



Antenna Composite Gain Test Report

Equipment	Cisco Catalyst Wireless 9166I Series Access Points / Cisco Catalyst Wireless 9164I Series Access Points
Brand Name	CISCO
Model Name	CW9166I-B, CW9164I-B, CW9166I-MR, CW9164I-MR
Applicant	Cisco Systems Inc 125 West Tasman Drive San Jose California United States 95134-1706
Manufacturer	Cisco Systems Inc 125 West Tasman Drive San Jose California United States 95134-1706
Sample Received	Dec. 28, 2021
Start Test Date	Jan. 05, 2022
Final Test Date	Jan. 05, 2022



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1. Operation Mode and Antenna Information

Antenna Position	Port				Brand	P/N	Ant. Type	Connector	Modes of Operation
	R1: WLAN 2.4GHz	R1: WLAN 5GHz UNII 1~3	R2: WLAN 5GHz UNII 2C~3	R2: WLAN 6GHz UNII 5~8					
2G5G Ant1	3	4	-	-	CISCO	95XEAJ15.G04	Folded	I-PEX	WLAN 2.4GHz & WLAN 5GHz UNII 1~3
2G5G Ant2	4	3	-	-	CISCO	95XEAJ15.G03	Folded	I-PEX	
2G5G Ant3	2	2	-	-	CISCO	95XEAJ15.G05	Folded	I-PEX	
2G5G Ant4	1	1	-	-	CISCO	95XEAJ15.G06	Folded	I-PEX	
5G6G Ant1	-	-	4	4	CISCO	95XEAJ15.G12	H-POL Alford loop	I-PEX	WLAN 5GHz UNII 2C, UNII 3 & WLAN 6GHz UNII 5~8
5G6G Ant2	-	-	3	3	CISCO	95XEAJ15.G11	H-POL Alford loop	I-PEX	
5G6G Ant3	-	-	1	1	CISCO	95XEAJ15.G09	H-POL Alford loop	I-PEX	
5G6G Ant4	-	-	2	2	CISCO	95XEAJ15.G10	H-POL Alford loop	I-PEX	

R means Radio.

Note:

For 2G5G Ant1~2G5G Ant4

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

1TX:

2G5G Ant4 can be used as transmitting/receiving antenna.

2TX:

2G5G Ant3~Ant4 can be used as transmitting/receiving antenna.

2G5G Ant3~Ant4 could transmit/receive simultaneously.

4TX:

2G5G Ant1~Ant4 can be used as transmitting/receiving antenna.

2G5G Ant1~Ant4 could transmit/receive simultaneously.

For 5G6G Ant1~5G6G Ant4

5GHz and 6GHz Operation Mode (1TX, 2TX, 4TX/4RX)

1TX:

5G6G Ant3 can be used as transmitting/receiving antenna.

2TX:

5G6G Ant3~Ant4 can be used as transmitting/receiving antenna.

5G6G Ant3~Ant4 could transmit/receive simultaneously.

4TX:

5G6G Ant1~Ant4 can be used as transmitting/receiving antenna.

5G6G Ant1~Ant4 could transmit/receive simultaneously.

Antenna operation of 2G5G Ant1~Ant4 and 5G6G Ant1~Ant4 have two kinds of the operation mode of 5GHz:

Operation mode 1: 5GHz UNII 1~UNII 3 (2G5G Ant1~Ant4).

Operation mode 2: 5GHz UNII 1, UNII 2A (2G5G Ant1~Ant4)+5GHz UNII 2C, UNII 3 (5G6G Ant1~Ant4).

The antenna operation was limited to the 4x4 MIMO for each band.



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

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

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	05CH03-HY	Rex Liao	19-20 / 50-55	Jan. 05, 2022

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

Characteristic: Fully Anechoic Chamber

4. Test Facility and Configuration

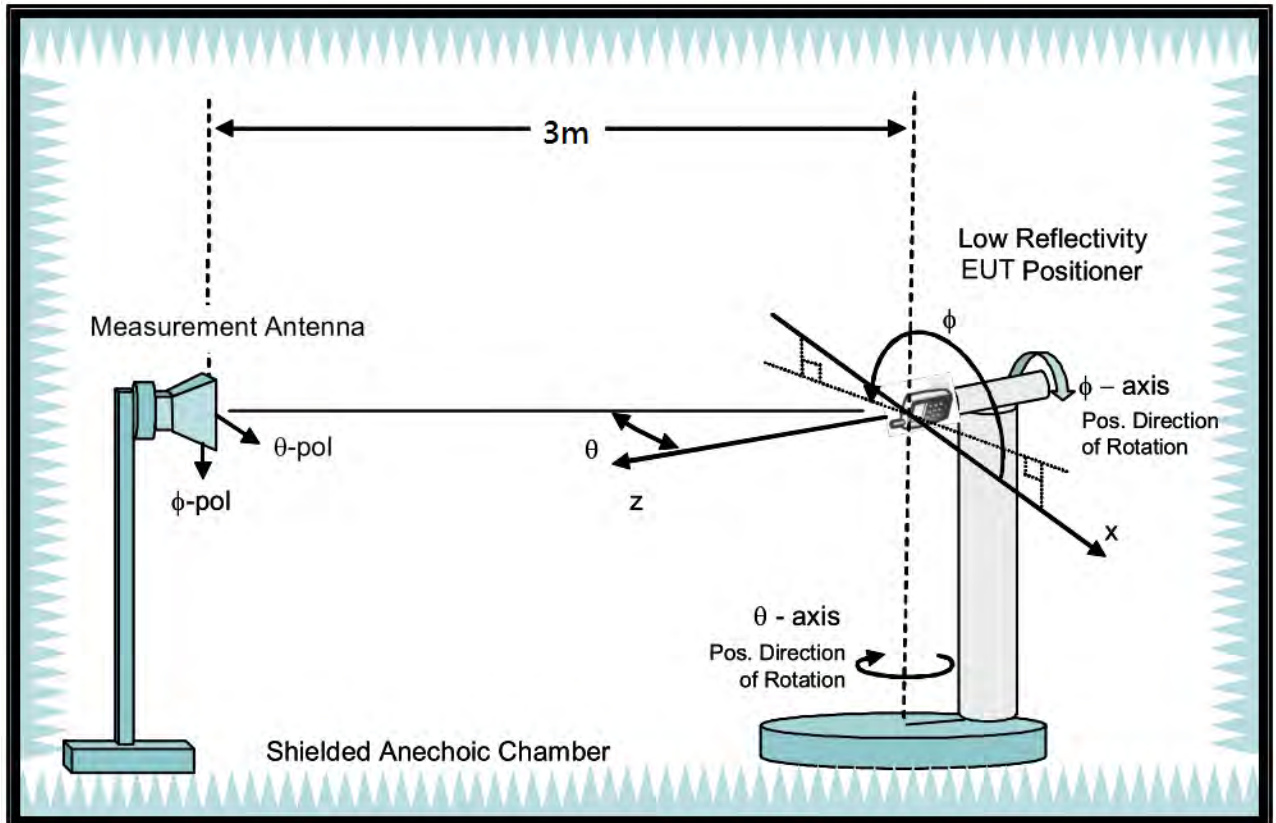
Test configuration: Reference to CITA OTA distributed-axes system configuration.

Chamber: Fully Anechoic Chamber.

Measurement antenna: Single Polarization Horn antenna calibrated according to ANSI C63.5.

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

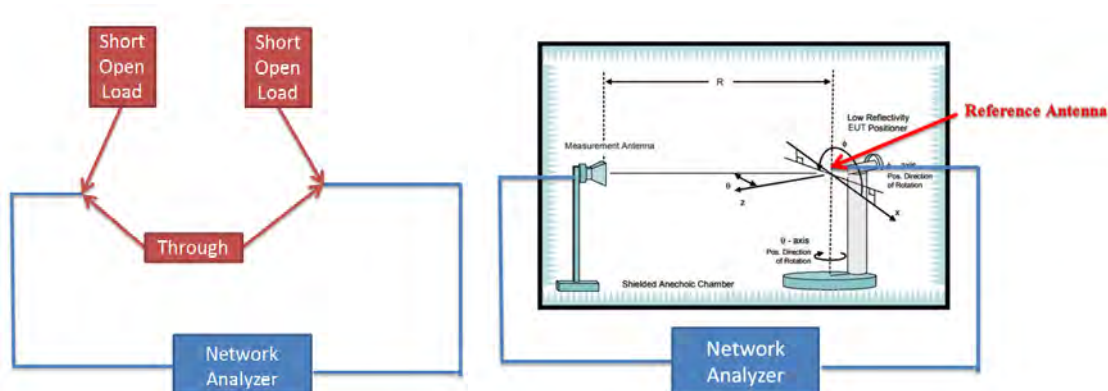
#Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1"



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 S21 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 S21 values and used with reference antenna gain to calculate gain factor.



Frequency (MHz)	2400	2450	2500	5150	5200	5300	5600	5750	5800	5900	6000	6500	7000	7500
S21 values (dBi)	-31.4	-31.4	-31.3	-31.3	-31	-30.7	-30.1	-30.5	-30.5	-30.8	-31.3	-32.8	-34.4	-35.4
Reference gain (dBi)	10.2	10.4	10.6	12.4	12.8	13.4	13.4	13.3	13.3	13.1	13.2	12.3	11.7	11.1
Factor (dB)	41.63	41.81	41.89	43.72	43.78	44.12	43.5	43.78	43.76	43.88	44.45	45.14	46.08	46.51



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 S21 value every 15 degree from 0 to 345 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 (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.

7. Measured Values and Calculation of Maximum Gain Positions

<Antenna Position: 2G/5G Ant1~4>

For 2TX:

DG_1SS max value position

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 3 (dBi)	1	-1.93	-0.86	-1.24	0.48
Ant. 4 (dBi)	1.55	5.24	4.53	3.86	1.77
DG [1SS] (dBi)	4.29	5.39	5.26	4.69	4.16
Polarization	Theta	Theta	Theta	Theta	Theta
$\Theta (^{\circ})$	60	75	60	60	60
$\Phi (^{\circ})$	345	150	135	135	30

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

DG_1SS max value position calculation

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 3 [$10^{(G/20)}$]	$10^{(1/20)}$	$10^{(-1.93/20)}$	$10^{(-0.86/20)}$	$10^{(-1.24/20)}$	$10^{(0.48/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(1.55/20)}$	$10^{(5.24/20)}$	$10^{(4.53/20)}$	$10^{(3.86/20)}$	$10^{(1.77/20)}$
Ant. 3 [$10^{(G/20)}$] value	1.122	0.801	0.906	0.867	1.057
Ant. 4 [$10^{(G/20)}$] value	1.195	1.828	1.685	1.56	1.226
Sum All Antenna [Amax]	2.317	2.629	2.59	2.427	2.283
DG [$10^{\log(Amax^2/Nant)}$]	4.29	5.39	5.26	4.69	4.16

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

DG_2SS max value position

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 3 (dBi)	1	-1.93	-3.34	-1.24	-3.53
Ant. 4 (dBi)	1.55	5.24	5.46	3.86	3.94
DG [4SS] (dBi)	1.28	2.99	2.99	2.02	1.65
Polarization	Theta	Theta	Theta	Theta	Theta
$\Theta(^{\circ})$	60	75	75	60	60
$\Phi(^{\circ})$	345	150	150	135	135

Note:

The DG 2SS max value position is the maximum DG 2SS value calculated from section 11 table Gain Result.

DG_2SS max value position calculation

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 3 $((10^{(G/20)})^2)$	1.2589	0.6412	0.4634	0.7516	0.4436
Ant. 4 $((10^{(G/20)})^2)$	1.4289	3.342	3.5156	2.4322	2.4774
Sum All Antenna	2.6878	3.9832	3.9791	3.1838	2.921
DG $[10 \cdot \log(\text{sum all}/N_{\text{ant}})]$	1.28	2.99	2.99	2.02	1.65

Note: Directional Gain (2SS) is the max value of all position. Each position value is calculated by KDB662911 D01 (e) (ii).

$$g_{j,k} = 10^{(G/20)}$$

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



For 4TX:

DG 1SS Max Value Position

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 (dBi)	2	2.96	0.86	0.74	0.76
Ant. 2 (dBi)	0.73	0.64	-0.79	-2.26	-2.84
Ant. 3 (dBi)	-0.06	0.05	-0.86	-1.24	1.65
Ant. 4 (dBi)	0.79	-0.14	4.53	3.86	-0.39
DG [1SS] (dBi)	6.92	6.99	7.25	6.62	5.97
Polarization	Theta	Theta	Theta	Theta	Theta
$\Theta(^{\circ})$	60	45	60	60	60
$\Phi(^{\circ})$	285	225	135	135	45

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

DG 1SS Max Value Position Calculation

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 [$10^{(G/20)}$]	$10^{(2/20)}$	$10^{(2.96/20)}$	$10^{(0.86/20)}$	$10^{(0.74/20)}$	$10^{(0.76/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(0.73/20)}$	$10^{(0.64/20)}$	$10^{(-0.79/20)}$	$10^{(-2.26/20)}$	$10^{(-2.84/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(-0.06/20)}$	$10^{(0.05/20)}$	$10^{(-0.86/20)}$	$10^{(-1.24/20)}$	$10^{(1.65/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(0.79/20)}$	$10^{(-0.14/20)}$	$10^{(4.53/20)}$	$10^{(3.86/20)}$	$10^{(-0.39/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.259	1.406	1.104	1.089	1.091
Ant. 2 [$10^{(G/20)}$] value	1.088	1.076	0.913	0.771	0.721
Ant. 3 [$10^{(G/20)}$] value	0.993	1.006	0.906	0.867	1.209
Ant. 4 [$10^{(G/20)}$] value	1.095	0.984	1.685	1.56	0.956
Sum All Antenna [Amax]	4.435	4.472	4.607	4.286	3.978
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	6.92	6.99	7.25	6.62	5.97

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

DG_4SS Max Value Position

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 (dBi)	2	1.31	0.86	0.74	-0.57
Ant. 2 (dBi)	0.73	0.7	-0.79	-2.26	-3.36
Ant. 3 (dBi)	-0.06	-3.9	-0.86	-1.24	-3.53
Ant. 4 (dBi)	0.79	3.44	4.53	3.86	3.94
DG [4SS] (dBi)	0.93	1.09	1.55	0.94	0.27
Polarization	Theta	Theta	Theta	Theta	Theta
$\Theta(^{\circ})$	60	75	60	60	60
$\Phi(^{\circ})$	285	165	135	135	135

Note:

The DG 4SS max value position is the maximum DG 4SS value calculated from section 11 table Gain Result.

DG_4SS Max Value Position Calculation

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 $((10^{(G/20)})^2)$	1.5849	1.3521	1.219	1.1858	0.877
Ant. 2 $((10^{(G/20)})^2)$	1.183	1.1749	0.8337	0.5943	0.4613
Ant. 3 $((10^{(G/20)})^2)$	0.9863	0.4074	0.8204	0.7516	0.4436
Ant. 4 $((10^{(G/20)})^2)$	1.1995	2.208	2.8379	2.4322	2.4774
Sum All Antenna	4.9537	5.1424	5.7109	4.9639	4.2593
DG $[10 \cdot \log(\text{sum all}/N_{\text{ant}})]$	0.93	1.09	1.55	0.94	0.27

Note: Directional Gain (4SS) is the max value of all position. Each position value is calculated by KDB662911 D01 (e) (ii).

$$g_{j,k} = 10^{(G/20)}$$

$$\text{Directional Gain (4SS)} = 10 \cdot \log((10^{(G_{\text{ant1}}/20)})^2 + (10^{(G_{\text{ant2}}/20)})^2 + (10^{(G_{\text{ant3}}/20)})^2 + (10^{(G_{\text{ant4}}/20)})^2 + \dots) / N_{\text{ant}})$$

<Antenna Position: 5G6G Ant1~5G6G Ant4>

For 2TX:

DG 1SS Max Value Position

Frequency (Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 3 (dBi)	3.21	4.36	2.34	2.31	0.99	0.61
Ant. 4 (dBi)	2.39	-0.68	2.4	0.52	1.24	-0.51
DG [1SS] (dBi)	5.82	5.21	5.38	4.47	4.13	3.08
Polarization	Phi	Phi	Phi	Phi	Phi	Phi
$\Theta(^{\circ})$	75	75	75	75	75	75
$\Phi(^{\circ})$	90	75	345	135	60	60

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

DG 1SS Max Value Position Calculation

Frequency (Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 3 [$10^{(G/20)}$]	$10^{(3.21/20)}$	$10^{(4.36/20)}$	$10^{(2.34/20)}$	$10^{(2.31/20)}$	$10^{(0.99/20)}$	$10^{(0.61/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(2.39/20)}$	$10^{(-0.68/20)}$	$10^{(2.4/20)}$	$10^{(0.52/20)}$	$10^{(1.24/20)}$	$10^{(-0.51/20)}$
Ant. 3 [$10^{(G/20)}$] value	1.447	1.652	1.309	1.305	1.121	1.073
Ant. 4 [$10^{(G/20)}$] value	1.317	0.925	1.318	1.062	1.153	0.943
Sum All Antenna [Amax]	2.764	2.577	2.627	2.366	2.274	2.016
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	5.82	5.21	5.38	4.47	4.13	3.08

Note:

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

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

DG_2SS Max Value Position

Frequency (Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 3 (dBi)	3.21	4.36	2.34	-4.05	0.99	0.61
Ant. 4 (dBi)	2.39	-0.68	2.4	3.96	1.24	-0.51
DG [4SS] (dBi)	2.82	2.53	2.37	1.59	1.12	0.09
Polarization	Phi	Phi	Phi	Phi	Phi	Phi
Θ (°)	75	75	75	75	75	75
Φ (°)	90	75	345	45	60	60

Note:

The DG 2SS max value position is the maximum DG 2SS value calculated from section 11 table Gain Result.

DG_2SS Max Value Position Calculation

Frequency (Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 3 $((10^{(G/20)})^2)$	2.0941	2.729	1.714	0.3936	1.256	1.1508
Ant. 4 $((10^{(G/20)})^2)$	1.7338	0.8551	1.7378	2.4889	1.3305	0.8892
Sum All Antenna	3.8279	3.584	3.4518	2.8824	2.5865	2.04
DG $[10 \cdot \log(\text{sum all}/N_{\text{ant}})]$	2.82	2.53	2.37	1.59	1.12	0.09

Note: Directional Gain (2SS) is the max value of all position. Each position value is calculated by KDB662911 D01 (e) (ii).

$$g_{j,k} = 10^{(G/20)}$$

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

For 4TX:

DG 1SS Max Value Position

Frequency (Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 1 (dBi)	2.62	1.36	1.33	-1.43	1.11	0.77
Ant. 2 (dBi)	2.05	2.09	-0.69	1.2	0.26	-3.16
Ant. 3 (dBi)	3.21	2.59	2.34	0.27	-1.07	-5.42
Ant. 4 (dBi)	2.39	1.66	2.4	-0.2	-0.33	0.33
DG [1SS] (dBi)	8.6	7.96	7.45	6.03	6.05	4.51
Polarization	Phi	Phi	Phi	Phi	Phi	Phi
$\Theta(^{\circ})$	75	75	75	75	75	75
$\Phi(^{\circ})$	90	180	345	210	315	315

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

DG 1SS Max Value Position Calculation

Frequency (Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 1 [$10^{(G/20)}$]	$10^{(2.62/20)}$	$10^{(1.36/20)}$	$10^{(1.33/20)}$	$10^{(-1.43/20)}$	$10^{(1.11/20)}$	$10^{(0.77/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(2.05/20)}$	$10^{(2.09/20)}$	$10^{(-0.69/20)}$	$10^{(1.2/20)}$	$10^{(0.26/20)}$	$10^{(-3.16/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(3.21/20)}$	$10^{(2.59/20)}$	$10^{(2.34/20)}$	$10^{(0.27/20)}$	$10^{(-1.07/20)}$	$10^{(-5.42/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(2.39/20)}$	$10^{(1.66/20)}$	$10^{(2.4/20)}$	$10^{(-0.2/20)}$	$10^{(-0.33/20)}$	$10^{(0.33/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.352	1.169	1.165	0.848	1.136	1.093
Ant. 2 [$10^{(G/20)}$] value	1.266	1.272	0.924	1.148	1.03	0.695
Ant. 3 [$10^{(G/20)}$] value	1.447	1.347	1.309	1.032	0.884	0.536
Ant. 4 [$10^{(G/20)}$] value	1.317	1.211	1.318	0.977	0.963	1.039
Sum All Antenna [Amax]	5.382	5	4.717	4.005	4.014	3.362
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	8.6	7.96	7.45	6.03	6.05	4.51

Note:

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

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

DG_4SS Max Value Position

Frequency (Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 1 (dBi)	2.62	0.52	1.33	-0.35	1.11	0.77
Ant. 2 (dBi)	2.05	4.72	-0.69	-3.44	0.26	-3.16
Ant. 3 (dBi)	3.21	-0.49	2.34	-4.05	-1.07	-5.42
Ant. 4 (dBi)	2.39	1.85	2.4	3.96	-0.33	0.33
DG [4SS] (dBi)	2.59	2.12	1.51	0.27	0.07	-1.19
Polarization	Phi	Phi	Phi	Phi	Phi	Phi
$\Theta(^{\circ})$	75	75	75	75	75	75
$\Phi(^{\circ})$	90	165	345	45	315	315

Note:

The DG 4SS max value position is the maximum DG 4SS value calculated from section 11 table Gain Result.

DG_4SS Max Value Position Calculation

Frequency (Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 1 $((10^{(G/20)})^2)$	1.8281	1.1272	1.3583	0.9226	1.2912	1.194
Ant. 2 $((10^{(G/20)})^2)$	1.6032	2.9648	0.8531	0.4529	1.0617	0.4831
Ant. 3 $((10^{(G/20)})^2)$	2.0941	0.8933	1.714	0.3936	0.7816	0.2871
Ant. 4 $((10^{(G/20)})^2)$	1.7338	1.5311	1.7378	2.4889	0.9268	1.0789
Sum All Antenna	7.2593	6.5164	5.6632	4.2579	4.0614	3.0431
DG $[10 \cdot \log(\text{sum all}/N_{\text{ant}})]$	2.59	2.12	1.51	0.27	0.07	-1.19

Note: Directional Gain (4SS) is the max value of all position. Each position value is calculated by KDB662911 D01 (e) (ii).

$$g_{j,k} = 10^{(G/20)}$$

$$\text{Directional Gain (4SS)} = 10 \cdot \log((10^{(G_{\text{ant1}}/20)})^2 + (10^{(G_{\text{ant2}}/20)})^2 + (10^{(G_{\text{ant3}}/20)})^2 + (10^{(G_{\text{ant4}}/20)})^2 + \dots) / N_{\text{ant}})$$

8. Summary of Test Result

<Antenna Position: 2G/5G Ant1~4>

For 2TX:

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 3 Max Gain (dBi)	2.79	2.78	2.74	2.66	1.91
Ant. 4 Max Gain (dBi)	2.62	5.24	5.46	4.26	3.94
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/30/210	Theta/75/60	Theta/75/30	Theta/75/60	Theta/75/255
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/15/315	Theta/75/150	Theta/75/150	Theta/75/150	Theta/60/135
Max Gain (dBi)	2.79	5.24	5.46	4.26	3.94
DG [1SS] (dBi)	4.29	5.39	5.26	4.69	4.16
DG [2SS] (dBi)	1.28	2.99	2.99	2.02	1.65

For 4TX

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.79	4.27	3.94	1.88	2.57
Ant. 2 Max Gain (dBi)	2.43	5.09	5.16	2.89	2.72
Ant. 3 Max Gain (dBi)	2.79	2.78	2.74	2.66	1.91
Ant. 4 Max Gain (dBi)	2.62	5.24	5.46	4.26	3.94
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/0/195	Theta/75/240	Theta/75/240	Theta/75/240	Theta/60/225
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/60/165	Theta/75/330	Theta/75/330	Theta/75/330	Theta/75/330
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/30/210	Theta/75/60	Theta/75/30	Theta/75/60	Theta/75/255
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/15/315	Theta/75/150	Theta/75/150	Theta/75/150	Theta/60/135
Max Gain (dBi)	2.79	5.24	5.46	4.26	3.94
DG [1SS] (dBi)	6.92	6.99	7.25	6.62	5.97
DG [2SS] (dBi)	3.92	5.24	5.46	4.26	3.94
DG [4SS] (dBi)	0.93	1.09	1.55	0.94	0.27

Note:

- For 4TX modes. Directional Gain (2SS) = Directional Gain (1SS) – 3dB. If directional gain is less than max gain, use max gain as directional gain.
- Each antenna max gain is the max value of measurement S21 of theta and phi through all measurement angles.
- The max gain is the max value of all antennas.

<Antenna Position: 5G6G Ant1~5G6G Ant4>

For 2TX:

Frequency (Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 3 Max Gain (dBi)	3.42	4.36	2.95	2.31	0.99	0.61
Ant. 4 Max Gain (dBi)	3.67	4.23	2.91	3.96	1.59	0.33
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/75/180	Phi/75/75	Phi/75/75	Phi/75/135	Phi/75/60	Phi/75/60
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/60/0	Phi/60/345	Phi/75/45	Phi/75/45	Phi/75/45	Phi/75/315
Max Gain (dBi)	3.67	4.36	2.95	3.96	1.59	0.61
DG [1SS] (dBi)	5.82	5.21	5.38	4.47	4.13	3.08
DG [2SS] (dBi)	2.82	2.53	2.37	1.59	1.12	0.09

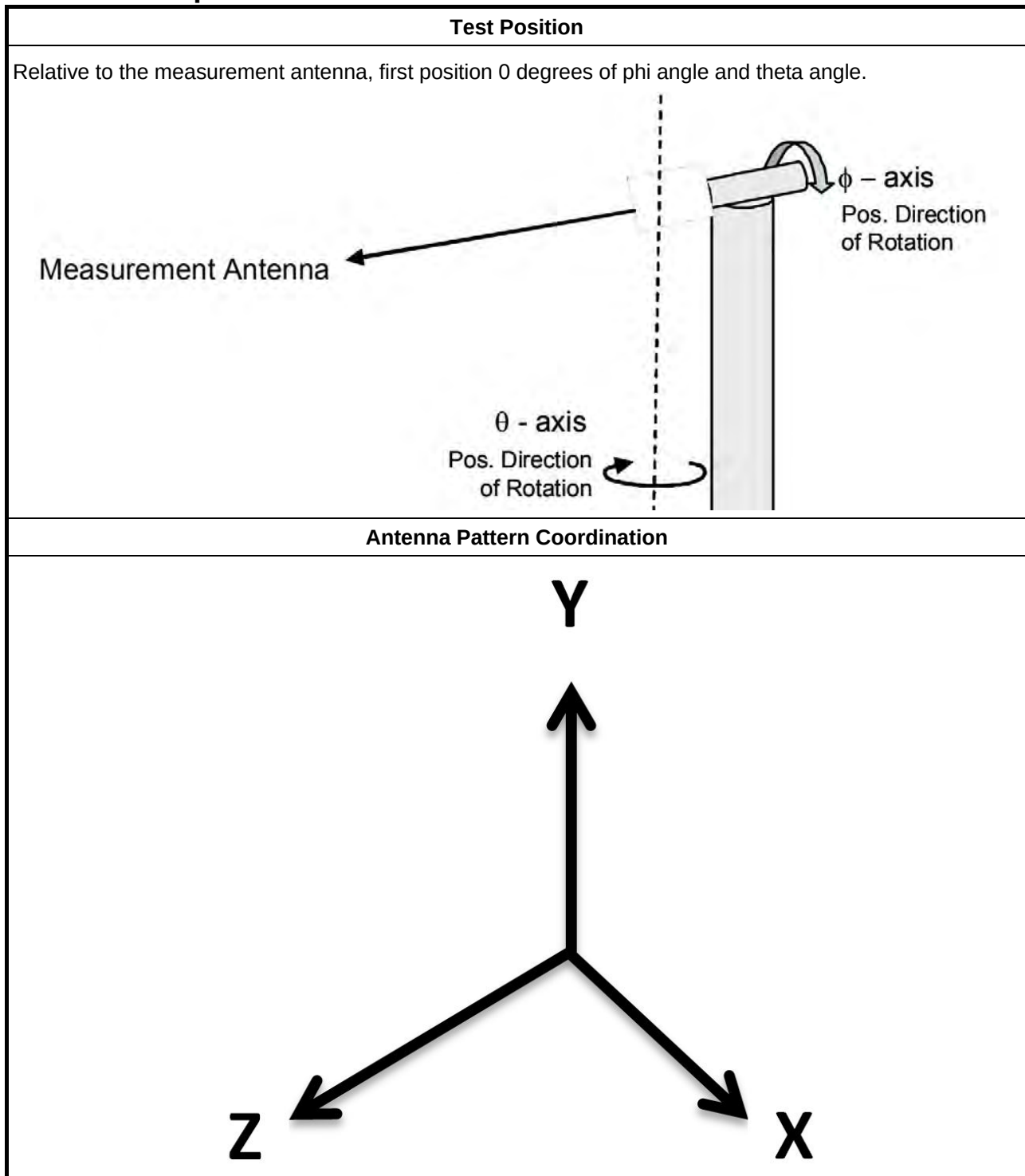
For 4TX

Frequency (Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	2.98	4.19	2.4	2.41	1.39	0.77
Ant. 2 Max Gain (dBi)	3.46	4.94	2.95	1.96	1.32	0.87
Ant. 3 Max Gain (dBi)	3.42	4.36	2.95	2.31	0.99	0.61
Ant. 4 Max Gain (dBi)	3.67	4.23	2.91	3.96	1.59	0.33
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/60/0	Phi/75/255	Phi/75/255	Phi/75/315	Phi/75/240	Phi/75/315
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/75/180	Phi/75/150	Phi/75/165	Phi/75/225	Phi/75/210	Phi/75/240
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/75/180	Phi/75/75	Phi/75/75	Phi/75/135	Phi/75/60	Phi/75/60
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/60/0	Phi/60/345	Phi/75/45	Phi/75/45	Phi/75/45	Phi/75/315
Max Gain (dBi)	3.67	4.94	2.95	3.96	1.59	0.87
DG [1SS] (dBi)	8.6	7.96	7.45	6.03	6.05	4.51
DG [2SS] (dBi)	5.6	4.96	4.45	3.96	3.05	1.51
DG [4SS] (dBi)	2.59	2.12	1.51	0.27	0.07	-1.19

Note:

1. For 4TX modes. Directional Gain (2SS) = Directional Gain (1SS) – 3dB. If directional gain is less than max gain, use max gain as directional gain.
2. Each antenna max gain is the max value of measurement S21 of theta and phi through all measurement angles.
3. The max gain is the max value of all antennas.

9. Test Setup



Note:

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

**10. Test Equipment and Calibration Data**

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1292	1GHz~18GHz	Aug. 04, 2021	Aug. 03, 2022
Test Software	SPORTON	SENSE-RDG	V1.0.6	-	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 UNII 1~3 (2G5G Ant1~Ant4).....	Page 22
Appendix B – Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant1~Ant4).....	Page 37
Appendix C – Antenna Pattern of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4).....	Page 55
Appendix D – Antenna Pattern of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant1~Ant4).....	Page 60
Appendix E – Test Photos.....	Page 66



Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 3 Max Gain (dBi)	2.79	2.78	2.74	2.66	1.91
Ant. 4 Max Gain (dBi)	2.62	5.24	5.46	4.26	3.94
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/30/210	Theta/75/60	Theta/75/30	Theta/75/60	Theta/75/255
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/15/315	Theta/75/150	Theta/75/150	Theta/75/150	Theta/60/135
Max Gain (dBi)	2.79	5.24	5.46	4.26	3.94
DG [1SS] (dBi)	4.29	5.39	5.26	4.69	4.16
DG [2SS] (dBi)	1.28	2.99	2.99	2.02	1.65



DG 1SS Result

Freq(Hz)	2.45G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-0.15	0.13	0.66	1.56	2.18	2.33	1.77	0.62	-0.71	-2.4	-1.77	-0.33	-0.03	-0.21	0.7	1.72	2.19	2.06	1.75	1.14	-0.3	-2.45	-1.37	-0.62
Θ(15°)	0.86	-0.32	-1.15	-0.72	0.43	1.79	2.43	2.11	0.86	-1.1	-0.1	0.36	0.3	-0.56	-1.58	1.24	2.59	2.58	2.16	0.74	-1.66	-5.3	-2.73	0.24
Θ(30°)	-0.48	-1.71	-2.63	-2.34	-0.48	1.72	2.36	2.2	1	-0.75	-0.49	0.1	0.41	-0.32	-3.1	-2.51	-0.63	-0.59	-1.27	-2.89	-6.31	-6.48	-3.02	0.06
Θ(45°)	-2.4	-1.96	-2.91	-2.85	-0.61	1.31	0.9	0.68	-0.37	-3.41	-6.03	-5.26	-3.04	-1.71	-3.28	-4.76	-4.04	-1.92	-1.91	-4.69	-5.23	-5.31	-4.53	-3.93
Θ(60°)	-1.38	-3.26	-2.98	-3.13	-2.81	-0.62	0.74	-0.29	-2.96	-4.8	-6.71	-6.04	-4.14	-2.39	-3.55	-5.79	-6.61	-2.26	-0.75	-6.45	-5.52	-5.92	-4.22	-4.49
Θ(75°)	-3.02	-6.79	-2.38	-5.3	-3.86	-2.6	0.29	-4.28	-3.75	-6.19	-6.31	-8.16	-6.65	-6.77	-5.48	-6.86	-7.45	-4.99	-3.09	-6.54	-5.87	-6.76	-6.89	-8.25
Θ(90°)	-3.52	-9.54	-2.81	-6.17	-3.26	-5.67	-2.76	-7.21	-1.97	-8.24	-4	-10.29	-5.48	-8.75	-6.54	-9.03	-8.43	-6.67	-3.29	-7.6	-7.06	-8.63	-8.03	-9.7
Θ(105°)	-5.07	-11.56	-3.56	-8.54	-5.23	-5.85	-0.99	-8.46	-2.81	-8.42	-3.38	-13.33	-7.13	-13.73	-8.46	-12.25	-10.26	-11.13	-6.18	-12.19	-9.02	-10.14	-7.71	-10.93
Θ(120°)	-4.57	-9.29	-2.61	-6.17	-4.65	-7.3	-2.67	-6.73	-1.92	-8.11	-5.24	-14.35	-5.72	-9.2	-9.35	-14.25	-14.38	-12.31	-7.12	-9.66	-14.62	-14.01	-7.03	-7.35
Θ(135°)	-9.02	-12.04	-9.95	-10.32	-5.01	-5.17	-2.88	-6.9	-8.62	-12.03	-9.07	-12.92	-9.49	-8.08	-5.25	-10.53	-14.03	-12.84	-10.56	-14.85	-10.55	-8.2	-5.42	-7.08
Θ(150°)	-14.1	-11.29	-8.93	-7.45	-10.1	-12.82	-10.32	-9.82	-7.3	-8.16	-8.62	-12.33	-13.25	-12.17	-12.37	-13.78	-12.84	-7.92	-7.51	-8.92	-10.85	-13.74	-11.74	-12.81
Θ(165°)	-8.14	-8.74	-9.47	-8.61	-7.75	-7.09	-7.37	-8.5	-10.45	-10.9	-10.02	-9.21	-8.94	-9.45	-11.01	-14.1	-9.79	-7.97	-8.09	-9.42	-12.51	-14.23	-11.78	-9.61
Θ(180°)	-12.65	-12.58	-10.96	-9.11	-8.56	-8.47	-9.51	-11.61	-10.91	-10.66	-11.72	-10.89	-9.26	-10.33	-9.69	-8.24	-8.5	-9.64	-9.38	-9.59	-10.51	-11.34	-13.14	-13.39
Freq(Hz)	2.45G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	1.76	0.61	-1.02	-1.85	-0.79	-0.05	0.51	0.71	1.07	1.69	2.43	2.58	1.85	0.2	-1.51	-2.45	-1.34	-0.26	0.07	-0.04	0.37	1.24	2.06	2.34
Θ(15°)	0.05	-0.97	-1.55	-1.3	-0.89	-0.7	-1.12	-1.29	0.2	1.39	1.96	2.05	1.91	1.6	1.49	0.13	-1.21	-0.53	0.26	1.14	2.5	3.21	3.05	2.07
Θ(30°)	1.46	-0.88	-2.9	-2.09	-0.93	-1.17	-2.06	-0.96	0.92	1.46	0.77	-0.07	1.04	2.76	3.56	2.5	0.43	0.76	1.2	1.4	1.95	3.18	3.51	2.69
Θ(45°)	2.94	1.55	-0.62	0.08	1.2	1.28	1.48	1.11	2.53	2.94	1.32	0.59	2.23	3.53	3.39	2.24	0.63	-0.12	1.6	2.94	1.16	1.13	3.04	3.58
Θ(60°)	3.18	2.24	-0.48	1.1	1.94	3.37	3.51	3.08	3.63	2.97	0.28	0.88	2.98	3.93	3.09	1.54	2.08	1.97	2.24	3.39	0.73	0.45	3.05	4.29
Θ(75°)	2.29	2.21	-1.54	-0.48	-0.23	2.65	2.55	2.57	2.68	1.58	-2.24	0.38	1.88	3.51	2.86	1.37	2.35	1.53	2.06	3.33	0.32	-0.09	2.51	3.85
Θ(90°)	0.3	0.15	-3.19	-1.71	-1.15	0.44	-0.34	1.38	1.63	-1.44	-4.84	0.51	0.41	1.3	1.86	0.99	1.56	0.78	1.94	2.3	-0.63	-1.61	1.12	1.96
Θ(105°)	-0.79	-0.62	-4.33	-1.51	-0.78	-0.05	-1.91	-1.85	0.46	-0.37	-3.9	0.58	1.12	0.41	0.78	-2.58	-0.35	1.42	1.64	-1.09	-2.18	0.17	0.99	-0.81
Θ(120°)	-1.75	-4.42	-4.59	-3.37	-5.92	-6.02	-3.03	-6.7	-3.03	-2.1	-4.06	-1.02	-0.04	-1.3	-2.45	-3.67	-3.24	-2.22	-0.22	-1.88	-2.2	-3.04	-2.58	-3.21
Θ(135°)	-4.61	-5.9	-7.24	-7.57	-9.95	-14.04	-11.62	-11.05	-10.87	-5.92	-4.29	-4.22	-4.68	-5.51	-8.11	-3.5	-1.75	-1.18	-1.22	-1.28	-1.56	-3.3	-5.31	-4.33
Θ(150°)	-3.76	-3.46	-3.02	-4.68	-6.9	-9.17	-10.13	-8	-6.3	-4.21	-2.67	-3.63	-6.16	-9.09	-9.21	-8.34	-5.81	-2.99	-2.49	-3.9	-7.01	-8.78	-6.89	-4.53
Θ(165°)	-9.34	-9.41	-9.62	-9.8	-8.68	-8.67	-9.2	-11.08	-11.5	-10.43	-10.66	-11.74	-9.41	-6.51	-5.17	-5.81	-6.75	-7.2	-6.82	-8.55	-7.8	-5.94	-5.5	-6.01
Θ(180°)	-8.04	-9.62	-10.47	-11.93	-11.63	-13.04	-13.14	-11.12	-10.73	-10.77	-9.3	-8.66	-8.3	-8.31	-9.53	-11.99	-12.8	-13.24	-11.93	-10.93	-9.4	-8.39	-7.97	-8.54
Freq(Hz)	5.2G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-7.66	-7.26	-6.95	-5.35	-5.07	-5.47	-6.47	-7.11	-8.96	-6.96	-5.98	-6.48	-7.09	-6.46	-5.61	-5.21	-6.35	-5.98	-7.68	-8.38	-9.08	-7.49	-5.97	-7.61
Θ(15°)	-5.6	-5.64	-6.55	-6.59	-7.74	-6.96	-7.88	-11.01	-8.7	-7.45	-6.6	-8.15	-7.79	-7.62	-6.67	-7.46	-7.97	-8.78	-7.1	-5.27	-7.29	-8.74	-6.92	-6.61
Θ(30°)	-7.57	-3.96	-7.82	-8.06	-5.44	-4.95	-6.52	-3.99	-8.43	-10.1	-9.63	-8.79	-8.76	-6.33	-8.09	-8.41	-9.27	-8.71	-7.55	-8.33	-9.44	-12.36	-12.18	-6.67
Θ(45°)	-9.35	-10.04	-4.51	-4.65	-3.7	-6.01	-4.58	-6.09	-6.44	-11.19	-11.4	-9.57	-8.93	-6.76	-8.09	-9.71	-14.67	-9	-9.74	-10.21	-9.37	-13.06	-14.9	-8.58
Θ(60°)	-5.11	-6.51	-6.2	-8.25	-3.35	-4.18	-3.52	-5.37	-11.94	-8.22	-10.14	-10.98	-8.27	-8.23	-11.81	-14.33	-12.22	-8.61	-7.53	-10.86	-8.74	-7.6	-14.3	-7.27
Θ(75°)	-7.8	-6.52	-8.64	-4.43	-3.83	-3.33	-3.46	-6.45	-12.12	-8.68	-11.96	-8.21	-6	-7.9	-15.09	-11.73	-11.59	-6.43	-8.44	-9.5	-8.33	-10	-12.07	-9.24
Θ(90°)	-7.67	-5.35	-6.69	-7.61	-5.07	-6.39	-6.87	-6.57	-10.25	-13.85	-13.66	-7.88	-6.6	-9.72	-13.21	-11.81	-10.96	-6.66	-9.08	-7.8	-8.47	-10.45	-7.79	-10.47
Θ(105°)	-5.47	-7.6	-12.22	-8.13	-6.76	-5.75	-7.78	-4.96	-7.28	-12.51	-14.48	-11.1	-8.31	-10.54	-11.03	-10.61	-10.73	-6.46	-9.64	-10.43	-13.28	-10.28	-10.36	-9.69
Θ(120°)	-7.92	-11.33	-9.6	-11.67	-7.77	-5.1	-6.08	-4.87	-6.79	-9.36	-10.51	-12.81	-11.63	-14.66	-8.39	-10.16	-8.24	-7.13	-10.19	-14.06	-11.06	-9.49	-8.8	-11.8
Θ(135°)	-10.9	-9.2	-11.9	-8.79	-8.55	-9.33	-11.07	-9.84	-9.64	-6.46	-6.31	-11.15	-9.65	-13.64	-13.43	-7.09	-10.07	-5.34	-8.2	-12.18	-9.08	-9.28	-14.38	-10.22
Θ(150°)	-12.63	-13.93	-9.06	-10.28	-10.2	-9.34	-6.94	-8.23	-6.79	-12.13	-12.75	-10.76	-11.78	-7.99	-10.54	-11.55	-9.41	-7.66	-8.36	-7.21	-10.42	-10.19	-9.43	-9.46
Θ(165°)	-14.7	-14.68	-14.72	-9.99	-8.57	-13.92	-9.09	-7.5	-6.35	-8.2	-8.22	-9.41	-8.2	-13.33	-9.9	-9.55	-8.04	-8.53	-7.51	-5.96	-4.91	-7.13	-8.05	-9.72
Θ(180°)	-10.85	-11.27	-11.93	-11.41	-10.12	-11.15	-11.91	-12.22	-11.1	-11.48	-11.6	-11.3	-9.8	-9.26	-8.8	-9.5	-8.7	-9.13	-9.81	-10.22	-8.11	-9.76	-9.15	-8.87
Freq(Hz)	5.2G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-7.51	-7.25	-7.83	-6.44	-5.82	-5.62	-6.87	-5.93	-5.94	-5.18	-4.97	-5.33	-7	-8.36	-9.8	-7.51	-7.09	-6.66	-6.38	-6.19	-5.08	-5.58	-5.7	-7.25
Θ(15°)	-2.47	-2.73	-3.15	-4.26	-3.52	-2.7	-2.07	-2.89	-5.61	-7.21	-9.5	-6.84	-5.42	-4.34	-4.04	-4.14	-3.75	-3.28	-2.52	-1.83	-1.28	-2.46	-2	-1.77
Θ(30°)	-1.68	-0.54	-1.47	0.26	-0.26	-1.54	-2.31	-2.64	-1.49	-3.71	-3.26	-4.56	-3.24	-2.27	-2.66	-0.63	-0.09	0.02	-0.55	-0.74	-0.26	1.7	0.57	0.2
Θ(45°)	-0.55	1.54	0.63	3.34	2.69	1.1	2.07	1.26	-1.51	1.13	1.25	1.08	0.59	1.64	2.18	2.97	0.64	0.33	-0.73	0.39	-0.84	3.22	3	1.89
Θ(60°)	0.87	2.58	3.27	3.52	3.01	1.5	3.08	3.62	1.97	4.7	3.76	2.94	1.79	2.85	-0.07	1.21	1.38	2.32	2.05	1.23	-0.74	1.22	1.49	2.76
Θ(75°)	1.26	2.94	2.76	2.19	3.83	3.71	2.44	3.68	3.32	3.73	5.39	3.53	3.12	3.23	0.98	0.51	1.74	2.69	2.27	3.37	-1.91	0.58	0.12	2.49
Θ(90°)	0.18	1.27	1.47	1.94	2.09	0.46	0.63	2.77	2.29	3.54	4.5	2.1	1.39	0.16	1.11	-2.82	0							



Θ(180°)	-11.74	-14.86	-11.76	-11.91	-10.66	-10.27	-10.34	-12.13	-10.28	-10.03	-8.39	-8.57	-9.74	-10.83	-8.59	-7.32	-7.43	-9.42	-11.95	-10.02	-10.16	-9.35	-9.32	-8.8
Freq(Hz)	5.6G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-5	-7.53	-5.98	-5.9	-6.7	-7.89	-8.71	-8.73	-10.73	-11.19	-8.89	-6.5	-6.14	-5.03	-4.29	-5.24	-6.05	-8.94	-9.42	-10.51	-10.36	-10.73	-8.61	-7.58
Θ(15°)	-4.47	-4.01	-4.42	-2.87	-3.79	-8.25	-10.09	-8.57	-9.48	-7.35	-6.74	-10.15	-9.08	-8.23	-9.75	-10.46	-10.51	-7.46	-7.22	-6.77	-7.93	-9.84	-11.92	-9.36
Θ(30°)	-6.7	-2.7	-6.71	-9.08	-3.09	-6.97	-6.24	-12.17	-9.27	-14	-10.42	-8.41	-11.16	-8.1	-9.25	-11.61	-13.75	-7.16	-5.68	-7.3	-6.1	-8.65	-8.06	-9.09
Θ(45°)	-7.18	-7.75	-7.52	-2.76	-2.35	-4.47	-8.91	-11.54	-8.05	-8.46	-7.9	-7.17	-9.47	-10.71	-11.3	-8.88	-9.9	-6.65	-10.23	-9.88	-7.92	-6.88	-9.27	-6.99
Θ(60°)	-7.48	-6.88	-5.33	-4.32	-4.84	-4.13	-4.4	-10.12	-9.86	-7.37	-8.39	-7.87	-7.54	-10.83	-13.55	-9.97	-11.37	-7.46	-8.69	-10.77	-8.8	-8.11	-8.71	-8.83
Θ(75°)	-8.67	-7.83	-8.21	-4.01	-4.83	-2.57	-4.23	-4.44	-8.94	-6.24	-11.71	-13.1	-8.64	-14.81	-14.12	-9.48	-12.25	-8.25	-10.97	-9.14	-10	-7.89	-9.18	-8.87
Θ(90°)	-9.22	-11.18	-11.59	-8.91	-5.86	-5.81	-7.25	-6.39	-11.08	-10.84	-14.23	-13.24	-9.32	-14.07	-14.41	-12.17	-12.67	-10.57	-10.89	-11.96	-13.09	-10.19	-9.83	-8.2
Θ(105°)	-10.47	-8.58	-9.53	-10.5	-7.34	-9.23	-7.88	-8.13	-10.11	-13.01	-14.47	-11.24	-9.49	-12.52	-12.56	-13.49	-10.97	-11.46	-12.32	-12.49	-14.45	-12.31	-9.68	-10.4
Θ(120°)	-9.61	-13.72	-12.82	-10.66	-13.54	-6.48	-7.88	-9.07	-10.4	-13.89	-13.85	-11.84	-11.35	-13.74	-9.61	-9.59	-14.19	-10.41	-11.13	-12.1	-14.19	-13.55	-14.03	-10.86
Θ(135°)	-8.99	-9.3	-9.71	-14.41	-9.95	-10.27	-11.09	-14.96	-11.24	-11.61	-12.24	-9.53	-8.15	-9.09	-12.1	-8.02	-11.71	-11.21	-11.36	-13.7	-11.01	-14.35	-11.51	-15.12
Θ(150°)	-14.24	-12.66	-13.87	-13.15	-10.28	-10.35	-6.05	-11.92	-10.03	-11.46	-14.45	-12.99	-11.45	-13.59	-8.84	-12.97	-11.4	-9.58	-10.6	-12.87	-9.64	-9.25	-9.59	-6.98
Θ(165°)	-14.12	-14.01	-11.76	-12.98	-9.68	-12.53	-9.75	-8.22	-9.6	-10.16	-11.87	-13.51	-9.36	-10.74	-11.02	-10.51	-9.96	-11.29	-7.98	-7.82	-8.77	-11.41	-14.14	-9.7
Θ(180°)	-11.91	-11.94	-12.79	-14.54	-13.69	-14.09	-12.2	-10.95	-8.92	-8.75	-8.17	-8.68	-9.69	-9.94	-11.99	-12.03	-12.45	-10.14	-8.77	-9.67	-9.71	-11.45	-12.62	-12.83
Freq(Hz)	5.6G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8.85	-10.7	-10.01	-8.13	-8.15	-6.87	-5.79	-5.03	-4.17	-5.67	-4.43	-6.43	-7.44	-9.39	-10.51	-11.29	-9.64	-8.52	-6.96	-6.63	-5.42	-6.9	-7.25	-7.94
Θ(15°)	-1.71	-4.31	-6.4	-6.67	-6.2	-5.47	-5.05	-6.95	-8.41	-10.01	-11.84	-12.43	-11	-8.04	-6.69	-5.87	-6.81	-6.27	-5.17	-4.53	-3.16	-3.54	-3.41	-3.19
Θ(30°)	-0.38	-1.5	-2.05	-0.87	-1.27	-3.09	-6.65	-4.41	-5.32	-5.21	-5.05	-4.03	-2.24	-2.29	-1.93	0.4	-0.32	-1.16	-1.04	-1.6	-1.02	1.01	0.17	-0.11
Θ(45°)	-0.4	1.54	1.8	0.5	2.13	-0.03	-1.05	-0.31	-3.14	-0.01	1.1	0.44	1.28	1.05	1.73	0.68	-0.31	-1.08	-1.64	-0.17	-0.46	0.55	1.3	0.95
Θ(60°)	0.45	2.09	2.98	3.57	2.17	0.89	0.14	0.36	0.83	4.69	2.23	2.99	2.41	0.89	0.04	-0.64	0.13	0.38	2.67	-0.1	-1.1	-0.69	1.35	1.83
Θ(75°)	-0.69	0.64	3.76	2.66	3.98	3.26	3.02	2.81	2.1	1.67	3.7	2.13	1.63	1.67	0.73	1.51	0.72	0.96	1.16	-0.43	-0.85	0.95	-0.04	0.32
Θ(90°)	-2.12	-2.9	1.61	1.43	1.93	2.18	-1.01	0.18	1.18	1.41	1.87	0.8	-1.74	-1.28	-0.7	-0.84	-0.98	0.51	-0.72	-0.08	-1.78	0.31	-1.61	-0.68
Θ(105°)	-3.11	-3.17	-3.42	-4.08	-5.67	-1.24	-4.89	-3.45	-4.43	-1.27	-2	-5.37	-4.38	-4.6	-3.87	-4.63	-3.61	-4.97	-3.34	-2.25	-5.89	-4.35	-5.23	-4.02
Θ(120°)	-3.72	-7.26	-5.31	-4.71	-6.18	-6.23	-6.14	-9.62	-5.88	-3.38	-5.14	-3.61	-4.75	-6.58	-4.51	-6.24	-4.68	-4.43	-4.1	-1.98	-4.53	-4.06	-8	-7.46
Θ(135°)	-7.56	-8.37	-8.99	-4.78	-11.48	-8.15	-13.95	-13.73	-9.96	-7.39	-11.83	-8.38	-10.36	-9.2	-6.23	-8.55	-6.25	-5.78	-4.69	-3.85	-7.25	-8.67	-7.83	-5.01
Θ(150°)	-8.96	-7.91	-14.11	-11.87	-14.46	-13.57	-14.34	-14.63	-11.88	-7.88	-11.95	-11.89	-7.08	-8.4	-5.19	-11.99	-9.55	-8.38	-14.19	-8.23	-8.17	-7.57	-6.53	-8.51
Θ(165°)	-9.85	-10.69	-11.69	-12.18	-13.94	-14.02	-11.41	-13.26	-14.18	-14.7	-11.29	-11.69	-10.92	-9.19	-8.33	-6.95	-7.32	-8.84	-9.59	-10.55	-7.2	-9.71	-10.07	-9.2
Θ(180°)	-10.49	-10.25	-11.17	-10.99	-8.95	-9.62	-10.64	-13.24	-13.5	-12.62	-12.92	-11.24	-9.37	-8.04	-6.48	-6.23	-7.33	-8.3	-11.27	-13.79	-14.63	-13.91	-10.89	-10.07
Freq(Hz)	5.785G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-6.6	-7.54	-6.87	-5.78	-5.03	-5.1	-6.61	-6.43	-7.78	-8.19	-7.97	-6.44	-6	-5.69	-5.89	-6.85	-7.55	-8.87	-8.13	-8.86	-7.26	-8.83	-9.06	-8.43
Θ(15°)	-4.49	-3.15	-3.81	-2.8	-3.14	-5.61	-8.77	-8.73	-7.6	-8.11	-8.56	-8.56	-8.38	-7.95	-9.31	-9.61	-8.5	-6.01	-5.31	-4.14	-5.7	-8.92	-9.64	-10.38
Θ(30°)	-5.9	-3.94	-6.27	-6.52	-2.63	-6.37	-5.18	-12.48	-10.35	-10.74	-8.35	-8.48	-8.92	-11.37	-6.72	-10.64	-10.45	-5.13	-5.32	-5.65	-6.13	-5.93	-5.96	-10.89
Θ(45°)	-8.99	-8.73	-6.24	-2.05	-1.35	-4.35	-7.26	-7.83	-7.06	-8.69	-7.92	-7.22	-8.74	-14.01	-9.56	-6.8	-11.72	-6.79	-4.75	-9.96	-8.22	-4.02	-7.83	-8.98
Θ(60°)	-6.58	-8.11	-3.88	-5.38	-4.59	-3.59	-5.1	-11.21	-8.65	-7.11	-10.06	-9.32	-7.37	-9.13	-10.92	-9.87	-9.63	-6.42	-6.17	-8.48	-8.43	-7.63	-7.75	-11.35
Θ(75°)	-8.41	-8.61	-8.16	-5.47	-5.93	-3.16	-2.15	-2.69	-6.98	-6.57	-11.77	-11.01	-9.07	-10.58	-10.33	-8.65	-9.1	-7.17	-9.04	-8.9	-9.23	-6.67	-10.2	-11.38
Θ(90°)	-11.1	-13.61	-11.81	-10.15	-5.53	-7.05	-5.25	-3.55	-11.46	-10.56	-13.05	-15.31	-10.03	-14.73	-13.22	-10.21	-9.72	-12.12	-12.05	-13.91	-13.06	-11.04	-10.56	-8.79
Θ(105°)	-11.63	-11.01	-12.31	-10.4	-6.69	-8.84	-7.76	-7.8	-9.9	-12.57	-12.42	-10.05	-9.69	-13.63	-11.88	-13.73	-10.33	-14.5	-11.05	-13.97	-13.83	-11.77	-8.96	-9.81
Θ(120°)	-11.48	-14.39	-13.85	-11.2	-12.89	-6.15	-12.01	-9.2	-12.1	-14.93	-12.75	-12.45	-12.7	-11.82	-8.54	-10.13	-12.61	-12.05	-11.14	-9.84	-12.69	-14.73	-12.73	-14.66
Θ(135°)	-9.85	-9.82	-10	-13.11	-12.24	-8.49	-10.57	-13.26	-14.38	-9.11	-12.14	-10.09	-7.87	-10.49	-14.46	-8.33	-12.71	-13.6	-10.63	-12.11	-11.72	-14.4	-12.47	-13.24
Θ(150°)	-14.83	-14.07	-12.65	-13.3	-12.15	-9.09	-6.87	-11.14	-9.19	-14.15	-11.85	-12.93	-10.64	-14.15	-10.31	-12.27	-14.24	-12.69	-11.32	-12.92	-8.87	-12.06	-10.08	-6.16
Θ(165°)	-11.38	-13.78	-14.86	-13.59	-11.24	-11.58	-9.08	-9.13	-8.08	-7.98	-10.66	-10.61	-10.75	-11.73	-12.62	-11.94	-10.49	-9.37	-7.81	-8.09	-8.32	-8.75	-12.7	-9.57
Θ(180°)	-12.56	-13.16	-14.01	-13.78	-13.99	-14.11	-13.03	-11.61	-9.09	-8.82	-9.45	-10.47	-12.15	-13.19	-13.92	-11.38	-12.18	-11.42	-10.16	-11.21	-11.24	-10.4	-11.62	-13.98
Freq(Hz)	5.785G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-7	-8.38	-9.17	-7.68	-8.27	-6.91	-6.43	-5.48	-5.22	-5.28	-4.73	-5.12	-5.44	-6.12	-7.11	-8.5	-9.76	-8.62	-7.7	-7.42	-5.84	-7.24	-8.1	-7.94
Θ(15°)	-2.01	-4.8	-7.3	-6.4	-6.65	-7.67	-7.42	-7.08	-6.27	-8.45	-12.81	-11.27	-9.62	-9.08	-6.12	-6.12	-4.96	-6.35	-7.07	-5.98	-2.87	-2.66	-2.49	-3.22
Θ(30°)	-0.75	-1.34	-1.63	-3.19	-2.05	-3.79	-6.21	-5.77	-7.73	-6.21	-4.54	-3.78	-1.76	-2.29	-1.8	-0.25	1.1	-1.17	-0.65	-1.33	-0.44	0.27	-0.01	-0.34
Θ(45°)	0.89	2.29	1.62	0.49	1.03	-0.75	-2.01	-2.85	-3.21	-2.14	-0.06	0.75	1.75	0.6	1.72	-0.91	-1.38	-0.41	0.28	0.34	-0.9	0.62	1.55	0.01
Θ(60°)	0.76	1.65	4.16	3.7	2.09	1.24	0.24	-1.04	0.67	3.99	1.38	2.45	1.86	1.81	1.79	0.56	-0.15	0.64	2.35	-1.59	-0.37	0.09	2.33	



Gain Result

Freq(Hz)	2.45G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-6.03	-8.31	-9.53	-6.81	-3.98	-2.13	-1.32	-0.75	-0.43	-0.89	-1.76	-2.92	-5.48	-10.11	-9.99	-6.4	-3.95	-2.35	-1.25	-0.52	-0.25	-0.71	-1.86	-3.83
Θ(15°)	-4.01	-7.58	-11.14	-8.74	-4.56	-1.57	0.4	1.33	1.4	0.55	-0.41	-1.68	-3.83	-8.92	-17.15	-6.29	-2.36	-0.95	-0.71	-1.26	-2.25	-3.92	-3.82	-3.31
Θ(30°)	-4.52	-9.52	-13	-9.39	-5.3	-2.74	-0.69	0.81	1.07	-0.39	-1.72	-2.28	-3.42	-6.46	-17.78	-10.97	-5.12	-3.4	-3.39	-3.77	-5.36	-5.62	-2.93	-1.52
Θ(45°)	-6.57	-8.1	-12.85	-10.05	-6.03	-2.61	-1.18	-0.53	-0.53	-2.66	-5.2	-8.26	-11.04	-12.41	-16.29	-16.56	-10.57	-5.85	-4.84	-5.05	-4.1	-4.2	-3.19	-4.26
Θ(60°)	-4.11	-7.85	-10.58	-13.2	-13.32	-3.78	-0.82	-1.39	-1.42	-3.54	-7.37	-17.51	-16.44	-15	-18.37	-17.74	-14.72	-4.92	-3.23	-7.17	-5.53	-4.56	-2.55	-3.69
Θ(75°)	-6.42	-12.11	-7.14	-18.83	-16.58	-5.21	-2.46	-5.62	-4.88	-5.16	-7.4	-18.04	-16.29	-17.67	-17.18	-16.8	-16.62	-7.42	-5.33	-7.05	-4.85	-6.01	-5.85	-9.76
Θ(90°)	-6.37	-14.06	-6.08	-16.22	-10.79	-8.13	-7.33	-8.04	-6.7	-7.59	-8.72	-15.32	-15	-16.99	-17.74	-17.93	-17.48	-9.84	-5.91	-8.43	-7.09	-8.44	-7.45	-10.57
Θ(105°)	-6.93	-14.79	-6.83	-18.33	-11.32	-6.02	-6.08	-10.09	-8.66	-8.01	-9.21	-17.16	-13.54	-17.33	-17.73	-18.32	-17.31	-13.45	-8.09	-15.24	-10.2	-10.01	-6.9	-11.85
Θ(120°)	-5.88	-10.24	-5.63	-17.09	-12.46	-6.55	-8.21	-9.99	-6.41	-7.73	-11.51	-18.35	-12.7	-17.39	-17.28	-16.99	-17.37	-17.03	-10.91	-13	-18.86	-16.77	-6.77	-6.58
Θ(135°)	-9.6	-13.16	-11.34	-17.96	-14.12	-9.57	-7.1	-7.54	-10.2	-14.37	-16.48	-16.86	-17.49	-14.24	-8.49	-14.97	-17.1	-17.06	-14.76	-18.34	-12.89	-10.37	-6.56	-6.36
Θ(150°)	-16.58	-14.4	-14.43	-12.48	-18.08	-17.14	-11.5	-9.61	-7.92	-8.79	-10.36	-13.05	-15.49	-13.29	-13.62	-16.56	-18.02	-11.32	-8.59	-8.57	-11.67	-18.06	-17.77	-17.14
Θ(165°)	-16.92	-17.84	-15.96	-12.12	-10.97	-10.1	-9.71	-9.32	-10.42	-11.29	-10.61	-9.14	-8.46	-9.13	-12.22	-17.54	-13.7	-10.92	-10.53	-11.99	-15.42	-18.24	-17.48	-17.84
Θ(180°)	-18.17	-18.22	-17.19	-15.66	-13.64	-12.1	-12.23	-12.68	-11.6	-11.1	-12.45	-13.47	-12.63	-16.34	-17.74	-16.8	-17.2	-16.88	-15.35	-13.13	-12.85	-12.21	-14.48	-16.7
Freq(Hz)	2.45G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-1.17	-0.62	-0.1	0.01	-0.94	-3.09	-5.43	-8.58	-8.67	-5.6	-3.3	-1.78	-0.84	-0.82	-0.67	-0.6	-1.54	-3.1	-6.16	-10.69	-11.67	-7.39	-3.86	-1.69
Θ(15°)	-3.61	-2.8	-1.66	-1.34	-2.12	-4.24	-9.31	-17.21	-10.04	-4.96	-2.57	-1.26	-0.13	0.93	1.51	1.15	-0.32	-2.72	-5.77	-7.41	-5	-3.16	-2.41	-2.57
Θ(30°)	-3.91	-4.98	-5.48	-4.36	-3.73	-4.69	-8.69	-8.25	-4.01	-2.32	-2.14	-2.57	-0.56	1.67	2.79	2.79	1.51	-0.76	-3.5	-5.8	-5.41	-1.71	-0.79	-2.28
Θ(45°)	-1.91	-3.31	-5.28	-1.76	-0.71	-1.27	-2.03	-2.7	-1.63	-1.22	-2.53	-3.1	-0.51	1.45	1.57	1.46	0.4	-1.48	-1.43	-1.18	-4.31	-2.36	0.01	-0.68
Θ(60°)	-0.84	-2.95	-8.14	-0.95	-1.21	-1.32	-0.43	0.39	0.28	-0.3	-1.17	-1.34	-0.53	0.6	-0.03	-0.25	0.19	-0.54	-0.54	-0.06	-3.51	-1.04	1.68	1
Θ(75°)	-1.03	-2.25	-12.69	-5.01	-5.35	-3.36	-1.79	-0.56	0.46	-0.53	-2.01	-2.2	-2	-0.05	-0.54	-1.47	-0.53	-1.34	-0.6	0.29	-2.66	-0.75	1.45	0.82
Θ(90°)	-3.26	-3.56	-15.07	-6.97	-4.85	-5.04	-5.86	-2.23	-0.2	-1.18	-3.41	-2.89	-3.3	-1.5	-2.24	-2.5	-2.04	-2.29	-0.67	-0.71	-3.2	-1.48	0.14	-2.01
Θ(105°)	-3.22	-4.22	-14.95	-3	-2.98	-3.02	-6.96	-7.81	-3.34	-2	-2.94	-1.8	-0.77	-0.85	-2.19	-5.95	-3.57	-1.69	-1.56	-7.44	-7.05	-0.96	-0.81	-5.71
Θ(120°)	-7.91	-8.26	-10.94	-7.55	-10.28	-9.42	-6.38	-9.29	-5.08	-4.18	-5.67	-4.52	-1.62	-2.02	-5.47	-6.21	-3.99	-3.21	-4.04	-8.64	-7.59	-4.28	-4.22	-10.89
Θ(135°)	-17.57	-17.51	-16.99	-16.11	-16.94	-17.26	-12.51	-14.27	-11.6	-6.5	-4.45	-4.04	-3.16	-4.21	-8.52	-4.05	-2.34	-1.76	-5.64	-8.33	-7.73	-9	-12.23	-15.52
Θ(150°)	-9.47	-7.82	-6.46	-7.05	-7.93	-9.57	-14.23	-16.85	-12.09	-8.53	-5.91	-6.69	-10.06	-13.69	-10.13	-8.26	-7.34	-5.12	-5.43	-7.32	-12.27	-17.79	-14.39	-11.22
Θ(165°)	-15.24	-14.81	-16.41	-17.25	-12.4	-10.92	-10.84	-14.89	-17.85	-16.79	-16.78	-16.18	-12.22	-7.8	-5.4	-5.1	-5.77	-6.93	-9.99	-16.59	-17.89	-15.56	-13.96	-13.44
Θ(180°)	-12	-12.99	-12.95	-12.78	-12.24	-14.88	-18.24	-16.94	-17.1	-18.31	-14.99	-14.04	-11.99	-11.02	-10.99	-12.74	-15.15	-15.85	-16.68	-17.79	-17.5	-17.11	-16.3	-14.93
Freq(Hz)	5.2G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-7.31	-6.35	-6.03	-5.87	-6.83	-9	-12.65	-17.47	-17.99	-12.49	-8.41	-7.04	-5.91	-5.46	-4.61	-5.32	-7.82	-9.09	-13.84	-17.53	-17.91	-10.69	-7.64	-7.03
Θ(15°)	-7.81	-7.42	-7.46	-5.56	-8.24	-10.15	-12.3	-14.28	-9.86	-7.8	-7.19	-7.52	-8.67	-9.86	-9.78	-11.68	-10.52	-10.51	-10.34	-10.67	-14.27	-13.25	-11.21	-8.44
Θ(30°)	-11.25	-5.67	-9.05	-14.89	-5.9	-8.55	-7.55	-7.27	-9.49	-10.35	-10.22	-8.66	-8.4	-8.78	-10.42	-13.68	-12.36	-8.36	-7.9	-15.01	-14.03	-14.02	-16.36	-11.88
Θ(45°)	-12.75	-15.86	-8.93	-4.49	-8.01	-7.01	-8.43	-9.2	-13.14	-14.37	-11.9	-9.84	-9.99	-7.09	-7.6	-10.46	-17.39	-8.55	-9.8	-11.89	-13.35	-15.13	-17.94	-17.45
Θ(60°)	-6.4	-7.52	-13.61	-11.93	-6.75	-6.94	-6.08	-9.19	-17.52	-10.8	-12.71	-15.26	-17.9	-11.88	-13	-17.33	-16.48	-8	-8.12	-11.46	-9.3	-12.29	-17.59	-9.25
Θ(75°)	-9	-9.13	-17.42	-7.68	-9.05	-7.86	-9.54	-14.14	-14.88	-15.37	-14.56	-16.36	-12.88	-17.12	-18.22	-18.16	-16.05	-8.68	-10.02	-9.83	-7.53	-10.61	-13.23	-12.66
Θ(90°)	-7.12	-8.19	-10.93	-15.38	-10.48	-10.16	-15.14	-11.09	-12.99	-16.41	-16.24	-17.67	-12.61	-16.62	-15.2	-16.93	-17.33	-9.1	-13.52	-9.28	-10.46	-11.3	-8.81	-12.96
Θ(105°)	-5.43	-10.41	-15.47	-16.65	-10.11	-10.29	-14.01	-9.85	-11.34	-13.84	-17.45	-16.21	-14.41	-16.57	-16.35	-18.22	-17.3	-7.67	-16.07	-12.46	-18.1	-10.36	-11.45	-10.65
Θ(120°)	-9.32	-16.7	-14.43	-16.68	-17.66	-9.75	-10.34	-8.74	-8.34	-11.46	-10.47	-14.27	-17.1	-17.6	-16.33	-17.91	-15.9	-14.05	-12.2	-16.31	-13	-9.48	-10.46	-13.05
Θ(135°)	-12.42	-14.61	-13.38	-15.06	-15.95	-18.32	-13.72	-10.18	-9.79	-9.12	-7.26	-13.28	-13.7	-16.66	-18.96	-17.42	-15.25	-10.95	-16.5	-17.55	-8.71	-10.94	-17.26	-11.96
Θ(150°)	-14.02	-16.48	-17.61	-13.12	-17.04	-14.79	-10.25	-9	-7.33	-13.7	-14.27	-14.59	-13.34	-12.9	-17.07	-17.19	-17.71	-17.12	-17.79	-12.97	-10.68	-10.69	-9.44	-9.31
Θ(165°)	-18.19	-17.34	-18.21	-14.71	-12.15	-16.32	-12.56	-7.55	-7.34	-7.84	-7.89	-9.97	-17.37	-15.73	-16.69	-17.32	-16.95	-17.55	-11.55	-10.94	-8	-7.86	-7.22	-9.45
Θ(180°)	-17.92	-17.47	-16.68	-17.93	-17.02	-18.39	-13.73	-13.53	-11.34	-12.14	-13.03	-12.6	-13.86	-16.22	-16.73	-17.87	-16.99	-17.55	-18.32	-18.55	-12.47	-12.39	-12.21	-13.58
Freq(Hz)	5.2G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-13.85	-17.12	-18.23	-12.64	-8.69	-6.37	-6.3	-4.71	-4.97	-5.6	-6.94	-8.82	-13.89	-17.95	-17.47	-10.8	-8.29	-5.83	-5.28	-4.87	-4.31	-5.85	-7.68	-11.44
Θ(15°)	-3.95	-6.15	-7.84	-10.68	-8.26	-7.06	-5.39	-6.75	-10.54	-16.91	-17.98	-11.66	-9.15	-7	-6.23	-5.98	-5.76	-4.75	-3.76	-3.25	-2.92	-5.32	-4	-2.37
Θ(30°)	-4.87	-4.19	-4.84	-3.02	-2.4	-4.66	-6.77	-10.79	-8.69	-14.82	-15.18	-13.91	-10.84	-7.64	-5.98	-3.93	-1.76	-1.66	-1.58	-1.29	-0.39	0.5	-1.97	-4.26
Θ(45°)	-5.25	-1.04	-1.83	-0.12	0	-1.67	-1.34	-3.36	-7.9	-3.72	-4.94	-3.81	-3.98	-0.58	-0.79	0.05	-0.93	-1.75	-3.19	-1.87	-5.81	0.32	-0.69	-2.6
Θ(60°)	-2.21	-1.42	1.44	0.39	0.4	-1.17	0.65	-0.67	-5.7	0.24	-3.38	2.27	-1.81	0.02	-2.63	-3.61	-0.83	1.17	-1.07	-2	-3.35	-2.22	-2.88	-1.11
Θ(75°)	-4.54	-1.67	1.26	-0.74	2.78	0.76	0.12	1.38	-3.1	-0.24	-1.93	-3.9	-1.2	-0.77										



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3(2G5G Ant3~Ant4)_2TX

Appendix A.1

Θ(135°)	-8.34	-9.17	-17.02	-17.46	-17.09	-15.74	-11.63	-18.1	-11.91	-12.64	-15.87	-10.9	-7.98	-10.39	-13.18	-16.49	-16.59	-15.91	-12.74	-16.07	-11.43	-17.82	-13.04	-18.3
Θ(150°)	-16.59	-16.41	-16.71	-16.04	-17.03	-16.66	-9.15	-14.11	-13.18	-12.33	-17.94	-16.78	-15.67	-17.09	-14.69	-18.23	-17.5	-16.66	-16.61	-17.46	-11.66	-9.18	-9.88	-6.24
Θ(165°)	-17.27	-16.8	-17.49	-16.85	-15.91	-17.68	-12.07	-9.79	-11.74	-10.18	-13.09	-16.75	-10.88	-10.91	-17.03	-17.19	-14.53	-17.45	-13.55	-12.45	-10.94	-11.89	-17.56	-9.52
Θ(180°)	-16.78	-13.51	-15.26	-17.42	-16.7	-16.67	-13.07	-12.11	-9.34	-8.23	-8.44	-9.64	-11.35	-12.92	-15.96	-17.53	-18.17	-14	-13.69	-17.67	-18.29	-18.49	-17.88	-17.56
Freq(Hz)	5.6G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-15.18	-16.86	-15.47	-10.27	-9.59	-7.65	-6.35	-6.45	-6.58	-8.01	-8.76	-10.68	-12.94	-15.35	-13.16	-12.27	-10.05	-8.44	-7.64	-6.87	-6.48	-8.54	-9.96	-10.91
Θ(15°)	-7.01	-10.02	-14.07	-13.2	-11.74	-9.36	-8.95	-12.62	-13.68	-12.62	-12.9	-13.74	-13.1	-10.19	-7.46	-6.05	-6.07	-5.08	-3.82	-3.69	-3.2	-5.26	-8.7	-8.65
Θ(30°)	-5.39	-6.91	-5.61	-3.45	-4.8	-4.89	-9.38	-7.3	-13.75	-12.4	-10.23	-7.17	-5.4	-4.52	-3.32	-1.28	-0.9	-1.16	-1.88	-2.48	-2.83	-1.59	-3.22	-5.43
Θ(45°)	-5.69	-2.03	-1.69	-1.85	-1.02	-3.25	-3.4	-4.45	-8.73	-2.96	-3.26	-4.45	-1.13	-0.23	-1.79	-1.88	-1.67	-2.62	-3.35	-3.59	-2.53	-3.03	-1.37	-4.53
Θ(60°)	-4.3	-3.24	0.05	0.55	-0.96	-1.14	-1.68	-4.16	-5.67	-1.24	-4.86	-1.43	-0.11	-2.19	-1.62	-3.63	-0.57	-1.12	0.12	-2.05	-3.59	-4.7	-1.41	-0.42
Θ(75°)	-5.18	-3.1	0.62	-0.04	2.66	0.13	0.33	-0.12	-5.05	-2.89	-5.48	-3.72	-1.68	-2.89	-1.14	-1.04	0.53	-0.47	-1.93	-2.05	-2.53	-1.23	-2.89	-1.69
Θ(90°)	-7.88	-8.69	-3.23	-0.48	0.41	-1.48	-3.14	-1.46	-5.81	-3.12	-6.02	-6.05	-4.07	-6.17	-4.05	-2.74	-2.35	-1.23	-4.79	-1.59	-4.26	0.08	-5.45	-2.8
Θ(105°)	-10.19	-11.06	-12.44	-8.56	-11.23	-6.83	-9.19	-4.51	-8.58	-4.09	-6.51	-8.3	-5.74	-7.06	-3.08	-4.07	-5.6	-4.85	-6.04	-2.79	-11.93	-7.21	-10.53	-8.13
Θ(120°)	-8.82	-13.11	-11.96	-6.3	-7.64	-7.58	-7.37	-15.33	-13.31	-9.45	-7.69	-8.53	-8.5	-6.2	-3.94	-6.7	-5.66	-4.84	-7.12	-2.65	-5.24	-8.36	-15.19	-17.49
Θ(135°)	-13.46	-15.86	-13.54	-5.13	-14.56	-9.15	-17.24	-16.81	-13.07	-17.21	-17.95	-13.33	-10.38	-11.87	-5.48	-13.57	-12.19	-4.69	-7.77	-5.56	-6.42	-16.18	-11.87	-10.15
Θ(150°)	-17.02	-13.38	-17.99	-14.55	-17.83	-16.16	-17.65	-17.76	-13.07	-12.08	-15.69	-13.28	-7.97	-10.98	-7.07	-15.56	-8.96	-7.98	-17.01	-7.89	-8.63	-17.69	-16.14	-17.63
Θ(165°)	-17.62	-17.44	-13.05	-13.19	-16.85	-17.26	-13.94	-16.91	-18.19	-17.72	-14.41	-13.56	-11.23	-9.41	-7.9	-6.21	-6.49	-8.39	-11.87	-10.58	-9.25	-14.65	-16.22	-18.68
Θ(180°)	-14.75	-12.9	-14.14	-11.5	-10.01	-11.83	-14.11	-17.54	-18.13	-17.48	-18	-14.95	-12.69	-10.95	-8.62	-7.65	-8.11	-9.55	-13.6	-17.14	-18.12	-17.28	-18.12	-17.26
Freq(Hz)	5.785G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8.54	-10.94	-9.74	-9.19	-8.75	-8.62	-8.81	-8.62	-9.14	-7.88	-7.24	-6.03	-7.36	-8.73	-8.04	-10.56	-10.31	-11.91	-10.05	-10.55	-8.83	-8.93	-10.18	-9.02
Θ(15°)	-8.21	-6.01	-7.65	-7.04	-8.88	-11.67	-17.33	-17.34	-16.63	-12.33	-9.71	-8.27	-7.79	-7.31	-9.35	-12.76	-13.56	-9.94	-7.55	-5.68	-6.03	-9.24	-10.11	-13.21
Θ(30°)	-10.34	-7.85	-8.8	-12.64	-7.85	-15.97	-13.08	-16.74	-16.95	-12.05	-7.61	-8.88	-9.06	-12.47	-10.47	-12.96	-14.78	-9.95	-5	-5.02	-8.45	-8.43	-4.94	-14.88
Θ(45°)	-15.05	-13.03	-11.15	-7.46	-10.82	-12.27	-16.73	-18.4	-11.58	-7.94	-7.52	-6.48	-8.12	-17.09	-17.26	-14.75	-17.91	-10.07	-8.32	-12.01	-9.14	-6.55	-7.15	-11.36
Θ(60°)	-7.98	-11.23	-10.15	-17.85	-11.19	-13.73	-13.77	-16.78	-10.3	-7.92	-10.27	-8.96	-7.2	-12.84	-16.28	-12.08	-18.02	-8.39	-8.01	-10.8	-8.17	-11.58	-8.23	-12.23
Θ(75°)	-9.6	-10.64	-16.99	-10.1	-16.63	-13.37	-13.2	-7.34	-9.94	-10.02	-13.78	-13.83	-16.11	-17.58	-17.23	-13.22	-17.59	-8.64	-12.88	-9.91	-8.9	-8.03	-10.44	-15.67
Θ(90°)	-12.03	-16.09	-16.37	-18.14	-13.89	-17.31	-13.7	-8.19	-13.13	-13.6	-15.63	-18.67	-17.12	-17.73	-17.07	-16.97	-15.57	-14.57	-15.5	-16.63	-14.85	-11.38	-10.57	-9.63
Θ(105°)	-12.61	-11.68	-13.88	-13.3	-12.63	-12.76	-15.91	-15.25	-14.43	-14.54	-14.64	-17.37	-18.1	-16.56	-16.14	-16.88	-15.87	-17.85	-15.2	-16.71	-16.01	-13.14	-10.43	-10.64
Θ(120°)	-11.86	-16.91	-17.74	-16.5	-16.97	-11.5	-14.39	-17.87	-14.75	-18.28	-14.43	-15.78	-16.09	-13.16	-15.35	-17.22	-16.93	-15.6	-16.11	-9.68	-16.66	-17.61	-16.99	-17.43
Θ(135°)	-9.7	-10.09	-16.83	-17.58	-17.35	-15.63	-12.29	-14.3	-17.37	-11.99	-17.57	-10.88	-7.21	-15.12	-17.11	-15.83	-15.87	-16.26	-13.43	-12.93	-12.97	-16.7	-13.93	-16.25
Θ(150°)	-17.46	-17.91	-16.86	-18.1	-16.8	-16.82	-14.13	-11.78	-12.2	-18.07	-14.06	-16.96	-14.2	-16.47	-16.42	-17.69	-18.09	-16.47	-17.51	-17.14	-12.03	-12.94	-10.14	-5.38
Θ(165°)	-11.69	-16.6	-17.8	-17.76	-16.42	-16.68	-11.01	-12.88	-10.19	-8.19	-11.26	-13.06	-10.7	-13.78	-17.26	-17.74	-14.35	-14.97	-14.65	-15.08	-10	-9.02	-14.4	-9.52
Θ(180°)	-16.44	-15.2	-17.64	-16.91	-17.71	-17.86	-14.94	-14.23	-11.5	-10.55	-11.27	-14.1	-15.42	-14.75	-17.05	-17.49	-18.06	-16.23	-15.92	-16.82	-17.09	-13.36	-13.41	-18.25
Freq(Hz)	5.785G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-9.02	-10.13	-9.4	-7.58	-8.43	-7.97	-8.24	-7.65	-8.92	-8.98	-8.81	-8.78	-8.53	-8.21	-7.38	-7.98	-9.36	-9.06	-8.55	-9.3	-8.92	-10.48	-10.82	-10.13
Θ(15°)	-8.13	-12.09	-16.75	-17.62	-14.2	-11.6	-11.93	-11.06	-9.98	-13.02	-14.29	-12.03	-9.57	-9	-6.3	-5.07	-3.68	-5.06	-6.08	-5.91	-3.83	-5.09	-7.93	-10.22
Θ(30°)	-6.49	-7.68	-6.78	-5.76	-6.51	-6.38	-9.24	-8.25	-15.11	-9.28	-8.21	-5.98	-3.73	-3.72	-2.6	-0.8	0.3	-2.07	-1.79	-3.71	-2.15	-3.44	-3.61	-7.7
Θ(45°)	-4.98	-3.04	-1.12	-2.68	-3.42	-3.53	-4.41	-5.63	-6.36	-5.63	-4.28	-1.69	-0.02	-0.85	-1.75	-4.36	-1.81	-2.57	-2.17	-2.54	-3.22	-2.46	-0.86	-5.61
Θ(60°)	-2.23	-3.1	0.48	1.65	-0.92	-0.36	-1.13	-6.29	-5.31	-3.53	-5.98	-2.12	-0.7	-1.67	0.6	-0.34	-0.44	-1.07	-0.06	-3.78	-3.08	-4.66	-1.21	-2.1
Θ(75°)	-5.61	-4.69	0.13	-1.2	-0.67	1.13	0.54	-2.83	-5.71	-2.58	-5.25	-3.36	-1.18	-3.25	0.08	-0.68	0.13	1.91	-0.64	-1.2	-2.6	-1.77	-2.86	-1
Θ(90°)	-7.86	-9.85	-4.26	-3.72	-0.24	-0.78	-4.16	-3.52	-9.77	-4.52	-4.06	-4.06	-2.39	-6.39	-2.1	-2.78	-2.56	-1.63	-2.42	-1.44	-3.92	-0.42	-4.99	-4.82
Θ(105°)	-8.97	-11.61	-10.71	-7.5	-9.22	-5.41	-9	-7.57	-11.77	-5.01	-5.74	-7.55	-6.8	-6.95	-4.58	-5.41	-3.79	-3.97	-8.74	-3.04	-11.14	-5.88	-8.07	-8.88
Θ(120°)	-9.4	-14.14	-12.27	-6.61	-9.25	-8.15	-11.03	-17.25	-13.74	-9.69	-5.31	-8.4	-7.64	-7.91	-3.03	-7.49	-4.02	-3.35	-7.53	-2.79	-6.2	-7.87	-14.49	-16.52
Θ(135°)	-13.9	-14.44	-16.28	-5.44	-14.81	-6.45	-15.97	-14.58	-15.43	-17.37	-16.12	-10.6	-9.42	-10.68	-5.41	-13.15	-10.75	-7.27	-8.58	-6.15	-6.29	-17.4	-10.12	-11.64
Θ(150°)	-17.69	-14.96	-17.43	-14.72	-17.79	-15.48	-14.98	-17.79	-11.59	-13.09	-16.63	-14.13	-9.78	-15.44	-9.63	-16.08	-9.85	-7.5	-15.63	-8.22	-5.48	-17.94	-15.44	-17.29
Θ(165°)	-17.17	-17.32	-16.61	-15.55	-16.87	-15.38	-15.79	-17.01	-17.92	-13.86	-13.2	-13.54	-12.85	-9.6	-8.74	-6.97	-6.71	-11.13	-11.82	-10.69	-11.37	-16.95	-17.26	-17.26
Θ(180°)	-15.06	-17.03	-14.85	-12.86	-10.25	-11.34	-13.22	-17.15	-17.6	-16.27	-16.99	-17.15	-13.58	-11.84	-10.47	-8.97	-9.28	-10.06	-14.26	-17.16	-17.79	-16.91	-18.22	-16.14
Freq(Hz)	2.45G	Pol.	Phi	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-1.01	0.43	1.52	1.84	1.48	0.57	-1.16	-4.42	-9.07	-15.38	-9.45	-3.79	-1.13	0.57	1.7	1.9	1.47	0.25	-1.27	-3.46	-8.09	-16.78	-7.95	-3.44
Θ(15°)	-0.62	-0.49																						



Θ(90°)	0.02	0.89	-2.19	-2.78	-4.52	-1.13	-2.19	-1.27	1.5	2.61	4.83	0.75	-2.5	-4.98	-1.7	-2.65	-2.96	-4.08	-1.09	0.67	-8.02	-4.96	-2.53	-1.29
Θ(105°)	-3.37	-1.82	-2.81	-4.34	-6.63	-2.7	-3.96	-6.81	-10.25	-3.06	-4.67	-6.37	-4.45	-6.11	-7.94	-13.68	-7.03	-16.22	-7.95	-3.53	-10.06	-4.44	-6.5	-3.88
Θ(120°)	-4.1	-4.89	-6.7	-8.09	-9.43	-10.52	-12.24	-3.58	-5.03	-5.17	-8.43	-4.24	-7.32	-12.54	-9.26	-6.48	-10.31	-5.59	-5.55	-4.66	-8.8	-5.92	-10.51	-5.2
Θ(135°)	-7.21	-8.66	-9.6	-11.3	-9.33	-18.02	-17.88	-13.75	-16.15	-9.28	-11.2	-12.84	-17.85	-17.98	-18.08	-13.06	-9.12	-9.3	-4.97	-6.46	-12.09	-7.35	-5.55	-5.86
Θ(150°)	-6.21	-11.9	-6.56	-18.18	-13.33	-17.83	-12.1	-13.87	-13.28	-8.64	-12.39	-17.07	-12.95	-8.43	-10.14	-17.85	-16.74	-17.23	-16.5	-16.76	-10.58	-7.05	-6.67	-4.53
Θ(165°)	-12.86	-10.59	-9.89	-8.83	-13	-16.88	-17.64	-17.31	-16.74	-13.05	-14.38	-17.94	-17.88	-17.14	-18.33	-16.1	-17.81	-14.77	-10.2	-13.16	-16.11	-11.75	-11.09	-10.82
Θ(180°)	-13.89	-17.72	-18.01	-16.98	-17.11	-14.8	-12.1	-12	-11.28	-9.24	-10.25	-10.02	-12.44	-17.16	-15.08	-13.81	-13	-14.28	-11.06	-8.06	-8.4	-8.6	-8.7	-9.2
Freq(Hz)	5.3G	Pol.	Phi	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-12.51	-17.6	-17.81	-16.39	-11.99	-9.57	-8.07	-8.61	-7.55	-7.57	-9.31	-9.13	-12.23	-17.17	-16.53	-16.68	-14.03	-11.56	-10.16	-8.31	-7.69	-9.46	-10.47	-12.23
Θ(15°)	-8.62	-7.72	-8.94	-10.82	-16.16	-13.2	-9.65	-9.73	-12.75	-12.2	-15.87	-16.55	-18.11	-12.1	-11.76	-15.97	-17.65	-14.98	-9.68	-7.22	-7.78	-9.62	-10.98	-10.63
Θ(30°)	-7.79	-8.86	-10.75	-8.5	-7.41	-6.93	-11.36	-8.78	-10.81	-15.28	-16.9	-18.07	-18.21	-9.77	-10.87	-14.3	-18.28	-16.53	-9.94	-7.66	-8.97	-16.89	-17.26	-8.65
Θ(45°)	-11.02	-11.38	-5.06	-11.1	-4.99	-9.29	-9.68	-9.04	-6.86	-13.81	-14.46	-17.53	-16.8	-10.04	-17.49	-16.7	-17.9	-17.38	-17.93	-16.48	-12.48	-13.91	-17.52	-8.98
Θ(60°)	-8.61	-8.66	-5.23	-7.62	-7.95	-6.02	-6.78	-8.13	-12.24	-8.45	-16.2	-16.46	-8.5	-15.03	-17.73	-17.56	-17.03	-13.49	-11.69	-15.06	-15.47	-10.43	-17.59	-12.23
Θ(75°)	-10.34	-10.57	-7.84	-7.77	-5.07	-4.8	-5.09	-5.34	-12.63	-11.17	-17.35	-8.26	-6.71	-11	-16.36	-15.9	-17.19	-9.74	-12.79	-17.12	-17.12	-17.8	-17.92	-11.93
Θ(90°)	-14.86	-11.25	-8.7	-8.17	-5.81	-10.01	-6.36	-9.84	-14.55	-17.07	-17.65	-8.76	-6.82	-9.72	-16.09	-11.48	-16.13	-12.57	-11.45	-14.73	-13.19	-16.77	-15.01	-12.53
Θ(105°)	-14.92	-10.87	-12.79	-8.88	-13.07	-8.37	-10.23	-5.85	-7.95	-17.83	-16.92	-10.8	-9.05	-9.52	-10.12	-11.36	-14.18	-16.86	-9.31	-17.47	-13.74	-17.51	-17.95	-17.72
Θ(120°)	-14.09	-10.47	-14.6	-13.85	-7.4	-8.4	-8.68	-5.95	-10.03	-14.89	-17.52	-16.92	-15.35	-15.84	-6.72	-11.52	-8.95	-11.3	-13.61	-17.02	-16.66	-17.15	-17.19	-18.03
Θ(135°)	-15.69	-11.48	-13.62	-10.74	-10.33	-10.93	-14.37	-18.21	-17.13	-12.73	-16.84	-14.22	-15.9	-18.33	-16.16	-6.05	-15.53	-8.01	-9.35	-15.1	-17.45	-13.22	-15.82	-17.88
Θ(150°)	-15.28	-15.97	-8.51	-15.16	-9.42	-11.79	-10.09	-14.27	-12.74	-17.68	-16.38	-17.18	-18.04	-9.47	-11.63	-12.88	-9.66	-8.62	-7.24	-9.68	-18.18	-16.86	-18.17	-13.67
Θ(165°)	-16.86	-17.16	-16.72	-11.31	-9.3	-16.96	-12.7	-11.37	-12.87	-17.13	-17.31	-13.22	-10.01	-17.87	-11.82	-8.47	-6.51	-7.46	-9.16	-7.44	-9.29	-15.22	-17.01	-16.58
Θ(180°)	-9.82	-13.32	-12.23	-12.21	-12.18	-15.27	-17.85	-17.33	-17.45	-15.26	-17.81	-17.74	-9.9	-7.2	-9.83	-10.78	-8.78	-8.25	-8.7	-9.56	-9.03	-10.15	-11.5	-9.71
Freq(Hz)	5.3G	Pol.	Theta	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8	-7.61	-8.13	-7.22	-8.21	-9.56	-13.56	-16.06	-15.63	-15.56	-11.15	-10.52	-8.12	-8.99	-8.86	-10.32	-11.13	-12.6	-16.26	-17.33	-17.47	-16.53	-13.45	-11.16
Θ(15°)	-6.74	-5.5	-4.63	-4.7	-5.92	-5.26	-5.89	-6.51	-6.42	-9.17	-9.98	-12.01	-8.43	-8.45	-9.89	-8.77	-9.55	-9.7	-9.64	-7.81	-6.66	-6.37	-6.33	-6.75
Θ(30°)	-3.63	-2.62	-3.02	-3.51	-4.76	-3.76	-4.37	-2.65	-4.25	-2.06	-2.7	-2.61	-4.21	-4.25	-4.56	-4.6	-4.21	-3.57	-5.17	-5.5	-4.28	-2.71	-2.37	-0.82
Θ(45°)	-3.38	-1.85	-1.6	-0.69	-0.03	-1.71	-2.46	-0.67	-2.01	-0.5	0.38	-0.08	-0.48	-2.12	-2.04	0.04	-5.53	-4.68	-3.94	-4.63	-1.94	-0.02	0.78	0.15
Θ(60°)	-1.61	0.66	-0.34	0.53	-1.05	-2.53	-0.97	0.89	1.41	4.53	3.62	2.31	-1.72	-0.09	-5.07	1.53	-4.04	-2.6	-1.03	-0.32	-4.46	-3.12	-1.69	0.42
Θ(75°)	-0.41	0.43	-0.56	-0.91	-2.36	1.29	-1.57	0.41	2.85	0.58	5.46	3.38	0.67	1.02	-1.97	1.61	-2.08	-1.25	0.25	-0.25	-6.62	-7.12	-2.58	-0.9
Θ(90°)	-0.67	-0.45	-1.47	-2.59	-4.73	0.4	-5.87	-3.77	1.2	2.14	4.77	0.72	-3.81	-2.18	-4.33	-1.27	-3.26	-2.92	-0.06	-1.44	-7.08	-6.71	-2.02	-1.39
Θ(105°)	-4.03	-2.73	-3.44	-4.14	-6.49	-1.92	-4.47	-8.6	-7.37	-1.9	-3.38	-7.34	-5.51	-6.1	-10.63	-10.3	-6.3	-12.64	-6.35	-4.93	-8.18	-6.48	-4.95	-3.25
Θ(120°)	-3.17	-6.13	-6.93	-8.62	-9.82	-8.16	-13.98	-5.22	-6.07	-4	-6.24	-4.63	-7.79	-14.17	-8.77	-8.82	-8.04	-6.76	-5.7	-6.03	-8.13	-4.58	-8.88	-4.46
Θ(135°)	-7.4	-8.86	-7.12	-14.14	-9.6	-17.33	-16.59	-17.94	-15.44	-5.2	-12.28	-10.51	-17.21	-18.06	-17.55	-14.71	-6.64	-9.4	-5.35	-7.23	-12.82	-7.18	-8.08	-6.07
Θ(150°)	-5.1	-11.53	-8.21	-16.14	-14.53	-17.69	-12.73	-15	-10.57	-9.41	-12.96	-17.66	-13.17	-9.53	-8.75	-13.36	-17.08	-17.11	-18.01	-18.07	-9.93	-6.38	-5.89	-5.01
Θ(165°)	-11.58	-11.06	-12.27	-10.03	-14.02	-17.74	-17.66	-16.8	-17.24	-14.33	-17.74	-17.47	-17.54	-18.29	-16.92	-15.78	-16.53	-13.89	-10.36	-13.96	-17.64	-12.62	-11.6	-9.48
Θ(180°)	-12.58	-18.83	-17.68	-17.79	-16.95	-15.06	-12.02	-13.06	-10.67	-10.11	-8.03	-8.94	-9.6	-13.34	-12.2	-11.41	-11.03	-11.62	-12.52	-10.4	-10.5	-8.97	-9.05	-8.49
Freq(Hz)	5.6G	Pol.	Phi	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-10.07	-12.82	-9.66	-9.81	-10.76	-10.55	-10.2	-9.14	-11.15	-14.55	-15.53	-12.51	-13.06	-10.81	-9.8	-8.93	-10.75	-11.44	-12.55	-12.27	-10.38	-13.63	-14.16	-14.15
Θ(15°)	-8.43	-7.5	-6.78	-4.01	-5.76	-9.75	-9.99	-8.09	-9.12	-10.45	-11.43	-18.07	-14.72	-14.83	-17.44	-14.1	-13.33	-11.17	-11.03	-10.4	-13.41	-17.11	-17.28	-11.06
Θ(30°)	-7.33	-4.87	-9.74	-10.56	-4.71	-7.39	-7.71	-13.54	-9.25	-18.55	-16.12	-16.95	-16.68	-12.45	-13.73	-13.78	-18.81	-11.47	-8.81	-12.24	-10.14	-9.57	-16.9	-11.59
Θ(45°)	-7.97	-10	-11.38	-4.38	-2.37	-5.05	-9.24	-12.03	-7.91	-17.56	-14.24	-17.23	-17.8	-13.91	-12.76	-10.56	-12.12	-9.52	-12.62	-16.92	-12.86	-8.8	-15.44	-10.75
Θ(60°)	-14.37	-11.04	-6.56	-3.3	-6.34	-3.86	-5.55	-10.01	-14.91	-13.39	-16.23	-16.21	-13.05	-13.61	-15.39	-11.74	-11.68	-10.67	-10.69	-17.29	-17.97	-9.23	-15.67	-10.86
Θ(75°)	-16.75	-12.26	-9.34	-5.5	-4.88	-2.21	-2.59	-5.22	-11.53	-9.13	-18.37	-17.15	-10.21	-18.52	-16.3	-9.46	-13.39	-15.58	-15.04	-15.49	-18.17	-12.92	-17.9	-15.46
Θ(90°)	-15.61	-18.06	-14.06	-9.13	-5.81	-5.48	-7.48	-6.79	-17.22	-13.79	-17.67	-15.09	-9.26	-17.87	-18.23	-13.78	-13.78	-14.59	-16.37	-17.55	-17.44	-17.07	-17.35	-16.16
Θ(105°)	-17.92	-15.56	-14.89	-11.35	-8.47	-12.24	-8.36	-8.75	-10.95	-18.01	-17.33	-12.01	-9.09	-14.18	-15.1	-16.37	-12.07	-15.17	-16.38	-17.56	-18.04	-16.53	-13.7	-16.92
Θ(120°)	-17.95	-16.44	-16.08	-11.45	-16.14	-7.89	-10.5	-9.06	-13.26	-15.63	-16.62	-16.14	-11.87	-16.65	-9.57	-9.24	-17.56	-13.15	-12.08	-16.76	-17.34	-17.36	-17.62	-17.47
Θ(135°)	-18.43	-17.28	-9.86	-17.39	-10.18	-11.36	-17.57	-17.85	-17.45	-17.18	-14.67	-14.56	-16.23	-14.22	-17.59	-7.7	-13.19	-12.81	-16.37	-17.41	-17.73	-16.92	-16.31	-17.96
Θ(150°)	-17.97	-14.98	-17.05	-16.28	-10.68	-10.97	-8.97	-15.83	-12.9	-17.33	-17	-15.29	-13.4	-16.14	-9.71	-14.2	-12.13	-9.83	-11.39	-14.55	-13.77	-17.08	-16.57	-16.72
Θ(165°)	-16.99	-17.25	-12.7	-15.21	-10.35	-13.83	-13.5	-12.96	-13.58	-17.78	-17.14	-16.29	-14.18	-18.01	-11.8	-10.95	-11.64	-12	-9.01	-9.46	-12.72	-18	-16.76	-17.79
Θ(180°)	-13.39	-16.69	-16.38	-17.69	-16.7	-17.55	-18.07	-16.32	-15.64	-17.79	-15.2	-14.37	-14.3	-12.98	-14.14	-13.11								



Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.79	4.27	3.94	1.88	2.57
Ant. 2 Max Gain (dBi)	2.43	5.09	5.16	2.89	2.72
Ant. 3 Max Gain (dBi)	2.79	2.78	2.74	2.66	1.91
Ant. 4 Max Gain (dBi)	2.62	5.24	5.46	4.26	3.94
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/0/195	Theta/75/240	Theta/75/240	Theta/75/240	Theta/60/225
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/60/165	Theta/75/330	Theta/75/330	Theta/75/330	Theta/75/330
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/30/210	Theta/75/60	Theta/75/30	Theta/75/60	Theta/75/255
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/15/315	Theta/75/150	Theta/75/150	Theta/75/150	Theta/60/135
Max Gain (dBi)	2.79	5.24	5.46	4.26	3.94
DG [1SS] (dBi)	6.92	6.99	7.25	6.62	5.97
DG [2SS] (dBi)	3.92	5.24	5.46	4.26	3.94
DG [4SS] (dBi)	0.93	1.09	1.55	0.94	0.27



DG 1SS Result

Freq(Hz)	2.45G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	1.97	1.91	2.62	4.3	5.12	5.32	5.11	4.11	2.49	1.4	1.55	2.2	1.97	1.63	2.88	4.15	5.12	5.28	4.71	4.07	2.79	1.47	2.16	2.1
Θ(15°)	2.46	1.48	1.42	2.71	4.24	5.04	5.32	5.2	3.61	1.46	1.47	1.67	1.6	1.13	1.46	4.15	5.57	5.91	5.78	4.58	2.39	0.08	0.84	2.41
Θ(30°)	0.64	0.26	0.6	1.45	3.1	4.46	4.36	4.09	2.63	0.5	0.21	-0.09	0.21	0.87	0.51	1.49	3.35	3.64	2.96	2.27	0.27	-1.86	-0.31	1.25
Θ(45°)	-1.39	-0.59	0.69	0.91	1.72	2.87	3.01	2.06	0.7	-1.45	-2.79	-3.53	-2.54	-0.62	0.26	-0.1	1.45	2.75	2.37	0.08	-1.47	-2.82	-1.44	-2.48
Θ(60°)	0.09	-1.44	0.55	0.18	-0.62	0.39	2.45	0.85	-0.91	-1.66	-2.8	-3.64	-1.54	-1.41	-0.07	-1.88	-1.05	2.29	3.06	-0.66	-1.58	-2.43	-1.78	-3.51
Θ(75°)	-1.12	-3.68	0.59	-2	-2.02	0.34	2.64	-1.99	-1.73	-2.63	-1.98	-3.96	-3.19	-4.41	-0.12	-2.57	-2.04	-0.17	1.45	-2.95	-1.34	-3.73	-2.07	-6.27
Θ(90°)	-2.03	-4.6	-0.51	-2.84	-2.52	-2.77	-0.87	-4.33	-0.33	-4.89	-1.5	-5.01	-1.64	-3.76	-1.91	-3.94	-0.76	-1.93	2.08	-3.28	-1.41	-5.07	-3.04	-6.02
Θ(105°)	-2.84	-6.05	-1.76	-4.58	-4.6	-3.75	-0.46	-5.25	-1.94	-5.7	-1.28	-5.51	-2.83	-6.02	-2.95	-3.36	-1.85	-4.37	-0.51	-6.04	-3.57	-4.38	-3.18	-5.66
Θ(120°)	-2.95	-5.66	-1.5	-3.71	-3.77	-4.88	-2.1	-5.41	-1.08	-5	-3.72	-6.52	-1.22	-2.61	-5.79	-8.46	-3.41	-4.09	-0.33	-4.98	-8.38	-7.45	-4.28	-4.93
Θ(135°)	-6.47	-6.92	-7.16	-5.31	-3.11	-4.31	-3.11	-6.29	-7.3	-7.07	-3.71	-5.77	-7.74	-7.04	-3.92	-5.46	-6.81	-6.83	-5.06	-9.03	-6.49	-6.01	-4.53	-6.32
Θ(150°)	-6.73	-4.56	-5.22	-4.16	-6.53	-9.48	-7.99	-8.27	-6.36	-6	-5.48	-8.31	-10.38	-8.11	-7.31	-7.89	-10.58	-5.56	-3.76	-6.68	-6.7	-7.3	-6.83	-9.03
Θ(165°)	-2.84	-3.39	-4.44	-4.15	-3.24	-2.98	-3.81	-5.49	-6.63	-7.58	-6.39	-5.25	-4.85	-5.26	-6.81	-9.61	-7.45	-5.39	-3.88	-4.94	-6.51	-6.16	-4.96	-3.39
Θ(180°)	-5.98	-5.82	-4.97	-5.12	-5	-5.41	-6.86	-7.87	-7.5	-6.87	-6.8	-6.49	-5.87	-6.22	-5.3	-4.94	-5.92	-6.16	-6.47	-5.49	-5.27	-5.22	-5.51	-5.87
Freq(Hz)	2.45G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	4.78	4	2.4	1.85	2.5	2.71	2.46	2.28	3.48	4.64	5.39	5.53	5.09	3.92	2.43	1.47	2.17	2.64	2.28	1.96	2.9	4.32	5.12	5.21
Θ(15°)	2.86	2.55	2.57	2.9	2.93	2.67	2.06	1.97	3.49	4.54	4.88	4.85	4.58	4.24	4.1	2.86	1.55	1.46	1.49	3.38	5.03	5.77	5.75	4.8
Θ(30°)	3.83	3.57	2.97	2.68	2.98	2.95	2.16	2.27	4.12	5.28	4.63	3.56	3.78	4.27	4.89	4.39	2.61	2.77	3.7	4.18	4.62	5.2	5.23	4.42
Θ(45°)	4.82	5.12	4.46	3.65	4.12	5.33	5.42	4.64	4.48	5.34	5.59	5.4	5.62	5.64	5.05	5.02	3.99	3.98	5.82	6.15	4.61	3.83	4.13	4.78
Θ(60°)	4.69	5.47	4.07	3.48	4.28	6.33	6.81	6.2	4.82	4.46	4.92	6.25	6.01	6.01	5.23	4.4	3.82	4.66	6.3	6.92	4.23	2.53	3.63	5.54
Θ(75°)	4.4	5.14	2.85	2.28	3.81	6.44	6.11	6.21	4.65	3.33	2.97	5.82	5.15	5.47	4.47	2.95	3.25	4.31	5.45	6.5	2.91	1.02	3.56	5.77
Θ(90°)	3.16	3.75	1.38	1.27	3.15	5.05	3.98	5.49	4.13	0.93	1.22	4.97	3.79	4.01	4.16	2.14	2.74	3.67	4.86	5.27	2.74	0.57	2.58	4.39
Θ(105°)	1.88	1.63	-0.07	1.2	2.98	3.7	3.2	3.6	2.8	1.64	-0.37	3.37	3	2.92	3.61	0.28	0.55	1.72	3.51	1.82	0.35	1.46	1.73	1.8
Θ(120°)	-0.94	-2.1	-2.05	0.13	-0.5	0.96	2.6	0.32	0.74	-0.15	-1.43	1.77	1.16	0.82	-0.59	-2.36	-2.01	-2.84	-0.61	-2.62	-2.76	-1.62	-1.82	-1.7
Θ(135°)	-1.84	-1.8	-2.82	-2.44	-2.67	-3.06	-1.49	-1.83	-2.99	-3.39	-1.85	-1.29	-2.9	-3.83	-3.36	-1.42	-1.39	-1.21	-1.98	-0.74	-0.23	-0.55	-2.52	-2
Θ(150°)	-2.2	-1.69	-0.73	-0.89	-1.12	-1.77	-2.5	-0.95	-0.74	-0.79	-0.91	-3.49	-4.36	-3.44	-2.2	-2.12	-2.67	-0.93	-0.34	-0.89	-2.16	-3.2	-3.15	-2.21
Θ(165°)	-5.46	-5	-5.1	-4.42	-3.17	-2.07	-1.3	-2.26	-3.48	-3.98	-4.51	-4.94	-4.53	-4.2	-3.84	-5.12	-6.66	-5.93	-6.17	-6.91	-6.61	-5.79	-5	-4.97
Θ(180°)	-4.44	-5.09	-5.62	-5.58	-5.6	-5.84	-5.38	-4.6	-5.47	-6.54	-6.51	-6.06	-5.19	-5	-5.61	-6.59	-6.08	-5.89	-5.31	-5.59	-5.42	-5.22	-4.83	-4.43
Freq(Hz)	5.2G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-5.15	-4.57	-4.84	-3.6	-4.09	-5.07	-6.69	-6.13	-7.38	-5.5	-4.63	-4.48	-4.38	-4.24	-3.84	-3.9	-5.16	-5.6	-7.3	-7.78	-8.16	-6.37	-4.82	-5.4
Θ(15°)	-4.81	-3.74	-5.08	-5.03	-4.83	-4.45	-6.96	-9.83	-7.05	-4.84	-2.36	-3.02	-3.49	-2.96	-4.33	-6.29	-7.26	-7.69	-5.49	-3.38	-2.65	-3.94	-4.45	-4.6
Θ(30°)	-5.99	-1.92	-5.29	-6.91	-5.3	-4.52	-5.36	-3.58	-7.7	-7.87	-5.59	-2.69	-3.17	-2.45	-4.79	-5.46	-5.75	-7.31	-4.07	-5.09	-3.54	-7.12	-7.17	-4.25
Θ(45°)	-6.87	-6.69	-3.85	-4.9	-4.39	-4.74	-2.62	-4.01	-5.61	-8.8	-6.37	-7.22	-4.1	-2.28	-4.48	-5.63	-10.1	-6.43	-5.78	-6.22	-6.64	-9.51	-11.23	-5.75
Θ(60°)	-3.05	-5.16	-5.19	-7.64	-4.22	-2.45	-2.26	-4.36	-8.5	-5.43	-7.77	-6.6	-4.27	-3.78	-3.97	-6.34	-5	-3.98	-2.64	-5	-6.55	-5.14	-9.38	-3.54
Θ(75°)	-5.64	-5.34	-6.99	-5.11	-4.13	-2.31	-3.14	-5.9	-8.03	-5.1	-7.75	-5.31	-3.19	-3.37	-8.02	-6.19	-4.44	-1.75	-2.7	-6.25	-7.24	-7.76	-8.58	-5.16
Θ(90°)	-4.95	-3.62	-5.47	-6.6	-5.11	-4.7	-6.33	-4.46	-7.62	-7.24	-6.09	-4.24	-3.08	-4.82	-5.17	-5.84	-5.34	-3.37	-3.58	-4.51	-4.51	-8.22	-5.22	-5.65
Θ(105°)	-3.48	-4.05	-9.13	-6.6	-6.13	-4.96	-6.2	-4.1	-5.26	-7.84	-5.68	-3.96	-4.2	-5.05	-5.89	-6.41	-4.98	-2.45	-3.98	-5.58	-6.44	-8.21	-6.26	-6.12
Θ(120°)	-4.74	-7.65	-6.83	-7.57	-5.37	-4.9	-4.79	-4.49	-3.88	-6.3	-6.14	-3.74	-5.91	-9.61	-5.83	-7.37	-5.07	-4.39	-4.15	-8.74	-5.96	-6.93	-6.72	-6.23
Θ(135°)	-6.29	-6.17	-5.29	-5.71	-6.79	-8.48	-9.39	-8.18	-6.06	-3.05	-4.8	-8.05	-6.84	-8.64	-5.32	-5.8	-8.84	-3.29	-5.44	-6.35	-8.12	-5.41	-8.87	-8.18
Θ(150°)	-6.25	-7.23	-5.83	-5.59	-6.49	-6.37	-4.92	-5.09	-4.43	-5.72	-7.15	-5.17	-6.47	-6.5	-7.04	-7.48	-4.64	-5.8	-4.4	-5.5	-5.01	-7.41	-5.03	-4.73
Θ(165°)	-7.59	-8.46	-8.39	-6.15	-5.97	-9.41	-7.3	-6.29	-3.92	-4.63	-6.6	-8	-6.4	-8.93	-7.03	-8.77	-6.83	-5.04	-5.57	-4.71	-3.41	-5.59	-5.17	-5.31
Θ(180°)	-6.6	-6.91	-7.8	-8.44	-7.12	-6.82	-5.64	-7.02	-6.94	-8.29	-9.01	-8.88	-7.8	-6.52	-7.5	-8.46	-8.1	-6.94	-5.84	-6.62	-5.65	-5.97	-5.61	-5.17
Freq(Hz)	5.2G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-7.36	-7.23	-7.44	-5.89	-4.75	-4.22	-4.82	-3.94	-4.32	-3.76	-4.22	-5.1	-6.93	-7.84	-7.75	-6.52	-5.19	-4.36	-4.78	-4.03	-3.27	-4.19	-4.97	-6.32
Θ(15°)	-1.92	-2.05	-2.38	-2.29	-1.68	-0.92	-0.29	-0.32	-1.97	-2.35	-2.68	-1.62	-1.48	-1.07	-0.36	0.44	-0.2	-0.64	-0.74	-0.51	-0.04	-1.48	-1.22	-0.63
Θ(30°)	1.13	1.38	1.07	1.47	1.89	1.04	0.95	1.74	2.74	1.47	2.14	0.43	1.89	2.74	3.07	3.51	3.93	3.04	2.76	1.76	2.03	2.52	2.97	2.25
Θ(45°)	2.75	3.57	4	5.77	5.4	4.08	4.38	4.58	3.1	5.41	4.93	4.63	4.51	4.99	5.9	6.99	4.62	3.57	2.73	3.78	2.91	6.97	6.18	4.89
Θ(60°)	4.7	5.81	4.73	5.65	5.77	4.72	5.58	6.11	4.99	6.82	6.1	5.63	5.55	5.98	4.33	6.2	5.48	5.52	5.22	4.98	3.28	5.69	5.14	5.94
Θ(75°)	4.82	5.71	3.9	4.56	5.6	5.34	5.02	6.54	5.3	6.49	6.33	6.79	5.57	6.37	5.67	5.87	6.23	6.47	5.06	5.45	3.37	4.24	6.1	6.18
Θ(90°)	3.32	3.83	2.5	4	4.24	3.3	3.24	5.49	3.9	5.52	5.22	5.33	4.79	4.27	3.74	2.71	4.34	3.85	5.56	5.29	1.28	3.18	3.14	3.56
Θ(105°)	0.99	1.41	-1.89	0.53	-1.36	0.76	2.55	3.08	0.79	2.43	0.37	2.09	2											



Θ(180°)	-6.97	-7.22	-6.33	-7	-6.25	-5.24	-5.22	-8.26	-7.39	-7.21	-5.42	-5.35	-5.82	-5.97	-4.65	-4.41	-4.57	-5.34	-5.69	-4.71	-6.23	-6.73	-7.24	-6.78
Freq(Hz)	5.6G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-4.23	-6.47	-5.44	-4.99	-5.03	-6.5	-6.06	-6.08	-7.47	-7.06	-6.49	-5.06	-5.02	-4.68	-3.99	-4.76	-4.81	-6.43	-6.68	-6.26	-6.18	-6.25	-6.38	-5.26
Θ(15°)	-4.28	-3.72	-4.2	-3.28	-3.91	-6.76	-4.61	-4.55	-6.23	-5.27	-5.62	-7.28	-5.42	-4.92	-4.38	-6.77	-8.88	-6.07	-6.16	-6.35	-5.13	-7.26	-8.49	-7.25
Θ(30°)	-5.26	-2.43	-4.93	-6.85	-3.15	-3.98	-2.8	-6.23	-4.62	-9.58	-7.97	-5.12	-4.77	-4.44	-5.47	-4.26	-5.53	-5.44	-4.35	-5.55	-5.66	-5.09	-4.98	-7.89
Θ(45°)	-5.79	-6.88	-5.39	-3.67	-2.27	-2.68	-4.39	-5.1	-3.82	-7.04	-7	-3.62	-5.81	-6.77	-3.71	-3.96	-6.35	-4.42	-6.99	-7.71	-6.51	-4.47	-5.7	-6.72
Θ(60°)	-6.46	-6.86	-5.82	-4.18	-4.52	-2.47	-2.51	-5.98	-6.28	-4.83	-7.18	-4.76	-5.27	-5.12	-5.35	-5.84	-5.81	-4.48	-5.33	-7.8	-5.68	-5.47	-5.89	-5.09
Θ(75°)	-8.12	-6.67	-7.02	-3.97	-3.84	-2.53	-3.98	-2.16	-6.32	-4.05	-7.71	-7.64	-5.68	-7.18	-7.99	-4.59	-6.62	-3.01	-5.88	-6.16	-7.46	-6.13	-8.45	-5.63
Θ(90°)	-8.28	-8.68	-6.7	-6.95	-4.26	-5.1	-6.81	-5.11	-7.42	-6.94	-7.82	-6.69	-6.68	-8.04	-8.36	-8.25	-6.84	-5.22	-5.21	-6.61	-7.44	-7.57	-8.01	-7.02
Θ(105°)	-8.73	-6.75	-5.59	-8.27	-5.05	-8.21	-7.58	-6.13	-7.51	-7.62	-6.78	-7.18	-5.54	-7.84	-6.74	-8.24	-7.49	-4.99	-5.89	-8.16	-8.11	-9.12	-7.86	-9
Θ(120°)	-5.27	-8.02	-9.61	-8.05	-9.1	-6.4	-7.83	-7.76	-6.67	-10.05	-7.98	-5.9	-5.86	-8.63	-8.14	-4.4	-7.38	-6.72	-6.56	-9.05	-9.38	-9.22	-9.71	-7.31
Θ(135°)	-7.19	-8.03	-7.52	-9.57	-7.93	-8.34	-8.81	-11.72	-7.01	-7.83	-8.63	-7.14	-6.12	-6.51	-7.84	-6.18	-8.22	-7	-6.22	-8.98	-8.24	-10.66	-8.55	-9.09
Θ(150°)	-9.46	-6.27	-7.73	-10.32	-7.86	-9.31	-6.07	-9.77	-6.94	-8.28	-7.41	-7.31	-8.09	-9.78	-7.06	-9.46	-6.89	-7.32	-7.91	-7.83	-6.52	-7.12	-6.87	-5.01
Θ(165°)	-9.29	-8.96	-8.72	-10.4	-7.5	-9.78	-7.97	-7.05	-6.84	-7.12	-8.72	-10.99	-7.02	-8.59	-8.74	-8.65	-8.87	-9.53	-7.38	-7.09	-6.97	-8.41	-9.21	-6.17
Θ(180°)	-7.23	-6.55	-8.21	-10.15	-10.12	-10.11	-8.79	-8.44	-8.19	-7.99	-7.34	-7.98	-7.19	-6.67	-8.08	-9.93	-10.33	-7.83	-5.73	-6.15	-6.53	-7.18	-7.58	-7.71
Freq(Hz)	5.6G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-6.06	-7.56	-6.99	-5.88	-6.57	-5.33	-5.46	-4.7	-4.25	-5.22	-3.77	-5.05	-5.64	-6.05	-6.23	-7.44	-7.08	-6.45	-6.31	-5.47	-4.63	-6.03	-5.77	-6.18
Θ(15°)	-1.47	-2.8	-3.94	-3.19	-2.79	-3.03	-2.28	-3.05	-2.87	-3.82	-4.31	-4.16	-3.42	-2.45	-3.02	-2.97	-2.88	-3.39	-3.65	-3.49	-2.86	-3.23	-2.73	-2.72
Θ(30°)	2.18	1.07	0.98	0.9	1.47	0.13	-1.6	-0.71	-0.48	0.81	0.96	1.25	1.82	1.97	2.73	3.6	2.6	1.01	0.39	-0.11	-0.2	2.81	1.75	1.66
Θ(45°)	2.82	4.44	3.68	3.63	4.46	3.36	2.85	2.98	1.84	3.92	4.73	4.17	4.81	4.31	5.2	5.29	4.25	2.27	1.08	2.02	2.51	4.97	4.85	3.74
Θ(60°)	4.19	4.68	4.05	5.48	3.75	3.48	3.74	4.43	3.4	6.62	5.02	5.48	4.66	5.03	4	5.01	4.67	4.23	4.91	2.82	2.3	3.98	4.56	5.37
Θ(75°)	3.2	3.69	4.84	4.94	5.17	4.97	5.12	4.6	5.32	4.5	4.93	4.56	5.15	5.1	5.5	5.53	4.9	5.19	3.63	2.36	2.6	2.93	4.47	4.26
Θ(90°)	0.83	0.42	2.92	3.93	3.57	3.07	1.79	2.68	4.59	3.91	3.7	3.4	2.49	2.05	3.02	3.02	3.76	3.61	3.59	2.55	-0.03	1.99	2.5	2.16
Θ(105°)	-0.35	-0.51	-0.81	-0.52	-1.16	1.38	-1.18	0.36	0.66	1.94	0.84	-1.27	-0.38	0.61	0.49	-2.46	0.2	-2.54	-0.28	-1.18	-3.73	-3.51	-0.95	-0.21
Θ(120°)	-2.82	-4.23	-2.74	-1.67	-1.97	-1.13	-1.1	-4.03	-0.49	-0.76	-1.86	-2.26	-1.67	-3.84	-2.12	-3.18	-1.68	-4.24	-4.78	-2.56	-3.74	-2.12	-3.34	-4.64
Θ(135°)	-4.28	-5.5	-4.64	-2.22	-4.92	-4.22	-5.24	-5.38	-3.82	-3.48	-5.04	-4.59	-4.7	-4.02	-4.13	-4.05	-6.27	-3.7	-4.5	-4.18	-7.12	-5.33	-5.36	-3.42
Θ(150°)	-6.93	-5.68	-9.32	-7.47	-6.8	-7.25	-7.59	-8.64	-5.18	-4.22	-7.4	-8.07	-5.26	-6.16	-4.77	-7.31	-7.11	-7.73	-8.77	-7.64	-7.73	-7.28	-6.58	-5.71
Θ(165°)	-7.23	-5.98	-7.66	-7.33	-8.4	-8.1	-6.68	-7.96	-7.88	-8.93	-7.83	-7.19	-8.5	-7.14	-6.92	-6.22	-6.24	-6.85	-8.36	-8.96	-7.04	-8.41	-7.78	-8.21
Θ(180°)	-7.6	-7.19	-6.45	-7.45	-5.85	-6.17	-6.27	-8.54	-8.63	-9.1	-8.58	-7.51	-7.71	-6.21	-4.75	-4.37	-5.1	-5.26	-6.97	-7.47	-8.91	-9.34	-8.65	-7.34
Freq(Hz)	5.785G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-6.08	-6.63	-5.86	-3.84	-2.89	-3.11	-3.37	-3.28	-4.91	-4.52	-6.16	-5.83	-5.96	-5.31	-5.02	-4.9	-4.73	-4.71	-5.46	-4.41	-3.7	-5.3	-5.7	-5.87
Θ(15°)	-3.83	-3.18	-3.92	-3.85	-3.61	-3.35	-2.79	-2.77	-4.15	-6.44	-7.84	-6.97	-5.15	-4.22	-3.81	-5.16	-6.99	-4.87	-4.13	-4.91	-4.68	-6.93	-6.69	-7.11
Θ(30°)	-4.77	-3.7	-4.12	-4.87	-2.76	-3.24	-1.35	-3.57	-5.43	-6	-5.87	-6.54	-4.85	-6.1	-2.85	-4.64	-3.98	-3.81	-4.74	-5.14	-5.99	-4.2	-3.48	-8.57
Θ(45°)	-7.72	-7.69	-5.25	-2.72	-1.18	-1.05	-2.18	-2.88	-2.82	-4.52	-6.25	-4.61	-6.94	-6.58	-3.42	-2.47	-7.48	-3.76	-3.44	-8.13	-6.86	-2.51	-4.6	-6.51
Θ(60°)	-6.07	-7.69	-4.62	-4.54	-5.11	-2.29	-2.72	-4.94	-6.04	-3.09	-7.62	-6.61	-5.96	-5.58	-4.77	-5.87	-4.9	-2.99	-3.26	-5.76	-6	-5.33	-6.41	-7.07
Θ(75°)	-8	-7.73	-6.65	-4.74	-4.15	-2.56	-1.98	-2.1	-4.87	-4.16	-6.99	-7.15	-5.67	-5.53	-7	-5.25	-5.7	-3.15	-3.1	-4.67	-6.59	-5.99	-8.2	-8.26
Θ(90°)	-9.7	-10.83	-6.46	-8.46	-3.68	-6.44	-5.17	-3.9	-7.96	-7.07	-6.51	-7.58	-7.36	-7.79	-8.77	-6.98	-6.68	-6.5	-4.54	-6.72	-7.95	-9.15	-8.2	-7.07
Θ(105°)	-8.32	-8.16	-6.75	-8.39	-5	-7.8	-7.18	-7.49	-7.8	-7.48	-7.08	-5.71	-5.95	-8.59	-6.28	-8.34	-7.44	-6.96	-5.74	-9.64	-7.94	-10.2	-6.75	-7.49
Θ(120°)	-5.85	-8.68	-10.81	-9.37	-8.37	-6.42	-10.21	-8.06	-9.38	-10.2	-7.41	-7.43	-6.32	-9.45	-6.76	-5.47	-7.75	-7.58	-7.05	-7.84	-8.65	-10.76	-9.96	-9.39
Θ(135°)	-6.72	-8.11	-8.11	-8.75	-10.19	-7.81	-9.2	-11.05	-8.93	-7.76	-7.66	-8.67	-6.22	-7.64	-8.92	-5.84	-10.07	-7.64	-6.14	-8.48	-9.51	-10.33	-10.37	-9.49
Θ(150°)	-10.14	-8.1	-8.09	-8.42	-10.18	-7.17	-6.58	-9.44	-6.83	-9.22	-6.21	-7.79	-6.93	-9.85	-8.86	-8.88	-9.2	-8.29	-9.27	-6.98	-7.33	-9.04	-7.16	-4.81
Θ(165°)	-8.29	-8.46	-10.78	-10.43	-8.49	-8.49	-6.62	-7.45	-5.23	-6.27	-7.64	-8.95	-8.86	-8.51	-9.86	-9.97	-9.09	-8.45	-6.8	-6.46	-6.28	-7.06	-8.16	-6.63
Θ(180°)	-7.59	-7.79	-8.81	-10	-9.79	-9.68	-9.4	-8.09	-7.54	-7.93	-7.45	-8.31	-8.01	-7.2	-9.1	-9.61	-10	-8.88	-6.48	-6.43	-6.19	-6.21	-7.53	-7.5
Freq(Hz)	5.785G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-3.67	-4.92	-5.45	-4.95	-6.25	-6.17	-5.92	-5.41	-4.4	-3.56	-2.75	-2.5	-2.74	-3.03	-3.64	-5.08	-7.1	-7.21	-7.09	-6.61	-4.63	-4.76	-5.32	-5.02
Θ(15°)	-0.74	-2.53	-3.96	-2.74	-2.84	-3.54	-3.4	-3.27	-1.95	-2.44	-4.11	-3.12	-2.75	-2.78	-1.73	-3.95	-3.72	-3.99	-5.49	-5.24	-2.69	-2.13	-2.21	-2.73
Θ(30°)	2.12	1.63	1.41	0.29	1.18	0.9	-1.39	-0.75	-0.94	0.54	0.74	1.84	1.58	2.62	2.27	3.12	3.22	0.99	-0.28	-0.24	0.26	2.21	1.89	1.61
Θ(45°)	3.51	5.06	3.55	3.33	3.78	2.38	2.39	2.42	2.13	3.1	4.16	4.18	4.32	4.2	5.13	4.89	3.54	2.4	1.99	1.98	2.64	4.47	4.47	3.39
Θ(60°)	4.02	4.13	5.47	5.97	4.31	3.53	3.43	3.08	3.05	5.7	4.46	4.52	4.42	5.06	4.99	5.3	4.46	4.28	4.38	2.03	2.38	3.72	4.55	5.27
Θ(75°)	2.31	3.33	4.66	4.82	3.86	5.23	4.9	2.97	5.21	4.66	4.85	4.08	4.33	4.33	5.66	4.47	5.31	5.63	4.19	2.39	3.44	3.08	4.79	5.01
Θ(90°)	1.1	0.07	2.2	3.24	3.46	3.84	0.93	2.35	3.52	3														



Gain Result

Freq(Hz)	2.45G	Pol.	Phi	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Gain	Phi(0°)	Phi(15°)	Phi(30°)	Phi(45°)	Phi(60°)	Phi(75°)	Phi(90°)	Phi(105°)	Phi(120°)	Phi(135°)	Phi(150°)	Phi(165°)	Phi(180°)	Phi(195°)	Phi(210°)	Phi(225°)	Phi(240°)	Phi(255°)	Phi(270°)	Phi(285°)	Phi(300°)	Phi(315°)	Phi(330°)	Phi(345°)	
Theta(0°)	-8.86	-16.04	-13.38	-4.27	-0.84	0.67	1.91	2.39	1.87	0.76	-1.17	-4.38	-10.85	-17.44	-10.05	-4.78	-0.83	1.02	1.54	1.85	1.83	1.1	-0.34	-3.21	
Theta(15°)	-11.87	-16.14	-12.49	-5.54	-0.72	0.33	0.87	1.54	0.9	-0.2	-1.71	-4.76	-10.27	-17.03	-9.74	-2.96	-0.1	1.31	2.47	2.47	1.47	0.37	-2.13	-5.64	
Theta(30°)	-17.22	-15.13	-9.54	-6.31	-2.34	-0.25	-0.33	-0.6	-1.62	-3.13	-4.93	-8.48	-17.03	-17.39	-9.73	-6.05	-3	-1	-0.47	0.35	0.15	-2.01	-4.75	-9.94	
Theta(45°)	-16.33	-18.02	-8.38	-6.62	-6.29	-3.53	-1.61	-1.71	-3.3	-4.53	-4.71	-8	-15.65	-17.08	-10.98	-8.15	-4.85	-1.35	-0.53	-2.3	-2.67	-5.17	-6.5	-17.17	
Theta(60°)	-14.14	-17.84	-8.5	-8.91	-11.43	-7.88	-3.23	-3.55	-4.84	-4.37	-4.51	-7.38	-10.08	-13.88	-8.6	-18.04	-17.69	-2.75	-0.94	-2.76	-2.73	-5.21	-7.65	-16.83	
Theta(75°)	-14.73	-16.1	-7.63	-11.23	-15.67	-4.88	-1.96	-4.98	-6.79	-4.27	-2.59	-6.01	-7.91	-13.87	-5.81	-15.45	-13.72	-5.41	-2.8	-7.49	-5.58	-5.91	-5.86	-16.94	
Theta(90°)	-15.73	-14.24	-10.36	-11.45	-15.1	-8.62	-5.99	-8.03	-6.59	-6.67	-4.39	-5.34	-5.62	-8.78	-6.43	-14.96	-4.44	-11.25	-2.5	-10.43	-7.18	-6.8	-9.12	-17.18	
Theta(105°)	-12.72	-17.61	-13.83	-13.38	-15.72	-11.29	-8.12	-7.47	-8.82	-8.86	-4.08	-4.06	-6.41	-9.03	-6.45	-11.58	-5.45	-11.99	-4.77	-10.02	-10.17	-4.92	-9.13	-14.37	
Theta(120°)	-14.06	-17.9	-15.24	-12.29	-9.96	-13.84	-13.15	-10.92	-6.56	-7.29	-8.44	-5.48	-2.78	-5.04	-15.91	-15.69	-5.48	-15.49	-4.72	-10.28	-11.86	-7.8	-9.44	-18.36	
Theta(135°)	-13.84	-17.78	-16.81	-12.09	-10.81	-12.85	-16.57	-14.78	-14.36	-8.1	-3.46	-4.69	-14.59	-14.34	-17.23	-18.11	-12.47	-12.84	-8.4	-10.04	-10.38	-10.08	-10.77	-15.36	
Theta(150°)	-10.81	-10.46	-12.71	-10.42	-13.91	-17.05	-17.33	-16.25	-12.75	-9.73	-8.36	-10.72	-17.28	-14.64	-16.69	-16.96	-18.08	-15.03	-9.8	-10.84	-8.39	-7.22	-7.61	-12.2	
Theta(165°)	-5.28	-6.98	-10.94	-12.73	-11.41	-9.37	-8.52	-7.93	-8.37	-10.64	-11.6	-10.44	-9.99	-11.69	-15.63	-17.86	-17.56	-15.06	-8.84	-7.47	-6.55	-4.64	-4.01	-4.17	
Theta(180°)	-7.31	-9.29	-10.74	-16.19	-17.1	-17.17	-15.9	-12.29	-10.57	-9.05	-7.68	-7.94	-10.55	-15.68	-13.89	-13.3	-16.53	-11.49	-9.92	-7.96	-6.03	-4.71	-4.15	-5.14	
Freq(Hz)	2.45G	Pol.	Theta	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Phi(0°)	Phi(15°)	Phi(30°)	Phi(45°)	Phi(60°)	Phi(75°)	Phi(90°)	Phi(105°)	Phi(120°)	Phi(135°)	Phi(150°)	Phi(165°)	Phi(180°)	Phi(195°)	Phi(210°)	Phi(225°)	Phi(240°)	Phi(255°)	Phi(270°)	Phi(285°)	Phi(300°)	Phi(315°)	Phi(330°)	Phi(345°)	
Theta(0°)	2	2.43	1.78	0.71	-0.75	-3.73	-10.06	-17.76	-7.65	-2.87	-0.28	1.19	2.29	2.79	2.35	0.83	-0.66	-3.33	-10.54	-16.95	-8.59	-3.37	-0.79	0.9	
Theta(15°)	0.45	0.75	0.72	0.46	-0.8	-3.08	-5.94	-7.39	-4.58	-2.5	-1.57	-0.72	0.25	0.64	0.44	-1.07	-3.68	-7.3	-15.51	-6.9	-2.52	-0.49	0.3	0.63	
Theta(30°)	0.47	1.5	1.52	0.74	0.44	-1.81	-7.08	-10.29	-4.48	-0.94	-0.79	-1.67	-2.27	-1.64	-1.04	-2.68	-5.24	-6.14	-5.63	-5.34	-3.94	-3.06	-3	-1.54	
Theta(45°)	0.2	1.74	1.92	0.42	0.46	1.02	-1.53	-5.15	-6.04	-1.68	0.3	1.06	-0.08	-1.05	-0.43	-0.98	-2.29	-2.53	0.45	0.56	-1.96	-5.43	-7.39	-1.08	
Theta(60°)	-1.78	0.29	0.06	-1.19	-1.64	0.42	0.65	-1.6	-5.84	-1.2	0.9	1.71	0.26	-2.74	-2.14	-3.08	-6.18	-4.05	0.77	2	-1.06	-3.91	-5.58	-0.13	
Theta(75°)	-1.61	-0.25	-1.71	-3.01	-0.79	1.37	-0.3	-0.57	-3.53	-2.5	0.55	1.68	-1.48	-5.3	-6.74	-9.29	-10.36	-4.06	-0.65	1.45	-2.9	-4.58	-4.54	0	
Theta(90°)	-1.76	-1.16	-1.73	-3.4	-1.31	1	-1.69	-0.19	-3.19	-4.07	-1.13	0.37	-3.65	-4	-4.71	-11.22	-6.16	-1.87	-1.25	-2.36	-4.17	-4.57	-6.98	-0.81	
Theta(105°)	-2.36	-4.17	-3.38	-3.4	-0.26	-1.13	-1.13	-0.6	-7.07	-4.47	-4.13	-6.15	-7.18	-5	-4.14	-4.75	-6.84	-5.67	-2.13	-4.54	-10.16	-8.26	-8.72	-3.44	
Theta(120°)	-5.81	-4.73	-6.08	-3.68	-2.92	-0.36	-0.78	-4.7	-5.9	-8.46	-10.7	-7.66	-10	-12.47	-9.86	-9.77	-11.4	-14.19	-11.78	-14.74	-13.36	-8.07	-8.74	-5.83	
Theta(135°)	-7.17	-3.96	-4.31	-5.02	-5.27	-2.67	-2.94	-5.62	-4.81	-8.52	-14.78	-18.78	-15.95	-18.42	-10.19	-9.62	-11.4	-10.16	-13.43	-9.94	-7.93	-5.62	-6.52	-7.87	
Theta(150°)	-8.79	-6.55	-4.69	-4.54	-3.36	-3.16	-5.32	-4.05	-3.98	-6.74	-11.31	-16.99	-13.81	-9	-4.51	-3.16	-4.33	-4.44	-6.22	-10.43	-11.07	-9.32	-7.59	-7.22	
Theta(165°)	-7.54	-6.78	-5.67	-4.35	-4.09	-4.17	-3.55	-4.38	-8.08	-11.62	-12.58	-13.69	-14.8	-11.13	-12.01	-16.16	-11.63	-14.1	-16.47	-16.13	-16.1	-17.06	-10.66		
Theta(180°)	-9.74	-7.72	-6.32	-5.16	-5.11	-5.92	-6.76	-8.48	-12.43	-16.7	-17.57	-16.14	-12.45	-9.35	-7.36	-6.74	-5.47	-5.11	-6.38	-9.12	-11.64	-16.23	-18.05	-12.84	
Freq(Hz)	5.2G	Pol.	Phi	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Phi(0°)	Phi(15°)	Phi(30°)	Phi(45°)	Phi(60°)	Phi(75°)	Phi(90°)	Phi(105°)	Phi(120°)	Phi(135°)	Phi(150°)	Phi(165°)	Phi(180°)	Phi(195°)	Phi(210°)	Phi(225°)	Phi(240°)	Phi(255°)	Phi(270°)	Phi(285°)	Phi(300°)	Phi(315°)	Phi(330°)	Phi(345°)	
Theta(0°)	-8.03	-7.3	-8.35	-7.57	-10.13	-12.31	-17.99	-16.7	-15.47	-12.6	-10.69	-9.76	-7.31	-7.18	-7.53	-8.78	-10.49	-13.47	-17.11	-17.32	-17	-12.66	-10.54	-9.27	
Theta(15°)	-12.62	-12.79	-12.55	-12.92	-11.62	-11.43	-14.47	-18.12	-17.47	-11.46	-6.48	-9.11	-7.44	-6.33	-8.79	-12.19	-11.46	-14.61	-14.61	-12.76	-7.76	-8.97	-9.85	-10.11	
Theta(30°)	-16.41	-8.93	-12.18	-18.02	-14.03	-13.08	-11.06	-12.08	-16.47	-17.41	-12.3	-7.01	-5.35	-7.33	-9.52	-13.33	-8.48	-13.29	-8.51	-10.4	-8.84	-17.27	-12.31	-11.27	
Theta(45°)	-17.59	-16.34	-10.91	-15.53	-16.2	-9.97	-6.27	-9.66	-14.11	-16.68	-10.87	-17.51	-9.38	-6.86	-13.65	-17.87	-16.86	-9.76	-7.64	-10.84	-11.77	-15.63	-17.99	-8.98	
Theta(60°)	-18.29	-16.11	-11.37	-16.92	-17.89	-5.89	-6.87	-10.39	-12.31	-7.94	-11.79	-16.94	-7.81	-6.08	-7.93	-11.22	-7.4	-6.6	-5.16	-8.28	-15.6	-16.55	-17.21	-17.37	
Theta(75°)	-13.88	-12.83	-12.7	-17.85	-17.33	-10.56	-11.76	-13.74	-10.48	-7.75	-11.35	-10.66	-5.63	-6.56	-16.95	-17.74	-7.56	-4.98	-8.17	-13.65	-13.81	-13.63	-12.06	-14.31	
Theta(90°)	-10.99	-10.4	-11.38	-16.53	-17.78	-11.37	-17.95	-10.2	-11.29	-7.22	-5.9	-8.17	-4.46	-8.14	-7.22	-16.21	-13.38	-11.19	-8.99	-12.21	-10.3	-13.48	-9.92	-12.34	
Theta(105°)	-9.77	-9.28	-17.72	-13.9	-17.68	-12.78	-15.13	-13.78	-9.12	-9.57	-3.79	-4.15	-5.04	-7.25	-9.37	-12.71	-15.24	-8.51	-9.28	-12.12	-10.5	-13.13	-9.38	-12.01	
Theta(120°)	-10.41	-16.77	-14.64	-13.23	-12.56	-17.86	-12.43	-14.29	-6.2	-10	-7.33	-3.65	-6.41	-12.33	-17.19	-16.65	-12.51	-12.66	-7.8	-11.78	-7.73	-11.41	-11.46	-11.25	
Theta(135°)	-11	-10.4	-9.79	-12.52	-18.63	-16.87	-17.13	-13.84	-8.16	-5.89	-9.25	-12.77	-10.05	-9.86	-13.21	-16.61	-17.11	-14	-15.34	-11.28	-17.11	-7.58	-10.3	-14.46	
Theta(150°)	-7.58	-11.92	-10.42	-14.36	-16.73	-17.93	-16.73	-10.03	-10.91	-6.38	-7.35	-4.88	-8.99	-11.91	-17.13	-14.83	-11.23	-17.35	-6.44	-9.88	-6.83	-11.27	-6.42	-6.15	
Theta(165°)	-11.32	-12.46	-13.68	-14.25	-17.51	-18.38	-17.84	-14.17	-6.58	-6.19	-12.44	-15.07	-12.95	-16.68	-14.69	-18.04	-16.95	-11.1	-10.14	-10.06	-7.99	-11.02	-7.99	-8.44	
Theta(180°)	-8.24	-10.15	-14.36	-17.55	-18.01	-15.71	-10.65	-11.71	-12.7	-14.42	-13.46	-14.5	-15.12	-10.28	-14.28	-17.61	-17.9	-12.97	-11.83	-10.44	-8.83	-7.59	-7.43	-8.32	
Freq(Hz)	5.2G	Pol.	Theta	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Phi(0°)	Phi(15°)	Phi(30°)	Phi(45°)	Phi(60°)	Phi(75°)	Phi(90°)	Phi(105°)	Phi(120°)	Phi(135°)	Phi(150°)	Phi(165°)	Phi(180°)	Phi(195°)	Phi(210°)	Phi(225°)	Phi(240°)	Phi(255°)	Phi(270°)	Phi(285°)	Phi(300°)	Phi(315°)	Phi(330°)	Phi(345°)	
Theta(0°)	-17.37	-18.06	-17.39	-13.85	-10.74	-8.7	-8.88	-7.82	-9.38	-10.12	-11.65	-16.82	-17.83	-17.08	-12.87	-13.3	-9.45	-7.76	-9.29	-7.41	-7.06	-8.69	-11.42	-12.8	
Theta(15°)	-10.31	-9.28	-7.64	-5.31	-5.16	-5.43	-4.29	-3.4	-3.98	-4.11	-3.13	-3.61	-5.69	-7.06	-6.08	-5.34	-7.58	-8.13	-9.09	-11.12	-11.62	-12.53	-12.1	-9.55	
Theta(30°)	-6.44	-5.02	-4.71	-5.86	-3.04	-2.32	-2.23	-1.2	0.61	-0.76	-0.37	-3.23	-2.14	-1.12	-1.05	-1.56	-0.88	-3.2	-4.95	-7.43	-6.43	-11.02	-6.78	-7.02	
Theta(45°)	-3.23	-2.87	-0.31	0.76	-0.52	-0.14	-0.77	1	-1.29	2.65	-0.21	-1.42	-0.89	-1.59	2.07	2.96	0.41	-1.51	-3.68	-2.64	-4.86	0.08	-1.96	-3.33	
Theta(60°)	-1.07	0.69	-1.79	-2.2	0.85	1.15	-0.86	0.6	-0.82	1.72	-2.87	-1.07	-0.12	1.25	0.18	2.32	1.84	-0.75	-0.43	0.42	-5.17	1.19	-2.89	-1.56	
Theta(75°)	-1.33	-0.51	-5.6	-3.47	-2.87	-1.54	-1.71	0.13	-0.31	1.5	-2.26	1.31	-0.27	0.67	3.67	1.									



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)_4TX

Appendix A.2

Θ(135°)	-16.28	-16.55	-15.3	-13.69	-16.67	-16.94	-17.24	-16.81	-8.47	-10	-11.6	-12.42	-10.1	-12.39	-12.61	-16.39	-16.32	-15.17	-13.78	-12.38	-12.55	-14.56	-12.89	-9.6
Θ(150°)	-11.64	-8.86	-11.18	-16.35	-18.29	-17.7	-17.49	-16.08	-9.74	-12.02	-6.57	-7.41	-11.05	-17.92	-18.2	-16.32	-17.55	-16.15	-11.78	-9.28	-9.2	-11.34	-10.39	-9.22
Θ(165°)	-11.64	-12.52	-16.09	-16.79	-17.89	-16.97	-16.84	-14.8	-10.48	-10.02	-12.09	-17.84	-14.5	-17.2	-17.72	-16.72	-18.36	-17.87	-16.9	-15.5	-12.38	-11.78	-10.71	-8.46
Θ(180°)	-8.41	-8.22	-12.49	-17.43	-18.24	-17.56	-15.84	-16.05	-17.52	-16.75	-14.92	-17.41	-11.24	-9.01	-10.91	-15.97	-17.05	-17.63	-17.84	-11.3	-10.07	-8.98	-8.78	-9.15
Freq(Hz)	5.6G	Pol.	Theta	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-13.21	-14.72	-14.88	-14.44	-15.81	-12.7	-14.4	-14.23	-13.97	-14.01	-12.39	-15.01	-15.88	-14	-14.18	-15.97	-15.4	-14.82	-14.74	-13.2	-12.01	-14.06	-15.07	-14.53
Θ(15°)	-9.04	-7.22	-6.68	-4.8	-4.08	-6	-5.89	-6.39	-4.96	-6.64	-6.59	-6.51	-8.74	-10.52	-10.73	-8.73	-10.02	-12.79	-13.4	-14.06	-16.9	-15.51	-10.95	-11.38
Θ(30°)	-3.58	-3.18	-2.3	-3.08	-2.54	-3.14	-3.75	-3.12	-2.93	-1.98	-2.94	-3.09	-5.04	-3.03	-2.01	-2.69	-4.58	-5.3	-10.02	-9.98	-13.25	-4.37	-8.83	-5.64
Θ(45°)	-1.8	0.59	-1.62	-1.77	-0.48	0	-1.03	-1.89	-1.99	-0.16	-0.93	-1.56	-2.3	-1.82	0.54	1.44	-0.1	-2.43	-4.34	-7.09	-4.91	-1.52	-2.85	-3.93
Θ(60°)	-1.24	-0.34	-1.76	-2.37	-3.01	-1.93	-0.82	0.31	-1.76	0.74	-0.63	-2.88	-2.75	-0.86	-1.65	1.82	0.69	0.36	-1.51	-3.17	-5.54	-1.77	-2.88	-0.89
Θ(75°)	-2.54	-2.62	-1.07	-0.06	-0.65	-1.82	-0.8	-1.05	0.6	-0.01	-2.31	-0.19	-0.26	0.57	1.51	0.2	1.88	-0.07	-3.7	-3.41	-7.9	-4.39	-5.33	-3.6
Θ(90°)	-4.33	-4.84	-2.51	-0.14	-2.05	-4.34	-2.74	-2.29	-0.19	-1.7	-3.67	-0.32	-2.98	-3.03	-3.25	-2.85	1.58	-2.93	-2.47	-5.18	-13.67	-7.6	-5.56	-5.19
Θ(105°)	-4.77	-6.4	-3.7	-3.88	-4.6	-3.99	-6.6	-3.06	-2.91	-2.89	-5.3	-5.2	-5.01	-3.05	-4.92	-16.98	-6.07	-10.23	-6.57	-10.1	-9.26	-10.7	-6.63	-5.64
Θ(120°)	-8.21	-6.13	-6.64	-4.9	-5.37	-3.92	-3.47	-5.23	-4.16	-6.77	-8.62	-15.21	-9.44	-17.6	-10.2	-9.1	-7	-14.49	-17.28	-17.65	-11.28	-7.62	-9.82	-11.65
Θ(135°)	-9.47	-9.58	-7.24	-6.06	-5.25	-7.37	-5.25	-6.36	-7.12	-7.36	-9.52	-11.65	-9.31	-8.53	-13.52	-7.83	-16.42	-8.84	-14.81	-18.56	-17.87	-13.66	-13.04	-12.11
Θ(150°)	-13.15	-12.3	-11.22	-9.02	-6.58	-8.41	-8.36	-10.71	-8.25	-10.06	-13.28	-17.79	-17.57	-16.55	-17.75	-12.72	-12.42	-16.29	-9.94	-16.39	-17.83	-17.6	-17.39	-17.34
Θ(165°)	-13.95	-9.48	-9.7	-8.77	-9.26	-8.93	-7.78	-10.26	-11.96	-12.79	-16.14	-17.66	-18.19	-17.28	-12.97	-14.45	-12.71	-11.52	-15.86	-15.5	-16.74	-17.98	-16.8	-17.98
Θ(180°)	-17.9	-12.69	-8.21	-9.8	-8.43	-8.66	-7.47	-10.88	-14.57	-16.98	-17.48	-17.92	-18.12	-12.09	-9.08	-8.59	-8.78	-7.8	-8.43	-9.34	-13.7	-16.16	-17.8	-17.55
Freq(Hz)	5.785G	Pol.	Phi	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-14.23	-14.65	-14.98	-10.67	-9.02	-9.39	-9.08	-7.79	-10.65	-9.93	-11.39	-15.49	-15.57	-13.62	-12.75	-12.94	-9.68	-9.32	-10.34	-9.61	-9.04	-9.92	-11.95	-10.92
Θ(15°)	-10.07	-11.53	-13.09	-17.95	-16.21	-11.17	-5.94	-5.57	-7.92	-11.85	-16.64	-15.69	-10.24	-10.04	-9.53	-11.21	-13.69	-13.45	-14.52	-17.77	-16.1	-13.12	-11.36	-10.78
Θ(30°)	-11.16	-12.66	-9.19	-11.63	-11.88	-6.95	-4.15	-5.34	-8.67	-9.18	-10.04	-14.87	-11.59	-10.3	-10.38	-9.26	-10.59	-17.82	-16.69	-16.7	-16.45	-8.46	-8.36	-13.76
Θ(45°)	-17.64	-15.22	-11.53	-16.18	-13.24	-4.26	-4.01	-5.3	-6.58	-9.18	-11.87	-12.05	-14.59	-9.82	-8.03	-10.31	-17.29	-14.59	-17.51	-16.41	-13.9	-6.6	-6.47	-9.98
Θ(60°)	-17.33	-17.15	-17.35	-11.68	-17.93	-8.9	-9.11	-6.56	-9.49	-6.29	-12.08	-17.9	-14.72	-10.09	-7.16	-15.23	-17.56	-16.4	-16.27	-12.5	-10.4	-9.35	-12.38	-11.35
Θ(75°)	-17.57	-18.06	-12.28	-11.68	-12.17	-11.29	-9.08	-8.09	-8.24	-9.67	-8.12	-10.31	-8.49	-8.24	-13.47	-11.41	-16.19	-17.35	-8.71	-7.71	-9.94	-13.16	-13.3	-18.02
Θ(90°)	-17.66	-17.37	-9.13	-16.56	-10.35	-17.36	-16.13	-13.44	-11.34	-9.77	-6.27	-8.1	-11.22	-7.5	-11.49	-13.25	-16.63	-11	-9.81	-11.94	-12.01	-16.34	-17.6	-17.58
Θ(105°)	-13.45	-16.03	-9.75	-17.84	-10.34	-17.61	-17.77	-17.75	-13.35	-8.71	-8.02	-6.57	-8.05	-9.71	-8.76	-11.24	-17.3	-11.14	-11.99	-17.59	-16.9	-18.76	-16.32	-17.86
Θ(120°)	-12.07	-13.16	-15.72	-15.98	-12.17	-18.09	-16.77	-15.1	-14.6	-13.23	-7.99	-8.13	-6.78	-16.38	-17.69	-8.4	-15.42	-16.38	-12.3	-17.48	-10.94	-14.89	-14.55	-17.44
Θ(135°)	-11.28	-16.94	-16.22	-12.39	-17.55	-17.27	-17.76	-17.92	-10.12	-14.14	-9.05	-16.07	-11.36	-14.8	-13.47	-18.34	-16.23	-12.5	-12.8	-14.53	-15.3	-14.26	-17.88	-13.41
Θ(150°)	-13.23	-10.83	-12.86	-13.57	-17.64	-16.89	-16.5	-17.4	-11.19	-11.58	-6.42	-9.35	-8.05	-17.98	-17.4	-17.55	-17.68	-12.63	-17.29	-7.07	-13.62	-12.99	-10.29	-9.96
Θ(165°)	-11.7	-12.17	-17.15	-17.93	-17.67	-17.27	-16.19	-17.62	-9.12	-12.85	-11.26	-15.97	-15.1	-15.46	-18.12	-17.24	-17.49	-16.45	-17.12	-14.09	-10.86	-12.16	-10.1	-9.7
Θ(180°)	-8.6	-9.75	-13.56	-18.67	-17.65	-17.15	-16.41	-12.63	-13.42	-15.88	-12.77	-13.91	-10.81	-7.57	-11.39	-16.27	-16.81	-16.79	-12.67	-9.68	-7.48	-7.75	-9.24	-7.33
Freq(Hz)	5.785G	Pol.	Theta	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-9.33	-9.99	-10.09	-10.06	-12.72	-14.75	-14.5	-15.98	-12.32	-10.11	-9.27	-8.61	-8.74	-8.96	-9.93	-11.25	-13	-15.07	-15.98	-14.96	-11.89	-10.33	-12.25	-10.57
Θ(15°)	-5.01	-5.12	-5.85	-4.1	-4.02	-4.48	-6.84	-8.06	-7.05	-6.48	-8.23	-7.03	-7.61	-10.6	-10.69	-13.33	-14.72	-14.53	-13.67	-16.56	-13.04	-11.82	-11.84	-9.59
Θ(30°)	-2	-1.44	-1.06	-1.83	-1.04	-1.6	-3.91	-4.25	-2.16	-4.63	-2.9	-6.52	-3.06	-2.32	-2.6	-4.12	-7.23	-11.76	-10.67	-12.8	-4.41	-7.46	-5.98	-5.98
Θ(45°)	-1.01	0.93	-1.72	-2.79	-0.11	-0.36	-1.8	-2.06	-1.21	-0.82	-1	-3.79	-3.62	-2.76	-0.33	1.52	-0.35	-2.43	-4.64	-6.53	-3.18	-3.15	-3.52	-2.26
Θ(60°)	-1.09	-1.93	-0.05	0.76	0.38	-3.03	-1.6	-0.94	-1.26	-0.57	-0.7	-4.71	-3.63	-1.25	-2.77	2.57	0.08	-0.42	-2.46	-4.37	-5.25	-4.06	-5.11	-0.01
Θ(75°)	-2.9	-2.82	-0.66	1.26	-1.61	-1	-0.9	-1.81	0.41	-1.59	-2.57	-1.36	-1.39	0.14	2.04	-0.62	1.44	-0.63	-1.15	-2.98	-7.14	-3.85	-4.29	-3.68
Θ(90°)	-3.35	-4.52	-3.31	-0.47	-3.38	-1.32	-3.52	-1.48	-0.48	-3.19	-3.19	-1.11	-2.63	-4.86	-3.53	-3.76	1.64	-3.62	-4.36	-7.25	-11.07	-7.55	-3.39	-6.56
Θ(105°)	-4.09	-4.74	-5.41	-3.73	-4.26	-6.11	-4.94	-2.84	-2.61	-4.55	-5.16	-7.68	-4.26	-4.13	-8.04	-10.97	-7.6	-10.41	-8.86	-11.61	-8.53	-9.59	-6.3	-6.2
Θ(120°)	-6.98	-6.78	-5.73	-5.85	-4.62	-4.37	-4.87	-4.57	-5.65	-9.03	-9.5	-13.65	-9.48	-17.87	-11.45	-11.41	-7.72	-13.48	-17.65	-18.23	-13.79	-9.82	-10.46	-7.71
Θ(135°)	-9.14	-9.14	-8.17	-7.1	-4.9	-5.37	-5.49	-5.55	-6.66	-8.27	-13.23	-11.47	-7.95	-11.92	-12.64	-8.61	-18	-8.23	-17.02	-16.61	-16.16	-13.53	-18.36	-12.89
Θ(150°)	-12.79	-12	-9.99	-11.54	-9.05	-8.69	-9.28	-8.89	-10.58	-8.73	-18.32	-16.16	-18.09	-17.35	-18.36	-10.82	-14.7	-15.83	-13.3	-17.68	-18.44	-17.34	-13.2	-11.46
Θ(165°)	-10.04	-9.58	-11.43	-10.46	-8.99	-8.79	-8.23	-9.63	-8.82	-16.28	-18.08	-17.45	-16.66	-13.37	-13.88	-12.15	-15.11	-14.44	-17.88	-13.9	-17.88	-17.39	-17.83	-17.18
Θ(180°)	-16.33	-11.3	-7.84	-8.95	-8.78	-8.5	-7	-11.16	-15.82	-16.6	-16.55	-17.59	-16.6	-11.31	-8.39	-8.03	-7.1	-7.12	-8.08	-10.15	-12.76	-17.75	-18.03	-18.11
Freq(Hz)	2.45G	Pol.	Phi	Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-2.38	-0.91	-0.32	-0.19	-1.09	-2.37	-4.11	-8.5	-18.42	-14.67	-8.78	-4.26	-1.81	-0.94	-0.54	-0.66	-1.11	-2.44	-5.74	-9.24	-16.13	-15.5	-8.07	-5.36
Θ(15°)	-1.53	-1.38	-1.11	-0.89	-1.4	-1.96	-2.91	-3.																



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)_4TX

Appendix A.2

Θ(90°)	-2.27	-2.38	-7.39	-2.83	-3.28	-2.56	-3.13	-2.04	-6.82	-2.83	-4.51	-0.24	-2.19	-0.1	-2.93	-1.95	-4.33	-0.98	0.1	-3.61	-2.52	-2.19	0.63	-1.99
Θ(105°)	-4.93	-5.96	-17.71	-5.48	-7.01	-5.5	-4.37	-3.7	-6.63	-3.28	-5.19	-2.61	-2.79	-1.81	-3.58	-7.95	-4.23	-8.37	-7.45	-8.81	-6.88	-11.04	-6.54	-4.51
Θ(120°)	-16.35	-17.59	-12.56	-9.83	-13.68	-8.76	-6.52	-6.12	-8.78	-4.29	-4.81	-3.93	-5.4	-3.85	-5.46	-7.1	-7.95	-16.55	-16.32	-17.15	-15.52	-9.19	-5.52	-8.2
Θ(135°)	-13.59	-10.58	-14.17	-14.66	-7.45	-8.74	-7.38	-8.59	-7.45	-7.43	-6.53	-5.22	-5.61	-7.64	-5.51	-10.99	-12.32	-14.54	-14.32	-10.85	-12.61	-6.16	-7.13	-8.29
Θ(150°)	-8.44	-12.4	-13.83	-18.01	-15.3	-13.15	-11.18	-12.6	-10.05	-11.09	-10.29	-7.98	-5.88	-8.22	-10.99	-11.63	-18.29	-17.58	-13.81	-17.91	-12.13	-11.74	-17.05	-9.81
Θ(165°)	-9.32	-11.05	-17.78	-16.9	-16.87	-14.85	-14.28	-12.56	-11.01	-8.44	-7.72	-8.68	-10.69	-10.25	-12.44	-17.87	-17.67	-17.28	-18.28	-17.72	-17.4	-17.7	-17.56	-10.96
Θ(180°)	-12.13	-11.66	-13.39	-16.95	-15.68	-17.52	-15.83	-14.35	-12.64	-9.25	-7.24	-6.77	-10.52	-14.32	-17.46	-17.3	-16.68	-12.72	-13.86	-11.65	-10.21	-14.11	-12.49	-13.62
Freq(Hz)	5.3G	Pol.	Phi	Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-16.3	-17.44	-17.4	-16.96	-16.21	-18.38	-17.81	-17.01	-17.09	-17.59	-16.95	-17.96	-18.04	-17.54	-16.92	-17.24	-16.93	-17.89	-17.71	-14.12	-13.8	-11.21	-13.23	-14.99
Θ(15°)	-12.14	-13.31	-16.78	-16.6	-13.21	-15	-17.87	-16.84	-13.68	-10.48	-9.91	-9.9	-9.2	-9.98	-13.67	-16.88	-13.52	-14.35	-18.25	-12.55	-7.41	-9.97	-12.88	-14.48
Θ(30°)	-10.06	-13.13	-12.01	-16.06	-17.46	-17.8	-17.21	-16.01	-12.64	-14.95	-9.59	-5.33	-8.6	-8.01	-13.39	-6.73	-10.94	-14.71	-12.25	-12.96	-8.83	-7.83	-7.19	-10.8
Θ(45°)	-13.1	-13.27	-18.03	-16.92	-17.64	-17.34	-17.24	-13.74	-15.75	-16.65	-9.19	-9.7	-7.45	-11.7	-5.56	-7.15	-9.61	-16.39	-17.9	-14.58	-13.47	-15.24	-17.92	-16.81
Θ(60°)	-8.45	-14.98	-16.9	-17.8	-12.58	-16.89	-15.81	-14.58	-14.57	-15.75	-16.99	-8.96	-12.73	-11.54	-6.44	-7.76	-7.87	-8.2	-10.61	-12.56	-11.83	-11.89	-15.43	-9.65
Θ(75°)	-8.82	-12.48	-17.51	-18.22	-15.66	-12.44	-16.91	-16.05	-17.96	-17.43	-12.8	-8.91	-12.16	-11.01	-8.53	-5.99	-5.23	-6.77	-8.75	-12.68	-16.6	-17.18	-16.89	-8.31
Θ(90°)	-12.03	-12.18	-15.03	-17.38	-12.86	-15.71	-17.08	-13.24	-17.65	-18.23	-12.63	-11.65	-13.69	-10.49	-7.8	-6.31	-5.89	-6.62	-7.15	-9.43	-7.46	-18.16	-12.31	-9.01
Θ(105°)	-12.55	-13.06	-12.16	-14.94	-11.85	-17.87	-17.98	-14.97	-16.28	-17.8	-15.4	-15.93	-18.15	-11.82	-10.91	-9.17	-5.24	-4.56	-7.22	-8.96	-9.35	-17.67	-11.73	-9.99
Θ(120°)	-10.27	-11.45	-12.12	-13.13	-11.27	-13.45	-11.37	-17	-17.53	-17.15	-16.51	-12.18	-18.05	-14.65	-11.2	-10.84	-8.06	-8.85	-8.38	-13.1	-15.21	-16.64	-17.04	-11.19
Θ(135°)	-10.82	-11.87	-11.3	-8.74	-12.79	-14.87	-17.13	-18.2	-17.35	-17.82	-17.56	-17.65	-16.19	-17.87	-7.95	-11.82	-15.93	-7.87	-7.39	-14.49	-16.25	-17.52	-17.48	-16.7
Θ(150°)	-13.78	-8.36	-10.76	-8.79	-9.88	-10.89	-12.6	-11.54	-12.17	-13.38	-17.18	-17.11	-11.16	-17.39	-10.03	-10.07	-8.45	-8.17	-16.56	-13.62	-13.66	-17.34	-16.09	-14.44
Θ(165°)	-15.34	-15.43	-9.61	-8.37	-11.32	-13.56	-16.74	-17.65	-17.73	-17.73	-16.6	-16.16	-18.29	-13.68	-11.69	-18.09	-17.68	-9.06	-14.23	-17.2	-16.64	-17.54	-17.93	-17.12
Θ(180°)	-17.81	-15.27	-12.81	-12.18	-11.31	-9.54	-9.1	-10.89	-13.16	-16.01	-16.78	-17.28	-16.75	-16.66	-16.41	-17.34	-17.55	-11.69	-10.39	-11.44	-17.59	-16.96	-16.77	-12.6
Freq(Hz)	5.3G	Pol.	Theta	Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-17.11	-17.42	-17.66	-17.83	-17.63	-18	-17.84	-16.8	-17.16	-16.87	-18.14	-17.22	-17.64	-18.02	-15.9	-15.08	-15.06	-18.01	-17.78	-17.8	-16.93	-17.12	-17.95	-15.45
Θ(15°)	-10.88	-15.85	-15.46	-13.47	-13.04	-13.41	-14.79	-13.11	-10.46	-9.55	-8.59	-8.18	-6.52	-7.01	-5.13	-3.8	-4.86	-7.37	-7.53	-7.14	-7.06	-7.59	-8.82	-10.29
Θ(30°)	-5.24	-5.9	-6.13	-9.77	-8.77	-9.67	-6.82	-7.81	-7.09	-5.57	-3.77	-3.58	-3.39	-1.99	-0.93	-1.97	-1.01	-4.07	-3.22	-3.09	-3.65	-3.2	-1.04	-2.68
Θ(45°)	-1.59	-4.99	-3.6	-2.54	-2.35	-5.76	-3.94	-2.39	-2.14	-1.36	1.1	-1.15	-0.45	-0.12	-0.34	1.16	-1.7	-2.76	-2.33	-2.11	-1.02	2.94	1.94	-1.07
Θ(60°)	0.39	-0.7	-4.95	-0.34	-2.59	-7.21	-2.6	-0.2	-3.81	-0.79	-0.87	0.37	0.87	0.07	-0.34	1.87	-1.2	-1.27	-2.25	-0.28	-0.57	0.44	2.29	2.5
Θ(75°)	-0.94	-0.3	-4.63	-0.73	-2.62	-4.72	-0.85	-0.2	-7.62	-2.09	-1.5	0.8	-0.8	0.94	-0.55	0.72	-0.85	2.05	-2.8	-2.45	0.1	-1.38	5.16	1.87
Θ(90°)	-2.87	-2.95	-8.93	-3.76	-5.32	-3.46	-3.47	-3.05	-6.62	-3.97	-3.05	-1.13	-2.93	-1.57	-1.54	-2.37	-1.8	-1.29	-0.5	-1.85	-4.68	-1.87	1.87	-1.92
Θ(105°)	-4.41	-5.1	-17.28	-8.52	-6.25	-6.85	-5.31	-5.87	-4.99	-5.34	-3.62	-3.07	-3.56	-4.25	-2.69	-8.1	-4.01	-10.02	-7.84	-8.1	-8.77	-9.19	-4.77	-4.99
Θ(120°)	-16.46	-16.67	-9.24	-10.63	-11.1	-10	-7.44	-5.63	-8.8	-5.88	-5.73	-3.14	-4.74	-7.03	-3.96	-6.77	-7.15	-18.04	-17.6	-15.91	-15.68	-8.68	-4.23	-9.47
Θ(135°)	-12.21	-11.38	-13.23	-11.44	-10.48	-11.65	-10	-9.1	-10.08	-6.99	-7.34	-6.8	-7.82	-8.28	-6.95	-9.01	-16.36	-13.66	-17.47	-12.72	-15.89	-6.6	-8.04	-6.33
Θ(150°)	-9.18	-18.22	-10.99	-17.32	-15.65	-11.7	-15.43	-12.7	-11.69	-10.54	-17.36	-7.9	-4.86	-10.05	-10.73	-13.05	-17.26	-17.01	-13.1	-16.28	-12.81	-11.35	-13.32	-7.71
Θ(165°)	-10.08	-12.14	-16.59	-17.96	-17.95	-15.78	-13.72	-15.31	-11.51	-9.16	-8.19	-8.89	-12.69	-10.51	-11.39	-17.65	-18	-17.05	-17.77	-17.4	-17.27	-16.16	-12.32	-9.71
Θ(180°)	-10.73	-11.97	-14.11	-17.37	-16.87	-16.87	-16.99	-17.1	-13.29	-10.91	-7.69	-7.41	-9.07	-13.82	-18.16	-18.06	-17.54	-14.74	-12.86	-10.02	-11.65	-11.49	-12.08	-11.09
Freq(Hz)	5.6G	Pol.	Phi	Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-15.19	-17.08	-17.38	-14.26	-13.12	-12.43	-10.67	-11.39	-11.08	-11	-14.29	-13.19	-14.24	-15.07	-17.18	-15.46	-12.87	-12.29	-11.66	-9.25	-8.98	-9.41	-11.82	-11.08
Θ(15°)	-15.88	-16.49	-17.98	-17.33	-18.17	-18.16	-9.19	-11.12	-12.21	-15.33	-12.9	-12.91	-10.3	-9.93	-7.21	-11.96	-16.07	-11.39	-12.53	-14.62	-8.88	-11.06	-15.22	-15.79
Θ(30°)	-15.75	-13.73	-13.64	-14.02	-18.74	-13.47	-12.01	-10.76	-10.21	-13.85	-15.73	-10.76	-7.77	-10.96	-10.26	-5.86	-7.01	-10.15	-12.07	-9.9	-14.1	-13.18	-11.83	-17.64
Θ(45°)	-11.52	-16.45	-17.19	-16.85	-11.13	-15.02	-11.87	-14.98	-10.34	-15.3	-16.63	-8.93	-12.09	-10.76	-5.13	-6.05	-8.62	-8.62	-9.65	-12.78	-14.98	-17.78	-17.47	-17.32
Θ(60°)	-13.08	-17.72	-17.56	-14.78	-12.33	-9.93	-9.64	-14.66	-18.17	-11.87	-15.02	-11.1	-13.85	-11.18	-8.7	-7.8	-5.96	-6.46	-8.55	-12.71	-12.26	-14.64	-14.9	-9.54
Θ(75°)	-18.26	-13.03	-13.69	-12.3	-11.41	-15.08	-14.11	-9.81	-17.39	-13.26	-17.87	-15.02	-17.19	-13.16	-10.74	-7.87	-6.77	-4.62	-8.11	-12.47	-18.32	-16.83	-17.66	-10.14
Θ(90°)	-17.04	-13.16	-9.44	-11.93	-12.87	-14.54	-16.79	-13.56	-16.78	-17.09	-18.37	-16.29	-17.81	-15.93	-13.33	-13.04	-8.88	-9.11	-8.36	-9.44	-11.64	-17.4	-13.87	-13.64
Θ(105°)	-15.19	-11.28	-9.91	-13.39	-13.85	-16.66	-17.45	-17.51	-16.98	-17.14	-17.55	-18.37	-14.6	-13.84	-15.04	-11.4	-10.48	-7.15	-9.42	-10.9	-9.63	-18.01	-13.07	-16.71
Θ(120°)	-8.39	-11.14	-13.4	-15.1	-15.66	-16.43	-18.82	-17.81	-16.72	-16.64	-16.7	-17.94	-14.99	-12.98	-14.19	-10.68	-10.26	-9.64	-11.51	-13.08	-17.11	-17.23	-17.53	-12.38
Θ(135°)	-13.23	-15.9	-13.66	-14.49	-13.69	-14.44	-14.26	-18.26	-17.94	-18.11	-17.58	-15.54	-18.19	-13.62	-12.92	-11.42	-11.81	-9.63	-8.18	-14.96	-17.06	-17.86	-16.79	-18.19
Θ(150°)	-17.27	-10.99	-11.75	-16.71	-11.89	-18.07	-16.14	-17.49	-17.89	-16.94	-18.83	-18.45	-17.76	-12.93	-11.94	-13.88	-8.14	-12.53	-17.72	-16.62	-17.64	-18.24	-17.39	-16.85
Θ(165°)	-16.7	-14.21	-13.54	-16.95	-11.96	-15.25	-14.22	-16.06	-16.91	-17.92	-18.16	-17.25	-13.08	-14.17	-13.84	-15.34	-16.47	-16.2	-16.6	-17.03	-17.03	-18.29	-18.16	-16.96
Θ(180°)	-17.65	-14.2	-13.32	-13.07	-13.6	-1																		



Θ(45°)	-6.57	-8.1	-12.85	-10.05	-6.03	-2.61	-1.18	-0.53	-0.53	-2.66	-5.2	-8.26	-11.04	-12.41	-16.29	-16.56	-10.57	-5.85	-4.84	-5.05	-4.1	-4.2	-3.19	-4.26
Θ(60°)	-4.11	-7.85	-10.58	-13.2	-13.32	-3.78	-0.82	-1.39	-1.42	-3.54	-7.37	-17.51	-16.44	-15	-18.37	-17.74	-14.72	-4.92	-3.23	-7.17	-5.53	-4.56	-2.55	-3.69
Θ(75°)	-6.42	-12.11	-7.14	-18.83	-16.58	-5.21	-2.46	-5.62	-4.88	-5.16	-7.4	-18.04	-16.29	-17.67	-17.18	-16.8	-16.62	-7.42	-5.33	-7.05	-4.85	-6.01	-5.85	-9.76
Θ(90°)	-6.37	-14.06	-6.08	-16.22	-10.79	-8.13	-7.33	-8.04	-6.7	-7.59	-8.72	-15.32	-15	-16.99	-17.74	-17.93	-17.48	-9.84	-5.91	-8.43	-7.09	-8.44	-7.45	-10.57
Θ(105°)	-6.93	-14.79	-6.83	-18.33	-11.32	-6.02	-6.08	-10.09	-8.66	-8.01	-9.21	-17.16	-13.54	-17.33	-17.73	-18.32	-17.31	-13.45	-8.09	-15.24	-10.2	-10.01	-6.9	-11.85
Θ(120°)	-5.88	-10.24	-5.63	-17.09	-12.46	-6.55	-8.21	-9.99	-6.41	-7.73	-11.51	-18.35	-12.7	-17.39	-17.28	-16.99	-17.37	-17.03	-10.91	-13	-18.86	-16.77	-6.77	-6.58
Θ(135°)	-9.6	-13.16	-11.34	-17.96	-14.12	-9.57	-7.1	-7.54	-10.2	-14.37	-16.48	-16.86	-17.49	-14.24	-8.49	-14.97	-17.1	-17.06	-14.76	-18.34	-12.89	-10.37	-6.56	-6.36
Θ(150°)	-16.58	-14.4	-14.43	-12.48	-18.08	-17.14	-11.5	-9.61	-7.92	-8.79	-10.36	-13.05	-15.49	-13.29	-13.62	-16.56	-18.02	-11.32	-8.59	-8.57	-11.67	-18.06	-17.77	-17.14
Θ(165°)	-16.92	-17.84	-15.96	-12.12	-10.97	-10.1	-9.71	-9.32	-10.42	-11.29	-10.61	-9.14	-8.46	-9.13	-12.22	-17.54	-13.7	-10.92	-10.53	-11.99	-15.42	-18.24	-17.48	-17.84
Θ(180°)	-18.17	-18.22	-17.19	-15.66	-13.64	-12.1	-12.23	-12.68	-11.6	-11.1	-12.45	-13.47	-12.63	-16.34	-17.74	-16.8	-17.2	-16.88	-15.35	-13.13	-12.85	-12.21	-14.48	-16.7
Freq(Hz)	2.45G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-1.17	-0.62	-0.1	0.01	-0.94	-3.09	-5.43	-8.58	-8.67	-5.6	-3.3	-1.78	-0.84	-0.82	-0.67	-0.6	-1.54	-3.1	-6.16	-10.69	-11.67	-7.39	-3.86	-1.69
Θ(15°)	-3.61	-2.8	-1.66	-1.34	-2.12	-4.24	-9.31	-17.21	-10.04	-4.96	-2.57	-1.26	-0.13	0.93	1.51	1.15	-0.32	-2.72	-5.77	-7.41	-5	-3.16	-2.41	-2.57
Θ(30°)	-3.91	-4.98	-5.48	-4.36	-3.73	-4.69	-8.69	-8.25	-4.01	-2.32	-2.14	-2.57	-0.56	1.67	2.79	2.79	1.51	-0.76	-3.5	-5.8	-5.41	-1.71	-0.79	-2.28
Θ(45°)	-1.91	-3.31	-5.28	-1.76	-0.71	-1.27	-2.03	-2.7	-1.63	-1.22	-2.53	-3.1	-0.51	1.45	1.57	1.46	0.4	-1.48	-1.43	-1.18	-4.31	-2.36	0.01	-0.68
Θ(60°)	-0.84	-2.95	-8.14	-0.95	-1.21	-1.32	-0.43	0.39	0.28	-0.3	-1.17	-1.34	-0.53	0.6	-0.03	-0.25	0.19	-0.54	-0.54	-0.06	-3.51	-1.04	1.68	1
Θ(75°)	-1.03	-2.25	-12.69	-5.01	-5.35	-3.36	-1.79	-0.56	0.46	-0.53	-2.01	-2.2	-2	-0.05	-0.54	-1.47	-0.53	-1.34	-0.6	0.29	-2.66	-0.75	1.45	0.82
Θ(90°)	-3.26	-3.56	-15.07	-6.97	-4.85	-5.04	-5.86	-2.23	-0.2	-1.18	-3.41	-2.89	-3.3	-1.5	-2.24	-2.5	-2.04	-2.29	-0.67	-0.71	-3.2	-1.48	0.14	-2.01
Θ(105°)	-3.22	-4.22	-14.95	-3	-2.98	-3.02	-6.96	-7.81	-3.34	-2	-2.94	-1.8	-0.77	-0.85	-2.19	-5.95	-3.57	-1.69	-1.56	-7.44	-7.05	-0.96	-0.81	-5.71
Θ(120°)	-7.91	-8.26	-10.94	-7.55	-10.28	-9.42	-6.38	-9.29	-5.08	-4.18	-5.67	-4.52	-1.62	-2.02	-5.47	-6.21	-3.99	-3.21	-4.04	-8.64	-7.59	-4.28	-4.22	-10.89
Θ(135°)	-17.57	-17.51	-16.99	-16.11	-16.94	-17.26	-12.51	-14.27	-11.6	-6.5	-4.45	-4.04	-3.16	-4.21	-8.52	-4.05	-2.34	-1.76	-5.64	-8.33	-7.73	-9	-12.23	-15.52
Θ(150°)	-9.47	-7.82	-6.46	-7.05	-7.93	-9.57	-14.23	-16.85	-12.09	-8.53	-5.91	-6.69	-10.06	-13.69	-10.13	-8.26	-7.34	-5.12	-5.43	-7.32	-12.27	-17.79	-14.39	-11.22
Θ(165°)	-15.24	-14.81	-16.41	-17.25	-12.4	-10.92	-10.84	-14.89	-17.85	-16.79	-16.78	-16.18	-12.22	-7.8	-5.4	-5.1	-5.77	-6.93	-9.99	-16.59	-17.89	-15.56	-13.96	-13.44
Θ(180°)	-12	-12.99	-12.95	-12.78	-12.24	-14.88	-18.24	-16.94	-17.1	-18.31	-14.99	-14.04	-11.99	-11.02	-10.99	-12.74	-15.15	-15.85	-16.68	-17.79	-17.5	-17.11	-16.3	-14.93
Freq(Hz)	5.2G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-7.31	-6.35	-6.03	-5.87	-6.83	-9	-12.65	-17.47	-17.99	-12.49	-8.41	-7.04	-5.91	-5.46	-4.61	-5.32	-7.82	-9.09	-13.84	-17.53	-17.91	-10.69	-7.64	-7.03
Θ(15°)	-7.81	-7.42	-7.46	-5.56	-8.24	-10.15	-12.3	-14.28	-9.86	-7.8	-7.19	-7.52	-8.67	-9.86	-9.78	-11.68	-10.52	-10.51	-10.34	-10.67	-14.27	-13.25	-11.21	-8.44
Θ(30°)	-11.25	-5.67	-9.05	-14.89	-5.9	-8.55	-7.55	-7.27	-10.49	-10.35	-10.22	-8.66	-8.4	-8.78	-10.42	-13.68	-12.36	-8.36	-7.9	-15.01	-14.03	-14.02	-16.36	-11.88
Θ(45°)	-12.75	-15.86	-8.93	-4.49	-8.01	-7.01	-8.43	-9.2	-13.14	-14.37	-11.9	-9.84	-9.99	-7.09	-7.6	-10.46	-17.39	-8.55	-9.8	-11.89	-13.35	-15.13	-17.94	-17.45
Θ(60°)	-6.4	-7.52	-13.61	-11.93	-6.75	-6.94	-6.08	-9.19	-17.52	-10.8	-12.71	-15.26	-17.9	-11.88	-13	-17.33	-16.48	-8	-8.12	-11.46	-9.3	-12.29	-17.59	-9.25
Θ(75°)	-9	-9.13	-17.42	-7.68	-9.05	-7.86	-9.54	-14.14	-14.88	-15.37	-14.56	-16.36	-12.88	-17.12	-18.22	-18.16	-16.05	-8.68	-10.02	-9.83	-7.53	-10.61	-13.23	-12.66
Θ(90°)	-7.12	-8.19	-10.93	-15.38	-10.48	-10.16	-15.14	-11.09	-12.99	-16.41	-16.24	-17.67	-12.61	-16.62	-15.2	-16.93	-17.33	-9.1	-13.52	-9.28	-10.46	-11.3	-8.81	-12.96
Θ(105°)	-5.43	-10.41	-15.47	-16.65	-10.11	-10.29	-14.01	-9.85	-11.34	-13.84	-17.45	-16.21	-14.41	-16.57	-16.35	-18.22	-17.3	-7.67	-16.07	-12.46	-18.1	-10.36	-11.45	-10.65
Θ(120°)	-9.32	-16.7	-14.43	-16.68	-17.66	-9.75	-10.34	-8.74	-8.34	-11.46	-10.47	-14.27	-17.1	-17.6	-16.33	-17.91	-15.9	-14.05	-12.2	-16.31	-13	-9.48	-10.46	-13.05
Θ(135°)	-12.42	-14.61	-13.38	-15.06	-15.95	-18.32	-13.72	-10.18	-9.79	-9.12	-7.26	-13.28	-13.7	-16.66	-18.96	-17.42	-15.25	-10.95	-16.5	-17.55	-8.71	-10.94	-17.26	-11.96
Θ(150°)	-14.02	-16.48	-17.61	-13.12	-17.04	-14.79	-10.25	-9	-7.33	-13.7	-14.27	-14.59	-13.34	-12.9	-17.07	-17.19	-17.71	-17.12	-17.79	-12.97	-10.68	-10.69	-9.44	-9.31
Θ(165°)	-18.19	-17.34	-18.21	-14.71	-12.15	-16.32	-12.56	-7.55	-7.34	-7.84	-7.89	-9.97	-17.37	-15.73	-16.69	-17.32	-16.95	-17.55	-11.55	-10.94	-8	-7.86	-7.22	-9.45
Θ(180°)	-17.92	-17.47	-16.68	-17.93	-17.02	-18.39	-13.73	-13.53	-11.34	-12.14	-13.03	-12.6	-13.86	-16.22	-16.73	-17.87	-16.99	-17.55	-18.32	-18.55	-12.47	-12.39	-12.21	-13.58
Freq(Hz)	5.2G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-13.85	-17.12	-18.23	-12.64	-8.69	-6.37	-6.3	-4.71	-4.97	-5.6	-6.94	-8.82	-13.89	-17.95	-17.47	-10.8	-8.29	-5.83	-5.28	-4.87	-4.31	-5.85	-7.68	-11.44
Θ(15°)	-3.95	-6.15	-7.84	-10.68	-8.26	-7.06	-5.39	-6.75	-10.54	-16.91	-17.98	-11.66	-9.15	-7	-6.23	-5.98	-5.76	-4.75	-3.76	-3.25	-2.92	-5.32	-4	-2.37
Θ(30°)	-4.87	-4.19	-4.84	-3.02	-2.4	-4.66	-6.77	-10.79	-8.69	-14.82	-15.18	-13.91	-10.84	-7.64	-5.98	-3.93	-1.76	-1.66	-1.58	-1.29	-0.39	0.5	-1.97	-4.26
Θ(45°)	-5.25	-1.04	-1.83	-0.12	0	-1.67	-1.34	-3.36	-7.9	-3.72	-4.94	-3.81	-3.98	-0.58	-0.79	0.05	-0.93	-1.75	-3.19	-1.87	-5.81	0.32	-0.69	-2.6
Θ(60°)	-2.21	-1.42	1.44	0.39	0.4	-1.17	0.65	-0.67	-5.7	0.24	-3.38	-2.27	-1.81	0.02	-2.63	-3.61	-0.83	1.17	-1.07	-2	-3.35	-2.22	-2.88	-1.11
Θ(75°)	-4.54	-1.67	1.26	-0.74	2.78	0.76	0.12	1.38	-3.1	-0.24	-1.93	-3.9	-1.2	-0.77	-2.23	-8.32	-0.46	0.72	-1.41	-0.73	-3.26	0.05	-3.45	-0.76
Θ(90°)	-7.09	-5.53	-0.94	0.36	1.61	-4.26	-2.57	0.68	-3.7	-2.21	-4.02	-2.97	-0.83	-1.14	-2.1	-10.9	-2.58	-1.39	-1.19	-0.07	-4.47	-0.69	-6.66	-6.23
Θ(105°)	-8.72	-8.58	-14.05	-7.57	-16.61	-11.3	-3.96	-1.27	-6.73	-3.61	-4.34	-2.51	-2.13	-3.43	-3.99	-7.03	-7.24	-2.37	-7.2	-2.79	-9	-5.94	-11.31	-7.19
Θ(120°)	-13.55	-17.28	-10.26	-4.24	-5.53	-6.27	-8.51	-12.51	-7.55	-7.81	-8.26	-7.29	-5.06	-10.2	-4.99	-8.41	-6.12	-3.95	-4.76	-2.81	-5.32	-9.18	-10.77	-17.96
Θ(135°)	-11.21	-14.83	-9.07	-5.63	-13.71	-16.23	-12.29	-17.8	-12.16	-12.04	-6.77	-12.19	-5.83	-7.2	-4.42	-11.49	-6.35	-6.09	-5.07	-4.49	-6.15	-12.32	-8.39	-10.52
Θ(150°)	-11.95	-16.65	-18.13	-10.49	-16.65	-17.71	-15.32	-13.91	-1															



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)_4TX

Appendix A.2

Θ(0°)	-15.18	-16.86	-15.47	-10.27	-9.59	-7.65	-6.35	-6.45	-6.58	-8.01	-8.76	-10.68	-12.94	-15.35	-13.16	-12.27	-10.05	-8.44	-7.64	-6.87	-6.48	-8.54	-9.96	-10.91
Θ(15°)	-7.01	-10.02	-14.07	-13.2	-11.74	-9.36	-8.95	-12.62	-13.68	-12.62	-12.9	-13.74	-13.1	-10.19	-7.46	-6.05	-6.07	-5.08	-3.82	-3.69	-3.2	-5.26	-8.7	-8.65
Θ(30°)	-5.39	-6.91	-5.61	-3.45	-4.8	-4.89	-9.38	-7.3	-13.75	-12.4	-10.23	-7.17	-5.4	-4.52	-3.32	-1.28	-0.9	-1.16	-1.88	-2.48	-2.83	-1.59	-3.22	-5.43
Θ(45°)	-5.69	-2.03	-1.69	-1.85	-1.02	-3.25	-3.4	-4.45	-8.73	-2.96	-3.26	-4.45	-1.13	-0.23	-1.79	-1.88	-1.67	-2.62	-3.35	-3.59	-2.53	-3.03	-1.37	-4.53
Θ(60°)	-4.3	-3.24	0.05	0.55	-0.96	-1.14	-1.68	-4.16	-5.67	-1.24	-4.86	-1.43	-0.11	-2.19	-1.62	-3.63	-0.57	-1.12	0.12	-2.05	-3.59	-4.7	-1.41	-0.42
Θ(75°)	-5.18	-3.1	0.62	-0.04	2.66	0.13	0.33	-0.12	-5.05	-2.89	-5.48	-3.72	-1.68	-2.89	-1.14	-1.04	0.53	-0.47	-1.93	-2.05	-2.53	-1.23	-2.89	-1.69
Θ(90°)	-7.88	-8.69	-3.23	-0.48	0.41	-1.48	-3.14	-1.46	-5.81	-3.12	-6.02	-6.05	-4.07	-6.17	-4.05	-2.74	-2.35	-1.23	-4.79	-1.59	-4.26	0.08	-5.45	-2.8
Θ(105°)	-10.19	-11.06	-12.44	-8.56	-11.23	-6.83	-9.19	-4.51	-8.58	-4.09	-6.51	-8.3	-5.74	-7.06	-3.08	-4.07	-5.6	-4.85	-6.04	-2.79	-11.93	-7.21	-10.53	-8.13
Θ(120°)	-8.82	-13.11	-11.96	-6.3	-7.64	-7.58	-7.37	-15.33	-13.31	-9.45	-7.69	-8.53	-8.5	-6.2	-3.94	-6.7	-5.66	-4.84	-7.12	-2.65	-5.24	-8.36	-15.19	-17.49
Θ(135°)	-13.46	-15.86	-13.54	-5.13	-14.56	-9.15	-17.24	-16.81	-13.07	-17.21	-17.95	-13.33	-10.38	-11.87	-5.48	-13.57	-12.19	-4.69	-7.77	-5.56	-6.42	-16.18	-11.87	-10.15
Θ(150°)	-17.02	-13.38	-17.99	-14.55	-17.83	-16.16	-17.65	-17.76	-13.07	-12.08	-15.69	-13.28	-7.97	-10.98	-7.07	-15.56	-8.96	-7.98	-17.01	-7.89	-8.63	-17.69	-16.14	-17.63
Θ(165°)	-17.62	-17.44	-13.05	-13.19	-16.85	-17.26	-13.94	-16.91	-18.19	-17.72	-14.41	-13.56	-11.23	-9.41	-7.9	-6.21	-6.49	-8.39	-11.87	-10.58	-9.25	-14.65	-16.22	-18.68
Θ(180°)	-14.75	-12.9	-14.14	-11.5	-10.01	-11.83	-14.11	-17.54	-18.13	-17.48	-18	-14.95	-12.69	-10.95	-8.62	-7.65	-8.11	-9.55	-13.6	-17.14	-18.12	-17.28	-18.12	-17.26
Freq(Hz)	5.785G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8.54	-10.94	-9.74	-9.19	-8.75	-8.62	-8.81	-8.62	-9.14	-7.88	-7.24	-6.03	-7.36	-8.73	-8.04	-10.56	-10.31	-11.91	-10.05	-10.55	-8.83	-8.93	-10.18	-9.02
Θ(15°)	-8.21	-6.01	-7.65	-7.04	-8.88	-11.67	-17.33	-17.34	-16.63	-12.33	-9.71	-8.27	-7.79	-7.31	-9.35	-12.76	-13.56	-9.94	-7.55	-5.68	-6.03	-9.24	-10.11	-13.21
Θ(30°)	-10.34	-7.85	-8.8	-12.64	-7.85	-15.97	-13.08	-16.74	-16.95	-12.05	-7.61	-8.88	-9.06	-12.47	-10.47	-12.96	-14.78	-9.95	-5	-5.02	-8.45	-8.43	-4.94	-14.88
Θ(45°)	-15.05	-13.03	-11.15	-7.46	-10.82	-12.27	-16.73	-18.4	-11.58	-7.94	-7.52	-6.48	-8.12	-17.09	-17.26	-14.75	-17.91	-10.07	-8.32	-12.01	-9.14	-6.55	-7.15	-11.36
Θ(60°)	-7.98	-11.23	-10.15	-17.85	-11.19	-13.73	-13.77	-16.78	-10.3	-7.92	-10.27	-8.96	-7.2	-12.84	-16.28	-12.08	-18.02	-8.39	-8.01	-10.8	-8.17	-11.58	-8.23	-12.23
Θ(75°)	-9.6	-10.64	-16.99	-10.1	-16.63	-13.37	-13.2	-7.34	-9.94	-10.02	-13.78	-13.83	-16.11	-17.58	-17.23	-13.22	-17.59	-8.64	-12.88	-9.91	-8.9	-8.03	-10.44	-15.67
Θ(90°)	-12.03	-16.09	-16.37	-18.14	-13.89	-17.31	-13.7	-8.19	-13.13	-13.6	-15.63	-18.67	-17.12	-17.73	-17.07	-16.97	-15.57	-14.57	-15.5	-16.63	-14.85	-11.38	-10.57	-9.63
Θ(105°)	-12.61	-11.68	-13.88	-13.3	-12.63	-12.76	-15.91	-15.25	-14.43	-14.54	-14.64	-17.37	-18.1	-16.56	-16.14	-16.88	-15.87	-17.85	-15.2	-16.71	-16.01	-13.14	-10.43	-10.64
Θ(120°)	-11.86	-16.91	-17.74	-16.5	-16.97	-11.5	-14.39	-17.87	-14.75	-18.28	-14.43	-17.78	-16.09	-13.16	-15.35	-17.22	-16.93	-15.6	-16.11	-9.68	-16.66	-17.61	-16.99	-17.43
Θ(135°)	-9.7	-10.09	-16.83	-17.58	-17.35	-15.63	-12.29	-14.3	-17.37	-11.99	-17.57	-10.88	-7.21	-15.12	-17.11	-15.83	-15.87	-16.26	-13.43	-12.93	-12.97	-16.7	-13.93	-16.25
Θ(150°)	-17.46	-17.91	-16.86	-18.1	-16.8	-16.82	-14.13	-11.78	-12.2	-18.07	-14.06	-16.96	-14.2	-16.47	-16.42	-17.69	-18.09	-16.47	-17.51	-17.14	-12.03	-12.94	-10.14	-5.38
Θ(165°)	-11.69	-16.6	-17.8	-17.76	-16.42	-16.68	-11.01	-12.88	-10.19	-8.19	-11.26	-13.06	-10.7	-13.78	-17.26	-17.74	-14.35	-14.97	-14.65	-15.08	-10	-9.02	-14.4	-9.52
Θ(180°)	-16.44	-15.2	-17.64	-16.91	-17.71	-17.86	-14.94	-14.23	-11.5	-10.55	-11.27	-14.1	-15.42	-14.75	-17.05	-17.49	-18.06	-16.23	-15.92	-16.82	-17.09	-13.36	-13.41	-18.25
Freq(Hz)	5.785G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-9.02	-10.13	-9.4	-7.58	-8.43	-7.97	-8.24	-7.65	-8.92	-8.98	-8.81	-8.78	-8.53	-8.21	-7.38	-7.98	-9.36	-9.06	-8.55	-9.3	-8.92	-10.48	-10.82	-10.13
Θ(15°)	-8.13	-12.09	-16.75	-17.62	-14.2	-11.6	-11.93	-11.06	-9.98	-13.02	-14.29	-12.03	-9.57	-9	-6.3	-5.07	-3.68	-5.06	-6.08	-5.91	-3.83	-5.09	-7.93	-10.22
Θ(30°)	-6.49	-7.68	-6.78	-5.76	-6.51	-6.38	-9.24	-8.25	-15.11	-9.28	-8.21	-5.98	-3.73	-3.72	-2.6	-0.8	0.3	-2.07	-1.79	-3.71	-2.15	-3.44	-3.61	-7.7
Θ(45°)	-4.98	-3.04	-1.12	-2.68	-3.42	-3.53	-4.41	-5.63	-6.36	-5.63	-4.28	-1.69	-0.02	-0.85	-1.75	-4.36	-1.81	-2.57	-2.17	-2.54	-3.22	-2.46	-0.86	-5.61
Θ(60°)	-2.23	-3.1	0.48	1.65	-0.92	-0.36	-1.13	-6.29	-5.31	-3.53	-5.98	-2.12	-0.7	-1.67	0.6	-0.34	-0.44	-1.07	-0.06	-3.78	-3.08	-4.66	-1.21	-2.1
Θ(75°)	-5.61	-4.89	0.13	-1.2	-0.67	1.13	0.54	-2.83	-5.71	-2.58	-5.25	-3.36	-1.18	-3.25	0.08	-0.68	0.13	1.91	-0.64	-1.2	-2.6	-1.77	-2.86	-1
Θ(90°)	-7.86	-9.85	-4.26	-3.72	-0.24	-0.78	-4.16	-3.52	-9.77	-4.52	-4.06	-4.06	-2.39	-6.39	-2.1	-2.78	-2.56	-1.63	-2.42	-1.44	-3.92	-0.42	-4.99	-4.82
Θ(105°)	-8.97	-11.61	-10.71	-7.5	-9.22	-5.41	-9	-7.57	-11.77	-5.01	-5.74	-7.55	-6.8	-6.95	-4.58	-5.41	-3.79	-3.97	-8.74	-3.04	-11.14	-5.88	-8.07	-8.88
Θ(120°)	-9.4	-14.14	-12.27	-6.61	-9.25	-8.15	-11.03	-17.25	-13.74	-9.69	-5.31	-8.4	-7.64	-7.91	-3.03	-7.49	-4.02	-3.35	-7.53	-2.79	-6.2	-7.87	-14.49	-16.52
Θ(135°)	-13.9	-14.44	-16.28	-5.44	-14.81	-6.45	-15.97	-14.58	-15.43	-17.37	-16.12	-10.6	-9.42	-10.68	-5.41	-13.15	-10.75	-7.27	-8.58	-6.15	-6.29	-17.4	-10.12	-11.64
Θ(150°)	-17.69	-14.96	-17.43	-14.72	-17.79	-15.48	-14.98	-17.79	-11.59	-13.09	-16.63	-14.13	-9.78	-15.44	-9.63	-16.08	-9.85	-7.5	-15.63	-8.22	-5.48	-17.94	-15.44	-17.29
Θ(165°)	-17.17	-17.32	-16.61	-15.55	-16.87	-15.38	-15.79	-17.01	-17.7	-17.92	-13.86	-13.2	-13.54	-12.85	-9.6	-8.74	-6.97	-6.71	-11.13	-11.82	-10.69	-11.37	-16.95	-17.26
Θ(180°)	-15.06	-17.03	-14.85	-12.86	-10.25	-11.34	-13.22	-17.15	-17.6	-16.27	-16.99	-17.15	-13.58	-11.84	-10.47	-8.97	-9.28	-10.06	-14.26	-17.16	-17.79	-16.91	-18.22	-16.14
Freq(Hz)	2.45G	Pol.	Phi	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-1.01	0.43	1.52	1.84	1.48	0.57	-1.16	-4.42	-9.07	-15.38	-9.45	-3.79	-1.13	0.57	1.7	1.9	1.47	0.25	-1.27	-3.46	-8.09	-16.78	-7.95	-3.44
Θ(15°)	-0.62	-0.49	-0.34	-0.58	-0.97	-0.88	-1.68	-3.92	-8.25	-14.89	-7.06	-3.74	-1.72	-0.28	0.34	1.19	1.16	0.06	-0.99	-3.41	-8.05	-17.61	-8.2	-2.26
Θ(30°)	-2.57	-1.65	-1.72	-2.6	-2	-0.05	-0.62	-2.8	-6.84	-9.35	-5.74	-3.58	-1.85	-1.03	-1.3	-2.2	-2.37	-3.8	-5.28	-8.74	-16.81	-16.66	-10.9	-4.66
Θ(45°)	-4.39	-2.68	-2.11	-3.05	-1.73	-0.88	-3.16	-4.61	-7.66	-13.22	-16.11	-8.28	-2.9	-0.71	-1.77	-3.49	-4.56	-4.1	-5	-11.54	-16.42	-16.43	-16.67	-10.85
Θ(60°)	-4.68	-4.93	-3	-2.3	-1.86	-3.48	-4.01	-5.74	-16.13	-16.56	-12.94	-4.85	-2.76	-0.95	-1.73	-4.49	-6.43	-5.64	-4.32	-12.57	-13.14	-18.14	-18.13	-14.43
Θ(75°)	-5.66	-7.97	-3.93	-3.69	-2.4	-6.03	-2.99	-9.37	-9.16	-16.99	-11.8	-7.38	-5.94	-5.72	-4.23	-6.07	-6.89	-8.62	-6.95	-13.09	-16.63	-16.56	-17.74	-13.08
Θ(90°)	-6.69	-11.26	-5.56	-5.35	-3.31	-9.27	-4.44	-13.14	-3.55	-17.7	-5.59	-11.66	-4.81	-8.52	-5.41	-8.56	-7.91	-9.52	-6.7	-13.54	-14.66	-16.77	-17.26	-15.55
Θ(105°)	-9.4	-14.36	-6.32	-																				



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)_4TX

Appendix A.2

Θ(180°)	-13.89	-17.72	-18.01	-16.98	-17.11	-14.8	-12.1	-12	-11.28	-9.24	-10.25	-10.02	-12.44	-17.16	-15.08	-13.81	-13	-14.28	-11.06	-8.06	-8.4	-8.6	-8.7	-9.2
Freq(Hz)	5.3G	Pol.	Phi	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-12.51	-17.6	-17.81	-16.39	-11.99	-9.57	-8.07	-8.61	-7.55	-7.57	-9.31	-9.13	-12.23	-17.17	-16.53	-16.68	-14.03	-11.56	-10.16	-8.31	-7.69	-9.46	-10.47	-12.23
Θ(15°)	-8.62	-7.72	-8.94	-10.82	-16.16	-13.2	-9.65	-9.73	-12.75	-12.2	-15.87	-16.55	-18.11	-12.1	-11.76	-15.97	-17.65	-14.98	-9.68	-7.22	-7.78	-9.62	-10.98	-10.63
Θ(30°)	-7.79	-8.86	-10.75	-8.5	-7.41	-6.93	-11.36	-8.78	-10.81	-15.28	-16.9	-18.07	-18.21	-9.77	-10.87	-14.3	-18.28	-16.53	-9.94	-7.66	-8.97	-16.89	-17.26	-8.65
Θ(45°)	-11.02	-11.38	-5.06	-11.1	-4.99	-9.29	-9.68	-9.04	-6.86	-13.81	-14.46	-17.53	-16.8	-10.04	-17.49	-16.7	-17.9	-17.38	-17.93	-16.48	-12.48	-13.91	-17.52	-8.98
Θ(60°)	-8.61	-8.66	-5.23	-7.62	-7.96	-6.02	-6.78	-8.13	-12.24	-8.45	-16.2	-16.46	-8.5	-15.03	-17.73	-17.56	-17.03	-13.49	-11.69	-15.06	-15.47	-10.43	-17.59	-12.23
Θ(75°)	-10.34	-10.57	-7.84	-7.77	-5.07	-4.8	-5.09	-5.34	-12.63	-11.17	-17.35	-8.26	-6.71	-11	-16.36	-15.9	-17.19	-9.74	-12.79	-17.12	-17.12	-17.8	-17.92	-11.93
Θ(90°)	-14.86	-11.25	-8.7	-8.17	-5.81	-10.01	-6.36	-9.84	-14.55	-17.07	-17.65	-8.76	-6.82	-9.72	-16.09	-11.48	-16.13	-12.57	-11.45	-14.73	-13.19	-16.77	-15.01	-12.53
Θ(105°)	-14.92	-10.87	-12.79	-8.88	-13.07	-8.37	-10.23	-5.85	-7.95	-17.83	-16.92	-10.8	-9.05	-9.52	-10.12	-11.36	-14.18	-16.86	-9.31	-17.47	-13.74	-17.51	-17.95	-17.72
Θ(120°)	-14.09	-10.47	-14.6	-13.85	-7.4	-8.4	-8.68	-5.95	-10.03	-14.89	-17.52	-16.92	-15.35	-15.84	-6.72	-11.52	-8.95	-11.3	-13.61	-17.02	-16.66	-17.15	-17.19	-18.03
Θ(135°)	-15.69	-11.48	-13.62	-10.74	-10.33	-10.93	-14.37	-18.21	-17.13	-12.73	-16.84	-14.22	-15.9	-18.33	-16.16	-6.05	-15.53	-8.01	-9.35	-15.1	-17.45	-13.22	-15.82	-17.88
Θ(150°)	-15.28	-15.97	-8.51	-15.16	-9.42	-11.79	-10.09	-14.27	-12.74	-17.68	-16.38	-17.18	-18.04	-9.47	-11.63	-12.88	-9.56	-8.62	-7.24	-9.68	-18.18	-16.86	-18.17	-13.67
Θ(165°)	-16.86	-17.16	-16.72	-11.31	-9.3	-16.96	-12.7	-11.37	-12.87	-17.13	-17.31	-13.22	-10.01	-17.87	-11.82	-8.47	-6.51	-7.46	-9.16	-7.44	-9.29	-15.22	-17.01	-16.58
Θ(180°)	-9.82	-13.32	-12.23	-12.21	-12.18	-15.27	-17.85	-17.33	-17.45	-15.26	-17.81	-17.74	-9.9	-7.2	-8.83	-10.78	-8.78	-8.25	-8.7	-9.56	-9.03	-10.15	-11.5	-9.71
Freq(Hz)	5.3G	Pol.	Theta	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8	-7.61	-8.13	-7.22	-8.21	-9.56	-13.56	-16.06	-15.63	-15.56	-11.15	-10.52	-8.12	-8.99	-8.86	-10.32	-11.13	-12.6	-16.26	-17.33	-17.47	-16.53	-13.45	-11.16
Θ(15°)	-6.74	-5.5	-4.63	-4.7	-5.92	-5.26	-5.89	-6.51	-6.42	-9.17	-9.98	-12.01	-8.43	-8.45	-8.89	-8.77	-9.55	-9.7	-9.64	-7.81	-6.66	-6.37	-6.33	-6.75
Θ(30°)	-3.63	-2.62	-3.02	-3.51	-4.76	-3.76	-4.37	-2.65	-4.25	-2.06	-2.7	-2.61	-4.21	-4.25	-4.56	-4.6	-4.21	-3.57	-5.17	-5.5	-4.28	-2.71	-2.37	-0.82
Θ(45°)	-3.38	-1.85	-1.6	-0.69	-0.03	-1.71	-2.46	-0.67	-2.01	-0.5	0.38	-0.08	-0.48	-2.12	-2.04	0.04	-5.53	-4.68	-3.94	-4.63	-1.94	-0.02	0.78	0.15
Θ(60°)	-1.61	0.66	-0.34	0.53	-1.05	-2.53	-0.97	0.89	1.41	4.53	3.62	2.31	-1.72	-0.09	-5.07	1.53	-4.04	-2.6	-1.03	-0.32	-4.46	-3.12	-1.69	0.42
Θ(75°)	-0.41	0.43	-0.56	-0.91	-2.36	1.29	-1.57	0.41	2.85	0.58	5.46	3.38	0.67	1.02	-1.97	1.61	-2.08	-1.25	0.25	-0.25	-6.62	-7.12	-2.58	-0.9
Θ(90°)	-0.67	-0.45	-1.47	-2.59	-4.73	0.4	-5.87	-3.77	1.2	2.14	4.77	0.72	-3.81	-2.18	-4.33	-1.27	-3.26	-2.92	-0.06	-1.44	-7.08	-6.71	-2.02	-1.39
Θ(105°)	-4.03	-2.73	-3.44	-4.14	-6.49	-1.92	-4.47	-8.6	-7.37	-1.9	-3.38	-7.34	-5.51	-6.1	-10.63	-10.3	-6.3	-12.64	-6.35	-4.93	-8.18	-6.48	-4.95	-3.25
Θ(120°)	-3.17	-6.13	-6.93	-8.62	-8.82	-8.16	-13.98	-5.22	-6.07	-4	-6.24	-4.63	-7.79	-14.17	-8.77	-8.82	-8.04	-6.76	-5.7	-6.03	-8.13	-4.58	-8.88	-4.46
Θ(135°)	-7.4	-8.86	-7.12	-14.14	-9.6	-17.33	-16.59	-17.94	-15.44	-5.2	-12.28	-10.51	-17.21	-18.06	-17.55	-14.71	-6.64	-9.4	-5.35	-7.23	-12.82	-7.18	-8.08	-6.07
Θ(150°)	-5.1	-11.53	-8.21	-16.14	-14.53	-17.69	-12.73	-15	-10.57	-9.41	-12.96	-17.66	-13.17	-9.53	-8.75	-13.36	-17.08	-17.11	-18.01	-18.07	-9.93	-6.38	-5.89	-5.01
Θ(165°)	-11.58	-11.06	-12.27	-10.03	-14.02	-17.74	-17.66	-16.8	-17.24	-14.33	-16.53	-17.74	-17.47	-17.54	-16.92	-15.78	-13.89	-16.92	-10.36	-13.96	-17.64	-12.62	-11.6	-9.48
Θ(180°)	-12.58	-18.83	-17.68	-17.79	-16.95	-15.06	-12.02	-13.06	-10.67	-10.11	-8.03	-8.94	-9.6	-13.34	-12.2	-11.41	-11.03	-11.62	-12.52	-10.4	-10.5	-8.97	-9.05	-8.49
Freq(Hz)	5.6G	Pol.	Phi	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-10.07	-12.82	-9.66	-9.81	-10.76	-10.55	-10.2	-9.14	-11.15	-14.55	-15.53	-12.51	-13.06	-10.81	-9.8	-8.93	-10.75	-11.44	-12.55	-12.27	-10.38	-13.63	-14.16	-14.15
Θ(15°)	-8.43	-7.5	-6.78	-4.01	-5.76	-9.75	-9.99	-8.09	-9.12	-10.45	-11.43	-18.07	-14.72	-14.83	-17.44	-14.1	-13.33	-11.17	-11.03	-10.4	-13.41	-17.11	-17.28	-11.06
Θ(30°)	-7.33	-4.87	-9.74	-10.56	-4.71	-7.39	-7.71	-13.54	-9.25	-18.55	-16.12	-16.95	-16.68	-12.45	-13.73	-13.78	-18.81	-11.47	-8.81	-12.24	-10.14	-9.57	-16.9	-11.59
Θ(45°)	-7.97	-10	-11.38	-4.38	-2.37	-5.05	-9.24	-12.03	-7.91	-17.56	-14.24	-17.23	-17.8	-13.91	-12.76	-10.56	-12.12	-9.52	-12.62	-16.92	-12.86	-8.8	-15.44	-10.75
Θ(60°)	-14.37	-11.04	-6.56	-3.3	-6.34	-3.86	-5.55	-10.01	-14.91	-13.39	-16.23	-16.21	-13.05	-13.61	-15.39	-11.74	-11.68	-10.67	-10.69	-17.29	-17.97	-9.23	-15.67	-10.86
Θ(75°)	-16.75	-12.26	-9.34	-5.5	-4.88	-2.21	-2.59	-5.22	-11.53	-9.13	-18.37	-17.15	-10.21	-18.52	-16.3	-9.46	-13.39	-15.58	-15.04	-15.49	-18.17	-12.92	-17.9	-15.46
Θ(90°)	-15.61	-18.06	-14.06	-9.13	-5.81	-5.48	-7.48	-6.79	-17.22	-13.79	-17.67	-15.09	-9.26	-17.87	-18.23	-13.78	-13.78	-14.59	-16.37	-17.55	-17.44	-17.07	-17.35	-16.16
Θ(105°)	-17.92	-15.56	-14.89	-11.35	-8.47	-12.24	-8.36	-8.75	-10.95	-18.01	-17.33	-12.01	-9.09	-14.18	-15.1	-16.37	-12.07	-15.17	-16.38	-17.56	-18.04	-16.53	-13.7	-16.92
Θ(120°)	-17.95	-16.44	-16.08	-11.45	-16.14	-7.89	-10.5	-9.06	-13.26	-15.63	-16.62	-14.27	-11.87	-16.65	-9.57	-9.24	-17.56	-13.15	-12.08	-16.76	-17.34	-17.36	-17.62	-17.47
Θ(135°)	-18.43	-17.28	-9.86	-17.39	-10.18	-11.36	-17.57	-17.85	-17.45	-17.18	-14.67	-14.56	-16.23	-14.22	-17.59	-7.7	-13.19	-12.81	-16.37	-17.41	-17.73	-16.92	-16.31	-17.96
Θ(150°)	-17.97	-14.98	-17.05	-16.28	-10.68	-10.97	-8.97	-15.83	-12.9	-17.33	-17	-15.29	-13.4	-16.14	-9.71	-14.2	-12.13	-9.83	-11.39	-14.55	-13.77	-17.08	-16.57	-16.72
Θ(165°)	-16.99	-17.25	-12.7	-15.21	-10.35	-13.83	-13.5	-12.96	-13.58	-17.78	-17.14	-16.29	-14.18	-18.01	-11.8	-10.95	-11.64	-12	-9.01	-9.46	-12.72	-18	-16.76	-17.79
Θ(180°)	-13.39	-16.69	-16.38	-17.69	-16.7	-17.55	-18.07	-16.32	-15.64	-17.79	-15.2	-14.37	-14.3	-12.98	-14.14	-13.11	-13.4	-12.37	-10.21	-9.53	-9.35	-11.72	-13.84	-14.41
Freq(Hz)	5.6G	Pol.	Theta	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-9.46	-11.41	-11.11	-12.1	-13.09	-12.9	-12.24	-9.99	-7.83	-9.4	-6.29	-8.35	-8.52	-10.21	-13.89	-16.96	-16.38	-16.36	-13.16	-13.72	-10.96	-11.55	-10.57	-10.99
Θ(15°)	-2.91	-5.27	-6.39	-7.18	-7.25	-7.69	-7.25	-7.92	-9.63	-13.43	-17.36	-17.55	-15.02	-12.01	-12.74	-13.1	-16.57	-17.72	-17.35	-14.65	-10.71	-8.06	-4.61	-4.29
Θ(30°)	-1.76	-2.63	-4.54	-4.33	-3.79	-7.5	-9.95	-7.55	-5.02	-5.41	-6.33	-6.92	-5.1	-6.15	-6.93	-4.17	-6.72	-8.8	-6.95	-7.45	-5.43	-2.44	-2.47	-1.3
Θ(45°)	-1.6	-0.94	-0.75	-3.22	-0.74	-2.83	-4.78	-2.32	-4.17	-3.08	-0.75	-1.02	-2.38	-4.12	-0.8	-2.81	-5.35	-5.85	-6.17	-2.79	-4.52	-1.93	-2.06	-0.14



Freq(Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 3 Max Gain (dBi)	3.42	4.36	2.95	2.31	0.99	0.61
Ant. 4 Max Gain (dBi)	3.67	4.23	2.91	3.96	1.59	0.33
Ant. 3 Polarization/Θ(°)/Φ(°)	Phi/75/180	Phi/75/75	Phi/75/75	Phi/75/135	Phi/75/60	Phi/75/60
Ant. 4 Polarization/Θ(°)/Φ(°)	Phi/60/0	Phi/60/345	Phi/75/45	Phi/75/45	Phi/75/45	Phi/75/315
Max Gain (dBi)	3.67	4.36	2.95	3.96	1.59	0.61
DG [1SS] (dBi)	5.82	5.21	5.38	4.47	4.13	3.08
DG [2SS] (dBi)	2.82	2.53	2.37	1.59	1.12	0.09



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant3~Ant4)_2TX

Appendix B.1

DG 1SS Result

Freq(Hz)	5.6G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-11.84	-9.75	-9.9	-6.92	-5.73	-5.13	-4.32	-4.73	-5.41	-7.22	-9.64	-11.53	-10.31	-8.87	-7.76	-6.65	-6.08	-6.96	-7.47	-8.11	-8.21	-11.01	-15.37	-16.39
Θ(15°)	-5.01	-6.31	-5.39	-3.72	-4.58	-6.13	-8.5	-7.62	-5.54	-5.08	-5.82	-5.67	-5.13	-4.49	-2.7	-1.48	-1.1	-1.33	-2.16	-1.62	-0.82	-2.54	-3.77	-4.36
Θ(30°)	-0.41	-0.88	-1.85	-1.7	-3.03	-4.98	-5.58	-5.31	-5.9	-2.84	-1.31	-1.02	-1.75	-1.54	-2.68	-0.34	1.64	0.71	0.18	0.01	1	1.2	-1.77	-1.97
Θ(45°)	1.28	0	-1.35	-1.73	-1.68	-1.08	-1.14	-1.38	-4.07	-3.29	-0.8	0.37	0.61	0.52	0.62	-2.89	-4.78	-4.29	-4.95	-4.17	-5.35	-2.55	-0.63	-0.87
Θ(60°)	5.76	3.69	2.09	1.19	2.27	4	3.92	3.9	1.28	0.99	2.24	3.03	3.44	3.16	2.15	1.86	1.18	1.85	2.56	1.37	1.1	1.73	2.95	5.46
Θ(75°)	4.5	1.42	-0.11	-0.54	1.05	4.74	5.82	5.29	2.16	1.15	4.06	5.34	5.41	4.53	2.87	1.55	3.35	4.92	3.9	3.05	0.91	0.42	2.92	5.51
Θ(90°)	0.61	-3.4	-4.38	-3.81	-2.21	2	2.17	2.03	-0.72	-2.03	0.37	2.63	3.39	1.64	-0.42	-3.51	0.19	3.05	3.3	2.37	-2.31	-4.14	-0.38	2.16
Θ(105°)	-5.34	-7.24	-10.75	-8.13	-5.43	-1.75	-1.41	-2.29	-4.21	-5.84	-3.63	-3.87	-1.92	-2.99	-5.03	-9.48	-7.27	-6.02	-7.39	-8.2	-10.21	-9.12	-4.88	-3.29
Θ(120°)	-10.92	-10.38	-14.93	-10.68	-8.59	-7.24	-6.73	-7.88	-9	-10.5	-7.78	-6.77	-8.52	-6.51	-9.49	-10.19	-9.03	-5.45	-9.22	-5.81	-8.72	-12.37	-10.16	-7.65
Θ(135°)	-11.96	-14.13	-14.83	-14.35	-13.18	-11.55	-10.61	-13.27	-12.77	-13.88	-15.04	-9.78	-10.24	-12.3	-12.78	-12.63	-15.08	-14.24	-14.63	-15.69	-14.36	-18.8	-12.5	-11.43
Θ(150°)	-13.71	-15.08	-17.63	-15.31	-14.6	-16.32	-16.11	-15.66	-15.25	-19.42	-13.75	-12.24	-14.38	-15.76	-16.69	-16.38	-16.39	-20.4	-17.55	-16.85	-19.42	-17.76	-17.11	-16.42
Θ(165°)	-22.03	-16.77	-15.27	-16.7	-20.65	-22.86	-18.68	-19.1	-19.34	-16.91	-18.61	-15.64	-20.07	-21.08	-15.86	-17.35	-21.78	-22.03	-21.66	-20.33	-20.17	-18.72	-22.87	-21.89
Θ(180°)	-20.66	-18.49	-21.11	-21.58	-20.31	-18.61	-14.67	-13.7	-13.84	-15.89	-14.61	-18.11	-18.59	-21.45	-22.7	-19.7	-19.07	-21.44	-21.99	-22.32	-21.1	-22.38	-21.22	-21.82
Freq(Hz)	5.6G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-7.94	-8.45	-8.85	-9.17	-10.43	-14.98	-9.6	-7.39	-6.45	-4.74	-3.71	-3.88	-3.83	-4.28	-6.42	-11.5	-11.31	-12.85	-13.47	-10.6	-9.39	-9.21	-9.04	-8.87
Θ(15°)	-5	-13.32	-16.11	-13.54	-12.18	-12.1	-11.41	-12.84	-14.77	-15.8	-11.74	-9.12	-5.57	-5.63	-7.31	-9.74	-15.74	-18.25	-14.92	-13.25	-12.2	-11.05	-9.13	-5.55
Θ(30°)	-6.13	-10.35	-13.56	-13.53	-9.35	-10.18	-9.32	-8.91	-13.42	-15.46	-11.28	-22.68	-5.42	-6.21	-9.53	-5.92	-8.15	-13.04	-16.2	-19.59	-15.57	-12	-14.23	-6.61
Θ(45°)	-13.14	-8.82	-9.88	-8.11	-9.42	-11.06	-9.53	-10.26	-14.62	-10.58	-9.35	-10.18	-13.14	-17.35	-11.06	-15.61	-9.47	-16.37	-20.53	-19.84	-15.97	-13.26	-12.84	-10.39
Θ(60°)	-16.03	-13.31	-11.05	-13.52	-14.7	-8.75	-7.16	-8.9	-18.55	-13.7	-13.14	-8.6	-9.87	-15.77	-13.17	-19.12	-10.01	-16.37	-22.41	-17.79	-15.71	-20.32	-12.21	-15.38
Θ(75°)	-17.4	-17.33	-16.54	-17.23	-14.22	-13.76	-8.03	-10.1	-14.76	-13.29	-13.78	-17.54	-14.01	-17.15	-15.75	-15.1	-15.66	-14.29	-22.05	-15.37	-16.02	-21.91	-19.25	-15.5
Θ(90°)	-21.44	-17.5	-18.09	-22.33	-17.22	-22.66	-13.9	-14.16	-13.72	-14.93	-14.91	-19.74	-12.11	-15.16	-19.02	-13.39	-14.51	-13.81	-21.8	-16.13	-22.43	-21.44	-18.66	-20.47
Θ(105°)	-16.14	-17.61	-22.39	-20.85	-23.12	-22.35	-16.27	-22.5	-20.42	-19.5	-15.34	-18.76	-20.54	-19.2	-19.11	-18.64	-22.1	-18.34	-21.97	-21.82	-21.72	-19.86	-21.53	-21.52
Θ(120°)	-16.02	-21.78	-22.37	-20.61	-18.49	-21.27	-19.04	-21.9	-21.18	-21.18	-17.03	-18.81	-17.75	-17.6	-21.76	-22.64	-21.02	-18.2	-22.75	-22.72	-22.62	-21.32	-20.75	-20.77
Θ(135°)	-20.19	-19.95	-21.76	-22.24	-20.76	-21.93	-20.96	-20.47	-22.59	-21.5	-20.99	-18.71	-21.87	-21.3	-20.17	-18.02	-17.91	-17.62	-20.56	-19.76	-18.75	-21.91	-21.05	-19.13
Θ(150°)	-14.27	-21.05	-22.4	-20.8	-22.4	-22.39	-22.42	-21.93	-21.58	-19.87	-22.75	-17.65	-20.2	-17.72	-22.95	-20.68	-20.92	-22.69	-20.66	-20.95	-20.08	-17.92	-21.27	-19.89
Θ(165°)	-20.22	-17.85	-20.15	-20.74	-23.04	-21.1	-20.55	-22.42	-22.55	-20.23	-20.79	-16.91	-19.42	-12.81	-16.7	-18.91	-17.95	-18.21	-21.67	-19.15	-16.12	-17.94	-14.54	-15.9
Θ(180°)	-16.84	-16.51	-16.66	-15.65	-16.87	-17.16	-19.49	-19.05	-21.68	-20.19	-22.34	-20.84	-20.03	-19.76	-21.09	-21.73	-22.54	-22.35	-22.12	-22.14	-20.73	-22.07	-21.25	-18.3
Freq(Hz)	5.785G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-12.33	-12	-9.84	-7.29	-7.01	-6.56	-5.27	-6.27	-7.34	-8.31	-10.55	-14.27	-11.23	-9.08	-7.8	-7.66	-7.04	-7.42	-8.42	-9.26	-8.83	-11.86	-15.61	-14.88
Θ(15°)	-4.54	-6.75	-7.43	-6.85	-5.71	-5.84	-8.95	-11.37	-11.85	-10.18	-9.94	-9.83	-7.72	-6.22	-4.59	-3.53	-2.68	-2.78	-2.63	-2.16	-1.82	-3.32	-4.36	-5.77
Θ(30°)	0.15	-0.83	-2.55	-2.75	-2.56	-1.48	-1.87	-2.04	-2.88	-1.79	-2.09	-2.14	-0.85	0.8	-0.43	-0.3	1.18	0.24	-0.46	-0.97	-0.64	-0.16	-0.6	-0.31
Θ(45°)	1.69	-0.85	-4.8	-5.94	-4.44	-2.23	-0.46	0.03	-3.01	-3.46	-1.63	0.1	0.75	0.7	1.03	-1.73	-2.87	-1.33	-1.67	-3.74	-5.68	-1.15	0.01	0.74
Θ(60°)	3.59	2.14	2.76	0.76	2.27	3.63	3.36	2.93	1.81	-1.01	-0.12	1.38	3.69	4.24	2.27	0.48	-0.09	1.5	1.34	-0.05	-1.33	1.27	4.31	4.84
Θ(75°)	2.13	0.95	2.25	2.2	3.81	5.21	4.63	4.21	4.04	1.95	1.97	3.77	5.15	5.13	3.3	0.67	2.35	4.39	2.71	3.18	0.47	1.77	4.83	4.94
Θ(90°)	-2.08	-4.08	-1.78	-1	1.84	2.2	2.15	0.93	2.55	-0.22	-0.3	1.55	2.42	2.51	0.39	-2.24	-0.74	2.51	2.06	2.53	-3.65	-2.51	0.67	1.57
Θ(105°)	-6.36	-9.53	-6.11	-5.92	-1.86	-1.64	-2.58	-2.98	-1.22	-4.72	-4.14	-4.02	-3.42	-3.13	-4.9	-10.15	-7.6	-6.82	-8.31	-7.56	-10.58	-6.25	-3.3	-4
Θ(120°)	-12.16	-9.87	-10.01	-9.47	-7.36	-6.53	-6.31	-8.9	-5.32	-8.94	-8.88	-7.8	-8.36	-6.85	-7.89	-11	-8.86	-5.83	-9.3	-6.11	-8.82	-13.41	-8.12	-8.03
Θ(135°)	-15.37	-15.2	-13.15	-13.22	-10.5	-10.84	-11.7	-11.25	-11.13	-13.35	-12.34	-10.49	-14.36	-13.87	-10.44	-15.33	-14.49	-14.63	-17.79	-11.93	-14.07	-15.75	-11.86	-15.13
Θ(150°)	-16.68	-12.77	-17.51	-16.96	-13.28	-13.37	-16.07	-14.75	-11.45	-14.33	-15.59	-15.23	-20.77	-20.72	-15.54	-19.04	-17.74	-21.62	-16.92	-20.26	-17.61	-21.29	-16.54	-16.75
Θ(165°)	-21.62	-18.32	-16.62	-19.89	-22.04	-19.81	-15.83	-18.04	-21.72	-17.46	-16.53	-17.74	-15.48	-17.54	-21.23	-16.65	-21.91	-19.95	-21.52	-18.49	-22.05	-17.55	-22.52	-22.66
Θ(180°)	-20.06	-20.78	-22.82	-22.45	-22.07	-19.51	-17.38	-17.8	-15.4	-15.31	-18.9	-21.59	-22.54	-22.33	-22.39	-22.09	-21.55	-21.05	-20.12	-20.03	-20.71	-19.53	-19.76	-20.44
Freq(Hz)	5.785G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8.8	-9.63	-10.6	-10.86	-13.38	-13.45	-10.73	-9.63	-7.47	-5.31	-5.14	-5.73	-6.44	-6.41	-8.19	-12.49	-14.98	-15.71	-13.11	-11.01	-10.17	-9.74	-8.81	-9.8
Θ(15°)	-4.6	-10.19	-11.04	-9.58	-11.12	-11.76	-10.83	-14.05	-16.13	-17.29	-19.57	-9.06	-5.82	-6.06	-9.2	-11.08	-14.76	-19.46	-14.84	-12.86	-11.77	-11.45	-8.09	-5.86
Θ(30°)	-4.04	-12.77	-15.54	-19.32	-14.89	-9.17	-7.77	-9.28	-16.72	-19.06	-16.07	-17.96	-5.98	-8.34	-10.63	-6.87	-8.49	-11.61	-13.65	-21.11	-15.39	-13.95	-15.92	-6.27
Θ(45°)	-11.39	-10.58	-11.99	-11.27	-8.8	-8.86	-7.52	-8.81	-16.11	-10.38	-9.39	-10.35	-14.52	-19.98	-12.94	-12.87	-9.71	-14.26	-17.75	-15.1	-13.9	-10.37	-11.95	-7.87
Θ(60°)	-15.07	-15.61	-13.52	-16.46	-13.91	-11.22	-7.67	-9.47	-17.32	-16.8	-19.12	-10.92	-10.31	-15.3	-15.37	-21.77	-11.61	-15.62	-18.26	-19.66	-15.66	-17.4		



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant3~Ant4)_2TX

Appendix B.1

Freq(Hz)	6.475G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-6.59	-9.29	-10.23	-10.57	-11.19	-13.2	-10.71	-9	-7.33	-6.14	-5.14	-5.43	-6.85	-8.91	-10.9	-12.79	-13.82	-16.15	-15.88	-13.01	-12.68	-11.87	-10.62	-10.96
Θ(15°)	-3.52	-6.03	-6.01	-6.18	-6.68	-7.58	-8.09	-11.5	-9.8	-9.59	-12.92	-10.63	-6.34	-2.65	-2.48	-3.53	-3.61	-2.86	-1.56	-1.64	-3.01	-3.09	-3.53	-4.89
Θ(30°)	-1.77	-2.27	-2.64	-2.1	-3.39	-3.65	-5.08	-3.93	-1.46	-0.94	-4.24	-5.28	-2.82	-0.32	0.19	-2.14	-3.86	-3.19	-1.31	-1.11	-2.19	-2.87	-0.4	-1.64
Θ(45°)	-1.83	-3.54	-4.48	-4.32	-3.06	-2.21	-3.98	-4.11	-2.33	-0.27	-2.98	-2.43	-2.49	-1.78	0.38	-0.09	-1.01	-4.54	-2.1	-6.72	0.72	-1.57	-1.29	-2.47
Θ(60°)	-2.24	0.63	0.64	1.09	0.36	-2.07	-0.85	-1.98	-5.56	-3.67	-6.14	-5.16	-2.93	-1.74	-1.14	-2.43	-5.29	-5.22	-5.22	-5.35	-5.61	-2.89	-0.06	-0.13
Θ(75°)	-0.89	1.28	2.95	3.86	3.41	-0.25	-0.89	0.82	1.48	4.47	2.38	2.35	2.25	1.86	3.05	1.78	0.4	-0.03	-0.58	0.81	-1.81	0.76	1.57	1.69
Θ(90°)	-4.27	-4.28	-0.06	1.75	2.37	0.79	-0.54	0.31	1.7	1.6	2.39	1.16	-0.75	0.54	-0.37	-2.71	-1.35	0.6	-1.61	0.18	-4.6	-4.68	-2.22	0.49
Θ(105°)	-5.6	-7.71	-4.19	-3.54	-2.03	-4.05	-4.67	-3.06	-2.84	-2.06	-1.05	-4.45	-2.88	-3.33	-6.65	-5.42	-8.35	-8.22	-8.85	-10.41	-10.53	-7.3	-5.87	-5.67
Θ(120°)	-10.91	-11.26	-8.83	-6.58	-6.4	-7.7	-6.46	-5.08	-5.02	-6.16	-7.28	-7.57	-6.29	-8.91	-10.35	-9.32	-9.95	-8.4	-11.5	-10.94	-12.63	-11.86	-8.56	-11.72
Θ(135°)	-14.18	-14.43	-12	-10.06	-12.79	-11.02	-11.91	-9.88	-8.77	-8.78	-12.17	-10.56	-10.19	-11.18	-10.84	-10.67	-9.67	-9.11	-11.3	-9.54	-11.06	-14.61	-11.83	-15.17
Θ(150°)	-13.91	-15.07	-16.63	-12.96	-14.61	-19.79	-15.48	-12.73	-13.39	-12.02	-11.2	-12.71	-16.67	-18.49	-15.88	-12.09	-15.05	-19.04	-7.79	-17.93	-18.07	-17.27	-20.24	-18.96
Θ(165°)	-17.72	-15.95	-15.83	-13.96	-17.06	-19.11	-18.17	-17.46	-18.53	-15.57	-14.32	-13.68	-18.29	-16.62	-18.06	-16.53	-15.91	-18.15	-19.44	-19.09	-22.74	-21.11	-21.9	-18.78
Θ(180°)	-17.17	-17.33	-19.08	-19.47	-20.64	-22.41	-18.65	-17.83	-17.64	-17.83	-17.39	-16.13	-15.77	-17	-21.09	-21.61	-20.79	-18.9	-17.7	-14.6	-15.51	-18	-17.83	-19.81
Freq(Hz)	6.475G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-11.2	-9.61	-7.34	-7.95	-8.18	-8.29	-7.82	-9.57	-9.07	-8.57	-7.94	-8.5	-10.95	-10.8	-10.15	-10.93	-8.82	-9.45	-10.02	-11.35	-12.22	-13.92	-15.63	-18.08
Θ(15°)	-8.27	-7.99	-9	-10.57	-9.47	-9.62	-9.14	-9.66	-10.17	-12.98	-14.9	-10.08	-5.17	-3.64	-6.42	-7.16	-9.57	-11.52	-11.5	-11.29	-12.42	-13.57	-8.67	-7.31
Θ(30°)	-14.38	-9.84	-9.71	-11.88	-14.36	-10.95	-10.15	-13.93	-15.48	-15.22	-15.17	-12.55	-6.44	-8.37	-11.26	-7.51	-9.64	-10.57	-10.9	-18.56	-13.46	-11.82	-11.52	-8.39
Θ(45°)	-8.99	-18.99	-14.15	-10.39	-11.38	-10.6	-13.86	-14.73	-19.05	-11.56	-7.06	-6.57	-10	-18.92	-13.38	-16.41	-12.41	-9.13	-16.85	-18.72	-13.26	-12.51	-9.06	-8.62
Θ(60°)	-16.74	-13.45	-17.92	-12.95	-16.13	-11.19	-13.21	-15.92	-22.97	-12.99	-9.32	-7.5	-10.98	-22.07	-22.8	-12.3	-15.83	-13.39	-19.12	-17.44	-15.65	-15.74	-9.8	-13.1
Θ(75°)	-16.75	-15.54	-10.32	-13.78	-14.54	-13.61	-18.65	-16.36	-15.62	-19.56	-16.49	-15.17	-18.61	-19.43	-11.66	-14.35	-16.82	-11.87	-15.52	-14.17	-15.45	-18.97	-21.21	-15.23
Θ(90°)	-20.03	-19.79	-12.56	-14.69	-11.31	-12.77	-19.12	-12.08	-15.19	-22	-21.4	-18.4	-19.92	-15.84	-15.45	-18.54	-15.87	-11.66	-16.98	-14.59	-14.81	-19.09	-18.34	-12.59
Θ(105°)	-20.05	-22.35	-15.29	-17.62	-12.74	-12.75	-18.73	-15.28	-16.17	-21.91	-18.48	-19.7	-16.79	-18.82	-17.39	-18.77	-21.65	-21.31	-20.18	-18.31	-20.13	-19.92	-18.75	-17.31
Θ(120°)	-22.49	-18.23	-17.54	-20.48	-16.1	-18.07	-19.85	-14.98	-19.47	-22.64	-20.18	-17.52	-22.55	-21.11	-21.85	-15.71	-22.24	-18.98	-21.29	-22.56	-17.4	-21.59	-17.52	-14.25
Θ(135°)	-22.58	-18.64	-16.72	-20.69	-16.53	-19.72	-21.17	-18.58	-22.76	-19.36	-17.23	-22.36	-22.25	-20.58	-19.68	-19.24	-22.06	-18.13	-23.22	-21.14	-19.14	-17.1	-12.9	-17.57
Θ(150°)	-16.43	-18.99	-16.67	-18.27	-22.05	-22.76	-21.78	-19.68	-22.4	-18.71	-22.11	-21.76	-22.53	-21.08	-21.73	-21.48	-22.14	-18.34	-20.9	-18.42	-21.63	-17.23	-18.93	-22.85
Θ(165°)	-16.91	-22.49	-22.59	-19.35	-22.96	-21.95	-21.41	-21.03	-20.61	-19.85	-21.79	-20.45	-20	-19.81	-15.81	-18.22	-19.2	-21.22	-22.01	-13.12	-18.87	-17.57	-15.29	-20.35
Θ(180°)	-20.19	-18.86	-18.57	-15.78	-14.85	-15.85	-19.46	-19.79	-19.5	-20.9	-21.73	-21.83	-22.81	-20.77	-15.77	-17.6	-18.68	-17.3	-19.66	-20.98	-21.12	-19.87	-18.9	-17.79
Freq(Hz)	6.695G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-4.86	-6.54	-8.61	-9.71	-10.41	-10.05	-6.92	-5.05	-4.04	-3.36	-2.59	-3.15	-4.4	-7.44	-11.74	-14.98	-16.12	-13.39	-8.87	-8.18	-8.27	-7.59	-8.37	-9.41
Θ(15°)	-2.97	-4.2	-3.04	-5.24	-6.08	-7.92	-9.19	-7.65	-5.54	-8.69	-14.87	-11.85	-8.1	-3.71	-2.42	-4.06	-4.54	-3.37	-3.14	-2.37	-3.16	-1.79	-2.72	-4.02
Θ(30°)	-1.01	-2.19	-3.38	-3.35	-4.33	-3.57	-5.38	-5.43	-2.53	-3.27	-7.46	-3.58	-3.62	-2.9	-0.13	-0.96	-3.79	-2.43	-3.56	-2.8	-2.53	-1.51	-0.39	-1.63
Θ(45°)	-1.81	-0.67	-1.28	-1.63	-2.82	-3.22	-3.6	-1.09	-0.31	0.35	-1.74	-3.56	-3.14	-1.87	-0.68	1.16	0.23	-1.82	-4.2	-4.24	0.26	-1.63	0.87	-1.74
Θ(60°)	-2.02	-0.49	-0.26	-0.37	-0.53	-1.94	-1.95	0.08	-4.51	-5.06	-4.29	-5.04	-4.33	-3.74	-2.42	-2.33	-4.95	-10.34	-11.66	-8.13	-6.98	-4.78	-0.28	-2.36
Θ(75°)	-1.28	0.19	2.08	2.76	4.13	2.17	-0.93	1.69	1.56	2.92	0.52	0.04	0.62	-0.41	-0.63	-0.9	0.83	-0.47	-1.51	-1.59	-3.71	2.32	1.54	0.77
Θ(90°)	-7.31	-2.64	-1.54	0.48	1.87	0.27	-3.75	2.02	2.86	1.92	1.13	-1.05	-2.91	-1.91	-1.84	-6.53	-0.82	0.98	-3.94	-0.93	-3.78	-1.92	-0.7	0.54
Θ(105°)	-7.43	-10.35	-5.37	-3.63	-1.31	-3.84	-7.16	-0.9	-2.12	-2.54	-1.89	-5.53	-5.77	-5.12	-7.37	-6.82	-7.95	-8.62	-9.31	-10.34	-9.74	-8.36	-4.66	-6.31
Θ(120°)	-13.41	-12.7	-9.97	-6.62	-7.92	-9.33	-12.08	-3.85	-5.75	-5.13	-6.68	-8.95	-9.7	-11.77	-8.99	-11.18	-13.2	-7.88	-13.4	-9.96	-14.06	-9.18	-9.87	-13.76
Θ(135°)	-16.15	-12.17	-13.81	-9.25	-12.73	-14.12	-16.08	-9.26	-8.97	-10.78	-12.02	-14.91	-11.48	-11.01	-9.65	-13.48	-10.64	-6.18	-11.08	-9.52	-9.73	-13.14	-10.64	-12.24
Θ(150°)	-12.75	-14.76	-17.09	-10.17	-21.63	-21.39	-13.64	-12.61	-9.93	-10.34	-14.82	-14.31	-16.56	-21.9	-12.99	-13.76	-16.02	-11.73	-8.51	-16.01	-18.52	-14.58	-19.53	-13.58
Θ(165°)	-15.57	-13.92	-12.68	-11.5	-13.28	-17.09	-15.45	-12.97	-13.34	-14.76	-15.85	-14.7	-17.26	-18.6	-22.84	-18.63	-13.88	-16.17	-15.76	-16.18	-18.56	-17.91	-19.75	-16.43
Θ(180°)	-16.74	-17.98	-18.91	-20	-17.94	-12.98	-11.3	-15.71	-17.68	-14.56	-14.65	-15.63	-14.96	-18.7	-20.62	-18.47	-19.39	-16.96	-17.21	-17.1	-15.99	-17.7	-20.58	-20.28
Freq(Hz)	6.695G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-5.65	-4.58	-3.58	-4.16	-4.51	-4.77	-5.68	-6.63	-7.67	-8.54	-9.07	-8.37	-6.43	-5.51	-5.65	-6.81	-6.94	-6.42	-8.4	-10	-12.12	-14.42	-15.56	-14.12
Θ(15°)	-12.55	-10.42	-11.86	-10.04	-8.37	-8.53	-9.17	-11.6	-10.95	-9.01	-18.69	-7.85	-5.14	-3.77	-5.57	-8.2	-8.47	-8.06	-9.41	-13.64	-14.58	-13.97	-9.57	-9.78
Θ(30°)	-16	-11.96	-13.3	-10.27	-14.53	-13.73	-11.96	-14.98	-12.36	-17.5	-15.25	-10.51	-7.01	-6.08	-7.54	-7.53	-13.92	-11.96	-8.39	-16.34	-11.68	-9.49	-8.48	-8.21
Θ(45°)	-5.77	-9.24	-6.57	-6.6	-5.86	-7.25	-10.51	-7.29	-10.27	-13.44	-6.87	-5.13	-5.33	-11.03	-11.22	-13.62	-12.48	-7.71	-13.82	-11.19	-10.24	-10.2	-6.03	-6.23
Θ(60°)	-15.12	-18.86	-17.72	-9.76	-10.47	-8.11	-9.69	-9.19	-12.56	-12.84	-8.56	-5.61	-8.2	-15.91	-16.55	-12.69	-10.05	-9.08	-19.06	-16.49	-12.71	-12.95	-6.96	-13.13
Θ(75°)	-1																							



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant3~Ant4)_2TX

Appendix B.1

Gain Result

Freq(Hz)	5.6G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)	
Θ(0°)	-12.91	-12.18	-15.1	-13.77	-12.78	-11.83	-10.8	-10.58	-9.9	-10.57	-10.84	-10.12	-11.25	-11.94	-11.34	-10.51	-11.92	-11.88	-11.42	-11.58	-12.07	-15.93	-17.82	-20.98	
Θ(15°)	-7.26	-9.4	-8.79	-7.59	-9.64	-13.77	-15.59	-12.13	-8.86	-9.31	-10.73	-9.05	-8.65	-7.32	-5.25	-4.87	-4.96	-4.88	-4.62	-2.54	-1.94	-4.33	-5.56	-5.35	
Θ(30°)	-2.43	-2.93	-4.87	-4.88	-5.82	-8.1	-10.25	-10.43	-9.86	-4.6	-2.06	-2.48	-3.7	-3.69	-5.6	-4.45	-1.42	-2.54	-3.75	-3.14	-1.19	-0.83	-4.61	-5.16	
Θ(45°)	-3.96	-6.11	-7.74	-7.01	-7.58	-4.13	-5.33	-4.62	-8.29	-6.92	-5.43	-3.05	-2.35	-2.11	-2.21	-5.27	-10.65	-9.62	-8.81	-7.35	-10.3	-6.22	-3.82	-4.14	
Θ(60°)	1.73	-0.19	-0.53	-0.67	-0.46	0.94	0.93	0.81	-1.77	-1.2	-0.98	1.21	2.32	1.09	-0.7	-0.76	-1.05	-0.6	-0.75	-4.45	-4.03	-0.71	-0.15	2.14	
Θ(75°)	1.17	-1.46	-2.17	-0.73	0.1	2.56	3.21	1.66	-1.92	-3.93	-0.25	2.47	3.42	1.48	-2.21	-2.66	0.01	2.02	0.51	-1.44	-3.19	-2.44	0.29	2.59	
Θ(90°)	-3.1	-6.72	-6.16	-3.74	-2.57	0.16	-0.45	-2.66	-4.77	-7.67	-3.49	-0.49	1.55	-1.55	-5.33	-8.92	-3.53	-0.21	-0.12	-1.02	-6.67	-6.65	-3.27	-0.84	
Θ(105°)	-10.68	-10.89	-13.48	-7.17	-5.47	-3.69	-4.58	-6.85	-9.36	-10.97	-7.76	-6.06	-3.77	-6.02	-10.3	-12.23	-10.81	-9.66	-10.72	-12.03	-13.73	-13.57	-9.1	-6.59	
Θ(120°)	-16.58	-12.8	-14.09	-11.68	-10.4	-9.23	-9.16	-12.05	-14.5	-15.82	-12.44	-8.6	-9.59	-8.89	-14.5	-13.2	-14.81	-8.6	-14.52	-9.07	-11.56	-16.96	-14.67	-10.75	
Θ(135°)	-15.78	-17.81	-14.19	-14.37	-15.22	-14.66	-12.99	-17.32	-16.26	-18.92	-21.71	-14.68	-11.14	-17.88	-18.91	-16.8	-15.9	-17.26	-16.48	-20.84	-16.39	-22.5	-15.14	-15.62	
Θ(150°)	-14.01	-16.15	-25.25	-17.17	-17.53	-16.21	-19.13	-21.49	-26.02	-23.62	-16.8	-14.69	-16.97	-22.39	-15.96	-21.65	-19.09	-24.78	-18.28	-16.76	-23.19	-26.06	-22.61	-21.97	
Θ(165°)	-25.4	-25.69	-18.94	-16.7	-22.12	-25.71	-25.36	-24.81	-24.01	-19.93	-18.74	-21.23	-24.37	-22.4	-20.34	-21.32	-23.87	-25.83	-26.26	-24.75	-21.23	-21.64	-25.8	-23.97	
Θ(180°)	-23.71	-23.06	-25.52	-24.36	-22.55	-19.54	-15.97	-15.04	-15.97	-16.85	-15.55	-18.28	-18.69	-24.94	-26.35	-22.56	-20.29	-23.13	-25.21	-25.67	-24.85	-25.76	-25.35	-24.88	
Freq(Hz)	5.6G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)	
Θ(0°)	-15.96	-16.47	-12.95	-11.64	-11.64	-14.2	-11.1	-10.68	-11.52	-9.92	-8.69	-9.15	-9.91	-9.87	-10.79	-12.73	-13.59	-14.05	-14.6	-16.14	-17.13	-14.25	-11.77	-11.88	
Θ(15°)	-10.81	-19.24	-19.4	-12.72	-10.68	-10.43	-11.56	-18.45	-23.59	-15.3	-14.77	-7.48	-4.34	-4.84	-8.58	-13.51	-18.16	-18.55	-17.02	-16.44	-17.14	-17.78	-19.08	-13.12	
Θ(30°)	-12.28	-14.45	-16.5	-14.85	-10.58	-14.34	-13.32	-10.09	-14.56	-18.27	-13.62	-25.96	-7.36	-8.02	-11.95	-8.75	-12.01	-20.61	-26.11	-21.4	-15.9	-14.47	-15.17	-10.48	
Θ(45°)	-23.76	-10.64	-17.35	-13.37	-10.41	-15.21	-15.86	-12.94	-20.99	-13.46	-12.25	-16.49	-14.81	-17.06	-13.6	-20.47	-24.5	-23.57	-24.4	-23.58	-24.74	-17.91	-11.53	-14.64	
Θ(60°)	-19.25	-21.17	-13.88	-20.19	-20.59	-10.29	-11.9	-11.79	-19.89	-13.46	-14.08	-11.86	-17.35	-17.29	-12.11	-25.58	-17.39	-21.13	-25.09	-20.52	-17.92	-25.5	-13.9	-24.33	
Θ(75°)	-17.99	-21.91	-16.43	-21.86	-19.98	-14.53	-12.55	-12.23	-19.31	-24.9	-19.35	-21.17	-23.71	-22.57	-17.8	-18.2	-21.77	-17.8	-24.79	-19.86	-19.1	-25.14	-26.07	-17.67	
Θ(90°)	-25.75	-22.54	-19.16	-24.77	-19.48	-25.71	-18.61	-16.23	-18.13	-24.74	-25.3	-22.8	-19.94	-20.36	-25.9	-17.21	-24.7	-17.39	-26.73	-19.93	-25.53	-25.46	-25.82	-22.65	
Θ(105°)	-20.03	-21.67	-25.48	-24.76	-26.79	-25.4	-18.84	-25.34	-23.79	-26.01	-19.83	-19.13	-24.1	-21.89	-24.47	-20.52	-24.76	-23.65	-25.17	-24.88	-25.24	-25.64	-25.22	-24.59	
Θ(120°)	-16.85	-24.72	-25.01	-25.38	-18.48	-25.29	-20.91	-25.34	-25.58	-23.6	-23.71	-18.69	-18.05	-25.82	-25.13	-26.32	-22.5	-20.38	-25.7	-25.53	-26.13	-23.32	-23.11	-24.46	
Θ(135°)	-25.92	-24.24	-25.38	-25.17	-22.42	-24.94	-22.95	-21.87	-25.17	-25.16	-25.4	-19.38	-25.13	-25.07	-22.1	-25.39	-18.16	-22.97	-26.64	-26.2	-25.19	-24.18	-24.31	-22.19	
Θ(150°)	-14.38	-24.71	-25.99	-22.88	-25.68	-25.17	-26.03	-24.91	-25.65	-20.71	-25.27	-17.54	-25.66	-23.71	-25.89	-21.88	-25.08	-25.21	-26.25	-25.8	-21.61	-20.04	-24.75	-21.64	
Θ(165°)	-21.47	-19.5	-24.01	-22.13	-25.95	-23.55	-24.92	-25.2	-24.49	-25.15	-23.02	-19.73	-22.44	-24.9	-22.79	-19.7	-17.99	-18.27	-24.48	-19.85	-22.79	-26.01	-15.12	-17.34	
Θ(180°)	-17.56	-18.66	-16.25	-17.08	-16.92	-16.9	-20.29	-19.86	-25.23	-25.98	-26	-22.21	-20.83	-20.9	-22.99	-25.07	-26.17	-24.69	-25.71	-25.15	-25.17	-25.01	-24.1	-18.54	
Freq(Hz)	5.785G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)	
Θ(0°)	-14.04	-15.05	-14.91	-14.35	-13.48	-12.58	-10.96	-12.12	-12.23	-11.5	-11.91	-13.01	-13.16	-14.09	-12	-10.81	-11.17	-11.53	-11.68	-11.2	-9.96	-13.99	-17.18	-18.2	
Θ(15°)	-6.86	-9.4	-12.45	-14.31	-15.26	-17.53	-24.55	-22.1	-18.86	-17.34	-21.9	-20.75	-15.59	-12.26	-8.93	-7.71	-6.71	-5.88	-3.85	-2.01	-1.21	-3.07	-4.87	-6.14	
Θ(30°)	-3.1	-3.44	-4.63	-4.62	-5.75	-3.83	-3.77	-5.04	-6.28	-4.08	-4.32	-4.99	-4.1	-3.05	-6.36	-5.89	-2.41	-2.37	-3.21	-2.73	-1.15	-0.4	-3.1	-3.65	
Θ(45°)	-3.97	-6.56	-13.36	-12.75	-7.34	-4.14	-2.4	-2.02	-5.54	-5.28	-5.99	-4.26	-3.79	-5.09	-4.62	-8.08	-7.73	-4.52	-4.15	-4.55	-5.09	-3.86	-3.53	-3.73	
Θ(60°)	-2	-0.85	-0.2	-2.09	0.22	2.84	1.59	-1.04	-3.29	-3.04	-1.35	-1.15	1.84	2.99	1.61	-0.77	-0.46	-0.24	-2.25	-5.7	-6.03	-3.65	-2.36	-1.49	
Θ(75°)	-2.98	-0.65	-0.94	-0.82	1.25	4.36	2.44	-2.58	-1.6	-1.15	-0.52	-0.49	2.59	3.98	1.78	-2.03	0.27	1.72	-1.04	-1.29	-2.05	-2.19	0.17	0.11	
Θ(90°)	-7.77	-6.09	-6.26	-4.11	-0.38	1.53	-0.57	-9.57	-1.5	-2.56	-2.51	-0.5	-3.17	-0.64	1.38	-1.39	-4.92	-3.53	-0.5	-1.66	-0.91	-6.14	-5.67	-4	-2.63
Θ(105°)	-10.99	-13.27	-10.33	-8.59	-3.64	-2.73	-5.44	-14.01	-5.35	-7.08	-5.7	-8.61	-6.03	-4.23	-5.97	-10.26	-11.11	-11.68	-12.23	-12.06	-11.51	-11.87	-6.8	-9.67	
Θ(120°)	-17.16	-12.79	-12.25	-12.24	-8.09	-8.34	-9.53	-16.66	-11.57	-11.02	-11.21	-9.67	-12.08	-8.52	-9.74	-11.4	-13.16	-8.57	-14.45	-9.76	-11.63	-23.81	-12.81	-12.58	
Θ(135°)	-19.52	-14.47	-12.55	-16.31	-13.68	-12.51	-16.85	-19.76	-15.57	-17.54	-15.37	-15.53	-18	-14.77	-12.76	-14.39	-19.18	-17.26	-18.51	-20.57	-15.17	-24.53	-14.03	-19.68	
Θ(150°)	-17.02	-14.39	-19.59	-16.63	-16.29	-16.3	-18.97	-22.95	-18.7	-16.8	-20.97	-19.52	-22.43	-22	-16.94	-25.83	-17.55	-24.72	-17.19	-24.48	-23.35	-25.84	-23.21	-19.55	
Θ(165°)	-26.04	-25.54	-19.37	-21.54	-24.43	-24.33	-21.34	-21.02	-24.65	-23.58	-20.44	-25.04	-22.8	-19.48	-26.21	-22.45	-24.86	-21.51	-24.89	-24.56	-24.32	-18.47	-24.82	-25.6	
Θ(180°)	-21.48	-22.73	-25.87	-25.13	-25.46	-23.01	-20.56	-19.57	-17.62	-16.72	-19.36	-23.59	-26.08	-26.15	-24.91	-25.1	-24.59	-26.13	-25.59	-25.35	-24.77	-24.89	-26.1	-24.96	
Freq(Hz)	5.785G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)	
Θ(0°)	-16.15	-14.84	-14.48	-13.75	-15.23	-13.89	-13.42	-14.14	-12.41	-10.47	-11.13	-12.06	-11.86	-11.29	-11.93	-14.47	-17.39	-18.16	-15.91	-16.25	-16.33	-13.75	-10.94	-12.46	
Θ(15°)	-8.8	-13.44	-14.41	-13.03	-13.64	-12.23	-11.32	-16.47	-25.72	-24.87	-21.35	-8.23	-4.69	-6.14	-9.51	-14.94	-18.01	-20.02	-17.93	-15.44	-13.61	-15.88	-14.02	-11.69	
Θ(30°)	-7.14	-25.68	-25.58	-20.01	-13.81	-13.81	-10.36	-10.25	-16.21	-20.52	-20.81	-18.2	-8.71	-11.44	-13.48	-9.96	-16.91	-25.32	-16.81	-24.09	-14.64	-13.02	-16.53	-9.24	
Θ(45°)	-15.01	-19.12	-18.61	-15.06	-8.56	-11.09	-11.69	-11.18	-18.59	-13.41	-13.67	-15.48	-17.06	-20.86	-17.46	-19.41	-25.37	-24.02	-18.35	-18.65	-25.08	-14.32	-12.55	-10.08	
Θ(60°)	-21.12	-19.73	-14.78	-24.85</																					



Appendix B.1

Θ(120°)	-11.87	-15.75	-16.75	-11.7	-10.06	-8.9	-10.74	-7.06	-7.23	-9.36	-10.99	-10.27	-8.48	-10.2	-17.64	-9.26	-16.46	-9.9	-15.7	-14.99	-12.78	-16.66	-14.81	-18.35
Θ(135°)	-16.56	-15.81	-22.5	-14.38	-14.76	-13.11	-17.2	-12.25	-12.24	-11.2	-15.8	-13.61	-12.57	-14.27	-22.93	-11.52	-19.68	-10.17	-17.04	-14.93	-10.28	-19.33	-15.25	-17.06
Θ(150°)	-14.03	-19.74	-22.3	-18.61	-20.34	-22.99	-17.99	-14.04	-16.1	-14.03	-14.46	-20.12	-19.45	-18.82	-18.8	-18.77	-21.17	-19.48	-10.13	-21.8	-19.16	-19	-25.97	-20.19
Θ(165°)	-20.33	-21.24	-18.84	-18.89	-22.18	-22.86	-18.61	-18.19	-20.35	-18.37	-16.23	-21.77	-20.37	-22.59	-18.38	-19.64	-22.28	-20.88	-20.72	-19.37	-26.18	-22.78	-25.19	-19.8
Θ(180°)	-17.78	-19.06	-23.26	-25.25	-24.72	-26.48	-19.53	-18.82	-19.75	-19.4	-17.07	-16.24	-17.17	-19.5	-24.78	-23.97	-25.38	-23.63	-19.09	-16.62	-17.36	-18.78	-19.46	-20.6
Freq(Hz)	6.475G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-9.39	-9.8	-9.4	-12.11	-12.9	-17.51	-18.01	-24.55	-21.55	-14.77	-10.57	-9.05	-9.27	-10.02	-11.37	-14.43	-13.47	-16.54	-19.33	-25.44	-25.72	-23.29	-19.75	-18.46
Θ(15°)	-11.11	-14.6	-19.08	-20.63	-16.17	-14.67	-13.06	-14.08	-18.35	-26.1	-15.34	-25.54	-12.02	-9.72	-11.11	-10.21	-10.93	-13.56	-17.34	-19.26	-18.38	-14.04	-8.02	-8.5
Θ(30°)	-14.36	-15.32	-11.15	-14.93	-16.22	-13.7	-11.04	-14.2	-21.05	-18.13	-14.44	-16.19	-16.79	-17.42	-12.56	-10.32	-15.73	-13.99	-11.19	-19.45	-14.58	-20.78	-12.34	-10.06
Θ(45°)	-12.9	-20.09	-20.65	-13.3	-14.48	-12.7	-15.87	-23.14	-22.72	-25.25	-10.97	-9.62	-10.64	-21.8	-13.95	-19.69	-13.43	-8.73	-18.61	-26.05	-22.58	-14.61	-11.97	-11
Θ(60°)	-19.95	-14.15	-25.37	-13.13	-19.15	-13.89	-16.8	-18.89	-26.83	-14.24	-11.19	-13.59	-13.68	-24.91	-25.41	-19.9	-19.02	-19.3	-20.18	-20.1	-25.81	-23.06	-14.31	-16.9
Θ(75°)	-19.32	-17.85	-13.59	-21.64	-15.86	-17.47	-19.2	-19.1	-16.36	-24.43	-19.45	-23.18	-25.7	-19.8	-15.63	-17.18	-16.84	-16.63	-18.47	-16.5	-19.04	-19.11	-26.03	-21.93
Θ(90°)	-21.04	-25.43	-14.52	-25.47	-13.17	-13.48	-20.27	-17.48	-14.36	-25.96	-24.9	-23.99	-22.52	-19.15	-21.11	-24.78	-15.06	-14.89	-26.09	-17.27	-18.12	-23.5	-19.49	-18.03
Θ(105°)	-21.69	-25.52	-20.63	-24.21	-13.87	-14.41	-23.39	-17.64	-15.9	-24.5	-23.27	-25.59	-20.07	-25.26	-17.41	-20.53	-25.66	-23.69	-24.66	-21.88	-23.91	-24.69	-24.12	-24.95
Θ(120°)	-24.97	-24.51	-21.13	-21.64	-20.54	-17.86	-22.55	-18.06	-20.43	-25.46	-24.58	-18.47	-25.96	-23.43	-24.52	-26.23	-25.79	-20	-25.61	-25.91	-22.44	-24.27	-22.56	-17.9
Θ(135°)	-26.22	-24.99	-21.1	-25.01	-18.09	-24.54	-23.26	-23.24	-25.61	-26.17	-19.91	-25.32	-25.18	-25.39	-21.29	-25.36	-26.29	-23.72	-26.29	-22.44	-19.85	-26.27	-18.63	-17.52
Θ(150°)	-15.97	-22.61	-17.45	-23.25	-23.93	-25.28	-26.43	-23.18	-25.13	-25.69	-25.17	-24.48	-25.43	-24.98	-24.95	-23.53	-24.23	-25.3	-22.88	-24.25	-24.15	-24.24	-24.57	-25.74
Θ(165°)	-22.28	-25.88	-26.06	-23.54	-25.7	-24.54	-24	-24.84	-25.28	-25.81	-23.73	-23.33	-23.92	-25.05	-25.78	-25.43	-24.81	-23.04	-25.41	-14.5	-23.69	-20.89	-14.93	-22.99
Θ(180°)	-22.46	-20.15	-18.55	-16.5	-15.85	-17.07	-21.6	-23.2	-22.77	-25.6	-24.56	-24.91	-25.86	-21.81	-21.53	-25.85	-20.1	-18.27	-20.34	-26	-24.72	-25.6	-23.01	-20.71
Freq(Hz)	6.695G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-14.67	-16.98	-16.78	-13.82	-10.12	-8.81	-7.73	-6.9	-6.69	-6.97	-7.34	-9.23	-13.11	-20.83	-23.03	-18.07	-15.85	-14.06	-11.7	-11.99	-14.94	-14.51	-21.78	-24.72
Θ(15°)	-4.14	-5.72	-4.11	-5.87	-6.88	-8.34	-7.97	-7.23	-6.42	-10.7	-18.89	-16.98	-14.73	-9.07	-7.22	-7.15	-6.7	-7	-8.68	-9.88	-8.08	-4.11	-3.78	-5.63
Θ(30°)	-5.22	-4.96	-5.93	-6.7	-6.16	-3.12	-4.99	-8.06	-5.47	-9.3	-18.34	-13.35	-9.43	-8.51	-5.79	-7.11	-8.54	-6.79	-5.71	-4.14	-4.17	-4.84	-3.75	-4.81
Θ(45°)	-5.95	-4.37	-2.97	-3.18	-7.71	-6.09	-4.86	-3.04	-2.83	-2.33	-5.44	-8.38	-6.95	-3.53	-3.8	-3.7	-2.47	-4.94	-7.72	-7.08	-2.07	-3	-1.27	-5.54
Θ(60°)	-6.13	-8	-7.36	-8.01	-3.2	-5.57	-5.89	-2.6	-8.61	-8.1	-8.91	-7.92	-4.87	-2.45	-2.9	-3.21	-7.73	-17.78	-13.94	-11.71	-14.3	-16.95	-5.18	-9.43
Θ(75°)	-4.61	-3.93	-3.45	-2.58	0.99	-2	-5.58	-1.48	-0.93	0.08	0.5	-2.99	-1.55	-0.14	-0.69	-1.94	-3.35	-3.9	-4.21	-12.35	-8.65	-1.07	-2.11	-2.22
Θ(90°)	-9.28	-5.46	-7.31	-5.06	-1.76	-3.38	-7.52	-1.63	0.19	-0.8	-0.41	-3.62	-5.01	-1.65	-1.23	-6.98	-7.31	-3.22	-8.74	-6.11	-5.6	-4.04	-4.59	-1.42
Θ(105°)	-9.87	-15.53	-11.42	-8.14	-5.83	-7.41	-11.4	-4.58	-4.55	-6.39	-2.86	-9.13	-8.47	-6.54	-9.11	-6.92	-9.15	-10.55	-14.01	-19.23	-10.86	-16.61	-5.91	-11.53
Θ(120°)	-18.32	-15.65	-16.09	-10.82	-12.92	-11.6	-17.38	-7.03	-8.85	-7.45	-8.61	-14.15	-12.01	-11.72	-8.25	-10.27	-21.15	-10.77	-20.41	-16.72	-16.73	-9.74	-15.1	-17.12
Θ(135°)	-15.64	-11.84	-23.86	-14.26	-15.9	-15.77	-17.41	-13.95	-13.85	-12.43	-14	-19.42	-14.77	-14.39	-12.7	-12.44	-20.55	-7.35	-19.67	-16.76	-8.43	-17.68	-12.84	-13.04
Θ(150°)	-13.16	-16.19	-24.33	-12.33	-25.31	-23.72	-16.02	-15.31	-10.22	-13.44	-19.08	-20.92	-25.25	-24.12	-13.27	-16.82	-24.45	-14.32	-10.85	-15.22	-19.29	-13.61	-20.32	-15.27
Θ(165°)	-17.54	-17.48	-14.26	-13.9	-12.89	-18.67	-17.56	-12.26	-14.8	-19.62	-20.64	-23.41	-23.34	-25.01	-26.12	-24.37	-14.91	-16.16	-14.83	-15.51	-19.42	-17.8	-23.59	-18.1
Θ(180°)	-17.2	-20.59	-25.59	-21.92	-18.12	-12.65	-11.45	-17.12	-17.59	-15.4	-14.56	-16.82	-17.3	-26.03	-22.29	-18.92	-21.62	-19.74	-19.43	-20.99	-18.04	-21.85	-25.78	-21.81
Freq(Hz)	6.695G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-6.77	-7.23	-7.55	-8.75	-10	-11.92	-15.63	-16.11	-14.66	-12.03	-9.29	-7.19	-6.92	-8.55	-11.5	-14.36	-16.98	-16.47	-20.99	-24.99	-22.71	-18.66	-14.98	-14.89
Θ(15°)	-15.29	-16.71	-23.92	-22.35	-15.36	-14.41	-17.24	-15.44	-13.95	-16.46	-20.31	-15.96	-12.82	-10.55	-11.94	-11.26	-9.1	-9.92	-14.39	-21.44	-24.27	-13.98	-8.14	-9.26
Θ(30°)	-23.57	-17.1	-14.84	-18.95	-18.52	-12.54	-10.71	-17.92	-17.18	-18.58	-14.29	-14.51	-13.88	-15.47	-11.84	-8.43	-20.55	-11.74	-8.25	-15.77	-14.15	-20.53	-7.97	-8.14
Θ(45°)	-9.42	-16.79	-10.9	-9.06	-11.2	-11.76	-19.49	-13.03	-15.34	-15.53	-8.55	-6.33	-5.94	-16.16	-13.47	-16.91	-11.58	-8.2	-14.46	-17.51	-26.06	-17.65	-8.06	-8.1
Θ(60°)	-24.81	-25.53	-25.38	-10.06	-17.77	-10.93	-14.85	-12.16	-14.48	-11.54	-11.25	-8.63	-8.95	-18.36	-19.74	-16.7	-13.78	-15.76	-19.73	-24.05	-21.43	-25.97	-9.25	-14.58
Θ(75°)	-18.29	-15.2	-10.68	-23.28	-17.25	-17.16	-19.37	-15.85	-18.21	-23	-15.9	-17.58	-12.9	-24.48	-15.98	-12.86	-15.12	-14.05	-11.66	-16.71	-26.34	-16.33	-19.6	-16.54
Θ(90°)	-22.21	-16.82	-13.94	-17.83	-12.35	-13.37	-15.11	-20.28	-12.33	-19.63	-21.1	-22.64	-22.13	-14.01	-13.17	-15.28	-11.24	-11.9	-15.05	-15.58	-16.41	-21.74	-11.69	-24.78
Θ(105°)	-23.05	-21.48	-15.38	-12.99	-15.09	-13.2	-16.86	-20.59	-16.81	-24.97	-13.02	-17.61	-10.78	-20.23	-19.41	-20.37	-18.1	-24.18	-25.4	-25.02	-21.58	-17.72	-15.49	-25.5
Θ(120°)	-24.59	-18.71	-19.95	-17.91	-21.83	-13.47	-20.94	-25.45	-16.15	-19.41	-22.62	-20.34	-24.04	-14.33	-15.58	-22.29	-19.05	-15.84	-22.33	-25.11	-18.34	-16.61	-23.08	-14.39
Θ(135°)	-21.8	-21.14	-14.86	-16.99	-24.17	-17.52	-26.25	-19.24	-22.96	-19.01	-26.19	-25.76	-21.69	-17.78	-21.68	-21.97	-22.24	-19.27	-23.16	-24.62	-14.04	-16.67	-10.14	-21.44
Θ(150°)	-17.32	-15.02	-17.29	-16.82	-14.65	-25.1	-24.65	-20.39	-17.04	-16.68	-25.77	-25.26	-21.67	-24.55	-26.29	-19.87	-26.71	-20.36	-21.64	-21.69	-16.2	-14.63	-15.68	-15.68
Θ(165°)	-19.72	-25.58	-21.2	-17.26	-15.85	-17.05	-26.44	-19.35	-21.67	-23.45	-24.56	-24.4	-22.09	-20.84	-24.41	-23.95	-23.13	-12.81	-12.98	-10.36	-17.07	-15.12	-15.59	-19.79
Θ(180°)	-18.97	-16.13	-16.9	-13.78	-12.7	-13.58	-15.45	-18.63	-23.63	-24.36	-24.87	-24.76	-21.63	-15.86	-18.82	-23.44	-25.87	-26.33	-25.58	-21.43	-24.48	-21.47	-19.58	-20.29
Freq(Hz)	6.995G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°									



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant3~Ant4)_2TX

Appendix B.1

Θ(75°)	-23.78	-19.01	-24.47	-18.87	-15.15	-19.81	-9.76	-14.1	-16.47	-12.06	-14.82	-19.97	-13.28	-18.27	-19.83	-18.03	-16.39	-16.82	-25.34	-17.12	-18.97	-24.71	-19.62	-19.44
Θ(90°)	-23.32	-18.87	-23.6	-25.96	-21.06	-25.63	-15.49	-18.23	-15.53	-14.17	-13.99	-22.71	-12.04	-16.43	-19.37	-15.66	-13.65	-16.29	-23.24	-18.41	-25.36	-23.55	-18.87	-24.4
Θ(105°)	-18.36	-19.68	-25.32	-23.05	-25.52	-25.33	-19.75	-25.69	-23.08	-20.02	-17.09	-25.58	-23.03	-22.55	-20.27	-22.94	-25.47	-19.53	-24.8	-24.78	-24.25	-20.78	-23.91	-24.48
Θ(120°)	-21.95	-24.87	-26.77	-22.16	-26.18	-23.38	-23.36	-24.51	-22.99	-24.83	-17.47	-26.77	-24.72	-17.38	-24.43	-25.02	-25.9	-22.12	-25.83	-25.94	-25.15	-25.48	-24.47	-23.15
Θ(135°)	-21.14	-21.84	-24.2	-25.33	-25.38	-24.95	-25.13	-25.45	-26.06	-23.9	-22.79	-24.92	-24.63	-23.61	-24.42	-18.14	-24.99	-18.79	-21.31	-20.32	-19.31	-25.74	-23.81	-22.09
Θ(150°)	-21.68	-23.46	-24.87	-24.85	-25.14	-25.63	-24.87	-24.98	-23.64	-25.79	-26.29	-25.58	-21.3	-18.52	-26.03	-25.97	-22.92	-26.23	-21.69	-22.44	-24.87	-21.93	-23.83	-24.38
Θ(165°)	-25.43	-22.48	-22.39	-25.74	-26.16	-24.71	-22.39	-25.67	-26.77	-21.68	-24.66	-20.12	-22.43	-11.48	-17.44	-24.91	-25.51	-25.73	-24.89	-25.31	-16.56	-17.78	-20.93	-20.83
Θ(180°)	-22.98	-20.48	-25.38	-20.59	-24.4	-25.49	-25.46	-25.01	-24.19	-21.09	-24.74	-25.87	-26.01	-25.17	-25.37	-24.43	-24.97	-26.08	-24.59	-25.16	-22.51	-25.15	-24.43	-25.4
Freq(Hz)	5.785G	Pol.	Phi	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-16.86	-14.97	-11.19	-7.55	-7.55	-7.34	-6.24	-7.15	-8.81	-11.14	-15.61	-26.05	-15.48	-10.46	-9.76	-10.54	-9.05	-9.46	-11.19	-13.5	-14.24	-15.85	-20.35	-17.6
Θ(15°)	-8.31	-10.14	-8.81	-6.93	-5.03	-4.6	-7.02	-10.36	-12.13	-10.4	-8.64	-8.77	-7.63	-6.99	-6.44	-5.51	-4.77	-5.71	-7.91	-10.18	-11.15	-11.6	-10.91	-12.59
Θ(30°)	-2.62	-4.26	-6.61	-7.08	-5.39	-5.2	-6.15	-5.07	-5.51	-5.58	-5.95	-5.32	-3.63	-1.44	-1.26	-1.32	-1.29	-3.2	-3.74	-5.44	-7.18	-7.25	-4.16	-3.01
Θ(45°)	0.71	-1.8	-4.45	-6.32	-7.57	-6.5	-4.68	-4.06	-6.52	-7.85	-3.47	-1.75	-0.96	-0.2	0.04	-2.34	-4.35	-4.17	-5.25	-9.7	-14.94	-4.47	-2.5	-1.02
Θ(60°)	2.57	-0.89	-0.31	-2.41	-1.83	-2.36	-1.09	0.79	0.48	-5.13	-5.36	-2.13	-0.65	-0.97	-3.97	-4.75	-6.92	-2.99	-1.13	-1.04	-2.93	-0.18	3.87	4.23
Θ(75°)	0.81	-3.75	-0.58	-0.81	0.32	-0.68	0.71	3.83	3.05	-0.97	-1.59	1.85	1.66	-0.25	-1.51	-2.67	-1.7	1.03	0.39	1.42	-3.07	-0.38	3.21	3.43
Θ(90°)	-3.05	-8.22	-3.54	-3.92	-2.04	-4.01	-1.16	1.88	0.46	-3.96	-4.19	-0.04	-0.55	-2.9	-4.06	-5.59	-3.97	-0.5	-0.29	-0.08	-7.21	-5.37	-0.95	-0.39
Θ(105°)	-8	-11.86	-8.06	-9.29	-6.3	-7.12	-5.75	-1.89	-3.24	-8.43	-8.9	-5.7	-6.86	-8.6	-10.42	-17.55	-10.14	-8.3	-10.49	-9.3	-16.33	-7.25	-5.85	-4.97
Θ(120°)	-13.56	-12.98	-13.87	-12.73	-13.48	-10.94	-9.12	-8.86	-5.97	-13	-12.62	-12.13	-10.72	-11.44	-12.23	-17.76	-10.74	-9.12	-10.59	-8.52	-12.04	-12.48	-9.73	-9.74
Θ(135°)	-17.38	-24.93	-22.44	-16.15	-13.34	-15.43	-13	-10.92	-12.92	-15.33	-15.34	-11.85	-16.78	-19.66	-14.2	-25.78	-16.09	-18.03	-23.91	-11.55	-19.54	-15.32	-15.81	-16.83
Θ(150°)	-23.57	-17.43	-21.56	-25.47	-16.3	-16.47	-19.2	-14.53	-11.63	-17.92	-16.74	-17.12	-25.37	-25.9	-20.54	-19.42	-25.86	-24.55	-23.97	-22.21	-18.54	-22.99	-16.99	-19.97
Θ(165°)	-23.42	-18.5	-19.9	-24.51	-25.71	-21.53	-16.9	-21.08	-24.82	-18.18	-18.73	-17.89	-15.62	-21.78	-22.64	-17.55	-24.98	-24.7	-24.19	-19.24	-25.86	-23.31	-26.3	-25.75
Θ(180°)	-25.03	-24.99	-25.79	-25.81	-24.71	-22.05	-20.22	-22.26	-19.29	-20.29	-25.54	-25.75	-25.06	-24.6	-25.91	-25.1	-24.53	-22.39	-21.22	-21.22	-22.78	-20.69	-20.37	-22.17
Freq(Hz)	5.785G	Pol.	Theta	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8.93	-10.88	-12.82	-14	-17.72	-20.12	-14.08	-11.37	-8.9	-6.6	-5.93	-6.34	-7.56	-7.88	-10.53	-16.68	-18.63	-19.31	-16.34	-12.25	-10.88	-11.86	-12.8	-13.17
Θ(15°)	-6.56	-12.96	-13.7	-12.18	-14.66	-18.39	-17.41	-17.7	-15.44	-17.32	-24.01	-19.12	-17	-13.51	-16.15	-13.32	-17.53	-25.9	-17.77	-16.32	-16.13	-13.24	-8.92	-6.75
Θ(30°)	-6.96	-11.27	-14.72	-25.5	-25.89	-10.81	-11.23	-14.95	-25.73	-23.96	-17.64	-25.05	-9.28	-11.27	-13.81	-9.8	-8.19	-9.97	-16.52	-24.15	-25.2	-24.39	-22.27	-9.33
Θ(45°)	-13.83	-10.24	-12.46	-13.57	-17.06	-12.73	-9.51	-12.52	-19.68	-13.38	-11.3	-11.65	-18.02	-25.83	-14.67	-13.38	-7.78	-13.52	-24.1	-17.6	-12.77	-12.53	-18.3	-11.77
Θ(60°)	-15.83	-17.64	-18.73	-16.17	-17.52	-15.64	-10.28	-11.88	-22.14	-16.18	-25.92	-13.69	-9.94	-25.71	-17.41	-24.73	-11.03	-15.02	-20.85	-18.6	-17.49	-19.31	-15.96	
Θ(75°)	-22.36	-23.48	-19.21	-13.24	-25.56	-19.92	-14.87	-14.13	-14.19	-11.71	-14.31	-24.97	-11.38	-19.35	-15.36	-26.31	-16.4	-14.96	-20.33	-15.8	-17.38	-24.95	-16.74	-19.39
Θ(90°)	-21.45	-19.53	-21.96	-14.73	-25.1	-19	-19.46	-17.92	-18.82	-15.81	-14.96	-24.61	-15.58	-16.32	-16.02	-20.53	-16	-19.39	-24.22	-17.64	-20.75	-26.1	-15.78	-21.2
Θ(105°)	-16.32	-22.57	-25.25	-18.5	-26.23	-25.91	-26.1	-21.61	-24.89	-21.83	-20.37	-24.83	-25.09	-20.49	-25.9	-24.69	-26.05	-21.08	-25.7	-26.18	-25.38	-21.88	-19.14	-23.38
Θ(120°)	-24.81	-21.91	-25.12	-25.52	-24.74	-25.96	-25.62	-22.66	-26.1	-25.94	-21.41	-21.13	-20.7	-18.76	-25.97	-23.27	-24.42	-21.17	-26.09	-24.87	-26.07	-25.36	-21.2	-22.53
Θ(135°)	-20.96	-17.47	-24.69	-24.66	-25.42	-26.21	-24.81	-25.15	-22.25	-23.74	-24.63	-25.22	-19.6	-23.33	-20.25	-21.46	-21.47	-23.83	-24.08	-22.58	-22.5	-25.29	-25.23	-26.45
Θ(150°)	-25.7	-20.36	-25.68	-24.93	-26.65	-23.68	-24.89	-24.71	-25.77	-24.29	-25.36	-25.64	-18.51	-17.75	-18.99	-21.83	-25.07	-25.93	-23.57	-25.68	-24.07	-20.52	-25.14	-25.1
Θ(165°)	-14.89	-17.23	-25.42	-25.69	-25.59	-23.8	-24.59	-25.14	-23.75	-24.55	-25.38	-20.89	-22.94	-14.53	-10.78	-22.9	-21.53	-20.03	-26.37	-24.41	-16.75	-19.41	-19.05	-24.82
Θ(180°)	-18.63	-17.97	-20.44	-20.08	-20.73	-26.27	-24.41	-26.2	-24.96	-23.57	-24.92	-25.84	-25.71	-18.82	-16.02	-20.55	-25.31	-25.36	-24.81	-25.5	-25.52	-25.42	-25.87	-24.6
Freq(Hz)	6.175G	Pol.	Phi	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-9.69	-9.66	-8.74	-8.87	-8.78	-9.6	-11	-13.63	-16.12	-17.63	-13.83	-10.92	-9.91	-9.23	-8.65	-10.19	-12.52	-12.59	-16.08	-22.8	-26.13	-22.46	-18.66	-16.6
Θ(15°)	-8.41	-10.19	-16.25	-14.7	-9.65	-9.65	-9.24	-8.85	-7.69	-7.95	-7.57	-7.53	-7.44	-5.44	-5.38	-6.97	-5.3	-6.91	-9.41	-11.19	-12.04	-13.43	-10.96	-11.54
Θ(30°)	-2.85	-3.9	-5.13	-4.88	-3.06	-2.6	-4.82	-7.22	-3.75	-3	-4.49	-6.69	-3.2	0.12	-1.65	-3.4	-2.17	-3.41	-4.07	-5.11	-8.71	-12.41	-4.13	-4.26
Θ(45°)	-1.38	-2.73	-6.09	-13.04	-17	-13.08	-6.98	-6.37	-4.09	-3.53	-4.31	-1.55	-1.94	-2.51	0	-2.17	-5.38	-5.7	-2.94	-7.04	-7.8	-5.92	-5.67	-4.65
Θ(60°)	-2.12	0.94	1.88	0.72	-1.2	-4	-3.01	-2.11	-3.9	-4.92	-21.72	-9.67	-5.21	-7.1	-15.55	-9.87	-6.41	-5.65	-2.38	-2.59	-5.49	-1.19	1.92	1.51
Θ(75°)	-3.16	0.37	2.46	2.91	0.56	-1.59	-0.75	2.9	1.41	-0.98	-2.4	1.37	0.54	-1.21	-2.11	-1.4	1.08	0.37	0.46	1.25	-2.94	-0.4	2.01	2.4
Θ(90°)	-6.41	-4.65	-1.56	-1.26	-2.3	-3.86	-4.37	-0.07	-0.98	-2.17	-4.31	0.63	-0.55	-3.25	-2.57	-2.97	-0.18	-0.15	-0.43	-0.39	-5.25	-5.18	-1.73	-2.83
Θ(105°)	-8.54	-10.95	-4.92	-5.3	-6.17	-7.17	-7.18	-2.91	-3.97	-6.74	-9.87	-3.84	-3.34	-6.82	-5.91	-9.29	-10.78	-10.78	-8.92	-9.83	-9.94	-7.39	-5.14	-7.36
Θ(120°)	-13.48	-10.81	-12.4	-10.85	-10.84	-11.11	-13.3	-7.63	-8.72	-12.91	-13.75	-8.91	-7.07	-9.71	-9.24	-20.74	-6.11	-9.62	-8.81	-10.23	-14.8	-15.13	-11.46	-11.12
Θ(135°)	-17.25	-14.74	-13.7	-12.65	-15.04	-18.46	-14.02	-14.99	-9.4	-15.32	-15.36	-11.98	-14.65	-18.53	-10.59	-16.95	-10.98	-10.79	-11.4	-11.25	-18.46	-11.87	-17.41	-18.4
Θ(150°)	-19.4	-15.07	-18.44	-20.62	-17.06	-17.28	-19.38	-17.97	-14.44	-17.12	-15.48	-12.38	-18.47	-21.09	-19.85	-13.81	-18.42	-23.73	-15.57	-18.83	-16.01	-25.68	-15.82	-19.97
Θ(165°)	-18.68	-18.65	-17.54																					



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant3~Ant4)_2TX

Appendix B.1

Θ(30°)	-2.97	-5.45	-6.88	-6.03	-8.71	-12.4	-14.04	-8.84	-5.61	-4.05	-6.41	-2.84	-4.52	-3.92	-1.11	-1.67	-5.36	-4.28	-7.53	-7.87	-7.17	-4.22	-3.07	-4.47
Θ(45°)	-3.82	-3.04	-5.85	-6.39	-4.29	-6.38	-8.81	-5.3	-3.84	-3.01	-4.12	-5.08	-5.41	-6.47	-3.59	-0.32	-3.1	-4.72	-6.72	-7.43	-3.49	-6.67	-3.11	-4.03
Θ(60°)	-4.06	-0.55	-0.5	-0.37	-3.89	-4.38	-4.12	-3.27	-6.55	-8.05	-5.94	-8.18	-10.82	-15.62	-9.03	-8.17	-8.19	-10.43	-15.47	-10.6	-7.13	-3.43	-1.74	-2.62
Θ(75°)	-3.98	-1.84	1.02	1.59	1.24	0.18	-2.57	-1.17	-2	-0.27	-7.08	-2.95	-3.33	-8.74	-8.14	-6.47	-1.15	-3.08	-4.85	-0.57	-5.14	-0.33	-0.88	-2.27
Θ(90°)	-11.51	-5.85	-2.46	-0.58	-0.57	-2.14	-6.07	-0.39	-0.51	-1.4	-3.64	-4.52	-6.93	-10.23	-11.16	-13.18	-1.35	-0.98	-5.46	-2.21	-8.17	-5.93	-2.92	-3.67
Θ(105°)	-11.05	-11.62	-6.14	-5.36	-3.03	-6.32	-9.09	-3.29	-5.76	-4.78	-7.58	-7.99	-9.1	-10.08	-11.86	-14.23	-13.26	-12.86	-10.9	-9.87	-15.18	-8.12	-9.87	-7.56
Θ(120°)	-14.87	-15.77	-10.69	-8.59	-9.31	-13.16	-13.28	-6.69	-8.67	-8.88	-10.92	-10.21	-13.48	-19.56	-18.74	-21.53	-13.08	-11.02	-13.68	-10.36	-17.43	-15.61	-11.11	-16.44
Θ(135°)	-25.16	-20.67	-12.99	-10.64	-15.59	-18.74	-21.17	-10.87	-10.44	-15.4	-16.2	-16.64	-14.22	-13.66	-12.63	-24.34	-9.85	-11.52	-10.72	-9.7	-21.65	-14.85	-14.54	-18.21
Θ(150°)	-19.49	-19.7	-17.27	-14.12	-24.01	-25.14	-17.32	-15.95	-16.93	-13.27	-16.73	-14.78	-16.16	-25.78	-20.02	-16.73	-15.72	-15.19	-12.25	-25.94	-24.56	-25.15	-25.54	-18.14
Θ(165°)	-19.76	-16.42	-17.4	-15.17	-21.97	-21.81	-19.47	-22.61	-18.23	-16.24	-17.39	-14.3	-18.01	-19.18	-25.59	-19.56	-19.45	-23.86	-26.19	-25.71	-24.43	-25.85	-22	-21.03
Θ(180°)	-23.39	-21.42	-19.35	-24.26	-25.19	-21.48	-18.62	-20.68	-25.54	-20.48	-22.54	-20.95	-18.7	-18.84	-25.21	-25.13	-23.26	-20.2	-21.08	-19.31	-20.09	-19.71	-21.85	-25.07
Freq(Hz)	6.995G	Pol.	Theta	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-11.09	-7.97	-5.72	-5.84	-5.6	-4.99	-4.88	-5.98	-7.96	-11.09	-16.22	-19.79	-13	-8.5	-6.52	-6.85	-6.12	-5.59	-6.96	-8.16	-11.31	-16.36	-24.81	-20.17
Θ(15°)	-15.83	-11.06	-10.53	-8.66	-8.66	-9.38	-9	-13.85	-13.97	-9.1	-23.36	-7.67	-5.13	-4.16	-6.17	-11.16	-14.78	-12.39	-10.82	-13.58	-13.86	-21.59	-22.12	-18.83
Θ(30°)	-16.04	-13.26	-18.09	-9.88	-16.66	-25.17	-23.66	-18.06	-13.87	-23	-25.78	-12.64	-7.36	-5.45	-9.42	-13.34	-14.38	-20.18	-16.4	-25.56	-15.27	-8.4	-17.51	-16.03
Θ(45°)	-8.18	-9.28	-8.44	-10.19	-7.03	-8.98	-10.01	-8.23	-11.62	-17.48	-11.46	-10.43	-11.66	-12.34	-15.06	-16.36	-22.77	-14.28	-20.1	-11.81	-8.29	-10.29	-10.14	-10.56
Θ(60°)	-14.4	-19.3	-17.72	-16.72	-10.62	-11.32	-10.98	-12.24	-16.82	-24.77	-11.91	-8.62	-14.27	-19.51	-19.38	-14.8	-12.4	-9.52	-25.28	-16.53	-12.31	-11.43	-10.75	-18.05
Θ(75°)	-15.15	-18.01	-15.04	-14.29	-14.64	-12.71	-21.3	-23.85	-24.16	-16.15	-24.72	-13.9	-13.58	-22.52	-16.07	-22.83	-16.01	-16.8	-13.4	-14.07	-24.78	-17.01	-26.77	-13.91
Θ(90°)	-21.33	-14.99	-16.46	-12.45	-11.53	-11.58	-18.52	-13.95	-24.75	-13.74	-18.86	-21.14	-14.79	-16.13	-13.36	-16.76	-13.65	-17.4	-12.6	-12.36	-20.7	-13.2	-23.39	-11.56
Θ(105°)	-20.54	-19.84	-19.8	-12.56	-12.89	-18.47	-18.03	-14.01	-25.57	-21.64	-23.27	-23.57	-12.91	-23.08	-24.76	-23.25	-22.3	-26.12	-18.97	-15.09	-23.14	-16.41	-15.7	-12.58
Θ(120°)	-18.12	-18.31	-16.81	-16.86	-18.45	-18.92	-23.09	-15.35	-25.71	-15.35	-21.41	-19.7	-20.05	-22.1	-21.55	-18.92	-23.46	-22.9	-25.58	-14.18	-18.37	-21.85	-18.11	-18.41
Θ(135°)	-25.48	-19.36	-14.14	-19.21	-24.47	-24.7	-22.62	-17.38	-26.23	-24.22	-21.07	-25.15	-25.02	-21.8	-19.66	-17.29	-14.27	-18.02	-24.99	-18.71	-20.53	-11.92	-23.5	-20.33
Θ(150°)	-25.35	-19.08	-19.15	-17.77	-22.95	-25.83	-26.05	-19.11	-26.01	-17.12	-20.06	-18.62	-24.88	-26.14	-25.68	-26.14	-25.54	-23.49	-25.84	-19.73	-24.25	-21.53	-20.48	-20.04
Θ(165°)	-16.65	-18.51	-19.56	-20.53	-25.92	-24.61	-25.49	-25.2	-25.25	-23.98	-25.39	-17.37	-24.11	-19.86	-13.55	-19.51	-22.92	-22.5	-24.25	-20.49	-19.9	-16.94	-20.73	-17.67
Θ(180°)	-19.24	-19.46	-19.74	-18.15	-17.83	-17.47	-18.04	-20.43	-22.85	-24.17	-26.01	-21.63	-23.28	-25.67	-19.23	-14.82	-21.17	-18.93	-19.19	-23.36	-23.37	-24.97	-21.96	-20.29
Freq(Hz)	6.995G	Pol.	Phi	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-7.94	-9.94	-12.4	-15.91	-19.18	-17.48	-17.38	-12.71	-11.72	-11.51	-9.27	-9.71	-8.57	-10.1	-13.19	-18.12	-20.06	-20.32	-14.87	-12.26	-11.3	-11.87	-9.86	-9.32
Θ(15°)	-13.59	-9.26	-9.05	-11.98	-12.79	-13.14	-15.63	-20.15	-23.29	-18.69	-12.63	-12.06	-11.73	-12.1	-11.93	-12.52	-16.78	-15.21	-6.53	-5.15	-7.27	-7.57	-12.28	-14.39
Θ(30°)	-5.81	-9.88	-17.74	-24.33	-10.72	-9.59	-10.91	-6.89	-6.11	-9.35	-8.4	-6.17	-6.44	-7.3	-4.18	-1.93	-2.46	-2.79	-8.32	-9.49	-9.86	-4.94	-7.16	-8.65
Θ(45°)	-7.96	-6.81	-8.95	-5.77	-4.8	-10.52	-9.92	-5.8	-2.32	-7.54	-3.73	-5.07	-4.54	-2.65	-4.98	-1.51	-3.21	-2.42	-4.41	-4.69	-6.69	-4.21	-2.83	-4.67
Θ(60°)	-4.63	-6.12	-3.49	-3.66	-4.58	-7.51	-6.93	-8.14	-5.14	-9.8	-7.03	-6	-4.95	-7.27	-8.4	-11.29	-14.16	-9.46	-7.45	-18.82	-13.16	-3.56	-3.34	-5.59
Θ(75°)	-3.73	-6.9	-4.41	-0.65	-0.51	-2.92	-9.22	-4.52	-2.87	-7.74	-8.6	-7.13	-4.72	-5.83	-9.06	-7.69	-6.1	-9.84	-6.84	-5.01	-4.58	0.33	-1.87	-5.33
Θ(90°)	-7.7	-13.76	-7.74	-3.21	-4.08	-5.75	-6.19	-6.31	-5.81	-3.35	-6.99	-7.03	-6.52	-5.68	-10.35	-11.53	-6.06	-8.32	-6.94	-6.67	-8.71	-2.51	-4.2	-6.71
Θ(105°)	-16.48	-18.71	-10.95	-6.97	-9.01	-10.41	-11.88	-11.35	-8.96	-8.95	-10.19	-10.62	-11.95	-11.41	-18.07	-16.46	-12.32	-14.79	-16.76	-12.88	-10.43	-6.86	-10.18	-10.74
Θ(120°)	-16.72	-20.12	-13.16	-10.38	-12.2	-14.72	-11.24	-13.38	-13.53	-10.29	-13.49	-14.16	-14.97	-15.96	-15.19	-16.3	-18.18	-14.84	-14.69	-14.3	-19.88	-12.29	-12.86	-16.31
Θ(135°)	-21.54	-18.42	-16.49	-17.32	-19.65	-22.92	-16.55	-16.55	-16.5	-11.88	-15.14	-21.55	-22.86	-14.68	-18.94	-20.31	-13.42	-16.41	-13.74	-11.58	-20.46	-13.47	-21.89	-19.62
Θ(150°)	-20.36	-22.11	-17.04	-16.28	-25.43	-26.28	-18.77	-19.15	-11.71	-13.11	-12.57	-14.42	-18.78	-21.34	-14.41	-19.79	-17.43	-21.09	-13.84	-25.22	-25.71	-24.36	-25.35	-21.48
Θ(165°)	-26.26	-23.98	-17.24	-15.07	-20.92	-24.04	-16.37	-20.39	-17.59	-16.2	-14.99	-15.27	-14.77	-21.21	-16.64	-16.46	-22.14	-18.45	-23.51	-23.55	-25.04	-19.71	-21.35	-25.46
Θ(180°)	-23.8	-23.19	-20.65	-18.25	-16.74	-14.91	-15.48	-22.14	-19.51	-21.13	-23.67	-25.89	-25.68	-24.29	-25.02	-25.53	-25.68	-21.51	-19.11	-20.29	-19.84	-18.17	-20.64	-21.51
Freq(Hz)	6.995G	Pol.	Theta	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-15.68	-11.32	-9.68	-9.03	-9.34	-8.48	-9.86	-11.45	-12.62	-13.93	-14.45	-17	-13.46	-11.92	-11.75	-11.32	-8.09	-9.29	-11.05	-10.51	-14.82	-17.07	-20.38	-21.46
Θ(15°)	-15.1	-19.59	-15.89	-11.4	-11.71	-12.76	-15.22	-21.29	-18.97	-11.92	-18.05	-6.49	-3.78	-4.12	-5.17	-6.57	-5.42	-4.22	-5.97	-14.88	-18.41	-11.54	-9.31	-11.5
Θ(30°)	-6.58	-9.1	-6.22	-4.97	-7.05	-8.08	-8.77	-7.67	-6.31	-9.32	-9.88	-6.88	-5.33	-4.41	-4.84	-7.72	-7.53	-6.97	-7.53	-5.95	-5.72	-5.56	-10.33	-6.43
Θ(45°)	-4.41	-1.38	-3.25	-5.01	-3.53	-2.14	-3.28	-2.75	-5.49	-14.73	-11.78	-9.42	-9.49	-11.16	-8.84	-11.59	-9.52	-7.6	-4.5	-6.12	-5.25	-5.32	-3.78	-3.96
Θ(60°)	-15.43	-12.37	-16.8	-12.39	-13.09	-6.08	-4.81	-4.83	-2.44	-9.41	-8.77	-8.9	-9.93	-8.79	-11.32	-12.43	-15.9	-7.39	-9.57	-15.02	-12.77	-13.27	-10.47	-12.16
Θ(75°)	-6.07	-12.53	-8.96	-12.29	-12.97	-10.34	-13.06	-18.8	-19.11	-16.71	-14.39	-16.88	-13.97	-13.07	-8.14	-13.06	-8.46	-20.45	-13.41	-12.34	-11.88	-9.24	-12.45	-18.06
Θ(90°)	-7.64	-12.36	-7.45	-10.11	-7.04	-9.5	-8.95	-8.34	-7.43	-10.16	-10.79	-12.63	-7.46	-8	-10.36	-14.21	-5.78	-10.52	-12.74	-8.31	-11.01	-9.42	-11.09	-10.37
Θ(105°)	-13.61	-14.03	-11.87	-10.25	-11.25	-12.05	-10	-9.8	-9.22	-12.18	-13.15	-16.16	-13.64	-14.38	-10.16	-16.07	-15.84	-18.23	-18.02	-15.96	-11.13	-9.63	-15.97	-11.4
Θ(120°)	-17.59	-25.																						



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX

Appendix B.2

Freq(Hz)	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	2.98	4.19	2.4	2.41	1.39	0.77
Ant. 2 Max Gain (dBi)	3.46	4.94	2.95	1.96	1.32	0.87
Ant. 3 Max Gain (dBi)	3.42	4.36	2.95	2.31	0.99	0.61
Ant. 4 Max Gain (dBi)	3.67	4.23	2.91	3.96	1.59	0.33
Ant. 1 Polarization/Θ(°)/Φ(°)	Phi/60/0	Phi/75/255	Phi/75/255	Phi/75/315	Phi/75/240	Phi/75/315
Ant. 2 Polarization/Θ(°)/Φ(°)	Phi/75/180	Phi/75/150	Phi/75/165	Phi/75/225	Phi/75/210	Phi/75/240
Ant. 3 Polarization/Θ(°)/Φ(°)	Phi/75/180	Phi/75/75	Phi/75/75	Phi/75/135	Phi/75/60	Phi/75/60
Ant. 4 Polarization/Θ(°)/Φ(°)	Phi/60/0	Phi/60/345	Phi/75/45	Phi/75/45	Phi/75/45	Phi/75/315
Max Gain (dBi)	3.67	4.94	2.95	3.96	1.59	0.87
DG [1SS] (dBi)	8.6	7.96	7.45	6.03	6.05	4.51
DG [2SS] (dBi)	5.6	4.96	4.45	3.96	3.05	1.51
DG [4SS] (dBi)	2.59	2.12	1.51	0.27	0.07	-1.19



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX

Appendix B.2

DG 1SS Result

Freq(Hz)	5.6G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8.77	-8.63	-8.91	-6.91	-6.43	-5.97	-4.84	-4.85	-4.78	-5.82	-6.99	-8.49	-7.6	-6.62	-6.22	-6.02	-5.91	-6.96	-7.14	-7.9	-7.26	-8.84	-10.88	-11.58
Θ(15°)	-1.84	-2.16	-1.29	0.08	-0.98	-2.52	-4.55	-4.68	-3.22	-2.39	-3	-3.74	-3.14	-2	-0.62	-0.13	-0.19	0.06	0	0.64	0.94	-0.34	-1.01	-1.67
Θ(30°)	2.16	1.7	0.35	0.29	0.14	-0.75	-0.98	-0.93	-1.36	-0.35	1.18	1.85	1.68	2.21	2.38	2.18	1.64	-0.21	0.25	0.08	0.99	2.44	1.25	0.95
Θ(45°)	3.85	2.38	1	1	1.56	1.96	2.28	2.03	1.22	1.65	2.68	3.32	3.32	2.73	2.78	2.07	1.59	2.48	2.4	2.01	0.93	1.29	2.23	2.68
Θ(60°)	8.47	6.88	5.33	4.34	4.18	6.14	5.89	5.05	2.65	2.65	4.39	5.68	6.67	6.35	5.42	4.86	5.35	6.04	6.21	4.63	3.91	4.14	6.86	8.51
Θ(75°)	7.32	5.36	4.15	3.61	4.91	7.75	8.6	7.99	5.96	5.11	7.28	8.44	8.47	6.81	5.18	3.76	6.46	7.73	6.48	4.87	3.09	2.52	5.82	7.78
Θ(90°)	3.45	1.03	0.02	-0.12	1.98	4.89	5.62	5.07	3.45	2.09	4.38	5.95	6.37	3.62	1.38	-1.11	3.53	5.91	5.81	4.23	0.48	-2.16	1.8	3.79
Θ(105°)	-2.37	-3.12	-4.84	-5.25	-2.34	0.93	1.57	0.61	-0.9	-2.22	-0.05	0.16	0.8	-1.39	-3.15	-7.19	-4.37	-2.88	-4.2	-6.16	-7.36	-8.36	-2.68	-0.79
Θ(120°)	-7.7	-7.78	-10.15	-8.35	-6.31	-4.51	-4.09	-5.7	-5.75	-7.16	-4.6	-3.25	-4.22	-4.56	-7.91	-8.65	-5.25	-2.81	-4.36	-3.95	-6.76	-11.17	-8.28	-5.56
Θ(135°)	-10.62	-12.46	-11.76	-11.42	-9.53	-9.01	-7.66	-9.11	-8.73	-9.89	-9.56	-6.85	-8.71	-9.29	-10.06	-10.25	-10.8	-13.12	-10.85	-13	-12.64	-14.64	-9.19	-8.04
Θ(150°)	-12.17	-12.23	-11.86	-12.87	-11.94	-11.02	-11.81	-12.52	-11.59	-13.84	-11.17	-11.43	-12.51	-12.17	-13.38	-14.12	-14.98	-16.98	-15.73	-11.83	-18.1	-13.93	-12.73	-13.03
Θ(165°)	-18.59	-14.78	-13.45	-14.53	-15.68	-13.83	-13.57	-15.51	-15.35	-12.83	-13.38	-14.38	-17.76	-17.65	-15.2	-14.27	-17.4	-18.66	-14.52	-16.73	-16.6	-16.12	-19.44	-19.16
Θ(180°)	-15.16	-14.76	-17.84	-17.26	-14.9	-12.6	-9.2	-9.45	-9.24	-9.97	-10.13	-12.02	-12.85	-16.85	-17.25	-14.12	-13.1	-12.14	-13.13	-13.87	-13.31	-14.45	-15.56	-17.72
Freq(Hz)	5.6G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-7.51	-8.25	-8.53	-8.09	-9.06	-10.94	-7.62	-6.02	-5.73	-4.59	-4.5	-5.02	-5.68	-5.28	-6.24	-9.55	-9.64	-10.22	-11.5	-10.07	-8.76	-8.69	-7.69	-7.26
Θ(15°)	-6.02	-9.65	-9.52	-7.48	-6.2	-7.55	-8.72	-8.96	-8.14	-7.6	-5.52	-5.98	-5.92	-4.35	-6.15	-7.55	-10.55	-12.71	-13.09	-13.34	-10.88	-7.74	-5.75	-4.52
Θ(30°)	-6.8	-7.45	-11.65	-10.07	-7.38	-7.27	-7.19	-8.98	-11.48	-12.15	-10.51	-8.58	-6.73	-4.34	-8.01	-5.23	-4.65	-8.74	-14.29	-15.77	-14.92	-9.55	-8.07	-4.7
Θ(45°)	-9	-6.96	-8.39	-7.08	-6.77	-8.04	-9.6	-10.71	-8.98	-9.97	-8.88	-3.78	-9.04	-14.51	-7.15	-11.04	-9.43	-12.17	-13.64	-16.35	-12.87	-11.67	-9.88	-7.47
Θ(60°)	-11.16	-8.51	-8.63	-10.67	-11.72	-6.89	-8.23	-8.63	-15.55	-12.09	-10.05	-5.83	-7.45	-11.85	-8.66	-13.72	-9.77	-14.3	-12.81	-13.7	-14.02	-15.43	-9.12	-10.92
Θ(75°)	-15.34	-15.56	-13.74	-12.19	-10.67	-10.26	-8.73	-8.97	-10.81	-10.79	-9.92	-13.03	-8.46	-13.13	-12.06	-13.45	-11.04	-14.66	-15.3	-13.5	-13.88	-17.43	-16.24	-15.08
Θ(90°)	-18.24	-16.03	-16.75	-16.97	-14.12	-15.53	-13.14	-12.98	-11.41	-12.76	-12.16	-12.98	-10.35	-14.52	-16.25	-11.82	-11.34	-13.55	-15.37	-13.85	-19.35	-16.93	-17.31	-18.24
Θ(105°)	-13.72	-16.21	-18.2	-18.51	-17.8	-19.04	-14.86	-19.26	-15.97	-18.03	-14.01	-15.95	-16.45	-17.54	-17.48	-16.91	-14.75	-17.38	-18.73	-19.2	-19.04	-17.22	-18.8	-18.94
Θ(120°)	-14.24	-19.44	-19.47	-16.89	-17.06	-18.4	-16.98	-19.07	-18.06	-18.47	-16.47	-15.89	-14.12	-15.99	-18.69	-18.41	-16.44	-16.14	-17.48	-18.57	-18.51	-17.27	-18.16	-18.15
Θ(135°)	-16.34	-16.61	-18.62	-19.32	-17.27	-18.66	-18.63	-18.09	-18.19	-18.33	-17.2	-17.48	-18.35	-18.45	-18	-15.1	-16.94	-15.26	-16.15	-16.41	-13.93	-17.82	-18.11	-15.53
Θ(150°)	-12.79	-17.06	-16.61	-16.88	-17.69	-18.41	-17.28	-18.73	-18.38	-17.32	-16.89	-15.76	-14	-16.08	-19.43	-18.2	-15.72	-19.54	-16.9	-16.63	-17.21	-16.81	-18.49	-16.44
Θ(165°)	-15.31	-14.26	-14.83	-16.29	-18.72	-17.47	-16.48	-19.18	-19.31	-18.23	-17.04	-14.61	-15.09	-11.49	-12.87	-14.73	-15.23	-15.12	-15.96	-16.13	-13.3	-14.61	-13.59	-14.95
Θ(180°)	-11.92	-11.25	-10.88	-11.17	-12.11	-12.54	-14.99	-15.6	-16.32	-15.13	-14.43	-13.45	-12.47	-11.72	-12.87	-13.24	-14.56	-15.84	-18.17	-18.4	-15.94	-16.5	-15.42	-14.14
Freq(Hz)	5.785G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8.72	-8.67	-7.65	-5.63	-6.01	-6.82	-6.62	-8	-7.76	-7.28	-7.85	-9.38	-8.32	-6.72	-5.77	-6.03	-6.21	-6.36	-7.65	-8.95	-8.5	-10.5	-11.18	-10.62
Θ(15°)	-1.56	-2.47	-2.31	-1.69	-1.52	-2.01	-3.98	-6.45	-7.53	-7.14	-6.92	-6.83	-4.66	-2.7	-1.23	-1.08	-1.14	-1.65	-1.45	-0.69	0.05	-0.89	-1.45	-2.56
Θ(30°)	2.92	2.85	1.34	0.56	0.12	0.76	0.45	0.41	-0.22	0.92	1.42	1.39	1.95	2.77	2.81	2.7	3.19	1.67	0.93	0.6	0.44	1.55	1.74	1.86
Θ(45°)	4.3	3.04	0.54	-0.12	1.07	2.44	3.88	3.81	2	2.25	2.6	3.8	3.19	2	1.37	1.22	2.41	3.82	3.66	2.29	0.65	0.51	0.91	2.84
Θ(60°)	6.46	6.24	6.54	4.05	3.16	5.36	4.79	4.28	2.38	2.08	3.73	5.37	6.54	6.07	5.11	4.46	4.84	5.47	5.03	3.85	3.41	3.44	6.64	7.41
Θ(75°)	5.25	5.65	6.18	5.01	5.67	7.57	7.15	6.7	6.2	5.1	7.02	7.9	7.96	6.7	5.92	4.46	6.66	7.46	5.88	6.12	4.77	3.74	6.65	6.98
Θ(90°)	1.13	0.93	1.75	1.4	3.51	5.21	4.38	4.66	4.24	2.52	4.44	5.33	5.31	3.74	2.52	0.93	4.17	5.4	4.87	5.15	1.48	-0.38	3.03	3.09
Θ(105°)	-3.13	-3.86	-2.43	-4	-0.13	0.61	-0.45	0.16	0.31	-2.33	0.08	-0.46	-0.54	-2.2	-2.24	-6.37	-2.7	-3.56	-4.93	-4.9	-5.13	-5.26	-0.21	-1.75
Θ(120°)	-8.95	-6.48	-6.46	-8.12	-5.26	-4.4	-4.49	-5.55	-4.18	-6.64	-4.16	-4.32	-3.9	-6.1	-6.9	-8.24	-4.22	-2.82	-4.38	-2.78	-4.01	-10.52	-5.68	-6.11
Θ(135°)	-11.88	-11.75	-9.5	-9.99	-8	-9.04	-10.29	-10.12	-7.85	-9.68	-8.83	-8.17	-12.42	-11.12	-9.87	-10.92	-10.19	-13	-11.38	-9.82	-11.04	-11.77	-9.12	-10.58
Θ(150°)	-15.01	-10.66	-12.9	-14.73	-11.25	-9.27	-12.1	-11.94	-9.47	-10.4	-12.33	-11.92	-16.26	-14.61	-12.83	-15.64	-16.2	-18.41	-14.92	-17.94	-16.55	-17.06	-13.97	-13.4
Θ(165°)	-19.33	-15.47	-14.17	-16.88	-16.85	-13.48	-11.67	-14.62	-16.78	-15.47	-13.57	-15.18	-14.37	-14.64	-17.04	-15.08	-14.11	-17.07	-18.75	-14.13	-14.04	-15.72	-19.48	-19.24
Θ(180°)	-16.33	-16.7	-16.14	-16.17	-15.06	-12.63	-11.02	-11.66	-9.59	-9.71	-11.12	-13.32	-15.52	-18.17	-17.7	-15.95	-13.59	-12.78	-12.09	-12.06	-13.06	-13.4	-14.94	-16.43
Freq(Hz)	5.785G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8.77	-10.18	-10.52	-9.42	-10.3	-9.46	-7.57	-6.85	-5.89	-4.8	-4.77	-5.92	-7.47	-7.31	-8.21	-10.5	-11.72	-11.69	-10.54	-8.59	-7.54	-7.69	-7.11	-7.82
Θ(15°)	-4.64	-9.99	-6.84	-5.44	-6.75	-8.65	-8.82	-8.75	-8.01	-8.35	-10.05	-6.87	-5.35	-4.99	-6.55	-8.75	-9.82	-11.37	-10.61	-10.61	-11.09	-8.67	-6.44	-5.11
Θ(30°)	-3.77	-9.17	-10.67	-10.65	-9.53	-7.27	-5.54	-7.91	-12.06	-14.81	-13.72	-8.08	-7.16	-6.57	-7.72	-7.76	-6.73	-9.08	-13.88	-17.84	-15.08	-9.52	-8.14	-4.71
Θ(45°)	-7.43	-7.52	-8.59	-7.68	-6.85	-5.99	-7.09	-8.59	-11.4	-10.35	-8.43	-5.16	-9.82	-16.43	-9.9	-11.69	-10.55	-11.74	-12.4	-12.74	-11.37	-11.3	-9.61	-5.99
Θ(60°)	-12.87	-10.47	-8.86	-10.76	-12.29	-6.86	-8.22	-7.89	-14.52	-12.62	-11.68	-8.46	-7.39	-12.39	-9.93	-14.71	-9.58	-13.32	-12.34	-14.29	-12.93	-13.08	-13	-12.54
Θ(75°)	-13.13	-15.2	-12.36	-11.07	-14.94	-11.55	-11.71	-11	-12.2	-11.1	-													



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX

Appendix B.2

Freq(Hz)	6.475G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DG(dBi)	Phi(0°)	Phi(15°)	Phi(30°)	Phi(45°)	Phi(60°)	Phi(75°)	Phi(90°)	Phi(105°)	Phi(120°)	Phi(135°)	Phi(150°)	Phi(165°)	Phi(180°)	Phi(195°)	Phi(210°)	Phi(225°)	Phi(240°)	Phi(255°)	Phi(270°)	Phi(285°)	Phi(300°)	Phi(315°)	Phi(330°)	Phi(345°)
Θ(0°)	-5.69	-7.18	-7.15	-7.28	-7.29	-8.04	-6.16	-5.61	-5.17	-5.05	-4.72	-5.58	-6.73	-6.62	-6.52	-6.94	-6.51	-7.62	-7.96	-7.87	-8.85	-8.69	-8.28	-8.45
Θ(15°)	-1.67	-3.86	-3.28	-3.16	-3.48	-4.08	-3.95	-6.4	-5.84	-4.9	-6.15	-5.35	-3.25	-1.28	-1.58	-1.99	-1.65	-0.99	-0.44	-0.54	-1.09	-0.85	-1.67	-3.64
Θ(30°)	0.31	0.57	0.61	1.27	-0.51	-1.05	-2.17	0.02	2.22	2.69	1.34	-0.52	0.54	1.32	1.55	1.65	0.45	-0.37	-0.64	0.6	2.2	1.7	0.68	-0.59
Θ(45°)	1.41	0.23	-0.84	-0.17	0.44	0.65	-0.59	0.42	1.34	1.61	1.81	0.61	0.75	1.53	2.03	1.44	1.09	0.49	1.4	-1.02	1.49	0.37	-0.4	-0.81
Θ(60°)	1.83	3.32	2.86	2.63	1.51	-1.81	-1.39	-2.1	-1.66	-0.38	-0.7	-2.02	-0.65	0.82	2.23	1.83	-0.28	-0.16	0.46	0.24	0.81	3.09	2.41	2.66
Θ(75°)	2.82	4.29	5.1	5.66	5.62	2.12	1.23	1.61	2.29	5.74	5.26	5.28	4.98	5.22	6.03	5.54	5.32	3.57	2.86	4.69	4.56	5.7	5.07	4.59
Θ(90°)	-0.7	-0.11	1.63	3.15	4.35	4.93	2.65	3.03	3.77	3.65	4.87	4.02	1.71	2.81	3.55	2.71	4.03	3.54	0.53	3.35	2.5	1.08	2.25	2.77
Θ(105°)	-2.35	-4.32	-3.16	-1.12	0.8	-0.31	-1.27	-0.86	-0.29	-0.1	0.74	-0.37	-0.07	-0.91	-2.02	-2.7	-2.75	-5.3	-5.82	-6.15	-3.32	-2.85	-2.31	-1.78
Θ(120°)	-7.75	-7.9	-6.57	-4.77	-4.51	-3.77	-3.88	-2.23	-4.43	-4.48	-3.92	-3.63	-3.84	-6.34	-5.03	-7.66	-4.55	-5.51	-8.29	-6.05	-4.61	-8.23	-5.94	-8.98
Θ(135°)	-12.15	-12.7	-9.52	-8.17	-9.63	-6.99	-8.34	-7.2	-7.57	-7.95	-8.53	-7.93	-7.17	-7.56	-7.25	-8.14	-6.59	-5.93	-8.67	-5.78	-4.35	-8.77	-7.39	-10.3
Θ(150°)	-11.32	-13.58	-12.74	-10.96	-12.37	-14.04	-11.71	-10.11	-10.76	-9.58	-9.92	-11.31	-14.21	-12.43	-12.85	-10.09	-10.67	-12.55	-8.16	-14.33	-12.25	-12.81	-15.16	-14.41
Θ(165°)	-16.91	-14.67	-14.59	-12.69	-14.45	-14.99	-15.67	-13.03	-14.63	-12.85	-12.36	-13.74	-16.29	-13.51	-14.52	-12.74	-12.84	-13.98	-16.85	-14.48	-18.71	-15.82	-14.97	-14.26
Θ(180°)	-14.61	-16.13	-16.24	-16.31	-17.21	-17.86	-15.49	-14.01	-14.81	-14.43	-15.57	-14.14	-13.51	-14.39	-17.3	-18.64	-18.01	-15.68	-14.98	-13.03	-14.04	-15.86	-16.28	-16.99
Freq(Hz)	6.475G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Phi(0°)	Phi(15°)	Phi(30°)	Phi(45°)	Phi(60°)	Phi(75°)	Phi(90°)	Phi(105°)	Phi(120°)	Phi(135°)	Phi(150°)	Phi(165°)	Phi(180°)	Phi(195°)	Phi(210°)	Phi(225°)	Phi(240°)	Phi(255°)	Phi(270°)	Phi(285°)	Phi(300°)	Phi(315°)	Phi(330°)	Phi(345°)
Θ(0°)	-6.62	-6.51	-5.87	-7.03	-7.34	-8	-7.1	-7.46	-6.39	-5.41	-4.28	-4.6	-5.85	-6.36	-7.17	-8.53	-7.28	-7.64	-7.28	-7.61	-7.71	-7.79	-8.32	-8.78
Θ(15°)	-6.81	-6.04	-7.16	-7.22	-6.27	-6.23	-6.28	-6.98	-6.22	-6.78	-7.71	-7.36	-3.91	-2.9	-6.13	-7.87	-8.61	-8.72	-7.56	-7.76	-10.45	-9.77	-6.41	-5.73
Θ(30°)	-10.28	-7.77	-10.43	-6.43	-8.44	-8.63	-7	-8.12	-10.25	-10.6	-9.1	-5.51	-7.36	-7.98	-9.2	-6.03	-7.25	-8.9	-10.07	-14.07	-12.39	-9.14	-10.27	-7.85
Θ(45°)	-8.08	-12.27	-13.37	-9.45	-7.59	-6.3	-9.43	-14.03	-14.1	-11.79	-5.91	-6.17	-9.17	-14.36	-8.26	-8.82	-7.08	-5.23	-10.77	-14.19	-11.36	-10.74	-6.57	-5.38
Θ(60°)	-13.34	-9.07	-12.92	-8.8	-9.91	-9.81	-11.67	-12.51	-15.6	-9.34	-5.43	-6.42	-9.1	-14.21	-13.01	-10.39	-11.73	-8.29	-12.37	-16.74	-11.79	-13.5	-10.22	-11.12
Θ(75°)	-13.25	-11.98	-9.34	-8.15	-10.72	-12.46	-13.27	-11.3	-13.98	-16.24	-12.83	-12.87	-14.59	-15.52	-12.32	-11.61	-16.04	-10.54	-14.09	-12.12	-10.04	-13.66	-14.16	-11.37
Θ(90°)	-18.44	-15.62	-11.73	-10.66	-8.56	-10.92	-12.37	-8.95	-13.95	-14.72	-15.54	-15.86	-16.96	-14.17	-12.45	-16.39	-13.77	-8.96	-15.42	-12.41	-12.74	-14.49	-13.01	-10.24
Θ(105°)	-17.5	-19.28	-14.69	-14.18	-10.42	-11.12	-13.93	-13.39	-14.06	-16.88	-17.17	-15.56	-15.66	-15.78	-13.99	-16.76	-18.91	-17.33	-16.04	-15.91	-15.97	-17.4	-16.66	-13.41
Θ(120°)	-19.3	-15.97	-16.58	-18.52	-14.7	-14.21	-16.22	-11.83	-16.65	-17.34	-15.36	-16.65	-19.5	-15.17	-15.05	-14.84	-18.58	-14.32	-19.02	-18.82	-14.22	-16.06	-14.05	-13.57
Θ(135°)	-18.65	-16.32	-16.15	-18.04	-13.95	-17.25	-16.5	-15.35	-18.64	-17.01	-15.23	-17.34	-17.67	-17.17	-15.18	-17.25	-18.26	-16.03	-17.56	-17.74	-16.34	-15.18	-12.36	-14.91
Θ(150°)	-14.66	-15.71	-16.08	-14.31	-18.59	-17.34	-17.07	-17.26	-19.6	-16.91	-16.34	-16.37	-19.43	-16.71	-16.49	-18.75	-19.14	-17.11	-15.76	-17.22	-18.68	-14.77	-13.43	-17.26
Θ(165°)	-12.47	-18.22	-18.56	-13.86	-17.87	-18.21	-15.86	-18.64	-16.64	-17.1	-16.15	-17.31	-16.38	-17.19	-12.33	-13.76	-17.1	-18.23	-18.13	-13.47	-16.85	-12.21	-11.91	-16.52
Θ(180°)	-15.01	-14.65	-14.47	-14.12	-13.96	-14.66	-16.11	-15.39	-17.45	-17.96	-17.54	-16.57	-18.34	-18.42	-14.71	-15.66	-14.51	-13.83	-15.82	-17.39	-18.13	-17.82	-16.98	-16.62
Freq(Hz)	6.695G	Pol.	Phi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Phi(0°)	Phi(15°)	Phi(30°)	Phi(45°)	Phi(60°)	Phi(75°)	Phi(90°)	Phi(105°)	Phi(120°)	Phi(135°)	Phi(150°)	Phi(165°)	Phi(180°)	Phi(195°)	Phi(210°)	Phi(225°)	Phi(240°)	Phi(255°)	Phi(270°)	Phi(285°)	Phi(300°)	Phi(315°)	Phi(330°)	Phi(345°)
Θ(0°)	-4.92	-6.75	-7.36	-7.22	-6.57	-5.43	-3.44	-2.51	-2.23	-2.37	-1.98	-2.87	-4.46	-6.24	-7.12	-7.28	-6.4	-5.63	-4.21	-4.25	-5.46	-4.8	-5.53	-7.01
Θ(15°)	-1.02	-2.13	-1.42	-2.86	-3.42	-4.8	-5.35	-4.66	-2.52	-2.95	-5.33	-5.11	-3.02	-0.91	-0.85	-1.36	-1.27	-0.59	-0.57	-0.75	-1.6	-0.22	-1.81	-2.88
Θ(30°)	0.65	0.8	0.29	1.31	-0.16	-1.09	-1.33	-0.58	1.06	0.9	-1.35	-0.31	0.57	0.81	2.04	2.22	0.63	0.63	-0.95	0.3	2.12	1.5	0.98	-0.03
Θ(45°)	0.82	1.75	1.25	1.84	0.92	0.04	-1.22	1.52	2.95	3.17	2.47	0.66	0.66	1.97	2.06	2.52	2.32	1.12	0.2	0.17	2.04	0.77	2.52	0.73
Θ(60°)	1.84	1.84	1.72	1.05	0.8	-2.75	-2.38	0	-0.66	-1.42	-0.57	-1.51	-1.15	-1.22	0.72	1.46	-0.61	-3.76	-2.7	-0.4	-0.84	1.81	2.55	1.26
Θ(75°)	2.16	2.78	3.85	4.97	5.67	4.05	1.14	2.15	2.34	4.3	3.88	3.82	3.68	3.76	3.52	3.55	5.12	2.6	2.65	3.66	2.88	6.05	5.14	3.96
Θ(90°)	-3.39	-0.12	0.58	2.37	3.13	4.01	-0.26	3.25	3.08	3.72	4.02	2.73	-0.02	1.22	1.91	0.25	4.24	2.81	-1.36	2.87	2.04	1.93	2.81	2.5
Θ(105°)	-3.65	-5.14	-3.36	-1.43	0.49	-0.08	-2.47	-0.43	-0.98	-0.99	0.15	-1.51	-2.7	-2.18	-2.55	-3.49	-2.44	-6.31	-7.2	-5.71	-3.77	-2.92	-1	-2.14
Θ(120°)	-11.05	-9.42	-7.43	-4.75	-5.5	-3.63	-7.77	-2.11	-5.89	-4.15	-4.58	-4.08	-6	-8.32	-5.04	-6.76	-4.79	-6.92	-9.71	-7.48	-6.06	-6.48	-5.83	-10.59
Θ(135°)	-14	-10.56	-12.31	-7.41	-8.3	-9.55	-11.02	-7.81	-8.5	-9.11	-7.46	-9.24	-9.06	-8.54	-6.56	-8.81	-4.83	-4.51	-10.64	-5.42	-3.46	-7.92	-7.37	-9.95
Θ(150°)	-9.82	-14.64	-13.09	-9.11	-16.97	-16.13	-11.84	-12.35	-9.25	-9.33	-11.61	-13.56	-14.56	-12.44	-10.82	-10.24	-11.48	-10.02	-8.4	-12.48	-12.53	-10.68	-13.23	-11.39
Θ(165°)	-15.27	-14.33	-12.78	-10.94	-12.09	-12.31	-14.78	-11.44	-11.95	-12.44	-11.05	-14.87	-16.41	-15.31	-16.31	-13.99	-12.24	-13.62	-14.16	-13.36	-15.93	-15.03	-13.89	-13.98
Θ(180°)	-12.87	-13.88	-15.44	-17.44	-16.02	-12.74	-10.19	-13.42	-13.56	-12.97	-13.06	-13.52	-12.33	-14.04	-15.79	-14.85	-17.52	-16.13	-15.79	-14.19	-14.5	-16.07	-17.04	-16.34
Freq(Hz)	6.695G	Pol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dBi)	Phi(0°)	Phi(15°)	Phi(30°)	Phi(45°)	Phi(60°)	Phi(75°)	Phi(90°)	Phi(105°)	Phi(120°)	Phi(135°)	Phi(150°)	Phi(165°)	Phi(180°)	Phi(195°)	Phi(210°)	Phi(225°)	Phi(240°)	Phi(255°)	Phi(270°)	Phi(285°)	Phi(300°)	Phi(315°)	Phi(330°)	Phi(345°)
Θ(0°)	-2.72	-2.35	-1.78	-3.18	-4.18	-4.61	-5.67	-6.65	-6.51	-6.08	-5.07	-4.11	-3.12	-2.29	-2.9	-4.47	-4.71	-4.68	-6.77	-7.22	-7.94	-7.19	-7.01	-6.52
Θ(15°)	-8.4	-6.69	-7.69	-7.44	-6.95	-5.81	-5.92	-8.61	-7.28	-5.1	-7.78	-4.67	-2.75	-2.58	-5.45	-9.34	-8.8	-8.07	-7.27	-8.97	-11.67	-8.81	-7.97	-7.99
Θ(30°)	-7.71	-6.85	-10.09	-8.64	-8.73	-8.89	-7.27	-8.26	-8.44	-11.55	-10.67	-5.52	-6.99	-7.53	-6.71	-4.82	-8.86	-10.29	-6.6	-9.58	-9.63	-7.93	-8.29	-6.09
Θ(45°)	-4.28	-7.2	-5.98	-6.72	-4.04	-4.91	-6.54	-7.33	-8.41	-10.81	-7.44	-4.91	-4.77	-6.15	-7.05	-7.61	-6.38	-3.59	-6.57	-6.37	-7.5	-9.18	-3.47	-2.3
Θ(60°)	-10.53	-15.42	-15.39	-6.68	-6.03	-6.18	-9.9	-10.45	-7.86	-8.93	-5.08	-4.96	-7.99	-9.53	-13.2	-10.17	-8.73	-7.28	-13.2	-11.84	-10.38	-10.5	-6.48	-9.03
Θ(75°)	-9.54	-9.17	-6.91	-7.1	-6.56	-11.55	-12.51	-11.94	-15.18	-13.22	-10.1	-11.31	-8.14	-18.45	-12.91	-12.81	-							



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX

Appendix B.2

Gain Result

Freq(Hz)	5.6G	Pol.	Phi	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-19.07	-22.9	-19.54	-16.67	-15.57	-15.4	-15.51	-16.69	-16.33	-18.39	-20.25	-24.14	-19.09	-13.95	-11.52	-12.5	-12.78	-14.07	-14.46	-16.07	-15.14	-15.14	-16.17	-16.08
Θ(15°)	-7.84	-6.46	-5.26	-3.73	-4.98	-6.41	-7.76	-9.24	-9.51	-9.4	-9.45	-10.15	-9.37	-8.15	-8.44	-9.95	-10.57	-8.83	-7.11	-5.72	-5.15	-5.63	-7.16	-9.22
Θ(30°)	-6.48	-5.93	-7.09	-8	-5.72	-5.15	-5.01	-5.35	-5.3	-6.4	-6.38	-6.21	-4.1	-2.53	-1.18	-4.21	-9.26	-10.96	-10.45	-9.31	-10.56	-9.85	-7.96	-6.74
Θ(45°)	-0.92	-3.39	-5.9	-5.92	-4.43	-3.32	-3.01	-3.2	-1.7	-0.45	-0.87	-2.93	-4.11	-5.48	-4.11	-2.13	-1.79	-0.77	-0.11	-0.83	-3.14	-3.6	-2.14	-0.79
Θ(60°)	2.98	1.61	-0.42	-0.67	-1.3	0.21	-0.74	-4.28	-9.33	-11.69	-5.53	-3.08	-1.74	0	0.62	-0.89	0.26	1.08	0.97	-0.91	-3.58	-1.81	1.36	2.97
Θ(75°)	1.59	0.33	-1.02	-1.4	-0.24	1.57	2.62	2	0.2	-0.96	1.72	2.01	1.4	0.31	-0.96	-1.19	1.45	2.41	0.36	-3.89	-7.21	-4.81	-0.86	1.06
Θ(90°)	-2.73	-3.69	-4.88	-5.66	-3.4	-1.88	-0.09	0.27	-1.27	-3.65	-0.84	-0.52	-0.48	-3.32	-5.56	-5.32	-0.82	0.33	-0.63	-4.94	-9.92	-11.59	-5.04	-3.44
Θ(105°)	-8.32	-8.09	-8.25	-11.08	-9.58	-6.34	-4.5	-3.54	-6.41	-9.16	-6.15	-6.74	-6.91	-11.15	-11.45	-11.78	-9.13	-9.58	-10.9	-13.2	-18.39	-18.19	-10.22	-6.24
Θ(120°)	-11.02	-13.84	-13.21	-14.91	-16.34	-10.9	-9.92	-11.34	-10.93	-15.03	-10.53	-9.72	-10.68	-16.04	-15.67	-12.37	-8.53	-8.85	-8.45	-11.31	-21.94	-21.67	-17.07	-10.27
Θ(135°)	-20.74	-17.3	-17.09	-19.67	-15.61	-16.54	-12.54	-13.4	-14.27	-14.69	-14.2	-14.41	-17.08	-13.63	-15.12	-14.65	-20.34	-23.9	-16.09	-18.1	-20.88	-19.54	-14.9	-13.94
Θ(150°)	-19.17	-16.42	-16.46	-19.68	-14.3	-12.98	-17.88	-23.11	-17.21	-14.69	-18.4	-24.19	-19.12	-14.25	-19.64	-21.64	-21.17	-20.26	-21.66	-15.16	-26.36	-18.94	-16.56	-24.64
Θ(165°)	-25.22	-19.24	-24.51	-24.9	-16.79	-15.76	-20.39	-20	-17.75	-16.4	-15.27	-26.02	-25.59	-25.72	-24.65	-22.04	-25.85	-23.44	-17.27	-20.83	-19.94	-21.46	-24.91	-25.12
Θ(180°)	-20.14	-20.44	-22.74	-19.74	-16.53	-15.25	-12.05	-14.09	-13.73	-14.09	-15.81	-15.54	-15.98	-19.13	-19.09	-15.77	-15.39	-13.59	-14.88	-14.86	-15.04	-16.4	-18.85	-25.07
Freq(Hz)	5.6G	Pol.	Theta	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-15.19	-16.34	-20.36	-23.05	-25.75	-21.02	-16.64	-14.36	-13.92	-12.14	-13.22	-16.13	-22.66	-23.06	-20.84	-22.66	-25.75	-20.73	-19.35	-18.64	-16.51	-16.19	-16.21	-14.2
Θ(15°)	-22.22	-13.49	-11.81	-12.67	-11.95	-16.05	-17.41	-10.93	-9.86	-13.03	-14.08	-12.11	-25.89	-20.31	-24.78	-18.81	-15.61	-15.94	-19.67	-25.58	-17.48	-11.35	-9	-9.95
Θ(30°)	-18.92	-21.29	-20.27	-13.56	-11.39	-13.54	-18.91	-21.95	-18.84	-18.85	-22.19	-7.97	-25.17	-12.34	-12.79	-15.64	-8.96	-11.31	-22.62	-19.59	-23.54	-13.66	-11.77	-11.12
Θ(45°)	-12.15	-17.54	-13	-11.89	-13.17	-2.14	-26.06	-25.25	-10.99	-17.22	-18.87	-5.59	-11.96	-23.64	-10.71	-13.52	-18.99	-17.65	-17.67	-20.67	-15.86	-21	-14.42	-9.19
Θ(60°)	-13.83	-13.06	-14.45	-16.24	-13.64	-12.22	-22.73	-18.67	-20.01	-23.73	-13.14	-10.98	-9.51	-13.66	-10.88	-16.05	-16.86	-23.2	-14.91	-19.52	-21.82	-24.86	-18.2	-12.69
Θ(75°)	-23.09	-21.94	-21.24	-21.94	-14.25	-11.75	-18.23	-15.3	-13.19	-17.58	-12.25	-15.71	-10.75	-15.66	-21.42	-19.45	-11.3	-26.57	-19.97	-25.88	-19.95	-24.81	-25.76	-26.01
Θ(90°)	-22.28	-22.92	-25.44	-25.11	-19.44	-15.53	-20.36	-19.3	-15.28	-22.91	-16.69	-14.59	-20.1	-22.68	-25.74	-17.29	-13.26	-22.8	-17.85	-25.17	-25.6	-22.77	-25.76	-25.34
Θ(105°)	-17.42	-23.12	-24.33	-25.28	-21.25	-23.68	-22.72	-25.63	-17.78	-26.01	-22.08	-21.12	-25.82	-24.68	-25.92	-24.39	-17.2	-26.14	-24	-25.13	-25.12	-22.95	-25.16	-25.44
Θ(120°)	-19.22	-26.5	-25.73	-24.61	-25.29	-23.42	-23.55	-25.55	-22.54	-24.2	-25.77	-24.77	-22.23	-22.58	-24.56	-21.39	-19.68	-23.25	-18.96	-25.74	-23.8	-20.28	-25.53	-23.18
Θ(135°)	-18.91	-21.67	-25.49	-25.63	-24.21	-22.71	-26.04	-24.87	-21.58	-23.34	-20.32	-25.31	-22.78	-26.09	-24.32	-18.77	-25.91	-23.01	-18.88	-25.71	-17.53	-22.84	-23.8	-18.67
Θ(150°)	-25.6	-25.15	-23.26	-20.23	-24.57	-25.15	-19.78	-24.42	-22.42	-22.87	-21.52	-25.05	-14.82	-24.6	-24.8	-25.98	-16.61	-25.27	-19.77	-21.77	-21.56	-24.75	-24.97	-21.2
Θ(165°)	-16.23	-21.72	-25.65	-25.41	-24.81	-21.66	-18.8	-25.65	-25.01	-24.66	-20.36	-19.22	-22.67	-17.39	-13.95	-20.26	-24.93	-20.32	-18.99	-20.51	-16.29	-19.77	-25.1	-22.73
Θ(180°)	-14.16	-12.85	-14.51	-15.41	-17.59	-17.27	-19.38	-20.13	-19.1	-19.43	-17.16	-15.7	-15.23	-14.36	-15.5	-15.32	-16.95	-16.81	-21.83	-22.7	-17.48	-18.78	-18.28	-19.77
Freq(Hz)	5.785G	Pol.	Phi	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-20.39	-21	-18.12	-15.36	-16.18	-18.56	-19.25	-24.54	-22.89	-20.93	-20.43	-21.21	-25.69	-20.72	-16.06	-15.2	-16.36	-14.77	-14.82	-15.55	-15.48	-17.24	-16.82	-18.46
Θ(15°)	-7.51	-7.89	-6.48	-5.45	-5.35	-5.35	-6.02	-8.77	-11.52	-13.08	-10.66	-8.79	-8.61	-7.5	-8.71	-9.03	-10.67	-10.77	-10.77	-9.23	-6.3	-6	-6.17	-7.65
Θ(30°)	-3.73	-2.3	-4.02	-7.4	-11.37	-11.49	-7.84	-5.39	-3.85	-3.13	-3.2	-4.56	-4.3	-4.68	-2.13	-2.77	-3.95	-6.17	-7.19	-6.41	-7.65	-6.57	-6.78	-6.23
Θ(45°)	0.42	-0.34	-3	-5.61	-5.94	-4.03	-1.62	-1.54	-0.22	1.46	0.83	-0.12	-4	-10.88	-11.38	-4.03	-0.07	-0.15	-0.91	-2.56	-4.71	-6.14	-5.04	-2.16
Θ(60°)	1.96	3.14	3.19	0.79	-4.01	-0.65	-3.74	-5.76	-10.33	-6.15	-4.78	-2.54	-1.46	-1.14	-1.53	0.17	2.51	1.81	-1.02	-3.07	-2.47	-3.54	-0.31	0.72
Θ(75°)	0.1	2.09	2.01	-0.51	-1.73	1.55	0.33	-0.5	-0.99	-2.06	-0.45	0.52	1.36	1.35	-1.41	-0.13	4.14	4.19	-0.01	-2.29	-0.47	-2.96	-1.42	-1.82
Θ(90°)	-3.84	-2.44	-3.24	-5.67	-4.45	-1.17	-2.12	0.23	-2.27	-4.13	-3.25	-3.1	-1.43	-1.77	-6.49	-4.34	1.76	1.93	-0.92	-4.05	-3.01	-7.79	-3.66	-5.84
Θ(105°)	-8.72	-7.7	-6.59	-11.76	-7.73	-6.43	-7.2	-4	-6.68	-8.86	-8.81	-11.03	-8.21	-9.92	-10.29	-11.98	-5.06	-6.59	-9.98	-11.25	-8.99	-12.18	-5.8	-8.97
Θ(120°)	-12.99	-11.88	-10.43	-15.35	-12.95	-12.08	-11.32	-9.23	-11.35	-17.16	-12.22	-14.12	-9.41	-14.77	-14.85	-12.58	-5.96	-7.63	-7.01	-10.7	-11.32	-15.43	-13.41	-12.26
Θ(135°)	-16.36	-18.59	-14.97	-16.47	-13.98	-14.67	-17.79	-16.83	-13.77	-16.76	-14.83	-18.22	-20.33	-20.71	-22.53	-13.64	-12.72	-17.62	-14.98	-17.9	-20.06	-14.74	-13.75	-15.23
Θ(150°)	-21.2	-13.57	-16.27	-19.47	-15.69	-13.05	-18.7	-20.4	-15.43	-13.7	-26	-22.23	-25.24	-16.12	-16.36	-24.37	-22.37	-23.22	-21.85	-23.42	-25.02	-19.17	-20.26	-25.05
Θ(165°)	-26.06	-23.5	-25.5	-21.04	-18.76	-18.97	-17.33	-17.46	-18.33	-24.49	-17.59	-19.22	-21.32	-18.25	-22.49	-25.22	-20.83	-24.89	-25.74	-18.45	-14.35	-21.38	-25.2	-25.33
Θ(180°)	-24.58	-25.35	-20.97	-17.25	-16.65	-14.22	-13.04	-14.27	-13.48	-14.55	-14.88	-17.97	-20.63	-22.71	-19.84	-17.58	-15.3	-13.92	-12.9	-12.76	-13.79	-14.32	-15.91	-19.09
Freq(Hz)	5.785G	Pol.	Theta	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-16.87	-20.31	-22.51	-21.53	-22.26	-21.49	-21.07	-19.43	-19.38	-17.67	-15.21	-16.05	-19.24	-22.66	-22.91	-24.31	-25.1	-24.89	-24.33	-18.74	-16.36	-15.29	-14.87	-13.8
Θ(15°)	-13.88	-18.66	-11.99	-12.2	-13.19	-20.2	-17.8	-10.54	-10.75	-16.1	-26.21	-14.61	-16.8	-18.57	-15.18	-16.43	-12.66	-12.26	-13.5	-16.92	-24.13	-15.43	-11.98	-9.97
Θ(30°)	-13.41	-21.9	-15.28	-13.86	-13.79	-22.33	-22.15	-26.09	-15.94	-18.16	-20.96	-8.16	-24.08	-14.3	-12.62	-25.32	-12.43	-14.24	-24.08	-25.19	-25.28	-12.95	-9.99	-10.64
Θ(45°)	-10.27	-11.81	-11.61	-12.33	-22.54	-25.1	-25.9	-18.55	-15.13	-25.51	-16.1	-7.23	-11.27	-25.93	-13.42	-17.53	-25.78	-18.86	-16.11	-22.19	-15.83	-23.52	-14.12	-9.51
Θ(60°)	-20.95	-14.6	-10.68	-14.05	-18.24	-12.81	-1																	



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX

Appendix B.2

Θ(135°)	-16.09	-17.6	-14.19	-14.35	-14.97	-10.86	-15.61	-13.69	-14.58	-17.1	-13.14	-12.97	-12.71	-11.07	-17.07	-14.03	-14.61	-11.62	-17.15	-9.43	-9.18	-10.5	-11.92	-16.24
Θ(150°)	-18.07	-20.71	-17.33	-17.97	-17.02	-14.83	-24.63	-20.02	-15.43	-14.08	-14.71	-16.73	-21.79	-13.36	-16.66	-21.93	-19.43	-14.99	-26.13	-23.35	-15.29	-15.54	-23.17	-20.84
Θ(165°)	-25.47	-22.44	-21.13	-24.3	-18.04	-20.41	-22.02	-14.5	-16.71	-15.63	-15.85	-24.84	-21.71	-16.11	-25.69	-23.6	-16.93	-19.63	-21.28	-15.33	-23.16	-17.42	-15.15	-20.82
Θ(180°)	-22.02	-26	-24.69	-25.71	-25.84	-24.46	-21.38	-18.8	-18.31	-18.36	-21.6	-18.82	-21.16	-24.93	-25.04	-24.83	-26.22	-21.6	-22.63	-20.75	-22.72	-25.65	-25.53	-25.63
Freq(Hz)	6.475G	Pol.	Theta	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-11.29	-11.66	-13.9	-16.24	-18.05	-23.51	-22.02	-18.12	-14.25	-11.85	-10.39	-10.21	-9.83	-10.52	-12.66	-16.27	-20.4	-21.53	-18.12	-15.86	-13.82	-11.6	-10.8	-10.03
Θ(15°)	-19.96	-13.08	-12.04	-9.57	-7.32	-8.13	-12.2	-15.88	-10.64	-9.84	-12.06	-15.61	-14.11	-12.45	-17.47	-19.12	-13.47	-12.03	-12.1	-12.08	-13.84	-19.05	-23.49	-15.6
Θ(30°)	-18.16	-18.66	-24.87	-10.77	-16.5	-25.41	-13.74	-11.4	-16.43	-16.06	-12.15	-7.82	-24.91	-19.38	-19.97	-17.75	-15.04	-14.79	-17.42	-17.24	-19.83	-16.6	-16.13	-15.7
Θ(45°)	-12.82	-23.23	-23.09	-20.22	-11.81	-12.2	-14.42	-24.52	-19.31	-24.87	-12.03	-12.65	-19.71	-22.15	-17.39	-11.52	-12.26	-13.23	-16.04	-21.91	-19.68	-14.94	-12.71	-14.74
Θ(60°)	-23.37	-12.68	-14.65	-11.67	-14.49	-19.55	-25.95	-19.36	-25.2	-13.47	-8.55	-14.33	-22.28	-21.98	-14.59	-14.88	-14.54	-12.07	-14.4	-26.34	-15.87	-17.74	-21.4	-23.97
Θ(75°)	-18.98	-13.29	-14.73	-10.23	-12.24	-18.39	-19.03	-14.28	-22.05	-19.29	-19.98	-22.66	-25.41	-18.41	-24.59	-14.56	-25.4	-19.98	-19.73	-20.47	-16.79	-22.73	-14.27	-16.13
Θ(90°)	-26.52	-17.47	-20.45	-15.47	-12.9	-22.42	-17.02	-12.79	-25.77	-15.06	-16.1	-22.13	-22.15	-18.92	-14.81	-22.01	-17.76	-15.92	-22.71	-17.88	-24.1	-21.12	-13.13	-13.44
Θ(105°)	-22.43	-24.79	-22.33	-19.24	-15.89	-20.68	-21.28	-18.63	-23.82	-22.06	-25.22	-25.02	-24.27	-20.17	-25.32	-24.74	-25.17	-25.97	-21.52	-22.66	-17.87	-25.31	-22.93	-14.83
Θ(120°)	-24.88	-22.3	-25.87	-25.31	-23.45	-23.11	-21.47	-14.28	-24.1	-20.35	-18.14	-25.2	-24.87	-18.35	-14.62	-22.47	-25.04	-22.77	-25.82	-23.48	-21.45	-21.53	-18.22	-20.51
Θ(135°)	-25.51	-24.77	-25.27	-24.57	-20.16	-23.97	-26.2	-22.98	-22.39	-22.48	-21.85	-25.59	-20.03	-26.22	-21.62	-23.79	-22.97	-21	-18.95	-25.56	-25.18	-20.18	-19.25	-19.65
Θ(150°)	-22.59	-24.79	-25.73	-25.25	-26	-24.95	-23.89	-22.42	-25.36	-25.45	-19.29	-18.17	-25.84	-19.25	-20.05	-25.14	-24.96	-24.84	-16.69	-25.08	-24.83	-25.78	-18.75	-22.51
Θ(165°)	-16.99	-25.92	-25.75	-16.96	-23.09	-22.33	-18.33	-25.9	-19.28	-22	-20.74	-24.58	-20.76	-24.18	-18.29	-16.15	-23.96	-26.04	-22.34	-25.06	-25.1	-17.11	-19.37	-19.4
Θ(180°)	-16.74	-18.82	-18.92	-19.88	-20.53	-22.31	-21.03	-19.36	-26.18	-25.98	-22.07	-19.04	-21.73	-25.07	-24.39	-26.16	-19.64	-18.39	-21.9	-22.55	-23.18	-25.21	-24.92	-24.11
Freq(Hz)	6.695G	Pol.	Phi	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-15.24	-23.97	-20.13	-15.19	-11.33	-8.81	-6.75	-6.42	-6.92	-8.3	-9.13	-11.36	-16.21	-19.9	-14.54	-11.75	-8.25	-7.58	-7.24	-7.32	-9.49	-9.06	-11.16	-15.68
Θ(15°)	-13.22	-16.59	-20.29	-25.57	-25.19	-25.08	-18.89	-12.39	-7.35	-5.16	-7.56	-9.75	-6.49	-4.93	-5.07	-4.11	-4.37	-5.09	-5.71	-6.96	-8.56	-9.82	-17.41	-16.87
Θ(30°)	-5.65	-4.58	-6.17	-4.71	-6.58	-8.95	-7.67	-9.62	-7.46	-3.6	-2.46	-3.47	-3.57	-4.24	-5.69	-3.02	-2.68	-3.42	-6.83	-8.8	-2.64	-2.81	-4.17	-6.3
Θ(45°)	-3.28	-2.88	-4.5	-4.82	-7.15	-10.11	-9.47	-3.44	-2.88	-3.44	-3.31	-3.95	-2.45	-1.1	-3.05	-5.36	-4.35	-6.04	-5.69	-4.08	-5.53	-7.26	-7	-8.11
Θ(60°)	-1.8	-2.09	-2.05	-4.45	-6.96	-19.05	-16.44	-13.39	-3.41	-3.85	-4.86	-8.68	-11.12	-21.94	-7.92	-4.91	-3.92	-8.5	-6.99	-2.38	-2.91	-0.59	-1.15	-1.38
Θ(75°)	-3.26	-2.48	-1.85	-0.63	-0.56	-4.08	-6.84	-8.52	-8.97	-6.5	-5.54	-2.69	-3.55	-3.49	-5.67	-3.59	-1.39	-3.35	-4.38	-0.02	0.62	1.11	0.44	-1.38
Θ(90°)	-9.06	-5.37	-5.2	-3.41	-4.64	-1.31	-6.99	-6.38	-7.19	-5.36	-6.31	-3.75	-7.47	-6.55	-7.86	-4.73	0.98	-4.37	-9.74	-1.89	-0.06	-3.6	-3.28	-4.53
Θ(105°)	-9.17	-8.95	-9.81	-6.43	-5.02	-5.13	-9.62	-8.48	-9.01	-9.28	-9.41	-7.11	-8.12	-10.1	-11.9	-10.43	-7.16	-13.04	-21.32	-10.57	-5.09	-5.44	-6.04	-6.47
Θ(120°)	-19.38	-15.06	-11.81	-9.53	-13.63	-7.52	-14.75	-9.59	-18.29	-15.58	-14.47	-10.84	-11.92	-14.52	-11.73	-13.82	-8.12	-16.7	-18.24	-10.05	-6.99	-12.25	-13.42	-19.84
Θ(135°)	-18	-20.77	-17.66	-13.16	-12.16	-13.28	-21	-14.2	-17.66	-19.35	-13.39	-12.74	-18.69	-12.54	-17.68	-13.33	-8.43	-13.02	-20.92	-8.76	-9.04	-14.61	-17.64	-18.43
Θ(150°)	-16.27	-25.45	-17.8	-18.26	-19.94	-17.01	-25.3	-25.67	-18.77	-16.33	-16.38	-23.79	-20.28	-14.52	-16.91	-14.6	-16.99	-17.51	-19.42	-22.6	-15.19	-16.1	-20.66	-19.15
Θ(165°)	-25.24	-26.03	-25.53	-25.35	-17.23	-13.52	-26.39	-15.6	-16.76	-16.58	-12.33	-25.96	-25.12	-18.51	-20.95	-24.73	-25.41	-24.09	-22.44	-16.86	-21.34	-18.04	-14.16	-22.42
Θ(180°)	-18.08	-18.34	-20.98	-23.3	-25.76	-22.53	-18.53	-17.71	-17.39	-20.39	-19.68	-20.05	-18.67	-21.17	-22.32	-22.22	-24.73	-26.14	-25.3	-21.86	-21.61	-22.12	-25.19	-24.82
Freq(Hz)	6.695G	Pol.	Theta	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-6.9	-7.24	-7.01	-9.18	-11.84	-13.25	-18.15	-25.81	-17.87	-13.7	-9.5	-7.35	-6.18	-5.12	-5.66	-9.02	-11.28	-14.89	-22.54	-21.58	-18.23	-11.29	-9.43	-7.63
Θ(15°)	-18.68	-13.24	-11.8	-12.45	-12.22	-11.35	-13.5	-22.94	-15.89	-10.79	-10.34	-10.24	-7.9	-10.8	-16.56	-22.05	-17.09	-16.28	-15.01	-16.45	-15.45	-13.33	-24.6	-15.59
Θ(30°)	-9.89	-14.95	-23.3	-12.58	-18.36	-14.74	-8.5	-9.69	-12.11	-15	-14.57	-10.3	-15.6	-26.6	-21.87	-14.42	-14.27	-22.52	-17.73	-15.91	-15.06	-14.37	-18.62	-10.13
Θ(45°)	-7.26	-13.23	-16.59	-17.6	-11.95	-9.04	-11.52	-15.63	-20.72	-23.26	-16.34	-18.48	-16.68	-12.52	-13.42	-10.32	-10.62	-15.39	-13.73	-11.58	-14.51	-13.89	-9.25	-9.54
Θ(60°)	-15.91	-19.76	-25.18	-8.24	-13.75	-14.29	-21.17	-25.53	-15.07	-14.72	-11.44	-14.01	-21.85	-18.48	-15.46	-13.18	-15.98	-18.28	-18.11	-16.36	-20.7	-20.8	-13.19	-13.31
Θ(75°)	-14.32	-13.88	-13.19	-8.37	-8.6	-20.13	-21.18	-14.7	-22.44	-16.44	-13.71	-17.78	-20.58	-26.21	-23.64	-24.57	-21	-25.59	-12.77	-16.21	-16.11	-19.46	-11.72	-15.67
Θ(90°)	-20.94	-15.49	-16.7	-12.99	-8.51	-14.84	-15.57	-13.14	-18.44	-13.6	-18.06	-26.13	-21.38	-16.45	-18.35	-19.63	-21.87	-21.59	-14.61	-13	-12.92	-24.78	-10.33	-12.96
Θ(105°)	-22.53	-21.87	-16.36	-19.99	-13.89	-13.64	-23.9	-16.13	-21.01	-19.59	-20.92	-25.79	-18.42	-24.46	-19.48	-22.95	-21.72	-24.52	-20.85	-19.83	-18.29	-20.11	-18.39	-14.95
Θ(120°)	-23.87	-19.43	-25.68	-18.26	-18.65	-21.33	-26.17	-14	-25.58	-14.18	-26.01	-23.24	-24.02	-18.68	-17.63	-21.53	-16.72	-15.67	-24.04	-17.1	-16.38	-22	-17.41	-21.13
Θ(135°)	-17.92	-17.01	-25.14	-16.93	-22.71	-25.59	-23.88	-25.83	-24.74	-23.58	-25.56	-23.29	-15.68	-25.37	-18.95	-25.37	-25.98	-15.05	-17.67	-26.12	-25.87	-16.24	-20.88	-18.15
Θ(150°)	-19.79	-22.97	-24.99	-25.1	-25.54	-26.26	-25.7	-21.9	-24.97	-23.99	-25.35	-24.39	-25.8	-21.97	-20.52	-25.62	-19.38	-18.67	-26.2	-21.45	-24.89	-24.17	-25.93	
Θ(165°)	-17.12	-21.56	-25.13	-18.74	-25.1	-20.45	-20.4	-23.97	-24.23	-25.04	-19.28	-25.55	-24.11	-21.39	-17.81	-20.28	-25.15	-25.05	-24.12	-24.96	-24.99	-19.83	-21.23	-14.97
Θ(180°)	-21.77	-23.11	-25.25	-21.6	-22.3	-18.28	-18.06	-18.44	-19.61	-22.82	-25.5	-25.63	-25.49	-25.24	-25.31	-25.43	-25.62	-24.99	-23.82	-25.9	-22.41	-25.12	-25.72	-25.41
Freq(Hz)	6.995G	Pol.	Phi	Ant. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)			



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX

Appendix B.2

Θ(90°)	-26.33	-25.04	-24.28	-18.43	-20.69	-23.97	-24.58	-23.95	-22.59	-17.4	-20.68	-18.66	-16.02	-25.06	-20.18	-22.66	-24.6	-24.49	-20.2	-17.72	-24.99	-20.7	-25.01	-24.88
Θ(105°)	-24.9	-25.45	-22.18	-25.21	-22.81	-26.02	-22.98	-24.51	-25.3	-25.84	-22.13	-23.39	-18.65	-25.68	-24.45	-24.51	-18.63	-26.05	-25.07	-26.18	-25.68	-24.37	-25.06	-25.37
Θ(120°)	-25.14	-25.87	-25.48	-20.41	-24.72	-25.88	-24.63	-25	-25.69	-25.43	-26.05	-19.91	-17.51	-24.94	-24.72	-25.94	-22.87	-23.2	-25.72	-21.85	-23.31	-25.1	-23.79	-26.24
Θ(135°)	-25.48	-23	-23.62	-25.25	-21.64	-26.54	-24.76	-24.74	-24.73	-25.13	-25.46	-26.24	-25.17	-23.39	-25.64	-24.6	-25.37	-21.08	-23.72	-19.55	-19.49	-22.91	-24.63	-24.21
Θ(150°)	-17.53	-20	-18.45	-24.41	-20.48	-22.23	-23.88	-24.72	-26.49	-24.89	-20.08	-21.45	-22.03	-22.91	-25.16	-23.76	-25.58	-25.55	-25.64	-21.26	-25.67	-25.83	-24.55	-22.96
Θ(165°)	-25.9	-18.12	-15.32	-18.2	-22.54	-24.38	-25.62	-24.36	-25.22	-26.21	-24.99	-24.3	-17.89	-22.63	-26.6	-19.2	-19.12	-21.88	-20.97	-24.18	-24.69	-20.89	-20.2	-24.72
Θ(180°)	-19.36	-19.26	-15.11	-16.51	-15.84	-17.14	-20.12	-22.41	-22.13	-19.55	-17.53	-17.54	-15.83	-14.8	-15.83	-16.58	-17.97	-23.05	-25.16	-24.91	-25.12	-22.77	-20.48	-18.55
Freq(Hz)	5.785G	Pol.	Phi	Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-10.6	-10.68	-12.05	-11.56	-13.37	-17.73	-25.47	-25.98	-17.09	-12.7	-10.59	-9.94	-9.7	-9.54	-10.6	-12.41	-14.12	-15.02	-19.1	-24.45	-22.94	-20.11	-15.23	-13.36
Θ(15°)	-7.71	-6.9	-6.79	-6.56	-7.82	-9.74	-11.7	-13.75	-13.4	-13.19	-16	-20.74	-13.29	-9.03	-7.08	-7.59	-8.87	-9.51	-8.92	-7.97	-8.39	-9.4	-9.25	-9.2
Θ(30°)	-2.99	-2.82	-3.73	-3.39	-3.04	-2.82	-5.03	-7.11	-10.69	-8.53	-5.17	-3.74	-4.26	-4.18	-3.94	-3.93	-3.98	-6.4	-6.99	-7.94	-8.51	-5.46	-3.52	-4.09
Θ(45°)	-5.82	-4.54	-4.36	-2.68	-0.81	-0.67	-0.42	-1.46	-5.33	-6.78	-7.41	-3.34	-2.93	-3.11	-6.4	-5.79	-3.99	-0.84	-0.17	-0.54	-1.52	-8.21	-12.23	-6.87
Θ(60°)	-1.77	-1.35	-1.28	-5.23	-7.74	-4.03	-2.64	-2.2	-4.65	-2.04	0.83	2.33	1.85	-1.49	-0.67	-1.62	-2.43	-1.51	0.24	0.05	-0.03	-3.46	0.07	1.1
Θ(75°)	-1.5	-0.13	-0.15	-1.98	-1.6	0.06	0.88	0.69	-0.57	0.34	4.94	4.72	2.09	-4.39	0.32	-1.6	-1.5	-2.43	0.02	1.84	0.21	-3.99	-0.13	1.27
Θ(90°)	-5.63	-4.64	-4.34	-4.88	-3.77	-0.47	-2.91	-1.74	-4.55	-3.43	2.15	2.31	-0.28	-8.55	-2.83	-5.58	-2.98	-4.63	-1.83	0.81	-2.66	-6.99	-3.74	-3.74
Θ(105°)	-9.18	-7.99	-9.28	-10.81	-7.57	-6.06	-7.7	-7.93	-8.38	-9.17	-2.18	-2.78	-5.39	-12.12	-7.21	-11.38	-9.95	-13.38	-11.28	-11.32	-9.5	-16.13	-6.51	-8.25
Θ(120°)	-17.01	-12.41	-13.85	-17.15	-11.67	-10.78	-12.48	-13.87	-14.05	-10.84	-6.29	-7.07	-8	-15.62	-16.34	-17	-13.29	-10.25	-11.17	-6.75	-6.43	-18.11	-11.31	-14.64
Θ(135°)	-18.68	-16.27	-14.88	-15.17	-15.17	-18.72	-18.76	-20.68	-13.43	-13.69	-13.95	-12.57	-19.05	-15.02	-16.94	-18.52	-18.36	-25.37	-14.95	-15.92	-14.79	-19.85	-17.47	-15.37
Θ(150°)	-24.29	-25.74	-19.1	-24.44	-22.23	-15.82	-16.01	-16.38	-18.07	-17.99	-14.05	-14.66	-18.17	-21.35	-23.31	-19.01	-25.98	-25.38	-22.33	-26.25	-25.2	-26.26	-20.66	-15.6
Θ(165°)	-26.19	-20.15	-17.74	-25.26	-24.4	-15.57	-16.06	-24.39	-25.56	-21.14	-22.33	-25.1	-24.65	-24.3	-21.58	-20.94	-14.45	-21.81	-24.33	-19.54	-20.55	-25.26	-25.75	-24.43
Θ(180°)	-19.51	-19.24	-18.39	-23.49	-20.46	-18.21	-16.56	-16.65	-13.5	-12.99	-13.34	-14.54	-17.29	-23.67	-25.81	-22.44	-17.85	-17.56	-17.64	-17.85	-19.2	-21.32	-25.57	-25
Freq(Hz)	5.785G	Pol.	Theta	Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-22.86	-25	-19.72	-14.55	-12.74	-10.81	-9.45	-9.49	-10.19	-11.94	-14.03	-18.21	-24.02	-18.97	-16.18	-13.95	-13.51	-12.7	-13.12	-12.74	-12.07	-14.3	-14.49	-16.41
Θ(15°)	-17.26	-22.05	-11.64	-9.02	-10.24	-11.18	-14.47	-16.34	-10.92	-7.65	-7.3	-13.05	-13.49	-10.33	-11.18	-14.69	-16.23	-16.71	-18.25	-18.06	-17.68	-14.44	-16.85	-22.68
Θ(30°)	-14.22	-10.75	-15.03	-12.72	-13.63	-10.54	-7.94	-11.42	-17.51	-21.67	-19.98	-13.19	-19.64	-13.78	-15.26	-18.17	-16.46	-17.25	-26.28	-22.27	-24.77	-15.93	-12.38	-14.81
Θ(45°)	-15.77	-15.58	-18.03	-14.08	-9.87	-7.17	-12.43	-18.96	-16.96	-17.95	-18.33	-12.44	-19.43	-19.21	-19.34	-23.53	-21.95	-17.75	-17.08	-17.4	-20.66	-26.21	-19.36	-20.24
Θ(60°)	-18.75	-14.95	-17.68	-15.46	-22.16	-10.73	-21.84	-14.15	-25.11	-16.48	-25.82	-25.84	-18.55	-18.14	-12.92	-26.13	-25.23	-16.95	-16.51	-17.06	-18.62	-14.04	-18.44	-22.06
Θ(75°)	-18.42	-21.33	-16.97	-15.75	-19.42	-25.42	-25.65	-15.67	-25.53	-19.13	-15.77	-15.09	-16.92	-25.39	-12.81	-24.76	-21.28	-24.68	-25.01	-19.01	-21.3	-15.87	-18.54	-25
Θ(90°)	-19.51	-23.84	-20.24	-21.24	-21.64	-23.15	-26.28	-19.56	-25.62	-23.28	-16.17	-16.85	-17.75	-16.65	-20.95	-24.33	-24.75	-18.12	-23.66	-22.08	-24.72	-19.85	-22.22	-24.76
Θ(105°)	-26.68	-25.77	-25.53	-20.8	-25.07	-25.16	-24.25	-22.91	-24.9	-22.49	-24.81	-15.15	-14.82	-24.83	-18.47	-26.08	-24.32	-24.26	-24.74	-24.34	-26.32	-24.06	-25.86	-19.54
Θ(120°)	-26.22	-25.66	-25	-21.35	-25.88	-24.06	-25.14	-25.95	-24.25	-25.83	-26.02	-23.99	-24.66	-23.7	-24.66	-25.2	-18.89	-21.38	-24.21	-23.77	-24.82	-22.17	-26.1	-24.33
Θ(135°)	-26.28	-22.56	-26.26	-25.69	-19.1	-23.37	-25.42	-24.43	-25.15	-25.73	-21.22	-25.49	-17.73	-23.98	-20.01	-22.8	-26.04	-24.95	-21.58	-17.85	-21.62	-23.31	-25.63	-24.45
Θ(150°)	-20.15	-17.38	-19.16	-22.82	-25.95	-24.65	-24.01	-25.12	-25.05	-25.26	-24.05	-21.04	-24.03	-23.56	-25.25	-19.38	-26.1	-25.38	-24.93	-24.7	-25.69	-25.55	-22.52	-23.32
Θ(165°)	-16.17	-19.9	-18.12	-25.39	-17.3	-17.74	-24.93	-25.5	-25.44	-25.31	-23.41	-22.7	-24.68	-25.76	-24.29	-26.53	-25.65	-22.76	-23.93	-25.86	-19.22	-14.23	-18.35	-20.55
Θ(180°)	-20.84	-22.29	-17.22	-15.97	-16.69	-16.97	-17.48	-24.58	-23.35	-22.13	-20.75	-18.95	-16.72	-14.67	-14.62	-15.89	-17.42	-20.65	-26.12	-22.74	-20.51	-17.48	-17.24	-17.78
Freq(Hz)	6.175G	Pol.	Phi	Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-8.28	-10.29	-9.37	-10.58	-12.84	-15.84	-15.56	-14.55	-11.3	-8.97	-7.41	-6.9	-6.78	-7.66	-8.7	-10.82	-12.46	-14.27	-17.2	-21.7	-20.3	-18.21	-14.6	-12.12
Θ(15°)	-7.07	-6.16	-5.71	-4.26	-5.63	-6.75	-6.91	-8.36	-12.14	-18.52	-17.89	-14.12	-14.02	-12.81	-12.23	-14.46	-16.12	-23.63	-15.83	-9.92	-6.35	-5.93	-7.18	-10.14
Θ(30°)	-3.67	-2.86	-4.55	-5.39	-4.34	-3.1	-5.93	-7.07	-5.65	-6.74	-3.48	-3.77	-5.67	-4.75	-3.84	-2.53	-1.77	-3.11	-6.63	-8.52	-6.65	-6.41	-6.17	-6.8
Θ(45°)	-6.59	-5.71	-6.84	-4.61	-2.54	-4.06	-2.11	-0.22	-1.66	-4.7	-3.34	-4.82	-4.66	-5.73	-7.53	-12.25	-8.75	-3.55	-1.66	-2.7	-4.32	-5.78	-14.99	-13.57
Θ(60°)	-3.44	-0.19	-3.16	-6.79	-9.67	-12.21	-9.58	-11.42	-11.5	-4.16	-0.64	0.56	-1.36	-2.9	-0.44	-1.78	-2.21	-1.79	0.01	-1.98	-3.85	-1.38	-2.97	-3.06
Θ(75°)	-2.53	1.35	0.03	-0.62	-1.89	-1.18	-2.23	-1.56	-3.48	-2.02	2.33	2.95	-0.68	-1.09	1.52	0.73	1.32	0.59	1.79	1.77	-0.21	-0.19	-0.46	-0.69
Θ(90°)	-5.38	-4.05	-4.69	-2	-1.76	-3.91	-1.36	-6.13	-5.21	-6.43	-0.39	1.78	-1.14	-2.41	-1.36	-3.71	-1.13	0.43	0.77	1.09	-2.86	-3.97	-3.66	-4.14
Θ(105°)	-8.64	-9.2	-10.63	-7.01	-6.07	-6.31	-6.06	-8.14	-11.06	-10.03	-4.54	-2.69	-4.76	-8.07	-6.21	-11.18	-6.07	-7.83	-6.24	-9.33	-6.06	-8.56	-8.87	-8.38
Θ(120°)	-16.64	-10.52	-14.02	-13.21	-8.39	-13.89	-8.48	-12.89	-15.78	-15.6	-8.27	-7.83	-8.58	-11.16	-7.3	-12.22	-10.3	-8.17	-12.74	-11.26	-6.2	-16.5	-8.96	-15.15
Θ(135°)	-18.5	-18.72	-16.61	-17.86	-11.54	-13.04	-14.38	-20.17	-15.3	-14.87	-11.47	-10.91	-12.81	-13.39	-11.89	-18.42	-12.39	-12.92	-12.55	-13.25	-8.06	-16.05	-14.45	-13.16
Θ(150°)	-20.01	-17	-14.76	-22.31	-20.26	-16.77	-15.59	-16.71	-20.42	-24.15	-18.16	-18.29	-18.13	-17.78	-17.33	-17.78	-16.36	-17.05	-21.73	-21.71	-19.11	-23.86	-16.4	-17.12
Θ(165°)	-25.92	-16.56	-22.16	-20.96	-23.04	-19.67	-22.77	-23.54	-22.53	-21.55	-23.96	-20.08	-21.11	-20.53	-14.68	-17.81	-19.09	-14.35	-21.15	-22.85	-25.59	-24.52	-24.93	



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX

Appendix B.2

Θ(45°)	-8.79	-7.54	-6.14	-2.79	-2.34	-2.85	-6.59	-6.69	-2.79	-2.65	-1.75	-4.64	-7.58	-6.22	-5.62	-5.75	-5.11	-4.01	-3.69	-5.26	-5.28	-4.73	-3.57	-4.07
Θ(60°)	-5.37	-9.11	-11.21	-10.4	-7.69	-13.38	-12.42	-8.9	-9.47	-11.47	-7.17	-5.67	-4.22	-2.63	-3.09	-2.9	-7.4	-6.18	-3.75	-4.51	-6.59	-2.94	-7.18	-8.35
Θ(75°)	-3.63	-5.05	-5.85	-3.45	-3.99	-2.51	-5.09	-6.56	-4.88	-1.61	0.8	-0.44	-1.17	0.53	1.32	0.61	-1.13	-3.38	-0.71	-1.19	-2.06	0.26	-1.16	-2.42
Θ(90°)	-8.15	-8.16	-7.88	-6.77	-5.53	-1.37	-4.78	-3.84	-6.97	-2.3	0.68	-1.57	-5.03	-3.13	-0.5	-1.82	-1.4	-4.79	-6.28	-3.01	-4.15	-3.04	-2.23	-4.88
Θ(105°)	-8.76	-9.89	-11.28	-10.83	-9.38	-5.7	-5.12	-11.97	-9.79	-8.27	-5.06	-6.18	-9.26	-6.77	-3.99	-8.12	-5.93	-13.15	-10.38	-10.18	-11.09	-9.01	-6.8	-7.85
Θ(120°)	-16.42	-15.31	-16.79	-15.7	-10.91	-7.68	-10.97	-9.66	-15.69	-10.75	-9.49	-6.76	-10.88	-13.37	-8.91	-9.79	-6.93	-14.66	-12.79	-21.79	-11.45	-13.45	-8.5	-14.01
Θ(135°)	-25.57	-16.31	-23.65	-16.75	-14.14	-15.33	-12.01	-17.56	-18.65	-14.72	-11.08	-13.74	-13.51	-18.9	-9.26	-13.55	-9.05	-11.29	-19.79	-12.6	-5.55	-10.28	-10.19	-15.38
Θ(150°)	-15.59	-24.61	-18.68	-17.08	-23.66	-25.88	-15.75	-20.06	-18.16	-19.93	-18.65	-21.66	-23.46	-15.08	-18.72	-17.13	-15.47	-17.61	-18.22	-15.03	-17.65	-15.7	-14.24	-17.57
Θ(165°)	-25.29	-26.12	-22.2	-17.25	-25.49	-22.35	-22.15	-25.66	-25.09	-23.01	-20.86	-25.98	-25.5	-24.7	-18.84	-15.09	-16.54	-17.42	-21.33	-23.53	-23.5	-26.11	-24.06	-19.1
Θ(180°)	-18.14	-19.55	-21.07	-24.64	-21.37	-23.19	-18.75	-23.79	-20	-20.99	-22.03	-21.09	-18.84	-16.73	-18.69	-18.72	-24.99	-24.12	-22.47	-19	-23.16	-25.71	-20.53	-19.13
Freq(Hz)	6.995G	Pol.	Theta	Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-11.3	-11.82	-12.19	-15.76	-17.13	-16.9	-14.78	-13.14	-12.68	-11.78	-10.98	-11.14	-12.73	-12.66	-15.2	-14.18	-11.88	-10.13	-10.32	-9.36	-9.67	-9.57	-9.93	-12.01
Θ(15°)	-10.16	-10.98	-13.69	-15.64	-18.86	-13.01	-10.24	-10.49	-10.34	-9.85	-9.17	-10.82	-11.29	-11.04	-15.15	-25.5	-25.52	-22.24	-13.54	-11.46	-21.02	-12.91	-11.38	-15.26
Θ(30°)	-11.1	-8.57	-11.97	-22.94	-9.23	-12.24	-17.49	-14.31	-15.5	-15.77	-12.53	-9.56	-20.25	-20.76	-12.06	-8.77	-12.3	-14.88	-11.45	-10.8	-18.79	-17.23	-18.4	-17.67
Θ(45°)	-24.37	-15.55	-14.28	-17.81	-10.97	-15.42	-11.87	-21.56	-12.63	-13.69	-25.06	-12.6	-12.33	-9.08	-10.86	-12.66	-9.66	-4.88	-7.04	-10.26	-13.15	-25.06	-10.74	-5.82
Θ(60°)	-14.57	-22.52	-19.92	-21.96	-8.65	-12.64	-21	-24.95	-10.46	-13.58	-9.92	-14.47	-15.62	-9.85	-24.69	-22.76	-17.8	-12.19	-16.16	-16.61	-14.61	-14.56	-20.52	-14.91
Θ(75°)	-14.98	-14.24	-13.39	-12.38	-12.19	-24.39	-14.3	-20.3	-21.1	-24.51	-13.95	-21.86	-11.9	-25.09	-23.04	-20.12	-22.3	-13.48	-13.17	-17.51	-14.73	-12.61	-11.78	-12.95
Θ(90°)	-16.14	-14.76	-13.7	-15.07	-11.5	-15.78	-16.07	-18.08	-22.47	-14.83	-14.93	-15.47	-18.32	-25.63	-21.63	-26.28	-15.57	-10.19	-14.42	-12.14	-18.75	-16.48	-11.22	-16.96
Θ(105°)	-19.09	-21.74	-16.41	-16.83	-16.74	-13.48	-16.08	-26.13	-20.15	-16.23	-22.66	-16.19	-15.21	-21.85	-17.65	-17.98	-26.3	-25.02	-15.83	-17.98	-18.57	-21.92	-14.46	-15.78
Θ(120°)	-23.32	-26.03	-16.02	-22.88	-19.54	-16.71	-26.44	-21.93	-16.71	-18.76	-21.87	-15.13	-23.21	-17.4	-25.17	-21.52	-20.39	-19.8	-19.64	-22.77	-23.83	-20.92	-14.23	-25.97
Θ(135°)	-25.73	-23.27	-22.23	-18.63	-17.39	-22.04	-23.33	-23.17	-23.22	-21.07	-20.91	-15.93	-21.91	-22.97	-19.13	-21.83	-24.01	-24.51	-23.75	-20.98	-25.7	-24.84	-24.89	-23.01
Θ(150°)	-22.55	-20.31	-24.36	-11.87	-25.54	-23.78	-23.26	-17.04	-21.64	-20.26	-21.14	-22.33	-24.35	-24.62	-24.79	-25.63	-20.62	-25.57	-24.5	-17.24	-24.3	-18.13	-15.17	-24.02
Θ(165°)	-25.44	-17.22	-17.95	-18.28	-17.84	-20.69	-15.01	-19.29	-26.34	-25.46	-20.04	-25.71	-24.99	-25.05	-24.92	-19.53	-21.68	-25.38	-25.06	-24.1	-22.21	-16.83	-15.72	-25.91
Θ(180°)	-24.85	-21.97	-24.88	-20.28	-20.22	-18.05	-20.13	-19.58	-20.09	-23.56	-23.48	-24.93	-25.83	-23.02	-18.89	-19.74	-20.27	-20.37	-25.4	-25	-23.36	-25.48	-24.84	-25.3
Freq(Hz)	6.995G	Pol.	Phi	Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-21.26	-17.95	-15.89	-18.04	-16.94	-17.77	-21.31	-23.82	-25.19	-22.92	-19.52	-16.97	-16.98	-16.67	-16.77	-18.23	-18.11	-21.13	-24.63	-25.03	-25.05	-25.23	-21.28	-18.97
Θ(15°)	-9.44	-8.55	-7.26	-7.13	-8.17	-9.34	-12.12	-12.53	-14.14	-16.3	-14.74	-14.3	-12.78	-13.56	-12.88	-10.02	-7.56	-5.23	-4.5	-6.47	-11.37	-12.85	-13.52	-13.19
Θ(30°)	-7.61	-4.9	-3.36	-3.55	-3.95	-7.16	-8.32	-7.25	-7.07	-6.95	-12.06	-11.08	-12.36	-13.49	-12.26	-6.77	-7.28	-9.1	-6.37	-3.86	-2.63	-10.1	-6.08	-7.16
Θ(45°)	-6.16	-3.17	-3.42	-4.31	-3.06	-4.88	-4.34	-18.42	-9.95	-4.55	-3.37	-4.33	-8.05	-6.67	-4.7	-4.82	-3.97	-9.71	-6.92	-7.56	-2.56	-11.09	-3.32	-5.42
Θ(60°)	-9.44	-8.71	-7.8	-7.85	-9.29	-5.68	-5.88	-10.27	-7.46	-7.71	-7.06	-10.71	-6.87	-7.03	-8.09	-5.25	-7.6	-10.18	-10.14	-10.56	-5.11	-6.05	-18.41	-11.88
Θ(75°)	-6.09	-4.68	-9.93	-9.06	-9.7	-12.24	-12.28	-7.46	-11.01	-2.55	-2.46	-4.21	-2.8	-7.21	-4.08	-1.37	0.87	-4.72	-4.35	-5.33	-3.13	-3.16	-5.99	-6.9
Θ(90°)	-9.77	-9.95	-12.56	-9.34	-9.2	-5.95	-5.15	-8.56	-5.68	-1.92	-3.19	-6.43	-5.94	-7.3	-6.51	-6.55	-2.35	-6.62	-9.78	-7.97	-4.42	-7.03	-7.99	-7.96
Θ(105°)	-11.11	-14.23	-15.63	-14.08	-14.23	-6.33	-10.4	-13.61	-11.8	-6.37	-6.52	-8.51	-11.28	-14.04	-9.89	-8.62	-7.63	-19.04	-15.12	-14.94	-10.9	-11.9	-11.17	-14.65
Θ(120°)	-13.32	-17.28	-26.2	-19.21	-12.11	-14.99	-15.15	-25.15	-11.79	-9.47	-12.44	-13.23	-13.87	-19.67	-18.78	-12.29	-10.78	-18.09	-18.67	-24.61	-12.61	-18.01	-10.81	-14.94
Θ(135°)	-23.71	-15.77	-23.19	-15.52	-23.68	-18.44	-19.96	-17.42	-19.53	-17.12	-20.73	-19.78	-21.92	-18.29	-12.69	-19.11	-10.5	-18.37	-15.48	-25.76	-12.23	-15.93	-15.1	-20.82
Θ(150°)	-20.33	-21.46	-20.28	-19.3	-17.62	-19.89	-22.14	-18.48	-22.95	-24.75	-16.88	-20.77	-25.7	-20.6	-25.02	-14.4	-13.66	-18.18	-22.42	-15.85	-24.89	-17.6	-20.4	-17.55
Θ(165°)	-20.33	-26.13	-19.29	-22.09	-24.29	-25.58	-22.11	-16.51	-25.7	-21.55	-20.03	-22.31	-24.38	-21.12	-21.27	-23.91	-16.37	-15.82	-20.02	-15.89	-19.19	-17.98	-19.93	-18.71
Θ(180°)	-17.1	-17.13	-19	-19.76	-24.57	-17.73	-21.25	-24.81	-25.64	-26.02	-23.07	-22.31	-21.6	-22.76	-21.87	-26.13	-25.37	-25.35	-24.8	-22.19	-21.06	-18.45	-17.21	-18.2
Freq(Hz)	6.995G	Pol.	Theta	Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-18.57	-21.39	-25.37	-22.26	-21.54	-18.64	-18.35	-19.12	-16.46	-16.73	-16.38	-16.15	-19.43	-25.83	-24.4	-21.51	-18.34	-16.99	-15.14	-14.41	-16.4	-16.75	-18.68	-17.67
Θ(15°)	-8.25	-8.81	-8.3	-9.83	-10.13	-11.33	-14.76	-18.21	-19.39	-14.42	-11.18	-14.48	-23.92	-24.58	-19.39	-12.94	-11.95	-10.94	-9.22	-8.93	-11.45	-11.76	-12.5	-15.96
Θ(30°)	-8.28	-6.07	-5.33	-7.92	-10	-9.98	-9.49	-12.19	-16.28	-10.02	-11.09	-7.61	-19.64	-21.48	-8.45	-8.85	-11.54	-10.39	-6.31	-4.09	-10.68	-16.71	-10.54	-8.11
Θ(45°)	-6.79	-9.33	-8.85	-12.88	-15.57	-16.74	-13.18	-10.03	-11.05	-12.22	-8.96	-4.87	-2.73	-3.46	-9.85	-9.27	-7.4	-3.56	-5.56	-7.12	-5.18	-12.61	-9.52	-5.52
Θ(60°)	-17.19	-12.17	-25.31	-22.45	-10.17	-8.85	-6.51	-9.59	-10.17	-9.57	-6.37	-9.52	-10.89	-10.89	-17.85	-21.91	-15.04	-14.41	-14.1	-9.29	-12.95	-20.56	-25.6	-16.06
Θ(75°)	-6.6	-10.11	-10.28	-9.26	-7.72	-15.18	-25.81	-13.99	-18.15	-21.79	-14.51	-18.85	-13.96	-21.14	-17.01	-12.05	-15.03	-15.96	-13.91	-24.6	-8.06	-6.97	-8.58	-10.63
Θ(90°)	-6.29	-8.06	-8.94	-12.17	-5.23	-11.34	-10.86	-14.12	-11.14	-7.63	-9.45	-15.42	-10.61	-14.49	-9.5	-15.3	-8.41	-9	-11.96	-11.65	-8.67	-10.46	-10.21	-11.33
Θ(105°)	-10.57	-13.47	-11.81	-12.45	-11.21	-11.65	-12.42	-10.88	-10.57	-10.32	-9.76	-17.82	-11.76	-16.64	-14.86	-15.39	-16.92	-16.15	-10.74	-13.74	-17.26	-16.89	-11.67	-14.84
Θ(120°)	-17.81	-24.88	-24.88	-15.61	-12.29	-13.39	-15.86	-17.39	-17.33	-13.56	-14.55	-12.84	-15.05	-20.43	-13.45	-15.21	-12.88	-23.73	-15.88	-24.7	-14			



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX

Appendix B.2

Θ(0°)	-16.15	-14.84	-14.48	-13.75	-15.23	-13.89	-13.42	-14.14	-12.41	-10.47	-11.13	-12.06	-11.86	-11.29	-11.93	-14.47	-17.39	-18.16	-15.91	-16.25	-16.33	-13.75	-10.94	-12.46
Θ(15°)	-8.8	-13.44	-14.41	-13.03	-13.64	-12.23	-11.32	-16.47	-25.72	-24.87	-21.35	-8.23	-4.69	-6.14	-9.51	-14.94	-18.01	-20.02	-17.93	-15.44	-13.61	-15.88	-14.02	-11.69
Θ(30°)	-7.14	-25.68	-25.58	-20.01	-13.81	-13.81	-10.36	-10.25	-16.21	-20.52	-20.81	-18.2	-8.71	-11.44	-13.48	-9.96	-16.91	-25.32	-16.81	-24.09	-14.64	-13.02	-16.53	-9.24
Θ(45°)	-15.01	-19.12	-18.61	-15.06	-8.56	-11.09	-11.69	-11.18	-18.59	-13.41	-13.67	-15.48	-17.06	-20.86	-17.46	-19.41	-25.37	-24.02	-18.35	-18.65	-25.08	-14.32	-12.55	-10.08
Θ(60°)	-21.12	-19.73	-14.78	-24.85	-16.35	-13.02	-11.09	-13.13	-18.84	-26.17	-19.5	-14.17	-18.94	-14.37	-19.48	-24.83	-20.87	-24.94	-18.4	-24.97	-18.74	-24.83	-16.46	-21.58
Θ(75°)	-19.48	-21.55	-15.92	-22.76	-25.51	-14.41	-14.4	-23.47	-23.21	-25.21	-21.03	-21.36	-19.92	-15.39	-22.87	-14.52	-18.53	-17.03	-21.79	-25.12	-22.45	-25.85	-25.23	-18.96
Θ(90°)	-19.37	-25.7	-22.52	-25.43	-25.87	-21.55	-16.22	-25.29	-20.44	-24.21	-20.33	-21.33	-22.04	-16.57	-24.72	-17.77	-25.4	-14.53	-25.71	-25.24	-25.57	-24.58	-25.31	-22.26
Θ(105°)	-20.82	-24.32	-25.46	-24.61	-24.81	-24.19	-19.8	-23.72	-22.5	-25.73	-21.23	-18.77	-19.63	-18.61	-24.75	-21.13	-23.31	-26.05	-25.58	-26.09	-26.55	-26.06	-23.55	-22.26
Θ(120°)	-25.84	-25.35	-20.49	-22.75	-23.95	-22.45	-21.24	-26.57	-26	-25.97	-24.77	-19.67	-22.47	-26.1	-24.32	-24.84	-25.45	-24.59	-26.69	-24.59	-25.57	-16.73	-25.19	-24.57
Θ(135°)	-26.1	-26.03	-24.65	-25.97	-25.75	-26.14	-24.04	-23.74	-24.27	-24.98	-24.65	-21.86	-20.96	-25.52	-26.24	-24.52	-25.53	-25.58	-20.76	-23.84	-22.63	-24.5	-25.11	-24.09
Θ(150°)	-17.48	-25.45	-18.3	-22.74	-25.73	-23.96	-25.32	-25.06	-25.31	-24.47	-25.59	-25.6	-26.05	-25.5	-26.02	-21.45	-25.96	-24.46	-25.84	-25.07	-19.12	-25.48	-20.78	-22.23
Θ(165°)	-25.45	-24.92	-26.09	-24.02	-24.42	-24.76	-24.37	-22.67	-23.96	-26.02	-24.9	-23.95	-19.31	-25.36	-25.97	-18.39	-17.59	-25.57	-25.24	-20.79	-18.92	-26.13	-13.08	-19.88
Θ(180°)	-23.99	-25.11	-19.74	-19.16	-18.13	-22.72	-22.37	-24.91	-25.96	-24.35	-21.77	-22.53	-22.61	-25.41	-24.44	-25.18	-23.23	-25.02	-26.11	-24.88	-25.47	-22.45	-23.13	-19.67
Freq(Hz)	6.175G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-25.09	-25.75	-18.06	-15.29	-12.66	-13.26	-11.25	-10.72	-11.19	-13.74	-16.75	-22.34	-24.93	-21.51	-16.61	-13.8	-11.64	-11.31	-13.05	-13.13	-11.9	-14.64	-19.02	-20.84
Θ(15°)	-3.93	-9.01	-12.79	-9.58	-8.8	-9.5	-13.76	-20.6	-25.27	-17.34	-18.07	-13.58	-10.48	-8.28	-8.09	-9	-7.04	-6.26	-4.98	-3.22	-3.08	-4.32	-4.68	-5.78
Θ(30°)	-5.08	-4.5	-5.25	-7.06	-6.42	-7.62	-7.15	-3.64	-2.65	-3.72	-4.91	-6.28	-4.6	-2.12	-2.8	-4.79	-2.95	-3.03	-4.46	-5.49	-5.34	-5.15	-4.89	-5.47
Θ(45°)	-4.45	-6.33	-14.17	-8.62	-5.38	-5.35	-3.84	-4.64	-7.59	-9.49	-8.86	-5.78	-6.33	-7.54	-6.97	-5.77	-5.07	-3.61	-3.36	-8.78	-3.86	-3.38	-4.96	-5.45
Θ(60°)	-3.75	-1.69	-2.06	-1.55	-2.08	0.47	-0.96	-2.8	-4.38	-4.52	-4.27	-2.3	-0.76	1.12	0.9	-2	-5.39	-5.78	-4.88	-8.12	-12.3	-5.35	-2.42	-0.64
Θ(75°)	-2.24	-0.49	0.5	0.49	0.66	2.95	-0.21	-0.15	1.02	1.13	-1.73	-0.61	0.57	2.93	1.43	-1.83	-2.09	-0.39	-1.97	-1.8	-0.86	0.43	1.73	2.34
Θ(90°)	-5.36	-6.13	-4.41	-3.8	-2.17	-0.18	-2.89	-2.51	-1.69	-1.09	-1.3	-4.13	-1.15	-0.72	-3	-3.63	-5.45	-1.38	-2.7	-1.6	-3.86	-4.28	-2.01	-0.84
Θ(105°)	-10.46	-11.96	-8.45	-7.61	-5.16	-3.95	-6.8	-6.49	-5.01	-4.91	-5.84	-8.46	-4.32	-6	-7.02	-7.34	-10.18	-8.75	-10.72	-9.74	-14.04	-7.88	-7.2	-5.2
Θ(120°)	-16.1	-13.78	-12.22	-12.57	-11.58	-8.47	-10.89	-13.52	-8.71	-10.63	-8.01	-12.49	-8.87	-9.51	-11.17	-10.3	-13.55	-10.03	-13.86	-7.9	-8.59	-14.91	-13.37	-8.5
Θ(135°)	-15.77	-13.59	-14.04	-16.85	-11.1	-13.24	-16.77	-13.33	-14.92	-11.63	-16.88	-13.96	-13.93	-19.07	-16.26	-10.24	-18.11	-12.97	-13.59	-14.6	-9.12	-16.74	-11.58	-14.35
Θ(150°)	-14.57	-16.2	-14.71	-25.93	-16.28	-19.47	-18.38	-18.13	-13.1	-12.78	-17.51	-18.21	-20.33	-14.54	-18.47	-16.15	-18.61	-13.01	-16	-22.2	-18.94	-13.86	-25.4	-22.4
Θ(165°)	-22.98	-25.45	-25.38	-21.73	-19.34	-19.02	-20.65	-22.22	-20.26	-15.91	-16.89	-20.26	-25.78	-24.5	-21.75	-24.59	-15.93	-20.62	-19.18	-17.63	-21.93	-20.58	-25.32	-24.21
Θ(180°)	-22.95	-22.36	-22.09	-22.99	-25.16	-23.01	-21.86	-22.36	-20.94	-23	-19.16	-17.72	-19.46	-26.37	-24.79	-19.76	-17.67	-16.48	-16.28	-15.62	-16.44	-16.86	-18.75	-22.47
Freq(Hz)	6.175G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-9.77	-11.39	-11.88	-14.61	-18.67	-21.39	-25.07	-18.34	-15.26	-13.34	-9.51	-8.23	-7.84	-9.46	-10.34	-14.48	-16.96	-25.39	-24.94	-24.49	-18.79	-16.35	-14.32	-12.17
Θ(15°)	-8.96	-12.25	-15.45	-21.7	-19.75	-16.88	-15.66	-17.31	-24.01	-19.09	-15.2	-12.46	-6.56	-6.19	-7.14	-10.34	-12.47	-16.26	-19.86	-20.79	-15.45	-14.41	-9.79	-10.75
Θ(30°)	-7.24	-23.4	-18.91	-13.92	-16.43	-10.52	-8.43	-11.36	-16.4	-18.07	-20.67	-19.63	-7.48	-11.44	-14.97	-10.92	-14.16	-15.89	-11.11	-21.3	-15.93	-17.74	-12.05	-8.64
Θ(45°)	-16.79	-13.52	-23.09	-13.52	-14.64	-22.4	-13.95	-15.59	-17.27	-16.24	-11.19	-16.91	-21.54	-19.33	-13.13	-18.12	-20.74	-13.93	-18.63	-25.47	-24.76	-11.43	-10.61	-9.6
Θ(60°)	-17.32	-13.16	-18.17	-24.76	-19.22	-25.95	-22.71	-22.97	-22.3	-23.12	-17.17	-22.68	-18.73	-25	-16.26	-16.16	-22.15	-24.81	-16.39	-22.71	-25.39	-18.33	-11.58	-17.83
Θ(75°)	-20.62	-19.53	-21.95	-16.8	-19.92	-20.55	-26.31	-20.57	-25.66	-26.14	-25.93	-19.61	-17.82	-12.71	-17.71	-13.06	-17.64	-24.51	-22.18	-15.81	-25.25	-18.52	-26.42	-22.87
Θ(90°)	-19.07	-24.62	-15.06	-17.92	-15.01	-15.1	-25.71	-25.87	-25.11	-22.48	-19.18	-25.67	-16.06	-16.2	-24.96	-19.7	-18.99	-16.43	-19.52	-23.18	-17.71	-25.98	-16.64	-13.21
Θ(105°)	-24.83	-25.02	-18.54	-19.69	-15.91	-19.81	-24.75	-18.41	-23.63	-25.61	-25.25	-22.74	-21.2	-20.38	-18.55	-25.84	-25.37	-21.07	-18.5	-24.36	-25.3	-23.73	-18.74	-20.23
Θ(120°)	-18.58	-21.15	-24.88	-17.32	-25.17	-17.27	-26.26	-16.73	-25.9	-24.32	-21.64	-21.92	-19.5	-22.42	-22.4	-25.66	-25.27	-24.66	-25.05	-20.3	-19.41	-24.53	-19.06	-14.24
Θ(135°)	-24.05	-17.14	-25.52	-24.63	-24.57	-22.3	-25.68	-25.68	-22.31	-25.74	-24.95	-18	-24.67	-20.41	-19.87	-25.37	-25.58	-24.94	-25.82	-17.85	-24.86	-19.61	-15.99	-18.58
Θ(150°)	-12.99	-24.69	-23.68	-25.6	-20.09	-25.36	-25.05	-24.37	-23.82	-25.26	-22.29	-21.4	-25.14	-19.65	-20.65	-24.91	-25.74	-23.41	-26.32	-19.59	-18.6	-25.36	-23.26	-22.01
Θ(165°)	-25.96	-17.03	-25.05	-25.81	-18.28	-13.89	-23.28	-24.77	-24.74	-18.96	-20.88	-25.37	-24.48	-25.09	-19.94	-25.17	-20.02	-19.65	-25.62	-16.11	-21.64	-16.3	-14.82	-16.41
Θ(180°)	-17.41	-16.58	-18.44	-16.93	-16.89	-15.08	-17.37	-22.45	-21.16	-24.53	-23.98	-18.25	-16.86	-17.11	-17.26	-18.03	-19.01	-22.8	-26.07	-25.81	-21.59	-18.23	-17.27	-15.82
Freq(Hz)	6.475G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-16.85	-25.65	-24.56	-18.48	-14.88	-13.02	-8.9	-7.86	-8.05	-8.32	-8.13	-10.28	-15.39	-24.66	-26.01	-20.97	-18.55	-17.33	-15.34	-13.75	-15.65	-17.49	-17.03	-21.35
Θ(15°)	-3.59	-6.05	-6.32	-6.84	-7.83	-8.09	-7.59	-10.25	-11.15	-12.12	-18.43	-13.44	-9.79	-6.53	-6.99	-8.07	-8.49	-8.14	-7.4	-6.78	-7.21	-5.22	-4.69	-5.52
Θ(30°)	-5.49	-5.49	-5.85	-5.62	-7.16	-8	-9	-7.15	-4.81	-6.25	-8.83	-10.44	-8.37	-6.89	-5.33	-8.37	-10.65	-10.6	-6.2	-5.33	-5.73	-5.48	-3.16	-4.22
Θ(45°)	-5.23	-7.73	-5.71	-4.99	-6.23	-5.47	-6.99	-8.17	-6.12	-4.96	-6.62	-6.36	-5.43	-3.97	-3.72	-7.14	-5.07	-9.22	-5.71	-11.86	-2.03	-2.89	-4.4	-7.78
Θ(60°)	-5.53	-5.76	-8.91	-7.27	-1.91	-5.36	-5.5	-5.93	-9.96	-6.05	-7.83	-5.05	-2.99	-0.95	-0.11	-2.05	-8.01	-8.54	-6.85	-9.61	-13.98	-12.8	-7.97	-7.07
Θ(75°)	-2.53	-3.6	-5.24	-4.05	0.78	-2.58	-5.4	-2.44	-1.01	2.31	-0.69	-0.66	0.39	-0.39	0.27	0.15	-3.5	-1.83	-3.76	-3.				



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX

Appendix B.2

Θ(180°)	-18.97	-16.13	-16.9	-13.78	-12.7	-13.58	-15.45	-18.63	-23.63	-24.36	-24.87	-24.76	-21.63	-15.86	-18.82	-23.44	-25.87	-26.33	-25.58	-21.43	-24.48	-21.47	-19.58	-20.29
Freq(Hz)	6.995G	Pol.	Phi	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-14.12	-19.3	-23.59	-20.74	-16.35	-12.84	-11.45	-11.14	-10.49	-9.38	-9.14	-10.47	-14.6	-21.73	-25.87	-26.11	-19.05	-15.6	-14.66	-12.71	-14.9	-15.55	-18.18	-17.92
Θ(15°)	-10.28	-7.74	-6.53	-8.95	-9.98	-10.6	-11.47	-18.65	-18	-18.39	-16.79	-14.37	-12.96	-14.13	-12.72	-12.35	-12.8	-13.36	-14.2	-14.9	-14.89	-10.1	-10.63	-14.21
Θ(30°)	-5.32	-8.18	-8.38	-9.2	-6.45	-5.14	-7.74	-15.16	-11.66	-19.47	-14.14	-9.62	-7	-4.63	-4.24	-6.45	-8.39	-8.53	-7.01	-2.38	-4.73	-4.69	-2.1	-4.03
Θ(45°)	-4.41	-7.24	-5.68	-3.52	-4.96	-5.91	-7.66	-11.24	-5.93	-5.27	-8	-8.73	-5.34	-3.97	-2.96	-6.77	-6.5	-7.39	-7.33	-2.92	-3.86	-3.11	-3.23	-2.95
Θ(60°)	-5.64	-12.28	-20.68	-6.7	-5.52	-5.88	-12.43	-10.35	-7.66	-8.23	-7.43	-13.09	-7.82	-6.72	-3.65	-6.12	-13.42	-13.07	-10.71	-11.54	-6.49	-26.17	-12.75	-13.32
Θ(75°)	-5.46	-8.33	-9.18	-1.77	0.61	-3.89	-9.34	-7.83	-4.32	-1.71	-2.9	-5.47	-4.81	-4.24	-2.75	-4.01	-6.92	-5.93	-5.16	-7.14	-10.2	-5.42	-10.23	-7.72
Θ(90°)	-8.08	-12.96	-10.65	-3.77	-2.29	-4.58	-6.46	-13.7	-3.51	-2.08	-3.05	-6.37	-9.79	-7.41	-6.68	-6.89	-5.19	-3.21	-6.94	-9.68	-9.4	-11.4	-7.27	-9.06
Θ(105°)	-14.81	-17.76	-10.19	-7.66	-6.93	-6.39	-11.93	-16.15	-6.97	-5.6	-7.68	-12.19	-15.48	-9.57	-9.23	-13.89	-10.71	-12.21	-11.96	-16.97	-24.72	-17.53	-15.73	-6.67
Θ(120°)	-11.77	-25.53	-10.84	-12.77	-12.7	-12.05	-15.27	-20.39	-9.74	-9.36	-10.44	-18.66	-14.12	-12.63	-17.18	-12.53	-18.19	-15.87	-22.97	-23.57	-13.32	-15.96	-15.6	-15.01
Θ(135°)	-17.32	-15.48	-15.34	-17.66	-16.92	-18.55	-24.15	-15.66	-13.19	-12.82	-12.62	-26	-18.74	-10.73	-17.45	-15.7	-17.79	-11.48	-16.95	-23.21	-12.48	-25.27	-25.24	-21.44
Θ(150°)	-24.95	-21.93	-24.22	-15.37	-19.09	-17.88	-25.42	-22.82	-25.34	-14.95	-12.76	-16.84	-16.17	-17.66	-14.59	-13.74	-21.67	-12.87	-17.82	-23.26	-24.86	-17.71	-23.03	-17.1
Θ(165°)	-25.41	-24.97	-23.04	-25.23	-25.86	-19.05	-18.96	-18.88	-21.46	-16.13	-13.78	-25.11	-22.21	-17.99	-19.21	-16.71	-20.23	-13.25	-15.43	-25.32	-25.36	-16.02	-17.1	-20.63
Θ(180°)	-18.07	-15.77	-16.22	-16.87	-16.01	-16.89	-19.22	-20.91	-24.01	-22.34	-18.23	-24.76	-25.29	-25.58	-25.9	-19.44	-16.78	-16.19	-15	-15.53	-14.34	-15.45	-16.08	-17.37
Freq(Hz)	6.995G	Pol.	Theta	Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-9.74	-9.12	-9.19	-10.2	-11.37	-12.47	-16.52	-23.13	-25.86	-23.44	-13.06	-11.6	-10.83	-10.73	-11.39	-11.76	-12.51	-16.06	-21.67	-21.54	-25.04	-18.43	-23	-18.15
Θ(15°)	-9.83	-9.49	-8.35	-10.27	-11.61	-12.86	-16.51	-24.17	-20	-24.96	-17.47	-11.93	-13.84	-11.06	-13.95	-13.22	-9.98	-8.46	-9.29	-11.34	-11.17	-17.03	-15.05	-17.75
Θ(30°)	-10.01	-8.39	-10.34	-11.07	-11	-15.15	-24.24	-15.84	-11.86	-16.36	-10.94	-9.75	-11.22	-14.33	-12.03	-16.28	-13.15	-7.16	-5.9	-7.19	-6.84	-9.35	-10.82	-8.64
Θ(45°)	-6.27	-6.16	-6.71	-3.89	-6.86	-5.88	-5.98	-4.76	-10.6	-12.43	-6.83	-3.33	-2.65	-6.86	-7.99	-10.96	-9.39	-9.76	-11.12	-11.28	-9.48	-13.68	-8.64	-8.25
Θ(60°)	-15.62	-10.84	-10.6	-9.51	-7.82	-10.5	-5.74	-6.3	-6.88	-9.03	-8.09	-8.21	-9.91	-12.87	-12.87	-23.28	-13.3	-13.6	-14.12	-14.13	-17.75	-18.07	-10.6	-11.38
Θ(75°)	-7.34	-11.74	-13.41	-8.52	-13.13	-15.73	-13.76	-11.28	-13.98	-16.84	-16.86	-11.26	-12.53	-22.86	-9.19	-14.14	-11.5	-24.17	-13.09	-12.47	-6.57	-26.36	-12.93	-14.94
Θ(90°)	-9	-7.85	-9.14	-10.95	-8.02	-9.28	-9.59	-13.56	-13.09	-16.47	-17.3	-14.99	-10.09	-11.77	-13.65	-13.86	-9.42	-7.84	-11.07	-13.25	-11	-13.54	-14.87	-17.72
Θ(105°)	-14.42	-12.48	-12.65	-13.38	-8.68	-11.88	-18.84	-15.48	-11.02	-15.43	-18.26	-16.52	-15.35	-15.87	-12.17	-24.47	-22.61	-19.15	-13.76	-13.89	-19.39	-12.72	-18.46	-14.43
Θ(120°)	-24.26	-18.98	-12.88	-20.01	-11.37	-17.86	-16.41	-14.37	-13.44	-16.24	-22.15	-14.01	-15.06	-19.43	-16.19	-18.88	-13.56	-16.79	-17.35	-15.96	-16.72	-19.43	-12.76	-21.23
Θ(135°)	-19.11	-21.39	-14.8	-25.53	-15.82	-26.21	-18.6	-26.17	-21.27	-19.83	-22.13	-15.75	-22.4	-18.18	-22.84	-21.14	-19	-13.27	-17.3	-18.86	-15.76	-25.52	-25.86	-25.61
Θ(150°)	-19.75	-16.12	-25.23	-15.13	-24.58	-21.35	-23.39	-14.89	-21.83	-22.2	-20.26	-18.73	-20.49	-19.43	-21.11	-22.75	-25.89	-26.15	-24.08	-21.22	-17.53	-19.99	-25.88	-23.72
Θ(165°)	-25.45	-17.76	-14.44	-21.61	-25.48	-21.98	-18.65	-17.12	-19.7	-17.08	-25.64	-24.96	-20.49	-21.87	-22.8	-23.05	-25.07	-16.12	-16.4	-26.22	-17.7	-25	-20.06	-24.75
Θ(180°)	-19.18	-19.36	-23.82	-19.51	-17.93	-18.65	-15.98	-14.94	-17.08	-18.03	-18.52	-19.7	-22.14	-18.05	-16.16	-16.76	-18.09	-15.63	-18.85	-18.81	-22.05	-26.02	-23.29	-17.79
Freq(Hz)	5.6G	Pol.	Phi	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-17.36	-13.39	-11.16	-7.27	-5.99	-5.56	-4.86	-5.6	-7.15	-9.91	-14.93	-23.98	-16.05	-11.83	-10.24	-8.88	-6.96	-8.4	-9.63	-10.69	-10.45	-12.45	-18.98	-18.06
Θ(15°)	-8.86	-9.25	-8.02	-5.95	-5.94	-6.13	-8.75	-9.35	-8.25	-7.02	-7.27	-8.33	-7.66	-7.69	-6.2	-4.13	-3.34	-3.83	-5.75	-7.38	-6.26	-6.97	-8.21	-10
Θ(30°)	-4.53	-4.98	-4.85	-4.54	-6.27	-7.89	-7.2	-6.62	-8.06	-7.31	-7.39	-5.93	-5.97	-5.5	-5.78	-2.38	-1.32	-2.06	-2	-2.86	-2.91	-2.92	-4.96	-4.8
Θ(45°)	0.04	-0.73	-1.94	-2.94	-2.52	-4.05	-3.12	-4.16	-6.02	-5.73	-2.44	-2.25	-2.45	-2.88	-2.57	-6.59	-5.65	-5.47	-7.18	-7.01	-6.78	-4.95	-3.46	-3.62
Θ(60°)	3.67	1.47	-1.32	-3.14	-1.02	1.03	0.88	0.96	-1.7	-2.93	-0.57	-1.35	-1.98	-0.9	-1.03	-1.55	-2.69	-1.75	-0.17	0.48	-0.2	-1.9	0.03	2.74
Θ(75°)	1.79	-1.72	-4.19	-7.74	-4.67	0.82	2.39	2.85	0.1	-0.19	2.18	2.19	1.55	1.53	1.24	1.55	0.65	1.8	1.25	1.3	-1.13	-2.74	-0.48	2.4
Θ(90°)	-1.75	-6.11	-8.82	-11.63	-9.04	-2.36	-1.24	0.43	-2.8	-3.03	-1.87	-0.28	-0.97	-1.19	-1.87	-4.64	-2.16	0.28	0.68	-0.27	-4.16	-7.68	-3.51	-0.87
Θ(105°)	-6.51	-9.65	-14.05	-18.65	-13	-5.97	-4.27	-3.98	-5.51	-7.14	-5.65	-7.78	-6.27	-5.99	-6.25	-12.75	-9.79	-8.44	-10.09	-10.46	-12.74	-10.9	-6.82	-6.02
Θ(120°)	-11.91	-14.03	-25.04	-16.31	-12.99	-11.41	-10.36	-9.87	-10.08	-11.69	-9.41	-11.14	-14.03	-10.19	-10.88	-13.21	-9.95	-8.32	-10.42	-8.58	-11.91	-14.04	-11.89	-10.58
Θ(135°)	-14.23	-16.52	-24.24	-21.95	-17.28	-14.46	-14.3	-15.36	-15.32	-15.25	-15.49	-11.24	-16.05	-13.33	-13.5	-14.61	-21.04	-17.24	-18.97	-16.98	-18.47	-21.18	-15.9	-13.4
Θ(150°)	-20.67	-20.6	-17.64	-19.65	-17.7	-24.23	-19.12	-16.55	-14.23	-21.39	-16.72	-15.85	-17.83	-16.25	-26.43	-17.6	-19.72	-22.22	-23.66	-24.72	-21.73	-17.5	-18.19	-17.47
Θ(165°)	-24.7	-16.3	-17.66	-24.36	-25.54	-26.04	-19.12	-20.06	-20.96	-19.91	-25.97	-16.66	-21.95	-26.19	-17.61	-19.5	-25.83	-24.32	-23.33	-22.13	-25.69	-21.83	-25.97	-25.95
Θ(180°)	-23.63	-20.17	-22.91	-24.83	-24.17	-24.35	-19.8	-18.78	-17.82	-21.6	-20.35	-25.38	-26.01	-24	-25.11	-22.87	-24.33	-26.01	-24.8	-25	-23.43	-25.03	-23.24	-24.78
Freq(Hz)	5.6G	Pol.	Theta	Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)	Φ(15°)	Φ(30°)	Φ(45°)	Φ(60°)	Φ(75°)	Φ(90°)	Φ(105°)	Φ(120°)	Φ(135°)	Φ(150°)	Φ(165°)	Φ(180°)	Φ(195°)	Φ(210°)	Φ(225°)	Φ(240°)	Φ(255°)	Φ(270°)	Φ(285°)	Φ(300°)	Φ(315°)	Φ(330°)	Φ(345°)
Θ(0°)	-7.79	-8.31	-10.89	-12.75	-15.71	-24.85	-14.45	-10.13	-7.8	-6.01	-5.12	-5.1	-4.57	-5.3	-8.26	-16.76	-15.12	-18.15	-18.89	-11.65	-9.35	-10.58	-12.33	-11.89
Θ(15°)	-5.9	-14.15	-18.85	-23.55	-25.12	-25.96	-18.73	-13.85	-14.33	-24.81	-14.73	-22.8	-17.19	-15.54	-12.5	-12.05	-19.39	-25.21	-18.95	-16.08	-13.64	-11.47	-8.33	-5.59
Θ(30°)	-6.84	-12.39	-16.64	-18.63	-14.59	-12.18	-11.45	-14.25	-18.82	-18.68	-15.01	-25.42	-9.65	-10.62	-13.18	-9.11	-10.39	-13.07	-15.42	-24	-22.49	-15.59	-19.97	-8.84
Θ(45°)	-12.16	-13.2	-9.96	-9.33	-15.06	-13.06	-10.14	-13.61	-15.22	-13.72	-12.48	-10.8	-17.73	-2										