

FCC Composite Gain Report

TP-Link INTERNATIONAL SHENZHEN CO., LTD

<http://www.tp-link.com>

*5/F, Fully Best Building, No.1 Kefa Road,
High-Tech Industry Park, Nanshan District,
ShenZhen, P. R. China*



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Basic Information

EUT Description:	AXE11000 Ceiling Mount Quad-Band Wi-Fi 6E Access Point		
Brand Name:	tp-link		
Model Name:	EAP690E HD		
Tested By:	Feng Ziqi 	Date:	2022/12/06

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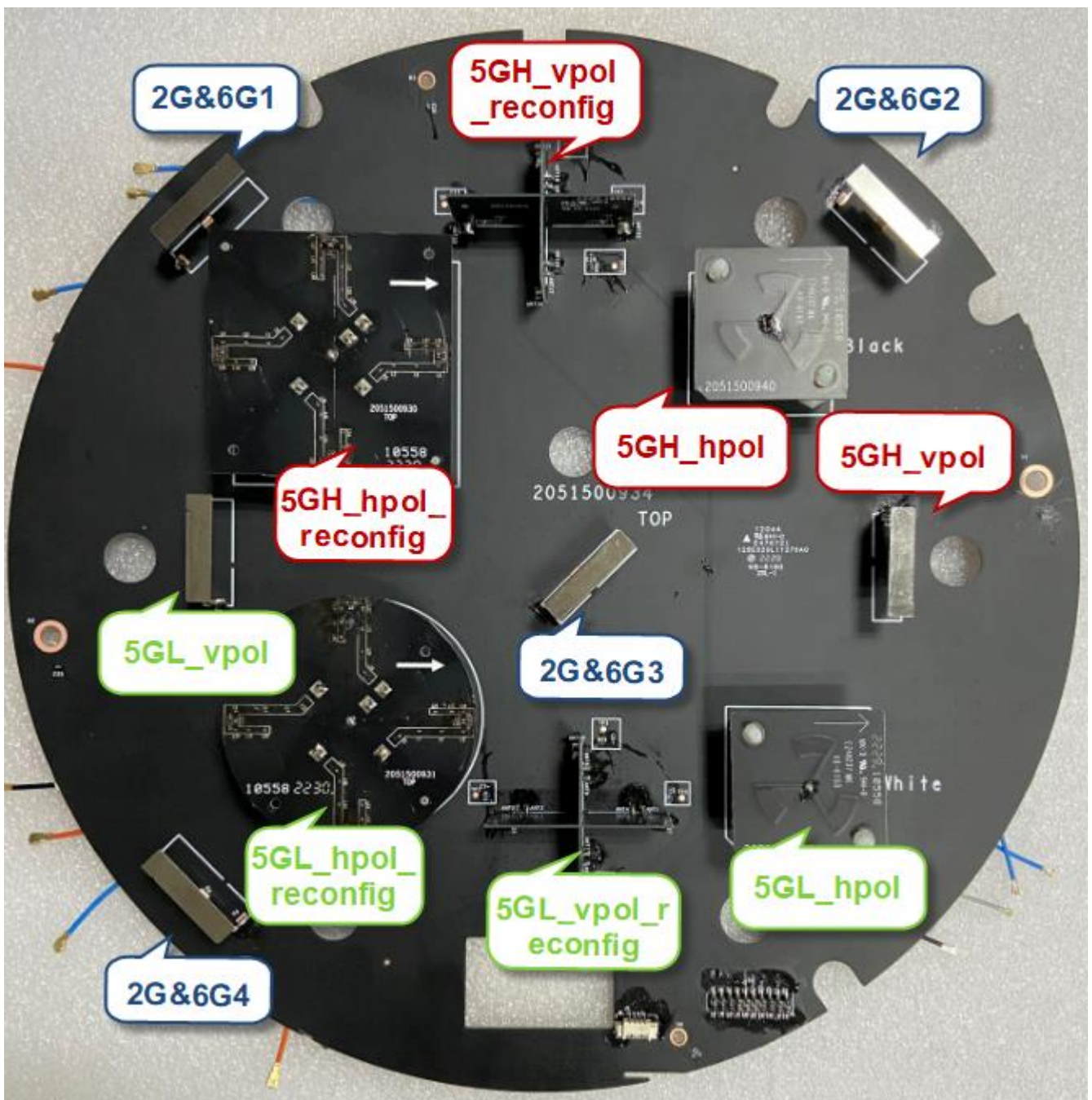
1 Operation Mode and Antenna Information

1.1 EUT Operation Mode

The EAP690EHD is the Four-band wireless AP consisted of 12 internal antennas, of which 4 were 2.4G & 6G Dual-Band antennas and 3 were 5G-LB (5G Low Band) antennas and 1 were BLE 2.4G & 5G LB Dual-band antenna and 4 were 5G-HB (5G High Band) antennas. The polarization of 5G band (LB & HB) antennas was cross-polarized.

1.2 Antenna Information

The Antennas are internal , the Locations of Antennas are shown below:





The Antenna electrical characteristics was shown below:

Antenna Position	Antenna Type	Impedance	Radiation Pattern	Mode of operation
2.4G&6G1	PIFA	50Ohm	Omni-Diretional	2.4GHz&6GHz UNII5-8
2.4G&6G2	PIFA	50Ohm	Omni-Diretional	2.4GHz&6GHz UNII5-8
2.4G&6G3	PIFA	50Ohm	Omni-Diretional	2.4GHz&6GHz UNII5-8
2.4G&6G4	PIFA	50Ohm	Omni-Diretional	2.4GHz&6GHz UNII5-8
5GH_hpol_reconfig	Alford Antenna	50Ohm	Omni-Diretional	5GHz UNII2C-3
5GH_vpol_reconfig	Monopole	50Ohm	Omni-Diretional	5GHz UNII2C-3
5GH_hpol	Alford Antenna	50Ohm	Omni-Diretional	5GHz UNII2C-3
5GH_vpol	PIFA	50Ohm	Omni-Diretional	5GHz UNII2C-3
5GL_hpol_reconfig	Alford Antenna	50Ohm	Omni-Diretional	5GHz UNII 1-2A
5GL_vpol_reconfig	Monopole	50Ohm	Omni-Diretional	5GHz UNII 1-2A
5GL_hpol	Alford Antenna	50Ohm	Omni-Diretional	5GHz UNII 1-2A
5GL&BLE_vpol	PIFA	50Ohm	Omni-Diretional	5GHz UNII 1-2A

The Antenna mechanical characteristics was shown below:

Antenna Position	Material of Radiator	Connector Type	Cable Type
2.4G&6G1	Cu	I-PEX	O.D. 1.13mm
2.4G&6G2	Cu	I-PEX	O.D. 1.13mm
2.4G&6G3	Cu	I-PEX	O.D. 1.13mm
2.4G&6G4	Cu	I-PEX	O.D. 1.13mm
5GH_hpol_reconfig	PCB(PTFE+Cu)	I-PEX	O.D. 1.37mm
5GH_vpol_reconfig	PCB(FR-4+Cu)	I-PEX	O.D. 1.37mm
5GH_hpol	PCB(FR-4+Cu)	I-PEX	O.D. 1.37mm
5GH_vpol	Cu	I-PEX	O.D. 1.37mm
5GL_hpol_reconfig	PCB(PTFE+Cu)	I-PEX	O.D. 1.37mm
5GL_vpol_reconfig	PCB(FR-4+Cu)	I-PEX	O.D. 1.37mm
5GL_hpol	PCB(FR-4+Cu)	I-PEX	O.D. 1.37mm
5GL&BLE_vpol	Cu	I-PEX	O.D. 1.37mm

1.3 Test Frequency

The Listed frequency of each bands are selected to represent each frequency bands.

Frequency Band(MHz)	Test Frequency(MHz)
---------------------	---------------------



2400-2483.5	2450
5150-5350	5250
5470-5850	5725
5925-7125	6500

2 Test Equipment

2.1 Test System

Equipments	Model	Manufacturer	S/N	Cali. Interval	Cali. Due Date
Chamber	Rayzone2800	GTS	MY53470435	12months	2023/01/15
Vector Network Analyzer	E5071C	Keysight	MY46315238	24months	2023/03/13

2.2 Test Software

Software	Version	Function
GTS MaxSign100	V2.1	Passive Antenna Measurements

3 Test Summary

3.1 Measurement Environment

This measurement experiment adopted an antenna near-field measurement system, and the diagram of the measurement system was shown in Figure 3-1. The excitation signal was generated by the Keysight E5071C (300kHz-20GHz). Under the control of the central computer, the probe rotated in the θ direction, and the EUT rotated in the ϕ direction with the turntable. The probe sampling frame received and collected signals in the near-field range of the EUT. The software system which was controlled by the central computer completed the processing, output and display of the test data.

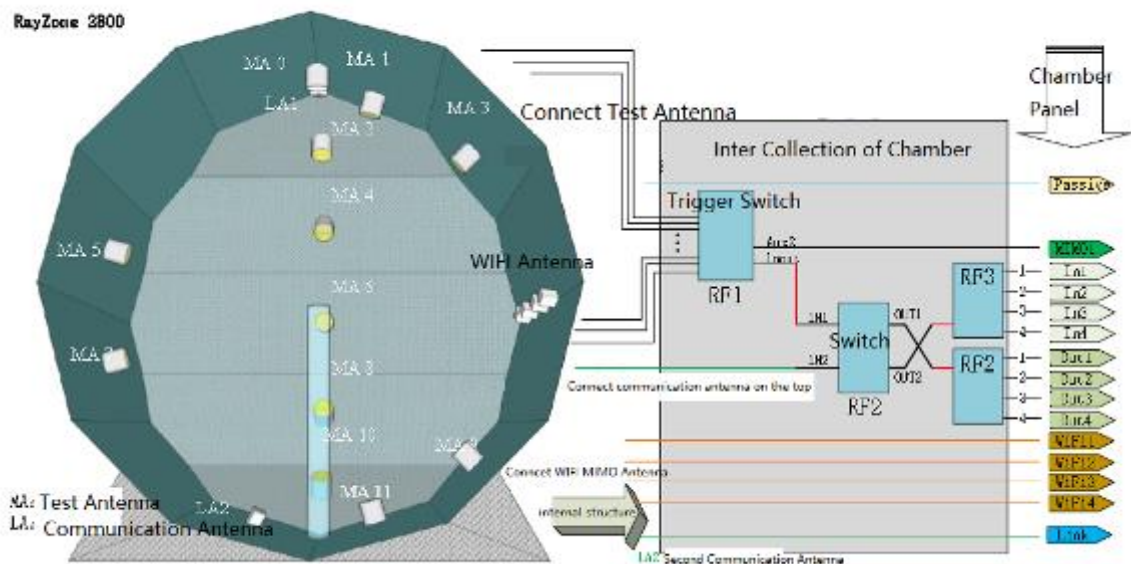


Figure 3-1 Schematic diagram of antenna near-field measurement system

The test site was a full anechoic chamber with a size of 3.0m×3.1m×2.97m, which was built by GTS Rayzone2800. All six surfaces of the anechoic chamber were pasted with absorbing materials. And the chamber was calibrated by the authoritative third-party lab every year. The antenna anechoic chamber measurement system adopted a 13-probe multi-probe system. The probe antennas were evenly distributed on the spherical surface surrounding the EUT, and their operating frequency was 600MHz~8.5GHz.

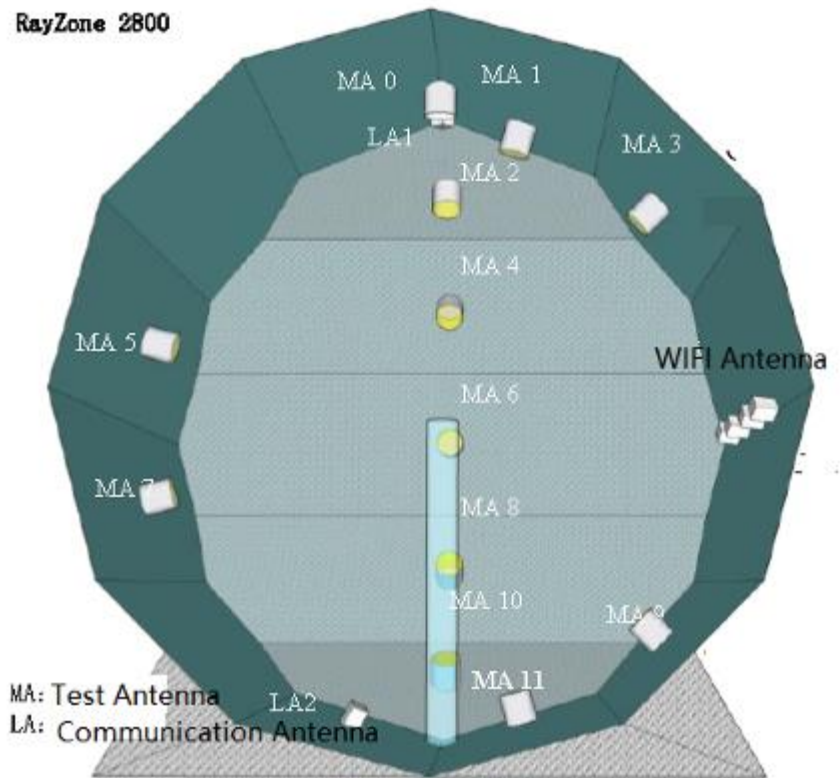


Figure 3-2 Antenna anechoic chamber for near-field measurement

During the measurement, the probe antennas were rotated in the θ direction under the control of the probe holder to sample the near-field data at the θ angle. At the same time, the EUT rotated with the turntable in the ϕ direction to sample the near field data at the ϕ angle. The system diagram was shown in Figure 3-3. From the sampling results, the EUT's near-field test data of θ component, ϕ component and total component could be obtained.

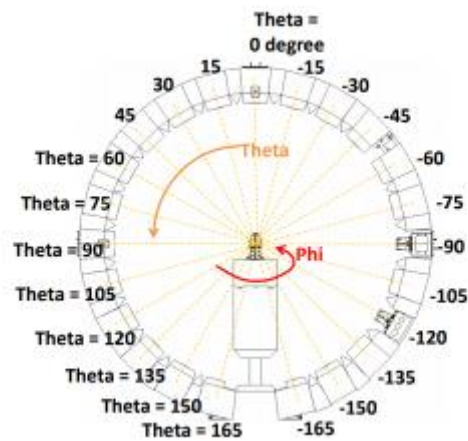


Figure 3-3 System diagram

Before the measurement, calibrated the vector network analyzer, and then connected the input end of each antenna to the output end of the vector network analyzer, and evenly the antennas to be measured. The Calibration information was shown in table 3-1.

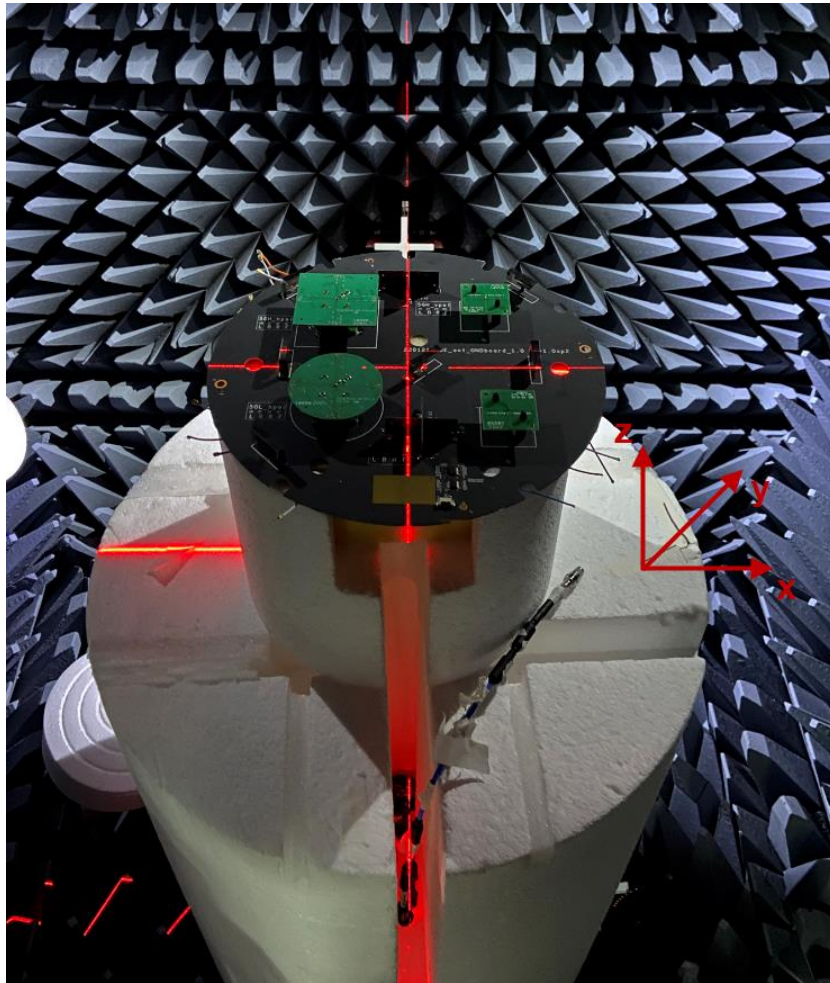


Figure 3-4 Antennas measurement diagram

Table 3-1 Calibration information

Measurement Class	Standard
Cal Type	2p/1-2
Cal Kit	N4691B

3.2 Measurement Quantity

In this measurement experiment, the Directional Gain was measured at a certain frequency interval within the whole frequency range. The measurement frequency interval of the 2.4G antennas was 10MHz, while the 5G and 6G antennas was 50MHz,

3.3 Test Method

During the measurement, the probe antennas were rotated in the θ direction under the control of the probe holder to sample the near-field data at the θ angle. At the same time, the EUT rotated with the turntable in the φ direction to sample the near field data at the φ angle. The sampling accuracy was 15° . The system diagram was shown in Figure 3-5. From the sampling results, the EUT's near-field test data of θ component, φ component and total component could be obtained.

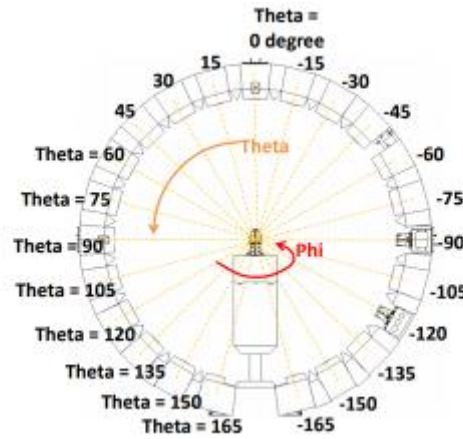


Figure 3-5 Test angle

3.4 Directional Gain Calculations

Multiple antennas system, each of which has one of two (or three) polarizations that are orthogonal to one another (i.e., cross polarized), The total gain—including array gain—is computed separately for each of the two (or three) polarizations using the procedures presented in this document. The highest of the total gains shall apply.

Theoretical Directional Gain represented the theoretical value calculated by formula 3-1. As we all know, the effect of array gain must be included in the calculation of overall directional antenna gain for devices that transmit on multiple outputs simultaneously in the same band, in the same or in overlapping frequency ranges. Therefore, in formula 3-1, the directional gain calculation needs to include all directions and all Frequencies and all Polarizations, and then take the maximum value as the final directional gain value. Therefore, the calculation formula of theoretical directional gain value can be modified as formula 3-2

$$\text{Directional Gain} = 10 \log \left[\frac{\sum_{j=1}^{N_{SS}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right] \quad (3-1)$$

Where

N_{SS} = the number of independent spatial streams of data; $N_{SS} = 1$.

N_{ANT} = the total number of antennas: $N_{ANT} = 4$ for 2.4G & 5G & 6G antennas

$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna .

$$\text{Directional Gain} = \text{Maximum} \left[10 \log \left[\frac{\sum_{j=1}^{N_{SS}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right] \right] \quad (3-2)$$

Maximum function is the max directional gain overall directions and all frequency all polarizations.

3.5 Test Procedure

The calculation method of DG (Directional Gain) in this scheme is summarized as follows:

- 1) The antenna anechoic chamber is used to measure the gain of each antenna, the gain of each antenna at this angle is taken every 15° to calculate the Directional Gain;
- 2) Use formula below to calculate and the Directional Gain of the system at this angle is obtained

$$\text{Directional Gain} = 10\log \left[\frac{\sum_{j=1}^{N_{DG}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right] \tag{3-3}$$

- 3) For each frequency point, the Directional Gain value under 24 different angles can be obtained, and finally the maximum value is taken as the system Directional Gain value.

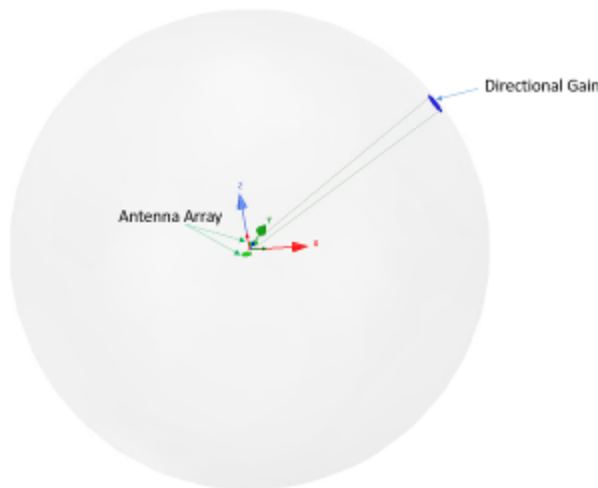


Figure 3-6 Directional Gain Calculation Sketch Map

4 Measured Value and Maximum Gain Positions

4.1 Antenna Number

Then Antennas' Number for measured in the following section was shown below:

Antenna Number	Antenna Position		
	2.4G&6G	5GHB	5GLB
Ant1	2.4G&6G1	5GH_vpol	5GL&BLE_vpol
Ant2	2.4G&6G2	5GH_hpol	5GL_hpol
Ant3	2.4G&6G3	5GH_vpol_reconfig	5GL_vpol_reconfig
Ant4	2.4G&6G4	5GH_hpol_reconfig	5GL_hpol_reconfig

4.2 2.4G&6G

4.2.1 DG_1SS Max Value Position

Frequency(GHz)	2.45	6.525
Ant1(dBi)	1.92	3.02
Ant2(dBi)	-0.14	0.88
Ant3(dBi)	1.91	1.69
Ant4(dBi)	3.86	0.96
Polarization	Theta	Theta
Φ (°)	180	150
θ (°)	60	45

4.2.2 DG_1SS Max Value Position Calculation

Frequency(GHz)	2.45	6.525
Ant1[10 ^{^(G/20)}]	10 ^{^(1.92/20)}	10 ^{^(3.02/20)}
Ant2[10 ^{^(G/20)}]	10 ^{^(-0.14/20)}	10 ^{^(0.88/20)}
Ant3[10 ^{^(G/20)}]	10 ^{^(1.91/20)}	10 ^{^(1.69/20)}
Ant4[10 ^{^(G/20)}]	10 ^{^(3.86/20)}	10 ^{^(0.96/20)}
Ant1[10 ^{^(G/20)}] value	1.247	1.416
Ant2[10 ^{^(G/20)}] value	0.984	1.107
Ant3[10 ^{^(G/20)}] value	1.246	1.215
Ant4[10 ^{^(G/20)}] value	1.560	1.117
Sum of Ants Value(Antmax)	5.037	4.855
DG[10*Log(Antmax ² /Nant)] (dBi)	8.02	7.70

4.3 5GL

4.3.1 DG_1SS Max Value Position

Frequency(GHz)	5.25(V)	5.25(H)
Ant1(dBi)	5.86	5.14
Ant2(dBi)	-1.82	-2.15
Polarization	Theta	Phi
Φ (°)	165	60
θ (°)	60	45

4.3.2 DG_1SS Max Value Position Calculation

Frequency(GHz)	5.25(V)	5.25(H)
Ant1[$10^{(G/20)}$]	$10^{(5.86/20)}$	$10^{(5.14/20)}$
Ant2[$10^{(G/20)}$]	$10^{(-1.82/20)}$	$10^{(-2.15/20)}$
Ant1[$10^{(G/20)}$] value	1.963	1.807
Ant2[$10^{(G/20)}$] value	0.811	0.781
Sum of Ants Value(Antmax)	2.774	2.588
DG[$10 * \text{Log}(\text{Antmax}^2 / \text{Nant})$] (dBi)	5.85	5.25

4.4 5GH

4.4.1 DG_1SS Max Value Position

Frequency(GHz)	5.75(V)	5.75(H)
Ant1(dBi)	4.15	4.24
Ant2(dBi)	1.19	0.78
Polarization	Theta	Phi
Φ (°)	225	330
θ (°)	75	45

4.4.2 DG_1SS Max Value Position Calculation

Frequency(GHz)	5.75(V)	5.75(H)
Ant1[$10^{(G/20)}$]	$10^{(4.15/20)}$	$10^{(4.24/20)}$
Ant2[$10^{(G/20)}$]	$10^{(1.19/20)}$	$10^{(0.78/20)}$
Ant1[$10^{(G/20)}$] value	1.613	1.629
Ant2[$10^{(G/20)}$] value	1.147	1.094
Sum of Ants Value(Antmax)	2.760	2.723

DG[10*Log(Antmax^2/Nant)] (dBi)	5.81	5.69
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5 Test and Calculate Result

5.1 Directional Gain Calculate Result

Table 3-1 Test & Calculate Result

Frequency Band	Max Antenna Gain	Max Directional Gain	NSS	Polarization/ Φ ($^{\circ}$)/ θ ($^{\circ}$)
2.4G	4.78dBi	8.02dBi	1	Theta/180/60
5G LB	5.86dBi	5.85dBi	1	Theta/165/60
5G HB	4.97dBi	5.81dBi	1	Theta/225/75
6G	5.04dBi	7.7dBi	1	Theta/150/45

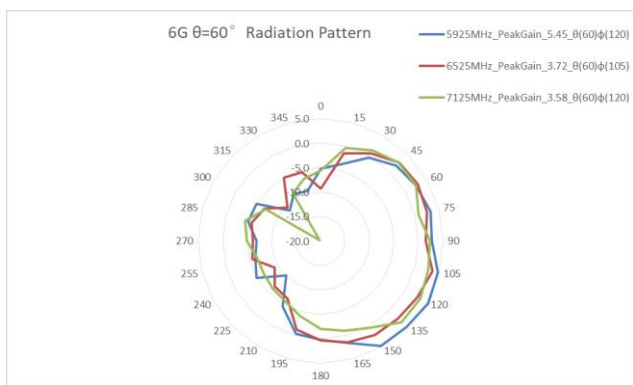
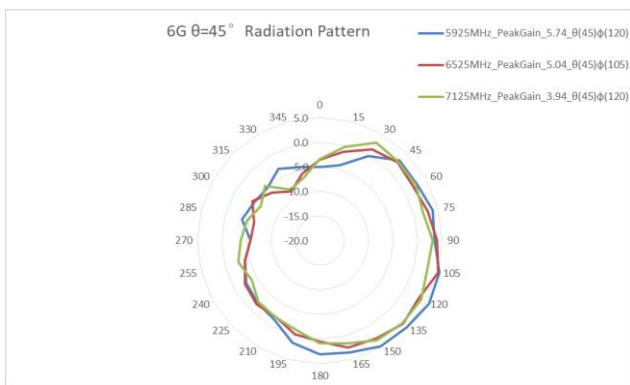
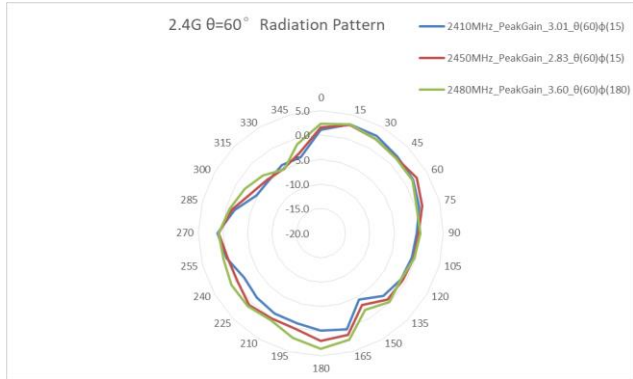
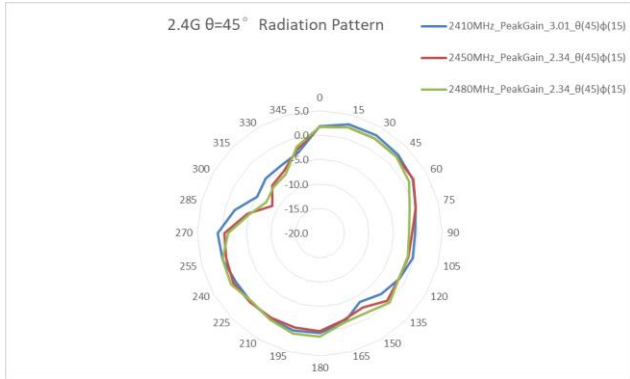
5.2 Antenna Test Result

Frequency(GHz)	2.45	5.25	5.75	6.5
Ant1 MaxGain(dBi)	3.00	5.86	4.97	5.04
Ant2 MaxGain(dBi)	3.56	5.23	4.42	3.39
Ant3 MaxGain(dBi)	2.77	1.57	2.62	4.31
Ant4 MaxGain(dBi)	4.78	1.09	1.92	4.65
Ant1 Polarization/Φ ($^{\circ}$)/θ ($^{\circ}$)	Theta/90/90	Theta/165/60	Theta/30/45	Theta/105/45
Ant2 Polarization/Φ ($^{\circ}$)/θ ($^{\circ}$)	Theta/120/45	Phi/30/45	Phi/315/45	Theta/45/60
Ant3 Polarization/Φ ($^{\circ}$)/θ ($^{\circ}$)	Theta/240/60	Theta/315/60	Theta/135/60	Theta/210/60
Ant4 Polarization/Φ ($^{\circ}$)/θ ($^{\circ}$)	Theta/315/60	Phi/0/60	Phi/0/60	Theta/180/45
Max Gain(dBi)	4.78	5.86	4.97	5.04

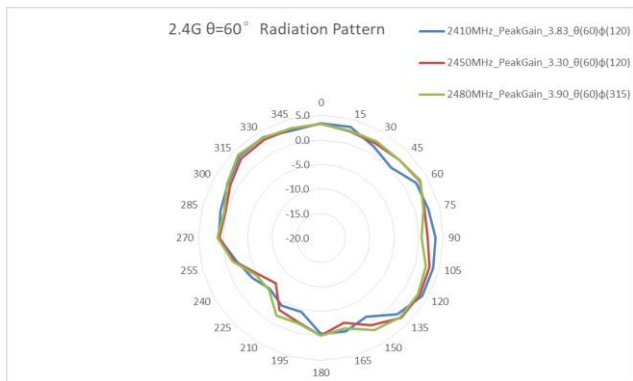
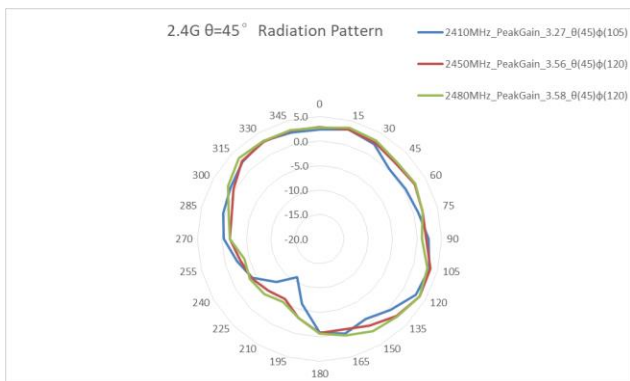
6 Test Pattern

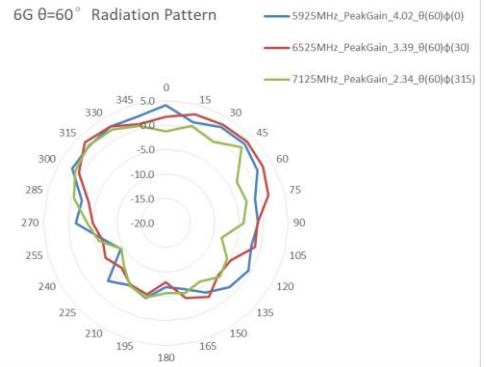
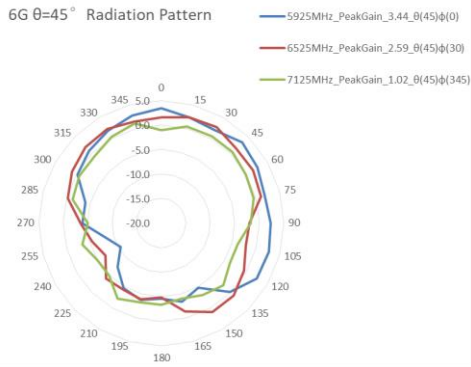
6.1 Antenna Pattern

2.4G&6G_Ant1

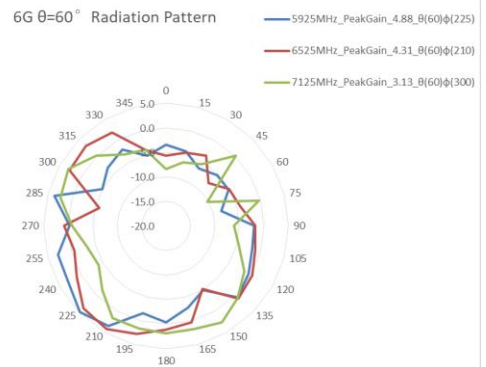
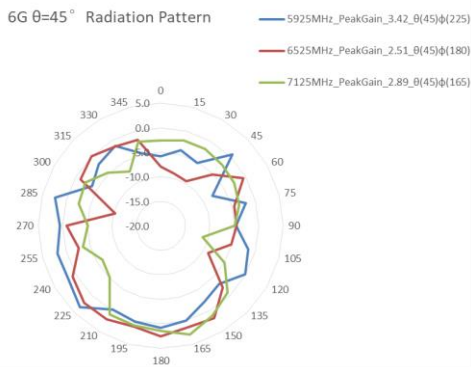
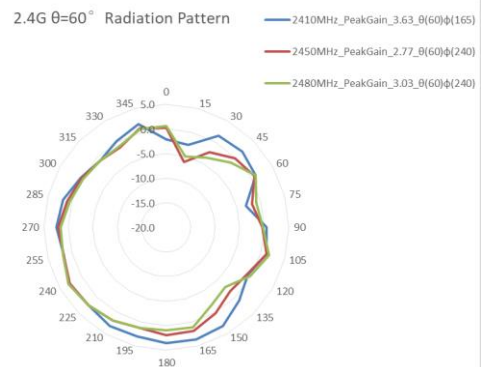
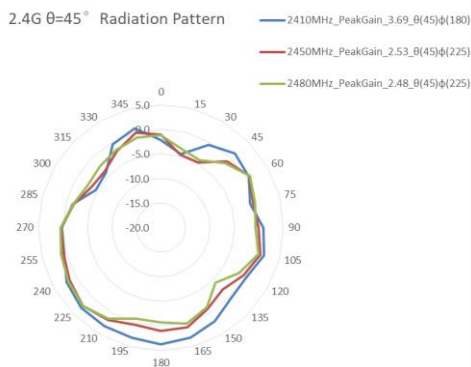


2.4G&6G_Ant2

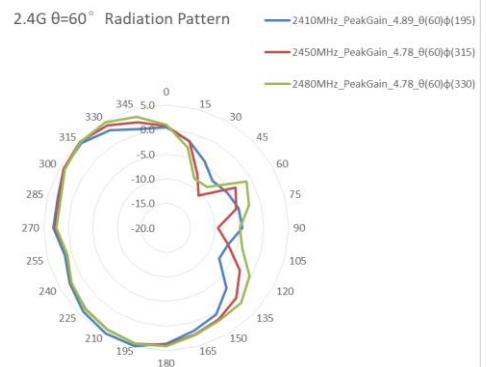
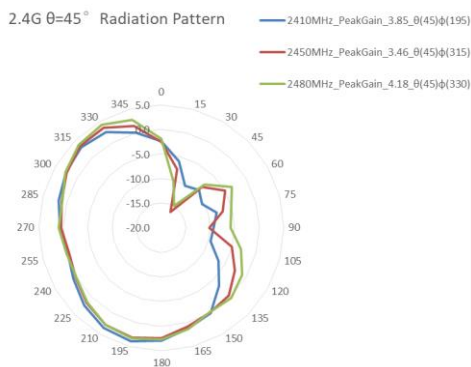


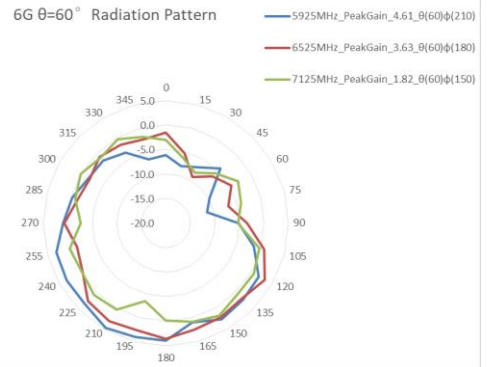
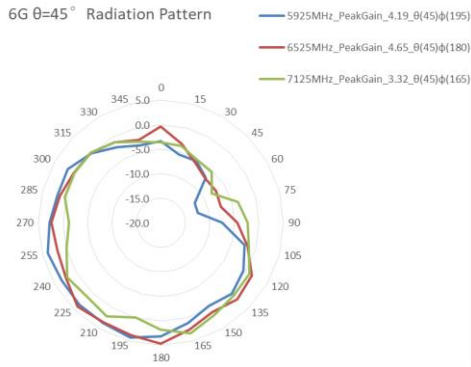


2.4G&6G_Ant3

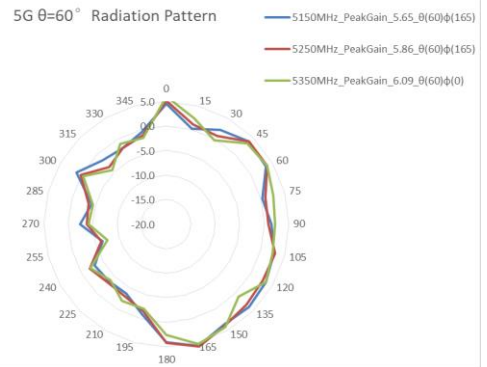
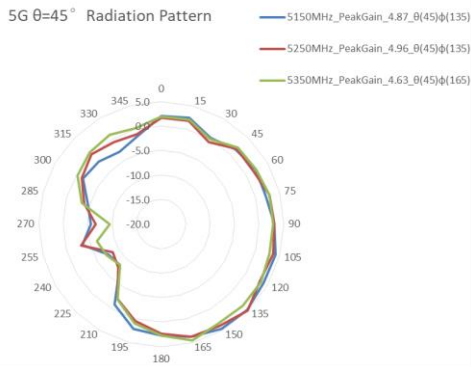


2.4G&6G_Ant4

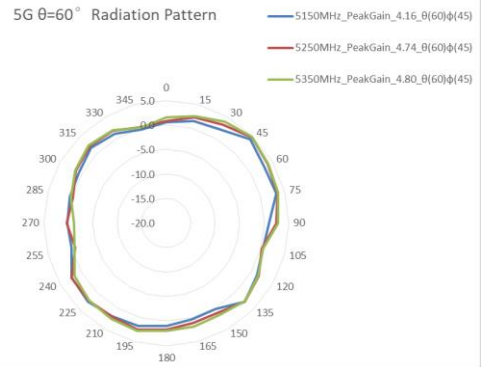
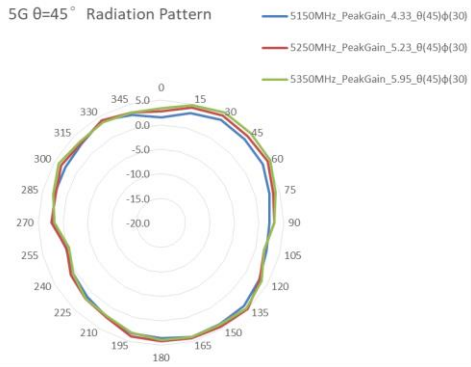




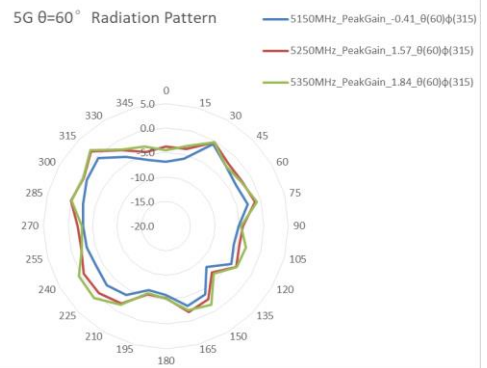
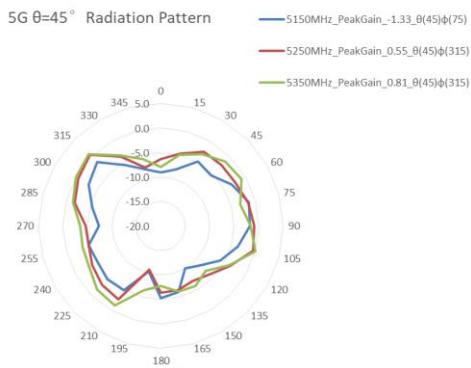
5GLB_Ant1



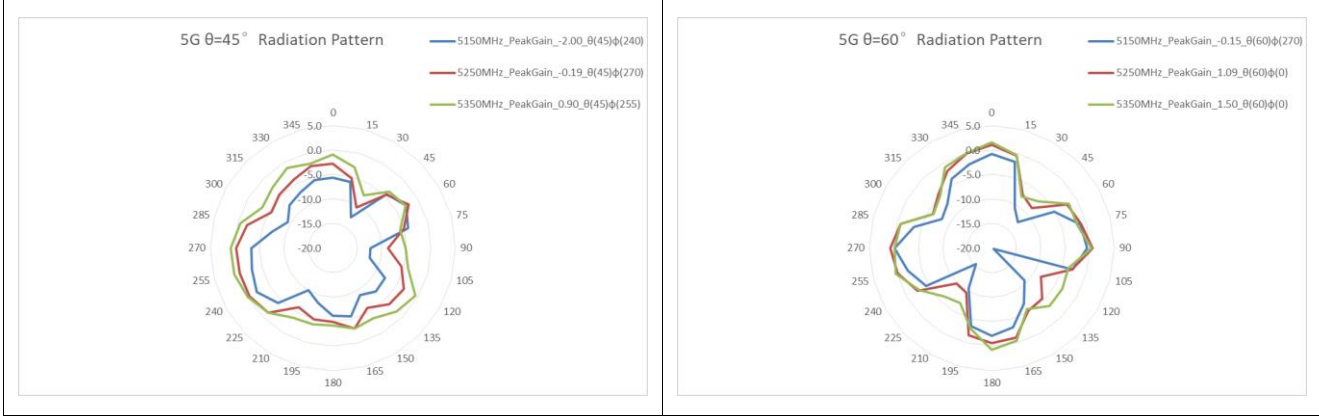
5GLB_Ant2



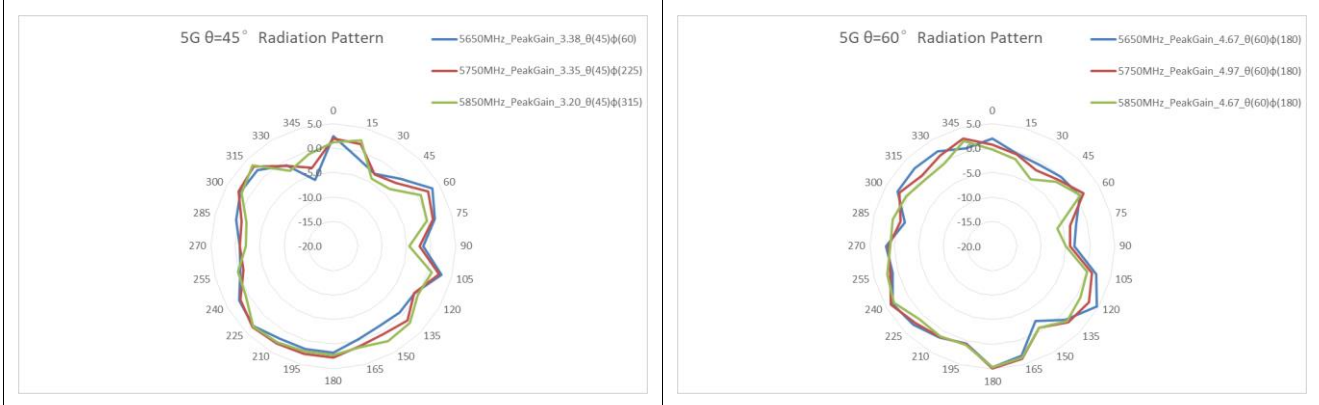
5GLB_Ant3



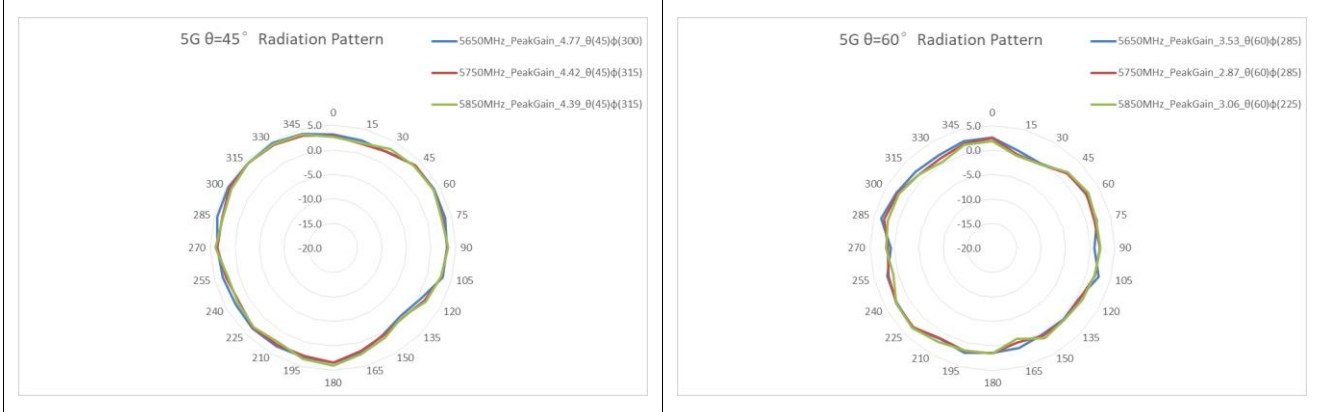
5GLB_Ant4



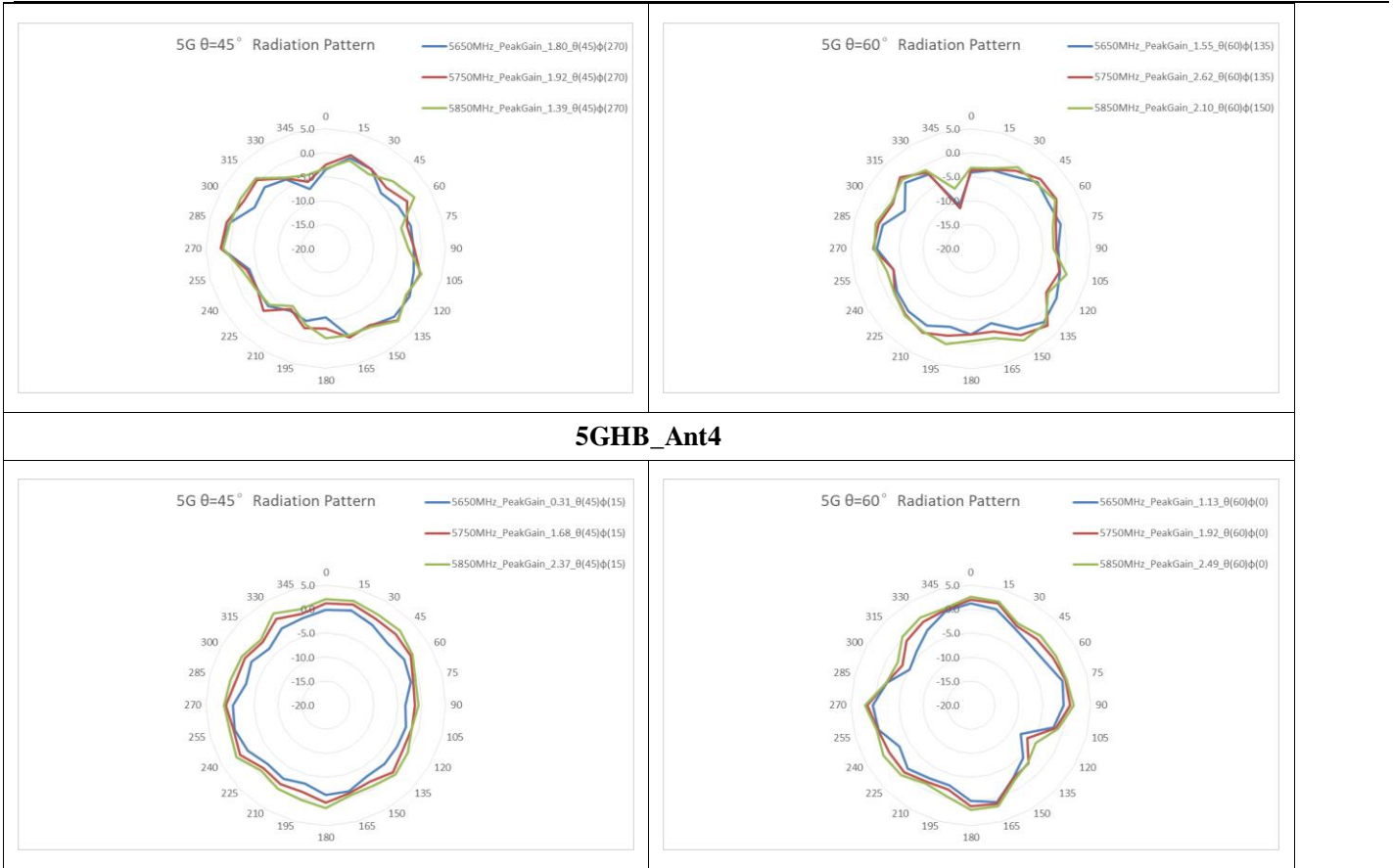
5GHB_Ant1



5GHB_Ant2



5GHB_Ant3



5GHB_Ant4

7 Test Data

2.4G&6G1													
Freq	2450												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-2.64	-1.78	-0.4	1.7	1.52	0.1	-1.63	-5.59	-6.14	-3.57	-6.46	-11.04	-11.85
15	-2.79	-0.61	1.81	2.34	2.83	1.43	-2.26	-5.62	-1.79	-0.68	-2.73	-8.25	-11.85
30	-2.69	-0.19	2.56	2.23	2.23	2.08	-0.4	-4.97	-5.5	-4.13	-2.33	-7.89	-11.85
45	-2.47	-0.84	2.2	2.1	1.74	2	0.48	-0.8	-1.39	-3.95	-2.95	-7.91	-11.85
60	-2.28	-1.85	1.68	2.02	2.57	1.69	-0.88	-1.28	-1.25	-1.61	-1.87	-8.49	-11.85
75	-2.38	-2	0.97	0.22	1.38	2.41	1.92	0.21	-1.1	-0.94	-0.77	-9.42	-11.85
90	-2.73	-2.07	0.38	-1.11	-0.03	2.7	3	1.54	0.84	-1.15	-2.43	-8.85	-11.85
105	-2.76	-2.13	0.07	-1.28	-0.45	1.7	1.16	1.12	1.19	-0.66	-3.79	-8.17	-11.85
120	-2.54	-2.06	-0.22	-1.44	-0.78	1.46	1.43	-0.61	0.1	-0.07	-3.59	-7.81	-11.85
135	-2.43	-2.13	-0.39	-0.54	-0.82	-0.13	1.4	0.34	-2.32	-1.82	-4.09	-7.08	-11.85
150	-2.46	-2.11	-1.52	-2.42	-3.14	-3.24	0.2	0.8	-0.82	-1.63	-3.98	-5.37	-11.85
165	-2.31	-1.99	-2.83	-1.6	1.43	1.22	-0.41	-0.54	-1.47	-1.38	-3.32	-4.16	-11.85
180	-2.27	-2.27	-2.13	0.06	1.92	0.35	-2.92	-0.06	-0.8	-3.02	-2.94	-4.84	-11.85
195	-2.27	-2.48	-1.3	-0.02	0.17	-0.54	-1.81	-1.67	-1	-2.33	-3.72	-4.49	-11.85
210	-2.22	-1.92	-0.6	-0.08	0.09	0.54	-2.2	-6.68	-4.55	-2.13	-4.95	-1.82	-11.85
225	-2.19	-1.49	0.06	-0.03	0.71	1.65	-0.79	-7.06	-8.25	-4.92	-4.01	-0.45	-11.85
240	-2.22	-1.79	0.04	0.3	-0.32	0.47	-1.46	-8.38	-12.13	-7.33	-4.3	-0.94	-11.85



255	-2.13	-2.47	-1.25	-0.17	-0.27	-1.75	-5.49	-14.72	-11.01	-8.27	-4.61	-2.01	-11.85
270	-2.2	-3.4	-3.41	-0.53	0.87	0.65	-1.78	-5.97	-9.33	-9.45	-3.42	-2.94	-11.85
285	-2.31	-4.55	-6.3	-4.67	-1.16	-1.16	-4.64	-10.9	-8.47	-3.48	-3.79	-4.36	-11.85
300	-2.37	-5.47	-8.75	-8.84	-3.63	-3.01	-3.06	-6.08	-10.5	-3.94	-7.47	-6.23	-11.85
315	-2.23	-5.81	-8.6	-6.28	-4.58	-4.95	-5.18	-6.78	-6.42	-4.15	-8.95	-7.33	-11.85
330	-2.04	-5.23	-6.68	-5.41	-4.9	-5.08	-4.97	-3.72	-1.26	-1.24	-5.11	-8.38	-11.85
345	-2.19	-3.53	-3.6	-2.32	-3.1	-3.96	-3.36	-1.95	-0.62	-2.58	-8.09	-11.85	-11.85
360	-2.64	-1.78	-0.4	1.7	1.52	0.1	-1.63	-5.59	-6.14	-3.57	-6.46	-11.04	-11.85

2.4G&6G2													
Freq	2450												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-2.29	-1.5	1.6	2.8	3.25	1.99	-0.06	-2.83	-2.64	-2.41	-5.46	-8.9	-8.9
15	-2.16	-0.32	2.85	3.15	2.58	2.27	0.96	-2.73	-4.03	-2.57	-3.77	-6.56	-8.9
30	-1.97	0.41	2.78	2.71	2.32	1.92	0.31	-2.07	-3.14	-5.41	-3.42	-5.49	-8.9
45	-1.86	0.53	1.89	1.93	2.49	1.88	0.91	-0.2	-1.68	-6.87	-5.49	-5.45	-8.9
60	-1.92	0.48	1.24	2.47	3.26	1.68	0.59	0.16	-2.96	-5.74	-6.95	-5.63	-8.9
75	-2.1	0.64	1	1.8	1.87	0.35	-1.88	-2.27	-2.1	-4.5	-7.52	-6.12	-8.9
90	-2.2	0.65	1.47	1.86	1.81	0.06	-2.49	-2.64	-1.87	-4.99	-9.54	-6.24	-8.9
105	-2.31	0.25	1.98	3.49	2.92	-0.05	-3.37	-5.29	-6.33	-8.89	-7.95	-4.89	-8.9
120	-2.13	-0.46	1.12	3.56	3.3	0.9	-1.4	-4.87	-4.33	-6.28	-5.44	-3.73	-8.9
135	-1.78	-1.28	-1.3	2.23	3.17	2.19	-0.46	-3.55	-3.33	-5.67	-6.18	-3.81	-8.9
150	-1.77	-2.06	-2.7	0.45	0.62	-0.04	-1.55	-2.65	-3.42	-5.88	-6.18	-4.08	-8.9
165	-1.84	-2.51	-2.3	-0.91	-2.09	-2.42	-4.18	-9.02	-8.7	-5.55	-5.23	-3.74	-8.9
180	-1.95	-2.67	-2.52	-0.8	-0.14	-0.37	-2.75	-6.22	-7.45	-5.58	-5.5	-3.74	-8.9
195	-2.12	-2.91	-3.51	-3.39	-2.14	-2.51	-3.21	-6.28	-10.73	-6.17	-6.04	-4.41	-8.9
210	-2.06	-3.43	-3.96	-5.87	-3.08	-5.24	-5.28	-4.48	-3.78	-3.45	-4.75	-5.21	-8.9
225	-1.79	-4.09	-4.07	-5.08	-7	-9.78	-5.9	-3.86	-3.19	-3.52	-6.04	-6.07	-8.9
240	-1.83	-4.7	-4.81	-3.92	-5.23	-4.61	-5.34	-7.73	-10.77	-6.73	-6.87	-7.03	-8.9
255	-1.98	-5.01	-6.61	-3.21	-1.66	-4.19	-6.29	-13.76	-8.38	-6.03	-6.06	-8.25	-8.9
270	-2.05	-5.03	-5.25	-1.7	0.73	-0.28	-4.16	-11.26	-8.33	-4.3	-4.82	-8.59	-8.9
285	-1.98	-4.53	-2.72	-1.43	0.24	-0.09	-3.6	-9.44	-9.17	-6.26	-4.65	-7.15	-8.9
300	-1.91	-3.86	-0.99	0.37	1.38	0.3	-1.53	-3.3	-4.15	-5.43	-4.15	-5.66	-8.9
315	-1.87	-3.6	0.32	2.47	2.96	0.55	-1.53	-2.3	-0.99	-1.36	-2.87	-5.14	-8.9
330	-1.98	-2.9	0.89	2.88	3.13	1.35	-0.77	-3.17	-5.72	-4.87	-3.69	-5.57	-8.9
345	-2.23	-2.18	0.76	2.9	3.06	2.64	0.98	0.04	-1.08	-3.41	-6.8	-7.62	-8.9
360	-2.29	-1.5	1.6	2.8	3.25	1.99	-0.06	-2.83	-2.64	-2.41	-5.46	-8.9	-8.9

2.4G&6G3													
Freq	2450												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-3.49	-1.74	-1.59	-1.02	0.25	-1.27	-2.96	-3.05	-1.7	-4.02	-11.04	-5.2	-16.66
15	-3.3	-2.11	-2.77	-4.64	-6.26	-5.5	-6	-4.86	-6.78	-8.61	-8.53	-5.54	-16.66



30	-3.33	-3.28	-6.83	-4.79	-2.35	-3.08	-5.83	-2.17	-5.77	-9.11	-9.09	-7.04	-16.66
45	-3.29	-5.21	-6.23	-0.93	-0.14	0.09	-3.25	-4.7	-11.09	-9.19	-14.05	-10.53	-16.66
60	-3.19	-6.41	-2.92	0.88	0.81	-1.45	-6.15	-4.09	-4.04	-2.31	-7.49	-15.68	-16.66
75	-3.37	-5.85	-2.71	-0.49	-1.84	-4.49	-6.77	-5.58	-5.78	-3.14	-9.27	-12.93	-16.66
90	-3.35	-4.48	-3.27	-0.12	-0.34	-1.75	-5.17	-5.1	-3.83	-5.48	-19.46	-12.63	-16.66
105	-3.32	-3.18	-2.99	1.01	1.21	-1.23	-4.78	-7.78	-2.48	-4.96	-10.61	-10.85	-16.66
120	-3.59	-2.55	-3.73	-0.57	-0.88	-4.21	-5.94	-11.44	-2.87	-7.04	-10.05	-8.46	-16.66
135	-3.67	-2.47	-4.2	-2.23	-1.62	-5.29	-5.89	-4.22	-5.12	-11.23	-10.08	-7.94	-16.66
150	-3.29	-2.47	-3.15	-0.89	0.12	-1.47	-5.96	-6.11	-5.11	-7.08	-8.16	-8.72	-16.66
165	-3.39	-2.45	-2.37	1.01	1.85	-0.59	-3.7	-8.32	-5.3	-8.08	-10.64	-9.44	-16.66
180	-3.44	-2.76	-2.47	1.03	1.91	-0.3	-3.33	-7.18	-4.45	-8.74	-13.68	-11.53	-16.66
195	-3.35	-3.31	-1.92	0.51	1.14	-0.7	-3.1	-5.66	-6.63	-9.19	-11.58	-14.77	-16.66
210	-3.41	-3.76	-0.91	1.61	1.86	1.18	-0.91	-3.44	-2.8	-9.15	-22.42	-16.16	-16.66
225	-3.52	-4.83	-1.63	2.53	2.35	1.02	0.57	-1.39	-3.35	-10.62	-14.81	-16.66	-16.66
240	-3.4	-5.21	-2.69	1.48	2.77	1.95	1.35	-0.17	-0.21	-8.93	-13.5	-11.34	-16.66
255	-3.52	-3.95	-1.07	0.61	1.74	0.2	0.49	-0.68	0.18	-5.98	-10.03	-8.26	-16.66
270	-3.59	-2.97	0.01	0.45	2.01	0.9	0.98	-0.3	-0.84	-3.63	-8.57	-6.12	-16.66
285	-3.33	-2.4	-0.44	-1.59	0.94	1.58	0.13	2.41	0.15	0.17	-4.64	-4.32	-16.66
300	-3.16	-2.31	-1.61	-3.57	0	2.18	-0.8	0.94	-0.82	-1.36	-5.16	-2.92	-16.66
315	-3.14	-2.51	-2.33	-3.71	-0.9	1.23	0.54	-0.14	-0.51	-3.73	-3.71	-2.54	-16.66
330	-3.29	-2.4	-2.22	-2.06	-1.18	-0.67	-0.16	-1.35	-1.37	-5.63	-6.28	-2.9	-16.66
345	-3.49	-1.87	-1.93	-0.07	0.81	0.05	-0.84	-1.75	-0.71	-2.86	-9.56	-3.93	-16.66
360	-3.49	-1.74	-1.59	-1.02	0.25	-1.27	-2.96	-3.05	-1.7	-4.02	-11.04	-5.2	-16.66

2.4G&6G4													
Freq	2450												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-8.17	-4.71	-8	-2.56	0.76	-0.61	-3.23	-2.19	-0.62	-2.1	-7.1	-11.09	-17.5
15	-7.72	-5.17	-13.23	-7.66	-1.8	-2.94	-5.29	-4.52	-3.62	-5.8	-9.75	-11.81	-17.5
30	-8.11	-5.92	-8.91	-16.34	-7.35	-4.93	-6.13	-7.14	-8.46	-4.35	-6.08	-11.25	-17.5
45	-8.87	-6.57	-6.26	-8.26	-10.71	-11.47	-12.74	-15.66	-10.23	-5.25	-4.74	-9.92	-17.5
60	-8.61	-7.58	-6.61	-4.87	-3.63	-7.3	-11.28	-5.54	-3.62	-6.09	-5.49	-9.5	-17.5
75	-7.69	-9.41	-8.98	-6.96	-5.13	-6.33	-8.01	-8.98	-6.21	-5.42	-5.55	-8.88	-17.5
90	-7.54	-11.62	-9.17	-10.16	-9.38	-8.84	-8.18	-10.71	-12.54	-5.92	-6.13	-8.25	-17.5
105	-7.99	-11.83	-6.24	-5.09	-6.8	-7.85	-8.62	-9.27	-8.52	-7.23	-6.67	-7.95	-17.5
120	-8.46	-9.81	-4.88	-2.63	-2.63	-6.37	-6.85	-8.45	-11	-7.06	-5.09	-7.1	-17.5
135	-8.66	-9.14	-3.78	-0.52	0.25	-1.42	-3.3	-5.06	-8.15	-6.6	-5.61	-6.51	-17.5
150	-8.05	-8.24	-2.85	-0.03	1.43	0.27	-0.53	-2.53	-3.99	-6.51	-5.95	-6.39	-17.5
165	-7.47	-6.48	-1.92	0.82	2.51	1.87	0.45	-0.61	-2.59	-6.3	-5.16	-6.29	-17.5
180	-7.51	-5.75	-0.64	2.43	3.86	3.56	2.57	0.49	-1.12	-4.37	-6.89	-6.1	-17.5
195	-7.99	-5.24	0.46	3.08	4.45	4.43	3.66	1.89	-0.39	-2.67	-8.81	-6.55	-17.5
210	-8.22	-5.11	0.15	2.79	3.99	3.86	2.64	0.94	-1.64	-7.18	-8.06	-8.79	-17.5
225	-8.1	-5.77	-1.16	1.54	3.35	3.39	2.06	-0.78	-3.91	-8.74	-6.44	-12.18	-17.5



240	-7.79	-5.59	-2.2	0.21	2.37	1.71	0.6	0.5	-1.28	-4.84	-8.42	-17.5	-17.5
255	-7.76	-4.15	-1.51	-0.47	0.9	1.62	1.03	1.69	1.06	-3.59	-9.15	-13.47	-17.5
270	-8.13	-2.59	-0.44	0.4	2.6	2.48	-0.09	0.54	-0.83	-3.99	-6.59	-9.03	-17.5
285	-7.72	-1.62	-0.65	1.07	2.64	3.44	2.33	2.61	2.1	-1.36	-5.3	-8.16	-17.5
300	-7.89	-1.59	-1.38	2.39	4.14	4.73	2.01	1.18	0.15	-3.22	-6.23	-8.76	-17.5
315	-8.29	-2.27	-1.19	3.46	4.78	3.5	1.13	0.44	-0.15	-2.17	-6.7	-9.49	-17.5
330	-8.32	-3.52	-1.5	3.44	4.04	2.63	1.03	0.46	0.38	-1.38	-7.28	-10.36	-17.5
345	-8	-4.21	-3.23	1.39	2.2	0.99	-1.27	-1.78	-1.8	-2	-7.05	-10.86	-17.5
360	-8.17	-4.71	-8	-2.56	0.76	-0.61	-3.23	-2.19	-0.62	-2.1	-7.1	-11.09	-17.5

2.4G Composite Gain													
Freq	2450												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	2.16	3.68	4.58	6.51	7.54	6.16	4.14	2.70	3.48	3.03	-1.26	-2.69	-6.99
15	2.28	4.17	5.02	5.45	6.09	5.39	3.33	1.65	2.14	2.12	0.33	-1.71	-6.99
30	2.30	4.13	4.94	4.58	5.55	5.54	3.51	2.18	0.50	0.48	1.16	-1.65	-6.99
45	2.29	3.49	4.88	5.59	5.64	5.52	3.77	2.40	1.07	-0.08	0.09	-2.20	-6.99
60	2.39	2.80	4.98	6.58	7.15	5.36	2.73	3.62	3.12	2.31	0.86	-3.11	-6.99
75	2.40	2.67	4.42	5.22	5.52	4.71	3.25	2.53	2.51	2.69	0.86	-2.99	-6.99
90	2.30	2.69	4.25	4.65	4.93	4.99	3.82	2.86	2.88	1.86	-1.47	-2.68	-6.99
105	2.20	2.80	4.76	6.10	5.92	4.82	2.83	1.71	2.78	1.16	-0.89	-1.69	-6.99
120	2.17	2.94	4.44	6.08	6.06	4.58	3.49	0.62	2.34	1.46	0.29	-0.55	-6.99
135	2.26	2.76	3.75	5.91	6.46	5.26	4.39	3.16	1.56	0.31	-0.21	-0.17	-6.99
150	2.44	2.65	3.49	5.36	5.94	5.01	4.36	3.74	2.83	1.03	0.08	0.04	-6.99
165	2.53	2.84	3.67	5.92	7.12	6.20	4.29	2.31	1.93	1.06	0.32	0.39	-6.99
180	2.49	2.76	4.12	6.78	8.02	6.99	4.78	3.46	2.97	0.84	-0.43	-0.07	-6.99
195	2.39	2.60	4.57	6.36	7.25	6.60	5.41	3.74	2.29	1.36	-1.03	-0.67	-6.99
210	2.37	2.54	4.82	6.20	7.11	6.68	5.05	3.07	2.90	0.99	-1.86	-0.54	-6.99
225	2.45	2.13	4.45	6.21	6.68	6.31	5.47	3.08	1.57	-0.47	-0.98	-0.73	-6.99
240	2.50	1.83	3.78	5.76	6.45	6.26	5.17	3.02	1.50	-0.81	-1.65	-1.18	-6.99
255	2.46	2.17	3.69	5.32	6.29	5.26	4.08	2.04	2.96	0.21	-1.16	-1.02	-6.99
270	2.34	2.57	4.01	5.72	7.61	7.02	4.97	2.94	2.08	0.97	0.38	-0.30	-6.99
285	2.46	2.84	3.79	4.60	6.79	7.14	5.03	4.33	3.57	3.61	1.44	0.19	-6.99
300	2.48	2.84	3.35	4.57	6.93	7.52	5.38	4.71	3.06	2.66	0.36	0.38	-6.99
315	2.48	2.58	3.65	5.92	7.29	6.61	5.09	4.25	4.34	3.24	0.79	0.28	-6.99
330	2.46	2.57	4.05	6.45	6.98	6.03	5.07	4.23	4.30	2.97	0.53	-0.32	-6.99
345	2.34	3.13	4.20	6.70	7.06	6.27	5.03	4.70	4.98	3.32	-1.79	-1.97	-6.99
360	2.16	3.68	4.58	6.51	7.54	6.16	4.14	2.70	3.48	3.03	-1.26	-2.69	-6.99

2.4G&6G1													
Freq	6525												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	1.35	-0.54	-4.52	-3.59	-9.35	-3.44	-2.58	-8.61	-1.19	-3.7	-3.38	-2.06	-7.23



15	0.95	0	-1.77	-1.28	-1.51	-3.24	-4.37	-8.68	-3.79	-3.15	-3.67	-0.86	-7.23
30	0.69	0.6	-0.13	1.39	0.67	-1.36	-8.08	-8.39	-4.82	-3.07	-2.54	-1.03	-7.23
45	0.58	1.49	1.04	2.49	2.63	0.08	-5.58	-5.84	-6.42	-3.6	-3.96	-2.2	-7.23
60	0.99	2.35	1.86	1.99	3.02	2.18	-0.57	-6.83	-5.61	-5.35	-4.55	-1.53	-7.23
75	1.24	3.49	2.81	2.9	2.54	1.7	0.36	-5.27	-5.16	-7.45	-4.68	-2.2	-7.23
90	1.52	3.85	4.35	3.97	1.58	0.65	-1.05	-5.49	-6.42	-5.92	-3.53	-2.24	-7.23
105	1.17	3.74	4.78	5.04	3.72	1.94	-0.03	-1.57	-3.79	-3.43	-5.46	-3.01	-7.23
120	0.88	3.2	4.21	3.34	2.91	0.99	0.32	-1.42	-6.56	-4.93	-9.01	-4.19	-7.23
135	0.73	2.45	3.32	3.94	2.45	2.25	2.17	-0.22	-2.41	-1.11	-5.34	-4.33	-7.23
150	1.03	2.23	3.75	3.02	2.21	0.66	-2.35	-4.34	-3.83	-3.75	-1.91	-3.27	-7.23
165	1.23	2.05	3.14	2.49	1.39	-2.05	-5.39	-6.65	-5.33	-6.25	-4.54	-3.28	-7.23
180	1.45	1.46	1.24	0.57	0.29	-3.83	-7.72	-10.06	-6.76	-4.78	-4.78	-4.38	-7.23
195	1.62	0.88	0.01	-0.31	-1.24	-4.93	-8.48	-9.21	-6.47	-5.8	-8.79	-2.66	-7.23
210	1.81	0.67	-0.26	-2.01	-6.43	-9.11	-11.25	-9.83	-7.49	-7.19	-7.37	-4.42	-7.23
225	1.49	0.28	-0.62	-1.74	-6.84	-11.39	-11.7	-10.05	-11.26	-5.36	-6.83	-6.25	-7.23
240	1.63	-0.45	-1.07	-2.35	-9.15	-15.11	-13.01	-10.01	-10.93	-5.06	-4.29	-3.88	-7.23
255	1.75	-0.29	-2.49	-4.18	-5.49	-11.39	-7.04	-9.03	-4.8	-5.03	-2.41	-1.97	-7.23
270	1.28	-1.11	-3.19	-5.83	-6.12	-10.04	-7.09	-8.49	-5.11	-4.21	-3.35	-3.72	-7.23
285	1.42	-2.17	-4.31	-6.11	-5.38	-10.23	-8.18	-7.17	-3.83	-7.06	-4.96	-7.23	-7.23
300	1.66	-1.67	-3.49	-4.12	-6.79	-12.78	-10.77	-13.69	-5.76	-8.64	-5.06	-6.33	-7.23
315	1.37	-1.65	-4.96	-6.21	-10.35	-6.36	-5.01	-11.73	-4.81	-6.35	-4.56	-4.98	-7.23
330	1.59	-1.66	-5.95	-8.42	-5.06	-6.25	-5.45	-5.97	-6.64	-6.56	-5.74	-4.15	-7.23
345	1.76	-1.36	-4.99	-5.98	-5.51	-6.1	-6.39	-7.41	-3.5	-3.67	-5.88	-3.95	-7.23
360	1.35	-0.54	-4.52	-3.59	-9.35	-3.44	-2.58	-8.61	-1.19	-3.7	-3.38	-2.06	-7.23

2.4G&6G2													
Freq	6525												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-2.24	-1.17	-0.32	1.53	1.67	0.77	-1.52	-4.14	-3.89	-4.64	-8.76	-5.76	-10.03
15	-2.69	-1.9	0.18	2.27	2.9	2.64	0.59	-0.46	-3.85	-4.27	-7.42	-5.97	-10.03
30	-2.91	-1.88	0.4	2.59	3.2	1.86	0.12	-1.92	-2.76	-4.76	-7.44	-5.7	-10.03
45	-2.93	-1.26	1.09	1.54	3.39	0.3	-2.43	-6.18	-3.25	-8.15	-8.81	-5.09	-10.03
60	-2.36	-0.27	0.7	1.61	2.89	0.3	-3.5	-1.39	-9.16	-11.96	-9.36	-5.31	-10.03
75	-2.19	0.16	-0.35	1.1	1.67	-1.57	-5.75	-7.38	-5.01	-5.96	-8.53	-6.17	-10.03
90	-2.25	-0.5	-0.34	-1.94	-1.34	-1.89	-6.25	-10.66	-8.29	-4.34	-4.5	-7.49	-10.03
105	-1.82	-1.26	-0.58	-2.11	-1.22	-3.57	-7.07	-7.67	-14.8	-10.8	-5	-7.45	-10.03
120	-1.73	-1.07	-0.13	-0.53	-4.7	-7.25	-7.75	-5	-5.88	-9.66	-4.76	-8.69	-10.03
135	-2.01	-0.6	-0.99	0.93	-4.89	-11.75	-11.05	-7.99	-5.83	-6.27	-7.54	-5.64	-10.03
150	-1.81	-1.13	-0.84	0.88	-2.56	-8.78	-11.4	-10.02	-6.1	-4.02	-3.34	-3.37	-10.03
165	-1.66	-2	-1.52	-1.41	-4.16	-9.04	-8.63	-9.12	-5.16	-6.42	-2.92	-4.14	-10.03
180	-1.85	-2.45	-4.67	-4.83	-7.97	-11.98	-10.56	-8.34	-5.48	-6.59	-0.82	-3.43	-10.03
195	-1.88	-2.66	-2.75	-3.99	-4.9	-9.76	-7.83	-3.47	-5.31	-4.32	-1.68	-3.91	-10.03
210	-1.75	-3.15	-4.52	-4.38	-5.46	-10.53	-7.51	-2.8	-4.18	-1.5	-2.44	-8.37	-10.03



225	-1.82	-3.45	-5.35	-4	-7.13	-4.77	-5.54	-5.21	-3.58	-2.36	-4.4	-10.03	-10.03
240	-1.91	-3.26	-1.86	-6.92	-5.71	-6.31	-5.64	-7.96	-4.35	-3.87	-5.59	-8.6	-10.03
255	-1.56	-3.82	-2.36	-5.36	-6.63	-5.98	-3.78	-5.51	-3.47	-4.42	-7.9	-8.66	-10.03
270	-1.84	-4.6	-3.56	-3.57	-5.12	-4.22	-4.63	-3.67	-2.8	-3.32	-3.26	-6.41	-10.03
285	-2.77	-3.58	-2.57	-0.22	-3.61	-6.13	-8.21	-8.55	-3.11	-2.05	-1.16	-3.95	-10.03
300	-2.95	-2.05	-1.12	1	0.48	-0.37	-2.95	-6.49	-7.09	-1.66	-2.33	-2.71	-10.03
315	-2.7	-1.89	0.73	1.86	3.31	0.2	-1.61	-6.35	-7.56	-3.32	-2.35	-6.34	-10.03
330	-2.47	-2.36	0.61	2.14	2.7	2.06	-0.12	-4.83	-5.56	-6.8	-4.06	-3.54	-10.03
345	-2.08	-0.81	1	1.47	0.94	-1.9	-2.47	-3.65	-3.44	-5.15	-6.6	-6.2	-10.03
360	-2.24	-1.17	-0.32	1.53	1.67	0.77	-1.52	-4.14	-3.89	-4.64	-8.76	-5.76	-10.03

2.4G&6G3													
Freq	6525												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-14.39	-9.7	-2.45	-7.9	-5.66	-7.27	-19.73	-18.01	-8.18	-9.35	-11.61	-7.94	-16.78
15	-14.36	-6.57	-6.95	-9.09	-4.53	-3.5	-7.44	-17.99	-10.25	-6.97	-7.15	-7.06	-16.78
30	-13.4	-3.93	-4.76	-9.54	-3.51	-4.67	-6.56	-5.62	-7.04	-8.3	-4.66	-10.63	-16.78
45	-12.67	-4.51	-3.8	-5.17	-7.65	-8.7	-7.63	-5.62	-4.93	-8.78	-5.61	-10.01	-16.78
60	-12.95	-6.49	-3.65	-0.6	-5.11	-5.53	-6.2	-4.91	-3.96	-7.5	-7.94	-10.85	-16.78
75	-12.89	-6.74	-3.46	-4.45	-4.31	-16.58	-8.78	-7.72	-6.07	-14.02	-7.14	-16.78	-16.78
90	-12.28	-8.46	-5.63	-4.53	-1.78	-0.87	-5.01	-5.99	-15.67	-11.49	-10.66	-11.49	-16.78
105	-12.57	-8.93	-12.87	-5.14	-1.15	-0.52	-3.97	-5.48	-10.72	-10.83	-12.45	-9.19	-16.78
120	-13.49	-9.3	-10.61	-8.84	0.34	-0.13	-4.16	-1.77	-17.88	-14.69	-11.88	-9.97	-16.78
135	-13.06	-9	-6.9	-2.17	0.88	-1.91	-11.27	-5.8	-10.75	-8.53	-16.57	-11.66	-16.78
150	-13.44	-6.9	-0.81	1.69	-5.24	-6.16	-10.27	-5.72	-15.35	-11.77	-7.94	-15.74	-16.78
165	-12.8	-5.68	-0.85	1.34	0.3	-0.13	-7.26	-3.19	-9.14	-8.63	-14.56	-13.26	-16.78
180	-12.64	-8	-2.42	2.51	1.21	-2.86	-4.56	-9.82	-12.45	-9.03	-18.83	-12.61	-16.78
195	-12.61	-13.21	-0.97	1.26	2.85	-1.01	-5.57	-9.76	-9.29	-10	-14.85	-14.04	-16.78
210	-14.44	-11.57	-0.64	2.07	4.31	2.87	0.71	-2.76	-6.93	-11.37	-14.21	-13.37	-16.78
225	-14.56	-8.97	-1.27	2.14	3.82	3.94	1.16	-2.04	-6.25	-11.33	-14.52	-12.59	-16.78
240	-15.17	-6.66	-2.72	0.8	0.99	0.61	-0.78	-4.58	-10.95	-12.88	-13.13	-11.23	-16.78
255	-14.12	-8.67	-5.74	-2.62	-0.61	1.03	-1.87	-7.88	-5.56	-8.24	-11.65	-10.51	-16.78
270	-14.99	-7.2	-5.27	-0.71	0.78	0.76	-0.01	-2.21	-3.44	-11.77	-13.57	-9.3	-16.78
285	-14.42	-8.21	-9.04	-10.34	-5.86	-0.1	-0.96	-0.59	-5.43	-7.62	-13.06	-8.73	-16.78
300	-14.33	-6.93	-6.21	-1.12	2.74	3.85	3.38	-0.76	-3.23	-8.16	-13.38	-10.06	-16.78
315	-14.02	-5.19	-3.96	0.03	3.1	2.28	0.27	-4.62	-7.95	-13.32	-10.31	-12.22	-16.78
330	-14.45	-5.35	-2.75	-1.29	2.04	-1.88	-2.53	-4.42	-5.97	-12.3	-19.75	-12.55	-16.78
345	-14.24	-7.09	-4.04	-1.86	-3.99	-4.08	-10.99	-11.34	-11.74	-7.78	-10.36	-10.23	-16.78
360	-14.39	-9.7	-2.45	-7.9	-5.66	-7.27	-19.73	-18.01	-8.18	-9.35	-11.61	-7.94	-16.78

2.4G&6G4													
Freq	6525												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180



0	-0.15	-2.42	-1.36	-0.42	-1.56	-8.95	-13.54	-7.57	-8.76	-6.27	-5.29	-3.85	-9.07
15	-0.27	-3.31	-5.25	-3.42	-5.23	-11.45	-15.27	-9.26	-11.6	-4.55	-4.44	-4.54	-9.07
30	-0.26	-3.75	-5.92	-5.94	-9.18	-6.01	-8.98	-13.22	-6.91	-4.56	-5.17	-6.77	-9.07
45	-0.35	-4.11	-8.65	-7.23	-6.57	-7.66	-5.95	-5.39	-6.53	-5.52	-5.97	-9.07	-9.07
60	-0.17	-3.65	-6.59	-6.96	-4.61	-12.89	-8.96	-5.14	-4.74	-4.21	-7.97	-6.79	-9.07
75	0.03	-2.77	-3.34	-7.32	-6.86	-9.84	-4.78	-3.12	-5.01	-3.4	-4.97	-3.9	-9.07
90	-0.11	-1.96	-1.43	-4.37	-3.4	-4.08	-5.01	-6.11	-4.32	-1.93	-2.13	-2.46	-9.07
105	-0.49	-1.23	-0.97	-1.66	0.72	-2.07	-6.41	-10.2	-7.95	-3.73	-3.61	-2.07	-9.07
120	-1.13	-0.51	0.24	1.48	3.23	0.37	-3.11	-5.48	-8.46	-5.98	-3.46	-2.43	-9.07
135	-0.98	1.14	0.11	2.12	1.86	1.63	-0.64	-3.85	-7.44	-9.61	-3.39	-2.64	-9.07
150	-0.61	0.7	0.35	0.96	2.31	1.64	-0.54	-2.92	-3.88	-6.86	-3.18	-3.21	-9.07
165	-0.45	1	1.83	2.53	2.49	1.46	-0.64	-2.71	-3.3	-4.55	-4.14	-4.27	-9.07
180	-0.21	1.71	2.71	4.65	3.63	1.8	0.87	-1.89	-2.06	-2.65	-3.04	-4.92	-9.07
195	-0.43	1.71	2.82	3.66	2.6	0.12	-1.35	-1.99	-1.24	-2.92	-4.89	-4.95	-9.07
210	-0.88	1.03	3.52	3.41	3.17	1.83	-0.52	-3.13	-3.33	-4.73	-6.16	-5.46	-9.07
225	-0.82	0.99	4.15	4.11	2.48	0.38	-1.83	-3.03	-3.37	-3.85	-6.33	-4.83	-9.07
240	-0.59	1.39	4.22	2.39	-0.26	-0.42	-1.8	-4.05	-5.44	-5.01	-7.66	-4.52	-9.07
255	-0.51	1.52	3.49	1.89	-1.26	-2.58	-4.89	-4.55	-3.74	-3.83	-9.04	-4.07	-9.07
270	-0.25	1.76	3.4	2.31	0.8	-2.07	-3.78	-3.52	-4.23	-4.16	-6.68	-4.97	-9.07
285	-0.21	1.36	2.41	1.31	-1.35	-3.12	-5.32	-6.27	-5.16	-6.18	-4.98	-5.26	-9.07
300	-0.05	0.5	0.83	0.49	-2.05	-3.14	-9.54	-8.67	-7.66	-9.7	-6.05	-4.87	-9.07
315	-0.21	-0.9	-0.42	0.25	-0.85	-3.7	-8.67	-15.11	-13.86	-9.3	-6.83	-4.63	-9.07
330	-0.16	-1.65	-0.91	-1.11	-1.56	-4.12	-8.83	-15.06	-12.58	-12.48	-4.76	-3.87	-9.07
345	-0.03	-1.78	-1.33	-2.51	-2.37	-8.01	-14.09	-16.16	-12.22	-9.79	-5.64	-4.34	-9.07
360	-0.15	-2.42	-1.36	-0.42	-1.56	-8.95	-13.54	-7.57	-8.76	-6.27	-5.29	-3.85	-9.07

6G Composite Gain													
Freq	6525												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	3.85	3.22	3.99	4.11	3.26	2.13	-0.46	-2.29	1.08	0.28	-0.68	1.39	-4.10
15	3.55	3.39	3.02	4.05	4.55	3.46	1.11	-0.98	-0.64	1.39	0.51	1.75	-4.10
30	3.47	3.98	3.85	4.50	4.96	4.02	0.96	-0.34	0.82	1.05	1.24	0.67	-4.10
45	3.45	4.27	4.29	4.89	5.38	3.00	0.83	0.27	0.84	-0.24	0.10	0.00	-4.10
60	3.77	4.64	4.73	5.67	5.92	3.74	1.77	1.69	0.37	-0.77	-1.24	0.53	-4.10
75	3.98	5.34	5.33	5.01	5.14	2.01	1.93	0.35	0.72	-0.90	-0.17	0.22	-4.10
90	4.07	5.29	5.98	5.05	4.98	4.64	1.93	-0.81	-1.75	0.75	1.35	0.89	-4.10
105	3.91	5.17	5.55	5.91	6.78	5.21	2.11	0.38	-2.38	-0.44	-0.03	1.09	-4.10
120	3.57	5.14	5.87	5.93	6.99	5.07	2.82	2.80	-2.60	-2.03	-0.64	0.25	-4.10
135	3.51	5.47	5.63	7.50	6.53	5.02	2.82	2.04	-0.07	0.30	-0.98	0.54	-4.10
150	3.76	5.36	6.85	7.70	5.77	3.93	1.13	0.65	-0.22	-0.04	2.20	0.90	-4.10
165	3.96	5.35	6.88	7.40	6.36	4.38	1.10	0.98	0.53	-0.32	0.49	0.57	-4.10
180	4.08	4.99	5.71	7.39	6.24	3.06	1.60	-0.80	0.08	0.57	1.24	0.34	-4.10
195	4.07	4.29	6.04	6.60	6.39	2.91	0.69	0.58	0.94	0.64	-0.27	0.58	-4.10



210	3.92	3.99	6.01	6.33	6.22	4.28	2.68	1.84	0.72	0.54	-0.58	-1.26	-4.10
225	3.79	4.03	5.91	6.72	5.52	4.77	2.74	1.44	0.43	0.89	-1.27	-1.88	-4.10
240	3.86	4.28	6.12	5.17	3.40	2.56	1.84	-0.29	-1.37	-0.05	-1.06	-0.54	-4.10
255	4.08	4.00	4.92	3.92	2.91	2.41	1.82	-0.54	1.67	0.80	-1.04	0.38	-4.10
270	3.86	3.89	4.56	4.61	4.19	2.95	2.53	1.85	2.17	0.73	0.17	0.16	-4.10
285	3.72	3.52	3.60	3.34	2.16	1.90	0.89	0.95	1.69	0.59	0.93	-0.08	-4.10
300	3.83	3.87	3.91	5.30	5.28	4.72	2.96	-0.15	0.26	-0.38	0.15	0.42	-4.10
315	3.75	3.76	4.19	5.48	6.24	4.75	2.90	-2.48	-1.96	-1.30	0.49	-0.55	-4.10
330	3.88	3.39	4.10	4.61	6.07	4.03	2.38	-0.66	-1.26	-3.05	-0.80	0.68	-4.10
345	4.09	3.59	4.00	4.20	3.63	1.30	-1.35	-2.44	-0.70	-0.26	-0.91	0.17	-4.10
360	3.85	3.22	3.99	4.11	3.26	2.13	-0.46	-2.29	1.08	0.28	-0.68	1.39	-4.10

5GL&BLE_vpol													
Freq	5250												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	0.94	1.44	-2.54	1.7	5.18	4.64	-0.81	-3.93	-7.06	-7.36	-11.36	-10.68	-17.12
15	1.08	2.32	-0.72	1.8	1.06	-1.67	-9.03	-12.67	-14.64	-9.1	-10.15	-17.12	-17.12
30	1.02	2.46	2.34	-0.67	0.79	-0.25	-5.11	-7.79	-10.4	-9.77	-12.4	-14.86	-17.12
45	0.96	2.49	2.26	1.72	3.84	3.31	-1.06	-5.55	-9.13	-10.41	-11.65	-9.35	-17.12
60	0.85	2.8	1.08	1.72	3.83	1.62	-4.94	-9.4	-9.39	-25.6	-12.12	-7.12	-17.12
75	0.85	2.99	0.94	2.87	0.99	-2.76	-7.4	-5.96	-9.84	-17.05	-11.72	-7.2	-17.12
90	0.91	2.86	0.13	3.06	0.83	-2.73	-4.67	-6.51	-12.75	-12.29	-12.99	-8.57	-17.12
105	0.91	2.68	1.89	3.62	3.01	0.63	-3.4	-7.99	-19.16	-13.45	-13.39	-8.98	-17.12
120	0.89	2.55	2.89	3.31	2.73	-0.35	-3.53	-6.17	-9.96	-15.93	-12.38	-9.51	-17.12
135	0.99	2.73	2.59	4.96	3.13	-0.29	-5.11	-8.61	-8.34	-12.98	-7.99	-9.34	-17.12
150	1.12	3.11	3.23	3.97	3.97	2.34	0.6	-2.29	-6.48	-16.02	-14.13	-8.22	-17.12
165	1.41	2.9	3.63	3.82	5.86	4.55	1.68	-1.24	-18.11	-13.39	-10.69	-7.53	-17.12
180	1.44	1.73	2.96	2.4	4.14	1.27	-3.21	-7.71	-13.09	-13.61	-12.19	-7.05	-17.12
195	1.31	-0.34	0.06	0.46	-1.65	-4.82	-5.27	-5.89	-10.97	-12.87	-10.22	-6.57	-17.12
210	1.24	-2.56	-4.26	-2.31	-3.04	-3	-3.84	-11.46	-12.83	-14.45	-9.58	-6.7	-17.12
225	1.21	-3.08	-6.58	-7.52	-3.14	-2.23	-3.79	-7.02	-15.29	-15.39	-9.66	-6.69	-17.12
240	1.24	-2.47	-7.62	-8.57	-1.92	-1.04	-3.6	-7.34	-17.52	-16.19	-11.07	-5.7	-17.12
255	1.4	-2.99	-7.05	-3.11	-6.32	-5.86	-6.46	-9.56	-13.68	-16.87	-12.26	-6.71	-17.12
270	1.47	-4.22	-6.18	-6.63	-3.76	-2.9	-5.36	-11.38	-14.83	-10.42	-12.28	-10.32	-17.12
285	1.46	-3.09	-3.85	-3.76	-3.61	-4.88	-5.96	-12.31	-20.89	-13.45	-12.14	-14.6	-17.12
300	1.36	-2.06	-2.31	-1.21	0.15	0.88	-2.22	-8.17	-11.74	-12.49	-13.13	-13.55	-17.12
315	1.18	-2.62	-4.72	0.15	-3.48	-0.12	-2.43	-9.95	-16.56	-8.42	-17.92	-15.48	-17.12
330	0.97	-2.85	-5.1	-0.77	-2.12	-1.34	-4.46	-8.83	-17.54	-9.92	-19.76	-14.36	-17.12
345	0.83	-0.69	-3.21	-0.98	-1.24	-0.18	-6.58	-5.91	-13.84	-9.95	-8.64	-10.26	-17.12
360	0.94	1.44	-2.54	1.7	5.18	4.64	-0.81	-3.93	-7.06	-7.36	-11.36	-10.68	-17.12

5GL_vpol_reconfig													
Freq	5250												



Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-5.96	-5.35	-6.11	-6.36	-3.81	-6.61	-9.54	-12.14	-14.08	-25.5	-15.7	-15.45	-18
15	-5.95	-4.41	-4.5	-4.74	-3.69	-7.7	-12.68	-10.59	-13.61	-19.6	-16.73	-15.45	-18
30	-5.94	-3.77	-6.71	-2.45	-0.24	-3.34	-9.51	-10.77	-18.77	-18.06	-14.72	-16.37	-18
45	-6.01	-3.29	-6.37	-2.51	-2.02	-3.16	-7.26	-9.44	-19.42	-18.12	-18.12	-16.69	-18
60	-6.02	-3.62	-6.43	-2.4	-2.04	-4.27	-10.31	-16.41	-14.55	-19.97	-15.67	-15.73	-18
75	-5.96	-5.34	-6.52	-1.53	-1.2	-3.55	-7.57	-10.92	-25.92	-18.38	-20.29	-16.24	-18
90	-6	-7.88	-3.21	-0.87	-4.29	-1.77	-4.8	-12.99	-12.72	-23.02	-18.54	-16.93	-18
105	-5.83	-9.56	-2	-0.49	-4.55	-2.54	-5.71	-13.94	-14.88	-18.65	-16.68	-16.68	-18
120	-5.7	-9.6	-3.36	-3.64	-3.38	-4.01	-7.93	-13.26	-20.33	-19.92	-16.3	-13.75	-18
135	-5.86	-8.11	-4.03	-6	-6.68	-6.64	-8.94	-13.52	-21.83	-19.63	-17.85	-11.46	-18
150	-5.76	-8.38	-4.66	-7.04	-2.83	-5.81	-10.88	-12.11	-20.59	-14.41	-18.05	-11.8	-18
165	-5.7	-9.48	-4.31	-6.38	-1.82	-4.06	-7.37	-10.99	-25.35	-13.87	-18.04	-14.15	-18
180	-5.95	-9.03	-8.03	-6.41	-5.3	-8.38	-12.54	-15.31	-21.54	-12.83	-19.34	-14.33	-18
195	-5.81	-10.31	-12.11	-10.79	-5.63	-6.97	-10.19	-14.01	-12.1	-17.65	-17.03	-13.08	-18
210	-5.81	-14.66	-6.47	-2.72	-1.79	-4.45	-7	-8.71	-13.48	-19.55	-16.62	-13.08	-18
225	-5.96	-12.51	-4.74	-2.95	-0.65	-2.99	-7.09	-9.98	-12.34	-16.59	-18.87	-14.37	-18
240	-5.92	-8.15	-5.7	-3.86	-0.54	-1.52	-4.55	-8.55	-13.69	-19.16	-17.43	-15.29	-18
255	-5.73	-5.59	-5.64	-4.75	-2.07	-2.93	-5.14	-8.37	-12.99	-21.88	-20.08	-15.68	-18
270	-5.91	-4.89	-5.44	-4.62	-1.91	-2.11	-4.2	-7.62	-13.44	-23.43	-21.3	-14.82	-18
285	-5.94	-5.7	-6.05	-1.78	0.04	-1.23	-3.75	-7.02	-10.97	-17.7	-18.49	-14.31	-18
300	-6.06	-7.83	-5.77	-0.54	-0.56	-4.03	-7.8	-8.46	-8.38	-10.81	-16.79	-15.86	-18
315	-6.12	-10.74	-6.94	0.55	1.57	-1.19	-5.01	-8.84	-11.21	-10.82	-14.04	-18	-18
330	-6.2	-10.13	-10.43	-3.67	-2.13	-5.3	-9.65	-13.67	-14.09	-16.36	-15.89	-17.12	-18
345	-6	-7.22	-10.08	-7.62	-4.31	-5.32	-8.15	-9.4	-14.19	-15.91	-15.57	-15.94	-18
360	-5.96	-5.35	-6.11	-6.36	-3.81	-6.61	-9.54	-12.14	-14.08	-25.5	-15.7	-15.45	-18

5GL Vpol Composite Gain													
Freq	5250												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	1.17	1.70	-1.13	1.58	4.81	3.73	-1.11	-4.09	-6.87	-9.36	-10.25	-9.73	-14.54
15	1.27	2.60	0.60	2.14	2.02	-1.16	-7.65	-8.56	-11.10	-9.84	-9.82	-13.23	-14.54
30	1.23	2.90	1.95	1.50	3.30	1.35	-4.02	-6.14	-10.60	-9.95	-10.47	-12.57	-14.54
45	1.17	3.08	1.99	2.87	4.41	3.67	-0.61	-4.27	-9.82	-10.43	-11.29	-9.26	-14.54
60	1.09	3.18	1.12	2.91	4.39	2.18	-4.21	-9.21	-8.58	-19.33	-10.70	-7.39	-14.54
75	1.11	2.80	1.00	3.96	2.97	-0.14	-4.47	-5.08	-11.58	-14.68	-11.98	-7.58	-14.54
90	1.14	2.06	1.63	4.33	1.65	0.77	-1.72	-6.15	-9.72	-13.08	-12.32	-8.77	-14.54
105	1.19	1.57	3.17	4.82	3.04	2.20	-1.47	-7.45	-13.75	-12.66	-11.87	-8.99	-14.54
120	1.22	1.46	3.33	3.52	3.21	1.02	-2.44	-6.00	-10.67	-14.69	-11.11	-8.36	-14.54
135	1.23	1.91	2.91	4.12	2.55	0.11	-3.81	-7.71	-9.68	-12.67	-8.58	-7.33	-14.54
150	1.35	2.15	3.16	3.11	4.23	2.20	-0.36	-2.87	-7.93	-12.17	-12.86	-6.82	-14.54
165	1.57	1.76	3.55	3.15	5.85	4.28	1.29	-1.80	-17.99	-10.62	-10.60	-7.21	-14.54
180	1.52	0.93	2.11	2.08	3.65	0.73	-3.67	-7.69	-13.32	-10.20	-12.04	-6.94	-14.54



195	1.47	-0.96	-1.04	-0.45	-0.40	-2.82	-4.38	-6.02	-8.51	-11.92	-9.96	-6.22	-14.54
210	1.42	-3.64	-2.28	0.50	0.62	-0.68	-2.27	-6.97	-10.14	-13.62	-9.40	-6.31	-14.54
225	1.36	-3.56	-2.60	-1.93	1.20	0.41	-2.27	-5.36	-10.68	-12.96	-10.09	-6.70	-14.54
240	1.39	-1.84	-3.60	-2.89	1.81	1.73	-1.05	-4.91	-12.39	-14.54	-10.67	-6.22	-14.54
255	1.56	-1.18	-3.31	-0.88	-0.93	-1.26	-2.76	-5.93	-10.32	-16.01	-12.31	-7.07	-14.54
270	1.55	-1.54	-2.79	-2.56	0.22	0.51	-1.75	-6.29	-11.10	-11.68	-12.66	-9.27	-14.54
285	1.54	-1.29	-1.87	0.30	1.42	0.15	-1.77	-6.26	-11.57	-12.31	-11.74	-11.44	-14.54
300	1.43	-1.46	-0.86	2.14	2.81	1.78	-1.56	-5.30	-6.89	-8.60	-11.76	-11.62	-14.54
315	1.29	-2.75	-2.75	3.36	2.42	2.37	-0.61	-6.37	-10.47	-6.53	-12.75	-13.64	-14.54
330	1.12	-2.74	-4.35	0.91	0.89	-0.09	-3.66	-7.91	-12.63	-9.55	-14.60	-12.62	-14.54
345	1.08	-0.34	-2.97	-0.67	0.37	0.64	-4.32	-4.47	-11.00	-9.42	-8.42	-9.63	-14.54
360	1.17	1.70	-1.13	1.58	4.81	3.73	-1.11	-4.09	-6.87	-9.36	-10.25	-9.73	-14.54

5GL_hpol													
Freq	5250												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-9.59	-4.83	0.02	2.74	0.75	-2.46	-9.24	-14.67	-14.42	-14.9	-18.51	-19.69	-23.15
15	-9.18	-6.32	1.11	4.37	2.35	-1.67	-8.58	-11.33	-13.14	-14.5	-13.44	-17.8	-23.15
30	-9.33	-7.14	1.81	5.23	3.18	-2.11	-10.02	-10.25	-16.65	-14.04	-12.66	-15.42	-23.15
45	-10.14	-6.87	2.43	5.01	4.74	-0.65	-9.79	-12.27	-21.44	-13.57	-11.03	-14.09	-23.15
60	-10.08	-6	2.29	5.14	3.89	-1.53	-8.85	-12.97	-21.12	-16.76	-14.54	-16.36	-23.15
75	-9.74	-5.53	1.51	3.73	3.54	-0.68	-10.07	-15.26	-22.77	-21.89	-16.18	-15.74	-23.15
90	-9.88	-5.01	0.92	3.1	2.42	-3.9	-9.95	-12.41	-19.2	-20.88	-17.23	-12.56	-23.15
105	-9.47	-3.75	0.29	1.82	0.23	-4.62	-7.64	-10.78	-15.9	-17.33	-21.7	-12	-23.15
120	-9.45	-2.16	0.76	3.29	1.78	-1.84	-8.47	-14.22	-17.04	-16.04	-22.15	-11.84	-23.15
135	-10.12	-1.27	2.23	4.91	2.7	-3.24	-11.59	-16.7	-16.04	-16.85	-22.19	-11.06	-23.15
150	-10.07	-1.19	3.56	4.48	1.06	-4.62	-8.03	-11.44	-13.24	-20.29	-21.77	-11.02	-23.15
165	-9.73	-1.31	3.44	4.38	1.05	-3.06	-5.71	-10.06	-14.63	-17.12	-16.14	-10.5	-23.15
180	-10.11	-1.52	2.77	4.08	1.73	-1.22	-6.05	-12.52	-17.33	-13.4	-13.4	-10.91	-23.15
195	-10.29	-2.1	1.88	3.92	2.5	-1.12	-5.05	-11.17	-9.54	-11.97	-13.46	-11.82	-23.15
210	-9.88	-3.03	-0.24	2.31	2.13	-0.4	-3.46	-7.23	-10.75	-13.05	-16.93	-12.69	-23.15
225	-9.75	-3.78	-1.59	1.92	2.39	1.35	-1.68	-4.19	-6.07	-12.12	-17.86	-13.96	-23.15
240	-9.54	-3.88	-2.31	1.28	2.33	0.31	-1.81	-4.99	-6.6	-6.78	-12.79	-18.26	-23.15
255	-9.69	-2.73	-1.18	-0.06	-0.79	-1.82	-5.39	-7.34	-9.71	-10.19	-12.82	-17.19	-23.15
270	-9.8	-1.76	1.52	2.38	0.34	-2.63	-6.21	-11.14	-10.35	-16.35	-14.35	-16.45	-23.15
285	-9.93	-1.54	1.82	2.33	-0.3	-4.18	-6.76	-9.93	-12.11	-16.03	-16.92	-19.79	-23.15
300	-9.73	-1.75	2.64	3.51	1.34	-2.69	-7.5	-8.28	-11.62	-14.57	-17.42	-23.15	-23.15
315	-9.76	-2.07	2.44	3.02	2.14	-2.22	-8.28	-10.24	-10.68	-20.21	-19.78	-21.17	-23.15
330	-9.54	-2.45	1.65	4.14	1.67	-4.24	-11.06	-14.44	-14.8	-18.31	-17.67	-20.47	-23.15
345	-9.69	-3.26	0.39	3.35	0.25	-3.92	-10.39	-15.27	-16.7	-21.96	-17.62	-20.65	-23.15
360	-9.59	-4.83	0.02	2.74	0.75	-2.46	-9.24	-14.67	-14.42	-14.9	-18.51	-19.69	-23.15

5GL_hpol_reconfig



Freq	5250												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-11.29	-7.37	-6.74	-2.83	1.09	-1.51	-7.58	-18.37	-24.47	-12.99	-14.76	-13.43	-17.26
15	-11.55	-7.6	-9.42	-5.34	-0.5	-4.09	-13.74	-16.89	-16.41	-9.32	-13.63	-15.75	-17.26
30	-11.68	-7.98	-6.82	-10.5	-7.41	-6.98	-13.32	-15.01	-15.53	-11.4	-14.84	-17.26	-17.26
45	-11.85	-7.71	-2.61	-4.65	-8.48	-9.94	-13.13	-11.87	-16.98	-23.19	-15.54	-15.91	-17.26
60	-12.13	-7.01	-2.19	-2.15	-2.31	-5.44	-9.57	-11.9	-22.39	-18.24	-16.84	-14.84	-17.26
75	-11.91	-7.05	-6.92	-5	-1.09	-3.99	-9.33	-16.11	-15.83	-13.78	-13.06	-13.9	-17.26
90	-11.56	-7.41	-6.59	-8.78	0.56	-0.86	-5.68	-9.83	-10.43	-11.56	-14.97	-12.69	-17.26
105	-11.73	-7.14	-3.8	-5.51	-3.04	-3.55	-7.08	-11.65	-13.37	-16.52	-18.3	-12.11	-17.26
120	-11.91	-7.27	-2.72	-3.22	-8.39	-12.57	-11.42	-13.34	-12.79	-20.44	-16.27	-11.68	-17.26
135	-12.04	-6.86	-3.64	-3.76	-5.45	-9.21	-21.06	-17.44	-9.9	-17.22	-15.39	-10.61	-17.26
150	-12.56	-6.3	-4.62	-5.89	-5.2	-7.33	-13.72	-14.36	-10.48	-16.06	-17.44	-9.83	-17.26
165	-12.7	-6.7	-5.18	-3.04	-1.13	-3.31	-6.54	-9.83	-11.06	-12.02	-14.59	-10.45	-17.26
180	-13.02	-7.77	-4.1	-4.88	-0.58	-0.74	-4.22	-8.6	-12.57	-8.71	-15.36	-12.16	-17.26
195	-12.76	-8.69	-5.22	-4.91	-1.62	-1.44	-6.24	-9.28	-12.98	-7.05	-15.69	-14.31	-17.26
210	-12.49	-8.41	-4.81	-6.05	-9.53	-7.43	-8.94	-8.84	-10.44	-10.26	-19.52	-14.25	-17.26
225	-12.06	-7.55	-1.92	-1.41	-9.85	-9.74	-8.59	-13.15	-8.79	-13.63	-17.37	-12.68	-17.26
240	-12.11	-7.11	-1.7	-0.27	-2.54	-4.95	-7.26	-7.94	-7.92	-18.58	-13.6	-11.8	-17.26
255	-12.22	-7.37	-2.1	-0.28	-0.05	-1.81	-6.94	-8.93	-14.15	-13.89	-12.97	-12.94	-17.26
270	-12.65	-6.67	-2.74	-0.19	0.73	0.07	-5.45	-7.41	-13.53	-12.1	-13.03	-13.43	-17.26
285	-12.52	-5.45	-2.73	-1.9	-0.78	-2.39	-10.81	-11.78	-14.88	-12.73	-18.03	-14.62	-17.26
300	-12.21	-5.32	-3.06	-5.54	-6.13	-6.9	-14.92	-17.32	-13.59	-15.75	-16.33	-16.35	-17.26
315	-11.87	-6.88	-4.64	-4.55	-4.61	-5.16	-10.22	-14.06	-12.67	-18.84	-14.44	-16.09	-17.26
330	-11.72	-8.36	-4.15	-3.93	-1.85	-5.16	-11.65	-15.56	-13.03	-20.27	-14.08	-14.08	-17.26
345	-11.5	-7.89	-4.74	-2.73	-0.05	-3.62	-10.16	-14.92	-17.15	-19.96	-18.33	-12.57	-17.26
360	-11.29	-7.37	-6.74	-2.83	1.09	-1.51	-7.58	-18.37	-24.47	-12.99	-14.76	-13.43	-17.26

5GL Hpol Composite Gain													
Freq	5250												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-7.39	-3.00	0.29	3.40	3.93	1.04	-5.36	-13.31	-15.06	-10.88	-13.42	-13.00	-16.70
15	-7.27	-3.93	0.36	3.82	4.05	0.21	-7.77	-10.66	-11.61	-8.52	-10.52	-13.70	-16.70
30	-7.42	-4.54	1.54	3.53	2.42	-1.20	-8.50	-9.30	-13.06	-9.61	-10.67	-13.28	-16.70
45	-7.94	-4.27	3.28	4.47	3.44	-1.10	-8.29	-9.06	-15.92	-14.10	-9.99	-11.94	-16.70
60	-8.03	-3.48	3.35	5.25	4.34	-0.26	-6.19	-9.41	-18.72	-14.46	-12.60	-12.56	-16.70
75	-7.75	-3.25	1.29	3.43	4.54	0.83	-6.68	-12.66	-15.61	-13.91	-11.47	-11.76	-16.70
90	-7.67	-3.12	0.96	2.06	4.55	0.76	-4.54	-8.01	-10.74	-12.02	-13.02	-9.61	-16.70
105	-7.52	-2.27	1.49	1.92	1.76	-1.06	-4.35	-8.19	-11.53	-13.91	-16.82	-9.04	-16.70
120	-7.58	-1.33	2.20	3.64	1.12	-2.63	-6.81	-10.76	-11.65	-14.95	-15.71	-8.75	-16.70
135	-8.02	-0.61	2.79	4.62	2.56	-2.71	-12.08	-14.05	-9.43	-14.02	-15.13	-7.82	-16.70
150	-8.22	-0.36	3.41	3.77	1.49	-2.86	-7.41	-9.77	-8.74	-14.91	-16.33	-7.39	-16.70
165	-8.08	-0.58	3.17	4.45	3.04	-0.17	-3.10	-6.93	-9.65	-11.19	-12.32	-7.46	-16.70



180	-8.43	-1.08	3.01	3.72	3.66	2.03	-2.08	-7.33	-11.62	-7.73	-11.31	-8.50	-16.70
195	-8.43	-1.77	2.05	3.59	3.69	1.73	-2.61	-7.16	-8.08	-6.16	-11.49	-9.97	-16.70
210	-8.08	-2.30	0.78	2.11	1.14	-0.21	-2.76	-4.99	-7.58	-8.53	-15.12	-10.42	-16.70
225	-7.82	-2.45	1.26	3.42	1.28	0.48	-1.45	-4.55	-4.31	-9.83	-14.60	-10.29	-16.70
240	-7.72	-2.34	1.01	3.55	3.24	1.08	-1.10	-3.33	-4.22	-7.80	-10.18	-11.43	-16.70
255	-7.85	-1.73	1.38	2.84	2.60	1.20	-3.12	-5.09	-8.64	-8.83	-9.88	-11.80	-16.70
270	-8.10	-0.86	2.66	4.20	3.55	1.83	-2.81	-6.07	-8.78	-10.96	-10.65	-11.80	-16.70
285	-8.12	-0.27	2.85	3.48	2.47	-0.23	-5.54	-7.80	-10.37	-11.21	-14.45	-13.82	-16.70
300	-7.87	-0.34	3.26	3.12	1.39	-1.53	-7.43	-8.66	-9.54	-12.13	-13.85	-16.09	-16.70
315	-7.74	-1.14	2.61	3.05	2.42	-0.56	-6.19	-8.93	-8.61	-16.49	-13.70	-15.25	-16.70
330	-7.55	-1.90	2.24	4.02	3.10	-1.68	-8.34	-11.97	-10.86	-16.22	-12.68	-13.69	-16.70
345	-7.54	-2.26	1.21	3.84	3.11	-0.76	-7.26	-12.08	-13.91	-17.89	-14.96	-12.69	-16.70
360	-7.39	-3.00	0.29	3.40	3.93	1.04	-5.36	-13.31	-15.06	-10.88	-13.42	-13.00	-16.70

5GH_vpol													
Freq	5750												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-12.71	-9.67	-2.29	1.88	0.73	-1.86	-5.27	-8.55	-10.72	-7.06	-18.69	-11.95	-25.93
15	-12.12	-6.73	-1.4	1.51	-0.62	-1.19	-4.34	-7.06	-5.84	-9.23	-13.94	-14.16	-25.93
30	-12.02	-5.63	-1.7	-3.14	-2.04	-4	-6.71	-11.96	-10.06	-11.9	-10.35	-18.89	-25.93
45	-12.94	-5.8	-2.42	-1.87	-0.84	0.96	-1.69	-4.43	-7.27	-12.49	-11.78	-17.59	-25.93
60	-13.09	-6.03	0.61	2.35	1.57	-0.2	-2.53	-9.45	-7.52	-11.47	-9.01	-13.31	-25.93
75	-12.35	-5.4	0.58	1.15	-3.55	-8.83	-9.94	-16.3	-12.73	-14.13	-14.92	-12.89	-25.93
90	-11.92	-3.78	0.92	-2.29	-4.07	-5.83	-9.04	-9.59	-12.05	-14.37	-18.3	-10.85	-25.93
105	-10.93	-2.65	0.07	2.43	1.03	-1.02	-6.13	-8.6	-13.53	-16.83	-13.19	-8	-25.93
120	-10.38	-3.74	-2.33	-0.91	2.82	2.47	-1.43	-11.69	-9.16	-9.47	-11.65	-6.49	-25.93
135	-10.99	-6.26	-2.75	1.42	2.01	2.43	-1.04	-6.05	-13.01	-6.37	-10.72	-7.37	-25.93
150	-11.29	-4.16	-0.24	0.74	-0.86	1.99	-3.32	-9.61	-11.4	-9.28	-6.7	-8	-25.93
165	-11.21	-1.99	-0.77	1.09	3.77	1	-6.39	-13.66	-11.18	-14.25	-8.83	-6.32	-25.93
180	-11.63	-2.1	-0.48	2.76	4.97	4.97	-2.91	-7.83	-3.9	-7.35	-15.97	-7.04	-25.93
195	-11.08	-2.88	1.93	2.71	0.71	-0.99	-6.52	-19.32	-8.28	-9.69	-11.46	-11.76	-25.93
210	-10.6	-2.06	-0.05	2.98	1.42	1.69	-4.14	-11.7	-4.65	-7.04	-10.68	-12.9	-25.93
225	-10.59	-1.11	-2.25	3.35	2.18	4.15	-2.37	-9.99	-6.97	-6.98	-11.36	-11.82	-25.93
240	-10.72	-2.16	-0.54	1.86	3.88	2.54	-1.99	-8.55	-9.87	-10.83	-11.66	-18.18	-25.93
255	-11.42	-5.48	-1	-1.05	1.55	-1.94	-6.19	-12.27	-12.35	-13.66	-7.98	-16.04	-25.93
270	-12.36	-7.02	-0.38	-0.89	1.23	1.9	-0.71	-5.79	-11.35	-13.91	-8.78	-18.57	-25.93
285	-12.32	-4.53	-0.54	-0.65	-0.62	-3.52	-5.34	-10.96	-11.37	-9.17	-8	-17.42	-25.93
300	-12.33	-4.22	1.42	2.23	1.82	-1.66	-8.26	-14.22	-15.85	-8.61	-11.43	-17.47	-25.93
315	-12.32	-5.11	-1.37	2.87	0.32	-6.19	-7.07	-5.16	-7.52	-6.6	-11.91	-25.93	-25.93
330	-12.25	-6.57	-3.02	-1.14	1.3	-1.54	-4.71	-5.47	-4.91	-10.33	-25.87	-11.83	-25.93
345	-12.63	-8.94	-2.88	-3.52	2.71	-0.87	-4.08	-10.49	-9.47	-15.9	-16.08	-10.15	-25.93
360	-12.71	-9.67	-2.29	1.88	0.73	-1.86	-5.27	-8.55	-10.72	-7.06	-18.69	-11.95	-25.93



5GH_vpol_reconfig													
Freq	5750												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-11.28	-15.11	-2.06	-2.44	-3.71	-7.74	-13.39	-11.28	-10.84	-15.36	-21.77	-15.91	-28.29
15	-11.21	-11.29	-4.42	0.15	-2.93	-6.83	-8.52	-8.1	-13.19	-15.75	-15.99	-21.13	-28.29
30	-11.62	-8.97	-4.54	-0.99	-1.3	-3.93	-9.09	-10.17	-9.27	-12.52	-15.86	-17.12	-28.29
45	-11.61	-9.56	-4.01	-2.11	0.47	-1.94	-5.51	-8.93	-12.97	-15.3	-12.34	-16.05	-28.29
60	-11.68	-12.96	-5.43	-0.36	0.59	-1.05	-3.37	-6.4	-11.24	-16.37	-16.3	-16.29	-28.29
75	-11.66	-16.31	-4.7	-2.41	-1.67	-3.67	-6.9	-9.82	-11.99	-17.84	-21.69	-19.2	-28.29
90	-11.4	-16.05	-3.38	-1.46	-2.16	-5.89	-7.09	-8.36	-8.91	-12.85	-18.9	-21.26	-28.29
105	-10.98	-14.19	-3.09	0.44	-0.98	-2.61	-4.89	-7.33	-11.44	-22.34	-18.39	-16.86	-28.29
120	-11.54	-11.59	-3.08	-0.49	-1.89	-3.34	-4.41	-6.13	-9.34	-11.42	-13.86	-13.72	-28.29
135	-11.51	-9.02	-2.65	1.16	2.62	-0.6	-4.79	-7.15	-12.69	-21.02	-11.23	-12.63	-28.29
150	-11.64	-7.84	-5.06	-1.59	0.74	-0.19	-3.47	-7.87	-14.96	-23.56	-21.38	-14.31	-28.29
165	-12.1	-7.54	-7.67	-0.81	-2.14	-3.2	-5.36	-7.17	-12.16	-21.13	-17.74	-15.63	-28.29
180	-12.38	-7.64	-4.85	-3.27	-2.15	-1.5	-4.61	-9.35	-12.3	-13.92	-22.57	-13.18	-28.29
195	-12.01	-8.18	-3.62	-2.82	-1.22	-2.87	-6.13	-8.55	-15.28	-13.87	-23.71	-14.19	-28.29
210	-11.93	-8.92	-7.69	-5.44	0.17	-1.67	-7.5	-12.23	-21.09	-13.33	-16.47	-14.65	-28.29
225	-12.22	-9.23	-4.93	-1.64	-0.58	1.19	-2.33	-10.37	-11.8	-14.36	-18.28	-15.43	-28.29
240	-12.4	-7.13	-1.48	-3.35	-1.64	-2.01	-7.02	-13.46	-14.01	-19.19	-14.47	-18.44	-28.29
255	-12.3	-4.7	-2.33	-2.89	-3.23	-5.52	-8.52	-11.86	-16.18	-12.02	-18.74	-13.83	-28.29
270	-12.23	-4.37	-6.72	1.92	0.33	0.78	-4.51	-5.46	-12.45	-17.27	-15.46	-13.42	-28.29
285	-12.3	-5.55	-4.09	1.37	-0.03	-5.59	-8.91	-11	-15.75	-13.1	-14.73	-16	-28.29
300	-12.02	-6.36	-2.18	-0.22	-1.23	-4.38	-8.89	-13.32	-15.89	-17.33	-19.9	-20.27	-28.29
315	-12.35	-6.41	-3	0.27	0.93	1.22	-3.57	-10.87	-10.97	-10.88	-17.22	-28.29	-28.29
330	-12.44	-8.97	-6.52	-3.08	-1.72	-5.45	-8.96	-14.81	-15.93	-15.38	-13.61	-18.05	-28.29
345	-11.84	-15.48	-7.28	-5.59	-11.26	-11.98	-8.94	-7.96	-13.55	-12.98	-17.86	-13.62	-28.29
360	-11.28	-15.11	-2.06	-2.44	-3.71	-7.74	-13.39	-11.28	-10.84	-15.36	-21.77	-15.91	-28.29

5GH Vpol Composite Gain													
Freq	5750												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-8.96	-8.96	0.84	3.00	1.80	-1.30	-5.40	-6.80	-7.77	-7.24	-17.08	-10.70	-24.02
15	-8.64	-5.70	0.23	3.87	1.31	-0.55	-3.17	-4.55	-5.75	-8.88	-11.89	-13.95	-24.02
30	-8.81	-4.13	0.01	1.01	1.35	-0.95	-4.81	-8.01	-6.65	-9.19	-9.66	-14.95	-24.02
45	-9.24	-4.47	-0.17	1.02	2.85	2.64	-0.38	-3.38	-6.65	-10.77	-9.05	-13.78	-24.02
60	-9.35	-5.81	1.12	4.11	4.10	2.40	0.07	-4.78	-6.17	-10.57	-8.90	-11.66	-24.02
75	-8.99	-6.23	1.35	2.56	0.45	-2.86	-5.28	-9.46	-9.34	-12.78	-14.65	-12.47	-24.02
90	-8.65	-4.90	2.04	1.15	-0.05	-2.85	-5.00	-5.94	-7.33	-10.57	-15.58	-11.57	-24.02
105	-7.94	-3.62	1.64	4.50	3.09	1.23	-2.48	-4.93	-9.41	-16.14	-12.40	-8.34	-24.02
120	-7.93	-3.80	0.31	2.31	3.79	3.05	0.22	-5.46	-6.24	-7.38	-9.67	-6.36	-24.02
135	-8.24	-4.52	0.31	4.30	5.33	4.06	0.30	-3.57	-9.84	-7.90	-7.96	-6.60	-24.02
150	-8.45	-2.80	0.69	2.66	2.99	3.98	-0.38	-5.69	-9.99	-10.76	-8.24	-7.58	-24.02



165	-8.63	-1.32	-0.54	3.20	4.32	2.16	-2.85	-6.81	-8.65	-14.02	-9.18	-6.77	-24.02
180	-8.99	-1.43	0.62	3.27	5.13	5.33	-0.71	-5.55	-4.11	-7.02	-15.65	-6.57	-24.02
195	-8.52	-2.12	2.60	3.39	2.81	1.13	-3.31	-9.35	-8.08	-8.52	-12.57	-9.88	-24.02
210	-8.23	-1.82	-0.05	2.76	3.83	3.18	-2.65	-8.95	-6.44	-6.62	-10.09	-10.72	-24.02
225	-8.36	-1.24	-0.48	4.22	3.92	5.81	0.66	-7.17	-6.04	-6.90	-11.14	-10.43	-24.02
240	-8.51	-1.28	2.01	2.65	4.56	3.57	-1.14	-7.65	-8.69	-11.03	-9.94	-15.30	-24.02
255	-8.84	-2.07	1.37	1.09	2.50	-0.54	-4.27	-9.05	-11.05	-9.79	-8.78	-11.85	-24.02
270	-9.28	-2.58	0.03	3.64	3.80	4.37	0.61	-2.61	-8.87	-12.42	-8.48	-12.61	-24.02
285	-9.30	-2.01	0.88	3.43	2.69	-1.48	-3.93	-7.97	-10.28	-7.90	-7.72	-13.67	-24.02
300	-9.16	-2.21	2.82	4.10	3.44	0.10	-5.56	-10.75	-12.86	-8.91	-11.66	-15.75	-24.02
315	-9.32	-2.73	0.86	4.68	3.64	1.29	-2.13	-4.54	-6.06	-5.47	-11.16	-24.02	-24.02
330	-9.33	-4.68	-1.58	0.95	2.93	-0.27	-3.57	-5.93	-5.77	-9.48	-14.73	-11.38	-24.02
345	-9.22	-8.60	-1.79	-1.48	1.28	-1.75	-3.16	-6.12	-8.26	-11.31	-13.91	-8.70	-24.02
360	-8.96	-8.96	0.84	3.00	1.80	-1.30	-5.40	-6.80	-7.77	-7.24	-17.08	-10.70	-24.02

5GH_hpol													
Freq	5750												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-11.36	-1.44	2.87	2.83	2.35	-1.71	-9.15	-11.44	-11.03	-15.01	-14.47	-14.39	-24.33
15	-11.92	-3.07	1.16	2	-0.24	-4.67	-8.03	-16.78	-15.51	-20.86	-16.03	-17.01	-24.33
30	-12.39	-4.59	0.02	2.57	-0.25	-4.72	-10.16	-12.98	-16.93	-21.89	-19.45	-18.97	-24.33
45	-11.23	-4.45	1.24	3.71	1.55	-3.64	-9.94	-15.34	-19.36	-19.14	-20.39	-15.87	-24.33
60	-11.46	-3.74	1.53	3.75	2.18	-1.75	-7.09	-12.66	-16.11	-27.33	-26.02	-24.33	-24.33
75	-11.35	-3.34	1.41	3.16	1.59	-2.42	-7.4	-10.68	-15.57	-24.85	-29.76	-18.23	-24.33
90	-11.55	-2.37	1.62	3.44	2.03	-2.27	-6.61	-12.88	-15.84	-19.29	-22.47	-17.24	-24.33
105	-11.77	-1.56	0.93	2.86	1.71	-2.41	-8.59	-11.14	-16.06	-17.1	-17.87	-16.27	-24.33
120	-12.2	-1.6	0.39	1.52	0.7	-1.46	-4.54	-8.92	-10.92	-16.98	-15.32	-16.33	-24.33
135	-11.2	-1.9	-0.27	0.04	0.68	-0.49	-4.28	-8.39	-12.27	-17.03	-13.17	-16.68	-24.33
150	-11.85	-1.96	-1.41	0.63	0.62	-2.82	-5.99	-10.28	-13.18	-17.78	-17.74	-15.65	-24.33
165	-11.68	-1.59	0.07	1.8	-0.06	-3.8	-8.45	-11.33	-13.53	-13.23	-18.14	-14.5	-24.33
180	-11.97	-1.45	1.07	3.45	1.53	-3.76	-9.25	-13	-12.43	-19.47	-15.67	-15.55	-24.33
195	-11.81	-1.83	1.69	2.79	1.72	-2.52	-7.37	-15.79	-17.49	-17.67	-18.33	-17.08	-24.33
210	-11.34	-2.9	1.02	2.8	1.19	-2.64	-6.81	-11	-12.47	-12.33	-15.21	-15.9	-24.33
225	-11.4	-3.95	-0.58	3.09	2.78	-3.75	-11.16	-14.16	-11.12	-14.35	-14.47	-16.77	-24.33
240	-11.9	-3.81	-0.48	2.14	2.59	-2.28	-11.42	-12.9	-14.59	-12.52	-18.44	-17.25	-24.33
255	-11.67	-2.96	1.35	2.61	1.91	-2.48	-10.03	-15.42	-13.27	-16.86	-18.35	-15.91	-24.33
270	-11.77	-2.23	1.97	3.65	1.27	-4.82	-13.37	-22.96	-14.96	-16.9	-19.77	-15.22	-24.33
285	-11.96	-1.73	2.58	3.5	2.87	-2.57	-10.04	-13.6	-16.81	-15.13	-16	-15.91	-24.33
300	-11.5	-1.08	3.36	4.4	2.29	-5.78	-13.23	-10.32	-9.91	-13.54	-15.65	-17.15	-24.33
315	-11.43	-0.71	3.3	4.42	1.24	-3.93	-12.71	-12.69	-7.97	-14.99	-16.35	-16.54	-24.33
330	-11.51	-0.67	3.74	4.24	1.11	-3.73	-12.49	-12.27	-14.92	-16.83	-20.49	-16.04	-24.33
345	-11.34	-0.82	3.78	3.68	1.98	-3.2	-8.05	-12.61	-12.38	-10.09	-17.22	-15.87	-24.33
360	-11.36	-1.44	2.87	2.83	2.35	-1.71	-9.15	-11.44	-11.03	-15.01	-14.47	-14.39	-24.33

5GH_hpol_reconfig													
Freq	5750												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-13.59	-4.51	-0.29	1.15	1.92	-1.57	-10.32	-7.25	-13.56	-14.74	-11.6	-13.57	-23.21
15	-13.32	-4.46	-2.02	1.68	1.88	-1	-9.28	-11.64	-9.85	-10.06	-12.85	-15	-23.21
30	-13.31	-3.78	-1.28	0.65	-0.92	-5.29	-8.93	-15.86	-14.97	-21.22	-12.83	-15.29	-23.21
45	-12.86	-3.92	0.39	0.72	-0.57	-5.68	-8.56	-11.11	-11.19	-14.01	-7.7	-11.91	-23.21
60	-13.81	-5.96	0.07	0.45	-0.31	-3.67	-7.07	-8.47	-14.42	-14.14	-10.14	-11.27	-23.21
75	-14.63	-9.92	-3.27	-1.18	0.46	-3.25	-5.86	-7.31	-13.2	-11.66	-10.7	-12.97	-23.21
90	-13.99	-12.7	-2.82	-1.47	0.67	-1.06	-4.56	-7.1	-18.82	-11.27	-14.84	-13.92	-23.21
105	-13.46	-10.2	-0.5	-1.42	-1.62	-1.84	-4.52	-10.55	-17.26	-17.71	-18.78	-13.53	-23.21
120	-12.99	-6.47	0.71	-1.43	-6.39	-8.61	-9.59	-19.15	-14.65	-16.04	-21.7	-12.9	-23.21
135	-12.64	-5.16	1.1	-0.25	-2.93	-6.87	-9.82	-14.02	-12.57	-16.55	-19.8	-12.78	-23.21
150	-12.7	-6.11	-0.26	-1.68	-2.33	-5.09	-10.65	-13.51	-11.33	-14.88	-18.2	-12.37	-23.21
165	-12.73	-6.72	-1.68	-1.04	1.23	-2.45	-4.56	-11.24	-12.82	-15.5	-19.73	-11.85	-23.21
180	-12.96	-5.35	-0.76	0.24	0.95	-1.25	-6.38	-10.66	-7.09	-12.15	-21.15	-11.15	-23.21
195	-13.19	-4.09	-2.66	-1.32	-1.82	-3.14	-12.39	-8.94	-5.06	-9.9	-13.18	-10.5	-23.21
210	-12.86	-3.74	-1.98	-1.03	-1.63	-5.85	-10.87	-8.4	-8.94	-11.69	-10.07	-10.01	-23.21
225	-12.56	-3.95	-1.54	-1.45	-0.39	-6.48	-7.57	-8.64	-14.08	-23.47	-9.88	-9.88	-23.21
240	-12.6	-4.47	-1.99	0.63	-0.32	-7.77	-10.1	-12.98	-9.48	-15.51	-10.76	-11.61	-23.21
255	-12.6	-4.48	-1.42	0	0.01	-4.51	-8.86	-12.1	-6.51	-14.75	-13.2	-14.29	-23.21
270	-12.64	-4.78	-1.53	0.82	1.54	-1.9	-7.96	-11.04	-6.08	-11.85	-15.36	-18.01	-23.21
285	-13.05	-5.45	-3.09	-0.63	-1.77	-4.12	-11.46	-12.25	-9.88	-14.39	-15.09	-23.21	-23.21
300	-13.17	-5.61	-2.84	-0.46	-3.46	-7.07	-9.22	-10.13	-13.43	-14.89	-12.57	-21.46	-23.21
315	-12.78	-5.35	-1.37	-1.43	-1.02	-8.91	-13.86	-17.88	-13.22	-11.82	-15.34	-18.65	-23.21
330	-13.67	-5.01	-2.33	0.78	-0.02	-6.33	-11.24	-13.73	-12.52	-15.68	-17.62	-16.42	-23.21
345	-14.43	-4.46	-1.29	-0.35	0.46	-4.09	-9.51	-11.48	-13.45	-18.49	-17.37	-14.38	-23.21
360	-13.59	-4.51	-0.29	1.15	1.92	-1.57	-10.32	-7.25	-13.56	-14.74	-11.6	-13.57	-23.21

5GH Hpol Composite Gain													
Freq	5750												
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-9.39	0.17	4.44	5.04	5.15	1.37	-6.71	-6.08	-9.19	-11.86	-9.91	-10.96	-20.74
15	-9.58	-0.73	2.73	4.85	3.89	0.37	-5.62	-10.82	-9.22	-10.87	-11.28	-12.94	-20.74
30	-9.83	-1.17	2.40	4.67	2.43	-1.99	-6.51	-11.29	-12.88	-18.54	-12.51	-13.93	-20.74
45	-9.00	-1.17	3.84	5.35	3.56	-1.59	-6.21	-9.96	-11.34	-13.19	-8.90	-10.66	-20.74
60	-9.55	-1.77	3.84	5.27	4.03	0.35	-4.07	-7.30	-12.21	-15.43	-11.86	-12.54	-20.74
75	-9.83	-3.01	2.39	4.27	4.05	0.19	-3.59	-5.82	-11.29	-12.95	-12.79	-12.20	-20.74
90	-9.67	-3.07	2.69	4.34	4.39	1.37	-2.51	-6.51	-14.19	-11.38	-14.83	-12.41	-20.74
105	-9.56	-1.84	3.25	3.99	3.21	0.89	-3.31	-7.83	-13.63	-14.39	-15.30	-11.78	-20.74
120	-9.58	-0.69	3.56	3.18	0.87	-1.31	-3.69	-9.60	-9.58	-13.49	-14.93	-11.44	-20.74
135	-8.88	-0.37	3.45	2.91	2.07	-0.10	-3.61	-7.75	-9.41	-13.78	-12.86	-11.50	-20.74



150	-9.25	-0.78	2.19	2.56	2.28	-0.87	-5.00	-8.74	-9.20	-13.20	-14.96	-10.85	-20.74
165	-9.18	-0.77	2.25	3.51	3.62	-0.09	-3.28	-8.27	-10.16	-11.28	-15.89	-10.06	-20.74
180	-9.44	-0.17	3.21	5.00	4.26	0.60	-4.69	-8.74	-6.35	-12.05	-14.97	-10.06	-20.74
195	-9.46	0.12	2.79	3.99	3.14	0.19	-6.51	-8.70	-6.21	-9.93	-12.37	-10.17	-20.74
210	-9.06	-0.30	2.66	4.10	2.90	-1.09	-5.59	-6.59	-7.52	-8.99	-9.25	-9.45	-20.74
225	-8.95	-0.94	1.96	4.12	4.35	-2.00	-6.17	-7.96	-9.46	-14.75	-8.86	-9.65	-20.74
240	-9.23	-1.12	1.81	4.43	4.27	-1.59	-7.72	-9.93	-8.65	-10.88	-10.77	-10.97	-20.74
255	-9.11	-0.68	3.09	4.41	4.02	-0.43	-6.42	-10.59	-6.24	-12.73	-12.39	-12.05	-20.74
270	-9.18	-0.40	3.41	5.36	4.42	-0.23	-7.24	-12.09	-6.42	-11.00	-14.28	-13.49	-20.74
285	-9.48	-0.38	3.21	4.69	3.87	-0.30	-7.71	-9.89	-9.66	-11.74	-12.52	-15.80	-20.74
300	-9.28	-0.04	3.81	5.32	2.89	-3.39	-7.99	-7.21	-8.48	-11.18	-10.96	-16.03	-20.74
315	-9.07	0.29	4.29	4.99	3.19	-3.06	-10.26	-11.89	-7.19	-10.25	-12.82	-14.52	-20.74
330	-9.51	0.44	4.24	5.69	3.57	-1.92	-8.83	-9.96	-10.63	-13.23	-15.93	-13.22	-20.74
345	-9.74	0.56	4.62	4.91	4.26	-0.62	-5.74	-9.02	-9.89	-10.30	-14.28	-12.08	-20.74
360	-9.39	0.17	4.44	5.04	5.15	1.37	-6.71	-6.08	-9.19	-11.86	-9.91	-10.96	-20.74