



Antenna Composite Gain Test Report

FCC ID	Z8H89FT0090
Equipment	X7-56X Indoor Wi-Fi 7 Tri-band 4x4 AP, 60deg
Brand Name	Cambium Networks
Model Name	X7-56X
Applicant	Cambium Networks Inc. 3800 Golf Road, Suite 360 Rolling Meadows, IL 60008, USA
Manufacturer	Cambium Networks Inc. 3800 Golf Road, Suite 360 Rolling Meadows, IL 60008, USA
Standard	KDB662911 D03 v02
Sample Received	Oct. 20, 2025
Start Test Date	Oct. 28, 2025
Final Test Date	Oct. 29, 2025

 Sam Chen
2026.01.30
17:45:05
+08'00'

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

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1. Operation Mode and Antenna Information

Antenna Position	RF Port	Brand Name	Model Name	Ant. Type	Connector	Modes of Operation
2G Ant1	1	Accton	120G00000289A-2	Directivity	MHF	WLAN 2.4GHz
2G Ant2	2	Accton	120G00000289A-3	Directivity	MHF	WLAN 2.4GHz
5G Ant1	3	Accton	120G00000289A-4	Directivity	MHF	WLAN 5GHz UNII 1-3 or UNII 1-2A
5G Ant2	2	Accton	120G00000289A-5	Directivity	MHF	WLAN 5GHz UNII 1-3 or UNII 1-2A
5G Ant3	1	Accton	120G00000289A-6	Directivity	MHF	WLAN 5GHz UNII 1-3 or UNII 1-2A
5G Ant4	4	Accton	120G00000289A-7	Directivity	MHF	WLAN 5GHz UNII 1-3 or UNII 1-2A
5G6G Ant1	1	Accton	120G00000289A-8	Directivity	MHF	WLAN 5GHz UNII 2C-4 or WLAN 6GHz UNII5~8
5G6G Ant2	2	Accton	120G00000289A-9	Directivity	MHF	WLAN 5GHz UNII 2C-4 or WLAN 6GHz UNII5~8
5G6G Ant3	4	Accton	120G00000289A-10	Directivity	MHF	WLAN 5GHz UNII 2C-4 or WLAN 6GHz UNII5~8
5G6G Ant4	3	Accton	120G00000289A	Omni	MHF	WLAN 5GHz UNII 2C-4 or WLAN 6GHz UNII5~8

Note:

For Radio 1:

2.4GHz Operation Mode (2TX/2RX)

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

2G Ant1~2 could transmit/receive simultaneously.

For Radio 2:

5GHz Operation Mode (4TX/4RX)

5G Ant1~4 can be used as transmitting/receiving antenna.

5G Ant1~4 could transmit/receive simultaneously.

For Radio 3:

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

5G6G Ant1~4 can be used as transmitting/receiving antenna.

5G6G Ant1~4 could transmit/receive simultaneously.



2. Table for Radio function

Radio	Function	WLAN 2.4GHz	WLAN 5GHz	WLAN 6GHz	Bluetooth	Zigbee
1		V	-	-	-	-
2		-	V (UNII 1-3 or UNII 1-2A)	-	-	-
3		-	V (UNII 2C-4)	V	-	-
4		-	-	-	V	V

Note 1: For WLAN 5GHz: The Radio 2 and 3 can't operate at the same frequency simultaneously.

Note 2: The above information was declared by manufacturer.

3. Test Frequency

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

Band [MHz]	Test Frequency [MHz]
2400-2483.5	2400
	2450
	2483.5
5150-5250	5200
5250-5350	5300
5470-5725	5600
5725-5850	5785
5850-5895	5885
5925-6425	6175
6425-6525	6475
6525-6875	6695
6875-7125	6995

4. Testing Location

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

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	05CH03-HY	Rex Liao	23.5-24.5 / 45-55	Oct. 28, 2025~ Oct. 29, 2025

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

Characteristic: Fully Anechoic Chamber

5. Test Facility and Configuration

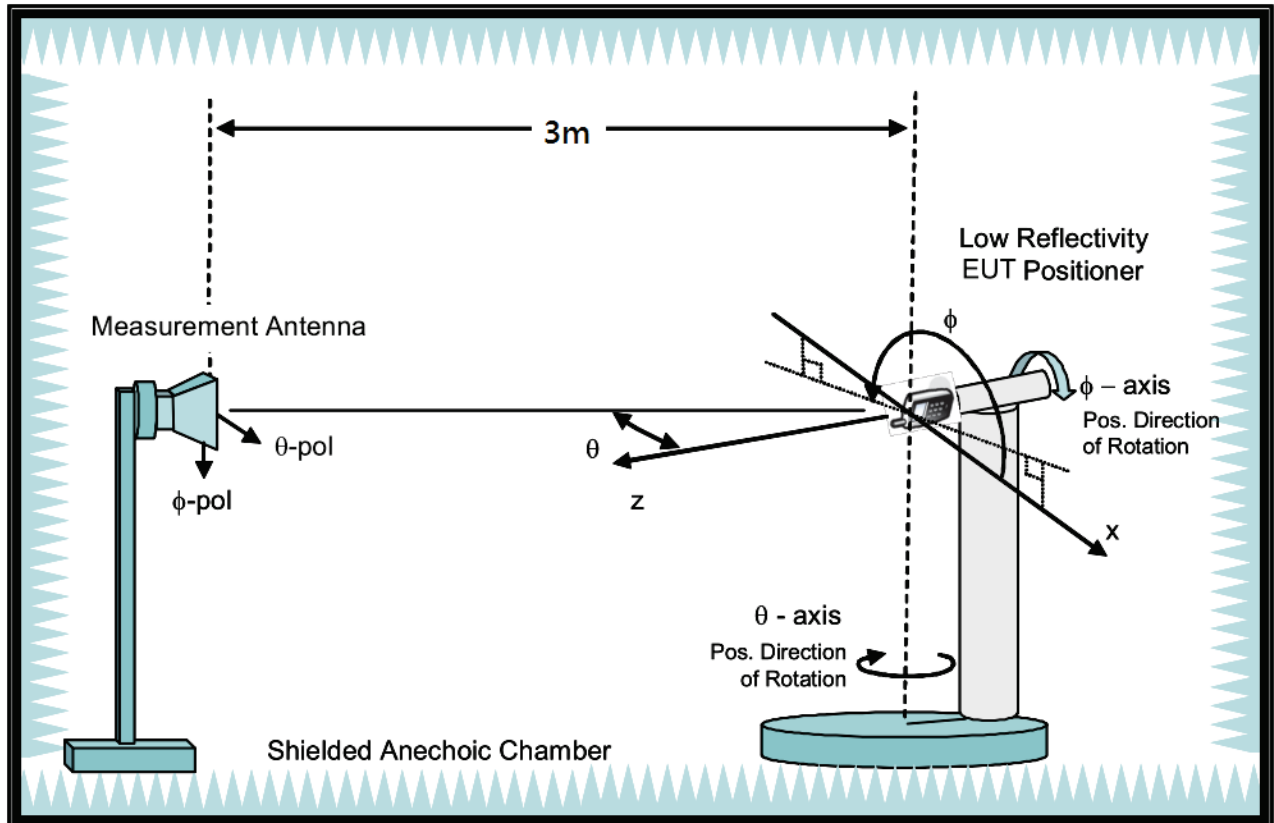
Test configuration: Reference to CITA OTA distributed-axes system configuration.

Chamber: Fully Anechoic Chamber.

Measurement antenna: Dual Polarization Horn antenna

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

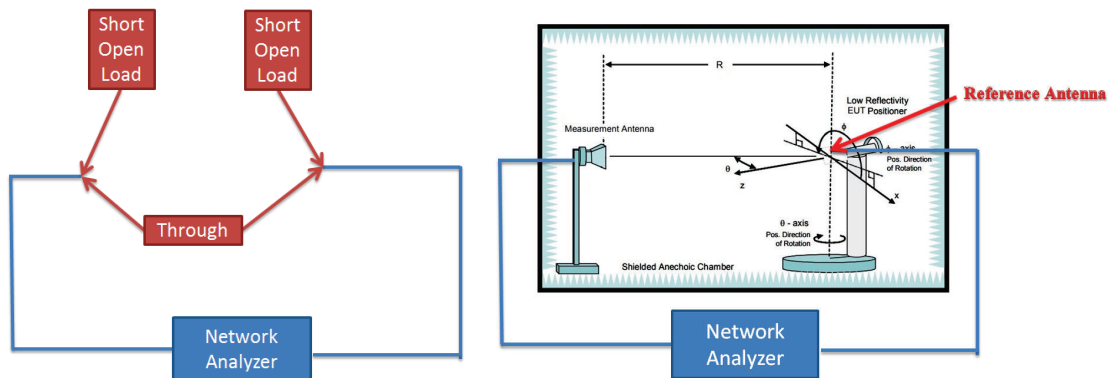
#Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1"



6. Reference Calibration

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

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



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

Note:

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

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

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

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

7. Test Method

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

DG steps:

1. Each Phi and Theta polarization antenna gain are measured for all test angles.
2. Composite Phi and Theta antenna gain are computed, using formula in KDB662911 D01 d) (i) and e) (ii), for all angles.
3. Composite antenna gain are examined for all angles to determine max gain and Phi/Theta position. Max gain and phi/theta position are listed in section 8 tables.

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

8. Measured Values and Calculation of Maximum Gain Positions

For 2G Ant1~2:

DG_1SS max value position

Frequency (Hz)	2.4G	2.45G	2.4835G
Ant. 1 (dBi)	4.92	6.22	5.97
Ant. 2 (dBi)	4.92	3.8	4.49
DG [1SS] (dBi)	7.93	8.1	8.27
Polarization	Phi	Phi	Phi
$\Theta(^{\circ})$	7.5	0	0
$\Phi(^{\circ})$	217.5	135	217.5

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

DG_1SS max value position calculation

Frequency (Hz)	2.4G	2.45G	2.4835G
Ant. 1 [$10^{(G/20)}$]	$10^{(4.92/20)}$	$10^{(6.22/20)}$	$10^{(5.97/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(4.92/20)}$	$10^{(3.8/20)}$	$10^{(4.49/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.762	2.046	1.988
Ant. 2 [$10^{(G/20)}$] value	1.762	1.549	1.677
Sum All Antenna [Amax]	3.524	3.595	3.665
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	7.93	8.1	8.27

Note:

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

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

For 5G Ant1~4:

DG_1SS max value position

Frequency (Hz)	5.2G	5.3G	5.6G	5.785G
Ant. 1 (dBi)	1.38	-1.45	3.98	2.35
Ant. 2 (dBi)	8.05	7.02	6.73	7.16
Ant. 3 (dBi)	3.57	4.93	1.16	1.15
Ant. 4 (dBi)	5.12	5.25	6.76	5.58
DG [1SS] (dBi)	10.89	10.48	10.97	10.41
Polarization	Phi	Phi	Phi	Phi
$\Theta(^{\circ})$	7.5	7.5	15	15
$\Phi(^{\circ})$	60	60	45	52.5

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

DG_1SS max value position calculation

Frequency (Hz)	5.2G	5.3G	5.6G	5.785G
Ant. 1 [$10^{(G/20)}$]	$10^{(1.38/20)}$	$10^{(-1.45/20)}$	$10^{(3.98/20)}$	$10^{(2.35/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(8.05/20)}$	$10^{(7.02/20)}$	$10^{(6.73/20)}$	$10^{(7.16/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(3.57/20)}$	$10^{(4.93/20)}$	$10^{(1.16/20)}$	$10^{(1.15/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(5.12/20)}$	$10^{(5.25/20)}$	$10^{(6.76/20)}$	$10^{(5.58/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.172	0.846	1.581	1.311
Ant. 2 [$10^{(G/20)}$] value	2.526	2.244	2.17	2.28
Ant. 3 [$10^{(G/20)}$] value	1.508	1.764	1.143	1.142
Ant. 4 [$10^{(G/20)}$] value	1.803	1.83	2.178	1.901
Sum All Antenna [Amax]	7.01	6.684	7.072	6.634
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	10.89	10.48	10.97	10.41

Note:

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

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



For 5G6G Ant1~4:

DG_1SS max value position

Frequency (Hz)	5.6G	5.785G	5.885G	6.175G	6.475G	6.695G	6.995G
Ant. 1 (dBi)	4.1	5.5	6.23	8.14	6.1	7.15	6.97
Ant. 2 (dBi)	3.86	3.67	4.39	5.65	8.1	5.07	7.21
Ant. 3 (dBi)	4.02	3.16	5.14	4.15	5.44	2.58	4.8
Ant. 4 (dBi)	5.86	5.79	5.58	3.36	4.91	4	2.15
DG [1SS] (dBi)	10.52	10.62	11.38	11.54	12.25	10.88	11.53
Polarization	Phi	Phi	Theta	Theta	Phi	Theta	Phi
$\Theta(^{\circ})$	7.5	15	7.5	7.5	0	7.5	15
$\Phi(^{\circ})$	322.5	322.5	52.5	52.5	142.5	67.5	67.5

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

DG_1SS max value position calculation

Frequency (Hz)	5.6G	5.785G	5.885G	6.175G	6.475G	6.695G	6.995G
Ant. 1 [$10^{(G/20)}$]	$10^{(4.1/20)}$	$10^{(5.5/20)}$	$10^{(6.23/20)}$	$10^{(8.14/20)}$	$10^{(6.1/20)}$	$10^{(7.15/20)}$	$10^{(6.97/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(3.86/20)}$	$10^{(3.67/20)}$	$10^{(4.39/20)}$	$10^{(5.65/20)}$	$10^{(8.1/20)}$	$10^{(5.07/20)}$	$10^{(7.21/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(4.02/20)}$	$10^{(3.16/20)}$	$10^{(5.14/20)}$	$10^{(4.15/20)}$	$10^{(5.44/20)}$	$10^{(2.58/20)}$	$10^{(4.8/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(5.86/20)}$	$10^{(5.79/20)}$	$10^{(5.58/20)}$	$10^{(3.36/20)}$	$10^{(4.91/20)}$	$10^{(4/20)}$	$10^{(2.15/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.603	1.884	2.049	2.553	2.018	2.278	2.231
Ant. 2 [$10^{(G/20)}$] value	1.56	1.526	1.658	1.916	2.541	1.793	2.294
Ant. 3 [$10^{(G/20)}$] value	1.589	1.439	1.807	1.613	1.871	1.346	1.738
Ant. 4 [$10^{(G/20)}$] value	1.963	1.948	1.901	1.472	1.76	1.585	1.281
Sum All Antenna [Amax]	6.715	6.796	7.415	7.554	8.19	7.001	7.543
DG [$10^{*log(Amax^2/Nant)}$]	10.52	10.62	11.38	11.54	12.25	10.88	11.53

Note:

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

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

9. Summary of Test Result

For 2G Ant1~2:

Freq(Hz)	2.4G	2.45G	2.4835G
Ant. 1 Max Gain (dBi)	7.63	8.38	8.42
Ant. 2 Max Gain (dBi)	7.42	7.66	7.68
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/7.5/172.5	Phi/0/352.5	Phi/7.5/172.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/0/255	Phi/0/82.5	Phi/0/262.5
Max Gain (dBi)	7.63	8.38	8.42
DG [1SS] (dBi)	7.93	8.38	8.42
DG [2SS] (dBi)	7.63	8.38	8.42

Note:

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

For 5G Ant1~4:

Freq(Hz)	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	6.75	6.61	7.93	7.46
Ant. 2 Max Gain (dBi)	8.13	7.07	8.01	7.6
Ant. 3 Max Gain (dBi)	7.76	7.49	7.65	7.08
Ant. 4 Max Gain (dBi)	6.84	7.27	7.42	7.52
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/7.5/157.5	Phi/7.5/322.5	Phi/7.5/352.5	Phi/0/180
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/7.5/52.5	Phi/7.5/52.5	Phi/7.5/75	Theta/22.5/7.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/22.5/112.5	Phi/7.5/105	Phi/0/112.5	Theta/15/37.5
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/22.5/30	Phi/7.5/22.5	Phi/7.5/195	Phi/7.5/210
Max Gain (dBi)	8.13	7.49	8.01	7.6
DG [1SS] (dBi)	10.89	10.48	10.97	10.41
DG [2SS] (dBi)	8.13	7.49	8.01	7.6
DG [4SS] (dBi)	8.13	7.49	8.01	7.6

Note:

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

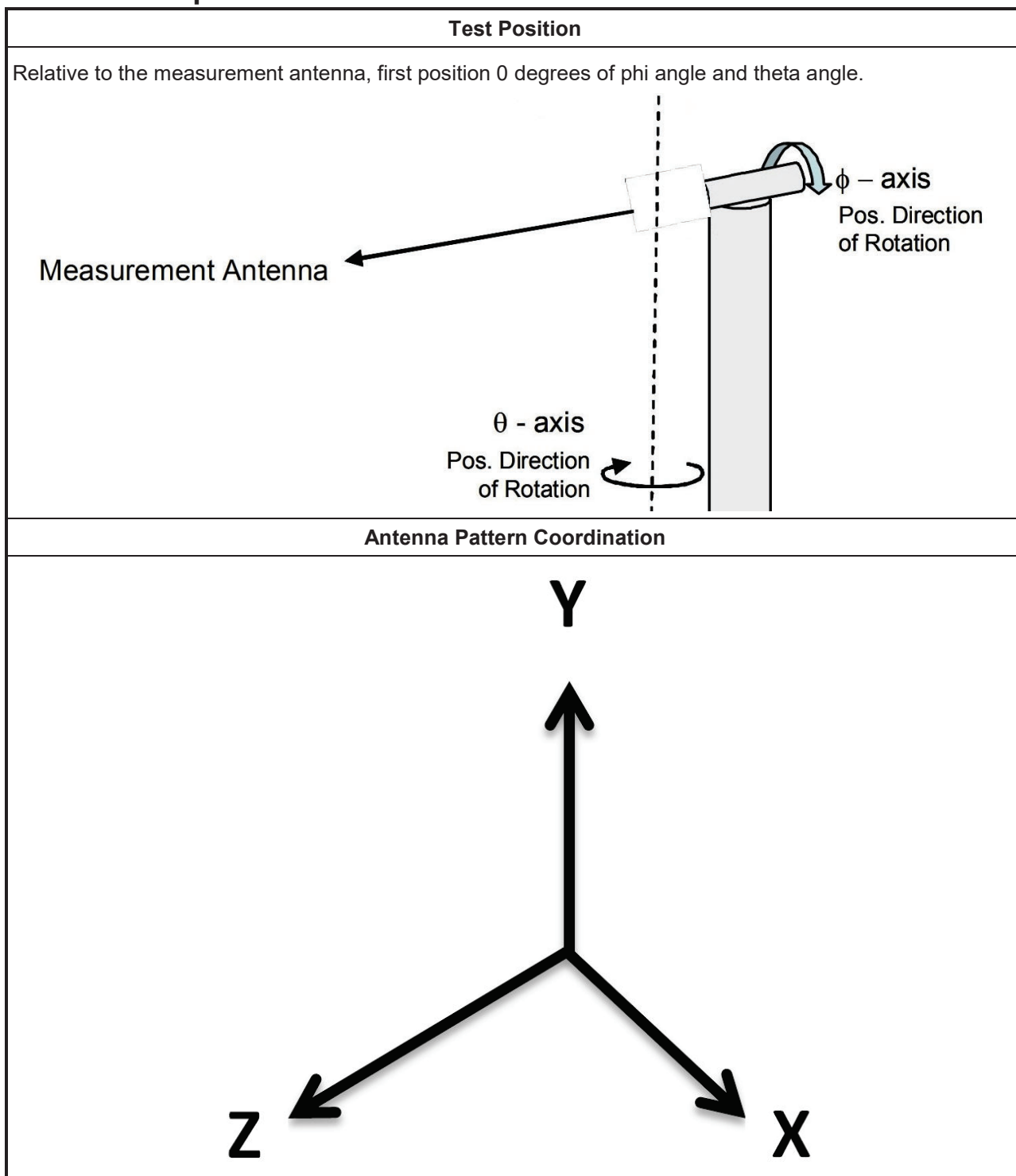
For 5G6G Ant1~4:

Freq(Hz)	5.6G	5.785G	5.885G	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	8.13	7.84	7.97	9.25	9.39	8.81	8.95
Ant. 2 Max Gain (dBi)	7.47	6.49	6.7	8.2	9.67	8.44	8.57
Ant. 3 Max Gain (dBi)	7.22	6.39	6.76	7.39	7.52	7.34	9.23
Ant. 4 Max Gain (dBi)	7.42	7.48	7.66	7.36	7.37	7.17	7.14
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/15/0	Phi/15/7.5	Theta/22.5/90	Phi/0/180	Phi/0/180	Theta/15/97.5	Phi/15/22.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/22.5/270	Phi/15/270	Theta/22.5/345	Phi/0/270	Phi/0/105	Theta/0/195	Phi/0/112.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/7.5/285	Phi/7.5/97.5	Phi/7.5/90	Phi/7.5/105	Phi/15/105	Phi/15/105	Phi/15/112.5
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/0/187.5	Phi/0/7.5	Theta/15/97.5	Phi/7.5/0	Phi/15/0	Theta/22.5/285	Phi/22.5/15
Max Gain (dBi)	8.13	7.84	7.97	9.25	9.67	8.81	9.23
DG [1SS] (dBi)	10.52	10.62	11.38	11.54	12.25	10.88	11.53
DG [2SS] (dBi)	8.13	7.84	7.97	9.25	9.67	8.81	9.23
DG [4SS] (dBi)	8.13	7.84	7.97	9.25	9.67	8.81	9.23

Note:

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

10. Test Setup



Note:

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

**11. Test Equipment and Calibration Data**

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1531	1GHz~18GHz	Dec. 20, 2024	Dec. 19, 2025
Dual Polarization Horn Antenna	Sporton	S0209DP	S0209DP-001	2GHz~9GHz	N.C.R.	N.C.R.
ENA Series Network Analyzer	AGILENT	E5071C	MY46419477	100kHz~8.5GHz	Aug. 06, 2025	Aug. 05, 2026
VNA Calibration Kit	TS RF	TS85033E-F	-	DC~9GHz	N.C.R.	N.C.R.
Multi-axis positioner	Sporton	MAPS01	MAPS01-001	Theta / Phi axis	N.C.R.	N.C.R.
Test Software	SPORTON	SENSE-RDG	V1.0.8	-	N.C.R.	N.C.R.

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

NCR means Non-Calibration required.



12. Test Results

Please refer to the appendix.

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Radiated Composite Gain Data _Radio 1_2.4GHz

Appendix A

Freq(Hz)	2.4G	2.45G	2.4835G
Ant. 1 Max Gain (dBi)	7.63	8.38	8.42
Ant. 2 Max Gain (dBi)	7.42	7.66	7.68
Ant. 1 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/7.5/172.5	Phi/0/352.5	Phi/7.5/172.5
Ant. 2 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/0/255	Phi/0/62.5	Phi/0/262.5
Max Gain (dBi)	7.63	8.38	8.42
DG [1SS] (dBi)	7.93	8.1	8.27
DG [1SS] (dBi) Revised	7.93	8.38	8.42
DG [2SS] (dBi)	7.63	8.38	8.42



Appendix A



Radiated Composite Gain Data_Radio 1_2.4GHz

Appendix A

θ(22.5°)	5.718.11	6.458.72	6.927.09	7.157.07	6.826.35	5.674.85	4.274.83	5.976.13	6.486.64	6.668.54	6.315.94	5.434.92	5.395.85	6.196.43	6.686.64	6.626.49	6.257	4.944.12	4.645.38	5.946.33	6.576.68	6.666.53	6.276.9	5.515.45
θ(30°)	5.375.71	5.926.06	6.168.25	6.36.23	6.045.68	5.154.45	3.884.38	5.135.68	6.026.17	6.168.02	5.85.51	5.144.81	4.384.68	4.945.11	5.275.4	5.545.6	5.476.09	4.433.81	3.484.14	4.885.5	5.976.24	6.266.03	5.835.14	4.784.86
θ(37.5°)	4.684.92	4.974.94	4.94.9	4.864.73	4.494.16	3.740.12	2.613.23	3.984.55	4.654.08	5.074.93	4.714.47	4.173.73	3.313.34	3.593.64	3.773.94	4.124.2	4.053.63	3.022.25	1.972.56	3.514.37	5.115.57	5.76.43	4.844.19	3.984.44
θ(45°)	3.714	3.953.78	3.663.62	3.543.32	2.992.67	2.362	1.682.12	2.673.4	3.713.82	3.763.59	3.423.29	3.142.83	2.241.9	1.951.95	2.052.36	2.692.77	2.492	1.433.72	0.020.51	1.592.85	3.614.29	4.514.23	3.552.92	3.023.48
θ(52.5°)	2.022.22	2.232.13	2.043.03	1.991.73	1.250.8	0.560.41	0.20.5	1.342	2.332.28	2.071.81	1.691.71	1.731.46	0.860.31	0.332.25	0.471.06	1.521.49	1.020.45	-0.034.72	-1.771.51	-0.420.87	2.143.01	3.192.7	1.741.1	1.431.93
θ(60°)	4.289.0.03	0.010.07	-0.016.27	0.490.39	-0.110.76	1.041.02	-1.381.471	-0.850.05	0.570.57	0.271.01	-0.121.06	0.060	-0.481.03	-1.811.48	-0.861.12	0.270.09	-0.711.59	-2.141.29	-4.614.78	-3.51.188	0.181.42	1.590.71	-4.771.42	-1.941.951
θ(67.5°)	-2.812.41	-2.512.69	-2.491.193	-1.411.133	-1.861.266	2.291.282	-3.251.398	-2.911.159	-0.841.86	-1.251.16	-1.751.164	-1.481.16	2.113	-3.212.54	-1.791.132	-1.291.18	-3.091.41	-4.271.98	-6.281.703	-5.911.358	-1.910.32	0.181.147	-3.211.379	-3.851.14
θ(75°)	-5.321.464	-4.621.486	-4.521.376	-3.121.927	-3.715.01	5.581.643	-6.891.61	-5.221.341	-2.381.238	-2.971.51	-3.731.358	-3.141.28	-2.951.58	-4.051.382	-3.941.418	-3.931.353	-6.031.564	-5.151.49	-6.661.854	-8.691.71	-4.431.265	2.711.54	-5.571.604	-4.461.604
θ(82.5°)	-7.981.719	-7.341.77	-6.771.585	-4.711.421	-4.7216	6.671.688	-7.071.87	-7.341.53	-4.481.424	-4.791.649	-5.851.551	-4.761.413	-4.341.519	-6.471.071	-6.871.615	-5.191.553	-6.881.681	-5.821.624	-7.421.957	-11.271.697	-5.511.366	-4.171.645	-7.671.832	-6.111.643
θ(90°)	-10.291.911	-6.531.675	-6.261.78	-6.591.632	-6.931.624	6.411.781	-7.931.633	-9.021.787	-6.731.635	-6.711.689	-7.381.734	-6.291.534	-6.071.739	-8.761.879	-8.461.794	-7.471.794	-6.714.05	-6.841.744	-8.811.289	-13.621.221	-7.715.25	-6.731.613	-8.961.1218	-13.591.114
θ(97.5°)	-11.791.938	-10.391.958	-9.151.936	-8.411.73	-8.911.931	-11.311.917	-9.321.947	-10.421.97	-7.116.3	-7.01.29	-8.371	-7.331.689	-6.991.1139	-12.291.933	-9.791.107	-11.221.147	-10.191.109	-13.941.934	-13.711.938	-11.171.932	-9.271.1035	-11.171.932	-10.891.1298	-14.221.727
θ(105°)	-12.191.1179	-10.261.934	-8.981.9107	-8.891.935	-8.311.913	-13.071.1223	-11.331.9115	-11.781.930	-8.071.739	-7.751.944	-11.611.957	-8.711.951	-8.221.936	-10.911.227	-11.881.1212	-13.351.1442	-15.411.1455	-11.711.132	-13.291.1209	-10.941.1372	-15.411.228	-11.721.1253	-14.621.1425	-14.811.131
θ(112.5°)	-13.291.1396	-12.691.1169	-10.751.1072	-11.391.1042	-10.181.1124	-12.571.1248	-11.581.112	-11.091.1132	-8.931.621	-8.381.1015	-11.691.1087	-10.41.881	-8.451.828	-10.211.163	-10.131.153	-15.691.1586	-15.761.1348	-11.421.1268	-14.141.1197	-11.181.1394	-15.881.1337	-13.991.1445	-15.051.1315	-13.291.1334
θ(120°)	-14.081.1332	-14.121.1284	-11.871.1122	-11.471.1125	-11.081.1181	-12.331.1347	-11.911.1056	-10.421.1043	-10.41.911	-8.981.1008	-11.691.12	-12.291.1194	-11.431.1353	-13.771.1451	-12.41.1197	-12.981.1537	-15.871.143	-13.631.1485	-14.51.1193	-11.311.1321	-15.991.1503	-14.71.1447	-15.341.1359	-12.991.137
θ(127.5°)	-15.381.147	-15.111.1513	-14.381.1318	-11.671.1045	-8.871.1016	-11.461.1275	-14.311.1266	-11.811.1159	-12.311.1081	-10.91.897	-10.711.1161	-12.21.1317	-13.851.131	-11.351.10	-8.821.1073	-13.231.1442	-14.281.127	-12.791.1369	-13.111.1127	-10.891.1199	-13.791.1403	-13.811.1357	-15.231.1353	-13.371.1464
θ(135°)	-15.521.1556	-15.381.1541	-15.151.1388	-12.541.113	-10.411.1046	-11.161.125	-15.481.128	-12.341.1216	-12.481.1204	-10.831.1032	-10.261.1075	-12.071.1308	-13.831.1274	-11.781.1088	-10.581.1154	-13.121.1348	-12.651.1153	-11.381.1153	-11.281.1032	-11.241.1312	-15.491.159	-15.411.1522	-14.141.1266	-12.621.1464
θ(142.5°)	-13.481.1421	-15.291.151	-14.591.1308	-11.521.1011	-9.51.941	-10.281.121	-14.151.1432	-12.991.1216	-11.731.1142	-11.101.1079	-10.871.1148	-12.891.1411	-15.111.1418	-13.141.1219	-131.1256	-12.611.11	-10.931.107	-10.891.1151	-12.111.1301	-14.661.1549	-15.441.1458	-16.091.1515	-16.061.1462	-13.511.133
θ(150°)	-12.081.1292	-13.081.1303	-12.381.1148	-10.219.87	-8.791.6	-8.321.1094	-13.311.141	-14.291.1343	-12.831.1244	-12.081.1175	-11.511.1173	-12.691.1457	-15.041.1538	-15.341.1286	-11.011.1038	-9.891.994	-10.481.115	-12.811.1455	-15.721.1588	-15.921.1558	-14.841.1298	-12.971.1318	-13.961.1206	-12.891.1206
θ(157.5°)	-11.841.1171	-11.821.1146	-10.971.1011	-10.261.905	-8.721.886	-8.611.099	-12.511.1261	-12.251.1287	-12.411.1211	-12.021.1171	-11.471.1162	-11.421.1135	-12.131.1527	-12.641.1182	-11.581.1077	-10.481.1117	-12.231.1448	-14.961.1546	-15.121.1461	-15.511.1536	-14.931.1514	-15.721.1511	-15.711.1495	-13.691.1216
θ(165°)	-11.641.115	-10.871.1045	-9.861.938	-8.871.833	-8.511.637	-8.261.1014	-12.221.1227	-12.11.1241	-11.421.1039	-9.671.939	-8.651.1041	-10.491.1146	-11.641.1311	-14.191.1442	-13.781.1422	-14.841.1566	-151.1524	-16.011.1484	-13.211.1513	-13.681.1471	-15.711.1552	-15.551.1508	-14.251.1428	-13.691.1257
θ(172.5°)	-11.771.1166	-10.951.1053	-10.21.999	-8.721.833	-8.491.974	-10.371.1164	-13.691.14	-15.141.1548	-14.511.128	-11.681.1073	-10.491.1086	-12.241.1305	-15.121.1433	-15.511.1505	-15.371.1521	-15.481.1604	-14.621.1372	-12.591.1236	-11.691.1237	-13.091.1415	-15.581.1479	-14.011.1426	-12.941.1195	
θ(180°)	-11.511.1165	-11.711.1194	-11.771.1167	-11.511.1134	-11.441.1197	-12.891.1415	-14.921.1465	-14.591.1487	-15.041.1519	-15.121.147	-15.241.1574	-15.051.1578	-14.911.1547	-15.121.1543	-13.591.1337	-12.571.1199	-11.731.1187	-12.411.1305	-13.811.1393	-14.251.1468	-15.681.1519	-15.211.1559	-14.881.1368	-12.711.1181
Free(4)	2.4835GPa	Theta1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Q(4)	θ(7°)θ(7.5°)	θ(15°)θ(22.5°)	θ(30°)θ(37.5°)	θ(45°)θ(52.5°)	θ(60°)θ(67.5°)	θ(75°)θ(82.5°)	θ(90°)θ(97.5°)	θ(105°)θ(112.5°)	θ(120°)θ(127.5°)	θ(135°)θ(142.5°)	θ(150°)θ(157.5°)	θ(165°)θ(172.5°)	θ(180°)θ(187.5°)	θ(195°)θ(202.5°)	θ(210°)θ(217.5°)	θ(225°)θ(232.5°)	θ(240°)θ(247.5°)	θ(255°)θ(262.5°)	θ(270°)θ(277.5°)	θ(285°)θ(292.5°)	θ(300°)θ(307.5°)	θ(315°)θ(322.5°)	θ(330°)θ(337.5°)	θ(345°)θ(352.5°)
θ(7°)	2.983.33	4.444	4.754.92	4.894.92	4.724.35	3.873.55	3.724.08	4.44.63	4.814.94	4.984.94	4.774.42	3.931.3	2.763.4	4.124.63	4.935.08	5.084.97	4.714.33	3.883.62	4.014.57	5.035.31	5.435.43	5.335.04	4.674.2	3.602.75
θ(15°)	2.613.28	3.94.32	4.614.78	4.844.77	4.594.25	3.873.63	3.874.28	4.624.8	4.894.96	4.964.88	4.674.29	3.712.83	2.483.36	4.074.55	4.844.98	4.964.8	4.514.08	3.953.3	3.794.31	4.714.94	54.94	4.774.52	4.179.73	3.192.59
θ(30°)	1.952.76	3.493.97	4.284.42	4.414.31	4.073.74	3.393.19	3.413.87	4.234.39	4.434.39	4.414.22	4.020.67	3.12.24	1.942.78	3.614.15	4.514.65	4.644.46	4.153.64	3.042.71	3.273.92	4.214.38	4.444.3	4.063.71	3.292.78	2.191.66
θ(45°)	0.761.78	2.633.2	3.523.67	3.673.54	3.272.92	2.52.12	2.222.76	3.213.4	3.393.21	2.952.7	2.482.16	1.70.89	0.851.78	2.633.19	3.543.71	3.723.59	3.272.77	2.091.83	2.613.17	3.513.68	3.713.61	3.43.05	2.541.89	1.140.46
θ(60°)	-0.880.08	1.011.62	1.982.18	2.282.28	2.121.81	1.340.72	0.330.43	0.961.29	1.471.34	1.191.01	0.880.79	0.531.11	-0.350.31	1.241.82	2.162.33	2.392.34	2.091.98	0.913.73	1.371.93	2.252.44	2.522.54	2.462.21	1.747.02	0.171.72
θ(75°)	-2.731.206	-1.181.657	-0.216	0.376.58	0.610.4	-0.071.688	-1.941.252	-0.091.153	-1.081.04	-0.761.956	-1.191.133	-1.441.176	-1.941.13	-0.220.25	0.401.36	0.350.31	0.051.641	-0.961.07	0.460.09	0.490.76	1.011.19	1.190.94	0.381.46	-1.412.34
θ(90°)	-5.321.89	-4.131.348	-31.253	-2.021.16	-1.361.134	-1.751.277	-4.271.74	-5.891.524	-4.461.376	-3.321.32	-3.161.1303	-3.861.299	-3.191.225	-1.771.144	-1.631.299	-2.481.262	-2.741.309	-3.511.38	-3.331.27	-2.231.181	-1.31.084	0.731.14	2.031.24	-4.381.49
θ(97.5°)	-8.891.625	-7.431.648	-5.641.482	-4.711.353	-3.641.332	-3.014.77	-6.81.845	-6.431.845	-7.141.598	-5.114.77	-4.821.605	-6.221.428	-6.521.455	-3.611.358	-4.041.496	-5.691.561	-6.451.689	-6.321.459	-6.361.551	-4.941.423	-3.321.254	-2.451.322	-6.091.735	-6.911.601
θ(105°)	-12.981.1232	-10.221.822	-7.216.11	-5.361.549	-5.591.533	-5.461.66	-8.681.1013	-11.681.1083	-9.311.755	-7.631.672	-6.521.747	-7.881.614	-7.877.012	-6.291.655	-6.431.733	-8.261.836	-8.381.912	-10.111.1044	-9.111.568	-7.571.628	-4.91.457	4.191.554	-4.471.112	-13.981.135
θ(112.5°)	-15.481.1293	-10.591.671	-7.831.685	-6.061.45	-6.991.708	-7.31.808	-9.571.1089	-12.441.1237	-11.441.1014	-8.731.643	-8.511.984	-10.221.1062	-10.761.997	-8.191.885	-8.051.933	-8.571.919	-8.851.1018	-12.331.1336	-11.911.1062	-9.041.72	-5.811.536	6.091.837	-11.841.1515	-15.841.1417
θ(120°)	-13.111.1411	-12.291.954	-8.711.76	-6.721.717	-6.81.6	-9.081.94	-6.781.1026	-11.11.1189	-12.181.1174	-11.641.1103	-9.91.867	-10.751.1186	-13.631.1371	-12.471.1169	-11.261.1041	-10.141.947	-8.771.10	-11.791.1496	-13.461.1226	-10.441.777	-7.441.			

Gain	$\Phi(0^\circ)/\Phi(7.5^\circ)$	$\Phi(15^\circ)/\Phi(22.5^\circ)$	$\Phi(30^\circ)/\Phi(37.5^\circ)$	$\Phi(45^\circ)/\Phi(52.5^\circ)$	$\Phi(60^\circ)/\Phi(67.5^\circ)$	$\Phi(75^\circ)/\Phi(82.5^\circ)$	$\Phi(90^\circ)/\Phi(97.5^\circ)$	$\Phi(105^\circ)/\Phi(112.5^\circ)$	$\Phi(120^\circ)/\Phi(127.5^\circ)$	$\Phi(135^\circ)/\Phi(142.5^\circ)$	$\Phi(150^\circ)/\Phi(157.5^\circ)$	$\Phi(165^\circ)/\Phi(172.5^\circ)$	$\Phi(180^\circ)/\Phi(187.5^\circ)$	$\Phi(195^\circ)/\Phi(202.5^\circ)$	$\Phi(210^\circ)/\Phi(217.5^\circ)$	$\Phi(225^\circ)/\Phi(232.5^\circ)$	$\Phi(240^\circ)/\Phi(247.5^\circ)$	$\Phi(255^\circ)/\Phi(262.5^\circ)$	$\Phi(270^\circ)/\Phi(277.5^\circ)$	$\Phi(285^\circ)/\Phi(292.5^\circ)$	$\Phi(300^\circ)/\Phi(307.5^\circ)$	$\Phi(315^\circ)/\Phi(322.5^\circ)$	$\Phi(330^\circ)/\Phi(337.5^\circ)$	$\Phi(345^\circ)/\Phi(352.5^\circ)$
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[illegible]



Radiated Composite Gain Data_Radio 1_2.4GHz

Appendix A

(H22.5)	7.228.95	6.658.03	5.984.72	3.912.85	1.48-0.57	3.55-8.28	-12.59-7.08	-2.31-0.74	2.854.29	5.368.16	6.777.22	7.497.54	7.457.09	6.595.92	5.064.03	2.761.23	-6.87-0.34	-8.84-1.77	-10.03-4.21	-7.91-1.58	3.234.45	5.386.1	6.687.08	7.327.38
(H30.5)	6.528.25	5.765.16	4.450.72	2.941.91	0.52-1.48	4.33-8.8	-13.56-8.33	-3.38-0.28	1.813.28	4.365.18	5.826.34	6.716.85	6.766.43	5.845.11	4.293.27	2.198.95	0.74-1.32	4.75-12.3	-12.21-4.46	-2.48-0.27	2.293.76	4.886.63	6.156.48	6.686.73
(H37.5)	5.475.16	4.714.12	3.194.62	1.898.62	-0.01-2.63	5.52-9.63	-14.11-9.06	4.35-1.35	6.072.06	3.133.99	4.695.25	5.625.76	5.625.19	4.580.74	2.892.1	1.220.15	-1.42-0.58	-6.65-11.17	-14.09-8.83	-4.32-1.12	1.152.97	4.316.13	5.658.1	5.845.76
(H42.5)	3.933.73	3.322.81	2.251.62	0.86-1.46	-1.84-3.84	6.28-10.02	-13.43-10.26	6.71-2.23	0.91-0.4	1.452.4	3.264	4.94.71	4.994.14	3.362.41	1.571.02	0.43-0.55	-3.11-14.46	-6.59-10.36	-15.70-18.77	6.43-2.87	4.25-1.81	3.294.17	4.984.87	4.574.33
(H48.5)	1.791.64	1.471.25	0.910.42	-0.22-1.16	-2.59-4.79	7.59-10.82	-14.70-11.95	7.03-3.96	2.12-1.02	0.03-0.91	1.846.46	3.232.61	3.232.65	1.76-0.65	0.03-0.92	0.68-1.79	-3.54-3.6	-7.51-11.03	-17.26-13.6	7.83-4.2	-1.48-0.69	2.162.86	3.284.67	2.62.27
(H52.5)	4.932.68	6.71-6.82	0.59-7.3	1.17-1.96	3.44-5.86	8.62-10.91	14.55-15.1	8.43-6.77	3.72-2.38	-1.61-0.6	0.38-1.1	1.531.84	1.460.96	1.91-0.77	-1.21-1.22	1.75-1.32	-6.32-7.25	0.01-12.18	19.1-15.94	6.77-11.47	3.25-0.83	0.77-1	1.03-0.54	0.02-0.43
(H57.5)	-3.78-3.37	2.57-2.61	-12.21-1.95	-2.14-2.83	-4.44-7.22	-10.09-12.13	-15.39-18.11	-11.57-7.38	-5.33-4.27	3.18-1.98	-1.14-0.61	-0.44-0.55	-0.75-1.08	-1.58-2.41	-2.67-2.77	3.53-5.26	-7.97-10.2	-11.47-14.86	-16.61-17.04	-11.81-8.74	5.59-5.76	-1.06-0.7	-1.25-2.09	-2.79-3.17
(H57.5)	6.08-6.57	5.07-4.71	-3.99-3.46	3.45-4.07	5.88-8.47	-11.46-13.1	-18.61-18.47	-13.83-9.3	7.49-6.82	6.07-4.92	-3.84-3.1	2.612.13	-1.74-1.67	2.37-3.08	5.06-5.71	6.2-7.8	11.12-12	-13.24-16.62	-18.45-18.94	-15.57-13.04	6.79-6.98	3.19-3.39	4.11-4.29	5.63-6.02
(H82.5)	8.07-6.99	8.4-6.69	5.75-4.92	4.72-5.42	7.02-9.28	-11.87-15.1	-17.74-18.03	-17.13-12.19	-10.39-9.8	8.777.78	4.03-4.42	4.02-3.34	-3.13-67	6.12-7.38	8.8-9.52	6.24-10.35	-13.64-13.84	-14.24-16.32	-18.37-17.72	-19.98-16.22	-10.89-16.24	4.39-5.19	7.32-9.39	-10.04-9.27
(H91.5)	10.34-12.6	7.86-8.39	6.53-7.21	6.02-7.11	-13.24-15.88	-18.42-19.1	-16.54-16.86	-12.93-11.77	14.77-14.97	7.31-6.22	5.49-5.07	6.44-6.35	-7.29-8.67	8.89-9.31	8.62-12.28	-15.27-14.99	-15.53-16.33	-17.31-19.14	-17.43-18.82	-12.98-14.48	6.74-7.57	10.62-14.96	-10.56-12.69	
(H97.5)	12.35-10.33	8.63-10.12	7.42-8.67	6.85-8.26	10.02-12.73	-14.71-17.58	-18.70-18.81	-14.10-12.93	12.30-10.77	12.45-8.63	7.58-6.85	7.17-7.31	8.26-12.43	13.28-11.34	12.59-14.89	-18.32-18.69	-18.79-18.16	-17.72-19.33	-15.41-19.32	9.24-10.33	-14.19-17.3	-16.32-13.33	-16.32-13.33	
(H107.5)	13.05-11.98	11.06-11.84	9.16-10.19	8.21-9.12	10.21-10.73	14.32-16.83	-18.47-18.93	-18.47-17.23	17.73-14.57	14.74-14.32	10.91-11.97	9.25-8.86	8.11-9.48	10.21-12.32	12.07-12.5	15.44-18.92	16.21-18.61	-18.76-19.25	-17.72-19.35	17.42-16.47	-15.21-15.4	-17.92-16.87	-16.97-15.98	
(H117.5)	14.69-14.96	13.17-13.57	11.39-11.65	-11.59-12.46	-13.21	13.31-14.76	-16.19-17.74	-17.89-19.72	-18.91-15.75	14.49-14.48	-13.26-11.77	9.98-9.47	8.02-9.38	-11.16-13.2	10.11-10.58	-18.41-19.87	-17.79-18.32	-18.19-19.76	-18.41-19.86	-18.80-19.62	-14.78-19.22	-16.82-14.92	-14.69-14.55	
(H127.5)	15.58-16.58	15.62-16.46	-16.63-14.37	-12.96-12.73	-13.23-12.8	13.34-14.76	-16.17-17.54	-17.93-18.1	-18.91-15.34	-13.95-13.74	-13.52-13.95	-12.12-12.47	-11.14-16.44	-10.29-18.95	-14.31-16.76	-19.11-18.32	-18.49-19.25	-18.22-19.01	-19.09-18.76	-18.71-17.76	-18.71-17.82	-18.99-14.78	-14.34-15.15	
(H127.5)	-16.62-17.49	-17.36-17.83	-18.6-17.18	-14.67-15.81	-12.84-12.69	-12.36-13.97	-16.82-17.98	-18.36-17.1	-18.56-14.81	-12.94-12.29	-12.58-13.38	-13.90-14.34	-15.16-16.99	-15.07-14.23	-14.36-15.54	-15.51-17.79	-18.47-18.48	-18.36-18.2	-18.82-19.13	-18.57-18.28	-18.71-18.09	-18.92-17.77	-17.24-17.47	
(H137.5)	-16.75-17.66	-18.01-18.33	-17.72-15.84	-13.27-15.13	-10.34-10.04	-11.61-13.3	-15.16-18.4	-17.75-18.32	-19.13-18.14	-15.77-14.06	-13.65-13.3	-14.16-16.71	-15.89-18.67	-15.52-18.39	-17.27-18.06	-18.9-18.35	-17.47-18.78	-17.79-17.82	-17.76-18.74	-18.07-18.18	-18.08-19.07	-18.53-18.84	-15.96-13.91	
(H142.5)	-15.18-16.41	-16.22-18.31	-16.38-14.28	-11.95-10.06	-6.19-8.44	-8.02-13.14	-15.81-16.93	-16.25-19.52	-15.88-17.52	-15.07-14.57	-14.37-14.39	-14.66-16.29	-16.14-17.87	-16.18-18.77	-18.89-17.5	-16.87-18.35	-16.83-17.84	-16.51-18.69	-16.84-18.82	-18.91-18.95	-18.46-17.81	-19.04-18.51	-18.46-16.45	-15.51-15.32
(H150.5)	-15.59-16.58	-14.00-14.09	-13.11-17.1	-10.43-6.88	-8.41-10.01	-11.61-14.3	-16.09-16.4	-15.47-14.94	-14.55-14.27	-14.11-14.54	-15.72-17.37	-17.87-18	-17.79-18.32	-18.11-19.24	-18.71-18.45	-16.27-18.69	-16.53-19.08	-16.72-18.97	-17.90-16.63	-17.92-16.63	-17.92-16.63	-18.04-19.2	-17.17-14.58	
(H157.5)	-12.58-12.37	-12.08-11.17	-8.84-8.74	-8.86-8.57	-8.93-10.12	-12.20-12.35	-19.13-19.05	-17.13-17.75	-15.88-14.65	-14.11-13.4	-13.11-12.88	-12.84-11.15	-13.89-15.85	-19-18.39	-17.62-17.73	-17.47-18.68	-16.56-18.71	-18.17-18.67	-18.72-18.18	-18.29-17.93	-18.86-18.51	-16.69-16.02	-15.26-14.91	
(H160.5)	-12.59-11.73	-11.11-10.8	-9.02-8.67	-9.02-8.57	-9.07-9.56	-11.71-13.93	-18.95-18.57	-15.68-13.31	-14.15-10.48	-13.02-10.1	-10.57-11.47	-12.53-11.47	-16.18-19.21	-16.18-19.81	-18.96-18.28	-17.84-18.5	-18.96-19.05	-17.11-18.78	-18.39-19.14	-16.31-18.97	-16.89-17.59	-16.82-15.94	-13.91-13.13	
(H172.5)	-12.21-15.17	-11.26-11.21	-11.13-13.93	-10.58-10.12	-10.10-10.78	-12.11-14.45	-18.19-17.63	-18.86-16.76	-16.85-16.48	-17.75-17.10	-10.55-11.27	-17.85-18.17	-17.16-18.31	-18.39-19.58	-18.89-19.16	-17.74-18.71	-18.64-19.7	-17.18-18.72	-18.02-17.78	-18.17-18.74	-18.31-15.62	-14.34-19.21		
(H180.5)	-12.06-11.96	-12.22-12.69	-11.31-13.53	-10.54-11.36	-13.45-14.11	-15.18-14.65	-18.19-17.78	-17.31-17.38	-17.96-18.62	-17.13-17.14	-18.08-18.68	-18.06-18.73	-17.19-18.02	-17.71-18.34	-15.56-15.22	-15.01-14.98	-15.30-15.28	-16.33-16.72	-18.41-19.7	-18.30-18.15	-18.23-18.61	-17.17-15.16	-14.82-13.21	
FreeGain	2.455Psi	ThetaRef.1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Gain	(H167.5)(H17.5)	(H167.5)(H22.5)	(H167.5)(H27.5)	(H167.5)(H32.5)	(H167.5)(H37.5)	(H167.5)(H42.5)	(H167.5)(H48.5)	(H167.5)(H52.5)	(H167.5)(H57.5)	(H167.5)(H62.5)	(H167.5)(H67.5)	(H167.5)(H72.5)	(H167.5)(H77.5)	(H167.5)(H82.5)	(H167.5)(H87.5)	(H167.5)(H92.5)	(H167.5)(H97.5)	(H167.5)(H102.5)	(H167.5)(H107.5)	(H167.5)(H112.5)	(H167.5)(H117.5)	(H167.5)(H122.5)	(H167.5)(H127.5)	
(H17)	10.84-9.21	4.73-1.93	6.13-6.77	2.893.84	4.57-1.5	5.425.55	5.55-2.5	4.814.34	3.24-1.6	1.814.43	11.3-3.1	4.52-12.15	-15.74-26	4.63-1.89	3.937.89	3.063.98	4.67-1.96	5.55-6.5	5.65-6.7	5.65-6.7	5.13-6.1	3.912.99	1.813.33	-1.58-4.14
(H17)	14.15-16.48	4.66-2.03	6.07-4.47	2.71-3.7	4.485	5.385.58	5.625-4.5	5.085.64	3.72-2.9	1.640.54	-1.12-0.47	-7.73-13.13	-18.91-18.71	4.23-11.31	4.847.97	3.13-9.6	4.625-0.7	5.55-6.6	5.55-6.6	5.44-6.4	3.33-3.71	1.69-4.65	8.3-10.2	
(H19)	13.51-8.2	4.51-2.06	6.21-2	2.512.33	3.92-4.48	4.95-2.5	5.325-2.1	4.93-3.7	3.692.78	1.88-0.42	2.71-1.49	4.97-11.8	-16.34-10.17	6.92-2.19	6.14-12.3	2.937.32	4.11-8.6	4.84-9	5.99-6.4	4.703-4.8	2.71-4.64	3.261.25	3.33-4.13	
(H22.5)	15.72-8.4	4.92-2.46	6.05-0.69	1.722.54	3.155.64	4.01-2.46	4.36-2.47	3.98-0.41	2.571.53	0.29-1.1	2.75-0.52	4.51-16.18	-18.44-10.7	4.09-12.39	-1.23-0.17	1.37-2.35	1.193-7.4	4.07-1.6	4.063-79	3.332-89	1.89-0.84	0.38-1.94	-4-4.8	
(H27.5)	-10.67-10.07	6.69-3.39	2-0.65	0.381-2.5	1.99-1.41	2.52-2.9	2.512-3.4	1.99-1.41	0.53-0.48	1.632-2.92	1.13-0.86	4.13-6.96	-19.21-13.71	4.29-5.34	-3.36-1.97	8.67-0.51	1.592-27	2.192-2.58	2.192-2.58	0.81-0.15	1.37-2.92	4.9-17.59	-12.37-12.54	
(H37.5)	-15.78-13.26	8.8-6.92	-4-2.58	-1.43-0.43	0.25-0.56	0.54-0.32	0.05-0.48	0.96-1.54	2.27-3.07	3.96-4.48	0.96-7.47	9.73-14.13	-18.89-18.98	0.9-6.72	6.38-4.49	3.26-1.94	4.74-0.13	6.66-1.81	0.94-0.77	0.04-0.37	0.52-1-3.6	2.58-4-26	4.45-14.16	
(H37.5)	-15.78-13.14	-10.51-10.79	3.26-3.32	-3.77-2.32	-1.73-1.52	-1.81-2.48	-3.34-2.42	-4.99-5.68	6.26-6.67	7.70-7.43	-7.70-7.37	-13.73-12.8	-13.51-13.48	-8.64-7.83	-7.27-7.85	-7.25-7.69	-4.45-3.32	2.52-2.09	-1.89-1.91	2.04-2.16	3.28-3.32	4.32-3.62	-18.94-16.91	
(H52.5)	-15.78-13.27	-10.78-8.2	2.77-6.52	-5.64-6.42	-3.82-3.76	1.45-0.69	4.47-7.9	9.34-10.31	-10.91-10.2	6.42-8.63	4.78-9.25	-12.62-13.22	-14.61-19	9.36-9.84	4.91-10.34	-0.24-10.55	6.51-7.5	6.23-4.44	4.92-4.95	4.38-3.31	3.74-2.47	5.91-6.73	-12.73-10.71	
(H57.5)	-15.80-13.43	-10.62-8.23	4.94-6.41	-5.94-6.89	-5.81-5.85	1.96-0.97	8.40-7.23	-12.29-14.07	-14.62-13.65	-12.01-11.5	-11.07-11.27	-12.16-14.02	-14.10-19.27	-10.60-9.84	9.59-10.32	-17.11-16.91	-14.54-13.44	-12.05-10.23	-8.66-7.95	4.74-5.29	4.74-5.29	3.27-3.63	-18.12-19.73	
(H57.5)	-17.42-14.67	-11.44-8.65	7.11-6.43	-5.63-5.91	6.89-7.69	7.85-8.23	9.26-10.55	-12.95-12.57	17.34-17.41	-15.49-13.51	-12.46-11.24	-12.95-14.52	-15.23-19.38	-12.33-11.57	-12.43-15.04	-16.75-17.18	-15.05-17.47	-16.85-14.64	-12.31-15.04	8.44-8.58	5.88-6.72	6.44-13.35	-16.26-14.16	
(H60.5)	-17.12-16.17	-12.86-9.82	8.11-7.29	-6.34-3.69	-7.81-8.63	0.81-0.46	14.19-11.6	-11.4-12.52	-13.74-14.71	-14.47-12.87	-11.81-11.96	-12.57-14.17	-15.82-19.32	-14.10-13.48	-14.38-16.2	-18.91-17.28	-15.21-19.03	-15.39-16.55	-15.12-16.9					

Radiated Composite Gain Data Radio 1 2.4GHz

Appendix A

(01)	15-9-12	17.76-11.1	-15.59-68	8.99-29	7.25-65	5.87-51	-4.74-76	4.69-12	3.47-59	4.79-76	-10.70-121	-16.66-112	-12.28-154	-17.49-138	-14.22-129	8.47-178	6.43-172	4.49-177	5.37-175	6.86-177	6.50-183	5.98-182	-17.87-149	-15.56-131	
(02)	17-9-12	17.63-17.8	-16.47-193	-14.54-133	-13.70-124	-12.76-114	-12.04-106	-11.42-97	-10.67-87	-9.83-78	-9.16-68	-8.55-58	-7.95-48	-7.42-37	-6.95-26	-6.54-15	-6.17-4	-5.84-7	-5.51-16	-5.18-25	-4.85-34	-4.52-43	-13.11-129	-11.84-119	-10.56-106
(03)	18-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(04)	19-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(05)	20-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(06)	21-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(07)	22-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(08)	23-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(09)	24-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(10)	25-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(11)	26-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(12)	27-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(13)	28-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(14)	29-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(15)	30-9-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(16)	01-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(17)	02-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(18)	03-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(19)	04-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(20)	05-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(21)	06-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(22)	07-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(23)	08-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(24)	09-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(25)	10-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(26)	11-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(27)	12-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(28)	13-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(29)	14-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(30)	15-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(31)	16-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(32)	17-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(33)	18-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(34)	19-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(35)	20-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(36)	21-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(37)	22-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25-109	-11.65-96	-10.03-80	-8.31-64	-6.59-47	-4.86-30	-3.14-13	-1.42-3	0.30-14	2.02-31	3.74-38	5.46-45	7.18-52	8.90-59	10.62-66	12.34-73	14.06-80	-11.41-145	-13.81-149	-16.82-169
(38)	23-10-12	17.68-13.5	-16.89-134	-15.87-131	-14.59-123	-13.25																			



Radiated Composite Gain Data_Radio 2_5GHz

Appendix B

Freq(Hz)	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	6.75	6.61	7.93	7.46
Ant. 2 Max Gain (dBi)	8.13	7.07	8.01	7.6
Ant. 3 Max Gain (dBi)	7.76	7.49	7.65	7.08
Ant. 4 Max Gain (dBi)	6.84	7.27	7.42	7.52
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/7.5/157.5	Phi/7.5/322.5	Phi/7.5/352.5	Phi/0/180
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/7.5/52.5	Phi/7.5/52.5	Phi/7.5/75	Theta/22.5/7.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/22.5/112.5	Phi/7.5/105	Phi/0/112.5	Theta/15/37.5
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/22.5/30	Phi/7.5/22.5	Phi/7.5/195	Phi/7.5/210
Max Gain (dBi)	8.13	7.49	8.01	7.6
DG [1SS] (dBi)	10.89	10.48	10.97	10.41
DG [2SS] (dBi)	8.13	7.49	8.01	7.6
DG [4SS] (dBi)	8.13	7.49	8.01	7.6

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Radiated Composite Gain Data_Radio 2_5GHz

Appendix B

(H22.5)	1.99776	8.18903	8.95026	10.320106	9.65527	9.08882	8.71859	8.6855	8.458.63	9.02807	8.68555	8.258	7.78751	7.27722	7.44773	7.97816	8.3837	8.35825	8.24811	7.99784	8.08871	9.33977	9.57888	9.38868
(H30P)	8.83887	7.18105	9.05681	9.619105	8.64739	7.53071	7.220737	7.440781	7.8882	8.28819	7.75073	7.260743	7.440745	7.286672	8.25831	8.65893	7.03724	7.5735	8.63884	8.66653	8.74715	7.62739	8.2883	8.80755
(H37.5)	9.72586	6.27723	7.85075	7.74737	7.276394	6.582	6.16617	6.24668	7.1704	6.46623	6.560714	7.32678	5.91551	5.34352	4.26452	5.85623	5.71947	5.75542	5.23554	5.58629	6.95076	6.92678	6.68654	6.08581
(H42.5)	4.94478	5.26833	6.7863	5.91577	6.93	5.03533	5.54521	5.33684	6.21578	4.86152	5.09575	6.37609	4.50368	3.41021	2.35021	4.4446	3.81015	3.39324	3.09334	3.48432	6.15641	6.17552	6.05602	5.15475
(H45.5)	3.1256	3.95468	5.57525	4.98454	4.1242	3.57378	3.79329	3.83432	4.13146	2.86315	4.34059	3.50323	1.66065	1.45158	1.4821	2.54027	1.36711	1.57188	2.03216	1.69306	4.16437	4.16189	4.02403	3.5316
(H47.5)	1.75109	2.28072	3.41071	2.74252	1.72206	3.05439	2.89181	1.210106	1.67021	1.18118	3.17027	1.50192	1.66007	0.35079	0.34127	1.53052	0.08142	1.05058	1.18186	2.11073	3.31073	3.58939	3.25582	2.67215
(H48.5)	1.42632	2.06286	3.9311	2.79237	1.05209	3.55024	2.46196	1.33053	1.86022	1.76014	1.89752	2.18915	1.14426	0.62016	-0.89412	0.11139	-1.7604	0.45019	1.54156	2.43232	2.56039	2.96254	2.11117	1.4313
(H51)	1.0454	1.73246	3.8393	2.82205	10.127	3.12125	1.41554	1.13077	1.67174	1.67618	0.28156	1.62013	0.52407	-0.71122	-2.35181	0.859237	-3.474915	-0.83127	1.44184	2.11078	2.38034	2.520137	0.64909	0.76079
(H52.5)	0.232471	0.69158	2.58215	1.5807	0.78102	1.35616	0.60586	0.57012	0.89031	0.69484	-0.36531	0.04703	-1.76214	-2.31322	-4.79737	-3.55539	-0.51231	-1.84222	0.67063	10.4	1.29188	0.92304	-1.61183	-0.58063
(H53)	-1.77742	-1.688408	0.76631	-0.68146	-1.786112	-1.23118	-2.77157	-2.71184	-1.231172	-1.127235	-3.86237	-2.226426	-3.474166	-4.864534	-6.153451	-6.347277	-7.51612	-6.58443	-1.58138	-1.407216	-1.250408	-2.13432	-4.5414	-2.32525
(H57.5)	3.950408	3.33344	5.33344	3.39347	3.39347	3.39347	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155	5.189155
(H58.5)	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411	0.264411
(H112.5)	4.960749	7.77379	6.92142	4.86483	4.15188	7.9849	7.820751	4.711737	7.47475	7.17238	10.222594	8.98431	8.93934	8.94948	8.93912	8.431088	-12.211168	10.7219	7.88236	6.727165	7.41413	7.91148	6.43487	7.22401
(H131.5)	8.431088	8.481026	8.55939	-10.08106	-11.26784	8.729384	8.302958	0.297542	-7.92944	4.84894	-10.112707	-10.73439	-10.10474	-10.721093	-10.061012	-10.751139	-10.5732	9.18186	8.87911	-10.661156	9.821010	-7.95419		
(H137.5)	11.191038	8.551008	8.01777	-10.340142	-12.359481	9.430115	-10.673418	8.719427	-11.19486	8.346111	-11.837108	-10.860132	-10.740134	-11.141126	-12.721106	-10.061101	-12.0401102	-10.031102	-10.357199	8.810108	-10.281233	-11.071401	9.34102	-10.521191
(H138.5)	11.271122	-11.371114	-8.941058	-11.531016	-12.881012	-10.354803	-10.131016	-8.031018	-11.521181	-11.221103	-10.511022	-10.821183	-12.331028	-11.861183	-10.831139	-11.181237	-11.711179	-11.151083	8.29428	-10.161083	-7.781083	-10.311083	8.810102	-10.6311223
(H142.5)	-12.361128	-12.4811254	-10.881134	-12.511031	-10.881002	-10.031088	-10.271035	-12.041176	-11.181178	-11.381087	-11.321085	-11.041126	-12.441122	-12.191136	-11.031158	-11.391027	-12.121181	-11.641197	-12.271011	-12.641036	-11.711123	-12.491086	-10.881029	-11.711143
(H143.5)	-12.261121	-11.811168	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137	-12.511137
(H157.5)	-11.721168	-12.5211266	-11.981128	-12.651191	-12.521121	-11.471121	-12.361192	-10.811118	-11.361115	-11.951154	-12.331195	-12.021129	-12.411155	-12.191136	-12.121182	-12.171121	-12.5611235	-12.611161	-11.031116	-11.381101	-10.951111	-11.511183	-10.88119	-12.311196
(H158.5)	-12.281124	-12.7511232	-12.281124	-12.801125	-11.241116	-11.141129	-11.751183	-11.771128	-11.231121	-12.471123	-12.151121	-11.871121	-11.831145	-12.131121	-12.561124	-12.361125	-11.911184	-12.771158	-10.881049	-10.121137	-10.88119	-9.861127		
(H172.5)	-11.981128	-11.281118	-11.611117	-11.111038	-10.981096	-12.421131	-12.101129	-11.101176	-10.791101	-11.011121	-11.081147	-11.551161	-11.521161	-12.121131	-12.181132	-12.371148	-11.811136	-10.501108	-12.321101	-11.211134	-11.211134	-11.291127	-12.341125	
(H173.5)	-12.311168	-11.771163	-11.591117	-11.871022	-11.581146	-11.021108	-10.531039	-10.311048	-10.631087	-10.931136	-11.161121	-11.911124	-12.021192	-12.051127	-12.261142	-12.451132	-12.331199	-12.121112	-11.811142	-10.721125	-11.111125	-11.731138	-10.841105	
Freq(kHz)	5.650Pn	Theta																						
Doc(kB)	01571007157.5	0157100725.5	0157100737.5	0157100752.5	0157100817.5	0157100832.5	0157100847.5	0157100862.5	0157100877.5	0157100892.5	0157100907.5	0157100922.5	0157100937.5	0157100952.5	0157100967.5	0157100982.5	0157100997.5	0157101012.5	0157101027.5	0157101042.5	0157101057.5	0157101072.5	0157101087.5	0157101102.5
(H1)	9.75957	9.42924	9.12528	9.41762	9.31919	9.04822	9.13939	8.91818	9.22957	8.861025	10.11019	10.07937	9.87877	9.63911	9.24838	9.84874	9.76989	9.685	9.39527	9.19101	9.32885	9.88936	10.051025	9.93876
(H1.5)	9.95958	9.79595	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955	9.47955
(H1.5)	9.76571	9.62545	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525	9.69525
(H2.5)	9.0951	8.86676	8.63852	8.5487	8.78782	8.63853	8.0375	7.25071	6.94681	6.27854	7.02715	7.21836	6.58625	5.66	6.67741	8.01812	8.48725	8.06808	7.80374	7.89841	8.63308	9.18914	9.24816	
(H3)	8.21582	7.75977	8.06827	8.14789	7.60703	8.83863	6.11545	5.37689	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558	6.68558
(H3.5)	7.21078	7.13640	8.80718	8.92687	8.2957	4.67845	5.1481	4.53058	5.1944	4.19844	3.84504	2.98155	1.16402	-0.68008	1.43283	3.88842	5.08453	4.29413	4.13043	4.92043	5.66576	6.26854	6.56881	
(H3.5)	5.23566	5.57059	5.83827	5.93589	5.93517	5.46645	3.98037	3.15321	2.93767	2.07331	2.45045	-1.19175	2.012439	3.359138	3.211132	-0.05067	2.44063	2.38177	2.17028	2.1219	2.1232	3.23283	3.54485	4.51445
(H52.5)	3.28016	3.22032	4.56525	4.38039	4.91052	3.03219	0.67015	-1.29006	-0.34149	0.50189	0.78017	-0.58143	-2.06317	-0.47479	8.254111	-3.53304	-1.05304	-0.62497	-0.51019	-2.241321	-2.199032	0.79715	1.78258	3.20329
(H58P)	1.29712	1.94113	1.37033	1.68048	0.91058	1.53910	-0.23257	-4.331639	-3.28408	-1.99041	0.60002	0.58003	-0.06032	-2.75445	-1.531435	-3.51321	-4.23037	-2.4178	-2.38037	-0.96435	-4.58102	-0.9301	0.32165	2.60234
(H57.5)	0.17147	1.793052	-1.771128	-2.291532	-4.759248	0.680138	1.651125	6.441525	-3.831404	-1.150167	0.24804	0.56040	0.04605	-1.92717	-2.551185	2.440132	-0.521293	-2.473193	-3.944428	-4.350449	-4.411186	-2.480123	-1.270116	0.47055
(H7)	0.7269	1.002127	-3.74318	-4.49431	-8.29348	0.567407	0.071052	4.491516	-3.347023	-1.230113	-0.461137	-0.201013	-1.151927	-2.230131	-2.41223	-4.451328	-2.131883	-4.04475	-3.751426	-3.481185	-3.741488	-1.931148	-0.241143	
(H82.5)	-1.550616	-0.41363	-4.68443	-5.02429	-7.881436	-2.250387	-0.41124	-3.415157	-4.206139	-3.781272	-4.60214	-1.95102	-2.2116	-3.23147	-3.91354	-3.51255	-3.540378	-3.303396	-3.41523	-3.43159	-2.68148	-6.41713	-4.22142	-5.95372
(H87.5)	-1.66126	-2.841537	-6.171733	-6.14185	-5.811616	-4.441505	-2.682176	-4.931687	-5.711507	-6.511507	-5.621432	-3.911506	-5.191506	-5.191506	-4.94174	-3.851518	-4.811516	-6.261881	-4.191511	-3.35133	-5.811896	-7.061676	-8.5154	
(H87.5)	-4.771385	-5.961677	-7.791878	-7.371881	-10.061741	-4.461538	-5.54146	-5.931791	-7.671186	-6.881750	-4.061536	-4.44155	-6.261548	-6.031766	-6.851077	-6.781682	-6.891632	-4.151753	-7.871921	-6.411582	-5.921583	-8.881164	-8.71262	-9.50246
(H105)	-4.051721	-7.661813	-8.28148	-8.6181	-8.881822	-9.211837	-8.51465	-7.311485	-8.881815	-7.441557	-4.49185	-6.41472	-7.251758	-7.571822	-6.671828	-6.88177	-5.791613	-9.84184	-8.801938	-8.471747	-8.147165	-10.311147	-10.811014	
(H112.5)	-0.99136	-8.38189	-8.63182	-9.45171	-10.93196	-10.72154	-9.87187	-																



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(007)	7.75935	2.86249	-1.05027	0.00634	-0.07076	-1.360126	2.189291	-4.86494	-4.29471	-6.94817	-0.777893	9.968097	-4.88402	5.133684	6.733664	-3.29211	-1.83117	-1.14135	-1.890255	2.784849	-7.591922	-13.791447	-10.4639	4.771626
(008)	-0.459414	-4.74441	-2.55121	-1.37149	2.26243	2.282728	3.063397	6.46175	-6.53728	-10.791434	-32.17505	-44.33136	6.63181	-60.7813	8.88742	5.08134	-3.60126	2.53256	3.5842	-4.20129	-16.78188	-13.91717	-9.2176	4.771626
(009)	-12.61047	-7.60711	4.58104	3.511365	-4.8434	4.865502	-5.3744	8.58105	8.67874	-13.21461	-11.59153	-14.37313	-8.412	8.971136	-12.151047	-0.87105	6.66163	5.67158	6.67732	-4.441084	-12.14148	-18.311678	-15.688126	-11.86671
(010)	-14.261135	8.42483	4.58402	5.931587	-7.7932	-6.51577	-7.74488	-10.73127	-11.531225	-18.78192	-19.21143	-16.061375	-12.70134	-14.541233	-10.93105	6.66129	9.251003	-10.26107	-12.481442	-16.781486	-18.56179	-15.691407	-11.878017	
(011)	-16.84178	-11.64112	-9.12164	-6.72189	-10.671407	9.43183	-10.12117	-12.931401	-13.071128	-18.67188	-18.73174	-17.341802	-12.81155	-17.1325	-14.471125	-12.171317	-12.29146	-1214	-13.041227	-17.111832	-16.16145	-16.081133	-18.52135	-14.131346
(012)	-17.371553	-13.81147	-11.64116	-9.171046	-17.791229	-10.031086	-16.181538	-15.18153	-14.111753	-18.011855	-19.17118	-18.251532	-16.571722	-17.141171	-15.151032	-12.161182	-12.441246	-17.161211	-15.121479	-14.061055	-18.811837	-14.681174	-14.441162	
(013)	-17.981173	-17.71135	-14.231273	-12.081242	-12.551446	-12.621168	-12.371278	-18.29149	-13.811803	-14.481189	-18.211857	-18.681827	-16.061772	-15.581581	-14.13158	-13.141342	-16.241355	-10.281193	-18.731514	-16.14183	-17.641873	-17.501188	-18.391277	
(014)	-18.93149	-17.271175	-17.841137	-15.411546	-16.791815	-14.871198	-13.931338	-13.581368	-13.841657	-17.481187	-18.641189	-19.031822	-18.441779	-17.52169	-17.311863	-17.351235	-16.281603	-12.46184	-17.741734	-18.051869	-18.681184	-17.761863	-18.4411857	
(015)	-18.931804	-18.441179	-18.711886	-17.881554	-16.191555	-12.711799	-18.321656	-14.951767	-10.971188	-19.011869	-17.831188	-18.391766	-17.431817	-18.21136	-18.721187	-18.78189	-18.251475	-15.991149	-14.081775	-15.741843	-15.321799	-18.501177	-16.091174	
(016)	-18.931804	-18.441179	-18.711886	-17.881554	-16.191555	-12.711799	-18.321656	-14.951767	-10.971188	-19.011869	-17.831188	-18.391766	-17.431817	-18.21136	-18.721187	-18.78189	-18.251475	-15.991149	-14.081775	-15.741843	-15.321799	-18.501177	-16.091174	
(017)	-18.931804	-18.441179	-18.711886	-17.881554	-16.191555	-12.711799	-18.321656	-14.951767	-10.971188	-19.011869	-17.831188	-18.391766	-17.431817	-18.21136	-18.721187	-18.78189	-18.251475	-15.991149	-14.081775	-15.741843	-15.321799	-18.501177	-16.091174	
(018)	-18.931804	-18.441179	-18.711886	-17.881554	-16.191555	-12.711799	-18.321656	-14.951767	-10.971188	-19.011869	-17.831188	-18.391766	-17.431817	-18.21136	-18.721187	-18.78189	-18.251475	-15.991149	-14.081775	-15.741843	-15.321799	-18.501177	-16.091174	
(019)	-18.931804	-18.441179	-18.711886	-17.881554	-16.191555	-12.711799	-18.321656	-14.951767	-10.971188	-19.011869	-17.831188	-18.391766	-17.431817	-18.21136	-18.721187	-18.78189	-18.251475	-15.991149	-14.081775	-15.741843	-15.321799	-18.501177	-16.091174	
Gen0	5.20P01	Thesat.02																						
Gen0	007(007)	015(0022)	007(007)	0045(0035)	007(0067)	007(0082)	007(0057)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	010(0012)	
(016)	4.07329	2.25936	0.711252	-4.46648	6.79932	3.44146	0.09131	2.40337	4.03452	8.89517	5.352	5.04747	4.19352	2.96134	0.07211	4.56415	5.77338	1.89937	0.0742	5.21549	5.6357	5.6537	5.9143	
(017)	4.05331	2.30434	0.63239	-4.47743	6.83334	3.42034	1.71721	3.90423	4.66487	8.14525	5.27598	4.8804	3.80316	2.3313	0.044177	3.98548	4.36451	3.396175	0.11125	2.91526	3.00244	4.79552	5.15558	
(018)	3.95335	2.68138	0.50136	-3.32148	6.93334	3.40334	1.09331	3.90334	4.66487	8.14525	5.27598	4.8804	3.80316	2.3313	0.044177	3.98548	4.36451	3.396175	0.11125	2.91526	3.00244	4.79552	5.15558	
(019)	3.85335	2.77132	0.39136	-2.43148	6.93334	3.40334	1.09331	3.90334	4.66487	8.14525	5.27598	4.8804	3.80316	2.3313	0.044177	3.98548	4.36451	3.396175	0.11125	2.91526	3.00244	4.79552	5.15558	
(020)	3.47245	1.26818	0.98028	2.95314	3.44146	3.145308	4.26034	-1.0704	4.19352	4.19352	4.19352	4.19352	4.19352	4.19352	4.19352	4.19352	4.19352	4.19352	4.19352	4.19352	4.19352	4.19352	4.19352	
(021)	2.12036	0.07123	0.41131	-1.27129	2.96322	4.98646	4.39233	3.70912	3.74337	3.74337	3.74337	3.74337	3.74337	3.74337	3.74337	3.74337	3.74337	3.74337	3.74337	3.74337	3.74337	3.74337	3.74337	
(022)	1.45119	-1.68081	-0.65512	-1.12919	-1.11206	3.94562	-7.81703	-5.90436	-4.55101	-6.36142	-6.28594	-7.17172	-5.33047	-7.42038	-3.81149	-7.971377	-18.1842	-13.92182	8.34746	7.54337	-12.2511	-0.21042	-0.821	0.05022
(023)	4.71355	-4.74237	1.69124	-2.84216	1.77918	-3.72814	-6.72678	6.81127	-7.451304	-13.61451	-13.61451	-13.61451	-13.61451	-13.61451	-13.61451	-13.61451	-13.61451	-13.61451	-13.61451	-13.61451	-13.61451	-13.61451	-13.61451	
(024)	-16.26807	-7.33407	-3.18731	-4.04123	-3.54294	-3.24244	-4.53464	-7.01914	-10.071872	-15.131631	-14.960476	-15.45472	-15.02617	-6.841376	-10.5752	-7.47833	-13.221862	-15.221008	9.541502	-11.740183	-7.05918	6.50646	-4.28168	4.96115
(025)	-10.53122	-7.6115	1.37149	-3.77139	-5.47139	5.23149	-4.06171	-7.22191	-1.581442	4.161643	-4.86157	-10.84188	5.45813	-3.98144	-10.77104	-15.16106	-15.16106	-15.16106	-12.071139	-15.351374	4.9172	4.15624	-10.98127	-13.7117
(026)	-9.09185	-8.34167	-4.75107	-10.34116	-4.65143	-4.25185	-7.79142	-11.481116	8.22176	7.87148	-13.92154	-6.04151	0.01187	6.25194	6.19181	-8.98132	-14.141109	8.811598	-12.861217	-10.171427	-10.211214	-15.141854	-17.491137	-17.491137
(027)	-4.07412	-5.95782	-8.86179	-10.25171	-12.27132	-6.54158	-5.5712	-6.02139	-5.951073	-7.76147	-7.69147	-5.951073	-12.871229	-6.911073	-10.371073	-8.911241	-12.411079	8.99169	-12.10108	-11.98108	-10.771336	-14.661864	-15.141266	-15.141266
(028)	-11.81163	-11.44182	-7.68167	-10.41181	-17.39106	-10.441038	-8.310197	-10.961112	-10.451159	-11.361616	-6.89131	-4.67173	-6.75134	-10.561134	-10.361146	-9.971246	-14.601132	-10.911076	-12.821874	-14.301272	-15.311826	-16.081184	-17.71175	-17.71175
(029)	-12.32199	-11.841101	-10.281161	-14.01171	-17.39106	-10.441038	-8.310197	-10.961112	-10.451159	-11.361616	-6.89131	-4.67173	-6.75134	-10.561134	-10.361146	-9.971246	-14.601132	-10.911076	-12.821874	-14.301272	-15.311826	-16.081184	-17.71175	-17.71175
(030)	-14.74122	-14.02133	-13.261128	-16.16182	-17.58123	-12.641141	-12.581133	-15.46149	-13.991428	-16.751232	-12.101639	-8.491155	-10.10155	-10.431616	-16.271229	-15.761173	-18.981744	-15.381504	-16.471814	-16.41162	-17.571869	-18.31166	-18.341715	-18.341715
(031)	-15.82183	-16.02172	-14.761138	-17.19183	-12.681166	-12.521149	-14.29156	-16.84156	-15.661568	-18.011855	-14.431367	-18.711834	-16.821154	-13.311744	-13.291163	-14.681148	-14.351818	-18.981802	-17.711551	-18.241835	-18.921838	-18.561197	-18.931163	-18.931163
(032)	-17.381856	-18.071875	-17.691859	-18.451877	-18.111877	-17.781847	-17.981825	-19.041816	-16.581187	-17.841825	-17.051875	-15.951848	-17.811895	-17.871891	-15.101822	-15.881836	-17.901888	-15.721459	-17.491858	-18.841748	-17.511822	-17.781813	-18.141894	-18.141894
(033)	-17.381856	-18.071875	-17.691859	-18.451877	-18.111877	-17.781847	-17.981825	-19.041816	-16.581187	-17.841825	-17.051875	-15.951848	-17.811895	-17.871891	-15.101822	-15.881836	-17.901888	-15.721459	-17.491858	-18.841748	-17.511822	-17.781813	-18.141894	-18.141894
(034)	-17.381856	-18.071875	-17.691859	-18.451877	-18.111877	-17.781847	-17.981825	-19.041816	-16.581187	-17.841825	-17.051875	-15.951848	-17.811895	-17.871891	-15.101822	-15.881836	-17.901888	-15.721459	-17.491858	-18.841748	-17.511822	-17.781813	-18.141894	-18.141894
(035)	-17.381856	-18.071875	-17.691859	-18.451877	-18.111877	-17.781847	-17.981825	-19.041816	-16.581187	-17.841825	-17.051875	-15.951848	-17.811895	-17.871891	-15.101822	-15.881836	-17.901888	-15.721459	-17.491858	-18.841748	-17.511822	-17.781813	-18.141894	-18.141894
(036)	-17.381856	-18.071875	-17.691859	-18.451877	-18.111877	-17.781847	-17.981825	-19.041816	-16.581187	-17.841825	-17.051875	-15.951848	-17.811895	-17.871891	-15.101822	-15.881836	-17.901888	-15.721459	-17.491858	-18.841748	-17.511822	-17.781813	-18.141894	-18.141894
(037)	-17.381856	-18.071875	-17.691859	-18.451877	-18.111877	-17.781847	-17.981825	-19.041816	-16.581187	-17.841825	-17.051875	-15.951848	-17.811895	-17.871891	-15.101822	-15.881836	-17.901888	-15.721459	-17.491858	-18.841748	-17.511822	-17.781813	-18.141894	-18.141894
(038)	-17.381856	-18.071875	-17.691859	-18.451877	-18.111877	-17.781847	-17.981825	-19.041816	-16.581187	-17.841825	-17.051875	-15.951848	-17.811895	-17.871891	-15.101822	-15.881836	-17.901888	-15.721459	-17.491858	-18.841748	-17.511822	-17.781813	-18.141894	-18.141894
(039)	-17.381856	-18.071875	-17.691859	-18.451877	-18.111877	-17.781847	-17.981825	-19.041816	-16.581187	-17.841825	-17.051875	-15.951848	-17.811895	-17.871891	-15.101822	-15.881836	-17.901888	-15.721459	-17.491858	-18.841748	-17.511822	-17.781813	-18.141894	-18.141894



Radiated Composite Gain Data_Radio 2_5GHz

Appendix B

h(127)	-18.07-19.18	-17.49-18.02	-15.70-16.69	-17.10-17.84	-14.44-12.53	-12.81-12.16	-13.09-13.86	-16.02-11.76	-14.23-10.04	-18.27-18.88	-18.99-18.88	-19.20-18.05	-18.18-16	-17.71-18.16	-18.41-17.89	-16.92-18.4	-17.25-18.85	-17.15-71	-15.55-12.03	-13.21-12.1	-13.23-14.67	-16.84-17.85	-18.53-15.67	-18-17.8
h(127.5)	-18.09-18.22	-18.91-17.1	-15.75-15.35	-16.81-18.98	-19.19-17.25	-15.91-12.43	-15.81-18.72	-17.59-13.69	-16.22-17.83	-19.29-18.4	-18.10-18.7	-18.04-17.81	-17.85-18.25	-17.79-18.7	-17.39-17.8	-18.59-19.4	-17.40-18.39	-17.74-17.17	-17.69-17.78	-19.09-18.09	-18.37-17.41	-17.66-19.13	-17.99-18.15	-17.59-18.88
h(130)	-18.07-18.73	-17.47-18.76	-16.44-18.37	-17.51-18.16	-15.71-13.48	-17.01-13.48	-16.25-18.16	-17.88-18.48	-16.27-17.29	-18.99-18.63	-18.50-18.11	-18.02-18.67	-17.92-18.24	-17.81-18.2	-17.91-17.45	-18.18-18.42	-18.91-17.62	-16.10-14.77	-14.79-19.51	-14.62-12.06	-10.46-14.75	-16.34-18.67	-17.11-19.23	-17.79-18.91
h(142.5)	-18.89-18.76	-18.07-18.37	-16.89-18.26	-18.18-18.55	-14.49-13.96	-18.10-18.57	-16.60-17.9	-18.99-17.78	-19.07-18.2	-18.23-17.72	-18.07-18.11	-18.46-19.08	-17.97-17.79	-17.39-17.8	-18.10-19.14	-18.59-19.4	-17.40-18.39	-17.74-17.17	-17.69-17.78	-19.09-18.09	-18.37-17.41	-17.66-19.13	-17.99-18.15	-17.59-18.88
h(157)	-18.85-18.88	-17.90-18.16	-18.28-18.14	-17.37-18.01	-17.58-18.56	-16.52-17.57	-15.29-18.59	-18.45-18.45	-18.66-18.11	-19.04-17.99	-19.21-18.95	-18.76-18.37	-18.41-18.84	-18.30-18.16	-18.91-17.45	-18.18-18.42	-18.91-17.62	-16.10-14.77	-14.79-19.51	-14.62-12.06	-10.46-14.75	-16.34-18.67	-17.11-19.23	-17.79-18.91
h(157.5)	-17.89-17.84	-18.00-18.47	-18.02-19.13	-18.39-17.32	-18.96-18.65	-18.51-18.33	-18.78-17.81	-18.11-18.25	-18.97-17.96	-17.17-17.95	-18.08-18.72	-17.84-18.36	-18.10-18.65	-18.03-18.62	-18.26-17.85	-18.05-17.98	-18.74-17.83	-18.53-18.18	-17.91-18.03	-17.6-18.7	-18.71-18.03	-17.66-19.13	-17.99-18.15	-18.50-17.28
h(162)	-17.69-18.07	-18.44-18.11	-18.56-18.65	-18.52-18.54	-16.37-17.46	-18.41-18.11	-18.43-18.53	-18.43-18.15	-18.36-18.11	-18.80-18.16	-18.51-17.6	-18.02-17.98	-17.81-17.85	-18.21-17.65	-18.26-17.41	-18.19-18.98	-17.71-17.84	-17.71-17.84	-18.54-15.05	-14.86-15.05	-16.75-18.42	-18.12-17.67	-18.54-18.54	-18.54-18.54
h(172.5)	-18.05-18.07	-18.73-17.88	-18.47-15.97	-15.89-18.75	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23	-18.90-19.23
h(185)	-18.05-17.29	-17.23-18.12	-18.06-17.48	-18.41-7.21	-16.17-15.43	-14.63-14.49	-14.84-15.26	-16.22-17.32	-18.36-17.44	-17.26-17.87	-18.09-18.65	-17.95-17.77	-17.26-17.13	-18.29-18.62	-18.79-17.93	-18.96-18.35	-18.21-17.32	-17.42-17.61	-18.62-18.15	-17.22-17.39	-18.95-18.02	-18.33-18.47	-18.01-17.74	-18.01-17.74
FreeRx	5.65967	FreeTx	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	0.90790751	0.915190225	0.90370375	0.945706253	0.907106751	0.915706253	0.907106751	0.915706253	0.907106751	0.915706253	0.907106751	0.915706253	0.907106751	0.915706253	0.907106751	0.915706253	0.907106751	0.915706253	0.907106751	0.915706253	0.907106751	0.915706253	0.907106751	0.915706253
h(17)	7.1782	6.57638	5.20448	3.6121	1.2209	6.57638	5.20448	3.6121	1.2209	6.57638	5.20448	3.6121	1.2209	6.57638	5.20448	3.6121	1.2209	6.57638	5.20448	3.6121	1.2209	6.57638	5.20448	3.6121
h(17.5)	7.4237	7.35888	6.21535	4.25232	1.04702	-1.011-19	0.51037	1.96313	4.13949	5.51535	6.17825	6.33824	6.01565	5.20449	43.13	2.19112	0.04115	-1.51114	-0.81203	1.30825	3.28048	5.29803	6.8771	7.44758
h(17.5)	7.4237	7.35888	6.21535	4.25232	1.04702	-1.011-19	0.51037	1.96313	4.13949	5.51535	6.17825	6.33824	6.01565	5.20449	43.13	2.19112	0.04115	-1.51114	-0.81203	1.30825	3.28048	5.29803	6.8771	7.44758
h(22.5)	7.5704	6.75607	5.36047	4.07038	2.4611	-0.502256	4.184-245	-3.98-12	-2.76556	1.61245	3.1309	3.48046	3.49338	3.06253	1.781	0.09-106	-2.714-83	4.555-74	-3.511-35	0.320157	2.513-26	3.834-48	5.178-69	6.688-97
h(27)	6.65846	5.78478	3.62283	1.90129	0.69-008	-1.042-336	-1.84-576	-4.18-576	-4.442-74	-0.940-18	0.781-05	1.241-29	1.241-29	0.780-42	0.89-025	-0.69-155	-3.25-658	0.601-724	-0.08-27	-0.720-72	1.792-41	2.592-83	3.476-83	5.778-51
h(37.5)	5.38552	5.0028	2.8675	0.440-39	-0.84-832	-0.81-18	-3.74-823	-6-38	-7.735-74	-3.90-139	-0.95-706	0.551-738	-1.65-281	-3.12-529	-2.59-22	-2.84-334	-5.71-842	-12.86-1055	-5.943-12	-1.49-049	0.351-08	1.511-74	2.170-88	4.45-4
h(47.5)	2.42556	2.54758	2.88247	1.750-36	0.204-47	-1.12-923	-4.739-421	-11.81-133	-11.314-85	-6.45-288	-2.53-368	-4.00-339	-6.69-111	-8.29-633	-5.27-552	-6.95-651	-6.89-1276	-16.24-1356	-9.215-53	-3.27-934	-3-927	-1.112-027	0.198-91	1.842-38
h(52.5)	2.52-071	-1.24052	1.591-39	1.360-45	-0.581-167	-2.406-385	-1.871-125	-16.84-1878	-15.19-1116	-6.02-333	-3.76-835	-6.84-524	-8.92-1399	-17.99-1875	-15.71-1133	-14.62-1704	-18.52-1787	-15.60-155	-12.64-1072	-9.89-834	-8.07-187	-5.68-34	-3.24-48	-1.841-74
h(57)	4.24556	5.04758	2.88247	1.750-36	0.204-47	-1.12-923	-4.739-421	-11.81-133	-11.314-85	-6.45-288	-2.53-368	-4.00-339	-6.69-111	-8.29-633	-5.27-552	-6.95-651	-6.89-1276	-16.24-1356	-9.215-53	-3.27-934	-3-927	-1.112-027	0.198-91	1.842-38
h(62.5)	2.52-071	-1.24052	1.591-39	1.360-45	-0.581-167	-2.406-385	-1.871-125	-16.84-1878	-15.19-1116	-6.02-333	-3.76-835	-6.84-524	-8.92-1399	-17.99-1875	-15.71-1133	-14.62-1704	-18.52-1787	-15.60-155	-12.64-1072	-9.89-834	-8.07-187	-5.68-34	-3.24-48	-1.841-74
h(67)	4.24556	5.04758	2.88247	1.750-36	0.204-47	-1.12-923	-4.739-421	-11.81-133	-11.314-85	-6.45-288	-2.53-368	-4.00-339	-6.69-111	-8.29-633	-5.27-552	-6.95-651	-6.89-1276	-16.24-1356	-9.215-53	-3.27-934	-3-927	-1.112-027	0.198-91	1.842-38
h(72.5)	2.52-071	-1.24052	1.591-39	1.360-45	-0.581-167	-2.406-385	-1.871-125	-16.84-1878	-15.19-1116	-6.02-333	-3.76-835	-6.84-524	-8.92-1399	-17.99-1875	-15.71-1133	-14.62-1704	-18.52-1787	-15.60-155	-12.64-1072	-9.89-834	-8.07-187	-5.68-34	-3.24-48	-1.841-74
h(77)	4.24556	5.04758	2.88247	1.750-36	0.204-47	-1.12-923	-4.739-421	-11.81-133	-11.314-85	-6.45-288	-2.53-368	-4.00-339	-6.69-111	-8.29-633	-5.27-552	-6.95-651	-6.89-1276	-16.24-1356	-9.215-53	-3.27-934	-3-927	-1.112-027	0.198-91	1.842-38
h(82.5)	2.52-071	-1.24052	1.591-39	1.360-45	-0.581-167	-2.406-385	-1.871-125	-16.84-1878	-15.19-1116	-6.02-333	-3.76-835	-6.84-524	-8.92-1399	-17.99-1875	-15.71-1133	-14.62-1704	-18.52-1787	-15.60-155	-12.64-1072	-9.89-834	-8.07-187	-5.68-34	-3.24-48	-1.841-74
h(87)	4.24556	5.04758	2.88247	1.750-36	0.204-47	-1.12-923	-4.739-421	-11.81-133	-11.314-85	-6.45-288	-2.53-368	-4.00-339	-6.69-111	-8.29-633	-5.27-552	-6.95-651	-6.89-1276	-16.24-1356	-9.215-53	-3.27-934	-3-927	-1.112-027	0.198-91	1.842-38
h(92.5)	2.52-071	-1.24052	1.591-39	1.360-45	-0.581-167	-2.406-385	-1.871-125	-16.84-1878	-15.19-1116	-6.02-333	-3.76-835	-6.84-524	-8.92-1399	-17.99-1875	-15.71-1133	-14.62-1704	-18.52-1787	-15.60-155	-12.64-1072	-9.89-834	-8.07-187	-5.68-34	-3.24-48	-1.841-74
h(97)	4.24556	5.04758	2.88247	1.750-36	0.204-47	-1.12-923	-4.739-421	-11.81-133	-11.314-85	-6.45-288	-2.53-368	-4.00-339	-6.69-111	-8.29-633	-5.27-552	-6.95-651	-6.89-1276	-16.24-1356	-9.215-53	-3.27-934	-3-927	-1.112-027	0.198-91	1.842-38
h(102.5)	2.52-071	-1.24052	1.591-39	1.360-45	-0.581-167	-2.406-385	-1.871-125	-16.84-1878	-15.19-1116	-6.02-333	-3.76-835	-6.84-524	-8.92-1399	-17.99-1875	-15.71-1133	-14.62-1704	-18.52-1787	-15.60-155	-12.64-1072	-9.89-834	-8.07-187	-5.68-34	-3.24-48	-1.841-74
h(107)	4.24556	5.04758	2.88247	1.750-36	0.204-47	-1.12-923	-4.739-421	-11.81-133	-11.314-85	-6.45-288	-2.53-368	-4.00-339	-6.69-111	-8.29-633	-5.27-552	-6.95-651	-6.89-1276	-16.24-1356	-9.215-53	-3.27-934	-3-927	-1.112-027	0.198-91	1.842-38
h(112)	2.52-071	-1.24052	1.591-39	1.360-45	-0.581-167	-2.406-385	-1.871-125	-16.84-1878	-15.19-1116	-6.02-333	-3.76-835	-6.84-524	-8.92-1399	-17.99-1875	-15.71-1133	-14.62-1704	-18.52-1787	-15.60-155	-12.64-1072	-9.89-834	-8.07-187	-5.68-34	-3.24-48	-1.841-74
h(117)	4.24556	5.04758	2.88247	1.750-36	0.204-47	-1.12-923	-4.739-421	-11.81-133	-11.314-85	-6.45-288	-2.53-368	-4.00-339	-6.69-111	-8.29-633	-5.27-552	-6.95-651	-6.89-1276	-16.24-1356	-9.215-53	-3.27-934	-3-927	-1.112-027	0.198-91	1.842-38
h(122)	2.52-071	-1.24052	1.591-39	1.360-45	-0.581-167	-2.406-385	-1.871-125	-16.84-1878	-15.19-1116	-6.02-333	-3.76-835	-6.84-524	-8.92-1399	-17.99-1875	-15.71-1133	-14.62-1704	-18.52-1787	-15.60-155	-12.64-1072	-9.89-834	-8.07-187	-5.68-34	-3.24-48	-1.841-74
h(127)	4.24556	5.04758	2.88247	1.750-36	0.204-47	-1.12-923	-4.739-421	-11.81-133	-11.314-85	-6.45-288	-2.53-368	-4.00-339	-6.69-111	-8.29-633	-5.27-552	-6.95-651	-6.89-1276	-16.24-1356	-9.215-53	-3.27-934	-3-927	-1.112-027	0.198-91	1.842-38
h(132)	2.52-071	-1.24052	1.591-39	1.360-45	-0.581-167	-2.406-385	-1.871-125	-16.84-1878	-15.19-1116	-6.02-333	-3.76-835	-6.84-524	-8.92-1399	-17.99-1875	-15.71-1133	-14.62-1704	-18.52-1787	-15.60-155	-12.64-1072	-9.89-834	-8.07-187	-5.68-34	-3.24-48	-1.841-74
h(137)	4.24556	5.04758	2.88247	1.750-36	0.204-47	-1.12-923	-4.739-421	-11.81-133	-11.314-85	-6.45-288	-2.53-368	-4.00-339	-6.69-111	-8.29-633	-5.27-552	-6.95-651	-6.89-1276	-16.24-1356	-9.215-53	-3.27-934	-3			

[illegible]



Radiated Composite Gain Data_Radio 2_5GHz

Appendix B

(H10)	5.99648	6.9173	7.43729	7.01642	5.97394	3.14142	0.671331	-7.11318	-15.89918	-4.94194	0.22203	3.33467	5.44584	5.96586	5.89548	5.19487	4.47085	2.73088	-1.57546	-11.84176	-8.239327	-0.11189	3.3427	5.85574
(H22)	5.85613	6.19638	5.83832	6.02542	4.77408	3.23184	0.333136	4.479455	-14.821755	-6.869435	-1.3201	2.62032	4.09439	4.54465	4.79489	54.95	4.71415	3.16181	-0.73432	-9.3021791	-17.41918	-3.72041	1.8333	4.49548
(H35)	5.0352	5.2545	6.01631	6.07526	4.22024	2.44133	0.791436	-4.554233	-8.11178	-14.86973	5.689268	0.48104	1.8235	2.8333	3.02411	4.06363	2.96021	1.5065	0.099387	-6.9201753	-15.45764	-4.88189	6.02166	3.24455
(H37)	5.42417	4.09425	4.66147	4.65445	3.89023	0.58071	2.304451	-6.71159	-7.089141	-18.291208	-10.14736	6.43149	3.68344	-1.83622	0.05049	0.930117	1.140595	0.47403	-1.854342	-7.711232	-10.92463	4.12448	0.54819	1.17026
(H41)	2.91819	2.971291	3.270257	2.16237	2.96937	0.06008	2.386134	-5.999332	-6.0661327	-17.871255	-17.514422	-10.6801052	-12.811021	-8.611743	-5.289353	1.726197	1.616216	-4.71822	-10.92478	-12.26454	4.29489	-3.189189	-1.1075	
(H52)	0.34807	0.38135	2.2813	1.07051	-0.41082	-0.41089	2.288147	4.394979	8.951825	-11.89189	-11.286102	8.241184	-11.81121	-12.811172	-17.871738	-15.659	6.270156	6.989586	6.23927	-14.311877	-16.26973	8.28459	-7.22644	-2.97025
(H87)	-3.217207	-1.440451	0.24143	-1.21276	-1.81339	-1.553121	4.299584	-6.299483	-11.919529	8.809592	6.259031	-6.99445	-5.89727	8.141156	-19.212209	-10.507582	6.018126	-5.26874	-12.621837	-18.791019	-9.2221194	-1.622154	-4.91407	
(H87)	-4.641169	-0.64145	2.8135	3.771735	8.833667	2.85232	6.145836	-4.28958	-10.051429	-17.210191	-10.599438	4.58928	6.386464	5.23066	-5.1784	-11.241338	-16.298172	4.125805	6.017185	-12.369171	-17.811035	-11.5411541	-15.83938	6.83949
(H75)	5.71189	5.92586	4.84434	6.344149	-18.533107	4.75365	8.145837	-10.03115	-15.503111	-17.921392	-14.021601	4.12548	6.47158	4.23046	4.44734	16.79037	-18.41142	6.78193	-7.4925	-13.67174	-19.211902	-15.861817	-17.999142	8.65512
(H82)	-7.29212	-2.02338	6.12046	-6.1831	-17.14133	-7.089436	-11.739891	-11.261185	-13.326108	-17.719152	-13.046463	6.94631	6.74234	6.271496	4.641727	0.801915	-10.891146	6.271124	6.381255	-14.821815	-17.359189	-17.861167	-16.471442	-16.26832
(H84)	5.414377	4.255176	6.38691	-16.217456	-18.2391756	9.748445	-15.386119	-16.191432	-13.01917	7.5891035	7.27469	6.297142	5.917765	9.469719	10.597165	12.286115	-17.11583	-12.591542	-14.059168	-16.2219739	-18.181152	-10.3391682	-17.43939	1.8815
(H87)	0.270146	4.711635	-11.71125	-11.30181	-18.441745	-10.24614	11.723113	-15.16777	-18.841853	-18.711785	-10.93603	-10.801925	-10.67135	-7.21914	-17.011163	-16.47635	12.361927	-14.739188	-15.991179	-15.854176	-17.554177	-18.729168	-13.289137	1.8815
(H87)	-15.0411234	-10.140173	0.5991113	-12.8991742	-17.239151	-17.719124	17.6231147	-18.059187	-18.389151	17.3891304	10.441448	13.119189	-12.719135	-7.819147	12.3891232	13.549138	-15.389194	-14.339103	-15.599192	-17.389149	17.4231486	-17.999148	-13.771794	1.8815
(H122)	-0.6041165	-10.9211271	-10.3391169	-14.7491862	-16.169185	-16.2791389	17.5291557	-16.799183	-18.659132	-18.221771	-18.859135	-18.719187	-12.979118	-12.969197	-8.3291119	-12.3532	-16.7291421	-16.129184	-17.28918	-16.579186	-15.859149	-17.7791778	-17.999183	-15.899184
(H122)	-19.3291851	-11.9591458	-16.3891791	-18.4191799	-18.517159	-18.7691868	-18.369178	-14.6291751	-17.619191	-18.417183	-18.6291791	-15.152142	-13.8191105	-14.6391928	-11.4191534	16.3691854	-17.1391158	-16.4891368	-19.1591797	-18.7891722	-15.8791846	-18.9491922	-16.869189	-17.6691849
(H27)	-17.7791843	-18.411896	-16.589187	-17.7491828	-19.1491786	-18.6491676	-17.7391861	-18.5191871	-17.3891865	-18.1491785	-18.7391331	-16.2291833	-13.8991829	-12.5291388	-17.6691485	-17.618174	-17.3391889	-18.149178	-15.6091887	-17.4891738	-17.9891841	-17.7791843	-17.6691841	
(H135)	-16.9191505	-14.0291507	-14.5891544	-17.7791813	-18.6991833	-17.7891586	-17.9991486	-17.8891922	-17.6691749	-16.1891745	-16.4591813	-17.3691833	-15.9191346	-13.9491408	-12.8491578	-17.171	-15.579177	-13.9691892	-15.219132	-18.3291845	-18.9791728	-17.8391487	-18.117728	-17.6891872
(H42)	-18.019183	-17.9291845	-17.9791814	-18.5191909	-17.9691801	-17.2291861	-18.2191805	-18.619183	-18.1791848	-18.5791852	-18.0291846	-18.5791779	-15.2391481	-17.139189	-16.7991852	-17.5991906	-15.9041844	-18.009113	-18.6291734	-17.7791811	-18.9691888	-18.9891818	-17.3791873	
(H157)	-17.719135	-16.5291807	-18.042	-18.8891816	-18.9591811	-16.2491866	-17.9791821	-17.4491818	-17.879187	-18.0891817	-17.8891729	-18.6791845	-16.2391716	-15.0691557	-16.9191758	-17.3791752	-17.8191717	-18.7591838	-17.9691482	-18.7191788	-18.7291834	-18.189189	-17.7791845	-17.8891781
(H157)	-18.4291838	-17.7191851	-16.4891856	-18.1691871	-18.7591911	-18.1391889	-18.2491757	-18.1391889	-18.2491757	-18.1391889	-18.2491757	-18.1391889	-18.2491757	-18.1391889	-18.2491757	-18.1391889	-18.2491757	-18.1391889	-18.2491757	-18.1391889	-18.2491757	-18.1391889	-18.2491757	-18.1391889
(H157)	-17.3691745	-18.0191834	-12.0691828	-17.7491815	-18.0891865	-17.7891761	-16.4891833	-16.4171837	-18.159189	-17.889179	-17.8591779	-18.2991814	-16.2991814	-15.7891843	-12.9991818	-15.0091782	-18.9891853	-18.0191787	-18.4491864	-18.2291826	-18.8891826	-18.9591867	-18.7891812	-17.6891864
(H172)	-17.779187	-18.0691789	-17.1191816	-16.0891845	-17.8891866	-17.8491879	-17.8091856	-16.7891864	-17.3191885	-17.8541842	-14.9791337	-13.3691408	-15.7891843	-16.1791876	-18.1891876	-17.5491775	-16.5591818	-17.9591816	-17.0291791	-17.8891849	-17.7791872	-17.8891849	-17.7791872	-17.8891849
(H172)	-17.3891868	-15.9591862	-14.6591838	-14.2191838	-16.5191872	-18.0891839	-14.8991819	-18.0691758	-17.7891773	-18.0691727	-17.9791828	-18.6291836	-17.4691885	-18.5181887	-17.1691819	-18.8391872	-18.7191848	-17.8191885	-16.8891811	-19.3591875	-18.1191889	-18.0891826	-18.1191832	-15.1191836
FreqHz	5.7859916	Photk3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Gain	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751	0.0197160751
(H10)	5.99648	6.9173	7.43729	7.01642	5.97394	3.14142	0.671331	-7.11318	-15.89918	-4.94194	0.22203	3.33467	5.44584	5.96586	5.89548	5.19487	4.47085	2.73088	-1.57546	-11.84176	-8.239327	-0.11189	3.3427	5.85574
(H22)	5.85613	6.19638	5.83832	6.02542	4.77408	3.23184	0.333136	4.479455	-14.821755	-6.869435	-1.3201	2.62032	4.09439	4.54465	4.79489	54.95	4.71415	3.16181	-0.73432	-9.3021791	-17.41918	-3.72041	1.8333	4.49548
(H35)	5.0352	5.2545	6.01631	6.07526	4.22024	2.44133	0.791436	-4.554233	-8.11178	-14.86973	5.689268	0.48104	1.8235	2.8333	3.02411	4.06363	2.96021	1.5065	0.099387	-6.9201753	-15.45764	-4.88189	6.02166	3.24455
(H37)	5.42417	4.09425	4.66147	4.65445	3.89023	0.58071	2.304451	-6.71159	-7.089141	-18.291208	-10.14736	6.43149	3.68344	-1.83622	0.05049	0.930117	1.140595	0.47403	-1.854342	-7.711232	-10.92463	4.12448	0.54819	1.17026
(H41)	2.91819	2.971291	3.270257	2.16237	2.96937	0.06008	2.386134	-5.999332	-6.0661327	-17.871255	-17.514422	-10.6801052	-12.811021	-8.611743	-5.289353	1.726197	1.616216	-4.71822	-10.92478	-12.26454	4.29489	-3.189189	-1.1075	
(H52)	0.34807	0.38135	2.2813	1.07051	-0.41082	-0.41089	2.288147	4.394979	8.951825	-11.89189	-11.286102	8.241184	-11.81121	-12.811172	-17.871738	-15.659	6.270156	6.989586	6.23927	-14.311877	-16.26973	8.28459	-7.22644	-2.97025
(H87)	-3.217207	-1.440451	0.24143	-1.21276	-1.81339	-1.553121	4.299584	-6.299483	-11.919529	8.809592	6.259031	-6.99445	-5.89727	8.141156	-19.212209	-10.507582	6.018126	-5.26874	-12.621837	-18.791019	-9.2221194	-1.622154	-4.91407	
(H87)	-4.641169	-0.64145	2.8135	3.771735	8.833667	2.85232	6.145836	-4.28958	-10.051429	-17.210191	-10.599438	4.58928	6.386464	5.23066	-5.1784	-11.241338	-16.298172	4.125805	6.017185	-12.369171	-17.811035	-11.5411541	-15.83938	6.83949
(H75)	5.71189	5.92586	4.84434	6.344149	-18.533107	4.75365	8.145837	-10.03115	-15.503111	-17.921392	-14.021601	4.12548	6.47158	4.23046	4.44734	16.79037	-18.41142	6.78193	-7.4925	-13.67174	-19.211902	-15.861817	-17.999142	8.65512
(H82)	-7.29212	-2.02338	6.12046	-6.1831	-17.14133	-7.089436	-11.739891	-11.261185	-13.326108	-17.719152	-13.046463	6.94631	6.74234	6.271496	4.641727	0.801915	-10.891146	6.271124	6.381255	-14.821815	-17.359189	-17.861167	-16.471442	-16.26832
(H84)	5.414377	4.255176	6.38691	-16.217456	-18.2391756	9.748445	-15.386119	-16.191432	-13.01917	7.5891035	7.27469	6.297142	5.917765	9.469719	10.597165	12.286115	-17.11583	-12.591542	-14.059168	-16.2219739	-18.181152	-10.3391682	-17.43939	1.8815
(H87)	0.270146	4.711635	-11.71125	-11.30181	-18.441745	-10.24614	11.723113	-15.16777	-18.841853	-18.711785	-10.93603	-10.801925	-10.67135	-7.21914	-17.011163	-16.47635	12.361927	-14.739188	-15.991179	-15.854176	-17.554177	-18.729168	-13.289137	1.8815
(H87)	-15.0411234	-10.140173	0.5991113	-12.8991742																				



Radiated Composite Gain Data_Radio 2_5GHz

Appendix B

(H87) 5	8.218-07	-4.69-242	-2.16-292	4.18-847	-3.35-367	-5.69-573	6.88-704	6.97-684		-11.15-1033	-14-1825	-18.94-1391	-11.99-847	8.57-875	-13.89-1243	-16.3-172	-18.09-1181	-11.05-1572	-18.76-1497	-17.86-1617	-11.82-639	-5.12-434	6.82-377	3.34-711	-5.16-628
(H7) 4	8.93-107	-5.99-432	-3.54-363	6.32-633	3.93-335	5.26-512	4.76-539	4.91-706		-10.61-8	-11.81-352	-16.77-1012	-13.18-122	9.76-1089	-13.86-143	-14.71-1882	-18.88-1405	-11.19-1784	-18.33-1585	-18.97-1418	-11.02-619	-5.01-748	6.52-641	5.31-67	-5.76-643
(H82) 5	8.16-1151	-7.37-586	-5.14-472	4.58-673	-5.73-377	-6.49-506	-4.68-491	-4.37-709		-10.34-362	-10.19-1521	-12.68-1339	-14.03-1196	8.16-1247	-14.41-1718	-17.18-19	-13.79-1394	-13.27-1619	-16.49-158	-18.24-1048	-11.58-681	-6.97-687	-7.48-648	-8.22-1004	-7.66-633
(H84) 5	-12.07-1499	-9.34-132	-7.91-632	8.76-838	-8.31-602	-7.76-71	6.13-633	6.51-788		-10.82-637	-10.13-1479	-12.81-1191	-14.52-1058	-13.06-1415	-17.17-75	-18.24-1313	-18.59-1512	-14.90-1335	-16.97-1614	-15.61-1322	-11.89-64	8.81-1017	8.73-888	-11.14-1321	-10.21-1117
(H87) 5	-10.60-184	-10.89-81	-10.82-64	-11.82-149	-9.86-75	-11.02-919	6.51-788	6.51-788		-11.27-335	-12.16-1752	-12.64-1442	-15.11-1461	-13.91-1585	-18.06-1435	-18.01-1856	-16.54-1427	-13.11-188	-16.59-1619	-15.61-1427	-13.11-188	-11.48-1234	-13.03-1558	-16.48-1612	-12.82-1237
(H84) 5	-18.32-1882	-13.81-1331	-14.69-1332	-18.27-144	-12.39-1187	-10.54-1054	8.33-1055	-13.86-1104		-12.56-1863	-13.37-1238	-14.90-1628	-13.89-1628	-18.83-1874	-19.02-1824	-18.03-1845	-18.21-1881	-17.39-1811	-19.03-1874	-18.16-1712	-18.02-1449	-18.84-1332	-16.49-1612	-14.19-1319	
(H122) 5	-18.64-1817	-17.99-1815	-14.79-1255	-14.89-1815	-13.84-1817	-13.12-1339	-13.13-1213	-10.41-117		-16.48-1159	-13.48-1713	-14.74-132	-17.61-1854	-16.88-1714	-18.13-1835	-17.34-1751	-18.27-1859	-18.05-1759	-19.03-1759	-17.98-1815	-18.70-1737	-14.88-1655	-16.49-1612	-15.51-1499	
(H122) 5	-18.84-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-1333	-12.52-1119		-17.71-143	-13.81-181	-18.49-1467	-18.02-1833	-18.21-1844	-18.51-184	-18.27-184	-19.04-1824	-18.21-181	-17.65-1811	-18.74-1751	-18.23-1817	-18.80-1633	-12.91-178	-18.82-1812	
(H127) 5	-18.79-1928	-18.18-1819	-13.61-1351	-17.34-18	-18.23-1812	-15.25-1809	-13.13-13																		



Radiated Composite Gain Data_Radio 2_5GHz

Appendix B

θ(120°)	-18.28/-18.24	-17.63/-18.06	-17.91/-18.16	-18.81/-18.58	-19.47/-19	-19.71/-18.43	-13.63/-10.22	-11.18/-14.45	-13.1/-14.33	-19.02/-13.55	-12.29/-13.97	-14.46/-18.82	-18.0/-17.5	-18.63/-18.74	-18.36/-18.45	-19.05/-18	-17.84/-15.11	-18.24/-17.4	-16.16/-18.87	-18.12/-17.21	-18.83/-18.42	-14.71/-18.1	-18.71/-19.04	-18.02/-16.57
θ(127.5°)	-18.17/-18.4	-18.35/-18.97	-18.74/-19.03	-17.67/-17.82	-19.1/-18.83	-17.48/-18.12	-18.48/-15.82	-14.37/-14.71	-16.51/-14.1	-18.29/-15.83	-13.59/-15.41	-17.97/-16.33	-17.81/-18.03	-17.34/-18.12	-17.37/-18.79	-18.37/-15.61	-18.5/-18.07	-18.25/-18.25	-17.84/-18.67	-19.03/-19.09	-17.74/-17.22	-18.11/-18.36	-18.81/-17.47	-18.15/-18.8
θ(135°)	-18.16/-17.81	-18.61/-18.05	-17.95/-18.37	-18.99/-17.95	-17.82/-18.05	-18.91/-17.88	-15.19/-13.77	-17.73/-17.13	-17.84/-18.05	-14.05/-13.96	-16.02/-16.81	-16.88/-18.39	-17.79/-18.66	-18.37/-19.18	-18.37/-18.61	-17.86/-17.6	-18.66/-18.19	-18.54/-17.89	-17.89/-18.56	-18.86/-18.51	-16.06/-17.94	-18.81/-18.41	-17.94/-18.6	
θ(142.5°)	-18.82/-17.74	-18.41/-18.38	-18.01/-18.37	-17.78/-17.84	-17.82/-18.56	-18.64/-18.94	-15.71/-12.69	-15.21/-17.95	-18.21/-18.4	-18.87/-13.85	-12.97/-13.88	-16.41/-17.73	-17.88/-18.85	-17.85/-18.76	-17.67/-18.93	-18.71/-17.78	-17.08/-18.39	-18.56/-17.96	-18.73/-18.84	-17.73/-18.24	-17.14/-17.75	-17.91/-18.75	-18.48/-18.1	-18.41/-18.47
θ(150°)	-18.01/-18.67	-18.44/-18.19	-19.34/-18.68	-17.75/-18.06	-18.88/-17.31	-18.18/-17.8	-17.33/-17.19	-17.67/-18.5	-17.58/-18.63	-18.87/-18.53	-19.18/-18.63	-18.18/-17.95	-17.52/-17.93	-18.57/-18.56	-18.15/-17.82	-18.63/-18.31	-17.71/-18.17	-18.14/-17.25	-18.33/-18.27	-18.68/-18.8	-18.91/-17.91	-18.54/-18.32	-17.37/-18.8	-17.75/-18.13
θ(157.5°)	-18.18/-19.02	-18.91/-17.84	-17.39/-18.86	-18.75/-17.99	-17.55/-15.8	-171/-17.86	-18.2/-18.83	-18.59/-18.58	-18.25/-18	-18.17/-17.81	-19.45/-18.11	-18.87/-18.84	-18.73/-18.49	-18.81/-18.13	-17.34/-18.07	-181/-17.95	-18.75/-18.8	-17.81/-17.64	-18.05/-17.78	-17.27/-19.11	-18.65/-18.6	-18.66/-18.6	-18.43/-18.49	-18.85/-17.86
θ(165°)	-18.48/-18.56	-17.65/-18.77	-18.28/-19.11	-18.73/-17.93	-17.37/-18.62	-17.81/-18.08	-18.02/-17.95	-18.29/-19.16	-17.71/-17.88	-17.78/-17.08	-15.99/-14.61	-14.78/-15.76	-16.55/-18.85	-18.23/-18.11	-19.05/-18.71	-17.25/-18.58	-17.4/-18.21	-18.19/-18.06	-18.14/-18.03	-18.27/-18.58	-17.96/-18.78	-18.46/-17.96	-18.19/-18.31	-18.51/-18.31
θ(172.5°)	-17.37/-18.75	-18.06/-18.89	-18.01/-18.87	-18.57/-19.21	-17.71/-18.14	-19.32/-17.87	-18.67/-17.73	-19.19/-17.57	-17.23/-17.42	-18.19/-18.53	-18.99/-18.31	-18.08/-18.49	-18.51/-18.36	-18.09/-17.8	-17.79/-18.55	-18.46/-18.65	-19.08/-17.57	-18.14/-18.79	-19.27/-18.46	-18.86/-18.59	-17.88/-18.67	-18.82/-18.67	-18.88/-18.29	-17.94/-18.48
θ(180°)	-18.18/-17.82	-19.08/-18.64	-18.46/-17.68	-17.85/-17.85	-18.18/-18.79	-18.34/-17.52	-17.75/-18.19	-18.56/-17.85	-17.28/-16.53	-16.14/-17.79	-18.17/-17.88	-18.58/-17.91	-18.58/-18.04	-17.78/-18.14	-17.48/-18.41	-18.21/-17.4	-18.03/-15.12	-14.61/-15.2	-16.81/-18.39	-17.87/-18.91	-17.82/-18.15	-17.84/-17.5	-17.95/-18.18	
FreeHo	5.7852Phi	PhiInv_4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
θ(7.5°)	6.07665	7.74735	7.44725	5.68826	5.54481	3.40243	5.04416	5.04494	6.593436	2.14037	2.27034	4.86659	6.25864	6.98972	7.30713	6.79525	5.57472	5.57212	0.36216	46.1133	-1.88932	2.29377	7.29535	
θ(17.5°)	5.32581	6.34589	6.71866	6.42631	5.51479	3.77257	1.07117	-4.31872	-15.63844	-3.29413	2.03071	4.94586	6.52072	7.26749	7.50738	6.87934	5.4817	2.76039	-1.16338	4.899489	-6.79638	-1.28972	2.16332	4.22848
θ(27.5°)	5.5485	6.61416	6.6164	6.07558	4.57079	3.27233	1.272026	-2.46451	-13.087177	-9.26449	-1.43071	2.95448	5.64842	6.88972	7.24078	6.95635	5.67457	3.01896	-1.25932	-3.26724	-8.784591	-2.540403	1.76938	4.08844
θ(37.5°)	5.68524	5.26533	5.45544	5.27485	3.99302	2.19106	-0.07145	-3.124539	-9.71472	-6.27857	-4.589118	1.92413	5.14552	5.41513	4.80482	4.43421	3.850289	1.420485	-3.03416	-5.821011	-17.337378	-2.24043	2.04023	4.17875
θ(47.5°)	5.18515	4.88844	5.19533	4.96417	3.22208	0.789402	0.7691176	-3.4691571	-8.91339	-18.581417	-6.174486	-4.4234	3.610384	3.21248	2.24021	2.09174	1.320515	-1.54845	-6.044677	-10.011825	-12.289153	-1.8561019	1.27294	4.276
θ(57.5°)	3.35927	2.92083	3.25349	3.17244	1.91122	0.541219	-2.056277	-6.61783	-9.31305	-15.521362	-10.0715	-0.91133	2.102	1.697145	1.67201	1.86133	0.61803	-3.61471	-8.151007	-18.31133	-6.13586	-3.32118	4.0389	3.95348
θ(67.5°)	2.35213	1.46113	1.43136	1.04014	-0.02104	-1.431508	-4.41442	-7.51759	-9.281556	-13.918179	-6.468426	-1.950114	1.080131	1.11054	0.691448	1.52033	-0.996256	-4.144854	-11.161516	-17.971881	-11.889531	-2.688119	-1.297	2.2825
θ(77.5°)	0.92041	0.01051	0.31688	-0.841155	-3.712184	-2.46739	-6.96152	-7.97421	-11.781806	-10.25674	-4.586139	-3.261108	-0.2967	-0.56009	0.30866	0.9602	-1.71411	-6.5187	-10.561211	-19.161862	-12.72179	-5.04141	-2.63052	0.52124
θ(87.5°)	-0.121384	-4.151251	-3.74391	6.78462	4.96154	-3.761696	-11.9712	9.84451	-15.091137	-10.381814	-5.293365	-4.231229	0.711108	-0.95043	0.25109	-0.42083	3.329396	7.0891019	-11.141179	-18.131936	-11.7844	9.02948	6.765384	-3.8128
θ(97.5°)	-1.961484	-4.87334	-5.561756	6.87166	6.071755	-8.544882	-11.871755	-8.71461	-18.99981	-14.11187	-6.747567	5.289484	-1.76924	-1.38042	-1.012465	-1.986211	4.729129	4.811081	-9.231173	-13.691876	-12.559179	9.571881	6.21546	-5.011288
θ(107.5°)	-1.261382	-3.041264	-4.659478	4.241338	-5.94948	-8.51932	-18.36891	-11.351737	-18.421015	-14.571845	-9.017209	6.691516	-3.01129	-2.589155	-1.384344	-4.761456	6.831739	-8.901938	-9.05144	-14618.24	-11.591786	6.489482	6.03421	-3.0718
θ(117.5°)	-2.73448	-3.191331	-5.26432	-4.25262	-8.10173	-10.10113	-18.111338	-15.21627	-18.431052	-16.98117	-11.059493	8.531756	-4.931479	-4.19313	-3.76738	-8.14828	8.759785	-7.821899	-10.771801	-13.371398	-12.389361	5.561599	4.551429	-3.731524
θ(127.5°)	-5.38652	-4.82523	-7.14632	-6.44182	-10.13427	-14.421663	-17.251688	-17.781107	-16.721109	-14.281879	-13.791117	-10.01949	-7.136149	-6.26543	-4.35842	-11.47181	-11.42134	-11.414238	-12.071803	-199183	-10.75145	4.899165	-7.79173	6.73426
θ(137.5°)	-6.88648	-7.08483	-6.73791	-6.87138	-11.551127	-18.13188	-17.871728	-19.13181	-15.53123	-17.291894	-16.381849	-15.181135	-8.88677	-8.56174	-7.581876	-12.21444	-16.831583	-16.08183	-16.61828	-18.971789	-17.781878	9.8881224	-10.2183	-4.83458
θ(147.5°)	-1.531036	-10.381222	-8.78698	-18.371836	-12.181105	-17.611739	-18.321834	-16.411339	-14.581371	-13.181886	-17.881812	-15.24124	-10.19182	-10.451811	-9.261771	13.361714	-18.351735	-18.551841	-18.181838	-18.1718745	-17.1818283	-14.3814481	-11.861197	-10.591721
θ(157.5°)	0.510203	-14.731427	-16.261171	-16.8819151	-13.531178	-17.681783	-17.791807	-14.591705	-15.541814	-15.911808	-16.021232	-13.621236	-12.41127	-10.281849	-17.971754	-18.631806	-18.981842	-18.318187	-18.711737	-18.68184	-18.581834	-15.681838	-14.411837	-12.551815
θ(167.5°)	-15.31558	-15.51523	-12.121189	-14.891737	-16.981806	-18.451857	-17.961815	-16.691789	-15.881443	-17.88175	-16.531807	-17.371677	-16.271765	-12.941153	-11.471152	-14.881789	-18.201854	-18.37159	-17.911807	-19.29175	-16.711807	-16.571836	-16.821783	-15.21179
θ(177.5°)	-18.181818	-17.751455	-12.471211	-16.811833	-17.851878	-18.981828	-18.891825	-18.891825	-17.551856	-18.591872	-17.471857	-17.951855	-16.101838	-14.961848	-14.611814	-14.781845	-16.661851	-18.718834	-18.441826	-18.751817	-18.021805	-15.761839	-14.89187	-17.731874
θ(187.5°)	-18.951818	-18.861777	-16.81177	-18.818636	-18.781853	-17.131838	-18.961834	-18.611846	-15.841735	-18.751843	-19.141883	-17.761856	-16.781728	-18.361801	-13.91419	-14.231853	-14.11888	-18.671817	-18.761861	-18.11557	-18.761889	-18.41787	-16.94175	-17.831746
θ(197.5°)	-18.921821	-18.081806	-18.151749	-15.681801	-18.591865	-18.241838	-18.131864	-17.621718	-15.841888	-16.971858	-15.281739	-17.671871	-18.341768	-17.281781	-14.611283	-13.331855	-18.281822	-18.171588	-18.941788	-18.71184	-18.681817	-18.641804	-18.011828	-17.371837
θ(207.5°)	-17.171714	-17.781841	-17.391759	-18.331843	-15.711773	-19.291417	-16.451882	-16.751759	-18.461869	-18.881815	-18.481802	-18.231817	-18.081891	-17.518777	-18.381818	-18.091896	-18.141784	-17.081873	-18.581815	-19.041826	-18.451885	-17.641899	-18.711889	-18.4189
θ(217.5°)	-18.371782	-17.711521	-18.471738	-18.331804	-18.071848	-18.081435	-18.621774	-17.331854	-17.431832	-18.1838	-17.84181	-18.611833	-18.018	-18.471855	-18.351845	-17.591882	-17.37173	-15.51824	-17.551865	-15.161824	-18.251877	-16.381776	-17.51818	-18.851868
θ(227.5°)	-18.061897	-18.461742	-18.531835	-18.591848	-18.331814	-16.561817	-16.341885	-17.8517	-16.241889	-17.211871	-17.881865	-18.511783	-17.581815	-18.411817	-18.361815	-18.891832	-18.371758	-19.091872	-17.711833	-18.551866	-18.961773	-18.41181	-18.641833	-17.881803
θ(237.5°)	-17.771873	-18.071817	-17.671874	-17.31864	-16.931881	-17.741819	-19.371785	-18.431823	-18.491828	-17.681854	-19.081719	-18.781812	-18.131879	-18.65188	-17.811842	-18.081841	-18.341813	-17.531757	-18.541793	-18.961875	-18.411877	-19.61842	-18.621827	-18.521849
θ(247.5°)	-18.471865	-17.691882	-18.611725	-18.461807	-18.031799	-18.311898	-18.861818	-18.041815	-17.811885	-18.361824	-17.961875	-												



Radiated Composite Gain Data_Radio 3_5GHz and 6GHz

Appendix C

Freq(Hz)	5.6G	5.785G	5.885G	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	8.13	7.84	7.97	9.25	9.39	8.81	8.95
Ant. 2 Max Gain (dBi)	7.47	6.49	6.7	8.2	9.67	8.44	8.57
Ant. 3 Max Gain (dBi)	7.22	6.39	6.76	7.39	7.52	7.34	9.23
Ant. 4 Max Gain (dBi)	7.42	7.48	7.66	7.36	7.37	7.17	7.14
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/15/0	Phi/15/7.5	Theta/22.5/90	Phi/0/180	Phi/0/180	Theta/15/97.5	Phi/15/22.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/22.5/270	Phi/15/270	Theta/22.5/345	Phi/0/270	Phi/0/105	Theta/0/195	Phi/0/112.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/7.5/285	Phi/7.5/97.5	Phi/7.5/90	Phi/7.5/105	Phi/15/105	Phi/15/105	Phi/15/112.5
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/0/187.5	Phi/0/7.5	Theta/15/97.5	Phi/7.5/0	Phi/15/0	Theta/22.5/285	Phi/22.5/15
Max Gain (dBi)	8.13	7.84	7.97	9.25	9.67	8.81	9.23
DG [1SS] (dBi)	10.52	10.62	11.38	11.54	12.25	10.88	11.53
DG [2SS] (dBi)	8.13	7.84	7.97	9.25	9.67	8.81	9.23
DG [4SS] (dBi)	8.13	7.84	7.97	9.25	9.67	8.81	9.23

Radiated Composite Gain Data_Radio 3_5GHz and 6GHz

Appendix C

(a02)	8.5583	8.3651	8.7588	8.8783	8.4658	8.6122	8.8814	8.1111	8.899	8.88828	8.8382	7.75728	7.29743	7.30728	7.42784	7.6973	7.5732	7.34733	7.37655	7.78789	7.93872	7.88877	9.03928	9.34831	9.2836
(a03)	7.1679	6.8737	7.8478	7.64738	7.24733	6.8127	6.98675	7.5267	6.588	7.5747	7.5382	6.73662	6.18817	6.2879	6.5856	6.8589	6.51628	6.71365	6.77705	7.03822	7.28737	7.29737	8.26273	8.64701	8.54717
(a04)	5.86578	5.81638	6.9427	7.17671	6.01648	5.94585	5.51468	6.48758	5.6667	6.4743	5.84485	4.1704	4.1338	4.2468	4.10284	4.42842	4.47448	4.54479	5.05876	5.02536	5.33523	5.0761	6.64714	7.04475	
(a05)	5.05058	5.37641	6.5047	6.06866	5.04548	4.12048	3.81055	3.28037	4.3949	4.47493	5.18558	2.0222	1.2164	1.2168	3.74048	3.80264	3.33278	1.59185	2.70343	3.1476	4.43435	3.57051	4.06641	4.94543	4.64561
(a06)	3.36038	3.56375	4.884	3.88436	4.39328	2.9622	2.31018	1.96215	3.1278	1.98159	2.13924	1.03039	0.74134	2.27128	1.82142	1.19119	0.665036	0.61172	1.59212	2.650238	2.424	3.15332	3.41015	3.89421	
(a07)	1.55145	2.25272	3.06246	2.1423	2.73201	1.74170	1.70274	1.5821	2.59515	1.76184	1.46274	0.78108	0.57823	1.08087	0.887	0.58198	0.359181	0.89818	1.11032	0.22019	2.28201	1.9419	2.71234	2.17024	
(a08)	0.37647	1.33204	2.116	1.11056	0.74637	0.643479	0.220303	0.2512	1.3300	1.42086	0.87001	0.29033	0.47629	1.38041	0.67066	0.457336	0.268331	0.691463	1.23295	0.488473	0.34042	1.11055	1.88918	2.08152	
(a09)	0.59045	0.8119	0.5802	0.51920	0.216	0.4147	0.17815	0.2088	0.48922	0.43506	0.22514	1.14053	0.52048	0.34214	0.77544	0.23048	0.320765	0.74334	0.079129	0.25248	0.70276	0.40536	1.08059	1.58053	
(a10)	1.70218	0.67027	1.27212	1.45184	2.88436	2.64247	3.19536	3.11149	3.86258	1.86249	3.35137	1.77254	4.05043	0.53961	0.83975	1.41413	1.28928	0.35032	1.63736	0.355136	0.87034	2.02211	1.413	2.88196	
(a11)	0.38643	2.88727	1.47141	3.27148	4.88736	6.3438	4.53449	3.79923	3.40531	3.24807	3.32344	4.45044	1.86241	3.05546	4.22513	0.44648	0.46239	1.53317	1.25513	2.56481	0.5845	3.32037	3.14	3.11819	
(a12)	0.68542	4.99473	4.3964	6.0686	7.70324	7.88474	5.89172	4.30446	5.52647	4.89349	4.29647	6.80536	0.55244	4.29429	6.84046	0.460718	0.89249	7.89843	1.76245	1.76625	7.08732	5.0587	3.93349	3.93349	
(a13)	1.7699	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138	1.02138
(a14)	0.31548	8.11821	0.071003	10.68459	8.64437	10.02474	7.8354	1.26782	8.52041	8.69369	8.19796	7.6474	0.230451	0.91706	1.77744	0.321348	1.141101	0.117171	0.77879	15.8448	1.71702	0.771507	0.84851	0.84465	0.84465
(a15)	0.48487	0.31949	0.691908	11.2957	9.17879	10.79978	8.4332	1.161907	9.32155	10.0210	1.14	10.8928	7.83471	9.9642	4.29536	8.5494	10.47148	0.57455	1.64416	9.27109	10.18116	1.360158	1.186124	10.5497	4.9317
(a16)	0.771891	0.481033	0.221232	0.120318	0.116143	0.1153148	0.1086148	0.305143	0.1331548	0.1540102	0.1664109	0.1111111	0.1029136	0.1251268	0.1213113	0.1740104	0.1089132	0.1481877	0.1017161	0.1414078	0.1271235	0.1946132	0.1231015	0.1453036	
(a17)	0.1050195	0.877105	0.4451277	0.2305147	0.172138	0.11861145	0.0821389	0.2311171	0.12942102	0.1386114	0.1264112	0.1856124	0.1236812	0.3391182	0.1252126	0.1241137	0.2241156	0.15891191	0.8110339	0.0641028	0.1481132	0.1221238	0.1231015	0.1453036	
(a18)	0.1086116	0.4410338	0.1446105	0.1021127	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105
(a19)	8.80188	8.0021176	0.221017	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105	0.1021105
(a20)	0.761087	0.1056149	0.008061	0.1510125	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143	0.1423143
(a21)	0.1271123	0.1217126	0.1231216	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121	0.1801121
(a22)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a23)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a24)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a25)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a26)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a27)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a28)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a29)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a30)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a31)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a32)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a33)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a34)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a35)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a36)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a37)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123
(a38)	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.1261123	0.											



Ch	(127.5°)	-10.9710-76	-10.686-73	-10.19-4.96	-10.698-8.83	-8.17-8.4	-10.73-10.92	-11.051-11.47	-11.011-8.85	-8.89-9.83	-10.16-4.08	-8-7	-8.97-10.36	-11.361-8.4	-11.151-8.48	-8.25-9.47	-10.251-10.31	-9.431-8.19	-12.831-12.45	-10.917-82	-8.83-10.45	-11.141-4.37	-10.721-11.46	-8.471-11.01	-11.911-11.03
Ch	(130°)	-11.871-12.11	-11.341-9.48	-8.691-9.4	-11.161-12.24	-10.561-10.79	-10.821-11.55	-11.281-10.67	-12.261-11.45	-10.471-10.57	-12.421-9.44	-12.3-9.68	-9.081-10.92	-10.51-7.73	-8.321-8.33	-10.4-10.27	-12-9.47	-11-14.87	-9.751-10.65	-10.421-10.2	-11.771-9.82	-11.031-10.65	-10.551-11.7	-11.661-12.25	-12.271-12.12
Ch	(142.5°)	-11.751-12.96	-10.721-10.29	-9.541-9.7	-10.181-9.72	-9.091-10.83	-11.321-12.44	-8.91-11.43	-12.231-12.87	-11.241-11.32	-11.881-12.26	-11.061-12.03	-11.871-11.07	-11.961-12.84	-12.851-10.74	-9.941-11.74	-10.9-9.33	-9.71-12.51	-11.581-11.6	-11.141-10.95	-11.31-12.11	-12.621-12.61	-11.511-10.66	-11.931-12.24	-12.311-12.35
Ch	(150°)	-12.191-10.88	-10.491-9.92	-9.021-9.44	-11.481-12.67	-11.891-10.25	-12.171-12.21	-9.611-11.21	-11.491-10.75	-12.091-11.34	-10.811-10.73	-10.371-11.95	-11.011-9.56	-12.331-11.76	-11.261-12.37	-12.521-12.2	-10.781-10.7	-11.41-9.72	-12.221-11.34	-8.231-8.77	-9.281-10.41	-11.671-12.12	-12.011-11.89	-10.831-11.51	-11.811-11.16
Ch	(157.5°)	-10.941-11.59	-10.961-10.39	-12.321-11.54	-12.41-11.72	-11.131-10.82	-12.151-12.17	-12.761-11.15	-11.341-9.84	-10.941-12.27	-12.351-12.16	-12.41-11.76	-12.811-12.45	-12.461-12.83	-11.431-9.94	-10.851-11.21	-11.961-11.95	-11.971-11.9	-11.891-8.49	-8.051-9.63	-7.931-9.62	-12.621-12.13	-11.491-11.03	-12.081-11.51	-10.981-11.46
Ch	(165°)	-11.941-11.99	-12.131-11.76	-12.681-12.54	-12.451-11.82	-10.011-10.79	-12.391-11.52	-11.071-10.54	-11.371-12.05	-12.541-12.05	-11.661-11.64	-11.611-12.61	-12.581-12	-12.081-12.7	-12.931-12.28	-13.031-12.08	-12.291-12.22	-11.541-11.31	-11.221-10.96	-10.181-9.21	-9.21-10.64	-12.811-11.04	-11.631-11.22	-10.451-10.41	-11.321-11.24
Ch	(172.5°)	-10.821-11.16	-11.311-11.57	-12.281-12.39	-11.681-11.45	-11.91-12.02	-12.211-12.56	-12.111-12.04	-12.891-11.8	-11.361-11.35	-11.41-11.74	-12.481-12.46	-11.051-11.36	-11.41-12.03	-12.511-12.32	-12.731-12.07	-12.371-11.56	-11.111-10.94	-11.331-10.79	-10.081-10.27	-10.231-10.79	-11.551-12.63	-12.431-11.81	-12.331-12.46	-11.991-11.7
Ch	(180°)	-11.541-10.67	-10.681-10.54	-10.281-9.55	-9.851-10.23	-10.621-10.81	-11.941-12.5	-12.831-12.57	-12.531-12.52	-11.971-11.73	-12.41-12.46	-12.481-12.46	-12.811-12.78	-12.461-11.95	-11.751-11.43	-11.791-11.48	-11.311-11.81	-11.441-10.69	-10.631-11.28	-12.551-12.33	-11.441-10.57	-10.861-10.43	-10.141-9.95	-10.251-11.3	-11.921-11.05
Freq(Hz)	6.995GHz	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)	Freq(Hz)
Gain(dB)	90.7710(7.5°)	91.1510(22.5°)	90.3910(37.5°)	90.4510(52.5°)	90.6710(67.5°)	90.6710(82.5°)	90.1670(102.5°)	90.120710(127.5°)	90.130710(142.5°)	90.125710(167.5°)	90.16710(172.5°)	90.16710(187.5°)	90.16710(202.5°)	90.16710(217.5°)	90.25710(232.5°)	90.24710(247.5°)	90.25710(262.5°)	90.270710(277.5°)	90.285710(292.5°)	90.300710(307.5°)	90.315710(322.5°)	90.330710(337.5°)	90.345710(352.5°)	90.360710(367.5°)	90.375710(382.5°)
Ch(°)	8.868-39	8.058-02	8.168-6	9.250-26	9.376-23	9.028-59	8.751	9.768-81	7.678-44	8.573-3	9.435-57	9.389-12	8.938-46	8.218-41	8.759-13	9.493-38	9.350-25	9.828-53	8.937-41	9.647-25	7.898-51	9.025-24	9.280-29	9.148-81	
Ch(5°)	8.367-86	7.567-91	8.381-86	9.365-54	9.639-72	9.549-22	8.798-1	7.267-21	7.718-37	8.899-32	9.426-34	9.181-46	7.947-73	8.088-45	8.739-87	9.293-3	9.238-04	8.698-16	7.868-96	8.617-14	7.858-43	8.878-16	9.250-19	9.81-7	
Ch(15°)	7.568-82	6.667-13	7.818-46	9.285-75	9.910-107	9.90-5	8.968-48	7.547-54	8.168-73	9.249-66	8.858-79	9.468-79	8.157-81	7.717-68	7.727-84	8.178-6	8.965-15	9.068-82	8.337-67	7.527-76	8.088-33	8.518-71	8.828-82	8.588-06	
Ch(22.5°)	7.038-46	6.676-96	7.327-94	8.565-15	9.569-41	9.238-84	8.377-91	8.118-38	8.68-87	9.269-4	6.158-62	6.471-67	8.96-44	6.025-87	6.357-01	7.447-77	7.947-89	7.827-67	7.537-79	7.877-71	7.687-78	7.797-78	7.867-05	7.877-18	
Ch(30°)	5.385-91	6.717-29	7.597-93	8.288-81	9.118-62	7.987-36	7.118-79	7.47-98	8.127-8	7.317-53	7.597-03	6.648-41	6-63	5.735-74	6.045-52	5.766-08	6.326-12	5.685-56	6-66	6.977-35	7.237-46	7.497-34	7.088-88	6.688-02	
Ch(37.5°)	5.35-82	6.256-84	7.317-28	6.957-27	7.566-93	5.795-13	5.435-88	6.155-92	6.115-94	5.475-7	5.354-43	4.634-66	4.724-58	4.674-85	5.224-81	4.274-65	5.785-57	4.764-66	4.785-38	5.624-79	4.635-49	5.565-48	6.088-19	5.795-07	
Ch(45°)	4.348-51	5.321-67	6.636-67	6.025-17	4.644-01	3.264-19	4.394-37	4.741-62	4.514-97	5.234-93	4.583-1	2.443-34	4.364-41	4.113-02	3.433-68	2.952-77	3.082-39	6.822-14	3.774-39	4.794-08	3.573-63	4.154-01	4.773-52	3.064-17	
Ch(52.5°)	2.840-38	4.244-76	4.945-01	4.873-02	1.431-33	2.814-47	4.334-75	54-16	3.682-76	3.932-24	1.650-91	0.262-02	3.364-21	3.11-2	1.261-71	2.41-19	-0.791-65	-0.431-64	3.013-23	3.513-49	3.112-26	1.321-62	1.716-88	2.012-6	
Ch(60°)	1.551-59	2.863-49	2.052-59	2.410-8	0.1771-23	1.762-87	2.382-96	4.603-98	3.10-59	1.450-29	0.360-27	0.451-29	1.752-69	2.791-79	0.570-38	0.560-08	-2.71-33	-2.250-51	1.150-99	2.562-69	1.930-93	0.140-11	-0.451-03	1.331-82	
Ch(67.5°)	-1.051-1.68	0.271-41	-0.370-29	-0.361-67	0.620-33	0.741-2	0.291-17	2.891-62	0.851-192	-0.871-1.38	0.851-34	1.7771-07	-0.451-0.39	-0.011-1.09	-0.971-0.11	-0.381-0.91	-4.121-2.91	-1.431-0.11	-0.803-26	1.4711-57	-0.271-1.73	2.451-2.34	-2.241-0.77	-0.171-0.48	
Ch(75°)	-3.21-4.75	-1.931-0.89	-2.581-1.24	-2.841-2.19	-1.21-0.82	-1.361-1.24	-2.721-4.24	-0.891-0.79	-2.71-3.52	-2.951-2.76	-1.081-1.83	1.855-37	-1.531-1.88	-2.791-2.76	-2.891-1.13	-2.271-2.23	-3.351-1.8	-0.121-0.71	-2.640-2.1	0.7503-1	-1.651-2.58	-1.991-3.11	-2.941-1.59	-6.431-1.85	
Ch(82.5°)	-4.081-6.74	-3.961-3.25	-4.771-2.39	-3.791-3.37	-2.341-1.29	-3.191-1.9	-3.211-4.46	-4.151-3.81	-4.981-4.23	-4.451-3.31	-1.530-12	0.261-1.57	-3.321-4.18	-5.91-6.04	-4.771-2.9	5.111-4.08	-1.811-0.8	-6.421-1.95	-2.531-0.69	-0.321-0.88	-3.421-3.65	-3.391-2.93	-0.811-0.9	-1.021-3.05	
Ch(90°)	-5.211-6.38	-5.461-5.18	-6.341-3.72	-3.651-4.37	-2.991-2.68	-4.571-3	-5.841-6.72	-4.991-8.6	-6.181-4.92	-6.421-3.95	-4.211-1.83	-1.121-3.27	-4.231-4.2	-6.171-6.79	-8.31-6.19	-8.991-6.16	-2.61-3.32	-1.611-4.51	-4.541-4.8	-4.691-4.59	-5.521-4.69	-3.861-4.24	-2.331-1.5	-1.161-3.56	
Ch(97.5°)	-6.681-7.62	-7.561-7.97	-6.961-6.82	-4.61-6.56	-3.841-4.78	-5.611-4.56	-8.51-8.87	-5.631-6.24	-7.461-6.33	-7.591-6.96	-5.711-3.5	-4.021-6.33	-7.141-6.47	-10.461-10.88	-9.591-7.39	-101-11.4	-5.581-7.13	-6.841-6.5	-8.421-6.08	-7.421-6.17	-6.41-5.99	-5.091-5	-4.361-3.67	-3.191-5.08	
Ch(105°)	-8.041-9.94	-8.631-9.63	-8.901-6.41	-6.431-6.28	-8.121-7.12	-7.21-6.9	-10.381-9.62	-8.161-11.06	-10.631-9.41	-7.891-6.52	-7.141-6.47	-5.891-6.5	-7.831-9.85	-11.441-10.85	-11.371-10.65	-6.761-11.09	-4.31-7.87	-6.501-9.49	-8.081-9.63	-8.371-8.87	-8.111-7.5	-4.431-7.37	-6.571-6.85	-5.341-7.02	
Ch(112.5°)	-9.071-9.46	-9.51-9.87	-8.931-5.99	-11.741-10.6	-8.961-9.98	-11.741-10.6	-9.891-9.49	-9.431-11.4	-10.921-12.32	-10.291-9.62	-9.791-8.75	-8.161-9.91	-10.111-10.39	-10.121-10.63	-11.311-10.16	-8.621-6.15	-10.111-9.73	-8.991-9.88	-11.611-9.17	-8.651-9.67	-5.891-4.46	-7.991-6.51	-6.091-8.82	-4.691-8.82	
Ch(120°)	-11.791-10.77	-9.341-10.32	-10.201-7.35	-7.461-10.58	-10.581-9.35	-10.211-8.67	-11.321-11.18	-9.81-12.85	-9.921-12.46	-11.411-9.43	-11.371-10.94	-12.971-10.28	-12.581-12.3	-11.481-9.25	-9.981-7.96	-12.071-9.35	-10.311-9.94	-11.521-10.53	-8.461-9.77	-7.881-8.85	-4.671-8.99	-6.881-11.94			
Ch(127.5°)	-12.591-11.03	-9.591-10.66	-10.571-8.96	-8.111-10.24	-9.891-10.28	-10.981-10.95	-11.421-12.63	-12.241-12.3	-12.151-12.53	-12.171-12.53	-12.521-10.61	-10.891-11.87	-10.961-11.91	-10.761-9.05	-8.881-11.96	-10.931-11.92	-9.751-9.39	-11.421-11.1	-10.961-10.53	-10.791-10.34	-9.281-9.08	-8.841-9.26	-9.081-10.49	-9.291-10.53	
Ch(135°)	-11.611-13.03	-12.541-12.62	-12.421-12.18	-10.311-11.28	-11.711-11.63	-11.971-12.5	-12.561-12.3	-12.421-12.28	-12.461-12.63	-12.051-12.43	-11.991-12.38	-11.211-9.99	-10.671-11.76	-12.581-12.51	-12.511-10.53	-11.291-12.23	-12.011-12.27	-11.071-10.53	-12.951-10.99	-11.721-10.35	-9.961-8.57	-12.241-11.66	-11.131-10.72		
Ch(142.5°)	-11.231-10.82	-11.461-11.09	-12.081-11.34	-10.281-11.38	-11.711-11.63	-12.361-11.89	-12.341-12.33	-12.231-12.42	-12.421-12.27	-12.641-12.08	-12.051-12.1	-12.731-12.32	-12.231-11.86	-11.841-11.25	-12.541-12.21	-11.621-12.76	-12.231-10.15	-11.861-12.61	-12.371-12.18	-11.611-1	-12.361-11.89	-11.721-11.84	-11.721-11.69	-10.991-8.88	
Ch(150°)	-11.371-10.5	-11.161-12.34	-12.081-12.73	-12.161-11.84	-10.321-11.94	-12.171-11.52	-12.331-12.51	-12.521-12.24	-12.721-12.75	-12.411-13.05	-12.41-12.42	-12.21-10.81	-11.781-12.7	-12.91-12.82	-12.851-11.98	-11.781-12.4	-12.011-12.03	-11.891-12.42	-12.951-9.49	-11.581-12.4	-11.691-12.57	-12.671-12.65	-12.141-10.44	-8.031-8.05	
Ch(157.5°)	-11.371-10.3	-11.161-12.34	-12.081-12.73	-12.161-11.84	-10.321-11.94	-12.171-11.52	-12.331-12.51	-12.521-12.24	-12.721-12.75	-12.411-13.05	-12.41-12.42	-12.21-10.81	-11.781-12.7	-12.91-12.82	-12.851-11.98	-11.781-12.4	-12.011-12.03	-11.891-12.42	-12.951-9.49	-11.581-12.4	-11.691-12.57	-12.671-12.65	-12.141-10.44	-8.031-8.05	
Ch(165°)	-11.871-11.88	-11.371-11.92	-12.321-12.62	-12.141-11.48	-11.891-12.4	-12.211-11.58	-12.081-12.57	-12.231-12	-12.601-12.6	-12.091-12.42	-11.821-12.44</														



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Radiated Composite Gain Data_Radio 3_5GHz and 6GHz

Appendix C

(H22.5)	5.915-48	5.114-56	4.94-61	3.930	2.911-9	0.930-71	2.991-125	0.971-26	1.932-23	3.093-75	3.810-75	3.80-75	3.713-89	4.374-71	4.510-85	2.951-18	0.19-03-3	-1.1-12-5	-3.8-6-8	-6.88-4-97	-2.79-0-45	1.753-72	5.226-0-4	6.368-25
(H37.5)	4.464-34	4.084-41	4.594-08	2.811-15	0.110-05	0.186-06	2.051-184	-0.771-0-3	0.051-65	3.344-22	4.140-73	3.272-87	2.132-26	2.893-48	3.823-28	2.060-79	4.531-168	2.45-9-24	-3.615-68	-6.88-9-65	4.28-3	-2.52-17	4.335-5	5.715-32
(H07.5)	2.212-31	2.623-41	3.70-91	1.3-18	-1.4-11-96	-3.24-12-2	-0.88-1-27	-0.831-36	2.950-06	2.712-1	1.25-14	-4.40-38	0.03-45	6.02-46	1.02-3-41	4.44-58-4	5.415-26	-5.53-6-85	-7.84-9-23	-7.79-3-32	-1.321-59	2.25-0-5	4.083-61	
(H42.5)	6.931-49	1.792-37	1.910-38	0.99-12	-2.0-13-54	3.34-3-99	3.16-2-29	-1.9-2-3	-2.49-0-88	0.619-38	1.471-9	0.78-12-3	-3.21-12-2	0.85-0-2	-0.71-1-01	-2.78-2-43	-1.1-11-24	-9.74-0-77	-8.97-43	-10.09-8-86	-6.61-5-15	-3.85-2	1.65-02-06	2.181-91
(H52.5)	4.559-48	0.932-72	0.80-1-78	4.47-12-7	-1.42-35-8	4.23-13-42	-4.2-13-42	-4.6-1-47	-3.671-2-83	-1.641-19	-1.13-19-49	-3.23-1-65	0.231-67	-2.95-3-37	-4.98-9-27	-1.1-11-13-88	-8.71-0-101	-13.21-13-36	-11.25-4-4	-6.99-6-3	-4.31-12-8	4.39-3-34	0.76-0-58	
(H67.5)	-1.94-1-77	0.62-0-32	-1.13-2-67	4.46-13-9	2.91-3-25	3.12-5-46	-3.72-0-48	4.72-3-29	5.33-5-1	-3.8-1-43	-5-3-35	-3.8-3-35	7.54-7-56	4.871-4-86	-6.49-7-38	-7.91-2-95	-18.53-18-98	-17.54-12-16	-18.03-18-33	-11.8-0-8	-8.18-5-26	-4.49-3-4	2.13-12-32	-0.98-0-14
(H87.5)	-2.95-1-27	-1.36-1-25	-2.78-3-39	-4.53-4-3	-3.5-5-26	-4.86-2-6	-3.01-4-9	5.78-4-01	-4.52-3-75	-1.78-2-66	-3.2-1-2	2.45-4-87	-8.42-1-65	-3.2-4-48	-6.93-7-57	-6.84-15-73	-16.59-15-69	-16.767-14-57	-19.1-17-47	-11.9-7-77	-10.79-6-5	-7-15-29	-4.24-2-35	-2.22-0-73
(H17.5)	4.22-0-35	2.31-2-32	4.21-5-53	5.26-6-68	5.09-6-62	6.12-7-47	4.215-76	5.14-15-46	-1.81-10-25	-3.12-0-21	-1.94-21-1	8.86-6-67	2.52-4-22	-4.95-9-1	7.81-15-45	-1.71-15-42	-17.38-14-34	-17.48-18-35	-11.9-11-85	-11.61-9-1	8.79-5-51	6.77-15-15	8.22-0-17	
(H82.5)	5.84-0-02	3.31-3-49	5.74-7-15	6.81-8-15	-7.02-16-16	8.17-18-2	5.847-29	7.51-5-24	5.68-2-32	3.541-48	4.29-5-66	3.78-4-9	8.02-3-59	2.84-6-49	8.93-9-73	8.86-11-35	-10.22-15-25	-16.74-15-54	-17.58-17-77	-12.58-15-16	-10.22-13-97	-12.49-7-56	7.51-4-16	-1.68-2-75
(H97.5)	7.24-0-3	6.22-5-36	6.39-6-69	8.16-11-18	8.46-14-14	-13.91-11-35	-7.69-9-79	8.29-6-77	8.46-7-78	5.81-6-64	6.36-8-78	5.65-6-52	-10.28-7-48	4.72-7-44	-11.91-11-38	-12.38-13-36	-18.42-16-53	-17.71-16-51	-18.21-16-08	-17.56-17-12	-16.47-16-17	-15.93-9-97	8.62-5-44	-3.22-5-5
(H12.5)	5.97-0-78	7.59-0-16	-11.63-7-50	-12.25-15-14	-18.11-14-60	-11.59-12-33	-12.32-10-29	8.71-9-75	7.22-9-15	9.83-11-72	-11.44-10-78	8.97-11-28	-12.45-13-18	-16.12-16-44	-18.59-18-12	-17.51-18-78	-18.81-18-69	-18.81-18-36	-18.28-19-19	-17.75-12-59	-11.59-71-11	-11.59-71-11	5.41-7-15	
(H107.5)	6.32-0-55	8.95-10-15	12.02-10-73	-16.31-15-61	-10.69-14-75	15.56-13-35	-15.35-18-16	-16.43-24	8.46-16-18	12.95-10-05	10.60-10-51	-11.41-10-32	-14.91-10-34	-10.021-0-28	-17.74-15-5	-16.84-15-95	-17.45-18-22	-18.55-18-22	-18.71-18-18	-17.91-18-15	-17.91-18-15	1.48-13-54	-1.69-13-54	
(H112.5)	11.82-16-98	-10.55-10-77	12.40-12-12	-17.51-15-62	-13.51-15-16	16.47-14-35	-12.49-16-78	-19.34-17-1	-15.75-17-14	-16.99-13-01	-13.63-12-83	-13.53-17-13	-18.06-18-39	-13.27-12-59	-16.89-15-99	-16.84-19	-16.57-16-88	-16.19-18-08	-18.99-17-17	-18.71-15-75	-17.77-12-58	-16.95-13-97	-13.48-13-10	-11.69-10-17
(H127.5)	-13.24-14-15	-12.24-12-12	-12.67-12-12	-17.51-15-62	-14.05-13-94	18.62-14-17	-17.27-12-58	-16.51-18-56	-17.47-18-1	-13.97-17-16	-14.48-17-16	-13.45-14-14	-16.24-18-72	-12.91-18-82	-16.99-18-09	-16.91-17-86	-18.75-18-15	-18.13-18-2	-18.41-16-51	-19.52-18-15	-16.95-12-36	-11.61-10-17	-11.61-10-17	
(H127.5)	-13.48-15-78	-13.53-15-22	-14.74-16-75	-18.21-19-78	-18.71-19-71	-15.55-18-85	-12.07-11-15	-13.12-17-4	-18.37-17-83	-18.61-15-11	-14.21-16-54	-17.82-17-87	-18.09-18-33	-14.59-18-08	-17.42-18-92	-18.66-16-16	-19.06-15-25	-17.79-16-45	-16.78-19-17	-17.52-15-14	-17.18-18-1	-15.75-16-15	-12.60-13-38	
(H137.5)	-14.07-15-95	-14.69-14-88	-16.49-14-88	-18.99-18-81	-18.68-18-33	-18.62-18-38	-18.35-18-53	-16.99-18-45	-16.59-17-84	-17.59-18-56	-18.74-18-03	-18.15-18-05	-18.15-18-07	-18.44-18-99	-18.11-18-26	-18.99-16-46	-18.64-17-77	-13.02-17-31	-17.48-18-57	-18.76-17-08	-18.62-13-43	-12.89-13-21		
(H142.5)	-15.18-15-12	-16.89-13-12	-12.39-12-54	-11.55-15-63	-18.42-17-77	-18.37-18-78	-17.73-18-21	-18.30-17-51	-18.48-17-92	-17.62-15-52	-17.53-18-73	-18.15-18-2	-18.18-18-46	-18.53-17-46	-16.84-18-99	-17.58-12-19	-17.54-16-18	-18.58-17-11	-12.96-18-3	-19.01-17-88	-17.71-18-29	-18.61-17-24	-16.15-12-71	
(H157.5)	-15.18-16-13	-18.01-18-87	-16.85-16-86	-15.81-6-17	-14.46-14-19	-18.47-18-59	-17.83-18-16	-14.96-14-78	-16.59-14-72	-17.77-18-54	-16.30-16-16	-17.25-16-46	-17.50-18-13	-17.91-18-11	-17.30-18-55	-16.24-18-52	-19.31-17-88	-19.18-17-38	-17.26-18-49	-12.57-11-45	-15.98-18-01	-18.03-15-16	-15.18-15-91	-14.71-14-71
(H157.5)	-15.04-14-48	-14.63-14-29	-12.57-12-12	-14.32-18-61	-18.35-16-08	-17.23-17-14	-16.02-17-67	-18.86-18-24	-17.82-17-81	-18.48-19-12	-18.37-17-37	-19.09-15-17	-17.18-18-45	-18.79-18-11	-17.33-18-51	-17.88-13-37	-17.1-18-63	-18.54-18-77	-18.86-18-04	-16.52-16-08	-19.01-18-58	-19.11-77-5	-19.28-15-35	-17.95-17-61
(H167.5)	-16.28-15-05	-16.02-15-12	-16.85-18-38	-16.28-15-66	-15.00-13-40	-18.31-14-31	-15.48-18-86	-17.62-18-16	-18.07-18-11	-18.06-17-17	-17.44-16-61	-18.91-17-59	-17.50-18-28	-18.79-12-16	-18.31-19-05	-15.85-16-86	-17.02-17-69	-17.54-19-04	-18.51-17-72	-18.19-17-85	-19.28-18-18	-17.90-17-13	-14.47-18-72	-16.75-17-69
(H172.5)	-17.61-16-11	-18.21-16-15	-19.21-16-19	-18.69-12-93	-17.77-16-13	-16.15-15-53	-16.05-14-16	-18.04-18-86	-18.75-18-49	-18.16-18-2	-17.18-17-17	-19.04-19-15	-17.59-18-18	-18.45-17-18	-18.23-18-38	-18.84-18-42	-17.71-18-11	-17.91-18-35	-18.09-15-10	-17.89-13-97	-17.93-18-29	-16.86-17-99	-17.99-17-18	-16.57-17-79
(H182.5)	-18.12-17-16	-17.18-18-76	-18.73-18-76	-17.62-17-52	-16.25-16-57	-18.61-17-96	-17.19-13-39	-18.76-17-86	-17.84-19-23	-18.22-18-96	-18.33-18-13	-18.15-18-35	-18.67-18-18	-18.79-18-56	-18.17-17-44	-18.44-18-13	-18.71-18-34	-17.93-18-94	-17.82-19-01	-17.64-17-17	-17.60-17-14	-17.89-18-49	-17.84-18-43	
Freq(Hz)	5.8850-PhetA1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	ThetA=1	
Gain	0.907(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	0.915(0.907.5)	
(H7.5)	1.21-34	2.032-5	3.015-7	3.814-18	4.584-73	4.975-26	5.295-23	5.224-92	4.524-91	3.472-35	2.21-58	1.30-14	1.571-84	2.292-92	3.624-42	5.065-49	5.885-74	5.655-23	4.814-47	3.917-42	2.852-39	21-88	1.581-33	
(H17.5)	2.215-87	3.424-21	4.755-59	5.728-63	6.618-63	6.796-56	6.551-61	4.994-24	3.993-33	2.812-42	2.061-92	1.801-81	1.971-82	1.842-95	2.493-93	3.774-48	5.225-68	6.006-74	6.226-74	5.847-67	4.983-59	2.852-23	1.581-33	
(H27.5)	2.893-32	4.098-64	5.298-78	6.26-21	6.971-1	7.432-92	7.917-44	7.339-14	5.639-32	3.983-32	2.922-46	2.081-86	1.721-46	1.581-72	1.723-58	2.694-35	4.694-57	6.071-77	7.240-72	8.019-53	6.835-44	4.471-47	2.322-35	
(H37.5)	1.91-56	3.144-07	5.08-1	6.748-91	6.616-67	7.117-7	7.917-72	6.955-67	4.720-78	2.882-16	1.440-51	0.210-75	-1.26-1-92	-2.24-13-92	-2.53-0-45	-1.34-21-1	5.913-49	5.474-79	4.994-44	4.534-42	4.324-27	2.741-78	1.605-59	
(H47.5)	0.940-81	1.032-6	1.455-46	2.248-19	6.546-16	6.438-82	6.817-1	5.984-72	4.224-34	2.242-32	0.370-79	-1.55-2-97	-4.59-5-87	-5.79-3-48	-1.46-0-08	3.977-46	1.381-17	1.11-53	2.313	3.172-75	2.161-94	1.717-14	0.822-59	
(H57.5)	-1.87-13	1.192-16	3.320-96	3.482-67	3.194-12	4.524-67	4.84-2	3.980-48	-0.071-122	3.390-13	1.170-44	0.651-8-36	-3.98-7-31	5.62-44	-10.86-15-53	-8.69-4-27	2.51-1-82	8.93-16-16	-2.71-21-28	-2.11-43	-0.79-14-4	-0.96-3-14	0.973-0-94	
(H67.5)	-7.53-5-65	-1.70-29	0.526-1-23	-1.63-2-74	-2.59-1-3	-0.57-0-78	1.81-17	1.590-48	-0.21-1-32	3.698-66	-10.16-3-1	-7.58-4-12	-5.99-1-86	-11.33-6-54	-5.16-2-58	1.44-14-38	-3.163-81	-5.24-8-42	-4.65-6-21	-6.69-6-3	-4.22-12-4	-0.73-1-47	-0.47-0-68	
(H82.5)	-4.74-1-87	6.41-0-17	8.477-33	6.470-132	-7.77-43	5.96-53-3	-1.913-0-94	-4.05-4-77	-3.53-3-32	-1.71-17	-6.43-3-82	5.53-4-46	4.99-54	-17.79-16-92	-16.56-18-98	-10.78-9-17	-0.09-8-79	-14.82-0-37	-8.49-10-02	-12.92-17-13	-12.89-18-36	7.125-5-54	4.673-4-63	
(H97.5)	0.28-0-02	5.61-0-04	-13.82-18-54	-16.97-19-29	-10.57-0-18	-11.96-1-53	-14.93-10-05	9.77-10-13	-6.2-0-48	-5.79-8-83	-0.09-3-36	-2.952-0-28	-5.423-5-94	-18.79-11-65	-7.28-8-48	-3.31-6-58	-10.55-18-68	-14.27-17-04	-14.42-12-03	-9.34-11-49	-11.61-11-62	-12.78-8-68	-10.28-6-29	-5.67-8-44
(H107.5)	-12.93-6-48	-6.39-9-73	-16.21-18-36	-16.64-13-19	-7.55-10-48	-17.24-14-17	-15.52-8-64	-6.85-11-77	-6.06-43-3	-7.55-11-14	6.81-24-4	4.614-13-4	6.51-14-24	-10.57-18-96	-5.34-7-12	-3.94-7-12	4.49-17-27	5.21-5-46	6.28-5-97	4.71-5-46	-1.74-6-35	6.63-4-4	-1.31-8-12	4.44-11-48
(H117.5)	-14.34-6-13	-8.71-12-27	-16.81-15-73	-14.64-10-47	-17.04-14-54	-17.56-10-58	-11.4-6-83	-7.19-17-45	-8.78-16-23	-8.78-16-23	6.719-23-9	-3.88-16-55	-13.87-16-6	-6.89-14-47	-5.1-14-44									



Radiated Composite Gain Data_Radio 3_5GHz and 6GHz

Appendix C

(H17)	4.44-1.87	2.66-2.07	-1.46-3.42	-4.86-1.49	-7.5-12.01	-13.54-14.29	-6.78-6.88	-3.85-3.04	2.42-3.56	-2.76-4.49	-4.07-8.4	4.45-17.3	-4.58-5.83	-7.53-7.29	-13.39-11.42	-10.48-15.83	-14.99-17.87	-17.14-10.45	-5.65-7.21	-4.05-5.17	-5.14-7.08	-4.87-7.03	4.29-6.65	-5.95-6.82
(H82)	5.23-6.22	3.69-3.97	3.19-3.46	-7.78-7.71	-10.59-14.46	-10.51-10.77	4.23-14.4	-3.81-13.5	3.36-4.42	-3.9-4.7	5.19-5.68	5.14-6.65	-3.81-4.95	-6.51-6.12	-16.71-12.52	-12.21-14.47	-12.74-12.83	-11.61-11.4	-6.23-6.18	-3.92-4.09	-5.63-6.22	6.66-6.97	6.39-6.49	-4.76-6.77
(H83)	4.68-6.88	4.47-5.62	5.36-7.95	5.93-11.01	-12.3-18.37	-10.43-10.23	-7.29-6.43	-4.97-4.81	-4.97-4.49	-3.96-5.55	-5.55-7.56	6.26-10.11	6.95-6.47	-8.09-9.29	-12.04-15.45	-13.86-15.63	-12.75-16.83	-14.56-13.73	-7.88-11.43	-5.81-6.51	-6.67-6.95	-9.39-12.17	-13.21-8.78	-4.51-7.8
(H87)	-7.88-5.47	-4.81-5.81	8.16-8.61	-12.14-14	-13.95-17.01	-13.31-12.36	8.51-8.42	-8.11-8.39	6.75-5.66	6.34-6.22	7.38-8.89	-12.52-8.45	8.91-8.81	8.51-14.86	-13.98-17.88	-17.58-14.98	-18.17-18.91	-17.67-16.66	-9.93-11.94	8.05-6.55	-10.22-10.38	-12.81-14.52	-14.89-10.38	-7.29-7.57
(H105)	-8.51-7.85	-7.23-10.05	-10.71-10.81	-14.58-17.3	-14.64-18.68	-14.59-14.41	-8.48-8.31	8.53-12.74	-8.58-6.18	6.14-5.56	7.61-5.41	-11.57-11.83	-10.31-18.27	-13.17-17.88	-17.22-15.76	-18.36-18.68	-18.54-13.94	-11.93-10.94	-9.49-11.03	-11.78-12.88	-10.33-18.59	-16.95-13.19	-15.58-15.89	-15.81-15.89
(H125)	-11.88-12.72	8.27-11.78	-12.22-12.22	-16.04-17.52	-16.07-16.95	-18.85-18.95	-11.37-8.4	-12.1-16.29	-14.06-9.85	-10.18-10.82	-14.47-11.38	-13.23-11.83	-15.51-18.11	-18.06-18.34	-18.44-19.36	-18.92-17.88	-18.02-17.88	-14.25-9.42	9.99-18.41	-14.26-14.95	-18.14-17.55	-16.19-14.05	-12.81-10.48	-12.81-10.48
(H129)	-14.32-12.5	-10.62-12.2	-11.94-12.31	-18.91-18.51	-17.89-17.59	-17.03-17.94	-14.46-12.06	-11.2-12.07	-18.13-15.73	-18.45-12.95	-18.48-12.25	-13.78-17.37	-18.84-14.06	-14.15-17.17	-18.64-18.34	-18.97-17.67	-17.94-14.51	-18.92-18.7	-12.99-12.02	-12.63-18.35	-17.25-17.76	-18.64-18.32	-16.21-17.67	-16.21-17.67
(H129)	-12.89-12.27	-13.84-14.35	-18.89-14.44	-17.94-18.25	-17.73-18.53	-18.31-18.71	-18.99-17.74	-11.92-12.73	-18.01-17.79	-13.99-14.84	-15.34-16.98	-13.17-14.24	-18.02-17.36	-14.63-16.82	-17.14-18.52	-19.23-16.57	-18.35-15.02	-17.46-17.1	-11.88-11.94	-13.61-17.87	-18.01-17.35	-14.23-18.35	-13.31-17.69	-17.89-18.96
(H13)	-16.25-14.81	-18.23-14.81	-17.32-17.29	-18.84-17.17	-18.72-17.55	-17.29-15.84	-18.99-17.74	-17.82-17.55	-17.42-18.66	-18.95-17.02	-18.49-16.52	-12.8-13.16	-18.07-18.29	-18.88-15.51	-17.58-18.04	-18.61-18.82	-18.46-17.68	-17.58-18.64	-18.53-17.54	-18.2-18.65	-17.84-15.22	-15.07-16.46	-17.86-15.99	-17.81-15.89
(H142)	-18.61-18.67	-18.42-15.55	-14.98-13.87	-15.59-14.42	-15.32-18.83	-15.62-14.94	-17.19-17.87	-18.99-16.75	-18.93-16.26	-17.15-18.72	-18.43-18.64	-18.07-18.43	-18.71-18.06	-18.07-18.48	-18.93-18.46	-18.93-18	-18.13-19.14	-17.78-17.57	-18.69-18.68	-17.25-18.86	-19.08-18.83	-17.83-18.34	-15.04-18.14	-16.07-17.4
(H157)	-18.59-18.39	-18.69-18.52	-18.78-17.92	-17.71-16	-15.01-18.18	-17.82-18.16	-17.59-17.73	-18.99-15.15	-14.82-18.44	-18.95-17.47	-18.93-15.25	-15.84-17.53	-17.91-18.34	-18.69-18.31	-18.93-18.42	-18.78-18.49	-17.91-17.25	-18.41-17.52	-18.79-18.22	-18.91-17.98	-17.58-17.92	-18.39-18.47	-18.51-18.47	-18.52-17.93
(H157)	-18.98-18.91	-17.92-17.42	-15.95-19.05	-18.21-17.7	-18.54-19.05	-17.44-17.77	-18.88-18.13	-18.96-19	-18.73-17.71	-18.64-19.05	-15.94-17.53	-18.91-18.34	-18.93-18.34	-18.93-18.34	-18.93-18.34	-18.93-18.34	-18.93-18.34	-18.93-18.34	-18.93-18.34	-18.93-18.34	-18.93-18.34	-18.93-18.34	-18.93-18.34	-18.93-18.34
(H157)	-17.78-18.1	-18.93-18.65	-18.78-18.32	-18.24-19.98	-17.93-17.44	-16.52-18.86	-15.19-18.24	-17.71-18.01	-18.53-18.11	-18.41-18.65	-18.31-18.86	-18.19-18.91	-17.76-18.68	-17.52-18.96	-18.82-17.75	-18.61-18.95	-18.98-18.68	-18.78-18.16	-18.21-18.91	-18.86-17.87	-17.97-18.84	-18.42-18.31	-18.49-17.51	-17.67-17.81
(H172)	-17.29-17.77	-18.59-17.93	-18.31-19.15	-19.11-18.96	-19.06-18.27	-18.96-17.95	-18.28-17.71	-17.93-18.66	-17.97-17.86	-17.33-18.15	-19.36-18.85	-18.67-17.97	-18.39-18.47	-17.76-17.92	-18.11-18.4	-19.55-19.81	-17.31-18.27	-17.11-18.21	-18.29-17.82	-17.23-17.31	-17.91-18.15	-18.68-17	-17.51-18.14	-17.67-17.13
(H182)	-18.64-17.18	-18.71-18.87	-18.08-17.57	-18.4-18.15	-17.73-18.82	-19.08-18.98	-18.65-17.19	-18.76-18.22	-18.86-17.19	-18.18-18.75	-17.85-17.27	-17.76-17.78	-17.82-17.68	-18.84-18.13	-17.22-17.14	-18.12-17.58	-18.92-16.51	-17.74-18.5	-18.12-18.2	-17.94-17.61	-17.27-18.97	-18.86-17.52	-18.32-18.85	-18.38-18.61
FreeNo1	6.4752Phi	ThetaNo1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	Φ170°(Φ17)	Φ180°(Φ22)	Φ190°(Φ37)	Φ40°(Φ52)	Φ45°(Φ67)	Φ50°(Φ82)	Φ55°(Φ97)	Φ60°(Φ112)	Φ65°(Φ127)	Φ70°(Φ142)	Φ75°(Φ157)	Φ80°(Φ172)	Φ85°(Φ187)	Φ90°(Φ202)	Φ95°(Φ217)	Φ100°(Φ232)	Φ105°(Φ247)	Φ110°(Φ262)	Φ115°(Φ277)	Φ120°(Φ292)	Φ125°(Φ307)	Φ130°(Φ322)	Φ135°(Φ337)	Φ140°(Φ352)
(H1)	-2.36-2.25	-1.26-1.1	1.65-1.7	4.435-32	6.286-78	7.267-75	7.958-11	7.957-79	7.447	6.253	4.240-12	1.52-31	-1.891-79	-0.61-19	2.52-34	7.077-53	7.87-97	8.027-91	7.677-36	7.077-53	6.86-14	5.334-29	2.931-34	-4.40-29
(H17)	-2.26-1.11	0.55-2.23	3.835-32	6.247-22	7.878-4	8.789-8	8.888-76	8.518-02	7.285-53	5.524-33	2.841-01	-1.143-59	-5.19-102	-3.26-134	0.912-53	3.874-99	5.898-64	7.197-49	7.657-7	7.597-26	8.632-22	5.444-46	3.091-45	-0.31-43
(H15)	-0.57-0.83	-0.34-1.16	4.065-31	6.517-38	7.988-53	8.839-04	8.878-79	8.778-36	7.778-36	5.874-47	-1.251-55	-5.2-53	-10.13-35	-1.26-77	2.483-77	6.718-63	7.438-47	6.748-47	6.335-48	5.444-46	3.091-45	-0.31-43	-0.31-43	-0.31-43
(H22)	-4.874-4.88	-1.54-1.12	3.064-74	5.958-69	7.582-4	8.688-68	8.438-07	7.827-43	6.835-99	4.682-43	-0.39-13	-1.402-103	-13.07-111	-9.21-213	-4.871-281	8.620-93	2.212-82	2.892-84	3.243-95	4.404-58	4.303-9	3.212-33	1.12-39	-2.214-57
(H7)	-7.521	-2.018-02	1.42-88	4.548-18	6.647-19	7.37-35	7.198-83	6.375-67	4.74-01	3.051-42	6.11-204	-18.42-17.39	-13.12-67	-2.58-95	0.72-62	0.881-26	1.24-32	1.392-31	3.042-34	1.590-66	1.301-33	-3.821-63	-3.821-63	-3.821-63
(H37)	-8.84-821	-4.64-164	0.151-42	2.844-26	4.935-2	4.985-26	5.945-76	5.284-26	3.330-54	2.931-58	3.26-46	6.11-131	-14.88-113	-7.86-339	0.27-65	0.72-89	0.085-78	1.071-26	1.471-34	1.050-42	-0.99-25	5.116-79	-2.42-161	6.517-73
(H13)	-18.32-16.36	-11.4-96	-1.220	8.672-2	2.852-35	2.222-86	3.585-22	2.562-15	1.941-25	1.1-51	3.58-62	4.58-67	-11.68-621	-6.48-478	-0.69-23	2.36-334	2.56-19	1.471-25	1.050-42	-0.99-25	5.116-79	-2.42-161	6.517-73	-2.42-161
(H52)	-17.84-18.1	-13.59-17	-4.227-237	-3.792-78	-1.96-181	6.59-53	6.21-103	-4.89-155	1.52-672	1.25-233	3.95-848	6.21-637	-7.44-432	-3.47-251	-11.8-21	5.2-561	6.29-533	4.515-448	-3.93-84	-3.76-131	-4.41-228	-17.48-131	-18.19-14	-16.70-173
(H159)	-13.85-18.39	-18.69-18.54	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61	-18.09-18.61
(H157)	-11.35-17.48	-18.27-17.14	13.59-18.9	-13.48-14.71	-11.82-18.59	-4.59-43	-3.33-49	8.89-47	4.3-745	4.48-442	5.25-227	4.69-1879	8.47-63	8.15-8	9.88-65	9.88-1341	-12.48-1632	-17.35-1874	-12.24-51	4.4-443	6.4-731	8.11-831	11.11-973	8.867-183
(H15)	9.89-15.38	-17.21-13.46	-18.99-18.64	-7.04-584	-10.3-432	-7.22-604	-7.78-603	-12.86-10.56	8.88-153	-14.70-736	5.58-423	-4.47-935	-10.71-156	-18.38-123	-17.27-181	-18.94-142	-19.10-182	-11.65-15	5.02-433	-7.13-4	7.26-497	6.32-104	4.75-651	4.75-651
(H82)	-2.37-17.88	-12.89-12.01	-6.527-455	4.25-10.89	8.957-17	8.771-15	-10.89-18.35	-18.69-18.75	-17.27-10.74	9.17-644	7.43-1262	-15.42-102	-16.88-132	-17.94-171	-17.76-1837	-14.71-18.98	-19.23-18.74	-17.21-63	6.92-229	-4.44-668	8.78-547	7.48-1077	5.51-841	5.51-841
(H17)	-11.57-19.16	-10.25-11.87	-11.38-657	-5.75-6.88	-17.93-12.08	-18.03-9.46	-10.41-145	-18.13-17.94	-17.93-18.41	-17.99-13.02	-14.02-622	-7.67-124	-17.14-187	-17.31-193	-18.18-15	-18.94-173	-15.63-1845	-15.47-1522	-15.58-84	8.98-106	-13.79-113	8.52-596	9.33-189	-7.06-504
(H87)	-11.51-17.84	-11.07-12.88	-12.38-10.67	-7.42-13.17	-12.03-12.78	-11.21-11.36	-18.07-18.16	-18.94-18.16	-18.69-14.49	-18.26-11.18	-14.68-15.84	-16.11-18.38	-12.92-18.79	-18.71-18.15	-18.34-19.54	-14.69-18.5	-18.91-447	-17.33-1532	-18.71-16.54	-15.07-18.42	-17.14-18.41	-14.73-114	-10.88-18	-10.88-18
(H87)	-18.64-18.56	-14.09-14.73	-13.95-11.34	9.21-67	8.76-1292	-16.02-12.32	-18.3-18.96	-18.27-18.16	-18.21-17.71	-14.58-15.64	-16.62-1524	-18.61-14.64	-16.52-18.67	-18.71-18.4	-18.74-15.81	-18.71-47	-18.95-137	-18.93-145	-15.42-18.04	-18.99-11.04	-11.08-133	8.65-648	8.65-648	8.65-648
(H125)	-18.19-18.91	-16.41-18.98	-15.18-14.08	-11.38-13.51	-13.37-17.32	-16.52-17.95	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03	-18.31-19.03
(H125)	-17.71-15.74	-17.95-17.41	-18.02-15.42	-13.47-17.11	-11.74-13.68	-15.29-16.78	-18.08-18.27	-18.67-15.74	-17.93-18.91	-18.67-18.55	-17.98-19.15	-17.93-18.4	-18.15-18.27	-18.25-18.91	-19.3-18.6	-17.43-18.7	-17.27-14.4	-18.72-17.7	-18.57-17.72	-15.39-18.65	-14.93-18.44	-16.68-17.19	-11.26-12.44	-11.26-12.44
(H127)	-11.18-18.42	-18.18-18.39	-18.91-18.03	-18.45-14.74	-12.84-14.83	-1																		

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Radiated Composite Gain Data_Radio 3_5GHz and 6GHz

Appendix C

(H10)	7.00711	7.10708	6.84858	6.254	4.4803	1.88027	-1.820336	-2.880487	12.48	3.53436	5.04538	5.62589	5.62535	4.52523	4.81413	3.22217	0.84043	-1.820246	-2.580163	0.122202	3.58847	5.72628	6.62679	6.82078
(H21)	6.8453	6.68623	5.83548	4.844	3.09198	0.49148	-4.460488	-0.011532	0.77234	3.34391	4.39462	4.50438	4.2541	4.078	3.23242	1.49032	-1.08024	-3.33416	-4.34316	-0.89152	3.51558	6.07652	6.6653	6.4964
(H01)	5.55542	5.23483	4.39371	2.65186	1.34062	-0.9431	-5.666496	6.21442	-1.89035	2.04309	3.57073	3.69052	3.44327	2.62188	0.780448	-2.13443	4.430402	-10.040136	-8.24045	-1.18137	3.3474	5.87644	6.51646	6.44513
(H37)	2.48018	2.40228	2.27136	1.33057	-0.59136	-3.320541	-7.840426	-8.316124	-3.551314	-0.647024	2.26166	0.590422	-0.420475	-0.41139	2.360451	6.91836	-10.271352	-13.712448	-9.66523	-1.79054	2.16934	4.52623	5.44517	4.73425
(H45)	1.30111	0.35002	0.27153	1.05426	-2.43147	-6.25093	-1.560487	-0.795433	3.10606	1.160504	1.229165	-4.380426	-3.951439	-4.848084	-6.941162	-6.350188	-10.501421	-13.48053	-4.811379	0.350167	2.86037	3.87034	3.01245	
(H52)	0.27016	0.32054	0.16011	-0.545125	-4.59498	-17.771864	-16.121154	-6.82134	-1.64324	-5.653382	-2.51432	4.630434	0.380402	-13.361607	-15.95145	-12.971034	-10.881432	-16.081877	-17.611636	8.231357	-13.20145	0.3016	0.89813	0.6209
(H60)	-4.91286	-2.73151	-2.12129	-5.457183	-8.950156	-16.371041	-8.94125	-6.690389	-1.540344	-8.26049	-6.461746	-7.611738	-6.734555	-13.321473	-13.011283	-13.911125	-1217839	-4.991131	-12131281	-17530483	-430247	6.78053	-5.07131	-5.89445
(H67)	-14.29102	-7.15503	-4.451783	-13.42133	-12.121109	-7.65567	-8.970556	-12.591222	-1.340534	-12.651153	-11.891352	-12.151818	-7.424979	-8.094642	-8.260487	-10.211173	-15.611699	-5.311443	-7.230402	-15.521886	-11.491261	-18.801336	-15.841856	-19.701802
(H75)	-10.25138	-12.01937	-7.671578	-16.091342	-11.35048	-6.450572	-6.691605	-15.031282	-5.73484	-14.411402	-14.211758	-16.8613	-6.58078	-8.02033	-10.02064	-8.86102	-14.36173	-5.170687	-7.64077	-10.001818	-17.291881	-17.691131	-17.651135	-4.391806
(H82)	-15.41138	-15.461142	-16.861461	-15.841032	-11.151858	-7.860537	-7.520139	-17.015137	-8.851105	-17.81155	-17.96173	-14.481338	0.780425	-10.321281	-6.93047	-16.281015	-12.81914	-1.640425	-8.66076	-9.341686	-16.951826	-15.67045	-12.92012	-17.4458
(H89)	-14.261875	-16.781638	-1401848	-18.561428	-10.571087	-10.59128	-10.59128	-12.2211108	-17.320188	-16.541187	-14.151108	-8.850488	-16.401765	-16.401765	-11.161407	-11.791585	-8.811556	-8.811556	-16.921624	-16.921624	-15.901893	-11.59137	-8.85048	
(H97)	-15.481931	-15.291935	-16.181845	-16.861868	-12.01846	-12.12836	-14.041357	-16.581614	-14.541586	-16.211713	-17.581868	-15.261447	-11.891337	-17.051558	-11.651117	-13.921955	-16.961884	-15.961408	-17.211421	-13.031939	-16.841472	-15.96143	-12.911603	
(H104)	-17.481849	-17.861814	-16.961732	-16.331787	-12.86049	-10.951197	-11.131921	-17.791747	-18.621511	-18.44183	-18.671485	-17.581915	-18.061989	-16.80191	-11.15133	-14.841855	-17.831846	-15.591594	-16.41459	-14.521856	-17.791835	-19.221814	-14.13123	-12.311548
(H112)	-18.24162	-19.411174	-19.31178	-18.471883	-18.611232	-14.081771	-12.541968	-18.851743	-17.911824	-18.681873	-17.721859	-18.651748	-18.631748	-18.601454	-18.601454	-15.951719	-15.96178	-16.10176	-17.421837	-15.071339	-17.811731	-12.791835	-15.531933	
(H119)	-18.861835	-18.06191	-18.18177	-17.691719	-18.641545	-16.611859	-14.621838	-18.451879	-18.891181	-17.451865	-16.721849	-18.721829	-18.671824	-17.221877	-17.801834	-16.611809	-17.318017	-18.261848	-18.081878	-16.861858	-17.151704	-18.051887	-18.431813	-18.901935
(H127)	-17.761931	-17.891782	-18.631757	-18.391884	-18.291847	-17.621915	-18.511784	-17.881881	-17.851878	-18.211829	-16.101844	-18.741846	-19.21807	-19.241702	-18.421807	-16.951884	-18.491785	-18.471854	-18.841879	-17.421834	-17.431757	-17.971872	-14.681827	-18.801888
(H135)	-18.811803	-18.011906	-18.061884	-18.061884	-18.011765	-18.051869	-18.071924	-18.6418	-19.36183	-18.321884	-18.481788	-19.211854	-18.831816	-18.801809	-18.131838	-15.421822	-17.241757	-17.8417	-13.81187	-18.011786	-18.83185	-16.49184	-18.011884	-17.371875
(H142)	-17.861814	-18.021906	-17.821827	-15.611437	-16.51186	-13.86186	-19.291806	-17.841757	-18.36188	-18.101885	-19.341757	-18.16188	-19.121852	-18.231488	-17.791858	-18.681755	-18.241841	-18.831809	-18.031783	-18.361872	-17.371868	-17.911882	-15.021897	
(H150)	-17.831823	-17.451817	-17.841731	-18.911837	-18.021176	-17.741813	-17.711914	-18.461787	-18.021884	-18.181885	-18.241808	-17.471861	-18.581889	-18.051868	-17.881854	-17.851856	-19.221877	-17.94187	-17.38187	-18.011786	-18.83185	-16.49184	-18.011884	-17.371875
(H157)	-18.081832	-18.291855	-18.211778	-18.361787	-19.141853	-18.661841	-17.791901	-19.181829	-18.781904	-18.681872	-17.481862	-17.121817	-17.591887	-17.691888	-17.691888	-18.711812	-19.071801	-17.291734	-17.881758	-19.181872	-17.751874	-17.751874	-18.021846	
(H165)	-17.731885	-19.241781	-17.031715	-17.911927	-18.751818	-18.761811	-17.851928	-18.061872	-18.051912	-17.881732	-17.751818	-18.7118	-18.7118	-18.7118	-18.7118	-15.781812	-17.761802	-18.731791	-17.341742	-16.17183	-17.781874	-18.64184	-18.6418	
(H172)	-18.561837	-17.851872	-18.261818	-18.511884	-18.901826	-18.691843	-18.361817	-18.341757	-18.551824	-18.911788	-18.711801	-18.1118	-18.061806	-18.581891	-18.411883	-17.771533	-18.221803	-18.551816	-18.231762	-17.811777	-18.081805	-18.41822	-18.77184	-18.6918
(H179)	-17.321839	-18.02182	-18.481876	-19.161884	-19.021801	-18.321917	-18.711784	-18.991845	-18.211884	-18.291886	-18.111807	-18.371886	-18.851842	-18.211794	-19.291838	-17.761933	-18.421882	-17.881819	-18.081862	-17.741883	-18.711893	-17.501815	-18.481879	-17.81833
Freq(Hz)	6.47595Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi	Phi
Gain	0.007190715	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725	0.0152725
(H186)	1.191624	1.320178	0.012	7.35056	5.571	2.814873	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953	9.39953
(H193)	1.230486	1.486077	0.86527	4.1543	8.40733	7.98653	8.93814	9.18807	8.88841	9.18807	9.18807	9.18807	9.18807	9.18807	9.18807	9.18807	9.18807	9.18807	9.18807	9.18807	9.18807	9.18807	9.18807	9.18807
(H201)	1.159189	-1.84061	0.86234	3.92519	6.16677	7.2758	6.8381	8.20614	7.9751	6.95617	5.03052	1.46135	-4.69415	-11.195651	-13.015	3.6513	5.29715	7.6862	8.96881	8.64587	8.3474	7.24817	5.98055	5.9005
(H22)	0.50008	1.74028	0.36026	5.07686	6.1877	6.87656	6.57647	6.15054	6.186	6.15054	6.186	6.15054	6.186	6.15054	6.186	6.15054	6.186	6.15054	6.186	6.15054	6.186	6.15054	6.186	6.15054
(H23)	0.360102	2.31029	3.99424	4.77537	5.80537	5.3763	5.426548	5.93477	3.480	1.1408	0.26116	-3.75487	8.940127	-12.93455	-6.11724	4.42046	2.2104	3.7447	5.21566	5.7647	5.33644	5.41444	5.37036	-9.6402
(H27)	-0.881087	-0.881087	2.24038	3.61034	3.67037	3.23033	3.54019	3.80232	1.041122	-2.260122	-4.360122	3.31419	-7.68486	-6.84412	-5.210332	-3.252722	1.65026	1.93243	3.02281	3.8278	2.49294	3.02744	4.83347	4.030481
(H34)	-3.740349	-1.86018	1.63248	2.8927	1.9103	0.51045	0.79519	1.58088	-1.071325	-4.839165	-6.860125	-12.241358	-13.420476	-7.021572	-6.871441	-4.790533	-6.020448	0.367139	1.27143	2.170246	2.47022	1.226135	2.440335	-3.873345
(H52)	0.540876	-3.280467	0.15034	0.68029	-1.71248	2.91935	-4.43322	-2.2131	-5.01614	-7.179887	-10.460138	-12.470138	-12.470138	-10.460138	-10.460138	-8.45184	-4.680803	-0.070152	-0.290148	0.290148	0.290148	0.290148	0.290148	0.290148
(H60)	-0.440373	-8.1551	-3.741425	-3.57127	-3.940418	6.498476	6.49847	-5.457181	-10.59594	-12.16144	-13.640187	-9.95157	-16.091138	-7.931011	-11.291846	-12.111876	-13.3017	4.37437	-5.78139	-4.211351	-4.84458	-4.36041	-4.460115	-11.41824
(H67)	-1.020754	-6.96159	-4.381521	-4.502142	-3.680418	6.65858	7.29048	6.201704	-10.211125	-11.471784	-16.16181	-14.911869	-14.770182	-17.96092	-6.330453	-8.931789	-14.761929	-6.910713	-7.530737	-7.720132	-5.37018	-5.718178	-13.21181	-11.41824
(H75)	-10.091632	6.53436	2.96037	-4.171469	-4.741668	6.311904	6.181616	-11.071444	-12.531235	-13.170142	-18.271571	-13.641723	-11.08703	-7.441787	-6.041848	-7.980159	-13.4114	-4.060524	6.1616	4.370132	6.598462	-1.480147	-13.82180	-6.89831
(H82)	-11.771636	6.791616	3.456129	-4.346149	-6.891496	7.271194	-10.53155	-8.871808	-13.29187	-12.04151	-17.78188	-17.811867	-15.081161	-8.571008	-12.061158	-12.021558	-13.431232	-7.97447	-6.34137	-4.011483	-1.481891	-10.421418	-16.641841	-15.82180
(H89)	-12.461876	-6.891793	6.1938	-3.93155	-11.44613	0.030184	-11.41038	-12.211817	-14.24159	-11.141842	-17.751758	-19.251759	-11.181006	0.917822	-13.461313	-13.411847	-18.811511	-10.54149	-5.68741	-4.611443	-5.681482	-131706	-18.81183	-13.931813
(H97)	-11.861818	-7.961804	6.821422	-7.397152	-14.79212	-13.021329	-13.370104	-15.741423	-13.															



Radiated Composite Gain Data_Radio 3_5GHz and 6GHz

Appendix C

(H87.5)	6.92-6.02	-2.67-0.42	-0.63-0.14	-1.57-0.36	-6.02-3	-2.12-0.85	-2.67-2.71	-2.90-3	-8.26-4.38	-5.34-4.27	-5.97-3.67	-4.07-4.19	-5.61-5.81	-5.86-7.33	-6.74-4.87	-4.91-6.73	-6.02-4.08	-10.16-9.23	-6.69-13.07	-10.97-14.17	-13.69-12.24	-6.74-11.57	-12.89-12.42	-8.25-9.85
(H75)	-16.29-12.93	-8.29-4.62	-5.07-3.78	-2.33-38	-5.46-4.87	-2.96-3.72	-3.91-5.15	-4.76-6.28	-8.19-11.94	-11.11-12.41	-8.61-9.03	-6.53-6.84	-6.47-6.88	-8.99-9.91	-10.44-14.88	-5.07-3.48	-6.02-3.73	-6.34-6.03	-6.44-13	-9.84-8.99	-11.02-16.94	-11.68-11.17	-12.62-18.34	-15.52-14.88
(H82.5)	-17.77-16.26	-13.2-9.39	-12.02-9.43	-4.63-4.54	-5.50-5.45	-5.63-7.32	-4.21-6.83	-6.84-9.86	-12.86-16.53	-18.26-15.81	-11.95-6.85	-10.22-12.77	-13.62-15.64	-16.62-13.07	-6.59-6.31	-7.32-10.47	-6.04-5.62	-6.95-6.97	-6.53-12.83	-14.15-10.8	-16.76-16.67	-16.41-10.04	-6.57-12.14	-15.51-9.78
(H87.5)	-15.3-17.03	-17.62-10.35	-17.04-15.67	-7.27-1.02	-6.91-9.69	-9.74-11.16	-12.67-17.89	-11.76-9.31	-17.08-18.12	-18.95-18.86	-14.58-10.59	-11.77-12.91	-15.89-17.17	-11.71-17.21	-9.24-7.15	-10.27-14.17	-11.91-7.5	-8.91-8.31	-12.06-17.12	-18.11-13.2	-8.93-17.02	-16.61-15.57	-8.76-14.19	
(H87.5)	-14.36-17.54	-18.35-15.23	-17.11-18.66	-11.11-18.66	-11.02-10.75	-14.67-13.01	-14.67-17.47	-15.21-15.57	-16.95-18.42	-18.54-19.43	-17.95-11.48	-10.68-13.84	-17.36-11.18	-11.75-13.18	-10.87-10.96	-14.42-18.65	-11.79-14.63	-11.13-19.28	-17.93-14.57	-17.93-14.57	-14.96-11.11	-11.54-6.37	-6.58-10.19	
(H87.5)	-17.71-16.55	-17.79-16.68	-16.24-15.72	-15.21-14.06	-12.66-15.35	-12.72-11.59	-14.91-18.97	-17.14-12.43	-18.95-17.66	-18.45-19.16	-13.99-10.54	-13.45-18.84	-17.76-18.33	-16.24-15.94	-15.05-17.83	-14.75-16.39	-10.21-10.12	-16.88-16.73	-18.55-17.1	-15.14-13.34	-12.32-17.83	-18.1-18.18	-10.77-17.85	-6.91-11.53
(H122.5)	-17.72-18.84	-18.27-16.67	-17.75-15.94	-17.22-15.44	-17.12-15.41	-18.39-13.26	-16.51-18.91	-17.96-19.53	-18.59-18.94	-18.21-18.25	-16.72-14.48	-18.71-16.65	-18.61-17.1	-16.71-15.54	-14.01-18.25	-18.91-18.52	-13.74-17.27	-14.05-14.02	-18.14-17.84	-19.25-17.22	-16.41-17.19	-17.57-17.41		
(H122.5)	-17.95-18.84	-18.29-18.68	-18.25-18.07	-18.73-15.52	-11.88-12.65	-17.67-18.85	-18.87-18.98	-18.91-17.13	-19.01-17.92	-18.08-19.12	-17.34-16.78	-17.51-17.53	-17.75-17.59	-18.21-16.94	-18.61-10.65	-13.38-14.22	-17.94-16.26	-11.81-18.33	-13.57-16.32	-18.28-18.15	-18.51-13.68	-18.09-15.71	-13.79-15.44	-18.61-17.14
(H127.5)	-17.84-17.76	-19.3-18.14	-19-17.31	-17.52-18.44	-15.73-15.06	-18.82-18	-18.64-18.45	-18.45-16.91	-18.17-17.14	-18.25-19.01	-18.48-19.05	-18.42-18.75	-18.18-18.1	-18.72-16.28	-17.48-15.06	-18.5-16.05	-18.13-19.17	-15.80-17.38	-15.80-16.71	-18.81-16.58	-15.69-15.67	-18.11-17.62	-18.64-15.67	-18.62-19.09
(H132.5)	-16.84-18.28	-18.62-15.57	-17.79-18.13	-17.14-17.83	-16.19-18.35	-17.63-18.16	-18.62-18.73	-18.58-18.25	-17.83-18.1	-17.79-17.77	-18.13-18.78	-18.35-18.28	-14.14-18.21	-16.88-17.52	-16.97-18.1	-18.86-18.81	-15.59-18.97	-15.51-17.81	-18.86-16.88	-16.52-18.45	-15.91-19.06	-15.91-17.3	-18.14-15.85	-18.81-18.17
(H142.5)	-16.49-19.12	-16.95-16.32	-14.38-16.32	-16.92-16.58	-16.39-17.42	-16.09-17.4	-17.79-17.79	-18.44-17.13	-18.59-18.94	-18.99-19.13	-18.18-17.82	-18.46-17.82	-17.16-18.52	-15.58-18.16	-16.97-19.06	-17.66-19.16	-16.99-17.71	-18.39-18.58	-16.92-17.54	-18.32-17.19	-17.79-17.97	-17.91-19.21	-18.31-19.18	-18.56-17.93
(H142.5)	-16.96-18.77	-16.92-16.57	-16.26-17.42	-16.21-17.47	-16.26-17.41	-16.22-16.41	-16.36-16.91	-17.63-16.53	-18.54-18.36	-18.63-17.45	-17.58-16.39	-18.26-16.36	-18.26-16.36	-17.94-16.41	-18.51-18.74	-18.94-16.17	-18.96-16.27	-12.02-12.93	-14.88-17.15	-16.19-18.39	-18.46-17.17	-18.22-17.15	-17.31-15.02	-18.67-17.25
(H157.5)	-15.36-14.27	-14.71-14.46	-14.06-14.12	-15.35-18.79	-17.86-19.49	-18.61-19.23	-18.60-18.77	-17.79-19	-19.27-19.41	-18.72-17.93	-18.26-19.12	-17.43-19.16	-17.99-17.13	-17.93-19.38	-18.68-17.16	-17.34-19.04	-15.59-17.94	-19.07-17.78	-17.71-7.61	-17.32-19.02	-17.62-19.76	-18.22-18.94	-17.19-19	-17.68-17.98
(H157.5)	-15.29-17.92	-17.79-17.39	-16.89-17.67	-16.89-17.67	-18.44-17.78	-18.46-17.71	-17.53-18.47	-18.37-16.79	-17.71-17.91	-18.46-18.51	-18.79-17.92	-18.64-18.71	-18.66-18.71	-18.66-18.71	-18.66-18.71	-18.66-18.71	-18.66-18.71	-18.66-18.71	-18.66-18.71	-18.66-18.71	-18.66-18.71	-18.66-18.71	-18.66-18.71	-18.66-18.71
(H172.5)	-18.06-17.61	-16.26-15.12	-15.62-15.67	-17.76-17.18	-16.11-16.84	-16.38-17.92	-19.05-18.11	-18.62-17.88	-18.61-18.68	-18.62-18.18	-18.46-18.11	-18.66-18.62	-18.43-18.41	-18.61-18.15	-17.91-18.66	-18.93-17.27	-17.01-17.85	-18.23-18.43	-19.27-18.63	-17.42-18.16	-18.25-18.22	-18.68-18.09	-18.11-16.5	-15.82-15.83
(H172.5)	-18.55-17.27	-17.65-18.56	-17.78-16.68	-15.39-14.84	-14.23-14.57	-15.47-15.72	-18.13-18.56	-18.98-19.94	-18.43-18.98	-17.69-18.54	-19.18	-17.63-18.17	-17.26-18.54	-16.14-17.05	-17.23-17.06	-16.36-16.58	-18.86-18.68	-18.33-18.32	-18.16-18.1	-17.78-16.66	-18.89-18.09	-17.76-17.37	-16.21-15.55	
FreeHq4	6.9950P4	Thetak4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Gain	(H75)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)	(H75.5)(H75.5)
(H75)	-17.3-6.96	-14.71-8.21	-3.3-0.1	2.44-1.2	5.41-6.4	7.24-7.3	7.94-8.6	6.53-6.7	8.43-12	7.54-7.6	5.74-5.2	2.65-19	-2.5-8.4	-5.6-5.2	-1.38-1.5	3.34-7.6	0.55-19	7.57-93	8.11-12	8.28-12	7.837-39	6.695-9	4.855-15	1.741-05
(H75)	-12.1-3.94	-4.76-1.37	0.79-1.56	3.51-9.1	5.97-10.3	7.56-10.2	8.46-12	7.867-7.3	6.55-6	4.58-5.2	0.84-1.66	-4.25-18.4	-11.54-6.1	-1.81-7.0	3.61-7.6	0.55-19	7.57-93	7.477-7	7.897-7	7.897-7	7.897-7	7.897-7	7.897-7	7.897-7
(H75)	0.25-10.3	-1.56-1.22	-0.22-1.59	3.52-97	6.26-7.1	7.74-10.3	8.28-7	7.927-43	6.52-6.6	4.74-7.81	2.611-23	-0.35-28.7	-6.32-10.16	-6.2-4.86	-1.46-6.3	2.25-3.6	4.29-9.5	5.6-6	6.697-11	7.557-9	8.047-93	7.536-74	6.834-29	2.581-36
(H22.5)	6.95-0.01	-0.87-1.61	-1.48-0.49	2.54-19	5.41-6.07	6.74-7.37	7.697-7	7.36-54	5.46-4.3	2.94-10	6.54-10.3	-12.54-9.38	-4.69-1.71	0.19-9.99	1.32-1.9	3.11-28	8.88-5	5.14-5.2	6.31-7.2	7.737-78	7.737-78	7.737-78	7.737-78	7.737-78
(H75)	0.00-0.6	0.21-0.26	0.061-15	2.77-94	4.44-7.9	5.06-5.6	6.36-63	6.31-5.48	4.52-4.2	2.16-17	2.33-9.6	-13.62-18.19	-14.54-7.65	-4.57-1.37	0.05-0.23	1.46-1.94	-0.36-1.52	2.47-2.78	2.793-29	4.51-76	6.727-11	6.96-46	6.96-46	6.96-46
(H75)	0.3-0.42	-0.94-0.86	0.76-0.14	1.19-18	2.64-2.38	3.77-4.24	4.39-4.29	3.56-2.1	0.7-0.11	7.99-8.6	12.86-12.97	4.76-15.6	3.2-1.26	-1.12-4.7	2.46-1.94	7.7-4.85	-1.84-0.41	0.32-1.19	2.433-39	3.96-48	5.96-48	4.012-34	0.77-0.25	
(H75)	-1.89-3.45	-4.8-3.72	2.26-1.14	4.58-6.21	0.92-33	2.69-1.96	1.43-1.01	6.26-0.83	2.11-3.48	4.6-4.24	7.88-9.34	-12.71-13.95	-12.24-5.64	-3.86-3.98	3.73-4.28	4.99-9.6	-1.84-0.17	4.48-2.4	-1.62-2.78	0.46-1.17	1.782-85	3.71-33	3.651-86	0.69-0.53
(H92.5)	3.22-0.59	7.5-0.43	2.22-1.81	2.31-10.32	3.16-11.23	1.01-12.12	2.89-1.5	4.72-4.5	5.6-6.45	4.41-7.91	4.89-10.98	-18.62-17.07	-12.55-9.17	4.8-9.71	16.9-7.94	4.99-9.91	7.771-34	-1.89-2.2	-1.02-0.95	0.73-1.39	0.91-72	0.51-121	3.21-2.29	
(H92.5)	4.59-0.83	10.6-17.38	6.19-6.81	4.82-10.6	8.21-14.38	4.85-7.02	8.41-10.6	6.76-6.11	8.76-12.17	10.69-9.8	8.75-11.91	-18.32-18.11	-17.99-9.8	6.69-11.71	16.94-12.4	17.92-10.19	12.77-16.94	4.7-6	4.69-9.1	3.19-1.89	2.4-1.61	0.83-1.73	4.52-0.44	
(H97.5)	7.19-0.05	-16.07-16.2	-15.64-14.91	-0.57-12.2	-4.83-10.51	10.84-6.11	19.77-10.38	-11.51-19.99	-8.92-12.15	-13.31-10.34	-10.67-12.54	-15.59-16.01	-12.59-6.82	-1.96-10.7	-10.89-10.45	-12.3-13.82	-18.46-17.01	-15.64-11.34	-14.96-13.72	-8.47-13.2	-3.7-17.62	4.39-6.48	7.19-15.65	-11.21-6.01
(H97.5)	12.22-17.2	-14.24-11.41	-16.07-16.3	-8.50-9.87	-6.82-10.06	9.28-7.77	8.22-10.04	9.59-13.76	8.29-8.48	8.63-10.47	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91	-14.59-16.91
(H82.5)	4.26-7.65	-13.36-11.76	8.43-9.14	-0.30-10.71	4.33-9.71	6.84-9.95	9.01-14.46	7.72-18.14	9.4-9.07	4.94-8.46	-10.04-16.57	-13.16-17.18	-10.82-13.97	8.72-10.49	-10.07-14.28	-12.57-18.72	-10.3-15.55	-10.93-18.37	8.2-9.43	9.2-9.67	4.7-10.13	8.93-7.66	7.42-14.94	3.967-29
(H97.5)	4.36-6.81	-16.09-12.56	4.77-8.81	6.26-11.91	7.44-7.41	8.52-12.41	8.32-18.38	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84	-12.0-12.84
(H97.5)	-12.29-13.97	-18.09-14.04	-17.71-10.66	-16.47-14.98	-10.11-6.3	9.77-17.85	7.37-14.24	-12.4-10.64	-16.51-10.86	-12.7-10.11	-19.3-11.29	-16.41-10.83	-11.56-16.38	-12.73-16.07	-11.89-14.48	-12.89-19.02	-16.74-16.98	-17.32-19.07	-10.7-9.18	-11.4-9.12	-17.73-12.25	-11.63-10.01	-11.2-18.4	-8.64-10.23
(H97.5)	-12.99-14.33	-18.95-15.69	-12.71-12.1	-14.05-19.88	-14.62-12.77	-10.52-18.84	-12.62-19.82	-17.72-11.23	-11.23-13.42	-12.28-14.36	-19.19-16.6	-12.43-16.13	-15.07-17.94	-14.42-13.33	-11.6-12.59	-16.9-17.59	-17.57-19.78	-11.82-16.13	-15.29-19.16	-17.63-11.44	-10.75-15.16	-12.62-16.52		
(H112.5)	-13.92-18.18	-17.47-17.47	-16.11-18.13	-16.21-15.3	-19.06-14.10	-12.39-18.16	-10.57-12.73	-16.86-18.39	-12.39-13.05	-15.04-16.26	-18.02-18.06	-18.19-15.73	-14.21-16.86	-18.41-14.46	-17.65-17.82	-14.57-17.83	-18.83-18.62	-19						



Radiated Composite Gain Data_Radio 3_5GHz and 6GHz

Appendix C

(H120)	-18.24-15.2	-13.14-14.4	-13.85-12.2	-12.74-14.0	-18.44-14.3	-14.9-16.2	-18.64-19.2	-18.92-17.42	-12.93-17.7	-18.99-17.68	-15.1-17.48	-17.64-19.29	-18.89-16.16	-17.89-18.24	-13.54-14.49	-17.89-17.22	-17.89-18.38	-18.50-17.87	-19.13-18.02	-16.87-11.85	-16.74-13.03	-12.30-15.31	-16.13-17.98	-16.09-18.68
(H127)	-15.31-13.34	-13.02-13.26	-15.3-16.8	-14.79-16.1	-14.43-14.09	-14.16-16.1	-18.89-18.78	-18.91-19.02	-17.86-18.15	-17.54-19.12	-17.44-13.22	-18.52-18.07	-16.21-16.51	-15.86-17.2	-16.31-17.18	-17.93-18.33	-18.27-18.16	-17.21-18.35	-18.06-14.44	-11.85-12.09	-14.17-15.3	-15.26-18.04	-16.61-17.93	-18.07-17.81
(H150)	-14.64-17.07	-12.29-14.89	-17.22-16.42	-17.75-18.35	-15.42-15.04	-15.64-16.71	-17.52-18.81	-17.41-18.16	-19.03-18.34	-18.94-18.16	-17.46-18.69	-17.64-18.88	-17.23-18.25	-17.1-18.6	-15.39-8.59	-15.29-18.41	-16.38-17.96	-15.28-16.12	-15.43-18.81	-16.19-14.86	-15.49-17.1	-16.66-17.65	-16.14-19.13	
(H142)	-14.37-14.38	-14.29-17.02	-17.93-16.34	-16.41-18.04	-19.37-17.42	-16.41-17.02	-18.38-18.38	-18.12-19.22	-18.15-19.08	-18.74-19.18	-18.95-18.68	-17.66-17.58	-18.32-18.26	-17.82-18.4	-17.14-17.83	-15.62-12.12	-18.26-17.92	-18.14-18.88	-13.68-13.01	-18.59-18.4	-18.08-17.88	-18.16-17.84	-18.71-17.91	-19.27-18.12
(H157)	-18.74-17.58	-18.55-17.92	-17.95-18.96	-15.12-13.67	-15.74-17.68	-15.71-16.05	-16.36-19.1	-17.33-19.18	-17.85-18.32	-18.95-18.35	-18.15-18.2	-18.44-17.17	-18.15-16.5	-18.91-18.06	-18.89-17.45	-18.89-18.61	-18.73-18.23	-18.77-17.93	-19.09-18.47	-18.19-17.7	-19.26-18.19	-18.01-18.45	-18.38-18.63	-16.52-15.25
(H157)	-18.39-17.03	-18.43-18.76	-16.53-18.26	-17.91-18.97	-16.3-15.96	-16.37-17.12	-18.44-18.08	-18.94-18.08	-18.96-18.47	-18.21-18.69	-18.62-18.74	-19.05-15.23	-17.47-18.79	-18.39-19.25	-18.96-18.65	-18.67-19.31	-18.12-18.11	-17.91-18.06	-18.67-18.87	-18.5-18.26	-19.16-18.3	-18.27-18.61	-17.47-18.01	-17.63-18.61
(H162)	-17.71-19.14	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78	-18.33-17.78
(H172)	-18.67-18.99	-19.03-19.11	-18.70-19.31	-18.22-18.94	-19.08-17.27	-18.69-17.51	-17.97-18.16	-19.48-17.81	-18.71-18.88	-17.96-18.29	-17.51-18.97	-19.16-17	-17.56-18.32	-17.86-18.54	-14.71-16.04	-18.88-17.58	-18.49-18.42	-14.88-17.65	-17.38-14.54	-13.99-14.18	-14.78-16	-15.74-14.5	-15.17-17.45	-19.08-18.46
(H180)	-18.81-18.38	-18.22-18.02	-18.08-18.63	-18.57-18.31	-18.67-18.05	-18.31-18.76	-18.40-18.86	-17.43-18.3	-17.72-17.94	-19.20-18.76	-18.13-18.56	-17.42-18.87	-18.26-18.58	-18.17-18.87	-17.93-18.92	-17.93-18.92	-17.93-18.92	-17.93-18.92	-17.93-18.92	-17.93-18.92	-17.93-18.92	-17.93-18.92	-17.93-18.92	-17.93-18.92
Freq(Hz)	5.7850494	Phetok 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gain	(H120)(H127)	(H150)(H142)	(H157)(H157)	(H162)(H162)	(H172)(H172)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)	(H180)(H180)
(H120)	-3.22-4.64	-2.75-4.18	0.01-1.18	1.95-0.94	4.13-4.8	5.14-5.82	6.14-6.3	6.25-6.8	5.48-5.94	4.44-5.73	0.13-1.56	-3.11-4.22	-3.89-2.49	-6.65-6.93	2.26-3.47	4.44-5.25	5.73-5.89	6.05-6.2	6.17-5.88	5.44-6.47	4.19-3.27	2.34-1	-5.54-1.95	
(H127)	-2.46-2.94	-6.76-3.81	-1.51-1.68	2.03-1.4	4.21-5.4	5.72-6.06	6.34-6.3	6.35-5.9	5.51-7.2	3.85-5.84	1.85-1.67	0.88-1.64	2.1-2.03	-1.4-2.36	0.92-0.28	3.29-3.22	4.89-5.4	5.84-6.04	6.18-1.1	6.15-5.2	5.49-6.43	4.06-3.21	2.13-0.74	-8.97-2.77
(H150)	-5.08-7.25	-8.21-6.98	-4.45-1.78	0.54-1.89	3.34-2.9	5.14-5.86	6.15-6.2	6.15-6.1	5.26-6.44	3.38-1.38	0.84-0.41	-2.14-1.26	-2.44-2.72	-2.19-0.77	0.61-1	2.22-2.73	3.23-3.7	4.28-4.59	4.66-5.17	5.45-5.36	5.02-5.53	3.96-1.38	2.04-0.54	-1.19-1.52
(H142)	-4.64-7.94	-7.84-6.71	-5.27-1.39	-1.77-0.5	2.57-0.44	4.95-5.45	6.65-5.9	5.01-5.42	3.94-2.66	1.53-1.15	-1.57-1.32	-3.63-4.54	-6.20-4.65	-3.47-0.21	-1.15-0.76	-2.26-0.38	1.05-1.91	4.74-5.47	4.84-5.1	4.74-5.47	3.96-3.24	2.72-0.3	-8.02-0.94	-2.95-4.49
(H157)	-6.71-11.21	-10.52-6.78	-6.59-4.85	-2.84-0.44	1.71-3.31	4.24-4.9	5.29-5.31	4.89-4.14	3.08-2.1	1.24-1.3	-2.26-4.92	-6.29-5.5	-6.98-7.08	-4.26-2.76	-2.1-1.96	-1.09-0	8.46-7.16	2.49-2.94	3.33-3.74	3.67-2.75	1.49-0.86	0.74-0.6	-1.47-0.93	-4.54-1.37
(H162)	-18.53-15	-18.54-14.32	-8.21-6.73	-3.59-0.84	1.02-0.24	2.34-3	3.63-3.6	3.63-3.27	2.39-2.8	2.39-2.8	3.75-7.89	-7.89-6.79	-7.89-6.79	-3.36-2.83	-2.58-2.02	-0.96-1	0.83-0.41	0.52-0.87	0.54-0.1	0.82-0.41	-1.12-2.03	-1.48-1.75	-2.99-4.48	-4.44-10.33
(H172)	8.51-13.25	-18.51-13.88	8.74-6.87	-3.71-1.18	0.63-1.42	1.57-1.38	1.48-1.62	1.51-1.48	1.44-0.74	2.77-2.51	-4.31-1.68	-18.29-17.5	-7.58-7.34	-4.58-4.45	-4.53-4.21	-3.48-1.34	-4.42-0.43	-1.84-3.23	-3.34-2.26	-1.34-1.31	-1.95-2.76	-2.84-3.76	-5.34-5.58	-6.36-7.56
(H180)	8.51-13.25	-18.51-14.75	8.74-6.87	-3.88-1.83	-0.29-1.21	1.72-0.2	-0.11-2.02	-0.03-0.47	0.2-0.41	-2.72-1.24	-7.16-10.77	0.82-1.26	0.98-0.23	-5.82-5.44	-5.66-6.07	-4.79-5.38	-1.89-1.35	-2.11-2.9	-2.4-2.2	-2.14-1.74	-1.83-2.49	-2.89-4.48	-7.36-7.95	-9.34-8.69
(H120)	-13.86-18.92	-10.33-14.48	-8.44-6.97	-4.47-1.37	-2.01-1.1	3.29-1.6	2.59-1.6	2.59-1.6	3.98-4.21	7.79-5.34	4.87-1.68	-7.81-7.57	-5.07-4.69	-5.17-7.71	8.72-5.17	4.19-4.19	8.76-9.82	8.96-4.53	5.44-5.81	5.44-5.81	3.96-4.02	3.96-4.02	3.96-4.02	3.96-4.02
(H127)	-15.24-18.15	-14.59-15.25	-8.96-8.43	-5.59-10.2	-5.59-10.2	-1.87-0.44	-3.86-1.77	-1.64-2.37	2.08-1.3	6.59-7.39	-8.27-7.29	8.91-1.68	8.29-1.77	8.91-1.68	8.29-1.77	8.91-1.68	8.29-1.77	8.91-1.68	8.29-1.77	8.91-1.68	8.29-1.77	8.91-1.68	8.29-1.77	8.91-1.68
(H142)	-18.11-17.77	-18.57-17.21	-11.65-11.63	-8.35-14	-1.14-8.89	3.45-4.64	-2.99-1.36	-2.93-3.35	-3.61-4.93	-6.37-4.67	-9.51-11.27	-1.99-9.46	-3.48-10.49	-4.2-0.16	5.89-6.11	5.94-1.49	-5.29-9.98	9.07-6.72	7.31-5.06	3.46-7.16	8.47-11.41	-13.16-10.86	-12.37-15.1	
(H150)	-18.71-18.16	-17.84-17.19	-13.51-15.34	-10.89-9.3	-11.84-7.38	6.71-7.22	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29	4.28-2.29
(H157)	-18.71-18.16	-18.62-18.95	-16.35-18.08	-14.68-11.94	-14.51-9.66	7.89-8.35	-7.62-7.07	-6.87-6.85	7.51-8.86	5.86-10.56	-13.02-12.08	-12.32-12.47	-12.74-12.75	-9.94-7.73	-7.81-8.24	8.99-11.74	7.07-7.15	8.32-9.57	7.07-7.15	8.32-9.57	7.07-7.15	8.32-9.57	7.07-7.15	8.32-9.57
(H162)	-18.19-17.75	-18.24-17.78	-18.13-18.9	-16.25-15.12	-17.82-19.32	-17.09-18.87	-4.46-4.82	-11.13-17.5	-10.07-10.46	-11.21-13.18	-16.1-11.88	-17.27-17.56	-17.86-17.37	-13.30-10.22	-14.61-10.81	-14.38-18.22	-12.54-17.12	-12.23-6.3	-10.89-10.95	-11.78-17.01	-14.31-14.28	-15.15-16.08	-18.02-18.36	
(H172)	-18.67-18.65	-17.86-17.66	-17.23-19.18	-18.00-17.69	-17.57-15.93	-12.51-13.43	-10.73-10.88	-13.36-11.15	-11.24-12.71	-13.74-10.43	-15.18-17.45	-19.12-14.19	-15.20-12.43	-13.09-11.32	-14.86-18.52	-17.07-10.07	-19.07-10.78	-17.02-12.14	-14.71-18.62	-17.32-18.18	-14.24-18.35	-17.17-19.18	-18.36-18.96	
(H180)	-17.73-18.1	-18.45-18.43	-18.48-19.13	-17.55-17.77	-17.46-18.31	-13.62-14.38	-12.81-13.38	-14.03-14.21	-11.97-12.19	-14.28-12.12	-17.59-16.2	-16.93-18.33	-18.64-17.97	-15.71-16.03	-16.71-12.99	-16.86-16.41	-15.47-11.72	-14.94-16.55	-19.32-12.42	-14.95-15.19	-16.07-16.06	-16.71-17.88	-18.81-18.47	-18.72-19.22
(H120)	-17.61-18.1	-17.57-19.18	-17.51-19.38	-18.88-18.64	-18.56-13.73	-13.71-14.07	-18.31-14.07	-15.74-13.15	-14.71-17.15	-18.21-16.89	-17.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35	-18.41-17.35
(H127)	-18.68-17.01	-18.22-17.81	-18.56-17.98	-18.37-18.16	-16.13-18	-16.56-16.59	-15.86-17.57	-14.93-16.17	-19.03-17.66	-16.13-19.31	-17.21-17.77	-18.44-16.97	-18.54-19.31	-18.61-18.96	-17.98-17.97	-17.61-16.65	-16.56-17.91	-16.31-19.22	-18.55-16.98	-17.62-17.92	-17.89-16.98	-16.61-18.93	-17.63-18.86	-19.15-18.55
(H142)	-18.68-18.16	-18.34-17.41	-18.34-17.41	-17.72-17.62	-17.59-18.34	-18.96-16.68	-16.46-17.16	-17.49-17.91	-18.22-16.06	-18.95-18.26	-16.71-15.79	-17.56-17.75	-16.67-17.25	-18.07-15.15	-16.22-16.71	-17.70-16.76	-17.62-16.44	-16.79-16.71	-16.71-15.5	-17.07-18.93	-16.17-17.82	-16.24-18.26	-19.06-17.92	-18.89-17.97
(H150)	-18.55-17.64	-18.57-19.18	-19.16-17.88	-18.52-17.85	-18.69-19.22	-18.83-19.04	-18.07-18.32	-17.39-16.45	-17.91-17.13	-19.23-19.12	-17.62-18.32	-17.57-17.39	-18.05-18.23	-18.61-16.75	-17.71-18.84	-18.52-18.57	-18.67-19.23	-18.11-18.15	-18.75-18.35	-17.86-18.89	-18.68-17.84	-18.55-18.28	-17.85-17.35	-17.36-17.27
(H157)	-18.57-17.15	-18.67-17.93	-18.01-18.02	-18.02-17.78	-18.53-18.24	-18.76-17.11	-18.51-19.05	-18.65-18.22	-18.95-19.33	-18.86-19.32	-18.66-18.41	-17.05-18.47	-14.91-15.35	-14.90-15.42	-18.36-18.57	-18.27-19.12	-18.18-18.84	-18.64-16.1	-18.99-18.62	-17.63-19.35	-17.67-17.87	-18.22-15.56	-17.81-18.16	-18.16-18.16
(H162)	-18.59-18.73	-18-17.31	-17.86-17.37	-18.00-17.98	-18.59-18.79	-18.28-18.73	-19.19-18.19	-19.13-19	-18.39-19.36	-18.64-17.85	-16.29-17.45	-18.65-18.12	-18.91-15.15	-18.25-19.12	-17.98-18.84	-18.97-18.36	-17.93-18.57	-18.87-17.65	-19.19-18.25	-19.06-17.14	-17.07-18.93	-17.81-18.77	-18.66-17.28	-18.31-19.87
(H172)	-18.63-18.43	-18.17-18.73	-18.21-18.8	-17.45-17.38	-18.36-18.31	-17.79-17.56	-18.38-17.34	-17.74-17.83	-19.03-18.53	-17.79-17.56	-1													

0170	-18.880197	17.173709	-18.641922	-18.220188	17.550177	-17.914818	-18.131806	18.390182	17.911851	-18.181891	-18.272189	-18.541922	-18.031832	17.721812	-18.111738	-18.071898	-18.321892	-17.761888	-18.581876	-18.661901	-18.811828	-18.911851	
0171	-18.761886	17.381836	-18.261814	-17.811717	-17.501767	-17.561792	-17.591829	-18.061847	-18.391819	-18.561817	-18.271837	-18.171876	-18.181858	-18.221838	-18.521862	-18.731814	-18.321873	-18.211874	-18.331879	-18.481832	-18.621879	-18.541891	-18.511851
0172	-17.251817	17.721876	-18.171817	-18.071818	-18.471874	-18.881856	-18.941848	-18.911814	-18.911874	-18.641835	-18.211805	-18.261765	-18.171874	-18.501815	-18.421854	-18.971872	-18.181827	-18.281815	-18.021816	-17.581868	-18.061878	-18.131807	-17.891887
0173	6.175957	Phat3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
0174	-1.691744	2.571744	0.381177	2.443143	4.298136	5.245179	6.165144	6.316156	5.752179	4.773103	3.132107	0.602164	-2.061821	-2.411121	0.521195	3.074117	5.265116	6.668116	7.701116	6.916181	6.245116	5.154131	3.322114
0175	-2.793178	3.651177	0.412101	3.254124	5.261161	6.576183	7.187136	7.397173	6.698108	4.684167	3.582137	1.080116	-0.301878	-0.401891	3.222136	4.645116	4.334137	5.475178	5.915188	5.424136	4.598127	2.721156	0.281126
0176	-5.364101	-4.281102	0.151729	3.254124	5.261161	6.376179	6.928185	6.763183	6.527187	5.564177	4.298116	2.735116	1.211121	1.491131	3.722136	5.445116	5.315143	5.495185	5.625158	5.425124	4.395141	2.380116	-1.131125
0177	-15.011815	17.011721	-18.211721	-17.941721	-17.941721	1.655179	6.919179	6.145184	4.684105	3.763116	2.261116	0.810116	0.001177	2.015136	3.022136	4.115116	4.253139	3.321116	4.245182	5.014156	4.202116	3.471116	-1.515189
0178	-1.651744	2.571744	0.381177	2.443143	4.298136	5.245179	6.165144	6.316156	5.752179	4.773103	3.132107	0.602164	-2.061821	-2.411121	0.521195	3.074117	5.265116	6.668116	7.701116	6.916181	6.245116	5.154131	3.322114
0179	-1.651744	2.571744	0.381177	2.443143	4.298136	5.245179	6.165144	6.316156	5.752179	4.773103	3.132107	0.602164	-2.061821	-2.411121	0.521195	3.074117	5.265116	6.668116	7.701116	6.916181	6.245116	5.154131	3.322114
0180	-1.651744	2.571744	0.381177	2.443143	4.298136	5.245179	6.165144	6.316156	5.752179	4.773103	3.132107	0.602164	-2.061821	-2.411121	0.521195	3.074117	5.265116	6.668116	7.701116	6.916181	6.245116	5.154131	3.322114
0181	-1.651744	2.571744	0.381177	2.443143	4.298136	5.245179	6.165144	6.316156	5.752179	4.7731													

[illegible]

Appendix C



Radiated Composite Gain Data_Radio 3_5GHz and 6GHz

Appendix C

c120°)	-17.09-13.48	-17.09-16	-19.09-17.88	-15.17-16.6	-19.07-17.87	-18.29-18.18	-18.01-18.8	-19.31-17.74	-17.90-18.3	-17.07-13.4	-17.54-13.35	-10.37-10.17	-11.51-10.55	-10.49-14.81	-11.43-9.94	-15.29-14.97	-15.65-13.58	-18.25-19.4	-13.32-16.87	-16.92-18.06	-16.99-18.86	-15.03-18.65	-13.49-15.32	-15.23-15.67
	-14.3-14.82	-16.53-13.89	-14.02-17.85	-16.79-18.47	-17.67-17.88	-18.93-18.28	-16.15-18.41	-17.23-18.14	-18.57-18.42	-18.17-15.21	-18.45-17.27	-15.85-14.95	-11.76-14.14	-15.09-17.83	-16.89-14.31	-18.16-15.81	-18.87-18.48	-16.36-18.74	-16.99-19.25	-18.19-17.81	-16.26-17.98	-18.08-17.1	-18.9-14.1	-15.85-18.69
c120°)	-16.53-15.48	-13.89-14.29	-14.9-18.16	-17.35-18.42	-18.80-17.48	-18.07-17.61	-17.74-19.38	-18.17-18.55	-16.65-17.91	-18.75-18.11	-19.21-19.09	-16.06-18.45	-15.35-15.65	-14.19-18.1	-16.18-18.46	-18.26-15.41	-18.86-17.89	-16.65-18.87	-13.26-18.23	-17.01-19.32	-16.94-19.3	-19.18-89	-17.88-16.67	-17.46-16.56
c142.5°)	-17.14-13.23	-13.24-17.11	-18.45-18.49	-16.87-17.69	-18.43-17.97	-17.18-17.88	-17.51-17.45	-16.86-19.14	-18.78-18.91	-18.69-18.06	-15.3-16.33	-17.17-18.94	-17.33-17.57	-14.94-13.17	-10.26-12.8	-19.09-15.51	-13.41-17.92	-17.41-19.32	-17.19-17.64	-16.66-13.39	-18.19-19.09	-18.01-17.92	-18.62-18.73	-17.06-18.04
c150°)	-14.29-15.68	-14.16-15.51	-16.93-18.52	-16.88-17.88	-17.69-18.94	-18.07-18.04	-17.57-18.94	-18.18-18.55	-16.85-19.1	-17.26-18.17	-17.34-13.36	-17.41-13.36	-17.13-16.61	-18.25-18.86	-17.31-13.61	-17.13-13.61	-18.11-14.74	-18.94-17.17	-16.42-16.9	-17.88-18.4	-18.33-18.14	-17.19-18.08	-17.13-18.08	-17.57-18.14
c157.5°)	-15.52-17.45	-18.56-18.85	-16.11-17.67	-18.88-18.86	-18.53-19.34	-18.97-17.88	-18.41-17.23	-17.67-18.82	-18.47-17.25	-16.25-14.94	-12.26-17.92	-17.48-18.42	-16.71-16.92	-17.17-14.42	-18.32-17.94	-18.41-18.34	-16.92-16.53	-18.25-14.24	-13.2-15.3	-18.27-19.83	-17.9-18.81	-17.89-18.42	-15.68-14.21	
c162°)	-13.21-19.41	-17.39-17.61	-18.86-17.21	-16.72-14.29	-14.61-15.76	-16.27-16.65	-15.93-14.63	-16.31-14.63	-15.61-14.63	-13.47-14.54	-16.57-15.98	-15.01-14.45	-13.14-14.29	-19.01-18.88	-18.21-14.14	-17.19-18.52	-16.82-18.38	-16.4-19.19	-17.92-18.69	-17.11-14.31	-15.14-17.42	-18.55-18.34	-18.03-17.91	-17.89-18.42
c172.5°)	-16.09-18.94	-18.33-18.02	-17.11-17.18	-17.18-17.3	-16.78-17.43	-18.84-14.18	-15.02-13.32	-12.62-13.11	-16.1-18.71	-18.96-18.55	-14.59-14.95	-15.95-13.35	-16.84-17.83	-18.86-17.3	-18.24-17.6	-17.50-17.55	-17.43-17.78	-17.38-18.26	-17.96-14.44	-18.91-19.04	-19.09-17.4	-18.78-18.19	-18.84-18.25	-19.07-18.97
c180°)	-16.41-14.36	-14.84-14.29	-14.67-14.83	-13.82-14.1	-15.66-16.27	-15.01-15.23	-15.64-16.82	-16.01-17.62	-17.72-17.68	-18.42-19.28	-17.61-17.97	-16.84-18.6	-18.91-18.69	-18.97-17.29	-15.96-15.91	-18.16-48	-16.25-17.14	-15.12-18.4	-17.97-17.46	-18.84-19.45	-18.4-18.31	-17.88-17.59	-15.17-18.02	
FreeNet	5.885964	ThetNet 4																						
Gain	0°(120°/5°)	0°(15°/22.5°)	0°(30°/37.5°)	0°(45°/52.5°)	0°(60°/67.5°)	0°(75°/82.5°)	0°(90°/97.5°)	0°(105°/112.5°)	0°(120°/127.5°)	0°(135°/142.5°)	0°(150°/157.5°)	0°(165°/172.5°)	0°(180°/187.5°)	0°(195°/202.5°)	0°(210°/217.5°)	0°(225°/232.5°)	0°(240°/247.5°)	0°(255°/262.5°)	0°(270°/277.5°)	0°(285°/292.5°)	0°(300°/307.5°)	0°(315°/322.5°)	0°(330°/337.5°)	0°(345°/352.5°)
c0°)	0.81103	0.49955	2.02312	1.04502	5.69634	6.8729	7.38738	7.24712	6.86614	7.17712	7.86238	12.101	0.87404	0.14034	2.27158	4.95524	8.81648	8.8687	6.88832	6.74637	5.85525	4.55273	2.79178	0.52047
c15°)	0.356204	0.01132	2.8378	4.6558	6.37675	7.15754	7.45713	6.8652	6.14564	5.59636	3.47525	1.38602	-1.698243	-1.694331	1.380255	4.45544	6.07647	7.09748	7.5738	7.14681	6.33562	4.7374	2.73164	0.846408
c30°)	0.37058	0.944124	2.3274	4.27273	4.73471	6.67519	7.19747	7.19747	7.50726	6.69592	5.14433	3.76322	1.38049	-3.79534	-4.176177	0.482158	3.42431	5.16582	6.51687	6.80658	6.33616	5.93515	4.37033	2.76703
c45°)	1.42128	1.34749	1.80156	1.616	2.93034	3.84425	4.95518	5.21554	5.91558	5.83535	4.49058	2.460456	-2.135	-4.46235	-1.360408	0.74115	1.76291	4.19507	5.66814	6.08528	4.22337	4.09379	2.85184	1.16088
c60°)	0.35043	0.73-0.84	0.58-0.16	0.2313	1.97196	2.36277	2.8027	2.36187	2.31258	2.15157	0.591066	0.28339	4.27245	-2.71-1.02	0.62089	1.64223	2.93345	4.26445	4.27318	2.9181	2.35282	2.1659	0.98069	1.28119
c75°)	-4.08-0.68	-7.8-0.38	-6.88-3.56	-3.84-1.88	-0.98-0.27	-1.35-1.16	-2.01-1.55	-1.84-0.61	-2.63-1.28	-1.12-1.73	-2.96-3.56	-7.81-927	0.68-0.81	-7.01-3.34	-1.82-0.43	0.34-0.39	1.46276	3.29275	2.3184	0.04-0.33	1.4229	1.62-0.08	0.00	-0.27-1.65
c90°)	-6.83-0.02	-11.16-17.33	-18.06-11.81	-7.68-0.94	-4.02-3.19	-5.05-1.76	-6.89-1.97	-6.89-1.97	-7.54-4.32	-3.13-4.67	-1.14-10.97	-11.14-10.64	-10.44-0.46	-2.35-2.25	-2.06-1.72	-1.34-0.19	1.35051	-5.40-0.61	-1.48-2.19	0.42-0.56	0.15-0.32	-1.13-2.22	-4.42-2.41	
c105°)	-11.71-12.09	-13.60-17.93	-13.52-14.89	-6.97-4.43	-0.82-0.29	-7.72-0.89	-7.98-0.46	-10.58-0.88	-8.45-0.55	-7.5-12.97	-17.81-197	-18.93-1598	-17.56-13.31	-11.75-3.31	-3.17-2.76	-4.59-4.61	-2.86-3.31	-3.25-4.15	-5.02-2.27	-3.00-3.59	-0.95-1.18	2.26-1.8	-3.57-5.61	-3.97-4.35
c120°)	-7.41-8.86	-8.91-10.27	-9.37-8.44	-4.87-0.62	-6.03-1.33	-8.44-1.22	-10.67-0.66	-10.38-0.83	-16.61-18.12	-17.89-17.72	-18.91-17.34	-18.41-18.44	-18.54-18.49	-18.66-13.29	-5.15-0.66	-0.98-0.23	-7.86-331	-10.03-0.63	-12.91-11.77	-6.44-4.47	-3.57-5.29	-1.65-3.67	-3.82-4.3	
c135°)	-5.98-0.48	-7.2-0.59	-7.38-0.47	-4.73-0.51	-5.92-0.32	-5.97-0.35	-3.71-0.44	-7.84-12.59	-10.34-10.81	-11.82-12.15	-15.71-10.92	-17.76-18.16	-18.26-18.14	-18.08-13.29	-8.03-0.84	-0.72-0.98	-1.67-13.99	-6.47-13.68	-17.94-8.83	-8.06-6.43	-2.37-1.03	4.75-3.54	-3.2-4.26	-5.93-6.22
c150°)	-5.64-0.85	-4.93-0.36	-7.36-0.22	-4.71-0.61	-8.99-11.31	-6.74-0.51	-5.43-0.15	-8.85-12.85	-8.85-10.59	-11.73-9.55	-12.07-11.68	-13.04-10.89	-15.81-12.32	-18.86-16.06	-10.80-13.29	-15.07-12.11	-22.68-86	-2.41-10.21	-17.72-12.82	-10.10-8.67	-4.93-13.24	-5.84-9.49	-3.33-2.69	-4.53-6.24
c165°)	-6.71-8.6	-6.62-9.3	-8.49-3.38	-6.89-1.37	-9.50-11.27	-6.21-0.43	-6.08-0.49	-8.03-12.44	-8.36-10.43	-10.71-10.21	-7.85-14.71	-15.01-13.32	-15.19-107	-17.92-12.88	-15.69-13.3	-15.69-14.58	-6.73-4.94	-6.07-6.61	-18.26-12.82	-10.16-10.76	-7.16-11.44	7.24-6.06	-3.97-4.35	-4.41-5.07
c180°)	-4.13-6.87	-7.98-0.52	-9.12-10.69	-1.99-1.2	-10.02-0.72	-6.02-1.75	-3.23-6.8	-2.33-6.77	-4.99-10.47	-6.36-9.71	-7.85-14.15	-13.84-18.18	-12.97-13.73	-18.06-14.19	-15.12-16.57	-17.86-14.68	-7.42-6.93	-6.02-6.31	-17.91-15.72	-11.48-16.55	-12.97-10.61	-10.51-75	-4.21-2.25	-6.96-8.67
c195°)	-5.11-7.89	-7.46-10.9	-9.15-12.42	-15.46-16.17	-11.56-11.71	-9.12-10.33	-10.36-10.21	-8.96-12.38	-10.44-11.21	-10.28-11.86	-6.61-13.54	-12.40-17.88	-17.38-17.84	-18.46-19.21	-19.3-19.63	-17.89-18.28	-6.74-8.92	-17.75-12.32	-18.61-15.61	-13.91-17.85	-10.81-12.2	-14.44-8.97	-7.86-12.9	-6.57-7.26
c210°)	-6.34-10.94	-8.79-10.32	-12.72-14.93	-14.49-17.58	-15.52-16.18	-15.52-16.18	-12.26-17.46	-9.86-14.71	-13.96-13.32	-11.74-13.93	-11.59-15.32	-11.59-15.32	-16.53-18.87	-16.93-18.87	-16.25-19.14	-17.79-18.45	-6.98-9.49	-16.12-14.27	-13.32-17.17	-15.51-18.4	-16.92-16.28	-15.66-16.28	-15.66-16.28	-8.9-14.1
c225°)	-14.03-11.7	-8.79-10.32	-12.57-14.94	-12.88-15.86	-12.58-15.91	-11.81-12.61	-12.57-14.94	-14.74-13.86	-16.53-17.42	-14.72-14.39	-18.07-18.75	-19.09-18.83	-18.56-19.02	-18.26-19.3	-18.41-19.36	-19.18-19.23	-15.95-13.88	-13.31-18.09	-10.27-17.14	-18.86-13.24	-18.86-13.24	-18.86-13.24	-18.86-13.24	-18.86-13.24
c240°)	-15.23-13.22	-13.59-15.16	-14.98-13.45	-13.69-13.58	-14.24-13.13	-13.63-15.33	-15.02-12.12	-11.44-10.56	-12.39-15.06	-13.54-17.06	-17.16-19.23	-16.88-17.91	-18.45-18.12	-18.45-18.12	-18.45-18.12	-18.45-18.12	-15.95-13.29	-15.95-16.94	-18.91-15.28	-18.43-15.93	-18.29-10.92	-17.89-13.16	-18.91-14.1	-12-13.7
c255°)	-13.26-14.4	-15.96-15.67	-14.78-14.14	-14.78-14.14	-16.07-16.76	-15.79-16.18	-13.26-13.53	-12.29-13.31	-12.98-19.08	-11.96-16.13	-10.56-17.83	-12.78-19.28	-18.82-18.61	-14.03-19.13	-18.48-18.72	-18.48-18.72	-15.94-16.76	-18-12.76	-18.89-19.98	-18.89-19.98	-18.89-19.98	-18.89-19.98	-18.89-19.98	-18.89-19.98
c270°)	-14.62-13.19	-13.97-14.43	-16.53-16.63	-14.86-16.36	-14.07-17.68	-16.11-18.58	-18.86-152	-14.03-17.34	-14.13-15.75	-14.70-18.46	-16.64-16.18	-16.58-17.08	-17.85-18	-18.46-18.76	-18.02-18.21	-12-16.45	-17.63-18.72	-16.86-17.88	-16.40-17.8	-18.08-18.61	-17.72-15.35	-15.44-10.21	-14.78-12.61	-12.32-14.14
c285°)	-15.07-15.78	-17.82-15.44	-13.88-13.74	-13.48-15.92	-16.84-18.15	-18.01-18.25	-16.50-17.02	-15.16-16.29	-18.23-17.42	-17.81-18.94	-18.91-18.75	-19.02-18.15	-18.69-18.5	-18.69-17.79	-18.18-19.31	-18.12-19.28	-16.26-17.18	-19.13-18.13	-11.82-18.19	-18.72-18.08	-18.72-18.08	-18.72-18.08	-18.72-18.08	-18.72-18.08
c300°)	-13.69-13.59	-13.26-13.22	-15.61-16.63	-19.13-18.15	-18.89-17.34	-18.91-18.32	-15.61-12.92	-12.36-19.69	-18.83-18.66	-15.44-16.02	-17.14-18.69	-19.12-18.31	-18.06-18.36	-18.07-17.91	-17.33-17.09	-19.35-17.48	-15.16-16.74	-19.16-16.13	-17.97-14.63	-14.21-19.21	-12.15-18.63	-15.77-15.24	-14.64-16.44	-15.71-16.55
c315°)	-14.81-14.24	-13.79-13.08	-14.44-14.65	-14.13-14.51	-17.07-18.49	-17.33-18.52	-16.36-14.35	-14.74-14.25	-10.72-10.66	-12.14-14.62	-17.91-17.98	-18.88-10.65	-17.60-13.33	-17.60-17.83	-19.33-17.59	-19.20-17.97	-14.68-16.78	-17.63-17.59	-16.48-17.51	-13.68-14.87	-15.04-14.87	-15.04-14.87	-15.04-14.87	-15.04-14.87
c330°)	-14.26-15.34	-15.96-15.11	-14.46-14.46	-16.08-18.62	-17.87-18.16	-16.57-18.52	-15.45-14.24	-13.57-14.11	-14.16-13.02	-12.17-12.36	-12.88-14	-15.57-15.63	-16.61-18.1	-18.72-15.61	-14.59-14.83	-18.01-18.31								



Radiated Composite Gain Data_Radio 3_5GHz and 6GHz

Appendix C

ϕ1(172.5°)	-16.61±16.84	-18.72±19.04	-18.45±18.74	-17.67±18.28	-18.65±18.85	-18.67±18.2	-18.9±18.8	-18.73±18.95	-17.92±17.84	-19.23±17.6	-17.13±18.4	-18.53±18.28	-18.53±18.81	-18.76±17.95	-17.32±17.48	-19.01±17.97	-17.08±16.7	-18.75±18.67	-18.88±18.9	-15.63±16.12	-18.63±17.08	-18.36±18.14	-17.54±17.97	-18.65±18.52
ϕ1(180°)	-18.05±17.75	-18.10±18.13	-18.22±18.16	-18.16±18.41	-18.28±18.14	-18.42±18.55	-17.67±18.48	-19.43±18.04	-19.24±17.86	-18.27±17.65	-18.69±17.89	-17.07±17.81	-19.04±18.58	-18.2±18.06	-18.62±18.06	-18.06±17.71	-18.33±17.99	-18.05±18.62	-18.25±19	-17.63±17.74	-18.36±18.18	-18.47±18.12	-18.67±18.37	-18.06±18.59
Gain	6.47550Phz	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)
0.070(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	
0.17±1.85	1.58±0.98	0.27±1.48	2.71±55	4.29±5.65	5.55±8	6.10±26	6.17±9	5.88±7.3	4.86±2	3.24±1	1.60±1	0.14±3	2.46±1	1.22±2	3.02±76	4.57±86	5.16±48	5.67±5	5.75±67	5.17±45	3.77±92	1.98±87	0.29±152	
0.27±0.2	0.53±0.1	0.56±1	2.65±0.4	4.14±6	5.25±7.4	6.17±9.6	6.02±5.4	5.18±7.5	6.02±5.4	5.18±7.5	6.02±5.4	5.18±7.5	6.02±5.4	5.18±7.5	6.02±5.4	5.18±7.5	6.02±5.4	5.18±7.5	6.02±5.4	5.18±7.5	6.02±5.4	5.18±7.5	6.02±5.4	
0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	
0.55±0.2	1.11±1.26	0.71±0.69	1.75±0.89	3.64±2.28	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	5.65±0.6	
0.22±2.66	4.4±2.46	2.62±0.78	0.88±1.2	2.39±0.72	2.72±0.48	4.23±4.5	4.02±7.5	3.74±0.1	1.74±0.2	1.76±0.5	4.24±0.6	4.24±0.6	4.24±0.6	4.24±0.6	4.24±0.6	4.24±0.6	4.24±0.6	4.24±0.6	4.24±0.6	4.24±0.6	4.24±0.6	4.24±0.6	4.24±0.6	
0.30±1	3.94±0.91	-14.33±7.2	3.47±1.59	-2.36±1.25	2.53±0.79	4.14±1	3.50±2.7	1.65±0.9	2.79±2.9	3.76±1.4	4.83±0.1	3.86±1.1	0.60±0.3	0.72±0.3	2.41±0.1	4.44±1.4	2.85±1.1	5.75±1.6	3.96±0.9	3.37±0.8	3.24±0.4	3.24±0.4	3.24±0.4	
0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	0.17(172.5°)	
0.57±1	5.91±1.8	9.15±6.69	3.97±1.67	0.91±0.99	2.88±0.77	2.96±2.5	1.56±0.4	0.55±0.04	2.21±2.26	2.95±2.68	4.56±1.7	4.38±1.04	4.61±0.8	4.61±0.8	4.61±0.8	4.61±0.8	4.61±0.8	4.61±0.8	4.61±0.8	4.61±0.8	4.61±0.8	4.61±0.8	4.61±0.8	
0.52±5	4.63±0.01	-7.08±2.79	-1.9±1.90	-0.59±0.31	0.76±0.24	3.36±1.08	-1.88±1.55	-1.02±1.45	-2.34±0.53	-14.90±14.76	-18.94±18.05	-18.97±13.18	-13.91±14.52	-9.79±0.81	-7.05±2.34	1.54±3.43	1.42±0.62	1.47±1.98	3.12±2	0.86±1.36	0.86±1.36	0.86±1.36	0.86±1.36	
0.61±0.58	-7.78±4.9	4.34±0.43	-3.77±0.33	-2.44±2.09	3.42±0.14	-3.21±2.8	-2.37±0.22	-2.9±0.58	-12.9±13.3	-18.01±13.7	-17.61±8.25	-15.51±13.4	-11.71±16.31	-6.10±14.75	-3.94±5.62	0.91±0.31	-1.74±1.75	-1.74±1.75	-1.74±1.75	-1.74±1.75	-1.74±1.75	-1.74±1.75	-1.74±1.75	
0.67±5.7	4.45±0.77	-7.76±7.96	-6.46±7.71	4.97±1.83	-6.46±7.71	10.1±18.1	-5.04±1.4	-4.71±27	-5.96±3.68	-7.42±0.5	-13.98±3.33	-10.58±1.1	-6.06±7.99	-10.96±7.7	-7.36±6.66	-7.97±18.68	-12.29±7.5	-1.46±0.84	2.83±2.4	-2.19±2.96	-4.12±1.61	-4.76±0.59	-10.17±4.91	
0.75±2	5.00±7.23	-8.10±2.98	8.66±7.53	-8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	8.66±7.53	
0.82±5	-1.46±17.17	-6.41±11.67	-1.13±11.48	-13.32±12.05	-14.05±16.2	-19.21±18.37	-8.06±7.4	-7.35±7.8	-9.35±6.5	-1.65±7.53	-0.25±7.88	-14.23±2.3	-8.95±11.29	-8.97±7.28	-6.46±7.74	-1.62±10.17	13.43±0.3	-5.91±11.9	-6.92±3.7	5.27±1.75	-1.78±0.63	-4.51±0.38	-5.16±0.37	
0.90±3	4.49±0.35	8.07±13.44	-14.03±14.42	-16.76±19	-19.16±18.9	-18.40±12.3	-10.67±7.5	-10.10±10.2	-10.74±7.8	-7.47±7.1	-3.55±0.5	-13.92±2.1	-8.95±11.29	-8.97±7.28	-6.46±7.74	-1.62±10.17	13.43±0.3	-5.91±11.9	-6.92±3.7	5.27±1.75	-1.78±0.63	-4.51±0.38	-5.16±0.37	
0.97±5	-7.22±9.25	-10.45±16.6	-14.67±17.8	-16.97±17.2	-18.33±18	-18.97±146	-14.79±3.8	-13.50±10.9	-13.42±0.92	-8.10±15	-14.6±17	-11.71±12.4	-15.76±13.4	-14.1±162	-14.67±18	-10.9±8.2	-12.25±10.7	-11.8±19.2	-13.15±14.9	-8.86±16.6	-7.82±0.52	-6.44±0.48	-4.97±0.2	
1.05±1	-8.16±11.4	-10.21±18.1	-16.31±18.7	-18.21±18.1	-18.13±18	-18.97±146	-14.79±3.8	-13.50±10.9	-13.42±0.92	-8.10±15	-14.6±17	-11.71±12.4	-15.76±13.4	-14.1±162	-14.67±18	-10.9±8.2	-12.25±10.7	-11.8±19.2	-13.15±14.9	-8.86±16.6	-7.82±0.52	-6.44±0.48	-4.97±0.2	
1.12±2	-10.31±13.2	-12.56±18.6	-18.61±17.1	-17.81±17.9	-18.06±17.9	-17.49±10.2	-18.74±12.1	-12.1±8.7	-18.36±19.2	-11.65±12.2	-12.74±15.2	-15.34±11.5	-14.1±17.8	-14.1±162	-14.67±18	-10.9±8.2	-12.25±10.7	-11.8±19.2	-13.15±14.9	-8.86±16.6	-7.82±0.52	-6.44±0.48	-4.97±0.2	
1.20±3	-14.19±13.3	-18.21±19.07	-18.61±19.08	-18.61±19.07	-18.26±13.8	-18.36±17	-18.31±16.3	-17.88±14.3	-18.75±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	-14.65±12.3	
1.27±5	-15.41±16	-17.37±18.09	-17.96±17.18	-17.81±18.48	-17.99±17.61	-18.12±18.7	-19.21±18.87	-18.58±18.68	-18.16±18.96	-17.24±18.8	-17.28±18.3	-18.07±15.2	-18.16±18.25	-17.02±15.2	-19.08±17.5	-16.12±13.2	-10.96±18.1	-18.38±18.4	-17.78±17.5	-17.76±15.1	-12.96±19.08	-10.92±10.89	-10.92±10.89	
1.35±7	-15.21±16.9	-18.03±18.96	-18.23±18.67	-18.37±18.68	-18.02±18.17	-18.02±18.79	-17.91±19.11	-18.46±18.63	-18.25±19.5	-18.47±18.87	-19.01±18.21	-18.07±17.24	-18.02±18.99	-17.88±18.05	-17.12±17.38	-16.15±13.9	-19.18±18.4	-17.91±19.09	-18.11±19.22	-17.86±19.57	-15.22±13.15	-11.22±10.15	-10.92±10.89	
1.42±9	-18.11±18.8	-18.45±18.5	-18.71±17.85	-18.31±18.18	-18.46±17.4	-17.55±18.19	-18.11±18.45	-18.64±18.75	-17.11±18.29	-18.31±18.2	-18.56±18.93	-18.56±12.3	-17.18±17.24	-17.78±18.59	-18.65±18.21	-17.68±17.8	-16.56±14.7	-17.12±18.29	-19.34±15.25	-18.68±14.28	-18.21±18.14	-13.88±13.58	-15.44±14.61	
1.50±11	-18.02±18.5	-19.22±17.82	-18.27±17.95	-18.24±17.8	-18.11±18.3	-18.31±18.4	-18.24±17.8	-18.39±18.63	-18.88±18.12	-18.98±17.82	-18.98±18.63	-18.98±18.63	-18.98±18.63	-18.98±18.63	-18.98±18.63	-18.98±18.63	-18.98±18.63	-18.98±18.63	-18.98±18.63	-18.98±18.63	-18.98±18.63	-18.98±18.63	-18.98±18.63	
1.57±13	-18.07±18.6	-19.27±17.82	-18.32±17.98	-18.29±17.8	-18.16±18.3	-18.36±18.4	-18.29±17.8	-18.44±18.63	-18.93±18.12	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	-19.03±17.82	
1.65±15	-18.05±18.58	-18.51±18.91	-18.56±18.72	-18.49±17.8	-17.88±18.96	-18.38±18.47	-18.31±18.9	-17.77±17.92	-18.26±18.8	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	-17.51±18.94	
1.72±17	-18.06±18.24	-18.02±18.38	-17.56±18.14	-18.01±18.54	-18.02±18.91	-17.56±18.17	-18.06±18.93	-18.12±18.48	-17.75±18.9	-17.75±18.9	-18.03±18.11	-17.72±18.92	-18.02±18.93	-17.72±18.92	-18.02±18.93	-17.72±18.92	-18.02±18.93	-17.72±18.92	-18.02±18.93	-17.72±18.92	-18.02±18.93	-17.72±18.92	-18.02±18.93	
1.80±19	-17.88±18.06	-18.46±19.34	-18.78±19.32	-17.77±17.81	-17.57±17.38	-19.06±18.1	-18.81±17.38	-18.66±18.49	-17.74±18.96	-18.71±17.4	-18.51±18.4	-18.46±18.94	-17.87±17.81	-17.87±18.91	-18.67±18.3	-17.82±18.62	-18.59±10.3	-18.12±17.84	-17.17±17.84	-18.26±17.54	-18.57±18.45	-18.64±18.98	-17.86±18.28	
1.87±21	6.88550Phz	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	ϕ1(172.5°)	ϕ1(180°)	
0.070(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	0.15(172.5°)	
0.154±0.8	5.07±4.3	4.34±2	3.83±2	3.76±2	0.04±1	0.71±3.6	3.99±3.27	1.66±0.4	1.21±2	2.93±79	4.51±48	5.25±31	5.19±53	4.87±64	0.17±1	2.72±17	0.24±3	2.33±46	3.6±2.7	1.36±0.01	1.92±13	2.92±72	4.44±79	
0.17±5	5.74±69	5.55±25	4.83±62	4.15±29	2.76±49	0.25±13	2.29±36	4.89±149	2.58±0.7	0.02±1	2.51±3	3.94±34	4.46±64	4.79±69	4.51±62	3.83±29	1.90±7	0.36±2	3.11±32	2.74±154	1.75±66	1.88±28	3.94±8	5.09±44
0.15(172.5°)	6.43±3	5.87±69	4.83±62	4.15±29	2.76±49	0.25±13	2.29±36	4.89±149	2.58±0.7	0.02±1	2.51±3	3.94±34	4.46±64	4.79±69	4.51±62	3.83±29	1.90±7	0.36±2	3.11±32	2.74±154	1.75±66	1.88±28	3.94±8	5.09±44
0.22±5	5.55±56	5.32±479	4.26±35	1.98±138	0.82±19	-1.99±408	4.77±10.55	-1.01±10.92																



Radiated Composite Gain Data_Radio 3_5GHz and 6GHz

Appendix C

θ(22.5°)	-9.25/-19.22	-12.18/-6.64	-3.19/-0.51	1.59/3.2	4.44/8	5.08/5.14	4.93/4.8	4.57/3.75	2.62/1.2	0.62/0.85	0.21/-1.46	-2.08/-2.4	-3.11/-4.16	-5.71/-5.43	-2.75/-0.47	1.26/2.8	4.03/4.96	5.82/8.52	6.77/6.84	6.67/6.49	6.21/5.69	4.65/3.62	2.34/0.98	-0.98/-4.63
θ(30°)	-18.58/-8.46	-3.33/-1.72	-0.38/-1.26	2.93/4.33	5.22/5.92	5.87/5.78	5.74/5.1	4.31/3.64	2.83/-1.4	-1.93/-2.05	-1.34/-3.62	-4.37/-3.4	-4.86/-4.57	-7.39/-4.88	-1.67/-0.1	0.83/-1.87	2.88/3.68	4.29/5.34	6.15/6.2	5.42/4.75	4.88/4.58	3.71/3.11	2.15/0.52	-2.19/-7.52
θ(37.5°)	-4.55/-6.74	-1.80/-6.7	1.76/2.43	2.91/3.6	4.56/5.16	5.41/4.94	4.57/4.72	4.38/2.84	1.98/-1.2	-2.43/-2.75	-2.51/-9.39	-7.31/4.41	-14.61/-11.03	-8.71/4.39	-3.73/-2.38	-1.31/-0.39	1.82/2.72	3.42/4.69	5.05/5.38	5.34/-1.2	3.95/3.53	1.71/0.28	-4.43/-1.76	-5.01/-10.37
θ(45°)	-6.97/-6.79	-1.91/-6.26	1.43/-1.5	2.72/2.99	2.66/2.47	2.81/3.23	3.12/2.28	2.13/-1.49	-0.07/0.3	-0.73/-2.82	-2.57/-1.16	-9.81/8.08	-13.53/-13.85	-12.82/-14.02	-7.44/-4.03	-1.76/-0.52	0.91/0.36	0.55/2.63	3.77/4	4.31/3.38	2.41/2.03	0.11/-1.58	-0.79/-2.72	-6.96/-6.11
θ(52.5°)	-5.33/-4.81	-2.11/0.25	0.41/0.2	1.26/0.16	-0.96/0.04	0.56/1.93	1.91/2.17	1.34/0.28	-0.86/-3.11	-2.09/-6.3	-4.68/8.96	-12.52/-9.34	-8.83/-7.4	-9.16/-11.23	-11.26/-7.91	-3.41/-3.9	-4.86/0.72	0.78/2.84	3.19/2.92	3.81/99	1.55/0.4	-1.51/-1.43	-2.87/6.2	-3.51/-4.14
θ(60°)	-4.23/-6.38	-4.07/-1.36	-1.98/-1.92	-2.22/-4.45	-4/-2.32	-2.63/-1.61	-1.65/-0.33	-0.08/-2.02	-0.89/-7.33	-3.68/-9.35	-5.98/8.39	-10.77/8	-8.21/-5.43	-6.26/-9.21	-18.74/-11.35	-7.41/-5.75	-6.33/-2.92	-0.84/1.29	0.64/-0.19	1.81/-0.17	0.61/-1.15	2.33/-2.27	-6.89/-4.28	-2.45/-4.33
θ(67.5°)	-3.99/-6.22	-7.51/-5.33	-4.48/-3.65	-6.25/-6.99	-10.04/-7.06	-6.64/-7.8	-5.82/-6.93	-2.31/-4.67	-3.99/-9.26	-6.43/-7.81	-6.67/-5.16	-6.57/-8.85	-6.93/-2.7	-4.59/-14.84	-15.91/-8.14	-5.22/-9.77	-15.54/-5.03	-2.77/-1.14	-2.52/-1.66	-0.48/-1.74	-1.13/-3.36	-3.09/-4.46	-6.31/-4.34	-4.27/-4.54
θ(75°)	-4.28/-10.69	-9.04/-10.43	8.89/-6.46	-13.75/-18.38	-18.11/-14.18	8.15/-9.68	9.53/-11.56	-6.99/-9.21	-8.82/-8.07	-8.33/-7.73	-5.09/-3.54	-3.92/-7.4	-7.69/-3.84	-5.32/-6.21	-13.31/-9.62	-4.02/-11.33	-10.11/-3.65	-2.99/-5.27	-7.74/-2.42	-1.21/-3.05	-3.89/-3.8	-3.51/-5.92	-5.82/-6.5	-6.86/-5.09
θ(82.5°)	-6.18/-12.82	-11.65/-12.78	-12.51/-10.12	-13.14/-18.96	-18.09/-15.54	-9.02/-17.72	-14.89/-17.99	-9.19/-17.13	-10.41/-8.69	-10.54/-6.12	-6.39/-4.32	-6.51/-7.73	-10.71/-5.52	-7.56/-16.33	-13.28/-16.61	-6.38/-17.23	-3.91/-2.49	-3.98/-6.08	-10.66/-5.47	-2.58/-4.48	-7.29/-3.99	-5.03/-6.24	-6.99/-8.76	-6.63/-6.13
θ(90°)	-8.71/-14.62	-15.93/-11.85	-16.45/-12.97	-11.67/-14.62	-14.06/-12.84	-11.03/-16.94	-18.25/-17.75	-13.71/-12.44	-12.25/-11.44	-12.38/-6.85	-7.78/-5.35	-5.73/-6.72	-9.33/-1.01	-9.75/-11.11	-15.23/-14.41	-10.83/-16.31	-4.36/-4.51	-5.81/-11.09	-13.29/-6.42	-6.77/8.22	-9.99/-4.06	-6.38/-6.81	-6.94/-10.3	-7.47/-7.26
θ(97.5°)	-11.99/-17.27	-17.07/-15.84	-15.22/-13.38	-13.07/-16.69	-12.81/-13.5	-10.68/-16.71	-16.31/-8.5	-14.28/-15.21	-14.84/-14.28	-10.39/-8.14	-7.96/-7.31	-6.33/-10.57	-10.78/-7.78	-15.92/-15.62	-15.19/-13.62	-16.62/-19.38	-7.99/-8.16	-12.86/-17.1	-18.01/-11.14	-10.94/-11.9	-8.04/-5.75	-9.95/-7.65	-10.48/-11.17	-8.45/-8.72
θ(105°)	-12.15/-16.96	-19.25/-15.43	-18.11/-16.71	-15.91/-17.42	-16.16/-14.23	-11.41/-9.2	-19.17/-17.97	-13.89/-18	-17.62/-17.46	-12.16/-11.36	-9.98/-9.64	-7.31/-12.94	-10.16/-16.7	-18.69/-13.58	-17.88/-18.94	-11.42/-19.0	-9.83/-13.92	-14.72/-17.23	-17.78/-13.9	-12.96/-12.1	-8.39/-11.14	-10.60/-11.31	-10.58/-19.17	-10.38/-11.35
θ(112.5°)	-13.99/-18.49	-18.63/-15.57	-13.79/-11.95	-16.97/-18.74	-17.89/-19.36	-11.11/-14.15	-17.59/-18.12	-15.64/-19.35	-16.53/-18.63	-15.73/-13.71	-14.94/-11.12	-13.21/-12.28	-16.89/-16.11	-12.64/-17.86	-17.77/-15.29	-15.96/-13.05	-11.69/-18.47	-18.71/-15.64	-18.36/-13.49	-18.41/-13.38	-12.81/-12.07	-14.48/-11.43	-12.38/-12.35	-10.59/-14.51
θ(120°)	-17.18/-18.12	-17.86/-18.92	-16.76/-11.32	-13.11/-19.09	-17.45/-18.74	-16.19/-13.08	-17.68/-17.91	-17.63/-18.4	-13.47/-19.38	-19.36/-18.6	-17.68/-14.69	-18.26/-15.69	-18.61/-12.95	-12.39/-18.22	-18.23/-17.09	-18.81/-13.41	-17.62/-12.78	-18.99/-12.07	-19.31/-19.32	-18.61/-16.44	-11.21/-15.31	-16.48/-14.85	-10.85/-16.22	-15.29/-14.9
θ(127.5°)	-19.21/-18.54	-18.32/-18.04	-16.46/-13.5	-14.09/-19.13	-18.13/-18.77	-18.18/-13.13	-15.82/-18.1	-18.05/-18.12	-18.58/-18.48	-19.18/-18.91	-18.85/-18.31	-15.17/-18.24	-15.64/-18.96	-16.27/-12.32	-18.23/-17	-17.29/-16.44	-111/-13.18	-16.21/-18.55	-15.65/-19.06	-17.95/-18.83	-10.29/-12.96	-11.33/-15.59	-12.78/-18.8	-18.62/-18.11
θ(135°)	-19.03/-18.87	-18.94/-17.57	-18.81/-17.09	-14.31/-17.7	-18.15/-17.35	-18.25/-19.08	-18.79/-18.36	-18.21/-18.18	-17.94/-18.14	-17.48/-18.3	-18.35/-17.68	-17.72/-17.64	-18.72/-17.76	-15.17/-16.26	-19.29/-18.93	-18.14/-18.57	-18.41/-18.87	-17.57/-18.27	-18.42/-13.33	-18.79/-18.12	-16.11/-13.03	-13.17/-12.71	-13.87/-18.25	-17.48/-18.67
θ(142.5°)	-17.32/-19.26	-19.13/-17.6	-18.51/-14.76	-16.81/-17.1	-17.74/-18.62	-18.39/-18.55	-19.45/-18.72	-18.03/-18.4	-191/-18.59	-17.32/-18.55	-19.03/-19.13	-18.47/-18.85	-17.83/-16.23	-19.01/-17.77	-18.29/-18.85	-18.54/-18.34	-19.06/-18.62	-18.06/-17.83	-19.13/-13.27	-18.71/-17.28	-14.79/-18.47	-16.22/-12.35	-18.91/-18.17	-15.62/-16.36
θ(150°)	-18.05/-17.64	-17.73/-17.58	-18.51/-18.51	-17.95/-17.99	-14.99/-15.41	-17.15/-18.02	-18.52/-18.43	-19.31/-18.99	-18.76/-18.5	-18.65/-19.44	-19.35/-18.84	-17.28/-17.22	-18.84/-19.04	-18.62/-18.77	-18.91/-18.61	-18.19/-17.82	-18.26/-18.14	-16.62/-18.85	-18.47/-16	-18.22/-18.35	-171/-18.46	-18.48/-17.9	-16.51/-18.78	-15.19/-17.28
θ(157.5°)	-18.21/-18.59	-18.13/-19.04	-18.97/-18.7	-17.85/-19.17	-18.71/-15.92	-15.83/-18.46	-18.86/-17.92	-18.77/-17.44	-18.11/-18.98	-18.46/-18.68	-18.98/-19.47	-17.95/-18.81	-18.23/-18.01	-18.58/-17.89	-18.86/-17.49	-18.66/-19.4	-18.48/-18.67	-17.91/-16.16	-17.32/-17.48	-18.54/-18.01	-16.48/-16.71	-18.42/-17.44	-18.64/-17.73	-18.87/-17.54
θ(165°)	-18.18/-19.27	-17.54/-18.42	-17.98/-18.01	-18.87/-18.15	-18.61/-17.62	-16.49/-16.83	-17.41/-17.81	-18.61/-17.47	-18.59/-18.89	-18.61/-19.8	-18.97/-18.84	-18.62/-18.41	-19.08/-17.81	-18.55/-18.2	-14.71/-14.71	-18.57/-19.61	-19.27/-19.01	-19.47/-16.73	-18.72/-17.68	-18.33/-18.24	-18.58/-18.02	-18.55/-17.84	-18.99/-18.13	-17.73/-19.16
θ(172.5°)	-19.02/-17.95	-17.96/-19.22	-18.31/-18.94	-19.31/-18.06	-16.25/-18	-17.89/-18.34	-18.28/-17.72	-18.89/-18.78	-18.38/-17.85	-18.51/-18.97	-19.24/-18.84	-18.89/-19.23	-18.42/-18.09	-18.31/-19.22	-191/-19.11	-19.41/-18.14	-17.96/-18.11	-18.12/-19.02	-17.29/-18.26	-17.89/-18.38	-18.22/-18.65	-17.77/-18.35	-19.19/-18.96	-18.83/-19.14
θ(180°)	-18.02/-16.57	-17.39/-17.28	-18.71/-16.59	-15.25/-15.2	-18.29/-18.89	-17.54/-18.78	-18.69/-18.14	-18.19/-18.13	-18.27/-18.35	-18.85/-18.44	-18.81/-18.2	-17.86/-17.56	-17.36/-16.95	-17.28/-16.94	-15.41/-14.06	-12.53/-12.39	-11.91/-12.79	-15.01/-16.58	-18.49/-17.56	-17.81/-19.27	-18.95/-18.28	-19.07/-18	-17.55/-18.87	-18.11/-17.48



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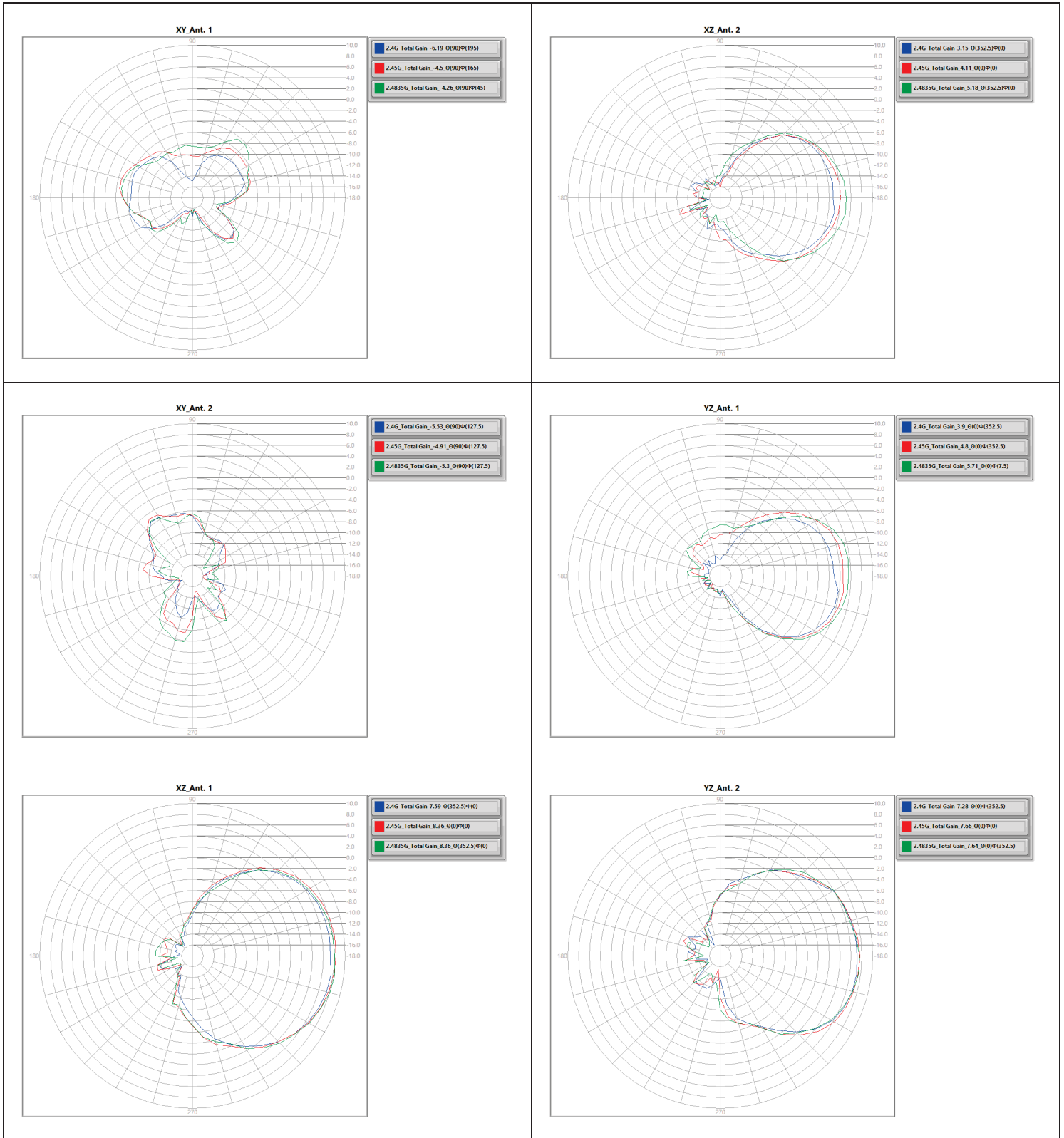


Antenna Pattern_Radio 1_2.4GHz

Appendix D

φ(22.5°)	2.780528	3.814330	4.745511	5.685676	5.996624	6.426854	6.548136	6.055522	5.084448	3.852329	2.840254	2.372321	2.320245	2.720313	3.714334	4.995539	6.126551	6.808197	7.006593	6.746445	6.045554	4.973436	3.710313	2.710281	
φ(30°)	1.762310	2.893372	3.804233	4.654496	5.265535	5.795956	6.025530	5.645522	4.484405	3.372735	2.270133	1.711522	1.370130	1.401168	2.182494	3.594333	5.005522	5.926136	6.206515	6.005577	5.464538	4.370363	2.862155	1.660157	
φ(37.5°)	0.130576	1.320171	2.070249	2.920323	3.460374	4.034299	4.454445	4.240351	3.462388	2.170145	0.870507	0.470333	0.094018	-0.344027	0.130480	1.652466	3.150371	4.204577	4.734754	4.704568	4.404405	3.510274	1.740375	0.050403	
φ(45°)	-1.680185	-0.200119	0.500303	1.370180	1.690194	2.380280	3.080130	2.930263	2.230173	1.030238	-0.300156	-0.660189	-1.450219	-2.820294	-2.480154	-0.490339	1.040154	2.020238	2.540251	2.440240	2.400229	1.850188	0.070107	-1.990126	
φ(52.5°)	-4.460140	-2.680227	-1.930137	-0.740444	-0.330311	0.690121	1.420136	1.160866	0.490406	-0.840172	-2.370264	-2.580291	-3.580467	-5.690578	-4.640308	-1.800106	-0.680302	0.070334	0.180103	-0.280033	0.530166	0.100100	-2.410383	-4.570503	
φ(60°)	-7.670444	-5.580516	-4.360433	-3.390277	-2.160130	0.020000	0.080409	0.370459	-0.900144	-2.270231	-4.060140	-4.460451	-6.410488	-8.250486	-6.430479	-3.600303	-2.950284	-2.420229	-2.780344	-3.620275	-1.980110	-1.740340	-6.540152	-8.960461	
φ(67.5°)	-10.510431	-8.160144	-7.130463	-6.110532	-5.230400	-2.920217	-1.800178	-1.010172	-1.710221	-3.290452	-5.710401	-5.690571	-6.780903	-10.830988	-7.680457	-5.050451	-4.840442	-4.220259	-5.710462	-3.550307	3.940594	-6.460109	-13.800129	-9.960129	
φ(75°)	-14.030121	-10.890664	-8.590139	-6.760494	-6.820416	-5.680482	-4.250417	-1.440375	-3.240336	-4.330572	-6.880173	-6.710482	-8.460146	-12.930187	-10.850480	-8.820563	-6.400518	-4.330402	-5.130478	-7.740700	-5.680535	-6.820482	-9.940138	-13.860145	
φ(82.5°)	-14.460152	-13.900165	-11.900494	-8.800447	-7.500475	-6.280552	-5.070523	-5.510510	-4.300427	-5.590174	-8.320436	-8.640450	-10.250137	-15.200595	-13.480164	-8.120706	-7.050473	-5.560515	-6.680432	-10.270476	-6.750423	-7.800165	-11.230126	-15.930140	
φ(90°)	-16.090143	-14.790146	-10.990138	-8.850127	-10.440123	-9.690794	-8.760458	-8.860414	-5.080491	-6.200485	-10.320125	-8.280478	-10.360142	-15.820530	-15.360142	-11.680438	-8.710481	-7.590151	-10.260140	-10.550128	-9.430485	-14.680190	-11.990128	-15.570158	
φ(97.5°)	-15.200146	-14.870123	-12.230165	-10.210108	-10.410116	-9.650106	-8.750442	-8.960418	-6.860450	-7.690420	-10.500127	-9.870102	-11.340148	-15.930148	-15.260145	-14.170115	-11.890128	-10.540166	-12.280148	-13.260111	-13.390146	-12.340124	-15.590107	-15.590107	
φ(105°)	-15.240140	-12.810189	-10.650151	-13.570172	-12.250124	-13.240101	-11.340156	-10.500171	-8.160128	-7.790402	-10.760113	-11.260144	-13.450182	-12.830148	-16.230158	-15.400152	-15.760148	-11.870128	-12.790111	-11.280144	-15.660143	-15.270155	-14.110151	-15.160151	
φ(112.5°)	-14.600148	-14.160112	-10.260167	-13.760194	-13.430120	-13.170121	-11.490124	-10.770102	-10.650432	-8.220488	-10.760112	-11.240137	-13.200102	-12.630171	-16.430154	-15.660153	-15.690132	-13.090148	-13.860168	-11.190145	-15.790153	-15.620140	-15.590140	-13.290143	
φ(120°)	-14.040182	-15.440148	-13.430140	-15.760152	-15.390151	-15.530153	-14.260131	-12.860113	-13.580111	-12.030109	-10.240101	-11.820126	-13.200118	-15.510148	-11.430181	-12.760123	-12.770126	-13.840154	-11.470428	-9.600128	-15.560142	-14.620131	-14.060140	-13.420135	
φ(127.5°)	-14.360142	-14.860150	-14.830147	-14.860153	-14.860153	-15.660153	-13.610124	-12.350123	-12.980107	-12.190112	-10.620101	-11.670121	-13.330126	-11.860116	-11.140116	-11.250106	-10.860107	-10.860106	-8.830129	-11.890126	-13.400152	-15.250154	-14.140145	-15.230162	
φ(135°)	-15.560152	-15.890152	-15.100139	-13.820142	-14.530156	-15.360158	-13.850138	-12.500118	-11.890117	-11.510131	-11.2401152	-11.9601303	-15.110158	-14.7401269	-10.900197	-9.010483	-8.940497	-11.6601329	-12.6801187	-12.5801305	-12.510127	-13.0401462	-15.2701525	-15.3001426	
φ(142.5°)	-13.460130	-15.160154	-14.1601303	-12.0701184	-11.560142	-11.510154	-11.2201075	-10.740104	-11.6401201	-12.4401321	-13.8401438	-15.3501583	-14.71015215	-9.750191	-6.850443	-6.6201743	-8.9101064	-13.2001506	-14.9601599	-16.0401487	-15.6601600	-15.5501545	-14.0201382	-13.3301443	
φ(150°)	-13.2501342	-13.7801426	-14.6401378	-13.0601279	-12.6901252	-12.2801138	-10.7201021	-10.0501042	-11.1401146	-11.3901138	-11.5701184	-11.1001306	-8.900146	-8.150147	-7.210148	-8.3001977	-11.9101384	-15.3901607	-14.9601533	-15.9001500	-15.7601526	-14.7301454	-14.0201382	-13.3301443	
φ(157.5°)	-13.9901415	-13.4801328	-13.0101241	-11.8601183	-11.4001133	-11.6901158	-11.8101177	-11.0601173	-11.5301100	-10.8901075	-11.0601093	-10.9101081	-11.0301144	-11.3901156	-12.0401311	-14.7501558	-14.9901519	-14.6201591	-14.8901580	-13.1201336	-12.9201273	-12.7901316	-13.5701322	-13.5901369	
φ(165°)	-12.9501286	-12.4101234	-11.8601163	-10.9001095	-10.8801105	-11.4601213	-13.6701380	-13.6701343	-14.9101487	-14.3901443	-14.3701464	-15.0101471	-15.6001490	-15.4201500	-15.2501542	-14.7901523	-13.6301293	-11.8301149	-11.5601165	-11.7201145	-11.4701187	-12.5601334	-13.0401317	-13.1101298	
φ(172.5°)	-13.6901316	-12.8801271	-12.4501191	-11.3901153	-11.5201208	-12.7001310	-13.0801357	-14.2101482	-15.9001601	-16.0001541	-15.7201581	-15.4801493	-15.1701489	-14.8401476	-15.0801494	-13.8201257	-11.7001121	-11.5501180	-12.1601273	-13.3001334	-13.8701426	-14.1901405	-13.5401331	-12.9701331	
φ(180°)	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	-12.480304	
Gain	φ(2°)/φ(2.5°)	φ(15°)/φ(2.5°)	φ(30°)/φ(2.5°)	φ(45°)/φ(2.5°)	φ(60°)/φ(2.5°)	φ(75°)/φ(2.5°)	φ(90°)/φ(2.5°)	φ(105°)/φ(2.5°)	φ(120°)/φ(2.5°)	φ(135°)/φ(2.5°)	φ(150°)/φ(2.5°)	φ(165°)/φ(2.5°)	φ(180°)/φ(2.5°)	φ(195°)/φ(2.5°)	φ(210°)/φ(2.5°)	φ(225°)/φ(2.5°)	φ(240°)/φ(2.5°)	φ(255°)/φ(2.5°)	φ(270°)/φ(2.5°)	φ(285°)/φ(2.5°)	φ(300°)/φ(2.5°)	φ(315°)/φ(2.5°)	φ(330°)/φ(2.5°)	φ(345°)/φ(2.5°)	
φ(2°)	5.125135	5.615833	6.126444	6.747100	7.220736	7.667533	7.537444	7.216162	6.546119	5.835550	5.235017	5.055111	5.235411	5.670544	6.226553	6.847112	7.373157	7.667172	7.667172	7.667449	7.287011	6.668126	5.855446	5.154488	4.504496
φ(7.5°)	4.935118	5.465571	5.996527	6.576862	7.030714	7.197122	7.197122	6.886555	6.155516	5.425144	4.914776	4.624497	5.185411	5.865954	6.346555	6.850712	7.360753	7.677771	7.647446	7.206888	6.516168	5.635522	4.894704	4.704777	
φ(15°)	4.174449	4.865520	5.535865	6.146442	6.616669	6.709468	6.606448	6.235536	5.394494	4.574748	4.085598	3.756512	4.484755	5.075539	5.756512	6.466777	7.010118	7.280749	7.206597	6.646523	5.795534	4.894445	4.093497	3.603497	
φ(22.5°)	3.193138	4.044417	4.866524	5.595538	6.196525	6.336441	6.386122	5.915166	4.914426	3.965111	3.274502	2.705102	3.320370	4.198449	4.895534	5.790497	6.564503	6.636432	6.065611	5.196176	4.291384	3.350197	2.610232	2.010232	
φ(30°)	1.980249	3.020342	3.834277	4.670356	5.396499	5.626495	5.645495	5.095165	4.464401	3.272449	1.980156	1.590176	2.002238	2.940302	3.470397	4.484494	5.293551	5.515355	5.174495	4.474277	3.760136	2.941576	1.640176	0.940176	
φ(37.5°)	0.590103	1.390165	1.970236	2.810323	3.644408	4.444467	4.714462	4.330303	3.460292	2.170123	0.240402	-0.450412	0.260401	0.950135	1.780235	2.770116	3.480466	3.790497	3.930493	3.940490	3.790446	2.892111	1.220411	0.030205	
φ(45°)	-1.210182	-0.350424	0.020533	1.030136	1.810440	3.003447	3.640355	3.270297	2.420184	1.040408	-1.310214	-2.210465	-1.540136	-1.150481	-0.380454	0.770118	1.450156	1.690487	2.030205	2.000198	1.990175	1.190119	-1.120237	-2.630197	
φ(52.5°)	-3.720358	-2.950287	-2.570182	-1.160486	-0.560211	1.100175	2.010186	1.980136	0.940026	-0.770214	-3.630480	-5.174486	-4.440416	-3.890342	-2.750186	-0.880233	0.030304	0.060235	0.190402	-0.340422	0.130117	0.500188	-3.860486	-6.020456	
φ(60°)	-6.080569	-5.760465	-5.910469	-3.420486	-2.430183	-0.700203	0.160405	-0.430402	-0.830145	-2.840424	-5.980147	-8.000178	-7.660151	-7.080446	-5.040370	-2.380160	-1.590189	-2.210232	-2.980430	-3.940322	-2.980142	-2.420443	-1.570180	-10.360451	
φ(67.5°)	-7.990174	-6.500458	-10.210458	-6.710469	-4.850385	-2.810202	-1.060100	-2.430208	-1.260273	-3.440467	-6.840499	-6.860453	-10.2001121	-10.890425	-6.190480	-3.650306	-3.270373	-3.880404	-4.720546	-6.460502	-4.170711	-1.570180	-12.420138	-15.360451	
φ(75°)	-8.670479	-10.510135	-12.260178	-8.910187	-7.280465	-6.060478	-4.260452	-6.650409	-3.520381	-5.380178	-6.980110	-10.010150	-12.0201438	-14.510145	-8.130468	-5.630448	-4.170429	-4.110417	-5.140127	-6.290754	-5.740524	-4.8201620	-13.1601595	-13.3701083	
φ(82.5°)	-11.9601297	-13.0901379	-15.4701407	-11.030486	-7.890412	-7.580408	-6.740468	-7.060424	-5.140503	-6.490199	-11.3201199	-11.780152	-13.6501550	-15.6201275	-9.900438	-6.700566	-6.410532	-6.490465	-6.130486	-10.290463	-6.690436	-8.6101423	-14.0201318	-12.820109	
φ(90°)	-13.9001445	-13.1101262	-14.6701553	-13.8201128	-10.400187	-9.440174	-6.560179	-7.9201789	-5.640530	-6.740491	-13.2901337	-12.2601151	-13.4701548	-											

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





Antenna Pattern_Radio 2_5GHz

Appendix E

(H22.5)	5.90E-19	6.43E-61	6.98E-38	6.01E-58	5.20E-92	4.93E-04	5.20E-36	5.30E-14	4.79E-39	3.98E-74	5.50E-46	3.44E-03	3.88E-45	5.04E-45	5.62E-58	5.39E-20	5.03E-91	4.82E-67	4.45E-15	3.87E-73	3.69E-78	4.02E-29	4.68E-98	5.32E-05
(H30P)	5.52E-56	5.51E-49	5.56E-61	5.51E-25	5.02E-96	4.97E-86	4.60E-28	4.60E-85	3.52E-28	2.03E-47	1.43E-81	1.79E-10	2.79E-67	4.29E-52	4.43E-20	4.00E-88	4.11E-82	4.90E-83	4.54E-02	3.42E-92	2.67E-62	2.60E-28	3.45E-16	4.6E-03
(H37.5)	4.11E-15	4.12E-28	4.79E-32	5.50E-35	5.21E-54	5.61E-01	4.11E-21	2.70E-67	2.70E-44	1.49E-09	0.03E-03	0.16E-06	0.56E-17	1.27E-12	1.56E-10	2.48E-61	3.16E-85	4.04E-62	3.14E-03	2.88E-36	3.01E-91	2.44E-99	1.96E-52	3.35E-06
(H42.5)	1.38E-82	2.19E-82	3.72E-33	4.38E-12	4.06E-14	4.26E-06	2.91E-89	1.60E-81	1.71E-10	0.35E-134	3.80E-75	4.74E-46	2.69E-127	2.96E-150	0.07E-64	0.94E-76	0.78E-109	1.11E-68	0.12E-30	1.21E-98	2.29E-15	1.64E-109	4.47E-24	1.02E-66
(H52.5)	2.14E-67	0.08E-50	2.83E-38	2.90E-23	1.80E-14	1.40E-01	-0.51E-71	-0.50E-44	-0.86E-236	-4.26E-64	-6.32E-104	-6.51E-607	-3.32E-273	-2.56E-250	-1.73E-936	-0.16E-314	-1.11E-68	-0.86E-146	-0.90E-305	0.07E-77	0.58E-105	-0.75E-193	-1.37E-157	-1.00E-165
(H67.5)	-3.99E-180	-0.36E-98	2.19E-84	2.29E-82	1.11E-44	0.16E-073	-1.14E-150	-1.60E-244	-3.49E-496	6.38E-30	-8.69E-689	-4.61E-323	-1.94E-156	-2.54E-242	-1.69E-131	0.36E-020	-0.87E-68	-0.02E-976	-1.13E-122	-0.64E-076	-1.59E-234	-4.08E-400	-3.95E-193	-2.72E-420
(H75.5)	-4.71E-280	-6.63E-26	1.60E-48	1.62E-40	1.02E-64	0.60E-18	-0.02E-73	-1.73E-287	-3.79E-456	5.63E-50	-6.69E-121	-1.39E-141	-0.95E-175	-3.94E-308	-2.45E-253	-1.19E-060	-1.09E-114	-0.99E-068	-1.28E-175	-1.61E-274	-3.73E-420	-6.27E-684	-7.40E-632	-4.93E-749
(H75.5)	-5.36E-419	-1.62E-189	0.51E-18	0.44E-62	0.51E-50	0.31E-10	-0.06E-13	-3.07E-359	-3.53E-382	-4.52E-504	-6.29E-351	-1.30E-166	-1.34E-179	-3.84E-485	-3.80E-427	2.26E-114	-1.04E-088	0.83E-109	-1.26E-183	-2.38E-445	-5.39E-671	-8.61E-154	0.36E-653	6.42E-538
(H82.5)	-6.52E-527	-5.21E-89	-8.89E-37	-1.08E-13	-1.84E-21	-8.84E-105	-1.10E-226	-4.40E-512	-4.79E-656	-8.71E-39	-4.62E-392	-3.06E-330	-3.71E-35	-8.21E-65	-6.30E-37	-3.57E-278	-2.55E-224	2.11E-229	2.67E-136	-3.98E-117	-4.02E-698	-1.17E-143	-12.02E-196	6.79E-442
(H87.5)	0.19E-680	0.71E-491	-3.07E-72	-3.19E-52	-4.68E-445	-3.29E-338	-3.59E-435	-4.59E-87	-6.34E-632	-9.20E-755	-8.21E-667	-4.02E-137	-4.30E-153	-7.24E-689	-8.69E-632	-7.33E-533	-6.60E-421	-5.16E-571	-5.26E-750	-7.69E-116	-11.27E-112	-15.29E-151	-15.91E-189	-16.83E-631
(H87.5)	0.16E-750	6.79E-649	5.54E-449	-4.43E-639	7.30E-673	5.56E-539	-6.00E-124	8.80E-1627	8.77E-1016	5.259E-958	8.84E-144	7.19E-648	6.96E-577	12.41E-1187	11.73E-1019	6.26E-856	7.29E-738	8.77E-975	16.33E-639	14.60E-1272	15.22E-1554	-15.36E-1298	-10.85E-677	-10.85E-677
(H101.5)	0.24E-1630	6.79E-623	7.70E-736	-4.79E-440	9.98E-630	7.64E-113	-0.11E-142	-1.02E-127	1.05E-1074	4.49E-1195	-1.25E-101	6.23E-448	8.26E-377	16.10E-1037	16.07E-1175	-6.60E-833	-11.25E-1274	-10.14E-060	10.77E-1532	14.10E-1171	15.21E-1513	-15.40E-1370	-12.72E-1591	-12.72E-1591
(H117.5)	0.142E-1207	1.17E-1101	8.85E-849	-8.59E-86	1.60E-11123	3.02E-330	-10.79E-118	12.21E-1079	11.81E-1033	1.64E-1559	19.16E-1237	-1.09E-1128	-1.34E-1121	-14.99E-1330	10.27E-1145	-4.09E-1139	-10.11E-106	-11.45E-1273	-10.49E-1034	-13.49E-1330	12.27E-1339	-15.57E-1565	-15.63E-1496	-15.27E-1411
(H127.5)	-1.63E-1522	-12.32E-1259	-1.12E-1173	-1.11E-1130	-1.10E-1130	-1.19E-1010	-1.152E-1472	-1.584E-1262	-1.57E-1509	-1.55E-1521	-1.54E-1516	-1.240E-1296	-1.384E-1350	-1.39E-1543	-1.46E-1412	-1.168E-1001	-1.41E-1376	-1.39E-1545	-1.05E-1432	-1.04E-1406	-1.147E-1536	-1.64E-1534	-1.56E-1536	-1.56E-1536
(H127.5)	-1.534E-1530	-1.51E-1547	-1.541E-1214	-1.329E-1338	-1.472E-1525	-1.316E-1090	-1.250E-1530	-1.52E-1206	-1.155E-1432	-1.643E-1510	-1.32E-1312	-1.570E-1446	-1.501E-1485	-1.39E-1540	-1.482E-1514	-1.60E-1523	-1.55E-1533	-1.061E-1375	-1.480E-1345	-1.307E-1559	-1.560E-1518	-1.56E-1536	-1.56E-1536	-1.53E-1428
(H137.5)	-1.534E-1530	-1.57E-1537	-1.534E-1584	-1.480E-1548	-1.53E-1514	-1.471E-1474	-1.50E-1547	-1.43E-1499	-1.50E-1557	-1.58E-1521	-1.461E-1333	-1.39E-1435	-1.471E-1434	-1.43E-1539	-1.573E-1535	-1.522E-1473	-1.52E-1532	-1.47E-1513	-1.479E-1523	-1.328E-1537	-1.522E-1467	-1.560E-1478	-1.435E-1398	-1.435E-1398
(H142.5)	-1.541E-1585	-1.529E-1603	-1.510E-1584	-1.431E-1536	-1.50E-1513	-1.64E-1581	-1.496E-1506	-1.58E-1547	-1.55E-1581	-1.554E-1546	-1.465E-1542	-1.38E-1399	-1.59E-1288	-1.34E-1598	-1.57E-1512	-1.42E-1282	-1.479E-1507	-1.55E-1514	-1.48E-1537	-1.426E-1507	-1.51E-1515	-1.577E-1627	-1.560E-1478	-1.52E-1511
(H157.5)	-1.541E-1492	-1.56E-1571	-1.50E-1566	-1.503E-1507	-1.427E-1296	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573	-1.532E-1573
(H157.5)	-1.500E-1517	-1.50E-1585	-1.469E-1551	-1.471E-1534	-1.53E-1494	-1.52E-1538	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581	-1.46E-1581
(H167.5)	-1.46E-1532	-1.51E-1543	-1.53E-1572	-1.51E-1470	-1.50E-1483	-1.57E-1519	-1.41E-1514	-1.49E-1585	-1.46E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482	-1.48E-1482
(H172.5)	-1.57E-1427	-1.58E-1441	-1.51E-1524	-1.50E-1510	-1.50E-1462	-1.41E-1532	-1.48E-1545	-1.457E-1485	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532	-1.46E-1532
(H172.5)	-1.58E-1471	-1.51E-1564	-1.51E-1497	-1.50E-1578	-1.48E-1547	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514	-1.40E-1514
Freq(Hz)	5.83E9	Table E.2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	0°(H27.5) 0°(V27.5)	0°(H27.5) 0°(V27.5)	0°(H45.5) 0°(V27.5)	0°(H45.5) 0°(V27.5)	0°(H60.5) 0°(V27.5)	0°(H75.5) 0°(V27.5)	0°(H90.5) 0°(V27.5)	0°(H105.5) 0°(V27.5)	0°(H120.5) 0°(V27.5)	0°(H135.5) 0°(V27.5)	0°(H150.5) 0°(V27.5)	0°(H165.5) 0°(V27.5)	0°(H180.5) 0°(V27.5)	0°(H195.5) 0°(V27.5)	0°(H210.5) 0°(V27.5)	0°(H225.5) 0°(V27.5)	0°(H240.5) 0°(V27.5)	0°(H255.5) 0°(V27.5)	0°(H270.5) 0°(V27.5)	0°(H285.5) 0°(V27.5)	0°(H300.5) 0°(V27.5)	0°(H315.5) 0°(V27.5)	0°(H330.5) 0°(V27.5)	0°(H345.5) 0°(V27.5)
(H1)	6.58E-70	6.87E-65	7.00E-61	6.97E-62	6.79E-63	6.45E-64	6.20E-68	5.82E-79	5.67E-59	5.64E-50	5.47E-54	5.55E-85	6.68E-30	6.51E-73	6.87E-99	6.99E-99	6.91E-81	6.68E-64	6.43E-31	6.46E-78	5.93E-53	5.97E-61	6.10E-23	6.37E-49
(H1)	6.46E-78	7.00E-75	7.00E-75	7.00E-75	7.00E-75	7.00E-75	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78	6.60E-78
(H1)	6.39E-87	7.03E-78	7.03E-78	7.03E-78	7.03E-78	7.03E-78	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73	6.81E-73
(H22.5)	6.57E-80	7.17E-60	7.50E-73	6.99E-67	5.86E-35	5.08E-99	5.15E-34	5.45E-36	5.02E-51	3.98E-59	3.15E-84	3.09E-83	3.15E-84	3.09E-83	3.15E-84	3.09E-83	3.15E-84	3.09E-83	3.15E-84	3.09E-83	3.15E-84	3.09E-83	3.15E-84	3.09E-83
(H37.5)	6.43E-72	6.68E-64	6.98E-39	5.99E-61	4.89E-46	4.15E-90	3.42E-16	3.07E-82	2.57E-85	1.07E-65	4.70E-64	4.70E-64	4.70E-64	4.70E-64	4.70E-64	4.70E-64	4.70E-64	4.70E-64	4.70E-64	4.70E-64	4.70E-64	4.70E-64	4.70E-64	4.70E-64
(H37.5)	5.35E-69	5.43E-59	5.51E-68	5.70E-64	5.26E-35	4.54E-74	3.96E-39	1.69E-50	1.27E-77	0.69E-73	0.14E-96	-0.60E-71	-0.03E-86	1.31E-78	2.48E-67	3.24E-36	3.90E-88	3.80E-29	2.79E-81	3.34E-79	3.90E-55	2.75E-90	1.62E-01	3.81E-87
(H37.5)	3.66E-87	3.40E-88	3.48E-84	1.48E-64	4.57E-61	4.44E-58	6.84E-22	2.99E-31	0.67E-01	1.05E-25	1.05E-156	3.66E-37	5.67E-31	-5.98E-32	-3.17E-29	-1.24E-28	1.26E-31	1.38E-10	1.20E-72	0.37E-56	1.22E-36	1.20E-49	1.63E-01	1.62E-01
(H52.5)	-1.79E-127	0.17E-70	2.81E-33	3.20E-77	2.90E-61	1.64E-75	0.99E-50	-1.59E-138	-1.38E-313	-6.83E-72	-8.65E-142	-1.22E-613	-5.94E-494	-5.10E-534	-3.23E-617	-0.02E-08	-0.50E-67	-0.84E-094	-1.22E-154	-0.74E-11	-0.07E-74	-1.41E-150	2.25E-251	-1.12E-127
(H67.5)	5.67E-80	-0.75E-97	5.90E-53	5.21E-64	6.91E-16	1.68E-102	0.61E-09	-2.00E-292	-3.40E-234	-5.64E-721	-6.00E-731	-5.52E-839	-2.64E-295	-4.86E-522	-4.72E-422	-2.20E-121	-1.27E-124	-1.15E-057	-0.54E-205	-2.53E-200	-2.26E-291	-3.45E-278	3.94E-429	-3.66E-425
(H67.5)	4.62E-43	6.90E-01	1.03E-74	1.41E-151	1.04E-02	-0.27E-59	0.79E-26	-1.42E-219	-3.06E-383	-4.44E-514	6.03E-1474	3.17E-199	-2.16E-349	-4.99E-132	-2.97E-03	-2.95E-160	-1.36E-128	-1.09E-031	-0.23E-196	-2.99E-268	-3.42E-147	-4.50E-385	6.13E-127	-6.17E-243
(H67.5)	-6.99E-43	-1.69E-108	0.03E-36	-0.21E-43	0.41E-69	0.72E-06	0.41E-25	-1.83E-268	-3.49E-558	-5.59E-558	-6.03E-540	-3.47E-330	-0.62E-444	-6.24E-113	-3.52E-15	-1.41E-227	-1.15E-123	-1.06E-045	-0.26E-167					



Antenna Pattern_Radio 2_5GHz

Appendix E

(H0°)	1.580711	-5.70-4.38	-1.920107	-1.61142	1.05168	0.649085	-1.39032	1.05158	1.19052	0.480058	0.400102	-0.901686	-3.58063	-8.420191	-8.671181	-13.10-10.53	6.440130	-3.341182	-1.751194	-2.051149	-0.271038	4.121337	6.240401	-8.811615
(H82°)	0.181841	6.351645	2.771157	-2.292125	-0.00201	0.851229	-2.45131	-0.431036	0.591034	-0.801152	-1.981234	-2.721420	-5.641674	8.911877	8.171107	-11.731018	4.741008	-4.921820	-3.511038	-3.771252	-0.581156	4.901878	6.141890	-6.531043
(H10°)	-1.811018	8.641646	-5.261350	-4.23164	-2.61182	-2.88143	-4.29134	-2.711283	2.871280	-2.461263	-4.131372	-3.761461	-5.67158	-7.981789	-7.171016	-13.311085	-6.701584	-6.911485	-6.911485	-2.981136	-2.731887	-7.771887	-11.011974	-11.831016
(H97°)	-13.441143	11.901122	8.271620	-8.58158	-4.90140	-0.541702	-8.771596	-5.471658	-5.261484	-4.281441	-5.861009	-6.97184	-8.991623	8.071864	8.841102	-13.861148	-15.131127	-10.241929	-11.761889	-11.421836	-5.68171	8.941199	-10.821126	-13.811285
(H105°)	-14.541147	12.741134	-10.811989	9.141825	-8.571656	-0.781075	-10.751870	-7.821787	-7.241634	-6.121653	-7.111710	-8.871887	-9.751108	8.121649	9.191114	-13.321148	-16.031145	-13.111179	-14.781107	-15.041126	-10.081119	-10.921110	-13.591121	-14.251135
(H122°)	-15.681142	-13.891105	-13.931138	-11.911832	-8.07161	-6.621121	-13.411102	-8.501897	-8.411742	-7.131826	-8.59112	-9.881132	-12.611134	-12.961114	-12.961114	-13.781133	-12.011168	-13.781133	-14.781130	-15.021132	-13.721132	-12.341131	-11.951141	-12.901134
(H127°)	-15.721159	-14.591158	-13.131146	-12.161138	-9.581116	-8.261150	-13.471170	-8.601848	-8.320865	-8.891151	-12.291872	-10.451127	-11.611413	-12.011168	-12.011168	-13.781133	-12.011168	-13.781133	-14.781130	-15.021132	-13.721132	-12.341131	-11.951141	-12.901134
(H127°)	-15.711544	-15.171544	-15.081148	-13.881137	-10.801159	-14.741152	-11.671130	-8.301838	-8.961112	-10.441134	-14.711137	-11.351130	-12.211102	-13.301121	-12.601121	-13.571139	-14.741136	-13.591138	-8.811123	-15.091142	-15.981151	-14.881132	-12.831154	-15.101521
(H12°)	-15.721159	-14.591158	-13.131146	-12.161138	-9.581116	-8.261150	-13.471170	-8.601848	-8.320865	-8.891151	-12.291872	-10.451127	-11.611413	-12.011168	-12.011168	-13.781133	-12.011168	-13.781133	-14.781130	-15.021132	-13.721132	-12.341131	-11.951141	-12.901134
(H142°)	-15.191141	-15.191142	-14.831147	-15.061152	-15.451146	-11.191138	-12.691170	-15.201158	-15.031139	-15.011528	-15.891155	-14.141128	-12.711182	-12.221182	-12.111506	-14.891156	-14.891156	-15.011506	-14.891156	-15.011506	-14.891156	-15.011506	-14.891156	-15.011506
(H147°)	-14.781152	-15.011505	-15.171157	-15.111533	-16.101158	-15.671158	-14.481161	-15.091152	-14.281153	-14.741158	-14.591145	-15.371152	-16.021148	-15.091156	-15.371152	-14.281153	-14.591145	-15.371152	-16.021148	-15.091156	-15.371152	-14.281153	-14.591145	-15.371152
(H157°)	-15.371152	-15.101158	-15.251153	-15.041155	-15.251154	-14.851151	-15.251154	-15.351144	-14.831141	-14.701145	-14.501148	-14.581148	-15.281146	-15.281146	-15.281146	-15.281146	-15.281146	-15.281146	-15.281146	-15.281146	-15.281146	-15.281146	-15.281146	-15.281146
(H157°)	-15.341160	-15.481158	-16.021153	-14.771152	-16.031154	-15.341154	-14.571149	-15.411156	-15.471154	-15.291150	-15.331152	-10.501103	-12.711136	-13.091154	-14.911156	-15.091156	-15.281146	-14.781153	-14.691148	-15.111158	-15.211158	-15.491157	-14.101149	-14.101149
(H172°)	-15.751148	-15.391151	-11.584150	-15.301157	-15.021158	-13.671130	-14.841148	-15.061157	-15.361141	-15.041156	-13.801124	-12.941118	-14.441148	-15.051151	-15.051151	-16.241129	-15.161151	-14.911152	-14.911152	-15.161151	-14.911152	-15.161151	-14.911152	-15.161151
(H180°)	-15.501154	-15.4211525	-14.821164	-14.861154	-15.171149	-13.711131	-12.251141	-11.231127	-10.911153	-11.711128	-13.331148	-13.811154	-12.961125	-12.371154	-15.221155	-15.141158	-14.861144	-14.191143	-15.181154	-15.291150	-15.361145	-13.371157	-14.881144	-15.291157
FreeH0	5.30P94	3.68H01.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	0°(H0°/V027°)	0°(H1°/V022°)	0°(H2°/V027°)	0°(H3°/V022°)	0°(H4°/V027°)	0°(H5°/V022°)	0°(H6°/V027°)	0°(H7°/V022°)	0°(H8°/V027°)	0°(H9°/V022°)	0°(H10°/V027°)	0°(H11°/V022°)	0°(H12°/V027°)	0°(H13°/V022°)	0°(H14°/V027°)	0°(H15°/V022°)	0°(H16°/V027°)	0°(H17°/V022°)	0°(H18°/V022°)	0°(H19°/V027°)	0°(H20°/V022°)	0°(H21°/V027°)	0°(H22°/V022°)	0°(H23°/V027°)
(H0°)	6.67587	5.70517	5.87617	6.24813	6.60817	6.88017	7.11716	7.14713	6.86817	6.51618	6.055185	5.50515	5.02513	4.68118	4.42714	7.30714	7.36714	7.40714	7.32714	7.14811	6.68814	6.19518	5.87517	-
(H1°)	5.81513	6.19812	6.63815	7.16713	7.57116	7.72717	7.72717	7.72717	7.58716	7.21717	6.83515	6.308118	5.675187	5.095147	5.174195	5.065140	5.705178	5.715173	5.908110	6.024126	6.30812	6.268126	6.09513	5.825179
(H2°)	5.86167	5.908113	6.408175	6.937101	7.227119	7.472146	7.472146	7.472146	7.048161	6.578139	6.238162	5.635126	5.024178	4.674183	5.198139	5.305123	5.511108	5.624126	5.905105	5.985108	5.934195	5.845185	5.40515	-
(H3°)	4.484168	4.995151	6.208184	7.247138	7.731120	7.712117	7.267139	7.487138	7.116169	6.245186	5.454195	4.424109	4.134128	4.284128	4.384174	5.275168	5.885190	5.705145	5.404171	4.524141	4.274103	3.730152	3.643196	4.334164
(H4°)	3.864122	4.735166	6.697132	7.687133	7.497113	6.998117	6.038121	6.408143	6.265191	5.474194	4.362194	2.992154	2.723102	3.062195	3.243186	4.134177	5.045192	5.004185	4.094133	4.193192	3.482117	2.802118	2.402118	3.404164
(H5°)	2.242138	2.793183	4.865109	4.945110	5.355116	4.824129	4.444174	4.884191	4.754122	3.412192	2.571187	1.126153	0.010119	0.280185	1.211184	2.542182	2.772181	2.612180	3.210160	3.870159	2.791165	0.910158	0.240155	0.551175
(H6°)	-1.201017	-0.171131	2.723114	3.305136	3.980175	3.519192	2.662197	3.210134	3.463134	2.221133	1.401110	0.380164	-2.451136	-3.451127	-1.591168	0.222101	0.931152	1.210110	1.471153	1.931152	2.261148	2.042155	-0.321122	-0.321122
(H82°)	-4.891440	-2.741482	6.91191	2.802196	2.152148	3.252142	5.950102	6.430153	1.362128	1.086188	1.778152	-0.621206	-7.119198	-6.011138	-8.291813	-4.971382	-3.071634	0.311181	0.880158	0.590155	0.4481120	1.9811275	-3.351439	5.645152
(H105°)	-5.521584	-5.911308	1.090148	1.729186	2.501127	1.021187	0.901185	1.011189	1.091189	1.960152	-0.602116	-4.691175	-6.911918	-10.071131	-7.911855	-4.581185	-0.020149	0.111149	0.498124	0.444188	3.14121	5.881191	4.151173	5.971173
(H122°)	7.391123	6.311227	6.911491	1.348112	0.931181	1.895191	-1.581114	1.291188	1.235190	5.021144	2.551141	-0.121255	4.261485	6.311612	8.719178	8.719178	8.719178	8.719178	8.719178	8.719178	8.719178	8.719178	8.719178	8.719178
(H127°)	6.591171	5.291589	0.840155	0.951517	0.847173	1.181021	-2.211108	1.211171	6.830144	0.520194	0.151070	-0.981597	-0.081532	5.991500	7.2211031	8.99172	7.331412	-1.731158	-1.391107	-2.231123	1.911141	-3.251474	8.101624	3.351850
(H127°)	10.181558	6.401411	2.161100	-0.771180	-0.340174	-0.840133	-3.081159	0.101010	-1.071127	-0.961233	-0.601172	-0.361917	-0.361917	-0.361917	-0.361917	-0.361917	-0.361917	-0.361917	-0.361917	-0.361917	-0.361917	-0.361917	-0.361917	-0.361917
(H137°)	-10.871012	-8.591730	6.471371	-3.351445	-2.781104	-2.951608	-5.751365	-1.881209	-3.211365	-2.861136	-3.651146	-3.371141	-6.331489	-6.381552	-6.981450	-6.281645	-10.011818	-5.671642	-5.844179	-5.981403	-2.731377	7.3711034	-10.761138	-10.251130
(H137°)	-12.461128	-11.121129	-11.471132	-10.521128	-10.711333	-9.531847	-7.381130	-4.051508	-6.281249	-4.431523	-5.641586	-5.471431	-1.971580	-7.891624	-8.021918	-16.781108	-14.9611127	-15.051161	-15.051161	-15.051161	-15.051161	-15.051161	-15.051161	-15.051161
(H157°)	-12.571018	-11.221129	-10.811836	-10.481012	-8.641581	-8.111100	-8.231156	-7.361594	-6.861178	-6.751445	-6.411618	-6.411618	-6.411618	-6.411618	-6.411618	-6.411618	-6.411618	-6.411618	-6.411618	-6.411618	-6.411618	-6.411618	-6.411618	-6.411618
(H172°)	-15.911018	-12.191146	-11.121146	-11.471091	-9.211839	-8.111100	-11.0211375	-10.4611003	-9.411833	-7.519137	-6.101100	-5.201103	-11.831007	-10.421138	-8.021131	-11.021140	-10.091107	-10.091107	-10.091107	-10.091107	-10.091107	-10.091107	-10.091107	-10.091107
(H180°)	-15.461140	-15.321145	-15.311542	-14.771106	-15.271108	-11.901149	-14.361183	-10.411846	-10.561897	-8.731141	-10.261171	-12.741140	-13.541152	-14.271133	-11.951127	-11.791128	-11.601159	-12.771102	-13.711458	-13.401159	-11.681124	-12.381153	-14.861157	-14.301135
(H127°)	-14.681144	-15.161152	-15.161152	-14.761129	-10.751107	-11.611502	-11.621146	-8.681104	-12.001114	-11.181145	-15.191138	-13.871148	-14.301153	-13.111120	-12.021128	-15.161151	-15.011142	-12.761128	-13.191134	-15.061150	-14.601142	-15.191135	-14.871148	-14.871148
(H142°)	-15.161140	-14.421157	-15.461150	-15.2311535	-14.0011497	-15.401148	-15.301144	-14.901144	-10.271143	-13.591139	-13.871142	-15.241154	-14.211122	-10.391188	-11.461156	-11.991142	-13.881149	-15.361132	-14.9311529	-10.591149	-10.641165	-15.021152	-15.141147	-15.221148
(H142°)	-16.321160	-14.811155	-15.311144	-14.481184	-15.101140	-13.8611431	-15.341138	-10.941864	-14.781157	-15.711137	-15.2011525	-12.711188	-13.711133	-12.061146	-12.061146	-14.041171	-13.951142	-14.951142	-13.951142	-13.951142	-13			

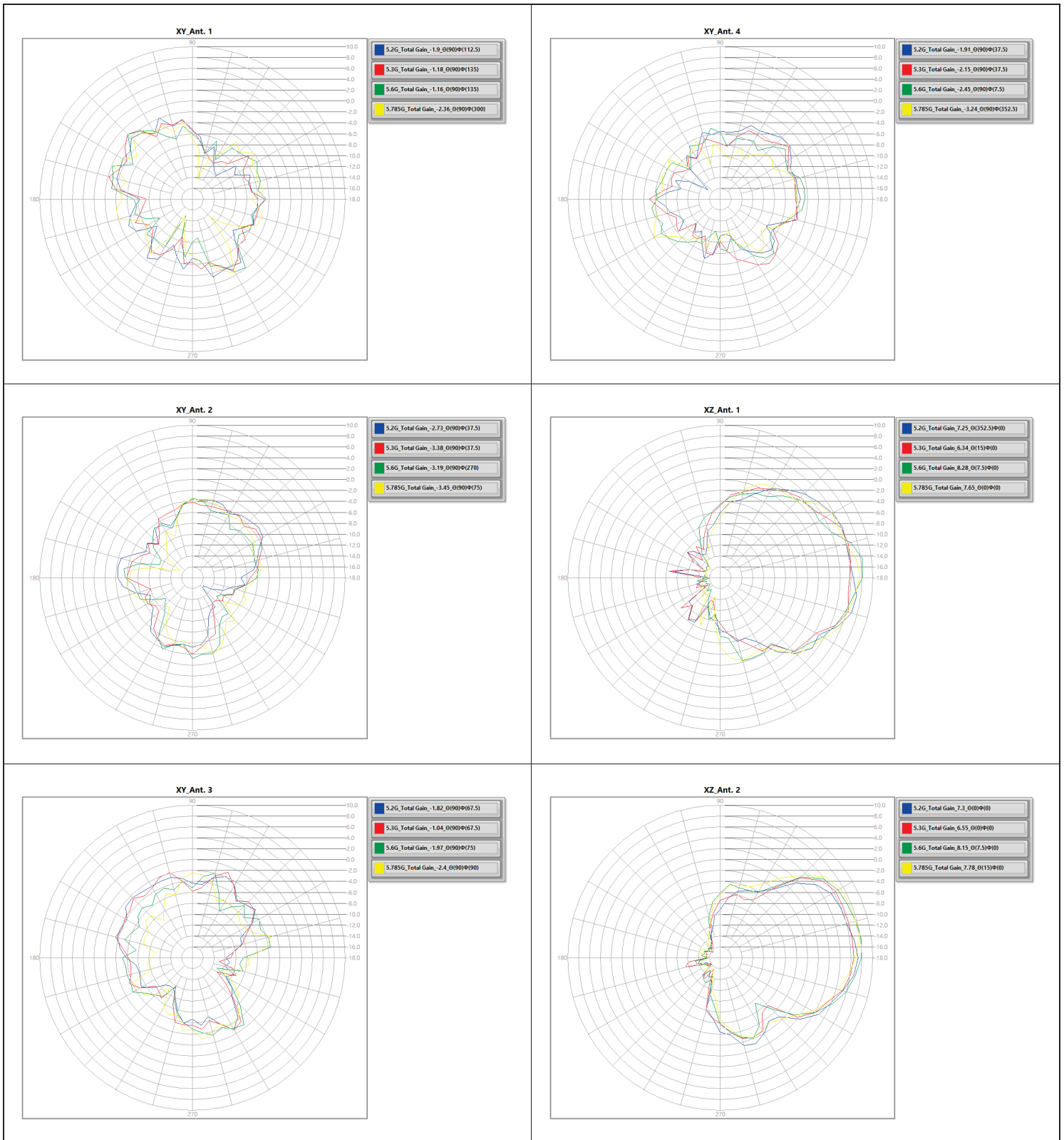


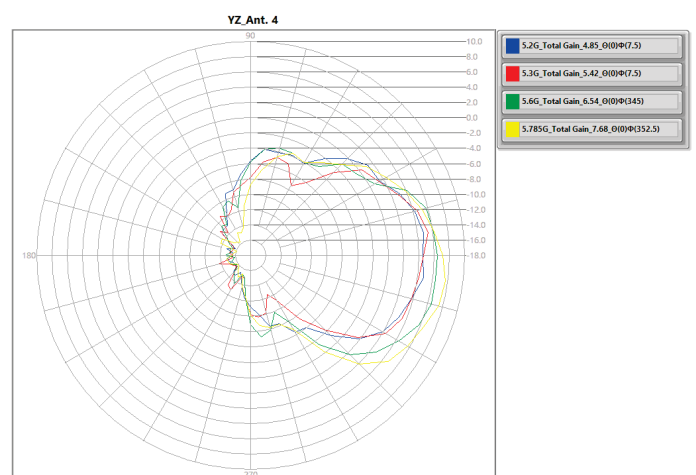
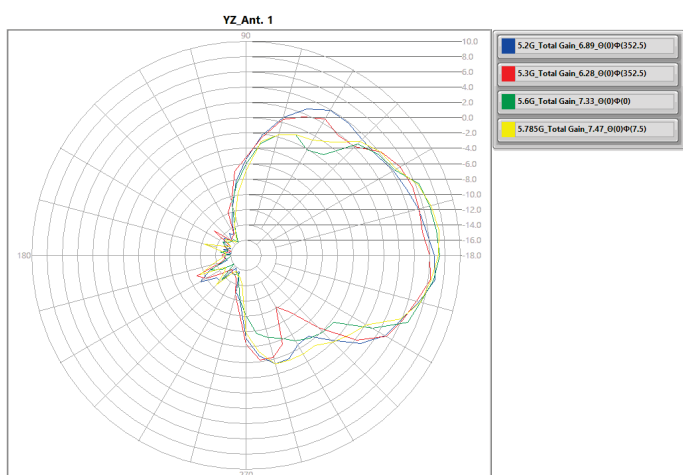
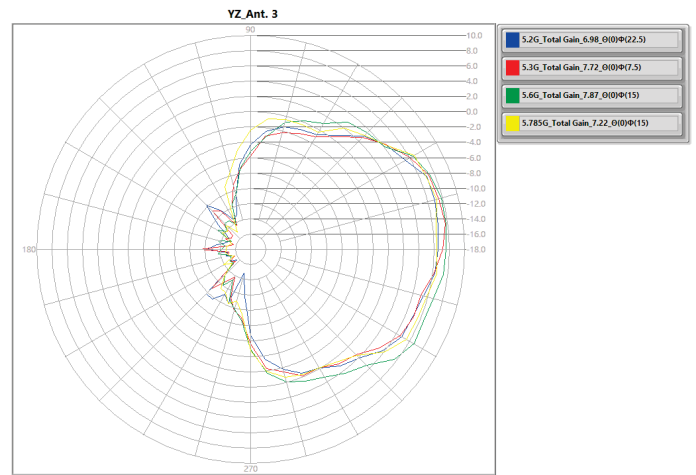
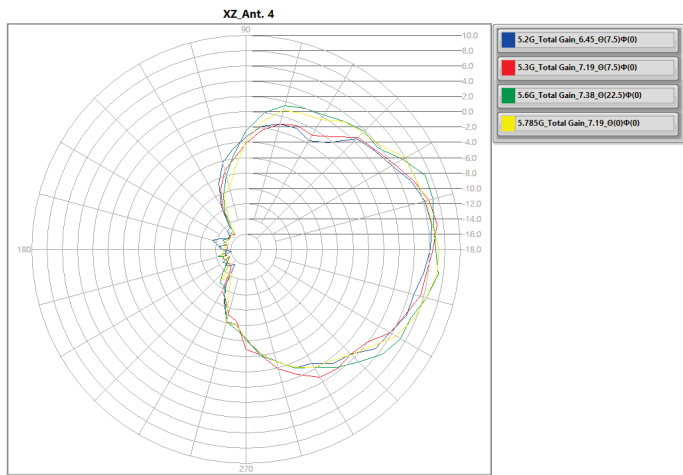
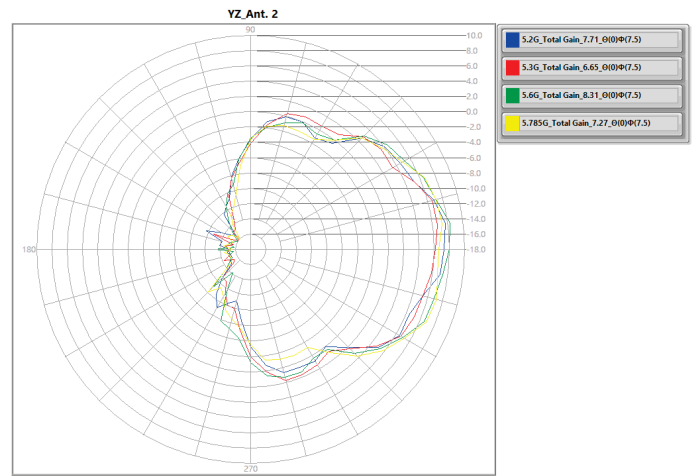
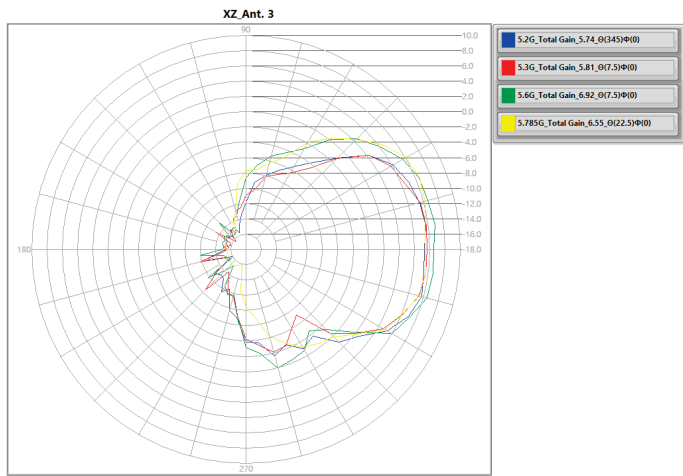
Antenna Pattern_Radio 2_5GHz

Appendix E

φ(127°)	-14.50/-12.31	-12.29/-14.47	-14.30/-14.18	-13.00/-13.00	-15.89/-10.74	-14.80/-13.67	-13.05/-11.61	-12.59/-11.50	-13.39/-14.97	-15.30/-15.43	-14.19/-14.04	-15.77/-15.18	-15.51/-15.83	-15.80/-15.98	-15.40/-13.78	-13.61/-15.52	-15.71/-15.60	-15.57/-15.53	-14.74/-14.54	-14.68/-15.75	-14.49/-14.83	-15.02/-14.75	-15.44/-15.58	-13.70/-13.95
φ(130°)	-14.54/-13.30	-12.86/-12.72	-13.55/-15.86	-14.34/-14.24	-14.80/-14.38	-12.85/-12.17	-13.15/-11.17	-11.38/-13.19	-15.19/-15.72	-15.36/-14.57	-15.10/-14.86	-14.66/-15.06	-15.03/-15.19	-16.19/-15.18	-15.22/-15.06	-15.76/-15.45	-15.16/-15.67	-15.75/-15.66	-14.83/-14.64	-15.25/-15.39	-15.79/-15.43	-15.15/-15.41	-15.38/-14.77	-15.02/-14.72
φ(142°)	-15.37/-14.95	-15.04/-13.09	-13.53/-13.79	-15.25/-16.09	-15.68/-14.65	-12.66/-12.95	-13.16/-13.16	-14.40/-15.51	-15.19/-14.76	-15.09/-15.86	-15.82/-15.85	-15.53/-15.36	-14.62/-14.92	-15.08/-15.25	-15.03/-15.33	-15.71/-15.16	-15.43/-15.22	-15.04/-14.85	-15.74/-15.24	-15.46/-14.84	-15.24/-15.98	-15.44/-15.34	-14.91/-14.76	-15.50/-15.24
φ(150°)	-15.25/-16.06	-13.89/-12.42	-12.59/-15.15	-16.10/-13.72	-12.52/-14.18	-11.83/-15.48	-15.19/-15.38	-14.91/-13.51	-13.69/-15.19	-15.67/-14.80	-15.49/-15.48	-15.64/-15.00	-15.40/-15.86	-15.16/-14.88	-15.30/-15.47	-15.54/-14.88	-15.64/-14.85	-15.09/-15.85	-15.59/-15.04	-15.21/-15.09	-15.42/-15.39	-14.85/-15.38	-15.33/-15.09	-14.54/-15.89
φ(157°)	-14.40/-14.79	-13.31/-13.59	-14.64/-14.63	-15.73/-15.73	-15.63/-14.73	-11.76/-15.21	-15.84/-14.52	-14.93/-15.22	-14.96/-14.92	-14.76/-15.78	-14.74/-15.41	-15.61/-15.48	-15.63/-15.40	-15.47/-15.63	-16.02/-15.51	-14.65/-15.75	-15.31/-15.75	-15.13/-15.22	-15.53/-14.83	-15.37/-15.45	-15.62/-15.47	-15.29/-15.28	-15.46/-15.34	-14.91/-15.16
φ(160°)	-15.45/-13.96	-15.79/-15.39	-14.94/-15.88	-15.95/-14.74	-15.30/-15.17	-15.78/-15.18	-14.80/-14.67	-15.91/-15.23	-15.82/-15.34	-14.94/-15.12	-15.43/-15.41	-15.74/-14.92	-15.11/-15.24	-14.20/-14.56	-15.36/-15.17	-14.30/-14.81	-15.44/-16.07	-15.53/-15.48	-15.15/-15.28	-15.52/-14.98	-15.50/-15.86	-15.31/-14.58	-15.49/-15.49	-15.21/-15.19
φ(172°)	-14.42/-15.54	-15.83/-15.63	-15.17/-15.96	-15.31/-15.29	-15.32/-15.06	-14.46/-16.09	-15.46/-16.22	-14.71/-14.87	-14.66/-14.37	-13.74/-13.94	-15.34/-15.14	-15.83/-15.31	-15.96/-15.80	-15.06/-15.23	-15.36/-15.43	-14.53/-15.20	-15.22/-15.07	-14.91/-15.16	-15.44/-15.21	-15.53/-15.63	-15.08/-14.98	-15.40/-15.16	-15.78/-15.79	-15.21/-15.15
φ(180°)	-14.74/-14.14	-14.01/-14.07	-14.09/-14.27	-14.33/-15.45	-15.79/-15.49	-15.32/-15.41	-15.64/-15.07	-15.00/-15.75	-15.68/-15.69	-15.29/-14.88	-15.50/-15.47	-15.36/-14.79	-15.19/-15.41	-15.73/-15.03	-15.96/-15.20	-14.73/-15.86	-14.94/-15.57	-15.40/-15.31	-15.63/-14.58	-14.98/-15.86	-14.69/-15.33	-15.38/-15.75	-14.90/-15.44	-15.25/-15.22
FreeRx	5.959Pa	Tested:4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Gain	φ(127°/127°)	φ(157°/1022°)	φ(160°/1007°)	φ(167°/1002°)	φ(167°/1007°)	φ(167°/1002°)	φ(167°/1007°)	φ(167°/1002°)	φ(167°/1007°)	φ(167°/1002°)	φ(167°/1007°)	φ(167°/1002°)	φ(167°/1007°)	φ(167°/1002°)	φ(167°/1007°)	φ(167°/1002°)	φ(167°/1007°)	φ(167°/1002°)	φ(167°/1007°)	φ(167°/1002°)	φ(167°/1007°)	φ(167°/1002°)	φ(167°/1007°)	φ(167°/1002°)
φ(17°)	6.436-45	6.465-46	6.336-17	5.795-51	4.794-56	4.894-54	4.834-59	4.835-50	5.275-55	5.858-17	6.408-58	6.635-54	6.676-65	6.556-39	6.725-59	6.785-59	6.505-07	5.905-14	5.905-14	5.905-14	5.905-14	5.905-14	5.905-14	5.905-14
φ(17°)	7.197-27	7.267-32	7.277-22	7.048-71	6.816-68	5.775-55	5.425-29	5.305-26	5.285-37	5.425-44	5.475-58	5.725-78	5.785-65	5.995-60	5.675-58	5.415-15	4.940-53	4.374-24	4.234-26	4.234-26	4.234-26	4.234-26	4.234-26	4.234-26
φ(17°)	6.758-87	6.887-89	7.137-04	6.858-46	5.885-35	5.974-53	4.984-49	4.824-49	4.855-56	5.165-15	5.155-20	5.325-45	5.575-61	5.655-74	5.735-69	5.545-22	4.914-68	4.314-02	3.823-78	4.094-42	5.335-52	6.378-54	6.713-73	6.726-76
φ(22°)	5.51-71	6.637-72	7.287-21	6.678-39	5.884-79	5.878-71	2.962-89	3.163-49	3.934-34	4.524-42	2.992-94	1.992-82	1.484-24	4.484-49	4.845-11	5.375-38	5.255-02	4.714-35	3.442-73	3.452-72	3.704-48	5.185-87	6.208-16	5.925-39
φ(30°)	4.364-83	5.125-57	5.485-13	4.460-76	3.162-78	2.301-83	1.361-37	1.842-24	2.592-99	3.243-13	2.970-07	3.320-53	3.763-91	3.967-77	3.403-17	3.173-10	2.872-95	2.652-77	2.472-33	2.533-29	4.215-13	5.605-35	4.854-16	3.763-94
φ(37°)	3.293-04	2.812-21	2.612-15	0.860-59	-0.860-23	1.361-19	0.310-47	1.140-93	0.420-96	1.611-85	2.392-94	2.601-94	1.992-82	3.192-47	1.641-75	1.961-70	0.710-17	-0.520-65	-0.300-18	0.471-07	2.280-40	3.650-59	3.713-91	4.003-55
φ(40°)	2.752-54	3.062-83	2.221-60	1.361-09	-0.820-152	-0.771-089	-2.943-39	-1.132-183	-2.961-165	-0.661-557	0.892-35	2.251-19	1.422-91	3.542-84	1.651-12	1.210-73	-0.893-06	-4.464-84	-4.103-25	-2.651-142	0.131-22	1.722-42	3.339-89	4.170-83
φ(52°)	6.834-94	2.192-14	0.854-074	0.351-78	1.219-08	0.255-283	-0.584-681	-5.53-711	-4.26-321	-2.59-233	0.037-449	0.410-15	1.722-53	2.601-61	6.690-91	1.010-54	-1.540-84	-5.394-46	-7.487-17	-5.597-133	-2.109-147	-0.801-233	8.232-63	2.241-88
φ(60°)	-0.741-10	0.789-94	-0.364-208	-1.280-42	0.710-60	-2.604-43	-7.498-70	-8.411-93	-8.334-29	-5.39-45	-3.04-050	-0.75-027	1.271-54	1.340-61	0.420-436	-1.441-153	-2.173-49	-3.456-61	-11.220-87	-7.444-37	-3.211-266	-1.710-17	1.050-33	-0.310-51
φ(87°)	-0.50-76	0.770-89	0.820-88	0.090-89	-5.911-013	-1.671-571	-6.50-248	-6.96-187	-5.861-577	-6.931-673	-3.98-136	-3.301-106	-0.230-031	-1.712-40	-1.961-199	-3.371-336	-3.300-40	-3.904-41	-12.441-14	-6.93-421	-2.481-132	0.861-14	0.710-07	0.561-05
φ(127°)	-1.010-128	0.160-27	0.430-91	0.190-47	-0.90-103	2.211-37	-4.70-67	-6.07-16	-9.50-838	-7.537-35	7.171-54	-5.616-72	-1.802-26	-3.47-444	-3.48-334	6.28-585	-4.67-522	-4.68-60	-10.168-38	-5.311-18	-1.63-62	0.340-51	-1.532-182	-0.09-43
φ(182°)	-2.20-227	-1.361-194	0.8910-10	-0.731-42	-0.90-173	3.151-538	-5.70-89	-6.42-868	-7.87-871	-7.937-81	2.471-54	-1.44-437	-5.327-39	-5.711-73	8.889-749	-5.971-23	6.294-64	9.987-49	-5.431-381	-2.26-036	1.351-185	-3.880-380	-1.421-189	
φ(182°)	-4.14-420	-3.474-54	-3.56-215	-3.371-42	-4.411-44	6.13-820	-7.737-26	-6.48-557	-6.411-85	-10.071-84	-6.28-420	8.817-20	-4.93-67	-7.79-25	-8.68-29	-11.769-84	-9.59-109	-7.797-65	-10.241-34	-6.69-564	-4.109-134	-3.68-431	-4.779-69	-3.543-81
φ(97°)	-0.45-60	6.00-573	4.95-459	-5.768-75	-0.701-42	6.19-1041	4.767-92	-7.03-855	-6.93-872	-12.90-139	6.931-61	-11.44-651	-8.46-151	-10.39-155	-10.13-103	-12.721-110	-12.42-1477	-11.151-08	-10.52-686	-10.046-17	0.471-07	2.280-40	3.713-91	4.003-55
φ(127°)	-7.34-632	8.771-727	-7.171-72	-8.49-839	9.271-1034	-12.381-138	-8.49-831	-8.39-869	-12.86-1032	-12.09-1472	-15.371-168	-11.881-111	8.19-1223	-13.89-1303	-11.96-1303	-13.111-1307	-15.031-1522	-14.371-1534	-14.871-1525	-14.211-1458	-11.271-1083	-11.591-1075	-11.071-1034	8.211-81
φ(112°)	3.451-162	9.30-849	6.781-690	-6.8131-64	-11.051-1124	-13.531-1328	-11.491-1037	-10.491-1037	-12.241-1143	-10.521-1455	-11.091-1309	-11.551-1227	-10.991-1217	-14.131-1319	-13.091-1279	-14.791-1384	-14.531-1527	-14.511-1521	-15.031-1507	-15.161-1457	-12.681-989	-11.441-1182	-10.471-1278	-10.861-1271
φ(120°)	-11.981-1236	-13.841-1034	-11.101-1082	-10.891-1076	-15.101-1512	-12.141-1511	-15.891-1517	-13.991-1532	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531	-15.871-1531
φ(127°)	-15.621-130	-11.541-1273	-12.171-1030	-11.961-1073	-15.791-1523	-15.161-1524	-11.501-1536	-11.571-1512	-15.221-1522	-14.701-1479	-15.221-1522	-14.701-1479	-15.221-1522	-14.701-1479	-15.221-1522	-14.701-1479	-15.221-1522	-14.701-1479	-15.221-1522	-14.701-1479	-15.221-1522	-14.701-1479	-15.221-1522	-14.701-1479
φ(127°)	-15.621-146	-14.211-1417	-13.421-1380	-15.601-1576	-15.601-1508	-13.171-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523	-14.761-1523
φ(142°)	-15.261-160	-14.801-1437	-14.731-1395	-14.831-1431	-15.791-1407	-15.261-1538	-12.941-1512	-14.631-1518	-15.191-1510	-15.301-1536	-15.341-1530	-13.831-1533	-15.001-1498	-14.281-1516	-13.791-1538	-15.941-1471	-14.741-1440	-15.071-1533	-15.701-1504	-15.291-1563	-15.550-1590	-15.820-1554	-15.541-1490	-14.931-1482
φ(150°)	-15.301-155	-13.591-1414	-11.891-1522	-15.651-1584	-15.021-1474	-15.001-1583	-14.991-1501	-14.681-1549	-15.521-1538	-15.151-1488	-15.311-1488	-14.821-1548	-15.111-1508	-15.421-1539	-15.471-1489	-15.281-1459	-15.021-1562	-15.141-1529	-15.381-1520	-15.411-1522	-15.591-1535	-15.491-1548	-15.941-1584	-15.941-1584
φ(157°)	-15.211-153	-13.991-1291	-11.681-1518	-15.301-1538	-15.301-1538	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586	-15.881-1586
φ(160°)	-14.981-157	-14.911-1548	-15.811-1523	-15.101-1607	-15.301-1506	-15.481-1573	-15.511-1611	-15.201-1578	-14.721-1518	-14.691-1544	-14.421-1457	-14.621-1456	-15.201-1538	-15.741-1531	-14.671-1471	-15.641-1596	-15.101-1422	-15.831-1521	-15.641-1494	-15.791-1489	-15.941-1548	-15.941-1548	-15.941-1548	-15.941-1548
φ(172°)	-15.541-1511	-14.821-1506	-15.001-1535	-15.011-1533	-14.781-1502	-15.251-1493	-15.161-1487	-14.871-1572	-15.391-1582	-15.221-1538	-15.041-1523	-15.641-1533	-15.711-1463	-14.831-1526	-15.361-1514	-15.591-1538	-15.341-1508	-15.151-1536	-15.651-1533	-15.				

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







Antenna Pattern_Radio 3_5GHz and 6GHz

Appendix F

Total Gain Data

[illegible]



Antenna Pattern_Radio 3_5GHz and 6GHz

Appendix F

(H22.5)	6.828.88	9.159.49	9.289.03	8.999.25	9.439.67	9.589.20	8.878.82	8.558.12	7.677.10	6.708.46	6.228.21	6.526.41	6.306.12	5.624.97	4.614.60	4.644.30	3.723.28	3.654.04	4.534.77	4.814.87	5.245.84	6.457.00	7.688.39	
(H30.5)	7.357.72	7.867.77	7.497.38	7.608.04	8.454.54	8.177.95	7.907.75	7.497.13	6.758.54	6.406.26	6.156.03	5.554.92	4.954.42	4.805.38	5.084.01	2.772.43	2.492.27	1.861.57	2.012.62	3.350.60	3.633.51	3.563.94	4.304.87	5.596.69
(H37.5)	5.505.86	5.605.51	5.802.71	2.098.54	2.850.50	5.720.95	6.376.60	6.506.20	5.955.65	5.815.39	7.171.63	2.400.49	3.022.91	1.170.77	1.231.26	1.391.86	2.081.92	1.861.46	2.081.92	3.801.46	1.131.63	2.210.21	2.142.67	3.764.91
(H42.5)	2.719.06	3.250.51	3.924.22	4.274.14	4.413.79	2.950.50	4.364.43	4.744.78	4.370.96	3.367.95	1.921.04	0.540.95	0.250.76	0.110.82	2.081.04	1.539.267	2.101.24	1.190.04	0.691.04	0.380.52	1.699.28	1.747.076	1.060.036	8.952.24
(H45.5)	1.166.97	1.132.00	2.802.71	2.098.54	2.850.50	2.802.71	2.098.54	2.850.50	2.802.71	2.098.54	2.802.71	2.098.54	2.802.71	2.098.54	2.802.71	2.098.54	2.802.71	2.098.54	2.802.71	2.098.54	2.802.71	2.098.54	2.802.71	2.098.54
(H48.5)	0.259.01	1.200.81	1.550.26	0.453.16	3.855.29	2.480.21	2.121.57	0.860.77	0.891.04	1.601.19	0.228.11	2.954.42	3.571.267	1.901.46	1.893.35	7.481.70	8.110.1027	10.931.197	8.174.30	3.119.286	4.801.536	3.811.833	4.171.800	2.581.13
(H49.5)	4.363.61	1.240.26	0.521.40	2.514.02	4.761.436	4.304.216	4.593.60	2.231.16	0.598.257	3.041.265	0.260.316	1.931.599	5.144.79	3.530.42	2.571.646	11.031.9030	11.081.1419	14.973.872	6.494.434	3.041.259	3.291.424	2.930.377	4.950.433	2.511.277
(H51.5)	3.351.188	2.129.177	1.093.243	2.804.57	5.671.67	4.315.43	4.231.41	3.341.233	2.468.288	2.468.288	1.751.101	1.450.530	4.293.47	5.841.636	12.191.678	8.641.1399	13.521.545	10.511.62	4.844.364	2.491.139	3.011.451	2.881.399	5.294.436	2.712.270
(H52.5)	4.034.27	2.959.34	2.511.328	3.495.42	4.059.51	4.651.536	4.310.417	3.491.324	3.131.27	3.321.375	3.731.303	3.131.620	3.331.51	4.091.72	11.471.157	11.471.157	11.471.157	11.471.157	11.471.157	11.471.157	11.471.157	11.471.157	11.471.157	11.471.157
(H53.5)	4.359.573	3.487.471	4.399.42	4.320.52	6.381.116	7.627.788	5.719.524	4.717.480	4.734.75	3.739.480	4.970.530	4.020.804	6.868.336	7.769.885	11.088.1338	12.691.1343	10.859.1533	12.791.140	12.707.755	4.324.435	5.899.789	6.444.535	7.844.699	3.763.179
(H54.5)	5.734.521	4.486.639	4.691.76	4.691.76	5.551.1145	10.189.935	6.644.96	7.767.356	5.630.433	5.692.562	4.451.689	7.364.584	8.984.32	8.971.1538	12.529.1313	14.639.1338	12.591.5598	14.761.1445	9.351.1030	7.027.927	9.628.933	9.286.467	4.460.269	4.460.269
(H55.5)	2.982.580	4.161.678	8.920.896	4.039.51	7.711.621	7.704.96	8.921.11	8.164.640	4.400.80	4.400.80	4.400.80	10.721.911	8.941.21	8.401.5646	11.968.1421	15.261.937	15.541.3368	15.411.3235	10.809.1421	9.991.1137	11.411.1624	10.941.1624	4.564.641	4.564.641
(H56.5)	9.874.924	7.651.028	10.441.106	9.889.74	10.112.029	12.236.156	10.219.48	11.161.043	12.689.935	8.941.105	12.831.167	12.021.018	12.719.234	15.261.936	15.781.960	14.191.1482	15.301.1490	12.751.87	14.811.544	10.861.1349	12.881.114	11.661.119	8.047.156	8.047.156
(H57.5)	12.689.811	8.881.1109	10.961.1508	12.380.9618	10.719.1200	12.380.9618	10.719.1200	12.380.9618	10.719.1200	12.380.9618	10.719.1200	12.380.9618	10.719.1200	12.380.9618	10.719.1200	12.380.9618	10.719.1200	12.380.9618	10.719.1200	12.380.9618	10.719.1200	12.380.9618	10.719.1200	12.380.9618
(H58.5)	11.751.1313	12.331.1213	11.751.1313	12.331.1213	11.751.1313	12.331.1213	11.751.1313	12.331.1213	11.751.1313	12.331.1213	11.751.1313	12.331.1213	11.751.1313	12.331.1213	11.751.1313	12.331.1213	11.751.1313	12.331.1213	11.751.1313	12.331.1213	11.751.1313	12.331.1213	11.751.1313	12.331.1213
(H59.5)	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05	12.880.12.84	11.591.13.05
(H60.5)	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05	14.091.16.00	15.311.13.05
(H61.5)	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05	16.161.16.02	15.501.15.05
(H62.5)	15.400.16.16	15.311.14.85	15.891.15.05	15.501.15.01	15.541.14.90	14.571.15.07	15.441.15.05	15.581.15.03	14.981.15.36	15.621.14.74	15.621.15.39	15.511.14.69	15.341.15.65	15.621.15.39	15.511.14.69	15.341.15.65	15.621.15.39	15.511.14.69	15.341.15.65	15.621.15.39	15.511.14.69	15.341.15.65	15.622.15.39	15.511.14.69
(H63.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.001.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.001.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.001.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H64.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H65.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H66.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H67.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H68.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H69.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H70.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H71.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H72.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H73.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H74.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89
(H75.5)	15.000.15.13	15.001.14.91	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.07	15.011.15.12	15.011.15.12	15.000.14.89	14.571.15.										



Antenna Pattern_Radio 3_5GHz and 6GHz

Appendix F

(H7)5	5.194.37	-4.29-2.54	0.45-0.82	-2.15-1.81	-0.35-0.81	2.22-3.02	-3.15-2.15	-2.18-0.84	-0.39-2.33	5.35-5.91	-7.83-10.29	-7.35-9.71	-8.46-8.03	-4.55-4.32	-3.49-3.39	-4.35-5.32	-5.08-4.38	-5.14-6.05	-5.72-5.28	-4.83-5.54	-5.39-2.55	-3.15-4.49	-6.43-5.32	-6.55-6.87
(H7)5	5.35-6.14	-4.68-4.46	-1.97-1.58	-3.24-3.35	-2.60-2.59	5.10-5.15	-5.26-3.34	-2.50-1.71	-1.48-3.12	4.91-5.52	4.57-5.49	-8.26-8.20	-8.68-8.08	-4.72-4.48	-4.01-5.42	5.51-5.31	3.87-5.25	-3.89-3.48	-4.23-4.86	-4.27-4.48	-3.02-1.79	-4.46-1.72	5.55-5.97	-7.05-6.21
(H8)2	4.30-6.26	-5.20-5.32	-3.35-2.75	-4.83-5.29	-6.10-5.12	-4.80-6.35	-6.50-5.12	-3.61-2.93	-3.45-5.07	5.71-6.40	-7.88-8.20	-7.52-8.03	-8.62-8.73	-6.02-7.57	-5.91-7.04	-8.03-6.32	-3.59-6.33	-4.53-5.07	-3.46-4.94	-3.63-4.46	-1.96-2.93	-4.83-11.02	4.27-5.68	-8.79-6.45
(H7)5	-7.71-7.47	-7.11-8.88	-5.27-8.40	-6.09-6.87	-8.59-7.48	-13.13-8.04	-8.83-7.84	-5.42-5.43	-5.58-7.40	7.07-7.97	-8.47-8.39	-8.96-8.49	-8.84-12.02	-8.20-8.52	-6.93-7.85	-10.29-7.78	-4.96-5.14	-5.73-4.79	-5.10-6.31	-6.43-5.92	-4.79-6.38	-12.12-14.81	-8.71-8.93	-8.99-8.41
(H7)5	-8.45-9.22	-8.96-9.43	-8.02-7.43	-8.55-8.38	-10.71-9.81	-10.64-8.43	-8.26-7.42	-8.41-10.22	-8.57-9.67	-8.46-11.10	-8.88-8.42	-10.39-11.74	-10.11-11.23	-9.33-10.15	-15.16-12.26	-8.98-9.39	-8.34-9.81	-8.99-9.98	-10.53-10.22	-8.78-10.63	-10.53-14.89	-10.67-16.12	-10.22-12.09	
(H7)5	-11.23-11.51	-11.74-11.38	-8.80-9.58	-10.50-9.55	-10.12-12.40	-11.48-10.29	-12.06-15.45	-11.87-9.84	-11.72-11.41	-11.98-10.88	-12.12-14.04	-15.18-14.16	-14.20-15.32	-13.86-10.52	-9.64-11.87	-15.33-14.01	-12.59-13.02	-10.26-12.44	-10.73-11.67	-15.22-12.12	-10.89-11.81	-14.83-14.38	-13.22-12.09	-13.16-10.74
(H12)5	-14.46-13.01	-14.30-14.37	-13.07-12.42	-11.85-12.16	-11.83-13.90	-11.48-11.06	-11.82-11.42	-12.89-11.31	-13.55-11.23	-11.75-13.58	-14.71-13.84	-14.93-14.57	-12.53-12.55	-13.80-14.64	-15.00-15.42	-14.83-11.28	-10.27-11.67	-10.93-13.14	-15.10-10.59	-10.86-13.30	-15.02-15.44	-14.57-15.45	-14.80-15.71	
(H12)5	-14.73-14.88	-15.50-15.88	-15.99-15.16	-13.80-11.67	-13.31-13.64	-15.42-15.31	-14.71-13.37	-14.59-11.85	-11.98-12.37	-11.74-14.14	-15.52-15.18	-13.84-13.36	-12.52-14.32	-13.86-13.58	-15.46-12.82	-15.44-14.78	-13.67-12.62	-10.96-10.01	-12.87-15.26	-11.28-13.09	-15.26-15.60	-15.36-15.52	-14.90-11.59	-12.80-14.75
(H12)5	-15.15-15.16	-15.50-15.32	-15.47-15.57	-14.12-15.28	-13.02-15.42	-15.43-15.78	-14.90-15.21	-14.09-13.57	-13.26-13.13	-14.82-13.76	-15.36-16.02	-15.17-14.45	-14.88-14.36	-16.20-15.18	-15.53-15.01	-14.83-12.23	-14.53-13.92	-12.58-13.29	-13.02-14.39	-14.91-14.91	-14.42-14.96	-13.88-15.22	-14.77-13.95	
(H13)5	-14.77-15.48	-15.53-15.80	-15.44-15.95	-15.76-15.36	-14.86-14.73	-15.90-15.23	-14.95-15.69	-15.30-15.92	-15.38-14.96	-15.98-13.86	-12.87-15.42	-12.51-15.40	-15.48-15.10	-15.43-15.72	-15.85-12.71	-14.76-15.13	-12.71-12.79	-14.78-13.41	-12.28-15.15	-15.95-13.21	-15.43-15.16	-14.76-15.23	-15.85-15.84	
(H14)2.5	-15.86-15.88	-15.70-15.78	-15.70-15.45	-15.43-15.16	-15.30-13.82	-15.25-15.22	-15.19-15.20	-12.71-12.82	-15.19-14.36	-11.78-12.72	-13.91-10.84	-14.87-15.54	-15.35-11.47	-14.16-14.84	-15.42-15.16	-14.98-15.14	-14.74-13.31	-15.39-14.25	-15.69-15.15	-15.39-15.52	-15.59-15.84	-14.35-14.98	-14.76-15.48	
(H14)2.5	-15.24-15.35	-15.50-15.45	-15.24-15.43	-15.55-15.86	-14.24-14.20	-15.01-14.38	-15.01-14.38	-14.16-15.10	-14.60-15.15	-14.26-14.36	-15.48-15.15	-14.26-15.16	-14.58-15.16	-14.88-14.17	-14.98-15.14	-15.16-14.55	-14.74-13.13	-15.25-15.31	-14.87-15.47	-14.74-15.38	-15.04-15.68	-14.73-15.48		
(H15)5	-15.46-15.74	-15.60-15.69	-15.23-15.67	-15.23-15.71	-15.38-15.13	-15.16-15.43	-13.89-15.42	-13.89-16.16	-16.99-15.72	-15.43-14.82	-15.03-15.47	-14.91-14.93	-15.74-15.84	-15.69-15.61	-14.80-15.45	-14.36-14.23	-13.71-14.03	-15.01-14.98	-14.74-17.17	-15.71-15.15	-13.57-13.99	-15.36-15.49	-15.08-14.78	
(H15)5	-15.34-16.10	-15.51-15.40	-15.41-15.52	-15.50-15.49	-15.10-14.99	-15.10-14.99	-15.31-14.72	-15.89-15.12	-15.46-15.15	-15.46-14.96	-15.50-15.70	-15.29-15.40	-15.69-15.61	-15.48-15.45	-14.36-15.45	-15.17-14.22	-15.15-15.59	-15.93-16.12	-15.36-14.82	-15.95-15.74	-15.80-15.96	-15.74-14.71		
(H17)2.5	-15.94-15.58	-15.15-14.08	-14.20-14.40	-15.84-15.42	-15.80-15.01	-15.69-15.75	-15.61-15.08	-15.36-14.44	-15.55-15.69	-15.50-15.27	-16.04-15.64	-14.83-15.68	-14.90-15.13	-14.96-14.94	-14.90-15.40	-15.26-15.05	-15.86-15.96	-15.49-15.28	-15.43-15.34	-15.88-15.44	-14.33-13.72	-14.67-15.15	-15.37-15.12	
(H17)2.5	-14.55-15.44	-15.20-15.19	-14.58-15.22	-15.31-14.86	-15.40-15.01	-15.42-14.88	-14.81-14.92	-15.48-15.55	-15.22-14.86	-15.36-15.41	-15.40-15.48	-15.37-15.46	-15.22-14.83	-14.96-15.42	-14.76-15.43	-15.91-15.66	-14.84-15.09	-15.02-14.42	-14.80-14.75	-14.94-14.58	-15.82-16.06	-14.15-14.88	-14.12-14.36	
FreeRad	5.8855Pa	Tablet 2																						
Gain	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	0°(H7)5(15°)	
(H7)5	7.097.09	7.036.94	6.936.97	6.796.77	6.726.66	6.646.63	6.786.74	6.766.75	6.746.71	6.746.78	6.876.85	7.027.10	7.147.14	7.157.16	7.147.13	7.016.94	7.007.08	7.077.16	7.117.19	7.117.19	7.227.23	7.227.20	7.217.23	
(H7)5	7.157.21	7.267.35	7.347.44	7.387.49	7.387.49	7.447.44	7.477.44	7.477.44	7.477.44	7.477.44	7.577.51	7.677.51	7.677.51	7.677.51	7.677.51	7.677.51	7.677.51	7.677.51	7.677.51	7.677.51	7.677.51	7.677.51	7.677.51	
(H15)5	7.467.52	7.637.61	7.637.56	7.667.55	7.617.59	7.377.41	7.277.23	7.187.15	7.157.14	7.097.70	6.826.81	6.376.21	6.126.08	6.136.20	6.356.45	6.576.70	6.836.89	6.926.94	6.906.83	6.818.83	6.937.09	7.307.43	7.567.58	7.867.55
(H22)5	7.006.75	6.896.65	6.826.60	6.736.54	6.535.51	6.345.55	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	6.286.53	
(H3)5	6.115.63	5.335.19	5.195.58	5.965.98	5.735.46	5.385.24	4.753.92	3.032.54	2.743.23	3.333.01	2.632.51	2.512.59	2.702.50	1.901.24	1.181.59	2.122.84	3.754.51	4.975.10	5.125.15	5.385.86	6.326.63	6.786.84	6.826.82	6.826.87
(H3)5	6.115.63	4.224.15	4.545.04	5.585.41	4.974.40	4.364.44	4.022.64	3.800.63	3.681.51	1.791.54	1.446.63	1.446.63	1.446.63	1.446.63	1.446.63	1.446.63	1.446.63	1.446.63	1.446.63	1.446.63	1.446.63	1.446.63	1.446.63	
(H4)5	4.333.43	3.323.38	3.603.90	4.444.67	4.143.05	2.402.80	2.263.96	1.501.188	0.759.404	1.241.43	4.474.19	-1.403.350	4.427.711	4.116.94	4.499.345	-1.747.610	0.866.70	1.261.38	2.252.55	2.382.77	3.554.28	4.263.92	3.884.02	
(H5)5	5.530.46	1.601.77	2.901.77	2.255.92	2.790.38	4.161.69	4.071.142	3.912.243	4.027.242	4.680.781	6.961.327	-10.031.129	6.331.436	6.297.758	5.396.389	4.320.321	2.735.229	2.543.084	6.041.032	6.941.125	4.780.141	1.691.22	4.410.78	
(H6)5	4.714.54	3.170.78	3.800.16	4.228.55	1.017.022	3.833.484	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	4.193.542	
(H7)5	7.333.68	5.226.24	6.234.07	2.317.35	-1.85-2.42	3.515.03	5.234.56	3.371.54	4.047.85	6.681.738	6.761.717	6.881.626	6.757.72	3.494.19	4.254.56	5.10-1.42	4.880-2.70	3.594.60	3.593.57	4.037.19	4.594-3.12	3.75-4.96	7.24-5.68	-7.30-7.79
(H8)2.5	6.026.51	5.113.58	4.176.97	3.864-1.72	-4.85-4.72	3.733.738	5.34-7.76	-3.82-5.12	-1.18-3.64	3.814.971	6.814.971	6.814.971	6.814.971	6.814.971	6.814.971	6.814.971	6.814.971	6.814.971	6.814.971	6.814.971	6.814.971	6.814.971	6.814.971	
(H8)2.5	4.768.67	5.689.63	3.553.80	4.833-3.32	-7.26-7.27	4.343.84	5.844.63	4.330-3.34	2.82-5.55	5.754.81	4.768.678	8.84-12.02	-10.96-8.72	5.94-7.75	6.66-7.48	4.40-7.37	4.693.74	4.19-3.44	3.702-4.39	3.861-5.51	4.40-6.48	-11.40-10.19	5.65-6.75	-5.74-5.28
(H8)2.5	4.768.67	-7.76-7.10	6.253.50	4.20-8.86	-7.68-7.47	4.363.510	5.06-9.55	5.53-4.44	3.89-5.65	6.803.103	4.431.841	7.627.88	3.11-10.16	-7.63-7.75	11.71-8.87	-12.37-7.75	-11.13-8.93	5.94-8.43	4.92-3.88	6.60-6.05	5.09-5.85	-13.02-12.51	4.681-6.87	6.03-6.48
(H7)5	-10.48-10.29	8.97-8.41	4.677.64	-8.49-8.58	9.94-11.66	-10.95-14.14	-10.97-12.28	-8.00-6.79	-7.40-9.32	-10.99-11.10	-10.27-12.86	-10.69-8.43	-12.73-12.72	-10.69-13.94	-7.816-1.48	-10.37-12.96	-11.95-11.89	-10.41-8.99	8.92-7.09	-10.34-8.56	9.20-14.96	-15.36-13.39	8.95-10.88	-11.92-10.44
(H7)5	-10.48-10.29	13.30-13.24	-11.27-10.48	-10.16-10.48	9.99-11.52	-14.77-7.65	9.94-12.12	-11.96-8.43	-10.60-11.21	-11.45-12.77	-10.63-13.74	-15.45-13.14	-14.08-14.97	-8.80-11.85	-14.41-13.84	-12.11-11.62	-10.43-13.80	-10.45-11.02	-14.27-10.39	-10.86-15.12	-14.48-14.27	-13.10-13.07	-12.90-12.48	
(H10)5	-14.30-14.48	-15.48-14.42	-14.18-13.11	-12.40-11.43	-11.52-12.86	-15.25-15.10	-9.21-14.71	-15.61-14.99	-12.40-11.34	-14.48-15.38	-15.25-14.38	-15.37-15.62	-15.09-15.36	-11.35-12.50	-11.89-14.56	-14.79-13.40	-14.02-14.27	-11.89-14.16	-13.82-14.80	-15.87-15.41	-15.00-14.82	-12.94-11.46	-14.30-15.68	
(H10)5	-14.73-15.54	-15.46-15.43	-15.40-15.51	-15.23-15.63	-11.73-10.58	-15.45-14.55	-11.87-11.89	-14.51-11.87	-11.30-10.70	-15.70-13.58	-15.72-15.77	-14.19-12.80	-12.79-14.12	-13.00-14.38	-15.30-13.87	-15.45-15.49	-14.78-13.14	-12.36-10.98	-11.29-14.13					

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Antenna Pattern_Radio 3_5GHz and 6GHz

Appendix F

φ(180°)	-15.611-14.83	-14.89-15.05	-15.19-16.09	-15.51-15.79	-15.02-15.53	-14.99-15.45	-15.40-14.92	-15.02-15.08	-14.99-15.78	-15.30-15.81	-15.79-14.94	-15.38-15.71	-15.71-14.92	-14.70-15.27	-15.14-15.27	-15.32-15.38	-15.30-16.05	-15.12-15.99	-15.45-15.73	-14.65-15.73	-15.92-14.88	-15.16-16.15	-15.95-14.88	-15.02-15.51
φ(172.5°)	-15.69-15.67	-14.71-16.05	-15.26-16.13	-15.43-15.90	-15.57-16.30	-15.57-14.27	-13.91-15.03	-15.60-18.86	-15.37-14.61	-15.79-15.15	-15.23-15.86	-14.84-15.29	-14.89-15.61	-15.03-15.80	-14.81-15.30	-15.26-16.05	-15.16-15.41	-15.97-15.16	-15.30-14.66	-15.77-15.32	-14.88-15.72	-15.81-16.03	-15.21-15.38	-15.29-15.26
φ(165°)	-15.65-15.74	-14.50-14.91	-15.12-16.14	-14.81-15.34	-14.71-14.18	-14.02-15.68	-15.90-15.40	-15.75-15.69	-14.47-14.83	-15.29-15.42	-15.47-15.74	-15.80-14.92	-14.89-15.61	-15.09-15.33	-14.29-15.15	-15.80-14.86	-15.48-15.45	-15.48-15.19	-15.34-16.80	-14.72-15.69	-15.69-14.88	-15.40-16.10	-15.74-15.26	-15.72-15.04
Freeho	6.1759Pa																							
San	φ(170°/2.5°)	φ(15°/92.25°)	φ(30°/94.27.5°)	φ(45°/95.52.5°)	φ(60°/96.75°)	φ(75°/98.25°)	φ(90°/99.5°)	φ(105°/100.75°)	φ(120°/102°)	φ(135°/103.25°)	φ(150°/104.5°)	φ(165°/105.75°)	φ(180°/107°)	φ(195°/108.25°)	φ(210°/109.5°)	φ(225°/110.75°)	φ(240°/112°)	φ(255°/113.25°)	φ(270°/114.5°)	φ(285°/115.75°)	φ(300°/117°)	φ(315°/118.25°)	φ(330°/119.5°)	φ(345°/120.75°)
φ(175°)	6.5484	6.6657	6.6163	6.3063	6.5360	6.4667	6.7651	6.6165	6.5851	6.5158	6.2452	6.2067	6.18823	6.4665	6.87171	7.04717	7.32749	7.54730	7.46744	7.46740	7.37137	7.33724	7.20713	7.10710
φ(170°)	6.52684	6.59636	6.65939	6.70721	7.37157	7.67172	7.76781	7.99736	7.76738	7.89737	7.80739	8.64884	8.79671	6.54665	6.57686	6.75672	6.65680	6.59653	6.65636	6.65630	6.65613	6.65601	6.65606	6.65616
φ(165°)	5.88604	6.19567	6.58669	6.69985	6.99708	7.22751	7.77774	7.94602	8.03533	7.97591	7.49716	7.01631	6.79636	6.75687	7.07739	7.19703	6.73645	6.24616	6.05532	5.79574	5.69530	5.51541	5.44527	
φ(160°)	4.95436	5.21564	6.39516	6.39516	6.80744	7.20736	7.69774	7.98712	7.60711	7.69836	6.99419	5.99637	6.07616	6.02641	6.39626	6.64670	5.91477	4.70387	4.08447	4.35925	5.64600	6.11577	5.33517	5.04436
φ(155°)	3.90260	3.99468	4.99648	4.99648	5.49545	5.93838	6.50534	6.14612	6.01573	5.41537	3.98544	3.55578	6.04636	5.99659	5.99659	5.99659	5.99659	5.99659	5.99659	5.99659	5.99659	5.99659	5.99659	
φ(150°)	-1.19405	-3.37687	1.73734	2.25240	3.41573	3.55522	3.57374	3.94036	3.91592	3.85375	2.54536	5.35571	5.59440	3.74673	3.26224	3.07103	0.82077	1.79240	2.85233	1.74671	0.59401	-0.59404	-0.99408	
φ(145°)	-3.00267	-3.02948	2.75194	-1.94048	1.25240	2.40202	1.52016	1.80155	1.57177	1.90221	2.53249	2.04566	3.13400	4.54038	2.25220	1.84211	-0.26938	3.12149	-1.07183	-2.24335	4.46744	2.25035	-0.89212	
φ(140°)	-3.22330	-4.89616	-1.73446	-2.97521	-1.71049	0.56500	-0.28011	0.78061	0.47908	0.35309	-0.11526	-0.32014	0.29225	2.75742	0.181129	-1.88323	-0.251185	-1.20176	-2.39811	-0.781380	-3.389439	4.971444	-1.186388	-1.303533
φ(135°)	-3.31400	-5.07127	-4.10562	-4.02181	-4.39135	-1.73134	-1.43107	-0.09054	-0.258196	-0.294121	4.46443	-0.57473	-2.98033	0.641051	-1.102189	-4.79432	-0.264465	-3.01427	-4.47307	-2.961437	-0.546838	-6.935191	-1.421242	-1.421246
φ(130°)	-3.18249	-6.43640	-4.73366	-7.08448	-4.54378	0.23190	-1.23149	-2.12183	-0.400419	-4.71609	7.96812	-1.62147	-5.62147	-2.793112	-0.390159	-0.959236	-3.77147	-5.880151	-4.12814	-6.60559	-4.871542	-4.698454	-3.536366	-4.514467
φ(125°)	-4.22479	-6.39462	-4.43738	-6.27176	-4.92465	-6.34261	-1.70153	-3.42338	-5.46117	-6.08742	-8.17013	-3.09260	-8.17157	-1.851165	-3.32043	-5.42354	-3.76179	-5.40520	-3.321377	-4.45946	-5.658151	-6.121268	-5.431924	
φ(120°)	-5.83415	-6.38165	-7.66683	-10.44410	-6.26150	4.17444	-2.93270	-4.48155	-6.03573	-8.40734	-7.911923	-7.49121	-4.90547	-4.579183	-3.993365	-4.68153	-5.191206	-3.27162	-4.91387	-2.689287	-4.12924	-4.821408	-11.14633	-8.72126
φ(115°)	-4.48137	-10.7194	-10.0610	-12.011	-8.2001	6.57153	-6.07142	-5.62172	-7.68631	-10.171940	-10.181536	-7.847154	-8.21146	-6.75418	-4.320489	-7.35552	-5.24169	-5.60428	-4.75148	-11.72146	-13.16174	-10.87194	-10.71147	
φ(110°)	-11.56114	-12.03109	-12.84152	-13.91102	-10.40766	8.255614	-5.41547	-7.85167	-9.32088	-12.11150	-11.851131	-10.901360	-10.00136	-8.061785	-7.318153	-8.89113	-9.360490	-9.531078	-10.11248	-10.411211	-10.351141	-14.061580	-14.941336	-12.971524
φ(105°)	-17.97152	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	-13.91122	
φ(100°)	-14.891579	-14.741533	-14.081386	-16.151493	-14.161188	-11.001506	-8.50847	-10.281507	-12.511536	-12.901328	-12.831137	-11.821542	-11.621347	-15.041272	-11.461141	-11.391540	-15.481074	-12.081330	-13.701247	-12.641117	-13.041537	-15.211538	-15.911589	-15.041438
φ(95°)	-15.481579	-15.591593	-15.331487	-15.301441	-12.981457	-11.641306	-11.101395	-10.771246	-14.561484	-13.141539	-12.281374	-12.671395	-13.091485	-14.941479	-14.761521	-12.101578	-14.871385	-14.711508	-14.761101	-14.871343	-14.991564	-15.411541	-14.921549	-14.991588
φ(90°)	-15.621541	-15.921449	-15.501564	-15.331438	-11.921333	-11.041301	-12.691214	-14.161526	-14.871744	-14.401581	-14.301588	-14.271435	-14.161413	-14.781510	-13.251475	-13.311525	-15.411532	-13.841519	-15.641496	-14.731445	-16.021556	-15.021582	-15.191538	
φ(85°)	-15.841436	-15.231434	-15.191524	-15.181524	-14.891365	-14.641482	-14.201485	-14.631474	-15.701516	-14.811387	-14.311523	-14.261520	-14.481515	-14.001449	-13.951540	-14.381529	-14.651544	-14.711548	-15.131532	-15.021545	-14.761546	-15.441583	-15.461545	
φ(80°)	-15.761534	-15.261443	-15.411516	-14.531476	-15.381472	-14.801470	-15.501516	-15.711536	-15.031522	-14.501539	-15.591546	-15.411528	-15.151519	-14.711527	-14.721586	-15.711548	-15.891562	-14.681586	-15.071533	-15.491535	-16.001512	-15.691574	-16.001535	-15.251522
φ(75°)	-15.501571	-15.771513	-15.331423	-15.891546	-13.981411	-15.541598	-15.511577	-15.251522	-15.221449	-15.511443	-16.301572	-15.581568	-15.741586	-15.031442	-15.691511	-15.401549	-15.511542	-14.071449	-14.781535	-16.041523	-15.271557	-15.891555	-16.171497	
φ(70°)	-15.431037	-15.011028	-14.741477	-14.781472	-15.611516	-15.291472	-14.691543	-15.191538	-15.591521	-15.021588	-14.891507	-15.251525	-14.181540	-14.781519	-14.531538	-15.271533	-14.191532	-14.531541	-14.931544	-14.981576	-13.981529	-13.981529	-13.981529	
φ(65°)	-14.601544	-14.211553	-15.201552	-15.861510	-15.141568	-15.501579	-15.781577	-14.681550	-15.441520	-15.611522	-15.741544	-15.961552	-15.701544	-15.311554	-14.201512	-15.401546	-15.541546	-14.761569	-15.971575	-15.891556	-14.991547	-12.921552	-15.571549	
φ(60°)	-14.401544	-14.601520	-15.251550	-15.071536	-15.541569	-15.141565	-15.721586	-14.981546	-15.601550	-15.631520	-15.651547	-15.781547	-15.721542	-16.031484	-15.321482	-14.171533	-14.311548	-15.931566	-16.001447	-14.721574	-14.821568	-14.931536	-14.931536	
φ(55°)	-15.941535	-14.911525	-15.031443	-14.751533	-15.121507	-15.421536	-15.511587	-15.891503	-15.251563	-15.321558	-14.901546	-15.361561	-14.891550	-15.271513	-15.441510	-15.651537	-15.721443	-15.861547	-15.961505	-15.711466	-15.991580	-15.661558	-14.921547	-15.341547
Freeho	6.4759Pa																							
San	φ(170°/2.5°)	φ(15°/92.25°)	φ(30°/94.27.5°)	φ(45°/95.52.5°)	φ(60°/96.75°)	φ(75°/98.25°)	φ(90°/99.5°)	φ(105°/100.75°)	φ(120°/102°)	φ(135°/103.25°)	φ(150°/104.5°)	φ(165°/105.75°)	φ(180°/107°)	φ(195°/108.25°)	φ(210°/109.5°)	φ(225°/110.75°)	φ(240°/112°)	φ(255°/113.25°)	φ(270°/114.5°)	φ(285°/115.75°)	φ(300°/117°)	φ(315°/118.25°)	φ(330°/119.5°)	φ(345°/120.75°)
φ(175°)	7.12739	7.16636	8.62681	7.10719	7.48717	7.39728	7.33751	7.48717	7.47732	7.29721	7.12739	6.88687	6.65673	6.79636	6.91701	6.96700	7.37134	7.28730	7.48717	7.58715	7.58715	7.37714	7.30687	
φ(170°)	6.60632	6.47642	6.31637	6.57670	6.63702	7.08719	7.31752	7.60712	7.78714	7.48714	6.70717	7.55711	7.35718	7.04634	6.84639	6.65637	6.64639	6.52635	6.20617	6.35635	6.46632	6.60637	6.54636	6.35632
φ(165°)	6.47683	6.69452	6.64646	6.68779	6.67745	7.07727	7.44755	7.64755	6.84641	6.75713	7.47616	7.50713	7.47616	6.84639	6.59649	6.40616	5.87552	5.03446	4.64646	5.25632	6.54639	6.69638	6.22636	
φ(160°)	5.32538	5.81586	5.72580	5.69634	6.39550	6.75836	7.12733	8.00844	6.65832	8.00715	6.72632	6.38532	5.84630	6.39834	6.95638	5.90542	5.13456	3.70312	2.79935	3.84439	4.46438	4.81436	4.37439	
φ(155°)	2.26303	3.16301	2.82257	3.50374	3.99470	5.17673	5.91635	6.13634	7.06727	6.92613	6.54517	6.41502	6.41502	6.41502	6.41502	3.80352	2.92309	2.94302	2.98826	3.27134	3.39319	3.68912	4.61636	
φ(150°)	0.78659	0.38031	0.19502	1.11671	0.75159	2.65049	4.09403	4.11426	4.54494	4.61156	3.54432	4.27412	4.13419	4.490406	3.75032	3.02223	0.755420	0.98141	1.22675	0.370387	1.80135	1.36031	0.45108	0.42675
φ(145°)	1.66651	0.23240	-2.32160	-2.21428	-2.96116	0.611201	2.79178	1.94286	2.76249	2.70239</														



Antenna Pattern_Radio 3_5GHz and 6GHz

Appendix F

(H10°)	6.907.04	7.227.27	7.297.39	7.457.08	7.716.97	8.006.95	8.705.50	8.376.34	6.256.19	6.216.17	6.138.16	6.248.21	6.095.85	5.535.34	5.385.41	5.355.07	5.145.39	5.585.77	6.126.37	6.486.48	6.658.93	7.157.27	7.267.14	6.918.82
(H22.5°)	5.738.20	6.757.06	7.106.99	6.766.41	6.135.85	5.895.24	5.245.05	4.654.42	4.875.13	5.305.48	5.675.46	5.084.49	4.734.48	4.444.20	3.817.67	3.653.67	4.014.81	5.005.20	5.385.58	5.535.59	5.848.08	6.408.71	6.708.52	6.125.77
(H45°)	4.518.83	5.295.53	5.064.71	4.504.32	4.454.39	3.922.78	3.302.78	1.932.23	2.993.35	3.694.19	4.574.19	3.403.24	3.643.80	3.410.03	2.153.20	2.022.48	3.060.57	3.694.07	4.494.46	4.514.46	4.844.52	4.814.94	4.864.39	3.910.78
(H67.5°)	3.983.67	3.483.25	2.902.52	2.532.89	2.942.46	1.490.35	-0.220.44	-0.710.39	1.031.96	1.931.85	1.951.72	1.010.07	0.150.09	-0.350.07	0.671.09	0.130.55	0.371.81	2.863.02	2.602.44	2.920.81	3.093.59	3.359.89	3.723.55	3.810.77
(H90°)	3.043.05	3.192.86	2.182.05	2.091.46	-0.814.17	-1.794.12	-4.164.44	-4.581.387	-1.379.53	1.321.01	0.591.63	1.232.38	0.731.61	-0.2771.25	0.561.21	0.320.38	1.570.62	1.192.63	1.683.65	1.920.89	2.683.65	3.322.98	3.843.71	
(H112.5°)	1.702.83	3.652.88	2.091.47	1.130.81	-2.071.519	-3.581.647	-8.914.41	-6.741.522	-3.381.240	0.820.64	-0.371.21	0.811.48	-2.051.344	-5.251.291	0.010.22	-1.301.199	-1.931.184	-0.581.031	-1.892.33	-0.170.04	0.962.14	2.012.99	2.311.50	2.121.81
(H135°)	0.271.86	2.401.81	1.530.80	-0.310.56	-3.394.400	-7.544.814	-6.751.728	-5.961.475	-0.623.023	-2.201.08	0.060.34	-0.880.03	-1.361.255	-5.961.031	-1.941.570	-5.441.089	-0.431.040	-5.385.060	-2.920.489	0.881.87	0.591.11	-0.461.089	-0.294.55	
(H157.5°)	-1.390.30	0.950.04	0.430.23	-1.152.271	-3.541.580	-3.771.199	-5.521.609	-6.961.693	6.351.499	-4.271.263	-1.751.103	-1.521.239	-2.551.069	-0.711.636	-0.100.78	-1.881.8	-6.651.856	6.401.84	9.661.69	-5.391.144	0.540.53	-2.021.881	-1.841.227	-2.351.185
(H180°)	-3.101.21	-1.051.178	-1.061.031	-1.150.475	-4.991.472	-3.811.224	-5.021.607	-5.941.631	7.451.499	-5.851.491	-3.581.180	-2.631.276	-5.041.236	-1.001.403	0.021.019	-1.461.384	-5.531.774	-5.961.734	-10.261.619	-7.551.257	-1.471.137	-3.821.376	-3.921.219	
(H202.5°)	-4.621.46	-3.681.395	-3.011.54	-1.911.608	-6.281.615	-5.271.335	-5.011.671	-6.391.650	-7.934.72	-7.031.558	-3.191.330	-3.911.459	-6.031.427	-2.491.136	2.811.422	-2.511.347	-6.681.643	-6.771.735	-8.726.528	-7.931.385	-3.001.476	-6.221.454	-3.191.471	-4.861.380
(H225°)	-6.891.529	-5.691.700	-5.241.345	-3.151.427	-7.651.630	-7.381.531	-6.501.635	-6.511.761	-7.711.617	-6.691.734	-4.751.374	-5.261.48	-7.147.738	-5.161.302	2.591.529	-5.601.398	-6.311.022	-13.516.128	-8.861.628	-2.721.791	-7.291.498	-5.551.448	-6.331.37	
(H247.5°)	-8.071.014	-6.761.629	-6.781.572	-4.741.30	-7.061.75	-6.971.533	-7.191.458	-6.961.627	-7.501.624	-6.791.584	-5.581.646	-7.251.105	-9.016.05	6.201.643	-6.401.609	6.391.153	-10.921.146	-12.611.35	-10.791.129	-10.931.99	-8.431.89	-4.451.454	-7.741.61	
(H270°)	-8.621.877	-7.841.101	-7.691.630	-6.771.14	-6.157.34	-6.971.649	-7.371.67	-6.721.778	-6.881.38	-6.231.79	-7.761.768	-7.271.34	-8.231.98	-15.581.60	-7.271.137	-10.731.126	-13.541.192	-11.271.757	-13.951.127	-14.261.98	-13.021.81	-11.911.929	-10.841.39	
(H292.5°)	-9.411.615	-10.041.1031	-8.051.698	-7.991.512	-10.791.137	-11.981.1057	-10.551.91	-11.291.871	-8.071.96	-6.741.67	-8.071.897	-6.471.062	-9.091.779	-4.581.159	-11.151.123	-9.791.127	-15.441.123	-11.051.82	-13.831.148	-14.091.133	-13.801.127	-13.581.121	-11.421.150	
(H315°)	-12.881.143	-9.541.81	-10.231.401	-12.971.1424	-11.741.1292	-13.811.134	-12.911.104	-8.071.748	-6.581.1079	-7.920.977	-11.331.971	-12.071.102	-8.711.480	-8.421.1487	-11.081.1158	-10.881.1468	-13.521.1134	-10.951.1498	-14.361.104	-14.741.1465	-14.381.1455	-15.071.1345	-14.111.1013	-12.531.1436
(H337.5°)	-15.251.1638	-10.861.1026	-12.331.1265	-13.811.1674	-14.701.1200	-13.841.1539	-12.331.1653	-8.701.889	-12.161.114	-8.981.91	-12.561.1325	-11.631.183	-11.181.135	-11.151.124	-14.941.1412	-15.781.1488	-16.141.1388	-15.951.1478	-14.981.1684	-14.891.1635	-15.451.1623	-15.101.1475	-14.571.1389	-14.011.1407
(H360°)	-10.161.1180	-12.481.1298	-15.151.1586	-14.831.1525	-12.771.1373	-14.061.1271	-12.751.1420	-13.311.1423	-11.811.1526	-11.531.1525	-14.661.1514	-12.531.1300	-10.211.1422	-15.391.143	-11.631.1371	-12.871.1527	-14.351.1335	-15.001.1480	-15.391.1525	-15.001.1564	-15.511.1515	-13.731.1573	-14.511.1523	
(H382.5°)	-10.451.1173	-12.511.1291	-14.361.1512	-12.161.1512	-12.161.1512	-12.701.1214	-13.601.1458	-10.281.1128	-11.501.1479	-12.701.1403	-13.801.1487	-15.661.1604	-14.031.1574	-15.281.1123	-10.981.1409	-15.331.1532	-15.351.1456	-14.711.1542	-15.331.1537	-15.501.1588	-14.741.1578	-14.311.1578	-12.591.1123	
(H405°)	-12.251.1534	-13.201.1266	-13.231.1525	-13.111.1511	-14.001.1521	-14.321.1221	-11.241.1534	-13.551.1272	-11.291.1074	-10.631.1388	-15.611.1242	-10.221.1166	-10.941.116	-13.331.1489	-14.591.1538	-15.501.1334	-11.611.1199	-14.451.1533	-16.161.1559	-12.181.1338	-13.681.1447	-15.431.1542	-12.831.1266	-13.811.127
(H427.5°)	-10.991.1508	-12.771.1411	-13.621.1520	-12.541.1539	-12.591.1438	-13.171.1254	-12.761.1236	-10.691.146	-9.501.1028	-10.231.1163	-13.171.1242	-12.731.1287	-15.911.1538	-15.561.1437	-15.441.1522	-15.431.1539	-15.151.1487	-15.651.1516	-14.791.1584	-13.191.1268	-14.101.1507	-14.861.1399	-13.691.1397	
(H450°)	-16.371.1516	-15.501.1543	-14.141.1326	-13.481.1524	-13.991.1539	-13.751.1521	-11.021.1035	-10.391.1161	-11.501.1158	-10.191.1207	-6.601.666	-11.331.1335	-15.001.1519	-15.441.1524	-14.961.1463	-14.791.1549	-13.221.1289	-13.041.1341	-14.601.1487	-15.541.187	-15.631.1604	-14.621.1551	-15.921.1451	-13.711.1486
(H472.5°)	-16.921.1568	-11.161.1152	-11.771.1238	-12.311.1540	-12.361.1169	-11.091.1258	-12.801.1172	-11.301.1120	-11.151.1100	-10.141.1101	-12.721.1436	-15.021.1515	-15.291.1571	-15.101.1521	-13.481.1411	-14.611.1524	-15.601.1584	-15.911.1541	-15.921.1584	-16.011.1589	-16.021.1581	-15.021.1411		
(H495°)	-13.041.1317	-11.731.1066	-10.721.1232	-9.811.1429	-11.291.1114	-10.701.1048	-10.141.1035	-10.461.1134	-13.321.1430	-14.731.1557	-15.771.1511	-15.751.1491	-15.851.1475	-15.541.1586	-14.861.1519	-15.711.1448	-13.731.1405	-15.101.1625	-15.341.145	-14.161.1424	-13.801.1432	-13.331.1435	-14.021.1348	-14.201.1391
Frequency	5.78595GHz																							
Gain	0°(H10°)	0°(H22.5°)	0°(H45°)	0°(H67.5°)	0°(H90°)	0°(H112.5°)	0°(H135°)	0°(H157.5°)	0°(H180°)	0°(H202.5°)	0°(H225°)	0°(H247.5°)	0°(H270°)	0°(H292.5°)	0°(H315°)	0°(H337.5°)	0°(H360°)	0°(H382.5°)	0°(H405°)	0°(H427.5°)	0°(H450°)	0°(H472.5°)	0°(H495°)	0°(H517.5°)
(H10°)	7.607.58	7.887.64	7.717.69	7.347.37	7.287.08	7.157.50	7.467.57	7.887.67	7.887.61	7.697.76	7.777.69	7.577.68	7.887.68	7.887.68	7.487.67	7.377.37	7.387.63	7.687.51	7.107.27	7.327.67	7.687.51	7.687.51	7.687.51	7.687.51
(H22.5°)	7.917.65	7.757.69	7.587.56	7.577.38	7.297.35	7.167.17	7.347.38	7.307.27	7.297.33	7.477.61	7.647.62	7.617.28	7.257.33	7.397.34	7.247.78	7.157.05	7.017.12	7.077.69	7.267.51	7.597.68	7.627.68	7.767.68	7.767.68	7.767.68
(H45°)	7.647.71	7.687.38	7.117.67	7.248.91	6.981.67	6.501.53	7.187.674	7.187.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67	6.981.67
(H67.5°)	6.526.40	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73	5.687.73
(H90°)	5.657.27	4.964.60	4.494.40	4.294.08	3.993.83	3.203.16	3.373.19	3.240.35	3.447.71	3.943.99	3.980.59	3.212.34	3.913.44	3.593.62	3.904.33	4.234.14	3.980.75	3.934.19	4.294.30	4.355.00	5.425.71	6.156.08	5.495.24	5.376.63
(H112.5°)	5.642.69	3.833.98	3.980.33	2.181.62	1.100.40	-3.011.08	-1.721.79	-6.571.46	3.241.27	2.282.96	3.267.27	2.820.06	3.901.71	1.891.03	1.251.63	2.202.82	2.482.88	3.520.48	3.903.40	3.903.40	4.254.46	5.254.46	5.254.46	5.254.46
(H135°)	4.862.31	3.393.50	3.322.57	1.480.24	-8.052.13	2.754.65	-8.507.21	7.011.45	-13.076.88	0.851.98	1.131.671	-0.747.048	-0.804.25	0.380.60	1.101.69	1.580.58	-1.511.51	0.281.23	0.610.87	1.501.45	1.822.42	2.523.32	2.570.06	2.602.12
(H157.5°)	3.216.20	2.642.37	2.121.50	0.881.69	-2.581.421	-5.995.50	-7.881.68	-8.011.642	-2.342.14	-0.481.46	-1.851.261	-1.061.251	-2.092.73	-3.301.225	-3.052.07	-1.619.76	-1.703.63	-3.681.49	-2.631.34	1.001.16	1.041.16	1.792.19	1.601.21	1.741.15
(H180°)	0.351.01	-0.060.74	1.330.60	0.014.06	-4.231.47	-4.984.65	-5.919.29	-8.071.40	-4.071.34	-2.741.198	-0.202.056	-2.151.084	-1.192.06	-3.321.480	-2.201.188	-3.771.478	-0.503.78	-7.461.633	-5.604.42	-1.111.17	0.430.01	0.780.03	0.511.34	0.640.06
(H202.5°)	-4.741.156	-1.701.51	1.160.40	-0.261.26	-6.451.468	-6.531.461	-4.401.37	-5.551.508	-3.881.428	-4.051.168	-2.071.17	-2.671.05	-1.661.312	-1.941.105	-4.021.915	6.181.150	-10.021.924	-13.411.238	-12.081.211	-11.671.129	0.580.03	1.070.02	0.801.27	0.380.27
(H225°)	-1.941.260	-2.611.268	-1.561.165	-1.543.31	-6.161.830	-3.881.706	-11.611.002	-6.891.710	6.161.876	-4.511.558	-4.741.160	-3.481.241	-3.681.139	-6.641.200	-1.791.167	-3.021.16	-4.871.03	-8.411.48	-5.314.498	-3.711.300	-1.752.86			



Antenna Pattern_Radio 3_5GHz and 6GHz

Appendix F

φ(80°)	0.28(-6.30)	0.74(-1.23)	0.34(-0.70)	-1.12(-2.41)	-2.19(-1.99)	3.01(-2.07)	-2.56(-1.77)	-1.41(-0.92)	-0.97(-3.37)	-7.20(-6.92)	-11.52(-7.09)	-7.14(-3.27)	-3.87(-1.96)	-1.59(-1.27)	-3.32(-4.11)	-1.21(-0.90)	-4.81(-2.96)	0.85(-0.14)	1.70(-1.66)	0.30(-1.96)	1.93(-2.00)	1.63(-1.15)	0.12(-0.07)	-0.77(-0.67)
φ(87.5°)	0.61(-1.13)	-1.34(-1.84)	-2.64(-2.18)	-3.61(-4.51)	-4.29(-7.41)	8.35(-4.30)	-3.72(-2.23)	-2.87(-1.59)	3.02(-3.22)	-4.52(-6.01)	7.44(-4.84)	-4.21(-6.84)	-2.68(-1.80)	-1.73(-2.02)	-2.92(-4.27)	5.94(-4.84)	-4.21(-4.65)	-3.64(-8.61)	-2.62(-1.01)	-0.19(-0.16)	0.58(-0.95)	-0.42(-0.53)	0.29(-0.19)	-1.45(-1.00)
φ(95°)	-1.21(-2.69)	-2.91(-3.86)	-4.90(-4.54)	-6.17(-6.73)	-8.19(-10.32)	-10.37(-11.39)	-4.96(-4.13)	-2.91(-4.34)	3.67(-2.60)	-4.04(-3.26)	-4.96(-4.79)	-3.50(-4.16)	-3.02(-1.22)	-1.78(-1.19)	-0.59(-0.20)	-3.95(-6.40)	-2.20(-4.78)	-3.12(-7.78)	-4.69(-1.22)	-4.00(-0.20)	1.31(-0.91)	-0.89(-0.44)	-1.36(-1.52)	
φ(92.5°)	-1.75(-1.68)	-4.29(-6.70)	-7.05(-6.68)	-7.83(-8.46)	-9.89(-14.74)	-11.46(-12.01)	-5.46(-6.93)	-4.73(-5.72)	-4.14(-4.35)	-4.54(-3.72)	-4.09(-4.76)	-2.73(-4.18)	-2.70(-2.87)	-2.06(-1.30)	-1.32(-0.74)	-4.85(-3.20)	-0.65(-1.19)	-2.46(-3.11)	-3.00(-2.4)	-0.02(-0.91)	-3.93(-2.97)	-1.38(-1.63)	0.28(-0.80)	-1.43(-2.74)
φ(90°)	-2.87(-5.51)	-5.61(-7.54)	-8.52(-10.77)	-9.26(-10.77)	-11.19(-15.96)	-11.46(-11.88)	-6.43(-7.20)	-7.96(-6.95)	-6.32(-5.79)	-5.61(-4.56)	-6.45(-5.24)	-4.13(-5.21)	-4.52(-3.35)	-4.46(-3.36)	-2.87(-3.28)	-6.24(-4.12)	-2.43(-2.58)	-4.11(-7.74)	-3.16(-0.90)	-2.99(-4.57)	-5.37(-4.95)	-2.97(-3.07)	-1.49(-1.59)	-1.98(-4.30)
φ(87.5°)	-4.09(-6.89)	-7.59(-9.85)	-8.17(-10.38)	-10.72(-10.99)	-12.92(-15.56)	-13.73(-10.46)	-9.42(-8.52)	-11.27(-7.87)	-9.07(-7.24)	-7.40(-7.75)	-7.42(-7.03)	-6.47(-6.92)	-5.99(-6.15)	-6.11(-4.52)	-4.35(-7.68)	-8.58(-8.54)	-4.50(-6.48)	-9.86(-11.89)	-6.51(-4.41)	-6.05(-10.68)	-7.71(-5.85)	-5.48(-4.41)	-3.51(-3.01)	-2.91(-5.01)
φ(92.5°)	-5.42(-6.76)	-9.11(-11.78)	-11.91(-11.74)	-11.29(-13.42)	-12.44(-15.63)	-15.83(-15.54)	-11.98(-11.38)	-11.29(-9.38)	-11.69(-8.92)	-8.83(-9.40)	-6.79(-6.56)	-8.77(-1.18)	-7.39(-6.34)	-9.34(-6.53)	-5.48(-8.91)	-10.80(-11.70)	-5.59(-13.97)	-14.36(-11.26)	-8.36(-6.37)	-7.87(-15.59)	-7.55(-7.37)	-7.47(-5.16)	-5.39(-4.04)	-4.48(-6.09)
φ(112.5°)	-7.91(-10.36)	-9.60(-11.95)	-13.32(-12.54)	-12.55(-11.13)	-15.29(-13.36)	-15.26(-14.57)	-15.80(-11.32)	-11.96(-11.65)	-13.02(-8.13)	-10.73(-11.30)	-10.63(-11.76)	-10.78(-8.68)	-7.46(-7.58)	-10.78(-11.77)	-7.67(-7.96)	-11.94(-11.54)	-7.20(-13.73)	-13.64(-8.86)	-10.13(-8.56)	-10.34(-12.02)	-9.67(-9.89)	-8.31(-7.27)	-6.25(-6.69)	-6.14(-7.85)
φ(120°)	-11.88(-12.49)	-13.91(-11.68)	-13.49(-15.36)	-15.93(-14.52)	-14.44(-15.00)	-14.58(-12.10)	-12.30(-12.50)	-14.67(-13.59)	-15.34(-11.15)	-12.76(-12.37)	-12.41(-13.61)	-12.11(-10.75)	9.27(-7.92)	-9.27(-10.56)	-13.47(-9.87)	-12.00(-14.48)	-13.89(-10.46)	-16.01(-11.35)	-15.44(-15.34)	-15.33(-11.88)	-10.49(-11.34)	-8.96(-8.08)	-7.37(-6.37)	-8.03(-9.47)
φ(127.5°)	-15.48(-12.43)	-14.84(-12.40)	-14.89(-14.88)	-14.67(-14.19)	-15.24(-15.32)	-15.27(-12.38)	-15.98(-15.54)	-15.71(-15.31)	-15.72(-15.85)	-14.98(-15.64)	-15.03(-15.19)	-15.80(-14.96)	-14.58(-16.88)	-14.21(-11.13)	-14.96(-10.63)	-11.99(-6.94)	-8.28(-15.76)	-15.73(-15.61)	-14.27(-11.16)	-14.09(-13.83)	-15.94(-9.58)	-9.27(-8.98)	-8.62(-8.68)	-12.43(-14.22)
φ(135°)	-15.59(-14.33)	-13.71(-15.68)	-15.70(-14.88)	-15.24(-14.91)	-14.68(-15.64)	-15.60(-15.15)	-13.18(-15.14)	-13.24(-14.76)	-14.91(-15.37)	-15.46(-15.39)	-15.26(-15.68)	-14.97(-14.92)	-15.79(-12.72)	-14.78(-15.62)	-13.64(-13.10)	-13.41(-10.16)	-15.59(-12.17)	-14.87(-14.20)	-13.89(-11.13)	-13.24(-14.72)	-12.55(-11.91)	-13.71(-9.46)	-9.39(-7.24)	-15.55(-14.51)
φ(142.5°)	-15.88(-14.27)	-15.12(-15.21)	-14.50(-15.02)	-15.64(-15.68)	-15.44(-14.02)	-14.47(-14.78)	-15.30(-15.34)	-14.27(-14.04)	-14.83(-15.35)	-16.03(-15.70)	-14.41(-14.42)	-14.69(-14.68)	-15.24(-12.54)	-15.39(-13.80)	-15.68(-15.66)	-15.01(-11.65)	-15.25(-15.56)	-15.98(-11.68)	-16.91(-13.63)	-14.21(-15.43)	-12.96(-12.54)	-13.87(-12.94)	-13.25(-14.11)	
φ(150°)	-15.63(-15.51)	-15.69(-15.41)	-15.26(-15.07)	-15.71(-15.68)	-16.27(-15.19)	-14.65(-15.47)	-15.49(-15.45)	-15.64(-15.60)	-15.42(-15.11)	-15.57(-14.96)	-15.08(-15.94)	-15.72(-15.15)	-15.28(-15.81)	-15.84(-15.47)	-15.44(-15.15)	-14.98(-12.77)	-13.11(-15.53)	-12.91(-14.54)	-15.81(-12.89)	-15.04(-13.59)	-14.40(-14.07)	-15.00(-15.45)	-15.50(-15.53)	-15.34(-15.68)
φ(157.5°)	-15.82(-15.59)	-14.87(-15.23)	-15.65(-15.53)	-14.59(-15.24)	-15.61(-15.29)	-15.02(-14.42)	-15.79(-15.49)	-15.31(-15.69)	-15.29(-13.98)	-14.62(-15.25)	-15.23(-15.46)	-15.32(-15.46)	-15.21(-15.82)	-14.77(-15.61)	-15.63(-15.00)	-15.49(-16.04)	-14.24(-14.79)	-15.89(-15.69)	-14.13(-14.87)	-15.62(-15.38)	-15.02(-14.85)	-15.62(-15.94)	-15.65(-15.26)	
φ(165°)	-15.76(-15.46)	-15.40(-15.85)	-14.81(-15.40)	-15.34(-15.20)	-14.85(-15.77)	-15.65(-15.60)	-15.82(-15.70)	-14.73(-15.23)	-15.17(-15.44)	-15.27(-15.75)	-15.63(-15.15)	-14.90(-14.61)	-14.82(-15.10)	-15.14(-15.23)	-14.30(-14.82)	-15.23(-15.55)	-15.81(-15.45)	-14.99(-14.98)	-15.86(-15.89)	-15.29(-16.03)	-15.26(-14.85)	-14.82(-15.49)	-15.24(-15.35)	-14.82(-15.98)
φ(172.5°)	-15.19(-15.69)	-15.81(-15.69)	-14.57(-15.69)	-14.83(-14.85)	-15.72(-15.92)	-15.66(-14.84)	-16.03(-15.72)	-15.68(-15.56)	-15.01(-15.14)	-15.42(-15.10)	-15.10(-14.87)	-15.77(-15.15)	-15.27(-15.99)	-15.89(-15.22)	-14.76(-15.08)	-15.74(-14.88)	-14.30(-14.63)	-15.11(-14.00)	-15.98(-15.18)	-13.89(-14.15)	-15.94(-14.80)	-15.29(-15.19)	-14.80(-15.15)	-15.71(-15.22)
φ(180°)	-14.95(-15.37)	-15.73(-15.68)	-15.49(-15.84)	-15.25(-14.98)	-14.90(-15.24)	-15.72(-15.88)	-15.19(-15.66)	-16.02(-15.75)	-15.42(-15.43)	-15.47(-14.82)	-15.99(-15.13)	-15.76(-15.33)	-15.15(-15.17)	-15.02(-15.47)	-15.79(-15.16)	-14.98(-14.85)	-16.10(-15.47)	-15.54(-15.20)	-14.73(-15.37)	-15.03(-14.63)	-15.49(-15.30)	-15.54(-15.58)	-15.33(-15.31)	-15.41(-15.67)
FreeQ(φ)	0.6959Phi	TabNet_4	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ
Gain	φ(150°)φ(87.5°)	φ(15°)φ(22.5°)	φ(45°)φ(307.5°)	φ(45°)φ(252.5°)	φ(60°)φ(167.5°)	φ(60°)φ(182.5°)	φ(75°)φ(157.5°)	φ(75°)φ(112.5°)	φ(120°)φ(127.5°)	φ(135°)φ(142.5°)	φ(150°)φ(157.5°)	φ(165°)φ(172.5°)	φ(180°)φ(187.5°)	φ(195°)φ(202.5°)	φ(210°)φ(217.5°)	φ(225°)φ(232.5°)	φ(240°)φ(247.5°)	φ(255°)φ(262.5°)	φ(270°)φ(277.5°)	φ(285°)φ(307.5°)	φ(300°)φ(307.5°)	φ(315°)φ(322.5°)	φ(330°)φ(337.5°)	φ(345°)φ(352.5°)
φ(8°)	5.875(-61)	5.635(-50)	5.155(-24)	5.375(-23)	5.675(-57)	5.605(-70)	5.735(-81)	6.005(-11)	6.105(-6)	6.105(-6)	5.945(-50)	6.105(-5)	6.045(-94)	5.825(-75)	5.815(-82)	5.775(-78)	5.895(-87)	5.885(-85)	5.805(-82)	5.968(-62)	6.075(-68)	5.965(-78)	5.735(-81)	5.845(-78)
φ(17.5°)	6.555(-35)	6.115(-52)	5.825(-55)	6.105(-62)	5.785(-93)	5.815(-67)	6.255(-91)	5.795(-88)	5.955(-98)	5.835(-69)	5.535(-45)	5.415(-37)	5.225(-20)	5.325(-36)	5.495(-63)	5.705(-62)	6.055(-80)	6.068(-62)	5.755(-97)	6.268(-31)	6.255(-31)	6.395(-41)	6.475(-45)	
φ(27°)	7.245(-87)	6.285(-68)	5.445(-95)	5.445(-95)	4.364(-99)	4.734(-87)	4.874(-87)	4.564(-93)	4.865(-19)	5.355(-35)	5.255(-39)	5.185(-35)	5.985(-63)	5.805(-68)	5.735(-91)	6.025(-61)	6.837(-64)	6.837(-64)	7.177(-39)	7.537(-64)	7.777(-67)	8.027(-68)	7.807(-77)	
φ(37.5°)	5.945(-67)	5.344(-88)	4.455(-95)	3.163(-52)	4.215(-46)	5.125(-30)	5.655(-23)	4.253(-38)	3.143(-54)	4.164(-45)	4.705(-15)	5.635(-89)	5.625(-48)	5.195(-13)	5.205(-10)	5.065(-19)	5.055(-16)	5.515(-16)	6.957(-67)	7.988(-11)	8.078(-63)	8.047(-87)	7.747(-80)	7.095(-35)
φ(47.5°)	5.265(-65)	5.715(-51)	3.851(-37)	3.634(-33)	5.055(-47)	5.465(-58)	5.064(-11)	3.962(-39)	1.455(-25)	1.455(-24)	4.534(-88)	4.744(-75)	5.385(-46)	4.173(-56)	3.714(-30)	7.597(-64)	5.615(-62)	6.067(-50)	6.067(-50)	7.517(-38)	6.845(-68)	5.985(-38)	6.165(-58)	
φ(57.5°)	3.544(-69)	4.764(-61)	3.315(-23)	3.503(-24)	3.473(-67)	3.654(-69)	3.813(-11)	1.865(-36)	0.74(-327)	3.27(-635)	6.725(-60)	3.242(-42)	1.862(-57)	3.042(-17)	2.673(-78)	3.375(-98)	3.103(-62)	2.984(-51)	6.166(-37)	6.295(-35)	6.075(-38)	5.364(-68)	3.735(-57)	3.523(-81)
φ(67.5°)	1.901(-99)	1.390(-92)	3.015(-52)	1.791(-59)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)	2.999(-57)
φ(77.5°)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)	0.593(-93)
φ(87.5°)	-1.681(-12)	1.204(-48)	1.797(-48)	-1.10(-55)	-2.89(-31)	4.454(-43)	-4.41(-26)	0.397(-25)	-1.46(-137)	6.63(-55)	8.89(-11)	-1.16(-524)	-3.75(-257)	-1.89(-340)	-5.49(-436)	-2.88(-439)	-4.45(-152)	0.441(-74)	2.787(-67)	-0.271(-54)	0.950(-46)	0.159(-197)	-1.69(-573)	
φ(97.5°)	-1.09(-166)	-1.99(-241)	0.44(-607)	-3.27(-447)	-5.27(-645)	8.14(-595)	-3.21(-526)	-0.62(-613)	2.02(-307)	5.79(-308)	5.62(-426)	-4.70(-538)	3.99(-136)	4.20(-526)	-6.87(-647)	5.10(-827)	-1.80(-606)	0.07(-1210)	-0.27(-1047)	-0.46(-1121)	0.207(-1437)	-0.127(-1438)	-0.32(-142)	
φ(107.5°)	-2.59(-285)	-3.51(-336)	1.93(-374)	-5.74(-545)	8.92(-132)	8.23(-539)	-4.44(-386)	-2.10(-239)	-2.93(-478)	4.27(-211)	2.59(-308)	-3.74(-330)	4.18(-182)	3.86(-337)	-3.98(-276)	4.27(-1022)	-0.074(-88)	-1.45(-351)	2.13(-321)	-0.78(-252)	-2.27(-436)	-0.071(-174)	-1.71(-154)	
φ(117.5°)	-4.15(-427)	-5.86(-577)	-6.30(-580)	-7.16(-734)	-10.37(-1402)	-13.62(-938)	-7.37(-187)	-4.44(-450)	-5.77(-589)	-4.74(-238)	-4.74(-238)	-3.91(-438)	-4.91(-427)	-4.03(-221)	-3.39(-177)	-5.78(-530)	-5.84(-322)	-1.19(-564)	-1.54(-219)	-0.28(-284)	-0.84(-361)	-1.07(-144)	-2.18(-127)	-2.78(-285)
φ(127.5°)	-5.84(-612)	-7.09(-740)	-7.36(-747)	-8.55(-816)	-10.77(-1200)	-15.44(-1438)	-9.84(-435)	-4.99(-917)	-7.36(-605)	-6.32(-409)	-3.86(-474)	-3.74(-467)	-5.17(-433)	-5.10(-533)	-5.31(-489)	-6.48(-491)	-1.47(-213)	2.44(-827)	-2.86(-334)	-3.14(-616)	-7.87(-530)	-2.48(-526)	-2.02(-197)	-5.23(-480)
φ(137.5°)	-6.62(-652)	-11.79(-809)	-7.92(-608)	-10.75(-913)	-11.80(-1163)	-11.81(-1163)	-11.39(-749)	-11.61(-1184)	-10.30(-649)	-6.59(-568)	-6.57(-633)	-6.68(-496)	-6.05(-159)	-10.77(-605)	-6.00(-504)	-8.32(-842)	-8.05(-1023)	-6.26(-710)	-8.90(-1081)	-8.72(-479)	-4.55(-588)	-5.56(-588)	-5.51(-518)	
φ(147.5°)	-10.80(-1215)	-13.34(-1171)	-8.89(-43)	-11.46(-162)	-12.33(-1178)	-12.90(-1434)	-13.35(-1016)	-8.89(-1146)	-11.17(-1182)	-3.80(-789)	-11.02(-755)	-7.90(-465)	-6.95(-460)	-11.77(-970)	-6.78(-934)	-10.44(-1186)	-6.46(-1188)	-11.30(-1226)	-7.26(-1016)	8.34(-1153)	-10.73(-152)	-6.70(-138)	-6.47(-532)	-6.91(-427)
φ(157.5°)	-11.05(-1448)	-12.90(-1220)	-6.81(-1039)	-10.33(-1151)	-12.51(-1328)	-13.64(-1553)	-8.33(-1132)	-12.14(-1132)	-11.17(-1145)	-11.06(-1019)	-8.50(-1211)	-6.79(-882)	-8.07(-1032)	-8.53(-968)	-10.51(-1032)	-15.40(-1296)	-15.38(-1367)	-12.93(-1387)	-11.41(-1196)	-15.71				

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

