



Antenna Composite Gain Test Report

Equipment	Access Point
Brand Name	Extreme Networks
Model Name	AP5022
Applicant	Extreme Networks, Inc. 2121 RDU Center Drive Morrisville North Carolina United States 27560
Manufacturer	Extreme Networks Inc. 2121 RDU Center Drive Morrisville North Carolina United States 27560
Standard	KDB 662911 D03 v02
Sample Received	Oct. 15, 2025
Start Test Date	Oct. 30, 2025
Final Test Date	Oct. 31, 2025


Approved by: Jackson Tsai

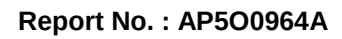
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1. Operation Mode and Antenna Information

Antenna Position	RF Port	Brand Name	Model Name	Ant. Type	Connector	Modes of Operation
2G5G Ant1	1	WNC	95XPAM15.G49	PIFA	I-Pex	2.4G + 5G Full & High
2G5G Ant2	2	WNC	95XPAM15.G50	PIFA	I-Pex	2.4G + 5G Full & High
2G5G Ant3	3	WNC	95XPAM15.G51	PIFA	I-Pex	2.4G + 5G Full & High
2G5G Ant4	4	WNC	95XPAM15.G52	PIFA	I-Pex	2.4G + 5G Full & High
5G6G Ant1	1	WNC	95XPAM15.G45	PIFA	I-Pex	5G Low & 6G High
5G6G Ant2	2	WNC	95XPAM15.G46	PIFA	I-Pex	5G Low & 6G High
5G6G Ant3	3	WNC	95XPAM15.G47	Alford loop	I-Pex	5G Low & 6G High
5G6G Ant4	4	WNC	95XPAM15.G48	Alford loop	I-Pex	5G Low & 6G High
6G Ant1	1	WNC	95XPAM15.G41	PIFA	I-Pex	6G Full & 6G Low
6G Ant2	2	WNC	95XPAM15.G42	PIFA	I-Pex	6G Full & 6G Low
6G Ant3	3	WNC	95XPAM15.G43	Alford loop	I-Pex	6G Full & 6G Low
6G Ant4	4	WNC	95XPAM15.G44	Alford loop	I-Pex	6G Full & 6G Low
SC Ant1	1	WNC	95XPAM15.G56	PIFA	I-Pex	Scan 2.4G & 5G & 6G
SC Ant2	2	WNC	95XPAM15.G57	PIFA	I-Pex	Scan 2.4G & 5G & 6G

Note:

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

2G5GAnt1~2G5GAnt2 can be used as transmitting/receiving antenna.

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

2G5GAnt1~2G5GAnt4 can be used as transmitting/receiving antenna.

5GHz and 6GHz Operation Mode (2TX/2RX)

5G6GAnt1~5G6GAnt2 can be used as transmitting/receiving antenna.

5GHz and 6GHz Operation Mode (4TX/4RX)

5G6GAnt1~5G6GAnt4 can be used as transmitting/receiving antenna.

6GHz Operation Mode (2TX/2RX)

6GAnt1~6GAnt2 can be used as transmitting/receiving antenna.

6GHz Operation Mode (4TX/4RX)

6GAnt1~6GAnt4 can be used as transmitting/receiving antenna.

2.4GHz and 5GHz and 6GHz Operation Mode (2TX/2RX) (Scan Radio)

SC Ant1~ SC Ant2 can be used as transmitting/receiving antenna.



2. Test Frequency

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

Band [MHz]	Test Frequency [MHz]
2400-2483.5	2450
5150-5250	5200
5250-5350	5300
5470-5725	5600
5725-5850	5785
5925-6425	6175
6425-6525	6475
6525-6875	6695
6875-7125	6995

3. Testing Location

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
☒ Wen 33rd.St.	ADD:	No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)		
	TEL: 886-3-318-0787		FAX: 886-3-318-0287	
Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	05CH03-HY	Vivi	23.5~24.5°C / 45~55%	30/Oct/2025~31/Oct/2025

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

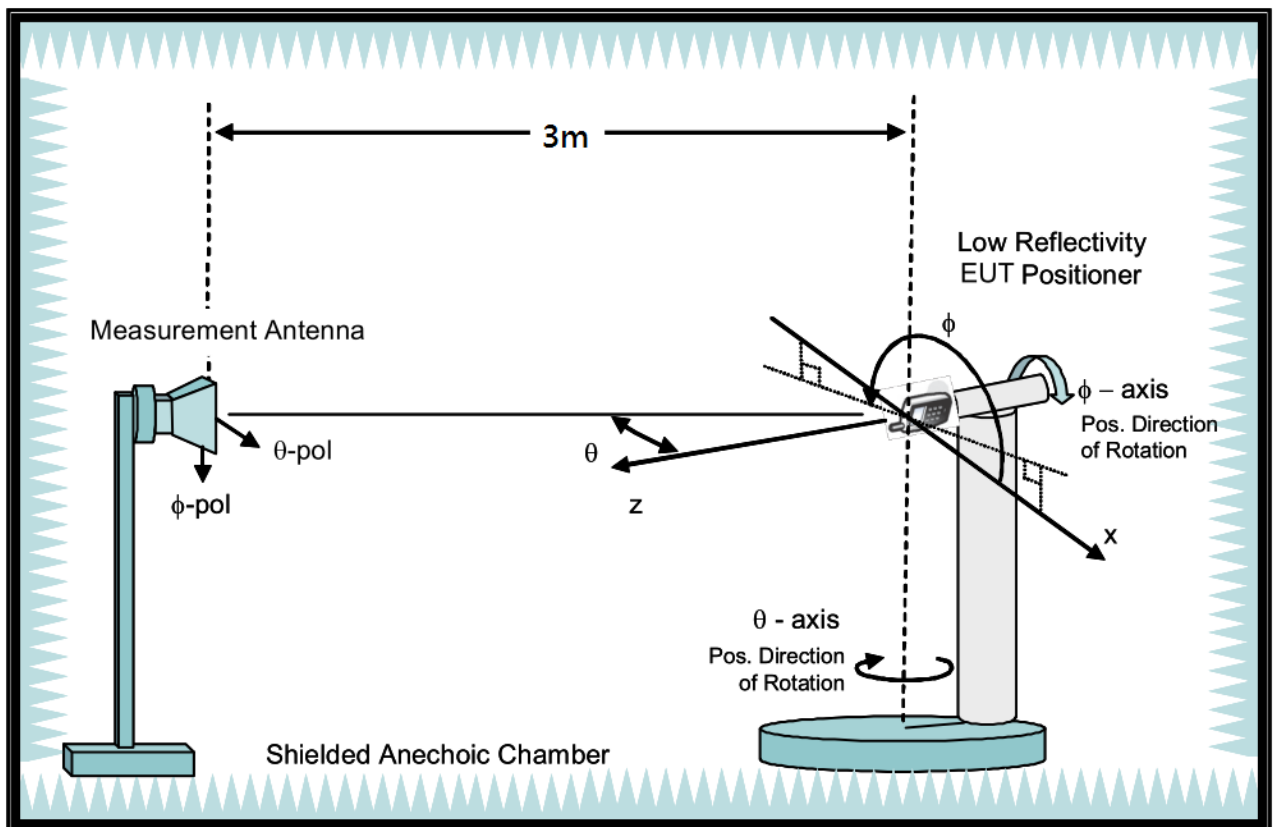
Characteristic: Fully Anechoic Chamber

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).

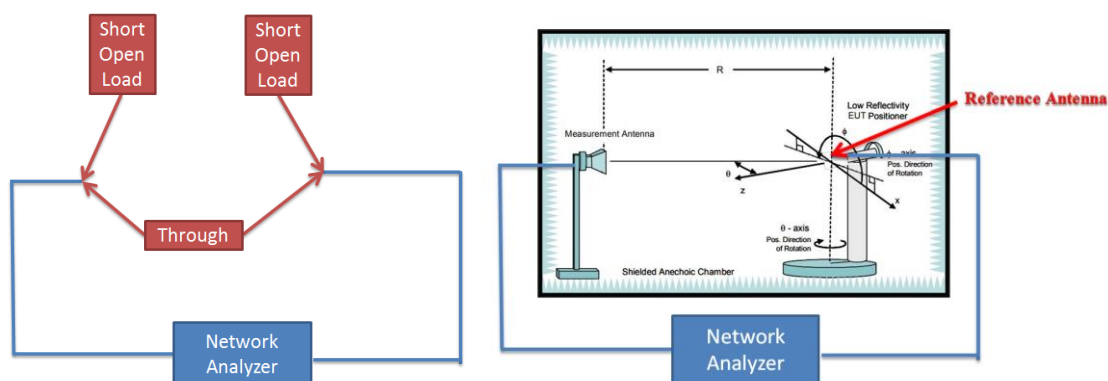
#Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1"



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	2400	2450	2500	5150	5200	5300	5600	5750	5800	5900	6000	6500	7000	7200
G(theta) reading (dB)	-33.48	-33.18	-32.45	-32.78	-32.43	-32.85	-32.74	-32.13	-32.46	-33.46	-32.73	-33.41	-34.78	-35.31
G(phi) reading (dB)	-33.45	-32.13	-32.74	-32.43	-32.87	-31.78	-32.46	-32.37	-32.73	-32.87	-32.46	-33.68	-34.74	-35.08
Reference gain (dBi)	10.4	10.5	10.2	11.4	11.5	11.9	12.5	11.8	11.7	11.6	11.8	11.5	11.4	10.8
Factor(theta) (dB)	43.88	43.68	42.65	44.18	43.93	44.75	45.24	43.93	44.16	45.06	44.53	44.91	46.18	46.11
Factor(phi) (dB)	43.85	42.63	42.94	43.83	44.37	43.68	44.96	44.17	44.43	44.47	44.26	45.18	46.14	45.88

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

2G5G Ant1~2

DG_1SS max value position

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 (dBi)	0.92	5.74	3.32	2.14	4.13
Ant. 2 (dBi)	3.45	1.59	5.63	6.18	2.68
DG [1SS] (dBi)	5.29	6.92	7.56	7.4	6.45
Polarization	Theta	Theta	Theta	Theta	Theta
$\Theta(^{\circ})$	60	60	75	60	52.5
$\Phi(^{\circ})$	187.5	15	262.5	105	30

Note: The DG 1SS max value position is the maximum value of section 12 table DG 1SS Result.

DG_1SS max value position calculation

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 [$10^{(G/20)}$]	$10^{(0.92/20)}$	$10^{(5.74/20)}$	$10^{(3.32/20)}$	$10^{(2.14/20)}$	$10^{(4.13/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(3.45/20)}$	$10^{(1.59/20)}$	$10^{(5.63/20)}$	$10^{(6.18/20)}$	$10^{(2.68/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.112	1.936	1.466	1.279	1.609
Ant. 2 [$10^{(G/20)}$] value	1.488	1.201	1.912	2.037	1.361
Sum All Antenna [Amax]	2.599	3.137	3.378	3.316	2.97
DG [$10 \cdot \log(A_{\max}^2/N_{\text{ant}})$]	5.29	6.92	7.56	7.4	6.45

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

2G5G Ant1~4

DG_1SS max value position

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 (dBi)	2.15	1.03	2.4	1.43	-0.64
Ant. 2 (dBi)	1.52	3.22	3.73	3.72	4.14
Ant. 3 (dBi)	-0.29	6.63	6.08	5.7	5.95
Ant. 4 (dBi)	-0.46	5.44	4.69	3.85	1.74
DG [1SS] (dBi)	6.82	10.36	10.35	9.83	9.17
Polarization	Theta	Theta	Theta	Theta	Theta
$\Theta(^{\circ})$	52.5	60	60	52.5	60
$\Phi(^{\circ})$	7.5	60	60	60	67.5

Note: The DG 1SS max value position is the maximum value of section 12 table DG 1SS Result.

DG_1SS max value position calculation

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 [$10^{(G/20)}$]	$10^{(2.15/20)}$	$10^{(1.03/20)}$	$10^{(2.4/20)}$	$10^{(1.43/20)}$	$10^{(-0.64/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(1.52/20)}$	$10^{(3.22/20)}$	$10^{(3.73/20)}$	$10^{(3.72/20)}$	$10^{(4.14/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(-0.29/20)}$	$10^{(6.63/20)}$	$10^{(6.08/20)}$	$10^{(5.7/20)}$	$10^{(5.95/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(-0.46/20)}$	$10^{(5.44/20)}$	$10^{(4.69/20)}$	$10^{(3.85/20)}$	$10^{(1.74/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.281	1.126	1.318	1.179	0.929
Ant. 2 [$10^{(G/20)}$] value	1.191	1.449	1.536	1.535	1.611
Ant. 3 [$10^{(G/20)}$] value	0.967	2.145	2.014	1.928	1.984
Ant. 4 [$10^{(G/20)}$] value	0.948	1.871	1.716	1.558	1.222
Sum All Antenna [Amax]	4.388	6.591	6.584	6.199	5.745
DG [$10 \cdot \log(A_{\max}^2/N_{\text{ant}})$]	6.82	10.36	10.35	9.83	9.17

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

5G6G Ant1~2
DG_1SS max value position

Frequency (Hz)	5.2G	5.3G	6.695G	6.995G
Ant. 1 (dBi)	4.3	5.03	5.06	4.76
Ant. 2 (dBi)	4.65	4.83	4.65	3.91
DG [1SS] (dBi)	7.49	7.94	7.87	7.36
Polarization	Theta	Theta	Theta	Theta
$\Theta(^{\circ})$	52.5	45	52.5	52.5
$\Phi(^{\circ})$	172.5	165	180	187.5

Note: The DG 1SS max value position is the maximum value of section 12 table DG 1SS Result.

DG_1SS max value position calculation

Frequency (Hz)	5.2G	5.3G	6.695G	6.995G
Ant. 1 [$10^{(G/20)}$]	$10^{(4.3/20)}$	$10^{(5.03/20)}$	$10^{(5.06/20)}$	$10^{(4.76/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(4.65/20)}$	$10^{(4.83/20)}$	$10^{(4.65/20)}$	$10^{(3.91/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.641	1.784	1.791	1.73
Ant. 2 [$10^{(G/20)}$] value	1.708	1.744	1.708	1.569
Sum All Antenna [Amax]	3.349	3.528	3.499	3.298
DG [$10 \cdot \log(A_{\max}^2/N_{\text{ant}})$]	7.49	7.94	7.87	7.36

Note:

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

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

5G6G Ant1~4

DG_1SS max value position

Frequency (Hz)	5.2G	5.3G	6.695G	6.995G
Ant. 1 (dBi)	1.03	5.03	5.06	4.76
Ant. 2 (dBi)	-9.77	4.83	4.65	3.91
Ant. 3 (dBi)	3.19	-16.84	-11.64	-11.64
Ant. 4 (dBi)	-0.39	-16.41	-18.15	-11.86
DG [1SS] (dBi)	5.69	5.63	5.77	5.61
Polarization	Phi	Theta	Theta	Theta
$\Theta(^{\circ})$	37.5	45	52.5	52.5
$\Phi(^{\circ})$	217.5	165	180	187.5

Note: The DG 1SS max value position is the maximum value of section 12 table DG 1SS Result.

DG_1SS max value position calculation

Frequency (Hz)	5.2G	5.3G	6.695G	6.995G
Ant. 1 [$10^{(G/20)}$]	$10^{(1.03/20)}$	$10^{(5.03/20)}$	$10^{(5.06/20)}$	$10^{(4.76/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(-9.77/20)}$	$10^{(4.83/20)}$	$10^{(4.65/20)}$	$10^{(3.91/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(3.19/20)}$	$10^{(-16.84/20)}$	$10^{(-11.64/20)}$	$10^{(-11.64/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(-0.39/20)}$	$10^{(-16.41/20)}$	$10^{(-18.15/20)}$	$10^{(-11.86/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.126	1.784	1.791	1.73
Ant. 2 [$10^{(G/20)}$] value	0.325	1.744	1.708	1.569
Ant. 3 [$10^{(G/20)}$] value	1.444	0.144	0.262	0.262
Ant. 4 [$10^{(G/20)}$] value	0.956	0.151	0.124	0.255
Sum All Antenna [Amax]	3.85	3.823	3.884	3.815
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	5.69	5.63	5.77	5.61

Note:

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

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

6G Ant1~2

DG_1SS max value position

Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 (dBi)	3.37	0.59	1.59	4.26
Ant. 2 (dBi)	4.29	5.07	5.06	1.09
DG [1SS] (dBi)	6.85	6.13	6.51	5.83
Polarization	Theta	Theta	Theta	Theta
$\Theta(^{\circ})$	75	60	60	67.5
$\Phi(^{\circ})$	180	45	52.5	150

Note: The DG 1SS max value position is the maximum value of section 12 table DG 1SS Result.

DG_1SS max value position calculation

Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 [$10^{(G/20)}$]	$10^{(3.37/20)}$	$10^{(0.59/20)}$	$10^{(1.59/20)}$	$10^{(4.26/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(4.29/20)}$	$10^{(5.07/20)}$	$10^{(5.06/20)}$	$10^{(1.09/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.474	1.07	1.201	1.633
Ant. 2 [$10^{(G/20)}$] value	1.639	1.793	1.791	1.134
Sum All Antenna [Amax]	3.113	2.863	2.991	2.767
DG [$10 \cdot \log(A_{\max}^2/N_{\text{ant}})$]	6.85	6.13	6.51	5.83

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

6G Ant1~4

DG_1SS max value position

Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 (dBi)	-5.59	-5.93	-4.8	-3.62
Ant. 2 (dBi)	-2.4	-5.11	-8.01	-7.27
Ant. 3 (dBi)	3.31	5.01	3.58	2.79
Ant. 4 (dBi)	1.6	3.71	2.34	3.78
DG [1SS] (dBi)	5.91	6.8	5.56	6.06
Polarization	Phi	Phi	Phi	Phi
$\Theta(^{\circ})$	60	75	82.5	75
$\Phi(^{\circ})$	45	97.5	285	67.5

Note: The DG 1SS max value position is the maximum value of section 12 table DG 1SS Result.

DG_1SS max value position calculation

Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 [$10^{(G/20)}$]	$10^{(-5.59/20)}$	$10^{(-5.93/20)}$	$10^{(-4.8/20)}$	$10^{(-3.62/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(-2.4/20)}$	$10^{(-5.11/20)}$	$10^{(-8.01/20)}$	$10^{(-7.27/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(3.31/20)}$	$10^{(5.01/20)}$	$10^{(3.58/20)}$	$10^{(2.79/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(1.6/20)}$	$10^{(3.71/20)}$	$10^{(2.34/20)}$	$10^{(3.78/20)}$
Ant. 1 [$10^{(G/20)}$] value	0.525	0.505	0.575	0.659
Ant. 2 [$10^{(G/20)}$] value	0.759	0.555	0.398	0.433
Ant. 3 [$10^{(G/20)}$] value	1.464	1.78	1.51	1.379
Ant. 4 [$10^{(G/20)}$] value	1.202	1.533	1.309	1.545
Sum All Antenna [Amax]	3.95	4.374	3.792	4.016
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	5.91	6.8	5.56	6.06

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



SC Ant1~2

DG_1SS max value position

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 1 (dBi)	2.7	3.54	3.15	3.65	2.58	2.17	1.01	2	-1.6
Ant. 2 (dBi)	-1.28	3.68	3.57	4.3	2.06	3.91	4.58	5.14	5.24
DG [1SS] (dBi)	3.95	6.62	6.37	6.99	5.33	6.09	5.99	6.72	5.49
Polarization	Theta	Phi	Phi	Phi	Phi	Phi	Phi	Theta	Theta
$\Theta(^{\circ})$	30	22.5	22.5	30	30	0	15	75	67.5
$\Phi(^{\circ})$	45	292.5	285	292.5	285	285	82.5	22.5	337.5

Note: The DG 1SS max value position is the maximum value of section 12 table DG 1SS Result.

DG_1SS max value position calculation

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 1 [$10^{(G/20)}$]	$10^{(2.7/20)}$	$10^{(3.54/20)}$	$10^{(3.15/20)}$	$10^{(3.65/20)}$	$10^{(2.58/20)}$	$10^{(2.17/20)}$	$10^{(1.01/20)}$	$10^{(2/20)}$	$10^{(-1.6/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(-1.28/20)}$	$10^{(3.68/20)}$	$10^{(3.57/20)}$	$10^{(4.3/20)}$	$10^{(2.06/20)}$	$10^{(3.91/20)}$	$10^{(4.58/20)}$	$10^{(5.14/20)}$	$10^{(5.24/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.365	1.503	1.437	1.522	1.346	1.284	1.123	1.259	0.832
Ant. 2 [$10^{(G/20)}$] value	0.863	1.528	1.508	1.641	1.268	1.569	1.694	1.807	1.828
Sum All Antenna [Amax]	2.228	3.031	2.945	3.163	2.614	2.852	2.818	3.066	2.66
DG [$10 \cdot \log(A_{\max}^2 / N_{\text{ant}})$]	3.95	6.62	6.37	6.99	5.33	6.09	5.99	6.72	5.49

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

8. Summary of Test Result

2G5G Ant1~2

Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.15	5.74	5.77	5.3	4.82
Ant. 2 Max Gain (dBi)	3.45	5.99	6.45	6.41	6.34
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/52.5/7.5	Theta/60/15	Theta/60/15	Theta/60/7.5	Theta/52.5/7.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/187.5	Theta/67.5/97.5	Theta/82.5/255	Theta/60/187.5	Theta/67.5/195
Max Gain (dBi)	3.45	5.99	6.45	6.41	6.34
DG [1SS] (dBi)	5.29	6.92	7.56	7.4	6.45
DG [2SS] (dBi)	3.45	5.99	6.45	6.41	6.34

2G5G Ant1~4

Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.15	5.74	5.77	5.3	4.82
Ant. 2 Max Gain (dBi)	3.45	5.99	6.45	6.41	6.34
Ant. 3 Max Gain (dBi)	2.18	6.63	6.66	6.27	5.95
Ant. 4 Max Gain (dBi)	2.63	6.04	5.63	4.26	2.27
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/52.5/7.5	Theta/60/15	Theta/60/15	Theta/60/7.5	Theta/52.5/7.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/187.5	Theta/67.5/97.5	Theta/82.5/255	Theta/60/187.5	Theta/67.5/195
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/52.5/300	Theta/60/60	Theta/67.5/75	Theta/60/202.5	Theta/60/67.5
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/127.5	Theta/67.5/60	Theta/75/307.5	Theta/67.5/255	Theta/37.5/210
Max Gain (dBi)	3.45	6.63	6.66	6.41	6.34
DG [1SS] (dBi)	6.82	10.36	10.35	9.83	9.17
DG [2SS] (dBi)	3.82	7.36	7.35	6.83	6.34
DG [4SS] (dBi)	3.45	6.63	6.66	6.41	6.34

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. If directional gain is less than max gain, use max gain as directional gain. Refer to KDB662911D01 (F) (2) (e) (ii)
4. Directional Gain (2SS) = Directional Gain (1SS) – 3dB
5. Directional Gain (4SS) = Directional Gain (1SS) – 6dB

**5G6G Ant1~2**

Freq(Hz)	5.2G	5.3G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	4.93	5.19	5.06	4.82
Ant. 2 Max Gain (dBi)	4.65	5.24	4.77	4.35
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/172.5	Theta/52.5/172.5	Theta/52.5/180	Theta/60/142.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/52.5/172.5	Theta/45/172.5	Theta/60/172.5	Theta/45/187.5
Max Gain (dBi)	4.93	5.24	5.06	4.82
DG [1SS] (dBi)	7.49	7.94	7.87	7.36
DG [2SS] (dBi)	4.93	5.24	5.06	4.82

5G6G Ant1~4

Freq(Hz)	5.2G	5.3G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	4.93	5.19	5.06	4.82
Ant. 2 Max Gain (dBi)	4.65	5.24	4.77	4.35
Ant. 3 Max Gain (dBi)	4.82	5.08	2.58	3.71
Ant. 4 Max Gain (dBi)	2.81	2.66	2.57	2.5
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/172.5	Theta/52.5/172.5	Theta/52.5/180	Theta/60/142.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/52.5/172.5	Theta/45/172.5	Theta/60/172.5	Theta/45/187.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/60/15	Phi/52.5/7.5	Phi/75/7.5	Phi/60/135
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/52.5/75	Phi/60/75	Phi/75/7.5	Phi/67.5/217.5
Max Gain (dBi)	4.93	5.24	5.06	4.82
DG [1SS] (dBi)	5.69	5.63	5.77	5.61
DG [2SS] (dBi)	4.93	5.24	5.06	4.82
DG [4SS] (dBi)	4.93	5.24	5.06	4.82

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. If directional gain is less than max gain, use max gain as directional gain. Refer to KDB662911D01 (F) (2) (e) (ii)
4. Directional Gain (2SS) = Directional Gain (1SS) – 3dB
5. Directional Gain (4SS) = Directional Gain (1SS) – 6dB

**6G Ant1~2**

Freq(Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	4.97	3.84	4.55	4.79
Ant. 2 Max Gain (dBi)	5.69	5.41	5.56	5.02
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/165	Theta/60/150	Theta/52.5/150	Theta/60/172.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/67.5/15	Theta/52.5/60	Theta/52.5/60	Theta/52.5/67.5
Max Gain (dBi)	5.69	5.41	5.56	5.02
DG [1SS] (dBi)	6.85	6.13	6.51	5.83
DG [2SS] (dBi)	5.69	5.41	5.56	5.02

6G Ant1~4

Freq(Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	4.97	3.84	4.55	4.79
Ant. 2 Max Gain (dBi)	5.69	5.41	5.56	5.02
Ant. 3 Max Gain (dBi)	4.2	5.01	3.8	5.01
Ant. 4 Max Gain (dBi)	3.94	4.32	3.2	4.54
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/165	Theta/60/150	Theta/52.5/150	Theta/60/172.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/67.5/15	Theta/52.5/60	Theta/52.5/60	Theta/52.5/67.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/60/60	Phi/75/97.5	Phi/75/285	Phi/82.5/232.5
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/82.5/277.5	Phi/60/352.5	Phi/67.5/352.5	Phi/37.5/217.5
Max Gain (dBi)	5.69	5.41	5.56	5.02
DG [1SS] (dBi)	5.91	6.8	5.56	6.06
DG [2SS] (dBi)	5.69	5.41	5.56	5.02
DG [4SS] (dBi)	5.69	5.41	5.56	5.02

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. If directional gain is less than max gain, use max gain as directional gain. Refer to KDB662911D01 (F) (2) (e) (ii)
4. Directional Gain (2SS) = Directional Gain (1SS) – 3dB
5. Directional Gain (4SS) = Directional Gain (1SS) – 6dB

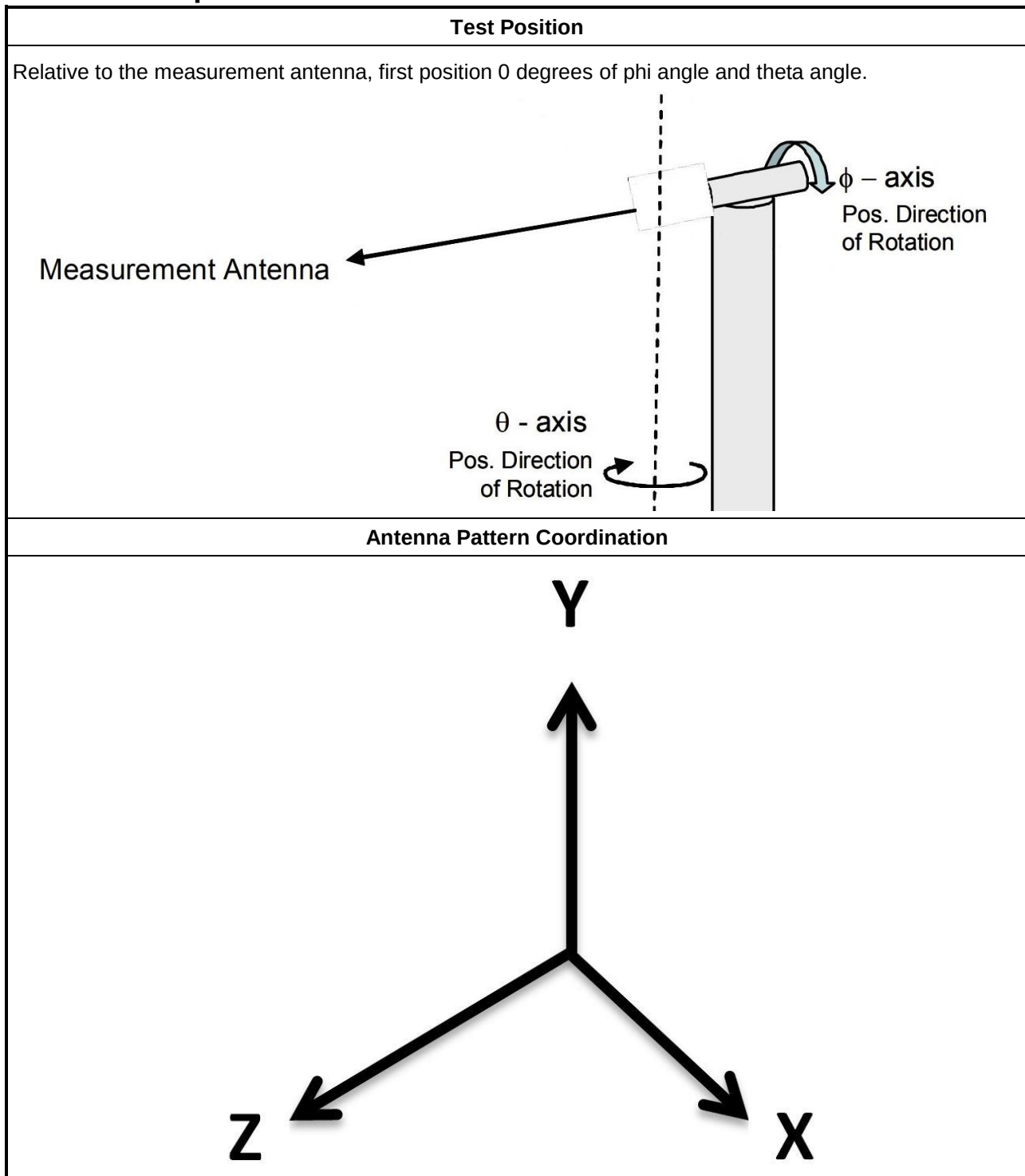
SC Ant1~2

Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	3.1	3.54	3.26	3.65	2.58	3.03	3.21	3.62	3.22
Ant. 2 Max Gain (dBi)	2.91	4.08	3.88	4.3	4.67	6.04	5.01	5.64	5.24
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/22.5/22.5	Phi/22.5/292.5	Phi/22.5/292.5	Phi/30/292.5	Phi/30/285	Phi/37.5/285	Phi/0/292.5	Theta/67.5/202.5	Theta/67.5/202.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/37.5/255	Phi/30/90	Theta/7.5/7.5	Phi/30/292.5	Theta/52.5/75	Theta/52.5/67.5	Theta/75/22.5	Theta/52.5/60	Theta/67.5/337.5
Max Gain (dBi)	3.1	4.08	3.88	4.3	4.67	6.04	5.01	5.64	5.24
DG [1SS] (dBi)	3.95	6.62	6.37	6.99	5.33	6.09	5.99	6.72	5.49
DG [2SS] (dBi)	3.1	4.08	3.88	4.3	4.67	6.04	5.01	5.64	5.24

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. If directional gain is less than max gain, use max gain as directional gain. Refer to KDB662911D01 (F) (2) (e) (ii)
4. Directional Gain (2SS) = Directional Gain (1SS) – 3dB
5. Directional Gain (4SS) = Directional Gain (1SS) – 6dB

9. Test Setup



Note:

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

**10. Test Equipment and Calibration Data**

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1531	1GHz~18GHz	Dec. 20, 2024	Dec. 19, 2025
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	Aug. 06, 2025	Aug. 05, 2026
VNA Calibration Kit	TS RF	TS85033E-F	-	DC~9GHz	N.C.R.	N.C.R.
Multi-axis positioner	Sporton	MAPS01	MAPS01-001	Theta / Phi axis	N.C.R.	N.C.R.
Test Software	SPORTON	SENSE-RDG	V1.0.8	-	N.C.R.	N.C.R.

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

NCR means Non-Calibration required.



11. Test Results

Please refer to the appendix.

Appendix A – Radiated Composite Gain of 2.4GHz/5GHz/6GHz/SC.....	Page 23
Appendix B – Antenna Pattern of 2.4GHz/5GHz/6GHz/SC.....	Page 84
Appendix C – Test Photos	Page 109

————THE END————



Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.15	5.74	5.77	5.3	4.82
Ant. 2 Max Gain (dBi)	3.45	5.99	6.45	6.41	6.34
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/52.5/7.5	Theta/60/15	Theta/60/15	Theta/60/7.5	Theta/52.5/7.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/187.5	Theta/67.5/97.5	Theta/82.5/255	Theta/60/187.5	Theta/67.5/195
Max Gain (dBi)	3.45	5.99	6.45	6.41	6.34
DG [1SS] (dBi)	5.29	6.92	7.56	7.4	6.45
DG [2SS] (dBi)	3.45	5.99	6.45	6.41	6.34



Radiated Composite Gain Data of 2.4GHz/5GHz 2G5G Ant1~2

Appendix A.1

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°)	-1.98/-1.51	-1.13/-0.9	-0.83/-0.97	-1.09/-0.91	-0.83/-1.16	-1.64/-1.99	-1.97/-1.89	-2.21/-3.05	-4.44/-6.16	-8.04/-8.16	-7.28/-5.5	-4.2/-3.14	-2.29/-1.67	-1.36/-1.31	-1.38/-1.44	-1.43/-1.41	-1.49/-1.77	-2.2/-2.36	-2.62/-3.09	-3.88/-4.77	-5.59/-6.44	-7.6/-7.07	-6.25/-4.83	-3.59/-2.65
Θ(7.5°)	-2.01/-1.77	-1.85/-2.19	-2.64/-2.77	-2.63/-2.5	-2.22/-1.63	-1.39/-1.36	-1.22/-1	-0.85/-1.12	-2.24/-3.52	-5.34/-7.38	-7.45/-6.5	-5.16/-4.11	-3.33/-2.76	-2.42/-2.32	-1.99/-1.8	-1.64/-1.58	-1.57/-1.94	-2.48/-2.97	-3.45/-4.22	-5.52/-7.18	-8.91/-9.25	-8.34/-6.29	-4.93/-4	-3.22/-2.53
Θ(15°)	-2.56/-2.61	-3.25/-4.19	-4.9/-4.8	-4.25/-3.64	-3.15/-2.7	-2.46/-2.37	-2.11/-1.47	-0.79/-0.59	-1.25/-2.56	-4.1/-5.68	-6.89/-6.64	-5.84/-5.51	-5.53/-4.54	-4.07/-4.02	-3.63/-3.5	-3.31/-2.77	-2.47/-2.47	-2.53/-2.83	-3.3/-4.09	-5.42/-7.36	-9.61/-10.05	-8.1/-6.07	-4.76/-4.06	-3.54/-2.96
Θ(22.5°)	-3.43/-3.38	-4/-4.6	-4.36/-3.78	-3.42/-3.4	-3.55/-3.79	-4.05/-4.7	-4.02/-3.19	-2.08/-1.51	-1.85/-3.02	-4.44/-3.54	-5.79/-5.61	-6.74/-6.55	-6.82/-6.51	-5.2/-5.71	-6.69/-5.84	-5.01/-3.9	-2.91/-2.33	-2.25/-2.47	-2.73/-3.55	-5.15/-7.46	-9.67/-10.42	-9.69/-7.98	-6.51/-5.4	-4.76/-4.06
Θ(30°)	-4.12/-3.62	-3.73/-3.77	-3.23/-2.55	-2.23/-2.51	-3.32/-4.59	-6.24/-7.38	-7.14/-6.85	-4.54/-3.72	-3.43/-3.76	-4.64/-5.29	-5.16/-4.67	-4.68/-5.59	-6.24/-5.72	-5.45/-5.88	-6.71/-5.95	-3.36/-1.75	-0.99/-1.02	-1.87/-2.77	-3.27/-4.07	-5.87/-6.29	-10.19/-9.55	-8.57/-7.24	-6.79/-6.24	-5.7/-5
Θ(37.5°)	-3.96/-3.62	-3.25/-2.89	-2.34/-1.71	-1.45/-1.81	-2.92/-5.11	-8.61/-10.01	-9.8/-7.31	-5.81/-5.25	-5.02/-4.52	-4.38/-5.01	-5.15/-4.27	-3.93/-4.84	-5.79/-5.3	-4.42/-4.2	-4.21/-2.78	-0.86/-0.07	0.08/-0.7	-2.12/-3.72	-4.38/-5.26	-6.77/-7.93	-8.65/-8.22	-5.59/-4.41	-4.76/-5.29	-4.57/-4.1
Θ(45°)	-3.35/-3.6	-3.15/-2.78	-2.43/-1.74	-1.15/-1.21	-2.24/-4.75	-9.06/-11.02	-9.15/-4.62	-4.95/-4.47	-4.06/-3.7	-3.54/-4.34	-4.65/-3.66	-3.22/-4.02	-4.93/-4.33	-3.16/-2.78	-2.89/-1.93	-0.40/-3	-0.09/-1.22	-2.57/-4.09	-5.5/-6.07	-5.97/-5.94	-6.3/-5.85	-3.98/-2.84	-3.13/-4.09	-3.54/-2.97
Θ(52.5°)	-3.24/-3.46	-3/-3.07	-3.28/-2.42	-1.33/-0.93	-1.62/-3.8	-7.81/-9.95	-9.09/-6.66	-4.85/-3.63	-2.62/-2.23	-2.81/-3.47	-3.8/-3.31	-3.13/-3.86	-4.5/-3.83	-2.6/-2.16	-2.29/-1.43	-0.29/-0.05	-1.09/-2.87	-4.75/-7.16	-9.93/-8.82	-5.93/-4.81	-5.63/-5.98	-4.02/-2.45	-2.42/-3.4	-3.46/-2.97
Θ(60°)	-3.56/-3.35	-2.23/-2.46	-3.46/-2.98	-1.6/-0.92	-1.37/-3.07	-6.85/-8.73	-6.3/-3.92	-1.77/-1.05	-1.55/-2.69	-4.37/-5.24	-5.42/-4.19	-3.17/-2.85	-1.3/-0.6	-1.52/-3.42	-5.87/-9.89	-14.7/-11.03	-6.25/-4.27	-5.87/-9.89	-14.7/-11.03	-6.25/-4.27	-5.28/-6.9	-5.32/-3.75	-3.06/-3.16	-3.04/-2.98
Θ(67.5°)	-3.35/-3.72	-2.03/-2.05	-3.01/-2.67	-1.56/-1.19	-1.72/-2.87	-4.86/-8.19	-11.47/-10.22	-6.95/-4.21	-1.38/-0.58	-1.59/-3.47	-5.57/-6.89	-7.53/-6.61	-5.16/-3.81	-2.96/-4.03	-6.11/-5.04	-2.51/-1.65	-2.95/-5.46	-6.36/-9.48	-15.07/-10.68	-6.23/-3.87	-4.63/-6.73	-4.56/-3.7	-4.08/-3.74	-2.45/-2.24
Θ(75°)	-2.92/-3.9	-2.65/-2.76	-3.53/-2.78	-1.64/-1.24	-1.4/-1.85	-3.22/-6.73	-11.41/-10.59	-7.5/-4.79	-1.77/-1.16	-2.89/-5.27	-6.45/-4.75	-7.39/-6.75	-4.94/-4.79	-5.3/-6.2	-6.43/-5.29	-2.96/-1.36	-4.42/-5.6	-5.87/-7.31	-11.59/-8.26	-6.3/-3.81	-3.89/-7.24	-4.96/-2.7	-3.39/-4.45	-2.88/-2.28
Θ(82.5°)	-3.07/-3.46	-2.46/-2.68	-3.41/-2.27	-1.1/-0.77	-0.91/-1.54	-3.46/-7.78	-12.47/-11.1	-7.09/-4.59	-2.34/-1.86	-3.16/-5.08	-6.15/-7.19	-7.63/-7.14	-7.47/-7.16	-6.28/-4.87	-5.83/-5.84	-3.97/-3.22	-5.57/-6.28	-5.86/-6.92	-7.78/-6.27	-6.67/-4.47	-3.68/-6.73	-6.93/-3.03	-2.42/-3.62	-2.69/-2.47
Θ(90°)	-3.45/-3.4	-2.61/-3.11	-4.14/-2.63	-1.07/-0.79	-1.16/-1.79	-3.34/-6.93	-12.87/-12.3	-8.41/-6.88	-3.24/-1.84	-3.08/-5.59	-5.79/-6.37	-7.85/-7.13	-7.24/-7.27	-6.58/-4.95	-5.98/-6.19	-4.15/-4.19	-7.17/-7.87	-6.12/-6.46	-4.81/-3.38	-5.71/-8.12	-5.71/-5.83	-6.56/-4.94	-2.73/-3.18	-2.16/-2.43
Θ(97.5°)	-3.97/-3.66	-2.72/-3.46	-5.12/-4.16	-1.96/-1.17	-1.18/-1.48	-2.96/-6.78	-12.38/-13.28	-10.86/-6.95	-2.82/-2.06	-3.88/-5.91	-4.88/-5.62	-7.32/-7.82	-8.08/-7.6	-5.83/-4.96	-5.57/-5.15	-5.58/-6.47	-8.82/-6.47	-5.86/-7.35	-6.3/-4.3	-4.63/-6.75	-7.23/-6.21	-4.74/-4.7	-3.92/-3.51	-1.94/-2.33
Θ(105°)	-4.4/-4.49	-3.02/-3.3	-4.38/-4.4	-3.07/-2.24	-2.42/-3.09	-4.78/-8.26	-12.33/-13.84	-10.62/-6.84	-3.26/-2.35	-3.69/-5.5	-5.52/-6.7	-8.86/-6.41	-7.14/-7.1	-5.95/-8.46	-8.41/-6.02	-5.69/-5.26	-7.78/-8.6	-5.51/-6.64	-5.76/-4.77	-7.17/-8.31	-6.35/-7.81	-5.76/-4.29	-3.88/-3.62	-2.2/-2.6
Θ(112.5°)	-4.38/-5.31	-3.29/-3.47	-4.46/-3.89	-2.41/-1.58	-2.05/-3.49	-6.12/-8.15	-10.11/-11.67	-11.16/-8.06	-4.34/-3.63	-4.96/-5.94	-4.77/-4.5	-4.98/-4.13	-5.24/-8.82	-11.19/-7.56	-3.99/-3.56	-5.2/-5.5	-8.77/-10.65	-8.67/-9.72	-5.35/-4.07	-7.37/-12.12	-7.45/-6.77	-6.05/-5.64	-4.54/-3.31	-1.61/-7.72
Θ(120°)	-3.81/-6.07	-4.1/-3.5	-4.6/-4.44	-3.3/-2.07	-2.44/-4.21	-7.14/-9.47	-11.72/-14.26	-11.67/-6.97	-3.74/-2.99	-2.94/-3.49	-3.79/-5.06	-6.82/-7.97	-8.38/-7.12	-5.68/-4.45	-3.87/-5.18	-8.28/-10.55	-11.62/-8.27	-7.41/-11.55	-11.16/-7.58	-6.52/-8.87	-10.92/-9.15	-6.06/-5.06	-5.52/-4.85	-2.67/-2.02
Θ(127.5°)	-4.77/-6.14	-3.83/-3.17	-3.9/-4.51	-3.5/-2.43	-2.43/-3.64	-6.83/-7.76	-10.36/-13.36	-13.86/-8.84	-5.18/-3.93	-4.19/-5.21	-5.18/-5.96	-5.87/-6.43	-3.84/-4.2	-5.83/-7.19	-8.17/-10.82	-13.36/-12.15	-9.92/-6.91	-6.05/-8.7	-11.25/-11.33	-9.3/-8.35	-11.08/-12.76	-8.42/-5.67	-4.86/-4.77	-4.22/-3.79
Θ(135°)	-6.46/-6.89	-5.02/-2.94	-2.68/-3.69	-4.21/-3.53	-3.17/-3.91	-5.86/-7.44	-8.33/-11.47	-15.71/-9.69	-5.28/-3.96	-3.54/-3.18	-2.93/-2.96	-2.94/-3.15	-4.38/-6.39	-9.74/-12.01	-13.05/-13.09	-12.06/-10.57	-9.26/-7.87	-7.26/-9.06	-11.1/-12.54	-13.92/-12.69	-12.05/-13.26	-11.52/-7.94	-5.55/-4.21	-4/-4.9
Θ(142.5°)	-7.63/-9.08	-6.5/-9.5	-2.76/-2.97	-3.94/-9.8	-6.14/-8.06	-9.83/-10.21	-11.77/-15.68	-12.31/-9.47	-5.07/-4.01	-3.23/-2.74	-2.5/-2.56	-3.04/-4.5	-6.74/-9.79	-12.81/-13.72	-12.69/-12.25	-13.49/-12.57	-10.53/-9.5	-9.25/-11.36	-11.86/-12.65	-14.94/-15.65	-13.59/-11.29	-10.51/-8.47	-6.37/-4.9	-4.55/-5.19
Θ(150°)	-7.25/-9.34	-9.32/-7.55	-5.57/-5.11	-5.62/-6.65	-7.79/-8.68	-6.74/-11.55	-14.43/-15	-15.1/-11.52	-7.82/-6.16	-3.22/-2	-1.52/-1.88	-3.09/-5.43	-8.86/-12.67	-13.8/-12.87	-12.41/-11.94	-13.84/-14.7	-15.4/-12.3	-10.31/-10.37	-10.88/-10.95	-12.22/-13.83	-8.15/-6.5	-5.61/-5.14	-5.01/-5.57	
Θ(157.5°)	-4.79/-5.62	-6.48/-6.77	-6.75/-7.71	-8.79/-10.4	-12.07/-14	-13.96/-15.31	-15.62/-13.43	-10.2/-6.88	-4.38/-2.69	-1.55/-1.03	-1.23/-2.3	-4.27/-7.61	-11.09/-14.19	-12.43/-9.92	-9.04/-9.48	-11.03/-12.3	-12.2/-10.63	-9.49/-8.97	-8.78/-8.96	-9.8/-10.42	-9.28/-7.55	-6.2/-6.22	-4.61/-4.22	-4.05/-4.19
Θ(165°)	-3.13/-3.1	-3.26/-3.61	-4.33/-5.15	-5.48/-6.39	-6.82/-7.05	-7.39/-8.28	-10.11/-10.26	-7.62/-6.33	-4.05/-3.39	-2.96/-2.9	-3.39/-4.62	-6.44/-8.9	-10.25/-11.67	-10.87/-9.29	-9.1/-9.92	-10.18/-10.09	-10.09/-10.09	-9.94/-9.76	-9.71/-9.55	-8.62/-7.45	-6.52/-5.51	-4.47/-3.66	-3.32/-3.02	-3.7/-3.72
Θ(172.5°)	-2.89/-3.02	-3.31/-3.78	-4.42/-4.62	-5.07/-5.66	-5.97/-6.34	-7.11/-8.51	-10.74/-10.95	-9.72/-8.38	-1.72/-3.38	-4.04/-5.95	-6.2/-6.03	-6.48/-7.26	-7.85/-8.33	-8.51/-8.69	-9.32/-9.72	-12.21/-13.8	-14.41/-15.08	-15.24/-14.63	-15.35/-13.97	-12.62/-11.16	-10.05/-8.89	-7.47/-5.93	-4.63/-3.74	-3.17/-2.9
Θ(180°)	-3.74/-4.28	-5.13/-5.46	-5.86/-6.31	-7.3/-7.96	-8.9/-10.72	-13.54/-15.23	-14.9/-14.31	-14.58/-14.3	-12.4/-10.02	-8.44/-7.83	-7.76/-7.77	-7.63/-7.35	-7.33/-7.79	-8.77/-9.42	-10.1/-10.9	-10.48/-10	-9.51/-9.37	-10.33/-12.3	-13.27/-12.67	-12.12/-11.9	-10.27/-7.72	-6/-4.87	-4.11/-3.67	-3.47/-3.48
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°)	-3.21/-3.67	-4.32/-5.22	-6.26/-6.97	-7.22/-7.41	-7.21/-6.48	-5.48/-4.43	-3.24/-2.32	-1.88/-1.77	-1.75/-1.78	-1.47/-1.37	-1.47/-1.59	-1.93/-2.25	-2.69/-3.09	-3.41/-3.82	-4.58/-5.85	-7.61/-8.66	-8.46/-7.03	-5.49/-4.03	-2.99/-2.5	-2.25/-2.08	-1.99/-1.87	-1.8/-1.57	-1.69/-1.72	-2.39/-2.77
Θ(7.5°)	-7.41/-8.06	-8.66/-8.93	-8.01/-7.29	-6.08/-5.17	-4.83/-4.61	-4.14/-3.35	-2.34/-1.56	-1.15/-0.84	-0.45/-0.08	0.27/0.6	0.91/1.4	1.12/0.81	0.42/-0.01	-0.45/-1.04	-1.87/-2.81	-3.87/-4.96	-6.17/-7.03	-6.93/-5.95	-5.03/-4.68	-4.51/-4.37	-3.92/-3.45	-3.37/-3.58	-4.1/-4.98	-5.96/-6.85
Θ(15°)	-4.41/-3.94	-3.73/-3.47	-3.11/-2.59	-2.15/-2.17	-2.79/-3.69	-4.3/-4.04	-2.93/-1.96	-1.38/-0.9	-0.07/0.8	1.36/1.62	1.87/2.11	2.15/1.93	1.55/-1.1	0.48/-0.27	-1.02/-1.63	-2.13/-2.77	-3.72/-4.83	-5.71/-6.06	-6.15/-6.52	-7.14/-7.48	-6.91/-6.19	-5.81/-5.74	-5.83/-5.91	-5.69/-5.17
Θ(22.5°)	0/0.36	-0.30/-0.32	0.36/0.43	0.45/0.23	-0.31/-1.27	-2.54/-3.54	-3.42/-2.72	-2.11/-4.17	-0.21/1.2	1.87/2.04	1.981/1.95	1.831/1.57	1.21/0.7	-0.08/-0.94	-1.61/-1.92	-2.45/-3.14	-3.8/-4.11	-8.15/-6.66	-5.78/-6.91	-8.42/-9.11	-8.15/-6.66	-5.24/-4.73	-3.22/-2.43	-1.59/-0.74
Θ(30°)	2.37/2.77	2.75/2.61	2.51/2.34	2.141/1.97	1.871/1.54	0.75/-0.42	-1.38/-1.65	-1.66/-1.76	-1.10/36	1.59/2.05	1.851/1.33	0.83/0.67	0.77/0.61	-0.02/-0.71	-1.21/-1.91	-3.22/-4.7	-5.39/-5.85	-5.22/-4.87	-5.28/-6.69	-8.75/-9.72	-8.23/-6	-3.73/-1.99	-0.85/-0.1	0.621/1.53
Θ(37.5°)	3.63/0.47	4/3.84	3.66/3.34	2.98/2.92	3.11/3.17	2.81/91	0.74/-0.19	-0.56/-0.99	-1.34/-0.59	0.85/1.61	1.29/0.3	-0.23/0.65	1.73/2.11	1.811/3	0.47/-0.97	-3.09/-5.22	-6.32/-6.11	-4.33/-3.38	-3.44/-4.54	-6.28/-6.94	-6.38/-5.16	-2.75/-0.69	0.621/3.1	1.832/7.1
Θ(45°)	4.174/6.2	4.484/2	3.953/5.6	3.163/1.3	3.42/3.63	3.492/91	1.990/93	0.06/-0.61</																



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~2

Appendix A.1

Θ(15°)	-1.01/-1.32	-2.72/-4.12	-6.84/-11.61	-11.07/-11.03	-8.21/-5.85	-5.2/-6.05	-7.44/-10.17	-15.1/-13.33	-13.55/-13.91	-13.34/-14.09	-12.34/-8.44	-4.39/-2.13	-0.74/-0.09	1.15/-1.77	1.34/-0.31	-0.63/-1.36	-3.14/-4.75	-5.81/-8.13	-10.61/-11.65	-8.43/-4.52	-1.27/-0.47	-0.27/-0.36	-1.48/-2.09	-2.22/-1.63
Θ(22.5°)	-2.17/-3.07	-4.35/-6.05	-12.12/-13.43	-8.83/-8.36	-8.47/-5.37	-4.23/-4.92	-8.87/-5.73	-13.65/-14.32	-7.75/-5.44	-6.31/-10.74	-10.73/-9.12	-6.79/-5.05	-2.36/-1.08	0.31/-1.31	1.91/8.9	1.12/-0.47	-2.68/-5.55	-11.63/-10.4	-8.98/-9.87	-8.46/-3.98	-1.9/-0.97	-1.55/-1.34	-1.83/-1.87	-1.92/-1.23
Θ(30°)	-5.03/-5.03	-4.45/-3.93	-13.02/-12.32	-9.78/-8.99	-8.39/-7.36	-6.25/-5.38	-3.51/-1.58	-7.13/-10.36	-7.05/-4.09	-2.6/-2.01	-4.98/-5.77	-7.23/-4.85	-1.93/-1.46	-2.7/-1.99	-1.61/-1.13	-2.02/-0.84	-2.69/-4.32	-6.84/-9.89	-7.16/-11.87	-9.64/-5.51	-4.27/-3.33	-3.73/-3.47	-3.35/-1.89	-1.74/-3.2
Θ(37.5°)	-8.63/-5.45	-6.82/-10.45	-12.18/-12.87	-12.12/-9.85	-10.42/-8.23	-5.69/-5.37	-4.74/-5.56	-5.25/-5.38	-6.61/-3.3	-2.68/-1.25	-3.24/-4.04	-4.3/-4.75	-4.44/-5.99	-3.9/-3.04	-3.32/-2.27	-1.32/-1.17	-1.38/-2.28	-4.9/-7.85	-8.64/-10.4	-9.37/-7.66	-5.58/-7.26	-7.93/-6.81	-4.61/-3.49	-4.06/-5.44
Θ(45°)	-8.42/-6.54	-6.6/-7.97	-7.58/-7.74	-10.37/-7.7	-6.61/-7.4	-5.36/-5.03	-5.9/-6.08	-3.58/-5.39	-5.17/-4.62	-2.61/-2.2	-3.47/-2.82	-2.05/-5.58	-4.14/-5.44	-6.68/-3.62	-3.99/-3.18	-2.45/-1.21	-1.63/-6.75	-8.82/-13.06	-8.35/-6.72	-6.84/-7.26	-7.75/-7.58	-6.83/-6.33	-6.93/-6.02	-4.9/-5.03
Θ(52.5°)	-5.92/-7.62	-6.46/-1.27	-2.36/-3.16	-7.92/-8.05	-6.99/-5.55	-5.48/-4.13	-7.27/-5.88	-2.88/-4.44	-5.74/-5.34	-4.57/-3.57	-2.52/-3.42	-1.1/-0.65	-4.31/-5.61	-4.9/-4.24	-3.14/-2.07	-2.06/-1.02	-3.12/-10.17	-11.81/-15.34	-5.65/-5.69	-6.18/-7.87	-8.22/-4.84	-5.23/-6.11	-7.3/-7.7	-6.45/-4.1
Θ(60°)	-5.44/-3.63	-3.75/-5.7	-1.27/-1.83	-5.09/-5.24	-8.15/-6.57	-6.44/-5.29	-6.62/-7.59	-4.31/-4.61	-7.78/-6.78	-5.79/-4.54	-4.12/-0.6	-0.48/-1.23	-2.22/-1.88	-3.06/-3.69	-2.88/-2.26	-4.81/-3.02	-3.3/-8.67	-9.86/-15.08	-4.81/-6.64	-5.86/-6.7	-6.3/-3.83	-6.14/-6.24	-5.58/-7.78	-7.32/-1.61
Θ(67.5°)	-1.71/-2.3	-3.98/-3.87	-1.46/-3.15	-5.12/-3.92	-8.13/-5.92	-5.75/-5.2	-8.29/-10.71	-4.68/-5.84	-8.11/-8.05	-5.79/-4.4	-2.12/-1.8	-20/-46	-2.11/-2.08	-2.01/-1.54	0.2/-2.23	-5.81/-4.86	-5.12/-6.23	-4.43/-13.85	-7.04/-4.11	-8.3/-11.93	-9.51/-5.91	-6/-5.71	-5.51/-4.57	-4.3/-2.59
Θ(75°)	-0.99/-1.91	-3.13/-3.5	-0.92/-2.58	-3.8/-3.41	-10.33/-6.37	-6.65/-7.24	-9.58/-12.09	-5.23/-5.84	-7.88/-6.38	-8.21/-4.27	-2.61/-1.82	-1.96/-1.39	-1.88/-0.06	-3.87/-1.55	-0.19/-2.04	-6.47/-7.72	-7.97/-2.94	-1.76/-12.65	-5.58/-3.85	-11.18/-15.2	-6.37/-5.39	-4.48/-4.76	-6.02/-3.69	-2.88/-2.15
Θ(82.5°)	-0.53/-2.34	-2.65/-2.94	-1.4/-2.84	-5.72/-4.98	-12.44/-5.68	-7.65/-9.24	-10.64/-11.23	-7.91/-6.97	-7.28/-5.56	-6.4/-4.99	-1.74/-2.76	-2.63/-1.64	-2.03/-0.82	-4.13/-1.96	-0.83/-4.79	-6.95/-13.9	-8.02/-4.72	-1.31/-12.62	-7.27/-4.12	-14.28/-9.91	-3.57/-4.83	-5.7/-5.2	-6.91/-3.01	-2.54/-1.72
Θ(90°)	-0.98/-2.73	-1.96/-2.51	-2.01/-2.81	-5.94/-4.4	-9.37/-5.06	-7.88/-9.96	-10.82/-13.31	-8.66/-11.59	-6.67/-5.4	-7.13/-5.69	-2.96/-2.31	-3.15/-3.63	-3.09/-1.07	-4.57/-2.06	-0.85/-6.15	-7.04/-8.04	-13.55/-5.49	-2.55/-12.51	-6.27/-5.12	-13.67/-6.38	-3.46/-6.23	-5.37/-5.34	-7.08/-3.54	-2.37/-0.9
Θ(97.5°)	-1.45/-2.62	-1.83/-3.24	-1.73/-1.51	-7.61/-4.76	-10.33/-6.37	-4.98/-10.86	-12.92/-12.19	-9.23/-10.44	-5.9/-6	-6.33/-5.31	-2.54/-4.8	-2.46/-2.86	-7.28/-6.73	-5.85/-6.6	-2.77/-5.91	-7.13/-7.43	-12.24/-10.58	-3.87/-10.42	-8.52/-6.16	-8.42/-5.94	-6/-6.21	-5.67/-6.4	-6.17/-3.54	-1.81/-1.55
Θ(105°)	-2.45/-3.1	-2.7/-3.03	-1.68/-2.17	-9.35/-5.51	-11.03/-9.26	-10.4/-10.62	-12.67/-14.15	-10.88/-13.17	-5.64/-5.75	-6.61/-5.78	-3.03/-2.85	-6.33/-2.56	-7.15/-4.81	-5.32/-7.46	-6.79/-7.89	-6.12/-7.84	-10.83/-10.05	-7.36/-12.78	-9.94/-4.74	-10.79/-6.82	-7.56/-10.03	-6.18/-6.23	-5.86/-2.92	-1.39/-2.25
Θ(112.5°)	-3.64/-4.04	-2.98/-2.85	-2.9/-1.47	-9.94/-4.18	-9.57/-12.88	-9.8/-8.89	-13.12/-11.13	-15.77/-13.03	-7.63/-3.9	-7.8/-4.39	-4.85/-4.08	-4.86/-6.64	-7.13/-5.66	-10.25/-9.11	-9.98/-8.69	-10.63/-4.77	-14.16/-9.33	-8.86/-10.88	-11.66/-5.28	-13.37/-7.91	-9.1/-9.35	-8.23/-4.48	-4.38/-4.16	-1.41/-1.99
Θ(120°)	-5.41/-2.79	-3.66/-3.15	-3.73/-2.56	-7.38/-9.95	-8.96/-13.19	-9.43/-7.82	-13.39/-12.05	-13.39/-11.74	-10.26/-4.97	-7.83/-6.91	-6.18/-5.92	-4.83/-5.44	-10.9/-6.38	-7.91/-14.93	-11.28/-10.92	-5.82/-10.83	-8.66/-9.35	-13.76/-7.9	-9.27/-12.2	-11.38/-8.86	-7.54/-6.39	-5.74/-4.52	-4.63/-4.54	
Θ(127.5°)	-3.97/-4.12	-4.8/-3.01	-3.52/-4.63	-9.28/-14.38	-8.24/-7.48	-9.93/-10.66	-14.04/-13.21	-13.79/-10.2	-7.41/-7.37	-8.82/-5.78	-4.7/-4.14	-9.56/-5.61	-7.36/-11.87	-11.72/-10.02	-10.89/-10.74	-5.33/-6.82	-7.95/-9.36	-7.88/-9.49	-10.01/-9.28	-9.54/-10.94	-14.22/-8.7	-6.33/-8.32	-6.07/-5.98	-7.3/-5.01
Θ(135°)	-7.19/-5.08	-4.34/-3.77	-3.76/-4.67	-6.82/-6.66	-5.27/-7.48	-8.88/-11.69	-9.11/-11.47	-13.88/-8.65	-6.03/-9.15	-6.99/-8.34	-8.15/-6.99	-6.03/-7.27	-7.92/-9.85	-14.66/-7.47	-8.37/-6.9	-6.61/-11.43	-14.07/-13.74	-14.47/-7.02	-12.22/-7.48	-11.61/-12.63	-12.27/-12.89	-8.36/-7.66	-9.46/-7.85	-5.56/-4.41
Θ(142.5°)	-5.41/-4.87	-8.12/-5	-4.18/-4.21	-8.84/-10.59	-8.35/-7.53	-13.78/-8.73	-13.69/-6.03	-13.34/-9.31	-7.68/-6.42	-8.32/-7.6	-6.53/-7.28	-6.25/-6.06	-7.4/-2.32	-3.67/-7.09	-10.5/-13.81	-9.43/-8.55	-9.59/-9.8	-7.28/-6.4	-8.39/-10.83	-6.42/-8.26	-8.92/-6.38	-5.95/-7.85	-8.14/-9.77	
Θ(150°)	-5.17/-5.14	-4.77/-4.69	-5.77/-9.4	-9.57/-11.73	-11.88/-11.56	-10.57/-7.58	-8.07/-13.17	-13.26/-11.94	-6.38/-8.21	-5.08/-6.52	-10.29/-10.4	-9.21/-7.03	-2.84/-2.27	-6.8/-6.84	-10.74/-10.33	-10.27/-12.88	-14.96/-11.44	-13.13/-8.21	-5.12/-3.75	-6.26/-6.48	-5.99/-5.94	-5.22/-6.07	-7.39/-8.78	-4.84/-3.53
Θ(157.5°)	-6.97/-6.78	-4.95/-4.06	-3.91/-6.36	-8.81/-9.3	-11.28/-11.94	-13.63/-15.42	-12.22/-9.89	-10.13/-15.63	-12.5/-11.01	-8.3/-5.48	-5.02/-4.74	-11.62/-13.98	-11.73/-10.73	-9.9/-9.31	-11.55/-14.86	-15.29/-12.94	-9.75/-9.01	-8.87/-7.15	-7.65/-7.44	-8.83/-7.64	-9.81/-12.31	-10.27/-11.05	-9.32/-5.93	-3.64/-4.26
Θ(165°)	-7.04/-9.95	-10.85/-11.56	-13.6/-12.67	-10.52/-10.46	-11.6/-11.87	-13.27/-15.8	-14.9/-15.62	-13.36/-8.81	-5.05/-4.29	-3.86/-3.48	-4.39/-6.91	-10.81/-15.76	-14.84/-10.83	-9.17/-9.55	-11.18/-12.49	-10.45/-11.05	-11.86/-13.78	-13.6/-15.08	-14.33/-14.39	-15.11/-14.06	-13.83/-13.41	-14.14/-11.38	-7.51/-4.77	-5.23/-5.14
Θ(172.5°)	-7.1/-8.43	-7.41/-6.02	-6.18/-5.53	-5.14/-6.52	-7.95/-8.65	-10.3/-11.03	-12.94/-11.68	-10.76/-8.55	-6.9/-7.17	-7.17/-7.73	-10.12/-14.23	-15.47/-14.95	-12.85/-11.57	-10.9/-12.85	-14.37/-10.08	-9.74/-12.06	-8.31/-6.89	-10.79/-13.98	-12.34/-14.24	-15.56/-13.13	-12.02/-12.76	-10.56/-8.8	-7.39/-7.04	-8.25/-7.75
Θ(180°)	-8.39/-8.79	-9.89/-9.87	-10.75/-12.22	-11.71/-11.28	-11.05/-12.97	-13.47/-15.16	-15.46/-15.8	-14.76/-12.11	-11.75/-11.25	-11.53/-14.8	-15.26/-11.05	-10/-10.21	-10.64/-11.42	-12.58/-12.44	-10.46/-8.54	-8.49/-10.58	-11.35/-11.61	-13.66/-13.05	-14.17/-13.43	-12.06/-12.01	-12.94/-10.69	-9.1/-9.23	-8.17/-9.15	-9.53/-9.68
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°)	-11.03/-12.31	-12.29/-15.55	-13.94/-11.76	-10.09/-8.77	-7.78/-6.64	-5.03/-4.34	-5.02/-2.83	-2.45/-2.96	-2.18/-2.24	-2.65/-3.09	-3.33/-4.26	-5.41/-6.86	-9.28/-11.62	-11.86/-13.64	-11.77/-9.81	-7.33/-5.37	-4.2/-3.67	-3.67/-1.77	-2.03/-2.48	-1.81/-2.25	-2.58/-3.43	-3.63/-3.4	-4.44/-5.75	-6.91/-9.96
Θ(7.5°)	-13.28/-15.11	-12.79/-9.91	-9.57/-8.35	-5.92/-5.75	-5.48/-4.83	-5.5/-3.98	-4.5/-8.2	-3.92/-4.16	-4.8/-3.72	-3.73/-4.08	-3.78/-4.24	-5.45/-7.26	-9.33/-6.63	-9.18/-7.79	-6.18/-5.01	-4.1/-2.99	-1.86/-1.11	-1.06/-0.7	-0.14/-0.43	-0.85/-1.4	-2.99/-4.16	-4.77/-6.04	-8.33/-9.32	-10.97/-13.04
Θ(15°)	-5.27/-4.78	-4.71/-4.8	-4.24/-3.97	-4.09/-4.24	-5.4/-5.29	-5.03/-6.02	-4.92/-4.83	-4.37/-3.63	-3.6/-2.99	-2.34/-1.98	-1.56/-2.42	-0.88/-5.55	-6.37/-5.91	-5.34/-4	-3.85/-3.8	-4.71/-5.5	-5.62/-4.52	-3.46/-3.46	-2.63/-1.56	-1.78/-1.93	-3.91/-6.25	-7.44/-8.96	-7.33/-5.93	-5.77/-5.13
Θ(22.5°)	-0.47/0.03	-0.73/-1.75	-2.16/-2.78	-3.3/-3.11	-4.07/-4.9	-3.59/-2.92	-2.98/-1.14	-1.03/-0.45	-0.66/-1.61	-2.5/-2.83	-0.38/0.81	-0.07/-1.42	-2.74/-2.82	-2.38/-2.26	-3/-2.63	-2.15/-3.13	-4.4/-4.29	-3.67/-2.04	-1.31/-1.57	-2.24/-3.91	-4.34/-5.33	-4.78/-3.6	-1.98/-1.15	
Θ(30°)	-0.67/-0.26	0.08/-0.31	-0.78/-1.61	-1.83/-1.56	-0.35/0.98	0.98/1.08	1.87/1.65	1.66/1.52	2.49/3.53	3.42/2.75	1.71/1.69	1.29/2.1	1.66/0.82	-0.61/-2.57	-3.81/-5.22	-4.41/-2.03	-2.47/-2.78	-2.72/-2.42	-0.73/-0.04	0.71/1.59	0.79/-1.17	-2.52/-2.89	-3.5/-2.9	-1.67/-0.65
Θ(37.5°)	0/-1.72	-0.81/0.73	2.23/-2.56	2.69/-2.37	2.52/-3.1	2.29/-2.45	3.39/-2.72	3.03/-2.73	2.18/-2.7	5.45/-1.9	3.67/-2.83	3.69/-2.88	3.62/-2.95	1.56/0.14	-1.4/-3.3	-4.67/-4.08	-2.39/-0.56	-5.06/-2.51	-1.89/0.61	2.73/-23	2.88/-83	-1.32/-1.24	-1.97/-1.12	0.61/-0.08
Θ(45°)	0.46/0.95	2.01/-3.1	4.63/-0.51	4.71/-4.6	4.96/-5.7	3.37/-2.78	4.21/-4.67	4.73/-4.05	3.81/-4.04	6.36/-5.62	4.67/-4.28	3.94/-1	4.33/-4.99	3.95/-2.83	0.82/0.58	0.13/-1.77	-1.79/-1.43	3.49/-3.2	2.12/-3.9	3.77/-0.45	3.32/-0.33	0.30/-2.5	0.41/-1.5	1.99/-2.03
Θ(52.5°)	4.75/-4.73	2.57/-3.72	6.05/-6.31	5.55/-26	5.65/-6.43	5.24/-2.55	5.45/-8.1	5.44/-5.48	4.85/-4.84	6.54/-6.93	5.35/-3.7	4.71/-71	5.31/-637	4.91/-32	0.94/-1.76	2.73/-1.36	1.17/-0.04	6.04/-57	4.22/-4.5	5.03/-5.53	4.53/-24	2.34/-2.34	1.59/-1.31	3.23/-5.6
Θ(60°)	6.51/-6.48	7.29/-6.74	5.95/-6.06	8.25/-8.03	6.16/-2.2	4.49/-3.31	4.32/-5.82	6.14/-5.33	6.53/-4.1	5.74/-16	6.64/-6.54	6.06/-5.2	5.11/-6.82	6.07/-4.14	-0.14/-0.34	1.28/0.81	-0.18/-0.04	3.32/-26	2.09/-5.9	6.69/-9.9	4.43/-3.51	3.36/-0.2	4.47/-1.99	3.86/-4.7
Θ(67.5°)	7.19/-6.73	6.97/-6.46	5.97/-6.06	4.74/-3.29	5.4/-6	2.81/-0.95	3.25/-2.1	5.49/-5.01	4.28/-3.92	6.05/-6.9	6.23/-7.5	5.71/-6.22	5.34/-6.23	5.83/-2.76	-1.79/-2.62	0.32/-0.28	1.37/-1.82	4.17/-4.81	1.22/-2.7	6.43/-5.99	4.82/-6.6	4.03/-4.65	4.9	



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~2

Appendix A.1

Θ(67.5°)	-3.79/-3.88	-4/-1.4	-2.35/-1.68	-3.14/-5.04	-9.4/-8.21	-7.58/-6.06	-10.12/-13.86	-8.94/-7.34	-7.22/-6.33	-6.9/-6.94	-4.91/-3.74	-1.84/-0.3	-0.56/-1.29	-4.35/-4.32	-0.41/-0.56	-3.63/-6.15	-7.62/-7.22	-8.86/-12.58	-9.92/-14.06	-14.45/-10.07	-9.97/-7.97	-7.66/-7.09	-5.81/-7.21	-5.15/-4.39
Θ(75°)	-3.87/-4.04	-4.42/-2.01	-2.95/-2.49	-3.21/-5.28	-7.77/-6.64	-8.84/-6.56	-10.94/-15.42	-10.45/-8.92	-9.46/-6.22	-5.47/-6.35	-6.76/-4.07	-4.93/-1.2	-2.1/-1.83	-3.52/-5.42	-0.99/-0.88	-4.51/-7.47	-10.03/-5.24	-6.27/-12.04	-10.58/-8.77	-11.81/-14.12	-8.57/-8.86	-7.57/-6.63	-6.62/-7.22	-4.78/-4.01
Θ(82.5°)	-4.84/-4.17	-4.3/-2.67	-3.2/-2.86	-3.74/-4.85	-6.5/-6.08	-8.29/-7.15	-11.68/-14.76	-10.75/-9.87	-10.22/-5.54	-6.65/-6.94	-6.49/-7.02	-4.31/-3.96	-3.54/-3.87	-4.13/-6.15	-2.96/-2.06	-4.8/-12.68	-12.7/-5.11	-5.01/-13.81	-14.92/-5.91	-12.55/-11.77	-7.12/-8.39	-7.51/-6.67	-7.47/-7.62	-5.06/-3.89
Θ(90°)	-5.33/-4.41	-4.17/-2.71	-4.79/-3.75	-3.52/-6.48	-6.49/-6.4	-10.83/-8.67	-11.59/-15.46	-11.43/-10.82	-9.73/-7.06	-6.43/-10.25	-5.57/-9.31	-6.6/-5.57	-6.83/-5.44	-6.19/-9.26	-4.02/-2.6	-5.14/-11.33	-15.49/-8.03	-8.2/-15.26	-13.01/-6.71	-11.85/-13.2	-5.81/-7.09	-7.06/-7.47	-8.48/-6.59	-6.51/-4
Θ(97.5°)	-5.37/-5.24	-5.56/-4.97	-4.86/-4.97	-4.63/-8.04	-7.57/-6.02	-10.48/-11.18	-13.44/-15.3	-12.63/-9.89	-11.36/-6.22	-7.33/-9.36	-7.11/-7.25	-10.26/-6.87	-8.62/-10.35	-7.61/-10.3	-7.77/-3.89	-5.86/-14.32	-14.82/-12.13	-7.84/-15.83	-12.5/-7.27	-11.24/-10.81	-6.26/-8.42	-7.81/-8.61	-7.69/-7.43	-6.3/-5.03
Θ(105°)	-5.36/-4	-4.79/-6.68	-5.74/-6.77	-4.29/-9.15	-6.46/-6.9	-10.38/-13.49	-13.72/-14.48	-15.54/-13.66	-10.35/-8.48	-7.23/-9.06	-6.61/-9.31	-8.13/-8.54	-11.77/-11.14	-9.52/-8.31	-12.23/-6.92	-7.18/-11.33	-11.26/-15.53	-13.24/-14.55	-13.9/-10.2	-11.86/-9.74	-6.94/-9.3	-10.84/-7.6	-8.19/-7.16	-7.11/-5.34
Θ(112.5°)	-5.21/-4.37	-6.65/-6.77	-5.96/-8.02	-5.86/-10.22	-7.44/-6.5	-8.39/-15.68	-14.67/-13.8	-14.71/-13.77	-12.48/-7.49	-8.5/-8.02	-6.36/-9.22	-10.58/-8.46	-11.62/-9.58	-12.22/-11.68	-11.74/-15.52	-10.09/-8.76	-8.72/-12.31	-15.23/-12.76	-12.25/-14.28	-11.1/-12.54	-10.82/-11.75	-13.2/-8.3	-8.2/-7.36	-7.32/-6.25
Θ(120°)	-6.76/-5.04	-5.19/-7.22	-6.79/-8.58	-6.45/-11.56	-8.92/-8.04	-9/-15.62	-15.57/-12.4	-14.34/-16.04	-15.17/-8.67	-6.56/-8.95	-6.56/-8.53	-10.58/-8.62	-12.13/-13.76	-9/-11.68	-10.39/-15.57	-12.57/-7.98	-10.45/-11.21	-15.43/-14.96	-12.14/-15.28	-10.5/-15.57	-13.25/-12.49	-12.06/-9.96	-6.6/-7.77	-7.84/-7.17
Θ(127.5°)	-7.64/-5.8	-7.38/-5.79	-7.84/-9.63	-8.96/-10.29	-11.25/-10.13	-10.92/-12.5	-15.75/-14.33	-14.4/-14.53	-14.63/-10.31	-7.36/-5.99	-8.72/-7.1	-8.24/-12.24	-8.52/-11.63	-13.53/-16.03	-11.81/-15.54	-7.79/-8.17	-9.74/-11.33	-10.83/-11.3	-10.86/-15.52	-14.84/-14.8	-13.19/-11.17	-13.13/-10.21	-9.06/-7.4	-8.1/-7.58
Θ(135°)	-8.54/-7.65	-9.12/-8.71	-9.05/-11.26	-10.54/-13.11	-14.54/-10.99	-10.58/-14.34	-14.61/-13.35	-15.39/-14.96	-9.87/-10.48	-10.21/-5.87	-6.41/-9.42	-7.18/-7.72	-7.86/-13.09	-11.51/-11.67	-12.81/-15.51	-10.78/-11.95	-12.53/-15.71	-15.31/-9.19	-9.67/-15.5	-13.93/-13.52	-11.22/-12.98	-14.39/-11.73	-12.95/-8.16	-7.73/-9.49
Θ(142.5°)	-9.75/-12.98	-10.35/-9.94	-10.86/-10.38	-10.16/-8.64	-10.57/-10.94	-15.12/-14.49	-11.75/-10.87	-14.87/-13.31	-10.36/-7.5	-8.66/-10.29	-6.49/-4.87	-8.54/-9.42	-7.39/-9.59	-9.73/-11.34	-13.05/-15.66	-13.4/-13.22	-16.03/-12.45	-11.38/-13.39	-12.95/-10.44	-15.84/-11.31	-9.69/-10.37	-13.52/-9.16	-9.23/-9.1	
Θ(150°)	-9.34/-12.83	-13.21/-9.69	-8.9/-11.03	-9.39/-8.67	-9/-11.15	-11.95/-13.39	-14.17/-15.14	-15.81/-15.47	-14.77/-15.24	-9.31/-7.17	-7.68/-9.05	-8.15/-9.85	-9.7/-8.74	-8.14/-11.17	-15.69/-15.9	-11.55/-11.57	-14.44/-13.19	-10.22/-11.03	-12.36/-13.27	-15.38/-13.2	-13.28/-14.03	-12.9/-8.37	-11.74/-11.81	
Θ(157.5°)	-10.49/-13.06	-11.57/-9.36	-9.08/-10.28	-11.43/-9.8	-8.79/-9.56	-9.98/-10.84	-13.48/-14.47	-13.22/-11.18	-12.34/-14.16	-14.86/-12.37	-8.75/-6.97	-6.48/-7.5	-10.32/-11.77	-12.21/-15.24	-14.87/-13.43	-12.12/-14.02	-15.46/-12.81	-12.98/-10.96	-10/-9.88	-13.23/-14.31	-14.09/-13.5	-12.57/-11.37	-8.91/-8.36	-12.47/-11.53
Θ(165°)	-7.48/-9.19	-10.83/-11.3	-10.2/-8.28	-8.36/-10	-11.15/-10.74	-13.67/-13.88	-15.63/-14.63	-13.9/-14.93	-15.28/-15.24	-12.19/-9.5	-7.85/-7.57	-8.65/-11.25	-13.28/-13.28	-13.03/-15.9	-14.68/-12.37	-11.95/-14.04	-11.5/-10.66	-10.7/-12.05	-11.55/-12.05	-13.24/-15.06	-14.35/-12.3	-9.52/-9.13	-8.42/-7.75	-8.15/-7.69
Θ(172.5°)	-5.86/-5.78	-6.1/-6.34	-6.79/-7.24	-8.19/-9.45	-10.87/-12.28	-13.39/-15.8	-14.88/-15.86	-15.49/-16.06	-14.28/-12.92	-12.11/-10.59	-8.94/-10.17	-13.18/-13.33	-12.74/-12.44	-13.09/-14.08	-13.58/-13.79	-13.48/-12.1	-13.06/-13.62	-13.14/-12.26	-12.25/-12.65	-14.35/-15.58	-14.51/-11.46	-9.29/-7.72	-6.49/-6.45	-6.98/-6.91
Θ(180°)	-8.07/-8.09	-7.83/-8.86	-8.96/-9.32	-9.75/-10.18	-10.65/-9.6	-12.23/-13.09	-15.71/-15.12	-15.95/-15.13	-14/-12.92	-12.75/-12.78	-14.43/-15.21	-15.4/-15.69	-13.45/-13.38	-11.93/-9.94	-10.12/-9.44	-8.81/-10.13	-10.89/-10.04	-10.88/-11.98	-12.75/-12.87	-12.84/-11.65	-10.79/-9.67	-8.38/-7.66	-7.06/-7.3	-8.31/-8.19
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°)	-10.97/-11.94	-11.58/-11.55	-8.92/-6.6	-6.72/-4.5	-3.83/-2.44	-2.59/-1.35	-1.52/-0.88	-0.25/-1.13	-0.7/-1.02	-2.18/-2.82	-3.66/-5.01	-6.34/-8.07	-10.1/-10.92	-11.56/-9.27	-7.34/-5.21	-4.03/-3.26	-2.03/-1.54	-1.17/-0.68	-0.44/-0.37	-0.42/-0.57	-1.03/-1.45	-2.39/-3.5	-4.22/-5.29	-7.37/-9.36
Θ(7.5°)	-8.1/-9.55	-9.41/-10.15	-10.14/-9.57	-9.55/-8.18	-6.95/-6.25	-5.56/-5.52	-3.85/-4.62	-3.91/-2.71	-2.89/-2.54	-2.49/-2.94	-2.92/-2.74	-3.01/-3.8	-5.41/-7.86	-10.05/-10.09	-8.38/-6.6	-4.5/-2.28	-0.76/-0.15	0.46/0.8	0.89/0.95	0.81/0.51	-0.37/-0.72	-1.91/-3.15	-3.69/-4.65	-6.4/-7.81
Θ(15°)	-5.08/-6.76	-6.34/-5.89	-5.96/-5.95	-5.96/-5.9	-6.49/-6.43	-4.88/-3.92	-3.65/-3.16	-1.85/-0.79	-0.39/-0.61	-1.21/-1.63	-2.14/-2.09	-2.3/-2.92	-4.35/-6.76	-10.89/-13.44	-10.22/-11.68	-5.21/-3.71	-2.27/-1.05	-0.99/-1.38	-1.95/-3.21	-4.21/-5.05	-5.71/-6.73	-6.36/-6.23	-4.76/-4.14	
Θ(22.5°)	-2.03/-2.5	-3.9/-5.98	-6.36/-4.2	-3.18/-2.2	-2/-2.64	-3.29/-3.48	-3.81/-2.91	-1.13/-0.18	0.06/0.17	-0.16/-2.07	-3.55/-3.91	-4.49/-4.43	-3.54/-4.27	-5.77/-5.04	-5.64/-7.36	-6.37/-4.51	-3.84/-3.54	-3.18/-2.08	-0.8/-0.88	-0.35/-0.76	-2.13/-2.19	-1.9/-2.31	-0.8/-0.06	0.05/-1.12
Θ(30°)	-4.78/-2.24	-1.27/-1.83	-1.45/-0.45	-0.1/-0.06	0.48/0.15	-0.69/-1.83	-2.9/-1.19	0.23/-1.74	1.79/-1.05	0.44/-0.3	-0.44/-1.71	-1.01/-0.05	0.52/0	-1.24/-2.98	-5.51/-7.42	-7.53/-6.48	-6.07/-5.2	-5.02/-3.78	-2.06/-0.32	0.34/-0.58	-1.06/-1.07	-0.98/-0.8	0.37/0.5	-1.06/-3.55
Θ(37.5°)	1.18/3.36	3.86/3.95	3.8/3.33	1.86/2.49	3.16/3.19	2.79/-1.97	1.55/-1.43	2.1/3.18	4.62/3.81	2.61/3.89	4.63/-1.97	2.76/3.39	2.73/-1.89	0.79/-1.39	-5.07/-9.96	-10.68/-4.42	-0.69/0.14	0.37/-0.52	-0.33/-1.21	2.76/3.11	2.42/0.58	0.46/-0.28	-1.03/-1.57	-1.57/-1.53
Θ(45°)	4.36/5.81	6.46/37	6.12/4.52	2.18/3.62	4.49/4.68	3.88/2.05	2.93/3.97	4.42/3.86	4.23/4.89	3.96/5.03	5.76/5.26	4.27/4.42	4.07/4.39	4.52/2.95	-0.79/-5.53	-6.23/-2.75	1.02/3.07	3.35/-1.63	1.87/2.93	3.46/3.78	4.49/2.94	2.07/0.64	-1.64/0.93	3.01/2.5
Θ(52.5°)	5.55/5.94	4.78/5.74	6.45/4.68	1.85/3.34	4.97/4.75	3.73/2.71	2.57/5.38	6.35/5.01	3.94/88	4.23/5.28	6.21/5.12	5.27/4.85	5.36/5.86	5.63/3.8	-0.6/-3.86	-2.29/0.4	3.36/5.09	5.79/4.19	3.92/5.31	4.31/4	5.11/4.71	3.43/2.07	-2.25/2.8	4.85/4.26
Θ(60°)	4.37/4.31	2.97/4.18	5.06/3.82	1.85/4.03	5.2/5.09	4.46/3.29	2.26/4.69	5.46/5.2	3.76/4.48	2.96/4.41	5.78/5.52	5.03/4.36	5.68/5.47	5.79/3.79	0.38/-1.81	-0.39/0.45	1.83/3.76	3.57/2.16	2.67/4.45	4.03/3.02	3.82/4.09	3.64/2.09	0.18/2.11	4.33/4.68
Θ(67.5°)	2.65/1.79	1.99/3.38	4.13/2.95	1.72/4.2	5/4.47	4.14/2.52	1.69/3.35	4.02/4.43	2.83/2.91	1.71/3.95	4.91/4.96	4.02/3.9	4.61/4.9	6.13/3.97	0.91/-0.32	0.99/1.67	2.61/4.76	4.15/0.16	1.01/3.4	3.55/4	3.67/2.24	1.97/1.11	2.25/-1.98	2.61/3.86
Θ(75°)	1.51/0.7	0.49/2.84	2.98/1.08	0.77/3.72	4.98/4.02	2.77/1.65	0.56/2.12	3/2.7	1.66/1.19	-0.01/2.98	3.88/4.02	2.64/2.48	3.78/3.81	5.88/4.46	2.44/-0.38	0.05/0.99	2.44/5.31	5.94/1.55	0.99/2.86	4.04/4.55	2.85/0.84	0.18/-0.25	2.66/1.4	-0.22/5.6
Θ(82.5°)	0.01/0.22	0.26/1.81	1.01/-0.42	1.05/3.17	4.26/3.6	2.19/1	-0.81/-0.07	1.71/1.64	0.66/-0.82	-1.54/2.78	2.69/2.34	1.24/1.27	2.03/2.27	4.76/3.53	2.16/-2.11	-2.19/0.68	2/4.43	5.65/1.78	1.01/3.64	3.82/4.71	1.67/-2.26	-2.72/-0.98	1.41/-0.18	-2.11/1.2
Θ(90°)	-1.28/-0.8	-0/0.94	-0.21/-1.81	0.66/2.45	3.04/2.19	1.33/-0.29	-1.69/-2.15	0.5/0.64	-0.93/-2.73	-3.35/-1.56	1.59/0.65	-0.39/-0.76	-0.24/-0.32	3.36/2.63	1.2/-3.29	-4.93/-0.77	1.24/2.32	3.37/1.11	-0.12/1.63	2.65/2.69	-1.36/-5.88	-4.04/-1.74	0.5/-1.45	-5.11/-0.26
Θ(97.5°)	-3.51/-1.67	-0.84/-0.34	-1.26/-2.37	0.08/1.36	2.15/1.46	0.3/-0.76	-2.24/-2.97	-0.85/-1.15	-2.46/-3.63	-4.27/0.55	0.24/-1.09	-2.5/-2.36	-3.3/-3.27	0.22/0.62	-1.45/-6.31	-6.69/-2.82	-1.65/-0.49	0.41/-4.02	-1.71/-1.55	-1.47/-0.86	-6.4/-9.91	-6.39/-2.53	-0.85/-2.92	-6.15/-1.49
Θ(105°)	-5.06/-4.18	-1.54/-0.74	-1.91/-3.32	-0.38/1.09	2.08/-0.72	-1.65/-0.92	-4.39/-3.9	-2.32/-1.03	-4.81/-5.23	-5.93/-1.48	-2.21/-0.91	-4.9/-6.36	-4.87/-4.61	-2.51/-4.08	-4.48/-6.52	-7.67/-5.01	-3.87/-2.64	-2.61/-9.99	-5.55/-5.25	-5.89/-4.29	-8.89/-8.02	-9.25/-4.3	-1.73/-8.13	-6.01/-3.21
Θ(112.5°)	-6.18/-6.04	-4.2/-1.59	-4.23/-4.87	-1.24/-1.28	0.5/-1.11	-2.44/-1.97	-4.69/-6.12	-2.14/-3.76	-4.52/-9.05	-7.13/-6.06	-3.51/-4.47	-6.28/-6.29	-7.46/-6.95	-5.37/-5.97	-5.06/-7.95	-14.9/-9.27	-5.66/-4.61	-4.53/-10.16	-7.87/-5.03	-8.42/-5.01	-8.12/-10.8	-10.64/-7.23	-7.56/-9.64	-8.26/-6.32
Θ(120°)	-8.22/-7.58	-5.9/-3.09	-3.14/-5.29	-2.1/-1.9	-3.4/-2.35	-2.22/-4.26	-5.53/-5.78	-4.42/-4.15	-3.66/-5.2	-12.07/-6.17	-5.35/-6.58	-6.85/-4.7												



Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.15	5.74	5.77	5.3	4.82
Ant. 2 Max Gain (dBi)	3.45	5.99	6.45	6.41	6.34
Ant. 3 Max Gain (dBi)	2.18	6.63	6.66	6.27	5.95
Ant. 4 Max Gain (dBi)	2.63	6.04	5.63	4.26	2.27
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/52.5/7.5	Theta/60/15	Theta/60/15	Theta/60/7.5	Theta/52.5/7.5
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/60/187.5	Theta/67.5/97.5	Theta/82.5/255	Theta/60/187.5	Theta/67.5/195
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/52.5/300	Theta/60/60	Theta/67.5/75	Theta/60/202.5	Theta/60/67.5
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/60/127.5	Theta/67.5/60	Theta/75/307.5	Theta/67.5/255	Theta/37.5/210
Max Gain (dBi)	3.45	6.63	6.66	6.41	6.34
DG [1SS] (dBi)	6.82	10.36	10.35	9.83	9.17
DG [2SS] (dBi)	3.82	7.36	7.35	6.83	6.34
DG [4SS] (dBi)	3.45	6.63	6.66	6.41	6.34



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~4

Appendix A.2

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°)	-1.35/-0.9	-0.43/-0.03	0.32/0.57	0.83/1.22	1.53/1.16	1.53/1.48	1.51/1.51	1.24/0.68	-0.15/-1.18	-2.29/-2.75	-2.85/-2.46	-2.18/-1.84	-1.43/-0.99	-0.6/-0.34	-0.14/0.08	0.40/0.72	0.95/0.92	0.72/0.6	0.36/-0.07	-0.63/-1.19	-1.75/-2.43	-3.32/-3.47	-3.4/-2.9	-2.36/-1.88	
Θ(7.5°)	-1.88/-1.47	-1.21/-1.14	-1.108/-0.79	-0.36/0.03	0.46/1.02	1.36/1.59	1.71/1.95	2.04/1.87	-0.13/0.41	-0.69/-1.92	-2.45/-2.64	-2.58/-2.46	-2.18/-1.7	-1.18/-0.79	-0.29/0.08	0.42/0.67	0.83/0.67	0.33/-0.08	-0.6/-1.37	-2.39/-3.49	-4.63/-5.22	-5.24/-4.22	-3.8/-3.34	-2.89/-2.41	
Θ(15°)	-2.95/-2.54	-2.33/-2.34	-2.25/-1.78	-1.22/-0.77	-0.44/-0.1	0.2/0.48	0.86/1.4	1.92/2.1	1.74/0.9	-0.16/-1.32	-2.42/-3.08	-3.53/-4.06	-4.08/-2.97	-2.15/-1.73	-1.24/-1.01	-0.84/-0.49	-0.27/-0.27	-0.37/-0.71	-1.29/-2.16	-3.33/-4.75	-6.22/-6.72	-5.86/-4.79	-4.08/-3.59	-3.35/-3.21	
Θ(22.5°)	-3.56/-3	-2.89/-2.33	-1.51/-0.8	-0.52/-0.66	-1/-1.22	-1.16/-0.8	-0.21/0.61	1.41/1.74	1.4/0.47	-0.79/-1.98	-3.03/-3.92	-5.08/-6.26	-5.5/-3.73	-2.78/-2.62	-2.9/-2.53	-2.26/-1.77	-1.2/-0.78	-0.68/-0.89	-1.27/-2.15	-3.56/-5.25	-6.59/-6.86	-6.24/-5.15	-4.27/-3.82	-3.9/-3.9	
Θ(30°)	-3.99/-3.12	-2.43/-1.64	-0.51/0.21	0.35/-0.17	-1.03/-1.69	-1.79/-1.29	-0.45/0.38	0.92/1.01	0.68/-0.14	-1.45/-2.9	-4.04/-4.69	-5.53/-6.04	-5.58/-3.92	-2.7/-2.33	-2.54/-2.3	-1.23/-0.46	0.02/0.17	-0.16/-0.66	-1.13/-1.99	-3.46/-5.09	-6.1/-5.72	-5.07/-4.19	-3.8/-3.6	-3.77/-4.15	
Θ(37.5°)	-3.84/-3.05	-2.06/-0.88	0.18/0.74	0.6/-0.2	-1.23/-1.95	-2.13/-1.24	-0.36/0.47	0.62/0.2	-0.54/-1.31	-2.43/-4.1	-5.19/-4.93	-4.99/-5.31	-5.06/-3.9	-2.25/-1.54	-1.34/-0.59	0.45/1.03	1.1/0.74	0.01/-0.91	-1.52/-2.3	-3.37/-4.05	-4.39/-4.36	-3.25/-2.66	-2.82/-3.25	-3.34/-3.82	
Θ(45°)	-3.33/-3.01	-1.89/-0.71	0.24/0.72	0.52/-0.31	-1.14/-1.66	-1.96/-1.2	-0.07/0.68	0.55/-0.17	-0.99/-1.8	-2.94/-4.3	-5.01/-4.03	-3.61/-4.32	-4.66/-3.68	-1.9/-1.2	-0.93/-0.29	0.74/1.37	1.34/0.75	-0.01/-0.91	-1.83/-2.31	-2.41/-2.43	-2.68/-2.83	-2.41/-2.09	-2.38/-3.1	-3.2/-3.21	
Θ(52.5°)	-2.95/-3.06	-2.2/-1.21	-0.34/0.36	0.38/-0.17	-0.55/-0.83	-1.46/-1.3	-0.67/-0.13	-0.33/0.84	-1.09/-1.32	-2.27/-3.66	-4.1/-3.35	-3.09/-3.86	-4.49/-3.59	-2.24/-1.47	-1.31/-0.55	0.56/1.2	0.96/0.1	-0.97/-2.32	-3.74/-3.51	-2.33/-1.86	-2.56/-3.47	-3.28/-2.74	-2.62/-3.07	-3.1/-2.77	
Θ(60°)	-3.23/-3.56	-2.69/-1.77	-1.03/-0.25	0.03/0.28	-0.25/-0.31	-1.27/-2.04	-2.25/-1.91	-2.12/-2.15	-0.89/-0.46	-1.42/-2.83	-4.03/-3.96	-5.26/-4.27	-5.38/-4.51	-2.62/-2.22	-2.62/-2.07	-0.45/0.67	0.57/0.38	-1.82/-3.88	-5.79/-4.87	-2.94/-2.06	-3.01/-4.94	-4.98/-4.12	-3.37/-2.89	-2.09/-2.58	
Θ(67.5°)	-3.31/-4.39	-3.2/-1.95	-1.16/-0.48	-0.29/-0.74	-0.52/-0.37	-1.39/-3.17	-4.18/-3.96	-4.04/-3.27	-0.85/-0.17	-1.4/-3.08	-4.79/-5.32	-5.41/-4.91	-4.67/-3.9	-2.88/-3.59	-4.99/-4.04	-1.83/-0.61	-0.87/-1.62	-2.89/-4.97	-7.65/-6.07	-3.71/-2.21	-2.67/-4.64	-4.18/-3.65	-3.78/-3.33	-2.1/-2.12	
Θ(75°)	-3.21/-4.51	-3.88/-3.14	-2.1/-1.09	-0.8/-1.34	-0.73/-0.2	-1.43/-4.24	-5.92/-5.36	-5.64/-4.5	-1.4/-0.76	-2.4/-1.7	-4.78/-4.86	-4.58/-3.88	-4.24/-4.5	-4.5/-5.36	-5.51/-4.63	-2.77/-1.6	-2/-2.47	-3.29/-5.02	-7.36/-6.15	-3.6/-1.86	-1.75/-4.05	-3.63/-2.63	-3.21/-3.91	-2.82/-2.46	
Θ(82.5°)	-3.15/-3.77	-3.46/-3.73	-2.57/-1.14	-0.75/-1.2	-0.3/-0	-2.11/-6.08	-7.4/-6.2	-5.78/-4.37	-1.78/-1.53	-3.04/-4.26	-4.89/-5.1	-4.98/-4.89	-6.19/-6.56	-5.62/-4.52	-4.71/-4.8	-3.13/-2.08	-2.7/-3.23	-3.92/-5.38	-5.63/-4.22	-4.08/-2.62	-2.06/-4.25	-4.72/-2.48	-2.51/-3.51	-0.70/-2.9	
Θ(90°)	-3.06/-2.93	-2.64/-3.89	-3.56/-1.51	-0.75/-1.5	-0.79/-0.39	-2.56/-7	-8.01/-7.2	-6.94/-6.01	-2.52/-1.53	-3.02/-4.5	-4.67/-5.38	-5.51/-4.82	-5.72/-6.68	-5.77/-4.59	-5.54/-6.12	-4.72/-3.94	-4.8/-5.11	-4.91/-5.68	-4.13/-2.92	-4.31/-5.22	-3.66/-3.91	-4.09/-3.29	-2.43/-3.11	-2.47/-2.57	
Θ(97.5°)	-2.72/-2.38	-1.97/-3.39	-4.56/-2.92	-1.87/-2.48	-1.15/-0.44	-2.51/-6.54	-7.18/-6.89	-8.01/-6.42	-2.41/-1.75	-3.46/-4.37	-3.95/-5.05	-5.39/-5.44	-6.21/-6.89	-5.45/-5.04	-5.13/-4.95	-5.77/-6.2	-6.79/-5.91	-5.45/-6.4	-4.93/-3.12	-3.96/-5.58	-5.29/-4.53	-3.6/-3.87	-3.67/-4.37	-2.07/-1.82	
Θ(105°)	-2.72/-2.84	-2.16/-3.58	-4.16/-3.15	-2.75/-3.7	-2.5/-1.92	-4.3/-7.68	-6.54/-6.14	-6.53/-6.86	-2.87/-2.02	-3.05/-3.67	-3.98/-5.21	-5.99/-4.11	-3.63/-4.51	-5.38/-6.37	-5.99/-4.82	-5.4/-5.49	-6.95/-7.42	-5.63/-5.97	-4.81/-4.22	-6.22/-6.94	-5.39/-5.64	-3.88/-2.92	-2.87/-2.99	-2.09/-1.77	
Θ(112.5°)	-3.43/-3.81	-2.72/-3.53	-3.74/-2.69	-2.47/-2.88	-1.81/-2.1	-5.18/-7.68	-5.8/-5.48	-6.54/-6.39	-3.67/-2.91	-3.5/-3.9	-3.74/-4.42	-4.24/-3.16	-4.36/-7.05	-8.18/-6.03	-3.91/-3.84	-5.5/-6.1	-8.26/-9.68	-8.5/-8.26	-4.81/-4	-6.48/-8.85	-5.36/-4.35	-3.95/-3.71	-3.56/-3.17	-2.45/-2.31	
Θ(120°)	-2.58/-4.09	-3.02/-3.04	-3.38/-2.68	-3.03/-3.36	-2.07/-2.34	-5.1/-8.32	-7.09/-6.24	-6.01/-5.37	-3.46/-2.27	-1.83/-2.32	-3.4/-2.1	-5.31/-5.75	-6.48/-5.92	-5.16/-4.22	-3.72/-4.59	-7.37/-9.61	-10.24/-7.81	-7.45/-9.9	-8.83/-6.82	-6.53/-9.2	-7.93/-5.85	-4.32/-4.1	-4.34/-4.14	-2.86/-1.81	
Θ(127.5°)	-3.46/-4.17	-3.48/-2.92	-3.13/-3	-3.64/-3.63	-2.3/-2.29	-4.21/-6.17	-6.15/-6.27	-5.57/-5.37	-3.35/-3.27	-2.94/-3.49	-3.39/-3.69	-3.57/-3.02	-3.23/-4.56	-5.67/-6.22	-6.26/-7.02	-10.41/-10.5	-9.3/-7.14	-6.49/-7.68	-9.05/-9.62	-8.51/-7.26	-7.17/-7.22	-5.39/-4.04	-3.16/-3.22	-3.09/-2.88	
Θ(135°)	-4.93/-5.58	-5/-3.42	-2.87/-3.25	-4.52/-4.46	-2.79/-2.61	-4.25/-5.44	-4.88/-4.81	-5.56/-4.65	-3.91/-3.53	-3.52/-3.23	-2.59/-2.4	-2.34/-2.64	-4.1/-6.3	-8.53/-9.14	-0.09/-9.18	-9.56/-9.76	-8.83/-7.72	-7.13/-8.58	-9.97/-10.59	-10.72/-9.18	-7.81/-7.61	-7.14/-5.47	-3.76/-2.83	-2.84/-3.64	
Θ(142.5°)	-6.3/-6.32	-6.57/-4.55	-3.13/-2.77	-3.77/-4.87	-5.2/-5.8	-7.46/-8.29	-7.42/-6.9	-6.31/-7.34	-3.02/-2.65	-2.02/-1.41	-1.17/-1.47	-2.26/-3.81	-6.27/-8.43	-9.96/-9.87	-9.22/-9.53	-10.75/-10.97	-9.59/-8.68	-8.44/-9.78	-10.35/-10.42	-8.08/-7	-10.29/-9.48	-8.08/-7	-6.86/-5.91	-4.33/-3.2	-3.27/-4.17
Θ(150°)	-6.76/-8.51	-9.02/-7.07	-4.87/-3.89	-4.01/-4.63	-5.15/-5.67	-6.72/-8.11	-9.17/-9.2	-8.67/-5.47	-4.04/-2.71	-1.42/-0.4	0.04/-0.24	-1.3/-3.28	-6.09/-9.02	-10.34/-10.17	-9.5/-9.56	-12.51/-12.12	-8.22/-8.16	-8/-7.39	-7.5/-7.84	-7.38/-67	-5.92/-5.1	-4.4/-4.03	-4.33/-3.2	-3.27/-4.17	
Θ(157.5°)	-5.55/-6.29	-6.73/-6.68	-5.67/-5.37	-5.47/-6.12	-6.89/-7.75	-7.99/-8.76	-8.76/-7.2	-5.27/-3.58	-2.35/-1.51	-0.81/-0.36	-0.36/-1	2.33/-4.5	-6.65/-8.39	-7.84/-6.68	-6.26/-6.68	-7.95/-9.26	-9.59/-8.39	-7.42/-6.67	-5.91/-5.65	-6.05/-6.58	-6.53/-6.14	-5.88/-5.23	-4.74/-4.5	-4.35/-4.53	
Θ(165°)	-3.87/-4.1	-3.81/-3.85	-4.03/-4.57	-4.55/-5.15	-5.67/-6.1	-6.41/-6.78	-7.3/-6.72	-4.93/-3.4	-2.74/-2.46	-2.29/-2.26	-2.59/-3.46	-4.82/-6.05	-6.81/-5.8	-7.19/-6.26	-5.82/-6.03	-6.87/-6.08	-8.16/-8.1	-7.91/-7.41	-7.06/-6.97	-7.26/-7.69	-7.91/-7.44	-6.67/-5.96	-5.19/-4.59	-4.03/-3.84	
Θ(172.5°)	-3.04/-3.16	-3.45/-3.67	-4.09/-4.32	-4.84/-5.63	-6.07/-6.46	-6.71/-6.46	-8.79/-8.99	-8.02/-7.03	-5.66/-6.1	-5.67/-5.48	-5.69/-6.23	-6.8/-7.11	-7.02/-7.08	-7.57/-7.77	-8.03/-8.92	-11.72/-10.52	-10.65/-10.73	-11.82/-11.14	-10.64/-10.14	-9.58/-9.48	-7.81/-7.41	-5.11/-4.41	-3.68/-3.27		
Θ(180°)	-3.55/-3.95	-4.59/-5.12	-5.47/-5.92	-6.72/-7.33	-8.26/-9.64	-11.08/-12.16	-12.36/-11.74	-12.3/-12.06	-10.95/-9.44	-8.47/-7.9	-7.93/-7.78	-7.64/-7.59	-7.34/-7.46	-8.05/-8.27	-8.5/-8.69	-8.32/-8.13	-7.81/-7.95	-8.88/-10.38	-11.33/-10.74	-10.28/-10.12	-8.81/-6.77	-5.44/-4.68	-4.23/-3.94	-3.55/-3.52	
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°)	0.89/0.63	0.27/-0.19	-0.74/-1.23	-1.58/-2.01	-2.32/-2.35	-2.26/-2	-1.43/-0.81	-0.38/-0.15	0.07/0.33	0.78/1.11	1.27/1.37	1.31/1.18	0.94/0.65	0.32/-0.07	-0.65/-1.43	-2.36/-3.02	-3.37/-3.31	-3.03/-2.49	-1.92/-1.46	-0.95/-0.51	-0.19/0.16	0.53/0.97	1.18/1.39	1.22/1.13	
Θ(7.5°)	-1.94/-2.21	-2.43/-2.53	-2.29/-2.2	-1.96/-1.43	-1.22/-1.06	-0.65/-0.05	0.64/-1.9	1.52/1.69	1.91/2.25	2.67/0.36	3.37/3.61	3.66/3.5	3.21/3.83	2.36/1.8	1.09/0.33	-0.49/-1.33	-2.26/-2.91	-2.9/-3.23	-1.75/-1.48	-1.28/-1.09	-0.77/-0.44	-0.34/-0.42	-0.64/-1	-1.36/-1.7	
Θ(15°)	-0.73/-0.62	-0.64/-0.66	-0.47/-0.1	0.91/1.46	1.57/1.44	1.37/1.56	2.23	2.38/2.41	2.74/3.28	3.67/0.4	4.23/4.41	4.47/4.33	4.01/3.54	2.88/2.14	1.46/1.05	0.90/0.81	0.62/0.38	0.22/0.24	0.33/0.27	0.14/0.01	0.16/0.31	0.23/-0.09	-0.52/-0.89	-1.03/-0.96	
Θ(22.5°)	2.43/2.46	2.21/1.86	1.86/2.48	3.14/3.54	3.57/3.25	2.75/2.32	2.21/2.26	2.25/2.4	3.05/3.86	4.33/4.37	4.21/4.09	3.99/3.82	3.53/3.03	2.27/1.49	1.08/1.2	1.39/1.48	1.49/1.44	1.42/1.45	1.41/1.22	0.90/0.79	1.01/1.32	1.52/1.55	1.54/1.58	1.82/1.4	
Θ(30°)	4.784.81	4.47/3.96	3.67/4.01	4.45/4.78	4.89/4.69	4.15/3.42	2.83/2.64	2.68/2.79	3.27/4	4.51/4.5	4.05/3.47	3.08/3.04	3.14/2.92	2.28/1.64	1.41/1.38	1.31/1.23	1.36/1.39	1.71/1.94	2.1/81	1.48/1.36	1.65/2.07	2.51/2.89	3.2/3.49	3.89/4.4	
Θ(37.5°)	6.126/1.7	5.815/2.6	4.754/2.2	4.96/2.5	5.38/2.3	4.79/4.2	3.71/3.58	3.82/3.94	3.984/2.6	4.66/4.64	4.06/3.19	3.28/3.38	4.02/4.08	3.55/2.94	2.41/1.83	1.22/0.75	0.94/1.31	2.05/2.57	2.82/2.82	2.63/2.59	2.62/6.1	3.01/3.58	4.11/4.58	5.06/5.65	
Θ(45°)	6.686/7.6	6.365/7.4	5.114/8.8	5.015/24	5.28/5.05	4.71/4.45	4.414/5.5	4.734/7.2	4.514/44	4.714/7.8	4.243/48	3.52/4.47	5.35/4.2	4.884/2	3.45/2.49	1.49/0.85	1.12/1.83</								



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~4

Appendix A.2

Θ(22.5°)	0.26/0.18	-0.22/-1.14	-3.58/-3.85	-2.74/-3.2	-3.74/-2.32	-1.91/-1.78	-1.45/-3.15	-6.74/-7.13	-3.36/-1.6	-1.83/-2.96	-2.84/-1.43	-0.35/-0.08	0.89/1.2	3.23/3.79	3.91/3.48	2.33/0.62	-1.44/-3.48	-6.78/-6.33	-5.8/-6.42	-6.61/-4.05	-1.83/-0.95	-0.67/0.28	0.69/0.87	0.79/0.44
Θ(30°)	-0.47/-0.24	-0.57/-2.98	-5.81/-5.86	-4.53/-3.17	-2.13/-1.95	-2.08/-2.02	-1.24/-0.81	-1.25/-3.64	-2.41/-0.87	-0.11/-0.19	-1.34/-0.53	-0.59/-0.8	0.48/1.5	1.48/1.38	0.96/1.21	1.97/1.59	-0.02/-1.44	-3.01/-4.92	-8.59/-10.14	-8.36/-9.44	-3.25/-2.05	-2.29/-1.77	-1/-1.06	0.13/-0.19
Θ(142.5°)	-1.88/-1.41	-2.98/-4.25	-4.41/-4.79	-5.59/-5.54	-4.4/-2.27	-1.33/-1.82	-2.01/-2.34	-1.23/-1.79	-2.35/-0.78	-0.51/0.13	-0.69/0.02	-0.26/-2.63	-2.22/-0.3	0.98/-0.16	-0.73/0.5	1.35/1.28	0.67/0.31	-2.11/-3.79	-5.98/-9.55	-8.89/-6.59	-3.91/-3.67	-3.98/-4.42	-2.76/-1.48	-0.89/-0.83
Θ(45°)	-3.57/-4.35	-4.32/-3.79	-3.06/-4.64	-6.81/-5.3	-3.25/-2.58	-1.22/-1.4	-2.97/-4.1	-1.9/-1.65	-2.68/-2.5	-1.01/-0.67	-1.58/-0.74	-0.54/-2.35	-0.84/0.21	-0.81/-1.95	-2/-0.53	-0.16/0.48	0.25/-2.51	-4.15/-6.93	-7.26/-6.96	-6.83/-5.69	-4.8/-4.47	-3.68/-3.65	-4.64/-3.34	-1.86/-1.21
Θ(52.5°)	-2.38/-5.16	-3.97/-3.75	-1.51/-2.59	-4.73/-4.33	-2.41/-0.5	-0.38/-0.06	-3.34/-4.55	-2.01/-2.38	-2.75/-2.87	-2.56/-1.64	-1.28/-2.42	-2.04/0.42	-1.65/-0.86	-0.9/-3.24	-1.27/-0.49	-1.38/-0.39	-0.9/-4.54	-6.21/-9.74	-5.87/-5.54	-4.69/-5.83	-6.47/-3.98	-3.21/-3.19	-5.12/-5.22	-1.87/-0.85
Θ(60°)	-1.35/-1.39	-0.72/-1.26	-0.12/-1.03	-2.12/-2.29	-3.73/-1.58	-1.71/-0.94	-3.66/-6.44	-3.55/-1.82	-2.83/-2.88	-4.1/-3.69	-2.87/-0.79	-1.65/-0.11	-0.71/0.34	-1.23/-3.63	-2.16/-1.22	-3.19/-1.46	-1.36/-4.61	-6.42/-8.95	-3.67/-5.36	-4.9/-5.91	-6.67/-3.82	-4.14/-3.86	-5.4/-6.49	-2.80/-39
Θ(67.5°)	0.27/0.56	-0.81/0.09	-0.37/-1.76	-2.21/-1.15	-3.73/-1.59	-2.86/-1.74	-6.11/-9.05	-4.5/-3.51	-4.92/-4.72	-4.83/-4.14	-2.94/-2	-2.80/42	-1.44/0.07	-1.53/-1.95	0.21/-0.97	-2.84/-1.81	-2.41/-3.37	-2.97/-8.57	-3.62/-1.96	-4.58/-7.76	-8.38/-5.28	-4.09/-3.76	-4.02/-4.96	-2.86/-1.07
Θ(75°)	0.91/0.09	-0.79/-0.49	-1.35/-2.55	-2.6/-1.64	-6.45/-2.09	-5.14/-44	-7.88/-9.5	-5.15/-4.45	-6.44/-54	-7.73/-4.46	-3.71/-2.41	-2.32/-0.51	-0.77/0.15	-3.08/-2.13	0.16/-0.87	-2.43/-3.22	-3.92/-1.52	-0.79/-7.55	-3.01/-1.72	-5.87/-9.4	-5.67/-4.27	-3.84/-4.77	-3.93/-3.44	-2.11/-1.13
Θ(82.5°)	0.27/-0.24	-0.83/-0.7	-2.52/-3.46	-4.32/-3.51	-8.88/-2.47	-5.97/-7.1	-7.41/-8.16	-7.21/-5.66	-7.24/-5.62	-6.88/-5.62	-2.9/-3.11	-2.94/-1.07	-1.64/-1.24	-3.17/-2.12	-0.11/-2.39	-2.17/-5.03	-4.97/-3.55	-0.72/-7.62	-4.38/-1.9	-7.52/-7.59	-3.63/-4.23	-4.35/-4.78	-5.33/-3.2	-2.86/-1.99
Θ(90°)	-0.79/-1.41	-1.36/-1.09	-2.56/-3.94	-5.51/-3.33	-7.79/-3.24	-5.94/-9.33	-8.34/-9.11	-6.57/-9.38	-7.1/-5.82	-6.82/-5.93	-3.55/-3.15	-2.7/-2.27	-2.29/-1.76	-3.97/-1.99	-0.12/-3.12	-2.88/-3.43	-8.35/-5	-2.21/-8.3	-5.38/-3.33	-8.15/-5.65	-3.96/-4.84	-4.61/-4.6	-5.22/-2.76	-1.47/-1.53
Θ(97.5°)	-1.51/-1.49	-1.89/-2.5	-2.48/-3.21	-7.11/-4.6	-11.34/-9.41	-6.42/-9.94	-9.14/-9.69	-6.77/-8.75	-6.43/-5.97	-5.34/-5.24	-3.6/-4.09	-1.7/-2.51	-5.33/-2.89	-3.94/-0.43	-1.35/-4.11	-4.24/-3.68	-9.56/-9.78	-3.06/-7.45	-8.09/-4.72	-7.54/-6.58	-6.56/-6.1	-5.86/-5.53	-5.11/-3.55	-2.23/-2.47
Θ(105°)	-1.19/-2.31	-2.41/-2.16	-1.97/-3.23	-7.17/-5.51	-9.28/-7.65	-6.39/-8.48	-9.27/-11.14	-8.42/-9.64	-6.8/-6.1	-3.21/-2.24	-2.53/-2.65	-5.23/-5	-3.28/-4.65	-4.4/-5.18	-1.43/-4.16	-8.74/-9.5	-6.39/-8.68	-8.68/-5.09	-8.54/-7.05	-7.65/-8.19	-4.56/-4.67	-4.82/-4.33	-1.82/-1.78	
Θ(112.5°)	-1.13/-4.25	-4.15/-3.93	-3.66/-2.32	-7.97/-4.5	-7.88/-8.22	-5.02/-6.29	-8.64/-9.79	-9.79/-9.79	-6.58/-4.09	-7.24/-3.67	-4.3/-3.53	-3.32/-4.03	-4.94/-4.53	-5.43/-5.02	-5.94/-5.87	-6.6/-2.58	-10.24/-9.01	-6.57/-6.7	-8.43/-5.65	-9.96/-7.7	-8.1/-7.9	-7.52/-4.3	-3.99/-4.46	-3.03/-1.87
Θ(120°)	-2.53/-2.59	-4.32/-4.21	-4.6/-3.42	-5.7/-8.34	-8.12/-8.5	-6.5/-5.53	-8.01/-8.77	-10.97/-8.17	-8.48/-4.79	-7.87/-4.79	-5.31/-4.56	-4.22/-5.14	-7.38/-4.65	-6.7/-6.65	-4.94/-7.83	-9.54/-8.1	-7.1/-6.02	-8.07/-7.1	-7.53/-10.53	-8.96/-8.3	-5.83/-5	-6.34/-4.93	-4.64/-4.18	-7.33/-4.48
Θ(127.5°)	-3.27/-1.45	-5.51/-4.13	-4.57/-4.39	-6.16/-11.53	-8.22/-7.03	-8.43/-7	-9.79/-9.42	-8.84/-6.28	-5.95/-4.39	-6.15/-4.38	-4.08/-2.77	-4.69/-4.25	-3.91/-4.67	-5.53/-4.79	-7.07/-9.61	-5.22/-7	-7.49/-8.34	-6.96/-7.55	-6.51/-5.27	-7.98/-8.58	-9.44/-7.45	-6.57/-5.12	-4.56/-6.48	-5.86/-4.78
Θ(135°)	-6.56/-4.68	-4.92/-4.83	-4.5/-6.13	-5.87/-7.83	-5.93/-4.47	-7.4/-10.31	-7.87/-7.76	-9.41/-5.8	-5.91/-5.4	-4.01/-5.26	-3.67/-3.6	-4.64/-4.5	-3.83/-4.62	-6.62/-4.01	-5.19/-5.29	-6.7/-9.36	-10.1/-11.81	-10.71/-5.89	-8.8/-6.73	-9.74/-9.12	-7.71/-5.97	-7.13/-5.99	-4.88/-8.28	-5.61/-4.65
Θ(142.5°)	-3.25/-1.45	-7.76/-6.63	-4.36/-3.29	-5.68/-8.2	-7.66/-5.58	-8.54/-7.94	-5.96/-8.27	-3.23/-2.98	-3.71/-7.97	-5.4/-91	-6.66/-5.38	-5.42/-8.99	-3.88/-1.94	-3.6/-1.51	-2.91/-6.45	-8.26/-10.35	-8.75/-3.82	-9.01/-8.84	-7.24/-6.21	-7.16/-9.97	-5.54/-5.77	-7.53/-4.18	-4.77/-6.01	-7.33/-4.48
Θ(150°)	-5.41/-5.79	-4.24/-5.84	-5.16/-8.97	-9.01/-9.65	-9.94/-10.34	-9.61/-5.13	-4.32/-7.42	-8.34/-5.2	-5.48/-6.69	-3.01/-3.48	-8.02/-6.19	-3.82/-4	-2.83/-1.77	-3.82/-4.65	-7.63/-7.33	-8.22/-10.58	-11.84/-9.45	-10.82/-8.07	-5.6/-3.95	-5.82/-6.22	-6.33/-5.72	-4.34/-3.38	-4.99/-6.58	-4.55/-3.47
Θ(157.5°)	-5.6/-7.17	-5.23/-3.99	-4.22/-6.2	-7.61/-7.01	-8.03/-8.21	-7.94/-7	-5.47/-7.1	-6.95/-9.5	-2.85/-1.53	-2.58/-3.99	-4.82/-5.04	-5.45/-6.44	-7.13/-7.55	-8.02/-9.74	-10.66/-10.66	-9.14/-8.43	-8.72/-6.46	-6.15/-6.24	-7.52/-7.25	-7.24/-6.96	-5.82/-6.91	-7.5/-6.7	-3.14/-3.12	
Θ(165°)	-5.37/-8.47	-9.91/-10.37	-10.89/-9.72	-8.05/-7.48	-8.66/-9.56	-9.83/-10.21	-8.5/-7.78	-6.63/-6.87	-4.62/-3.79	-2.76/-2.48	-3.07/-5.26	-7.57/-9.2	-8.53/-7.42	-7.21/-6.61	-10.19/-10.63	-9.64/-9.85	-10.32/-10.9	-9.66/-9.37	-9.1/-9.37	-10.11/-9.38	-8.36/-7.98	-8.46/-6.66	-7.85/-5.54	-4.98/-4.17
Θ(172.5°)	-4.81/-5.31	-4.95/-4.32	-4.71/-4.83	-4.98/-6.28	-7.64/-8.05	-8.63/-8.6	-10.41/-10.02	-9.78/-8.01	-6.49/-5.77	-4.73/-4.56	-5.71/-7.58	-8.66/-9.44	-9.47/-9.16	-8.92/-10.73	-11.98/-9.28	-9.2/-10.07	-7.14/-5.6	-7.17/-8.04	-7.79/-9.22	-10.38/-10.35	-9.91/-10.45	-9.72/-8.68	-7.58/-6.22	-5.92/-5.15
Θ(180°)	-8.04/-8.46	-9.1/-9.42	-9.63/-10.16	-9.91/-9.61	-8.82/-9.15	-8.41/-8.78	-8.62/-8.74	-8.35/-7.32	-6.84/-6.48	-6.34/-7.99	-9.2/-8.49	-8.7/-8.75	-9.19/-10.1	-10.68/-10.87	-9.79/-8.29	-8.25/-9.44	-8.92/-8.5	-9.52/-10.03	-11.53/-11.13	-10.13/-10.24	-10.91/-9.32	-8.4/-8.26	-7.77/-7.82	-8.41/-8.7
Freq(Hz)	5.3GPol	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°)	-8.92/-9.18	-8.47/-9.22	-8.14/-6.51	-5.05/-4.47	-3.87/-3.17	-2.42/-1.55	-2.3/-0.83	-1.07/-1.31	-0.98/-1.07	-1.62/-2.31	-2.88/-3.85	-4.78/-6.12	-7.89/-8.62	-8.07/-8.42	-7.01/-5.99	-4.53/-3.06	-2.37/-2.13	-1.89/-0.68	-0.78/-1.16	-0.8/-1.09	-1.45/-2.22	-2.64/-2.85	-3.97/-5.2	-6.23/-8.33
Θ(7.5°)	-7.16/-7.6	-6.75/-8.8	-5.22/-4.11	-1.72/-1.05	-0.43/0.29	0.32/0.87	0.79/0.32	0.90/0.48	-0.16/0.07	-0.33/-0.98	-1.24/-1.9	-2.89/-4.1	-4.34/-6.11	-4.42/-3.78	-3.02/-2.5	-2.11/-3.8	-0.49/0.04	0.08/0.22	-0.27/-0.87	-0.49/-0.98	-6.47/-6.71	-8.97/-6.65		
Θ(15°)	-1.14/-1.65	-2.56/-2.92	-1.94/-0.96	0.05/0.75	0.81/1.13	1.35/0.88	1.19/1.46	1.79/1.8	1.31/1.34	1.05/0.92	0.97/0.52	-0.13/-0.46	-0.64/-0.4	0.07/0.68	0.75/0.66	0.34/-0.03	0.14/0.75	1.39/1.46	1.92/54	2.48/2.31	1.16/-0.26	-1.31/-2.05	-1.62/-0.98	-0.71/-0.58
Θ(22.5°)	3.29/3.42	3.12/77	2.71/2.52	2.43/2.75	2.55/2.18	2.52/2.63	2.16/2.37	2.31/2.54	1.58/0.17	1.46/2.31	2.21/71	0.88/0.51	0.55/0.74	0.56/0.69	0.83/0.55	0.59/0.88	1.02/1.15	1.54/2.38	2.91/3.01	3.01/2.4	1.91/1.14	1.34/2.08	2.83/3.08	
Θ(30°)	5.15/68	5.86/54	4.79/4.24	6.63/5.74	6.66/7.08	6.43/6.58	5.44/82	4.86/4.88	5.25/66	5.65/6.1	3.97/5.58	3.78/4.31	3.56/2.79	2.03/1.42	0.94/0.62	1.55/2.92	2.83/2.42	1.91/1.41	1.99/2.02	2.11/2.96	3.19/3.1	3.04/2.71	2.51/3.15	3.88/4.68
Θ(37.5°)	5/5.31	6.14/6.35	6.56/6.4	6.6/7.1	7.54/7.58	7.45/7.13	6.94/6.73	6.42/6.43	6.6/75	7.63/7.52	6.05/6.34	5.86/46	6.16/565	4.73/84	3.09/2.34	1.86/1.7	2.23/22	2.89/1.15	1.33/33	4.98/5.44	5.14/77	4.17/4.37	4.21/4.92	5.61/5.34
Θ(45°)	4.24/5.38	6.74/7.2	7.82/8.06	8.21/8.73	9.15/8.85	8.12/7.61	8.2/8.16	6.74/6.93	6.76/6.56	7.85/8.52	7.38/7.05	7.28/7.57	7.63/7.72	6.74/6.23	5.96/74	5.27/3.78	2.24/3.18	4.07/3.75	3.73/5.01	6.72/7.5	7.12/5.42	4.69/4.87	4.97/5.89	6.44/5.44
Θ(52.5°)	5.796/27	7.87/8.15	8.81/9	8.75/9.42	9.99/10.21	9.58/86	8.19/7.11	6.44/6.62	7.35/6.63	8.17/7.91	9.73/8.22	8.42/8.67	7.85/7.24	7.21/7.09	6.58/5.75	4.33/5.77	6.58/5.79	4.55/9.1	8.08/8.77	7.88/6.28	4.77/4.69	4.34/5.04	6.26/6.78	
Θ(60°)	6.887/0.8	8.44/8.45	9.14/9.21	9.28/9.54	10.35/9.95	8.93/8.49	9.32/9.83	8.84/6.71	6.01/5.94	6.84/8.61	9.17/7.99	8.29/8.12	8.07/9.02	8.47/8.49	8.12/7.24	6.36/5.25	4.96/5.83	6.27/6.12	5.14/5.88	8.39/0.1	7.81/6.54	4.54/4.86	5.52/4.56	5.89/7.16
Θ(67.5°)	7.986/97	7.62/8.35	9.22/9.25	9.15/9.34	10.03/9.27	8.39/7.76	8.72/9.55	8.23/6.32	4.69/8.4	7.14/8.58	8.55/7.48	7.76/7.9	8.21/8.23	8.8/47	7.16/6.11	6.55/82	6.83/7.31	7.48/7.65	5.91/6.58	8.91/6.84	7.46/6.56	5.28/4.72	5.84/6	5.45/7.09
Θ(75°)	7.385/95	6.42/6.98	8.44/8.69	8.31/8.7	9.11/8.58	7.07/6.33	7.87/5.92	7.76/5.33	3.94/6.65	6.157/99	7.66/6.34	6.93/6.98	7.33/7.05	6.63/6.28	8.65/9.4	7.16/6.1	6.55/82	7.78/6.24	6.83/5.92	7.46/6	8.43/7.55	6.35/5.92	5.45/5.84	5.89/6.05
Θ(82.5°)	6.114/85	5.175/62	7.167/3.1	7.24/6.38	7.37/6.54	5.12/4.32	5.89/7.22	6.253/0.99	2.952/37	4.87/3.1	6.454/44	5.925/87	6.42/4.97	5.837/35	5.464/28	4.52/4.81	7.87/7.9	8.88/8.4						



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~4

Appendix A.2

Θ(67.5°)	-2.04/-2.78	-2.29/-0.28	-0.71/-0.88	-1.76/-3.36	-4.7/-3.51	-4.37/-4.07	-9.1/-8.26	-4.43/-3.44	-4.43/-5.54	-5.11/-6.95	-5.63/-4.77	-3.21/-1.74	-1.79/-1.6	-4.88/-2.78	-0.18/-0.73	-2.48/-3.8	-3.48/-3.55	-5.93/-5.4	-4.2/-6.61	-7.85/-5.74	-6.69/-6.15	-7.41/-7.33	-5.82/-5.3	-5.16/-3.85
Θ(75°)	-3.16/-3.2	-2.4/-0.87	-1.51/-1.56	-1.43/-2.99	-4.36/-3.57	-6.13/-5.2	-9.85/-9.23	-5.82/-5.89	-7.14/-6.47	-6.11/-6.86	-6.92/-4.85	-5.21/-1.86	-2.65/-1.87	-3.65/-2.96	-0.51/-0.69	-2.44/-3.99	-4.61/-2.73	-4.47/-6.28	-4.64/-5.2	-6.89/-7.03	-5.59/-6.88	-7.13/-5.64	-6.77/-6.78	-5.21/-4.37
Θ(82.5°)	-4.06/-3.74	-3.07/-1.67	-2.59/-2.52	-2.14/-2.7	-4.63/-4.7	-6.45/-5.98	-10.05/-8.93	-7.2/-8.97	-9.29/-6.1	-6.73/-7.09	-6.96/-7.12	-5.04/-4.43	-3.87/-3.67	-4.14/-3.58	-2.11/-1.34	-2.49/-6.8	-6.57/-2.78	-4.58/-7.31	-6.75/-4.03	-8.28/-7.08	-4.14/-5.18	-6.57/-5.3	-6.9/-6.19	-5.75/-4.31
Θ(90°)	-4.92/-4.4	-4.02/-2.38	-3.75/-4.11	-3.5/-4.57	-4.79/-4.61	-8.15/-7.17	-10.38/-10.49	-8.6/-9.74	-9.06/-7.14	-6.92/-9.24	-6.2/-8.7	-6.86/-5.78	-5.95/-4.83	-5.29/-5.51	-2.83/-2.33	-2.86/-7.18	-9.76/-5.97	-8.1/-9.64	-7.2/-5.71	-9.01/-9.59	-4.19/-6.12	-6.86/-6.49	-7.97/-6.84	-6.83/-4.59
Θ(97.5°)	-5.13/-5.92	-5.63/-4.04	-4.93/-5.66	-4.95/-5.93	-5.61/-5.81	-8.13/-9	-10.91/-11.25	-10.49/-9.22	-9.89/-6.52	-7.42/-8.52	-7.34/-7.03	-9.41/-6.34	-7.21/-7.89	-6.16/-5.94	-5.38/-3.64	-3.84/-9.95	-11.73/-9.78	-7.86/-12.68	-8.56/-6.9	-9.8/-9.9	-5.81/-7.95	-7.49/-6.67	-7.48/-7.44	-6.48/-5.54
Θ(105°)	-5.01/-4.49	-5.46/-6.56	-5.76/-6.77	-5.18/-7.7	-6.16/-5.65	-7.61/-11.43	-10.01/-10.15	-11.94/-11.28	-8.92/-7.97	-7.47/-8.37	-6.79/-8.42	-7.83/-7.48	-9.01/-7.93	-7.78/-5.25	-7.16/-5.65	-4.42/-7.81	-8.92/-11.87	-10.91/-11.79	-10.23/-9.54	-10.28/-9.05	-6.94/-7.85	-8.89/-6.16	-7/-6.37	-6.73/-4.94
Θ(112.5°)	-4.24/-4.28	-6.88/-7.12	-6.15/-7.34	-5.89/-9.38	-7.58/-6.28	-7.52/-11.2	-10.75/-11.66	-11.74/-10.54	-10.24/-7.54	-7.81/-7.19	-6.4/-8.23	-9.68/-6.9	-8.18/-7.04	-8.33/-6.72	-7.03/-10.62	-7.16/-8.07	-8.67/-10.92	-10.58/-10.21	-9.13/-11.12	-9.64/-10.78	-9.74/-10.28	-10.19/-6.79	-8.01/-7.62	-7.1/-4.54
Θ(120°)	-5.79/-5.46	-5.58/-7.18	-6.85/-7.31	-5.9/-9.65	-8.47/-7.9	-7.63/-10.99	-10.63/-10.41	-12.01/-12.04	-12.2/-8.26	-6.35/-8.71	-6.57/-8.24	-9.42/-5.97	-9.24/-9.47	-6.38/-7.51	-7.4/-11.76	-9.25/-6.18	-8.94/-9.44	-12.27/-11.83	-10.19/-12.9	-9.41/-12.27	-11.06/-10	-10.1/-9.51	-5.74/-7.57	-7.28/-7.05
Θ(127.5°)	-7.82/-6.4	-7.49/-6.3	-7.26/-8.37	-8.44/-9.49	-9.92/-9.37	-9.53/-10.03	-9.72/-10.49	-10.75/-10.46	-9.53/-9.02	-6.66/-5.76	-7.35/-6.33	-6.85/-10.76	-7.28/-8.35	-8.43/-8.15	-8.56/-10.32	-6.12/-6.3	-8.96/-9.14	-9.27/-9.12	-9.24/-11.22	-12.16/-11.82	-11.03/-9.82	-8.46/-7.37	-8.81/-7.06	-7.39/-7.21
Θ(135°)	-8.11/-7.35	-8.64/-8.26	-8.64/-9.18	-8.29/-9.23	-11.58/-9.31	-8.92/-11.6	-12.07/-11.58	-10.89/-10.85	-8.59/-8.26	-8.21/-5.82	-5.75/-7.43	-5.95/-6.3	-5.4/-7.12	-7.36/-7.13	-8.42/-12.29	-9.59/-10.57	-10.21/-12.1	-11.78/-7.08	-8.17/-12.17	-11.64/-11.33	-8.26/-9.87	-10.69/-9.08	-10.61/-7.15	-6.82/-8.64
Θ(142.5°)	-6.5/-9.17	-8.76/-7.98	-8.65/-8.74	-7.14/-5.84	-8/-9.84	-12.22/-11.33	-9.67/-9.06	-9.94/-8.95	-8.53/-7.08	-8.33/-8.39	-5.11/-4.16	-6.09/-7.14	-6.35/-6.29	-7.26/-9.24	-10.66/-12.46	-11.88/-11.7	-11.36/-10.75	-11.1/-9.4	-10.18/-11.34	-10.96/-8.2	-11.35/-9.61	-9.01/-9.42	-9.76/-7.31	-7.15/-6.4
Θ(150°)	-8.23/-11.36	-10.67/-8.18	-8/-9.93	-7.8/-6.79	-7.52/-9.02	-9.3/-9.44	-9.88/-10.07	-8.65/-8.85	-9.45/-10.4	-7.48/-5.63	-6.21/-8.03	-8.09/-8.1	-7.99/-7.44	-6.7/-7.82	-9.72/-10.16	-8.32/-9.41	-11.61/-11.2	-9.77/-8.82	-9.34/-10.02	-10.97/-10.62	-11.55/-10.51	-10.5/-10.53	-9.43/-7.14	-9.72/-10.18
Θ(157.5°)	-7.62/-8.78	-9.07/-9.03	-8.37/-8.83	-9.56/-9.35	-9.21/-8.11	-6.81/-7.49	-10.45/-10.43	-7.7/-5.96	-7.13/-8.65	-9.13/-7.77	-6.27/-6.32	-6.69/-6.89	-7.58/-8.28	-8.86/-9.91	-9.72/-10.04	-10.84/-11.89	-11.29/-9.2	-9.25/-9.11	-9.08/-8.34	-9.96/-10.21	-9.59/-9.19	-8.82/-7.97	-6.78/-7.17	-10.76/-9.03
Θ(165°)	-7.06/-8.63	-9.77/-10.09	-9.56/-8.06	-8.15/-9.31	-9.1/-7.64	-8.44/-9.2	-11.02/-10.38	-9.54/-9.68	-9.78/-9.47	-8.25/-6.97	-6.23/-6.38	-6.93/-8.38	-9.2/-9.37	-9.58/-11.3	-11.49/-10.89	-10.29/-11.87	-9.92/-9.17	-8.77/-8.7	-8.13/-8.88	-9.98/-11.3	-10.76/-9.28	-7.42/-6.85	-6.65/-6.56	-7.43/-7.24
Θ(172.5°)	-5.88/-5.83	-6.11/-6.24	-6.68/-7.18	-7.8/-8.71	-9.72/-10.88	-11.27/-12.68	-12.34/-12.22	-11.48/-11.64	-10.8/-9.9	-9.32/-8.58	-7.71/-8.97	-10.9/-11.09	-10.88/-10.58	-11.16/-11.79	-11.37/-11.15	-11.15/-10.3	-10.25/-10.65	-10.42/-9.97	-9.82/-10.12	-11.14/-12.16	-11.79/-10	-8.65/-7.72	-6.55/-6.83	-7.21/-6.93
Θ(180°)	-7.83/-7.67	-7.36/-8.11	-8.64/-9.11	-9.05/-9.01	-9.53/-9.04	-10.85/-11.22	-12.83/-11.89	-12.36/-12.12	-11.61/-11.09	-10.63/-10.32	-11.46/-12.17	-12.59/-12.59	-11.57/-11.26	-10.93/-9.31	-9.55/-8.82	-8.48/-9.36	-9.76/-8.97	-9.93/-10.49	-10.93/-10.15	-10.18/-9.2	-8.78/-8.17	-6.96/-6.18	-5.4/-5.86	-6.96/-7.91
Freq(Hz)	5.785Pol.	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°)	-5.65/-6.61	-7.22/-8.09	-7/-5.78	-5.11/-3.94	-2.75/-1.37	-0.920.16	0.531.25	1.621.25	1.621.53	0.811.03	-0.24/-1.11	-2.12/-3.49	-4.88/-5.83	-6.71/-6.46	-5.7/-4.73	-4.15/-3.47	-2.21/-1.33	-0.470.34	0.91.26	1.51.56	1.41.26	0.80.21	-0.36/-1.29	-2.75/-4.36
Θ(7.5°)	-4.18/-5.54	-5.77/-6.23	-6.36/-5.34	-4.22/-2.78	-1.29/-0.39	0.210.42	1.241.05	1.191.53	1.321.31	0.970.39	0.200.01	-0.35/-1.06	-2.14/-3.49	-4.63/-4.87	-4.3/-3.49	-2.31/-1.05	0.030.01	1.572.13	2.372.47	2.42.23	1.71.34	0.44/-0.61	-0.92/-1.75	-2.68/-3.61
Θ(15°)	-0.57/-1.49	-1.97/-2.56	-2.88/-2.45	-1.49/-0.68	-0.32/-0.09	0.811.27	1.642.16	2.692.89	2.752.12	1.170.35	-0.17/-0.2	-0.35/-0.81	-1.69/-2.95	-5.06/-6.58	-6.53/-6.22	-5.26/-3.79	-1.95/-0.52	0.871.97	2.272.1	1.741.02	0.570.11	-0.47/-1.27	-1.5/-1.84	-0.97/-0.36
Θ(22.5°)	2.311.93	1.18/-0.01	-0.320.29	0.490.72	0.660.2	0.070.48	0.6711.48	2.342.47	2.221.64	0.27/-1.57	-1.72/-1.06	-0.89/-0.51	0.450.31	-0.73/-1.25	-2.12/-3.39	-3.36/-2.85	-2.92/-2.2	-1.30	1.221.53	1.831.29	0.371.02	21.96	2.312.19	2.592.58
Θ(30°)	3.373.65	3.753.63	4.064.53	4.093.02	2.582.32	2.171.56	0.781.38	1.872.86	3.463.1	1.57/-0	1.171.61	2.423.09	3.733.52	2.751.95	0.78/-0.37	-0.96/-1.4	-2.73/-3.59	-3.11/-1.18	0.451.99	3.183.17	2.662.03	2.443.25	4.264.8	4.714.03
Θ(37.5°)	6.096.37	6.427.06	7.516.81	5.116.13	6.166.52	5.964.82	3.363.4	4.385.15	6.275.79	4.465.27	6.345.55	5.985.97	5.424.94	4.624	2.961.36	0.050.6	0.801.7	0.050.44	23.77	5.186.12	6.395.26	4.143.88	4.655.25	5.735.55
Θ(45°)	6.777.62	7.678.2	8.637.24	5.346.4	7.748.09	7.135.46	5.353.98	6.295.73	6.165.7	6.047.14	7.737.74	7.366.8	6.556.64	6.96.26	4.562.07	0.10.7	2.940.8	3.852.54	2.834.15	5.646.55	7.176.24	4.823.54	4.045.99	6.756.01
Θ(52.5°)	5.966.99	5.997.33	8.176.53	4.616.47	8.398.89	7.856.32	6.47.93	7.876.3	5.516.52	7.077.97	8.218.21	8.297.64	7.927.54	7.646.89	5.062.73	1.423.38	5.957.17	7.124.98	4.456.23	5.366.05	6.966.63	5.083.59	2.936.25	6.875.55
Θ(60°)	3.825.62	4.815.92	6.995.78	4.276.23	8.339.17	8.666.67	6.037.83	7.446.39	5.160.5	6.067.3	7.338.27	8.287.81	8.027.18	7.887.16	5.373.35	2.614.39	5.956.89	6.224.51	3.954.82	5.685.72	5.960.6	6.144.15	3.075.28	6.115.43
Θ(67.5°)	1.673.58	3.775.01	6.35.34	4.226.1	8.028.41	8.136.02	5.363.99	6.766.17	4.634.98	5.427.04	6.637.98	7.717.48	6.596.51	7.947.05	5.443.88	4.126.18	6.937.32	6.122.99	2.544.15	5.466.17	5.695.16	5.523.8	3.814.73	4.864.65
Θ(75°)	0.912.38	2.864.77	5.64.34	3.625.14	7.327.57	6.835.07	3.975.58	5.664.83	3.73.48	4.096.03	5.476.92	6.576.05	5.415.69	7.397.13	6.133.92	4.146.42	7.597.99	6.583.38	2.043.58	5.416.3	5.054.2	3.833.11	3.943.88	2.753.36
Θ(82.5°)	-0.051.23	1.653.21	3.552.79	3.233.77	5.726.42	5.483.52	2.753.91	4.253.42	2.431.67	2.985.36	4.354.4	5.214.03	4.084.57	6.566.57	5.462.81	3.16.27	7.447.35	5.772.76	1.593.5	4.825.72	41.68	1.141.61	2.562.25	1.061.94
Θ(90°)	-0.980.05	0.942.06	2.251.64	2.682.19	3.644.49	3.761.72	0.741.89	2.432.12	0.63/-0.43	1.244.01	3.343.96	3.751.88	2.162.7	5.015.57	4.741.91	1.154.42	6.045.29	3.751.62	0.781.86	3.653.27	1.23/-1.49	-1.270.37	1.911.13	-1.07/-0.18
Θ(97.5°)	-2.66/-0.47	-0.140.78	0.70.42	1.40.27	1.372.33	1.470.22	-0.460.79	0.410.39	-0.74/-1	-0.252.72	1.822.5	2.18/-0.15	0.210.21	2.533.84	2.9/-0.56	-1.472.54	3.172.03	1.21/-2.56	-0.51/-0.65	0.24/-0.24	-3.12/-5.55	-3.7/-0.93	-0.23/-0.73	-2.3/-0.79
Θ(105°)	-3.66/-3.25	-1.250.27	-0.06/-0.35	0.760.47	1.661	-0.27/-0.35	-2.15/-0.84	-1.11/-0.02	-2.37/-2.53	-2.460.53	-0.091.75	0.3/-1.73	-1.01/-1.51	-0.560.27	1.19/-0.61	-30.11	1.13/-0.38	-0.66/-6.01	-2.2/-3.51	-2.76/-1.73	-4.51/-5.48	-5.64/-3.32	-0.48/-4.77	-3.39/-1.53
Θ(112.5°)	-4.59/-4.77	-2.68/-0.5	-2.38/-1.66	-0.63/-0.81	0.950.46	-0.78/-1.38	-2.76/-4.24	-1.63/-2.36	-2.76/-6.17	-3.8/-2	-1.02/-0.83	-1.28/-1.8	-1.76/-2.86	-2.89/-1.62	-1.12/-3.12	-6.41/-2.21	0.22/-0.08	-2.45/-7	-4.82/-3.82	-4.54/-2	-4.22/-6.3	-5.47/-4.42	-3.8/-6.44	-4.94/-3.39
Θ(120°)	-6.1/-5.2	-4.13/-1.5	-1.87/-1.85	-0.95/-2.06	-3.3/-2.73	-2.03/-3.8	-3.43/-4.14	-2.85/-2.45	-3.16/-3.66	-5.8/-3.11	-2.28/-2.86	-3.96/-2.46	-3.47/-4.01	-1.85/-1.9	-3.14/-2.71	-4.98/-6.29	-3.32/-2.3	-2.21/-6.08	-7.55/-2.73	-1.96/-4.72	-9.34/-6.86	-5.98/-6.38	-6.22/-7.46	-7.94/-5.16
Θ(127.5°)	-6.71/-9.64	-5.58/-4.3	-4.03/-3.4	-2.23/-1.22	-1.82/-2.94	-3.57/-6.17	-7.05/-4.03	-3.73/-2.81	-2.04/-2.03	-5.52/-4.73	-4.15/-4.37	-5.35/-5.21	-5.83/-4.02	-2/-3.01	-2.44/-1.52	-3.84/-8.63	-5.7/-3.32	-5.6/-8.93	-7.26/-4.84	-4.95/-6.15	-10.67/-6.94	-		



Sporton International Inc.



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~4

Appendix A.2

Θ(22.5°)	-4.64/-6.18	-8.2/-9.22	-14.48/-14.66	-12.21/-11.08	-11.81/-10.09	-10.29/-11.94	-9.33/-10.13	-14.77/-15.93	-11.11/-8.05	-8.41/-10.94	-10.64/-9.86	-6.5/-4.95	-3.07/-2.92	-2.68/-2.26	-1.69/-1.37	-1.74/-3.56	-6.84/-9.61	-18.36/-15.99	-13.2/-9.89	-10.28/-6.65	-6.18/-5.7	-5.61/-4.49	-5.02/-5.46	-5.38/-5.18
Θ(30°)	-5.64/-5.85	-6.32/-8.71	-14.12/-12.97	-18.44/-15.88	-13.77/-10.46	-10.55/-14.09	-8.92/-8.85	-8.08/-13.29	-11.84/-10.06	-6.86/-4.5	-5.51/-5.1	-7.15/-5.65	-1.6/-1.87	-4.32/-3.18	-2.56/-1.99	-0.96/-1.62	-5.32/-6.68	-14.17/-18.29	-16.7/-12.11	-14.08/-12.49	-11.65/-8.68	-6.63/-5.22	-6.28/-5.52	-5.09/-5.7
Θ(142.5°)	-7.76/-5.83	-8.54/-14.12	-17.76/-17.84	-14.4/-12.02	-17.11/-13.42	-9.32/-11.9	-12.81/-10.12	-6.99/-8.99	-10.24/-7.38	-8.12/-4.08	-5.97/-3.88	-2.67/-5.05	-7.78/-4.88	-4.98/-4.68	-5.09/-2.4	-0.21/-0.93	-2.12/-4.24	-10.02/-11.91	-12.03/-11.3	-14.91/-16.3	-11.63/-10.73	-6.99/-7.12	-6.42/-5.17	-5.85/-6.85
Θ(45°)	-8.62/-8.45	-7.88/-13.16	-12.18/-11	-10.75/-6.67	-10.73/-18.39	-13.3/-12.74	-12.37/-9.45	-5.71/-8.04	-12.63/-9.13	-7.61/-5.34	-6.73/-6.47	-2.17/-1.72	-4.04/-5.99	-5.92/-6.14	-6.23/-2.46	-2.17/-1.66	-1.99/-7.11	-12.95/-14.58	-9.17/-11.15	-18.08/-15.46	-9.76/-7.77	-5.57/-4.91	-5.96/-7.55	-7.51/-7.35
Θ(52.5°)	-8.06/-6.72	-5.42/-7.89	-4.1/-5.69	-8.69/-7.1	-10.65/-17.43	-18.19/-10.4	-13.3/-8.1	-7.15/-8.91	-15.66/-9.41	-11.91/-10.6	-5.09/-9.02	-4.34/-2.47	-5.71/-7.39	-3.28/-5.6	-5.53/-3.9	-3.14/-1.02	-2.2/-10.37	-17.71/-17.68	-11.48/-17.99	-11.81/-12.34	-7.11/-13.24	-4.2/-4.82	-6.03/-7.03	-10.26/-8.6
Θ(60°)	-9.21/-2.65	-1.94/-5.66	-1.9/-3.13	-8.8/-8.1	-11.55/-14.39	-18.07/-12.66	-15.84/-10.46	-10.45/-11.9	-14.44/-12.45	-14.43/-9.36	-6.21/-5.92	-4.9/-4.06	-3.72/-3.45	-2.19/-3.73	-5.1/-2.63	-1.61/-10.66	-16.27/-18.02	-10.1/-16.64	-6.89/-8.01	-5.1/-2.06	-5.61/-4.86	-4.08/-7.34	-10.18/-4.37	
Θ(67.5°)	-3.9/-2.95	-2.42/-2.17	-1.37/-4.49	-8.84/-6.67	-9.99/-12.4	-18.96/-12.67	-16.44/-17.65	-11.54/-12.53	-18.76/-13.17	-7.19/-8.9	-3.55/-4.04	-5.74/-1.84	-5.52/-1.06	-1.81/-2.49	-2.65/-5.48	-10.32/-4.34	-3.76/-9.41	-7.67/-17.57	-11.12/-7.34	-8.9/-14.9	-8.87/-4.57	-5.57/-4.12	-4.89/-6.46	-7.47/-5.6
Θ(75°)	-2.91/-1.91	-1.75/-1.68	-0.23/-3.52	-6.09/-5.68	-11.01/-8.69	-16.73/-16.15	-18.64/-16.15	-11.11/-11.04	-15.9/-7.17	-7.83/-5.92	-3.18/-3.68	-4.15/-3.43	-3.91/-0.06	-3.31/-1.37	-1.89/-4.45	-10.37/-11.08	-3.7/-6.21	-4.57/-17.91	-5.63/-4.73	-11.32/-17.9	-5.11/-4.89	-4.85/-3.8	-5.25/-5.15	-6.13/-5.16
Θ(82.5°)	-1.41/-2.16	-0.81/-0.95	-0.6/-3	-6.7/-6.19	-15.44/-10.05	-18.31/-14.85	-14.53/-16.89	-13.32/-12.06	-10.98/-4.85	-5.07/-4.58	-2/-3.04	-4.36/-2.73	-4.71/-0.73	-2.85/-1.47	-1.71/-6.99	-9.55/-18.24	-7.03/-7.4	-3.13/-82	-7.49/-3.01	-15.71/-9.67	-3.59/-4.56	-6.24/-1.7	-5.96/-4.01	-5.57/-4.28
Θ(90°)	-2.12/-1.68	0.0/-0.62	-1.95/-3.5	-5.53/-4.65	-10.67/-7.7	-17.57/-17.5	-16.51/-14.14	-12.94/-17.23	-10.96/-4.71	-6.07/-4.24	-1.97/-2.73	-3.28/-4.43	-4.59/-0.85	-4.29/-1.62	-1.61/-7.45	-8.22/-7.26	-15.37/-7.4	-3.12/-17.58	-5.34/-4.6	-18.72/-6.17	-3.81/-6.3	-6.44/-4.92	-6.2/-3.21	-4.46/-2.68
Θ(97.5°)	-1.5/-1.94	-0.71/-1.38	-1.64/-1.63	-7.78/-6.28	-15.98/-9.78	-18.88/-16.17	-18.79/-13.92	-10.61/-13.51	-7.52/-5.42	-5.04/-3.75	-1.53/-3.27	-3.74/-3.89	-8.84/-0.75	-6.36/-4.94	-2.07/-4.78	-6.65/-6.68	-15.07/-10.65	-3.8/-10.21	-7.69/-4.93	-9.41/-5.58	-6.14/-7.2	-7.42/-5.76	-4.8/-2.75	-3.55/-2.77
Θ(105°)	-2.24/-2.19	-0.66/-1.02	-2.03/-2.55	-8.79/-7.19	-13.41/-12.01	-18.78/-18.64	-15.85/-15.97	-13.53/-15.87	-7.96/-5.18	-5.57/-4.26	-1.86/-2.32	-5.03/-4.29	-9.21/-8.99	-7.23/-3.08	-5.43/-6.25	-6.38/-6.93	-12.6/-6.91	-10.74/-9.68	-6.21/-14.33	-9.74/-4.55	-13.08/-8.52	-9.39/-12.68	-4.08/-4.88	-4.63/-2.8
Θ(112.5°)	-2.56/-2.23	-1.09/-1.1	-2.82/-1.47	-9.86/-8.04	-13.04/-16.16	-15.22/-16.94	-15.28/-11.16	-18.98/-14.02	-9.39/-3.93	-6.78/-4.4	-3.14/-2.71	-4.82/-5.36	-5.79/-4.06	-10.55/-8.63	-10.68/-8.08	-12.91/-3.32	-16.6/-8.59	-9.21/-16.33	-15.07/-6.33	-14.36/-15.13	-12.39/-13.18	-8.25/-3.31	-3.65/-3.71	-3.41/-1.92
Θ(120°)	-2.94/-2.27	-2.34/-2.24	-3.79/-3.32	-6.91/-13.77	-11.55/-19.01	-17.82/-12.95	-16.34/-12.9	-17.5/-12.56	-11.69/-4.46	-6.86/-5.55	-5.03/-4.57	-3.38/-5.95	-8.95/-17.25	-13.08/-11.03	-8.36/-11.1	-13.57/-7.84	-12.96/-18.28	-19.46/-17.25	-15.43/-16.15	-16.49/-9.37	-7.65/-5.39	-4.76/-5.1	-3.81/-2.77	
Θ(127.5°)	-2.26/-3.88	-3.11/-2.18	-3.64/-0.41	-8.69/-15.86	-9/-11.59	-17.99/-15.79	-16.07/-18.4	-15.11/-9.74	-6.23/-4.69	-9.21/-8.99	-4.82/-4.37	-8.96/-4.22	-7.74/-12.29	-12/-10.18	-11.12/-11.01	-9.12/-8.98	-7.88/-9.41	-12.75/-11.92	-15.67/-18.22	-14.98/-14.31	-5.62/-13.8	-5.68/-4.79	-6.92/-3.51	
Θ(135°)	-5.86/-3.63	-3.39/-3.67	-4.43/-6.25	-5.63/-8.01	-7.88/-7.57	-10.87/-16.95	-10.79/-14.24	-18.82/-8.08	-4.72/-8.56	-5.86/-7.41	-7.98/-5.83	-4.82/-6.8	-6.86/-9.88	-16.28/-8.01	-7.6/-6.69	-7.01/-16.53	-16.48/-16.47	-17.34/-7.26	-16/-7.12	-12.27/-15.26	-12.63/-16.39	-13.35/-14.05	-11.42/-8.11	-4.52/-3.81
Θ(142.5°)	-4.14/-13.98	-7.45/-5.55	-5.21/-5.56	-8.53/-4.28	-15.13/-12.84	-15/-12.29	-13.96/-14.8	-18.92/-9.88	-6.46/-6.69	-6.88/-6.26	-9.38/-6.4	-7.79/-8.51	-8.69/-6.65	-7.98/-3.21	-5.37/-7.12	-13.01/-15.38	-11.38/-13.17	-10.81/-11.7	-5.35/-7.99	-10.02/-10.73	-7.93/-12.13	-16.18/-12.82	-7.68/-8.7	-7.1/-3.94
Θ(150°)	-5.53/-6.68	-4.97/-4.29	-6.07/-11.84	-15.42/-15.3	-11.99/-11.61	-12.28/-11.91	-13.41/-14.44	-14.9/-12.71	-15.19/-9.6	-5.19/-7	-13.88/-12.06	-11.21/-11.07	-4.77/-3.66	-5.67/-6.74	-12.87/-11.5	-14.39/-19.47	-18.69/-13.07	-17.79/-9.88	-7.56/-7.1	-14.53/-10.63	-6.49/-8.91	-11.24/-10.73	-8.06/-8.17	-4.59/-3.27
Θ(157.5°)	-5.92/-8.44	-7.11/-6.78	-6.63/-8.42	-8.67/-8.73	-11.78/-12.81	-15.22/-18.93	-16.28/-15.3	-13.1/-18.52	-13.07/-10.88	-8.79/-6.28	-6.13/-8.47	-12.81/-16.42	-13.2/-10.83	-9.28/-8.66	-12.55/-16.34	-18.19/-17.41	-15.12/-13.08	-10.77/-8.96	-11.03/-13.56	-18.13/-11.15	-12.33/-18.77	-13.21/-10.89	-8.77/-6.86	-4.8/-4.36
Θ(165°)	-7.86/-9.89	-10.58/-11.9	-15.51/-19.41	-19/-18.16	-18.73/-18.7	-17.68/-19.17	-17.72/-19.26	-14.44/-10.95	-6.53/-5.98	-5.54/-5.16	-6.02/-8.48	-12.52/-11.67	-16.89/-10.56	-8.24/-8.66	-12.06/-18.11	-18.26/-19.27	-14.58/-15.38	-15.43/-18.11	-18.14/-18.69	-17.89/-15.73	-17.61/-19.47	-17.88/-12.96	-8.71/-7.28	-7.62/-7.04
Θ(172.5°)	-12.48/-13.28	-10.38/-8.33	-9.15/-8.46	-7.14/-8.02	-8.79/-11.09	-15.44/-12.2	-15.89/-13.93	-16.25/-16.27	-13.22/-13.04	-10.46/-9.08	-10.71/-16.67	-18.29/-17.55	-14.37/-11.56	-16.78/-10.78	-9.58/-12.85	-10.38/-8.92	-13.52/-15.63	-12.98/-16.87	-17.83/-16.77	-16.13/-17.47	-15.84/-13.67	-10.98/-10.61	-14.67/-14.28	
Θ(180°)	-12.97/-12.74	-13.54/-14.04	-14.39/-15.35	-15.79/-18.82	-18.39/-18.82	-17.05/-18.86	-17.96/-18.73	-16.6/-16.8	-15.81/-12.82	-12.07/-16.74	-17.38/-11.36	-9.67/-10.15	-10.82/-11.64	-15.27/-18.15	-15.63/-12.17	-10.92/-13.84	-12.06/-12.16	-15.09/-14.94	-17.38/-18.86	-15.98/-15.49	-18.35/-16.2	-13.95/-14.19	-13.11/-12.58	-13.17/-14.54
Freq(Hz)	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°)	-13.03/-12.72	-13.33/-12.52	-17.94/-18.66	-16.71/-17.79	-17.98/-16.03	-15.98/-10.63	-15.24/-9.97	-9.85/-11.59	-8.37/-7.53	-8.07/-8.72	-7.67/-7.78	-6.88/-9.91	-10.92/-11.77	-12.48/-15.05	-16.14/-16.84	-13.27/-13.01	-11.64/-10.71	-12.63/-8.79	-9.3/-8.81	-7.87/-9	-8.77/-8.8	-9.62/-8.26	-9.61/-10.31	-9.52/-10.93
Θ(7.5°)	-15.11/-18.92	-18.71/-15.23	-16.08/-15.2	-10.98/-10.11	-7.92/-5.39	-6.74/-4.87	-3.38/-4.48	-2.58/-2.98	-4.56/-3.48	-3.81/-5.35	-4.98/-4.75	-5.61/-6.53	-7.5/-8.18	-11.2/-13.41	-15.62/-15.59	-12.54/-10.19	-8.49/-6.9	-6.64/-6.25	-5.27/-5.85	-6.47/-6.81	-9.64/-11.25	-12.13/-13.52	-19.02/-17.7	-17.93/-18.4
Θ(15°)	-10.4/-7.8	-8.32/-8.05	-7.11/-5.78	-7.88/-7.49	-8.39/-6.57	-5.18/-5.99	-3.97/-4.47	-3.29/-2.92	-3.41/-2.69	-2.53/-2.41	-1.65/-1.93	-3.26/-5.2	-7.47/-9.07	-12.04/-13.36	-17.84/-17.98	-19.04/-17.3	-14.77/-12.36	-9.85/-10.07	-11.82/-10.48	-12.57/-15.77	-14.35/-16.16	-13.6/-12.9	-13.22/-10.54	
Θ(22.5°)	-3.76/-2.7	-3.04/-2.92	-2.81/-4.72	-7.09/-8.11	-9.52/-10.3	-6.92/-5.18	-3.84/-1.8	-1.67/-0.15	-4.47/-0.92	-1.02/-2.25	-1.05/-0.39	-1.89/-3.55	-5.29/-5.78	-6.6/-75	-13.67/-11.22	-14.64/-18.2	-18.11/-17.79	-18.5/-15.49	-17.61/-15.2	-10.96/-13.03	-14.2/-16.94	-11/-8.49	-5.72/-4.65	
Θ(30°)	-2.23/-1.45	-1.44/-1.76	-3.14/-5.8	-7.69/-8.74	-6.32/-3.85	-4.14/-4.88	-4.63/-5.04	-3.14/-2.67	-0.89/-0.9	1.21/-0.4	-0.14/-1.05	-2.37/-0.76	-0.96/-1.16	-2.52/-5.31	-7.15/-8.97	-7.95/-5.03	-6.06/-5.79	-5.25/-6.02	-4.95/-6.06	-8.04/-6.7	-6.09/-8.42	-10.97/-15.09	-18.59/-10.61	-5.57/-3.2
Θ(37.5°)	-0.35/-1.28	-1.0/-1.18	0.50/-33	0.04/-0.31	-0.05/-0.83	-1.21/-2.77	-3.96/-4.1	-3.68/-2.12	-2.82/-0.73	2.692/-63	0.95/-4.05	-1.38/-0.42	-0.29/-0.78	-2.74/-3.37	-5.2/-5.98	-5.09/-5.01	-5.82/-5.5	-7.34/-11.95	-9.32/-4.97	-2.37/-1.49	-2.31/-2.79	-8.15/-8	-8.76/-7.17	-2.07/-0.19
Θ(45°)	0.48/-1.25	1.79/-2.7	3.013/-16	2.51/-19	1.61/-69	1.540/-17	-0.19/-1.26	-1.37/-1.26	-0.650/-0.9	4.044/-35	1.330/-51	0.01/-0.09	-1.03/-0.55	-1.78/-0.74	-2.36/-1	-1.4/-2.7	-5.73/-5.31	-4.59/-6.12	-1.76/-2.89	-0.72/-1.35	-1.82/-2.62	-4.56/-6.5	-4.71/-1.02	1.05/-1.58
Θ(52.5°)	1.28/-3.2	4.28/-4.5	3.53/-5.3	2.29/-1.41	1.422/-66	2.61/-7	0.73/-0.94	-2.02/-1.03	0.131/-65	3.844/-49	0.940/-99	0.83/-0.03	-0.720/-64	-0.69/-2.71	-3.480/-1	0.52/-11.4	-3.23/-1.46	0.4/-1.17	-1.38/-1.04	1.461/-98	-1.04/-2.31	-3.42/-4.32	-3.480/-47	1.762/-47
Θ(60°)	1.263/-99	5.774/-0.7	2.772/-72	2.742/-15	2.41/-37	0.620/-24	-1.89/-3.13	-1.75/-9.97	1.091/-56	3.273/-62	1.88/-0.58	2.021/-8	-0.67/-1.24	-7.99/-2.2	-0.48/-2.91	-4.7/-7.21	-1.3/-2.56	-2.510/-45	1.772/-01	-1.28/-2.5	-2.19/-1.55	0.530/-29	1.582/-1	
Θ(67.5°)	1.124/-74	5.42/-73	2.493/-08	1.87/-1	1.5/-4.74	-1.22/-2	-3.12/-96	-3/-1.13	-1.04/-2.7	3.531/-99	-0.080/-18	1.812/-72	0.341/-26	-1.04/-10.52	-18.06/-6.45	-1.05/-4.48	-2.73/-1.9	-3.74/-0.28	2.191/-83	1.24/-1.6	-2.23/-0.82	1.472/-14	1.630/-89	
Θ(75°)	0.184/-11	4.271/-36	3.033/-5	1.61/-55	1.3/-1.22	-1.89/-1.05	-1.57/-1.95	-0.99/-0.58	-1.771/-84	2.940/-5	-0.14/-1.27	1.332/-36	0.271/-37											



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~4

Appendix A.2

Θ(75°)	-4.85/-3.3	-3.74/-2.88	-2.73/-1.87	-4.39/-6.77	-7.21/-10.98	-16.27/-15.64	-17.93/-18.95	-13.37/-8.56	-9.06/-6.99	-5.34/-7.32	-8.98/-6.45	-13.42/-5.64	-9.55/-5.95	-3.75/-5.85	-1.76/-1.66	-7.25/-8.53	-9.72/-6.66	-8.12/-12.72	-12.81/8.03	-12.71/-16	-8.3/-8.26	-6.59/-6.89	-8.5/-12.52	-5.61/-5.13	
Θ(82.5°)	-5.25/-3.49	-3.82/-3.5	-2.47/-2.61	-4.53/-5.16	-6.95/-10.09	-14.08/-18.52	-18.98/-18.52	-14.35/-9.29	-9.91/-5.16	-6.66/-7.93	-6.31/-9.88	-8.89/-9.5	-9.55/-8.08	-4.08/-6.05	-3.81/-2.9	-8.1/-13.74	-15.57/-7.81	-5.53/-15.46	-17.23/-4.6	-13.54/-16.93	-5.8/-7.39	-6.53/-6.67	-8.82/-10.96	-5.19/-9.48	
Θ(90°)	-5.02/-4.03	-3.71/-3.2	-3.58/-3.07	-3.29/-5.92	-8.41/-11.46	-16.77/-19.03	-19.05/-19.03	-14.39/-11.35	-9.74/-6.61	-5.11/-11.74	-6.57/-10.93	-8.52/-9.34	-12.07/-9.95	-7.07/-8.6	-3.78/-2.86	-6.65/-13.66	-18.11/-10.3	-8.06/-17.65	-14.46/-5.59	-13.84/-14.16	-4.36/-6.36	-6.52/-6.86	-8.46/-7.78	-6.05/-4.16	
Θ(97.5°)	-4.51/-4.01	-4.36/-4.73	-3.45/-3.98	-4.72/-7.39	-8.92/-8.83	-13.91/-18.74	-17.97/-18.03	-16.57/-9.96	-11.22/-6.14	-6.22/-9.42	-6.07/-7.48	-11.25/-9.15	-13.76/-17.86	-7.58/-10.41	-7.32/-3.39	-6/-17.11	-17.39/-16.95	-7.05/-18.73	-13.28/-6.47	-12.68/-10.75	-5.04/-7.6	-6.78/-7.89	-7.17/-7.16	-5.3/-4.61	
Θ(105°)	-5.22/-3.27	-3.3/-6.66	-4.43/-5.75	-4.47/-8.73	-8.55/-10.14	-11.68/-18.24	-19.24/-15.96	-19.04/-15.74	-10.35/-7.85	-6.14/-8.61	-5.8/-8.92	-8.38/-10.12	-14.17/-15.93	-13.41/-7.24	-12.9/-8.17	-6.09/-11.61	-11.31/-18.45	-14.87/-18.67	-17.08/-9.91	-11.96/-9.46	-5.87/-9.28	-10.75/-6.72	-8.37/-6.05	-5.94/-5.01	
Θ(112.5°)	-4.46/-3.23	-2.95/-5.52	-5.25/-7.2	-5.79/-9.82	-9.24/-7.96	-12.96/-18.56	-18.63/-16.1	-16.45/-15.95	-12.93/-6.56	-7.91/-6.88	-4.91/-9.01	-10.61/-9.99	-16.04/-11.55	-16.3/-12.26	-12/-17.56	-9.86/-9.17	-7.81/-13.45	-19/-13.67	-18.25/-15.94	-12.51/-13.3	-10.98/-12.13	-14.56/-7.47	-7.24/-6.35	-6.13/-6.24	
Θ(120°)	-5.53/-3.66	-4.31/-6.33	-7.15/-8.23	-6.17/-11.76	-10.36/-9.26	-11.11/-18.41	-18.79/-12.99	-17.05/-18.95	-17.91/-8.24	-5.25/-8.15	-5.2/-7.92	-10.54/-8.09	-12.52/-15.3	-9.82/-12.65	-12.03/-18.6	-16.9/-7.46	-10.38/-11.92	-18.92/-17.36	-12.78/-18.42	-10.39/-18.57	-14.46/-13	-13.12/-9.34	-5.88/-6.72	-6.72/-6.68	
Θ(127.5°)	-6.81/-4.55	-7.25/-7.37	-7.41/-9.08	-9.47/-11.89	-13.1/-10.61	-14.11/-16.33	-19.15/-17.47	-17.85/-18.79	-18.66/-9.86	-7.64/-6.49	-8.18/-6.05	-7.95/-13.11	-7.93/-12.18	-14.53/-19.05	-14.87/-19.25	-8.33/-11.1	-9.33/-11	-18.37/-11.66	-14.49/-18.34	-17.37/-17.53	-15.31/-10.96	-14.22/-11.09	-8.23/-6.61	-7.32/-6.63	
Θ(135°)	-8.38/-7.88	-11.99/-9.9	-8.59/-12.87	-10.71/-14.64	-16.28/-10.94	-12.14/-18.19	-16.49/-15.12	-18.57/-18.48	-11.57/-10.64	-10.23/-5.53	-5.11/-8.85	-6.31/-7.51	-8.71/-14.87	-11.66/-13.21	-13.66/-18.84	-10.9/-17.34	-13.63/-18.55	-16.16/-11.65	-17.96/-18.6	-19.06/-14.37	-11.49/-18.49	-17.41/-12.85	-13.79/-7.3	-6.7/-9.01	
Θ(142.5°)	-10.38/-13.98	-12.05/-9.85	-11.32/-13.97	-11.71/-8.7	-12.2/-13.2	-17.97/-16.43	-12.13/-11.35	-18.05/-14.56	-10.08/-6.29	-7.99/-10.01	-5.41/-3.4	-7.72/-10.65	-6.8/-9.05	-10.22/-12.54	-14.83/-18.1	-17.97/-18.57	-17.76/-18.33	-19.04/-19.15	-19.14/-17.23	-15.13/-15.33	-18.61/-14.38	-9.61/-9.8	-17.69/-10.21	-8.75/-10.47	
Θ(150°)	-12.81/-16.16	-14.73/-9.99	-8.09/-11.14	-11.23/-9.81	-10.72/-10.77	-8.53/-11.52	-12.62/-14.59	-16.06/-17.25	-18.49/-18.52	-18.14/-17.89	-8.64/-6.31	-6.98/-9.17	-7.28/-9.79	-9.04/-8.02	-17.04/-11.08	-18.9/-18.55	-15.84/-16	-16.66/-18.46	-18.48/-13.55	-10.86/-14.76	-17.91/-17.65	-17.82/-18.29	-16.12/-15.53	-18.1/-10.54	-11.93/-17.89
Θ(157.5°)	-14.96/-19.49	-12.58/-8.98	-8.46/-10.26	-12.48/-12.07	-11.09/-9.38	-9.65/-11.82	-15.82/-17.55	-19.31/-15.76	-14.94/-16.33	-16.95/-13.45	-8.33/-5.75	-5.43/-6.97	-9.94/-13.59	-17.28/-18.23	-17.52/-18.9	-18.39/-17.75	-17.09/-10.97	-18.37/-18.6	-17.09/-10.97	-16.91/-16.83	-15.44/-15.35	-13.06/-11.41	-8.64/-9.45	-13.85/-17.19	
Θ(165°)	-6.27/-8.36	-11.1/-11.74	-10.97/-9.95	-9.75/-10.73	-12.09/-11.96	-15.06/-15.84	-18.43/-16.5	-16.49/-17.07	-18.83/-17.65	-12.98/-9.2	-7.44/-7.17	-8.47/-11.84	-15.3/-17.4	-17.99/-19.14	-18.04/-14.41	-14/-15.64	-11.53/-10.71	-10.41/-12.65	-15.75/-17.29	-17.97/-17.34	-16.6/-12.81	-9.14/-8.84	-8.63/-7.54	-7.19/-6.87	
Θ(172.5°)	-4.45/-4.29	-4.78/-4.89	-5.41/-6.29	-7.42/-8.85	-11.43/-14.35	-15.5/-18.39	-17.51/-18.6	-18.44/-19.17	-16.5/-13.74	-12.71/-10.35	-9.65/-12.27	-18.72/-17.59	-14.64/-13.9	-15.06/-15.52	-14.66/-16.04	-16.44/-13.42	-14.71/-16.84	-17.66/-18.47	-18.75/-18.67	-18.92/-18.79	-17.46/-14.85	-12.34/-10.24	-8.52/-7.97	-7.03/-5.74	
Θ(180°)	-7.41/-7.04	-6.88/-8.06	-8.46/-8.58	-9.21/-9.81	-10.73/-9.45	-12.76/-13.66	-19.12/-17.32	-18.66/-18.16	-15.64/-14.57	-13.35/-14.44	-18.42/-17.61	-17.4/-19.08	-15.67/-14.61	-12.47/-9.52	-9.69/-9.94	-7.99/-9.68	-12.05/-11.51	-13.26/-15.86	-18.28/-19.3	-17.38/-13.9	-12.47/-10.49	-8.83/-8.41	-7.73/-7.96	-8.07/-7.53	
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°)	-11.61/-12.31	-11.61/-12.31	-10.83/-9.31	-8.11/-7.94	-7.72/-5.67	-6.82/-7.3	-5.49/-5	-3.83/-5.5	-4.53/-4.9	-6.03/-6.26	-6.74/-7.45	-8.32/-9.16	-9.86/-10.88	-11.66/-12.19	-11.85/-9.3	-8.35/-8.5	-7/-7.71	-6.15/-5.34	-5.01/-5.07	-5.33/-5.05	-5.39/-5.78	-6.34/-7.29	-7.8/-8.35	-9.48/-11.06	
Θ(7.5°)	-7.26/-8.98	-9.01/-9.74	-10.4/-9.13	-9.32/-8.08	-7.49/-7.17	-6.12/-6.49	-4.91/-6.13	-5.39/-4.27	-4.9/-3.97	-3.44/-4.34	-4.97/-4.6	-4.77/-5.45	-7/-6.68	-13.3/-15.99	-16.48/-16.2	-13.85/-10.69	-7.79/-6.72	-5.44/-4.82	-4.52/-4.17	-4.56/-4.36	-5.04/-4.79	-5.72/-6.45	-6.02/-6.13	-6.96/-7.45	
Θ(15°)	-5.52/-6.31	-6.6/-6.92	-7.9/-8.84	-6.54/-6.66	-10.72/-10.77	-11.28/-11.63	-8.54/-6.67	-6.23/-6.51	-4.29/-3.66	-3.93/-4.31	-4.82/-4.68	-5.02/-4.31	-3.6/-3.56	-4.59/-3.78	-13.41/-17.02	-14.39/-15.34	-15.53/-13.59	-9.94/-8.02	-7.07/-6.34	-7/-7.74	-7.65/-8.54	-8.36/-8.12	-7.22/-6.28	-5.13/-5.12	
Θ(22.5°)	-3.73/-2.05	-2.22/-4.8	-7.01/-5.84	-5.66/-5.16	-5.28/-6.55	-7.27/-7.05	-6.56/-6.31	-6.03/-5.14	-4.32/-3.55	-3.24/-4.78	-4.72/-3.2	-2.99/-3.25	-3.42/-6.44	-10.17/-8.22	-9.34/-18.07	-12.98/-12.59	-4.92/-7.27	-6.19/-6.95	-5.34/-4.33	-3.77/-4.17	-2.81/-2.06	-1.32/-1.56	-2.24/-5.19	-2.55/-4.9	
Θ(30°)	-3.14/-0.71	-0.27/-1.25	-1/-0.57	-0.61/-1.53	-2.04/-3.49	-5.57/-7.55	-7.81/-5.6	-5.43/-3.65	-3.73/-3.13	-2.7/-3.11	-2.9/-3.58	-2.86/-2.97	-2.93/-3.75	-4.45/-5.66	-9.4/-14.12	-15.22/-12.35	-10.08/-7.02	-6.84/-5.35	-5.09/-5.23	-4.47/-3.7	-2.82/-2.37	-4.19/-3.72	-1.01/-0.56	-2.65/-4.26	
Θ(37.5°)	-0.33/-1.12	1.72/-6.14	1.78/-1.15	-1.64/-1.91	-0.88/-0.04	-0.41/-1.84	-2.46/-3.66	-3.97/-4.39	-1.03/-0.66	-0.84/-0.46	1.3/-2.6	-1.53/-0.72	-1.29/-1.19	-1.94/-3.65	-6.03/-10.69	-11.69/-9.52	-3.5/-3.36	-2.4/-3.26	-3.38/-2.31	-0.72/-0.3	0.65/-0.48	-2.26/-4.77	-4.12/-2.71	-2.88/-2.61	
Θ(45°)	2.2/3.4	3.33/95	3.03/1.16	3.11/-1.77	0.72/-0.41	-0.93/-2.79	2.24/-1.95	-1.17/-2.52	-1.83/-0.17	0.31/2	1.85/0.87	-1.51/-0.44	-0.81/-1.63	-1.47/-1.77	-2.64/-5.42	-4.68/-3.09	2.48/-3.26	-3.83/-4.82	-4.98/-4.09	2.02/0.44	2.56/0.86	-2.23/-4.01	-3.64/-1.29	-0.73/-1.78	
Θ(52.5°)	4.08/-8.22	1.25/2.33	4.13/2.41	-2.14/-1.43	-0.29/-1.45	-2.95/-2.32	-2.22/-0.19	0.97/0.42	-1.62/0.02	1.9/2.85	2.34/-0.42	0.01/-0.8	-1.32/-2.83	-2.95/-3.96	-3.67/-3.75	-1.83/-1.51	-1.46/-1.21	-0.2/-1.75	-1.65/0.25	0.08/0.09	2/1	-2.89/-5.24	-5/-0.88	-0.22/-1.21	
Θ(60°)	3.14/4.33	1.13/2.05	3.37/2.14	-0.39/-0.36	-0.42/-0.64	-1.77/-1.53	-1.01/0.73	0.77/1.45	-0.5/-0.95	-0.09/2.97	1.94/-0.48	-0.52/-1.74	-0.85/-4.1	-2.83/-6.32	-8.95/-8.52	-2.53/-2.65	-4.12/-2.09	-1.7/-2.54	-1.46/-0.06	-0.46/-1.23	-0.6/-0.29	-3.09/-5.35	-3.24/-3.99	-1.09/0.94	
Θ(67.5°)	1.95/2.31	0.39/1.57	2.58/1.62	-0.19/0.22	-0.41/0.44	-0.06/-1.74	1.49/1.73	-0.28/-2.12	-1.31/2.24	0.33/-0.61	-1.77/-1.16	-1.47/-3.12	-2.05/-7.67	-18.66/-11.1	-3.08/-13.7	-3.44/-3.03	-0.98/-6.19	-3.18/-13.7	-7.40/-28.6	-1.61/-2.82	-6.61/-5.63	-1.15/-4.02	-2.58/0.91	-2.58/0.91	
Θ(75°)	1.21/2.94	-0.98/1.02	1.65/0.08	-0.35/0.23	0.52/2.03	0.77/-1.49	-1.19/0.53	2.08/1.28	-0.82/-2.06	-2.89/0.43	-0.85/-0.93	-0.24/-1.76	-0.87/-2.31	-0.61/-5.54	-11.27/-14.77	-2.33/-1.31	-4.04/-0.1	-0.02/-3.3	-5.02/-1.5	-10.50/-38	-2.56/-2.81	-9.76/-6.84	-0.72/-3.83	-3.64/-0.29	
Θ(82.5°)	0.01/1.78	-0.69/0.5	-0.43/-0.89	0.28/0.31	0.32/27	0.67/-1.73	-1.1/-1.14	1.05/0.95	-1.58/-3.64	-4.08/0.24	-2.78/-1.91	-2.46/-3.1	-1.74/-2.98	-1.79/-5.08	-8.03/-12.68	-4.73/-4.13	-2.99/-2.2	-1.18/-3.2	-7.01/-0.56	0.74/1.19	-5.12/-4.47	-1.43/-6.3	-2.13/-4.46	-4.48/-1.76	
Θ(90°)	-1.4/0.11	-1.49/-0.13	-1.48/-1.96	0.18/0.58	0.14/1.24	0.54/-1.43	-1.33/-2.28	-0.04/-0.51	-2.97/-4.27	-5.41/-2.26	-3.72/-2.77	-4.06/-4.69	-2.86/-5.75	-3.19/-4.64	-7.09/-9.33	-6.42/-2.53	-1.29/-3.93	-5.24/-2.89	-10.2/-2.5	0.29/-1.13	-7.64/-6.85	-10.61/-6.02	-3.63/-5.4	-6.9/-3.02	
Θ(97.5°)	-4.24/-1	-3.28/-0.76	-2.01/-2.24	-0.71/-0.32	0.63/1.07	-1.49/-2.74	-1.86/-2.18	-5.23/-4.46	-6.14/-3.77	-4.82/-4.61	-5.61/-6.57	-6.03/-9.64	-8.76/-7.47	-10.8/-9.42	-8.06/-3.47	-3.36/-5.26	-5.69/-8.34	-10.43/-5.29	-3.2/-6.23	-12.89/-11.11	-11.16/-6.04	-5.59/-7.82	-7.18/-3.81	-7.18/-3.81	
Θ(105°)	-5.54/-3.65	-5.38/-1.75	-1.86/-3.68	-1.17/-0.06	1.62/-0.14	-1.06/-0.52	-2.94/-3.51	-3.51/-1.48	-8.28/-5.93	-8.91/-5.11	-7.61/-3.84	-8.82/-12.25	-7.02/-12.98	-15.21/-18.93	-18.59/-9.99	-6.69/-7.28	-4.39/-4.29	-5.44/-1.39	-10.43/-7.3	-8.14/-10.8	-13.64/-11.62	-12.53/-8.91	-7.07/-18.42	-7.37/-5.34	
Θ(112.5°)	-6.63/-7.57	-10.87/-3.75	-4.82/-5.56	-1.17/-2.54	0.1/-0.86	-1.63/-1.4	-2.92/-6.99	-2.05/-4.6	-6.45/-12.86	-8.39/-12.16	-6.02/-1.9	-8.68/-16.63	-15.99/-15.4	-16.89/-17.47	-13.27/-17.94	-18.15/-8.7	-9.68/-6.36	-8.7/-10.31	-12.38/-5.77	-13.51/-12.34	-9.04/-16.96	-18.97/-18.51	-18.35/-18.79	-9.06/-6.49	
Θ(120°)	-12.47/-11.49	-11.49/-5.74	-4.44/-6.61	-2.57/-2.73	-3.56/-2.07	-2.94/-3.23	-5.82/-1.87	-6.39/-8.33	-5.06/-8.95	-12.94/-9.94	-7.57/-9.49	-12.65/-9.9	-9.29/-10.26	-13.38/-12.57	-10.93/-16.97	-18/-13.36	-9.29/-19.33	-19.19/-5.97	-7.64/-18	-15.47/-15.74	-11.71/-15.13	-17.26/-19.13	-10.32/-9.8	-10.32/-9.8	
Θ(127.5°)	-12.16/-16.96	-10																							



Radiated Composite Gain Data of 2.4GHz/5GHz 2G5G Ant1~4

Appendix A.2

Θ(127.5°)	-15.87/-18.39	-18.35/-13.87	-6.88/-9.85	-16.49/-16.05	-14.21/-13.71	-15.21/-12.29	-17.51/-15.88	-18.24/-13.47	-8.71/-12.54	-18.93/-9.63	-16.67/-17.93	-18.16/-18.49	-18.86/-15.33	-18.54/-15.12	-12.63/-17.92	-15.51/-11.98	-14.58/-14.33	-9.82/-17.22	-19.14/-10.88	-9.49/-11.99	-13.49/-16.97	-13.11/-11.55	-19.12/-14.32	-16.08/-19.07
Θ(135°)	-19.27/-17.74	-14.49/-13.1	-9.09/-10.66	-14.21/-12.12	-8.87/-13.36	-18.16/-13.39	-15.53/-14.54	-12.57/-18.06	-13.21/-11.19	-18.18/-18.49	-17.19/-18.49	-17.91/-15.33	-16.53/-12.99	-17.72/-17.46	-11.35/-10.66	-18.82/-18.21	-18.65/-18.36	-15.05/-16.01	-18.18/-18.68	-19.17/-16.45	-12.54/-11.47	-14.9/-16.46	-17.38/-16.49	
Θ(142.5°)	-16.51/-12.01	-16.74/-19.14	-9.52/-16.53	-10.77/-17.69	-16.45/-9.39	-10.17/-14.07	-18.19/-17.55	-18.31/-17.47	-18.74/-16.9	-15.17/-12.06	-13.81/-9.69	-8.51/-9.21	-19.08/-9.86	-11.45/-18.39	-17.86/-14.22	-9.93/-7.57	-14.58/-18.47	-19.29/-16.19	-15.13/-18.15	-19.12/-14.81	-10.97/-12.77	-13.96/-14.07	-15.62/-19.32	
Θ(150°)	-16.99/-9.06	-7.28/-8.66	-13.99/-12.26	-9.33/-10.52	-12.13/-15.11	-19.46/-15.35	-17.18/-17.32	-12.11/-11.94	-14.68/-13.6	-11.77/-13.51	-18.88/-18.11	-13.75/-10.77	-9.46/-11.76	-18.01/-14.39	-16.04/-18.84	-18.21/-19.13	-13.33/-12.41	-13.96/-18.1	-12.94/-9.05	-9.18/-13.45	-15.12/-10.84	-8.23/-9.28	-17.53/-18.4	-11.28/-15.74
Θ(157.5°)	-18.25/-18.23	-14.04/-11.75	-11.77/-14.68	-16.11/-14.49	-13.21/-13.91	-17.62/-19.05	-12.41/-9.83	-7.98/-6.89	-13.37/-14.89	-9.54/-7.83	-9.28/-12.76	-16.01/-18.92	-19.21/-19.09	-18.31/-17.97	-18.73/-18.65	-18.81/-17.82	-18.21/-18.84	-18.85/-12.96	-10.23/-9.92	-11.8/-18.18	-14.4/-9.95	-8.61/-10.4	-16.32/-15.19	-9.73/-10.66
Θ(165°)	-8.1/-9.1	-9.75/-10.05	-10.05/-9.9	-10.44/-10.56	-10.44/-12.18	-18.12/-18.22	-18.61/-18.85	-15.58/-14.89	-17.79/-12.13	-9.13/-8.41	-9.29/-11.26	-13.02/-14.64	-16.95/-17.4	-18.49/-12.93	-10.05/-8.92	-8.31/-7.75	-8.81/-11.91	-14.37/-15.58	-18.71/-18.36	-18.71/-18.7	-15.94/-13.87	-13.77/-16.08	-17.78/-11.21	-7.75/-6.94
Θ(172.5°)	-9.27/-11.16	-13.58/-15.51	-16.22/-15.5	-15.02/-15.88	-17.66/-18.77	-18.25/-19.04	-17.72/-16.27	-14.16/-14.2	-14.33/-15.33	-17.93/-17.55	-17.87/-15.13	-11.79/-10.82	-11.69/-14.41	-18.97/-18.91	-17.16/-15.17	-15.73/-18.33	-18.15/-16.28	-17.69/-18.6	-16.47/-13.05	-12.49/-13.89	-15.13/-15.87	-16.13/-13.91	-11.78/-9.84	-8.47/-7.91
Θ(180°)	-12.15/-11.47	-10.48/-9.32	-8.54/-8.53	-7.79/-7.09	-6.84/-7.19	-7.21/-6.97	-7.57/-9.61	-11.58/-12.82	-14.81/-16.37	-18.72/-19.46	-18.59/-18.42	-17.21/-15.59	-15.16/-14.02	-12.06/-10.08	-8.09/-7.15	-8.01/-9.93	-10.92/-10.4	-12.44/-16.76	-15.58/-14.54	-15.75/-17.5	-18.16/-18.21	-17.45/-18.19	-17.89/-15.81	-14.08/-12.68
Freq(Hz)	5.2GPol	ThetaAnt.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)Ψ(7.5°)	Φ(15°)Ψ(22.5°)	Φ(30°)Ψ(37.5°)	Φ(45°)Ψ(52.5°)	Φ(60°)Ψ(67.5°)	Φ(75°)Ψ(82.5°)	Φ(90°)Ψ(97.5°)	Φ(105°)Ψ(112.5°)	Φ(120°)Ψ(127.5°)	Φ(135°)Ψ(142.5°)	Φ(150°)Ψ(157.5°)	Φ(165°)Ψ(172.5°)	Φ(180°)Ψ(187.5°)	Φ(195°)Ψ(202.5°)	Φ(210°)Ψ(217.5°)	Φ(225°)Ψ(232.5°)	Φ(240°)Ψ(247.5°)	Φ(255°)Ψ(262.5°)	Φ(270°)Ψ(277.5°)	Φ(285°)Ψ(292.5°)	Φ(300°)Ψ(307.5°)	Φ(315°)Ψ(322.5°)	Φ(330°)Ψ(337.5°)	Φ(345°)Ψ(352.5°)
Θ(0°)	-11.76/-13.98	-19.24/-18.48	-18.13/-16.82	-12.71/-9.68	-8.33/-7.77	-6.98/-5.15	-4.09/-4.9	-4.67/-4.14	-3.84/-3.68	-4.3/-5.44	-5.96/-6.49	-7.53/-9.68	-12.77/-15.36	-17.76/-18.57	-15.94/-11	-8.91/-8.76	-7.57/-4.63	-3.52/-4.1	-3.44/-2.99	-2.86/-3.14	-3.71/-3.97	-3.94/-4.37	-5.19/-6.34	-8.11/-9.74
Θ(7.5°)	-15.59/-17.58	-14.23/-16.25	-15.79/-15.83	-10.67/-17.27	-18.13/-17.03	-16.52/-18.56	-18.71/-18.07	-18.94/-16.39	-15.4/-14.15	-12.96/-14.02	-14.52/-13.71	-14.38/-17.19	-18.73/-18.74	-7.61/-6.32	-4.23/-3.92	-4.05/-3.84	-2.96/-3.02	-3.14/-3.07	-2.99/-3.58	-4.44/-5.34	-6.03/-6.79	-3.84/-9.53	-11.35/-13.66	
Θ(15°)	-8.84/-10.39	-11.17/-10.83	-10.58/-9.96	-10.97/-14.31	-18.08/-18.17	-10.71/-10.99	-10.61/-8.98	-10.15/-13.39	-12.54/-10.07	-8.71/-9.2	-11.02/-12.97	-13.54/-13.72	-12.39/-10.62	-8.58/-7.17	-6.47/-6.62	-6.19/-5.75	-4.59/-4.06	-3.54/-2.61	-1.74/-1.25	-1.12/-1.95	-3.53/-6.71	-10.82/-12.33	-10.77/-8.64	-7.81/-7.8
Θ(22.5°)	-7.82/-7.94	-7.76/-7.75	-7.88/-7.08	-6.78/-6.5	-6.25/-6.94	-8.15/-5.86	-4.59/-5.17	-4.8/-5.88	-10.27/-11.2	-7.04/-5.52	-5.3/-4.85	-4.98/-5.67	-6.22/-6.38	-7.25/-7.58	-6.8/-4.87	-4.61/-4.9	-4.68/-5.01	-4.89/-3.12	-1.31/-0.18	0.01/-0.23	-1.28/-4.69	-7.02/-6.53	-5.8/-5.28	-4.91/-5.8
Θ(30°)	-5.66/-5.86	-6.02/-4.28	-3.67/-2.41	-2.01/-1.86	-1.87/-1.79	-0.60/-8.6	1.94/-0.7	1.1/-0.08	-1.05/-1.84	-2.21/-2.21	-2.59/-1.16	0.08/0	-1.26/-2.31	-3.26/-2.42	-5.22/-2.57	-9.58/-9.68	-8.75/-9.05	-10.55/-10.47	-7.05/-2.88	-0.43/-0.57	0.91/-1.01	-3.15/-2.9	-3.17/-4.2	-4.88/-4.67
Θ(37.5°)	-2.55/-4.68	-4.93/-2.8	-0.071/-4	0.930/-22	-0.59/-1.29	0.273/-46	4.55/-42	3.44/-42	-0.24/-0.46	-0.39/-1.27	-1.24/-1.61	2.51/-3.6	0.210/-4	-0.55/-2.54	-4.72/-7.3	-9.44/-11.61	-10.76/-7	-4.95/-3.95	-4.19/-2.92	-0.090/-75	0.73/-10.24	-2.32/-3.23	-2.9/-3.05	-2.72/-2.27
Θ(45°)	-2.59/-6.45	-10.17/-2.56	1.36/-3.8	0.36/-0.11	0.64/-0.14	-0.72/-0.4	4.013/-99	2.721/-62	0.40/-0.45	-0.59/-2.48	-1.09/-2.42	3.041/-62	1.332/-12	0.56/-2.37	-5.41/-5.96	-4.91/-3.47	-3.1/-1.04	0.981/-68	0.85/-0.16	1.132/-39	2.330/-91	-1.59/-2.99	-2.61/-4.14	-3.18/-2.37
Θ(52.5°)	-1.26/-3.64	-2.90/-52	2.32/-0.6	0.240/-73	2.232/-35	1.032/-73	4.424/-17	2.921/-42	-0.55/-1.67	-1.57/-1.18	0.822/-88	2.992/-72	3.764/-25	2.09/-1.05	-5.91/-4.02	-2.92/-2.57	0.581/-83	2.843/-41	2.31/-22	2.522/-87	2.451/-8	0.25/-0.18	-0.32/-4.07	-2.23/-0.4
Θ(60°)	3.842/-7	1.592/-85	2.641/-08	0.091/-42	3.224/-02	2.353/-05	5.575/-54	3.431/-9	-0.11/-2.23	-1.66/-0	2.593/-82	3.423/-57	4.454/-53	3.491/-64	-4.34/-6.29	-4.1/-3.66	-0.771/-01	1.510/-21	-1.29/-1	2.433/-12	1.720/-89	0.461/-03	2.441/-55	-2.21/-94
Θ(67.5°)	5.433/-48	2.423/-64	3.431/-56	0.680/-96	2.493/-59	1.822/-45	5.265/-99	4.171/-56	0.91/-4.02	-1.64/-1.97	3.323/-28	3.24/-35	4.223/-7	3.231/-52	-4.07/-7.13	-5.51/-4.25	-0.321/-55	3.362/-29	-1.26/-0.55	2.82/-15	0.180/-46	0.912/-21	2.65/-2.08	-0.61/-6
Θ(75°)	5.013/-23	1.753/-46	2.751/-01	0.4/-0.48	1.132/-4	0.780/-77	4.065/-02	3.560/-9	-0.35/-3.89	-2.56/-1.58	2.632/-35	2.613/-97	2.431/-39	2.160/-14	-3.71/-6.67	-6.28/-4.04	-0.422/-58	4.984/-97	2.04/-1.14	2.55/-15	-1.87/-0.94	-0.08/-1.7	1.75/-1.88	-0.332/-39
Θ(82.5°)	3.222/-47	-0.182/-2	1.33/-0.92	-1.18/-1.76	-0.69/-0.39	-1.42/-1.36	1.783/-34	2.17/-0.7	-1.44/-4.88	-2.831/-08	1.530/-13	1.262/-29	-0.36/-0.73	1.04/-1.59	-4.12/-7.23	-7.34/-4.48	-0.633/-31	5.24/-71	3.12/-0.94	1.780/-73	-5.15/-15.7	-1.49/-1.66	-0.03/-0.87	-1.51/-0.7
Θ(90°)	0.151/-51	-2.4/-0.71	3.42/-0.95	-1.64/-2.8	-3.42/-2.77	-3.43/-3.3	-1.05/-0.94	0.062/-58	-1.96/-5.45	-1.08/-0.65	-0.41/-2.26	-1.06/-0.56	-3.24/-1.21	0.18/-2.61	-3.4/-6.3	-1.68/-7.93	-2.24/-15.7	3.540/-33	1.68/-1.82	-1.51/-1.84	-3.82/-2.34	-3.18/-4.13	-1.51/-4.74	-2.63/-3.99
Θ(97.5°)	-2.61/-1.85	-6.49/-3.39	-0.61/-1.34	-2.89/-3.96	-4.35/-4.79	-6.17/-5.58	-1.950/-63	-1.57/-4.23	-3.38/-7.01	-6.47/-2.22	-2.44/-5.2	-2.08/-3.93	-3.65/-6.08	-0.18/-3.88	-5.11/-7.24	-10.1/-0.93	-6.61/-2.33	0.30/-3.47	-1.08/-3.47	-4.46/-4.93	-8.27/-4.8	-4.87/-5.18	-1.9/-3.18	-5.03/-6.27
Θ(105°)	-5.62/-6.12	-8.15/-6.56	-2.58/-2.46	-4.53/-7.18	-6.27/-4.91	-6.26/-7.64	-3.63/-1.45	-3.39/-3.58	-5.35/-10.53	-9.44/-4.01	-4.48/-6.25	-1.92/-3.47	-5.76/-2.19	-2.89/-4.19	-7.5/-9.46	-14.27/-19.12	-11.76/-9.3	-3.61/-4.29	-3.22/-5.06	-8.02/-6.38	-8.33/-5.21	-5.08/-5.45	-2.38/-6.53	-9.44/-4.78
Θ(112.5°)	-4.92/-4.86	-7.83/-6.9	-6.55/-1.57	-5.98/-14.56	-7.7/-5.43	-4.96/-3.88	-9.05/-6.04	-1.86/-18.37	-8.54/-12	-7.96/-4.71	-2.91/-5.41	-5.96/-5.15	-6.73/-6.45	-8.35/-16.87	-18.13/-12.19	-19.05/-8.63	-8.85/-6.21	-5.23/-8.35	-6.54/-8.23	-10.68/-6.15	-7.85/-6.64	-3.58/-7.5	-11.04/-6.84	-5.91/-6.7
Θ(120°)	-7.09/-4.91	-7.81/-5.35	-4.35/-6.26	-5.52/-7.85	-18.46/-9.6	-11.16/-13.35	-5.64/-4.95	-9.27/-5.41	-6.73/-14.4	-12.36/-6.73	-9.31/-6.7	-5.21/-9.47	-8.65/-6.35	-5.31/-10.67	-12.03/-18.77	-15.65/-8.82	-12.63/-6.83	-9.97/-7.77	-7.21/-8.5	-7.67/-12.4	-15.08/-13.7	-8.81/-16.03	-7.45/-6.78	-6.51/-6.74
Θ(127.5°)	-5.88/-6.25	-8.18/-5.65	-4.88/-7.67	-9.03/-10.1	-12.45/-19.19	-12.89/-5.92	-5.68/-9.31	-7.41/-5.9	-7.81/-18.05	-17.14/-19.4	-13.32/-7.24	-11.02/-10.94	-8.69/-7.34	-4.22/-11.01	-10.14/-13.3	-9.88/-11.3	-11.79/-10.57	-12.9/-7.1	-7.9/-10.57	-19.12/-18.63	-13.42/-13.39	-5.81/-3.95	-8.42/-10.6	-5.07/-7.35
Θ(135°)	-5.89/-6.61	-7.81/-6.02	-5.98/-8.6	-18.65/-15.22	-13.27/-10.77	-9.16/-9.57	-11.24/-11.77	-7.72/-5.11	-7.56/-16.87	-18.13/-17.96	-14.06/-8	-12.71/-10.21	-12.17/-7.31	-5.61/-8.91	-1.149/-13.47	-17.28/-15.83	-15.47/-12.27	-13.99/-8.3	-4.47/-5.43	-18.17/-10.73	-11.07/-14.19	-8.1/-6.6	-5.78/-10.75	-6.03/-6.7
Θ(142.5°)	-9.86/-8.19	-8.01/-13.33	-14.21/-12.58	-10.75/-13.7	-18.45/-19.66	-17.77/-15.69	-12.73/-10.21	-5.95/-5.46	-9.47/-10.37	-8.75/-13.75	-19.11/-17.32	-16.54/-18.87	-17.95/-9.7	-8.17/-10.89	-10.81/-13.43	-13.91/-15.95	-15.89/-13.11	-10.92/-9.28	-11.05/-18.22	-10.51/-6.98	-8.27/-13.3	-9.05/-7.38	-7.21/-9.37	-9.42/-10.19
Θ(150°)	-9.64/-14.71	-14.13/-13	-12.32/-12.45	-16.18/-12.74	-10.63/-10.78	-9.68/-9.62	-11.71/-9.89	-8.19/-10.1	-15.37/-13.74	-13.97/-17.31	-18.72/-18.42	-14.35/-13.81	-12.55/-9.94	-8.49/-9.8	-11.34/-11.47	-11.57/-18.83	-13.33/-11.36	-16.82/-16.74	-14.08/-11.84	-10.2/-10.4	-13.97/-18.52	-10.77/-8.76	-10.31/-15.75	-9.58/-6.84
Θ(157.5°)	-8.41/-9.75	-10.37/-9.82	-10.36/-11.75	-13.59/-14.72	-17.29/-15.94	-17.29/-15.94	-16.09/-17.65	-15.51/-12.55	-12.57/-13.28	-15.45/-18.81	-17.58/-18.44	-18.17/-18.65	-13.61/-11.02	-11.91/-12.25	-13.82/-18.67	-15.33/-10.47	-10.47/-14.39	-16.15/-15.97	-17.28/-19.18	-17.41/-14.94	-13.77/-15.17	-17.37/-18.05	-17.85/-10.99	
Θ(165°)	-14.17/-14.61	-19.15/-18.55	-17.35/-18.38	-16.54/-15.57	-15.68/-18.15	-17.63/-19.06	-18.05/-18.03	-18.23/-12.3	-8.34/-7.52	-8.02/-9.81	-15.06/-18.86	-18.08/-15.64	-17.36/-18.37	-18.31/-19.02	-18.41/-17.3	-14.82/-11.23	-9.49/-9.53	-9.55/-9.53	-9.57/-9.7	-10.07/-11.42	-12.77/-13.28	-13.74/-13.53	-13.24/-12.47	-13.91/-14.79
Θ(172.5°)	-12.78/-10.53	-10.46/-11.47	-12.24/-13.08	-14.49/-16.43	-16.88/-18.21	-15.76/-15.64	-16.21/-14.43	-13.35/-11.02	-9.22/-9.15	-9.66/-10.17	-10.11/-10.7	-12.04/-15.12	-15.82/-12.62	-11.46/-11.33	-11.26/-11.09	-10.71/-10.28	-10.26/-10.37	-11.88/-13.23	-14.75/-17.52	-18.13/-18.23	-15.99/-13.61	-13.2/-18.47	-18.42/-17.	



Radiated Composite Gain Data of 2.4GHz/5GHz 2G5G Ant1~4

Appendix A.2

Θ(172.5°)	-18.5/-18.7	-16.8/-18.13	-18.98/-17.36	-13.37/-12.76	-13.99/-11.13	-8.68/-10.83	-13.53/-15.65	-18.68/-18.7	-18.12/-15.42	-17.21/-18.06	-16.61/-17.12	-15.31/-14	-15.13/-17.57	-18.07/-18.53	-18.67/-14.59	-11.25/-13.06	-17.1/-15.14	-13.92/-14	-13.44/-14.94	-18.04/-19.04	-14.05/-12.42	-12.96/-13.76	-15.23/-18.22	-17.7/-17.96
Θ(180°)	-12.43/-12.95	-14.88/-18.67	-18.93/-18.63	-18.29/-17.9	-13.84/-13.3	-13.53/-17.17	-18.05/-17.74	-18.15/-13.1	-14.99/-15.13	-15.25/-14.76	-14.37/-13.11	-13.05/-14.06	-15.21/-14.82	-13.96/-13.94	-16.22/-18.18	-14.02/-13.15	-14.4/-15.21	-14.98/-13.11	-11.14/-12.14	-14.44/-13.49	-11.76/-11.19	-10.01/-9.1	-8.93/-9.3	-10.85/-11.65
Freq(Hz)	5.6GPol.	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°)	-16.23/-17.6	-19.06/-13.74	-12.03/-10.71	-9.01/-7.19	-5.95/-5.21	-4.26/-3.71	-3.8/-3.39	-3.08/-3.2	-3.39/-3.36	-3.45/-4.01	-5.01/-6.19	-7.56/-10.05	-13.38/-15.52	-17.07/-16.05	-11.83/-9.24	-7.08/-5.39	-4.35/-6.32	-2.71/-2.38	-2.41/-2.04	-1.99/-2.36	-2.61/-3.04	-4.24/-5.89	-7.18/-7.73	-9.35/-12.23
Θ(7.5°)	-10.22/-9.75	-9.04/-8.66	-8.79/-8.82	-8.42/-8.12	-7.45/-8.21	-10.28/-11.57	-9.21/-9.45	-11.92/-11.27	-10.6/-8.84	-7.17/-6.14	-5.41/-4.96	-4.97/-5.9	-7.32/-8.92	-11.61/-17.04	-16.84/-15.14	-11.14/-8.4	-5.63/-4.14	-3.27/-2.29	-2.69/-2.06	-2.56/-3.95	-6.66/-8.42	-9.84/-11.73	-13.68/-11.88	
Θ(15°)	-6.31/-8.01	-10.17/-12.75	-13.71/-11.95	-9.22/-7.69	-6.89/-6.03	-5.23/-4.52	-4.25/-4.63	-5.37/-5.84	-6.45/-6.83	-6.98/-7.69	-8.95/-10.58	-12.23/-14.04	-15.5/-18.76	-18.11/-16.54	-12.76/-10.33	-7.59/-6.08	-6.34/-6.33	-5.38/-4.66	-4.48/-4.07	-4.5/-6.6	-8.91/-7.69	-6.73/-6.5	-7.09/-7.94	-7.87/-6.34
Θ(22.5°)	-5.96/-7.17	-7.59/-9.18	-4.92/-3.45	-2.67/-1.96	-1.16/-1.46	-2.8/-2.11	-0.98/-0.68	-0.32/-0.2	-1.11/-2.69	-3.68/-5.63	-11.43/-17.17	-11.46/-7.96	-7.03/-8.2	-9.91/-8.83	-5.21/-3.03	-2.19/-1.85	-2.97/-4.85	-5.56/-5.14	-4.51/-3.93	-4.04/-6.02	-8.44/-5.07	-2.96/-3.16	-5.42/-7.36	-6.72/-5.26
Θ(30°)	-13.77/-14.92	-10.99/-8.09	-4.03/-1.35	-0.01/0.64	0.25/-1.79	-5.12/-6.49	-3.5/-4.08	0.28/-0.14	-1.03/-1.54	-1.79/-2.56	-3.64/-3.29	-1.99/-0.35	-0.13/-2.59	-5.9/-7.21	-7.29/-5.81	-5.06/-4.53	-5.94/-6.56	-6.77/-6.93	-4.55/-0.99	0.34/-0.86	-3.73/-4.79	-3.62/-3.39	-4.61/-6.35	-7.55/-8.77
Θ(37.5°)	-12.23/-6.95	-8.08/-7	-3.57/-1.61	-0.5/-0.24	0.14/-0.2	-2.31/-7.06	-6.29/-0.63	1.56/1.71	1.02/-0.56	-1.11/0.26	0.56/0.56	1.78/2.82	1.88/0.13	-1.02/-3.5	-9.21/-15.59	-13.77/-5.45	-1.43/0.07	0.34/-0.62	-1.23/0.18	1.31/1.07	-0.18/-3.73	-4.57/-3.56	-3.44/-4.38	-6.77/-14.03
Θ(45°)	-6.21/-2.57	-8.02/0.14	0.1/0.45	-10.4/0.52	2.63/3.77	2.69/-0.37	0.16/3.7	4.94/3.7	3.65/1.99	0.13/1.3	1.48/1.32	3.72/4.76	4.23/8.1	3.72/1.38	-3.73/-16.43	-9.06/-5.2	0.12/2.3	1.96/2.09	2.52/1.75	2.21/1.98	0.45/-1.17	-0.86/-5.35	-3.69/-6.13	-1.28/-3.31
Θ(52.5°)	0.23/0.88	2.97/3.12	2.73/1.78	0.26/0.89	3.72/3.9	2.27/0.07	1.38/5.08	5.92/4.27	3.96/2.91	-0.74/2.03	3/3.19	5.25/4.8	5.47/6.09	6.06/9.32	-3.22/-0.26	-5.16/-3	0.57/2.4	2.43/2.38	2.06/2.09	2.32/3.03	1.37/1.48	-1.26/0.51	-2.81/0.63	1.14/1.07
Θ(60°)	3.27/0.8	2.74/3.98	4.15/3.18	0.32/1.17	3.24/2.51	0.92/-0.7	0.75/0.8	6.18/3.84	2.97/2.31	-0.41/4.5	3.32/3.88	5.75/8.9	6.07/6.41	6.18/4.71	0.44/-4.56	-4.8/-1.81	1.52/1.67	0.61/-0.64	-0.09/2.03	2.29/2.75	1.41/1.78	3.09/2.87	0.63/0.02	1.09/3.62
Θ(67.5°)	2.83/-0.02	1.78/2.81	3.51/3.06	-0.76/1.84	2.51/1.1	-0.75/-2.72	-1.08/3.87	4.88/3.34	2.5/1.4	-1.49/1.05	3.56/4.08	4.95/5.06	5.41/6.15	6.02/4.12	0.81/-2.05	-3.43/-0.2	1.88/1.89	2.3/-0.58	-1.38/2.18	3.9/3.56	2.76/1.91	2.84/1.92	0.25/0.77	0.73/2.88
Θ(75°)	0.92/-2.65	0.05/-0.03	1.13/1.37	-0.89/1.5	2.07/0.14	-2.6/-3.07	-2.24/1.73	2.88/2.26	1.23/0.16	-2.24/-0.13	2.64/2.52	2.47/2.45	3.68/5.92	5.21/3.52	1.88/-1.99	-4.44/-8.29	-9.03/-6.49	4.28/1.55	0.83/2.1	4.13/9.32	21/28	1.78/0.18	-0.11/4.44	-0.29/-3.13
Θ(82.5°)	-1.25/-6.07	-2.25/-3.48	-1.58/0.1	-1.59/0.43	0.14/-3.08	-5.68/-3.7	-2.17/1.02	0.7/0.38	-0.57/-2.73	-2.92/-0.58	0.91/1.55	-0.07/-0.88	1.01/4.72	4.23/1.47	0.75/-6.78	-5.10/-44	2.38/3.61	5.16/1.98	1.96/2.63	2.88/2.27	1.19/-1.09	0/-1.5	-0.98/1.66	-0.99/-1.09
Θ(90°)	-2.11/-23.85	-7.43/-4.43	-2.87/-0.85	-1.73/-1.46	-3.19/-6.14	-6.92/-5	-3.62/-0.88	-1.46/-2.72	-2.16/-4.78	-2.61/-6.9	-0.53/-0.63	-3.42/-3.69	-1.5/-2.7	2.15/-4.08	-1.38/-11.36	-6.92/-1.51	0.09/1.81	4.15/1.71	1.53/2.14	0.66/0.03	-2.08/-3.42	-2.93/-4.59	-1.18/0.27	-2.15/-2.79
Θ(97.5°)	-3.98/-12.11	-4.14/-4.77	-4.61/-1.79	-2.84/-2.72	-5.93/-6.83	-8.17/-5.64	-3.94/-2.95	-3.83/-2.33	-3.84/-5.43	-3.76/-2.12	-2.64/-2.19	-5.32/4.15	-2.55/0.98	0.02/-2.28	-6.21/-11.77	-11.76/-6.4	-3.95/-0.79	0.86/-2.28	-0.37/-0.5	-2.59/-3.45	-4.73/-3.59	-2.1/-1.06	-3.38/-3.54	
Θ(105°)	-4.81/-10	-10.08/-5.58	-3.89/-3.47	-3.53/-2.54	-9.38/-11.71	-7.59/-8.28	-10.59/-6.35	-7.63/-4.16	-4.13/-7.22	-4.69/-3.91	-2.59/-3.5	-7.21/-2.61	-4.52/-3.25	-4.29/-6.55	-11.07/-17.28	-15.49/-11.63	-5.61/-4.69	-3.64/-8.31	-5.25/-8.38	-4.55/-6.46	-9.81/-3.05	-5.96/-5.13	-3.59/-4.96	-5.42/-9.88
Θ(112.5°)	-5.9/-15.18	-12.28/-6	-2.78/-3.59	-7.07/-6.39	-14.71/-17.83	-9.18/-15.05	-8.38/-5.88	-10.56/-8.77	-7.92/-7.63	-10.02/-3.4	-4.63/-6.33	-8.36/-7.57	-8.42/-1.75	-5.08/-8.28	-9.25/-10.57	-12.68/-10.94	-4.03/-7.35	-9.19/-12.53	-5.89/-7.31	-7.43/-8.28	-10.4/-17	-8.34/-6.58	-4.29/-5.73	-12.37/-15.55
Θ(120°)	-8.58/-18.81	-12.38/-5.16	-2.37/-3.15	-11.26/-11.03	-11.75/-18.88	-14.46/-5.23	-10.11/-11.93	-9.37/-12.63	-7.66/-8.71	-14.47/-13.26	-8.44/-8.29	-5.96/-6.88	-8.39/-10.53	-11.50/-15.68	-9.03/-6.49	-4.68/-7.5	-4.84/-4.29	-10.82/-12.16	-12.17/-5.7	-13.21/-9.31	-5.23/-8.62	-18.67/-19.31		
Θ(127.5°)	-13.5/-10.34	-11.15/-7.43	-5.7/-4.02	-7.02/-18.7	-12.21/-19.16	-18.87/-16.17	-11.31/-12.44	-9.84/-10.25	-11.88/-16.32	-12.73/-10.42	-11.51/-8.36	-6.56/-8.52	-6.88/-5.5	-5.69/-13.37	-10.4/-8.03	-18.33/-10.95	-17.14/-5.52	-7.85/-10.91	-11.89/-8.29	-18.19/-18.47	-10.67/-12.18	-13.35/-11.2	-7.34/-13.32	-14.34/-10.16
Θ(135°)	-11.62/-16.45	-13.18/-6.38	-7.81/-8.77	-9.71/-18.58	-11.96/-15.57	-18.04/-18.82	-10.76/-12.89	-10.45/-10.29	-12.03/-14.65	-15.34/-17.17	-7.7/-7.06	-7.05/-7.01	-11.69/-10.62	-9.56/-12.23	-10.93/-10.54	-18.76/-19.1	-14.42/-9.44	-14.04/-11.8	-12.61/-10.24	-18.73/-13.74	-9.37/-19.51	-8.04/-6.77	-9.34/-12.64	-15.33/-10.84
Θ(142.5°)	-11.43/-17.73	-13.9/-6.19	-6.87/-11.71	-18.45/-16.6	-13.55/-18.89	-19.3/-18.74	-14.02/-14.49	-18.99/-18.33	-18.89/-14.34	-14.78/-17.47	-9.83/-17.27	-12.43/-13.82	-16.31/-11.22	-18.74/-15.83	-13.71/-11.78	-12.85/-11.18	-9.76/-16.08	-15.78/-17.64	-13.74/-16.37	-5.97/-6.29	-9.2/-19.15	-16.32/-19.5	-16.34/-11.18	
Θ(150°)	-15.88/-10.39	-7.92/-6.65	-8.98/-9.41	-12.19/-16.89	-17.7/-14.62	-12.63/-16.97	-17.41/-17.97	-16.01/-13.42	-17.48/-17.76	-18.06/-18.87	-18.16/-18.13	-18.74/-17.29	-10.68/-11.65	-14.95/-14.79	-15.9/-11.13	-10.73/-12.22	-13.38/-15.58	-17.1/-16.63	-17.9/-17.84	-16.83/-17.37	-15.5/-16.38	-16.36/-13.4	-16.32/-18.85	-16.52/-18.48
Θ(157.5°)	-15.02/-12.92	-10.24/-9.69	-11.71/-12.34	-11.01/-10.08	-9.55/-8.99	-11.96/-13.95	-16.28/-17.59	-16.52/-14.2	-11.22/-9.66	-10.13/-10.78	-17.77/-13.6	-11.33/-11.86	-15.52/-16.59	-15.12/-15.86	-18.41/-17.28	-11.83/-9.23	-8.61/-10.4	-11.86/-11.64	-11.71/-12.35	-12.42/-14.06	-18.9/-17.08	-11.26/-9.31	-8.72/-13.53	-18.85/-16.21
Θ(165°)	-18.79/-18.97	-17.84/-17.84	-13.29/-12.78	-16.28/-17.87	-18.29/-18.19	-18.92/-16.62	-18.78/-17.67	-18.07/-15.49	-15.1/-15.69	-18.15/-18.75	-13.41/-11.47	-10.8/-11.86	-16.05/-17.58	-17.44/-18.2	-16.02/-12.51	-9.37/-8.52	-9.75/-11.42	-12.53/-14.22	-13.1/-13.31	-10.79/-10.03	-12.33/-16.35	-18.32/-18.99	-18.15/-14.87	-13.37/-15.04
Θ(172.5°)	-13.19/-13.37	-13.13/-12.94	-14.21/-13.72	-12.8/-12.05	-11.64/-14.04	-15.69/-15.33	-15.58/-16.52	-17.61/-18.36	-18.98/-18.7	-17.53/-18.46	-17.46/-17.49	-18.99/-18.68	-18.97/-14.34	-13.47/-14.67	-16.53/-17.63	-19.15/-17.92	-14.94/-13.29	-12.64/-12.78	-13.71/-15.74	-15.98/-15.14	-16.49/-17.75	-19.86/-18.86	-15.5/-12.5	-10.68/-12.41
Θ(180°)	-13.71/-13.71	-12.1/-10.51	-9.94/-10.3	-10.61/-10.16	-9.96/-9.27	-9.21/-9.77	-10.29/-10.88	-12.57/-14.93	-16.67/-17.48	-18.32/-18.38	-18.69/-19.11	-19.24/-13.89	-11.99/-11.67	-12.12/-11.81	-11.06/-11.05	-10.85/-9.41	-8.47/-8.14	-8.27/-8.62	-8.82/-10.37	-12.95/-15.8	-16.98/-16.81	-15.43/-15.91	-17.89/-15.54	-12.38/-13.14
Freq(Hz)	5.785GPol.	PhiAnt.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°)	-3.74/-3.41	-3.01/-2.42	4.64/-5.32	-5.52/-6.26	-8.81/-11.09	-11.52/-14.76	-17.88/-17.45	-17.56/-14.32	-10.68/-9.18	-7.61/-5.84	-4.45/-3.41	-2.87/-2.74	-2.53/-2.6	-2.52/-2.43	-2.69/-3.15	-4.27/-5.95	-7.14/-8.54	-10.58/-14.7	-18.76/-18.95	-16.85/-13.76	-10.48/-8.49	-6.85/-5.38	-4/-3.53	-3.37/-3.47
Θ(7.5°)	-6.51/-7.25	-7.27/-7.72	-9.06/-9.62	-10.51/-11.87	-12.31/-13.39	-16.25/-18.13	-18.71/-18.41	-18.46/-14.88	-12.46/-10.55	-9.92/-9.46	-7.98/-6.77	-5.34/-2.6	-3.37/-2.53	-2.09/-1.55	-1.39/-2.01	-3.5/-5.08	-7.09/-10.82	-16.18/-18.75	-17.15/-10.21	-8.27/-7.67	-5.89/-4.93	-4.33/-3.82	-3.42/-3.58	-4.11/-4.96
Θ(15°)	-4.82/-5	-6.36/-8.47	-9.79/-9.09	-8.68/-9	-9.06/-9.55	-8.88/-9.42	-11.39/-14.57	-19.14/-18.95	-14.48/-9.76	-7.87/-7.44	-6.58/-5.98	-5.26/-4.54	-4.01/-3.21	-2.49/-2.02	-2.08/-2.87	-4.28/-4.94	-5.98/-7.82	-8.41/-8.28	-16.5/-17.21	-6.97/-5.99	-5.46/-6.36	-6.12/-4.48	-3.84/-3.43	-3.52/-4.46
Θ(22.5°)	-2.99/-4.72	-7.44/-11.05	-15.68/-18.55	-16.61/-15.27	-15.4/-15.36	-11.93/-10.57	-10																	



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~4

Appendix A.2

Θ(15°)	-4.37/3.88	-3.24/2.61	-2.02/-1.47	-0.94/-0.46	-0.14/-0.06	-0.16/-0.42	-0.86/-1.61	-2.67/-3.78	-4.35/-4.36	-4.19/-4.1	-4.03/-3.78	-3.55/-3.58	-4.1/-5	-6.37/-8.11	-10.09/-11.32	-10.87/-9.25	-7.57/-6.31	-5.51/-4.93	-4.63/-4.53	-4.52/-4.44	-4.21/-4.02	-3.93/-4	-4.18/-4.42	-4.62/-4.61
Θ(22.5°)	-2.22/-2.06	-1.8/-1.51	-1.17/-0.77	-0.27/-0.29	0.61/0.61	0.37/-0.04	-0.7/-1.65	-2.86/-3.76	-4.01/-3.85	-3.86/-4.22	-4.62/-4.75	-4.72/-4.84	-5.36/-6.47	-8.11/-9.68	-9.76/-8.11	-6.01/-4.38	-3.23/-2.52	-2.11/-1.89	-1.78/-1.77	-1.82/-1.75	-1.63/-1.5	-1.45/-1.54	-1.71/-1.94	-2.16/-2.28
Θ(30°)	-0.48/-0.49	-0.44/-0.38	-0.23/-0.05	0.33/0.82	1.09/0.97	0.49/-0.18	-0.97/-1.75	-2.34/-2.64	-2.78/-2.92	-4.42/-4.15	-4.98/-5.58	-5.81/-5.92	-6.26/-7.16	-8.62/-9.32	-8.11/-6.04	-4.1/-2.72	-1.73/-1.16	-0.83/-0.62	-0.46/-0.35	-0.26/-0.16	-0.07/-0.06	-0.15/-0.25	-0.32/-0.39	-0.45/-0.49
Θ(37.5°)	0.20/21	0.21/0.22	0.11/-0.01	0.28/0.78	0.97/0.58	-0.25/-1.1	-1.6/-1.59	-1.36/-1.31	-1.48/-1.83	-2.26/-2.74	-3.17/-3.72	-4.33/-4.99	-5.89/-7.42	-9.36/-9.97	-8.19/-6.01	-4.19/-2.88	-1.9/-1.26	-0.86/-0.53	-0.16/0.26	0.61/0.84	0.88/0.71	0.42/0.18	0.04/-0.01	0.03/0.12
Θ(45°)	0.03/0.16	0.21/0.17	-0.19/-0.61	-0.37/0.18	0.19/-0.6	-1.83/-2.76	-2.6/-1.65	-0.81/-0.58	-0.77/-0.98	-0.93/-0.77	-0.86/-1.3	-2.03/-3.01	-4.56/-7.12	-10.89/-12.28	-9.87/-7.41	-5.65/-4.2	-2.94/-2.17	-1.65/-1.13	-0.4/0.46	1.21/1.64	1.65/1.27	0.68/0.13	-0.24/-0.39	-0.37/-0.22
Θ(52.5°)	-0.63/-0.29	-0.19/-0.27	-0.87/-1.49	-1.11/-0.53	-0.76/-1.88	-3.47/-4.21	-3.28/-4.159	-0.29/0.06	-0.11/-0.04	0.54/0.99	0.85/0.2	-0.63/-1.71	-3.67/-7.31	-12.93/-13.93	-10.22/-7.78	-6.18/-4.7	-3.42/-2.67	-2.2/-1.58	-0.6/0.6	1.62/2.17	2.18/-1.65	0.73/-0.19	-0.87/-1.17	-1.22/-1.02
Θ(60°)	-1.57/-1.09	-0.9/-1.05	-1.84/-2.48	-1.71/-1.14	-1.47/-2.66	-4.38/-4.92	-3.57/-1.53	0.07/0.59	0.46/0.59	1.32/1.85	1.58/0.64	-0.33/-1.2	-2.83/-6.25	-11.84/-13.03	-9.16/-6.8	-5.49/-4.5	-3.66/-3.19	-2.89/-2.34	-1.28/0.01	1.11/1.8	1.97/1.46	0.35/-0.91	-1.81/-2.2	-2.33/-2.1
Θ(67.5°)	-2.52/-2.22	-2.07/-2.12	-2.98/-3.28	-2.36/-1.99	-2.31/-3.52	-5.58/-6.17	-4.58/-2.23	-0.23/0.64	0.76/1	1.67/2.11	1.67/0.5	-0.62/-1.52	-3.09/-6.58	-11.64/-11.07	-7.56/-5.42	-4.32/-3.89	-3.74/-3.69	-3.7/-3.31	-2.28/-1	0.07/0.81	1.05/0.61	-0.47/-1.81	-2.88/-3.3	-3/-3.3
Θ(75°)	-4.08/-4.26	-4.2/-4.04	-4.72/-4.83	-4.12/-3.99	-4.21/-5.43	-7.94/-8.48	-6.74/-4	-1.35/0.03	0.45/0.69	1.17/1.59	1.25/-0.01	-1.43/-2.51	-4.09/-7.3	-12.53/-11.69	-7.92/-5.35	-3.96/-3.84	-4.16/-4.49	-4.95/-4.79	-3.66/-2.2	-0.94/-0.17	-0.03/-0.44	-1.33/-2.63	-4.06/-4.64	-4.44/-4.21
Θ(82.5°)	-6.42/-7.13	-7.26/-6.52	-6.33/-5.62	-5.34/-5.61	-5.86/-6.94	-8.43/-7.75	-6.65/-4.8	-2.46/-1.13	-0.64/-0.4	0.04/0.48	0.09/-1.41	-3.14/-4.27	-5.52/-8.76	-13.5/-12.18	-8.25/-5.33	-4.03/-4.36	-4.96/-5.55	-6.29/-6.41	-5.46/-3.91	-2.44/-1.59	-1.51/-2	-2.71/-3.84	-5.51/-6.51	-6.26/-6.14
Θ(90°)	-8.83/-10.91	-11.19/-8.73	-6.33/-5.15	-5.99/-7.3	-7.57/-8.14	-8.43/-7.52	-6.63/-5.25	-3.49/-2.54	-2.3/-2.17	-1.78/-1.25	-1.53/-3.05	-4.97/-5.97	-6.68/-9.18	-13.82/-13.59	-9.67/-6.07	-4.71/-5.21	-5.8/-6.25	-7.5/-6.16	-4.47/-3.24	-2.92/-3.28	-3.66/-4.46	-6.27/-7.84	-7.57/-7.43	
Θ(97.5°)	-11.12/-17.91	-18.5/-10.96	-6.12/-4.87	-6.72/-9.97	-10.49/-10.15	-9.52/-8.48	-7.52/-6	-4.49/-4.05	-4.36/-4.35	-3.57/-2.77	-3.06/-4.86	-7.51/-8.23	-7.98/-10.58	-15.28/-14.6	-10.58/-7.34	-6.95/-8.27	-8.91/-9.04	-10.15/-10.85	-9.39/-7.65	-6.02/-4.8	-4.27/-4.04	-3.93/-4.57	-4.46/-8.08	-7.73/-7.88
Θ(105°)	-10.04/-14.73	-14.86/-9.85	-5.3/-4.3	-6.37/-10.57	-12.49/-12.2	-11.6/-9.87	-7.97/-6.04	-4.53/-4.3	-4.96/-5.34	-4.58/-3.87	-4.52/-7.09	-10.18/-7.97	-6.46/-8.66	-13.75/-16.3	-12.6/-9.85	-10.15/-10.66	-9.16/-8.55	-9.32/-9.66	-8.73/-8.09	-7.16/-5.8	-4.77/-4.23	-3.83/-4	-5.3/-6.87	-6.85/-7
Θ(112.5°)	-10.68/-15.08	-13.57/-11.29	-7.35/-6.91	-10.23/-17.3	-18.96/-18.17	-17.91/-12.73	-9.06/-6.48	-5.19/-5.27	-5.82/-5.66	-5.05/-5.22	-6.85/-9.32	-8.2/-5.18	-4.97/-7.65	-11.71/-11.61	-8.54/-7.26	-7.78/-7.85	-6.96/-6.9	-5.85/-5.43	-9.84/-8.96	-9.89/-10.58	-9.8/-7.48	-5.85/-4.53	-5.19/-4.77	-5.22/-6.26
Θ(120°)	-15.4/-14.37	-10.14/-7.75	-9.09/-9.65	-11.78/-11.94	-12.26/-14.36	-16.23/-15.24	-11.48/-7.97	-6.08/-5.8	-5.85/-5.39	-4.92/-5.51	-7.29/-8.67	-7.33/-67	-6.39/-9.65	-13.42/-12.9	-10.97/-7.97	-10.73/-10.57	-9.16/-8.72	-9.67/-11.66	-13.23/-13.54	-12.36/-9.38	-7.19/-6.97	-7.34/-7.16	-6.83/-7.29	-8.31/-10.23
Θ(127.5°)	-17.12/-12.55	-9.66/-9.49	-10.57/-12.24	-12.16/-10.18	-9.94/-10.88	-11.97/-13.14	-13.37/-10.37	-7.05/-5.4	-4.73/-4.6	-5.05/-6.43	-8.06/-8.62	-7.87/-7.64	-9.2/-12.03	-13.75/-12.71	-11.16/-10.59	-9.65/-8.03	-7.06/-7.31	-8.68/-10.77	-12.65/-13.67	-12.9/-10.17	-7.79/-7.27	-8.27/-9.06	-8.71/-8.61	-9.99/-13.44
Θ(135°)	-13.45/-11.97	-11.39/-12.59	-15.37/-17.48	-14.08/-11.25	-10.52/-10.53	-10.4/-10.61	-11.46/-10.85	-8.47/-6.57	-5.78/-5.89	-6.68/-8.1	-9.21/-8.94	-9.58/-10.94	-12.14/-11.65	-10.41/-9.13	-7.79/-6.85	-6.78/-7.61	-9.21/-11.69	-14.78/-16.68	-15.05/-11.96	-9.44/-8.5	-9.08/-9.12	-10.76/-10.6	-11.25/-13.1	
Θ(142.5°)	-13.41/-14.15	-16.19/-18.43	-19.16/-17.46	-13.58/-11.97	-11.75/-11.14	-10.31/-10.38	-11.68/-13.7	-14.23/-13.53	-12.7/-12	-11.43/-11.31	-11.22/-10.93	-10.54/-10.6	-13.81/-12.96	-14.44/-14.46	-12.94/-10.94	-9.5/-9.18	-10.2/-12.23	-15/-19.5	-11.68/-10.02	-9.97/-10.79	-9.37/-9.72	-11.03/-12.19	-12.61/-13.03	
Θ(150°)	-18.81/-18.01	-18.87/-19.09	-16.53/-13.68	-12.35/-12.54	-13.66/-14.18	-13.3/-12.55	-12.77/-14.08	-15.6/-16.48	-18.3/-17.33	-17.76/-19.02	-18.36/-16.57	-14.93/-14.15	-14.23/-15.18	-16.37/-16.18	-14.22/-12.26	-11.21/-11.86	-13.7/-17.2	-18.72/-18.38	-17.74/-15.22	-13.5/-12.21	-10.91/-9.74	-8.96/-9.16	-10.57/-12.89	-15.66/-18.26
Θ(157.5°)	-17.3/-19.22	-19.1/-17.07	-15.76/-14.91	-14.99/-16.35	-18.68/-18.8	-18.08/-19.16	-19.24/-18.84	-18.89/-17.66	-16.56/-17.26	-19.2/-18.94	-17.62/-17.66	-18.6/-16.27	-14.67/-13.98	-14.19/-14.25	-13.43/-12.34	-11.9/-13.29	-13.63/-14.74	-15.5/-15.63	-14.83/-13.69	-12.49/-11.47	-10.35/-3.97	-8.86/-9.17	-10.32/-12.24	-14.89/-17.97
Θ(165°)	-16.73/-17.08	-17.38/-17.51	-16.79/-15.48	-13.86/-12.34	-10.84/-9.77	-9.36/-9.69	-10.35/-11.11	-12.48/-15.19	-17.54/-17.93	-18.69/-18.92	-17.68/-17.82	-17.8/-16.4	-15.19/-14.56	-14.6/-14.93	-14.92/-14.39	-14.19/-14.62	-15.64/-17.06	-18.71/-17.91	-18.14/-18.66	-17.61/-16.09	-14.65/-13.35	-12.63/-12.66	-13.35/-14.4	-15.5/-16.43
Θ(172.5°)	-18.11/-18.29	-17.96/-17.52	-15.7/-13.91	-12.33/-11.08	-9.98/-9.14	-8.79/-8.81	-8.95/-9.17	-9.8/-11.06	-12.78/-14.41	-15.98/-17.45	-18.96/-17.93	-19.51/-19.07	-18.52/-18.28	-18.96/-18.4	-18.95/-19.17	-19.11/-18.82	-19.32/-18.22	-17.96/-17.76	-17.88/-18.88	-17.38/-18.92	-18.3/-17.48	-17.05/-17.09	-17.43/-17.72	-17.76/-18.07
Θ(180°)	-18.46/-18.2	-17.92/-18.07	-17.55/-18.92	-17.68/-16.55	-15.57/-14.77	-14.48/-14.64	-14.35/-13.91	-13.66/-14.08	-14.69/-15.07	-15.77/-16.91	-18.11/-19.08	-18.24/-18.7	-18.11/-18.82	-19.19/-19.13	-18.31/-18.88	-18.27/-17.94	-15.99/-14.34	-13.11/-12.14	-11.59/-11.3	-11.34/-11.42	-11.63/-11.95	-12.73/-13.88	-15.57/-17.31	-17.6/-18.53
Freq(Hz)	5.2GPol	Phi/Ant.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)°(7.5°)	Φ(15°)°(22.5°)	Φ(30°)°(37.5°)	Φ(45°)°(52.5°)	Φ(60°)°(67.5°)	Φ(75°)°(82.5°)	Φ(90°)°(97.5°)	Φ(105°)°(112.5°)	Φ(120°)°(127.5°)	Φ(135°)°(142.5°)	Φ(150°)°(157.5°)	Φ(165°)°(172.5°)	Φ(180°)°(187.5°)	Φ(195°)°(202.5°)	Φ(210°)°(217.5°)	Φ(225°)°(232.5°)	Φ(240°)°(247.5°)	Φ(255°)°(262.5°)	Φ(270°)°(277.5°)	Φ(285°)°(292.5°)	Φ(300°)°(307.5°)	Φ(315°)°(322.5°)	Φ(330°)°(337.5°)	Φ(345°)°(352.5°)
Θ(0°)	-12.7/-14.12	-15.97/-16.43	-18.64/-19.17	-18.56/-18.94	-18.09/-18.09	-16.1/-4.22	-13.33/-11.92	-11.24/-10.78	-10.12/-10.07	-9.86/-10.14	-10.34/-10.45	-11.07/-12.01	-12.85/-12.9	-13.72/-14.8	-16.2/-16.45	-17.8/-17.87	-19.33/-18.65	-18.73/-18.35	-16.48/-15.17	-14.84/-13.86	-13.58/-13.45	-12.81/-12.4	-12.24/-12.08	-12.02/-12.87
Θ(7.5°)	-16.68/-12.82	-10.36/-9.2	-8.22/-7.21	-7.23/-7.79	-8.92/-10.44	-12.36/-13.76	-14.35/-13.15	-11.36/-9.92	-8.58/-8.05	-8/-8.67	-10.33/-12.38	-15.12/-10.97	-19.14/-17.87	-19.02/-16.01	-13.66/-13.26	-11.95/-12.23	-11.15/-12.26	-12.68/-14.03	-13.47/-14.05	-12.64/-11.26	-10.15/-9.43	-8.71/-8.9	-8.59/-10.45	-12.55/-17.36
Θ(15°)	-12.77/-6.86	-3.8/-2.28	-1.69/-1.1	-1.21/-2.12	-3.01/-4.71	-6.61/-9.53	-15.05/-19.08	-17.47/-16.71	-13.35/-11.9	-10.86/-10.99	-12.53/-14.1	-15.02/-14.23	-12.65/-9.95	-8.09/-6.47	-5.6/-5.27	-4.36/-4.08	-3.93/-4.13	-4.97/-7.05	-10.07/-15.58	-18.91/-16.07	-19.13/-4.2	-9.24/-6.89	-6.15/-7.2	-9.59/-15.37
Θ(22.5°)	-4.74/-4.07	-3.82/-5.33	-6.87/-7.39	-3.89/-8.77	-7.26/-5.84	-4.88/-5.64	-7.43/-9.32	-12.1/-13.73	-12.83/-11.83	-10.98/-11.56	-11.43/-9.42	-8.14/-8.02	-7.11/-4.88	-3.18/-2.91	-3.46/-4.65	-6.03/-8.07	-9.3/-8.18	-12.77/-19.43	-16.26/-13.3	-12.12/-12.91	-13.34/-12.1	-13.29/-18.42	-14.65/-8.33	
Θ(30°)	-3.84/-3.4	-5.8/-11.61	-14.21/-9.97	-8.23/-10.68	-18.74/-12.75	-8.15/-7.19	-6.59/-6.12	-6.61/-9.71	-8.82/-9.68	-12.03/-16.67	-15.42/-9.98	-8.06/-8.37	-7.12/-3.79	-1.44/-1.8	-3.25/-3.81	-4.17/-5.45	-8.49/-11.76	-9.13/-8.35	-9.39/-15.75	-18.03/-19.87	-13.8/-12.31	-12.99/-13.12	-11.64/-9.72	-7.73/-5.54
Θ(37.5°)	-6.12/-6.84	-8.62/-9.32	-7.83/-6.25	-4.85/-6.22	-10.01/-19.57	-19.03/-13.41	-9.51/-4.72	-6.84/-8.28	-9.19/-10.25	-12.9/-15.23	-10.78/-10.5	-14.38/-11.26	-8.32/-3.37	-1.44/-3.62	-4.58/-2.58	-1.96/-2.06	-2.87/-4.85	-6.19/-7	-9.26/-14.15	-18.46/-14.74	-10.8/-9.6	-8.84/-8.68	-6.96/-5.31	-4.59/-5.05
Θ(45°)	-8.82/-10.66	-13.62/-12.81	-14.4/-16.43	-18.6/-16.6	-12.32/-9.25	-9.16/-14.02	-18.63/-17.59	-14.44/-14.86	-16.53/-14.07	-14.41/-14.37	-9.57/-8.97	-19.09/-62	-6.31/-4.24	-2.82/-6.93	-5.26/-6.38	-8.23/-7.26	-6.58/-8.38	-8.05/-9.01	-11.9/-16.51	-18.36/-15.78	-10.4/-67	-5.72/-6.19	-7.71/-7.98	-7.2/-7.72
Θ(52.5°)	-5.99/-8.14	-13.39/-13.38	-15.96/-18.6	-11.24/-9.21	-8.99/-6.8	-6.38/-7.82	-12.07/-13.68	-10.01/-8.12	-8.01/-8.63	-10.78/-9.38	-6.08/-5.23	-15.64/-6.65	-9.59/-4.81	-3.99/-9.44	-8.18/-12.13	-15.38/-13.13	-11.41/-10.46	-11.52/-17.22	-17.39/-18.01	-15.92/-13.09	-9.61/-7.59	-6.48/-7.34	-9.44/-10.03	-7.07/-7.04
Θ(60°)	-4.73/-6.58	-12.93/-14.26	-14.86/-12.27	-8.54/-5.53	-7.16/-7.5	-7.5/-9.03	-12.32/-15.24	-10.64/-6.91	-5.8/-6.05	-10.25/-11.53	-8.83/-7.54	-5.24/-12.23	-10.93/-14.2	-18.25/-17.78	-14.05/-12.42	-12.77/-19.3	-15.08/-12.16	-14.23/-14.31	-10.74/-8.24	-17.48/-18.35	-16.16/-16.07	-7.58/-7.18	-10.37/-13.34	-8.54/-8.69



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~4

Appendix A.2

Θ (60°)	-4.66/-4.59	2.865/8.87	5.724/-4.48	5.26/5.56	6.086/26	5.78/6.66	6.44/6.3	4.67/-0.78	-5.97/-7.56	-6.37/-0.93	1.01/0.46	2.43/2.44	4.67/3.61	1.07/3.62	6.18/5.79	4.29/2.83	3.09/2.55	0.61/0.64	-2.84/-4.54	0.03/3.66	3.3/0.26	-6.89/-8.11	-6.86/-6.58	-4.21/-3.82
Θ (67.5°)	-0.93/-3.44	2.89/5.18	4.69/4.03	5.18/5.93	5.86/6.17	6.66/6.64	6.66/6.29	4.29/-1.54	-7.02/-11.79	-4.84/-0.91	0.57/-0.98	2.41/3.33	4.32/1.74	0.73/5.17	5.71/5.31	5.37/4.31	4.39/3.02	1.13/1.56	0.89/2.52	0.52/-4.95	-9.13/-12.25	-7.89/-10.7	-8.58/-2.48	
Θ (75°)	-0.4/-1.18	1.14/2.51	2.39/2.79	3.75/3.99	5.42/5.5	5.12/5.28	6.54/6.23	3.28/-3.29	-5.85/-13.47	-5.88/-1.14	-0.80/-2.52	1.25/-1.01	2.7/0.07	1.61/4.59	5.33/5.6	5.14/4.4	4.89/2.44	-0.28/0.95	1.07/0.42	0.33/0.69	-2.35/-11.88	-6.49/-13.91	-10.38/-13.12	
Θ (82.5°)	-1.73/-5.59	-1.86/-0.45	-0.35/0.54	1.42/1.73	3.02/2.58	2.16/2.7	4.5/4.32	1.66/-6.73	-7.29/-11.25	-6.94/0.74	-0.85/-4.62	0.46/-2.89	1.22/-3.14	-2.79/3.08	3.02/4.35	4.13/3.98	4.23/1.57	-2.47/-0.63	0.54/0.57	0.5/-0.55	-3.45/-17.01	-9.31/-13.4	-8.92/-13.7	
Θ (90°)	-4.37/-4.79	-5.14/-3.54	-3.53/-1.2	-0.12/-0.31	0.94/-0.65	-0.65/0.34	2.07/1.91	0.18/-7.89	-9/-8.9	-10.7/-0.39	-2.47/-6.47	-1.96/-5.35	-1.85/-4.36	-6.12/-1.07	0.81/2.06	2.33/2.03	2.88/0.27	-6.42/-4.07	-0.79/-0.5	-0.66/-1.46	-5.82/-18.17	-12.14/-11.43	-12.54/-17.8	
Θ (97.5°)	-6.36/-8.33	-6.99/-4.67	-5.49/-2.81	-2.59/-1.94	-1.46/-2.62	-2.96/-2.12	-1.11/-0.64	-1.78/-9.63	-11.23/-12.19	-10.34/-2.67	-3.99/-8.63	-3.88/-6.77	-4.84/-4.77	-6.87/-1.02	-0.69/-0.26	-0.46/-0.36	-0.81/-2.98	-13.34/-10.91	-4.45/-3.63	-3.44/-3.25	-8.03/-17.92	-13.27/-10.49	-13.56/-15.18	
Θ (105°)	-7.99/-10.97	-9.52/-5.67	-6.97/-4.15	-4.65/-2.8	-2.71/-4.58	-4.41/-3.77	-2.76/-3.5	-4.21/-8.54	-12.57/-10.78	-8.84/-4.5	-4.13/-9.59	-5.44/-7.43	-8.99/-6.51	-5.52/-0.75	-1.24/-1.44	-2.16/-3.51	-3.86/-6.16	-18.24/-18.35	-9.75/-6.07	-6.11/-4.76	-11.53/-18.62	-9.86/-8.38	-15.26/-15.83	
Θ (112.5°)	-11.42/-8.74	-10.97/-9.18	-8.92/-4.93	-6.26/-3.1	-3.78/-6.98	-9.42/-7.3	-3.61/-4.43	-8.25/-13.32	-17.9/-15.87	-11.58/-6.67	-7.93/-13.44	-7.34/-6.38	-11.61/-8.98	-5.76/-1.44	-1.88/-2.07	-1.6/-3.35	-4.15/-8.35	-18.85/-16.18	-12.25/-7.02	-7.03/-6.47	-15.68/-19.27	-11.86/-15.36	-18.77/-15.25	
Θ (120°)	-10.27/-8.54	-13.18/-10.21	-11.05/-9.05	-8.98/-6.21	-3.88/-8.09	-18.71/-12.72	-5.19/-4.61	-8.52/-11.5	-15.82/-14.39	-9.48/-6.26	-9.76/-13.22	-11.35/-1.7	-11.47/-17.93	-6.39/-2.81	-3.87/-3.82	-1.01/-4.84	-6.92/-12.29	-10.3/-11.7	-14.47/-7.44	-7.28/-8.24	-10.11/-12	-10.55/-18.64	-16.18/-15.1	
Θ (127.5°)	-12.89/-14.19	-15/-14.45	-11.85/-11.79	-10/-7.29	-4.75/-5.42	-11.79/-16.14	-10.47/-7.72	-8.24/-9.55	-11.83/-11.57	-7.79/-9.31	-11.6/-9.96	-13.15/-9.86	-14.34/-9.03	-5.32/-6.64	-9.98/-7.66	-4.39/-6.8	-9.33/-18.38	-8.67/-17.27	-17.74/-11.7	-6.86/-18.06	-10.31/-7.73	-18.68/-17.63	-17.67/-9.95	
Θ (135°)	-11.23/-13.2	-18.36/-14.97	-13.71/-16.48	-11.77/-8.12	-8.57/-12.56	-15.08/-12.8	-11.79/-10.83	-11.23/-13.19	-15.52/-13.43	-10.92/-12.61	-13.2/-10.07	-8.08/-6.74	-11.55/-15.92	-7.59/-6.34	-7.33/-6.7	-11.22/-10.85	-12.97/-17.22	-18.73/-8.48	-4.8/-8.81	-18.06/-17.94	-18.62/-18.01	-17.62/-18.06	-10.81/-13.41	
Θ (142.5°)	-19.32/-19.23	-17.24/-16.69	-18.83/-16.41	-9.08/-7.01	-9.02/-13.88	-14.39/-14.36	-10.94/-10.51	-9.69/-10.7	-12.48/-14.25	-13.58/-12.01	-10.65/-13.71	-16.26/-16.4	-12.43/-8.99	-8.24/-8.59	-4.86/-10.51	-10.41/-11.4	-19/-19.3	-12.69/-13.79	-11.93/-9.25	-11.86/-11.31	-13.38/-11.8	-18.75/-12.41	-16.36/-17.77	
Θ (150°)	-17.98/-18.7	-15.16/-15.13	-18.44/-19.18	-12.12/-8.17	-7.33/-8.32	-9.3/-10.22	-11.61/-11.15	-10.88/-13.85	-17.47/-15.72	-16.19/-16.93	-15.25/-14	-16.69/-18.81	-16.26/-9.95	-6.83/-8.06	-11.64/-15.11	-17.05/-17.64	-17.9/-18.92	-17.94/-15.89	-15.27/-15.7	-14.37/-14.79	-15.94/-18.45	-17.92/-17.96	-18.93/-19.15	
Θ (157.5°)	-13.71/-14.68	-15.24/-16	-18.52/-17.55	-15.37/-15.75	-17.77/-15.75	-14.71/-11.19	-8.54/-7.68	-9.35/-12.48	-17.1/-18.84	-17.79/-18.44	-13.2/-10.39	-12.94/-19.07	-19.05/-15.13	-14.81/-16.9	-13.48/-12.08	-14.27/-18.03	-11.68/-18.94	-19.14/-18.8	-18.44/-18.28	-15.45/-12.65	-11.96/-13.35	-16.58/-18.48	-18.68/-17.76	
Θ (165°)	-18.54/-19.61	-18.52/-17.42	-18.02/-18.47	-19.26/-18.75	-17.57/-14.79	-13.07/-13.48	-14.77/-17.58	-18.24/-18.03	-15.71/-12.55	-10.32/-9.39	-18.87/-18.45	-16.18/-16.13	-16.54/-16.93	-15.96/-14.67	-14.97/-16.92	-18.74/-18.58	-18.81/-19.35	-18.99/-17.67	-13.33/-10.99	-10.09/-10.87	-15.65/-19.11	-18.25/-19.1	-18.93/-18.46	
Θ (172.5°)	-15.11/-12.49	-11.08/-10.51	-9.94/-8.78	-8.06/-8.04	-7.79/-7.44	-7.2/-7.46	-8.26/-9.12	-9.99/-10.68	-11.16/-11.61	-12.09/-12.9	-13.54/-14.17	-14.59/-15.74	-17.06/-17	-16.62/-15.9	-14.56/-14.8	-15.21/-14.85	-14.75/-14.64	-13.96/-13.62	-13.22/-12.46	-12.93/-13.57	-14.62/-16.85	-18.52/-17.76	-18.82/-17.64	
Θ (180°)	-13.98/-13.95	-13.11/-11.87	-11.37/-11.84	-12.48/-12.72	-12.78/-13.48	-14.44/-14.97	-15.2/-15.06	-15.82/-16.4	-17.03/-17.88	-18.64/-18.02	-16.35/-15.46	-16.03/-16.43	-16.38/-14.5	-12.46/-11.76	-11.68/-12.13	-13.22/-12.82	-12.41/-12.19	-12.53/-12.63	-12.55/-13.63	-14.36/-13.66	-14.72/-14.71	-13.87/-13.56	-14.07/-16.04	
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°)	-8.63/-8.69	-8.41/-8.16	-7.92/-7.86	-7.88/-8.23	-8.2/-8.36	-8.91/-9.3	-9.95/-13.81	-13.58/-15.45	-15.93/-15.33	-14.48/-13.98	-13.4/-13.4	-12.93/-11.18	-10.8/-9.59	-8.83/-8.45	-8.07/-7.3	-8.25/-8.06	-8.07/-8.32	-8.99/-9.37	-9.77/-10.97	-11.23/-12.51	-12.48/-12.69	-12.77/-11.9	-11.48/-11.03	-10.5/-10.14
Θ (7.5°)	-10.22/-8.89	-7.26/-5.74	-5.03/-4.7	-4.86/-5.34	-5.67/-5.94	-6.57/-6.88	-7.8/-9.21	-10.31/-11	-10.31/-10.94	-11.38/-11.18	-11.65/-13.54	-15.31/-16.32	-14.32/-11.88	-10.31/-9.48	-8.92/-7.7	-7.41/-6.68	-6.05/-5.89	-6.16/-6.04	-6.71/-8.05	-9.19/-11.74	-13.99/-11.66	-8.86/-9.12	-9.87/-10.91	
Θ (15°)	-11.42/-8.27	-5.56/-3.85	-2.73/-2.72	-3.18/-4.67	-5.03/-5.06	-5.13/-5.9	-6.36/-7.18	-7.82/-8.91	-9.92/-10.45	-10.35/-9.52	-10.19/-14.12	-18.92/-15.47	-10.41/-7.69	-6.14/-8.1	-3.59/-3.12	-2.97/-2.48	-2.96/-3.8	-4.97/-6.36	-8.36/-11.38	-13.77/-16.02	-17.38/-17.25	-14.27/-10.75	-8.56/-7.87	-9.92/-11.79
Θ (22.5°)	-10.51/-8.79	-8.3/-8.97	-9.03/-11.88	-17.22/-17.41	-11.1/-11.94	-4.99/-4.86	-5.61/-6.96	-9.1/-11.23	-13.57/-17.05	-18.08/-15.13	-10.87/-10.93	-17.81/-15.63	-10.28/-6.38	-3.8/-1.69	-0.39/-0.24	-1.46/-4.97	-5.93/-7.92	-11.55/-19.51	-18.75/-18.45	-18.77/-14.33	-14.51/-16.02	-14.08/-13.94	-12.55/-14.74	
Θ (30°)	-6.55/-6.6	-9.39/-16.48	-14.65/-9.01	-15.44/-3.2	-5.34/-10.88	-11.19/-8.05	-7.05/-6.74	-7.51/-4.89	-9.92/-14.38	-17.78/-15.44	-10.58/-8.31	-13.94/-16.44	-7.24/-2.95	-9.95/-0.21	-0.30/-8.1	-1.56/-2.2	-3.2/-3.35	-3.01/-3.76	-5.46/-8.34	-10.35/-12.27	-11.24/-17.64	-7.44/-10.57	-16.21/-16.8	-13.79/-14.1
Θ (37.5°)	-6.72/-7.81	-9.84/-10.05	-9.15/-7.05	-4.64/-3.44	-4.03/-7.95	-15.61/-19.19	-13.46/-8.1	-7.18/-6.7	-6.72/-10.91	-17.19/-14.73	-10.45/-10.14	-18.15/-13.09	-5.97/-2.15	-1.65/-2.88	-3.66/-3.57	-2.43/-1.31	-1.33/-3.32	-5.47/-6.27	-7.29/-7.5	-7.26/-8.17	-7.62/-6.06	-5.18/-5.98	-8.29/-13.13	-11.74/-7.16
Θ (45°)	-14.14/-18.23	-12.99/-8.26	-9.02/-13.38	-16.92/-11.8	-8.44/-8.99	-8.06/-10.19	-12.46/-10.21	-10.14/-10.68	-6.86/-10.99	-14.33/-10.3	-8.29/-10.25	-16.8/-9.46	-8.01/-2.91	-2.47/-1.3	-4.96/-7.6	-7.47/-3.93	-2.48/-6.13	-9.61/-16.06	-15.86/-11.49	-9.11/-7.29	-8.71/-9.2	-5.67/-5.61	-7.45/-8.06	-12.81/-12.86
Θ (52.5°)	-18.72/-13.43	-17.77/-8.24	-8.32/-14.65	-13.93/-12.64	-12.26/-10.01	-7.83/-9.99	-10.74/-9.52	-6.89/-6.66	-9.17/-8.19	-6.02/-9.17	-17.46/-9.35	-14.18/-5.25	-6.39/-7.68	-8.23/-13.23	-14.71/-8.57	-6.37/-7.73	-9.66/-11.34	-15.12/-9.69	-10.61/-11.16	-6.66/-7.91	-13.97/-13.6	-14.66/-18.73		
Θ (60°)	-14.19/-18.41	-18.72/-10.88	-9.9/-13.12	-8.86/-8.94	-10.46/-9.16	-7.16/-7.42	-10.73/-12.69	-7.93/-5.67	-7.03/-10.43	-8.23/-7.76	-8.85/-14.05	-19.01/-8.57	-15.63/-7.21	-7.65/-9.53	-7.98/-13.47	-19.04/-12.2	-8.37/-8.69	-12.33/-10.03	-6.63/-8.11	-14.33/-11.41	-10.61/-12.6	-7.84/-9.34	-17.87/-13.22	-12.97/-17.9
Θ (67.5°)	-13.11/-14.52	-18.85/-14.82	-9.86/-11.97	-7.82/-8.8	-9.8/-9.81	-8.05/-7.94	-13.05/-16.09	-9.81/-6.97	-8.2/-13.65	-8.23/-8.95	-12.58/-14.77	-16.19/-13.67	-18.91/-8.41	-8.9/-8.66	-7.1/-15.37	-13.74/-9.97	-7.99/-9.74	-13.35/-9.45	-5.82/-6.63	-13.97/-13.62	-15.41/-15.78	-10.57/-14.89	-13.41/-12.03	-12.39/-17.87
Θ (75°)	-14.76/-14.5	-17.23/-16.3	-10.85/-13.06	-8.47/-9.73	-10.24/-10.66	-7.99/-9.04	-16.2/-15.82	-12.89/-10.5	-10.04/-17.71	-12.89/-13.42	-18.93/-19.15	-14.12/-19.33	-17.23/-11.45	-12.82/-12.4	-7.33/-13.37	-8.84/-7.48	-8.77/-9.29	-13.78/-9.36	-4.82/-7.24	-13.87/-14.61	-15.68/-16.13	-10.86/-17.49	-13.74/-13.96	-11.96/-14.21
Θ (82.5°)	-18.11/-15.3	-13.4/-16.74	-15.31/-13.39	-10.88/-12.33	-12.48/-12.23	-11.43/-12.06	-18.81/-17.78	-18.06/-17.58	-16.39/-18.86	-14.41/-17.88	-18.6/-15.48	-12.66/-19.49	-16.66/-13.69	-16.27/-13.74	-9.44/-18.48	-8.98/-10.54	-13.51/-11.82	-17.09/-15.69	-8.06/-8.5	-17.81/-12.92	-12.06/-15.31	-11.81/-17.51	-14.41/-14.8	-10.8/-16.12
Θ (90°)	-15.46/-14.8	-16.83/-15	-18.09/-14.38	-11.57/-14.2	-15.66/-15.22	-15.06/-16.84	-18.72/-17.87	-18.05/-18.02	-16.13/-18.44	-15.87/-18.67	-19.08/-17.46	-13.69/-17.71	-19.21/-19.53	-14.24/-15.27	-8.85/-15.75	-8.63/-13.7	-18.59/-13.55	-17.69/-17.87	-8.94/-13.26	-18.83/-15.67	-18.69/-14.43	-15.43/-19	-15.03/-19.45	-11.45/-15.19
Θ (97.5°)	-11.18/-18.5	-15.61/-17.84	-16.61/-14.45	-17.44/-18.27	-18.08/-12.92	-17.74/-16.05	-17.54/-18.27	-18.16/-17.39	-16.56/-18.1	-19.22/-18.04	-16.53/-19.59	-18.82/-18.82	-18.09/-18.27	-13.32/-13.14	-9.78/-18.74	-8.96/-14.12	-18.38/-17.7	-17.65/-18.82	-17.56/-17.79	-18.73/-18	-18.37/-12	-17.19/-17.92	-14.1/-17.98	-12.89/-16.16
Θ (105°)	-12.51/-17.39	-12.87/-17.01	-18.42/-17.33	-17.98/-18.72	-19.22/-10.28	-15.64/-17.99	-18.68/-19.11	-18.51/-19.21	-18.68/-19.07	-17.86/-18.79	-19.09/-17.84	-15.48/-16.23	-18.58/-16.87	-13.8/-13.75	-12.84/-17.79	-18.9/-14.5	-18.94/-18.62	-18.89/-18.27	-18.71/-18.82	-18.25/-18.12	-18.44/-13.38	-17.11/-17.61	-18.05/-18.62	-14.09/-19.33
Θ (112																								



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~4

Appendix A.2

Θ(97.5°)	-14.17/-9.1	-7.63/-2.98	-4.3/-3.95	-6.64/-11.79	-8.35/-4.06	-3.48/-4.83	-3.28/-1.15	-3.11/-5.16	-3.98/-5.86	-2.83/-1.33	-4.29/-0.52	-2.69/-13.75	-9.4/-13.47	-7.44/-1.12	-0.8/-3.05	-4.47/-0.76	0.38/-5.2	-16.96/-17.66	-6.35/-8.37	-8/-10.33	-6.36/-11.19	-16.88/-14.13	-7.51/-4.65	-6.79/-9.47
Θ(105°)	-13.51/-9.53	-9.04/-3.66	-4.09/-3.74	-6.59/-12.2	-9.76/-4.94	-6.61/-10.34	-6.47/-4.22	-5.97/-6.05	-5/-8.41	-6.91/-3.84	-6.1/-3.12	-3.96/-10.45	-10.49/-17.8	-16.33/-5.25	-2.43/-4.37	-5.94/-2.28	-2.2/-10.67	-14.12/-19.13	-6.53/-10.4	-12.33/-10.72	-7.53/-14.51	-12.91/-9.14	-6.85/-7.83	-10.51/-8.48
Θ(112.5°)	-11.99/-10.92	-9.05/-4.59	-5.97/-4.65	-7.87/-11.99	-12.82/-8.15	-9.26/-11.41	-9.21/-10.45	-9.96/-8.92	-8.69/-11.68	-9.71/-5.54	-7.34/-5.19	-5.45/-10.15	-8.46/-13.85	-16.45/-6.18	-5.7/-6.49	-4.91/-1.6	-2.17/-8.29	-18.67/-17.87	-8.75/-12.33	-18.21/-7.85	-8.83/-11.25	-11.67/-14.42	-8.14/-8.72	-10.06/-9.02
Θ(120°)	-10.75/-12.33	-11.07/-8.43	-7.2/-5.75	-8.61/-9.62	-10.78/-14.12	-9.81/-10.75	-9.44/-8.93	-8.24/-8.85	-13.27/-10.73	-9.81/-7.28	-8.5/-9.36	-9.71/-14.11	-10.31/-10.38	-8.87/-3.93	-8.89/-9.99	-6.9/-6.36	-4.62/-9.58	-12.37/-13.1	-14.19/-8.67	-10.99/-8.68	-19.01/-13.12	-18.91/-16.59	-12.11/-8.42	-13.05/-9.75
Θ(127.5°)	-8.92/-15.45	-13.57/-12.61	-11.09/-10.03	-11.14/-9.14	-8.72/-10.22	-17.68/-15.01	-9.8/-8.21	-8.55/-8.22	-9.78/-8.75	-7.98/-10.59	-14.58/-16.06	-14.74/-11.21	-18.62/-18.04	-8.38/-5.86	-8.17/-9.42	-7.99/-18.93	-12.11/-18.54	-12.19/-16.55	-11/-11.11	-16.49/-13.58	-15.86/-14.29	-13.17/-16.68	-11.53/-12.92	-12.51/-14.29
Θ(135°)	-12.04/-13.62	-14.96/-18.55	-16.12/-38	-13.45/-10.2	-8.01/-9.99	-14.91/-15.04	-12.32/-11.86	-15.26/-15.34	-12.75/-13.92	-12.16/-12.14	-18/-19.4	-14.24/-10.76	-15.46/-13.57	-8.68/-8.97	-13.51/-8.23	-10.54/-13.5	-10.88/-17.47	-13.52/-18.91	-11.48/-14.63	-10.22/-18.38	-12.59/-18.24	-17.55/-11.93	-15.21/-11.25	-13.13/-11.55
Θ(142.5°)	-11.52/-15.95	-18.77/-13.38	-9.09/-11.36	-15.65/-12.98	-10.65/-11.08	-13.68/-16.85	-15.77/-12.98	-12.47/-12.25	-10.85/-12.36	-13.26/-10.34	-10.01/-10.26	-9.87/-12	-13.51/-11.8	-10.93/-11.52	-12.19/-14.6	-18.35/-17.8	-18.1/-14.93	-14.53/-17.83	-18.74/-15.05	-11.86/-17.58	-18.83/-16.02	-18.12/-18.85	-16.11/-18.39	-14.53/-12.05
Θ(150°)	-16.05/-15.45	-12.67/-11.97	-12.44/-14.56	-17.38/-13.73	-11.38/-11.78	-14.14/-14.63	-14.51/-14.51	-14.64/-16.33	-13.17/-12.38	-14.43/-17.57	-18.06/-14.13	-11.09/-10.76	-12.8/-15.74	-18.21/-18.69	-13.22/-12.29	-12.65/-12.49	-12.04/-15.04	-18.46/-17.47	-18.96/-17.99	-16.23/-18.97	-18.69/-19.18	-18.06/-18.48	-19.14/-18.56	-13.69/-14.08
Θ(157.5°)	-15.09/-12.83	-14.34/-16.17	-18.67/-18.08	-19.04/-19.21	-18.59/-18.84	-16.29/-10.52	-9.48/-11.1	-14.29/-13.83	-12.35/-13.48	-18.36/-17.63	-17.43/-17.64	-13.94/-12.06	-12.5/-13.74	-14.23/-14.63	-17.28/-17.42	-18.21/-18.74	-18.31/-18.46	-17.96/-17.98	-19/-17.68	-17.25/-16.85	-16.3/-16	-17.15/-15.24	-18.54/-19.14	-17.36/-17.06
Θ(165°)	-14.22/-12.97	-11.49/-11.35	-12.5/-13.96	-15.85/-17.09	-16.55/-14.66	-13.07/-12.27	-12.34/-12.69	-13.76/-16.77	-18.41/-18.62	-17.51/-18.03	-17.2/-11.99	-10.15/-10.18	-11.19/-12.97	-14.57/-15.85	-15.28/-13.78	-12.78/-13.07	-13.52/-13.16	-12.85/-12.62	-14.05/-17.51	-19.82/-17.29	-14.91/-16.02	-18.44/-18.93	-17.39/-18.23	-17.13/-15.7
Θ(172.5°)	-11.11/-11.01	-11.67/-12.18	-12.38/-12.83	-13.42/-14.07	-14.74/-15.89	-16.4/-17.2	-17.66/-18.09	-17.72/-16.44	-15.84/-15.06	-15.16/-16.66	-19.29/-18.88	-18.37/-18.74	-17.56/-18.84	-18.36/-17.39	-16.56/-17.35	-18.59/-18.28	-18.6/-18.8	-18.47/-18	-16.84/-15.66	-14.94/-13.43	-12.78/-13.29	-12.91/-12.59	-12.37/-11.59	
Θ(180°)	-19.26/-18.24	-18.78/-17.54	-16.32/-15.03	-15.25/-15.4	-15.68/-15.61	-15.2/-15.26	-14.9/-14.55	-15.15/-16.4	-18.06/-18.69	-18.73/-18.36	-18.66/-17.87	-19.37/-17.55	-18.25/-19.24	-19.27/-19.07	-18.29/-18.73	-18.29/-18.23	-19.16/-18.19	-17.3/-16.58	-17.18/-18.07	-19.34/-18.86	-17.85/-18.65	-18.22/-18.11	-18.43/-17.54	
Freq(Hz)	2.45GPol	PhiAnt.4	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)Ψ(7.5°)	Φ(15°)Ψ(22.5°)	Φ(30°)Ψ(37.5°)	Φ(45°)Ψ(52.5°)	Φ(60°)Ψ(67.5°)	Φ(75°)Ψ(82.5°)	Φ(90°)Ψ(97.5°)	Φ(105°)Ψ(112.5°)	Φ(120°)Ψ(127.5°)	Φ(135°)Ψ(142.5°)	Φ(150°)Ψ(157.5°)	Φ(165°)Ψ(172.5°)	Φ(180°)Ψ(187.5°)	Φ(195°)Ψ(202.5°)	Φ(210°)Ψ(217.5°)	Φ(225°)Ψ(232.5°)	Φ(240°)Ψ(247.5°)	Φ(255°)Ψ(262.5°)	Φ(270°)Ψ(277.5°)	Φ(285°)Ψ(292.5°)	Φ(300°)Ψ(307.5°)	Φ(315°)Ψ(322.5°)	Φ(330°)Ψ(337.5°)	Φ(345°)Ψ(352.5°)
Θ(0°)	-13.6/-12.48	-11.13/-9.73	-8.34/-7.18	-6.3/-5.64	-5.06/-4.65	4.44/-4.3	4.36/-4.63	-5.09/-5.6	-6/-5.56	-7.34/-8.28	-9.36/-10.14	-10.54/-10.52	-10.17/-9.66	-8.95/-8.27	-7.64/-7.16	-6.5/-5.79	-5.14/-4.88	-5.69/-6.27	-6.8/-7.15	-7.63/-8.38	-9.37/-10.54	-11.74/-12.83	-13.71/-14.11	
Θ(7.5°)	-13.25/-12.55	-11.29/-9.96	-8.67/-7.54	-6.66/-6.04	-5.6/-5.39	-5.41/-5.49	-5.72/-6.09	-6.62/-7.1	-7.53/-8.13	-8.9/-9.77	-10.52/-11	-11.16/-10.93	-10.51/-10.09	-9.59/-9.01	-8.48/-7.94	-7.25/-6.46	-5.72/-5.33	-5.29/-5.53	-6.02/-6.73	-7.36/-7.76	-8.23/-8.83	-9.52/-10.32	-11.13/-11.92	-12.76/-13.4
Θ(15°)	-12.48/-11.5	-9.84/-8.61	-7.74/-7.07	-6.77/-6.85	-7.22/-7.83	-8.56/-9.1	-9.51/-9.78	-10.04/-10.08	-10/-10.28	-11/-11.92	-12.46/-12.57	-12.46/-12.21	-11.84/-11.54	-11.25/-10.98	-10.68/-10.31	-9.66/-8.7	-7.65/-6.93	-6.66/-6.77	-7.45/-8.51	-9.53/-10.2	-10.61/-10.61	-10.29/-10.03	-9.97/-10.23	-10.96/-11.03
Θ(22.5°)	-11.53/-9.61	-9.49/-6.15	-5.54/-5.52	6.06/-7.2	-8.84/-10.59	-11.91/-12.24	-11.82/-10.97	-10.28/-10	-9.99/-10.41	-11.58/-13.42	-14.25/-15.46	-15.44/-15.05	-14.33/-11.91	-13.34/-12.92	-12.6/-12.32	-11.64/-10.55	-9.19/-8.17	-7.86/-7.91	-8.56/-10.38	-12.25/-13.59	-15.33/-12.11	-10.56/-9.49	-8.83/-8.84	-9.64/-11.1
Θ(30°)	-11.95/-9.03	-6.374/-4.69	-4/-4.3	-5.33/-7.03	-8.75/-9.49	-8.83/-7.69	-6.94/-6.65	-6.77/-7.25	-7.94/-9.03	-10.97/-14.2	-18.26/-18.83	-18.39/-17.22	-18.74/-16.91	-14.47/-13.14	-12.39/-11.74	-11.09/-10.4	-9.55/-8.59	-7.88/-7.77	-8.44/-9.95	-12.16/-13.87	-13.62/-12.01	-10.45/-9.34	-8.75/-8.81	-9.87/-11.91
Θ(37.5°)	-14.09/-9.72	-6.57/-4.6	-3.93/-4.51	-6.03/-7.9	-8.7/-7.5	-5.51/-3.96	-3.22/-3.32	-4.01/-4.89	-5.88/-7.46	-10.29/-14.86	-13.33/-18.73	-18.96/-18.35	-17.75/-18.55	-14.28/-12.27	-10.85/-9.55	-8.63/-8.24	-8.27/-8.13	-7.71/-7.57	-8.09/-9.33	-10.94/-11.71	-12.31/-10.65	-10.3/-10.05	-10.09/-10.82	-12.85/-15.95
Θ(45°)	-13.77/-9.83	-6.81/-4.87	4.2/-5.05	-7.08/-9.13	-8.91/-6.69	-4.32/-6.63	-1.83/-1.96	-2.82/-3.83	-4.68/-6.22	-9.12/-14.77	-16.93/-16.54	-16.86/-18.87	-18.71/-18.31	-13.71/-11.75	-10.25/-8.88	-7.66/-7.07	-7.12/-7.51	-7.44/-7.15	-7.32/-8.19	-9.28/-9.47	-9.9/-9.03	-9.96/-11.04	-12.14/-13.93	-17.71/-18.81
Θ(52.5°)	-12.15/-9.73	-7.74/-5.88	-4.86/-5.31	-7.1/-8.56	-7.76/-5.98	-4.24/-2.97	-2.35/-2.33	-3.38/-4.19	-4.69/-5.94	-8.61/-12.21	-14.5/-15.05	-15.7/-17.73	-19.37/-17.73	-16.23/-13.82	-12.21/-10.24	-8.14/-6.87	-6.64/-6.92	-6.87/-6.57	-6.75/-7.58	-8.6/-8.87	-8.58/-9.01	-10.66/-12.75	-13.71/-14.68	-16.44/-15.1
Θ(60°)	-12.95/-11.85	-11.56/-9.03	-6.6/-6.28	-7.63/-8.61	-7.57/-6.35	-3.76/-3.96	-4.92/-5.6	-5.62/-6.18	-6.06/-10.87	-13.37/-15	-12.59/-15.38	-18.4/-18.85	-17.89/-16.6	-14.08/-11.39	-8.59/-7.04	-6.91/-7.3	-6.71/-7.36	-8.71/-8.85	-9.89/-10.26	-12.28/-13.96	-12.72/-11.77	-12.79/-14.1		
Θ(67.5°)	-15.48/-13.15	-17.73/-12.27	-8.11/-7.56	-9.81/-9.39	-8.11/-7.66	-7.66/-6.66	-8.97/-9.44	-14.26/-15.53	-14.39/-15.52	-18.3/-14.73	-11.4/-10.69	-13.63/-9.14	-12.48/-15.14	-14.47/-14.46	-12.41/-12.53	-13.23/-13.03	-12.56/-12.73	-13.33/-11.89	-8.85/-7.13	-7.49/-9.4	-10.61/-10.63	-11.96/-14.26		
Θ(75°)	-18.05/-15.49	-18.9/-15.77	-9.7/-8.66	-9.87/-10.01	-8.55/-9.05	-10.69/-9.2	-7.7/-8.23	-10.56/-11.95	-10.68/-9.95	-9.76/-9.21	-9.6/-11.87	-14.33/-15.12	-17.48/-19.49	-16.01/-13.73	-13.63/-14.52	-13.06/-10.4	-8.67/-8.69	-9.61/-9.75	-9.45/-9.56	-10.12/-9.78	-7.91/-7.02	-8.1/-8.86	-10.37/-10.48	-12.39/-17.15
Θ(82.5°)	-15.43/-12.67	-16.01/-18.11	-10.15/-9.39	-9.6/-9.84	-8.29/-9.56	-14.35/-12.79	-10.02/-10.12	-11.99/-14.22	-11.25/-11.48	-11.69/-9.98	-9.73/-11.71	-12.69/-12.07	-13.53/-15.65	-13.4/-11.65	-12.13/-13.56	-12.51/-10.04	-9.08/-9.99	-11.09/-10.8	-9.93/-9.64	-13.30/-10.26	-8.24/-7.03	-7.9/-10.02	-10.95/-11.31	-13.46/-17.35
Θ(90°)	-11.3/-9.12	-11.51/-17.43	-10.73/-8.31	-9.63/-11.46	-9.87/-9.44	-14.26/-15.53	-14.29/-15.52	-18.3/-14.73	-11.4/-10.69	-13.63/-11.56	-12.04/-11.02	-12.38/-15.14	-14.47/-14.46	-18.45/-14.46	-12.41/-12.53	-13.23/-13.03	-12.56/-12.73	-13.33/-11.89	-8.85/-7.13	-7.49/-9.4	-10.61/-10.63	-11.96/-14.26		
Θ(97.5°)	-8.48/-6.67	-8.59/-14.38	-11.52/-9.38	-11.86/-16.59	-11.44/-10.94	-14.98/-15.06	-12.71/-13.88	-19.3/-19.19	-13.47/-11.23	-9.54/-8.28	-9.06/-11.97	-12.11/-10.71	-12.05/-15.22	-15.41/-13.34	-12.35/-13.9	-16.64/-16.05	-14.48/-14.64	-15.03/-14.61	-14.19/-13.89	-13.42/-11.75	-9.34/-8.37	-9.74/-12.62	-12.49/-11	-11.09/-10.86
Θ(105°)	-8.47/-6.57	-7.87/-13.56	-11.69/-6.88	-13.33/-19.4	-11.82/-10.96	-15.62/-15.91	-12.11/-10.24	-14.22/-15.4	-13.16/-10.98	-8.67/-3.74	-8.24/-11.38	-12.63/-11.2	-11.61/-10.37	-12.22/-10.23	-10.21/-12.55	-15.59/-16.61	-15.92/-15.66	-15.71/-15.52	-15.74/-16.58	-17.24/-14.57	-10.86/-8.18	-9.46/-8.82	-9/-8.67	-9.5/-10.2
Θ(112.5°)	-11.47/-8.1	-8.6/-12.06	-9.36/-8.15	-12.48/-18.92	-11.04/-9.98	-13.73/-16.58	-12.81/-11.86	-12.82/-12.93	-11.03/-9.28	-7.52/-7.1	-9.03/-12.92	-13.35/-11.05	-10.91/-11.87	-11.29/-10.73	-12.37/-14.31	-15.81/-17.59	-17.26/-17.93	-18.55/-18.11	-18.1/-18.08	-15.99/-12.24	-8.99/-7.22	-7.19/-8.16	-9.07/-10.61	-13.88/-16.15
Θ(120°)	-9.46/-7.75	-7.96/-9.44	-7.97/-7.45	-11.68/-17.79	-11.36/-9.51	-12.1/-15.25	-11.83/-9.54	-9.6/-10.88	-10.43/-8.72	-7.38/-7.44	-9.12/-12.3	-14.35/-11.79	-10.86/-11.7	-12.12/-12.91	-13.98/-12.94	-14.24/-17.95	-18.06/-17.24	-18.92/-18.59	-17.88/-18.02	-17.79/-15.42	-12.08/-9.96	-9.59/-9.88	-9.44/-9.98	-11.56/-10.94
Θ(127.5°)	-7.94/-7.85	-8.47/-9.57	-8.61/-8.44	-13.35/-18.11	-10.85/-8.64	-10.33/-13.97	-12.06/-8.62	-7.45/-8.57	-10.45/-10.43	-9.2/-6	-8.76/-8.99	-10.62/-10.13	-11.42/-15.72	-18.47/-19.23	-15.16/-13.11	-15.47/-18.41	-18.97/-17.73	-18.43/-16.75	-17.09/-18.92	-17.93/-14.14	-11.4/-9.7	-8.63/-7.74	-6.84/-6.86	-7.64/-8.15
Θ(135°)	-9.27/-10.89	-12.97/-14.32	-10.98/-10.33	-14.81/-18.86	-11.58/-8.83	-9.81/-12.83	-12.74/-9.47	-7.6/-7.82	-8.98/-10.53	-11.14/-10.86	-10.92/-11.52	-11.35/-9.01	-12.12/-14.79	-15.46/-13.43	-11.51/-11.51	-14.03/-18.97	-18.84/-18.67	-17.61/-18.63	-19.04/-17.39	-15.57/-12.09	-10.45/-9.62	-9.14/-8.43	-7.32/-6.76	-7.24/-8.32
Θ(142.5°)	-12.77/-17.61</																							



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~4

Appendix A.2

Θ(150°)	-17.67/-15.07	-12.45/-13.34	-18.79/-13.98	-8.49/-6.79	-8.16/-13.56	-19.4/-14.22	-13.36/-15.38	-16.48/-16.44	-18.87/-18.92	-17.48/-14.73	-13.82/-16.13	-18.63/-14.57	-12.61/-9.32	-6.7/-6.98	-7.9/-8.06	-9.73/-14.21	-13.78/-15.42	-16.39/-13.08	-18.41/-18.52	-18.4/-15.13	-12.3/-18.49	-16.51/-16	-18.47/-18.59	-17.9/-17.03
Θ(157.5°)	-17.29/-16.79	-16.44/-17.35	-17.44/-18.09	-17.95/-16.96	-18.63/-17.93	-12.12/-11.06	-14.29/-18.17	-18.16/-13.97	-18.39/-17.58	-17.8/-18.29	-15.16/-14.41	-15.33/-16.13	-14.12/-10.95	-9.02/-9.1	-10.73/-11.95	-12.41/-10.9	-9.68/-11.01	-14.06/-19.03	-17.03/-13.03	-12.15/-11.76	-12.57/-15.57	-18.52/-18.57	-18.99/-18.37	-19.23/-19.67
Θ(165°)	-18.3/-16.42	-11.65/-9.94	-11.05/-12.27	-13.33/-13.94	-15.71/-17.6	-18.78/-18.87	-19.2/-17.17	-16.3/-17.56	-17.48/-18.89	-18.01/-18.29	-18.74/-18.68	-14.78/-14.91	-13.51/-11.93	-10.48/-9.4	-8.79/-8.84	-9.3/-9.82	-10.82/-13.51	-16.18/-12.72	-16.18/-17.03	-19.48/-19.02	-17.83/-19	-18.11/-17.89	-18.31/-17.98	
Θ(172.5°)	-14.73/-14.58	-15.31/-14.98	-14.14/-14.54	-14.9/-13.9	-13.91/-13.69	-14.17/-14.02	-13.58/-14.62	-17.92/-17.04	-17.44/-17.45	-18.06/-18.01	-17.6/-17.19	-17.87/-16.36	-14.1/-12.96	-11.72/-10.27	-9.71/-9.84	-10.87/-11.06	-10.58/-11.04	-12.4/-15.2	-17.95/-17.84	-18.72/-19.26	-17.98/-18.92	-18.49/-17.99	-17.59/-17.52	-18.75/-17.28
Θ(180°)	-19.11/-18.98	-18.46/-18.08	-18.74/-16.3	-14.29/-14.14	-15.25/-14.97	-14.58/-13.23	-14.43/-16.08	-18.44/-18.66	-18.21/-18.78	-18.83/-19.01	-17.41/-18.53	-17.68/-18.83	-18.38/-18.88	-18.76/-18.98	-17.07/-17.6	-18.01/-18.36	-18.37/-18.76	-18.82/-18.26	-18.4/-16.98	-17.57/-18.27	-19.01/-17.65	-19.16/-18.09	-17.83/-18.38	-18.03/-19.17
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°)	-2.83/-2.75	-3.02/-3.78	-4.78/-5.91	-7.38/-9.14	-10.68/-12.33	-13.8/-15.67	-16.78/-13.72	-11.82/-8.87	-6.75/-5.52	-4.54/-4.11	-4.03/-4.18	-4.12/-4.38	-4.94/-5.31	-5.23/-5.56	-6.41/-7.75	-9.07/-11.27	-12.04/-13.25	-14.65/-15.5	-13.61/-11.05	-8.64/-7.89	-6.34/-5.18	-4.16/-3.83	-3.53/-3.73	-3.58/-3.6
Θ(7.5°)	-1.21/-1.04	-1.05/-1.64	-3.01/-4.72	-6.37/-7.55	-8.42/-9.19	-8.88/-9.19	-8.07/-8.43	-8.04/-6.09	-5.5/-5.41	-3.65/-3.07	-2.76/-2.22	-2.04/-2.31	-3.49/-5.17	-6.79/-7.74	-8.66/-10.73	-13.57/-15.45	-14.21/-13.01	-9.94/-8.57	-6.91/-6.25	-5.24/-5.28	-4.66/-4.16	-3.42/-2.62	-1.84/-1.6	-1.71/-1.81
Θ(15°)	-2.56/-2.89	-2.58/-1.69	-1.38/-1.65	-3.51/-6.37	-8.04/-7.75	-7.13/-6.83	-7.17/-7.35	-6.04/-4.11	-3.23/-2.62	-2.81/-2.71	-2.02/-1.32	-0.94/-1.63	-3.09/-4.93	-6.11/-6.52	-6.44/-6.92	-8.28/-10.56	-13.5/-14.95	-14.86/-15.02	-12.42/-9.81	-7.58/-6.74	-6.01/-5.81	-5.14/-4.03	-2.59/-1.75	-1.56/-1.81
Θ(22.5°)	-6.53/-6.79	-5.18/-3.73	-3.79/-3.76	-4.48/-5.44	-6.53/-7.38	-8.63/-7.77	-6.32/-6.7	-8.82/-7.47	-4.06/-2.78	-3.15/-2.96	-2.12/-0.89	-0.82/-2.15	-3.86/-3.99	-4.09/-5.44	-4.8/-5.14	-6.13/-7.66	-10.17/-13.09	-16.75/-19.31	-18.74/-18.71	-17.71/-13.76	-8.8/-7.78	-7.3/-6.21	-3.31/-1.71	-2.08/-3.91
Θ(30°)	-8.04/-6.35	-5.52/-5.89	-8.66/-13.43	-12.12/-6.41	-2.95/-1.64	-2.27/-5.49	-4.9/-6.1	-5.51/-7.58	-5.35/-3.91	-3.43/-4.34	-3.48/-2.02	-2.21/-4.94	-7.67/-7.09	-8.77/-8.08	-9.75/-9.84	-17.78/-8.63	-11.38/-14.18	-14.33/-14.46	-16.03/-18.86	-17.53/-19.09	-14.62/-10.71	-10.27/-11.07	-6.55/-3.61	-4.54/-6.69
Θ(37.5°)	-3.92/-4.97	-6.9/-6.64	-6.42/-7.35	-9.54/-11.61	-8.1/-4.44	-2.59/-5.25	-6.42/-10.42	-6.46/-6.97	-5.54/-4.4	-3.73/-4.58	-4.79/-2.21	-2.71/-7.6	-10.53/-6.86	-6.14/-10.22	-11.43/-9.96	-8.31/-10.46	-13.95/-15.89	-18.82/-15.98	-16.17/-18.36	-18.23/-14.29	-11.63/-10.99	-12.78/-16.5	-8.83/-6.39	-7.03/-5.68
Θ(45°)	-5.45/-12.53	-14.67/-6.02	-5.09/-7.01	-8.99/-10.36	-9.41/-7.75	-4.91/-2.91	-4.59/-12.47	-9.46/-7.4	-6.01/-5.4	-5.12/-6.64	-7.64/-9.42	-5.37/-8.77	-7.7/-9.96	-7.86/-12.72	-9.77/-6.13	-6.56/-9.11	-9.18/-8.75	-10.8/-12.46	-17.68/-18.57	-18.06/-10.37	-8.86/-13.55	-18.06/-19.02	-10.88/-7.94	-9.36/-5.55
Θ(52.5°)	-5.14/-10.6	-7.89/-7.27	-9.27/-13.77	-17.89/-18.25	-8.9/-4.08	-3.84/-3.07	-4.38/-10.88	-10.75/-8.21	-8.37/-9.09	-8.67/-9.29	-9.84/-11.21	-18.75/-12.51	-10.45/-9.02	-9.52/-11.86	-9.05/-6.55	-9/-11.09	-10.75/-9.8	-9.14/-10.94	-16.27/-17.66	-13.05/-11.34	-16.87/-15.81	-16.36/-13.95	-13.61/-14.14	-8.56/-4.04
Θ(60°)	-5.68/-7.51	-4.44/-5	-8.58/-9.62	-9.43/-13.57	-8.51/-4.34	-5.69/-4.17	-6.92/-12.5	-14.34/-7.99	-7.06/-9	-13.93/-19.36	-12.89/-11.89	-18.3/-14.19	-10.15/-9.67	-12.73/-17.64	-13/-8.47	-8.2/-10.88	-13.66/-13.09	-11.88/-9.18	-10.95/-17.82	-16.39/-12.76	-17.35/-18.05	-19.06/-15.16	-17.69/-15.75	-7.06/-3.81
Θ(67.5°)	-7.13/-5.68	-4.95/-3.08	-10.13/-9.4	-8.23/-8.3	-8.65/-5.29	-10.92/-8.69	-14.24/-16.03	-17.49/-12.8	-13.68/-15.1	-17.98/-16.3	-18.13/-13.3	-17.04/-15.83	-10.94/-11.77	-12.31/-15.56	-12.29/-9.01	-7.8/-10.6	-15/-12.58	-11.62/-11.62	-10.71/-10.77	-10.07/-9.39	-16.47/-16.35	-14.91/-12.26	-10.11/-18.92	-14.12/-6.87
Θ(75°)	-1.57/-4.07	-3.5/-3.78	-15.09/-15.08	-11.43/-8.7	-12.64/-5.35	-18.77/-9.91	-17.92/-19.35	-14.21/-16.1	-17.48/-17.41	-19.31/-18.53	-19.35/-13.62	-17.86/-12.82	-9.73/-10.46	-11.76/-14.53	-11.45/-9.95	-6.46/-9.97	-19.18/-14.05	-10.48/-11.3	-12.63/-12.43	-11.07/-9.08	-12.97/-9.59	-13.74/-13.37	-8.18/-12.98	-9.94/-5.15
Θ(82.5°)	-8.02/-4.11	-5.3/-4.31	-18.78/-17.19	-11.04/-8.63	-12.98/-6.35	-17.45/-14.58	-11.46/-18.75	-14.35/-18.18	-18.62/-18.79	-19.39/-18.15	-16.97/-11.85	-14.71/-11.08	-8.27/-11.64	-10.5/-13.56	-11.09/-10.14	-5.94/-12	-19.35/-15.69	-10.3/-10.83	-15.4/-11.65	-12.16/-11.56	-13.32/-11.67	-12.05/-12.06	-9.66/-11.3	-12.35/-9.79
Θ(90°)	-11.37/-5.92	-7.1/-4.89	-12.02/-17.98	-13.34/-7.93	-13.79/-9.35	-18.09/-18.94	-12.04/-17.22	-10.46/-18.92	-18.35/-17.8	-14.85/-15.93	-13.98/-15.05	-13.84/-9.86	-7.55/-11.85	-11.13/-12.97	-11.66/-10.91	-7.52/-10.56	-19.24/-17.74	-11.28/-12.32	-18.36/-14.91	-14.39/-12.45	-15.29/-10.54	-11.46/-11.06	-8.86/-8.26	-6.17/-10.3
Θ(97.5°)	-12.42/-7.41	-10.22/-4.82	-12.98/-13.56	-1.94/-12.02	-18.16/-12.07	-16.45/-18.97	-11.79/-17.93	-10.15/-18.12	-18.24/-15	-11.22/-13.49	-16.13/-11.92	-10.19/-9.72	-8.99/-11.05	-10.38/-13.92	-9.73/-12.55	-8.23/-11.71	-17.53/-18.53	-10.79/-10.64	-17.32/-16.02	-19.23/-19.32	-18.71/-14.94	-12.18/-11.82	-10.29/-11.31	-11.11/-14.15
Θ(105°)	-9.36/-11.82	-12.91/-7.19	-10.52/-15.84	-12.64/-14.22	-15.6/-16.98	-14.35/-13.34	-12.44/-18.08	-12.84/-14.91	-12.1/-14.64	-16.9/-16.25	-11.32/-7.8	-11.27/-10.73	-8.87/-14.58	-9.01/-10.7	-11.56/-12.64	-11.12/-11.77	-18.83/-18.97	-12.42/-10.48	-16/-18.19	-19.09/-19.09	-18.59/-17.82	-10.26/-9.38	-10.15/-13.39	-10.54/-10.4
Θ(112.5°)	-5.51/-17.27	-18.38/-17.89	-18.03/-13.08	-12.67/-14.18	-13.39/-12.55	-9.93/-9.27	-10.34/-16.6	-10.76/-17.35	-14.62/-14.16	-14.89/-9.51	-10.81/-9.51	-9.68/-6.34	-8.33/-9.8	-8.95/-12.1	-10.98/-12.96	-13.08/-12.69	-10.11/-18.35	-11.48/-18.95	-18.21/-17.43	-18.28/-18.65	-15.01/-13.57	-10.67/-10.57	-10.73/-14.1	-11.36/-9.9
Θ(120°)	-6.88/-12.22	-17.4/-18.97	-18.06/-10.07	-11.31/-16.06	-18.41/-10.58	-13.67/-9.86	-11.31/-12.5	-14.28/-10.88	-14.03/-12.94	-16.88/-10.2	-13.69/-11.64	-10.93/-13.42	-9.37/-14.99	-11.03/-8.34	-10.78/-16.69	-18.27/-12.59	-12.89/-17.68	-12.46/-7.98	-8.27/-16.96	-17.84/-18.02	-13.43/-18.38	-15.06/-10.55	-18.43/-18.27	-12.83/-16.93
Θ(127.5°)	-9.2/-13.1	-18.08/-18.9	-18.59/-17.3	-17.65/-17.34	-18.59/-15.36	-14.59/-8.94	-11.74/-12.21	-10.11/-7.56	-12.52/-8.35	-10.97/-8.69	-10.39/-6.94	-6.46/-10.66	-5.75/-7.57	-8.75/-6.54	-9.07/-18.86	-18.11/-17.91	-18.6/-18.7	-13.68/-12.03	-9.48/-9	-13.92/-12.66	-13.42/-13.68	-17.65/-8.41	-9.07/-19.14	-13.67/-15.74
Θ(135°)	-14.14/-12.96	-18.99/-17.85	-16.24/-17.48	-17.29/-15.34	-18.18/-11.92	-12.77/-19.08	-14.79/-10.86	-11.2/-8.46	-16.81/-7.82	-7.44/-8.12	-6.3/-4.72	-9.24/-7.86	-4.51/-7.1	-10.34/-7.6	-10.51/-13.7	-18.59/-18.8	-16.84/-19.24	-14.18/-11.19	-11.93/-15.84	-17.27/-16.85	-8.83/-5.46	-15.3/-13.43	-7.56/-19.09	-18.72/-18.98
Θ(142.5°)	-9.52/-12.3	-16.44/-17.11	-13.35/-10.48	-11.77/-18.92	-15.92/-10.7	-12.17/-18.62	-8.92/-9.29	-12.25/-6.41	-3.96/-14.85	-8.5/-10.2	-11.55/-10.12	-8.62/-11.27	-17.91/-8.62	-8.32/-9.01	-15.19/-18.29	-15.58/-17.1	-18.1/-17.19	-18.01/-16.81	-17.29/-16.1	-13.25/-11.53	-11.88/-11.23	-17.17/-18.57	-11.19/-13.37	-15.15/-11.07
Θ(150°)	-17.79/-18.04	-13.81/-15.68	-18.49/-18.68	-18.58/-17.67	-15.65/-17.75	-18.7/-8	-5.33/-7.68	-10.83/-5.05	-5.45/-12.48	-9.59/-8.73	-12.45/-10.65	-7.79/-9.66	-14.41/-13.14	-9.31/-9.14	-11.16/-13.18	-18.6/-17.7	-17.4/-15.41	-15.83/-18.05	-16.43/-12.58	-13.41/-14.72	-18.48/-14.1	-9.82/-8.53	-7.94/-10.25	-12.82/-15.87
Θ(157.5°)	-14.46/-19.26	-15.39/-15.62	-19.06/-17.77	-14.96/-17.75	-17.24/-12.44	-8.81/-7.89	-10.85/-14.7	-7.96/-5.65	-0.77/-10.29	-5.97/-4.07	-5.15/-7.1	-7.34/-6.01	-6.18/-8.42	-11.34/-13.68	-13.97/-16.45	-18.09/-18.02	-19.3/-17.52	-19.26/-13.54	-11.44/-11.64	-14.06/-17.02	-13.31/-16.6	-8.05/-8.79	-12.08/-13.68	-12.01/-12.03
Θ(165°)	-12.76/-15.48	-19.01/-18.81	-18.02/-18.29	-17.65/-17.47	-18.49/-15.59	-13.71/-13.13	-12.61/-11.62	-9.38/-9.7	-11.32/-9.89	-7.71/-6.89	-7.48/-9.32	-11.48/-10.96	-9.38/-9.9	-11.63/-15.86	-18.18/-18.21	-18.86/-18	-17.74/-18.07	-14.31/-12.08	-10.78/-11.25	-11.58/-10.96	-9.14/-8.42	-9.11/-12.43	-18.93/-18.67	-19.05/-14.44
Θ(172.5°)	-12.36/-12.09	-12.17/-11.81	-12.3/-14.53	-16.52/-18.38	-19.06/-18.83	-17.58/-16.1	-18.29/-19.25	-18.26/-17.08	-15.16/-11.32	-8.66/-7.51	-7.17/-7.35	-18.76/-10.96	-13.09/-14.1	-15.64/-17.72	-18.33/-17.54	-16.76/-17.06	-14.66/-12.57	-10.46/-9.62	-10.21/-11.81	-13.95/-15.84	-16.39/-16.43	-19.17/-19.19	-18/-13.26	-11.79/-11.66
Θ(180°)	-18.35/-18.68	-18.56/-18.92	-18.13/-18.2	-19.28/-18.46	-15.53/-14.12	-12.23/-11.57	-11.22/-11.31	-11.66/-11.88	-11.09/-10.85	-10.38/-11.47	-13.79/-16.4	-18.48/-17.37	-17.5/-19.27	-17.54/-18.38	-19.23/-19.07	-18.79/-17.75	-14.32/-12.28	-12.14/-14.21	-18.3/-18.33	-18.69/-18.49	-18.63/-17.82	-18.38/-19.17	-17.67/-18.32	-19.16/-18.32
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°)																



Radiated Composite Gain Data of 2.4GHz/5GHz_2G5G Ant1~4

Appendix A.2

Θ(0°)	-5.57/-5.6	-6.45/-6.93	-6.74/-6.45	-6.87/-9.65	-11.24/-12.34	-13.29/-16.22	-17.84/-18.96	-17.71/-19.25	-15.84/-13.78	-12.2/-10.68	-9.25/-8.46	-8.12/-8.21	-8.56/-8.47	-8.64/-8.55	-8.46/-8.93	-10.24/-11.61	-12.59/-14.12	-17.08/-17.52	-17.35/-17.96	-17.87/-17.43	-14.35/-11.8	-10.24/-9.11	-8.64/-7.61	-6.82/-6.28
Θ(7.5°)	-4.31/-3.56	-3.4/-3.7	-3.59/-2.95	-3.06/-4.55	-6.44/-7.79	-8.98/-10.09	-13.85/-18.19	-19.09/-18.54	-13.58/-11.45	-10.2/-8.76	-7.87/-7.54	-7.29/-6.84	-6.63/-6.34	-5.86/-5.58	-5.12/-5.02	-5.24/-6.04	-7.29/-8.24	-9.47/-11.21	-14.01/-17.84	-17.54/-17.67	-15.79/-12.92	-10.7/-9.9	-9.67/-8.81	-7.06/-5.43
Θ(15°)	-4.03/-4.06	-4.09/-4.26	-3.7/-3.26	-3.94/-5.4	-6.71/-7.14	-7.08/-8.12	-10.98/-14.72	-18.66/-18.07	-13.63/-10.84	-8.41/-6.97	-6.05/-5.42	-5.18/-5.09	-4.73/-4.21	-3.97/-4.09	-4.72/-5.6	-6.64/-7.55	-8.32/-9.85	-10.64/-13.13	-19.46/-18.96	-19.28/-18.89	-15.83/-12.79	-10.76/-9.66	-9.67/-8.5	-6.33/-4.25
Θ(22.5°)	-5.29/-5.49	-4.99/-4.13	-3.69/-2.65	-2.7/-3.56	-4.83/-6.25	-7.42/-8.59	-11.43/-17.05	-17.84/-13.17	-10.09/-8	-6.49/-6.15	-5.62/-5.4	-6.11/-6.1	-5.18/-4.91	-5.38/-6.04	-6.56/-6.59	-6.66/-6.92	-7.17/-8.05	-9.01/-8.74	-9.5/-12.48	-17.4/-17.53	-16.7/-13.19	-10.05/-8.55	-9.03/-7.98	-6.44/-4.92
Θ(30°)	-7.47/-7.48	-7.65/-8.31	-9.27/-10.33	-10.45/-8.01	-4.87/-3.75	-5.48/-9.1	-10.39/-14.91	-18.98/-11.65	-9/-6.01	-5.3/-6.64	-6.51/-6.44	-8.32/-9.06	-7.15/-6.37	-6.48/-5.99	-4.95/-4.37	-4.72/-5.41	-6.21/-6.99	-8.39/-8.65	-8.42/-9.19	-11.21/-15.16	-18.16/-18.39	-12.81/-10.34	-11.99/-10.05	-6.8/-6.4
Θ(37.5°)	-6.88/-5.87	-5.87/-7.51	-7.4/-6.34	-6.38/-7.65	-5.77/-3.95	-4.92/-8.11	-11.53/-17.22	-16.1/-10.08	-8.25/-6.03	-6.48/-10.62	-9.37/-10.44	-11.99/-9.63	-10.24/-10.68	-10.52/-7.54	-5.86/-5.95	-6.22/-7.07	-7.32/-6.73	-6.74/-7.57	-9.93/-15.17	-18.34/-17	-15.28/-18.48	-18.79/-14.49	-15.69/-12.14	-8.05/-6.71
Θ(45°)	-6.84/-6.26	-8.99/-8.35	-5.96/-6.74	-8.87/-9.17	-8.67/-7.66	-5.74/-6.99	-12.75/-18.59	-14/-10.73	-10.34/-9.97	-10.42/-11.59	-9.58/-12.21	-14.95/-14.6	-14.72/-14.18	-13.12/-7.98	-6.66/-6.27	-5.29/-6.18	-6.39/-6.95	-9.73/-13.65	-13.09/-11.4	-13.09/-14.24	-15.74/-19.24	-18.98/-17.72	-14.81/-10.25	-7.5/-6.52
Θ(52.5°)	-7.72/-6.87	-11.56/-8.83	-8.66/-12.43	-14.9/-10.9	-7.4/-7.35	-7.15/-7.05	-12.42/-19.05	-10.96/-9.45	-9.08/-9.82	-12.48/-12.77	-13.38/-16.63	-19.01/-18.55	-18.67/-18.1	-17.35/-13.49	-9.96/-8.08	-7.98/-9.2	-10.02/-10.27	-12.06/-14.26	-14.04/-12.42	-12.36/-11.98	-13.84/-18.52	-18.86/-19.34	-14.18/-14.24	-10.98/-7.89
Θ(60°)	-6.18/-8.09	-7.79/-5.33	-7.41/-10.52	-12.16/-16.47	-9.39/-7.53	-10.54/-9.97	-16.15/-16.16	-9.07/-8.78	-10.2/-12.6	-15.65/-17.03	-19.03/-19.16	-18.69/-17.66	-15.54/-14.97	-13.63/-13.23	-8.57/-10.57	-12.5/-11.75	-11.4/-13.07	-14.71/-11.87	-10.23/-10.78	-12.83/-9.95	-11.35/-14.84	-17.77/-18.73	-12.69/-11.36	-15.51/-7.99
Θ(67.5°)	-5.39/-7.87	-6.58/-5.11	-9.09/-9.36	-9.03/-10.94	-10.95/-9.12	-16.36/-15.71	-19.4/-10.97	-8.6/-10.21	-14.21/-15.01	-12.85/-16.82	-18.48/-18.62	-18.19/-19.03	-17.96/-13.42	-15.15/-11.36	-8/-11.58	-11.39/-9.28	-10/-11.56	-13.5/-10.01	-12.25/-12.16	-11.12/-10.15	-12.66/-13.09	-16.27/-18.47	-15.27/-12.14	-17.06/-9.84
Θ(75°)	-8.76/-9.21	-6.3/-6	-10.52/-11.03	-9.73/-10.69	-11.58/-8.19	-18.17/-18.31	-17.81/-12.55	-11.49/-14.19	-18.68/-17.47	-17.96/-19.06	-16.93/-17.18	-16.68/-15.24	-11.9/-8.65	-7.91/-10.36	-10.38/-8.59	-10.08/-10.88	-11.92/-12.06	-14.75/-15.74	-11.78/-9.28	-12.69/-13.98	-15.7/-11.73	-18.36/-17.15	-17.66/-13.88	
Θ(82.5°)	-9.88/-10.28	-8.06/-7.34	-14.59/-15.26	-11.32/-9.75	-14.47/-11.07	-18.96/-19.09	-17.82/-12.84	-13.54/-18.49	-18.62/-18.65	-17.64/-18.71	-18.95/-18.23	-19.18/-18.48	-14.71/-11.11	-12.32/-9.11	-8.9/-9.7	-11.52/-9.6	-11.12/-11.22	-14.29/-11.46	-16.79/-15.01	-15.97/-12.68	-11.12/-10.99	-13.64/-9.93	-14.38/-11.81	-17.99/-14.43
Θ(90°)	-12.17/-13.86	-11.21/-8.93	-12.46/-17.8	-17.34/-12.73	-15.11/-10.64	-16.43/-18.18	-18.19/-17.37	-17.75/-17.85	-17.67/-17.84	-18.65/-17.07	-18.57/-18.07	-18.11/-15.95	-12.61/-11.49	-11.67/-9.78	-9.56/-10.48	-13.29/-12.07	-14.1/-15.71	-19.33/-13.39	-19.18/-17.91	-18.36/-15.66	-15.25/-14.37	-16.94/-12.74	-16.92/-18.49	-18.14/-16.02
Θ(97.5°)	-12.62/-18.92	-15.29/-10	-13.46/-18.77	-17.75/-12.24	-14.38/-18.97	-15.58/-17.97	-16.86/-18.59	-18.46/-18.77	-17.97/-17.98	-19.15/-16.29	-17.78/-15.95	-17.96/-14.36	-12.97/-11.77	-11.34/-9.81	-10.74/-11.72	-15.45/-12.96	-16.84/-18.25	-18.39/-19.72	-17.96/-17.45	-17.82/-18.16	-17.99/-17.31	-15.94/-11.39	-17.45/-18.82	-16.4/-16.57
Θ(105°)	-12.28/-15.44	-18.57/-15.22	-15.12/-17.9	-18.92/-14.74	-17.97/-18.06	-12.38/-18.11	-14.37/-17.9	-18.18/-18.04	-15.84/-17.35	-18.95/-16.84	-17.66/-16.9	-18.22/-13.99	-12.63/-11.15	-12.7/-9.42	-9.11/-10.77	-11.43/-13.24	-14.38/-16.28	-17.09/-18.95	-19.26/-18.97	-18.86/-18.51	-18.32/-13.65	-13.91/-11.22	-10.81/-13.59	-15.32/-12.18
Θ(112.5°)	-9.48/-12.73	-17.68/-18.54	-17.23/-17.47	-15.53/-18.55	-19.14/-18.2	-14.34/-13.94	-14.92/-19.21	-17.93/-15.32	-16.9/-18.87	-16.05/-15.14	-16.81/-14.91	-18.63/-12.47	-11.1/-10.55	-10/-8.83	-10.97/-12.84	-13.15/-16.11	-19.43/-18.68	-13.17/-15.23	-17.09/-19.04	-17.69/-18.55	-18.54/-17.78	-14.56/-12.32	-19.18/-18.93	-16.54/-8.51
Θ(120°)	-11.83/-15.63	-16.85/-18.36	-16.65/-14.07	-12.86/-16.04	-17.6/-18.37	-13.32/-13.62	-14.97/-18.34	-18.87/-16.81	-17.35/-18.64	-14.97/-18.59	-16.99/-17.48	-18.15/-11.55	-13.24/-11.15	-11.85/-15.88	-13.19/-11.84	-15.83/-19.38	-18.76/-17.73	-17.3/-19.79	-17.96/-18.56	-18.99/-19.12	-16.52/-19.76	-11.84/-17.73	-17.45/-18.82	-16.86/-16.28
Θ(127.5°)	-19.42/-18.64	-18.29/-18.66	-15.47/-15.41	-17.81/-18.72	-17.78/-18.53	-17.33/-14.8	-10.16/-14.06	-14/-13.09	-11.08/-16.37	-13.84/-14.21	-13.4/-16.04	-13.86/-18.59	-12.96/-12.02	-11.44/-8.5	-12.5/-12.12	-12.84/-12.48	-18.31/-17.27	-16.09/-13.75	-16.17/-14.82	-18.87/-17.45	-17.66/-17.75	-10.97/-10.78	-18.88/-16.14	-15.65/-16.07
Θ(135°)	-18.07/-17.2	-19.23/-17.81	-17.83/-18.69	-16/-14.13	-17.86/-16.56	-15.59/-17.99	-18.69/-18.79	-13.49/-14.18	-15.78/-13.59	-12.85/-15.22	-12.61/-11.79	-11.42/-11.59	-9.91/-9.77	-9.99/-9.08	-10.15/-18.27	-19.1/-18.77	-16/-18.84	-15.77/-11.39	-17.07/-18.07	-19.17/-18.38	-13.27/-13.59	-17.74/-13.08	-16.65/-17.36	-14.97/-17.05
Θ(142.5°)	-8.66/-11.56	-15.07/-13.4	-13.56/-14.8	-11.37/-13.94	-18.08/-18.63	-18.4/-16.22	-15.61/-16.45	-11.18/-10.52	-16.22/-16.6	-17.55/-17.4	-9.57/-10.27	-11.68/-11.27	-12.33/-13.2	-17.04/-18.16	-19.13/-18.24	-17.13/-15.44	-17.75/-17.16	-13.33/-13.47	-18.07/-18.94	-19.32/-12.75	-14.97/-15.76	-18.35/-17.89	-12.43/-12.03	-12.95/-9.39
Θ(150°)	-14.96/-19.19	-16.2/-13.91	-15.71/-18.01	-18.32/-18.79	-15.78/-14.72	-19.73/-14.26	-12.81/-14.22	-9.48/-8.73	-11.42/-12.52	-12.77/-14.67	-15.43/-17.36	-17.79/-13.47	-14.57/-18.23	-15.23/-13.05	-13.88/-11.99	-11.39/-14.77	-17.66/-18.36	-15.53/-16.98	-17.46/-18.15	-18.81/-16.5	-15.34/-15.7	-15.09/-13.85	-12.2/-13.07	-17.07/-17.69
Θ(157.5°)	-17.95/-18.51	-16.85/-19.16	-17.09/-17.11	-18.46/-18.77	-18.76/-18.17	-14.51/-13.96	-14.77/-13.42	-10.09/-9.07	-9.42/-9.4	-9.71/-9.91	-10.79/-13.27	-17.33/-17.63	-13.88/-11.79	-11.67/-11.34	-11.84/-13.93	-19.55/-18.86	-15.67/-14.14	-16.3/-18.68	-17.7/-14.69	-14.13/-12.87	-11.59/-11.38	-11.89/-11.38	-11.23/-13.89	-18.53/-17.77
Θ(165°)	-16.53/-17.84	-18.07/-18.43	-19.04/-19.19	-18.08/-17.92	-19.17/-16.67	-15.53/-16.49	-15.29/-12.94	-11.85/-11.43	-10.9/-10.46	-10.12/-10.43	-11.32/-12.25	-12.19/-12.35	-11.92/-12.25	-12.68/-15.72	-18.06/-19.47	-18.1/-18.96	-17.25/-15.4	-13.58/-11.65	-11.26/-12.24	-13.31/-14.77	-14.62/-19.54	-11.4/-10.46	-11.12/-12.61	-15.05/-16.46
Θ(172.5°)	-19.18/-18.57	-19.34/-18.47	-17.83/-17.3	-16.78/-17.39	-18.33/-19.27	-18.54/-18.12	-19.36/-16.79	-15.49/-14.79	-14.48/-13.58	-13.23/-13.38	-14.36/-16.29	-17.08/-17.86	-18.38/-17.78	-17.58/-18.61	-18.06/-16.76	-16.8/-17.84	-15.55/-14.83	-16.42/-18.54	-18.84/-17.96	-18.09/-19.17	-18.76/-17.55	-18.87/-17.79	-16.44/-18.97	-18.24/-18.93
Θ(180°)	-18.37/-18.1	-17.48/-17.9	-18.9/-19.26	-19.16/-17.44	-18.34/-19.16	-18.62/-17.96	-18.73/-17.48	-18.46/-18.06	-18.46/-17.93	-16.96/-16.21	-17.31/-18.12	-18.86/-18.27	-19.18/-18.61	-19.33/-18.02	-19.02/-17.83	-18.69/-18.12	-17.21/-16.85	-18.18/-18.16	-18.83/-15.84	-14.64/-13.45	-13.65/-13.9	-12.45/-11.7	-11.04/-12.15	-13.61/-18.18
Freq(Hz)	5.785GPol.	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°)	-18.17/-18.64	-17.93/-18.05	-14.71/-12.57	-11.36/-10.05	-8.6/-8.07	-7.52/-7.32	-6.54/-6.28	-7.07/-7.6	-7.56/-7.72	-8.57/-9.36	-10.21/-11.83	-13.84/-16.15	-17.22/-18.86	-18.33/-19.16	-16.33/-14.41	-13.09/-11.97	-10.31/-9.31	-8.34/-7.97	-7.67/-7.26	-7.1/-7.23	-7.61/-7.76	-7.63/-7.95	-9.02/-10.54	-13.18/-16.55
Θ(7.5°)	-15.55/-16.56	-14.71/-11.92	-9.83/-7.68	-6.38/-5.24	-3.78/-2.78	-2.31/-2.15	-1.95/-1.99	-2.45/-3.28	-3.8/-4.23	-5.42/-6.77	-7.96/-9.82	-11.52/-12.93	-14.18/-14.38	-13.94/-13.13	-11.71/-10.1	-8.58/-7.79	-7.21/-6.14	-5.03/-4.31	-4.38/-4.88	-5.28/-5.69	-6.19/-7.34	-8.95/-10.33	-11.24/-12.8	-13.91/-15.05
Θ(15°)	-10.23/-10.57	-11.92/-12.66	-11.9/-10.4	-8.2/-6.49	-5.4/-4.9	-4.31/-3.97	-3.24/-2.33	-2.33/-3.28	-4.01/-5.27	-7.07/-8.48	-9.04/-9.65	-10.54/-11.76	-12.78/-12.73	-13.19/-13.53	-11.79/-10.05	-8.35/-7.08	-6.11/-4.73	-3.18/-2.21	-2/-2.53	-3.28/-4.14	-4.81/-5.43	-6.89/-9.02	-11.06/-12.71	-11.73/-10.57
Θ(22.5°)	-5.58/-6.13	-7.08/-8.41	-8.32/-8.42	-8.97/-8.78	-7.1/-5.64	-4.51/-3.95	-3.93/-3.25	-2.66/-3	-3.5/-4.81	-8.36/-10.27	-7.47/-5.66	-4.89/-4.45	-3.43/-3.46	-4.65/-6.43	-7.53/-8.03	-7.52/-7.44	-7.77/-6.37	-4.5/-3.91	-3.03/-2.03	-1.97/-3.41	-4.71/-3.84	-3.08/-4.5	-8.25/-13.19	-9.8/-6.41
Θ(30°)	-2.21/-3.62	-5.61/-6.04	-5.28/-3.68	-2.76/-3.09	-3.9/-4.13	-3.29/-2.65	-2/-1.49	-2.43/-3.87	-3.48/-3.22	-4.7/-6.3	-3.41/-1.38	-0.640/-1.3	0.880/-1.6	-1.38/-1.93	-1.7/-1.85	-2.83/-4.91	-8.53/-9.39	-6.85/-5.41	-5.12/-4.35	-2.93/-2.28	-4.19/-6.63	-4.48/-3.04	-4.02/-5.62	-4.45/-2.56
Θ(37.5°)	-1.51/-2.81	-2.22/-1.53	-1.58/-2.88	-2.88/-1.65	-0.89/-0.98	-1.9/-2.02	-2.67/-1.37	-0.14/-1.23	-1.81/-1.41	-1.38/-1.41	-0.550/-0.3	2.05/-1.1	1/1.95	2.27/1.54	0.01/-1.54	-3.79/-6.34	-8.45/-6.82	-3.12/-1.42						



Freq(Hz)	5.2G	5.3G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	4.93	5.19	5.06	4.82
Ant. 2 Max Gain (dBi)	4.65	5.24	4.77	4.35
Ant. 1 Polarization/θ(°)/φ(°)	Theta/60/172.5	Theta/52.5/172.5	Theta/52.5/180	Theta/60/142.5
Ant. 2 Polarization/θ(°)/φ(°)	Theta/52.5/172.5	Theta/45/172.5	Theta/60/172.5	Theta/45/187.5
Max Gain (dBi)	4.93	5.24	5.06	4.82
DG [1SS] (dBi)	7.49	7.94	7.87	7.36
DG [2SS] (dBi)	4.93	5.24	5.06	4.82





Radiated Composite Gain Data of 5GHz/6GHz_5G6G Ant1~2

Appendix A.3

θ(30°)	-5.22/3.34	-2.53/3.6	-4.7/-3.97	-4.26/-4.06	-4.08/-2.44	-3.37/-5.78	-5.49/-5.5	-5.69/6.38	-7.31/-6.81	-7.17/-8.54	-9.24/-7.44	-4.61/-3.76	-4.63/-3.25	-3.83/-5.37	-3.24/-2.49	-2.98/-3.66	-8.41/-9.6	-7.1/-6.69	-6.54/-6.31	-7.17/-6.75	-6.73/-8.46	-8.18/-8.08	-8.02/-8.87	-6.8/-6.19
θ(37.5°)	-7.08/-5.33	-6.46/-7.09	-5.47/-5.33	-7.01/-6.08	-5.23/-3.95	-5.83/-8.24	-6.01/-7.4	-6.86/-9.96	-9.53/-8.72	-8.86/-12.53	-13.68/-11.37	-6.32/-5.39	-5.6/-5.88	-4.98/-4.63	-2.76/-3.61	-6.54/-6.69	-6.12/-6.39	-6.26/-5.53	-7.22/-9.77	-9.37/-9.4	-7.39/-6.08	-8.61/-10.14	-9.29/-9.9	-8.95/-6.77
θ(45°)	-6.93/-6.55	-9.59/-9.01	-5.51/-6.16	-9/-8.19	-6.41/-6.55	-7.92/-7.49	-5.16/-7.89	-7.82/-12.44	-12.1/-10.08	-7.38/-9.45	-12.1/-14.8	-4.35/-6.49	-6.02/-6.69	-4.85/-6.21	-4.35/-3.97	-4.88/-2.58	-5.06/-9.33	-7.93/-7.28	-8.32/-5.22	-5.18/-7.61	-10.5/-6.45	-5.52/-7.59	-8.4/-12.95	-11.19/-7.19
θ(52.5°)	-6.82/-5.44	-10.18/-8.47	-6.51/-10.81	-9.36/-9.76	-7.78/-6.33	-6.12/-7.43	-5.44/-7.8	-11.01/-15.59	-12.79/-8.71	-7.01/-8.36	-11.79/-14.44	-7.03/-6.79	-5.93/-6.54	-5.64/-6.06	-3.97/-4.5	-5.43/-6.87	-8.03/-6.98	-8.72/-7.24	-5.21/-8.18	-9.85/-7.07	-6.71/-4.81	-4.92/-7.26	-8.64/-12	-10.61/-7.81
θ(60°)	-6.38/-6.63	-9.79/-6.61	-7.56/-9.8	-10.16/-8.86	-6.39/-5.01	-4.65/-4.86	-4.28/-7.06	-14.3/-15.88	-10.97/-10.77	-9.49/-9.72	-12.07/-16	-11.78/-8.89	-9.11/-6.23	-6.55/-8.8	-4.8/-2.8	-5.27/-8.1	-7.7/-6.75	-14.38/-11.03	-8.45/-8.78	-10.43/-7.71	-10.62/-6.1	-10.02/-10.78	-14.91/-11.97	-11.35/-6.91
θ(67.5°)	-6.56/-9.16	-10.96/-6.37	-8.61/-12.04	-12.92/-9.25	-4.76/-5.74	-3.35/-5.63	-6.36/-9.2	-15.18/-15.28	-10.78/-8.83	-12.22/-7.92	-9.73/-14.01	-13.81/-12.33	-9.05/-9.51	-8.55/-9.65	-6.24/-3.5	-3.35/-5.95	-3.33/-5.83	-10.53/-15.21	-11.01/-9.48	-10.42/-9.31	-7.08/-9.43	-8.65/-9.05	-9.38/-13.02	-8.57/-6
θ(75°)	-7.96/-10.75	-12.91/-9.26	-10.92/-11.58	-11.54/-8.07	-4.26/-5.61	-5.17/-7.91	-9.15/-14.09	-13.04/-15.18	-11.39/-8.48	-10.88/-8.96	-10.17/-15.78	-13.79/-14.32	-12.62/-11.16	-14.5/-11.03	-10.04/-4.83	-4.19/-4.41	-3.25/-4.94	-7.7/-11.04	-13.92/-10.45	-7.78/-7.79	-3.21/-5.84	-5.34/-7.85	-8.71/-10.93	-5.92/-6.03
θ(82.5°)	-9.77/-12.56	-12.33/-11.35	-14.39/-13	-9.25/-8.14	-4.83/-7.74	-9.6/-8.39	-12.26/-9.84	-14.22/-15.02	-8.66/-6.4	-9.01/-8.62	-11.08/-14.41	-15.48/-13.24	-14.74/-10.66	-15.45/-15.43	-8.79/-5.54	-5.26/-5.17	-3.52/-5.06	-6.43/-9.81	-11.98/-11.03	-9.39/-5.84	-2.51/-4.52	-5.49/-8.58	-7.82/-8.85	-5.21/-7.36
θ(90°)	-13.61/-12.87	-11.61/-12.12	-15.57/-13.41	-8.53/-6.01	-6.57/-12.08	-10.94/-9.62	-13.96/-9.27	-12.91/-10.58	-7.65/-5.58	-9.35/-9.64	-10.75/-12.17	-15.29/-11.98	-13.55/-10.69	-14.27/-15.58	-10.75/-7.07	-6.69/-6.07	-5.43/-5.69	-7.02/-8.75	-8.63/-11.03	-11.78/-7.23	-6.6/-5.05	-9.23/-14.43	-8.44/-8.67	-7/-9.46
θ(97.5°)	-13.76/-13.06	-12.79/-12.36	-15.3/-11.87	-9.1/-7.93	-9.03/-12.74	-12.76/-9.75	-9.23/-8.18	-10.02/-10.73	-7.35/-4.6	-8.52/-10.03	-11.89/-11.67	-15.27/-9.93	-15.23/-8.66	-14.82/-10.12	-8.06/-9.89	-8.38/-8.22	-5.7/-7.14	-8.22/-8.85	-9.39/-13.53	-13.72/-10.35	-12.44/-6.02	-14.04/-14.88	-9.06/-10.33	-8.96/-13.19
θ(105°)	-13.14/-13.26	-12.47/-12.57	-12.94/-11.08	-11.26/-9.72	-13.53/-8.68	-11.11/-12.7	-10.48/-10.05	-9.37/-6.22	-7.16/-5.85	-8.5/-11.31	-12.78/-12.01	-15.32/-11.34	-13.54/-9.14	-12.54/-9.84	-7.83/-10.67	-8.85/-7.81	-7.68/-10.19	-8.32/-6.49	-7.46/-11.62	-15.17/-11.32	-12.36/-8.58	-13.32/-11.47	-9.6/-15.8	-12.52/-14.58
θ(112.5°)	-12.39/-11.4	-11.95/-9.71	-13.05/-13.4	-10.52/-12.04	-10.16/-8.53	-8.52/-8.38	-8.64/-8.31	-6.75/-5.16	-8.24/-6.84	-8.4/-10.46	-12.36/-11.36	-15.84/-13.95	-13.45/-10.13	-11.88/-8.85	-6.22/-8.74	-8.44/-11.09	-7.79/-7.37	-12.14/-6.77	-8.52/-10.29	-14.75/-15.04	-8.78/-10.78	-9.91/-9.47	-15.04/-13.48	-10.2/-13.08
θ(120°)	-12.34/-11.39	-10.22/-10.09	-13.66/-11.87	-11.12/-13.1	-7.88/-11.86	-6.47/-9.21	-7.88/-8.9	-7.73/-8.18	-7.17/-12.24	-10.61/-9.34	-11.53/-14.02	-15.35/-13.17	-13.08/-12.15	-11.06/-11.66	-8.61/-8.27	-12.9/-8.09	-3.96/-10.05	-12.86/-7.22	-9.2/-12.09	-12.99/-14.6	-10.48/-12.85	-12.2/-9.84	-13.64/-14.53	-10/-12.25
θ(127.5°)	-11.59/-11.34	-12.47/-11.19	-12.24/-12.18	-14.9/-14	-11.72/-12.91	-12.47/-10.24	-7.97/-7.34	-8.71/-9.47	-9.11/-8.14	-12.46/-8.96	-10.92/-14.07	-11.26/-9.95	-12.15/-8.29	-10.75/-8.76	-8.74/-10.64	-7.45/-6.97	-10.4/-14.41	-14.33/-10.14	-10.69/-13.63	-14.04/-13.68	-13.99/-12.93	-15.09/-11.48	-13.52/-13.42	-13.86/-13.86
θ(135°)	-11.09/-13.66	-9.65/-10.89	-11.28/-14.28	-10.35/-14.04	-13.13/-13.57	-12.02/-10.16	-10.16/-8.42	-12.63/-7.28	-8.54/-15.54	-15.61/-15.21	-12.22/-10.55	-9.9/-7.45	-12.06/-10.1	-5.5/-8.49	-6.88/-9.29	-9.51/-10.91	-8.56/-10.5	-14.19/-12.25	-11.5/-12.7	-10.96/-14.11	-9.94/-10.3	-9.54/-13.68	-12.66/-12.83	
θ(142.5°)	-13.11/-14.23	-11.54/-12.96	-12.64/-8.74	-7.85/-15.44	-11.25/-15.13	-10.05/-9.14	-15.11/-9.97	-15.55/-8.91	-8.32/-10.75	-11.76/-12.12	-12.06/-10.12	-11.43/-11.67	-12.08/-10.25	-5.9/-7	-8.92/-3.57	-9.75/-10.4	-6.01/-11.36	-9.32/-8.31	-10.72/-11.14	-11.4/-13.81	-12.07/-13.88	-14.39/-14.91	-15.31/-13.67	-14.11/-10.73
θ(150°)	-10.41/-9.94	-11.61/-12.23	-13.39/-12.64	-12.94/-14.54	-7.6/-8.87	-14.01/-9.8	-12.9/-11.63	-10.84/-15.27	-12.26/-9.07	-8/-8.57	-11.88/-12.53	-10.6/-10.33	-11.4/-12.51	-9.01/-8.48	-5.14/-8.81	-12.19/-13.48	-14.76/-14.56	-9.63/-9.26	-9.72/-11.23	-13.45/-11.95	-12.98/-15.18	-15.78/-14.49	-12.63/-13.6	-13.5/-14.1
θ(157.5°)	-10.05/-11.43	-11.66/-12.82	-12.16/-16.07	-15.15/-14.34	-12.08/-11.11	-8.6/-9.95	-8.51/-13.58	-12.52/-9.05	-10.35/-9.84	-9.93/-10.28	-12.47/-13.75	-12.38/-13.21	-11.28/-8.22	-6.5/-7.9	-8.73/-8.06	-9.84/-10.27	-7.77/-7.86	-11.4/-15.39	-15.53/-14.59	-13.75/-13.49	-15.45/-14.93	-12.11/-12.16	-10.58/-13.77	
θ(165°)	-12.3/-9.85	-9.69/-11.82	-11.55/-13.23	-13.34/-14.66	-12.5/-9.46	-7.77/-7.85	-9.77/-11.42	-11.94/-10.86	-10.34/-10.19	-10.95/-13.5	-14.15/-14.47	-11.66/-10.78	-8.48/-6.52	-6.87/-9.93	-15.66/-15.73	-11.56/-10.32	-8.94/-7.8	-8.23/-10.54	-15.41/-14.79	-10.81/-10.89	-12.77/-13.53	-12.73/-12.82	-13.12/-12.05	-10.98/-12.22
θ(172.5°)	-9.45/-9.64	-9.71/-8.99	-8.74/-10.02	-10.18/-10.28	-11.08/-10.1	-10.03/-11.53	-12.16/-12.66	-14.25/-15.32	-15.34/-14.94	-15.27/-14.77	-13.13/-12.09	-10.8/-10.9	-11.52/-12.48	-12.29/-9.85	-6.91/-5.75	-6.22/-6.16	-5.71/-6.09	-8.37/-9.9	-11.32/-11.23	-10.97/-12.28	-14.32/-12.95	-12.89/-15.62	-11.95/-11.69	-12.1/-10.14
θ(180°)	-8.89/-8.92	-7.86/-6.32	-5.56/-5.19	-5.57/-5.5	-5.71/-7.5	-9.52/-10.23	-11.62/-12.09	-12.23/-13.04	-13.6/-14.21	-14.8/-15.77	-13.27/-13.24	-13.18/-12.13	-11.59/-11.26	-10.59/-11.06	-11.09/-8.99	-7.81/-7.83	-7.89/-8.15	-8.27/-8.98	-9.22/-10.23	-11.23/-12.76	-12.96/-13.57	-13.73/-12.49	-12.17/-10.23	
Freq(Hz)	6.995GPol.	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°)	-8.19/-8.2	-8.37/-9.14	-10.31/-9.76	-9.44/-9.24	-8.91/-6	-7.42/-6.41	-5.58/-5.05	-4.48/-4.26	-4.02/-3.59	-3.91/-4.61	-4.69/-5.01	-5.96/-7.38	-9.34/-10.15	-10.36/-11.67	-10.71/-8.78	-7.52/-6.74	-6.46/-5.7	-4.52/-4.38	-4.82/-4.01	-4.38/-4.43	-4.81/-4.55	-4.73/-5.32	-5.18/-5.72	-6.11/-7.11
θ(7.5°)	-5.23/-5.19	-4.81/-4.8	-5.4/-4.88	-4.38/-4.07	-3.72/-3.79	-3.87/-3.2	-2.64/-2.12	-1.88/-1.27	-1.1/-9.05	-0.37/-0.28	-0.34/-0.64	0.9/-1.37	-2.32/-2.47	-2.45/-2.77	-2.84/-3.15	-3.38/-3.25	-3.14/-3.18	-2.65/-2.42	-2.75/-2.65	-2.88/-3.16	-2.82/-3.34	-3.47/-3.93	-4.51/-4.58	-4.71/-4.97
θ(15°)	-5.66/-5.52	-4.51/-3.17	-3.38/-3.86	-2.82/-2.32	-1.62/-0.93	-0.29/0.51	1.261/1.25	1.61/1.88	1.410/82	0.720/86	1.051/53	1.561/44	0.86/-0.39	-0.96/-0.98	-0.57/-0.17	-0.33/-0.9	0.370/11	-2.47/-2.81	-1.84/-1.78	-2/-2.6	-2.47/-2.12	-2.49/-3.59	-4.16/-4.32	-4.45/-4.42
θ(22.5°)	-3/-3.4	-3.37/-3.34	-3.02/-2.14	-1.04/-0.5	0.110/4.6	1.031/9	2.893/24	3.924/6	4.984/86	4.23/67	2.723/34	3.472/76	2.717/78	1.631/38	0.15/-0.77	-1.14/-0.47	-0.23/-3.14	-3.02/-4.13	-5.36/-6.98	-8.13/-8.02	-5.68/-3.48	-2.18/-1.21	-1.14/-2.72	-2.93/-2.66
θ(30°)	-3.32/-2.73	-1.38/-1.92	-1.5/-2.06	0.48/-0.35	-0.57/-0.31	-0.110/13	0.882/27	4.195/52	5.364/47	4.053/82	2.772/78	3.643/85	3.563/59	2.671/48	0.920/83	-0.21/-0.61	-0.37/-1.75	-3.98/-3.29	-3.66/-6.05	-5.66/-5.23	-3.98/-2.58	-0.79/-0.58	-0.84/-0.82	-1.5/-2.59
θ(37.5°)	-0.01/-0.35	-0.080/15	0.390/47	-0.19/-0.62	-0.69/-0.71	-1.36/-1.29	0.04/-0.04	2.314/58	5.025/45	5.514/53	3.353/23	4.375/16	5.295/25	4.512/87	0.98/-0.48	-0.33/-0.53	-0.41/-0.24	-0.06/-0.33	-0.99/-1.46	-1.32/-2.02	-0.130/37	1.831/35	1.120/33	
θ(45°)	-2.67/-1.16	-0.061/-5	1.330/83	2.461/6	-0.77/-1.13	1.661/14	1.371/19	2.573/12	3.745/7	5.633/73	2.872/75	3.996/18	6.776/31	5.313/45	1.260/36	-0.221/0.9	1.380/14	1.841/72	0.66/-1.99	-3.66/-4.43	-1.41/-1.88	1.6/-0.55	-0.37/-0.93	-0.43/-0.2
θ(52.5°)	-3.24/-1.16	-0.51/-1.18	2.25/-1.44	2.971/35	-0.830/-48	2.021/86	2.52/5	2.762/39	2.844/51	4.613/84	2.688/27	4.476/2	7.87/6.95	5.513/37	2.282/99	1.331/25	2.532/12	3.924/39	2.45/-0.3	-3.12/-3.24	-4.730/59	2.210/84	-0.460/82	0.03/-0.59
θ(60°)	-4.53/-3.66	-2.1/-1.48	1.472/19	1.910/5	0.260/29	1.62/25	3.383/41	2.922/64	0.034/67	5.284/37	3.23/68	5.616/64	5.053/18	3.223/29	2.661/57	2.72/28	2.633/4	2.5/-0.45	-2.46/-3.05	-4.730/59	2.031/34	0.130/2	-1.2/-3.01	
θ(67.5°)	-2.42/-5.13	-3.86/-0.45	0.847/46	1.05/-1.58	-2.38/-2.02	0.452/38	3.283/24	2.842/88	3.483/33	4.533/99	2.851/86	4.666/08	6.416/29	4.123/15	3.452/87	1.591/94	1.65/-0.8	-0.650/69	-0.66/-1.51	-5.32/-6.18	-6.34/-1.11	0.211/42	1.21/05	0.360/36
θ(75°)	-0.33/-0.28	-4.39/-1.75	-0.040/59	-0.54/-3.72	-3.18/-6.89	-0.260/82	1.141/37	2.182/01	2.271/71	3.83/16	1.960/14	2.154/07	4.544/99	3.132/11	2.683/43	1.511/51	1.711/-8.9	-1.4/-1.6	1.170/67	-1.76/-5.63	-5.06/-1.33	0.72/-0.98	0.730/36	0.160/86
θ(82.5°)	-0.16/-2.25	-4.65/-3.07	-1.42/-1.29	-2.29/-6.87	-4.36/-9.42	-1.51/-0.34	-0.58/-0.95	0.881/17	0.46/-0.38	3.041/99	1.014/-0.46	-0.302/22	2.193	1.760/45	0									



Freq(Hz)	5.2G	5.3G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	4.93	5.19	5.06	4.82
Ant. 2 Max Gain (dBi)	4.65	5.24	4.77	4.35
Ant. 3 Max Gain (dBi)	4.82	5.08	2.58	3.71
Ant. 4 Max Gain (dBi)	2.81	2.66	2.57	2.5
Ant. 1 Polarization/Θ(°)/Φ(°)	Theta/60/172.5	Theta/52.5/172.5	Theta/52.5/180	Theta/60/142.5
Ant. 2 Polarization/Θ(°)/Φ(°)	Theta/52.5/172.5	Theta/45/172.5	Theta/60/172.5	Theta/45/187.5
Ant. 3 Polarization/Θ(°)/Φ(°)	Phi/60/15	Phi/52.5/7.5	Phi/75/7.5	Phi/60/135
Ant. 4 Polarization/Θ(°)/Φ(°)	Phi/52.5/75	Phi/60/75	Phi/75/7.5	Phi/67.5/217.5
Max Gain (dBi)	4.93	5.24	5.06	4.82
DG [1SS] (dBi)	5.69	5.63	5.77	5.61
DG [2SS] (dBi)	4.93	5.24	5.06	4.82
DG [4SS] (dBi)	4.93	5.24	5.06	4.82



Radiated Composite Gain Data of 5GHz/6GHz_5G6G Ant1~4

Appendix A.4

DG 1SS Result

Freq(Hz)	5.2GPol.	PhiL	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°)
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°)	-2.34/2.62	-2.26/3.21	-3.09/3.07	-2.39/3.24	-3.22/4.19	-3.53/5.3	-3.45/4.5	-3.45/4.2	-2.12/2.25	-2.04/1.94	-1.66/1.6	-1.97/2.69	-3.26/3.55	-3.92/4	-4.02/4.24	-4.54/4.83	-4.92/5.25	-5.69/5.5	-4.06/3.21	-2.53/1.99	-1.52/1.54	-1.81/1.53	-1.51/1.54	-1.51/1.54
Θ(7.5°)	-1.43/0.78	-0.28/0.29	-0.53/0.47	-0.76/1.17	-1.75/1.94	-2.12/2.77	-3.59/3.4	-2.71/2.32	-2.08/2.27	-2.01/1.58	-1.84/2.31	-2.52/3.01	-3.6/4.07	-3.34/2.53	-2.22/1.76	-1.19/0.91	-1.02/1.27	-1.51/1.65	-1.39/1.09	-0.69/0.29	-0.17/0.11	-0.2/0.38	-0.68/1.07	-1.54/1.53
Θ(15°)	-0.95/-1.5	-1.78/-1.34	-0.88/-0.08	0.39/0.84	1.27/1.52	1.73/1.17	0.53/0.96	0.5/-0.46	-1.18/-1.45	-1.45/-0.98	-0.59/-0.48	-0.57/-0.76	-1.51/-1.52	-0.89/-0.14	0.5/0.69	0.40/0.28	0.84/1.49	1.8/1.26	0.38/0.18	0.74/1.23	1.76/2.45	2.5/1.85	1.43/1.37	0.48/-0.41
Θ(22.5°)	1.17/1.13	1.13/0.95	0.91/1.11	1.36/1.56	1.77/1.96	1.96/1.7	1.31/1.31	1.12/0.62	0.28/0.22	0.39/0.55	0.02/-0.36	-0.39/-0.21	-0.14/0.4	0.82/1.13	1.63/2.21	1.32/1.94	2/1.4	0.94/1.33	1.89/2.34	3.22/3.18	2.83/2.47	2.25/1.56		
Θ(30°)	2.33/2.42	2.76/2.27	3.34/3.28	3.12/2.66	2.91/2.91	2.62/2.29	2.15/2.47	2.49/2.15	1.92/0.2	1.84/1.05	0.44/1.06	1.33/1.75	2.19/2.86	3.34/2.96	3.02/3.68	3.73/2.63	1.72/1.59	0.91/1.61	3.18/3.91	3.87/3.8	3.58/3.05	2.77/2.57	2.44/2.7	2.23/2.04
Θ(37.5°)	3.27/2.38	2.32/2.92	3.48/3.44	3.12/3.81	4.08/3.75	3.71/3.12	2.21/2.59	3.02/3.25	3.23/3.34	2.65/1.62	1.45/2.12	2.71/2.78	3.06/4.08	4.32/4.48	5.06/5.69	4.87/3.61	2.61/2.2	1.94/2.83	4.23/4.55	4.04/3.96	4.14/4.08	3.82/3.69	2.96/2.59	3.48/3.83
Θ(45°)	4.42/3.84	3.81/2.57	1.82/1.77	2.65/3.88	4.18/3.59	3.84/3.72	2.51/2.8	2.87/3.11	3.16/3	2.27/1.86	2.93/2.95	3.5/3.78	3.6/4.1	4.54/6.7	5.2/5.6	4.68/2.76	3.12/2.98	2.53/3.48	3.91/2.78	2.69/3.61	4.23/4.05	3.42/3.34	3.49/2.64	2.07/4.07
Θ(52.5°)	5.34/4.49	4.73/3.69	2.46/2.19	2.13/3.62	4.45/4.47	4.74/3.95	2.73/3.15	3.03/3.44	3.11/2.56	1.71/2.57	3.63/3.97	3.84/4.12	2.74/3.91	4.94/4.84	5.3/4.8	4.45/4.03	4.18/4.07	3.07/4.08	4.24/3.74	3.52/8.4	3.05/2.47	1.98/1.54	2.02/3.27	3.61/5.06
Θ(60°)	5.66/4.77	5.11/3.88	2.92/27	2.42/4.13	5.14/4.44	4.59/4.09	2.36/1.98	1.65/2.63	3.02/2.25	1.81/2.25	3.29/3.82	3.86/3.83	1.65/2.87	3.75/4.75	5.65/3.32	4.83/2.74	2.74/3.6	2.94/1.1	4.22/3.14	3.3/2.31	2.95/2.75	2.99/2.6	2.23/3.4	4.42/6.3
Θ(67.5°)	5.11/4.19	4.07/2.69	2.51/8.4	2.29/3.72	4.99/3.92	3.53/4.48	1.95/1.45	0.58/1.61	2.48/2.37	3.28/4.24	3.26/3.45	2.52/1.83	0.85/2.07	2.97/3.49	4.53/4.21	4.36/3.05	2.38/3.92	2.65/3.75	3.63/4.03	4.15/3.13	3.89/2.97	2.97/2.68	2.47/3.09	4.81/4.78
Θ(75°)	3.52/2.31	2.06/0.92	1.31/3.3	0.74/2.59	3.83/3.13	1.88/2.38	0.67/0.53	0.03/1.42	2.45/2.91	2.62/2.28	1.91/2.18	2.09/1.25	0.11/1.28	1.51/2.97	3.59/2.97	3.43/2	0.48/3.57	3.21/3.83	4.01/3.71	3.6/3.05	4.03/2.91	2.26/1.45	2.21/1.7	3.47/3.08
Θ(82.5°)	1.13/0.55	0.1/-0.51	-0.16/0.04	-0.6/1.83	2.58/1.28	0.01/0.21	-0.63/-0.65	0.08/1.66	1.2/1.95	2.51/1.06	1.16/2.04	1.8/1.1	0.28/0.52	0.72/1.25	2.2/1.61	3.03/1.62	0.31/2.87	2.35/3.02	3.22/2.69	2.36/2.07	3.64/2.04	0.9/0.08	0.74/0.41	2.45/0.82
Θ(90°)	-1.03/-1.14	-1.4/-1.85	-0.96/-0.55	-2.48/0.11	0.68/-0.21	-1.61/-0.7	-0.24/-0.8	-0.31/0.27	0.59/1.58	2.21/0.95	-0.27/0.56	1.16/0.08	-0.47/0.39	0.21/0.46	0.67/0.3	1.08/1.02	-1.44/0.89	1.95/1.25	2.12/1.24	0.18/0.63	1.63/0.22	-0.91/1.79	-1.36/-1.08	0.67/2.42
Θ(97.5°)	-1.87/2.8	-3.02/-1.56	-2.37/-2.96	-2.57/-0.94	-1.55/-1.84	-3.22/-1.69	-2.23/-0.76	-1.21/-0.25	-0.14/0.96	1.26/-0.36	-0.79/0.35	0.61/0.07	-1.35/-0.83	-0.84/-1.64	0.21/-0.67	0.59/-0.53	-1.7/-1.72	-0.29/0.33	0.41/-3.13	-4.41/-1.98	-0.66/-2.94	-4.04/-4.12	-4.2/-3.65	-1.48/-4.53
Θ(105°)	-3.7/-4.06	-4.26/-3.13	-4.77/-4.56	-3.39/-3.93	-3.6/-3.29	-4.15/-2.22	-3.54/-3.83	-1.73/-1.4	-0.93/-0.26	0.4/-0.34	-1.6/-1.28	-0.53/-0.9	-2.16/-1.46	-3.61/-2.63	-3.2/-2.89	-1.7/-2.03	-1.28/-3.46	-1.47/-3.74	-5.43/-7.07	-4.84/-6.09	-5.12/-6.05	-5.6/-5.37	-2.72/-3.34	
Θ(112.5°)	-5.75/-4.49	-5.56/-4.65	-1.82/-5.3	-4.78/-4.04	-5.71/-5.37	-4.65/-3.34	-3.94/-1.67	-2.56/-2.42	-1.04/-1.31	-0.71/-1.01	-1.83/-2.08	-1.53/-2.01	-2.59/-2.25	-4.8/-4.19	-4.12/-4.74	-1.02/-1.14	-2.93/-3.33	-4.53/-4.3	-4.62/-5.36	-4.33/-6.82	-4.62/-5.17	-8.21/-9.64		-4.54/-7
Θ(120°)	-4.6/-5.91	-6.22/-5.75	-7.85/-7.04	-6.19/-8.03	-5.3/-7.09	-5.53/-5.35	-5.24/-3.36	-2.58/-4.42	-2.87/-2.67	-2.28/-2.06	-1.9/-1.78	-3.2/-2.38	-2.78/-2.8	-2.48/-2.76	-4.94/-6.57	-1.03/-1.83	-4.32/-6.61	-3.54/-4.47	-1.23/-4.3	-5.46/-6.89	-4.68/-4.57	-6.48/-7.65	-10.19/-10.96	-7.42/-5.24
Θ(127.5°)	-5.37/-6.7	-7.85/-6.6	-8.46/-9.35	-6.69/-8.57	-5.89/-8.1	-6.94/-6.86	-5.83/-6.81	-3.91/-6.08	-4.79/-2.87	-3/-3.94	-3.6/-2.58	-2.47/-2.75	-2.81/-2.62	-1.22/-3.31	-1.36/-3.64	-2.09/-4.89	-7.59/-5.47	-5.13/-3.96	-2.61/-7.08	-6.44/-8.52	-9.1/-9.76	-7.03/-9.57	-12.07/-9.56	-7.41/-7.04
Θ(135°)	-7.18/-8.19	-10.19/-10.75	-11.95/-9.85	-8.33/-7.88	-7.31/-4.89	-6.65/-6.76	-4.95/-8.4	-7.55/-5.53	-6.42/-4.27	-2.55/-2.78	-3.82/-4.84	-4.08/-3.08	-4.35/-2.07	0.03/-1.62	-2.24/-3.78	-5.21/-5.75	-9.34/-6.59	-8.38/-6.17	-5.81/-7.63	-8.71/-8.55	-7.69/-9.61	-8.89/-7.55	-8.37/-8.45	
Θ(142.5°)	-6.13/-7.83	-9.39/-7.3	-6.76/-6.36	-7.83/-9.14	-8.59/-5.8	-6.05/-7.6	-6.07/-6.94	-5.53/-6.88	-4.13/-2.44	-3.01/-3.89	-4.29/-3.39	-5.74/-4.34	-5.44/-4.26	-3.71/-5.55	-5.75/-5.21	-6.55/-8.95	-8.09/-5.14	-6.78/-10.12	-10.15/-9.32	-7.77/-8.51	-7.35/-8.21	-11.13/-9.33	-8.29/-7.55	
Θ(150°)	-7.72/-6.95	-8.78/-1.11	-5.35/-4.21	-4.45/-3.88	-3.22/-3.98	-6.54/-7.64	-5.08/-4.02	-4.91/-4.13	-2.7/-2.48	-3.27/-4.4	-4.05/-3.49	-4.36/-6.09	-5.79/-5.18	-5.03/-5.06	-6.32/-5.19	-5.82/-6.75	-6.78/-7.29	-7.13/-5.49	-7.89/-9.62	-7.67/-7.38	-8.62/-9.57	-9.88/-8.79	-9.26/-7.16	-7.65/-8.74
Θ(157.5°)	-9.51/-9.59	-10.86/-8.43	-6.65/-5.15	-3.85/-3.45	-3.64/-3.45	-4.03/-4.39	-4.59/-5.53	-6/-5.2	-4.69/-4.81	-4.98/-5.23	-6.04/-7.2	-7.56/-7.33	-6.35/-5.49	-6.89/-6.78	-5.86/-5.38	-6.71/-5.85	-6.42/-7.08	-7.29/-8	-9.41/-10.84	-9.41/-8.55	-9.46/-9.4	-9.96/-8.43	-8.42/-9.13	-10.39/-10.4
Θ(165°)	-7.96/-8.59	-9.83/-8.61	-8.18/-7.21	-6.46/-6.16	-6.01/-6.17	-6.55/-5.21	-4.97/-5.26	-6.46/-6.53	-5.48/-5.35	-5.73/-6.52	-6.37/-6.54	-6.51/-6.89	-7.19/-7.39	-8.32/-7.27	-6.41/-5.74	-5.97/-1.8	-8.17/-9.87	-10.58/-10.78	-10.69/-12.13	-12.67/-11.96	-9.87/-7.64	-6.87/-6.48	-7.33/-8.38	-8.29/-7.96
Θ(172.5°)	-8.53/-9.92	-9.81/-8.82	-9.43/-8.82	-8.21/-8.16	-7.68/-6.61	-6.17/-5.49	-5.05/-5.63	-6/-6.49	-7.62/-6.58	-6.05/-5.21	-4.71/-4.91	-5.42/-6.99	-8.91/-10.19	-11.22/-10.38	-10.5/-10.79	-11.57/-12.05	-11.8/-10.62	-9.67/-9.63	-9.85/-9.71	-9.84/-9.47	-9.45/-9.53	-10.8/-1	-7.79/-7.76	-7.58/-7.67
Θ(180°)	-9.46/-9.34	-9.98/-9.89	-8.98/-8.68	-8.59/-8.88	-8.11/-7.93	-7.35/-7.14	-6.82/-7.12	-7.04/-7.09	-7.39/-7.2	-6.79/-6.27	-6.5/-7.62	-8.02/-9.56	-11.31/-10.23	-9.95/-10.37	-10.13/-9.63	-8.85/-8.18	-8.06/-8.54	-9.45/-10.05	-9.37/-9.21	-8.95/-8.57	-7.79/-7.2	-6.72/-7.19	-7.64/-8.21	-8.99/-9.19
Freq(Hz)	5.2GPol.	ThetaL	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°)	-4.35/-4.44	-4.1/-3.16	-3.01/2.98	-2.54/-2.4	-2.12/2.67	-2.13/2.19	-3.44/-3.19	-3.63/-4.2	-4.61/-4.25	-4.69/-4.11	-5.34/-6.12	-5.91/-6.21	-5.26/-4.31	-3.58/-3.52	-3.17/2.53	-2.34/2.27	-2.18/-2.35	-2.21/-1.92	-2.72/-3.64	-4.22/-4.02	-2.84/-3.46	-4.95/-4.11	-3.61/-5.35	-6.14/-8.46
Θ(7.5°)	-3.8/-3.22	-3.1/-3.13	-3.31/-3.84	-3.61/-3.49	-3.22/-3.53	-3.46/-2.54	-2.54/-3.1	-3.03/-2.55	-2.08/-2.33	-2.82/-1.88	-2.11/-3.44	-3.36/-3.4	-4.06/-4.1	-3.21/-2.69	-2.87/-2.78	-2.5/-1.94	-1.69/-2.21	-2.98/-3.3	-3.77/-4.88	-5.74/-6.33	-4.53/-5.45	-5.18/-6.1	-4.58/-4.71	
Θ(15°)	-4.35/-4.39	-2.88/-2.85	-2.83/-2.69	-2.64/-3.16	-3.34/-3.36	-3.84/-3.48	-2.72/-3.03	-2.24/-1.14	-0.93/-0.39	-0.14/-0.73	-0.5/-0.45	-0.51/-0.73	-1.24/-1.85	-2.06/-2.6	-3.74/-3.47	-4.39/-3.99	-3.7/-3.88	-4.29/-5.42	-5.92/-5.99	-6.14/-6.59	-6.83/-7.7	-6.6/-8.48	-5.08/-1.57	-3.72/-3.92
Θ(22.5°)	-2.12/-2.04	-2.67/-3.77	-4.75/-3.68	-3.04/-3.13	-3.46/-3.28	-2.77/-1.83	-1.23/-1.3	-1.20/2.1	1.27/1.77	2.23/2.29	2.42/33	1.47/1.16	1.23/0.77	0.54/-1.85	-2.32/-2.59	-2.57/-1.94	-1.6/-1.67	-2.85/-4.54	-5.68/-6.5	-6.94/-5.43	-2.71/-1.87	-2.22/-1.66	-1.29/-1.81	
Θ(30°)	-2.32/-1.66	-1.97/-2.77	-3.23/-2	-1.42/-1.86	-2.15/-1.55	-0.98/-0.65	-1.13/-1.31	-0.48/0.1	1.32/1.31	0.93/0.97	2.08/3.12	3.21/3.05	3.11/3.43	3.62/3.06	1.04/-0.56	0.07/0.35	0.04/0.31	-0.52/0.07	-0.16/-1.06	-2.23/-2.53	-2.06/-2.62	-2.06/-2.57	-3.54/-2.4	-1.56/-1.6
Θ(37.5°)	0.16/0.63	-1.24/-2.62	-2.38/-0.95	-0.7/-0.55	-0.72/-1.43	-0.7/-0.06	-0.57/-1.17	-1.35/-0.59	-0.27/-0.17	1.01/2.15	3.43/4.49	5.11/4.6	3.88/4.26	4.53/3.92	1.76/1.02	2.04/2.82	2.21/0.95	1.16/1.9	1.93/0.61	-1.03/-1.66	-1.85/-2.37	-2.61/-2.24	-2.16/-2.33	-1.39/0.26
Θ(45°)	-0.07/-0.92	-0.43/-1.06	-1.77/-3.26	-2.04/-0.7	-0.47/-1.52	-0.38/1.23	0.89/1.71																	



Radiated Composite Gain Data of 5GHz/6GHz_5G6G Ant1~4

Appendix A.4

Θ(22.5°)	0.47/0.78	0.93/1.56	1.51/27	0.75/0.61	0.97/1.86	2.17/1.88	0.56/-1.47	-2.23/-1.73	-1.02/-0.28	-0.02/-0.89	-2.08/-1.41	-0.59/-0.45	-0.4/-0.32	-0.1/-0.13	0.13/0.46	0.59/-0.67	-1.87/-1.75	-1.43/-1.22	-0.14/0.43	0.08/-0.78	-0.54/-0.84	-0.65/-0.3	-1.04/-0.85	0.03/0.21
Θ(30°)	0.71/1.09	22.02	1.91/2.42	1.44/0.05	-0.38/1.14	1.44/-1.57	2.07/1.71	1.45/0.64	-0.03/0.5	0.63/0.28	-0.85/-0.75	0.16/0.51	-0.22/-0.37	-0.76/-0.98	1.09/2.71	3.13/2.08	-0.06/-0.15	-0.07/-0.84	-0.97/-0.29	0.06	0.63/-0.2	-0.39/-0.81	-0.24/0.34	0.85/0.86
Θ(142.5°)	-0.26/0.97	1.31/1.02	1.59/2.99	2.43/1.45	0.37/0.69	-0.08/-0.01	1.28/1.43	2.32/1.24	0.95/0.83	0.60/0.07	-0.86/-1.07	0.78/1.83	2.37/2.26	2.37/2.85	1.28/0.31	2.16/2.65	2.66/2.65	1.98/0.96	1.19/0.86	0.42/0.17	0.98/0.39	-1.73/-1.94	-0.3/0.2	0.29/0.39
Θ(45°)	1.31/2.12	1.82/1.95	1.93/1.57	1.68/2.39	1.15/0.48	-0.13/0.59	1.88/1.11	1.83/1.08	0.46/0.33	1.88/1.03	-0.24/0.21	2.29/3.07	2.08/2.13	3.02/2.49	2.07/2.14	2.55/3.26	2.63/1.53	1.29/-0.13	-0.42/2.46	3.13/1.97	1.08/0.67	0.24/-0.27	1.01/0.88	0.53/0.69
Θ(52.5°)	2.66/2.73	1.82/2.02	2.93/1.26	1.22/1.93	0.76/2	1.08/0.06	1.36/1.19	1.56/0.94	0.07/1.23	2.43/1.22	1.07/1.92	2.95/2	1.34/-1.56	1.92/36	2.39/2.27	2.11/-1.08	0.27/1.16	1.72/0.62	1.27/1.25	0.75/2.21	2.51/2.4	2.15/1.41	1.17/-0.23	0.08/1.4
Θ(60°)	1.52/2.15	0.21/1.53	1.48/1.32	0.46/1.02	1.13/2.25	2.11/2.34	2.72/0.3	1.64/1.39	0.99/1.28	2.31/1.89	1.39/1.12	1.49/1.37	-0.02/1.36	1.71/2.23	2.09	0.28/0.56	-0.12/-0.38	0.62/0.7	-1.23/0.74	0.34/-0.17	-0.88/-0.67	-2.17/-1.46	-1.23/0.87	
Θ(67.5°)	2.76/3.22	0.86/0.86	0.22/1.92	0.99/0.06	1.44/2.85	3.32/2.44	2.77/0.87	0.54/0.8	1.11/2.16	1.31/2.2	1.52/0.57	1.38/0.65	0.53/0.76	1.56/2.52	2.66/2.79	2.83/2.69	2.36/1.81	0.01/-0.46	0.8/-0.07	-0.6/0.29	0.39/-1.65	0.27/0.28	-0.51/-0.08	0.75/2.71
Θ(75°)	3.76/3.81	1.39/0.9	-0.09/-0.26	1.75/0.69	0.63/2.94	2.28/1.09	1.6/-1.29	-0.07/0.1	1.57/1.81	0.96/1.65	1.05/0	1.93/0.68	0.04/0.3	-0.19/0.91	1.93/2.91	3.03/2.88	2.03/1.7	0.89/0.95	1.86/0.86	1.61/-46	3.02/2.11	3.3/2.24	0.88/1	2.05/3.23
Θ(82.5°)	3.12/88	-0.67/0.12	-0.81/1.16	0.85/1.09	-0.33/1.4	0.64/0.18	-0.87/1.36	-0.52/-0.16	1.57/1.51	0.74/1.6	0.58/-0.43	1.56/0.54	-0.55/0.22	-0.43/-0.61	1.26/2.44	2.45/-1.2	0.36/1.52	1.75/1.93	2.92/0.81	1.52/2.72	4.37/3.26	3.43/2.49	0.65/0.73	1.75/1.61
Θ(90°)	0.57/0.91	0.19/-1.33	-1.99/-0.09	-0.14/0.63	-1.96/-1.43	-1.94/-1.57	-3.05/-2.79	-1.05/-0.2	0.92/0.77	-0.04/0.49	0.29/-0.7	0.5/0.31	-0.8/-1.08	-0.73/-1.94	0.41/1.13	1.25/0.14	-0.94/0.19	1.07/1.26	1.97/-0.09	0.31/1.61	1.87/2.17	0.1/-0.35	-1.17/-0.28	0.35/-0.57
Θ(97.5°)	-1.14/-1.49	-0.89/-3.03	-3.59/-1.52	-0.96/-1.64	-4.14/-3.21	-3.17/-2.46	-2.28/-2.91	-1.17/-1.05	0.11/0.42	-0.47/-0.77	-1.02/-1.68	-0.64/-0.72	-1.47/-1.13	-1.72/-1.55	0.34/-0.95	0.09/-1.34	-2.42/-2.58	-1.25/-1.8	-1.52/-3.81	-2.85/-1.46	-3.11/-0.36	-3.33/-2.71	-2.53/-2.25	-0.83/-3.08
Θ(105°)	-1.91/-3.5	-2.09/4.46	-3.98/-2.86	-3.12/-4.95	-7.13/-2.84	-3.13/-3.19	-1.07/2.72	-1.47/-1.3	-0.3/-0.92	-1.1/-2.57	-2.43/-2.2	-1.7/-2.06	-2.9/-2.1	-2.3/-1.84	-0.99/-2.56	-1.26/-0.64	-1.83/-4.67	-2.4/-2.66	-3.92/-4.4	-3.83/-3.17	-6.61/-3.93	-4.67/-3.92	-4.62/-4.59	-0.86/-5.59
Θ(112.5°)	-3.83/-3.74	-3.74/-1.2	-5.8/-5.04	-4.52/-4.43	-7.24/-3.2	-3.49/-3.49	-2.66/-3.64	-2.09/-1.62	-2.31/-1.39	-1.7/-2.31	-3.85/-1.66	-3.35/-3.55	-4.57/-3.51	-3.07/-2.59	-1.79/-2.84	-1.35/-4.25	-3.95/-4.78	-3.53/-1.6	-3.25/-5.22	-5.53/-5.41	-3.92/-4.66	-4.45/-3.59	-5.67/-5.36	-4.18/-7.5
Θ(120°)	-3.38/-2.93	-4.71/-6.01	-5.13/-5.8	-6.11/-5.89	-5.83/-5.82	-2.69/-4.03	-4.58/-4.01	-3.82/-2.73	-2.62/-4.5	-3.66/-3.13	-5.42/-3.36	-4.44/-5.06	-4.64/-5.81	-3.64/-2.83	-5.57/-2.09	-0.88/-6.67	-7.63/-1.7	-3.4/-8.61	-9.69/-6.69	-5.6/-6.44	-5.8/-4.04	-6/-7.91	-4.56/-4.09	
Θ(127.5°)	-3.39/-5.16	-7.31/7.61	-6.39/-6.93	-7.88/-7.53	-8.55/-5.65	-9.36/-5.94	-6.32/-3.67	-5.05/-4.18	-6.06/-4.08	-5/-5.28	-4.26/-4.57	-3.96/-4.03	-4.49/-3.84	-5.22/-7.29	-4.37/-5.99	-3.16/-1.23	-6/-6.5	-6.72/-2.25	-3.2/-6.12	-8.49/-4.74	-7.31/-5.41	-8.75/-5.84	-7.5/-10.49	-6.95/-4.17
Θ(135°)	-5.35/-6.73	-6.24/-6.66	-7.92/-8.35	-6.21/-10.92	-9.2/-8.57	-9.14/-6.77	-6.27/-4.99	-7.69/-4.74	-5.68/-5.2	-5.05/-7.83	-5.32/-6.44	-6.26/-5.08	-4.5/-3.75	-6.88/-8.22	-3.4/-5.49	-1.61/-3.26	-6.37/-8.02	-5.78/-6.26	-5.71/-5.38	-7.75/-7.35	-3.53/-5.5	-5.25/-6.27	-5.95/-10.18	-6.48/-6.01
Θ(142.5°)	-10.57/-1.49	-9.85/-6.66	-5.97/-6.08	-6.15/-12.46	-8.15/-11.13	-6.48/-4.79	-9.89/-6.57	-7.36/-6.55	-5.89/-7.89	-8.9/-8.19	-5.14/-4.65	-4.99/-6.37	-7.41/-5.19	-2.85/-4.04	-4.79/-3.33	-7.25/-6.92	-5.48/-9.47	-6.63/-6.33	-8.75/-8.1	-7.76/-11.04	-8.12/-10.47	-10.9/-10.69	-6.93/-9.95	-9.29/-9.32
Θ(150°)	-7.28/-6.92	-8.68/-6.96	-8.26/-9.67	-7.51/-9.85	-6.08/-6.3	-10.02/-7.74	-8.86/-8.57	-7.83/-10.18	-8.36/-6.13	-5.58/-5.84	-7.24/-6.33	-6.62/-7.76	-5.98/-5.33	-5.17/-7.68	-8.5/-11.25	-10/-10.25	-7.45/-8.37	-7.88/-7.82	-9.33/-10.56	-11.09/-11.62	-9.63/-8.54	-8.46/-7.11	-7.55/-9.71	
Θ(157.5°)	-8.14/-9.9	-9.77/-9.81	-9.34/-10.36	-8.79/-8.72	-9.38/-8.19	-6.8/-6.23	-7.51/-9.37	-7.92/-5.79	-8.06/-7.2	-7.07/-6.85	-7.85/-8.92	-10.77/-10.76	-8.73/-5.78	-5.39/-5.53	-7.29/-10.1	-8.45/-8	-8.88/-8.04	-6.44/-7.73	-8.33/-9.03	-10.49/-10.79	-10.28/-10.32	-10.27/-8.19	-7.38/-10.11	-12.21/-9.79
Θ(165°)	-10.14/-8.58	-8.29/-9.29	-8.44/-8.35	-7.93/-8	-8.15/-4.74	-6.31/-6.22	-7.67/-9.78	-8.62/-8.14	-7.49/-7.36	-7.7/-8.7	-9.13/-9.95	-8.94/-9.07	-7.77/-9.46	-6.57/-8.97	-11.61/-11.81	-9.99/-9.58	-7.9/-6.68	-7.49/-9.38	-12.3/-11.89	-8.43/-8.07	-9.14/-10.9	-10.83/-10.38	-10.68/-9.91	-9.08/-10.38
Θ(172.5°)	-7.67/-7.61	-7.99/-8.01	-7.74/-8.87	-8.78/-8.46	-8.95/-8.54	-8.6/-10.24	-10.57/-10.68	-11.86/-11.98	-12.2/-12.24	-12.14/-11.97	-11.06/-10.58	-9.63/-9.45	-9.73/-10.05	-9.57/-8.49	-6.53/-6.62	-6.37/-6.38	-6.11/-6.38	-8.23/-9.21	-9.92/-9.91	-9.18/-9.43	-10.82/-9.54	-10.89/-10.28	-8.83/-8.73	-9.06/-8.27
Θ(180°)	-8.7/-8.54	-7.54/-6.78	-6/-5.81	-6.25/-5.97	-6.25/-7.55	-9.06/-9.41	-9.86/-10.06	-10.51/-11.08	-11.26/-11.39	-12.07/-12.25	-11.15/-10.92	-11.31/-11.44	-10.72/-10.13	-10.07/-9.74	-9.74/-10.2	-9.75/-8.44	-7.9/-7.2	-7.26/-7.53	-7.47/-6.2	-9.59/-8.66	-9.45/-10.9	-10.66/-11.38	-11.45/-10.83	-10.58/-9.15
Freq(Hz)	6.995GPol.	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°)	-4.06/-4.9	-5.42/-6.07	-7.17/-7.22	-6.51/-6.16	-6.17/-5.54	-4.98/-4.49	-4.14/-3.33	-2.47/-2.11	-1.81/-1.66	-2.1/-2.83	-2.75/-3.04	-3.95/-4.6	-5.34/-5.62	-5.78/-6.28	-6.21/-5.81	-5.25/-4.93	-4.78/-4.12	-3.25/-2.94	-2.85/-2.19	-2.25/-1.91	-1.81/-1.46	-1.84/-2.17	-2.15/-2.57	-2.87/-3.45
Θ(7.5°)	-1.91/-2.83	-3.54/-4.31	-5.45/-5.44	-5.26/-4.77	-4.3/-4.26	-4.12/-3.27	-2.82/-2.33	-1.64/-0.99	-0.92/-0.99	-1.1/-1.25	-0.94/-1.21	-1.47/-1.16	-2.23/-2.49	-2.57/-3.35	-3.93/-4.01	-4.09/-3.74	-3.09/-2.67	-1.61/-1.34	-1.73/-1.69	-1.74/-2.14	-2.02/-2.22	-2.36/-2.49	-2/-1.6	-1.55/-1.52
Θ(15°)	-3.03/-3.8	-3.84/-3.4	-3.74/-4.19	-3.7/-4.22	-1.74/-1.29	-0.94/-0.55	-0.21/0.3	0.73/0.99	0.85/0.39	0.04/0.01	-0.10/-1.1	-0.75/-1.47	-2.49/-2.44	-2.41/-2.41	-2.11/-1.18	-0.19/-0.25	-0.79/-1.28	-2.13/-2.37	-2.34/-2.63	-2.22/-2.32	-2.22/-2.33	-2.11/-2.01	-2.17/-2.14	
Θ(22.5°)	-4.03/-4.49	-3.88/-4.4	-4.01/-2.85	-1.6/-0.87	-0.77/-0.67	-0.24/0.25	0.87/1.6	2.86/3.21	3.37/3.35	2.24/1.82	1.21/2.01	2.29/1.6	0.48/-0.03	-0.22/-0.15	-0.99/-1.85	-2.36/-1.89	-1.32/-2.21	-2.7/-2.44	-3.08/-4.79	-7.31/-7.11	-4.73/-2.56	-1.43/-1.07	-0.85/-1.98	-3/-3.12
Θ(30°)	-4.13/-3.39	-1.77/-2.39	-2.88/-1.89	-0.87/-1.09	-0.72/-0.48	-0.56/-0.86	-0.84/1.03	2.83/2.74	3.36/2.51	2.36/2.15	0.93/1.03	1.84/2.23	2.15/1.74	0.72/0.41	-0.15/-0.8	-1.42/-1.16	-0.43/-1.62	-3.38/-1.05	-1.11/-4.46	-5.52/-4.43	-3.13/-2.39	-1.21/-1.69	-1.87/-2.31	-2.94/-3.04
Θ(37.5°)	0.27/-0.92	-0.52/-0.62	-0.84/-0.13	-1.23/-1.54	-1.46/-2.1	-2.12/-2.64	-1.12/-1.02	0.61/2.82	2.88/3.43	3.52/2.99	1.29/1.28	2.28/2.69	3.72/3.52	2.58/1.04	-0.04/-0.78	-1.07/-0.84	-1.05/-0.92	-0.37/0.23	-0.05/-1.64	-2.29/-2.36	-2.01/-0.82	-1.13/-0.83	0.77/-0.09	-0.06/-0.21
Θ(45°)	-1.14/-0.47	-0.5/-0.1	0.04/-0.17	0.76/-0.21	-2.05/-2.12	0.1/-0.64	-0.28/-0.28	0.57/1.4	2.01/3.79	3.54/2.14	1.24/0.81	2.51/4.79	5.16/4.82	3.34/1.67	0.63/-0.07	-0.67/-0.2	0.14/-0.81	1.31/1.52	0.74/-1.33	-2.88/-2.51	-1.91/0.15	-0.05/-2.13	-1.6/-2.03	-0.84/0.14
Θ(52.5°)	-2.01/-1.4	-1.25/-1.04	0.9/0.52	1.75/-0.42	-2.38/-0.79	0.07/0.55	0.92/0.55	1.03/0.97	1.18/2.91	2.97/1.71	0.97/1.47	2.81/4.5	5.77/5.13	3.48/1.66	1.15/1.47	-0.03/0.37	1.12/0.91	3.02/3.48	2.22/0.05	-2.62/-2.7	-4.6/-0.53	1.02/-0.6	-2.02/-1.01	-0.5/-0.26
Θ(60°)	-3.33/-2.85	-2.66/-1.92	0.75/1	0.52/-1.11	-1.34/-0.41	-0.22/0.97	1.68/1.39	1.94/0.98	2.42/3.36	3.82/3.95	1.78/2.38	3.61/4.43	4.79/4.91	2.91/1.77	1.59/1.38	0.7/0.65	1.38/0.92	1.82/24	1.86/0.45	-3.34/-2.93	-4.87/-0.95	0.52/-0.51	-1.53/-1.31	-2.32/-2.95
Θ(67.5°)	-2.62/-4.18	-3.33/-0.9	0.04/0.25	0.04/-2.44	-3.2/-2.45	-0.76/-1.2	1.97/1.54	1.66/1.02	1.94/2.06	2.84/2.3	1.32/1.01	2.71/3.84	4.29/4.26	2.1/48	1.91/1	0.2/0.99	0.37/-1.69	-1.12/-0.07	-1.49/-1.91	-6.78/-4.9	-6.05/-1.61	-1.02/0.06	-0.43/-0.11	-1.32/-1.01
Θ(75°)	-0.5/-2.29	-3.05/-1.41	-0.73/-0.7	-1.34/-4.17	-4.07/-6.11	-1.56/-0.56	-0.68/-0.25	1.16/0.11	1.21/0.59	2.09/1.29	0.4/-0.69	0.3/0.21	2.55/3.33	1.37/0.53	1.43/1.43	0.32/0.57	0.36/-2.49	-1.37/0.63	0.08/-0.34	-3.12/-4.84	-5.14/-2.17	-0.07/-1.01	-0.81/-0.82	-0.96/-0.1
Θ(82.5°)	0.26/-2.71	-3.53/-3.63	-2.52/-2.33	-2.95/-6.25	-5.09/-8.65	-2.59/-1.47	-0.99/-2.15	-0.08/-0.68	-0.39/-1.14	1.41/0.13	-0.72/-1.77	-1.63/												





Radiated Composite Gain Data of 5GHz/6GHz_5G6G Ant1~4

Appendix A.4

Θ(22.5°)	-3.83/-1.89	-1.24/-1.26	-1.73/-2.8	-3.62/-4.43	-6.48/-7.99	-10.07/-12.62	-18.11/-17.84	-18.23/-16.38	-15.58/-11.87	-8.99/-9.93	-9.9/-5.72	-2.51/-1.88	-2.32/-1.37	-1.16/-1.56	-2.87/-4.17	-5.6/-7.55	-11.18/-17.63	-18.29/-18.86	-17.28/-12.37	-11.53/-14.37	-11.46/-10.14	-9/-7.6	-7.63/-7.17	-7.43/-6.47
Θ(30°)	-3.57/-1.99	-2.11/-3.68	4.08/-3.95	-5.1/-6.48	-10.75/-11.05	-12.85/-18.84	-18.88/-17.59	-17.98/-15.57	-12.43/-10.22	-10.08/-10.86	-11.75/-7.05	-3.46/-2.67	-2.91/-1.37	-2.03/-3.1	-2.72/-3.19	-5.21/-5.95	-13.28/-16.77	-13.54/-13.35	-14.48/-12.93	-13.5/-12.82	-9.42/-9.12	-9.44/-10.57	-11.27/-12.19	-7.29/-5.69
Θ(37.5°)	-5.83/-3.76	-5.82/-13.74	-5.49/-5.91	-10.37/-10.54	-9.65/-10.8	-12.16/-17.79	-18.54/-17.44	-16.62/-18.63	-10.19/-8.01	-8.05/-13.33	-15.62/-12.79	-7.27/-4.69	-4.16/-4.6	-3.33/-4.43	-1.85/-3.08	-17.09/-6.32	-8.27/-10.23	-16.46/-12.16	-14.32/-17.95	-15.74/-19.21	-15.08/-11.21	-15.08/-12.99	-11.92/-18.42	-11.59/-15.73
Θ(45°)	-5.65/-5.18	-9.04/-11.38	-8.8/-7.72	-11.22/-9.17	-10.61/-13.36	-17.08/-18.63	-18.23/-17.97	-17.49/-18.08	-12.89/-9.59	-7.32/-9.06	-13.06/-17.68	7.88/-4.55	-5.48/-5.45	-3.44/-4.83	-2.68/-2.36	-5.24/-3.97	-6.55/-13.35	-18.56/-18.32	-17.42/-11.89	-10.97/-17.8	-18.97/-10.03	-8.71/-13.84	-9.65/-14.02	-11.07/-6.16
Θ(52.5°)	-6.29/-4.13	-10.29/-8.47	-10.79/-11.58	-9.26/-9.39	-14.25/-16.89	-14.52/-16.89	-12.92/-13.69	-17.88/-13.38	-16.01/-12.03	-7.4/-8.62	-14.92/-18.46	-8.3/-7	-4.55/-5.32	-4.12/-4.67	-2.76/-2.79	-4.15/-6.69	-7.88/-8.91	-15.93/-15.23	-9.62/-18.85	-15.44/-12.75	-14.61/-11.02	-8.86/-13.43	-13.81/-17.84	-11.86/-17.11
Θ(60°)	-5.02/-5.67	-9.29/-6.84	-11.06/-11.6	-9.94/-14.14	-16.48/-18.45	-11.69/-12.52	-9.11/-11.98	-18.28/-19.08	-17.33/-18.21	-12.86/-12.11	-16.82/-19	-12.66/-8.06	-8.39/-4.85	-5.34/-8.15	-3.44/-2.59	-3.75/-7	-6.78/-5.77	-16.69/-16.25	-10.87/-17	-15.73/-12.05	-14.35/-10.67	-14.43/-12.99	-17.85/-17.84	-13.65/-8.82
Θ(67.5°)	-5.94/-8.41	-10.78/-9.23	-10.15/-12.44	-13.85/-15.54	-16.46/-19	-11.39/-12.01	-11.13/-12.49	-17.79/-17.72	-18.4/-17.99	-18.5/-10.85	-13.69/-18.43	-15.11/-13.13	-8.62/-9.17	-7.86/-9.22	-6.87/-4.99	-3/-4.76	-4.82/-5.42	-12.12/-18.22	-13.56/-16.27	-18.67/-18.15	-14.08/-17.95	-11.58/-17.01	-17.75/-14.84	-7.58/-4.79
Θ(75°)	-9.09/-10.79	-13.91/-17.7	-11.35/-11.89	-19.08/-14.54	-18.67/-16.69	-11.39/-15.01	-12.73/-15.59	-15.78/-17.65	-19.1/-18.85	-18.81/-13.79	-14.01/-18.5	-16.53/-18.74	-13.46/-11.37	-16.9/-12.21	-10.33/-6.74	-5.29/-6.99	-5.96/-6.5	-12.31/-18.76	-17.08/-13.77	-16.84/-15.42	-10.3/-16.12	-9.08/-19.15	-18.73/-11.31	-6.34/-4.6
Θ(82.5°)	-12.25/-13.95	-17.5/-18.37	-17.22/-14.54	-17.5/-11.32	-18.03/-18.49	-12.14/-10.78	-12.62/-16.83	-16.45/-18.7	-18.97/-16.3	-17.85/-13.38	-18.74/-15.57	-17.7/-10.54	-18.26/-18.31	-14.52/-7.9	-6.21/-9.94	-8.61/-8.04	-14.15/-18.87	-16.99/-12.42	-18.83/-10.99	-9.16/-13.44	-9.14/-17.43	-17.81/-7.9	-6.38/-6.23	
Θ(90°)	-18.69/-18.25	-17.99/-17.22	-18.74/-17.6	-17.85/-10.49	-17.39/-17.76	-12.74/-10.08	-15.73/-18.39	-15.28/-17.57	-17.54/-15.76	-19.05/-18.54	-16.3/-17.89	-18.4/-13.31	-15.12/-9.98	-17.49/-17.73	-16.16/-11.1	-9.84/-12.03	-9.03/-11.79	-15.03/-18.21	-17.61/-12.49	-18.57/-11.03	-13.8/-13.78	-11.69/-18.65	-13.51/-8.43	-8.19/-9.22
Θ(97.5°)	-18.83/-18.09	-19.1/-14.97	-18.27/-17.97	-14.54/-12.68	-14.82/-13.79	-13.47/-11.85	-17.09/-18.44	-15.2/-18.14	-17.85/-15.38	-18/-18.15	-18.62/-9.53	-17.5/-7.94	-17.89/-12.59	-13.77/-17.52	-18.03/-18.24	-13.11/-12.73	-13.65/-17.56	-18.08/-15.68	-15.18/-12.67	-18.4/-11.64	-18.28/-18.04	-12.59/-11.05	-11.6/-17.4	
Θ(105°)	-18.56/-14.72	-15.78/-13.8	-14.45/-17.59	-11.57/-14.12	-14.98/-13.32	-14.28/-14.7	-18.84/-18.02	-18.06/-17.51	-17.92/-13.94	-16.68/-18.58	-18.35/-18.65	-16.65/-11.56	-14.92/-8.77	-13.31/-12.28	-13.33/-13.25	-18.08/-18.81	-14.75/-17.51	-18.72/-17.29	-18.41/-18.33	-19.01/-15.33	-13.41/-173	-17.27/-19.4	-15.21/-18.89	-18.27/-16.48
Θ(112.5°)	-13.04/-11.95	-12.16/-12.82	-13.88/-16.64	-10.96/-13.9	-11.92/-12.13	-10.82/-16.76	-18.64/-18.3	-17.81/-13.92	-17.5/-14.06	-13.33/-19.2	-16.2/-14.89	-18.86/-15.45	-14.83/-10.4	-12.57/-13.28	-11.42/-7.91	-12.47/-18.83	-18.61/-14.64	-17.61/-18.48	-18.51/-17.34	-17.69/-17.34	-11.24/-18.27	-17.49/-17.83	-17.82/-18.27	-15.35/-14.09
Θ(120°)	-13.45/-12.32	-10.18/-13.68	-15.92/-13.02	-12.62/-14.3	-9.49/-15.57	-12.96/-17.04	-16.88/-18.47	-18.43/-15.59	-14.59/-18.67	-17.47/-18.83	-17.22/-15.67	-18.85/-15.24	-14.87/-12.52	-11.14/-12.45	-8.2/-8.3	-13.84/-12.61	-11.61/-17.2	-18.35/-17.36	-15.56/-17.58	-18.45/-18.83	-13.21/-18.07	-17.84/-12.96	-19.19/-16.64	-11.09/-13.73
Θ(127.5°)	-14.84/-12.08	-13.91/-14.46	-16.17/-12.83	-17.84/-15.97	-11.97/-17.74	-16.04/-17.34	-16.8/-19.28	-17.56/-18.08	-12.74/-14.67	-17.97/-18.8	-18.37/-17.44	-14.23/-11.1	-12.76/-9.03	-13.38/-10.78	-10.32/-14.26	-6.37/-10.81	-13.08/-18.16	-18.53/-15.93	-18.23/-14.93	-18.12/-18.99	-15.34/-16.49	-17.84/-18.83	-16.24/-17.98	-15.91/-16.19
Θ(135°)	-13.45/-17.95	-13.11/-11.33	-13.61/-17.05	-17.95/-16.29	-14.05/-18.37	-17.32/-17.77	-18.17/-17.38	-18.64/-17.24	-16.16/-15.28	-16.05/-18.07	-18.53/-17.8	-13.1/-11.62	-9.72/-6.5	-12.52/-11.2	-8.63/-11.93	-14.75/-10.89	-14.21/-12.82	-14.45/-16.84	-18.02/-18.21	-18.18/-17.44	-13.26/-17.33	-16.51/-13.02	-15.28/-18.69	-18.12/-14.96
Θ(142.5°)	-15.84/-13.33	-11.82/-13.67	-17.47/-11.87	-16.43/-19.05	-18.08/-17.83	-14.9/-16.45	-17.8/-18.76	-18.24/-14.65	-15.31/-16.57	-17.61/-17.73	-16.26/-14.14	-17.1/-12.2	-13.18/-9.91	-6.13/-8.59	-12.61/-9.1	-17.01/-12.23	-10.93/-11.67	-14.5/-13.72	-10.8/-14.99	-11.95/-18.1	-17.54/-15.65	-16.24/-16.75	-17.83/-15.17	-18.59/-11.96
Θ(150°)	-12.68/-13.4	-17.71/-17.92	-18.45/-18.33	-17.76/-18.38	-18.18/-18.39	-18.93/-17.42	-17.81/-18	-18.07/-19.01	-18.26/-17.83	-15.98/-13.92	-12.87/-10.45	-11.51/-13.25	-8.36/-7.75	-5.97/-9.27	-14.07/-15.93	-17.62/-16.94	-13.72/-17.61	-16.63/-18.83	-14.84/-14.57	-18.45/-15.75	-16.65/-16.48	-13.67/-14.79	-15.73/-17.6	
Θ(157.5°)	-11.55/-11.9	-12.17/-13.28	-13.31/-18.38	-17.18/-16.47	-16.9/-17.6	-18.71/-17.94	-18.41/-18.27	-19.19/-18.69	-18.74/-18.31	-18.02/-15.8	-16.33/-15.78	-14.5/-14.16	-11.34/-7.72	-6.67/-5.79	-7.91/-16.47	-18.26/-18.14	-18.07/-15.21	-15.73/-16.78	-18.71/-18.36	-18.82/-17.13	-18.07/-17.38	-18.56/-17.66	-13.38/-12.79	-18.93/-15.43
Θ(165°)	-12.66/-11.4	-11.31/-12.17	-11.63/-14.53	-14.3/-16.82	-13.68/-13.15	-13.91/-15.21	-17.97/-17.75	-18.04/-18.15	-18.54/-16.74	-14.4/-16.15	-17.1/-16.4	-12.22/-10.69	-9.14/-7.6	-8.52/-12.05	-18.34/-17.86	-15.16/-15.3	-15.57/-15.64	-16.93/-18.35	-18.24/-18.21	-17.69/-12.63	-18.27/-16.8	-17.38/-18.01	-16.54/-13.75	-11.18/-13
Θ(172.5°)	-10.92/-10.43	-9.79/-8.67	-8.27/-9.58	-10.05/-10.32	-11.99/-10.92	-10.61/-12.57	-12.38/-14.02	-15.91/-18.42	-18/-18.19	-18.67/-17.04	-14.78/-12.24	-10.72/-11.87	-12.78/-15.17	-18.04/-16.3	-11.98/-10.43	-12.32/-13.47	-11.3/-10.84	-13.82/-14.2	-15.39/-15.9	-17.74/-17.67	-18.07/-19.22	-17.54/-18.58	-14.98/-14.74	-14.17/-11.9
Θ(180°)	-10.13/-11.05	-9.98/-8.68	-8.03/-7.83	-8.29/-8.79	-9.08/-11.1	-12.39/-12.53	-16.14/-16.67	-17.59/-18.26	-17.72/-18.06	-17.54/-18.96	-14.3/-13.9	-14.73/-14.69	-14.46/-13	-11.82/-11.5	-11.13/-11.86	-12.11/-10.02	-9.34/-9.12	-9.57/-11.3	-12.46/-15.18	-16.91/-18.73	-18/-17.74	-18/-18.27	-15.54/-13.68	-12.66/-10.97
Freq(Hz)	6.995GPol.	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°)	-19.13/-18.49	-18.53/-18.31	-18.46/-15.61	-13.06/-11.47	-10.37/-8.15	-7.62/-7.06	-7/-6.44	-5.82/-5.88	-6.02/-5.71	-6.48/-7.84	-8.01/-8.91	-10.34/-13.74	-19/-18.96	-18.64/-17.77	-13.68/-11.37	-9.6/-8.06	-7.46/-6.34	-4.87/-4.76	-5.31/-4.6	-5.42/-5.3	-5.95/-6.35	-7.13/-7.8	-8.89/-11.03	-11.89/-14.88
Θ(7.5°)	-10.37/-11.2	-11.46/-10.36	-9.18/-7.72	-6.27/-4.69	-3.83/-3.23	-2.93/-2.18	-2.13/-2.4	-0.32/-3.2	-4.01/-4.32	-4.37/-5.49	-6.35/-7.52	-8.86/-11.92	-17.4/-18.91	-10.98/-8.45	-6.14/-4.48	-3.5/-2.86	-1.8/-1.2	-0.98/-0.63	-0.92/-1.17	-0.87/-1.47	-2.59/-3.63	-4.57/-6.8	-8.37/-9.29	
Θ(15°)	-7.6/-7.34	-6.58/-4.93	-4.48/-3.63	-2.42/-1.56	-0.50/-4	1.1891/54	1.781/74	1.491/11	0.43/-0.76	-1.81/-3.73	-3.39/-3.18	-4.07/-5.25	-8.66/-12.73	-15.31/-13.88	-12.12/-10.33	-8.36/-6.76	-5.31/-4.52	-3.61/-3.12	-3.15/-1.23	-1.99/-2.32	-2/-1.84	-2.36/-3.39	-4.12/-5.03	-5.89/-6.09
Θ(22.5°)	-6.59/-5.65	-5.45/-5.91	-5.94/-4.63	-2.49/-0.53	0.49/-1.05	1.72/-1	2.442/34	2.723/01	3.132/91	1.810/78	-1.96/-1.99	-2.32/-4.65	-8.98/-9.14	-8.92/-10.14	-13.21/-13.18	-12.13/-9.65	-8.15/-8.11	-8.96/-9.35	-9.98/-10.79	-10.67/-9.56	-6.3/-4.03	-2.93/-2.69	-2.92/-5.7	-5.48/-5.57
Θ(30°)	-11.17/-8.97	-7.83/-9.24	-6.56/-3.74	-2.28/-1.34	-1.16/-0.93	-0.69/-0.52	1.881/92	3.262/98	2.321/34	-1/-1.69	-8.01/-4.89	-3.23/-2.79	-3.34/-4.48	-5.05/-5.8	-6.84/-6.13	-9.71/-6.4	-8.27/-10.88	-9.21/-8.63	-13.41/-10.7	-17.84/-18.83	-16.24/-16.75	-17.83/-15.17	-18.59/-11.96	
Θ(37.5°)	-14.59/-15.1	-9.31/-6.56	-4.18/-2.89	-3.76/-1.48	0.09/-0.72	-1.93/-2.01	-1.19/-0.96	0.492/28	4.233/85	2.871/33	0.23/-0.77	-0.64/-0.27	0.131/14	1.01/-1.49	-4.4/-6.56	-7.71/-7.75	-6.72/-5.38	-2.76/-1.6	-0.78/-1.62	-2.36/-3.19	-2.25/-1.53	-3.52/-2.99	-2.96/-6.39	-8.53/-10.09
Θ(45°)	-17.74/-13.92	-8.87/-4.59	-2.17/-0.73	-1.06/-0.67	-1.37/-0.74	1.951/177	1.861/28	2.184/28	4.291/71	0.1/-1.35	-0.122/33	3.052/67	2.41/-0.11	-5.59/-5.84	-5.33/-5.54	-2.52/-2.1	-0.85/-0.05	-0.78/-3.24	-3.25/-4.62	-2.9/-0.19	-0.51/-2.9	-2.58/-4.4	-5.22/-8.06	
Θ(52.5°)	-18.39/-12.55	-7.93/-4.35	-1.51/-0.34	0.21/-1.92	-2.331/03	1.891/41	2.262/6	1.820/34	1.903/7	4.232/32	-0.380/09	0.892/4	5.063/75	1.68/-1.18	-4.15/-2.08	-1.47/-2.3	0.772	3.514/06	3.02/-0.23	2.9/-4.46	-4.95/-6.99			
Θ(60°)	-14.59/-13.18	-6.91/-4.41	-1.32/-0.57	-0.01/-2.72	0.090/74	0.71/-44	2.612/53	1.840/86	2.373/88	5.043/12	0.1/-0.67	1.289/31	44/26	0.86/-2.99	-1.61/-1.66	0.05/-0.63	1.062/05	2.922/86	2.640/6	-0.38/-1.12	-4.24/-5.11	-2.93/-4.91	-4.36/-2.86	-5.93/-13.31
Θ(67.5°)	-8.29/-16.16	-10.86/-3.1	-1.07/-1.55	-0.89/-3.66	-0.43/-1.43	-2.360/96	2.482/8	1.371/27	1.643/18	4.73/99	0.13/-8.													



Radiated Composite Gain Data of 5GHz/6GHz_5G6G Ant1~4

Appendix A.4

Θ(67.5°)	-10.49/-12.38	-9.57/-14.34	-18.2/-9.18	-5.07/-3.23	-1.71/-4.39	-6.98/-5.87	-6.17/-7.52	-14.3/-18.5	-11.05/-12.26	-11.26/-11.97	-10.72/-9.42	-15.85/-18.38	-18.76/-19.29	-14.34/-9.65	-8.15/-10.57	-14.69/-13.25	-7.28/-7.83	-6.93/-16.59	-10.07/-5.74	-2.48/-3.29	-4.06/-14.11	-18.35/-9.73	-13.38/-19.31	-10.38/-17.84
Θ(75°)	-6.83/-15	-8.41/-13.68	-18.57/-8.28	-4.81/-0.43	-3.93/-5.07	-8.02/-5.91	-6.92/-8.46	-12.2/-8.15	-6.53/-7.63	-9.49/-9.96	-12.48/-6.08	-11.67/-18.76	-18.57/-18.47	-14.1/-11.05	-10.36/-11.24	-9.57/-10.91	-6.89/-7.27	-5.34/-8.44	-6.05/-6.6	-2.23/-2.47	-2.15/-8.31	-15.4/-9.24	-9.38/-18.87	-9.03/-18.53
Θ(82.5°)	-6.81/-12.34	-7.49/-14.68	-18.11/-7.81	-5.1/-5.69	-3.25/-3.7	-9.56/-7.64	-8.3/-9.87	-8.14/-6.39	-7.51/-7.9	-9.33/-11.36	-12.45/-9.15	-12.81/-18.54	-17.21/-18.95	-11.34/-10.59	-9.26/-11.34	-8.55/-9.67	-5.06/-5.37	-5.23/-8.28	-4.86/-7.57	-5.84/-4.5	-4.49/-8.22	-18.33/-11.77	-9.85/-18.59	-8.85/-18.02
Θ(90°)	-7.23/-11.08	-8/-12.69	-12.87/-5.83	-7.01/-7.74	-6.18/-6.31	-6.53/-5.61	-8.73/-7.83	-7.29/-6.36	-6.93/-6.33	-7.2/-10.75	-12.4/-9.24	-14.81/-18.05	-17.02/-18.38	-12.31/-11.29	-15.7/-10.8	-9.04/-5.97	-7.95/-6.71	-3.43/-11.06	-6.92/-4.75	-6.49/-6.48	-5.76/-6.75	-17.32/-10.46	-9.2/-15.81	-8.59/-18.89
Θ(97.5°)	-6.49/-11.7	-9.3/-13.32	-12.07/-8.2	-5.68/-9.24	-7.49/-9.37	-8.33/-7.64	-7.23/-6.49	-8.46/-11.12	-12.77/-8.72	-11.06/-18.69	-16.19/-18.1	-12.17/-14.2	-11.54/-14.98	-6.77/-4.8	-4.43/-11.22	-4.64/-3.63	-3.54/-10.21	-12.87/-10.56	-8.74/-9.24	-17.75/-12.21	-11.5/-14.49	-11.49/-17.74		
Θ(105°)	-9.94/-12.66	-11.19/-10.55	-15.72/-9.55	-7.88/-14.01	-7.58/-7.23	-7.05/-6.79	-10.08/-5.13	-4.93/-5.83	-9.27/-11.68	-11.53/-10.13	-17.64/-18.93	-14.81/-17.93	-17.94/-17.13	-17.43/-13.4	-9.57/-7.13	-4.65/-5.37	-3.9/-3.21	-7.6/-14.56	-10.9/-13.88	-17.42/-17.86	-17.42/-17.86	-11.27/-18.61		
Θ(112.5°)	-12.81/-12.16	-16.27/-11.31	-17.53/-13.73	-9.74/-15.02	-8.26/-10.16	-8.16/-8.3	-9.03/-5.14	-6.49/-6.29	-6.71/-8.8	-11.55/-11.4	-9.89/-9.74	-11.64/-18.89	-18.47/-18.27	-14.66/-18.62	-14.24/-17.32	-4.01/-3.97	-5.83/-13.61	-4.39/-6.73	-5.06/-8.3	-5.74/-9.2	-8.09/-18.16	-13.22/-10.96	-18.16/-18.14	-13.96/-18.24
Θ(120°)	-15.1/-16.65	-17.68/-7.71	-14.86/-15.97	-9.49/-14.99	-5.83/-13.15	-9.78/-16.57	-10.37/-7.39	-5.84/-9.27	-8.03/-9.91	-13.13/-10.95	-9.15/-9.74	-14.07/-16.65	-18.05/-17.92	-12.16/-12.06	-12.89/-19.26	-6.68/-7.08	-5.4/-16.96	-8.88/-10.12	-4.6/-9.26	-9.82/-14.21	-8.44/-11.09	-14.98/-11.77	-18.52/-18.77	-14.6/-12.57
Θ(127.5°)	-18.65/-17.57	-14.65/-11.08	-13.53/-19.01	-10.86/-12.28	-8.04/-17.69	-13.62/-17.72	-13.42/-13.43	-8.94/-12.3	-9.24/-8.45	-8.76/-12.27	-14.64/-13.33	-17.42/-18.42	-17.83/-15.41	-8.18/-9.2	-7.47/-16.88	-7.36/-13.75	-13.24/-11.05	-7.44/-10.78	-9.26/-18.91	-11.61/-13.78	-13.22/-17.49	-17.95/-19.05	-17.27/-13.47	-18.11/-17.84
Θ(135°)	-17.81/-18.6	-15.64/-18.97	-18.03/-18.41	-17.05/-14.67	-11.78/-12.66	-15.81/-13.23	-9.55/-17.28	-14.62/-15.41	-14.83/-7.81	-6.83/-10.42	-11.81/-15.95	-18.31/-17.64	-18.25/-18.61	-8.99/-8.14	-7.67/-13.65	-12.32/-12.82	-17.73/-9.04	-12.55/-17.76	-19.1/-19.31	-18.89/-13.16	-11.28/-17.82	-16.95/-18.88	-14.04/-13.42	-15.84/-19
Θ(142.5°)	-12.51/-18.72	-15.08/-9.72	-7.52/-11.7	-17.71/-19	-17.53/-16.63	-15.26/-16.4	-13.91/-16.27	-14.78/-10.17	-8.46/-7.26	-5.82/-6.57	-10.14/-12.27	-12.86/-13.43	-18.17/-14.63	-10.8/-10.52	-14.49/-13.24	-17.84/-11.66	-13.83/-16.19	-12.1/-7.33	-10.51/-18.03	-17.69/-13.52	-13.99/-14.5	-9.23/-13.11	-18.65/-13	-14.09/-16.26
Θ(150°)	-8.89/-10.51	-18.13/-13.34	-8.52/-8.74	-8.84/-6.67	-6.77/-10.21	-18.71/-15.98	-9.73/-9.09	-9.66/-7.3	-5.3/-5.67	-7.09/-8.91	-11.32/-13.61	-15.2/-18.5	-18.61/-17.44	-17.99/-16.42	-17.35/-15.4	-12.66/-16.1	-13.49/-7.85	-8.57/-12.52	-12.39/-10.6	-10.81/-14.46	-18.57/-17.74	-15.66/-13.47	-18.8/-15.78	
Θ(157.5°)	-17.5/-18.84	-18.51/-17.51	-18.71/-18.69	-8.53/-4.76	-4.28/-6.1	-8.46/-8.16	-7.39/-7.83	-9.21/-9.96	-9.4/-10.16	-13.6/-18.17	-18.34/-19.27	-17.79/-14.97	-12.35/-12.61	-17.31/-14.77	-9.78/-8.33	-9.11/-10.06	-8.85/-7.65	-10.24/-12.91	-12.37/-13.91	-17.76/-18.43	-17.81/-15.1	-14.64/-18.63	-18.9/-16.36	-18.96/-18.48
Θ(165°)	-17.81/-14.75	-14.9/-15.49	-18.53/-18.47	-14/-10.94	-10.31/-10.96	-10.73/-9.47	-8.45/-8.3	-10.41/-12.34	-13.56/-14.73	-14.77/-15.37	-13.14/-12.7	-11.39/-12.72	-16.01/-18.97	-18.62/-11.51	-7.82/-6.36	-6.82/-7.92	-10.19/-13.97	-18.81/-17.12	-15.07/-17.79	-18.29/-17.94	-14.6/-12.49	-11.17/-12.12	-13.12/-12.66	-14.66/-18.14
Θ(172.5°)	-11.96/-14.04	-15.27/-15.1	-14.49/-13.46	-12.56/-11.46	-10.53/-10.16	-9.25/-7.79	-7.31/-7.56	-7.38/-8.17	-9.28/-8.59	-9.38/-9.59	-9.87/-11.72	-11.81/-12.83	-15.68/-18.08	-17.57/-13.99	-12.51/-13.76	-15.92/-16.67	-16.17/-13.75	-12.16/-11.79	-12.85/-13.14	-17.14/-17.37	-13.71/-11.06	-9.97/-9.23	-9.98/-10.94	
Θ(180°)	-17.54/-18.82	-19.13/-17.46	-12.44/-10.5	-9.58/-8.79	-7.78/-7.22	-6.73/-6.58	-6.76/-7.2	-7.36/-8.4	-9.59/-10.38	-11.79/-12.89	-14.86/-18.82	-17.51/-18.57	-18.4/-16.29	-14.32/-13.26	-12.76/-11.81	-10.18/-9.02	-8.94/-9.2	-9.7/-11.03	-12.26/-12.34	-11.51/-10.88	-10.17/-9.32	-8.9/-9.14	-9.93/-13.11	-16.41/-16.99
Freq(Hz)	5.2G/Pol	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°)	-4.71/-5.12	-4.39/-4.12	-4.9/-5.1	-5.47/-5.95	-6.69/-7.93	-6.88/-10.9	-14.89/-15.31	-18.87/-19.23	-12.28/-10.41	-10.6/-7.25	-6.23/-6.05	-5/-5.16	-4.37/-3.42	-3.63/-4.46	-4.67/-4.69	-5.36/-6.07	-6.82/-7.56	-9.03/-10.88	-12.8/-15.74	-18.35/-16.4	-13.01/-11.35	-10.18/-8.59	-6.71/-6.26	-5.85/-4.62
Θ(7.5°)	-4.52/-5.09	-5.76/-6.01	-6.39/-8.5	-11.03/-12.25	-13.44/-15.05	-15.89/-18.75	-17.54/-18.28	-17.71/-13.21	-11.16/-7.59	-7.46/-6.76	-3.9/-4.57	-3.75/-2.65	-2.71/-2.02	-1.51/-2.09	-1.33/-3.41	-3.58/-4.31	-5.39/-6.76	-8.97/-11.6	-14.3/-16.21	-16.56/-18.88	-15.5/-12.31	-9.45/-7.41	-6.44/-5.74	-5.38/-5.24
Θ(15°)	-2.88/-2.35	-2.27/-2.48	-2.52/-3.52	-4.74/-6	-7.45/-9.16	-10.78/-11.13	-8.82/-8.84	-6.74/-7.3	-3.67/-2.39	-2.04/-2.33	-1.91/-1.73	-1.20/-2.64	-0.32/-0.73	-1.63/-2.38	-2.46/-2.92	-3.87/-5.71	-8.51/-12.24	-14.22/-14.48	-13.65/-11.29	-9.67/-6.88	-6.56/-5.68	-5.17/-4	-2.5/-2.82	
Θ(22.5°)	1.11/1.15	0.38/-1.23	-2.62/-4.2	-4.91/-5.52	-6.54/-8.17	-9.75/-9.77	-8.79/-7.15	-4.28/-1.77	-0.06/-1.28	1.89/1.76	1.99/2.07	1.42/1.31	1.19/1.06	1.53/1.29	-0.04/-1.31	-1.49/-1.96	-3.09/-4.33	-5.96/-7.55	-7.97/-8.67	-8.98/-8.87	-8.67/-7	-3.95/-1.76	-0.79/0	1.26/1.44
Θ(30°)	1.33/1.33	0.34/0.12	-1.1/-1.85	-2.24/-2.78	-4.21/-7.06	-11.18/-13.85	-12.38/-18.18	-6.24/-3.68	-1.79/-0.94	-1.84/2.44	2.45/2.37	2.69/2.97	3.28/3	1.79/1	1.34/0.93	-0.4/-2.8	-5.6/-5.71	-5.18/-6.68	-8.27/-6.5	-4.31/-4.09	-4.03/-2.37	-0.74/0.2	1.36/2.02	
Θ(37.5°)	2.04/0.88	0.68/-1.15	-2.25/-1.61	-1.04/-0.77	-2.49/-5.57	-8.89/-10.15	-9.73/-7.49	-6.65/-5.69	-3.55/-2.25	-0.35/0.06	2.94/2.62	2.88/2.99	2.79/2.21	3.63/8.8	2.96/2.09	1.94/2.42	1.07/-2.67	-5.86/-6.2	-4.55/-2.97	-3.97/-3.93	-4.84/-4.17	-2.49/-1.28	0.05/1.87	
Θ(45°)	0.47/-0.45	0.07/-0.72	-2.68/-3.12	-2.23/-1.8	-3.47/-6.03	-6.51/-4.6	-3.67/-2.17	-2.72/-3.75	-2.48/-2.6	-0.54/2.15	2.79/2.9	3.95/4.54	4.23/4.16	3.19/4.61	4.14/2.77	1.21/2.08	1.07/-1.25	-3.17/-7.88	-5.59/-4.18	-5.23/-6.92	-6.42/-4.68	-4.58/-5.15	-4.67/-2.92	-0.88/-0.13
Θ(52.5°)	-1.19/-5.26	-6.73/-4.75	-2.55/-2.57	-3.23/-6.63	-10.17/-10.38	-5.25/-3.19	-0.33/-3.35	0.31/-1.54	-1.58/-2.42	-0.03/-1.1	2.12/3.46	3.98/4.62	4.54/4.8	2.63/3.67	3.39/2.19	1.34/2.41	-0.21/-2.46	-1.67/-5.25	-3.72/-5.09	-6.69/-6.15	-5.14/-3.53	-2.4/-3.1	-3.73/-6.06	0.81/-9.59
Θ(60°)	-1.72/-1.58	-3.14/-2.84	-1.21/-1.94	-5.5/-6.11	-16.5/-13.43	-3.9/-0.08	1.11/2.44	1.06/-1.05	0.87/-1.66	0.07/0.59	1.66/3.05	3.28/2.77	3.01/2.62	1.57/1.39	2.54/-1.86	-0.02/1.63	-0.33/0.76	-2.54/-3.64	-2.53/-3.06	-4.84/-4.22	-5.37/-7.49	-8.15/-3.8	-0.23/-1.93	
Θ(67.5°)	-1.93/-0.73	-2.06/-1.69	-0.01/-4.06	-7.55/-12.27	-11.57/-11.46	-3.08/0.38	1.15/2.56	1.33/-0.04	-0.69/-1.24	-0.82/-1.31	1.41/2.51	2.49/1.23	1.45/1.48	0.56/-0.33	0.49/-0.32	-0.10/-1.4	-2.03/0.06	-1.07/-1.88	-2.53/-0.68	1.53/-0.77	-4.41/-3.64	-4.39/-11.21	-10.97/-7.31	-3.5/-2.26
Θ(75°)	-2.11/-3.78	-5.22/-2.21	-0.17/-5.02	-12.99/-11.29	-9.74/-7.5	-2.67/-1.25	-0.81/-1	0.5/-1.3	-3.01/-3.86	-3.89/-4.05	-0.61/0.67	0.23/0.17	0.46/1.59	0.54/-1.59	0.39/-0.79	-3.09/-1.17	-2.87/-1.28	-0.46/-1.04	-2.44/0.65	2.83/0.13	-2.85/-2.18	-2.37/-0.87	-8.85/-12.68	-6.88/-1.12
Θ(82.5°)	-6.22/-8.72	-14.04/-4.8	-0.69/-5.23	-17.89/-11.67	-8.16/-6.48	-4.35/-3.64	-3.18/-0.86	-1.07/-2.79	-6.12/-9.43	-4.49/-3.52	-1.23/-0.74	-1.34/-1.5	-0.54/-1.1	0.61/-1.85	-0.52/-1.88	-5.01/-3.61	-4.11/-4.72	-1.52/-2.69	-3.76/0.49	2.59/1.2	-1.17/-1.75	-3.4/-9.5	-5.62/-10.88	-13.73/-2.82
Θ(90°)	-5.9/-7.53	-13.2/-6.37	-2.76/-5.95	-15.12/-10.98	-8.88/-8.41	-5.78/-6.75	-4.99/-3.8	-3.99/-4.97	-9.93/-6.07	-5.44/-0.3	-2.92/-1.97	-1.76/-1.77	-0.43/0.05	-0.82/-2.44	-0.45/-3.25	-7.15/-3.37	-6.46/-9.95	-12.3/-3.29	-6.83/-2.14	-1.04/-0.48	-0.7/-3.18	-5.65/-7.12	-4.53/-7.77	-12.74/-5.3
Θ(97.5°)	-9.11/-5.7	-14.39/-8.39	-4.74/-7.54	-13.09/-15.04	-0.98/-4.92	-6.82/-11.95	-9.31/-7.99	-7.61/-6.73	-15.57/-6.37	-5.21/-3.76	-3.78/-3.09	-2.19/-1.34	-0.16/-0.27	-1.84/-6.46	-1.02/-3.89	-8.86/-6.93	-6.23/-18.43	-7.06/-10.86	-13.78/-7.14	-5.7/-2.85	-3.37/-6.84	-10.57/-12.54	-5.57/-3.57	-14.39/-8.94
Θ(105°)	-4.79/-4.18	-6.66/-10.2	-8.42/-9.62	-10.37/-13.4	-11.72/-15.78	-6.97/-10.15	-15.56/-9.91	-18.73/-11.28	-8.55/-4.59	-6.41/-7.11	-5.57/-3.47	-1.24/-0.31	-3.35/-8.66	-2.42/-3.77	-6.72/-12.08	-7.97/-18.48	-12.42/-18.08	-9.67/-8.67	-11.9/-8.77	-12.41/-11.31	-18.61/-10.97	-8.09/-4.4	-13.59/-13.05	
Θ(112.5°)	-9.25/-5.16	-9.52/-10.68	-9.66/-10.45	-10.29/-14.09	-11.01/-15.06	-5.92/-6.51	-11.08/-9.82	-18.13/-10.01	-11.74/-14.64	-8.25/-7.31	-8.66/-8.46	-7.12/-9.43	-3.44/-2.9	-6.29/-5.01	-4.44/-2.21	-6.36/-16.62	-13.13/-16.52	-18.95/-11.1	-8.45/-9.04	-11.33/-6.19	-10.05/-11.44	-17.83/-13.38	-16.69/-11.42	-12.02/-15.03
Θ(120°)	-12.87/-15.66	-18.09/-18.27	-14.6/-14.87</																					



Radiated Composite Gain Data of 5GHz/6GHz_5G6G Ant1~4

Appendix A.4

Θ(112.5°)	-18.66/-17.87	-19.12/-12.62	-18.98/-16.19	-17.19/-16.38	-14.63/-10.99	-12.3/-8.1	-7.83/-5.74	-5.65/-4.74	-7.66/-7.03	-9.84/-10.05	-14.61/-13.88	-18.84/-18.78	-18.48/-17.18	-18.06/-10.64	-7.48/-18.79	-10.53/-11.06	-6.76/-7.53	-13.24/-5.52	-7.71/-10.55	-17.83/-18.83	-12.37/-10.85	-9.94/-9.19	-18.28/-15.02	-11.5/-18.69
Θ(120°)	-17.79/-17.15	-17.96/-12.55	-17.49/-17.26	-15.97/-18.41	-12.56/-14.23	-7.01/-9.14	-6.85/-8.21	-6.73/-8.28	-7.27/-12.81	-10.96/-8.68	-12.49/-18.65	-17.89/-17.23	-17.52/-18.97	-18.54/-17.66	-17.36/-15.84	-18.64/-9.82	-3.96/-10.27	-13.94/-6.37	-9.8/-13.17	-14.09/-16.54	-13.77/-14.1	-13.19/-12.74	-14.68/-15.84	-15.49/-17.11
Θ(127.5°)	-14.37/-17.42	-18.99/-12.1	-14.41/-18.44	-17.99/-18.19	-18.84/-12.81	-14.95/-10.48	-5.82/-6.04	-8.26/-9.1	-11.54/-8.65	-13.53/-8.19	-11/-16.73	-14.31/-15.32	-18.48/-14.39	-14.15/-12.89	-13.46/-13.08	-18.45/-9.22	-13.76/-16.74	-16.39/-11.05	-10.74/-18.78	-16.09/-14.87	-18.93/-15.43	-16.83/-11.61	-17.95/-17.6	
Θ(135°)	-14.8/-15.56	-12.23/-17.58	-15.03/-17.54	-10.37/-17.88	-18.94/-15.1	-16.75/-10.18	-10.02/-7.93	-13.42/-6.48	-17.6/-9.15	-8.6/-19.06	-18.71/-18.67	-18.06/-16.07	-17.99/-17.96	-18.69/-15.57	-10.6/-11.1	-6.79/-13.99	-11.11/-15.18	-9.47/-11.11	-16.45/-13.06	-11.94/-14.27	-14.53/-16.91	-10.43/-13.62	-10.47/-15.06	-13.44/-16.82
Θ(142.5°)	-16.42/-19.7	-18.55/-19.12	-14.15/-11.63	-7.5/-17.89	-11.61/-18.46	-11.54/-9.29	-18.45/-9.84	-18.89/-8.85	-8.61/-11.64	-12.84/-13.14	-14.03/-12.22	-18.48/-18.18	-17.55/-18.77	-13.02/-11.72	-11.14/-14.29	-9.92/-14.77	-7.45/-18.32	-10.59/-17.39	-18.19/-13.39	-17.85/-15.69	-13.17/-17.83	-18.74/-17.29	-18.85/-18.52	-15.87/-15.97
Θ(150°)	-12.34/-12.52	-12.34/-13.19	-19.2/-16.83	-6.74/-8.2	-15.89/-9.51	-13.67/-12.53	-11.14/-18.57	-13.67/-12.53	-11.14/-18.57	-13.67/-12.53	-11.14/-18.57	-13.67/-12.53	-11.14/-18.57	-13.67/-12.53	-11.14/-18.57	-13.67/-12.53	-11.14/-18.57	-13.67/-12.53	-11.14/-18.57	-13.67/-12.53	-11.14/-18.57	-13.67/-12.53	-11.14/-18.57	-13.67/-12.53
Θ(157.5°)	-14.88/-18.06	-18.21/-18.85	-17.55/-17.8	-18.53/-18.33	-13.59/-11.65	-7.76/-5.87	-7.73/-15.18	-12.97/-8.34	-8.46/-9.53	-9.75/-11.34	-14.7/-17.87	-16.38/-18.94	-18.78/-17.21	-12.21/-13.46	-17.77/-12.67	-8.06/-7.22	-9.61/-11.71	-7.68/-7.39	-11.55/-18.44	-18.27/-18.09	-15.19/-15.7	-18.37/-18.23	-17.3/-18.45	-18.17/-18.37
Θ(165°)	-19.13/-14.62	-14.35/-18.69	-19.03/-18.38	-19.04/-18.62	-17.84/-11.84	-8.49/-7.97	-9.55/-12.03	-12.67/-11.02	-10.13/-10.7	-13.54/-18.68	-17.23/-18.72	-18.11/-18.67	-16.73/-12.01	-11.5/-13.94	-19.01/-19.72	-14.02/-11.73	-9.4/-7.73	-7.83/-10.47	-18.6/-17.41	-11.15/-11.03	-13.85/-14.88	-14.37/-14.09	-15.74/-16.61	-18.18/-18.24
Θ(172.5°)	-14.33/-15.63	-17.17/-17.47	-17.63/-17.83	-18.14/-17.84	-16.86/-16.05	-16.42/-17.1	-19.31/-17.7	-18.86/-18.24	-18.71/-17.71	-17.9/-18.6	-17.75/-19.4	-16.65/-16.59	-14.72/-15.82	-13.22/-10.4	-8.26/-7.36	-6.95/-6.31	-6.73/-7.65	-9.48/-11.78	-13.39/-12.85	-11.36/-13.43	-16.65/-13.6	-14.53/-18.69	-14.95/-14.93	-16.16/-14.62
Θ(180°)	-14.13/-12.9	-10.83/-10.03	-9.14/-8.58	-8.89/-8.24	-8.37/-9.96	-12.67/-14.02	-13.34/-12.58	-13.39/-14.29	-15.62/-16.45	-18.09/-17.32	-18.95/-17.12	-18.16/-18.15	-18.36/-17.99	-18.73/-18.36	-17.08/-17.04	-16.71/-14.58	-12.6/-12.98	-12.47/-11.2	-10.25/-9.67	-9.21/-9.9	-11.63/-14.16	-14.33/-15.17	-18.13/-17.81	-18.75/-16.31
Freq(Hz)	6.995GPol.	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°)	-7.13/-7.3	-7.51/-8.39	-10.12/-10.64	-11.88/-13.24	-13.81/-15.31	-14.61/-12.68	-10.54/-10.05	-9.56/-9.93	-8.17/-7.59	-7.38/-7.6	-7.4/-7.21	-7.79/-7.98	-8.63/-9.72	-10.12/-12.41	-13.76/-12.24	-11.57/-11.84	-12.09/-11.99	-11.37/-11.17	-11.4/-10.38	-9.95/-10.29	-10.2/-9.97	-8.4/-8.9	-7.55/-6.92	-7.02/-7.07
Θ(7.5°)	-6.53/-5.97	-5.27/-5.84	-7.7/-7.06	-8.68/-10.4	-11.12/-12.95	-14.34/-13.95	-11.67/-9.13	-7.27/-5.52	-4.21/-3.62	-2.5/-1.54	-1.12/-0.99	-0.77/-0.4	-0.46/-0.44	-0.71/-1.64	-2.65/-4.35	-6.65/-8.5	-9.98/-11.65	-12.78/-14	-17.28/-18.95	-18.76/-19.25	-18.56/-18.55	-13.73/-12.36	-12.01/-8.47	-7.09/-6.85
Θ(15°)	-9.88/-9.92	-8.57/-6.83	-8.83/-12.11	-11.51/-12.15	-12.78/-13.01	-13.05/-10.28	-7.54/-5.22	-4.08/-4.17	-4.28/-3.91	-2.79/-1.6	-0.73/-0.06	0.56/1	1.53/-1.43	0.78/0.51	0.16/-0.34	-0.52/-0.65	-0.6/-1.53	-3.08/-4.79	-6.97/-8.66	-9.68/-10.98	-11.39/-10.48	-10.47/-11.74	-11.9/-10.46	-9.38/-9.01
Θ(22.5°)	-5.46/-7.11	-7.42/-6.82	-6.13/-5.7	-5.96/-8.08	-8.53/-8.81	-8.48/-6.25	-3.94/-2.55	-1.37/-0.12	0.63/0.64	0.53/0.54	1.11/2.16	2.57/2.66	3.29/2.89	2.59/2.59	1.73/0.63	-0.06/0.09	-0.12/-1.74	-3.84/-5.38	-7.01/-9.26	-11.64/-12.79	-11.99/-9.33	-8.24/-6.08	-5.59/-6.32	-6.42/-5.77
Θ(30°)	-3.24/-3.39	-4.93/-2.06	-2.85/-2.83	-2.78/-6.01	-6.94/-6.62	-6.5/-6.12	-4.01/-2.3	0.32/0.8	1.34/-0.38	-4.07/-2.05	0.45/1.02	1.85/2.68	3.17/3	1.88/0.67	0.12/0.37	-0.68/-1.68	-1.19/-2.34	-4.93/-5.14	-5.32/-7.55	-8.16/-7.83	-7.61/-5.08	-3.29/-4.18	-4.32/-2.73	-2.71/-2.64
Θ(37.5°)	1.77/1.46	0.71/-0.27	-1.29/-2.2	-2.6/-6.5	-10.56/-8.33	-7.78/-4.22	-5.2/-5.8	-2.09/0.03	-0.99/0.75	2.12/1.71	0.45/-1.11	2.99/0.44	3.86/2.21	1.96/1.03	-0.17/-1.22	-1.03/-0.72	-1.02/-1.54	-0.71/-3.74	-6.88/-7.38	-7.11/-3.9	-2.77/-1.93	0.31/39	1.83/-26	
Θ(45°)	-0.82/0.31	0.38/0.83	-1.22/-3.93	-0.07/-2.22	-7.12/-9.83	-6.72/-8.27	-6.97/-7.03	-3.58/-1.25	-1.02/0.75	0.56/-0.39	-0.38/0.71	1.96/3.93	4.42/3.88	2.18/0.95	0.91/-0.32	-1.54/0.63	-0.82/-3.71	-1.5/-2.74	-4.27/-7.2	-12.38/-11.87	-6.26/-2.19	-2.41/-4.27	-4.3/-3.56	-1.96/-0.12
Θ(52.5°)	-1.38/0.02	-0.61/-0.46	-0.07/-3	-0.31/-1.41	-5.67/-6.87	-5.2/-4.81	-4.59/-6.41	-2.97/-1.69	-1.64/-1.45	-0.22/-0.97	1.99/3.92	4.65/4.13	3.25/-1.66	1.72/1.61	-1.89/-1.26	-1.94/-5.24	-2.81/-2.53	-6.74/-8.11	-11.33/-8.5	-8.51/-3.26	-0.53/-1.29	-3.66/-1.67	-1.38/-1.17	
Θ(60°)	-3.17/-2.99	-3.62/-4.57	-1.76/-1.08	-2.36/-3.21	-6.99/-8.56	-4.2/-3.72	-2.67/-2.42	-2.57/-1.81	-0.57/-1.33	-1.82/-0.84	0.28/1.83	4.174.77	4.09/3.4	3.07/2.48	1.72/1.87	-0.78/-2.34	-1.94/-4.83	-5.76/-3.09	-5.52/-11.33	-19.31/-18.7	-15.58/-1.79	0.61/0.69	-1.61/-2.76	-2.78/-2.11
Θ(67.5°)	-3.28/-3.94	-4.15/-3.83	-3.43/-1.56	-3.17/-5.64	-18.15/-11.28	-2.77/-2.57	-2.69/-3.44	-2.56/-1.8	-0.88/-3.99	-3.55/-3.66	-0.88/0.25	2.46/3.83	3.65/3.59	2.82/2.17	2.62/1.54	-2.36/-2.01	-1.61/-6.2	-7.44/-3.59	-6.18/-7.36	-16.34/-13.52	-7.46/-2.17	-0.46/0	-1.32/-3.23	-0.80/-19
Θ(75°)	-1.4/-1.86	-4.4/-5.87	-4.61/-3.53	-5.2/-10.37	-13.22/-18.9	-3.57/-3.22	-3.24/-3.87	-3.02/-2.31	-1.76/-6.5	-4.73/-6.41	-1.95/-1.66	-0.41/-0.66	0.87/2.08	2.27/1.01	2.05/2.63	-2.31/-2.27	-0.48/-4.6	-8.01/-3.74	-4.44/-4.97	-8.17/-8.15	-4.9/-1.42	-0.19/-3.25	-1.89/-3.59	-0.21/-0.01
Θ(82.5°)	-1.3/-2.43	-6.26/-10.46	-5.98/-6.84	-7.43/-17.13	-8.49/-16.6	-4.23/-1.8	-3.46/-5.74	-3.42/-3.5	-3.98/-11.17	-5.02/-5.22	-1.88/-2.99	-2.57/-1.29	-2.39/0.33	0.83/-0.66	1.04/-1.84	-1.29/-2.69	-0.62/-4.66	-6.35/-4.49	-3.83/-4.13	-7.66/-9.51	-5.15/0.2	0.95/-2.21	-8.84/-6.15	-1.85/-2.21
Θ(90°)	-4.39/-4.06	-7.47/-9.06	-7.28/-9.31	-10.39/-17.89	-8.33/-14.71	-6.17/-2.04	-4.85/-6.25	-5.26/-5.66	-6.47/-10.92	-4.07/-4	-2.56/-4.45	-4.65/-4.02	-4.07/-0.91	-0.87/-2.12	-2.17/-0.13	-1.21/-4.97	-1.48/-3.69	-7.51/-7.14	-6.27/-7.11	-7.05/-9.01	-9.93/-1.84	-0.16/-6.32	-17.96/-11.78	-6.45/-9.22
Θ(97.5°)	-10.31/-7.47	-8.32/-7.35	-7.23/-7.99	-11.68/-14.29	-9.76/-15.98	-8.83/-4.39	-7.3/-9.22	-8.08/-10.15	-9.11/-10.31	-5.59/-2.09	-2.56/-7.59	-3.95/-3.24	-4.41/-1.38	-2.43/-4.23	-4.21/-2.13	-2.39/-6.27	-3.67/-5.02	-8.8/-8.02	-11.29/-9.36	-11.04/-17.75	-13.28/-6.56	-3.92/-9.53	-1.40/-1.65	-9.4/-14.87
Θ(105°)	-17.85/-14.87	-7.78/-6.87	-10.64/-10.18	-15.88/-17.98	-11.03/-15.76	-8.58/-14.3	-16.25/-12.7	-17.72/-16.28	-10.32/-9.78	-9.98/-3.01	-2.17/-4.26	-1.14/-2.05	-1.78/-1.34	-6/-5.03	-6.95/-9.66	-3.21/-10.6	-5.32/-6.33	-16.82/-13.23	-9.42/-10.5	-16.46/-16.05	-18/-11.28	-5.61/-6.39	-8.12/-3.46	-1.31/-6.68
Θ(112.5°)	-18.19/-17.25	-18/-17.7	-11.77/-9.16	-17.12/-15.16	-18.38/-18.16	-9.27/-14.95	-18.53/-17.31	-18.23/-15.38	-18.56/-4.78	-5.43/-6.3	-3.12/-3.21	-0.52/-0.59	-3.84/-5.88	-5.83/-6.87	-7.95/-8.23	-1.74/-8.21	-6.99/-9.53	-16.19/-17.88	-13.93/-13.32	-18.42/-15.28	-8.29/-17.79	-8.44/-9.53	-9.66/-6.41	-11.74/-6.71
Θ(120°)	-15.99/-11.25	-15.27/-13.65	-19.11/-17.83	-16.07/-7.74	-14.04/-11.53	-15.52/-10.58	-15.14/-15.97	-18.57/-13.17	-12.91/-9.73	-3.48/-6.26	-5.91/-4.37	-3.16/-3.94	-7.58/-11.01	-10.44/-10.06	-12.16/-9.97	-7.8/-8.8	-10.45/-18.39	-16.15/-15.07	-16.3/-15.55	-10.12/-18.88	-6.66/-13.59	-12.01/-10.25	-6.22/-9.86	-18.48/-12.61
Θ(127.5°)	-10.22/-9.98	-12.61/-12.57	-13.57/-11.42	-18.31/-10.89	-16.4/-10.34	-15.81/-18.11	-19.31/-18.08	-17.15/-14.96	-7.63/-12.22	-8.07/-8.66	-4.94/-3.94	-6.61/-6.67	-6.42/-10.99	-9.91/-9.14	-10.27/-7.39	-12.31/-12.82	-18.13/-18.81	-18.24/-15.96	-17.52/-13.55	-8.4/-15.81	-17.92/-18.7	-15.88/-11.69	-4.13/-6.13	-10.8/-12.82
Θ(135°)	-14.82/-14.33	-13.52/-17.67	-18.57/-17.79	-17.43/-13.19	-18.35/-17.84	-15.47/-13.94	-18.98/-11.47	-8.73/-13.04	-10.85/-12.21	-8.33/-6.95	-7.22/-6.82	-7.84/-8.59	-10.46/-18.59	-10.04/-8.99	-12.97/-11.6	-15.38/-13.59	-16.85/-18.01	-17.19/-19.23	-17.58/-16.31	-10.03/-18.82	-12.58/-8.74	-11.49/-10.99	-8.84/-8.7	-10.8/-16.35
Θ(142.5°)	-12.45/-16.48	-18.18/-11.58	-18.1/-15.9	-18.81/-18.1	-15.41/-15.14	-16.51/-19.32	-17.75/-16.95	-14.35/-11.91	-11.52/-15.34	-9.23/-4.64	-3.24/-3.56	-5.78/-9.42	-11.6/-8.72	-6.11/-8.43	-8.26/-13.39	-18.33/-13.66	-18.66/-14.98	-17.68/-18.77	-14.45/-15.3	-15.93/-10.57	-8.64/-13.78	-18/-14.75	-18.03/-18.62	-17.94/-17.7
Θ(150°)	-18.01/-17.83	-13.12/-10.91	-7.8/-8.53	-15.11/-12.65	-11.37/-17.65	-17.78/-18.51	-15.34/-12.57	-11.09/-13.54	-18.56/-11.58	-6.75/-6.57	-8.24/-8.77	-7.72/-9.69	-10.99/-12.39	-13.84/-11.19	-14.79/-17.63	-16.93/-18.61	-18.16/-16	-12.79/-13.07	-12.12/-11.35	-11.21/-13.9	-16.12/-14.58	-15.9/-15.7	-18.26/-17.96	-18.44/-14.26
Θ(157.5°)	-18.28/-19.09	-18.88/-18.17	-14.58/-11.93	-11.08/-12.75	-12.16/-14.59	-18.33/-17.22	-15.74/-14.92	-18.14/-17.5	-14.35/-13.08	-10.07/-7.94	-6.69/-7.97													



Radiated Composite Gain Data of 5GHz/6GHz_5G6G Ant1~4

Appendix A.4

Θ(165°)	-15.99/-16.31	-18.62/-18.09	-17.6/-17.9	-18.89/-17.12	-13.28/-11.91	-11.06/-10.29	-10.88/-10.61	-10.2/-9.86	-8.86/-7.7	-8.46/-10.15	-10.08/-11.24	-16.32/-18.29	-17.91/-18.23	-18.74/-19.1	-17.32/-18.13	-17.27/-17.42	-15.43/-14.8	-15.81/-17.79	-17.6/-19.01	-18.67/-17.01	-13.46/-13.27	-13.61/-13.89	-14.87/-18.01	-18.24/-17.61
Θ(172.5°)	-18.1/-18.65	-18.25/-18.69	-18.11/-19.14	-19.15/-18.14	-16.8/-15.04	-14.42/-13.96	-13.25/-13.61	-14.17/-15.15	-15.14/-13.5	-12.39/-11.34	-11.86/-12.68	-14.09/-17.48	-18.83/-18.43	-18.02/-18.4	-19.44/-17.59	-18.05/-19.85	-18.41/-16.5	-16.77/-17.32	-18.21/-18.9	-18.44/-17.66	-18.57/-17.95	-19/-19.13	-18.84/-18.94	-17.57/-18.03
Θ(180°)	-18.99/-17.35	-18.22/-17.69	-18.07/-19.02	-18.39/-18.68	-17.93/-17.91	-15.09/-18.48	-17.36/-19.16	-14.33/-14.5	-15.49/-15.46	-14.72/-14.03	-14.54/-14.57	-18.31/-14.63	-18.44/-17.4	-18.37/-17.69	-17.25/-17.93	-17.63/-18.4	-18.67/-17.8	-19.49/-19.01	-17.85/-19.1	-18.23/-18.9	-15.72/-15.15	-17.11/-18.92	-18.35/-17.7	-18.44/-19.17
Freq(Hz)	5.2GPol	ThetaAnt.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°)	-18.98/-18.41	-18.34/-17.75	-17.83/-18.68	-17.13/-18.21	-17.88/-16.41	-16.08/-15.99	-17.18/-18.25	-14.39/-12.88	-14.54/-14.47	-16.96/-18.72	-16.96/-18.72	-14.58/-18.96	-18.22/-19.34	-17.68/-17.69	-18.76/-16.46	-16.68/-16.85	-15.72/-16.21	-16.81/-15	-15.42/-19.51	-19.14/-13.5	-18.29/-15.5	-13.38/-15.83	-18.72/-18.77	
Θ(7.5°)	-18.17/-18.89	-18.76/-18.07	-16.01/-15.61	-14.39/-13.79	-13.89/-14.5	-13.26/-10.48	-9.79/-12.2	-15.21/-12.02	-11.07/-17.19	-17.36/-12.38	-13.64/-18.26	-18.92/-18.67	-19.27/-19.1	-17.98/-17.86	-18.01/-15.97	-14.19/-13.38	-12.87/-13.12	-14.17/-15.46	-15.65/-17.2	-17.73/-17.92	-18.09/-17.69	-18.28/-15.57	-16.49/-18.69	-18.54/-18.21
Θ(15°)	-17.11/-17.48	-15.75/-13.86	-13.29/-12.93	-13.34/-13.81	-13.95/-13.96	-14.05/-12.18	-10.88/-12.3	-14.96/-12.4	-14.33/-15.5	-15.1/-18.26	-18.91/-15.39	-13.66/-15.22	-17.18/-18.5	-18.56/-17.93	-19.21/-17.56	-18.09/-14.37	-12.21/-11.15	-11.17/-12.87	-15.63/-17.55	-17.5/-17.66	-16.71/-17.91	-15.26/-13.81	-14.44/-18.32	-15.95/-14.9
Θ(22.5°)	-17.73/-17.69	-18.16/-17.12	-14.62/-11.02	-9.81/-9.69	-10.57/-11.24	-10.96/-9.52	-8.74/-10	-13.03/-15.17	-13.79/-11.1	-9.66/-9.65	-10.46/-11.81	-12.91/-14.41	-14.91/-13.79	-12.55/-11.83	-11.72/-13.56	-15.99/-15.43	-13.34/-10.89	-9.86/-10.53	-14.6/-18.24	-18.17/-18.93	-11.15/-10.98	-17.29/-17.32	-18.15/-17.81	
Θ(30°)	-18.53/-18.02	-18.99/-14.99	-15.12/-12.8	-11.62/-10.3	-9.51/-8.15	6.83/-6.69	-8.5/-12.28	-13.2/-10.54	-10.07/-11.94	-14.71/-17.1	-14.62/-11.87	-11.44/-11.79	-12.05/-11.23	-11.21/-12	-13.78/-17.85	-18.12/-18.14	-18.18/-12.27	-9.42/-10.5	-18.55/-18.52	-18.65/-17.56	-16.48/-19.09	-18.28/-18.27	-17.8/-13.79	-15.01/-18.95
Θ(37.5°)	-13.35/-15.12	-18.88/-15.16	-11.85/-14.12	-13.17/-15.62	-10.43/-9.31	-12.87/-17.45	-12.82/-17.95	-16.63/-17.63	-17.97/-14.05	-11.89/-11.15	-11.38/-9.75	-9.37/-12.29	-17.27/-18.52	-16.34/-16.97	-17.96/-17.05	-11.43/-10.19	-12.84/-17.86	-17.72/-16.23	-18.59/-17.83	-17.52/-16.26	-18.38/-18.92	-17.85/-18.28	-17.53/-12.85	
Θ(45°)	-11.11/-13.37	-18.44/-17.06	-12.91/-13.93	-14.51/-13.1	-12.89/-10.76	-8/-9.14	-18.51/-1.85	-14.68/-15.93	-16.65/-16.92	-15.05/-14.19	-15.75/-15.75	-17.77/-17.85	-14.21/-12.18	-15.96/-10.75	-13.81/-17.34	-16.34/-18.18	-18.21/-15.77	-13/-10.27	-11.6/-17.82	-18.23/-17.94	-16.78/-12.61	-13.25/-16.34	-18.58/-18.77	-14.5/-9.99
Θ(52.5°)	-11.62/-14.17	-18.71/-18.14	-18.07/-18.91	-18.69/-19.04	-13.22/-13.8	-10.47/-10.99	-18.79/-9.06	-10.11/-17.08	-18.17/-16.49	-14.63/-19.08	-17.95/-18.05	-18.43/-18.13	-16.28/-15.38	-9.51/-10.48	-10.55/-15.11	-18.4/-15.98	-9.45/-11.11	-14.55/-13.52	-18.14/-17.98	-17.74/-17	-9.41/-7.89	-11.03/-15.63	-12.99/-9.55	-10.25/-10.72
Θ(60°)	-15.8/-18.61	-15.56/-16.92	-18.17/-81	-18.17/-18.51	-17.41/-11.32	-11.42/-9.8	-18.64/-10.79	-10.82/-16.37	-17.51/-14.31	-13.74/-17.9	-14.44/-16.68	-17.95/-13.13	-11.06/-15.21	-14.14/-17.75	-11.65/-12.15	-14.39/-18.83	-16.93/-16.38	-12.96/-11.8	-16.96/-14.1	-12.4/-12.02	-18.82/-11.73	-15.92/-14.72	-18.76/-15.34	
Θ(67.5°)	-14.08/-18.57	-12.32/-16.31	-18.19/-16.68	-17.93/-12.87	-16.73/-10.97	-18.55/-9.55	-16.34/-13.52	-14.92/-17.78	-16.27/-14.18	-12.87/-17.93	-15.39/-18.27	-17.79/-11.96	-9.31/-13.27	-18.08/-18.34	-16.28/-16.31	-17.94/-18.59	-16.27/-14.21	-13.78/-11.01	-11.33/-10.66	-16.51/-12.89	-12.72/-16.31	-18.2/-17.1	-16.27/-13.38	-14.68/-11.65
Θ(75°)	-11.17/-12.72	-16.16/-17.46	-19.24/-16.44	-15.02/-10.76	-18.21/-10.7	-19.08/-10.97	-18.32/-14.1	-18.02/-18.4	-18.43/-12.38	-10.56/-19.05	-17.1/-17.89	-18.44/-13.35	-8.57/-11.65	-14.14/-17.75	-18.1/-18.19	-18.24/-15.47	-14.56/-16.14	-16.5/-15.99	-6.85/-8.65	-13.36/-11.51	-12.36/-13.4	-18.84/-18.3	-13.06/-14.1	-16.82/-14.85
Θ(82.5°)	-10.42/-11.56	-18.22/-17.59	-17.19/-16.68	-14.29/-12.08	-18.82/-10.85	-15.63/-17.51	-17.85/-14.18	-18.58/-14.18	-18.64/-19.24	-18.05/-14.92	-18.67/-14.75	-7.7/-13.32	-15.98/-16.72	-17.78/-17.42	-14.89/-15.86	-15.77/-13.9	-17.52/-17.29	-8.63/-13.08	-12.7/-11.4	-12.4/-12.02	-18.38/-13.17	-10.11/-11.35	-10.11/-11.89	
Θ(90°)	-13.94/-14.11	-18.18/-17.54	-18.32/-18.26	-17.68/-11.89	-19.05/-10.9	-14.99/-13.19	-14.68/-17.49	-19.36/-18.95	-17.93/-19.09	-14.71/-18.47	-18.43/-18.38	-18.86/-12.3	-9.34/-14.9	-15.55/-14.43	-19.07/-19.07	-14.64/-12.99	-18.49/-13.46	-16.42/-14.89	-11.35/-17.99	-15.21/-13.19	-10.94/-12.46	-17.29/-13.57	-11.6/-10.99	-18.8/-16.21
Θ(97.5°)	-18.76/-18.32	-17.53/-18.66	-14.82/-18.2	-18.74/-15.57	-19.09/-13.11	-14.98/-13.97	-13.95/-18.84	-15.45/-14.59	-13.48/-18.11	-12.55/-13.66	-17.4/-16.55	-18.74/-13.39	-9.11/-16.14	-16.18/-11.44	-16.72/-18.13	-16.32/-17.8	-18.97/-12.78	-18.04/-14.17	-18.79/-15.25	-18.93/-19.02	-10.66/-13.11	-13.58/-14.63	-12.04/-16.42	-18.29/-18.03
Θ(105°)	-16.83/-17.06	-17.49/-15.44	-12.92/-10.95	-18.3/-14.01	-18.59/-17.41	-18.45/-12.63	-12.45/-17.5	-17.76/-10.3	-11.91/-15.92	-18.21/-15.52	-15.56/-16.61	-18.35/-18.69	-12.55/-11.14	-16.61/-16.31	-12.67/-17.81	-17.74/-15.64	-19/-10.27	-16.97/-12.06	-17.79/-16.14	-18.82/-11.58	-11.38/-12.73	-18.09/-17.52	-17.99/-18.75	-14.61/-16.96
Θ(112.5°)	-18.71/-18.01	-13.94/-17.14	-15.49/-18.87	-18.5/-14.42	-18.63/-17.5	-18.88/-16.68	-16.74/-17.19	-18.78/-18.08	-15.67/-17.63	-18.07/-14.57	-18.53/-16.2	-14.14/-13.19	-12.26/-9.49	-15.36/-18.66	-15.12/-14.95	-12.13/-13.87	-17.87/-18.66	-16.5/-17.14	-17.92/-18.48	-18.04/-12.39	-18.78/-14.58	-18.43/-14.19	-18.5/-18.01	-15.88/-15.51
Θ(120°)	-18.61/-15.65	-14.74/-16.29	-19.44/-18.48	-18.06/-19.21	-17.29/-18.66	-18.88/-17.16	-14.92/-18.53	-18.58/-13.81	-15.71/-15.44	-18.71/-17.84	-15.51/-11.95	-10.22/-12.19	-11.37/-9.14	-13.14/-18.66	-14.07/-13.94	-12.44/-11.65	-16.85/-18.99	-12.83/-11.12	-15.59/-18.85	-15.52/-15.73	-17.9/-11.83	-13.68/-14.09	-17.77/-17.77	-15.69/-16.5
Θ(127.5°)	-17.66/-19	-18.53/-17.8	-18.93/-14.7	-17.86/-18.96	-17.74/-17.13	-18.99/-14.72	-9.54/-14.48	-18.04/-12.96	-11.92/-16.51	-18.67/-18.08	-13.68/-13.71	-10.46/-16.51	-12.71/-12.82	-17.23/-16.34	-10.27/-12.31	-13.22/-9.06	-15.75/-17.36	-15.85/-17.36	-12.81/-16.33	-16.95/-13.3	-18.85/-16.56	-15.75/-15.04	-12.05/-15.97	-12.14/-13.31
Θ(135°)	-18.21/-17.77	-17.3/-18.28	-18.62/-18.75	-17.5/-18.07	-15.5/-18.55	-17.38/-18.49	-11.88/-12.84	-19.05/-12.94	-12.97/-11.98	-18.71/-18.41	-18.09/-18.57	-17.52/-15.52	-18.57/-17.34	-17.87/-19.16	-15.22/-15.82	-18.05/-16.29	-18.53/-16.35	-16.92/-18.57	-14.07/-15.14	-14.78/-11.67	-12.54/-11.49	-12.9/-12.06	-13.1/-11.97	-10.97/-11.81
Θ(142.5°)	-14.54/-18.63	-16.58/-18.75	-17.8/-17.41	-16.95/-18.65	-17.54/-17.74	-16.65/-19.29	-15.49/-17.11	-18.02/-15.67	-11.29/-10.96	-13.78/-18.12	-18.71/-18.24	-13.24/-12.22	-10.38/-13.59	-19.29/-17.69	-17.63/-17.35	-17.6/-18.28	-16.37/-13.72	-17.94/-14.28	-11.56/-17.94	-18.59/-18.29	-19.39/-18.27	-17.35/-18.03	-11.18/-12.78	-12.38/-18.3
Θ(150°)	-11.22/-17.25	-14.32/-10.55	-15.78/-15.39	-18.42/-16.69	-14.21/-12.34	-11.95/-12.66	-13.25/-14.24	-17.6/-18.52	-17.58/-19.11	-17.97/-18.44	-17.97/-17.22	-14.92/-14.69	-13.68/-14.07	-15.17/-17.68	-17.1/-18.82	-15.59/-17.72	-15.98/-14.58	-18.3/-19.1	-18.24/-19.13	-17.87/-18.12	-17.33/-17.63	-18.92/-19.23	-16.11/-18.83	-13.51/-14.1
Θ(157.5°)	-17.49/-13.93	-9.85/-10.35	-14.09/-14.11	-14.75/-12.12	-10.22/-11.94	-14.12/-14.23	-16.9/-13.1	-18.91/-18.79	-18.15/-16.15	-18.11/-15.82	-15.05/-19.68	-18.05/-18.22	-17.64/-18.76	-18.13/-14.53	-14.34/-16.09	-17.16/-17.92	-18.97/-18.95	-16.82/-18.28	-18.08/-16.94	-17.43/-18.11	-18.96/-18.59	-18.48/-18.4	-18.65/-13.15	-10.64/-12.89
Θ(165°)	-16.45/-13.45	-12.32/-11.03	-11.34/-11.41	-11.33/-11.17	-10.14/-10.88	-13.13/-16.76	-18.77/-18.45	-18.57/-18.36	-17.72/-17.47	-18.08/-16.26	-17.75/-16.01	-14.59/-16.64	-14.19/-11.57	-11.37/-13.2	-17.28/-17.68	-18.09/-18.36	-18.46/-16.8	-15.26/-15.3	-18.99/-18.28	-16.24/-17.19	-14.54/-13.43	-14.31/-16.81	-17.86/-15.17	-13.55/-15.67
Θ(172.5°)	-14.67/-12.85	-13.25/-12.74	-12.4/-11.73	-11.95/-13.5	-15.82/-17.31	-18.92/-18.02	-18.16/-18.08	-17.32/-15.91	-14.93/-14.16	-15.78/-18.66	-17.06/-13.42	-11.25/-11.47	-12.59/-15.04	-18.22/-18.13	-18.73/-15.79	-15.13/-14.82	-14.83/-15.07	-16.45/-19.24	-18.64/-14.9	-12.84/-12.98	-13.72/-12.84	-11.39/-12.46	-15.3/-16.36	-16.46/-17.47
Θ(180°)	-16.47/-16.36	-15.79/-16.61	-18.1/-17.11	-16.72/-19.2	-19.04/-18.62	-18.22/-18.64	-18.44/-17.97	-17.69/-18.51	-18.83/-18.03	-18.83/-18.06	-18.88/-18.94	-18.94/-17.66	-18.52/-18.72	-18.33/-17.03	-17.32/-18.16	-17.76/-18.66	-18.52/-18.3	-19.21/-19.18	-18.17/-18.57	-18.05/-18	-18.73/-18.69	-19.33/-19.01	-18.3/-16.35	-15.51/-16.09
Freq(Hz)	5.3GPol	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°)	-14.92/-15.82	-15.61/-15.19	-16.19/-17.44	-18.84/-15.4	-14.81/-15.14																			



Radiated Composite Gain Data of 5GHz/6GHz_5G6G Ant1~4

Appendix A.4

Θ(7.5°)	-4.11/-5.71	-8.2/-12.04	-14.58/-17.1	-18.92/-18.4	-18.02/-18.71	-17.57/-16.35	-18.88/-18.36	-14.25/-13.5	-14.47/-13.98	-15.96/-16.28	-15.07/-16.54	-17.71/-17.25	-17.33/-17.79	-17.84/-18.83	-18.27/-16.31	-15.55/-13.32	-11.35/-10.47	-8.89/-9.15	-11.05/-11.17	-11.35/-12.12	-11.43/-8.8	-8.39/-7.96	-5.41/-4.56	-4.52/-3.72
Θ(15°)	-5.83/-7.45	-9.93/-12.03	-12.91/-13.88	-16.94/-13.25	-12.07/-13.69	-15.07/-17.93	-18.11/-18.17	-12.68/-8.83	-7.67/-7.89	-9.05/-10.43	-12.64/-15.42	-18.12/-16.1	-16.97/-17.72	-18.69/-17.98	-18.13/-17.64	-18.19/-12.93	-9.72/-9.73	-11.56/-10.68	-10.33/-12.02	-12.33/-13.76	-18.89/-15.52	-10.39/-6.86	-4.9/-4.42	-4.65/-5.74
Θ(22.5°)	-19.22/-18.87	-17.41/-17.95	-17.57/-16.11	-14.6/-12.76	-15.37/-18.02	-16.52/-12.27	-17.56/-14.95	-9.85/-10.64	-9.75/-9.42	-15.75/-16.42	-18.17/-17.07	-15.22/-12.35	-16.03/-17.74	-17.99/-14.78	-13.25/-16.68	-18.64/-16.22	-12.77/-13.41	-10.67/-6.43	-6.29/-12.82	-14.9/-14.53	-10.54/-11.42	-6.48/-7.88	-6.89/-7.21	-11.06/-17.48
Θ(30°)	-18.56/-18.27	-15.77/-11.56	-18.3/-18.76	-18.92/-16.49	-17.44/-18.14	-18.42/-18.78	-18.13/-11.46	-9.16/-10.79	-13.98/-15.77	-12.16/-12.42	-15.52/-18.47	-15.32/-11.72	-10.19/-15.68	-18.51/-10.49	-11.57/-18.42	-14.09/-9.92	-10.63/-13.71	-10.34/-4.41	-4.2/-8.48	-19/-12.64	-8.31/-9.99	-9.87/-14.53	-17.35/-17.75	-18.41/-15.84
Θ(37.5°)	-9.41/-17.09	-14.14/-10.66	-19.01/-15.25	-17.45/-12.87	-18.97/-10.68	-13.56/-17.93	-17.71/-17.13	-16.2/-13.2	-13.73/-13.92	-13.38/-9.17	-18.25/-14.72	-17.94/-10.18	-9.61/-11.58	-15.88/-15.2	-11.07/-10.05	-10.61/-8.8	-14.85/-14.69	-8.93/-6.41	-6.37/-10.33	-15.59/-14.07	-12.51/-15.01	-15.3/-15.59	-18.63/-17.27	-11.88/-9.3
Θ(45°)	-8.69/-10.62	-12.66/-18.27	-13.06/-10.95	-14.43/-17.94	-15.46/-13.53	-13.99/-19	-18.83/-14.53	-13.12/-19	-14.79/-13.85	-15.29/-17.76	-15.16/-8.94	-8.87/-15.93	-18.12/-14.42	-9.55/-8.25	-13.64/-14.82	-12.61/-13.5	-9.75/-7.73	-5.8/-6.6	-10.34/-11.47	-18.85/-18.15	-17.51/-17.78	-18.97/-15.93	-9.01/-7.81	
Θ(52.5°)	-8.34/-10.58	-11.34/-16.47	-13.29/-9.7	-13.11/-17.09	-19.1/-14.54	-18.72/-13.5	-18.14/-18.85	-14.72/-11.99	-17.4/-11.74	-10.56/-18.87	-17.91/-14.65	-14.17/-10	-11.84/-17.37	-17.04/-14.21	-9.81/-12.36	-17.69/-12.51	-14.12/-10.88	-7.39/-7.51	-4.74/-6.76	-11.67/-17.84	-18.7/-13.43	-15.12/-18.15	-17.88/-19.53	-9.17/-6.65
Θ(60°)	-10.43/-10.69	-14.96/-16.34	-9.78/-10.23	-16.15/-13.41	-17.62/-14.58	-18.4/-12.15	-18.6/-17.55	-9.94/-13.8	-17.18/-9.57	-8.38/-13.1	-15.46/-10.72	-13.28/-15.58	-19.22/-15.93	-17.37/-11.8	-12.6/-15.94	-18.89/-12.67	-14.93/-11.78	-9.62/-9.85	-7.46/-9.87	-18.99/-18.53	-13.48/-13.56	-18.6/-19.15	-18.86/-18.87	-14.73/-10.7
Θ(67.5°)	-12.68/-13.46	-15.81/-15.12	-11.22/-12.3	-10.46/-13.62	-18.9/-18.16	-13.32/-11.03	-12.09/-13.75	-8.34/-18.27	-13.97/-9.51	-11.35/-17.99	-13.06/-10.69	-14.08/-18.2	-17.86/-17.85	-18.19/-13.35	-11.77/-19.44	-17.97/-13.44	-16.71/-13.98	-9.91/-11.82	-12.55/-16.3	-18.84/-16.19	-13.7/-13.74	-16.59/-14.41	-16.28/-17.63	-18.11/-14.36
Θ(75°)	-11.39/-13.68	-12.26/-14.88	-12.05/-14.07	-11.68/-14.19	-18.83/-18.09	-14.63/-14.05	-18.5/-15.93	-9.3/-18.53	-9.42/-10.58	-14.49/-17	-15.26/-12.19	-17.35/-18.99	-15.84/-18.23	-17.99/-13.78	-10.27/-17.4	-17.02/-14.15	-15.23/-14.73	-9.47/-11.59	-16.27/-17.78	-18.22/-15.02	-15.87/-17.51	-14.4/-12.1	-15.11/-18.08	-12.88/-14.41
Θ(82.5°)	-9.17/-13.27	-11.83/-17.84	-16.28/-15.13	-13.82/-13.53	-17.91/-17.47	-15.75/-13.53	-16.59/-15.25	-11.18/-13.7	-10.49/-10.81	-12.96/-18.62	-17.67/-15.66	-18.31/-18.23	-18.77/-18.09	-18.36/-15.99	-15.25/-14.25	-12.22/-16.59	-16.41/-13.58	-9.81/-9.86	-17.87/-17.74	-18.89/-14.15	-12.65/-13.55	-18.9/-17.86	-13.77/-15.05	
Θ(90°)	-11.94/-14.83	-12.42/-17.85	-17.77/-15.45	-16.26/-13.46	-18.45/-18.41	-18.46/-13.87	-17.71/-14.29	-14.03/-18.57	-12.03/-13.29	-12.44/-17.43	-18.44/-18.95	-17.14/-17.44	-16.1/-18.23	-18.55/-17.85	-16.98/-13.18	-16.34/-13.15	-9.76/-9.53	-17.96/-18.21	-18.95/-14.54	-17.84/-15.04	-15.36/-15.96	-18/-18.9	-18.29/-15.7	
Θ(97.5°)	-11.93/-18.4	-15.61/-18.42	-17.55/-18.59	-16.27/-13.07	-18.66/-18.13	-19.03/-15.55	-19.44/-11.67	-13.53/-18.43	-12.2/-15.76	-13.8/-17.6	-18.01/-18.93	-18.28/-18.8	-18.64/-15.69	-17.93/-19.44	-18.39/-13.84	-13.25/-13.36	-18.26/-12.7	-11.43/-14.32	-18.12/-15.25	-19.14/-14.04	-18.77/-14.69	-18.32/-15.5	-18.18/-18.58	-18.8/-13.18
Θ(105°)	-11.05/-18.8	-18.62/-18.4	-18.97/-19.05	-13.72/-13.34	-18.97/-19.05	-13.72/-13.34	-18.97/-19.05	-10.83/-17.48	-17.72/-12.39	-10.83/-17.48	-17.72/-12.39	-10.83/-17.48	-17.72/-12.39	-10.83/-17.48	-17.72/-12.39	-10.83/-17.48	-17.72/-12.39	-10.83/-17.48	-17.72/-12.39	-10.83/-17.48	-17.72/-12.39	-10.83/-17.48	-17.72/-12.39	-10.83/-17.48
Θ(112.5°)	-12.01/-17.23	-18.04/-18.19	-14.08/-17.67	-13.13/-12.07	-18.29/-18.23	-18.85/-17.46	-17.95/-12.96	-10.79/-18.28	-11.66/-17.4	-18.51/-18.37	-18.1/-16.56	-17.81/-18.61	-18.68/-17.79	-18.69/-18.28	-18.74/-17.91	-14.62/-15.93	-18.55/-14.68	-11.07/-18.83	-18.59/-14.15	-18.4/-19.05	-10.31/-1.96	-14.79/-7.95	-18.41/-17.34	-13.58/-14.83
Θ(120°)	-10.2/-18.05	-18.89/-17.8	-16.15/-12.57	-9.65/-18.75	-17.22/-18.1	-18.69/-17.4	-15.09/-11.51	-18.22/-18.71	-17.78/-18.79	-18.53/-18.26	-18.32/-17.96	-15.77/-18.76	-16.66/-17.43	-17.86/-18.06	-18.17/-18.05	-15.79/-18.81	-18.64/-14.97	-16.25/-17.43	-14.05/-17.53	-14.94/-13.32	-7.02/-11.17	-17.02/-7.73	-13.92/-16.38	-15.95/-19.03
Θ(127.5°)	-15.02/-17.67	-14.65/-14.77	-18.74/-15.13	-12.52/-16.83	-16.83/-17.52	-17.62/-13.92	-17.72/-12.37	-18.07/-19.72	-18.7/-18.5	-18.64/-18.85	-18.88/-16.68	-17.37/-18.45	-17.11/-19.46	-17.82/-16.65	-19.18/-14.82	-17.95/-17.97	-11.67/-18.26	-15.42/-15.61	-18.02/-15.94	-19.32/-9.7	-10.58/-11.36	-9.48/-15.32	-14.41/-16.54	-17.59/-10.98
Θ(135°)	-15.07/-18.66	-16.6/-17.78	-17.13/-18.41	-18.57/-18.05	-16.03/-16.08	-18.12/-17.07	-17.92/-17.79	-18.15/-18.96	-18.87/-17.14	-18.31/-14.57	-14.67/-18.16	-18.28/-13.12	-17.17/-18.26	-18.4/-16.65	-15.95/-19.19	-13.81/-19.31	-17.74/-18.94	-18.17/-17.75	-18.67/-15.78	-15.19/-17.77	-12.26/-15.39	-17.17/-17.68	-14.58/-10.98	
Θ(142.5°)	-14.59/-11.35	-13.79/-18.57	-18.55/-17.61	-19/-18.16	-17.58/-15.48	-14.69/-16.86	-18.32/-18.47	-19.32/-18.62	-14.18/-14.19	-19.34/-18.16	-18.58/-10.99	-16.09/-13.44	-13.86/-18.04	-14.67/-17.53	-15.03/-15.09	-19.04/-17.34	-18.89/-17.79	-19.04/-15.23	-15.8/-17.57	-17.39/-17.64	-19.03/-18.79	-17.59/-18.84	-17.86/-13.69	-13.06/-17.54
Θ(150°)	-14.66/-17.77	-18.77/-12.56	-15.74/-17.84	-13.86/-18	-18.05/-16.73	-13.99/-14.04	-15.02/-11.82	-12.13/-13.68	-14.29/-17.26	-18.45/-15.48	-17.73/-16.3	-15.33/-17.78	-17.55/-14.66	-18.68/-13.72	-17.82/-18.35	-17.74/-17.85	-19.54/-17.79	-18.06/-14.29	-15.39/-17.61	-18.51/-18.39	-17.78/-17.21	-17.76/-14.39	-9.08/-12.04	-18.4/-17.87
Θ(157.5°)	-13.98/-12.64	-11.77/-13.24	-12.71/-16.61	-14.08/-14.69	-18/-18.51	-12.45/-10.56	-13.41/-17.37	-15.8/-13.99	-15.33/-18	-13.66/-14.96	-14.83/-12.85	-13.79/-14.75	-16.33/-13.38	-18.52/-19.08	-14.01/-17.01	-18/-18.11	-18.12/-12.43	-12.81/-17.94	-15.76/-17.58	-17.67/-18.37	-15.98/-13.74	-17.44/-17.92	-10.43/-10.36	-17.27/-15.09
Θ(165°)	-17.4/-18.89	-18.95/-15.6	-12.9/-15.37	-18.39/-18.93	-18.51/-18.65	-18.3/-18.13	-18.81/-19.34	-18.22/-18.06	-14.5/-12.35	-13.51/-15.8	-18.41/-18.96	-16.42/-13.32	-13.12/-13.7	-17.01/-18.55	-18.11/-17.39	-17.43/-14.17	-10.97/-9.91	-11.32/-15.44	-13.21/-10.58	-11.96/-19.26	-19.09/-18.81	-17.64/-17.98	-16.68/-18.09	-18.28/-17.21
Θ(172.5°)	-18.19/-17.21	-18.71/-15.83	-14.56/-15.4	-16.45/-15.57	-15.95/-18.1	-14.87/-13.93	-13.12/-10.33	-14.9/-14.3	-12.95/-16.17	-19.47/-18.55	-17.88/-17.36	-17.82/-14.86	-11.4/-11.05	-13.19/-14.53	-16.21/-16.69	-18.01/-18.07	-16.21/-13.39	-12.81/-14.86	-16.46/-16.68	-18.27/-17.7	-18.65/-17.11	-18.27/-18.81	-18.85/-19.14	-18.58/-18.86
Θ(180°)	-14.89/-15.57	-15.93/-18.58	-18.13/-18.65	-18.43/-18.22	-18.04/-19.09	-18.88/-17.7	-19.06/-18.72	-18.17/-17.52	-18.36/-17.94	-17.96/-17.98	-16.45/-16.39	-16.67/-14.3	-13.25/-13.04	-13.69/-13.3	-12.72/-12.74	-12.51/-13.2	-14.6/-17.97	-17.89/-19.25	-18.24/-18.2	-17.88/-17.75	-18.56/-17.33	-18.69/-17.24	-15.85/-15.71	-14.44/-15.47
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°)	-18.5/-17.72	-15.18/-14.02	-12.62/-12.84	-11.61/-12.06	-9.8/-10.28	-9.87/-9.54	-10.51/-9.46	-9.59/-10.97	-17.21/-11.5	-12.69/-14.85	-17.38/-18.63	-16.73/-17.65	-18.95/-19.31	-16.12/-13.75	-17.19/-10.34	-8.84/-8.3	-8.33/-7.62	-7.84/-7.14	-8.41/-8.15	-8.66/-10.78	-12.04/-13.45	-17.62/-18.92	-18.88/-18.38	
Θ(7.5°)	-8.54/-7.95	-6.98/-7.92	-8.53/-9.52	-9.66/-9.69	-9.5/-8.75	-8.4/-7.58	-7.63/-9.03	-9.39/-10.75	-11.84/-18.1	-17.24/-16.2	-14.73/-13.99	-13.73/-16.63	-16.9/-18.05	-19.16/-18.68	-18.85/-18.08	-18.75/-15.46	-13.59/-11.52	-10.06/-8.77	-8.05/-6.74	-7.02/-8.49	-8.14/-9.62	-10.52/-9.87	-10.27/-9.15	-7.82/-8.19
Θ(15°)	-6.81/-9.13	-8.93/-6.4	-5.43/-5.01	-5.41/-4.37	-3.79/-3.19	-4.02/-4.73	-5.54/-6.58	-10.28/-13.01	-10.39/-8.85	-11.23/-9.61	-10.04/-10.46	-9.92/-11.6	-11.95/-11.76	-15.87/-19.17	-16.53/-10.15	-8.54/-8.1	-8.08/-6.04	-3.72/-2.34	-1.84/-1.91	-3.59/-5.74	-7.32/-9.68	-9.13/-7.68	-6.31/-5.54	-5.55/-6.66
Θ(22.5°)	-0.77/-1.68	-3.42/-2.72	-1.1/-1.42	-3.62/-4.83	-2.88/-1.6	-1.79/-2.35	-2.89/-3.92	-3.79/-3.31	-3.42/-3.86	-5.13/-6.92	-7.06/-8.05	-9.66/-8.9	-8.32/-11.12	-12.58/-13.57	-7.91/-4.32	-2.21/-1.36	-2.75/-5.71	-4.47/-2.94	-3.53/-4.41	-5.38/-7.12	-6.72/-5.29	-4.27/-3.44	-4.79/-4.83	-2.27/-1.5
Θ(30°)	-1.72/-1.41	-0.52/-0.05	0.71/-0.67	-0.86/-2.94	-1.95/-1.73	-2.14/-0.26	0.38/-0.19	0.15/-0.55	0.48/-1.32	-3.84/-3.72	-4.44/-4.3	-3.98/-3.54	-1.23/-0.95	-3.26/-4.33	-0.75/-1.55	-2.25/-1.22	-0.78/-1.34	-1.64/-2.66	-4.51/-3.89	-1.76/-1.37	-1.37/-1.62	-3.31/-3.18	-1.69/-1.55	-1.29/-3.87
Θ(37.5°)	-3.74/-8.7	-0.28/-1.21	0.16/-0.72	1.38/-0.24	-1.58/-3.19	-2.18/-0.32	-0.41/-0.97	-0.15/-1.16	0.56/-0.36	0.7/-0.56	-2.7/-2.29	-2.33/-1.69	-1.83/-1.07	0.73/-0.16	-0.78/-1.05	-3.58/-1.66	0.67/-0.72	0.59/-1.15	-5.03/-5.4	-4.18/-1.11	0.21/-1.3	-3.64/-3.22	-4.48/-1.57	-3.37/-3.29
Θ(45°)	-1.41/-0.98	0.84/-0.92	0.32/-0.46	1.96/-0.49	-0.56/-0.1	0.09/-1.04	-1.65/-0.98	-0.94/-0.47	-1.12/-0.64	1.16/-0.12	-2.68													



Radiated Composite Gain Data of 5GHz/6GHz_5G6G Ant1~4

Appendix A.4

Θ (60°)	-14.47/-17.91	-18.8/-18.58	-19.2/-18.13	-18.35/-17.67	-13.81/-18.58	-16.36/-18.47	-14.63/-11.52	-13.53/-16.97	-18.58/-15.78	-14.97/-15.95	-12.7/-14.62	-14.88/-15.45	-16.24/-17.02	-18.67/-17.87	-18.96/-17.99	-18.45/-16.03	-16.38/-18.49	-18.37/-18.48	-18.2/-17.69	-17.89/-18.28	-17.98/-15.31	-11.48/-10.22	-10.71/-12.28	-11.7/-12.23	
Θ (67.5°)	-12.5/-17.22	-15/-15.39	-18.27/-16.58	-19.23/-18.07	-12.62/-18.84	-16.91/-18.85	-15.04/-12.86	-18.58/-18.81	-18.09/-14.25	-16.47/-18.11	-18.76/-15.3	-14.32/-14.45	-14.17/-17.38	-18.18/-18.82	-16.57/-15.17	-18.43/-16.84	-18.51/-18.58	-17.71/-17.52	-18.48/-18.15	-18.7/-18	-17.87/-15.7	-15.34/-16.71	-17.07/-12.64	-13.25/-16.93	
Θ (75°)	-13.37/-18.42	-16.67/-15.51	-17.29/-15.98	-18.89/-19.01	-17.44/-18.93	-15.79/-18.59	-17.59/-14.44	-17.2/-18.26	-18.83/-18.2	-16.59/-18.42	-19.12/-17.46	-18.8/-15.98	-11.54/-9.82	-10.49/-15.68	-17.21/-18.13	-14.21/-14.3	-17.11/-18.06	-18.29/-18.38	-18.23/-13.85	-14.38/-19.26	-16.35/-17.82	-18.71/-18.59	-17.36/-16.88	-18.83/-13.57	-14.66/-17.11
Θ (82.5°)	-18.74/-18.95	-18.64/-19.02	-17.84/-17.58	-18.65/-18.77	-18.49/-18.57	-15.26/-19.39	-18.14/-17.25	-18.34/-18.19	-18.36/-18.38	-17.92/-18.47	-18.03/-15.14	-10.59/-9.41	-13.45/-17.67	-18.11/-17.9	-15.85/-16.05	-16.9/-17.51	-17.69/-18.96	-17.88/-12.31	-10.99/-15.93	-18.76/-18.26	-18.31/-18.26	-17.43/-18.86	-17.59/-18.81	-18.18/-18.73	
Θ (90°)	-18.44/-17.76	-18.3/-18.79	-17.76/-17.84	-19.32/-17.85	-18.24/-17.92	-17.82/-18.77	-18.68/-15.53	-16.02/-19.89	-17.33/-17.92	-18.05/-17.93	-18.79/-18.64	-12.96/-12.42	-15.68/-17.07	-18.21/-17.3	-18.41/-18.19	-16.62/-15.15	-13.84/-12.85	-18.38/-13.79	-12.73/-16.98	-17.44/-18.98	-19.09/-15.8	-14.7/-18.88	-18.48/-18.58	-18.09/-16.13	
Θ (97.5°)	-17/-18.08	-18.26/-17.93	-17.6/-18.37	-18.45/-18.48	-17.7/-18.95	-17.38/-18.47	-18.38/-15.5	-15.7/-18.54	-19.05/-18.6	-16.61/-18.6	-18.46/-17.72	-12.42/-13.24	-18.49/-17.76	-17.81/-18.91	-18.65/-17.7	-18.28/-18.14	-13.85/-11.47	-16.62/-18.39	-18.56/-19.01	-18.52/-18.51	-18.85/-13.63	-12.11/-16.07	-16.34/-19.05	-18.8/-19.3	
Θ (105°)	-15.72/-13.63	-18.35/-18.01	-18.45/-17.01	-18.13/-16	-17.8/-17.82	-17.95/-18.64	-18.53/-18.4	-18.33/-17.98	-18.01/-18.48	-18.5/-19.14	-18.34/-18.11	-18.31/-17.4	-17.21/-17.89	-17.69/-18.8	-15.12/-18.59	-16.98/-17.94	-14.38/-10.69	-13.86/-15.77	-18.41/-18.37	-18.97/-16.72	-18.77/-15.36	-17.85/-18.24	-17.79/-18.46	-16.02/-15.6	
Θ (112.5°)	-16.21/-18.44	-18.14/-17.86	-17.53/-14.1	-18.18/-18.55	-18.75/-13.39	-17.79/-18.09	-17.33/-18.59	-18.79/-19.03	-18.46/-18.7	-17.97/-17.82	-18.18/-18.59	-18.63/-18.11	-16.04/-18.59	-18.66/-17.38	-18.78/-17.63	-15.12/-17.95	-12.01/-12.19	-15.4/-12.57	-18.09/-18.47	-17.29/-15.02	-18.24/-17.35	-18.15/-18.93	-19.15/-18.38	-16.66/-14.79	
Θ (120°)	-17.96/-17.61	-17.95/-13.94	-18.56/-18.26	-19.09/-17.84	-18.96/-13.41	-17.66/-17.14	-17.59/-18.58	-17.96/-17.24	-17.26/-18.94	-18.01/-17.74	-19.07/-17.86	-13.49/-15.89	-11.89/-18.03	-17.34/-13.93	-18.85/-17.41	-12.8/-18.29	-16.78/-19.07	-13.34/-10.98	-15.64/-18.06	-16.52/-17.21	-11.27/-11.72	-18.4/-17.69	-15.66/-13.64	-16.09/-14.47	
Θ (127.5°)	-9.73/-17.05	-18.23/-11.38	-18.26/-17.86	-18.96/-16.65	-17.47/-14.01	-17.8/-13.51	-15.42/-14.16	-15.99/-18.84	-18.28/-18.54	-18.54/-18.7	-17.88/-16.37	-12.25/-11	-10.08/-17.63	-18.5/-17.97	-18.79/-18.7	-18.09/-17.08	-17.29/-17.84	-12.26/-10.76	-12.66/-18.34	-17.67/-17.86	-14.08/-9.55	-14.27/-17.98	-16.73/-12.4	-15.47/-12.21	
Θ (135°)	-10.65/-8.53	-9.45/-10.01	-14.5/-17.73	-18.06/-18.04	-18.77/-13.08	-18.94/-17.19	-18.43/-18.61	-17.18/-17.18	-14.32/-15.07	-18.19/-18.22	-18.55/-18.95	-17.33/-16.14	-17.48/-18.04	-18.12/-16.71	-18.11/-16.4	-16.66/-18.87	-15.19/-19.09	-15.72/-17.61	-12.38/-14.61	-18.09/-17.38	-13.5/-16.28	-10.4/-10.83	-12.14/-13.16	-18.18/-39	
Θ (142.5°)	-14.84/-18.33	-17.8/-18.92	-13.46/-14.78	-16.79/-18.25	-17.94/-17.84	-18.42/-18.49	-18.47/-15.62	-11.81/-14.03	-17.72/-19.14	-18.18/-17.48	-18.07/-17.41	-18.15/-18.59	-18.67/-19.29	-18.18/-18.76	-18.84/-17.94	-16.28/-18.18	-13.71/-14.52	-16.08/-18.43	-16.60/-18.96	-17.16/-18.02	-19.24/-11.98	-12.25/-18.57	-14.46/-10.12	-13.1/-16.13	
Θ (150°)	-15.94/-19.04	-17.7/-18.82	-13.03/-11.82	-13.45/-15.54	-18.56/-18.26	-18.35/-15.86	-17.68/-17.3	-17.46/-16.86	-17.96/-18.76	-18.59/-17.94	-18.54/-18.35	-18.01/-17.59	-18.13/-17.35	-18.63/-18.82	-19.07/-18.79	-18.08/-16.04	-14.61/-13.61	-16.22/-15.36	-14.63/-16.4	-17.66/-18.73	-18.36/-13.68	-12.77/-17.13	-18.53/-14.08	-17.7/-15.85	
Θ (157.5°)	-15.75/-14.53	-16.66/-17.76	-19.17/-18.58	-17.77/-15.74	-17.4/-18.44	-17.56/-19.08	-18.99/-17.86	-18.62/-18.13	-17.86/-18.16	-18.39/-17.68	-17.48/-18.21	-18.33/-18.08	-18.05/-18.04	-17.96/-18.87	-19.1/-17.51	-17.84/-17.95	-17.7/-15.72	-15.13/-11.15	-9.39/-9.62	-12.11/-17.87	-18.72/-17.19	-17.73/-18.5	-17.13/-14.17	-16.39/-17.87	
Θ (165°)	-15.03/-18.18	-18.22/-17.77	-16.81/-15.14	-15.09/-16	-17.47/-18.13	-18.09/-17.77	-17.15/-17.92	-18.64/-18.52	-18.43/-18.86	-17.04/-16.3	-16.63/-16.97	-18.94/-18	-17.89/-18.75	-18.63/-19.02	-15.56/-15.37	-15.13/-17	-11.62/-11.35	-11.99/-12.06	-13.01/-15.62	-18.31/-17.48	-19.46/-15.81	-14.79/-18.54	-13.82/-12.67	-11.75/-16.29	
Θ (172.5°)	-14.34/-14.62	-16.41/-19.12	-19.11/-17.86	-19.06/-18.85	-19.02/-17.59	-16.63/-15.43	-15.44/-15.76	-16.01/-15.6	-14.75/-15.46	-17.6/-19.04	-17.88/-18.43	-17.99/-16.93	-14.95/-14.35	-14.4/-13.64	-12.21/-11.78	-12.48/-13.65	-15.57/-18.1	-18.75/-19.31	-18.31/-16.52	-14.66/-14.13	-13.96/-14.43	-15.62/-19.07	-18.34/-17.75	-18.31/-15.56	
Θ (180°)	-18.68/-19.08	-18.23/-15.31	-13.02/-11.99	-12.15/-12.63	-13.18/-14.36	-14.68/-14.55	-15.68/-17.87	-18.25/-18.29	-17.78/-18.36	-17.29/-18.02	-17.85/-18.73	-19.27/-18.94	-17.41/-17.56	-17.74/-18.77	-16.61/-16.42	-18.25/-18.13	-18.57/-18.46	-18.24/-16.44	-15.12/-14.43	-15.46/-16.99	-18.7/-19.25	-18.32/-19.21	-17.6/-17.22	-17.73/-18.77	
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°)	-11.99/-11.91	-11.02/-10.52	-10.05/-10.55	-10.83/-10.91	-11.29/-11.24	-11.43/-12.06	-12.61/-14.09	-15.11/-10.74	-18.25/-18.81	-18.47/-18.31	-17.57/-18.67	-16.4/-14.9	-13.84/-13.8	-13.48/-12.85	-12.05/-12.27	-13.45/-14.38	-15.61/-15.81	-16.01/-15.71	-16.03/-16.43	-17.25/-17.1	-17.02/-15.63	-16.04/-16.28	-15.4/-13.98	-13.21/-12.71	
Θ (7.5°)	-8.02/-8.87	-9.75/-9.26	-8.75/-9.13	-10.1/-10.83	-10.66/-9.33	-8.53/-8.91	-10.77/-12.91	-15.57/-17.06	-16.12/-17.33	-18.55/-18.5	-16.71/-13.55	-11.62/-10.9	-11.12/-11.56	-10.81/-11.95	-10.81/-11.95	-10.44/-11.44	-10.59/-9.48	-8.89/-9.38	-9.87/-10.44	-10.44/-10.12	-11.25/-12.8	-11.62/-12.6	-10.87/-12.96	-10.61/-16.13	
Θ (15°)	-3.91/-4.61	-5.59/-5.51	-5.46/-5.57	-5.96/-6.23	-6.32/-6.62	-4.62/-3.55	-3.08/-3.08	-3.55/-4.4	-5.47/-5.97	-6.76/-7.85	-9.01/-10.48	-11.65/-11.47	-10.24/-8.94	-8.1/-7.58	-6.53/-5.73	-5.7/-6.41	-7.02/-6.92	-6.5/-5.79	-5.37/-5.32	-5.73/-6.07	-5.97/-6.06	-6.01/-5.83	-5.38/-4.78	-4.34/-3.96	
Θ (22.5°)	-6.15/-5.83	-9.84/-15.57	-6.4/-3.49	-9.71/-13.59	-4.08/-4.45	-4.32/-3.67	-2.81/-1.84	-1.63/-1.74	-1.9/-2.24	-3.6/-5.66	-6.66/-6.62	-6.39/-6.12	-5.66/-4.82	-4.48/-5.06	-5.73/-5.42	-5.39/-5.53	-5.73/-5.58	-4.94/-4.14	-4.11/-5.52	-7.34/-7.58	-6.02/-4.65	-3.46/-2.54	-1.97/-2.16	-3.43/-5.15	
Θ (30°)	-3.96/-2.6	-2.04/-2.24	-2.78/-2.52	-1.95/-2.01	2.08/-1.7	1.95/-2.61	-2.14/-0.62	0.350/0.43	0.12/-0.64	-2.46/-3.82	-2.85/-2.1	-1.89/-1.26	-0.88/-1.29	-2.66/-3.8	-4.11/-3.97	-4.14/-6.4	-3.87/-2.14	-1.16/-1.57	-3.3/-3.87	-3.53/-3.7	-3.62/-2.68	-1.82/-2.39	-4.39/-4.96		
Θ (37.5°)	-1.49/-0.42	-0.27/-0.69	-0.570/0.53	1.25/1.28	0.47/-0.63	-1.49/-2.27	-2.63/-1.42	0.06/0.81	0.86/-0.01	-1.72/-2.1	-1.2/-1.14	-1.62/-1.7	-1.88/-2.63	-2.73/-2.54	-2.8/-2.99	-2.32/-1.94	-1.8/-1.99	-2.81/-2.71	-1.14/-0.42	-0.44/-0.43	-0.33/-0.53	-0.86/-1.68	-4.09/-6.09	-4.88/-2.55	
Θ (45°)	-2.45/-0.99	0.520/-27	-0.23/-0.11	0.650/1.5	-0.63/-0.66	0.230/35	-0.31/-0.14	-0.070/45	0.70/32	-0.69/-1.47	-1.08/-0.62	-0.3/-0.19	-0.3/-0.75	-0.85/-1.15	-1.24/-1	-0.97/-2.36	-1.17/-0.55	-1.85/-2.48	-1.98/-1.1	-0.56/-0.47	0.430/93	0.50/03	-1.55/-3.09	-3.26/-2.71	
Θ (52.5°)	-1.37/-1.09	-0.38/-0.3	-1.14/-1.34	-0.55/-0.7	0.610/85	2.06/-337	0.250/0.05	0.361/25	1.090/35	-0.3/-0.36	0.410/48	-0.170/-0.68	-0.59/-0.01	0.660/37	-0.94/-1.11	0.1/-1.23	-1.10/04	-0.32/-1.65	-1.26/-1.37	-0.85/-1.38	-1.30/-48	-0.47/-0.18	0.120/02	-1.27/-1.96	
Θ (60°)	1.06/0.62	0.380/52	0.54/-0.11	-0.59/0.01	0.591/3	2.66/-1.74	0.35/-1.06	-1.670/31	1.150/53	-0.39/-0.78	0.11/-0.02	-0.95/-1.14	-0.710/26	0.760/94	0.820/46	0.63/-0.72	-1.130/13	-0.28/-0.01	1.040/51	-0.29/-0.62	0.49/-0.15	-0.730/79	0.810/83	0.94/-37	
Θ (67.5°)	1.340/81	-0.68/-0.44	1.150/03	-1.310/42	1.64/0.66	1.02/-0.03	-0.91/-63	-2.46/-1.13	-0.170/01	-0.09/-0.61	-0.15/-0.55	-1.29/-0.86	-0.78/-0.51	-0.18/-0.31	-0.010/16	-0.06/-1.73	-1.36/-0.08	0.510/96	1.780/82	-0.68/-0.11	1.210/07	-0.290/13	-0.83/-0.27	1.09/2.4	
Θ (75°)	-0.40/-3	-1.86/-2.91	-0.35/-1.05	-3.32/-0.84	-0.03/-0.59	-0.78/-2.09	-3.02/-3.76	-3.74/-1.72	-1.14/-1.48	-0.71/-0.79	-0.22/-0.43	-1.33/-1.51	-1.67/-1.76	-0.44/-0.52	-0.4/-0.02	-0.71/-2.34	-1.82/-0.31	0.792/05	1.550/84	-1.8/-1.01	0.980/85	0.41/-0.56	-2.15/-1.62	0.30/87	
Θ (82.5°)	-4.05/-1.55	-5.25/-5.86	-2.84/-4.09	-5.7/-2.73	-2.11/-2.62	-4.42/-6.05	-6.37/-4.87	-4.3/-3.1	-1.86/-1.46	-1.17/-1.97	-1.65/-1.86	-2.12/-2.25	-1.85/-1.83	-1.05/-2.08	-0.93/-0.9	-2.25/-2.32	-2.43/-1.38	0.02/1.38	0.84/-0.39	-3.13/-1.6	0.19/-0.07	-0.97/-2.71	-3.73/-3.83	-1.77/-1.5	
Θ (90°)	-8.23/-3.5	-9.51/-6.8	-6.22/-4.92	-9.19/-4.95	-3.67/-3.66	-8.47/-9.15	-7.35/-5.75	-4.82/-4.1	-3.09/-2.8	-2.61/-2.89	-1.97/-1.75	-2.11/-3.26	-2.78/-2.83	-1.8/-3.08	-2.6/-2.07	-3.43/-3.29	-4.55/-2.69	-1.99/-0.67	-1.65/-2.48	-5.84/-4.22	-1.72/-1.28	-3.62/-2.78	-6.3/-3.87	-5.81/-5.38	
Θ (97.5°)	-9.38/-6.68	-12.66/-7.61	-10.42/-14.39	-10.23/-6.56	-7.49/-11.79	-14.8/-10.1	-7.41/-6.1	-6.16/-4.74	-3.35/-2.69	-2.97/-3.15	-2.36/-3.11	-3.45/-4.61	-3.71/-3.38	-2.62/-3.92	-4.06/-3.18	-3.24/-3.7	-6.25/-5.04	-4.1/-4.1	-4.05/-6.28	-9.67/-9.02	-3.49/-5.41	-7.47/-10.84	-11.41/-10.08	-6.82/-8.64	
Θ (105°)																									



Radiated Composite Gain Data of 5GHz/6GHz_5G6G Ant1~4

Appendix A.4

Θ(112.5°)	-16.37/-17.86	-18.21/-17.77	-19.11/-14.27	-16.78/-16.16	-12.69/-13.94	-18.55/-14.1	-18.55/-14.77	-18.71/-17.72	-17.99/-18.14	-18/-18.53	-18.48/-17.94	-18.49/-19.36	-18.46/-15.63	-18.34/-17.54	-17.93/-19.24	-17.76/-17.88	-19.24/-16.07	-17.86/-16.75	-19.14/-16.17	-17.72/-18.3	-17.07/-16.78	-18.97/-18.78	-14.45/-18.22	-17.67/-12.86
Θ(120°)	-15.47/-18.55	-18.53/-15.75	-18.04/-17.45	-17.15/-16.05	-13.71/-13.36	-18.79/-10.8	-14.98/-15.12	-14.49/-17.91	-18.76/-17.47	-16.84/-17.9	-18.26/-17.8	-14.94/-18.66	-16.11/-18.93	-18.39/-18.21	-19.6/-16.57	-18.13/-18.43	-14.59/-16.57	-17.98/-17.4	-15.33/-16.16	-17.06/-17.86	-11.12/-15.22	-18.44/-12.35	-10.8/-13.95	-18.14/-17.74
Θ(127.5°)	-15.27/-18.64	-18.45/-13.88	-13.21/-16.09	-17.52/-18.56	-15.11/-13.53	-19.02/-14.04	-13.32/-18	-17.88/-17.21	-18.32/-18.48	-18.84/-17.66	-18.58/-19.09	-17.37/-18.44	-17.49/-18.04	-17.49/-17.79	-16.26/-17.14	-18.8/-18.16	-18.72/-17.32	-18.4/-15.08	-18.02/-18.87	-18.8/-9.19	-11.23/-8.05	-17.33/-11.42	-15.59/-17.69	-12.98/-15.76
Θ(135°)	-13.9/-12.29	-8.85/-14.85	-17.42/-18.55	-15.16/-13.02	-17.69/-17.34	-18.29/-18.03	-15.45/-14.75	-17.74/-18.59	-17.73/-14.71	-17.49/-18.17	-18.73/-18.85	-18.87/-18.28	-18.49/-19.17	-18.56/-17.98	-17.42/-17.97	-17.5/-18.37	-18.76/-19.3	-18.22/-11.75	-18.11/-18.92	-18.7/-14.91	-11.46/-7.95	-17.9/-18.56	-11.62/-18.94	-11.33/-7.74
Θ(142.5°)	-17.61/-17.06	-17.67/-15.1	-17.84/-18.27	-17.84/-15.67	-14.59/-9.56	-15.99/-17.48	-12.79/-16.15	-19.77/-13.29	-13.55/-11.64	-13.71/-16.62	-18.69/-18.51	-18.24/-17.34	-18.93/-17.6	-18.9/-18.21	-18.64/-19.36	-18.27/-16.5	-19.42/-17.44	-17.63/-14.71	-18.87/-18.74	-18.39/-16.79	-11.18/-13.32	-9.25/-12.93	-10.15/-17.81	-18.37/-11.4
Θ(150°)	-18.01/-16.82	-12.18/-15.8	-15.76/-17.25	-18.19/-18.47	-17.97/-18.38	-15.48/-12.79	-15.86/-18.71	-19.05/-17.12	-14.66/-17.26	-12.92/-10.1	-11.22/-18.39	-18.4/-18.54	-17.56/-17.27	-16.93/-17.38	-18.16/-18.25	-18.27/-17.86	-17.96/-18.9	-14.78/-14.05	-18.78/-17.92	-19.04/-16.26	-14.03/-16.32	-11.9/-13.05	-13.02/-12.88	-18.13/-17.01
Θ(157.5°)	-15.35/-17.76	-18.13/-18.45	-17.42/-18.35	-18.26/-17.91	-13.28/-12.33	-14.84/-16.3	-13.93/-12.53	-15.16/-18.91	-15.62/-14.92	-15.15/-18.85	-19.19/-19.02	-17.73/-19.11	-17.61/-14.35	-17.64/-18.5	-18.24/-18.04	-18.87/-18.39	-18.63/-18.06	-16.27/-14.01	-13.3/-9.69	-8.88/-11.71	-18.41/-17.15	-13.61/-14.48	-13.95/-15.22	-17.21/-14.85
Θ(165°)	-18.07/-17.93	-19.28/-17.7	-18.73/-17.47	-15.59/-14.19	-14.86/-17.7	-18/-15	-10.75/-10.89	-16.2/-18.02	-15.69/-11.97	-12.36/-13.43	-16.27/-16.85	-15.33/-14.32	-17.15/-17.98	-14.42/-15.82	-17.69/-18.27	-18.71/-18.61	-18.42/-18.26	-16/-13.69	-15.09/-14.63	-16.72/-18.23	-18.37/-18.67	-19.06/-17.82	-17.41/-18	-17.91/-18.29
Θ(172.5°)	-19.25/-17.71	-18.22/-18.05	-17.61/-18.38	-18.25/-18.03	-17.67/-15.59	-13.29/-11.85	-10.06/-11.09	-13.48/-17.78	-18.57/-17.94	-16.26/-15.7	-18.11/-18.2	-17.68/-18.51	-18.1/-17.49	-17.76/-17.81	-18.76/-18.69	-18.38/-18.32	-18.4/-17.83	-18.56/-17.57	-16.13/-13.06	-11.22/-11.16	-11.42/-11.06	-11.88/-11.62	-14.22/-18.19	-16/-15.69
Θ(180°)	-18.36/-18.63	-18.86/-18.34	-18.52/-18.16	-17.77/-18.02	-17.45/-18.96	-17.94/-18.06	-18.42/-18.74	-18.01/-18.72	-17.96/-18.18	-18.02/-18.78	-18.19/-17.33	-18.4/-19	-18.64/-18.68	-18.01/-17.72	-17.4/-18.08	-18.12/-19.15	-18.39/-16.89	-15.53/-14.19	-13.79/-15.37	-17.04/-18.66	-18.55/-18.6	-17.99/-18.43	-18.88/-18.62	-17.3/-18.75
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°)	-11.73/-11.61	-14.09/-16.07	-18.67/-18.65	-17.88/-17.84	-17.96/-19.08	-16.16/-13.4	-11.55/-10.25	-8.9/-8.35	-8.61/-8.64	-8.99/-9.07	-9.75/-11.78	-12.79/-13.1	-15.74/-17.62	-17.7/-17.76	-19.1/-18.39	-16.98/-15.99	-14.67/-12.35	-11.79/-11	-9.84/-9.2	-9.77/-9.25	-9.29/-9.87	-9.98/-10.41	-10.41/-10.72	-11.35/-12.34
Θ(7.5°)	-9.14/-8.73	-9.6/-8.97	-7.84/-7.05	-6.31/-5.05	-5.41/-6.46	-8.91/-10.68	-11.69/-10.09	-8.01/-7.01	-6/-5.29	-5.24/-6.29	-7.47/-9.1	-10.19/-12.41	-13.83/-14.06	-14.58/-14.54	-16.12/-15	-14.82/-16.03	-19.21/-16.54	-14.48/-16.77	-19/-18.09	-17.52/-13.73	-11.69/-11.14	-11.15/-10.37	-10.72/-10.79	-11.34/-11.44
Θ(15°)	-4.84/-6.01	-4.51/-4.6	-5.92/-8.62	-10.34/-9.34	-7.5/-7.14	-7.71/-7.3	-7.26/-6.2	-5.04/-5.21	-6.38/-7.15	-7.14/-5.4	-4.32/-4.37	-4.86/-4.67	-3.84/-4.03	-5.68/-6.33	-7.9/-11.44	-16.88/-16.18	-13.36/-15.14	-15.57/-15.75	-11.99/-11.66	-12.17/-11	-7.47/-4.79	-3.22/-2.85	-3.93/-4.93	-
Θ(22.5°)	-3.88/-3.62	-3.35/-3.07	-2.92/-2.09	-1.84/-1.84	-1.51/-1.71	-2.83/-5.1	-8.05/-7.44	-5.61/-4.32	-3.08/-2.71	-3.52/-4.63	-4.67/-3.91	-4.13/-5.92	-7.88/-8.79	-7.76/-6.19	-3.8/-2.25	-1.81/-1.69	-2.21/-2.16	-0.82/-0.55	-1.64/-1.98	-1.19/-1.1	-2.39/-4.71	-6.19/-4.82	-3.49/-4.04	-5.49/-5.26
Θ(30°)	0.57/-0.06	0.04/-0.54	-0.66/-4.52	-5.39/-5.88	-3.84/-2.27	-1.36/-1.36	-2.96/-3.17	-5.34/-6.06	-2.19/-0.63	-1.71/-3.47	-3.29/-3.43	-4.41/-5.18	-4.22/-1.92	-0.6/-0.62	-2.17/-0.59	1.21/-0.17	-2.43/-2.99	-2.7/-2.58	-2.37/-1.84	-1.38/-0.15	-0.3/-2.44	-5.4/-4.55	-4.04/-2.28	0.82/-1.49
Θ(37.5°)	-0.15/-0.67	-0.27/-0.09	-0.12/-0.65	-0.33/-2.24	-2.16/-1.63	0.35/-0.55	-0.56/-0.46	-0.79/-2.48	-3.38/-0.08	0.89/-0.56	-3.38/-2.92	-1.01/-2.48	-2.64/-0.44	1.12/-0.08	-0.56/-1.29	-1.9/-1.7	-0.77/-0.8	-0.46/-2.62	-0.86/-0.12	-0.25/-0.36	-1.69/-3.74	-3.44/-1.71	-1.73/-1.61	2.27/-1
Θ(45°)	-2.96/-0.87	0.96/-1.18	-1.21/-0.2	1.41/-0.24	-0.38/-0.88	-0.65/-0.16	0.51/-3.4	0.07/-1.32	-2.47/-0	0.42/-0.88	-0.35/-1.22	1.39/-1.97	-3.43/-1.82	-1.08/-0.67	0.81/-0.03	-2.06/-2.52	-2.13/-1.88	0.72/-0.59	-0.67/-1.09	-1.23/-0.15	-0.17/-1.13	-4.6/-7.41	-2.97/-1.68	1.31/-3.51
Θ(52.5°)	1.75/-1.4	1.09/-2.45	2/-2.35	0.24/-0.57	0.28/-0.11	-3.53/-3.27	-1.83/-0.39	1.11/-1.31	-0.46/-0.46	-0.21/-46	1.32/-0.75	0.21/-1.44	-1.0/-3.1	0.57/-1.74	0.67/-1.03	-0.78/-0.78	-1.08/-3.87	-1.74/-3.64	-1.51/-1.41	-2.43/-1.85	-0.38/-1.07	-6.12/-1.85	-1/-0.04	1.25/-0.43
Θ(60°)	-2.16/-2.05	-2.97/-2.01	1.44/-2.36	-3.03/-0.38	-2.91/-3.73	-1.74/-2.91	-0.25/-0.22	0.81/-0.36	-0.87/-0.41	0.18/-1.53	0.92/-0.66	1.93/-0.42	-0.04/-0.86	1.71/-0.56	1.61/-65	0.71/-1.74	1.33/-0.81	0.52/-3.13	-1.53/-1.16	-2.94/-2.53	-0.50/-2.65	-3.92/-2.86	-2.87/-4.42	-
Θ(67.5°)	-3.97/-0.06	-1.78/-6.52	-3.69/-2.22	-2.3/-1.18	-6.37/-0.43	0.83/-3.2	-5.44/-0.87	0.91/-88	0.59/-0.23	0.09/-1.31	0.24/-0.02	1.95/-0.53	-1.22/-0.76	1.39/-0.73	0.93/-2.5	0.44/-0.86	1.05/-0.47	1.4/-0.06	0.31/-0.12	-0.64/-0.79	-2.03/-0.71	-1.31/-3.93	-2.09/-0.59	-3.18/-1.18
Θ(75°)	-0.93/-0.29	-1.07/-0.33	-0.79/-1.08	-3.24/-1.87	0.09/-0.07	-1.82/-0.81	0.66/-0.92	-0.36/-0.04	-0.46/-0.48	1.64/-0.18	-3.39/-2.63	0.24/-0.55	-0.63/-0.79	0.21/-1.54	-0.72/-0.49	1.61/-1.29	1.31/-0.14	0.08/-0.36	-1.01/-1.49	-0.32/-0.61	0.79/-1.64	-0.93/-1.89	-	-
Θ(82.5°)	1.15/-1.2	-3.81/-4.4	0.15/-1.29	-3/-1.71	-1.57/-0	-0.29/-0.23	-0.36/-0.05	0.28/-2.36	-1.41/-0.82	-1.09/-0.49	-1.47/-0.22	1/-2.3	-4.94/-3.16	-1.80/-0.2	-1.03/-2.21	0.25/-1.6	-1.66/-0.29	1.71/-1.38	2.49/-1.01	0.62/-1	0.72/-2.37	1.22/-0.02	-0.66/-0.28	-0.65/-0.14
Θ(90°)	1.19/-0.17	-4.76/-0.07	-0.59/-0.34	-6.83/-2.21	-1.57/-3.03	-0.96/-0.92	0.95/-0.73	-0.02/-2.54	-1.76/-1.66	-3.38/-0.42	-2.67/-1.15	-0.01/-1.93	-6.07/-6.93	-2.97/-1.81	-1.95/-5.02	-1.35/-8.05	-3.2/-4.62	0.64/-1.55	0.33/-1.54	-0.65/-0.17	0/0.85	0.14/-0.79	-3.2/-1.81	-0.82/-0.29
Θ(97.5°)	0.21/-2.35	-3.19/-2.51	-2.68/-1.38	-7.03/-2.34	-4.98/-5.83	-2.81/-1.81	-0.69/-1.84	-2.96/-2.94	-2.31/-2.85	-4.05/-2.13	-3.88/-1.99	-1.1/-2.12	-6.54/-5.95	-2.72/-3.28	-3.26/-5.19	-4.06/-7.03	-4.13/-9	-1.97/-6.28	-4.53/-6	-3.2/-3.01	-3.8/-4.93	-2.69/-5.21	-5.26/-1.67	-1.77/-1.37
Θ(105°)	-2.36/-4.24	-3.54/-3.85	-6.64/-9.1	-2.72/-5.72	-11.86/-6.15	-2.75/-2.18	-6.81/-4.82	-4.54/-4.66	-3.85/-4.21	-1.9/-2.8	-2.78/-3.48	-4.25/-4.32	-7.87/-7.19	-4.68/-3.3	-5.78/-5.18	-6.52/-7.36	-7.35/-5.55	-5.6/-4.54	-4.44/-6.73	-3.19/-2.77	-7.67/-8.3	-3.84/-9.49	-8.18/-2.42	-1.78/-4.3
Θ(112.5°)	-5.39/-8.74	-6.15/-3.93	-5.63/-5.88	-3.61/-18.09	-5.77/-6.18	-2.47/-0.62	-6.42/-3.55	-2.52/-4.43	-3.16/-8.17	-3.48/-5.34	-4.44/-4.11	-3.2/-5.25	-9.4/-6.72	-9.65/-4.51	-7.09/-7.95	-2.84/-7.11	-13.69/-8.33	-8.46/-5.88	-7.11/-11.59	-5.94/-4.41	-6.6/-8.03	-3.24/-12.03	-8.99/-4.22	-1.77/-6.62
Θ(120°)	-7.63/-6.72	-15.15/-8.58	-3.35/-13.6	-5.63/-9.78	-9.23/-6.91	-3.66/-5.63	-10.3/-2.81	-5.89/-6.48	-6.2/-5.54	-5.25/-4.99	-5.73/-4.54	-3.59/-5.88	-9.9/-8.19	-7.1/-7.18	-7.28/-8.45	-7.68/-4.7	-5.32/-14.31	-11.02/-4.87	-8.13/-16.27	-10.01/-6.78	-8.14/-12.55	-8.37/-13.24	-13.91/-8.77	-3.42/-4.87
Θ(127.5°)	-7.27/-7.98	-15.72/-10.56	-3.35/-6.43	-12.08/-6.49	-6.43/-9.37	-7.88/-18.75	-18.38/-7.87	-18.65/-10.69	-13.27/-5.52	-8.05/-10.84	-5.64/-5.39	-7.18/-6.35	-11.78/-10.44	-6.01/-7.89	-11.07/-17.93	-6.76/-3.4	-6.99/-9.2	-6.39/-4.6	-3.46/-8.08	-6.04/-3.54	-4.71/-5.25	-4.35/-6.3	-9.53/-8.8	-10.24/-4.43
Θ(135°)	-9.09/-6.3	-7.85/-9.66	-7.66/-4.07	-18.43/-8.28	-16.16/-6.5	-18.79/-12.55	-16.22/-11.3	-18.91/-15.13	-11.37/-11.07	-7/-9.74	-5.52/-7.08	-9.6/-9.11	-9.2/-9.02	-9.68/-14.29	-9.81/-9.75	-7.11/-6.99	-7.68/-18.55	-7.36/-8.1	-6.29/-12.55	-11.47/-6.82	-6.59/-10.85	-9.5/-6.39	-17.67/-18.11	-16.01/-9.32
Θ(142.5°)	-17.29/-11.83	-17.32/-7.83	-12.69/-9.4	-10.58/-13.91	-18.45/-15.74	-18.21/-13.52	-19.07/-12.09	-11.53/-15.77	-7.77/-10.16	-10.8/-8.39	-4.22/-7.33	-17.9/-8.9	-8.75/-8.59	-11.74/-9.16	-6.45/-10.68	-13.61/-15.52	-13.21/-12.71	-11.96/-11.13	-8.35/-11.78	-9.1/-7.65	-7.03/-12.78	-18.53/-10.1	-15.86/-18.85	-18.26/-15.02
Θ(150°)	-11.61/-9.12	-12.49/-9.2	-8.95/-15.79	-15.1/-12.34	-10.05/-14.86	-16.72/-15.24	-17.88/-18.62	-14.31/-16.66	-16.85/-7.97	-4.77/-7.83	-11.3/-10.7	-14.59/-13.99	-9.91/-9.33	-9.77/-10.9	-11.61/-13.12	-9.89/-18.71	-13.85/-11.05	-9.55/-18.4	-14.95/-14	-19.08/-18.64	-18.52/-17.55	-15.09/-18.96	-15.48/-10.41	-10.19/-18.49
Θ(157.5°)	-18.93/-15.89	-14.52/-8.6	-8.12/-14.66	-17.62/-17.46	-18.63/-18.42	-18.61/-16.3	-18.61/-18.62	-17.3/-17.41	-13.42/-13.84	-11.35/-10.84	-15.84/-18.18	-18.75/-14.73	-12/-14.24	-14.9/-17.77	-17.53/-14.63	-13.42/-17.4	-18.75/-19.07	-12.76/-13.54	-15					



Freq(Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	4.97	3.84	4.55	4.79
Ant. 2 Max Gain (dBi)	5.69	5.41	5.56	5.02
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/60/165	Theta/60/150	Theta/52.5/150	Theta/60/172.5
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/67.5/15	Theta/52.5/60	Theta/52.5/60	Theta/52.5/67.5
Max Gain (dBi)	5.69	5.41	5.56	5.02
DG [1SS] (dBi)	6.85	6.13	6.51	5.83
DG [2SS] (dBi)	5.69	5.41	5.56	5.02

