Innovative Service Around the Globe YAGEO

Data Sheet

(EMC Use)

Product Type	**WLAN Antenna**
Notebook Model Number	**Advantech / Hygeia**
Part No. / Yageo / Main	**CAN4313 899 012501B**
Part No. / Yageo / Aux	**CAN4313 899 022501B**
Part No. / Advantech / Main	**1750004200**
Part No. / Advantech / Aux	**1750004201**

Yageo (Taiwan) Ltd.

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Yageo Electronics (China) Co, Ltd

No. 10, Zhu Yuan Road, Suzhou New District, Suzhou, PRC

Multiple Bands Antenna for WLAN Applications		**Yageo Corporation SPD Datasheet Current Revision: R01**		R01	Feb. 25, 09
BY /	Candy Lin	DATE /	Feb. 25, 2009		

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1. Specifications

1.1 Specifications for Antennas

Frequency Range (GHz)	**2.40 ~ 2.50 / 5.15 ~ 5.85**
VSWR	**2.5 : 1 max**
Peak Gain	**2.90 dBi for 2.4~2.5GHz band** **4.09 dBi for 5.15~5.85GHz band**
Radio Connector	**Hirose U.FL or IPex MHF or compatible**
Impedance	**50Ω Nominal.**
Antenna Type	**PIFA Antenna**
Cable Diameter	**1.13 mm**
Cable Color	**Black for Main WLAN ; White for Aux WLAN**
Operating Temperature	**-40~90℃**
Maximum Power	**1W**
Polarization	**Linear**
Radiation Pattern	**Omni-directional**

1.2 Antenna Dimension / Cable Length

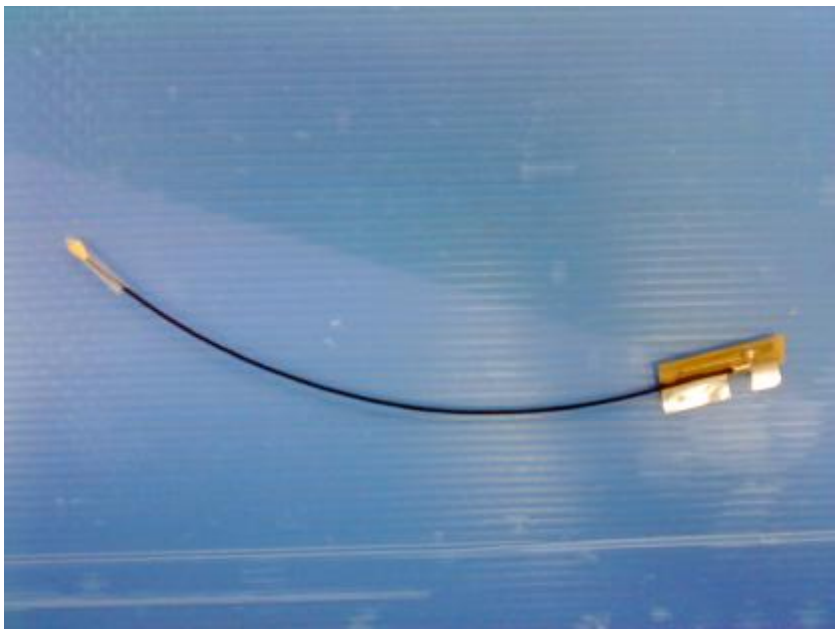
Product	**Advantech / Hygeia**
Main Antenna (LCD)	**32*8*0.3 mm / 165.0 mm, Color Black**
Aux Antenna (LCD)	**32*8*0.3 mm / 165.0 mm, Color White**

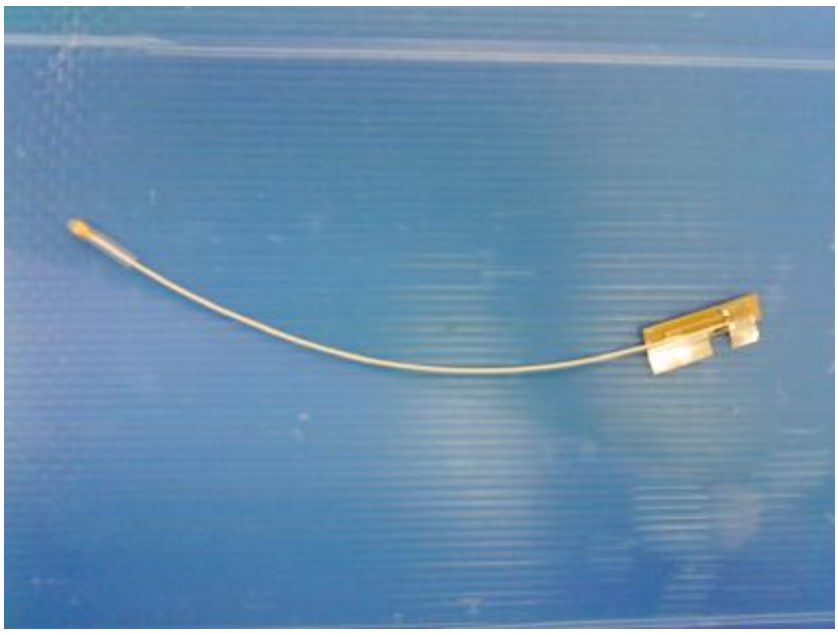
1.3 Packing Spec.

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

2.40 ~ 2.50GHz, 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.

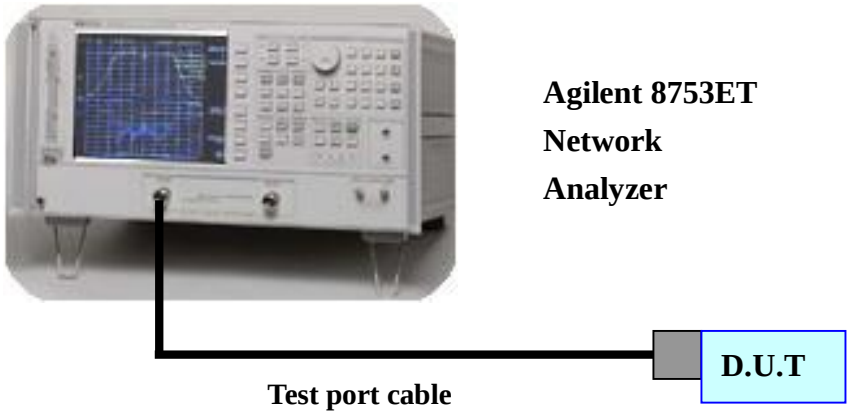


Figure 1. The schematic diagram for measuring VSWR

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.

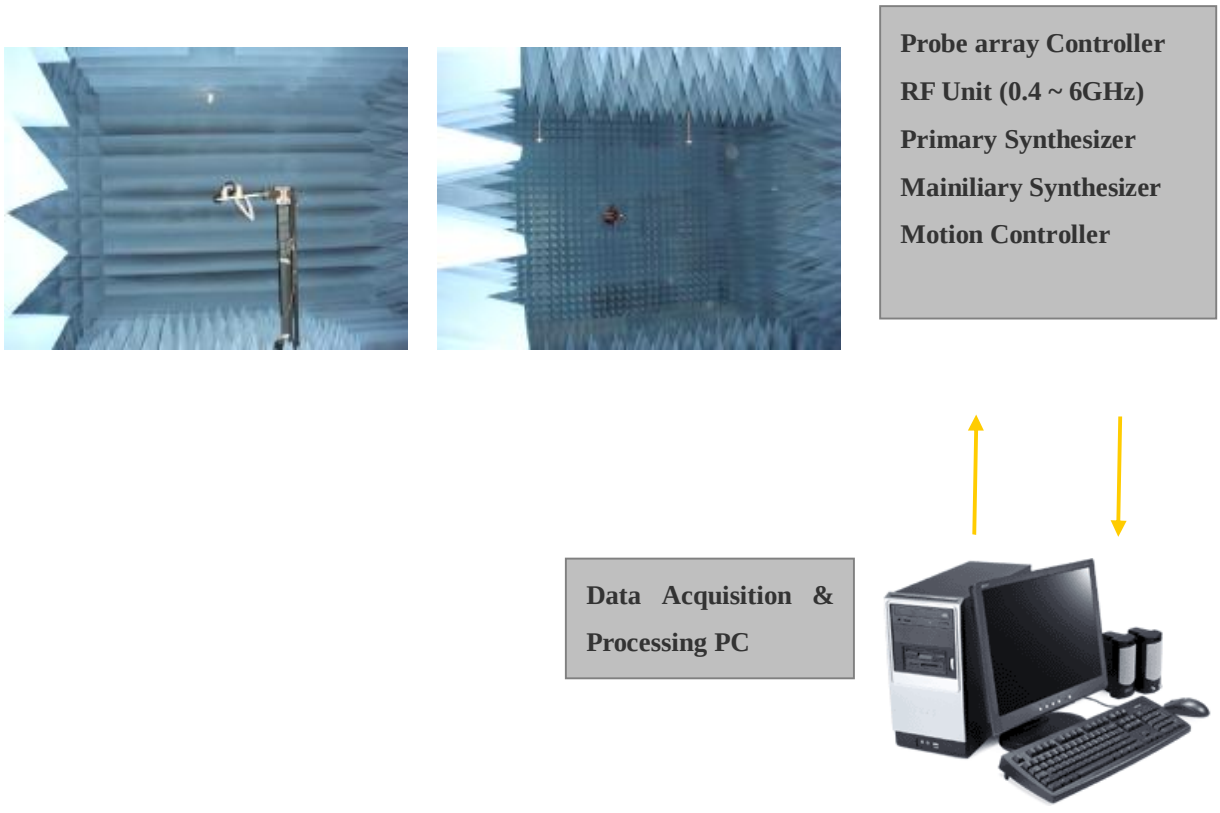
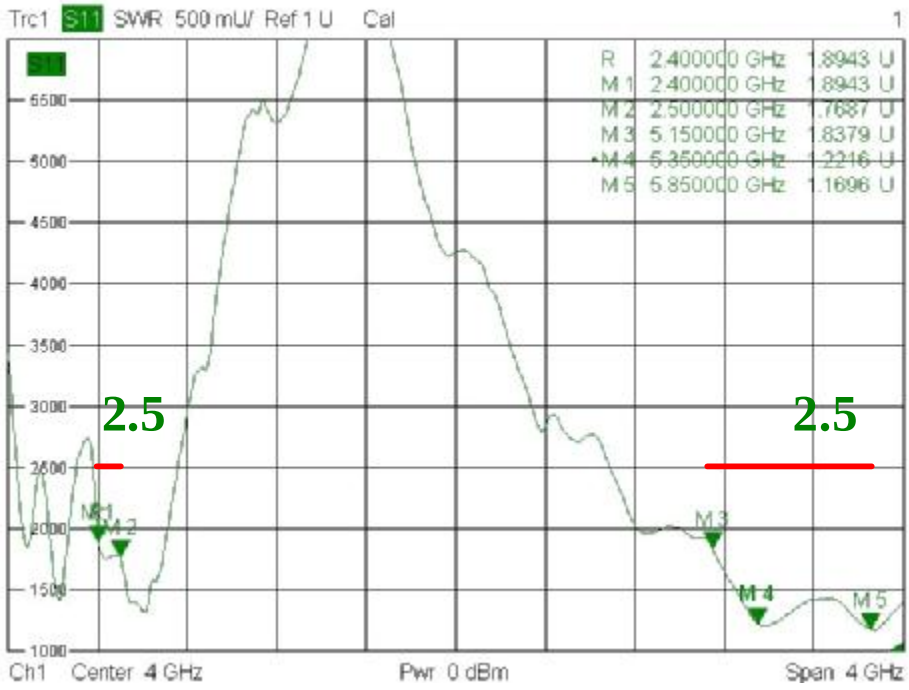


Figure 2. The schematic diagram for measuring radiation pattern and gain

3. Performance Data

3.1 VSWR in the Fixture of Main Antenna

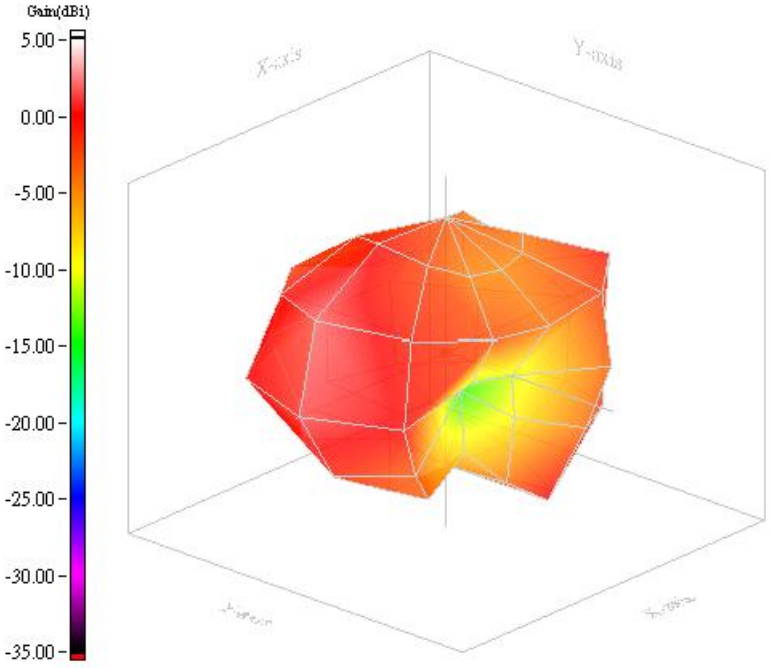


3.1 VSWR in the Fixture of Aux Antenna

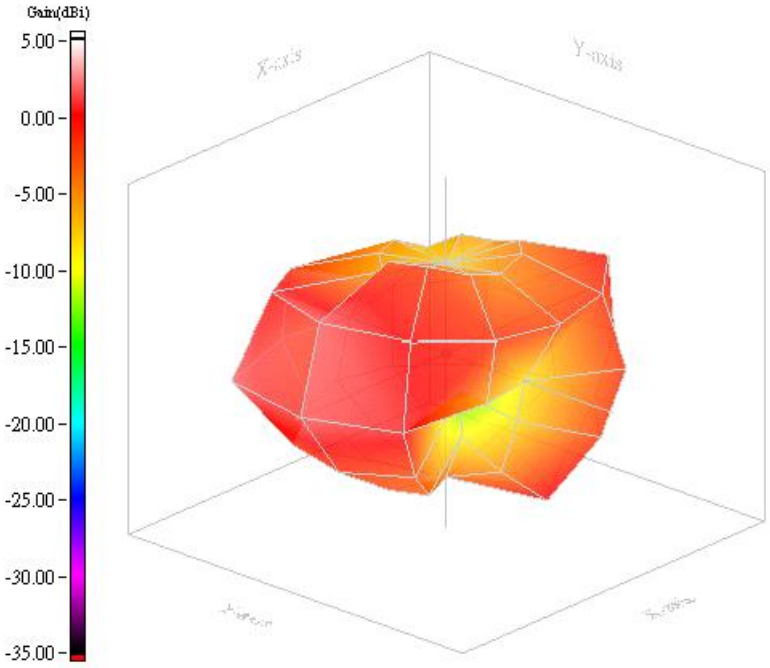
3.2 Radiation Pattern and Gain

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

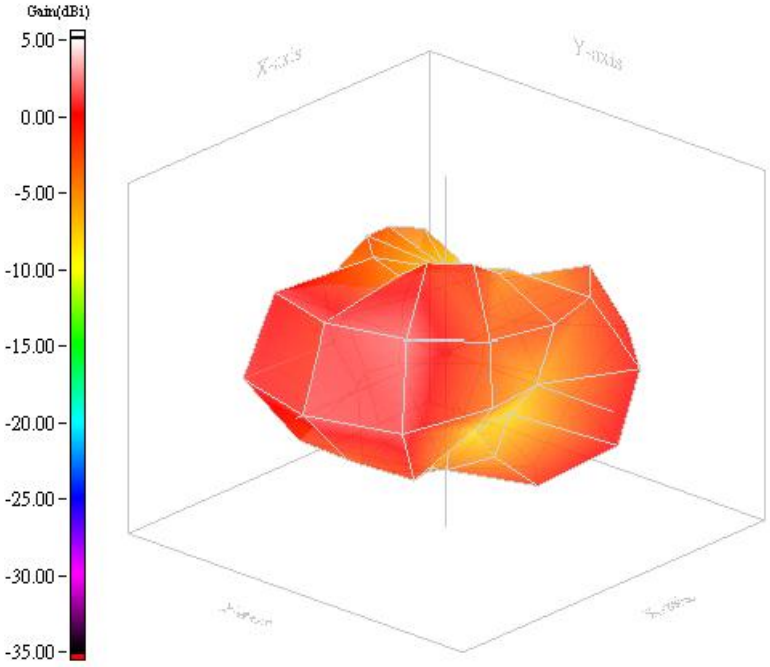
WL Main @ 2.40GHz



WL Main @ 2.45GHz

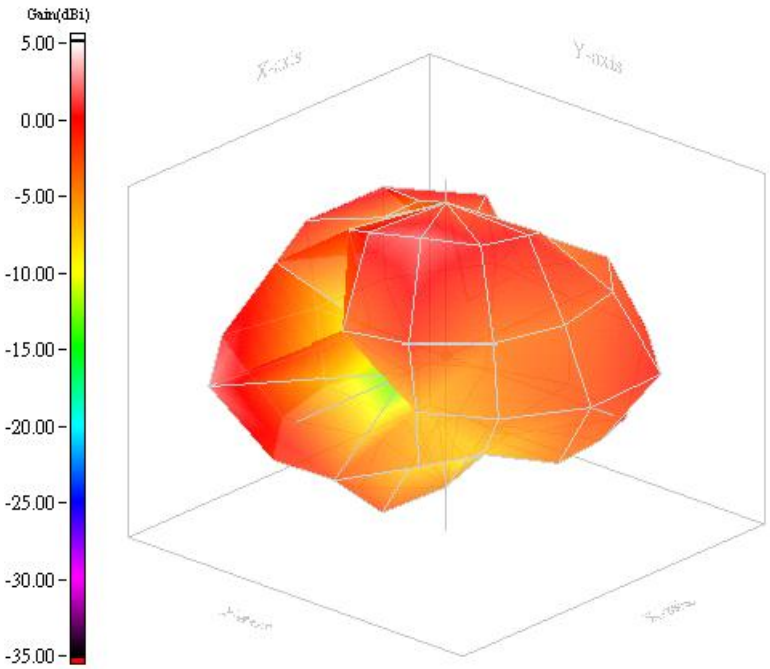


WL Main @ 2.50GHz

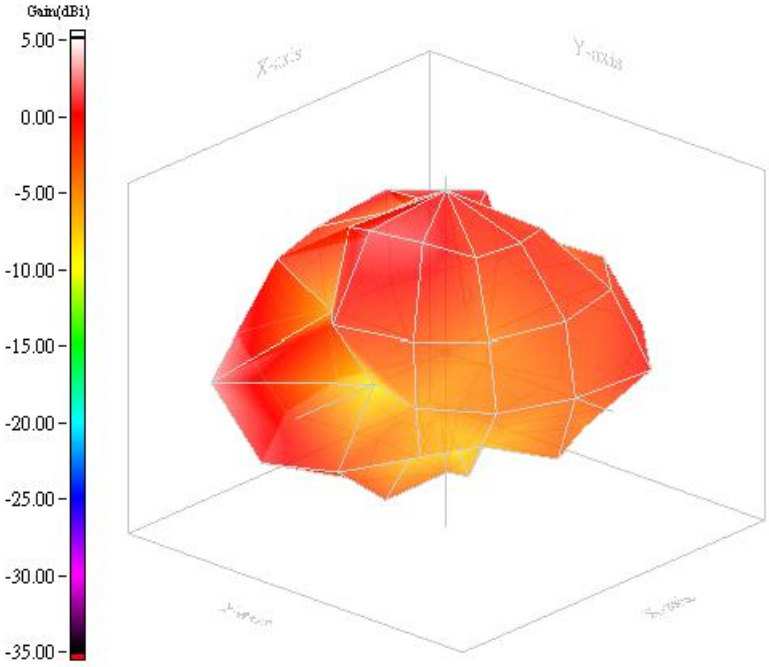


3.2.2 Middle Frequency (5.15GHz~5.35GHz) / Main Antenna

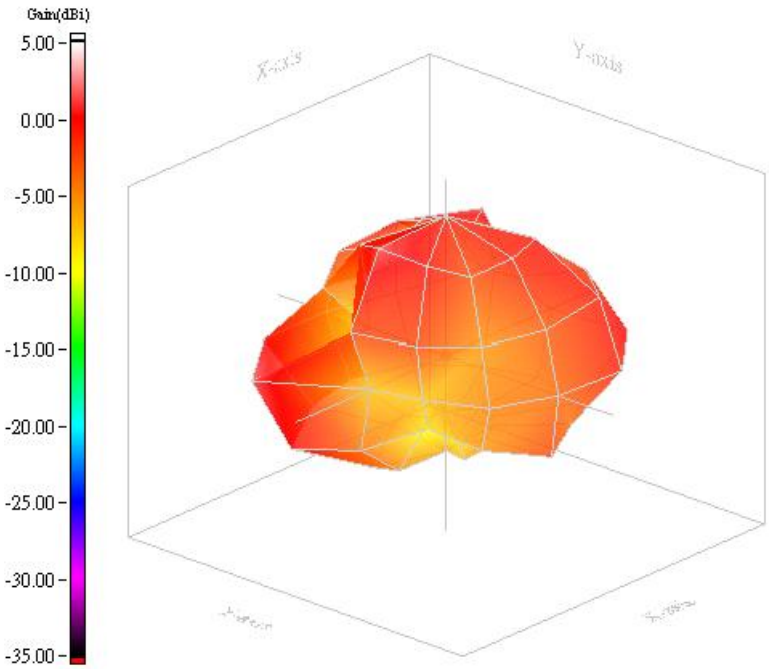
WL Main @ 5.15GHz



WL Main @ 5.25GHz

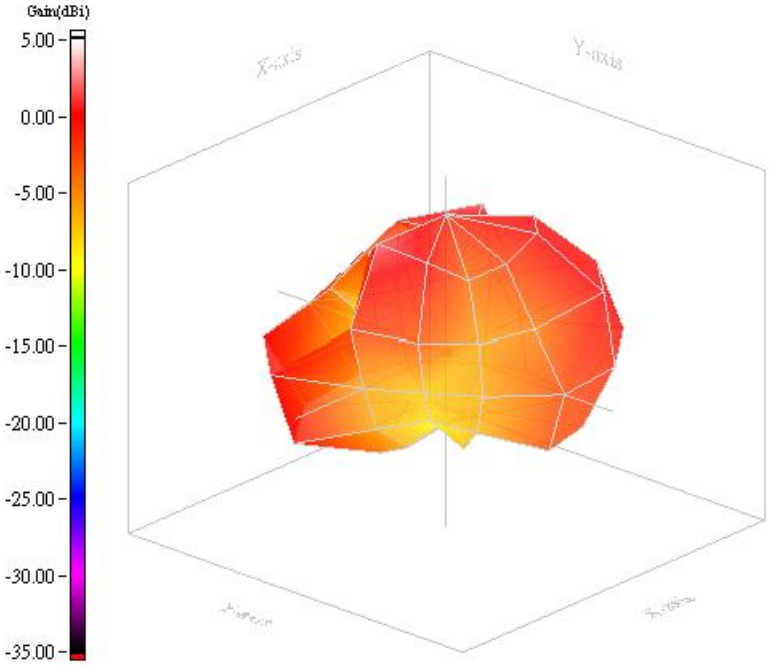


WL Main @ 5.35GHz

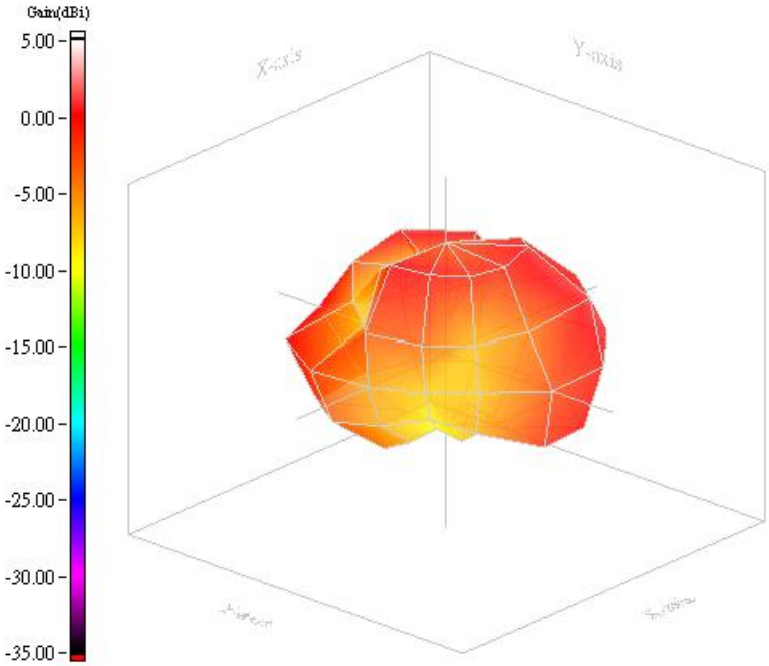


3.2.3 High Frequency (5.47GHz~5.85GHz) / Main Antenna

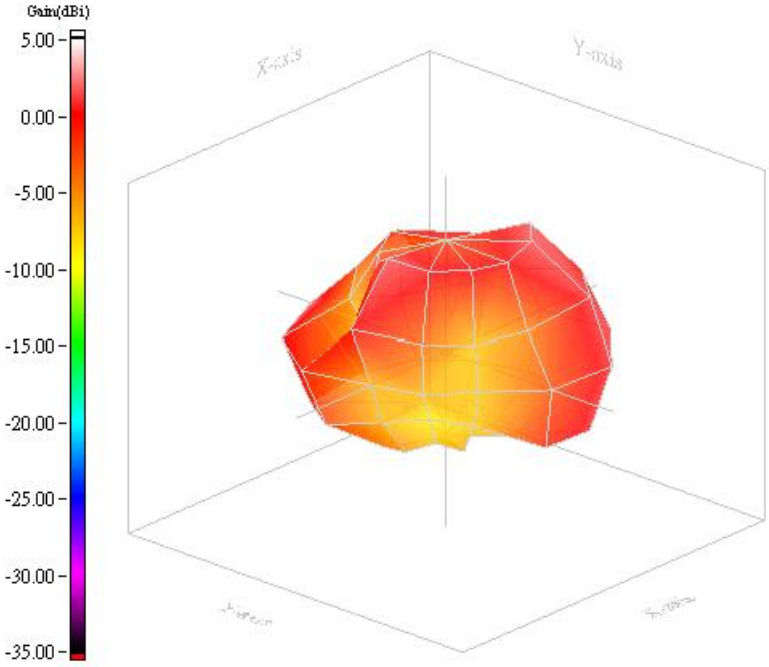
WL Main @ 5.47GHz



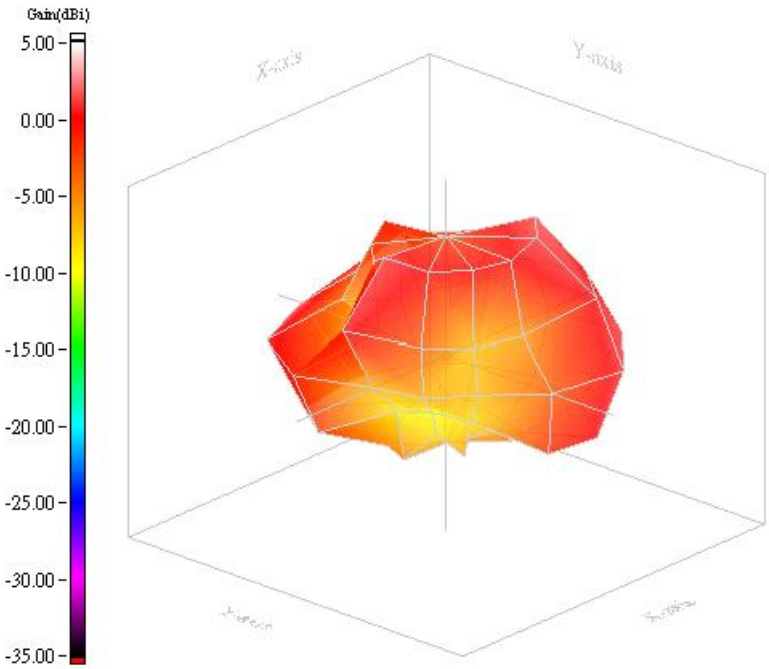
WL Main @ 5.60GHz



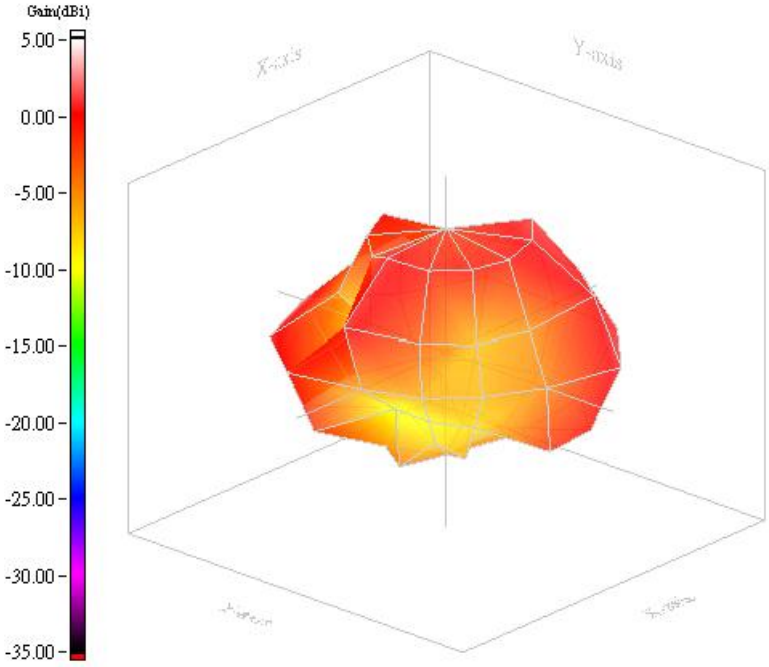
WL Main @ 5.725GHz



WL Main @ 5.785GHz

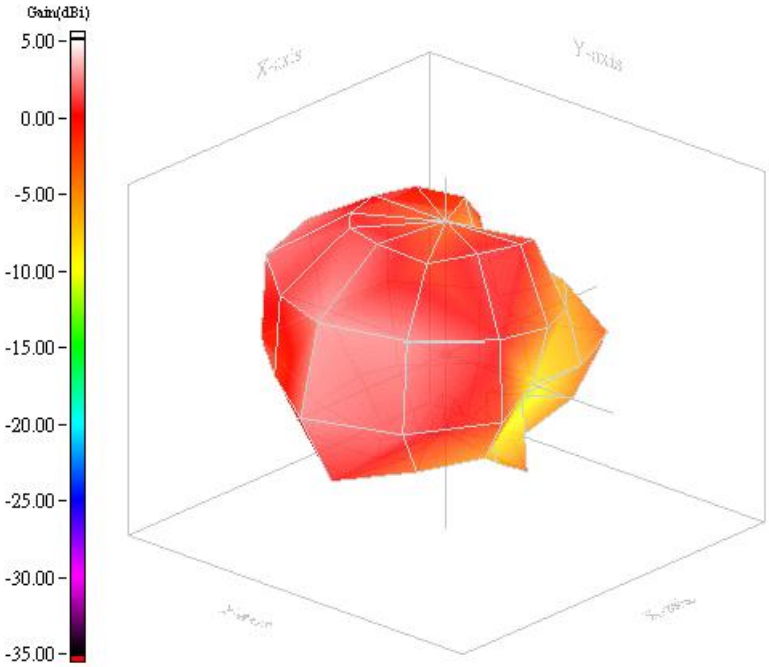


WL Main @ 5.85GHz

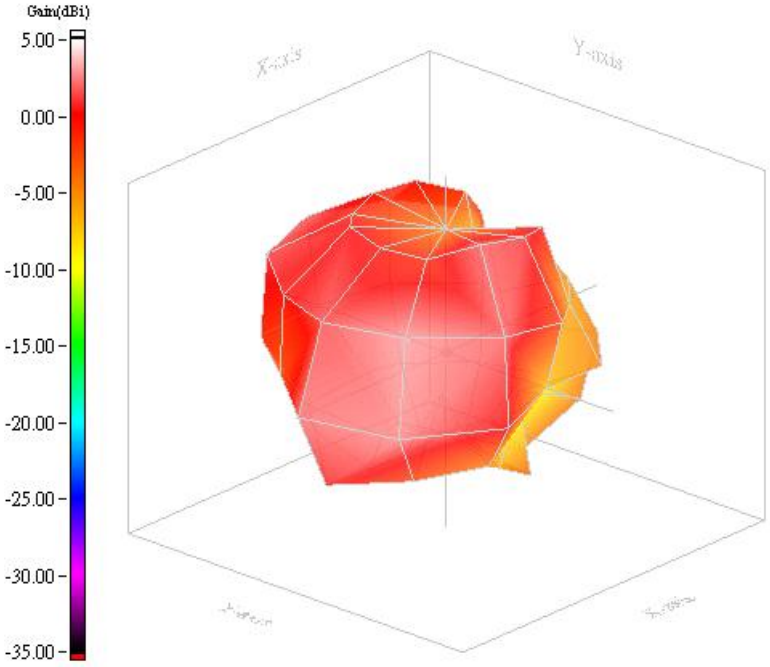


3.2.1 Low Frequency (2.40GHz~2.50GHz) / Aux Antenna

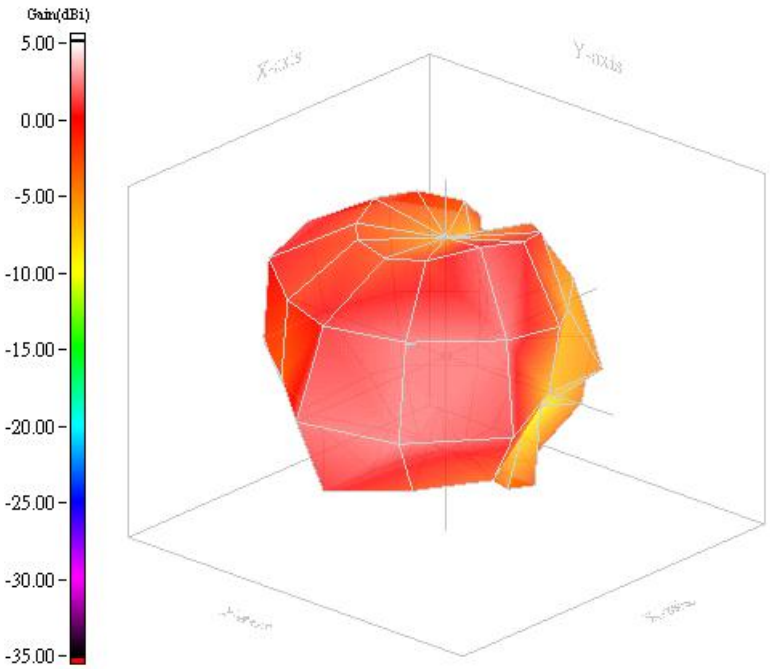
WL Aux @ 2.40GHz



WL Aux @ 2.45GHz

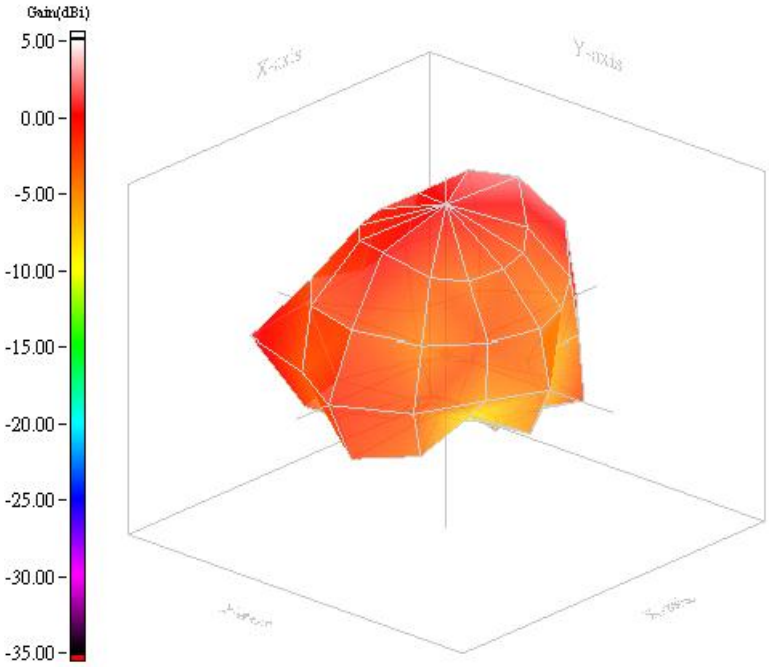


WL Aux @ 2.50GHz

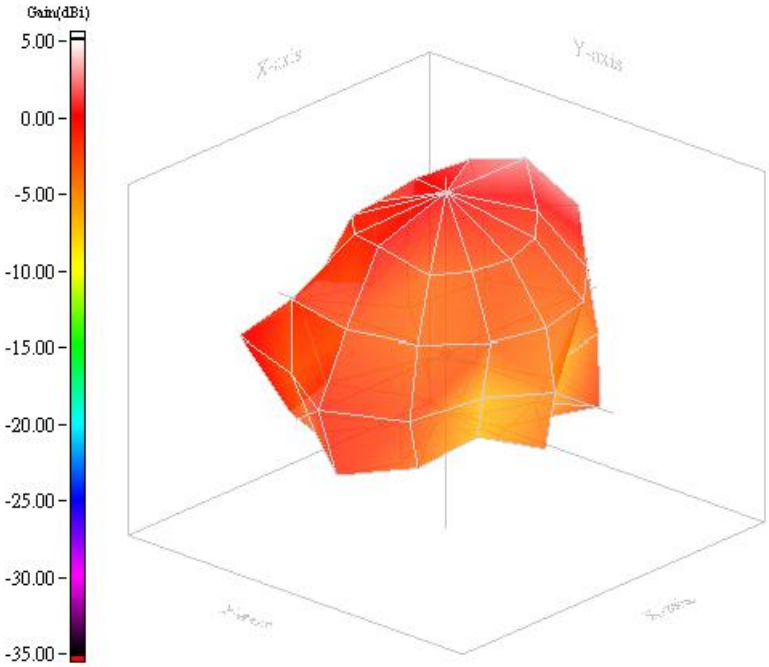


3.2.2 Middle Frequency (5.15GHz~5.35GHz) / Aux Antenna

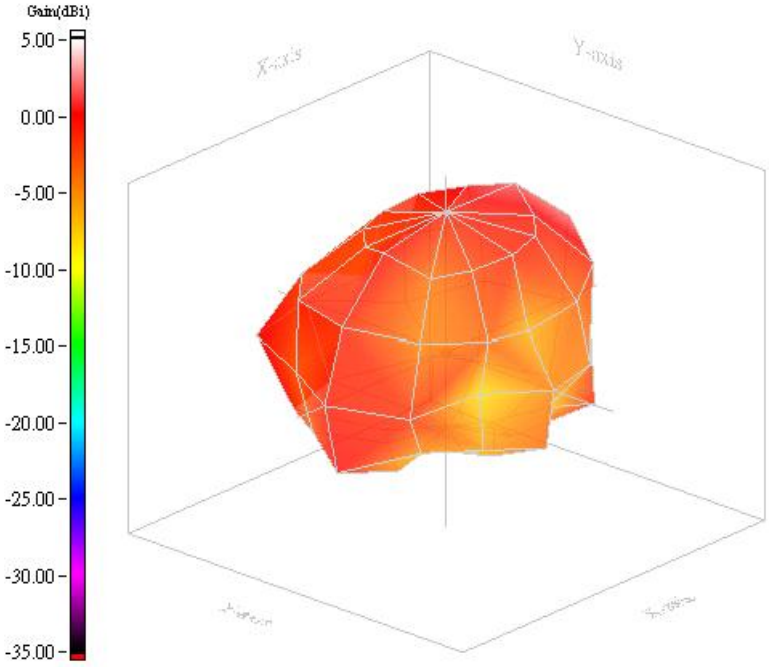
WL Aux @ 5.15GHz



WL Aux @ 5.25GHz

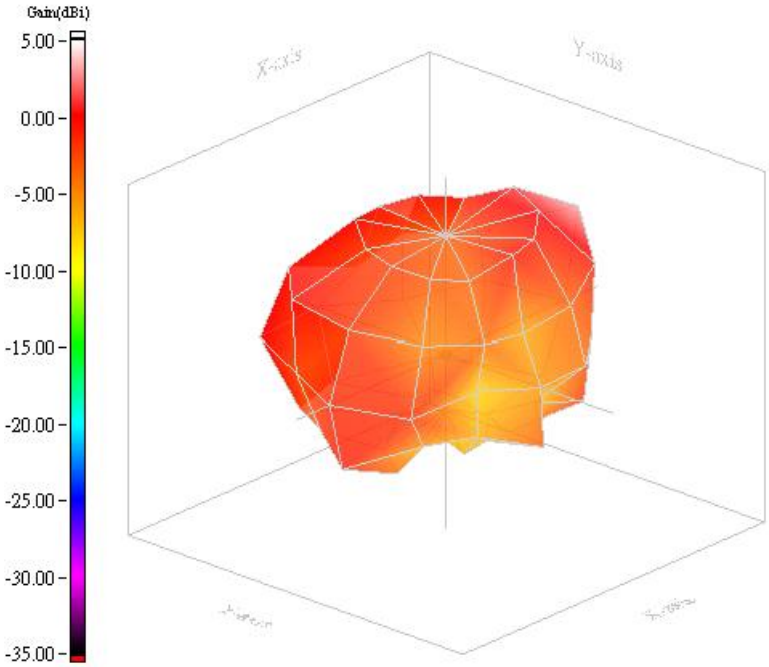


WL Aux @ 5.35GHz

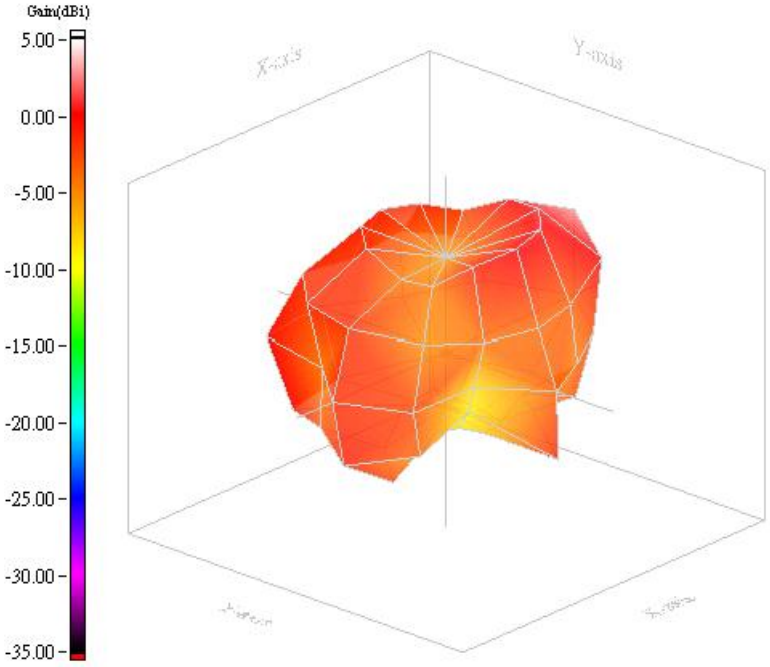


3.2.3 High Frequency (5.47GHz~5.85GHz) / Aux Antenna

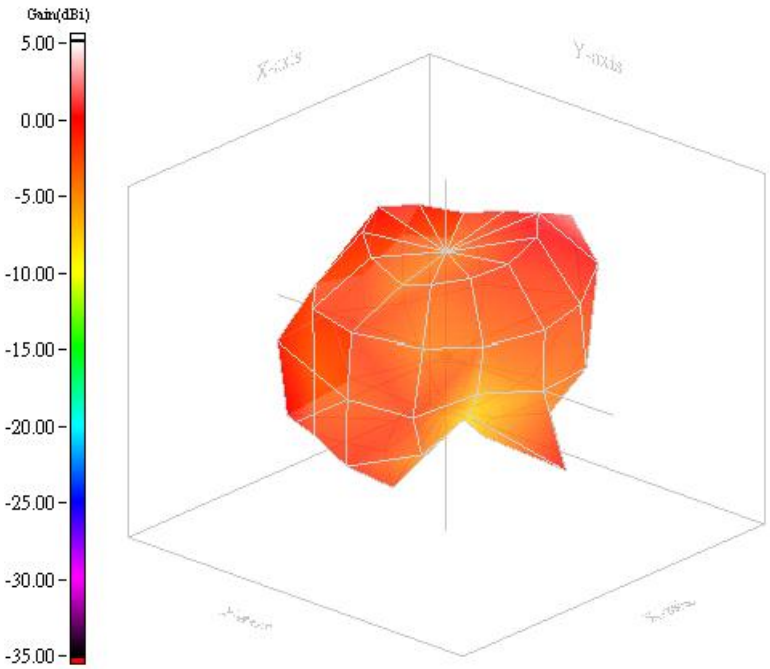
WL Aux @ 5.47GHz



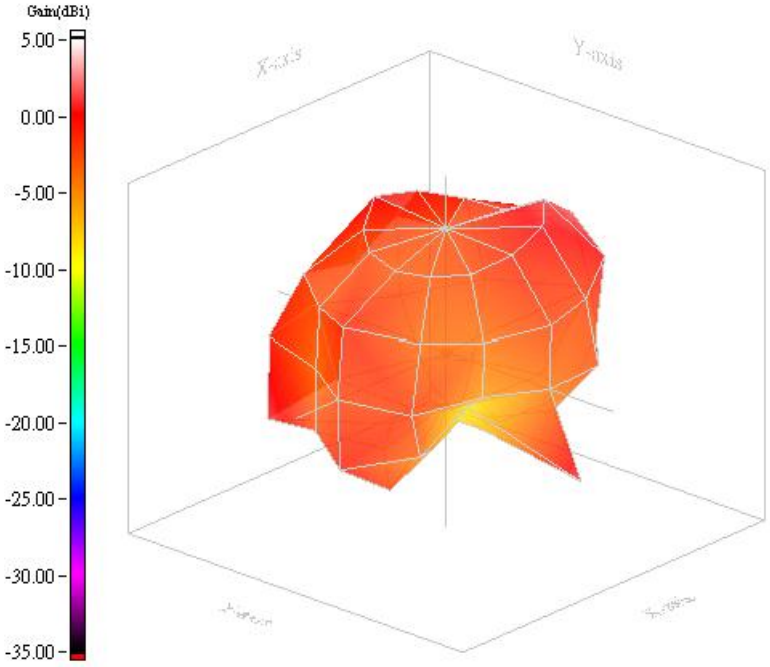
WL Aux @ 5.60GHz



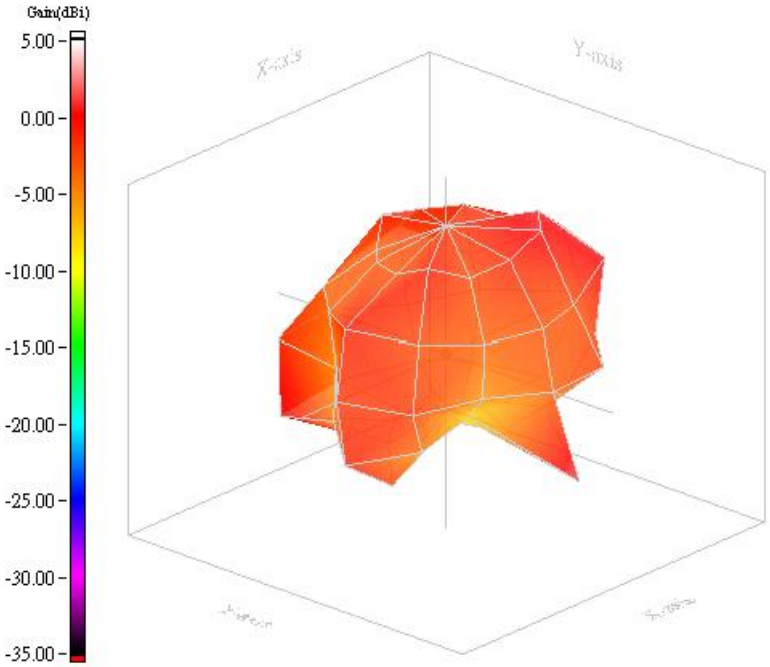
WL Aux @ 5.725GHz



WL Aux @ 5.785GHz



WL Aux @ 5.85GHz

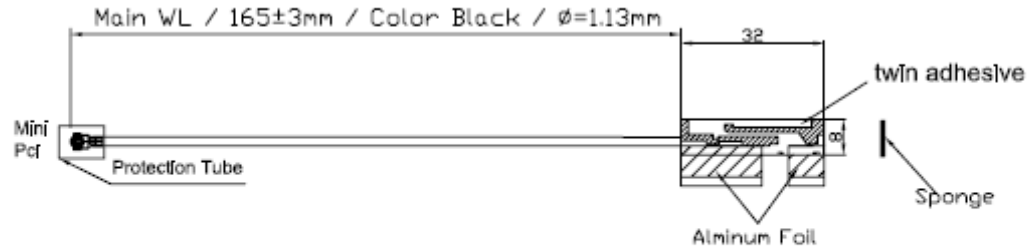


3.2.4 Average Gain (dBi) Summary

WLAN Left Antenna Gain							
Frequency	Peak(dBi)			Average(dBi)			
	H-pol	V-pol	Total	H-pol	V-pol	3D Gain	Efficiency%
2400 MHz	-0.11	-0.24	1.92	-5.53	-6.26	-2.87	51.67
2450 MHz	-0.16	0.68	2.30	-4.71	-6.31	-2.43	57.16
2500 MHz	0.45	0.73	1.98	-4.74	-6.68	-2.59	55.09
5150 MHz	-0.10	1.06	2.31	-6.07	-5.37	-2.70	53.76
5250 MHz	2.59	2.24	3.13	-5.44	-5.08	-2.24	59.64
5350 MHz	3.15	1.11	4.09	-5.36	-5.80	-2.56	55.41
5470 MHz	1.73	1.51	2.97	-5.38	-6.09	-2.71	53.59
5600 MHz	0.97	0.11	2.07	-5.36	-6.20	-2.75	53.09
5725 MHz	2.08	1.24	2.61	-4.71	-5.48	-2.07	62.14
5785 MHz	1.75	0.65	2.81	-4.83	-5.47	-2.13	61.24
5850 MHz	1.85	0.13	2.40	-5.04	-5.54	-2.27	59.22

WLAN Right Antenna Gain							
Frequency	Peak(dBi)			Average(dBi)			
	H-pol	V-pol	Total	H-pol	V-pol	3D Gain	Efficiency%
2400 MHz	0.28	1.56	2.68	-5.10	-5.03	-2.05	62.31
2450 MHz	1.37	0.87	2.90	-4.91	-5.15	-2.02	62.81
2500 MHz	1.15	0.09	2.14	-5.28	-5.62	-2.43	57.13
5150 MHz	0.01	1.75	2.19	-6.24	-5.78	-2.99	50.22
5250 MHz	0.12	1.80	2.60	-6.21	-5.44	-2.80	52.47
5350 MHz	-1.22	1.59	2.24	-6.14	-5.38	-2.73	53.33
5470 MHz	-0.59	2.81	3.35	-6.11	-5.13	-2.58	55.18
5600 MHz	-1.14	2.58	2.98	-5.88	-5.37	-2.61	54.87
5725 MHz	-0.61	2.26	2.43	-5.71	-5.39	-2.54	55.74
5785 MHz	0.59	1.48	1.69	-5.29	-5.39	-2.33	58.48
5850 MHz	0.92	0.64	1.53	-5.40	-5.78	-2.57	55.29

4. Antenna Drawing



Yageo P/N : CAN4313 899 012501B
Advantech P/N : 1750004200

Yageo P/N : CAN4313899022501B
Advantech P/N : 1750004201

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:

CAN43	13	8	99	01	250	1B
F	C	M	S	T	A	P

F. Family Code

CAN43 = Antenna

C. Packing Type Code

13 = Carton

M. Materials Code

8 = Coaxial Cable

S. Size/Series Code

99 = HYGEIA

T. Left Antenna/Right Antenna

01 = WL Main Antenna

02 = WL Aux Antenna

A. Working Frequency

250 = WLAN

P. Packing

1B = 1000 pcs packing

7. Revision Control

Revision	Date	Content	Remark
R01	Feb. 25, 2009	New Issued, Metal Antenna	N/A.