

Wistron Antenna Specification

1. VSWR

The VSWR is measured with antenna installed in notebook and LCD is open at 90 degrees.

	2.4- 2.5 GHz	5.15- 5.35 GHz
Main antenna	2 max	2 max
Aux antenna	2 max	2 max

2. Average Gain

The average gain is measured with antenna installed in notebook and LCD is open at 90 degrees. The data is from the pattern measurements in the azimuth plane.

	2.4- 2.5 GHz	5.15 – 5.35 GHz
Main antenna	-4 dBi min	-4.8 dBi min
Aux antenna	-4 dBi min	-4.8 dBi min

3. Peak Gain

The average gain is measured with antenna installed in notebook and LCD is open at 90 degrees. The data is from the pattern measurements in the azimuth plane.

	2.4- 2.5 GHz	5.15 – 5.35 GHz
Main antenna	3 dBi max	4 dBi max
Aux antenna	N/A	N/A

1. Introduction

- **Designed for IEEE 802.11b/802.11a wireless-Lan.**

The antennas are designed in 2.4~2.5 GHz 15.15~5.35GHz
for dual band use.

- **Special design for Embedded use.**

According the J1 structure and available design size,
The antennas are special design for this environment.

- **Ultra-Fine Teflon coaxial cable and connector.**

I-pex MHF Teflon coaxial cable $\phi = 1.13$ mm

- **Space and polarization diversity**

These 2 antennas are arrayed in different space and polarization
to accomplish diversified radiation pattern.

3. Product Specification

3.1 Electrical Specification

Frequency	2.4 GHz ~ 2.5 GHz / 5.15~5.35 GHz
VSWR	2.0 Max
Power	1 W Max
Input Independence	50 ohm
Average Gain (when LCD open)	>-5dBi (azimuth plane + -45 degree)

3.2 Material Specification

Material	0.4t Cu-Zn-Ni
Sustentation	CR form
Cable	Black cable with the connector $\Phi=1.13\text{mm}$

3.3 Environmental Specification

Storage

Condition : Non operating during test.

Cold : - 40°C during 72h (IEC 68-2-1 standard Ab/Ad test)

Dry heat : +60°C during 96h (IEC 68-2-2 standard Bb/Bd test)

Humidity : +40°C at 95%R.H. during 4 days (IEC 68-2-56 standard Cb test)

Mandatory : No mechanical or visible damage tolerated.

Guaranty of functionalities after test.

Operation

Condition : Operating during test.

Cold : - 10°C during 48h (IEC 68-2-1 standard Ab/Ad test)

Dry heat : + 55°C during 48h (IEC 68-2-2 standard Bb/Bd test)

Composite : - 10°C to + 55°C 95%R.H. 4 cycles (IEC 68-2-30 standard Nb test)

Mandatory : No mechanical or visible damage tolerated.

Guaranty of functionalities during and after test.

Traction:

Tractions force applied 3 times on plugs during 15 second : 2 kg

Mandatory : No mechanical damage tolerated.

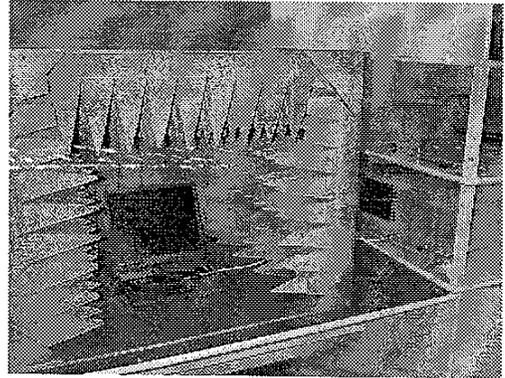
Guaranty of functionalities after test.

4. Antenna Test Methods

4.1 VSWR Test

Test condition

Connector : I-Pex MHF
 Cable : RF-MF5016 (NISSEI Electric CO.,LTD)
 Adopter : HRMP-U.FLJ (Hirose Electric CO.,LTD)
 Network analyzer : HP 8753D
 Housing : N34AS1 Notebook (After coating)



Specimens

right-side wireless LAN antenna
 left-side wireless LAN antenna

Antenna type : PIFA Antenna

Wireless Antenna

2.4 ~ 2.5GHz

		2.4GHz	2.45GHz	2.5GHz
Right Antenna	VSWR	1.25	1.13	1.51
	Peak	2.10	1.90	2.80
	Average	-3.20	-2.90	-3.55
Left Antenna	VSWR	1.33	1.22	1.56
	Peak	2.50	2.10	2.90
	Average	-3.30	-3.00	-3.50



5.15~5.35GHz

		5.15GHz	5.25GHz	5.35GHz
Right Antenna	VSWR	1.22	1.15	1.45
	Peak	2.00	1.95	2.70
	Average	-3.57	-3.32	-3.50
Left Antenna	VSWR	1.27	1.18	1.47
	Peak	2.40	2.00	2.80
	Average	-3.11	-3.05	-3.52

Cable length

left-side WLAN : 160mm (black)

Right-side WLAN : 300mm (gray)

4.2 Gain & Radiation Pattern Test

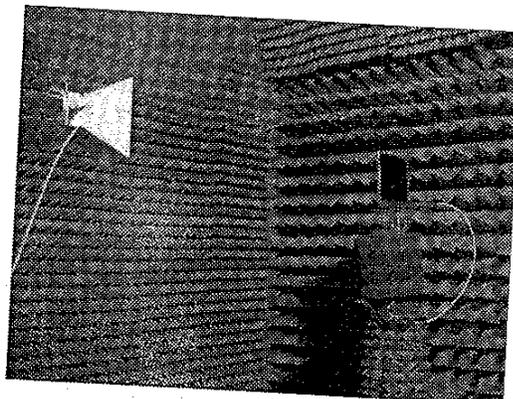
Test condition

Network Analyzer : HP 8722D 30kHz ~ 40 GHz

Standard gain horn : EMCO Model 3115 Double Ridged Guide Antenna 1GHz ~18 GHz

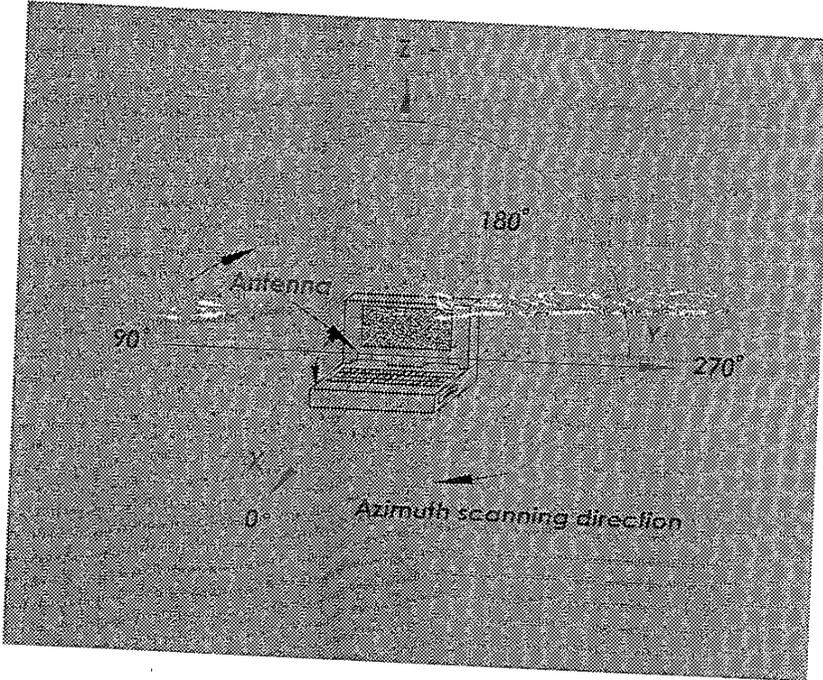
Anechoic Chamber : Antcom NFH003 (5'x5'x5') Hybrid Near-field System

- * 450 MHz – 40 GHz
- * 7 axes scanner system
- * Planar, cylindrical, and spherical scanning
- * Far-field scan option





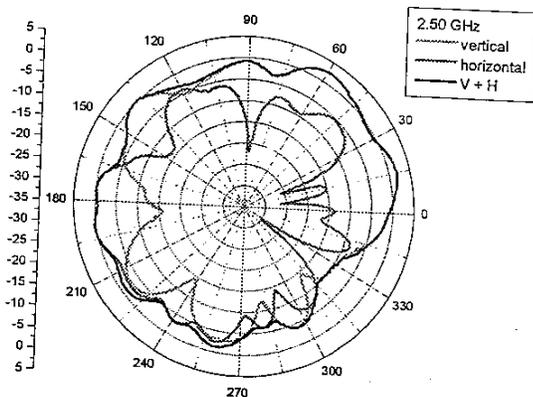
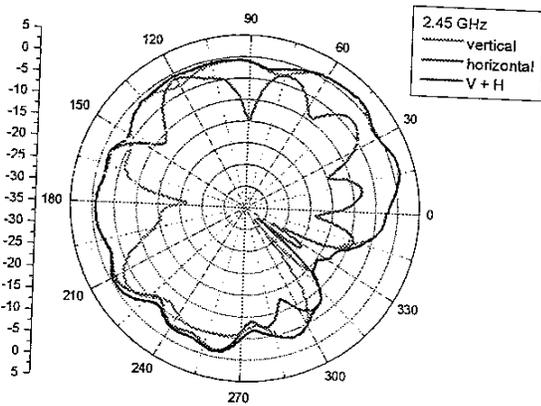
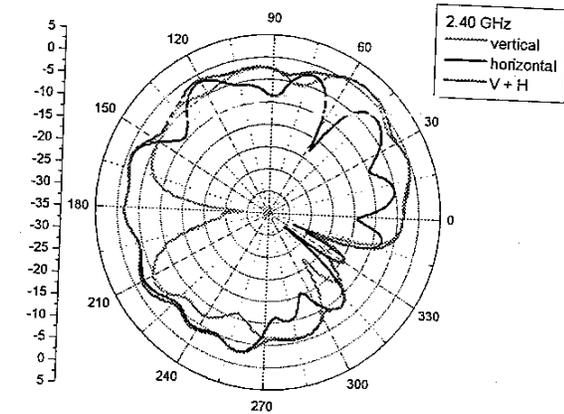
Test configuration





Radiation pattern (Average & Peak Gain)

Wireless LAN 2.4 ~ 2.5 GHz Leftside Antenna





Wireless LAN 5.15 ~ 5.35 GHz Left-side Antenna

