

Data Sheet

(Mechanical Use)

Product Type	WLAN Antenna
Notebook Model Number	ASUS / F50GX
Part No. / Yageo / Main	CAN4313 810 012501B
Part No. / Yageo / Aux	CAN4313 810 022501B

Yageo (Taiwan) Ltd.

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Multiple Bands Antenna for WLAN/ Wimax Applications.	Yageo Corporation SPD Datasheet Current Revision: R02		R01	Oct. 20, 08
			R02	Oct. 27, 08
BY /	Candy.Lin	DATE /	Oct. 27, 2008	

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1. Specifications

1.1 Specifications for Antennas

Frequency Range (GHz)	2.40 ~ 2.50 for 802.11b/g/n, 802.16 5.15 ~ 5.85 for 802.11a, 802.16
VSWR	2.5 : 1 max for 2.4GHz band For WL 2.5 : 1 max for 5.15 GHz band For WL/
Peak Gain (dBi)	2.10 dBi for 2.4GHz band 3.64 dBi for 5.15GHz band
Radio Connector	Hirose U.FL or IPex MHF
Impedance	50Ω
Antenna Type	PIFA Antenna
Operating Temperature	-40~90°C
Maximum Power	1W
Polarization	Linear
Radiation Pattern	Omni-directional

1.2 Antenna Dimension / Cable Length

Product	ASUS / F50GX
Main Antenna (LCD)	40*8*0.4 mm / 440.0 mm, Color White
Aux Antenna (LCD)	40*8*0.4 mm / 475.0 mm, Color Black

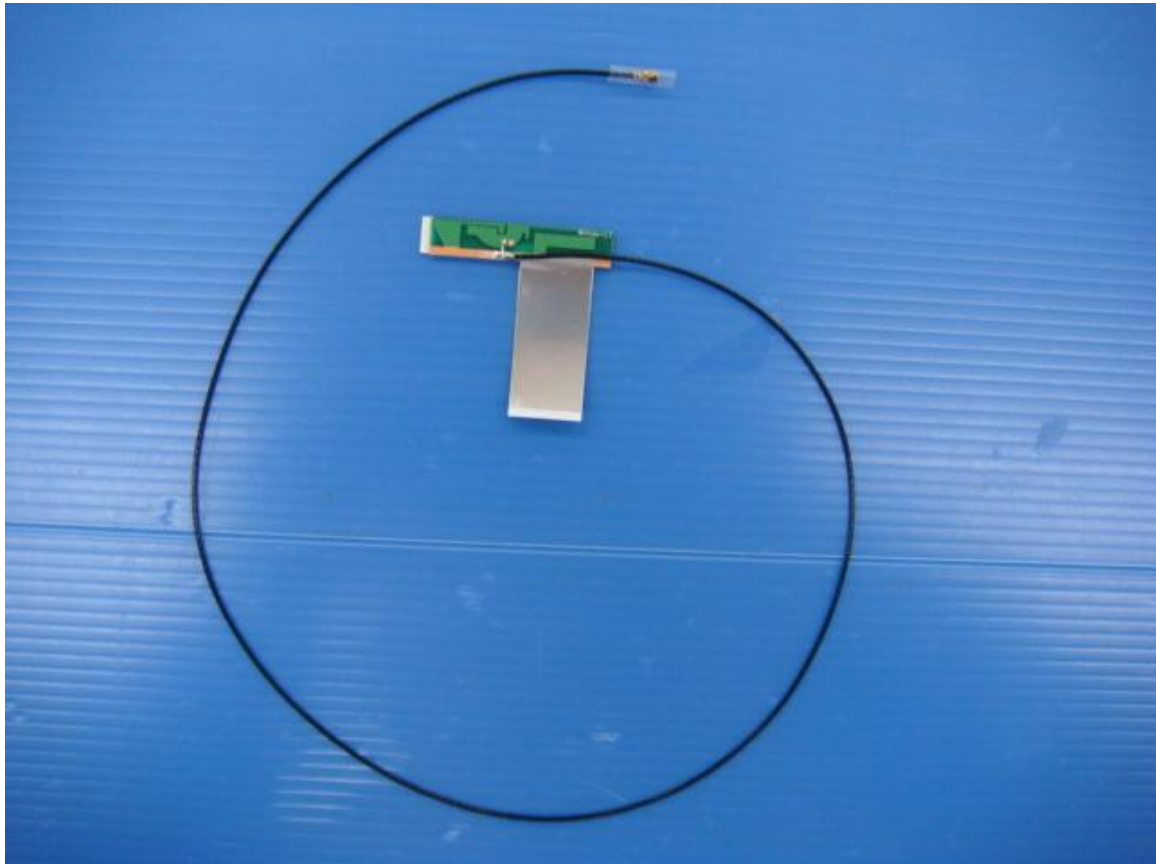
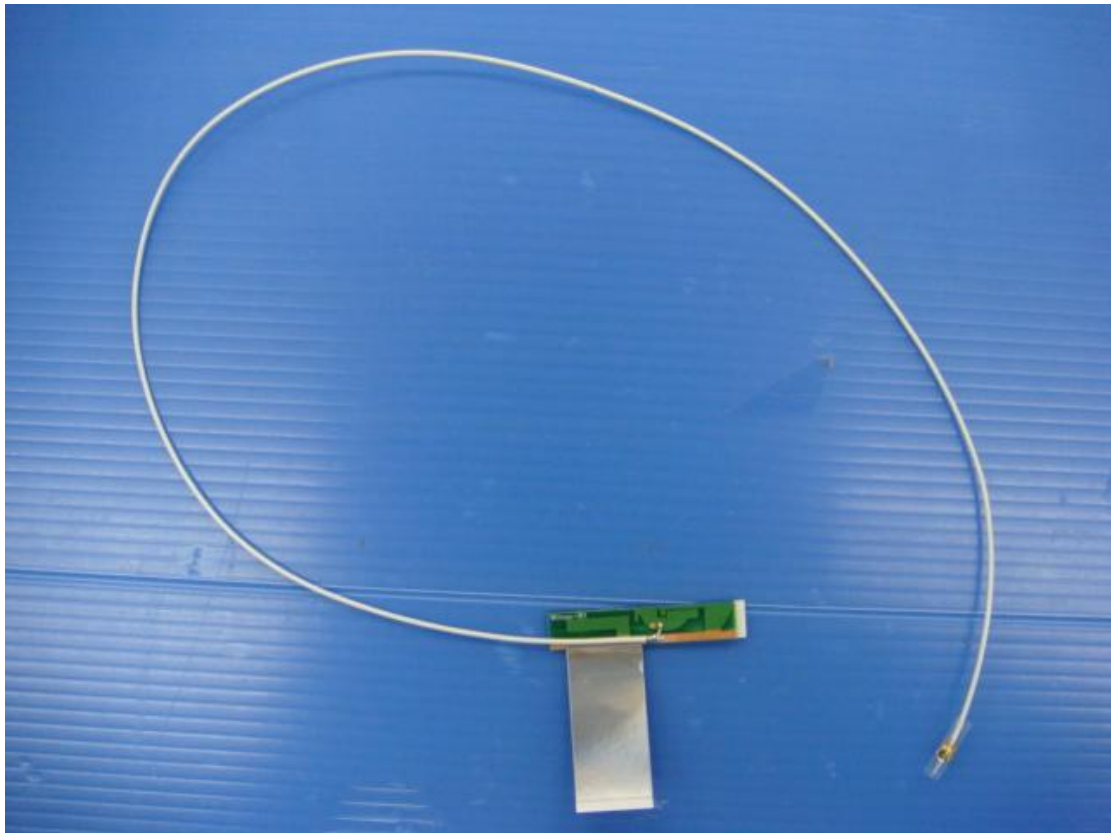
1.3 Packing Spec.

Product	For Example
Inner Tray	60
Carton Box	265*100

Note: Real packing will base on current project type and samples quantity to definition.



1.4 Antenna Pictures



2. Test Methodology

2.1 Test Equipment

The equipment for the antenna measurement we used is as follows.

- A. Agilent 8753ET / 8719D Network Analyzer to measure the VSWR and input impedance.
- B. Three-dimensional anechoic chamber to measure the gain
(Standard dipole and horn were used to calibrate the chamber)
- C. Digital caliper to measure the dimensions.
- D. Climatic chamber for mechanical tests.

2.2 Test Setup

2.2.1 Frequency Range

2.30 ~ 2.80GHz, 3.3 ~ 3.8 GHz, 5.15 ~ 5.85GHz

2.2.2 Antenna configuration

The antenna basically has two parts; the stamping and the cable assembly with the connector on one side. The detailed drawing is attached.

2.2.3 VSWR

The VSWR is measured with Agilent 8753ET / 8719D network analyzer. All the measurements are performed with the customer provided fixture. Figure 1 shows the schematic diagram for measuring VSWR.

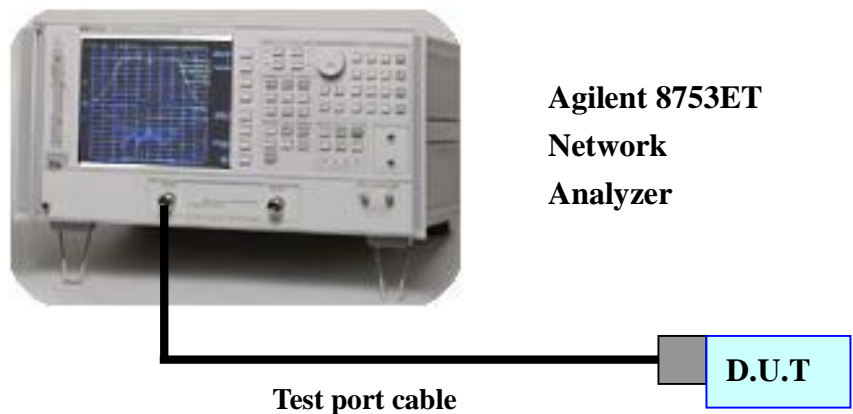


Figure 1. The schematic diagram for measuring VSWR

2.2.4 Radiation Pattern and Gain

The radiation pattern must have the omni-directional characteristic in both positions. The radiation pattern measurements are performed in the three-dimensional anechoic chamber. The chamber provides less than -30dB reflectivity from 800MHz through 8GHz . The chamber is calibrated using both standard dipole and horn antenna. The gain here is expressed as dBi that standardizes the isotropic antenna. The gain measurements are also performed in the same chamber described previously. Figure 2 shows the schematic diagram for measuring radiation pattern and gain.

2D Anechoic chamber

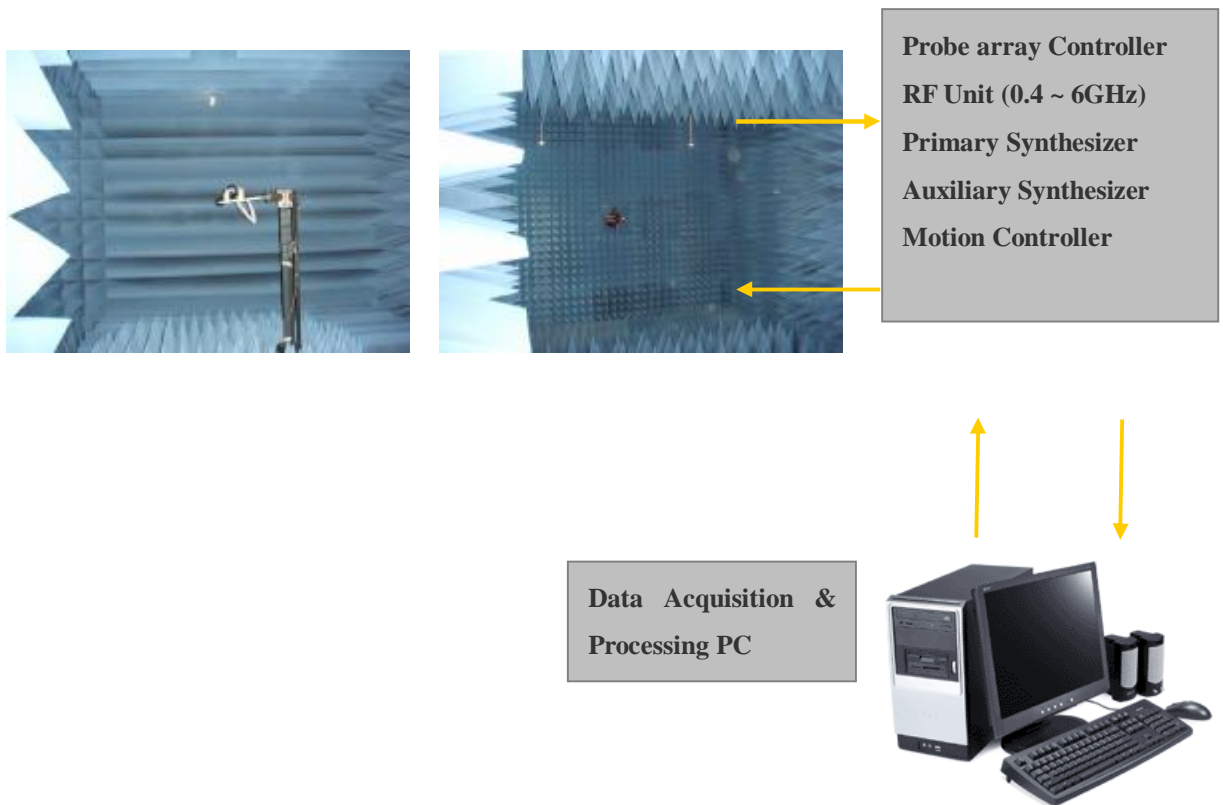
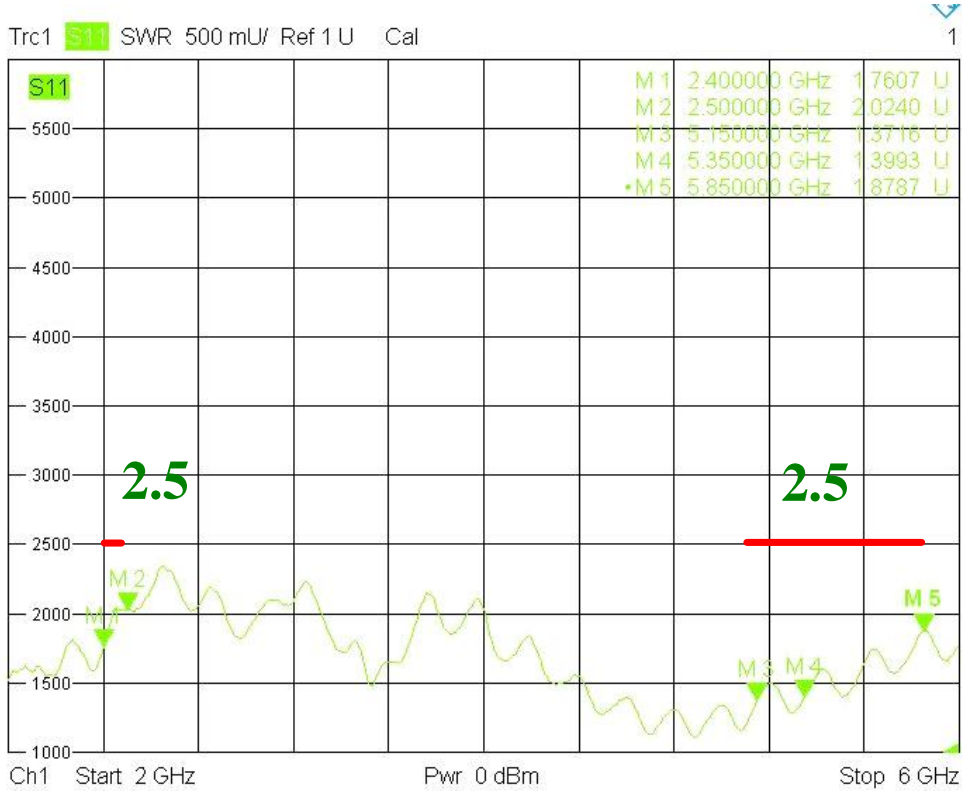


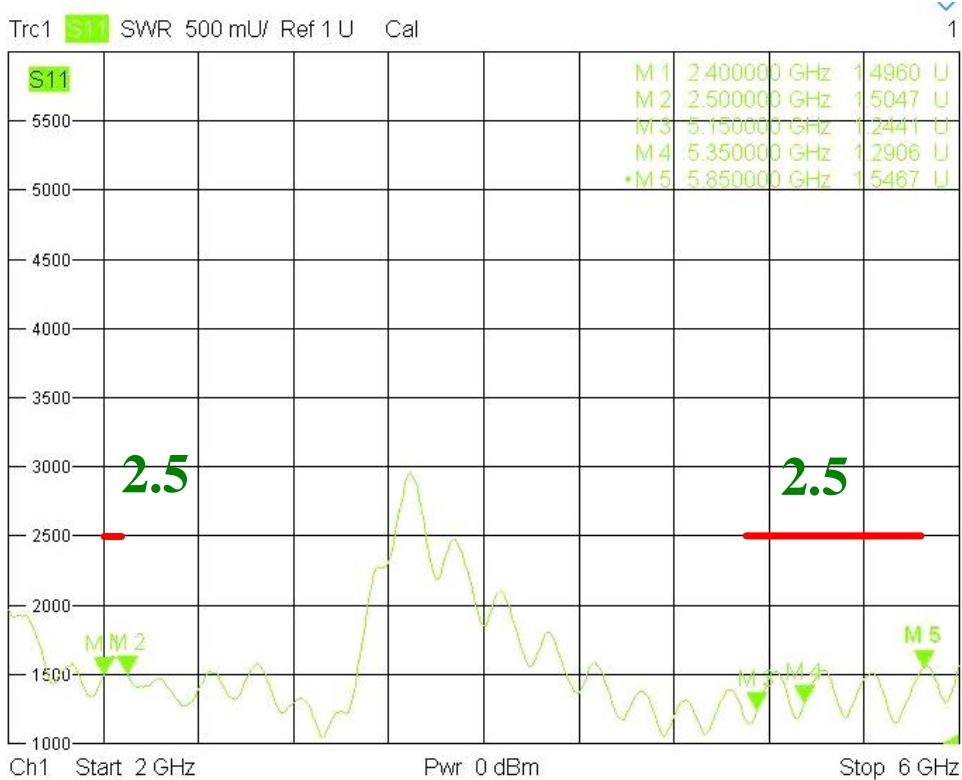
Figure 2. The schematic diagram for measuring radiation pattern and gain

3. Performance Data

3.1 VSWR in the Fixture of Main Antenna



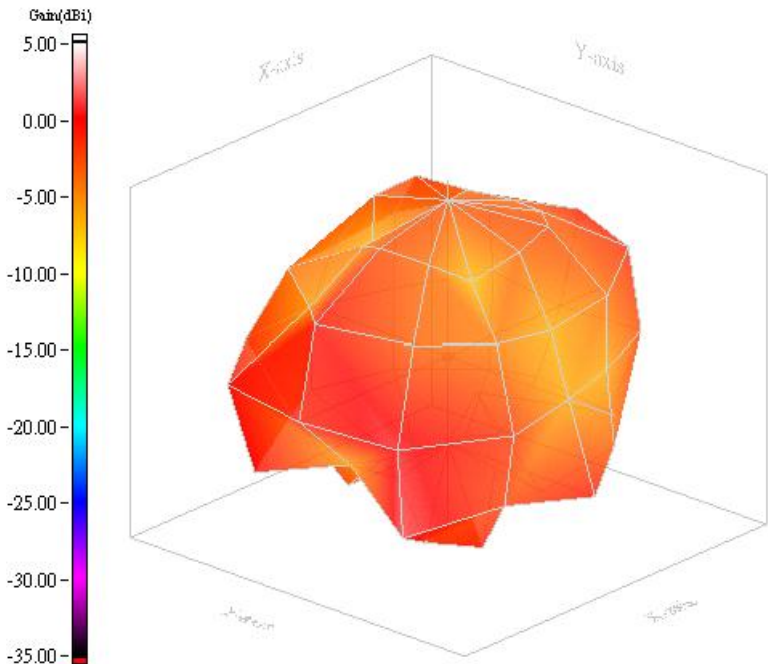
3.1 VSWR in the Fixture of Aux Antenna



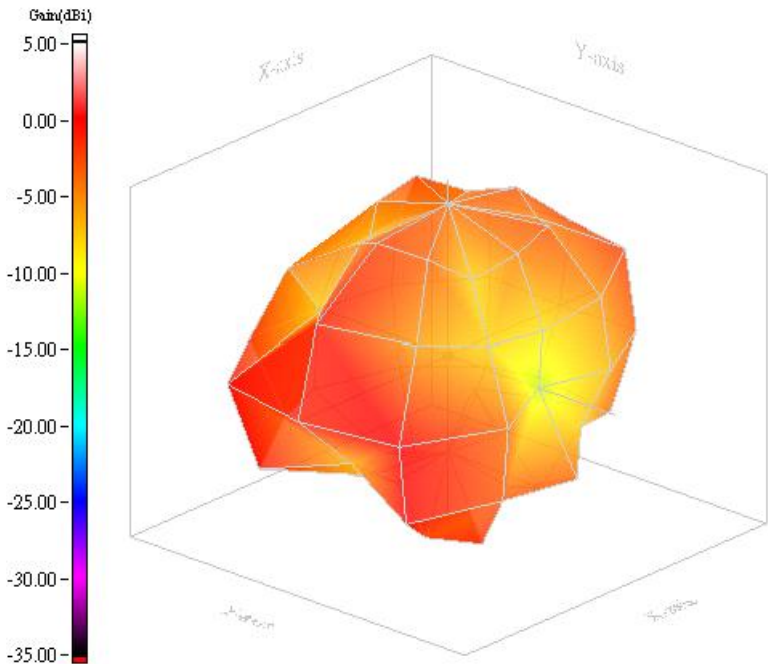
3.2 Radiation Pattern and Gain

3.2.1 Low Frequency (2.40GHz~2.50GHz) / Main Antenna

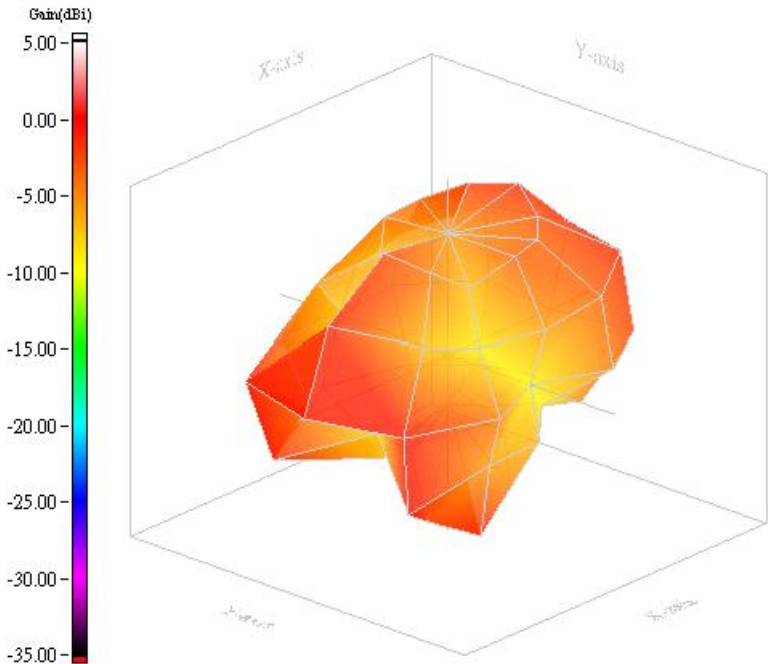
WL Main @ 2.40GHz



WL Main @ 2.45GHz

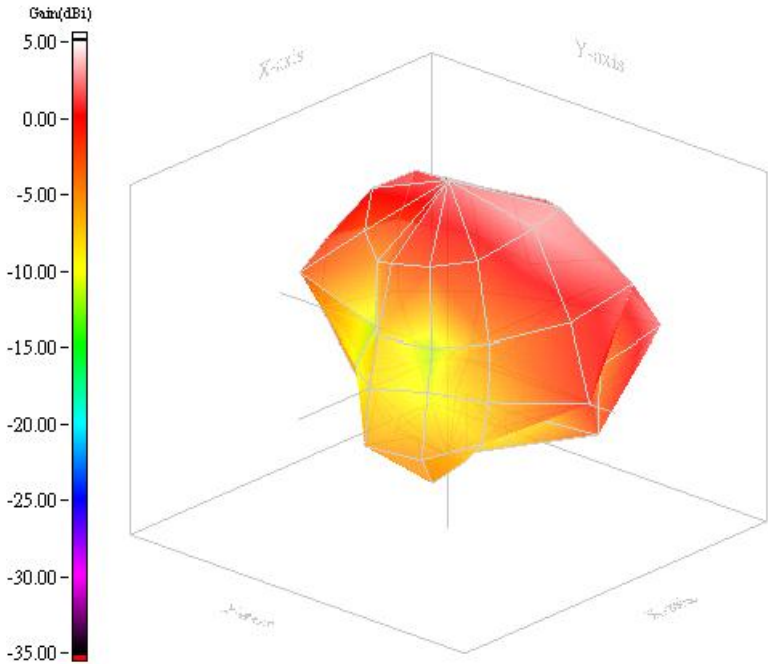


WL Main @ 2.50GHz

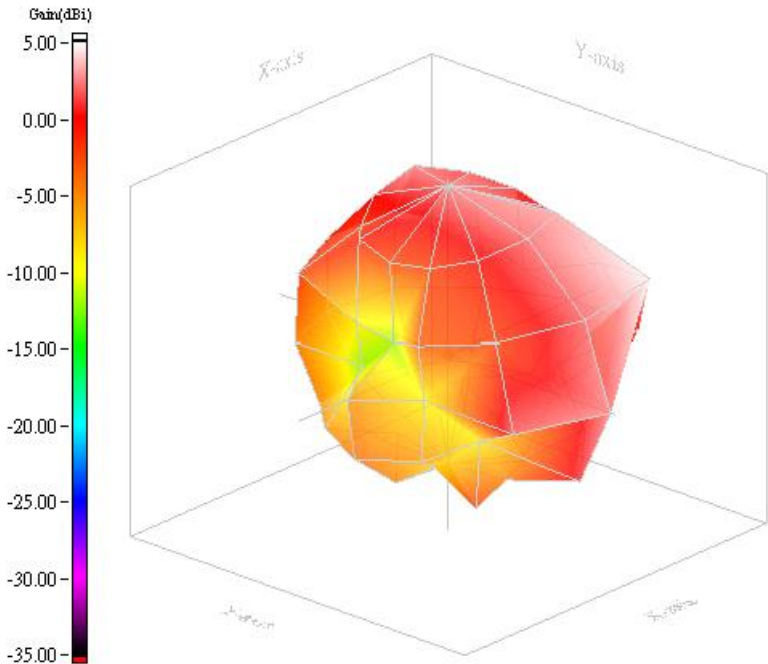


3.2.2 Middle Frequency (5.15GHz~5.35GHz) / Main Antenna

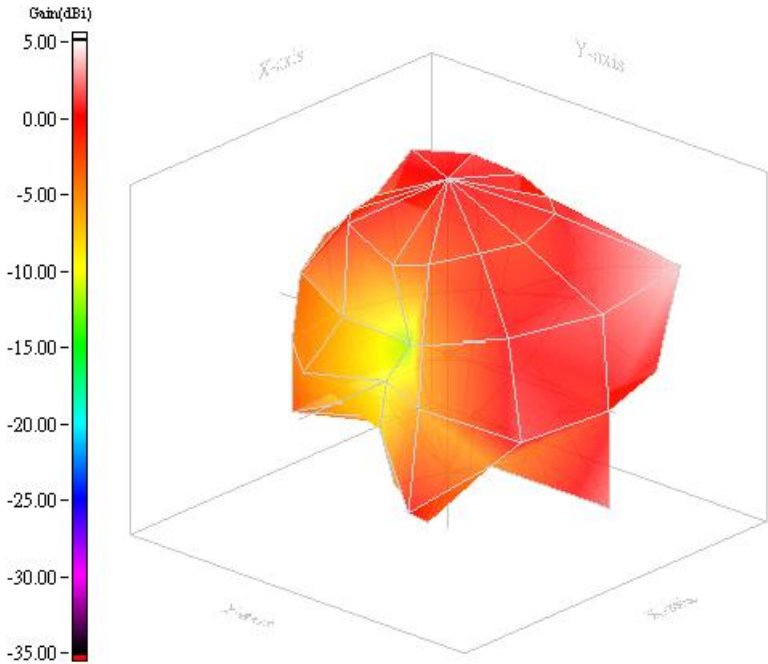
WL Main @ 5.15GHz



WL Main @ 5.25GHz

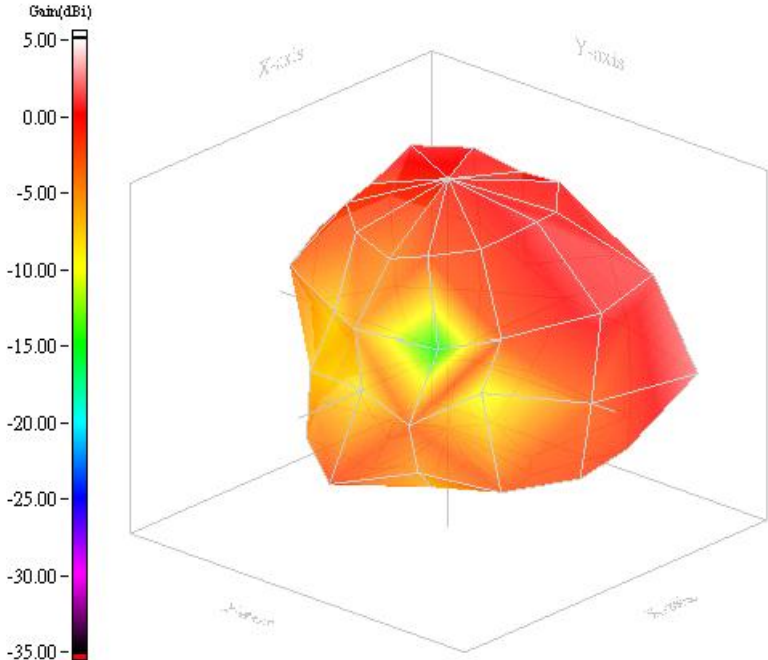


WL Main @ 5.35GHz

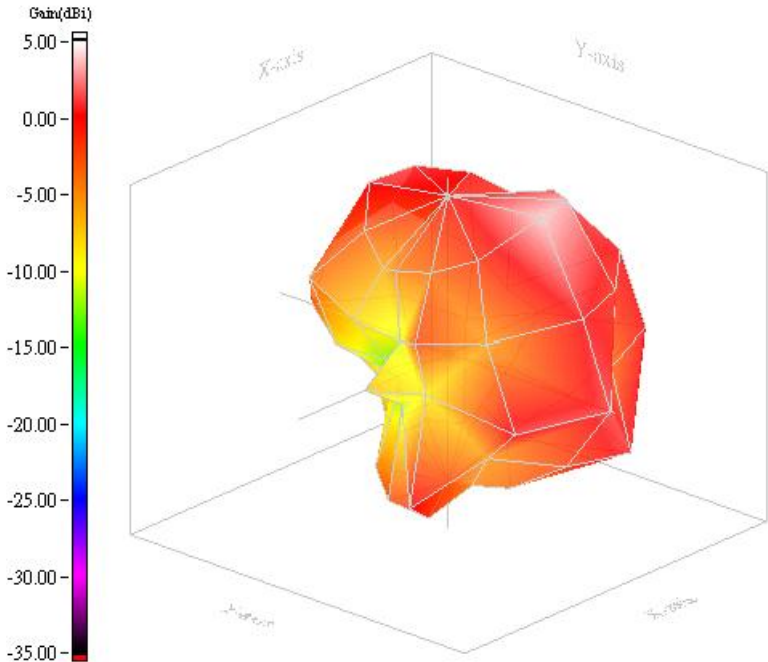


3.2.3 High Frequency (5.47GHz~5.85GHz) / Main Antenna

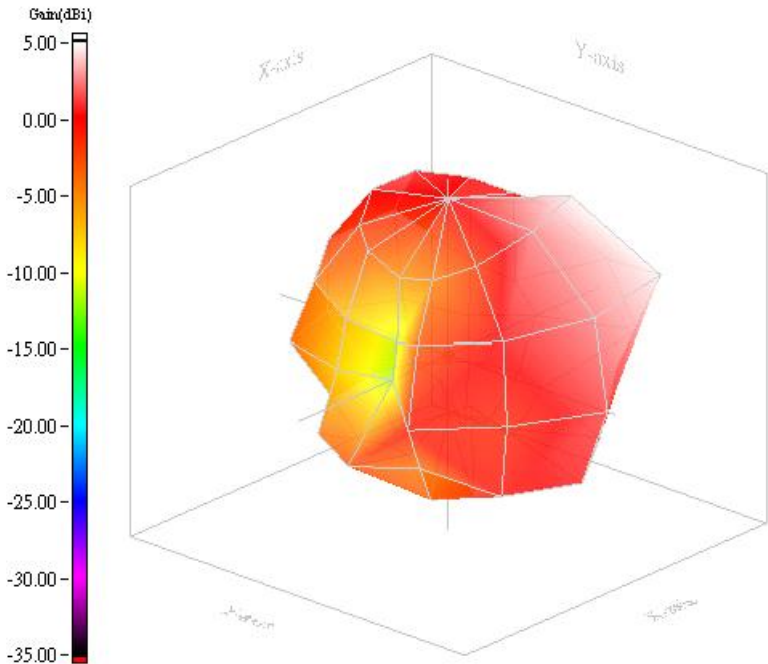
WL Main @ 5.47GHz



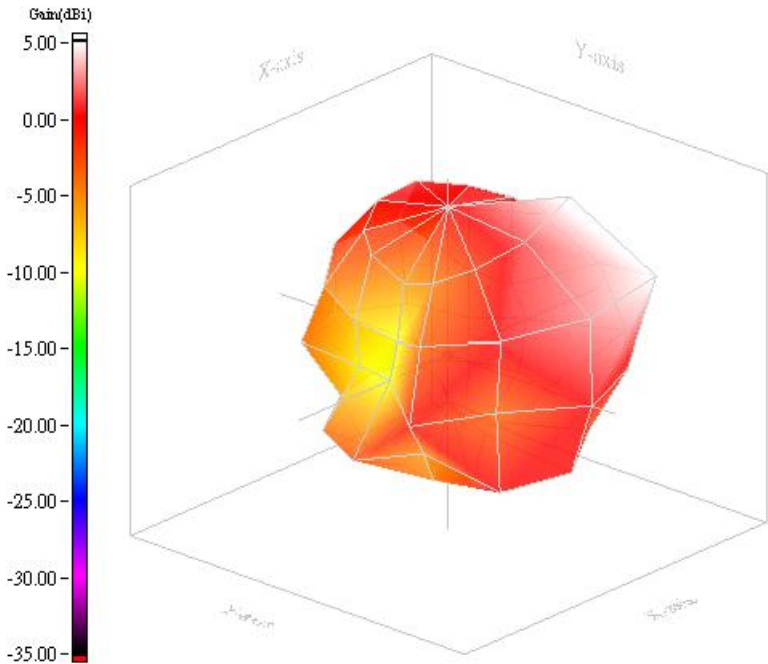
WL Main @ 5.60GHz



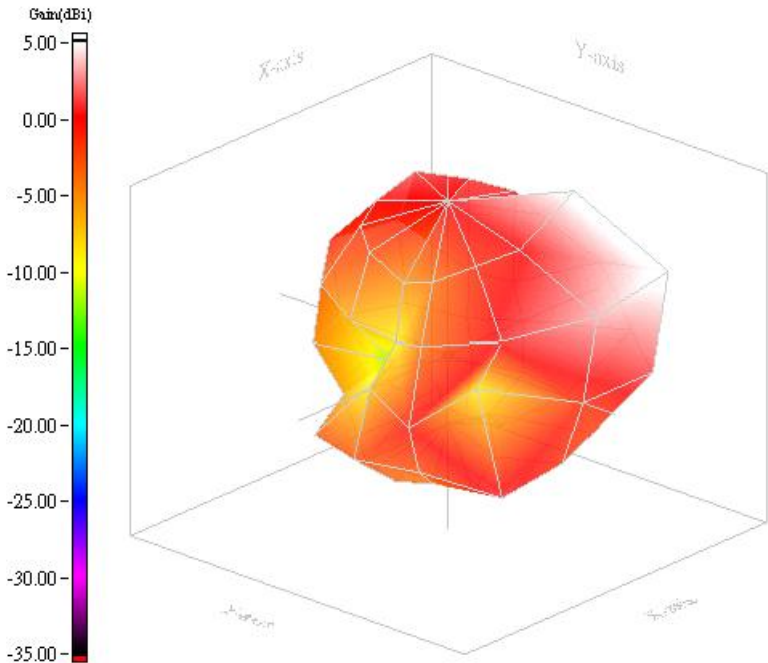
WL Main @ 5.725GHz



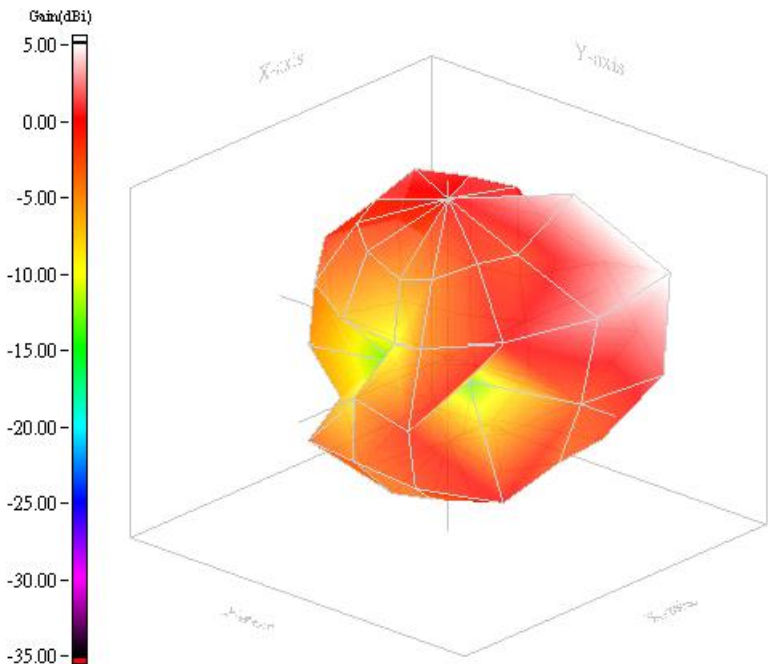
WL Main @ 5.75GHz



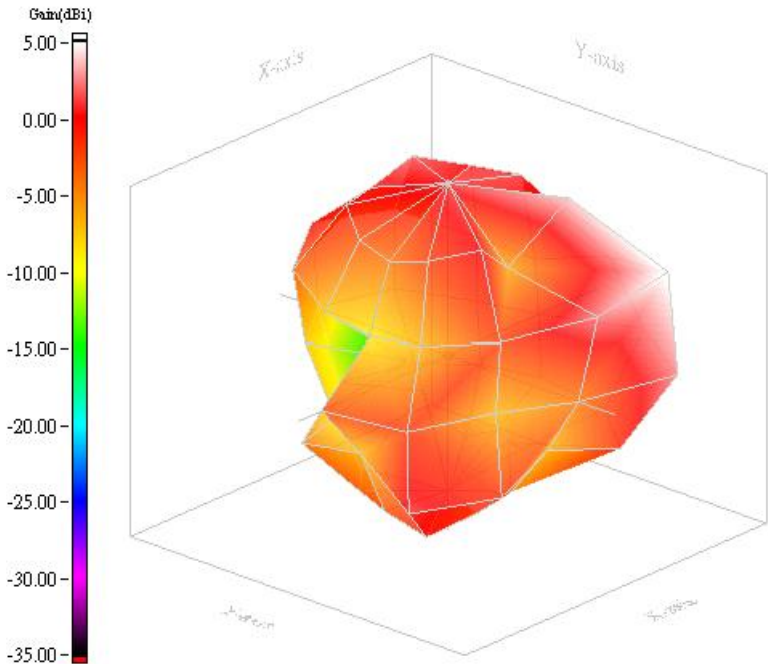
WL Main @ 5.785GHz



WL Main @ 5.8GHz

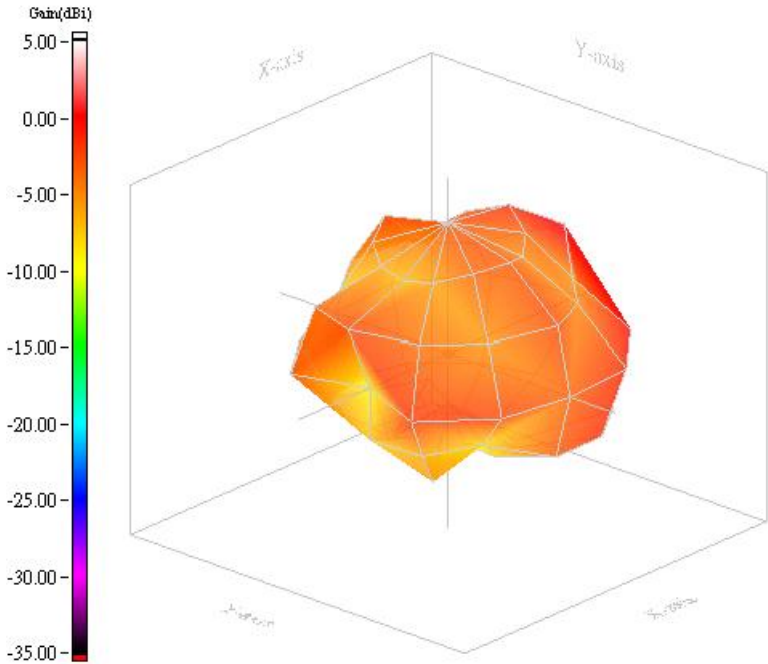


WL Main @ 5.85GHz

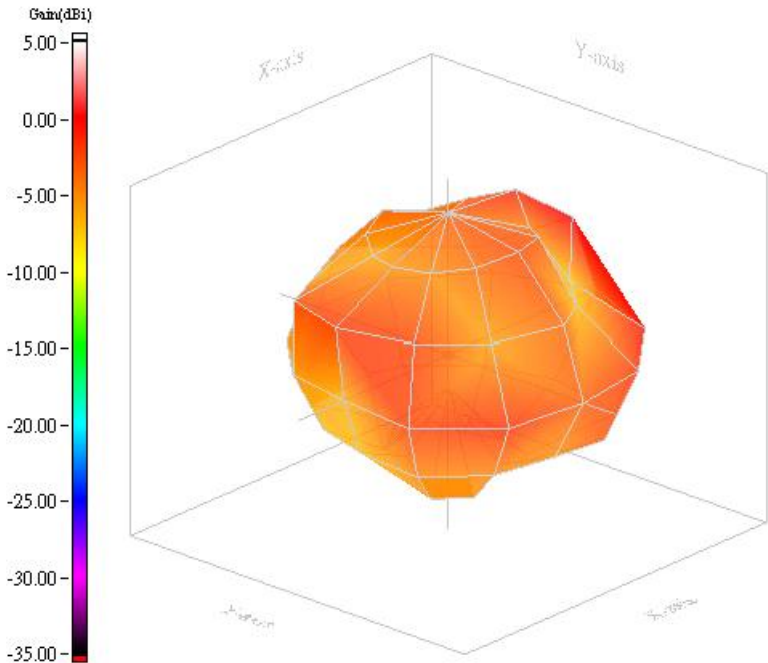


3.2.1 Low Frequency (2.40GHz~2.50GHz) / Aux Antenna

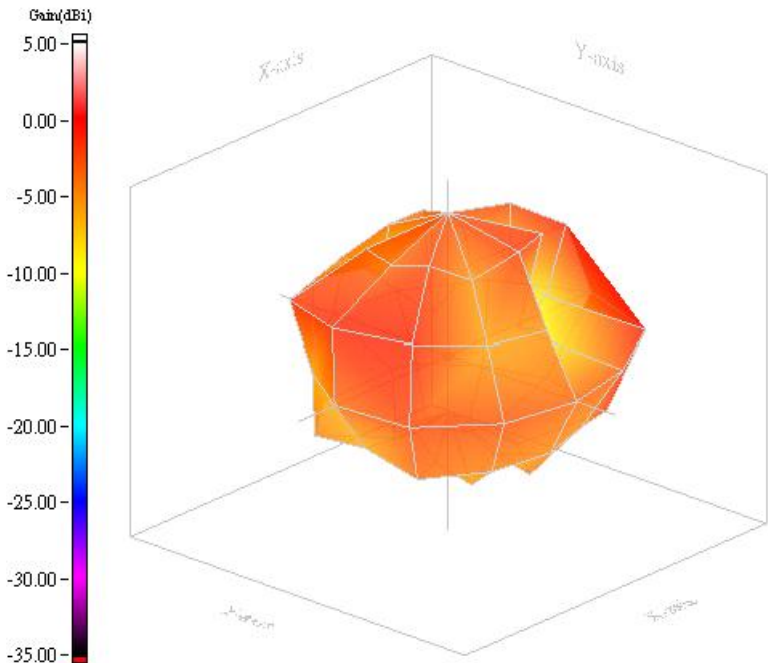
WL Aux @ 2.40GHz



WL Aux @ 2.45GHz

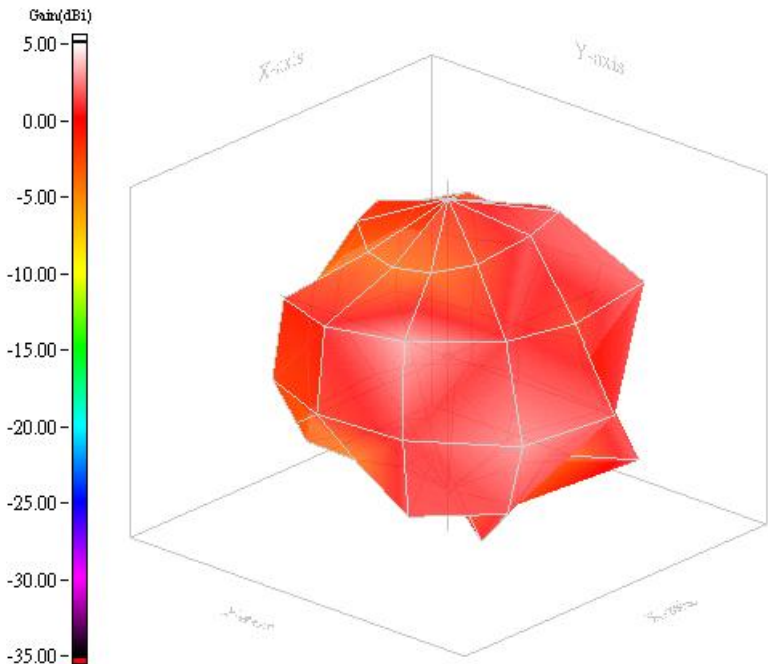


WL Aux @ 2.50GHz

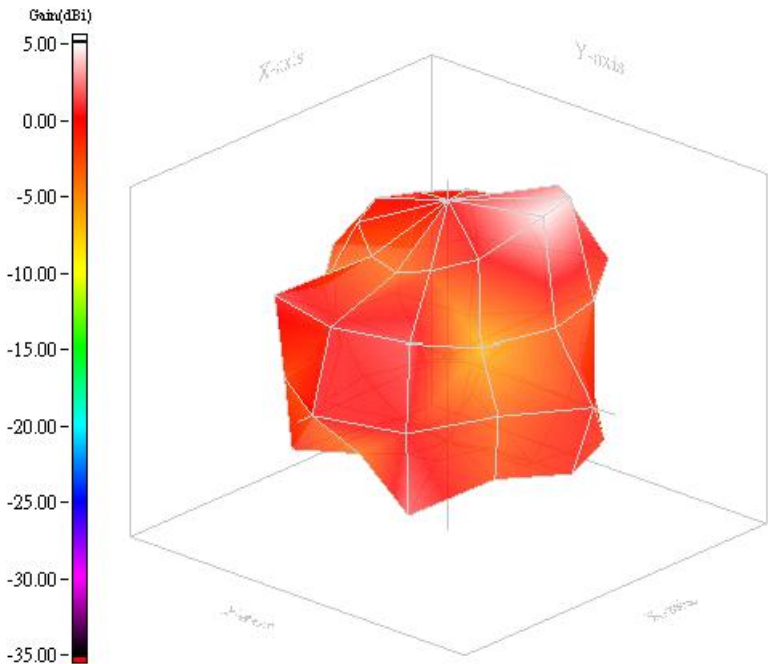


3.2.2 Middle Frequency (5.15GHz~5.35GHz) / Aux Antenna

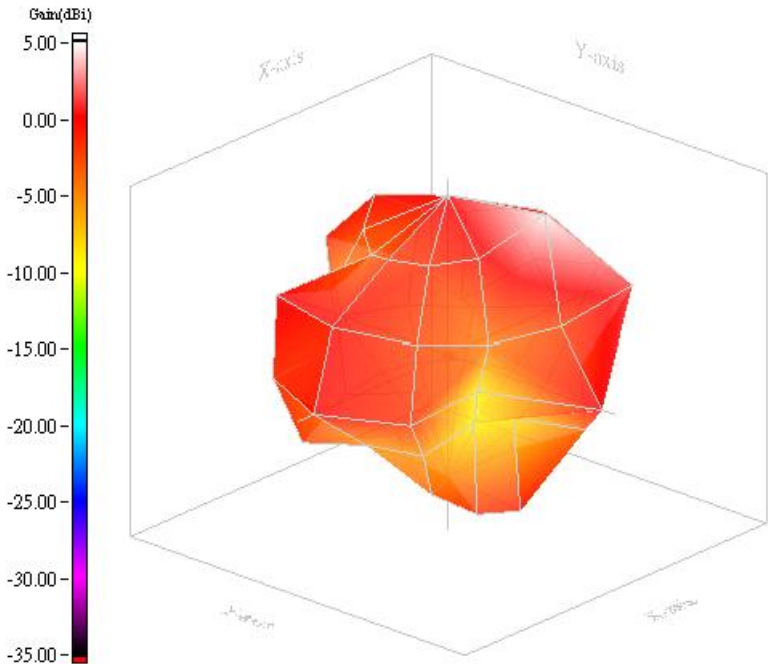
WL Aux @ 5.15GHz



WL Aux @ 5.25GHz

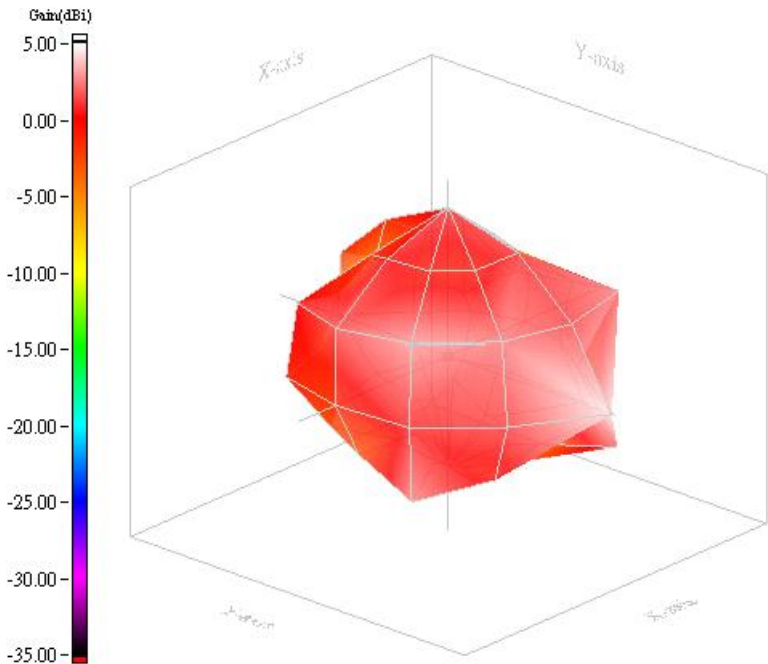


WL Aux @ 5.35GHz

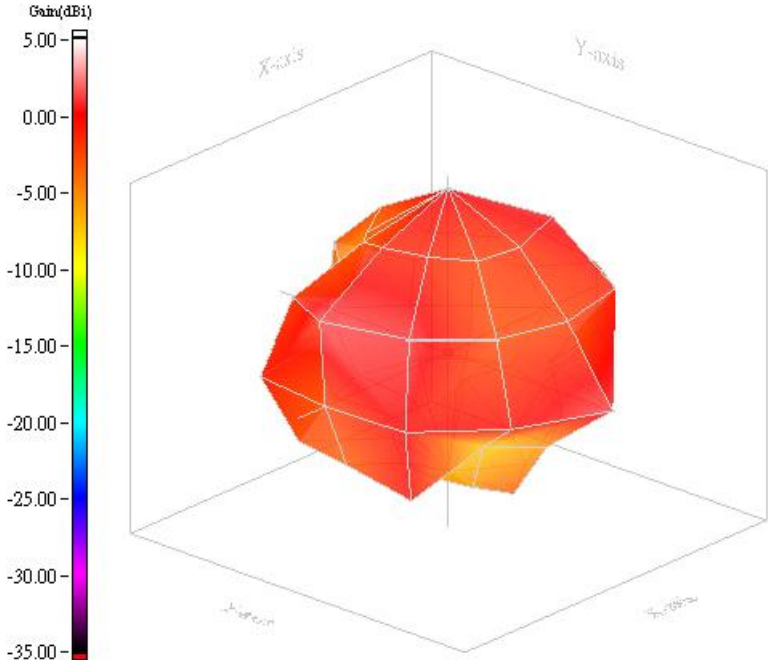


3.2.3 High Frequency (5.47GHz~5.85GHz) / Aux Antenna

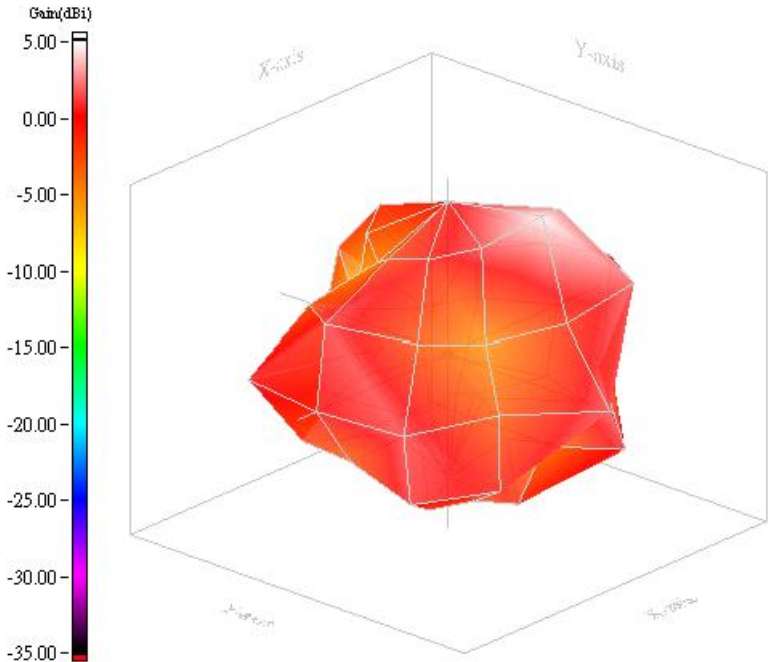
WL Aux @ 5.47GHz



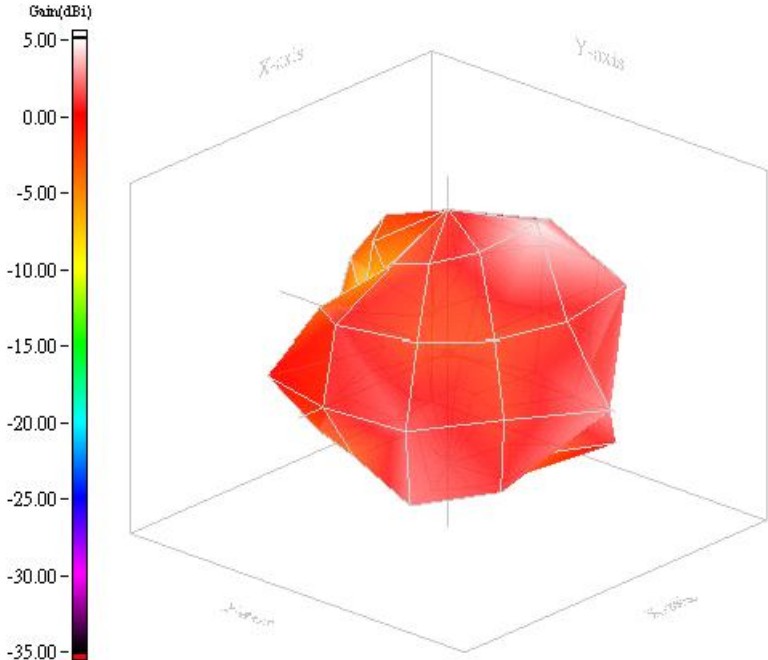
WL Aux @ 5.60GHz



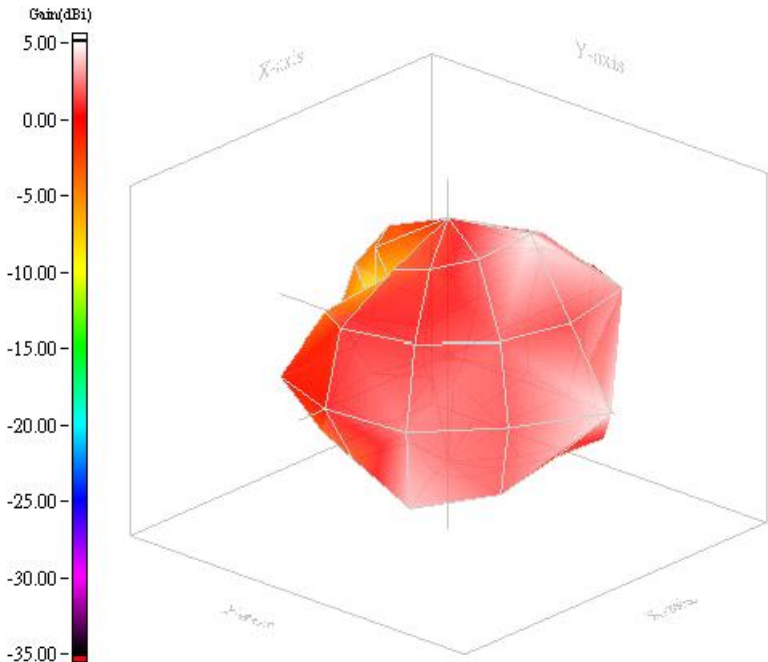
WL Aux @ 5.725GHz



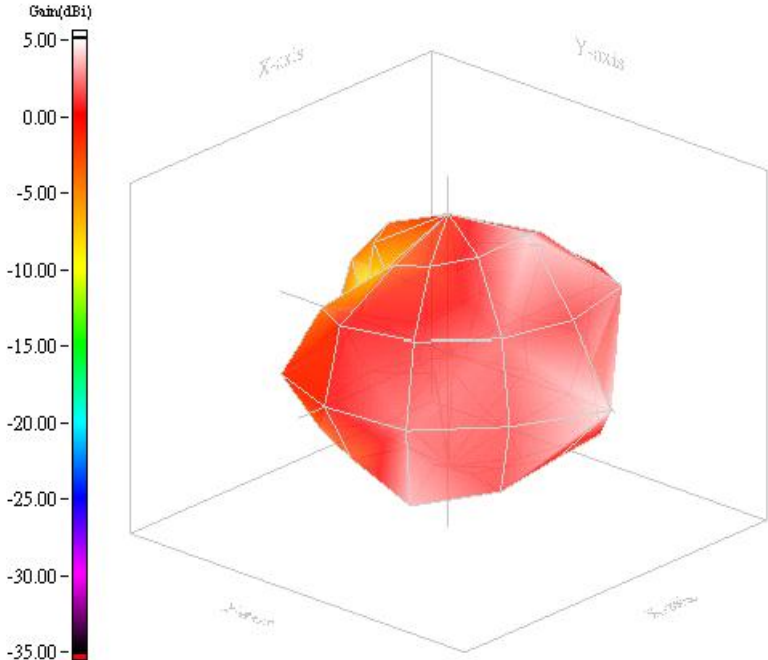
WL Aux @ 5.75GHz



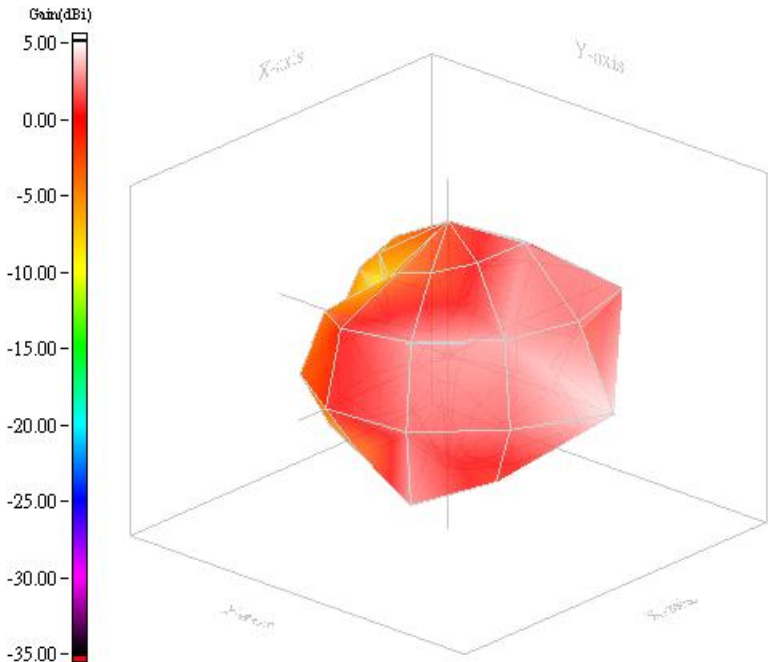
WL Aux @ 5.785GHz



WL Aux @ 5.8GHz



WL Aux @ 5.85GHz

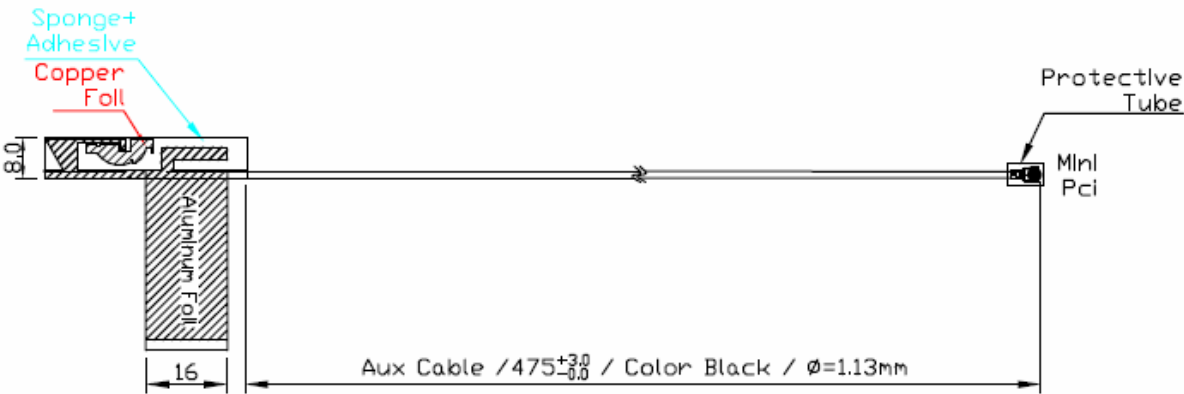
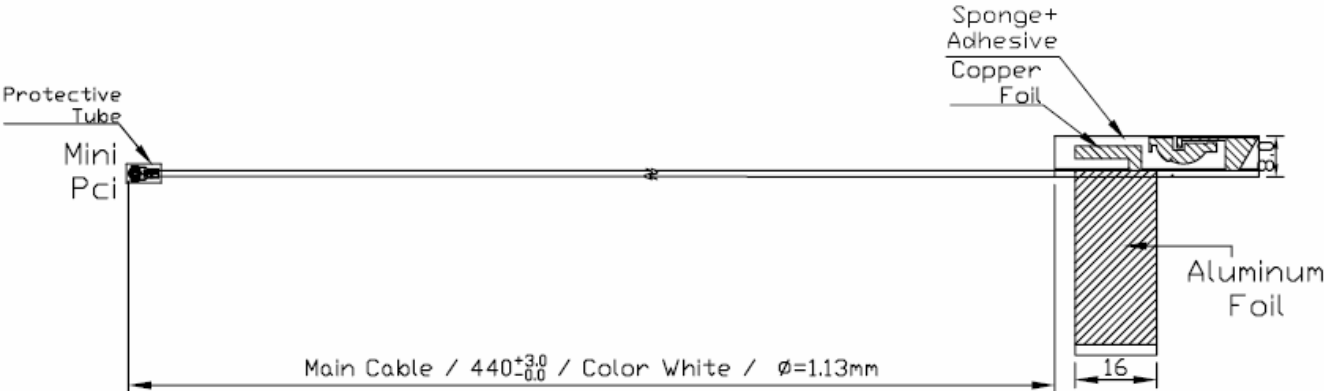


3.2.4 Average Gain (dBi) Summary

WLAN Main Antenna Gain								
Frequency	Peak(dBi)			Average(dBi)				
	H-pol	V-pol	Total	H-pol	V-pol	Total	3D Gain	Efficiency%
2400 MHz	0.00	1.47	2.10	-6.46	-4.75	-2.51	-3.69	42.80
2450 MHz	0.21	0.23	1.36	-6.27	-5.85	-3.05	-3.80	41.68
2500 MHz	-1.07	-1.15	0.14	-7.00	-6.83	-3.90	-4.37	36.56
5150 MHz	-0.96	1.19	2.13	-6.27	-4.93	-2.54	-2.19	60.42
5250 MHz	-0.17	0.80	1.06	-6.77	-5.15	-2.87	-2.30	58.84
5350 MHz	0.34	-2.24	0.80	-5.89	-7.54	-3.63	-3.43	45.39
5470 MHz	1.19	-0.02	3.61	-6.36	-5.69	-3.00	-2.01	62.88
5600 MHz	-1.78	-0.95	1.21	-7.26	-6.33	-3.76	-3.89	40.82
5725 MHz	0.83	-1.41	2.31	-5.63	-6.99	-3.25	-2.48	56.46
5750 MHz	0.12	-1.73	1.86	-6.27	-7.37	-3.78	-2.57	55.33
5785 MHz	1.42	-0.16	3.19	-5.25	-6.02	-2.61	-2.02	62.81
5800 MHz	1.48	-0.33	3.32	-5.55	-6.14	-2.82	-2.34	58.33
5850 MHz	-0.26	-0.26	3.31	-6.01	-6.17	-3.08	-2.75	53.09

WLAN Aux Antenna Gain								
Frequency	Peak(dBi)			Average(dBi)				
	H-pol	V-pol	Total	H-pol	V-pol	Total	3D Gain	Efficiency%
2400 MHz	-0.81	-0.89	1.17	-5.53	-5.13	-2.31	-3.07	49.32
2450 MHz	-0.95	-0.11	0.74	-6.12	-5.81	-2.95	-4.04	39.48
2500 MHz	-1.45	-1.20	-0.11	-6.68	-6.49	-3.57	-4.18	38.18
5150 MHz	-2.79	3.01	3.14	-9.16	-4.38	-3.13	-3.76	42.10
5250 MHz	-3.17	1.71	2.37	-8.28	-4.38	-2.90	-2.27	59.30
5350 MHz	-2.34	2.83	2.98	-7.89	-4.85	-3.10	-2.95	50.75
5470 MHz	-0.29	2.89	3.20	-7.66	-5.05	-3.15	-3.55	44.16
5600 MHz	-0.43	1.96	2.98	-8.28	-5.68	-3.78	-3.08	49.20
5725 MHz	0.79	2.83	3.33	-7.45	-4.61	-2.79	-2.51	56.06
5750 MHz	0.84	3.14	3.64	-7.21	-4.39	-2.57	-2.52	55.98
5785 MHz	-0.11	2.24	2.97	-7.81	-5.05	-3.20	-2.15	61.02
5800 MHz	-0.73	2.11	2.88	-7.91	-5.17	-3.32	-2.65	54.31
5850 MHz	1.11	1.11	1.92	-8.44	-5.47	-3.69	-2.53	55.82

4. Antenna Drawing



5. Reliability Data For Antenna Patch (Reference To IEC)

IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.12	4(Na)	Rapid change of temperature	-40 °C (30 minutes) to +90 °C (30 minutes); 5 cycles	No visible damage Central Freq. Change ± 6%
4.14	3(Ca)	Damp heat	500 ± 12 hours at 40 °C; 90 to 95 % RH	No visible damage 2 hours recovery Central Freq. Change ± 6%
4.15		Endurance	500 ± 12 hours at 90 °C;	No visible damage 2 hours recovery Central Freq. Change ± 6%

6. Ordering Information: Yageo Ordering P/N Code

The antennas may be ordered by using the Yageo P/N ordering code. These code numbers can be determined by the following rules:

CAN4313 8 10 01 250 1B
F C MS T A P

F. Family Code

CAN43 = Antenna

C. Packing Type Code

13 = Bulk (1000 pcs)

M. Materials Code

8 = High Frequency Material

S. Size/Series Code

10 = WL Main Antenna

T. Tolerance/Cable

01 = Cable Main, White

02 = Cable Aux, Black

A. Working Frequency

250 = 2.4/5.15 GHz Triband

P. Packing

1B = 1000 pcs packing

7. Revision Control

Revision	Date	Content	Remark
R01	Oct. 20, 2008	New Issued, PCB Antenna	N/A.
R02	Oct. 27, 2008	Update Antenna Pattern	N/A.