



Antenna Composite Gain Test Report

FCC ID	MSQ-RTAX5D00
Equipment	ROG Rapture Quad-band Gaming Router
Brand Name	ASUS
Model Name	GT-AXE16000
Applicant	ASUSTeK COMPUTER INC. 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan
Standard	KDB662911 D03 v01
Sample Received	Aug. 23, 2023
Start Test Date	Nov. 28, 2023
Final Test Date	Nov. 29, 2023

Sporton International Inc. Hsinchu Laboratory

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1. Operation Mode and Antenna Information

Antenna Position	RF Port	Brand Name	Model Name	Ant. Type	Connector	Remark
2G5GL Ant1	2	WALSIN	RFPCA311406IMLB901	PCB	I-PEX	Radio 1 (WLAN 2.4GHz+WLAN 5GHz UNII 1, UNII2A)
2G5GL Ant2	1	WALSIN	RFDPA181121IMLB901	Dipole	I-PEX	
2G5GL Ant3	4	WALSIN	RFDPA181121IMLB902	Dipole	I-PEX	
2G5GL Ant4	3	WALSIN	RFDPA181105IMLB901	Dipole	I-PEX	
5G Ant1	4	WALSIN	RFPCA191412IM5B901	PCB	I-PEX	Radio 2 (WLAN 5GHz UNII 2C ~ UNII3)
5G Ant2	3	WALSIN	RFDPA181108IM5B901	Dipole	I-PEX	
5G Ant3	2	WALSIN	RFDPA181119IM5B901	Dipole	I-PEX	
5G Ant4	1	WALSIN	RFDPA181125IM5B901	Dipole	I-PEX	
6G Ant1	4	WALSIN	RFPCA170920IM6B901	PCB	I-PEX	Radio 3 (WLAN 6GHz UNII 5 ~ UNII 8)
6G Ant2	3	WALSIN	RFPCA222024IMLB901	PCB	I-PEX	
6G Ant3	2	WALSIN	RFDPA181119IM6B901	Dipole	I-PEX	
6G Ant4	1	WALSIN	RFDPA181110IM6B901	Dipole	I-PEX	

Note:

2.4GHz and 5GHz (UNII 1, UNII2A) Operation Mode (4TX/4RX)

2G5GL Ant1~4 can be used as transmitting/receiving antenna.

2G5GL Ant1~4 could transmit/receive simultaneously.

5GHz (UNII 2C ~ UNII3) Operation Mode (4TX/4RX)

5GAnt1~4 can be used as transmitting/receiving antenna.

5GAnt1~4 could transmit/receive simultaneously.

6GHz Operation Mode (4TX/4RX)

6G Ant1~4 can be used as transmitting/receiving antenna.

6G Ant1~4 could transmit/receive simultaneously.



- Mode1 : Radio1 Dual Band (2G5GL)
Frequency Band : 2.4GHz, 5GHz UNII-1, UNII-2A
Antenna pol. : external antenna vertical, internal fixed antenna(hor.)
- Mode2 : Radio1 Dual Band (DB)
Frequency Band : 2.4GHz, 5GHz UNII-1, UNII-2A
Antenna pol. : external antenna horizontal, internal fixed antenna(hor.)
- Mode3 : Radio2 5GH
Frequency Band : 5GHz UNII-2C, UNII-3
Antenna pol. : external antenna vertical, internal fixed antenna(hor.)
- Mode4 : Radio2 5GH
Frequency Band : 5GHz UNII-2C, UNII-3
Antenna pol. : external antenna horizontal, internal fixed antenna(hor.)
- Mode5 : Radio3 6G
Frequency Band : 6GHz UNII-5, UNII-6, UNII-7, UNII-8
Antenna pol. : external antenna vertical, internal fixed antenna(ver. & hor.)
- Mode6 : Radio3 6G
Frequency Band : 6GHz UNII-5, UNII-6, UNII-7, UNII-8
Antenna pol. : external antenna horizontal, internal fixed antenna(ver. & hor.)

1.1 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: AP1N0529

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
Revision of the measurement methods for the antenna.	All test items.



2. Test Frequency

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

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

3. Testing Location

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

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	05CH03-HY	Rex Liao	22.5-23.5 / 40-50	Nov. 28, 2023~Nov. 29, 2023

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

Characteristic: Fully Anechoic Chamber

4. Test Facility and Configuration

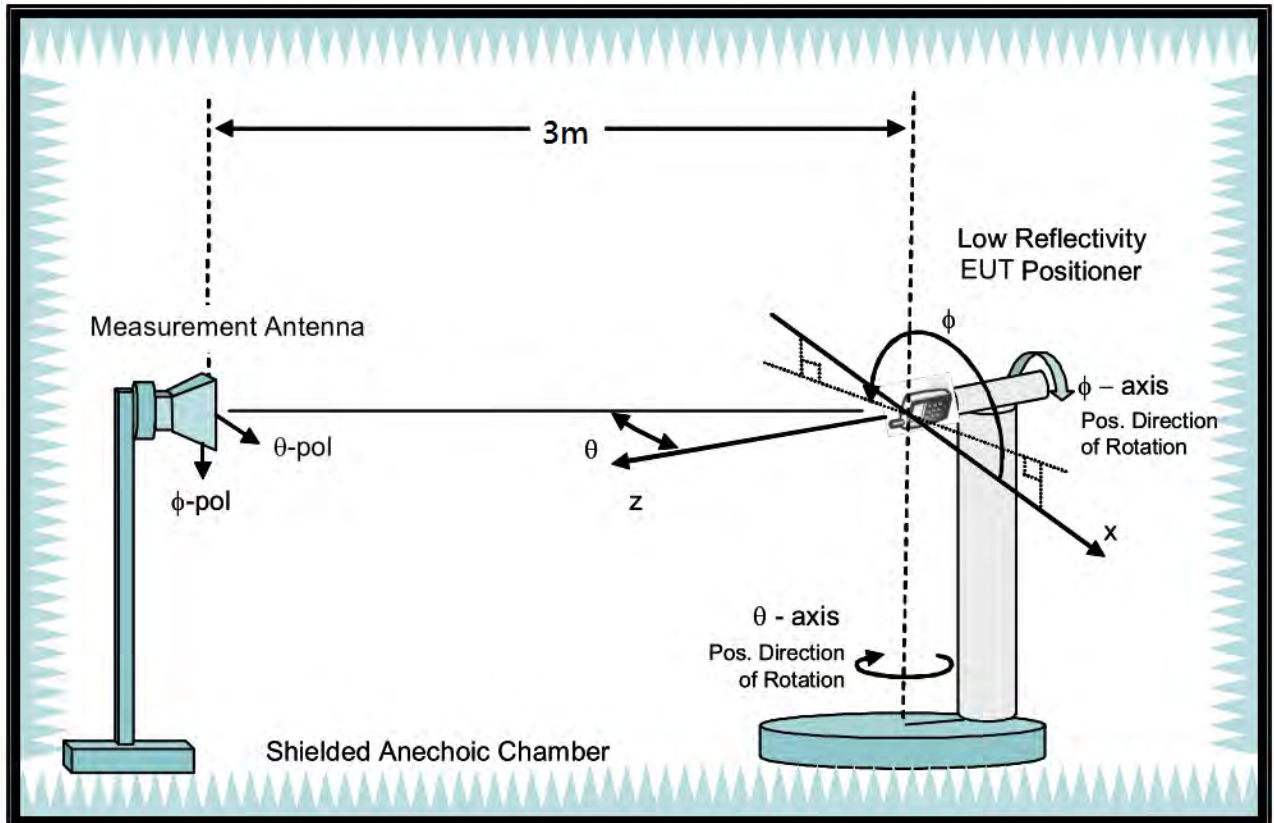
Test configuration: Reference to CITA OTA distributed-axes system configuration.

Chamber: Fully Anechoic Chamber.

Measurement antenna: Dual Polarization Horn antenna

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

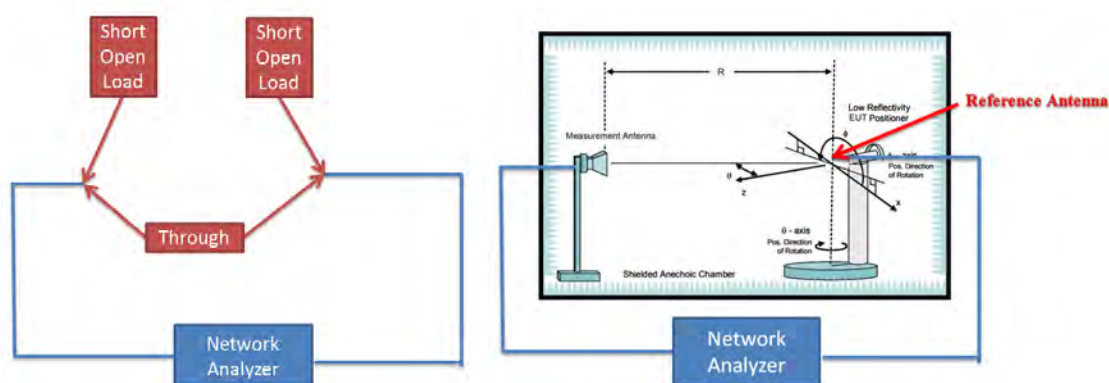
#Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1"



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	7200
G(theta) reading (dB)	-33.75	-33.64	-32.91	-32.21	-32.45	-32.33	-32.57	-32.94	-32.78	-33.35	-32.91	-33.81	-34.54	-35.64
G(phi) reading (dB)	-33.19	-32.12	-32.48	-32.51	-32.64	-31.68	-32.24	-32.45	-32.45	-32.85	-32.45	-33.62	-34.48	-35.24
Reference gain (dBi)	10	10.4	10.6	12.3	12.5	13.3	13.3	13.2	13.1	13	13.2	12.4	11.8	11.1
Factor(theta) (dB)	43.75	44.04	43.51	44.51	44.95	45.63	45.87	46.14	45.88	46.35	46.11	46.21	46.34	46.74
Factor(phi) (dB)	43.19	42.52	43.08	44.81	45.14	44.98	45.54	45.65	45.55	45.85	45.65	46.02	46.28	46.34

Note:

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

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

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

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

6. Test Method

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

DG steps:

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

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

7. Measured Values and Calculation of Maximum Gain Positions

For Mode 1

DG_1SS max value position

Frequency (Hz)	2.45G	5.2G	5.3G
Ant. 1 (dBi)	1	-3.05	-9.74
Ant. 2 (dBi)	-1.91	-0.16	3.84
Ant. 3 (dBi)	-4.31	-0.48	1.55
Ant. 4 (dBi)	-1.55	3.14	0.52
DG [1SS] (dBi)	4.53	6.17	6.32
Polarization	Theta	Theta	Theta
$\Theta(^{\circ})$	45	90	97.5
$\Phi(^{\circ})$	157.5	30	187.5

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
Ant. 1 [$10^{(G/20)}$]	$10^{(1/20)}$	$10^{(-3.05/20)}$	$10^{(-9.74/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(-1.91/20)}$	$10^{(-0.16/20)}$	$10^{(3.84/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(-4.31/20)}$	$10^{(-0.48/20)}$	$10^{(1.55/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(-1.55/20)}$	$10^{(3.14/20)}$	$10^{(0.52/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.122	0.704	0.326
Ant. 2 [$10^{(G/20)}$] value	0.803	0.982	1.556
Ant. 3 [$10^{(G/20)}$] value	0.609	0.946	1.195
Ant. 4 [$10^{(G/20)}$] value	0.837	1.435	1.062
Sum All Antenna [Amax]	3.37	4.067	4.139
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	4.53	6.17	6.32

Note:

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

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

**For Mode 2****DG_1SS max value position**

Frequency (Hz)	2.45G	5.2G	5.3G
Ant. 1 (dBi)	-2.05	-8.45	0.14
Ant. 2 (dBi)	-1.94	-0.03	-2.67
Ant. 3 (dBi)	-0.75	-5.1	1.28
Ant. 4 (dBi)	0.43	3.69	-5.25
DG [1SS] (dBi)	5	4.76	4.75
Polarization	Phi	Phi	Phi
Θ (°)	142.5	112.5	82.5
Φ (°)	45	0	255

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
Ant. 1 [$10^{(G/20)}$]	$10^{(-2.05/20)}$	$10^{(-8.45/20)}$	$10^{(0.14/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(-1.94/20)}$	$10^{(-0.03/20)}$	$10^{(-2.67/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(-0.75/20)}$	$10^{(-5.1/20)}$	$10^{(1.28/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(0.43/20)}$	$10^{(3.69/20)}$	$10^{(-5.25/20)}$
Ant. 1 [$10^{(G/20)}$] value	0.79	0.378	1.016
Ant. 2 [$10^{(G/20)}$] value	0.8	0.997	0.735
Ant. 3 [$10^{(G/20)}$] value	0.917	0.556	1.159
Ant. 4 [$10^{(G/20)}$] value	1.051	1.529	0.546
Sum All Antenna [Amax]	3.558	3.46	3.457
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	5	4.76	4.75

Note:

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

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

**For Mode 3****DG_1SS max value position**

Frequency (Hz)	5.6G	5.785G
Ant. 1 (dBi)	-8.9	-0.91
Ant. 2 (dBi)	3.96	2.82
Ant. 3 (dBi)	1.76	0.95
Ant. 4 (dBi)	2.27	-1.74
DG [1SS] (dBi)	6.97	6.48
Polarization	Theta	Theta
$\Theta (^{\circ})$	90	97.5
$\Phi (^{\circ})$	45	135

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

DG_1SS max value position calculation

Frequency (Hz)	5.6G	5.785G
Ant. 1 [$10^{(G/20)}$]	$10^{(-8.9/20)}$	$10^{(-0.91/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(3.96/20)}$	$10^{(2.82/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(1.76/20)}$	$10^{(0.95/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(2.27/20)}$	$10^{(-1.74/20)}$
Ant. 1 [$10^{(G/20)}$] value	0.359	0.901
Ant. 2 [$10^{(G/20)}$] value	1.578	1.384
Ant. 3 [$10^{(G/20)}$] value	1.225	1.116
Ant. 4 [$10^{(G/20)}$] value	1.299	0.818
Sum All Antenna [Amax]	4.46	4.218
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	6.97	6.48

Note:

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

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

**For Mode 4****DG_1SS max value position**

Frequency (Hz)	5.6G	5.785G
Ant. 1 (dBi)	0.47	-4.59
Ant. 2 (dBi)	2.12	4.31
Ant. 3 (dBi)	0.8	0.51
Ant. 4 (dBi)	-6.26	-8.45
DG [1SS] (dBi)	5.83	5.27
Polarization	Phi	Phi
Θ (°)	112.5	112.5
Φ (°)	82.5	90

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

DG_1SS max value position calculation

Frequency (Hz)	5.6G	5.785G
Ant. 1 [$10^{(G/20)}$]	$10^{(0.47/20)}$	$10^{(-4.59/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(2.12/20)}$	$10^{(4.31/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(0.8/20)}$	$10^{(0.51/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(-6.26/20)}$	$10^{(-8.45/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.056	0.59
Ant. 2 [$10^{(G/20)}$] value	1.276	1.642
Ant. 3 [$10^{(G/20)}$] value	1.096	1.06
Ant. 4 [$10^{(G/20)}$] value	0.486	0.378
Sum All Antenna [Amax]	3.915	3.67
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	5.83	5.27

Note:

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

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

For Mode 5

DG_1SS max value position

Frequency (Hz)	6.175G	6.475G	6.695G
Ant. 1 (dBi)	-9.88	-19.39	-9.56
Ant. 2 (dBi)	-4.33	-2.95	0.16
Ant. 3 (dBi)	1.6	3.09	3.82
Ant. 4 (dBi)	4.65	2.88	-0.93
DG [1SS] (dBi)	5.66	5.2	5.58
Polarization	Theta	Theta	Theta
Θ (°)	90	90	97.5
Φ (°)	135	127.5	97.5

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)	6.175G	6.475G	6.695G
Ant. 1 [$10^{(G/20)}$]	$10^{(-9.88/20)}$	$10^{(-19.39/20)}$	$10^{(-9.56/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(-4.33/20)}$	$10^{(-2.95/20)}$	$10^{(0.16/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(1.6/20)}$	$10^{(3.09/20)}$	$10^{(3.82/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(4.65/20)}$	$10^{(2.88/20)}$	$10^{(-0.93/20)}$
Ant. 1 [$10^{(G/20)}$] value	0.321	0.107	0.333
Ant. 2 [$10^{(G/20)}$] value	0.607	0.712	1.019
Ant. 3 [$10^{(G/20)}$] value	1.202	1.427	1.552
Ant. 4 [$10^{(G/20)}$] value	1.708	1.393	0.898
Sum All Antenna [Amax]	3.838	3.64	3.802
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	5.66	5.2	5.58

Note:

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

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

For Mode 6

DG_1SS max value position

Frequency (Hz)	6.175G	6.475G	6.695G
Ant. 1 (dBi)	1.92	1.68	2.55
Ant. 2 (dBi)	-8.78	-11.37	-6.99
Ant. 3 (dBi)	-10.5	-5.59	-1.53
Ant. 4 (dBi)	4.32	2.91	-2.12
DG [1SS] (dBi)	4.99	4.63	4.64
Polarization	Phi	Phi	Phi
Θ (°)	90	97.5	127.5
Φ (°)	330	330	322.5

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)	6.175G	6.475G	6.695G
Ant. 1 [$10^{(G/20)}$]	$10^{(1.92/20)}$	$10^{(1.68/20)}$	$10^{(2.55/20)}$
Ant. 2 [$10^{(G/20)}$]	$10^{(-8.78/20)}$	$10^{(-11.37/20)}$	$10^{(-6.99/20)}$
Ant. 3 [$10^{(G/20)}$]	$10^{(-10.5/20)}$	$10^{(-5.59/20)}$	$10^{(-1.53/20)}$
Ant. 4 [$10^{(G/20)}$]	$10^{(4.32/20)}$	$10^{(2.91/20)}$	$10^{(-2.12/20)}$
Ant. 1 [$10^{(G/20)}$] value	1.247	1.213	1.341
Ant. 2 [$10^{(G/20)}$] value	0.364	0.27	0.447
Ant. 3 [$10^{(G/20)}$] value	0.299	0.525	0.838
Ant. 4 [$10^{(G/20)}$] value	1.644	1.398	0.783
Sum All Antenna [Amax]	3.554	3.407	3.41
DG [$10 \cdot \log(A_{max}^2/N_{ant})$]	4.99	4.63	4.64

Note:

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

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

8. Summary of Test Result

Mode 1: 2G5GL-external antenna Vertical

Band (MHz)	2400-2483.5	5150-5250	5250-5350
Frequency (Hz)	2.45G	5.2G	5.3G
Ant. 1 Max Gain (dBi)	2.46	3.34	3.41
Ant. 2 Max Gain (dBi)	2.3	4.72	3.84
Ant. 3 Max Gain (dBi)	3.43	3.61	3.43
Ant. 4 Max Gain (dBi)	2.12	4.5	4.7
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/82.5/60	Phi/45/262.5	Phi/45/262.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/97.5/195	Theta/97.5/180	Theta/97.5/187.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/75/270	Theta/105/255	Theta/97.5/255
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/75/60	Theta/97.5/22.5	Theta/97.5/22.5
Max Gain (dBi)	3.43	4.72	4.7
DG [1SS] (dBi)	4.53	6.17	6.32
DG [2SS] (dBi)	3.43	4.72	4.7
DG [4SS] (dBi)	3.43	4.72	4.7

Mode 2: 2G5GL-external antenna Horizontal

Band (MHz)	2400-2483.5	5150-5250	5250-5350
Frequency (Hz)	2.45G	5.2G	5.3G
Ant. 1 Max Gain (dBi)	2.46	3.34	3.41
Ant. 2 Max Gain (dBi)	3.54	4.16	4.71
Ant. 3 Max Gain (dBi)	4.36	3.44	3.32
Ant. 4 Max Gain (dBi)	3.47	4.31	4.69
Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/82.5/60	Phi/45/262.5	Phi/45/262.5
Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/172.5/180	Phi/112.5/157.5	Phi/112.5/157.5
Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Phi/127.5/67.5	Phi/157.5/247.5	Phi/90/270
Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$	Theta/157.5/97.5	Phi/105/0	Phi/60/187.5
Max Gain (dBi)	4.36	4.31	4.71
DG [1SS] (dBi)	5	4.76	4.75
DG [2SS] (dBi)	4.36	4.31	4.71
DG [4SS] (dBi)	4.36	4.31	4.71

**Mode 3: 5GH-external antenna Vertical**

Band (MHz)	5470-5725	5725-5850
Frequency (Hz)	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.56	1.18
Ant. 2 Max Gain (dBi)	4.83	4.59
Ant. 3 Max Gain (dBi)	4.4	4.62
Ant. 4 Max Gain (dBi)	3.82	3.91
Ant. 1 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Theta/37.5/150	Theta/45/150
Ant. 2 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Theta/97.5/112.5	Theta/97.5/75
Ant. 3 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Theta/82.5/247.5	Theta/90/255
Ant. 4 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Theta/97.5/337.5	Theta/90/7.5
Max Gain (dBi)	4.83	4.62
DG [1SS] (dBi)	6.97	6.48
DG [2SS] (dBi)	4.83	4.62
DG [4SS] (dBi)	4.83	4.62

Mode 4: 5GH-external antenna Horizontal

Band (MHz)	5470-5725	5725-5850
Frequency (Hz)	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.56	1.18
Ant. 2 Max Gain (dBi)	4.84	4.77
Ant. 3 Max Gain (dBi)	3.62	4.56
Ant. 4 Max Gain (dBi)	4.15	4.12
Ant. 1 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Theta/37.5/150	Theta/45/150
Ant. 2 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/82.5/277.5	Phi/82.5/277.5
Ant. 3 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/82.5/285	Phi/82.5/285
Ant. 4 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/112.5/15	Phi/127.5/7.5
Max Gain (dBi)	4.84	4.77
DG [1SS] (dBi)	5.83	5.27
DG [2SS] (dBi)	4.84	4.77
DG [4SS] (dBi)	4.84	4.77

Mode 5: 6G-external antenna Vertical

Band (MHz)	6175	6475	6695	6995
Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	3.1	3.04	2.87	2.01
Ant. 2 Max Gain (dBi)	2.8	2.63	3.57	4.12
Ant. 3 Max Gain (dBi)	4.49	3.97	4.38	4.34
Ant. 4 Max Gain (dBi)	4.65	3.76	4.1	4.29
Ant. 1 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/120/330	Phi/120/322.5	Phi/127.5/330	Phi/127.5/30
Ant. 2 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Theta/105/292.5	Theta/105/292.5	Theta/105/292.5	Theta/105/292.5
Ant. 3 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Theta/90/112.5	Theta/90/67.5	Theta/90/90	Theta/90/105
Ant. 4 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Theta/90/135	Theta/97.5/187.5	Theta/97.5/210	Theta/97.5/180
Max Gain (dBi)	4.65	3.97	4.38	4.34
DG [1SS] (dBi)	5.66	5.2	5.58	5.35
DG [2SS] (dBi)	4.65	3.97	4.38	4.34
DG [4SS] (dBi)	4.65	3.97	4.38	4.34

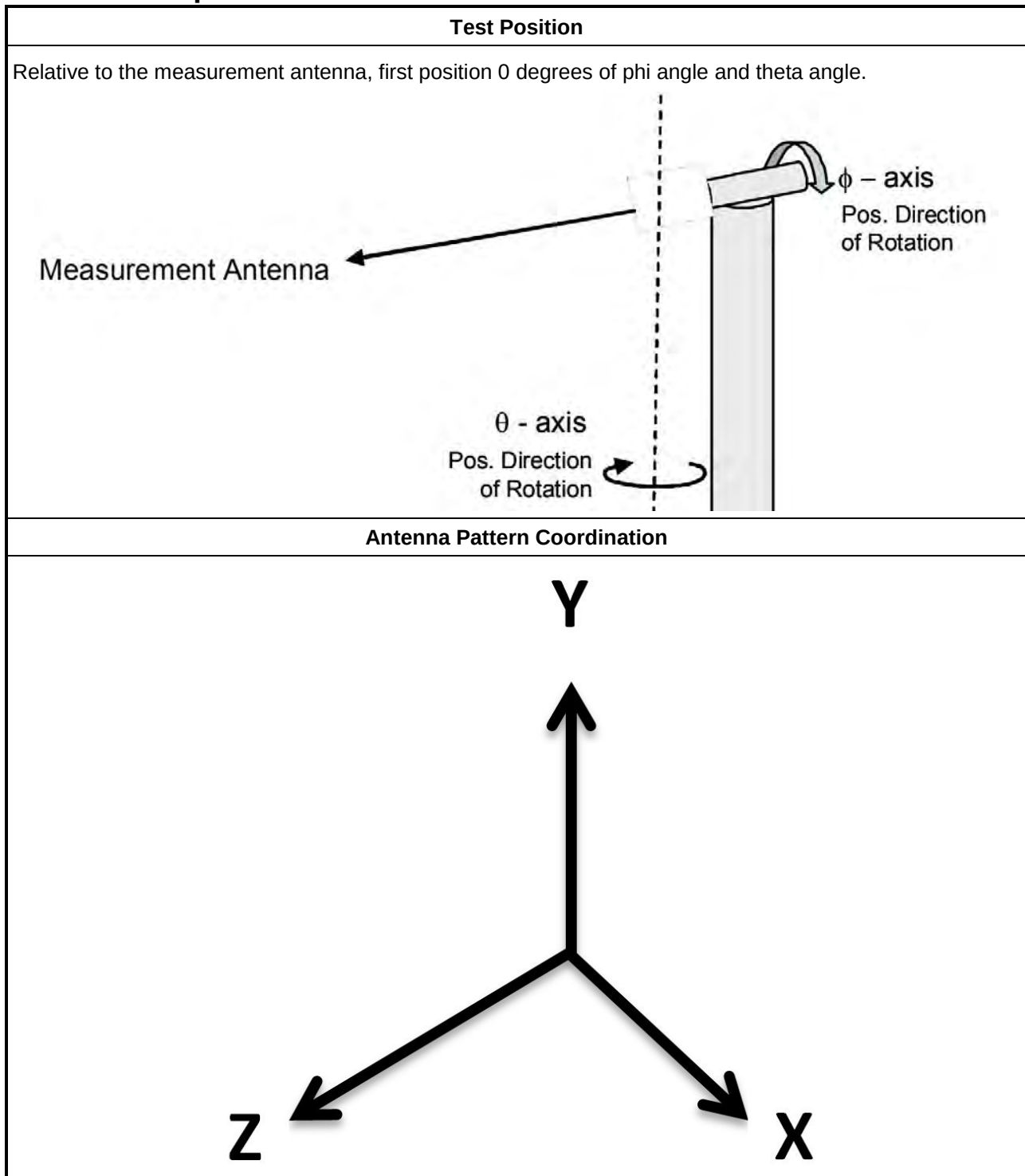
Mode 6: 6G-external antenna Horizontal

Band (MHz)	6175	6475	6695	6995
Frequency (Hz)	6.175G	6.475G	6.695G	6.995G
Ant. 1 Max Gain (dBi)	3.1	3.04	2.87	2.01
Ant. 2 Max Gain (dBi)	2.8	2.63	3.57	4.12
Ant. 3 Max Gain (dBi)	4.88	4.49	4.92	4.59
Ant. 4 Max Gain (dBi)	4.53	4.43	4.26	4.31
Ant. 1 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/120/330	Phi/120/322.5	Phi/127.5/330	Phi/127.5/30
Ant. 2 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Theta/105/292.5	Theta/105/292.5	Theta/105/292.5	Theta/105/292.5
Ant. 3 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/82.5/82.5	Phi/97.5/97.5	Phi/90/90	Phi/112.5/75
Ant. 4 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/120/150	Phi/135/165	Phi/112.5/157.5	Phi/82.5/165
Max Gain (dBi)	4.88	4.49	4.92	4.59
DG [1SS] (dBi)	4.99	4.63	4.64	4.41
DG [2SS] (dBi)	4.88	4.49	-	-
DG [4SS] (dBi)	4.88	4.49	-	-

Note:

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

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 11, 2023	May 10, 2024
Dual Polarization Horn Antenna	Sporton	S0209DP	S0209DP-001	2GHz~9GHz	N.C.R.	N.C.R.
ENA Series Network Analyzer	AGILENT	E5071C	MY46419477	100kHz~8.5GHz	Jul. 28, 2023	Jul. 27, 2024
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 22
Appendix B – Antenna Pattern.....	Page 74
Appendix C – Test Photos.....	Page 104



Mode 1

Freq(Hz)	2.45G	5.2G	5.3G
Ant. 1 Max Gain (dBi)	2.46	3.34	3.41
Ant. 2 Max Gain (dBi)	2.3	4.72	3.84
Ant. 3 Max Gain (dBi)	3.43	3.61	3.43
Ant. 4 Max Gain (dBi)	2.12	4.5	4.7
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/82.5/60	Phi/45/262.5	Phi/45/262.5
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/97.5/195	Theta/97.5/180	Theta/97.5/187.5
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/75/270	Theta/105/255	Theta/97.5/255
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/75/60	Theta/97.5/22.5	Theta/97.5/22.5
Max Gain (dBi)	3.43	4.72	4.7
DG [1SS] (dBi)	4.53	6.17	6.32
DG [2SS] (dBi)	3.43	4.72	4.7
DG [4SS] (dBi)	3.43	4.72	4.7

DG 1SS Result

Freq(Hz)	245GPol.	PHV-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
DG(dB)	Φ(0°)Ψ(7.5°)	Φ(15°)Ψ(22.5°)	Φ(30°)Ψ(37.5°)	Φ(45°)Ψ(52.5°)	Φ(60°)Ψ(67.5°)	Φ(75°)Ψ(82.5°)	Φ(90°)Ψ(97.5°)	Φ(105°)Ψ(112.5°)	Φ(120°)Ψ(127.5°)	Φ(135°)Ψ(142.5°)	Φ(150°)Ψ(157.5°)	Φ(165°)Ψ(172.5°)	Φ(180°)Ψ(187.5°)	Φ(195°)Ψ(202.5°)	Φ(210°)Ψ(217.5°)	Φ(225°)Ψ(232.5°)	Φ(240°)Ψ(247.5°)	Φ(255°)Ψ(262.5°)	Φ(270°)Ψ(277.5°)	Φ(285°)Ψ(292.5°)	Φ(300°)Ψ(307.5°)	Φ(315°)Ψ(322.5°)	Φ(330°)Ψ(337.5°)	Φ(345°)Ψ(352.5°)
Θ(0°)	-7.99-6.86	-5.97-5.27	-4.46-3.61	-2.71-2.09	-1.65-1.12	-0.72-0.83	-1.54-2.49	-3.25-3.65	-3.99-4.49	-5.61-6.9	-7.96-9.47	-10.21-9.89	-9.98-7.83	-6.68-5.82	-4.66-4.26	-3.66-3.2	-2.91-2.78	-2.27-1.56	-1.26-1.65	-2.48-2.69	-3.11-3.52	-4.17-5.22	-6.34-7.26	-8.6-9.1
Θ(7.5°)	-7.86-6.63	-5.85-4.98	-4.17-3.59	-2.49-2.55	-2.31-1.96	-1.39-1.26	-2.30-3.21	-3.98-4.19	-4.65-5.33	-6.44-7.55	-8.56-9.77	-10.54-10.11	-8.95-8.07	-7.39-6.28	-4.96-4.02	-3.53-	-2.17-1.79	-1.73-1.46	-0.98-0.95	-1.68-2.61	-2.86-3.04	-4.15-5.68	-6.17-7.59	-8.72-9.09
Θ(15°)	-7.93-6.93	-6.36-5.51	-4.66-4.05	-3.53-3.06	-2.75-2.91	-2.71-2.33	-2.41-2.87	-3.63-3.92	-4.33-5.1	-6.07-6.82	-8.39-9.2	-9.75-10.16	-8.92-8.04	-7.08-6.36	-5.5-4.66	-3.61-2.96	-2.07-1.32	-1.21-1.61	-1.54-1.2	-1.42-2.18	-2.76-2.89	-3.38-4.71	-5.88-6.82	-8.03-8.76
Θ(22.5°)	-6.66-7.01	-6.98-6.07	-5.13-4.56	-3.92-3.58	-3.93-4.08	-3.92-3.15	-2.53-2.03	-2.16-2.63	-2.89-3.9	-4.54-5.64	-7.31-7.98	-8.88-9.71	-8.31-7.78	-6.07-5.23	-5.21-5.2	-4.22-3.8	-3.34-2.28	-1.66-2.07	-2.69-2.49	-1.89-2.06	-2.77-3.03	-3.11-3.89	-5.04-5.94	-6.3-6.3
Θ(30°)	-6.72-7.03	-7.17-5.97	-5.14-4.48	-3.45-3.96	-3.37-3.01	-2.69-2.15	-1.64-1.28	-0.92-1.37	-2.31-2.91	-3.55-5.25	-7.02-6.93	-8.58-7.7	-6.63-5.41	-5.33-4.78	-4.94-4.98	-3.37-2.93	-2.31-2.93	-3.33-3.59	-2.47-2.01	-2.53-3.22	-3.39-4.03	-5.61-6.76	-6.55-6.26	
Θ(37.5°)	-7.38-7.4	-7.07-5.71	-4.86-4.33	-3.94-3.58	-2.9-1.92	-1.28-0.94	-0.87-1.13	-0.97-0.84	-2.27-4.06	-4.39-5.41	-6.02-5.91	-5.69-6.13	-6.23-6.7	-7.25-6.47	-5.04-6.4	-5.05-6.36	-7.6-6.87	-5.8-4.71	-4.44-3.83	-2.78-2.29	-2.27-2.83	-3.6-4.55	-6.47-8.35	-7.6-7.12
Θ(45°)	-7.47-7.53	-6.52-6.02	-5.26-4.78	-3.5-3.43	-1.59-1.11	-0.41-0.24	-0.65-1.11	-1.83-2.24	-2.92-4.46	-4.32-5.75	-6.16-7.49	-4.46-4.21	-5.43-6.99	-7.71-6.3	-5.56-5.6	-5.92-6.76	-6.95-6.61	-5.81-5.48	-4.22-3.79	-3.92-4.12	-3.91-3.34	-3.51-4.94	-7.15-9.11	-9.31-7.88
Θ(52.5°)	-6.65-5.91	-5.43-5.79	-6.14-4.67	-3.82-1.51	-0.96-1.18	-0.09-0.09	-1.64-1.61	-2.08-3.43	-3.27-3.92	-4.36-5.09	-3.38-4.34	-4.76-4.96	-6.79-8.52	-7.61-6.52	-6.89-6.66	-8.43-8.46	-7.75-6.74	-6.01-5.01	-4.16-4.24	-4.84-4.85	-4.57-3.15	-2.95-4.41	-6.15-7.1	-9.31-6.68
Θ(60°)	-5.95-4.9	-5.15-6.01	-5.47-3.44	-2.1-1.11	-0.82-1.66	-1.88-1.95	-2.58-1.89	-1.8-2.84	-2.52-2.36	-3.07-2.88	-2.66-4.56	-7.34-8.02	-8.86-9.82	-8.72-6.49	-5.91-7.48	-9.2-9.68	-7.44-6.94	-7.26-7.23	-7.45-6.36	-7.45-6.11	-5.19-3.72	-3.41-4.97	-6.21-5.67	-5.81-6.1
Θ(67.5°)	-5.49-6.42	-4.22-4.72	-3.03-1.46	-0.72-0.01	-0.28-1.54	-2.02-2.66	-3.18-1.55	-1.84-3.74	-2.02-1.11	-1.67-2.04	-1.69-3.64	-8.13-10.25	-9.71-11.62	-11.39-8.84	-7.71-8.15	-7.71-7.23	-6.89-7.45	-9.24-9.73	-11.18-10.88	-7.26-6.36	-6.61-5.83	-4.52-3.9	-5.23-4.82	-5.64-6.35
Θ(75°)	-4.57-4.12	-3.22-9.5	-1.09-0.1	0.39-0.82	0.11-1.69	-3.12-9.5	-3.89-1.6	-1.96-4.22	-1.03-0.07	-0.67-1.33	-1.17-2.59	-6.71-9.48	-11.89-11.86	-11.89-9.71	-8.59-8.71	-6.81-6.38	-6.89-6.07	-9.79-8.78	-8.89-11.33	-6.73-33	-4.64-5.94	-5.89-6.49	-5.14-4.4	-5.25-0.3
Θ(82.5°)	-2.44-3.16	-3-2.28	-0.55-0.38	0.67-1.22	0.7-1.14	-1.39-2.31	-2.48-1.26	-1.95-3.16	-0.30-6	-0.59-1.48	-1.53-2.33	-5.46-8.07	-7.93-10.25	-12.1-9.84	-9.13-9.92	-8.45-7.77	-7.91-6.86	-7.27-6.01	-5.87-8.17	-5.22-2.35	-2.86-4.82	-5.78-5.65	-6.59-6.38	-4.73-3.67
Θ(90°)	-1.89-3.02	-3.34-2.76	-0.86-0.39	1.05-1.77	1.41-0.6	-1.26-1.97	-2.5-1.6	-1.95-1.87	-0.15-0.25	-2.19-2.22	-1.79-2.42	-4.82-7.47	-6.32-8.52	-11.67-10.9	-11.31-11.69	-8.56-9.2	-8.33-4.6	-3.87-6.29	-5.07-1.93	-1.8-4.31	-6.71-6.73	-7.26-0.88	-5.31-3.49	-5.31-3.49
Θ(97.5°)	-2.89-3.36	-3.41-2	-0.51-0.5	1.19-1.8	1.15-0.31	-0.75-2.21	-2.26-1.74	-2.62-2.14	-1.22-1.43	-2.22-2.23	-2.73-7.1	-6.85-7.21	-6-8.24	-9.17-10.11	-11.42-9.27	-8.15-9.66	-12.62-12.25	-9.42-6.41	-4.3-5.99	-5.46-6.28	-2.66-4.67	-2.77-8.8	-4.82-7.13	-4.58-3.67
Θ(105°)	-3.31-3.8	-3.8-2.29	-0.87-0.16	0.52-1.39	1.30-0.8	-0.84-1.64	-1.58-1.63	-3.09-2.83	-2.17-2.65	-3.16-2.87	-3.94-5.08	-8.35-9.85	-8.85-8.89	-8.32-7.78	-8.37-9.62	-7.91-8.31	-9.94-10.04	-9.81-5.95	-6.03-8.24	-5.8-3.34	-3.52-5.89	-7.65-8.45	-7.73-6.17	-4.49-3.61
Θ(112.5°)	-3.78-4.36	-3.67-1.15	0.03-2	0.73-1.5	1.46-0.43	-2.3-2.61	-2.75-2.84	-1.6-1.41	-2.72-4.01	-2.6-1.87	-3.17-3.81	-6.58-10.66	-10.5-10.1	-10.48-9.79	-10.9-12.31	-7.56-7.38	-10.23-10.41	-8.57-6.35	-7.09-8.41	-5.3-1.33	-2.88-5.11	-7.55-7.72	-6.57-5.06	-4.76-3.78
Θ(120°)	-2.24-3.06	-4.06-2.38	-0.56-0.11	0.59-1.33	1.25-0.68	-0.62-0.03	-1.08-1.46	-0.9-1.93	-4.68-5.11	-4.13-3.88	-4.04-3.22	-5.95-8.38	-8.3-9.55	-12.18-10.88	-8.4-9.67	-8.67-10.48	-9.57-10.03	-8.91-5.08	-5.61-6.5	-5.67-4.2	-3.66-4.84	-6.65-6.31	-5.41-4.16	-4.21-3.84
Θ(127.5°)	-1.25-1.61	-3.63-3.16	-1.63-0.92	0.11-1.12	1.11-0.43	0.66-0.31	-0.83-1.88	-2.73-3.92	-5.03-5.43	-6.46-6.36	-4.91-6.19	-10.52-10.66	-9.3-10.26	-10.64-10.04	-8.45-9.34	-6.91-5.61	-7.08-9.58	-9.28-6.51	-6.4-8.14	-7.73-7.03	-7.14-7.12	-6.37-5.94	-5.85-6.88	-6.22-3.24
Θ(135°)	-3.08-2.43	-2.21-0.35	1.46-1.99	2.03-0.68	1.85-0.76	-0.11-0.18	-0.68-2.52	-3.41-3.14	-3.81-3.35	-3.93-3.89	-4.84-6.74	-9.52-9.86	-7.67-6.84	-8.05-10.29	-9.97-6.73	-5.12-4.41	-5.96-6.17	-9.22-8.61	-8.7-10.47	-10.46-9.51	-7.95-7.53	-4.05-4.31	-6.19-6.45	-8.21-5.1
Θ(142.5°)	-4.72-4.13	-2.8-0.28	1.69-2.34	2.16-1.62	0.68-0.88	-1.99-1.46	-0.88-3.12	-3.19-4.3	-4.67-3.79	-4.46-1.6	-7.36-7.96	-9.21-8.7	-6.28-6.15	-7.42-9.46	-9.37-7.55	-5.5-5.17	-7.07-8.41	-8.56-8.9	-9.71-12.36	-12.6-10	-7.08-4.57	-3.46-4.52	-7.15-8.98	-8.24-6.13
Θ(150°)	-5.93-5.08	-3.67-1.65	0.17-0.89	0.63-0.49	-2.19-3.68	-3.71-2.45	-2.49-3.29	-4.16-4.99	-5.66-6.34	-8.36-10.44	-9.68-8.77	-4.82-6.63	-6.29-6.64	-8.05-9.91	-9.92-8.63	-7.32-7.44	-8.55-8.32	-8.87-7.57	-8.38-10.73	-12.45-11.49	-8.12-6.57	-4.96-6.39	-8.82-10.41	-9.47-7.59
Θ(157.5°)	-7-7.1	-3.47-1.85	-0.8-0.68	-1.44-2.6	-3-2.32	-2.65-2.35	-2.38-2.99	-4.2-6.11	-7.79-8.41	-10.84-10.94	-9.69-8.94	-7.91-7.51	-6.57-6.78	-8.67-9.66	-10.26-9.29	-8.21-7.3	-6.23-5.44	-5.31-5.25	-6.15-7.99	-9.33-9.25	-8.73-7.45	-7.08-8.15	-9.61-11.51	-9.96-8.85
Θ(165°)	-7.33-5.65	-3.95-2.54	-1.72-1.46	-1.36-1.41	-1.58-1.18	-1.55-1.12	-1.11-1.47	-2.4-4.17	-6.58-9.08	-9.95-10.71	-10.03-10.16	-9.46-8.1	-7.52-7.79	-8.17-8.81	-6.69-6.64	-4.97-3.71	-2.9-2.16	-1.81-2.19	-3.11-3.65	-4.65-6.09	-6.75-7.23	-7.63-8.93	-8.95-10.91	-10.61-9.1
Θ(172.5°)	-8.62-6.89	-5.62-4.36	-3.63-2.82	-1.84-1.32	-1.15-1.43	-1.02-0.94	-1.11-1.68	-2.56-3.76	-4.99-6.14	-7.71-9.05	-10.08-10.85	-10.11-9.37	-9.71-9.82	-10.34-9.05	-6.42-4.44	-3.25-2.44	-1.53-1.02	-1.04-1.25	-1.31-1.4	-2.09-2.95	-3.39-3.97	-4.8-5.95	-7.19-8.43	-9.61-9.45
Θ(180°)	-9.6-9.36	-8.11-6.88	-5.52-4.29	-3.14-2.69	-2.08-1.65	-1.43-1.68	-2.44-2.8	-3.32-3.71	-4.29-5.15	-6.13-7.28	-8.79-10.45	-10.48-10.96	-11.93-11.08	-8.95-6.63	-4.52-3.41	-2.26-1.4	-0.91-0.95	-0.88-0.85	-0.62-0.78	-1.03-1.33	-1.72-2.09	-2.82-3.83	-4.92-6.03	-7.58-9.08
Freq(Hz)	245GPol.	Thetal-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
DG(dB)	Φ(0°)Ψ(7.5°)	Φ(15°)Ψ(22.5°)	Φ(30°)Ψ(37.5°)	Φ(45°)Ψ(52.5°)	Φ(60°)Ψ(67.5°)	Φ(75°)Ψ(82.5°)	Φ(90°)Ψ(97.5°)	Φ(105°)Ψ(112.5°)	Φ(120°)Ψ(127.5°)	Φ(135°)Ψ(142.5°)	Φ(150°)Ψ(157.5°)	Φ(165°)Ψ(172.5°)	Φ(180°)Ψ(187.5°)	Φ(195°)Ψ(202.5°)	Φ(210°)Ψ(217.5°)	Φ(225°)Ψ(232.5°)	Φ(240°)Ψ(247.5°)	Φ(255°)Ψ(262.5°)	Φ(270°)Ψ(277.5°)	Φ(285°)Ψ(292.5°)	Φ(300°)Ψ(307.5°)	Φ(315°)Ψ(322.5°)	Φ(330°)Ψ(337.5°)	Φ(345°)Ψ(352.5°)
Θ(0°)	-3.63-3.44	-3.39-3.82	-4.43-3.39	-6.25-7.22	-8.16-6.28	-9.92-9.83	-9.67-9.1	-6.58-7.33	-5.8-4.7	-3.81-3.2	-2.21-1.67	-1.52-1.7	-2.03-2.49	-3.06-3.64	-4.26-4.67	-5.39-6.13	-7.54-8.91	-9.92-9.59	-8.97-8.64	-7.17-7.54	-5.68-5.93	-5.65-4.5	-3.96-3.95	-4.2-3.91
Θ(7.5°)	-1.86-1.75	-1.89-2.24	-2.79-3.72	-4.6-5.21	-5.99-6.95	-7.37-7.75	-7.75-7.37	-6.62-6.42	-5.85-5.95	-4.44-3.96	-3.02-2.52	-2.45-2.53	-2.57-2.68	-3.21-3.9	-4.22-4.57	-5.27-6.32	-7.41-8.75	-9.88-10.31	-11.49-9.32	-7.44-5.97	-5.65-5.35	-4.49-3.58	-2.96-2.89	-2.71-2.24
Θ(15°)	-0.39-0.16	-0.26-0.49	-0.79-1.38	-2.12-2.75	-2.98-3.33	-3.55-3.84	-3.86-3.57	-3.23-3.4	-3.73-3.53	-3.26-2.88	-2.51-2.11	-1.69-1.42	-1.14-1.06	-1.36-1.87	-2.31-2.38	-2.51-2.91	-3.85-5.05	-5.68-5.95	-6.22-6.41	-6.09-5.04	-4.27-4.01	-3.65-2.84	-2.17-1.85	-1.43-0.79
Θ(22.5°)	-0.14-0.19	0.22-0.06	-0.43-1.01	-1.69-2.45	-3.07-3.03	-2.83-2.67	-2.3-1.87	-1.34-1.14	-1.15-1.11	-1.13-1.1	-0.72-0.36	-0.11-0.33	0.90-1.2	0.86-1.2	-0.57-1.02	-1.17-1.04	-0.75-1.2	-2.02-2.67	-3.07-3.75	-3.98-3.36	-2.77-2.62	-2.42-2.1	-2.03-1.99	-1.58-0.86
Θ(30°)	-0.88-0.29	-0.17-0.63	-1.27-2.16	-3.13-3.63	-3.28-2.65	-2.38-2.4	-1.63-1.14	-0.92-0.35	-0.071.09	1.41-1.63	1.97-2.6	2.42-4.1	2.92-4.9	3.28-4.1	1.33-0.36	0.04-0.85	1.83-1.83	1.17-0.27	-0.66-1.48	-1.76-1.63	-1.64-1.57	-1.13-0.73	-0.65-0.9	-1.36-1.41
Θ(37.5°)	-0.36-0.05	0.12-0.25	-1.13-2.35	-2.76-1.77	-0.63-0	-0.31-1.11	-1.32-0.37	-0.24-0.01	0.081.77	2.12-2.93	3.75-4.2	4.18-3.85	2.70-3.3	3.98-2.5	2.31.31	0.871.84	3.03-0.39	2.361.49	0.95-0.48	0.07-0.36	-0.09-0.55	-0.37-0.05	0.37-0.38	0-0.35
Θ(45°)	1.18-0.82	0.88-0.67	-0.38-1.01	-0.36-0.88	1.56-1.91	1.55-0.43	-0.39-0.61	1.41-1.6	1.73-2.35	2.32-0.33	4.12-4.53	4.29-3.75	2.99-2.47	2.79-2.82	2.31-1.41	0.88-1.8	32.97	2.44-2.32	2.39-2.12	2.02-1.95	1.71-1.11	0.35-0.06	0.33-	



Radiated Composite Gain Data

Appendix A.1

Θ(7.5°)	-8.62/-7.65	-7.79/-7.27	-7.86/-6.06	-6.65/-4.84	-4.99/-4.33	-4.86/-3.87	-4.2/-3.11	-3.73/-4.29	-2.74/-3.15	-3.76/-4.42	-5.54/-7.4	-7.82/-9.26	-10.31/-9.65	-9.4/-8.29	-8.57/-6.25	-6.4/-5.9	-5.09/-4.25	-3.85/-4.7	-3.76/-3.77	-4.9/-4.46	-5.64/-5.81	-7.28/-7.91	-9.9/-10.99	-9.71/-8.81
Θ(15°)	-10.08/-10.34	-11.93/-12.8	-11.73/-12.09	-10.68/-9.19	-6.96/-5.17	-4.06/-3.93	-3.28/-2.21	-1.58/-1.92	-2.81/-2.56	-3.6/-4.3	-5.46/-6	-7.01/-6.88	-9.32/-11.05	-9.45/-9.43	-8.69/-6.4	-5.27/-6.05	-4.9/-4.35	-3.44/-2.3	-3.18/-4.41	-4.36/-6.07	-6.46/-7.82	-7.89/-7.66	-9.9/-9.46	-8.42/-8.1
Θ(22.5°)	-9.6/-10.38	-11.06/-8.6	-7.55/-6.87	-7.42/-7.58	-6.21/-5.95	-5.1/-3.69	-1.83/-1.26	-0.8/-1.3	-2.38/-2.81	-3.5/-5.52	-7.2/-7	-7.36/-7.52	-8.66/-8.09	-7.97/-6.59	-5.84/-6.19	-5.13/-6.9	-6.53/-5.16	-4.97/-5.07	-3.28/-4.52	-5.45/-5.56	-5.16/-6	-5.15/-5.92	-6.42/-7.35	-8.49/-12
Θ(30°)	-10.2/-11.92	-9.5/-7.31	-6.07/-5.58	-4.97/-4.42	-3.84/-5.05	-5.64/-3.63	-1.64/-0.99	-1/-0.51	-1.38/-2.31	-4.57/-5.31	-6.76/-6.64	-7.92/-8.32	-11.68/-11.6	-10.66/-8.66	-7.65/-4.43	-3.5/-4.79	-6.42/-5.84	-5.25/-4.99	-2.81/-2.11	-3.23/-3.18	-4.24/-5.83	-6.19/-6	-5.85/-5.04	-6.48/-8.72
Θ(37.5°)	-10.88/-9.04	-6.91/-5.84	-5.79/-4.8	-5.52/-6.75	-5.13/-4.85	-6.44/-4.91	-1.93/-0.63	-0.19/-0.2	-1.13/-2.41	-2.52/-3.1	-5.61/-6.99	-6.51/-8	-10.01/-9.89	-8.31/-6.11	-5.8/-3.93	-2.4/-2.96	-3.55/-2.98	-2.43/-2.57	-2.45/-2.97	-2.26/-2.04	-3.68/-4.15	-4.98/-5.5	-7.29/-8.75	-6.91/-8.67
Θ(45°)	-9.73/-6.51	-6.89/-7.09	-4.87/-5.9	-5.83/-5.8	-5.12/-5.11	-6.02/-4.62	-2.97/-1.71	-0.07/-0.47	-0.9/-2.13	-2.55/-2.83	-4.67/-7.03	-8.52/-9.11	-9.9/-8.59	-7.54/-8.16	-6.29/-4.69	-3.52/-2.06	-1.95/-2.13	-1.59/-0.71	-1.6/-1.98	-3.06/-4.46	-4.56/-4.92	-5.98/-6.28	-7.17/-8.36	-10.88/-9.52
Θ(52.5°)	-8.02/-6.4	-5.48/-6.17	-4.8/-6.13	-4.59/-2.76	-4.34/-4.37	-4.66/-4.65	-2.45/-2.09	-1.22/-0.29	-1.95/-1.57	-1.31/-1.24	-5.07/-6.82	-9.78/-10.53	-9.38/-6.07	-6.97/-6.1	-5.63/-3.19	-4.83/-4.32	-4.49/-3.53	-3.14/-3.41	-2.84/-2.94	-3.08/-1.38	-2.65/-7.1	-5.67/-6.86	-9.59/-9.53	-10.7/-9.53
Θ(60°)	-5.52/-4.37	-3.93/-7.32	-6.35/-5.09	-3.79/-2.67	-3.22/-4.29	-5.09/-3.9	-2.38/-2.34	-1.37/-0.07	-1.18/-3.27	-2.23/-1.94	-5.16/-6.64	-11.15/-11.89	-9.59/-6.46	-7.55/-6.12	-6.75/-6.54	-5.4/-5.76	-4.01/-2.84	-4.06/-4.55	-5.26/-3.07	-2.57/-3.06	-2.79/-3.43	-5.83/-9.16	-8.01/-9.36	-8.24/-5.49
Θ(67.5°)	-4.15/-3.47	-6.92/-7.68	-7.8/-3.39	-3.23/-1.96	-2.22/-3.96	-3.5/-2.4	-1.58/-2.67	-1.51/-0.2	-0.92/-1.16	-1.67/-3.68	-3.06/-7.89	-10.75/-9.12	-10.7/-7.56	-6.01/-4.98	-5.78/-6.67	-6.66/-7.67	-5.58/-4.55	-2.69/-2.92	-1.91/-3.36	-3.8/-2.15	-2.4/-2.54	-5.2/-12.05	-9.41/-9.09	-7.81/-5.55
Θ(75°)	-5.98/-5.79	-7.2/-8.87	-7.22/-4.16	-3.5/-2.16	-2.31/-2.17	-0.78/-2.43	-1.14/-2.52	-3.35/-0.48	0.97/0.37	-2.9/-2.5	-5.5/-8.54	-8.85/-9.74	-8.86/-8.46	-9.08/-7.11	-6.71/-7.29	-6.79/-6.15	-5.57/-2.53	-1.82/-2.57	-3.49/-4.88	-4.09/-3.12	-3.09/-3.29	-4.94/-9.53	-11.17/-6.7	-6.67/-7.94
Θ(82.5°)	-7.73/-9.77	-10.54/-8.18	-7.79/-3.96	-2.57/-1.86	-1.09/-0.82	-2.14/-4.61	-2.58/-1.78	-1.42/-1.1	-1.08/-1.62	-2.25/-5.65	-5.21/-8.53	-9.93/-10.43	-9.98/-9.84	-10.34/-8.83	-8.89/-11.11	-11.87/-6.55	-9.39/-5.9	-2.53/-3.99	-6.31/-3.53	-4.55/-3.23	-3.87/-5.24	-5.77/-7.66	-8.77/-8.61	-7.5/-11.93
Θ(90°)	-8.09/-5.23	-9.25/-6.87	-6.91/-3.8	-1.06/-1.06	-0.93/-2.36	-1.88/-2.45	-3.7/-3.45	-1.92/-4.21	-2.36/-3.45	-4.86/-6.45	-9.57/-6.53	-8.74/-8.38	-10.38/-9.97	-9.38/-11.11	-10.87/-12.14	-10.63/-6.97	-7.34/-5.36	-5.42/-8.04	-5.36/-3.94	-5.13/-2.33	-3.64/-3.9	-7.27/-5.49	-7.32/-7.41	-7.55/-7.53
Θ(97.5°)	-5.91/-7.95	-6.91/-3.94	-5.2/-4.33	-0.89/-3.57	-1.8/-0.3	0.26/-0.78	-2.94/-1.46	-4.13/-1.69	-5.01/-3.1	-4.78/-6.32	-8.03/-10.54	-8.12/-9.85	-11.9/-11.82	-10.33/-11.12	-7.85/-8.74	-7.28/-6.03	-8.57/-10.06	-7.03/-8.03	-4.05/-6.96	-2.77/-3.5	-0.31/-4.4	-7.05/-8.62	-9.73/-7.04	-6.57/-4.63
Θ(105°)	-8.28/-8.07	-9.51/-4.94	-5.26/-4.01	-0.79/-1.69	-2.61/-1.9	-2.69/-1.21	-2.39/-6.33	-3.34/-1.5	-3.4/-3.66	-3.43/-6.7	-7.65/-8.96	-9.63/-9.23	-10.73/-12.12	-10.81/-9.03	-6.58/-4.18	-5.25/-7.73	-11.23/-5.79	-6.97/-4.1	-7.72/-4.32	-2.79/-3.69	-9.43/-8.88	-9.31/-9.45	-7.89/-5.7	
Θ(112.5°)	-8.2/-10.15	-11.04/-4.62	-6.1/-6.65	-4.08/-4.23	-3.89/-3.32	-2.54/-3.05	-3.97/-4.98	-6.21/-3.4	-5.04/-3.68	-3/-7.77	-9.01/-7.49	-9.23/-11.35	-6.61/-7.23	-10.15/-7.76	-9.12/-7.44	-8.33/-7.44	-7.84/-11.56	-7.95/-6.06	-7.3/-7.59	-7.48/-4.22	-4.93/-5.78	-8.45/-5.5	-7.38/-8.84	-9.71/-5.44
Θ(120°)	-8.06/-6.41	-10.15/-5.89	-7.04/-6.52	-5.76/-5.4	-6.23/-3.18	-2.61/-2.82	-4.64/-4.14	-3.46/-7.03	-2.52/-3.22	-3.81/-6.67	-7.98/-6.06	-9.92/-8.11	-11.06/-8.67	-10.92/-8.07	-8.32/-8.09	-10.53/-7.6	-8.84/-9.3	-6.63/-8.53	-8.54/-5.42	-7.99/-7.18	-10.59/-5.08	-8.63/-6.96	-7.8/-9.07	-7.49/-8.79
Θ(127.5°)	-5.35/-6.25	-5.32/-4	-4.16/-2.41	-4.21/-0.37	-3.99/-2.06	-3.04/-3.17	-6.02/-6.22	-2.53/-2.72	-5.09/-3.34	-1.59/-6.34	-8.02/-12.22	-9.62/-6.73	-8.13/-9.25	-11.94/-8.14	-7.39/-6.79	-11.89/-5.76	-11.43/-10.6	-10.37/-8.26	-10.73/-7.01	-6.82/-8.22	-7.91/-6.84	-5.95/-7.98	-4.66/-6.61	
Θ(135°)	-7.26/-6.31	-4.35/-3.31	-4.79/-3.38	-3.67/-4.09	-4.24/-5.3	-3.49/-3.01	-4.37/-5.14	-3.15/-3.65	-2.62/-5.95	-7.12/-3.41	-5.13/-9.72	-9.39/-12.57	-8.05/-10.23	-11.96/-8.37	-8.89/-9.02	-7.12/-7.1	-9.82/-12.03	-11.25/-8.25	-11.21/-8.49	-7.54/-7.63	-8.33/-8.84	-11.98/-9.13	-9.56/-8.86	-9.11/-7.8
Θ(142.5°)	-9.05/-6.5	-6.13/-3.79	-4.39/-2.86	-2.56/-2.02	-2.97/-5.07	-4.28/-3.11	-5.8/-4.32	-3.12/-4.2	-1.98/-8.4	-5.64/-6.83	-6.88/-7.59	-9.9/-8.55	-7.7/-7.7	-9.22/-7.71	-8.4/-9.43	-6.79/-7.95	-7.33/-9.85	-8.67/-9.59	-8.58/-9.3	-9.64/-7.08	-7.79/-8.1	-6.22/-5.99	-8.17/-8.58	-9.9/-8.45
Θ(150°)	-8.47/-6.35	-6.28/-6.71	-5.42/-4.43	-3.17/-2.65	-3.21/-5.04	-5.92/-3.88	-3.96/-8.45	-6.33/-4.52	-4.19/-3.38	-5.49/-6.36	-5.85/-9.65	-8.47/-10.84	-9.04/-9.79	-8.98/-8.81	-8.81/-7.48	-7.63/-9.18	-10.24/-11.01	-9.83/-11.04	-10.43/-8.13	-7.11/-5.63	-4.58/-3.16	-4.02/-5.82	-9.01/-7.47	-7.51/-6.46
Θ(157.5°)	-11.7/-7.2	-3.48/-3.26	-3.29/-2.56	-2.5/-2.97	-5.38/-5.58	-5.94/-3.78	-4.45/-4.13	-4.35/-3.29	-2.69/-4.33	-5.29/-4.9	-6.72/-10.33	-10.13/-8.24	-6.54/-6.14	-5.76/-7.34	-6.21/-6.28	-7.17/-8.87	-11.41/-10.82	-8.17/-7.27	-10.28/-8.55	-5.85/-5	-3.09/-1.87	-2.07/-3.24	-4.6/-5.93	-6.67/-8.47
Θ(165°)	-8.44/-8.16	-8.47/-7.76	-6.38/-6.42	-5.34/-6.22	-5.02/-6.85	-5.43/-6.42	-7.43/-6.87	-6.28/-6.15	-4.78/-3.52	-4.12/-5.41	-4.69/-5.23	-5.42/-4.36	-4.39/-6.32	-7.72/-6.85	-6.07/-5.44	-5.01/-5.88	-7.25/-6.92	-6.17/-5.81	-5.54/-5.25	-5/-5.56	-5.11/-4.23	-4.47/-5.01	-4.63/-5.29	-6.09/-7.57
Θ(172.5°)	-7.59/-3.17	-7.61/-7.05	-6.5/-5.75	-4.87/-3.65	-3.39/-3.86	-4.22/-4.48	-4.17/-3.69	-4.04/-4.22	-4.7/-4.67	-4.13/-5.41	-6.19/-8.55	-9.81/-8.82	-7.69/-6.28	-5.07/-4.6	-5.63/-7.16	-7.71/-7.67	-8.22/-7.43	-6.71/-5.98	-6.31/-7.51	-7.64/-7.08	-6.72/-6.27	-6.89/-7.55	-7.4/-7.8	-8.24/-8.18
Θ(180°)	-4.54/-5.11	-4.29/-3.62	-4.09/-4.19	-4.88/-5.14	-6.27/-6	-5.91/-6.17	-5.5/-4.8	-4.85/-4.45	-3.91/-3.87	-4.9/-5.19	-5.45/-4.09	-3.13/-2.74	-2.45/-2.72	-2.19/-1.96	-2.75/-2.26	-2.46/-2.74	-4.02/-4.83	-5.38/-6	-6.2/-6.22	-5.33/-5.22	-5.45/-5.76	-5.74/-5.38	-5.64/-4.62	-5.35/-4.91
Freq(Hz)	5.3GfPol.	Theta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(dB)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-3.18/-2.53	-2.75/-3.31	-3.74/-4.14	-4.83/-4.99	-5.95/-6.75	-7.57/-8.56	-10.28/-10.85	-11.84/-11.66	-11.96/-9.19	-7.32/-6.15	-5.12/-4.54	-4.58/-3.92	-3.28/-3.58	-4/-4.16	-4.31/-4.66	-5.4/-5.33	-6.12/-6.95	-6.51/-7.55	-9.04/-8.99	-7.57/-7.31	-6.43/-6.33	-4.86/-5.25	-4.37/-3.97	-3.55/-3
Θ(7.5°)	-4.03/-4.07	-4.17/-3.91	-3.76/-4.72	-4.42/-5.41	-5.7/-6.78	-7.78/-8.38	-10.21/-11.31	-10.67/-8.61	-8.37/-6.2	-3.9/-2.87	-2.44/-2.36	-1.85/-2.27	-2.33/-2.1	-2.72/-3.23	-2.97/-3.67	-4.85/-4.76	-6.23/-6.32	-7.74/-7.97	-10/-10.03	-8.6/-9.6	-8.96/-8.37	-6.81/-6.13	-5.26/-4.45	-4.39/-4.2
Θ(15°)	-5/-5.44	-6.2/-7.08	-6.86/-6.87	-6.04/-5.9	-5.9/-5.78	-7.38/-7.82	-9.66/-8.26	-6.34/-4.11	-2.96/-2.51	-1.66/-0.56	-0.62/-1.2	-1.19/-0.64	-0.55/-1.02	-1.57/-1.68	-1.06/-1.22	-2.64/-3.68	-5.15/-7.91	-8.6/-8.07	-6.45/-7.26	-5.42/-4.18	-3.41/-2.6	-3.4/-3.19	-3.52/-3.12	-3.22/-4.23
Θ(22.5°)	-1.17/-1.85	-2.1/-2.15	-2.66/-3.22	-3.34/-4.11	-4.33/-4.89	-5.61/-6.16	-5.81/-5.4	-4.08/-3.23	-2.55/-2.08	-1.9/-0.54	-0.77/-1.22	-1.10/-7.2	1.090.39	-0.08/-1.2	-1.22/-0.57	-1.93/-1.93	-3.81/-4.63	-5.1/-5.19	-4.62/-4.68	-4.56/-5.15	-3.12/-1.17	-0.92/-1.37	-1.66/-1.52	-1.08/-0.71
Θ(30°)	1.22/0.98	0.23/-0.24	-0.68/-1.6	-1.81/-1.73	-2.48/-2.17	-4.1/-5.85	-7.07/-5.92	-2.64/-0.82	0.23/0.83	1.22/0.97	0.8/-0.23	-0.16/0.57	0.52/-0.26	-0.71/-0.26	-0.95/-0.96	-2.31/-4.31	-3.86/-5.88	-4.87/-4.59	-2.92/-2.69	-2.69/-1.5	-1.55/-0.6	-1.14/0.24	0.57/0.17	-0.55/0.16
Θ(37.5°)	1.95/2.19	1.41/1	0.2/-0.46	-1.49/-4.49	-2.55/-3.47	-3.9/-1.44	-1.58/-2.04	-2.96/-1.92	0.61/0.48	-1.89/-0.84	0.96/1.42	-0.32/-0.24	1.08/-0.84	-2.24/-3.41	-3.69/-3.86	-2.57/-2.77	-1.78/-1.87	-4.62/-4.32	-4.46/-5.42	-5.26/-3.32	-1.76/-1.44	-0.58/0.78	2.02/2.1	1.11/0.56
Θ(45°)	-0.84/1.78	1.30.55	0.22/-1.63	-1.35/-4.65	-4.05/-6.83	-6.37/-3.35	-5.82/-4.24	-1.93/-2.62	-1.93/-2.85	-0.73/0.85	1.4/1.8	1.42/0.9	1.27/0.52	-1.23/-1.11	-2.83/-3.78	-2.65/-6.35	-4.76/-5.73	-6.93/-6.05	-6.2/-4.9	-4.68/-3.11	-3.35/-4.28	-1.31/0.01	-0.51/-0.53	-2.7/-3.66
Θ(52.5°)	-0.11/-1.27	-2.43/-1.39	-2.17/-3.66	-2.85/-2.41	-2.01/-4.82	-2.23/-2.31	-2.74/-2.78	-2.67/-3.99	-1.99/-4.29	0.05/-1.1	1.03/-0.69	1.07/0.41	0.23/-0.28	-1.93/-0.73	-1.32/-3.62	-5.89/-4.67	-5.13/-4.61	-4.24/-4.84	-4.92/-7.09	-5.81/-6.72	-4.18/-2.86	-4.98/-3.41	-4.01/-2.92	-6.21/-3.23
Θ(60°)	-2.19/-1.52	-1.77/-1.53	0.42/0.62	0.71/-1.5	-1.63/-2.24	-4.12/-2.93	-4.42/-5.9	-5.52/-2.23	-0.19/-2.33	1.46/0.13	-1.7/-2.04	-2.04/-1.1	-0.74/-1.84	-5.84/-4.03	-2.52/-3.17	-4.26/-6.96	-4.65/-6.47	-4.95/-3.03	-4.49/-6.86	-6.25/-5.05	-3.74/-4.21	-3.54/-2.81	-0.89/-1.5	-3.82/-5.46
Θ(67.5°)	1.83/1.86	2.46/-2.13	1.98/1.19	-1.43/0.38	-0.72/-1.83	-4.88/-1.84	-5.9/-4.08	-2.91/-0.43	1.13/1.31	1.30.77	0.88/1.49	1.81/0.9	0.2/											



Radiated Composite Gain Data

Appendix A.1

Θ (22.5°)	-17.41/-17.71	-15.6/-10.16	-8.18/-6.19	-6.48/-6.78	-6.04/-5.26	-2.99/-0.99	0.44/0.77	1.28/0.93	0.19/-0.58	-1.06/-3.07	-6.01/-8.1	-12.17/-18.28	-18.21/-19.01	-11.76/-9.71	-10.2/-11.43	-9.04/-7.8	-4.66/-2.92	-2.22/-2.67	-2.65/-3.94	-3.28/-3.65	-2.59/-4.28	-6.47/-8.87	-10.62/-9.41	-10.94/-17.05
Θ (30°)	-12.97/-16.21	-10.06/-8.81	-5.63/-4.63	-3.89/-3.21	-4.46/-3.96	-3.48/-1.23	0.11/1.14	1.29/1.79	1.16/0.01	-1.76/-2.8	-5.74/-6.61	-7.7/-11.7	-15.63/-16.25	-14.18/-11.6	-8.41/-4.48	-2.98/-3.54	-5.43/-4.3	-3.31/-2.16	-1.08/-0.68	-1.69/-2.06	-2.62/-3.6	-5.86/-8.14	-8.11/-6.53	-9.35/-11.92
Θ (35°)	-14.92/-9.7	-7.03/-7.11	-6.86/-3.54	-3.77/-5.15	-4.54/-4.81	-4.65/-2.42	-0.73/0.85	1.49/2.49	2.08/1.31	0.04/-0.93	-0.99/-5.79	-6.68/-13.25	-17.19/-14.09	-10.02/-11.82	-6.18/-5.38	-2.21/-1.17	-1.52/-1.22	0.07/0.98	0.68/0.25	0.10/0.24	-1.34/-2.69	-5.13/-6.85	-1.01/-9.84	-9.71/-12.13
Θ (45°)	-12.72/-7.72	-5.37/-6.99	-3.93/-3.45	-5.14/-5.02	-3.69/-3.45	-3.78/-2.29	-1/0.24	2.11/1.94	1.67/1.18	0.60/1.6	-1.9/-5.92	-10.86/-14.74	-15.87/-10.22	-8.76/-8.01	-4.67/-2.71	-1.36/-0.02	1.48/1.14	1.94/3.41	2.31.1	0.12/-1.62	-2.59/-3.04	-5.86/-10.06	-12.45/-18.8	-19/-15.02
Θ (52.5°)	-6.18/-5.75	-4.68/-6.77	-5.29/-0.57	-3.2/-0.83	-2.4/-2.72	-1.86/-2.93	-1.21/-0.19	1.54/1.68	0.63/1.2	-0.33/0.69	-3.25/-5.8	-16.41/-17.43	-12.03/-6.43	-6.75/-4.99	-3.13/-2.54	-2.44/-2.19	-1.46/-0.56	0.45/0	-0.43/-0.32	0.05/0.96	-1.22/-4.67	-11.12/-14.77	-19.43/-19	-16.5/-11.12
Θ (60°)	-7.23/-9.2	-5.89/-7.98	-6.83/-6.3	-1.07/0.11	-0.21/-1.67	-2.72/-2.61	-2.33/-1.04	0.69/2.12	0.89/0.04	-0.05/-0.77	-2.41/-8.03	-16.21/-19	-10.26/-5.7	-6.75/-4.16	-6.07/-5.47	-5.76/-5.83	-2.11/-0.27	-1.25/-2.32	-3/0.3	0.59/0.26	0.35/-1.67	-8.87/-13.83	-11.6/-17.95	-10.52/-8.12
Θ (67.5°)	-5.99/-6.66	-10.14/-12.49	-9.34/-3.06	-0.22/0.85	0.25/-0.94	-1.78/-1.7	-0.23/-0.87	1.76/1.97	1.92/-1.73	-1.33/-2.51	-3.34/-8.55	-15.25/-18.22	-17.97/-7.77	-5.53/-2.61	-6.77/-9.44	-9/11.23	-7.83/-3.1	-0.30/33	1.15/-1.02	-1.18/-0.12	1.14/-0.66	-5.75/-17.49	-14.19/-16.61	-9.2/-8.21
Θ (75°)	-9.18/-7.65	-16.49/-12.72	-8.08/-4.1	-0.34/0.86	-0.96/-0.36	0.04/-1.24	-0.39/-1.58	-0.58/1.13	1.31/0.23	-3.78/-2.4	-6.31/-8.36	-16.19/-18.41	-14.01/-11.58	-13.11/-7.56	-9.43/-14.7	-17.86/-8.08	-8.83/-1.45	-0.68/-1.27	-2.47/-2.83	-1.77/-1.42	-0.67/-0.92	-6.44/-15.8	-18.95/-18.32	-12.91/-9.1
Θ (82.5°)	-10.56/-13.82	-18.83/-11.47	-7.41/-4.59	-0.92/0.25	-1.17/-0.08	-1.06/-3.28	-1.15/-1.92	0.21/4.2	0.38/-0.41	-2.04/-1.68	-5.14/-9.98	-15.4/-12.63	-18.02/-13.78	-16.15/-9.39	-11.54/-18.78	-18.04/-7.41	-16.85/-6.59	0.14/-4.05	-9.02/-5.1	-3.68/-2.94	-2.33/-4.71	-7.41/-14.32	-12.64/-18.65	-15.06/-16.37
Θ (90°)	-16.77/-13.36	-18.5/-8.73	-7.23/-3.53	-0.97/-1.09	-1.34/-0.8	-1.35/-2.07	-2.35/-3.35	0.49/-1.14	0.5/-1.49	-4.21/-4.75	-9.88/-9.96	-11.57/-11.79	-12.69/-15.22	-16.74/-18.03	-14.81/-17.28	-18.42/-10.65	-12.73/-5.69	-6.22/-18.8	-7.06/-4.84	-5.72/-1.11	-3.82/-5.55	-9.12/-15.09	-14.7/-17.72	-18.88/-16.34
Θ (97.5°)	-16.55/-19.25	-18.83/-6.98	-7.31/-3.98	-2.05/-2.32	-2.2/-2.31	-2.07/-3.63	-2.92/-3.03	-3.04/-1.17	-2.22/-3.05	-4.6/-8.88	-12.58/-16.32	-13.94/-15.09	-19.21/-17.86	-12.69/-19.42	-12.46/-9.02	-17.87/-12.61	-16.89/-18.08	-12.73/-10.71	-6.17/-9.09	-7.43/-2.39	-2.32/-8.6	-9.67/-18.06	-17.9/-18.36	-18.97/-17.6
Θ (105°)	-14.57/-15.83	-18.67/-10.38	-10.67/-6.09	-3.17/-2.99	-4.6/-5.99	-4.13/-3.48	-3.16/-1.3	-1.95/-4.58	-2.25/-4.18	-7.25/-10.97	-15.12/-18.95	-17.16/-17.53	-19.06/-18.82	-14.73/-18.94	-18.9/-18.42	-8.93/-10.86	-14.97/-10.11	-14.12/-9.71	-7.86/-3.77	-10.27/-4.25	-4.82/-6.83	-10.7/-18.61	-16.12/-13.57	-19.21/-12.57
Θ (112.5°)	-9.51/-11.58	-18.37/-10.25	-11.62/-9.08	-5.89/-3.68	-5.94/-6.99	-4.55/-5.42	-3.46/-3.06	-4.35/-2.9	-3.58/-4.38	-6.89/-13.55	-14.73/-16.5	-18.64/-18.78	-17.47/-18.5	-13.24/-12.79	-14.5/-11.74	-15.14/-10.8	-18.34/-18.75	-17.88/-9.18	-9.69/-10.16	-18.82/-5.05	-6.72/-7.29	-11.72/-18.62	-18.43/-13.8	-13.55/-10.8
Θ (120°)	-10.22/-7.81	-11.99/-8.94	-10.17/-10.11	-6.64/-4.17	-5.58/-5.8	-4.51/-4.82	-4.71/-4.74	-2.04/-5.81	-1.73/-6.91	-7.13/-12.68	-14.62/-13.54	-18.8/-18.84	-18.2/-12.82	-18.38/-8	-10.07/-14.55	-18.81/-19.94	-13.02/-17.27	-14.12/-14.24	-18.94/-14.04	-18.07/-13.64	-12.89/-8.85	-14.37/-19.17	-17.69/-15.27	-11.04/-11.56
Θ (127.5°)	-10.58/-7.63	-9.57/-6.41	-5.17/-5.69	-4.34/-4.24	-4.11/-3.53	-5.09/-5.21	-3.81/-0.95	-1.82/-2.76	-4.88/-5.93	-7.45/-13.31	-11.36/-18.12	-18.03/-18.26	-17.73/-14.3	-18.87/-8.73	-7.4/-4.96	-17.42/-14.29	-15.51/-17.93	-19.62/-19.06	-18.53/-18.53	-18.36/-14.82	-18.8/-17.93	-18.31/-19.27	-14.29/-14.11	
Θ (135°)	-14.66/-6.44	-4.57/-5.88	-4.93/-3.02	-2.31/-4.08	-5.42/-5.81	-5.6/-4.47	-4.9/-4.76	-3.22/-3.12	-6.96/-6.02	-18.9/-10.4	-11.16/-18.74	-13.1/-18.9	-17.33/-18.29	-18.51/-13.4	-13.72/-14.29	-18.19/-15.55	-15.73/-17.44	-17.01/-15.77	-16.65/-12.44	-15.03/-10.71	-9.82/-12.16	-18.69/-13.73	-17.98/-14.53	-19.22/-14.68
Θ (142.5°)	-11.-9/-7.7	-8.35/-6.05	-4.86/-5.07	-4.57/-4.84	-5.27/-5.01	-5.1/-6.49	-5.46/-4.67	-3.44/-6.4	-3.23/-10.75	-9.99/-14.77	-13.42/-18.13	-17.4/-17.9	-18.2/-18.98	-17.49/-11.9	-11.76/-14.28	-18.46/-19.3	-18.42/-15.14	-11.01/-12.58	-11.51/-11.49	-12.2/-7.77	-7.98/-7.91	-12.09/-10.58	-16.15/-17.46	-15.2/-12.41
Θ (150°)	-13.01/-13.26	-10.71/-10.65	-12.18/-11.57	-8.93/-6.92	-4.63/-4.9	-5.59/-4.98	-4.55/-6.1	-6.95/-6.68	-9.19/-6.56	-13.86/-10.1	-8.27/-17.19	-18.34/-18.61	-17.18/-51	-12.88/-14.69	-16.02/-15.71	-14.14/-15.15	-16.17/-18.89	-13.96/-12.45	-10.57/-7.29	-8.02/-5.68	-5.79/-5.65	-14.26/-14.43	-16.15/-17.43	-12.24/-10.34
Θ (157.5°)	-16.65/-13.39	-8.45/-7.3	-8.13/-7.33	-7.86/-9.49	-8.74/-7.11	-5.9/-4.4	-6.11/-6.34	-10.55/-8.81	-6.44/-12.7	-11.27/-7.13	-10.01/-18.36	-18.84/-19.05	-18.48/-14.79	-12.9/-17.36	-17.91/-18.63	-17.82/-14.94	-18.26/-14.97	-12.2/-11.01	-13.61/-10.89	-6.9/-6.31	-5.15/-5.55	-3.57/-4.3	-7.62/-13.56	-18.4/-18.64
Θ (165°)	-13.18/-13.53	-14.23/-14.58	-9.95/-8.35	-8.76/-7.51	-7.13/-6.74	-4.84/-5.51	-6.22/-7.91	-7.53/-9.75	-10.26/-6.15	-6.58/-8.01	-10.97/-15.88	-16.86/-14.78	-13.97/-15.2	-18.91/-17.3	-14.32/-9.52	-7.4/-7.36	-7.5/-8.39	-9.37/-6.76	-7.9/-6.8	-5.99/-5.7	-4.62/-4.32	-5.38/-6.96	-8.02/-11.24	-12.48/-12.54
Θ (172.5°)	-15.13/-11.91	-10.86/-9.23	-7.44/-6.99	-5.96/-4.1	-4.21/-4.25	-5.07/-6.02	-6.11/-7.26	-8.44/-7.98	-6.46/-5.27	-5.17/-8.33	-11.6/-15.05	-17.68/-16.19	-14.97/-11.99	-9.58/-8.73	-10.65/-13.63	-13.74/-13.64	-13.31/-10.27	-9.4/-8.38	-7.86/-10.59	-10.52/-6.67	-8.06/-7.99	-8.66/-9.8	-12.56/-16.86	-16.07/-16.06
Θ (180°)	-17.08/-17.23	-14.1/-10.79	-11.1/-11.35	-9.27/-8.29	-7.61/-7.56	-6.5/-5.93	-6.12/-6.69	-5.98/-5.49	-4.66/-4.49	-6.27/-8.53	-11.56/-10.5	-10.01/-10.95	-12.03/-10.82	-9.06/-7.64	-7.5/-5.86	-17.49/-6.05	-6.05/-6.75	-7.81/-7.89	-7.95/-8.46	-8.11/-8.58	-9.77/-11.25	-12.92/-15.23	-16.79/-16.07	-19.08/-18.74
Freq(Hz)	5.36/Pol.	Theta/Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ (0°)	-1.86/-1.74	-1.93/-2.68	-3.25/-3.33	-5.11/-5.59	-7.16/-8.27	-10.56/-13.78	-17.91/-19.17	-18.56/-15.96	-15.84/-11.36	-8.72/-8.43	-6.08/-5.24	-5.56/-6.38	-6.83/-6.16	-6.93/-6.43	-5.51/-7.35	-6.96/-8.29	-6.88/-11.63	-10.73/-14.08	-15.97/-16.14	-13.61/-12.81	-10.19/-7.82	-6.16/-4.73	-3.65/-3.12	-2.66/-1.96
Θ (7.5°)	-7.05/-6.06	-6.04/-5.51	-5.68/-6.23	-4.78/-6.65	-6.68/-8.95	-10.59/-12.29	-17.48/-19.26	-13.75/-9.42	-9.11/-6.48	-3.04/-1.95	-1.15/-1.11	-0.64/-0.74	-0.96/-0.97	-1.62/-8.9	-1.97/-3.13	-5.68/-5.45	-10.12/-10.85	-15.41/-16.09	-17.72/-15.6	-14.15/-14.66	-11.93/-9.49	-8.81/-8.1	-8.15/-6.72	
Θ (15°)	-5.68/-6.89	-6.86/-9.84	-10.15/-10.12	-11.26/-16.98	-9.57/-10.03	-11.05/-13.69	-16.58/-15.86	-13.77/-6.8	-5.75/-14.7	-1.18/0.61	1.13/0.12	-0.36/-0.24	-0.28/-0.97	-2.71/-4.61	-4.52/-4.02	-8.87/-13.19	-18.19/-18.29	-19.1/-19.17	-14.04/-12.04	-8.91/-4.67	-5.79/-5.63	-6.15/-6.31	-6.07/-6.06	
Θ (22.5°)	-2.91/-3.64	-5.11/-6.39	-8.46/-9.98	-12.4/-13.83	-12.82/-11.76	-14.5/-15.72	-16.46/-15.36	-11.03/-7.43	-3.42/-2.62	-1.24/0.23	0.03/-1.12	-0.98/0.42	0.17/-0.19	-0.39/-2.86	-3.55/-2.54	-5.54/-5.22	-5.59/-8.53	-10.16/-14.66	-19.15/-18.33	-13.77/-9.64	-6.28/-3.49	-2.25/-1.95	-2.43/-3.41	-3.84/-2.62
Θ (30°)	0.22/0	-1.25/-3.5	-5.01/-8.83	-10.89/-12.76	-19.02/-17.22	-15.51/-15.99	-15.59/-10.75	-13.15/-7.16	-3.04/-1.22	-1.11/-29	0.5/-0.3	-1.8/-3.41	-3.92/-3.67	-4.23/-2.37	-4.41/-8.34	-7.61/-10.52	-11.28/-13.32	-14.72/-18.7	-13.42/-17.88	-4.79/-2.08	-0.53/0.07	-0.97/-1.72	-2.02/-1.38	
Θ (37.5°)	0.59/1.01	0.22/-1.56	-3.23/-4.41	-6.99/-10.33	-15.32/-17.96	-14.12/-12.35	-12.19/-18.01	-16.94/-8.41	-3.51/-7.9	-1.02/0.72	1.49/1.42	0.41/-0.38	-1.48/-3.08	-4.85/-5.58	-5.78/-5.93	-3.98/-3.61	-3.17/-4.92	-6.22/-10.88	-17.94/-18	-17.73/-18.39	-8.18/-3.03	-1.30/-116	0.65/-0.77	-3.48/-2.9
Θ (45°)	-0.84/1.34	1.29/0.63	-0.57/-3.03	-6.99/-10.18	-13.96/-18.78	-18.78/-13.14	-14.92/-15.67	-9.38/-5.24	-4.94/-4.01	-1.61/-1.2	0.86/1.78	1.47/1.04	-0.72/-1.44	-4.75/-4.72	-5.24/-4.74	-6.23/-10.37	-9.89/-15.61	-16.31/-17.88	-18.03/-18.62	-18.14/-18.98	-13.15/-10.66	-5.09/-1.77	-1.58/-2.9	-11.75/-6.18
Θ (52.5°)	-3.4/-6.2	-1.63/-1.39	-1.71/-13.8	-4.06/-7.03	-13.84/-17.5	-18.31/-13.49	-18.35/-16.19	-9.62/-7.53	-6.81/-5.62	-3.74/-4.52	-0.24/-1.27	1.01/-1.8	-2.7/-3.88	-5.19/-4.22	-5.51/-7.46	-8.85/-7.28	-6.62/-6.3	-10.68/-11.24	-12.9/-18.85	-18.42/-18.55	-18.2/-13.6	-11.53/-7.46	-7.05/-6.34	-18.92/-6.4
Θ (60°)	-3.57/-3.79	-4.14/-5.29	-5.56/-3.82	-5.76/-8.69	-12.34/-16.47	-19.3/-18.67	-18.17/-16.44	-12.67/-7.29	-4.95/-5.1	-2.88/-3.53	-1.59/-5.32	-1.71/-157	-2.39/-5.12	-6.08/-10.11	-6.89/-9.79	-17.56/-18.83	-10.63/-9.32	-7.68/-9.9	-14.01/-17.08	-13.25/-12.65	-9.71/-7.89	-10.64/-10.55	-8.93/-6.08	-18.83/-8.39
Θ (67.5°)	-4.9/-6.46	-7.41/-11.28	-5.27/-5.69	-7.38/-9.06	-10.45/-13.22	-18.76/-16.27	-15.1/-18.11	-13.73/-6.5	-4.54/-3.68	-4.2/-4.01	-1.93/-1.34	-1.78/-3.13	-5.21/-7.89	-10.55/-8.64	-11.63/-17.16	-14.68/-10.72	-13.53/-13.22	-18.48/-11.58	-8.62/-12.64	-15.68/-16.8	-6.49/-3.68	-7.19/-8.15	-10.99/-10.19	-15.92/-7.47
Θ (75°)	-6.03/-4	-8																						



Radiated Composite Gain Data

Appendix A.1

Θ(75°)	-17.51/-18.61	-12.33/-18.98	-18.72/-17.22	-18.99/-18.75	-14.27/-9.49	-12.24/-14.94	-13.91/-13.57	-11.36/-17.97	-13.28/-15.38	-17.84/-18.91	-15.49/-13.54	-14.34/-19.61	-17.67/-18.07	-16.25/-14.97	-17.79/-15.03	-16.48/-13.31	-18.85/-18.78	-16.28/-18.03	-15.64/-15.86	-18.62/-19.35	-17.54/-10.66	-11.74/-13.17	-18.64/-12.58	-11.87/-13.14
Θ(82.5°)	-18.37/-17.38	-12.7/-12.24	-18.45/-18.57	-18.93/-19.09	-18.23/-16.13	-18.52/-12.25	-17.67/-18.68	-14.02/-19.02	-15.66/-14.73	-18.73/-19.11	-16.43/-13.55	-16.32/-18.73	-18.6/-17.51	-14.34/-17.37	-17.42/-18.09	-18.82/-18.32	-16.9/-17.49	-17.92/-15.98	-10.97/-10.03	-15.04/-15.61	-18.17/-14.55	-14.62/-18.69	-18.19/-9.75	-7.66/-16.14
Θ(90°)	-14.36/-13.25	-8.44/-11.2	-12.65/-13.87	-16.67/-18.99	-16.38/-10.34	-15.82/-18.44	-13.91/-12.75	-19.19/-13.35	-14.72/-10.37	-10.46/-11.76	-16.2/-11.15	-18.7/-19.04	-18.51/-19.08	-17.49/-18.33	-18.29/-17.96	-13.83/-18.91	-16.44/-18.44	-12.42/-13.25	-16.33/-16.58	-10.86/-11.7	-11.56/-19	-17.97/-18.11	-18.38/-14.44	-6.89/-14.92
Θ(97.5°)	-15.2/-12.61	-8.67/-7.63	-9.26/-11.09	-7.5/-15.18	-12.41/-9.84	-10.85/-12.83	-9.85/-9.98	-13.65/-9.44	-18.86/-19.8	-13.54/-13.09	-16.15/-13.01	-13.05/-17.2	-18.5/-18.05	-14.11/-13.78	-18.18/-14.63	-12.45/-17.64	-10.42/-18.45	-15.04/-13.58	-14.56/-11.93	-7.95/-13.67	-8.93/-10.91	-15.46/-18.64	-18.02/-11.35	-12.4/-17.91
Θ(105°)	-19.33/-10.69	-16.58/-9.13	-12.99/-8.47	-12.48/-13.44	-15.06/-13.64	-13.22/-12.11	-13.65/-14.87	-17.84/-14.14	-18.77/-16.7	-10.44/-12.66	-18.58/-10.25	-10.57/-17.86	-17.86/-14.25	-18.41/-17.98	-15.38/-11.15	-16.51/-8.98	-19.09/-14.4	-17.61/-12.65	-10.04/-17.62	-16.49/-10.4	-18.28/-18.45	-17.92/-12.05	-10.36/-17.27	
Θ(112.5°)	-18.31/-16.88	-18.17/-12.64	-17.56/-18.84	-18.26/-17.66	-18.8/-16.8	-11.67/-12.18	-17.36/-19.44	-18.27/-15.35	-18.37/-18.9	-14.83/-12.97	-16.63/-9	-13.28/-18.36	-18.16/-14.73	-15.96/-19.21	-15.99/-12.52	-14.34/-13.44	-17.54/-18.27	-19.43/-18.54	-13.07/-11.09	-8.13/-17.69	-19.38/-11.29	-18.33/-17.85	-16.99/-15.59	-16.94/-13.75
Θ(120°)	-18.22/-15.31	-14.37/-17.42	-14.92/-14.59	-14.48/-18.6	-14.23/-10.22	-14.56/-15	-18.84/-18.06	-18.22/-18.29	-17.15/-16.96	-17.34/-11.34	-12.04/-15.93	-18.87/-18.59	-14.43/-18.19	-18.84/-18.72	-14.68/-13.28	-12.51/-14.14	-12.75/-17.61	-18.67/-13.32	-10.87/-9.49	-12.12/-15.7	-16.84/-10.81	-11.78/-18.41	-14.66/-11.88	-14.73/-16.56
Θ(127.5°)	-13.16/-17.82	-18.51/-18.93	-15.14/-14.83	-13.65/-14.27	-12.81/-8.28	-12.4/-12.82	-15.6/-17.69	-17.54/-18.1	-18.33/-19.03	-14.87/-12.36	-17.99/-17.63	-19.07/-18.96	-19.19/-17.95	-18.52/-18.12	-18.51/-19.12	-17.86/-11.55	-18.03/-18.16	-18.7/-11.35	-16.8/-7.63	-15.36/-13.63	-17.56/-9.41	-12.39/-18.56	-14.84/-13.95	-18.59/-16.5
Θ(135°)	-14.17/-19.32	-19.57/-15.76	-13.59/-16.19	-13.95/-15.74	-11.87/-10.17	-16.12/-15.15	-14.41/-15.47	-17.53/-18.52	-18.41/-13.1	-14.69/-12.17	-12.95/-18.73	-18.83/-17.5	-14.87/-18.7	-18.37/-15.86	-17.97/-18.78	-17.95/-18.41	-18.98/-18.51	-18.2/-14.16	-17.55/-12.09	-11.19/-12.59	-13.68/-18.55	-18.36/-16.71	-17.29/-18.04	-12.35/-8.79
Θ(142.5°)	-19.59/-18.22	-17.77/-14.21	-16.87/-13.27	-11.77/-11.06	-11.88/-14.89	-15.35/-12.67	-10.28/-13.66	-15.9/-18.95	-18.85/-14.95	-16.83/-18.31	-17.81/-17.93	-18.85/-18.36	-18.53/-17.34	-19.35/-16.39	-16.69/-15.67	-16.8/-19.52	-13.15/-17.69	-18.77/-15.44	-17.4/-17.07	-18.55/-19.24	-18.05/-19.06	-17.92/-17.13	-18.86/-17.16	-11.52/-17.93
Θ(150°)	-14.32/-18.86	-17.87/-15.85	-17.19/-12.59	-9.81/-7.89	-9/-8.4	-8.14/-10.86	-16.1/-19.05	-17.43/-19.14	-19.26/-19.04	-17.78/-18.65	-17.58/-17.01	-12.49/-17.86	-14.69/-17.34	-12.48/-15.93	-15.76/-17.53	-18.56/-16.64	-18.91/-19.04	-17.56/-18.65	-18.91/-19.4	-15.35/-15.73	-18.16/-18.34	-18.26/-17.16	-13.72/-14.09	-16.96/-15.96
Θ(157.5°)	-15.48/-17.47	-14.54/-9.71	-11.1/-18.04	-10.34/-7.61	-6.09/-7.85	-12.76/-17.45	-15.55/-15.04	-12.5/-14.01	-11.22/-12.33	-12.56/-11.75	-14.52/-12.96	-18.13/-13.74	-17.89/-11.01	-14.59/-16.87	-15.23/-17.37	-19.76/-17.69	-17.17/-18.29	-18.23/-15.28	-17.75/-18.09	-17.51/-16.07	-18.34/-12.09	-17.59/-18.75	-13.93/-17.76	-16.5/-19.21
Θ(165°)	-18.05/-18.37	-14.62/-9.02	-9.1/-10.91	-15.85/-18.46	-16.5/-14.79	-17.91/-18.34	-19.1/-18.61	-18.95/-17.7	-16.67/-13.56	-13.71/-11.86	-13.16/-14.03	-16.58/-18.21	-14.06/-18.54	-17.23/-15.04	-17.59/-19.07	-17.23/-18.53	-19.32/-19.08	-15.62/-11.4	-14.97/-10.52	-10.62/-15.48	-15.54/-18.18	-16.35/-16.9	-15.99/-17.75	-18.87/-17.39
Θ(172.5°)	-13.74/-12.89	-11.11/-10.44	-11.53/-12.6	-15.3/-17.58	-17.72/-18.94	-17.19/-15.65	-15.42/-13.51	-12.71/-14.53	-15.38/-15.36	-19.11/-18.03	-18.28/-17.92	-17.98/-17.49	-18.95/-19.29	-19.15/-18.49	-19.06/-18.79	-17.52/-18.55	-17.76/-18.01	-17.98/-18.89	-19.06/-15.06	-16.26/-14.71	-16.86/-19.07	-18.8/-18.97	-18.34/-16.69	-15.74/-15.2
Θ(180°)	-18.43/-19.5	-18.33/-18.1	-18.61/-18.45	-19.32/-18.09	-17.96/-15.11	-14.54/-15.14	-17.08/-16.29	-15.77/-19.68	-17.73/-15.99	-19.32/-17.02	-18.27/-14.31	-16.36/-13.32	-16.3/-12.82	-13.32/-19.1	-18.92/-17.3	-17.14/-18.49	-18.95/-18.1	-18.31/-19.47	-18.42/-18.62	-18.06/-15.53	-17.77/-18.45	-17.57/-17.67	-17.87/-17.88	-18.98/-17.64
Freq(Hz)	5.2GPol.	Theta/Ant. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)*Φ(7.5°)	Φ(15°)*Φ(22.5°)	Φ(30°)*Φ(37.5°)	Φ(45°)*Φ(52.5°)	Φ(60°)*Φ(67.5°)	Φ(75°)*Φ(82.5°)	Φ(90°)*Φ(97.5°)	Φ(105°)*Φ(112.5°)	Φ(120°)*Φ(127.5°)	Φ(135°)*Φ(142.5°)	Φ(150°)*Φ(157.5°)	Φ(165°)*Φ(172.5°)	Φ(180°)*Φ(187.5°)	Φ(195°)*Φ(202.5°)	Φ(210°)*Φ(217.5°)	Φ(225°)*Φ(232.5°)	Φ(240°)*Φ(247.5°)	Φ(255°)*Φ(262.5°)	Φ(270°)*Φ(277.5°)	Φ(285°)*Φ(292.5°)	Φ(300°)*Φ(307.5°)	Φ(315°)*Φ(322.5°)	Φ(330°)*Φ(337.5°)	Φ(345°)*Φ(352.5°)
Θ(0°)	-8.75/-9.06	-10.74/-9.23	-7.33/-7.8	-8.05/-9.1	-9.38/-9.71	-10.9/-11.19	-13.06/-15.26	-18.41/-16.66	-17.54/-18.88	-18.13/-15.02	-15.24/-13.53	-11.64/-12.91	-9.24/-10.25	-10.33/-10.09	-10.85/-11.82	-13.22/-13	-13.52/-12.88	-15.33/-16.4	-13.15/-18.08	-18.22/-16.2	-18.41/-15.11	-16.06/-12.49	-13.19/-11.49	-10.31/-10.55
Θ(7.5°)	-18.28/-15.03	-14.94/-14.9	-14.66/-15.71	-15.42/-15.96	-15.1/-17.74	-16.84/-17.32	-18.72/-17.2	-16.81/-17.26	-14.36/-14.12	-10.54/-11.2	-8.65/-8.63	-8.79/-7.95	-9.66/-8.63	-7.84/-9.27	-8.35/-8.25	-8.99/-8.3	-9.36/-8.78	-10.95/-13.11	-11.2/-18.18	-18.83/-18.37	-17.87/-19.08	-18.26/-18.83	-15.65/-18.64	-16.91/-18.2
Θ(15°)	-17.74/-18.5	-18.12/-17.91	-16.17/-15.57	-14.17/-12.45	-11.8/-15.25	-15.22/-15.41	-18.73/-17.31	-18.98/-14.84	-11.1/-9.1	-9.16/-8.56	-8.43/-7.19	-6.82/-7	-6.4/-5.56	-6.15/-6.02	-7.85/-9.11	-13.76/-16.68	-18.83/-17.3	-16.63/-15.38	-14.47/-11.71	-14.71/-16.94	-14.64/-18.15	-16.4/-17.29	-14.51/-14.69	-13.19/-18.47
Θ(22.5°)	-15.29/-17.78	-15.48/-17.98	-11.96/-9.1	-9.69/-10.24	-14.65/-18.9	-16.08/-11.76	-10.75/-11.61	-10.39/-8.89	-8.87/-9.79	-10.37/-11.91	-12.68/-11.51	-7.86/-6.34	-5.36/-5.89	-7.8/-10.02	-15.44/-11.66	-10.41/-12.6	-19.37/-18.5	-13.97/-11.26	-13.09/-17.88	-17.71/-18.02	-17.27/-13.62	-15.81/-16.09	-15.61/-13.61	-13.72/-15.22
Θ(30°)	-9.14/-10.97	-7.79/-9.1	-12.36/-11.5	-9.21/-8.14	-7.24/-5.56	-4.98/-5.42	-8.26/-10.63	-7.58/-8.17	-8.84/-7.55	-7.22/-5.62	-8.66/-8.76	-12.19/-7.5	-6.2/-5.57	-5.6/-5.92	-8.27/-11.46	-17.74/-14.31	-13.62/-17.12	-16.65/-10.11	-8.97/-14.08	-18.87/-14.18	-16.39/-15.99	-14.74/-18.07	-14.36/-14.77	
Θ(37.5°)	-3.03/-4.57	-7.18/-5.2	-4.18/-6.51	-7.17/-6.69	-9.81/-7.69	-1.64/-8.09	-6.16/-8.63	-5.46/-10.73	-1.22/-4.08	-7.39/-15.72	-17.84/-13.41	-11.58/-6.31	-6.9/-6.63	-13.46/-17.75	-10.51/-17.66	-12.64/-18.31	-10.68/-6.53	-10.92/-18.35	-7.94/-5.68	-11/-16.56	-10.99/-8.83	-7.05/-7.35	-3.21/-9.87	
Θ(45°)	-15.51/-13.89	-12.13/-11.49	-8.54/-9.04	-6.36/-6.05	-7.19/-6.34	-11.6/-10.22	-8.9/-13.77	-7.71/-10.72	-7.25/-7.41	-16.26/-8.73	-6.22/-8.7	-9.11/-8.06	-15/-11.49	-18.9/-14.91	-18.45/-9.46	-9.49/-19.04	-11.73/-18.28	-12.73/-9.37	-9.04/-18.13	-12.31/-14.11	-18.29/-15.08	-8.55/-5.98	-8.17/-10.24	-10.7/-12.71
Θ(52.5°)	-10.29/-12.28	-9.9/-7.85	-5.85/-14.45	-19.19/-17.52	-10.1/-9.19	-9.98/-5.73	-10.91/-12.1	-10.55/-17.16	-8.24/-13.83	-10.77/-8	-9.81/-11.2	-10.59/-15.87	-16.72/-13.82	-13.91/-14.2	-13.78/-16.67	-9.9/-18.4	-17.3/-15.51	-13.5/-8.77	-8.9/-16.86	-18.54/-19.02	-9.45/-19.2	-15.57/-18.12	-13.58/-9.41	-8.14/-13.17
Θ(60°)	-8.83/-6.44	-4.9/-3.44	-1.24/-4.13	-6.09/-7.21	-13.81/-9.25	-1.65/-10.43	-6.89/-10.28	-13.62/-12.48	-4.66/-10.93	-8.89/-4	-6.81/-11.45	-17.98/-8.63	-3.92/-13.21	-7.66/-3.66	-5.21/-10.91	-6.82/-8.15	-9.46/-13.59	-7.59/-5.06	-6.81/-18	-13.29/-13.27	-14.78/-8.57	-10.63/-3.06	-2.89/-1.89	-4.92/-6.41
Θ(67.5°)	-2.72/-2.63	-5.91/-10.42	-4.95/-8.87	-6.49/-6.33	-8.16/-9.53	-16.84/-6.2	-14.74/-8.02	-11.01/-7.12	-7.02/-6.35	-4.62/-2.69	-4.79/-6.93	-2.120/-19	-0.74/-1.83	-4.52/-4.28	-0.63/-4.79	-4.66/-2.66	-6.51/-4.34	-5.74/-4.28	-13.06/-9.66	-8.07/-8.5	-9.27/-4.27	-1.57/-1.74	-0.21/-1.69	-1.77/-2.06
Θ(75°)	-2.49/-2.51	-8.11/-12.86	-4.95/-7.46	-10.31/-16.89	-9.68/-7.81	-13.57/-3.1	-8.39/-4.62	-7.43/-2.65	-4.34/-1.95	-0.430/-88	-1.15/-1.05	-0.012/-8	1.550/-71	-0.6/-0.8	0.5/-1.26	-1.7/-6.05	-1.63/-1.7	-7.5/-2.15	-8.37/-4.07	-7.32/-11.18	-6.43/-6.48	-2.65/-6.83	-4.43/-6.84	-4.97/-4.11
Θ(82.5°)	-1.68/-2.04	-5.86/-2.62	-2.1/-1.9	-2.41/-6.89	-7.07/-8.03	-4.18/-1.67	-2.06/-2.52	-4.15/-0.75	-5.46/-0.13	0.891/-44	-1.770/-38	-1.480/-72	-0.84/-0.45	-1.14/-0.39	0.92/-0.12	-1.27/-3.66	-0.75/-5.33	-1.43/-0.49	-2.25/-0.29	-2.14/-4.46	-15.25/-4.78	-7.18/-5.04	-1.75/-5.88	-3.87/-3.74
Θ(90°)	-2.75/-4.59	-8.97/-6.77	-0.16/-2.62	-4.28/-3.25	-5.19/-6.56	-2.070/-22	-1.570/-0.2	-1.421/-84	-3.76/-2.27	1.233/-05	1.030/-77	0.091/-51	2.442/-6	-1.271/-85	1.930/-65	-1.62/-2.96	-2.08/-3.51	1.160/-9	-1.010/-17	0.75/-2.3	-3/-2.11	-1.18/-4.41	-3.03/-3.78	-5.15/-3.75
Θ(97.5°)	-9.94/-8.84	-8.27/-7.84	-3.36/-2.3	-5.87/-8.83	-4.59/-3.69	-4.441/-03	-1.610/-0.2	-0.912/-49	-1.1/-1.76	-2.01/-1.96	2.243/-08	-0.161/-24	4.722/-7	-0.482/-63	1.861/-7	-1.86/-2.63	-1.09/-9.82	-0.28/-0.65	-0.121/-2	0.9/-4.83	-4.44/-4.27	0/-5.76	-0.21/-5.68	-7.69/-6.88
Θ(105°)	-4.07/-1.97	-3.46/-3.71	0.51/-0.7	-1.52/-1.57	-2.73/-2.06	-4.210/-72	0.83/-144	-2.320/-88	-1.71/-49	-2.66/-3.8	-0.950/-09	-4.25/-3.57	2.908/-9	-2.63/-2.6	-0.791/-38	-2.72/-0.88	-3.31/-1.96	-2.18/-3.64	0.71/-4.7	-0.73/-1.5	-17.7/-5.37	1.46/-5.87	-5.9/-6.82	
Θ(112.5°)	-12.39/-6.25	-4.56/-3.48	-0.41/-1.85	-1.8/-0.85	-2.39/-2.2	-5.56/-0.37	-0.19/-3.2	-4.27/-2.47	-5.03/-4.92	-2.51/-5.73	-5.43/-5.07	-19.21/-13.23	-6.54/-2.78	-11.95/-12.64	-11.52/-1.03	-4.04/-4.27	-4.78/-5.07	-7.47/-6.61	-3.04/-0.6	-2.89/-9.44	-6.87/-2.01	-9.86/-4.31	-2.02/-7.68	-4.5/-15.72
Θ(120°)	-6.44/-3.38	-2.55/-8.5																						



Radiated Composite Gain Data

Appendix A.1

Θ (112.5°)	-10.5/-19.36	-18.24/9.32	-4.77/-3.16	-2.65/-1.95	-2.6/-6.42	-11.75/-11.99	-13.85/-19.39	-13.73/-9.07	-8.1/-10.06	-10.6/-7.71	-5.58/-5.89	-10.33/-17.09	-14.42/-16.19	-18.4/-18.28	-17.69/-19.34	-11.53/-12.67	-18.66/-18.38	-18.3/-17.72	-16.79/-10.93	-7.23/-6.44	-8.56/-12.37	-15.54/-17.75	-18.65/-12.58	-8.1/-7.07
Θ (120°)	-9.69/-11.84	-12.28/-9.84	-6.56/-5.7	-6.35/-6.33	-7.64/-17.65	-12.37/-6.66	-7/-10.87	-13.09/-11.2	-12.1/-18	-18.31/-13.3	-9.4/-9.23	-12.27/-13.65	-13.84/-17.06	-18.91/-18.27	-11.78/-12.74	-11.48/-12.8	-18.23/-17.64	-18.67/-14.94	-12.25/-8.72	-5.83/-5.06	-6.44/-9.58	-13.89/-14	-10.14/-8.37	-7.09/-6.75
Θ (127.5°)	-7.53/-10.1	-17.58/-18.44	-13.24/-11.6	-9.02/-6.33	-6.15/-8	-5.5/-3.07	-6.15/-8	-14.25/-17.2	-17.92/-18.85	-18.77/-18.83	-18.68/-19.57	-18.14/-18.57	-18.07/-17.83	-18.99/-19.35	-11.3/-11.46	-12.53/-14.62	-18.19/-18.82	-18.59/-14.1	-13.66/-11.79	-8.71/-8.1	-10.08/-14.58	-18.92/-16.35	-10.79/-9.31	-7.67/-6.35
Θ (135°)	-10.46/-11.45	-11.46/-7.27	-4.74/-3.85	-3.12/-2.53	-3.19/-5.95	-8.96/-7.44	-6.55/-6.61	-14.97/-18.8	-18.33/-13.21	-11.56/-12.55	-14.56/-18.86	-19.25/-17.86	-12.71/-9.55	-11.31/-18.52	-13.76/-11.99	-12.17/-13.41	-18.47/-18.28	-17.76/-14.15	-13.28/-14.19	-14.39/-15.25	-18.43/-17.97	-14.04/-12.11	-11.51/-14.03	-15.83/-11.36
Θ (142.5°)	-14.27/-13.63	-10.96/-7.01	-4.47/-3.57	-3.52/-4.07	-5.94/-17.1	-18.83/-19.03	-7.28/-2.73	-18.93/-16	-13.37/-16.19	-18.93/-15	-17.35/-18.25	-17.3/-16.19	-10.81/-9.39	-11.91/-17.32	-14.3/-12.81	-13.09/-13.89	-18.23/-17.54	-17.09/-16.37	-16.25/-17.67	-18.94/-17.73	-18.96/-15.16	-11.61/-11.2	-11.72/-14	-17.96/-17.9
Θ (150°)	-14.64/-12.77	-10.58/-7.84	-5.48/-4.76	-5.35/-6.88	-10.14/-17.03	-17.18/-9.78	-7.01/-6.74	-8.27/-11.57	-15.89/-15.81	-14.9/-16.06	-18.46/-17.26	-19.22/-15.94	-18.22/-11.61	-15.74/-19.06	-18.82/-17.48	-15.47/-13.95	-14.71/-17.14	-18.61/-18.35	-17.87/-18.57	-18.5/-16.06	-13.22/-11.21	-10.52/-11.84	-15.25/-18.48	-18.89/-18.8
Θ (157.5°)	-15.41/-12.64	-10.23/-8.37	-6.99/-6.72	-7.76/-9.47	-11.76/-14.18	-13.4/-10.89	-9.29/-9.08	-9.96/-12.75	-18.76/-19.33	-18.5/-17.94	-17.85/-18.05	-18.13/-15.87	-13.71/-14.69	-19.5/-17.65	-18.58/-15.58	-11.42/-9.49	-9.23/-9.78	-10.87/-11.97	-13.39/-14.47	-13.45/-11.6	-10.27/-9.56	-9.87/-11.1	-13.67/-17.91	-17.8/-18.39
Θ (165°)	-17.63/-16.27	-13.66/-12.03	-11/-11.85	-10.49/-10.92	-12.01/-12.89	-13.33/-14.42	-15.56/-15.89	-15.26/-16.32	-18.5/-19.04	-17.09/-19.42	-17.3/-18.9	-19.38/-18.14	-18.06/-18.72	-18.52/-18.01	-14.59/-10.1	-7.25/-5.59	-5.01/-4.9	-4.89/-5.14	-5.8/-6.73	-7.85/-8.85	-9.68/-10.78	-12.53/-13.87	-16.01/-17.94	-18.44/-17.75
Θ (172.5°)	-19.11/-18.28	-17.99/-16.35	-15.37/-14.38	-13.32/-13.13	-13.81/-16.18	-16.26/-19.12	-18.6/-19.01	-18.24/-16.57	-15.66/-15.63	-16.94/-19	-18.81/-19.45	-18.87/-19.06	-18.09/-18.19	-17.71/-14.2	-10.88/-7.95	-5.73/-4.56	-4.02/-3.63	-3.41/-3.33	-3.54/-4.06	-4.92/-6	-7.22/-8.57	-10.54/-13.11	-15.62/-17.3	-19.12/-17.1
Θ (180°)	-16.48/-19.01	-18.7/-18.07	-17.62/-17.88	-15.25/-13.87	-13.46/-13.66	-13.36/-13.1	-13.02/-12.54	-12.06/-11.6	-11.68/-12.02	-13.1/-14.97	-17.31/-18.96	-17.87/-17.25	-18.3/-14.67	-12.34/-10.55	-8.64/-7.04	-5.89/-5.29	-5.06/-4.97	-4.75/-4.68	-4.72/-4.83	-5.19/-5.87	-6.49/-6.96	-8.13/-9.55	-10.61/-11.46	-12.05/-13.41
Freq(Hz)	2.45GPol.	Theta/Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ (0°)	-13.34/-12.53	-11.81/-11.29	-10.92/-10.69	-10.43/-10.49	-11.01/-11.52	-11.83/-12.65	-15.55/-18.13	-19.2/-17.65	-18.07/-17.48	-19.1/-19.25	-18.68/-15.96	-13.31/-11.84	-11.5/-11.68	-11.79/-11.41	-10.74/-10.03	-9.85/-10.27	-10.9/-11.04	-10.85/-10.93	-11.74/-12.71	-13.74/-15.14	-17.08/-18.34	-19.92/-18.24	-18.74/-18.15	-17.41/-14.67
Θ (7.5°)	-10.51/-9.97	-9.52/-9.15	-8.66/-8.28	-7.82/-7.48	-7.47/-7.62	-7.82/-8.47	-9.54/-10.48	-11.11/-11.73	-12.83/-13.94	-15.51/-18.39	-18.06/-17.65	-16.84/-13.95	-12.56/-12.06	-11.93/-11.85	-11.79/-11.85	-12.24/-13.01	-13.69/-13.86	-14.02/-14.58	-15.71/-17.8	-19.1/-18.1	-19.21/-17.8	-17.38/-19.08	-17.02/-14.55	-12.72/-11.44
Θ (15°)	-8.61/-8.73	-7.17/-6.76	-6.5/-6.33	-6.26/-6.14	-5.9/-5.65	-5.47/-5.57	-5.74/-5.88	-6.1/-6.77	-7.67/-8.51	-9.39/-10.46	-11.84/-12.7	-11.85/-9.87	-8.21/-7.37	-7.22/-7.4	-7.75/-8.13	-8.54/-8.94	-9.16/-9.3	-9.86/-10.7	-11.51/-12.8	-14.64/-17.17	-18.69/-18.56	-18.29/-18.3	-15.47/-12.95	-11.02/-9.58
Θ (22.5°)	-9.88/-7.69	-6.9/-6.47	-6.3/-6.48	-7.09/-7.85	-8.28/-8	-7.28/-6.69	-6.21/-5.57	-5.04/-4.97	-5.15/-5.54	-5.83/-64	-7.35/-8.08	-7.5/-5.8	-4.28/-3.5	-3.51/-4.08	-4.95/-5.79	-6.29/-6.18	-5.71/-5.59	-6.14/-6.9	-7.62/-8.82	-10.42/-11.53	-12.35/-13.32	-14.22/-15.32	-16.13/-15.2	-12.87/-10.66
Θ (30°)	-9.33/-8.19	-7.48/-7.39	-7.98/-9.38	-11.96/-15.97	-15.34/-11.62	-9.04/-7.93	-7.51/-6.85	-5.93/-5.01	-4.23/-3.86	-3.6/-3.81	-4.5/-5.38	-5.57/-4.35	-2.65/-1.54	-1.35/-1.98	-3.2/-4.72	-5.3/-4.55	-3.65/-3.59	-4.31/-5.44	-6.48/-7.58	-8.39/-8.64	-9.02/-9.6	-10.12/-10.57	-10.89/-11.29	-11.31/-10.52
Θ (37.5°)	-7.65/-7.71	-7.48/-7.18	-7.98/-9.98	-11.98/-10.68	-6.94/-8.43	-4.18/-4.95	-6.23/-1.16	-7.33/-6.46	-5.6/-4.74	-4.15/-3.97	-3.97/-4.24	-4.49/-3.96	-2.63/-1.27	-0.74/-1.77	-2.47/-4.2	-4.63/-3.45	-2.57/-2.83	-3.91/-5.07	-5.7/-6.01	-5.96/-6.19	-7.2/-8.68	-9.91/-10.35	-9.44/-8.2	-7.3/-7.11
Θ (45°)	-4.84/-5.86	-5.78/-5.41	-6.05/-7.17	-6.86/-4.68	-2.96/-2.13	-2.49/-3.77	-4.71/-4.57	-5.35/-4.83	-4.55/-4.57	-4.49/-4.31	-4.32/-4.18	-3.46/-2.17	-1.09/-9.91	-1.7/-3.05	-3.09/-1.9	-1.3/-1.83	-2.99/-3.41	-2.96/-2.62	-2.65/-3.3	-4.71/-6.74	-9.1/-10.6	-9.74/-6.58	-4.43/-3.83	
Θ (52.5°)	-3.26/-4.35	-4.22/-4.2	-4.96/-5.38	-4.52/-3.2	-2.33/-2.12	-2.61/-3.48	-3.04/-2.84	-3.04/-3.95	-4.56/-4.42	-4.33/-4.82	-5.01/-5.23	-5.65/-5	-4.08/-2.99	-1.88/-1.27	-1.72/-2.66	-2.21/-0.98	-0.64/-1.33	-1.84/-1.09	-0.38/-0.36	-0.83/-1.66	-2.97/-4.62	-6.58/-8.7	-8.07/-4.97	-17.2/-21.8
Θ (60°)	-3.77/-4.28	-3.6/-3.51	-4.32/-4.75	-4.43/-4.17	-4.14/-4.53	-5.53/-6.29	-5.37/-4.44	-4.51/-5.54	-7.75/-9.37	-8.58/-8.51	-7.42/-6.18	-7.01/-6.45	-4.16/-2.76	-1.97/-1.36	-1.26/-2.21	-2.39/-1.04	-0.54/-1.08	-0.81/-0.45	1.02/-0.6	-0.31/-1.09	-1.77/-2.74	-3.96/-5.04	-5.18/-3.95	-2.66/-2.54
Θ (67.5°)	-3.86/-2.54	-1.53/-1.73	-2.92/-4.19	-5.19/-5.94	-6.62/-8.68	-11.21/-9.85	-7.4/-5.58	-4.56/-4.34	-5.67/-6.28	-17.38/-19.16	-13.11/-7.69	-8.16/-9.1	-5.12/-2.53	-1.63/-0.8	0.08/-0.52	-1.42/-0.52	-0.22/-0.91	-0.250.94	1.27/-0.44	-0.59/-1.12	-1.3/-2.12	-3.33/-3.67	-3.18/-2.85	-3.07/-3.76
Θ (75°)	-2.07/-0.38	-0.02/-0.68	-2.03/-2.97	-3.24/-3.35	-4.05/-6.7	-8.75/-7.12	-8.54/-5.4	-3.48/-2.43	-1.91/-2.85	-5.54/-6.39	-5.63/-4.57	-4.93/-8.85	-9.57/-5.43	-3.89/-2.18	-0.02/-0.05	-0.87/-0.06	0.01/-13	3.43/-1.98	0.25/-0.16	-0.23/-1.11	-2.74/-3.22	-2.23/-1.6	-2.62/-3.85	-19.12/-17.1
Θ (82.5°)	-1.22/-0.5	0.29/-0.36	-1/-0.98	-0.86/-0.97	-1.89/-5.12	-6.27/-4.66	-3.94/-3.86	-3.57/-2.41	-1.08/-0.76	-2.08/-2.84	-2.33/-2.31	-3.02/-5.35	-7.71/-6.57	-6.07/-3.87	-0.98/-0.9	-1.79/-0.43	-0.47/-1.59	-1.06/-0.06	0.41/-0.41	0.41/-0.44	0.5/-0.12	-1.54/-2.24	-1.46/-1.01	-2.71/-4.56
Θ (90°)	-0.92/-0.94	0.63/-0	-0.6/-0.99	-0.96/-0.63	-1.51/-5.09	-5.35/-3.61	-3.67/-4.47	-5.36/-4.43	-2.43/-1.08	-1.23/-2.01	-1.69/-1.92	-3.21/-5.13	-6.7/-7.28	-8.7/-5.79	-1.61/-1.42	-2.73/-1.39	-1.76/-3.18	-2.88/-1.98	-2.07/-2.14	-1.69/-1.23	-0.63/-0.35	-1.11/-2.25	-2.47/-2.53	-4.61/-6.28
Θ (97.5°)	-0.96/-0.57	-0.18/-0.17	-1.79/-2.85	-2.38/-1.36	-2.58/-6.76	-6.01/-4.28	-4.43/-5.75	-4.88/-5.83	-3.32/-1.69	-1.69/-2.58	-7.23/-2.33	-6.32/-4.92	-5.75/-4.63	-4.83/-5.09	-2.79/-3.17	-4.85/-3.15	-3.73/-5.5	-4.95/-3.97	-4.87/-5.51	-4.29/-5.2	-7.80/-4.04	-0.89/-3	-4.35/-4.8	-6.96/-6.18
Θ (105°)	-1.32/-0.69	-1.92/-2.71	-3.15/-5.3	-6.05/-3.87	-5.21/-10.62	-8.49/-6.01	-5.92/-1.84	-10.68/-7.07	-4.77/-5.09	-6.59/-7.92	-7.71/-5.12	-4.8/-6.58	-6.98/-8.05	-12.93/-10.38	-4.67/-4.38	-5.29/-3.14	-2.76/-4.96	-6.83/-6.74	-7.77/-10.66	-10.25/-31	-1.85/-0.91	-2.69/-6.77	-8.87/-7.91	-7.85/-5.21
Θ (112.5°)	-1.97/-2.72	-4.98/-6.34	-6.82/-11	-13.81/-7.66	-8.99/-15.77	-11.21/-8.11	-8.27/-10.98	-10.87/-5.9	-4.14/-6.12	-13.03/-17.38	-17.11/-8.86	-6.67/-8.01	-8.41/-8.83	-12.58/-15.38	-9.16/-8.4	-8.32/-3.75	-2.69/-4.42	-5.95/-5.9	-5.2/-5.32	-5.86/-4.45	-2/-1.79	-5.3/-13.7	-10.85/-7.59	-4.12/-2.94
Θ (120°)	-6.17/-8.34	-13.06/-18.26	-17.81/-17.98	-15.48/-17.91	-13.48/-18.42	-11.63/-9.97	-11.18/-12.47	-9.77/-6.57	-5.69/-8.19	-17.37/-18.58	-18.88/-10.67	-6.82/-7.3	-8.28/-8.2	-10.99/-8.51	-6.6/-6.14	-9.73/-6.21	-4.46/-6	-7.23/-6.37	-5.01/-4.21	-4.28/-4.73	-4.63/-4.85	-8.47/-17.3	-9.77/-5.95	-4.69/-5.02
Θ (127.5°)	-8.73/-8.1	-8.37/-10.31	-13.61/-13.93	-11.29/-11.24	-13.7/-11.29	-7.91/-7.34	-8.71/-9.79	-10.01/-10.22	-12.08/-18.36	-18.25/-18.2	-17.92/-13.43	-9.48/-9.9	-10.87/-8.97	-8.58/-6.14	-4.03/-4.54	-7.48/-6.4	-5.12/-5.85	-6.38/-5.23	-3.63/-2.72	-2.89/-4.41	-6.96/-10.15	-13.4/-8.82	-5.98/-5.85	-7.14/-9.22
Θ (135°)	-12.19/-9.35	-8.43/-7.34	-5.75/-4.76	-4.87/-6.86	-9.64/-9.74	-7.24/-6.69	-7.58/-9.38	-11.73/-15.39	-17.48/-17.64	-17.24/-15.1	-17.26/-17.47	-18.15/-18.59	-19.19/-16.35	-12.5/-9	-6.61/-6.66	-8.89/-8.66	-7.08/-7.24	-7.6/-8.64	-5.17/-3.78	-3.67/-5.02	-7.58/-10.44	-10.67/-8.7	-7.77/-9.21	-13.08/-18.55
Θ (142.5°)	-8.26/-6.68	-6.27/-3.69	-2.64/-2.26	-3.34/-6.17	-9.55/-9.53	-7.52/-6.57	-7.63/-10.78	-16.39/-18.03	-17.51/-16.92	-12.68/-10.13	-9.58/-10.96	-13.25/-14.3	-14.11/-13.65	-14.88/-15.88	-19.3/-17.2	-9.26/-17.1	-14.13/-13.15	-12.3/-11.04	-9.75/-8.58	-8.37/-9.57	-14.79/-13.69	-14.14/-15.23	-18.29/-17.86	-16.09/-11.72
Θ (150°)	-7.75/-6.54	-5.22/-4.06	-3.22/-3.2	-4.47/-7.32	-10.13/-11.05	-10.8/-11.19	-13.66/-18.5	-15.94/-11.12	-8.58/-7.49	-7.33/-7.74	-8.33/-8.79	-8.63/-8.14	-7.94/-8.3	-9.59/-12.4	-15.5/-14.48	-13.63/-14.3	-16.25/-19.1	-18.87/-16.85	-15.51/-14.31	-13.4/-12.35	-11.16/-10.53	-10.71/-11.86	-13.31/-13.35	-11.52/-9.5
Θ (157.5°)	-8.83/-7.49	-6.25/-5.4	-4.59/-6.45	-5.86/-8.21	-11.38/-13.88	-16.44/-16.98	-14.22/-15.12	-8.87/-6.78	-5.8/-5.52	-5.67/-6.17	-6.5/-6.54	-6.32/-6.13	-6.58/-7.73	-9.74/-12.27	-12.92/-11.2	-8.89/-9.59	-10.1/-10.12	-8.56/-8.45	-8.49/-8.94	-9.26/-9.61	-10.66/-12.73	-14.73/-14.76	-12.73/-10.48	



Radiated Composite Gain Data

Appendix A.1

Θ (150°)	-18.55/-10.69	-10.91/-11.45	-8.52/-10.04	-9.7/-9.52	-12.59/-17.87	-18.82/-12.05	-12.38/-17.18	-10.5/-10.28	-14.36/-18.27	-15.3/-11.42	-8.6/-11.26	-11.88/-18.29	-11.29/-10.56	-12.76/-11.1	-11.37/-9.7	-7.14/-10.63	-15.24/-17.97	-15.3/-15.5	-18.88/-15.63	-11.15/-10.54	-9.66/-7.83	-8.78/-9.65	-13.71/-16.03	-11.58/-11.21
Θ (157.5°)	-18.07/-10.55	-6.94/-6.17	-5.54/-6.47	-7.89/-11.23	-15.3/-18.88	-18.71/-15.03	-11.09/-8.28	-7.73/-9.64	-12.56/-17.78	-18.28/-17.83	-18.59/-18.37	-17.71/-10.29	-7.02/-6.79	-7.44/-11.1	-5.71/-5.53	-6.29/-14.08	-15.65/-15.67	-12.99/-14.03	-18.48/-14.78	-10.41/-8.93	-5.91/-4.49	-4.71/-5.66	-5.88/-5.19	-5.09/-8.24
Θ (165°)	-12.5/-19.05	-13.91/-15.3	-15.9/-14.7	-13.13/-15	-16.3/-19.11	-17.47/-17.56	-18.59/-18.62	-16.43/-13.41	-11.96/-13.42	-16.17/-18.09	-14.77/-11.29	-8.17/-5.94	-6.19/-7.77	-7.16/-6.2	-6.3/-8.86	-16.1/-11.38	-14.1/-15.14	-14.37/-15.23	-18.08/-18.21	-18.13/-17.43	-10.9/-9.41	-9.54/-7.86	-6.52/-6.06	-6.29/-6.76
Θ (172.5°)	-14.84/-18.86	-18.8/-17.58	-17.8/-17.89	-15.86/-13.22	-13.27/-13.73	-15.13/-16.32	-16.7/-13.9	-12.44/-11.64	-10.8/-10.58	-10.44/-9.97	-8.84/-9.34	-11.18/-11.74	-10.49/-9.16	-8.46/-8.93	-10.14/-11.49	-12.27/-11.51	-11.72/-12.49	-14.77/-15.88	-15.99/-16.28	-16.49/-15.26	-13.39/-13.41	-18.63/-18.08	-12.81/-10.92	-13.54/-13.48
Θ (180°)	-12.75/-13.19	-11.65/-10.91	-9.52/-10.2	-12.09/-15.5	-19.29/-18.3	-17.47/-18.01	-18.91/-18.78	-15.86/-14.7	-14.59/-14.69	-13.7/-11.51	-9.76/-9.82	-9.9/-9.46	-8.6/-7.53	-6.65/-6.45	-6.43/-6.44	-6.78/-7.34	-8.43/-10.65	-12.37/-14.26	-15.37/-18.48	-18.38/-18.31	-17.91/-18.92	-17.52/-13.7	-12.79/-12.67	-12.67/-12.62
Freq(Hz)	5.36/Pol.	Theta/Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ (0°)	-19.1/-18.54	-18.13/-18.74	-17.68/-18	-18.2/-18.49	-19.02/-18.58	-18.36/-19.15	-18.81/-17.79	-19.29/-19.32	-18.92/-14.9	-12.17/-10.35	-11.31/-13.24	-13.45/-11.83	-11.99/-12.84	-13.45/-14.53	-15.96/-16.8	-17.35/-16.17	-14.04/-13.06	-11.74/-10.63	-10.89/-10.44	-9.84/-9.65	-10.71/-11.08	-11.25/-14.1	-15.66/-15.7	-17.97/-17.5
Θ (7.5°)	-11.63/-12.59	-12.55/-13.96	-15.7/-18.56	-18.05/-15.84	-13.78/-12.88	-12.91/-12.86	-12.98/-13.99	-15.64/-18	-18.9/-17.34	-16.69/-14.36	-14.8/-15.15	-16.67/-15.47	-14.03/-14.48	-14.34/-14.87	-14.34/-15.65	-15.28/-14.37	-14.33/-14.99	-15.77/-16.37	-18.13/-17.6	-18.84/-18.92	-19.08/-17.54	-14.11/-14.41	-12.38/-11.05	-11.04/-10.71
Θ (15°)	-14.57/-16.17	-19.08/-17.94	-18.51/-19.92	-16.89/-14.44	-16.21/-15.18	-17.65/-17.77	-16.61/-13.84	-11.45/-10.02	-10.42/-11.56	-12.5/-12.26	-12.01/-11.13	-9.1/-7.65	-7.99/-9.47	-10.08/-9.77	-8.47/-9	-9.17/-8.91	-8.52/-8.92	-9.64/-9.96	-10.59/-11.13	-10.67/-10.07	-9.95/-9.72	-10.98/-12.41	-11.78/-10.97	-10.6/-12.44
Θ (22.5°)	-7.92/-9.93	-10.2/-7.6	-7.51/-7.97	-7.76/-6.88	-7.33/-9.69	-10.06/-8.88	-7.77/-6.96	-6.81/-8.09	-10.25/-12.32	-12.46/-10.64	-9.24/-9.16	-10.14/-8	-7.71/-10.01	-11.79/-0.5	-6.37/-6.02	-7.1/-7.77	-7.72/-6.58	-5.84/-5.7	-6.92/-8.25	-9.57/-10.4	-9.06/-8.75	-8.03/-9.24	-9.97/-9.32	-7.76/-7.3
Θ (30°)	-8.43/-11.51	-8.36/-6.59	-6.05/-6.47	-5.35/-5.43	-6.32/-8.53	-9.21/-0.7	-9.96/-8.14	-5.61/-3.32	-2.74/-3.88	-6.41/-8.91	-9.62/-10.17	-9.9/-7.06	-5.58/-7.35	-12.96/-13.95	-10.94/-10.03	-11.41/-12.17	-14.0/-10.7	-7.03/-4.26	-3.1/-2.77	-2.78/-3.74	-6.21/-10.32	-11.52/-7.9	-7.03/-7.41	-8.09/-7.79
Θ (37.5°)	-13.44/-7.69	-6.7/-7.33	-8.67/-11.82	-9.9/-9.31	-7.08/-7.25	-7.88/-6.54	-4.54/-4.06	-5/-6.38	-7.34/-8.77	-12.88/-13.86	-8.77/-6.97	-10.71/-10.95	-6.45/-9.28	-14.76/-7.87	-10.45/-14.16	-10.33/-10.67	-8.66/-7.14	-9.05/-9.81	-9.24/-7.02	-6.53/-7.41	-6.72/-6.34	-6.35/-4.82	-3.98/-3.81	-6.13/-11.78
Θ (45°)	-10.55/-7.51	-8.32/-8.81	-9.95/-9.43	-7.73/-13	-17.35/-17.5	-15.32/-15.21	-17.18/-13.17	-12.27/-11.58	-11.91/-9	-8.9/-12.45	-16.44/-9.26	-12.01/-16.88	-12.51/-9.45	-13.1/-5.46	-9.78/-15.27	-8.89/-12.12	-12.58/-14.29	-10.67/-8.1	-7.52/-4.62	-3.1/-3.41	-4.29/-8.82	-5.76/-6.16	-11.03/-7.55	-7.11/-13.26
Θ (52.5°)	-6/-18.17	-12.23/-17.53	-13.29/-17.95	-7.57/-7.6	-8.96/-9.13	-7.29/-5.87	-3.87/-4.62	-8.76/-10.85	-14.23/-18.11	-13.86/-12.92	-11.59/-17.38	-16.61/-17.56	-15.92/-15.42	-16.59/-12.35	-11.87/-17.89	-15.08/-14.69	-14.28/-15.34	-8.13/-6.48	-6.34/-7.48	-6.81/-6.68	-5.33/-4.32	-6.71/-4.59	-11.09/-9.48	-7.11/-7.16
Θ (60°)	-13.85/-16.35	-9.88/-12.62	-3.78/-6	-3.22/-6.45	-4/-3.53	-7.15/-7.69	-5.82/-8.22	-9.34/-6.64	-4.91/-10.48	-9.44/-19.09	-11.71/-8.04	-17.35/-18.88	-17.29/-16.7	-11.28/-18.55	-18.67/-14.96	-7.35/-10.78	-12.7/-13.21	-10.86/-7.22	-5.59/-8.6	-8.79/-5.41	-10.59/-12.34	-11.35/-11.14	-7.6/-13.83	-12.34/-18.46
Θ (67.5°)	-8.55/-6.06	-13.37/-10.33	-6.99/-9.33	-16.93/-7.78	-3.88/-4.61	-8.04/-7.41	-6.77/-4.99	-5.53/-5.91	-2.83/-3.11	-10.32/-4.42	-9.88/-7.88	-8.38/-12.37	-17.94/-5.95	-13.98/-11.69	-8.7/-8.42	-5.57/-7.13	-9.06/-9.32	-14.86/-8.63	-6.13/-9.4	-6.79/-9.47	-8.66/-18.95	-12.64/-12.92	-5.09/-18.22	-6.5/-11.21
Θ (75°)	-15.39/-6.12	-15.58/-7.1	-8.98/-14.1	-15.22/-11.59	-11.24/-9.1	-2.13/-2.92	-2.15/-1.66	-4.13/-3.91	-5.52/-2.49	-1.03/-2.47	-4.73/-8.42	-3.69/-12.38	-10.24/-5.55	-9.68/-6.92	-5.8/-5.41	-1.27/-3.56	-6.68/-4.3	-7.75/-7.49	-4.11/-4.89	-9.49/-4.89	-5.04/-7.25	-11.62/-9.09	-6.39/-6.12	-4.21/-1.14
Θ (82.5°)	-1.07/-5.28	-17.56/-6.43	-16.13/-4.43	-6.23/-5.49	-7.83/-10.47	-4.12/-5	-2.61/-2.35	-1.79/-5.54	-4.77/-7.76	-3.26/-6.09	-5.19/-4.85	-1.47/-8.6	-4.84/-1.07	-6.9/-10.29	-2.26/-1.14	-1.50/-49	0.38/-2.11	-1.25/-0.96	-0.38/-4.06	-0.33/-0.86	-0.99/-1.54	-7.4/-11.07	-0.40/-0.3	-6.16/-4.79
Θ (90°)	-3.4/-1.2	-4.72/-2.24	-2.79/-14.3	0.71/53	0.75/-2.66	-4.42/-6.92	-9.08/-7.77	-2.88/-4.57	-2.16/-1.16	-1.08/-1.28	-6.39/-4.53	0.28/-4.23	-4.01/-1	-0.22/-4.09	-0.22/-2.26	1.262/39	1.290/05	30.83	-1.21/-2.1	2.78/-0.29	0.43/-6.2	-4.37/-0.3	-1.14/-0.63	-6.2/-1.18
Θ (97.5°)	-1.82/-1.32	-6.09/-8.58	-2.58/-4.55	-3.82/-6.28	-0.73/-12.39	-7.75/-6.6	-8.91/-5.19	-10.21/-11.9	-6.27/-6.53	-3.78/-5.35	-6.83/-7.56	2.09/-5.1	-5.15/-55	-0.76/-11.32	0.69/-0.37	2.42/36	-0.67/54	3.43/-0.39	-0.4/-0.62	3.18/-0.27	3.11/-0.19	-0.23/-0.46	-0.93/-1.11	-2.77/-0.42
Θ (105°)	0.48/-1.16	-11.92/-8.74	0.89/-1.86	-2.34/-3.64	-2.17/-8.47	-3.04/-1.11	-1.31/-0.59	-7.86/-9.14	-1.52/-4.33	-4.48/-4.2	-8.09/-7.86	0.63/-4.43	-4.77/-0.06	-0.33/-7.03	-1.61/-4.82	-0.25/-1.06	-5.11/-2.69	3.31/-1.57	-4.38/-0.61	2.37/-1.98	0.37/-0.63	-1.55/-3.85	-0.37/-3.4	0.38/-0.15
Θ (112.5°)	-2.94/-0.87	-4.55/-4.72	0.78/-2.04	0.35/-4.74	-3.89/-11.34	-7.61/-0.8	-9.47/-5	-6.59/-9.97	-5.64/-4.14	-6.77/-2.31	-5.85/-5.05	-2.64/-4.68	-3.25/-2.35	-4.58/-13.7	-5.65/-3.52	-3.94/-3.38	-4.75/-8.57	1.06/-5.19	-6.19/-3.66	-0.41/-0.06	-4.74/-0.67	-2.98/-4.62	0.13/-0.84	-2.65/-2.57
Θ (120°)	0.04/-2.66	-9.02/-4.42	-0.55/-3.9	-5.21/-4.66	-1.41/-5.75	-3.71/-3.73	-4.63/-13.22	-12.43/-5.41	-6.69/-9.7	-6.66/-15.13	-16.57/-5.54	-8.12/-7.1	-8.23/-9.42	-9.47/-8.29	-3.89/-6.07	-1.08/-4.32	-5.61/-6.77	-4.65/-8.71	-8.32/-1.91	-10.19/-15.7	-3.12/-4.57	-12.02/-2.8	-0.05/-2.02	-3.87/-2.71
Θ (127.5°)	-5.11/-7.55	-6.87/-4.15	-4.14/-13.53	-17.32/-8.86	-17.32/-12.11	-6.12/-3.54	-2.5/-5.87	-7.02/-7.62	-5.17/-7.53	-4.1/-4.48	-7.02/-14.75	-18.05/-12.21	-10.89/-9.6	-14.08/-10.33	-6.73/-0.4	-5.89/-8.39	-2.93/-8.89	-1.72/-7.54	-12.65/-5	-2.64/-2.26	-1.86/-13.91	-11.87/-12.8	-4.55/-8.29	-10.07/-15.11
Θ (135°)	-9.41/-16	-10.82/-10.56	-19.23/-14.88	-14.25/-14.74	-7.37/-4.63	-4.39/-6.55	-12.17/-17.6	-9.53/-18.64	-12.09/-13.59	-14.02/-5.21	-8.3/-18.42	-18.9/-18.22	-10.4/-3.96	-18.02/-13.56	-7.7/-2.32	-9.15/-17.55	-5.36/-1.27	-0.49/-4.73	-6.97/-2.58	-0.88/-1.9	-2.02/-4.97	-7.52/-8.6	-16.45/-8.81	-6.98/-11.6
Θ (142.5°)	-6.29/-12.66	-11.61/-6.3	-4.73/-14.9	0.16/-11.4	-2.67/-5.16	-10.65/-12.05	-8.9/-9.39	-7.41/-8.93	-13.42/-18.14	-18.13/-9.16	-8.21/-16.95	-19.12/-18.14	-8.56/-6.62	-11.88/-12.5	-7.71/-2.7	-6.19/-8.73	-4.2/-0.83	-0.62/-2.53	-6.31/-8.5	-8.4/-6.68	-4.86/-5.78	-8.26/-8.77	-10.33/-5.24	-6.31/-6.35
Θ (150°)	-8.67/-18.79	-11.56/-8.35	-5.25/-9.4	-7.73/-9.39	-16.18/-15.1	-15.36/-16.02	-18.44/-17.92	-18.75/-15.38	-19.02/-12.84	-8.5/-8.79	-12.38/-8.76	-7.85/-9.46	-9.88/-8.7	-10.99/-11.44	-7.28/-5.14	-7.2/-6.69	-3.55/-3.04	-4.42/-6.51	-7.22/-7.12	-3.97/-2.42	-1.97/-2.3	-7.16/-7.13	-1.26/-3.08	-3.81/-3.77
Θ (157.5°)	-5.09/-10.67	-19/-18.56	-9.99/-7.58	-9.56/-8.91	-8.67/-8.28	-10.98/-12.68	-13.34/-15.18	-18.88/-18.35	-15.22/-12.33	-13.56/-14.61	-13.14/-12.18	-11.18/-9.55	-10.28/-11.22	-10.28/-13.11	-19.21/-14.74	-10.42/-7.55	-5.32/-4.93	-7.04/-8.84	-8.52/-8.1	-7.68/-9.34	-9.71/-6.5	-3.98/-4.12	-6.95/-8.09	-4.26/-3.19
Θ (165°)	-11.48/-8.75	-7.96/-7.05	-5.19/-3.31	-3/-3.17	-4.32/-5.5	-7.64/-11.99	-17.7/-18.8	-18.63/-10.53	-12.85/-12.49	-12.41/-11.7	-8.79/-6.6	-6.3/-7.79	-10.98/-11.68	-9.12/-8.4	-10.48/-12	-8.41/-5.75	-5.06/-5.43	-7.74/-10.65	-12.32/-12.53	-10.51/-9.78	-8.11/-7.4	-8.58/-10.56	-13.75/-17.07	-19.16/-18.76
Θ (172.5°)	-8.49/-9.36	-10.95/-14.78	-16.83/-17.33	-17.83/-18.78	-17.14/-14.97	-16.11/-17.93	-19.25/-14.7	-14.07/-13.48	-12.12/-9.24	-7.152/-7.99	-9.36/-9.59	-11.12/-15.06	-14.49/-10.65	-8.41/-7.61	-8.43/-9.33	-8.86/-8.2	-9.27/-8.87	-11.93/-14.07	-15.54/-17.99	-17.48/-18.9	-14.16/-9.36	-7.95/-7.86	-7.91/-8.37	-17.91/-8.37
Θ (180°)	-16.09/-16.2	-15.97/-15.15	-12.01/-10.18	-9.9/-8.81	-10.83/-12.02	-11.98/-9.72	-8.03/-7.41	-7.5/-8.42	-9.37/-9.21	-9.03/-9.38	-11.33/-12.24	-12.95/-14.94	-13.02/-12.04	-13.59/-15.83	-15.16/-14.62	-13.83/-12.6	-11.29/-11.25	-10.63/-10.25	-9.95/-9.8	-9.1/-8.96	-10.05/-10.92	-12.6/-14.64	-17.77/-18.07	-17.52/-16.37
Freq(Hz)	2.45/Pol.	Phi/Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ (0°)	-18.43/-15.84	-13.53/-12.79	-11.55/-9.82	-8.9																				



Radiated Composite Gain Data

Appendix A.1

Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-13.32/-12.98	-13.05/-14.8	-17.85/-15.18	-17.47/-14.27	-17.04/-16.18	-16.1/-18.12	-14.89/-17.43	-17.61/-17.58	-15.8/-17.21	-18.37/-15.47	-14.82/-16.88	-18.4/-13.27	-14.52/-11.74	-11.65/-12.03	-11.32/-14.41	-11.17/-15.44	-13.77/-14.1	-16.29/-14.27	-13.79/-16.74	-17.4/-16.83	-16.19/-16.36	-15.85/-16.54	-14.83/-15.92	-14.32/-13.88
Θ(7.5°)	-7.63/-7.26	-6.48/-7.72	-8.34/-9.21	-10.8/-11.52	-12.12/-14.06	-14.6/-16.79	-18.18/-16.74	-14.79/-15.42	-13.64/-14.21	-14.49/-13.14	-11.93/-12.46	-14.93/-13.87	-13.86/-16.51	-13.21/-16.64	-16.38/-18.23	-17.39/-18.79	-19.06/-17.52	-18.85/-18.23	-18.68/-17.55	-13.97/-13.05	-12.14/-10.22	-9.22/-9.63	-8.47/-7.32	-7.5/-7.99
Θ(15°)	-9.2/-12.66	-11.7/-8.32	-8.31/-7.81	-8.35/-9.1	-10.06/-13.49	-13.4/-18.22	-14.6/-13.9	-18.08/-12.9	-12.72/-16.33	-15.64/-16.24	-18.41/-17.91	-17.66/-17.71	-15.69/-12.53	-9.57/-10.59	-10.2/-10.17	-11.73/-12.64	-14.34/-15.87	-16.4/-16.63	-15.38/-15.52	-11.73/-10.39	-8.87/-7.4	-6.65/-6.87	-6.99/-7.16	-7.84/-8.53
Θ(22.5°)	-7.73/-7.8	-8.24/-10.01	-11.19/-9.43	-9.43/-9.43	-9.93/-11.81	-14.45/-17.76	-18.41/-19.07	-17.42/-14.23	-10.38/-9.56	-8.72/-8.02	-9.24/-10.42	-10.97/-13.11	-17.75/-16.2	-19.38/-14.59	-14.17/-18.38	-13.94/-13.78	-12.61/-11.92	-12.13/-12.71	-14.49/-11.74	-10.09/-9.71	-9.12/-9.24	-8.11/-8.37	-9.3/-8.55	-6.88/-6.74
Θ(30°)	-7.14/-4.12	-4.85/-7.01	-9.46/-15.96	-9.57/-11.18	-8.52/-17.54	-18.76/-18.78	-18.88/-10.98	-10.85/-12.95	-13.37/-9.46	-9.86/-9.41	-9.79/-11.65	-12.63/-15.14	-15.07/-9.38	-9.03/-8.72	-12.5/-17.07	-17.72/-14.06	-14.5/-11.43	-11.91/-10.33	-13.13/-12.05	-8.13/-7.79	-7.46/-9.47	-8.09/-10.5	-7.84/-5.35	-5.13/-6.25
Θ(37.5°)	-6.22/-4.51	-4.75/-5.74	-7.72/-11.38	-13.4/-10.97	-11.1/-18.11	-9.75/-8.98	-8.55/-8.12	-6.28/-8.06	-12.22/-17.64	-17.5/-14.64	-13.19/-13.59	-13.44/-12.96	-11.95/-10.18	-8.4/-8.67	-15.81/-12.64	-9.93/-13.16	-15.43/-12.63	-10.77/-16.36	-14.88/-9.8	-11.66/-10.24	-10.35/-10.14	-7.21/-8	-8.31/-8.12	-8.79/-9.56
Θ(45°)	-6.7/-4.72	-4.65/-7.47	-10.62/-11.32	-11.22/-8.58	-9.96/-9.82	-6.06/-5.79	-3.78/-3.5	-8.65/-8.1	-13.96/-7.92	-10.9/-4.66	-5.07/-4.91	-1.78/-3.8	-3.36/-3.61	-4.09/-5.07	-3.06/-6.62	-5.62/-7.65	-17.23/-8.6	-9.82/-11.22	-11.63/-19	-17.19/-14.32	-8.81/-14.48	-10.96/-9.67	-12.59/-11.13	-6.05/-5.94
Θ(52.5°)	-8.9/-10.99	-7.67/-6.06	-6.77/-19.24	-11.61/-7.16	-9.36/-9.43	-6.55/-5.16	-4.81/-5.22	-8.79/-13.88	-8.74/-8.34	-5.22/-2.96	-6.64/-4	-3.47/-4.33	-2.31/-1.15	-1.93/-5.34	-3.71/-4.91	-11.33/-7.19	-13.94/-14.87	-15.93/-9.34	-13.47/-15.59	-17.92/-12.79	-15.76/-17.11	-13.99/-16.12	-17.25/-7.46	-6.76/-13.85
Θ(60°)	-4.06/-7.14	-12.06/-7.5	-8.57/-10.5	-10/-6.35	-5.54/-6.94	-6.3/-10.66	-15.14/-16.13	-9.16/-18.9	-6.24/-5.1	-5.19/-7.13	-15.8/-12.76	-13.21/-19.15	-17.62/-17.44	-16.27/-11.97	-13.34/-12.39	-9.62/-15.42	-15.71/-17.99	-18.57/-11.6	-13.12/-16.87	-18.48/-12.58	-11.22/-7.01	-11.6/-7.95	-14.01/-10.25	-11.46/-6.77
Θ(67.5°)	-2.69/-1.65	-4.5/-6.58	-4.05/-2.39	-3.63/-2.64	-5.64/-5.45	-9.1/-10.24	-16.68/-9.71	-15.78/-5.1	-10.04/-6.48	-11.94/-18.95	-9.32/-19.07	-7.39/-6.17	-7.04/-8.05	-8.25/-5.79	-4.61/-5.78	-4.01/-7.9	-12.99/-10.68	-9.93/-14.78	-17.69/-10.19	-7.94/-19.01	-8.1/-5.42	-7.54/-5.63	-5.65/-5.32	-8.44/-3.56
Θ(75°)	0.63/-0.49	-1.49/-1.18	0.57/0.75	-1.61/-1.82	-0.76/-4.74	-11.63/-3.7	-5.02/-3.37	-6.62/-6.94	-6.79/-15.95	-5.01/-12.68	-8.39/-15.58	-11.49/-8.35	-7.8/-12.1	-6.42/-3.18	-4.07/-3.75	-4.16/-7.12	-6.71/-14.46	-9.38/-7.74	-5.4/-6.27	-7.14/-10.35	-3.22/-6.09	-3.71/-2.07	-2.73/-0.51	-3.73/-2.4
Θ(82.5°)	0.65/0.48	-0.3/-0.36	2.08/2.05	-1.94/-2.03	0.38/-2.89	-6.33/2.39	-2.17/-0.94	-3.96/-4.06	-2.81/-4.46	-0.65/-0.23	-1.77/-6.98	-5.8/-5.73	-4.45/-8.17	-17.36/-8.65	-10.57/-9.38	-6.57/-12.15	-5.55/-5.93	-4.58/-6.81	-3.58/-2.6	-4.41/-3.21	-1.4/-2.38	0.45/1	-1.30/8	0.47/-0.22
Θ(90°)	1.81/2.59	2.42/1.81	3.14/2.03	-1.91/-0.43	-0.54/-1.66	0.14/0.57	-2.12/-1.13	-4.88/-1.45	-1.47/-2.31	-0.32/0.54	2.04/-5.33	-2.64/-2.23	-1.52/1.44	-0.64/0	0.82/-4.12	-0.99/-2.04	-2.49/-0.55	0.46/-1.37	0.13/-1.83	-0.97/-3.28	-3.05/-1.21	1.41/2.41	1.01/0.68	1.32/0.9
Θ(97.5°)	2.49/2.2	3/4.5	2.59/1.21	-1.12/-1.35	1.09/1	-1.19/1.23	-0.14/-1.49	-3.43/-0.25	-1.92/-2.67	0.4/-1.94	-1.51/-5.15	-1.37/-1.88	-2.63/0.59	-0.63/0.27	1.33/-5.71	-1.39/-0.37	-4.27/-4.21	-0.97/-1.52	11.1/-4.56	-3.68/-2.98	-0.95/-6.67	-0.84/1.85	0.74/0.1	0.22/2.68
Θ(105°)	0.76/-0.53	0.45/-1.59	-6.64/-2.64	-6.38/-1.11	0.73/0.91	-1.31/1.96	0.13/-0.55	-0.36/-1.46	1.61/0.17	0.31/1.3	0.05/-7.87	-4.64/-1.48	-2.95/-2.39	-6.04/-5.55	-0.39/-5.95	-3.37/-6.23	-2.69/-4.91	-1.58/-2.28	-3.61/-5.18	-4.6/-2.48	-4.21/-0.66	-5.77/-3.32	-1.29/-3.62	-1.21/-0.76
Θ(112.5°)	-3.95/-8.45	-11.26/-12.97	-3.21/-3.34	-5.07/-1.16	-2.3/-3.64	-2.13/-2.16	-1.16/-1.27	-4.96/-1.37	-0.34/-0.5	-0.03/0.29	-2.73/-6.34	-12.21/-11.27	-4.21/-2.72	-1.96/-7.91	-13.88/-2.87	-8.03/-11.31	-2.4/-1.29	-4.81/-13.26	-9.75/-8.83	-4.65/-1.3	-2.83/-2.52	-4.18/-8.94	-3.65/-4.45	
Θ(120°)	-13.87/-6.03	-4.64/-4.74	-2.85/-4.14	-9.13/-14.18	-7.81/-16.71	-9.55/-8.54	-6.19/-10.66	-10.53/-5.86	-13.09/-6.66	-6.64/-3.58	-10.57/-6.2	-6.87/-7.22	-4.19/-9.12	-11.96/-4.21	-13.25/-6.6	-10.32/-6.24	-12.3/-13.87	-5.47/-6	-4.65/-13.08	-15.34/-11.21	-10.58/-4.8	-12.64/-13.66	-3.21/-6.3	-5.87/-8.86
Θ(127.5°)	-11.35/-5.03	-7.06/-6.65	-7.34/-8.83	-11.3/-7.62	-8.69/-15.74	-17.23/-10.55	-17.39/-19.12	-11.34/-13.05	-13.72/-8.51	-6.65/-5.96	-4.28/-2.98	0.9/0.87	-4.93/-7.04	-8.41/-6.86	-12.93/-10.07	-18.77/-9	-11.19/-11.92	-7.11/-17.62	-12.49/-12.85	-10.5/-12.43	-15.41/-17.78	-14.42/-5.2	-3.17/-6.65	-6.6/-17.72
Θ(135°)	-5.11/-4.48	-4.98/-12.45	-11.5/-8.41	-7.59/-9.42	-8.76/-7.41	-6.27/-11.04	-13.28/-0.97	-10.75/-8.46	-7.25/-7.56	-3.91/-3.34	-0.92/-3.69	-10.6/-14.16	-11.05/-8.17	-12.75/-17.49	-8.48/-8.7	-8.82/-9.86	-11.07/-12.82	-18.8/-13.81	-17.19/-11.52	-10.1/-14	-19.15/-15.29	-15.25/-18.51	-15.16/-10.56	-9.19/-7.2
Θ(142.5°)	-5.95/-0.42	-6.01/-4.1	-4.23/-2.29	-7.38/-6.19	-12.7/-3.46	-4.05/-10.15	-12.5/-7.04	-6.33/-6.55	-6.59/-3.35	-2.56/-2.64	-3.53/-5.35	-6.3/-5.14	-7.48/-9.4	-16.96/-16.34	-18.15/-15.19	-13.31/-17.54	-18.98/-6.58	-8.59/-10.75	-9.42/-7.06	-11.07/-5	-4.63/-5.69	-1.67/-4.08	-5.67/-6.07	
Θ(150°)	-2.18/-1.97	-1.66/-1.99	-2.06/-2.37	-3.67/-3.94	-4.47/-5.03	-7.22/-9.56	-13.98/-12.05	-11.03/-5.04	-3.31/-3.51	-2.86/-3.23	-8.55/-9.25	-4.59/-2.85	-3.01/-6.99	-9.28/-9.38	-12.91/-16.38	-14/-7.98	-8.02/-5.74	-4.91/-4.91	-5.85/-4.88	-7.83/-7.15	-6.02/-4.59	-6.35/-3.08	-1.8/-2.04	-2.12/-3.05
Θ(157.5°)	-4.88/-5.15	-5.95/-6.05	-5.51/-6.29	-7.55/-16.93	-11.86/-13.78	-18.83/-12.3	-8.49/-10.92	-7.72/-14.19	-9.95/-4.05	-2.43/-3.99	-7.4/-6.94	-4.48/-2.7	-2.23/-3.96	-4.95/-5.82	-8.05/-6.71	-6.24/-5.83	-5.77/-5.2	-6.61/-8.91	-7.15/-5.05	-4.58/-6.37	-9.77/-6.6	-6.51/-6.55	-7.13/-6.64	-5.37/-5.4
Θ(165°)	-5.17/-4.9	-4.57/-5.11	-6.52/-8.42	-12.54/-14.23	-18.27/-18.08	-18.19/-14.32	-8.17/-5.61	-9.84/-10.23	-5.98/-6.01	-7.86/-8.38	-5.61/-5.21	-5.71/-7.9	-12.78/-9.11	-6.87/-5.89	-5.18/-5.72	-4.66/-4.95	-3.73/-3.92	-4.71/-4.79	-5.34/-5.51	-5.91/-6.33	-7.47/-10.26	-11.82/-9.84	-8.2/-7.4	-6.56/-5.13
Θ(172.5°)	-17.53/-18.91	-15.87/-1.91	-18.68/-15.48	-16.72/-14.42	-13.7/-13.59	-14.47/-17.59	-17.06/-11.62	-6.69/-5.77	-17.57/-8.98	-8.8/-15	-6.15/-6.58	-9.77/-13.97	-8.09/-4.91	-3.32/-2.98	-4.91/-6.18	-5.39/-5.45	-4.03/-4.03	-4.2/-4.29	-5.86/-6.54	-6.97/-7.19	-6.29/-6.53	-6.63/-7.02	-8.09/-9.15	-11.47/-13.9
Θ(180°)	-10.37/-8.98	-8.57/-7.39	-5.97/-5.41	-4.34/-3.85	-3.36/-4.29	-4.3/-3.23	-2.76/-3.7	-7.39/-14.32	-17.34/-12.81	-10.32/-9.04	-9.22/-12.68	-10.37/-7.07	-6.84/-7.67	-9.23/-7.95	-5.56/-3.49	-3.42/-3.58	-3.63/-3.95	-4.35/-4.28	-5.18/-6.18	-5.86/-6.27	-7.68/-8.79	-8.81/-10.03	-10.67/-10.97	-11.28/-11.35
Freq(Hz)	5.3/3/Pol.	Phi/Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-18.15/-17.88	-18.46/-18.91	-17.22/-18.99	-16.55/-18.27	-18.96/-17.03	-16.3/-12.74	-15.79/-13.66	-12.36/-14.63	-15.3/-15.84	-18.54/-18.87	-18.56/-18.96	-18.96/-18.29	-18.39/-18.31	-16.92/-15.77	-14.18/-15.72	-13.02/-13.21	-12.29/-12	-13.35/-10.72	-12.24/-14.79	-13.07/-12.14	-12.92/-13.21	-13.31/-14.68	-17.57/-15.92	-17.93/-19.11
Θ(7.5°)	-18.55/-17.52	-18.51/-16.44	-18.33/-13.46	-16.89/-11.88	-15.42/-13.16	-18.75/-14.01	-19.12/-19.01	-15.27/-16.21	-13.49/-13.48	-14.86/-14.69	-16.55/-17.76	-16.55/-16.48	-16.72/-13.77	-13.38/-13.6	-16.99/-11.99	-16.03/-12.27	-13.55/-11.56	-11.59/-13.48	-11.01/-11.4	-13.72/-11.24	-11.23/-11.57	-12.64/-14.36	-15.18/-18.22	-17.85/-18.79
Θ(15°)	-18.52/-16.23	-18.65/-18.66	-18.12/-17.32	-19.11/-14.27	-14.41/-15.16	-14.53/-17.54	-16.79/-17.65	-14.99/-16.61	-19.14/-18.42	-17.37/-15.71	-14.31/-15.34	-13.42/-10.02	-11.77/-14.27	-16.06/-18.86	-18.15/-19.06	-15.48/-16.47	-13.57/-12	-12.27/-9.57	-12.44/-13.58	-15.08/-17.92	-18.37/-17.78	-18.42/-17.94	-17.38/-18.39	-19.18/-17.94
Θ(22.5°)	-19.51/-18.94	-17.81/-17.96	-17.81/-18.93	-19.29/-18.45	-18.03/-18.95	-18.41/-17.33	-14.58/-16.13	-13.39/-15.03	-17.35/-13.31	-14.08/-18.95	-18.93/-18.09	-14.5/-10.56	-10.1/-10.53	-11.06/-9.5	-10.25/-11.09	-9.42/-16.6	-19.08/-18.66	-19.1/-19.37	-13.32/-15.52	-17.2/-17.79	-18.72/-18.9	-19.33/-18.66	-18.41/-17.79	-18.66/-17.92
Θ(30°)	-17.8/-19.06	-19.96/-18.93	-19.41/-17.94	-16.01/-17.82	-12.5/-15.73	-16.6/-16.21	-13.24/-13.97	-11.32/-14.54	-12.69/-14.13	-17.45/-18.63	-16.09/-15.54	-18.3/-17.15	-18.47/-17.9	-18.81/-14.19	-13.79/-12	-12.69/-12.8	-14.4/-17.39	-17.89/-19.07	-14.71/-14.28	-17.95/-17.74	-18.24/-18.7	-18.36/-16.27	-14.87/-14	-14.45/-17.77
Θ(37.5°)	-18.56/-18.01	-18.56/-18.93	-18.48/-17.39	-17.15/-17.08	-14.94/-11.14	-16.68/-17.4	-13.93/-12.55	-8.65/-12.31	-18.2/-18.29	-														



Mode 2

Freq(Hz)	2.45G	5.2G	5.3G
Ant. 1 Max Gain (dBi)	2.46	3.34	3.41
Ant. 2 Max Gain (dBi)	3.54	4.16	4.71
Ant. 3 Max Gain (dBi)	4.36	3.44	3.32
Ant. 4 Max Gain (dBi)	3.47	4.31	4.69
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/82.5/60	Phi/45/262.5	Phi/45/262.5
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/172.5/180	Phi/112.5/157.5	Phi/112.5/157.5
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Phi/127.5/67.5	Phi/157.5/247.5	Phi/90/270
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/157.5/97.5	Phi/105/0	Phi/60/187.5
Max Gain (dBi)	4.36	4.31	4.71
DG [1SS] (dBi)	5	4.76	4.75
DG [2SS] (dBi)	4.36	4.31	4.71
DG [4SS] (dBi)	4.36	4.31	4.71



Radiated Composite Gain Data

Appendix A.2

DG 1SS Result

Freq(Hz)	2.45GPol.	PhiH-	Phi(15°)Φ(22.5°)	Phi(30°)Φ(37.5°)	Phi(45°)Φ(52.5°)	Phi(60°)Φ(67.5°)	Phi(75°)Φ(82.5°)	Phi(90°)Φ(97.5°)	Phi(105°)Φ(112.5°)	Phi(120°)Φ(127.5°)	Phi(135°)Φ(142.5°)	Phi(150°)Φ(157.5°)	Phi(165°)Φ(172.5°)	Phi(180°)Φ(187.5°)	Phi(195°)Φ(202.5°)	Phi(210°)Φ(217.5°)	Phi(225°)Φ(232.5°)	Phi(240°)Φ(247.5°)	Phi(255°)Φ(262.5°)	Phi(270°)Φ(277.5°)	Phi(285°)Φ(292.5°)	Phi(300°)Φ(307.5°)	Phi(315°)Φ(322.5°)	Phi(330°)Φ(337.5°)	Phi(345°)Φ(352.5°)
DG(0B)	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)	
Θ(0°)	0.661/19	1.541/76	2.042/29	2.512/63	2.632/28	1.711/11	0.80/76	0.730/57	0.360/51	1.066/11	1.161/13	0.690/26	0.220/75	1.582/13	2.322/23	2.182/27	2.631/74	1.190/92	0.35/-0.22	-0.340/09	0.660/88	0.760/6	0.660/59	0.350/31	
Θ(7.5°)	0.561/18	1.581/74	2.082/52	2.672/47	2.822/08	1.590/78	0.22/-0.45	-0.10/11	-0.060/1	0.832/32	1.461/46	1.221/05	1.21/53	0.22/37	2.462/1	1.631/39	2.621/52	1.106/62	0.560/72	1.011/22	1.070/64	0.330/14	0.330/14	0.330/14	
Θ(15°)	0.781/42	2.122/56	2.853/1	3.293/26	2.882/34	1.580/26	-0.95/-1.74	-1.5/-1.02	-1.05/-0.52	0.170/96	1.331/66	1.791/67	1.642/23	2.732/63	2.251/17	1.070/76	0.920/8	0.550/23	-0.10/41	0.640/96	1.211/24	1.271/01	0.31/-0.13	-0.080/27	
Θ(22.5°)	0.711/18	1.962/51	2.863/22	3.653/68	3.071/86	0.47/-0.81	-1.91/-2.08	-0.88/-0.46	0.450/94	1.071/58	1.931/91	1.471/58	2.422/18	1/0.08	-0.57/-0.67	-0.070/23	0.260/-0.01	0.10/72	0.971/38	1.851/8	1.831/91	1.591/23	0.940/85		
Θ(30°)	0.770/7	1.372/36	2.773/01	3.463/64	3.232/51	1.07/-0.33	-0.37/-0.01	0.290/58	1.231/19	1.060/91	00/39	1.251/09	0.170/11	1.391/4	-0.36/-1.87	-2.07/-2.09	-1.64/0.75	-0.140/25	0.761/44	1.942/15	2.111/99	2.152/34	2.362/23	2.041/57	
Θ(37.5°)	1.050/63	1.211/95	2.533/39	4.013/99	3.162/58	1.920/69	0.490/97	1.561/35	1.812/25	1.620/95	0.590/14	1.481/99	0.770/48	1.070/74	-0.22/-0.64	-1.11/-1.79	-1.69/-1.01	-0.110/67	1.010/99	1.532/18	2.282/23	2.442/29	1.911/71	1.971/64	
Θ(45°)	0.43/-0.18	0.671/75	2.333/26	4.334/25	3.242/24	2.121/38	0.971/36	1.331/44	0.661/7	1.840/87	0.880/35	0.681/47	0.610/75	0.72/-1.58	-1.69/-1.03	-1.3/-2.17	-2.06/-0.86	-0.050/21	0.610/1	-0.320/25	1.12/05	2.532/24	1.280/22	0.170/41	
Θ(52.5°)	-0.81/-0.59	0.621/65	2.283/23	4.384/2	3.212/51	1.931/29	1.31/2	1.181/04	0.611/43	1.741/69	2.140/64	0.220/75	-0.140/43	-0.04/-2.62	-2.33/-2.15	-2.76/-2.55	-2.99/-2.12	-1.48/-0.67	0.50/13	-0.920/01	0.751/46	2.081/71	0.31/-0.95	-1.55/-1.04	
Θ(60°)	0.05/-0.14	0.621/89	2.463/03	3.923/77	3.22/32	1.341/45	2.43/11	2.231/81	1.711/93	1.691/96	2.761/79	1.431/53	-0.38/-0.06	-0.96/-2.15	-1.66/-3.37	-4.47/-2.26	-3.15/-3.96	-4.71/-2.98	-1.29/-1.58	-2.22/-0.22	0.860/9	0.43/-0.3	-1.34/-1.47	-1.54/-0.76	
Θ(67.5°)	1.451/36	0.871/94	2.713/17	3.42/75	2.652/07	1.751/77	2.692/99	1.81/76	1.61/68	1.261/52	2.372/36	1.941/76	-0.66/-1.72	-2.61/-3.39	-2.24/-3.1	-4.55/-2.71	-3.43/-4.03	-6/-5.12	-4.01/-4.72	-3.35/-0.84	-0.16/-0.22	-0.9/-0.85	-0.180/1	-0.81/-0.17	
Θ(75°)	2.042/43	1.512/05	3.153/49	3.39/27	2.542/58	2.081/21	1.531/87	1.251/98	2.082/14	1.461/29	1.721/7	0.981/52	0.18/-0.93	-3.68/-2.88	-2.57/-2.8	4.8/-5.53	-5.23/-4.3	-5.84/-5.88	-3.64/-4.6	-3.46/-1.6	-1.3/-1.39	-1.46/-1.2	-0.031/07	0.920/48	
Θ(82.5°)	2.272/67	1.942/42	3.673/68	3.463/17	3.062/39	1.860/77	0.571/39	2.222/71	3.132/8	1.670/89	0.410/53	1.392/24	1.510/46	-1.23/-0.96	-2.02/-3.46	-5.56/-6.87	-5.67/-4.22	-7.8/-4.71	-1.41/-2.86	-2.62/-0.68	-1.21/-2.09	-0.99/-0.47	-0.050/88	1.461/27	
Θ(90°)	2.532/6	1.632/44	3.644/03	4.283/79	3.32/27	1.410/63	0.171/56	2.873/31	4.062/78	1.880/59	0.391/72	1.661/67	2.30/77	-0.030/01	-3.96/-3.35	-3.44/-5.62	-5.49/-4.28	-6.75/-3.98	-1.35/-2.49	-2.84/-0.16	-0.89/-3.04	-1.59/-0.44	0.080/76	0.760/92	
Θ(97.5°)	1.991/98	1.662/43	3.474/13	4.483/9	3.082/55	1.49/-0.9	-0.42/25	3.13/29	3.32/22	1.88/-0.07	0.772/26	1.291/51	2.139/-0.2	0.04/-2.16	-5.06/-2.29	-2.45/-3.63	-4.42/-5.73	-5.08/-2.03	-1.35/-1.84	-2.56/-0.42	-1.52/-3.57	-1.37/-1.46	-0.70/56	0.540/6	
Θ(105°)	0.911/17	1.952/27	3.373/94	4.083/84	2.881/99	0.42/-1.69	0.272/03	2.122/1	2.072/65	1.73/-0.21	0.751/32	0.361/86	0.05/-1.57	-1.86/-3.51	-2.74/-2.76	-3.29/-3.02	-2.69/-3.75	-5.67/-3.16	-2.02/-1.72	-1.99/-0.5	-1.65/-4.01	-1.44/-1.64	-1.95/-0.77	-0.230/16	
Θ(112.5°)	0.531/58	2.292/64	3.774/21	4.293/39	1.510/03	0.01/-0.63	0.881/87	1.551/76	2.471/36	0.560/-0.01	0.391/34	0.04/-1.57	-3.05/-3.99	-3.38/-3.58	-4.28/-3.02	-2.5/-3.19	-5.26/-4.81	-2.9/-3.3	-2.51/-0.28	-0.43/-2.75	-2.62/-2.41	-1.89/-1.22	-0.82/-0.37		
Θ(120°)	1.72/11	2.463/46	4.3/42	4.162/91	1.752/51	3.012/23	1.562/82	2.831/58	-0.01/-1.17	1.171/11	0.781/26	0.69/-0.46	-1.24/-2.02	-3.96/-7.12	-2.47/-1.46	-2.75/-2.31	-1.98/-0.48	-5.41/-3.52	-2.12/-2.99	-4.61/-1.64	0.111/0.94	-2.35/-1.85	-1.13/-0.28	0.411/2	
Θ(127.5°)	3.483/45	3.123/85	3.893/34	3.923/88	4.294/22	3.822/1	0.70/76	2.831/-0.6	-2.74/-2.47	-0.691/81	3.311/65	-1.69/-1.5	0.05/-0.66	-4.03/-3.98	-0.4/-1.01	-1.61/-0.33	-0.75/-3.29	-1.59/-1.46	-2.32/-1.16	0.080/02	-1.08/-0.5	0.050/37	0.62/15		
Θ(135°)	3.784/26	3.923/89	3.743/99	4.474/56	4.364/45	3.371/71	-0.52/-0.29	-0.15/-1.56	-2.86/-2.53	2.13/67	2.48/-0.61	-1.171/18	1.910/22	-1.38/-0.29	-0.8/-2.47	-0.340/59	-0.22/-1.21	-2.3/-4.52	-3.21/-1.07	-0.30/09	0.740/66	-0.73/-0.62	-0.080/44	0.391/73	
Θ(142.5°)	3.153/62	3.683/82	4.174/92	3.383/46	3.212/24	0.4/-0.01	-0.8/-2.44	-3.82/-1	1.031/25	0.290/31	1.522/47	2.81/62	1.140/43	-2.5/-3.15	-0.310/1	-0.25/-0.87	-3.33/-4.79	-2.99/-1.61	-0.690/11	0.44/-0.17	-1.28/-1.53	-0.840/59	1.462/37		
Θ(150°)	3.193/15	2.92/97	3.884/66	4.84/24	3.011/53	1.651/64	-0.650/2.58	-3.79/-2.47	1.61/-0.79	0.771/63	2.553/22	2.92/17	1.61/-0.41	-4.21/-3.27	-1.31/-0.03	-1.77/-3.34	-4.8/-4.08	-3.74/-2.76	-1.44/-0.68	-0.550/08	0.220/04	0.711/82	2.613/15		
Θ(157.5°)	2.832/9	3.213/76	4.484/91	4.854/21	3.051/79	1.280/83	-0.12/-0.61	-0.95/-1.1	-1.19/-1.07	-1.22/-0.3	1.52/51	2.792/44	2.242/38	1.37/-1.53	-3.75/-2	-1.16/-1.76	-2.32/-2.93	-3.51/-3.73	-3.58/-3.37	-2.83/-1.67	-0.091/18	1.972/26	2.392/34	2.292/52	
Θ(165°)	1.211/96	2.953/77	4.434/4	4.533/89	2.992/5	2.171/42	0.39/-1.08	-0.47/-0.28	0.06/-0.22	-1.130/17	1.111/24	0.690/94	1.641/24	-0.44/-2.24	-1.79/-0.18	0.23/-0.23	-1.14/-1.73	-2.12/-2.55	-2.47/-2.05	-1.82/-1.38	-0.330/73	1.461/62	1.581/32	0.780/55	
Θ(172.5°)	-0.030/29	2.12/15	2.622/53	2.153/7	1.892/01	1.70/83	0.0/-0.51	-0.81/-0.02	-1.02/-1.77	-1.84/-0.62	-0.020/59	1.041/06	1.061/04	0.130/15	2.092/78	2.41/71	1.370/91	0.280/-0.28	0.580/34	0.540/92	1.091/14	1.150/88	0.150/-27		
Θ(180°)	0.571/3	1.972/35	2.321/98	1.892/18	2.442/41	1.90/89	-0.4/-1.57	-2.47/-2.26	-1.52/-1	0.161/17	2.192/29	1.250/88	0.960/28	0.492/68	3.83/6	2.92/82	3/2.48	1.731/47	1.31/34	1.361/26	1.631/93	1.891/92	1.881/53	0.903/43	
Freq(Hz)	2.45GPol.	ThetaH-	Phi(15°)Φ(22.5°)	Phi(30°)Φ(37.5°)	Phi(45°)Φ(52.5°)	Phi(60°)Φ(67.5°)	Phi(75°)Φ(82.5°)	Phi(90°)Φ(97.5°)	Phi(105°)Φ(112.5°)	Phi(120°)Φ(127.5°)	Phi(135°)Φ(142.5°)	Phi(150°)Φ(157.5°)	Phi(165°)Φ(172.5°)	Phi(180°)Φ(187.5°)	Phi(195°)Φ(202.5°)	Phi(210°)Φ(217.5°)	Phi(225°)Φ(232.5°)	Phi(240°)Φ(247.5°)	Phi(255°)Φ(262.5°)	Phi(270°)Φ(277.5°)	Phi(285°)Φ(292.5°)	Phi(300°)Φ(307.5°)	Phi(315°)Φ(322.5°)	Phi(330°)Φ(337.5°)	Phi(345°)Φ(352.5°)
DG(0B)	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)	
Θ(0°)	-0.96/-0.66	-0.35/-0.25	-0.42/-0.85	-1.32/-1.5	-1.35/-1.34	-1.39/-1.07	-0.320/0.08	0.02/-0.33	-0.240/37	1.051/19	1.121/31	1.140/11	-0.060/04	-0.41/-1.12	-1.11/-0.86	-0.89/-0.75	-0.87/-1.08	-0.98/-0.83	-0.79/-0.4	0.310/55	0.480/42	0.460/47	0.370/15	-0.29/-0.79	
Θ(7.5°)	-0.75/-0.83	-0.91/-0.78	-0.93/-1.51	-1.95/-2.12	-2.3/-2.5	-2.62/-2.35	-1.0/04	0.17/-0.32	0.790/72	0.580/48	0.570/12	-0.33/-0.21	-0.38/-1.09	-1.05/-0.24	-0.36/-0.83	-0.8/-0.81	-0.86/-0.85	-1.3/-1.49	-0.470/05	-0.10/06	0.310/29	0.270/31	0.13/-0.28		
Θ(15°)	-0.71/-1.03	-1.14/-1.24	-1/-1.36	-1.93/-2.18	-2.27/-2.22	-1.61/-1.41	-0.890/65	1.180/59	0.05/-0.1	0.190/11	-0.68/-1.08	-1.23/-0.87	-0.92/-1.06	-1.21/-1.65	-2.87/-2.13	-1.47/-2.15	-2.8/-2.53	-2.34/-2.43	-2.21/-3.06	-3.31/-2	-1.6/-1.6	-0.99/-0.19	-0.11/-0.13	-0.13/-0.43	
Θ(22.5°)	-0.38/-0.13	-0.38/-0.8	-1.41/-2.07	-2.78/-3.33	-2.67/-2.13	-1.78/-0.84	0.11/1.2	2.32/04	1.661/81	1.290/48	-0.42/-1.44	-1.94/-1.56	-1.09/-1.22	-1.66/-1.6	-2.58/-3.75	-2.86/-2.26	-2.9/-3.34	-3.3/-3.15	-3.41/-4.09	-5.29/-4.95	-3.09/-2.34	-1.83/-1.18	-1.07/-1.18	-1.08/-0.8	
Θ(30°)	-0.22/-0.14	-0.48/-1.27	-2.28/-3	-3.45/-3.76	-3.15/-1.75	-1.04/-1.35	-0.830/01	1.392/47	2.362/06	2.181/77	1.090/52	-0.71/-169	-1.83/-1.8	-1.92/-2.2	-2.78/-3.47	-2.69/-1.31	-1.46/-2.14	-2.7/-2.65	-3.35/-4.2	-5/-6	-2.96/-1.1	-0.56/-0.57	-0.83/-1.14	-1.13/-0.74	
Θ(37.5°)	-0.193/-1.63	-2.16/-2.71	-3.14/-3.07	-3.25/-2.76	-1.76/-1.31	-1.25/-1.83	-2.51/-1.17	-0.580/4	1.771/54	1.121/88	1.871/11	0.01/-1.83	-3.17/-3.61	-3.65/-4.11	-3.95/-3.31	-2.73/-1.54	-3.77/-3.03	-4.53/-5.24	-2.69/-0.63	-0.46/-0.85	-0.95/-1.17	-1.24/-0.82			
Θ(45°)	-1.28/-2.13	-3.58/-4.48	-4.06/-3.33	-3.38/-2.76	-0.77/-0.																				



Radiated Composite Gain Data

Appendix A.2

Θ (22.5°)	1.191/1.32	0.770/9	0.440/25	-0.93/-1.29	-1.01/-0.6	-0.81/0.51	1.371/1.48	2.2/2.76	2.02/2.39	2.7/2.55	2.21/1.55	1.09/-0.11	-1.14/-1.63	0.31/0.34	0.32/-0.41	-0.11/0.03	0.11/0.73	0.48/-0.2	-0.21/-0.45	-0.47/-0.14	0.8/1	0.99/1.22	0.440/36	-0.180/42
Θ (30°)	2.38/2.06	2.09/1.35	0.67/0.71	0.41/-0.32	-1.03/-0.61	-0.08/0.89	1.42/2.44	2.53/3.68	2.9/1.45	1.92/1.79	1.76/2.52	2.64/0.45	1.41/0.45	-0.17/-1.39	-1.59/-0.98	-1.32/-1.9	-2.83/-1.43	-0.43/0.04	0.74/1.31	-0.32/-1.29	-1.59/-2.23	-3.17/-1.95	-0.66/0.53	1.34/1.73
Θ (37.5°)	0.93/1.45	1.76/1.25	-0.6/-0.29	-0.85/-1.5	-1.6/-2.2	-2.66/-1.68	-0.71/0.32	1.06/2.51	2.79/2.97	2.13/1.05	0.7/-0.39	1.79/0.87	-0.45/-0.3	-0.14/-0.37	-0.97/-3.79	-2.36/-1.27	-2.45/-0.49	0.71/3.6	2.13/2.21	1.65/0.74	-1.55/-2.14	-2.95/-2.52	-2.36/-0.93	0.52/0.99
Θ (45°)	0.89/2.26	2.13/0.75	-1.07/-2.25	-4.17/-3.42	-1.31/-2.77	-3.69/-0.86	-0.13/-0.2	0.84/2.04	2.85/2.23	1.39/2.19	0.86/0.65	1.73/0.72	-0.08/0.09	0/-0.72	-0.9/0.13	-1.67/0.2	2.59/2.62	3.46/3.67	2.03/1.1	0.34/-0.77	-2.13/-2.43	-3.07/-4.56	-3.33/-2.65	-0.24/1.18
Θ (52.5°)	2.31/2.98	2.11/-0.3	-1.85/-1.17	-1.49/-1.59	-1.87/-1.41	-0.77/-1.37	-0.38/0.66	1.69/1.56	-0.72/1.4	1.3/2.34	0.81/0.39	0.29/1.29	0.45/0.85	-0.67/-1.86	-2.6/-3.54	-1.58/-1.06	1.98/2.71	2.31/1.6	1.27/0.19	-1.17/-0.89	-0.74/-4.07	-7/-5.42	-5.11/-2.38	1.62/2.29
Θ (60°)	2.19/2.62	0.91/0.23	1.11/-0.49	-0.96/-0.7	-0.8/-0.72	-3.4/-1.79	-0.29/0.93	1.54/2.57	1.78/0.73	1.93/0.57	2.56/-0.2	0.73/1.98	3.97/4.26	1.83/0.93	-0.18/-4.69	-4.26/-2.92	-0.26/2.97	1.04/-0.03	1.05/1.33	1.08/1.2	-0.99/-2.07	-4/-7.69	-4.44/-0.92	0.83/2.68
Θ (67.5°)	3.19/2.35	-0.3/-0.83	0.66/0.24	1.03/0.25	0.59/-1.11	-0.73/-0.57	0.29/1.65	0.73/0.63	0.36/-2.3	1.27/1.1	2.03/1.64	-0.56/1.01	0.77/1.93	1.21/0.4	-1.57/-3.75	-3.76/-2.63	0.92/0.6	3.44/1.98	1.05/0.82	0.36/1.35	0.92/-0.83	-1.93/-6.12	-5.4/-2.34	1.37/1.91
Θ (75°)	4/2.42	-0.3/-1.13	-0.8/0.96	0.63/1.17	1.72/-0.58	-0.38/0.61	-0.27/1.71	2.36/1.86	1.11/0.67	0.5/1.14	-0.98/2.58	0.54/2.07	2.33/2.15	-2.56/-4.66	-2.61/-3.51	-8.49/-5.3	-0.57/0.23	2.22/2.09	1.3/-0.29	1.46/3.53	-0.15/0.74	-1.41/-4.02	-4.64/-0.97	2.39/2.69
Θ (82.5°)	3.22/1.98	-0.3/-2.54	-0.54/-0.34	1.95/0.98	1.33/-1.48	-0.39/0.77	0.79/2.2	1.37/2.48	1.84/0.21	0.57/-0.19	1.07/-0.14	2.42/2.08	1.87/1.29	0.19/-3.44	-2.48/-1.74	-6.11/-4.11	0.98/1.49	4.75/3.76	1.41/0.23	2.62/2.25	1.61/-0.01	-1.85/-4.47	-2.75/-1.3	1.83/1.55
Θ (90°)	2.54/1.96	0.86/-0.92	-1.59/0.55	3.23/0.86	0.77/-1.1	0.21/2.15	-1.01/0.11	2.82/2.78	1.13/0.23	-2.77/-1.87	-1.29/1.38	-0.21/3.49	2.32/2.51	-1.36/-7.12	-3.82/-0.34	-3.68/-5.91	2.22/1.27	2.37/-1.19	0.76/1.15	1.34/1.71	-0.22/-2.96	-2.84/-3.69	-3.32/-2.61	0.35/1.56
Θ (97.5°)	1.35/0.99	1.73/0.58	-1.96/0.47	2.61/1.52	1/-2.33	0.9/0.1	-2.78/1.79	0.56/0.24	1.53/0.49	-1.94/-1.69	1.12/0.28	2.69/1.99	0.84/-2.36	-4.2/-3.63	-0.21/2.42	-6.15/-5.88	-1.77/-0	1.2/1.15	0.55/-0.79	-0.06/0.76	-0.38/-3.81	-3.55/-4.69	-4.74/-6.07	-0.61/0.92
Θ (105°)	3.4/1.94	1.81/-0.5	-1.59/-0.65	2.74/1.31	0.6/-2.34	-2.19/1.71	-0.38/0	-0.29/1.39	3.02/-1.41	-4.2/-1.32	-1.78/1.69	0.45/2.63	1.34/0.95	0.52/-2.36	-1.79/-2.24	-2.37/-8.63	-1.56/-1.25	0.45/0.52	-0.67/-1.92	-1.04/1.57	-0.41/-2.53	-4.43/-3.74	-4.55/-3.3	-0.69/0.97
Θ (112.5°)	4.44/2.39	0.91/-0.43	-2.36/-1.08	2.06/0.25	-1.14/-2.67	1.12/0.98	-1.06/0.49	0.23/1.16	1.29/-0.67	-1.72/-2.66	-0.88/2.07	0.57/1.72	2.91/1.53	1.26/-0.96	-4.55/-3.19	-7.86/-7.07	-2.89/-2.75	-0.32/-0.03	-1.35/-3.4	-2.05/1.15	-0.94/-1.79	-4.37/-4.13	-3.84/-2.61	1.43/1.79
Θ (120°)	3.8/2.16	2.09/0.56	-0.45/-1.5	0.72/1.17	-0.93/-1.17	-2.37/-0.75	-0.7/0.58	2.04/-0.2	-0.38/-1.94	-2.05/-2.43	0.57/1.65	1.52/2.85	2.91/2.07	-1.8/-3.1	-5.11/-5.98	-8.85/-5.22	-2.96/-4.4	-0.36/-0.5	-2.86/-3.92	-1.59/-0.8	-1.87/-2.77	-4.59/-4.81	-6.11/-3.79	2.68/2.36
Θ (127.5°)	3.46/1.93	2.31/1.38	0.02/-0.95	0.22/-1.48	0.58/-1.46	-4.09/-1.4	-1.23/-1.79	1.18/-0.15	0.75/0.65	0.15/-0.92	-0.48/0.91	2.99/2.41	0.41/-0.12	-2.11/-4.37	-5.16/-6.86	-1.184/-5.4	-3.75/4.04	-1.78/-0.8	-2.39/-5.24	-3.57/-3.66	-4.08/-3.93	-5.16/-2.3	-1.69/-0.33	2.55/2.72
Θ (135°)	1.31/1.67	2.39/0.89	1.06/-1.01	-1.68/-0.75	-2.03/-1.96	-1.4/0.19	-0.88/-1.87	-0.13/0.66	-2.33/-0.31	-2.51/-1.78	0.85/1.53	0.22/-0.33	0.92/-0.01	-4.83/-2.66	-2.2/-7.33	-10.31/-5.66	-4.21/-3.4	-3.46/-2.04	-2.54/-3.6	-4.94/-4.92	-5.16/-4.99	-6.42/-4.43	-1.73/1.81	2.86/1.93
Θ (142.5°)	0.49/2.16	3.31/2.45	-0.35/-4.6	-1.69/-2.49	-4.78/-2.46	-2.58/-1.14	-1.07/-0.52	-1.59/-1.64	0.66/-4.6	-2.63/-1.32	2.35/2.07	0.07/0.29	-0.27/0.4	0.12/-2.73	-2.16/-4.23	-3.89/-5.06	-3.42/-2.52	-2.22/-2.42	-2.5/-3.58	-5.69/-3.68	-3.99/-2.86	-3.69/-2.86	0.29/0.6	2.49/1.34
Θ (150°)	0.04/0.94	2.02/2.21	0.74/-0.51	-1.46/-3.23	-1.25/-1.35	-1.9/-0.59	-3.04/-3.24	-1.82/-0.5	-0.79/0.44	-2.31/-42	2.39/0.95	-1.91/-2.15	-0.34/-2.71	-6.49/-1.25	-1.31/-2.04	-2.89/-2.18	-0.77/-2.44	-3.97/-3.26	-3.01/-4.1	-3.72/-3.97	-4.53/-2.61	-2.04/-1.97	0.6/2.28	1.81/1.13
Θ (157.5°)	0.48/0.88	2.38/3.37	2.76/1.29	-1.53/-2.55	-3.05/-2.25	-2.41/-2.45	-4.32/-4.64	-4.88/-3.71	-0.81/-2.02	1.08/2.04	-0.52/-0.99	-4.4/-4.76	-4.67/-3.43	0.85/1.58	1.08/-0.05	-0.92/-0.52	-1.66/-1.79	-2.32/-2.44	-3.14/-2.88	-1.41/-1.5	-2.09/-0.62	0.74/1.23	1.83/1.84	1.38/0.01
Θ (165°)	0.14/1.53	1.51/0.8	0.75/-0.22	-1.32/-3.54	-4.12/-2.94	-4.05/-5.23	-5.21/-3.62	-3.04/-2.32	-1.32/0.44	0.79/0.9	-0.93/-1.22	-0.37/-2.81	-0.39/1.47	1.5/0.17	-0.31/-0.29	0.55/0.82	1.03/0.5	-0.46/-2.15	-2.98/-3.19	-1.88/-0.92	-0.39/0.49	1.01/1.33	1.14/0.48	-0.23/-0.54
Θ (172.5°)	0.85/0.27	-0.21/-0.88	-0.88/-1.33	-1.71/-1.98	-3.48/-3.12	-2.46/-2.09	-2.85/-4.54	-3.16/-1.15	1.02/2.1	2.57/0.42	0.33/-0.52	-2.02/0.14	1.37/1.76	1.35/0.79	0.1/-0.25	-1.35/-1.18	-0.55/-0.07	-0.64/-2.27	-3.21/-3.59	-2.92/-1.49	0.03/0.87	1.13/1.77	2.2/1.7	1.94/1.47
Θ (180°)	2.03/2.13	2.59/3.21	3.4/3.06	2.67/1.2	-0.88/-1.49	-1.57/-2.56	-2.96/-1.84	-0.63/0.38	1.42/1.87	0.49/-0.02	0/-0.03	1.88/2.96	3.13/3.66	2.91/4.6	1.88/1.65	2.21/2.65	2.52/2.1	0.75/0.16	-0.63/-1.19	-1.7/-1.38	-0.25/0.37	1.07/1.37	1.55/1.93	1.82/1.81
Freq(Hz)	5.3GPol.	Theta	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
DG(dB)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ (0°)	-0.28/0.16	0.19/0.74	0.72/0.78	0.69/1.42	1.16/1.48	1.06/0.05	-0.21/-0.03	-0.41/0.6	-0.21/0.5	1.41/1.04	1.12/-0.05	-0.8/-1.67	-2.24/-2.16	-0.96/-0.08	0.15/0.3	1.37/1.06	0.7/0.33	0.34/0.33	-0.6/0.38	0.73/0.43	0.59/1.14	0.8/0.8	0.15/-0.22	-0.73/-0.9
Θ (7.5°)	-2.44/-1.78	-0.41/0.45	0.95/0.94	0.76/0.88	1.09/0.76	0.65/0.74	-0.13/0.19	0.65/0.63	0.84/0.21	1.10/0.97	1.13/0.86	0.52/0.29	0.35/0.28	0.53/1.23	1.71/1.68	1.36/2.09	1.32/1.14	1.14/0.7	0.15/0.28	0.11/0.39	-0.14/0.41	-0.34/-0.54	-1.85/-2.69	
Θ (15°)	-3.78/-3.28	-2.51/-2.53	-1.2/-0.77	-0.67/0.1	-0.77/0.74	0.56/0.06	-0.43/-0.42	0.28/0.61	1.62/1.66	2.25/2.64	2.34/1.43	0.05/0.25	0.39/0.29	0.17/0.32	0.41/1.16	0.49/1.36	0.35/0.72	-0.34/-0.4	-0.48/-2.01	-1.35/-0.64	0.34/1.03	1.52/0.42	-0.55/-1.65	-3.3/-4.1
Θ (22.5°)	-1.63/-2.45	-2.79/-3.96	-3.26/-2.46	-2.66/-2.09	0.23/-0	-1.28/-2.53	-2.7/-1.27	-1.2/0.09	1.36/2.13	1.48/1.99	1.2/-0.31	-0.36/-0.93	0.35/1.26	1.57/0.59	-1.37/-1.16	-1.45/-1.07	0.14/-2.22	-1.87/-4.1	-4.3/-3.86	-3.49/-2.48	-1.02/0.16	0.06/-0.02	-1.64/-2.94	-3.51/-2.82
Θ (30°)	-1.59/-2.79	-2.11/-2.39	-1.3/-1.41	-1.71/-2.56	-2.26/-1.77	-2.6/-4.77	-3.39/-2.43	-2.45/-2.88	-2/0.48	1.24/3.33	2.78/0.79	-0.25/-0.89	-1.68/-1.21	-1.14/-0.6	-2.3/-3	-2.61/-3.93	-4.3/-5.55	-6/-6.15	-6.6/-9.92	-7.22/-3.93	-2.48/-0.19	0.24/-0.26	-0.99/-1.7	-1.36/-1.16
Θ (37.5°)	-2.22/-1.61	-1.38/-1.7	-1.99/-2.45	-2.89/-2.76	-5.75/-4.66	-3.64/-4.96	-4.98/-4.44	-5.17/-4.44	-2.23/0.46	0.76/1.84	1.84/-0.01	-1.65/-2.18	-3.2/-3.8	-4.89/-6.65	-3.81/-2.87	-2.89/-2.57	-1.29/-2.59	-4.68/-5.43	-6.64/-8.62	-11.41/-9.54	-4.37/-1.49	0.41/65	0.23/-1.42	-2.52/-3.77
Θ (45°)	-3.14/-0.67	-0.27/-0.55	-3.38/-3.3	-4.05/-5.75	-6.31/-5.2	-4.5/-6.17	-9.1/-7.53	-4.63/-2.97	-1.48/-0.02	-0.46/-1.39	-0.63/0.45	0.26/-0.18	-0.76/-1.03	-3.49/-6.11	-5.94/-5.08	-5.75/-4.72	-5.24/-5.41	-5.35/-8.08	-5.98/-8.22	-6.2/-5.53	-5.49/-7.47	-3.07/-0.51	-0.3/-3.25	-7.09/-4.49
Θ (52.5°)	-3.7/-1.4	-0.02/-0.9	-4.11/-2.62	-3.54/-5.71	-8.45/-6.72	-4.55/-4.85	-9.74/-7.48	-5.48/-6.4	-4.4/-1.09	-1/-3.21	-0.26/0.48	-1.19/-1.38	-1.62/-2.05	-3.38/-4.36	-6.07/-5.91	-6.21/-3.65	-2.59/-2.02	-5/-5.24	-5.08/-12.43	-6.57/-6.08	-7.68/-6.92	-7.11/-4.43	-4.98/-3.84	-6.27/-5.23
Θ (60°)	-3.21/-3.53	-0.67/-1.13	-3.17/-4.16	-5.52/-6.39	-7.36/-7.2	-5.26/-5.81	-7.56/-7.57	-5.07/-7.83	-4.55/-4.47	-3/-3.3	-2.52/-1.1	-3.75/-2.14	-1.74/-1.5	-2.82/-5.45	-3.5/-6.03	-11.43/-9.46	-7.44/-4.35	-2.49/-2.9	-5.67/-9.45	-4.99/-6.51	-5.04/-2.83	-6.25/-7.65	-5.72/-4.85	-7.8/-4.35
Θ (67.5°)	-3.5/-3.08	-4.61/-2.37	-3.1/-2.56	-5.45/-7.26	-5.18/-8.14	-7.95/-3.75	-5.32/-7.38	-7.73/-7.69	-3.91/-5.66	-6.2/-3.27	-2.89/-0.88	-2.16/-1.57	-4.11/-3.19	-2.35/-3.1	-5.78/-5.88	-8.5/-8.88	-6.88/-5.38	-4.43/-1.98	-1.41/-2.36	-5.92/-3.81	-5.1/-2.25	-4.99/-5.63	-5.77/-5.46	-6.45/-2.35
Θ (75°)	-3.43/-4.1	-8.45/-2.21	-3.81/-2.55	-4.59/-8.93	-10.28/-7.08	-5.98/-3.87	-4.62/-5.39	-7.67/-7.22	-3.71/-5.16	-4.69/-4.89	-5.83/-3.52	-2.12/-3.77	-3.27/-2.89	-5.19/-5.71	-4.32/-4.46	-4.95/-7.25	-2.16/-2.24	-3.11/-0.8	-0.29/-1.78	-5.92/-5.5	-3.22/-5.11	-5.18/-5.84	-6.65/-6.17	-3.92/-4.22
Θ (82.5°)	-7.09/-4.75	-6.32/-3.39	-5.86/-5.79	-3.76/-5.71	-6.49/-5.46	-8.18/-7.25	-4.8/-5.8	-6.29/-7.67	-7.28/-8.44	-8.33/-6.08	-4.31/-6.78	-2.53/-4.89	-4.44/-4.74	-6.83/-5.22	-5.26/-6.12	-6.92/-7.3								

Sporton International Inc. Hsinchu Laboratory



Radiated Composite Gain Data

Appendix A.2

Θ(22.5°)	-17.41/-17.21	-15.6/-10.16	-8.18/-6.19	-6.48/-6.78	-6.04/-5.26	-2.99/-0.99	0.44/0.77	1.28/0.93	0.19/-0.58	-1.06/-3.07	-6.01/-8.1	-12.17/-18.28	-18.84/-19.05	-11.76/-9.71	-10.2/-11.43	-9.04/-7.8	-4.66/-2.92	-2.22/-2.67	-2.65/-3.94	-3.28/-3.65	-2.59/-4.28	-6.47/-8.87	-10.62/-8.41	-10.94/-17.05
Θ(30°)	-12.97/-16.21	-10.06/-8.81	-5.63/-4.63	-3.89/-3.21	-4.46/-3.96	-3.48/-1.23	0.11/-1.14	1.29/-1.79	1.16/0.01	-1.76/-2.8	-5.74/-6.61	-7.7/-11.7	-15.63/-16.25	-14.18/-11.6	-8.41/-4.48	-2.98/-3.54	-5.43/-4.3	-3.31/-2.16	-1.08/-0.68	-1.69/-2.06	-2.62/-3.6	-5.86/-8.14	-8.11/-6.53	-9.35/-11.92
Θ(35°)	-14.42/-9.7	-7.03/-7.11	-6.06/-3.54	-3.77/-5.15	-4.54/-4.81	-4.65/-2.42	-0.73/0.85	1.49/-2.49	2.08/-3.1	0.04/-0.93	-0.99/-5.79	-6.68/-13.25	-17.19/-14.09	-10.49/-11.82	-7.18/-5.38	-2.21/-1.17	-1.55/-1.22	0.07/0.98	0.68/0.25	0.10/2.04	-1.34/-2.69	-5.13/-6.85	-1.01/-9.84	-9.71/-12.13
Θ(45°)	-12.72/-7.72	-5.37/-6.99	-3.93/-3.45	-5.14/-5.02	-3.69/-3.45	-3.78/-2.29	-1/0.24	2.11/-1.94	1.67/-1.18	0.60/-16	-1.9/-5.92	-10.86/-14.74	-15.87/-10.22	-8.76/-8.01	-4.67/-2.71	-1.36/-0.02	1.48/1.14	1.94/3.41	2.31/1	0.12/-1.62	-2.59/-3.04	-5.86/-10.06	-12.45/-18.8	-17.28/-15.02
Θ(52.5°)	-6.18/-5.75	-4.68/-6.77	-5.29/-0.57	-3.2/-0.83	-2.4/-2.72	-1.86/-2.93	-1.21/-0.19	1.54/-1.68	0.63/-1.2	-0.33/0.69	-3.25/-5.8	-16.41/-18.73	-12.03/-6.43	-6.75/-4.99	-3.13/-2.54	-2.44/-2.19	-1.46/-0.56	0.45/0	-0.43/-0.32	0.05/0.96	-1.22/-6.47	-11.12/-14.77	-19.27/-19.02	-16.5/-11.12
Θ(60°)	-7.23/-9.52	-5.89/-7.98	-6.83/-6.3	-1.07/0.11	-0.21/-1.67	-2.72/-2.61	-2.33/-1.04	0.69/-2.12	0.89/0.04	-0.05/-0.77	-2.41/-8.03	-16.21/-17.76	-10.26/-5.7	-6.75/-4.16	-6.07/-5.47	-5.76/-5.83	-2.11/-0.27	-1.25/-2.32	-3/0.3	0.59/0.26	0.35/-1.67	-8.87/-13.83	-11.67/-18.7	-10.51/-8.12
Θ(67.5°)	-5.99/-6.66	-10.14/-12.49	-9.34/-3.06	-0.22/0.85	0.25/-0.94	-1.78/-1.7	-0.23/-0.87	1.76/-1.97	1.92/-1.73	-1.33/-2.51	-3.34/-8.55	-15.25/-18.22	-17.97/-7.77	-5.53/-2.61	-6.77/-9.44	-9/-11.23	-7.83/-3.1	-0.30/33	1.15/-1.02	-1.18/-0.12	1.14/-0.66	-5.75/-17.49	-14.19/-16.61	-9.2/-8.21
Θ(75°)	-9.18/-7.65	-16.49/-12.72	-8.08/-4.1	-0.34/0.86	-0.96/-0.36	0.04/-1.24	-0.39/-1.58	0.58/-1.13	1.31/-23	-3.78/-2.4	-6.31/-8.36	-16.19/-18.41	-14.01/-11.58	-13.11/-7.56	-9.43/-14.17	-17.86/-8.08	-8.83/-1.45	-0.68/-1.27	-2.47/-2.83	-1.77/-1.42	-0.67/-0.92	-6.44/-15.8	-18.56/-18.2	-12.91/-9.1
Θ(82.5°)	-10.56/-13.82	-18.11/-11.47	-7.41/-4.59	-0.92/0.25	-1.17/-0.08	-1.06/-3.28	-1.15/-1.92	0.21/-42	0.38/-0.41	-2.04/-1.68	-5.1/-9.98	-15.4/-12.63	-18.02/-13.78	-16.15/-9.39	-11.54/-19.65	-17.78/-7.41	-16.85/-6.59	0.14/-4.05	-0.02/-5.1	-3.68/-2.94	-2.33/-4.71	-7.41/-14.32	-12.64/-18.68	-15.06/-16.37
Θ(90°)	-16.77/-13.36	-18.67/-8.73	-7.23/-3.53	-0.97/-1.09	-1.34/-0.8	-1.35/-2.07	-2.35/-3.03	0.49/-1.14	0.5/-1.49	-4.21/-4.75	-9.88/-9.96	-11.57/-11.79	-12.69/-15.22	-16.74/-18.64	-14.81/-17.28	-18.42/-10.65	-12.73/-5.69	-6.22/-18.68	-7.06/-4.84	-5.72/-1.11	-3.82/-5.55	-9.12/-15.09	-14.7/-18.4	-18.84/-16.34
Θ(97.5°)	-16.55/-18.45	-19.17/-6.98	-7.31/-3.98	-2.05/-2.32	-2.2/-2.31	-2.07/-3.63	-2.92/-3.03	-3.04/-1.17	-2.22/-3.05	-4.6/-8.88	-12.58/-16.32	-13.94/-15.09	-17.77/-17.86	-12.46/-9.02	-17.46/-12.61	-16.89/-18.99	-12.73/-10.71	-6.17/-9.09	-7.43/-2.39	-2.32/-8.6	-9.67/-18.06	-18.96/-15.58	-17.34/-17.86	
Θ(105°)	-14.57/-15.83	-18.68/-10.38	-10.67/-6.09	-3.17/-2.99	-4.6/-5.99	-4.13/-3.48	-3.16/-13	-1.95/-4.58	-2.25/-4.18	-7.25/-10.97	-15.12/-17.77	-17.54/-18.52	-17.53/-18.41	-14.71/-18.06	-18.9/-17.88	-10.93/-10.86	-14.97/-10.11	-14.12/-9.71	-7.86/-3.77	-10.74/-4.25	-4.82/-6.83	-10.71/-18.74	-16.12/-13.57	-19.04/-12.57
Θ(112.5°)	-9.51/-11.58	-18.47/-10.25	-11.62/-9.08	-5.89/-3.68	-5.94/-6.99	-4.55/-5.42	-3.46/-3.06	-4.35/-2.9	-3.58/-4.38	-6.89/-13.55	-14.73/-16.5	-18.64/-18.78	-18/-18.88	-13.24/-12.79	-14.5/-11.74	-15.14/-10.8	-18.56/-18.21	-18/-8.18	-9.69/-10.16	-18.72/-5.05	-6.72/-7.29	-11.72/-18.67	-17.72/-13.8	-13.55/-10.8
Θ(120°)	-10.22/-8.71	-11.99/-8.84	-10.17/-10.11	-6.64/-4.17	-5.58/-5.8	-4.51/-4.82	-4.71/-4.74	-2.04/-5.81	-1.73/-6.91	-7.13/-12.68	-18.97/-17.57	-19.57/-12.82	-19.05/-8	-10.07/-14.55	-13.94/-9.44	-13.02/-17.27	-14.12/-14.24	-19.45/-14.04	-18.87/-13.64	-12.89/-8.85	-14.37/-17.62	-18.13/-15.27	-11.04/-11.5	
Θ(127.5°)	-10.58/-7.63	-5.97/-6.41	-5.71/-5.69	-4.34/-4.24	-4.11/-3.53	-5.09/-5.21	-3.81/-8.05	-1.82/-2.76	-4.88/-5.93	-7.45/-13.31	-11.36/-18.12	-18.62/-18.26	-18.55/-14.3	-17.96/-8.73	-7.4/-8.46	-17.42/-14.29	-15.51/-17.93	-19.62/-18.8	-18.03/-18.89	-18.86/-18.08	-18.36/-14.82	-18.31/-17.82	-17.85/-27	-14.29/-14.11
Θ(135°)	-14.66/-6.44	-4.57/-5.88	-4.93/-3.02	-2.31/-4.08	-5.42/-5.81	-5.6/-4.47	-4.9/-4.76	-3.22/-3.12	-6.96/-6.02	-18.9/-10.4	-11.16/-17.63	-13.1/-18.45	-17.3/-17.88	-18.51/-13.4	-13.72/-14.29	-18.19/-15.55	-15.73/-17.62	-17.01/-15.77	-16.65/-12.44	-15.03/-10.71	-9.82/-12.16	-18.69/-13.73	-19.14/-14.53	-18.17/-14.68
Θ(142.5°)	-11/-7.7	-8.35/-6.05	-4.86/-5.07	-4.57/-4.84	-5.27/-5.01	-5.1/-4.69	-5.46/-467	-3.44/-6.4	-3.23/-10.5	-9.99/-14.77	-13.42/-18.22	-17.4/-17.77	-18.2/-18.5	-17.49/-11.91	-11.76/-14.28	-18.46/-18.24	-18.55/-15.14	-11.01/-12.58	-11.51/-11.49	-10.27/-7.77	-7.98/-7.91	-12.09/-10.58	-16.15/-17.46	-15.2/-17.1
Θ(150°)	-13.01/-13.26	-10.71/-10.65	-12.18/-11.57	-8.93/-6.92	-6.43/-4.9	-5.59/-4.98	-4.55/-6.1	-6.95/-6.68	-9.19/-6.56	-13.86/-10.1	-8.27/-17.19	-18.71/-18.99	-17.48/-147	-19.59/-14.15	-12.88/-14.69	-16.02/-15.71	-14.14/-15.15	-16.17/-12.89	-13.96/-12.45	-10.57/-7.29	-8.02/-5.06	-4.53/-7.65	-14.26/-14.43	-12.24/-10.34
Θ(157.5°)	-16.65/-13.39	-8.45/-7.3	-8.13/-7.33	-7.86/-9.49	-8.74/-7.11	-5.9/-4.4	-6.11/-6.34	-10.55/-8.81	-6.44/-12.7	-11.27/-7.13	-10.01/-18.36	-18.42/-18.59	-18.48/-14.79	-12.9/-17.36	-19.16/-18.63	-17.82/-14.94	-17.74/-14.97	-12.2/-11.01	-13.61/-10.89	-6.9/-6.31	-5.15/-5.55	-3.57/-4.3	-7.62/-13.56	-18.36/-18.62
Θ(165°)	-13.18/-13.53	-14.23/-14.58	-9.95/-8.35	-8.76/-7.51	-7.13/-6.76	-4.84/-5.51	-6.22/-7.91	-7.53/-9.75	-10.26/-6.15	-6.58/-8.01	-10.97/-15.88	-16.86/-14.78	-13.97/-15.2	-19.37/-18.03	-14.32/-9.52	-7.4/-7.36	-7.5/-8.39	-9.37/-6.16	-7.9/-6.8	-5.59/-5.7	-4.62/-4.32	-5.38/-6.96	-8.02/-11.24	-12.48/-12.54
Θ(172.5°)	-15.13/-11.91	-10.86/-9.23	-7.44/-6.99	-5.96/-4.1	-4.21/-4.25	-5.07/-6.02	-6.11/-7.26	-8.44/-7.98	-6.46/-5.27	-5.17/-8.33	-11.6/-10.8	-17.68/-16.19	-14.97/-11.99	-9.58/-8.83	-10.65/-13.63	-13.74/-13.64	-13.31/-10.27	-9.4/-8.38	-7.86/-10.59	-10.52/-6.67	-8.06/-7.99	-8.66/-9.8	-12.56/-18.66	-16.07/-16.06
Θ(180°)	-17.08/-17.23	-14.1/-10.79	-11.41/-11.35	-9.27/-8.29	-7.61/-7.56	-6.5/-5.93	-6.12/-6.69	-5.98/-5.49	-4.66/-4.49	-6.27/-8.53	-11.56/-10.5	-10.01/-10.95	-12.03/-10.82	-9.06/-7.64	-7.5/-5.86	-17.49/-6.05	-6.06/-6.75	-7.81/-7.89	-7.95/-8.46	-8.11/-8.58	-9.77/-11.25	-12.92/-15.23	-16.79/-16.07	-19.08/-18.76
Freq(Hz)	5.36/Pol.	Theta/Ant.	2	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-1.86/-1.74	-1.93/-2.68	-3.23/-3.33	-5.11/-5.59	-7.16/-8.27	-10.56/-13.78	-17.91/-18.88	-18.56/-15.96	-15.84/-11.36	-8.37/-8.43	-6.08/-5.24	-5.56/-6.38	-5.83/-6.16	-6.93/-6.43	-5.51/-7.35	-6.96/-8.29	-8.68/-11.63	-10.73/-14.08	-15.97/-16.14	-13.61/-12.81	-10.19/-7.82	-6.16/-4.73	-3.65/-3.12	-2.66/-1.96
Θ(7.5°)	-7.05/-6.06	-6.04/-5.51	-5.86/-6.23	-4.78/-6.65	-6.68/-8.95	-10.59/-12.29	-17.48/-17.19	-13.75/-9.42	-9.11/-6.48	-3.04/-1.95	-1.15/-1.11	-0.64/-0.74	-0.95/-0.97	-1.6/-2.89	-1.97/-3.13	-5.68/-5.45	-10.12/-10.85	-15.41/-16.09	-17.72/-15.6	-14.15/-14.66	-15.71/-13.85	-11.93/-9.49	-8.81/-8.1	-8.15/-7.62
Θ(15°)	-5.68/-6.89	-6.86/-9.84	-10.15/-10.12	-11.26/-9.88	-9.57/-10.03	-11.05/-13.69	-16.58/-15.86	-13.37/-7.68	-5.75/-4.17	-1.18/0.61	1.13/0.12	-0.36/-0.24	-0.28/-0.97	-2.71/-4.61	-4.52/-4.02	-6.62/-7.02	-8.87/-13.19	-15.18/-16.58	-18.09/-19.16	-14.04/-12.04	-8.91/-6.47	-5.79/-5.63	-6.15/-6.31	-6.07/-6.06
Θ(22.5°)	-2.91/-3.64	-5.11/-6.39	-8.46/-9.98	-12.43/-13.83	-12.82/-11.76	-14.51/-15.72	-16.48/-15.36	-11.03/-7.43	-3.42/-6.2	-1.24/0.23	0.03/-1.12	-0.98/0.42	-0.17/-0.19	-3.39/-2.86	-3.55/-2.54	-5.58/-5.22	-10.16/-14.66	-18.41/-17.59	-13.77/-19.64	-6.28/-3.49	-2.25/-1.95	-2.43/-3.41	-3.84/-2.62	
Θ(30°)	0.22/0	-1.25/-3.5	-5.01/-8.83	-10.89/-12.76	-18.44/-17.22	-15.51/-15.99	-15.59/-10.75	-13.15/-7.16	-3.04/-1.22	-1.1/-1.29	0.5/-0.3	-1.8/-3.41	-3.92/-3.67	-4.23/-3.27	-4.41/-8.34	-7.61/-10.52	-11.28/-13.32	-14.72/-18.7	-13.42/-8.78	-4.79/-2.08	-0.53/0.77	-0.97/-1.72	-2.02/-1.38	
Θ(37.5°)	0.59/1.01	0.22/-1.56	-3.23/-4.41	-6.99/-10.33	-15.32/-17.38	-14.12/-12.35	-12.19/-18.03	-16.94/-8.41	-3.51/-9.79	-1.02/0.72	1.49/-1.42	0.41/-0.38	-1.46/-3.08	-4.85/-5.58	-5.78/-9.53	-3.98/-3.61	-3.17/-9.42	-6.22/-10.88	-17.94/-18	-18.63/-18.39	-8.18/-3.03	-1.31/0.16	0.65/-0.77	-3.48/-2.9
Θ(45°)	-0.84/1.34	1.29/0.63	-0.57/-3.03	-6.99/-10.18	-13.96/-17.89	-18.76/-13.14	-14.92/-15.67	-9.38/-5.24	-4.94/-4.01	-1.61/-1.2	0.86/1.78	1.47/1.04	0.72/-1.44	-4.75/-4.72	-5.2/-4.74	-6.23/-10.37	-9.89/-15.61	-16.31/-19.25	-18.03/-18.78	-18.15/-18.24	-15.15/-10.66	-5.09/-1.77	-1.58/-2.9	-11.75/-6.18
Θ(52.5°)	-3.4/-0.62	-1.63/-1.39	-1.71/-13.8	-4.06/-7.03	-13.84/-17.88	-18.31/-13.49	-18.16/-16.19	-9.62/-7.53	-6.81/-5.62	-3.74/-5.52	-0.24/-1.27	1.01/-1.8	-2.7/-3.88	-5.19/-4.22	-5.51/-7.46	-8.85/-7.28	-6.62/-6.3	-10.68/-11.24	-12.9/-18.83	-17.69/-17.61	-17.79/-13.64	-11.53/-7.46	-7.05/-6.34	-18.92/-6.84
Θ(60°)	-3.57/-3.79	-4.14/-5.29	-5.56/-3.82	-5.76/-8.69	-12.34/-17.38	-19.03/-18.4	-18.97/-16.44	-12.67/-7.29	-4.95/-6.1	-2.88/-3.52	-1.59/-0.53	-1.7/-1.57	-2.39/-5.12	-6.08/-10.11	-6.89/-9.79	-17.56/-18.83	-10.63/-9.32	-7.68/-9.9	-14.01/-17.08	-13.25/-12.65	-9.71/-7.89	-10.64/-10.5	-8.93/-6.08	-18.35/-8.39
Θ(67.5°)	-4.9/-6.46	-7.41/-11.28	-5.57/-6.69	-7.38/-9.06	-10.45/-13.22	-18.76/-16.27	-15.1/-18.11	-13.73/-6.5	-4.54/-3.68	-4.2/-4.01	-1.93/-1.34	-1.78/-3.13	-5.21/-7.89	-10.55/-8.64	-11.63/-17.16	-14.68/-10.72	-13.83/-13.22	-18.48/-11.58	-8.62/-12.64	-15.68/-7.68	-6.49/-6.38	-7.19/-8.15	-10.99/-10.19	-15.92/-7.47
Θ(75°)	-6.03/-4	-8.24/-7.43																						



Radiated Composite Gain Data

Appendix A.2

Θ(75°)	-1.08/-1.38	-5.27/-18.78	-17.07/-9.3	-7.12/-11.21	-8.02/-10.6	-17.76/-9.13	-15.37/-5.93	-5.96/-8.35	-14.37/-17.69	-13.37/-9.85	-0.95/-0.11	2.81/3.05	2.25/-2.61	-13.52/-7.89	-9.9/-14.16	-18.1/-12.22	-6.44/-4.03	-6.18/-7.81	-9.14/-8.22	-12.24/-5.43	-12.36/-4.95	-12.08/-17.53	-8.25/-3.35	-0.450/-87		
Θ(82.5°)	-1.85/-1.32	-8.59/-15.63	-12.59/-8.59	-5.46/-8.44	-8.67/-13.94	-17.56/-9.02	-18.15/-7.49	-8.62/-8.65	-8.68/-19.32	-17.44/-12.61	-1.92/-15	0.9/2.82	2.940/-23	-6.23/-11.38	-8.08/-11.13	-10.5/-12.28	-6.01/-3.64	-1.79/-7.23	-10.72/-13.59	-4.45/-6.83	-4.94/-7.79	-11.28/-18	-4.82/-2.31	-1.7/-0.13		
Θ(90°)	-3.31/-3.61	-6.09/-10.5	-16.6/-8.57	-12.4/-10.23	-8.23/-14.44	-18.7/-9.66	-18.79/-6.67	-5.63/-9.59	-9.46/-19.3	-14.44/-10.28	-0.02/-0.02	-0.13/3.36	-8.95/-2.63	-8.32/-6.29	-13.45/-4.99	-7.4/-9.87	-2.4/-2.94	-3.94/-10.15	-6.94/-13.14	-6.48/-19.13	-11.54/-17.62	-8.96/-53	-5.13/-1.89			
Θ(97.5°)	-5.33/-4.02	-3.34/-9.09	-17.99/-5.87	-5.88/-10.06	-7.98/-17.87	-19.24/-10.11	-18.37/-5.07	-8.12/-6.57	-5.51/-13.1	-15.93/-9.66	-5.04/2	2.842/63	0.2/-2.37	-11.11/-9.91	-7.22/-4.33	-16.19/-8.79	-3.4/-2.82	-9.12/-10.41	-11.59/-11.51	-18.28/-19.03	-16.47/-14.2	-12.66/-12.74	-13.51/-17.57	-8.25/-4.11		
Θ(105°)	-2.88/-1.82	-1.75/-6.47	-11.58/-11.82	-5.88/-7.48	-11.78/-13.92	-18.07/-6.7	-18.13/-4.95	-6.55/-7.98	-6.76/-12.95	-18.83/-16.78	-0.35/0.6	-0.11/3.17	1.57/-1.58	-3.89/-13.48	-4.2/-3.94	-7.38/-10.89	-4.2/-3.94	-7.38/-10.89	-11.53/-14.16	-11.48/-11.67	-17.45/-18.55	-18.79/-7.11	-9.97/-6.02	-4.6/-2.55		
Θ(112.5°)	-0.03/-2.48	-2.02/-6.04	-13.23/-11.5	-7.26/-8.3	-13.96/-10	-18.9/-9.13	-18.04/-7.6	-8.09/-12.97	-11.52/-12.21	-5.23/-5.28	-2.414/16	2.891/32	-1.5/-1.81	-5.01/-4.67	-15.06/-6.53	-18.7/-13.64	-8.37/-5.81	-8.91/-17.92	-17.47/-9.26	-12.54/-13.92	-18.68/-17.14	-15.88/-7.15	-5.58/-2.56	0.99/-0.02		
Θ(120°)	0.55/-3.66	-2.03/-5.64	-9.94/-11.68	-15.18/-7.22	-12.05/-9.15	-18.22/-15	-17.84/-6.49	-9.65/-18.32	-13.04/-12.84	-7.71/-0.71	-1.672/94	-2.960/65	3.12/-1.02	-5.41/-6.54	-4.5/-14.49	-15.55/-18.57	-15.69/-11.98	-15.8/-17.56	-19.27/-11.29	-9.08/-17.68	-16.22/-14.26	-15.03/-13.41	-7.4/-3.68	1.440/67		
Θ(127.5°)	-1.49/-5.63	-2.39/-4.53	-7.81/-16.55	-17.68/-9.51	-9.88/-6.61	-19.18/-17.57	-18.12/-10.87	-11.87/-16.82	-19.33/-9.82	-5.08/-2.56	1.09/-3.25	1.25/-2.22	-0.04/-6.37	-0.18/-2.68	-9.32/-14.08	-12.73/-17.06	-15.13/-17.4	-17.5/-13.21	-16.19/-11.88	-13.44/-19.26	-14.64/-13.48	-12.14/-1.69	-1.36/-0.8	2.541/33		
Θ(135°)	-4.3/-6.16	-2.25/-2.87	-6.51/-15.04	-18.42/-10.95	-7.94/-6.21	-11.84/-17.6	-12.27/-19	-13.12/-10.43	-11.42/-7.69	-3.93/-2.63	-1.41/-0.91	0.090/64	2.14/-0.6	-7.08/-2.21	-6.69/-11.46	-10.35/-18.31	-17.15/-17.41	-17.88/-18.4	-17.88/-18.15	-16.68/-13.46	-16.06/-18.57	-12.97/-5.9	-2.71/-45	3.661/75		
Θ(142.5°)	-6.95/-3.5	-0.33/-1.45	-5.31/-12.59	-15.17/-9.25	-8.76/-9.84	-17.4/-11.68	-11.97/-13.32	-9.41/-8.24	-7.54/-8.86	-4.18/-1.42	0.4/-0.79	1.822/39	-1.46/-5.36	1.01/-9.14	-3.61/-5.4	-12.11/-18.49	-15.85/-18.68	-17.68/-18.31	-18.73/-17.87	-17.08/-15.67	-10.92/-6.03	-3.75/-2.9	-0.630/67	0.82/-2.09		
Θ(150°)	-3.99/-3.34	-1.2/-1.5	-3.89/-10.16	-18.75/-11.27	-12.5/-14.08	-15.67/-12.23	-12.15/-11.53	-10.09/-7.5	-6.39/-4.56	-3.96/-4.16	-1.52/-11.9	-0.01/-2.17	-1.84/-0.83	-9.33/-1	0.01/-3.5	-10.94/-18.22	-13.9/-13.49	-17.39/-19.08	-18.56/-18.66	-16.6/-10.92	-9.28/-8.54	-6.71/-4.16	-1.930/-88	-0.37/-3.7		
Θ(157.5°)	-3.28/-2.37	-0.44/-1.06	-4.22/-9.56	-17.14/-16.82	-12.74/-13.62	-18.19/-18.58	-17.62/-15.37	-11.6/-7	-5.36/-3.23	-1.313/-3.53	-2.61/-4.18	-6.09/-7.42	-10.07/-11.37	-12.16/-17.24	-19.26/-12.78	-9.64/-14.1	-14.58/-13.04	-13.02/-9.75	-19.4/-2.98	-9.05/-4.39	-13.82/-0.01	-4.44/-5.14	-7.1/-7.87	-9.43/-12.02	-9.84/-13.38	-15.66/-19.03
Θ(165°)	-2.37/-1.38	-1.49/-2.74	-5.87/-8.05	-9.53/-16.26	-19.17/-15.28	-13.59/-18.35	-19.09/-19.22	-18.73/-12.62	-10.2/-7.92	-4/-1.94	-4.99/-3.97	0.47/-3.61	-0.72/-0.77	0.09/-3.09	-5.75/-9.13	-10.91/-10.26	-10.82/-12.94	-13.75/-18.73	-15.56/-13.39	-11.2/-9.43	-7.81/-6.07	-4.21/-3.02	-2.34/-2.36	-2.65/-3.09		
Θ(172.5°)	-7.6/-1.86	-3.03/-5.6	-6.93/-8.41	-8.72/-12.34	-17.42/-19.16	-14.32/-9.89	-9.34/-7.57	-8.02/-6.62	-6.25/-5.67	-4.88/-1.91	0.4/-2.9	-1.72/-0.12	-2.19/-1.39	-1.42/-2.74	-6.67/-7.41	-10.73/-10.6	-9.61/-9.95	-14.2/-18.68	-12.4/-9.24	-6.7/-5.34	-3.98/-3.25	-2.71/-2.41	-2.13/-1.39	-0.93/-0.56		
Θ(180°)	-2.43/-2.4	-3.67/-4.06	-4.5/-5.81	-7.05/-8.63	-10.5/-13.79	-17.64/-18	-11.98/-9.11	-6.6/-4.52	-3.4/-2.58	-1.49/-2.06	-1.880/-12	0.06/-1.24	-0.120/-24	-3.38/-13.4	-9.77/-16.06	-11.54/-7.08	-8.63/-11.61	-17.22/-17.47	-14.58/-12.28	-8.97/-7.27	-5.36/-3.68	-2.63/-2.52	-1.95/-1.69	-1.72/-1.64		
Freq(Hz)	5.2GPol.	ThetaAnt. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)		
Θ(0°)	-18.07/-11.91	-8.92/-6.08	-4/-2.81	-1.559/-0.79	0.190/7.7	0.40/6	0.8/-0.2	-0.13/-1.63	-1.38/-3.74	-5.98/-7.22	-12.33/-15.5	-17.92/-14.23	-6.51/-6.49	-4.97/-3.57	-2.37/-0.37	0.350/-22	1.040/23	0.660/03	0.28/-0.88	-1.17/-2.51	-3.71/-5.61	-7.06/-9.33	-13.45/-18.97			
Θ(7.5°)	-19.43/-12.82	-9.24/-6.55	-4.36/-3.3	-1.96/-1.69	-1.26/-0.9	-0.87/-1.3	-0.33/-0.68	-1.29/-1.16	-2.21/-2.98	-4.64/-5.49	-8.06/-12.72	-19.06/-18.7	-15.87/-12.06	-5.63/-6.23	-5.67/-3.17	-1.71/-0.61	0.240/7	-0.191/0.3	0.180/0.7	0.04/-1.33	-0.9/-2.59	-3.29/-3.81	-7.88/-8.89	-13.84/-18.86		
Θ(15°)	-14.12/-12.23	-9.34/-9.24	-7.11/-4.45	-4.05/-3.49	-3.21/-2.1	-1.19/-1.72	-0.98/-2.4	-2.39/-3.5	-3.93/-4.09	-4.7/-5.81	-5.89/-6.71	-9.5/-13.95	-17.9/-16.98	-9.32/-6.98	-8.64/-6.6	-5.97/-4.48	-1.75/-2.01	-0.87/-1.77	-1.87/-1.77	-1.99/-1.8	-2.3/-2.37	-3.76/-3.98	-11.67/-9.69	-11.89/-12.71		
Θ(22.5°)	-13.17/-11.1	-7.73/-7.09	-5.39/-4.57	-3.61/-3.99	-4.74/-3.17	-2.02/-3.91	-4.48/-4.18	-3.13/-3.53	-2.61/-4.18	-6.09/-7.42	-10.07/-11.37	-12.16/-17.24	-19.26/-12.78	-9.64/-14.1	-14.58/-13.04	-13.02/-9.75	-19.4/-2.98	-9.05/-4.39	-13.82/-0.01	-4.44/-5.14	-7.1/-7.87	-9.43/-12.02	-9.84/-13.38	-15.66/-19.03		
Θ(30°)	-15.69/-12.81	-12/-7.65	-5.4/-4.56	-2.3/-5.36	-9.49/-6.29	-5.87/-6.23	-4.93/-4.24	-5.24/-6.39	-6.56/-6.34	-5.14/-5.08	-6.45/-7.91	-10.31/-9.36	-9.13/-7.43	-6.98/-9.27	-9.15/-11.58	-12.57/-17.25	-15.41/-13.08	-10.45/-17.61	-8.92/-11.39	-9.72/-12.09	-11.15/-11.51	-9.88/-7.76	-13.12/-10.49	-16.41/-18.89		
Θ(37.5°)	-17.93/-17.57	-12.83/-9.17	-7.38/-6.79	-6.18/-7.05	-11.74/-10.8	-9.64/-7.88	-7.77/-11.86	-7.32/-3.59	-4.01/-5.3	-9.41/-11.37	-17.49/-15.56	-10.31/-8.47	-8.83/-12.21	-15.02/-11.63	-18.76/-13.07	-17.59/-17.28	-13.11/-15.26	-11.74/-14.74	-16.78/-17.5	-13.5/-9.62	-6.46/-8.11	-10.85/-9.09	-13.51/-19.01			
Θ(45°)	-18.87/-11.59	-14.35/-11.63	-14.46/-12.48	-8.35/-10.08	-9.39/-17.81	-13.46/-18.78	-14.74/-16.81	-10.32/-6.54	-9.01/-4.05	-6.93/-7.35	-9.65/-10.77	-10.75/-10.15	-17.4/-13.15	-18.98/-16.97	-11.95/-10.07	-14.52/-9.33	-13.9/-18.2	-13.16/-17.8	-11.31/-8.67	-15.31/-19.02	-17.89/-15.71	-7.67/-9.95	-8.37/-8.57	-13.31/-16.91		
Θ(52.5°)	-17.27/-12.07	-7.36/-9.19	-12.53/-13.37	-12.25/-11.26	-10.19/-17.39	-13.83/-19.02	-15.3/-19.1	-11.29/-11.47	-18.64/-6.98	-5.45/-9.79	-9.27/-11.68	-9.53/-10.59	-18.69/-14.47	-11.22/-18.72	-16.83/-17.9	-17.86/-13.92	-12.1/-9.39	-10.06/-12.03	-13.55/-15.37	-9.49/-9.65	-15.21/-17.4	-13.65/-9.01	-8.61/-13.19	-13.07/-17.97		
Θ(60°)	-17.16/-17.14	-5.75/-6.67	-10.62/-18.1	-19.82/-12.67	-12.01/-10.49	-13.51/-11.96	-14.87/-10.94	-10.78/-17.87	-15.45/-10.13	-8.51/-10.94	-19.07/-14.34	-17.89/-14.44	-15.84/-13.03	-17.94/-15.13	-17.87/-18.78	-16.21/-18.74	-11.65/-6.06	-5.69/-7.87	-8.37/-13.32	-8.31/-14.07	-10.98/-17.89	-14.31/-14.47	-11.61/-18.59	-14.13/-15.71		
Θ(67.5°)	-14.45/-11.44	-7.99/-8.16	-9.84/-9.84	-18.28/-17.84	-10.48/-10.35	-18.22/-5.96	-17.81/-17.76	-18.46/-17.94	-16.43/-14.19	-18.62/-12.91	-14.55/-15.98	-12.41/-6.58	-19.13/-11.62	-19.41/-18.79	-18.75/-14.53	-7.99/-2.5	-7.18/-9.14	-16.58/-9.14	-14.47/-15.81	-13.86/-13.78	-13.06/-9.87	-14.49/-13.32				
Θ(75°)	-13.25/-13.53	-16.18/-10.31	-8.19/-8.14	-14.09/-16.6	-14.23/-10.99	-19.66/-11.6	-13.03/-10.26	-14.14/-17.01	-13.87/-13.4	-15.92/-8.59	-12.82/-16.93	-10.64/-11.91	-13.01/-10.78	-14.7/-11.91	-15.39/-19.19	-17.43/-13.44	-7/-7.98	-12.92/-6.42	-4.75/-3.83	-11.86/-12.84	-9.88/-12.37	-15.04/-14.4	-14.1/-9.51	-13.65/-15.91		
Θ(82.5°)	-9.25/-16.13	-15.09/-12.15	-12.29/-11.17	-12.55/-18.11	-15.35/-13.6	-11.82/-18.28	-12.08/-11.88	-13.82/-19	-15.78/-8.8	-11.44/-15.07	-18.83/-18.24	-14.92/-12.82	-14.33/-17.81	-11.11/-14.59	-17.52/-17.91	-18.04/-18.81	-12.26/-11.93	-15.02/-18.7	-15.85/-14.97	-18.59/-13.27	-12.95/-14.02	-17.97/-11.74	-8.52/-18.4	-11.75/-16.37		
Θ(90°)	-9.01/-8.82	-10.29/-10.53	-14.08/-18.33	-8.31/-18.09	-18.68/-10.49	-13.67/-18	-19.13/-17.51	-15.03/-16.53	-16.2/-8.81	-10.17/-18.38	-10.51/-14.38	-11.02/-13.53	-16.91/-17.27	-1.685/-9.61	-18.5/-16.25	-17.29/-13.93	-18.61/-18.22	-17.87/-14.87	-9.82/-9.82	-18.47/-9.24	-15.29/-18.13	-18.62/-10.1	-12.48/-17.4	-11.06/-13.78		
Θ(97.5°)	-9.79/-9.68	-9.04/-11.23	-17.3/-15.36	-9.97/-12.68	-19.01/-16.51	-7.05/-15.17	-18.22/-12.5	-11.54/-10.85	-13.36/-7.66	-10.01/-10.9	-5.70/-10.88	-17.53/-10	-13.01/-19.27	-9.91/-13.27	-13.07/-9.84	-8.91/-9.22	-9.75/-18.21	-13.11/-15.26	-11.74/-14.74	-16.78/-17.5	-15.36/-13.55	-13.48/-17.82	-11.08/-8.47			
Θ(105°)	-8.17/-13.48	-10.08/-13.86	-17.81/-9.34	-10.31/-9.54	-17.76/-14.7	-7.44/-11.39	-13.25/-11.84	-14.15/-10.31	-10.09/-7.08	-5.38/-6.12	-5.57/-9.89	-19.22/-9.03	-9.83/-18.66	-13.87/-10.53	-18.84/-17.24	-10.22/-10.05	-11.43/-6.4	-8.98/-16.17	-8.66/-6.44	-19.08/-17.88	-18.48/-12.31	-14.77/-18.38	-16.59/-16.06	-10.4/-6.46		
Θ(112.5°)	-8.57/-12.42	-14.79/-17.47	-13.45/-19.36	-15.41/-6.42	-10.66/-12.18	-8.78/-7.26	-10.79/-9.7	-11.54/-10.54	-8.58/-6.8	-6.53/-5.42	-7.31/-18.48	-15.1/-6.82	-9.79/-16.72	-14.65/-9.57	-18.18/-16.18	-8.52/-12.39	-15.3/-5.91	-12.28/-8.85	-5.17/-6.44	-18.71/-19.4	-18.6/-11.3	-19.3/-13.03	-13.28/-16.22	-14.16/-8.89		
Θ(120°)	-13.33/-12.52	-16.04/-9.05	-13.73/-17.89	-18.05/-5.9	-6.57/-13.02	-6.69/-9.62	-7.12/-11.98	-10.36/-9.06	-6.48/-5.52	-5.49/-5.22	-6.51/-14.91	-10.31/-8.47	-8.83/-12.21	-15.02/-11.63	-18.76/-13.07	-17.59/-17.28	-11.77/-11.47	-15.75/-1								



Radiated Composite Gain Data

Appendix A.2

Θ (127.5°)	-8.91/-9.05	-10.44/-10.26	-15.08/-13.11	-3.71/0.94	3.57/4.36	3.62/05	0.26/-1.52	-3.8/-7.32	-18.12/-13.44	-6.11/-3.46	-3.42/-6.58	-12.9/-10.92	-9.18/-11.63	-18.93/-19.25	-15.49/-18.82	-7.66/-2.99	-2.38/-3.54	-3.25/-2.06	-1.01/-0.7	-1.03/-1.85	-2.99/-3.79	-4.02/-4.71	-6.01/-7.89	-9.87/-10.11
Θ (135°)	-8.64/-9	-10.95/-14.08	-17.62/-6.62	-0.03/-2.23	4.33/8.2	2.18/0.7	-1.75/-3.31	-5.66/-9.76	-9.12/-4.99	-2.56/-2.18	-3.45/-5.83	-7.75/-8.04	-9.1/-13.3	-17.55/-19.21	-13.85/-14.54	-5.74/-2.26	-1.56/-2.5	-3.11/-2.47	-0.85/-0.24	0.35/-0.9	-1.27/-2.65	-4.04/-5.2	-6.56/-8.89	-11.5/-16.16
Θ (142.5°)	-7.18/-8.94	-13.17/-17.89	-14.15/-5.37	-0.75/-1.3	1.72/1.2	0.80/57	0.17/-0.86	-2.74/-5.49	-4.93/-3.88	-3.02/-3.04	-3.71/-4.75	-5.9/-6.93	-6.67/-11.69	-12.88/-12.55	-15.13/-9.94	-4.35/-2	-1.18/-1.59	-2.52/-2.21	-0.67/0.61	1.25/1.36	0.93/-0.07	-1.57/-3.23	-4.98/-6.56	-7/-6.43
Θ (150°)	-5.92/-8.93	-17.42/-19.46	-9.36/-4.55	-2.04/-1.25	-1.2/-0.57	0.6/1.4	1.4/0.6	-0.96/-3.02	-5.06/-6.18	-6.46/-5.9	-5.52/-5.97	-6.93/-8.16	-9.33/-9.87	-11.22/-17.6	-18.23/-7.65	-3.66/-2.03	-1.4/-1.53	2/-1.6	-0.64/0.21	0.98/1.55	1.78/1.45	0.66/-0.36	-1.42/-2.64	-3.83/-4.58
Θ (157.5°)	-10.78/-16.48	-14.13/-8.26	-4.58/-2.15	-1.16/-2.17	-3.55/-2.72	-0.78/0.61	1.06/0.78	0.02/-1.31	-2.99/-5.08	-6.85/-7.91	-8.68/-9.77	-11.22/-11.89	-10.69/-9.92	-11.47/-13.93	-9.84/-5.48	-2.89/-1.82	-1.69/-1.94	-1.98/-1.49	-0.89/-0.61	-0.42/-0.14	0.09/-0.11	-0.58/-1.34	-2.53/-4.24	-6.27/-8.12
Θ (165°)	-18.58/-15.9	-9.78/-5.53	-2.71/-1.37	-1.57/-3.25	-4.46/-3.09	-1.49/-0.37	0.05/-0.15	-0.78/-1.61	-3.02/-4.92	-4.77/-10.1	-15.9/-17.13	-17.56/-14.59	-12.09/-11.58	-11.18/-8.78	-5.83/-3.58	-2.17/-1.56	-1.6/-1.86	-1.87/-1.62	-1.34/-1.24	-1.4/-1.7	-2.22/-2.76	-3.46/-4.5	-6.01/-8.1	-12.6/-17.41
Θ (172.5°)	-18.27/-18.17	-10.52/-5.93	-3.74/-3.45	-4.33/-4.72	-2.98/-1.12	-0.22/-0.16	-0.85/-2	-3.56/-5.23	-7.15/-8.39	-10.2/-11.46	-11.09/-10.59	-10.78/-12.37	-13.51/-12.8	-10.13/-6.67	-4/-2.29	-1.33/-0.83	-0.6/-0.5	-0.4/-0.26	-0.13/-0.08	-0.19/-0.53	-1.13/-1.99	-2.94/-4.01	-5.19/-6.96	-10.55/-16.35
Θ (180°)	-19.57/-14.27	-9.14/-6.66	-5.97/-6.06	-4.82/-2.57	-0.74/0.35	0.54/-0.16	-1.72/-4.03	-5.93/-5.95	-4.71/-3.87	-3.47/-3.27	-3.43/-4.55	-7.15/-11.81	-18.51/-15.83	-9.21/-5.25	-2.73/-1.3	-0.54/0.04	0.52/0.87	1.15/-1.39	1.51/-1.43	1.16/0.76	0.2/-0.63	-1.64/-2.76	-4.06/-6.25	-9.81/-14.95
Freq(Hz)	2.45GPol.	Theta/Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gain	Φ(0°)Ψ(7.5°)	Φ(15°)Ψ(22.5°)	Φ(30°)Ψ(37.5°)	Φ(45°)Ψ(52.5°)	Φ(60°)Ψ(67.5°)	Φ(75°)Ψ(82.5°)	Φ(90°)Ψ(97.5°)	Φ(105°)Ψ(112.5°)	Φ(120°)Ψ(127.5°)	Φ(135°)Ψ(142.5°)	Φ(150°)Ψ(157.5°)	Φ(165°)Ψ(172.5°)	Φ(180°)Ψ(187.5°)	Φ(195°)Ψ(202.5°)	Φ(210°)Ψ(217.5°)	Φ(225°)Ψ(232.5°)	Φ(240°)Ψ(247.5°)	Φ(255°)Ψ(262.5°)	Φ(270°)Ψ(277.5°)	Φ(285°)Ψ(292.5°)	Φ(300°)Ψ(307.5°)	Φ(315°)Ψ(322.5°)	Φ(330°)Ψ(337.5°)	Φ(345°)Ψ(352.5°)
Θ (0°)	-1.78/-1.05	-1.23/-2.44	-4.41/-6.32	-7.59/-8.11	-8.76/-9.7	-10.41/-10.59	-10.26/-9.79	-9.68/-9.59	-8.47/-6.76	-5.62/-5.01	-4.17/-3.35	-2.82/-2.6	-2.28/-1.79	-1.72/-2.29	-3.2/-1.43	-4.96/-5.82	-6.98/-6.97	-7.93/-8.34	-8.95/-9.46	-9.03/-8.16	-7.31/-6.39	-5.47/-6.33	-3.94/-3.51	-3.29/-2.73
Θ (7.5°)	-1.64/-1.37	-1.66/-2.7	-4.3/-6.25	-8.12/-9.24	-9.44/-10.49	-10.58/-10.61	-9.84/-9.06	-8.83/-8.78	-7.17/-6.05	-5.4/-5.97	-5.22/-4.59	-3.46/-2.77	-2.62/-2.5	-2.43/-2.79	-3.53/-4.42	-5.06/-5.77	-6.71/-7.54	-8.2/-9.05	-10.54/-11.51	-10.82/-9.43	-8.36/-7.38	-6.4/-5.31	-4.1/-3.03	-2.35/-1.99
Θ (15°)	-1.62/-1.65	-2.25/-3.24	-4.66/-6.66	-9.04/-11.63	-13.54/-14.51	-14.24/-12.95	-11.69/-10.6	-10.05/-10.26	-10.09/-8.56	-6.62/-5.78	-6.59/-7.75	-6.82/-5.21	-4.72/-5.01	-5.15/-5.13	-5.57/-6.56	-7.2/-7.38	-7.83/-8.65	-9.65/-10.82	-12.97/-15.19	-15.18/-13.36	-11.37/-9.36	-7.35/-5.42	-4.08/-3.06	-2.39/-1.9
Θ (22.5°)	-0.88/-0.66	-1.41/-3.07	-3.55/-8.43	-12.01/-17.27	-17.74/-19.04	-18.2/-18.19	-16.11/-13.37	-10.97/-8.85	-9.37/-8.16	-6.4/-5.3	-5.94/-7.97	-9.28/-8.08	-7.02/-7.19	-7.9/-8.64	-9.48/-10.57	-10.24/-8.93	-8.57/-9.31	-10.68/-12.49	-15.76/-18.43	-17.89/-17.51	-12.66/-9.37	-7.3/-5.96	-4.69/-3.57	-2.51/-1.64
Θ (30°)	-1.64/-1.83	-2.3/-4.33	-5.56/-9.09	-14.11/-19.21	-17.83/-16.2	-17.66/-18.52	-19.24/-15.97	-12.05/-9.95	-8.78/-7.4	-5.55/-4.34	-4.49/-5.88	-7.91/-8.97	-8.62/-8.68	-9.22/-9.97	-11.61/-14.97	-14.4/-10.24	-8.82/-9.1	-10.44/-12.74	-16.46/-19.15	-17.9/-14.81	-9.72/-6.61	-4.73/-3.99	-3.84/-3.27	-2.17/-1.56
Θ (37.5°)	-2.86/-4.68	-6.28/-6.31	-5.95/-7.14	-10.6/-14.04	-13.28/-14.37	-18.44/-18.18	-17.87/-19.17	-19.28/-16.49	-15.34/-13.13	-9.02/-6.23	-5.41/-6.35	-8.47/-11.15	-12.21/-12.26	-11.4/-9.99	-9.99/-12.88	-16.03/-11.87	-10.31/-10.69	-11.91/-13.66	-15.71/-18.13	-17.7/-14.46	-9.56/-6.24	-4.14/-3.15	-2.78/-2.6	-2.11/-1.9
Θ (45°)	-2.48/-4.74	-9.55/-11.37	-7.15/-9.97	-7.84/-11.11	-11.11/-13.34	-18.02/-18.92	-18.3/-18.79	-14.77/-11.97	-13.12/-15.41	-15.02/-10.66	-8.03/-7.41	-9.21/-13.8	-17.47/-19.16	-19.5/-12.18	-8.65/-8.7	-11.34/-11.53	-11.92/-15.91	-18.24/-15.05	-14.57/-18.44	-18.39/-15.98	-9.63/-6.2	-4.5/-3.75	-3.34/-2.98	-4.82/-4.92
Θ (52.5°)	-3.25/-4.72	-8.92/-13.71	-9.11/-6.96	-8.42/-10.5	-9.27/-11.36	-17.82/-17.53	-15.77/-10.64	-7.9/-7.26	-8.82/-11.85	-14.3/-12.77	-9.6/-8.28	-9.31/-11.82	-13.43/-15.37	-14.77/-14.67	-9.13/-8	-8.47/-8.54	-9.84/-15.29	-18.18/-13.24	-12.88/-17.13	-18.51/-15.94	-9.5/-9.1	-4.33/-3.82	-3.83/-4.18	-4.43/-3.71
Θ (60°)	-5.36/-6.68	-8.27/-8.63	-7.78/-9.57	-12.22/-9.66	-7.71/-10.3	-17.57/-19.22	-12.66/-8.02	-6.43/-6.15	-7.1/-9.53	-13.65/-14.1	-10.53/-9.08	-10.96/-15.48	-14.19/-12	-13.4/-12.4	-9.34/-8.79	-9.19/-9.93	-10.81/-14.23	-18.91/-13.69	-11.49/-13.08	-18.37/-18.72	-11.08/-7.77	-6.12/-5.28	-4.51/-4.04	-4.89/-6
Θ (67.5°)	-8.04/-7.98	-9.28/-7.57	-5.01/-11.2	-14.92/-7.46	-6.45/-9.85	-17.31/-18.58	-12.27/-4.5	-6.27/-5.9	-5.45/-7.05	-12.51/-14.73	-10.83/-9	-10.35/-16.16	-18.1/-13.4	-11.17/-9.3	-7.27/-6.23	-7.19/-11.62	-18.69/-17.29	-17.32/-15.93	-11.36/-14.71	-17.73/-16.4	-11.87/-8.94	-8.51/-6.75	-6.22/-4.89	-5.67/-7.96
Θ (75°)	-11.06/-9.74	-6.63/-6.35	-4.44/-13.57	-13.07/-7.06	-7.41/-11.67	-19.18/-18.32	-11.35/-6.9	-3.62/-7.22	-6.6/-7.33	-12.07/-16.61	-11.02/-8.2	-7.52/-9.17	-16.22/-18.69	-13.66/-15.56	-9.78/-5.72	-4.79/-7.4	-14.77/-17.95	-18.78/-14.97	-10.17/-9.76	-13.66/-15.57	-12.11/-10.94	-6.62/-9.98	-9.12/-7.16	-6.86/-9.67
Θ (82.5°)	-17.44/-13.3	-10.37/-9.08	-8.63/-17.25	-13.66/-8.81	-10.93/-16.27	-18.53/-18.31	-12.85/-9.17	-8.65/-10.91	-11.1/-10.61	-15.51/-17.79	-13.54/-10.57	-9.32/-10.43	-17.61/-17.35	-16.62/-18.35	-12.72/-8.7	-6.7/-9.22	-18.82/-19.47	-17.8/-10.68	-7.36/-7.61	-9.17/-10.26	-11.25/-12.42	-11.27/-11.79	-12.21/-10.2	-8.7/-10.61
Θ (90°)	-9.81/-16.15	-12.95/-16.13	-15.05/-16.88	-17.91/-12.49	-14.97/-19.04	-15.9/-17.37	-19.28/-16.29	-15.78/-18.15	-19.71/-13.71	-12.85/-12.87	-13.56/-12.48	-10.06/-10.36	-16.01/-16.78	-18.53/-15.06	-13.33/-17.48	-18.12/-18.21	-17.99/-9.96	-5.93/-7.4	-6.53/-8.07	-8.76/-9.59	-12.09/-15.45	-17.53/-14.52	-12.35/-13.29	-12.58/-13.9
Θ (97.5°)	-18.8/-17.52	-19.34/-18.8	-17.97/-15.86	-17.08/-15.62	-17.93/-12.7	-11.01/-16.73	-17.42/-15.98	-18.14/-17.85	-14.28/-10.35	-9.56/-10.64	-11.16/-8.6	-6.02/-5.69	-8.19/-12.85	-17.47/-13.69	-13.63/-18.59	-18.87/-13.84	-18.1/-11.7	-5.61/-3.98	-4.4/-7.62	-9.71/-8.5	-9.79/-13.73	-17.87/-17.14	-17.19/-18.72	-17.19/-18.72
Θ (105°)	-18.46/-18.29	-18.63/-18.04	-18.23/-15.45	-12.07/-12.01	-11.71/-8.46	-8.08/-11.35	-12.04/-11.45	-12.04/-10.95	-9.79/-10.28	-13.48/-18.1	-18.76/-11.81	-7.15/-6.33	-8.29/-12.01	-14.49/-11.63	-12.79/-18.6	-17.58/-18.13	-18.74/-14.6	-16.89/-19.16	-8.58/-4.52	-3.67/-5.49	-8.24/-8.9	-10.37/-15.28	-17.05/-13.76	-15.16/-16.68
Θ (112.5°)	-9.73/-11.69	-13.23/-19.04	-18.87/-14.27	-11.62/-16.04	-7.51/-5.28	-5.32/-7.18	-8.65/-9.21	-9.63/-10.99	-11.89/-13.96	-18.48/-12.48	-15.27/-13.32	-7.77/-7.18	-10.05/-15.71	-16.31/-18.1	-10.41/-12.56	-17.67/-16.78	-18.69/-17.76	-18.59/-18.27	-11.84/-6.2	-5.61/-6.73	-7.43/-16.4	-8.74/-15.5	-15.42/-9.16	-7.87/-8.01
Θ (120°)	-4.75/-9.27	-19.17/-18.3	-14.78/-9.81	-9.13/-7.77	-5.15/-3.92	-3.93/-5.23	-7.45/-9.3	-6.44/-12.84	-16.77/-12.81	-8.05/-6.91	-7.47/-5.7	-3.93/-4.45	-7.32/-12.6	-14.74/-18.06	-18.5/-18.47	-18.05/-18.21	-13.06/-7.51	-6.71/-9.12	-11.9/-8.9	-8.35/-11.58	-12.99/-9.1	-5.07/-3.7	-12.99/-9.1	-5.07/-3.7
Θ (127.5°)	-5.5/-12.53	-18.87/-10.77	-7.74/-5.21	-4.24/-4.03	-4.47/-5.05	-4.86/-5.3	-7.16/-10.09	-13.89/-15.23	-12.35/-9.88	-8.99/-9.28	-6.8/-3.73	-2.8/-3.87	-6.03/-8.57	-13.46/-18.36	-14.85/-11.8	-11.88/-14.83	-19.16/-17.03	-13.72/-18.21	-18.71/-8.38	-5.76/-6.74	-12.02/-19.45	-17.03/-17.45	-12.52/-7.91	-5.02/-3.92
Θ (135°)	-10.37/-19.45	-9.01/-4.82	-3.45/-2.22	-1.49/-1.95	-4.15/-4.65	-5.93/-5.7	-6.07/-9.52	-18.72/-18.41	-13.52/-13.13	-18.25/-14.74	-7.5/-4.71	-4.4/-0.5	-3.75/-4.1	-6.59/-12.69	-19.06/-11.12	-8.87/-9.77	-15.02/-17.37	-14.53/-12.34	-18.82/-17.17	-8.02/-5.7	-5.93/-7.57	-8.79/-7.92	-6.34/-5.3	-5.33/-6.1
Θ (142.5°)	-12.49/-11.16	-5.08/-2.43	-1.7/-1.36	-1.7/-2.87	-4.9/-6.08	-5.52/-5.25	-6.43/-9.68	-12.3/-8.43	-5.4/-3.36	-4.68/-5.05	-4.35/-3.17	-2.15/-1.46	-1.39/-2.61	-5.78/-13.1	-16.03/-10.12	-8.01/-8.18	-11.09/-19.1	-17.12/-10.83	-10.98/-18.74	-16.38/-6.51	-5.7/-4.38	-3.48/-2.68	-2.17/-2.24	-3.18/-5.8
Θ (150°)	-6.23/-5.98	-3.53/-1.54	-1.04/-1.84	-3.69/-6.11	-6.72/-5.78	-5.55/-6.76	-9.43/-14.49	-13.68/-7.65	-4.23/-2.83	-2.25/-2.78	-1.52/-1.41	-2.4/-7.3	-9.35/-19.08	-16.05/-10.11	-6.66/-8.37	-9.53/-14.51	-18.76/-11.65	-8.74/-9.43	-13.67/-16.7	-10.51/-6.25	-3.86/-2.37	-1.76/-2.04	-3.04/-4.8	-3.04/-4.8
Θ (157.5°)	-4.13/-3.42	-1.22/0.04	-0.38/-2.38	-5.58/-8.53	-8.3/-7.33	-8.06/-11.11	-17.63/-19.18	-12.97/-7.41	-5.06/-14.3	-3.97/-3.52	-3.2/-6.5	-2.9/-4.12	-5.9/-7.79	-10.07/-12.05	-10.7/-8.91	-8.92/-9.51	-10.44/-14.19	-17.94/-13.58	-9.21/-7.61	-7.48/-8.13	-8.22/-6.94	-5.55/-4.7	-4.43/-4.34	-3.93/-3.88
Θ (165°)	-1.39/-0.2	1.08/1.08	-0.34/-2.66	-4.87/-6.73	-7.95/-9.34	-12.09/-18.31	-17.79/-14.61	-9.36/-6.37	-4.67/-3.9	-3.49/-3.27	-3.13/-3.25	-3.48/-3.78	-3.68/-3.73	-4.2/-4.89	-5.42/-6.13	-7.58/-9.4	-11.36/-10.53	-19.21/-17.29	-11.87/-8.79	-6.75/-5.47	-4.66/-3.87	-3.27/-2.64	-1.85/-0.98	-0.69/-1.11
Θ (172.5°)	-0.76/1.47	1.57/0.57	-1.07/-2.52	-3.32/-4.12	-5.55/-7.68	-10.82/-14.74	-15.21/-11.81	-8.88/-6.84	-5.57/-4.31	-3.66/-3.64	-3.42/-2.59	-1.85/-1.22	-0.99/-1.02	-1.33/-2	-2.93/-4.01	-5.29/-6.93	-9.34/-12.99	-18.48/-17.87	-15.81/-11.29	-8.25/-6.02	-4.49/-3.42	-2.37/-1.16	0.12/0.85	0



Radiated Composite Gain Data

Appendix A.2

Θ (165°)	-14.75/-9.73	-6.25/-3.92	-4.85/-8.13	-8.94/-12.28	-16.43/-11.43	-14.57/-18.5	-10.51/-8.4	-9.09/-8.44	-4.84/-3.44	-4.25/-4.7	-6.07/-7.9	-13.01/-17.88	-18.58/-11.55	-9.51/-7.49	-6.04/-5.81	-3.72/-0.74	0.75/1	0.82/-0.38	-2.51/-4.18	-4.52/-4.63	-5.57/-5.44	-6.5/-7.7	-8.81/-10.31	-16.27/-17.85
Θ (172.5°)	-9.27/-8.78	-10.65/-13.11	-18.88/-18.99	-15.81/-13.18	-18.27/-15.58	-9.41/-8.51	-10.88/-14.19	-8.31/-3.45	-0.70/0.4	-0.53/-2.16	-4.77/-7.7	-8.84/-9.01	-8.02/-8.1	-9.84/-10.64	-10.99/-9.91	-7.01/-4.65	-3.08/-1.51	-1.04/-1.73	-2.29/-3.18	-3.63/-3.86	-3.71/-4.58	-6.6/-7.09	-6.68/-9.44	-9.22/-9.92
Θ (180°)	-17.54/-16.56	-10.94/-7.39	-4.85/-23.37	-18.03/-12.43	-4.25/-8.05	-8.63/-10.91	-15.02/-8.08	-4.13/-3.13	-4.39/-6.4	-8.28/-8.15	-8.23/-7.68	-7.06/-7.61	-9.48/-9.3	-9.82/-9.86	-8.53/-6.85	-5.32/-4.38	-3.39/-2.28	-2.44/-2.07	-1.96/-2.28	-2.8/-3.07	-3.03/-3.58	-4.21/-5.13	-7.08/-10.32	-13.54/-18.34
Freq(Hz)	5.3GPol.	Theta/Ant. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
Θ (0°)	-1.32/-1.83	-3.01/-2.36	-4.4/-6.29	-6.68/-6.52	-6.38/-6.9	-9.02/-14.03	-18.11/-18.36	-15.58/-10.8	-9.22/-7.63	-2.75/-2.1	-1.93/-2.72	-1.93/-2.72	-1.52/-1.67	-0.93/-2.16	-4.13/-5.19	-5.67/-6.83	-9.54/-12.92	-16.52/-19.23	-17.58/-12.51	-9.97/-8.35	-7.46/-6.42	-5.34/-4.37	-3.78/-2.93	-2.88/-2.78
Θ (7.5°)	-1.63/-2.1	-1.88/-2.06	-1.98/-3.86	-7.23/-8.24	-9.21/-10.31	-12.13/-12.96	-12.59/-11.69	-12.62/-10.63	-9.34/-9.14	-7.25/-5.98	-4.61/-3.81	-2.28/-2.02	-0.93/-2	-1.81/-1.34	-1.92/-2.73	-4.18/-5.01	-6.05/-7.51	-9.04/-12.52	-16.92/-18.36	-19/-14.24	-11.25/-9.18	-6.33/-5.16	-4.39/-2.6	-2.6/-2.51
Θ (15°)	-7.35/-5.04	-4.69/-3.67	-2.07/-2.86	-4.3/-5.05	-5.44/-7.76	-10.78/-15.52	-18.05/-18.93	-18.13/-14.91	-10.51/-9.08	-7.21/-6.3	-6.98/-6.31	-6.36/-3.55	-1.39/-0.66	0.30/0.86	0.12/-0.46	-1.4/-2.56	-4.04/-5.72	-7.23/-8.63	-10.78/-15.86	-18.15/-15.7	-12.58/-8.61	-6.56/-7.58	-7.49/-6.08	-7.13/-7.79
Θ (22.5°)	-8.81/-9.89	-8.99/-12.83	-7.87/-6.47	-8.6/-1.1	-3.92/-5.5	-11.6/-18.81	-18.83/-18.13	-19.18/-17.32	-8.97/-7.35	-6.57/-5.64	-6.08/-8.1	-5.91/-5.8	-2.99/-2.3	-1.51/-1.26	-2.32/-3.49	-2.55/-2.83	-4.26/-7.44	-11.48/-14.96	-16.65/-17.56	-16.5/-13.39	-11.95/-8.68	-7.84/-8.14	-11.42/-12.18	-10.73/-12.63
Θ (30°)	-18.93/-15.37	-14.66/-16.96	-19.1/-13.99	-13.51/-5.48	-3.85/-5.23	-7.51/-13.03	-17.76/-18.59	-19.07/-17.71	-11.37/-12.01	-11.03/-8.58	-5.89/-7.96	-10.02/-11.7	-10.14/-4.17	-3.83/-3.33	-5.55/-8.29	-8.63/-8.92	-7.6/-9.72	-17.6/-15.92	-14.59/-18.96	-12.39/-9.66	-10.26/-10.34	-9.36/-14.05	-18.51/-15.99	-16.22/-16.84
Θ (37.5°)	-16.85/-11.6	-9.6/-12.39	-17.57/-18.2	-13.55/-7.76	-7.08/-7.39	-7.57/-9.89	-15.3/-17.34	-18.54/-17.67	-17.98/-17.42	-17.78/-12.73	-9.47/-9.78	-11.64/-11.03	-12.55/-8.85	-9.8/-15.9	-13.87/-10.03	-11.39/-14.52	-7.55/-6.28	-11.21/-10.69	-9.07/-11.82	-18.67/-17.47	-11.12/-10.22	-9.21/-8.61	-14.94/-18.21	-19.18/-19.07
Θ (45°)	-8.81/-9.89	-8.99/-12.83	-7.87/-6.47	-8.6/-1.1	-3.92/-5.5	-11.6/-18.81	-18.83/-18.13	-19.18/-17.32	-8.97/-7.35	-6.57/-5.64	-6.08/-8.1	-5.91/-5.8	-2.99/-2.3	-1.51/-1.26	-2.32/-3.49	-2.55/-2.83	-4.26/-7.44	-11.48/-14.96	-16.65/-17.56	-16.5/-13.39	-11.95/-8.68	-7.84/-8.14	-11.42/-12.18	-10.73/-12.63
Θ (52.5°)	-11.62/-9.61	-3.84/-5.75	-15.29/-18	-17.16/-18.32	-17.64/-18.17	-10.8/-9.84	-14.64/-13.47	-15.76/-11.78	-12.25/-6.44	-8.03/-16.96	-17.8/-10.66	-18.03/-6.81	-6.61/-6.86	-10.28/-11.79	-14.94/-11.52	-8.86/-3.96	-4.72/-7.56	-10.09/-11.64	-9.41/-18.31	-12.41/-12.31	-12.61/-16.98	-15.87/-13.63	-10.7/-9.15	-10.57/-10.78
Θ (60°)	-10.43/-16.63	-4.37/-4.73	-11.32/-19.2	-17.86/-18.43	-18.64/-15.92	-11.46/-14.2	-16.71/-14.7	-17.04/-17.02	-16.96/-9.9	-11.32/-17.83	-17.57/-3.71	-15.45/-9.6	-6.54/-4.83	-5.93/-5.55	-4.66/-4.75	-15.63/-11.42	-10.15/-11.92	-18.89/-10.75	-13.27/-16.92	-11.85/-13.82	-9.74/-9.98	-12.83/-15.99	-11.18/-13.53	-10.91/-14.46
Θ (67.5°)	-12.37/-7.1	-5.46/-9.49	-18.39/-10.43	-13.54/-18.52	-12.37/-14.55	-18.98/-7.91	-11.97/-17.42	-18.52/-18.76	-14.24/-15.86	-18.78/-16.47	-18.19/-7.54	-11.97/-9.57	-11.16/-4.37	-6.17/-5.5	-9.58/-16.38	-11.14/-5.4	-7.74/-4.72	-6.55/-10.21	-7.98/-13.86	-11.32/-11.41	-9.5/-11.97	-17.77/-13.23	-12.95/-15.1	-10.85/-10.38
Θ (75°)	-9.15/-13.32	-18.13/-5.98	-18.33/-12.37	-14.97/-14.22	-15.98/-16.35	-14.44/-9.35	-11.53/-13.05	-18.62/-14.76	-8.11/-13.98	-17.8/-10.09	-18.01/-11.73	-12.09/-12.42	-3.69/-2.96	-9.24/-10.05	-6.2/-8.54	-9.33/-18.47	-8.87/-15.37	-15.38/-14.29	-13.58/-16.94	-18.61/-14.76	-18.7/-18.36	-18.94/-15.17	-7.99/-6.42	-9.43/-7.48
Θ (82.5°)	-13.62/-18.03	-12.07/-9.6	-12.97/-18.21	-13.23/-18.53	-18.82/-11.04	-12.9/-18.06	-9.97/-16.37	-14.86/-18.1	-18.72/-19.85	-14.29/-11.93	-17.21/-11.53	-13.74/-18.1	-9.15/-4.88	-13.51/-11.47	-6.84/-12.92	-17.83/-18.46	-6.12/-11.31	-16.77/-18.49	-14.42/-19.05	-15.91/-16.87	-16.19/-18.78	-17.86/-11.34	-8.43/-6.43	-14.09/-9.03
Θ (90°)	-12.83/-14.34	-18.96/-9.19	-10.43/-10.55	-13.89/-10.66	-11.48/-12.49	-17.98/-18.06	-11.54/-14.41	-16.90/-10.94	-10.45/-11.87	-18.78/-11.58	-17.38/-11.25	-12.25/-13.62	-16.19/-7.58	-7.99/-11.02	-11.56/-10.2	-19.23/-19.09	-13.16/-18.57	-11.6/-18.32	-14.47/-17.72	-11.74/-14.33	-18.24/-18.08	-10.77/-14.4	-10.41/-7.31	-15.74/-8.95
Θ (97.5°)	-11.21/-14.37	-17.95/-11.62	-15.75/-15.92	-9.78/-17.83	-12.59/-10.7	-19.24/-19.51	-18.1/-13.02	-14.82/-7.4	-11.55/-9.16	-8.74/-9.08	-17.83/-19.69	-11.54/-11.25	-12.48/-11.85	-6.88/-13.22	-18.68/-18.63	-15.46/-13.2	-17.81/-19.04	-13.21/-17.92	-18.24/-18.29	-18.65/-17.92	-18.8/-18.18	-18.27/-12.14	-10.04/-9.33	-9.63/-9.66
Θ (105°)	-13.63/-13.26	-16.43/-8.17	-7.89/-7.67	-17.48/-18.88	-12.92/-13.11	-13.52/-17.83	-14.3/-18.85	-10.14/-11.03	-15.2/-13.26	-13.73/-9.77	-9.92/-15.35	-12.21/-8.26	-19.17/-13.25	-8.61/-6.76	-9.23/-8.68	-18.04/-18.6	-19.23/-13.18	-10.33/-14.07	-14.56/-18.57	-16.88/-9.47	-18.81/-14.82	-15.57/-7.71	-4.83/-9.3	-9.32/-11.74
Θ (112.5°)	-12.24/-7.72	-16.21/-6.72	-7.44/-7.48	-18.81/-17.5	-16.82/-18.24	-15.63/-7.22	-12.15/-18.15	-13.06/-15.39	-18.66/-18.25	-16.38/-18.25	-14.75/-7.86	-7.04/-7.08	-8.25/-4.27	-7.13/-9.14	-17.46/-13.74	-13.97/-16.79	-12.18/-15.33	-18.63/-12.29	-15.44/-14.29	-18.06/-12.21	-7.87/-7.6	-12.21/-15.27		
Θ (120°)	-7.28/-5.23	-14.01/-6.06	-9.79/-7.03	-17.86/-17.09	-18.09/-18.98	-17.53/-10.33	-17.37/-17.03	-18.26/-12.69	-9.31/-18.69	-18.77/-13.37	-10.71/-4.94	-8.06/-9.63	-17.52/-6	-5.06/-4.87	-13.1/-13.67	-18.59/-13.18	-8.65/-10.39	-13.08/-15	-11.66/-14.01	-16.03/-15.06	-9.25/-15.49	-17.97/-9.73	-6.33/-8.51	-9.53/-5.9
Θ (127.5°)	-12.25/-11.02	-9.75/-3.12	-3.84/-9.13	-18.76/-14.45	-18.54/-14.75	-18.45/-12.9	-9.16/-10.98	-9.06/-9.46	-16.64/-14.43	-8.17/-6.85	-16.38/-19.24	-9.77/-11.48	-10.86/-14.49	-7.31/-7.9	-11.29/-18.91	-17.98/-11.73	-17.75/-18.28	-11.43/-10.77	-10.71/-11.35	-3.96/-9.84	-9.77/-10.68	-10.44/-16.84	-13.96/-11.63	
Θ (135°)	-8.86/-4.31	-4.03/-4.91	-5.21/-10.28	-14.47/-12.01	-8.27/-10.29	-12.85/-7.56	-10.01/-7.62	-6.59/-7.18	-9.36/-17.5	-10.14/-17.46	-12.28/-18.79	-13.17/-9.78	-7.61/-9.22	-16.43/-7.7	-14.2/-15.15	-15.66/-18.78	-16.2/-10.5	-11.95/-18.18	-11.92/-14.51	-18.8/-18.65	-19.37/-18.74	-17.58/-11.86	-10.07/-17.81	
Θ (142.5°)	-4.85/-2.12	-5.82/-7.42	-4.6/-9.26	-15.83/-15.24	-6.38/-4.24	-4.02/-4.6	-5.77/-12.36	-18.78/-9.63	-5.79/-7.15	-8.01/-5.56	-6.27/-11.63	-18.72/-17.5	-9.32/-6	-7.3/-6.42	-11.7/-5.53	-5.15/-7.53	-18.01/-19.01	-17.87/-8.98	-7.15/-8.92	-9.28/-14.49	-18.12/-12.21	-6.6/-6.68	-6.56/-6.28	-8.37/-7.67
Θ (150°)	-4.08/-2.46	-4.44/-9.69	-6.23/-12.83	-9.05/-12.77	-4.07/-7.98	-11.91/-16.48	-17.89/-18.05	-11.19/-9.67	-7.78/-4.45	-5.04/-10.86	-13.44/-7.13	-5.53/-6.66	-6.14/-9.3	-11.16/-11.09	-8.94/-4.27	-6.68/-9.05	-13.19/-11.21	-11.99/-18.58	-10.27/-8.85	-9.11/-7.46	-5.86/-7.83	-14.15/-18.23	-17.68/-16.91	-11.79/-6.58
Θ (157.5°)	-9.36/-5.28	-6.18/-8.63	-6.75/-5.4	-10.78/-13.07	-4.87/-4.09	-6.23/-6.84	-5.34/-5.51	-8.26/-12.76	-17.22/-14.74	-11.57/-7.26	-5.44/-7.22	-5.77/-3.74	-6.89/-13.33	-3.08/-2.25	-11.21/-3.41	-9.04/-9.35	-8.86/-10.2	-10.09/-10.8	-12.85/-14.4	-12.26/-11.24	-10.82/-9	-11.43/-10.06	-14.31/-8.21	
Θ (165°)	-2.71/-1.53	-2.94/-3.82	-5.89/-18.36	-7.46/-3.39	-4.62/-7.87	-10.73/-12.07	-11.65/-15.99	-18.4/-13.38	-11.22/-8.96	-6.58/-3.78	-1.68/-0.61	-1.66/-3.34	-6.88/-7.22	-3.44/-1.71	-1.33/-1.97	-2.46/-3.46	-4.54/-4.26	-5.09/-7.48	-12.87/-18.13	-18.47/-11.88	-6.47/-3.71	-3.37/-4.06	-3.61/-3.27	-1.97/-2.15
Θ (172.5°)	-5.29/-6.81	-7.82/-8.73	-11.08/-5.22	-4.02/-6.89	-14.04/-12.72	-10.87/-11.07	-12.76/-14.29	-13.1/-15.85	-18.22/-11.54	-6.43/-5.08	-4.39/-5.38	-2.93/-1.05	-1.82/-0.1	0.13/-0.64	-1.39/-1.87	-2.25/-2.44	-2.71/-3.19	-4.96/-7.84	-12.34/-16.28	-17.2/-18.31	-13.98/-11.99	-9.31/-6.42	-6.12/-6.25	-4.63/-6.89
Θ (180°)	-3.85/-3.94	-4.37/-3.96	-3.8/-5.35	-10.46/-16.91	-10.08/-8.02	-7.98/-8.94	-9.53/-8.51	-6.26/-5.56	-5.38/-5.96	-6.58/-4.67	-4.2/-3.74	-3.65/-3.48	-4.14/-3.24	-3.77/-4.03	-5.08/-5.54	-5.82/-6.25	-8.34/-10.18	-13.96/-19.19	-18.49/-12.66	-8.59/-6.93	-6.81/-6.16	-5.43/-5.72	-5.48/-3.95	-4.56/-4.1
Freq(Hz)	2.45GPol.	Phi/Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)Φ(7.5°)	Φ(15°)Φ(22.5°)	Φ(30°)Φ(37.5°)	Φ(45°)Φ(52.5°)	Φ(60°)Φ(67.5°)	Φ(75°)Φ(82.5°)	Φ(90°)Φ(97.5°)	Φ(105°)Φ(112.5°)	Φ(120°)Φ(127.5°)	Φ(135°)Φ(142.5°)	Φ(150°)Φ(157.5°)	Φ(165°)Φ(172.5°)	Φ(180°)Φ(187.5°)	Φ(195°)Φ(202.5°)	Φ(210°)Φ(217.5°)	Φ(225°)Φ(232.5°)	Φ(240°)Φ(247.5°)	Φ(255°)Φ(262.5°)	Φ(270°)Φ(277.5°)	Φ(285°)Φ(292.5°)	Φ(300°)Φ(307.5°)	Φ(315°)Φ(322.5°)	Φ(330°)Φ(337.5°)	Φ(345°)Φ(352.5°)
Θ (0°)	-1.43/-1.32	-1.43/-1.67	-2.29/-3.21	-4.26/-2.59	-6.21/-8.97	-12.78/-15.55	-18.06/-14.81	-12.63/-11.57	-8.15/-4.81	-2.81/-1.91	-1.28/-0.85	-0.94/-1.73	-2.72/-2.91	-2.6/-2.77	-3.37/-4.12	-4.64/-4.81	-5.22/-7.15	-9.61/-11.26	-14.93/-18.23	-17.51/-14.64	-10.38/-7.63	-6.08/-4.84	-3.53/-2.45	-1.92/-1.62
Θ (7.5°)	-2.23/-2.22	-2.53/-3.15	-3.56/-3.69	-4.45/-6.35	-8/-9.5	-12.52/-15.38	-16.13/-18.73	-13.44/-12.74	-12.33/-6.65	-3.28/-1.62	0.11/0.12	-0.52/-1.3	-1.2/-0.95	-1.49/-3.09	-4.54/-5.88	-6.98/-8.97	-12.07/-16	-18.18/-18.86	-14.09/-10.93	-8.17/-6.66	-5.63/-4.59	-3.68/-3.28	-2	



Radiated Composite Gain Data

Appendix A.2

Θ(7.5°)	-17.44/-13.71	-11.03/-10.26	-6.73/-5.56	-4.97/-3.75	-3.17/-2.54	-2.41/-2.16	-3.25/-1.82	-2.92/-3.49	-4.37/-5.37	-4.76/-4.3	-5.67/-7.45	-9.55/-12.22	-17.44/-17.86	-19.15/-13.71	-11.49/-8.06	-6.3/-4.92	-4.5/-3.9	-2.35/-2.62	-1.32/-2.05	-1.32/-1.7	-1.97/-2.28	-2.83/-2.84	-4.1/-5.76	-9.32/-13.35
Θ(15°)	-13.52/-9.28	-9.33/-6.4	-6.1/-5.25	-4.22/-4.07	-4.08/-3.4	-3.1/-2.92	-2.54/-2.27	-3.75/-3.05	-4.38/-5.87	-5.79/-3.81	-4.92/-7.01	-8.96/-14.81	-17.55/-18.85	-17.75/-15.84	-11.06/-9.08	-5.52/-4.35	-2.56/-2.92	-1.71/-1.42	-2.3/-1.66	-3.11/-3.38	-2.69/-2.88	-3.72/-4.06	-4.8/-7.21	-11.95/-18.34
Θ(22.5°)	-11.24/-12.92	-14.24/-13.59	-12.69/-12.34	-10.13/-8.02	-8.08/-5.97	-7.96/-7.5	-6.23/-7.24	-7.41/-9.65	-4.69/-4	-4.21/-4.41	-5.31/-6.1	-10.07/-14.98	-13.45/-14.79	-18.04/-18.55	-14.24/-11.92	-11.71/-10.52	-7.22/-5.12	-4.06/-3.94	-5.1/-4.52	-5.89/-7.13	-6/-4.19	-4.39/-5.92	-6.82/-8.56	-13.13/-12.02
Θ(30°)	-10.24/-17.94	-17.34/-14.17	-8.71/-5.97	-7.22/-8.84	-10.14/-12.89	-11.3/-9.9	-7.23/-5.14	-5.67/-10.4	-14.46/-6	-3.25/-3.73	-5.04/-7.35	-9.94/-15.2	-17.4/-18.11	-18.89/-17.84	-17.17/-15.34	-12.48/-9.73	-9.55/-9.83	-5.72/-6.83	-6.54/-7.5	-14.98/-19.22	-11.73/-5.23	-5.36/-6.34	-5.9/-6.88	-7.08/-6.24
Θ(37.5°)	-19.18/-17.86	-16.65/-10.57	-10.56/-10.38	-11.63/-13.94	-15.45/-18.32	-18.11/-16.16	-10.57/-8.43	-8.39/-14.53	-18.09/-6.03	-6.58/-4.87	-6.99/-12.74	-9.48/-18.64	-18.99/-17.67	-18.83/-14.27	-10.27/-11.71	-13.08/-18.69	-16.6/-12.32	-17.63/-13.16	-16/-16.96	-15.26/-11.31	-9.04/-7.04	-6/-4.37	-6.74/-8.5	-7.07/-9.55
Θ(45°)	-18.45/-14.97	-18.02/-17.98	-18.87/-16.59	-18.76/-19.2	-11.05/-10.02	-12.66/-13.56	-16.34/-8.17	-9.09/-19.11	-10.62/-8.96	-9.33/-12.77	-12.55/-6.44	-8.01/-13.01	-16.44/-17.92	-17.38/-18.39	-14.44/-16.13	-16.06/-11.55	-11.79/-9.16	-11.1/-14.43	-13.5/-5.97	-4.51/-6.86	-10.13/-9.33	-12.13/-10.94	-12.64/-10.63	
Θ(52.5°)	-11.33/-13.45	-13.97/-11.68	-18.37/-11.77	-10.01/-12.36	-12.6/-8.7	-7.78/-14.81	-18.19/-16.26	-10.26/-11.08	-6.47/-13.35	-15.38/-10.44	-6.74/-5.93	-7.68/-9.3	-8.33/-9.85	-16.24/-12.4	-12.06/-13.76	-14.99/-18.16	-12.95/-6.27	-6.82/-10.04	-8.45/-18.73	-17.36/-7.8	-11.42/-5.5	-15.71/-16.36	-14.78/-13.77	-10.41/-8.92
Θ(60°)	-17.44/-13.3	-15.07/-11.65	-13.95/-10.54	-14.33/-13.96	-14.93/-8.21	-6.17/-7.22	-13.44/-10.52	-9.95/-12.81	-9.34/-15.67	-18.5/-12.21	-8.09/-8.21	-11.16/-12.33	-11.93/-11.91	-11.97/-18.08	-18.8/-18.73	-10.1/-12.99	-12.16/-10.37	-6.57/-8.31	-6.23/-9.19	-9.82/-14.2	-11.3/-6.85	-9.21/-17.75	-11.54/-12.02	-11.68/-6.63
Θ(67.5°)	-13.89/-17.63	-17.71/-17.67	-11.13/-9.83	-12.04/-14.21	-13.73/-10.14	-4.56/-7.69	-14.32/-14.13	-17.35/-14.76	-10.13/-15.79	-14.57/-8.66	-18.29/-16.07	-15.03/-16.75	-15.86/-11.08	-6.34/-9.47	-15.79/-9.61	-17.21/-19.08	-10.77/-6.77	-5.95/-3.93	-3.67/-5.38	-6.82/-18.25	-9.79/-8.34	-10.73/-11.36	-10.82/-16.31	-12.36/-9.86
Θ(75°)	-14.29/-17.69	-14.22/-18.62	-12.72/-8.1	-11.53/-17.96	-17.05/-14.37	-8.41/-8.58	-6.28/-12.39	-11.57/-14.18	-11.88/-17.65	-10.13/-14.16	-16.13/-18.46	-12.18/-18.24	-17.17/-13.78	-7.94/-8.58	-13.67/-13.79	-11.81/-18.64	-6.61/-7.62	-8.14/-1.54	-2.76/-5.13	-14.67/-15.83	-9.2/-13.53	-9.79/-10.94	-12.82/-16.89	-10.44/-10.14
Θ(82.5°)	-16.81/-13.27	-13.59/-19.03	-18.69/-11.8	-10.25/-11.97	-14.29/-18.99	-10.24/-7.04	-9.47/-11.79	-9.26/-16.68	-18.58/-16.41	-16.52/-14.62	-17.97/-17.3	-11.11/-18.82	-19.32/-16.91	-8.01/-8.97	-13.18/-12.85	-7.61/-13.44	-10.51/-9	-15.74/-7.93	-6.87/-9.42	-8.01/-16.82	-10.98/-13.79	-16.75/-13.34	-12.23/-11.32	-8.91/-9.17
Θ(90°)	-15.5/-9.73	-11.52/-12.72	-17.91/-13.71	-14.13/-17.34	-18.47/-16.05	-10.3/-14.49	-6.63/-18.85	-15.95/-18.57	-17.71/-15.3	-18.38/-14.58	-17.23/-12.03	-18.51/-17.67	-12.95/-18.54	-13.66/-15.22	-17.89/-18.84	-18.85/-16.15	-12.46/-9.22	-9.6/-12.89	-12.15/-15.71	-9.82/-8.24	-13.86/-13.34	-18.49/-13.39	-13.95/-9.63	-9.73/-9.93
Θ(97.5°)	-14.33/-7.67	-8.27/-11.22	-15.83/-17.93	-15.9/-17.22	-18.14/-17.92	-17.78/-17.87	-9.89/-15.08	-14.64/-18.78	-13.14/-17.4	-19.02/-18.08	-11.57/-8.76	-17.65/-14.68	-16.16/-18.73	-16.66/-14.66	-18.16/-16.87	-11.8/-11.03	-11.54/-19.05	-19.6/-16.86	-14.82/-15.13	-16.44/-8.48	-15.45/-14.45	-16.4/-16.78	-14/-9.65	-10.33/-11.14
Θ(105°)	-19.38/-10.87	-7.1/-10.48	-9.96/-17.48	-18.77/-12.97	-17.77/-16.49	-18.27/-17.64	-18.58/-15.97	-13.79/-19.29	-11.16/-16.1	-18.54/-10.79	-14.26/-19.34	-18.65/-18.93	-19.17/-16.17	-17.14/-14.51	-13.87/-8.47	-12.43/-12.85	-14.81/-7.95	-15.07/-10.33	-12.61/-15.1	-15.03/-12.15	-12.61/-15.1	-15.03/-12.15	-9.89/-9.17	
Θ(112.5°)	-19.57/-17.07	-8.77/-9.21	-8.48/-14.97	-18.62/-10.86	-15.82/-9.52	-13.34/-11.7	-14.18/-11.44	-12.91/-10.97	-16.66/-17.9	-11.94/-10.12	-10.56/-10.05	-18.7/-16.94	-13.24/-18.53	-19.06/-18.45	-10.9/-14.35	-18.36/-18.25	-17.69/-19.11	-8.14/-8.41	-5.99/-10.18	-17.52/-11.16	-13.17/-10.26	-8.64/-14.01	-18.55/-12.95	-11.36/-16.23
Θ(120°)	-14.12/-17.73	-9.64/-8.91	-7.68/-12.87	-18.34/-12.59	-10.44/-8.01	-12.57/-10.21	-12.14/-4.11	-8.71/-8.06	-19.11/-8.63	-10.25/-9.61	-7.95/-10.74	-17.36/-8.6	-9.79/-13.44	-14.89/-10.07	-11.66/-12.9	-13.93/-16.32	-15.77/-17.94	-17.43/-7.25	-5.99/-11.27	-18.38/-6.94	-8.26/-8.92	-9.51/-13.23	-19.26/-13.04	-18.73/-18.33
Θ(127.5°)	-14.74/-13.72	-12.2/-10.52	-8.56/-13.91	-18.15/-18.46	-13.43/-10.34	-12.48/-18.96	-7.17/-2.8	-7.26/-8.22	-18.97/-8.58	-14.18/-8.82	-5.73/-19.18	-15.83/-12.37	-18.41/-15.97	-13.02/-9.2	-17.68/-18.68	-13.62/-12.58	-8.65/-10.69	-14.84/-10.53	-7.02/-18.82	-10.32/-5.52	-4.79/-13.34	-8.76/-9.37	-16.28/-17.9	-17.64/-18.76
Θ(135°)	-18.36/-13.94	-13.72/-12.95	-14.04/-17.97	-19/-17.46	-15.2/-17.7	-16.68/-9.59	-2.92/-24.1	-7.95/-10.91	-19.64/-8.3	-10.48/-5.37	-17.03/-8.74	-14.84/-9.05	-10.71/-15.94	-12.69/-9.52	-7.83/-5.7	-9.86/-11.06	-17.45/-12.74	-9.86/-14.47	-19.02/-10.96	-10.22/-5.45	-9.14/-9.49	-11.54/-10.74	-18.2/-13.8	-12.72/-18.72
Θ(142.5°)	-14.23/-11.12	-9.52/-11.76	-14.04/-14.41	-11.65/-17.27	-17.28/-12.42	-12.16/-6.16	-3.57/-4.75	-8.71/-15.22	-16.4/-8.72	-4.11/-19.05	-3.75/-6.18	-9.73/-6.06	-5.8/-10.4	-12.1/-9.4	-9.81/-7.65	-9.53/-12.2	-15.24/-13.88	-19.24/-9.23	-7.77/-6.77	-7.17/-7.38	-9.2/-14.43	-12.9/-14.33	-18.52/-13.94	-6.93/-9.55
Θ(150°)	-7.34/-9.28	-6.95/-5.53	-4.9/-6.67	-6.83/-4.44	-5.29/-3.21	-4.69/-7.63	-7.55/-4.82	-5.41/-11.38	-13.82/-3.55	-5.55/-1.82	-4.77/-15.32	-18.91/-14.04	-9.64/-14.78	-18.42/-16.12	-11.81/-7.47	-6.44/-7.07	-6.66/-7.94	-8.62/-5.2	-6.51/-4.57	-4.57/-9.3	-12.81/-18.97	-13.81/-17.93	-12.12/-13.13	-9.86/-5.52
Θ(157.5°)	-8.83/-10.95	-12.95/-9.12	-5.59/-4	-3.16/-2.75	-2.9/-3.65	-4.55/-7.33	-8.29/-5.31	-7.6/-7.84	-17.13/-8.56	-1.17/-0.84	-8.41/-14.39	-13.25/-13.75	-17.71/-19.21	-17.4/-15.05	-6.96/-3.27	-0.81/-0.55	-1.83/-2.69	-4.07/-3.45	-3.36/-4.01	-7.83/-17.28	-12.54/-8.59	-8.85/-14.66	-8.94/-7.51	-9.08/-8.35
Θ(165°)	-10.63/-12.6	-10.61/-7.8	-6.68/-6.28	-6.91/-6.22	-7.8/-6.87	-7.16/-3.86	-4.63/-3.08	-3.19/-7.96	-5.52/-12.43	-5.17/-2.96	-4.89/-7.75	-8.67/-12.97	-17.73/-17.87	-18.91/-10.26	-8.23/-4.99	-2.13/-1.35	-0.83/-2.29	-3.55/-5.52	-8.11/-5.53	-4.12/-3.38	-3.82/-5.26	-5.99/-8.05	-11.06/-10.31	
Θ(172.5°)	-17.73/-18.23	-19.47/-18.74	-12.99/-10.64	-6.82/-5.96	-3.92/-2.59	-1.71/-1.28	-0.5/-2.11	-0.96/-9.0	-1.94/-1.99	-8.09/-11.79	-4.52/-4.43	-7.65/-11.14	-11.22/-11.38	-14.18/-15.71	-13.32/-7.94	-5.32/-4.66	-4.69/-5.37	-3.1/-3.5	-2.15/-2.99	-2.76/-1.89	-2.02/-1.38	-0.52/-0.62	-1.37/-2.88	-5.88/-10.65
Θ(180°)	-9.44/-12.84	-14.01/-10.09	-7.21/-4.43	-2.35/-1.91	-0.320/-0.7	0.96/-1.18	0.832/-9.9	1.99/-1.25	1.57/-1.68	-4.84/-2.33	-3.78/-8.27	-8.17/-6.8	-10.78/-16.76	-16.99/-12.68	-7/-5.36	-3.53/-1.17	-0.720/-4.3	0.35/-1.29	1.81/-59	2.452/-33	1.99/-1.34	0.930/-16	-0.95/-2.44	-3.69/-6.03
Freq(Hz)	5.3GfPd	PhiAnt. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(7.5°)	-2.07/-2.72	-2.06/-3.01	-3.03/-4.1	-4.44/-6.18	-6.85/-9.65	-10.04/-17.86	-15.63/-18.02	-19.11/-11.41	-10.05/-6.91	-6.28/-4.73	-2.86/-2.97	-2.23/-1.98	-3.33/-1.97	-2.89/-4.65	-5.95/-6.8	-8.33/-11.81	-13.17/-17.74	-19.32/-17.64	-12.29/-9.2	-3.27/-2.81	-2.43/-2.69			
Θ(15°)	-1.21/-1.19	-1.81/-1.74	-2.44/-3.03	-4.67/-4.9	-7.23/-8.41	-12.87/-14.42	-15.49/-14.56	-8.79/-7.47	-5.29/-3.84	-3.81/-2.79	-2.41/-2.47	-1.90/-29	-0.24/-2.27	-0.41/-1.39	-2.25/-3.16	-2.81/-4.57	-5.8/-6.42	-9.02/-11.4	-15.44/-18.48	-18.86/-14.95	-11.56/-8.82	-6.33/-4.87	-4.05/-2.45	-1.95/-1.36
Θ(15°)	-4.10/-4.2	0.490/-12	-0.07/-0.75	-1.13/-2.43	-4.77/-6.51	-10/-11.28	-13.34/-17.07	-9.63/-8.58	-5.58/-3.64	-2.91/-2.48	-2.12/-2.09	-3.1/-2.84	-1.58/-0.24	-2.63/-1.16	-1.44/-0.9	-2.48/-2.96	-4.22/-7.71	-8.85/-10.27	-14.22/-12.88	-17.87/-18.91	-12.59/-7.26	-4.57/-3.75	-3.18/-1.9	-1.02/-0.6
Θ(22.5°)	-0.690/-19	-0.09/-1.29	-2.75/-4.67	-5.85/-6.38	-7.81/-8.05	-15.49/-18.45	-15.04/-18.24	-17.18/-10.32	-11.44/-7.79	-5.58/-3.43	-2.05/-1.05	-0.85/-1.81	-2.32/-3	-1/-2.79	-4.08/-6.03	-5.97/-6.42	-7.84/-7.41	-11.92/-15.9	-18.3/-17.76	-18.35/-15.04	-10.95/-6.96	-5.22/-4.14	-4.07/-4.02	-3.95/-1.95
Θ(30°)	1.861/-22	0.43/-0.32	-2.34/-3.64	-5.27/-8.12	-13.19/-12.49	-13.53/-16.75	-18.51/-18.83	-18.16/-10.82	-9.61/-13.37	-6.76/-4.79	-2.21/-1.08	-2.27/-2.79	-0.9/-2.87	-2.09/-3.97	-4.25/-5.55	-10.77/-12.65	-13.54/-13.28	-13.81/-15.91	-14.91/-18.99	-18.26/-17.58	-11.09/-8.55	-6.34/-5.38	-5.67/-3.87	-0.881/-34
Θ(37.5°)	-0.5/-1.23	-1.44/-2.92	-4.03/-4.41	-6.24/-6.76	-15.55/-18.04	-18.1/-17.9	-18.77/-17.68	-12.42/-10.07	-10.98/-6.76	-7.26/-9.77	-6.46/-7.92	-3.99/-1.13	-0.94/-1.8	-1.3/-1.36	-2.18/-6.42	-10.32/-11.24	-16.01/-13.67	-17/-17.66	-18.14/-18.91	-17.19/-17.65	-14.97/-9.66	-8.74/-5.3	-4.37/-4.34	-1.830/-33
Θ(45°)	-1.110/-11	-0.48/-1.96	-5.24/-9.29	-16.99/-15.66	-11.65/-15.99	-18.58/-18.07	-17.45/-18.2	-18.35/-9.29	-6.76/-5.75	-5.13/-8.56	-15.18/-2.13	-0.7/-0.31	-3.1/-0.41	1.140/-76	-1.45/-2.86	-8.99/-10.92	-8.21/-7.95	-7.79/-9.61	-12.06/-15.94	-17.73/-17.1	-10.17/-15.96	-12.44/-9.73	-5.56/-6.59	-2.42/-0.29
Θ(52.5°)	0.551/-28	-0.65/-4.89	-5.49/-5.42	-7.3/-10.75	-12.09/-14.11	-19.24/-18.71	-18.12/-18.47	-17.77/-9.08	-9.87/-4.42	-8.5/-3.72	-12.74/-5.05	-6.99/-2.31	-3.54/-2	-0.34/-4.03	-14/-15.49	-8.38/-10.1								



Mode 3

Freq(Hz)	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.56	1.18
Ant. 2 Max Gain (dBi)	4.83	4.59
Ant. 3 Max Gain (dBi)	4.4	4.62
Ant. 4 Max Gain (dBi)	3.82	3.91
Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/37.5/150	Theta/45/150
Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/97.5/112.5	Theta/97.5/75
Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/82.5/247.5	Theta/90/255
Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$	Theta/97.5/337.5	Theta/90/7.5
Max Gain (dBi)	4.83	4.62
DG [1SS] (dBi)	6.97	6.48
DG [2SS] (dBi)	4.83	4.62
DG [4SS] (dBi)	4.83	4.62



Sporton International Inc. Hsinchu Laboratory



Sporton International Inc. Hsinchu Laboratory



Radiated Composite Gain Data

Appendix A.3

Θ(22.5°)	-17.82/-18.99	-12.69/-14.82	-18.56/-19.16	-18.34/-18.11	-16.32/-18.54	-18.11/-18.18	-18.61/-18.29	-18/-19.05	-18.47/-18.3	-18.54/-18.01	-18.8/-17.2	-16.99/-18.43	-18.58/-17.97	-18.42/-17.45	-18.19/-14.62	-14.28/-12.51	-12.15/-19.08	-11.19/-12.41	-9.03/-18.25	-17.4/-17.06	-18.57/-19.3	-17.9/-17.28	-14.84/-11.86	-10.06/-11.66
Θ(30°)	-16.17/-19.12	-13.38/-14.17	-18.13/-19.9	-18.72/-17.92	-19.79/-17	-17.35/-18.19	-16.54/-18.08	-14.89/-15.78	-18.11/-18.41	-9.79/-18.6	-13.58/-19.7	-14.42/-17.1	-18.26/-17.09	-15.4/-16.19	-16.89/-15.77	-16.67/-16.68	-17.63/-17.8	-18.67/-15	-18.17/-17.29	-17.33/-18.57	-16.69/-19.31	-17.67/-17.4	-19.3/-18.6	-17.1/-15.18
Θ(35°)	-14.39/-13.76	-18.39/-17.12	-15.69/-13.06	-18.84/-18.87	-17.64/-18.88	-18.94/-18.37	-17.49/-18.01	-14.78/-15.93	-18.58/-19.13	-13.45/-17.4	-17.41/-18.48	-18.17/-18.78	-16.03/-18.25	-18.06/-17.82	-15.54/-17.96	-16.89/-18.56	-19.34/-18.66	-17.53/-16.01	-18.49/-18.3	-19.15/-18.82	-16.39/-18.28	-18.65/-16.09	-14.15/-18.75	
Θ(45°)	-14.77/-13.09	-18.03/-12.86	-13.46/-15.11	-18.65/-19.31	-18.61/-15.39	-14.14/-18.96	-17.65/-17.99	-17.94/-13.96	-18.24/-16.58	-12.83/-18.56	-14.98/-18.4	-19.2/-18.56	-18.37/-17.03	-12.81/-16.13	-19.3/-13.12	-12.18/-19.45	-13.92/-13.72	-18.62/-18.9	-19.38/-17.73	-18.3/-17.42	-18.17/-18.69	-18.15/-19.18	-12.95/-9.32	-8.92/-16.37
Θ(52.5°)	-13.99/-16.82	-17.11/-12.73	-14.59/-13.82	-18.84/-16.99	-17.75/-17.71	-14.08/-16.35	-17.73/-17.44	-15.49/-17.03	-16.25/-12.55	-12.8/-12.79	-16.37/-14.9	-12.88/-19.26	-18.94/-15.78	-19.37/-16.6	-18.82/-14.2	-11.44/-14.84	-16.92/-18.1	-17.1/-16.07	-15.97/-12.35	-19.21/-17.67	-18.69/-18.1	-14.1/-15.47	-7.77/-8.67	-8.66/-14.57
Θ(60°)	-13.02/-15.91	-17.41/-12.69	-14.09/-10.88	-19.14/-12.41	-18.93/-18.99	-17.44/-18.23	-18.81/-18.85	-16.08/-11.57	-17.68/-16.96	-11.64/-9.89	-17.46/-12.12	-15.85/-18.42	-16.85/-16.2	-17.64/-18.37	-13.15/-17.53	-9.15/-14.08	-14.54/-14.12	-18.94/-18.75	-18.87/-18.97	-13.14/-15.68	-13.64/-17.19	-19.15/-14.74	-13.16/-11.26	-8.97/-11.21
Θ(67.5°)	-12.35/-13.95	-18.66/-16.35	-17.34/-13.34	-18.78/-17.07	-17.74/-18.84	-19.1/-17.08	-18.79/-13.9	-12.3/-14.71	-17.07/-14.22	-13.8/-13.12	-12.03/-17.46	-18.78/-19.07	-16.85/-17.65	-11.08/-16.85	-17.94/-17.98	-13.06/-11.4	-15.97/-12.13	-13.8/-15.69	-18.12/-14.7	-13.93/-14.69	-13.15/-13.83	-16.44/-12.14	-16.39/-19.56	-16.89/-10.75
Θ(75°)	-17.34/-12.02	-17.11/-17.18	-15.75/-17.71	-19.14/-17.75	-19.22/-17.17	-19.11/-16.92	-16.97/-12.9	-9.71/-13.3	-14.83/-15.08	-14.13/-13.08	-13.61/-18.21	-18.01/-18.4	-17.28/-14.9	-17.72/-17.32	-18.41/-19.69	-19.1/-16.36	-13.24/-17.95	-18.32/-13.56	-17.5/-19.29	-18.35/-15.07	-17.68/-15.09	-13.34/-12.07	-17.33/-14.25	-13.15/-15.98
Θ(82.5°)	-18.17/-15.16	-11.62/-13.42	-13.66/-18.08	-17.27/-17.37	-18.79/-18.84	-17.06/-17.78	-19.17/-17.15	-17.98/-18.63	-18.23/-16.57	-17.33/-17.1	-18.78/-14.35	-13.38/-15.2	-16.02/-16.51	-18.33/-17.84	-15.31/-18.41	-18.81/-14.53	-14.51/-13.12	-13.79/-9.98	-16.22/-15.66	-18.91/-16.46	-14.93/-15.18	-17.84/-18.19	-18.85/-11.05	-10/-8.69
Θ(90°)	-13.95/-15.46	-11.93/-17.58	-15.17/-14.78	-15.59/-17.93	-17.68/-17.59	-18.26/-16.36	-17.37/-17.95	-17.42/-13.8	-13.39/-13.82	-18.29/-15.34	-18.3/-14.2	-18.88/-15.97	-17.81/-14.9	-17.51/-16.12	-18.22/-19.04	-18.7/-13.29	-15.56/-17.62	-16.29/-11.47	-8.74/-16.12	-14.31/-13.46	-18.25/-17.82	-17.01/-13.69	-18.29/-19.07	-9.6/-11.69
Θ(97.5°)	-12.8/-17.49	-18.96/-18.6	-17.04/-15.75	-10.43/-17.07	-17.33/-17.96	-17.13/-17.51	-18.36/-18.8	-13.26/-9.46	-9.67/-11.56	-15.41/-14.78	-15.04/-18.66	-13.52/-9.48	-11.38/-12.51	-18.18/-17.39	-11.61/-11.81	-14.41/-13.3	-18.76/-18.8	-18.61/-14	-15.62/-19.16	-18.2/-17.92	-12.25/-15.38	-13.3/-12.51	-17.41/-18.33	-15.31/-17.97
Θ(105°)	-13.45/-16.04	-19.25/-19.36	-18.93/-13.53	-10.91/-9.81	-12.83/-18.59	-17.28/-18.79	-16.88/-16.14	-10.81/-11.76	-16.68/-10.86	-16.87/-15.38	-12.1/-15.29	-12.69/-8.55	-16.6/-14.27	-16.86/-9.53	-10.4/-10.02	-11.18/-17.76	-18.3/-19.3	-18.86/-18.14	-19.36/-18.81	-18.04/-14.3	-18.99/-18.97	-11.97/-12.69	-16.2/-14.96	-18.26/-11.22
Θ(112.5°)	-12.19/-14.1	-18.86/-18.11	-14.84/-13.23	-18.09/-10.23	-18.34/-18.19	-19.66/-18.4	-19.49/-14.92	-12.35/-11.61	-13.21/-17.46	-10.47/-17.97	-17.91/-18.17	-17.89/-12.11	-18.68/-18.72	-12.41/-10.67	-9.61/-16.22	-16.21/-18.99	-18.74/-14.56	-19.06/-17.89	-18.83/-16.54	-17.56/-11.7	-13.81/-11.75	-9.21/-11.76	-11.66/-14.57	-18.32/-13.74
Θ(120°)	-12.04/-13.18	-18.86/-16.5	-18.34/-15.18	-18.93/-19.11	-18.61/-18.6	-17.68/-19.01	-17.89/-16.84	-13.1/-14.1	-14.46/-17.56	-12.57/-17.16	-18.98/-17.89	-11.57/-14.54	-14.77/-17.65	-18.16/-17.91	-15.64/-11.7	-11.09/-10.44	-11.66/-10.22	-18.13/-14.17	-15.93/-17.27	-18.7/-18.79	-18.74/-12.33	-10.18/-12.94	-11.93/-17.12	-19.11/-16.38
Θ(127.5°)	-17.91/-17.93	-18.78/-18.49	-18.84/-19.15	-19.33/-18.32	-18.9/-17.91	-15.9/-15.95	-18.15/-10.96	-12.46/-12.37	-13.81/-18.42	-12.56/-17.82	-12.07/-12.37	-11.52/-14.38	-11.71/-18.35	-16.34/-18.27	-11.81/-11.44	-9.64/-10.31	-9.66/-11.21	-14.19/-13.24	-18.52/-14.17	-18.83/-17.71	-18.82/-17.65	-18.42/-17.31	-19.1/-16.68	-18.28/-16.76
Θ(135°)	-18.75/-13.85	-18.96/-18	-18.23/-18.58	-17.42/-17.98	-18.31/-18.66	-14.43/-17.53	-14.9/-10.44	-11.12/-11.78	-14.94/-18.02	-17.28/-16.09	-17.51/-10.81	-18.02/-11.35	-16.51/-16.78	-18.81/-10.13	-8.94/-9.57	-11.01/-10.95	-16.92/-15.33	-16.59/-13.43	-14.57/-16.92	-16.06/-17.44	-17.1/-16.1	-13.85/-10.57	-11.24/-11.67	-16.78/-18.1
Θ(142.5°)	-15.3/-16.78	-18.36/-17.53	-18.68/-16.18	-15.31/-19.9	-14.9/-10.11	-8.14/-16.31	-18.03/-12.29	-12.61/-16.61	-17.47/-18.47	-18.05/-18.86	-16.45/-17.98	-15.54/-13.82	-15.13/-17.72	-11.28/-19.1	-10.98/-18.09	-11.52/-14.4	-18.73/-17.5	-18.99/-14.7	-18.49/-15.37	-10.97/-13.26	-15.5/-17.82	-12.3/-9.34	-12.31/-15.41	-19.1/-17.82
Θ(150°)	-17.81/-18.41	-18.58/-19.22	-15.47/-17.83	-16.15/-14.25	-12.54/-10.57	-13.94/-17.95	-15.51/-13.59	-13.38/-13.18	-11.48/-9.37	-16.28/-15.56	-18.36/-14.82	-17.59/-17.91	-17.13/-18.54	-17.84/-15.01	-11.91/-14.62	-16.88/-17.64	-16.68/-16.91	-17.71/-18.99	-15.06/-18.29	-19.01/-18.69	-18.22/-15.5	-12.31/-8.37	-10.17/-11.29	-16.64/-16.22
Θ(157.5°)	-15.73/-18.94	-18.97/-18.06	-18.06/-16.92	-17.65/-16.04	-12.32/-17.07	-15.78/-13.51	-12.04/-10.11	-12.66/-11.19	-12.5/-10.78	-10.52/-16.5	-14.34/-18.4	-13.82/-14.55	-17.95/-18.43	-17.88/-17.62	-19.35/-18.5	-18.23/-17.55	-17.89/-18.68	-18.68/-15.15	-19.01/-17.23	-12.63/-8.72	-10.01/-12	-13.81/-17.87	-17.77/-13.68	-11.65/-10.29
Θ(165°)	-18.91/-17.34	-17.21/-18.25	-17.45/-15.99	-14.92/-14.73	-18.74/-16.54	-18.5/-17.03	-18.85/-15.08	-18.41/-17.27	-12.81/-14.71	-11/-17.74	-17.85/-11.66	-12.3/-18.28	-18.03/-17.51	-18.01/-18.47	-17.13/-14.52	-14.77/-14.01	-11.07/-12.26	-17.71/-14.11	-15.22/-17.1	-16.14/-15.74	-12.32/-10.16	-10.41/-8.85	-10.08/-12.96	-13.32/-16.82
Θ(172.5°)	-18.5/-17.99	-18.99/-18.97	-19.26/-19.14	-17.98/-19.16	-18.7/-18.95	-18.05/-18.51	-17.74/-18.91	-17.31/-18.24	-18.01/-17.77	-17.51/-12.86	-16.23/-17.8	-19.23/-18.8	-18.07/-18.63	-17.37/-18.98	-18.95/-18.01	-13.84/-15.43	-12.61/-12.04	-15.8/-12.56	-15.33/-11.37	-10.43/-11.12	-10.01/-11.35	-12.34/-13.18	-15.18/-18.98	
Θ(180°)	-18.18/-18.29	-18.44/-19.01	-17.46/-17.1	-18.21/-18.14	-16.84/-15.13	-16.45/-14.68	-17.83/-13.2	-18.39/-15.6	-18.09/-18.09	-16.05/-17.89	-11.87/-16.53	-15.35/-18.96	-16.62/-14.23	-12.79/-17.02	-12.12/-15.57	-13.15/-18.88	-14.12/-19.4	-17.81/-17.94	-18.46/-17.81	-18.59/-18.93	-18.57/-16.4	-18.39/-18.01		
Freq(Hz)	5.6GPol.	ThetaAnt. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-18.29/-18.93	-18.92/-18.27	-18.62/-17.07	-15.89/-16.95	-15.85/-14.19	-15.35/-14.75	-13.94/-14.16	-14.71/-12.73	-12.99/-14.32	-14.54/-12.75	-13.26/-13.6	-12.48/-15.17	-17.66/-17.81	-18.58/-16.46	-15.85/-18.65	-16.23/-13.21	-15.82/-15.06	-12.7/-12.89	-11.73/-11.99	-12.12/-13.37	-13.81/-12.83	-12.84/-15.06	-16.21/-16.22	-18.34/-17.68
Θ(7.5°)	-16.85/-18.06	-18.2/-19	-18.715.93	-15.4/-13.89	-14.59/-13.87	-14.04/-17.05	-14.08/-15.62	-15.31/-15.35	-14.15/-13	-15.57/-14.31	-14.18/-14.8	-15.87/-13.38	-16.4/-17.47	-16.7/-13.8	-13.99/-12.75	-13.42/-12.17	-13.49/-14.62	-14.05/-17.11	-12.9/-12.73	-12.86/-12.14	-12.57/-12.76	-12.12/-12.83	-12.18/-12.69	-13.07/-12.9
Θ(15°)	-11.42/-11.85	-12.29/-12.14	-14.29/-15.11	-12.32/-10.63	-10.05/-10.63	-9.07/-10.14	-10.37/-13.61	-14.3/-16.13	-19.25/-14.4	-18.86/-17.2	-18.4/-18.74	-16.74/-14.26	-12.84/-13.74	-14.62/-15.66	-18/-18.23	-18.32/-17.5	-11.54/-12.01	-11.99/-11.51	-11.31/-11.21	-10.23/-10.31	-10.16/-10.52	-10.63/-13.46	-12.94/-11.37	
Θ(22.5°)	-11.78/-10.03	-10.86/-10.05	-10.65/-10.5	-6.76/-6.06	-7.42/-9.64	-9.24/-11.35	-11.32/-17.6	-13.31/-15.9	-9.9/-8.26	-10.31/-8.03	-10.78/-7.89	-9.24/-10.08	-12.69/-10.58	-9.42/-13.79	-18.51/-14.39	-12.61/-11.59	-14.62/-14.23	-13.67/-9.72	-8.29/-8.27	-7.78/-7.36	-7.75/-7.5	-8.22/-9.03	-9.87/-9.67	-10.85/-12.04
Θ(30°)	-8.86/-7.66	-10.52/-9.49	-8.96/-11.52	-10.58/-7.52	-7.77/-7.4	-7/-5.92	-8.86/-8.44	-11.61/-7.32	-6.47/-6.71	-7.14/-5.43	-12.58/-10.8	-6.89/-8.96	-8.34/-6.56	-9.42/-10.51	-10.55/-12.15	-15.46/-9.85	-8.87/-11.35	-7.72/-7.49	-7.93/-9.51	-10.83/-11.59	-12.5/-7.62	-8.68/-4.97	-10.85/-8.04	-8.68/-8.15
Θ(37.5°)	-6.44/-7.36	-10.46/-9.96	-12.95/-9.19	-6.79/-7.03	-10.4/-9.16	-5.33/-4.35	-6.59/-9.85	-9.66/-8.71	-7.04/-5.59	-6.18/-10.45	-10.08/-11.54	-8.4/-5.86	-5.79/-6.69	-6.4/-7.44	-6.57/-6.28	-6.29/-6.6	-6.61/-5.57	-6.36/-6.96	-7.17/-4.71	-3.45/-3.55	-6.85/-9.06	-9.03/-7.76	-7.9/-5.4	-3.98/-7.25
Θ(45°)	-7.03/-7.7	-11.87/-9.9	-8.98/-8.13	-11.16/-8.5	-13.48/-12.89	-13.85/-10.01	-7.54/-6.26	-7.98/-10	-7.87/-9.78	-10.78/-11.7	-8.81/-11.49	-15.11/-10.48	-7.21/-3.71	-5.34/-9.1	-4.4/-5.46	-6.8/-4.73	-3.29/-1.2	-3.83/-1.74	-1.53/-3.65	-6.95/-7.98	-8.24/-9.23	-10.4/-9.08	-18.32/-13.31	-11.38/-9.15
Θ(52.5°)	-9.43/-10.58	-11.77/-18	-10.23/-14.39	-7.55/-7.57	-8.02/-13.05	-8.23/-6.78	-7.13/-6.42	-11.49/-14.86	-14.9/-6.49	-9.24/-14.84	-8.93/-8.33	-11.43/-16.88	-6.3/-7.71	-4.93/-8.85	-6.67/-4.71	-7.53/-5.43	-5.74/-8.01	-7.71/-4.45	-5.87/-10.82	-7.81/-7.59	-2.89/-3.56	-3.42/-1.89	-7.8/-8.86	-9.05/-9.87
Θ(60°)	-7.83/-9.18	-8.46/-10.77	-5.8/-16.4	-7.63/-9.37	-6.26/-10.7	-8.92/-7.52	-5.63/-6.4																	



Radiated Composite Gain Data

Appendix A.3

Θ(75°)	-17.52/-17.51	-13/-13.75	-15.34/-18.86	-16.14/-18.56	-17.79/-18.19	-18.79/-17.6	-17.72/-18.08	-18.77/-14.56	-14.64/-16.71	-14.29/-18.16	-18.74/-16.12	-15.25/-11.29	-12.45/-8.82	-17.88/-14.06	-18/-18	-18.16/-14.84	-12.43/-17.88	-18.43/-18.94	-18.56/-15.77	-14.73/-16.32	-17.09/-19.04	-10.96/-14.32	-13.12/-11.41	-19.48/-14.37
Θ(82.5°)	-11.97/-18.46	-12.03/-19.01	-16.5/-17.82	-19.22/-14.85	-14.31/-14.36	-16.07/-15.11	-12.04/-12.25	-15.69/-12.15	-12.83/-13.61	-13.75/-14.88	-14.31/-15.9	-18.53/-17.68	-18.05/-11.11	-13.88/-18.73	-9.65/-15.71	-16.32/-13.78	-8.86/-11.16	-14.09/-14.32	-10.62/-11.58	-15.59/-16.58	-15.79/-19.19	-17.86/-17.65	-17.75/-18.29	-18.66/-14.96
Θ(90°)	-13.1/-17.89	-12.63/-18.11	-13.97/-14.52	-19.01/-14.68	-12.9/-12.45	-12.24/-12.6	-8.45/-11.38	-16.74/-18.39	-12.98/-12.59	-17.96/-17.7	-16.42/-12.24	-12.1/-18.55	-12.16/-18.55	-12.68/-18.93	-9.22/-14.86	-12.66/-18.89	-18.09/-11.62	-12.32/-15.64	-16.57/-15.98	-18.46/-19.23	-13.77/-13.09	-18.62/-18.53	-19.57/-13.96	-12.41/-19.38
Θ(97.5°)	-18.42/-15.8	-18.85/-13.11	-17.76/-16.15	-18.04/-18.08	-18.88/-19.18	-12.99/-19.25	-14.35/-18	-13.96/-12.26	-13.5/-16.28	-15.44/-13.57	-19.07/-15.41	-10.76/-11.18	-11.8/-14.93	-11.19/-11.73	-10.17/-14.82	-10.08/-9.44	-13.2/-18.21	-10.34/-9.91	-18.64/-14.39	-11.88/-15.65	-10/-9.65	-15.23/-18.65	-18.35/-18.74	-12.8/-16.76
Θ(105°)	-14.89/-17.82	-17.3/-15.19	-14.81/-12.61	-8.24/-17.05	-18.51/-15	-14.29/-17.17	-18.7/-18.01	-12.94/-10.98	-14.57/-17.73	-18.76/-14.19	-14.04/-16	-10.39/-12.4	-14.55/-12.51	-19.37/-12.5	-13.28/-13.58	-9.33/-8.39	-14.65/-10.67	-17.48/-13.63	-18.93/-18.59	-16.2/-18.2	-18.18/-17.89	-18.23/-17.4	-18.99/-16.63	
Θ(112.5°)	-18.89/-12.7	-19.17/-19.08	-16.89/-15.36	-13.84/-17.18	-19.22/-12.08	-13.34/-17.52	-15.85/-18.32	-8.47/-6.98	-8/-11.42	-13.33/-17.28	-19.01/-10.91	-17.96/-16.9	-13.31/-10.95	-18.49/-14.72	-16.04/-18.01	-12.82/-16.71	-18.03/-11.77	-11.95/-16.95	-18.04/-14.76	-15.76/-10.86	-13.31/-16.79	-14.31/-15.48	-16.29/-18.52	-16.04/-18.89
Θ(120°)	-9.13/-18.14	-15.28/-18.88	-15.02/-15.76	-16.34/-14	-17.88/-12.5	-17.93/-13.31	-14.53/-18.1	-10.46/-9.41	-10.51/-10.85	-12.62/-17.84	-17.71/-15.15	-18.61/-19.18	-14.61/-16.76	-18.8/-15.39	-17.4/-17.73	-19.27/-18.12	-12.2/-18.45	-15.42/-12.84	-18.87/-18.49	-17.31/-9.51	-19.31/-14.37	-10.02/-7.44	-13.64/-16.1	-18.11/-16.5
Θ(127.5°)	-12.24/-18.48	-15.33/-17.69	-18.61/-18.01	-17.27/-12.86	-18.47/-13.82	-16.24/-10.63	-14.48/-15.24	-12.37/-13.95	-9.8/-8.85	-11.48/-16.14	-15.78/-18.92	-18.51/-17.66	-18.17/-17.4	-17.89/-15.14	-14.46/-14.52	-14.83/-18.71	-17.56/-17.56	-18.17/-15.9	-18.74/-15.27	-16.03/-13.63	-16.52/-18.13	-14.14/-18.03	-12.21/-12.47	-17.57/-15.65
Θ(135°)	-17.61/-18.78	-18.12/-15.17	-18.86/-17.85	-17.64/-18.09	-19.17/-13.82	-14.45/-15.99	-16.66/-11.53	-9.41/-14.51	-12.59/-9.51	-11.24/-18.42	-17.97/-15.84	-14.58/-17.15	-16.62/-14.58	-18.92/-15.03	-17.92/-19.16	-18.23/-17.62	-18.12/-18.85	-15.14/-13.94	-12.95/-13.19	-11.82/-15.49	-13.16/-18.86	-10.9/-13.07	-14.36/-16.55	-18.87/-11.29
Θ(142.5°)	-11.17/-11.59	-14.78/-13.63	-19.07/-19.05	-17.04/-18.31	-17.81/-12.75	-14.49/-18.77	-12.08/-12	-19.41/-17.42	-18.23/-16.24	-19/-18.24	-19.2/-15.62	-18.34/-17.01	-19.3/-12.45	-14.45/-16.85	-13.83/-16.7	-18.06/-14.3	-12.79/-13.76	-18.18/-19.13	-19.05/-18.35	-12.2/-13.77	-19.23/-15.47	-14.99/-18.38	-16/-16.1	-19.06/-18.38
Θ(150°)	-14.2/-17.91	-17.06/-17.79	-18.84/-18.36	-16.26/-19.47	-18.7/-17.77	-18.91/-15.67	-16.16/-17.69	-18.27/-14.17	-9.91/-14.44	-16.01/-15.98	-17.67/-17.67	-16.86/-17.27	-18.64/-12.78	-12.09/-13.06	-16.52/-18.8	-18.93/-18.62	-17.96/-18.65	-18.06/-19.23	-17.5/-18.13	-19.34/-18.42	-11.62/-9.9	-12.66/-17.79	-15.87/-12.42	-16.07/-18.61
Θ(157.5°)	-18.73/-18.42	-18/-18.61	-17.72/-18.22	-18.41/-18.1	-16.51/-14.92	-19.24/-18.31	-18.12/-17.79	-19.32/-18.2	-17.97/-18.29	-19/-13.5	-17.72/-13.29	-14.44/-17.38	-17.46/-17.53	-17.46/-18.92	-17.47/-18.38	-18.44/-18.5	-18.08/-18.97	-19.02/-17.34	-18.56/-16.64	-17.19/-19.22	-12.73/-12.59	-14.94/-15.42	-16.91/-17.72	
Θ(165°)	-16.68/-14.6	-19.24/-19.07	-18.49/-19.38	-17.91/-17.73	-16.27/-12.42	-12.59/-16.78	-14.83/-11.03	-10.78/-10.59	-9.98/-9.47	-9.28/-10.27	-11.07/-15.01	-18.86/-19.27	-17.64/-15.85	-15.51/-19.59	-18.38/-18.23	-18/-15.69	-10.73/-10.56	-13.62/-17.66	-17.18/-19.04	-19.33/-15.33	-13.07/-10.85	-8.22/-9.57	-14.46/-18.26	-18.44/-17.5
Θ(172.5°)	-9.61/-14.07	-12.16/-13.37	-15.81/-18.85	-18.85/-18.66	-18.22/-18.18	-18.92/-18.24	-17.5/-17.15	-16.9/-15.05	-13.27/-11.01	-10.35/-9.92	-9.63/-11.52	-14.1/-15.67	-16.99/-16.6	-17.65/-18.83	-18.2/-14.72	-17.77/-19.08	-16.81/-14.8	-16.66/-17.95	-17.1/-15.8	-15.16/-14.1	-13.44/-16.11	-18.21/-17.98	-16.03/-13.35	-10.85/-9.97
Θ(180°)	-18.64/-18.44	-18.28/-17.55	-16.37/-19.29	-18.4/-18.05	-18.6/-17.75	-18.4/-17.91	-18.55/-17.75	-18.09/-17.56	-17.44/-16.2	-16.77/-16.06	-15.07/-15.59	-16.64/-17.55	-19.19/-17.58	-18.07/-17.93	-17.48/-18.19	-19.03/-18.09	-17.96/-17.55	-18.59/-19.14	-17.67/-18.75	-18.03/-18.05	-19.02/-18.83	-17.84/-17.98	-19.4/-18.86	-18.46/-18.31
Freq(Hz)	5.6GPol.	ThetaAnt.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-18.28/-19.06	-18.43/-18.57	-17.9/-17.46	-18.59/-18.85	-17/-18.08	-16.34/-16.26	-16.49/-16.74	-16.74/-15.76	-14.99/-14.56	-16.21/-14.82	-16.16/-15.84	-17.29/-15.51	-16.22/-17.18	-17.16/-15.84	-14.39/-12.7	-12.05/-12.43	-12.66/-14.03	-17.31/-13.95	-14.77/-15.31	-16.23/-16.56	-12.57/-13.96	-16.23/-16.56	-12.57/-13.96	-16.23/-16.56
Θ(7.5°)	-19.25/-18.89	-13.81/-12.38	-11.53/-10.11	-9.37/-9.82	-10.05/-10.04	-10.67/-10.83	-11.32/-11.97	-12.32/-12.7	-13.96/-15.3	-15.82/-15.62	-17.23/-18.61	-18.01/-18.83	-18.24/-18.39	-18.03/-18.84	-18.54/-19.15	-18.71/-18.55	-19/-18.3	-17.98/-18.24	-18.14/-18.42	-19.43/-19.27	-16.84/-13.47	-13.22/-14.38	-15.89/-16.24	-17.25/-18.46
Θ(15°)	-11.77/-10.69	-9.78/-10.95	-14.17/-16.71	-17.85/-16.52	-16.71/-15.72	-16.13/-15.54	-16.78/-18.7	-19/-19.17	-18.97/-13.35	-19.23/-18.25	-18.7/-18.2	-18.11/-19.34	-18.54/-17.93	-16.98/-15.42	-13.53/-13.03	-14.03/-12.57	-10.46/-9.46	-9.03/-9.69	-10.24/-11.9	-13.24/-13.42	-13.02/-10.89	-10.44/-11.43	-13.15/-13.17	-14.26/-13.41
Θ(22.5°)	-14.2/-19.11	-18.13/-12.84	-10.12/-9.08	-9.91/-12.79	-13.85/-14.73	-10.82/-12.37	-10.97/-9.27	-8.86/-9.48	-9.57/-11.34	-13.27/-10.72	-14.45/-18.88	-18.04/-13.14	-11.65/-10.89	-12.27/-15.58	-10.34/-11.51	-11.18/-10.99	-10.62/-12.54	-13.68/-11.82	-11.22/-10.21	-9.05/-9.77	-8.23/-8.48	-7.72/-9.42	-12.39/-10.73	-10.41/-11.52
Θ(30°)	-7.55/-7.05	-11.76/-12.49	-9/-7.06	-6.14/-3.93	-3.41/-3.9	-5.59/-8.07	-13.27/-18.36	-13.21/-8.9	-7.85/-7.71	-10.71/-10.5	-6.76/-6.48	-8.79/-12.78	-12.92/-10.39	-8.77/-7.9	-8.52/-8.41	-7.18/-7.06	-7.11/-7.8	-6.02/-4.39	-4.47/-7.34	-8.81/-4.86	-3.72/-4.34	-4.35/-4.84	-5.86/-6.15	-9.25/-11.39
Θ(37.5°)	-9.77/-10.11	-8.34/-6.66	-10.56/-13.27	-12.01/-11.42	-14.66/-12.74	-7.81/-3.59	-2.75/-3.96	-6.12/-5.63	-5.83/-5.76	-4.86/-7.1	-11.04/-18.66	-6.61/-5.67	-10.57/-9.1	-5.88/-9.59	-8.55/-7.24	-7.58/-8.56	-8.82/-13.4	-11.36/-11.16	-10.14/-7.72	-6.78/-4.7	-7.01/-6.87	-7.1/-5.17	-8.78/-11.23	
Θ(45°)	-7.25/-3.78	-4.55/-6.69	-1.580/-4.2	-0.4/-0.85	-0.80/-2.7	0.63/-0.59	-3.29/-6.09	-6.85/-4.57	-2.15/-3.26	-8.02/-7.02	-10.94/-10.65	-12.27/-5.61	-5.86/-9.86	-6.1/-7	-5.28/-4.94	-7.23/-10.27	-10.54/-8	-10.7/-9.6	-9.08/-7.74	-6.33/-7.33	-10.17/-3.2	-6.36/-3.72		
Θ(52.5°)	-8.99/-4.64	-5.27/-11.64	-4.36/-4.95	-8.79/-8.17	-9.13/-4.32	-0.780/-3.7	-0.43/-2.05	-3.93/-3.13	-3.67/-3.33	-4.78/-7.46	-13.34/-6.15	-6.97/-11.51	-6.79/-6.08	-6.16/-5.98	-5.93/-5.9	-8.45/-8.88	-7.53/-4.23	-3.71/-7.51	-7.21/-5.77	-6.7/-8.15	-10.27/-12.7	-7.45/-9.78	-5.78/-9.42	-4.97/-6.1
Θ(60°)	-10.67/-8.38	-10.32/-16.94	-18.42/-8.55	-8.74/-11.99	-5.71/-9.44	-16.22/-12.41	-9.67/-16.56	-18.01/-6.9	-6.17/-8.96	-5.94/-9.73	-4.43/-8.39	-5.8/8.8	-6.13/-10.78	-5.99/-4.86	-7.87/-10.17	-5.35/-2.53	-7.88/-8.76	-4.06/-5.91	-7.41/-5.53	-6.21/-5.98	-6.62/-7.14	-5.16/-5.81	-3.41/-5.71	-2.4/-7.6
Θ(67.5°)	-6.67/-9.1	-1.53/-6.23	-6.19/-3.22	-3.9/-3.17	-3.07/-4.08	-1.880/-58	-0.63/-0.25	-2.42/-3.07	-8.51/-18.55	-5.18/-8.31	-4.08/-7.98	-3.65/-5.92	-4.67/-18.02	-4.81/-2.69	-5.93/-8.71	-2.66/-2.99	-9.36/-1.67	-0.05/-4.79	-2.9/-10.3	-1.38/-9.62	-1.78/-6.22	-7.62/-5.27	-4.3/-5.92	-1.97/-4.68
Θ(75°)	-2.22/-6.6	1.47/-2.72	-5.03/-2.78	1.61/-6.1	-4.09/-8.88	-1.83/-0.58	1.5/-6.67	-1.73/-2.66	-2.37/-3.22	-10.4/-6.8	-4.1/-10.44	-2.43/-4.45	-6.9/-9.78	-2.45/-0.55	0.12/-5.06	-0.65/-1.67	-1.280/-4	2.84/-0.4	-1.24/-8.4	3.980	1.32/-66	-1.41/-0.09	-1.43/-3.71	-1.52/-0.55
Θ(82.5°)	-1.26/-9.31	1.05/-7.92	-5.64/-5.43	2.1/-1.94	1.490/-64	-0.65/-2.18	-0.40/-2.15	-0.080/-26	-4.25/-1.26	-2.06/-2.35	-5.26/-8.94	-3.5/-2.5	-4.79/-8.88	1.240/-99	0.18/-1.02	1.730/-67	2.034/-4	3.592/-12	0.77/-65	4.17/-0.15	1.65/-26	2.090/-16	-1.27/-8.31	-2.280/-65
Θ(90°)	-1.81/-5.39	1.69/-6.94	-2.76/-1.92	1.76/-4.88	-0.53/-3.56	-1.53/-0.8	-1.89/-2.82	-4.04/-16	-0.21/-1.35	-3.43/-0.62	-1.05/-4.3	-7.27/-1.48	0.13/-3.25	0.78/-1.17	-0.1/-1.83	3.89/-22	1.11/-73	3.23/-08	1.78/-24	3.98/-02	0.36/-1.97	1.39/-1.12	-1.2/-2.13	0.14/-0.5
Θ(97.5°)	-5.06/-5.84	-0.23/-8.8	-5.92/-4.79	-0.86/-2.91	-0.9/-2.91	-1.97/-2.14	-0.31/-2.43	-3.78/-2.94	0.752/-23	-1.81/-2.04	-3.18/-2.65	-0.770/-32	-0.89/-0.72	-1.332/-33	1/-5.17	1.82/-69	0.64/-13	3.12/-0.66	1.41/-46	3.750/-38	-0.392/-08	-0.250/-19	-2.13/-6.62	1.39/-29
Θ(105°)	-5.2/-10.1	-2.35/-8.13	-9.49/-6.63	-2.77/-3.11	-4.48/-14.73	-6.76/-6.15	-5.65/-7.86	-12.24/-3.21	-5.08/-3.02	0.86/-11.4	-4.1/-7.42	-1.581/-37	-1.86/-4.59	-1.460/-61	0.36/-3.45	-0.07/-1.04	0.862/-47	1.92/-2.06	-3.97/-2.08	2.01/-2.91	-5.240/-44	-2.33/-4.33	-5.13/-18.36	-1.92/-16
Θ(112.5°)	-5.4/-5.56	-4.3/-3.98	-9.22/-5.18	-6.47/-3.57	-3.63/-8.09	-5.55/-4.33	-5.14/-1.78	-3.58/-9.99	-0.91/-5.3	-4.480/-41	-1.42/-15.21	-7.430/-54	-2.74/-13.76	-0.13/-0.06	0.33/-3.07	0.9/-3	-1.793/-08	0.37/-0.65	-6.69/-2.99	1.6/-4.19	-9.01/-5.86	-4.9/-8.74	-3.28/-8.98	-4.4/-0.24
Θ(120°)	-6.16/-14.06	-7.51/-4.3	-10.37/-3.83	-8.79/-8.5	-5.76/-8.36	-11.58/-5.87	-7.49/-2.7	-3.96/-0.82	-0.29/-3.4	-3.58/-13	-													



Radiated Composite Gain Data

Appendix A.3

Θ(127.5°)	-17.03/-17.77	-12.57/-10.11	-11.38/-18.78	-13.52/-10.7	-10.27/-13.31	-19.19/-13.25	-15.41/-10.32	-19.23/-17.23	-10.32/-17.58	-13.89/-11.95	-14.33/-12.3	-14.94/-15.55	-13.75/-10.13	-18.75/-8.4	-12.33/-19.11	-16.47/-18.03	-17.94/-19.15	-14.42/-12.55	-16.07/-18.11	-12.54/-11.92	-18.37/-18.71	-13.96/-17.77	-19.26/-18.03	-19.09/-17.66
Θ(135°)	-18.21/-17.16	-15.74/-14.93	-15.23/-17.77	-18.1/-15.29	-18.99/-17.33	-17.9/-16.7	-13.67/-9.9	-18.5/-9.9	-8.81/-9.72	-14.56/-13.43	-15.02/-17.58	-18.1/-18.79	-18.99/-17.17	-19.14/-17.92	-18.9/-16.06	-19.16/-17.51	-19.15/-19.16	-17.93/-18.08	-18.72/-18.9	-14.11/-16.99	-18.16/-18.31	-12.22/-17.29	-18.06/-17.79	-16.89/-14.65
Θ(142.5°)	-17.9/-18.67	-17.73/-17.54	-18.29/-12.5	-13.24/-11.16	-10.21/-12.27	-12.56/-13.71	-18.83/-12.35	-16.41/-18.28	-17.67/-17	-16.37/-15.56	-14.3/-18.04	-17.33/-16.63	-19.14/-18.33	-19.75/-15.71	-15.54/-16.05	-14.16/-17.35	-17.51/-18.7	-13.42/-10.51	-15.69/-18.44	-11.84/-10.6	-17.52/-19.34	-17.9/-18.88	-18.87/-18.99	
Θ(150°)	-17.98/-14.97	-14.91/-17.73	-16.63/-17.52	-14.76/-17.85	-18.24/-16.57	-14.48/-16.37	-16.01/-15.75	-18.14/-18.53	-14.17/-11.76	-11.06/-14.11	-17.81/-18.53	-18.53/-18.84	-18.48/-17.84	-19.42/-18.33	-17.97/-17.16	-18.81/-18.21	-17.38/-16.54	-17.26/-18.48	-14.21/-11.23	-12.59/-12.14	-12.57/-11.64	-12.59/-13.07	-18.01/-18.5	-19.13/-18.07
Θ(157.5°)	-17.94/-18.77	-18.65/-14.87	-11.32/-10.25	-8.79/-11.11	-18.11/-14.83	-14.65/-16.03	-19.3/-18.61	-16.47/-15.88	-16.63/-19.07	-17.45/-18.55	-19.28/-17.84	-17.98/-18.42	-18.1/-19.22	-16.54/-17.29	-17.77/-18.45	-18.94/-18.4	-18.64/-17.98	-17.78/-13.73	-13.31/-11.11	-9.26/-10.18	-11.69/-15.39	-15.49/-12.59	-11.71/-14.43	
Θ(165°)	-18.3/-16.42	-14.44/-9.06	-8.61/-8.83	-6.13/-7.93	-13.41/-16.77	-17.56/-18.88	-19.09/-18.2	-17.14/-11.8	-9.13/-12.05	-17.86/-19.33	-19.35/-18.8	-17.76/-17.45	-19.77/-18.01	-18.88/-19.06	-18.19/-17.89	-18.57/-17.75	-17.51/-18.71	-16.4/-14.06	-13.12/-11.68	-12.22/-12.76	-13.13/-14.38	-16.5/-18.77	-18.49/-18.39	-18.95/-18.27
Θ(172.5°)	-17.46/-17.29	-18.24/-12.85	-11.94/-12.4	-10.04/-11.03	-12.18/-12.23	-12.36/-14.24	-18.18/-17.52	-16/-18.28	-17.39/-18	-18.61/-14.99	-12.82/-12.79	-11.96/-11.16	-11.41/-12.5	-13.87/-16.89	-16.03/-16.19	-15.4/-15.4	-16.38/-16.92	-17.58/-16.51	-16.91/-16.59	-18.43/-17.41	-18.52/-18.35	-18.48/-18.39	-15.81/-15.96	-18.05/-18.06
Θ(180°)	-14.72/-17.26	-15.56/-18.48	-19.34/-18.91	-18.52/-18.95	-17.47/-17.37	-18.95/-18.61	-18.64/-18.41	-18.14/-16.11	-15.01/-15.49	-18.63/-18.15	-19.21/-18.24	-16.53/-16.12	-16.79/-15.18	-15.5/-14.94	-15.47/-17.55	-18.36/-17.84	-17.92/-17.81	-19.03/-18.04	-18.82/-18.33	-18.39/-19.32	-18.35/-17.87	-16.39/-15.88	-13.39/-13.28	-15.11/-13.7
Freq(Hz)	5.6G/Pol.	Theta/Ant. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gain	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-18.94/-18.79	-18.41/-19.09	-18.39/-18.65	-18.94/-17.6	-18.62/-17.98	-18/-19.41	-17.6/-18.58	-18.9/-16.87	-18.3/-19.35	-18.77/-17.92	-17.18/-17.07	-17.22/-17.97	-18.94/-18.08	-19.35/-17.35	-18.3/-18.37	-18.57/-18.78	-18.87/-17.87	-18.27/-19.11	-17.43/-18.29	-17.89/-18.41	-18.2/-18.44	-17.59/-18.62	-18.27/-19.08	-18.66/-19.36
Θ(7.5°)	-18.95/-19.17	-19.1/-18.31	-17.76/-18.99	-15.25/-16.91	-16.03/-15.26	-15.71/-17.08	-18.81/-18.08	-19.2/-18.01	-17.81/-18.15	-18.21/-18.64	-18.21/-18.23	-18.75/-17.51	-15.72/-15.82	-18.11/-18.04	-17.54/-18.29	-16.89/-15.06	-16.58/-16.35	-13.93/-13.56	-15.88/-14.66	-14.58/-14.21	-14.65/-15.66	-14.8/-16.52	-18.65/-19.61	-18.08/-18.72
Θ(15°)	-12.1/-9.66	-9.93/-9.77	-10.73/-14.72	-13.83/-13.79	-14.7/-15.07	-13.08/-15.44	-15.98/-15.87	-14.66/-14.92	-15.33/-17.05	-17.19/-17.93	-17.89/-17.32	-17.77/-15.54	-14.8/-15.42	-13.84/-14.85	-19.18/-18.88	-15.98/-11.68	-11.24/-14.37	-15.25/-12.3	-12.41/-10.69	-11.3/-10.88	-11.12/-9.77	-9.32/-10.3	-11.6/-12.83	-12.79/-13.06
Θ(22.5°)	-8.66/-7.48	-8.9/-10.03	-9.29/-12.28	-7.96/-8.72	-10.69/-11.49	-12.47/-17.48	-17.56/-17.87	-18.11/-18.79	-17.78/-14.67	-13.61/-17.77	-17.85/-15.3	-17.31/-15.93	-15.37/-15.46	-14.01/-11.33	-10.51/-10.71	-14.8/-16.33	-10.55/-9.82	-13.39/-12.26	-11.82/-8.16	-7.32/-6.53	-5.39/-3.79	-4.09/-5.68	-7.5/-9.8	-8.2/-7.44
Θ(30°)	-18.9/-8.51	-9.5/-8.06	-8.61/-12.8	-6.47/-11.47	-10.78/-9.63	-10.84/-11.07	-10.9/-8.6	-12.71/-12.47	-14.91/-13.17	-11.88/-12.69	-10.03/-11.59	-11.09/-11.99	-11.91/-12.68	-8.57/-9.13	-13.88/-10.91	-10.9/-3.9	-7.4/-8	-11.2/-8.53	-6.26/-8.14	-7.4/-6.29	-6.29/-6.11	-5.06/-4.25	-3.49/-4.92	
Θ(37.5°)	-4.46/-7.15	-11.03/-8.15	-7.24/-8.85	-5.4/-7.8	-13.5/-7.66	-8.02/-4.74	-6.51/-10.19	-7.29/-7.75	-8.28/-7.05	-9.6/-13.61	-9.54/-6.23	-5.98/-6.29	-3.99/-4.76	-7.52/-6.28	-4.84/-5.4	-6.47/-7.06	-7.71/-6.51	-10.1/-6.11	-6.96/-11.34	-10.08/-10.3	-8.17/-7.58	-9.44/-8.09	-6.43/-4.8	-4.24/-3.72
Θ(45°)	-4.34/-6.66	-12.86/-10.56	-8.43/-9.15	-10.02/-8.54	-8.86/-8.38	-11.21/-6.15	-5.07/-9.1	-13.77/-19.38	-16.14/-11.57	-11.4/-6.83	-5.82/-3.56	-2.91/-2.98	-3.58/-5.17	-3.34/-2.47	-5.44/-6.54	-3.96/-3.58	-4.28/-3.67	-6.75/-6.12	-7.28/-11.52	-8.94/-10.04	-5.23/-6.69	-7.35/-5.45	-8.99/-9.14	-6.33/-4.74
Θ(52.5°)	-6.28/-5.58	-5.22/-6.6	-8.2/-6.52	-5.78/-13.53	-8.36/-13.23	-7.48/-9.39	-9.63/-13.58	-7.58/-5.77	-4.12/-3.16	-4.62/-3.22	-4.94/-4.37	-4.66/-2.9	-3.25/-2.56	-3.84/-4.46	-3.23/-5.27	-5.22/-3.63	-4.73/-6.52	-7.74/-6.55	-5.12/-6.34	-4.95/-6.42	-5.03/-6.34	-4.61/-6.31	-9.91/-7.99	
Θ(60°)	-2.19/-4.79	-6.6/-8.99	-6.88/-2.81	-8.21/-6.37	-9.69/-11.33	-5.76/-10.53	-5.03/-3.05	-4.5/-5.36	-2.29/-2.76	-6.79/-7.54	-6.14/-7.21	-9.22/-18.64	-17.5/-18.62	-10.47/-18.32	-7.47/-8.3	-6.72/-7.47	-11.35/-4.49	-7.76/-5.96	-5.1/-8.17	-1.8/-3.73	-3.95/-5.25	-6.26/-1.93	-1.89/-4	-8.28/-6.72
Θ(67.5°)	-0.710/-8.4	-1.16/-4.25	-3.91/-7.1	-9.85/-2.06	-7.58/-5.22	-6.47/-7.7	-3.86/-8.49	-12.19/-10.93	-10.22/-19.37	-7.74/-12.67	-6.99/-4.39	-4.02/-2.57	0.01/-4	-6.95/-3.75	-8.47/-13.97	-12.19/-11.31	-9.35/-6.34	-4.25/-5.41	-5.33/-4.33	-2.43/-1.28	-3.92/-5.64	-4.17/-9.1	-3.78/-2.38	-0.88/-3.53
Θ(75°)	-3.440/-25	-0.52/-0.02	-1.51/-1.35	-1.12/-1.51	-3.04/-3.74	-9.11/-4.6	-9.59/-9.1	-5.28/-14.05	-6.58/-1.08	-0.94/-1.74	-1.57/-1.15	-1.020/-52	2.3/-0.56	-0.860/-62	-0.5/-2.91	-3.52/-7.96	-0.99/-1.93	-6.52/-1.07	-0.96/-7.8	-2.93/-2.04	-2.3/-3.39	-2.66/-2.92	-0.761/-82	0.74/-1.77
Θ(82.5°)	-1.790/-63	0.43/-0.46	0.18/-0.08	1.2/-3.06	-4.46/-14.49	-3.33/-1.6	-5.82/-3.64	-3.11/-4.15	-2.97/-1.38	-1.46/-0.8	-0.07/-2.44	-3.64/-3.68	0.27/-3.24	-1.92/-0.66	-0.88/-1.03	0.53/-3.6	-0.34/-4.94	-3.340/-66	1.66/-2.38	-2.73/-0.63	2.3/-4.36	0.86/-1.08	1.213/-04	0.52/-0.46
Θ(90°)	0.093/-33	1.7770/-16	0.75/-0.8	2.27/-3.36	-2.04/-3.54	0.46/-0.31	-4.4/-2.51	-0.47/-1.43	-5.56/-1.06	-4.27/-4.75	0.85/-0.63	0.15/-0.49	-13.010/-27	-3.16/-1.23	-0.87/-0.82	0.16/-0.27	1.45/-1.26	-2.352/-61	1.3/-4.53	3.540/-21	3.50/-71	1.612/-37	2.361/-27	
Θ(97.5°)	1.5582/-88	2.280/-29	-1.27/-0.24	3.181/-53	-2.28/-4.39	-0.8/-1.71	-9.38/-1.7	-1.52/-3.16	-8.020/-31	-4.6/-1.77	-0.25/-1.79	-6.930/-58	-1.963/-31	-4.93/-2.99	-2.36/-0.08	0.940/-96	1.433/-71	-2.831/-92	0.59/-5.69	-1.921/-48	0.61/-31	1.710/-77	0.543/-82	3.251/-05
Θ(105°)	-2.242/-64	3.810/-47	0.25/-1.43	2.37/-2.7	-2.4/-3.6	-1.56/-1.91	-6.84/-6.85	-3.04/-10.59	-8.93/-3.96	-7.14/-14.32	-6.19/-9.22	-4.35/-4.43	-1.44/-10.43	-4.71/-2.52	-5.66/-3.02	-2.39/-2.84	-3.11/-5.27	-7.390/-09	-3.18/-1.79	-3.62/-0.51	1.81/-2.57	-1.17/-2.12	-0.913/-12	1.020/-6
Θ(112.5°)	-2.892/-95	1.21/-1.05	0.60/-0.8	-2.48/-1.05	-3.49/-3.95	-3.29/-1.39	-5.12/-4.52	-2.09/-6.04	-15.45/-12.96	-13.67/-4.05	-6.36/-1.9	-6.31/-7.14	-4.39/-9.23	-5.78/-9.12	-0.96/-3.31	-2.12/-0.05	-4.93/-6.8	-3.97/-0.4	-4.12/-3.57	-2.01/-144	-3.31/-4.24	0.11/-3.7	0.28/-1.1	-1.03/-0.2
Θ(120°)	-3.530/-02	-4.49/-8.66	-3.73/-3.77	-4.01/-1.44	-4.44/-6.49	-3.98/-1.42	-4.14/-2.62	-0.97/-4.53	-4.26/-7	-12.77/-1.19	-6.21/-9.41	-6.86/-10.15	-2.84/-9.44	-3.65/-9.16	-3.43/-6.25	0.07/-2.46	-9.25/-1.93	-4.37/-1.51	-3.56/-9.96	-4.61/-0.77	-3.4/-9.1	-12.8/-6.5	-3.21/-4.65	-1.93/-6.64
Θ(127.5°)	-7.26/-12.46	-8.38/-7.2	-3.65/-2.67	-3.23/-6.47	-5.7/-7.62	-5.29/-1.77	-5.6/-3.15	-4.07/-7.53	-8.28/-8.14	-12.83/-8.04	-6.58/-6.87	-10.04/-10.2	-13.75/-10.26	-11.34/-6.14	-7.08/-17.15	-6.2/-6.8	-10.34/-15.13	-14.18/-5.8	-9.19/-17.49	-7.79/-5.72	-8.86/-17.34	-9.06/-6.59	-4.82/-8.82	-6.47/-7.43
Θ(135°)	-3.65/-3.25	-4.02/-2.21	-2.78/-5.66	-8.6/-9.18	-11.76/-6.87	-6.29/-6.75	-5.21/-4.75	-13.2/-10.88	-9.67/-6.83	-8.41/-17.24	-10.15/-12.21	-11.39/-7	-11.54/-12.5	-16.19/-7.96	-16.09/-14.1	-19.02/-18.52	-17.18/-18.77	-17.65/-16.73	-14.64/-11.82	-18.74/-13.71	-13.18/-11	-9.21/-9.09	-7.85/-9.95	-13.46/-4.35
Θ(142.5°)	-6.06/-2.4	-1.84/-6.22	-7.36/-8.79	-10.35/-9.19	-5.52/-4.46	-5.3/-5.75	-9.83/-18.08	-9.63/-11.26	-17.36/-12.1	-17.65/-19.01	-15.06/-11.51	-14.21/-14.91	-10.56/-12.91	-18.05/-14.88	-18.6/-12.84	-14.57/-18.99	-10.37/-10.18	-18.13/-11.69	-18.98/-15.62	-10.3/-7.9	-14.13/-11.47	-8.59/-8.82	-10.02/-10.2	
Θ(150°)	-10.18/-9.07	-8.16/-5.31	-4.72/-7.39	-9.88/-6.96	-4.42/-9.39	-11.92/-12.28	-10.38/-8.73	-14.01/-14.45	-11.88/-13.67	-18.52/-18.99	-15.89/-12.99	-12.87/-13.59	-14.25/-17.51	-18.57/-18.13	-7.68/-3.78	-4.63/-9.94	-10.48/-15.08	-10.94/-7.08	-17.78/-10.85	-13.02/-11.63	-11.86/-11.94	-11.73/-11.82	-9.74/-7.09	-7.78/-6.63
Θ(157.5°)	-11.75/-13.57	-15.03/-18.63	-13.75/-12.27	-10.04/-8.59	-11.68/-11.66	-9.68/-10.85	-11.73/-11.55	-11.37/-15.5	-18.69/-19.13	-16.88/-10.34	-9.31/-13.27	-17.76/-18.65	-14.97/-18.75	-15.8/-9.2	-9.41/-11.18	-15.5/-12.59	-10.47/-12.22	-10.26/-11.46	-18.49/-13.06	-10.56/-7.99	-6.97/-15.3	-11.52/-9.6	-9.94/-5.97	-10.4/-9.79
Θ(165°)	-10.26/-10.36	-11.34/-9.91	-9.93/-11.46	-11.41/-13.88	-10.16/-8.48	-12.7/-15.71	-11.75/-9.42	-9.95/-10.1	-10.58/-11.7	-13.88/-17.98	-17.72/-15.72	-17.59/-15.53	-15.83/-15.66	-13.92/-14.57	-15.41/-12.45	-11.59/-11.65	-11.54/-14.21	-19.01/-18.18	-19.3/-14.57	-13.44/-12.99	-11.8/-11.31	-11.12/-11.93	-11.2/-11.97	-10.31/-10.33
Θ(172.5°)	-12.34/-12.44	-16.19/-12.45	-11.81/-10.55	-7.79/-9.04	-11.45/-13.96	-18.43/-17.78	-16.47/-15.43	-12.66/-10.8	-10.21/-12.34	-18.24/-17.52	-19.03/-17.19	-17.71/-16.18	-14.93/-14.81	-15.08/-14.29	-12.92/-12.13									



Mode 4

Freq(Hz)	5.6G	5.785G
Ant. 1 Max Gain (dBi)	2.56	1.18
Ant. 2 Max Gain (dBi)	4.84	4.77
Ant. 3 Max Gain (dBi)	3.62	4.56
Ant. 4 Max Gain (dBi)	4.15	4.12
Ant. 1 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Theta/37.5/150	Theta/45/150
Ant. 2 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/82.5/277.5	Phi/82.5/277.5
Ant. 3 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/82.5/285	Phi/82.5/285
Ant. 4 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$	Phi/112.5/15	Phi/127.5/7.5
Max Gain (dBi)	4.84	4.77
DG [1SS] (dBi)	5.83	5.27
DG [2SS] (dBi)	4.84	4.77
DG [4SS] (dBi)	4.84	4.77

DG 1SS Result

Freq(Hz)	5.65GPol.	PhiH-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(0B)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	-3.5/-1.91	-1.41/-0.74	0.72/0.98	1.41/2.4	2.7/3	3.24/3.3	2.86/2.74	2.41/2.32	1.96/1.82	1.03/-0.47	-0.76/-1.61	-2.84/-3.68	-3.95/-2.56	-1.44/0	1.24/1.63	2.72/3.39	2.96/3.61	4.36/3.17	3.58/3.68	2.72/2.4	2.21/2.62	1.08/88	0.2/-0.39	-2.25/-4.77
Θ(7.5°)	2.23/-4.19	-2.52/-1.44	0.95/-1.48	2.02/3.11	3.31/3.13	3.21/3.61	3.14/2.83	2.18/1.41	1.13/0.73	0.63/0.29	-0.55/-1.94	-2.97/-2.75	-2.61/-1.46	-0.49/0.64	1.37/1.62	2.18/3.13	4.15/3.3	3.77/3.99	3.72/3.56	3.87/3.31	2.83/2.4	1.53/0.98	-0.57/-2.64	-1.79/-1.61
Θ(15°)	4.38/-4.28	-3.34/-2.23	-1.60/-66	1.57/2.84	3.26/3.21	2.74/2.19	1.59/0.89	0.37/-0.79	-0.71/0.3	0.33/-0.58	-1.29/-2.92	-3.94/-3.48	-4.38/-46	-2.63/-0.92	0.07/0.9	0.88/2.27	3.02/3.5	4.26/3.68	3.65/4.25	4.14/3.28	1.99/1.1	0.37/-0.22	-0.74/-0.94	-3.72/-4.59
Θ(22.5°)	4.86/-3.42	-5.73/-1.55	-0.79/-1.04	1.52/-37	2.85/2.24	1.76/1.46	1.54/1.03	0.41/-0.29	-0.21/-0.28	-0.09/-1.55	-4.46/-5.62	-7.41/-6.12	-4.41/-3.38	-2.44/-1.07	0.03/1.39	1.88/2.82	3.96/2.49	2.73/-26	3.76/3.17	2.01/0.98	0.1/-0.5	-1.76/-2.31	-2.38/-2.48	-5.06/-4.31
Θ(30°)	-2.15/-2.44	-3.47/-1.28	-0.86/-1.79	2.63/2.93	3.63/3.46	3.35/3	2.64/1.88	1.2/1	0.48/0.75	0.71/0.69	-1.31/-3.54	-7.61/-5.11	-2.84/-4.09	-0.18/0.08	1.08/1.83	1.99/1.76	3.23/3.71	3.98/3.51	3.69/3.79	1.39/0.15	0.09/-1.37	-3.83/-4.35	-2.51/-2.68	-1.61/-2.91
Θ(37.5°)	-2.13/-1.1	-3.32/-1.51	-0.52/0.2	3.01/3.98	4.02/4.29	3.46/2.57	2.16/1.4	0.09/-0.08	0.41/0.82	0.25/-0.28	-1.86/-3.75	-3.99/-3.99	-3.56/-1.57	-0.72/0.1	0.34/1.91	1.29/2.55	3.85/3.43	2.88/2.95	3.18/3.01	2.12/27	0.89/-2.04	-3.12/-1.46	-2.86/-1.71	-2.04/-3.53
Θ(45°)	-2.03/-1.12	-3.22/-1.63	-0.1/3	2.08/4.75	4.64/3.64	4.38/3.68	3.48/1.77	1.15/0.58	0.1/-0.84	-2.66/-2.39	-2.69/-3.82	-3.44/-4.85	-3.81/-1.88	0.04/-0.43	0.12/-0.36	0.92/1.88	2.15/3.74	2.45/2.16	2.93/1.02	2.01/1.88	1.14/0.78	0.63/-3.71	-1.24/-3.52	-1.54/-1.6
Θ(52.5°)	0.88/-2.08	-2.67/-0	0.40/0.84	2.13/3.28	3.89/4.72	5.41/4.76	5.12/3.67	2.49/1.74	0.67/-0.33	-5/-4	-2.29/-1.67	-3.85/-2.5	-0.68/-0.83	-1.57/-0.88	0.13/1.38	1.3/0.4	2.25/0.47	2.47/2.78	2.99/3.1	2.06/2.84	1.24/0.38	-1.58/-0.8	-2.1/-3.5	-3.52/-1.62
Θ(60°)	-2.56/-3.09	-1.32/-0.76	1.81/0.8	2.14/3.57	3.71/4.16	4.53/5.4	4.63/3.56	2.41/1.02	-0.53/-1.43	-3.45/-3.96	-1.23/-3.65	-2.31/-0.6	-3.94/-3.1	-0.06/0.91	1.33/0.28	2.04/1.21	2.23/2.24	2.11/2.91	3.19/0.69	2.66/1.97	-0.84/-3.48	-2.4/-2.53	-1.31/-1.99	-3.33/-2.64
Θ(67.5°)	-3.27/-2.53	-1.61/1.88	1.79/2.1	2.37/3.21	2.81/2.85	4.48/5.06	5.05/3.11	2.94/0.91	-0.89/-2.63	-1.99/-2.51	-3.47/-3.18	-2.98/-3.67	-2.94/-3.1	-2.21/0.01	1.32/0.65	0.72/1.49	1.08/1.76	1.87/2	4.06/3.54	1.06/-0.89	0.95/-1.2	-2.43/-2.71	-4.35/-3.6	-4/-3.05
Θ(75°)	-3.36/-2.06	-0.56/-1.27	2.58/2.53	2.12/2.09	2.02/3.92	3.29/4.61	4.13/3.07	2.21/1.03	-1.05/-0.4	-0.80/-0.48	-3.78/-4.92	-6.32/-3.35	-1.83/-4.19	-3.02/0.19	-1.26/0.83	0.86/1.57	0.63/3.17	1.66/1.35	-0.63/2.53	3.24/2.33	-1.76/-2.29	-0.99/-1.08	-2.54/-3.61	-4.18/-2.65
Θ(82.5°)	-3.32/-1.41	1.35/1.68	3.03/3.05	1.91/2.31	3.47/3.3	4.28/4.03	3.73/3.94	2.52/0.3	-3.52/-1.79	-0.21/-0.92	-5.27/-0.97	-5.39/-0.63	1.04/-3.2	-2.83/-1.79	-0.04/0.72	0.43/1.39	-0.05/1.4	-0.29/-0.28	4.34/83	3.94/1.32	-1.04/-2.05	-3.44/-0.77	-1.33/-3.5	-3.25/-3.33
Θ(90°)	-3.48/0.01	1.25/2.8	3.27/2.92	0.95/3.92	4.09/3.86	4.84/3.55	3.19/1.74	-1.39/-1.01	-0.20/-1.2	-3.79/-2.97	-7.98/-1.53	1.81/-2.84	-2.10/-53	-0.56/-0.1	1.11/1.71	-0.02/1.72	-2.8/-2.42	-0.99/-0.37	-0.26/1.33	2.20/0.78	-2.8/-2.02	-2.58/-5.16	-0.42/-2.79	-3.77/-5.15
Θ(97.5°)	-2.19/-0.74	2.18/2.39	4.08/4.18	2.48/1.98	1.77/3.33	2.63/5.03	4.92/3.72	3.69/1.88	-1.73/-2.7	-0.60/28	-2.58/-3.54	-6.9/-1.33	-0.02/-3.25	0.99/1.98	2.42/-0.28	-2.08/2.53	-4.78/3.28	2.34/1.05	-0.13/1.77	1.45/0.66	-7.2/-1.45	-2.06/-5.71	-2.79/-4.09	-5.02/-3.67
Θ(105°)	-2.18/1.06	1.85/2.46	2.56/3.4	3.3/0.94	1.76/2.06	4.84/4.61	5.27/4.68	3.22/2.55	-1.21/-1.78	-1.29/-0.19	-3.96/-2.82	-8.52/-1.25	-0.73/-2.27	-0.96/-1.95	-0.68/-1.65	0.31/-1.86	1.02/3.37	4.2/-0.56	0.63/0.76	1.85/-1.55	-2.02/7	-2.84/-3.67	-2.71/-6.7	-8.38/-4.31
Θ(112.5°)	-1.97/0.37	3.32/-0.44	2.64/1.91	2.23/0.44	1.47/2.86	4.24/5.83	5.48/3.59	3.11/1.68	-0.76/-0.65	0.43/-2.85	-2.03/-3.19	-3.74/-1.12	-0.83/-3.27	-0.21/-0.68	-0.99/-0.31	-3.59/0.56	1.45/3.67	1.87/1.34	1.11/2.45	-1.16/-0.26	-4.49/-4.7	-2.81/-2.6	-3.51/-6.38	-4.53/-4.31
Θ(120°)	-0.55/0.51	1.41/0.85	1.16/1.8	2.1/0.69	3.21/2.88	4.24/4.33	5.24/3.08	3.21/3.05	1.32/0.31	0.54/-1.58	-3.42/-4.01	-6.53/4.33	-1.73/-3.48	-2.67/-0.6	-2.67/-1.9	1.77/0	2.18/2.13	0.38/1.52	-0.21/0.84	-0.94/-1.92	-2.08/-1.45	-5.63/-4.99	-2.38/-3.2	-2.68/-1.76
Θ(127.5°)	1.11/1.57	-0.05/2.09	-1.11/1.91	2.49/4.24	4.04/5.28	3.89/4.98	5/3.78	4.11/3.25	2.45/0.82	0.4/-2.99	-5.92/-3.84	-6.44/-5.96	-4.06/-4.31	-1.94/-4.86	-3.47/-0.19	-0.11/0.42	0.72/2.74	-0.84/-1.52	-0.28/0.4	-2.83/0.44	-1.35/-5.85	-4.63/-6.92	-7.94/-3.05	-2.02/0.21
Θ(135°)	-1.49/0.21	-0.26/1.92	1.52/2.46	4.26/4.27	4.29/5.45	4.76/4.47	4.37/2.72	2.04/2.95	-1.57/-0.68	-1.26/-2.87	-3.9/-2.77	-5.67/-3.57	-3.06/-3.37	-0.27/-1.57	0.09/0.19	-1.26/1.58	0.98/0.67	0.92/-1.55	-0.62/-1.46	-0.36/4.59	-2.17/3.88	-0.67/6.59	-5.1/-2.5	
Θ(142.5°)	-2.58/-1.62	1.05/2.36	2.94/3.69	2.89/4.43	3.02/4.9	4.6/4.49	3.15/2	2.12/3.05	1.23/-2.92	-5.91/-4.89	-2.65/-3.39	-2.53/-1.68	-3.2/-1.15	-0.71/-0.78	0.81/-0.78	-1.10/0.7	0.09/0.26	-0.52/-0.85	-1.3/-5.44	-1.17/-0.99	-2.28/-3.3	-4.7/-4.19	-3.32/-2.14	-3.93/-3.79
Θ(150°)	-0.04/-1.27	1.26/1.71	2.66/2.44	4.29/2.56	4.73/5.13	5.42/4.84	3.98/2.7	1.27/1.14	0.42/-1.78	-2.84/-3.14	-4.8/-2.77	-2.23/-4.04	-2.91/-2.63	-3.09/-1.87	0.42/0.03	0.04/-1.92	-0.10/-0.1	-0.41/-1.96	-4.1/0.4	0.35/-1.96	-3.55/-4.12	-2.61/-3.63	-3.03/-2.98	-2.93/-2.1
Θ(157.5°)	-1.56/-2.12	-1.25/0.5	-1.68/0.66	2.05/3.74	4.06/4.32	4.24/3.23	3.85/2.34	1.08/1.91	1.28/0.16	-2.01/-4.23	-5.33/-5.9	-3.48/-4.03	-3.44/-4.05	-3.01/-1.14	-1.66/-2.59	-0.78/-0.02	-0.97/-2.42	-2.68/-2.76	-4.69/-4.54	-3.63/-4.52	-5.13/-3.44			
Θ(165°)	-3.05/-2.18	-4.06/-0.51	0.4/0.75	3.29/3.51	2.69/0.92	0.26/1.3	1.87/1.83	1.66/1.75	0.17/-1.62	-2.98/-2.65	-3.69/-5.22	-6.23/-5.45	-4.52/-2.47	-1.04/-1.14	-2.45/-3.47	-3.14/-0.38	1.65/2.27	2.31/3.38	2.79/1.78	0.41/-2.39	-0.26/-0.02	-0.97/-2.5	-3.65/-4.49	-5.82/-4.06
Θ(172.5°)	0.51/-0.46	0.35/-0.7	0.07/1.93	2.31/2.11	1.45/0.72	0.76/1.11	1.11/0.82	0.83/0.5	0.12/-0.09	-1.56/-2.12	-3.4/-4.57	-5.51/-3.41	-1.57/-1.31	-1.06/-1.47	-0.23/1.93	2.67/2.45	2.61/3.26	3.66/3.81	2.04/-0.14	-1.76/-1.44	-1.12/-2.22	-2.73/-1.83	-0.49/-0.64	-0.35/-0.34
Θ(180°)	0.06/-0.97	0.41/1.7	1.97/2.09	2.35/-1.52	0.88/1.69	1.6/0.9	0.95/-1.39	0.82/0.39	0.42/0.15	-0.86/-2.38	-2.03/-2.2	-2.4/-2.56	-2.15/-2.17	-1.5/-0.97	-0.06/7	1/2.98	3.76/3.17	2.46/1.31	0.59/-1.34	-1.08/-0.17	-1.84/-1.56	-0.44/-0.9	-0.78/-0.99	-0.45/-0.03
Freq(Hz)	5.6GPol.	ThetaH-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG(0B)	Φ(0°)/Φ(7.5°)	Φ(15°)/Φ(22.5°)	Φ(30°)/Φ(37.5°)	Φ(45°)/Φ(52.5°)	Φ(60°)/Φ(67.5°)	Φ(75°)/Φ(82.5°)	Φ(90°)/Φ(97.5°)	Φ(105°)/Φ(112.5°)	Φ(120°)/Φ(127.5°)	Φ(135°)/Φ(142.5°)	Φ(150°)/Φ(157.5°)	Φ(165°)/Φ(172.5°)	Φ(180°)/Φ(187.5°)	Φ(195°)/Φ(202.5°)	Φ(210°)/Φ(217.5°)	Φ(225°)/Φ(232.5°)	Φ(240°)/Φ(247.5°)	Φ(255°)/Φ(262.5°)	Φ(270°)/Φ(277.5°)	Φ(285°)/Φ(292.5°)	Φ(300°)/Φ(307.5°)	Φ(315°)/Φ(322.5°)	Φ(330°)/Φ(337.5°)	Φ(345°)/Φ(352.5°)
Θ(0°)	2.85/2.84	2.29/1.97	1.54/0.89	3.07/3.02	4.73/-2.13	-3.52/3.32	-2.87/-1.65	-0.24/0.28	1.93/2.54	2.81/2.8	2.68/3.05	2.69/2.87	1.88/2.19	1.86/1.26	0.78/0.32	1.28/1.64	2.28/1.93	-3.99/-3.04	-3.98/3.98	0.48/1.38	1.43/2.71	3.85/3.82	3.78/3.14	
Θ(7.5°)	3.1/2.77	2.09/2.08	1.62/0.72	0.02/-0.28	-1.24/-2.24	-3.52/-4.38	-3.66/-2.12	-1.22/-0.26	1.08/1.98	2.44/3.03	3.68/3.74	3.86/3.51	2.91/3.06	2.15/1.12	0.31/0.78	0.26/-0.09	-0.26/-1.87	-3.23/-4.34	-5.08/-4.36	-2.16/-0.31	1.62/1.98	2.08/2.91	2.96/2.98	3.31/3.48
Θ(15°)	1.85/1.83	1.11/0.72	0.84/0.9	0.42/0.13	-1.03/-3.19	-6.5/-7.21	-5.76/-3.2	-1.32/-0.5	1.26/2.03	2.59/3.55	3.83/4.14	4.17/4.3	4.14/2.9	2.76/1.5	0.55/1.34	1.39/0.08	-0.47/-1.02	-2.66/-4.46	-5.27/-5.14	-3.13/-2.1	-1.10/-4.05	-0.24/0.57	1.59/2.43	2.56/1.89
Θ(22.5°)	0.96/0.66	-0.53/0.27	0.58/0.42	-0/-0.68	-1.63/-3.36	3.68/-4.85	-6.24/-4.56	-2.27/-1.96	-0.45/1.81	2.69/2.78	2.79/3.55	3/3.25	3.85/2.42	1.9/0.61	0.29/0.64	0.73/-0.51	-3.95/-4.57	-5.32/-3.82	-3.22/-3.76	-2.71/-1.51	-1.69/-1.34	-0.39/-0.02	2.52/1.72	
Θ(30°)	0.40/4.1	-0.31/-0.16	0.86/0.15	-0.58/-0.26	-1.1/-3.02	-3.75/-5.36	-6.33/-4.81	-2.29/-1.35	0.36/0.9	2.73/1.3	3.68/2.5	1.69/1.14	2.44/1.23	-0.57/-0.98	1.13/0.52	-0.59/-2.32	-2.51/-2.64	-6.12/-5.41	-3.83/-4.75	-3.61/-2.95	-5.34/-7.37	-4.41/-1.77	0.17/1.32	
Θ(37.5°)	-1.22/-1.03	-0.74/-0.92	-0.94/-1.8	0.04/0.61	-1.36/-4.88	-5.74/-6.89	-6.39/-4.34	-3.54/-1.42	0.66/2.48	2.42/2.92	3.38/1.87	0.28/0.68	0.61/3.2	-0.36/-3.43	-2.08/-1.94	-2.62/-0.23	-2.97/-4.7	-5.6/-6.42	-5.73/-5.75	-6.34/-6.5	-4.79/-6.3	-4.02/-4.42	-5.01/-5.94	-2.28/-2.87
Θ(45°)	-4.73/-1.22	0.35/0.3	-1.1/7.3	-0.13/-1.81	-4.3/-5.64	-4.45/-6.07	-5.99/-4.36	-3.14/-2.79	-1.45/0.99	1.98/1.57	1.89/2.04	-0.24/-1.32	-0.56/-1.88	-1.32/-1.45	-2.06/-4.94	-3.1/-2.83	-3.19/-3.52	-4.63/-6.04	-6.16/-6.06	-8.08/-3.67	-0.84/-2.23	-4.37/-6.99	-4.92/-5.19	-5.27/-2.59
Θ(52.5°)	4.94/-2.08	-0.71/1.06	-1.97/-2.6	-1.67/-1.63	-5.03/-5.56	-4.49/-5.59	-4.51/-6.3	-5.06/-4.15	-3.01/-0.12	0.77/0.02	0.12/2.61	0.24/-0.25												

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