.32/6.46	6.79/6.84	6.41/13.82	3.25/6.97	4.62/6.37	-1.25/6.01	0.89/1.08	3.99/6.42	-10.02/6.80	-5.60/6.54	-6.28/6.48	6.30/6.46	6.50/6.85	6.60/4.71	-5.59/6.33	4.32/6.86	-10.71/10.72	7.12/6.58	-7.77/6.59	-4.94/6.62	6.95/6.14	6.60/7.69	6.28/6.80		
0 (157.5°)	4.50/6.36	-2.91/2.74	6.90/6.03	6.07/6.03	6.75/6.64	6.72/6.64	-6.71/6.46	-8.57/6.82	6.87/6.30	8.82/10.00	-11.91/11.70	-8.03/6.36	4.81/4.22	-4.21/3.62	-2.85/1.95	-1.52/1.92	3.40/4.41	6.08/6.34	2.98/6.35	-2.91/6.91	-1.74/6.89	2.39/6.24	3.21/6.98		
0 (165°)	3.38/3.55	3.41/3.56	2.99/2.23	2.65/2.72	2.95/3.98	-3.96/4.30	-10.45/10.52	-5.99/6.80	6.35/7.90	-2.23/6.23	6.93/6.95	-4.57/7.96	9.25/10.71	-10.91/9.92	-9.71/9.80	-11.74/13.31	-10.47/10.32	6.69/7.28	5.14/6.72	-10.56/9.75	-6.07/6.86	6.80/6.78	5.42/6.78	-3.48/6.34	
0 (172.5°)	4.98/6.45	5.05/6.61	4.29/7.09	6.48/6.97	6.97/6.17	-10.12/12.37	-13.35/15.52	-14.29/13.71	6.59/6.12	-7.45/6.51	6.65/6.10	4.61/6.12	5.86/6.69	7.51/6.15	6.80/6.88	6.82/6.83	9.02/10.01	-11.51/11.73	-11.27/11.64	-8.21/6.97	6.95/6.62	6.46/6.69			
Freq(Hz)	5.85GPa	5.85GPa2	5.85GPa3	5.85GPa4	5.85GPa5	5.85GPa6	5.85GPa7	5.85GPa8	5.85GPa9	5.85GPa10	5.85GPa11	5.85GPa12	5.85GPa13	5.85GPa14	5.85GPa15	5.85GPa16	5.85GPa17	5.85GPa18	5.85GPa19	5.85GPa20	5.85GPa21	5.85GPa22	5.85GPa23	5.85GPa24	5.85GPa25
Gain	0 (172.5°)	6.35/6.81	7.13/-7.41	7.22/-7.54	7.29/-6.85	6.77/6.93	7.60/-7.94	-7.71/-7.15	8.96/-7.87	8.57/-7.91	7.26/-6.80	6.90/-7.65	6.95/-6.92	6.48/-6.94	6.59/-6.18	6.58/-6.41	6.29/-6.17	7.86/-7.47	7.22/-7.30	7.04/-7.02	6.71/-7.10	6.68/-6.36	6.61/-6.84	7.34/-7.53	
0 (175°)	4.47/4.35	4.36/4.92	4.16/-4.18	4.47/4.45	4.41/4.41	4.58/-4.32	4.55/-4.32	4.92/-4.40	4.29/4.34	3.54/6.39	2.86/6.13	3.10/-3.20	3.18/-3.05	3.47/4.61	4.73/4.38	4.14/-4.14	4.61/6.34	3.51/3.33	3.53/-3.66	-3.94/-3.86	-3.76/-3.75	-3.50/3.28	3.74/-3.69	3.67/-4.05	
0 (178°)	3.33/3.40	3.54/3.36	4.24/4.46	4.47/4.45	4.47/4.45	4.63/4.26	4.68/4.23	4.19/4.31	6.06/6.53	5.54/6.45	6.34/6.85	-4.86/4.36	-3.70/4.33	3.54/4.07	4.89/4.48	4.12/5.34	-3.39/4.32	3.58/3.54	3.38/3.28	-3.23/6.16	-3.90/6.316	3.08/6.34	3.37/6.83	4.31/6.82	
0 (180°)	3.89/4.68	4.39/6.21	4.79/6.71	5.21/6.42	6.01/6.69	5.66/6.70	7.02/6.42	6.10/6.62	6.57/6.72	6.25/6.42	6.25/6.42	3.40/6.46	3.37/6.37	3.39/6.26	2.49/6.52	2.91/6.89	4.19/4.41	3.69/6.35	2.92/6.76	2.42/6.26	2.63/6.19	3.39/6.32	3.52/6.37		
0 (22.5°)	3.05/3.72	4.61/6.16	6.04/6.23	6.75/6.42	6.72/6.64	6.71/6.46	-6.71/6.46	-8.57/6.82	6.87/6.30	8.82/10.00	-11.91/11.70	-8.03/6.36	4.81/4.22	-4.21/3.62	-2.85/1.95	-1.52/1.92	3.40/4.41	6.08/6.34	2.98/6.35	-2.91/6.91	-1.74/6.89	2.39/6.24	3.21/6.98		
0 (25°)	1.37/2.24	2.79/2.79	3.64/4.67	4.60/7.37	6.57/6.69	-10.68/11.42	-10.14/9.87	11.04/10.73	9.60/9.25	6.92/6.71	6.93/6.92	6.34/6.08	3.40/4.74	2.00/1.50	-1.59/2.71	1.69/2.27	-1.77/2.76	4.97/4.29	3.58/6.21	2.34/6.57	-0.67/6.12	1.61/6.12	1.59/6.12	1.30/6.12	
0 (27°)	1.32/1.66	2.12/2.16	3.38/4.73	6.78/6.44	-12.65/12.18	-9.39/6.76	7.16/6.11	-6.14/6.77	8.15/10.51	-10.67/12.86	-10.50/9.28	-7.64/7.27	2.42/-1.42	2.98/6.54	-0.69/-1.27	-1.78/6.16	-1.25/6.24	2.83/3.31	3.73/3.23	0					

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







Antenna Pattern of 6GHz

Appendix D

Total Gain Data

Frequency	0°/150°(0°/180°)	0°/30°(0°/150°)	0°/45°(0°/135°)	0°/60°(0°/120°)	0°/75°(0°/105°)	0°/90°(0°/90°)	0°/105°(0°/75°)	0°/120°(0°/60°)	0°/135°(0°/45°)	0°/150°(0°/30°)	0°/165°(0°/15°)	0°/180°(0°/0°)	0°/195°(0°/165°)	0°/210°(0°/150°)	0°/225°(0°/135°)	0°/240°(0°/120°)	0°/255°(0°/90°)	0°/270°(0°/270°)	0°/285°(0°/285°)	0°/300°(0°/300°)	0°/315°(0°/315°)	0°/330°(0°/330°)	0°/345°(0°/345°)
Gain	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi	6.1759dBi
0°/150°	2.8307-2.70247	2.74330	3.3022-2.35027	1.991-9.22924	2.41201	1.56477	1.74188	1.79117	1.67184	1.69171	1.47121	2.49214	1.90240	2.97286	2.19156	1.85148	2.91301	3.22036	2.28251	2.02255	1.87154	1.87154	
0°/165°	1.85144	1.30187	2.87287	3.05018	1.29341	3.54354	4.05041	3.83047	3.04252	2.53282	2.68228	3.16277	2.14142	1.19152	1.63341	1.69183	1.83198	2.18207	1.64116	1.60148	1.69124	2.07197	1.61149
0°/180°	1.71164	1.71170	1.84125	2.44191	2.02269	2.86233	3.75457	5.40138	6.15591	4.63138	2.91224	1.47086	0.50402	0.04001	0.62401	1.58170	2.44135	1.80119	1.75126	2.09112	2.12129	2.14120	1.87154
0°/225°	1.950133	4.38149	4.44148	5.65168	4.60143	2.64126	3.13181	3.72145	2.27119	2.31142	0.63049	1.40193	2.08122	0.38041	0.48040	0.59102	0.21089	0.23112	1.12151	1.14158	2.29125	2.38115	1.86149
0°/270°	2.231116	0.69073	2.02199	2.95141	0.63118	1.21139	1.69122	1.72174	0.47109	0.35078	0.87117	0.91085	1.18180	2.36254	2.01150	1.48053	0.33022	0.86073	0.06070	0.70136	2.33131	4.21142	3.57124
0°/315°	2.72129	2.89181	0.87104	1.30154	0.41097	0.57102	0.97117	1.96146	0.94115	1.29113	1.99262	0.67141	0.97079	1.29176	1.87167	1.29136	0.63100	0.20104	0.86113	1.84126	4.66104	2.79124	2.83129
0°/345°	4.271515	3.56134	3.86130	2.91176	0.81102	1.93216	1.64073	0.48120	0.58245	2.44034	3.68032	2.86223	0.82026	1.16026	0.30067	0.80095	0.81061	0.53105	0.11166	3.86177	1.52188	2.57129	4.13147
0°/360°	5.95036	7.85039	8.13039	3.85125	0.34074	1.04204	2.24203	1.90203	2.12116	1.72206	2.98034	2.91164	1.49123	1.29106	0.63037	0.33037	0.72124	1.18119	1.62120	0.60036	0.98180	3.32136	4.87116
0°/375°	6.95036	6.29174	6.98130	2.48122	0.33224	0.94110	2.19217	2.24282	2.44111	1.77119	1.73142	1.96037	0.95053	1.25030	1.83175	0.47173	1.44191	1.54091	0.64058	0.88134	2.49028	3.72024	7.73017
0°/390°	3.98042	4.11048	7.64058	3.02075	0.02050	4.75139	0.21137	1.96211	2.79038	1.36075	1.01234	2.51120	1.15038	0.35022	1.29017	1.85238	2.01085	0.84020	0.67036	1.47145	0.89116	2.69020	4.68030
0°/405°	2.99047	7.41076	8.20155	3.46159	1.91042	0.91048	5.03230	1.41020	1.57170	0.69011	1.09043	1.23144	0.97091	0.77071	1.13136	1.12177	2.29023	0.98039	0.29147	1.46025	0.42117	3.42037	4.76031
0°/420°	4.32146	10.571118	13.59047	3.96030	4.34048	3.91034	3.52074	3.52074	1.95170	1.68014	0.97030	0.83078	1.12032	0.47101	1.23025	2.59121	1.22038	1.62010	0.75014	1.71120	3.90140	2.46022	4.85024
0°/435°	3.531720	15.241208	6.99134	1.450219	4.71065	5.26178	0.38048	0.47057	0.03130	1.94047	2.540430	2.76069	0.21094	0.96031	0.43177	1.70135	3.59023	0.46018	1.12137	0.46014	3.13143	1.85056	1.51170
0°/450°	5.131780	4.45031	3.99136	2.25138	1.13260	3.08148	0.94045	0.33043	0.47161	0.07012	2.22031	2.91168	0.47161	0.23084	0.42018	0.93166	1.94026	0.07008	1.83042	1.59067	1.51029	5.13180	4.68011
0°/465°	4.120683	4.39045	3.34046	3.16048	0.93041	2.10184	0.77039	0.59038	0.580154	0.61040	0.62036	2.011248	1.65235	1.57197	0.41120	0.02099	0.15041	0.41060	1.25222	0.92031	0.19111	2.47043	0.67061
0°/480°	4.65044	1.12021	3.53073	3.34061	0.71041	0.71041	0.29035	1.07051	1.450236	1.680154	1.41129	0.450338	1.790512	0.37023	0.26032	0.84053	0.00058	0.25064	0.39050	2.96062	0.41048	0.92065	1.96037
0°/495°	7.24010	1.05014	3.841195	3.65078	0.44025	2.83030	2.11119	3.79049	4.30037	4.23034	3.56067	4.30041	1.19031	1.36024	3.98049	2.99039	0.57034	0.10076	1.47034	2.20048	1.27014	3.74017	3.34138
0°/510°	1.1426802	3.260322	7.4401138	1.420478	4.29033	3.08047	4.500219	1.440491	7.71016	9.10475	3.83034	4.43045	1.34018	0.461210	1.357233	0.61126	1.74025	1.31079	2.37186	1.39086	1.98047	1.73129	1.77026
0°/525°	0.670102	4.710381	5.5001389	7.350756	0.580469	0.660310	1.130045	0.160907	0.290819	0.500130	1.432075	0.610367	0.160701	0.680595	0.2244758	0.507117	4.720134	0.457172	1.200151	0.660265	1.820187	0.670142	0.522664
0°/540°	5.420102	7.7801515	12.2201587	8.73055	0.420125	10.97497	0.570382	4.330732	14.711408	11.51036	0.690684	0.870682	0.510742	1.390444	1.1150730	0.130096	0.580531	0.980154	1.340159	1.04007	1.550132	1.190935	3.71012
0°/555°	0.840194	7.300184	6.880112	11.890112	11.060168	6.33049	0.900185	7.300588	8.190158	15.630130	11.200181	10.840102	11.040391	0.580151	15.380181	4.460251	0.570348	0.770540	1.680102	1.250141	0.570618	6.870182	6.410174
0°/570°	0.8801991	11.010230	12.9601479	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/585°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/600°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/615°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/630°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/645°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/660°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/675°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/690°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/705°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/720°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/735°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/750°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/765°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/780°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.340109	0.530158	12.590157	11.390147	5.530121	0.730194
0°/795°	0.880196	11.010230	12.960148	10.610158	11.620110	14.700123	9.610173	17.700122	11.600121	11.400109	11.6901104	8.080151	8.620126	0.260197	7.710392	11.950122	11.440124	0.					



Antenna Pattern of 6GHz

Appendix D

(H25.2)	2.762.31	1.741.17	0.820.83	0.680.38	0.841.13	0.680.78	0.460.01	0.319.17	2.672.94	2.763.89	-1.123.30	-3.80.30	-4.320.47	-4.033.43	-5.696.72	-5.424.23	-3.819.272	-1.660.071	0.2610.12	-0.4010.76	-0.9110.34	0.260.30	0.100.58	1.860.57
(H26)	0.950.51	1.842.36	2.271.50	0.861.02	0.120.22	0.500.44	-0.269.19	2.399.33	2.790.20	2.459.83	-3.042.14	-1.481.18	-3.204.12	-4.784.48	-4.063.34	-3.983.85	-3.109.181	-1.450.661	-1.0010.14	0.440.58	0.410.39	0.1010.76	0.740.95	0.670.38
(H27)	1.132.18	3.002.78	2.202.25	2.342.52	2.702.40	1.340.21	0.0710.16	-0.5110.18	-1.222.20	-3.414.14	-4.795.17	-4.641.327	-3.141.299	-3.032.69	-2.834.04	-3.761.259	-2.391.365	-4.421.293	-0.960.22	0.390.07	0.7310.15	1.000.74	0.440.02	-0.700.81
(H28)	0.540.01	1.622.75	3.153.31	2.892.23	1.781.26	0.780.33	0.190.08	-0.681.15	2.251.30	-4.121.62	-7.208.00	-6.761.19	-5.091.49	-3.391.48	-5.024.47	-4.891.35	-4.411.30	-3.381.82	-0.5810.04	-0.280.94	1.230.48	0.691.43	1.530.57	0.990.39
(H29)	2.441.28	2.082.58	2.762.78	2.452.15	1.882.01	1.980.47	-0.3510.44	-0.681.51	-1.483.31	-0.1510.61	-1.2511.99	-0.2910.69	-3.911.28	-4.831.40	-1.851.30	-4.481.231	-1.111.17	-1.611.61	-0.7510.23	1.0120.78	1.261.22	1.650.57	1.980.26	1.381.29
(H30)	1.120.08	0.751.39	1.352.11	1.350.21	2.282.64	1.680.12	0.300.03	-0.441.92	-3.851.57	-7.511.12	-8.541.35	-1.261.87	-0.891.10	-3.374.03	-1.5310.37	0.761.172	-1.950.05	0.380.59	0.0611.26	0.190.76	1.802.27	2.912.36	0.910.35	0.721.37
(H31)	0.840.60	-0.611.84	-0.147.88	2.422.29	2.492.30	0.780.63	-0.011.51	-7.741.38	-5.841.54	-7.121.71	-7.601.85	-7.421.43	-2.691.275	-3.381.54	-2.881.18	-0.2210.50	-1.441.288	-0.851.189	-2.160.28	0.4510.83	1.510.63	0.191.97	-1.3510.17	-1.3510.17
(H32)	0.4810.16	2.621.99	0.4711.23	1.542.23	2.831.36	-1.040.16	-0.181.438	-5.361.21	-0.991.248	-4.231.22	-8.711.73	-5.491.21	-2.341.375	-4.001.26	-1.041.49	-0.231.80	2.361.02	0.6712.93	-4.5810.49	0.361.29	1.540.69	0.6010.74	0.5110.65	0.5110.65
(H33)	0.471.69	3.341.08	0.2910.27	1.431.70	1.101.87	-1.671.08	2.1210.21	0.690.02	0.361.681	-4.281.76	-12.591.30	-10.591.140	-7.441.32	-2.591.37	0.5121.30	-0.521.28	-1.791.02	-2.841.123	-1.681.51	-0.561.302	0.3511.21	1.780.48	0.661.39	-1.0410.15
(H34)	1.3311.27	4.5810.37	1.7110.88	0.8410.78	2.691.28	3.191.33	-2.241.197	2.481.232	0.8410.59	-3.321.671	-5.810.74	-12.041.1491	-7.251.370	-2.951.51	-5.341.47	-0.2910.28	-2.721.148	0.0510.24	1.1510.02	-0.481.330	-0.240.56	1.981.14	-1.6110.24	-0.7710.10
(H35)	2.261.69	0.4610.36	0.7710.07	1.241.472	0.331.372	2.211.11	-2.491.21	2.501.681	-4.981.34	-0.561.59	-12.031.07	-5.331.397	-1.961.189	-0.501.58	-4.391.23	-0.361.19	0.7121.49	1.5510.82	-1.201.12	0.7510.13	-0.5210.07	0.991.70	0.841.19	0.841.19
(H36)	1.432.37	3.9910.47	3.1910.29	1.471.12	0.981.140	-1.621.24	3.1510.37	4.1710.52	2.591.692	-3.9910.42	-6.891.52	-1.7110.40	-0.871.29	0.4710.29	-0.591.32	0.2010.33	2.981.02	1.370.07	0.3210.22	-1.3310.78	0.411.72	0.9110.78	0.9110.78	0.9110.78
(H37)	4.912.94	-4.7610.34	3.7210.02	4.7710.48	2.491.38	2.7410.79	-5.931.27	3.091.36	4.1210.16	-5.417.83	-3.361.17	-11.091.129	0.407.87	0.4710.24	2.4310.56	1.120.36	2.4921.74	1.981.272	1.7210.39	-0.8511.06	0.9310.10	-1.4721.72	0.5911.26	0.5911.26
(H38)	5.941.40	3.9610.54	5.9410.26	3.3910.75	4.081.42	0.5810.29	3.261.199	3.401.380	5.5110.24	-4.591.43	-7.2810.73	4.7711.30	1.8611.36	-2.170.65	0.2710.22	0.831.80	2.631.45	2.2210.91	2.291.027	-3.421.49	0.4310.34	-3.421.49	0.4310.34	0.4310.34
(H39)	5.3010.30	-8.0910.52	8.9910.68	-3.461.47	5.7718.17	8.2131.45	-2.731.21	-1.3210.48	4.331.33	-11.8510.52	-6.431.40	-5.491.83	-1.817.73	3.1310.70	-6.751.12	0.7110.19	3.7210.98	1.8310.29	4.3510.14	-2.9810.53	0.8410.10	-4.2710.35	-4.2710.35	-4.2710.35
(H40)	-1.1510.105	-1.9810.54	-1.911.31	-11.091.37	0.2110.83	-8.681.374	-2.1210.54	-1.3110.47	-3.381.421	-4.781.103	-11.8710.08	-4.691.74	-14.861.188	-0.561.13	3.3610.31	-0.601.29	3.2721.23	-2.641.189	3.8310.29	2.7810.46	-4.6410.78	2.7910.93	-1.2721.134	-0.8210.36
(H41)	-2.1711.330	-15.2610.14	-15.8310.00	-12.301.370	-10.421.63	4.9110.46	-5.1910.64	-5.541.777	-5.611.46	-0.2210.39	-11.2610.04	-8.931.496	-1.691.41	3.3510.70	-3.7721.07	3.160.59	-0.4010.22	2.541.28	2.5310.24	0.3610.48	-7.261.225	-6.4310.103	-0.2110.43	-0.8210.76
(H42)	-0.4710.12	-0.3310.482	-12.5110.08	-13.1710.25	-5.9610.63	-8.6811.374	-13.7910.58	-6.3810.15	-6.501.159	-10.3510.35	-7.9610.04	-4.981.407	-2.981.114	2.3410.65	-5.8710.33	-4.8210.31	-1.8610.92	1.930.25	3.6410.24	-3.9810.33	-8.741.119	-13.721.165	-1.0110.71	-0.5811.31
(H43)	-15.5311.11	-1.3910.74	-8.0310.74	8.8210.118	-10.341.78	6.201.52	-1.5810.97	-10.3610.13	-15.691.135	-17.3310.22	-6.716.88	-8.191.330	-0.6310.1	-1.0210.32	-5.3310.54	-13.4510.281	-5.6110.32	-3.201.527	0.7910.482	-11.7610.36	8.991.125	-10.0710.74	0.5010.34	-0.2210.45
(H44)	-0.8210.105	-15.5510.142	-15.5510.147	-12.3710.19	-8.8611.28	-12.6710.1234	-11.5910.123	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153	-11.5910.153
(H45)	-11.0610.130	-7.7910.76	-7.6310.62	6.5110.36	-8.671.177	-12.8810.129	-12.5910.127	-8.601.775	-7.8310.64	-7.901.167	-6.1710.50	-3.381.262	2.061.134	-1.1610.145	-2.2610.27	-3.1310.75	-4.7110.63	-5.801.548	-4.8810.53	-5.6310.64	-6.7110.72	-6.741.799	0.4110.64	-0.5010.62
(H46)	-5.2610.34	-3.1910.81	-6.4910.37	6.8610.56	-4.5810.47	-4.3710.17	-4.0310.41	-4.5110.378	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36	-4.3410.36
Freq(Hz)	6.4750.9Hz	Table1	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	0°(H27/H37)	0°(H22/H23)	0°(H37/H37)	0°(H57/H52.5)	0°(H77/H67.5)	0°(H77/H62.5)	0°(H97/H87.5)	0°(H97/H82.5)	0°(H107/H112.5)	0°(H127/H127)	0°(H137/H142.5)	0°(H157/H157.5)	0°(H167/H167.5)	0°(H187/H187.5)	0°(H197/H202.5)	0°(H217/H217.5)	0°(H227/H232.5)	0°(H247/H247.5)	0°(H257/H262.5)	0°(H277/H277.5)	0°(H287/H292.5)	0°(H307/H307.5)	0°(H317/H322.5)	0°(H347/H352.5)
(H1)	0.3910.25	0.9110.35	1.591.177	1.461.652	0.7910.51	0.2710.74	0.9310.31	0.2710.01	0.5310.21	0.120.12	0.770.27	0.3310.28	0.3410.38	0.666.44	0.63910.50	0.4610.25	0.6510.44	0.3310.59	0.4710.58	0.68110.34	-1.8610.91	0.7610.79	0.7310.33	0.6410.18
(H2)	0.290.73	0.7310.02	0.6910.29	0.2910.26	0.1210.64	0.3410.18	0.0110.38	0.2710.134	0.7710.29	-1.871.01	-0.771.18	-0.2710.18	-0.2710.18	-1.271.01	-1.4810.70	-1.5910.17	-1.2210.68	-0.6910.59	-0.4210.69	-0.6510.38	-0.6510.38	-0.6510.38	-0.6510.38	-0.6510.38
(H3)	1.5810.76	1.0210.14	0.910.47	0.1310.68	0.5810.37	0.2811.42	0.2310.32	0.3401.38	0.4310.37	3.4810.70	4.8510.53	4.4810.28	3.9810.13	0.7710.19	-1.7810.75	0.2010.38	1.6810.63	0.320.75	0.200.75	0.910.65	0.910.65	0.910.65	0.910.65	0.910.65
(H4)	0.2710.12	0.7110.03	0.7810.68	0.9410.03	1.241.19	-1.8910.34	-0.0110.104	-1.7910.22	2.4110.21	-1.770.63	-3.3410.30	-3.7110.34	-4.441.77	0.1210.34	-2.0710.16	-1.8110.11	-1.4810.14	-1.6510.14	-1.290.46	0.2310.19	-0.5410.53	0.2710.64	0.9510.79	0.9510.79
(H5)	0.0210.22	0.3110.30	0.1710.17	1.5010.16	0.1910.24	0.0710.65	0.990.63	0.2010.62	0.1910.12	2.2210.44	2.4710.21	2.1710.113	2.4010.45	0.5210.72	-7.3810.68	-4.081.28	-1.2510.85	-0.4610.40	0.350.86	0.2310.30	-0.2610.27	-1.7810.11	0.1010.26	0.300.21
(H6)	1.440.52	-1.2010.18	0.7721.33	2.170.37	-1.8611.33	0.600.87	0.0410.54	-0.8610.58	2.2421.13	-3.1910.36	2.7810.13	2.9610.30	2.9610.34	3.9310.33	-4.2710.43	4.5710.45	2.7310.36	0.9610.19	0.910.62	-0.9421.11	-2.3910.17	-1.420.88	0.5810.12	0.7310.15
(H7)	0.0410.32	0.0110.41	2.0110.53	0.0910.43	1.081.32	2.4610.59	0.5010.14	-0.9010.49	0.3510.42	0.7210.41	-0.2310.63	0.6110.58	-1.0210.23	3.4310.63	5.2710.68	-4.9310.68	-4.231.447	-2.931.131	-1.1210.11	-2.0610.35	-4.511.454	-3.361.158	0.1910.14	1.9710.55
(H8)	0.0910.48	-2.1510.17	-0.7610.38	0.830.81	1.7721.50	2.3510.91	1.860.03	-1.0110.17	0.7510.25	-3.7371.34	-7.4110.77	-7.0810.54	-5.241.41	-3.6410.30	-4.461.481	-5.7410.57	-2.701.281	-2.2210.50	-1.2610.42	0.0110.18	-0.2210.66	-2.4810.31	-1.19810.19	1.0010.18
(H9)	0.7410.17	-1.4610.53	-1.3110.18	-0.010.72	0.9910.19	2.9221.05	-0.8610.27	-1.1910.151	-1.5610.40	-0.5910.61	-0.7710.47	-0.8710.794	-5.9910.61	-1.8610.39	-1.6710.40	-2.401.236	-1.4610.117	-1.1710.13	0.0110.10	0.0110.05	-1.0010.256	2.3410.54	2.0810.37	2.0810.37
(H10)	2.2210.20	0.7710.16	0.3910.61	0.8810.61	1.1821.16	1.2310.152	-2.691.235	-3.701.48	0.3510.37	3.8410.48	4.5410.77	7.9510.65	4.6510.48	0.7210.55	3.6410.34	-1.4710.240	4.7310.262	0.4210.65	0.3110.35	-0.1010.46	0.0011.42	0.2510.229	0.6310.78	0.6110.75
(H11)	0.7010.41	-1.250.16	0.6810.25	1.0010.62	1.2511.14	0.4910.46	-0.5110.44	-0.5110.199	-1.7210.35	0.6110.46	1.4710.17	3.6810.17	1.4710.17	3.6810.17	3.6810.17	3.6810.17	3.6810.17	3.6810.17	3.6810.17	3.6810.17	3.6810.17	3.6810.17	3.6810.17	3.6810.17
(H12)	0.4910.46	-2.1810.11	-1.9810.129	4.1210.14	1.0211.11	2.3710.34	-2.6610.44	-3.1110.29	-7.170.58	-2.8410.22	-0.6610.81	-0.8010.70	-5.8810.78	0.3410.91	0.1010.45	-3.041.487	-3.4810.26	0.5510.27	0.2610.21	-3.8210.44	0.8710.39	2.4610.177	0.5610.10	0.9110.46



Antenna Pattern of 6GHz

Appendix D

(0°/0°)	1.830-0.20	-3.205-3.32	-2.980-0.03	0.640-3.32	0.080-0.05	3.050-0.05	2.071-2.81	-5.239-3.10	-1.460-2.08	-6.400-0.61	-2.160-4.46	1.067-7.77	1.620-6.27	0.650-2.23	-4.590-3.83	-0.580-5.77	-0.530-3.38	-1.930-1.64	3.470-3.46	-3.860-4.25	-4.060-2.88	5.160-6.08	2.120-0.50	2.150-1.22
(0°/2°)	3.360-1.48	-1.125-0.52	-4.060-1.51	0.880-1.50	3.450-0.96	3.414-3.36	2.401-1.62	-2.180-0.54	0.810-3.33	-1.550-2.38	1.470-0.69	0.510-0.82	-1.010-0.66	-2.370-1.48	0.190-1.54	-0.340-4.53	-1.310-4.78	0.590-4.40	-2.000-3.87	-7.450-3.93	8.950-5.81	0.530-6.27	3.620-7.34	0.810-7.32
(0°/4°)	3.860-1.02	0.310-0.58	-3.630-0.93	0.390-0.36	2.380-4.37	0.640-5.00	0.910-3.76	-2.740-0.61	1.970-0.11	0.010-0.65	0.520-1.97	2.000-0.59	0.590-0.43	-1.910-1.08	0.890-4.46	-1.170-2.00	2.300-0.02	-8.710-8.94	-7.480-4.58	-1.260-4.40	-2.020-1.85	-7.960-4.52	-0.200-0.65	3.310-2.26
(0°/6°)	2.250-0.84	-0.750-1.52	-3.450-0.86	0.840-2.21	7.830-3.02	1.350-1.64	-2.000-0.62	-4.500-0.63	3.060-7.32	2.780-8.22	2.230-3.22	2.620-8.84	0.590-0.93	0.360-1.55	0.140-3.90	-1.330-3.35	1.410-3.77	5.580-3.74	-4.820-7.70	-1.720-2.26	0.570-1.15	0.340-3.35	1.260-0.58	2.570-0.50
(0°/8°)	1.420-0.77	-0.570-1.58	-1.780-0.66	0.670-1.85	6.510-2.70	1.620-2.35	-0.160-0.64	-6.980-4.88	0.600-1.12	2.200-3.36	2.680-5.15	2.720-2.27	1.610-3.87	-3.380-1.37	-3.570-5.48	-1.880-0.98	-0.840-1.47	7.040-5.62	-6.540-4.73	-0.130-3.32	-1.650-2.24	-1.360-3.44	-0.820-0.65	0.600-0.52
(0°/10°)	0.110-2.30	-2.560-3.95	-1.400-0.46	0.320-0.34	6.210-1.28	1.370-2.54	-2.260-0.32	-3.830-2.46	-4.300-3.34	1.740-1.42	1.110-1.11	0.100-0.64	-0.240-1.40	-0.370-1.77	-2.830-2.71	3.440-5.94	-2.270-1.85	7.550-7.38	-5.940-5.05	-1.840-5.51	-1.400-4.49	-0.380-2.86	-2.910-4.98	-0.740-0.84
(0°/12°)	0.450-5.27	-0.310-7.38	-2.570-0.52	0.070-0.77	-1.470-0.64	1.560-1.89	0.740-0.39	-2.020-3.53	-4.080-3.27	-0.540-1.02	-1.410-2.02	-0.640-0.83	-0.730-1.47	-2.890-1.31	-4.570-2.40	-0.950-8.62	0.730-4.57	-4.590-7.38	-5.070-1.07	-4.090-14.20	-5.250-4.29	-0.220-4.52	-0.460-1.10	-0.460-0.49
(0°/14°)	0.330-8.96	-0.680-1.76	-0.860-0.58	0.750-1.85	-3.580-2.39	0.500-2.27	0.800-0.07	-1.220-1.02	0.620-0.93	-4.520-1.43	-3.690-0.86	-1.940-0.52	-0.610-1.45	-4.910-3.37	-3.670-1.48	-3.490-4.84	-5.340-5.83	0.820-9.30	-7.580-3.44	-0.600-5.66	-4.890-2.08	-7.140-0.98	-10.100-6.08	-2.990-0.39
(0°/16°)	7.550-5.25	-2.760-0.99	0.330-0.14	-0.160-0.24	-1.250-0.27	-2.290-0.13	-2.030-0.13	1.780-0.27	1.220-0.23	0.700-1.93	-3.320-0.39	-3.060-0.33	-1.670-0.86	-1.000-1.91	-4.430-2.11	-5.610-5.08	-7.050-5.52	-5.250-4.62	-1.060-9.79	-13.340-10.25	0.270-7.03	-0.530-5.91	-8.000-4.25	-0.430-1.34
(0°/18°)	0.930-6.82	-0.820-4.96	-4.960-1.70	-4.520-3.62	-0.320-1.71	0.680-1.08	-1.210-0.77	-0.700-1.98	-2.580-1.29	-4.940-2.11	-0.890-0.61	-0.970-3.88	-2.930-3.89	-4.980-4.38	-2.680-4.60	-4.070-5.55	-6.850-5.89	0.340-4.43	-8.920-12.94	-8.310-15.99	-4.300-2.84	-2.280-4.43	-5.230-7.77	-3.310-4.77
(0°/20°)	0.440-6.50	-0.560-5.12	-0.790-0.99	-0.710-1.43	-0.310-0.56	0.510-0.96	-0.360-2.52	-1.750-1.48	-1.780-1.35	-1.440-1.36	-2.930-1.35	-5.160-0.68	-7.920-1.78	-7.460-2.72	-7.010-3.51	-8.250-5.15	-1.500-10.44	0.720-12.06	-8.790-17.24	-7.870-2.49	-7.620-8.93	-6.910-4.96	-4.310-2.35	0.520-1.36
(0°/22°)	7.710-7.39	-0.520-3.35	-13.070-1.05	-10.250-10.08	0.890-10.44	-10.100-10.58	-0.590-2.47	-3.710-2.54	-1.690-1.42	-1.770-5.22	-2.890-3.27	-3.530-4.40	-6.090-1.47	-10.020-10.76	-11.590-11.59	-10.820-10.26	-8.700-10.16	-10.360-8.48	-7.960-7.24	-10.890-10.77	-8.920-10.73	-15.440-12.74	-8.150-7.61	0.190-1.61
(0°/24°)	-15.690-14.81	-13.510-13.13	-13.270-10.08	-11.680-10.23	0.400-9.39	-7.120-4.49	-5.740-8.81	-3.180-8.12	-0.760-0.99	-0.570-10.27	-2.740-7.23	-2.780-4.29	-4.480-6.22	-7.900-9.32	-10.820-10.51	-10.710-9.81	-8.830-7.21	-2.270-6.88	-7.930-8.76	-10.330-12.39	-14.780-13.47	-13.530-15.07	-14.780-13.47	-13.530-15.07
(0°/26°)	-13.040-12.97	-11.220-11.48	-11.020-12.25	-11.250-11.04	-11.010-10.80	-11.360-10.80	-10.820-10.62	-10.630-9.58	-9.230-8.89	-8.620-8.32	-8.330-8.44	-8.280-7.98	-7.870-8.32	-8.960-9.35	-8.620-10.10	-10.120-9.82	-8.950-10.30	-8.840-9.40	-10.480-12.22	-12.360-11.17	-11.350-12.05	-11.100-10.43	-11.180-12.52	-13.960-13.73
FreeHo	0.475000	Tabled 3	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Gen	0°/0°(0°/5°)	0°/0°(0°/10°)	0°/0°(0°/15°)	0°/0°(0°/20°)	0°/0°(0°/25°)	0°/0°(0°/30°)	0°/0°(0°/35°)	0°/0°(0°/40°)	0°/0°(0°/45°)	0°/0°(0°/50°)	0°/0°(0°/55°)	0°/0°(0°/60°)	0°/0°(0°/65°)	0°/0°(0°/70°)	0°/0°(0°/75°)	0°/0°(0°/80°)	0°/0°(0°/85°)	0°/0°(0°/90°)	0°/0°(0°/95°)	0°/0°(0°/100°)	0°/0°(0°/105°)	0°/0°(0°/110°)	0°/0°(0°/115°)	0°/0°(0°/120°)
(0°/28°)	-15.630-15.11	-14.590-13.85	-13.640-12.36	-13.030-14.16	-14.890-13.49	-12.760-11.35	-11.500-10.88	-11.240-11.91	-12.400-12.31	-11.640-12.61	-13.700-14.14	-13.170-11.57	-11.230-12.48	-13.970-13.93	-14.080-14.54	-14.780-14.58	-15.590-14.83	-15.150-15.10	-15.590-15.49	-15.590-15.49	-15.590-15.49	-15.590-15.49	-15.590-15.49	-15.590-15.49
(0°/30°)	-15.260-14.10	-12.730-12.69	-13.170-15.03	-15.440-14.46	-15.850-15.05	-15.850-14.67	-14.430-15.03	-15.360-14.61	-15.550-15.16	-15.260-12.67	-15.540-15.95	-15.960-15.30	-14.740-14.62	-13.130-15.20	-12.160-12.20	-11.610-14.08	-11.140-14.07	-11.500-10.68	-10.320-10.89	-10.020-10.98	-11.460-11.84	-12.590-13.38	-14.010-13.91	-14.010-13.91
(0°/32°)	-8.310-8.93	-0.880-10.10	-10.080-10.34	-11.610-12.42	-13.260-11.38	-15.030-14.55	-11.810-8.12	-10.560-9.41	-7.850-9.54	-6.560-12.42	-5.980-8.19	-8.920-11.99	-10.350-12.96	-11.230-12.25	-11.420-11.22	-11.380-11.40	-11.580-12.02	-10.710-10.82	-12.220-11.64	-10.710-10.82	-10.630-9.40	-10.630-9.40	-10.630-9.40	-10.630-9.40
(0°/34°)	-7.400-8.94	-6.590-7.00	-7.520-7.05	-7.160-7.49	-4.800-8.13	-11.300-10.16	-9.160-7.45	-8.780-8.52	-5.150-8.34	-3.590-8.33	-3.430-8.27	-3.190-8.38	-5.340-8.64	-4.170-8.23	-4.940-8.22	-14.080-14.32	-13.440-13.09	-14.510-15.44	-15.510-15.28	-15.830-15.32	-10.870-9.22	-7.880-7.81	-8.120-7.23	-8.120-7.23
(0°/36°)	-5.040-4.28	-4.310-4.22	-4.520-2.89	-3.430-3.47	-4.070-3.51	-6.490-8.07	-7.450-7.35	-4.470-3.61	-7.450-7.35	-3.490-3.55	-6.100-8.49	-6.390-6.59	-6.240-5.84	-5.580-5.75	-5.780-4.23	-7.520-12.95	-10.370-12.95	-10.370-12.95	-10.370-12.95	-10.370-12.95	-10.370-12.95	-10.370-12.95	-10.370-12.95	-10.370-12.95
(0°/38°)	-5.090-4.42	-5.010-4.47	-3.070-2.28	-1.930-2.24	-3.630-5.87	-7.710-8.86	-6.600-4.49	-1.090-1.02	0.130-2.08	-1.050-4.49	-4.920-7.64	-8.810-11.05	-10.490-10.16	-7.360-6.41	-8.800-6.03	-9.930-10.77	-11.760-12.21	-12.750-10.82	-12.820-11.95	-7.260-5.08	-2.160-1.51	-2.630-3.82	-4.120-4.77	-5.360-1.17
(0°/40°)	-7.750-7.43	-5.560-5.16	-3.360-1.57	-1.330-1.72	-2.240-2.21	-3.870-4.86	-3.960-2.25	-2.200-1.24	-0.520-0.92	-0.780-0.47	-2.160-4.91	-7.760-4.26	-7.190-4.56	-5.730-5.84	-4.390-4.66	-5.540-6.87	-7.130-7.96	-7.210-6.15	-7.340-6.23	-2.190-1.35	-1.460-2.65	-3.300-5.06	-4.610-3.48	-4.610-3.48
(0°/42°)	-3.360-1.48	-5.560-6.07	-4.640-2.93	-1.780-1.38	-1.680-7.72	-3.880-4.96	-3.960-2.30	-6.640-0.84	-1.110-2.28	-0.140-2.23	-1.150-3.47	-5.570-7.26	-4.960-4.17	-5.260-3.77	-10.460-10.13	-5.250-3.20	-3.320-4.82	-7.820-8.54	-7.550-6.23	-2.590-1.04	-1.190-3.20	-4.800-4.03	-3.620-7.28	-2.960-3.88
(0°/44°)	-2.280-3.35	-3.740-7.39	-6.070-8.02	-2.590-1.85	-3.260-1.63	-6.460-4.46	-1.980-1.77	-0.710-0.12	0.090-2.25	-0.680-0.42	-2.640-4.03	-3.730-3.21	-3.390-7.72	-12.380-9.95	-3.160-4.33	-4.070-2.96	-6.020-9.22	-5.560-4.20	-2.460-2.89	-2.490-4.97	-5.980-5.17	-5.980-5.17	-5.980-5.17	-5.980-5.17
(0°/46°)	-0.260-0.75	-3.030-5.54	-6.750-6.97	-4.090-4.98	-4.820-0.98	-1.550-1.70	-0.510-0.80	-6.440-0.39	-1.040-1.18	-0.520-1.00	-1.270-3.98	-2.830-3.52	-2.530-1.97	-4.740-4.82	-9.190-9.71	-4.290-3.33	-0.890-1.10	-4.760-6.78	-3.430-3.44	-2.910-4.98	-5.490-5.33	-5.490-5.33	-5.490-5.33	-5.490-5.33
(0°/48°)	-1.360-0.81	-1.520-0.96	-4.820-3.98	-3.860-7.70	-7.550-1.60	-1.730-0.43	-0.450-2.70	-2.700-1.60	-1.110-1.94	-2.200-1.32	-1.560-1.59	-0.070-0.43	-0.610-1.11	-1.630-3.37	-5.590-2.29	-3.290-1.70	-0.460-1.02	-0.890-8.82	-4.440-6.39	-5.570-5.46	-4.770-7.07	-11.160-9.50	-2.960-4.08	-0.990-2.11
(0°/50°)	-2.820-0.29	-0.960-0.31	-4.590-3.93	-3.700-6.44	-1.000-1.00	-2.060-2.00	-0.070-4.74	-3.250-0.92	-1.240-1.66	-2.550-1.10	-1.760-3.36	-0.240-0.20	-1.510-0.62	-0.400-0.40	-3.370-4.73	-1.710-8.82	-4.360-7.37	-4.360-7.37	-4.360-7.37	-4.360-7.37	-4.360-7.37	-4.360-7.37	-4.360-7.37	-4.360-7.37
(0°/52°)	-3.340-0.75	-0.960-3.90	-4.970-2.96	-3.900-7.10	0.8400-0.22	-2.920-4.44	-0.320-4.49	-2.660-0.56	-0.960-0.73	-3.240-3.45	-3.8930-3.27	-0.210-3.99	0.360-0.90	-1.960-1.77	0.440-1.11	0.200-1.75	-2.270-0.78	-4.540-13.94	-9.120-0.88	-4.860-4.45	-3.020-4.40	-14.440-10.14	-1.190-6.33	-3.040-3.67
(0°/54°)	-3.280-3.00	-1.380-1.71	-4.120-3.05	-6.120-2.40	-7.170-2.11	-4.140-4.42	-1.100-3.13	-1.270-5.66	-1.030-3.11	-2.900-2.71	-0.150-3.48	-1.410-4.58	-1.540-3.67	-1.480-3.08	-1.540-3.67	-1.480-3.08	-1.540-3.67	-1.480-3.08	-1.540-3.67	-1.480-3.08	-1.540-3.67	-1.480-3.08	-1.540-3.67	-1.480-3.08
(0°/56°)	-0.420-0.01	-1.600-4.42	-3.820-2.96	-3.860-6.55	-3.860-6.97	-0.690-3.96	-2.940-2.31	-1.530-4.28	-0.980-0.88	0.200-3.30	0.590-0.56	0.540-0.45	-3.800-4.57	-8.820-8.13	-0.650-4.66	-4.160-2.23	-1.480-0.95	-6.170-7.97	-4.110-3.25	-1.970-8.81	-2.100-4.42	-1.880-1.72	-1.460-2.87	-2.370-0.11
(0°/58°)	-1.950-2.15	-2.660-4.38	-3.490-2.52	-2.920-3.64	-2.280-1.62	-0.500-2.72	-2.950-1.44	-4.580-4.82	-1.030-0.87	0.280-1.79	0.700-1.70	-1.930-2.66	-4.580-4.58	-5.050-4.55	-5.050-4.55	-5.050-4.55	-5.050-4.55	-5.050-4.55	-5.050-4.55	-5.050-4.55	-5.050-4.55	-5.050-4.55	-5.050-4.55	-5.050-4.55
(0°/60°)	-3.870-5.63	-7.400-8.67	-4.920-4.48	-6.330-1.05	-6.290-3.41	-2.030-1.26	-0.520-1.45	-3.990-2.35																



Antenna Pattern of 6GHz

Appendix D

(H120°)	4.88177	1.56141	1.55170	1.38027	0.02025	-2.36506	-7.71610	-6.50947	1.388420	-5.359175	-10.76537	-4.85473	-4.96188	-5.23505	-5.641381	0.414381	-13.89481	-7.26455	-5.471123	-2.34017	-3.924397	0.65055	6.411414	-4.250125
(H125°)	0.233077	1.80087	0.684102	0.096451	0.655050	-2.56642	-4.891548	-3.759337	2.833138	-7.550124	-7.626400	-6.005488	-5.220438	-7.699451	-5.320435	-0.07181	-8.471120	-4.700388	-3.989425	-2.844423	-5.891098	1.300248	-8.800154	-4.471171
(H130°)	0.29607	1.16142	-0.114035	-1.331159	-1.231232	-3.34485	-5.544261	-2.091133	-2.059407	-7.151028	-14.244526	-15.161014	-9.586570	-7.621063	-6.76552	-6.052208	-15.421710	-3.501376	-3.433480	-0.341719	-3.792433	0.580597	1.820467	-6.980485
(H135°)	1.1481018	-0.55048	-0.46136	-1.251151	3.454848	-6.74631	-5.51478	-4.21487	-5.171573	-6.331761	-11.751171	-11.951077	-7.094444	-6.228434	-6.920148	-5.591021	-8.81178	-3.491589	-6.428492	-2.646133	-5.684777	2.134366	-4.771849	-3.431489
(H140°)	0.989158	-3.444229	-1.471266	-4.411615	-6.285054	-4.884600	-7.584625	-5.771077	-7.633157	-7.054833	-12.101507	-13.911188	-11.721073	-8.628402	-10.08912	-8.759833	-7.284555	-3.931491	-6.281146	-4.761522	-6.454283	-3.465131	-1.389153	-6.388481
(H145°)	0.930142	-4.986407	-6.244620	-5.266405	-8.031090	-13.401121	-8.304555	-4.984482	-5.288156	-5.737446	-10.411242	-15.481151	-9.511736	-7.591784	-6.717142	-6.451196	-13.851148	-10.701038	-8.884886	-6.151720	-8.961491	-6.989488	-8.621789	-6.761040
(H150°)	0.531499	-4.928453	-4.144461	-6.759402	-4.117124	-9.024876	-10.539474	-11.421132	-10.244866	-6.209435	-9.351066	-10.149412	-7.714655	-6.033455	-6.234243	-11.651346	-12.551029	-11.191265	-14.391345	-9.730735	-6.304643	-6.244422	-6.931772	-7.021638
(H155°)	0.1159528	-5.701573	-6.69739	-7.70489	-10.511381	-15.221505	-14.821534	-15.091494	-15.351516	-15.671335	-13.771288	-11.344848	-8.801752	-6.034595	-6.989479	-6.064821	-7.659786	-8.459473	-10.159483	-8.924863	-8.271686	-5.651541	-6.386454	-5.741558
(H160°)	-1.1531224	-11.671138	-10.246481	-8.89487	-6.90485	-6.281003	-10.481037	-11.311036	-11.871821	-7.521748	-7.621848	-8.164828	-8.284843	-5.904812	-7.641780	-8.054844	-9.174865	-8.354818	-8.471222	-10.071102	-11.031116	-10.48486	-7.354871	-11.681245
FreeEq	6.475929	16.9644	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	0.01790715	0.015190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215
(H165°)	0.161720	-7.77131	-6.92132	-7.770753	-10.340781	-12.021770	-7.904727	-8.659481	-8.370451	-8.689425	-10.701151	-11.631135	-10.469437	-8.403495	-5.571435	-8.334935	-10.531487	-8.320488	-6.831449	-6.650487	-10.221040	-8.639412	-9.954875	-9.251004
(H170°)	0.76761011	-10.021122	-12.081233	-11.311047	-10.340781	-14.764726	-6.509489	-7.459474	-7.227121	-6.252423	-7.76915	-8.248483	-8.84486	-8.348452	-6.848439	-8.871818	-9.148430	-6.761001	-10.081049	-10.561876	-8.330481	-10.638120	-9.147027	-10.681121
(H175°)	-1.844477	-10.111232	-11.211040	-6.654828	-4.916451	-6.645440	-4.204388	-5.584592	-5.471493	-4.024466	-5.717174	-8.028148	-8.859481	-6.761035	-11.681024	-11.041181	-10.921045	-6.430401	-8.730174	-8.136134	-7.371727	-4.471711	-7.341048	-10.71121
(H180°)	0.703484	-8.124233	-8.594795	-7.398458	-5.734680	-6.844742	-5.604481	-4.989484	-4.158448	-5.634754	-5.545453	-5.889716	-6.859492	-8.808416	-6.755450	-5.415457	-6.820422	-1.911130	-12.451011	-7.785485	-4.614426	-4.804574	-6.784771	-7.104647
(H185°)	0.460467	-9.211048	-11.081119	-6.134866	-4.234454	-3.501491	-1.171121	-1.959436	-4.90612	-7.711028	-11.661947	-15.491406	-13.831420	-11.721028	-9.741014	-9.518447	-7.120437	-5.726462	-7.034409	-4.033126	-1.201413	-2.181330	-3.481386	-6.041746
(H190°)	-3.861420	-6.384931	-6.544823	-5.644541	-4.785453	-4.081496	-1.181459	-3.444564	-7.918470	-6.341068	-10.681077	-17.61827	-17.03446	-9.491444	-5.594486	-6.37188	-1.789439	-3.961593	-6.181560	-3.331486	-2.761219	-2.895435	-6.347467	-5.801493
(H195°)	0.441474	-5.61474	-7.794842	-4.944302	-1.601161	-2.801489	-1.041014	-2.550451	-7.364611	-5.61451	-6.814721	-5.271435	-2.661300	-4.234592	-5.023497	-3.001235	-1.480476	-1.021249	-6.024403	-0.920489	-0.801123	-1.970192	-4.144432	-4.384748
(H200°)	-1.591137	-1.844235	-6.78418	-5.853434	-3.584450	-4.591306	-1.270484	-5.964362	-8.681566	-3.261332	-4.654495	-3.841184	-1.201722	-2.771422	-5.43413	-1.176842	1.746033	-3.351181	0.991153	-0.540431	1.921120	2.411258	-3.751283	-10.71121
(H205°)	-1.039450	-0.424506	-1.843483	-4.211355	-3.954458	-4.554432	-2.710460	-1.151728	-7.831351	-1.902448	-5.216451	-3.004492	0.680406	-0.051459	-1.541278	-3.961177	-1.510406	0.501209	-4.421215	0.011412	-0.710435	-1.250422	0.141148	-2.211492
(H210°)	0.391133	0.00216	-1.401310	-3.350466	-3.261285	-4.461482	-2.881151	-0.611357	-7.281357	-2.811831	-0.991847	-3.420770	0.081065	-0.110499	-0.984284	-4.601368	-2.110426	0.991424	-4.771388	0.286424	-0.291165	-0.340453	1.831115	-0.681128
(H215°)	1.047187	2.53129	-0.094350	-3.301447	-0.831116	-3.984611	-1.53126	1.241266	-6.471459	-3.541445	-5.56435	-1.501103	-1.391325	-2.221266	-3.054233	-4.44410	-1.630467	-1.181238	-0.051337	-0.020418	-1.481127	-0.67157	2.441173	-0.581464
(H220°)	1.591726	1.915144	-1.261313	-1.801135	-0.911151	-3.71589	-0.710282	3.110409	-4.161355	-5.004422	-7.261796	-4.030471	-1.901149	-0.889414	-4.741246	-0.611238	-3.021351	-3.764451	-0.581151	1.201411	0.930440	-0.50171	2.661135	-1.621321
(H225°)	0.759310	2.58037	0.475435	-3.391198	-0.737133	-6.604342	-1.672138	2.401632	-4.121242	-7.23426	-7.664401	-4.95124	-0.652131	-6.934486	-10.110467	0.424833	-3.684558	-4.161722	-10.901285	2.050447	2.88144	0.682191	3.58219	1.271148
(H230°)	2.87244	1.680407	1.592433	-2.980409	-1.142433	-1.114432	-0.570701	0.831142	-3.971347	-1.684437	-7.059455	-2.651209	-1.591004	-6.859444	-5.540458	-1.571252	-3.250438	-4.240482	-1.540404	-0.950420	-0.492481	3.421423	0.65041	0.65041
(H235°)	2.070494	1.594032	0.951484	-2.424033	0.191044	-0.494338	-4.28128	0.079176	-4.421446	-8.491514	-13.34126	-3.941291	-4.811338	-1.191155	-2.714497	-3.030473	-5.440435	-4.601325	-4.940478	0.940133	0.320430	0.71119	0.991151	-1.42130
(H240°)	1.370403	0.951418	-2.390423	2.021155	0.030411	-1.539479	-7.640456	-2.420470	3.504494	-6.851401	-10.91456	-3.781353	-4.961740	-7.594607	-8.804456	-3.291799	-0.071473	-6.171499	-9.850494	-3.951213	-0.071235	0.150413	0.641149	-0.43197
(H245°)	0.60135	0.29150	-1.300413	3.230198	-1.030418	-1.744611	-9.72487	-1.300418	-1.369439	-5.63447	-10.84468	-6.91496	-11.680465	-11.157137	-9.530435	-2.050477	-0.264317	-3.371708	-10.330460	-1.290424	-2.891108	1.471155	-0.361138	-1.210413
(H250°)	1.230013	1.20013	0.701172	-3.360443	0.284430	-5.151733	-8.071487	-4.320437	3.864450	-6.190405	-16.120406	-15.594402	-10.440480	-6.759437	-6.133494	-5.301485	-6.759474	-2.454478	-11.11446	-1.753146	-2.001478	-1.09178	1.650404	-1.61132
(H255°)	-1.150437	-3.221236	-3.100417	-2.920435	-3.894566	-10.781305	-6.930477	-2.101456	-2.271236	-3.940408	-7.340440	-15.750434	-6.401330	-4.571700	-10.231120	-4.674686	-8.330487	-7.571447	-0.314481	-4.046473	-2.021173	-3.381324	-3.261330	-1.561321
(H260°)	-6.750420	-4.571400	-2.481251	-3.720431	-4.534460	-7.034480	-7.571488	-6.470484	-4.815428	-6.014466	-10.761052	-13.980487	-6.520458	-8.701038	-9.561066	-12.64940	-8.801522	-3.212427	-6.191499	-4.381428	-6.941347	-2.011344	-0.044426	-11.571121
(H265°)	-7.670488	-6.994488	-8.250486	-8.904824	-8.480402	-8.034398	-10.021009	-10.418429	-8.151797	-6.480468	-11.071283	-14.861137	-5.444448	-6.780109	-6.134005	-7.791470	-12.431056	-8.844587	-7.181425	-6.201273	-7.590480	-8.016441	-6.951518	-5.801672
(H270°)	-5.440475	-6.320484	-6.745091	-6.114133	-15.321440	-14.951170	-10.91096	-11.321038	-15.221284	-11.081276	-15.701344	-12.701105	-5.330419	-4.444451	-6.851477	-10.520489	-6.68458	-10.081098	-10.380405	-8.661790	-7.716498	-6.819426	-7.550427	-5.710448
(H275°)	-5.494478	-5.235433	-6.260462	-7.684475	-10.571269	-14.711524	-15.601544	-15.791444	-13.301122	-9.21459	-8.061736	-8.854475	-7.414011	-6.854477	-8.791382	-8.971023	-12.271228	-10.150408	-8.65182	-7.801611	-6.571761	-6.394463	-6.341641	
(H280°)	-1.3791215	-12.081224	-10.841018	-12.061416	-13.161260	-12.711414	-10.981088	-11.261029	-10.991002	-6.220461	-6.869411	-6.550485	-6.240410	-6.171021	-10.801159	-11.681133	-11.811213	-10.721010	-10.651244	-12.381333	-13.011267	-11.271062	-11.421272	-12.811288
FreeEq	6.855929	16.9644	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	0.01790715	0.015190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215	0.007190215
(H285°)	0.748423	-5.95489	-6.789455	-6.46461	-6.80438	-5.745475	-5.930424	-5.159468	-6.530404	-5.371015	-6.502471	-4.811492	-5.180458	-6.124355	-5.67417	-6.14422	-8.861787	-7.081756	-7.571870	-7.071703	-7.16713	-7.970487	-7.064784	-7.04132
(H290°)	0.485376	-4.88705	-7.7																					

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

