



Antenna Composite Gain Test Report

Equipment	Telephone Gateway
Brand Name	ARRIS
Model Name	TG3442
Applicant	ARRIS 3871 Lakefield Drive, Suite 300, Suwanee, GA 30024
Manufacturer	ARRIS 3871 Lakefield Drive, Suite 300, Suwanee, GA 30024
Sample Received	Jun. 27, 2022
Start Test Date	Jun. 28, 2022
Final Test Date	Jul. 11, 2022


Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



Table of Contents

History of this test report.....	3
1. Operation Mode and Antenna Information	4
2. Test Frequency	4
3. Testing Location.....	4
4. Test Facility and Configuration.....	5
5. Reference Calibration	6
6. Test Method	7
7. Measured Values and Calculation of Maximum Gain Positions.....	8
8. Summary of Test Result	9
9. Test Setup	10
10. Test Equipment and Calibration Data	11
11. Test Results	12



History of this test report

Report No.	Version	Description	Issued Date
AP262504-01	01	Initial issue of report	Oct. 31, 2022



1. Operation Mode and Antenna Information

Antenna Position	RF Port	Brand Name	Model Name	Ant. Type	Connector	Modes of Operation
2G 5GAnt1	1	Galtronics	02036142-06325A1	PIFA	mini-muruta	2.4GHz, 5GHz UNII 1~3
2G 5GAnt2	2	Galtronics	02036142-06325B1	PIFA	mini-muruta	2.4GHz, 5GHz UNII 1~3
2G 5GAnt3	3	Galtronics	02036142-06325B2	PIFA	mini-muruta	2.4GHz, 5GHz UNII 1~3
5GAnt4	4	Galtronics	02036142-06325A2	PIFA	mini-muruta	5GHz UNII 1~3

Note:

2.4GHz Operation Mode (1TX/1RX)

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

2.4GHz Operation Mode (3TX/3RX)

2G Ant1~2G Ant3 could transmit/receive simultaneously.

5GHz Operation Mode (4TX/4RX)

5GAnt1~5GAnt4 could transmit/receive simultaneously.

2. Test Frequency

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

Band [MHz]	Test Frequency [MHz]
2400-2483.5	2450
5150-5250	5200
5250-5350	5300
5470-5725	5600
5725-5850	5785

3. Testing Location

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
<input checked="" type="checkbox"/> Wen 33rd.St.	ADD:	No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)		
	TEL: 886-3-318-0787	FAX: 886-3-318-0287		
Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	05CH03-HY	Rex Liao	23~24°C / 40~50%	28/Jun/2022, 11/Jul/2022

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

Characteristic: Fully Anechoic Chamber

4. Test Facility and Configuration

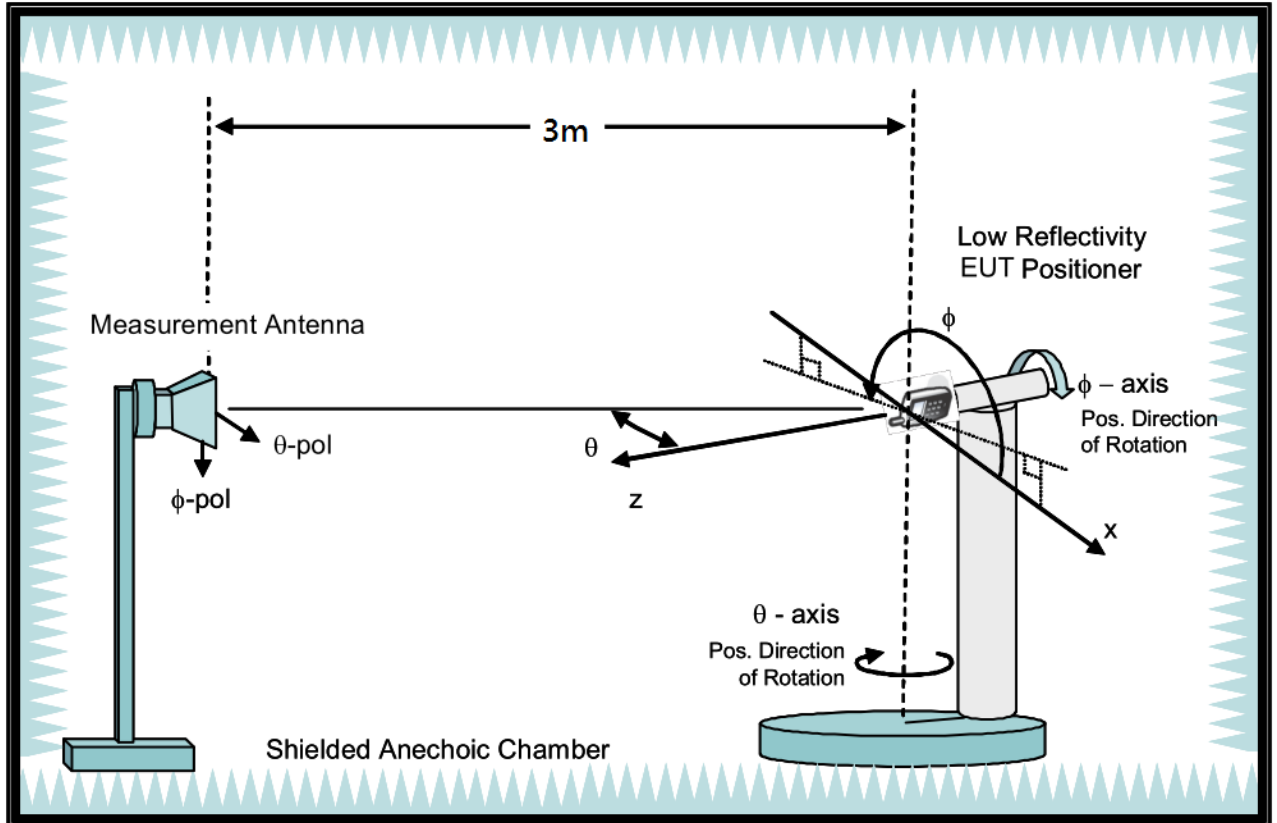
Test configuration: Reference to CITA OTA distributed-axes system configuration.

Chamber: Fully Anechoic Chamber.

Measurement antenna: Dual Polarization Horn antenna

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

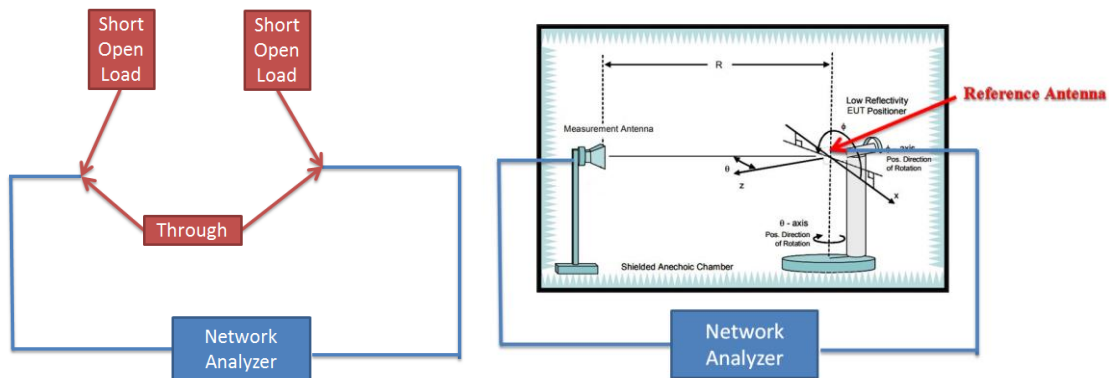
#Reference to CTIA “ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1”



5. Reference Calibration

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

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



Frequency (MHz)	2400	2450	2500	5150	5200	5300	5600	5750	5800	5900	6000	6500	7000	7500
G reading (dB)	-31.4	-31.4	-31.3	-31.3	-31	-30.7	-30.1	-30.5	-30.5	-30.8	-31.3	-32.8	-34.4	-35.4
Reference gain (dBi)	10.2	10.4	10.6	12.4	12.8	13.4	13.4	13.3	13.3	13.1	13.2	12.3	11.7	11.1
Factor (dB)	41.34	41.55	41.68	43.24	43.56	43.68	43.79	43.91	43.99	44.43	44.49	45.24	46.12	46.31

Note:

$$G \text{ reading (dB)} = 20 \cdot \log(V2/V1) = 10 \cdot \log(P2/P1)$$

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.

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



6. Test Method

EUT set on multi-axis positioner and adjust EUT's physical center to measurement reference center. Measurement antenna set at phi polarization and 1.5 meter height. Port 1 of Network analyzer connect to antenna 1 of EUT. Record G value every 10 degree from 0 to 350 degree on Phi angle and 0 to 180 on theta angle of multi-axis positioner. Then set measurement antenna to theta polarization and repeat process. Repeat process to each antenna of EUT.

DG steps:

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

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



7. Measured Values and Calculation of Maximum Gain Positions

DG_1SS max value position

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 (dBi)	-0.63	2.42	1.75	-0.08	-0.21
Ant. 2 (dBi)	2.35	-1.31	-4.5	-2.84	-3.27
Ant. 3 (dBi)	-3.58	-2.85	2.53	0.13	-3.13
Ant. 4 (dBi)	-	-4.14	-10.17	-7.99	0.09
DG [1SS] (dBi)	4.49	4.92	4.78	3.88	4.53
Polarization	Phi	Phi	Phi	Phi	Phi
$\Theta(^{\circ})$	120	90	50	90	70
$\Phi(^{\circ})$	230	250	90	260	120

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

DG_1SS max value position calculation

Frequency (Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 [10 ^(G/20)]	10 ^(-0.63/20)	10 ^(2.42/20)	10 ^(1.75/20)	10 ^(-0.08/20)	10 ^(-0.21/20)
Ant. 2 [10 ^(G/20)]	10 ^(2.35/20)	10 ^(-1.31/20)	10 ^(-4.5/20)	10 ^(-2.84/20)	10 ^(-3.27/20)
Ant. 3 [10 ^(G/20)]	10 ^(-3.58/20)	10 ^(-2.85/20)	10 ^(2.53/20)	10 ^(0.13/20)	10 ^(-3.13/20)
Ant. 4 [10 ^(G/20)]	-	10 ^(-4.14/20)	10 ^(-10.17/20)	10 ^(-7.99/20)	10 ^(0.09/20)
Ant. 1 [10 ^(G/20)] value	0.93	1.321	1.223	0.991	0.976
Ant. 2 [10 ^(G/20)] value	1.311	0.86	0.596	0.721	0.686
Ant. 3 [10 ^(G/20)] value	0.662	0.72	1.338	1.015	0.697
Ant. 4 [10 ^(G/20)] value	-	0.621	0.31	0.399	1.01
Sum All Antenna [Amax]	2.903	3.522	3.467	3.126	3.37
DG [10*log(Amax ² /Nant)]	4.49	4.92	4.78	3.88	4.53

Note:

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

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



8. Summary of Test Result

Frequency (Hz)	2.45G
Ant. 1 Max Gain (dBi)	2.43
Ant. 2 Max Gain (dBi)	2.35
Ant. 3 Max Gain (dBi)	2.22
Max Gain (dBi)	2.43
DG [1SS] (dBi)	4.49
DG [2SS] (dBi)	2.43

Note:

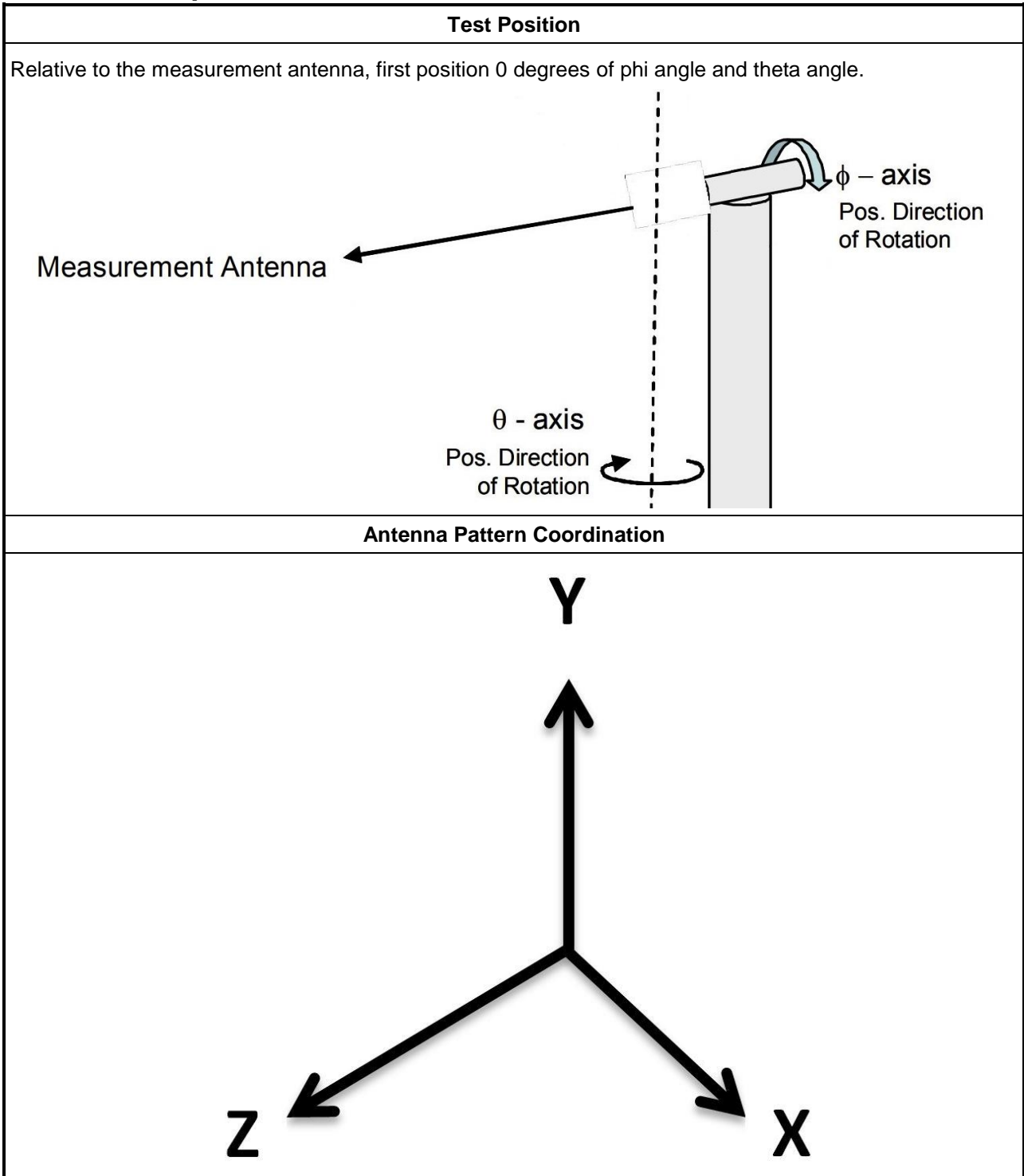
1. Antenna max gain is the max value of each individual antenna through all measurement angles.
2. The max gain is the max value of all antennas.
3. Directional Gain (2SS) = Directional Gain (1SS) – 3dB. If directional gain is less than max gain, use max gain as directional gain.

Frequency (Hz)	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.42	2.61	2.44	2.59
Ant. 2 Max Gain (dBi)	2.78	2.86	2.17	2.01
Ant. 3 Max Gain (dBi)	2.13	2.53	2.42	2.02
Ant. 4 Max Gain (dBi)	2.61	2.41	2.78	2.51
Max Gain (dBi)	2.78	2.86	2.78	2.59
DG [1SS] (dBi)	4.92	4.78	3.88	4.53
DG [2SS] (dBi)	2.78	2.86	2.78	2.59
DG [4SS] (dBi)	2.78	2.86	2.78	2.59

Note:

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

9. Test Setup



Note:

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



10. Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1543	1GHz~18GHz	May. 31, 2022	May. 30, 2023
Dual Polarization Horn Antenna	Sporton	S0209DP	S0209DP-001	2GHz~9GHz	N.C.R.	N.C.R.
ENA Series Network Analyzer	AGILENT	E5071C	MY46419201	100kHz~8.5GHz	Feb. 21, 2022	Feb. 20, 2023
VNA Calibration Kit	TS RF	TS85033E-F	-	DC~9GHz	N.C.R.	N.C.R.
Multi-axis positioner	Sporton	MAPS01	MAPS01-001	Theta / Phi axis	N.C.R.	N.C.R.
Test Software	SPORTON	SENSE-RDG	V1.0.8	-	N.C.R.	N.C.R.

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

NCR means Non-Calibration required.



11. Test Results

Please refer to the appendix.

Appendix A – Radiated Composite Gain.....	Page 13
Appendix B – Antenna Pattern.....	Page 24
Appendix C – Test Photos.....	Page 29

————THE END————



Freq(Hz)	2.45G	5.2G	5.3G	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.43	2.42	2.61	2.44	2.59
Ant. 2 Max Gain (dBi)	2.35	2.78	2.86	2.17	2.01
Ant. 3 Max Gain (dBi)	2.22	2.13	2.53	2.42	2.02
Ant. 4 Max Gain (dBi)		2.61	2.41	2.78	2.51
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/30/180	Phi/90/250	Phi/50/100	Phi/60/90	Phi/60/90
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/120/230	Theta/150/270	Theta/150/270	Theta/150/270	Theta/150/270
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/30/0	Phi/50/100	Phi/50/90	Phi/90/280	Phi/90/280
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$		Theta/10/80	Phi/20/170	Phi/170/200	Phi/170/210
Max Gain (dBi)	2.43	2.78	2.86	2.78	2.59
DG [1SS] (dBi)	4.49	4.92	4.78	3.88	4.53
DG [2SS] (dBi)	2.43	2.78	2.86	2.78	2.59
DG [4SS] (dBi)		2.78	2.86	2.78	2.59



Radiated Composite Gain Data

Appendix A

Theta (°)	-1.27/-1.5	-2.01/-2.09	-3.37/-1.51	-1.35/-4.42	-6.64/-8.1	-5.76/-3.04	-1.21/-0.83	-0.41/-1.06	-2.27/-3.19	-3.64/-3.22	-3.88/-3.57	-3.26/-3.43	-2.31/-2.94	-2.21/-1.93	-2.7/-3.45	-1.91/-1.94	-1.27/-1.16	-0.56/-0.67
Theta (80°)	-1.62/-2.32	-3.24/-3.49	-5.06/-3.27	-2.5/-2.54	-4.88/-6.83	-4.2/-3.4	-2.81/-1.83	-1.67/-2.23	-3.44/-5.07	-4.04/-6.06	-6.23/-5.19	-3.64/-3.43	-3.48/-1.99	-0.83/-1.42	-1.16/-0.85	-0.86/-2.41	-0.95/-0.41	-0.88/-1.5
Theta (90°)	-3.11/-3.49	-5.86/-5.37	-5.26/-4.26	-5.17/-6.16	-9.08/-9.51	-3.99/-3.18	-3.07/-1.77	-1.59/-2.68	-3.39/-4.36	-4.79/-3.67	-4.79/-3.67	-3.23/-2.93	-2.11/-1.2	-0.49/-1.44	-2.14/-0.87	-0.75/-1.7	-2.82/-2.27	-2.83/-2.67
Theta (100°)	-3.17/-3.22	-6.01/-6	-5.16/-3.36	-6.73/-6.45	-6.19/-5.21	-5.33/-3.75	-3.26/-2.53	-4.77/-5.4	-5.6/-6	-3.92/-3.61	-4.7/-5.04	-4.44/-2.48	-2.8/-1.36	-1.52/-2.4	-2.8/-0.3	-0.3/-2.94	-3.37/-3.06	-3.46/-2.49
Theta (110°)	-5.52/-5.08	-7.73/-5.53	-4.98/-3.71	-6.8/-7.2	-6.87/-5.97	-3.81/-3.53	-2.72/-1.38	-3.48/-3.39	-5.12/-4.31	-5.25/-2.84	-4.1/-4.55	-2.46/-3.39	-1.85/-0.81	-0.39/-0.8	-1.56/-0.08	-1.24/-2.79	-4.06/-3.37	-3.98/-2.47
Theta (120°)	-3.98/-6.49	-6.21/-4.87	-4.97/-4.83	-5.33/-4.88	-4.13/-2.35	-3.77/-4.38	-5.9/-5.08	-4.89/-5.95	-2.54/-4.42	-6.37/-4.67	-4.14/-4.45	-1.89/-2.02	-2.23/-2.84	-2.92/-0.36	-1.28/-2.91	-3.83/-3.71	-4.89/-2.66	-4.89/-2.66
Theta (130°)	-4.37/-5.87	-7.04/-6.25	-4.88/-7.97	-8.09/-4.21	-3.16/-4.35	-4.01/-3.97	-3.09/-4.84	-3.89/-8.61	-4.56/-6.81	-3.77/-3.56	-3.14/-2.61	-4.25/-3.4	-0.26/-0.86	0.56/-0.87	-2.15/-0.36	1.41/-1.76	-0.74/-5.07	-2.21/-4.14
Theta (140°)	-3.77/-4.86	-5.3/-6.92	-8.06/-9	-7.23/-5.57	-4.21/-3.86	-1.67/-1.16	-2.2/-2.77	-4.33/-7.46	-6.08/-4.15	-3.46/-3.52	-3.77/-4.64	-6.14/-1.56	-2.08/-2.2	-0.78/-1.48	-4.48/-3.51	-1.82/-1.31	-6.65/-3.79	-3.43/-2.96
Theta (150°)	-7.03/-7.59	-8.76/-11.32	-11.87/-11.07	-7.57/-5.18	-4.74/-6.5	-4.94/-5.16	-5.42/-7.04	-9.47/-10.3	-8.92/-6.34	-4.83/-6.33	-8.95/-11.81	-8.64/-4.17	-3.11/-1.3	0.71/-0.86	-0.94/-2.55	-1.81/-2.44	-5.88/-4.5	-3.53/-4.74
Theta (160°)	-10.06/-10.39	-9.95/-9.56	-9.06/-9.33	-7.91/-7.3	-5.88/-4.34	-3.99/-4.82	-5.29/-5.72	-6.2/-6.95	-6.34/-5.99	-4.96/-5.08	-5.41/-6.28	-6.61/-5.85	-4.28/-2.62	-1.11/-1.12	-2.24/-4.2	-5.62/-6.71	-7.27/-5.17	-4.83/-6.75
Theta (170°)	-3.09/-5.56	-8.3/-10.01	-9.96/-9.04	-9.22/-7.98	-5.58/-3.35	-2.17/-1.96	-1.39/-0.93	-1.06/-1.4	-1.69/-2	-2.63/-3.41	-4.44/-6.17	-7.04/-6.95	-4.12/-2.27	-1.61/-1.76	-1.44/-2.17	-2.58/-2.29	-2.2/-2.56	-1.96/-1.7
Theta (180°)	-4.38/-4.68	-5.53/-6.61	-6.08/-6.17	-6.28/-6.05	-4.61/-3.46	-2.61/-1.84	-1.36/-1.09	-0.96/-0.87	-1.02/-1.9	-3.33/-4.27	-5.05/-5.89	-5.84/-4.45	-3.75/-3.55	-3.03/-2.94	-3.64/-4.31	-4.06/-3.41	-3.04/-2.84	-3.14/-3.8
Freq(Hz)	5.6GPol.	Phi-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
DG(dB)	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta (0°)	-1.86/-1.95	-1.81/-1.44	-0.94/-0.79	-0.74/-0.49	-0.73/-0.01	0.11/0.32	0.24/-0.13	-0.55/-1.19	-1.69/-2.39	-2.76/-2.52	-0.03/-0.21	-0.57/-0.27	-0.83/-0.74	-0.12/-0.1	-0.28/-0.3	-0.12/-0.1	-0.55/-1.26	-1.52/-2.14
Theta (10°)	-0.59/-1.07	-1.11/-1.01	-0.8/-1.04	-0.5/-0.12	0.43/0.39	0.55/0.51	0.59/0.29	0.09/-0.19	-0.85/-1.65	-2.08/-1.54	-0.78/-0.69	-0.42/0.22	0/-0.25	0.38/0.71	0.71/0.88	1.21/3	0.86/0.17	0.12/-0.27
Theta (20°)	-0.76/-0.99	-0.1/0.34	0.64/-1.43	1.78/1.59	1.26/-1.1	0.88/0.32	0.44/0.39	-0.18/-0.52	-1.14/-2.85	-4.03/-2.84	-1.77/-0.62	-0.31/-0.44	-0.47/-0.75	-0.77/-0.66	0.08/0.8	0.83/0.34	0.12/0.5	0.56/0.07
Theta (30°)	-2.62/-1.25	-0.23/0.81	1.52/2.28	2.24/1.97	1.93/2.08	1.97/1.49	0.92/0.05	-0.39/0.12	0.47/0.8	1.21/0.32	0.66/0.73	1.26/1.42	1.82/0.6	0.81/0.45	1.42/-2.03	0.81/0.45	-1.42/-2.03	-1.52/-2.36
Theta (40°)	-3.13/-1.51	-0.81/-0.27	0.39/0.85	1.03/1.94	1.95/1.68	2.38/2.48	1.98/1.22	0.43/0.34	-0.86/-0.76	-0.57/-0.01	0.81/1.55	2.82/3.15	3.11/2.37	1.07/3	0.98/0.19	-0.23/-0.52	-1.36/-2.79	-4.06/-3.46
Theta (50°)	-3.74/-3.5	-4.12/-2.83	-0.61/-1.8	2.12/4	2.32/2.2	2.93/2.99	2.81/2.11	1.06/0.34	0.16/-0.63	-1.02/-0.71	1.19/2.26	2.32/1.82	1.42/1.51	1.52/-0.67	-0.36/-0.15	-0.86/-1.41	-1.81/-1.88	-2.57/-3.2
Theta (60°)	-3.14/-2.37	-1.02/0.34	1.64/2.03	3.04/3.8	3.64/3.72	3.64/3.72	3.64/3.72	0.14/0.69	-1.19/-1.06	0.06/0.53	0.86/0.17	-1.15/-2.37	1.89/1.14	1.87/0.54	0.45/-0.58	-0.49/1.14	-1.89/2.51	-3.53/-3.63
Theta (70°)	-1.98/-1.09	-0.72/0.3	0.98/0.69	2.07/2.19	2.51/2.7	3.22/3.45	3.45/2.71	1.55/0.53	0.28/-0.43	-0.73/-0.89	-0.8/-0.73	0.54/1.21	2.33/1.69	1.98/1.15	-0.11/0.43	-0.62/-0.63	-1.53/-3.9	-3.84/-2.72
Theta (80°)	-0.4/-0.3	1.01/0.72	-0.22/0.83	1.52/1.96	1.28/1.82	3.13/3.08	3.12/1.5	0.51/-0.74	-0.58/-1.36	-0.47/-0.67	-1.66/-2.29	-0.08/1.22	2.42/3.95	2.01/1.81	0.7/0.02	-0.03/-1.16	-2.32/-5.07	-4.57/-2.42
Theta (90°)	-0.23/-0.37	0.76/0.27	-0.65/0.06	0.41/-0.55	0.33/-1	0.92/0.49	0.63/0.6	0.05/-1.59	-2.14/-2.22	-2.5/-0.74	-1.36/-1.5	0.76/1.66	3/1.89	2.61/0.55	-0.01/0.78	-0.74/-0.62	-1.23/-6.23	-5.55/-3.22
Theta (100°)	-1.03/-0.27	0.83/-0.7	-0.65/0.06	0.41/-0.55	0.33/-1	0.92/0.49	0.63/0.6	0.05/-1.59	-2.14/-2.22	-2.5/-0.74	-1.36/-1.5	0.76/1.66	3/1.89	2.61/0.55	-0.01/0.78	-0.74/-0.62	-1.23/-6.23	-5.55/-3.22
Theta (110°)	-2.5/-0.9	0.55/-0.67	-2.16/-2.06	-1.39/-1.76	-2.17/-1.83	-0.03/-1.6	-0.1/-1.37	-0.93/-2.93	-1.23/-1.74	-3.36/-1.27	-1.4/-1.29	0.23/0.79	0.91/-0.5	-1.54/-2.5	-3.65/-3.6	-1.79/-5.22	-5.04/-3.49	-5.04/-3.49
Theta (120°)	-3.46/-3.4	-2.23/2.87	-3.85/-2.51	-0.61/-1.97	-3.07/-3.66	-4.36/-5.26	-2.75/-1.25	-0.94/-0.74	-1.21/0.67	-0.57/-2.14	-3.46/-2.14	-0.61/-1.97	-3.46/-2.14	-0.61/-1.97	-3.46/-2.14	-0.61/-1.97	-3.46/-2.14	-0.61/-1.97
Theta (130°)	-3.71/-3.17	-4.52/-3.78	-5.49/-5.58	-3.73/-4.61	-5.78/-7.63	-4.97/-3.99	-3.96/-3.99	-3.2/-2.31	-4.46/-3.94	-5.45/-2.01	-1/-1.33	-0.57/-0.79	1.17/0.06	-0.14/-2.98	-0.81/-1.8	-2.19/-4.31	-6.14/-0.72	-2.04/-2.36
Theta (140°)	-5.05/-6.78	-4.6/-4.18	-4.89/-6.03	-3.73/-4.68	-7.62/-5.99	-5.18/-5.15	-4.16/-4.35	-3.58/-3.93	-4.03/-2.78	-3.36/-4.04	-0.35/-0.5	-0.34/-0.67	-3.04/-2.25	-1.05/-0.66	-4.32/-4.53	-2.71/-2.41	-4.34/-5.54	-1.97/-2.41
Theta (150°)	-3.84/-5.29	-5.39/-6.73	-5.91/-4.91	-4.84/-6.03	-8.4/-9.06	-10.8/-11.66	-9.83/-6.39	-3.68/-3.18	-5.12/-6.71	-4.64/-1.75	-0.74/-1.07	-0.99/-1.51	-2.28/-3.05	-4.84/-6.04	-5.85/-5.29	-5.06/-6.34	-7.69/-7.71	-5.19/-3.42
Theta (160°)	-5.99/-6.8	-7.06/-8.54	-8.84/-8.87	-6.92/-6.66	-7.38/-8.28	-4.43/-4.98	-5.67/-6.19	-5.91/-5.4	-4.43/-4.43	-3.34/-2.79	-2.71/-2.55	-2.71/-2.55	-3.09/-5.16	-6.84/-6.29	-7.21/-7.5	-9.35/-9.31	-7.29/-7.18	-7.29/-7.18
Theta (170°)	-4.96/-4.52	-3.71/-3.49	-3.11/-3.37	-3.87/-5.21	-6.41/-6.42	-5.62/-5.64	-5.86/-4.97	-4.52/-3.67	-2.99/-1.51	-0.33/0.26	0.62/0.17	0.3/0.29	-0.33/-1.7	-4.06/-4.74	-9.5/-9.2	-7.06/-6.09	-5.69/-6.06	-6.31/-6.5
Theta (180°)	-4.67/-3.82	-3.33/-3.34	-2.8/-2.95	-3.33/-3.81	-4.26/-4.68	-5.65/-7.21	-7.66/-8.35	-7.71/-5.95	-4.19/-3.13	-2.17/-1.87	-1.77/-1.27	-1.4/-2.47	-3.75/-5.62	-7.28/-7.88	-8.27/-8.55	-8.67/-9	-9.35/-8.1	-6.28/-5.14
Freq(Hz)	5.6GPol.	Theta-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
DG(dB)	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta (0°)	0.55/0.45	0.3/0.38	-0.15/-0.94	-1.85/-2.07	-2.3/-2.31	0.34/0.56	-1.04/-0.37	-2.11/-1.85	0.29/0.47	-0.77/-0.81	-1.41/-1.67	-0.39/0.29	-2.05/-2.18	-1.54/-1.06	-0.32/0.27	-0.77/-0.81	-0.69/-0.76	-0.39/0.09
Theta (10°)	0.57/1.26	1.52/1.19	1.3/0.54	-0.5/-1.92	-2.74/-2.87	-3.1/-2.61	-1.92/-1.63	-1.37/-0.93	-0.21/0.24	0.51/0.55	0.38/0.78	0.34/-0.91	-1.92/-2.11	-2.52/-1.72	-0.89/-0.1	0.39/0.64	0.62/0.28	0.28/0.21
Theta (20°)	0.61/1.54	2.18/2.06	1.77/1.78	1.16/-0.07	-1.11/0.93	-0.34/0.51	0.32/0.02	-0.05/0.27	0.88/0.85	0.06/-0.66	-0.87/-1.45	-2.44/-2.99	-2.25/-3.11	-0.48/-0.17	-0.46/0.07	0.91/1.3	0.57/0.33	0.97/0.33
Theta (30°)	0.74/0.53	1.02/1.71	1.32/0.74	0.53/0.86	1.37/0.57	1.17/1.1	1.26/1.11	0.27/0.18	0.41/0.27	-0.71/-2.01	-2.59/-2.57	-3.44/-3.41	-2.84/-2.86	-2.41/-1.35	-0.53/-0.74	-1.04/-0.38	0.39/0.78	1.26/0.36
Theta (40°)	0.39/0.39	0.56/0.73	0.01/-0.29	-0.33/-1.04	-1.89/-1.13	-0.46/0.36	0.27/0.68	-0.23/-0.12	-1.12/-1.31	-1.01/-1.1	-1.84/-1.1	-1.2/-2.1	-3.29/-4.43	-5.25/-3.88	-2.09/-1.97	-1.02/-0.21	-0.64/-1.06	-1.09/-0.36
Theta (50°)	-0.43/-0.38	-0.19/-0.77	-1.79/-2.07	-1.39/-2.04	-3.53/-4.37	-2.36/-2.56	-1.89/-2.47	-2.62/-3.09	-3.13/-2.34	-2.94/-2.54	-2.28/-2.28	-2.22/-2.95	-3.38/-3.24	-3.33/-2.96	-3.45/-2.13	-0.86/-0.08	-0.22/-0.3	-0.13/-0.36
Theta (60°)	-1.2/-0.83	-1.41/-2.66	-2.33/-2.72	-2.64/-2.56	-3.01/-4.14	-3.22/-2.72	-1.46/-1.59	-2.84/-3	-3.4/-3.59	-4.11/-4.93	-4.56/-4.56	-4.45/-5.56	-4.87/-3.58	-3.14/-2.35	-2.35/-1.69	-0.37/-1.06	-0.37/-1.06	-0.37/-1.06
Theta (70°)	-1.1/-1.68	-2.93/-3.09	-3.04/-2.07	-3.89/-4.01	-3.89/-4.01	-4.4/-4.8	-4.89/-3.98	-4.59/-4.5	-3.1/-3.08	-4.43/-4.19	-4.38/-4.93	-3.79/-3.27	-4.43/-3.79	-5.11/-3.16	-3.03/-1.34	-3.03/-1.34	-3.03/-1.34	-3.03/-1.34
Theta (80°)	-2.02/-2.74	-3.54/-3.47	-3.18/-1.06	-1.92/-4.34	-5.98/-5.44	-5.8/-3.65	-3.45/-1.92	-0.94/-2.82	-5.98/-5.78	-5.47/-5.18	-6.61/-5.57							



Radiated Composite Gain Data

Appendix A

Gain Result

Freq(Hz)	2.45GPol.	PhiAnt. 1	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)		
Theta(0°)	-19.45-15.59	-11.69-9.11	-7.36-5.96	-5.02-4.27	-3.77-3.64	-3.91-4.43	-5.34-6.66	-8.37-10.35	-12.95-16.99	-19.25-23.33	-28.12-33.33	-39.71-44.43	-53.41-58.33	-69.11-74.43	-86.11-91.33	-104.11-109.33	-123.11-128.33	-143.11-148.33	-164.11-169.33	-186.11-191.33
Theta(10°)	-19.04-14.31	-10.29-7.83	-6.33-5.11	-4.43-4.15	-3.84-3.86	-3.99-4.23	-5.01-5.7	-6.78-8.5	-11.34-16.69	-18.55-18.01	-27.47-9.6	-37.94-6.51	-49.15-5.47	-61.77-5.99	-75.11-5.99	-89.11-5.99	-103.61-5.99	-118.61-5.99	-134.11-5.99	-150.11-5.99
Theta(20°)	-17.95-13.45	-10.05-7.59	-5.76-4.51	-3.75-3.32	-3.21-2.29	-3.32-3.47	-4.34-5.07	-6.03-7.81	-10.71-14.48	-18.42-13.64	-27.34-6.62	-37.41-5.36	-48.71-5.36	-61.21-5.36	-74.71-5.36	-89.21-5.36	-104.71-5.36	-121.21-5.36	-138.71-5.36	-157.21-5.36
Theta(30°)	-17.63-16.33	-11.47-8.12	-6.38-5.16	-4.25-3.43	-2.63-2.52	-2.62-2.33	-3.64-4.33	-5.41-7.19	-10.19-13.93	-18.02-13.59	-27.01-6.42	-37.11-5.21	-48.41-5.21	-61.71-5.21	-76.01-5.21	-91.31-5.21	-107.61-5.21	-124.91-5.21	-143.21-5.21	-162.51-5.21
Theta(40°)	-17.98-15.82	-8.62-5.91	-4.46-3.87	-3.57-3.36	-3.24-2.91	-2.36-1.76	-1.51-1.6	-2.09-3.21	-5.24-8.61	-15.72-18.85	-27.41-7.58	-40.31-3.31	-54.41-2.1	-69.71-1.71	-86.21-1.71	-103.81-1.71	-122.51-1.71	-142.31-1.71	-163.11-1.71	-185.11-1.71
Theta(50°)	-18.19-11.83	-7.41-5.04	-3.06-1.74	-1.41-2.05	-3.53-4.46	-3.32-2	-1.88-2.61	-3.97-5.52	-7.79-11.81	-18.52-16.47	-30.21-6.34	-43.11-1.93	-57.21-0.77	-72.51-0.77	-88.91-0.77	-107.11-0.77	-126.61-0.77	-147.41-0.77	-169.51-0.77	-193.11-0.77
Theta(60°)	-18.04-16.6	-13.36-11.07	-8.37-4.9	-2.86-2.16	-3.09-4.75	-3.27-0.58	0.19-0.8	-3.05-6.08	-10.18-16.96	-18.34-15.6	-27.61-6.08	-38.11-1.67	-49.61-2.69	-62.21-2.69	-75.91-2.69	-90.71-2.69	-106.71-2.69	-123.91-2.69	-142.31-2.69	-161.91-2.69
Theta(70°)	-15.37-16.03	-11.24-8.31	-6.14-5.6	-4.23-3.05	-3.44-5.45	-6.33-2.63	-0.99-1.59	-3.86-6.59	-9.4-12.81	-17.28-15.85	-27.41-6.51	-38.11-1.12	-49.41-0.91	-61.31-3.72	-73.81-2.08	-87.91-4.6	-103.51-7.61	-120.71-12.41	-139.51-19.41	-159.91-27.41
Theta(80°)	-13.44-19.11	-12.91-8.72	-7.49-6.02	-4.54-3.84	-3.86-1.1	-6.19-3.46	-1.36-1.82	-4.03-6.67	-9.2-12.78	-18.12-18.32	-28.13-9.04	-39.21-0.92	-51.41-0.92	-64.71-0.92	-79.11-0.92	-94.51-0.92	-110.81-0.92	-128.11-0.92	-146.41-0.92	-165.31-0.92
Theta(90°)	-13.48-18.98	-13.78-8.6	-6.14-6.16	-6.66-5.71	-3.69-3.47	-18.03-1.43	0.29-0.02	-2.23-5.59	-9.97-17.32	-18.03-18.74	-27.51-9.26	-38.11-0.94	-49.61-1.79	-62.21-1.79	-75.91-1.79	-90.71-1.79	-106.71-1.79	-123.91-1.79	-142.31-1.79	-161.91-1.79
Theta(100°)	-18.39-19.23	-11.14-5.88	-3.82-3.6	-5.06-7.78	-7.24-6.39	-5.38-2.09	-0.06-0.13	-1.91-4.46	-7.25-11.37	-18.32-18.94	-29.41-6.18	-41.51-1.12	-54.61-1.12	-68.71-1.12	-83.81-1.12	-99.91-1.12	-117.11-1.12	-135.31-1.12	-154.51-1.12	-174.71-1.12
Theta(110°)	-14.71-18.1	-14.42-7.5	-6.91-7	-6.07-7.3	-1.35-1.8	-8.63-9.59	-11.22-6.44	-4.66-7.43	-11.35-18	-18.02-12.59	-27.51-9.42	-38.11-2.03	-49.61-3.28	-62.21-3.28	-75.91-3.28	-90.71-3.28	-106.71-3.28	-123.91-3.28	-142.31-3.28	-161.91-3.28
Theta(120°)	-18.21-18.37	-10.46-5.2	-3.07-3.14	-4.25-4.05	-3.46-3.37	-5.75-8	-3.5-6.06	-10.75-19.15	-17.12-18.65	-27.01-13.06	-38.11-4.13	-49.61-2.69	-62.21-2.69	-75.91-2.69	-90.71-2.69	-106.71-2.69	-123.91-2.69	-142.31-2.69	-161.91-2.69	-181.51-2.69
Theta(130°)	-16.15-18.16	-10.52-4.58	-1.79-1.88	-3.46-4.54	-3.62-2.56	-3.29-5.37	-6.08-5.56	-6.26-8.13	-11.98-18.81	-19.29-11.26	-28.13-3.19	-37.41-7.12	-48.71-7.85	-61.21-5.4	-74.71-5.36	-89.21-5.36	-104.71-5.36	-121.21-5.36	-138.71-5.36	-157.21-5.36
Theta(140°)	-18-15.92	-10.97-5.98	-3.6-3.38	-5.54-8.96	-8.06-7.41	-8.26-10.47	-11.22-6.44	-4.66-7.43	-11.35-18	-18.02-12.59	-27.51-9.42	-38.11-2.03	-49.61-3.28	-62.21-3.28	-75.91-3.28	-90.71-3.28	-106.71-3.28	-123.91-3.28	-142.31-3.28	-161.91-3.28
Theta(150°)	-17.34-15.25	-13.72-10.57	-7.94-6.59	-4.66-5.85	-9.95-10.66	-11.22-12.55	-14.86-16.9	-18.22-17.74	-23.13-23.33	-30.21-6.34	-43.11-1.93	-57.21-0.77	-72.51-0.77	-88.91-0.77	-107.11-0.77	-126.61-0.77	-147.41-0.77	-169.51-0.77	-193.11-0.77	-217.71-0.77
Theta(160°)	-14.78-13.08	-12.78-11.22	-8.98-6.89	-5.87-5.54	-5.84-6.05	-6.32-6.87	-7.96-9.79	-13.23-18.4	-18.45-14.08	-25.12-7.69	-32.61-5.23	-41.51-1.12	-51.41-0.92	-62.21-3.28	-73.81-2.08	-86.21-1.71	-99.91-1.12	-114.51-1.12	-130.11-1.12	-146.71-1.12
Theta(170°)	-17.63-14.63	-12.82-10.82	-8.5-7.03	-6.44-6.16	-6.22-6.17	-6.46-6.91	-7.8-8.69	-10.33-12.32	-14.21-14.6	-19.63-12.05	-27.61-6.51	-38.11-2.03	-49.61-3.28	-62.21-3.28	-75.91-3.28	-90.71-3.28	-106.71-3.28	-123.91-3.28	-142.31-3.28	-161.91-3.28
Theta(180°)	-16.61-13.39	-12.35-10.25	-9.13-7.67	-7.15-6.75	-6.65-6.47	-6.27-6.28	-6.51-7.01	-7.76-8.88	-10.4-12.26	-15.48-19.44	-22.41-7.79	-30.21-6.34	-39.21-6.42	-49.41-0.91	-60.71-0.92	-73.11-0.92	-86.61-0.92	-101.11-0.92	-116.61-0.92	-133.11-0.92
Freq(Hz)	2.45GPol.	ThetaAnt. 1	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)		
Theta(0°)	-4.86-5.72	-6.38-7.24	-8.06-9.06	-10.34-12.99	-18.62-19.1	-16.31-11.42	-8.12-6.12	-5.13-4.76	-4.6-4.83	-18.81-18.35	-5.07-5.41	-18.81-18.35	-15.75-11.64	-9.18-7.22	-15.54-15.73	-9.18-7.22	-15.54-15.73	-4.22-4.27		
Theta(10°)	-2.42-2.98	-3.74-4.91	-6.38-8.14	-10.19-13.11	-18.58-18.07	-18.05-11.41	-7.72-5.4	-3.84-3.05	-2.76-2.71	-2.97-3.58	-4.29-5.16	-6.5-8.34	-11.78-17.54	-18.31-18.63	-12.72-9.42	-7.34-5.52	-4.27-3.28	-2.52-2.25		
Theta(20°)	-1.79-2.04	-2.26-3.22	-4.93-7.41	-10.75-14.22	-19.31-19.13	-17.5-10.51	-6.23-3.46	-1.68-0.71	-0.11-0.01	-0.16-0.67	-1.36-2.25	-3.48-5.5	-9.61-16.77	-17.85-15.39	-10.78-8.04	-6.04-6.4	-3.63-2.91	-2.31-1.88		
Theta(30°)	-2.83-2.82	-2.83-2.26	-6.22-9.66	-13.01-14.18	-18.18-17.9	-18.61-9.9	-4.99-2.16	-0.510-4.7	1.071.38	2.431.14	0.58-0.27	-1.61-6.5	-8.67-16.67	-18.22-15.13	-10.94-8.28	-6.49-5.29	-4.45-3.81	-3.41-2.97		
Theta(40°)	-1.41-1.79	-2.67-3.7	-5.42-8.95	-14.83-18.27	-24.10-19.27	-16.38-9.29	-4.84-2.35	-1.05-0.25	0.410-9.2	1.221.19	0.69-0.17	-1.45-3.69	-7.43-13.08	-17.83-17.61	-12.84-9.91	-8.26-6.81	-4.92-3.13	-2.01-1.46		
Theta(50°)	-2.5-3.22	-4.76-6.51	-6.15-7.39	-10.71-14.47	-16.56-15.43	-11.22-6.14	-2.87-1.53	-1.29-1.3	-1.07-0.59	-0.44-0.8	-1.49-2.34	-3.11-4.35	-6.88-10.24	-15.09-18.43	-18.31-18.67	-17.08-10.9	-7.55-4.92	-3.26-2.5		
Theta(60°)	-2.59-2.54	-3.44-4.76	-4.86-4.39	-5.11-7.74	-11.61-15.6	-14.75-8.62	-4.86-3.28	-3.32-3.28	-2.9-2.57	-2.88-3.4	-5.06-5.27	-4.94-5.84	-7.5-19.9	-11.28-13.2	-13.06-9.3	-5.78-3.9	-3.65-4.37	-4.38-3.59		
Theta(70°)	-4.41-3.67	-3.99-6.28	-6.13-4.43	-4.51-6.64	-5.81-5.57	-5.42-5.57	-5.81-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57	-5.42-5.57
Theta(80°)	-4.5-3.84	-4.36-7.37	-11.19-10.3	-9.85-12.1	-17.29-19.17	-18.76-14.49	-8.16-5.3	-4.81-5.69	-5.93-5.69	-5.72-6.52	-7.11-7.17	-7.18-5.6	-11.75-19.18	-17.86-17.87	-16.24-10.03	-9.18-9.13	-7.77-5.82	-4.69-4.5		
Theta(90°)	-7.97-8.01	-8.26-9.56	-10.34-8.62	-8.53-8.66	-9.86-11.33	-12.66-11.52	-8.61-6.84	-7.11-8.01	-7.56-7	-7.78-8.31	-7.79-7.87	-7.79-7.87	-9.72-11.73	-10.53-9.36	-8.71-7.7	-7.11-6.86	-5.71-7.89	-7.41-7.42		
Theta(100°)	-9.14-8.38	-7.85-8.85	-10.24-7.62	-8.59-7.5	-8.54-9.33	-11.79-10.69	-11.33-13.89	-17.33-18.36	-16.48-13.16	-11.49-12.48	-8.05-6.59	-15.52-18.24	-18.86-12.41	-8.57-4.45	-3.88-4.1	-6.55-6.99	-8.14-9.25	-8.14-9.25		
Theta(110°)	-9.72-9.84	-10.54-13.41	-14.68-10.69	-9.66-11.42	-15.06-13.15	-11.24-11.04	-14.07-17.38	-11.91-8.82	-7.54-6.86	-6.64-6.87	-7.3-8.33	-11.56-19.42	-18.71-17.82	-12.04-10.17	-8.48-7.62	-6.64-13.29	-17.42-15.09	-11.59-9.58		
Theta(120°)	-12.55-13.12	-15-18.66	-18.52-18.62	-14.43-12.7	-13.54-15.49	-14.96-13.6	-17.31-18.99	-14.02-10.86	-9.24-8.7	-8-8.26	-8.77-10.95	-16.32-17.9	-18.94-13.45	-12.29-13.05	-13.22-12.13	-9.99-8.02	-7.51-8.84	-11.17-12.1		
Theta(130°)	-10.02-8.27	-6.43-8.2	-13.29-14.08	-9.53-8.23	-8.77-10.93	-11.66-10.41	-9.83-9.39	-9.87-10.71	-11.66-13.32	-16.06-12.5	-4.77-6.43	-9.61-11.83	-6.47-4.83	-3.96-4.54	-4.77-4.63	-9.64-18.74	-13.93-10.81	-13.93-10.81		
Theta(140°)	-5.93-5.74	-6.37-7.33	-10.04-6.77	-3.79-2.98	-4.61-5.58	-5.71-5.53	-5.81-6.08	-5.96-6.64	-3.73-4.42	-3.86-4.57	-4.96-5.64	-7.46-8.29	-4.82-2.58	-2.86-3.9	-3.94-3.81	-4.42-6.13	-9.64-13.58	-9.71-11.74		
Theta(150°)	-12.67-12.08	-11.45-10.44	-8.37-5.65	-3.99-3.05	-3.03-2.91	-2.05-1.16	-0.59-0.5	-0.85-1.7	-2.92-4.39	-5.55-6.3	-6.5-6.82	-5.77-3.48	-1.87-1.38	-1.89-2.5	-2.62-2.72	-3.07-3.76	-4.91-6.9	-9.31-11.74		



Radiated Composite Gain Data

Appendix A

Theta (°)	-10.39/-11.64	-13.33/-14.95	-16.27/-18.03	-19.21/-21.14	-22.15/-24.14	-25.09/-27.14	-28.03/-30.14	-30.97/-33.14	-33.91/-36.14	-36.85/-39.14	-39.79/-42.14	-42.73/-45.14	-45.67/-48.14	-48.61/-51.14	-51.55/-54.14	-54.49/-57.14	-57.43/-60.14	-60.37/-63.14	-63.31/-66.14	-66.25/-69.14	-69.19/-72.14	-72.13/-75.14	-75.07/-78.14	-78.01/-81.14	-80.95/-84.14	-83.89/-87.14	-86.83/-90.14	-89.77/-93.14	-92.71/-96.14	-95.65/-99.14	-98.59/-102.14	-101.53/-105.14	-104.47/-108.14	-107.41/-111.14	-110.35/-114.14	-113.29/-117.14	-116.23/-120.14	-119.17/-123.14	-122.11/-126.14	-125.05/-129.14	-127.99/-132.14	-130.93/-135.14	-133.87/-138.14	-136.81/-141.14	-139.75/-144.14	-142.69/-147.14	-145.63/-150.14	-148.57/-153.14	-151.51/-156.14	-154.45/-159.14	-157.39/-162.14	-160.33/-165.14	-163.27/-168.14	-166.21/-171.14	-169.15/-174.14	-172.09/-177.14	-175.03/-180.14	-177.97/-183.14	-180.91/-186.14	-183.85/-189.14	-186.79/-192.14	-189.73/-195.14	-192.67/-198.14	-195.61/-201.14	-198.55/-204.14	-201.49/-207.14	-204.43/-210.14	-207.37/-213.14	-210.31/-216.14	-213.25/-219.14	-216.19/-222.14	-219.13/-225.14	-222.07/-228.14	-225.01/-231.14	-227.95/-234.14	-230.89/-237.14	-233.83/-240.14	-236.77/-243.14	-239.71/-246.14	-242.65/-249.14	-245.59/-252.14	-248.53/-255.14	-251.47/-258.14	-254.41/-261.14	-257.35/-264.14	-260.29/-267.14	-263.23/-270.14	-266.17/-273.14	-269.11/-276.14	-272.05/-279.14	-274.99/-282.14	-277.93/-285.14	-280.87/-288.14	-283.81/-291.14	-286.75/-294.14	-289.69/-297.14	-292.63/-300.14	-295.57/-303.14	-298.51/-306.14	-301.45/-309.14	-304.39/-312.14	-307.33/-315.14	-310.27/-318.14	-313.21/-321.14	-316.15/-324.14	-319.09/-327.14	-322.03/-330.14	-324.97/-333.14	-327.91/-336.14	-330.85/-339.14	-333.79/-342.14	-336.73/-345.14	-339.67/-348.14	-342.61/-351.14	-345.55/-354.14	-348.49/-357.14	-351.43/-360.14	-354.37/-363.14	-357.31/-366.14	-360.25/-369.14	-363.19/-372.14	-366.13/-375.14	-369.07/-378.14	-372.01/-381.14	-374.95/-384.14	-377.89/-387.14	-380.83/-390.14	-383.77/-393.14	-386.71/-396.14	-389.65/-399.14	-392.59/-402.14	-395.53/-405.14	-398.47/-408.14	-401.41/-411.14	-404.35/-414.14	-407.29/-417.14	-410.23/-420.14	-413.17/-423.14	-416.11/-426.14	-419.05/-429.14	-422.00/-432.14	-424.94/-435.14	-427.88/-438.14	-430.82/-441.14	-433.76/-444.14	-436.70/-447.14	-439.64/-450.14	-442.58/-453.14	-445.52/-456.14	-448.46/-459.14	-451.40/-462.14	-454.34/-465.14	-457.28/-468.14	-460.22/-471.14	-463.16/-474.14	-466.10/-477.14	-469.04/-480.14	-471.98/-483.14	-474.92/-486.14	-477.86/-489.14	-480.80/-492.14	-483.74/-495.14	-486.68/-498.14	-489.62/-501.14	-492.56/-504.14	-495.50/-507.14	-498.44/-510.14	-501.38/-513.14	-504.32/-516.14	-507.26/-519.14	-510.20/-522.14	-513.14/-525.14	-516.08/-528.14	-519.02/-531.14	-521.96/-534.14	-524.90/-537.14	-527.84/-540.14	-530.78/-543.14	-533.72/-546.14	-536.66/-549.14	-539.60/-552.14	-542.54/-555.14	-545.48/-558.14	-548.42/-561.14	-551.36/-564.14	-554.30/-567.14	-557.24/-570.14	-560.18/-573.14	-563.12/-576.14	-566.06/-579.14	-569.00/-582.14	-571.94/-585.14	-574.88/-588.14	-577.82/-591.14	-580.76/-594.14	-583.70/-597.14	-586.64/-600.14	-589.58/-603.14	-592.52/-606.14	-595.46/-609.14	-598.40/-612.14	-601.34/-615.14	-604.28/-618.14	-607.22/-621.14	-610.16/-624.14	-613.10/-627.14	-616.04/-630.14	-618.98/-633.14	-621.92/-636.14	-624.86/-639.14	-627.80/-642.14	-630.74/-645.14	-633.68/-648.14	-636.62/-651.14	-639.56/-654.14	-642.50/-657.14	-645.44/-660.14	-648.38/-663.14	-651.32/-666.14	-654.26/-669.14	-657.20/-672.14	-660.14/-675.14	-663.08/-678.14	-666.02/-681.14	-668.96/-684.14	-671.90/-687.14	-674.84/-690.14	-677.78/-693.14	-680.72/-696.14	-683.66/-699.14	-686.60/-702.14	-689.54/-705.14	-692.48/-708.14	-695.42/-711.14	-698.36/-714.14	-701.30/-717.14	-704.24/-720.14	-707.18/-723.14	-710.12/-726.14	-713.06/-729.14	-716.00/-732.14	-718.94/-735.14	-721.88/-738.14	-724.82/-741.14	-727.76/-744.14	-730.70/-747.14	-733.64/-750.14	-736.58/-753.14	-739.52/-756.14	-742.46/-759.14	-745.40/-762.14	-748.34/-765.14	-751.28/-768.14	-754.22/-771.14	-757.16/-774.14	-760.10/-777.14	-763.04/-780.14	-765.98/-783.14	-768.92/-786.14	-771.86/-789.14	-774.80/-792.14	-777.74/-795.14	-780.68/-798.14	-783.62/-801.14	-786.56/-804.14	-789.50/-807.14	-792.44/-810.14	-795.38/-813.14	-798.32/-816.14	-801.26/-819.14	-804.20/-822.14	-807.14/-825.14	-810.08/-828.14	-813.02/-831.14	-815.96/-834.14	-818.90/-837.14	-821.84/-840.14	-824.78/-843.14	-827.72/-846.14	-830.66/-849.14	-833.60/-852.14	-836.54/-855.14	-839.48/-858.14	-842.42/-861.14	-845.36/-864.14	-848.30/-867.14	-851.24/-870.14	-854.18/-873.14	-857.12/-876.14	-860.06/-879.14	-863.00/-882.14	-865.94/-885.14	-868.88/-888.14	-871.82/-891.14	-874.76/-894.14	-877.70/-897.14	-880.64/-900.14	-883.58/-903.14	-886.52/-906.14	-889.46/-909.14	-892.40/-912.14	-895.34/-915.14	-898.28/-918.14	-901.22/-921.14	-904.16/-924.14	-907.10/-927.14	-910.04/-930.14	-912.98/-933.14	-915.92/-936.14	-918.86/-939.14	-921.80/-942.14	-924.74/-945.14	-927.68/-948.14	-930.62/-951.14	-933.56/-954.14	-936.50/-957.14	-939.44/-960.14	-942.38/-963.14	-945.32/-966.14	-948.26/-969.14	-951.20/-972.14	-954.14/-975.14	-957.08/-978.14	-960.02/-981.14	-962.96/-984.14	-965.90/-987.14	-968.84/-990.14	-971.78/-993.14	-974.72/-996.14	-977.66/-999.14	-980.60/-1002.14	-983.54/-1005.14	-986.48/-1008.14	-989.42/-1011.14	-992.36/-1014.14	-995.30/-1017.14	-998.24/-1020.14	-1001.18/-1023.14	-1004.12/-1026.14	-1007.06/-1029.14	-1010.00/-1032.14	-1012.94/-1035.14	-1015.88/-1038.14	-1018.82/-1041.14	-1021.76/-1044.14	-1024.70/-1047.14	-1027.64/-1050.14	-1030.58/-1053.14	-1033.52/-1056.14	-1036.46/-1059.14	-1039.40/-1062.14	-1042.34/-1065.14	-1045.28/-1068.14	-1048.22/-1071.14	-1051.16/-1074.14	-1054.10/-1077.14	-1057.04/-1080.14	-1060.00/-1083.14	-1062.94/-1086.14	-1065.88/-1089.14	-1068.82/-1092.14	-1071.76/-1095.14	-1074.70/-1098.14	-1077.64/-1101.14	-1080.58/-1104.14	-1083.52/-1107.14	-1086.46/-1110.14	-1089.40/-1113.14	-1092.34/-1116.14	-1095.28/-1119.14	-1098.22/-1122.14	-1101.16/-1125.14	-1104.10/-1128.14	-1107.04/-1131.14	-1110.00/-1134.14	-1112.94/-1137.14	-1115.88/-1140.14	-1118.82/-1143.14	-1121.76/-1146.14	-1124.70/-1149.14	-1127.64/-1152.14	-1130.58/-1155.14	-1133.52/-1158.14	-1136.46/-1161.14	-1139.40/-1164.14	-1142.34/-1167.14	-1145.28/-1170.14	-1148.22/-1173.14	-1151.16/-1176.14	-1154.10/-1179.14	-1157.04/-1182.14	-1160.00/-1185.14	-1162.94/-1188.14	-1165.88/-1191.14	-1168.82/-1194.14	-1171.76/-1197.14	-1174.70/-1200.14	-1177.64/-1203.14	-1180.58/-1206.14	-1183.52/-1209.14	-1186.46/-1212.14	-1189.40/-1215.14	-1192.34/-1218.14	-1195.28/-1221.14	-1198.22/-1224.14	-1201.16/-1227.14	-1204.10/-1230.14	-1207.04/-1233.14	-1210.00/-1236.14	-1212.94/-1239.14	-1215.88/-1242.14	-1218.82/-1245.14	-1221.76/-1248.14	-1224.70/-1251.14	-1227.64/-1254.14	-1230.58/-1257.14	-1233.52/-1260.14	-1236.46/-1263.14	-1239.40/-1266.14	-1242.34/-1269.14	-1245.28/-1272.14	-1248.22/-1275.14	-1251.16/-1278.14	-1254.10/-1281.14	-1257.04/-1284.14	-1260.00/-1287.14	-1262.94/-1290.14	-1265.88/-1293.14	-1268.82/-1296.14	-1271.76/-1299.14	-1274.70/-1302.14	-1277.64/-1305.14	-1280.58/-1308.14	-1283.52/-1311.14	-1286.46/-1314.14	-1289.40/-1317.14	-1292.34/-1320.14	-1295.28/-1323.14	-1298.22/-1326.14	-1301.16/-1329.14	-1304.10/-1332.14	-1307.04/-1335.14	-1310.00/-1338.14	-1312.94/-1341.14	-1315.88/-1344.14	-1318.82/-1347.14	-1321.76/-1350.14	-1324.70/-1353.14	-1327.64/-1356.14	-1330.58/-1359.14	-1333.52/-1362.14	-1336.46/-1365.14	-1339.40/-1368.14	-1342.34/-1371.14	-1345.28/-1374.14	-1348.22/-1377.14	-1351.16/-1380.14	-1354.10/-1383.14	-1357.04/-1386.14	-1360.00/-1389.14	-1362.94/-1392.14	-1365.88/-1395.14	-1368.82/-1398.14	-1371.76/-1401.14	-1374.70/-1404.14	-1377.64/-1407.14	-1380.58/-1410.14	-1383.52/-1413.14	-1386.46/-1416.14	-1389.40/-1419.14	-1392.34/-1422.14	-1395.28/-1425.14	-1398.22/-1428.14	-1401.16/-1431.14	-1404.10/-1434.14	-1407.04/-1437.14	-1410.00/-1440.14	-1412.94/-1443.14	-1415.88/-1446.14	-1418.82/-1449.14	-1421.76/-1452.14	-1424.70/-1455.14	-1427.64/-1458.14	-1430.58/-1461.14	-1433.52/-1464.14	-1436.46/-1467.14	-1439.40/-1470.14	-1442.34/-1473.14	-1445.28/-1476.14	-1448.22/-1479.14	-1451.16/-1482.14	-1454.10/-1485.14	-1457.04/-1488.14	-1460.00/-1491.14	-1462.94/-1494.14	-1465.88/-1497.14	-1468.82/-1500.14	-1471.76/-1503.14	-1474.70/-1506.14	-1477.64/-1509.14	-1480.58/-1512.14	-1483.52/-1515.14	-1486.46/-1518.14	-1489.40/-1521.14	-1492.34/-1524.14	-1495.28/-1527.14	-1498.22/-1530.14	-1501.16/-1533.14	-1504.10/-1536.14	-1507.04/-1539.14	-1510.00/-1542.14	-1512.94/-1545.14	-1515.88/-1548.14	-1518.82/-1551.14	-1521.76/-1554.14	-1524.70/-1557.14	-1527.64/-1560.14	-1530.58/-1563.14	-1533.52/-1566.14	-1536.46/-1569.14	-1539.40/-1572.14	-1542.34/-1575.14	-1545.28/-1578.14	-1548.22/-1581.14	-1551.16/-1584.14	-1554.10/-1587.14	-1557.04/-1590.14	-1560.00/-1593.14	-1562.94/-1596.14	-1565.88/-1599.14	-1568.82/-1602.14	-1571.76/-1605.14	-1574.70/-1608.14	-1577.64/-1611.14	-1580.58/-1614.14	-1583.52/-1617.14	-1586.46/-1620.14	-1589.40/-1623.14	-1592.34/-1626.14	-1595.28/-1629.14	-1598.22/-1632.14	-1601.16/-1635.14	-1604.10/-1638.14	-1607.04/-1641.14	-1610.00/-1644.14	-1612.94/-1647.14	-1615.88/-1650.14	-1618.82/-1653.14	-1621.76/-1656.14	-1624.70/-1659.14	-1627.64/-1662.14	-1630.58/-1665.14	-1633.52/-1668.14	-1636.46/-1671.14	-1639.40/-1674.14	-1642.34/-1677.14	-1645.28/-1680.14	-1648.22/-1683.14	-1651.16/-1686.14	-1654.10/-1689.14	-1657.04/-1692.14	-1660.00/-1695.14	-1662.94/-1698.14	-1665.88/-1701.14	-1668.82/-1704.14	-1671.76/-1707.14	-1674.70/-1710.14	-1677.64/-1713.14	-1680.58/-1716.14	-1683.52/-1719.14	-1686.46/-1722.14	-1689.40/-1725.14	-1692.34/-1728.14	-1695.28/-1731.14	-1698.22/-1734.14	-1701.16/-1737.14	-1704.10/-1740.14	-1707.04/-1743.14	-1710.00/-1746.14	-1712.94/-1749.14	-1715.88/-1752.14	-1718.82/-1755.14	-1721.76/-1758.14	-1724.70/-1761.14	-1727.64/-1764.14	-1730.58/-1767.14	-1733.52/-1770.14	-1736.46/-1773.14	-1739.40/-1776.14	-1742.34/-1779.14	-1745.28/-1782.14	-1748.22/-1785.14	-1751.16/-1788.14	-1754.10/-1791.14	-1757.04/-1794.14	-1760.00/-1797.14	-1762.94/-1800.14	-1765.88/-1803.14	-1768.82/-1806.14	-1771.76/-1809.14	-1774.70/-1812.14	-1777.64/-1815.14	-1780.58/-1818.14	-1783.52/-1821.14	-1786.46/-1824.14	-1789.40/-1827.14	-1792.34/-1830.14	-1795.28/-1833.14	-1798.22/-1836.14	-1801.16/-1839.14	-1804.10/-1842.14	-1807.04/-1845.14	-1810.00/-1848.14	-1812.94/-1851.14	-1815.88/-1854.14	-1818.82/-1857.14	-1821.76/-1860.14	-1824.70/-1863.14	-1827.64/-1866.14	-1830.58/-1869.14	-1833.52/-1872.14	-1836.46/-1875.14	-1839.40/-1878.14	-1842.34/-1881.14	-1845.28/-1884.14	-1848.22/-1887.14	-1851.16/-1890.14	-1854.10/-1893.14	-1857.04/-1896.14	-1860.00/-1899.14	-1862.94/-1902.14	-1865.88/-1905.14	-1868.82/-1908.14	-1871.76/-1911.14	-1874.70/-1914.14	-1877.64/-1917.14	-1880.58/-1920.14	-1883.52/-1923.14	-1886.46/-1926.14	-1889.40/-1929.14	-1892.34/-1932.14	-1895.28/-1935.14	-1898.22/-1938.14	-1901.16/-1941.14	-1904.10/-1944.14	-1907.04/-1947.14	-1910.00/-1950.14	-1912.94/-
-----------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	---------------	----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	------------



Radiated Composite Gain Data

Appendix A

Theta	Phi(10°)	Phi(20°)	Phi(30°)	Phi(40°)	Phi(50°)	Phi(60°)	Phi(70°)	Phi(80°)	Phi(90°)	Phi(100°)	Phi(110°)	Phi(120°)	Phi(130°)	Phi(140°)	Phi(150°)	Phi(160°)	Phi(170°)	Phi(180°)	Phi(190°)	Phi(200°)	Phi(210°)	Phi(220°)	Phi(230°)	Phi(240°)	Phi(250°)	Phi(260°)	Phi(270°)	Phi(280°)	Phi(290°)	Phi(300°)	Phi(310°)	Phi(320°)	Phi(330°)	Phi(340°)	Phi(350°)			
Theta(170°)	-12.52/-10.72	-9.8/15	-8.1/8.95	-11.02/-15.3	-18.51/-15.32	-11.8/57	-7.62/-7.73	-8.77/-11.28	-16.01/-17.03	-12.17/-8.46	-6.75/-5.64	-5.41/-6.02	-7.57/-9.94	-13.77/-19.21	-18.62/-14.13	-12.17/-12.17	-14.01/-19.5	-18.48/-16.09																				
Theta(180°)	-9.47/-10.01	-12.22/-12.67	-13.39/-13.16	-12.17/-12.06	-12.23/-13.18	-16.03/-18.21	-18.66/-18.59	-17.22/-14.11	-12.24/-10.91	-9.96/-9.72	-9.54/-10.17	-11.33/-12.83	-15.13/-16.92	-17.91/-19.37	-18.34/-18.59	-18.24/-18.4	-18.48/-16.15	-18.48/-16.15	-18.48/-16.15																			
Freq(Hz)	2.45GPol.	ThetaAnt. 2																																				
Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)																				
Theta(0°)	-2.89/-3.41	-4.2/-5.38	-7.14/-9.3	-12.13/-13.6	-12.23/-9.55	-7.83/-6.36	-5.13/-4.12	-3.27/-2.7	-2.4/-2.38	-2.84/-3.71	-5.22/-6.94	-8.66/-10.53	-11.18/-11.99	-11.42/-9.48	-7.6/-6.04	-4.99/-4.04	-3.42/-2.95	-2.82/-2.2																				
Theta(10°)	-2.38/-3.04	-4.05/-5.36	-7.53/-10.64	-15.46/-18.36	-13.95/-10.5	-8.45/-6.66	-6.43/-7.55	-4.21/-5.26	-4.21/-5.26	-6.66/-6.66	-9.05/-8.43	-11.81/-8.71	-13.43/-7.91	-11.42/-9.48	-7.6/-6.04	-4.99/-4.04	-3.42/-2.95	-2.82/-2.2																				
Theta(20°)	-4.59/-5.32	-6.56/-8.28	-10.81/-14.89	-17.41/-17.75	-13.51/-10.07	-7.58/-6.03	-4.61/-4.02	-3.81/-3.7	-3.84/-4.21	-4.91/-6	-7.15/-8.13	-9.36/-8	-8.4/-7.86	-7.78/-7.78	-7.29/-6.73	-5.9/-5.13	-4.64/-4.15	-3.93/-4.11																				
Theta(30°)	-8.35/-9.35	-11.03/-13.24	-18.45/-18.45	-18.25/-16.09	-10.79/-9.2	-5.71/-4.2	-3.23/-2.57	-2.19/-1.99	-2.03/-2.14	-2.75/-3.63	-4.3/-6.06	-7.64/-8.86	-8.62/-7.94	-7.5/-7.21	-7.13/-6.8	-6.49/-6.38	-6.74/-7.12	-7.41/-7.59																				
Theta(40°)	-8.11/-9.31	-11.51/-13.58	-15.05/-14.41	-11.8/9.4	-7.25/-5.51	-4.1/-2.45	-1.3/-0.69	-0.93/-1.4	-1.45/-1.43	-1.76/-2.36	-3.29/-4.72	-6.56/-6.48	-9.03/-8.67	-7.88/-7.3	-7.45/-7.9	-6.69/-6.71	-7.03/-7.52	-7.03/-7.52																				
Theta(50°)	-9.8/-10.86	-11.69/-11.93	-10.32/-8.31	-6.68/-5.68	-5.24/-4.77	-4.07/-3.14	-2.67/-3.11	-4.48/-5.08	-4.41/-4.12	-4.41/-5.19	-5.79/-6.22	-6.25/-8.4	-5.96/-7.4	-9.06/-7.51	-7.23/-7.51	-7.53/-6.72	-6.3/-6.75	-7.85/-8.33																				
Theta(60°)	-9.86/-8.99	-9.48/-10.6	-9.77/-7.72	-6.9/-6.78	-5.84/-4	-2.61/-1.73	-1.69/-2.58	-3.47/-4.34	-3.79/-3.84	-4.35/-5.1	-6.3/-7.24	-6.47/-4.56	-3.02/-2.58	-3.11/-4.24	-4.69/-4.93	-5.82/-6.43	-6.1/-7.5	-9.48/-10.47																				
Theta(70°)	-13.15/-12.25	-10.41/-9.89	-7.87/-5.79	-4.29/-3.61	-3.25/-3.19	-3.33/-3.43	-4.72/-4.54	-3.78/-3.42	-3.45/-3.76	-4.72/-5.84	-7.29/-7.28	-4.78/-2.6	-3.02/-2.58	-3.11/-4.24	-4.69/-4.93	-5.82/-6.43	-6.1/-7.5	-9.48/-10.47																				
Theta(80°)	-15.05/-17.94	-18.51/-15.41	-10.27/-7.13	-6.39/-5.13	-4.56/-4.44	-5.27/-6.14	-5.58/-6.06	-8.31/-8.87	-7.24/-6.59	-7.16/-7.78	-7.53/-6.73	-5.97/-5.1	-4.11/-2.78	-1.62/-1.08	-1.87/-3.71	-5.11/-7	-10.99/-14.78	-14.46/-13.87																				
Theta(90°)	-8.75/-8.45	-9.18/-12.28	-12.42/-7.86	-7.12/-7.42	-6.8/-2.55	-4.13/-2.88	-1.87/-2.46	-6.03/-10.18	-8.5/-7.4	-7.61/-7.63	-7.71/-7.08	-4.8/-2.2	-0.28/-0.17	-0.36/-1.7	-8.83/-6.63	-8.81/-8.59	-8.53/-8.58																					
Theta(100°)	-6.55/-6.85	-8.18/-9.78	-8.87/-5.29	-3.64/-3.83	-4.16/-4.22	-4.63/-4.91	-6.69/-6.7	-7.11/-6.09	-6.69/-6.7	-6.32/-6.58	-6.36/-4.12	-2.02/-0.78	-1.65/-3.16	-2.02/-0.78	-3.83/-6.63	-3.81/-3.25	-6.69/-6.71	-7.03/-7.52																				
Theta(110°)	-6.63/-7.33	-11.91/-15.08	-7.89/-5.24	-3.47/-2.9	-2.46/-2.46	-3.49/-4.9	-6.31/-9.54	-18.55/-11.92	-8.67/-9.37	-10.8/-8.42	-6.63/-6.84	-7.96/-6.47	-3.68/-1.9	-1.08/-0.66	-0.93/-2.57	-4.83/-5.2	-4.3/-5.57	-9.04/-8.93																				
Theta(120°)	-10.86/-7.45	-6.08/-9.22	-14.76/-6.45	-2.78/-1.57	-1.59/-2.22	-3.62/-4.31	-5.46/-9.29	-18.57/-15.84	-12.45/-12.93	-11.71/-9.55	-8.11/-6.62	-3.94/-1.51	-0.55/-1.39	-2.71/-2.58	-1.7/-2	-3.8/-7.8	-5.3/-5.21	-6.85/-10.42																				
Theta(130°)	-8.96/-8.51	-8.93/-13.57	-12.85/-8.83	-2.28/-1.82	-2.71/-4.5	-6.53/-7.51	-14.46/-13.25	-13.98/-15.51	-10.8/-8.42	-11.71/-11.72	-13.31/-15.2	-5.71/-9.5	-0.86/-5.2	-1.7/-2	-3.8/-7.8	-5.3/-5.21	-6.85/-10.42																					
Theta(140°)	-7.8/-8.23	-9.69/-13.9	-13.88/-7.96	-5.37/-4.61	-4.69/-4.41	-3.16/-1.91	-4.29/-6.54	-8.66/-10.7	-12.79/-14.26	-11.84/-7.58	-4.39/-2.43	-2.29/-2.32	-3.03/-3.24	-3.44/-2.89	-2.92/-4.16	-6.61/-9.24	-9.49/-9.11																					
Theta(150°)	-18.08/-17.79	-17.6/-18.27	-13.63/-9.73	-7.49/-6.03	-4.82/-3.83	-2.98/-2.69	-3.15/-4.3	-6.28/-8.82	-12.4/-16.67	-18.25/-19.04	-13.26/-8.58	-5.23/-2.35	-1.94/-1.13	-0.82/-1.02	-1.45/-1.86	-2.75/-4.58	-7.92/-13.14	-18.15/-17.92																				
Theta(160°)	-8.49/-9.36	-10.86/-14.21	-18.42/-17.6	-11.22/-7.37	-5.16/-4.09	-3.98/-4.27	-9.39/-8.59	-13.51/-15.34	-12.4/-16.67	-18.25/-19.04	-13.26/-8.58	-5.23/-2.35	-1.94/-1.13	-0.82/-1.02	-1.45/-1.86	-2.75/-4.58	-7.92/-13.14	-18.15/-17.92																				
Theta(170°)	-12.66/-13.63	-15.71/-18.44	-17.62/-17.26	-12.75/-9.59	-7.78/-7.03	-7.13/-7.87	-8.53/-8.73	-7.98/-6.88	-5.75/-5.23	-5.14/-5.56	-6.96/-9.28	-12.76/-16.54	-14.48/-11.13	-9.8/-12	-8.22/-9.56	-12.16/-16.98	-18.36/-18.08	-14.86/-13.44																				
Theta(180°)	-13.03/-13.43	-13.8/-14.3	-14.48/-14.66	-14.84/-14.82	-13.58/-10.66	-9.56/-8.24	-8.41/-8.82	-9.68/-10.6	-11.28/-12.17	-13.49/-15.2	-17.2/-18.96	-17.81/-17.55	-17.11/-17.67	-15.1/-13.27	-11.97/-11.18	-10.31/-10.08	-10.24/-10.74	-10.79/-10.82																				
Freq(Hz)	5.2GPol.	PhiAnt. 2																																				
Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)																				
Theta(0°)	-4.94/-4.2	-3.71/-3.34	-2.74/-2.58	-2.99/-3.67	-4.72/-6.04	-7.64/-9.72	-12.29/-13.22	-12.42/-11.21	-9.46/-8.09	-6.72/-5.22	-4.07/-3.38	-3.24/-3.24	-3.74/-3.2	-5.33/-6.91	-8.87/-10.6	-12.29/-11.3	-10.75/-9.59	-7.39/-6.3																				
Theta(10°)	-2.23/-1.62	-1.57/-1.8	-0.98/-0.76	-1.29/-2.52	-1.76/-4.2	-3.72/-5.4	-7.16/-9.72	-11.87/-9.4	-7.4/-9.87	-11.87/-9.4	-2.29/-2.67	-3.27/-4.08	-5.4/-6.62	-11.5/-13.9	-15.9/-15.75	-15.9/-15.75	-15.9/-15.75	-15.9/-15.75																				
Theta(20°)	-4.69/-3.54	-2.45/-1.55	-1.15/-0.88	-1.36/-1.93	-2.97/-4.69	-7.78/-12.01	-14.73/-12.03	-9.24/-6.74	-5.26/-4.29	-4.23/-4.53	-5/-5.2	-5.24/-5.19	-5.38/-5.83	-6.59/-6.99	-12.68/-15.33	-14.52/-10.61	-8.54/-7.57	-5.88/-5.16																				
Theta(30°)	-5.91/-3.96	-2.57/-2.13	-1.9/-1.77	-1.82/-1.63	-2.26/-3.45	-6.08/-10.91	-15.34/-17.47	-11.4/-8.62	-7.1/-5.45	-4.18/-3.11	-2.77/-2.93	-3.87/-5.68	-7.32/-6.86	-10.63/-12.29	-16.42/-16.69	-14.36/-9.92	-8.99/-10.76	-8.85/-9.1																				
Theta(40°)	-7.66/-2.7	-1.54/-1.1	-0.18/-0.86	-0.44/-0.54	-1.34/-3.75	-7.77/-5.99	-19.6/-17.44	-18.6/-11.47	-7.77/-5.99	-19.6/-17.44	-18.6/-11.47	-7.77/-5.99	-19.6/-17.44	-18.6/-11.47	-7.77/-5.99	-19.6/-17.44	-18.6/-11.47	-7.77/-5.99																				
Theta(50°)	-6.19/-1.46	0.07/-0.92	-0.64/-0.05	0.03/-0.25	-1.11/-2.72	-4.89/-9.98	-17.04/-19.23	-16.93/-9.87	-4.36/-3.94	-4.82/-3.83	-3.78/-2.6	-1.58/-1.71	-3.04/-6.18	-12.62/-19.22	-18.36/-15.19	-11.76/-8.82	-11.01/-18.33	-16.33/-10.51																				
Theta(60°)	-1.43/-0.34	0.65/-0.9	0.66/-																																			



Radiated Composite Gain Data

Appendix A

Theta	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
Gain	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Theta	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
Gain	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000



Radiated Composite Gain Data

Appendix A

Theta	Phi(10°)	Phi(20°)	Phi(30°)	Phi(40°)	Phi(50°)	Phi(60°)	Phi(70°)	Phi(80°)	Phi(90°)	Phi(100°)	Phi(110°)	Phi(120°)	Phi(130°)	Phi(140°)	Phi(150°)	Phi(160°)	Phi(170°)	Phi(180°)
Theta(160°)	-4.71/3.31	-3.82/3.59	-3.91/4.82	-6.43/8.87	-12.36/16.38	-18.71/17.73	-15.44/13.59	-12.52/13.63	-14.42/15.45	-16.09/15.75	-15.91/15.43	-14.94/14.67	-15.18/15.22	-14.24/11.95	-9.68/8.13	-7.28/6.55	-6.07/5.42	-4.95/4.72
Theta(170°)	-9.41/8.64	-7.88/7.34	-7.55/8.49	-10.19/13.37	-18.51/17.34	-17.81/15.98	-12.97/10.96	-10.04/9.63	-9.89/10.83	-11.99/13.15	-13.21/13.08	-13.17/13.81	-14.94/15.66	-16.31/16.48	-15.91/15.56	-14.88/13.83	-12.97/12.55	-11.81/11.23
Theta(180°)	-11.27/11.01	-11.05/11.75	-12.64/14.18	-16.13/17.77	-19.24/18.76	-17.04/14.48	-12.61/11.57	-10.99/10.16	-10.41/11.43	-11.18/10.89	-10.42/10.88	-11.17/13.23	-15.81/16.42	-19.42/16.27	-15.81/15.74	-13.68/11.54	-10.23/10.10	-10.36/10.85
Freq(Hz)	5.2GPol	PhiAnt.3	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(0°)	-13.81/18.15	-18.09/12.98	-9.45/6.68	-4.46/2.75	-2.58/2.28	-1.62/1.78	-2.22/2.59	-3.61/4.86	-7.16/10.84	-13.97/18.13	-18.49/12.43	-7.98/5.85	-4.24/3.21	-2.35/1.85	-1.74/1.51	-1.92/2.64	-3.57/4.88	-7.18/9.7
Theta(10°)	-16.74/18.13	-18.75/11.84	-8.04/5.7	-4.09/3.65	-3.21/2.7	-2.49/2.36	-2.63/3.2	-3.88/4.59	-6.38/10.31	-14.58/16.26	-13.93/9.58	-6.56/4.87	-3.55/2.44	-1.81/1.36	-0.95/0.87	-1.21/1.8	-2.69/4.51	-6.71/10.59
Theta(20°)	-11.87/16.76	-19.03/13.16	-8.59/5.9	-4.61/3.41	-2.29/1.85	-1.43/1.97	-2.27/3.11	-4.28/6.28	-8.51/12.44	-19.38/15.77	-13.17/10.76	-7.84/5.91	-4.27/2.91	-2.2/2.08	-2.06/2.15	-2.45/2.93	-3.82/5.36	-6.61/9.35
Theta(30°)	-13.95/18.28	-16.58/12.54	-9.14/5.89	-4.32/3.17	-2.1/1.28	-1.18/1.43	-3.29/6.14	-8.97/11.98	-17.83/17.55	-15.31/10.31	-6.01/3.8	-3.39/3.07	-2.25/1.87	-1.62/1.25	-1.95/2.86	-4.01/6.09	-7.59/9.27	-7.59/9.27
Theta(40°)	-11.93/13.8	-17.2/14.69	-8.01/4.6	-3.72/2.87	-1.5/0.82	-0.52/0.75	-1.43/1.71	-8.74/13.42	-18.83/17.97	-13.59/8.42	-6.76/4	-2.45/1.62	-0.95/0.72	-1.16/1.38	-1.49/3.13	-4.12/5.63	-8.1/9.74	-8.1/9.74
Theta(50°)	-13.76/18.82	-11.48/9.83	-9.92/6.62	-3.2/3.21	-0.4/0.76	2.130.58	-0.91/1.51	-2.81/6	-8.54/12.67	-16.24/18.57	-10.38/6.14	-5.89/4.91	-3.19/2.46	-1.98/1.38	-1.81/5.5	-1.65/2.23	-2.91/4.01	-6.2/9.4
Theta(60°)	-11.46/12.95	-14.57/9.37	-7.24/6.03	-2.94/0.93	-0.39/0.89	1.27/1.25	-2.22/2.37	-3.68/5.18	-1.27/1.25	-12.99/8.51	-4.9/4.92	-1.22/2.77	-2.74/2.11	-1.85/3.44	-3.85/5.08	-8.18/11.7	-8.18/11.7	-8.18/11.7
Theta(70°)	-11.38/9.67	-8.81/10.74	-8.11/5.23	-3.85/2.28	-0.97/0.61	-1.34/1.33	-1.54/3.53	-5.19/7.09	-7.97/8.89	-11.61/16.79	-13.42/10.53	-7.71/2.22	-3.63/2.54	-1.93/1.64	-1.37/2.58	-3/5.14	-5.48/6.34	-8.29/10.05
Theta(80°)	-10.01/9.08	-9.71/9.4	-7.53/5.42	-3.73/2.29	-1.78/1.99	-2.05/2.6	-2.57/3.46	-5.1/4.48	-7.05/9.36	-9.94/14.15	-16.71/9.47	-6.32/4.71	-4.06/2.64	-2.69/2.42	-1.74/1.41	-2.39/4.81	-4.49/4.82	-7.72/10.89
Theta(90°)	-11.67/11.58	-12.16/8.32	-7.46/5.38	-3.75/3.22	-4/4.4	-2.71/2.61	-9.22/13.63	-8.14/7.96	-6.47/8.1	-15.14/14.1	-12.99/8.51	-4.9/4.92	-1.22/2.77	-2.8/2.85	-2.29/4.28	-6.3/6.43	-7.47/11.77	-7.47/11.77
Theta(100°)	-13.81/9.81	-8.02/10.56	-6.75/3.38	-3.16/5.32	-5.59/5.05	-5.34/6.7	-7.85/6.07	-6.97/11.6	-8.2/8.23	-8.56/12.05	-11.97/11.4	-6.2/4.97	-4.16/3.9	-5.79/2.87	-0.98/1.11	-1.52/5.16	-8.3/8.9	-7.56/10.47
Theta(110°)	-13.43/10.01	-8.64/8.25	-3.96/4.36	-5.31/7.11	-7.5/8.66	-8.25/10	-10.14/10.02	-14.2/18.28	-16.41/11.74	-10.61/12.4	-12.09/7.56	-7.9/8.81	-7.37/4.57	-6.99/5.2	-3.1/3.11	-4.11/5.87	-5.95/5.27	-9.19/13.4
Theta(120°)	-11.46/9.97	-8.92/7.72	-5.51/4.49	-4.49/5.2	-6.97/11.05	-9.5/12.25	-14.72/18.03	-16.73/16.85	-14.72/18.03	-12.51/12.05	-10.87/8.9	-8.77/10.39	-3.71/1.03	-3.72/5.54	-5.89/9.41	-14.84/15.69	-14.84/15.69	-14.84/15.69
Theta(130°)	-12.09/8.75	-8.39/7.6	-5.35/4.25	-5.44/5.72	-9.99/9.89	-11.82/17.32	-18/18.32	-17.66/10.61	-13.11/19.21	-13.49/13.85	-7.57/7.52	-8.68/8.8	-8.32/12.24	-7.84/5	-2.63/2.4	-2.52/9.64	-9/4.42	-6.16/11.61
Theta(140°)	-12.33/9.86	-8.47/7.15	-7.02/5.47	-3.4/5.43	-7.46/8.02	-11.24/18.51	-15.42/18.1	-14.29/14.41	-10.38/12.93	-11.51/9.48	-12.68/8.47	-6.23/6.91	-7.48/8.21	-5.49/3.37	-0.74/1.34	-3.34/6.89	-13.31/7.64	-11.02/15.09
Theta(150°)	-11.99/15.72	-11.42/7.36	-6.94/8.18	-8.51/9.26	-9.67/9.95	-12.11/16.46	-15.23/9.96	-8.45/9.28	-14.11/16.46	-15.23/9.96	-11.33/13.33	-7.96/7.33	-4.01/3.25	-4.07/1.31	-6.07/7.1	-7.41/8.1	-9.95/14.91	-9.95/14.91
Theta(160°)	-12.47/12.3	-11.38/11.52	-10.41/8.96	-8.39/9.17	-10.49/12.2	-14.09/13.42	-15.75/17.78	-18.46/15.56	-16.27/18.99	-19.14/15.96	-16.66/16.95	-15.33/13.1	-10.91/10.85	-12.59/14.3	-11.69/9.12	-8.79/9.87	-11.24/11.67	-12.02/11.15
Theta(170°)	-19.01/13.55	-9.61/8.55	-8.36/9.3	-11/14.54	-18.04/18.41	-15.98/12.96	-11.84/12.9	-14.51/17.5	-17.23/13.41	-12.1/11.57	-10.88/9.73	-9.02/8.75	-8.81/7.83	-7.16/7.08	-7.11/6.53	-5.69/7.67	-10.21/14.56	-18.39/18.28
Theta(180°)	-18.46/18.91	-18.26/18.6	-17.24/13.26	-10.51/8.38	-7.73/7.94	-8.85/10.46	-11.51/11.1	-11.18/12.39	-13.1/15.86	-8.35/8.31	-17.06/15.27	-13.64/12.37	-10.78/9.31	-8.35/8.31	-9.07/10.09	-11.76/12.59	-12.41/14.5	-17.61/18.45
Freq(Hz)	5.2GPol	ThetaAnt.3	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(0°)	-1.45/2.4	-3.18/3.31	-3.25/4.45	-5.73/7.88	-11.36/16.36	-10.19/16.72	-12.41/8.71	-2.79/2.19	-2.07/2.39	-2.07/2.39	-3.01/4.24	-3.01/4.24	-6.24/8.6	-11.38/15.59	-11.38/15.59	-11.21/7.94	-2.31/2.54	-2.31/2.54
Theta(10°)	-0.51/0.57	-1.69/3.32	-4.21/5.14	-6/7.79	-10.69/17.07	-18.5/18.21	-16.41/12.03	-8.09/5.11	-3.84/2.87	-2.69/2.49	-2.55/2.8	-3.47/5.04	-7.09/9.34	-12.94/17.33	-18.59/13.99	-8.85/5.69	-3.69/2.24	-1.54/0.84
Theta(20°)	-0.91/1.15	-3.45/4.36	-3.5/3.37	-4.16/6.51	-9.87/14	-18.26/18.19	-10.85/6.87	-5.64/5.76	-5.44/3.55	-2.35/2.58	-3.86/4.83	-5.47/6.99	-9.02/11.79	-13.36/15.67	-18.62/16.09	-9.35/7.21	-5.31/4.33	-3.47/1.56
Theta(30°)	-1.76/2.03	-3.24/2.97	-2.28/2.43	-4.49/7.23	-6.08/3.62	-8.97/11.39	-9.91/9.91	-6.41/7.97	-8.97/11.39	-16.41/15.92	-12.37/10.6	-6.92/8.2	-5.09/5.75	-1.27/1.51	-5.09/5.75	-4.02/2.72	-4.02/2.72	-4.02/2.72
Theta(40°)	-2.67/2.39	-3.08/3.68	-2.91/2.84	-3.84/4.69	-7.51/9.98	-11.88/16.43	-17.83/15.37	-10.2/8.83	-7.2/4.1	-4.06/5.8	-6.81/7.47	-7.4/9.52	-15.86/15.96	-15.66/15.75	-11.62/9.01	-8.07/6.48	-5.04/5.24	-6.08/4.52
Theta(50°)	-4.1/3.48	-3.53/3.85	-4.81/4.46	-3.77/4.27	-5.61/4.26	-11.27/18.78	-17.96/18.27	-12.69/11.63	-9/8.36	-8.39/7.36	-8.91/9.07	-9.22/13.08	-16.21/16.49	-14.05/13.28	-11.67/8.76	-7.28/7.07	-5.92/5.31	-5.14/9.1
Theta(60°)	-3.87/3.41	-4.68/5.75	-5.31/3.89	-3.88/5.59	-7.16/9.24	-18.63/18.56	-14.31/12.64	-10.09/9.52	-9.59/12.16	-15.61/13.33	-11.85/9.31	-10.87/9.45	-16.44/16.41	-16.89/16.89	-12.52/9.64	-8.98/7.68	-6.02/5.46	-5.55/4.54
Theta(70°)	-3.55/3.6	-4.54/4.43	-3.77/4.4	-4.72/6.59	-8.53/9.33	-11.28/13.21	-12.85/17.45	-18.41/19	-14.51/13.01	-11.84/14.38	-13.07/13.87	-15.57/18.83	-17.92/18.51	-12.47/11.27	-8.77/7.83	-6.89/6.93	-6.17/5.55	-5.26/4.79
Theta(80°)	-3.94/5.47	-4.72/4.42	-5.38/6.16	-6.81/5.72	-7.9/8.64	-9.21/12.2	-18.65/17.05	-19.22/19.18	-17.77/17.7	-15.09/15.58	-15.1/18.61	-17.75/19.09	-18.33/13.8	-10.89/11.3	-7.67/6.69	-6.99/7.16	-6.79/5.28	-5.24/5.04
Theta(90°)	-5.37/5.42	-5.27/5.16	-6.78/5.67	-6.12/6.57	-7.84/10.62	-12.57/10.47	-18.49/18.43	-13.11/17.28	-18.49/18.43	-15.23/19.13	-18.83/16.93	-11.83/10.16	-11.23/9.23	-5.89/4.94	-6.64/5.46	-6.64/5.46	-6.64/5.46	-6.64/5.46
Theta(100°)	-6.42/4.57	-6.71/6.49	-7.1/5.69	-7.04/9.06	-10.19/9.99	-7.46/7.64	-10.84/14.66	-17.64/19.09	-18.84/18.29	-18.51/18.06	-18.54/19.23	-18.84/13.67	-11.81/10.95	-11.79/9.15	-6.93/5.47	-5.43/5.6	-6.19/5.72	-4.8/5.44
Theta(110°)	-6.42/6.11	-8.93/9.19	-6.08/6.56	-10.09/13.46	-11.57/11.17	-10.75/9.42	-12.77/14.62	-18.67/18.18	-17.71/15.66	-15.08/19.09	-12.35/13.83	-17.54/7.6	-9.64/11.51	-8.18/6.68	-7.84/9.31	-8.43/6.34	-5.99/5.9	-5.99/5.9
Theta(120°)	-6.98/7.02	-8.86/8.06	-7.97/9.10	-7.57/10.1	-9.79/9.08	-12.11/11.18	-10.44/18.87	-18.25/17.77	-10.44/18.87	-10.56/10.48	-12.87/15.25	-12.55/10.25	-8.89/9.05	-8.82/10.82	-9.21/9.67	-7.04/6.22	-7.04/6.22	-7.04/6.22
Theta(130°)	-7.82/7.73	-9.05/11.47	-10.45/10.34	-10.91/9.71	-11.22/14.47	-18.95/12.9	-17.72/18.01	-11.97/18.26	-12.76/13.89	-18.05/8.47	-9.45/12.22	-8.94/7.23	-8.81/12.27	-8.22/8.74	-9.77/13.16	-9.6/7.52	-5.09/6.92	-5.09/6.92
Theta(140°)	-6.38/5.94	-9.15/11.06	-12.54/16.06	-15.56/11.78	-10.85/15.55	-12.73/15.88	-14.81/16.14	-12.78/17.17	-19.2/10.59	-9.39/18.5	-10.65/8.42	-10.85/4.31	-6.49/7.18	-13.66/14.09	-11.99/10.66	-16.75/17.04	-18.54/10.11	-5.91



Radiated Composite Gain Data

Appendix A

Theta	Phi(0°)	Phi(10°)	Phi(20°)	Phi(30°)	Phi(40°)	Phi(50°)	Phi(60°)	Phi(70°)	Phi(80°)	Phi(90°)	Phi(100°)	Phi(110°)	Phi(120°)	Phi(130°)	Phi(140°)	Phi(150°)	Phi(160°)	Phi(170°)	Phi(180°)	Phi(190°)	Phi(200°)	Phi(210°)	Phi(220°)	Phi(230°)	Phi(240°)	Phi(250°)	Phi(260°)	Phi(270°)	Phi(280°)	Phi(290°)	Phi(300°)	Phi(310°)	Phi(320°)	Phi(330°)	Phi(340°)	Phi(350°)				
Theta(50°)	-4.35/-3.89	-3.71/-3.39	-4.52/-4.64	-5.55/-7.76	-10.09/-12.42	-13.97/-17.99	-18.02/-17.81	-15.27/-15.24	-14.85/-11.27	-11.08/-12.16	-12.26/-14.81	-15.71/-16.02	-19.08/-17.75	-18.61/-13.12	-11.13/-9.48	-7.54/-6.3	-5.46/-5.22	-4.08/-3.65																						
Theta(60°)	-4.68/-4.79	-5.24/-5.62	-5.81/-5.66	-6.93/-8.28	-10.17/-10.74	-10.11/-12.2	-13.12/-15.18	-16.06/-15.95	-17.69/-17.87	-13.78/-14.26	-16.18/-17.86	-17.31/-18.11	-18.64/-18.47	-13.51/-12.02	-11.13/-9.27	-7.53/-7.3	-5.72/-5.35	-5.11/-3.96																						
Theta(70°)	-6.42/-6.21	-7.35/-7.35	-8.71/-7.91	-10.39/-9.14	-9.63/-9.16	-12.09/-13.12	-16.12/-15.61	-18.21/-14.92	-16.16/-16.74	-12.04/-16.66	-18.66/-18.7	-6.41/-7.64	-18.82/-15.2	-13.41/-10.13	-8.99/-8.97	-6.41/-8.75	-7.16/-5.8	-6.66/-5.57																						
Theta(80°)	-6.83/-6.62	-7.28/-6.65	-7.41/-7.55	-8.68/-10.88	-18.31/-14.53	-10.66/-10.81	-11.51/-12.33	-12.72/-18.05	-19.04/-18.73	-17.06/-18.17	-15.63/-18.27	-19.34/-15.88	-15.73/-12.39	-12.71/-10.58	-8.75/-6.71	-5.95/-6.81	-6.68/-6.15	-6.61/-6.09																						
Theta(90°)	-6.22/-9.25	-7.81/-7.07	-8.95/-9.03	-11.61/-11.55	-9.04/-8.45	-9.87/-15.96	-12.48/-12.81	-16.06/-17.4	-18.26/-17.51	-14.02/-18.88	-17.81/-17.19	-18.16/-14.48	-11.81/-10.57	-11.88/-11.66	-7.43/-5.54	-5.16/-5.23	-6.84/-5.4	-4.75/-6.57																						
Theta(100°)	-8.05/-8.07	-7.35/-6.96	-8.71/-8.62	-10.39/-8.35	-12.07/-9.33	-12.07/-14.01	-12.48/-12.81	-14.34/-12.26	-18.17/-18.22	-11.04/-13.51	-12.07/-19.98	-15.04/-10.78	-6.71/-5.56	-11.88/-11.66	-7.43/-5.54	-5.16/-5.23	-6.84/-5.4	-4.75/-6.57																						
Theta(110°)	-7.33/-7.36	-7.46/-8.65	-11.71/-8.01	-9.11/-11.45	-14.53/-14.91	-12.85/-18	-14.61/-17.3	-19.11/-13.67	-18.57/-18.88	-14.58/-17.26	-17.67/-17.93	-18.03/-11.34	-17.64/-9.86	-12.19/-17.22	-10.11/-6.73	-7.23/-8.34	-7.26/-6.17	-5.51/-7.48																						
Theta(120°)	-7.27/-7.9	-9.94/-10.54	-12.54/-10.22	-9.9/-8.72	-10.49/-15.29	-13.04/-13.99	-12.79/-12.02	-10.02/-12.59	-18.96/-18.14	-11.17/-14.48	-19.31/-14.83	-13.69/-15.25	-17.63/-10.89	-14.05/-19	-10.96/-8	-9.12/-8.01	-7.02/-6.46	-5.07/-6.81																						
Theta(130°)	-9.22/-10.95	-10.01/-11.82	-12.54/-10.22	-10.17/-12.94	-10.17/-12.94	-13.89/-12.66	-15.92/-14.42	-9.19/-11.42	-11.61/-14.93	-15.38/-18.42	-17.42/-14.2	-17.19/-9.32	-10.19/-17.57	-12.31/-7.62	-10.51/-15.53	-9.95/-12.08	-7.93/-12.75	-6.22/-10.47																						
Theta(140°)	-9.62/-9.01	-10.24/-14.27	-17.46/-18.87	-15.16/-12	-14.29/-14.02	-18.32/-13.71	-17.72/-13.71	-11.22/-12.4	-13.56/-14.25	-10.13/-12.58	-13.3/-10.03	-17.98/-9.67	-8.8/-7.84	-19.15/-19.12	-14.83/-11.84	-18.41/-12.57	-15.84/-7.35	-6.39/-7.77																						
Theta(150°)	-15.35/-13.43	-13.34/-18.17	-17.94/-19.1	-18.17/-17.27	-15.49/-18.39	-17.59/-17.79	-18.74/-16.31	-18.16/-17.8	-19.11/-14.04	-12.17/-11.21	-12.61/-16.41	-17.09/-8.96	-6.22/-7.67	-13.67/-19.05	-17.73/-16.07	-15.97/-17.16	-11.54/-8.41	-9.93/-15.23																						
Theta(160°)	-13.55/-18.8	-18.71/-17.07	-18.38/-17.87	-13.01/-12.85	-17.94/-19.24	-11.71/-17.82	-17.78/-17.96	-16.63/-15.35	-13.84/-14.79	-18.11/-17.82	-11.76/-10.28	-12.73/-13.63	-15.76/-16.96	-15.83/-18.03	-19.18/-18.3	-18.72/-16.68	-12.21/-10.6	-9.18/-9.91																						
Theta(170°)	-7.95/-9.21	-10.94/-15.64	-17.39/-16.87	-17.99/-18.62	-18.41/-16.92	-17.49/-19.07	-17.57/-19.02	-12.85/-9.68	-8.32/-9.62	-11.68/-12.24	-13.34/-14.87	-18.09/-17.92	-17.53/-15.34	-16.37/-19.14	-17.49/-17.87	-14.86/-13.6	-11.56/-8.48	-7.95/-8.28																						
Theta(180°)	-18.65/-14.55	-13.12/-13.41	-13.92/-15.89	-18.16/-18.02	-17.49/-18.85	-19.68/-19.32	-16.96/-16.25	-14.54/-12.5	-12.18/-11.76	-11.51/-10.47	-11.36/-11.94	-13.02/-14.22	-15.08/-17.87	-17.95/-18.44	-17.49/-18.78	-14.77/-11.66	-10.81/-11.74	-13.21/-16.15																						
Freq(Hz)	5.785GPol	PhiAnt. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)																						
Theta(0°)	-14.28/-18.97	-18.29/-14.77	-11.8/-8.46	-6.84/-5.3	-4.43/-4.11	-3.85/-3.67	-3.84/-2.6	-5.15/-6.3	-7.95/-10.29	-12.18/-16.35	-19.08/-13.12	-9.46/-7.89	-6.9/-5.8	-4.32/-4.17	-4.01/-4.07	-4.41/-4.88	-5.76/-6.73	-8.37/-10.8																						
Theta(10°)	-19.48/-18.1	-16.63/-11.96	-9.41/-7.02	-5.13/-3.41	-2.71/-2.76	-1.49/-13.84	-4.04/-4.63	-5.39/-6.43	-8.02/-11.07	-14.19/-13.84	-13.91/-12.96	-3.19/-7.24	-5.71/-4.56	-3.58/-2.8	-2.57/-2.74	-5.21/-6.68	-8.94/-12.08																							
Theta(20°)	-18.46/-19.07	-13.62/-10.6	-8.65/-7.54	-6/-5.03	-4.54/-3.32	-2.94/-3.32	-3.74/-4.91	-5.98/-7.44	-8.68/-10.55	-14.74/-15.81	-13.73/-9.98	-8.46/-7.64	-6.69/-5.47	-4.45/-3.4	-3.04/-3.92	-4.47/-4.63	-5.08/-6.34	-9.57/-14																						
Theta(30°)	-15.92/-18.11	-13.44/-10.47	-7.59/-6.42	-4.7/-3.81	-3.07/-2.64	-2.64/-2.14	-2.07/-3.02	-4.74/-7.13	-10.55/-15.13	-16.77/-14.71	-13.32/-16.1	-13.06/-8.18	-5.78/-4.91	-4.74/-3.53	-2.03/-2.3	-3.6/-4.04	-4.81/-6.77	-8.23/-10.12																						
Theta(40°)	-13.03/-18.21	-16.23/-12.95	-11.71/-7.77	-4.85/-4.06	-2.22/-2.23	-2.62/-2.64	-2.04/-1.11	-2.03/-5.17	-9.27/-12.18	-15.33/-14.42	-12.19/-9.52	-7.37/-5.19	-4.55/-3.8	-2.26/-2.55	-1.91/-2.67	-4.16/-3.67	-4.36/-5.46	-7.46/-9.33																						
Theta(50°)	-10.74/-19.07	-16.41/-13.47	-10.35/-7.68	-5.98/-4.12	-2.22/-2.47	-2.62/-2.64	-2.04/-1.11	-2.03/-5.17	-9.27/-12.18	-15.33/-14.42	-12.19/-9.52	-7.37/-5.19	-4.55/-3.8	-2.26/-2.55	-1.91/-2.67	-4.16/-3.67	-4.36/-5.46	-7.46/-9.33																						
Theta(60°)	-12.45/-16.07	-13.12/-13.41	-9.24/-6.51	-5.47/-3.75	-1.93/-2.44	-2.16/-1.22	-1.28/-3.21	-5.84/-7.85	-9.75/-12.58	-13.28/-13.61	-12.13/-9.89	-10.56/-7.6	-5.28/-4.64	-5.17/-4.76	-3.82/-2.76	-4.56/-4.12	-4.06/-5.46	-7.64/-11.05																						
Theta(70°)	-15.38/-17.56	-16.11/-11.54	-6.92/-4.67	-4.79/-2.58	-2.04/-3.11	-9.3/-3.44	-5.44/-6.67	-7.05/-9.91	-10.71/-11.06	-8.71/-14.36	-4.23/-6.28	-3.03/-2.06	-4.57/-3.69	-2.02/-1.57	-1.85/-2.09	0.59/-1.7	2.02/-1.9	-0.39/-2.56	-4.83/-6.01																					
Theta(80°)	-13.87/-13.72	-14.62/-9.78	-6.46/-5.45	-6.54/-4.84	-3.8/-3.05	-2.42/-2.18	-2.91/-5.03	-7.79/-8.86	-10.9/-14.36	-9.14/-10.05	-11.02/-11.92	-8.62/-7.37	-4.53/-2.75	-3.52/-2.69	-1.23/-3.68	-3.05/-5.53	-7.88/-7.87	-9.83/-11.14																						
Theta(90°)	-13.01/-16.96	-9.41/-9.15	-8.27/-5.97	-5.84/-3.88	-4.91/-2.05	-2.49/-5.37	-7.61/-5.41	-7.76/-8.22	-6.6/-9.36	-9.1/-11.36	-8.49/-6.87	-5.55/-3.29	-1.85/-2.09	0.59/-1.7	2.02/-1.9	-0.39/-2.56	-4.83/-6.01	-10.98/-13.52																						
Theta(100°)	-15.67/-10.9	-10.38/-12.07	-9.91/-6.01	-7.77/-10.13	-4.35/-2.92	-7.72/-10.02	-10.81/-7.47	-5.44/-6.56	-10.69/-11.06	-8.71/-14.36	-4.23/-6.28	-3.03/-2.06	-4.57/-3.69	-2.02/-1.57	-1.85/-2.09	0.59/-1.7	2.02/-1.9	-0.39/-2.56	-4.83/-6.01																					
Theta(110°)	-17.65/-12.11	-13.46/-7.36	-8.69/-10.82	-7.15/-5.28	-6.08/-8.48	-6.56/-6.38	-11.81/-8.82	-9.11/-13.99	-9.07/-13.62	-6.33/-7.83	-12.09/-8.96	-5.64/-8.01	-7.46/-3.08	-6.06/-4.9	-4.54/-5.37	-7.65/-10.72	-7.83/-8.08	-10.19/-17.32																						
Theta(120°)	-11.59/-9.95	-12.41/-11.35	-9.04/-9.05	-6.76/-6.75	-9.46/-11.69	-12.43/-8.56	-13.26/-14.85	-18.22/-18.85	-11.88/-13.97	-13.71/-19.10	-11.36/-5.55	-7.05/-9.47	-12.37/-6.18	-16.39/-8.51	-6.77/-3.44	-5.95/-13.68	-13.14/-8.41	-11.29/-11.61																						
Theta(130°)	-17.96/-11.18	-8.01/-7.61	-8.79/-10.13	-8.66/-8.32	-8.41/-9.76	-11.46/-18.65	-12.79/-14.24	-13.22/-13.97	-13.21/-9.77	-15.92/-9.18	-8.62/-8.64	-8.13/-7.38	-9.12/-8.24	-7.24/-9.26	-11.99/-7.46	-9.74/-18.53																								
Theta(140°)	-13.18/-8.87	-8.61/-7.55	-6.53/-11.44	-10.84/-9.05	-9.77/-11.5	-18.29/-19.09	-18.78/-14.18	-13.38/-9.65	-12.25/-18.35	-18.29/-10.89	-8.79/-13.01	-10.98/-7.92	-11.51/-8.47	-13.10/-10.35	-5.28/-5.39	-8.28/-13.21	-19.28/-13.13	-13.22/-12.73																						
Theta(150°)	-18.75/-17.45	-12.56/-10.26	-9.22/-9.68	-12.16/-13.08	-13.39/-18.62	-16.99/-17.5	-16.23/-12.04	-12.69/-14.61	-14.05/-9.98	-7.89/-11.86	-18.99/-17.9	-16.23/-16.15	-11.21/-8.96	-8.01/-7.6	-10.89/-5.91	-7.52/-6.44	-8.23/-11.22	-11.94/-13.41	-16.56/-18.23																					
Theta(160°)	-13.51/-11.31	-12.79/-16.73	-15.63																																					



Radiated Composite Gain Data

Appendix A

Table with columns for frequency (MHz), gain (dBi), and various antenna configurations (Theta/Ant. 4, Phi(0)/Phi(10), etc.). Rows represent different frequencies from 5.2GHz to 5.8GHz.



Radiated Composite Gain Data

Appendix A

Theta	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain
Theta(40°)	-5.58/-2.96	-2.64/-3.23	-3.91/-7.59	-9.97/-10.4	-10.57/-9.74	-8.52/-5.82	-3.28/-1.99	-1.07/-0.08	0.22/0.07	-0.24/-0.13	-1.57/-1.33	-2.25/-4.23	-5.59/-7.38	-9.49/-12.81	-11.68/-6.33	-5.76/-6.04	-5.22/-5.21	-6.15/-6.39	
Theta(50°)	-4.63/-6.38	-5.98/-7.13	-9.64/-12.23	-16.32/-17.96	-18.91/-8.72	-4.56/-3.81	-0.97/-1.28	-1.85/-1.31	-0.05/0.58	0.02/-0.73	-2.63/-2.12	-4.78/-6.6	-5.26/-10.77	-13.65/-10.87	-17.54/-15.44	-12.31/-12.08	-10.16/-6.55	-4.09/-3.34	
Theta(60°)	-4.48/-4.18	-5.61/-7.84	-5.85/-6.77	-7.12/-6.13	-8.36/-10.96	-6.43/-3.48	-1.68/-4.06	-4.16/-1.4	-2.75/-5.64	-6.71/-5.77	-6.46/-8.38	-6.27/-7.93	-8.94/-10.69	-14.45/-9.71	-8.2/-9.74	-5.99/-11.95	-8.41/-7.98	-6.75/-4.42	
Theta(70°)	-3.17/-6.54	-9.52/-8.29	-7.77/-6.99	-9.14/-9	-7.43/-6.41	-3.97/-2.37	0.09/-1.99	-1.88/-0.24	0.57/0.45	0.28/-0.46	-1.81/-5.57	-5.57/-6.4	-8.48/-7.37	-9.1/-8.34	-8.96/-7.58	-6.45/-6.84	-8.03/-12	-6.02/-3.18	
Theta(80°)	-3.64/-5.17	-4.41/-3.14	-3.43/-4.34	-6.95/-8.15	-12.41/-3.11	-2.38/-2.26	-1.36/-3.26	-2.85/-2.33	-2.57/-3.16	-4.28/-4.65	-4.09/-3.91	-7.33/-6.36	-10.63/-6.97	-9.1/-5.32	-11.47/-10.25	-7.57/-5.73	-5.9/-8.14	-9.24/-7.04	
Theta(90°)	-4.47/-7.22	-9.54/-5.92	-2.59/-3.15	-6.07/-4.91	-10.87/-6.49	-5.05/-5.23	-0.31/0.42	0.03/-0.9	-2.08/-3.29	-5.21/-4.66	-2.43/-3.67	-8.47/-7.73	-16.33/-8.22	-17.99/-11.53	-11.89/-10.31	-10.11/-5.09	-7.26/-6.49	-6.78/-4.49	
Theta(100°)	-3.03/-3.64	-1.83/-4.12	-4.64/-2.13	-0.79/-4.39	-2.91/-3.43	-0.63/-6.39	-4.91/-0.69	0.59/-1.89	-2.55/-1.73	-1.78/-1.05	-0.6/-2.95	-5.63/-8.78	-7.47/-6.81	-15.49/-9	-8.59/-10.15	-18.05/-9.49	-9.15/-17.77	-14.32/-8.54	
Theta(110°)	-8.3/-3.09	-2.7/-0.73	-3/-2.27	-2.69/-9.04	-3.91/-8.83	-1.5/-2.44	-2.04/-6.76	-1.51/-1.87	-3.94/-5.19	-4.24/-4.68	-5.87/-7	-4.94/-12.21	-7.35/-7.37	-17.26/-7.47	-17.13/-18.96	-18.81/-18.97	-11.98/-18.88	-15.48/-8.74	
Theta(120°)	-3.35/-2.94	-2.28/-3.19	-3.29/-1.4	-1.39/-7.64	-9.43/-7.76	-3.35/-1.14	-3.74/-2.48	-2.1/-2.8	-1.72/-2.9	-2.73/-2.39	-4.81/-6.16	-6.37/-9.95	-11.61/-4.94	-15.03/-13.66	-13.48/-14.72	-18.08/-13.61	-17.64/-16.79	-10/-6.44	
Theta(130°)	-5.58/-7.74	-11.04/-7.4	-8.55/-4.83	-1.85/-3.91	-13.79/-13.55	-13.44/-8	-6.68/-4.85	-5.1/-3.97	-6.01/-5.04	-6.47/-7.33	-10.06/-3.31	-4.15/-11.12	-9.11/-6.18	-6.57/-15.09	-7.41/-19.29	-14.67/-17.87	-13.59/-9.66	-7.57/-4.5	
Theta(140°)	-12.18/-8.63	-6.45/-7.23	-8.16/-7.11	-5.37/-10.52	-10.22/-5.41	-5.44/-8.84	-9.2/-7.24	-5.66/-7.14	-6.32/-4.22	-2.88/-0.27	-1.12/-4.23	-4.18/-9.39	-18.1/-4.55	-3.72/-9.17	-15.23/-9.85	-13.12/-8.34	-11.55/-12.98	-8.55/-10.36	
Theta(150°)	-11.66/-10.14	-14.48/-16.7	-8.36/-4.34	-3.3/-6.83	-9.81/-12.61	-17.15/-18.96	-17.22/-12.04	-11.2/-8.65	-8.51/-11.55	-11.83/-7.73	-6.75/-7.96	-4.6/-3.24	-4.54/-8.26	-18.51/-9.39	-8.89/-11.73	-11.13/-9.12	-12.87/-19.58	-14.15/-11.22	
Theta(160°)	-15.96/-17.28	-19.41/-15.07	-12.19/-12.44	-18.48/-18.92	-17.57/-11.84	-7.72/-6.62	-7.47/-9.13	-11.05/-12.57	-10.93/-9.58	-8.54/-8.16	-9.05/-8.82	-5.96/-5.41	-5.7/-4.75	-4.44/-6.15	-10.42/-14.16	-16.53/-16.97	-16.44/-17.01	-15.88/-16.03	
Theta(170°)	-5.72/-4.43	-4.27/-5.12	-5.71/-5.56	-5.28/-4.39	-3.61/-3.29	-3.62/-5.4	-9.82/-18.25	-15.81/-9.66	-5.35/-2.74	-0.94/0.78	1.65/2.51	1.5/0.69	-1.24/-3.87	-7.42/-13.72	-17.21/-18.71	-13.97/-11.79	-9.6/-8.75	-8/-8.01	
Theta(180°)	-2.61/-0.99	-0.19/0.41	0.79/0.51	-0.19/-0.72	-1.57/-2.74	-4.11/-6.83	-11.63/-18.34	-15.37/-10.33	-6.32/-3.76	-2.59/-1.46	-0.92/-0.92	-1.23/-1.92	-3.65/-6.23	-9.83/-11.78	-10.36/-9.93	-10.33/-13.11	-14.56/-10.53	-7.67/-4.91	
Freq(Hz)	5.785G/Pol	Theta/Ant. 4	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)	
Theta(0°)	-12.23/-9.37	-7.38/-5.12	-3.43/-2.68	-1.74/-0.92	-0.85/-1.14	-1.67/-2.36	-2.94/-4.38	-6.18/-7.45	-10.07/-12	-11.35/-8.18	-6.32/-5.3	-3.53/-2.1	-1.49/-1.5	-0.72/-0.42	-1.04/-1.88	-2.75/-3.79	-5.32/-7.7	-9.62/-13.54	
Theta(10°)	-10.49/-6.26	-5.11/-4.34	-3.15/-2.79	-2.45/-2.62	-3/-3.54	-4.31/-4.89	-5.81/-7.34	-8.39/-10.73	-11.97/-9.86	-8.75/-7.18	-3.95/-2.04	-1.26/-0.64	0.15/0.77	0.83/0.41	-0.43/-1.64	-2.71/-4.3	-6.81/-10.19	-14.32/-16.01	
Theta(20°)	-18.31/-18.03	-12.92/-8.42	-6.49/-4.57	-4.44/-6.22	-7.58/-6.08	-5.69/-7.07	-10.45/-18.13	-17.97/-16.35	-10.26/-8.28	-5.89/-3.6	-2.04/-0.92	-0.48/0.22	0.61/1.34	0.82/-0.95	-1.16/-1.02	-2.18/-3.84	-5.86/-7.86	-9.65/-17.28	
Theta(30°)	-15.62/-9.8	-6.42/-6.26	-6.15/-5.49	-5.19/-3.03	-3.03/-4.6	-4.86/-6.41	-11.51/-15.02	-13.72/-11.68	-8.81/-6.53	-5.62/-4	-2.64/-2.33	-0.58/-0.4	-1.35/-0.71	-0.08/1.47	1.16/0.72	-1.73/-3.37	-5.48/-11.14	-18.03/-17.85	
Theta(40°)	-16.38/-12.61	-11.98/-9.63	-8.03/-5.62	-2.86/-2.33	-2.27/-1.36	-1.6/-3.07	-6.02/-9.2	-11.06/-14.71	-15.82/-15.44	-11.67/-7.01	-5.24/-3.92	-3.22/-2.64	-2.19/-2.45	-2.79/-1.91	-2.73/-3.09	-3.63/-6.97	-7.77/-8.2	-10.56/-13.91	
Theta(50°)	-13.61/-15.99	-16.21/-14.47	-15.48/-9.77	-7.2/-7.8	-6.53/-2.78	-4.67/-6.61	-8.1/-18.31	-13.29/-13.72	-15.59/-11.37	-7.6/-6.13	-3.59/-2.25	-2.61/-3.15	-2.85/-1.7	-3.24/-1.94	-3.04/-3.88	-4.11/-4.13	-4.81/-6.08	-7.15/-9.17	
Theta(60°)	-12.34/-16.92	-18.57/-16.38	-14.51/-11.24	-10.58/-10.54	-15.15/-12.48	-10.95/-10.33	-14.11/-16.97	-17.52/-11.19	-8.48/-8.25	-7.16/-8.19	-7.38/-5.05	-4.5/-5.77	-4.06/-3.44	-3.92/-4.76	-3.96/-7.93	-7.93/-7.33	-9.29/-9.68	-9.15/-8.95	
Theta(70°)	-9.18/-16.17	-16.95/-15.33	-11.08/-7.44	-9.34/-6.24	-4.66/-9.37	-18.85/-9.82	-11.08/-17.85	-15.82/-8.39	-6.69/-6.92	-6.08/-7.89	-5.4/-4.91	-4.46/-4.51	-4.54/-3.95	-4.84/-3.6	-5.12/-7.64	-4.15/-5.2	-7.05/-8.8	-9.72/-7.71	
Theta(80°)	-13.78/-18.54	-17.4/-18.99	-14.97/-11.08	-9.42/-18.39	-8.92/-11.86	-17.46/-12.83	-18.38/-16.28	-11.47/-12.75	-11.08/-8.81	-10.32/-8.76	-11.16/-6.64	-15.63/-7.38	-5.93/-7.68	-7.25/-3.35	-8.77/-17.7	-11.96/-7.32	-16.45/-10.6	-10.96/-12.34	
Theta(90°)	-15.24/-15.05	-16.06/-12.71	-15.17/-14.92	-13.81/-11.34	-8.97/-9.78	-11.74/-13.74	-18.78/-8.34	-4/-5.15	-7.58/-9.92	-8/-7.83	-6.54/-5.19	-5.94/-5.68	-9.31/-8.34	-7.49/-8.12	-8.87/-5.62	-8.98/-18.03	-10.63/-10.76	-15.65/-18.98	
Theta(100°)	-14.19/-15.63	-19.36/-15.46	-18.31/-17.73	-19.14/-12.36	-18.38/-9.82	-9.99/-13.2	-18/-10.76	-5.08/-4.12	-5.01/-7.97	-7.22/-11.64	-9.51/-7	-5.85/-6.73	-8.82/-7.74	-5/-11.31	-10.04/-9.64	-16.66/-13.19	-14.82/-18.66	-17/-17.69	
Theta(110°)	-5.93/-14.3	-17.15/-17.95	-12.44/-13.01	-8.49/-10.39	-12.69/-6.73	-6.95/-6.4	-6.12/-5.98	-10.48/-9.67	-4.26/-3.91	-2.95/-5.2	-2.7/-4.12	-4.42/-8.74	-8.81/-5.75	-5.7/-5.51	-10.94/-5.68	-6.56/-7.35	-9.54/-15.11	-19.16/-11.15	
Theta(120°)	-10.24/-18.21	-14.61/-17.83	-12.14/-11.6	-11.91/-14.84	-13.05/-11.23	-9.84/-8.44	-6.44/-5.31	-7.44/-9.3	-13.52/-10.31	-9.17/-7.25	-6.47/-5.62	-3.18/-6.25	-12.91/-8.61	-4.62/-3.64	-19.04/-17.18	-5.6/-10.3	-17.61/-9.94	-14.16/-19.32	
Theta(130°)	-10.81/-12.96	-18.77/-18.1	-14.58/-11.55	-5.18/-6.21	-9.21/-6.22	-6.6/-8.08	-18.43/-10.22	-8.49/-10.91	-9.73/-10.88	-13.71/-9.16	-9.33/-3.18	-4.74/-8.87	-11.29/-4.59	-3.02/-3.52	-16.17/-11.78	-4.07/-0.71	-12.41/-8.8	-12.04/-11.49	
Theta(140°)	-14.28/-11.55	-17.89/-18.99	-12.71/-7.04	-4.23/-4.71	-5.17/-4.04	-2.72/-2.85	-5.25/-6.13	-6.87/-6.74	-5.47/-4.4	-3.04/-3.73	-3.78/-2.53	-3.34/-10.46	-18.81/-4.67	-2.39/-3.84	-13.84/-8.12	-10.42/-9.26	-10.29/-18.86	-12.23/-13.69	
Theta(150°)	-12.15/-15.81	-18.12/-18.45	-18.12/-19.01	-12.15/-7.97	-7.47/-8.29	-6.57/-4.26	-6.3/-9.48	-13.77/-11.74	-9.8/-8.03	-7.73/-8.65	-11.58/-11.36	-9.09/-8.37	-11.57/-12.9	-8.22/-7.69	-8.96/-8.5	-6.66/-8.45	-15.65/-19.14	-10.65/-7.99	
Theta(160°)	-13.52/-14.19	-11.84/-13.92	-14.64/-11.46	-9.95/-8.77	-8.75/-9.44	-10.37/-11.57	-10.21/-8.51	-7.91/-7.81	-9.25/-11.11	-11.14/-11.57	-9.28/-9.04	-8.44/-6.63	-6.45/-6.53	-5.41/-6.14	-7.78/-10.18	-12.25/-11.43	-12.45/-12.31	-12.44/-11.66	
Theta(170°)	-8.58/-8.42	-9.52/-9.9	-10.51/-12.48	-15.84/-16.77	-11.84/-7.18	-3.9/-1.82	-0.53/0.28	0.57/0.61	0.19/-0.23	-1.05/-1.99	-3.34/-4.39	-4.94/-4.89	-4.43/-4.74	-5.93/-8.04	-9.91/-9.43	-7.88/-6.24	-5.59/-5.21	-5.5/-7.21	
Theta(180°)	-1.45/-3.03	-5.19/-7.76	-14.52/-17.42	-15.61/-9.45	-5.75/-3.61	-1.93/-0.63	0/0.29	0.39/0.16	-0.16/-1.05	-2.52/-4.27	-6.8/-8.79	-10.85/-13.89	-15.58/-13.08	-10.61/-9.89	-8.36/-6.4	-5.37/-3.45	-1.79/-0.57	-0.22/-0.37	



Total Gain Data

Table with columns for Freq(Hz), TotalAnt. 1, and various gain values for different antenna configurations (e.g., Phi(0°)Phi(0°), Phi(20°)Phi(30°), etc.) across multiple frequency bands (2.45GPol, 5.2GPol, 5.3GPol, 5.6GPol, 5.785GPol).



Antenna Pattern

Appendix B

θ (°)	φ(0°)φ(10°)	φ(20°)φ(30°)	φ(40°)φ(50°)	φ(60°)φ(70°)	φ(80°)φ(90°)	φ(100°)φ(110°)	φ(120°)φ(130°)	φ(140°)φ(150°)	φ(160°)φ(170°)	φ(180°)φ(190°)	φ(200°)φ(210°)	φ(220°)φ(230°)	φ(240°)φ(250°)	φ(260°)φ(270°)	φ(280°)φ(290°)	φ(300°)φ(310°)	φ(320°)φ(330°)	φ(340°)φ(350°)
θ (0°)	-5.26/-4.12	-3.13/-2.59	-2.10/-1.55	-0.82/-0.18	0.11/-0.12	-0.40/-0.58	-1.19/-2.80	-4.54/-4.35	-3.28/-2.47	-2.16/-2.35	-2.96/-3.19	-2.78/-2.27	-1.57/-0.73	-0.08/-0.06	-0.14/-0.99	-2.65/-4.33	-5.68/-6.73	-6.68/-5.97
θ (10°)	-8.28/-6.45	-5.13/-4.49	-3.53/-2.85	-2.60/-2.56	-2.44/-2.37	-2.91/-2.88	-2.25/-4.10	-7.58/-8.38	-6.60/-5.14	-4.77/-4.74	-3.98/-2.79	-1.68/-0.57	0.21/-0.41	0.52/0.69	0.04/-1.85	-4.13/-6.62	-10.20/-13.04	-12.42/-10.26
θ (20°)	-6.04/-5.34	-4.56/-3.81	-3.02/-1.86	-1.67/-2.32	-1.11/-3.20	-0.44/-1.15	-0.82/-6.24	-5.21/-4.21	-3.11/-3.29	-3.42/-6.29	-0.59/-1.27	1.08/-0.77	2.12/1.95	1.08/1.38	0.41/-0.77	-8.04/-7.85	-8.04/-7.85	-7.40/-6.66
θ (30°)	-4.24/-2.60	-1.99/-1.65	-1.48/-1.21	-1.48/-2.54	-3.29/-3.56	-3.71/-3.23	-1.89/-3.19	-9.30/-11.49	-6.31/-3.73	-3.16/-3.45	-3.45/-2.52	-0.710/-1.81	1.51/1.14	0.34/-0.11	-0.79/-2.88	-5.59/-7.74	-8.36/-8.71	-8.43/-7.03
θ (40°)	-4.37/-2.21	-1.38/-1.10	-0.56/-0.40	-0.30/-1.62	-2.32/-2.34	-3.37/-4.35	-9.10/-9.22	-4.29/-5.77	-8.23/-7.99	-8.07/-6.32	-3.79/-2.23	-1.170/-1.2	0.870/0.57	-0.22/-0.30	-0.69/-2.17	-3.17/-2.82	-3.05/-5.26	-8.05/-7.51
θ (50°)	-8.94/-4.75	-1.59/-0.95	-1.67/-1.73	-0.91/-0.91	-1.51/-2.12	-1.60/-6.02	-2.82/-4.05	-6.10/-8.28	-9.60/-6.02	-4.35/-2.83	-1.000/-0.79	2.32/3.85	3.42/1.85	-0.36/-0.49	-0.36/-1.18	-3.27/-5.05	-4.70/-5.02	-6.33/-8.14
θ (60°)	-4.15/-3.03	-1.60/-0.75	-0.91/-2.01	-1.22/-1.22	-1.97/-3.67	-5.91/-5.55	-3.71/-2.67	-2.54/-3.93	-7.01/-10.96	-12.50/-11.50	-7.35/-2.92	0.552/0.30	2.55/1.52	-0.15/-0.97	-0.270/0.38	-0.28/-2.48	-4.65/-5.30	-4.90/-3.89
θ (70°)	-5.02/-0.47	-3.34/-2.85	-2.34/-1.81	-1.67/-2.06	-2.97/-3.62	-2.69/-0.93	0.040/0.54	0.34/-0.61	-2.17/-3.74	-4.81/-5.33	-5.18/-3.53	-1.260/0.6	-0.14/-0.98	-2.50/-3.09	-2.98/-1.62	-0.87/-1.77	-4.40/-7.40	-7.81/-6.39
θ (80°)	-15.04/-11.54	-8.00/-5.04	-2.84/-1.58	-1.40/-2.10	-3.11/-3.46	-1.84/-2.96	-1.10/-1.16	-1.84/-2.96	-5.37/-5.02	-3.79/-2.14	-0.80/-0.11	-0.56/-0.7	-0.46/-0.93	-1.24/-0.94	-0.76/-1.46	-3.56/-7.62	-12.64/-14.95	
θ (90°)	-7.90/-6.72	-5.38/-4.28	-3.50/-3.26	-3.34/-4.04	-4.40/-3.93	-3.34/-2.54	-2.42/-3.01	-4.49/-6.37	-8.42/-9.38	-8.79/-7.50	-5.94/-4.49	-3.53/-3.00	-2.98/-3.03	-3.14/-2.86	-3.01/-3.26	-3.62/-4.47	-6.39/-8.95	-9.81/-8.37
θ (100°)	-9.58/-8.93	-8.16/-7.76	-7.64/-8.35	-8.79/-8.56	-7.43/-6.43	-5.64/-5.20	-5.04/-5.19	-5.35/-5.53	-5.36/-4.95	-4.35/-3.76	-3.84/-4.08	-4.68/-5.65	-6.76/-7.47	-7.75/-7.79	-7.84/-8.26	-9.15/-10.93	-12.65/-15.72	-13.29/-11.56
θ (110°)	-7.88/-8.38	-9.31/-10.40	-10.89/-10.84	-10.29/-10.21	-9.84/-8.73	-8.37/-8.82	-8.72/-8.48	-8.98/-9.08	-8.72/-8.48	-8.72/-8.48	-8.98/-9.08	-10.45/-11.57	-13.00/-14.27	-13.27/-12.32	-11.07/-10.46	-9.66/-9.48	-9.63/-9.40	-8.39/-7.50
Freq(Hz)	5.2GPol.	TotalAnt. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	φ(0°)φ(10°)	φ(20°)φ(30°)	φ(40°)φ(50°)	φ(60°)φ(70°)	φ(80°)φ(90°)	φ(100°)φ(110°)	φ(120°)φ(130°)	φ(140°)φ(150°)	φ(160°)φ(170°)	φ(180°)φ(190°)	φ(200°)φ(210°)	φ(220°)φ(230°)	φ(240°)φ(250°)	φ(260°)φ(270°)	φ(280°)φ(290°)	φ(300°)φ(310°)	φ(320°)φ(330°)	φ(340°)φ(350°)
θ (0°)	2.71/-3.00	-2.81/-2.69	-2.19/-1.82	-1.83/-1.91	-1.74/-1.78	-1.53/-1.75	-2.87/-1.92	-2.32/-2.80	-3.11/-3.43	-3.54/-3.23	-2.28/-2.73	-2.76/-2.56	-2.62/-2.56	-2.28/-2.52	-2.37/-2.35	-2.51/-2.88	-2.87/-3.00	-
θ (10°)	-0.76/-0.62	-0.90/-1.20	-0.330/0.18	0.08/-0.15	-0.17/-0.33	-0.74/-1.38	-1.91/-2.44	-3.00/-3.75	-3.90/-3.86	-3.21/-2.59	-2.15/-2.51	-2.63/-2.83	-3.37/-3.93	-4.17/-3.91	-3.02/-1.83	-0.89/-0.09	-0.21/-0.51	-0.65/-1.09
θ (20°)	-1.29/-0.91	-0.45/-0.09	0.180/0.45	0.09/-0.06	-0.54/-0.92	-1.23/-1.36	-1.31/-1.71	-2.08/-2.28	-2.42/-2.18	-2.48/-3.13	-4.05/-4.66	-4.83/-4.30	-3.63/-2.84	-1.96/-1.87	-2.90/-3.21	-1.63/-0.85	-1.28/-2.31	-2.15/-1.64
θ (30°)	-1.18/-1.06	-0.64/-0.04	0.290/0.42	-0.07/-0.14	-0.44/-0.59	-1.09/-1.69	-2.04/-2.36	-3.58/-3.80	-4.59/-4.07	-5.93/-4.07	-3.88/-5.26	-7.07/-4.47	-5.45/-6.18	-4.64/-0.93	-7.07/-4.47	-2.72/-2.82	-1.97/-0.58	-
θ (40°)	-2.460/1.1	0.570/0.59	0.700/0.70	0.590/0.36	-0.12/-1.36	-3.04/-3.86	-3.04/-2.07	-2.55/-3.05	-2.01/-1.59	-2.24/-2.03	-1.57/-1.61	-1.76/-2.86	-4.07/-4.93	-6.13/-7.28	-10.06/-8.16	-5.40/-5.09	-6.68/-4.84	-2.87/-2.26
θ (50°)	-1.640/5.0	1.060/0.30	0.53/3.88	1.490/0.92	-0.23/-1.85	-3.41/-5.05	-4.13/-3.23	-2.38/-3.29	-1.29/-1.47	-3.01/-2.57	-2.29/-2.23	-0.55/-1.09	-2.65/-4.55	-6.83/-10.25	-11.19/-9.20	-8.14/-4.89	-5.16/-4.97	-3.59/-3.00
θ (60°)	0.30/1.23	1.68/1.99	1.540/0.80	1.29/1.37	0.90/-0.86	-3.49/-2.50	-1.53/-0.59	-3.60/-3.33	-2.89/-3.99	-1.34/-4.16	-0.34/-1.11	-1.88/-2.33	-3.35/-6.16	-10.73/-12.74	-9.45/-4.96	-5.03/-4.23	-2.51/-1.25	-
θ (70°)	1.75/2.71	1.97/1.82	1.080/0.53	0.780/0.65	-1.85/-4.96	-7.33/-6.62	-2.83/-3.62	-4.68/-4.79	-4.47/-2.67	-1.14/-0.07	0.18/-0.46	-0.62/-0.99	-2.11/-4.56	-8.35/-12.29	-13.19/-10.05	-7.70/-6.18	-3.33/-3.99	-0.73/-1.19
θ (80°)	1.06/2.15	2.67/2.14	-0.23/-2.02	-1.36/-0.35	-1.24/-6.41	-9.43/-7.20	-5.71/-3.56	-4.45/-4.24	-4.69/-2.42	-1.340/1.2	-0.98/-1.34	0.53/2.3	0.15/-2.27	-3.99/-9.70	-3.43/-4.08	-4.95/-2.99	-0.99/-0.92	-
θ (90°)	0.66/2.27	2.84/2.41	0.70/-4.25	-0.48/-2.27	-3.78/-8.05	-11.95/-5.26	-2.68/-0.67	-4.86/-5.79	-4.06/-3.23	-2.55/-0.38	-2.53/-0.47	1.39/2.85	-2.53/-2.07	-5.85/-8.49	-5.79/-2.25	-1.69/-1.87	-4.47/-5.74	-2.16/-3.71
θ (100°)	0.90/2.19	2.80/1.82	0.03/-3.48	-6.77/-5.06	-5.25/-10.84	-11.59/-7.15	-6.07/-3.15	-5.82/-6.08	-2.85/-3.50	0.58/1.12	-0.85/-1.09	1.32/3.38	2.05/-1.13	-1.47/-6.00	-3.62/-2.03	0.38/-4.09	-5.75/-5.78	-2.510/2.3
θ (110°)	-1.40/-1.49	-0.86/-0.77	-2.25/-6.60	-10.42/-5.85	-9.84/-13.72	-14.98/-9.15	-9.81/-3.86	-9.15/-10.39	-5.60/-3.82	-3.31/-1.75	-2.25/-3.01	0.82/1.41	1.32/-1.71	-0.47/-2.03	-5.28/-7.07	-0.33/-1.93	-8.40/-8.79	-7.29/-3.45
θ (120°)	-4.66/-5.05	-2.72/-2.51	-6.24/-7.18	-10.46/-10.35	-11.52/-8.65	-10.47/-13.22	-7.92/-4.28	-5.00/-7.51	-4.77/-6.54	-0.730/0.54	-2.22/-3.74	-1.160/0.72	1.10/-5.07	-1.360/2.2	-1.96/-2.25	-1.64/-2.15	-4.37/-6.49	-8.87/-3.61
θ (130°)	-10.14/-6.64	-6.38/-6.99	-7.69/-15.47	-14.82/-12.27	-10.88/-15.72	-12.03/-13.30	-15.73/-10.82	-9.83/-8.50	-9.41/-13.58	-6.40/-2.12	-7.18/-2.33	1.263/4.9	1.92/-6.81	0.04/-0.15	-6.36/-2.04	-2.80/-2.91	-2.71/-4.97	-1.31/-6.89
θ (140°)	-8.44/-1.71	-7.18/-11.75	-9.80/-10.21	-11.77/-13.15	-10.45/-8.39	-3.99/-4.22	-8.31/-10.06	-8.46/-8.84	-14.18/-7.47	-3.30/-2.63	-2.02/-2.44	-1.24/1.51	-5.68/-8.71	-0.250/0.21	-4.00/-0.84	0.25/-0.18	-6.34/-3.48	-5.34/-3.06
θ (150°)	-2.16/-4.49	-7.38/-10.39	-15.53/-15.20	-15.01/-10.48	-9.93/-10.26	-9.93/-12.46	-15.36/-10.09	-8.43/-9.36	-4.04/-1.98	-0.71/-7.53	-2.26/-2.67	-1.56/-3.21	-7.24/-3.73	2.232/8.8	-1.07/-8.74	-9.20/-4.73	-5.51/-8.04	-3.23/-1.95
θ (160°)	-3.32/-3.44	-5.34/-8.80	-11.92/-15.28	-14.70/-14.68	-9.08/-5.42	-11.56/-10.84	-7.59/-3.98	-2.32/-2.69	-5.47/-13.93	-1.56/-10.84	-7.59/-3.98	-2.32/-2.69	-5.47/-13.93	-1.56/-10.84	-7.59/-3.98	-2.32/-2.69	-5.47/-13.93	-1.56/-10.84
θ (170°)	-5.17/-5.24	-5.85/-5.39	-6.22/-6.70	-8.23/-10.22	-11.86/-10.59	-9.47/-9.99	-9.84/-5.94	-9.37/-9.49	-9.40/-9.77	-10.82/-12.16	-12.04/-10.91	-8.21/-5.33	-3.03/-1.57	-0.74/-1.04	-2.04/-4.62	-9.10/-11.47	-10.48/-13.26	-9.33/-7.03
θ (180°)	-8.78/-9.23	-9.34/-8.10	-7.63/-6.04	-5.02/-4.50	-4.35/-4.05	-4.38/-5.58	-5.80/-5.37	-5.62/-5.40	-4.81/-4.76	-4.90/-4.90	-4.90/-5.05	-5.17/-5.21	-5.14/-5.12	-4.66/-4.22	-6.73/-9.42	-10.58/-9.91	-10.55/-8.93	-
Freq(Hz)	5.3GPol.	TotalAnt. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	φ(0°)φ(10°)	φ(20°)φ(30°)	φ(40°)φ(50°)	φ(60°)φ(70°)	φ(80°)φ(90°)	φ(100°)φ(110°)	φ(120°)φ(130°)	φ(140°)φ(150°)	φ(160°)φ(170°)	φ(180°)φ(190°)	φ(200°)φ(210°)	φ(220°)φ(230°)	φ(240°)φ(250°)	φ(260°)φ(270°)	φ(280°)φ(290°)	φ(300°)φ(310°)	φ(320°)φ(330°)	φ(340°)φ(350°)
θ (0°)	-2.89/-2.98	-2.42/-2.51	-2.31/-2.17	-2.12/-2.18	-2.24/-1.78	-2.82/-2.88	-2.24/-2.48	-2.94/-3.26	-2.42/-2.51	-2.82/-2.88	-2.24/-2.48	-2.94/-3.26	-2.42/-2.51	-2.82/-2.88	-2.24/-2.48	-2.54/-2.12	-2.42/-2.30	-
θ (10°)	-2.58/-3.09	-2.27/-1.52	-0.99/-0.95	-0.90/-0.51	-1.08/-1.43	-1.95/-2.64	-3.39/-4.41	-5.20/-5.95	-6.11/-6.24	-6.23/-6.13	-5.75/-5.01	-4.46/-4.31	-3.94/-4.12	-3.98/-3.62	-3.31/-3.09	-2.86/-3.20	-3.30/-3.21	-2.21/-2.57
θ (20°)	-1.12/-1.01	-1.19/-1.46	-0.76/-0.75	-0.420/0.8	-0.57/-1.44	-2.62/-4.36	-5.82/-5.60	-6.49/-5.89	-4.85/-3.28	-2.95/-3.41	-3.86/-3.76	-3.59/-2.81	-2.63/-3.18	-3.85/-4.88	-5.10/-3.81	-2.46/-2.01	-2.44/-2.33	-1.22/-1.17
θ (30°)	-2.45/-1.93	-1.46/-0.44	0.14/-0.16	-0.85/-1.27	-2.08/-2.06	-4.10/-5.15	-3.92/-3.56	-4.10/-5.15	-1.89/-2.41	-1.89/-2.41	-1.89/-2.41	-1.89/-2.41	-2.79/-3.16	-3.13/-6.56	-6.57/-3.92	-3.12/-2.90	-1.54/-1.83	-
θ (40°)	-2.72/-1.04	-1.30/-0.69	-0.270/0.16	-0.08/-0.29	-1.25/-2.66	-3.30/-4.22	-1.95/-2.87	-2.97/-3.66	-2.78/-2.09	-2.86/-2.75	-1.90/-1.58	-1.39/-2.05	-3.33/-4.80	-6.57/-8.44	-8.28/-5.66	-4.52/-5.02	-4.83/-3.76	-4.16/-5.52
θ (50°)	-0.50/-0.95	-1.31/-1.20	-0.63/-0.25	-0.03/-0.54	-1.31/-3.30	-6.00/-4.56	-2.95/-3.88	-2.95/-3.88	-2.95/-3.88	-2.95/-3.88	-2.95/-3.88	-2.95/-3.88	-2.95/-3.88	-2.95/-3.88	-2.95/-3.88	-2.95/-3.88	-2.95/-3.88	-2.95/-3.88
θ (60°)	1.18/1.55	1.20/1.29	0.06/-0.70	-0.38/-0.33	-1.30/-3.78	-6.77/-7.25	-4.42/-5.00	-5.66/-6.99	-5.36/-4.10	-2.03/-0.91	-0.62/-0.71	-1.14/-1.21	-2.73/-5.60	-10.54/-11.75	-11.29/-10.46	-8.54/-5.98	-6.47/-3.56	-1.200/3.8
θ (70°)	1.73/1.98	2.17/1.78	0.37/-0.47	-0.48/-0.93	-5.86/-3.06	-7.20/-4.95	-2.89/-3.87	-5.13/-5.79	-2.89/-3.87	-5.13/-5.79	-2.89/-3.87	-5.13/-5.79	-2.89/-3.87	-5.13/-5.79	-2.89/-3.87	-5.13/-5.79	-2.89/-3.87	-5.13/-5.79
θ (80°)	0.96/2.12	1.94/1.77	-0.61/-2.29	-1.93/-1.82	-3.19/-3.44	-10.01/-6.08	-5.61/-2.76	-3.25/-4.16	-5.61/-2.76	-3.25/-4.16	-5.61/-2.76	-3.25/-4.16	-5.61/-2.76	-3.25/-4.16	-5.61/-2.76	-3.25/-4.16	-5.61/-2.76	-3.25/-4.16
θ (90°)	0.51/1.87	2.11/1.82	0.44/-2.84	-6.00/-5.95	-5.22/-9.34	-12.02/-4.55	-5.36/-4.61	-5.58/-6.48	-6.52/-5.01	-1.51/-0.63	-2.87/-1.51	0.912/57	2.400/40	-2.24/-7.92	-7.47/-3.26	-2.60/-3.12	-5.40/-5	

Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(0°)	-1.481-1.43	-1.371-1.33	-1.96-2.01	-2.01-2.39	-2.32-1.83	-1.75-1.61	-1.40-1.36	-1.91-2.05	-1.47-1.52	-1.99-2.28	-2.01-1.72	-2.02-2.36	-2.42-2.10	-1.73-1.80	-1.81-1.59	-1.39-1.36	-1.26-1.16	-1.45-1.17
Theta(10°)	-0.68-1.15	-0.98-0.68	-1.01-1.15	-1.21-1.26	-2.37-2.61	-2.37-2.61	-1.05-1.64	-2.43-2.90	-2.77-2.61	-1.06-0.90	-0.81-0.49	0.04-0.34	0.20-1.17	-0.81-0.49	0.04-0.34	0.20-1.17	-0.81-0.49	0.20-1.17
Theta(20°)	-1.56-2.12	-1.16-0.70	-1.30-1.67	-1.47-0.97	-0.96-1.01	-0.61-0.88	-1.27-1.44	-1.84-2.49	-3.20-3.24	-3.41-3.14	-2.63-2.65	-3.38-3.95	-3.78-2.81	-1.82-1.83	-1.93-1.45	-1.08-1.05	-1.08-0.36	0.09-0.55
Theta(30°)	-1.94-2.34	-2.31-1.95	-1.33-0.95	-1.27-1.62	-1.74-1.49	-1.24-1.71	-1.91-1.49	-1.75-2.62	-3.72-4.15	-3.50-3.81	-4.58-4.64	-3.27-1.95	-1.70-1.90	-1.46-0.98	-0.89-0.70	-0.61-1.01	-1.85-2.72	-3.00-3.26
Theta(40°)	-2.93-3.00	-2.92-1.86	-1.82-1.55	-0.51-0.13	-0.48-4.49	-0.99-0.53	-1.67-1.71	-4.80-5.43	-0.99-1.22	-4.80-5.43	-0.99-1.22	-4.80-5.43	-0.99-1.22	-1.54-1.53	-0.60-0.21	-0.50-0.85	-0.64-1.33	-1.99-2.15
Theta(50°)	-2.65-3.49	-3.60-2.33	-1.70-1.26	-0.03-1.21	2.19-2.72	1.56-0.65	-1.10-2.37	-3.28-4.74	-4.97-5.92	-9.78-7.79	-5.37-4.50	-3.56-3.38	-2.97-2.66	-2.23-1.65	-1.03-0.03	-0.07-1.21	-1.45-1.58	-1.87-2.45
Theta(60°)	-1.45-4.40	-3.79-3.36	-3.87-2.14	-1.22-0.78	0.08-0.12	-0.24-0.40	-0.60-1.52	-3.26-4.80	-5.70-6.21	-7.80-8.87	-6.73-6.76	-5.64-4.12	-3.75-2.89	-2.53-2.74	-2.28-0.97	-0.78-2.27	-1.98-2.14	-2.91-3.57
Theta(70°)	-4.11-3.60	-2.80-2.74	-3.11-2.56	-1.67-1.01	-1.67-1.01	-1.00-1.74	-3.11-2.56	-1.67-1.01	-1.67-1.01	-9.00-10.68	-10.27-8.19	-5.94-5.33	-2.99-1.92	-1.34-1.10	-0.47-0.72	-0.52-2.00	-2.82-2.21	-3.03-3.42
Theta(80°)	-4.60-3.64	-2.99-3.13	-3.41-2.38	-2.15-1.61	-1.79-1.64	-0.99-1.13	-1.04-1.68	-4.72-8.28	-8.20-8.82	-7.39-13.27	-12.57-7.98	-6.61-4.73	-3.03-1.59	-1.88-1.50	-0.53-0.33	-0.62-1.57	-1.29-1.33	-3.41-4.88
Theta(90°)	-4.37-3.47	-4.77-4.60	-4.19-3.49	-2.62-2.64	-2.96-3.48	-4.14-1.28	-2.72-3.13	-5.40-8.25	-8.67-9.03	-8.39-12.64	-13.38-9.30	-6.41-4.21	-2.33-1.49	-1.72-1.14	1.13-0.98	-0.34-1.57	-3.20-2.86	-3.22-5.14
Theta(100°)	-5.32-3.86	-4.75-3.55	-4.25-2.29	-1.89-3.49	-5.29-5.84	-4.47-4.41	-1.12-9.05	-6.25-10.18	-8.13-7.64	-7.82-11.85	-11.12-8.90	-3.19-1.51	0.26-0.47	-3.97-2.44	-1.31-1.51	0.08-2.44	-3.44-3.46	-2.81-4.87
Theta(110°)	-6.90-4.50	-4.48-4.58	-3.34-3.35	-4.43-5.86	-6.93-7.37	-6.65-6.92	-6.00-6.83	-11.42-13.81	-12.98-10.58	-8.64-10.07	-11.17-7.50	-7.04-7.88	-6.40-3.07	-4.78-4.00	-1.83-1.66	-2.33-4.09	-3.78-2.48	-3.14-5.67
Theta(120°)	-6.81-5.10	-4.75-6.11	-4.47-3.95	-3.91-4.24	-6.06-0.73	-7.57-8.31	-11.47-10.80	-12.25-9.25	-12.93-15.96	-8.05-8.34	-11.28-7.65	-8.85-1.92	-8.49-6.60	-8.70-7.64	-2.83-3.37	-3.39-4.83	-4.40-7.33	-5.26-5.62
Theta(130°)	-7.76-5.72	-5.92-5.89	-5.24-3.88	-4.86-4.53	-8.02-8.30	-8.60-14.41	-11.45-15.39	-7.53-14.26	-6.75-4.50	-6.58-7.59	-5.92-5.72	-5.29-4.60	-6.34-7.46	-5.56-2.28	-2.34-7.46	-5.56-2.28	-2.70-7.50	-3.55-4.80
Theta(140°)	-5.93-4.48	-4.16-5.78	-8.49-4.54	-3.02-5.67	-6.96-7.88	-10.67-13.31	-10.77-10.21	-10.38-12.74	-8.06-7.04	-8.06-7.04	-8.97-7.41	-6.41-3.01	-4.40-5.15	-6.06-3.79	-0.96-1.52	-3.20-7.60	-12.93-5.74	-3.55-4.80
Theta(150°)	-13.27-9.79	-8.04-7.12	-6.40-7.95	-9.59-9.56	-8.99-0.98	-10.68-11.79	-14.00-14.17	-10.64-9.88	-12.20-13.10	-7.23-6.16	-8.20-13.9	-9.43-6.03	-4.38-5.00	-6.73-8.10	-4.50-4.00	-5.65-6.42	-5.89-5.05	-5.54-9.14
Theta(160°)	-8.72-10.48	-10.84-11.23	-8.81-9.40	-9.21-9.25	-11.06-12.88	-14.85-12.66	-13.98-11.35	-11.46-11.50	-10.65-10.41	-9.13-8.76	-10.48-9.53	-8.20-8.92	-11.20-13.04	-8.20-8.92	-11.16-9.28	-8.99-8.44	-7.15-6.64	-6.74-7.65
Theta(170°)	-3.88-6.48	-8.89-9.00	-8.38-8.88	-9.96-11.61	-13.89-11.75	-12.68-12.91	-11.46-10.39	-9.90-9.94	-8.26-9.30	-9.34-8.51	-7.49-7.26	-6.91-6.77	-5.42-4.75	-7.61-6.76	-5.42-4.75	-4.72-4.64	-4.24-3.63	-3.63-4.88
Theta(180°)	-12.58-8.52	-7.69-8.66	-9.31-9.71	-9.60-9.82	-9.41-9.34	-9.77-10.02	-10.30-9.76	-10.04-9.59	-9.76-10.26	-10.10-9.10	-8.64-8.89	-8.43-8.31	-8.43-9.01	-9.34-8.80	-8.56-8.99	-9.72-9.79	-10.06-11.24	-11.68-14.06
Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(0°)	-2.56-2.68	-2.83-3.14	-3.53-3.93	-3.59-3.19	-3.99-3.29	-3.10-3.13	-3.10-3.73	-2.38-2.87	-3.49-3.19	-2.77-3.28	-3.67-3.79	-3.17-2.69	-3.29-3.55	-3.31-2.83	-2.56-2.46	-2.45-2.36	-2.43-2.58	-2.44-2.50
Theta(10°)	-1.87-1.95	-2.21-2.60	-2.85-2.78	-2.58-2.69	-2.90-2.83	-3.56-3.05	-3.64-3.44	-3.17-3.22	-3.81-4.24	-4.31-4.26	-3.57-3.34	-3.10-2.99	-3.29-3.55	-3.31-2.83	-2.56-2.46	-2.45-2.36	-2.43-2.58	-2.44-2.50
Theta(20°)	-2.03-1.78	-1.13-1.47	-1.98-1.43	-1.20-1.28	-2.08-2.60	-2.90-3.53	-3.43-3.15	-2.97-3.30	-4.04-5.51	-5.23-4.39	-4.63-4.46	-3.96-3.29	-3.17-3.57	-4.31-3.82	-3.03-2.70	-2.57-2.12	-1.28-0.84	-1.17-2.01
Theta(30°)	-2.99-3.99	-3.11-1.73	-1.96-1.90	-2.14-2.14	-2.04-2.00	-2.16-2.44	-2.65-3.41	-3.69-3.99	-5.09-5.99	-6.25-6.10	-5.66-5.39	-5.93-5.79	-3.44-2.00	-1.62-1.36	-0.30-0.37	-0.78-1.59	-2.63-2.97	-1.88-1.39
Theta(40°)	-2.49-2.96	-3.29-3.36	-3.36-2.86	-2.05-1.88	-2.20-1.55	-0.80-0.65	-1.50-3.40	-4.50-4.66	-5.41-7.03	-8.18-9.31	-7.27-5.64	-4.57-3.54	-2.34-1.31	-1.66-1.52	-1.13-1.02	-1.29-1.28	-1.90-1.34	-4.24-3.78
Theta(50°)	-3.56-3.56	-3.50-3.15	-3.50-2.57	-1.63-1.63	-1.71-1.59	-1.85-2.16	-1.51-1.70	-2.90-4.57	-6.79-8.26	-10.24-10.48	-7.30-6.21	-4.15-4.51	-3.92-2.52	-1.40-2.18	-1.65-1.48	-1.94-1.60	-1.71-2.78	-2.10-2.29
Theta(60°)	-4.11-4.56	-5.03-4.07	-3.62-3.64	-2.03-0.97	-1.34-1.91	-1.25-0.28	-0.83-1.92	-4.18-7.25	-8.57-9.81	-8.47-10.91	-10.18-8.16	-9.79-6.86	-4.22-3.96	-3.00-2.95	-2.98-1.55	-2.05-2.73	-2.09-2.06	-2.85-2.99
Theta(70°)	-6.16-5.88	-6.34-4.93	-3.74-3.48	-2.95-1.70	-1.38-1.74	-1.09-1.36	-2.82-3.33	-4.25-5.89	-6.87-8.63	-8.86-11.37	-11.21-10.35	-7.81-6.41	-4.89-3.84	-2.40-1.58	-1.54-1.00	-0.89-2.47	-2.37-2.82	-4.09-4.88
Theta(80°)	-5.94-6.31	-6.17-4.72	-5.39-3.76	-3.02-3.78	-3.02-2.96	-1.62-1.34	-2.20-3.42	-6.48-9.88	-3.53-11.59	-7.92-9.77	-11.21-10.96	-7.45-6.07	-5.45-4.07	-4.60-3.30	-0.46-1.20	-1.25-2.31	-3.08-3.25	-4.93-5.28
Theta(90°)	-5.49-6.88	-6.29-5.19	-6.31-5.46	-5.15-5.44	-3.61-1.03	-1.59-3.94	-4.18-3.85	-5.62-8.34	-7.77-9.96	-6.86-9.63	-9.11-5.68	-5.22-6.43	-3.18-1.10	0.40-1.95	2.85-2.43	-0.12-1.05	-3.24-3.15	-3.51-6.14
Theta(100°)	-7.42-6.85	-6.30-5.89	-4.89-4.15	-5.21-5.03	-4.75-4.39	-5.24-4.50	-3.80-4.67	-7.45-8.83	-6.90-7.96	-7.36-8.80	-11.90-8.17	-3.51-3.85	-4.40-1.53	-2.74-2.99	-0.57-0.15	-0.98-3.22	-4.60-5.58	-3.70-6.47
Theta(110°)	-7.01-5.90	-5.85-5.40	-6.08-5.48	-5.22-4.58	-6.49-7.62	-9.04-10.99	-6.59-7.08	-8.47-7.39	-11.21-11.32	-9.04-10.99	-6.59-7.08	-8.47-7.39	-11.21-11.32	-9.04-10.99	-6.59-7.08	-8.47-7.39	-11.21-11.32	-9.04-10.99
Theta(120°)	-5.94-5.83	-7.34-7.06	-6.62-5.42	-4.56-5.42	-5.66-11.70	-9.16-8.57	-11.20-9.75	-9.53-10.28	-11.97-14.47	-8.39-8.73	-10.14-7.79	-7.63-10.60	-11.98-5.89	-10.96-9.22	-5.17-7.20	-3.45-5.06	-4.90-4.00	-3.72-5.48
Theta(130°)	-8.24-6.94	-5.67-5.69	-7.65-6.15	-4.97-6.23	-7.67-9.96	-8.02-10.75	-8.63-9.54	-9.51-9.76	-9.85-13.23	-10.92-11.01	-11.22-14.13	-6.57-8.10	-6.80-2.50	-6.56-5.80	-2.16-1.68	-3.28-7.42	-7.05-2.02	-3.67-9.41
Theta(140°)	-8.22-6.55	-5.67-5.97	-7.04-10.06	-6.31-5.54	-11.65-11.77	-9.39-7.56	-6.31-5.54	-9.61-8.40	-14.05-12.15	-11.65-11.77	-9.39-7.56	-6.31-5.54	-9.61-8.40	-14.05-12.15	-11.65-11.77	-9.39-7.56	-6.31-5.54	-9.61-8.40
Theta(150°)	-13.27-12.32	-10.05-9.01	-7.72-8.81	-10.74-9.71	-9.68-12.50	-15.06-14.47	-13.66-14.08	-10.15-7.87	-8.56-11.24	-11.26-9.02	-9.03-9.50	-10.38-6.93	-4.44-5.63	-8.92-9.12	-5.76-5.05	-6.83-8.37	-6.37-5.79	-7.62-12.41
Theta(160°)	-10.34-11.65	-11.19-12.22	-12.03-8.89	-7.27-8.51	-11.00-13.48	-15.14-13.29	-12.07-14.80	-14.09-13.84	-12.34-13.25	-11.01-9.59	-11.22-11.69	-13.48-13.45	-10.63-8.90	-9.86-11.18	-10.88-8.67	-8.49-10.13	-10.02-9.12	-8.05-8.94
Theta(170°)	-7.59-8.15	-8.27-9.39	-9.92-10.97	-12.52-15.45	-12.52-15.45	-7.94-8.56	-10.67-14.73	-9.61-9.34	-9.61-9.34	-11.99-8.56	-8.89-9.68	-10.15-10.52	-8.97-8.34	-8.44-7.77	-7.46-7.77	-4.68-9.33	-4.44-7.77	-7.46-7.77
Theta(180°)	-15.19-12.71	-11.54-12.43	-12.61-14.16	-15.62-15.42	-14.19-13.86	-15.64-16.34	-14.43-14.18	-13.05-11.58	-11.22-10.96	-10.53-9.86	-10.52-10.10	-10.32-11.24	-11.02-11.21	-10.65-11.44	-11.63-11.89	-11.53-10.56	-10.17-10.98	-11.95-14.28
Gain	Phi(0°)Phi(10°)	Phi(20°)Phi(30°)	Phi(40°)Phi(50°)	Phi(60°)Phi(70°)	Phi(80°)Phi(90°)	Phi(100°)Phi(110°)	Phi(120°)Phi(130°)	Phi(140°)Phi(150°)	Phi(160°)Phi(170°)	Phi(180°)Phi(190°)	Phi(200°)Phi(210°)	Phi(220°)Phi(230°)	Phi(240°)Phi(250°)	Phi(260°)Phi(270°)	Phi(280°)Phi(290°)	Phi(300°)Phi(310°)	Phi(320°)Phi(330°)	Phi(340°)Phi(350°)
Theta(0°)	-3.67-0.43	-3.65-3.35	-3.75-3.89	-3.99-3.80	-3.73-3.85	-3.71-3.52	-3.36-3.27	-3.28-3.41	-3.34-3.28	-3.19-3.81	-3.85-3.53	-3.35-3.57	-3.88-3.93	-3.55-3.75	-3.70-3.72	-3.69-3.57	-3.74-3.70	-3.42-3.12
Theta(10°)	-2.26-2.22	-2.89-2.75	-2.28-2.24	-2.12-1.91	-2.01-2.40	-2.79-3.29	-3.89-4.12	-4.25-5.41	-5.63-5.39	-5.29-4.80	-4.45-4.33	-4.02-3.76	-3.29-2.68	-2.42-2.39	-2.28-1.98	-1.80-1.76	-2.29-2.40	-2.29-2.40
Theta(20°)	-3.00-2.92	-2.91-2.60	-2.25-2.51	-2.21-2.59	-4.39-4.68	-2.21-2.79	-4.21-4.11	-4.39-4.68	-2.21-2.79	-4.39-4.68	-2.21-2.79	-4.39-4.68	-2.21-2.79	-4.39-4.68	-2.21-2.79	-4.39-4.68	-2.21-2.79	-4.39-4.68
Theta(30°)	-4.36-4.75	-3.07-2.75	-2.84-2.96	-2.14-1.70	-1.60-1.81	-2.30-1.89	-1.82-2.66	-3.77-5.12</										



Antenna Pattern

Appendix B

Theta (°)	-4.91/-7.33	-9.54/-11.69	-9.16/-8.66	-8.89/-9.79	-7.43/-5.30	-5.16/-5.00	-2.08/-0.00	0.07/-1.24	-1.83/-0.95	-0.68/-0.62	-1.47/-0.70	-0.91/-1.86	-0.68/-2.68	-4.88/-4.53	-4.61/-4.93	-4.96/-6.42	-7.90/-8.20	-6.49/-4.17
Theta (70°)	-5.87/-6.84	-6.14/-10.18	-8.56/-5.54	-6.54/-7.27	-8.76/-6.12	-3.51/-4.40	-0.72/0.66	0.46/0.12	-1.05/-1.49	-2.18/-2.20	-1.83/-1.32	-2.63/-3.50	-1.13/-1.16	-1.64/-2.71	-3.64/-4.97	-5.20/-5.12	-6.38/-7.39	-9.16/-8.10
Theta (80°)	-6.74/-7.82	-8.38/-6.21	-4.75/-3.73	-4.61/-5.57	-5.96/-6.25	-3.31/-3.64	-1.50/0.30	0.24/0.31	-1.17/-1.71	-2.10/-2.54	-2.57/-2.09	-4.90/-4.16	-3.95/-2.52	-1.49/-4.04	-3.50/-6.57	-5.28/-7.65	-5.83/-8.94	-10.73/-9.72
Theta (90°)	-7.27/-8.80	-7.03/-6.24	-3.85/-1.53	-2.04/-6.26	-5.02/-4.36	-1.13/-1.25	-2.21/-1.31	0.34/0.06	-0.21/-0.83	-0.94/-1.51	-1.35/-1.71	-3.46/-5.54	-7.49/-3.28	-1.65/-3.71	-8.53/-5.93	-5.28/-10.25	-5.58/-8.86	-15.22/-11.29
Theta (100°)	-5.12/-4.70	-4.66/-3.57	-2.65/-0.49	-1.38/-5.06	-5.43/-5.91	-2.04/-0.68	-2.53/-3.25	-1.77/-1.07	-0.71/-1.67	-2.00/-2.32	-2.48/-2.35	-3.34/-4.19	-10.41/-7.21	-6.09/-6.41	-13.67/-6.16	-6.38/-11.09	-8.41/-9.49	-15.20/-10.76
Theta (110°)	-3.46/-3.65	-2.04/-2.55	-3.44/-3.01	-1.64/-4.27	-6.32/-4.11	-3.04/-0.84	-1.88/-0.50	0.08/0.30	-1.25/-0.89	-0.29/-0.51	-0.68/-1.11	-2.18/-4.59	-5.82/-4.71	-4.38/-5.50	-7.93/-7.50	-6.13/-12.08	-6.90/-10.06	-11.12/-6.35
Theta (120°)	-7.16/-6.80	-5.18/-4.06	-4.16/-3.86	-4.86/-7.06	-8.82/-4.85	-6.62/-4.65	-3.43/-4.19	-4.11/-2.83	-2.62/-1.08	-1.30/-1.27	-2.04/-2.60	-3.29/-7.25	-3.62/-5.91	-7.29/-7.54	-7.30/-7.14	-6.04/-8.11	-9.18/-8.69	-13.47/-12.61
Theta (130°)	-4.49/-4.16	-3.41/-3.69	-4.03/-5.16	-4.39/-4.58	-5.83/-5.82	-4.84/-6.66	-4.09/-4.91	-3.54/-4.11	-3.19/-3.13	-4.28/-3.29	-1.58/-0.45	-1.76/-9.38	-7.54/-2.84	-3.93/-8.50	-10.16/-11.62	-4.13/-2.67	-11.24/-14.33	-7.58/-6.65
Theta (140°)	-8.81/-13.42	-11.64/-7.26	-5.77/-6.42	-4.53/-3.75	-8.97/-7.70	-4.56/-2.73	-3.22/-3.66	-3.88/-3.73	-3.07/-3.55	-2.99/-2.46	-2.21/-1.78	-5.84/-10.72	-7.28/-3.18	-3.54/-8.81	-12.24/-13.48	-13.81/-6.34	-8.47/-11.61	-6.56/-6.08
Theta (150°)	-7.15/-8.30	-8.30/-10.57	-14.43/-9.73	-5.74/-6.22	-9.61/-10.46	-10.81/-10.88	-8.33/-11.59	-12.55/-9.49	-9.84/-8.11	-6.85/-8.38	-9.86/-8.22	-6.92/-7.86	-7.99/-10.54	-9.27/-7.60	-8.38/-8.69	-7.43/-7.20	-11.36/-14.08	-8.79/-5.24
Theta (160°)	-14.44/-15.48	-13.94/-12.11	-11.59/-12.75	-10.91/-10.45	-9.25/-8.20	-6.67/-6.35	-6.37/-5.30	-4.80/-5.24	-5.83/-6.93	-8.82/-7.41	-4.78/-3.40	-3.10/-3.98	-4.25/-4.29	-4.20/-5.72	-8.42/-11.92	-11.90/-11.45	-13.96/-15.80	-15.33/-15.16
Theta (170°)	-6.10/-6.50	-6.49/-6.63	-6.88/-6.64	-7.10/-7.44	-7.43/-6.40	-4.34/-2.82	-1.84/-1.18	-0.94/-0.87	-0.98/-0.73	-0.29/0.24	-0.32/-1.29	-1.86/-2.34	-2.73/-4.18	-7.33/-10.27	-9.35/-7.36	-5.90/-4.75	-4.26/-3.91	-4.27/-4.93
Theta (180°)	-2.91/-2.74	-3.42/-3.55	-4.27/-4.54	-4.74/-4.94	-4.46/-4.70	-4.05/-3.46	-2.92/-2.49	-2.28/-1.97	-1.67/-1.87	-2.74/-3.42	-3.93/-3.88	-4.46/-5.94	-7.05/-7.62	-7.14/-6.26	-5.92/-6.69	-7.85/-7.30	-5.87/-5.48	-5.07/-4.36
Freq(Hz)	5.63Pol.	TotalAnt. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Phi(0°)/Phi(10°)	Phi(20°)/Phi(30°)	Phi(40°)/Phi(50°)	Phi(60°)/Phi(70°)	Phi(80°)/Phi(90°)	Phi(100°)/Phi(110°)	Phi(120°)/Phi(130°)	Phi(140°)/Phi(150°)	Phi(160°)/Phi(170°)	Phi(180°)/Phi(190°)	Phi(200°)/Phi(210°)	Phi(220°)/Phi(230°)	Phi(240°)/Phi(250°)	Phi(260°)/Phi(270°)	Phi(280°)/Phi(290°)	Phi(300°)/Phi(310°)	Phi(320°)/Phi(330°)	Phi(340°)/Phi(350°)
Theta (0°)	-0.35/-0.98	-0.78/-0.19	-0.32/-0.76	-1.17/-1.21	-0.95/-1.10	-1.15/-0.96	-0.91/-0.90	-0.95/-0.84	-1.02/-0.93	-0.60/0.01	-0.12/-0.69	-0.52/-0.08	-0.37/-0.73	-1.10/-1.58	-1.52/-1.60	-1.12/-0.54	-0.65/-0.99	-0.87/-0.66
Theta (10°)	0.57/0.30	-0.36/-1.06	-0.84/-1.22	-2.01/-2.55	-2.60/-2.50	-2.51/-2.00	-1.64/-1.41	-0.88/-0.43	-0.28/-0.09	0.12/0.25	0.09/0.48	0.27/0.25	-0.65/-0.48	-0.65/-0.81	-0.60/-0.57	0.01/0.43	0.61/0.40	0.18/0.66
Theta (20°)	-0.06/-0.04	-0.41/-1.01	-1.42/-1.03	-2.01/-0.53	-1.40/-2.30	-1.71/-0.88	-1.49/-1.56	-1.30/-1.21	-1.45/-2.11	-1.91/-1.05	-0.54/0.10	-0.17/-0.43	-0.76/-1.35	-0.54/-0.50	-0.17/-0.43	-0.76/-1.20	-0.97/-0.06	-0.43/-0.13
Theta (30°)	-3.77/-3.33	-2.66/-2.44	-2.56/-1.95	-1.87/-1.63	-0.58/-1.04	-0.99/0.22	0.24/0.28	-1.14/-0.69	0.10/0.68	0.33/0.28	0.34/0.33	-0.58/-0.42	-0.76/-1.01	-0.36/-0.92	-2.62/-3.05	-1.85/-2.84	-4.65/-4.50	-4.31/-3.98
Theta (40°)	-4.03/-3.76	-2.79/-2.70	-4.15/-6.69	-6.54/-4.63	-3.55/-1.67	-0.56/-0.30	-0.65/-0.80	-1.00/-1.55	-1.43/-0.40	0.54/0.62	0.31/0.23	0.11/-0.27	-1.22/-2.22	-4.73/-4.51	-3.33/-3.66	-3.52/-3.88	-3.76/-4.55	-4.82/-4.20
Theta (50°)	-7.42/-10.10	-11.49/-13.55	-11.85/-9.71	-6.98/-6.19	-8.78/-10.06	-0.14/-0.38	-2.22/-2.32	-2.54/-1.30	-0.46/-0.15	-1.76/-2.62	0.29/0.05	-1.22/-2.00	-2.10/-2.50	-1.76/-2.69	-3.42/-3.42	-3.73/-4.53	-4.33/-3.84	-4.58/-6.26
Theta (60°)	-7.69/-6.88	-5.35/-5.93	-3.97/-4.83	-5.70/-4.58	-4.20/-6.08	-5.45/-4.39	-0.73/-1.13	-2.95/-1.94	-0.87/-1.28	-1.99/-2.39	-1.42/-1.56	-1.20/-2.04	-3.74/-4.17	-4.05/-3.67	-5.30/-4.74	-5.53/-7.34	-6.38/-8.05	-7.54/-7.30
Theta (70°)	-4.58/-10.51	-12.86/-9.02	-7.92/-7.11	-6.90/-8.05	-5.67/-5.34	-5.10/-3.47	-0.72/-0.52	-0.79/-0.91	-1.63/-1.40	-1.03/-1.32	-1.70/-1.49	-2.31/-3.75	-2.65/-2.49	-1.62/-2.04	-5.62/-3.96	-6.34/-7.18	-6.34/-7.18	-6.80/-3.63
Theta (80°)	-5.42/-6.50	-4.47/-4.03	-5.09/-3.46	-3.46/-5.02	-6.30/-4.54	-1.19/-2.20	-0.73/-0.72	-1.25/-1.66	-1.19/-2.12	-3.04/-4.20	-6.16/-6.14	-5.27/-3.52	-4.68/-5.31	-7.50/-6.48	-7.28/-6.48	-5.56/-7.24	-7.73/-6.15	-
Theta (90°)	-4.74/-6.01	-5.85/-4.96	-3.60/-2.77	-6.69/-7.69	-5.63/-5.11	-1.92/-3.37	-1.12/0.72	0.62/0.13	0.02/-0.72	-1.22/-1.92	-2.50/-3.09	-5.71/-4.79	-6.09/-6.43	-5.32/-7.79	-6.41/-5.59	-6.28/-4.70	-5.09/-7.76	-8.72/-6.16
Theta (100°)	-4.16/-4.57	-2.66/-2.28	-2.41/-2.35	-1.35/-5.56	-3.65/-4.43	-2.06/-4.28	-2.87/-2.15	-0.42/-0.77	-2.34/-3.78	-3.25/-3.77	-2.52/-4.18	-4.37/-5.98	-4.58/-4.97	-7.29/-5.99	-7.87/-10.60	-7.91/-9.44	-7.57/-16.05	-12.05/-9.51
Theta (110°)	-3.88/-3.81	-2.89/-1.93	-3.07/-3.33	-2.24/-5.17	-4.52/-3.15	-1.81/-3.50	-2.31/-1.07	-0.66/0.49	-1.82/-1.30	-4.37/-3.28	-8.92/-3.36	-5.24/-9.08	-12.98/-7.02	-11.55/-12.41	-11.55/-12.41	-11.55/-12.41	-11.55/-12.41	-11.55/-12.41
Theta (120°)	-4.46/-4.91	-2.82/-2.61	-3.68/-3.76	-3.32/-5.27	-7.65/-6.05	-5.37/-1.84	-2.20/-1.95	-1.41/-1.45	-0.49/-0.89	-0.87/-0.69	-1.74/-4.56	-2.04/-3.73	-9.08/-6.11	-5.89/-6.49	-8.67/-6.45	-4.46/-11.85	-13.74/-9.95	-12.83/-9.09
Theta (130°)	-3.62/-4.18	-5.48/-4.77	-6.02/-7.00	-2.27/-2.58	-4.87/-5.95	-7.13/-5.72	-3.99/-3.11	-2.19/-1.99	-4.28/-3.23	-4.46/-4.24	-4.67/-0.21	-1.74/-14.61	-5.32/-2.11	-3.09/-4.82	-6.12/-11.41	-2.95/-2.33	-13.10/-9.47	-6.25/-3.34
Theta (140°)	-8.28/-13.04	-8.44/-6.36	-6.53/-6.99	-3.82/-4.08	-4.63/-3.17	-1.19/-2.60	-3.43/-2.07	-1.40/-1.74	-1.19/-0.72	-0.38/-0.09	-1.02/-0.94	-12.86/-1.66	-1.50/-6.46	-13.07/-10.27	-11.05/-5.14	-7.13/-13.70	-5.82/-5.97	-
Theta (150°)	-9.85/-9.89	-12.34/-15.23	-10.62/-6.62	-4.05/-4.43	-6.01/-7.20	-9.54/-7.65	-8.26/-8.53	-7.13/-7.75	-6.63/-5.49	-5.98/-6.26	-3.90/-3.94	-6.64/-9.25	-8.26/-6.21	-6.97/-5.94	-4.79/-6.47	-12.38/-15.25	-8.40/-6.72	-
Theta (160°)	-11.84/-12.35	-11.04/-10.03	-11.35/-10.94	-9.69/-7.82	-6.71/-6.54	-5.67/-5.82	-5.61/-5.81	-5.35/-6.19	-8.44/-9.13	-7.05/-4.81	-2.19/-1.55	-2.48/-3.11	-2.86/-4.14	-7.78/-11.33	-11.18/-9.60	-11.00/-12.88	-13.65/-10.90	-
Theta (170°)	-4.49/-4.03	-3.85/-3.97	-4.21/-4.80	-4.35/-4.42	-3.72/-2.47	-0.93/-0.09	-0.16/0.49	1.34/1.50	1.28/1.88	2.55/2.90	3.25/2.02	1.33/0.56	-0.92/-2.78	-5.23/-7.85	-9.23/-8.51	-6.19/-4.74	-3.77/-3.37	-4.31/-5.63
Theta (180°)	0.35/-0.09	0.08/-0.31	-0.24/-0.58	-0.93/-0.96	-1.07/-1.07	-0.33/0.12	-0.13/-0.63	-0.31/0.37	0.52/0.20	-0.40/-0.86	-1.15/-1.43	-2.34/-3.61	-5.55/-7.37	-8.15/-6.58	-6.68/-6.23	-4.83/-4.06	-2.98/-1.72	-0.54/0.20
Freq(Hz)	5.785GPol.	TotalAnt. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Phi(0°)/Phi(10°)	Phi(20°)/Phi(30°)	Phi(40°)/Phi(50°)	Phi(60°)/Phi(70°)	Phi(80°)/Phi(90°)	Phi(100°)/Phi(110°)	Phi(120°)/Phi(130°)	Phi(140°)/Phi(150°)	Phi(160°)/Phi(170°)	Phi(180°)/Phi(190°)	Phi(200°)/Phi(210°)	Phi(220°)/Phi(230°)	Phi(240°)/Phi(250°)	Phi(260°)/Phi(270°)	Phi(280°)/Phi(290°)	Phi(300°)/Phi(310°)	Phi(320°)/Phi(330°)	Phi(340°)/Phi(350°)
Theta (0°)	-0.94/-0.91	-0.68/-0.88	-1.02/-1.10	-0.80/-0.36	-0.55/-0.90	-1.19/-1.20	-1.00/-1.27	-1.04/-0.32	-0.43/-0.88	-0.60/0.03	-0.31/-0.65	-0.49/-0.31	-0.55/-0.94	-0.35/-0.08	-0.43/-0.71	-0.83/-0.72	-0.63/-1.12	-0.94/-0.78
Theta (10°)	-0.47/-0.18	-0.72/-0.72	-1.10/-1.52	-1.49/-1.91	-2.51/-3.10	-3.45/-2.89	-2.39/-2.15	-1.49/-0.99	-0.65/0.18	0.50/0.51	0.73/1.07	1.04/0.97	1.22/1.39	1.19/0.77	0.15/-0.50	-0.66/-0.74	-0.68/-0.18	-0.14/-0.59
Theta (20°)	-0.63/-2.14	-2.53/-2.81	-3.34/-3.57	-4.28/-5.98	-6.59/-5.27	-4.44/-4.28	-4.25/-3.64	-0.86/-0.01	0.16/0.42	0.70/0.93	0.78/0.67	0.95/1.54	1.08/-0.30	0.63/0.25	0.63/0.25	0.14/0.10	0.44/-0.31	-
Theta (30°)	-1.38/-1.70	-1.88/-3.12	-4.08/-3.70	-4.34/-2.69	-2.63/-3.28	-3.25/-3.42	-4.10/-2.29	-0.81/-0.37	-0.62/-0.25	-0.07/0.39	0.55/0.22	0.59/0.44	-0.75/-0.59	0.08/1.56	1.52/0.45	0.08/0.10	0.13/-0.70	-1.38/-1.33
Theta (40°)	-5.23/-2.51	-2.16/-2.33	-2.49/-3.48	-2.09/-1.70	-1.67/-0.77	-0.80/-1.22	-1.43/-1.23	-0.66/0.07	0.33/0.19	0.06/0.68	-0.02/0.58	0.30/0.35	-0.56/-1.24	-1.95/-1.57	-2.21/-1.40	-1.56/-3.47	-3.30/-3.44	-4.81/-5.68
Theta (50°)	-4.11/-5.93	-5.59/-6.39	-8.63/-7.82	-6.70/-7.40	-6.29/-1.79	-1.60/-1.98	-0.20/-1.19	-1.55/-1.07	0.07/0.85	0.71/0.37	-0.07/0.83	-0.55/-1.53	-0.88/-1.19	-2.86/-1.42	-2.89/-3.59	-3.50/-3.48	-3.70/-3.30	-2.35/-2.33
Theta (60°)	-3.82/-3.95	-5.40/-7.27	-5.30/-5.44	-5.50/-4.79	-7.53/-8.64	-5.12/-2.66	-1.44/-3.84	-3.96/-0.97	-1.72/-3.74	-3.91/-3.80	-3.89/-3.39	-2.29/-3.71	-2.84/-2.69	-3.55/-3.55	-2.57/-5.73	-3.84/-6.04		

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

