



Antenna Composite Gain Test Report

Equipment	Dipole Antenna
Brand Name	Aristotle
Model Name	56-001-000553Z
Applicant	Zyxel Communications Corporation No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan
Manufacturer	Zyxel Communications Corporation No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan, R.O.C
Standard	KDB 662911 D03 v01
Sample Received	Apr. 11, 2024
Start Test Date	Apr. 18, 2024
Final Test Date	May 02, 2024


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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History of this test report

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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	Aristotle	56-001-000553Z	Dipole	UFL	2.4G+5G
2G5G Ant2	2	Aristotle	56-001-000553Z	Dipole	UFL	2.4G+5G
2G5G Ant3	3	Aristotle	56-001-000553Z	Dipole	UFL	2.4G+5G
2G5G Ant4	4	Aristotle	56-001-000553Z	Dipole	UFL	2.4G+5G
6G Ant1	1	Aristotle	56-001-000553Z	Dipole	UFL	6G
6G Ant2	2	Aristotle	56-001-000553Z	Dipole	UFL	6G
6G Ant3	3	Aristotle	56-001-000553Z	Dipole	UFL	6G
6G Ant4	4	Aristotle	56-001-000553Z	Dipole	UFL	6G

Note:

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

2G5G Ant1, 2G5G Ant2, 2G5G Ant3, 2G5G Ant4 could transmit/receive simultaneously.

6GHz Operation Mode (4TX/4RX)

6G Ant1, 6G Ant2, 6G Ant3, 6G Ant4 could transmit/receive simultaneously.

2. Test Frequency

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

Band [MHz]	Test Frequency [MHz]
2400-2483.5	2450
5150-5250	5200
5250-5350	5300
5470-5725	5600
5725-5850	5785
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	Rofy Chen	23.5~24.5°C / 45~55%	18/Apr/2024~02/May/2024

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

Characteristic: Fully Anechoic Chamber

4. Test Facility and Configuration

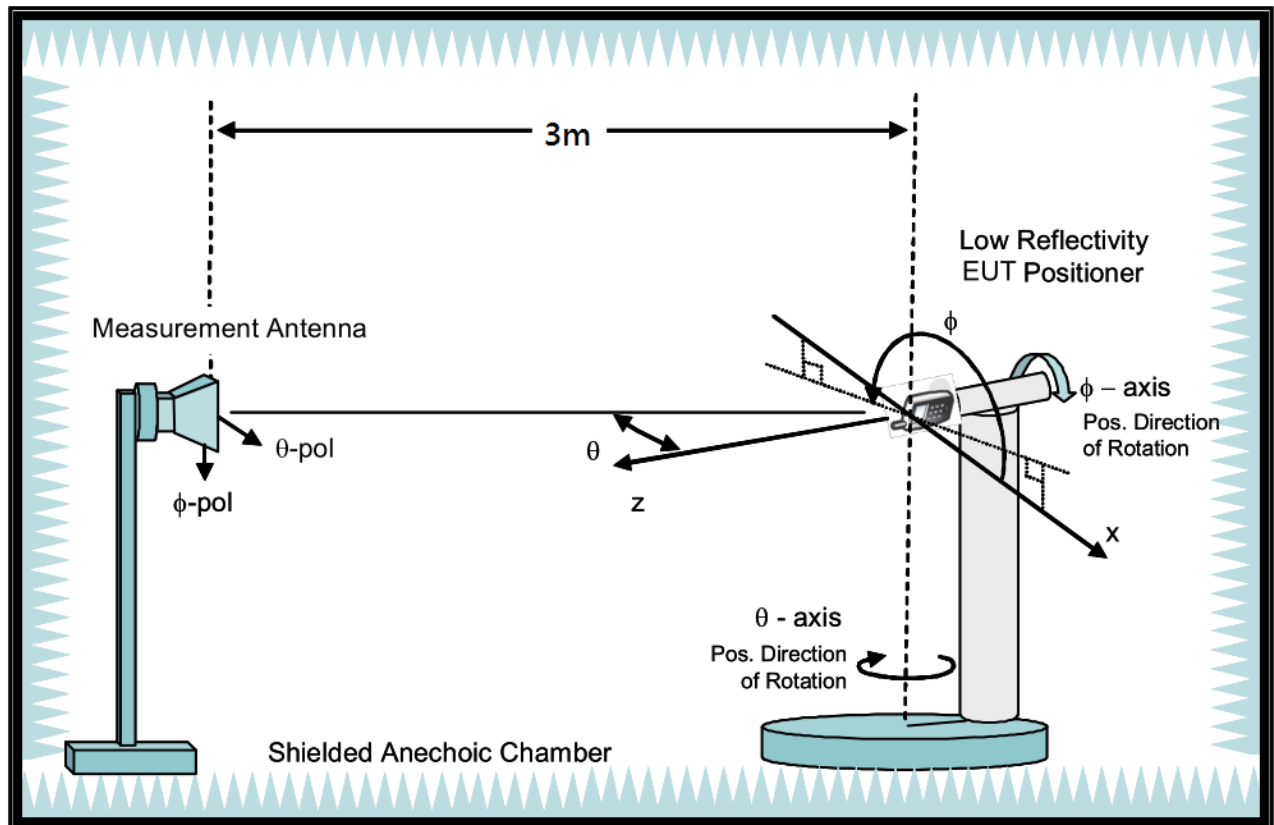
Test configuration: Reference to CITA OTA distributed-axes system configuration.

Chamber: Fully Anechoic Chamber.

Measurement antenna: Dual Polarization Horn antenna

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

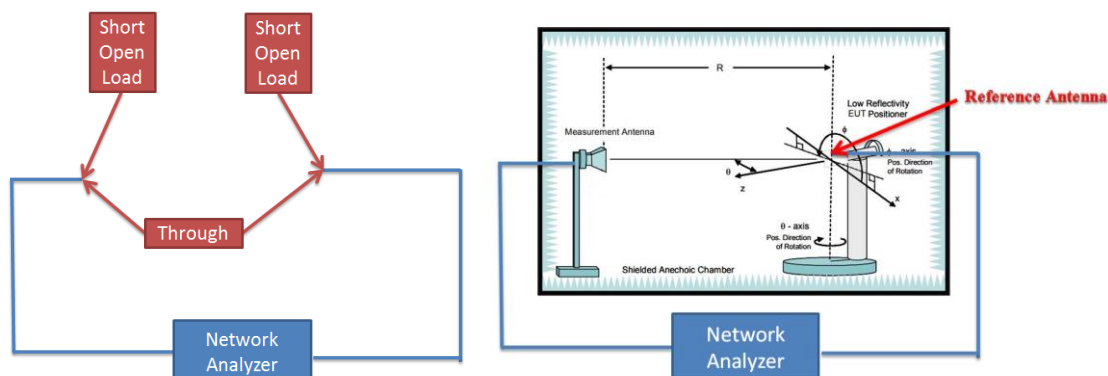
#Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1"



5. Reference Calibration

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

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



Frequency (MHz)	2400	2450	2500	5150	5200	5300	5600	5750	5800	5900	6000	6500	7000	7200
G(theta) reading (dB)	-33.75	-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.

Factor = gain factor + power gain conversion= (Reference antenna gain)-(G reading)



6. Test Method

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

DG steps:

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

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

7. Measured Values and Calculation of Maximum Gain Positions

DG_1SS Max Value Position

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 (dBi)	0.29	-4.15	-5.94	-1.01	-0.09
Ant. 2 (dBi)	2.33	-1	2.36	3.03	-1.78
Ant. 3 (dBi)	2.21	2.81	-1.64	0.53	0.97
Ant. 4 (dBi)	-9.11	-5.75	-2.23	-4.27	0.21
DG [1SS] (dBi)	5.98	4.63	4.66	5.98	5.9
Polarization	Theta	Theta	Phi	Theta	Theta
$\Theta(^{\circ})$	82.5	52.5	127.5	127.5	60
$\Phi(^{\circ})$	30	82.5	285	15	127.5

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

DG_1SS Max Value Position Calculation

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 [$10^{(G/20)}$]	$10^{(0.29/20)}$	$10^{(-4.15/20)}$	$10^{(-5.94/20)}$	$10^{(-1.01/20)}$	$10^{(-0.09/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(2.33/20)}$	$10^{(-1/20)}$	$10^{(2.36/20)}$	$10^{(3.03/20)}$	$10^{(-1.78/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(2.21/20)}$	$10^{(2.81/20)}$	$10^{(-1.64/20)}$	$10^{(0.53/20)}$	$10^{(0.97/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(-9.11/20)}$	$10^{(-5.75/20)}$	$10^{(-2.23/20)}$	$10^{(-4.27/20)}$	$10^{(0.21/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.034	0.62	0.505	0.89	0.99
Ant. 2 [$10^{(G/20)}$] value	1.308	0.891	1.312	1.417	0.815
Ant. 3 [$10^{(G/20)}$] value	1.29	1.382	0.828	1.063	1.118
Ant. 4 [$10^{(G/20)}$] value	0.35	0.516	0.774	0.612	1.024
Sum All Antenna [Amax]	3.982	3.409	3.418	3.982	3.947
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	5.98	4.63	4.66	5.98	5.9

Note:

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

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

DG_1SS Max Value Position

Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 (dBi)	3.17	-1.03	-4.76	-2.82
Ant. 2 (dBi)	2.78	-0.49	-1.47	-5.81
Ant. 3 (dBi)	0.4	3.64	5.12	6.38
Ant. 4 (dBi)	-0.76	1.1	1.96	3.21
DG [1SS] (dBi)	7.57	7.02	7	7.54
Polarization	Theta	Theta	Theta	Theta
$\Theta(^{\circ})$	112.5	135	142.5	142.5
$\Phi(^{\circ})$	7.5	262.5	262.5	270

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

DG_1SS Max Value Position Calculation

Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 [$10^{(G/20)}$]	$10^{(3.17/20)}$	$10^{(-1.03/20)}$	$10^{(-4.76/20)}$	$10^{(-2.82/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(2.78/20)}$	$10^{(-0.49/20)}$	$10^{(-1.47/20)}$	$10^{(-5.81/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(0.4/20)}$	$10^{(3.64/20)}$	$10^{(5.12/20)}$	$10^{(6.38/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(-0.76/20)}$	$10^{(1.1/20)}$	$10^{(1.96/20)}$	$10^{(3.21/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.44	0.888	0.578	0.723
Ant. 2 [$10^{(G/20)}$] value	1.377	0.945	0.844	0.512
Ant. 3 [$10^{(G/20)}$] value	1.047	1.521	1.803	2.084
Ant. 4 [$10^{(G/20)}$] value	0.916	1.135	1.253	1.447
Sum All Antenna [Amax]	4.781	4.489	4.479	4.767
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	7.57	7.02	7	7.54

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

Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.24	3.69	3.42	4.29	3.68
Ant. 2 Max Gain (dBi)	2.33	4.17	3.35	4.86	3.58
Ant. 3 Max Gain (dBi)	2.21	2.87	2.27	4.18	2.91
Ant. 4 Max Gain (dBi)	2.08	4.15	3.46	4.89	4.15
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/97.5/30	Theta/75/180	Theta/75/180	Theta/82.5/202.5	Theta/82.5/180
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/82.5/30	Theta/45/292.5	Theta/75/345	Theta/60/292.5	Theta/127.5/352.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/82.5/30	Theta/60/67.5	Phi/45/60	Theta/120/30	Theta/37.5/112.5
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/37.5/97.5	Phi/30/180	Phi/30/202.5	Phi/37.5/202.5	Phi/37.5/202.5
Max Gain (dBi)	2.33	4.17	3.46	4.89	4.15
DG [1SS] (dBi)	5.98	4.63	4.66	5.98	5.9
DG [2SS] (dBi)	2.98	4.17	3.46	4.89	4.15
DG [4SS] (dBi)	2.33	4.17	3.46	4.89	4.15

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)

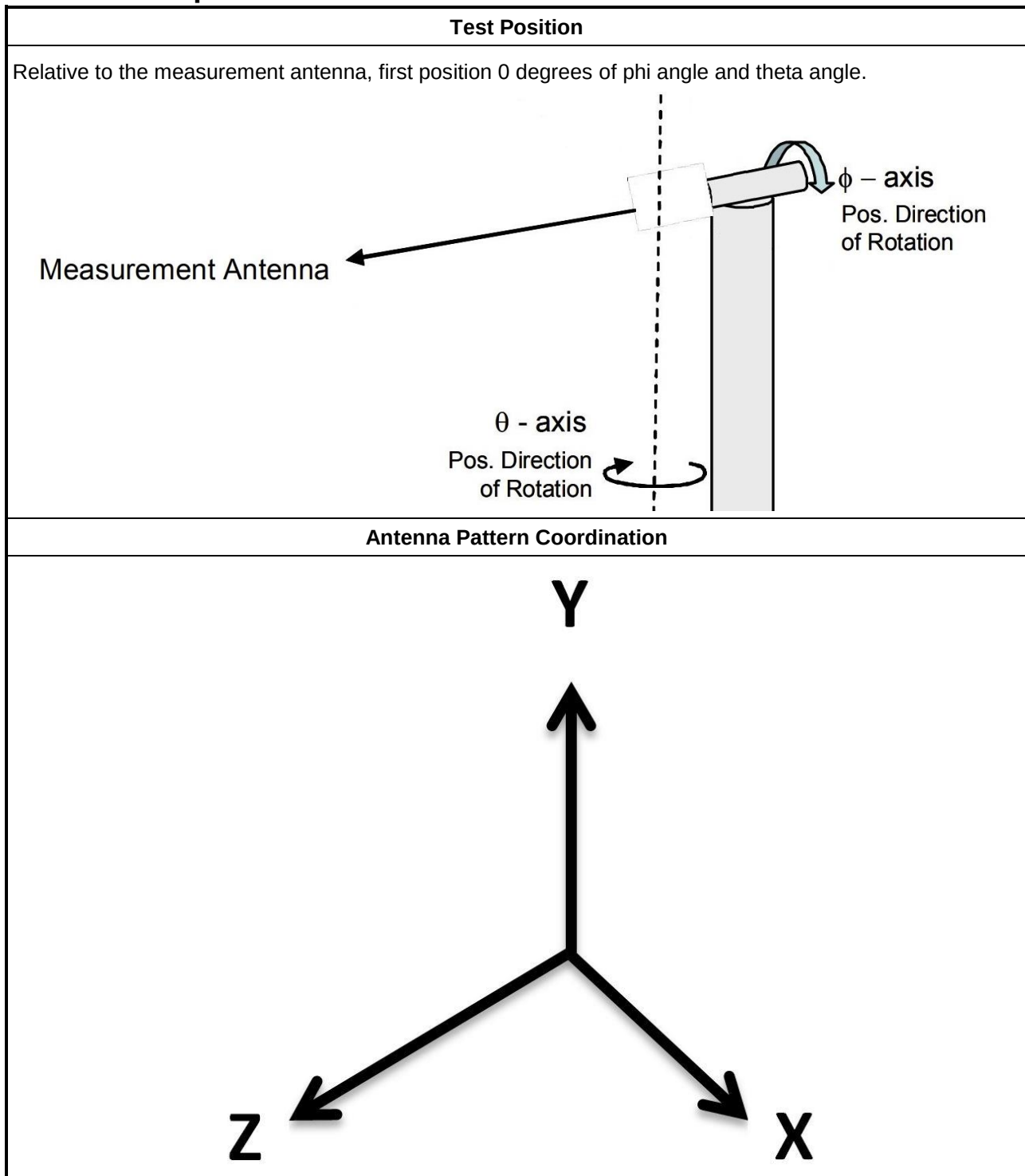


Freq(Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	3.59	4.38	4.36	4.78
Ant. 2 Max Gain (dBi)	4.71	3.49	3.78	3.46
Ant. 3 Max Gain (dBi)	4.05	5.68	5.92	6.38
Ant. 4 Max Gain (dBi)	2.59	2.31	3.01	4.47
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/105/7.5	Theta/60/37.5	Theta/60/45	Theta/67.5/45
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/90/337.5	Theta/52.5/315	Phi/75/187.5	Phi/82.5/165
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/135/52.5	Theta/135/270	Theta/142.5/270	Theta/142.5/270
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/97.5/232.5	Phi/112.5/345	Theta/127.5/262.5	Phi/127.5/337.5
Max Gain (dBi)	4.71	5.68	5.92	6.38
DG [1SS] (dBi)	7.57	7.02	7	7.54
DG [2SS] (dBi)	4.71	5.68	5.92	6.38
DG [4SS] (dBi)	4.71	5.68	5.92	6.38

Note:

- Antenna max gain is the max value of each individual antenna through all measurement angles.
- The max gain is the max value of all antennas.
- 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)
- 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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Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.24	3.69	3.42	4.29	3.68
Ant. 2 Max Gain (dBi)	2.33	4.17	3.35	4.86	3.58
Ant. 3 Max Gain (dBi)	2.21	2.87	2.27	4.18	2.91
Ant. 4 Max Gain (dBi)	2.08	4.15	3.46	4.89	4.15
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/97.5/30	Theta/75/180	Theta/75/180	Theta/82.5/202.5	Theta/82.5/180
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/82.5/30	Theta/45/292.5	Theta/75/345	Theta/60/292.5	Theta/127.5/352.5
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/82.5/30	Theta/60/67.5	Phi/45/60	Theta/120/30	Theta/37.5/112.5
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/37.5/97.5	Phi/30/180	Phi/30/202.5	Phi/37.5/202.5	Phi/37.5/202.5
Max Gain (dBi)	2.33	4.17	3.46	4.89	4.15
DG [1SS] (dBi)	5.98	4.63	4.66	5.98	5.9
DG [2SS] (dBi)	2.98	4.17	3.46	4.89	4.15
DG [4SS] (dBi)	2.33	4.17	3.46	4.89	4.15



Radiated Composite Gain Data of 2.4G,5G

Appendix A

DG 1SS Result

Freq(Hz)	2.45G/Pol.	Phi-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
DG(dB)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-2.4/-2.69	-3.03/-3.42	-3.91/-4.21	-4.18/-4.15	-4.15/-4.12	-4.06/-4.08	-3.93/-3.53	-3.18/-2.98	-2.91/-3.09	-3.39/-3.73	-4.13/-4.57	-5.01/-5.3	-5.32/-5.04	-4.62/-4.25	-3.95/-3.73	-3.53/-3.39	-3.28/-3.36	-3.26/-2.89	-2.84/-2.39	-2.1/-1.97	-1.92/-1.88	-1.84/-1.88	-1.98/-2.1	-2.12/-3.19
Θ(7.5°)	-2.75/-2.84	-2.99/-3.19	-3.51/-3.74	-3.73/-3.79	-3.96/-4.05	-4.03/-3.83	-3.71/-3.33	-3.18/-2.97	-2.92/-3.16	-3.45/-3.74	-4.08/-4.44	-4.81/-5.1	-5.23/-5.16	-4.99/-4.8	-4.71/-4.62	-4.82/-4.17	-4.81/-4.76	-4.82/-4.17	-3.3/-2.72	-2.3/-2.03	-1.83/-1.84	-1.87/-1.81	-2.21/-2.43	-2.54/-2.57
Θ(15°)	-3.32/-3.17	-3.1/-3.11	-3.23/-3.34	-3.31/-3.36	-3.44/-3.29	-2.89/-2.43	-1.96/-1.58	-1.4/-1.42	-1.72/-2.25	-2.85/-3.35	-3.68/-3.93	-4.16/-4.37	-4.61/-4.64	-4.51/-4.75	-5.25/-5.62	-6.13/-6.96	-7.83/-8.77	-8.43/-6.89	-5.48/-4.34	-3.48/-2.83	-2.38/-2.18	-2.15/-2.33	-2.68/-3.05	-3.31/-3.42
Θ(22.5°)	-3.97/-3.75	-3.68/-3.45	-3.23/-2.92	-2.42/-2.15	-2.01/-1.79	-1.47/-1.09	-0.69/-0.34	-0.23/-0.21	-0.49/-0.95	-1.63/-2.31	-2.88/-3.21	-3.38/-3.49	-3.63/-3.83	-3.98/-4.12	-5.46/-6.2	-7.12/-8	-7.78/-6.8	-5.52/-4.1	-2.99/-2.19	-1.73/-1.55	-1.67/-2.02	-2.52/-3.09	-3.51/-4.02	
Θ(30°)	-4.53/-3.86	-2.96/-2.02	-1.37/-0.85	-0.35/0.01	0.24/0.42	0.59/0.55	0.31/0.28	0.21/0.01	-0.38/-0.85	-1.32/-1.67	-1.88/-2.05	-2.25/-2.45	-2.62/-2.79	-3.03/-3.46	-4.06/-4.67	-5.28/-5.83	-5.34/-4.37	-3.41/-2.43	-1.52/-0.83	-0.58/-1.19	-2.18/-3.31	-4.14/-4.78		
Θ(37.5°)	-4.37/-2.4	-0.74/-0.26	0.77/1.08	1.49/1.81	2.01/2.14	2.07/1.77	1.24/0.92	0.12/-0.1	-0.07/0.03	0.06/-0.01	-0.19/-0.45	-0.75/-1.2	-1.69/-2.2	-2.62/-3	-3.69/-4.78	-6.1/-7.17	-7.44/-7.06	-5.75/-4.17	-2.78/-1.61	-0.87/-0.47	-0.28/-0.3	-0.64/-1.42	-2.74/-4.23	-5.1/-5.41
Θ(45°)	-1.97/0.07	1.55/2.25	2.35/2.23	2.25/2.34	2.36/2.35	2.21/1.91	1.4/0.84	0.36/0.05	-0.59/-0.78	-0.84/-0.39	-0.11/-0.1	-0.46/-1.21	-2.23/-3.2	-3.46/-3.31	-3.68/-4.83	-6.13/-7.34	-6.52/-5.26	-3.83/-2.35	-0.89/-0.29	0.91/0.85	0.56/-0.21	-0.81/-1.54	-2.59/-3.82	-4.53/-3.65
Θ(52.5°)	-2.25/-0.32	1.08/1.62	1.45/0.95	0.75/0.79	0.73/0.58	0.35/0.15	-0.08/-0.3	-0.48/-0.68	-1.1/-1.47	-1.94/-2.15	-1.73/-1.21	-1.24/-1.95	-3.01/-3.66	-3.27/-2.73	-2.66/-3.26	-4.2/-4.77	-4.13/-3.52	-2.87/-1.92	-0.73/0.18	0.54/0.34	-0.24/-0.8	-1.06/-1.22	-1.44/-2.13	-3.2/-3.34
Θ(60°)	-5.72/-3.86	-2.31/-1.82	-2.22/-2.43	-2.22/-2.01	-2.23/-2.85	-3.51/-3.75	-3.85/-3.76	-3.27/-2.82	-2.59/-2.68	-2.88/-3.25	-3.73/-3.43	-3.3/-3.17	-3.73/-4.26	-4.15/-3.25	-2.53/-2.69	-3.5/-4.6	-5.57/-6.16	-6/-5.24	-4.38/-3.69	-3.7/-3.49	-2.77/-2.16	-2.11/-2.34	-2.4/-2.72	-4.12/-5.81
Θ(67.5°)	-2.8/-1.37	-0.58/-0.48	-0.83/-0.84	-0.67/-0.67	-0.82/-1.28	-2.01/-2.95	-3.87/-4.32	-4.18/-3.76	-3.42/-3.18	-2.77/-4.44	-2.39/-2.57	-2.63/-2.91	-3.8/-5.03	-4.46/-2.85	-1.96/-2.06	-2.86/-3.99	-4.94/-3.59	-5.08/-4.32	-3.93/-4.12	-4.08/-3.27	-2.2/-1.55	-1.36/-1.62	-2.74/-3.87	-4.64/-4.37
Θ(75°)	-3.09/-2.15	-1.32/-0.93	-1.06/-0.52	-0.26/-0.46	-0.5/-0.68	-1.26/-2.2	-3.34/-2.1	-4.61/-4.63	-4.48/-4.28	-3.89/-3.31	-2.86/-2.19	-1.9/-1.82	-2.41/-3.24	-2.58/-2.51	-2.88/-3.3	-3.45/-4.22	-5.36/-5.65	-5.37/-4.73	-4.21/-3.83	-3.05/-2.26	-2.02/-2.33	-2.8/-3.16	-3.11/-3.42	-3.91/-3.84
Θ(82.5°)	-3.84/-2.23	-0.35/-0.76	1.14/1.48	1.26/0.24	0.68/-1.3	-1.87/-2.73	-3.82/-4.72	-5.32/-5.36	-5.43/-5.27	-5.52/-6.69	-7.35/-5.43	-4.84/-3.67	-4.9/-4.3	-3.09/-2.69	-2.6/-2.38	-2.74/-3.55	-4.72/-5.69	-5.63/-4.41	-2.86/-1.35	-0.0/-77	0.78/-0.04	-1.35/-2.68	-3.4/-3.86	-4.73/-4.96
Θ(90°)	-2.27/-1.8	-0.25/0.98	1.43/1.8	2.09/1.6	0.66/-0.32	-1.64/-3.24	-3.96/-3.77	-3.53/-4.2	-3.35/-3	-3.05/-3.62	-4.88/-4.88	-3.21/-3.64	-5.6/-6.57	-5.31/-4.01	-2.71/-2.07	-2.52/-3.48	-4.23/-4.76	-5.24/-4.95	-3.59/-1.94	-0.56/0.17	0.31/-0.07	-0.63/-0.99	-0.87/-0.61	-1.06/-2.06
Θ(97.5°)	-0.17/-0.78	-2.16/-2.15	-1.71/-0.96	0.56/1.19	1.02/0.54	-0.46/-2.32	-4.15/-4.82	-4.32/-3.28	-2.58/-2.29	-2.65/-3.21	-3.93/-3.87	-2.8/-2.84	-4.23/-6.53	-6.22/-3.46	-1.77/-1.42	-1.78/-2.18	-2.46/-2.79	-3.18/-3.04	-2.62/-1.8	-1.07/-0.54	-0.02/0.45	0.58/0.2	-0.16/0.69	0.75/0.05
Θ(105°)	0.7/0.53	-0.8/-3.03	-4.48/-4.35	-2.43/-0.56	-0.18/-0.14	-0.37/-1.22	-2.46/-3.07	-2.9/-2.53	-2.08/-2.01	-2.32/-2.52	-3.3/-3.56	-3.22/-1.52	-1.32/-3.24	-4.82/-4.4	-3.25/-2.31	-1.6/-1.28	-1.69/-2.52	-2.68/-2.38	-2.15/-2.14	-2.31/-2.25	-1.46/-0.65	-0.31/-0.47	0.12/-1.1	1.15/0.72
Θ(112.5°)	-1.63/-1.23	-1.87/-3.91	-6.61/-6.16	-2.61/-0.59	-0.16/-0.23	-0.39/-0.93	-1.81/-2.3	-2.23/-2.06	-1.89/-1.88	-2.37/-3.37	-4.91/-6.39	-3.98/-1.5	-1.24/-2.79	-4.97/-5.57	-4.12/-1.93	-0.50/-0.32	-1/-1.2	-3.65/-5.56	-6.6/-6.29	-4.29/-2.4	-1.03/-0.13	0.28/0.41	0.44/0.38	-0.08/-0.99
Θ(120°)	-4/-2.65	-2.67/-3.61	-4.47/-0.45	-1.43/0.08	0.2/-0.41	-0.93/-1.21	-1.44/-1.53	-1.48/-1.42	-1.32/-1.32	-1.94/-3.09	-4.65/-4.68	-4.19/-1.9	-1.64/-2.35	-3.01/-3.1	-3.26/-3.3	-2.54/-2.22	-2.92/-4.74	-7.04/-7.1	-4.36/-2.05	-0.67/0.04	0.62/0.95	0.62/-0.85	-2.76/-4.64	-6.82/-5.93
Θ(127.5°)	-1.06/0.33	0.36/0.85	-2.74/-3.16	-1.77/-0.75	-0.29/-2.31	-3.71/-4.3	-4.05/-3.96	-3.41/-2.37	-1.35/-1.04	-1.78/-2.52	-5.28/-6.74	-4.71/-2.46	-1.16/-0.24	0.94/1.51	1.34/0.72	0.01/-0.84	-2.36/-4.6	-7.04/-7.76	-5.36/-3.52	-2.95/-2.45	-1.37/-0.4	0.31/-1.27	-2.76/-4.26	-4.58/-2.81
Θ(135°)	-2.06/-0.42	-0.11/-1.2	-3.36/-5.04	-3.35/-1.94	-1.18/-1.62	-2.84/-4.19	-5.05/-4.86	-3.62/-2.13	-1.02/-0.58	-0.36/-0.47	-1.8/-4.1	-5.22/-4.39	-3.14/-1.55	-0.43/0.11	-0.02/-0.75	-1.89/-3.4	-5.35/-6.98	-6.48/-5.42	-4.04/-2.95	-2.18/-1.28	-0.35/0.67	1.02/0.14	-2.39/-5.43	-5.95/-4.31
Θ(142.5°)	-2.4/-1.08	-0.35/-0.49	-1.41/-2.75	-3.21/-2.38	-1.72/-1.64	-2.29/-3.46	-4.89/-5.4	-4.98/-4.16	-3.03/-2.02	-1.41/-1.67	-2.97/-4.95	-6.8/-6.43	-5.45/-3.76	-2.92/-2.97	-3.63/-4.49	-5.54/-6.95	-8.53/-8.8	-7.99/-6.01	-4.19/-2.68	-1.59/-0.84	-0.22/0.37	0.38/-0.71	-3.02/-5.28	-5.34/-3.82
Θ(150°)	-3.85/-2.72	-1.96/-1.78	-2.74/-3.19	-3.81/-4.31	-4.51/-4.62	-5.01/-5.65	-6.12/-5.68	-4.48/-3.25	-2.18/-1.5	-1.45/-2.09	-2.63/-3.12	-3.43/-3.46	-2.15/-2.12	-2.38/-2.96	-4.11/-6.02	-8.42/-9.41	-5.4/-3.5	-2.52/-1.96	-1.76/-1.67	-1.96/-3.1	-5.04/-7.04	-4.58/-5.31		
Θ(157.5°)	-7.41/-6.31	-5.47/-5.02	-5.13/-5.8	-6.29/-6.27	-6.04/-5.85	-5.46/-5.08	-4.57/-3.89	-3.1/-2.47	-1.92/-1.69	-1.9/-2.21	-2.51/-2.53	-2.55/-2.41	-2.13/-1.87	-1.8/-1.97	-2.53/-3.5	-5.29/-7.93	-9.5/-9.11	-7.7/-6.84	-5.37/-4.31	-3.96/-3.99	-4.18/-4.56	-5.26/-6.6	-8.89/-11.05	-10.66/-9.08
Θ(165°)	-7.32/-6.23	-5.48/-5.15	-5.27/-5.88	-6.38/-6.55	-6.02/-5.36	-4.87/-4.46	-4.16/-4.06	-4.15/-4.18	-4.12/-4.05	-4.04/-4.05	-4.07/-3.9	-4.01/-3.82	-3.68/-3.67	-3.84/-4.24	-5.09/-6.5	-8.96/-9.77	-9.98/-9.49	-8.24/-7.29	-6.3/-5.61	-5.29/-5.36	-5.84/-6.67	-7.67/-8.87	-10.36/-11.63	-10.53/-9.13
Θ(172.5°)	-7.21/-6.01	-5.36/-5.13	-5.22/-5.39	-5.8/-6.1	-4.63/-6.1	-4.37/-5.27	-4.92/-5.05	-5.45/-5.97	-6.37/-6.57	-6.47/-6.3	-6.28/-6.37	-6.94/-7.47	-8.3/-9.49	-10.68/-11.26	-12.64/-12.71	-11.71/-11.06	-9.44/-9.16	-6.93/-6.2	-5.78/-5.94	-6.7/-8.1	-8.62/-9.13	-9.89/-10	-9.33/-8.16	
Θ(180°)	-7.47/-7.11	-6.83/-6.77	-6.76/-6.72	-6.68/-6.55	-6.31/-5.93	-5.37/-5.13	-4.89/-4.69	-4.99/-5.4	-5.72/-6.11	-6.46/-6.97	-7.61/-8.32	-9.26/-10.8	-12.49/-12.88	-13.95/-12.98	-14.3/-13.22	-12.25/-11.3	-9.8/-8.79	-7.75/-7.36	-7.06/-6.72	-6.4/-6.59	-7.01/-7.49	-7.88/-8.36	-8.77/-8.82	-8.63/-8.4
Freq(Hz)	2.45G/Pol.	Theta-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
DG(dB)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-7.68/-7.7	-7.39/-6.87	-6.38/-6	-5.87/-6.05	-6.2/-6.4	-6.64/-6.88	-7.19/-7.55	-7.76/-7.92	-7.86/-7.57	-7.3/-7.03	-6.91/-6.84	-6.83/-6.93	-7.04/-7.07	-6.93/-6.73	-6.52/-6.33	-6.11/-5.92	-5.87/-5.9	-6.14/-6.44	-6.71/-6.83	-6.82/-6.75	-6.67/-6.54	-6.38/-6.33	-6.43/-6.71	-7.14/-7.59
Θ(7.5°)	-6.93/-6.73	-6.36/-6.27	-5.79/-5.43	-5.2/-5.23	-5.35/-5.53	-5.75/-6.02	-6.65/-7.46	-7.89/-8.13	-8.24/-8.28	-8.07/-8	-8.04/-8.19	-8.47/-8.77	-8.82/-8.45	-7.87/-7.31	-6.8/-6.42	-6.11/-5.99	-6.13/-6.42	-6.85/-7.08	-7.48/-7.54	-7.24/-7.2	-6.99/-6.75	-6.48/-6.32	-6.33/-6.42	-6.63/-6.86
Θ(15°)	-5.51/-5.38	-4.95/-4.55	-4.2/-3.83	-3.53/-4.31	-3.56/-3.82	-4.01/-4.18	-4.56/-5.06	-5.49/-5.8	-6.13/-6.41	-6.71/-7.08	-7.58/-8.21	-8.99/-9.74	-9.64/-8.74	-7.45/-6.74	-6.02/-5.45	-5.15/-4.93	-4.93/-5.02	-5.29/-5.52	-5.93/-6.1	-6.26/-6.29	-6.59/-6.78	-6.69/-6.74	-6.73/-6.47	-6.26/-5.96
Θ(22.5°)	-3.98/-4.37	-3.05/-2.74	-2.36/-1.92	-1.52/-1.37	-1.57/-1.95	-2.29/-2.62	-2.33/-3.39	-3.53/-3.89	-4.48/-5.29	-6.47/-7.1	-9.0/-9.22	-8.57/-9.09	-5.84/-8.1	-3.94/-3.49	-2.71/-2.89	-2.71/-2.64	-2.97/-2.89	-3.15/-3.45	-3.83/-4.39	-6.57/-8.22	-6.42/-6.7	-6.36/-5.6	-4.88/-4.4	
Θ(30°)	-2/-1.78	-1.66/-1.41	-0.91/-0.3	0.15/0.29	0.06/-0.37	-0.81/-1.28	-1.74/-1.86	-1.63/-1.36	-1.22/-1.38	-1.87/-2.75	-7.38/-8.32	-7.42/-5.82	-4.47/-3.47	-2.64/-1.95	-1.39/-1.1	-0.96/-0.72	-0.67/-0.78	-1.06/-1.55	-2.17/-2.95	-3.92/-5.15	-6.61/-6.75	-5.84/-4.65	-3.52/-2.65	
Θ(37.5°)	-0.71/-0.65	-0.78/-0.63	-0.09/0.51	0.86/0.88	0.63/0.27	-0.07/-0.43	-0.63/-0.58	-0.28/0.07	0.31/0.23	-0.28/-1.21	-2.64/-4.53	-6.22/-6.87	-6.39/-5.46	-4.57/-3.62	-2.84/-2.15	-1.53/-1.1	-0.79/-0.64	-0.46/-0.44	-0.62/-1.04	-1.67/-2.58	-3.8/-5.34	-6.81/-6.71	-5.12/-3.28	-1.99/-1.15
Θ(45°)	0.25/0.22	-0.03/-0.02	0.52/1.16	1.51/1.52	1.29/0.99	0.75/0.53	0.33/0.21	0.21/0.31	0.60/0.61	0.25/-0.6	-1.9/-3.39	-4.3/-4.41	-0.07/-3.64	-3.51/-3.72	-3.71/3.73	-3.52/-3.11	-2.62/-2.22	-1.91/-1.58	-1.35/-1.47	-1.73/-2.28	-3.16/-4.4	-5.55/-5.59		



Radiated Composite Gain Data of 2.4G,5G

Appendix A

Θ(15°)	1.35/1.67	2.05/2.2	2.36/2.13	2.19/2.35	2.55/2.83	2.8/2.4	2.6/2.2	1.71/1.02	0.44/0.25	0.21/0.12	0.19/0.54	0.73/1.09	0.94/0.33	-0.65/-1.63	-2.37/-2.83	-2.56/-2.25	-2.13/-2.43	-3.17/-3.66	-2.93/-1.68	-0.71/-0.35	0.11/0.55	0.76/0.65	0.29/-0.08	-0.42/0.38
Θ(22.5°)	1.17/1.86	2.7/3.1	2.93/2.76	2.77/2.41	2.08/1.72	1.36/0.91	0.15/-0.78	-1.22/-1.22	-0.81/-0.31	0.16/0.47	0.58/0.57	1.13/1.65	1.78/1.47	1.01/0.86	0.93/1.01	0.7/-0.06	-1.28/-2.4	-3.33/-4.34	-5.12/-4.56	-4.32/-3.91	-2.18/-0.53	0.41/0.69	0.1/-0.44	-1.01/0.27
Θ(30°)	-0.97/0.72	1.51/0.7	0.33/0.33	0.27/0.06	0.08/-0.68	-1.06/-1.3	-2.25/-2.67	-2.91/-2.5	-2.01/-1.7	-1.35/-0.51	0.41/0.92	1.24/1.88	2.29/2.16	2.19/2.67	2.78/1.89	0.69/0.13	-0.23/-0.65	-1.24/-1.43	-1.56/-2.45	-3.22/-6.69	-0.74/0.3	0.19/-0.41	-1.53/-2.33	
Θ(37.5°)	0.61/96	1.84/0.64	-0.46/-0.89	-0.36/0.87	1.28/0.7	0.14/-0.2	-0.55/-1.07	-1.79/-1.9	-0.84/0	-0.03/-0.4	0.02/0.6	1.21/1.91	2.27/2.32	2.32/2.61	3.05/2.76	1.94/0.61	-1.33/-2.1	-1.59/-0.57	-0.06/-0.71	-2.19/-2.58	-2.34/-2.64	-2.53/-1.53	-0.29/-0.21	-0.91/-0.26
Θ(45°)	1.03/1.66	1.13/-1.28	-2.34/-1.21	1.22/2.83	3.1/2.41	1.6/0.87	0.64/0.8	0.37/-0.54	-1.46/-1.2	-0.85/-0.57	0.51/1.13	1.13/1.37	2.18/2.87	3.12/3.6	3.7/2.73	1.18/-0.59	-1.69/-3.54	-5.33/-5.75	-5.94/-4.83	-3.25/-3.39	-3.19/-2.04	-2.37/-2.79	-1.83/0.23	0.54/0.73
Θ(52.5°)	0.96/2.32	0.46/-2.81	-3.52/-1.17	0.91/42	0.93/0.53	0.44/-0.24	-1.37/-1.64	-1.1/-0.4	0.32/1.15	1.4/0.56	-0.86/-0.8	0.91/83	1.88/2.42	2.33/-1.57	0.52/-1.09	-1/-0.27	-0.65/-2.02	-1.31/-2.02	-3.42/-2.69	-3.72/-3.09	-2.72/-5.06	-2.61/-0.46	-0.92/-0.96	
Θ(60°)	2.68/3.01	0.7/-3.47	-1.84/-0.25	0.36/0.57	0.61/0	-1.6/-3.27	-3.87/-3.24	-1.63/-1.34	-1.67/-1.42	-0.62/-0.47	-1.41/-1.52	-0.66/-0.87	-0.5/0.2	-0.03/-0.28	0.4/0.87	-0.76/-1.74	-0.85/-0.14	0.21/-0.23	-0.94/-2.02	-2.24/-2.72	-4.49/-4.63	-2.86/-1.98	-1.85/-1.63	-1.97/0.62
Θ(67.5°)	0.82/1.39	-0.67/-2.65	-2.28/-2.61	-1.81/-0.46	-0.46/-1.64	-2.46/-3	-2.96/-2.31	-1.91/-1.69	-2.21/-2.67	-2.11/-2.05	-3.63/-5.93	-4.43/-3.51	-2.04/-0.63	-1.19/-0.49	0.29/-0.51	-1.51/-1.4	-1.21/-0.49	-0.85/-1.27	-1.04/-1.28	-1.94/-2.68	-4.31/-4.2	-4.47/-5.22	-3.97/-2	-2.49/-2.2
Θ(75°)	-1.47/-0.99	-2.94/-3.48	-2.57/-3.33	-4.27/-2.86	-2.56/-1.58	-0.79/-0.66	-1.19/-1.79	-2.14/-2.52	-3.26/-4.1	-5.56/-5.47	-5.42/-6.79	-5.08/-4.12	-5.16/-3.62	-3.24/-1.54	-0.58/0.81	0.55/-1.34	-1.43/-1.28	-2.08/-2.05	-1.88/-2.65	-2.4/-2.95	-4.35/-5.53	-4.05/-2.53	-1.79/-1.5	-2.94/-3.11
Θ(82.5°)	-5.85/-4.49	-4.85/-5.5	-3.68/-5.1	-4.71/-1.77	-0.62/-0.16	-0.51/-1.1	-3/-4.79	-5.34/-4.15	-4.47/-5.83	-7.76/-6.57	-4.96/-5.94	-4.18/-2.19	-4.14/-3.78	-0.54/-0.58	-0.01/0.58	-0.41/-0.83	-0.67/0.48	-0.03/-2.99	-3.47/-1.73	-0.82/-1.08	-2.15/-3.06	-4.2/-3.13	-3.21/-5.53	-5.07/-5.15
Θ(90°)	-5.93/-4.87	-3.04/-1.02	-1.49/-3.82	-3.92/-1.33	0.72/1.22	0.96/-0.64	-2.63/-4.73	-4.65/-4.98	-3.84/-3.96	-6.98/-7.86	-3.69/-4.14	-4.67/-3.12	-4.28/-2.66	-0.54/-0.02	0.8/0.7	-0.59/-3.32	-1.76/-0.61	-1.7/-2.66	-4.17/-2.92	-1.26/-1.36	-3.52/-3.46	-5.67/-6.28	-5.98/-6.12	
Θ(97.5°)	4.63/-3.41	-2.54/-1.62	-1.57/-0.91	-2.72/-1.69	0.85/2.14	0.89/-1.55	-3.14/-3.85	-4.62/-4.83	-3.28/-4.71	-7.33/-8.1	-5.16/-3.79	-4.76/-3.34	-5.44/49	0.99/0.16	-0.4/-0.16	-1.95/-3.15	-1.4/-1.79	-3.25/-4.19	-4.58/-5.13	-3.98/-3.42	-2.34/-2.94	-2.63/-2.88	-5.51/-8.64	-7.71/-6.56
Θ(105°)	-3.98/-3.72	-1.44/-0.81	-2.29/-0.25	-1.82/-5.42	-2.72/-1.19	-1.8/-2.96	-3.21/-2.99	-3.2/-4.73	-5.28/-4.28	-4.03/-4.57	-6.43/-5.1	-5.76/-3.27	-2.96/-2.88	0.87/0.07	-1.83/-1.21	-2.59/-5.46	-6.26/-4.66	-7.31/-8	-8.72/-5.48	-1.97/-1.29	0.12/1.31	2.32/0.7	-2.24/-6.6	-4.95/-7.44
Θ(112.5°)	-3.71/-5.96	-1.9/-1.55	-1.57/0.84	-0.67/-2.33	0.22/1.22	-0.68/-0.25	-3.68/-2.48	-3.84/-3.96	-3.56/-5.25	-5.19/-4.1	-4.78/-3.13	-3.88/-3.02	0.82/-0.22	-4.56/-4.39	-4.22/-6.99	-5.67/-7.2	-8.27/-2.8	-4.87/-2.02	0.8/-0.07	0.82/2.1	2.43/2.88	-0.84/-4.74	-3.28/-5.67	
Θ(120°)	-0.62/-4.29	-5.97/-2.73	-4.26/-3.63	-1.72/-1.62	0.47/0.71	-0.74/-2.65	-2.78/-2.12	-2.55/-3.81	-3.99/-2.17	-2.22/-4.05	-4.56/-4.46	-5.77/-5	-4.24/-4.51	0.55/-1.46	-1.77/-5.65	-6.32/-1.69	-3.32/-0.95	-3.31/-0.18	-0.15/1.97	3.42/1.27	1.90/7.3	0.82/0.53	0.01/-2.27	-2.43/-1.77
Θ(127.5°)	-0.63/-3.46	-3.73/-0.63	-2.51/-6.49	-7.67/-2.34	0.01/1.21	0.69/-1.42	-2.68/-2.33	-1.6/-2.25	-2.36/-2.23	-3.26/-6	-3.99/-3.1	-5.31/-3.58	-3.54/-3.97	-0.38/-1.54	-4.09/-8.39	-4.78/-4.19	-4.95/-5.11	-0.92/1.94	1.27/3.36	4.66/2.01	0.97/-1.01	-0.48/0.08	1.19/-1.54	-3.78/-3.64
Θ(135°)	-3.71/-5.76	-3.88/-1.5	-3.83/-11.51	-8.38/-3.46	-1.22/-0.32	0.13/-0.55	-2.31/-3.68	-5.09/-4.48	-2.74/-2.28	-4.22/-3.46	-3.22/-4.22	-5.36/-5.08	-4.21/-5.37	-3.74/-2.04	-1.02/-3.58	4.3/-1.97	-4.38/-6.38	-2.84/-1.48	-2.07/-0.68	0.1/0.94	-0.3/-1.42	-1.17/-1.75	-0.98/-4.49	-6.22/-5.01
Θ(142.5°)	-3.96/-5.54	-6.87/-5.92	-7.56/-10.77	-6.87/-3.63	-2.5/-2.19	-2.25/-3.62	-3.94/-2.72	-1.81/-2.6	-5.04/-6.31	-6.03/-5.66	-6.27/-3.76	-2.33/-4.15	-7.09/-4.99	-4.4/-2.73	-2.22/-4.25	-8.61/-6.9	-3.23/-2.26	-2.23/-2.99	-2.41/-1.07	0.64/0.53	0.66/-1.35	-5.78/-6.6	-5.96/-5.14	
Θ(150°)	-2.08/-2.86	-4.24/-5.54	-5.42/-4.24	-3.26/-3.57	-4.19/-4.02	-3.88/-4.45	-5.59/-5.97	-4.63/-4.32	-5.28/-5.04	-3.56/-3.12	-3.87/-6.29	-7.3/-6.97	-7.73/-5.69	-3.83/-2.24	-2.27/-3.45	-5.3/-2.82	-1.07/-1.45	-3.26/-5.07	-3.91/-3.68	-4/-3.42	-3.64/-5	-5.4/-5.57	-3.55/-2.06	-1.64/-1.57
Θ(157.5°)	-3.17/-6.56	-8.17/-5.81	-3.02/-1.33	-0.64/-0.47	-0.61/-0.93	-1.71/-3.22	-4.64/-5.53	-5.73/-5.51	-3.83/-2.12	-1.34/-1.99	-3.21/-4.57	-5.28/-6.02	-8.2/-8.71	-7.6/-7.66	-8.7/-7.27	-4.91/-2.65	-2.12/-3.43	-5.92/-7.51	-7.18/-6.55	-5.46/-5.01	-4.95/-4.8	-4.52/-3.35	-0.91/0.02	0.02/-0.76
Θ(165°)	-4.82/-7.12	-7.58/-6.44	-4.9/-3.23	-1.99/-1.45	-1.33/-1.12	-0.74/-0.62	-1.08/-1.64	-1.81/-1.97	-2.18/-2.49	-3.48/-4.69	-5.02/-4.63	-3.91/-4.38	-3.52/-3.7	-4.81/-6.81	-8.7/-9.27	-8.28/-7.37	-6.18/-5.61	-6.23/-6.94	-7.48/-8.16	-8.2/-8.03	-7.04/-6.33	-6.19/-4.94	-3.77/-2.53	-2.42/-3.06
Θ(172.5°)	-7.48/-7.49	-7.64/-6.29	-4.8/-3.77	-2.84/-1.83	-0.79/-0.1	0.26/0.46	0.47/0.29	-0.17/-0.75	-1.47/-2.16	-2.91/-3.76	-4.54/-5.13	-6.1/-0.08	-8.37/-10.25	-12.12/-11.94	-9.91/-7.76	-6.71/-5.97	-5.33/-4.78	-4.44/-3.76	-3.26/-2.77	-2.7/-2.66	-2.65/-3.22	-4.34/-5.36	-5.65/-5.83	-5.95/-6.4
Θ(180°)	-9.6/-10.48	-10.54/-9.8	-9.11/-8.3	-7.52/-7.35	-7/-6.6	-6.3/-0.08	-5.19/-5.29	-5.71/-5.95	-6.13/-6.39	-6.87/-7.69	-8.71/-9.2	-9.33/-8.58	-8.51/-8.01	-8.45/-8.51	-8.41/-8.4	-8.74/-8.74	-8.01/-7.23	-6.02/-4.7	-3.93/-3.81	-4.24/-4.61	-5.31/-6.13	-7.04/-7.53	-7.92/-8.54	-9.14/-9.64
Freq(Hz)	5.3GPol.	ThetaL	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
DG(dB)	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
Θ(0°)	-3.22/-2.55	-1.93/-1.33	-0.81/0.73	-1.01/-0.83	-0.92/-1	-1.18/-1.52	-2.25/-2.94	-3.66/-3.53	-3.15/-3.02	-2.89/-3	-3.24/-3.5	-3.27/-3.38	-3.35/-3.05	-2.63/-2.14	-1.62/-1.42	-1.47/-1.86	-2.16/-2.07	-1.54/-0.65	-0.02/0.42	0.27/0.04	-0/-0.03	-0.01/-0.33	-0.71/-1.39	-2.2/-3.1
Θ(7.5°)	-2.87/-2.46	-2.29/-2	-1.6/-1.54	-1.81/-2.23	-2.35/-2.11	-1.02/-0.02	0.75/1.29	1.65/1.94	2.18/2.14	1.84/1.07	-0.03/-1.36	-2.62/-3.21	-2.87/-2.55	-2.12/-1.46	-0.79/-0.24	0.09/0.35	0.33/-0.09	0.77/-1.32	-1.92/-2.61	-3.47/-5.19	-6.08/-5.95	-5.6/-4.92	-4.12/-3.65	-3.38/-3.13
Θ(15°)	-0.54/-0.36	-0.41/-0.39	-0.15/-0.18	-0.61/-1.22	-1.63/-1.45	-0.91/-0.23	0.52/1.18	1.98/2.72	3.34/86	3.88/3.31	2.25/1.04	-0.32/-1.64	-2.06/-1.82	-1.27/-0.52	0.36/1.11	1.66/1.85	1.69/1.22	0.81/0.45	0.22/0	-0.6/-1.74	-2.93/-3.98	-4.51/-4.32	-4.25/-2.95	-1.92/-0.88
Θ(22.5°)	-0.06/0.08	-0.09/-0.06	-0.2/-0.96	-2.52/-3.87	-4.48/-5.17	-4.74/-3.39	-2.27/-1.62	-0.79/-0.17	0.61/1.64	2.63/04	2.92/2.37	1.56/0.36	-1.13/-1.64	-0.72/0.45	1.19/1.53	1.59/1.45	1.25/0.88	0.19/-0.63	-1.12/-1.53	-2.02/-2.58	-2.67/-3.13	-4.22/-4.93	-5.49/-3.99	-1.94/-0.73
Θ(30°)	-0.35/0.6	0.92/-0.08	-1.52/-2.33	-4.06/-4.72	-4.48/-3.06	-1.46/-0.4	0.44/0.94	0.79/0.28	-0.26/-0.6	-0.23/0.46	0.82/1.19	1.22/0.49	-0.71/-0.73	0.64/1.5	1.98/2.02	1.61/1.61	1.54/1.27	1.28/1.49	1.71/1.71	1.21/0	-1.72/-3.53	-3.93/-4.42	-4.35/-3.54	-2.68/-1.2
Θ(37.5°)	-1.13/0.02	0.81/0.22	-1.1/-1.23	-3.56/-3.23	-1.99/-0.49	0.68/1.65	2.27/2.55	2.58/2.18	1.52/0.51	0.14/0.46	0.99/0.95	0.86/0.1	-0.68/-0.27	0.23/0.36	0.79/1.52	2.46/2.49	2.45/2.77	3.11/3.34	3.43/2.31	2.86/2.25	1.63/0.26	-1.93/-3.6	-4.2/-2.74	-1.67/-1.3
Θ(45°)	-0.2/-1.02	-1.65/-1.74	-2.05/-3.65	-4.26/-2.32	-3.02/-1.6	1.83/2.31	2.37/2.57	3.17/3.45	3.2/2.65	1.98/1.63	1.67/2.15	1.96/1.45	0.89/0.71	0.68/0.35	0.72/1.77	2.45/2.84	3.27/3.52	3.32/84	2.82/61	2.69/3.19	3.47/2.68	1.18/-0.91	-0.83/-0.12	-0.56/-0.2
Θ(52.5°)	0.85/0.3	0.22/0.19	-0.55/-1.95	-1.11/-0.17	0.68/1.54	2.21/2.44	2.18/1.85	1.89/2.65	3.21/3.34	3.02/3.01	3.13/3.33	3.13/2.84	2.99/3.12	2.32/1.36	1.57/2.17	2.88/2.94	2.67/2.25	2.49/2.48	2.16/2.32	2.65/2.68	3.31/3.34	2.73/1.89	1.29/1.75	1.38/1.22
Θ(60°)	2.07/2.05	2.08/1.68	1.14/1.49	1.72/1.14	1.25/2.11	2.41/2.52	1.97/1.63	1.39/1.47	2.24/3.09	3.19/3.56	3.85/3.79	3.71/3.73	3.92/3.78	2.22/1.64	1.28/2.65	3.19/3.05	3.02/3.1	2.84/2.94	3.13/05	2.89/2.39	2.87/3.01	2.64/2.54	2.33/2.43	2.19/2.35
Θ(67.5°)	2.76/2.52	3.14/3.04	1.98/2.22	1.61/-0.02	0.51/35	1.38/1.02	0.77/0.86	0.95/1.42	2.14/2.81	2.54/2.73	3.16/3.62	3.85/3.7	3.76/3.48	2.82/64	3.15/4.7	3.04/1.76	1.75/2.19	2.26/2.04	2.31/1.97	1.31/1.05	1.1/0.76	0.68/1.83	3/3.79	3.32/3.35
Θ(75°)	2.75/1.95	2.47/1.76	1.03/1.1	0.65/-0.39	0.18/0.9	0.63/0.02	-0.45/0.38	1.08/2.01	2.48/2.52	1.62/04	2.63/2.91	3.01/3.69	4.07/3.65	2.4/2.43	3.18/3.5	2.84/1.66	0.98/0.78	1.15/1.42	0.98/0.7	0.91/1.11	0.91/0.3			



Radiated Composite Gain Data of 2.4G,5G

Appendix A

Θ (60°)	2.21/0.36	-0.09/-0.71	0.44/-1.32	1.14/-0.53	-1.89/-0.78	0.62/-1.41	1.61/-1.51	1.69/-1.09	-0.84/-1.55	-0.25/-0.95	-4.49/-4.64	-2.86/-2.41	-3.28/-2.86	-2.7/-2.47	-0.93/-0.15	1.66/2.21	1/-0.8	-2.85/-5.34	-5.88/-5.63	-4.82/-3.44	-3.46/-1.91	-0.04/0.69	-0.85/-0.43	2.08/3.06
Θ (67.5°)	1.75/-1.89	0.47/-2.46	-0.73/-0.04	-0.73/-1.81	-1.25/-0.33	-0.39/-0.87	-0.70/-4.6	0.73/-0.27	-2.03/-2.21	-0.93/-1.2	-2.8/-3.46	-3.82/-3.84	-3.72/-1.62	-1.73/-3.74	-2.41/-0.19	1.04/0.69	0.64/0.09	-0.53/-2.71	-4.46/-4.66	-4.92/-5.48	-5.11/-5.29	-3/-0.46	-0.01/-2	-0.65/-1.94
Θ (75°)	0.14/2.2	-0.92/-4.43	-1.88/-1.55	-3.04/-3.05	-1.88/-1.27	-1.01/-2.48	-3.53/-3.73	-2.77/-2.1	-2.01/-2.08	-2.52/-2.04	-2.34/-3.42	-3.37/-3.05	-2.91/-2.85	-3.58/-4.8	-3.89/-2.68	-0.87/-0.7	-0.95/-0.56	-2.19/-2.45	-4.7/-5.66	-7.4/-7.93	-9.33/-8.15	-5.53/-1.51	-1.26/-4.57	-3.42/-1.98
Θ (82.5°)	-1.97/-0.13	-2.15/-4.9	-2.38/-1.21	-3.92/-7.43	-5.78/-3.21	-1.68/-2.2	-4.13/-3.77	-2.31/-2.93	-2.97/-3.42	-4.43/-3.34	-3.6/-4.98	-4.09/-3.77	-3.39/-2.8	-2.63/-2.86	-3.52/-0.16	-0.22/-1.7	-0.24/-0.04	-2.79/-4.64	-3.77/-1.06	-0.41/-0.9	-5.31/-9.86	-6.54/-4.43	-4.1/-4.96	-8.29/-5.12
Θ (90°)	-4.57/-1.58	-2.3/-3.03	-4.77/-3.08	-2.71/-3.38	-2.85/-2.79	-3.91/-5.55	-5.23/-5.85	-5.16/-3.85	-4.57/-5.72	-7.11/-6.42	-4.04/-6.48	-3.82/-2.08	-2.58/-0.67	-1.54/-1.34	-1.3/-0.91	-1.65/-3.97	-2.12/-2.99	-4.61/-6.09	-5.74/-4.23	0.33/0.02	-4.86/-10.74	-6.51/-4.48	-4.25/-3.02	-4.53/-9.18
Θ (97.5°)	-4.35/-2.56	-0.08/-0.13	-6.85/-3.35	-0.4/-1.46	-1.38/-1.18	-2.24/-3.54	-4.09/-4.18	-3.94/-4.65	-8.03/-7.75	-7.35/-6.71	-4.36/-4.24	-2.81/-0.13	-1.18/-1.45	-0.86/-1.16	-3.74/-3.5	-5.6/-7.38	-10.97/-5.66	-1.78/-1.08	0.09/-1.83	-7.38/-3.94	-1.6/-2.81	-2.57/-1.37	-1.04/-5.49	
Θ (105°)	-3.27/-1.6	2.09/0.97	-3.17/-2.67	-1.05/-1.05	-0.91/0.94	0.89/-0.87	-1.68/-2.22	-2.28/-2.81	-2.36/-4.26	-6.43/-7.63	-7.8/-6.58	-4.6/-4.05	-4.73/-2.21	-0.89/-2.99	-0.37/-1.48	-3.27/-5.1	-4.01/-7.95	-9.27/-4.05	-8.73/-6.96	-3.76/-1.82	-1.53/-1.45	-2.84/-3.2	-1.46/-0.54	-1.39/-2.79
Θ (112.5°)	-3.64/0.47	1.5/0.31	-0.99/-0.66	-0.45/-1.91	-0.38/0.65	1.14/0.29	-0.53/-1.05	-1.86/-2.22	-3.25/-3.8	-6.05/-6.09	-6.69/-7.6	-5.62/-4.47	-3.89/-2.15	-0.65/-4.12	-4.29/-1.41	-3.57/-3.46	-6.3/-7.22	-7.26/-3.99	-6.03/-7.03	-0.97/-0.88	-1.14/-2.99	-2.12/-0.85	0.11/-0.99	-2.72/-3.74
Θ (120°)	-2.06/-0.76	-1.83/-3.77	-3.48/-0.86	-0.83/-4.5	-1.62/-0.44	-2.11/-3.91	-3.65/-2.81	-2.84/-4.38	-4.99/-6.05	-6.85/-8.54	-8.76/-7.93	-7/-7.47	-6.32/-4.86	-1.31/-0.82	-4.82/-2.89	-4.09/-3.18	-2.23/-3.85	-2.81/-1.45	-3.83/-1.93	2.08/1.26	-1.12/-3.53	-3.55/-1.09	-5.23/-6.6	-2.82/-2.89
Θ (127.5°)	-2.28/-0.87	-1.35/-3.52	-4.57/-3.84	-1.81/-4.11	-1.71/-0.93	-3.14/-6.88	-6.26/-4.32	-3.41/-2.96	-4.35/-6.24	-7.22/-7.78	-7.22/-4.25	-3.72/-3.47	-2.9/-4.69	-2.16/-3.64	-1.26/-3.59	-2.58/-0.18	-7.67/-3.85	-0.60/9.1	-4.58/-0.19	2.5/-0.63	-2.08/-3.9	-2.96/-5.38	-8.61/-6.87	-3.1/-3.53
Θ (135°)	-1.04/-3.61	-3.82/-3.1	-4.61/-3.63	-2.09/-2.64	-2.17/-0.81	-0.42/-1.59	-3.63/-3.78	-3.25/-3.76	-3.07/-2.64	-3.96/-7.38	-5.44/-2.79	-3.55/-4.28	-3.3/-2.14	-1.6/-3.97	-7.32/-3.95	-4.74/-3.91	-4.84/-7.3	-1.69/-0.26	-2.77/-2.67	-1.12/-2.8	-0.69/-0.7	-0.88/-4.54	-7.9/-6.37	-5.18/-1.8
Θ (142.5°)	-6.89/-3.13	-2.64/-3.18	-3.84/-6	-7.4/-5.01	-2.5/-0.95	-0.17/-0.27	-0.79/-1.68	-2.02/-1.67	-2.06/-3.45	-5.13/-5.37	-4.31/-4.69	-7.58/-9.19	-7.51/-4.73	-4.43/-4.48	-6.29/-10.24	-6.98/-5.92	-5.14/-2.84	-2.31/-3.74	-3.92/-5.2	-4.59/-3.45	1.03/2.75	3.13/0.06	-5.03/-8.39	-7.22/-7.15
Θ (150°)	-3.47/-2.35	-3.98/-5.62	-6.78/-6.16	-4.45/-3.98	-3.79/-4.31	-4.86/-5.46	-5.73/-5.49	-4.84/-3.79	-2.42/-1.09	-1.12/-2.59	-5.47/-7.11	-6.85/-6.56	-6.37/-5.46	-5.91/-4.87	-2.54/-2.2	-7.06/-9.25	-3.46/-2.11	-3.34/-6.04	-7.9/-7.91	-6.24/-2.39	-0.86/-0.77	-2.49/-6.71	-6.04/-3.39	-2.87/-3.92
Θ (157.5°)	-2.32/-1.87	-2.01/-2.72	-3.96/-4.33	-3.85/-3.34	-2.63/-2.64	-3.7/-5.15	-6.74/-7.85	-6.74/-4.8	-3.36/-2.73	-2.75/-2.94	-3.3/-2.8	-2.77/-3.39	-6.43/-3.58	-4.78/-6.31	-7.4/-8.51	-9.31/-5.78	-3.58/-3.52	-4.93/-6	-5.57/-3.56	-2.53/-2.62	-3.75/-5.91	-6.42/-3.14	-0.16/-0.91	0.16/-1.31
Θ (165°)	-6.21/-5.92	-5.62/-6.16	-4.66/-4.5	-4.51/-4.15	-3.81/-3.58	-3.6/-3.65	-3.76/-3.83	-3.73/-3.68	-4.24/-4.83	-4.83/-4.85	-4.48/-4.35	-4.67/-4.55	-3.36/-2.59	-2.94/-4.6	-6.91/-7.97	-7.98/-7.36	-6.35/-5.56	-5.15/-4.89	-4.84/-4.62	-4.63/-5.33	-6/-5.5	-3.56/-1.3	-0.03/-0.36	-1.78/-4.15
Θ (172.5°)	-5.71/-6.07	-6.07/-6.4	-6.8/-7.82	-8.43/-7.98	-8.82/-6	-5.55/-5.92	-6.26/-6.19	-5.61/-5.19	-4.82/-4.74	-4.54/-4.15	-3.99/-4.29	-4.76/-5.67	-6.49/-7.34	-8.64/-10.2	-10.88/-9.94	-8.69/-8.18	-7.83/-8.06	-8.47/-8.41	-8.26/-6.95	-6.09/-5.55	-4.57/-3.47	-2.64/-2.14	-2.17/-2.76	-3.71/-4.65
Θ (180°)	-13.48/-12.64	-11.89/-11.01	-10.55/-9.83	-9.42/-8.66	-8.53/-8.43	-7.53/-5.95	-5.31/-5.55	-5.53/-5.72	-5.37/-5.09	-5.17/-5.68	-6.25/-7.05	-7.6/-7.71	-7.81/-8.02	-8.56/-9.17	-9.68/-9.65	-10.22/-10.52	-10.36/-9.34	-8.28/-7.8	-7.46/-7.2	-6.98/-7.42	-7.58/-7.66	-8.06/-9.26	-10.31/-11.3	-12.45/-13.14
Freq(Hz)	5.785GPol.	Theta/-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
DG(dB)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ (0°)	0.78/-1.15	1.15/-1.01	0.66/-0.47	0.32/0.43	0.44/0.36	0.31/0.43	0.58/0.67	0.86/-1.3	1.74/-1.89	1.83/-1.82	1.76/-1.58	1.38/-1.2	1.17/-1.14	1.01/-0.61	0.02/-0.38	-0.65/-0.66	-0.48/-0.07	0.42/0.86	1.46/-1.96	2.18/-2.41	2.69/-3.01	3.21/-2.96	2.81/-2.31	1.68/-1
Θ (7.5°)	1.01/-1.32	1.19/0.82	0.14/-0.57	-1.09/-1.51	-1.5/-1.28	-1.07/-0.36	0.41/-1.17	1.75/-2.43	3.11/-3.46	3.43/-3.31	3.07/-2.57	1.96/-1.04	0.46/0.52	0.98/-1.23	1.63/-1.9	2.03/-2.4	1.92/-1.8	1.73/-1.55	1.12/0.63	0.14/0.13	0.30/-0.78	1.01/-1.01	1.07/0.86	0.79/0.74
Θ (15°)	0.89/-1.06	0.97/0.59	-0.06/-0.56	-1.06/-1.54	-1.75/-1.8	-1.5/-1.26	-0.9/-0.16	0.59/0.82	1.25/-1.86	2.53/-2.84	2.8/-2.36	1.65/0.69	0.15/0.46	1.03/-1.82	2.45/-3.07	3.46/-3.53	3.41/-3.06	2.61/-1.91	0.97/-0.45	-1.79/-2.61	-2.79/-2.55	-2.25/-2.06	-1.59/-1.02	-0.21/0.61
Θ (22.5°)	0.38/0.29	-0.08/-0.91	-1.34/-1.59	-1.24/-1.17	-0.96/-0.48	0.29/-1.15	1.68/2.03	2.23/-2.66	2.95/-2.49	1.5/-1.37	1.95/-1.89	1.12/-0.05	-0.77/-0.32	0.85/-1.91	2.59/-3.07	3.42/-3.52	3.35/-3.24	2.93/-2.45	1.81/0.82	-0.56/-2	-2.72/-3.8	-5.63/-7.24	-5.71/-3.17	-1.42/0.02
Θ (30°)	-0.52/-1.16	-2.88/-4.58	-4.58/-2.66	-1.17/-1.71	-1.84/-1.33	-0.98/-0.48	0.57/2.07	3.49/-4.39	4.81/-4.73	4.03/-2.9	2.29/-2.33	1.84/-1.02	0.83/-1.39	2.14/-2.4	2.55/-3.02	3.36/-3.75	3.68/-3.95	4.34/-4.18	3.72/-98	2.09/-1.45	0.88/0.36	-0.37/-2.35	-4.83/-5.9	-3.14/-0.78
Θ (37.5°)	-0.65/-2.44	-3.45/-2.91	-2.79/-2.33	-1.78/-2.19	-2.06/-1.6	-0.6/0.91	2.22/-3.41	4.53/-5.15	5.31/-5.16	4.74/-3.99	3.05/-2.32	1.79/-1.63	1.55/-1.42	1.88/-2.06	2.22/-2.79	3.38/-3.68	3.76/-3.6	3.61/-3.27	2.95/-3.07	3.12/-2.7	1.41/-4.8	1.52/-1.12	-0.43/-2.39	-3.22/-0.86
Θ (45°)	-1.26/-2.35	-4.33/-3.56	-2.39/-1.74	-1.92/-2.12	-1.5/-0.12	1.35/-2.37	3.12/-3.72	3.92/-4.19	4.88/-6.28	4.77/-3.77	3.22/-2.74	1.99/-1.5	1.46/-1.79	1.94/-1.15	1.28/-2.2	2.32/-2.16	2.71/-3.54	3.87/-4.26	4.61/-4.89	4.63/-3.33	1.98/-1.3	2.32/-65	2.17/-0.64	-1.18/-1.12
Θ (52.5°)	0.27/-0.36	-1.89/-1.42	-0.52/-0.78	-1.37/-1.31	-0.16/0.82	1.42/-04	2.83/-69	4.56/-5.36	5.85/-65	5.07/-3.91	3.59/-3.24	2.93/-2.73	2.45/-1.95	0.99/-0.33	1.35/0.98	1.49/-1.96	2.21/-3.11	3.82/-3.84	3.93/-84	4/-18	2.96/-1.42	1.22/-66	2.98/-1.85	-0.09/0.09
Θ (60°)	1.6/0.42	-1.17/-0.71	-0.6/-1.57	-0.93/-1.39	2.1/-1.78	1.4/-1.69	1.81/-2.02	3.24/-4.74	5.79/-5.9	5.04/-3.6	3.48/-3.11	2.82/-2.96	2.78/-2.02	1.16/-0.24	1.35/-2.48	1.85/-1.61	2.3/-3.24	4.05/-4.1	3.3/-6	4.16/-4.13	3.87/-2.94	2.52/-2.82	3.12/-2.03	1.9/-1.85
Θ (67.5°)	2.11/-0.69	-1.29/-1.63	-2.12/-1.57	0.46/-1.6	1.57/0.66	-0.55/-0.44	-0.13/0.51	2.15/-4.27	5.17/-4.79	4.04/-2.9	3.36/-3.38	3.27/-3.96	3.67/-2.42	0.01/-1.29	1.94/-1.71	0.86/-0.05	-0.65/-1.14	2.97/-3.67	3.73/-3.45	2.98/-3.96	4.53/-4.04	3.94/-05	4.25/-3.7	2.77/-25
Θ (75°)	3.39/-1.81	-0.09/-1.36	-4.77/-2.08	-0.25/-1.8	2.11/-1.4	0.25/0.72	1.66/-1.85	2.36/-3.8	5.23/-5.14	3.52/-1.71	1.97/-2.42	3.03/-3.25	3.43/-1.91	1.31/-54	2.21/0.84	-0.41/-1.61	-1.52/-1.13	2.47/-2.27	2.89/-2.12	2.52/-2.82	3.18/-3.83	3.22/-3.7	4.27/-4.63	3.71/-4.03
Θ (82.5°)	2.81/-3.64	3.12/-2.74	0.26/-2.44	-1/-2.15	3.12/-2.91	2.02/-2.24	2.49/-1.58	1.41/-2.98	4/-3.73	2.47/0.92	2.63/-0.9	2.33/-2.97	3.61/-23	-0/-0.2	2.02/0.34	0.33/-1.87	-2.44/-0.72	1.13/-1.8	0.62/-1.29	2.27/-2.37	2.41/-3.16	3.81/-3.53	3.43/-5.02	4.85/-3.4
Θ (90°)	1.56/-3.14	4.41/-4.56	2.49/0.82	0.26/-2.54	3.83/-3.66	2.86/-3.18	3.52/-2.91	1.69/-2.21	2.91/-3.44	2.2/-2.14	-0.21/-85	1.33/-1.3	1.35/-0.56	-0.02/-1.35	0.26/0.43	-0.4/-2.32	-0.69/0.1	1.14/0.69	0.04/0.17	1.22/-1.71	1.4/-1.42	1.63/-2.09	0.66/-1.05	2.16/-2.27
Θ (97.5°)	1.48/-2.12	2.01/-2.74	1/0.36	-0.78/-1.21	2.64/-2.24	1.42/-4	3.41/-2.94	1.05/0.81	1.71/-2	0.94/0.84	1.95/-1.11	-0.30/-1.1	0.98/-1.52	-1.32/-0.14	-1.47/-0.45	0.45/-0.68	-2.6/-3.98	-2.32/-0.95	0.07/0.17	0.85/0.82	0.17/-1.68	0.53/-1.01	1.66/-1.66	1/-0.58
Θ (105°)	-0.05/-1.31	1.61/-1.53	1.44/0.69	-0.65/0.85	1.92/-1.57	0.68/0.85	1.93/-1.94	1.51/0.93	1.41/-1.81	0.57/-2.7	0.61/-28	0.49/-0.63	-0.43/-4.74	-2.02/-1.35	-3.41/-2.96	-0.23/-0.62	-4.39/-9.55	-6.13/-2.75	-4.53/-2.51	0.26/0.83	-0.76/-1.3	-1.77/-1.09	0.44/-2.86	1.87/-1.58
Θ (112.5°)	0.47/-1.87	3.02/-2.7	2.33/-2.89	2.01/-1.9	2.6/-1.49	0.33/-1.43	2.06/-1.87	0.73/-1.42	-0.81/-0.4	0.7/0.87	1.35/-0.94	-0.28/-1.17	-1.45/-2.49	-2.27/-3.58	-4.52/-4.73	-4.19/-4.11	-7.48/-6.19	-5.4/-3.17	-3.29/-1.49	-0.45/0.02	-2.01/-2.86	-3.19/-4.6	2.21/-3.2	2.57/0.08
Θ (120°)	1.89/-2.41	2.23/-2.89	2.95/-1.49	1.52/-44	3.25/-3.36	2.34/-1.44	1.87/-1.92	0.7/-1.25	-1.84/-0.15	-0.04/0.11	-0.43/0.65	-0.56/-1.76	-3.01/-4.39	-2.42/-2.59	-5.95/-7.29	-6.52/-5.91	-4.35/-4.53</							



Radiated Composite Gain Data of 2.4G,5G

Appendix A

Θ(22.5°)	-13.48/-18.84	-17.57/-13.15	-10.16/-8.02	-7.23/-7.26	-7.57/-8.28	-9.18/-10.42	-11.86/-13.7	-14.4/-13.66	-12.06/-11.86	-12.33/-13.59	-13.84/-13.61	-12.08/-10.01	-8.13/-7.29	-7.57/-8.15	-9.97/-11.11	-12.23/-13.2	-13.87/-13.38	-12.09/-10.43	-8.88/-7.5	-6.79/-6.51	-6.09/-5.63	-5.27/-5.1	-5.25/-6.08	-7.02/-9.03
Θ(30°)	-18.8/-19.22	-15.12/-13.97	-12.65/-11.54	-11.52/-11.39	-11.48/-12.38	-14.14/-16.17	-20.39/-18.66	-16.31/-13.11	-11.51/-10.83	-11.27/-11.23	-11.3/-11.04	-10.34/-9.27	-8.3/-7.8	-7.88/-8.37	-8.99/-9.94	-10.72/-10.97	-11.01/-10.88	-10.54/-10.49	-11.37/-10.79	-9.15/-8.17	-7.68/-7.78	-7.44/-7.18	-6.81/-7.45	-8.3/-11.66
Θ(35°)	-16.12/-19.9	-18.65/-15.95	-12.38/-9.91	-8.87/-8.14	-8.89/-10.78	-14.13/-16.04	-15.04/-13.13	-11.61/-10.23	-8.32/-6.72	-6.16/-6.41	-6.8/-7.4	-6.95/-6.46	-6.36/-6.53	-7.42/-8.88	-9.21/-9.31	-9.11/-10.04	-12.83/-17.26	-18.43/-15.55	-12.19/-10.69	-10.47/-10.09	-9.12/-9.34	-9.22/-8.45	-6.88/-6.22	-6.75/-9.44
Θ(45°)	-18.45/-19.46	-19.1/-20.17	-10.64/-7.1	-6.72/-6.92	-8.03/-10.7	-14.14/-14.41	-11.11/-8.4	-6.73/-5.66	-5.46/-5.35	-5.28/-5.72	-6.2/-6.64	-6.34/-6.35	-8.36/-9.12	-8.63/-9.01	-9.31/-10.05	-11.31/-12.93	-12.82/-12.58	-12.38/-13.22	-15.33/-16.6	-14.14/-12.35	-11.85/-13.06	-16.72/-12.62	-6.97/-5.71	-7.16/-10.09
Θ(52.5°)	-16.1/-14.3	-19.26/-20.73	-12.46/-10.7	-10.44/-10.62	-10.17/-9.6	-8.45/-6.23	-4.94/-1.42	-4.2/-3.98	-3.77/-3.72	-4.18/-5.21	-6.3/-7.82	-7.98/-7.86	-8.86/-8.02	-8.9/-8.58	-10.31/-9.34	-8.07/-7.9	-8.09/-7.52	-6.32/-5.77	-6.29/-7.13	-8.71/-10.05	-10.4/-10.33	-12.85/-17.71	-12.77/-13.68	-8.52/-13.68
Θ(60°)	-10.5/-12.96	-17.61/-17.73	-13.84/-12.93	-11.82/-10.44	-10.04/-10.45	-9.96/-9.98	-5.87/-4.53	-3.87/-4.05	-4.47/-4.38	-4.12/-4.59	-4.6/-4.94	-10.1/-10.21	-9.88/-8.08	-9.67/-10.87	-10.43/-8.13	-8.03/-8.58	-7.85/-6.58	-6.12/-6.87	-7.09/-8.06	-9.48/-10.05	-13.7/-16.22	-15.35/-11.63	-7.6/-5.53	-5.62/-7.96
Θ(67.5°)	-8.47/-10.45	-15/-20.1	-17.57/-19.23	-13.91/-11.06	-12.54/-15.21	-11.52/-7.36	-5.98/-5.73	-5.72/-5.64	-5.72/-5.5	-5.4/-5.96	-8.12/-11.86	-14.1/-11.02	-8.9/-9.7	-12.06/-10.15	-10.29/-9.38	-8.91/-9.48	-8.99/-8.62	-7.62/-7	-7.22/-6.97	-7.31/-9.19	-10.85/-12.71	-14/-13.31	-13.02/-10.14	-9.19/-8.81
Θ(75°)	-11.69/-13.75	-20.51/-20.37	-19.83/-19.21	-16.49/-15.34	-19.82/-15.82	-9.56/-8.11	-8.72/-8.64	-8.02/-7.77	-7.15/-7.07	-7.8/-8.88	-14.73/-17.61	-14.68/-13.84	-13.12/-13.32	-16.48/-10.23	-9.76/-7.28	-7.26/-7.51	-7.43/-6.31	-5.88/-5.06	-4.88/-5.2	-5.34/-6.02	-9.24/-13.36	-11.62/-9.39	-9.72/-11.85	-15.87/-13.49
Θ(82.5°)	-16.59/-19.27	-15.62/-14.09	-13.45/-16.41	-18/-14.87	-10.98/-7.81	-6.76/-8.2	-11.15/-15.52	-18.78/-13.16	-10.25/-10.25	-11.97/-13.63	-18.92/-19.23	-13.56/-13.91	-14.69/-17.27	-13.77/-9.28	-9.7/-8.71	-8.53/-6.57	-7.34/-8.13	-7.96/-8.33	-6.09/-4.04	-4.56/-5.85	-19.19/-14.82	-13.04/-8.91	-8.65/-12.35	-14.51/-11.96
Θ(90°)	-18.29/-13.3	-10.16/-14.04	-16.8/-16.74	-13.73/-11.3	-9.69/-8.59	-8.34/-9.27	-12.33/-18.57	-18.47/-19.78	-15.83/-14.19	-16.22/-19.81	-19.32/-18.56	-18.83/-15.47	-15.34/-17.39	-19.37/-12.8	-10.8/-9.07	-8.67/-7.61	-8.07/-8.26	-9.52/-7.18	-7.7/-8.49	-5.8/-6.57	-9.58/-14.17	-14.43/-9.28	-8.66/-13.3	-19.38/-19.66
Θ(97.5°)	-10/-9.24	-10.61/-12.91	-11.91/-12.04	-12.62/-12.19	-9.89/-8.46	-9.8/-12.97	-13.84/-12.46	-10.71/-10	-12.14/-15.86	-15.9/-14.76	-19.88/-14.2	-16.05/-19	-14.12/-13.92	-12.91/-17.64	-10.84/-8.56	-10.58/-10.06	-8.82/-9.65	-12.54/-19.13	-14.43/-12.22	-16.75/-11.16	-10.69/-12.34	-8.81/-8.03	-9.19/-11.66	-18.61/-20.56
Θ(105°)	-6.98/-7.44	-10.62/-9.63	-8.82/-10.08	-10.96/-9.47	-8.04/-8.08	-8.77/-11.97	-11.8/-8.73	-8.2/-9.27	-10.01/-9.31	-8.31/-8.47	-15.04/-20.64	-15.08/-18.76	-15.62/-19.82	-11.35/-14.08	-19.1/-10.91	-8.72/-15.68	-14.71/-13.96	-18.9/-19.4	-19.4/-19.39	-16.71/-14.34	-11.71/-8.85	-5.33/-5.12	-7.51/-11.25	-10.53/-12.97
Θ(112.5°)	-5.74/-8.62	-7.9/-5.46	-6.14/-10.27	-15.41/-10.59	-6/-7.28	-10.96/-16.74	-11.68/-8.3	-7.28/-8.51	-10.12/-9.74	-8.41/-8.19	-12.9/-19.46	-19.69/-12.51	-18.84/-18.58	-10.02/-13.7	-18.09/-11.93	-12.43/-16.2	-10.99/-10.44	-11.69/-12.1	-13.39/-20.15	-17.78/-13.57	-14.14/-7.71	-7.49/-8.31	-16.51/-13.97	-11.6/-14.08
Θ(120°)	-5.95/-9.45	-6.25/-3.13	-5.07/-13.91	-16.13/-10	-6.71/-6.25	-9.82/-20.37	-14.08/-8.77	-7.58/-7.56	-7.98/-8.5	-7.62/-9.53	-11.65/-18.5	-18.63/-14.66	-15.53/-19.41	-12.33/-13.53	-17.45/-18.85	-13.28/-9.18	-9.68/-9.65	-11.71/-11.71	-11.19/-11.92	-8.96/-9.54	-8.26/-10.01	-9.49/-10.73	-18.75/-10.04	
Θ(127.5°)	-13.46/-13.22	-6.18/-3.77	-7.49/-16.63	-12.68/-7.87	-6.56/-5.92	-7.12/-9.74	-12.24/-14.45	-13.92/-14.45	-15.68/-12.18	-9.87/-8.72	-10.64/-18.33	-19.63/-18.36	-20.4/-16.08	-19.65/-17.57	-12.24/-19.7	-20.23/-9.87	-15.79/-19.7	-8.84/-7.77	-12.25/-9.14	-5.94/-6.4	-10.55/-12.76	-16.86/-10.59	-8.22/-9.48	-16.82/-16.14
Θ(135°)	-15.3/-12.08	-7.39/-4.79	-7.87/-20.15	-12.05/-7.76	-6.12/-5.25	-5.34/-7.58	-12.97/-19.07	-20.08/-14.78	-8.42/-6.81	-8.28/-11.07	-17.41/-18.45	-14.49/-19.3	-19.31/-19.73	-14.97/-13.27	-11.44/-18.28	-14.29/-10.27	-20.07/-15.16	-15.31/-11.47	-14.03/-13.63	-13.01/-10.4	-9.62/-12.17	-10.69/-16.81	-12.34/-17.61	-18.15/-13.89
Θ(142.5°)	-13.81/-8.47	-7.62/-10.8	-16.19/-10.63	-11.06/-8.59	-6.98/-5.54	-5.39/-6	-7.93/-12.99	-15.79/-9.28	-7.08/-7.95	-9.76/-12.67	-15.41/-16.56	-17.64/-11.31	-14.3/-19.83	-19.23/-11.03	-15.03/-20.98	-18.92/-15.89	-18.63/-16.51	-10.17/-12.92	-9.99/-14.17	-13.87/-9.47	-8.22/-14.64	-13.32/-14.91	-20.45/-19.13	-20.79/-19.59
Θ(150°)	-15.79/-9.11	-7.63/-9.63	-12.43/-13.55	-11.61/-10.82	-11.52/-12.31	-10.99/-12.38	-11.81/-19.61	-14.23/-10.88	-9.24/-8.18	-7.82/-8.4	-18.88/-19.97	-18.93/-13.65	-16.41/-19.55	-15.67/-12.17	-17.03/-18.86	-16.92/-13.48	-14.84/-18.93	-18.14/-14.86	-14.5/-15.37	-13.67/-9.58	-18.71/-14.59	-10.88/-15.45	-10.25/-10.64	-15.18/-20.23
Θ(157.5°)	-15.06/-16.31	-15.44/-14.93	-13.29/-11.19	-10.17/-10.1	-10.37/-11.95	-13.94/-17.08	-19.44/-20	-17.47/-14.33	-12.73/-11.5	-10.6/-11.38	-13.97/-16.06	-14.9/-14.58	-17.94/-19.07	-18.89/-18.18	-18.16/-17.31	-19.24/-16.61	-13.98/-13.18	-13.52/-14.82	-14.74/-13.05	-10.78/-10.21	-12.36/-13.57	-10.89/-8.45	-7.02/-7.15	-9/-11.31
Θ(165°)	-12.99/-13.37	-12.39/-11.61	-9.86/-9.33	-9.62/-10.51	-11.33/-12.16	-12.04/-12.19	-12.53/-14.03	-16.17/-18.67	-19.92/-19.18	-19.11/-18.27	-16.21/-14.59	-13.96/-15.07	-18.91/-18.2	-18.32/-20.02	-20.31/-20.02	-17.63/-14.22	-12.55/-12.32	-12.61/-12.84	-13.42/-14.26	-15.09/-15.78	-14.3/-11.02	-9.47/-8.04	-8.13/-9.07	-11.48/-12.22
Θ(172.5°)	-19.71/-18.38	-19.55/-16	-14.05/-13.31	-12.71/-10.3	-10.78/-10.86	-10.96/-11.28	-11.35/-11.76	-13.17/-15.37	-18.65/-20.84	-20.5/-20.37	-19.96/-18.95	-19.11/-18.96	-18.28/-18.86	-19.44/-19.02	-17.68/-16.53	-14.77/-13.75	-12.76/-12.72	-12.88/-12.53	-12.61/-13.75	-16.29/-20.16	-19.1/-20.06	-20.31/-20.13	-19.85/-19.43	-20.29/-18.32
Θ(180°)	-12.65/-14.17	-15.96/-17.4	-18.19/-17.94	-12.67/-18.34	-18.8/-19.66	-20.21/-20.52	-18.69/-19.26	-20.21/-19	-19.04/-19.89	-19.94/-19.71	-19.68/-18.69	-17.71/-16.73	-13.85/-13.08	-12.45/-12.31	-12.32/-12.09	-12.02/-11.8	-10.79/-10.23	-9.51/-9.6	-10.41/-11.32	-12.47/-13.06	-13.29/-12.6	-12.08/-11.72	-11.59/-12.13	
Freq(Pol)	5.3GPol	ThetaAnt. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-10.2/-9.71	-9.9/-9.33	-9.89/-9.98	-10.45/-10.33	-10.73/-10.93	-11.21/-11.72	-13.31/-15.22	-18.43/-20.07	-19.41/-19.53	-16.84/-14.78	-13.06/-11.99	-11.15/-10.35	-9.94/-9.38	-9.05/-9.21	-9.5/-10.12	-10.89/-12.46	-13.88/-15.56	-18.25/-19.06	-18.84/-18.54	-19.52/-20.32	-18.85/-15.67	-14.53/-12.95	-11.81/-11.11	-10.89/-10.63
Θ(7.5°)	-11.22/-10.51	-10.11/-10.32	-10.44/-10.91	-11.4/-12.21	-13.64/-15.68	-17.44/-20.1	-19.2/-17.28	-15.9/-13.83	-12.06/-11.31	-10.23/-9.38	-8.55/-8.32	-8.4/-8.55	-8.64/-8.51	-8.26/-8.2	-7.97/-7.77	-7.72/-7.57	-7.59/-7.77	-8.53/-9.69	-11.66/-13.17	-14.54/-17.52	-20.02/-19.34	-20.47/-17.6	-15.45/-13.64	-12.66/-11.44
Θ(15°)	-8.97/-8.27	-7.84/-8.19	-8.58/-8.9	-9.05/-10.26	-11.83/-13.03	-13.73/-12.77	-11.53/-10.51	-9.53/-8.71	-7.41/-6.82	-6.63/-6.64	-6.8/-6.86	-6.9/-6.99	-6.95/-6.57	-6.53/-6.91	-4.64/-4.35	-4.37/-4.66	-5.32/-6.65	-8.47/-10.43	-12.48/-15.79	-18.39/-19.89	-20.27/-19.11	-17.11/-12.66	-10.74/-9.08	
Θ(22.5°)	-8.1/-7.7	-7.82/-8.39	-9.7/-11.17	-11.66/-12.1	-12.69/-12.25	-10.95/-9.88	-10.12/-8.57	-8.06/-7.39	-6.99/-6.34	-5.68/-5.3	-5.28/-5.61	-5.66/-5.53	-5.73/-6.14	-6.5/-6.42	-5.96/-5.12	-4.46/-4.23	-4.36/-4.83	-5.45/-6.56	-7.85/-9.7	-12.05/-14.08	-14.12/-14.01	-15.11/-17.17	-17.7/-13.64	-10.74/-9.12
Θ(30°)	-6.89/-6.97	-7.44/-8.3	-9.22/-9.82	-10.42/-9.96	-8.99/-7.43	-5.98/-4.95	-4.39/-4.13	-4.23/-4.52	-4.74/-4.49	-4.71/-4.24	-4.1/-5.39	-6.7/-7.08	-6.39/-5.82	-5.5/-5.6	-5.85/-6.25	-7.17/-4.9	-7.28/-6.67	-6.1/-7	-8.65/-10.7	-11.62/-13.31	-15.03/-13.03	-10.07/-9.99		
Θ(37.5°)	-10.27/-11	-9.45/-9.31	-8.88/-9.15	-10.34/-10.21	-8.85/-6.79	-5.45/-4.52	-4.23/-4.06	-3.74/-3.41	-3.25/-3.57	-3.65/-3.74	-4.33/-4.53	-4.22/-4.58	-5.43/-6.23	-6.04/-5.27	-4.79/-5.13	-5.61/-6.38	-7.2/-7.05	-5.77/-4.38	-3.84/-4.21	-4.91/-5.1	-5.39/-6.77	-8.94/-10.86	-13.51/-15.55	-15.47/-12.58
Θ(45°)	-12.91/-11.65	-10.32/-10.13	-11.12/-15.3	-17.15/-11.27	-7.29/-5.22	-4.4/-3.85	-3.72/-3.87	-3.73/-3.26	-2.56/-1.77	-1.05/-0.43	-0.4/-0.61	-1.1/-5.2	-1.98/-2.82	-3.68/-4.24	-4.67/-4.53	-4.16/-4.37	-3.75/-3.57	-3.76/-3.7	-3.12/-2.65	-2.34/-3.04	-4/-5.18	-5.77/-6.44	-8.05/-10.03	-12.35/-9.12
Θ(52.5°)	-11.66/-11.82	-14.94/-17.04	-19.78/-19.42	-10.63/-6.85	-4.35/-3.24	-2.95/-3.52	-4.95/-6.68	-7.25/-6.24	-4.39/-2.18	-0.58/-0.1	1.61/-1.81	1.69/-1.4	1.05/-0.31	-0.85/-1.21	-1.45/-1.6	-1.45/-1.46	-1.62/-1.86	-1.71/-1.92	-2.12/-1.42	-1.28/-1.34	-1.44/-2.53	-3.67/-3.53	-3.82/-4.68	-5.9/-9.21
Θ(60°)	-7.89/-9.19	-12.24/-14.85	-11.37/-9.01	-7.11/-6.9	-5.2/-4.81	-5.14/-6.1	-7.18/-8.6	-9.45/-8.53	-6.34/-3.12	-0.940/-8.7	22.32	2.452/-1	2.491/-8.5	0.98/-1.8	0.710/-4.1	0.310/-0.4	0.11/-0.27	-0.49/-0.67	-0.51/-0.49	0.02/-0.23	-0.86/-1.81	-2.16/-1.76	-1.75/-2.2	-3.93/-6.31
Θ(67.5°)	-3.85/-4.81	-7.44/-10.46	-9.74/-10.06	-10.67/-9.11	-7.1/-6.16	-6.65/-8.12	-10.37/-11.01	-9.2/-7.63	-5.52/-3.12	-1.870/-5.4	2.1													



Radiated Composite Gain Data of 2.4G,5G

Appendix A

Θ(75°)	-17.57/-12.64	-20.17/-19.46	-12.54/-15.35	-16.73/-10.07	-9.33/-9.82	-10.59/-12.33	-11.68/-10.68	-8.88/-6.82	-5.06/-3.4	-2.93/-3.62	-7.88/-18.17	-15.96/-18.52	-14.55/-16.95	-19.82/-18.75	-13.83/-10.25	-9.18/-6.13	-3.91/-5.4	-8.97/-8.92	-10.07/-11.18	-11.02/-15.03	-17.35/-19.33	-9.51/-5.81	-6.3/-9.52	-13.74/-18.89
Θ(82.5°)	-16.29/-18.96	-16.02/-12.74	-12.26/-15.18	-19.82/-19.71	-18.89/-17.81	-13.48/-12.05	-13.92/-13.45	-9.48/-7.71	-7.11/-6.88	-8.6/-17.98	-19.51/-19.77	-20.36/-20.48	-14.97/-13.68	-13.53/-9.75	-8.54/-8.12	-6.03/-7.32	-8.51/-10	-5.9/-5	-4.97/-5.2	-10.99/-19.34	-17.54/-18.42	-13.17/-9.12	-13.35/-12.76	
Θ(90°)	-18.96/-13.18	-11.71/-13.08	-11.39/-11.87	-8.9/-5.35	-5.09/-6.75	-8.72/-11.07	-15.01/-18.78	-15.59/-9.4	-7.51/-7.2	-8.59/-10.09	-8.31/-10.33	-20.25/-14.92	-17.34/-14.59	-20.24/-11.82	-12.12/-12.25	-13.73/-14.62	-16.42/-13.87	-10.03/-6.32	-5.19/-7.89	-15.43/-17.76	-10.98/-13.27	-12.79/-7.06	-12.79/-16.08	
Θ(97.5°)	-8.53/-8.95	-12.42/-12.12	-15.44/-9.72	-4.41/-3.29	-5.39/-10.57	-12.22/-9.11	-8.83/-9.55	-9.99/-12.63	-13.22/-9.58	-9.39/-13.99	-12.17/-7.67	-11.83/-19.86	-19.55/-12.94	-16.12/-14.25	-10.66/-13.65	-18.33/-13.88	-15.53/-20	-20.02/-9	-11.88/-8.34	-4.42/-7.8	-18.58/-7.62	-5.84/-10.26	-7.76/-5.62	-5.1/-14.91
Θ(105°)	-7.36/-5.85	-11.14/-15.35	-13.25/-6.39	-3.91/-4.37	-8.24/-8.18	-5.89/-5.5	-4.86/-5.55	-6.45/-10.95	-9.93/-9.46	-15.02/-9.55	-9.97/-19.18	-19.36/-14.21	-10.66/-18.48	-8.45/-7.99	-12.02/-19.9	-12.45/-16.72	-14.71/-17.14	-18.71/-15.67	-11.37/-9.82	-6.12/-6.33	-7.93/-9.54	-5.13/-3.18	-8.25/-17.38	
Θ(112.5°)	-5.53/-4.73	-11/-14.87	-6.49/-3.64	-3.66/-7.5	-8.71/-7.71	-7.82/-8.47	-7.43/-6.6	-6.47/-7.65	-10.64/-8.99	-6.86/-5.63	-12.47/-13.52	-15.03/-15.22	-11.55/-17.87	-6.14/-16.31	-10.63/-13.54	-16.69/-19.52	-20.77/-10.01	-8.47/-11.44	-6.89/-5.83	-3.74/-5.66	-5.46/-5.96	-2.37/-3.29	-12.43/-10.91	
Θ(120°)	-4.75/-6.27	-13.88/-13.79	-6.98/-4	-5.61/-11.13	-9.34/-6.08	-7.3/-11.51	-11.8/-8.29	-7.31/-7.34	-7.78/-8.13	-7.11/-7.73	-14.09/-17.47	-12.76/-19.57	-15.31/-18.49	-10.46/-9.14	-19.58/-13.18	-7.43/-18.97	-12.39/-9.03	-9.75/-11.36	-13.07/-13.85	-8.66/-6.99	-10.43/-8.39	-7.22/-5.85	-5.83/-12.82	-19.17/-10.93
Θ(127.5°)	-7.02/-7.67	-12.26/-10.73	-5.93/-4.94	-6.92/-19.21	-8.15/-4.3	-5.24/-8.25	-13.43/-13.86	-10.08/-9	-10.93/-11.9	-12.16/-17.16	-19.35/-11.78	-14.04/-19.62	-11.41/-13.82	-18.98/-13.34	-11.83/-12.12	-13.71/-9.53	-14.38/-14.68	-5.09/-8.02	-14.1/-9.21	-11.29/-11.49	-10.98/-6.9	-7.88/-10.34	-20.07/-16.14	-12.34/-11.82
Θ(135°)	-7.95/-13.03	-10.69/-5.68	-5.35/-6.41	-9.01/-19.39	-12.13/-6.02	-5.04/-8.19	-14.08/-14.8	-10.21/-7.65	-6.24/-5.66	-8.49/-18.6	-12.96/-7.74	-9.52/-19.22	-16.49/-12.33	-12.37/-12.82	-19.06/-15.26	-13.43/-19.1	-13/-18.56	-12.46/-9.38	-15.89/-19.98	-17.08/-10.33	-9.49/-10.88	-13.26/-19.43	-15.39/-18.95	-16.76/-9.35
Θ(142.5°)	-20.35/-12.08	-14.03/-14.74	-10.05/-8.93	-11.62/-19.98	-15.75/-8.92	-6.89/-8.08	-12/-15.39	-9.67/-5.73	-4.53/-5.73	-9.26/-19.72	-15.17/-10.18	-12.13/-16.88	-14.61/-11.82	-12.58/-12.13	-16.26/-20.13	-17.87/-18.51	-15.92/-18.88	-17.31/-15.14	-15.8/-20.31	-19.67/-18	-12.37/-13.24	-7.3/-7.6	-13.31/-16.23	-16.21/-16.66
Θ(150°)	-12.74/-7.53	-7.95/-6.66	-13.48/-19.74	-18.54/-15.55	-12.68/-11.92	-11.78/-12.82	-15.95/-12.92	-7.74/-5.6	-4.67/-4.58	-18.33/-19.91	-20.02/-14.11	-14.99/-17.6	-16.45/-10.38	-14.98/-17.2	-12.41/-18.98	-20.12/-18.57	-11.95/-19.62	-17.47/-11.01	-9.57/-14.66	-20.33/-14.85	-7.45/-6.84	-8.13/-11.85		
Θ(157.5°)	-19.54/-19.19	-15.47/-15.22	-19.56/-19.14	-19.98/-15.03	-10.74/-6.83	-7.82/-7.94	-9.53/-12.59	-14.83/-13.65	-12.27/-12.09	-13.07/-13.45	-13.16/-13.98	-17.86/-19.72	-13.28/-10.12	-10.87/-15.49	-19.49/-19.48	-16.53/-9.41	-7.23/-8.19	-9.44/-10.35	-11.05/-10.13	-8.59/-8.08	-10.01/-14.14	-11.41/-7.12	-4.53/-3.97	-5.39/-8.73
Θ(165°)	-15.48/-16.75	-18.49/-19.52	-15.46/-14.92	-16.01/-14.91	-12.97/-11.76	-12.31/-13.86	-16.25/-18.57	-20.31/-19.71	-20/-20.43	-17.57/-15.7	-14.56/-15.48	-18.99/-20.29	-15.15/-11.2	-9.82/-10.35	-12.19/-14.54	-13.79/-11.25	-9.49/-9.16	-9.31/-9.79	-10.63/-11.65	-13.58/-17.89	-17.95/-12.03	-7.83/-5.49	-4.8/-5.81	-7.95/-11.24
Θ(172.5°)	-15.23/-20.07	-20.61/-20.17	-19.95/-19.64	-18.53/-17.92	-18.68/-19.26	-19.02/-18.56	-19.09/-19.81	-18.33/-15.68	-14.07/-13.02	-12.64/-13.4	-15.03/-17.77	-18.9/-20.13	-19.54/-16.92	-19.85/-19.82	-19.98/-19.56	-18.33/-18.99	-17.79/-18.42	-20.11/-18.83	-20.11/-18.94	-18.92/-18.58	-14.45/-11.11	-9.09/-8.34	-8.69/-9.35	-10.79/-12.3
Θ(180°)	-20.51/-19.52	-20.08/-18.52	-20.17/-19.45	-19.54/-19.67	-20.34/-18.45	-16.76/-14.49	-14.6/-15.26	-15.98/-17.28	-18.46/-19.67	-19.57/-20.57	-19.15/-18.47	-17.99/-17.14	-17.03/-16.68	-15.75/-14.59	-13.86/-13.24	-13.25/-13.67	-14.92/-16	-16.39/-17.97	-19.89/-19.6	-18.59/-20.2	-19.33/-18.38	-16.95/-18.6	-19.54/-19.34	-19.72/-19.36
Freq(Hz)	5.785GPol.	ThetaAnt. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
Θ(0°)	-4.89/-4.64	-4.47/-4.28	-4.14/-4.67	-5.04/-5.81	-6.82/-8.13	-9.24/-10.86	-12.60/-14.47	-12.85/-11.44	-10.02/-8.42	-7.32/-6.61	-5.83/-5.16	-4.85/-4.72	-4.80/-4.85	-4.93/-5.45	-5.89/-6.46	-6.71/-7.27	-8.08/-8.89	-9.85/-11.24	-12.05/-11.48	-11.67/-11.76	-10.27/-9.04	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
Θ(7.5°)	-5.57/-5.19	-4.92/-5.17	-5.57/-6.31	-7.13/-8.02	-8.94/-10.67	-13.14/-13.99	-13.61/-13.31	-11.64/-9.7	-8.31/-7.6	-7.23/-6.4	-5.66/-5.12	-4.55/-4.14	-3.89/-3.69	-3.77/-3.82	-3.8/-3.81	-4.16/-4.6	-5.57/-6.53	-7.51/-8.68	-10.51/-13.21	-17.99/-20.3	-18.87/-14.2	-10.82/-9.15	-7.76/-6.88	-6.56/-6.29
Θ(15°)	-6.55/-6.32	-6.39/-6.2	-6.6/-7.4	-8.25/-9.69	-11.19/-14.92	-15.09/-12.41	-10.17/-8.03	-6.15/-5.29	-4.78/-4.63	-4.68/-4.77	-4.79/-5.46	-3.97/-3.28	-2.72/-2.33	-2.12/-1.92	-1.8/-1.71	-1.9/-2.31	-2.74/-3.35	-4.11/-5.2	-6.47/-8.49	-11.9/-16.16	-18.28/-16.1	-6.10/-3.34	-8.56/-7.62	-6.89/-6.68
Θ(22.5°)	-7.49/-7.81	-7.40/-7.28	-8.08/-9.19	-10.76/-11.98	-11.76/-10.96	-9.58/-7.47	-5.47/-4.14	-3.12/-3.24	-1.73/-1.93	-2.45/-3.15	-3.57/-3.91	-1.05/-0.49	-2.99/-1.09	-0.51/-0.49	-0.75/-1.14	-1.46/-1.41	-1.48/-1.57	-1.73/-1.98	-2.34/-3.2	-4.63/-7.08	-9.16/-10.8	-11.16/-10.45	-8.92/-8.05	-7.89/-7.32
Θ(30°)	-8.22/-7.34	-7.08/-7.63	-8.67/-10.1	-10.47/-10.57	-10.16/-9.42	-7.82/-6.59	-5.52/-3.8	-2.32/-1.46	-0.92/-1.05	-1.68/-2.27	-2.58/-3.23	-3.91/-3.49	-1.81/-0.12	0.580/24	-0.44/-0.8	-0.78/-0.39	0.020/49	0.880/95	0.58/-0.2	-1.37/-3.28	-5.31/-8.34	-10.66/-11.6	-10.29/-8.84	-8.59/-8.07
Θ(37.5°)	-4.58/-6.53	-6.58/-7.44	-9.65/-10.6	-9.23/-8.27	-7.59/-6.68	-5.24/-3.46	-2.07/-1.11	-0.65/-5.71	-0.02/-0.13	-0.98/-1.88	-2.29/-2.69	-2.49/-1.45	-0.99/-0.65	-0.62/-0.28	-0.06/-0.17	-0.64/-0.87	-0.99/-0.58	0.01/-0.02	-0.19/-0.7	-1.18/-2.19	-3.35/-4.42	-5.85/-7.28	-7.47/-6.36	-5.65/-4.34
Θ(45°)	-5.59/-7.82	-10.63/-8.88	-7.85/-5.75	-6.73/-6.6	-6.55/-5.81	-4.37/-3.9	-3.83/-3.3	-2.44/-1.7	-1.32/-0.92	-0.82/-1.07	-1.28/-2.25	-2.25/-1.14	-0.62/-0.09	0.54/-0.06	-1.29/-2.27	-3.3/-2.2	-1.92/-0.8	-0.63/-2.61	-0.710/4	-0.63/-2.61	-4.71/-6.82	-6.49/-6.34	-5.19/-4.44	-4.84/-5.11
Θ(52.5°)	-6.03/-5.71	-6.71/-6.2	-6.81/-8.75	-11.55/-10.94	-6.74/-4.18	-3.12/-3.1	-3.6/-4.09	-3.61/-2.05	-0.740/-1	0.39/-0.03	-0.09/-0.8	-0.34/-0.39	-0.530/78	1.1/-0.06	-0.7/-2.06	-2.5/-1.81	-1.86/-1.09	-0.5/-0.91	0.17/-1.14	-1.29/-1.44	-2.22/-3	-4.09/-5.16	-4.71/-3.95	-4.35/-5.5
Θ(60°)	-4.5/-5.31	-6.49/-7.16	-7.85/-12.36	-9.05/-3.82	-1.47/-5.06	-0.72/-1.9	-3.56/-4.4	-4.77/-3.86	-1.92/-0.09	1.41/-1.35	1.74/-1.61	1.93/-1.73	1.69/-1.78	0.66/-0.09	0.12/-0.87	-1.49/-1.71	-0.61/-0.61	-0.49/-0.84	-1.45/-1.63	-1.97/-2.19	-1.87/-1.75	-1.26/-2.12	-3.55/-4.12	-3.37/-2.43
Θ(67.5°)	-2.49/-4.87	-5.13/-8	-10.79/-11.44	-6.5/-3.94	-2.08/-1.96	-2.89/-4.7	-6.57/-6.55	-5.85/-4.26	1.03/-1.04	1.94/-1.61	1.89/-2.23	2.67/-0.33	2.66/-16	1.050/04	-0.49/-1.58	-2.02/-2.4	-2.38/-1.76	-2.21/-9.5	-1.39/-1.21	-0.30/-0.7	0.170/37	0.00/7	-0.54/-0.63	
Θ(75°)	-2.77/-4.6	-5.05/-6.79	-8.47/-12.15	-9.24/-5.67	-4.85/-5.51	-7.1/-8.56	-5.26/-8.14	-4.86/-2.67	-1.21/-0.49	0.85/-1.29	2.49/-2.57	3.19/-2.95	3.25/-92	2.912/52	1.490/26	0.03/-0.87	-1.42/-1.79	-2.66/-3.86	-3.71/-3.77	-2.8/-1.29	-0.030/96	0.510/92	0.71/-7	1.410/29
Θ(82.5°)	-4.67/-4.23	-1.56/-3.77	-7.03/-10.78	-8.79/-4.01	-2.79/-3.73	-7.21/-9.39	-10.21/-14.69	-12.46/-4.79	-1.18/-0.1	0.310/2	2.062/36	2.52/99	3.683/32	3.312/66	1.490/97	0.06/-1.25	-1.79/-2.9	-3.94/-4.45	-4.17/-4.43	-2.85/-2.09	-2.1/-0.58	-0.420/86	1.212/05	1.75/-0.14
Θ(90°)	-1.990/-46	1.33/-0.36	-1.81/-5.18	-3.51/-1.95	-2.41/-4.81	-7.35/-6.38	-6.32/-9.23	-15.58/-7.98	-2.430/-21	0.75/-0.6	1.472/25	2.612/06	2.650/-91	1.852/-01	0.53/-15	1.21/-0.37	-0.89/-2.8	-4.65/-7.87	-7.28/-7.42	-5.48/-2.16	-1.51/-1.06	-1.39/-0.14	-0.090/-51	-0.68/-1.82
Θ(97.5°)	-0.61/-167	1.960/-16	-0.88/-2.72	-6.27/-6.69	-4.35/-5.04	-6.76/-6.63	-5.11/-5.81	-12.08/-10.34	-2.080/49	1.35/-0.77	0.64/-0.42	-0.88/-0.19	1.850/57	2.370/-72	-1.67/-0.18	0.67/-2.03	-3.89/-8.08	-11.33/-15.39	-5.95/-5.01	-2.98/-1.68	-0.84/-2.33	-3.5/-3.9	-2.290/-5	0.7/-0.48
Θ(105°)	-1.520/-85	0.91/-0.98	-0.74/-3.84	-8.69/-6.72	-4.15/-6.73	-7.96/-5.19	-4.01/-5.23	-1.198/-9.2	-0.921/22	1.42/-1.19	1.21/26	0.39/-0.71	0.07/-3.81	-0.84/-0.67	-3.76/-1.75	0.48/-0.98	-5.68/-11.02	-19.85/-11.66	-6.19/-4.51	-2.89/-1.75	-3.9/-4.87	-6.36/-6.9	-5.64/-0.91	-0.58/-2.64
Θ(112.5°)	-3.55/-0.37	-0.95/-2.98	-1.99/-2.62	-4.81/-4.79	-2.72/-3.83	-7.15/-9.42	-2.36/-2.76	-6.81/-12.36	-3.190/-31	-0.91/-0.26	-0.50/-25	-3.4/-3.28	-0.51/-1.63	-1.21/-2.61	-7.14/-6.72	-5.64/-5.34	-9.76/-10.5	-12.07/-10.85	-4.64/-5.43	-6.99/-4.18	-6.38/-6.28	-9.75/-9.3	-8.54/-9.62	-4.19/-5
Θ(120°)	-3.49/-0.66	-0.86/-1.76	-0.95/-1.33	-3.47/-3.45	-2.62/-3.13	-7.28/-8.66	-4.66/-4.41	-7.69/-12.93	-5.53/-1.28	-0.49/-2.06	-2.41/-0.19	-1.01/-3.39	-3.98/-4	-3.01/-3.98	-1.67/-1.73	-12.14/-14.69	-12.84/-12.25	-10.11/-0.81	-11.36/-7.74	-8.16/-7.4	-6.78/-11.21	-15.77/-10.01	-4.53/-7.74	-6.54/-7.73
Θ(127.5°)	-4/-1.24	-1.11/-2.73	-3.39/-3.69	-3.49/-4.59	-5.54/-6.67	-10.33/-15.89	-15.91/-10.																	



Radiated Composite Gain Data of 2.4G,5G

Appendix A

Θ(127.5°)	-14.08/-13.41	-11.04/-17.09	-19.74/-10.27	-8.29/-6.66	-8.47/-8.91	-13.03/-16.17	-15.15/-15.17	-15.48/-20.38	-19.65/-16.91	-13.61/-19.4	-16.63/-10.68	-18.75/-20.36	-13.57/-11.99	-10.1/-7.31	-12.91/-19.67	-6.85/-9.24	-9.44/-9.49	-7.53/-5.95	-8.28/-3.19	-0.82/-4.35	-4.66/-6.31	-4.8/-4.31	-4.94/-10.24	-18.27/-13.82
Θ(135°)	-20.74/-19.93	-14.71/-16.86	-19.8/-19.4	-15.95/-13.43	-10.36/-11.21	-10.71/-11.61	-15.47/-19.53	-19.6/-19.08	-18.93/-20.55	-19.56/-16.06	-12.26/-10.06	-10.89/-15.76	-14.74/-14.87	-14.87/-11.21	-13.65/-13.4	-10.6/-8.1	-8.34/-15.46	-7.72/-7.27	-9.07/-6.52	-3.83/-6.9	-11.26/-11.03	-6.34/-6.77	-6.68/-14.89	-14.73/-14.89
Θ(142.5°)	-13.62/-18.64	-20.47/-19.93	-19.86/-19.43	-16.49/-13.83	-10.66/-9.99	-10.36/-10.03	-12.18/-17.35	-19.93/-20.02	-17.36/-14.94	-14.53/-15.75	-19.6/-18.55	-18.45/-12.29	-9.78/-14.74	-16.47/-12.11	-11.1/-11.24	-9.55/-11.69	-20.1/-26	-14.6/-11.48	-11.79/-12.33	-12.8/-19.9	-16.9/-10.14	-7.51/-11.75	-18.96/-20.13	-13.84/-13.34
Θ(150°)	-6.57/-8.78	-15.06/-18.82	-12.86/-10.01	-9.08/-8.61	-7.78/-5.97	-5.08/-5.25	-6.07/-8.47	-13.45/-20.37	-16.88/-12.36	-10.9/-12.56	-17.46/-18.53	-16.68/-15.63	-17.36/-13.01	-18.41/-9.81	-8.53/-13.74	-19.16/-14.27	-8.86/-9.52	-14.15/-11.81	-9.02/-8.75	-9.96/-12.35	-15.68/-18.16	-19.03/-18.06	-11.98/-8.55	-6.13/-5.88
Θ(157.5°)	-7.66/-10.84	-17.71/-18.47	-12.95/-9.41	-6.86/-6.23	-4.82/-5.26	-5.95/-7.47	-8.69/-8.77	-8.05/-7.37	-7.02/-6.96	-8.33/-14.13	-11.66/-13.38	-13.37/-14.13	-14.36/-12.32	-12.23/-14.27	-17.11/-15.8	-14.93/-17.92	-18.48/-15.59	-13.42/-11.99	-11.74/-12.51	-13.71/-17.6	-16.68/-16.77	-15.89/-13.16	-9.18/-6.86	-6.04/-6.37
Θ(165°)	-8.12/-9.12	-11.77/-18.94	-20.85/-12.58	-6.41/-16.4	-4.91/-4.74	-4.63/-4.64	-6.63/-6.61	-8.18/-9.61	-11.02/-13.32	-14.45/-12.86	-11.26/-9.56	-8.06/-7.45	-7.75/-9.1	-10.95/-12.91	-13.13/-13.15	-19.49/-19.56	-19.66/-13.89	-11.55/-11.25	-12.85/-16.12	-19.22/-19.88	-16.84/-18.77	-16.8/-13.42	-11.77/-9.84	-8.69/-7.93
Θ(172.5°)	-13.55/-14.56	-15.63/-15.69	-12.27/-9.77	-8.23/-7.29	-6.59/-6.48	-7.16/-8.37	-10.16/-11.88	-13.36/-13.97	-13.52/-12.36	-10.88/-9.86	-9.65/-10.11	-11.51/-13.34	-15.92/-20.33	-20.52/-19.08	-17.81/-16.35	-16.71/-17.71	-18.73/-18.96	-19.66/-19.94	-19.51/-18.83	-16.34/-15.28	-15.1/-15.34	-15.13/-15.13	-14.55/-14.75	-13.96/-13.29
Θ(180°)	-17.46/-16.73	-16.54/-15.62	-14.01/-12.44	-12.03/-12.44	-13.31/-13.76	-13.58/-12.46	-11.54/-11.04	-11.34/-12.25	-13.3/-14.93	-16.68/-19.35	-19.97/-19.38	-19.98/-18.51	-18.77/-18.8	-18.84/-19.19	-19.06/-19.16	-19.55/-18.16	-15.15/-13.25	-12.33/-12.61	-14.15/-15.75	-16.9/-17.94	-18.2/-19.33	-19.39/-19.23	-20.41/-19.95	-18.73/-18.2
Freq(Hz)	5.2GPol.	ThetaAnt. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-10.47/-11.89	-13.75/-16.04	-19.09/-20.12	-19.74/-17.77	-19.99/-17.66	-17.36/-17.82	-18.45/-16.15	-14.16/-12.57	-12.61/-11.49	-10.03/-8.93	-8.42/-8.41	-9.52/-10.54	-11.49/-13.17	-16.04/-20.28	-20.29/-20.08	-17.6/-13.34	-10.41/-8.22	-6.76/-5.89	-5.34/-4.75	-4.1/-3.68	-3.65/-3.77	-4.14/-4.75	-5.66/-6.67	-8.26/-9.59
Θ(7.5°)	-15.53/-16.43	-18.2/-20.63	-20.18/-20.51	-15.22/-11.11	-8.35/-6.34	-5.26/-4.31	-7.19/-12.6	-2.01/-2.49	-2.82/-2.99	-3.19/-3.75	-4.74/-5.85	-18.27/-20.57	-18.85/-18.87	-19.04/-18.95	-19.78/-19.25	-18.94/-19.53	-19.16/-19.36	-18.64/-19.32	-16.61/-19.32	-12.81/-13.48	-14.68/-14.23	-13.86/-13.8		
Θ(15°)	-15/-14.88	-17.48/-18.84	-18.42/-17.09	-12.86/-9.5	-7.14/-5.42	-4.18/-3.33	-2.62/-1.74	-1.17/-0.74	-0.45/-0.39	-0.41/-0.65	-0.99/-1.53	-2.36/-3.47	-4.76/-6.43	-8.32/-10.44	-12.16/-12.7	-11.66/-10.31	-9.66/-9.63	-9.42/-9.95	-8.35/-7.87	-7.78/-8.25	-9.29/-10.46	-11.83/-13.13	-15/-17.41	-18.81/-16.37
Θ(22.5°)	-20.54/-19	-18.25/-19.77	-19.25/-18.33	-14.77/-11.44	-9.24/-7.95	-7.38/-9.62	-5.98/-4.98	-4.61/-4.24	-3.41/-2.39	-1.62/-1.35	-1.16/-1.03	-1.39/-2.3	-3.5/-4.7	-5.85/-7.05	-8.69/-10.15	-10.36/-9.37	-8/-7.23	-6.43/-5.64	-4.47/-3.37	-2.74/-2.73	-2.94/-3.65	-4.27/-5.15	-5.87/-7.06	-10.6/-16.94
Θ(30°)	-14.11/-19.42	-18.58/-17.33	-19.86/-19.9	-18.84/-13.7	-11.05/-9.18	-7.35/-4.59	-4.83/-3.11	-2.94/-3.76	-5.64/-7.09	-6.15/-4.69	-3.15/-1.72	-1.23/-2.02	-3.26/-4.6	-6.33/-9.53	-15.47/-16.11	-10.04/-6.92	-5.09/-2.89	-1.07/-0.07	-0.40/-0.24	-0.34/-0.08	-2.81/-3.95	-2.87/-4.58	-5.42/-8.44	
Θ(37.5°)	-6.18/-11.08	-16.84/-18.93	-18.6/-16.3	-11.23/-7.36	-5.24/-3.82	-2.86/-1.89	-1.21/-0.73	-0.47/-0.75	-1.5/-3.26	-5.44/-6.93	-6.65/-4.35	-3.34/-3.31	-3.45/-4.59	-7.39/-9.78	-7.82/-4.42	-2.9/-1.4	0.320/98	1.311/88	2.362/71	2.661/63	0.74/-0.59	-2.52/-3.39	-2.22/-1.62	-2.41/-3.81
Θ(45°)	-1.8/-4.49	-6.61/-7.82	-8.65/-7.82	-7.21/-5.87	-4.48/-3.2	-2.36/-1.79	-1.54/-1.39	-0.9/-0.5	-0.36/-1.2	-3.75/-7.25	-8.79/-7.2	-5.02/-3.14	-2.21/-2.96	-5.6/-55	-4.4/-1.86	-0.510/-63	0.881/3	1.611/95	2.622/33	3.844/-17	3.892/6	0.27/-6.2	-3.28/-0.81	0.05/-4.09
Θ(52.5°)	1.22/-0.39	-2.45/-2.98	-3.05/-3.28	-2.49/-2.38	-2.39/-1.78	-1.13/-1	-1.02/-1.01	-0.85/-1.07	-1.56/-2.06	-3.65/-5.75	-9.27/-9.79	-6.01/-2.72	-1.47/-2.26	-4.84/-4.6	-1.03/4.2	0.730/17	-0.5/-0.33	1.061/95	1.892/24	3.083/79	4.033/43	2.130/17	-1.84/-1.55	0.481/27
Θ(60°)	1.41/08	0.16/-0.13	-0.53/-0.65	-1.42/-1.22	-1.66/-1.35	-1.23/-1.06	-1.02/-1.44	-1.9/-2.07	-2.31/-2.92	-4.16/-4.91	-7.01/-8.44	-7.66/-3.88	-2.63/-3.6	-5.02/-1.96	0.46/1	-0.14/-2.82	-3.61/-1.56	0.531/53	1.311/36	1.812/18	3.053/34	2.622/03	1.621/28	1.061/63
Θ(67.5°)	0.440/19	0.621/15	0.980/94	0.15/-0.56	-1.6/-1.3	-1.44/-1.68	-2.11/-2.67	-2.71/-2.48	-3.1/-4.4	-6.84/-8.28	-10.08/-11.5	-8.18/-4.06	-2.72/-2.97	-2.51/-167	-0.07/-0.86	-3.31/-5.62	-3.84/-1.13	-0.370/-32	0.910/37	0.110/46	0.870/37	0.231/03	2.26/3	2.431/43
Θ(75°)	1.19/-0.97	-0.330/-83	0.69/-0.19	-1.44/-2.34	-3.67/-5.44	-5.05/-4.64	-3.97/-3.95	-4.46/-4.93	-5.45/-5.55	-6.37/-0.9	-8.48/-8.99	-8.14/-4.63	-4.03/-4.1	-3.29/-2.4	-1.17/-1.3	-4.48/-9.06	-7.05/-2.93	-0.97/-0.44	-1/-13.092	-0.180/14	-0.78/-2.44	-2.41/-44	1.332/9	3.573/18
Θ(82.5°)	1.08/-0.54	-1.77/-1.34	-1.08/-1.28	-1.56/-2.48	-4.13/-5.31	-5.7/-6.39	-6.78/-9.44	-11.04/-9.86	-6.46/-5.39	-7.2/-11.23	-11.11/-10.45	-12.62/-11.13	-5.34/-3.94	-2.05/-1.74	-1.48/-2.59	-6.47/-12.49	-8.04/-2.93	-0.99/-0.9	-2.02/-2.64	-1.51/-0.76	-1.81/-5.4	-5.85/-1.76	-0.421/04	1.921/67
Θ(90°)	0.39/-0.72	-0.31/-0.1	-1.68/-2.07	-2.81/-4.3	-5.42/-6.42	-7.19/-66	-11.61/-13.22	-13.67/-13.27	-10.88/-11.1	-9.37/-6.55	-8.26/-9.46	-7.34/-6.32	-6.63/-7.03	-7.36/-69	-3.6/-4.43	-4.93/-11.71	-15.17/-5.03	-1.68/-9.02	-2.21/-2.28	-2.76/-2.07	-4.61/-6.54	-5.16/-2.85	-1.89/-0.61	1.20/55
Θ(97.5°)	-2.54/-2.05	-0.06/-0.38	-0.63/-0.93	-2.85/-4.58	-7.14/-9.39	-10.71/-11.23	-14.81/-14.98	-19.68/-19.91	-14.69/-10.62	-13.13/-12.74	-14.54/-14.41	-12.63/-9.46	-7.54/-4.86	-4.38/-4.34	-5.14/-9.9	-8.24/-15.42	-3.34/-5.43	-3.57/-4.3	-5.81/-8.83	-6.75/-8.72	-12.04/-5.67	-3.12/-2.24	-4.19/-4.76	-2.38/-2.87
Θ(105°)	-9.2/-6.4	-3.83/-4.81	-3.88/-3.56	-5.95/-9.92	-19.78/-19.24	-18.77/-19.72	-20.27/-19.4	-20.1/-18.39	-19.42/-17.3	-16.58/-12.18	-9.45/-9.98	-9.47/-10.43	-11.08/-7.62	-7.71/-8.5	-8.64/-7.26	-9.86/-15.76	-20.22/-12.41	-6.84/-11.51	-19.75/-18.88	-10.85/-9.03	-9.34/-7.26	-4.04/-4.81	-5.65/-4.57	-5.93/-9.99
Θ(112.5°)	-16.94/-14.46	-13.4/-20.07	-18.19/-12.67	-19.08/-18.59	-9.94/-9.5	-10.88/-11.68	-13.24/-14.85	-15.16/-13.94	-20.92/-18.24	-16.1/-12.42	-10.77/-15.44	-17.41/-14.9	-12.49/-8.4	-9.94/-7.47	-9.28/-8.52	-10.65/-9.66	-19.03/-13.67	-19.3/-10.72	-8.52/-7.47	-4.32/-5.64	-8.4/-11.22	-9.73/-12.35	-8.44/-8.94	-9.64/-20.17
Θ(120°)	-9.36/-9.24	-13.65/-12.36	-8.17/-8.42	-9.51/-9.56	-10.19/-7.57	-7.85/-9.07	-13.21/-8.15	-10.06/-11.96	-14.83/-14.01	-16.84/-12.64	-12.54/-11.92	-19.03/-14.35	-10.53/-6.42	-7.88/-9.73	-10.82/-18.69	-20.05/-13.68	-6.96/-4.96	-7.41/-5.15	-1.33/-2.26	-4.09/-10.27	-9.72/-7.08	-8.42/-1.41	-6.13/-6.54	
Θ(127.5°)	-4.54/-2.41	-7.6/-4.4	-6.74/-6.04	-5.6/-7.09	-7.5/-9.41	-7.57/-6.3	-6.89/-7.34	-8.7/-9.76	-9.51/-10.14	-13.86/-15.36	-16.16/-18.8	-12.42/-9.09	-8.87/-11.82	-11.98/-19.46	-10.58/-20.25	-15.74/-11.5	-11.42/-7.95	-3.96/-5.24	-8.78/-6.74	-1.75/-1.61	-7.42/-13.1	-5.36/-7.4	-6.63/-2.48	-8.52/-3.07
Θ(135°)	-4.7/-2.86	-3.2/-3.61	-4.56/-6.67	-8.54/-10.04	-9.15/-8.23	-9.21/-11.17	-9.98/-8.43	-7.52/-7.57	-8.26/-10.9	-15.06/-14.76	-13.17/-12.01	-15.68/-15.97	-19.74/-18.62	-19.24/-17.08	-18.68/-13.4	-13.42/-19.34	-18.06/-19.57	-12.91/-7.8	-10.24/-14.26	-9.65/-9.13	-20.46/-20.17	-7.99/-7.88	-4.67/-2.41	-6.56/-4.41
Θ(142.5°)	-4/-5.35	-3.3/-3.42	-2.42/-3.24	-3.91/-5.22	-6.86/-9.41	-12.56/-13.88	-14.55/-12.43	-10.73/-10.73	-12.01/-12.52	-13.13/-17.67	-19.46/-19.27	-18.14/-16.65	-11.65/-8.63	-8.75/-15.2	-14.63/-19.14	-15.62/-16.88	-14.06/-13.01	-19.06/-19.14	-20.28/-19.7	-19.7/-19.98	-10.32/-6.01	-6.39/-5.85	-5.62/-3.54	-4.76/-2.74
Θ(150°)	-3.53/-4.65	-3.28/-1.89	-1.09/-0.62	-0.88/-1.63	-2.72/-3.71	-4.32/-4.75	-4.87/-5.13	-6.06/-7.7	-9.01/-10.67	-14.34/-15.47	-17.18/-19.13	-17.76/-12.13	-8.24/-10.57	-13.15/-13.85	-19.73/-19.13	-16.63/-15.15	-18.17/-20.32	-19.35/-13.07	-8.73/-9.25	-10.94/-8.48	-8.51/-6.89	-5.44/-5.54	-6.02/-4.02	
Θ(157.5°)	-7.21/-6.78	-5.82/-4.79	-4.45/-4.99	-5.46/-5.72	-6.17/-6.91	-7.71/-7.94	-7.53/-6.62	-5.47/-8.1	-5.18/-6.09	-7.11/-8.26	-9.54/-8.86	-8.18/-8.58	-9.41/-11.37	-15.23/-19.47	-19.85/-19.27	-16.51/-12.78	-12.79/-15.34	-19.16/-20.23	-19.78/-16	-11.39/-9.53	-8.48/-6.36	-4.94/-4.86	-6.01/-8.65	-10.43/-1.97
Θ(165°)	-10.93/-10.03	-10.75/-9.89	-8.28/-7.58	-8.01/-9.2	-11.42/-19.9	-18.4/-16.7	-12.42/-9.78	-8.09/-6.65	-5.23/-4.47	-4.46/-4.71	-5.1/-5.72	-7.06/-9.35	-11.58/-13.11	-15.99/-19.96	-19.41/-17.96	-14.78/-12.66	-12.58/-14.6	-19.84/-18.83	-19.35/-18.94	-19.93/-20.27	-17.49/-13.61	-11.01/-10.03	-11.23/-14.47	-16.85/-13.95
Θ(172.5°)	-17.26/-15.92	-16.3/-16.5	-15.37/-15.81	-17.3/-18.77	-17.67/-15.29	-12.65/-10.84	-9.58/-8.36	-6.71/-5.7	-8.17/-5.15	-9.12/-11.3	-11.55/-10.53	-10.02/-9.9	-10.45/-11.54	-13.76/-17.01	-19.1/-19.1	-18.41/-19.92	-19.56/-18.65	-20.06/-19.02	-19.56/-18.94	-20.49/-19	-18.9/-17.4	-17.76/-18.87	-19.6	



Radiated Composite Gain Data of 2.4G,5G

Appendix A

Θ (180°)	-16.95/-14.35	-12.7/-11.91	-11.92/-10.76	-10.25/-9.62	-8.83/-7.76	-7.17/-6.24	-5.05/-4.28	-3.82/-3.87	-4.23/-4.72	-5.71/-6.96	-8.58/-10.75	-13.42/-16.33	-17.73/-19.12	-19/-18.14	-16.13/-13.44	-11.17/-9.72	-8.96/-8.25	-8.25/-8.69	-9.96/-11.71	-13.01/-13.8	-15.27/-16.7	-18.22/-18.2	-19.39/-19.15	-18.87/-18.11
Freq(Hz)	5.6GPol.	Theta/Ant. 2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
Θ (0°)	-16.63/-13.48	-11.32/-9.91	-8.38/-7.17	-6.01/-5.41	-5.18/-5.07	-5.75/-6.79	-8.27/-9.05	-9.2/-9.62	-10.43/-11.64	-12.86/-13.77	-13.67/-13.37	-13.8/-14.62	-15.91/-17.06	-15.99/-13.87	-11.76/-10.05	-9.09/-8.3	-7.48/-6.71	-6.35/-6.12	-5.51/-4.91	-4.58/-4.48	-5.57/-6.48	-7.71/-9.22	-11.65/-14.79	-17.22/-16.59
Θ (7.5°)	-19.01/-19.97	-19/-18.79	-19.89/-15.75	-11.84/-9.54	-8.33/-6.75	-7.2/-6.62	-6.55/-6.37	-5.82/-5.18	-4.95/-5.19	-6.39/-8.07	-9.58/-11.3	-14.52/-17.51	-15.62/-12.07	-8.96/-9.65	-5.75/-5.1	-4.82/-4.83	-5.21/-6.07	-7.59/-9.35	-9.95/-10.65	-11.89/-13.43	-15.05/-15.99	-17.85/-18.47	-17.35/-16.11	-15.37/-15.57
Θ (15°)	-18.36/-19.02	-15.07/-12.74	-11.82/-12.72	-12.77/-14.04	-15.6/-14.38	-11.86/-13.99	-14.56/-13.24	-11.4/-10.09	-9.62/-9.47	-9.62/-10.84	-11.72/-12.22	-12.71/-12.67	-10.46/-8.06	-6.43/-5.62	-5.67/-6.16	-7.5/-9.24	-10.82/-13.36	-16.29/-15.22	-12.16/-10.14	-8.26/-6.91	-6.02/-6.53	-5.77/-5.89	-6.76/-5.81	-11.56/-17.21
Θ (22.5°)	-10.95/-8.03	-5.93/-5.46	-5.85/-6.47	-7.13/-7.66	-8.13/-9.15	-11.98/-14.67	-17.39/-18.99	-17.62/-16.05	-15.13/-17.63	-18.66/-14.52	-12.43/-11.4	-9.36/-6.83	-5.21/-4.64	-5.27/-6.77	8.68/-11.19	-14.09/-13.72	-11.35/-9.22	-7.36/-5.6	-4.08/-2.63	-1.65/-0.91	-0.32/-0.21	-0.25/-0.6	-1.76/-3.47	-6.39/-9.49
Θ (30°)	-6.43/-3.97	-2.75/-2.41	-3.11/-3.92	-4.61/-6.35	-8.81/-11.83	-13.19/-15.65	-16.4/-14.11	-9.86/-7.89	-7.07/-6.53	-6.5/-9.58	-5.63/-5.55	-5.33/-4.5	-3.58/-3.72	-4.31/-4.62	-5.81/-7	-6.01/-5.86	-4.72/-3.09	-2.6/-3.19	-3.67/-3.85	-3.8/-2.26	-0.54/-0.72	1.54/-1.58	0.98/-0.89	-4.12/-8.82
Θ (37.5°)	-4.21/-2.56	-1.43/-1.21	-2.21/-4.75	-7.5/-11.52	-13.35/-16.11	-20.25/-17.39	-13.74/-10.09	-7.95/-6.74	-5.64/-4.05	-2.95/-2.88	-3.98/-5.15	-5.01/-4.32	-4.58/-4.25	-5.43/-5.51	-3.69/-2.2	-2.18/-1.67	-1.85/-1.78	0.18/-1.99	2.64/-2.41	2.020.82	-1.56/-1.71	0.47/-2.45	3.53/-85	0.34/-3.43
Θ (45°)	0.21/-1.8	1.220.04	-1.69/-3.63	-4.81/-5.42	-7.09/-8.4	-8.34/-7.32	-6.46/-5.95	-5.14/-4.38	-4.05/-3.6	-1.75/-0.4	0.1/-0.19	-0.57/-1.05	-3.06/-4.79	-6.29/-2.76	-0.47/-0.1	0.2/-1	0.12/-1.81	2.13/-1.84	2.21/-3.21	3.75/-3.02	1.17/-2.51	-3.350.62	3.07/-2.73	0.95/-0.92
Θ (52.5°)	0.380/-79	0.910/-01	-0.89/-0.21	-2.42/-3.96	-5.59/-6.81	-7.47/-7.06	-6.37/-5.3	-4.35/-4.25	-4.1/-2.96	-2.28/-1.63	-1.2/-0.91	-0.74/-1.25	-3.56/-3.79	-0.96/-1.22	1.020.16	-0.86/-1.2	-1.81/-2.09	-1.23/-0.19	1.062.04	2.62/-3.21	30.87	-3.8/-1.76	2.24/-6.66	-2.26/-0.06
Θ (60°)	-1.95/-2.78	-5.48/-1.84	-5.1/-3.18	-2.07/-2.69	-3.38/-5.31	-6.65/-8.02	-6.88/-5.33	-3.06/-3.05	-3.51/-4.7	-4.32/-2.25	-0.68/-0.35	-1.09/-1.21	-3.35/-3.25	-2.150.66	1.23/-1.93	0.54/-1.62	-2.6/-0.7	1.35/-1.95	2.01/-2.6	3.984.86	4.67/-6.5	1.34/-1.17	1.052.28	1.01/-5.6
Θ (67.5°)	1.61/-34	-1.33/-5.86	-16.05/-10.54	-5.65/-5.48	-5.66/-7.74	-9.87/-9.53	-7.01/-4.64	-3.02/-2.38	-2.74/-3.07	-3.26/-2.09	-0.250.06	-0.34/-2.61	-4.6/-6.25	-1.34/-1.35	1.65/-0.12	-3.89/-7.99	-4.94/-1.47	0.85/-1.79	1.592.24	2.692.88	3.54/-3.9	2.232.4	2.12/-1.12	-0.380.6
Θ (75°)	3.77/-52	3.94/-12	-1.68/-9.49	-15.86/-9.5	-7.29/-8.66	-7.86/-8.04	-7.89/-6.64	-5.8/-3.82	-2.68/-3.44	-4.71/-5.36	-1.95/-1.3	-1.79/-3.24	-3.96/-1.58	-2.390.56	0.59/-1.43	-3.75/-8.71	-4.15/-0.23	0.130.97	2.052/-15	1.892/-33	1.891/-56	1.832.69	3.984/-03	1.71/-65
Θ (82.5°)	2.73/-63	4.25/-01	1.8/-4.34	-11.0/-8.57	-6.08/-5.72	-5.83/-6.48	-7.69/-8.52	-8.04/-5.93	-5.54/-6.33	-7.28/-4.9	-2.79/-3.4	-2.78/-4.45	-10.03/-12.76	-3.47/-0.32	-0.71/-2.77	-8.43/-12.86	-4.06/-2.73	-0.69/-2.6	-2.13/-0.49	1.190.57	-0.61/-1.26	0.872.01	2.41/-73	0.66/-23
Θ (90°)	-0.79/-0.7	-0.58/-0.36	-1.5/-4.5	-9.36/-13.87	-13.95/-11.12	-9.79/-11.13	-10.04/-8.84	-8.21/-8.48	-10.88/-8.46	-8.95/-16.51	-6.02/-3.83	-5.53/-6.44	-7.51/-7.85	-3.4/-2.1	-3.41/-2.39	-4.48/-7.88	-7.51/-4.92	-4.77/-6.94	-5.26/-2.15	-1.3/-1.78	-3.71/-5.51	-4.33/-0.93	1.330.1	-3.33/-2.63
Θ (97.5°)	-5.33/-8.89	-5.48/-8.41	-5.88/-5.38	-8.49/-12.56	-17.18/-10.02	-9.91/-10.41	-11.22/-15.45	-15.23/-10.46	-10.78/-18.13	-9.45/-7.29	-5.64/-6.73	-10.73/-19.26	-19.61/-11.53	-8.06/-0.59	-6.3/-7.98	-7.8/-20.21	-11.41/-7.91	-6.33/-7.93	-2.31/-2.97	-4.63/-3.69	-4.82/-3.33	-1.24/-1.13	-2.55/-4.4	-2.55/-4.4
Θ (105°)	-2.24/-54	-3.64/-3.42	-2.96/-2.65	-6.28/-8.81	-9.84/-11.93	-10.91/-16.3	-19.33/-15.95	-10.59/-7.33	-8.51/-8.92	-12.53/-9.93	-6.84/-6.61	-7.66/-12.81	-13.44/-8.91	-8.43/-6.22	-6.35/-8.81	-7.76/-9.34	-13.72/-15.54	-13.84/-13.04	-11.57/-5.43	-1.8/-2.86	-4.55/-5.08	-3.44/-2.55	-4.94/-5.46	-2.28/-2.9
Θ (112.5°)	0.01/-4.06	-4.18/-4.95	-5.34/-7.11	-11.87/-9.23	-9.06/-9.55	-9.25/-7.37	-7.55/-7.86	-7.71/-7.61	-8.71/-16.68	-18.52/-20.64	-13.37/-12.79	-17.74/-12.08	-14.71/-19.45	-12.28/-7.86	-5.77/-4.14	-13.69/-18.14	-10.01/-12.22	-9.78/-2.18	-5.14/-7.11	-2.29/-2.46	-1.9/-5.79	-5.11/-3.75	-5.35/-2.91	-1.49/-0.14
Θ (120°)	-0.32/-0.3	-0.43/-2.55	-6.65/-4.97	-2.61/-64	-0.05/-0.58	-1.94/-3.42	-5.07/-7.58	-7.3/-8.37	-12.47/-19.84	-18.73/-14.39	-17.95/-18.56	-12.44/-11.13	-10.42/-8.86	-5.21/-7.23	-11.11/-8.53	-11.18/-18.64	-9.19/-10.7	-7.39/-4.53	-6.63/-4.14	-0.96/-1.32	-4.28/-15.93	-7.65/-6.29	-10.55/-3	-3.11/-10.9
Θ (127.5°)	2.84/-34	3.032/-47	2.21/-51	1.89/-62	0.43/-0.5	1.38/-2.66	0.33/-0.3	1.31/-3.78	-5.64/-4.49	-4.49/-8.85	-19.52/-12.21	-12.01/-13.05	-12.88/-11.98	-9.94/-14.44	-8.5/-10.31	-11.6/-10.56	-8.67/-11.78	-8.93/-9.25	-11.88/-8.57	-4/-7.8	-12.01/-8.23	-7.60/-8.59	-9.72/-2.44	0.51/-39
Θ (135°)	0.812.65	1.792/-17	1.34/-54	2.12/-38	2.161/-36	0.970/-25	-0.89/-1.22	-1.56/-3.39	-5.31/-8.87	-13.59/-19.07	-14.08/-13.43	-11.01/-11.5	-14.14/-11.7	-7.8/-8.68	-14.74/-11.85	-6.99/-16.87	-13.72/-19.03	-8.78/-5.68	-9.52/-11.24	-4.59/-5.01	-11.18/-12.23	-8.64/-9.34	-7.42/-10.11	-14.18/-1.56
Θ (142.5°)	-3.290.01	0.240.34	-0.31/-1.4	-2.6/-3.56	-3.69/-2.9	-2.86/-2.8	-2.35/-2.5	-3.6/-5.44	-8.64/-11.57	-12.34/-9.73	-13.03/-19.64	-19.61/-18.89	-18.8/-14.3	-12.43/-10.35	-14.65/-18.3	-19.24/-15.11	-16.84/-20.45	-19.37/-12.05	-10.29/-12.84	-9.01/-10.3	-8.19/-8.6	-4.47/-5.36	-1.99/-1.68	
Θ (150°)	-2.68/-4.08	-5.62/-8.51	-13.16/-15.78	-16.39/-16.82	-17.24/-20.09	-16.71/-15.91	-16.84/-16.96	-13.94/-9.95	-7.64/-11.57	-9.47/-14.5	-15.48/-10.78	-11.32/-14.33	-14.48/-10.99	-9.72/-11.58	-19.38/-20.47	-17.08/-17.43	-17.94/-19.8	-14.55/-9.43	-6/-3.88	-3.78/-5.7	-7.55/-10.6	-14.09/-9.54	-4.97/-2.56	-1.3/-3.1
Θ (157.5°)	-7.11/-7.51	-7.717/-7.77	-7.79/-8.71	-7.63/-5.87	-5.04/-4.7	-4.78/-4.56	-6.9/-6.19	-7.19/-9.43	-13.27/-16.97	-18.54/-14.51	-12.67/-16.48	-20.19/-14	-8.64/-6.65	-7.64/-10.79	-15.58/-18.04	-15.98/-12.33	-10.24/-10.41	-14.52/-20.1	-12/-0.87	-6.98/-7.21	-7.1/-6.94	-17.79/-6.68	-12.33/-12.83	-11.71/-8.28
Θ (165°)	-5.75/-5.67	-5.29/-4.34	-3.44/-3.24	-4.16/-5.42	-6.89/-8.47	-10.24/-11.21	-11.47/-11.25	-10.51/-14.04	-9.64/-8.12	-6.43/-5.6	-5.8/-6.66	-7.71/-9.7	-13.24/-16.21	-15.86/-13.77	-11.56/-9.87	-8.81/-8.36	-8.72/-10.56	-15.69/-20.7	-14.17/-9.13	-7.54/-7.52	-8.19/-8.88	-9.55/-9.89	-11.04/-10.97	-9.34/-7.1
Θ (172.5°)	-12.3/-11.07	-14.36/-12.83	-14.83/-16.23	-11.23/-12.77	-11.1/-9.9	-9.05/-9.43	-9.12/-8.34	-7.54/-6.8	-6.17/-6.25	-7.32/-10.61	-13.12/-13.45	-11.45/-10	-9.85/-10.21	-11.79/-14.39	-17.25/-17.76	-17.55/-17.1	-17.6/-19.26	-19.49/-20.18	-19.68/-19.48	-15.86/-13.83	-12.71/-12.29	-11.63/-11.22	-12.48/-16.09	-19.04/-16.38
Θ (180°)	-4.76/-3.84	-3.76/-3.77	-3.81/-3.79	-3.81/-4.26	-4.8/-5.62	-6.29/-3.71	-7.74/-7.75	-7.91/-8.6	-9.01/-9.54	-9.59/-8.93	-7.86/-6.96	-6.49/-6.25	-6.44/-6.98	-7.7/-8.43	-9.91/-9.39	-9.41/-9.99	-11.14/-12.04	-11.91/-11.63	-11.95/-13.31	-13.41/-12.64	-12.13/-11.5	-10.4/-8.89	-7.51/-5.9	
Freq(Hz)	5.785GPol.	Phi/Ant. 2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
Θ (0°)	-6.25/-5.62	-4.75/-4.37	-5.15/-5.6	-6.2/-6.92	-7.4/-8.28	-8.78/-9.46	-9.94/-11.05	-12.83/-14.18	-14.89/-13.71	-12.49/-11.64	-10.83/-9.99	-8.67/-7.3	-6.11/-5.04	-4.23/-3.71	-3.33/-3.04	-2.98/-3.49	-4.5/-5.71	-4.64/-7.22	-8.14/-9.48	-11.32/-15.32	-20.36/-20.19	-15.44/-12.64	-10.56/-8.89	-6.79/-6.05
Θ (7.5°)	-4.59/-3.95	-3.26/-3.02	-3.3/-3.41	-3.69/-3.7	-3.63/-4.04	-4.38/-5.33	-6.48/-7.61	-8.44/-9.89	-11.62/-14.86	-16.81/-13.7	-10.55/-8.25	-6.77/-16.8	-5.63/-5.27	-5.2/-5.43	-5.87/-6.7	-7.84/-9.3	-11.81/-14.02	-13.8/-12.66	-10.93/-10.48	-10.06/-10.8	-10.37/-10.29	-10.9/-2	-8.26/-7.29	-5.79/-4.96
Θ (15°)	-5.66/-5.4	-4.64/-4.58	-4.25/-4.2	-4.84/-6.57	-8.12/-9.08	-8.86/-8.87	-9.16/-9.8	-10.36/-10.31	-9.74/-10.46	-12.8/-17.35	-16.11/-10.92	-7.75/-5.9	-5.21/-5.28	-6.16/-7.44	-9.11/-11.38	-14.84/-20.25	-19.74/-18.23	-14.43/-12.47	-11.36/-11.1	-10.76/-10.72	-10.83/-10.9	-9.26/-9.67	-8.05/-7.28	
Θ (22.5°)	-8.95/-7.53	-7.27/-7.3	-7.38/-8.64	-12.4/-20.52	-19.53/-14.19	-11.16/-10.36	-9.97/-10.54	-11.14/-11.52	-11.97/-12.72	-13.52/-14.3	-13.08/-11.69	-9.63/-8.02	-7.28/-7.3	-8.16/-9.63	-11.33/-14.14	-19.26/-18.68	-14.45/-12.39	-11.75/-13.13	-14.6/-17.23	-18.34/-19.46	-20.57/-19.75	-16.55/-15.13	-13.15/-12.5	-11.75/-10.7
Θ (30°)	-7.64/-5.91	-5.4/-6.72	-10.72/-15.84	-18.57/-13.86	-11.49/-8.61	-7.26/-6.41	-6.11/-6.01	-6.36/-7.55	-6.48/-10.99	-12.14/-12.92	-13.25/-11.62	-10.76/-11.76	-12.39/-11.11	-10.71/-11.5	-11.7/-10.06	-8.02/-6.35	-5.2/-5.8	-8.37/-12.1	-14.38/-15.88	-13.				



Radiated Composite Gain Data of 2.4G,5G

Appendix A

Θ(30°)	-5.54/7.2	-4.13/3.58	-3.07/-2.7	-2.58/-2.73	-3.13/-3.68	-4.26/-4.77	-5.14/-5.23	-5.11/-5.03	-5.12/-5.6	-6.47/-7.81	-9.68/-12.09	-14.89/-17.92	-20.38/-19.8	-19.06/-19.73	-20.39/-20.14	-18.66/-19.23	-20.4/-17.27	-14.92/-13.22	-11.97/-11.12	-10.53/-10.29	-10.15/-10.01	-9.74/-9.43	-9.03/-8.43	-7.47/-6.41
Θ(37.5°)	-4.77/-3.8	-3.09/-2.46	-1.85/-1.44	-1.32/-1.48	-1.84/-2.3	-2.78/-3.2	-3.48/-5.35	-3.4/-3.22	-3.16/-3.45	-4.2/-4.7	-7.37/-9.96	-12.81/-15.31	-16.69/-17.8	-19.58/-19.24	-19.65/-19.8	-19.20/-3	-19.79/-19.31	-16.18/-13.68	-11.93/-10.67	-9.9/-9.57	-9.62/-9.71	-9.58/-9.14	-8.68/-8.05	-7.06/-5.85
Θ(45°)	-3.83/-2.82	-2.02/-1.38	-0.82/-0.46	-0.4/-0.59	-0.92/-1.3	-1.67/-2.05	-2.37/-2.6	-2.64/-2.53	-2.45/-2.61	-3.17/-4.23	-5.87/-7.95	-9.94/-11.41	-12.41/-13.35	-15.21/-18.72	-19.12/-16.65	-19.55/-19.85	-13.66/-17.3	-15.52/-13.58	-11.91/-10.36	-9.35/-8.73	-9.42/-9.25	-8.56/-7.65	-6.56/-5.21	
Θ(52.5°)	-3.48/-2.08	-1.05/-0.34	0.190/47	0.480/25	-0.07/-0.28	-0.61/-1.01	-1.45/-1.88	-2.24/-2.32	-2.22/-2.09	-2.39/-3.09	-4.42/-6.1	-7.76/-9.25	-10.48/-11.87	-14.04/-17.68	-19.81/-18.93	-18.39/-16.68	-15.7/-15.04	-14.41/-13.48	-12.36/-11.02	-9.62/-8.49	-7.84/-7.86	-8.53/-9.24	-9.14/-8.16	-6.72/-5.07
Θ(60°)	-3.7/-2.1	-0.81/-0.09	0.741/07	1.131/01	0.850/62	0.26/-0.18	-0.69/-1.25	-1.63/-1.68	-1.53/-1.44	-1.73/-2.55	-3.99/-5.81	-7.43/-8.86	-10.1/-11.6	-14.24/-18.21	-19.59/-19.58	-17.94/-16.85	-16.16/-15.85	-16.15/-15.91	-15.07/-13.67	-11.92/-10.07	-8.53/-7.54	-7.33/-7.84	-8.4/-8.23	-7.19/-4.59
Θ(67.5°)	-3.48/-1.89	-0.67/-0.22	0.851/17	1.291/37	1.421/33	1.040/66	0.22/-0.24	-0.61/-0.85	-1.08/-1.4	-1.99/-2.96	-4.33/-5.55	-6.52/-7.71	-8.94/-11.01	-13.98/-17.73	-19.16/-19.09	-19.38/-19.1	-18.38/-17.76	-16.96/-15.44	-13.84/-12.74	-11.96/-11.07	-9.95/-8.74	-7.71/-7.23	-7.29/-7.12	-6.4/-5.11
Θ(75°)	-2.42/-0.8	0.310/95	1.381/49	1.421/49	1.631/62	1.360/96	0.49/-0.02	-0.57/-1.04	-1.37/-1.56	-1.8/-2.32	-3.03/-3.72	-4.7/-5.94	-7.35/-9.37	-12.18/-14.95	-15.67/-17.17	-19.11/-19.58	-20.54/-19.64	-18.83/-19.55	-16.05/-13.78	-12.06/-10.8	-9.96/-9.36	-8.47/-7.41	-6.74/-6.16	-5.3/-4.02
Θ(82.5°)	-1.72/-0.07	1.171/83	2.21/2.2	1.941/75	1.641/4	0.950/42	-0.04/-0.42	-0.7/-0.78	-0.72/-0.67	-0.91/-1.5	-2.06/-2.76	-3.82/-5.08	-6.79/-9.12	-12.13/-13.61	-14.52/-16.23	-18.52/-19.78	-19.84/-19.54	-20.18/-19.38	-18.39/-19.44	-18.17/-14.1	-11.18/-9.51	-8.5/-7.18	-5.96/-5.17	-4.31/-3.15
Θ(90°)	-1.41/-0.13	0.961/66	2.012/07	1.91/81	1.71/47	1.090/65	0.370/16	-0.15/-0.57	-1.1/-1.33	-1.67/-1.8	-1.86/-2.52	-3.69/-5.3	-7.61/-10.28	-11.94/-12.16	-13.02/-14.06	-16.5/-18.21	-19.99/-18.37	-19.59/-19.99	-19.78/-18.03	-17.19/-16.5	-13.91/-11.38	-9.9/-8.17	-6.35/-4.98	-3.86/-2.68
Θ(97.5°)	-2.06/-0.49	0.531/17	1.421/3	0.990/84	0.770/53	0.21/-0.23	-0.75/-1.43	-2.32/-2.95	-2.71/-1.93	-1.26/-0.95	-1.53/-2.85	-4.5/-6.86	-9.38/-11.23	-10.85/-10.75	-10.59/-11.93	-14.19/-15.06	-16.9/-19.65	-20.12/-20.07	-19.3/-16.4	-15.89/-16.59	-16.72/-15.2	-13.78/-12.33	-10.19/-8.17	-6.14/-4.04
Θ(105°)	-5.51/-3.1	-1.57/-0.48	0.30/48	0.310/-11	0.01/-0.34	-0.83/-1.45	-2.25/-2.99	-3.08/-2.39	-1.45/-0.87	-0.82/-1.41	-2.88/-4.52	-6.16/-7.82	-8.51/-8.27	-7.73/-7.88	-8.41/-10.9	-17.4/-16.21	-17.61/-18.97	-19.97/-18.73	-19.92/-19.25	-18.63/-18.08	-19.39/-18.32	-16.29/-14.39	-12.82/-11.83	-10.81/-8.56
Θ(112.5°)	-6/-3.71	-2.33/-1.47	-0.76/-0.51	-0.8/-2.23	-1.58/-1.99	-2.48/-2.87	-3.01/-2.84	-2.31/-1.72	-1.33/-1.4	-1.96/-3.1	-4.32/-5.01	-5.84/-6.15	-7.42/-8.36	-9.88/-13.43	-17.06/-17.31	-17.13/-16.93	-17.86/-20.05	-19.49/-19.92	-19.07/-20.37	-19.98/-20.01	-20.06/-17.22	-13.66/-11.35	-9.78/-8.25	
Θ(120°)	-6.45/-3.99	-2.4/-1.58	-1.03/-0.8	-1.08/-1.65	-2.11/-2.5	-2.94/-3.39	-3.78/-3.95	-3.85/-3.58	-3.39/-3.62	-4.35/-5.28	-5.56/-5.65	-6.04/-6.34	-7.4/-8.17	-11.13/-13.36	-16.82/-20.09	-19.91/-18.43	-17.67/-17.43	-19.22/-20.1	-19.82/-19.13	-20.23/-19.21	-17.61/-15.93	-15/-14.48	-13.63/-12.49	-11.18/-9.15
Θ(127.5°)	-7.18/-5.01	-3.61/-2.94	-2.71/-2.78	-3.28/-4.17	-5.05/-5.84	-6.59/-7.16	-7.23/-6.7	-5.94/-5.47	-5.53/-6.13	-6.72/-6.71	-6.44/-6.86	-7.66/-8.97	-10.99/-11.93	-11.36/-10.77	-10.62/-10.77	-11.16/-11.98	-17.78/-19.56	-19.63/-18.79	-19.68/-20.23	-19.28/-16.39	-14.19/-12.65	-12.14/-11.49	-10.68/-9.32	
Θ(135°)	-8.36/-6.62	-5.52/-5.1	-5.21/-5.78	-6.76/-8.09	-8.43/-10.31	-10.37/-9.75	-8.99/-8.5	-8.47/-9.08	-10.16/-10.7	-9.77/-8.49	-7.82/-7.69	-7.48/-7.26	-7.07/-6.69	-6.48/-6.82	-9.91/-12.15	-14.78/-18.27	-20.34/-19.14	-19.08/-18.93	-17.89/-18.67	-19.38/-18.61	-14.91/-12.96	-14.98/-13.62	-11.98/-10.17	
Θ(142.5°)	-9.44/-8.39	-7.84/-7.92	-8.54/-9.72	-11.34/-13.42	-14.89/-15.24	-14.51/-13.6	-13.25/-13.35	-13.54/-12.94	-10.97/-8.69	-6.91/-5.94	-5.48/-5.36	-5.37/-5.59	-5.95/-6.53	-7.33/-8.29	-9.61/-11.43	-13.84/-16.31	-17.98/-18.42	-18.67/-18.65	-18.19/-17.5	-17.35/-17.79	-18.44/-18.7	-18.51/-17.69	-16.1/-13.99	-12.13/-10.51
Θ(150°)	-8.83/-8.31	-10.2/-8.43	-9.18/-10.55	-12.5/-15.3	-18.69/-18.4	-20.18/-20.2	-19.07/-18.92	-13.18/-15.22	-12.02/-9.6	-8.16/-7.46	-7.29/-7.45	-7.82/-8.36	-9.09/-9.97	-10.87/-11.6	-12.46/-13.63	-14.11/-15.16	-13.81/-13.5	-15.32/-13.96	-14.53/-15.19	-15.48/-15.76	-15.96/-16.01	-15.8/-15.09	-13.77/-12.1	-10.67/-9.53
Θ(157.5°)	-9.04/-8.55	-8.18/-8.1	-8.32/-8.81	-9.56/-10.54	-11.78/-13.03	-14.19/-14.98	-15.02/-14.73	-13.22/-11.93	-10.9/-10.77	-9.82/-9.75	-9.76/-9.84	-9.99/-9.87	-9.87/-10.02	-10.23/-10.51	-11.02/-11.17	-12.59/-13.37	-14.14/-134	-14.54/-14.73	-14.85/-14.81	-14.78/-14.81	-14.91/-14.36	-13.71/-11.92	-10.7/-9.75	
Θ(165°)	-11.75/-11.21	-10.62/-10.13	-9.74/-9.48	-9.29/-9.23	-9.16/-9.14	-8.60/-8.97	-8.78/-8.41	-7.97/-7.84	-7.91/-8.2	-8.49/-8.74	-8.92/-9.05	-9.08/-9.13	-9.23/-9.46	-9.79/-10.24	-10.85/-11.77	-12.85/-14.04	-15.23/-16.18	-16.74/-17.12	-17.14/-17.08	-16.88/-16.73	-16.63/-16.52	-16.39/-15.87	-15.18/-14.21	-13.35/-12.44
Θ(172.5°)	-17.21/-16.57	-15.85/-15.14	-14.4/-13.68	-13.01/-12.45	-11.91/-11.4	-10.95/-10.56	-10.11/-9.6	-9.08/-8.79	-8.64/-8.6	-8.69/-8.8	-9.04/-9.26	-9.53/-9.77	-10.05/-10.27	-10.61/-11.07	-11.64/-12.49	-13.58/-14.81	-16.32/-17.73	-19.33/-20.59	-20.42/-20.2	-20.66/-19.63	-20.57/-19.72	-19.45/-17.93	-18.82/-18.68	-18.8/-18.08
Θ(180°)	-19.45/-20	-19.83/-19.35	-19.05/-19	-18.92/-18.71	-18.47/-17.89	-17.11/-15.98	-14.84/-13.6	-12.53/-11.85	-11.38/-11.3	-11.51/-11.8	-12.16/-12.52	-12.92/-13.25	-13.52/-13.79	-14.09/-14.27	-14.92/-15.79	-16.93/-18.64	-19.87/-20.12	-20.1/-20.39	-20.59/-19.61	-20.05/-18.2	-19.41/-19.72	-20.63/-19.65	-18.67/-19.88	
Freq(Hz)	5.2G/Pol.	Phi/Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-11.74/-11.81	-12.46/-12.87	-11.48/35	-6.23/-4.97	-4.31/-3.61	-3.23/-2.06	-2.95/-3.25	-3.20/-3.64	-4.4/-5.1	-5.55/-7.3	-8.92/-13.12	-13.53/-11.6	-1.31/-6.19	-4.56/-3.82	-2.26/-1.67	-1.37/-1.16	-0.9/-1.2	-1.81/-2.78	-3.75/-4.84	-5.95/-6.8	-7.2/-7.78	-9.05/-11.29		
Θ(7.5°)	-11.55/-9.07	-6.31/-3.99	-2.06/-0.89	-0.380/05	0.410/61	0.490/32	0.04/-0.47	-1.16/-1.87	-3.02/-4.66	-6.62/-7.97	-8.7/-9.55	-10.82/-11.78	-12.1/-12.3	-12.6/-13.04	-13.35/-12.69	-10.91/-8.77	-7.07/-5.63	-4.55/-3.96	-3.68/-3.22	-3/-3.07	-3.27/-3.62	-4.27/-4.9	-5.79/-7.21	-10.36/-13.08
Θ(15°)	-8.41/-4.75	-2.28/-0.42	0.971/67	1.942/22	2.262/14	1.881/77	1.491/01	0.43/-0.39	-1.93/-4.08	-7.08/-10.27	-11.72/-11.8	-11.59/-10.6	-10.31/-10.8	-13.85/-14.91	-17.38/-10.03	-6.59/-5.38	-4.84/-8.1	-4.16/-3.72	-4.14/-13.5	-6.02/-6.93	-6.85/-6.91	-6.44/-6.5	-7.84/-9.97	-14.53/-13.53
Θ(22.5°)	-9.45/-5.17	-2.32/-0.25	1.071/21	0.90/72	0.17/-0.13	-0.77/-1.13	-1.44/-1.79	-2.37/-2.73	-2.73/-5.56	-4.94/-7.44	-10.88/-15.43	-17.81/-14.59	-12.97/-12.77	-12.3/-12.04	-9.54/-17.4	-5.52/-4.68	-4.76/-5.52	-6.01/-6.11	-5.73/-6.16	-7.52/-10.39	-9.22/-6.88	-6.68/-6.09	-11.74/-14.21	
Θ(30°)	-10.35/-5.68	-2.88/-1.24	-0.78/-0.97	-1.03/-1.05	-0.97/-1.04	-2.11/-2.49	-3.1/-4.46	-6.49/-9.21	-9.78/-7.76	-6.49/-6.63	-7.68/-10.53	-17.11/-19.99	-14.87/-11.04	-9.07/-7.66	-6.47/-5.49	-4.89/-4.83	-4.42/-3.26	-1.7/-0.87	-1.37/-2.49	-3.51/-4.78	-7.55/-13.72	-20.24/-14.1	-9.71/-9.48	-12.62/-20.18
Θ(37.5°)	-6.53/-3.32	-1.62/-0.24	-2.77/-1.87	-0.66/65	1.721/88	1.51/1	0.3/-0.63	-2.52/-5.39	-9.9/-13.52	-11.62/-9.55	-8.37/-9.35	-13.88/-19.42	-11.07/-9.99	-6.6/-6.66	-5.29/-5.65	-6.09/-5.4	-4.23/-4.37	-5.3/-5.24	-4.13/-2.87	-2.36/-2.7	-3.15/-4.87	-9.71/-17.64	-19.89/-16.81	-17.59/-12.81
Θ(45°)	-5.49/-2.78	-2.45/-4.06	-6.59/-4.08	-1.58/-0.01	1.281/63	1.741/07	0.33/-0.47	-1.98/-4.56	-8.72/-14.28	-12.98/-8.08	-5.22/-5	-7.69/-13.25	-8.41/-5.8	-4.67/-4.16	-4.56/-5.3	-4.48/-4.27	-6.29/-9.66	-10.1/-9.5	-9.18/-10.49	-8.95/-7.03	-6.75/-6.8	-9.30/-14.9	-17.96/-16.71	-20.24/-12.38
Θ(52.5°)	-5.31/-2.78	-4.25/-3.53	-6.28/-1.94	1.07/24	2.331/49	0.04/-0.81	-2.14/-3.4	-4.42/-4.81	-5.84/-9.17	-11.77/-10.99	-9.32/-7.96	-9.35/-12.26	-8.47/-25	-7.78/-6.68	-6.87/-7.42	-9.05/-10.2	-6.27/-4.68	-5.42/-6.53	-10.08/-19.83	-17.11/-10.02	-6.84/-6.11	-6.3/-9.24	-14.31/-15.32	-14.98/-9.43
Θ(60°)	-4.06/-0.23	-3.29/-8.25	-9.87/-6.42	-1.65/-0.85	-1.42/-3.08	-4.92/-1.79	-10.03/-12.14	-12.34/-12.32	-13.42/-17.01	-13.14/-10.54	-9.83/-8.49	-7.89/-12.75	-15.62/-10.51	-10.73/-9.83	-7.38/-8.55	-10.59/-7.51	-5.23/-4.35	-4.12/-4.98	-6.91/-10.2	-12.97/-11.45	-8.81/-5.23	-4/-5.49	-13.67/-13.94	-9.99/-7.26
Θ(67.5°)	-9.26/-7.05	-6.58/-9.16	-8.35/-4.69	-1.62/-0.63	-1.23/-3.17	-6.86/-10.93	-12.42/-13.09	-13.82/-14.53	-15.41/-17.67	-20.36/-20.41	-18.18/-9.85	-7.68/-10.05	-16.21/-11.58	-9.06/-6.04	-6.56/-10.4	-9.96/-7.1	-5.57/-4.15	-4.37/-6.52	-9.22/-13.92	-18.73/-19.58	-18.48/-10.71	-6.91/-7.69	-13.68/-13.73	-15.41/-11.94
Θ(75°)	-12.16/-10.28	-7.12/-6.39	-6.21/-4.93	-2.63/-1.79	-2.84/-5.67	-9.05/-10.71	-9.97/-8.91	-8.96/-9.45	-9.61/-9.98	-11.30/-20.22	-18.48/-14.28	-19.88/-18.85	-14.61/-20.11	-16.92/-9.92	-8.77/-8.87	-7.86/-6.53	-5.84/-6.43	-5.74/-5.09	-9.65/-16.92	-13.89/-8.91	-7.46/-8.7	-8.59/-9.29	-12.34/-11.53	-9.31/-9.99
Θ(82.5°)	-15.78/-12.34	-7.46/-6.42	-4.01/-4.67	-4.39/-3.62	-4.09/-5.87	-8.55/-10.03	-9.19/-9.62																	



Radiated Composite Gain Data of 2.4G,5G

Appendix A

Θ(82°)	-3.49/-6.83	-11.85/-7.03	-4.42/-3.1	-2.22/3	-4.78/-4.86	-3.75/-3.28	-3.36/-3.93	-2.71/-1.28	-0.21/0.36	-0.54/-1.81	-4.94/-4.88	-3.55/-4.97	-9.49/-16.07	-16.26/-17.82	-17.15/-11.86	-7.13/-3.25	-4.57/-8.12	-20.03/-11.99	-15.34/-13.01	-13.3/-13.51	-15.14/-16.37	-10.56/-14.22	-20.56/-18.95	-10.29/-6.07
Θ(90°)	-8.71/-5.56	-3.41/-3.33	-3.93/-3.37	-3.62/-5.43	-7.14/-8.27	-6.77/-4.66	-3.71/-3.78	-3.5/-2.99	-2.56/-1.12	0.43/0.85	-1.75/-4.99	-4.38/-3.51	-3.75/-6.56	-15.21/-19.24	-20.13/-14.49	-9.45/-3.29	-3.44/-7.46	-7.49/-6.65	-4.87/-6.66	-13.39/-8.53	-9.77/-17.19	-15.94/-14.22	-20.39/-11.75	-13.78/-13.12
Θ(97.5°)	-13.72/-9.65	-3.74/-2.44	-2.14/-2.04	-2.91/-5.02	-6.97/-1.07	-5.12/-4.51	-4.73/-4.41	-5.38/-6.39	-6.74/-6.25	-6.03/-3.68	-5.08/-6.82	-7.55/-8.94	-9.04/-20	-16.73/-12.72	-3.41/-19.25	-6.89/-3.68	-3.66/-7.68	-9.45/-3.39	-7.41/-6.67	-9.45/-14.45	-6.62/-4.46	-11.4/-15.93	-11.27/-18.15	
Θ(105°)	-9.29/-10.07	-3.39/-1.71	-2.3/-3.52	-5.31/-8.3	-6.59/-5.6	-5.4/-6.93	-8.94/-9.85	-9.93/-10.18	-11.13/-6.81	-5.53/-3.12	-3.27/-5.72	-8.26/-7.29	-5.04/-11.17	-12.53/-15.04	-12.26/-16.14	-15.1/-8.64	-8.9/-10.85	-6.04/-3.13	-5.59/-7.69	-11.35/-4.7	-5.7/-10.24	-6.91/-9.07	-8.04/-9.88	-19.77/-6.36
Θ(120°)	-7.63/-9.28	-6.56/-4.53	-3.44/-5.27	-7.79/-9.05	-10.23/-7.95	-6.5/-5.83	-7.21/-7.39	-7.78/-7.38	-8.99/-10.59	-11.54/-10.7	-9.1/-11.48	-7.32/-14.3	-18.47/-19.31	-11.96/-9.19	-11.91/-7.57	-7.91/-9.65	-6.37/-11.1	-19.29/-9.64	-5.23/-4.01	-14.46/-12.12	-6.83/-12.42	-19.24/-14.52	-14.03/-17.24	
Θ(125°)	-12.23/-13.08	-9.99/-8.74	-7.6/-5.28	-3.68/-3.96	-3.98/-3.94	-3.09/-3.44	-4.04/-6.37	-8.77/-9.4	-10.77/-16.91	-13.66/-7.4	-8.82/-11.38	-10.37/-8.07	-9.38/-12.75	-12.21/-12.51	-11.25/-14.04	-16.87/-11.91	-19.35/-19.58	-7.89/-10.74	-13.7/-7.3	-3.29/-3.83	-8.01/-16.39	-7.52/-5.65	-9.03/-7.22	-14.01/-14.11
Θ(127.5°)	-9.23/-19.53	-10.66/-6.65	-5.69/-6.52	-6.86/-5.87	-5.39/-6.01	-7.14/-7.38	-7.98/-9	-10.89/-10.14	-11.59/-16.15	-11.23/-9.64	-8.12/-7.49	-6.8/-9.28	-13.23/-12.28	-14.73/-11.69	-6.19/-5.18	-7.43/-16.88	-9.95/-8.54	-5.69/-7.74	-11.82/-10.06	-5.45/-6.73	-14.28/-16.56	-11.57/-10.02	-7.25/-8.18	-13.23/-11.06
Θ(135°)	-14.07/-11.02	-14.5/-17.84	-13.39/-10.06	-7.42/-6.13	-5.82/-5.48	-4.83/-5.13	-5.77/-5.99	-5.78/-9.68	-9.59/-14.09	-18.7/-20.58	-19.67/-16.7	-17.11/-14.74	-13.12/-11.02	-15.24/-14.33	-20.07/-19.85	-14.83/-19.31	-15.44/-13.79	-14.01/-13.8	-11.77/-14.44	-14.84/-10.56	-6.21/-8.31	-9.46/-13.93	-7.44/-5.84	-9.37/-18.34
Θ(142.5°)	-7.52/-6.85	-7.49/-8.56	-11.21/-14.16	-8.95/-6.03	-4.29/-3.67	-3.95/-4.33	-4.54/-4.83	-5.98/-8.88	-15.61/-16.8	-13.39/-15.17	-15.5/-9.58	-6.58/-6.53	-6.46/-8.87	-10.87/-12.63	-16.55/-18.15	-19.4/-19.68	-15.59/-15.06	-18.97/-18.57	-16.07/-12.6	-10.95/-5.86	-1.41/-0.41	-1.39/-2.82	-7.41/-14.51	-13.56/-10.95
Θ(150°)	-9.92/-10.55	-12.48/-13.82	-16.3/-16.89	-14.28/-9.97	-7.7/-6.7	-5.95/-6.11	-6.73/-7.77	-10.14/-13.07	-12.84/-10.35	-9.5/-10.72	-8.7/-6.53	-6.34/-7.03	-10.59/-15.14	-19.52/-18.4	-12.13/-8.25	-6.94/-8.71	-13.07/-20.15	-20.65/-15.77	-14.81/-17.75	-17.68/-15.06	-6.64/-2.36	-0.88/-1.43	-3.94/-7.3	-9.81/-9.56
Θ(157.5°)	-10.19/-8.35	-8.48/-9.56	-10.58/-11.97	-13.43/-13.86	-12.84/-10.32	-8.15/-6.57	-5.47/-5.77	-7.21/-9.01	-9.34/-9.34	-9.73/-10.94	-10.9/-11.72	-10.57/-17.86	-13.29/-9.13	-8.47/-10.63	-16.07/-16.28	-12.25/-12.71	-17.11/-19.08	-20/-18.21	-20.4/-14.75	-9.62/-6.62	-4.47/-2.06	-0.55/-0.85	-3.11/-6.63	-9.66/-11.91
Θ(165°)	-5.54/-4.95	-5.45/-7.18	-8.83/-10.04	-11.65/-14.92	-18.98/-20.11	-19.59/-15.97	-13.95/-11.65	-8.98/-6.34	-4.59/-3.73	-10.86/-9.63	-15.15/-17.71	-18.99/-19.67	-17.18/-15.03	-6.16/-7.35	-17.01/-14.96	-13.95/-13.82	-12.23/-10.12	-8.04/-6.35	-4.94/-3.21	-1.6/-1.04	-1.79/-3.89	-5.85/-6.35		
Θ(172.5°)	-6.47/-4.99	-4.31/-3.8	-4.37/-5.28	-6.7/-9.2	-12.01/-16.69	-19.08/-18.62	-11.65/-8.48	-6.3/-4.93	-4.77/-4.3	-14.71/-4.7	-19.26/-16.4	-11.99/-9.27	-7.9/-7.57	-8.27/-9.73	-12.36/-16.15	-20.1/-20.25	-17.05/-13.73	-10.92/-9.02	-7.45/-6.35	-5.42/-4.68	-4.1/-3.86	-4.72/-6.87	-8.4/-7.99	
Θ(180°)	-10.02/-9.6	-8.74/-8.36	-7.92/-8.31	-9.83/-12.17	-14.71/-17.29	-19.36/-17.43	-14.71/-12.89	-12.71/-12.96	-12.93/-13.12	-14/-14.15	-12.98/-11.41	-10.65/-10.29	-10.24/-10.81	-12.04/-14.19	-17.26/-19.07	-19.65/-20.12	-18.37/-20.85	-19.52/-20.46	-19.68/-17.42	-15.13/-14.09	-13.1/-11.8	-10.6/-10.37	-10.7/-11.22	-10.75/-10.17
Freq(Hz)	5.6GPol	PhiAnt. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-11.95/-7.76	-6.74/-6.28	-4.57/-3.57	-2.78/-2.12	-1.57/-1.33	-1.25/-0.89	-1.31/-1.48	-1.47/-2.99	-4.93/-7.3	-10.2/-14.87	-19.10/-20.21	-13.97/-9.73	-7.02/-5.17	-4.31/-1.58	-0.04/-0.9	1.68/-1.94	2.24/2.4	2.21/-1.95	1.46/0.75	-0.17/-1.18	-2.59/-4.91	-7.94/-13.68	-18.66/-18.42	
Θ(7.5°)	-14.22/-8.86	-7.24/-5.1	-3.18/-2.01	-0.58/-1.15	-2.07/2.28	1.99/2.02	2.35/2.59	2.48/-1.76	0.94/-0.17	-1.41/-2.98	-5.38/-9.13	-15.04/-19.04	-5.39/-10.7	-8.1/-6.25	-4.67/-2.36	-2.11/-3.5	-0.72/-0.44	-0.32/-0.47	-0.91/-1.24	-1.64/-2.22	-2.95/-3.93	-5.53/-7.23	-9.36/-12.25	-18.62/-19.95
Θ(15°)	-17.69/-12.2	-8.18/-4.55	-2.46/-1.41	-0.21/0.82	0.95/0.9	0.73/0.59	0.56/0.46	0.4/-0.11	-0.77/-1.47	-2.13/-3.02	-4.72/-7.42	-11.51/-18.54	-19.23/-18.13	-14.05/-11.9	-10.19/-8.81	-7.57/-6.49	-5.53/-4.34	-3/-1.95	-1.31/-0.97	-0.84/-1.06	-1.49/-2.26	-3.47/-5.29	-7.64/-11.43	-19.42/-16.62
Θ(22.5°)	-16.71/-17.5	-7.06/-6.02	-4.35/-3.1	-0.13/-0.67	-0.17/0.31	0.11/0.37	0.15/-0.49	-1.34/-1.66	-1.78/-2.19	-2.57/-3.77	-5.81/-8.63	-12.82/-19.95	-20.32/-20.96	-19.24/-19.49	-19.92/-17.75	-14.54/-10.49	-13.78/-12.31	-9.93/-6.66	-4.11/-2.49	-1.59/-1.15	-0.78/-1.07	-2.21/-4.33	-7.98/-12.42	-19.42/-19.86
Θ(30°)	-13.99/-10.94	-7.13/-5.91	-3.64/-1.68	0.09/0.86	2.13/2.16	2.26/2.24	1.70/0.94	-0.07/-1.38	-2.62/-2.43	-4.98/-5.66	-7.14/-8.82	-11.22/-13.68	-11.48/-11.6	-10.97/-9.64	-8.59/-6.99	-6.28/-6.07	-3.14/-3.56	-3.46/-4.84	-5.68/-5.35	-5.07/-4.39	-4.56/-3.67	-9.83/-12.06	-15.97/-18.96	
Θ(37.5°)	-10.91/-8.28	-5.19/-2.8	-0.59/0.49	1.72/1.59	2.15/2.21	2.26/1.27	0.48/-0.21	-0.71/-1.03	-1.5/-2.59	-4.08/-4.65	-5.85/-6.87	-8.34/-9.18	-8.26/-9.87	-12.65/-10.21	-8.11/-6.81	-5.18/-4.02	-2.86/-3.08	-5.03/-6.59	-5.26/-3.6	-3.9/-5.55	-6.99/-9.11	-9.8/-7.72	-10.89/-20.12	-13.7/-10.64
Θ(45°)	-5.21/-6.56	-5.16/-2.92	-0.58/-1.24	2.46/1.9	1.35/-0.07	-0.77/-1.24	-1.74/-2.69	-3.61/-4.93	-6.84/-7.63	-7.52/-14.4	-9.89/-15.41	-16.27/-11.23	-10.92/-6.35	-3.26/-4.56	-6.28/-5.91	-3.56/-4.26	-6.85/-16.7	-5.08/-3.99	-3.74/-5.52	-7/-9	-11.78/-16.42	-10.86/-8.42		
Θ(52.5°)	-4.81/6.03	-2.95/0.13	1.73/2.31	1.80/-4.7	-0.7/-2.7	-4.12/-4.47	-4.42/-5.15	-6.76/-9	-12.22/-16.31	-7.64/-23	-4.33/-6.16	-12.11/-16.31	-20.45/-19.46	-17.21/-8.31	-3.59/-4.37	-5.71/-7.09	-11.32/-18.99	-13.41/-18.23	-20.39/-19.07	-14.86/-9.1	-6.36/-5.17	-6.34/9.96	-13.54/-15.23	-11.54/-6.04
Θ(60°)	-3.95/-2.85	-2.65/0.51	1.42/1.24	-0.83/-3.51	-3.62/-2.28	-0.38/0.54	0.57/-0.34	-2.58/-6.54	-10.81/-7.16	-4.88/-4.8	-6.21/-9.97	-19.77/-15.78	-14.95/-12.38	-12.62/-20.02	-8.59/-5.76	-3.1/-6.01	-7.48/-5.85	-4.4/-3.52	-4.74/-8.38	-15.47/-18.66	-15.03/-13.06	-12.48/-10.87	-12.01/-14.43	-11.73/-7.26
Θ(67.5°)	-4.38/-2.13	-2.94/-1.79	-0.36/-1.07	-3.83/-5.85	-5.26/-4.72	-3.87/-2.12	-0.83/-1	-2.74/-6.59	-9.62/-6.91	-8.84/-8.98	-8.05/-12.98	-20.61/-20.26	-15.36/-8.07	-9.77/-14.51	-5.7/-2.24	-4.09/-6	-5.07/-5.03	-2.83/-0.85	-6.03/-2.91	-4.84/-8.51	-8.44/-10.68	-17.9/-10.22	-13.1/-13.8	-9.94/-6.28
Θ(75°)	-6.5/-5.05	-0.91/-4.65	-7.03/-5.91	5.96/-7.4	-9.43/-10.95	-8.41/-5.15	-2.34/-1.77	-2.23/-4.27	-6.35/-8.17	-10.81/-8.2	-6.9/-10.84	-20.13/-19.89	-10.93/-10.34	-8.69/-7.8	-6.09/-9.13	-11.85/-5.61	-5.19/-3.25	-1.89/-3.25	-4.19/-4.47	-6.78/-7.96	-9.62/-14.26	-10.02/-13.24	-8.65/-9.11	-11.84/-9.32
Θ(82.5°)	-19.92/-17.03	-10.24/-7.44	-8.54/-11.2	-8.03/-5.6	-6.45/-12.25	-15.52/-13.67	-10.89/-9.65	-8.09/-7.78	-9.86/-16	-18.75/-12.2	-8.76/-8.58	-9.91/-12.87	-12.02/-10.46	-11.74/-11.4	-7.7/-4.68	-4.65/-3.9	-3.32/-2.04	-2.94/-5.62	-11.4/-8.47	-19.01/-18.86	-11.45/-8.13	-6.66/-7.53	-8.76/-12.16	-16.31/-16.8
Θ(90°)	-15.86/-13.41	-4.94/-1.57	-2.61/-6.86	-6.63/-4.1	-3.43/-9.96	-13.63/-19.84	-19.41/-18.95	-18.45/-19.21	-19.43/-16.66	-19.1/-18.62	-17.79/-13.05	-9.09/-8.46	-7.28/-5.47	-8.13/-8.99	-4.79/-6.66	-7.94/-6.71	-4.27/-0.95	-8.1/-4.99	-6.12/-10.38	-13.87/-13.44	-11.94/-10.55	-12.51/-10.44	-9.48/-6.85	-8.14/-7
Θ(97.5°)	-14.21/-11.25	-2.73/0.44	0.25/-3.09	-5.32/-1.97	-1.08/-2.22	-4.46/-8.44	-15.14/-19.31	-19.53/-15.77	-15.48/-17.83	-15.07/-17.83	-16.94/-12.1	-10.66/-9.98	-8.16/-9.29	-13.34/-7.97	-7.16/-6.34	-11.41/-7.84	-11.53/-18.91	-7.69/-3.19	-3.15/-6.88	-10.77/-11.86	-13.05/-19	-15.86/-12.43	-13.04/-11.9	-6.37/-4.08
Θ(105°)	-18.11/-10.1	-2.06/0.97	0.19/-3.04	-6.12/-4.05	-1.87/-2.31	-3.56/-4.58	-8.31/-11.3	-18.25/-16.76	-16.71/-15.33	-18.32/-19.88	-14.31/-11.94	-11.96/-10.02	-8/-11.34	-12.36/-9.7	-8.06/-13.79	-7.74/-10.35	-11.93/-18.26	-9.57/-10.89	-16.39/-17.92	-18.24/-18.45	-11.66/-7.36	-9.46/-19.49	-17.31/-15.28	-10.45/-7.8
Θ(112.5°)	-15.33/-9.29	-3.82/-1.78	-3.09/-0.72	-19.23/-8.93	-4.14/-2.27	-1.08/-1.05	-2.24/-1.59	-9.8/-14.98	-18.36/-19.27	-18.18/-19.29	-18.78/-11.43	-9.87/-7.83	-8.14/-8.94	-12.19/-8.35	-9.31/-5.59	-10.59/-14.29	-11.99/-9.24	-9.32/-8.22	-8.14/-11.82	-10.49/-17.43	-17.41/-16.68	-9.78/-4.72	-6.07/-10.25	-15.91/-18.83
Θ(120°)	-7.42/-6.68	-4.56/-4.53	-5.67/-5.61	-3.5/-9.54	-11.04/-8.43	-8.01/-8.23	-9.81/-11.32	-13.95/-18.74	-17.8/-18.39	-17.32/-19.14	-19.58/-16.81	-15.51/-8.91	-5.91/-6.35	-6.75/-6.36	-11.2/-18.62	-10.91/-14.01	-4.91/-2.08	-3.33/-8.62	-9.76/-8.69	-8.04/-16.98	-19.66/-13.29	-10.65/-10.56	-20.53/-8.84	
Θ(127.5°)	-3.68/-2.51	-2.17/-2.69	-6.13/-16.48	-8.83/-5.63	-5.26/-4.93	-5.76/-6.28	-6.91/-8.35	-8.14/-6.97	-8.25/-9.74	-6.93/-9.14	-19.78/-10.85	-15.51/-12.1	-4.88/-9.96	-3.62/-4.97	-6.37/-11.89	-7.19/-7.1	-19.99/-15.16	-3.83/-1.22	-3.15/-2.1	-1.05/-6.73	-9.47/-19.29	-17.56/-17	-11.85/-11.58	-14.61/-6.66
Θ(135°)	-1.64/-0.96	-2.73/-4.62	-8.75/-15.01	-8.3/-4.55	-2.9/-1																			

Radiated Composite Gain Data of 2.4G,5G

Appendix A

ϕ(135°)	-5.15-11.38	-5.96-1.5	1.55-11	1.53-0.32	-2.92-3.98	-3.81-2.89	2.73-2.81	-3.21-2.79	-3.28-5.51	-5.44-3.34	-2.84-3.96	-7.02-11.22	-12.57-16.67	-8.9-9.63	-16.87-16.06	-11.02-10.69	-18.81-19.09	-11.02-11.74	-17.26-9.48	-4.47-2.45	-3.12-7.85	-15.94-11.89	-8.17-4.17	-2.06-2.78	
ϕ(142.5°)	-8.62-11.65	-5.53-8.48	-3.8-2.31	-1.3-0.17	0.01-0.51	-1.12-2.46	-4.24-5.31	-6.44-8.85	-11.66-16.64	-19.89-16.65	-19.51-14.48	-11.37-11.67	-15.09-13.67	-3.16-9.4	-9.55-19.91	-12.81-13.41	-14.9-23.5	-15.7-12.58	-14.53-13.41	-8.21-2.81	-1.49-2.35	-4.69-18.63	-7.43-8.09	-0.36-2.07	
ϕ(150°)	-3.76-5.35	-5.2-1.18	-10.17-9.46	-5.89-3.89	-2.88-2.1	-1.21-2.29	-2.93-4.44	-7.10-4.7	-14.24-17.44	-15.92-10.48	-8.22-7.24	-3.78-15.5	-12.32-17.58	-10.58-12.27	-19.49-16.85	-20.25-16.88	-11.03-11.04	-14.42-14.31	-14.42-14.31	-7.24-2.81	-0.50-7.2	-0.73-6.76	-11.8-6.04	-4.08-2.96	
ϕ(157.5°)	-5.74-9.49	-9.34-8.37	-9.38-8.6	-8.69-8.31	-7.3-6.08	-5.36-5.16	-5.4-5.88	-5.86-5.69	-6.12-5.58	-3.93-3.09	-3.5-5.06	-8.11-4.6	-13.01-18.15	-19.31-13.54	-12.69-14.09	-12.9-12.5	-16.32-12.92	-8.3-9.12	-16.61-14.11	-7.25-4.77	-3.77-3.65	-6.18-9.4	-6.15-4.92	-4.1-3.89	
ϕ(165°)	-9.19-9.36	-8.58-6.8	-6.11-7.21	-7.41-7.41	-7.22-6.8	-6.57-6.66	-6.43-6.11	-5.86-4.89	-6.01-7.33	-3.96-6.11	-9.29-12.46	-14.95-16.61	-15.87-14.85	-14.44-15.5	-18.71-18.03	-13.42-11.01	-10.09-11.0	-10.97-12.65	-13.29-9.72	-6.13-4.2	-3.36-3.22	-4.07-6.3	-9.25-11.69	-12.36-9.73	
ϕ(172.5°)	-0.94-10.88	-14.07-18.41	-17.3-16.01	-17.85-19.04	-19.14-16.07	-12.59-7.67	-7.89-6.76	-5.85-5.55	-6.18-7.77	-10.74-14.65	-14.16-12.68	-17.35-13.01	-15-17.5	-16.78-19.39	-20.01-19.06	-17.35-16.36	-15.86-15.81	-17.36-14.37	-11.58-8.98	-7.24-6.35	-6.33-6.81	-7.81-9.44	-10.87-11.03	-10.7-9.71	
ϕ(180°)	-9.39-8.86	-8.88-9.89	-11.28-12.97	-12.84-12.56	-13.06-14.52	-18.13-18.03	-14.07-12.84	-12.98-13.26	-14.29-15.24	-17.79-18.35	-19.74-19.03	-20.18-18.41	-16.92-15.99	-14.66-13.01	-11.53-10.42	-10.11-11.02	-12.86-14.71	-15.83-17.35	-19.02-20.57	-19.56-19.3	-19.74-19.01	-15.43-14.59	-13.94-13.28	-12.01-10.4	
Freq(Hz)	2.045GPol.	PhilAnt.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	ϕ(0°)ϕ(7.5°)	ϕ(15°)ϕ(22.5°)	ϕ(30°)ϕ(37.5°)	ϕ(45°)ϕ(52.5°)	ϕ(60°)ϕ(67.5°)	ϕ(75°)ϕ(82.5°)	ϕ(90°)ϕ(97.5°)	ϕ(105°)ϕ(112.5°)	ϕ(120°)ϕ(127.5°)	ϕ(135°)ϕ(142.5°)	ϕ(150°)ϕ(157.5°)	ϕ(165°)ϕ(172.5°)	ϕ(180°)ϕ(187.5°)	ϕ	(195°)ϕ(202.5°)	ϕ(210°)ϕ(217.5°)	ϕ(225°)ϕ(232.5°)	ϕ(240°)ϕ(247.5°)	ϕ(255°)ϕ(262.5°)	ϕ(270°)ϕ(277.5°)	ϕ(285°)ϕ(292.5°)	ϕ(300°)ϕ(307.5°)	ϕ(315°)ϕ(322.5°)	ϕ(330°)ϕ(337.5°)	ϕ(345°)ϕ(352.5°)
ϕ(0°)	-2.96-2.97	-3.03-3.29	-3.93-4.98	-6.21-7.75	-9.64-11.95	-14.64-17.23	-17.86-16.12	-13.88-12.07	-10.55-9.54	-8.53-7.62	-6.84-6.15	-5.7-5.5	-5.48-5.64	-5.93-6.37	-6.94-7.65	-8.64-10.06	-12.38-15.64	-19.81-19.45	-20.35-14.82	-11.64-9.63	-8.33-7.24	-6.24-5.49	-4.82-4.14	-3.53-3.1	
ϕ(7.5°)	-3.94-4.1	-4.39-4.81	-5.67-6.79	-8.03-9.58	-11.58-14.02	-16.72-18.02	-19.81-18.59	-18.78-16.59	-14.57-12.76	-10.94-9.18	-7.7-6.5	-5.63-4.94	-4.57-4.35	-4.34-4.64	-5.27-6.07	-7.13-8.68	-11.13-14.34	-17.54-16.56	-13.05-10.32	-8.4-7.05	-6.11-5.36	-4.73-4.33	-4.18-4.01	-3.88-3.87	
ϕ(15°)	-5.6-6.21	-7.1-8.2	-9.62-10.99	-11.93-12.45	-12.52-11.87	-10.76-9.64	-8.78-6.45	-8.58-9.1	-10.08-10.95	-11.13-10.2	-8.6-9.98	-5.63-4.51	-3.75-3.31	-3.22-3.51	-4.2-5.18	-6.5-8.39	-11.24-14.62	-15.36-12.32	-9.49-7.42	-5.83-4.59	-3.65-3.1	-2.85-2.96	-3.33-3.8	-4.36-5	
ϕ(22.5°)	-8.29-10.02	-13.05-17.16	-19.75-18.12	-13.81-10.75	-8.57-6.74	-6.34-3.36	-3.63-3.26	-3.51-3.92	-4.78-5.8	-7.08-0.07	-8.09-7.06	-5.62-4.23	-3.3-7.4	-2.62-3.01	-3.91-5.23	-7.09-9.49	-13.15-17.85	-15.98-11.43	-8.17-5.66	-3.67-2.29	-1.37-0.94	-0.99-1.55	-2.56-3.8	-6.35-9.62	
ϕ(30°)	-12.16-14.2	-15.62-15.54	-14.77-12.52	-9.43-6.76	-4.69-3.05	-1.67-0.84	-0.24-0.03	-0.02-0.37	-0.98-1.81	-3.03-4.46	-5.72-6.15	-5.57-4.43	-3.39-2.68	-2.46-2.75	-3.57-5.02	-7.07-9.63	-13.54-19.89	-17.56-11.17	-7.6-4.59	-2.37-0.91	-0.050-27	-0.02-0.84	-2.39-4.59	-7.22-9.91	
ϕ(37.5°)	-10.96-9.07	-7.79-7.85	-8.5-8.11	-6.15-4	-2.23-0.77	0.291	1.392.08	1.56/1.3	0.83/0.06	1.05-2.38	-3.73-4.68	-4.8-4.15	-3.31-2.66	-2.47-2.8	-3.75-5.26	-7.42-10.29	-14.33-19.36	-17.56-12.04	-7.92-4.76	-2.56-1.16	-0.41-0.17	-0.48-1.41	-3.18-5.82	-8.95-10.97	
ϕ(45°)	-7.34-5.64	-5.12-5.83	-7.11-7.4	-5.87-3.78	-2.13-0.78	0.240-9.4	1.271-4.2	1.441-2.8	0.89/0.2	-0.63-1.24	-2.51-3.38	-3.12-4.41	-4.23-3.88	-3.71-3.92	-4.63-5.92	-8.01-10.93	-13.67-14.9	-14.17-11.53	-8.28-5.8	-4.17-3.34	-2.98-3.02	-3.32-3.79	-4.68-6.09	-5.57-8.09	
ϕ(52.5°)	-7.57-6.6	-6.8-8.38	-6.09-12.76	-10.28-6.85	-4.74-3.18	-2.07-1.26	-0.83-0.69	-0.77-0.97	-1.31-1.89	-2.64-2.9	-3.14-3.36	-3.69-4.24	-4.82-5.23	-5.27-5.09	-5.1-5.6	-6.83-8.43	-9.95-11.34	-12.73-12.17	-11.10-8.66	-7.91-5.71	-6.76-5.62	-4.45-3.7	-3.49-4.05	-5.59-7.28	
ϕ(60°)	-14.92-11.28	-10.01-11.91	-16.44-14.39	-9.21-6.29	-5.18-4.74	-4.39-4.1	-3.95-3.96	-4.19-4.65	-5.23-5.87	-6.21-6.9	-4.93-3.84	-3.27-3.42	-4.1-7.4	-4.64-4.06	-3.72-4.13	-5.29-6.79	-8.47-10.7	-13.65-14.33	-12.92-12.14	-11.23-8.49	-5.34-2.95	-1.71-1.58	-2.38-4.04	-7.04-12.34	
ϕ(67.5°)	-10.53-6.67	-5.71-7.69	-11.63-10.39	-6.4-4.25	-3.78-4.15	-4.61-5.28	-6.14-6.9	-7.46-7.92	-8.59-9.36	-9.61-8.53	-6.44-4.55	-3.5-3.29	-3.46-3.57	-3.42-3.3	-3.71-4.71	-6.13-7.6	-9.55-12.22	-13.5-12.44	-11.76-11.78	-10.07-6.87	-4.35-6.22	-1.8-2.06	-3.57-6.65	-12.97-17.18	
ϕ(75°)	-7.66-5.81	-6.08-9.23	-11.63-11.12	-6.39-4.56	-4.51-5.42	-6.36-7.52	-9.23-11.37	-13.05-13.74	-14-13.85	-12.55-9.94	-7.14-5	-3.65-2.9	-2.54-2.39	-2.47-2.99	-4.01-5.12	-6.11-7.34	-9.86-10.44	-12.78-10.95	-12.33-13.24	-9.65-6.34	-4.59-3.63	-2.93-2.49	-2.84-4.6	-7.95-10.15	
ϕ(82.5°)	-6.32-5.49	-4.98-7.22	-9.47-11.4	-4.51-3.61	-4.39-1.99	-7.97-9.34	-10.73-12.93	-14.61-17.66	-19.11-19.93	-16.07-11.7	-8.33-5.97	-4.71-4.48	-4.73-4.8	-4.71-4.97	-5.55-6.22	-7.37-9.17	-11.33-12.8	-13.64-14.67	-14.71-10.4	-6.13-3.75	-2.77-2.5	-2.38-2.16	-2.37-3.85	-7.8-8.1	
ϕ(90°)	-4.15-2.56	-2.37-4.22	-7.8-8.67	-5.861-4.39	-4.97-7.28	-11.34-17.4	-17.33-13.93	-13.51-15.89	-19.89-19.94	-16.59-12.28	-8.48-5.56	-4.46-5.34	-7.48-9.13	-7.96-4.12	-5.19-5.39	-6.71-8.3	-9.17-9.71	-10.28-10.07	-14.77-10.4	-5.53-4.55	-4.06-3.54	-2.44-1.43	-1.15-1.9	-3.58-5.6	
ϕ(97.5°)	-5.86-2.95	-1.95-3.36	-7.25-11.77	-8.74-5.92	-5.54-6.76	-9.34-14.32	-19.03-19.32	-18.95-18.65	-20.57-20.17	-20.12-14.41	-9-5.76	-4.82-5.19	-3.83-8.69	-8.79-6.04	-4.61-4.22	-4.12-3.82	-3.67-4.31	-5.14-5.36	-5.51-6.2	-7.02-7.08	-5.84-3.66	-1.64-0.48	-0.32-1.34	-3.76-6.81	
ϕ(105°)	-5.8-2.93	-1.39-2.34	-6-14.74	-18.04-9.77	-8.08-6.6	-10.24-13.19	-16.87-17.69	-16.96-16.83	-15.9-15.22	-14.53-12	-8.52-5.85	-3.79-1.83	-1.41-3.54	-8.45-11.33	-8.43-0.55	-2.73-4.1	-0.91-1.28	-2-2.74	-4.19-6.63	-10.95-14.32	-11.42-7.25	-4.15-1.94	-0.76-1.13	-3.2-6.05	
ϕ(112.5°)	-13.76-7.42	-4.03-4.63	-8.74-12.56	-9.2-6.74	-6.41-7.23	-8.26-9.9	-9.82-9.94	-9.86-10.78	-10.94-12.67	-15.3-15.24	-13.17-9.31	-4.04-0.69	-0.17-1.2	-6.05-9.13	-8.17-5.24	-3.31-2.27	-1.95-2.69	-4.33-6.64	-10.77-20.42	-17.59-10.18	-6.12-3.04	-0.97-0.64	0.17-0.71	-3.46-8.8	
ϕ(120°)	-8.15-4.75	-3.42-4.6	-9.3-12.94	-9.25-7.59	-8.15-9.42	-8.04-7.41	-6.05-5.4	-5.42-5.88	-6.94-9.32	-14.44-19.6	-18.41-12.07	-4.89-1.32	-0.57-1.46	-2.23-2.56	-3.67-5.15	-5.82-5.46	-5.99-7.35	-10.19-11.58	-12.02-11.2	-9.33-7.62	-4.52-4.28	-1.25-1.66	-3.97-7.91	-13.65-14.41	
ϕ(127.5°)	-3.1-1.54	-1.48-3.36	-8.18-10.65	-7.25-6.1	-7.35-10.51	-12.25-9.66	-7.11-5.7	-5.21-5.52	-6.81-10.12	-17.41-17.36	-14.2-11.4	-6.33-3.3	-2.24-1.45	-0.47-0.35	-1.47-3.2	-4.53-5.46	-7.53-11.31	-13.43-12.16	-11.45-11.48	-11.6-9.56	-5.63-2.19	-0.35-0.59	-3.23-8.27	-10.2-6.03	
ϕ(135°)	-2.72-1.56	-1.55-3.25	-7.8-13.39	-9.02-6.39	-6.15-7.39	-8.97-9.29	-8.19-6.72	-5.74-5.85	-7.58-11.3	-12.32-8.72	-7.61-9.26	-11.81-9.6	-6.02-3.42	-1.96-1.95	-3.32-5.36	-7.35-9.76	-14.22-16.84	-12.17-9.54	-8.66-8.13	-6.2-3.74	-1.540-37	0.91-0.9	-1.3-5.08	-6.89-9.45	
ϕ(142.5°)	-3.27-2.52	-2.44-3.54	-6.83-11.87	-14.85-10.82	-8.67-7.83	-7.5-7.21	-6.74-8.54	-9.41-8.2	-5.64-3.93	-3.61-4.72	-6.62-8.1	-7.86-6.78	-6.42-7.24	-8.77-9.9	-10.57-12.04	-13.61-11.92	-9.93-7.3	-5.87-6.16	-4.13-11.58	-12.02-11.2	-9.33-7.62	-4.52-4.08	-0.92-1.66	-4.58-14.41	
ϕ(150°)	-5.42-4.89	-4.66-5.1	-6.59-9.33	-12.92-14.1	-12.45-10.59	-9.13-8.13	-7.43-7.18	-6.95-6.27	-5.01-4.38	-2.25-1.55	-1.47-2.01	-3.03-3.45	-6.61-5.66	-7.12-7.22	-7.14-7.33	-8.46-11.04	-13.74-11.32	-7.88-5.4	-3.54-2.18	-1.41-11.04	-0.86-0.91	-1.55-1.32	-5.66-4.89	-7.96-5.32	
ϕ(157.5°)	-8.48-8.26	-8.25-8.7	-10.05-12.34	-14.44-13.86	-12.13-10.69	-8.55-8.54	-7.51-6.45	-5.18-4.05	-2.95-1.23	-1.57-1.13	-1.39-1.77	-3.92-4.5	-4.96-5.43	-6.28-7.8	-10.97-16.7	-15.44-10.13	-6.88-4.77	-3.51-2.98	-3.02-3.3	-3.8-4.74	-6.24-8.81	-13.79-19.34	-12.92-9.76		
ϕ(165°)	-5.86-5.87	-8.01-9.92	-10.08-16.23	-16.76-19.94	-15.22-11.82	-8.87-8.71	-7.88-7.15	-6.41-5.6	-4.87-4.24	-3.68-3.38	-3.35-3.53	-3.84-3.99	-5.04-5.86	-6.88-8.17	-10.18-13.59	-19.82-19.22	-14.32-10.47	-8.24-6.81	-6.19-6.16	-6.55-7.23	-8.35-10	-12.22-15.5	-19.59-18.82	-12.75-8.8	
ϕ(172.5°)	-8.56-8.34	-8.57-9.26	-10.68-12.66	-15.02-17.56	-18.3-16.44	-14.14-12.54	-11.38-10.47	-9.66-9.01	-8.39-7.64	-6.9-6.5	-6.39-6.59	-7-7.79	-9-10.7	-13-16.33	-19.92-20.19	-19.93-16.15	-13.62-12.07	-11.06-10.62	-10.76-11.29	-12.04-13.52	-16.08-19.57	-20.33-19.05	-18.29-14.49	-11.36-9.36	
ϕ(180°)	-8.83-10.51	-10.48-10.98	-11.84-12.51	-12.82-12.92	-12.93-12.83	-12.63-12.52	-11.64-11.07	-10.58-10.52	-10.57-10.56	-10.5-10.7	-11.25-12.08	-13.34-15.38	-18.55-19.32	-19.48-18.73	-20.9-18.8	-16.98-16.35	-16.41-16.39	-16.64-17.81	-19.15-20.11	-19.33-19.94	-19.19-18.32	-16.8-16.15	-15.49-14.41	-13.25-12.33	
Freq(Hz)	2.045GPol.	ThetAnt.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		



Radiated Composite Gain Data of 2.4G,5G

Appendix A

Θ	(180°)	-19.34/-18.25	-18.61/-19.47	-18.75/-14.34	-11.55/-11.24	-12.38/-13.41	-12.39/-11.99	-12.39/-12.89	-13.46/-14.9	-17.34/-19.4	-19.05/-19.73	-20.11/-18.83	-17.57/-17.78	-18.81/-18.19	-15.69/-12.56	-9.42/-17.1	-5.84/-5.39	-5.35/-5.96	-6.85/-7.74	-8.89/-10.75	-12.47/-13.04	-13.66/-14.12	-15.66/-15.51	-14.43/-14.32	-15.85/-19.51
Freq(Hz)	5.3GPol.	PhiAnt.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)	
Θ(0°)	-0.54/-0.82	-1.18/-2.36	-4.03/-5.53	-7.76/-10.53	-14.21/-19.28	-17.26/-12.1	-8.44/-6.58	-4.95/-4.08	-3.13/-2.15	-1.47/-1.29	-1.41/-1.5	-1.62/-1.85	-1.85/-2.39	-2.9/-3.68	-4.96/-6.35	-8.22/-11.16	-15.57/-19.64	-19.73/-12.39	-8.96/-6.54	-4.69/-3.47	-2.72/-1.3	-0.26/-0.06	0.04/-0.1	-0.4/-0.57	
Θ(7.5°)	-1.95/-2.17	-2.51/-4.05	-5.79/-3.72	-9.65/-12.45	-16.47/-19.13	-20.31/-12.33	-8.14/-5.59	-4.17/-3.3	-2.25/-1.02	-0.16/-0.11	0.24/-0.29	0.22/-0.29	0.1/-0.32	-1.1/-2.21	-3.66/-5.7	-8.37/-12.13	-18.67/-18.14	-13.43/-8.63	-5.61/-3.95	-3.1/-2.76	-2.18/-1.49	-1.14/-1.09	-1.14/-1.24	-1.53/-1.8	
Θ(15°)	-0.83/-1.73	-3.4/-6.07	-10.4/-16.63	-19.51/-15.92	-11.18/-7.72	-5.64/-3.86	-2.55/-1.98	-1.63/-1.34	-0.84/-0.15	0.58/-1.02	1.28/-1.49	1.55/-1.52	1.25/-0.81	0.21/-0.21	-0.72/-1.65	-2.85/-4.86	-15.32/-15.65	-10.57/-6.42	-3.97/-2.56	-1.39/-0.28	0.48/-0.84	0.65/-0.48	0.13/-0.39		
Θ(22.5°)	-1.81/-3.32	-5.32/-8.21	-14.31/-18.53	-14.49/-10.35	-8.52/-7.45	-6.31/-5.25	-4.5/-4.29	-4.08/-0.41	-3.42/-2.22	-0.9/-0.3	1.22/-1.84	2.08/-2.2	2.08/-1.83	1.72/-1.64	1.42/-0.88	-0.21/-1.8	-4.45/-7.45	-10.6/-16.19	-19.63/-11.4	-7.34/-5.24	-2.86/-1	0.02/-0.62	0.32/-0.1	-0.58/-0.87	
Θ(30°)	-2.46/-3.87	-6.56/-11.08	-17.98/-17.19	-14.22/-13.25	-13.92/-16.99	-16.54/-14.57	-12.25/-9.17	-6.78/-5.12	-4.19/-3.33	-2.11/-0.56	0.91/-1.96	2.62/-3.18	3.42/-3.33	3.41/3.46	3.172/-57	1.41/-0.7	-4.15/-5.92	-5.43/-5.26	-5.46/-5.59	-5.22/-4.54	-4.93/-2.46	-0.97/-0.18	0.46/-0.03	-0.62/-1.49	
Θ(37.5°)	-2.18/-3.21	-7.01/-11.46	-14.9/-18.06	-17.93/-18.48	-19.83/-19.43	-20.24/-19.13	-15.38/-10.26	-6.33/-3.66	-2.1/-1.56	-1.59/-1.3	-0.29/-0.9	1.932/-6	2.992/-96	3.023	3.282/-45	0.96/-1.39	-4.24/-6.08	-7.27/-6.74	-6.18/-6.83	-7.7/-7.56	-6.51/-4.75	-2.71/-2.1	-0.51/-0.76	-1.37/-1.72	
Θ(45°)	-1.95/-3.47	-5.47/-7.72	-10.52/-14.44	-14.4/-13.37	-13.39/-16.44	-20/-19.27	-19/-14.03	-10.71/-7.51	-5.01/-3.62	-3.15/-2.21	-0.75/-0.46	1.322/-64	3.282/-9	2.312/-77	3.082/-4	0.8/-1.11	-2.84/-5.13	-6.83/-6.88	-7.43/-8.51	-11.03/-16.67	-14.11/-7.23	-3.17/-1.31	-0.35/-0.14	0.17/-0.67	
Θ(52.5°)	-1.89/-1.48	-4.02/-10.83	-16.96/-10.99	-10.34/-13.87	-18.87/-19.3	-15.34/-16.09	-12.02/-17.81	-10.48/-6.05	-2.99/-1.19	-0.88/-2.06	-3.99/-3.33	-1.61/-0.05	0.49/-0.28	0.99/-1.98	2.01/-1.37	0.23/-0.77	-1.8/-2.13	-3.04/-4.94	-5.07/-5.3	-7.56/-11.84	-19.43/-13.06	-6.83/-3.51	-1.6/-1.1	-1.63/-2.45	
Θ(60°)	-0.57/-1.94	-4.97/-4.77	-6.61/-6.25	-9.82/-15.12	-10.76/-8.96	-8.89/-11.23	-12.45/-11	-8.24/-7.51	-7.44/-6.26	-4.63/-4.4	-6.71/-7.25	-3.54/-6.02	-0.65/-2.01	-1.44/-0.58	-0.28/-0.65	-1.57/-1.66	-2.08/-3.14	-4.17/-4.72	-5.88/-6.85	-1.77/-9.13	-15.15/-12.4	-5.92/-2.12	-0.79/-1.05	-1.63/-0.97	
Θ(67.5°)	-2.45/-2.93	-5.22/-4.78	-4.74/-7.74	-10.89/-9.71	-6.57/-5.51	-6.47/-8.29	-7.8/-6.7	-5.96/-5.51	-7.11/-8.89	-6.99/-7.13	-11.35/-18.17	-9.47/-6.19	-6.65/-6.42	-3.02/-0.7	-0.27/-1.62	-1.55/-1.4	-2.89/-3.26	-5.27/-6.12	-5.84/-6.17	-7.97/-10.36	-19.07/-13.88	-9.69/-7.13	-2.99/-1.04	-1.81/-3.02	
Θ(75°)	-3.95/-4.45	-8.05/-8.98	-4.7/-7.89	-11.69/-7.34	-6/-5.49	-5.57/-5.39	-6.13/-6.99	-6.91/-7.64	-9.95/-13.57	-11.89/-20.14	-10.19/-8.08	-6.83/-4.62	-2.19/-1.72	-1.24/-1.39	-1.84/-3.98	-4.28/-4.62	-6.74/-8.42	-9.17/-9.56	-11.73/-16.88	-18.72/-13.28	-8.85/-5.65	-5.09/-5.24	-6.2/-4.91		
Θ(82.5°)	-7.02/-6.89	-10.11/-16.25	-10.78/-12.45	-11.9/-9.44	-8.7/-8.23	-8.15/-10.13	-14.38/-11.53	-8.5/-7.01	-7.37/-10.02	-18.92/-13.14	-7.77/-13.58	-6.59/-3.34	-6.38/-2.84	0.17/-0.77	-1.6/-1.52	-2.55/-3.85	-4.06/-4.31	-6.69/-14.96	-19.38/-16.76	-12.32/-14.38	-13.68/-8.59	-9.81/-7.05	-5.03/-5.44	-4.73/-6.1	
Θ(90°)	-7.22/-12.28	-18.68/-6.67	-9.55/-18.77	-19.49/-11.04	-8.09/-7.25	-7.97/-10.88	-11.27/-11.07	-8.54/-7.13	-6.17/-6.13	-10.46/-14.28	-5.53/-8.32	-7.3/-2.21	-5.44/-1.99	1.02/-0.42	-0.42/-0.95	-3.49/-7.03	-6.03/-6.14	-7.81/-12.47	-18.68/-10.35	-5.37/-7.06	-9.3/-6.11	-3.32/-5.1	-8.39/-7.31	-7.35/-9.61	
Θ(97.5°)	-10.08/-13.64	-15.06/-10.48	-20.01/-10.22	-7.49/-7.88	-6.4/-5.1	-6.72/-8.96	-8.88/-6.97	-5.37/-4.57	-4.35/-4.32	-7.43/-13.45	-5.03/-6.94	-9.58/-1.83	-4.66/-1.45	2.29/-0.42	-1.41/-1.67	-4.46/-5.19	-6.68/-8.2	-12.87/-11.63	-14.25/-9.78	-5.43/-3.31	-3.4/-2.8	-4.65/-6.53	-10.98/-12.55	-7.37/-13.71	
Θ(105°)	-9.35/-10.75	-7.03/-6.37	-19/-8.62	-7.82/-11.48	-5.88/-6.27	-9.65/-15.72	-12.56/-7.84	-7.27/-10.42	-10.46/-3.88	-5.59/-8	-4.84/-4.3	-7.71/-11.27	-0.17/-0.43	2.49/-1.15	-1.42/-2.57	-2.98/-7.19	-10.02/-12.07	-15.42/-12.72	-15.31/-7.64	-6.43/-3.19	-3.36/-3.2	-1.14/-1.67	-10.91/-15.94		
Θ(112.5°)	-9.98/-11.71	-5.67/-7.1	-10.41/-3.13	-5.12/-13.14	-2.8/-1.56	-3/-6.98	-7.32/-3.98	-2.51/-2.88	-4.21/-4.01	-3.44/-6.21	-5.72/-3.56	-4.71/-1.54	-2.56/-2.43	1.05/-1.07	-5.59/-4.51	-5.04/-7.58	-12.86/-19.88	-11.44/-7.12	-7.32/-5.68	-4.54/-4.1	-3/-1.36	-1.12/-2.79	-6.48/-5.34	-1.84/-10.02	
Θ(120°)	-3.58/-7.93	-16.66/-9.44	-14.45/-7.2	-7.56/-8.82	-4.09/-1.26	-2.59/-5.39	-6.23/-4.92	-4.34/-8.33	-4.43/-3.54	-4.32/-6.33	-4.49/-2.97	-4.85/-5.34	-4.11/-1.07	-3/-2.51	-6.66/-9.06	-7.29/-8.94	-10.36/-10.42	-7.74/-5.3	-1.99/-1.96	-5.53/-8.24	-4.34/-1.88	-1.25/-3.4	-4.64/-3.29	0.24/-3.29	
Θ(127.5°)	-0.27/-1.41	-7.19/-4.77	-5.45/-8.27	-17.19/-9.44	-5.91/-12.33	-19.83/-12.23	-6.73/-3.93	-3.51/-5.11	-7.77/-11.11	-7.31/-5.44	-9.82/-2.27	-2.89/-5.36	-1.94/-4.88	-9.93/-10.47	-9.87/-9.82	-10.21/-0.85	-9.62/-5.88	-1.88/-0.9	-2.23/-4.8	-5.31/-3.04	-2.95/-3.54	-0.32/-0.76	-1.63/-1.59		
Θ(135°)	-4.13/-14.32	-13.06/-4.41	-5.8/-15.23	-13.83/-7.51	-7.02/-6.98	-9.92/-14.54	-16.23/-12	-10.31/-11.21	-14.01/-15.33	-15.51/-9.39	-7.8/-9.63	-13.98/-9.36	-6.22/-6.65	-7.48/-3.64	-1.73/-5.57	-5.82/-6.03	-9.91/-16.86	-19.52/-11.42	-5.34/-3.44	-3.36/-3.57	-3.65/-4.63	-6.97/-5.16	-3.02/-3.49	-5.83/-5.71	
Θ(142.5°)	-3.67/-8.18	-13.83/-8.16	-7.55/-17.6	-12.65/-7.7	-9.02/-13.16	-17.21/-20.09	-18.68/-18.44	-16.94/-15.69	-12.6/-12.83	-9.13/-10.41	-8.81/-5.39	-6.43/-7.02	-5.11/-5.53	-4.71/-6.69	-8.06/-9.35	-6.3/-12.23	-15.19/-14.98	-7.56/-4.94	-3.89/-0.45	-4.53/-5.63	-5.45/-6.65	-5.1/-2.7	-3.57/-5.53	-6.18/-5.43	
Θ(150°)	-3.11/-5.59	-9.3/-10.47	-10.04/-9.87	-11.68/-15.75	-19.98/-19.82	-19.08/-18.29	-18.51/-18.44	-16.21/-17.23	-19.5/-17.07	-11.59/-7.41	-5.06/-5.28	-8.02/-10.91	-9.61/-6.41	-4.14/-3.21	-3.36/-5	-8.77/-8.8	-8.49/-9.33	-7.45/-6.95	-6.61/-5.96	-5.83/-6.62	-9.39/-14.27	-11.47/-7.12	-5.17/-5.92	-6.82/-9.93	
Θ(157.5°)	-5.18/-9.48	-16.2/-12.97	-9.94/-8.75	-10.15/-13.04	-13.51/-11.06	-9.66/-9.19	-9.51/-10.49	-14.47/-16.17	-4.89/-5.58	-3.56/-3.08	-3.78/-5.8	-8.16/-9.78	-11.31/-13.54	-14.74/-13.28	-11.34/-9	-6.77/-6.22	-7.76/-12.65	-19.21/-16.54	-12.69/-12.22	-12.17/-12.61	-10.68/-6.53	-6.88/-5.31	-4.42/-4.74	-1.39/-3.76	
Θ(165°)	-12.75/-19.04	-15.45/-11.23	-10.78/-11.37	-12.83/-15.51	-20.45/-19.9	-17.53/-16.56	-20.57/-19.88	-14.13/-10	-7.74/-6.64	-6.28/-6.31	-6.57/-6.51	-6.28/-6.17	-6.29/-6.8	-8.25/-10.52	-12.65/-14.56	-17.31/-19.41	-20.34/-18.56	-20.05/-19.36	-20.02/-19.31	-14.56/-11.69	-10.03/-9.2	-8.61/-8.21	-8.37/-8.05	-7.88/-9.53	
Θ(172.5°)	-8.42/-8.53	-8.77/-9.45	-10.35/-11.56	-12.92/-13.64	-13.18/-12.27	-10.53/-5.66	-7.21/-5.9	-4.84/-0.46	-3.58/-3.68	-4.4/-5.69	-7.15/-9.2	-11.74/-14.66	-16.71/-17.39	-18.31/-19.22	-20.58/-19	-20.23/-18.66	-15.25/-12.37	-10.15/-8.37	-3.97/-2.63	-2.16/-2.07	-2.72/-3.58	-4.18/-4.52	-5.49/-7.07		
Θ(180°)	-13.15/-14.8	-16.05/-16.34	-17.5/-19.08	-19.08/-19.94	-19.48/-20.13	-10.51/-18.51	-19.41/-13.05	-11.41/-10.33	-9.12/-8.36	-8.27/-8.74	-9.58/-9.65	-9.19/-8.53	-8.14/-8.4	-9.16/-10.04	-11.51/-13.01	-15.33/-16.1	-11.47/-13.41	-11.07/-8.53	-7.05/-6.8	-7.13/-7.13	-7.7/-8.51	-9.49/-10.48	-10.93/-11.58	-12.75/-13.56	
Freq(Hz)	5.3GPol.	ThetaAnt.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)	
Θ(0°)	-15.25/-11.11	-7.67/-5.54	-3.91/-3.33	-2.63/-2.29	-1.84/-1.62	-1.55/-1.81	-2.05/-2	-2.36/-3.12	-4.49/-5.67	-4.55/-6.76	-11.96/-16.31	-18.5/-19.85	-17.59/-13.54	-10.02/-7	-4.93/-3.69	-2.84/-2.38	-2.03/-1.45	-1.0/-2	-0.49/-0.71	-1.6/-2.52	-3.38/-4.45	-5.46/-6.81	-8.86/-11.78	-15.46/-18.99	
Θ(7.5°)	-12.12/-8.85	-6.43/-4.54	-3.26/-2.54	-2.33/-2.04	-1.56/-1.17	-0.89/-0.45	-0.36/-0.28	-0.47/-0.99	-1.96/-2.8	-3.78/-5.27	-7.77/-11.92	-18.28/-19.86	-13.87/-10.87	-8.49/-6.27	-4.31/-2.76	-1.61/-0.71	-0.18/-0.27	-0.66/-0.69	-0.52/-0.61	-1.19/-3.16	-5.52/-8.16	-10.97/-13.54	-16.41/-19.16	-19.55/-17	
Θ(15°)	-7.83/-5.71	-3.89/-2.41	-1.04/-0.14	-0.11/-0.38	-0.81/-1.36	-1.94/-2.29	-2.53/-3.07	-3.32/-3.4	-3.29/-2.97	-2.92/-3.67	-5.43/-8.45	-13.61/-20.32	-14.86/-10.31	-7.5/-5.46	-3.57/-1.95	-0.72/-0.25	0.80/-77	0.580/-53	0.760/-79	0.01/-1.38	-3/-5.1	-7.99/-11.66	-18.72/-19.04	-14.44/-10.4	
Θ(22.5°)	-7.06/-5.6	-3.86/-2.32	-1.58/-1.45	-2.47/-3.46	-4.02/-4.96	-5.76/-6.6	-7.87/-10.27	-13.14/-15.93	-14.3/-9.45	-9.69/-4.67	-4.74/-6.14	-8.54/-12.22	-17.76/-16.3	-9.89/-6.25	-4.17/-2.89	-1.72/-0.91	-0.49/-0.57	-1.09/-1.5	-1.18/-0.65	-0.28/-0.65	-1.49/-3.08	-5.94/-10.65	-19.61/-17.22	-11.25/-8.99	
Θ(30°)	-8.66/-5.64	-3.57/-3.72	-5.03/-5.49	-6.17/-7	-7.18/-7.61	-7.71/-8.08	-8.05/-8.26	-8.64/-9.54	-11.55/-13.54	-12.44/-9.23	-7.03/-6.45	-7.38/-10.09	-16.64/-19.71	-11.09/-6.98	-4.63/-2.71	-1.14/-0.07	0.38/-0.21	-1.35/-1.83	-1.96/-1.9						



Radiated Composite Gain Data of 2.4G,5G

Appendix A

Θ(30°)	-1.92/-3.64	-5.99/-7.51	-9.49/-12.28	-17.42/-17.93	-16.32/-14.83	-13.91/-12.51	-10.88/-8.95	-7.32/-5.93	-4.5/-3.23	-2.12/-1.02	0.04/0.85	1.47/2.11	2.85/3.53	3.98/3.97	3.45/2.28	0.49/-1.6	-3.86/-6.48	-10.64/-16.31	-15.48/-11.27	-7.44/-3.72	-1.3/-0.08	0.21/-0.21	-0.88/-1.06	-0.8/-1.02
Θ(37.5°)	-1.55/-3.77	-5.61/-6.26	-7.63/-11.15	-15.89/-17.07	-15.58/-19.44	-19.75/-11.79	-7.48/-6.03	-6.08/-6.34	-6.3/-5.56	-4.9/-3.84	-1.85/-0.09	0.7/0.98	1.6/2.71	3.64/4.15	3.81/2.55	0.98/-0.75	-2.7/-4.89	-8.19/-13.61	-19.84/-20.33	-14.44/-12.33	-8.03/-3.83	-1.61/-0.53	-0.84/-1.29	-0.83/-0.71
Θ(45°)	-0.98/-3.23	-3.45/-4.09	-7.17/-11.49	-11.52/-9.62	-11.55/-19.73	-14.78/-10.09	-8.02/-5.99	-4.34/-3.31	-2.73/-2.56	-2.98/-3.88	-4.06/-2.03	-0.39/-0.05	0.7/2.43	3.65/4.11	3.52/2.24	1.4/0.65	-0.72/-2.74	-5.58/-9.86	-14.75/-14.99	-12.4/-12.84	-13.92/-9.75	-5.29/-2.16	-0.14/0.35	0.5/0.56
Θ(52.5°)	0.27/-2.68	-3.64/-2.89	-4.32/-5.47	-4.47/-5.28	-8.16/-10.64	-10.89/-10.5	-10.62/-11.44	-11.02/-9.46	-6.7/-4.61	-4.18/-5.44	-7.57/-4.05	-1.48/-1.66	-1.92/0.52	2.67/3.21	1.82/1.02	1.26/0.62	-1.52/-4.6	-8.17/-12.85	-12.2/-13.8	-20.59/-19.22	-11.66/-8.31	-6.01/-3.33	-0.5/-1.42	1.77/1.31
Θ(60°)	-4.4/-3.83	-2.21/-3.75	-6.87/-5.29	-4.3/-6.42	-10.26/-8.35	-6.41/-6.83	-9.85/-14.83	-13.66/-10.04	-8.35/-7.35	-7.13/-9.59	-19/-8.73	-3.91/-3.49	-3.96/-1.08	0.48/0.06	-0.98/-0.62	-0.51/-0.9	-2.34/-4.72	-9.45/-14.42	-15.98/-14.04	-10.08/-11.37	-19.71/-15.65	-8.29/-3.32	-0.24/-1.14	1.5/-0.48
Θ(67.5°)	-6.97/-4.61	-3.55/-7.3	-6.17/-4.4	-5.38/-9.4	-7.48/-4.06	-3.51/-4.92	-7.95/-11.91	-18.56/-19.14	-14.05/-8.65	-6.82/-8.53	-17.69/-9.05	-3.47/-3.62	-3.05/0.12	-0.48/-2.91	-4.35/-4.68	-5.33/-6.9	-8.21/-11.45	-13.12/-11.32	-12.38/-16.86	-15.53/-19.77	-11.63/-5	-2.19/-1.42	-1.25/-2.45	
Θ(75°)	-9.85/-4.24	-5.07/-9.94	-9.86/-7.8	-9.13/-10.22	-6.86/-4.05	-3.39/-5.11	-8.44/-12.99	-14.36/-14.42	-12.16/-8.87	-8.64/-11.23	-19.51/-9.86	-4.77/-5.03	-4.01/-1.82	-2.34/-4.82	-8.24/-8.72	-7.76/-7.89	-7.89/-10.51	-13.04/-11.55	-8.7/-8.91	-8.78/-8.08	-9.16/-9.62	-11.67/-8.18	-7.65/-6.41	-3.24/-5.62
Θ(82.5°)	-14.15/-7.68	-9.59/-15.4	-11.66/-11.96	-16.26/-19.37	-9.65/-4.83	-4.5/-6.45	-10.39/-10.27	-8.93/-7.72	-8.05/-8.68	-9.74/-11.66	-19.61/-9.09	-5.17/-5.96	-2.72/-1.67	-2.55/-3.7	-6.64/-8.89	-7.06/-5.53	-7.81/-10.44	-13.66/-12.63	-11.73/-10.6	-7.62/-7.17	-9.82/-13.12	-14.46/-12.72	-9.34/-14.28	-10.55/-9.2
Θ(90°)	-9.76/-10.27	-19.63/-10.86	-16.28/-15.81	-13.05/-20.1	-10.02/-5.79	-6.33/-9.12	-8.52/-9.23	-10.1/-9.62	-7.95/-9.14	-14.73/-9.87	-9.24/-13.83	-4.23/-3.98	-3.36/0.45	0.94/0.1	-1.67/-2.9	-3.37/-6.21	-10.03/-14.44	-19.48/-14.7	-16.25/-18.53	-8.04/-5.61	-10.63/-18.15	-19.52/-14.04	-9.16/-15.95	-20.2/-19.59
Θ(97.5°)	-7.65/-16.85	-7.94/-4.4	-14.81/-8.87	-6.83/-14.77	-7.85/-4.23	-3.71/-4.98	-5.13/-5.91	-7.7/-8.17	-6.17/-6.51	-14.43/-10.35	-7.87/-11.73	-4.31/-3.15	-2.17/1.21	1.34/0.19	-1/-2.47	-3.87/-7.47	-9.47/-9.92	-16.86/-20.43	-15.21/-13	-7.48/-7.79	-9.84/-9.26	-9.43/-9.08	-6.25/-10.74	-20.39/-11.54
Θ(105°)	-8.97/-12.45	-3.4/-6.03	-12.45/-4.11	-3.82/-12.34	-8.02/-3.62	-2.85/-3.92	-4.69/-6.88	-10.78/-10.66	-5.9/-5.53	-9.74/-12.43	-7.36/-10.29	-5.23/-2.71	-4.5/0.4	1.01/-0.71	-1.23/-2.38	-4.66/-6.41	-8.81/-7.95	-12.06/-10.19	-19.4/-11.55	-15.47/-9.03	-7.34/-6.53	-9.26/-8.58	-5.91/-5.35	-6.45/-2.68
Θ(112.5°)	-18.84/-4.67	-2.42/-6.49	-7.21/-2.16	-3.15/-12.44	-7.31/-4.85	-3.79/-4.78	-5.94/-7.8	-10.72/-8.99	-6.07/-5.69	-11.57/-13.9	-7.33/-8.13	-5.42/-4.27	-5.43/-0.49	0.4/-3.65	-5.01/-5.81	-4.97/-7.44	-10.8/-10.08	-11.4/-10.74	-19.52/-18.03	-13.22/-10.7	-11.76/-8.95	-8.5/-6.43	-6.35/-9.94	-5.83/-8.32
Θ(120°)	-11.05/-6.29	-8.62/-20.66	-8.39/-3.74	-5.19/-17.94	-5.23/-2.63	-4.65/-7.51	-7.97/-6.4	-5.95/-7.28	-8.41/-10.1	-11.78/-18.71	-13.83/-9.52	-8.17/-6.53	-8.47/-5.54	-1.24/-3.78	-7.35/-6.4	-6.96/-6.79	-10.49/-18.29	-15.33/-11.91	-19.34/-19.2	-14.04/-15.35	-14.59/-9.65	-10.06/-7.78	-11.79/-16.69	-4.45/-8.44
Θ(127.5°)	-10.39/-6.39	-8.39/-18.99	-13.85/-9.32	-10.67/-15.77	-11.55/-7.36	-9.01/-15.58	-11.09/-7.64	-7/-6.92	-8.83/-11.81	-13.9/-12.06	-7.96/-4.95	-3.79/-3.73	-5.38/-3.67	-1.83/-3.48	-7/-5.11	-3.69/-5.15	-14.91/-19.82	-7.35/-6.17	-7.9/-7.9	-8.94/-13.18	-15.27/-9.1	-6.06/-9.86	-11.45/-12.35	-5.56/-10.83
Θ(135°)	-6.24/-10.53	-11.4/-10.81	-14.5/-13.96	-13.26/-19.17	-18.38/-16.66	-16.96/-20.2	-18.89/-10.44	-6.84/-6.61	-8.18/-10.43	-10.81/-8.48	-5.27/-4.33	-3.77/-2.3	-2.56/-2.07	-1.05/-3.49	-6.16/-8.43	-10.11/-9.37	-13.23/-19.75	-8.19/-6.82	-5.84/-5.86	-5.78/-9.94	-11.09/-7.71	-7.46/-13.28	-17.84/-9.82	-12.27/-8.65
Θ(142.5°)	-14.11/-8.51	-9.8/-11.11	-11.5/-12.42	-14.71/-13.09	-13.33/-14.56	-18.15/-19.28	-15.57/-10.93	-9.71/-11.32	-14.27/-15.23	-11.84/-7.09	-5.89/-7.49	-9.35/-9.64	-6.82/-3.57	-2.93/-4.53	-8.97/-14.5	-11.48/-12.72	-15.55/-14.96	-14.79/-14.98	-10.77/-10.49	-12.49/-13.64	-8.38/-4.63	-3.45/-6.4	-9.53/-8.2	-8.95/-16.27
Θ(150°)	-10.07/-7.56	-9.99/-14.76	-18.16/-15.31	-14.47/-13.66	-12.04/-12.84	-15.08/-20.31	-14.02/-8.71	-6.57/-5.76	-5.1/-4.26	-4.07/-4.97	-5.57/-5.69	-5.96/-7.14	-8.96/-10.51	-9.16/-6.26	-5.29/-6.64	-9.79/-12.74	-12.26/-12.72	-19.49/-19.51	-18.59/-17.1	-15.37/-11.07	-8.8/-6.72	-6.17/-10.45	-14.82/-11.71	-9/-13.05
Θ(157.5°)	-5.95/-7.75	-9.43/-10.72	-13.91/-14.25	-13.47/-14.62	-14.68/-16.31	-19.09/-16.22	-12.29/-10.35	-7.88/-5.33	-3.37/-2.38	-2.15/-2.24	-2.43/-2.83	-3.2/-3.53	-4.17/-5.78	-8.96/-12.18	-14.43/-13.54	-12.77/-12.1	-12.71/-12.81	-13.14/-13.15	-11.8/-11.15	-13.01/-13.91	-13.26/-13.94	-13.93/-9.19	-5.4/-3.94	-3.99/-4.88
Θ(165°)	-19.98/-20.41	-20.53/-15.18	-15.74/-17.89	-19.93/-19.57	-20.24/-20.13	-17.06/-14.41	-11.69/-10.01	-8.25/-7.03	-6.22/-5.77	-5.22/-4.85	-4.63/-4.66	-4.77/-4.91	-4.98/-4.97	-5.38/-6.31	-7.98/-10.58	-15.32/-19.96	-19.49/-17.61	-16.73/-15.53	-13.45/-10.68	-9.05/-8.84	-8.99/-9	-8.28/-9.6	-6.37/-7.6	-9.78/-13.55
Θ(172.5°)	-11.5/-12.13	-13.03/-15.36	-17.51/-18.28	-18.41/-16.6	-15.03/-14.06	-13.02/-12.16	-10.9/-9.19	-7.73/-6.71	-6.19/-6.27	-6.83/-7.07	-6.9/-7.03	-7.57/-9.03	-10.79/-12.37	-14.01/-15.45	-15.75/-16.39	-17.47/-19.06	-19.58/-20.01	-19.89/-18.76	-16.8/-11.4	-8.49/-6.75	-5.34/-4.69	-4.5/-4.64	-5.28/-6.42	-7.65/-8.99
Θ(180°)	-19.96/-18.05	-18.5/-19.65	-19.25/-20.03	-19.86/-18.55	-18.73/-18.88	-18.8/-18.95	-19.39/-20.55	-17.29/-15.14	-12.82/-10.83	-9.13/-8.23	-8.21/-8.91	-9.44/-9.35	-9.02/-8.72	-9.24/-10.7	-12.19/-13.87	-16.04/-18.33	-18.28/-15.5	-12.69/-10.14	-8.9/-8.56	-8.64/-8.75	-8.79/-9.18	-10.01/-11.84	-13.54/-14.95	-18.72/-19.65
Freq(Hz)	5.785GHz																							
ThetaAnt. 4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-19.39/-11.77	-8.65/-6.34	-4.82/-3.2	-2.16/-1.08	-0.23/0.43	0.67/0.65	0.54/0.35	-0.04/-0.6	-1.24/-2.26	-3.79/-5.78	-8.02/-10.89	-14.36/-15.48	-12.48/-9.77	-7.65/-6.05	-4.75/-3.66	-2.77/-2.09	-1.38/-0.56	-0.11/-0.1	0.06/0.01	-0.35/-0.95	-1.81/-2.5	-3.39/-4.77	-6.69/-9.12	-12.75/-19.24
Θ(7.5°)	-13.18/-10.1	-8.33/-7.44	-6.67/-5.61	-4.26/-3.29	-2.64/-1.97	-1.43/-1.01	-0.74/-0.56	-0.63/-0.57	-0.54/-0.92	-1.99/-3.45	-5.39/-7.93	-11.36/-16.9	-16.71/-10.04	-5.95/-3.56	-1.86/-0.76	0.01/0.57	1.08/1.59	1.81/1.56	0.97/0.16	-0.74/-1.57	-2.5/-3.76	-5.59/-8.08	-10.78/-13.94	-16.24/-16.07
Θ(15°)	-9.46/-7.86	-6.55/-5.57	-4.89/-4.06	-3.01/-2.25	-1.74/-1.72	-1.89/-2.15	-2.25/-2.02	-1.51/-1.29	-1.22/-1.47	-1.7/-2.55	-3.69/-5.96	-9.67/-17.72	-19.05/-10.93	-6.54/-3.87	-2.06/-0.67	0.36/1	1.48/1.79	2.01/1.8	1.22/0.24	-0.47/-1.29	-2.27/-3.69	-5.9/-9.26	-14.14/-19.73	-15.37/-12
Θ(22.5°)	-6.78/-5.6	-4.96/-4.54	-3.24/-2.58	-1.56/-1.04	-1.15/-1.92	-2.39/-2.44	-2.85/-3.31	-3.7/-3.53	-2.97/-2.6	-2.5/-2.55	-3.24/-4.99	-8.17/-14.79	-17.44/-10.89	-6.81/-4.38	-2.83/-1.29	-0.02/0.73	0.96/1.05	1.11/28	1.22/0.6	-0.8/-2.69	-4.42/-6.5	-9.59/-13.99	-20.34/-19.3	-14.15/-9.38
Θ(30°)	-6.15/-5.14	-6.42/-7.05	-6.62/-4.6	-3.59/-4.26	-5.96/-7.18	-7.63/-8.15	-8.68/-8.37	-7.31/-6.34	-5.43/-4.42	-3.26/-2.43	-2.39/-3.78	-7.22/-11.81	-14.16/-11.14	-7.14/-3.94	-1.48/0.24	1.29/1.41	0.85/0.57	0.60/39	-0.45/-2.16	-4.48/-5.92	-7.76/-10.41	-13.94/-19	-19.94/-19.19	-15.66/-9.61
Θ(37.5°)	-5.62/-5.83	-7.89/-7.7	-5.42/-4.83	-5.41/-6.75	-9.13/-9.56	-7.63/-6	-5.08/-4.64	-3.92/-3.52	-3.6/-4.75	-6.15/-6.71	-6.23/-6.19	-7.96/-11.09	-13.07/-12.93	-10.93/-6.96	-3.05/-0.75	0.46/0.67	0.5/0.15	-0.9/-2.52	-3.5/-3.81	-4.37/-5.86				



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Freq(Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	3.59	4.38	4.36	4.78
Ant. 2 Max Gain (dBi)	4.71	3.49	3.78	3.46
Ant. 3 Max Gain (dBi)	4.05	5.68	5.92	6.38
Ant. 4 Max Gain (dBi)	2.59	2.31	3.01	4.47
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/105/7.5	Theta/60/37.5	Theta/60/45	Theta/67.5/45
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/90/337.5	Theta/52.5/315	Phi/75/187.5	Phi/82.5/165
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/135/52.5	Theta/135/270	Theta/142.5/270	Theta/142.5/270
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/97.5/232.5	Phi/112.5/345	Theta/127.5/262.5	Phi/127.5/337.5
Max Gain (dBi)	4.71	5.68	5.92	6.38
DG [1SS] (dBi)	7.57	7.02	7	7.54
DG [2SS] (dBi)	4.71	5.68	5.92	6.38
DG [4SS] (dBi)	4.71	5.68	5.92	6.38



Radiated Composite Gain Data of 6G

Appendix B

DG 1SS Result

Freq(Hz)	6.175G/Pol.	Phi-L	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
DG(dB)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)		
Θ(0°)	-0.64/-1.23	-1.22/-1.58	-1.92/-2.97	-2.89/-1.96	-0.82/-6.24	0.20/3	0.29/-0.22	-0.57/-0.74	-0.57/-0.11	0.20/45	0.610/44	0.21/-0.14	-0.57/-1.16	-2.71/-2.96	-0.26/-1.96	-4.65/-3.95	-3.06/-1.96	-0.94/-2.06	0.090/48	0.870/88	0.950/95	0.870/76	0.29/-0.02	-0.42/-0.7		
Θ(7.5°)	-1.49/-1.95	-2.37/-2.38	-3.04/-3.83	-3.51/-3.13	-1.83/-0.68	0.080/8	1.031/05	1.081/04	1.030/83	0.630/39	-0.05/-0.57	-1.09/-0.63	-0.34/-0.19	-0.19/-0.68	-1.42/-2.04	-1.92/-1.31	-0.88/-0.69	-0.49/-0.27	-0.29/-0.22	-0.32/-0.21	0.190/63	1.151/37	1.190/7	0.08/-0.85		
Θ(15°)	-0.92/-1.11	-0.92/-0.23	-0.1/-0.1	-0.27/-0.06	0.791/25	1.671/49	0.950/75	0.971/28	1.371/42	1.51/31	10/37	-0.28/-0.68	-0.69/-0.49	-0.26/-0.09	-0.17/-0.67	-1.31/-1.74	-2.09/-2.13	-1.92/-1.66	-1.34/-1.11	0.381/1	1.531/15	1.270/97	0.31/-0.41			
Θ(22.5°)	1.331/41	1.621/39	1.120/81	0.550/4	0.41/-0.51	-1.7/-2.57	-3.09/-2.66	-1.49/-0.21	0.851/6	2.012/05	1.781/19	0.31/-0.12	-0.25/-0.37	-0.050/13	-0.1/-0.49	-0.75/-0.76	-0.78/-0.58	0.050/48	0.690/82	1.121/24	2.232/14	2.072/04	1.81/66			
Θ(30°)	1.982/34	1.750/74	0.110/06	-0.05/-0.84	-2.24/-3.7	-4.25/-4.36	-3.54/-2.65	-1.53/-0.43	0.170/55	0.951/18	1.260/89	0.33/-0.3	-0.62/-0.94	-1.39/-2.1	-2.05/-0.85	0.070/39	0.240/57	0.851/26	1.912/33	2.572/48	2.342/5	2.442/28	2.743/31	3.152/3		
Θ(37.5°)	3.353/08	2.241/46	1.461/09	0.57/-0.54	-1.68/-2.96	-3.66/-3.33	-2.84/-2.58	-1.84/-0.82	-0.3/-0.37	-0.170/51	0.690/51	0.210/01	0.50/69	-0.34/-2.37	-2.66/-1.54	-1.26/-1.18	-1.02/-0.31	1.212/06	1.61/2	1.62/43	3.013/25	3.673/81	3.824/14	3.382/79		
Θ(45°)	2.992/41	1.642/07	2.42/32	1.880/09	-1.12/-2.13	-4.09/-3.78	-3.18/-2.25	-1.93/-2.24	-2.51/-2.27	-1.43/-0.31	0.04/-0.01	0.25/-0.57	-1.21/-0.77	-1.89/-3.63	-5.34/-4.68	-2.18/-1.49	-1.59/-0.37	-0.55/-0.25	1.21/59	0.34/-0.13	-0.58/-0.05	1.743/78	4.84/5/05	4.033/68		
Θ(52.5°)	2.72/2	2.132/26	2.652/59	2/1/27	0.36/-1.05	-2.06/-2.27	-1.94/-24	-3.51/-6.51	-7.39/-5.51	-4.88/-3	-0.70/57	1.070/38	-0.71/-1.25	-1.44/-3.43	-3.05/-1.64	-1.86/-2.25	-1.64/-1.36	-1.94/-2.44	-2.73/-1.51	-0.190/83	1.511/27	2.264/11	5.425/01	3.873/24		
Θ(60°)	1.171/25	2.913/24	1.953/34	2.861/01	-0.061/-0.08	-2.15/-2.28	-3.67/-4.38	-4.54/-4.63	-4.43/-3/05	-2.51/-1.92	-0.172/21	2.291/67	-0.3/-1.58	-0.94/-1.73	-3.86/-2/67	-2.46/-2.53	-3.99/-3.51	-3.08/-1.99	-1.88/-1.79	-0.80/-31	1/1/03	1.733/04	3.962/98	0.971/7		
Θ(67.5°)	-1.822/17	2.43/24	4.48/3.86	2.030/04	-1.18/-1.6	-1.75/-2.76	-4.03/-47	-4.95/-3.57	-2.23/-2.2	-0.690/36	0.391/63	1.890/74	-0.240/54	10/01	-0.82/-2.62	-0.97/-1.74	-1.4/-1.97	-3.98/-5.41	-5.69/-3.79	-3.33/-3.65	-1.98/-0.8	0.480/87	1.550/3	-1.13/-3.2		
Θ(75°)	-0.121/79	1.32/85	2.761/77	1.531/55	1.872/13	0.22/-2.1	-3.59/-3.43	-3/-2.23	-0.85/0.8	1.442/55	1.652/31	3.432/08	0.721/08	2.573/02	1.730/33	0.170/52	-0.44/-3.56	-5.82/-8.05	-6.57/-5.67	-6.27/-4.65	-2.75/-0.6	-0.09/-0.41	-1.43/-0.89	0.72/-1.95		
Θ(82.5°)	-0.152/24	1.231/25	2.012/24	3.4/3.36	3.763/51	1.55/-0.67	-1.95/-2.55	-3.56/-4.08	-0.950/01	1.443/13	3.172/54	2.791/94	1.731/51	1.733/32	2.340/26	-0.53/-1	-3.16/-3.43	-7.27/-7.78	-5.97/-2.66	-0.381/3	1.541/13	-0.460/44	-0.61/-2.57	0.01/-0.35		
Θ(90°)	0.761/82	1.52/52	1.92/4	3.232/55	2.991/63	-2.63/-7.92	-5.23/-2.74	-1.92/-3.08	-2.05/-0.91	-0.871/86	2.741/18	1.531/45	0.361/63	1.612/09	1.180/7	0.740/72	-0.08/-3.12	-4.01/-6.4	-5.04/-3.74	-1.841/19	48/-0.1	1.021/21	-0.050/81	1.160/17		
Θ(97.5°)	2.170/96	-0.771/47	0.983/16	4.292/75	1.62/-1.2	-5.14/-8.99	-6.72/-3.65	-2.63/-2.52	-2.84/-2.41	-1.61/-1.11	0.58/-0.44	-0.23/-0.7	-1.650/48	-0.120/27	1.040/62	0.160/32	-1.1/-2.81	-7/-6.82	-4.44/-3.88	-2.62/-1.85	-2.27/-1.99	-2.05/-0.56	-0.021/42	2.861/33		
Θ(105°)	-0.24/-4.12	-1.850/37	-0.420/16	2.891/-1.2	-4.66/-3.01	-1.83/-4.24	-4.66/-3.01	-1.83/-4.24	-3.94/-6.45	-5.82/-6.79	-3.81/-5.64	-3.57/-3.21	-4.14/-4.26	-1.24/-1.48	-1.95/-1.63	-1.98/-0.39	-6.36/-1.5	-4.9/-5.77	-3.03/-2.64	-2.07/-3.62	-1.980/71	1.271/76	0.01/-0.35			
Θ(112.5°)	-2.61/-6.58	-1.34/-2.62	-1.60/68	-0.83/-2.24	-3.76/-3.96	-1.48/-1.87	-3.03/-3.6	-1.89/-1.93	-2.49/-4.55	-1.38/-1.88	-5.22/-5.31	-4.26/-1.93	-4.76/-5.98	-3.53/-3.09	-1.68/-1.84	-4.53/-1.49	-0.93/-3.78	-5.04/-0.35	-4.29/-2.46	-0.82/-3.19	-3.02/-2.52	-0.022/12	1.34/-0.01	-1.38/-0.47		
Θ(120°)	-0.84/-0.39	-1.59/-3.53	-1.530/69	0.87/-0.42	-0.89/-0.3	-0.14/-0.65	-2.36/-3.61	-3.76/-3.31	-2.21/-5.99	-6.18/-6.23	-6.55/-7.23	-5.06/-8.56	-7.27/-7.85	-0.94/-4.36	-5.41/-3.69	-3.28/-4.03	-1.73/-7.59	-8.27/-0.09	-4.66/-6.34	-1.09/-1.27	-1.48/-1.7	-0.163/02	2.92/-0.08	1.11/04		
Θ(127.5°)	0.55/-1.06	-2.78/-1.85	-1.290/75	2.772/11	2.843/56	2.640/34	-0.47/-1.59	-1.09/-1.58	-3.29/-2.66	-1.64/-1.84	-6.46/-10.42	-6.99/-6.46	-8.36/-6.98	-3.81/-4.86	-6.66/-3.48	-2.92/-4.68	-0.69/-8.74	-3.191/51	-4.12/-7.52	0.440/04	1.241/-197	-2.091/47	2.442/74	3.92/1		
Θ(135°)	1.591/07	0.080/23	1.944/28	5.34/69	4.64/71	4.482/98	1.292/13	2.793	2.31/38	-3.72/-4.28	-5.91/-8.5	-7.83/-4.87	-4.55/-3.31	-4.7/-57	-2.55/-4.75	-4.77/-4.54	-2.92/-7.74	-3.14/-0.92	-4.47/-7.23	-1.48/-1.58	-0.62/-3.1	-4.84/-5.96	-3.4/-1.09	0.682/74		
Θ(142.5°)	-1.760/25	1.311/18	1.22/03	2.753/47	4.614/88	4.262/46	0.44/-2.79	-0.80/76	0.36/-0.22	-2.26/-2.57	-3.81/-5.64	-5.76/-9.57	-6.65/-9.81	-4.76/-6.88	-3.58/-3.57	-3.3/-2.14	-1.03/-1.41	0.74/-0.56	-5.24/-6.49	-1.69/-2.02	-0.54/-1.63	-1.19/-0.38	-1.19/-2.32	-1.56/-2.66		
Θ(150°)	-5.13/-2.8	-1.110/98	2.483/74	4.124/26	4.924/92	4.063	0.89/-1.2	-0.950/49	1.391/21	0.45/-0.82	-3.79/-5.92	-8.86/-9.05	-7.78/-8.26	-7.35/-9.53	-4.49/-1.79	-3.61/-3.63	-2.05/-1.84	-2.6/-3.44	-3.05/-3.45	-3.53/-2.39	-0.70/-52	-0.39/-0.08	-0.98/-0.6	-1.81/-4.7		
Θ(157.5°)	2.11/79	2.522/99	2.512/24	1.80/88	0.480/84	0.650/52	0.26/-0.25	-0.861/86	-3.49/-4.21	-3.98/-3.87	-3.67/-2.69	-2.23/-2.3	-3.04/-5.06	-7.04/-5.33	-4.43/-4.47	-4.52/-0.43	-2.03/-0.28	0.26/-0.04	-1.57/-3.52	-4.48/-3.45	-2.47/-2.95	-3.06/-1.29	-0.58/-0.05	0.571/69		
Θ(165°)	1.621/86	1.350/48	0.2/-0.37	-1.12/-1.62	-1.4/-0.53	-0.250/02	-0.23/-0.59	-1.64/-3.16	-4.36/-4.87	-4.81/-4.91	-4.72/-4.3	-3.24/-2	-1.24/-1.78	-2.14/-1.94	-1.89/-2.42	-3.76/-3.95	-2.84/-1.87	-1.37/-1.86	-2.87/-3.49	-3.34/-2.4	-1.18/-0.89	-1.49/-1.89	-1.82/-0.93	0.310/9		
Θ(172.5°)	-3.85/-3.27	-2.3/-1.21	-0.47/-0.08	0.330/11	-0.48/-1.15	-1.41/-1.75	-2.44/-3.68	-4.22/-3.67	-2.83/-2.37	-2.44/-2.92	-4.16/-5.22	-5.61/-5.47	-4.55/-3.54	-2.91/-2.49	-2.47/-2.78	-3.06/-2.57	-1.71/-1.16	-1.34/-1.38	-1.4/-1.63	-1.91/-2.21	-2.8/-2.99	-3.92/-4.93	-5.45/-5.95	-5.84/-5.2		
Θ(180°)	-5.64/-5.52	-5.69/-6.09	-6.23/-5.76	-5.15/-5.63	-5.77/-4.98	-3.95/-3.27	-2.75/-2.9	-3.47/-3.84	-3.47/-2.76	-2.26/-1.83	-1.59/-1.08	-1.09/-0.78	-0.65/-0.65	-0.89/-1.27	-1.95/-2.64	-3.14/-3.71	-4.11/-4.25	-3.93/-3.07	-2.45/-1.98	-1.37/-0.92	-0.6/-0.64	-0.96/-1.61	-1.71/-1.83	-3/-4.48		
Freq(Hz)	6.175G/Pol.	Theta-L	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
DG(dB)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)		
Θ(0°)	1.011/38	1.280/96	0.510/47	0.630/66	0.720/92	0.970/65	0.440/29	-0.11/-0.45	-1.28/-2.27	-3.33/-3.38	-2.85/-2.39	-2.29/-2.02	1.68/-1.1	-0.56/-0.21	0.070/28	0.380/12	-0.09/-0.15	0.070/06	-0.47/-1.19	-1.91/-2.68	-3.71/4.68	-4.59/-3.98	-2.38/-1.32	-0.70/08		
Θ(7.5°)	-0.54/-0.26	0.310/66	0.741/09	1.441/44	1.441/31	0.830/22	-0.17/-0.52	-0.86/-1.1	-1.88/-2.68	-2.96/-2.61	-1.441/29	-1.11/-0.84	-0.44/-0.1	0.070/09	0.04/-0.24	-0.27/-0.08	0.50/99	1.451/48	1.361/12	0.34/-0.73	-1.84/-2.92	-3.33/-3.05	-2.11/-1.78	-1.52/-0.91		
Θ(15°)	-0.160/93	1.882/12	2.081/93	2.072/15	2.382/49	2.532/46	2.111/71	1.260/46	-0.85/-1.83	-2.4/-2.39	-2.05/-1.85	-1.89/-1.75	-1.47/-1.09	-0.76/-0.74	-1.12/-1.55	-1.77/-1.18	-0.220/5	1.041/25	1.381/29	1.050/5	0.01/-1	-0.82/-7.77	-0.79/-1.21	-1.22/-0.89		
Θ(22.5°)	0.331/88	2.983/39	3.163/15	3.453/29	2.922/33	2.122/11	2.392/59	1.970/94	0.04/-0.69	-1.85/-2.72	-2.88/-2.57	-2.97/-1.45	-4.39/-3.6	-2.87/-2.05	-1.72/-2.23	-2/-0.43	0.591/09	1.412/17	2.662/89	2.672/48	2.051/51	1.18/1	1.310/64	-0.18/-0.47		
Θ(30°)	0.251/29	3.164/04	4.073/93	3.482/95	3.043/75	4.294/58	4.54/07	3.312/3	0.73/-1.19	-3.86/-6.49	-7.7/-6.27	-6.18/-6.88	-6.33/-6.08	-5.42/-4.12	-3.07/-2.44	-1.36/-0.5	0.160/71	1.82/38	2.412/3	2.242/68	3.163/43	3.473/25	2.852/24	1.140/3		
Θ(37.5°)	3.544/82	5.095/13	4.874/52	4.333/94	3.97/4	3.823/44	2.782/3	1.951/69	1.370/71	-0.5/-2.32	-4.53/-4.97	-4.34/-4.24	-3.81/-3.59	-2.58/-1.84	-1.62/-1.34	-1.32/-0.98	-0.5/-0.38	0.281/31	2.22/73	2.893/41	3.733/93	4.274/85	5.034/2	2.971/84		
Θ(45°)	2.753/37	3.323/01	3.283/77	3.863/76	3.994/28	4.574/51	3.882/86	1.550/19	-0.84/-0.43	-0.020/19	0.02/-0.79	-0.72/-0.18	-0.52/-1.34	-1.37/-1.53	-2.21/-1.87	-1.340/06	-0.69/-0.64	0.261/08	1.831/78	1.45/-1.2	1.512/39	2.893/25	3.283/15	2.071/54		
Θ(52.5°)	-0.050/41	-1.010/36	1.62/32	3.574/74	4.944/68	4.053/59	3.573/46	2.921/66	-0.38/-0.94	-0.16/-0.11	-1.25/-0.99	0.511/28	1.490/8	-4.45/-1.9	-1.09/-0.37	-0.23/-0.04										



Radiated Composite Gain Data of 6G

Appendix B

Θ(22.5°)	0.82/0.09	-1.12/-1.85	-1.72/-0.66	-0.2/-0.07	0.25/0.04	-0.11/-0.22	-0.05/0.77	1.2/1.6	1.89/1.7	0.99/-0.01	-1.17/-1.72	-1.9/-1.01	-0.3/0.06	0.34/0.71	1.07/1.3	1.06/0.43	-0.04/-0.52	-1.53/-3.34	-4.46/-4.56	-4.27/-2.98	-1.46/-0.81	-1.42/-1.62	-1/0.35	1.26/1.5
Θ(30°)	-0.31/-0.67	-0.37/0.21	0.93/0.39	-0.43/-1.7	-2.48/-3.9	-4.9/-5.11	-4.88/-4.24	-3.69/-2.69	-1.6/-0.91	-0.58/-1.07	-2.59/-3.81	-3.69/-2.86	-1.98/-0.91	-0.10/-3.1	1.33/2.12	2.15/1.42	0.74/-0.34	-1.83/-2.6	-3.06/-3.15	-2.28/-0.83	-0.03/0.19	-0.16/-0.54	-1.05/-0.76	-1.09/-1.21
Θ(142.5°)	-0.56/0.27	1.34/1.46	0.77/0.04	-0.38/-0.1	-0.28/-0.93	-1.94/-2.92	-4.18/-4.6	-4.39/-4.33	-4.43/-4.41	-3.99/-3.73	-3.44/-4.08	-4.84/-4.32	-4.3/-4.39	-3.75/-1.21	0.69/0.4	-0.57/-0.81	-1.59/-2	-2.19/-3.86	-4.9/-3.79	-0.09/0.29	-0.43/-0.15	-0.12/-0.16	-0.09/0.29	-0.05/-0.26
Θ(45°)	0.11/1.05	1.78/1.21	-0.24/-0.31	0.27/0.14	-0.45/-1.58	-3.48/-5.5	-6.04/-5.77	-4.59/-3.87	-3.91/-5.44	-7.57/-6.86	-5.85/-3.84	-2.49/-2.32	-1.94/-3	-3.72/-3.5	-2.71/-1.5	-0.01/-0.74	-1.03/-1.98	-3.66/-3.87	-4.29/-5.12	-4.11/-1.85	-1.37/-0.48	-0.01/0.23	0.58/0.61	0.47/0.55
Θ(52.5°)	1.85/2.1	1.48/0.25	0.16/2.5	2.47/1.29	-1.15/-3.86	-5.79/-5.25	-3.81/-3.73	-5.67/-7.71	-9.42/-9.94	-8.46/-6.55	-3.39/-0.91	-0.53/0.59	-0.13/-1.65	-1.87/-2.37	-1.29/-1.2	-4.26/-4.09	-6.54/-7.06	-6.93/-7.46	-5.29/-3.99	-3.08/-1.67	-0.68/0.83	1.49/2.1	1.88/1.51	2.14/2.79
Θ(60°)	1.52/0.41	-2.06/-0.52	1.87/1.81	1.08/-0.72	-1.24/-1.71	-2.06/-2.3	-2.03/-2.61	-3.76/-5.67	-6.5/-6.66	-6.36/-2.61	-0.67/0.76	1.58/2.58	3.53/3.24	2.43/1.81	-0.09/0.19	-2.15/-3.25	-5.12/-6.51	-8.6/-9.85	-6.95/-5.94	-3.01/-1.91	-0.77/-0.07	0.74/2.16	3/3.04	3.55/2.73
Θ(67.5°)	2.37/-1.31	-1.87/-0.15	-0.21/0.49	0.85/0.16	-0.66/-1.04	-1.9/-3.77	-4.48/-4.83	-5.41/-5.7	-3.76/-3.26	-2.63/-0.34	1.07/1.46	1.75/3.89	4.67/4.32	5.42/3.71	3.322/4.9	0.58/-1.2	-3.05/-5.03	-6.85/-7.6	-7.49/-4.94	-3.38/-1.59	-1.33/-0.22	0.39/2.16	3.91/5.22	4.83/4.02
Θ(75°)	0.47/-1.21	0.17/0.29	0.54/-1.21	-0.22/-1.98	-2.7/-2.41	-2.53/-4.63	-6.39/-6.76	-5.96/-5.76	-4.13/-2.63	-1.39/0.35	1.76/2.37	2.22/3.3	4.35/5.45	5.69/5.65	5.31/5.22	2.73/0.89	-0.54/-1.97	-5.08/-6.2	-5.94/-5.97	-4.27/-2.37	-0.54/0.24	1.53/3.46	4.47/4.74	3.36/1.9
Θ(82.5°)	0.45/0.17	-0.85/-1.86	-1.28/-1.8	-2.74/-1.1	-1.31/-0.75	-2.17/-5.55	-5.29/-5.03	-4.45/-4	-2.28/-0.27	0.42/1.6	1.42/7.7	2.36/2.31	3.32/4.82	6.17/5.77	6.32/5.33	3.85/2.53	0.73/-1.44	-3.77/-5.35	-7.85/-7.96	-7.42/-3.62	-1.57/-1.12	1.92/2.33	2.51/1.69	-1.08/0.77
Θ(90°)	1.05/1.98	0.38/-0.86	-3.46/-1.06	0.59/1.78	0.25/0.33	-1.26/-0.84	-1.41/-2.77	-2.93/-5.18	-4.03/-0.92	-1.63/-1.19	0.11/1.46	0.41/1.87	1.44/2.77	4.48/4.93	5.59/5.35	3.68/2.6	1.56/-0.98	-5.1/-1.12	-8.89/-7.52	-7.49/-0.74	0.18/1.76	1.18/1.63	0.31/0.27	2.01/1.57
Θ(97.5°)	1.51/2.94	1.71/0.53	-1.66/-0.26	0.40/8.9	0.08/-0.38	-0.55/-1.48	-2.97/-3.08	-3.33/-2.12	-1.93/-1.28	-4.53/-3.25	-0.29/1.51	2.75/2.95	3.8/3.32	3.51/2.64	1.93/0.22	-2.83/-6.09	-10.55/-8.11	-6.83/-2.09	-1.45/2.15	1.45/2.15	0.9/0.3	0.97/0.55	2.73/2.34	
Θ(105°)	0.44/-1.4	1.36/1.74	-1.34/-1.15	2.28/1.28	2.5/-0.31	0.16/-1.17	-4.82/-4.86	-3.18/-3.66	-0.99/-1.24	-7.11/-5.11	-4.12/-3.25	-3.51/-3.13	-3.33/-1.65	-0.93/-0.26	1.71/1.54	-0.02/-0.08	-0.11/0.71	-3.84/-3.33	-6.16/-6.54	-6.57/-1.94	0.41/0.83	-0.36/-0.37	-2.11/-0.75	2.21/1.43
Θ(112.5°)	1.81/1.12	-0.61/-1.62	-1.91/1.19	2.12/2.08	2.18/1.62	1.13/-0.65	-2.71/-1.64	-3.12/-6.09	-3.29/-7.2	-6.61/-8.13	-7.85/-5.91	-6.64/-3.84	-5.09/-3.35	-1.36/-1.91	-3.46/-2.89	-3.42/-2.39	-4.43/-5.45	-6.72/-2.46	-7.83/-5.55	-2.26/-1.24	-0.55/-1.89	-2.09/0.28	0.47/3.09	4.32/6.4
Θ(120°)	-0.34/-2.17	-0.59/0.04	-0.09/1.15	0.64/-0.12	-1.35/-1.5	-3.21/-2.38	-2.77/-6.18	-5.8/-5.14	-5.23/-3.01	-3.84/-4.69	-8.6/-5.09	-6.89/-6.38	-8.24/-6.05	-3.85/-1.92	-4.58/-2.45	-1.87/-1.32	-5.49/-3.88	-6.23/-2.08	-3.46/-6.42	-1.83/-0.47	0.35/1.05	2.13/3.3	2.65/2.67	2.59/0.99
Θ(127.5°)	0.63/1.77	-1.28/-0.89	-1.07/0.52	1.26/1.32	0.12/-1.06	-0.95/-3.62	-4.56/-3.72	-2.92/-2.74	-4.23/-3.11	-3.31/-5.78	-7.71/9.78	-6.49/-7.76	-7.91/4.5	-1.12/3.04	-4.98/-4.48	-1.18/-2.2	0.19/-5.65	-6.55/0.77	0.08/-3.49	3.65/0.41	1.65/-0.24	-0.23/0.8	4.33/4.39	4.28/2.81
Θ(135°)	2.09/1.47	-1.46/-3.59	-1.88/0.16	2.41/1.83	2.85/3.14	2.38/0.26	-2/-1.04	1.24/0.76	-1.46/-3.15	-4.19/-6.39	-6.98/-6.38	-11.61/-6.49	-5.67/-4.67	-0.61/-2.49	-5.29/-2.46	-5.28/-0.32	-2.4/-4.31	-6.7/-0.74	-3.39/-7.5	0.28/-1.26	0.2/-1.77	-1.99/-0.98	-1.62/2.8	3.82/1.7
Θ(142.5°)	-0.79/-1.6	-1.57/-3.7	-5.24/-1.88	-0.39/-0.02	-0.02/2.1	2.46/1.55	0.04/-1.9	-2.45/-0.89	-3.14/-5.43	-4/-3.58	-4.69/-4.79	-2.13/-0.82	-3.3/-7.1	-2.67/-4.38	-4.32/-5.32	-3.97/-4.83	-10.4/-10.61	-2.7/-5.21	-0.79/-1.17	2.38/-0.93	-1.27/-2.18	-1.06/0.15		
Θ(150°)	-3.21/-0.94	-1.38/-1.84	-0.07/1.8	2.62/3.32	2.73/1.15	0.56/0.22	-0.02/-0.46	-1.19/-3.15	-4.16/-5.88	-2.91/-1.71	-4.27/-3.32	-4.25/-2.4	-6.12/-2.3	-2.72/-4.31	-4.9/-6.13	-6.07/-5.35	-3.83/-3.97	-2.42/-4.9	-5.29/-6.63	-7.71/-6.49	-3.76/-1.82	-0.93/0.68	0.37/-3.39	
Θ(157.5°)	-0.67/0.25	0.62/1.7	2.71/2.94	1.97/1.38	1.24/-0.38	-1.97/-1.96	-1.57/-2.18	-3.58/-3.98	-4.49/-3.87	-3.04/-3.81	-4.53/-4.68	-5.19/-4.04	-5.59/-8.46	-9.12/-6.18	-3.87/-2.76	-2.72/-3.75	-4.28/-3.35	-2.86/-4.18	-6.31/-8.58	-9.39/-8.97	-6.02/-1.84	0.25/1.48	2.48/1.86	0.31/-0.84
Θ(165°)	0.08/-0.24	0.4/0.35	-0.12/-0.09	-1.26/-3.21	-4.04/-4.71	-5.4/-6.19	-7.5/-9.73	-10.37/-10.01	-8.36/-6.98	-4.91/-3.89	-5.2/-6.97	-6.83/-5.89	-5.95/-5.95	-6.59/-5.65	-5.58/-4.96	-6.07/-6.03	-4.98/-4.31	-4.46/-6.82	-5.65/-6.18	-7.95/-8.91	-6.32/-4.74	-2.96/-1.55	-0.87/0.05	0.04/0.43
Θ(172.5°)	-2.6/-4.22	-3.28/-3.39	-3.25/-4.28	-5.67/-8.32	-10.31/-11.6	-11/9.51	-8.9/-8.59	-8.09/-7.73	-7.04/-6.51	-6.99/-7	-6.67/-6.13	-5.31/-4.83	-4.58/-3.55	-2.85/-2.58	-2.83/-3.12	-2.91/-2.74	-3.07/-4	-5.6/-7.52	-8.42/-7.89	-7.36/-6.77	-5.83/-4.05	-2.95/-2.12	-1.41/-1.17	-1.66/-1.69
Θ(180°)	-5.57/-6.11	-5.45/-5.9	-6.69/-7.02	-7.94/-8.74	-7.85/-8.76	-4.98/-3.71	-3.22/-3.37	-3.21/3	-2.64/-1.81	-1.51/-1.27	-1.44/-1.45	-1.40/-0.97	-0.73/-0.36	-0.33/-0.65	-1.22/-1.97	-2.61/-3.4	-4.34/-4.89	-5.33/-5.08	-5.06/-4.51	-4.5/-3.84	-3.72/-3.61	-3.49/-2.91	-2.97/-3.77	-5.09/-5.56
Freq(Hz)	6.995G/Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dB)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-6.36/-6.02	-5.32/-4.29	-3.81/-3.46	-2.6/-1.89	-1.24/-0.71	-0.17/-0.07	-0.27/-0.31	-0.2/-0.36	-0.74/-1.24	-1.71/-2.26	-3.19/-3.9	-4.53/-5.15	-5.01/-4.6	-3.83/-3.32	-2.64/-1.94	-1.11/-0.56	-0.38/-0.62	-1.04/-0.95	-0.76/-0.96	-1.3/-1.42	-1.65/-2.19	-2.9/-3.82	-4.2/-4.35	-5.39/-6.14
Θ(7.5°)	-3.8/-3.45	-2.66/-1.76	-1.39/-1.01	-0.94/-1.23	-1.1/-1.05	-0.52/-1.02	-1.54/-1.69	-1.49/-1.28	-1.75/-2.26	-2.44/-2.86	-3.54/-5.8	-5.44/-6.46	-6.46/-6.74	-6.11/-5.99	-2.64/-1.66	-0.83/-0.47	-0.04/0.3	0.71/0.61	0.93/0.53	-0.66/-1.04	-2.11/-3.26	-3.29/-3.55	-4.25/-4.29	
Θ(15°)	-4.45/-3.28	-1.65/-0.75	0.08/0.11	0.15/0.34	-0.29/-0.34	-0.52/-0.57	-0.56/-0.59	-0.44/-0.77	-1.27/-1.79	-2.23/-2.6	-3.14/-1.7	-5.17/-5.48	-6.55/-4.8	-3.95/-3.73	-3.42/-3.03	-2.12/-0.88	0.13/0.98	1.22/1.15	1.18/1.51	1.56/0.93	0.21/-0.76	-1.59/-2.37	-3.34/-4.51	-5.75/-5.95
Θ(22.5°)	-3.39/-1.31	-0.32/0.75	0.82/0.91	0.92/0.95	1.07/0.79	0.45/0.56	0.95/0.96	0.68/0.26	-0.16/-0.46	-0.91/-1.34	-1.85/-2.31	-3.65/-4.46	-4.01/-3.32	-3.21/-2.78	-2.14/-1.27	-0.76/-0.05	0.77/1.48	1.83/2.13	2.28/2.03	1.49/0.93	0.51/-0.07	-0.58/-0.83	-0.69/-1.61	-3.63/-4.36
Θ(30°)	-2.43/-0.79	0.19/0.29	0.81/0.5	1.41/4.5	1.36/1.38	1.99/2.49	2.66/2.72	2.27/1.54	0.37/-0.82	-1.4/-1.84	-1.86/-1.69	-2.2/-2.8	-2.92/-2.97	-1.32/-2.35	-1.51/-0.86	-0.23/0.59	1.31/4.49	2.06/2.56	2.52/2.22	1.93/2.16	1.46/0.77	-0.32/-0.93	-1.42/-1.91	-2.85/-2.69
Θ(37.5°)	0.4/0.56	0.18/-0.61	-0.08/0.23	0.4/1.13	1.53/1.99	2.58/2.61	2.82/6.4	2.12/1.47	0.25/-0.94	-1.34/-1.55	-1.68/-1.52	-2.05/-3.48	-3.54/-3.65	-3.49/-3.31	-3.52/-3.1	-2.32/-1.03	-0.17/0.58	0.78/1.59	2.31/2.13	1.67/1.18	1.32/1.41	1.34/0.64	-0.49/-1.04	0.19/0.66
Θ(45°)	0.48/-1.05	-1.38/-1.07	0.91/1.96	2.85/3.08	3.12/3.56	3.99/4.06	3.47/2.52	1.3/-0.31	-1.33/-1.08	-0.09/-0.08	-0.98/-0.85	-1.39/-2.87	-4.34/-5.61	-5.42/-5.05	-4.55/-2.8	-2.61/-2.01	-2.31/-1.75	0.18/1.05	1.31/2.6	0.86/0.44	0.91/0.29	0.22/-0.62	0.29/1.47	
Θ(52.5°)	0.9/1	0.66/1.52	2.65/4.32	4.74/3.94	3.58/2.73	4.16/4.18	3.63/0.9	2.35/1.24	-0.11/-1.04	1.31/2.68	1.62/-0.29	-1.88/-3.62	-6.05/-5.59	-5.63/-5.51	-3.43/-4.66	-5.24/-4.52	-3.33/-2.94	-2.15/-0.71	0.65/0.64	0.91/1.34	1.68/1.09	1.24/1.35	0.07/-0.01	1.13/1.53
Θ(60°)	1.36/1.07	1.99/3.51	4.73/5.65	5.45/4.9	4.23/5.8	3.13/3.22	2.78/2.54	2.42/1.78	0.91/-0.18	0.96/2.54	2.96/2.57	-0.64/-2.41	-2.93/-3.53	-4.04/-3.3	-4.26/-6.1	-4.81/-4.2	-3.26/-3.06	-3.72/-3.48	-1.15/0.12	0.07/0.66	1.87/2.29	1.69/0.7	-0.03/-2.39	-0.62/0.96
Θ(67.5°)	-2.02/-0.01	2.55/2.95	3.35/4.37	3.94/2.47	-0.09/-0.77	-0.09/0.58	1.07/1.1	0.88/0.86	0.11/-1.29	-0.51/-1.69	0.28/3.53	4.43/-1.22	-1.11/-1.32	-1.63/-2.41	-3.21/-4.1	-5.33/-4.12	-3.59/-3.68	-4.41/-2.67	-2.67/-1.1	-0.79/-1.51	-1.65/-0.53	0.15/-1.38	0.83/-0.79	-0.42/-0.69
Θ(75°)	1.75/3.94	3.64/2.17	-0.37/-1.12	-1.71/-2.8	-4.19/-2.55	-0.34/0.33	-0.07/-0.32	0.3/0.06	-0.4/-2.38	-4.68/-1.55	0.32/1.63	1.14/-0.65	0.72/0.48	-0.22/-1.12	-3.63/-1.83	-2.51/-2.71	-3.23/-2.99	-3.31/-2.39	-2.08/-2.18	-3.35/-4.16	-6.13/-2.8	5.99/2.4	2.56/0.98	0.38/0.28
Θ(82.5°)	1.05/2.11	2.15/-1.22	-7.41/-6.85	-3.94/-1.98	-2.02/-0.26	-0.32/-0.77	-2.32/-3.22	-2.98/-2.21	-2.61/-4.26	-5.2/-3.95	-1.96/0.6	2.52/1.2	2.23/1.27	0.66/-1.8	-3.13/-1.19	-4.87/-2.64	-1.91/-3.29	-4.82/-2.55</						



Radiated Composite Gain Data of 6G

Appendix B

Gain Result

Freq(Hz)	6.175GPol.	PhiAnt.1	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)		
Θ(0°)	-1.61/-3.06	-4.81/-7.18	-10.53/-16.59	-17.16/-22.25	-24.21/-26.67	-3.63/-2.18	-1.43/-1.22	-0.92/-0.38	0.52/1.15	1.56/1.71	1.49/1.01	0.43/-0.43	-1.63/-3.22	-5.28/-11.79	-11.73/-18.54	-18.23/-13.86	-9.14/-5.86	-3.52/-1.79	-0.72/0.26	1.11/1.54	1.71/1.62	1.48/1.25	0.90/0.64	0.14/-0.73		
Θ(7.5°)	-0.89/-2.36	-4.47/-6.55	-10.48/-17.06	-18.84/-14.49	-8.63/-5.2	-3.21/-1.52	-0.38/0.19	0.35/0.57	0.98/1.15	1.31/1.09	0.69/-0.07	-1.02/-2.07	-3.31/-4.64	-6.09/-8.38	-11.79/-17.06	-16.42/-11.42	-8.08/-5.92	-4.14/-2.59	-1.48/-0.42	0.48/1.2	1.45/1.66	1.83/1.68	1.55/1.3	0.8/-0.15		
Θ(15°)	-1.12/-2.47	-4.52/-5.94	-8.21/-9.69	-10.35/-9.55	-7.61/-5.54	-3.87/-2.96	-2.41/-1.83	-1.39/-0.98	-0.59/-0.29	-0.11/-0.18	-0.34/-0.86	-1.47/-2.6	-4.03/-5.75	-7.71/-9.51	-11.86/-15.34	-16.26/-14.97	-11.07/-8.24	-5.97/-4.32	-2.71/-1.23	0.02/0.92	1.44/1.79	1.85/1.74	1.51/1.14	0.63/-0.21		
Θ(22.5°)	-1.15/-1.89	-3.17/-4.62	-5.84/-7.23	-8.55/-8.65	-8.16/-7.68	-7.33/-6.78	-6.06/-5.44	-4.5/-3.11	-1.95/-1.23	-0.92/-0.93	-1.1/-1.32	-1.63/-2.53	-4.13/-6.45	-8.2/-9.92	-12.05/-13.35	-13.14/-11.17	-8/-5.43	-3.77/-2.64	-1.52/-0.59	0.33/1.13	1.69/1.88	1.71/1.53	1.31/0.88	0.28/-0.41		
Θ(30°)	-1.68/-2.49	-4.24/-6.14	-8.01/-11.27	-15.41/-16.31	-14.51/-12.16	-11.57/-10.2	-9.04/-7.6	-6/-4.64	-3.73/-2.77	-1.86/-1.73	-2.07/-2.56	-3.05/-4.29	-6.75/-8.79	-9.85/-12.74	-14.21/-8.9	-5.41/-3.32	-1.87/-0.86	-0.06/0.51	0.85/1.13	1.55/1.87	2.19/2.56	2.33/1.64	1.02/0.42	-0.49/-1.16		
Θ(37.5°)	-1.17/-1.88	-3.14/-5.19	-6.51/-8.47	-11.42/-11.67	-10.86/-11.19	-12.67/-12.42	-12.17/-11.35	-9.54/-7.77	-6.97/-6.87	-6.1/-5.55	-5.52/-5.64	-5.35/-6.86	-7.81/-7.81	-11.1/-18.55	-16.06/-7.92	-4.09/-1.65	2.48/2.33	1.71/1.44	1.85/2.53	3.06/3.17	3.18/2.94	2.31/1.57	0.78/-0.22			
Θ(45°)	-3.73/-3.77	-3.94/-5.35	-7.9/-10.57	-10.35/-9.56	-8.92/-9.53	-11.03/-11.27	-10.77/-7.98	-6.78/-6.12	-5.79/-5.74	-5.51/-5.2	-5.55/-5.66	-5.23/-5.91	-7.33/-7.98	-11.71/-15.96	-18.53/-11.72	-7.13/-2.86	-0.83/-0.05	-0.21/-0.2	0.50/4.7	-0.37/0.59	-0.50/3.4	1.17/1.6	1.56/0.32	-1.29/-2.75		
Θ(52.5°)	-1.84/-1.77	-2.77/-5.26	-6.89/-5.97	-4.82/-4.89	-6.65/-9.26	-11.68/-13.16	-11.28/-9.7	-9.1/-9.41	-11.96/-16.68	-18.93/-16.04	-12.08/-10.78	-8.84/-8.34	-9.18/-8.16	-9.19/-15.41	-16.85/-9.96	-4.01/-2.4	-1.71/-1.25	-1.66/-1.98	-2.41/-1.86	-0.68/-0.18	0.60/7.6	1.57/2.07	1.85/0.69	-0.61/-2.26		
Θ(60°)	-3.34/-3.26	-5.57/-11.86	-8.11/-3.81	-3.02/-5.2	-7.36/-9.66	-10.76/-11.91	-18.35/-18.93	-11.57/-8.94	-9.77/-12.57	-18.61/-18.57	-14.13/-9.27	-9.02/-9.6	-12.77/-13.36	-11.34/-14.82	-13.27/-7.11	-6.33/-5.97	-6.25/-6.39	-5.03/-2.38	-2.06/-2.77	-2.35/-1.34	-0.34/-0.06	0.80/2	-0.79/-3.74	-6.19/-5.4		
Θ(67.5°)	-4.44/-5.38	-11.38/-12.31	-5.37/-2.82	-2.74/-3.17	-1.38/-4.15	-4.65/-8.17	-14.98/-18.82	-10.77/-12.11	-11.8/-9.89	-10.29/-12.94	-17.04/-13.55	-14.6/-15.46	-11.26/-7.3	-6.75/-9.17	-8.29/-7.75	-5.49/-5.69	-7.3/-6.64	-6.86/-4.31	-2.99/-3.41	-4.62/-4.5	-3.51/-3.64	-4.49/-7.27	-8.35/-6.47			
Θ(75°)	-6.96/-11.18	-18.14/-11.51	-5.67/-3.27	-2.11/-1.4	-1.97/-2.22	-4.3/-8.73	-14.43/-17.62	-10.27/-5.34	-3.89/-1.81	-2.8/-5.4	-15.37/-12.46	-7.41/-8.97	-12.8/-11.13	-4.22/-3.44	-4.56/-5.59	-4.74/-2.2	-1.11/-3.69	-6.56/-9.39	-8.75/-8.91	-12.55/-8.47	-8.95/-11.36	-8.52/-7.37	-8.79/-10.14	-8.99/-7.05		
Θ(82.5°)	-14.12/-8.18	-8.42/-13.7	-9.72/-5.54	-4.07/-3.22	-3.86/-3.76	-3.77/-5.21	-7.44/-9	-13.16/-18.64	-8.69/-4.74	-3.73/-3.3	-5.06/-10.4	-9.94/-7.64	-8.47/-9.65	-7.85/-4.62	-3.37/-6.68	-5.72/-5.85	-9.73/-11.68	-14.74/-8.7	-10.32/-6.91	-4.59/-3.87	-3.2/-4.55	-10.87/-12.82	-11.13/-14.96	-9.66/-10.08		
Θ(90°)	-17.99/-11.4	-8.03/-6.54	-6.83/-9.62	-14.62/-15.66	-16.9/-14.2	-13.84/-14.19	-12.07/-9.08	-5.99/-5.08	-7.51/-5.73	-5.29/-4.69	-4.89/-5.02	-7.2/-11.21	-12.37/-9.96	-9.98/-9.08	-8.31/-7.47	-7.87/-7.13	-7.86/-10.45	-11.07/-17.28	-14.11/-18.48	-10.94/-8.19	-10.92/-15.44	-18.21/-16.64	-16.32/-10.37	-9.51/-11.98		
Θ(97.5°)	-8.95/-12.96	-11.18/-11.22	-18.44/-8.94	-6.01/-6.46	-10.34/-18.23	-11.86/-11.36	-11.21/-12.38	-7.84/-4.41	-3.6/-3.3	-5.87/-8.46	-7.1/-7.32	-8.79/-12.73	-16.57/-10.65	-14.1/-11.08	-8.53/-8.26	-8.94/-11.66	-14.32/-18.49	-18.01/-17.99	-13.31/-13.06	-15.79/-18.51	-18.54/-15.21	-9.64/-6.39	-11.02/-13.24	-6.69/-7.3		
Θ(105°)	-9.25/-8.36	-9.73/-10.42	-10.86/-5.9	-4.42/-1.2	-12.65/-12.2	-10.91/-8.38	-7.21/-12.29	-17.99/-9.08	-6.39/-5.77	-9.56/-12.98	-10.95/-8.04	-7.65/-9.75	-14.44/-18.18	-12.34/-11.79	-14.93/-13.28	-14.13/-13.56	-14.95/-12.36	-18.42/-12.22	-8.13/-12.69	-9.32/-6.48	-7.51/-10	-11.0/-6.66	-9.07/-8.45	-6.41/-7.58		
Θ(112.5°)	-12.67/-14.65	-10.48/-10.36	-8.84/-8.02	-9.65/-9.91	-14.36/-17.84	-15.12/-12.08	-10.78/-11.49	-8.54/-6.07	-4.98/-5.75	-7.81/-12.48	-12.71/-8.54	-6.81/-9.71	-16.28/-17.4	-17.43/-18.66	-9.64/-16	-17.65/-18.17	-18.22/-14.63	-9.07/-6.71	-11.93/-9.28	-7.68/-9.28	-8.02/-9.62	-11.21/-11.84	-11.73/-11.2	-9.8/-8.57		
Θ(120°)	-14.44/-11.96	-9.17/-10.69	-11.62/-8.7	-7.42/-9.63	-13.9/-12.65	-11.96/-10.09	-10.51/-10.79	-8.23/-6.1	-5.88/-7.27	-12.35/-18.55	-14.81/-10.02	-7.83/-11	-16.88/-13.46	-7.57/-9.67	-15.65/-10.46	-17.88/-16.93	-12.32/-18.58	-14.31/-12.03	-12.84/-11.02	-18.33/-14.8	-16.34/-17.49	-9.88/-5.77	-3.65/-5.11	-5.89/-8.36		
Θ(127.5°)	-17.2/-8.32	-6.71/-8.46	-11.37/-13.2	-11.56/-7.71	-5.03/-3.07	-3.21/-4.33	-5.27/-6.09	-5.14/-4.11	-2.95/-2.59	-3.9/-8.06	-15.33/-18.11	-13.53/-13.21	-13.27/-18.97	-17.22/-15.49	-14.26/-13.37	-10.55/-9.1	-14.96/-16.09	-14.82/-13.73	-12.93/-17.43	-18.81/-15.27	-10.94/-9.73	-9.67/-7.28	-5/-6.7	-6.33/-8.78		
Θ(135°)	-15.71/-7.97	-5.74/-4.26	-2.44/-1.27	-1.21/-2.07	-2.72/-2.94	-2.31/-1.83	-1.69/-1.62	-2.19/-3.14	-4.42/-5.89	-7.73/-8.84	-12.88/-19.16	-16.19/-8.85	-8.85/-10.73	-11.63/-14.62	-8.15/-13.42	-18.85/-18.55	-14.01/-13.43	-17.91/-14.22	-15.61/-17.35	-9.53/-7.1	-6.68/-6.67	-7.2/-9.74	-7.16/-10.11	-13.32/-18.34		
Θ(142.5°)	-16.95/-12.41	-8.05/-5.5	-3.13/-1.23	-0.01/0.55	0.91/0.94	0.37/-0.57	-2.18/-3.88	-4.5/-3.66	-2.79/-3.69	-3.92/-7.24	-8.86/-10.53	-15.75/-19.01	-14.82/-14.61	-18.11/-17.36	-12.41/-6.03	-6.66/-9.54	-3.69/-6.54	-5.02/-2.45	-3.9/-4.67	-2.42/-2.11	-1.37/-3.7	-4.65/-4.74	-5.05/-7.46	-7.65/-12.42		
Θ(150°)	-5.03/-5.5	-5.14/-5.4	-3.52/-1.69	0.23/1.76	2.57/2.69	2.04/0.62	-1.97/-5.46	-6.51/-5.18	-3.52/-2.3	-3.17/-5.29	-8.25/-10.03	-10.26/-11.7	-18/-19.03	-14.96/-15.28	-12/-6.61	-8.32/-15.31	-11.13/-13.1	-9.15/-5.32	-4.8/-6.66	-8.82/-9.63	-4.84/-5.39	-5.98/-10.68	-16.16/-8.65	-7.28/-6.48		
Θ(157.5°)	-4.45/-4.73	-4.31/-4.5	-5.28/-4.66	-2.77/-0.96	0.58/1.46	1.47/1.08	0.13/-1.57	-3.34/-5.19	-7.61/-11.78	-18.78/-15.45	-10.24/-8.72	-9.09/-9.73	-12.32/-12.6	-10.52/-10.11	-8.41/-8.26	-13.86/-12.34	-6.69/-5.63	-6.57/-8.82	-13.86/-17.89	-19.14/-15.91	-12.89/-12.91	-12.23/-9.54	-7.67/-6.1	-4.39/-3.64		
Θ(165°)	-7.6/-9.27	-10.35/-10.99	-9.47/-7.89	-6.75/-5.59	-4.63/-3.66	-3.31/-3.09	-3.32/-4.53	-6.67/-9.36	-12.58/-16.46	-19.09/-18.64	-15.22/-14.7	-18.46/-18.57	-10.27/-6.05	-4.32/-2.26	-2.64/-4.8	-9.32/-15.96	-17.05/-13.95	-11.42/-9.97	-9.66/-10.37	-10.25/-9.23	-9.21/-8.43	-8.69/-7.57	-7.29/-7.09	-7.35/-7.84		
Θ(172.5°)	-14.28/-15.29	-15.31/-13.35	-11.73/-11.04	-9.48/-8.25	-7.26/-6.56	-5.92/-5.65	-5.91/-7.23	-8.57/-9.15	-9.73/-9.98	-10.25/-10.26	-11.48/-12.24	-14.03/-14.38	-12.38/-10.69	-9.59/-9.36	-9.32/-9.36	-9.31/-8.85	-7.79/-6.96	-6.78/-6.85	-7.3/-8.63	-10.62/-13.42	-15.21/-12.3	-10.31/-9.89	-11.15/-14.1	-18.21/-17.75		
Θ(180°)	-13.88/-12.06	-10.76/-10.08	-11.14/-12.42	-14.28/-13.85	-12.16/-10.58	-9.11/-8.87	-9.88/-12.26	-15.5/-19.1	-18.32/-18.93	-19.09/-18.66	-19.03/-18.32	-18.81/-18.4	-18.69/-18.86	-18.28/-17.59	-18.49/-18.92	-17.4/-17.33	-15.76/-16.45	-17.54/-18.01	-18.78/-18.42	-17.18/-16.76	-17.11/-16.55	-16.85/-18.7	-18.75/-18.61	-18.21/-14.34		
Freq(Hz)	6.175GPol.	ThetaAnt.1	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)		
Θ(0°)	0.08/0.72	1.18/1.59	1.81/1.86	1.88/1.59	1.30/9.2	0.27/0.59	-1.41/-2.23	-3.66/-5.33	-8.12/-11.9	-16.46/-15.23	-10.97/-7.61	-5.44/-3.49	-1.98/-0.66	0.36/0.96	1.34/1.59	1.53/1.31	1.15/0.88	0.52/0.34	-1.54/-2.96	-4.78/-7.39	-11.28/-18.28	-19.34/-12.64	-7.8/-5.15	-3.07/-1.29		
Θ(7.5°)	-0.61/-0.1	0.78/1.31	1.64/2.19	2.28/2.21	2.11/8.2	10.3	-0.42/-1.5	-3.5/-3.3	-8.82/-14.49	-18.4/-13.77	-8.65/-5.94	-4.2/-5.6	-1.35/-0.39	0.25/0.63	0.87/0.81	0.59/0.34	0.08/-0.17	-0.66/-1.4	-2.39/-3.49	-4.68/-6.42	-9.13/-13.48	-17.62/-13.55	-8.75/-8.81	-3.25/-1.55		
Θ(15°)	-0.56/0.16	1.01/1.41	1.65/1.87	1.53/1.16	0.89/0.49	0.13/0.4	-1.54/-3.13	-3.45/-5.75	-8.88/-13.3	-18.09/-15.51	-10.44/-6.94	-4.55/-3.05	-2.4/-2.24	-2.11/-1.86	-1.72/-1.63	-1.27/-2.04	-1.92/-2.04	-1.92/-2.13	-2.7/-3.61	-4.95/-7.4	-11.31/-19.49	-17.11/-10.84	-7.11/-5.96	-3.1/-1.84		
Θ(22.5°)	-0.79/0.78	1.32/0.94	0.52/0.58	0.50/2.5	-0.23/-0.87	-1.44/-1.87	-2.39/-2.91	-3.61/-4.63	-6.06/-7.8	-8.8/-9.63	-10.25/-9.2	-7.5/-6.7	-6.25/-5.74	-5.09/-4.33	-3.72/-3.67	-3.53/-2.92	-2.23/-1.96	-2.02/-1.97	-2.23/-3.13	-4.55/-6.01	-8.74/-14.14	-18.11/-14.32	-8.3/-5.06	-3.24/-2.15		
Θ(30°)	-0.80/-27	1.14/1.08	0.50/8.6	1.07/0.42	-0.17/-0.09	0.16/-0.04	-0.53/-1.18	-1.98/-2.78	-4.12/-6.62	-10.49/-13.06	-14.14/-12.47	-10.42/-9.59	-8.14/-6.46	-5.64/-8.6	-4.08/-0.35											



Radiated Composite Gain Data of 6G

Appendix B

Θ(15°)	-6.38/4.64	-4.81/5.7	-5.3/4.83	-4.49/4.03	-3.81/3.12	-3.26/3.36	-3.26/3.34	-4/4.34	-4.58/5	-5.28/5.27	-5.48/-6.16	-6.6/6.92	-6.9/6.67	-6.37/5.93	-5.81/-5.58	-5.12/4.79	-4.95/-5.31	-6.05/-7.72	-8.2/-9.05	-9.59/-10.01	-10.22/9.64	-8.36/-4.72	-7.27/-7.67	-7.62/6.73
Θ(22.5°)	-5.13/-5.54	-5.67/-5.55	-5.13/-3.87	-3.75/-3.75	-3.96/-4.89	-6.06/-6.26	-6.12/-5.77	-5.85/-5.92	-5.47/-5.41	-5.38/-5.56	-6.08/-6.78	-7.12/-7.54	-7.88/-7.53	-6.16/-5.27	-5.2/-5.36	-5.16/-5.11	-4.81/-5.39	-6.09/-7.15	-9.1/-10.97	-10.88/-9.03	-7.69/-6.89	-6.38/-6.09	-6.38/-6.76	-5.71/-4.62
Θ(35°)	-4.83/-4.97	-4.98/-4.96	-4.34/-5.25	-6.15/-6.01	-6.64/-8.41	-9.22/-9.99	-10.1/-10.25	-11.37/-12.66	-13.11/-12.23	-9.94/-8.23	-7.64/-7.63	-7.73/-8.34	-8.55/-8.17	-6.82/-6.13	-5.42/-4.79	-4.17/-3.99	-4.17/-4.56	-5.63/-7.3	-8.66/-8.96	-8.43/-7.68	-6.01/-6.69	-4.08/-4.17	-4.06/-4.57	-5.74/-5.61
Θ(37.5°)	-4.37/-4.49	-5.62/6.39	-7.09/-6.84	-7.45/-8.48	-10.08/-10.89	-11.55/-11.21	-10.11/-8.99	-9.09/-10.44	-11.56/-13.17	-14.03/-12.89	-9.92/-8.55	-8.39/-7.72	-8.48/-10.32	-9.21/-7.47	-5.31/-5.26	-6.18/-4.5	-3.86/-4.48	-4.65/-4.95	-6.23/-7.9	-8.37/-7.41	-6.39/-5.29	-5.01/-4.34	-3.59/-2.82	-2.82/-3.17
Θ(45°)	-5.82/-6.74	-7.13/-6.68	-6.81/-8.25	-9.77/-12.09	-14.93/-17.66	-17.61/-16.68	-14.43/-10.82	-8.13/-7.95	-10.28/-13.74	-15.71/-16.07	-14.79/-11.1	-8.31/-6.15	-6.49/-8.34	-7.68/-8.93	-8.83/-6.64	-4.69/-6.62	-6.91/-5.38	-6.79/-6.94	-5.94/-5.82	-5.99/-4.58	-5.12/-4.36	-3.81/-3.52	-2.85/-2.07	-2.22/-3.01
Θ(52.5°)	-4.54/-7.1	-8.9/-8.82	-6.71/-6.8	-7.42/-11	-17.29/-18.76	-18.23/-6.95	-15.1/-13.63	-12.99/-12.52	-15.15/-18.17	-17.48/-15	-15.79/-13.09	-9.03/-5.96	-6.61/-6.62	-8.32/-9.03	-7.94/-8.7	-16.33/-11.53	-15.68/-11.07	-7.45/-7.72	-7.69/-5.9	-4.82/-2.68	-2.32/-1.83	-2.97/-2.52	-2.97/-2.32	-1.94/-1.23
Θ(60°)	-4.95/-9.04	-9.72/9	-9.29/-10.16	-11.62/-14.46	-14.44/-16.58	-18.54/-18.24	-18.93/-18.1	-15.86/-15.23	-15.87/-17.13	-19.11/-15.59	-12.98/-10.98	-7.74/-4.84	-3.24/-3.88	-3.71/-3.72	-7.11/-8.98	-11.91/-10.41	-10.88/-14.57	-13.63/-10.43	-9.15/-6.82	-4.15/-2.98	-2.61/2.55	-2.48/-2.04	-1.04/-0.59	-1/-2.82
Θ(67.5°)	-7.21/-7.65	-8.13/-10.24	-14.06/-16.71	-13.36/-9.51	-9.01/-7.69	-9.77/-12.77	-14.87/-18.04	-18.09/-16.31	-12.78/-12.34	-12.85/-13.59	-12.52/-11.57	-8.72/-9.33	-2.72/-2.69	-2.26/-2.73	-3.99/-7.04	-5.85/-8.83	-13.92/-18.02	-17.69/-13.76	-11.5/-8.84	-6.23/-2.68	-4.14/-2.9	-1.66/-1.46	-0.92/-0.81	-1.8/-3.47
Θ(75°)	-6.98/-7.33	-9.67/-15.82	-17.96/-14.63	-8.07/-6.19	-5.8/-5.97	-8.85/-11.79	-19.45/-15.73	-11.99/-8.78	-6.52/-9.11	-10.96/-11.91	-9.12/-8.38	-7.34/-5.65	-2.66/-1.83	-1.32/-0.86	-3.26/-2.65	-3.3/-5.74	-8.39/-14.03	-12.05/-13.09	-10.27/-12.12	-11.14/-9.95	-5.6/-4.78	-2.99/-2.09	-2.34/-3.36	-4.35/-6.04
Θ(82.5°)	-6.72/-7.02	-11.99/-17.41	-12.87/-7.95	-4.9/-3.22	-4.29/-5.62	-6.42/-15.31	-17.83/-14.16	-8.6/-7.53	-6.56/-4.32	-4.01/-6.02	-6.65/-6.45	-6.17/-5.76	-4.27/-3.68	-1.51/-1.49	-1.95/-2.61	-2.13/-1.3	-3.31/-6.35	-12.75/-15.36	-15.34/-18.21	-12.98/-11.81	-10.12/-5.77	-3.27/-3.51	-4.44/-6.68	-7.4/-7.6
Θ(90°)	-9.61/-19.23	-18.92/-15.55	-18.21/-12.34	-5.46/-4.96	-8.69/-10.12	-11.95/-11.47	-10.07/-13.33	-14.9/-15.41	-13.82/-6.73	-4.42/-4.14	-6.51/-10.54	-10.29/-7.48	-6.12/-6.73	-4.02/-3.15	-1.44/-6.33	-4.24/-1.98	-1.8/-4.46	-9.61/-17.42	-12.39/-15.47	-14.78/-8.41	-8.63/-10.49	-8.66/-5.06	-4.87/-3.69	-2.96/-3.64
Θ(97.5°)	-10.75/-11.47	-10.11/-11.18	-13.85/-16.16	-16.84/-17.8	-18.04/-18.87	-18.96/-12.44	-10.99/-10.63	-9.86/-8.1	-7.07/-8.17	-6.63/-5.51	-6.5/-8.2	-7.43/-12.14	-7.94/-7.48	-7.17/-7.11	-3.72/-5.88	-5.13/-2.84	-3.02/-4.32	-10.32/-13.9	-13.67/-17.6	-18.91/-17.04	-18.79/-12.45	-7.09/-3.14	-2.28/-5.2	
Θ(105°)	-18.33/-14.78	-7.68/-7.43	-10.55/-9.59	-6.71/-10.25	-7.66/-13.24	-8.66/-9.32	-8.81/-9.57	-8.96/-8.28	-5.91/-6.09	-9.22/-9.53	-5.69/-6.25	-9.17/-13.76	-15.38/-14.5	-15.47/-14.71	-9.64/-12.42	-17.98/-7.34	-5.85/-5.25	-14.08/-13.39	-11.09/-11.16	-10.43/-5.55	-5.54/-7.61	-12.24/-10.54	-10.67/-13.61	-11.1/-11.17
Θ(112.5°)	-17.83/-15.91	-10.14/-10.63	-11.44/-7.74	-3.5/-4.64	-4.88/-5.82	-7.15/-6.7	-10.65/-12.54	-6.49/-7.77	-9.49/-12.27	-10.32/-8.1	-13.82/-6.73	-14.86/-14.97	-13.61/-15.29	-12.67/-12.63	-14.86/-14.97	-19.08/-10.26	-13.56/-12.05	-18.3/-7.18	-9.96/-12.17	-6.28/-3.03	-3.73/-5.76	-1.61/-4.1	-6.08/-6.78	-6.13/-10.77
Θ(120°)	-8.51/-8.96	-8.96/-11.2	-12.82/-10.52	-14.91/-9.74	-10.93/-8.71	-12.87/-11.57	-11.11/-19.15	-16.28/-10.31	-6.96/-8.5	-11.87/-17.06	-12.49/-9.59	-10.76/-9.79	-15.57/-19.41	-12.93/-12.03	-17.58/-18.51	-13.96/-13.75	-17.46/-8.63	-12.75/-8.37	-14.32/-17.16	-6.82/-5.65	-4.8/-3.96	-5.71/-5.01	-5.71/-7.29	-4.8/-6.01
Θ(127.5°)	-5.07/-6.53	-14.55/-18.11	-13.35/-11.67	-19.03/-18.06	-19.07/-17.57	-18.2/-15.06	-14/-11.21	-9.1/-6.81	-7.17/-8.44	-13.92/-18.41	-18.73/-15.32	-11.41/-12.95	-17.7/-18.62	-9.69/-11.89	-9.86/-9.29	-9.44/-17.5	-6.93/-18.05	-11.95/-8.8	-7.29/-10.44	-7/-7.21	-7.78/-9.87	-10.71/-4.08	-3.34/-5.04	-2.83/-3.05
Θ(135°)	-3.98/-6.82	-19.38/-18.4	-9.74/-7.31	-5.83/-6.47	-4.71/-4.97	-5.16/-6.35	-7.1/-6.21	-4.03/-3.72	-4.82/-7.94	-10.15/-18.53	-17.92/-18	-19.18/-16.15	-17.1/-11.28	-7.91/-7.67	-15.25/-14.33	-17.92/-7.37	-16.31/-5.07	-16.31/-7.57	-13.17/-13.36	-11.05/-19.21	-17.05/-18.88	-15.15/-9.02	-18.7/-8.35	-5.79/-5.82
Θ(142.5°)	-11.02/-18.6	-18.33/-14.33	-9.11/-8.43	-2.21/-1.8	-4.46/-0.72	-0.75/-1.51	-3.8/-6.23	-6.29/-4.62	-5.32/-6.96	-9.18/-10.41	-12.34/-13.03	-14.43/-9.71	-11.31/-18.98	-18.41/-14.35	-7.92/-14.5	-11.59/-16.03	-15.65/-18.88	-16.9/-13.74	-12.22/-10.29	-11.13/-11.07	-9.91/-8.09	-12.92/-8.85	-1.61/-6.64	
Θ(150°)	-12.37/-6.9	-7.33/-9.73	-9.18/-7.87	-5.44/-3.22	-2.48/-1.81	-1.5/-1.79	-2.77/-4.66	-6.49/-12.47	-7.78/-5.28	-5.67/-8.68	-14.74/-19.48	-16.1/-14.29	-18.1/-18.14	-18.16/-18.99	-8.17/-4.85	-10.82/-16.93	-16.3/-17.03	-14.84/-18.4	-10.49/-10.11	-14.11/-12.73	-7.89/-5.7	-11.1/-8.72	-17.08/-13.79	-16.08/-18.78
Θ(157.5°)	-5.66/-5.12	-5.91/-7.41	-9.05/-10.32	-10.15/-7.14	-4.19/-2.63	-2.19/-2.83	-5.13/-8.99	-11.7/-8.98	-6.86/-6.99	-11.39/-18.5	-17.54/-10.41	-16.89/-14.3	-9.97/-11.94	-18.01/-14.27	-8.11/-6.94	-11.37/-18.05	-18.02/-15.45	-12.51/-14.83	-18.66/-18.17	-17.3/-18.11	-13.98/-7.24	-5.76/-5.12	-4.93/-5.66	-6.06/-6.53
Θ(165°)	-8.98/-9.19	-9.71/-11.26	-13.68/-12.61	-11.79/-10.93	-8.74/-6.71	-5.86/-6.15	-7.52/-10.17	-11.94/-12.32	-15.04/-17.41	-14.63/-13.42	-15.63/-18.84	-19.1/-18.36	-15.79/-12.15	-11.41/-14.34	-19.02/-18.22	-16.57/-13.51	-14.43/-14.78	-13.78/-15.08	-17.46/-18.39	-18.83/-18.62	-12.18/-8.58	-7.74/-7.46	-6.56/-5.65	-5.49/-5.71
Θ(172.5°)	-11.07/-12.67	-13.51/-14.45	-15.8/-17.71	-18.36/-18.25	-17.37/-15.89	-13.55/-11.6	-11.62/-13.19	-15.46/-18.23	-18.44/-18.06	-18.33/-19.24	-18.3/-18.36	-16.85/-18.21	-18.9/-15.35	-11.72/-9.79	-8.9/-9.19	-9.46/-10.31	-10.53/-10.66	-11.74/-13.68	-15.19/-16.11	-16.2/-15.92	-11.91/-8.82	-8.11/-8.04	-8.64/-8.88	
Θ(180°)	-13.79/-14.61	-14.17/-14.13	-13.93/-14.94	-17.48/-18.27	-18.32/-17.96	-17.16/-15	-14.34/-15.54	-18.59/-17.84	-19.11/-17.8	-19.23/-17.33	-15.97/-14.88	-13.75/-12.53	-11.34/-10.21	-9.65/-9.45	-9.44/-10.3	-11.21/-13.12	-15.79/-18.98	-18.35/-18.48	-19.13/-17.6	-16.79/-14.74	-13.39/-11.71	-10.74/-10.69	-10.07/-10.64	-12.14/-11.87
Freq(Hz)	6.995GPol.	Theta/Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-7.42/-6.98	-6.49/-6.52	-6.05/-5.87	-5.97/-5.67	-5.39/-4.83	-4.25/-4.14	-4.5/-6.42	-4.58/-4.64	-4.62/-4.79	-5.04/-5.48	-5.97/-6.39	-6.39/-6.45	-6.43/-6.39	-6.3/-6.19	-6.05/-5.84	-5.47/-5.15	-4.95/-4.58	-5.86/-5.8	-5.8/-5.78	-5.92/-5.83	-5.98/-6.13	-6.34/-6.39	-6.55/-6.93	-7.08/-7.54
Θ(7.5°)	-5.05/-6.01	-5.81/-5.4	-4.69/-4.78	-4.62/-4.7	-4.29/-4.55	-4.68/-5.27	-5.49/-5.34	-5.07/-4.61	-5.35/-5.73	-6.11/-6.54	-6.84/-7.32	-7.64/-7.92	-7.89/-8.16	-7.87/-7.72	-7.38/-7.3	-6.67/-5.85	-5.14/-4.84	-4.59/-4.41	-4.21/-4.03	-3.63/-3.89	-4.24/-4.71	-4.86/-5.76	-6.21/-6.73	-6.55/-6.78
Θ(15°)	-4.89/-4.83	-4.04/-3.37	-3.02/-2.84	-2.62/-2.38	-2.35/-2.77	-3.31/-3.46	-3.4/-3.14	-2.74/-2.61	-2.74/-3.05	-3.68/-4.45	-5.44/-6.7	-7.79/-8.37	-8.49/-8.66	-8.32/-8.3	-8.5/-8.1	-7.19/-5.8	-4.47/-3.52	-2.95/-2.94	-2.93/-2.71	-2.78/-3.24	-3.79/-4.55	-5.24/-5.67	-6.26/-6.72	-6.32/-5.9
Θ(22.5°)	-2.59/-2.18	-1.62/-1.17	-0.92/-1.16	-1.67/-1.78	-1.72/-1.91	-2.14/-2.78	-2.9/-2.76	-2.48/-2.33	-2.12/-2.3	-2.72/-3.65	-4.69/-5.63	-6.09/-7.29	-8.74/-9.33	-8.62/-9.99	-7.4/-6.29	-5.25/-4.76	-4.84/-4.56	-3.26/-2.33	-2.06/-2.32	-2.55/-2.68	-2.88/-3.05	-3.06/-2.74	-2.9/-4	-4.14/-3.84
Θ(30°)	-2.1/-1.16	-0.70	0.45/-0.2	-0.5/-0.51	-0.44/-0.45	-0.54/-0.38	-1.17/-1.48	-1.97/-2.41	-3.02/-3.29	-3.33/-3.76	-5/-5.78	-5.53/-6.22	-8.03/-8.44	-8.07/-7.34	-6.79/-6.75	-6.92/-6.34	-5.26/-4.33	-3.74/-3.13	-2.49/-1.88	-1.89/-2.27	-2.89/-3.36	-4.39/-4.56	-4.52/-4.63	-3.76/-2.79
Θ(37.5°)	-1.340/-19	0.52/0.03	0.960/62	1.11/-1.12	0.710/53	0.640/35	-0.10/-0.91	-1.87/-2.58	-3.51/-4.81	-5.73/-6.32	-8.11/-9.35	-9.37/-9.3	-8.41/-8.38	-1.11/-11.83	-10.95/-10.74	-8.42/-8.6	-7.21/-5.49	-4.29/-2.43	-6.28/-2.68	-3.91/-4.85	-5.72/-5.11	-4.13/-4.38	-4.98/-5.08	-3.06/-2.48
Θ(45°)	-0.940/-21	1.13/1.43	1.58/1.43	1.58/1.47	1.35/1.32	1.28/1.14	0.910/48	-0.5/-1.79	-2.46/-2.49	-3.06/-3.53	-4.95/-7.13	-9.12/-10.4	-11.53/-12.46	-13.45/-11.29	-8.58/-5.68	-5.71/-6.36	-7.03/-6.25	-4.99/-5.75	-5.74/-4.27	-4.81/-7.02	-8.41/-10.98	-11.49/-12.22	-9.68/-9.4	-5.65/-2.11
Θ(52.5°)	-1.510/54	1/1.12	1.38/2.25	2.85/2.7	2.22/1.36	1.050/87	0.18/-0.9	-2.1/-3.7	-4.08/-3.91	-2.38/-1.49	-1.8/-3.17	-7.02/-12.06	-18.01/-18.6	-17.88/-16.12	-7.07/-5.7	-6.79/-7.83	-9.15/-11	-9.04/-10.52	-12.1/-14.73	-18.04/-17.75	-14.79/-13.83	-10.73/-11.23	-17.81/-15.72	-8.93/-4
Θ(60°)	-0.810/47	1/0.70	1.75/3.58	4.36/4	2.38/1.04	0.03/-0.52	-1.4/-2.44	-3.8/-5.2	-5.45/-4.73	-2.34/-0.67	0.040/1	-2.2/-5.36	-8.8/-9.51	-15.41/-17.25	-9.47/-8.03	-6.44/-5.66	-7.45/-11.82	-15.42/-18.82	-17.76/-13.48	-11.09/-10.91	-14.26/-7.83	-6.87/-8.36	-11.76/-14.81	-9.98/-3.37
Θ(67.5°)	-0.180/52	1.11/1.68	1.95/3.01	3.04/2.35	-0.3/-2.3	-2.87/-2.58																		



Radiated Composite Gain Data of 6G

Appendix B

Θ(60°)	-0.55/-1.55	-1.99/-2.24	-1.3/-1.14	-3.25/-5.97	-9.5/-9.23	-8.53/-8.75	-9.67/-11.37	-12.32/-9.8	-8.56/-7.78	-7.49/-6.26	-4.49/-1.7	-1.07/-1.96	-5.16/-7.48	-9.23/-9.55	-18.84/-18.04	-12.75/-9.6	-10.74/-9.89	-9.04/-11.8	-13.63/-13.01	-13.98/-14.37	-14.07/-14.58	-14.1/-17.28	-4.25/-2.42	-2.01/-1.19
Θ(67.5°)	-7.05/-5	-2.2/-1.34	-1.54/-3.15	-6.02/-10.04	-12.59/-13.13	-18.55/-18.45	-18.68/-18.96	-17.62/-12.4	-7.73/-3.69	-7.03/-6.67	-4.89/-2.48	-1.68/-2.3	-4.08/-6	-4.6/-6.01	-8.6/-17.52	-10.96/-8.46	-7.33/-7.12	-11.06/-11.97	-11.82/-15.67	-17.38/-14.04	-12.78/-14.85	-12.67/-18.8	-11.86/-1.94	-8.35/-9.89
Θ(75°)	-5.5/-5.3	-6.07/-6.5	-6.99/-10.52	-13.52/-10.13	-8.95/-10.68	-18.24/-18.87	-16.91/-15.23	-17.52/-17.9	-16.85/-10.22	-5.99/-3.57	-1.91/-0.65	-0.28/-0.48	-1.57/-1.29	-0.64/-1.63	-5.47/-9.35	-8.26/-6.1	-8.86/-11.86	-12.24/-18.87	-15.78/-9.69	-10.05/-12.46	-11.41/-10.3	-10.03/-15.15	-18.49/-19.67	-8.31/-5.28
Θ(82.5°)	-3.6/-3.28	-3/-2.62	-2.86/-3.23	-2.6/-1.46	-0.84/-1.72	-4.96/-10.31	-15.28/-14.05	-8.27/-8.2	-8.25/-7.86	-5.26/-2.98	-0.390/-1.4	-0.18/-0.96	-0.68/-0.16	0.290/-1.1	-2.63/-6.24	-12.93/-9.5	-7.4/-8.84	-9.65/-13.77	-8.27/-5.33	-3.74/-3.56	-3.71/-0.3	-5.15/-4.79	-8.05/-14.34	-7.66/-4.41
Θ(90°)	-1.4/-0.18	0.230/-66	-0.21/-0.92	0.110/-92	0.71/-108	-5.67/-15.97	-15.99/-10.01	-8.93/-12.11	-10.25/-8.49	-5.84/-3.86	-3.12/-3.47	-2.11/-8.05	-0.75/-3.05	0.010/-78	-0.28/-3.75	-9.59/-6.94	-4.9/-5.07	-5.06/-8.85	-9.19/-12.15	-12.47/-7.06	-2.23/-3.54	-4.46/-4.05	-3.04/-5.23	-4.31/-2.57
Θ(97.5°)	-1.02/-0.96	-1.07/-0.27	0.530/-91	0.66/-67	0.36/-54	-8.89/-14.51	-8.96/-14.51	-11.06/-8.13	-19.48/-18	-9.31/-5.31	-4.24/-6.8	-4.78/-3.5	-2.07/-2.1	-1.05/-0.91	-0.36/-3.76	-6.15/-7.07	-6.56/-3.65	-7.95/-7.65	-5.91/-9.5	-11.57/-9.37	-9.24/-8.21	-4.09/-2.11	-1.95/-2.1	
Θ(105°)	-7.32/-13.23	-10.3/-3.89	-1.42/-1.54	-3.37/-7.11	-6.17/-16.02	-16.12/-12.34	-7.29/-8.08	-10.59/-9.85	-13.25/-13	-14.96/-13.84	-11.25/-13.02	-18.82/-9.98	-5.96/-6.66	-5.34/-3.26	-1.61/-1.24	-7.76/-12.21	-10.29/-8.66	-10.44/-8.57	-8.23/-8.07	-5.47/-5.02	-5.52/-9.89	-8.06/-3.06	-2.81/-3.59	-2.01/-2.22
Θ(112.5°)	-11.13/-11.34	-11.68/-7.71	-7.01/-7.31	-5.78/-5.58	-3.24/-1.3	-3.69/-9.89	-14.75/-18.6	-17.38/-18.29	-18.81/-19.03	-16.01/-11.68	-9.71/-15.46	-17.92/-18.38	-17.72/-10.57	-6.82/-3.63	-5.07/-4.54	-11.38/-6.35	-3/-5.2	-6.68/-15.7	-3.58/-3.29	-1.16/-3.92	-5.71/-9.87	-5.1/-1.08	-2.38/-2.24	-10.97/-18.82
Θ(120°)	-0.66/-4.41	-18.2/-6.72	-2.71/-4.29	-6.74/-5.09	-4.21/-4.92	-9.74/-8.24	-12.52/-18.59	-17.91/-19.84	-12.64/-15.5	-17.9/-14.86	-11.26/-10.99	-13.05/-16.03	-11.3/-14.48	-7.9/-7.04	-4.2/-6.42	-12.35/-12.19	-7.37/-17.4	-12.23/-2.96	-7.8/-9.1	-5.17/-4.23	-4.42/-6.68	-3.09/-0.15	-1.14/-6.3	-2.08/-3.58
Θ(127.5°)	-0.85/-7.94	-12.61/-12.8	-6.77/-6.41	-4.95/-7.17	-7.74/-7.67	-8.34/-13.73	-13.53/-18.73	-16.75/-14.8	-11.91/-7.43	-5.43/-5.86	-10.23/-12.99	-17.63/-17.52	-17.62/-10.74	-6.71/-7.42	-10.37/-11.04	-10.35/-15.02	-9.44/-17.93	-13.93/-7.93	-18.78/-16.9	-4.75/-4.4	-4.32/-16.55	-12.06/-2.11	-0.84/-0.3	2.110.45
Θ(135°)	0.89/-0.43	-2.09/-1.42	-2.33/-1.93	-2.21/-1.23	-1.64/-2.65	-4.21/-6.34	-12.62/-14.33	-10.67/-8.39	-6.09/-5.63	-7.45/-12.06	-14.31/-15.79	-11.82/-12.05	-11.62/-9.9	-15.65/-10.05	-9.39/-9.11	-5.21/-17.34	-5.91/-17.93	-15.49/-11.14	-11.35/-14.38	-10.45/-8.67	-19.34/-14.67	-10.35/-5.96	-0.460/-65	
Θ(142.5°)	-2.73/-0.81	-0.82/-1.17	-1.95/-2.2	-1.95/-1.06	-0.64/-1.96	-5.1/-11.04	-13.51/-15	-16.67/-12.16	-11.2/-7.85	-7.16/-8.16	-12.66/-18.48	-14.1/-11.96	-13.99/-18.9	-6.09/-17.77	-6.66/-4.89	-3.37/-0.62	-6.62/-17.36	-18.95/-18.82	-11.16/-5.66	-10.77/-6.92	-5.24/-2.45	-2.4/-7.5	-8.4/-6.3	
Θ(150°)	-18.73/-8.03	-5.43/-5.41	-4.6/-3.88	-3.73/-3.77	-3.46/-4.39	-5.9/-7.21	-9.37/-9.28	-7.33/-5.7	-5.05/-4.42	-3.97/-3.88	-4.05/-6.76	-16.72/-18.05	-14.98/-18.36	-13.37/-8.6	-9.31/-6.81	-4.99/-3.16	-0.10/-0.1	-4.21/-10.87	-13.47/-12.21	-7.76/-4.61	-6.02/-9.07	-7.49/-5.06	-3.9/-3.87	-6.14/-12.15
Θ(157.5°)	-1.22/-2.8	-4.06/-5	-6.38/-7	-8.99/-13.1	-16.93/-16.43	-15.63/-15.5	-13.58/-12.21	-10.66/-10.14	-10.04/-10.73	-11.45/-10.34	-8.33/-9.31	-11.38/-15.77	-17.86/-11.6	-8.26/-6.47	-4.1/-2.37	-2.07/-2.57	-2.31/-2	-3.11/-4.54	-7.27/-6.81	-5.56/-6.23	-6.46/-3.22	-1.07/-0.02	0.22/-0.03	
Θ(165°)	-0.44/-0.15	-0.120/-07	-0.05/-0.94	-2.04/-3.23	-4.33/-5.28	-6.67/-4.48	-8.36/-9.44	-11.11/-11.91	-10.78/-9.46	-8.64/-7.94	-7.25/-7.24	-7.59/-8	-9.03/-10.47	-10.16/-8.43	-6.52/-4.99	-4.74/-6.46	-10.77/-12.21	-9.56/-8.82	-9.61/-10.98	-14.49/-19.21	-13.01/-9.33	-9.98/-18	-6.25/-3.86	-1.63/-0.72
Θ(172.5°)	-1.93/-1.32	-0.88/-0.43	-0.6/-1.15	-1.71/-2.77	-3.9/-4.41	-4.91/-5.17	-5.48/-6.57	-7.18/-7.35	-7.19/-7.64	-8.94/-11.02	-14.3/-18.71	-18/-19.13	-17.08/-13.25	-11.59/-11.09	-11.85/-13.27	-16.08/-18.68	-17.92/-16.83	-16.56/-14.48	-12.04/-10.47	-9.71/-8.95	-8.91/-9.16	-10.22/-9.39	-6.66/-4.7	-3.39/-2.89
Θ(180°)	-8.57/-10.33	-11.54/-12.69	-12.86/-11.72	-9.98/-8.83	-7.23/-5.32	-3.8/-3.12	-2.57/-2.89	-3.85/-4.61	-6.1/-7.42	-9.14/-10.25	-11.53/-12.5	-13.14/-13.73	-13.45/-12.91	-12.96/-13.36	-14.14/-14.03	-11.87/-9.9	-8.45/-7.42	-6.85/-6.21	-5.95/-6.21	-6.73/-6.59	-6.42/-6.44	-6.59/-6.76	-6.44/-6.35	-7.41/-8.24
Freq(Hz)	6.175GPol.	Theta/Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-5.99/-4.52	-5.15/-6.28	-7.28/-6.92	-6.69/-6.29	-6.27/-6.36	-6.41/-7.92	-10.14/-12.38	-13.78/-14.48	-15.84/-17.31	-17.98/-16.11	-13.57/-11.51	-10.07/-9.44	-9.9/-9.14	-9.13/-9.08	-9.04/-9.04	-9.62/-11.19	-12.32/-12.63	-13.12/-13.21	-14.62/-16.56	-16.98/-17.56	-17.81/-16.34	-15.24/-15.17	-12.24/-10.39	-9.66/-8.1
Θ(7.5°)	-7.37/-7.37	-6.72/-7.49	-7.73/-7.58	-8.29/-8.9	-9.67/-10.51	-11.61/-14.28	-16.51/-16.58	-15.84/-14.75	-14.17/-12.78	-11.56/-10.88	-10.32/-10.29	-9.9/-10.1	-9.93/-10.38	-10.04/-8.95	-8.07/-7.38	-6.96/-6.83	-6.28/-6.28	-6.31/-6.61	-7.55/-9.1	-11.29/-14	-11.12/-9.69	-15.19/-13.36	-11.12/-9.69	-9.23/-7.38
Θ(15°)	-5.39/-4.19	-4.15/-5.14	-6.09/-6.81	-7.59/-8.24	-7.98/-7.47	-7.71/-8.05	-8.91/-8.51	-7.39/-8.03	-9.53/-11.15	-12.9/-13.4	-12.56/-11.54	-10.76/-10.71	-11.34/-11.74	-10.41/-8.81	-7.46/-6.39	-6.06/-5.96	-6.03/-5.93	-6.03/-6.74	-7.73/-9.22	-9.81/-9.35	-7.76/-6.51	-5.71/-5.49	-5.16/-5.55	-6.57/-5.5
Θ(22.5°)	-2.06/-1.67	-1.55/-2.03	-3.2/-4.07	-4.02/-5.02	-5.83/-8.27	-10.21/-10.56	-9.35/-7.97	-8.06/-8.27	-9.03/-10.06	-12.96/-16.77	-17.22/-14.92	-13.51/-12.91	-10.73/-10.02	-9.05/-6.96	-5.14/-3.35	-4.3/-3.5	-4.6/-5.16	-6.41/-6.54	-5.49/-4.02	-3.24/-3.15	-3.41/-2.94	-2.28/-2	-1.76/-1.76	-1.58/-1.25
Θ(30°)	-1.91/-2.4	-2.39/-2.11	-2.62/-3.38	-5.17/-9.49	-11.31/-8.68	-7.94/-9.63	-9.31/-6.69	-7.43/-7.9	-8.78/-9.6	-11.13/-12.88	-14.06/-13.12	-14.81/-17.84	-16.31/-19.08	-17.11/-11.96	-7.95/-5.29	-4.09/-3.57	-4.01/-5.19	-6.41/-3.95	-4.06/-4.11	-3.39/-2.15	-0.860/-17	0.920/99	0.33/-0.3	-1.06/-1.54
Θ(37.5°)	1.58/-1.15	0.12/-0.29	-0.5/-2.84	-5.87/-10.27	-11.8/-11.54	-10.49/-9.56	-9.72/-9.16	-8.96/-8.56	-7.47/-6.93	-6.27/-5.96	-6.97/-7.74	-7.41/-8.52	-9.71/-7.35	-6.78/-6.64	-5.83/-6.42	-7.15/-6.41	-5.67/-4.84	-4.98/-3.14	-0.670/53	1.172/-21	3.053/35	3.693/7	3.47/2.89	2.25/-1.57
Θ(45°)	-2.67/-2.05	-2.68/-5.16	-6.5/-8.07	-12.29/-16.42	-10.39/-8.23	-6.82/-6.06	-6.81/-9.2	-9.61/-11.84	-11.41/-8.8	-7.24/-6.02	-6.1/-8.2	-7.36/-7.2	-7.26/-6.07	-4.63/-3.76	-3.98/-5.52	-5.23/-5.4	-6.8/-5.9	-2.22/-0.92	-0.49/-0.22	0.360/73	1.472/-71	3.583/62	2.570/83	-2.38/-3.9
Θ(52.5°)	-8.13/-9.68	-15.47/-17.87	-19.07/-15.89	-9.81/-4.98	-2.28/-2.05	-2.54/-3.43	-4.86/-5.96	-6.14/-10.39	-13.81/-10.83	-8.39/-7.07	-7.26/-7.09	-4.47/-3.17	-2.77/-3.85	-4.13/-4.45	-5.44/-4.54	-6.42/-4.58	-2.94/-2.15	-2.2/-1.78	-1.39/-1.38	-0.25/-1.7	3.494/3	3.421/3	-2.06/-5.99	
Θ(60°)	-5.16/-7.16	-5.72/-4.07	-4.67/-8.56	-13.39/-7.89	-5.25/-5.56	-7.65/-8.32	-7.75/-7.17	-8.14/-10.4	-13.11/-8.42	-4.35/-2.23	-2.02/-2.57	-1.29/-0.03	0.910/-16	0.010/23	0.29/-2.2	-3.68/-4.27	-2.86/-1.95	-2.39/-2.17	-3.08/-3.27	-2.7/-3.68	-2.720/26	2.423/36	3.44/2.4	0.16/-2.48
Θ(67.5°)	-4.52/-4.5	-3.91/-3.92	-4.85/-7.16	-9.99/-12.4	-13.59/-11.37	-10.11/-11.26	-13.49/-14.18	-10.91/-10.6	-12.45/-10.37	-6.27/-6.66	-4.89/-6.9	-4.44/-1.53	-0.53/-1.08	-1.01/-1.4	-2.38/-2.89	-6.08/-5.96	-6.04/-4.4	-3.43/-4.32	-3/-1.35	-2.06/-3.46	-6.78/-6.76	-4.3/-1.04	-0.87/-1	-1.12/-3.52
Θ(75°)	-6.72/-8.11	-13.2/-11.9	-8.9/-7.44	-7.71/-9.42	-9.21/-8.03	-6.38/-6.3	-8.98/-13.92	-18.71/-18.92	-16.57/-13.66	-5.77/-1.12	0.34/-0.87	-0.90/-92	2.671/97	1.16/-1	1.01/-0.56	-2.37/-2.89	-3.44/-2.76	-4.04/-4.53	-3.87/-3.87	-5.17/-5.36	-6.45/-5.46	-2.45/-0.3	0.40/03	-1.47/-2.89
Θ(82.5°)	-0.74/-2.09	-6.84/-8.4	-13.68/-18.66	-14.81/-13.67	-13.17/-12.22	-10.09/-8.95	-8.25/-12.87	-14.65/-14.61	-12.09/-12.86	-8.98/-3.64	-1.61/-3.6	-5.38/-3.59	-0.84/-1.19	-1.47/-4.14	-0.84/-0.47	-1.59/-2.57	-0.30/-0.66	-3.16/-4.24	-3.2/-6.35	-3.5/-2.85	-4.39/-3.46	-0.210/26	0.620/91	0.31/-12
Θ(90°)	2.84/0.63	-0.36/-1.05	-1.43/-3.21	-5.91/-8.1	-11.47/-12.46	-15.6/-18.02	-15.78/-14.91	-18/-18.94	-14.77/-11.12	-7.81/-4.21	-1.8/-0.92	-0.56/-0.41	2.322/5	1.711/88	2.23/-0.13	-0.39/-2	-3.5/-5.85	-5.47/-8.4	-5.74/-5.12	-5.33/-5.64	-8.48/-4.93	-0.640/84	2.684/7.1	4.634/62
Θ(97.5°)	2.58/-1.57	-0.18/-2.86	-4.49/-4.9	-2.54/-3.17	-3.47/-4.14	-5.41/-11.02	-13.21/-14.96	-12.68/-19.9	-8.07/-8.79	-8.66/-4.97	-4.38/-5.13	-5.68/-3.71	-1.58/-0.16	-1.08/-1.46	-0.78/-2.08	-1.74/-4.46	-7.75/-13.83	-13.64/-12.82	-12.13/-11.2	-5.95/-8.25	-9.04/-5.08	-1.330/-14	1.251/69	3.393/27
Θ(105°)	0.70/-0.35	-0.18/-1.69	-2.98/-2.9	-1.43/-1.91	-2.34/-2.66	-3.75/-6.15	-7.98/-9.65	-13.64/-18.58	-17.52/-14.77	-10.16/-5.07	-3.74/-4.43	-4.78/-4	-2.54/-1.5	-1.71/-7.4	-1.71/-3.44	-5.8/-8.03	-18.32/-14.52	-4.64/-7.01	-6.07/-2.9	-3.24/-7.74	-8.76/-5.91	-2.82/-0.82	1.24/-1.93	0.980/63
Θ(112.5°)	2.44/2.78	1.8/-1.85	-3.46/-2.1	-1.39/-3.04	-1.19/-3.69	-4.27/-4.83	-6.88/-9.04	-11.52/-10.58	-10.73/-13	-9.22/-4.75	-3.8/-6.19	-9.21/-6.3	-5.57/-4.77	-7.2/-5.43	-4.25/-3.8	-5.8/-10.27	-19.07/-8.82	-8.13/-8.28	-9.27/-14.04	-11.				



Radiated Composite Gain Data of 6G

Appendix B

Θ (112.5°)	-3.48/-3.31	-2.36/-2.89	-3.64/-4.3	-4.8/-2.92	-4.45/-1.89	-6.22/-7.51	-8.89/-9.71	-10.61/-16.99	-11.4/-18.27	-13.35/-13.51	-18.4/-18.87	-17.65/-9.44	-6.93/-6.42	-7.32/-7.26	-5.56/-7.53	-15.96/-12.59	-9.73/-7.46	-13.82/-7.99	-12.61/-8.17	-6.23/-6.23	-5.64/-8.78	-7.01/-3.91	-2.33/-0.98	-0.83/-2.49
Θ (120°)	-10.43/-7.24	-3.01/-2.72	-3.93/-5.31	-7.89/-12.77	-9.62/-18.9	-16.67/-15.16	-14.16/-18.47	-18.76/-13.07	-12.83/-6.5	-4.95/-7.4	-18.56/-17.68	-17.59/-17.42	-12.93/-8.79	-18.8/-11.69	-10.43/-6.84	-10.13/-15.97	-16.22/-9.56	-16.81/-1.64	-3.27/-6.78	-3.05/-1.93	-4.01/-4.83	-1.03/-1.99	-0.37/-2.49	-5.96/-6.72
Θ (127.5°)	-1.88/-2.83	-8.62/-5.21	-7.19/-7.31	-6.07/-9.6	-17.06/-17.42	-12.79/-14.9	-14.68/-18.16	-16.41/-13.07	-8.84/-7.89	-8.86/-13.71	-18.01/-15.68	-17.65/-15.22	-10.27/-11.95	-11.33/-12.38	-9.4/-7.6	-8.85/-15.5	-6.32/-11.88	-9.36/-3.02	-8.49/-12.28	-1.81/-1.27	-3.2/-7.8	-2.72/-2.98	2.94/-1.79	-1.42/-1.14
Θ (135°)	0.14/-5.54	-9.35/-18.54	-14/-12.26	-12.19/-12.79	-17.59/-17.14	-15.91/-17.42	-18.74/-17.96	-13.51/-11.72	-7.56/-4.87	-6.22/-8.29	-12.56/-18.33	-18.69/-17.35	-6.95/-7.82	-6.98/-13.51	-7.53/-7.58	-11.13/-17.82	-8.14/-12.9	-10.58/-8.33	-11.48/-12.53	-3.64/-3.76	-2.84/-9	-4.82/-2.05	-1.74/-0.06	1.880/57
Θ (142.5°)	-0.54/-1.59	-3.77/-8.96	-18.45/-15.16	-15.71/-13.02	-15.08/-9.78	-9.65/-12.5	-15.39/-18.41	-18.57/-14.04	-14.31/-11.92	-6.51/-5.49	-6.29/-12.2	-12.37/-7.46	-4.7/-7.71	-8.64/-9.59	-15.75/-11.3	-8.46/-7.07	-11.79/-19.4	-18.29/-15.9	-7.98/-10.28	-5.13/-5.54	-4.01/-3.7	-7.39/-8.13	-3.67/-1.94	
Θ (150°)	-4.43/-2.57	-4.2/-7.24	-13.02/-15.61	-11.39/-7.93	-9.78/-16.18	-17.65/-14	-14.14/-11.1	-8.68/-8.57	-9.37/-14.03	-18.13/-17.89	-10.33/-6.12	-5.52/-6.77	-11.63/-10.95	-7.55/-5.07	-7.52/-17.98	-8.53/-8.37	-6.68/-3.05	-7.74/-14.84	-15/-18.2	-11.86/-9.02	-14.01/-8.32	-5.83/-4.45	-5.57/-9.22	-11.03/-10.09
Θ (157.5°)	-8.48/-12.69	-10.73/-8.86	-8.27/-9	-16.51/-18.63	-13.82/-14.48	-15.41/-11.77	-10.87/-12.31	-18.75/-18	-12.74/-9.91	-8.14/-8.44	-11.18/-14.16	-17.6/-11.49	-11.75/-13.37	-13.76/-9.71	-7.35/-6.34	-4.63/-3.83	-4.56/-6.9	-6.71/-6.13	-9.51/-15.63	-14.47/-10.74	-8.09/-5.14	-2.16/-0.68	-0.27/-0.65	-1.25/-3.69
Θ (165°)	-3.67/-4.38	-4.03/-3.83	-4.44/-6.49	-11.06/-17.98	-17.54/-18.36	-15.4/-15.68	-16.86/-18.79	-19.12/-17.96	-12.42/-9.39	-8.14/-8.94	-12.8/-16.89	-16.8/-14.39	-12.93/-11.18	-10.03/-9.14	-8.09/-6.09	-5.09/-6.21	-9.09/-8.58	-6.07/-5.61	-7.06/-10.21	-12.16/-11.8	-10.32/-7.69	-5.27/-2.79	-1.05/-0.73	-1.3/-2.73
Θ (172.5°)	-4.24/-3.61	-3.15/-3.54	-4.66/-6.65	-8.79/-13.53	-17.73/-19.1	-18.41/-17.87	-18.61/-18.9	-18.77/-16.13	-14.94/-14.49	-16.45/-18.48	-17.87/-17.03	-13.97/-12.15	-10.16/-7.97	-11.38/-12.46	-6.47/-7.54	-9.03/-10.44	-11.38/-12.46	-13.62/-15.7	-17.44/-17.9	-16.79/-16.41	-19.05/-18.52	-16.32/-12.57	-9.34/-8.04	-6.68/-5.07
Θ (180°)	8.34/-8.32	8.43/-9.56	-10.84/-11.17	-10.67/-10.94	-10.01/-8.1	-7.03/-6.24	-5.86/-5.91	-6.36/-6.86	7.23/-7.65	-8.56/-9.36	-10.25/-10.85	-11.4/-11.31	-11.21/-10.83	-10.97/-11.07	-11.22/-11.34	-10.79/-9.96	-8.94/-8.21	-7.81/-6.83	-6.11/-5.55	-5.32/-5.18	-5.53/-5.83	-6.12/-6.25	-6.55/-6.25	-6.59/-7.67
Freq[Hz]	6.995GPol.	Theta/Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ (0°)	-10.9/-10.45	-9.05/-7.69	-8/-9.1	-8.98/-8.14	-7.32/-7.54	-7.58/-7.11	-6.68/-7.42	-7.38/-7.52	-6.69/-6.5	-6.91/-7.31	-7.92/-8.54	-9.42/-10.63	-11.63/-12.56	-12.75/-11.72	-10.45/-9.03	-8.05/-7.28	-6.83/-6.36	-6.52/-6.49	-6.06/-6.29	-7.01/-7.62	-7.89/-8.32	-8.53/-9.14	-9.73/-9.68	-10.58/-11.18
Θ (7.5°)	-12.62/-12.81	-1.196/-9.92	-9.85/-8.61	-7.95/-7.43	-7.25/-7.38	-6.36/-6.14	-6.74/-7.55	-7.42/-7.09	-6.97/-7.4	-7.59/-7.64	-8.45/-9.36	-9.81/-10.28	-10.65/-11.06	-11.11/-11.28	-10.86/-10.02	-9.17/-8.33	-7.73/-7.24	-6.23/-4.58	-4.67/-4.95	-5.13/-5.54	-6.29/-7.08	-7.92/-8.3	-8.08/-8.79	-10.92/-13.69
Θ (15°)	-15.85/-13.65	-11.83/-10.31	-8.17/-7.09	-7.08/-6.9	-6.11/-5.45	-5.3/-5.79	-6.49/-6.7	-6.92/-7.26	-8.1/-9.2	-9.85/-9.65	-9.51/-9.78	-9.51/-10.67	-11.64/-11.39	-11.03/-11.08	-10.5/-9.61	-8.05/-6.62	-5.67/-4.89	-4.78/-4.34	-4.43/-4.53	-5.03/-5.58	-6.19/-6.9	-7.37/-8.06	-9.9/-9.92	-10.03/-16.13
Θ (22.5°)	-15.93/-12.98	-9.2/-6.96	-5.85/-5.23	-5.07/-5.18	-5.34/-6.1	-7.5/-7.24	-5.71/-4.99	-4.54/-5.21	-6.58/-8.44	-10.3/-12.06	-11.55/-10.14	-10.01/-10.35	-10.79/-10.96	-11.17/-11.8	-11.97/-9.56	-6.84/-4.84	-3.2/-2.5	-2.73/-3.75	-4.48/-5.77	-7.06/-8.1	-9.22/-9.59	-9.47/-10.04	-10.38/-11.09	-14.42/-16.16
Θ (30°)	-11.85/-10	-8.34/-7.4	-5.79/-4.85	-5.13/-5.77	-6.17/-7.03	-5.76/-4.22	-3.72/-4.55	-5.57/-7.45	-10.44/-14.39	-14.28/-18.88	-9.47/-6.67	-8.01/-11.86	-14.42/-11.29	-9.16/-6.27	-7.77/-3.15	-2.44/-2.08	-1.54/-1.48	-3.34/-5.72	-8.05/-10.73	-14.14/-17.55	-18.08/-18.63	-19.41/-17.02	-14.47/-11.59	
Θ (37.5°)	-5.89/-9.25	-11.17/-10.44	-9.29/-9.25	-11.39/-12.16	-10.62/-10.5	-6.28/-5.82	-5.72/-5.85	-6.29/-6.51	-8.82/-7.54	-8.76/-10.3	-12.38/-11.53	-9.66/-10.89	-10.57/-13.67	-15.12/-6.63	-11.08/-6.86	-4.77/-5.81	-4.76/-4.03	-3.94/-4.41	-5.54/-5.51	-5.87/-6.45	-17.74/-15.7	-5.44/-8.1		
Θ (45°)	-3.34/-6.47	-12.15/-13.26	-10.28/-9.64	-12.31/-14.26	-10.45/-6.68	-4.76/-4.53	-5.01/-5.2	-6.06/-7.87	-9.73/-9.58	-9.11/-8.38	-7.3/-7.11	-7.09/-8.84	-12.25/-17.94	-18.24/-15.73	-15.81/-18.29	-14.2/-9.76	-8.01/-7.35	-5.03/-3.57	-3.37/-2.11	-0.97/-0.51	0.110/16	0.06/-1.74	-2.54/-3.81	-3.38/-2.91
Θ (52.5°)	-3.41/-7.05	-12.96/-18.62	-11.76/-10.88	-11.28/-13.9	-11.59/-10.33	-9.15/-7.4	-6.78/-6.84	-6.54/-5.69	-8.62/-6.53	-5.21/-4.73	-6.04/-7.64	-10.09/-8.85	-12.19/-18.18	-13.48/-11.81	-12.07/-17.28	-14.3/-13.74	-14.58/-12.32	-7.92/-4.31	-1.88/-1.42	-1.330/25	1.632/86	2.971/91	-0.41/-2.73	-2.99/-3.2
Θ (60°)	-6.75/-8.04	-8.45/-8.27	-6.59/-4.73	-4.47/-6.53	-6.44/-7.13	-7.94/-7.65	-7.64/-5.61	-4.31/-7.7	-5.75/-7.03	-5.53/-19	-3.48/-5.67	-10.23/-11.1	-12.88/-12.75	-7.25/-7.78	-8.69/-18.43	-19.16/-16.5	-11.89/-10.27	-8.48/-4.9	-2.78/-2.69	-2.50/-1.53	1.032/21	3.021/196	-0.56/-7.25	-7.03/-6.38
Θ (67.5°)	-18.44/-17.11	-10.71/-8.79	-6.25/-3.31	-4.17/-6.24	-7.4/-7.43	-7.14/-8.01	-7.38/-6.33	-6.21/-6.36	-6.91/-8.26	-6.29/-3.36	-3.51/-6.42	-12.19/-9.32	-8.82/-6.39	-5.14/-4.89	-8.2/-8.67	-10.92/-11.59	-13.2/-13.76	-8.42/-3.6	-4.48/-3.8	-4.72/-4.39	-2.72/-0.73	0.24/-0.04	-1.18/-3.75	-8.07/-10.07
Θ (75°)	-3.64/-5.97	-10.67/-15.95	-18.93/-12.3	-15.15/-17.5	-17.34/-18.53	-15.02/-14.26	-13.62/-10.4	-6.11/-4.85	-7.91/-10.67	-13.54/-9.2	-7.47/-9.64	-14.23/-7.14	-5.44/-4.04	-2.22/-3.99	-6.31/-8.91	-11.34/-8.5	-8.38/-8.1	-6.39/-3.8	-4.06/-4.51	-6.66/-13.91	-17.32/-9.96	-7.78/-6.52	-9.08/-9.61	-4.2/-2.59
Θ (82.5°)	-7.18/-7.24	-9.42/-11.9	-12/-16.83	-14.98/-7.63	-5.22/-5.69	-8.97/-12	-13.84/-13.73	-11.68/-8.75	-11.56/-13.32	-18.41/-14.52	-15.57/-15.79	-7.07/-3.37	-2.27/-2	-2.1/-4.52	-7.23/-6.56	-7.89/-6.41	-6.29/-6.83	-9.38/-5.17	-6.05/-5.52	-7.6/-12.15	-9.95/-5.31	-3.42/-3.87	-6.37/-6.83	-5.64/-7.28
Θ (90°)	-9.93/-14.91	-16.36/-14.5	-12.15/-12.69	-13.04/-8.74	-6.11/-4.85	-6.61/-6.67	-6.69/-9.29	-18.25/-17.86	-16.32/-15.86	-10.16/-13.74	-12.44/-11	-7.88/-4.91	-4.24/-5.13	-4.14/-5.63	-6.36/-8.14	-4.8/-3.29	-2.64/-7.1	-11.8/-10.03	-7.71/-10.59	-9.36/-9.63	-7.15/-18	-0.33/-2.5	-3.83/-3.47	-1.72/-4.82
Θ (97.5°)	-1.57/-4.22	-9.51/-11.35	-12.39/-9.42	-11.04/-18.87	-18.53/-12.32	-15.11/-11.28	-9.3/-10.45	-15.18/-16.82	-13.46/-18.88	-15.68/-13	-8.7/-8.26	-7.97/-3.75	-2.57/-4.5	-3.35/-8.5	-5.69/-11.29	-8.2/-4.94	-5.27/-10.65	-18.43/-18.71	-14.77/-15.61	-6.21/-4.74	-4.02/-5.64	-7.93/-7.58	-5.6/-2.07	-0.35/-0.69
Θ (105°)	-2.96/-3.22	-4.62/-4.73	-4.12/-6.78	-5.21/-6.07	-9.45/-13.07	-6.63/-7.84	-8.02/-10.79	-11.32/-14.73	-10.97/-16.74	-10.96/-7.96	-6.04/-7.51	-9.41/-5.67	-3.8/-5.98	-4.03/-9.79	-9.62/-11.59	-10.31/-11.58	-8.16/-4.58	-1.91/-4.11	-6.7/-5.58	-8.71/-7.79	-10.79/-6.58	-1.44/-2.75		
Θ (112.5°)	-8.57/-7.92	-8.93/-4.06	-3.86/-4.4	-4.08/-5.54	-5.85/-4.03	-7.18/-5.13	-5.55/-5.21	-7.07/-7.71	-12.63/-13.31	-8.9/-5.56	-6.19/-8.9	-9.33/-7.23	-6.57/-6.88	-6.72/-10.52	-13.59/-16.88	-11.64/-10.96	-7.94/-12.34	-6.73/-9.05	-1.34/-5.12	-4.62/-2.66	-2.4/-6.7	-10.23/-12.65	-6.99/-7.14	-11.01/-11.29
Θ (120°)	-3.79/-1.58	-0.46/-3.43	-4.54/-2.21	-2.17/-1.69	-2.4/-2.48	-4.73/-8.65	-7.55/-8.76	-8.93/-12.04	-18.53/-12.44	-8.63/-5.81	-7.51/-12.59	-10.06/-9	-7.38/-8.13	-6.71/-12.15	-8.05/-9.84	-18.74/-13.76	-18.45/-11.82	-15/-7.7	-11.36/-18.27	-8.96/-5.41	-3.58/-5.35	-7.28/-5.67	-5.27/-10.4	-14.45/-18.35
Θ (127.5°)	-11.26/-4.09	-5.13/-9.88	-8.31/-6.58	-2.97/-1.35	0.61/-0.22	-1.51/-0.22	-2.76/-2.64	-3.42/-7.54	-18.26/-12.88	-6.04/-5.29	-6.5/-13.2	-14.75/-8.62	-7.79/-9.9	-7.57/-11.95	-11.66/-15.36	-5.84/-13.86	-5.88/-11.3	-10.16/-1.95	-8.97/-11.06	-7.66/-5.28	-5.85/-9.31	-7.89/-5.26	-2.87/-4.09	-3.47/-10.7
Θ (135°)	-10.96/-14.52	-11.5/-7.19	-9.01/-8.27	-6.46/-4.87	-4.45/-3.68	-5.61/-6.23	-3.36/-2.23	-7.19/-6.54	-10.88/-18.29	-9.34/-6.61	-8.17/-13.82	-18.31/-17.52	-15.23/-2.77	-6.15/-12.59	-13.72/-11.45	-6.68/-7.04	-3.05/-6.4	-0.33/-1.11	-4.72/-7.55	-5.76/-5.74	-14.1/-16.67	-3.98/-2.57	-4.55/-5.26	-5.41/-8.26
Θ (142.5°)	-7.5/-14.06	-1.26/-13.13	-8.73/-7.02	-5.08/-3.68	-2.82/-4.63	-5.41/-4.72	-3.82/-3.49	-3.53/-5.23	-12.54/-18.88	-13.86/-11.85	-11.81/-13.85	-19.03/-18.02	-14.73/-13.65	-11.14/-17.03	-17.53/-11.85	-9.25/-9.64	-18.15/-17.54	-3.21/-4.7	-5.2/-12.3	-9.51/-9.94	-7.2/-6.82	-6.54/-3.82	-1.86/-2.12	-4.46/-6.16
Θ (150°)	-14.43/-16.35	-17.79/-14.86	-12.47/-16.3	-14.62/-6.36	-4.68/-4.84	-4.71/-7.94	-5.65/-3.47	-3.08/-3.74	-6.10/-7.8	-16.59/-8.28	-5.68/-6.03	-10.97/-13.46	-15.57/-13.03	-11.8/-12.14	-5.89/-4.24	-8.52/-14.99	-10.27/-10.53	-4.16/-7.46	-12.02/-12.93	-6.16/-1.08	-0.03/-1.07	-3/-3.9	-7.48/-7.38	-8.45/-12.04
Θ (157.5°)	-7.94/-6.22	-6.83/-7.88	-10.78/-9.61	-5.49/-2.7	-1.23/-1.74	-2.93/-6.06	-11.46/-12.5	-5.65/-5.94	-6.41/-10.75	-14.76/-12.5	-13.32/-19.52	-16.08/-10.81	-7.84/-10.07	-12.32/-9.75	-7.36/-8.19	-9.27/-7.26	-4.08/-2.22	-3.22/-5.34	-6.13/-7.25	-9.43/-8.76	-6.72/-4.78	-5.09/-5.53	-5.87/-7.88	-11.31/-10.04
Θ (165°)	-4/-4.83	-5.63/-5.63	-6.89/-9.4	-12.43/-16.3	-12.91/-9.56	-11.																		



Radiated Composite Gain Data of 6G

Appendix B

Θ (165°)	-7.69/-5.19	-5.13/-6.4	-8.18/-10.97	-13.34/-11.85	-8.16/-5.23	-3.53/-2.81	-2.74/-2.86	-4.27/-7.24	-12.29/-17.65	-19.12/-18.86	-17.02/-10.96	-7.8/-6.51	-7.47/-10.34	-12.71/-14.99	-17.33/-15.94	-11.51/-7.7	-5.6/-6.74	-5.21/-6.19	-7.21/-7.96	-7.03/-6.08	-6.05/-6.26	-7.17/-10.89	-18.67/-17.41	-14.6/-11.87
Θ (172.5°)	-17.98/-15.22	-13.2/-12.18	-9.11/-6.92	-5.68/-5.26	-5.56/-6.74	-7.36/-8.43	-10.09/-12.48	-12.7/-9.96	-7.83/-7.18	-7.7/-8.19	-8.79/-9.36	-10.31/-11.03	-11.41/-11.41	-10.16/-7.99	-6.21/-4.94	-4.05/-3.27	-3.01/-3.04	-3.68/-4.53	-5.14/-5.53	-5.41/-6.38	-7.61/-8.49	-10.36/-13.61	-17.38/-18.41	-18.84/-18.35
Θ (180°)	-10.27/-10.76	-12.58/-16.16	-16.03/-13.8	-12.13/-13.77	-16.13/-18.84	-18.12/-17.82	-18.27/-18.35	-18.1/-9.16	-13.77/-11.15	-9.81/-8.7	-7.35/-5.75	-5.1/-4.15	-3.63/-3.5	-3.53/-3.75	-3.94/-4.26	-6.01/-6.24	-6.01/-6.6	-6.57/-6.21	-4.98/-5.23	-4.85/-5.12	-4.98/-5.09	-5.44/-5.87	-5.84/-5.84	-5.84/-5.84
Freq[Hz]	6.175GPol.	Theta/Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ (0°)	-8.43/-9.46	-10.65/-11.77	-13.07/-17.02	-18.55/-17.91	-18.17/-14.49	-6.5/-5.15	-4.68/-4.34	-4.03/-3.93	-4.11/-4.44	-7.98/-9.91	-11.69/-12.68	-13.66/-14.54	-16.1/-16.78	-16.65/-16.53	-16.94/-14.27	-15.15/-13.11	-11.99/-11.55	-11.83/-11.13	-10.63/-10.6	-9.99/-8.89	-9.99/-8.89	-9.99/-8.89	-9.99/-8.89	-9.99/-8.89
Θ (7.5°)	-16.29/-15.76	-16.97/-14.44	-15.14/-14.31	-11.96/-11.78	-11.59/-10.9	-9.6/-9.52	-10.21/-10.02	-9.53/-8.86	-8.12/-7.52	-7.04/-6.76	-6.7/-6.64	-7.28/-7.38	-7.14/-6.94	-7.34/-8.94	-11.86/-17.07	-19.2/-17.96	-12.35/-9.05	-6.78/-8.51	-4.83/-3.93	-3.65/-3.7	-4.19/-4.66	-5.32/-6.61	-7.65/-10	-12.59/-15.96
Θ (15°)	-18.1/-15.14	-11.59/-9.62	-8.35/-7.57	-6.42/-5.41	-4.02/-3.47	-3.66/-4.05	-4.36/-4.38	-4.69/-5.37	-6.33/-6.17	-5.28/-4.77	-5.15/-6.33	-7.74/-8.48	-7.36/-5.75	-5.11/-6.14	-8.82/-13.3	-17.67/-12.36	-7.74/-5.42	-4.48/-3.91	-2.74/-1.99	-1.57/-1.95	-2.25/-3.35	-3.59/-9.4	-6.83/-9.4	-11.53/-17.31
Θ (22.5°)	-18.2/-15.34	-8.28/-4.73	-3.42/-2.5	-1.4/-0.61	-0.04/-0.3	-0.65/-0.82	-0.66/-0.91	-0.91/-0.97	-4.23/-4.73	-6.67/-6.96	-5.3/-4.21	-5.28/-8.94	-10.44/-8.71	-9.93/-15.25	-16.14/-10.27	-6.97/-5.12	-3.32/-1.82	-0.96/-0.58	-0.88/-1.05	-1.21/-1.84	-2.56/-3.09	-3.5/-5.82	-8.95/-13.84	-12.71/-5.51
Θ (30°)	-17.44/-11.85	-4.4/-0.95	0.36/-1.15	1.49/-1.56	1.69/-1.9	2.22/-3.8	2.33/-2.1	1.38/-0.35	-1.5/-3.79	-7.73/-13.07	-15.05/-11.55	-9.97/-10.17	-8.84/-10.46	-11.05/-10.48	-12.72/-18.47	-17.71/-15.66	-11.32/-8.17	-5.8/-4.59	-3.79/-3.04	-2.17/-1.33	-1/-0.83	-0.73/-0.89	-1.52/-3.1	-5.57/-10.67
Θ (37.5°)	-6.98/-1.94	-0.13/-1.17	2.02/-1.79	1.41/-0.2	0.34/-0.49	-0.89/-0.81	-0.77/-0.65	-0.52/-0.18	-0.05/-0.9	-2.27/-5.35	-9.3/-14.71	-18.16/-16.91	-13.27/-15.1	-15.33/-18.33	-18.05/-17.81	-18.98/-14.55	-11.83/-11.12	-7.57/-4.76	-4.15/-4.3	-4/-3.03	-1.94/-1.48	-0.99/-0.55	-1.49/-3.81	-7.8/-19.13
Θ (45°)	-3.13/-2.04	-0.63/-0.37	0.03/-0.62	-1.33/-3.51	-4.79/-3.44	-1.97/-0.41	-0.55/-0.49	-0.83/-1.75	-2.69/-2.5	-2.2/-2.66	-2.67/-2.71	-6.52/-11.55	-18.38/-19.21	-15.2/-13.45	-10.6/-7.65	-9.8/-11.07	-11.61/-15.19	-12.76/-9.57	-7.94/-8.36	-7.43/-6.09	-5.2/-3.43	-2.94/-2.81	-3.72/-4.46	-12.71/-5.51
Θ (52.5°)	-5.69/-4.72	-5.47/-4.09	-5.81/-7.63	-4.35/-0.45	1.32/-1.77	1.01/-0.65	1.13/-1.4	0.94/-0.48	-2.78/-3.4	-1.74/-3.16	-4.54/-3.48	-3.55/-4.36	-4.93/-6.54	-14.55/-18.48	-10.66/-5.15	-4.27/-4.44	-5.94/-10.57	-18.44/-18.38	-13.91/-10.02	-6.92/-6.27	-8.56/-10.4	-9.52/-4.3	-4.04/-4.62	-6.54/-7.77
Θ (60°)	-7.9/-2.08	-8.57/-9.56	-1.97/-1.7	-0.14/-0.56	-1.33/-3.99	-5.31/-4.39	-3.55/-2.47	-1.34/-1.26	-4.2/-11.97	-10.37/-7.29	-6.89/-4.27	-0.39/-0.4	-0.37/-2.6	-7.09/-7.99	-8.16/-9.14	-7.82/-5.65	-6.66/-10.5	-18.29/-15.54	-11.91/-10.95	-8.89/-8.78	-7.05/-6.69	-7.56/-5.17	-2.88/-2.46	-5.51/-18.34
Θ (67.5°)	-1.61/-3.43	-6.25/-2.15	-3.78/-8.64	-6.46/-5.53	-4.8/-3.61	-2.34/-1.26	-1.09/-1.88	-3.61/-4.46	-4.63/-6.32	-14.12/-9.59	-6.08/-11.8	-1.75/-0.59	-2.98/-1.15	-6.46/-7.39	-8.12/-7.41	-6.33/-5.82	-6.47/-9.48	-17.63/-19.44	-17.63/-15.65	-9.3/-4.52	-2.98/-2.37	-9.51/-7.88	-12.71/-5.51	-12.71/-5.51
Θ (75°)	-6.37/-5.11	-4.84/-7.89	-18.87/-7.94	-3.23/-1.95	-3.67/-4.92	-3.05/-1.89	-1.99/-3.42	-6.19/-9.62	-9.34/-6.88	-6.24/-14.2	-14.3/-8.54	-3.16/-0.59	-4.23/-1.67	-5.54/-5.97	-7.67/-10.71	-8.38/-5.86	-5.44/-7.54	-11.88/-9.42	-8.9/-10.37	-12.48/-13.36	-12.3/-11.92	-14.03/-11.88	-8.4/-7.79	-17.48/-8.42
Θ (82.5°)	-4.29/-6.68	-8.89/-8.75	-4.79/-3.85	-5.82/-13.3	-16.92/-11.36	-9.9/-7.77	-7.79/-12.1	-6.8/-9.22	-6.69/-6.97	-8.47/-17.88	-10.97/-11.25	-15.74/-9.1	-6.53/-2.1	-5.87/-9.43	-9.09/-8.36	-7.62/-3.77	-1.79/-3.99	-5.44/-4.71	-4.09/-5.72	-8.25/-8.34	-8.85/-9.61	-11.31/-15.24	-10.88/-14.21	-13.27/-5.51
Θ (90°)	-7.83/-11.96	-6.79/-8.52	-10.44/-12.65	-8.52/-4.88	-5.05/-3.95	-4.03/-5.73	-9.67/-12.97	-12.8/-14.14	-6.69/-6.08	-9.2/-18.02	-13.49/-10.42	-8.44/-7.09	-11.75/-8.82	-5.03/-13.6	-18.72/-9.19	-5.61/-7.35	-8.8/-7.81	-8.8/-14.75	-15.7/-13.08	-11.71/-8.83	-8.43/-15.13	-12.67/-14.14	-18.22/-8.93	-18.22/-8.93
Θ (97.5°)	-6.7/-6.26	-4.08/-9.68	-5.02/-1.29	-0.8/-2.54	-7.36/-10.28	-9.37/-13.45	-13.04/-10.03	-9.23/-13.14	-17.18/-7.6	-5.13/-5.38	-8.37/-12.91	-11.51/-12.23	-12.54/-13.99	-12.92/-10.51	-7.04/-10.65	-11.28/-16.89	-13.25/-12.69	-10.21/-10.27	-6.88/-13.29	-11.38/-15.38	-15.84/-14.39	-15.15/-15.4	-12/-13.85	-8/-4.26
Θ (105°)	-5.83/-7.01	-4.3/-5.38	-2.53/-3.45	-4.27/-6.58	-5.39/-3.11	-5.09/-6.38	-2.99/-2.43	-5.71/-6.89	-5.57/-3.88	-6.54/-6.36	-4.77/-14.09	-15.41/-9.14	-13.12/-9.4	-9.42/-13.16	-10.58/-6.4	-6.23/-10.57	-7.74/-13.26	-9.96/-6.47	-13.8/-8.5	-9.78/-11.77	-13.74/-11.02	-5.82/-7.33	-4.71/-5.17	-7.11/-5.27
Θ (112.5°)	-3.89/-0.4	1.76/-0.2	-0.25/-0.48	-1.67/-0.52	-0.47/-0.15	-0.25/-0.98	0.35/-0.85	-1.64/-16.8	-0.78/-5.55	-8.94/-13.21	-9.23/-18.87	-11.03/-12.04	-17.85/-5.93	-11.23/-12.13	-17.66/-10.29	-6.41/-7.03	-7.33/-8.26	-6.56/-9.48	-6.95/-5.22	-9.85/-6.31	-6.34/-6.52	-5.35/-8.73	-6.82/-8.44	-7.01/-2.05
Θ (120°)	-0.380.81	2.93/-1.73	-10.14/-2.8	0.01/-0.4	0.51/-1.36	-0.31/-2.82	-2.47/-1.07	-2.57/-8.38	-8.67/-5.47	-4.83/-9.35	-13.85/-9.31	-19.12/-9.1	-7.93/-10.87	-9.44/-11.14	-13.12/-9.76	-9.74/-6	-10.7/-8.25	-5.03/-5.63	-4.05/-4.42	-6.05/-12.05	-9.23/-6.19	-12.08/-11.63	-9.14/-5.53	-1.8/-1.67
Θ (127.5°)	1.3592/2.3	0.99/-10.1	-5.20/-9.1	2.13/-2.79	1.3/-0.65	-3.97/-9.93	-9.03/-9.4	-11.24/-10.65	-13.66/-12.02	-12.24/-7.63	-5.02/-7.21	-13.05/-4.28	-5.5/-15.49	-11.73/-14.87	-6.61/-7.09	-4/-7.68	-18.73/-5.74	-2.88/-11.77	-13.64/-5.51	-3.66/-3.29	-4/-5.16	-4.64/-0.52	3.612/3.7	0.730/1.7
Θ (135°)	0.3/-0.35	-4.95/-10.43	-6.92/-2.15	-0.12/-1.54	-3.54/-3.79	-4.22/-7.05	-14.82/-18.6	-18.18/-15.66	-11.7/-7.1	-8.37/-18.51	-8.97/-7.4	-8.75/-4.91	-2.58/-6.2	-6.83/-9.01	-14.49/-4.53	-3.54/-17.4	-3.32/-9.65	-6.92/-1.46	-2.16/-3.74	-7/-2.35	-2.92/-2.94	-2.52/-4.94	-5.48/-2.63	0.730/1.7
Θ (142.5°)	-8/-7.75	-5.89/-7.75	-4.38/-2.24	-3.49/-5.58	-5.01/-4.2	-5.81/-10.43	-15.69/-11.98	-14.64/-13.97	-11.09/-7.64	-10.4/-17.89	-9.4/-3.92	-10.52/-13.64	-5.07/-1.2	-6.7/-19.58	-11.11/-17.1	-17.26/-7.18	-6.06/-8.82	-13.25/-3.16	-1.94/-9.07	-8.33/-18.79	-6.22/-9.3	-11.45/-8.62	-9.59/-2.66	-0.11/-3.54
Θ (150°)	-2.65/-2.57	-1.55/-1.76	-1.97/-1.38	-1.84/-4.92	-7.6/-7.73	-8.92/-15.85	-18.03/-16.59	-15.05/-16.69	-16.24/-8.16	-6.4/-0.45	-7.36/-10.06	-8.7/-7.1	-5.54/-2.92	-3.31/-7.23	-13.82/-13.21	-11.14/-18.12	-18.54/-19.31	-7.87/-2.69	-4.1/-18.91	-13.61/-17.77	-14.75/-12.21	-12.64/-12.17	-7.63/-3.94	-0.9/-5.04
Θ (157.5°)	-7.81/-9.45	-5.09/-5.08	-2.29/-3.5	-5.75/-8.51	-9.58/-6.56	-8.74/-10.35	-14.97/-17.67	-11.34/-13.9	-11.44/-6.64	-3.53/-2.16	-2.71/-7.73	-11.41/-18.1	-14.87/-10.78	-9.29/-9.65	-10.59/-9.93	-10.12/-6.95	-7.99/-5.5	-3.87/-4.04	-6.58/-4.14	-6.23/-4.11	-12.86/-17.7	-0.86/-0.97	-1.6/-4.11	-1.6/-4.11
Θ (165°)	-6.14/-5.07	-5.37/-5.96	-8.19/-11.01	-12.13/-9.96	-8.84/-9.96	-11.01/-12.17	-11.15/-9.19	-8.16/-9.87	-15.4/-17.95	-18.46/-16.41	-11.12/-8.49	-6.9/-5.04	-3.99/-4.92	-8.56/-14.29	-18.15/-16.2	-13.07/-12.63	-15.29/-15.88	-13.79/-12.48	-12.6/-13.89	-11.2/-8.29	-6.29/-4.99	-3.62/-2.83	-2.71/-3.6	-5.99/-7.55
Θ (172.5°)	-1.06/-6.49	-8.02/-9.5	-10.04/-8.94	-11.41/-13.6	-16.74/-17.85	-18.96/-18.68	-18.98/-16.04	-12.77/-10.57	-8.59/-7.08	-6.5/-6.54	-7.39/-8.97	-11.13/-14.49	-17.72/-18.34	-15.39/-13.07	-13.56/-17.57	-18.45/-18.43	-17.19/-15.28	-11.91/-8.91	-7.32/-6.32	-5.44/-4.98	-4.5/-4.33	-4.8/-5.71	-8.31/-11.53	-15.09/-14.26
Θ (180°)	-13.17/-12.73	-13.08/-12	-12.14/-13.83	-11.7/-8.6	-6.63/-6.01	-6.24/-4.89	-4.15/-3.47	-3.43/-3.61	-4.13/-4.59	-5.26/-6.32	-7.86/-9.89	-12.56/-15.54	-17.37/-17.06	-15.88/-14.5	-12.51/-10.24	-7.9/-6.14	-4.89/-4.14	-4.14/-4.44	-4.74/-5.45	-5.99/-6.72	-7.58/-8.43	-9.26/-10.39	-11.79/-12.86	-13.59/-13.71
Freq[Hz]	6.475GPol.	Phi/Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ (0°)	-1.71/-3.49	-2.21/-1.82	-2.21/-2.2	-2.21/-2.2	-3.69/-4.9	-5.32/-6.24	-8.81/-12.93	-17.97/-19.15	-18.38/-14.29	-9.65/-7.12	-5.29/-2.85	-3.29/-2.85	-2.06/-2	-1.98/-2.39	-1.93/-3.72	-4.69/-7.72	-6.96/-7.44	-7.8/-9.12	-12.13/-16.59	-18.72/-17.42	-17.81/-11.67	-9.34/-7.61	-6.52/-5.08	-6.52/-5.08
Θ (7.5°)	-2.85/-2.53	-2.61/-3.37	-2.88/-1.96	-2.18/-2.97	-3.93/-4.61	-4.89/-4.88	-6.37/-8.34	-10.54/-12.66	-15.55/-18.75	-17.37/-13.62	-8.72/-6.34	-4.48/-3.58	-3.05/-2.49	-2.23/-2.09	-2.02/-2.19	-2.87/-3.75	-4.65/-5.85	-7.3/-9.07	-11.57/-15.27	-18.15/-18.25	-14.4/-10.22	-8.27/-6.47	-5.15/-4.28	-3.72/-3.67
Θ (15°)	-2.37/-4.52	-1.61/-6.21	-6/-6.38	-6.96/-7.09	-6.73/-5.44	-5.02/-4.56	-4.23/-4.23	-4.07/-3.71	-4.42/-6.61	-10.76/-14.45	-1.305/-9	-6.02/-3.96	-2.69/-1.11	-1.11/-0.										



Radiated Composite Gain Data of 6G

Appendix B

Θ(15°)	-12.75/-10.08	-8.36/-7.1	-7.95/-10.58	-12.01/-17.02	-18.28/-18.72	-17.66/-18.08	-15.08/-11.77	-9.42/-8.65	-8.44/-8.02	-8.32/-9.51	-10.44/-12.16	-12.49/-11.74	-11.67/-11.83	-13.21/-15.72	-18.13/-19.23	-15.03/-11.01	-9.09/-7.53	-6.68/-6.12	-4.91/-3.69	-3.22/-3.8	-4.39/-5.95	-7.1/-9.1	-11.84/-15.2	-17.18/-18.03
Θ(22.5°)	-13.96/-8.76	-9.07/-9.06	-12.92/-10.64	-18.27/-12.17	-8.65/-6.8	-6.35/-5.47	-5.09/-5.44	-6.33/-6.13	-5.35/-4.26	-4.01/-4.42	-6.21/-8.47	-11.06/-9.1	-7.2/-7.58	-10.13/-12.1	-12.74/-13.53	-18.49/-18.38	-14.91/-11.89	-9.22/-6.32	-5.09/-4.14	-3.96/-3.31	-3.05/-3.58	-4.6/-6.07	-4.89/-6.56	-12.41/-14.55
Θ(30°)	-10.25/-7.22	-7.83/-12.53	-19.21/-13.51	-8.12/-4.58	-3.24/-2.46	-1.81/-1.57	-1.54/-1.99	-2.24/-6.1	-5.96/-7.3	-1.54/-5.71	-5.83/-6.17	-7.59/-6.73	-5.04/-5.39	-7.83/-10.41	-10.31/-11.45	-14.27/-17.79	-17.31/-13.78	-9.31/-6.66	-5.6/-5.57	-4.98/-1.28	-0.040/33	-4.88/-1.99	-2.91/-4.48	-7.28/-10.19
Θ(37.5°)	-6.62/-5.22	-6.98/-13.66	-12.53/-8.25	-5.29/-2.34	-0.99/-0.37	0.15/0.3	0.15/-0.33	-1.42/-3.1	-5.43/-7.15	-8.09/-8.21	-5.88/-4.39	-5.04/-6.7	-6.13/-5.47	-4.25/-4.75	-6.11/-8.62	-13.35/-13.23	-13.26/-11.59	-8.8/-8.13	-9.93/-7.71	-6.01/-5.69	-3.06/-1.78	-1.79/-2.3	-2.89/-3.55	-3.88/-5.27
Θ(45°)	-9.45/-15.8	-13.9/-8	-7.23/-19.4	-1.54/-8.02	-1.49/-1.66	-1.04/-2	-0.49/-1.18	-2.56/-4.52	-7.18/-8	-6.78/-7.03	-10.68/-8.6	-5.61/-6.78	-7.14/-5.08	-4.29/-9.4	-6.81/-8.01	-10.61/-13.06	-13.03/-11.37	-12.59/-8.77	-7.57/-8.42	-8.27/-9.55	-5.64/-5.05	-3.31/-2.88	-2.57/-3.32	-4.37/-4.77
Θ(52.5°)	-8.31/-6.56	-3.09/-1.84	-1.01/0.03	-1.78/-4.63	-5.01/-2.14	0.03/0.37	-0.15/-0.25	-0.55/-1.85	-4.83/-9.65	-6.24/-3.69	-6.76/-11.15	-8.11/-10.84	-10.67/-5.57	-4.72/-5.43	-5.67/-8.14	-11.28/-16.53	-11.54/-7.03	-6.66/-5.96	-5.65/-5.13	-5.38/-5.39	-5.62/-6.51	-7.3/-6.28	-5.65/-3.78	-2.88/-3.97
Θ(60°)	-3.78/-5.06	-2.28/-1.04	-1.43/-2.7	-5.84/-4.28	-1.59/-0.6	-0.98/-1.26	-1.54/-2.5	-3.37/-2.99	-3.35/-5.75	-7.48/-5.11	-4.68/-5.8	-10.22/-11.2	-10.04/-8.26	-6.07/-3.65	-7.81/-8.87	-15.27/-16.57	-10.57/-8.52	-7.76/-6.98	-6.05/-5.21	-5.96/-5.22	-2.66/-3.26	-7.35/-14.98	-11.36/-8.83	-5.92/-3.84
Θ(67.5°)	-9.03/-6.54	-2.31/-4.4	-7.66/-5.81	-6.51/-6.11	-7.61/-7.45	-4.81/-3.57	-4.42/-5.55	-5.32/-5.1	-6.34/-7.62	-8.47/-6.44	-5.65/-3.02	-6.67/-9.37	-1.10/-15.22	-7.15/-6.26	-7.28/-12.53	-18.87/-16.64	-12.32/-8.47	-10.21/-1.74	-5.6/-6.33	-5.33/-6.58	-7.05/-6.84	-15.02/-13.04	-8.08/-7.13	-4.35/-6.69
Θ(75°)	-7.97/-0.44	-0.77/-3.6	-10.01/-5.11	-8.21/-6.99	-5.61/-2.55	-1.08/-0.98	-2.38/-2.83	-4.67/-8.11	-10.07/-10.83	-12.99/-8.54	-7.66/-6.17	-5.29/-7.32	-5.87/-10.56	-6.84/-4.45	-7.87/-8.05	-10.88/-15.35	-18.71/-12.77	-12.16/-9.78	-8.93/-9.04	-9.48/-18.22	-17.26/-12.13	-7.9/-5.75	-1.81/-4.05	-8.34/-12.7
Θ(82.5°)	-3.36/-0.71	-2.49/-9.98	-19.12/-12.52	-8.13/-7.96	-9.37/-6.87	-5.71/-5.19	-4.16/-5.11	-6.88/-8.2	-13.92/-17.7	-15.26/-16.23	-11.46/-7.42	-3.99/-3.91	-5.98/-8.87	-5.98/-5.45	-7.82/-7.17	-13.26/-9.94	-10.79/-10.6	-10.42/-7.74	-4.96/-3.35	-4.39/-3.47	-3.56/-2.54	-2.85/-7.35	-10.71/-10.83	-13.9/-5.06
Θ(90°)	0.29/-4.09	-11.83/-14.98	-7.49/-5.32	-6.75/-13.9	-12.2/-8.78	-3.9/-5.18	-7.95/-15.53	-18.1/-12.18	-12.51/-14.64	-17.94/-12.71	-18.38/-11.2	-11.61/-6.32	-8.67/-6.66	-5.02/-5.58	-8.81/-7.46	-12.56/-5.13	-2.95/-8.31	-2.83/-4.24	-3.55/-8.04	-2.3/-2.71	-2.62/-6.47	-2.03/-4.59	-8.89/-12.13	-5.06/-6.51
Θ(97.5°)	-6.34/-14.09	-18.71/-11.61	-6.5/-5.87	-5.55/-2.86	-3.5/-2.49	-1.07/-2.76	-7.29/-7.55	-7.68/-11.48	-7.54/-5.8	-12.66/-18.42	-18.62/-19.72	-17.91/-7.27	-8.63/-4.8	-5.96/-6.41	-5.35/-6.31	-7.35/-2.47	-6.22/-6.84	-3.88/-4.86	-7.24/-7.1	-10.04/-13.53	-9.96/-10.68	-17.05/-17.47	-5.18/-5.94	
Θ(105°)	-6.43/-11.6	-15.22/-13.72	-7.49/-3.63	-5.24/-6.52	-11.9/-4.63	-2.73/-6.3	-8.1/-5.88	-6.48/-8.86	-9.56/-5.54	-12.09/-19.09	-19.69/-14.79	-14.88/-16.91	-10.71/-8.15	-8.93/-13.54	-7.17/-6.76	-3.97/-5.65	-5.25/-6.18	-5.76/-2.44	-4.83/-3.88	-4.71/-6.21	-5.32/-4.28	-7.19/-14.95	-7.17/-9	-6.97/-10.57
Θ(112.5°)	-8.88/-8.32	-0.45/-2.22	-3.65/-4.2	-12.73/-4.74	-5.06/-3.98	-3.39/-5.41	-2.06/-1.25	-6/-14.73	-6.02/-2.27	-9.44/-17.83	-13.42/-19.04	-11.17/-11.99	-5.37/-8.79	-7.48/-8.36	-8.82/-3.79	-3.05/-5.16	-1.61/-3.28	-4.89/0.19	-2.89/-2.9	-1.48/-3.71	-9.79/-5.55	-4.97/-7.34	-8.75/-6.89	
Θ(120°)	-4.74/0.3	1.2/-9.7	-2.92/-5.44	-11.86/-8.07	-2.11/-1.8	-1.66/-2.95	-2.29/-0.88	-2.54/6.3	-5.14/-0.94	-2.79/-7.36	-7.43/-12.54	-12.53/-11.27	-13.62/-10.42	-10.38/-7.28	-9.76/-5.96	-5.24/-3.53	-4.73/-6.71	-1.02/-3.94	-0.35/-0.52	-4.9/-2.51	0.72/-1.02	-2.34/-6.4	-4.52/-6.04	-14.93/-14.52
Θ(127.5°)	0.28/0.65	-0.08/-0.91	-3.67/-7.92	-12.34/-4.8	-0.89/-0.12	-1.98/-5.93	-11.66/-7.22	-7.26/-14.87	-11.92/-9.1	-8.05/-11.55	-17.99/-9.11	-18.64/-14.21	-17.89/-5.96	-4.16/-4.13	-13.59/-4.54	-7.69/-1.02	-7.56/-3.37	-3.02/-2.86	1.84/-0.72	-4.91/-2.91	-1.04/-4.12	-5.48/-19.08	-6.8/-3.01	-4.24/-1.25
Θ(135°)	-2.12/-1.45	-1.73/-1.51	-6.42/-10.59	-13.87/-10.41	-9.37/-8.04	-6.63/-6.26	-7.41/-10.63	-9.95/-8.1	-7.47/-7.07	-11.71/-14.73	-8.87/-10.48	-12.71/-11.29	-14.6/-6.62	-4.53/-10.83	-12.08/-9.87	0.65/-3.81	-0.36/0.1	-5.26/-7.17	5.33/-0.72	-1.78/0.92	-0.32/5.3	-1.42/-8.85	-8.26/-2.11	-1.63/-2.39
Θ(142.5°)	-7.02/-8.12	-13.68/-16.45	-18.02/-7.23	-6.24/-6.49	-11.32/-12.56	-10.71/-11.69	-13.84/-10.99	-11.25/-15.81	-18.96/-18.27	-17.54/-17.49	-16.85/-9.49	-11.34/-9.52	-10.83/-10.04	-5.55/-6.98	-18.39/-1.74	-4.94/-2.22	0.88/-5.3	-10.45/-12	5.92/-0.54	-1.81/-14	-1.49/-1.93	-1.82/-16.28	-10.09/-3.86	0.46/-1.38
Θ(150°)	-10.18/-7.34	-7.02/-11	-12.91/-7.45	-6.4/-10.64	-14.46/-19.68	-16.61/-12.92	-10.97/-10.52	-10.01/-11.67	-17.43/-9.33	-6.03/-6.51	-9.6/-18.54	-19.22/-16.92	-9.66/-6.72	-9.93/-13.05	-9.22/-11.14	-11.8/-8.5	-4.43/-7.45	-8.2/-1	-1.94/-2.54	-6.9/-8.38	-5.81/-7.08	-7.03/-7.77	-3.1/-10.6	-1.47/-3.53
Θ(157.5°)	-4.88/-4.61	-5.76/-9.1	-10.56/-9.07	-9.58/-13.37	-17.68/-18.59	-17.75/-15.1	-15.09/-16.11	-16.73/-17.98	-17.9/-10.42	-5.3/-5.48	-9.71/-17.02	-14.38/-11.65	-8.98/-4.28	-2.71/-8.1	-8.84/-9.9	-10.1/-13.58	-17.52/-17.93	-10.01/-7.72	-10.8/-16.79	-19.22/-10.68	-18/-15.01	-10.23/-7.08	-6.06/-7.86	-10.52/-5.95
Θ(165°)	-6.33/-9.25	-12.18/-11.25	-9.46/-8.12	-7.9/-8.62	-12.09/-15.7	-12.75/-9.28	-7.49/-6.63	-8.27/-12.22	-18.81/-17.67	-10.76/-7.85	-7.15/-6.1	-5.04/-7.2	-7.77/-5.3	-9.58/-14.32	-16.6/-17.32	-13.98/-10.38	-7.99/-6.39	-6.69/-9.66	-14.75/-13.02	-11.5/-10.23	-8.19/-8.01	-8.73/-7.06	-5.76/-6.51	
Θ(172.5°)	-12.08/-11.23	-12.47/-11.97	-11.97/-12.23	-13.61/-13.96	-14.89/-15.18	-16.16/-17.33	-16.23/-15.69	-14.84/-14.11	-12.73/-11.31	-17.98/-19.17	-18.92/-16.55	-15.55/-14.78	-12.22/-9.34	-7.7/-7.19	-6.19/-4.39	-2.66/-1.28	-1.03/-1.26	-1.93/-2.67	-3.09/-3.16	-3.88/-4.23	-5.02/-6.17	-8.45/-10.8	-13.07/-11.9	
Θ(180°)	-15.1/-13.43	-12.79/-11.93	-10.9/-10.49	-7.87/-7.08	-6.68/-7.89	-9.51/-11.59	-10.9/-10.17	-9.3/-8.6	-8.23/-8.43	-8.82/-10.89	-11.75/-11.54	-12.02/-12.83	-14.57/-18.02	-16.26/-12.23	-9.18/-7.65	-6.95/-6.47	-5.31/-4.22	-3.4/-9.2	-2.45/-2.31	-2.11/-2.55	-3.41/-4.54	-5.83/-7.21	-9.21/-12.27	-13.68/-14.28
Freq[Hz]	6.995GPol.	PhiAnt. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-3.88/-0.48	-4.65/-4.04	-3.59/-4.52	-6.93/-8.83	-10.07/-11.9	-16.27/-18.28	-17.73/-18.5	-16.22/-12.46	-10.5/-9.08	-7.84/-7.59	-6.45/-6.07	-5.75/-5.58	-6.04/-6.42	-6.35/-6.84	-6.58/-7.01	-7.13/-7.13	-7.16/-7.13	-7.8/-8.31	-8.81/-9.56	-9.16/-8.43	-8.5/-9.06	-8.36/-5.75	-5.76/-5.45	-5.23/-6.49
Θ(7.5°)	-3.82/-4.69	-5.08/-2.96	-3.93/-4.73	-5.24/-6.5	-5.44/-5.1	-5.79/-6.14	-5.94/-6.3	-7.72/-9.47	-10.71/-11.24	-9.88/-9.07	-7.18/-6.3	-5.66/-5.39	-5.14/-4.86	-4.92/-4.91	-5.21/-6.48	-7.64/-9.52	-11.9/-16.61	-18.45/-17.71	-19.29/-15.77	-12.91/-9.77	-8.81/-7.93	-6.17/-5.45	-4.12/-4.43	-4.18/-4.09
Θ(15°)	-4.62/-5.57	-6.29/-7.23	-8.59/-9.01	-9.42/-7.28	-5.67/-5.24	-4.29/-2.52	-1.54/-1.67	-2.33/-2.74	-2.89/-3.39	-5.04/-7.17	-8.88/-8.24	-6.97/-5.7	-4.77/-3.99	-3.57/-3.35	-3.77/-5.11	-7.35/-11.32	-18.06/-18.11	-12.83/-12.19	-12.12/-11.21	-9.99/-9.29	-9.19/-8.42	-6.33/-4.73	-3.39/-2.87	-3.22/-3.77
Θ(22.5°)	-11.41/-10.87	-15.21/-19.06	-19.46/-12.21	-8.15/-5.96	-6.2/-5.66	-4.54/-4.48	-4.95/-6.08	-6.68/-6.04	-4.76/-3.94	-3.19/-3.45	-4.82/-7.22	-8.54/-6.21	-4.16/-3.15	-2.88/-2.75	-3.28/-4.44	-8.29/-13.62	-18.32/-17.68	-17.09/-12.63	-9.3/-7.81	-6.86/-6.03	-5.71/-5.84	-6.06/-5.61	-5.33/-4.55	-5.27/-2.29
Θ(30°)	-4.49/-5.74	-10.16/-8.75	-5.05/-4.51	-3.96/-5.53	-7.4/-8.13	-7.48/-8.42	-8.89/-9.26	-10.11/-11.93	-14.03/-14.09	-11.26/-8.62	-8.12/-9.95	-11.66/-9.08	-5.01/-3.12	-2.63/-2.94	-3.66/-6.02	-7.84/-7.74	-8.22/-10.47	-15.07/-19.16	-14.5/-9.79	-7.55/-6.63	-5.17/-4.87	-4.51/-4.14	-3.78/-4.06	-4.22/-4.23
Θ(37.5°)	-5.83/-11.31	-12.29/-5.32	-2.02/-1.93	-5.88/-11.46	-15.44/-13.2	-15.76/-18.47	-9.71/-9.65	-7.07/-8.72	-11.42/-15.11	-17.89/-15.6	-12.62/-13.74	-18.29/-15.86	-8.59/-5.11	-3.58/-2.06	-2.52/-3.87	-3.87/-5.51	-10.22/-16.66	-13.74/-9.63	-9.61/-9.64	-6.54/-3.99	-2.79/-1.29	-1.79/-3.1	-2.41/-1.94	-3.35/-6.65
Θ(45°)	-8.42/-10.13	-3.84/-0.38	-2.04/-6.76	-4.32/-1.97	-3.67/-6.02	-10.32/-18.81	-13.96/-9.25	-7.61/-8.5	-13.97/-13.28	-17.15/-14.68	-10.84/-12.09	-18.33/-18.75	-18.95/-11.18	-4.84/-4.34	-4.86/-4.83	-9.35/-14.02	-12.52/-9.98	-11.14/-15.48	-12.43/-8.09	-7.45/-6.73	-4.69/-1.73	0.64/0.58	-0.38/-2.37	-4.71/-5.72
Θ(52.5°)	-11.87/-6.02	-0.79/-0.48	-5.68/-6.35	-2.58/-3.89	-6.71/-10.6	-12.54/-12.49	-9.31/-7.6	-8.85/-13.96	-18.59/-13.78	-8.39/-8.57	-8.83/-7.27	-8.09/-8.7	-8.59/-15.45	-7.96/-5.25	-3.21/-5.08	-6.72/-12.8	-13.76/-13.67	-18.15/-13.67	-7.01/-5.88	-7.11/-7.42	-4.84/-2.31	-1.54/-0.58	-1.41/-4.51	-5.26/-7.38
Θ(60°)	-5.63/-5.86	-3.09/-11.31	-8.85/-2.16	-3.84/-6.43	-5.13/-4.45	-5.49/-7.95	-10.32/-11.02	-7.18/-6.07	-4.95/-2.68	-6.95/-5.71	-4.2/-2.88	-4.8/-3.86	-7.79/-13.51	-8.57/-4.5	-1.19/-2.37	-7.34/-9	-12.81/-11.74	-9.93/-8.22	-8.92/-8.16	-7.44/-8.12	-6.32/-3.64	-1.03/-1.88	-3.53/-4.15	-5.77/-6.66
Θ(67.5°)	-2.73/-6	-13.06/-9.82	-2.33/-3.66	-4.14/-2.06	-2.36/-3.44	-4.96/-8.44	-18.29/-12.18	-6.45/-4.39	-2.55/-2.37															



Radiated Composite Gain Data of 6G

Appendix B

Θ (67.5°)	-7.05/-8.13	-15.84/-18.84	-16.07/-11.86	-8.91/-5.98	-4.78/-6.55	-8.28/-9.62	-10.27/-7.76	-5.97/-5.77	-7.46/-13.21	-9.55/-11.23	-15.08/-12.49	-10.01/-18.66	-11.86/-6.54	-9.77/-8.8	-12.71/-10.77	-18.05/-17.33	-10.35/-16.16	-5.86/-8.53	-14.46/-12.82	-10.31/-11.05	-10.94/-6.31	-5.44/-7.17	-8.35/-17.85	-15.92/-11.28
Θ (75°)	-6.13/-7.34	-14.14/-18.32	-14.25/-14.2	-10/-11.08	-15.8/-18.59	-17.79/-15.34	-9.75/-6.96	-6.17/-6.06	-9.97/-13.66	-17.42/-14.46	-10.94/-18.19	-11.47/-17.79	-10.93/-5.49	-9.04/-13.2	-11.71/-9.42	-16.28/-9.23	-11.41/-11.81	-18.46/-18.01	-15.55/-10.47	-9.26/-4.92	-5.86/-5.42	-7.33/-15.67	-15.63/-7.7	-3.45/-5.64
Θ (82.5°)	-2.92/-6.13	-14.73/-11.55	-15.44/-7.85	-7.23/-11.57	-16.02/-13.36	-15.05/-14.55	-9.23/-7.47	-7.41/-7.89	-8.37/-8.53	-11.99/-18.14	-13.89/-17.89	-16.91/-13.97	-8.92/-5.7	-17.85/-11.9	-6.77/-10.1	-5.45/-3.57	-9.4/-14.28	-11.73/-8.84	-6.88/-6.56	-6.48/-6.43	-4.91/-10.73	-10.46/-10.09	-3.93/-0.63	-0.46/-3.55
Θ (90°)	-4.81/-8.86	-15.94/-10.41	-11.72/-7.19	-14.18/-18.89	-13.62/-9.83	-12.4/-8.09	-3.91/-4.63	-8.73/-16.05	-16.39/-12.07	-7.23/-9.56	-14.43/-15.13	-18.83/-15.19	-12.16/-3.99	-10.03/-11.24	-6.33/-3.11	0.82/0.69	-2.07/-5.76	-7.16/-3.59	-2.86/-2.97	-1.94/-2.52	-2.72/-9.92	-6.45/-0.4	0.91/-1	0.58/-4.42
Θ (97.5°)	-6.88/-5.99	-4.34/-2.82	-9.65/-9.2	-18.98/-15.61	-18.77/-12.31	-10.31/-8.16	-6.79/-8.28	-13.14/-14.87	-9.81/-11.32	-8.11/-9	-12.38/-11.05	-19.24/-19.94	-11.94/-5	-5.72/-8.27	-4.14/-12.3	1.12/2.59	2.49/-0.58	-0.71/-0.59	-0.68/-1.42	-0.24/-0.02	-1/-0.47	0.09/0.98	0.19/-0.74	-0.32/-2.87
Θ (105°)	-3.71/-1.67	-1.75/-3.51	-6.14/-5.8	-6.57/-10.93	-14.49/-10.32	-7.42/-13.06	-16.96/-15.4	-17.69/-9.99	-4.99/-7.89	-8.61/-5.56	-13.64/-12.46	-18.14/-11.78	-18.58/-6.18	-4.25/-4.1	-4.59/-0.62	2.12/1.23	0.97/0.82	-0.31/-56	-0.27/0.53	0.17/-0.68	-0.22/-2.17	-2.54/-1.23	-0.21/-99	
Θ (112.5°)	-2.63/-0.76	-0.71/-4.59	-5.16/-4.86	-4.39/-5.35	-4.26/-6.76	-5.99/-10.22	-10.12/-9.45	-10.98/-13.17	-10.23/-2.45	-4.65/-9.31	-10.67/-9.04	-15.95/-8.79	-14.8/-3.35	-1.47/-4.63	-4.65/-2.64	-0.58/1.64	0.91/1.1	2.22/29	2.13/1.82	-0.41/-0.16	1.05/-0.97	-2.62/-4.25	-0.99/1.92	1.5/-1.91
Θ (120°)	-2.9/-0.67	-1.57/-4.01	-2.75/-2.81	-3.57/-3.47	-5.19/-6.31	-9.95/-11.27	-8.78/-7.1	-7.41/-13.6	-8.11/-4.62	-8.74/-12.57	-9.9/-9.72	-19.07/-7	-10.86/-5.18	-1.67/-5.26	-5.78/-15.2	-0.26/-2.1	-1.11/-1.36	-0.65/0.35	0.72/-1.27	-2.84/-2.23	-0.69/-0.71	-2.27/-5.25	-2.28/-0.02	-1.15/-5.31
Θ (127.5°)	0.822/4	1.190/11	-1.2/-1.27	-4.86/-5.38	-2.84/-2.17	-1.31/-4.71	-3.55/-2.22	-5.04/-13.57	-6.26/-1.56	-5.48/-18.92	-6.67/-6.72	-11.23/-9.13	-5.69/-1.82	-0.54/-4.78	-6.42/-1.86	-4.71/-1.85	-1.65/-0.57	-6.90/66	1.08/-5.17	-3.93/-1.4	-1.26/-0.48	-1.74/-5.78	-2.74/-1.32	0.83/-0.68
Θ (135°)	-1.61/1.9	0.8/0.6	-1.13/-2.66	-4.01/-5.68	-2.62/-1.33	-1.98/-1.37	-1.08/-1.35	-1.82/-5.87	7.66/-4.34	-5.34/-15.16	-17.33/-7.81	-8.59/-10.21	-9.95/-2.99	-4.79/-5.84	-7.91/-2.91	0.16/-2.16	0.01/-7.45	-12.76/1.74	2.14/-9.24	-6.46/-0.79	-4.89/-0.72	-3.01/-16.37	-9.7/-1.53	0.54/-2.22
Θ (142.5°)	-7.05/-4.91	-4.66/-5.33	-2.89/-3.49	-6.33/-13.1	-8.16/-6	-3.45/-2.92	-2.47/-2.19	-4.08/-9.73	-16.22/-8.95	-6.81/-7.65	-18.91/-19.28	-14.4/-9.14	-14.48/-8.14	-4.4/-8.68	-8.14/-2.8	-14.31/-3.06	-7.43/-8.67	-13.6/-0.65	-1.04/-18.77	-11.64/-4.88	-2.9/-6.48	-0.84/-5.38	-2.95/-1.03	-2.33/-4.28
Θ (150°)	-1.44/-2.73	-4.95/-4.82	-2.39/-0.71	-1.13/-2.16	-8.96/-5.51	8.04/-7.02	-4.35/-3.44	-7.16/-6.41	-9.41/-17.44	-15.73/-12.81	-11.37/-13.63	-17.91/-16.77	-10.11/-5.49	-3.94/-9.8	-9.09/-19.27	-8.05/-6.15	-18.28/-10.91	-13.84/-3.92	-9.58/-13.72	-8.11/-6.8	-5.66/-3.39	-2.21/-82		
Θ (157.5°)	-3.81/-4.96	-3.6/-1.24	0.89/1.58	0.8/-0.93	-3.25/-6.55	-12.18/-15.98	-12.61/-9.2	-7.21/-7.55	-9.27/-9.9	-9.16/-9.06	-12.35/-17.33	-18.11/-18.21	-18.45/-17.83	-15.71/-10.92	-8.12/-7.61	-9.28/-12.67	-15.09/-9.36	-5.36/-4.27	-4.83/-6.19	-7.57/-9.59	-10.76/-10.84	-9.5/-6.66	-3.92/-2.26	-1.92/-2.38
Θ (165°)	-7.89/-6.82	-5.07/-3.87	-3.8/-5.16	-6.82/-8.05	-9.28/-10.2	-8.68/-8.11	-8.05/-8.39	-8.36/-8.11	-6.82/-5.8	-5.78/-8.62	-8.88/-10.13	-9.55/-7.8	-6.22/-6.24	-7.5/-9.72	-10.25/-7.22	-4.54/-3.78	-9.63/-9.96	-10.56/-9.48	-8.24/-8.28	-9.88/-9.25	-7.4/-6.89	-7.45/-7.8	-8.29/-6.94	
Θ (172.5°)	-10.55/-9.07	-7.58/-6.13	-4.58/-2.99	-2.59/-3.28	-5.26/-6.46	-7.97/-9.25	-11.93/-15.6	-18.21/-17.6	-15.73/-13.56	-13.71/-16.67	-18.14/-18.84	-18.15/-16.7	-11.81/-8.36	-6.34/-4.79	-3.48/-2.19	-1.56/-1.63	-2.33/-3	-3.62/-1.47	-4.9/-6.5	-7.86/-10.41	-10.84/-10.67	-9.71/-9.02	-10.18/-11.39	-11.52/-11.05
Θ (180°)	-18.03/-18.57	-18.88/-17.43	-16.24/-10.73	-8.49/-6.63	-6.7/-5.8	-6.56/-5.61	-4.67/-3.95	-4.04/-4.7	-5.58/-6.95	-9.16/-11.99	-16.27/-17.07	-17.83/-14.42	-10.22/-7.74	-5.74/-4.35	-3.31/-2.15	-1.21/-0.63	-0.36/-0.6	-1.27/-2.27	-3.22/-4.33	-5.26/-6.89	-9.61/-12.55	-16.03/-18.78	-18.65/-18.44	-19.64/-18.87
Freq(Hz)	6.475GPol.	PhiAnt. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ (0°)	-7.61/-7.27	-8.53/-8.92	-8.6/-8.88	-9.59/-11.03	-12.28/-13.59	-17.74/-15.72	-12.51/-10.75	-10.28/-10.1	-8.88/-6.72	-6.04/-5.64	-6.01/-6.3	-6.94/-6.43	-6.77/-7.18	-8.58/-10.36	-12.61/-15.05	-16.08/-16.75	-15.9/-14.95	-12.87/-10.13	-8.51/-7.42	-6.55/-6.63	-7.1/-6.69	-6.47/-6.57	-6.2/-6.37	-7.47/-6.96
Θ (7.5°)	-8.93/-9.71	-11.59/-13.06	-15.39/-18.66	-18.29/-18.77	-18.06/-15.01	-11.88/-9.961	9.01/-8.31	-7.69/-6.56	-5.89/-5.9	-6.24/-6.61	-6.22/-5.98	-5.89/-5.7	-5.9/-6.34	-7.13/-7.34	-8.01/-8.53	-10.01/-11.98	-14.01/-16.44	-14.48/-10.05	-10.53/-9.58	-9.18/-8.45	-8.2/-7.25	-6.11/-6.18	-6.37/-6.95	-8.12/-7.8
Θ (15°)	-12.31/-11.21	-11.46/-13.37	-13.62/-13.39	-12.04/-11.43	-10.25/-8.79	-8.49/-7.79	-7.92/-7.38	-6.43/-5.83	-5.44/-4.96	-4.77/-5	-5.97/-7.38	-8.19/-6.38	-8.48/-9.22	-10.38/-11.56	-10.31/-9.74	-18.08/-17.94	-17.48/-16.73	-13.84/-9.32	-9.58/-13.72	-8.11/-6.8	-5.66/-3.39	-2.21/-82		
Θ (22.5°)	-6.66/-6.96	-5.62/-5.03	-4.96/-5.64	-5.83/-6.49	-6.79/-7.48	-9.66/-10.59	-11.61/-12.24	-11.55/-11.24	-10.26/-8.96	-7.17/-6.45	-7.64/-10.21	-11.72/-10.61	-10.12/-11.66	-17.13/-18.09	-18.66/-15.15	-12.45/-10.47	-8.84/-8.23	-9.72/-12.46	-16.33/-18.72	-17.6/-17.89	-17.97/-15.75	-12.8/-9.46	-7.29/-6.14	-6.93/-7.33
Θ (30°)	-3.51/-1.91	-2.21/-3.77	-5.81/-6.99	-6.18/-6.78	-6.71/-6.16	-7.56/-13.36	-15.58/-17.85	-18.78/-17.86	-18.49/-15.5	-17.92/-18.96	-15.95/-16.07	-18.99/-18.24	-18.03/-17.05	-16.77/-19.19	-17.36/-13.65	-11.93/-10.96	-9.94/-9.58	-9.34/-8.85	-9.28/-10.84	-12.54/-12.26	-17.54/-17.24	-8.24/-6.1	-6.28/-6.51	-6.28/-5.64
Θ (37.5°)	-1.09/-0.09	2.21/6.27	-7.59/-6.92	-8.04/-9.54	-10.63/-11.11	-12.62/-13.48	-14.79/-17.86	-14.34/-10.93	-10.78/-15.54	-18.59/-17.65	-15.04/-9.7	-9.19/-10.88	-8.37/-9.42	6.2/-12.91	-18.88/-17.86	-11.91/-11.32	-7.51/-7.62	-8.25/-8.19	-8.49/-8.92	-10.07/-9.88	-12.2/-19.07	-10.57/-5.82	-4.62/-3.96	-3.86/-2.12
Θ (45°)	0.53/-1.32	-4.78/-5.56	-3.06/-2.34	-2.99/-3.76	-6.62/-10.02	-10.66/-10.74	-14.71/-16.96	-17.97/-18.13	-14.18/-13.28	-17.08/-7.6	-4.75/-5.17	-5.64/-3.6	-1.93/-0.95	-1.63/-3.34	-5.29/-6	-6.69/-5.76	-4.88/-4.62	-5.54/-7.98	-5.81/-8.76	-8.43/-10.28	-14.71/-19.19	-14.28/-5.15	-2.85/-2.31	-1.4/-0.2
Θ (52.5°)	-0.54/-5.22	-7.85/-2.69	-2.13/-1.9	-3.59/-8.71	-19.45/-18.8	-16.57/-11.31	-10.24/-9.56	-11.73/-16.49	-15.33/-18.11	-11.56/-5.51	-4.14/-2.72	2.08/0.1	0.78/0.36	0.56/-1	-3.03/-2.36	-2.97/-2.73	-2.43/-4.21	-7.77/-9.21	-8.31/-12.39	-15.71/-10.73	-14.02/-18.06	-9.77/-9.41	-3.18/-2.47	-1.01/0.21
Θ (60°)	-2.24/-6.55	-6.34/-2.57	-4.37/-3.46	-5.53/-6.58	-6.38/-8.03	-8.8/-6.69	-4.87/-5.76	-9.59/-19.14	-9.93/-8.27	-8.75/-6.54	-2.62/-1.9	-1.06/-0.84	-1.45/-0.64	0.85/0.16	-1.66/-2.72	-3.92/-5.19	-8/-15.28	-13.91/-15.68	-14.57/-10.34	-12.91/-17.82	-12.01/-5.26	-2.75/-2.67	-3.21/-2.32	
Θ (67.5°)	-5.63/-6.66	-4.04/-2.82	-0.01/0	-4.62/-2.42	-3.95/-6.11	-5.53/-7.3	-13.91/-17.04	-16.4/-18.44	-9.62/-5.47	-4.59/-4.28	-2.41/-0.59	-1.56/0.1	0.97/-0.08	2.00/0.71	-1.65/-2.37	-2.21/-2.25	-3.11/-4.91	-8.09/-10.13	-16.53/-18.28	-18.56/-16.98	-18.92/-10.34	-7.5/-3.12	-1.23/-0.56	-2.93/-1.85
Θ (75°)	-3.51/-2.7	-1.88/0.33	0.4/-0.29	-2.55/-3.92	-5.27/-5.61	-7.23/-9.97	-13.64/-15.51	-15.17/-15.88	-8.75/-3.89	-3.51/-2.33	-0.79/0.14	0.12/-0.21	-0.96/-0.19	1.16/-1.87	0.56/-0.78	-1.77/-2.6	-3.71/-3.73	-8.08/-12.54	-17.06/-12.42	-9.22/-5.32	-5.42/-5.52	-4.34/-0.68	-0.42/-1.56	-2.1/-1.51
Θ (82.5°)	-4.12/-2.57	-2.63/-4.22	-5.23/-3.37	-1.78/-3.26	-5.64/-9.14	-9.67/-12.17	-12.27/-11.09	-12.22/-7.76	-2.68/-3.91	-5.84/-1.03	-0.71/-1.62	-0.57/0.06	-0.82/-0.85	1.55/-1.36	0.42/0.5	-0.1/-1.68	-2.55/-3.33	-7.51/-17.13	-11.3/-9.52	-7.35/-7.23	-6.99/-4.23	-6.24/-1.82	-1.45/-6.38	-3.48/-1.28
Θ (90°)	-2.37/-1.85	-2.69/-3.08	-4.64/0.51	0.43/-1.97	-6.09/-16.96	-16.71/-17.86	-8.2/-6.5	-4.9/-6.48	-5.99/-3.77	-4.6/-3.37	-4.23/-2	-2.68/-0.32	-1.08/-0.23	-0.67/-0.84	0.71/67	1.8/-0.76	-1.35/-4.82	-5.42/-11.66	-18.25/-11.27	-5.89/-2.62	-5.44/-2.99	-3.75/-3.16	-3.97/-5.77	-3.74/-33
Θ (97.5°)	-1.46/-1.68	-2.91/5.32	-2.27/-0.86	-3.73/-4.47	-2.58/-7.75	-8.37/-7.83	-11.49/-5.03	-3.32/-3.7	-6.29/-10.33	-9.06/-4.28	-7/-7.35	-3.94/-2.41	-2.9/-0.36	-2.59/-3.34	-1.38/1.14	0.61/-1.34	-4.16/-6.19	-5.66/-8.13	-14.11/-7.96	-8.35/-3.31	-1.92/-1.41	-2.24/-6.38	-9.28/-7.84	-5.43/-0.23
Θ (105°)	-0.76/-0.86	-0.17/-0.17	-4.06/-1.47	-2.56/-3.43	-1.53/-3.22	-3.71/-5.72	-9.61/-5.76	-3.69/-4.35	-9.71/-13.02	-15.98/-8.92	-9.3/-7.75	-8.21/-5.09	-5.5/-2.44	-7.47/-15.2	-6.15/-2.13	-1.35/-2.38	-7.77/-10.24	-11.13/-6.53	-13.16/-8.05	-6.18/-12.93	-4.71/-4.41	-4.53/-4.3	-6.4/-4.1	0.36/0.04
Θ (112.5°)	-1.78/-2.22	-5.53/-1.64	-3.21/-5.23	-2.55/-2.49	0.83/-0.01	-1.28/-9.36	-4.69/-6.52	-6.32/-11.07	-11.07/-15.15	-18.24/-18.69	-10.33/-10.98	-18.81/-6.54	-9.1/-4.58	-4.15/-6.19	-7.51/-7.73	-1.95/-2.1	-7.17/-11.7	-9.02/-4.61	-15.4/-8	-8.13/-18.32	-10.56/-4.4	-5.08/-4.86	-1.90/-57	2.31/-0.11
Θ (120°)	-5.18/-3.8	-0.52/-0.48	-1.72/-3.64	-4.53/-1.88	-3.28/-1.98	-3.31/-3.69	-3.71/-6.38	-7.39/-10.54	-19.59/-12.4	-18.14/-19.07	-18.9/-17.11	-17.59/-7.77	-9.											



Radiated Composite Gain Data of 6G

Appendix B

Θ(120°)	-2.86/-1.59	2.36/-1.68	-1.62/-0.33	0.87/0.08	-4.87/-5.73	-4.78/-10.47	-5.25/-2.61	-5.23/-19.08	-8.82/-8.36	-7.08/-4.65	-6.27/-17.78	-6.71/-12.02	-12.23/-10.39	-8.16/-2.54	-7.85/-6.62	-4.62/-1.78	-5.85/-8.45	-0.46/-1.7	0.4/-0.07	-4.97/-1.41	0.53/-0.77	-6.55/-14.4	-8.47/-2.96	-3.44/-1.62	
Θ(127.5°)	0.03/-0.23	1.03/-3.27	0.51/-1.05	-0.15/-1.37	-7.23/-10.91	-8.83/-6.01	-4.4/-3.76	-5.02/-6.45	-5.38/-1.15	-11.9/-4.86	-1.84/-16.54	-8.2/-9.05	-17.92/-10.48	-5.51/-6.28	-19.05/-7.4	-2.57/-0.05	-3.75/-1.51	-0.77/3.01	2.81/1.5	-1.28/-1.33	1.34/-1.45	-2.24/-9.6	-4.61/-1.27	1.37/0.27	
Θ(135°)	-0.94/-1.95	-1.69/0.49	-0.64/-0.02	-2/-3.77	-5/-1.02	0.21/-1.64	-1.98/0.69	-0.93/-3.86	-4.06/0.38	-4.04/-18.09	-5.17/-5.47	-18.01/-12.87	-13.11/-11.85	-4.21/-8.48	-10.57/-7.17	0.07/-4.95	-1.12/-1.77	-3.57/1.47	2.43/0.81	-0.44/-5.43	-2.08/1.2	-5.06/-7.1	-6.4/-0.25	-0.11/-2.17	
Θ(142.5°)	-0.54/-2.6	-4.34/-3.11	-9.89/-15.79	-13.25/-11.07	-7.91/-3.9	-1.88/-1.86	-3.24/-2.39	-2.27/-9.53	-10.85/-6.37	-3.35/-14.06	-11.35/-6.29	-8.17/-12.28	-11.41/-5.44	-6.54/-6.56	-17.51/-6.79	-4.62/-18.7	-4.38/-3.28	-5.05/1.96	0.35/-4.16	-3.98/-5.26	-8.8/-0.54	-5.48/-7.15	-3.68/-1.06	2.04/0.09	
Θ(150°)	-9.58/-7.66	-2.93/-4.32	-8.57/-12.43	-10.87/-6.9	-2.87/-2.08	-3.28/-5.69	-4.77/-2.86	-3.52/-5.8	-10.26/-18.98	-12.68/-11.7	-13.9/-12.56	-13.86/-14.81	-16.11/-12.7	-8.64/-11.4	-13.37/-15.3	-15.41/-11.5	-12.37/-7.42	-18.59/-4.64	-5.62/-7.46	-6.9/-9.63	-10.55/-9.71	-8.44/-7.54	-2.02/0.84	1.1/-2.58	
Θ(157.5°)	-8.71/-4.71	-3.19/-2.17	-2.84/-2.16	-2.03/-1.97	-2.67/-6.04	-12.79/-17.46	-17.66/-19.36	-11.48/-8.52	-7.63/-6.59	-8.67/-13.67	-15.08/-14.31	-14.28/-17.94	-19.05/-13.15	-13.29/-18.85	-11.05/-7.96	-7.98/-12.79	-10.31/-8.61	-11.62/-8.73	-6.72/-7.39	-13.03/-18.23	-18.46/-18.35	-18.95/-11.04	-6.13/-8.85	-18.91/-17.12	
Θ(165°)	-9.7/-7.14	-7/8.42	-6.56/-6.83	-7.62/-8.26	-9.16/-10.9	-12.13/-11.24	-10.26/-9.69	-8.99/-8.97	-8.46/-6.53	-5.12/-4.9	-5.31/-5.81	-6.14/-7.25	-8.46/-9.92	-11.56/-12.05	-12.44/-11.39	-11.17/-15.21	-14.99/-6.57	-3.93/-3.92	-7.82/-13.72	-11.28/-10.28	-16.5/-15.1	-11.68/-14.05	-16.66/-14.4	-16.77/-13.74	
Θ(172.5°)	-6.33/-6.57	-4.93/-4.17	-4.71/-3.25	-2.74/-3.79	-5.24/-7.31	-9.05/-11.55	-11.76/-11.59	-13.77/-13.4	-14.99/-17.3	-16.04/-11.69	-10.06/-9.51	-8.78/-8.6	-8.21/-8.11	-8.09/-8.08	-7.54/-7.14	-6.38/-5.98	-4.96/-3.71	-3.54/-4.15	-5.35/-8	-11.71/-13.25	-11.38/-10.31	-10.02/-11.61	-13.86/-11.72	-10.43/-7.54	
Θ(180°)	-16.55/-16.36	-12.17/-12.22	-13.26/-9.02	-6.73/-6.37	-6.15/-6.38	-6.95/-7.86	-7.4/-6.67	-6.22/-5.65	-6.27/-8.21	-10.51/-12.41	-14.82/-18.54	-19.2/-15.85	-11.8/-9.39	-7.57/-6.14	-5.29/-4.4	-3.7/-3.62	-4.26/-4.9	-5.3/-5.61	-6.46/-8.52	-12.06/-12.39	-14.11/-13.57	-13.1/-13.51	-13.22/-16.71	-17.86/-17.62	
Freq(Hz)	6.995GPol.	PhiAnt. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)	
Θ(0°)	-3.01/-3.46	-4.04/-4.67	-6.44/-6.47	-6.51/-6.4	-6.94/-7.86	-9.61/-10.11	-8.97/-9.21	-9.3/-7.91	-6.6/-5.65	-5.38/-4.67	-3.89/-4.3	-4.33/-4.27	-4.52/-5.26	-6.43/-7.23	-7.92/-9.22	-10.9/-13.31	-14.3/-15.81	-16.68/-14.98	-12.67/-9.91	-7.76/-6.25	-5.41/-4.29	-3.91/-3.68	-2.74/-2.12	-	
Θ(7.5°)	-6.71/-7.59	-7.01/-9.26	-8.8/-8.46	-7.78/-7.53	-8.06/-9.12	-11.95/-15.21	-17.19/-15.46	-13.25/-11.52	-8.55/-6.07	-4.97/-3.71	-2.69/-2.02	-1.83/-1.72	-1.55/-1.46	-1.79/-2.75	-3.61/-4.06	-5.19/-6.02	-6.98/-6.69	-7.17/-7.79	-7.92/-8.96	-8.45/-7.97	-6.84/-5.74	-5/-4.42	-5.29/-5.77	-6.03/-6.38	
Θ(15°)	-13.6/-12.82	-8.39/-6.77	-6.15/-5.68	-6.1/-6.11	-6.78/-6.58	-6.93/-6.75	-5.94/-5.12	-5.52/-5.86	-7.03/-7.07	-6.3/-4.95	-3.28/-1.53	-0.57/-0.21	-0.2/-0.35	-0.89/-1.47	-2.17/-2.8	-4.03/-6.57	-8.21/-9.82	-10.54/-11.55	-13.22/-12.51	-9.38/-7.87	-7.87/-7.05	-6.29/-5.4	-6.36/-9.09	-11.9/-13.11	
Θ(22.5°)	-8.49/-5.45	-4.75/-5.34	-5.54/-8.68	-18.28/-11.31	-7.15/-5.56	-5.01/-5.16	-4.84/-5.57	-8.08/-16.48	-16.31/-11.1	-11.37/-14.64	-16.13/-16.03	-18.71/-18.65	-13.42/-10.25	-9.14/-19.9	-16.31/-16.33	-17.92/-19.06	-19.16/-18.88	-18.56/-18.26	-17.73/-18.74	-15.92/-12.02	-8.85/-6.45	-6.28/-4.76	-5.82/-6.04	-8.46/-11.33	-14.24/-12.22
Θ(30°)	-13.47/-10.15	-6.98/-6.6	-9.35/-15.3	-15.52/-14.66	-12.55/-10.92	-9.64/-9.11	-9.04/-9.24	-7.89/-6.14	-4.62/-3.6	-3.74/-3.84	-3.64/-3.43	-3.43/-3.1	-2.86/-2.79	-4.42/-7.14	-11.6/-14.79	-16.24/-16.12	-18.31/-16.42	-16.87/-15.58	-10.1/-8.09	-7.24/-7.63	-7.75/-6.09	-4.48/-4.47	-5.49/-7.85	-11.84/-14.07	
Θ(37.5°)	-18.3/-14.04	-12.84/-9.08	-6.96/-7.18	-5.78/-5.21	-4.05/-4.68	-6.78/-8.1	-9.97/-10.76	-12.65/-13.04	-9.44/-8.02	-7.88/-8.9	-10.44/-9.12	-10.48/-11.82	-11.67/-12.6	-12.11/-13.03	-13.91/-18.76	-17.66/-17.53	-11.25/-11.63	-15.4/-12.05	-6.58/-8.08	-7.91/-8.71	-9.07/-6.08	-5.2/-6.41	-10.65/-17.53	-	
Θ(45°)	-13.64/-18.13	-10.83/-13.15	-18.28/-11.31	-7.15/-5.56	-5.01/-5.16	-4.84/-5.57	-8.08/-16.48	-16.31/-11.1	-11.37/-14.64	-16.13/-16.03	-18.71/-18.65	-13.42/-10.25	-9.14/-19.9	-16.31/-16.33	-17.92/-19.06	-19.16/-18.88	-18.56/-18.26	-17.73/-18.74	-15.92/-12.02	-8.85/-6.45	-6.28/-4.76	-5.82/-6.04	-8.46/-11.33	-14.24/-12.22	
Θ(52.5°)	-10.78/-7.88	-8.29/-12.08	-15.95/-4.72	-1.69/-2.39	-2.98/-3.39	-4.49/-4.97	-8.36/-10.79	-12.25/-12.19	-6.92/-8.56	-16.95/-8.88	-8.38/-9.58	-6.82/-2.87	-2/-7.28	-11.81/-11.31	-10.72/-8.65	-11.1/-14.84	-18.68/-17.94	-18.72/-18.98	-17.83/-17.01	-12.36/-12.7	-12.46/-9.07	-6.71/-9.41	-14.1/-19.32	-18.15/-16.24	
Θ(60°)	-2.79/-1.51	-4.69/-9.49	-7.49/-2.77	-3.13/-4.19	-5.96/-10.36	-18.74/-14.48	-9.33/-11.33	-14.92/-10.55	-7.35/-10.45	-15.19/-8.22	-5.64/-3.24	-2.36/-0.59	0.06/-2.73	-6.81/-12.15	-8.28/-9.57	-13.85/-18.83	-18.21/-17.99	-18.07/-15.28	-10.45/-10.5	-12.86/-12.86	-7.4/-7.81	-13.46/-6.92	-6.91/-6.72	-	
Θ(67.5°)	-4.33/-2.78	-7.09/-6.88	-5.64/-10.2	-5.51/-4.55	-6.24/-7.16	-7.58/-5.29	-3.88/-5.04	-11.93/-11.85	-11.21/-7.99	-12.82/-7.07	-2.34/-1.05	-2.84/-2.37	-0.27/-3.39	-4.05/-6.24	-11.8/-10.92	-17.59/-18.7	-17.77/-17.51	-15.61/-13.72	-12.55/-9.03	-12.12/-11.37	-6.76/-9.22	-12.94/-3.75	-2.24/-4.61	-	
Θ(75°)	-5.05/-6.65	-9.25/-13.07	-13.03/-9.43	-3.52/-2.33	-2.5/-3.35	-2.51/-2.66	-5.31/-10.07	-18.31/-7.05	-4.81/-5.96	-8.89/-5.62	-4.7/-2.63	-3.42/-3.29	-1.43/-4.12	-1.44/-2.27	-4.81/-5.11	-6.99/-5.34	-4.62/-6.73	-5.86/-7.73	-10.4/-11.72	-15.3/-8.75	-10.12/-18.09	-11.45/-6.59	-6.72/-3.4	-1.86/-8.35	
Θ(82.5°)	-5.89/-5.57	-11.72/-3.87	-4.78/-6.52	-6.48/-5.14	-4.07/-4.65	-3.01/-5.46	-9.7/-16.91	-18.6/-9.4	-4.89/-4.99	-5.1/-7.82	-2.88/-3.8	-4.41/-3.78	-1.06/-0.66	-2.3/-3.39	-4.39/-2.45	-3.21/-2.56	-2.55/-6.94	-8.66/-11.43	-11.77/-17.55	-13.01/-10.63	-18.22/-10.57	-6.46/-6.23	-7.23/-11.41	-1.02/-2.12	
Θ(90°)	-5.07/-6.89	-4.81/-4.79	-2.46/-7.66	-15.34/-9.26	-9.17/-13.51	-8.39/-7.63	-7.64/-9.26	-8.84/-4.18	-1.44/-4.8	-4.94/-6.24	-7.45/-7.62	-4.19/-5.72	-2.63/-5.83	-0.92/-0.84	-0.92/-0.83	-0.54/-1.59	-1.33/-4.13	-4.72/-5.02	-15.65/-17.37	-15.37/-9.52	-14.08/-10.28	-10.83/-7.73	-7.98/-3.8	-5.54/-12.1	
Θ(97.5°)	-3.84/-2.99	-4.53/-6.51	-10.4/-14.31	-12.26/-19.02	-17.53/-12.74	-10.2/-10.85	-8.96/-17.58	-8.78/-4.92	-5.4/-11.2	-5.29/-8.13	-8.12/-9.43	-9.44/-9.79	-6.52/-4.43	-2.64/-4.18	-0.69/0.95	-0.33/-1.88	-1.87/-8.66	-5.2/-7.82	-8.59/-16.62	-15.91/-6.74	-9.1/-8.86	-8.71/-4.65	-5.23/-7.93	-8.58/-5.2	
Θ(105°)	-5.56/-4.28	-7.69/-2.99	-7.56/-11.01	-14.18/-14.23	-10.27/-8.65	-4.35/-5.47	-7.48/-12.5	-10.76/-9.83	-7.42/-19.1	-7.71/-7.72	-6.3/-13.62	-14.48/-17.62	-13.21/-10.34	-1.52/-3.8	-5.92/-4.11	-1.32/-0.82	-2.55/-6.94	-8.66/-11.43	-11.77/-17.55	-13.01/-10.63	-6.46/-6.23	-7.23/-11.41	-7.07/-2.08	-	
Θ(112.5°)	0.16/-1.07	-2.71/-2.67	-5.11/-5.02	-12.51/-5.09	-3.42/-3.77	-1.71/-1.95	-6.5/-6.41	-8.85/-15.07	-7.97/-11.77	-5.48/-7.24	-6.82/-11.41	-12.28/-13.76	-16.75/-6.29	-0.46/-3.69	-7.25/-3.99	-3.28/-3.76	-6.02/-11	-11.94/-9.44	-15.97/-14.15	-12.41/-10.57	-3.27/-5.6	-14.01/-12.79	-7.06/-2.48	0.27/-0.02	
Θ(120°)	-3.62/-6.76	-2.16/-0.48	0.24/-2.14	-10.41/-9.43	-3.92/-7.1	-5.85/-7.74	-8.07/-6.06	-9.1/-14.22	-7.54/-4.93	-8.04/-4.95	-4.8/-12.18	-18.36/-17.92	-14.35/-10.77	-3.85/-3.75	-8.18/-3.33	-2.47/-1.61	-7.5/-13.88	-7.18/-4.88	-18.11/-12.57	-8.81/-17.56	-6.3/-7.13	-1.25/-0.94	-1.05/-1.18	3.34/-0.79	
Θ(127.5°)	-1.64/-1.32	3.08/0.04	-0.05/0.29	-1.73/-4.99	-5.98/-1.26	-3.7/-7.22	-9.99/-6.68	-11.55/-17.83	-10.19/-5.75	-9.55/-12.48	-18.18/-17.53	-12.67/-15.9	-8.78/-3.71	-1.28/-2.95	-17.8/-8.27	-4.77/-4.33	-4.47/-15.89	-17.22/-4.12	-9.25/-7.71	-6.42/-12.08	-3.43/-5.55	-0.11/-1.54	1.31/4.47	4.07/-0.77	
Θ(135°)	-0.932/-32	1.96/2.05	-0.41/0.24	-0.37/-2.09	-2.48/-0.4	0.16/-4.06	-5.54/-3.34	-2.07/-1.67	-7.44/-15.63	-17.5/-11.32	-6.72/-13.29	-12.97/-4.3	-8.34/-6.46	-2.99/-18	-8.96/-14.1	-4.48/-13	-4.75/-10.62	-11.31/-2.53	-9.42/-8.43	-5.14/-7.26	-0.40/0.18	-0.31/-0.82	-3.88/2.27	2.35/-2.01	
Θ(142.5°)	-4.52/-3.48	-1.01/0.37	-4.44/-8.3	-5.91/-12.09	-6.99/-3.08	-3.64/-7.28	-15.31/-7.75	-3.66/-3.97	-4.84/-15.2	-13.34/-17.69	-16.07/-14.84	-12.66/-8.73	-18.28/-8.01	-1.64/-2.17	-5.27/-9.61	-12.37/-8.95	-14/-5.7	-6.09/-18.91	-4.8/-5.19	-7.66/-11.16	-4.72/-16.47	-4.09/-9.34	0.16/-2.92	-1.14/-1.46	
Θ(150°)	-2.39/-7.55	-8.77/-13.26	-6.82/-2.99	-2.78/-2.17	-2.9/-3.72	-5.2/-9.91	-9.25/-6.66	-6.46/-5.84	-7.92/-16.56	-15.28/-8.94	-11.11/-12.77	-7.12/-12.38	-7.78/-0.29	-0.95/-7.29	-8.57/-7.15	-11/-7.34	-16.88/-19.2	-9.29/-9.33	-18.92/-19.79	-11.53/-18.5	-13.66/-12.25	-7.42/-2.54	-0.68/-1.91	2.06/0.28	
Θ(157.5°)	-2.44/-1.36	-0.70/-37	1.19/0.74	0.13/-0.28	-1.75/-4.28	-7.29/-10.64	-12.03/-9.57	-6.82/-6.77	-9.2/-12.43	-13.6/-9.6	-8.42/-7.78	-7.01/-7.14	-11.66/-16.23	-14.45/-9.05	-7.94/-15.1	-15.6/-13.19	-16.76/-10.97	-7.9/-10.11	-10.36/-9.96	-12.69/-18.02	-13.99/-7.28	-3.4/-1.84	-0.16/0.17	-1.11/-2.91	
Θ(165°)	-3.51/-2.27	-1.35/-1.31	-1.92/-1.57	-1.6/-2.8	-3.65/-5.54	-6.97/-7.76	-10.48/-12.56	-13.39/-14.47	-16.07/-14.84	-11.88/-12.44	-18.44/-19.36	-10.19/-6.61	-5.69/-6.4	-7.8/-11.18	-18.72/-12.93	-10.79/-14.83	-18.85/-18.69	-6.94/-5.59	-4.3/-4.04	-6.81/-14.74	-17.73/-18.14	-17.36/-18.14	-11.96/-9.6	-5.21/-3.01	
Θ(172.5°)	-11.74/-13.58	-18.66/-17.48	-12.69/-13.2	-14.68/-17.07	-18.99/-17.																				



Antenna Pattern of 2.4G,5G

Appendix C

Total Gain Data

Freq(Hz)	2.45G/Pol.	TotalAnt. 1	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)		
Θ(0°)	-10.26/-11.02	-11.60/-12.24	-12.75/-12.33	-12.01/-10.03	-9.29/-8.67	-8.14/-8.03	-7.94/-7.81	-7.80/-8.25	-8.95/-9.58	-10.32/-11.13	-12.05/-12.82	-13.33/-13.51	-13.52/-13.15	-12.63/-12.24	-11.91/-11.50	-10.70/-9.88	-9.13/-8.77	-8.45/-8.28	-8.54/-8.87	-9.12/-8.97	-8.60/-8.08	-7.95/-7.91	-8.11/-8.49	-8.97/-9.73		
Θ(7.5°)	-11.80/-11.94	-12.40/-13.09	-13.85/-13.50	-12.05/-10.94	-10.20/-9.50	-8.93/-8.56	-8.42/-8.17	-7.95/-8.17	-8.60/-9.09	-9.33/-9.74	-10.20/-10.58	-11.04/-11.59	-11.97/-12.15	-12.09/-12.00	-11.80/-11.34	-10.49/-9.74	-9.36/-9.27	-9.15/-9.15	-9.71/-10.50	-10.77/-10.80	-10.39/-10.15	-10.11/-10.18	-10.50/-10.89	-11.18/-11.48		
Θ(15°)	-10.90/-10.77	-10.48/-10.32	-10.28/-9.91	-9.14/-8.58	-8.41/-8.18	-7.96/-7.76	-7.73/-7.52	-7.43/-7.46	-7.53/-7.49	-7.37/-7.52	-7.80/-8.14	-8.56/-9.10	-9.53/-9.60	-9.46/-9.74	-10.14/-10.12	-9.83/-9.62	-9.53/-9.91	-10.00/-10.31	-10.84/-11.49	-11.93/-11.56	-11.42/-11.46	-11.44/-11.77	-12.11/-11.93	-11.79/-11.54		
Θ(22.5°)	-9.97/-9.32	-8.61/-7.95	-7.47/-7.05	-6.61/-6.38	-6.43/-6.58	-6.57/-6.60	-6.64/-6.52	-6.32/-6.13	-5.94/-5.67	-5.44/-5.41	-5.61/-6.00	-6.58/-7.30	-7.85/-8.20	-8.28/-8.29	-8.23/-8.23	-8.25/-8.30	-8.28/-8.25	-8.33/-8.51	-8.83/-9.04	-9.32/-9.55	-9.99/-10.32	-10.90/-10.75	-10.47/-10.12			
Θ(30°)	-7.83/-7.51	-6.95/-6.19	-5.54/-5.14	-4.86/-4.81	-5.03/-5.32	-5.62/-5.99	-6.50/-6.70	-6.56/-6.21	-5.71/-5.13	-4.59/-4.14	-4.48/-5.25	-6.14/-6.67	-6.79/-6.64	-6.35/-6.08	-5.96/-5.87	-5.73/-5.55	-5.44/-5.51	-5.79/-6.15	-6.58/-7.08	-7.62/-8.10	-8.56/-9.01	-9.64/-10.01	-9.51/-8.69			
Θ(37.5°)	-7.62/-7.06	-6.29/-5.39	-4.71/-4.40	-4.23/-4.32	-4.63/-4.93	-5.27/-5.84	-6.71/-7.61	-8.03/-8.73	-7.15/-6.25	-5.20/-4.23	-3.49/-3.21	-3.50/-4.55	-6.09/-7.75	-8.49/-8.14	-7.51/-7.08	-6.79/-6.36	-5.73/-5.10	-4.66/-4.51	-4.61/-5.02	-5.75/-6.75	-7.95/-9.16	-9.87/-10.21	-10.77/-10.14	-9.08/-8.18		
Θ(45°)	-6.59/-5.79	-4.68/-3.71	-3.18/-3.02	-2.99/-3.09	-3.40/-3.78	-4.17/-4.69	-5.64/-6.83	-8.18/-9.61	-10.96/-10.62	-9.88/-7.79	-5.82/-4.61	-4.41/-5.41	-7.64/-10.36	-11.04/-9.59	-8.54/-8.30	-8.30/-7.91	-7.17/-6.27	-5.50/-4.82	-4.34/-4.10	-4.22/-4.70	-5.64/-7.02	-8.43/-8.98	-8.79/-8.32	-7.86/-7.39		
Θ(52.5°)	-5.86/-5.29	-4.13/-3.16	-2.58/-2.29	-2.13/-2.20	-2.63/-3.32	-4.11/-4.74	-5.23/-5.47	-5.61/-6.00	-7.02/-8.68	-10.66/-11.73	-10.38/-7.89	-6.73/-7.16	-8.31/-8.58	-7.21/-5.61	-4.72/-4.55	-4.67/-4.82	-5.10/-5.52	-5.87/-5.86	-5.41/-4.83	-4.50/-4.53	-4.97/-5.84	-6.96/-7.33	-6.87/-6.21	-5.85/-5.93		
Θ(60°)	-9.56/-9.11	-6.99/-5.22	-3.97/-3.25	-2.39/-3.76	-4.76/-5.98	-6.95/-7.20	-7.15/-67	-5.79/-4.87	-4.42/-4.44	-4.74/-5.96	-7.78/-9.06	-8.60/-8.23	-8.07/-7.71	-7.15/-6.13	-5.12/-4.68	-4.62/-4.52	-4.37/-4.64	-5.33/-6.22	-6.88/-7.26	-7.68/-7.91	-7.74/-7.63	-7.85/-8.17	-7.99/-7.29	-7.08/-8.13		
Θ(67.5°)	-10.11/-7.96	-5.17/-3.29	-2.18/-2.00	-2.87/-4.15	-5.99/-6.93	-7.55/-7.93	-8.39/-8.85	-8.40/-7.12	-7.77/-4.71	-3.94/-3.97	-5.18/-7.07	-8.23/-8.56	-8.76/-8.42	-7.27/-5.13	-3.81/-3.51	-3.77/-4.12	-4.29/-4.60	-5.02/-5.38	-5.68/-6.39	-7.53/-8.63	-9.01/-8.85	-8.36/-8.24	-9.50/-10.79	-10.23/-9.74		
Θ(75°)	-5.02/-3.80	-1.90/-0.58	-0.08/-0.40	-1.50/-2.87	-3.50/-3.46	-3.13/-2.82	-2.66/-2.83	-3.41/-4.19	-5.12/-5.91	-6.54/-6.98	-7.03/-6.63	-6.42/-7.16	-9.88/-12.21	-8.32/-4.77	-3.35/-3.10	-3.57/-4.37	-5.16/-5.65	-5.46/-4.84	-4.52/-5.05	-6.25/-7.68	-9.03/-10.63	-11.92/-11.47	-10.72/-9.78	-7.49/-5.70		
Θ(82.5°)	-2.86/-1.60	0.23/-1.59	1.97/-1.39	0.10/-1.50	-2.77/-3.49	-3.59/-3.53	-3.60/-3.68	-3.71/-3.66	-3.66/-4.09	-5.83/-9.71	-11.68/-9.15	-7.41/-8.59	-12.20/-9.43	-5.17/-3.33	-2.70/-2.83	-3.99/-6.00	-8.52/-10.12	-9.53/-7.86	-7.03/-7.05	-7.48/-7.71	-7.29/-6.88	-7.35/-8.35	-7.43/-5.69	-4.46/-3.49		
Θ(90°)	-0.62/-0.67	0.27/-1.67	2.30/-1.74	0.37/-1.16	-2.69/-4.36	-5.64/-6.01	-5.50/-4.44	-3.15/-1.96	-1.05/-0.82	-1.72/-4.12	-8.52/-11.74	-9.16/-8.61	-8.79/-5.78	-3.41/-2.48	-1.81/-1.67	-2.72/-4.49	-5.44/-5.75	-6.38/-7.47	-8.31/-7.82	-6.68/-6.45	-6.80/-6.16	-4.99/-4.38	-3.12/-1.46	-0.53/-0.38		
Θ(97.5°)	1.400/7.7	0.95/1.91	2.53/1.85	0.52/-0.49	-1.32/-2.55	-3.70/-4.30	-4.42/-3.70	-2.33/-0.91	0.160/5.0	0.04/-1.30	-3.93/-7.12	-7.55/-6.75	-5.72/-4.14	-2.94/-1.66	-0.59/-0.51	-1.70/-3.08	-3.10/-2.90	-3.23/-3.77	-3.52/-2.54	-1.52/-1.20	-1.80/-2.37	-1.93/-1.14	-0.16/-1.07	1.86/1.89		
Θ(105°)	0.41/-0.76	-1.55/-0.92	-0.13/-0.83	-2.77/-2.06	-1.66/-2.01	-2.39/-2.50	-2.66/-2.43	-1.73/-0.67	0.200/5.2	0.28/-0.75	-3.21/-7.67	-10.76/-9.33	-6.64/-6.14	-5.24/-3.40	-2.03/-1.88	-2.85/-4.01	-4.56/-5.46	-4.74/-5.48	-5.88/-5.56	-1.74/-1.10	-0.79/-0.33	0.250/8.3	1.47/1.24			
Θ(112.5°)	-2.33/-2.34	-2.92/-2.78	-1.98/-2.57	-3.77/-2.95	-2.14/-2.51	-3.35/-4.13	-2.84/-2.40	-2.84/-1.68	-1.01/-0.85	-0.95/-1.72	-3.99/-7.44	-8.84/-4.46	-4.18/-5.89	-8.47/-9.86	-10.87/-11.27	-8.98/-7.29	-7.92/-8.55	-8.40/-7.55	-6.26/-5.16	-4.28/-3.27	-2.35/-2.06	-2.36/-2.72	-3.01/-3.09	-2.82/-2.60		
Θ(120°)	-3.41/-3.65	-4.80/-4.88	-3.28/-2.22	-1.150/-2.9	0.950/4.7	-0.72/-2.10	-3.32/-4.02	-3.90/-3.48	-3.07/-2.67	-2.37/-3.29	-6.78/-15.89	-13.31/-8.13	-6.11/-5.47	-5.66/-6.84	-8.71/-7.63	-5.60/-5.31	-6.90/-9.16	-10.82/-10.11	-6.81/-3.97	-2.46/-1.76	-1.14/-0.73	-1.00/-1.82	-2.43/-2.75	-3.06/-3.21		
Θ(127.5°)	-3.40/-2.83	-3.52/-4.65	-4.46/-3.09	-1.63/-4.05	-0.27/-1.13	-2.96/-5.51	-8.40/-10.40	-9.37/-6.59	-3.74/-1.64	-1.00/-2.35	-6.07/-8.29	-5.51/-3.78	-2.93/-2.16	-1.66/-1.30	-0.670/0.2	0.33/-0.05	-0.95/-1.94	-3.08/-4.30	-4.87/-4.06	-3.35/-3.18	-3.17/-3.22	-3.86/-5.00	-5.61/-5.23	-4.87/-4.22		
Θ(135°)	-3.73/-3.26	-3.86/-4.97	-5.30/-4.38	-3.16/-2.25	-1.93/-2.33	-3.28/-4.19	-4.81/-4.34	-3.59/-2.49	-1.19/-0.31	-0.41/-2.01	-5.59/-10.45	-10.39/-8.04	-6.03/-4.08	-2.65/-1.65	-0.74/-0.10	0.08/-0.36	-1.32/-2.51	-3.99/-5.69	-6.60/-5.87	-5.02/-4.81	-4.75/-4.33	-3.96/-4.41	-5.68/-6.26	-5.79/-4.82		
Θ(142.5°)	-5.04/-4.95	-5.17/-5.27	-4.72/-3.71	-2.67/-1.88	-1.57/-1.79	-2.51/-3.46	-4.28/-4.62	-4.56/-4.16	-3.67/-3.73	-4.85/-7.37	-11.14/-11.13	-10.17/-9.77	-9.62/-8.49	-7.43/-6.89	-6.57/-6.50	-6.90/-7.87	-9.14/-10.08	-10.79/-10.76	-9.04/-7.16	-6.06/-5.56	-4.96/-3.97	-3.30/-3.57	-4.83/-6.02	-6.03/-5.44		
Θ(150°)	-5.63/-5.30	-5.11/-4.84	-4.31/-3.66	-3.06/-2.61	-2.48/-2.69	-3.29/-4.13	-4.95/-5.45	-5.73/-6.13	-6.86/-8.40	-10.87/-15.16	-12.82/-9.51	-7.13/-5.91	-5.29/-4.99	-4.89/-5.00	-5.31/-5.84	-6.55/-7.34	-8.11/-8.81	-9.05/-9.52	-9.43/-8.78	-8.49/-8.39	-7.85/-6.79	-5.99/-6.02	-6.84/-5.78	-7.37/-6.44		
Θ(157.5°)	-8.56/-7.64	-6.87/-6.16	-5.36/-4.70	-4.19/-3.63	-3.72/-3.79	-4.00/-4.35	-4.72/-5.08	-5.59/-6.46	-7.91/-10.21	-14.33/-16.53	-17.01/-12.82	-9.81/-7.92	-6.72/-5.93	-5.59/-5.60	-6.02/-6.79	-7.93/-9.19	-10.20/-10.71	-10.34/-10.46	-10.38/-10.03	-10.11/-10.47	-10.52/-10.10	-9.64/-9.58	-10.06/-10.73	-10.91/-9.93		
Θ(165°)	-14.76/-12.25	-10.62/-8.99	-8.04/-7.26	-6.79/-6.41	-6.28/-6.30	-6.35/-6.33	-6.34/-6.57	-7.10/-7.82	-8.86/-10.34	-13.15/-13.42	-13.08/-12.05	-8.77/-8.05	-7.69/-7.83	-8.15/-8.83	-9.86/-10.84	-11.53/-11.92	-11.36/-11.70	-11.42/-11.24	-11.40/-11.93	-12.66/-13.49	-13.61/-14.10	-14.34/-15.97	-16.82/-17.00			
Θ(172.5°)	-14.37/-12.78	-11.52/-10.67	-10.04/-9.67	-9.54/-9.50	-9.59/-9.56	-9.38/-8.85	-8.40/-8.37	-8.65/-8.91	-9.26/-9.86	-10.38/-10.51	-10.40/-10.19	-9.99/-9.74	-9.53/-9.33	-9.31/-9.50	-9.95/-10.76	-11.68/-12.38	-12.72/-13.61	-13.98/-13.30	-12.61/-11.96	-11.55/-11.70	-12.32/-13.06	-13.51/-13.82	-14.33/-14.95	-14.72/-14.21		
Θ(180°)	-12.33/-12.42	-12.27/-11.90	-11.47/-11.21	-11.20/-11.15	-11.14/-10.84	-9.95/-9.20	-8.55/-8.44	-8.63/-8.58	-8.44/-8.66	-9.08/-9.38	-9.56/-9.81	-10.25/-10.63	-10.90/-11.02	-10.98/-10.80	-11.06/-11.25	-11.95/-12.56	-12.51/-11.87	-10.90/-10.41	-10.14/-9.59	-9.26/-9.25	-9.77/-10.03	-10.36/-10.89	-11.49/-11.81	-12.16/-12.66		
Freq(Hz)	5.2G/Pol.	TotalAnt. 1	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-		
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)		
Θ(0°)	-8.86/-8.65	-8.40/-8.49	-8.67/-8.82	-8.86/-8.65	-8.52/-8.14	-8.24/-9.03	-8.81/-8.46	-7.91/-7.59	-7.42/-7.76	-7.81/-7.94	7.98/-8.01	-8.08/-8.37	-8.51/-8.63	-8.54/-8.42	-8.15/-8.15	-8.34/-8.56	-8.68/-8.58	-8.10/-8.47	-8.81/-8.39	-8.15/-8.51	-8.55/-8.69	-8.87/-8.73	-8.88/-8.96			
Θ(7.5°)	-8.85/-5.68	-5.42/-5.19	-5.32/-5.87	-6.18/-6.22	-6.22/-6.58	-6.92/-7.46	-8.15/-8.70	-8.90/-9.08	-8.88/-8.93	-9.30/-10.05	-10.43/-10.54	-10.41/-10.54	-10.42/-10.28	-10.24/-10.20	-10.16/-9.59	-9.02/-8.49	-8.13/-7.92	-7.44/-6.83	-6.52/-6.77	-7.01/-7.16	-7.33/-7.41	-7.66/-7.39	-7.52/-6.81	-6.69/-6.35		
Θ(15°)	-4.33/-4.10	-3.88/-3.57	-3.85/-4.32	-4.56/-4.58	-4.65/-4.83	-5.03/-5.73	-6.33/-7.12	-7.72/-8.03	-8.20/-8.52	-8.85/-9.42	-9.75/-9.86	-10.12/-10.88	-10.51/-9.82	-8.77/-7.78	-7.29/-6.90	-6.73/-6.49	-6.32/-6.35	-6.05/-5.84	-5.59/-5.78	-5.80/-6.16	-6.31/-6.72	-6.62/-6.60	-6.66/-6.22	-5.57/-6.46		
Θ(22.5°)	-6.10/-5.64	-5.98/-5.22	-5.44/-5.82	-6.80/-6.11	-6.24/-5.99	-6.16/-5.92	-5.92/-5.79	-5.74/-5.62	-5.63/-5.93	-6.42/-6.89	-7.17/-7.35	-7.36/-7.01	-6.95/-6.82	-6.72/-6.43	-6.04/-5.69	-5.57/-5.41	-5.23/-5.26	-5.18/-4.97	-4.89/-5.26	-6.18/-6.80	-7.06/-6.80	-6.79/-6.74	-6.31/-6.04			
Θ(30°)	-9.90/-10.05	-9.89/-8.85	-7.95/-7.57	-7.30/-7.13	-6.91/-6.70	-6.42/-6.08	-5.84/-5.54	-5.51/-5.38	-5.19/-5.16	-4.81/-4.55	-4.86/-5.24	-5.36/-5.33	-5.45/-5.63	-5.39/-4.84	-4.48/-4.24	-4.40/-4.34	-4.36/-4.40	-4.73/-5.04	-5.14/-5.24	-5.10/-5.21	-5.67/-6.98	-7.94/-7.93	-8.15/-8.01	-8.16/-8.75		
Θ(37.5°)	-10.72/-9.14	-7.62/-6.61	-5.83/-5.30	-5.57/-5.83	-5.19/-4.54	-4.26/-3.73	-3.52/-3.17	-2.70/-2.20	-1.95/-2.14	-2.48/-2.70	-2.81/-2.74	-2.77/-3.04	-3.55/-4.05	-3.96/-3.35	-2.89/-2.64	-2.62/-3.24	-4.20/-4.69	-5.01/-4.82	-4.33/-3.							



Antenna Pattern of 2.4G,5G

Appendix C

Θ(22.5°)	-5.73/6.54	-6.46/-6.73	-6.68/-5.86	-5.34/-4.59	-4.06/-3.35	-2.96/-2.44	-2.08/-1.88	-1.76/-1.52	-1.42/-1.72	-2.35/-3.06	-3.49/-3.72	-3.41/-2.61	-1.71/-0.86	-0.40/-0.44	-0.69/-1.06	-1.31/-1.13	-1.18/-1.08	-0.87/-0.65	-0.40/-0.53	-0.62/-1.16	-1.80/-2.74	-3.84/-5.00	-5.87/-6.07	-5.74/-5.44
Θ(30°)	-5.86/-6.16	-6.81/-7.32	-6.88/-6.50	-5.52/-4.57	-3.89/-3.59	-3.55/-3.47	-3.41/-2.59	-1.65/-1.13	-0.81/-0.99	-1.61/-2.15	-2.42/-2.99	-3.33/-2.51	-0.86/-0.49	0.85/-0.30	-0.38/-0.75	-0.63/-0.13	0.37/-0.98	1.57/-1.90	1.98/-1.98	1.95/-1.61	1.40/-1.17	-1.76/-4.42	-6.66/-6.60	-5.48/-5.22
Θ(37.5°)	-2.87/-4.67	-6.10/-7.64	-6.25/-5.27	-4.66/-4.32	-3.92/-3.77	-3.35/-2.41	-1.53/-0.83	-0.37/-0.19	-0.04/-0.02	-0.71/-1.38	-1.76/-2.33	-2.03/-0.67	-0.27/-0.30	-0.29/-0.18	-0.01/-0.05	-0.05/-0.06	-0.15/-0.16	0.68/-0.87	1.17/-1.48	1.88/-1.67	1.28/-0.78	-0.61/-2.87	-6.19/-4.78	-5.72/-1.23
Θ(45°)	-2.85/-6.87	-9.78/-7.02	-5.63/-5.79	-4.99/-4.42	-4.12/-3.99	-3.38/-3.29	-3.86/-3.20	-2.37/-1.40	-0.62/-0.01	0.32/-0.18	-0.22/-1.56	-1.82/-0.53	-0.01/-0.59	1.04/-0.19	-1.02/-1.72	-2.10/-1.78	-0.35/-0.44	0.52/-0.89	1.30/-3.30	1.00/-0.42	0.28/-0.37	-1.02/-2.56	-3.50/-2.26	-1.36/-1.11
Θ(52.5°)	-6.34/-5.46	-6.13/-5.31	-5.52/-6.66	-6.60/-6.55	-4.55/-3.51	-3.00/-3.00	-3.41/-3.58	-2.99/-1.33	0.25/-1.23	1.53/-1.13	1.02/-0.06	-0.01/-0.00	-0.05/-1.28	1.45/-0.34	-0.40/-1.71	-1.28/-0.19	0.40/-0.76	0.71/-0.16	-0.54/-0.65	-0.64/-0.44	-0.54/-0.22	-0.27/-1.36	-2.71/-1.94	-0.81/-1.27
Θ(60°)	-3.56/-5.14	-5.62/-6.88	-6.86/-7.24	-5.89/-3.13	-1.17/-0.15	-0.05/-0.69	-1.55/-2.02	-2.37/-1.80	-0.23/-1.30	2.47/-2.19	2.13/-1.79	2.00/-1.88	1.95/-1.95	0.81/-0.04	0.27/-0.36	-0.21/-0.38	1.08/-0.75	0.46/-0.16	-0.91/-1.24	-1.58/-1.52	-0.70/-0.08	0.74/-0.37	-1.35/-2.76	-1.44/-1.06
Θ(67.5°)	-2.34/-4.48	-4.57/-7.75	-8.42/-7.29	-5.11/-2.48	-0.72/-0.61	-1.52/-3.12	-4.22/-3.55	-2.37/-1.15	0.32/-1.66	2.55/-2.10	2.17/-1.66	1.93/-2.27	2.80/-3.19	2.72/-2.25	1.17/-0.11	0.05/-0.06	0.30/-0.03	-0.36/-0.52	-1.28/-1.14	-0.79/-0.89	-0.09/-0.42	1.00/-1.61	1.05/-0.68	0.19/-0.01
Θ(75°)	-2.63/-3.97	-4.92/-6.56	-7.03/-10.45	-8.53/-4.32	-3.53/-4.14	-5.49/-7.04	-7.29/-6.22	-3.41/-1.26	0.29/-1.30	2.37/-2.51	2.87/-2.61	3.24/-2.98	3.42/-2.96	2.93/-2.55	1.62/-0.63	0.52/-0.26	0.52/-0.22	-1.75/-2.68	-2.81/-3.05	-2.19/-1.11	0.05/-1.00	0.92/-1.76	1.49/-2.02	1.54/-0.34
Θ(82.5°)	-4.38/-2.35	-1.41/-3.25	-5.89/-9.43	-8.46/-3.89	-2.68/-3.56	-6.29/-7.51	-8.67/-11.02	-7.71/-3.00	-0.19/-0.73	0.97/-0.94	2.42/-2.40	2.53/-0.31	3.70/-3.76	3.37/-2.76	1.62/-1.32	0.62/-0.44	-0.40/-1.56	-2.64/-3.38	-1.94/-1.70	-0.77/-0.36	-1.57/-0.52	-0.34/-0.91	1.37/-2.37	1.88/-0.09
Θ(90°)	-1.90/-0.64	1.54/-0.13	-1.36/-4.34	-2.41/-0.32	-0.54/-2.66	-4.97/-5.11	-5.77/-8.77	-12.55/-5.62	-1.28/-0.93	1.23/-0.14	1.90/-2.48	2.63/-2.15	2.69/-1.03	1.88/-2.19	0.75/-1.79	1.37/-0.10	-0.67/-2.52	-4.37/-6.90	-5.43/-3.82	-2.32/-1.13	-1.34/-0.97	-0.94/-0.07	0.14/-1.21	0.07/-1.66
Θ(97.5°)	0.04/-0.23	2.12/-0.41	-0.73/-1.93	-2.23/-1.66	-1.83/-3.97	-5.67/-4.69	-3.57/-4.28	-7.90/-8.33	-1.76/-0.90	1.70/-0.57	0.86/-0.33	-0.54/-0.14	1.88/-0.76	2.43/-0.86	-1.14/-0.36	0.72/-1.76	-3.60/-7.81	-10.78/-8.82	-4.96/-3.35	-0.63/-0.73	-0.77/-1.20	-1.50/-3.00	-1.21/-1.45	1.71/-0.33
Θ(105°)	-0.51/-1.32	-1.17/-0.82	-0.50/-1.54	-2.66/-2.38	-2.72/-4.38	-4.72/-8.88	-1.84/-2.35	-4.09/-3.99	0.15/-1.48	1.73/-0.59	1.30/-1.61	0.77/-0.65	0.12/-3.43	-0.41/-0.60	-2.49/-0.82	0.72/-0.91	-4.85/-9.98	-13.55/-10.58	-5.95/-4.19	-2.31/-1.12	-1.86/-1.20	-0.46/-0.51	-2.37/-1.11	0.11/-2.50
Θ(112.5°)	-1.42/-0.99	-0.54/-2.71	-0.67/-0.09	-1.19/-2.93	-1.74/-2.34	-4.46/-3.33	-1.18/-1.26	-3.63/-6.39	-2.47/-0.79	0.70/-0.22	-0.23/-0.43	-3.11/-3.01	-0.18/-1.53	0.00/-2.43	-6.89/-4.59	-4.44/-4.73	-8.96/-10.12	-11.52/-7.40	-3.14/-4.46	-3.93/-1.92	-1.85/-2.95	-4.09/-4.31	-1.43/-1.03	-3.58/-4.01
Θ(120°)	-1.06/-0.39	-0.65/-1.50	0.02/-0.55	-1.40/-2.77	-1.78/-1.35	-4.28/-6.84	-3.89/-2.92	-4.49/-6.28	-3.49/-0.46	-0.04/-1.02	-2.12/-0.11	-0.73/-3.29	-3.67/-3.85	-2.29/-8.22	-7.34/-11.77	-6.17/-13.31	-9.60/-7.34	-6.91/-8.07	-5.39/-4.18	-4.50/-6.56	-6.65/-4.44	-2.12/-6.57	-6.31/-3.80	
Θ(127.5°)	-2.24/-0.35	-0.79/-2.09	-1.47/-1.26	-1.86/-4.44	-3.64/-2.31	-4.07/-7.56	-11.49/-8.76	-5.62/-5.64	-5.64/-4.33	-3.70/-4.26	-4.14/-2.93	-2.01/-1.75	-1.56/-2.23	-2.72/-3.53	-4.55/-5.07	-9.17/-6.98	-12.77/-12.98	-4.40/-4.32	-10.45/-7.63	-5.89/-4.99	-4.88/-5.15	-1.73/-5.66	-3.83/-4.51	-5.49/-3.53
Θ(135°)	-3.78/-3.06	-1.84/-2.55	-2.79/-3.25	-3.95/-5.39	-6.33/-4.72	-4.80/-7.55	-8.77/-6.84	-5.08/-3.95	-3.15/-3.10	-4.55/-5.44	-4.01/-3.42	-4.06/-4.53	-3.94/-1.91	-0.51/-2.71	-10.03/-12.09	-7.49/-7.92	-6.68/-12.24	-9.21/-7.45	-10.52/-10.23	-8.28/-8.93	-4.71/-7.38	-8.80/-8.75	-4.61/-6.00	-8.32/-4.78
Θ(142.5°)	-10.19/-8.57	-7.24/-1.77	-7.31/-0.83	-10.08/-10.12	-9.09/-7.24	-6.35/-7.24	-3.89/-2.92	-5.22/-2.95	-2.18/-2.83	-5.15/-7.88	-7.35/-6.44	-7.26/-8.25	-12.20/-11.10	-10.41/-6.69	-10.43/-17.16	-11.48/-11.43	-11.81/-11.38	-8.28/-11.38	-13.25/-9.19	-6.39/-11.12	-9.50/-7.12	-7.46/-1.54	-3.77/-6.28	-11.40/-10.88
Θ(150°)	-8.90/-4.24	-3.65/-5.39	-9.22/-12.39	-9.22/-12.39	-6.13/-7.05	-8.94/-12.06	-14.32/-10.61	-6.82/-4.76	-3.72/-3.70	-5.43/-7.71	-8.79/-8.35	-7.22/-8.76	7.24/-4.99	-6.12/-8.32	-7.72/-8.00	-9.73/-12.41	-12.77/-12.86	-12.20/-10.56	-7.13/-5.84	-4.71/-4.27	-4.72/-4.74	-3.68/-5.33	-7.10/-3.44	
Θ(157.5°)	-7.76/-6.31	-5.56/-7.71	-12.77/-13.94	-10.22/-8.20	-7.21/-6.57	-7.86/-7.60	-9.06/-10.51	-10.46/-9.26	-8.38/-7.74	-7.30/-7.24	-8.46/-10.75	-12.93/-11.20	-7.95/-5.90	-5.20/-6.57	-9.63/-12.35	-10.54/-6.44	-4.90/-6.07	-7.59/-8.47	-10.38/-9.67	-7.42/-7.78	-9.30/-9.52	-8.68/-6.15	-4.13/-3.82	-5.05/-6.71
Θ(165°)	-6.98/-6.36	-6.85/-8.23	-9.10/-9.22	-8.39/-7.59	-8.00/-8.36	-9.18/-10.26	-11.06/-12.06	-14.77/-16.83	-16.59/-16.58	-12.90/-10.41	-9.10/-9.21	-8.72/-9.34	-8.13/-6.74	-6.32/-6.73	-7.42/-7.75	-7.87/-8.17	-8.29/-8.72	-8.78/-8.81	-9.30/-10.54	-12.51/-15.42	-14.98/-11.19	-7.52/-5.31	-4.64/-5.40	-6.78/-6.54
Θ(172.5°)	-10.77/-11.91	-14.12/-15.99	-16.49/-15.99	-15.80/-15.73	-16.05/-16.58	-16.61/-15.90	-15.56/-14.15	-13.21/-12.61	-12.29/-12.47	-11.99/-12.47	-13.23/-13.38	-12.68/-11.87	-10.74/-9.75	-9.24/-9.00	-9.39/-10.25	-11.79/-14.33	-15.65/-15.57	-16.29/-14.49	-13.81/-13.19	-13.04/-12.69	-11.01/-9.53	-8.42/-8.06	-8.38/-9.04	-9.58/-10.04
Θ(180°)	-17.02/-16.49	-16.45/-15.55	-16.91/-15.99	-16.65/-16.55	-17.00/-15.54	-14.70/-13.04	-13.09/-13.42	-13.38/-13.46	-13.49/-14.15	-14.26/-14.62	-14.26/-14.20	-13.84/-13.43	-15.53/-13.96	-14.50/-13.36	-12.60/-12.33	-12.28/-12.71	-13.85/-14.07	-14.04/-14.64	-15.37/-15.40	-15.02/-16.23	-16.03/-15.14	-14.56/-15.84	-16.02/-16.76	-15.94/-16.29
Freq(Hz)	2.45GPol	TotalAnt.2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
Θ(0°)	-8.71/-8.37	-8.11/-7.81	-7.57/-7.52	-6.67/-7.74	-7.65/-7.45	-7.26/-7.11	-7.10/-7.15	-7.35/-7.48	-1.47/-1.62	-7.74/-7.77	-7.83/-7.98	-8.11/-8.23	-8.25/-8.12	-7.87/-7.59	-7.72/-7.32	-6.93/-6.79	-6.74/-6.74	-6.69/-6.59	-6.64/-6.75	-6.93/-7.39	-7.94/-8.44	-8.72/-8.91	-8.08/-9.29	-9.37/-9.23
Θ(7.5°)	-7.33/-6.82	-6.40/-6.00	-5.69/-5.64	-5.81/-6.06	-6.32/-6.54	-6.69/-6.73	-6.98/-7.21	-7.42/-7.47	-7.58/-8.06	-8.57/-9.10	-9.77/-10.58	-11.37/-12.00	-13.42/-12.32	-12.09/-11.72	-11.44/-11.29	-10.99/-10.79	-10.59/-10.34	-9.85/-9.18	-8.29/-7.85	-7.62/-7.70	-7.85/-7.90	-7.82/-7.76	-7.76/-7.62	-7.47/-7.15
Θ(15°)	-6.16/-5.67	-5.22/-4.87	-4.66/-4.60	-4.72/-5.02	-5.36/-5.67	-5.80/-5.87	-5.91/-6.09	-6.29/-6.39	-6.70/-7.31	-8.07/-8.74	-9.58/-10.61	-11.64/-12.61	-13.19/-13.08	-12.46/-12.76	-10.33/-13.55	-14.80/-15.72	-16.54/-16.52	-16.67/-15.37	-14.44/-12.79	-11.72/-11.10	-9.33/-8.66	-8.09/-7.66	-7.31/-6.90	
Θ(22.5°)	-5.31/-4.77	-4.19/-3.69	-3.36/-3.25	-3.29/-3.62	-4.05/-4.48	-4.79/-5.00	-5.20/-5.50	-5.74/-5.88	-6.07/-6.56	-7.15/-7.77	-8.59/-9.53	-10.42/-11.15	-11.44/-11.51	-11.17/-10.80	-10.53/-10.27	-9.99/-9.67	-9.36/-9.14	-9.15/-9.39	-9.45/-9.39	-9.19/-9.18	-9.19/-9.08	-8.64/-7.95	-7.20/-6.60	-6.50/-5.76
Θ(30°)	-4.40/-3.78	-3.06/-2.34	-1.78/-1.48	-1.48/-1.79	-2.27/-2.83	-3.47/-4.20	-4.93/-5.45	-5.69/-5.58	-5.40/-5.40	-5.64/-6.04	-6.68/-4.79	-8.29/-8.94	-9.22/-9.02	-8.53/-8.00	-7.60/-7.25	-6.89/-6.48	-6.02/-5.62	-5.36/-5.29	-5.33/-5.52	-5.81/-6.30	-7.00/-7.55	-7.76/-7.60	-7.11/-6.46	-5.63/-5.04
Θ(37.5°)	-3.46/-2.57	-1.71/-0.92	-0.25/-0.09	0.06/-0.30	-0.84/-1.55	-2.48/-3.55	-4.46/-4.98	-5.04/-4.68	-4.29/-4.12	-4.30/-4.78	-5.61/-6.75	-7.99/-9.22	-10.01/-10.12	-9.59/-9.09	-8.79/-8.81	-8.92/-8.69	-7.95/-9.61	-5.88/-5.07	-4.45/-4.02	-3.92/-4.26	-5.00/-6.04	-6.93/-7.33	-7.03/-6.26	-5.15/-4.20
Θ(45°)	-1.32/-0.28	0.47/-0.96	1.27/-1.33	1.05/-0.48	-0.17/-0.87	-1.73/-2.62	-3.47/-4.13	-4.48/-4.35	-3.96/-3.67	-3.67/-3.98	-4.52/-5.26	-6.10/-7.07	-7.97/-8.68	-9.29/-10.25	-12.00/-14.98	-16.19/-15.66	-10.61/-7.28	-4.92/-3.22	-1.97/-1.09	-0.59/-0.56	-1.08/-2.15	-3.45/-4.38	-4.77/-4.58	-3.88/-2.61
Θ(52.5°)	-0.55/-0.57	1.30/-1.65	1.83/-1.77	1.36/-0.75	0.25/-0.25	-0.85/-1.51	-2.20/-3.00	-3.75/-3.96	-3.63/-3.29	-3.19/-3.29	-3.43/-3.59	-3.84/-4.34	-4.85/-5.22	-5.80/-6.96	-8.84/-11.89	-15.61/-16.47	-10.89/-7.15	-4.45/-2.49	-1.10/-1.06	0.33/-0.42	0.10/-0.70	-1.83/-2.78	-3.16/-3.20	-2.86/-1.82
Θ(60°)	-0.28/-0.58	1.15/-1.47	1.60/-1.53	1.12/-0.67	0.44/-0.20	-0.23/-0.76	-1.39/-2.10	-2.83/-3.13	-2.98/-2.76	-2.92/-3.29	-3.45/-4.37	-3.84/-4.71	-5.46/-5.82	-6.32/-6.64	-6.77/-7.24	-8.43/-10.67	-12.43/-11.36	-8.35/-5.54	-3.58/-2.38	-1.81/-1.60	-1.57/-1.86	-2.48/-3.23	-3.49/-3.02	-2.37/-1.48
Θ(67.5°)	1.14/-1.72	1.94/-2.01	1.89/-1.55	1.07/-0.78	0.87/-0.83	0.49/-0.02	-0.50/-1.22	-2.11/-2.88	-3.30/-3.57	-3.97/-4.02	-3.42/-3.13	-3.74/-4.76	-5.76/-7.68	-10.08/-10.96	-9.15/-7.72	-7.05/-6.92	-6.84/-6.61	-5.90/-4.89	-3.83/-2.84	-1.94/-1.34	-1.10/-1.20	-1.49/-1.91	-2.36/-2.16	-1.16/-0.09
Θ(75°)	1.63/-2.32	2.53/-2.62	2.48/-1.93	1.31/-0.97	1.08/-1.04	0.52/-0.30	-1.15/-2.14	-3.30/-4.11	-3.94/-3.60	-3.68/-3.18	-2.11/-2.01	-2.93/-3.64	-4.59/-7.12	-10.66/-15.09	-1									



Antenna Pattern of 2.4G,5G

Appendix C

θ(75°)	4.254/9.2	4.142/5.3	0.70/-1.01	-2.37/-3.00	-2.95/-4.90	-6.35/-7.81	-7.58/-5.90	-5.09/-3.34	-2.32/-2.96	-3.74/-3.32	-1.14/-1.08	-1.18/-2.32	-3.52/-3.62	-1.22/-1.08	0.88/-0.51	-2.12/-7.03	-4.01/-0.08	0.41/-1.63	2.652/9.9	3.04/3.25	2.30/-1.63	1.852/7.4	4.04/-1.5	2.102/18
θ(82.5°)	2.953/9.5	4.284/3.7	3.79/-1.91	-0.91/-4.11	-3.98/-4.21	-3.98/-4.66	-6.57/-7.97	-7.74/-5.53	-4.63/-5.67	-6.65/-4.12	-1.93/-2.17	-1.06/-2.54	-7.41/-10.91	-3.34/-0.27	-0.57/-2.12	-7.83/-10.96	-3.59/-2.27	-1.96/-1.87	0.11/-1.99	2.832/20	0.27/-1.18	1.083/0.9	2.96/-1.83	0.702/34
θ(90°)	-0.69/-0.04	-0.03/-0.31	-0.45/-1.28	-0.93/-6.61	-7.06/-5.79	-5.89/-8.19	-8.08/-7.91	-7.31/-7.68	-8.87/-6.74	-7.09/-13.22	-5.62/-3.39	-3.97/-4.78	-4.46/-4.91	-2.13/-6.09	-5.62/-2.86	-2.13/-6.09	-5.62/-2.86	-3.34/-0.40	1.53/-0.08	-1.98/-3.06	-2.30/-0.46	1.360/-3.1	-2.91/-2.44	
θ(97.5°)	-4.25/-5.81	-1.95/-2.42	-5.69/-3.88	-4.25/-5.44	-8.27/-6.89	-6.91/-8.23	-10.09/-14.14	-14.05/-8.69	-7.82/-9.36	-5.71/-4.53	-3.90/-5.96	-9.19/-8.85	-8.27/-8.82	-7.50/-4.40	-6.09/-7.47	-7.00/-14.33	-7.86/-6.51	-6.10/-4.91	-5.05/-3.23	-1.35/-1.09	-3.73/-3.05	-2.42/-2.08	-1.18/-0.78	-2.09/-3.93
θ(105°)	-0.47/-2.11	-0.82/-0.10	-1.18/-2.15	-4.84/-5.96	-7.15/-8.15	-7.73/-13.07	-14.72/-13.81	-8.38/-5.09	-4.93/-6.09	-7.90/-4.54	-3.74/-6.02	-6.62/-10.05	-12.28/-8.26	-7.02/-5.26	-4.56/-6.02	-6.44/-6.53	-6.71/-11.35	-11.91/-5.07	-6.54/-4.67	0.53/-0.75	-2.27/-4.14	-2.93/-2.45	-3.78/-5.02	-1.99/-1.88
θ(112.5°)	2.25/-1.66	-2.39/-2.51	-3.55/-5.36	-6.46/-5.17	-6.26/-7.52	-8.39/-7.13	-6.79/-7.58	-7.36/-6.56	-7.12/-15.16	-16.04/-11.65	-9.09/-9.86	-12.96/-10.79	-11.10/-13.55	-9.12/-3.86	-7.44/-15.06	-5.86/-0.83	-3.90/-2.52	0.59/-1.39	1.12/-4.11	-2.76/-1.85	-3.44/-2.43	-0.44/-2.06		
θ(120°)	1.81/-1.17	0.17/-2.15	-6.39/-2.77	-0.12/-0.00	0.94/-0.10	-1.61/-3.15	-4.58/-6.08	-5.98/-7.72	-11.57/-16.50	-16.29/-12.42	-11.66/-14.32	-11.34/-9.53	-9.00/-5.30	-2.66/-6.97	-7.90/-6.68	-9.99/-4.09	-5.80/-4.61	-3.44/-0.28	-5.08/-0.12	2.69/-2.91	1.50/-1.59	-3.35/-1.03	-7.34/-1.64	-0.28/-2.28
θ(127.5°)	3.46/-3.75	3.47/-2.88	2.25/-1.70	2.32/-2.02	0.96/-0.16	-1.10/-2.05	-2.16/-2.73	-3.77/-3.74	-5.04/-3.68	-4.22/-8.44	-14.23/-11.07	-11.02/-10.90	-8.40/-5.41	-6.57/-11.57	-5.39/-7.44	-6.30/-3.05	-4.76/-3.24	-4.81/-3.42	-4.20/-1.05	1.66/-2.88	-4.63/-6.44	-5.08/-3.71	-9.25/-1.37	1.85/-4.19
θ(135°)	1.46/-2.93	2.36/-2.54	1.53/-1.74	2.40/-2.77	2.49/-1.71	1.06/-0.30	-0.80/-1.07	-1.40/-2.72	-4.21/-1.71	-11.22/-16.21	-12.11/-11.77	-10.40/-10.74	-13.10/-7.46	-5.62/-7.87	-13.27/-8.45	-4.44/-3.97	-6.01/-9.01	-4.62/-1.90	-3.94/-4.26	-0.77/-3.04	-9.15/-10.55	-5.08/-3.71	-4.47/-9.52	-8.57/-0.30
θ(142.5°)	-1.55/-1.00	1.37/-1.38	0.68/-0.54	-1.47/-2.18	-2.40/-1.98	-1.56/-1.74	-1.54/-1.62	-2.43/-3.73	-5.34/-7.21	-9.47/-8.63	-11.72/-12.81	-14.02/-15.98	-15.83/-11.32	-11.30/-7.76	-8.61/-8.61	-10.57/-12.07	-13.53/-11.92	-6.97/-6.13	-8.20/-6.67	-4.74/-6.29	-3.47/-1.49	-1.00/-3.24	-3.38/-5.22	-8.23/-3.74
θ(150°)	1.13/-0.28	-1.96/-4.86	-9.31/-14.21	-9.64/-5.66	-4.12/-3.83	-4.42/-4.30	-4.62/-5.97	-7.49/-7.46	-5.15/-5.12	-3.58/-6.16	-13.15/-9.61	-8.57/-7.45	-8.89/-6.44	-4.21/-9.67	-14.76/-7.05	-6.11/-6.81	-5.09/-3.28	-2.86/-4.23	-5.92/-7.12	-9.80/-9.15	-3.68/-0.33	-1.74/-2.25		
θ(157.5°)	-2.56/-2.19	-2.37/-2.74	-3.47/-4.98	-5.46/-4.66	-3.76/-3.17	-3.29/-3.94	-4.10/-3.93	-4.32/-5.16	-6.23/-4.93	-5.71/-7.37	-7.01/-6.16	-5.93/-6.04	-5.64/-4.09	-3.71/-5.21	-8.17/-6.68	-5.95/-5.08	-5.35/-5.96	-9.02/-13.21	-6.54/-6.50	-6.07/-5.62	-6.86/-9.24	-5.88/-6.43	-4.99/-3.39	
θ(165°)	-4.23/-4.38	-4.02/-2.81	-1.43/-0.78	-0.99/-1.32	-1.37/-1.23	-0.80/-0.37	-0.14/-0.40	-1.27/-2.21	-2.71/-3.25	-3.92/-4.47	-4.42/-4.24	-4.27/-4.74	-6.01/-7.94	-10.25/-11.26	-9.70/-7.60	-6.56/-6.83	-7.97/-8.71	-9.79/-9.88	-8.93/-6.85	-6.17/-6.37	-6.64/-6.67	-7.00/-6.44	-6.02/-6.03	-5.88/-5.03
θ(172.5°)	-10.55/-9.30	-8.96/-8.81	-8.55/-8.06	-7.06/-6.45	-5.82/-7.59	-5.43/-5.61	-5.76/-6.57	-5.52/-4.98	-4.37/-4.12	-4.49/-5.24	-5.68/-5.93	-6.12/-6.60	-7.27/-6.68	-10.67/-12.83	-13.35/-12.74	-12.73/-13.71	-14.70/-15.11	-14.20/-12.99	-10.65/-9.51	-8.56/-8.38	-8.23/-8.13	-8.06/-7.91	-8.79/-11.36	-13.71/-12.95
θ(180°)	-4.51/-3.47	-3.24/-3.15	-3.19/-2.99	-2.92/-3.15	-3.35/-3.55	-3.70/-3.73	-3.18/-2.67	-2.39/-2.61	-2.98/-3.48	-4.22/-4.82	-5.19/-5.44	-5.69/-5.84	-6.13/-6.72	-7.39/-7.99	-8.16/-7.95	-7.19/-6.84	-6.90/-6.73	-6.70/-6.91	-7.83/-9.43	-10.77/-11.37	-11.22/-11.20	-11.17/-10.66	-9.88/-8.50	-7.20/-5.65
Freq(Hz)	5.785GPol.	TotalAnt.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
θ(0°)	4.59/-4.65	-4.28/-4.15	-4.95/-5.45	-5.97/-6.13	-5.96/-5.95	-5.73/-5.32	-5.03/-4.92	-4.86/-4.76	-4.69/-4.48	-4.33/-4.12	-4.02/-4.18	-4.10/-4.17	4.00/-3.85	-3.33/-3.23	-2.91/-3.26	-2.91/-3.26	-3.69/-4.08	-4.03/-3.94	-3.76/-3.50	-3.31/-3.26	-3.12/-3.25	-3.14/-3.23	-3.31/-3.73	-3.80/-3.89
θ(7.5°)	-2.48/-2.32	-2.18/-2.17	-2.71/-3.12	-3.56/-3.59	-3.21/-3.23	-3.35/-3.67	-3.73/-3.64	-3.62/-3.64	-3.58/-3.69	-3.84/-3.86	-3.92/-4.13	-4.33/-4.86	-5.02/-5.08	-5.02/-5.26	-5.39/-5.44	-5.34/-5.47	-5.83/-6.17	-6.13/-5.86	-5.59/-5.45	-5.05/-4.61	-4.46/-4.06	-3.72/-3.30	-2.92/-2.99	-2.58/-2.47
θ(15°)	-2.62/-2.41	-2.38/-2.84	-3.00/-3.26	-4.15/-5.63	-6.90/-6.76	-7.29/-7.48	-7.92/-8.61	-9.17/-9.24	-8.46/-7.75	-7.09/-6.73	-6.60/-6.17	-5.71/-5.02	-4.87/-5.13	-5.86/-6.10	-5.91/-5.68	-5.91/-5.63	-7.15/-8.20	-8.65/-8.54	-8.51/-8.96	-9.17/-9.06	-8.63/-8.12	-7.03/-5.73	-4.66/-3.93	-3.33/-2.62
θ(22.5°)	-3.01/-3.09	-3.39/-5.01	-5.83/-7.23	-9.50/-12.17	-13.25/-10.32	-8.00/-7.02	-6.78/-6.85	-6.41/-5.66	-5.66/-7.56	-11.81/-13.27	-9.62/-7.78	-6.78/-6.87	-6.70/-6.80	-7.35/-6.02	-9.22/-11.55	-11.01/-7.99	-6.29/-7.41	-8.51/-9.32	-10.36/-11.27	-10.66/-10.87	-11.03/-13.87	-11.03/-7.80	-5.20/-3.38	
θ(30°)	-3.73/-3.31	-3.98/-6.15	-10.22/-12.88	-12.19/-11.67	-10.42/-7.90	-7.00/-6.15	-5.04/-3.55	-2.41/-2.27	-2.55/-2.50	-3.51/-6.05	-7.80/-6.99	-5.98/-5.53	-5.73/-5.86	-5.99/-7.11	-7.62/-7.39	-6.54/-3.57	-2.35/-2.46	-1.68/-0.75	-0.70/-1.76	-2.63/-2.61	-2.36/-1.78	-1.75/-3.92	-7.94/-11.08	-8.63/-5.38
θ(37.5°)	-5.58/-5.59	-5.21/-6.17	-8.90/-9.51	-12.79/-15.45	-17.06/-13.24	-9.34/-6.74	-5.47/-4.52	-3.98/-3.17	-2.74/-1.94	-1.33/-1.53	-1.23/-1.54	-1.36/-1.59	-3.82/-4.82	-3.40/-4.82	-6.54/-5.23	-2.41/-1.80	-0.68/-0.09	-0.36/-0.61	0.03/-0.13	-0.81/-1.70	-2.25/-1.57	-0.28/-0.37	-1.12/-3.77	-8.36/-6.78
θ(45°)	-2.32/-2.65	-4.34/-6.27	-7.22/-5.97	-1.15/-8.76	-7.28/-4.10	-1.92/-0.99	-0.36/-0.60	-1.75/-2.99	-2.77/-1.73	-1.29/-1.81	-2.08/-1.46	-2.13/-2.29	-1.73/-2.17	-3.10/-4.73	-5.76/-2.02	-0.20/-0.13	-0.44/-0.12	0.78/-0.66	2.86/-3.44	3.53/-8.77	1.19/-0.50	1.03/-2.39	2.35/-0.70	-1.48/-2.50
θ(52.5°)	1.31/-0.01	-2.96/-3.19	-1.03/-0.12	-0.67/-2.12	-3.08/-2.90	-1.75/-0.31	0.67/-0.93	0.52/-0.25	-0.91/-1.09	-1.35/-1.82	-1.17/-0.47	-0.09/-0.34	-0.46/-2.29	-4.94/-5.34	-1.48/-0.58	-0.39/-0.88	-1.34/-0.40	1.17/-1.68	2.25/-2.92	3.64/-3.16	2.33/-0.79	0.28/-1.25	2.37/-1.81	0.76/-1.57
θ(60°)	4.06/-1.53	-2.69/-2.46	-0.59/-2.07	-1.30/-2.55	-3.66/-4.12	-3.27/-2.15	-1.44/-0.73	0.27/-0.68	0.18/-0.96	-2.88/-4.44	-2.45/-0.98	-0.06/-0.85	-0.31/-1.41	-3.27/-4.57	-0.81/-1.10	0.72/-1.47	-3.31/-3.36	0.79/-1.60	1.72/-2.47	2.87/-6.33	4.05/-2.13	-0.67/-2.04	-0.36/-0.92	2.52/-3.98
θ(67.5°)	3.98/-1.11	-4.26/-6.37	-3.94/-1.90	-2.80/-4.45	-6.21/-6.34	-5.85/-4.57	-5.29/-3.13	-1.28/-1.02	-2.17/-3.90	-3.18/-2.48	-0.95/-0.70	-7.07/-0.42	-0.24/-2.58	-8.86/-3.37	-0.11/-0.06	-2.30/-2.74	-5.89/-1.16	1.81/-2.59	3.12/-2.79	1.95/-0.31	3.03/-2.38	1.90/-0.85	2.02/-0.08	1.18/-3.91
θ(75°)	3.89/-2.66	-1.96/-6.81	-5.89/-3.39	-3.09/-3.23	-2.56/-2.06	-1.58/-1.61	-2.40/-4.20	-5.67/-5.43	-4.00/-3.63	-4.43/-4.56	-2.37/-2.10	-3.06/-1.00	-0.59/-4.39	-5.41/-1.78	-0.25/-1.44	-3.31/-8.29	-10.62/-2.54	0.22/-1.10	2.19/-1.20	0.74/-0.03	-0.68/-0.30	-0.49/-1.90	2.44/-1.14	-0.58/-2.66
θ(82.5°)	2.98/-0.37	2.09/-1.32	1.06/-0.23	-3.56/-3.62	-1.55/-0.27	0.62/-0.10	-1.20/-0.37	-5.72/-4.85	-1.67/-5.96	-4.76/-2.81	-1.82/-3.31	-2.95/-2.06	-1.62/-6.84	-10.81/-6.21	-0.48/-1.70	-3.58/-10.50	-8.99/-3.11	-0.37/-0.91	0.14/-1.38	2.02/-1.84	0.10/-1.88	0.64/-1.72	0.77/-1.46	0.11/-1.19
θ(90°)	0.14/-2.12	2.98/-2.42	1.44/-1.77	-6.82/-4.02	-0.54/-1.10	0.43/-0.23	-1.85/-3.36	-4.99/-4.66	-8.76/-11.05	-6.50/-8.81	-7.32/-6.44	-5.79/-3.99	-5.80/-8.57	-5.49/-2.73	-4.38/-3.45	-5.15/-11.84	-4.74/-1.91	0.07/-0.15	-0.19/-0.29	-2.32/-3.83	-2.26/-0.94	-3.26/-2.94	-3.70/-1.42	
θ(97.5°)	-6.88/-2.32	0.17/-2.19	-7.01/-4.55	-5.22/-5.17	-3.25/-0.94	-1.69/-2.53	-3.86/-7.06	-7.95/-7.39	-8.60/-10.91	-7.98/-7.29	-7.38/-7.50	-9.94/-7.82	-5.34/-8.87	-14.66/-7.40	-5.05/-6.99	-4.50/-5.00	-5.48/-5.92	-4.85/-2.07	-1.64/-0.31	-1.13/-1.94	-6.49/-1.81	0.25/-1.74	-2.36/-2.52	-3.34/-7.80
θ(105°)	-5.38/-2.75	-0.20/-1.29	-5.49/-6.07	-6.65/-4.22	-4.35/-2.15	-2.85/-6.47	-8.01/-10.35	-5.74/-4.40	-6.14/-8.03	-9.13/-10.71	-12.35/-8.75	-12.31/-15.81	-10.91/-16.57	-9.84/-7.56	-5.95/-8.61	-7.92/-8.02	-6.52/-15.15	-9.73/-10.10	-5.50/-5.04	-1.76/-3.38	-7.19/-5.99	-3.54/-2.23	0.47/-0.02	-2.31/-6.67
θ(112.5°)	-2.07/-3.80	-1.04/-0.01	-1.92/-3.25	-4.71/-2.47	-3.42/-4.60	-4.53/-6.16	-8.47/-7.98	-6.21/-5.31	-5.57/-9.73	-16.51/-16.75	-10.91/-10.78	-10.94/-14.59	-15.29/-14.08	-14.02/-10.58	-6.78/-8.12	-12.32/-9.78	-8.99/-8.50	-8.30/-1.39	-3.51/-2.58	0.31/-0.75	-3.04/-9.73	-7.07/-6.61	1.71/-2.85	1.30/-1.79
θ(120°)	1.24/-2.70	-4.05/-4.39	-8.40/-9.08	-2.24/-0.08	0.94/-0.08	-2.15/-3.98	-6.82/-6.30	-8.60/-10.35	-13.92/-13.11	-11.22/-13.17	-13.60/-13.11	-15.33/-10.99	-10.83/-8.92	-14.23/-10.98	-8.61/-5.55	-4.61/-6.60	-0.35/-2.55	-0.74/-1.03	3.58/-0.06	0.23/-6.45	-2.87/-3.07	-0.30/-3.16	2.37/-2.72	
θ(127.5°)	3.25/-2.00	0.64/-2.59	-3.75/-1.70	0.85/-1.95	1.71/-0.87	-0.46/-1.88	-2.78/-2.17	-2.24/-2.46	-4.06/-4.90	-5.08/-6.83	-11.05/-10.31	-10.73/-8.21	-9.33/-14.45	-12.74/-13.07	-4.00/-7.49	-11.28/-4.09	-6.70/-2.59	-3.28/-2.54	-10.81/-3.82	1.18/-2.38	-4.36/-7.04	-4.83/-5.11	0.03/-1.64	2.49/-0.05
θ																								



Antenna Pattern of 2.4G,5G

Appendix C

Θ(127.5°)	-7.86/-8.78	-5.02/-3.58	-3.68/-6.19	-6.26/-3.21	-1.42/-0.12	-0.01/-0.48	-0.98/-1.63	-2.70/-4.15	-4.14/-4.43	-5.59/-8.68	-6.12/-4.72	-6.40/-6.46	-6.94/-9.61	-5.05/-4.88	-3.61/-4.43	-6.41/-13.77	-6.42/-6.68	-2.65/-1.25	-3.80/-2.62	-0.13/-2.76	-4.17/-8.30	-6.92/-6.05	-2.86/-3.74	-6.62/-9.46
Θ(135°)	-8.90/-5.96	-6.28/-8.25	-9.97/-9.54	-7.10/-4.51	-2.33/-0.92	0.28/0.43	-0.39/-1.58	-2.42/-2.21	-2.04/-2.66	-4.63/-6.26	-6.10/-6.92	-7.02/-6.61	-7.71/-10.66	-8.07/-7.66	-8.28/-8.04	-13.46/-10.15	-9.39/-7.22	-3.68/-4.26	-6.48/-7.44	-9.43/-8.51	-3.40/-4.85	-5.48/-8.36	-5.65/-5.09	-7.66/-12.25
Θ(142.5°)	-7.17/-6.27	-6.71/-7.27	-10.33/-10.88	-6.43/-4.81	-2.49/-1.10	-0.72/-0.37	0.29/0.16	0.02/-0.67	-1.53/-2.86	-4.60/-6.83	-7.87/-7.16	-5.20/-4.95	-4.57/-7.70	-10.31/-11.05	-10.59/-7.56	-3.94/-4.77	-8.16/-6.06	-2.73/-3.63	-6.51/-6.45	-0.62/-2.03	1.50/2.27	1.19/-1.31	-6.84/-13.28	-12.56/-10.31
Θ(150°)	-9.12/-10.04	-10.34/-8.46	-6.93/-6.28	-5.97/-5.83	-5.86/-5.77	-5.57/-5.95	-6.45/-6.89	-6.02/-4.84	-4.86/-4.81	-5.08/-6.58	-6.30/-5.69	-5.89/-6.73	-10.10/-12.19	-10.35/-11.92	-9.28/-5.09	-4.21/-3.93	-2.97/-3.17	-6.89/-11.66	-10.33/-11.34	-12.62/-9.03	-3.22/-0.06	0.57/-0.78	-3.36/-5.05	-5.33/-6.70
Θ(157.5°)	-7.70/-7.21	-5.82/-4.33	-3.04/-2.39	-2.10/-2.00	-2.32/-2.88	-3.64/-4.34	-4.48/-5.01	-6.10/-7.52	-7.89/-7.83	-8.11/-9.34	-9.42/-9.70	-12.18/-14.55	-12.34/-8.33	-6.65/-4.73	-10.72/-14.24	-10.30/-6.12	-5.02/-6.21	-9.63/-13.28	-15.32/-12.29	-7.79/-4.93	-3.08/-1.33	-0.36/-0.78	-2.30/-3.71	-4.74/-6.43
Θ(165°)	-4.26/-4.30	-4.91/-5.64	-5.20/-4.13	-3.13/-2.64	-2.44/-2.54	-2.69/-2.86	-2.89/-2.70	-2.09/-1.48	-1.09/-1.06	-1.80/-3.42	-5.08/-6.51	-7.73/-9.31	-9.84/-9.34	-9.05/-10.10	-12.20/-12.07	-9.14/-6.85	-6.25/-7.02	-6.58/-9.81	-9.23/-8.01	-6.49/-5.14	-3.97/-2.72	-1.48/-0.98	-1.64/-3.03	-4.03/-4.28
Θ(172.5°)	-5.83/-4.44	-3.67/-2.78	-2.53/-2.37	-2.12/-1.78	-0.96/-0.49	-0.32/-0.34	-0.34/-0.29	-0.27/-0.45	-1.06/-2.02	-3.69/-5.90	-8.67/-10.83	-11.90/-11.11	-9.50/-8.06	-7.21/-6.74	-6.31/-5.64	-5.01/-4.59	-4.61/-4.75	-4.76/-4.41	-3.86/-3.61	-3.49/-3.44	-3.38/-3.37	-3.43/-3.60	-4.53/-6.69	-7.77/-7.19
Θ(180°)	-9.53/-9.12	-8.02/-7.26	-6.48/-6.26	-6.56/-7.19	-7.31/-7.08	-6.84/-6.53	-6.16/-6.54	-7.71/-9.30	-10.70/-11.41	-12.36/-12.54	-11.88/-10.79	-10.14/-9.81	-9.85/-10.09	-11.37/-12.84	-13.64/-13.00	-12.38/-12.32	-12.74/-13.59	-13.00/-11.69	-10.61/-9.80	-9.58/-9.29	-9.14/-8.90	-8.59/-8.85	-9.55/-10.46	-10.25/-9.75
Freq(Hz)	5.6GPol.	TotalAnt. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	0.66/0.72	0.32/0.07	-0.06/-0.38	-0.58/-0.61	-0.52/-0.57	-0.84/-0.72	-0.57/-0.77	-0.78/-0.58	-0.42/-0.31	-0.49/-0.56	-0.65/-0.77	-0.72/-0.38	0.16/0.72	0.96/0.86	0.75/1.07	1.60/1.93	2.25/2.21	2.29/2.43	2.30/2.24	2.12/2.02	1.94/2.01	1.97/1.35	1.25/1.02	1.08/0.86
Θ(7.5°)	0.02/0.54	0.77/1.22	1.47/1.38	1.53/2.40	2.80/2.67	2.16/2.06	1.46/3.97	3.03/2.89	2.62/2.51	2.46/2.40	2.16/1.73	1.09/0.83	0.89/0.88	0.58/0.18	0.00/0.23	0.51/0.64	0.65/0.45	0.27/-0.05	-0.53/-0.80	-0.90/-0.93	-0.81/-0.67	-0.79/0.81	-0.88/-0.70	-0.40/-0.02
Θ(15°)	-0.92/-0.41	0.13/0.83	1.16/0.93	1.05/1.45	1.18/0.94	0.77/0.67	0.97/1.36	1.80/1.94	2.07/2.20	2.44/2.65	2.58/2.16	1.41/0.72	0.30/-0.26	-0.69/-0.76	-0.34/0.17	0.35/0.08	-0.45/-0.65	-0.59/-0.49	-0.43/-0.40	-0.43/-0.66	-0.89/-1.22	-1.73/-2.48	-3.02/-3.02	-2.15/-1.15
Θ(22.5°)	-2.45/-2.47	-2.12/-2.24	-2.87/-2.59	-1.01/-0.57	0.10/0.72	0.78/1.37	1.68/1.63	1.35/1.63	2.23/2.51	2.53/2.35	1.99/1.31	0.81/0.53	0.43/0.22	-0.12/-0.73	-1.46/-2.08	-3.08/-4.85	-6.66/-6.75	-5.76/-4.45	-3.07/-2.05	-1.27/-2.72	-0.11/-0.01	-0.69/-2.06	-4.28/-5.73	-4.68/-2.95
Θ(30°)	-4.67/-5.17	-5.24/-5.33	-3.29/-1.33	-0.34/-0.44	2.78/3.10	3.66/4.11	4.16/3.97	3.54/3.12	2.78/1.77	0.89/1.27	2.18/2.36	2.56/2.92	2.57/1.54	-0.02/-1.84	-2.88/-4.13	-4.50/-3.18	-2.92/-3.43	-2.70/-1.81	-1.86/-2.42	-2.27/-1.68	-1.20/-0.54	-0.34/-1.41	-2.74/-3.84	-4.75/-4.91
Θ(37.5°)	-6.29/-7.33	-5.02/-2.59	-0.17/1.03	2.28/2.63	3.28/3.64	4.04/3.57	3.21/2.94	3.08/3.30	3.03/2.42	1.70/1.60	1.86/1.20	-0.02/-0.32	-0.71/-2.23	-3.62/-3.11	-2.40/-2.05	-1.44/-1.76	-1.29/-1.57	-3.70/-4.04	-1.70/-0.37	-0.51/-1.00	-0.96/-1.19	-1.12/-1.10	-3.09/-5.69	-4.60/-4.34
Θ(45°)	-3.60/-6.52	-4.57/-2.20	0.33/2.24	3.49/3.38	2.76/1.71	1.32/1.23	1.29/1.13	0.95/1.06	1.49/1.28	0.21/-1.39	-2.01/-1.87	-0.80/0.72	0.28/-2.28	-4.09/-3.15	-2.03/-1.09	-1.74/-3.48	-6.50/-4.09	-2.16/-2.67	-3.33/-1.70	0.68/1.50	0.91/1.03	1.17/0.01	-2.69/-5.80	-5.43/-4.84
Θ(52.5°)	-3.40/-5.17	-2.03/0.93	2.66/3.39	3.02/2.10	1.06/-0.31	-0.95/-0.28	-0.09/0.28	0.12/0.43	-0.76/0.61	1.53/0.93	-1.44/-3.71	-0.78/0.89	-0.60/-5.82	-5.32/-3.50	-1.53/-2.29	-5.55/-6.86	-8.96/-8.77	-3.80/-10.42	-8.21/-4.85	-3.74/-3.14	-0.71/0.83	2.11/2.09	0.94/-1.58	-3.68/-2.70
Θ(60°)	-1.45/-1.94	-1.65/0.67	2.15/2.54	1.26/0.48	-0.98/-0.02	1.31/2.09	2.39/2.10	0.77/-1.51	-2.94/-1.23	0.31/0.08	-1.66/-3.34	-1.17/-0.39	-2.50/-5.41	-5.20/-10.20	-6.41/-5.40	-2.99/-4.05	-4.60/-2.93	-1.84/-1.76	-3.13/-4.00	-3.41/-2.68	-3.81/-3.00	-0.67/1.47	1.85/0.38	-0.17/-0.91
Θ(67.5°)	-0.08/0.71	0.14/-0.16	0.35/-0.22	-1.82/-1.25	-0.42/0.28	0.70/1.45	2.13/2.09	1.12/-1.04	-2.42/-1.41	-1.03/-0.73	-1.69/-6.53	-1.08/1.11	-1.42/-3.63	-5.24/-9.82	-5.53/-2.17	-3.89/-6.46	-4.89/-5.26	-0.30/0.97	0.85/-1.04	-1.98/-3.09	-2.99/-4.31	-2.63/-2.00	0.81/0.68	0.60/0.53
Θ(75°)	0.49/2.14	2.05/0.03	-2.29/-4.30	-0.83/-1.14	-1.58/0.65	-0.83/-1.14	-0.32/1.22	1.06/0.71	-2.73/-4.62	-4.53/-1.57	-1.34/-3.31	-4.11/-1.86	-2.82/-4.55	-5.06/-4.78	-5.03/-4.58	-4.07/-5.28	-3.95/-1.59	0.13/-1.46	-2.74/-3.27	-4.28/-2.53	-2.60/-4.15	-4.10/-1.08	0.99/0.92	0.08/0.55
Θ(82.5°)	-3.86/-2.31	-0.33/-1.83	-4.86/-6.63	-5.11/-2.69	-2.83/-5.07	-6.59/-5.76	-4.09/-2.73	-2.29/-2.92	-3.91/-5.35	-7.93/-5.59	-2.79/-4.44	-3.14/-1.01	-2.07/-5.78	-10.08/-10.65	-7.31/-4.48	-4.36/-3.66	-2.17/-0.83	-1.34/-4.24	-8.35/-7.57	-10.98/-12.60	-6.11/-2.46	-1.94/-1.21	-2.22/-2.90	0.33/0.07
Θ(90°)	-2.20/-7.47	-4.09/0.38	0.10/-3.56	-3.90/-1.47	-1.10/-3.74	-7.71/-9.94	-8.15/-6.43	-6.91/-10.26	-8.74/-7.47	-9.01/-5.97	-4.90/-6.25	-3.66/-3.68	-4.54/-4.00	-7.22/-8.54	-4.50/-5.95	-6.16/-4.57	-3.27/-4.77	-3.78/-1.67	-10.19/-11.53	-10.54/-7.47	-6.22/-3.18	-2.18/-3.46	-5.33/-5.04	
Θ(97.5°)	-9.65/-8.42	-2.54/0.99	1.41/-1.04	-0.38/-1.42	-0.40/-1.43	-3.02/-4.41	-5.03/-4.56	-5.08/-8.19	-1.27/-4.02	-4.21/-1.96	-11.04/-9.91	-6.82/-1.90	-3.53/-8.32	-12.48/-7.39	-6.91/-6.16	-10.53/-7.43	-9.94/-6.99	-2.80/-0.21	-0.99/-4.44	-5.78/-8.22	-11.21/-7.09	-13.77/-5.97	-0.86/-1.19	-2.74/-1.60
Θ(105°)	-4.65/-4.56	0.93/1.73	1.04/-0.11	-1.57/-0.31	0.97/0.77	0.21/-0.45	-1.27/-1.67	-4.18/-9.26	-11.10/-8.79	-9.26/-10.33	-8.43/-8.57	-5.93/-5.02	-4.91/-6.94	-9.47/-9.32	-7.35/-12.81	-7.09/-6.85	-10.17/-8.65	-3.44/-3.56	-7.79/-11.06	-10.22/-7.81	-9.57/-7.13	-9.09/-9.56	-6.38/-3.04	0.07/1.90
Θ(112.5°)	-1.97/-0.77	2.99/0.87	2.84/0.07	-1.71/-0.94	0.64/-1.46	1.58/1.85	1.95/0.24	-3.52/-5.98	-4.88/-6.68	-7.29/-6.28	-8.54/-10.88	-9.16/-5.96	-4.32/-5.59	-9.98/-8.05	-7.45/-4.59	-9.68/-10.92	-11.37/-8.62	-4.47/-6.32	-7.68/-5.85	-4.42/-8.52	-8.42/-5.13	-6.32/-4.33	-0.66/-1.15	0.85/-1.46
Θ(120°)	-2.78/0.22	3.11/4.25	4.61/3.80	2.13/0.05	-0.04/0.23	0.83/1.09	0.30/-0.64	-2.51/-4.76	-5.95/-6.65	-8.48/-12.64	-16.56/-15.08	-6.31/-8.50	-6.38/-6.11	-10.20/-16.22	-10.99/-15.67	-7.65/-4.07	-2.02/-5.15	-7.65/-8.12	-7.82/-5.12	-8.45/-6.12	-1.40/-1.08	0.99/0.92	0.08/0.55	
Θ(127.5°)	-0.27/-1.07	2.40/3.48	3.24/2.75	1.69/0.30	-0.54/-0.21	0.01/-0.24	-0.71/-2.07	-3.48/-5.41	-6.74/-4.99	-3.60/-3.96	-10.94/-9.76	-4.62/-4.13	-5.38/-5.05	-1.78/-4.26	-6.36/-4.68	-4.57/-6.79	-14.75/-6.98	-1.31/-0.93	-3.04/-0.83	1.58/-2.28	-5.67/-10.75	-4.44/-1.21	-5.68/-5.11	-1.02/1.08
Θ(135°)	0.21/-0.34	-2.42/-2.01	-0.30/0.61	1.42/1.61	1.54/-1.33	1.38/1.16	0.67/-0.60	-2.85/-4.76	-4.80/-3.63	-3.28/-3.82	-5.04/-6.96	-13.37/-10.88	-8.37/-6.90	-5.75/-8.04	-8.65/-5.44	-4.29/-4.17	-16.40/-8.42	-1.16/-1.35	-4.28/-2.39	-0.09/0.53	0.82/-2.61	-4.32/-10.84	-9.10/-7.63	-4.55/-5.06
Θ(142.5°)	-1.30/-3.32	-4.34/-3.49	-3.06/-1.82	-1.07/0.36	1.24/-1.22	0.61/0.20	-0.45/-1.40	-1.60/-1.61	-2.38/-3.77	-5.97/-6.55	-8.25/-9.66	-7.57/-6.03	-7.29/-10.04	-9.67/-8.29	-9.08/-9.57	-3.58/-2.72	-3.39/0.05	0.73/-1.00	-3.22/-3.95	-2.03/-1.49	3.34/2.68	1.21/-3.31	-9.07/-2.36	0.45/0.77
Θ(150°)	-4.12/-3.75	-2.53/-2.66	-2.91/-2.20	-1.47/-1.17	-1.25/-1.43	-1.65/-2.21	-2.91/-3.77	-5.03/-5.99	-6.44/-6.22	-5.84/-6.00	-5.38/-3.14	-2.10/-2.72	-6.85/-8.92	-8.02/-6.50	-7.58/-7.71	-9.39/-6.85	-1.58/0.38	-0.50/-2.69	-4.96/-6.25	-3.42/0.43	3.07/0.04	3.41/0.55	-5.37/-13.46	-9.51/-5.69
Θ(157.5°)	-3.06/-3.44	-3.44/-2.30	-2.15/-2.12	-1.52/-1.22	-1.54/-2.02	-2.37/-2.35	-2.74/-3.28	-3.81/-4.52	-4.43/-3.67	-3.23/-3.77	-4.99/-6.32	-7.94/-10.40	-10.78/-11.28	-8.39/-5.69	-5.68/-8.85	-15.31/-7.27	-3.46/-2.74	-3.62/-5.67	-7.69/-5.49	-2.79/-1.04	-0.19/0.57	0.07/-2.04	-4.10/-4.68	-4.91/-3.67
Θ(165°)	-6.28/-6.52	-6.46/-5.38	-4.33/-6.32	-3.01/-2.52	-2.28/-2.31	-2.66/-3.52	-4.48/-6.47	-4.31/-3.44	-2.28/-1.43	-1.46/-2.57	-4.52/-6.59	-8.19/-8.91	-9.07/-9.07	-9.94/-12.47	-16.77/-15.97	-9.73/-6.57	-5.41/-5.44	-6.25/-7.03	-6.67/-5.24	-3.16/-1.60	-0.56/0.40	0.83/0.30	-0.86/-2.17	-3.97/-5.90
Θ(172.5°)	-4.34/-3.66	-3.46/-3.38	-4.31/-5.03	-4.75/-3.88	-2.91/-2.13	-1.79/-1.12	-0.79/-0.45	-0.29/-0.19	-0.44/-1.11	-1.96/-3.20	-4.58/-6.73	-6.82/-7.63	-8.19/-8.78	-9.04/-8.87	-7.84/-6.04	-3.22/-3.38	-3.63/-3.66	-3.30/-2.74	-2.10/-1.72	-1.66/-1.78	-2.17/-2.96	-4.29/-4.92	-4.93/-4.80	
Θ(180°)	-6.49/-5.74	-5.27/-4.67	-4.42/-4.06	-3.22/-2.58	-2.46/-2.80	-3.37/-3.14	-2.90/-3.06	-3.74/-4.65	-5.75/-6.57	-7.26/-7.97	-8.76/-10.37	-11.99/-12.35	-12.17/-12.41	-12.68/-13.01	-12.67/-12.35	-13.07/-13.29	-14.12/-14.48	-14.74/-14.81	-14.19/-14.03	-13.48/-13.37</				