



Masterwave Technologies Co., Ltd.

Antenna Composite Gain Test Report

Model Name	RTQ6100T-D349
Antenna manufacturer	MasterWave Technology Co., Ltd. No. 19, Hezun N. Rd., Zhongli Dist., Taoyuan City 320, R.O.C.
Test Engineer	Sandy Hsu
Approved by	Tony Cheng 
Test Date	2025/05/14





Table of Contents Contents

History of this report

1. Antenna Information
2. Test Frequency
3. Testing Location
4. Test Facility and Configuration
5. Calibration Information
6. Test Method
7. Measured Values and Calculation of Maximum Gain Positions
8. Summary of Test Result
9. Test Setup
10. Test Equipment and Calibration Data
11. Test Results



History of This Report

Test Personnel	Version	Description	Issued Date
Sandy Hsu	01	Initial Issue of report	May 14,2025



1. Antenna Information

	Antenna Peak gain w/ cable loss (dBi)					
Antenna	Antenna PN.	Antenna Position	Cable Length	Antenna Type	Connector	Mode of Operation
Wi-Fi-0	98MB1PIPF000	2/5G Ant. 1	55 mm	PCB	I-PEX 20278-112R-13	2.4G+5G
Wi-Fi-1	98MB1PIPF001	2/5G Ant. 2	64 mm	PCB	I-PEX 20278-112R-1	2.4G+5G
Wi-Fi-2	98MB1PIPF002	2/5G Ant. 3	69 mm	PCB	I-PEX 20278-112R-1	2.4G+5G
Wi-Fi-3	98MB1PIPF003	2/5G Ant. 4	66 mm	PCB	I-PEX 20278-112R-1	2.4G+5G
6E-0	98P01VIPF002	6G Ant. 5	101 mm	PCB	I-PEX 20278-112R-1	6G
6E-1	98P01VIPF001	6G Ant. 6	181 mm	PCB	I-PEX 20278-112R-1	6G
6E-2	98P01VIPF000	6G Ant. 7	153 mm	PCB	I-PEX 20278-112R-1	6G
6E-3	98P01VIPF003	6G Ant. 8	147 mm	PCB	I-PEX 20278-112R-1	6G



2. Test Frequency

Band (MHz)	Test Frequency (MHz)
2400-2483.5	2450
5150-5250	5250
5250-5350	5300
5470-5725	5550
5725-5850	5850
5925-6425	5925
6425-6525	6525
6525-6875	6875
6875-7125	7125



3. Testing Location

Test Lab : MasterWave Technology Co., Ltd.				
ADD :	No. 19, Hezun N. Rd., Zhongli Dist., Taoyuan City 320, Taiwan (R.O.C.)			
	TEL : 886-3-452-9998		FAX : 886-3-452-2866	
Test Condition	Test Chamber	Test Engineer	Test Environment (°C/%)	Test Date
Passive	MVG-SG24	Sandy Hsu	22.5~24.5°C /50~55%	15/May/2025

Note :
Test Site Information
Brand Name : MVG
Dimension : 4m X 4m X 4m
Characteristic : Fully Anechoic Chamber



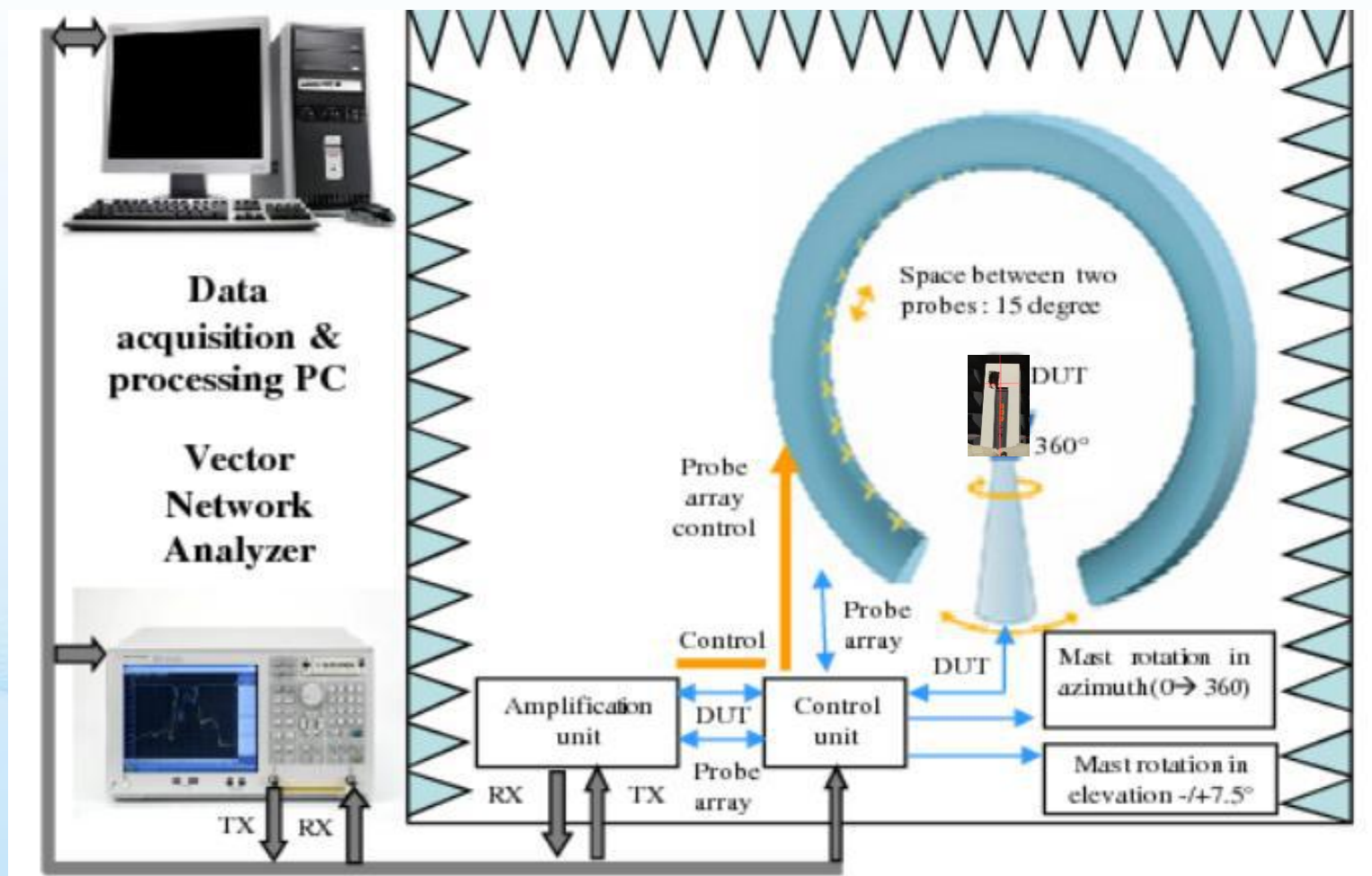
4. Test Facility and Configuration

Test Configuration : MVG-SG24 (Standard)

Chamber : Fully Anechoic Chamber

Measurement Antenna : Dual Polarization Horn Antenna

Turntable : Multi-axis positioner (Azimuths / Elevations)





5. Calibration Information

Satimo - SG24 Calibration Method

Annual calibration using MA.I.4.D Orthomodal Calibration Procedure by MVG company which is the agent of Satimo Antenna System.

Calibration Procedure :

1. Checking reference probe frequency response.

A reference probe is a probe included in the arch without any antenna. With this configuration, the reference probe is not affected by the AUT, nevertheless it is subjected to the same environment conditions (temperature, ...) than the other probes. Using a reference probe gives the possibility to cancel the drift due to temperature variation or a long term variation. This test allows to check the good functioning of the reference probe.

2. Checking dynamic range.

One of the main characteristics of MVG systems is the dynamic range, these measurements have to be performed very carefully. The more dynamic the system has and the more it will be able to measure low signals.

3. Checking stability.

A short stability is done to check the repeatability of the system.

4. Calibration system with standard horn antenna SH400

A short stability is done to check the repeatability of the system.

5. Measure standard dipole antenna and calibrate gain data to gain table.

Standard dipole antenna :

SD900/SD1900/SD2450



6. Test Method

SG 24 uses analog RF signal generators to emit EM waves from the probe array to the antenna under test (AUT) or vice versa. It uses the NPAC as an RF receiver for antenna measurements. The NPAC also drives the electronic scanning of the probe array.

DG Steps :

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



7. Measured Values and Calculation of Maximum Gain Positions

DG_1SS max value position

2/5G Ant.

Frequency	2.45GHz	5.2GHz	5.3GHz	5.6GHz	5.8GHz
Ant. 1 (dBi)	-3.77	-8.55	-7.68	3.92	-8.88
Ant. 2 (dBi)	4.28	4.52	5.13	-1.10	4.22
Ant. 3 (dBi)	0.07	-1.34	-0.57	-0.72	0.55
Ant. 4 (dBi))	4.13	0.80	0.80	-5.98	-3.64
DG [1SS] (dBi)	7.78	6.04	6.55	5.74	5.36
Polarization	Phi	Phi	Theta	Theta	Phi
$\Theta(^{\circ})$	270	75	75	105	45
$\Phi(^{\circ})$	165	15	15	150	15

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



7. Measured Values and Calculation of Maximum Gain Positions

DG_1SS max value position
6G Ant.

Frequency	5.9GHz	6.5GHz	6.8GHz	7.1 GHz
Ant. 5 (dBi)	4.02	3.76	4.44	5.05
Ant. 6 (dBi)	3.89	2.75	0.96	-0.71
Ant. 7 (dBi)	0.49	-3.98	1.42	2.45
Ant. 8 (dBi))	-6.62	-1.670	-1.08	1.05
DG [1SS] (dBi)	7.38	6.79	7.68	8.24
Polarization	Theta	Phi	Theta	Theta
$\Theta(^{\circ})$	90	90	90	75
$\Phi(^{\circ})$	60	60	75	75

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



7. Measured Values and Calculation of Maximum Gain Positions

DG_1SS max value position calculation

2/5G Ant.

Frequency	2.45GHz	5.2GHz	5.3GHz	5.6GHz	5.8GHz
Ant. 1 [10 ^{^(G/20)}]	10 ^{^(-3.77/20)}	10 ^{^(-8.55/20)}	10 ^{^(-7.68/20)}	10 ^{^(3.92/20)}	10 ^{^(-8.88/20)}
Ant. 2 [10 ^{^(G/20)}]	10 ^{^(4.28/20)}	10 ^{^(4.52/20)}	10 ^{^(5.13/20)}	10 ^{^(-1.1/20)}	10 ^{^(4.22/20)}
Ant. 3 [10 ^{^(G/20)}]	10 ^{^(0.07/20)}	10 ^{^(-1.34/20)}	10 ^{^(-0.57/20)}	10 ^{^(-0.72/20)}	10 ^{^(0.55/20)}
Ant. 4 [10 ^{^(G/20)}]	10 ^{^(4.13/20)}	10 ^{^(0.80/20)}	10 ^{^(0.80/20)}	10 ^{^(-5.98/20)}	10 ^{^(-3.64/20)}
Ant. 1 [10 ^{^(G/20)}] value	0.65	0.37	0.41	1.57	0.36
Ant. 2 [10 ^{^(G/20)}] value	1.64	1.68	1.81	0.88	1.63
Ant. 3 [10 ^{^(G/20)}] value	1.01	0.86	0.94	0.92	1.07
Ant. 4 [10 ^{^(G/20)}] value	1.61	1.10	1.10	0.50	0.66
Sum All Antenna [Amax]	4.90	4.01	4.25	3.87	3.71
DG[10*log(Amax ² /Nant)]	7.78	6.04	6.55	5.74	5.36

Note :

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

Directional gain (1SS)= 10*log(10^{^(Gant1/20)}+10^{^(Gant2/20)}+ 10^{^(Gant3/20)}+ 10^{^(Gant4/20)}+.....)^2/Nant)



7. Measured Values and Calculation of Maximum Gain Positions

DG_1SS max value position calculation
6G Ant.

Frequency	5.9GHz	6.5GHz	6.8GHz	7.1 GHz
Ant. 5 [10^(G/20)]	10^(4.02/20)	10^(3.76/20)	10^(4.44/20)	10^(5.05/20)
Ant. 6 [10^(G/20)]	10^(3.89/20)	10^(2.75/20)	10^(0.96/20)	10^(-0.71/20)
Ant. 7 [10^(G/20)]	10^(0.49/20)	10^(-3.98/20)	10^(1.42/20)	10^(2.45/20)
Ant. 8 [10^(G/20)]	10^(-6.62/20)	10^(-1.67/20)	10^(-1.08/20)	10^(1.05/20)
Ant. 5 [10^(G/20)] value	1.59	1.54	1.67	1.79
Ant. 6 [10^(G/20)] value	1.56	1.37	1.12	0.92
Ant. 7 [10^(G/20)] value	1.06	0.63	1.18	1.33
Ant. 8 [10^(G/20)] value	0.47	0.83	0.88	1.13
Sum All Antenna [Amax]	4.68	4.37	4.84	5.16
DG[10*log(Amax^2/Nant)]	7.38	6.79	7.68	8.24

Note :

Directional Gain(1SS) is the max value of every angle. Each position value is calculated by KDB662911 D01 d)(i)
Directional gain (1SS)= 10*log(10^(Gant1/20)+10^(Gant2/20)+ 10^(Gant3/20)+ 10^(Gant4/20)+.....)^2/Nant)



8. Summary of Test Result

Freq.	2.45GHz	5.2GHz	5.3GHz	5.6GHz	5.8GHz
Ant. 1 Max Gain (dBi)	5.09	4.62	5.67	3.92	2.90
Ant. 2 Max Gain (dBi)	5.43	5.29	5.80	3.14	4.22
Ant. 3 Max Gain (dBi)	4.25	3.26	4.62	3.23	3.09
Ant. 4 Max Gain (dBi)	4.65	4.10	5.17	4.60	3.74
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/285/15	Theta/105/150	Theta/105/150	Theta/105/150	Theta/105/150
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/300/15	Phi/60/15	Phi/60/15	Phi/60/15	Phi/45/15
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/75/120	Phi/30/15	Phi/30/15	Phi/45/105	Phi/30/90
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/90/15	Theta/105/90	Theta/105/90	Theta/105/90	Theta/105/90
Max Gain (dBi)	5.43	5.29	5.80	4.60	4.22
DG [1SS] (dBi)	7.78	6.04	6.55	5.74	5.36
DG [2SS] (dBi)	5.43	5.29	5.80	4.60	4.22
DG [4SS] (dBi)	5.43	5.29	5.80	4.60	4.22

Note:

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



8. Summary of Test Result

Freq.	5.9GHz	6.5GHz	6.8GHz	7.1 GHz
Ant. 5 Max Gain (dBi)	4.08	4.31	4.44	5.91
Ant. 6 Max Gain (dBi)	4.77	2.75	4.41	5.31
Ant. 7 Max Gain (dBi)	3.76	2.68	3.30	4.84
Ant. 8 Max Gain (dBi)	3.54	2.06	2.89	3.91
Ant. 5 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/105/60	Phi/90/75	Phi/90/75	Phi/75/75
Ant. 6 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/90/45	Theta/75/45	Theta/75/45	Theta/75/45
Ant. 7 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/300/150	Theta/45/15	Theta/45/15	Theta/0/60
Ant. 8 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/105/120	Phi/105/165	Phi/105/165	Phi/225/30
Max Gain (dBi)	4.77	4.31	4.44	5.91
DG [1SS] (dBi)	7.38	6.79	7.68	8.24
DG [2SS] (dBi)	4.77	4.31	4.44	5.91
DG [4SS] (dBi)	4.77	4.31	4.44	5.91

Note:

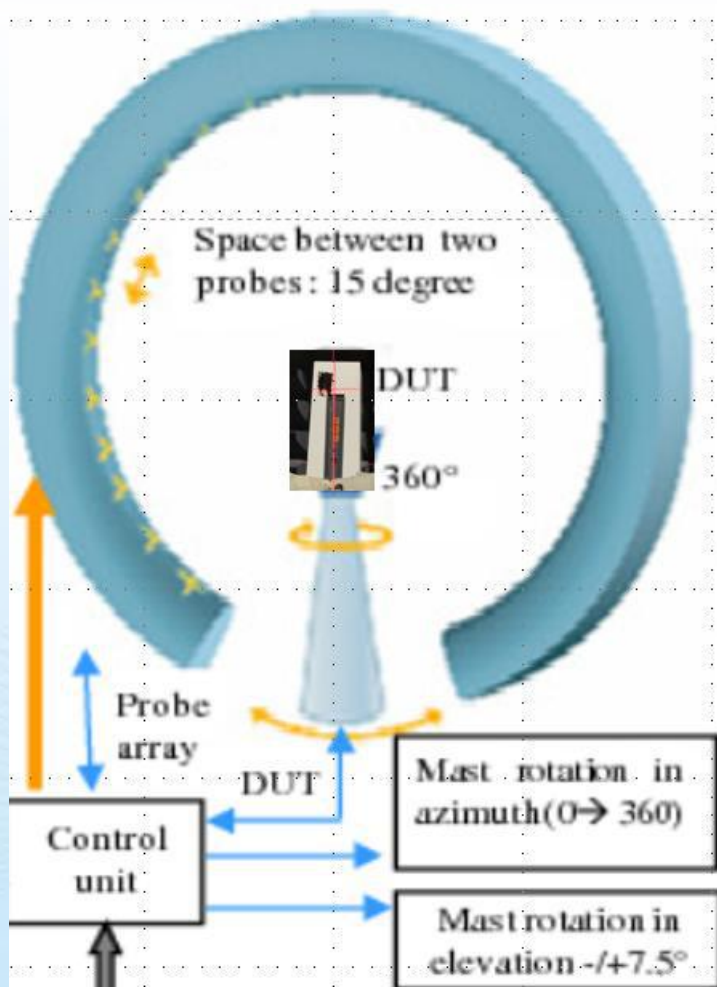
- 1. Antenna max gain is the max value of each individual antenna through all measurement angles.
- 2. The max gain is the max value of all antennas.
- 3. Directional Gain (2SS) = Directional Gain (1SS) – 3dB. If directional gain is less than max gain, use max gain as directional gain. Refer to KDB662911D01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

4.766936855495

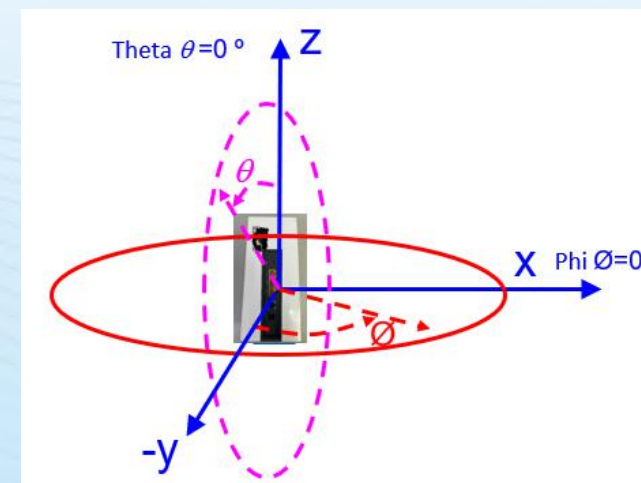
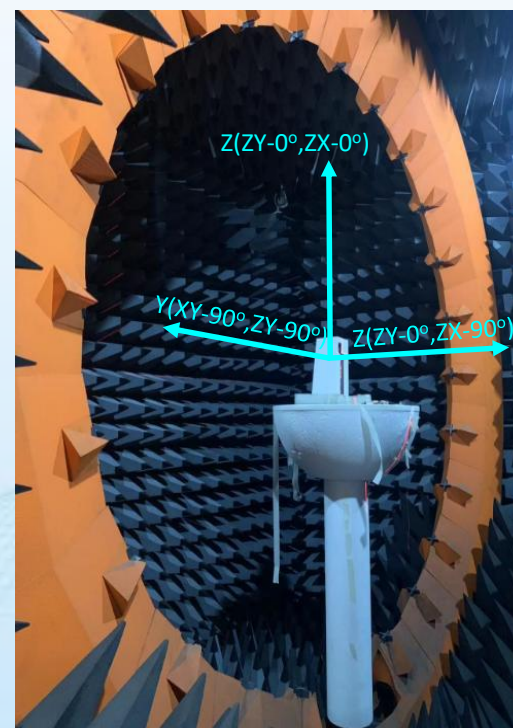


9. Test Setup

Relative to the measurement antenna, first position 0 degree of phi angle and theta angle



Antenna Pattern Coordination





10. Test Equipment and Calibration Data

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Due Date
Full Anechoic Wireless Test chamber	MVG	SG - 24	N/A	May.23 th -2024	May.23 th -2025
Test Software	MVG	Wave Studio	N/A	N.C.R	-----
Multi-Axis Positioning System (MAPS)	MAC23	DUT positioner	N/A	N.C.R	-----
Turn Table	MAC23	N/A	N/A	N.C.R	-----
ENA Series Network Analyzer	Keysight	E5080B	MY59201608	Jun.06 th -2024	Jun.06 th -2025
Horn antenna	MVG	SH400	N/A	N.C.R	-----

Note :
Calibration Interval of instruments listed above is one year.
NCR means Non-Calibration required



11. Test Results

Please refer to appendix

Appendix A – Antenna Composite Gain Data of 2.4GHz&5GHz

Appendix B – Antenna Composite Gain Data of 6GHz7.

Appendix C – Antenna Pattern of 2.45GHz&5GHz

Appendix D – Antenna Pattern of 6GHz

Appendix E – Test Photos

-----THE END-----



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Freq.	2.45GHz	5.2GHz	5.3GHz	5.6GHz	5.8GHz
Ant. 1 Max Gain (dBi)	5.09	4.62	5.67	3.92	2.90
Ant. 2 Max Gain (dBi)	5.43	5.29	5.80	3.14	4.22
Ant. 3 Max Gain (dBi)	4.25	3.26	4.62	3.23	3.09
Ant. 4 Max Gain (dBi)	4.65	4.10	5.17	4.60	3.74
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/285/15	Theta/105/150	Theta/105/150	Theta/105/150	Theta/105/150
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/300/15	Phi/60/15	Phi/60/15	Phi/60/15	Phi/45/15
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/75/120	Phi/30/15	Phi/30/15	Phi/45/105	Phi/30/90
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/90/15	Theta/105/90	Theta/105/90	Theta/105/90	Theta/105/90
Max Gain (dBi)	5.43	5.29	5.80	4.60	4.22
DG [1SS] (dBi)	7.78	6.04	6.55	5.74	5.36
DG [2SS] (dBi)	5.43	5.29	5.80	4.60	4.22
DG [4SS] (dBi)	5.43	5.29	5.80	4.60	4.22



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

DG 1SS Result

Frequencies=2450(MHz)	Phi	Azimuths		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

DG 1SS Result

Frequencies=5250(MHz)	Phi	Azimuths	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	Elevations	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45		
		Directional gain (dB)	1.33	0.56	2.21	3.15	4.44	5.04	4.07	3.37	0.24	-0.97	-0.50	-2.68	-7.60	-1.76	1.01	1.71	0.44	0.94	0.39	1.65	0.63	1.57	2.52	2.14	1.33	0.62	2.78	4.05		
			15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
			5.12	6.04	4.93	2.69	-2.14	-1.88	-1.98	-3.74	-7.60	-1.86	-0.02	1.09	0.62	-0.19	-0.32	1.15	-0.07	0.68	1.97	2.46	1.33	1.11	2.66	3.39	4.13	3.21	2.47	0.17	-3.74	-1.76
			30	30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
			150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
			-2.57	-4.32	-7.60	-2.43	-0.93	-0.33	0.34	-1.01	-1.56	0.36	-0.01	1.00	2.10	2.63	1.33	1.06	2.06	2.05	2.87	3.25	1.75	-0.04	-2.13	-2.04	-3.70	-4.21	-7.60	-3.44	-0.92	-1.16
			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75	
			240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
			0.27	-1.00	-1.35	0.42	1.12	0.69	2.24	2.80	1.33	0.82	1.52	1.28	2.10	3.64	2.98	3.15	0.51	-0.86	-4.29	-4.54	-7.60	-4.19	-1.81	-1.51	0.54	1.38	2.13	0.86	2.13	0.52
			75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
			330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45
			2.41	2.92	1.33	0.83	1.65	1.55	2.55	3.04	2.86	4.31	2.13	2.22	-3.06	-5.11	-7.60	-4.02	-1.43	-0.91	1.58	3.48	3.66	2.75	2.76	0.55	2.25	2.94	1.33	0.98	1.84	2.22
			90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
			2.83	2.75	3.68	4.44	2.55	4.10	-1.45	-4.85	-7.60	-3.40	0.34	1.16	1.63	3.72	4.32	4.01	3.61	2.05	1.91	2.79	1.33	0.93	1.93	2.76	2.62	4.20	4.42	4.53	3.06	4.88
			105	105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
			150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
			-0.43	-4.55	-7.60	-2.20	1.75	2.53	1.18	2.90	3.49	4.83	3.89	3.21	1.97	2.47	1.33	0.97	1.84	3.24	3.32	3.88	3.56	4.16	3.19	4.68	0.32	-4.00	-7.60	-1.39	2.28	2.39
			150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165	165
			240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
			2.52	1.45	1.24	2.69	3.79	2.83	2.69	1.62	1.33	1.61	2.46	2.92	3.69	2.86	3.81	5.03	3.88	4.96	0.42	-3.03	-7.60	-1.91	1.62	1.25	1.60	1.81	1.00	2.34	3.25	2.66
			165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	330	345	330	345
			2.53	1.09	1.33	1.65	3.05	2.95	4.06	2.84	2.06	3.27	2.21	3.77	-0.36	-3.79	-7.60	-2.46	0.68	1.76	0.39	1.03	0.96	1.95	2.98	2.48	2.85	2.85	1.78	1.78	1.78	



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

DG 1SS Result

Frequencies=5300(MHz)	Phi	Azimuths	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
	Theta	Elevations	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45
		Directional gain (dB)	2.93	2.03	3.50	4.17	4.86	5.51	4.64	4.33	1.20	0.19	0.44	-1.98	-6.43	-1.18	1.06	2.37	1.63	2.20	1.18	2.54	1.40	1.88	3.80	2.95	2.93	2.33	4.39	5.42
	15	15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
	5.86	6.55	5.65	3.90	-1.12	-0.53	-0.93	-3.05	-6.43	-1.17	0.36	1.89	1.57	1.34	0.39	1.76	0.12	0.53	3.38	3.36	2.93	2.60	4.36	5.09	5.07	3.79	3.08	1.57	-3.10	-0.12
	30	30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	
	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
	-1.47	-3.82	-6.43	-1.90	-0.04	0.36	1.08	0.48	-0.50	0.95	0.29	0.96	3.58	3.71	2.93	2.28	3.77	3.86	3.76	4.00	1.97	1.38	-1.44	-0.32	-2.84	-3.69	-6.43	-3.11	-0.03	-0.53
	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75
	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
	1.10	0.57	-0.27	1.27	1.34	0.73	3.59	4.05	2.93	1.83	3.17	3.09	2.58	3.97	3.68	4.27	1.24	-0.04	-3.61	-3.98	-6.43	-4.19	-1.81	-1.51	0.54	1.38	2.13	0.86	2.13	0.52
	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	
2.41	2.92	1.33	0.83	1.65	1.55	2.55	3.04	2.86	4.31	2.13	2.22	-3.06	-5.11	-7.60	-3.29	-0.79	0.13	3.01	4.78	4.85	3.46	3.11	1.20	3.11	4.49	2.93	2.07	3.37	3.74	
90	90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	
3.64	3.33	4.31	5.30	3.40	4.97	-0.86	-4.56	-6.43	-2.69	0.93	2.01	2.85	4.88	5.46	4.63	4.10	2.67	2.81	4.37	2.93	1.92	3.43	4.17	3.46	4.88	5.12	5.43	3.81	5.76	
105	105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	
0.31	-4.46	-6.43	-1.46	2.13	2.97	2.01	3.67	4.29	5.28	4.52	3.63	3.00	3.96	2.93	1.75	3.07	4.56	3.48	4.58	4.05	4.72	3.95	5.50	1.03	-3.93	-6.43	-0.94	2.82	2.65	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165
240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	
3.24	2.30	2.18	3.17	4.08	3.50	3.76	2.90	2.93	2.30	3.47	4.14	4.28	3.53	4.78	6.13	4.82	5.67	1.01	-2.61	-6.43	-1.34	2.18	1.67	2.24	2.74	1.33	2.62	3.36	3.66	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0
330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	330	345	330	345	
3.52	2.34	2.93	2.48	4.14	4.04	4.75	3.19	2.79	4.25	2.88	4.43	0.12	-3.40	-6.43	-2.08	0.85	2.37	1.08	1.89	1.91	2.43	3.68	3.01	3.97	2.61	3.97	2.61	2.61		



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

DG 1SS Result

Frequencies=5550(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	
	Directional gain (dB)	0.73	0.47	2.31	3.10	3.32	3.44	3.85	3.19	-0.24	-0.37	-0.23	-2.70	-7.47	-1.18	0.23	0.69	0.18	0.52	-0.87	0.31	0.38	-0.14	1.00	0.16	0.73	0.47	3.37	4.33	
	15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
	3.88	4.51	4.96	3.93	-1.99	0.06	-0.90	-3.55	-7.47	-1.63	-1.04	0.49	0.58	0.95	-0.47	0.05	0.11	-0.39	1.82	0.67	0.73	0.32	3.10	4.02	3.30	1.90	2.03	2.39	-4.14	-0.09
	30	30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	
	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
	-0.93	-4.16	-7.47	-1.80	-1.30	-0.89	0.42	1.20	-1.55	-1.82	-0.83	0.48	2.34	1.23	0.73	-0.03	2.55	2.93	2.04	1.71	0.83	0.77	-3.40	0.09	-1.09	-3.81	-7.47	-2.15	-2.15	-1.45
	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	
	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
	0.65	1.68	-0.38	-1.11	-1.40	0.67	2.19	1.63	0.73	-0.13	2.36	2.56	1.87	1.21	1.92	3.51	0.32	0.28	-1.88	-3.70	-7.47	-2.87	-2.43	-0.66	0.46	2.16	1.73	-0.72	-1.44	-0.14
	75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45
	1.86	1.85	0.73	0.14	2.41	3.61	2.72	2.35	3.14	4.75	2.52	2.38	-1.43	-4.42	-7.47	-3.54	-0.99	0.59	0.94	3.46	3.45	1.49	-0.78	-1.62	1.49	1.87	0.73	0.34	2.03	3.95
	90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
	2.81	2.83	3.73	4.86	2.61	4.20	0.21	-4.95	-7.47	-3.27	0.91	2.35	2.01	4.43	4.90	4.02	2.08	-1.05	1.27	1.69	0.73	0.37	2.13	3.89	3.16	3.31	4.10	4.66	2.37	5.07
	105	105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	
	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
	1.28	-5.17	-7.47	-1.92	1.96	2.67	2.15	3.65	4.00	4.27	3.36	0.34	1.69	1.27	0.73	0.58	2.51	4.00	3.41	4.07	3.98	4.47	2.56	4.88	1.03	-4.71	-7.47	-1.43	1.35	0.55
	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165
	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
	0.37	1.05	1.04	1.45	2.82	1.63	1.01	0.37	0.73	1.03	0.72	3.30	3.10	3.97	4.38	5.74	2.67	4.68	1.07	-2.06	-7.47	-1.97	0.65	-0.20	0.32	2.21	0.22	0.22	2.05	1.84
	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345				
	0.92	0.32	0.73	0.81	-0.46	2.13	2.22	2.61	2.54	3.94	1.32	3.23	1.10	-2.13	-7.47	-1.56	1.36	0.28	-0.79	0.64	0.33	0.05	1.08	0.11	-0.21	0.23				



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

DG 1SS Result

Frequencies=5300(MHz)	Phi	Azimuths	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
	Theta	Elevations	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45		
		Directional gain (dB)	-0.74	1.06	3.74	3.68	2.00	3.41	4.27	2.81	-0.53	-0.85	-1.21	-3.38	-9.46	-3.78	-1.50	0.45	-0.47	-0.31	-0.49	-0.53	0.28	-0.37	-1.66	0.36	-0.74	1.30	4.53	5.36		
			15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
			3.20	4.03	4.99	4.82	0.11	-0.39	-0.76	-3.73	-9.46	-3.46	-1.39	-0.17	-1.23	-1.21	-1.69	-0.92	-0.18	-0.08	-0.72	0.39	-0.74	1.31	3.70	4.74	2.89	3.99	3.63	3.25	-1.96	-1.04
			30	30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	
			150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
			-0.19	-3.65	-9.46	-3.29	-1.41	-0.83	-1.08	-0.49	-1.89	-1.78	-0.42	-0.03	0.13	0.77	-0.74	1.19	2.58	2.90	1.37	2.59	3.04	2.23	-1.00	-1.69	-1.05	-3.38	-9.46	-3.86	-2.09	-0.86
			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	
			240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
			0.11	0.87	0.25	-0.72	-1.07	-0.67	0.40	0.99	-0.74	1.10	2.37	1.64	1.28	1.48	1.17	2.41	0.82	0.04	-2.50	-3.47	-9.46	-5.03	-2.41	-0.73	-0.08	2.24	1.97	0.35	-1.60	-1.78
				75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
			330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45
			0.44	0.89	-0.74	1.44	3.00	2.70	2.95	3.37	2.59	3.36	0.84	1.72	-2.07	-4.06	-9.46	-4.88	-1.62	-0.13	1.43	3.53	3.67	2.54	0.07	-2.49	0.54	0.59	-0.74	1.73	3.42	3.54
			90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
			3.39	3.25	3.50	3.43	0.67	2.74	-0.06	-4.61	-9.46	-3.09	0.13	1.34	1.86	4.55	4.34	4.32	2.48	-1.28	0.64	0.13	-0.74	1.68	3.38	3.56	3.12	2.54	3.37	3.14	1.05	3.38
			105	105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	
			150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
			0.94	-5.91	-9.46	-1.95	1.52	2.07	1.08	3.20	3.08	3.52	2.96	0.83	1.08	-0.48	-0.74	1.50	2.81	3.46	2.79	2.89	3.06	3.53	1.79	2.81	-0.04	-7.98	-9.46	-3.05	-0.06	-0.24
				150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165
			240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
			-0.95	0.90	1.17	1.67	1.61	1.54	1.00	-0.36	-0.74	1.71	1.78	3.55	4.86	5.17	4.38	4.60	1.77	2.33	-0.72	-4.16	-9.46	-3.19	-0.63	-1.71	-0.30	1.15	0.74	1.88	1.31	1.48
			165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	345	345	345	
			2.45	0.41	-0.74	1.49	0.76	2.69	3.00	4.16	3.28	2.63	0.17	0.68	-0.58	-3.08	-9.46	-3.45	-0.63	-1.84	-1.41	-0.51	-0.31	1.28	-0.14	0.35	-1.12	0.85	0.85	0.85	0.85	



Frequency=	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
2450(MHz)	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	E Total. dB	-10.25	-12.03	-12.04	-8.94	-13.99	-6.67	-6.13	-3.80	-4.69	-5.32	-7.34	-7.68	-6.37	-3.58	-2.48	-3.36	-2.46	-2.20	2.87	5.09	2.89	-1.87	-2.74	-5.50	-10.25	-11.58	-10.21	-8.00	-9.82

15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150
-6.22	-8.86	-4.54	-5.42	-3.80	-6.10	-6.67	-6.37	-3.20	-1.69	-2.48	-2.90	-3.76	2.38	4.94	2.28	-2.32	-2.39	-5.25	-10.25	-11.01	-8.49	-6.23	-5.90	-5.37	-7.86	-2.99	-3.17	-2.08	-5.20
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240
-6.23	-6.37	-3.24	-1.34	-2.01	-3.47	-5.17	1.32	3.96	1.28	-2.39	-2.38	-5.03	-10.25	-10.76	-7.07	-4.46	-3.98	-5.06	-5.57	-1.84	-1.95	-1.61	-5.20	-6.23	-6.37	-3.76	-1.62	-2.29	-4.21
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330
-6.05	0.25	2.77	0.45	-2.24	-2.64	-4.95	-10.25	-11.04	-5.99	-3.21	-3.09	-4.21	-3.76	-2.12	-2.51	-2.30	-5.87	-6.55	-6.37	-4.85	-2.51	-3.44	-5.59	-6.75	-0.56	1.76	-0.27	-2.37	-3.21
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
-5.19	-10.25	-11.75	-5.39	-2.51	-2.62	-2.67	-2.47	-3.48	-4.59	-3.94	-6.90	-7.03	-6.37	-6.59	-3.70	-5.11	-7.91	-8.25	-1.73	0.49	-1.48	-3.12	-4.17	-5.86	-10.25	-12.16	-5.25	-2.13	-2.25
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150
-1.50	-1.96	-5.89	-8.13	-6.19	-7.67	-7.53	-6.37	-9.13	-4.81	-5.51	-9.38	-10.99	-3.53	-1.40	-3.58	-4.59	-5.46	-6.96	-10.25	-11.35	-5.43	-1.80	-1.67	-0.85	-2.26	-8.13	-12.30	-8.11	-7.35
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240
-7.83	-6.37	-12.37	-5.43	-3.73	-6.35	-10.93	-5.42	-3.43	-6.22	-6.58	-7.07	-8.36	-10.25	-9.67	-5.76	-1.42	-0.75	0.02	-2.00	-5.77	-8.71	-7.37	-6.17	-7.69	-6.37	-11.97	-6.00	-1.92	-0.91
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330
-3.44	-4.07	-5.03	-7.95	-8.57	-11.17	-11.08	-10.25	-6.94	-5.48	-0.98	1.12	2.24	0.86	0.39	-1.44	-3.40	-4.80	-6.17	-6.37	-9.42	-7.07	-3.67	-1.77	-2.67	-3.77	-5.72	-10.28	-8.82	-12.64
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	345	345	345	345	345
-11.89	-10.25	-6.22	-4.56	-1.06	2.00	3.37	1.94	0.57	-1.29	-3.40	-4.39	-5.18	-6.37	-4.27	-3.52	-3.84	-2.08	-0.66	2.66	4.40	2.73	-1.37	-3.52	-5.79	-5.79	-5.79	-5.79	-5.79	



Frequency=	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
5250(MHz)	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	E Total. dB	-13.17	-16.37	-14.79	-10.73	-8.32	-9.96	-9.54	-7.08	-5.77	-5.19	-9.64	-10.25	-17.49	-6.64	-1.35	0.29	0.24	0.17	-1.06	-2.83	-7.29	-8.15	-9.94	-13.96	-13.17	-15.77	-13.34	-9.31	-8.88

	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-8.55	-15.13	-15.00	-11.79	-9.35	-14.50	-10.27	-17.49	-6.19	-1.79	-0.04	0.49	-0.10	-0.45	-1.14	-6.22	-6.65	-11.88	-14.24	-13.17	-15.66	-13.19	-9.10	-7.08	-4.43	-9.44	-10.86	-15.08	-13.42	-18.15	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240
	-11.12	-17.49	-6.17	-2.55	-2.25	-1.48	-2.33	-1.79	-1.43	-4.68	-7.49	-14.70	-14.22	-13.17	-16.66	-13.76	-10.27	-6.99	-3.40	-6.90	-9.83	-15.33	-15.42	-17.15	-12.59	-17.49	-7.25	-3.93	-4.32	-3.93
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-4.06	-4.20	-3.69	-4.62	-10.64	-15.90	-13.74	-13.17	-17.73	-14.34	-12.17	-10.57	-5.44	-7.51	-6.24	-9.97	-15.16	-14.48	-13.92	-17.49	-9.53	-6.05	-5.00	-4.63	-3.96	-4.11	-6.35	-5.33	-13.97	-15.03	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	-13.15	-13.17	-19.40	-14.46	-17.43	-13.76	-7.73	-8.62	-4.96	-9.18	-10.02	-11.61	-14.53	-17.49	-11.72	-7.57	-7.05	-6.02	-3.91	-4.39	-7.74	-6.71	-14.70	-13.55	-12.82	-13.17	-19.74	-14.48	-17.40	-12.54
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-6.00	-8.76	-7.53	-12.49	-7.82	-8.78	-13.11	-17.49	-13.39	-8.00	-10.34	-9.21	-5.89	-5.77	-9.79	-8.21	-12.82	-12.53	-12.87	-13.17	-18.09	-15.31	-12.07	-11.58	-4.34	-6.60	-4.50	-10.07	-4.32	-6.09	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240
	-10.86	-17.49	-15.68	-8.42	-11.00	-11.98	-10.81	-10.96	-12.89	-12.15	-11.33	-12.46	-13.57	-13.17	-15.69	-17.70	-9.20	-6.74	-3.20	-5.52	0.01	-3.47	-0.52	-4.55	-9.69	-17.49	-13.92	-10.38	-8.91	-7.22
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-7.64	-9.40	-10.93	-8.83	-11.15	-14.41	-15.35	-13.17	-12.99	-18.82	-7.63	-2.74	-2.69	0.91	4.62	2.08	3.10	-4.33	-9.24	-17.49	-11.35	-8.18	-5.85	-5.37	-7.84	-10.38	-12.67	-9.28	-12.54	-15.79	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	345	345	345	345	
	-16.09	-13.17	-13.09	-13.41	-8.45	-3.31	-5.38	-0.09	2.70	1.27	2.58	-3.66	-8.58	-17.49	-7.47	-1.97	1.03	-0.30	0.41	-0.57	-4.80	-4.94	-8.26	-10.71	-13.45	-13.45	-13.45	-13.45	-13.45	

[illegible]

15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150
-7.68	-13.42	-13.53	-11.34	-8.35	-14.27	-10.46	-16.14	-5.84	-1.17	0.70	1.94	1.14	0.45	-0.55	-5.37	-6.97	-10.70	-10.87	-11.89	-14.18	-13.24	-7.85	-6.32	-3.67	-8.63	-9.94	-14.23	-13.01	-17.72
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240
-11.45	-16.14	-5.61	-1.82	-1.74	-0.42	-1.15	-1.06	-0.76	-4.23	-7.86	-13.11	-11.09	-11.89	-15.35	-12.84	-9.12	-6.24	-2.69	-6.48	-8.88	-14.89	-15.10	-16.47	-13.17	-16.14	-6.47	-3.07	-3.79	-3.08
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330
-3.27	-3.54	-2.90	-4.53	-10.76	-13.96	-11.20	-11.89	-16.91	-13.02	-11.42	-9.49	-5.06	-6.87	-5.29	-9.30	-13.43	-14.42	-14.54	-16.14	-8.54	-5.10	-4.08	-3.37	-2.93	-3.09	-5.33	-5.16	-14.86	-14.11
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
-11.41	-11.89	-16.98	-13.22	-16.75	-11.04	-7.28	-8.02	-4.15	-8.26	-8.81	-11.66	-14.81	-16.14	-10.67	-6.60	-5.55	-4.23	-2.25	-2.75	-6.68	-5.97	-15.51	-13.54	-11.71	-11.89	-15.37	-13.84	-15.48	-9.68
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150
-5.18	-7.11	-5.79	-11.28	-6.62	-8.28	-12.91	-16.14	-12.40	-7.25	-8.67	-6.96	-4.05	-3.87	-9.13	-6.73	-12.11	-13.04	-12.02	-11.89	-13.89	-15.56	-10.63	-9.35	-3.69	-5.72	-3.20	-9.60	-3.42	-5.26
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240
-10.48	-16.14	-14.83	-7.95	-10.83	-10.69	-9.08	-9.39	-13.17	-9.42	-10.66	-13.78	-12.95	-11.89	-12.17	-18.30	-8.31	-5.26	-2.40	-4.80	0.80	-2.72	0.10	-3.65	-9.30	-16.14	-15.42	-11.05	-9.36	-6.94
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330
-7.23	-8.54	-10.46	-8.72	-10.51	-17.81	-16.37	-11.89	-9.97	-13.98	-8.14	-1.92	-1.98	1.49	5.67	2.84	3.69	-3.97	-9.03	-16.14	-12.06	-8.64	-5.51	-4.79	-7.17	-10.00	-10.79	-9.57	-10.65	-18.87
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	345	345	345	345	345
-18.30	-11.89	-10.04	-10.97	-9.79	-2.39	-5.00	0.43	3.59	1.93	3.12	-3.47	-8.47	-16.14	-7.38	-1.65	1.69	0.64	1.22	-0.23	-4.82	-3.96	-9.32	-8.87	-10.28	-10.28	-10.28	-10.28	-10.28	



Frequency=5550(MHz)		Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
		Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60		
		E Total. dB	-11.74	-21.66	-14.05	-10.62	-9.08	-7.10	-9.65	-9.16	-9.01	-7.13	-13.76	-13.20	-17.37	-8.48	-2.36	-0.01	0.97	0.47	-2.26	-4.46	-7.17	-11.60	-10.62	-9.49	-11.74	-19.89	-13.30	-15.66	-12.29		

	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150
-9.04	-10.42	-12.32	-14.41	-9.81	-18.62	-14.75	-17.37	-8.77	-3.44	-1.00	0.14	-0.25	-1.77	-2.82	-5.62	-10.29	-11.48	-9.62	-11.74	-20.22	-15.15	-12.51	-8.48	-5.27	-5.60	-10.33	-20.27	-10.79	-24.05
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240
-17.81	-17.37	-9.14	-4.69	-4.08	-2.43	-1.82	-2.82	-2.99	-7.05	-9.27	-12.85	-10.43	-11.74	-20.94	-19.25	-9.37	-6.28	-4.39	-3.55	-6.39	-15.64	-10.28	-22.02	-19.78	-17.37	-10.02	-6.09	-6.74	-3.36
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330
-3.07	-3.68	-4.00	-7.77	-9.67	-15.37	-11.96	-11.74	-21.80	-21.14	-10.60	-8.23	-7.39	-4.81	-4.93	-8.13	-11.64	-21.88	-18.07	-17.37	-11.44	-8.02	-7.35	-3.47	-3.49	-4.19	-4.28	-7.56	-12.38	-19.58
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
-13.84	-11.74	-24.32	-18.60	-13.71	-9.48	-6.89	-5.94	-4.08	-7.34	-10.11	-15.73	-16.18	-17.37	-12.47	-8.94	-7.50	-4.42	-3.04	-3.96	-3.93	-6.88	-15.69	-20.14	-15.85	-11.74	-20.05	-15.57	-13.35	-8.66
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150
-4.17	-5.47	-5.47	-13.87	-8.67	-9.99	-14.34	-17.37	-13.23	-8.53	-7.34	-5.20	-3.07	-3.17	-5.31	-6.61	-16.29	-17.14	-17.38	-11.74	-16.24	-12.26	-9.97	-7.76	-3.98	-5.62	-4.37	-8.91	-5.33	-6.74
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240
-12.87	-17.37	-14.42	-8.15	-8.18	-6.85	-5.26	-5.18	-7.85	-7.17	-14.12	-16.01	-18.74	-11.74	-14.06	-10.10	-7.45	-5.68	-1.73	-3.50	0.88	-2.14	-1.71	-5.93	-12.57	-17.37	-15.04	-12.58	-18.82	-14.86
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330
-11.24	-11.98	-11.63	-8.86	-11.48	-15.88	-24.03	-11.74	-10.91	-11.53	-11.23	-3.33	-1.44	0.74	3.92	1.20	0.97	-6.64	-11.06	-17.37	-13.53	-12.87	-9.89	-10.26	-11.69	-14.99	-9.28	-9.13	-10.14	-16.28
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345					
-24.35	-11.74	-10.06	-12.35	-16.18	-4.91	-5.31	-2.39	0.55	-0.95	-0.02	-4.68	-9.52	-17.37	-8.62	-2.66	-0.39	-0.78	-0.59	-3.74	-7.06	-6.93	-13.43	-11.26						



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant1

Frequency=5850(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	E Total. dB	-14.97	-21.27	-14.04	-9.76	-9.17	-6.34	-9.06	-11.00	-10.49	-12.09	-14.67	-13.74	-20.95	-9.78	-3.81	-1.42	-0.80	-1.40	-3.68	-5.15	-8.40	-10.04	-16.35	-11.72	-14.97	-20.07	-11.96	-8.88	-9.51
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-7.50	-9.31	-9.97	-10.71	-13.28	-18.40	-15.64	-20.95	-9.38	-5.04	-2.92	-2.93	-2.00	-2.57	-4.33	-5.90	-9.25	-15.69	-11.64	-14.97	-19.57	-11.93	-10.69	-8.15	-5.93	-5.41	-7.48	-17.01	-15.06	-21.01	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-19.92	-20.95	-9.59	-7.60	-7.21	-5.62	-2.72	-2.94	-4.49	-6.72	-8.46	-14.79	-11.85	-14.97	-18.45	-13.60	-11.32	-7.06	-5.83	-4.24	-4.96	-11.49	-13.76	-23.72	-22.25	-20.95	-11.16	-10.22	-9.70	-5.39	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-3.12	-3.48	-5.10	-9.31	-9.31	-15.02	-12.38	-14.97	-17.03	-15.45	-12.74	-7.47	-6.11	-5.89	-4.35	-7.93	-12.89	-18.68	-18.61	-20.95	-12.91	-12.07	-8.91	-5.11	-3.25	-4.52	-5.48	-10.63	-11.20	-16.77	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
-12.78	-14.97	-15.33	-15.01	-18.11	-6.17	-2.88	-3.75	-3.76	-9.55	-10.26	-11.14	-16.04	-20.95	-13.79	-12.94	-9.36	-4.17	-2.67	-3.60	-4.63	-7.31	-12.43	-20.68	-13.05	-14.97	-13.90	-11.32	-13.35	-5.28	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-2.01	-1.80	-5.42	-15.04	-8.15	-7.69	-14.91	-20.95	-14.30	-12.10	-10.29	-4.51	-2.60	-3.36	-4.17	-6.67	-12.23	-20.77	-13.58	-14.97	-13.58	-9.12	-7.92	-5.35	-2.90	-2.78	-4.16	-7.16	-5.23	-6.64	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-14.93	-20.95	-15.21	-10.68	-10.28	-7.56	-4.46	-5.63	-5.74	-7.72	-10.35	-14.19	-14.36	-14.97	-14.08	-8.37	-5.26	-4.70	-1.04	-0.71	1.11	-1.80	-2.46	-8.00	-16.54	-20.95	-17.82	-14.33	-15.06	-12.16	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-9.87	-9.50	-7.22	-7.59	-7.20	-10.79	-18.85	-14.97	-12.90	-12.02	-5.26	-3.37	0.47	0.23	2.90	0.67	-0.48	-8.08	-12.78	-20.95	-14.72	-14.47	-15.16	-14.80	-11.90	-8.57	-6.29	-8.59	-8.94	-13.83	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
-22.12	-14.97	-12.13	-15.33	-6.24	-6.04	-1.21	-3.56	-0.95	-3.26	-2.16	-6.40	-10.32	-20.95	-9.75	-4.66	-2.43	-2.81	-2.06	-5.77	-4.13	-9.25	-7.74	-15.90	0	15	30	45	60		



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant2

Frequency=2450(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	E Total. dB	3.88	3.62	2.64	2.33	1.95	3.46	4.85	5.03	4.92	4.77	0.99	-6.41	-5.65	-5.11	-4.00	-3.53	-1.10	0.57	-0.34	3.13	5.43	4.29	3.85	4.06	3.88	3.49	2.20	2.19	2.18
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
4.08	4.84	5.05	5.35	4.23	0.01	-7.52	-5.65	-4.56	-3.12	-5.68	-1.58	1.74	0.66	3.60	4.59	3.76	4.22	4.22	3.88	3.25	1.61	1.83	2.03	3.51	3.61	3.39	4.36	2.62	-2.03	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-8.22	-5.65	-4.41	-2.45	-6.42	-1.87	1.23	-1.60	2.11	2.53	3.03	4.40	4.28	3.88	2.95	1.07	1.31	1.01	1.01	0.31	-0.67	1.44	-0.39	-4.60	-8.13	-5.65	-4.48	-2.02	-5.22	-3.04	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-1.94	-7.11	-0.08	0.33	2.59	4.49	4.22	3.88	2.68	0.87	0.86	-0.67	-3.62	-5.79	-6.96	-3.60	-4.19	-6.38	-7.53	-5.65	-4.46	-1.67	-4.02	-4.00	-5.92	-6.76	-1.71	-0.91	2.52	4.46	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
4.08	3.88	2.58	1.10	0.64	-2.17	-6.80	-8.65	-7.99	-10.43	-5.07	-6.41	-6.87	-5.65	-4.23	-1.51	-3.21	-3.25	-6.18	-4.79	-2.56	-0.63	2.66	4.29	3.91	3.88	2.67	1.50	0.55	-2.51	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-4.29	-7.09	-7.07	-11.14	-3.71	-5.72	-6.43	-5.65	-3.97	-1.68	-2.48	-2.47	-6.24	-3.89	-2.00	0.30	2.76	3.97	3.76	3.88	2.88	1.73	0.41	-2.13	-3.46	-9.96	-8.36	-9.93	-3.31	-5.14	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-6.36	-5.65	-3.89	-1.80	-1.31	-2.09	-5.87	-2.19	-0.55	1.14	2.75	3.61	3.66	3.88	3.12	1.77	0.52	-1.29	-4.47	-14.69	-8.55	-12.69	-4.07	-4.95	-6.73	-5.65	-4.57	-0.17	2.98	1.86	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
1.51	2.83	2.75	2.13	2.61	3.04	3.62	3.88	3.50	2.13	2.47	2.03	-5.13	-6.52	-2.57	-5.16	-3.14	-5.50	-7.59	-5.65	-5.35	0.85	4.41	3.82	3.94	4.28	3.13	2.02	2.45	2.88	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
3.64	3.88	3.67	2.62	3.47	3.32	-2.76	-5.20	-1.04	-1.92	-1.98	-5.28	-7.02	-5.65	-6.01	-4.75	-2.12	-0.87	-0.46	-3.21	0.55	4.71	4.16	3.26	3.86						



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant2

Frequency=5250(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	15	0
	E Total. dB	-4.04	-7.80	-2.41	1.63	3.61	3.98	3.68	2.13	-1.46	-3.19	-2.32	-4.63	-12.02	-9.11	-8.19	-5.14	-7.56	-8.68	-7.74	-2.31	0.04	0.50	0.87	-1.12	-4.04	-7.96
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
4.52	2.68	0.76	-4.85	-3.41	-4.16	-5.77	-12.02	-8.14	-5.90	-4.49	-5.32	-6.20	-6.02	-3.79	-1.98	-0.15	0.04	-1.75	-4.04	-7.25	-2.28	0.48	1.51	-1.02	-4.95	-4.48	-6.89
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-6.79	-12.02	-8.81	-6.94	-4.86	-4.06	-6.38	-7.96	-4.63	-3.79	-0.44	-0.12	-1.98	-4.04	-6.36	-3.54	-4.08	-4.73	-5.55	-7.93	-8.60	-3.58	-5.33	-8.03	-7.64	-12.02	-11.24	-9.61
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-10.37	-9.68	-3.94	-3.51	-0.98	0.02	-2.12	-4.04	-5.33	-4.98	-6.73	-6.35	-4.77	-7.29	-4.66	-3.11	-7.04	-8.38	-8.41	-12.02	-11.85	-10.85	-10.67	-5.20	-6.06	-5.66	-4.27	-2.95
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-2.97	-4.04	-4.28	-4.93	-6.27	-5.51	-8.08	-12.91	-6.13	-3.10	-5.31	-7.46	-8.98	-12.02	-9.02	-7.01	-9.92	-6.11	-4.71	-5.59	-7.69	-5.40	-3.00	-0.43	-4.11	-4.04	-3.50	-4.30
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-12.68	-6.31	-7.90	-4.07	-4.48	-8.96	-9.73	-12.02	-6.73	-3.67	-3.30	-5.69	-6.60	-7.43	-9.21	-7.96	-3.24	-1.23	-4.48	-4.04	-3.13	-3.48	-3.40	-5.69	-5.60	-1.90	-4.23	-4.41
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-11.92	-12.02	-5.09	-1.87	-0.71	-3.64	-6.89	-6.85	-4.83	-4.59	-2.96	-2.18	-4.24	-4.04	-2.63	-2.26	-2.79	-5.57	-6.83	-4.52	-5.90	-5.10	-5.24	-9.38	-14.34	-12.02	-3.49	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-0.63	-5.01	-2.74	-2.37	-2.35	-1.83	-4.91	-4.04	-0.70	1.76	-0.12	-0.54	-3.87	-3.22	-3.30	-3.47	-2.17	-6.24	-9.66	-12.02	-3.76	-0.93	-1.72	0.19	1.93	-0.01	1.06	0.17
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-6.40	-4.04	-0.42	2.87	0.64	0.16	-1.19	-4.59	-5.07	-6.78	-2.51	-7.44	-9.08	-12.02	-9.68	-8.57	-6.26	-11.22	-9.21	-8.79	-1.82	-0.46	0.22	2.19	-0.60			



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant2

Frequency=5300(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	15	15	15
	E Total. dB	-0.81	-4.38	-0.61	2.52	3.70	4.41	4.08	2.93	-0.46	-2.02	-1.12	-3.81	-10.60	-9.04	-8.79	-4.83	-6.16	-6.11	-5.90	-1.03	0.77	0.32	2.37	-0.87	-0.81	-4.91	-0.21	3.76	5.80
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
5.13	3.43	2.14	-4.02	-1.56	-2.80	-4.83	-10.60	-7.89	-6.01	-3.69	-3.74	-3.43	-4.63	-3.10	-1.71	-0.94	1.80	-1.15	-0.81	-5.02	-0.03	2.21	2.30	-0.13	-3.45	-2.42	-7.00	-1.36	-4.37	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-5.67	-10.60	-8.45	-6.76	-3.94	-3.11	-4.34	-6.56	-4.31	-3.30	-1.11	1.65	-0.91	-0.81	-4.76	-1.00	-1.27	-2.90	-3.85	-9.32	-7.05	-3.13	-2.83	-7.41	-6.28	-10.60	-10.27	-9.12	-4.61	-4.02	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-8.72	-8.77	-2.82	-3.06	-1.57	1.48	-0.67	-0.81	-4.14	-2.91	-3.29	-4.67	-3.93	-6.55	-4.43	-2.92	-7.34	-8.29	-6.87	-10.60	-9.70	-9.24	-7.74	-3.59	-4.35	-4.50	-2.87	-2.44	-1.79	1.28	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
-1.13	-0.81	-3.34	-3.60	-3.89	-5.93	-7.49	-16.08	-6.37	-3.27	-6.24	-6.93	-7.54	-10.60	-7.41	-5.70	-9.01	-4.50	-3.42	-4.59	-6.77	-5.43	-2.30	0.43	-1.86	-0.81	-2.63	-2.66	-3.78	-4.80	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-9.49	-5.35	-6.78	-3.77	-4.22	-8.17	-8.75	-10.60	-5.67	-3.20	-3.30	-5.92	-6.45	-6.75	-7.65	-8.09	-2.60	-0.46	-1.97	-0.81	-2.29	-1.68	-2.16	-4.85	-4.21	-1.20	-2.54	-3.56	-3.74	-9.91	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-11.44	-10.60	-4.28	-1.77	-0.36	-4.47	-7.85	-6.14	-3.45	-3.48	-2.69	-1.06	-1.70	-0.81	-1.96	-1.09	-1.17	-7.07	-5.95	-4.07	-4.28	-4.25	-3.60	-8.61	-13.64	-10.60	-2.85	-0.54	0.08	0.61	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-0.17	-4.91	-2.52	-2.13	-1.97	-0.31	-2.32	-0.81	-0.40	2.13	2.11	0.36	-2.70	-1.46	-2.34	-2.32	-1.17	-5.27	-8.74	-10.60	-3.05	-0.11	-1.26	1.29	2.68	0.14	0.87	-0.38	0.25	-0.18	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
-3.38	-0.81	-0.19	3.54	2.94	1.59	0.02	-2.49	-3.44	-6.22	-1.78	-6.40	-8.29	-10.60	-9.34	-7.94	-5.88	-10.88	-6.57	-5.85	-0.45	0.76	1.38	3.24						-0.43	



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant2

Frequency=5550(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	15	0	15	30	45
	E Total. dB	-1.56	-2.38	-1.26	1.11	2.00	1.72	2.70	1.88	-2.50	-0.48	-1.26	-3.28	-10.23	-10.05	-14.78	-9.87	-9.30	-6.51	-5.05	-2.43	0.12	-0.82	-1.38	-0.67	-1.56	-3.09	-1.03	2.56	3.14
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
3.03	2.71	2.72	-4.44	-0.33	-1.20	-3.50	-10.23	-12.19	-12.31	-7.96	-5.77	-4.49	-6.34	-5.20	-0.97	-1.00	-0.45	-0.84	-1.56	-4.01	-1.11	1.62	0.55	-0.07	0.17	-0.58	-8.95	-0.55	-0.87	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-3.91	-10.23	-9.24	-9.27	-8.18	-4.48	-6.11	-9.36	-9.03	-2.92	-0.16	0.03	-0.39	-1.56	-4.16	-1.10	-1.34	-3.67	-3.81	-7.92	-9.03	-6.80	-0.38	-2.25	-4.66	-10.23	-6.61	-10.18	-6.12	-4.32	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-4.67	-7.77	-8.71	-8.27	-0.86	-0.20	-0.17	-1.56	-3.53	-1.44	-2.50	-4.23	-6.69	-14.99	-7.08	-7.16	-2.23	-4.73	-5.56	-10.23	-6.62	-7.61	-7.98	-6.64	-5.61	-5.41	-9.61	-12.47	-3.37	-1.27	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
-0.68	-1.56	-3.03	-2.46	-1.35	-4.39	-8.04	-14.03	-9.89	-9.48	-4.02	-6.00	-6.10	-10.23	-8.64	-5.15	-9.67	-15.97	-8.77	-7.56	-12.37	-23.10	-6.54	-2.81	-1.34	-1.56	-2.80	-3.74	-2.17	-6.15	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-10.91	-7.28	-9.45	-7.46	-4.71	-6.59	-6.67	-10.23	-8.88	-2.70	-4.50	-9.65	-7.20	-6.51	-5.80	-7.93	-8.10	-4.58	-1.50	-1.56	-2.36	-4.11	-2.66	-6.44	-7.05	-1.96	-2.87	-6.15	-5.89	-6.96	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-8.71	-10.23	-5.91	-0.77	-1.32	-6.31	-7.19	-4.66	-2.81	-3.10	-7.60	-4.56	-1.47	-1.56	-1.46	-3.11	-1.63	-4.66	-8.82	-4.19	-2.91	-7.64	-6.10	-7.66	-11.14	-10.23	-2.77	-0.68	-0.71	-1.96	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-3.78	-3.27	-1.74	-0.68	-2.95	-2.41	-1.92	-1.56	0.41	-1.83	2.55	-0.44	-1.40	-2.34	-1.10	-3.30	-0.45	-4.28	-6.87	-10.23	-2.95	-0.85	-0.79	-1.05	0.14	-0.40	-0.85	0.23	-1.00	-1.66	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
-2.12	-1.56	0.44	-1.26	2.96	0.56	0.31	0.00	-1.39	-5.69	-1.25	-2.82	-5.85	-10.23	-7.00	-4.73	-9.96	-14.51	-5.58	-1.92	-1.42	-0.11	0.87	-1.46	-0.05						



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant2

Frequency=5850(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-3.34	-2.49	1.44	2.53	0.83	0.63	1.97	0.39	-3.88	-2.28	-1.51	-3.80	-10.98	-8.08	-11.69	-6.98	-7.31	-6.10	-5.81	-1.34	0.53	-0.59	-1.64	-0.90	-3.34	-2.41
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
2.99	3.75	2.57	-3.25	-1.73	-0.85	-3.42	-10.98	-8.58	-7.72	-7.55	-5.45	-7.14	-7.67	-5.39	-1.50	-0.43	-1.72	-0.73	-3.34	-2.55	1.16	3.72	1.81	2.25	2.62	0.17	-7.47
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-3.43	-10.98	-7.93	-7.96	-4.65	-5.51	-8.78	-10.34	-7.92	-2.50	-1.51	-3.00	-0.25	-3.34	-2.33	-0.53	0.73	-1.77	-1.74	-1.67	-4.55	-6.90	1.26	-0.48	-4.12	-10.98	-8.15	-10.81
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-11.40	-10.41	-8.51	-6.70	-4.67	-5.97	-0.49	-3.34	-1.78	-1.12	-3.85	-4.43	-7.98	-9.00	-9.00	-5.99	0.42	-3.15	-5.24	-10.98	-9.94	-8.13	-7.00	-9.49	-10.48	-10.01	-9.11	-11.85
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-1.79	-3.34	-1.33	-1.02	-1.52	-2.35	-7.90	-12.55	-13.98	-13.78	-2.72	-5.85	-6.12	-10.98	-9.99	-5.01	-8.75	-10.26	-7.77	-8.15	-5.94	-7.01	-11.88	-9.02	-3.18	-3.34	-1.16	-1.23
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-7.31	-10.17	-8.91	-15.91	-3.98	-6.73	-6.85	-10.98	-6.84	-2.54	-4.03	-8.66	-6.76	-7.11	-3.57	-2.18	-6.65	-8.00	-3.69	-3.34	-1.08	-1.40	-1.47	-3.84	-7.34	-5.03	-4.21	-8.48
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-8.80	-10.98	-4.67	-0.91	-1.77	-11.27	-12.44	-9.45	-4.60	-2.12	-4.07	-6.04	-3.65	-3.34	-0.89	-1.59	-2.98	-6.41	-12.04	-7.45	-5.57	-6.74	-8.24	-7.43	-11.52	-10.98	-4.00	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-6.64	-3.75	-2.39	-2.93	-2.69	-2.94	-3.29	-3.34	-0.05	-1.29	-0.08	0.05	-1.90	-2.81	-3.50	-5.18	-2.57	-6.15	-8.12	-10.98	-4.09	-1.28	-2.57	-3.74	-3.22	-2.31	-0.98	-1.37
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-2.92	-3.34	-0.03	-0.76	1.28	1.49	0.57	0.12	-3.37	-6.01	-4.14	-4.21	-6.66	-10.98	-6.86	-5.69	-12.36	-9.38	-4.40	-2.83	-0.36	0.53	0.30	-1.31	-0.46			



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant3

Frequency=2450(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	15		
	E Total. dB	3.02	-0.67	-3.83	-2.44	-0.06	-1.13	-0.45	-2.69	-4.79	-1.67	-1.75	-5.26	3.71	-4.06	1.71	2.29	1.78	-1.86	-4.00	-1.64	-2.67	-3.32	1.67	2.34	3.02	-0.43	-3.74	-2.62	-0.21
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-0.80	-1.08	-2.91	-2.69	-0.75	-1.25	-6.19	3.71	-2.79	2.58	2.21	1.97	-0.48	-7.08	-5.90	-4.32	-1.87	2.28	2.53	3.02	-0.14	-3.04	-2.73	-0.90	-1.72	-2.23	-2.99	-1.47	0.02	-0.79	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-5.32	3.71	-1.59	2.92	1.56	1.26	0.35	-5.48	-8.06	-3.54	-0.48	2.84	2.68	3.02	0.02	-2.27	-3.27	-1.66	-2.64	-3.24	-2.66	-1.97	0.34	-0.03	-3.37	3.71	-0.73	2.63	1.14	0.49	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
0.85	-1.71	-4.65	-1.13	0.83	3.27	2.81	3.02	0.31	-1.49	-2.97	-0.85	-1.40	-2.20	-0.59	-2.88	0.59	0.68	-1.60	3.71	-0.15	2.00	0.85	0.27	1.52	-0.03	-3.13	0.59	1.78	3.44	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
2.81	3.02	0.69	-0.61	-1.55	0.89	1.31	0.51	1.62	-2.20	1.18	1.09	-0.52	3.71	0.18	1.02	0.40	0.52	2.01	0.21	-2.50	1.60	2.24	3.28	2.58	3.02	0.97	0.23	-0.39	2.02	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
3.37	2.41	2.82	-0.40	1.87	1.40	-0.20	3.71	0.18	-0.57	-0.26	0.73	1.80	-0.28	-1.61	1.82	2.18	2.73	2.16	3.02	1.20	0.80	0.14	2.43	4.16	2.71	3.37	1.51	2.23	1.57	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-0.45	3.71	-0.23	-2.50	-1.32	0.49	0.89	-1.26	-1.26	1.12	1.52	1.71	1.73	3.02	1.49	1.02	0.02	2.43	4.25	1.79	3.56	2.61	1.89	1.21	-1.00	3.71	-2.14	-3.27	-3.34	-3.06	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-0.65	-0.42	-2.87	-0.89	-0.74	-1.43	0.56	3.02	1.99	0.76	-2.01	1.61	3.70	-0.34	0.65	0.47	-0.89	-1.27	-2.86	3.71	-3.62	-2.52	-2.60	-5.41	-1.64	0.07	-2.23	-0.43	-1.67	-2.95	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
-0.28	3.02	2.07	0.70	-3.46	0.25	2.13	-0.99	-2.12	-0.75	-0.77	-0.86	-4.09	3.71	-4.67	0.54	1.10	0.43	-3.03	-2.10	0.38	-1.29	-4.23	1.05	2.17						



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant3

Frequency=5250(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15			
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
	E Total. dB	1.11	2.86	2.50	1.25	-0.04	-1.24	-4.45	-9.10	-10.46	-13.04	-12.25	-14.78	-11.62	-6.47	-2.23	-7.63	-6.76	-5.28	-8.26	-7.71	-10.05	-8.73	-2.14	-0.04	1.11	2.97	3.26	1.99	-1.22	
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	150	
-1.34	-0.49	-4.97	-15.85	-14.97	-11.90	-16.39	-11.62	-8.52	-7.29	-8.82	-7.47	-10.90	-12.14	-10.38	-8.47	-10.66	-2.16	0.92	1.11	2.73	2.66	1.29	-1.38	-5.70	-2.35	-4.79	-9.77	-12.92	-10.44		
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	240	
-12.90	-11.62	-11.19	-17.49	-8.70	-7.12	-10.37	-11.85	-8.82	-8.20	-6.00	-1.37	1.55	1.11	2.00	1.46	0.06	-0.92	-3.04	-5.89	-6.17	-7.55	-11.04	-9.59	-9.74	-11.62	-12.10	-16.44	-8.49	-6.90		
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330		
-5.21	-5.73	-5.02	-5.14	-3.87	-0.94	1.83	1.11	1.00	0.30	-1.72	-3.05	-3.66	-3.84	-4.51	-8.18	-7.37	-10.28	-8.83	-11.62	-11.28	-16.15	-8.95	-6.76	-3.63	-2.02	-1.73	-1.24	-1.82	-0.82		
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60		
2.28	1.11	0.28	0.13	-1.34	-4.04	-6.54	-4.74	-3.78	-6.43	-3.12	-9.98	-9.05	-11.62	-10.60	-15.52	-9.41	-4.93	-1.57	-1.18	-0.57	0.55	0.16	-0.33	2.76	1.11	-0.13	0.57	0.12	-2.88		
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150		
-6.83	-4.12	-0.84	-2.59	-0.07	-8.12	-9.42	-11.62	-10.74	-12.47	-8.08	-4.52	0.29	0.07	0.47	0.52	1.01	0.22	2.69	1.11	-0.50	0.91	0.88	-0.80	-2.05	-1.78	0.39	-0.04	1.14	-6.16		
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150		
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240		
-9.59	-11.62	-11.64	-8.66	-8.13	-6.83	-0.21	0.71	1.94	0.80	0.64	0.71	2.22	1.11	-0.87	0.68	0.72	0.54	0.02	0.48	0.44	0.33	0.39	-5.60	-9.41	-11.62	-13.16	-8.42	-9.70	-9.05		
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330		
-6.19	-3.54	-1.78	0.37	0.82	1.32	2.22	1.11	-1.20	-0.76	-2.11	-3.38	-3.34	-1.63	-0.83	-1.96	-2.40	-3.68	-7.79	-11.62	-13.48	-11.52	-11.04	-8.82	-8.26	-6.40	-3.78	-0.26	1.54	1.90		
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345							
2.56	1.11	-1.02	-1.77	-2.62	-1.63	-2.73	-3.32	-2.48	-2.65	-2.88	-3.50	-6.74	-11.62	-6.02	-1.71	-5.32	-5.04	-3.68	-5.03	-4.51	-3.92	-4.42	-2.43	-0.72							



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant3

Frequency=5300(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	1.97	4.21	3.65	1.84	0.67	-0.43	-4.21	-9.09	-9.83	-11.21	-10.95	-12.68	-10.90	-5.27	-2.15	-6.52	-5.85	-4.57	-8.26	-6.71	-9.13	-7.26	-1.32	0.63	1.97	4.28
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-0.57	0.08	-3.97	-15.29	-13.90	-11.09	-14.30	-10.90	-6.99	-6.51	-8.22	-8.11	-11.16	-11.81	-9.19	-8.41	-9.78	-1.25	1.59	1.97	3.98	4.19	2.90	-0.04	-5.44	-2.63	-3.58	-8.51
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-12.79	-10.90	-10.35	-13.79	-8.37	-7.18	-9.18	-8.88	-7.99	-8.42	-5.25	-0.36	2.34	1.97	3.11	3.04	1.38	-0.20	-2.07	-5.34	-4.21	-6.03	-8.40	-9.19	-10.02	-10.90	-13.24	-14.31
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-3.45	-4.60	-4.30	-5.55	-3.63	0.04	2.80	1.97	1.96	2.00	-0.23	-2.80	-2.82	-2.91	-2.51	-7.35	-6.07	-9.36	-9.43	-10.90	-12.68	-18.37	-8.39	-5.99	-1.84	-0.64	-0.75	-1.19
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
3.46	1.97	1.16	1.84	0.58	-3.09	-5.95	-4.18	-2.81	-5.50	-2.35	-9.14	-9.83	-10.90	-11.32	-17.91	-7.94	-3.11	0.06	0.27	0.22	0.96	0.76	0.57	4.10	1.97	0.70	2.40
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-6.07	-4.26	-0.94	-1.85	0.72	-7.60	-10.10	-10.90	-10.77	-12.55	-7.15	-2.70	1.41	1.01	0.95	1.14	1.73	1.29	4.09	1.97	0.20	2.70	2.90	-0.25	-1.56	-1.37	0.04	0.63
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-10.44	-10.90	-11.21	-8.54	-8.09	-5.10	0.81	1.17	2.12	1.21	1.23	1.95	3.60	1.97	-0.26	2.31	2.38	0.62	0.50	0.60	0.06	1.16	0.81	-5.14	-10.63	-10.90	-12.45	-7.98
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-5.02	-2.07	-0.89	1.17	1.75	2.69	3.62	1.97	-0.46	0.74	-0.89	-3.63	-3.21	-1.44	-0.15	-0.83	-1.87	-3.75	-8.26	-10.90	-12.19	-11.47	-10.60	-8.63	-7.40	-5.93	-3.09	0.45
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
3.97	1.97	-0.25	-0.23	-1.83	-1.52	-3.28	-3.48	-2.20	-2.53	-2.03	-3.39	-6.74	-10.90	-5.41	-1.78	-4.35	-4.92	-3.47	-4.37	-4.74	-3.70	-4.09	-1.44				0.03



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant3

Frequency=5550(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	E Total. dB	-2.16	1.04	0.86	-0.65	-1.90	-2.80	-6.44	-13.50	-13.08	-13.28	-8.77	-14.40	-13.31	-2.61	-0.53	-5.65	-7.25	-9.75	-18.78	-10.02	-10.70	-7.41	-2.86	-4.72	-2.16	0.93	2.25	2.00	-1.56
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-4.15	-2.57	-5.71	-18.38	-10.29	-10.93	-18.00	-13.31	-3.25	-3.07	-5.50	-7.16	-11.18	-11.21	-8.08	-10.96	-7.70	-1.58	-3.43	-2.16	0.53	2.10	1.63	-1.84	-11.05	-10.02	-6.61	-9.77	-10.49	-11.45	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-18.14	-13.31	-4.79	-8.01	-5.11	-6.61	-5.14	-9.64	-13.84	-14.24	-7.89	-0.48	-2.22	-2.16	-0.07	1.55	0.17	-3.53	-4.09	-6.05	-8.87	-14.32	-9.85	-8.30	-13.35	-13.31	-6.88	-16.26	-5.60	-6.55	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-4.04	-6.92	-8.49	-7.61	-6.52	0.08	-1.33	-2.16	-0.40	1.26	-0.08	-2.92	-4.37	-3.63	-2.83	-8.73	-7.16	-6.91	-11.28	-13.31	-8.25	-18.26	-4.85	-5.33	-2.56	-3.06	-3.86	-3.28	-3.95	0.18	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
-0.28	-2.16	-0.38	1.65	1.96	-0.81	-3.57	-4.76	-1.02	-4.04	-2.37	-5.68	-10.82	-13.31	-8.16	-11.99	-3.96	-3.68	-0.43	-1.00	-2.02	-1.38	-2.26	0.54	0.70	-2.16	-0.73	2.02	3.18	-0.68	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-3.85	-4.35	-0.60	-1.97	0.97	-3.67	-10.70	-13.31	-8.74	-9.23	-3.83	-3.80	0.07	-0.32	-1.02	-0.75	-1.46	1.10	0.84	-2.16	-1.60	1.99	3.23	-1.02	-3.69	-3.56	-2.09	-1.48	2.30	-2.10	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-10.12	-13.31	-10.65	-8.28	-5.96	-5.61	-1.03	-0.95	-0.68	-0.23	-1.17	1.59	0.32	-2.16	-2.54	1.22	2.45	-0.66	-1.70	-1.86	-3.84	-1.72	2.02	-2.08	-9.20	-13.31	-14.05	-13.64	-12.80	-6.69	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-4.80	-4.20	-3.07	-1.39	-0.27	0.48	0.42	-2.16	-4.41	-3.11	-1.89	-5.26	-3.35	-3.00	-0.72	-4.45	-0.98	-2.33	-6.65	-13.31	-13.59	-10.98	-14.57	-7.69	-5.69	-7.02	-6.03	-2.23	-1.13	-0.01	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
0.86	-2.16	-5.11	-5.24	-5.88	-6.33	-6.12	-6.42	-2.69	-5.53	-2.53	-2.66	-4.75	-13.31	-3.17	-1.14	-4.43	-7.41	-5.53	-9.46	-8.29	-6.76	-10.13	-5.04	-5.27						



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant3

Frequency=5850(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	15	0	15	15	15
	E Total. dB	-3.20	-0.15	-0.20	-2.91	-6.32	-4.92	-5.92	-11.99	-16.70	-12.14	-11.87	-20.13	-14.46	-6.42	-2.96	-5.23	-8.15	-11.49	-10.05	-19.10	-10.53	-8.43	-7.52	-4.00	-3.20	0.09	1.11	0.55	-3.61
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	150
-11.45	-6.09	-6.15	-13.14	-12.21	-11.69	-19.71	-14.46	-7.15	-5.15	-4.67	-9.43	-12.25	-12.89	-10.28	-9.40	-7.47	-4.47	-4.09	-3.20	0.06	1.12	0.48	-4.06	-8.10	-7.35	-7.14	-11.43	-11.30	-12.01	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-14.88	-14.46	-8.52	-6.72	-4.78	-7.10	-8.19	-8.67	-12.81	-7.92	-6.19	-1.53	-3.07	-3.20	-0.13	1.20	-1.19	-5.47	-8.39	-4.25	-6.13	-11.59	-17.60	-12.09	-12.31	-14.46	-10.45	-8.40	-5.93	-4.38	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-3.28	-4.11	-6.43	-5.48	-4.68	0.40	-2.14	-3.20	-0.04	1.76	-0.26	-3.14	-7.11	-6.91	-5.38	-9.98	-11.14	-12.47	-11.97	-14.46	-13.31	-11.23	-6.41	-3.60	-0.85	-0.60	-1.82	-3.21	-3.39	1.09	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
-1.35	-3.20	0.38	2.64	1.47	-1.29	-5.02	-7.15	-4.85	-7.23	-4.97	-9.70	-12.28	-14.46	-14.46	-11.41	-5.02	-2.73	-0.03	-0.36	-0.54	-1.47	-2.86	1.28	-0.72	-3.20	0.64	3.09	1.84	-0.99	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-7.22	-8.28	-5.41	-5.73	-2.15	-6.47	-12.25	-14.46	-13.02	-10.01	-4.28	-3.10	0.12	-0.70	-0.96	-1.06	-2.08	1.19	-0.80	-3.20	0.56	3.05	1.70	-1.35	-8.74	-7.47	-8.08	-6.52	-1.13	-4.38	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-12.44	-14.46	-13.11	-9.10	-6.35	-5.76	-1.96	-1.27	-1.45	-1.17	-0.89	0.86	-1.38	-3.20	0.23	2.73	1.87	-1.16	-4.67	-6.16	-8.26	-5.65	-1.92	-4.13	-13.42	-14.46	-20.26	-18.70	-14.08	-7.46	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-4.20	-4.39	-2.00	-0.68	-0.91	-1.28	-1.08	-3.20	-0.92	1.02	0.34	0.55	-0.09	-1.03	-0.80	-4.05	-5.87	-5.11	-10.88	-14.46	-20.26	-15.50	-11.60	-10.26	-7.92	-8.71	-5.49	-3.64	-4.20	-1.33	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
-0.56	-3.20	-1.74	-1.40	-2.93	-3.16	-3.08	-3.38	-3.77	-4.94	-6.54	-4.85	-8.65	-14.46	-6.95	-3.07	-6.21	-7.76	-10.48	-7.37	-8.53	-14.32	-7.90	-5.48	-2.86						



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant4

Frequency=2450(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	E Total. dB	-3.81	-3.45	-2.06	-0.45	0.48	2.51	4.12	3.68	-0.42	-2.92	-3.93	-4.07	-4.56	-7.62	-9.78	-6.88	-4.14	-3.15	-5.50	-7.71	-15.65	-15.45	-11.21	-7.04	-3.81	-2.96	-1.59	-0.10	0.66
15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
3.16	4.65	4.63	0.93	-2.35	-5.51	-4.77	-4.56	-7.79	-7.68	-6.17	-4.37	-2.07	-4.46	-9.03	-9.74	-12.57	-12.79	-7.95	-3.81	-2.89	-1.77	-0.39	0.56	3.29	4.53	4.39	1.42	-1.90	-6.27	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-5.47	-4.56	-8.08	-7.38	-6.35	-6.51	-3.96	-6.15	-6.78	-5.40	-9.56	-15.92	-8.83	-3.81	-3.15	-2.45	-1.54	-0.60	2.80	3.94	3.35	0.77	-2.28	-5.68	-5.95	-4.56	-8.66	-8.85	-7.37	-9.89	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-10.23	-7.04	-3.10	-3.34	-8.26	-20.43	-9.13	-3.81	-3.63	-3.40	-2.99	-1.90	2.12	3.09	2.04	-0.13	-2.59	-5.34	-6.24	-4.56	-8.98	-11.81	-11.28	-12.93	-9.31	-2.81	-0.63	-2.37	-6.70	-14.58	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
-8.78	-3.81	-4.15	-4.48	-4.27	-2.29	1.45	1.95	0.92	-0.66	-2.55	-5.07	-6.53	-4.56	-8.06	-9.94	-19.55	-12.71	-4.22	-0.24	0.30	-1.64	-4.21	-9.70	-8.24	-3.81	-4.59	-5.53	-5.02	-1.89	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
1.21	1.19	0.63	-0.52	-2.60	-4.77	-7.08	-4.56	-6.33	-5.37	-9.86	-9.98	-3.96	-0.66	-0.37	-0.95	-2.59	-7.47	-7.76	-3.81	-4.95	-6.21	-4.80	-1.54	0.51	-0.22	0.20	-0.63	-3.10	-4.78	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-8.13	-4.56	-4.61	-2.34	-4.95	-6.59	-4.83	-1.76	-0.77	-0.74	-2.57	-6.76	-7.14	-3.81	-5.30	-6.42	-4.17	-1.60	-1.00	-2.60	-0.67	-1.73	-4.53	-5.31	-9.75	-4.56	-3.18	-1.06	-2.34	-1.89	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
1.04	2.65	1.62	-0.74	-3.11	-5.01	-5.26	-3.81	-5.98	-7.28	-4.90	-4.67	-6.10	-1.53	-0.74	-6.27	-10.36	-9.08	-10.22	-4.56	-3.49	-2.42	-2.68	-0.97	2.77	4.13	2.67	0.43	-1.29	-3.24	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
-4.26	-3.81	-6.19	-8.44	-7.12	-7.61	-5.91	-1.71	-2.73	-8.99	-13.45	-11.60	-8.55	-4.56	-7.70	-12.20	-9.67	-6.97	-5.78	-4.82	-6.53	-11.25	-10.96	-9.82	-6.46						



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant4

Frequency=5250(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	15	0
	E Total. dB	-9.20	-14.68	-10.32	-13.02	-7.17	-1.88	-2.66	-1.14	-8.01	-9.79	-5.20	-8.14	-14.56	-9.33	-12.91	-7.28	-14.06	-10.57	-7.74	-5.69	-8.00	-4.71	-6.57	-6.30	-9.20	-15.08
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
0.80	0.37	-0.98	-4.84	-7.61	-5.52	-9.70	-14.56	-8.95	-12.31	-10.09	-18.06	-14.26	-12.70	-6.80	-9.83	-7.53	-6.53	-5.51	-9.20	-10.31	-8.64	-8.26	-2.69	-1.05	-0.08	-4.73	-9.21
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-11.91	-14.56	-8.34	-6.58	-13.30	-15.41	-12.67	-13.84	-10.81	-8.46	-8.61	-5.66	-5.69	-9.20	-8.57	-6.37	-4.54	-1.34	-0.02	0.71	-1.88	-10.13	-4.57	-7.14	-11.85	-14.56	-8.19	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-10.33	-12.02	-12.08	-6.63	-9.45	-5.53	-5.39	-9.20	-7.89	-4.54	-2.03	0.56	2.09	2.43	1.64	-2.93	-2.34	-9.26	-12.31	-14.56	-8.58	-3.30	-6.59	-5.48	-5.12	-4.17	-10.61	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	
-4.89	-9.20	-6.93	-3.76	-0.78	2.40	3.87	4.10	3.97	0.28	0.21	-7.89	-13.40	-14.56	-9.08	-3.54	-3.10	-1.54	-0.63	0.41	-0.13	-3.29	-13.12	-6.65	-4.74	-9.20	-6.32	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
3.84	3.99	4.10	0.64	1.65	-4.74	-11.72	-14.56	-8.25	-2.07	-0.89	-0.42	0.50	2.54	3.22	1.43	-6.14	-8.82	-4.86	-9.20	-6.77	-5.24	-2.92	0.09	2.43	1.86	0.94	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-10.09	-14.56	-4.90	-0.98	0.69	-0.67	0.64	1.34	3.15	1.55	-1.58	-7.80	-5.31	-9.20	-7.37	-6.19	-2.56	-1.11	-0.20	-1.59	-3.48	-4.11	-0.99	-4.18	-7.90	-14.56	-4.25	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-5.56	-2.59	-0.93	-0.65	-3.99	-4.98	-8.39	-9.20	-8.21	-7.97	-4.27	-2.97	-2.80	-6.54	-11.26	-8.26	-4.82	-9.13	-9.64	-14.56	-6.49	-1.36	-3.12	-6.37	-7.48	-6.68	-4.29	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-10.79	-9.20	-8.97	-7.52	-4.21	-3.61	-3.98	-11.25	-12.37	-12.89	-11.17	-15.35	-19.24	-14.56	-11.88	-15.35	-10.60	-10.70	-13.87	-8.54	-5.64	-3.53	-3.79	-7.05	-8.20			



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant4

Frequency=5300(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-8.35	-15.47	-8.47	-9.12	-5.74	-1.83	-1.63	0.40	-6.51	-8.48	-4.26	-7.60	-13.22	-8.58	-13.57	-7.20	-14.59	-9.76	-6.98	-4.73	-7.36	-3.96	-5.19	-5.42	-8.35	-12.61
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
0.90	1.03	0.09	-3.27	-6.70	-4.44	-9.33	-13.22	-8.25	-12.45	-8.91	-19.79	-12.33	-14.19	-6.69	-10.81	-6.82	-4.97	-4.68	-8.35	-8.85	-6.58	-5.97	-1.90	-0.75	0.60	-3.62	-8.32
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-11.34	-13.22	-7.95	-5.73	-12.06	-15.06	-10.94	-15.24	-10.27	-8.17	-7.88	-4.02	-4.78	-8.35	-7.52	-5.21	-2.69	-0.91	0.05	1.24	-0.68	-9.95	-3.74	-5.70	-10.82	-13.22	-7.97	-2.52
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-7.73	-9.92	-11.46	-5.84	-8.13	-3.98	-4.35	-8.35	-6.87	-3.32	-0.64	0.42	1.87	3.02	2.77	-1.72	-1.41	-7.87	-10.86	-13.22	-8.10	-2.75	-6.58	-4.81	-3.77	-2.59	-10.16	-6.87
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-3.63	-8.35	-5.79	-2.41	0.31	2.42	3.82	4.92	5.13	1.64	1.46	-7.30	-12.15	-13.22	-8.41	-2.96	-2.54	-0.75	0.12	1.17	0.25	-3.03	-11.37	-5.48	-3.30	-8.35	-5.28	-3.23
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
3.81	4.56	5.17	1.80	2.78	-4.17	-11.08	-13.22	-7.60	-1.28	0.24	0.74	1.78	3.67	3.69	1.66	-5.89	-7.31	-3.61	-8.35	-6.01	-4.24	-2.34	0.78	2.95	2.69	2.23	0.28
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-9.64	-13.22	-4.12	-0.30	1.39	0.62	1.56	2.28	3.55	1.63	-1.31	-6.30	-4.49	-8.35	-7.29	-5.35	-1.86	-0.69	0.55	-0.76	-2.76	-3.53	-0.04	-3.48	-7.38	-13.22	-3.52	1.20
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-4.01	-1.51	-0.63	-0.85	-3.41	-4.05	-8.91	-8.35	-8.25	-7.64	-3.73	-2.26	-2.12	-4.64	-8.39	-7.49	-4.00	-7.55	-8.51	-13.22	-5.75	-0.49	-2.70	-6.34	-5.77	-6.13	-4.32	-4.41
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-12.42	-8.35	-8.02	-6.71	-3.80	-3.66	-3.91	-10.90	-10.41	-10.38	-10.72	-13.97	-17.73	-13.22	-11.39	-15.69	-10.51	-9.51	-14.23	-7.86	-5.30	-3.40	-3.23	-6.04	-7.13			



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant4

Frequency=5550(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	E Total. dB	-10.44	-17.03	-7.10	-6.02	-5.73	-4.63	-0.49	0.71	-4.16	-10.05	-5.81	-8.62	-14.58	-10.06	-15.47	-9.83	-16.72	-11.39	-8.81	-7.92	-9.21	-8.66	-8.46	-14.19	-10.44	-14.17	-5.22	-5.54	-4.28
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-0.26	1.05	0.15	-3.35	-7.51	-5.52	-9.07	-14.58	-8.89	-16.08	-10.64	-15.49	-8.27	-9.82	-9.24	-9.79	-10.37	-7.60	-12.08	-10.44	-10.94	-5.52	-5.57	-3.42	-3.44	-3.53	-0.66	-6.69	-6.89	-5.01	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-9.16	-14.58	-8.99	-8.01	-12.61	-11.06	-7.20	-11.02	-8.96	-6.64	-8.30	-7.15	-11.30	-10.44	-10.69	-6.06	-4.66	-2.81	-4.99	-3.93	-0.06	-5.40	-7.23	-5.54	-8.25	-14.58	-9.73	-4.39	-13.47	-8.00	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-5.83	-7.96	-8.29	-6.16	-6.85	-7.61	-9.82	-10.44	-11.42	-5.47	-3.75	-2.35	-1.90	0.70	2.04	-1.13	-4.54	-6.05	-8.39	-14.58	-9.99	-4.78	-6.86	-7.30	-4.06	-4.66	-11.75	-9.04	-7.65	-6.23	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
-8.47	-10.44	-10.17	-5.02	-2.90	-1.05	0.89	4.03	4.19	2.14	-0.66	-5.81	-11.57	-14.58	-9.56	-4.10	-2.42	-1.79	-0.37	0.27	-3.04	-6.87	-11.89	-6.20	-8.44	-10.44	-9.45	-6.97	-2.89	-0.20	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
1.77	3.52	4.60	2.12	1.40	-4.32	-14.73	-14.58	-7.34	-2.28	-0.43	-0.02	1.47	2.83	1.81	-2.43	-8.42	-6.92	-9.06	-10.44	-9.38	-7.29	-4.06	0.85	1.56	1.74	2.35	-0.60	1.81	-4.10	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-14.11	-14.58	-4.24	-1.77	-0.29	0.84	1.39	1.12	1.70	-1.59	-4.55	-6.38	-9.97	-10.44	-9.13	-5.87	-4.59	-0.63	1.52	0.58	-1.12	-3.49	-0.64	-5.27	-10.35	-14.58	-4.51	-0.28	-1.25	-3.82	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-2.38	-3.10	-4.75	-4.02	-6.65	-11.31	-15.25	-10.44	-9.98	-7.97	-5.93	-3.36	-2.16	-2.51	-5.98	-10.77	-6.61	-7.51	-8.43	-14.58	-6.69	-2.63	-5.44	-6.56	-2.11	-6.51	-10.46	-8.34	-8.15	-12.19	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
-17.97	-10.44	-11.23	-12.26	-6.25	-6.62	-4.05	-7.07	-6.08	-8.33	-10.81	-12.87	-16.93	-14.58	-15.96	-16.69	-14.35	-10.55	-15.75	-10.77	-9.54	-8.67	-8.03	-11.29	-14.60						



Appendix A - Antenna Composite Gain Data of 2.4GHz&5GHz

Gain Result_Ant4

Frequency=5850(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-10.90	-7.16	-2.87	-3.42	-4.61	-1.54	1.26	1.46	-1.98	-5.22	-6.77	-7.82	-19.04	-20.22	-23.69	-11.63	-15.86	-9.98	-7.78	-8.86	-9.79	-10.79	-11.97	-10.68	-10.90	-6.84
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
0.68	1.39	2.47	-1.66	-3.99	-5.29	-8.92	-19.04	-14.32	-14.91	-12.30	-16.41	-11.62	-11.65	-9.17	-11.31	-11.60	-11.74	-10.84	-10.90	-6.61	-5.51	-4.91	-5.34	-0.26	-2.86	0.21	-2.34
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-8.91	-19.04	-11.66	-7.48	-13.20	-11.31	-7.84	-13.03	-7.89	-10.70	-10.88	-10.38	-11.88	-10.90	-7.48	-8.11	-5.03	-5.19	-0.13	-2.09	-0.58	-1.92	-16.30	-5.81	-7.67	-19.04	-10.06	-4.48
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-5.06	-6.68	-7.26	-7.32	-9.31	-8.68	-11.24	-10.90	-9.89	-9.02	-4.86	-4.49	0.32	-0.23	1.14	-0.19	-6.81	-6.94	-7.45	-19.04	-8.87	-4.45	-5.11	-7.34	-3.16	-3.52	-8.20	-7.48
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-10.01	-10.90	-10.92	-7.92	-4.71	-3.18	2.04	2.74	3.65	1.81	-1.57	-6.73	-8.94	-19.04	-7.33	-4.37	-3.06	-3.08	-1.29	0.35	-3.77	-10.65	-10.82	-5.61	-10.33	-10.90	-10.81	-7.95
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
1.93	3.44	3.74	2.33	-0.56	-3.90	-10.51	-19.04	-5.51	-2.86	-2.06	-1.78	1.31	1.98	0.93	-5.44	-12.79	-5.74	-11.85	-10.90	-11.48	-9.64	-5.14	-1.66	1.35	1.86	1.88	-0.27
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-12.71	-19.04	-4.18	-1.53	-0.59	0.49	1.99	1.03	0.40	-2.57	-8.66	-6.64	-14.45	-10.90	-12.07	-14.85	-6.31	-1.72	0.58	0.06	-0.41	-3.57	-1.71	-5.26	-15.38	-19.04	-5.17	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-1.78	-3.10	-7.25	-9.08	-9.98	-8.43	-12.48	-10.90	-10.01	-13.25	-7.29	-2.51	-2.17	-3.43	-7.56	-14.26	-7.63	-8.02	-9.61	-19.04	-6.37	-3.86	-6.73	-2.02	-0.57	-3.46	-4.82	-7.10
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-8.74	-10.90	-10.11	-12.23	-8.73	-7.04	-4.60	-4.99	-6.29	-10.89	-10.76	-13.76	-11.59	-19.04	-18.74	-25.26	-17.54	-12.84	-14.14	-11.55	-8.84	-8.67	-12.58	-13.78	-10.99			



Appendix B - Antenna Composite Gain Data of 6GHz

Freq.	5.9GHz	6.5GHz	6.8GHz	7.1 GHz
Ant. 5 Max Gain (dBi)	4.08	4.31	4.44	5.91
Ant. 6 Max Gain (dBi)	4.77	2.75	4.41	5.31
Ant. 7 Max Gain (dBi)	3.76	2.68	3.30	4.84
Ant. 8 Max Gain (dBi)	3.54	2.06	2.89	3.91
Ant. 5 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/105/60	Phi/90/75	Phi/90/75	Phi/75/75
Ant. 6 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/90/45	Theta/75/45	Theta/75/45	Theta/75/45
Ant. 7 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/300/150	Theta/45/15	Theta/45/15	Theta/0/60
Ant. 8 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/105/120	Phi/105/165	Phi/105/165	Phi/225/30
Max Gain (dBi)	4.77	4.31	4.44	5.91
DG [1SS] (dBi)	7.38	6.79	7.68	8.24
DG [2SS] (dBi)	4.77	4.31	4.44	5.91
DG [4SS] (dBi)	4.77	4.31	4.44	5.91



Frequencies=	phi	Azimuths	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15			
5925(MHz)	theta	Elevations	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45		
		Directional gain (dB)	1.28	-1.45	2.68	3.85	2.91	1.81	-0.06	-0.68	1.10	2.41	-2.67	-6.82	-11.42	-2.05	1.61	0.64	-0.74	-1.87	0.08	-0.61	1.74	-0.77	0.34	-1.20	1.28	-0.10	3.58	5.74		
			15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
			3.70	4.21	0.89	1.18	3.01	3.51	-3.32	-6.74	-11.42	-2.71	2.19	1.97	1.12	-0.46	0.39	0.60	2.38	-0.81	0.17	-1.69	1.28	1.28	4.70	5.68	4.57	4.63	3.22	3.49	0.81	2.90
			30	30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60		
			150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
			-2.77	-4.73	-11.42	-2.57	2.05	1.18	1.44	1.06	0.25	1.18	0.58	0.13	0.73	-0.78	1.28	2.32	4.73	3.71	5.64	5.85	6.99	6.37	2.82	2.42	-1.43	-3.08	-11.42	-2.51	2.23	3.01
			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	
			240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
			3.33	3.24	3.12	2.16	0.88	3.18	0.47	0.10	1.28	3.05	4.25	2.69	4.54	6.14	7.38	5.91	2.65	3.70	0.10	-1.93	-11.42	-2.81	2.05	3.77	4.02	2.42	3.01	3.10	-1.54	3.99
			75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
			330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45
			-0.67	0.72	1.28	3.63	3.79	3.21	6.00	5.42	4.63	3.12	1.55	4.80	1.44	-1.45	-11.42	-2.65	1.78	2.79	1.90	1.71	2.63	2.19	2.85	3.76	-0.72	1.58	1.28	3.96	3.66	3.71
			90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60					



Appendix B - Antenna Composite Gain Data of 6GHz

DG 1SS Result

Frequencies= 6525(MHz)	phi	Azimuths	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	theta	Elevations	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45		
		Directional gain (dB)	-0.88	3.87	4.62	4.26	2.65	2.18	2.26	1.44	-0.96	0.28	-3.14	-5.72	-17.87	-3.61	0.14	-0.70	-4.79	-0.73	0.05	-0.85	1.13	-1.12	0.01	-0.27	-0.88	4.07	4.67	5.30		
			15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
			4.49	3.20	2.07	0.02	-0.90	2.87	-1.86	-6.36	-17.87	-3.70	0.54	0.73	-1.57	-0.35	-0.69	-0.30	1.53	1.26	-0.74	-0.03	-0.88	3.45	3.99	5.86	6.11	4.94	4.74	2.86	-0.95	4.34
			30	30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60		
			150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
			-2.14	-5.95	-17.87	-2.47	0.54	0.40	-1.47	0.75	0.17	2.43	1.12	2.03	-1.73	0.57	-0.88	2.46	2.98	5.14	6.54	6.37	6.08	4.53	3.01	4.35	-4.77	-4.82	-17.87	-1.96	0.08	2.54
			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	
			240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
			-0.48	0.11	0.64	3.94	0.10	2.57	-1.97	1.22	-0.88	1.61	2.86	4.87	5.30	6.35	6.79	4.50	2.84	3.20	-5.57	-4.12	-17.87	-2.88	0.67	2.07	-0.18	1.10	0.49	1.24	1.72	1.26
			75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
			330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45
			-0.40	1.65	-0.88	0.92	3.59	5.19	4.86	5.58	6.49	4.31	2.15	4.68	-3.97	-3.48	-17.87	-3.85	1.16	0.39	-1.45	1.59	1.00	1.36	2.69	-1.33	1.74	1.50	-0.88	0.42	3.78	5.27
			90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
			4.99	4.87	3.31	3.39	2.34	5.57	-1.77	-3.47	-17.87	-4.90	-0.11	0.77	1.82	3.21	0.83	3.87	0.72	0.80	2.42	1.00	-0.88	0.05	3.30	4.56	3.70	3.26	2.41	4.29	3.47	4.90
			105	105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	135	135	135
			150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
			-0.84	-4.08	-17.87	-6.73	-1.37	1.26	3.15	3.47	1.97	2.87	3.00	1.83	1.90	0.97	-0.88	-0.55	1.99	3.11	4.27	2.63	3.33	4.40	4.75	2.72	-1.75	-4.54	-17.87	-5.57	-3.21	1.23
			135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	150	150	150	150	150	150	150	150	150	150	
			240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
			-0.18	0.95	4.13	3.86	3.76	0.86	2.04	1.32	-0.88	-0.73	1.10	3.21	2.53	2.30	1.44	2.48	1.25	3.20	-0.24	-4.81	-17.87	-4.77	-1.71	-2.16	-1.23	1.41	-0.28	2.35	3.19	3.09
			150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
			330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45
			2.91	1.89	-0.88	0.03	0.06	0.29	2.67	1.36	1.15	1.30	0.06	2.63	-0.77	-5.45	-17.87	-4.68	0.25	-5.10	-3.42	-0.39	0.73	2.04	2.66	4.17	4.18	2.94	-0.88	0.53	-1.62	-1.00
			165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	315	330	345	315	330	345	315	330	345	315
			2.27	1.11	-0.39	1.47	0.51	-0.42	-2.88	-5.36	-17.87	-3.86	0.02	0.11	-3.11	-0.58	-2.61	0.04	1.88	-1.51	-0.71	0.20	1.88	-1.51	-0.71	0.20	1.88	-1.51	-0.71	0.20	1.88	



Frequencies= 6875(MHz)	phi	Azimuths	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15			
	theta	Elevations	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45		
		Directional gain (dB)	0.67	3.25	3.56	5.00	4.13	3.27	3.40	1.90	-0.56	1.25	-3.10	-8.57	-17.71	-3.88	0.26	0.65	-3.28	-1.17	-0.38	-0.23	1.05	0.40	0.36	0.51	0.67	3.75	4.91	6.06		
			15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
			4.75	5.41	3.71	-0.01	-2.22	3.93	-2.01	-8.34	-17.71	-4.11	1.55	1.60	-2.41	1.47	0.84	1.43	-1.73	1.00	0.09	-0.22	0.67	3.47	5.30	5.68	4.22	5.61	4.41	3.15	2.80	4.78
			30	30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60		
			150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
			-2.78	-5.73	-17.71	-2.82	1.43	2.40	0.01	0.62	0.37	2.71	-0.06	2.42	0.11	-0.49	0.67	2.72	5.11	4.84	6.07	6.32	4.88	5.05	2.50	4.31	-5.30	-4.33	-17.71	-2.73	0.56	1.99
			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	
			240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
			1.76	1.09	1.97	4.19	1.29	2.23	1.48	-0.88	0.67	1.77	4.34	4.90	6.61	6.01	6.35	6.19	4.02	3.33	-3.58	-4.09	-17.71	-4.42	1.59	2.55	1.41	2.00	1.96	0.56	3.67	1.39
			75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
			330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45
			3.02	-1.20	0.67	1.16	2.81	4.68	5.60	7.26	7.68	6.01	4.32	4.07	-1.81	-3.75	-17.71	-5.26	1.30	1.67	1.51	2.46	2.37	2.57	2.98	-0.08	3.81	-1.22	0.67	1.46	2.32	4.43
			90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75				



Frequencies= 7125(MHz)	phi	Azimuths	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15			
	theta	Elevations	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45		
		Directional gain (dB)	3.07	5.02	4.30	5.12	6.49	5.16	4.93	2.74	1.28	2.06	-1.50	-6.64	-16.59	-3.00	0.89	1.22	-1.37	0.55	0.80	0.76	2.15	2.88	2.20	2.04	3.07	5.30	5.47	6.57		
			15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
			60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135
			5.73	6.04	6.42	2.08	0.62	4.74	0.54	-5.88	-16.59	-2.64	2.63	2.56	-1.24	3.44	-0.16	2.72	1.72	2.50	1.83	1.74	3.07	4.85	6.44	7.00	5.64	6.10	4.99	4.38	4.80	5.80
			30	30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
			150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225
			-0.40	-4.47	-16.59	-1.53	3.03	3.14	2.25	0.09	0.45	2.69	-0.95	2.47	1.68	1.79	3.07	3.84	6.74	6.15	6.48	7.65	4.61	4.65	3.06	5.01	-2.53	-3.88	-16.59	-1.36	2.42	3.35
			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75
			240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315
			2.96	1.75	2.61	4.24	2.66	2.95	3.12	1.62	3.07	2.59	5.90	5.56	7.18	7.79	6.70	6.59	4.00	4.10	-1.27	-3.87	-16.59	-3.26	2.08	2.93	2.83	2.41	2.78	1.53	4.64	2.53
			75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
			330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45
			4.55	1.35	3.07	1.70	4.20	6.15	7.13	8.24	7.20	6.43	5.66	3.91	0.76	-2.69	-16.59	-6.18	0.52	1.23	2.99	3.21	3.21	4.10	2.86	1.39	3.96	1.64	3.07	2.35	3.15	5.24
			90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
			60	75	90	105	120	135	150	165	180	195	210	225	240																	



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant5

Frequency=5925(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-4.02	-11.19	-2.53	-0.60	-2.36	-4.68	-9.66	-5.88	-0.45	-1.66	-7.15	-10.16	-13.90	-7.51	-6.44	-6.81	-6.65	-5.72	-4.11	-4.22	-1.39	-0.62	-0.58	-7.02	-4.02	-8.85
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-0.36	-4.80	-2.99	0.56	1.83	-5.48	-7.98	-13.90	-11.10	-7.99	-4.24	-2.33	-2.84	-6.33	-4.58	-1.38	-3.44	-1.31	-8.65	-4.02	-6.81	-0.59	-0.58	-2.93	-1.94	-1.48	-0.44	-2.91
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-7.22	-13.90	-16.67	-7.26	-4.87	-1.54	-2.01	-6.49	-1.08	-0.87	-4.05	-1.66	-6.56	-4.02	-5.42	-0.48	-2.45	-0.43	-0.53	2.88	3.97	-2.10	-1.29	-10.10	-8.60	-13.90	-13.96	-3.75
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
0.84	-1.13	0.44	-1.66	-0.71	-1.92	-4.85	-4.02	-4.20	-0.42	0.92	2.57	3.11	4.02	4.08	-0.06	-1.07	-6.96	-10.49	-13.90	-9.82	-2.31	1.25	3.03	2.27	0.75	0.48	-4.09
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-3.77	-4.02	-2.89	-0.54	2.21	3.68	3.10	1.88	-0.49	-0.93	-0.24	-4.97	-10.80	-13.90	-8.80	-3.05	0.04	1.81	1.36	0.01	-1.15	0.82	-0.23	-5.51	-2.77	-4.02	-1.65	-0.22
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
1.07	-2.39	-4.28	-0.90	-0.03	-6.70	-9.23	-13.90	-9.49	-5.31	-3.50	-2.13	-1.83	-2.12	0.10	0.55	-5.03	-1.68	-2.09	-4.02	-0.60	0.57	0.36	-1.16	-3.65	-4.53	-2.76	1.13
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-6.57	-13.90	-10.86	-6.47	-2.14	-1.80	-0.94	-3.23	-2.95	-4.59	-1.55	0.29	-2.40	-4.02	0.35	-0.74	-1.33	-3.61	-0.65	-7.56	-0.60	-0.38	-1.35	-7.26	-5.08	-13.90	-9.02	-1.80
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-6.76	-4.39	-3.33	-8.80	-5.67	-5.32	-7.95	-4.02	0.45	-7.18	0.33	0.99	-1.06	-2.21	-8.45	-11.75	-3.39	-7.54	-11.28	-13.90	-9.96	-1.34	-5.26	-11.70	-10.05	-16.60	-9.75	-6.01
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-11.32	-4.02	-0.99	-4.39	0.38	-0.89	-4.49	-5.48	-3.03	-4.62	-8.14	-8.24	-13.68	-13.90	-7.62	-3.71	-6.50	-7.43	-3.98	-7.65	-3.23	0.03	1.07	-1.42	-3.50			



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant5

Frequency=6525(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-7.60	-1.61	-0.95	-3.02	-2.29	-7.47	-4.57	-3.37	-4.75	-1.00	-10.54	-8.28	-23.28	-5.16	-10.02	-12.56	-9.68	-5.05	-8.77	-8.26	-2.40	-2.09	-5.76	-3.33	-7.60	-1.34
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-5.40	-6.66	-9.19	-6.25	1.93	-3.09	-7.46	-23.28	-5.03	-6.73	-11.51	-9.05	-6.12	-10.29	-3.42	-2.87	-1.53	-6.42	-3.41	-7.60	-1.86	-1.41	-0.07	1.60	-1.47	-3.00	0.70	-6.55
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-7.13	-23.28	-5.94	-4.25	-12.38	-6.12	-3.46	-7.02	-1.53	-0.39	-0.53	-7.30	-3.02	-7.60	-2.86	-1.69	-1.70	2.59	1.94	1.54	1.76	-0.32	-0.29	-8.06	-7.83	-23.28	-5.93	-2.32
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-0.98	-3.72	0.43	-3.93	1.50	-8.63	-2.64	-7.60	-3.55	-2.87	-4.72	2.02	3.63	3.76	1.87	0.19	-0.65	-11.14	-8.03	-23.28	-6.37	-1.41	-1.75	-1.91	0.80	-0.57	-2.10	0.54
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-2.70	-7.60	-3.77	-1.32	-3.27	2.14	3.47	4.31	-0.61	-3.61	-0.27	-10.25	-7.02	-23.28	-7.74	-2.23	-2.84	-1.63	-0.19	-1.65	-2.26	2.09	-5.10	-3.00	-3.79	-7.60	-4.07	0.28
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
1.92	-1.45	-6.89	-3.07	-2.01	-9.65	-6.00	-23.28	-10.65	-7.27	-2.58	-0.79	0.80	-0.57	-0.28	-3.99	-3.81	-2.72	-5.51	-7.60	-4.90	-0.44	-0.62	-2.29	-2.33	-6.35	-8.67	-0.62
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-6.14	-23.28	-18.45	-9.00	-1.30	0.09	-0.40	-2.98	-2.84	-3.19	-4.15	-6.37	-5.93	-7.60	-7.05	-5.00	-3.98	-1.49	-4.85	-4.58	-4.53	-0.40	-2.80	-18.41	-6.60	-23.28	-6.54	-4.98
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-7.86	-11.53	-9.41	-3.22	-4.25	-2.72	-4.27	-7.60	-7.32	-2.04	-3.87	-1.96	-1.53	-3.63	-3.28	-11.68	-0.43	-3.50	-10.30	-23.28	-6.92	-4.78	-10.73	-9.72	-16.50	-9.97	-3.84	-0.98
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-2.70	-7.60	-4.92	-2.91	-4.94	0.90	-2.44	-3.25	-5.42	-4.38	-5.68	-10.04	-12.67	-23.28	-8.06	-8.11	-6.60	-5.41	-5.45	-6.96	-3.49	-0.76	-3.72	-4.70	-3.44			



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant5

Frequency=6875(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-2.76	-0.41	-0.74	-0.35	-2.20	-3.71	-7.64	-3.28	-5.95	-1.59	-9.61	-11.69	-22.14	-7.48	-4.40	-9.21	-8.18	-3.49	-7.46	-4.08	-1.21	-0.77	-1.36	-2.49	-2.76	-0.80
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-0.63	-1.20	-6.78	-10.99	0.81	-2.98	-9.97	-22.14	-7.39	-3.51	-14.04	-8.32	-2.21	-7.36	-2.42	-1.34	0.62	-3.07	-3.42	-2.76	-1.80	-0.05	0.61	-2.35	-2.64	-1.94	-0.47	-1.48
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-8.25	-22.14	-7.67	-2.78	-6.80	-3.30	-2.36	-6.67	-0.45	-2.40	1.62	-4.97	-3.54	-2.76	-2.78	-0.83	0.09	-1.66	-0.96	1.99	2.14	0.90	1.40	-5.17	-8.04	-22.14	-7.77	-1.91
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
0.67	-0.18	0.71	-3.51	2.15	-2.34	-3.59	-2.76	-2.97	-2.41	-0.81	0.00	1.97	3.36	3.03	2.33	1.70	-7.14	-9.32	-22.14	-9.20	-1.33	-0.87	0.24	1.62	1.01	-3.20	0.75
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-4.20	-2.76	-2.10	-4.39	-0.56	1.51	4.31	4.44	0.70	-0.94	1.69	-6.44	-10.15	-22.14	-11.65	-2.88	-3.77	-1.21	-0.31	-2.16	-1.07	0.03	-5.18	1.23	-5.01	-2.76	-0.83	-2.74
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
2.86	1.73	-4.82	-4.95	0.07	-7.10	-8.68	-22.14	-11.29	-8.22	-5.01	-1.59	0.88	-0.84	-0.84	-9.82	-1.25	-0.08	-4.47	-2.76	0.03	-0.46	1.00	0.49	0.09	-5.30	-5.53	-4.31
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-6.86	-22.14	-12.05	-5.09	-0.66	-0.33	-0.38	-3.57	-4.10	-2.81	-2.62	-3.53	-3.10	-2.76	0.07	-0.44	0.71	-1.41	-3.43	-2.92	-9.87	-3.08	-2.82	-13.99	-5.95	-22.14	-11.00	-10.19
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-5.72	-8.43	-9.49	-5.75	-1.41	-1.74	-2.00	-2.76	-1.67	-1.36	-1.96	-0.38	0.48	-7.01	-2.76	-10.60	-4.15	-9.70	-10.51	-22.14	-10.63	-10.30	-9.77	-12.31	-9.72	-3.68	-3.67	-5.74
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-1.01	-2.76	-1.83	-1.40	-1.42	1.44	0.24	-2.70	-7.48	-10.00	-11.78	-6.14	-11.83	-22.14	-8.94	-4.32	-14.70	-8.37	-2.26	-9.15	-0.99	-0.29	-0.23	-0.76	-1.75			



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant5

Frequency=7125(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-0.76	0.69	-0.66	-1.00	-0.18	1.88	-2.77	-2.50	-4.69	-2.47	-4.91	-13.82	-17.14	-5.69	-4.95	-6.87	-3.72	-0.97	-5.64	-3.34	-0.32	-0.49	-1.06	-2.78	-0.76	0.61
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
0.97	1.01	-5.30	-4.05	0.49	-0.26	-11.34	-17.14	-5.68	-2.02	-8.78	-3.31	-0.52	-9.40	-1.31	-0.08	1.72	-2.32	-4.81	-0.76	-0.51	1.50	2.15	0.65	-1.53	-3.60	-2.08	1.85
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-8.53	-17.14	-5.44	-0.61	-3.02	-0.50	-1.45	-4.89	1.09	-0.77	2.92	-2.12	-5.08	-0.76	-2.21	2.24	1.66	0.37	-1.10	1.20	2.34	0.67	3.81	-3.08	-7.51	-17.14	-5.65	0.02
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
1.05	1.88	1.22	-0.04	3.02	0.71	-4.98	-0.76	-4.10	0.93	0.42	1.07	0.96	2.40	4.42	2.44	2.87	-4.98	-8.57	-17.14	-8.24	0.07	0.27	0.69	0.43	2.03	-2.47	2.57
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-5.08	-0.76	-5.48	-2.62	1.91	4.39	5.05	2.45	1.91	0.85	2.49	-4.24	-8.07	-17.14	-13.61	-2.26	-3.34	0.23	-0.59	-1.54	1.55	-0.78	-3.92	2.78	-5.15	-0.76	-3.60	-6.58
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
4.41	2.94	-1.57	-2.61	0.69	-5.82	-6.31	-17.14	-10.39	-8.04	-4.25	1.98	1.95	0.28	-0.41	-8.04	-0.09	0.52	-3.32	-0.76	-0.73	0.13	2.62	3.33	1.29	-3.94	-6.85	-6.37
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-5.33	-17.14	-7.02	-2.48	0.91	0.11	-0.06	-2.87	-2.21	-1.12	-2.30	-2.38	-1.59	-0.76	0.39	2.47	3.03	-0.87	-2.01	-1.11	-3.39	-1.03	-0.74	-7.88	-5.48	-17.14	-8.56	-5.01
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-4.56	-18.03	-8.06	-4.71	0.54	-0.96	-1.36	-0.76	0.13	-3.03	1.07	2.06	2.15	-4.38	-2.33	-6.27	-5.09	-5.24	-11.66	-17.14	-11.96	-7.04	-7.92	-14.76	-5.67	-2.61	-2.69	-4.79
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-0.30	-0.76	0.44	-1.57	1.97	2.12	2.49	-4.05	-4.64	-10.79	-9.06	-4.16	-8.72	-17.14	-6.32	-5.16	-7.47	-3.41	-0.08	-8.75	0.03	1.90	1.09	0.15	-0.43			



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant6

Frequency=5925(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-1.39	-0.75	-0.44	-1.38	-3.92	-6.00	-4.47	-11.16	-8.41	-7.50	-12.35	-15.59	-19.83	-8.20	-8.53	-17.00	-8.09	-12.27	-15.63	-9.18	-9.08	-11.85	-10.39	-6.74	-1.39	-0.50
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-2.13	-2.40	-5.46	-2.47	-6.10	-13.51	-15.10	-19.83	-9.04	-7.08	-16.84	-10.22	-6.88	-6.59	-6.72	-4.95	-7.68	-8.04	-5.41	-1.39	-0.32	0.87	1.79	-1.71	0.83	0.61	-4.11	-1.57
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-10.99	-19.83	-9.89	-5.81	-11.32	-5.87	-5.11	-5.89	-7.20	-9.80	-8.57	-6.57	-3.65	-1.39	-0.45	0.06	0.06	-1.09	2.16	4.77	-0.77	0.85	-2.10	-5.81	-8.05	-19.83	-10.11	-4.95
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-4.64	-1.76	-7.50	-10.85	-6.03	-5.93	-2.66	-1.39	-0.65	-1.75	-4.36	-12.10	-0.45	3.89	-1.28	-2.48	-3.67	-7.73	-7.13	-19.83	-10.89	-5.25	-3.54	-4.79	-9.29	-2.86	-5.16	-14.07
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-2.31	-1.39	-0.61	-4.09	-8.57	-3.71	-5.12	-3.76	-8.88	-9.06	-5.87	-11.00	-8.34	-19.83	-12.39	-5.93	-4.02	-3.43	-8.03	-3.19	-7.22	-7.55	-4.05	-5.13	-1.66	-1.39	-0.46	-4.99
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-9.49	-11.01	-7.34	-2.13	-8.07	-15.39	-11.21	-19.83	-12.12	-5.75	-6.85	-6.56	-5.93	-2.77	-10.26	-6.25	-3.84	-4.39	-0.69	-1.39	-0.51	-3.44	-4.09	-0.68	-6.54	-7.83	-7.26	-1.57
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-13.07	-19.83	-9.90	-8.09	-4.08	-3.79	-7.19	-4.01	-6.08	-3.44	-0.64	-1.91	-0.11	-1.39	-1.01	-3.62	-4.00	-2.35	-4.70	-4.30	-10.96	-3.88	-6.97	-8.92	-11.96	-19.83	-11.33	-17.30
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-11.97	-4.53	-5.21	-4.29	0.85	0.68	-0.51	-1.39	-3.92	-7.11	-7.82	-11.29	-14.23	-12.96	-16.68	-8.34	-11.62	-8.31	-10.42	-19.83	-13.80	-11.00	-7.84	-6.36	-10.28	-8.28	-6.20	-2.17
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-0.77	-1.39	-5.87	-8.24	-7.80	-6.17	-5.93	-11.48	-19.05	-7.66	-12.72	-9.92	-9.32	-19.83	-8.39	-9.07	-18.78	-17.45	-16.79	-14.15	-12.37	-8.98	-12.15	-10.37				



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant6

Frequency=6525(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-5.54	-0.50	-0.71	-1.89	-12.24	-5.44	-5.41	-6.15	-10.77	-5.95	-5.52	-11.41	-21.75	-13.55	-4.24	-12.28	-12.16	-6.85	-6.89	-9.92	-6.63	-16.81	-12.49	-5.66	-5.54	-0.04
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-2.91	-6.21	-2.75	-5.18	-2.56	-10.51	-12.75	-21.75	-15.78	-7.92	-10.38	-9.69	-7.22	-4.51	-6.81	-3.85	-8.73	-13.06	-6.58	-5.54	-0.67	-0.82	-0.38	-0.94	-2.33	-1.45	-2.77	-10.06
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-13.71	-21.75	-14.47	-11.35	-5.11	-9.75	-4.58	-2.87	-5.33	-6.97	-6.20	-10.23	-7.11	-5.54	-1.82	-2.44	-0.55	0.96	1.53	0.07	-2.06	-2.07	-1.30	-9.00	-16.00	-21.75	-11.23	-13.62
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-9.65	-2.22	-2.05	-9.66	-6.13	-8.64	-6.28	-5.54	-2.41	-2.82	-1.79	-4.67	1.17	2.75	-3.40	-0.79	-6.02	-9.67	-18.12	-21.75	-8.67	-8.47	-8.23	-8.83	-10.04	-7.58	-3.51	-8.91
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-5.45	-5.54	-2.59	-2.41	-3.79	-8.15	-3.89	0.12	-5.36	-4.94	-4.57	-12.08	-16.56	-21.75	-7.38	-3.26	-8.26	-10.67	-7.41	-5.84	-6.83	-7.60	-10.99	-6.45	-5.53	-5.54	-3.36	-2.40
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-9.78	-7.41	-6.33	-14.82	-1.59	-10.85	-15.13	-21.75	-7.42	-2.17	-2.95	-4.55	-5.86	-4.25	-1.55	-4.86	-6.13	-4.89	-5.49	-5.54	-4.86	-3.16	-5.21	-3.14	-13.11	-13.06	-4.57	-14.78
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-12.99	-21.75	-9.20	-5.14	-4.91	-4.05	-5.61	-9.64	-2.75	-2.77	-3.08	-3.14	-4.80	-5.54	-6.37	-4.28	-5.16	-2.19	-6.77	-6.16	-6.53	-6.00	-14.74	-12.18	-11.24	-21.75	-11.03	-7.92
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-4.55	-7.36	-6.37	-3.11	-3.97	-3.70	-3.37	-5.54	-5.60	-6.16	-7.47	-6.76	-8.30	-7.89	-8.07	-8.42	-6.47	-10.65	-17.05	-21.75	-10.30	-3.56	-11.82	-13.33	-4.06	-4.42	-10.56	-8.11
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-1.89	-5.54	-4.51	-11.27	-14.11	-7.64	-7.79	-9.34	-12.28	-9.92	-12.12	-8.72	-14.39	-21.75	-12.41	-4.87	-8.91	-18.01	-14.98	-16.78	-7.21	-10.82	-11.30	-11.23	-4.72			



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant6

Frequency=6875(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	E Total. dB	-5.73	-1.85	0.14	-3.65	-5.21	-5.86	-3.17	-4.80	-6.95	-5.04	-6.68	-13.28	-22.63	-9.95	-6.49	-6.32	-13.19	-15.94	-8.63	-17.70	-8.51	-9.75	-9.02	-10.46	-5.73	-0.19	1.89	-1.53	-3.40
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	150
-0.47	-3.16	-4.23	-7.35	-3.11	-11.90	-23.13	-22.63	-10.63	-8.49	-7.12	-18.70	-7.19	-4.09	-5.58	-8.87	-12.82	-8.86	-9.80	-5.73	-0.10	2.13	-0.34	-4.62	0.65	-2.68	-3.85	-3.09	-1.59	-12.61	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	240
-22.52	-22.63	-10.98	-10.48	-3.96	-7.95	-7.91	-2.49	-4.43	-8.55	-10.23	-6.61	-8.31	-5.73	-1.46	1.13	-1.19	2.27	4.41	-1.67	0.10	-5.19	-1.33	-9.43	-17.49	-22.63	-11.99	-9.64	-6.90	-5.68	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-15.51	-3.09	-2.65	-7.56	-10.48	-7.30	-7.93	-5.73	-3.67	-0.36	-1.62	2.06	1.79	2.17	1.45	-1.15	-5.75	-6.77	-15.46	-22.63	-12.14	-7.16	-5.27	-8.43	-9.71	-6.08	-6.11	-5.02	-6.72	-7.06	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
-7.49	-5.73	-5.36	-1.84	-3.48	-4.49	-1.65	0.96	-1.74	-1.11	-11.22	-8.30	-12.06	-22.63	-12.32	-5.31	-2.67	-5.24	-8.15	-2.38	-4.11	-6.90	-6.19	-5.64	-6.41	-5.73	-5.51	-3.66	-3.10	-6.87	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-2.76	-1.92	-6.16	-6.42	-4.83	-11.10	-9.13	-22.63	-15.07	-5.30	-2.62	-1.32	-8.17	-3.31	-0.39	-4.35	-3.06	-2.51	-5.29	-5.73	-5.26	-3.94	-6.89	-2.80	-9.61	-3.07	-5.39	-12.46	-3.93	-9.13	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-9.37	-22.63	-18.49	-7.72	-6.19	-4.44	-4.10	-1.31	-1.73	-4.02	-1.44	-1.26	-4.51	-5.73	-5.64	-2.27	-9.03	-3.41	-6.72	-9.44	-5.23	-7.11	-7.09	-10.30	-13.13	-22.63	-9.60	-8.83	-6.45	-13.62	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	330
-4.50	-2.64	-2.26	-3.93	-1.92	-2.41	-5.01	-5.73	-7.01	-7.08	-14.38	-7.08	-14.52	-8.67	-5.30	-13.38	-7.91	-8.25	-11.03	-22.63	-9.19	-4.31	-6.09	-7.13	-4.12	-3.43	-5.87	-7.70	-1.81	-1.18	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
-4.16	-5.73	-7.45	-11.73	-13.03	-7.46	-11.77	-14.83	-5.44	-11.72	-11.70	-7.22	-9.44	-22.63	-9.18	-8.81	-6.95	-9.01	-7.56	-6.56	-15.03	-8.20	-12.69	-9.01							



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant6

Frequency= 7125(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-4.45	-0.78	-0.12	-2.88	-3.30	-7.11	-0.55	-5.21	-4.31	-5.56	-9.21	-11.72	-19.48	-9.60	-6.08	-5.91	-14.12	-10.98	-6.46	-10.57	-8.57	-12.00	-7.50	-6.97	-4.45	0.68
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-1.67	-0.49	-4.64	-4.15	-2.36	-9.89	-14.59	-19.48	-10.39	-9.15	-6.72	-16.41	-5.73	-3.40	-5.42	-8.41	-14.41	-6.10	-6.16	-4.45	1.02	2.88	0.19	-4.84	2.26	-1.06	-5.46	-1.48
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-15.89	-19.48	-11.31	-9.01	-6.04	-5.86	-13.13	-2.03	-4.29	-9.69	-18.51	-6.11	-6.03	-4.45	-0.14	2.30	-2.08	0.63	5.31	-1.44	-2.31	-4.13	-2.63	-10.29	-15.43	-19.48	-12.75	-6.91
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-14.09	-3.87	-4.04	-6.56	-7.59	-6.64	-6.10	-4.45	-2.41	0.66	-1.71	3.40	3.92	1.36	1.80	-2.54	-3.39	-7.47	-13.56	-19.48	-14.15	-7.01	-2.79	-9.24	-6.88	-5.64	-4.64	-4.34
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-5.94	-4.45	-4.49	-1.21	-0.51	-0.37	-0.71	0.98	0.99	-0.59	-8.06	-6.86	-9.95	-19.48	-16.03	-8.88	-2.34	-3.81	-8.39	-0.85	-1.63	-5.49	-4.96	-5.57	-4.92	-4.45	-5.44	-3.91
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-2.98	-0.35	-3.60	-4.09	-9.57	-6.93	-7.46	-19.48	-14.69	-7.23	-5.02	-1.09	-1.97	-1.54	0.30	-1.35	-1.10	-3.40	-3.29	-4.45	-5.90	-2.65	-7.14	-6.72	-6.92	-4.60	-4.04	-6.74
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-8.23	-19.48	-13.05	-5.39	-7.25	-5.74	-1.38	-1.13	-0.61	-1.87	0.67	-1.92	-2.55	-4.45	-6.73	-1.27	-7.26	-3.67	-6.06	-6.24	-8.87	-11.40	-7.42	-9.58	-13.90	-19.48	-9.62	-10.41
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-3.40	-2.21	-4.11	-3.03	0.05	-1.84	-2.98	-4.45	-6.93	-8.44	-10.20	-5.18	-8.84	-9.54	-3.35	-11.30	-8.15	-4.77	-8.26	-19.48	-9.28	-7.96	-4.72	-8.29	-2.87	-2.49	-2.97	-6.20
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-2.30	-4.45	-6.82	-6.59	-10.24	-5.43	-6.92	-6.90	-7.25	-9.50	-11.36	-6.41	-7.09	-19.48	-8.05	-6.82	-4.27	-10.91	-6.69	-10.92	-8.04	-14.72	-7.44	-5.75	-7.36			



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant7

Frequency=5925(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-3.11	-6.33	-1.77	1.41	0.36	-0.42	-2.94	-2.77	-3.40	-0.61	-8.74	-17.19	-17.48	-10.97	-11.04	-11.86	-11.19	-10.82	-11.62	-11.36	-7.90	-7.70	-6.06	-4.17	-3.11	-4.93
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
1.39	-4.91	-4.89	-2.40	-1.48	-10.19	-22.11	-17.48	-9.24	-6.03	-8.32	-9.78	-15.05	-11.81	-12.71	-9.06	-7.02	-4.98	-5.55	-3.11	-3.21	0.88	2.66	3.43	-0.27	-3.68	0.10	-6.57
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-15.37	-17.48	-5.67	-4.29	-11.58	-12.89	-8.42	-12.40	-11.64	-14.81	-4.51	-4.38	-6.85	-3.11	-1.67	0.88	1.08	3.26	0.65	-0.63	0.79	-5.38	-4.83	-7.71	-9.76	-17.48	-5.72	-4.40
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-10.12	-6.32	-6.52	-6.02	-1.81	-7.20	-7.23	-3.11	-0.71	1.24	-1.17	1.49	0.41	0.49	-1.97	-6.32	-1.79	-3.35	-6.01	-17.48	-8.12	-4.49	-9.32	-7.22	-10.52	-7.70	-9.98	-7.05
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-6.28	-3.11	-0.39	2.12	-0.60	0.23	-2.39	-0.62	-3.65	-6.96	0.78	-1.15	-4.12	-17.48	-7.92	-3.25	-5.97	-17.36	-7.99	-9.37	-3.74	-2.41	-2.24	-4.32	-4.66	-3.11	-0.75	1.97
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-1.15	0.93	-0.02	-3.65	2.76	-0.10	-4.16	-17.48	-6.77	-4.42	-3.84	-16.23	-7.85	-7.45	-0.63	-0.39	0.17	-2.39	-3.75	-3.11	-1.98	-0.15	-3.62	-2.97	-3.45	-2.79	-0.59	-3.72
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-5.91	-17.48	-7.07	-6.96	-4.10	-8.28	-4.24	-4.24	-1.25	1.35	1.02	-2.42	-4.01	-3.11	-3.78	-3.41	-5.48	-1.31	-1.05	-2.50	-0.48	-0.61	-1.08	-2.66	-8.06	-17.48	-10.68	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-1.88	0.02	2.57	3.76	1.37	-3.82	-6.08	-3.11	-2.79	-3.05	-5.05	-10.28	-9.43	-5.99	-9.18	-3.02	-2.81	-5.69	-9.24	-17.48	-12.70	-10.21	-3.68	-4.84	-3.47	-3.66	-0.17	2.61
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-6.81	-3.11	-2.12	-3.21	-3.27	-9.35	-6.64	-12.58	-7.83	-12.17	-7.66	-7.50	-8.99	-17.48	-9.04	-11.89	-14.37	-9.60	-9.37	-13.34	-10.20	-9.71	-6.75	-5.24	-2.84			



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant7

Frequency=6525(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-4.37	-0.85	1.00	2.44	0.81	-0.65	-0.58	-3.00	-4.34	-8.89	-9.58	-15.58	-27.68	-15.35	-18.56	-11.52	-16.40	-19.23	-11.41	-9.71	-15.79	-17.08	-5.19	-5.08	-4.37	-1.07
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
0.45	0.72	-5.69	-6.68	-4.47	-8.91	-15.25	-27.68	-14.10	-14.69	-7.83	-10.02	-11.70	-12.48	-12.77	-12.20	-10.07	-5.89	-4.59	-4.37	-1.73	-0.54	1.94	0.75	2.08	1.74	-4.87	-4.95
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-11.80	-27.68	-8.67	-10.71	-14.00	-12.44	-10.79	-12.90	-11.25	-16.63	-10.74	-8.27	-3.64	-4.37	-2.50	-1.13	1.20	-0.63	0.78	1.23	-1.45	-3.61	0.71	-13.01	-8.40	-27.68	-8.00	-11.10
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-16.41	-11.83	-7.23	-8.47	-13.16	-9.52	-2.85	-4.37	-3.29	-1.18	1.18	-2.42	-1.76	-3.98	-1.03	-5.67	-1.33	11.31	-6.27	-27.68	-11.46	-9.33	-7.33	-13.13	-12.74	-17.17	-8.95	-9.24
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-2.05	-4.37	-4.27	-1.80	1.01	-1.32	0.16	-2.63	0.72	-1.23	0.55	-8.64	-6.06	-27.68	-13.86	-7.50	-8.24	-10.70	-7.36	-11.54	-3.41	-5.91	-6.51	-3.65	-1.61	-4.37	-4.71	-3.45
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-0.82	-2.05	0.17	0.76	2.29	-6.62	-7.11	-27.68	-15.18	-9.27	-8.38	-4.68	-3.86	-9.70	-5.01	-2.58	-4.07	-1.36	-1.96	-4.37	-4.58	-3.96	-2.72	-2.36	-2.09	-0.77	1.77	0.92
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-9.37	-27.68	-15.41	-9.21	-4.57	-3.12	-1.49	-1.72	-3.49	-0.63	-1.82	-0.09	-2.24	-4.37	-4.37	-3.76	-4.43	-3.84	-3.01	-2.21	2.29	-0.36	-1.88	-5.63	-13.20	-27.68	-10.86	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-0.43	-2.17	1.66	1.68	1.82	1.33	-1.17	-4.37	-3.15	-10.19	-9.43	-6.59	-7.85	-9.42	-5.38	-4.36	-5.32	-12.25	-10.85	-27.68	-12.01	-6.79	-8.03	-4.58	-2.09	-1.56	0.64	-1.68
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-0.92	-4.37	-3.04	-10.84	-8.89	-13.51	-13.78	-14.89	-9.83	-11.04	-8.81	-16.12	-11.92	-27.68	-13.18	-12.24	-10.74	-15.85	-13.10	-16.24	-19.15	-11.76	-11.60	-7.06	-4.04			



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant7

Frequency=6875(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	E Total. dB	-7.07	-2.25	-3.39	2.56	1.89	0.70	1.57	-4.62	-4.48	-5.08	-9.48	-21.88	-26.10	-11.94	-11.90	-14.26	-12.03	-15.71	-13.21	-9.44	-11.19	-16.92	-9.89	-5.97	-7.07	-1.92	-1.87	3.30	2.03
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
2.44	1.63	-3.58	-6.18	-0.54	-9.37	-12.26	-26.10	-13.32	-11.10	-7.10	-13.57	-11.88	-9.00	-7.78	-21.23	-18.03	-7.48	-7.55	-7.07	-1.86	-0.76	1.69	2.34	2.87	1.03	-3.29	-1.47	1.67	-12.63	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-7.78	-26.10	-9.05	-11.39	-11.64	-10.45	-15.43	-12.32	-16.98	-12.66	-13.06	-6.15	-8.75	-7.07	-2.37	0.02	-0.56	1.17	0.22	-1.32	-1.84	-3.99	-1.10	-22.01	-6.34	-26.10	-8.68	-14.38	-10.46	-12.31	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-13.16	-15.55	-6.79	-11.53	-11.72	-4.15	-9.05	-7.07	-3.49	-0.03	-0.07	1.10	-1.53	-2.56	-0.90	-6.53	-1.91	15.59	-5.44	-26.10	-12.63	-5.68	-8.10	-10.29	-13.96	-19.64	-8.78	-7.51	-6.67	-2.40	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	
-9.17	-7.07	-4.45	-1.46	-0.61	1.63	2.17	1.42	2.93	-0.50	-0.27	-9.34	-5.18	-26.10	-10.60	-3.96	-8.31	-5.04	-7.12	-8.22	-2.96	-4.43	-7.59	-1.78	-9.84	-7.07	-4.23	-2.49	-3.08	-1.99	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	
-0.06	-0.22	1.69	0.97	0.69	-7.57	-5.50	-26.10	-10.72	-5.79	-6.14	-0.39	-2.83	-4.12	-3.92	-1.78	-2.15	-0.40	-8.92	-7.07	-3.98	-3.52	-3.01	-2.59	-0.26	2.59	2.81	1.68	1.35	-6.51	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	
-6.46	-26.10	-12.33	-6.33	-3.30	-0.83	-1.98	0.29	-0.51	-1.92	0.05	-0.29	-6.10	-7.07	-4.52	-5.56	-5.50	-4.15	-2.72	1.13	1.46	-0.89	-0.61	-6.07	-9.13	-26.10	-10.16	-3.92	-3.32	-4.18	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	
-1.30	-0.60	2.58	1.22	2.44	-1.18	-3.59	-7.07	-3.78	-8.52	-8.20	-5.10	-7.69	-5.69	-4.03	-3.14	-6.63	-10.12	-14.17	-26.10	-12.27	-4.81	-5.45	-3.55	-1.55	0.07	0.84	1.02	1.61	-2.34	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
-2.80	-7.07	-3.62	-10.88	-9.33	-10.15	-12.83	-12.50	-11.14	-12.80	-9.40	-17.61	-10.75	-26.10	-10.22	-11.68	-11.13	-17.04	-15.48	-12.68	-17.29	-10.08	-9.80	-15.20	-4.47						



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_Ant7

Frequency=7125(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-4.44	0.18	-1.32	2.79	4.84	1.93	2.46	-0.55	-2.33	-3.21	-7.78	-15.42	-28.54	-9.97	-10.63	-20.40	-7.78	-15.29	-15.50	-9.39	-11.37	-10.92	-9.70	-6.83	-4.44	-0.05
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
3.30	3.44	0.22	-3.89	0.64	-7.79	-9.93	-28.54	-11.29	-7.21	-10.70	-18.37	-9.82	-10.65	-6.84	-12.49	-11.45	-9.51	-6.18	-4.44	-0.73	0.32	3.24	4.47	0.94	1.78	0.56	-0.60
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-6.57	-28.54	-9.13	-8.97	-17.69	-8.30	-19.52	-15.97	-19.07	-17.19	-12.90	-8.28	-5.34	-4.44	-1.97	0.29	1.77	3.68	2.04	0.41	-1.25	-4.59	-1.25	-15.98	-6.08	-28.54	-8.82	-9.91
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-13.97	-13.01	-5.40	-12.80	-12.28	-5.62	-5.09	-4.44	-3.78	-0.25	1.30	3.55	1.84	1.90	-3.14	-6.24	-2.42	10.17	-5.59	-28.54	-11.40	-4.75	-10.17	-7.03	-8.35	-14.48	-9.40	-8.89
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-5.32	-4.44	-5.75	-1.97	-0.65	2.59	2.45	3.69	0.57	0.42	-1.07	-4.58	-4.54	-28.54	-9.64	-3.69	-11.52	-2.88	-4.10	-7.27	-3.10	-4.51	-4.99	-4.07	-4.63	-4.44	-6.08	-2.13
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-0.79	0.85	2.09	1.91	0.09	-3.22	-3.71	-28.54	-9.91	-5.17	-4.82	0.15	-0.86	-2.33	-3.34	-1.17	-0.05	-3.01	-2.91	-4.44	-5.36	-2.22	-3.54	-2.17	0.17	2.64	3.75	3.07
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-3.83	-28.54	-10.41	-5.63	-1.04	-1.02	-0.19	1.26	0.73	-0.41	1.41	-1.47	-1.55	-4.44	-5.67	-3.70	-5.32	-4.46	-2.01	1.07	2.39	1.45	1.27	-5.61	-5.59	-28.54	-8.13	-2.78
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-0.65	-0.07	3.98	4.20	2.54	-0.70	-1.01	-4.44	-6.38	-8.81	-5.93	-5.93	-7.48	-4.76	-4.17	-2.19	-6.55	-8.96	-17.64	-28.54	-9.76	-4.92	-2.82	-2.54	-1.96	2.24	0.40	4.36
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-0.22	-4.44	-6.41	-8.11	-11.77	-9.95	-9.64	-9.55	-10.25	-9.50	-9.33	-16.81	-12.29	-28.54	-9.50	-10.48	-13.33	-15.51	-14.60	-8.59	-28.86	-11.02	-10.30	-10.42	-6.75	0	15	30



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_An8

Frequency=5925(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-17.19	-34.73	-13.66	-16.38	-9.03	-7.41	-9.21	-9.43	-11.54	-6.75	-7.43	-10.55	-20.03	-6.28	2.11	2.28	-3.06	-4.97	-0.28	-3.99	-1.53	-12.76	-9.27	-13.25	-17.19	-19.67
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-9.55	-10.10	-6.40	-11.96	-7.48	-10.12	-11.47	-20.03	-6.25	1.82	2.73	-1.13	-5.24	-1.06	-1.31	-1.32	-10.72	-13.20	-13.47	-17.19	-13.66	-10.80	-9.84	-8.77	-5.38	-9.73	-7.87	-15.10
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-11.30	-20.03	-6.01	-0.21	1.47	-2.07	-5.49	-1.55	-2.99	-2.76	-7.22	-11.16	-12.12	-17.19	-10.42	-8.20	-15.27	-5.35	-4.12	-7.57	-4.82	-9.32	-7.49	-6.74	-10.16	-20.03	-6.61	-2.30
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-0.87	-3.28	-4.14	-4.43	-3.73	-8.69	-11.04	-17.19	-8.54	-9.38	-17.31	-4.52	-4.07	-6.62	-3.21	-6.25	-3.00	-6.31	-8.82	-20.03	-7.01	-4.09	-0.67	-2.52	-3.05	-4.34	-0.60	-7.79
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-11.25	-17.19	-7.26	-11.86	-10.50	-2.10	-0.09	-4.60	-0.89	-3.19	-0.90	-3.90	-7.97	-20.03	-6.58	-5.07	-4.12	-6.99	-6.58	-3.45	-4.28	-6.00	-2.99	-16.59	-11.70	-17.19	-6.72	-11.85
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-0.79	-0.20	-0.56	-0.13	0.47	-1.79	-7.51	-20.03	-7.85	-5.22	-8.11	-12.50	-5.35	-3.55	-6.45	-2.93	-7.17	-18.44	-11.88	-17.19	-7.05	-12.71	-6.04	-1.18	-0.62	1.60	-0.60	1.06
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-6.64	-20.03	-10.98	-6.63	-10.65	-7.14	-4.00	-8.75	-2.05	-5.60	-9.93	-13.87	-12.30	-17.19	-7.64	-17.58	-9.84	-1.76	1.67	-1.68	3.54	0.14	1.50	-2.08	-5.36	-20.03	-12.42	-10.04
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-7.38	-4.98	-4.93	-20.14	-8.38	-14.06	-13.71	-17.19	-8.56	-13.28	-6.70	-4.07	1.45	-1.09	2.23	-0.13	1.87	-1.90	-4.61	-20.03	-13.73	-13.05	-9.96	-5.58	-10.19	-7.12	-14.73	-12.35
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	345	345	345
-16.73	-17.19	-10.76	-8.11	-8.51	-5.66	2.16	-2.63	2.60	0.75	0.83	-0.79	-4.73	-20.03	-11.30	-7.20	-5.20	-9.54	-6.98	-14.95	-9.54	-12.18	-12.30	-10.23	-22.31	-22.31	-22.31	-22.31



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_An8

Frequency=6525(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60
	E Total. dB	-11.78	-7.09	-6.68	-7.30	-4.41	-3.27	-5.50	-6.34	-10.02	-10.14	-12.59	-13.39	-23.89	-8.26	-0.12	0.83	-7.42	-2.89	-0.68	-2.16	-1.00	-3.25	-3.11	-15.02	-11.78	-6.78	-5.88	-2.71	-2.21
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	150
-4.65	-6.08	-7.76	-10.40	-14.24	-11.79	-17.40	-23.89	-8.26	0.68	1.60	-3.44	-2.72	-2.98	-4.87	-2.18	-2.00	-4.02	-11.75	-11.78	-7.46	-6.58	-2.78	-1.40	-3.72	-3.37	-7.99	-7.08	-11.30	-11.44	
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	240
-19.59	-23.89	-7.09	-0.42	0.82	-4.01	-4.00	-3.75	-0.08	-2.81	-1.88	-5.79	-9.59	-11.78	-8.52	-8.84	-3.04	-1.37	-4.04	-3.41	-5.87	-7.62	-8.26	-14.86	-13.86	-23.89	-7.59	-2.31	0.06	-3.82	
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	330
-3.72	-6.53	-1.18	-3.35	-2.06	-5.67	-8.95	-11.78	-10.43	-6.66	-0.33	0.66	-3.41	-3.05	-5.16	-9.92	-4.38	15.09	-12.50	-23.89	-9.93	-4.56	-0.90	-4.81	-4.03	-4.10	-6.07	-3.49	-4.61	-5.10	
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	60
-8.84	-11.78	-13.07	-4.54	1.42	-0.25	-3.68	-1.63	-2.78	-6.60	-1.91	-9.35	-12.13	-23.89	-12.26	-7.87	-4.48	-11.08	-4.90	-3.84	-7.17	-5.47	-7.85	-4.39	-8.61	-11.78	-13.47	-4.05	1.80	-1.78	
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	150
0.20	-1.26	-0.01	-3.82	-1.20	-5.23	-13.00	-23.89	-12.24	-7.56	-9.15	-8.44	-3.78	-9.81	-2.44	-12.87	-7.36	-6.22	-8.34	-11.78	-11.00	-3.82	1.37	-1.58	1.12	0.17	0.75	-2.42	-0.87	-3.23	
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	240
-14.32	-23.89	-10.89	-6.87	-10.73	-5.40	-3.62	-3.76	-3.57	-6.46	-9.47	-9.87	-8.34	-11.78	-9.19	-3.18	0.62	0.05	-0.28	0.64	-0.42	0.33	0.19	-2.55	-12.94	-23.89	-12.23	-11.22	-9.58	-11.87	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	330
-7.91	-2.27	-6.28	-5.42	-10.52	-11.09	-9.12	-11.78	-8.47	-4.20	-1.21	0.99	-1.89	-0.89	-2.40	-3.19	0.58	-3.59	-11.38	-23.89	-18.73	-11.99	-16.00	-12.05	-7.89	-6.67	-4.55	-10.91	-8.51	-12.15	
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345						
-9.81	-11.78	-8.99	-7.51	-3.52	-0.05	-2.95	-1.07	-3.07	-2.28	-2.63	-4.08	-9.51	-23.89	-15.97	-8.88	-15.50	-13.28	-9.13	-7.49	-5.77	-4.35	-9.28	-10.12	-8.69						



Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_An8

Frequency=6875(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	15	0
	E Total. dB	-6.53	-8.56	-7.88	-4.48	-3.73	-3.49	-3.72	-3.88	-9.79	-8.86	-11.36	-14.52	-24.65	-10.86	-2.73	1.08	-5.81	-2.44	-0.89	-1.37	-2.68	-2.98	-5.10	-4.93	-6.53	-8.24
15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-5.62	-10.63	-11.59	-9.18	-7.76	-10.99	-17.43	-24.65	-10.19	0.56	2.44	-1.88	-0.89	-2.01	-3.51	-9.51	-1.78	-5.42	-5.47	-6.53	-8.56	-6.10	-4.48	-4.54	-4.34	-3.58	-4.44	-8.58
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-15.73	-24.65	-8.03	0.53	2.16	-4.17	-1.80	-4.03	0.35	-4.13	-0.83	-6.02	-6.44	-6.53	-7.90	-5.20	-3.46	-2.44	-5.05	-4.94	-6.47	-8.52	-8.63	-18.59	-13.81	-24.65	-7.27	-1.82
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-1.96	-3.59	-0.34	-0.27	-2.55	-5.11	-8.14	-6.53	-7.59	-4.67	-2.12	-1.14	-3.44	-3.67	-4.78	-5.64	-7.96	11.70	-13.83	-24.65	-8.52	-4.65	-1.52	-3.87	-2.09	-2.13	-4.69	-0.17
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-9.02	-6.53	-8.81	-5.94	-1.03	-1.75	-1.31	-1.08	-3.22	-4.91	-2.67	-7.52	-14.55	-24.65	-10.66	-7.35	-3.66	-7.88	-1.33	-3.09	-6.54	-2.37	-5.63	-4.25	-8.49	-6.53	-10.09	-6.44
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
1.54	0.26	1.29	-5.51	-1.23	-5.94	-16.44	-24.65	-11.45	-9.72	-6.58	-4.04	-2.95	-5.67	-2.34	-8.89	-4.22	-6.03	-8.77	-6.53	-9.86	-5.36	0.74	1.85	0.87	2.18	2.50	-0.54
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-19.05	-24.65	-9.61	-10.53	-7.02	-2.83	-3.39	-2.71	-6.37	-5.30	-7.46	-7.66	-10.76	-6.53	-8.86	-2.91	1.33	0.21	1.52	1.56	1.15	0.58	-1.54	-6.54	-18.88	-24.65	-10.71	
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-7.51	-4.35	-4.28	-10.45	-8.84	-8.55	-12.89	-6.53	-7.08	-2.36	-0.11	1.27	2.19	-0.81	1.21	-4.27	1.06	-5.50	-19.82	-24.65	-18.06	-8.65	-6.02	-8.17	-7.41	-8.08	-6.28	-6.67
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-12.70	-6.53	-5.25	-3.63	-0.45	1.37	-0.25	0.70	-1.02	-1.48	0.53	-6.12	-14.65	-24.65	-15.46	-7.28	-7.77	-10.06	-10.05	-8.01	-5.21	-4.26	-9.07	-13.36	-10.53			



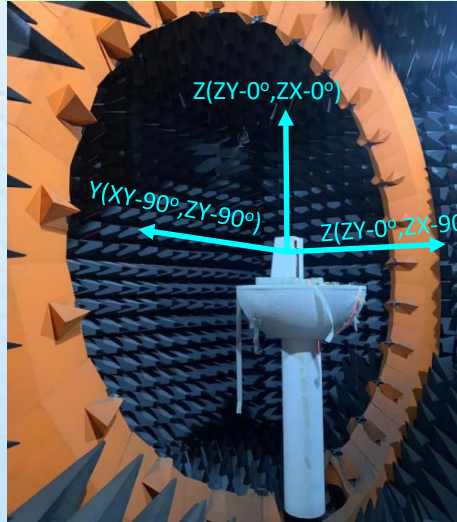
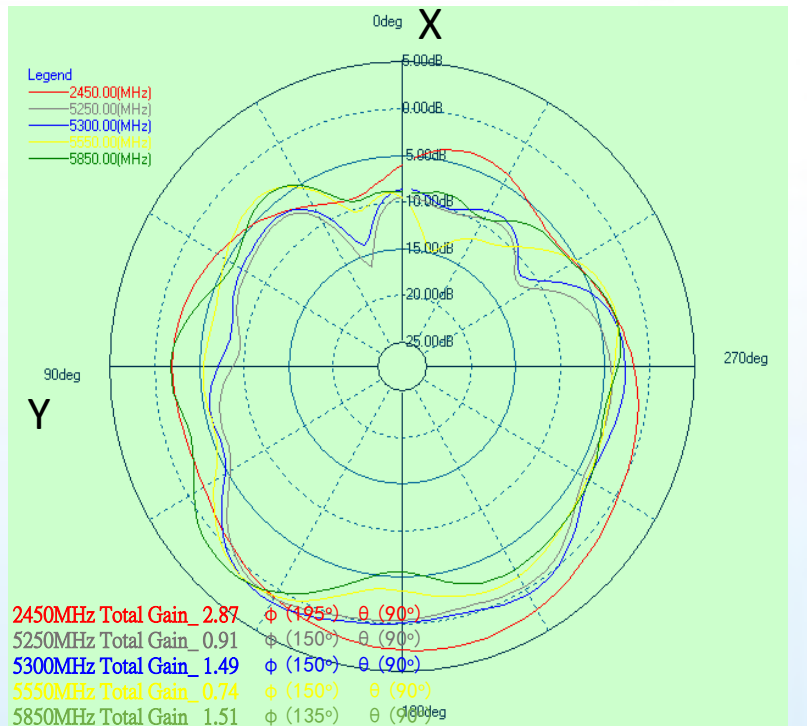
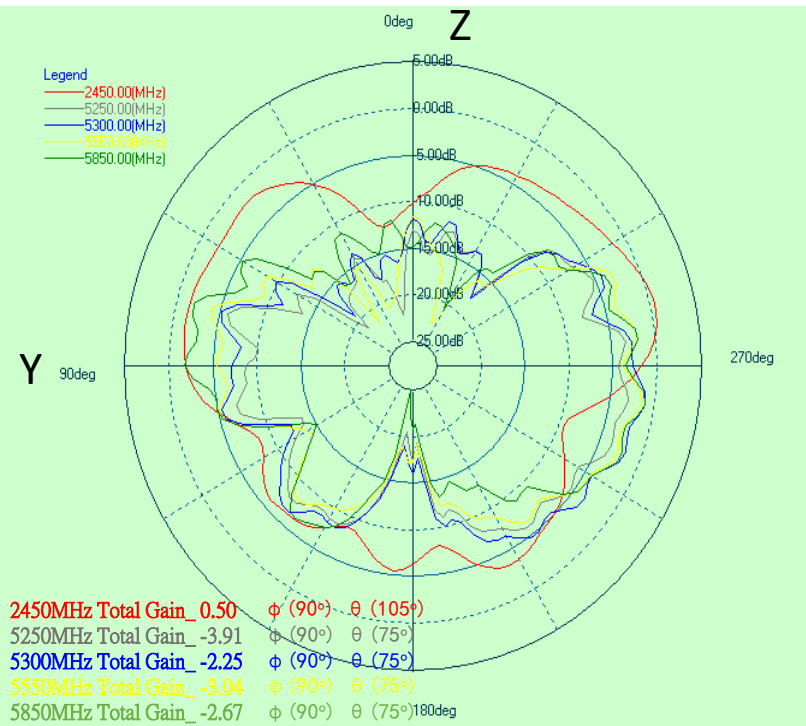
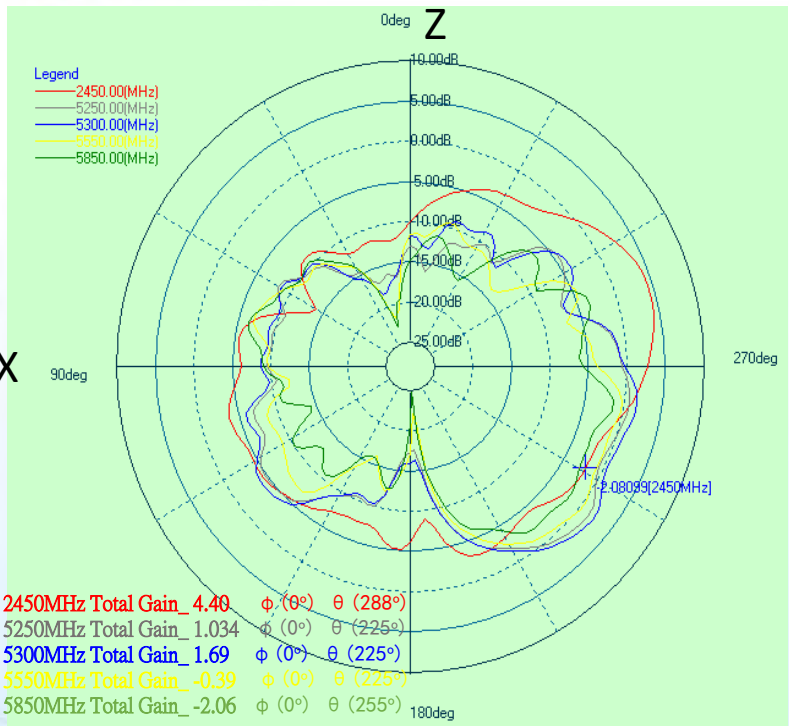
Appendix B - Antenna Composite Gain Data of 6GHz

Gain Result_An8

Frequency=7125(MHz)	Phi	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15
	Theta	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15
	E Total. dB	-2.68	-5.22	-5.89	-4.18	-1.79	-3.22	-5.41	-5.96	-8.82	-4.97	-8.85	-10.49	-37.28	-12.08	-1.32	1.91	-6.92	-2.14	0.23	-1.24	-0.40	2.31	-0.51	-0.92	-2.68	-5.49
15	15	15	15	15	15	15	15	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
-4.40	-3.92	-8.23	-11.71	-5.12	-7.35	-12.39	-37.28	-8.41	1.06	3.91	-2.17	1.52	-3.66	-1.05	-1.62	-0.08	-1.16	-1.05	-2.68	-5.90	-4.74	-2.84	-5.95	-2.07	-2.18	-0.67	-6.70
30	30	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	60	60	60
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-14.36	-37.28	-5.66	1.53	3.72	-2.45	-1.42	-4.65	-1.21	-7.69	-0.79	-2.35	-1.30	-2.68	-5.10	-2.93	-1.55	-4.83	-1.56	-8.91	-6.44	-5.13	-7.81	-9.67	-14.30	-37.28	-4.51	-1.22
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	75	75	75	75	75	75	75	75	75
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-0.73	-4.49	-0.52	0.19	-2.69	-2.06	-2.00	-2.68	-3.52	-2.18	-2.37	-6.81	-0.18	-4.58	-3.33	-4.25	-8.34	-7.31	-15.22	-37.28	-5.65	-5.90	-2.65	-0.96	-2.46	-2.14	-3.01	0.83
75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30
-2.71	-2.68	-2.07	-1.56	-0.50	-4.68	1.05	-4.37	-2.38	-2.52	-5.57	-5.59	-15.80	-37.28	-10.87	-9.39	-4.52	-7.30	-0.40	-2.90	-6.31	-2.62	-4.67	-4.06	-3.01	-2.68	-0.64	-0.13
90	90	90	90	90	90	90	90	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120
1.57	0.81	-0.51	-0.39	-1.96	-5.90	-14.93	-37.28	-17.66	-10.02	-6.92	-3.03	-1.13	-4.03	-2.94	-5.51	-8.34	-7.51	-3.65	-2.68	0.51	0.66	-0.73	1.00	-1.60	-0.57	2.58	-0.70
105	105	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	150	150
165	180	195	210	225	240	255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210
-13.78	-37.28	-9.77	-9.16	-9.76	-0.89	-2.80	-1.13	-9.11	-5.05	-11.41	-9.75	-5.25	-2.68	1.09	1.00	-0.77	-0.16	-0.66	-2.03	1.04	-1.58	-0.96	-3.44	-12.88	-37.28	-8.86	-10.97
150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	165	165	165	165	165	165	165	165	165
255	270	285	300	315	330	345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
-3.97	-6.84	-2.61	-10.99	-7.46	-13.00	-6.46	-2.68	1.41	1.49	0.47	-2.61	2.41	-1.42	3.31	-6.55	1.75	-1.44	-13.04	-37.28	-11.96	-10.43	-5.75	-7.85	-11.87	-6.10	-4.88	-2.70
165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345			
-6.15	-2.68	1.46	1.45	1.14	1.49	1.13	1.51	1.08	-3.83	3.31	-2.15	-14.76	-37.28	-11.37	-7.66	-7.41	-11.34	-9.15	-3.83	-1.32	-2.71	-5.17	-9.69	-5.56			



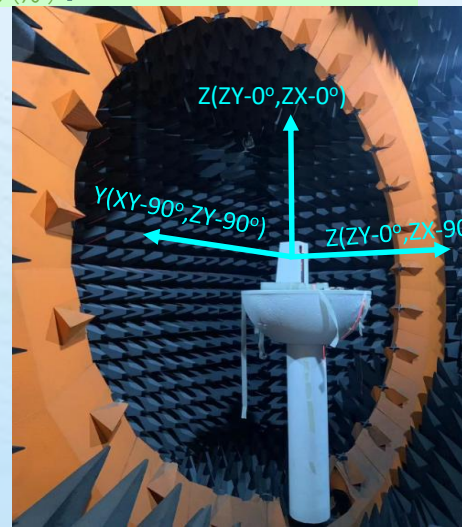
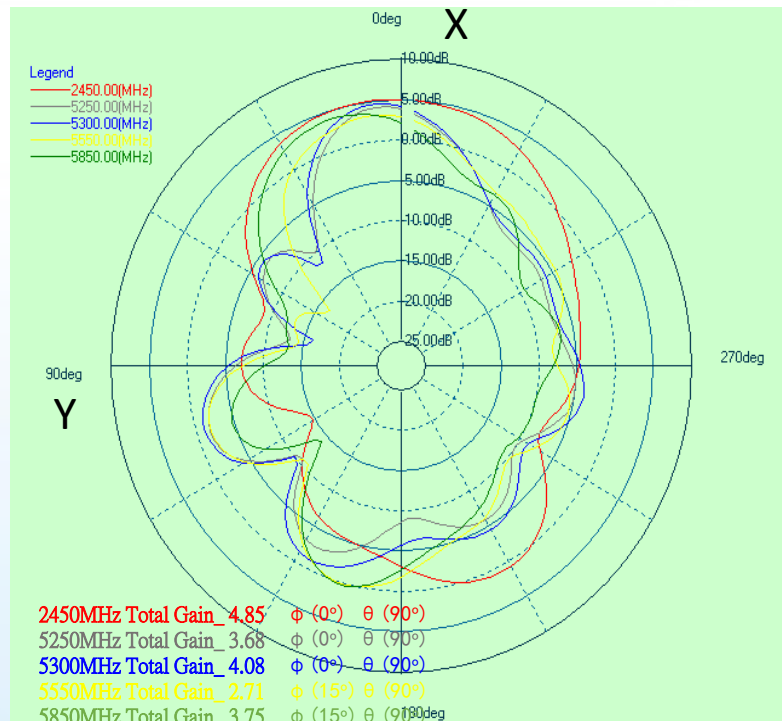
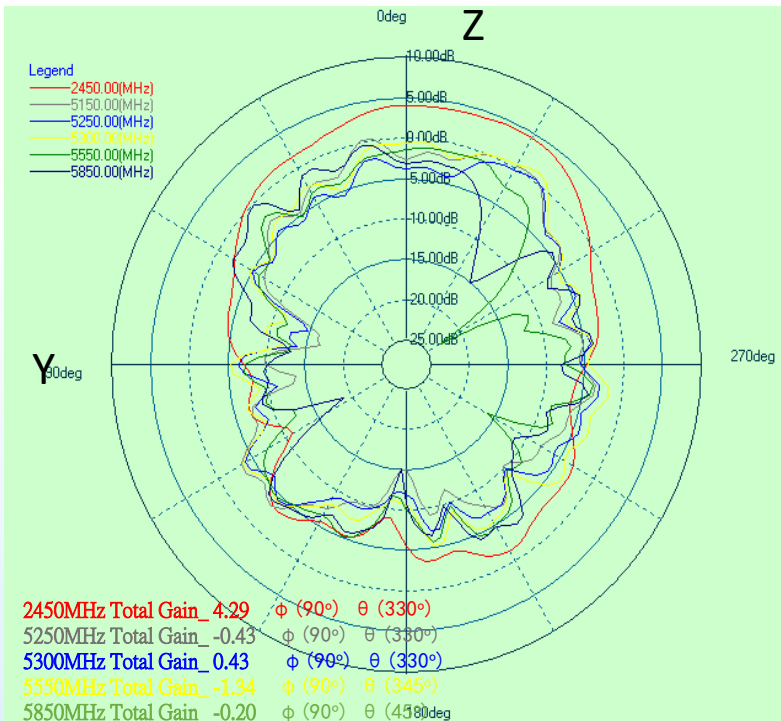
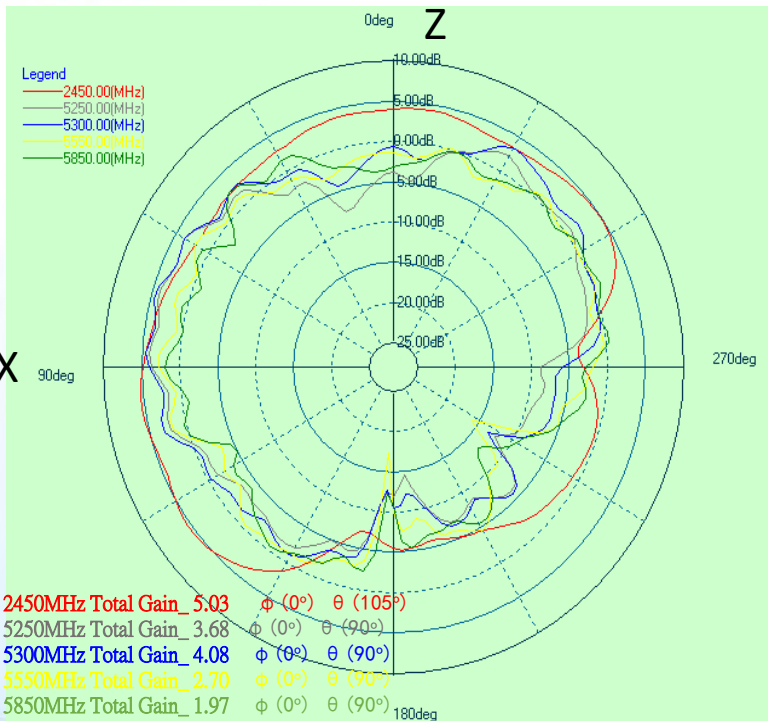
Appendix C - Antenna Pattern of 2.45GHz&5GHz



Ant1

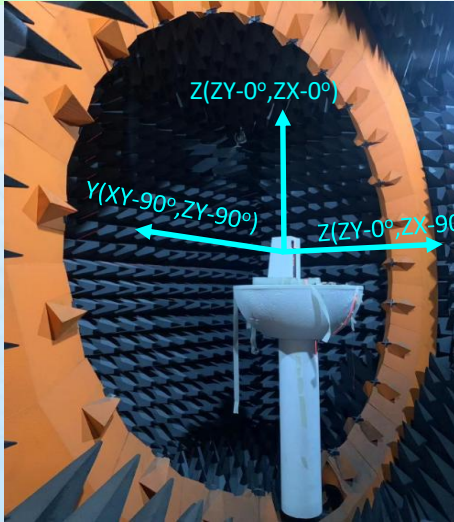
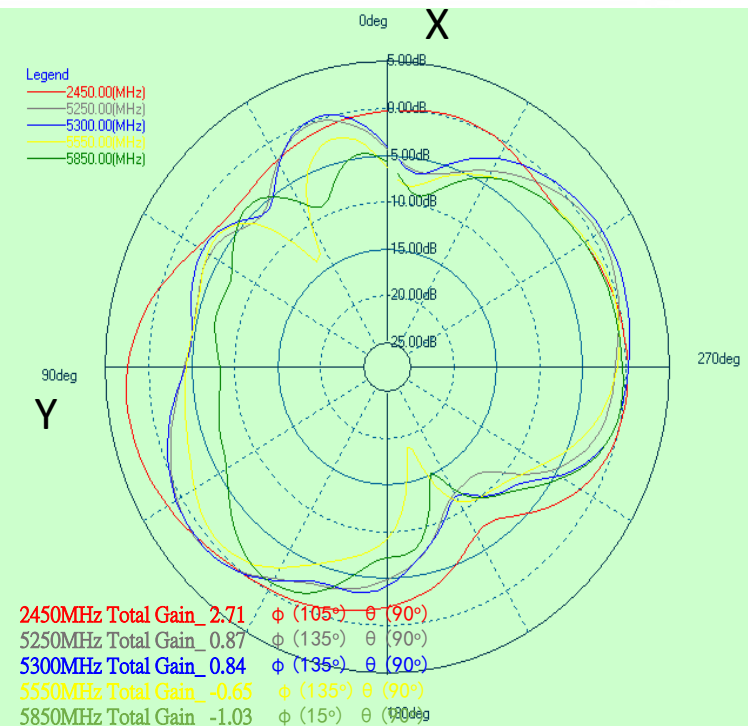
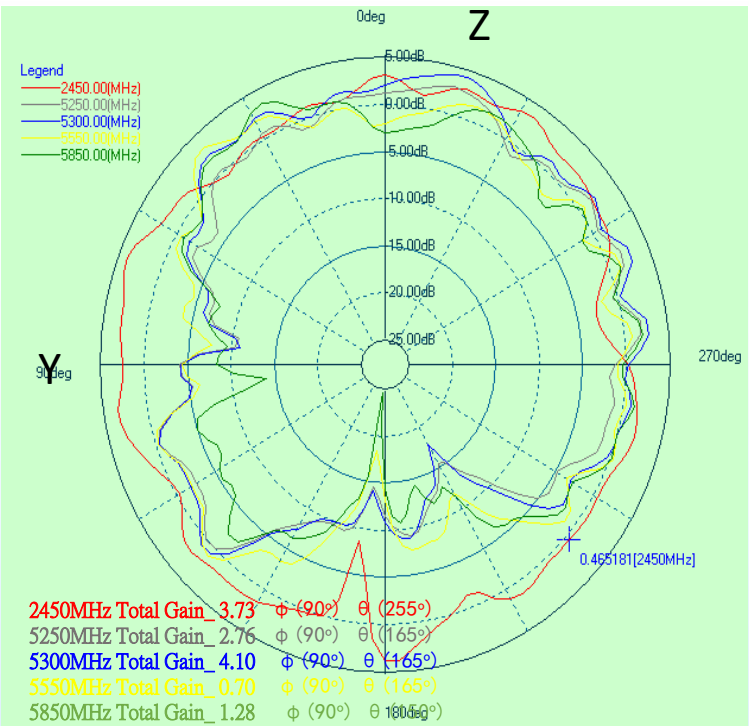
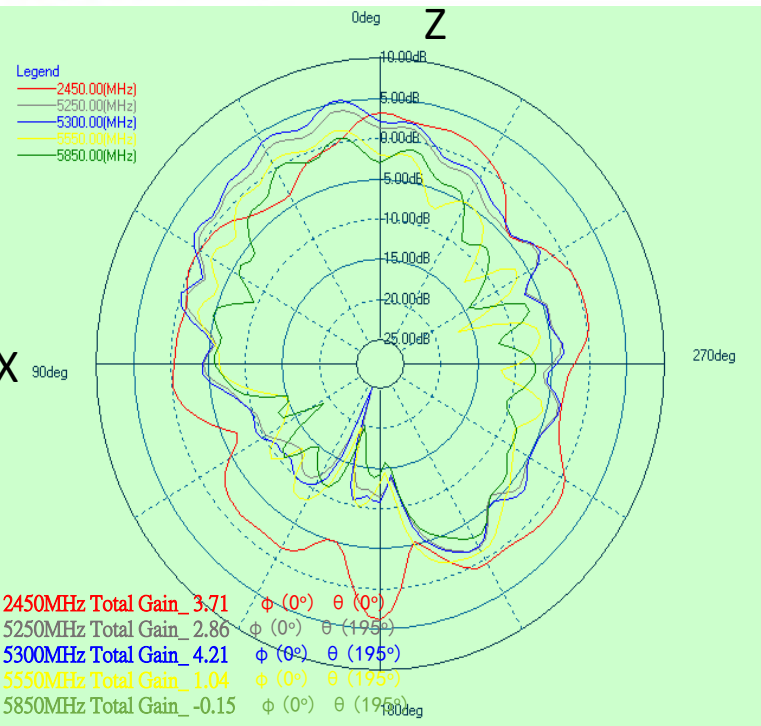


Appendix C - Antenna Pattern of 2.45GHz&5GHz



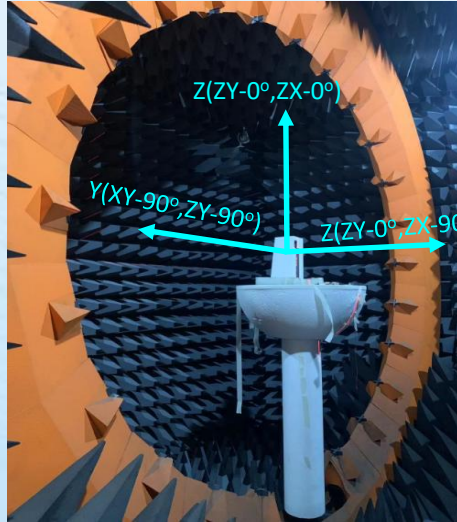
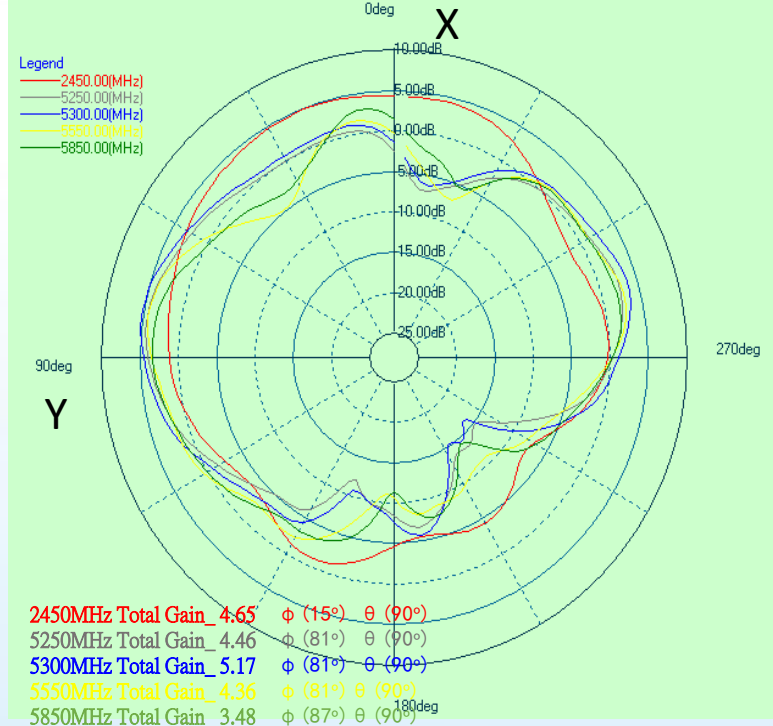
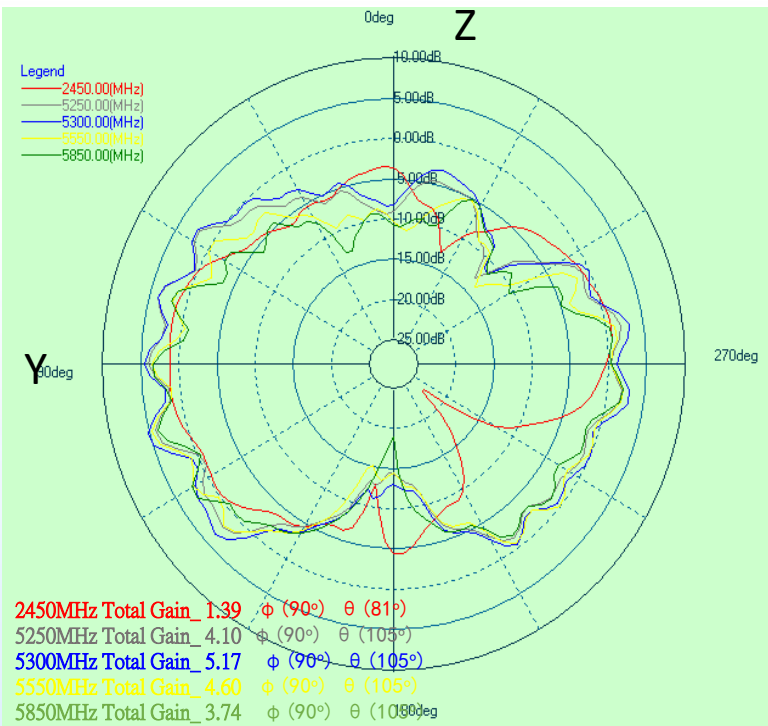
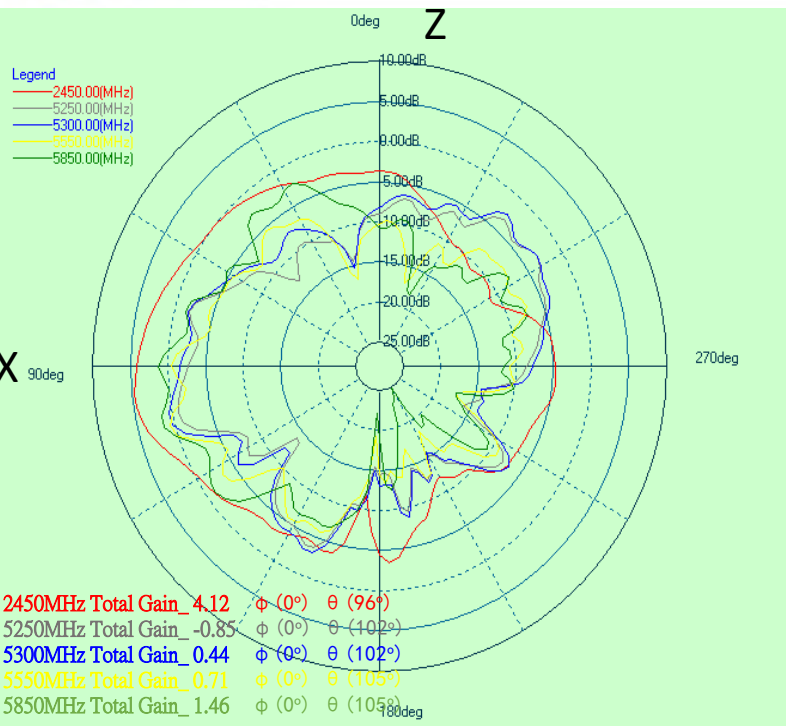


Appendix C - Antenna Pattern of 2.45GHz&5GHz



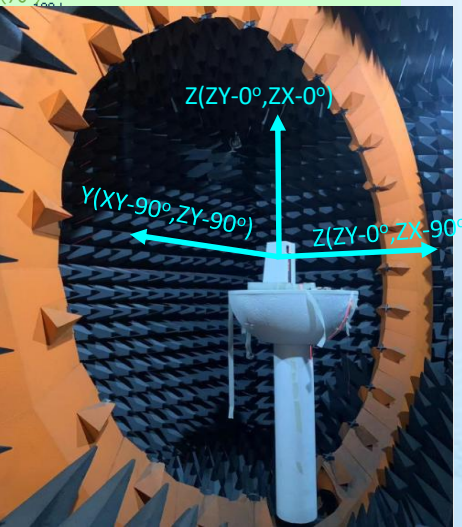
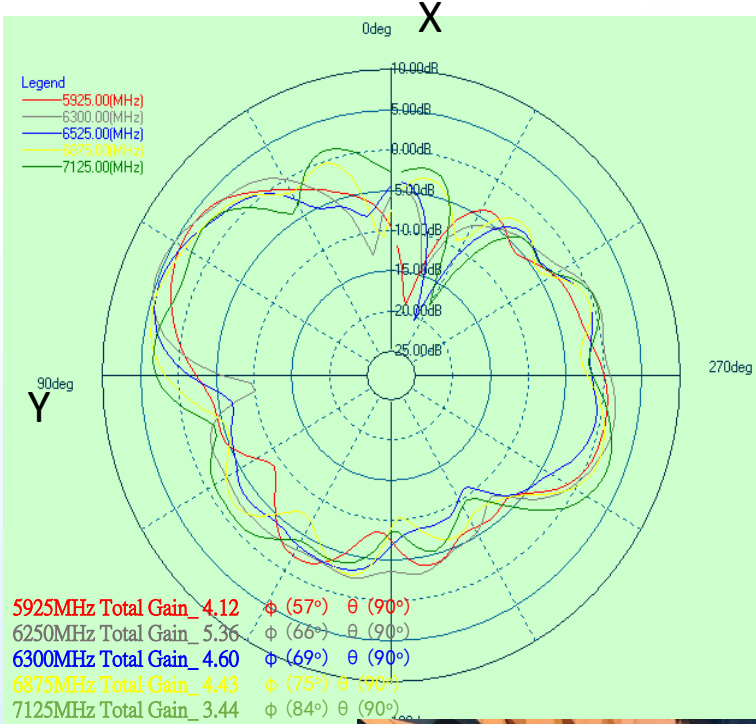
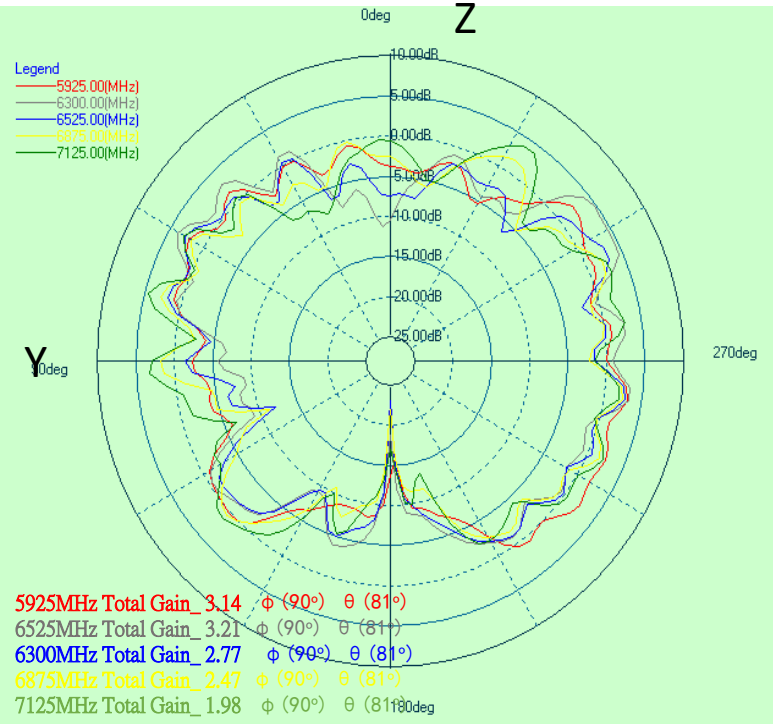
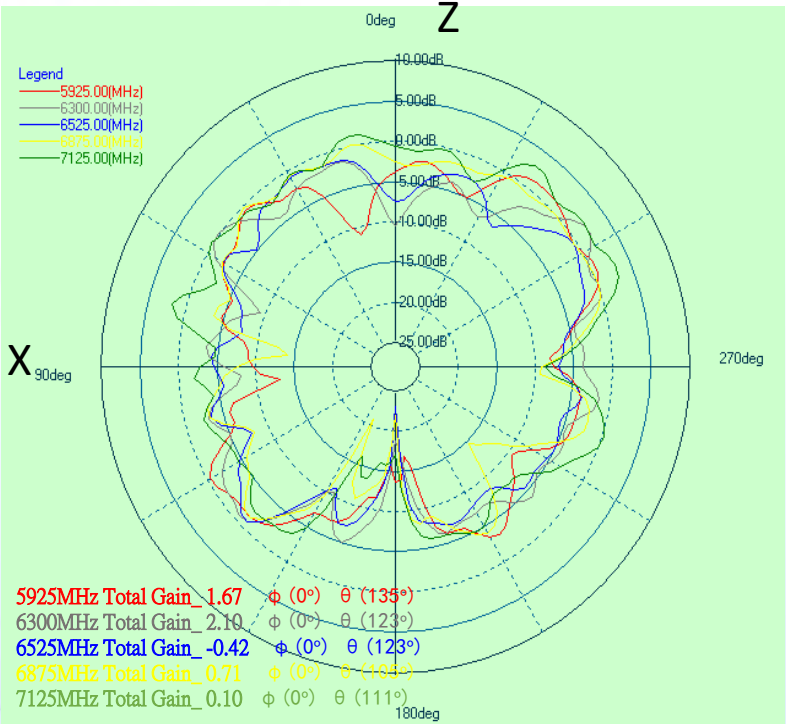


Appendix C - Antenna Pattern of 2.45GHz&5GHz



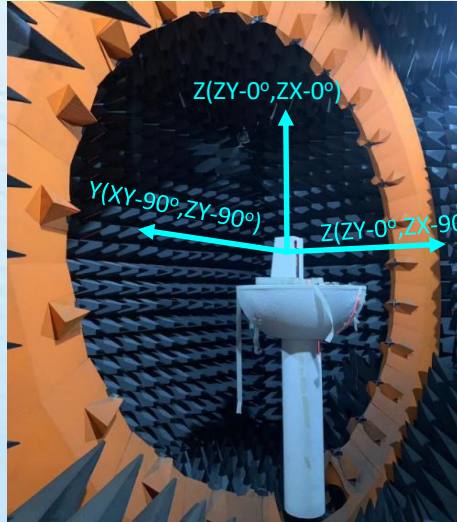
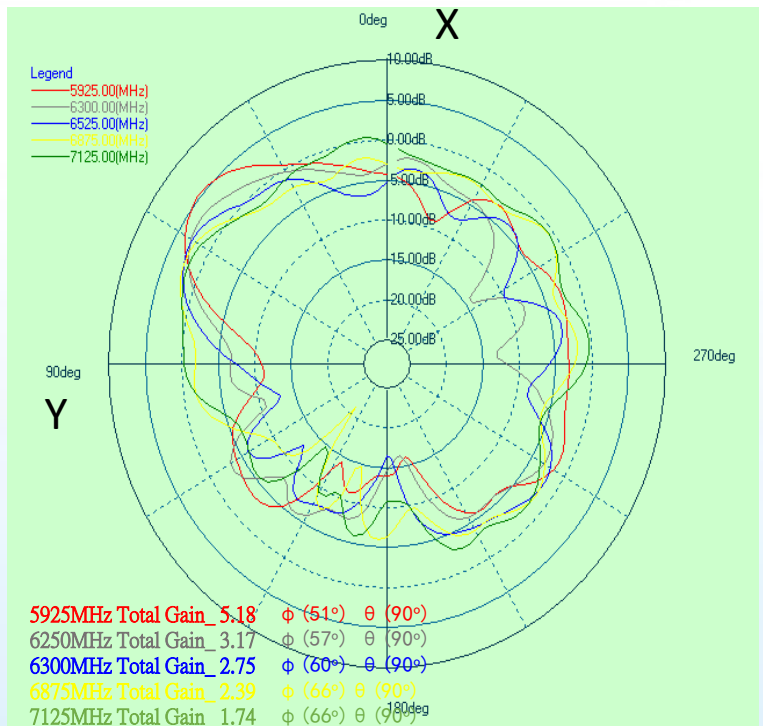
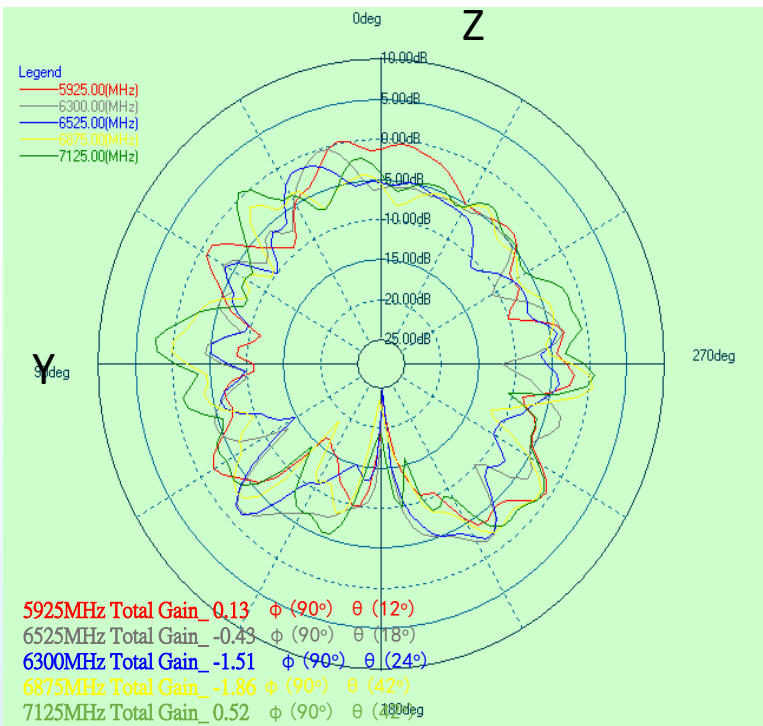
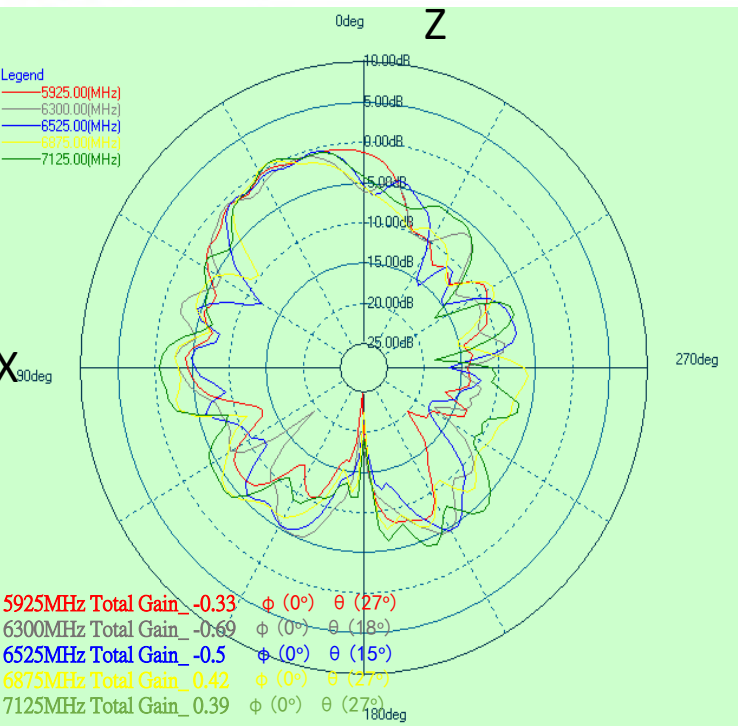


Appendix D - Antenna Pattern of 6GHz



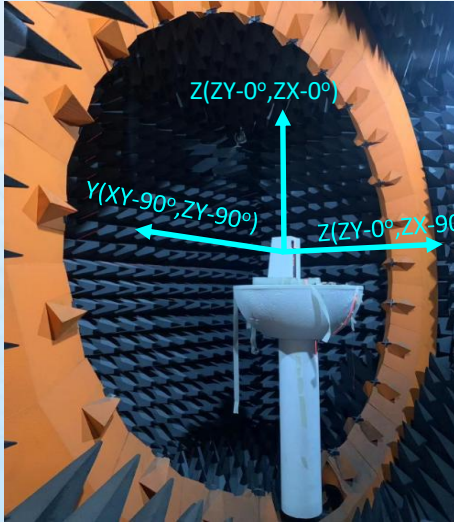
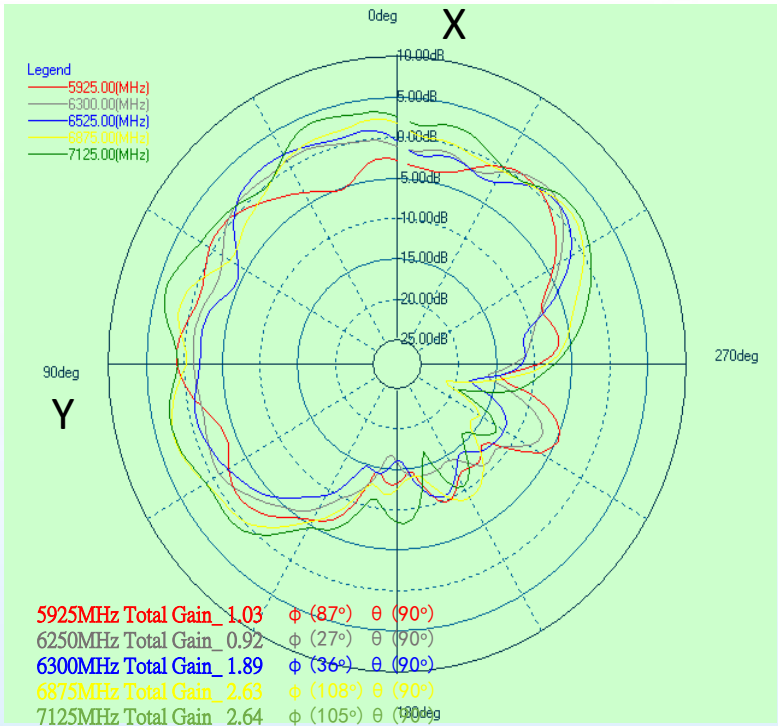
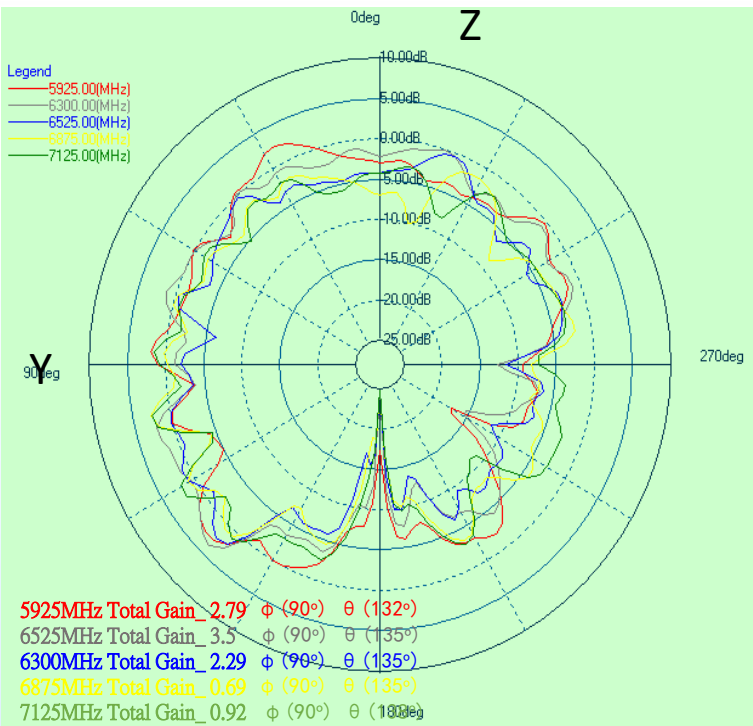
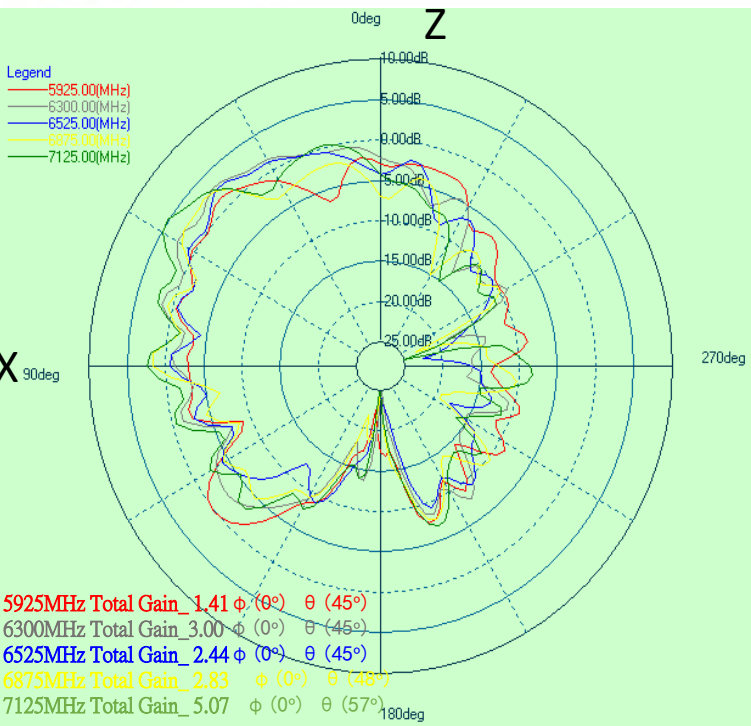


Appendix D - Antenna Pattern of 6GHz



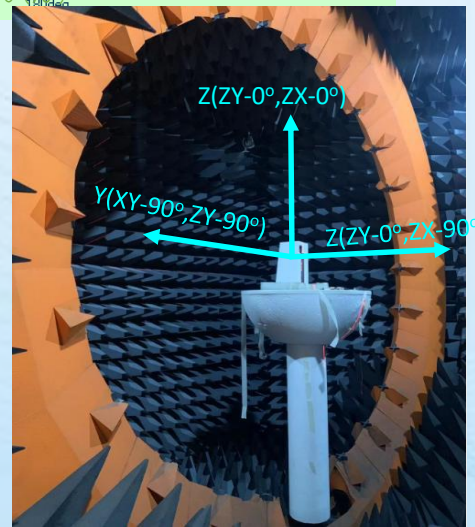
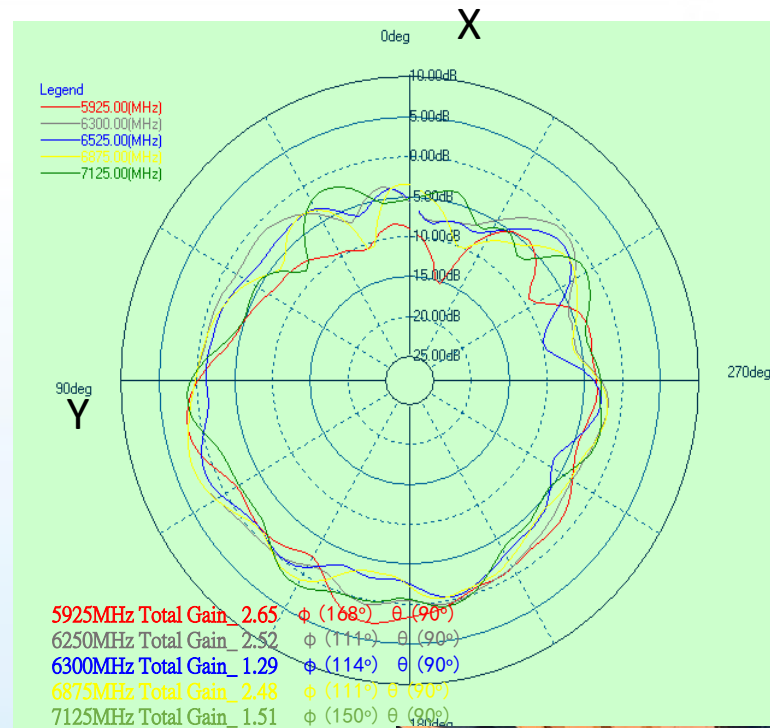
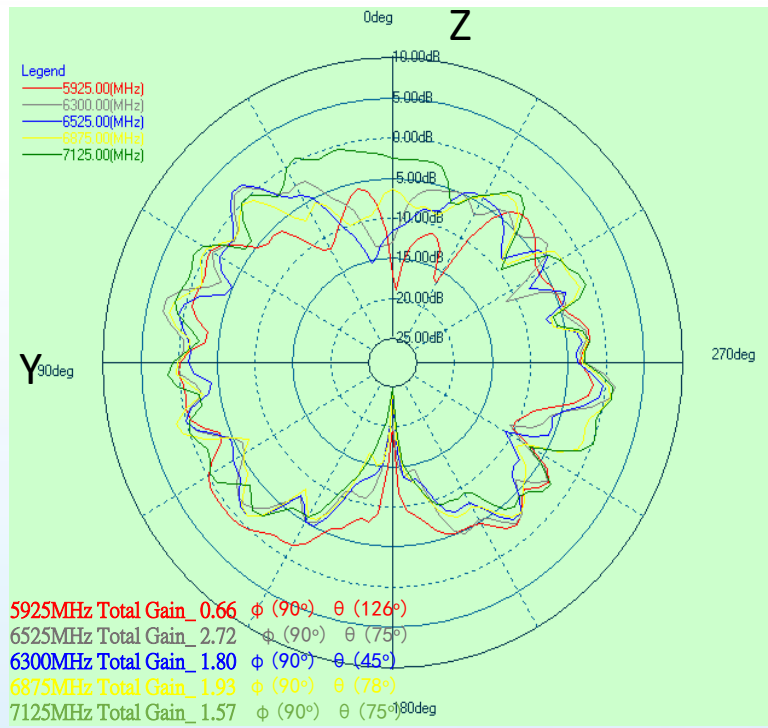
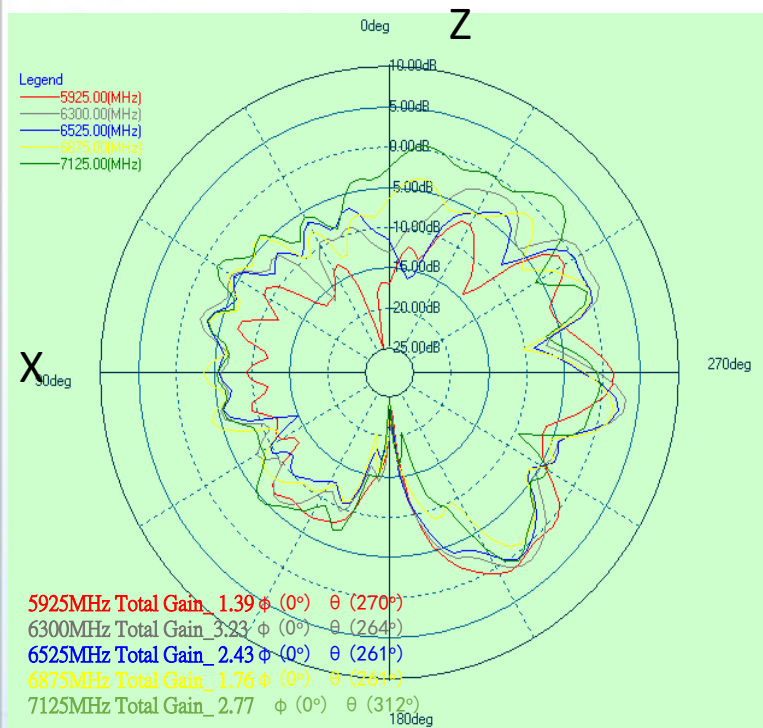


Appendix D - Antenna Pattern of 6GHz





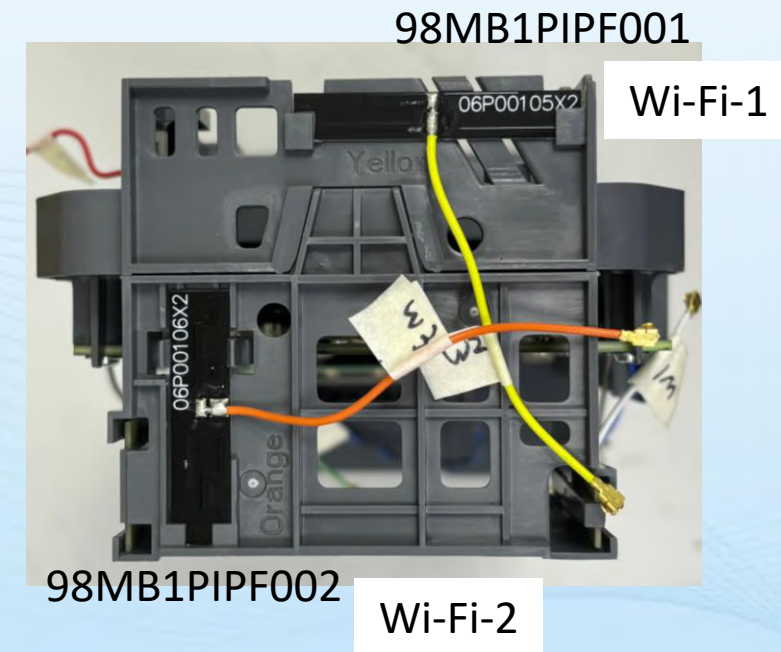
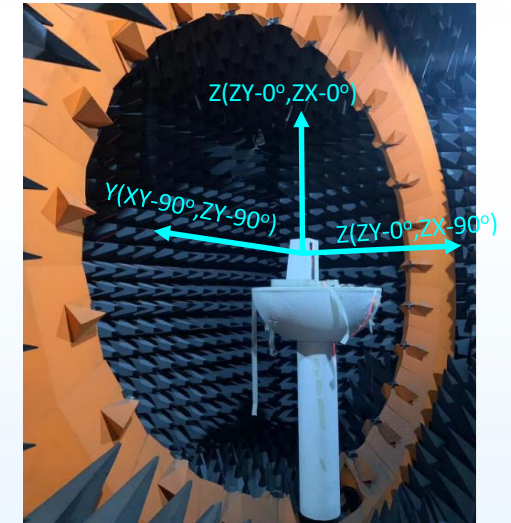
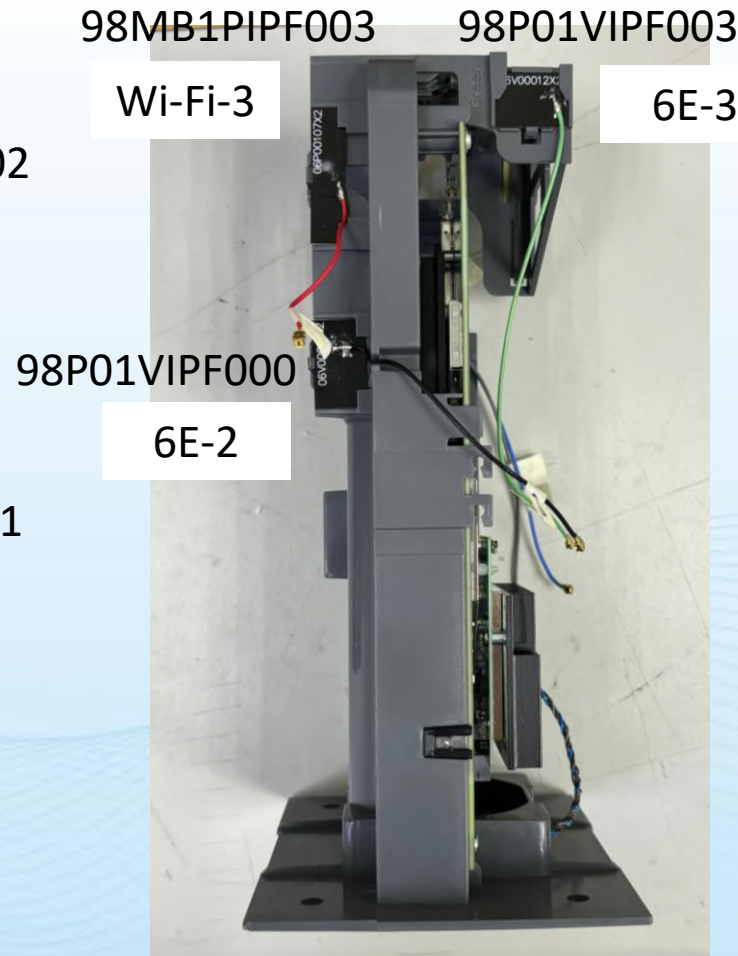
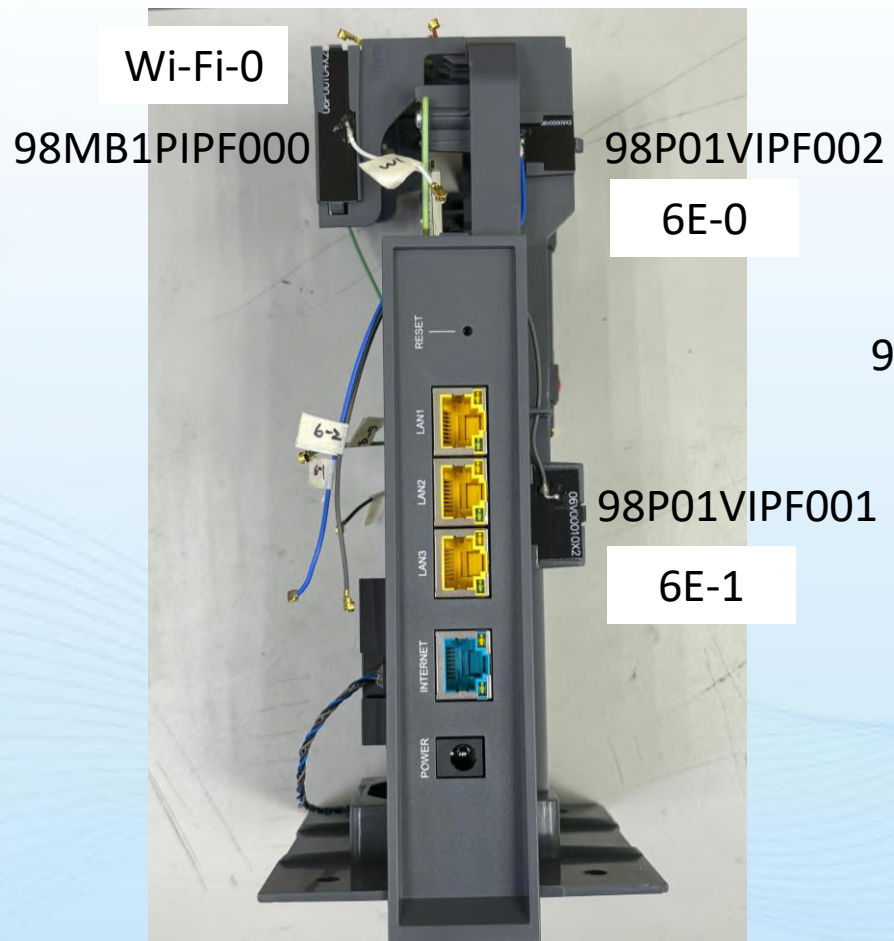
Appendix D - Antenna Pattern of 6GHz





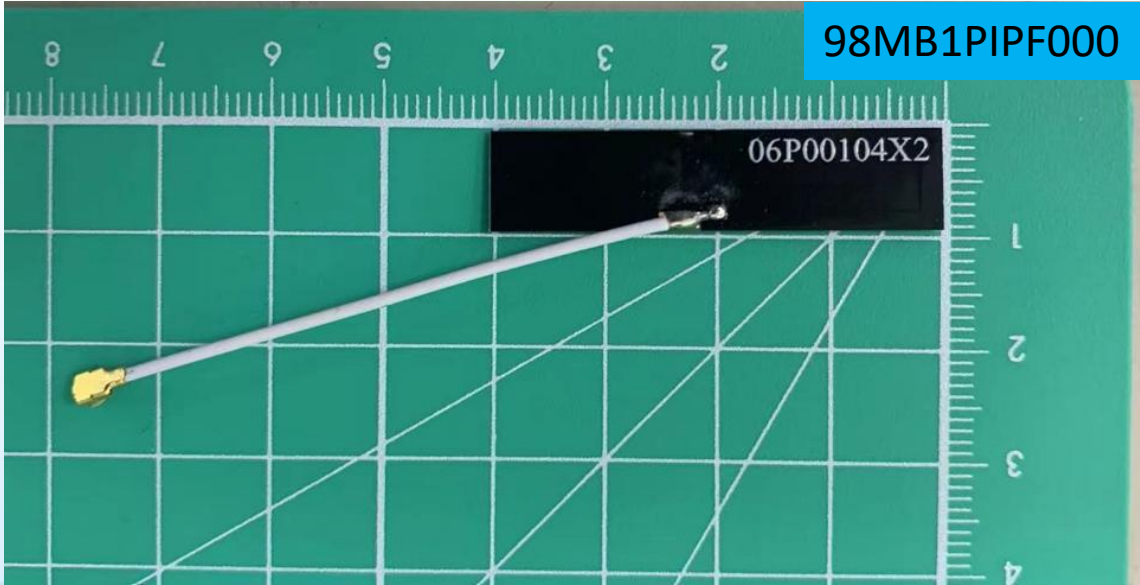
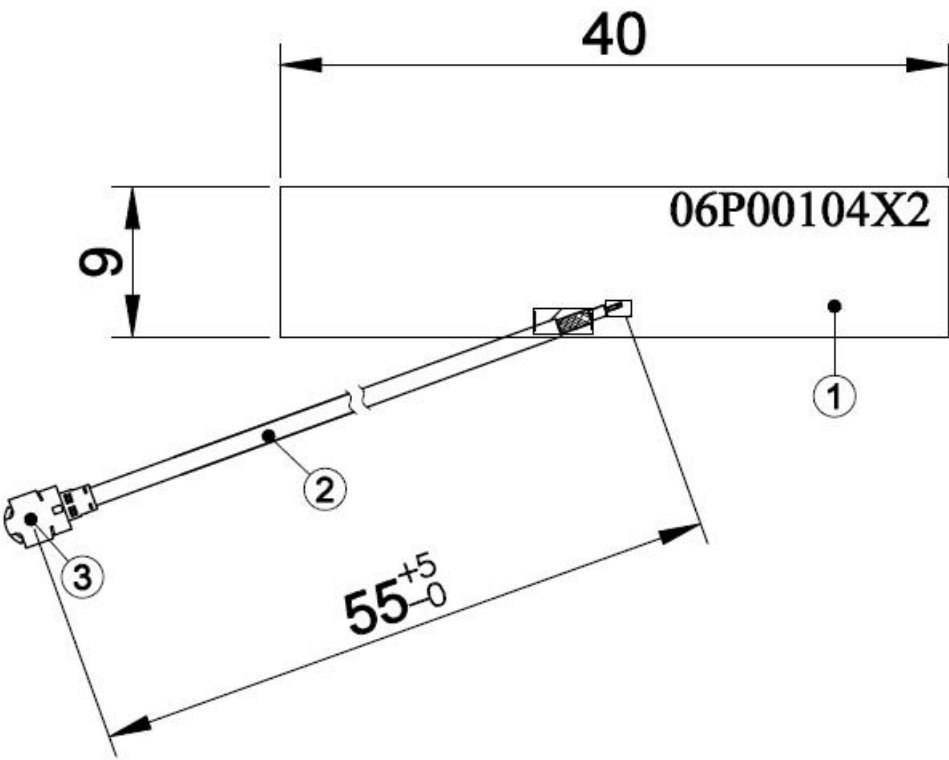
Appendix E – Test Photo

Antenna loaded in host platform





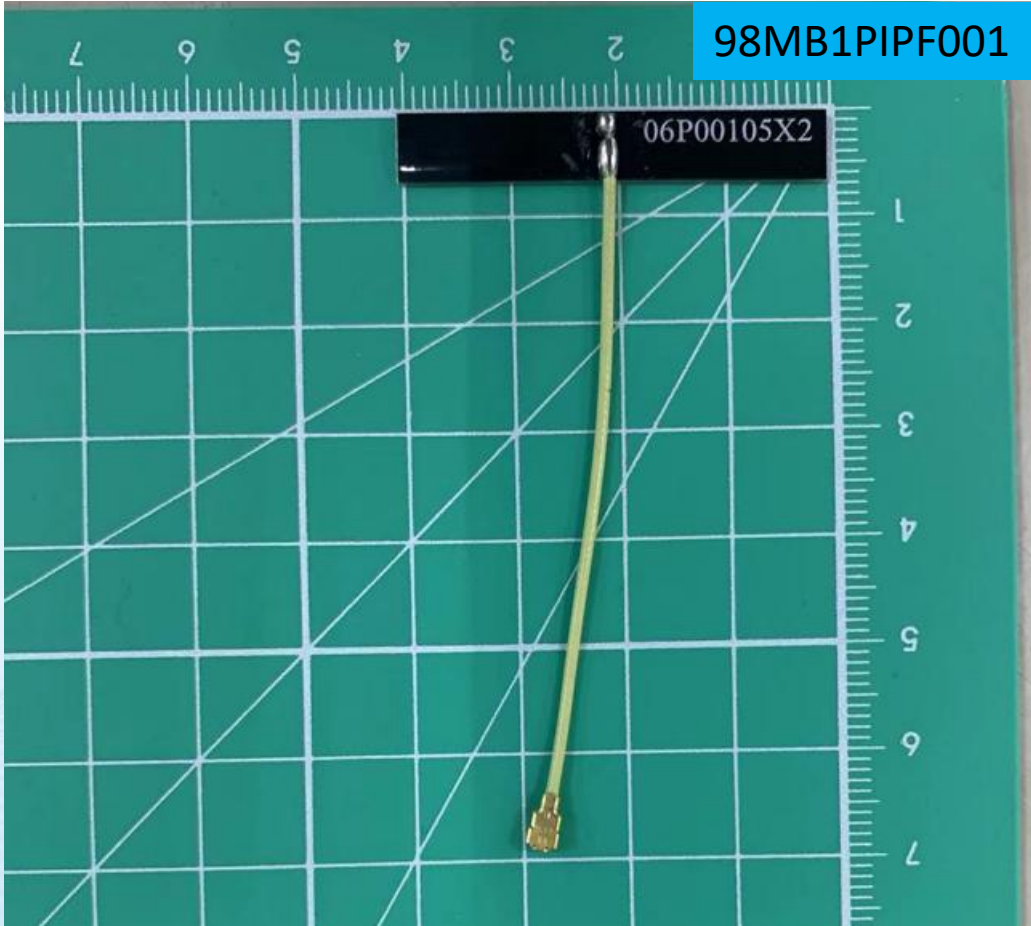
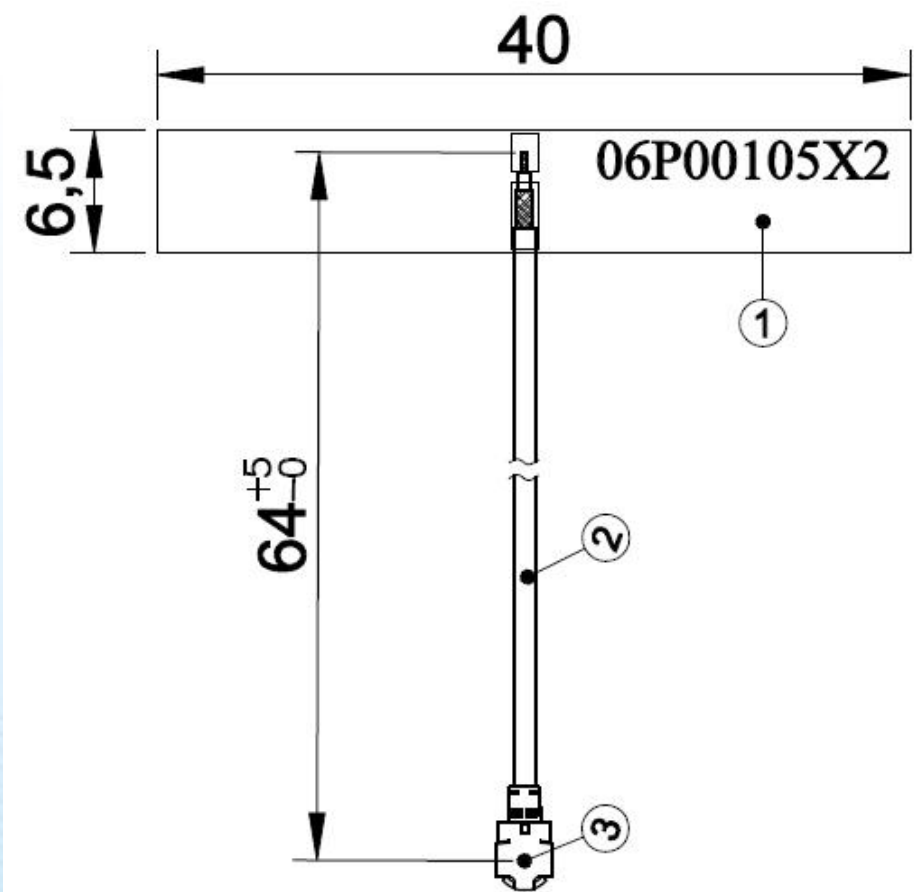
Antenna Info. – Antenna test samples



③	IPEX(20278-112R-13)	Brass	Gold	1
②	Cable	Ø1.13LLS	White	1
①	PCB	FR4	Black	1
ITEM	Name	Material	Finish	QTY



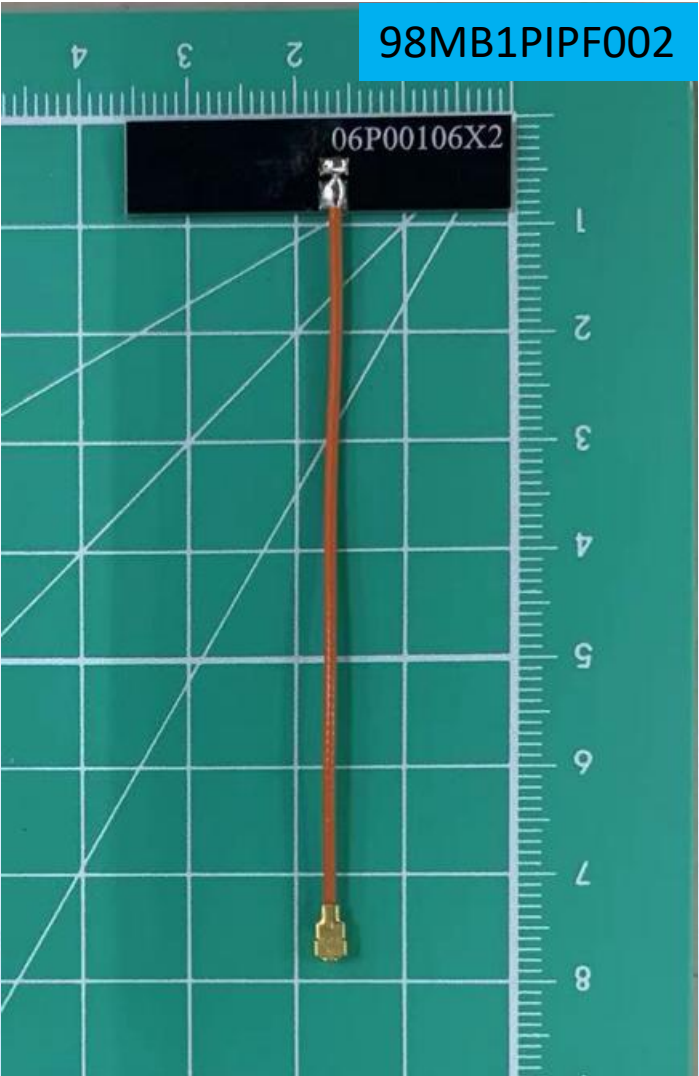
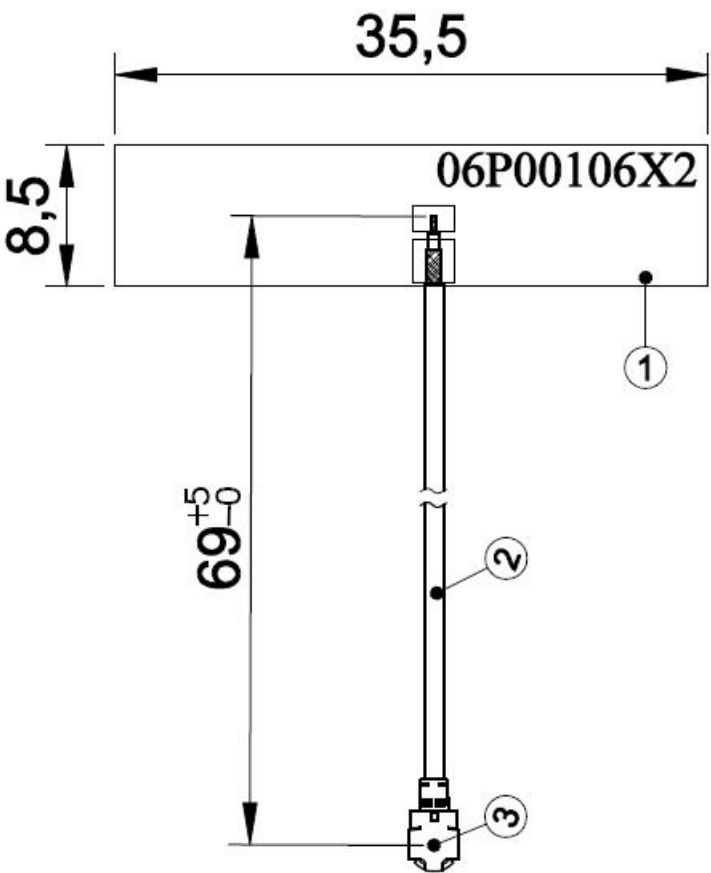
Antenna Info. – Antenna test samples



③	I-PEX(20278-112R-13)	Brass	Gold	1
②	Cable	1.13LLS	Yellow	1
①	PCB	FR4	Black	1
ITEM	Name	Material	Finish	QTY



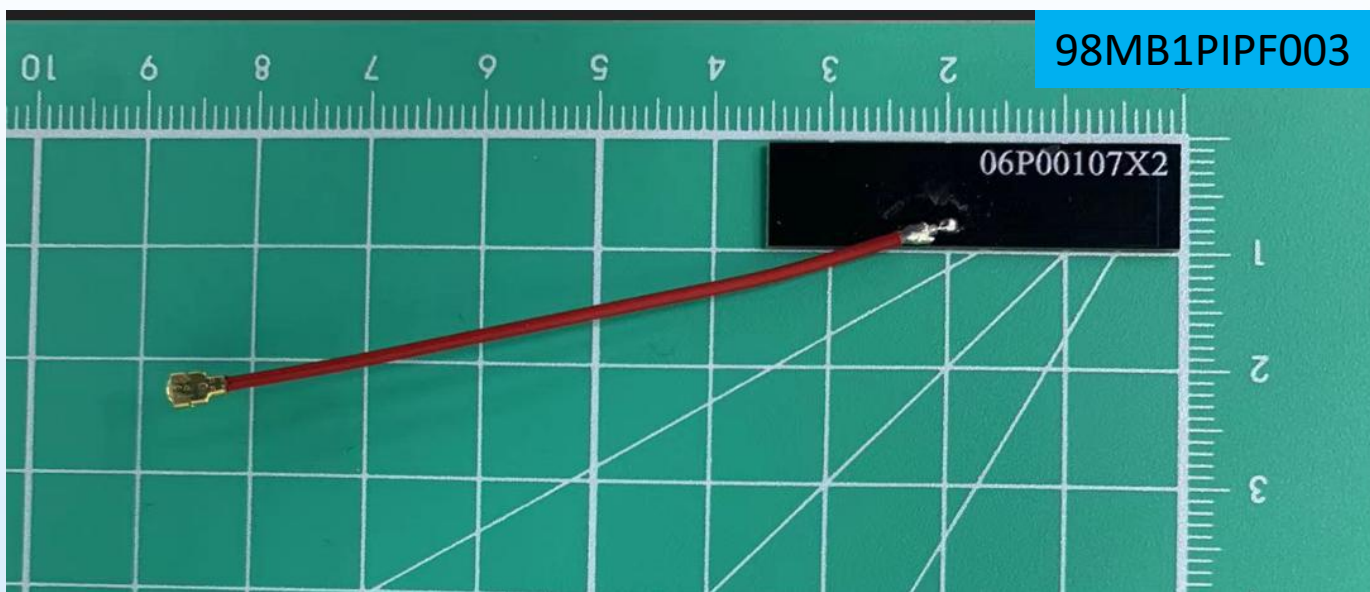
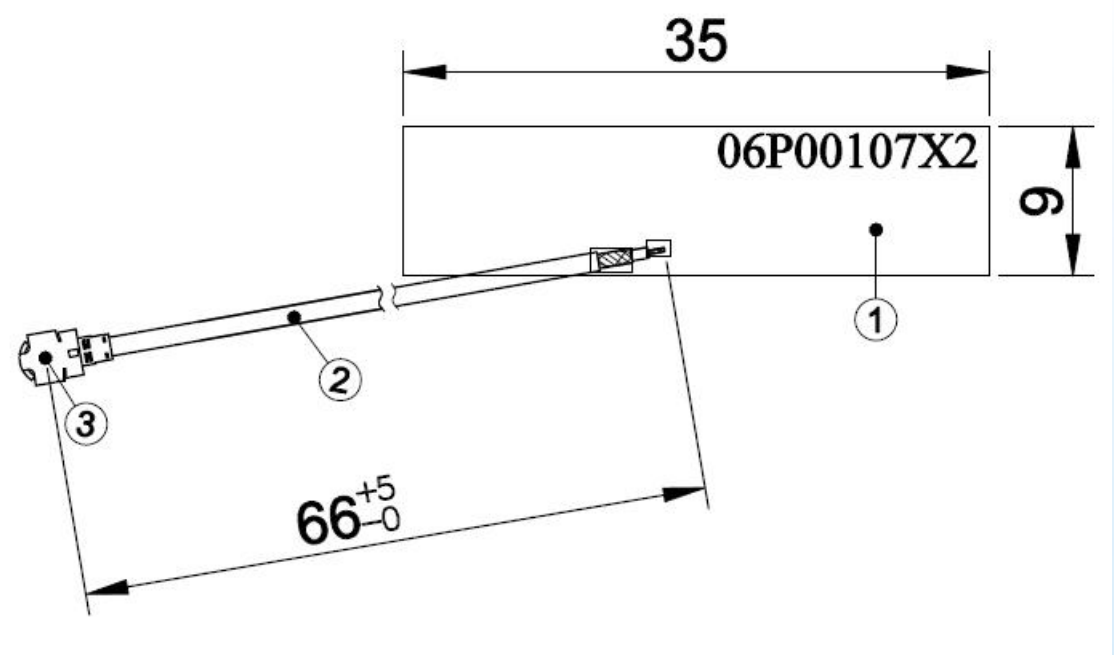
Antenna Info. – Antenna test samples



③	I-PEX(20278-112R-13)	Brass	Gold	1
②	Cable	1.13LLS	Orange	1
①	PCB	FR4	Black	1
ITEM	Name	Material	Finish	QTY



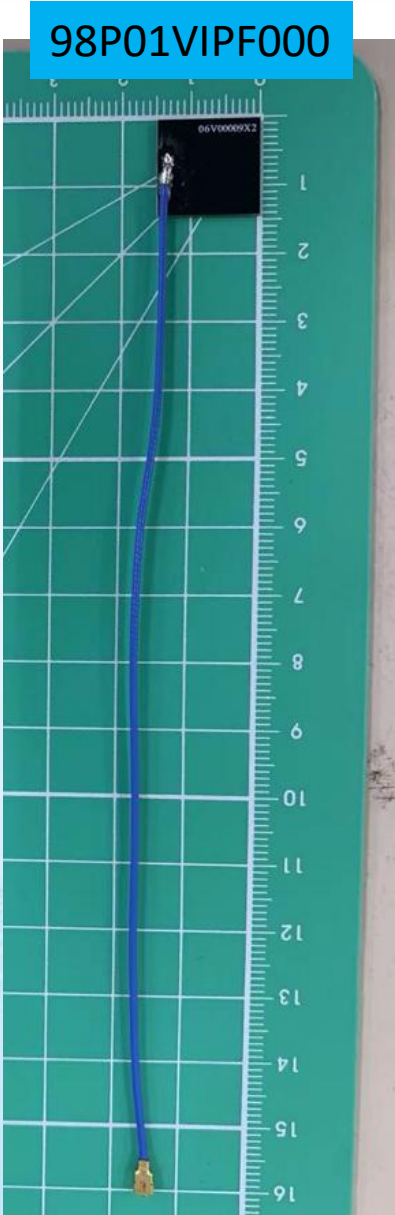
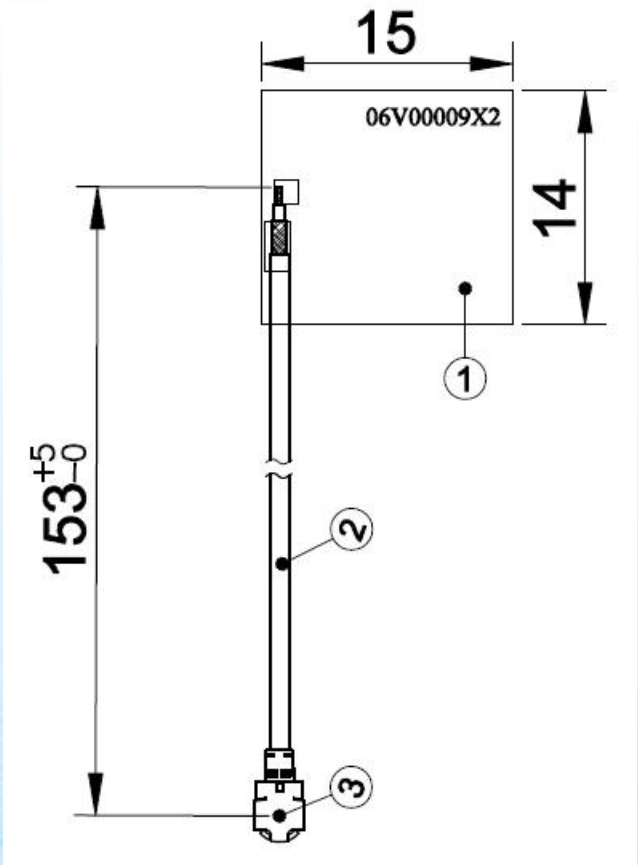
Antenna Info. – Antenna test samples



③	I-PEX(20278-112R-13)	Brass	Gold	1
②	Cable	1.13LLS	Red	1
①	PCB	FR4	Black	1
ITEM	Name	Material	Finish	QTY



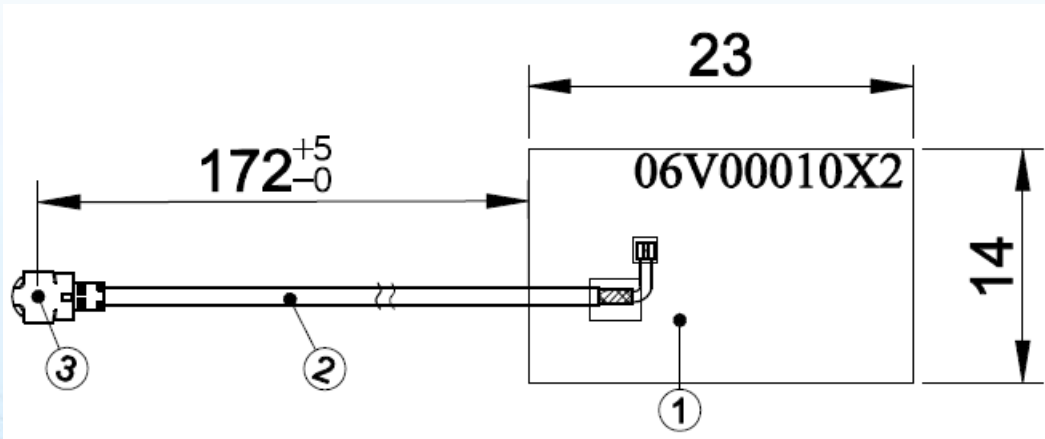
Antenna Info. – Antenna test samples



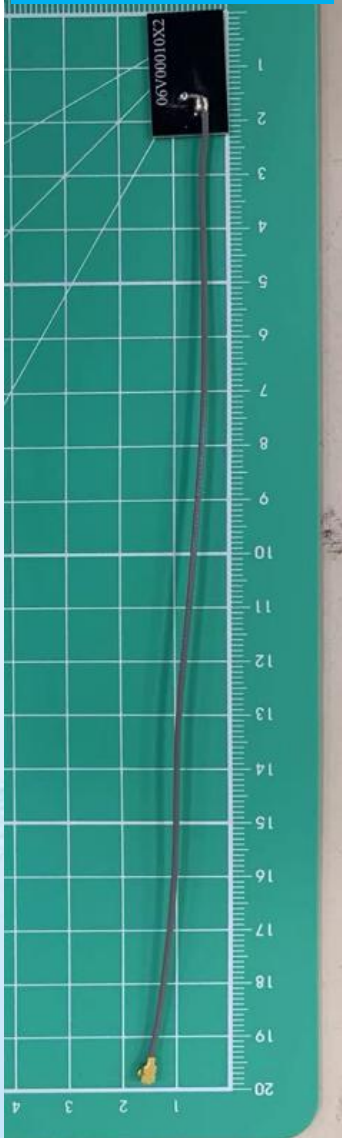
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②	Cable	1.13LLS	Blue	1
①	PCB	FR4	Black	1
ITEM	Name	Material	Finish	QTY



Antenna Info. – Antenna test samples



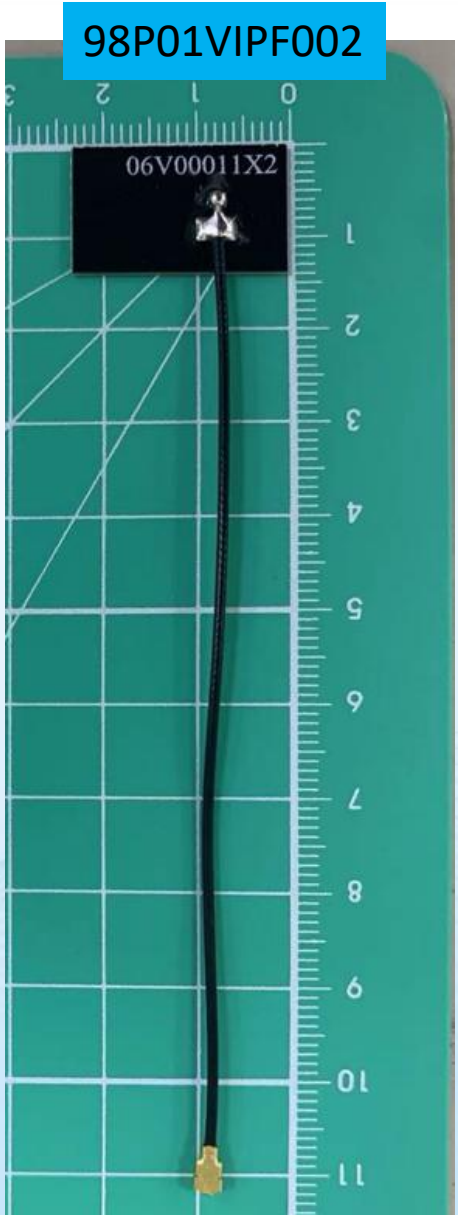
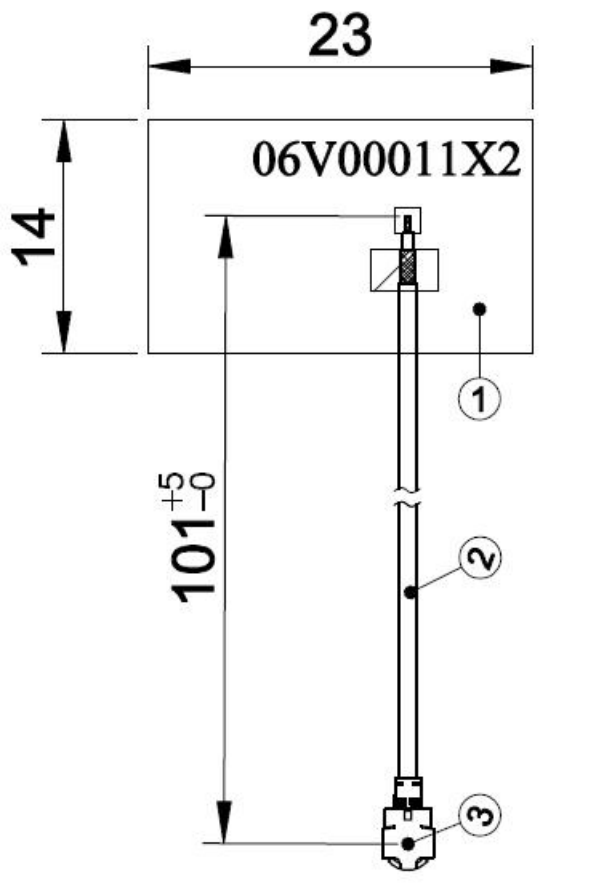
98P01VIPF001



③	I-PEX(20278-112R-13)	Brass	Gold	1
②	Cable	1.13LLS	Gray	1
①	PCB	FR4	Black	1
ITEM	Name	Material	Finish	QTY



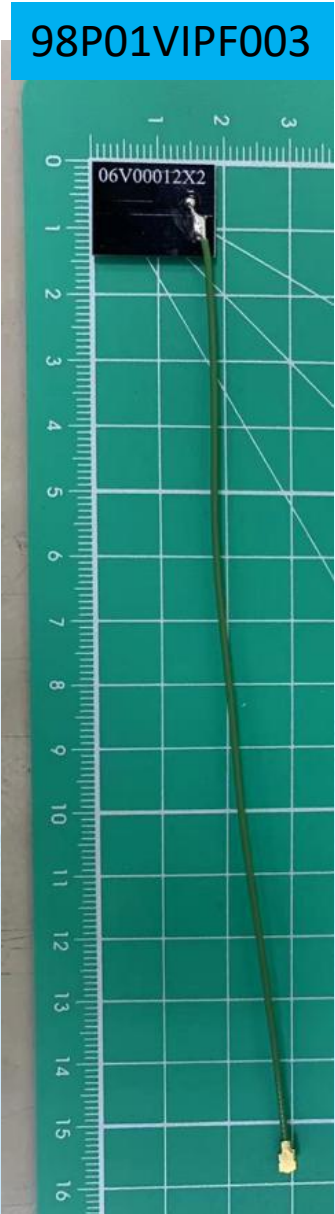
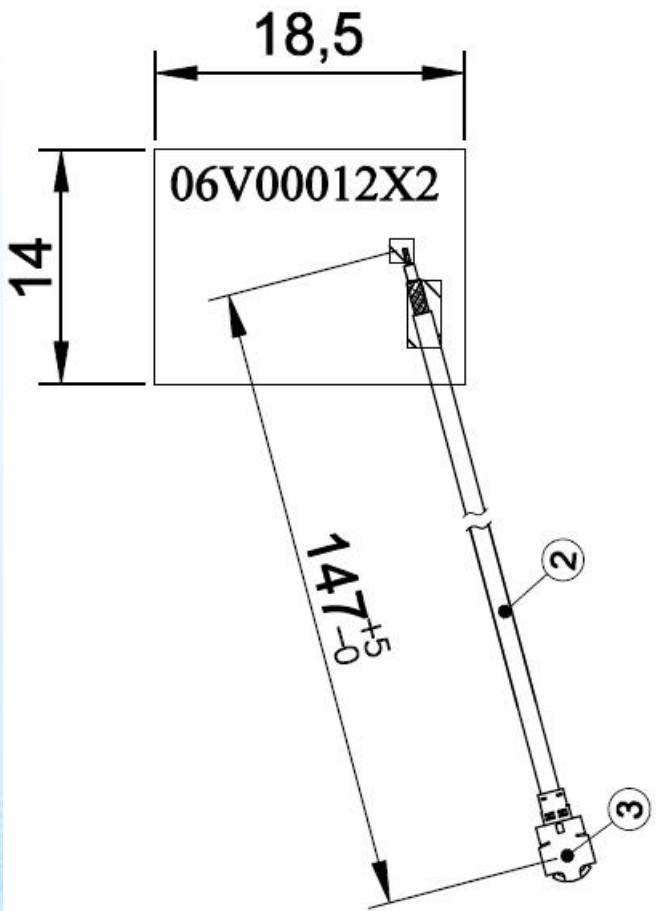
Antenna Info. – Antenna test samples



③	I-PEX(20278-112R-13)	Brass	Gold
②	Cable	1.13LLS	Black
①	PCB	FR4	Black
ITEM	Name	Material	Finish



Antenna Info. – Antenna test samples



③	I-PEX(20278-112R-13)	Brass	Gold
②	Cable	1.13LLS	Green
①	PCB	FR4	Black
ITEM	Name	Material	Finish



THANK YOU FOR YOUR ATTENTION.

We welcome your questions, suggestions and comments!