

Tomcat UX-7 Certification Document

Apr., 2025

Shian Chuang

Antenna Design Department

Outline

- Test Information
- Test Configuration
- Test Setup & Procedure
- Test Equipment & Calibration
- Antenna Structure & Placement
- Radiation Pattern
- Peak Gain & Efficiency
- Directional Gain Calculation
- Raw Data

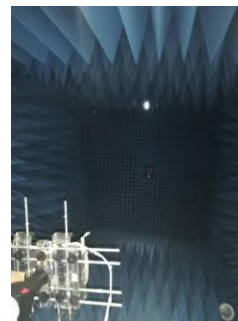
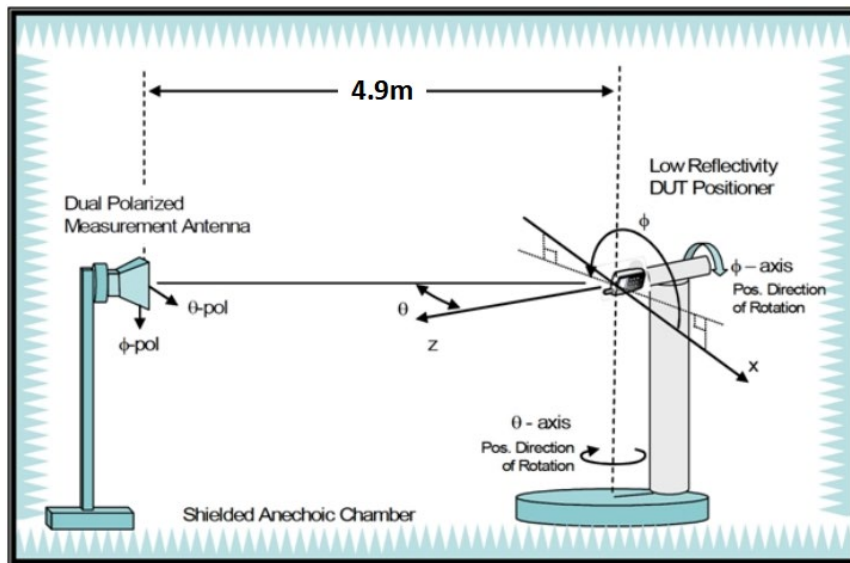


Test Information

Item	Description
Brand Name	Aruba
Equipment	Tomcat
Test Location	8F, No. 3-1, YuanQu St. Taipei, Taiwan 115 R.O.C.
Test Condition	Radiation
Test Engineer	Shian Chuang
Test Environment	ETS-Lindgren AMS-8500 Antenna Measurement Chamber
Test Date	April 8, 2025 ~ April 15, 2025

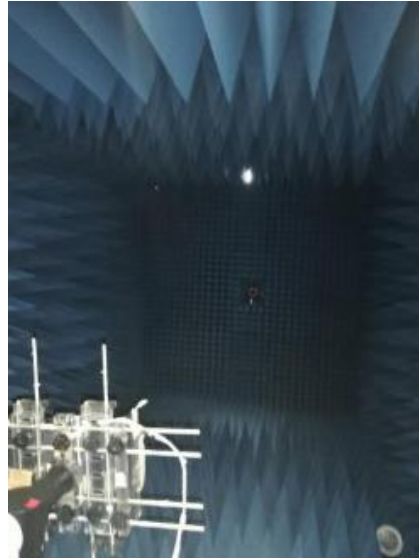
Test Configuration

ETS-Lindgren AMS-8500 antenna measurement system with a size of $7.32(L) \times 3.66(W) \times 3.66(H)$ m³ is used for antenna performance test, which is based on the great-circle test method defined by CTIA. The multi-axis positioning system (MAPS) rotates the DUT around two orthogonal axes for full spherical coverage.



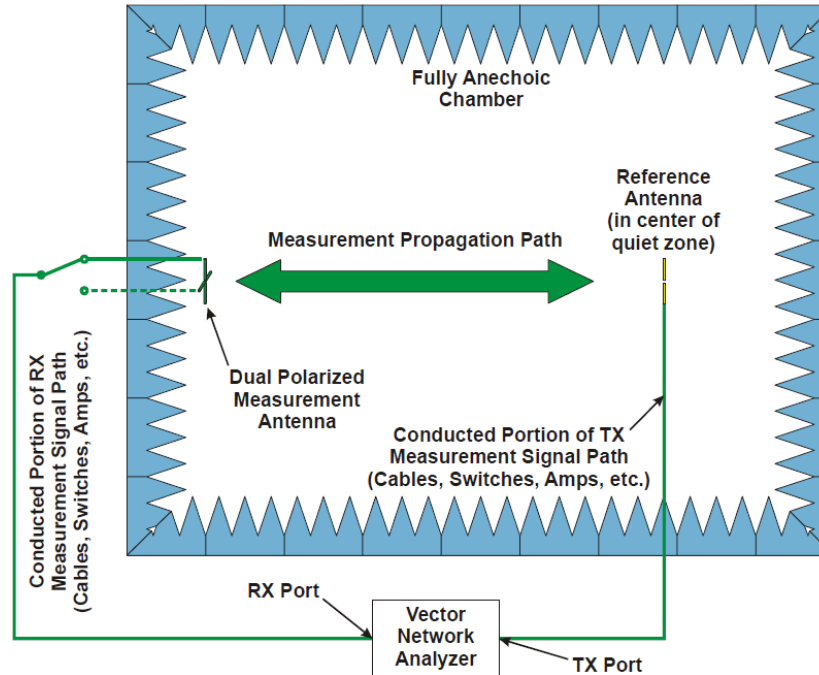
Test Setup & Procedure

1. Fix the DUT on the dielectric support structure and connect the feeding cable to the antenna used for test
2. Set measurement parameters such as frequency range and sampling angle
3. Perform test and then get far-field data (radiation pattern, gain, efficiency)
4. Repeat test procedure for other antennas



Test Equipment & Calibration

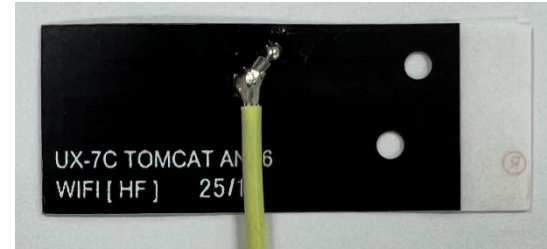
Network analyzer and reference antennas are used for calibration. Path loss and cable loss for different frequency bands can be checked and calculated.



Test Equipment & Calibration

Instrument	Brand	Characteristics	Model No.	Serial No.	Calibration Due Date
Precision Sleeve Dipole	ETS-Lindgren	600 MHz ~ 800 MHz	3126-700	00169715	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	800 MHz ~ 1000 MHz	3126-900	00169592	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	1400 MHz ~ 1700 MHz	3126-1550	00164599	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	1700 MHz ~ 2000 MHz	3126-1850	00169588	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	2000 MHz ~ 2300 MHz	3126-2150	00169593	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	2300 MHz ~ 2700 MHz	3126-2500	00169597	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	3000 MHz ~ 4000 MHz	3126-3500	00239652	Aug. 23, 2025
Precision Sleeve Dipole	ETS-Lindgren	4000 MHz ~ 5000 MHz	3126-4500	00239796	Aug. 23, 2025
Precision Sleeve Dipole	ETS-Lindgren	5000 MHz ~ 6000 MHz	3126-5500	00169728	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	6000 MHz ~ 7200 MHz	3126-6500	00235488	Aug. 23, 2025
Double Ridged Horn Antenna	SCHWARZBECK	1 GHz ~ 18 GHz	BBHA 9120D	BBHA 9120D-1294	Oct. 7, 2025
EMQuest Antenna Measurement Software	ETS-Lindgren	Control chamber system	EMQ-100	1437	Non-Calibration Required

Antenna Structure & Placement



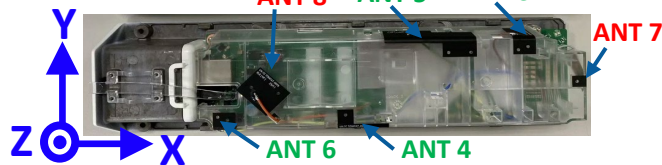
Ant No.	Operating Band	Type	Material	Feeding	Size
ANT3	WiFi 2.4G/5G/6G	Dipole	FPC	Cable	30(L) x 13(W) x 0.2(T) mm ³
ANT4	WiFi 2.4G/5G/6G	Dipole	FPC	Cable	30(L) x 13(W) x 0.2(T) mm ³
ANT5	Scanning 2.4G/5G/6G	Dipole	FPC	Cable	30(L) x 13(W) x 0.2(T) mm ³
ANT6	Scanning 2.4G/5G/6G	Dipole	FPC	Cable	30(L) x 13(W) x 0.2(T) mm ³

Antenna Structure & Placement

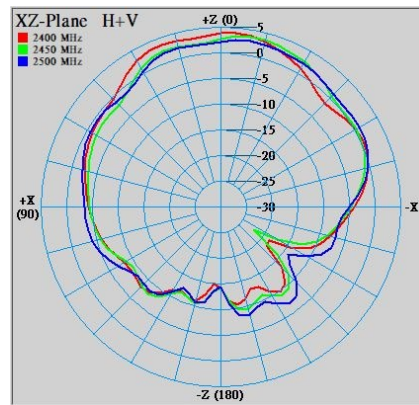
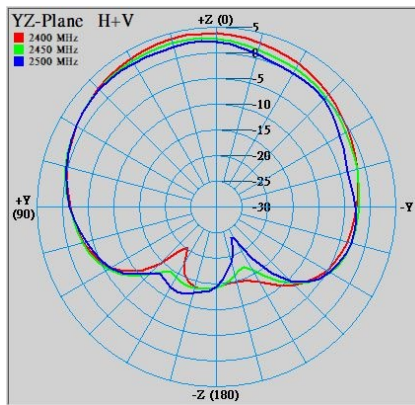
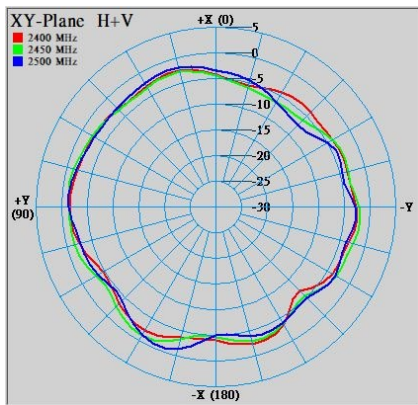


Ant No.	Operating Band	Type	Material	Feeding	Size
ANT7	BLE	Dipole	FPC	Cable	24(L) x 16(W) x 0.2(T) mm ³
ANT8	BLE	Dipole	FPC	Cable	25(L) x 20(W) x 0.2(T) mm ³

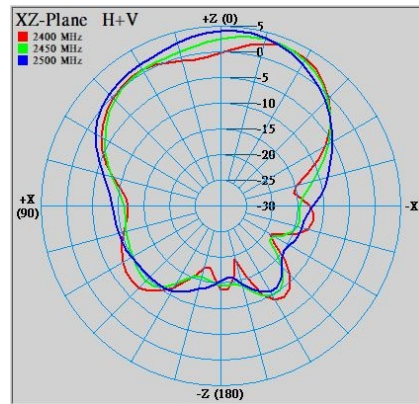
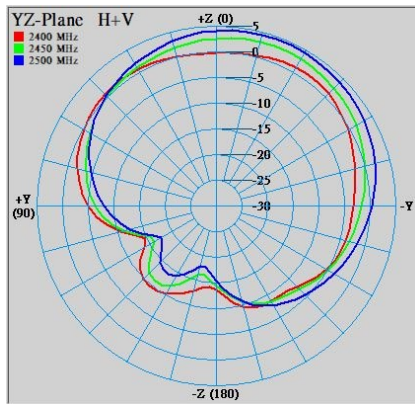
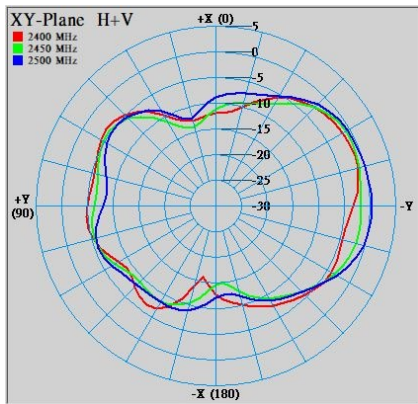
Radiation Pattern @WiFi 2.4GHz



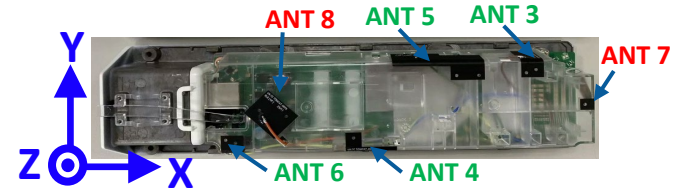
Ant3



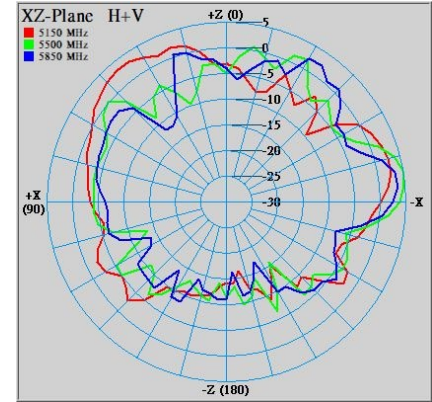
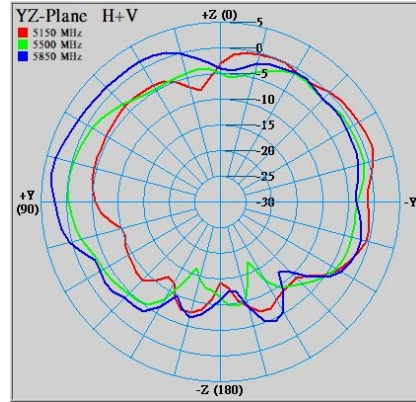
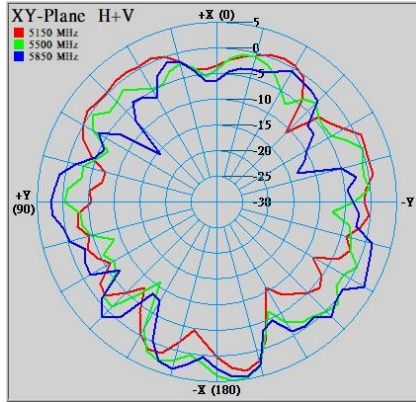
Ant4



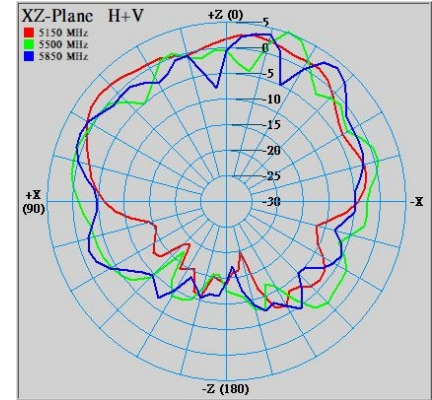
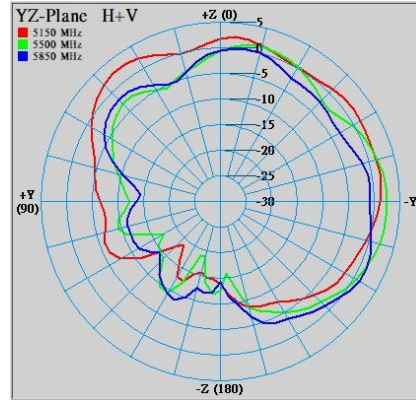
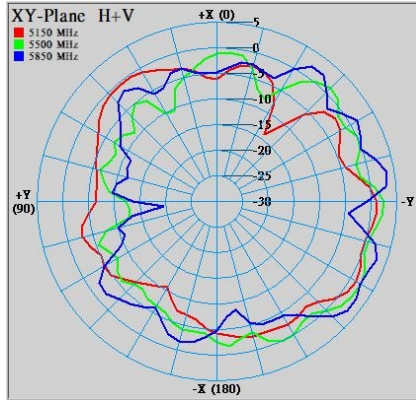
Radiation Pattern @WiFi 5GHz



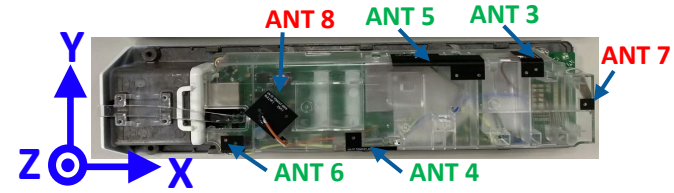
Ant3



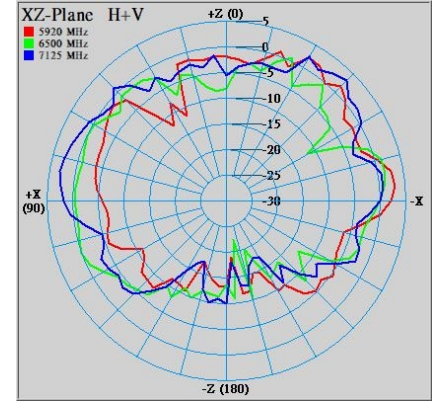
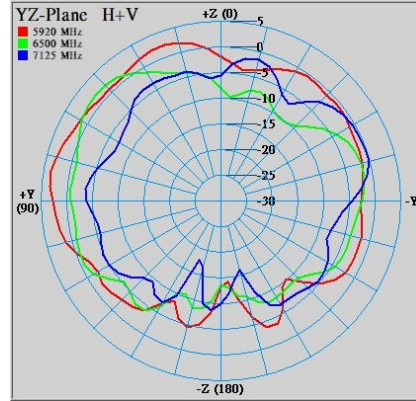
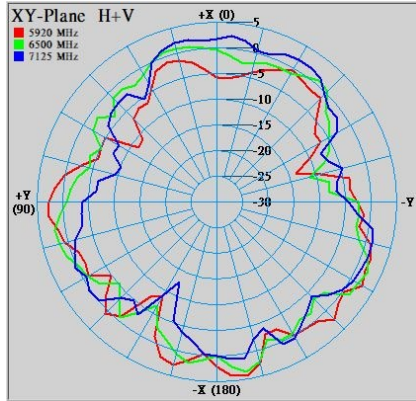
Ant4



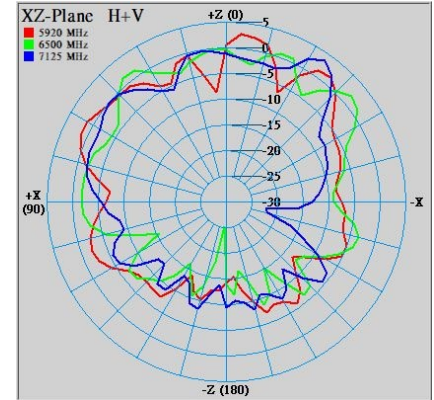
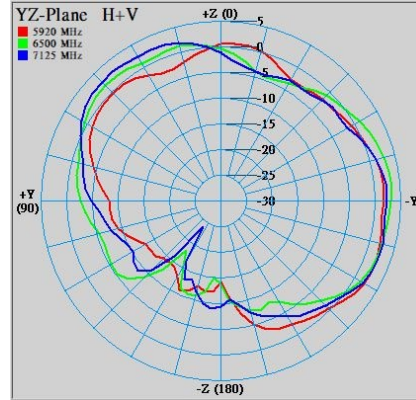
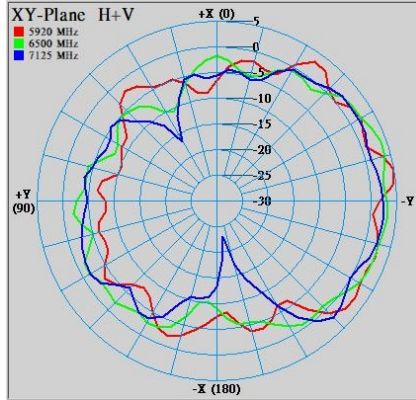
Radiation Pattern @WiFi 6GHz



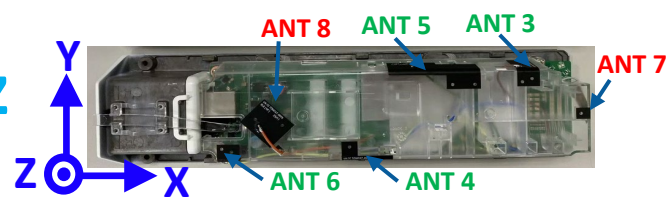
Ant3



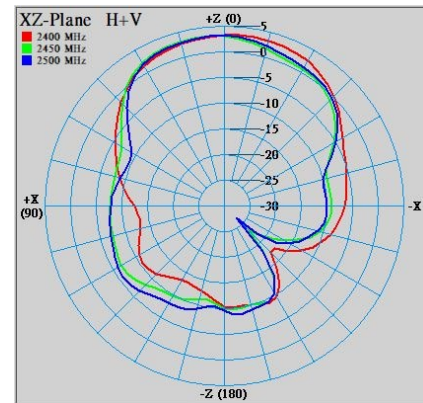
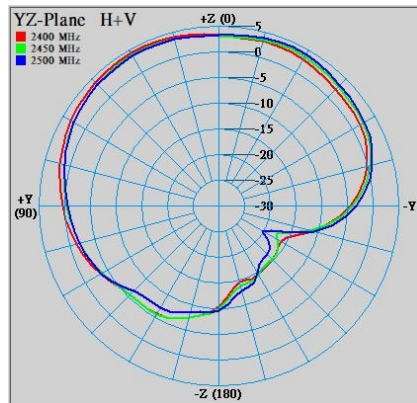
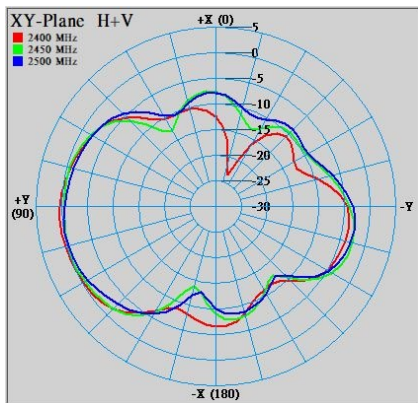
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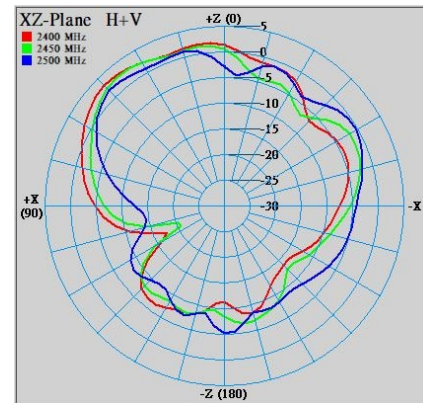
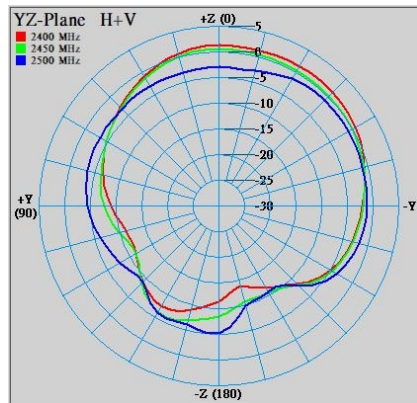
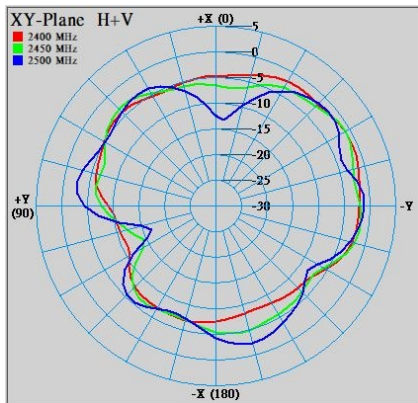
Radiation Pattern @Scan 2.4GHz



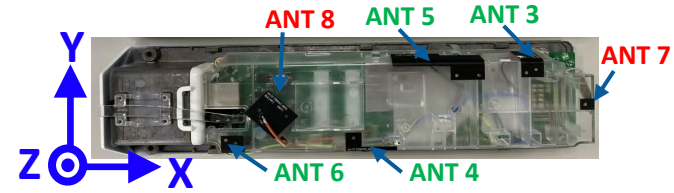
Ant5



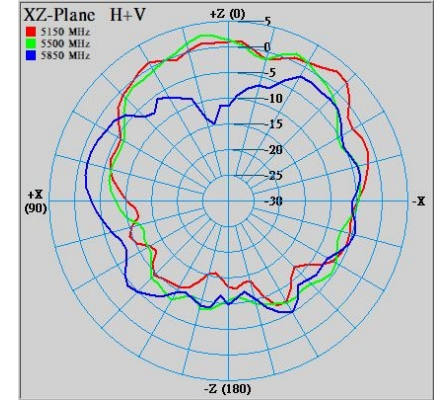
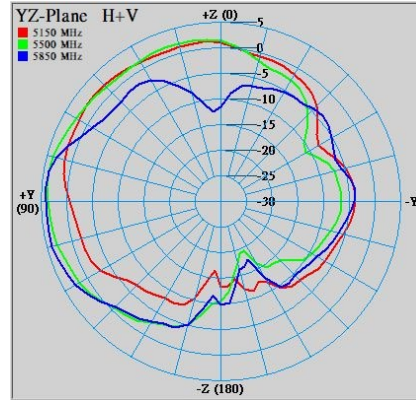
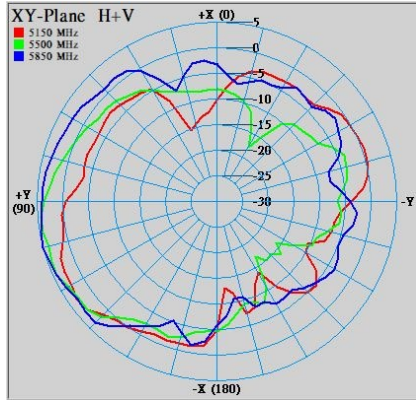
Ant6



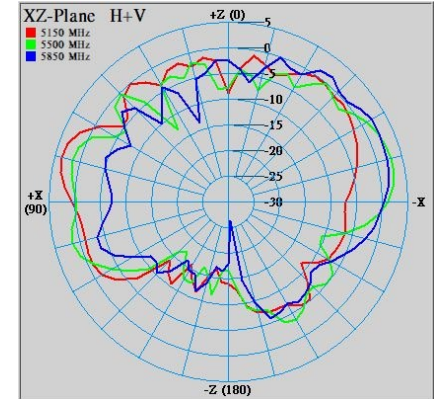
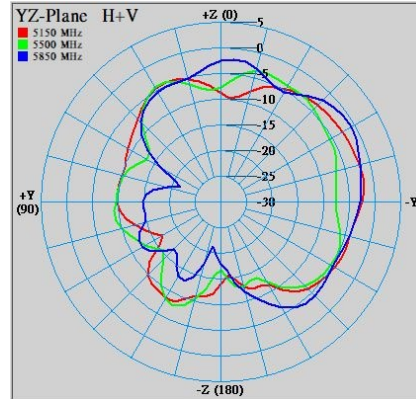
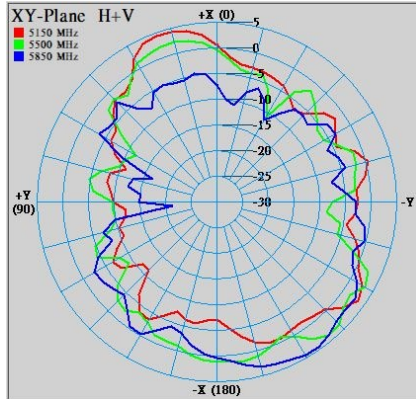
Radiation Pattern @Scan 5GHz



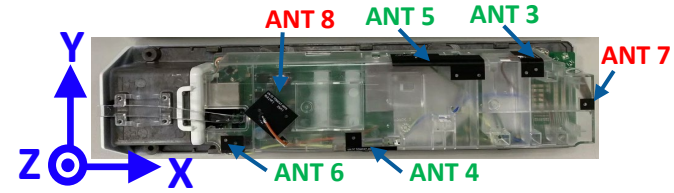
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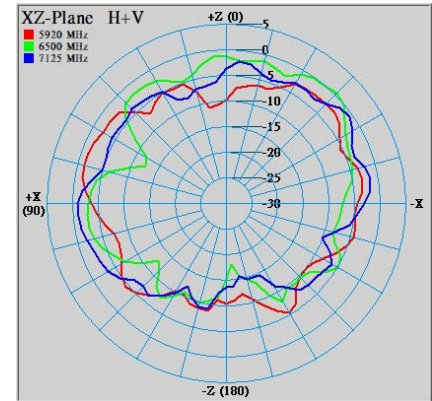
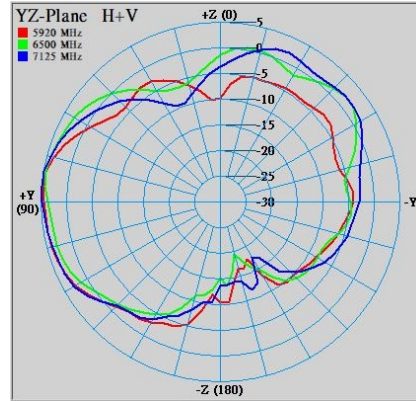
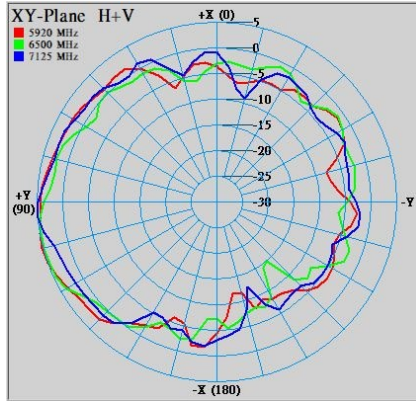
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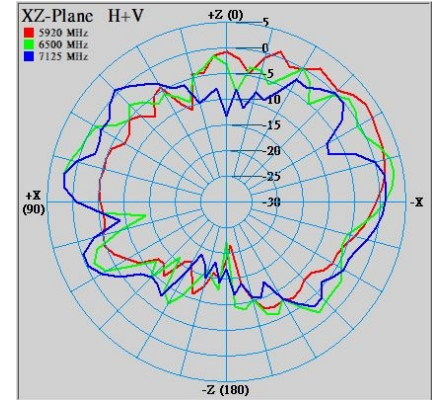
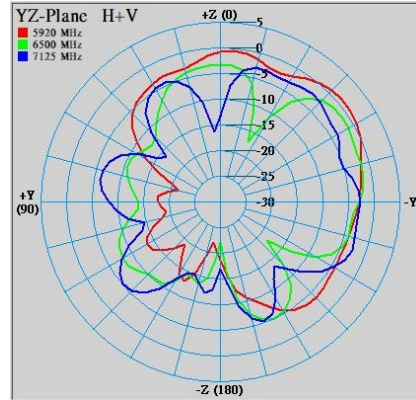
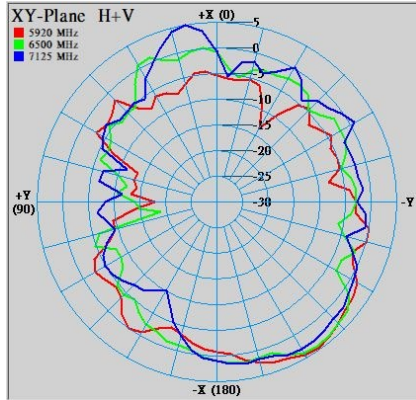
Radiation Pattern @Scan 6GHz



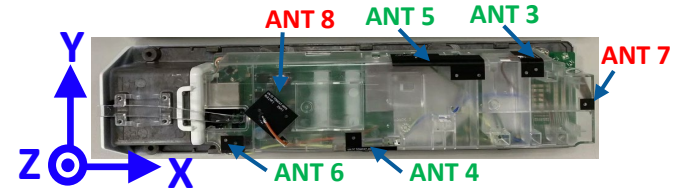
Ant5



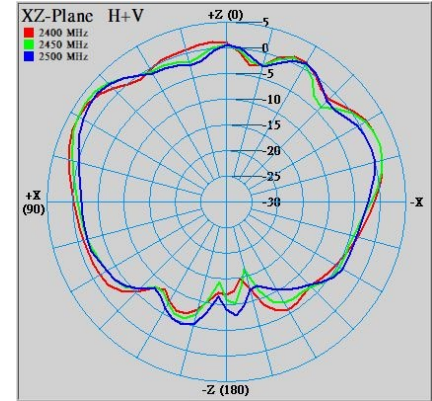
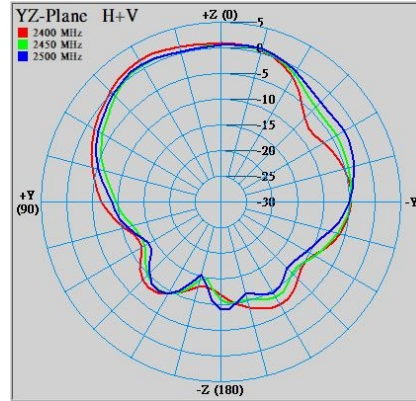
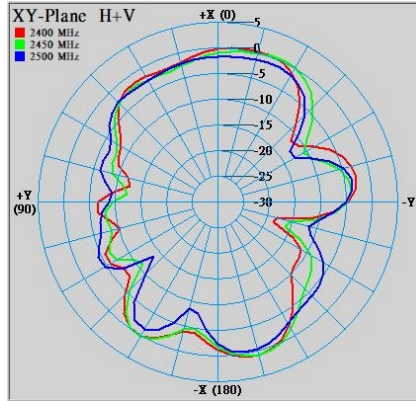
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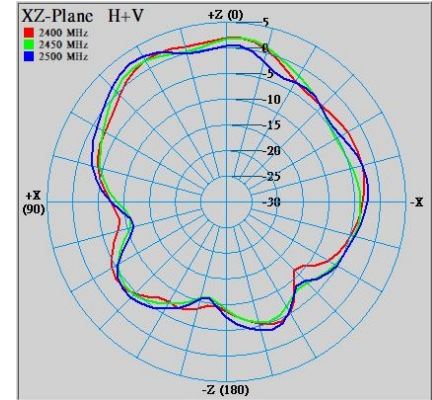
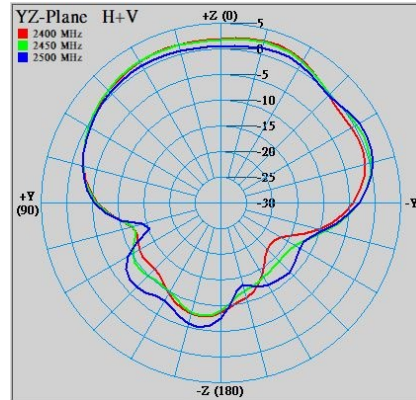
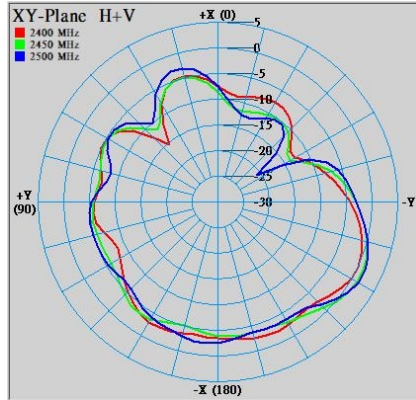
Radiation Pattern @BLE 2.4GHz



Ant7



Ant8



Peak Gain & Efficiency

Ant 3		
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	4.1	63
2450	4.0	64
2500	2.9	60
5150	4.8	66
5500	5.6	69
5850	4.8	70
5920	4.3	71
6500	4.0	68
7125	3.5	67

Ant 4		
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	3.4	60
2450	3.7	68
2500	4.6	65
5150	3.9	68
5500	5.6	73
5850	4.7	71
5920	5.1	68
6500	4.5	66
7125	4.2	65

Peak Gain & Efficiency

Ant 5		
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	4.6	63
2450	4.0	62
2500	4.2	60
5150	4.3	61
5500	5.2	63
5850	5.4	65
5920	5.7	66
6500	5.9	69
7125	5.1	68

Ant 6		
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	3.3	58
2450	2.7	62
2500	2.7	58
5150	5.4	58
5500	4.9	62
5850	5.2	65
5920	5.1	66
6500	4.4	61
7125	5.0	60

Peak Gain & Efficiency

Ant 7		
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	3.3	51
2450	3.7	57
2500	3.0	52

Ant 8		
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	2.9	55
2450	2.9	58
2500	3.0	56

Directional Gain Calculation

Because the antennas are fixed in location within the device the directional antenna gain for MIMO is calculated over a sphere using the raw spatial data taken at 5 degree steps of theta and phi for each antenna using the equations from KDB 662911 D01. The raw antenna data is located in the appendix of this report.

The uncorrelated antenna gain was calculated using KDB 662911 D01, F(2)(d)(ii)

The uncorrelated gain was calculated for each point in the spatial data, and the highest value reported.

2.4GHz uncorrelated calculation:

2400MHz

Maximum uncorrelated gain: 1.56dBi

$$= 10 * \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2) \\ = 10 * \text{LOG}((10^{(3.768/10)} + 10^{(-3.144/10)})/2)$$

This occurs at: 2400MHz, phi 210/theta 5;

2450MHz

Maximum uncorrelated gain: 2.20dBi

$$= 10 * \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2) \\ = 10 * \text{LOG}((10^{(2.097/10)} + 10^{(2.307/10)})/2)$$

2450MHz, phi 230/theta 10;

2500MHz

Maximum uncorrelated gain: 2.42dBi

$$= 10 * \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2) \\ = 10 * \text{LOG}((10^{(-0.335/10)} + 10^{(4.094/10)})/2)$$

2500MHz, phi 250/theta 10

5GHz uncorrelated calculation:

5150MHz

Maximum uncorrelated gain: 1.84dBi

$$= 10 * \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2) \\ = 10 * \text{LOG}((10^{(1.651/10)} + 10^{(2.027/10)})/2)$$

This occurs at: 5150MHz, phi 25/theta 45;

5500MHz

Maximum uncorrelated gain: 2.31dBi

$$= 10 * \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2) \\ = 10 * \text{LOG}((10^{(-9.500/10)} + 10^{(5.172/10)})/2)$$

5500MHz, phi 210/theta 25;

5725MHz

Maximum uncorrelated gain: 2.72dBi

$$= 10 * \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2) \\ = 10 * \text{LOG}((10^{(-0.886/10)} + 10^{(4.663/10)})/2)$$

5725MHz, phi 165/theta 15

5785MHz

Maximum uncorrelated gain: 2.80dBi

$$= 10 * \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2) \\ = 10 * \text{LOG}((10^{(-0.387/10)} + 10^{(4.612/10)})/2)$$

This occurs at: 5785MHz, phi 160/theta 15;

5850MHz

Maximum uncorrelated gain: 2.39dBi

$$= 10 * \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2) \\ = 10 * \text{LOG}((10^{(4.277/10)} + 10^{(-1.019/10)})/2)$$

5850MHz, phi 235/theta 70

Directional Gain Calculation

Because the antennas are fixed in location within the device the directional antenna gain for MIMO is calculated over a sphere using the raw spatial data taken at 5 degree steps of theta and phi for each antenna using the equations from KDB 662911 D01. The raw antenna data is located in the appendix of this report.

The uncorrelated antenna gain was calculated using KDB 662911 D01, F(2)(d)(ii)

The uncorrelated gain was calculated for each point in the spatial data, and the highest value reported.

6GHz uncorrelated calculation:

5920MHz

Maximum uncorrelated gain: 2.18dBi

$$= 10 \cdot \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2)$$

$$= 10 \cdot \text{LOG}((10^{(3.932/10)} + 10^{(-0.801/10)})/2)$$

This occurs at: 5920MHz, phi 235/theta 70;

6500MHz

Maximum uncorrelated gain: 1.62dBi

$$= 10 \cdot \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2)$$

$$= 10 \cdot \text{LOG}((10^{(-8.445/10)} + 10^{(4.412/10)})/2)$$

6500MHz, phi 285/theta 75;

7125MHz

Maximum uncorrelated gain: 1.31dBi

$$= 10 \cdot \text{LOG}((10^{(G0/10)} + 10^{(G1/10)})/2)$$

$$= 10 \cdot \text{LOG}((10^{(3.290/10)} + 10^{(-2.413/10)})/2)$$

7125MHz, phi 250/theta 70

Directional Gain Calculation

Because the antennas are fixed in location within the device the directional antenna gain for MIMO is calculated over a sphere using the raw spatial data taken at 5 degree steps of theta and phi for each antenna using the equations from KDB 662911 D01. The raw antenna data is located in the appendix of this report.

The correlated antenna gain was calculated using KDB 662911 D01, $F(2)(d)(i)$

The correlated gain was calculated for each point in the spatial data, and the highest value reported.

2.4GHz correlated calculation:

2400MHz

Maximum correlated gain: 4.23dBi

$$= 10 * \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 * \text{LOG}(((10^{(2.828/20)} + 10^{(-0.757/20)})^2)/2)$$

This occurs at: 2400MHz, phi 225/theta 10;

2450MHz

Maximum correlated gain: 5.21dBi

$$= 10 * \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 * \text{LOG}(((10^{(2.097/20)} + 10^{(2.307/20)})^2)/2)$$

2450MHz, phi 230/theta 10;

2500MHz

Maximum correlated gain: 5.22dBi

$$= 10 * \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 * \text{LOG}(((10^{(0.215/20)} + 10^{(3.823/20)})^2)/2)$$

2500MHz, phi 245/theta 10

5GHz correlated calculation:

5150MHz

Maximum correlated gain: 4.85dBi

$$= 10 * \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 * \text{LOG}(((10^{(1.651/20)} + 10^{(2.027/20)})^2)/2)$$

This occurs at: 5150MHz, phi 25/theta 45;

5500MHz

Maximum correlated gain: 4.87dBi

$$= 10 * \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 * \text{LOG}(((10^{(3.793/20)} + 10^{(-0.630/20)})^2)/2)$$

5500MHz, phi 185/theta 80;

5725MHz

Maximum correlated gain: 5.33dBi

$$= 10 * \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 * \text{LOG}(((10^{(-0.886/20)} + 10^{(4.663/20)})^2)/2)$$

5725MHz, phi 165/theta 15

5785MHz

Maximum correlated gain: 5.49dBi

$$= 10 * \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 * \text{LOG}(((10^{(-0.180/20)} + 10^{(4.519/20)})^2)/2)$$

This occurs at: 5785MHz, phi 165/theta 15;

5850MHz

Maximum correlated gain: 5.04dBi

$$= 10 * \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 * \text{LOG}(((10^{(4.277/20)} + 10^{(-1.019/20)})^2)/2)$$

5850MHz, phi 235/theta 70

Directional Gain Calculation

Because the antennas are fixed in location within the device the directional antenna gain for MIMO is calculated over a sphere using the raw spatial data taken at 5 degree steps of theta and phi for each antenna using the equations from KDB 662911 D01. The raw antenna data is located in the appendix of this report.

The correlated antenna gain was calculated using KDB 662911 D01, $F(2)(d)(i)$

The correlated gain was calculated for each point in the spatial data, and the highest value reported.

6GHz correlated calculation:

5920MHz

Maximum correlated gain: 4.89dBi

$$= 10 \cdot \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 \cdot \text{LOG}(((10^{(3.932/20)} + 10^{(-0.801/20)})^2)/2)$$

This occurs at: 5920MHz, phi 235/theta 70;

6500MHz

Maximum correlated gain: 3.38dBi

$$= 10 \cdot \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 \cdot \text{LOG}(((10^{(-7.121/20)} + 10^{(4.327/20)})^2)/2)$$

6500MHz, phi 285/theta 70;

7125MHz

Maximum correlated gain: 3.91dBi

$$= 10 \cdot \text{LOG}(((10^{(G0/20)} + 10^{(G1/20)})^2)/2)$$

$$= 10 \cdot \text{LOG}(((10^{(3.290/20)} + 10^{(-2.413/20)})^2)/2)$$

7125MHz, phi 250/theta 70

Directional Gain Calculation

Frequency (MHz)	Uncorrelated Gain (dBi)	Correlated Gain (dBi)
2400	1.56	4.23
2450	2.20	5.21
2500	2.42	5.22
5150	1.84	4.85
5500	2.31	4.87
5725	2.72	5.33
5785	2.80	5.49
5850	2.39	5.04
5920	2.18	4.89
6500	1.62	3.38
7125	1.31	3.97

Pa@t@2.4Ghz@Gain@Phi

[GainPhi]	0.0	0.5	1.0	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	0.115	0.120	0.125	0.130	0.135	0.140	0.145	0.150	0.155	0.160	0.165	0.170	0.175	0.180	0.185	0.190	0.195	0.200	0.205	0.210	0.215	0.220	0.225	0.230	0.235	0.240	0.245	0.250	0.255	0.260	0.265	0.270	0.275	0.280	0.285	0.290	0.295	0.300	0.305	0.310	0.315	0.320	0.325	0.330	0.335	0.340	0.345	0.350	0.355	0.360																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
0.0	1.125	1.383	1.693	1.943	2.143	2.303	2.433	2.543	2.643	2.733	2.813	2.883	2.943	2.993	3.033	3.073	3.103	3.133	3.153	3.173	3.193	3.213	3.233	3.253	3.273	3.293	3.313	3.333	3.353	3.373	3.393	3.413	3.433	3.453	3.473	3.493	3.513	3.533	3.553	3.573	3.593	3.613	3.633	3.653	3.673	3.693	3.713	3.733	3.753	3.773	3.793	3.813	3.833	3.853	3.873	3.893	3.913	3.933	3.953	3.973	3.993	4.013	4.033	4.053	4.073	4.093	4.113	4.133	4.153	4.173	4.193	4.213	4.233	4.253	4.273	4.293	4.313	4.333	4.353	4.373	4.393	4.413	4.433	4.453	4.473	4.493	4.513	4.533	4.553	4.573	4.593	4.613	4.633	4.653	4.673	4.693	4.713	4.733	4.753	4.773	4.793	4.813	4.833	4.853	4.873	4.893	4.913	4.933	4.953	4.973	4.993	5.013	5.033	5.053	5.073	5.093	5.113	5.133	5.153	5.173	5.193	5.213	5.233	5.253	5.273	5.293	5.313	5.333	5.353	5.373	5.393	5.413	5.433	5.453	5.473	5.493	5.513	5.533	5.553	5.573	5.593	5.613	5.633	5.653	5.673	5.693	5.713	5.733	5.753	5.773	5.793	5.813	5.833	5.853	5.873	5.893	5.913	5.933	5.953	5.973	5.993	6.013	6.033	6.053	6.073	6.093	6.113	6.133	6.153	6.173	6.193	6.213	6.233	6.253	6.273	6.293	6.313	6.333	6.353	6.373	6.393	6.413	6.433	6.453	6.473	6.493	6.513	6.533	6.553	6.573	6.593	6.613	6.633	6.653	6.673	6.693	6.713	6.733	6.753	6.773	6.793	6.813	6.833	6.853	6.873	6.893	6.913	6.933	6.953	6.973	6.993	7.013	7.033	7.053	7.073	7.093	7.113	7.133	7.153	7.173	7.193	7.213	7.233	7.253	7.273	7.293	7.313	7.333	7.353	7.373	7.393	7.413	7.433	7.453	7.473	7.493	7.513	7.533	7.553	7.573	7.593	7.613	7.633	7.653	7.673	7.693	7.713	7.733	7.753	7.773	7.793	7.813	7.833	7.853	7.873	7.893	7.913	7.933	7.953	7.973	7.993	8.013	8.033	8.053	8.073	8.093	8.113	8.133	8.153	8.173	8.193	8.213	8.233	8.253	8.273	8.293	8.313	8.333	8.353	8.373	8.393	8.413	8.433	8.453	8.473	8.493	8.513	8.533	8.553	8.573	8.593	8.613	8.633	8.653	8.673	8.693	8.713	8.733	8.753	8.773	8.793	8.813	8.833	8.853	8.873	8.893	8.913	8.933	8.953	8.973	8.993	9.013	9.033	9.053	9.073	9.093	9.113	9.133	9.153	9.173	9.193	9.213	9.233	9.253	9.273	9.293	9.313	9.333	9.353	9.373	9.393	9.413	9.433	9.453	9.473	9.493	9.513	9.533	9.553	9.573	9.593	9.613	9.633	9.653	9.673	9.693	9.713	9.733	9.753	9.773	9.793	9.813	9.833	9.853	9.873	9.893	9.913	9.933	9.953	9.973	9.993	10.013	10.033	10.053	10.073	10.093	10.113	10.133	10.153	10.173	10.193	10.213	10.233	10.253	10.273	10.293	10.313	10.333	10.353	10.373	10.393	10.413	10.433	10.453	10.473	10.493	10.513	10.533	10.553	10.573	10.593	10.613	10.633	10.653	10.673	10.693	10.713	10.733	10.753	10.773	10.793	10.813	10.833	10.853	10.873	10.893	10.913	10.933	10.953	10.973	10.993	11.013	11.033	11.053	11.073	11.093	11.113	11.133	11.153	11.173	11.193	11.213	11.233	11.253	11.273	11.293	11.313	11.333	11.353	11.373	11.393	11.413	11.433	11.453	11.473	11.493	11.513	11.533	11.553	11.573	11.593	11.613	11.633	11.653	11.673	11.693	11.713	11.733	11.753	11.773	11.793	11.813	11.833	11.853	11.873	11.893	11.913	11.933	11.953	11.973	11.993	12.013	12.033	12.053	12.073	12.093	12.113	12.133	12.153	12.173	12.193	12.213	12.233	12.253	12.273	12.293	12.313	12.333	12.353	12.373	12.393	12.413	12.433	12.453	12.473	12.493	12.513	12.533	12.553	12.573	12.593	12.613	12.633	12.653	12.673	12.693	12.713	12.733	12.753	12.773	12.793	12.813	12.833	12.853	12.873	12.893	12.913	12.933	12.953	12.973	12.993	13.013	13.033	13.053	13.073	13.093	13.113	13.133	13.153	13.173	13.193	13.213	13.233	13.253	13.273	13.293	13.313	13.333	13.353	13.373	13.393	13.413	13.433	13.453	13.473	13.493	13.513	13.533	13.553	13.573	13.593	13.613	13.633	13.653	13.673	13.693	13.713	13.733	13.753	13.773	13.793	13.813	13.833	13.853	13.873	13.893	13.913	13.933	13.953	13.973	13.993	14.013	14.033	14.053	14.073	14.093	14.113	14.133	14.153	14.173	14.193	14.213	14.233	14.253	14.273	14.293	14.313	14.333	14.353	14.373	14.393	14.413	14.433	14.453	14.473	14.493	14.513	14.533	14.553	14.573	14.593	14.613	14.633	14.653	14.673	14.693	14.713	14.733	14.753	14.773	14.793	14.813	14.833	14.853	14.873	14.893	14.913	14.933	14.953	14.973	14.993	15.013	15.033	15.053	15.073	15.093	15.113	15.133	15.153	15.173	15.193	15.213	15.233	15.253	15.273	15.293	15.313	15.333	15.353	15.373	15.393	15.413	15.433	15.453	15.473	15.493	15.513	15.533	15.553	15.573	15.593	15.613	15.633	15.653	15.673	15.693	15.713	15.733	15.753	15.773	15.793	15.813	15.833	15.853	15.873	15.893	15.913	15.933	15.953	15.973	15.993	16.013	16.033	16.053	16.073	16.093	16.113	16.133	16.153	16.173	16.193	16.213	16.233	16.253	16.273	16.293	16.313	16.333	16.353	16.373	16.393	16.413	16.433	16.453	16.473	16.493	16.513	16.533	16.553	16.573	16.593	16.613	16.633	16.653	16.673	16.693	16.713	16.733	16.753	16.773	16.793	16.813	16.833	16.853	16.873	16.893	16.913	16.933	16.953	16.973	16.993	17.013	17.033	17.053	17.073	17.093	17.113	17.133	17.153	17.173	17.193	17.213	17.233	17.253	17.273	17.293	17.313	17.333	17.353	17.373	17.393	17.413	17.433	17.453	17.473	17.493	17.513	17.533	17.553	17.573	17.593	17.613	17.633	17.653	17.673	17.693	17.713	17.733	17.753	17.773	17.793	17.813	17.833	17.853	17.873	17.893	17.913	17.933	17.953	17.973	17.993	18.013	18.033	18.053	18.073	18.093	18.113	18.133	18.153	18.173	18.193	18.213	18.233	18.253	18.273	18.293	18.313	18.333	18.353	18.373	18.393	18.413	18.433	18.453	18.473	18.493	18.513	18.533	18.553	18.573	18.593	18.613	18.633	18.653	18.673	18.693	18.713	18.733	18.753	18.773	18.793	18.813	18.833	18.853	18.873	18.893	18.913	18.933	18.953	18.973	18.993	19.013	19.033	19.053	19.073	19.093	19.113	19.133	19.153	19.173	19.193	19.213	19.233	19.253	19.273	19.293	19.313	19.333	19.353	19.373	19.393	19.413	19.433	19.453	19.473	19.493	19.513	19.533	19.553	19.573	19.593	19.613	19.633	19.653	19.673	19.693	19.713	19.733	19.753	19.773	19.793	19.813	19.833	19.853	19.873	19.893	19.913	19.933	19.953	19.973	19.993	20.013	20.033	20.053	20.073	20.093	20.113	20.133	20.153	20.173	20.193	20.213	20.233	20.253	20.273	20.293	20.313	20.333	20.353	20.373	20.393	20.413	20.433	20.453	20.473	20.493	20.513	20.533	20.553	20.573	20.593	20.613	20.633	20.653	20.673	20.693	20.713	20.733	20.753	20.773	20.793	20.813	20.833	20.853	20.873	20.893	20.913	20.933	20.953	20.973	20.993	21.013	21.033	21.053	21.073	21.093	21.113	21.133	21.153	21.173	21.193	21.213	21.233	21.253	21.273	21.293	21.313	21.333	21.353	21.373	21.393	21.413	21.433	21.453	21.473	21.493	21.513	21.533	21.553	21.573	21.593	21.613	21.633	21.653	21.673	21.693	21.713	21.733	21.753	21.773	21.793	21.813	21.833	21.853	21.873	21.893	21.913	21.933	21.953	21.973	21.993	22.013	22.033	22.053	22.073	22.093	22.113	22.133	22.153	22.173	22.193	22.213	22.233	22.253	22.273	22.293	22.313	22.333	22.353	22.373	22.393	22.413	22.433	22.453	22.473	22.493	22.513	22.533	22.553	22.573	22.593	22.613	22.633	22.653	22.673	22.693	22.713	22.733	22.753	22.773	22.793	22.813	22.833	22.853	22.873	22.893	22.913	22.933	22.953	22.973	22.993	23.013	23.033	23.053	23.073	23.093	23.113	23.133	23.153	23.173	23.193	23.213	23.233	23.253	23.273	23.293	23.313	23.333	23.353	23.373	23.393	23.413	23.433	23.453	23.473	23.493	23.513	23.533	23.553	23.573	23.593	23.613	23.633	23.653	23.673	23.693	23.713	23.733	23.753	23.773	23.793	23.813	23.833	23.853	23.873	23.893	23.913	23.933	23.953	23.973	23.993	24.013	24.033	24.053	24.073	24.093	24.113	24.133	24.153	24.173	24.193	24.213	24.233	24.253	24.273	24.293	24.313	24.333	24.353	24.373	24.393	24.413	24.433	24.453	24.473	24.493	24.513	24.5



Raw Data @ Ant3 2.5GHz Gain Phi

0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.00																																																																																																						
0.00	1.001	1.980	1.652	1.887	2.014	2.098	2.308	2.057	1.84	1.750	1.5	1.137	0.76	0.262	0.34	0.142	0.181	0.285	0.482	0.591	0.5	0.100	0.101	0.110	0.115	0.120	0.115	0.130	0.135	0.140	0.145	0.150	0.155	0.160	0.165	0.170	0.175	0.180	0.185	0.190	0.195	0.200	0.205	0.210	0.215	0.220	0.225	0.230	0.235	0.240	0.245	0.250	0.255	0.260	0.265	0.270	0.275	0.280	0.285	0.290	0.295	0.300	0.305	0.310	0.315	0.320	0.325	0.330	0.335	0.340	0.345	0.350	0.355	0.360	0.365	0.370	0.375	0.380	0.385	0.390	0.395	0.400	0.405	0.410	0.415	0.420	0.425	0.430	0.435	0.440	0.445	0.450	0.455	0.460	0.465	0.470	0.475	0.480	0.485	0.490	0.495	0.500	0.505	0.510	0.515	0.520	0.525	0.530	0.535	0.540	0.545	0.550	0.555	0.560	0.565	0.570	0.575	0.580	0.585	0.590	0.595	0.600	0.605	0.610	0.615	0.620	0.625	0.630	0.635	0.640	0.645	0.650	0.655	0.660	0.665	0.670	0.675	0.680	0.685	0.690	0.695	0.700	0.705	0.710	0.715	0.720	0.725	0.730	0.735	0.740	0.745	0.750	0.755	0.760	0.765	0.770	0.775	0.780	0.785	0.790	0.795	0.800	0.805	0.810	0.815	0.820	0.825	0.830	0.835	0.840	0.845	0.850	0.855	0.860	0.865	0.870	0.875	0.880	0.885	0.890	0.895	0.900	0.905	0.910	0.915	0.920	0.925	0.930	0.935	0.940	0.945	0.950	0.955	0.960	0.965	0.970	0.975	0.980	0.985	0.990	0.995	1.000
0.01	1.133	1.444	1.888	1.848	1.929	1.944	1.758	1.52	1.246	0.904	0.596	0.15	0.182	0.124	0.278	0.401	0.562	0.7	0.81	0.924	0.962	0.4	0.238	0.107	0.129	0.149	0.133	0.157	0.177	0.194	0.207	0.213	0.218	0.223	0.228	0.233	0.238	0.243	0.248	0.253	0.258	0.263	0.268	0.273	0.278	0.283	0.288	0.293	0.298	0.303	0.308	0.313	0.318	0.323	0.328	0.333	0.338	0.343	0.348	0.353	0.358	0.363	0.368	0.373	0.378	0.383	0.388	0.393	0.398	0.403	0.408	0.413	0.418	0.423	0.428	0.433	0.438	0.443	0.448	0.453	0.458	0.463	0.468	0.473	0.478	0.483	0.488	0.493	0.498	0.503	0.508	0.513	0.518	0.523	0.528	0.533	0.538	0.543	0.548	0.553	0.558	0.563	0.568	0.573	0.578	0.583	0.588	0.593	0.598	0.603	0.608	0.613	0.618	0.623	0.628																																																																																							

Raw Data @ 1.15GHz Gain Theta

[GainTheta]	0.0	0.5	1.0	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	0.110	0.115	0.120	0.125	0.130	0.135	0.140	0.145	0.150	0.155	0.160	0.165	0.170	0.175	0.180	0.185	0.190	0.200	0.210	0.215	0.220	0.225	0.230	0.235	0.240	0.245	0.250	0.255	0.260	0.265	0.270	0.275	0.280	0.285	0.290	0.295	0.300	0.305	0.310	0.315	0.320	0.325	0.330	0.335	0.340	0.345	0.350	0.355	0.360																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
0.0	-14.92	-13.98	-11.25	-10.75	-9.49	-8.60	-7.44	-6.68	-5.94	-5.31	-4.84	-4.23	-3.77	-3.38	-3.06	-2.84	-2.63	-2.43	-2.23	-2.03	-1.83	-1.63	-1.43	-1.23	-1.03	-0.83	-0.63	-0.43	-0.23	-0.03	0.17	0.37	0.57	0.77	0.97	1.17	1.37	1.57	1.77	1.97	2.17	2.37	2.57	2.77	2.97	3.17	3.37	3.57	3.77	3.97	4.17	4.37	4.57	4.77	4.97	5.17	5.37	5.57	5.77	5.97	6.17	6.37	6.57	6.77	6.97	7.17	7.37	7.57	7.77	7.97	8.17	8.37	8.57	8.77	8.97	9.17	9.37	9.57	9.77	9.97	10.17	10.37	10.57	10.77	10.97	11.17	11.37	11.57	11.77	11.97	12.17	12.37	12.57	12.77	12.97	13.17	13.37	13.57	13.77	13.97	14.17	14.37	14.57	14.77	14.97	15.17	15.37	15.57	15.77	15.97	16.17	16.37	16.57	16.77	16.97	17.17	17.37	17.57	17.77	17.97	18.17	18.37	18.57	18.77	18.97	19.17	19.37	19.57	19.77	19.97	20.17	20.37	20.57	20.77	20.97	21.17	21.37	21.57	21.77	21.97	22.17	22.37	22.57	22.77	22.97	23.17	23.37	23.57	23.77	23.97	24.17	24.37	24.57	24.77	24.97	25.17	25.37	25.57	25.77	25.97	26.17	26.37	26.57	26.77	26.97	27.17	27.37	27.57	27.77	27.97	28.17	28.37	28.57	28.77	28.97	29.17	29.37	29.57	29.77	29.97	30.17	30.37	30.57	30.77	30.97	31.17	31.37	31.57	31.77	31.97	32.17	32.37	32.57	32.77	32.97	33.17	33.37	33.57	33.77	33.97	34.17	34.37	34.57	34.77	34.97	35.17	35.37	35.57	35.77	35.97	36.17	36.37	36.57	36.77	36.97	37.17	37.37	37.57	37.77	37.97	38.17	38.37	38.57	38.77	38.97	39.17	39.37	39.57	39.77	39.97	40.17	40.37	40.57	40.77	40.97	41.17	41.37	41.57	41.77	41.97	42.17	42.37	42.57	42.77	42.97	43.17	43.37	43.57	43.77	43.97	44.17	44.37	44.57	44.77	44.97	45.17	45.37	45.57	45.77	45.97	46.17	46.37	46.57	46.77	46.97	47.17	47.37	47.57	47.77	47.97	48.17	48.37	48.57	48.77	48.97	49.17	49.37	49.57	49.77	49.97	50.17	50.37	50.57	50.77	50.97	51.17	51.37	51.57	51.77	51.97	52.17	52.37	52.57	52.77	52.97	53.17	53.37	53.57	53.77	53.97	54.17	54.37	54.57	54.77	54.97	55.17	55.37	55.57	55.77	55.97	56.17	56.37	56.57	56.77	56.97	57.17	57.37	57.57	57.77	57.97	58.17	58.37	58.57	58.77	58.97	59.17	59.37	59.57	59.77	59.97	60.17	60.37	60.57	60.77	60.97	61.17	61.37	61.57	61.77	61.97	62.17	62.37	62.57	62.77	62.97	63.17	63.37	63.57	63.77	63.97	64.17	64.37	64.57	64.77	64.97	65.17	65.37	65.57	65.77	65.97	66.17	66.37	66.57	66.77	66.97	67.17	67.37	67.57	67.77	67.97	68.17	68.37	68.57	68.77	68.97	69.17	69.37	69.57	69.77	69.97	70.17	70.37	70.57	70.77	70.97	71.17	71.37	71.57	71.77	71.97	72.17	72.37	72.57	72.77	72.97	73.17	73.37	73.57	73.77	73.97	74.17	74.37	74.57	74.77	74.97	75.17	75.37	75.57	75.77	75.97	76.17	76.37	76.57	76.77	76.97	77.17	77.37	77.57	77.77	77.97	78.17	78.37	78.57	78.77	78.97	79.17	79.37	79.57	79.77	79.97	80.17	80.37	80.57	80.77	80.97	81.17	81.37	81.57	81.77	81.97	82.17	82.37	82.57	82.77	82.97	83.17	83.37	83.57	83.77	83.97	84.17	84.37	84.57	84.77	84.97	85.17	85.37	85.57	85.77	85.97	86.17	86.37	86.57	86.77	86.97	87.17	87.37	87.57	87.77	87.97	88.17	88.37	88.57	88.77	88.97	89.17	89.37	89.57	89.77	89.97	90.17	90.37	90.57	90.77	90.97	91.17	91.37	91.57	91.77	91.97	92.17	92.37	92.57	92.77	92.97	93.17	93.37	93.57	93.77	93.97	94.17	94.37	94.57	94.77	94.97	95.17	95.37	95.57	95.77	95.97	96.17	96.37	96.57	96.77	96.97	97.17	97.37	97.57	97.77	97.97	98.17	98.37	98.57	98.77	98.97	99.17	99.37	99.57	99.77	100.00

Ø100	-6.076	-9.639	-18.939	-19.067	-1
Ø105	-8.789	-12.929	-25.546	-17.77	-1
Ø110	-15.431	-20.508	-20.562	-16.825	-1
Ø115	-13.569	-13.929	-14.516	-16.3	-1
Ø120	-8.845	-8.863	-13.18	-16.4	-1

100%

Raw Data @ Ant3 5.5GHz Gain Phi

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																																																																																																																																																																																																																											
0	291	266	287	288	300	321	348	389	387	426	438	459	484	513	548	589	638	698	769	850	944	1054	1180	1324	1486	1668	1869	2091	2334	2600	2889	3202	3549	3934	4358	4821	5324	5857	6420	7013	7636	8289	8982	9715	10488	11301	12154	13047	13980	14953	15966	17019	18112	19245	20418	21631	22884	24177	25510	26883	28296	29749	31242	32775	34348	35961	37614	39307	41040	42813	44626	46479	48372	50305	52278	54291	56344	58437	60570	62743	64946	67179	69442	71745	74078	76441	78844	81287	83770	86293	88846	91429	94052	96715	99418	102161	104944	107767	110630	113523	116456	119429	122442	125495	128588	131721	134894	138107	141360	144653	147986	151359	154772	158225	161718	165251	168824	172437	176080	179763	183486	187249	191052	194895	198778	202691	206634	210607	214610	218643	222706	226799	230922	235075	239258	243471	247714	251987	256290	260623	264986	269379	273802	278255	282738	287251	291794	296367	300970	305603	310266	314959	319682	324435	329218	334031	338874	343747	348640	353563	358516	363499	368512	373555	378638	383751	388894	394067	399270	404503	409766	415059	420382	425735	431118	436531	441974	447457	452970	458513	464086	469689	475322	480995	486698	492431	498194	503987	509810	515663	521546	527459	533402	539375	545378	551411	557474	563567	569690	575843	581926	588039	594182	600355	606558	612791	619054	625347	631670	638023	644406	650819	657262	663735	670238	676771	683334	689927	696550	703203	709886	716609	723372	730175	737008	743871	750774	757707	764670	771663	778686	785739	792822	799935	807078	814251	821454	828687	835950	843243	850566	857919	865302	872715	880158	887631	895134	902667	910230	917823	925446	933089	940762	948465	956198	963961	971754	979577	987430	995313	1003226	1011129	1019042	1026965	1034898	1042841	1050794	1058757	1066730	1074713	1082706	1090709	1098722	1106745	1114778	1122821	1130874	1138947	1147030	1155123	1163226	1171339	1179462	1187595	1195738	1203891	1212054	1220227	1228410	1236603	1244816	1253039	1261272	1269515	1277768	1286031	1294304	1302587	1310880	1319193	1327516	1335849	1344192	1352535	1360888	1369251	1377624	1386007	1394390	1402783	1411186	1419699	1428222	1436755	1445298	1453851	1462414	147098

Raw Data @ Ant3 5.725GHz Gain Phi

[illegible]

SE

37

Raw Data @ Ant3 5.785GHz Gain Phi

[GainPhi]	0.0	0.5	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	0.100	0.105	0.110	0.115	0.120	0.125	0.130	0.135	0.140	0.145	0.150	0.155	0.160	0.165	0.170	0.175	0.180	0.185	0.190	0.195	0.200	0.205	0.210	0.215	0.220	0.225	0.230	0.235	0.240	0.245	0.250	0.255	0.260	0.265	0.270	0.275	0.280	0.285	0.290	0.295	0.300	0.305	0.310	0.315	0.320	0.325	0.330	0.335	0.340	0.345	0.350	0.355	0.360																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
0.0	-2.923	-2.824	-2.79	-2.822	-2.923	-3.09	-3.329	-3.642	-4.036	-4.517	-5.097	-5.789	-6.613	-7.596	-8.777	-10.223	-12.000	-14.088	-16.678	-19.824	-23.587	-27.886	-32.671	-37.991	-43.797	-49.999	-56.634	-63.643	-71.000	-78.762	-86.888	-95.320	-104.010	-112.910	-122.000	-131.250	-140.710	-150.340	-160.110	-170.000	-180.000	-190.000	-200.000	-210.000	-220.000	-230.000	-240.000	-250.000	-260.000	-270.000	-280.000	-290.000	-300.000	-310.000	-320.000	-330.000	-340.000	-350.000	-360.000	-370.000	-380.000	-390.000	-400.000	-410.000	-420.000	-430.000	-440.000	-450.000	-460.000	-470.000	-480.000	-490.000	-500.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
0.1	-1.26	-1.271	-1.164	-1.167	-1.594	-1.278	-1.322	-3.822	-4.537	-5.337	-6.227	-7.199	-8.241	-9.346	-10.506	-11.723	-13.023	-14.442	-16.022	-17.763	-19.676	-21.740	-23.946	-26.286	-28.750	-31.330	-34.020	-36.810	-39.690	-42.660	-45.710	-48.830	-51.990	-55.280	-58.690	-62.210	-65.830	-69.540	-73.340	-77.220	-81.170	-85.180	-89.240	-93.350	-97.500	-101.690	-105.910	-110.150	-114.410	-118.680	-122.960	-127.250	-131.540	-135.830	-140.120	-144.410	-148.700	-152.990	-157.280	-161.570	-165.860	-170.150	-174.440	-178.730	-183.020	-187.310	-191.600	-195.890	-200.180	-204.470	-208.760	-213.050	-217.340	-221.630	-225.920	-230.210	-234.500	-238.790	-243.080	-247.370	-251.660	-255.950	-260.240	-264.530	-268.820	-273.110	-277.400	-281.690	-285.980	-290.270	-294.560	-298.850	-303.140	-307.430	-311.720	-316.010	-320.300	-324.590	-328.880	-333.170	-337.460	-341.750	-346.040	-350.330	-354.620	-358.910	-363.200	-367.490	-371.780	-376.070	-380.360	-384.650	-388.940	-393.230	-397.520	-401.810	-406.100	-410.390	-414.680	-418.970	-423.260	-427.550	-431.840	-436.130	-440.420	-444.710	-449.000	-453.290	-457.580	-461.870	-466.160	-470.450	-474.740	-479.030	-483.320	-487.610	-491.900	-496.190	-500.480	-504.770	-509.060	-513.350	-517.640	-521.930	-526.220	-530.510	-534.800	-539.090	-543.380	-547.670	-551.960	-556.250	-560.540	-564.830	-569.120	-573.410	-577.700	-581.990	-586.280	-590.570	-594.860	-599.150	-603.440	-607.730	-612.020	-616.310	-620.600	-624.890	-629.180	-633.470	-637.760	-642.050	-646.340	-650.630	-654.920	-659.210	-663.500	-667.790	-672.080	-676.370	-680.660	-684.950	-689.240	-693.530	-697.820	-702.110	-706.400	-710.690	-714.980	-719.270	-723.560	-727.850	-732.140	-736.430	-740.720	-745.010	-749.300	-753.590	-757.880	-762.170	-766.460	-770.750	-775.040	-779.330	-783.620	-787.910	-792.200	-796.490	-800.780	-805.070	-809.360	-813.650	-817.940	-822.230	-826.520	-830.810	-835.100	-839.390	-843.680	-847.970	-852.260	-856.550	-860.840	-865.130	-869.420	-873.710	-878.000	-882.290	-886.580	-890.870	-895.160	-899.450	-903.740	-908.030	-912.320	-916.610	-920.900	-925.190	-929.480	-933.770	-938.060	-942.350	-946.640	-950.930	-955.220	-959.510	-963.800	-968.090	-972.380	-976.670	-980.960	-985.250	-989.540	-993.830	-998.120	-1002.410	-1006.700	-1010.990	-1015.280	-1019.570	-1023.860	-1028.150	-1032.440	-1036.730	-1041.020	-1045.310	-1049.600	-1053.890	-1058.180	-1062.470	-1066.760	-1071.050	-1075.340	-1079.630	-1083.920	-1088.210	-1092.500	-1096.790	-1101.080	-1105.370	-1109.660	-1113.950	-1118.240	-1122.530	-1126.820	-1131.110	-1135.400	-1139.690	-1143.980	-1148.270	-1152.560	-1156.850	-1161.140	-1165.430	-1169.720	-1174.010	-1178.300	-1182.590	-1186.880	-1191.170	-1195.460	-1199.750	-1204.040	-1208.330	-1212.620	-1216.910	-1221.200	-1225.490	-1229.780	-1234.070	-1238.360	-1242.650	-1246.940	-1251.230	-1255.520	-1259.810	-1264.100	-1268.390	-1272.680	-1276.970	-1281.260	-1285.550	-1289.840	-1294.130	-1298.420	-1302.710	-1307.000	-1311.290	-1315.580	-1319.870	-1324.160	-1328.450	-1332.740	-1337.030	-1341.320	-1345.610	-1349.900	-1354.190	-1358.480	-1362.770	-1367.060	-1371.350	-1375.640	-1379.930	-1384.220	-1388.510	-1392.800	-1397.090	-1401.380	-1405.670	-1409.960	-1414.250	-1418.540	-1422.830	-1427.120	-1431.410	-1435.700	-1440.000	-1444.290	-1448.580	-1452.870	-1457.160	-1461.450	-1465.740	-1470.030	-1474.320	-1478.610	-1482.900	-1487.190	-1491.480	-1495.770	-1500.060	-1504.350	-1508.640	-1512.930	-1517.220	-1521.510	-1525.800	-1530.090	-1534.380	-1538.670	-1542.960	-1547.250	-1551.540	-1555.830	-1560.120	-1564.410	-1568.700	-1573.000	-1577.290	-1581.580	-1585.870	-1590.160	-1594.450	-1598.740	-1603.030	-1607.320	-1611.610	-1615.900	-1620.190	-1624.480	-1628.770	-1633.060	-1637.350	-1641.640	-1645.930	-1650.220	-1654.510	-1658.800	-1663.090	-1667.380	-1671.670	-1675.960	-1680.250	-1684.540	-1688.830	-1693.120	-1697.410	-1701.700	-1706.000	-1710.290	-1714.580	-1718.870	-1723.160	-1727.450	-1731.740	-1736.030	-1740.320	-1744.610	-1748.900	-1753.190	-1757.480	-1761.770	-1766.060	-1770.350	-1774.640	-1778.930	-1783.220	-1787.510	-1791.800	-1796.090	-1800.380	-1804.670	-1808.960	-1813.250	-1817.540	-1821.830	-1826.120	-1830.410	-1834.700	-1839.000	-1843.290	-1847.580	-1851.870	-1856.160	-1860.450	-1864.740	-1869.030	-1873.320	-1877.610	-1881.900	-1886.190	-1890.480	-1894.770	-1899.060	-1903.350	-1907.640	-1911.930	-1916.220	-1920.510	-1924.800	-1929.090	-1933.380	-1937.670	-1941.960	-1946.250	-1950.540	-1954.830	-1959.120	-1963.410	-1967.700	-1972.000	-1976.290	-1980.580	-1984.870	-1989.160	-1993.450	-1997.740	-2002.030	-2006.320	-2010.610	-2014.900	-2019.190	-2023.480	-2027.770	-2032.060	-2036.350	-2040.640	-2044.930	-2049.220	-2053.510	-2057.800	-2062.090	-2066.380	-2070.670	-2074.960	-2079.250	-2083.540	-2087.830	-2092.120	-2096.410	-2100.700	-2105.000	-2109.290	-2113.580	-2117.870	-2122.160	-2126.450	-2130.740	-2135.030	-2139.320	-2143.610	-2147.900	-2152.190	-2156.480	-2160.770	-2165.060	-2169.350	-2173.640	-2177.930	-2182.220	-2186.510	-2190.800	-2195.090	-2199.380	-2203.670	-2207.960	-2212.250	-2216.540	-2220.830	-2225.120	-2229.410	-2233.700	-2238.000	-2242.290	-2246.580	-2250.870	-2255.160	-2259.450	-2263.740	-2268.030	-2272.320	-2276.610	-2280.900	-2285.190	-2289.480	-2293.770	-2298.060	-2302.350	-2306.640	-2310.930	-2315.220	-2319.510	-2323.800	-2328.090	-2332.380	-2336.670	-2340.960	-2345.250	-2349.540	-2353.830	-2358.120	-2362.410	-2366.700	-2371.000	-2375.290	-2379.580	-2383.870	-2388.160	-2392.450	-2396.740	-2401.030	-2405.320	-2409.610	-2413.900	-2418.190	-2422.480	-2426.770	-2431.060	-2435.350	-2439.640	-2443.930	-2448.220	-2452.510	-2456.800	-2461.090	-2465.380	-2469.670	-2473.960	-2478.250	-2482.540	-2486.830	-2491.120	-2495.410	-2499.700	-2504.000	-2508.290	-2512.580	-2516.870	-2521.160	-2525.450	-2529.740	-2534.030	-2538.320	-2542.610	-2546.900	-2551.190	-2555.480	-2559.770	-2564.060	-2568.350	-2572.640	-2576.930	-2581.220	-2585.510	-2589.800	-2594.090	-2598.380	-2602.670	-2606.960	-2611.250	-2615.540	-2619.830	-2624.120	-2628.410	-2632.700	-2637.000	-2641.290	-2645.580	-2649.870	-2654.160	-2658.450	-2662.740	-2667.030	-2671.320	-2675.610	-2679.900	-2684.190	-2688.480	-2692.770	-2697.060	-2701.350	-2705.640	-2709.930	-2714.220	-2718.510	-2722.800	-2727.090	-2731.380	-2735.670	-2740.000	-2744.290	-2748.580	-2752.870	-2757.160	-2761.450	-2765.740	-2770.030	-2774.320	-2778.610	-2782.900	-2787.190	-2791.480	-2795.770	-2800.060	-2804.350	-2808.640	-2812.930	-2817.220	-2821.510	-2825.800	-2830.090	-2834.380	-2838.670	-2842.960	-2847.250	-2851.540	-2855.830	-2860.120	-2864.410	-2868.700	-2873.000	-2877.290	-2881.580	-2885.870	-2890.160	-2894.450	-2898.740	-2903.030	-2907.320	-2911.610	-2915.900	-2920.190	-2924.480	-2928.770	-2933.060	-2937.350	-2941.640	-2945.930	-2950.220	-2954.510	-2958.800	-2963.090	-2967.380	-2971.670	-2975.960	-2980.250	-2984.540	-2988.830	-2993.120	-2997.410	-3001.700	-3006.000	-3010.290	-3014.580	-3018.870	-3023.160	-3027.450	-3031.740	-3036.030	-3040.320	-3044.610	-3048.900	-3053.190	-3057.480	-3061.770	-3066.060	-3070.350	-3074.640	-3078.930	-3083.220	-3087.510	-3091.800	-3096.090	-3100.380	-3104.670	-3108.960	-3113.250	-3117.540	-3121.830	-3126.120	-3130.410	-3134.700	-3139.000	-3143.290	-3147.580	-3151.870	-3156.160	-3160.450	-3164.740	-3169.030	-3173.320	-3177.610	-3181.900	-3186.190	-3190.480	-3194.770	-3199.060	-3203.350	-3207.640	-3211.930	-3216.220	-3220.510	-3224.800	-3229.090	-3233.380	-3237.670	-3241.960	-3246.250	-3250.540	-3254.830	-3259.120	-3263.410	-3267.700	-3272.000	-3276.290	-3280.580	-3284.870	-3289.160	-3293.450	-3297.740	-3302.030	-3306.320	-3310.610	-3314.900	-3319.190	-3323.480	-3327.770	-3332.060	-3336.350	-3340.640	-3344.930	-3349.220	-3353.510	-3357.800	-3362.090	-3366.380	-3370.670	-3374.960	-3379.250	-3383.540	-3387.830	-3392.120	-3396.410	-3400.700	-3405.000	-3409.290	-3413.580	-3417.870	-3422.160	-3426.450	-3430.740	-3435.030	-3439.320	-3443.610	-3447.900	-3452.190	-3456.480	-3460.770	-3465.060	-3469.350	-3473.640	-3477.930	-3482.220	-3486.510	-3490.800	-3495.090	-3499.380	-3503.670	-3507.960	-3512.250	-3516.540	-3520.830	-3525.120	-3529.410	-3533.700	-3538.000	-3

0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00																																																																																																																																																																																																																																																																										
0.00	4444	-2.884	41.419	-43.92	-4.288	4.45	4.68	4.98	5.356	5.811	6.359	7.005	7.764	8.627	9.608	10.727	11.968	13.321	14.788	16.361	18.031	19.797	21.658	23.614	25.664	27.807	29.933	32.142	34.433	36.805	39.257	41.789	44.401	47.093	49.865	52.717	55.649	58.661	61.753	64.925	68.177	71.509	74.921	78.413	81.985	85.637	89.369	93.181	97.073	101.045	105.087	109.2	113.411	117.682	122.013	126.404	130.855	135.366	140.037	144.768	149.559	154.411	159.323	164.295	169.327	174.419	179.571	184.783	190.055	195.387	200.779	206.231	211.744	217.317	222.95	228.642	234.384	240.185	246.046	251.967	257.938	263.96	269.931	275.952	282.023	288.144	294.315	300.536	306.807	313.128	319.499	325.92	332.391	338.902	345.453	352.054	358.705	365.406	372.157	378.958	385.809	392.71	399.661	406.652	413.694	420.785	427.926	435.017	442.158	449.349	456.59	463.881	471.212	478.593	486.024	493.505	501.036	508.617	516.248	523.929	531.66	539.441	547.262	555.133	563.054	571.025	579.046	587.117	595.238	603.409	611.63	619.901	628.212	636.573	645.084	653.645	662.256	670.917	679.628	688.389	697.2	706.061	714.982	723.953	732.974	742.045	751.166	760.337	769.558	778.829	788.15	797.521	806.942	816.413	825.934	835.505	845.126	854.797	864.518	874.289	884.11	893.981	903.902	913.873	923.894	933.965	944.086	954.257	964.478	974.749	985.07	995.441	1005.852	1016.313	1026.824	1037.385	1047.996	1058.657	1069.368	1079.929	1090.54	1101.201	1111.902	1122.653	1133.454	1144.255	1155.056	1165.857	1176.658	1187.459	1198.26	1209.061	1219.862	1230.663	1241.464	1252.265	1263.066	1273.867	1284.668	1295.469	1306.27	1317.071	1327.872	1338.673	1349.474	1360.275	1371.076	1381.877	1392.678	1403.479	1414.28	1425.081	1435.882	1446.683	1457.484	1468.285	1479.086	1489.887	1500.688	1511.489	1522.29	1533.091	1543.892	1554.693	1565.494	1576.295	1587.096	1597.897	1608.698	1619.499	1630.3	1641.101	1651.902	1662.703	1673.504	1684.305	1695.106	1705.907	1716.708	1727.509	1738.31	1749.112	1759.913	1770.714	1781.515	1792.316	1803.117	1813.918	1824.719	1835.52	1846.321	1857.122	1867.923	1878.724	1889.525	1900.326	1911.127	1921.928	1932.729	1943.53	1954.331	1965.132	1975.933	1986.734	1997.535	2008.336	2019.137	2029.938	2040.739	2051.54	2062.341	2073.142	2083.943	2094.744	2105.545	2116.346	2127.147	2137.948	2148.749	2159.55	2170.351	2181.152	2191.953	2202.754	2213.555	2224.356	2235.157	2245.958	2256.759	2267.56	2278.361	2289.162	2299.963	2310.764	2321.565	2332.366	2343.167	2353.968	2364.769	2375.57	2386.371	2397.172	2407.973	2418.774	2429.575	2

Figure 1. The effect of the number of nodes on the number of iterations required to reach the optimal solution for the 1000 nodes problem.

Real Data @ Ant 3.6.5G - Gain Data

[Gain]Theta	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5	27.0	27.5	28.0	28.5	29.0	29.5	30.0	30.5	31.0	31.5	32.0	32.5	33.0	33.5	34.0	34.5	35.0	35.5	36.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
0.0	14325	15566	16425	17359	18128	18361	17948	17124	16336	15501	14509	13102	12279	11541	10939	9473	8747	9147	8884	8489	8355	848	8465	851	8614	878	9008	9302	9665	10156	10431	10918	11279	11635	12054	12425	12866	13255	13654	14065	14493	14938	15399	15876	16368	16874	17384	17906	18439	18983	19537	20099	20678	21264	21866	22483	23114	23758	24404	25061	25728	26405	27092	27788	28493	29206	29926	30653	31386	32125	32869	33618	34372	35131	35895	36664	37438	38216	39000	39788	40580	41376	42175	42977	43781	44587	45395	46205	47017	47830	48644	49459	50275	51092	51910	52729	53549	54370	55192	56015	56839	57663	58488	59313	60139	60965	61792	62620	63448	64276	65105	65934	66763	67592	68421	69250	70079	70908	71737	72566	73395	74224	75053	75882	76711	77540	78369	79198	80027	80856	81685	82514	83343	84172	84999	85827	86655	87483	88311	89139	89967	90795	91623	92451	93279	94107	94935	95763	96591	97419	98247	99075	99903	100731	101559	102387	103215	104043	104871	105699	106527	107355	108183	109011	109839	110667	111495	112323	113151	113979	114807	115635	116463	117291	118119	118947	119775	120603	121431	122259	123087	123915	124743	125571	126399	127227	128055	128883	129711	130539	131367	132195	133023	133851	134679	135507	136335	137163	137991	138819	139647	140475	141303	142131	142959	143787	144615	145443	146271	147099	147927	148755	149583	150411	151239	152067	152895	153723	154551	155379	156207	157035	157863	158691	159519	160347	161175	162003	162831	163659	164487	165315	166143	166971	167799	168627	169455	170283	171111	171939	172767	173595	174423	175251	176079	176907	177735	178563	179391	180219	181047	181875	182703	183531	184359	185187	186015	186843	187671	188499	189327	190155	190983	191811	192639	193467	194295	195123	195951	196779	197607	198435	199263	200091	200919	201747	202575	203403	204231	205059	205887	206715	207543	208371	209199	210027	210855	211683	212511	213339	214167	214995	215823	216651	217479	218307	219135	219963	220791	221619	222447	223275	224103	224931	225759	226587	227415	228243	229071	229899	230727	231555	232383	233211	234039	234867	235695	236523	237351	238179	239007	239835	240663	241491	242319	243147	243975	244803	245631	246459	247287	248115	248943	249771	250599	251427	252255	253083	253911	254739	255567	256395	257223	258051	258879	259707	260535	261363	262191	263019	263847	264675	265503	266331	267159	267987	268815	269643	270471	271299	272127	272955	273783	274611	275439	276267	277095	277923	278751	279579	280407	281235	282063	282891	283719	284547	285375	286203	287031	287859	288687	289515	290343	291171	291999	292827	293655	294483	295311	296139	296967	297795	298623	299451	300279	301107	301935	302763	303591	304419	305247	306075	306903	307731	308559	309387	310215	311043	311871	312699	313527	314355	315183	316011	316839	317667	318495	319323	320151	320979	321807	322635	323463	324291	325119	325947	326775	327603	328431	329259	330087	330915	331743	332571	333399	334227	335055	335883	336711	337539	338367	339195	340023	340851	341679	342507	343335	344163	344991	345819	346647	347475	348303	349131	349959	350787	351615	352443	353271	354099	354927	355755	356583	357411	358239	359067	359895	360723	361551	362379	363207	364035	364863	365691	366519	367347	368175	368999	369823	370647	371471	372295	373119	373943	374767	375591	376415	377239	378063	378887	379711	380535	381359	382183	383007	383831	384655	385479	386303	387127	387951	388775	389599	390423	391247	392071	392895	393719	394543	395367	396191	397015	397839	398663	399487	400311	401135	401959	402783	403607	404431	405255	406079	406903	407727	408551	409375	410199	411023	411847	412671	413495	414319	415143	415967	416791	417615	418439	419263	420087	420911	421735	422559	423383	424207	425031	425855	426679	427503	428327	429151	430000	430820	431640	432460	433280	434100	434920	435740	436560	437380	438200	439020	439840	440660	441480	442300	443120	443940	444760	445580	446400	447220	448040	448860	449680	450500	451320	452140	452960	453780	454600	455420	456240	457060	457880	458700	459520	460340	461160	461980	462800	463620	464440	465260	466080	466900	467720	468540	469360	470180	471000	471820	472640	473460	474280	475100	475920	476740	477560	478380	479200	480020	480840	481660	482480	483300	484120	484940	485760	486580	487400	488220	489040	489860	490680	491500	492320	493140	493960	494780	495600	496420	497240	498060	498880	499700	500520	501340	502160	502980	503800	504620	505440	506260	507080	507900	508720	509540	510360	511180	512000	512820	513640	514460	515280	516100	516920	517740	518560	519380	520200	521020	521840	522660	523480	524300	525120	525940	526760	527580	528400	529220	530040	530860	531680	532500	533320	534140	534960	535780	536600	537420	538240	539060	539880	540700	541520	542340	543160	543980	544800	545620	546440	547260	548080	548900	549720	550540	551360	552180	553000	553820	554640	555460	556280	557100	557920	558740	559560	560380	561200	562020	562840	563660	564480	565300	566120	566940	567760	568580	569400	570220	571040	571860	572680	573500	574320	575140	575960	576780	577600	578420	579240	580060	580880	581700	582520	583340	584160	584980	585800	586620	587440	588260	589080	589900	590720	591540	592360	593180	594000	594820	595640	596460	597280	598100	598920	599740	600560	601380	602200	603020	603840	604660	605480	606300	607120	607940	608760	609580	610400	611220	612040	612860	613680	614500	615320	616140	616960	617780	618600	619420	620240	621060	621880	622700	623520	624340	625160	625980	626800	627620	628440	629260	630080	630900	631720	632540	633360	634180	635000	635820	636640	637460	638280	639100	639920	640740	641560	642380	643200	644020	644840	645660	646480	647300	648120	648940	649760	650580	651400	652220	653040	653860	654680	655500	656320	657140	657960	658780	659600	660420	661240	662060	662880	663700	664520	665340	666160	666980	667800	668620	669440	670260	671080	671900	672720	673540	674360	675180	676000	676820	677640	678460	679280	680100	680920	681740	682560	683380	684200	685020	685840	686660	687480	688300	689120	690000	690800	691600	692400	693200	694000	694800	695600	696400	697200	698000	698800	699600	700400	701200	702000	702800	703600	704400	705200	706000	706800	707600	708400	709200	710000	710800	711600	712400	713200	714000	714800	715600	716400	717200	718000	718800	719600	720400	721200	722000	722800	723600	724400	725200	726000	726800	727600	728400	729200	730000	730800	731600	732400	733200	734000	734800	735600	736400	737200	738000	738800	739600	740400	741200	742000	742800	743600	744400	745200	746000	746800	747600	748400	749200	750000	750800	751600	752400	753200	754000	754800	755600	756400	757200	758000	758800	759600	760400	761200	762000	762800	763600	764400	765200	766000	766800	767600	768400	769200	770000	770800	771600	772400	773200	774000	774800	775600	776400	777200	778000	778800	779600	780400	781200	782000	782800	783600	784400	785200	786000	786800	787600	788400	789200	790000	790800	791600	792400	793200	794000	794800	795600	796400	797200	798000	798800	799600	800400	801200	802000	802800	803600	804400	805200	806000	806800	807600	808400	809200	810000	810800	811600	812400	813200	814000	814800	815600	816400	817200	818000	818800	819600	820400	821200	822000	822800	823600	824400	825200	826000	826800	827600	828400	829200	830000	830800	831600	832400	833200	834000	834800	835600	836400	837200	838000	838800	839600	840400	841200	842000	842800	843600	844400	845200	846000	846800	847600	848400	849200	850000	850800	851

Raw Data @ Ant3 6.5GHz Gain Phi

[illegible]

-7.03
-13.159
-10.204
-8.357
-9.841
-9.931
-9.051
-11.634
-19.286
-22.286
-26.182
-56.911
-32.923
-18.234
-12.304
-15.308
-11.615

SERCOM

47

Raw Data @ Ant4 2.4GHz Gain Phi

[GainPhi]	0.0	0.5	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.55	3.60																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
0.0	7.948	7.937	6.658	5.922	5.198	4.514	3.881	3.281	2.737	2.201	1.685	1.143	0.721	0.309	0.002	-0.097	-0.299	-0.509	-0.729	-0.959	-1.200	-1.459	-1.734	-2.024	-2.328	-2.646	-2.977	-3.320	-3.674	-4.038	-4.411	-4.792	-5.180	-5.574	-5.974	-6.379	-6.789	-7.203	-7.621	-8.043	-8.468	-8.897	-9.329	-9.764	-10.202	-10.641	-11.082	-11.525	-11.969	-12.414	-12.860	-13.307	-13.755	-14.204	-14.653	-15.103	-15.553	-16.003	-16.453	-16.903	-17.353	-17.803	-18.253	-18.703	-19.153	-19.603	-20.053	-20.503	-20.953	-21.403	-21.853	-22.303	-22.753	-23.203	-23.653	-24.103	-24.553	-25.003	-25.453	-25.903	-26.353	-26.803	-27.253	-27.703	-28.153	-28.603	-29.053	-29.503	-29.953	-30.403	-30.853	-31.303	-31.753	-32.203	-32.653	-33.103	-33.553	-34.003	-34.453	-34.903	-35.353	-35.803	-36.253	-36.703	-37.153	-37.603	-38.053	-38.503	-38.953	-39.403	-39.853	-40.303	-40.753	-41.203	-41.653	-42.103	-42.553	-43.003	-43.453	-43.903	-44.353	-44.803	-45.253	-45.703	-46.153	-46.603	-47.053	-47.503	-47.953	-48.403	-48.853	-49.303	-49.753	-50.203	-50.653	-51.103	-51.553	-52.003	-52.453	-52.903	-53.353	-53.803	-54.253	-54.703	-55.153	-55.603	-56.053	-56.503	-56.953	-57.403	-57.853	-58.303	-58.753	-59.203	-59.653	-60.103	-60.553	-61.003	-61.453	-61.903	-62.353	-62.803	-63.253	-63.703	-64.153	-64.603	-65.053	-65.503	-65.953	-66.403	-66.853	-67.303	-67.753	-68.203	-68.653	-69.103	-69.553	-70.003	-70.453	-70.903	-71.353	-71.803	-72.253	-72.703	-73.153	-73.603	-74.053	-74.503	-74.953	-75.403	-75.853	-76.303	-76.753	-77.203	-77.653	-78.103	-78.553	-79.003	-79.453	-79.903	-80.353	-80.803	-81.253	-81.703	-82.153	-82.603	-83.053	-83.503	-83.953	-84.403	-84.853	-85.303	-85.753	-86.203	-86.653	-87.103	-87.553	-88.003	-88.453	-88.903	-89.353	-89.803	-90.253	-90.703	-91.153	-91.603	-92.053	-92.503	-92.953	-93.403	-93.853	-94.303	-94.753	-95.203	-95.653	-96.103	-96.553	-97.003	-97.453	-97.903	-98.353	-98.803	-99.253	-99.703	-100.153	-100.603	-101.053	-101.503	-101.953	-102.403	-102.853	-103.303	-103.753	-104.203	-104.653	-105.103	-105.553	-106.003	-106.453	-106.903	-107.353	-107.803	-108.253	-108.703	-109.153	-109.603	-110.053	-110.503	-110.953	-111.403	-111.853	-112.303	-112.753	-113.203	-113.653	-114.103	-114.553	-115.003	-115.453	-115.903	-116.353	-116.803	-117.253	-117.703	-118.153	-118.603	-119.053	-119.503	-119.953	-120.403	-120.853	-121.303	-121.753	-122.203	-122.653	-123.103	-123.553	-124.003	-124.453	-124.903	-125.353	-125.803	-126.253	-126.703	-127.153	-127.603	-128.053	-128.503	-128.953	-129.403	-129.853	-130.303	-130.753	-131.203	-131.653	-132.103	-132.553	-133.003	-133.453	-133.903	-134.353	-134.803	-135.253	-135.703	-136.153	-136.603	-137.053	-137.503	-137.953	-138.403	-138.853	-139.303	-139.753	-140.203	-140.653	-141.103	-141.553	-142.003	-142.453	-142.903	-143.353	-143.803	-144.253	-144.703	-145.153	-145.603	-146.053	-146.503	-146.953	-147.403	-147.853	-148.303	-148.753	-149.203	-149.653	-150.103	-150.553	-151.003	-151.453	-151.903	-152.353	-152.803	-153.253	-153.703	-154.153	-154.603	-155.053	-155.503	-155.953	-156.403	-156.853	-157.303	-157.753	-158.203	-158.653	-159.103	-159.553	-160.003	-160.453	-160.903	-161.353	-161.803	-162.253	-162.703	-163.153	-163.603	-164.053	-164.503	-164.953	-165.403	-165.853	-166.303	-166.753	-167.203	-167.653	-168.103	-168.553	-169.003	-169.453	-169.903	-170.353	-170.803	-171.253	-171.703	-172.153	-172.603	-173.053	-173.503	-173.953	-174.403	-174.853	-175.303	-175.753	-176.203	-176.653	-177.103	-177.553	-178.003	-178.453	-178.903	-179.353	-179.803	-180.253	-180.703	-181.153	-181.603	-182.053	-182.503	-182.953	-183.403	-183.853	-184.303	-184.753	-185.203	-185.653	-186.103	-186.553	-187.003	-187.453	-187.903	-188.353	-188.803	-189.253	-189.703	-190.153	-190.603	-191.053	-191.503	-191.953	-192.403	-192.853	-193.303	-193.753	-194.203	-194.653	-195.103	-195.553	-196.003	-196.453	-196.903	-197.353	-197.803	-198.253	-198.703	-199.153	-199.603	-200.053	-200.503	-200.953	-201.403	-201.853	-202.303	-202.753	-203.203	-203.653	-204.103	-204.553	-205.003	-205.453	-205.903	-206.353	-206.803	-207.253	-207.703	-208.153	-208.603	-209.053	-209.503	-209.953	-210.403	-210.853	-211.303	-211.753	-212.203	-212.653	-213.103	-213.553	-214.003	-214.453	-214.903	-215.353	-215.803	-216.253	-216.703	-217.153	-217.603	-218.053	-218.503	-218.953	-219.403	-219.853	-220.303	-220.753	-221.203	-221.653	-222.103	-222.553	-223.003	-223.453	-223.903	-224.353	-224.803	-225.253	-225.703	-226.153	-226.603	-227.053	-227.503	-227.953	-228.403	-228.853	-229.303	-229.753	-230.203	-230.653	-231.103	-231.553	-232.003	-232.453	-232.903	-233.353	-233.803	-234.253	-234.703	-235.153	-235.603	-236.053	-236.503	-236.953	-237.403	-237.853	-238.303	-238.753	-239.203	-239.653	-240.103	-240.553	-241.003	-241.453	-241.903	-242.353	-242.803	-243.253	-243.703	-244.153	-244.603	-245.053	-245.503	-245.953	-246.403	-246.853	-247.303	-247.753	-248.203	-248.653	-249.103	-249.553	-250.003	-250.453	-250.903	-251.353	-251.803	-252.253	-252.703	-253.153	-253.603	-254.053	-254.503	-254.953	-255.403	-255.853	-256.303	-256.753	-257.203	-257.653	-258.103	-258.553	-259.003	-259.453	-259.903	-260.353	-260.803	-261.253	-261.703	-262.153	-262.603	-263.053	-263.503	-263.953	-264.403	-264.853	-265.303	-265.753	-266.203	-266.653	-267.103	-267.553	-268.003	-268.453	-268.903	-269.353	-269.803	-270.253	-270.703	-271.153	-271.603	-272.053	-272.503	-272.953	-273.403	-273.853	-274.303	-274.753	-275.203	-275.653	-276.103	-276.553	-277.003	-277.453	-277.903	-278.353	-278.803	-279.253	-279.703	-280.153	-280.603	-281.053	-281.503	-281.953	-282.403	-282.853	-283.303	-283.753	-284.203	-284.653	-285.103	-285.553	-286.003	-286.453	-286.903	-287.353	-287.803	-288.253	-288.703	-289.153	-289.603	-290.053	-290.503	-290.953	-291.403	-291.853	-292.303	-292.753	-293.203	-293.653	-294.103	-294.553	-295.003	-295.453	-295.903	-296.353	-296.803	-297.253	-297.703	-298.153	-298.603	-299.053	-299.503	-299.953	-300.403	-300.853	-301.303	-301.753	-302.203	-302.653	-303.103	-303.553	-304.003	-304.453	-304.903	-305.353	-305.803	-306.253	-306.703	-307.153	-307.603	-308.053	-308.503	-308.953	-309.403	-309.853	-310.303	-310.753	-311.203	-311.653	-312.103	-312.553	-313.003	-313.453	-313.903	-314.353	-314.803	-315.253	-315.703	-316.153	-316.603	-317.053	-317.503	-317.953	-318.403	-318.853	-319.303	-319.753	-320.203	-320.653	-321.103	-321.553	-322.003	-322.453	-322.903	-323.353	-323.803	-324.253	-324.703	-325.153	-325.603	-326.053	-326.503	-326.953	-327.403	-327.853	-328.303	-328.753	-329.203	-329.653	-330.103	-330.553	-331.003	-331.453	-331.903	-332.353	-332.803	-333.253	-333.703	-334.153	-334.603	-335.053	-335.503	-335.953	-336.403	-336.853	-337.303	-337.753	-338.203	-338.653	-339.103	-339.553	-340.003	-340.453	-340.903	-341.353	-341.803	-342.253	-342.703	-343.153	-343.603	-344.053	-344.503	-344.953	-345.403	-345.853	-346.303	-346.753	-347.203	-347.653	-348.103	-348.553	-349.003	-349.453	-349.903	-350.353	-350.803	-351.253	-351.703	-352.153	-352.603	-353.053	-353.503	-353.953	-354.403	-354.853	-355.303	-355.753	-356.203	-356.653	-357.103	-357.553	-358.003	-358.453	-358.903	-359.353	-359.803	-360.253	-360.703	-361.153	-361.603	-362.053	-362.503	-362.953	-363.403	-363.853	-364.303	-364.753	-365.203	-365.653	-366.103	-366.553	-367.003	-367.453	-367.903	-368.353	-368.803	-369.253	-369.703	-370.153	-370.603	-371.053	-371.503	-371.953	-372.403	-372.853	-373.303	-373.753	-374.203	-374.653	-375.103	-375.553	-376.003	-376.453	-376.903	-377.353	-377.803	-378.253	-378.703	-379.153	-379.603	-380.053	-380.503	-380.953	-381.403	-381.853	-382.303	-382.753	-383.203	-383.653	-384.103	-384.553	-385.003	-385.453	-385.903	-386.353	-386.803	-387.253	-387.703	-388.153	-388.603	-389.053	-389.503	-389.953	-390.403	-390.853	-391.303	-391.753	-392.203	-392.653	-393.103	-393.553	-394.003	-394.453	-394.903	-395.353	-395.803	-396.253	-396.703	-397.153	-397.603	-398.053	-398.503	-398.953	-399.403	-399.853	-400.303	-400.753	-401.203	-401.653	-402.103	-402.553	-403.003	-403.453	-403.903	-404.353	-404.803	-405.253	-405.703	-406.153	-406.603	-407.053	-407.503	-407.953	-408.403	-408.853	-409.303	-409.753	-410.203	-410.653	-411.103	-411.553	-412.003	-412.453	-412.903	-413.353	-413.803	-414.253	-414.703	-415.153	-415.603	-416.053	-416.503	-416.953	-417.403	-417.853	-418.303	-418.753	-419.203	-419.653	-420.103	-420.553	-421.003	-421.453	-421.903	-422.353	-422.803	-423.253	-423.703	-424.153	-424.603	-425.053	-425.503	-425.953	-426.403	-426.853	-427.303	-427.753	-428.203	-428.653	-429.103	-429.553	-430.003	-430.453	-430.903	-431.353	-431.803	-432.253	-432.703	-433.153	-433.603	-434.053	-434.503	-434.953	-435.403	-435.853	-436.303	-436.753	-437.

Raw Data @ Ant 2.45GHz Gain Theta

Theta	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5	27.0	27.5	28.0	28.5	29.0	29.5	30.0	30.5	31.0	31.5	32.0	32.5	33.0	33.5	34.0	34.5	35.0	35.5	36.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
0.0	2.414	2.241	1.998	1.68	1.281	0.795	0.211	-0.485	-1.332	-2.297	-3.477	-4.912	-6.602	-8.572	-10.808	-13.164	-15.641	-18.248	-20.985	-23.852	-26.852	-30.000	-33.200	-36.450	-39.750	-43.100	-46.500	-49.950	-53.450	-56.900	-60.350	-63.800	-67.250	-70.700	-74.150	-77.600	-81.050	-84.500	-87.950	-91.400	-94.850	-98.300	-101.750	-105.200	-108.650	-112.100	-115.550	-119.000	-122.450	-125.900	-129.350	-132.800	-136.250	-139.700	-143.150	-146.600	-150.050	-153.500	-156.950	-160.400	-163.850	-167.300	-170.750	-174.200	-177.650	-181.100	-184.550	-188.000	-191.450	-194.900	-198.350	-201.800	-205.250	-208.700	-212.150	-215.600	-219.050	-222.500	-225.950	-229.400	-232.850	-236.300	-239.750	-243.200	-246.650	-250.100	-253.550	-257.000	-260.450	-263.900	-267.350	-270.800	-274.250	-277.700	-281.150	-284.600	-288.050	-291.500	-294.950	-298.400	-301.850	-305.300	-308.750	-312.200	-315.650	-319.100	-322.550	-326.000	-329.450	-332.900	-336.350	-339.800	-343.250	-346.700	-350.150	-353.600	-357.050	-360.500	-363.950	-367.400	-370.850	-374.300	-377.750	-381.200	-384.650	-388.100	-391.550	-395.000	-398.450	-401.900	-405.350	-408.800	-412.250	-415.700	-419.150	-422.600	-426.050	-429.500	-432.950	-436.400	-439.850	-443.300	-446.750	-450.200	-453.650	-457.100	-460.550	-464.000	-467.450	-470.900	-474.350	-477.800	-481.250	-484.700	-488.150	-491.600	-495.050	-498.500	-501.950	-505.400	-508.850	-512.300	-515.750	-519.200	-522.650	-526.100	-529.550	-533.000	-536.450	-539.900	-543.350	-546.800	-550.250	-553.700	-557.150	-560.600	-564.050	-567.500	-570.950	-574.400	-577.850	-581.300	-584.750	-588.200	-591.650	-595.100	-598.550	-602.000	-605.450	-608.900	-612.350	-615.800	-619.250	-622.700	-626.150	-629.600	-633.050	-636.500	-639.950	-643.400	-646.850	-650.300	-653.750	-657.200	-660.650	-664.100	-667.550	-671.000	-674.450	-677.900	-681.350	-684.800	-688.250	-691.700	-695.150	-698.600	-702.050	-705.500	-708.950	-712.400	-715.850	-719.300	-722.750	-726.200	-729.650	-733.100	-736.550	-740.000	-743.450	-746.900	-750.350	-753.800	-757.250	-760.700	-764.150	-767.600	-771.050	-774.500	-777.950	-781.400	-784.850	-788.300	-791.750	-795.200	-798.650	-802.100	-805.550	-809.000	-812.450	-815.900	-819.350	-822.800	-826.250	-829.700	-833.150	-836.600	-840.050	-843.500	-846.950	-850.400	-853.850	-857.300	-860.750	-864.200	-867.650	-871.100	-874.550	-878.000	-881.450	-884.900	-888.350	-891.800	-895.250	-898.700	-902.150	-905.600	-909.050	-912.500	-915.950	-919.400	-922.850	-926.300	-929.750	-933.200	-936.650	-940.100	-943.550	-947.000	-950.450	-953.900	-957.350	-960.800	-964.250	-967.700	-971.150	-974.600	-978.050	-981.500	-984.950	-988.400	-991.850	-995.300	-998.750	-1002.200	-1005.650	-1009.100	-1012.550	-1016.000	-1019.450	-1022.900	-1026.350	-1029.800	-1033.250	-1036.700	-1040.150	-1043.600	-1047.050	-1050.500	-1053.950	-1057.400	-1060.850	-1064.300	-1067.750	-1071.200	-1074.650	-1078.100	-1081.550	-1085.000	-1088.450	-1091.900	-1095.350	-1098.800	-1102.250	-1105.700	-1109.150	-1112.600	-1116.050	-1119.500	-1122.950	-1126.400	-1129.850	-1133.300	-1136.750	-1140.200	-1143.650	-1147.100	-1150.550	-1154.000	-1157.450	-1160.900	-1164.350	-1167.800	-1171.250	-1174.700	-1178.150	-1181.600	-1185.050	-1188.500	-1191.950	-1195.400	-1198.850	-1202.300	-1205.750	-1209.200	-1212.650	-1216.100	-1219.550	-1223.000	-1226.450	-1229.900	-1233.350	-1236.800	-1240.250	-1243.700	-1247.150	-1250.600	-1254.050	-1257.500	-1260.950	-1264.400	-1267.850	-1271.300	-1274.750	-1278.200	-1281.650	-1285.100	-1288.550	-1292.000	-1295.450	-1298.900	-1302.350	-1305.800	-1309.250	-1312.700	-1316.150	-1319.600	-1323.050	-1326.500	-1329.950	-1333.400	-1336.850	-1340.300	-1343.750	-1347.200	-1350.650	-1354.100	-1357.550	-1361.000	-1364.450	-1367.900	-1371.350	-1374.800	-1378.250	-1381.700	-1385.150	-1388.600	-1392.050	-1395.500	-1398.950	-1402.400	-1405.850	-1409.300	-1412.750	-1416.200	-1419.650	-1423.100	-1426.550	-1430.000	-1433.450	-1436.900	-1440.350	-1443.800	-1447.250	-1450.700	-1454.150	-1457.600	-1461.050	-1464.500	-1467.950	-1471.400	-1474.850	-1478.300	-1481.750	-1485.200	-1488.650	-1492.100	-1495.550	-1499.000	-1502.450	-1505.900	-1509.350	-1512.800	-1516.250	-1519.700	-1523.150	-1526.600	-1530.050	-1533.500	-1536.950	-1540.400	-1543.850	-1547.300	-1550.750	-1554.200	-1557.650	-1561.100	-1564.550	-1568.000	-1571.450	-1574.900	-1578.350	-1581.800	-1585.250	-1588.700	-1592.150	-1595.600	-1599.050	-1602.500	-1605.950	-1609.400	-1612.850	-1616.300	-1619.750	-1623.200	-1626.650	-1630.100	-1633.550	-1637.000	-1640.450	-1643.900	-1647.350	-1650.800	-1654.250	-1657.700	-1661.150	-1664.600	-1668.050	-1671.500	-1674.950	-1678.400	-1681.850	-1685.300	-1688.750	-1692.200	-1695.650	-1699.100	-1702.550	-1706.000	-1709.450	-1712.900	-1716.350	-1719.800	-1723.250	-1726.700	-1730.150	-1733.600	-1737.050	-1740.500	-1743.950	-1747.400	-1750.850	-1754.300	-1757.750	-1761.200	-1764.650	-1768.100	-1771.550	-1775.000	-1778.450	-1781.900	-1785.350	-1788.800	-1792.250	-1795.700	-1799.150	-1802.600	-1806.050	-1809.500	-1812.950	-1816.400	-1819.850	-1823.300	-1826.750	-1830.200	-1833.650	-1837.100	-1840.550	-1844.000	-1847.450	-1850.900	-1854.350	-1857.800	-1861.250	-1864.700	-1868.150	-1871.600	-1875.050	-1878.500	-1881.950	-1885.400	-1888.850	-1892.300	-1895.750	-1899.200	-1902.650	-1906.100	-1909.550	-1913.000	-1916.450	-1919.900	-1923.350	-1926.800	-1930.250	-1933.700	-1937.150	-1940.600	-1944.050	-1947.500	-1950.950	-1954.400	-1957.850	-1961.300	-1964.750	-1968.200	-1971.650	-1975.100	-1978.550	-1982.000	-1985.450	-1988.900	-1992.350	-1995.800	-1999.250	-2002.700	-2006.150	-2009.600	-2013.050	-2016.500	-2019.950	-2023.400	-2026.850	-2030.300	-2033.750	-2037.200	-2040.650	-2044.100	-2047.550	-2051.000	-2054.450	-2057.900	-2061.350	-2064.800	-2068.250	-2071.700	-2075.150	-2078.600	-2082.050	-2085.500	-2088.950	-2092.400	-2095.850	-2099.300	-2102.750	-2106.200	-2109.650	-2113.100	-2116.550	-2120.000	-2123.450	-2126.900	-2130.350	-2133.800	-2137.250	-2140.700	-2144.150	-2147.600	-2151.050	-2154.500	-2157.950	-2161.400	-2164.850	-2168.300	-2171.750	-2175.200	-2178.650	-2182.100	-2185.550	-2189.000	-2192.450	-2195.900	-2199.350	-2202.800	-2206.250	-2209.700	-2213.150	-2216.600	-2220.050	-2223.500	-2226.950	-2230.400	-2233.850	-2237.300	-2240.750	-2244.200	-2247.650	-2251.100	-2254.550	-2258.000	-2261.450	-2264.900	-2268.350	-2271.800	-2275.250	-2278.700	-2282.150	-2285.600	-2289.050	-2292.500	-2295.950	-2300.400	-2303.850	-2307.300	-2310.750	-2314.200	-2317.650	-2321.100	-2324.550	-2328.000	-2331.450	-2334.900	-2338.350	-2341.800	-2345.250	-2348.700	-2352.150	-2355.600	-2359.050	-2362.500	-2365.950	-2369.400	-2372.850	-2376.300	-2379.750	-2383.200	-2386.650	-2390.100	-2393.550	-2397.000	-2400.450	-2403.900	-2407.350	-2410.800	-2414.250	-2417.700	-2421.150	-2424.600	-2428.050	-2431.500	-2434.950	-2438.400	-2441.850	-2445.300	-2448.750	-2452.200	-2455.650	-2459.100	-2462.550	-2466.000	-2469.450	-2472.900	-2476.350	-2479.800	-2483.250	-2486.700	-2490.150	-2493.600	-2497.050	-2500.500	-2503.950	-2507.400	-2510.850	-2514.300	-2517.750	-2521.200	-2524.650	-2528.100	-2531.550	-2535.000	-2538.450	-2541.900	-2545.350	-2548.800	-2552.250	-2555.700	-2559.150	-2562.600	-2566.050	-2569.500	-2572.950	-2576.400	-2579.850	-2583.300	-2586.750	-2590.200	-2593.650	-2597.100	-2600.550	-2604.000	-2607.450	-2610.900	-2614.350	-2617.800	-2621.250	-2624.700	-2628.150	-2631.600	-2635.050	-2638.500	-2641.950	-2645.400	-2648.850	-2652.300	-2655.750	-2659.200	-2662.650	-2666.100	-2669.550	-2673.000	-2676.450	-2679.900	-2683.350	-2686.800	-2690.250	-2693.700	-2697.150	-2700.600	-2704.050	-2707.500	-2710.950	-2714.400	-2717.850	-2721.300	-2724.750	-2728.200	-2731.650	-2735.100	-2738.550	-2742.000	-2745.450	-2748.900	-2752.350	-2755.800	-2759.250	-2762.700	-2766.150	-2769.600	-2773.050	-2776.500	-2779.950	-2783.400	-2786.850	-2790.300	-2793.750	-2797.200	-2800.650	-2804.100	-2807.550	-2811.000	-2814.450	-2817.900	-2821.350	-2824.800	-2828.250	-2831.700	-2835.150	-2838.600	-2842.050	-2845.500	-2848.950	-2852.400	-2855.850	-2859.300	-2862.750	-2866.200	-2869.650	-2873.100	-2876.550	-2880.000	-2883.450	-2886.900	-2890.350	-2893.800	-2897.250	-2900.700	-2904.150	-2907.600	-2911.050	-2914.500	-2917.950	-2921.400	-2924.850	-2928.300	-2931.750	-2935.200	-2938.650	-2942.100	-2945.550	-2949.000	-2952.450	-2955.900	-2959.350	-2962.800	-2966.250	-2969.700	-2973.150	-2976.600	-2980.050	-2983.500	-2986.950	-2990.400	-2993.850	-2997.300	-3000.750	-3004.200	-3007.650	-3011.100	-3014.550	-3018.000	-3021.450	-3024.900	-3028.350	-3031.800	-3035.250	-3038.700	-3042.150	-3045.600	-3049.050	-3052.500	-3055.950	-3059.400	-3062.850	-3066.300	-3069.750	-3073.200	-3076.650	-3080.100	-3083.550	-3087.000	-3090.450	-3093.900	-3097.350	-3100.800	-3104.250	-3107.700	-3111.150	-3114.600	-3118.050	-3121.500	-3124.950	-3128.400	-3131.850	-3135.300	-3138.750	-3142.200

Raw Data @ Ant4 2.45GHz Gain Phi

Phi	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6
0.0	-11.413	-8.532	-6.353	-4.642	-3.256	-2.111	-1.158	-0.316	-0.082	0.186	0.356	0.484	0.558	0.586	0.566	0.500	0.388	0.234	0.049	-0.159	-0.386	-0.622	-0.857	-1.082	-1.287	-1.463	-1.609	-1.726	-1.805	-1.848	-1.857	-1.834	-1.781	-1.700	-1.594	-1.466	-1.318
0.1	-10.469	-8.093	-5.829	-4.271	-2.941	-1.939	-1.128	-0.598	-0.306	0.068	0.268	0.402	0.464	0.458	0.372	0.208	0.087	-0.084	-0.291	-0.526	-0.780	-1.042	-1.303	-1.559	-1.799	-1.999	-2.147	-2.236	-2.267	-2.234	-2.139	-1.977	-1.750	-1.466	-1.124	-0.734	
0.2	-9.531	-7.182	-5.019	-3.572	-2.428	-1.593	-1.000	-0.586	-0.324	-0.154	0.024	0.184	0.292	0.336	0.300	0.200	0.100	0.000	-0.100	-0.250	-0.450	-0.690	-0.950	-1.210	-1.450	-1.650	-1.790	-1.850	-1.830	-1.730	-1.550	-1.300	-0.980	-0.610	-0.200	0.250	
0.3	-8.619	-6.389	-4.439	-3.149	-2.149	-1.379	-0.869	-0.519	-0.309	-0.179	-0.089	0.000	0.100	0.190	0.250	0.270	0.240	0.160	0.060	-0.060	-0.210	-0.410	-0.650	-0.910	-1.210	-1.450	-1.650	-1.790	-1.850	-1.830	-1.730	-1.550	-1.300	-0.980	-0.610	-0.200	0.250
0.4	-7.731	-5.599	-3.849	-2.699	-1.849	-1.219	-0.769	-0.469	-0.289	-0.179	-0.109	-0.059	0.000	0.080	0.150	0.200	0.210	0.180	0.110	0.030	-0.080	-0.230	-0.430	-0.670	-0.930	-1.190	-1.410	-1.540	-1.580	-1.530	-1.380	-1.140	-0.820	-0.450	-0.040	0.400	
0.5	-6.871	-4.849	-3.349	-2.349	-1.619	-1.049	-0.649	-0.399	-0.249	-0.159	-0.099	-0.059	-0.029	0.000	0.060	0.120	0.160	0.170	0.150	0.100	0.040	-0.040	-0.190	-0.390	-0.630	-0.890	-1.150	-1.360	-1.460	-1.440	-1.310	-1.080	-0.760	-0.400	-0.010	0.450	
0.6	-6.049	-4.149	-2.849	-1.949	-1.319	-0.819	-0.499	-0.309	-0.199	-0.129	-0.079	-0.049	-0.029	-0.010	0.000	0.050	0.100	0.130	0.140	0.130	0.090	0.030	-0.060	-0.210	-0.410	-0.650	-0.910	-1.160	-1.330	-1.400	-1.340	-1.180	-0.950	-0.630	-0.250	0.150	
0.7	-5.269	-3.499	-2.449	-1.749	-1.219	-0.769	-0.469	-0.289	-0.179	-0.109	-0.059	-0.029	-0.010	-0.000	0.000	0.040	0.080	0.110	0.120	0.110	0.080	0.030	-0.080	-0.230	-0.430	-0.670	-0.930	-1.190	-1.320	-1.340	-1.230	-1.070	-0.840	-0.520	-0.150	0.200	
0.8	-4.549	-2.899	-2.049	-1.519	-1.049	-0.649	-0.399	-0.249	-0.159	-0.109	-0.059	-0.029	-0.010	-0.000	-0.000	0.030	0.060	0.090	0.100	0.090	0.070	0.040	-0.060	-0.210	-0.410	-0.650	-0.910	-1.160	-1.280	-1.260	-1.130	-0.970	-0.740	-0.420	-0.050	0.250	
0.9	-3.889	-2.399	-1.749	-1.319	-0.869	-0.519	-0.309	-0.199	-0.129	-0.079	-0.049	-0.029	-0.010	-0.000	-0.000	0.020	0.040	0.060	0.070	0.060	0.050	0.040	0.030	0.020	0.010	-0.010	-0.110	-0.210	-0.200	-0.060	-0.470	-0.570	-0.420	-0.250	-0.080	0.300	
1.0	-3.289	-1.949	-1.449	-1.049	-0.649	-0.399	-0.249	-0.159	-0.109	-0.059	-0.029	-0.010	-0.000	-0.000	-0.000	0.010	0.020	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030

Raw Data @ 2.5GHz Gain Theta

SECRET

[Gain Theta]	0.0	0.5	1.0	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.55	3.60																																																																																																																																																																																																																																																																																																																																		
0.0	4.124	4.056	3.921	3.717	3.439	3.084	2.645	2.121	1.474	0.713	-0.193	-1.28	-2.599	-4.232	-6.328	-9.19	9.353	22.325	21.813	13.327	9.054	6.239	-4.164	-2.544	-1.236	-0.157	0.744	1.5	2.134	2.663	3.099	3.451	3.725	3.927	4.06	4.125	4.124	4.056	3.921	3.717	3.439	3.084	2.645	2.121	1.474	0.713	-0.193	-1.28	-2.599	-4.232	-6.328	-9.18	-13.325	-22.325	-21.813	-13.327	-9.054	-6.239	-4.164	-2.544	-1.236	-0.157	0.744	1.5	2.134	2.663	3.099	3.451	3.725	3.927	4.06	4.125	4.124																																																																																																																																																																																																																																																																																																																																		
0.5	3.823	3.748	3.609	3.402	3.124	2.771	2.335	1.807	1.176	0.405	-0.471	-1.544	-2.847	-4.462	-6.330	-9.358	9.367	22.758	13.699	9.322	6.456	-4.345	-2.696	-1.326	-0.256	0.685	1.441	2.022	2.651	3.107	3.477	3.769	3.987	4.12	4.122	4.042	3.947	3.84	3.567	3.215	2.777	2.244	1.604	0.84	-0.077	-1.165	-2.492	-4.135	-6.241	-9.107	-13.449	-21.946	-31.353	-23.327	-9.025	-6.456	-4.345	-2.696	-1.326	-0.257	0.671	1.343	1.955	2.463	2.879	3.213	3.471	3.658	3.778	3.823	3.823																																																																																																																																																																																																																																																																																																																																				
1.0	3.348	3.275	3.139	2.937	2.668	2.324	1.899	1.386	0.766	0.029	-0.851	-2.086	-3.188	-4.778	-6.816	-9.588	13.874	27.768	13.699	9.322	6.456	-4.345	-2.696	-1.326	-0.256	0.685	1.441	2.022	2.651	3.107	3.477	3.769	3.987	4.12	4.122	4.042	3.947	3.84	3.567	3.215	2.777	2.244	1.604	0.84	-0.077	-1.165	-2.492	-4.135	-6.241	-9.107	-13.449	-21.946	-31.353	-23.327	-9.025	-6.456	-4.345	-2.696	-1.326	-0.257	0.671	1.343	1.955	2.463	2.879	3.213	3.471	3.658	3.778	3.823	3.823																																																																																																																																																																																																																																																																																																																																				
1.5	2.775	2.711	2.586	2.398	2.141	1.803	1.403	0.905	0.306	-0.413	-1.273	-2.307	-3.563	-5.12	-7.109	-9.798	18.828	37.18	17.518	15.609	10.779	-7.739	-5.49	-3.752	-2.342	-1.169	-0.381	0.659	1.374	1.98	2.488	2.966	3.241	3.495	3.673	3.774	3.802	3.765	3.635	3.4	3.168	2.814	2.375	1.824	1.204	0.444	-0.459	-1.541	-2.853	-4.476	-6.553	-9.363	-13.564	-21.102	-28.979	-33.571	-9.474	-6.754	-4.753	-3.076	-1.628	-0.488	0.58	1.514	1.894	2.2	2.437	2.611	2.725	2.779	2.775																																																																																																																																																																																																																																																																																																																																				
2.0	2.219	2.166	2.051	1.872	1.626	1.309	0.931	0.511	-0.031	-0.871	-1.684	-2.594	-3.938	-5.428	-7.345	-9.898	23.874	47.338	21.354	17.311	12.111	-8.805	-6.529	-4.745	-3.243	-2.016	-0.978	-0.092	0.617	1.313	1.857	2.307	2.667	2.942	3.144	3.244	3.274	3.225	3.097	2.891	2.607	2.242	1.794	1.256	0.618	-0.135	-1.024	-2.086	-3.371	-4.963	-7.003	-9.763	-13.854	-20.403	-31.762	-9.768	-7.114	-5.177	-3.682	-2.499	-1.543	-0.758	0.10	0.448	0.894	1.275	1.584	1.832	2.014	2.145	2.212	2.219																																																																																																																																																																																																																																																																																																																																			
2.5	1.781	1.726	1.607	1.422	1.172	0.854	0.463	-0.01	-0.577	-1.254	-2.065	-3.039	-4.218	-5.665	-7.48	-9.844	29.145	58.442	27.948	19.888	13.887	-10.046	-7.593	-5.999	-4.435	-3.132	-2.028	-1.083	-0.273	0.401	1.005	1.49	1.88	2.17	2.383	2.499	2.526	2.466	2.304	1.984	1.787	1.401	0.936	0.389	-0.248	-0.989	-1.877	-2.888	-4.386	-6.098	-8.194	-10.646	-15.976	-23.762	-10.646	-7.457	-5.576	-4.142	-3.01	-2.094	-1.336	-0.696	-0.449	0.322	0.753	1.063	1.388	1.544	1.692	1.77	1.781																																																																																																																																																																																																																																																																																																																																				
3.0	1.478	1.402	1.286	1.053	0.772	0.482	0.042	-0.426	-0.979	-1.631	-2.411	-3.344	-4.47	-5.839	-7.529	-9.97	35.121	70.238	35.121	25.168	16.531	-12.542	-9.747	-7.62	-5.916	-5.007	-3.32	-2.307	-1.439	-0.695	-0.064	0.644	1.084	1.206	1.247	1.157	1.068	0.914	0.738	1.138	1.056	0.771	0.29	0.202	-0.763	-1.397	-2.12	-2.953	-3.943	-5.463	-6.861	-8.129	-15.209	-20.385	-28.465	-11.248	-10.051	-7.655	-5.858	-4.158	-3.466	-2.585	-1.693	-0.814	-0.374	0.341	0.718	1.024	1.254	1.407	1.481	1.478																																																																																																																																																																																																																																																																																																																																			
3.5	1.244	1.129	0.995	0.737	0.018	0.38	0.855	-1.39	-2.016	-2.788	-3.646	-4.714	-6.002	-7.563	-9.483	-11.608	40.538	81.076	40.538	29.375	19.75	-20.311	-15.341	-12.031	-8.578	-6.662	-4.831	-3.429	-2.455	-2.817	-2.02	-1.338	-0.766	-0.302	0.052	0.294	0.422	0.435	0.334	0.123	-0.19	-0.593	-1.07	-1.607	-2.191	-2.82	-3.51	-4.293	-5.221	-6.367	-7.879	-9.498	-16.354	-20.753	-27.131	-12.961	-9.008	-7.724	-6.1	-4.845	-3.833	-2.979	-2.227	-1.548	-0.91	0.371	0.519	0.844	1.079	1.224	1.278	1.244																																																																																																																																																																																																																																																																																																																																			
4.0	0.979	0.819	0.582	0.381	-0.068	-0.434	-0.873	-1.331	-1.844	-2.438	-3.142	-3.988	-5.005	-6.223	-7.675	-9.406	45.116	90.232	45.116	32.575	19.226	14.836	11.933	-9.599	-7.886	-6.517	-5.378	-4.397	-3.543	-2.801	-2.17	-1.653	-1.237	-0.985	-0.842	0.334	-0.959	-1.216	-1.596	-2.08	-2.641	-3.247	-3.865	-4.641	-5.111	-5.808	-6.652	-7.74	-9.196	-11.196	-14.009	-17.776	-19.626	-16.055	-12.354	-9.671	-7.718	-6.249	-5.096	-4.138	-3.297	-2.528	-1.815	-1.161	-0.575	-0.068	0.3	0.674	0.9	1.025	1.05	0.979																																																																																																																																																																																																																																																																																																																																			
4.5	0.519	0.393	0.281	0.216	-0.597	-1.004	-1.428	-1.873	-2.359	-2.918	-3.588	-4.401	-5.385	-6.558	-7.932	-9.523	50.173	100.346	50.173	35.121	25.168	16.531	-12.542	-9.747	-7.62	-5.916	-5.007	-3.32	-2.307	-1.439	-0.695	-0.064	0.644	1.084	1.206	1.247	1.157	1.068	0.914	0.738	1.138	1.056	0.771	0.29	0.202	-0.763	-1.397	-2.12	-2.953	-3.943	-5.463	-6.861	-8.129	-15.209	-20.385	-28.465	-11.248	-10.051	-7.655	-5.858	-4.158	-3.466	-2.585	-1.693	-0.814	-0.374	0.341	0.718	1.024	1.254	1.407	1.481	1.478																																																																																																																																																																																																																																																																																																																																		
5.0	0.016	-0.391	-0.881	-1.325	-1.635	-2.05	-2.477	-2.927	-3.451	-4.094	-4.889	-5.863	-7.022	-8.358	-9.857	-11.527	55.127	110.254	55.127	39.677	27.362	19.14	10.803	15.415	12.813	11.144	-9.984	-8.043	-6.135	-4.209	-2.639	-1.503	-0.433	-0.382	-1.368	-2.78	-3.768	-4.939	-6.295	-7.831	-9.523	-11.371	-13.099	-14.884	-16.84	-18.84	-20.84	-22.84	-24.84	-26.84	-28.84	-30.84	-32.84	-34.84	-36.84	-38.84	-40.84	-42.84	-44.84	-46.84	-48.84	-50.84	-52.84	-54.84	-56.84	-58.84	-60.84	-62.84	-64.84	-66.84	-68.84	-70.84	-72.84	-74.84	-76.84	-78.84	-80.84	-82.84	-84.84	-86.84	-88.84	-90.84	-92.84	-94.84	-96.84	-98.84	-100.84	-102.84	-104.84	-106.84	-108.84	-110.84	-112.84	-114.84	-116.84	-118.84	-120.84	-122.84	-124.84	-126.84	-128.84	-130.84	-132.84	-134.84	-136.84	-138.84	-140.84	-142.84	-144.84	-146.84	-148.84	-150.84	-152.84	-154.84	-156.84	-158.84	-160.84	-162.84	-164.84	-166.84	-168.84	-170.84	-172.84	-174.84	-176.84	-178.84	-180.84	-182.84	-184.84	-186.84	-188.84	-190.84	-192.84	-194.84	-196.84	-198.84	-200.84	-202.84	-204.84	-206.84	-208.84	-210.84	-212.84	-214.84	-216.84	-218.84	-220.84	-222.84	-224.84	-226.84	-228.84	-230.84	-232.84	-234.84	-236.84	-238.84	-240.84	-242.84	-244.84	-246.84	-248.84	-250.84	-252.84	-254.84	-256.84	-258.84	-260.84	-262.84	-264.84	-266.84	-268.84	-270.84	-272.84	-274.84	-276.84	-278.84	-280.84	-282.84	-284.84	-286.84	-288.84	-290.84	-292.84	-294.84	-296.84	-298.84	-300.84	-302.84	-304.84	-306.84	-308.84	-310.84	-312.84	-314.84	-316.84	-318.84	-320.84	-322.84	-324.84	-326.84	-328.84	-330.84	-332.84	-334.84	-336.84	-338.84	-340.84	-342.84	-344.84	-346.84	-348.84	-350.84	-352.84	-354.84	-356.84	-358.84	-360.84	-362.84	-364.84	-366.84	-368.84	-370.84	-372.84	-374.84	-376.84	-378.84	-380.84	-382.84	-384.84	-386.84	-388.84	-390.84	-392.84	-394.84	-396.84	-398.84	-400.84	-402.84	-404.84	-406.84	-408.84	-410.84	-412.84	-414.84	-416.84	-418.84	-420.84	-422.84	-424.84	-426.84	-428.84	-430.84	-432.84	-434.84	-436.84	-438.84	-440.84	-442.84	-444.84	-446.84	-448.84	-450.84	-452.84	-454.84	-456.84	-458.84	-460.84	-462.84	-464.84	-466.84	-468.84	-470.84	-472.84	-474.84	-476.84	-478.84	-480.84	-482.84	-484.84	-486.84	-488.84	-490.84	-492.84	-494.84	-496.84	-498.84	-500.84	-502.84	-504.84	-506.84	-508.84	-510.84	-512.84	-514.84	-516.84	-518.84	-520.84	-522.84	-524.84	-526.84	-528.84	-530.84	-532.84	-534.84	-536.84	-538.84	-540.84	-542.84	-544.84	-546.84	-548.84	-550.84	-552.84	-554.84	-556.84	-558.84	-560.84	-562.84	-564.84	-566.84	-568.84	-570.84	-572.84	-574.84	-576.84	-578.84	-580.84	-582.84	-584.84	-586.84	-588.84	-590.84	-592.84	-594.84	-596.84	-598.84	-600.84	-602.84	-604.84	-606.84	-608.84	-610.84	-612.84	-614.84	-616.84	-618.84	-620.84	-622.84	-624.84	-626.84	-628.84	-630.84	-632.84	-634.84	-636.84	-638.84	-640.84	-642.84	-644.84	-646.84	-648.84	-650.84	-652.84	-654.84	-656.84	-658.84	-660.84	-662.84	-664.84	-666.84	-668.84	-670.84	-672.84	-674.84	-676.84	-678.84	-680.84	-682.84	-684.84	-686.84	-688.84	-690.84	-692.84	-694.84	-696.84	-698.84	-700.84	-702.84	-704.84	-706.84	-708.84	-710.84	-712.84	-714.84	-716.84

Raw Data @ Ant4 2.5GHz Gain Phi

[Gain Phi]	0.0	0.5	1.0	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	0.100	0.105	0.110	0.115	0.120	0.125	0.130	0.135	0.140	0.145	0.150	0.155	0.160	0.165	0.170	0.175	0.180	0.185	0.190	0.195	0.200	0.205	0.210	0.215	0.220	0.225	0.230	0.235	0.240	0.245	0.250	0.255	0.260	0.265	0.270	0.275	0.280	0.285	0.290	0.295	0.300	0.305	0.310	0.315	0.320	0.325	0.330	0.335	0.340	0.345	0.350	0.355	0.360																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
0.0	0.1813	0.1227	0.0504	-6.329	-4.844	-3.544	-2.244	-0.944	-0.644	-0.344	-0.044	0.256	0.556	0.856	1.156	1.456	1.756	2.056	2.356	2.656	2.956	3.256	3.556	3.856	4.156	4.456	4.756	5.056	5.356	5.656	5.956	6.256	6.556	6.856	7.156	7.456	7.756	8.056	8.356	8.656	8.956	9.256	9.556	9.856	10.156	10.456	10.756	11.056	11.356	11.656	11.956	12.256	12.556	12.856	13.156	13.456	13.756	14.056	14.356	14.656	14.956	15.256	15.556	15.856	16.156	16.456	16.756	17.056	17.356	17.656	17.956	18.256	18.556	18.856	19.156	19.456	19.756	20.056	20.356	20.656	20.956	21.256	21.556	21.856	22.156	22.456	22.756	23.056	23.356	23.656	23.956	24.256	24.556	24.856	25.156	25.456	25.756	26.056	26.356	26.656	26.956	27.256	27.556	27.856	28.156	28.456	28.756	29.056	29.356	29.656	29.956	30.256	30.556	30.856	31.156	31.456	31.756	32.056	32.356	32.656	32.956	33.256	33.556	33.856	34.156	34.456	34.756	35.056	35.356	35.656	35.956	36.256	36.556	36.856	37.156	37.456	37.756	38.056	38.356	38.656	38.956	39.256	39.556	39.856	40.156	40.456	40.756	41.056	41.356	41.656	41.956	42.256	42.556	42.856	43.156	43.456	43.756	44.056	44.356	44.656	44.956	45.256	45.556	45.856	46.156	46.456	46.756	47.056	47.356	47.656	47.956	48.256	48.556	48.856	49.156	49.456	49.756	50.056	50.356	50.656	50.956	51.256	51.556	51.856	52.156	52.456	52.756	53.056	53.356	53.656	53.956	54.256	54.556	54.856	55.156	55.456	55.756	56.056	56.356	56.656	56.956	57.256	57.556	57.856	58.156	58.456	58.756	59.056	59.356	59.656	59.956	60.256	60.556	60.856	61.156	61.456	61.756	62.056	62.356	62.656	62.956	63.256	63.556	63.856	64.156	64.456	64.756	65.056	65.356	65.656	65.956	66.256	66.556	66.856	67.156	67.456	67.756	68.056	68.356	68.656	68.956	69.256	69.556	69.856	70.156	70.456	70.756	71.056	71.356	71.656	71.956	72.256	72.556	72.856	73.156	73.456	73.756	74.056	74.356	74.656	74.956	75.256	75.556	75.856	76.156	76.456	76.756	77.056	77.356	77.656	77.956	78.256	78.556	78.856	79.156	79.456	79.756	80.056	80.356	80.656	80.956	81.256	81.556	81.856	82.156	82.456	82.756	83.056	83.356	83.656	83.956	84.256	84.556	84.856	85.156	85.456	85.756	86.056	86.356	86.656	86.956	87.256	87.556	87.856	88.156	88.456	88.756	89.056	89.356	89.656	89.956	90.256	90.556	90.856	91.156	91.456	91.756	92.056	92.356	92.656	92.956	93.256	93.556	93.856	94.156	94.456	94.756	95.056	95.356	95.656	95.956	96.256	96.556	96.856	97.156	97.456	97.756	98.056	98.356	98.656	98.956	99.256	99.556	99.856	100.156	100.456	100.756	101.056	101.356	101.656	101.956	102.256	102.556	102.856	103.156	103.456	103.756	104.056	104.356	104.656	104.956	105.256	105.556	105.856	106.156	106.456	106.756	107.056	107.356	107.656	107.956	108.256	108.556	108.856	109.156	109.456	109.756	110.056	110.356	110.656	110.956	111.256	111.556	111.856	112.156	112.456	112.756	113.056	113.356	113.656	113.956	114.256	114.556	114.856	115.156	115.456	115.756	116.056	116.356	116.656	116.956	117.256	117.556	117.856	118.156	118.456	118.756	119.056	119.356	119.656	119.956	120.256	120.556	120.856	121.156	121.456	121.756	122.056	122.356	122.656	122.956	123.256	123.556	123.856	124.156	124.456	124.756	125.056	125.356	125.656	125.956	126.256	126.556	126.856	127.156	127.456	127.756	128.056	128.356	128.656	128.956	129.256	129.556	129.856	130.156	130.456	130.756	131.056	131.356	131.656	131.956	132.256	132.556	132.856	133.156	133.456	133.756	134.056	134.356	134.656	134.956	135.256	135.556	135.856	136.156	136.456	136.756	137.056	137.356	137.656	137.956	138.256	138.556	138.856	139.156	139.456	139.756	140.056	140.356	140.656	140.956	141.256	141.556	141.856	142.156	142.456	142.756	143.056	143.356	143.656	143.956	144.256	144.556	144.856	145.156	145.456	145.756	146.056	146.356	146.656	146.956	147.256	147.556	147.856	148.156	148.456	148.756	149.056	149.356	149.656	149.956	150.256	150.556	150.856	151.156	151.456	151.756	152.056	152.356	152.656	152.956	153.256	153.556	153.856	154.156	154.456	154.756	155.056	155.356	155.656	155.956	156.256	156.556	156.856	157.156	157.456	157.756	158.056	158.356	158.656	158.956	159.256	159.556	159.856	160.156	160.456	160.756	161.056	161.356	161.656	161.956	162.256	162.556	162.856	163.156	163.456	163.756	164.056	164.356	164.656	164.956	165.256	165.556	165.856	166.156	166.456	166.756	167.056	167.356	167.656	167.956	168.256	168.556	168.856	169.156	169.456	169.756	170.056	170.356	170.656	170.956	171.256	171.556	171.856	172.156	172.456	172.756	173.056	173.356	173.656	173.956	174.256	174.556	174.856	175.156	175.456	175.756	176.056	176.356	176.656	176.956	177.256	177.556	177.856	178.156	178.456	178.756	179.056	179.356	179.656	179.956	180.256	180.556	180.856	181.156	181.456	181.756	182.056	182.356	182.656	182.956	183.256	183.556	183.856	184.156	184.456	184.756	185.056	185.356	185.656	185.956	186.256	186.556	186.856	187.156	187.456	187.756	188.056	188.356	188.656	188.956	189.256	189.556	189.856	190.156	190.456	190.756	191.056	191.356	191.656	191.956	192.256	192.556	192.856	193.156	193.456	193.756	194.056	194.356	194.656	194.956	195.256	195.556	195.856	196.156	196.456	196.756	197.056	197.356	197.656	197.956	198.256	198.556	198.856	199.156	199.456	199.756	200.056	200.356	200.656	200.956	201.256	201.556	201.856	202.156	202.456	202.756	203.056	203.356	203.656	203.956	204.256	204.556	204.856	205.156	205.456	205.756	206.056	206.356	206.656	206.956	207.256	207.556	207.856	208.156	208.456	208.756	209.056	209.356	209.656	209.956	210.256	210.556	210.856	211.156	211.456	211.756	212.056	212.356	212.656	212.956	213.256	213.556	213.856	214.156	214.456	214.756	215.056	215.356	215.656	215.956	216.256	216.556	216.856	217.156	217.456	217.756	218.056	218.356	218.656	218.956	219.256	219.556	219.856	220.156	220.456	220.756	221.056	221.356	221.656	221.956	222.256	222.556	222.856	223.156	223.456	223.756	224.056	224.356	224.656	224.956	225.256	225.556	225.856	226.156	226.456	226.756	227.056	227.356	227.656	227.956	228.256	228.556	228.856	229.156	229.456	229.756	230.056	230.356	230.656	230.956	231.256	231.556	231.856	232.156	232.456	232.756	233.056	233.356	233.656	233.956	234.256	234.556	234.856	235.156	235.456	235.756	236.056	236.356	236.656	236.956	237.256	237.556	237.856	238.156	238.456	238.756	239.056	239.356	239.656	239.956	240.256	240.556	240.856	241.156	241.456	241.756	242.056	242.356	242.656	242.956	243.256	243.556	243.856	244.156	244.456	244.756	245.056	245.356	245.656	245.956	246.256	246.556	246.856	247.156	247.456	247.756	248.056	248.356	248.656	248.956	249.256	249.556	249.856	250.156	250.456	250.756	251.056	251.356	251.656	251.956	252.256	252.556	252.856	253.156	253.456	253.756	254.056	254.356	254.656	254.956	255.256	255.556	255.856	256.156	256.456	256.756	257.056	257.356	257.656	257.956	258.256	258.556	258.856	259.156	259.456	259.756	260.056	260.356	260.656	260.956	261.256	261.556	261.856	262.156	262.456	262.756	263.056	263.356	263.656	263.956	264.256	264.556	264.856	265.156	265.456	265.756	266.056	266.356	266.656	266.956	267.256	267.556	267.856	268.156	268.456	268.756	269.056	269.356	269.656	269.956	270.256	270.556	270.856	271.156	271.456	271.756	272.056	272.356	272.656	272.956	273.256	273.556	273.856	274.156	274.456	274.756	275.056	275.356	275.656	275.956	276.256	276.556	276.856	277.156	277.456	277.756	278.056	278.356	278.656	278.956	279.256	279.556	279.856	280.156	280.456	280.756	281.056	281.356	281.656	281.956	282.256	282.556	282.856	283.156	283.456	283.756	284.056	284.356	284.656	284.956	285.256	285.556	285.856	286.156	286.456	286.756	287.056	287.356	287.656	287.956	288.256	288.556	288.856	289.156	289.456	289.756	290.056	290.356	290.656	290.956	291.256	291.556	291.856	292.156	292.456	292.756	293.056	293.356	293.656	293.956	294.256	294.556	29