

PIT-1701 WL Antenna Progress Report

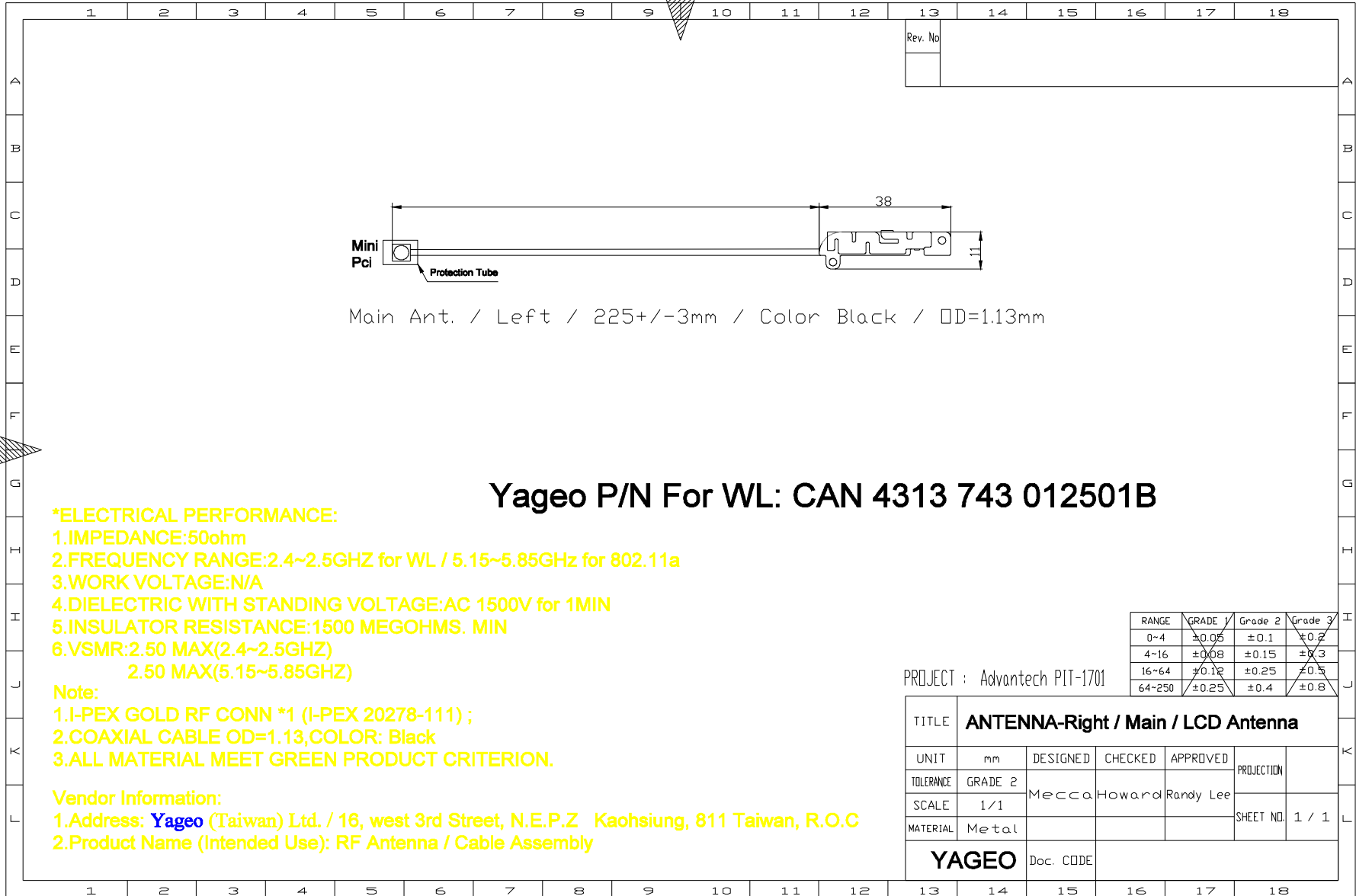
Platform: PIT-1701 Mockup
Antenna Revision : R02

YAGEO Multi-Band Wireless LAN Antenna

**Special Product Division (SPD),
R&D Technology Center,
Yageo Corporation
Date: May 20, 2008**



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Main Ant. / Left / 225+/-3mm / Color Black / OD=1.13mm

Yageo P/N For WL: CAN 4313 743 012501B

***ELECTRICAL PERFORMANCE:**

- 1.IMPEDANCE:50ohm
- 2.FREQUENCY RANGE:2.4~2.5GHZ for WL / 5.15~5.85GHZ for 802.11a
- 3.WORK VOLTAGE:N/A
- 4.DIELECTRIC WITH STANDING VOLTAGE:AC 1500V for 1MIN
- 5.INSULATOR RESISTANCE:1500 MEGOHMS. MIN
- 6.VSMR:2.50 MAX(2.4~2.5GHZ)
2.50 MAX(5.15~5.85GHZ)

Note:

- 1.I-PEX GOLD RF CONN *1 (I-PEX 20278-111) ;
- 2.COAXIAL CABLE OD=1.13,COLOR: Black
- 3.ALL MATERIAL MEET GREEN PRODUCT CRITERION.

Vendor Information:

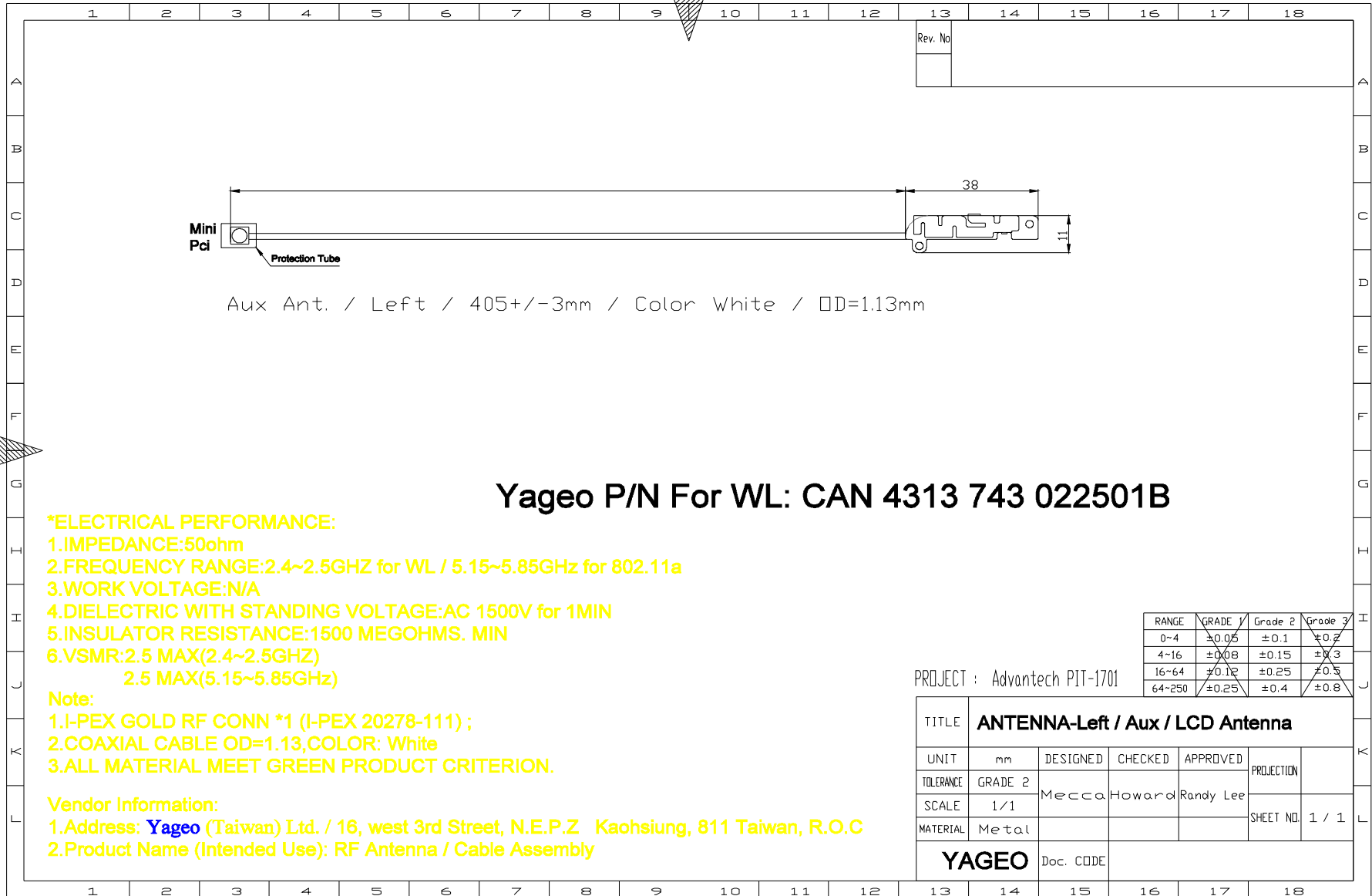
- 1.Address: **Yageo** (Taiwan) Ltd. / 16, west 3rd Street, N.E.P.Z Kaohsiung, 811 Taiwan, R.O.C
- 2.Product Name (Intended Use): RF Antenna / Cable Assembly

RANGE	Grade 1	Grade 2	Grade 3
0~4	±0.05	±0.1	±0.2
4~16	±0.08	±0.15	±0.3
16~64	±0.12	±0.25	±0.5
64~250	±0.25	±0.4	±0.8

PROJECT : Advantech PIT-1701

TITLE	ANTENNA-Right / Main / LCD Antenna				
UNIT	mm	DESIGNED	CHECKED	APPROVED	PROJECTION
TOLERANCE	GRADE 2	Mecca	Howard	Randy Lee	
SCALE	1/1				SHEET NO. 1 / 1
MATERIAL	Metal				
YAGEO	Doc. CODE				

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Yageo P/N For WL: CAN 4313 743 022501B

***ELECTRICAL PERFORMANCE:**

- 1.IMPEDANCE:50ohm
- 2.FREQUENCY RANGE:2.4~2.5GHZ for WL / 5.15~5.85GHZ for 802.11a
- 3.WORK VOLTAGE:N/A
- 4.DIELECTRIC WITH STANDING VOLTAGE:AC 1500V for 1MIN
- 5.INSULATOR RESISTANCE:1500 MEGOHMS. MIN
- 6.VSMR:2.5 MAX(2.4~2.5GHZ)
2.5 MAX(5.15~5.85GHZ)

Note:

- 1.I-PEX GOLD RF CONN *1 (I-PEX 20278-111) ;
- 2.COAXIAL CABLE OD=1.13,COLOR: White
- 3.ALL MATERIAL MEET GREEN PRODUCT CRITERION.

Vendor Information:

- 1.Address: **Yageo** (Taiwan) Ltd. / 16, west 3rd Street, N.E.P.Z Kaohsiung, 811 Taiwan, R.O.C
- 2.Product Name (Intended Use): RF Antenna / Cable Assembly

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64~250	± 0.25	± 0.4	± 0.8

PROJECT : Advantech PIT-1701

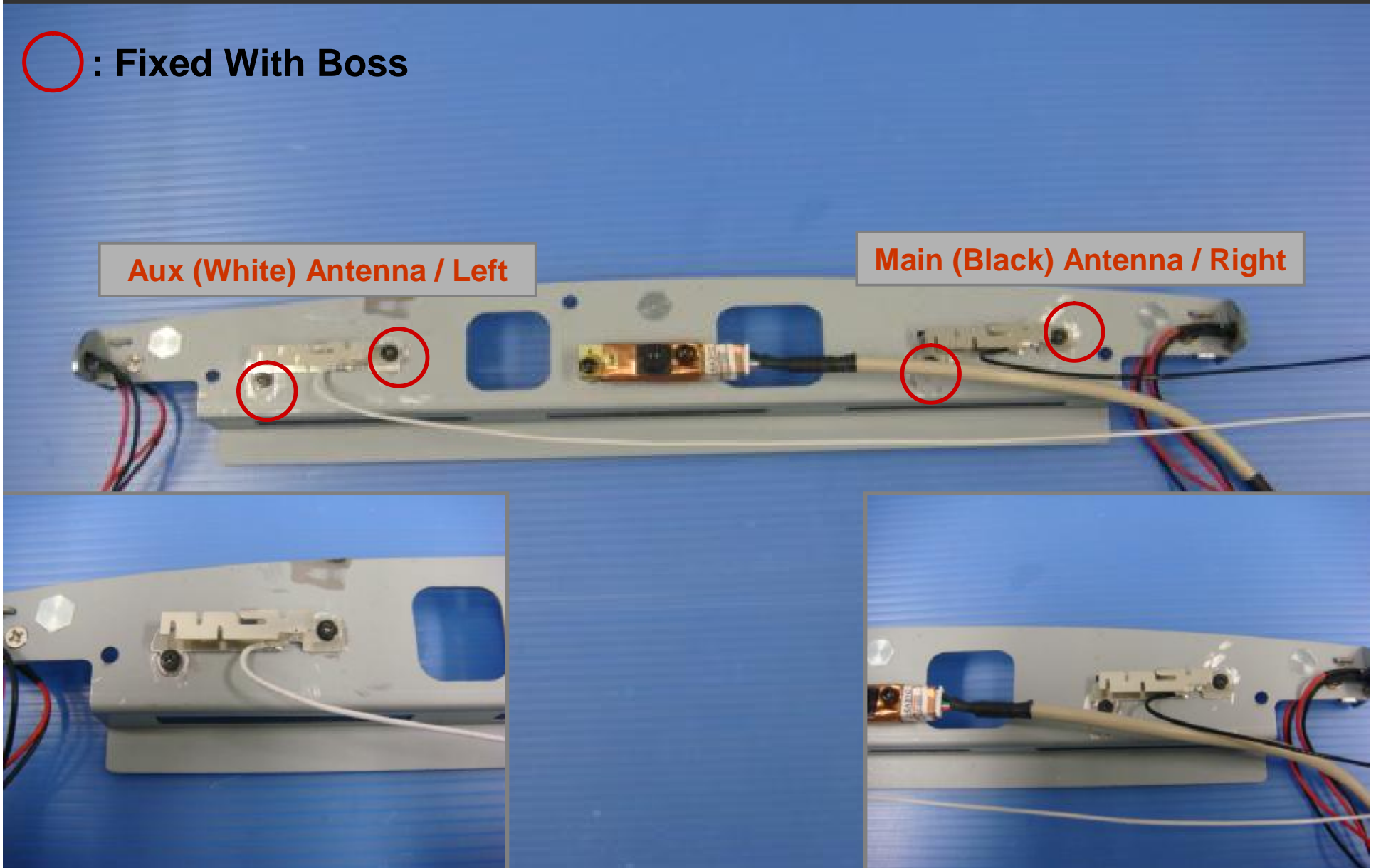
TITLE	ANTENNA-Left / Aux / LCD Antenna				
UNIT	mm	DESIGNED	CHECKED	APPROVED	PROJECTION
TOLERANCE	GRADE 2	Mecca	Howard	Randy Lee	
SCALE	1/1				SHEET NO. 1 / 1
MATERIAL	Metal				
YAGEO		Doc. CODE			

Cable Length, Routing and Antenna Position that Yageo Suggestion

○ : Fixed With Boss

Aux (White) Antenna / Left

Main (Black) Antenna / Right



- **Project Information:**

- **VSWR**

a. **PIT-1701 WL Main Antenna / Right Side**

PIT-1701



VSWR Spec:

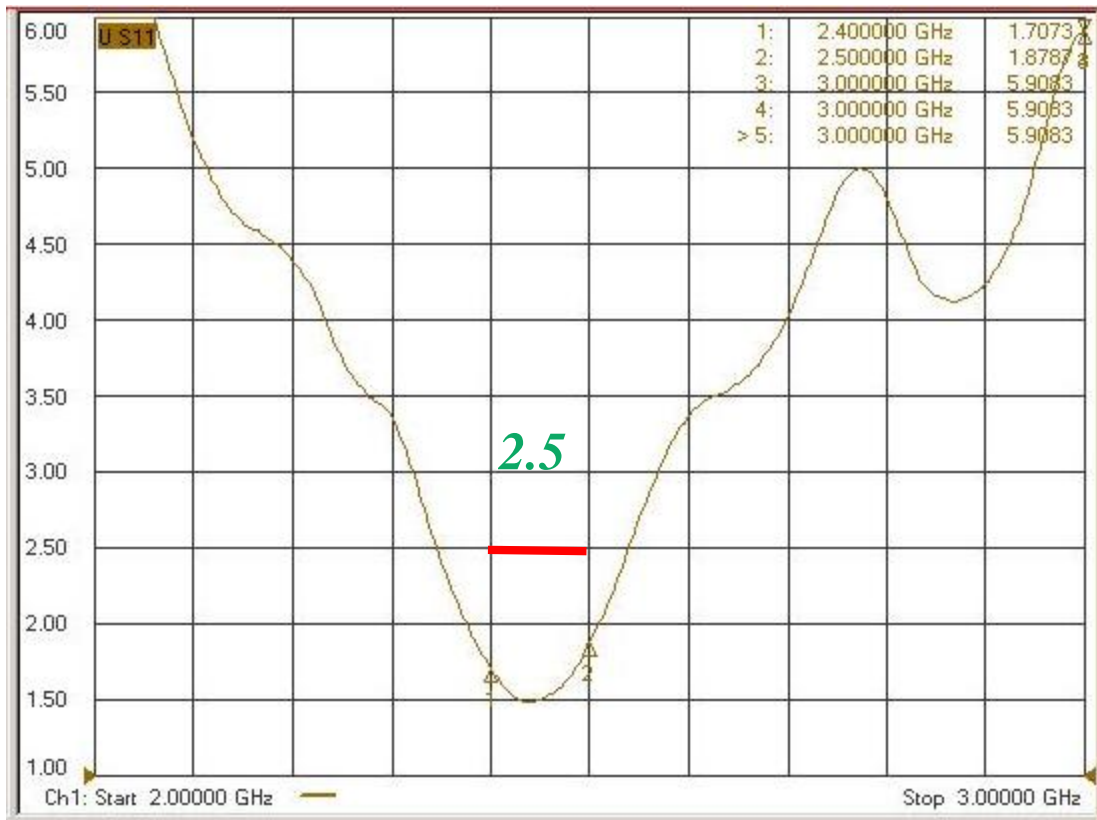
< 2.5 for 2.40~2.50 GHz

- *Project Information:*

- *VSWR*

b. PIT-1701 WL Aux Antenna / Left Side

PIT-1701



VSWR Spec:
< 2.5 for 2.40~2.50 GHz

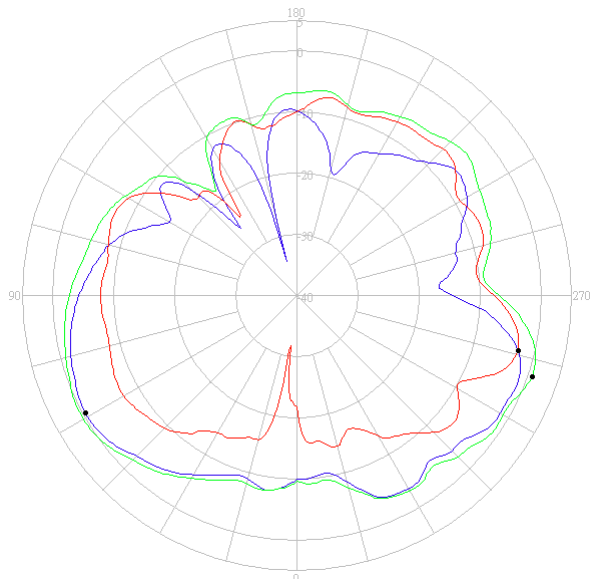
- Antenna Measurement:
- Radiation Pattern Summary :

Main / Right Side Antenna Gain						
Frequency	Max Value (dBi)			Average (dBi)		
	H-pol	V-pol	Total	H-pol	V-pol	Total
2400(MHz)	-0.38	-2.65	0.75	-5.95	-8.84	-4.15
2450(MHz)	1.30	-2.03	2.11	-4.44	-7.23	-2.61
2500(MHz)	-0.46	-2.34	0.61	-5.68	-8.11	-3.71

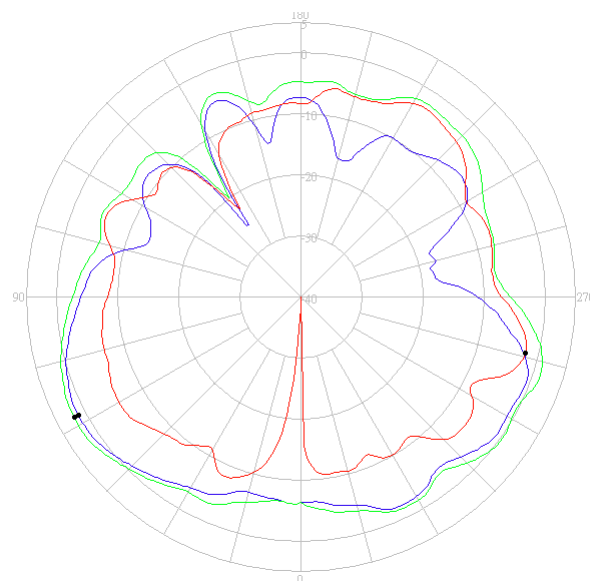
Aux / Left Side Antenna Gain						
Frequency	Max Value (dBi)			Average (dBi)		
	H-pol	V-pol	Total	H-pol	V-pol	Total
2400(MHz)	-1.56	-3.22	-0.62	-6.58	-8.61	-4.47
2450(MHz)	1.02	-0.52	1.82	-4.19	-6.93	-2.34
2500(MHz)	-0.20	-2.13	0.59	-4.56	-9.21	-3.28

- Antenna Measurement: - Radiation Pattern

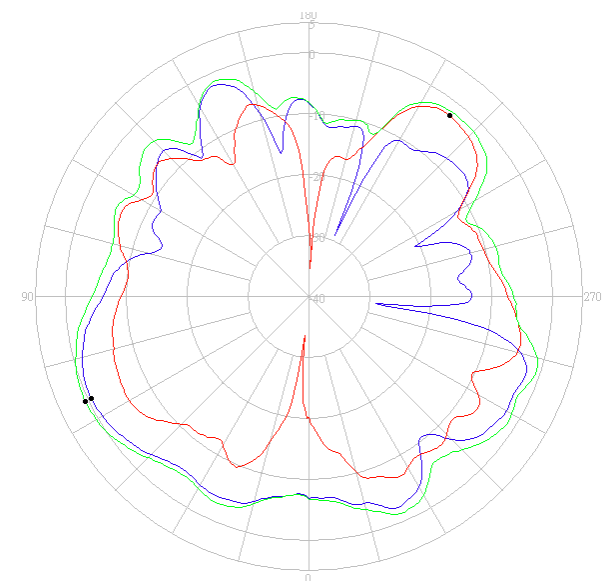
PIT-1701 WL Main Antenna Total Average Gain :



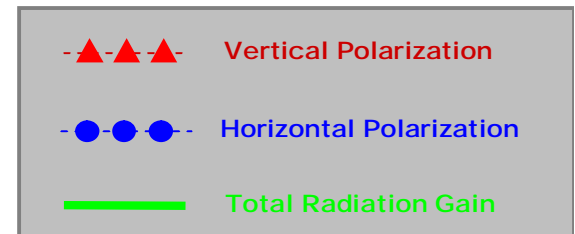
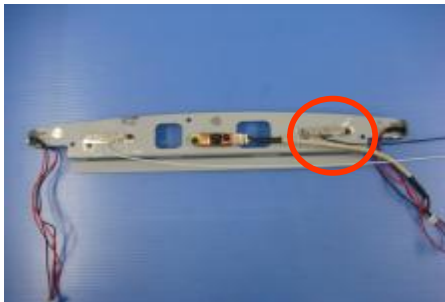
2.4GHz



2.45GHz

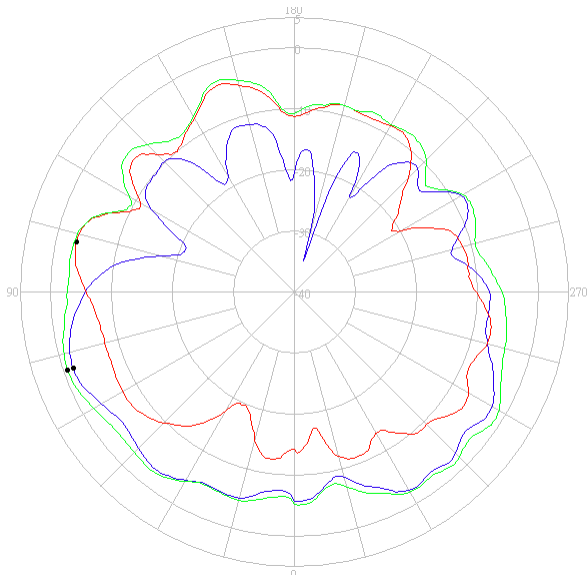


2.5GHz

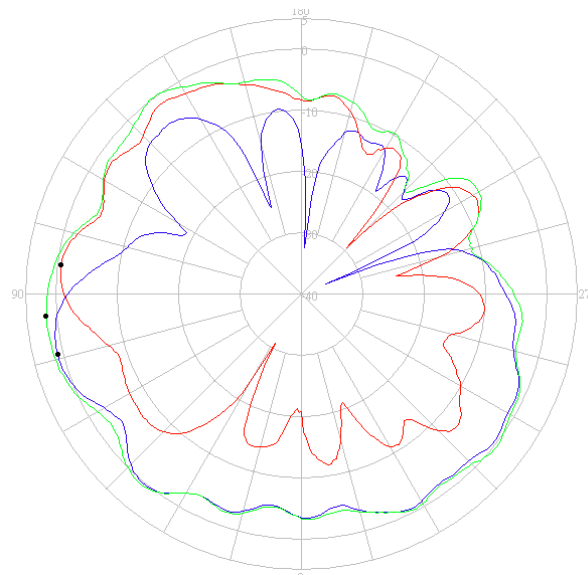


- Antenna Measurement: - Radiation Pattern

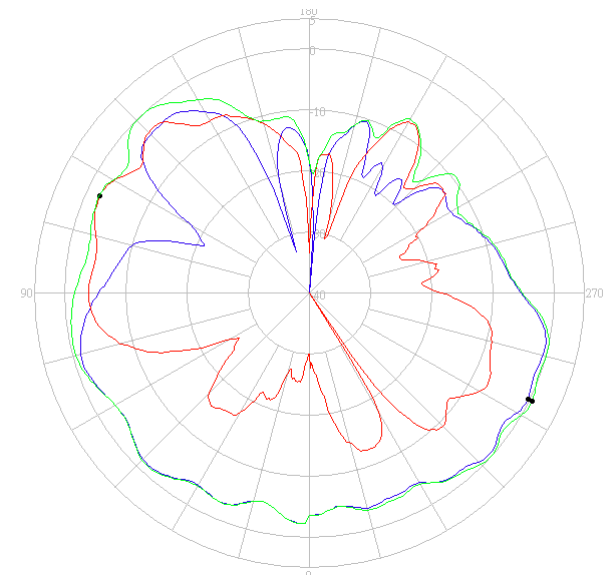
PIT-1701 WL Aux Antenna Total Average Gain :



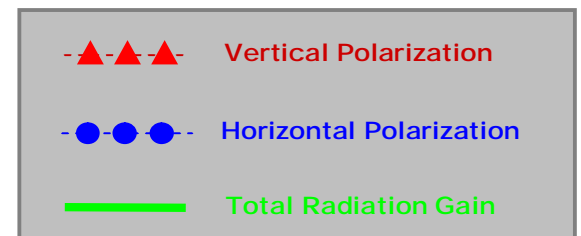
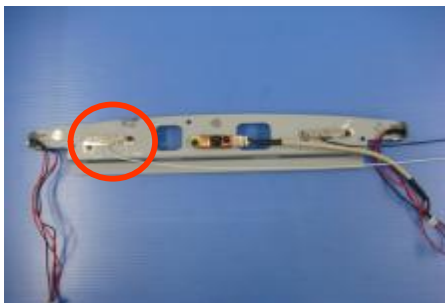
2.4GHz



2.45GHz



2.5GHz



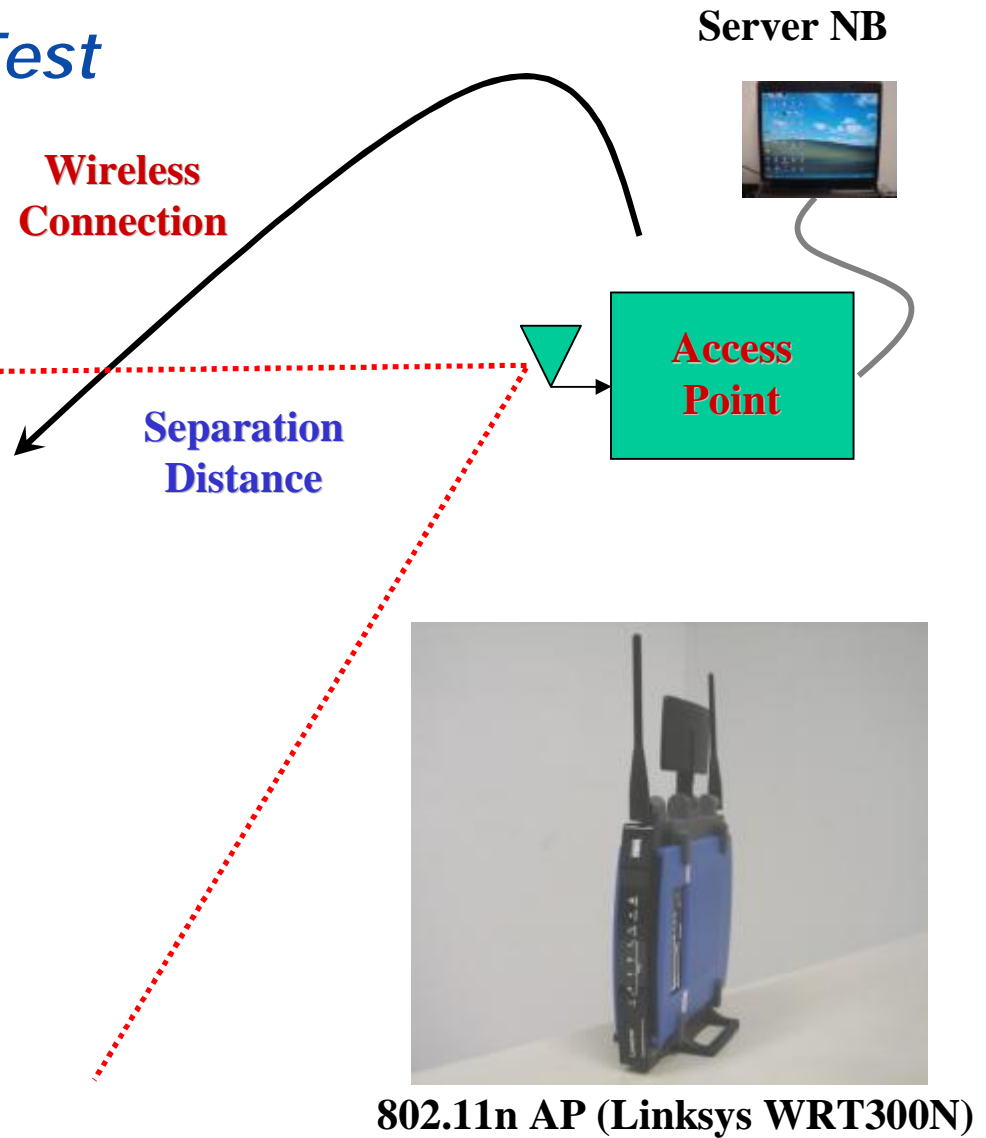
Open Field (Throughput) Test

- Test Hardware Setup

Test Platform:

- NB Test Photos For Example (Client)

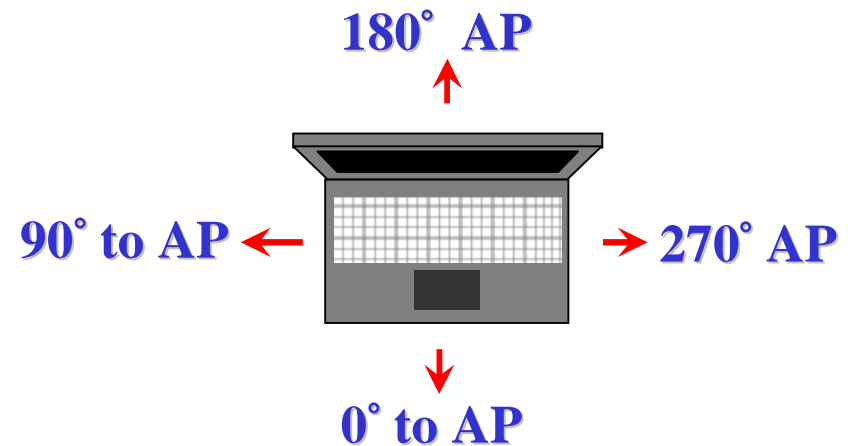
Testing Software: Chariot



Open Field (Throughput) Test - Throughput Test Environment

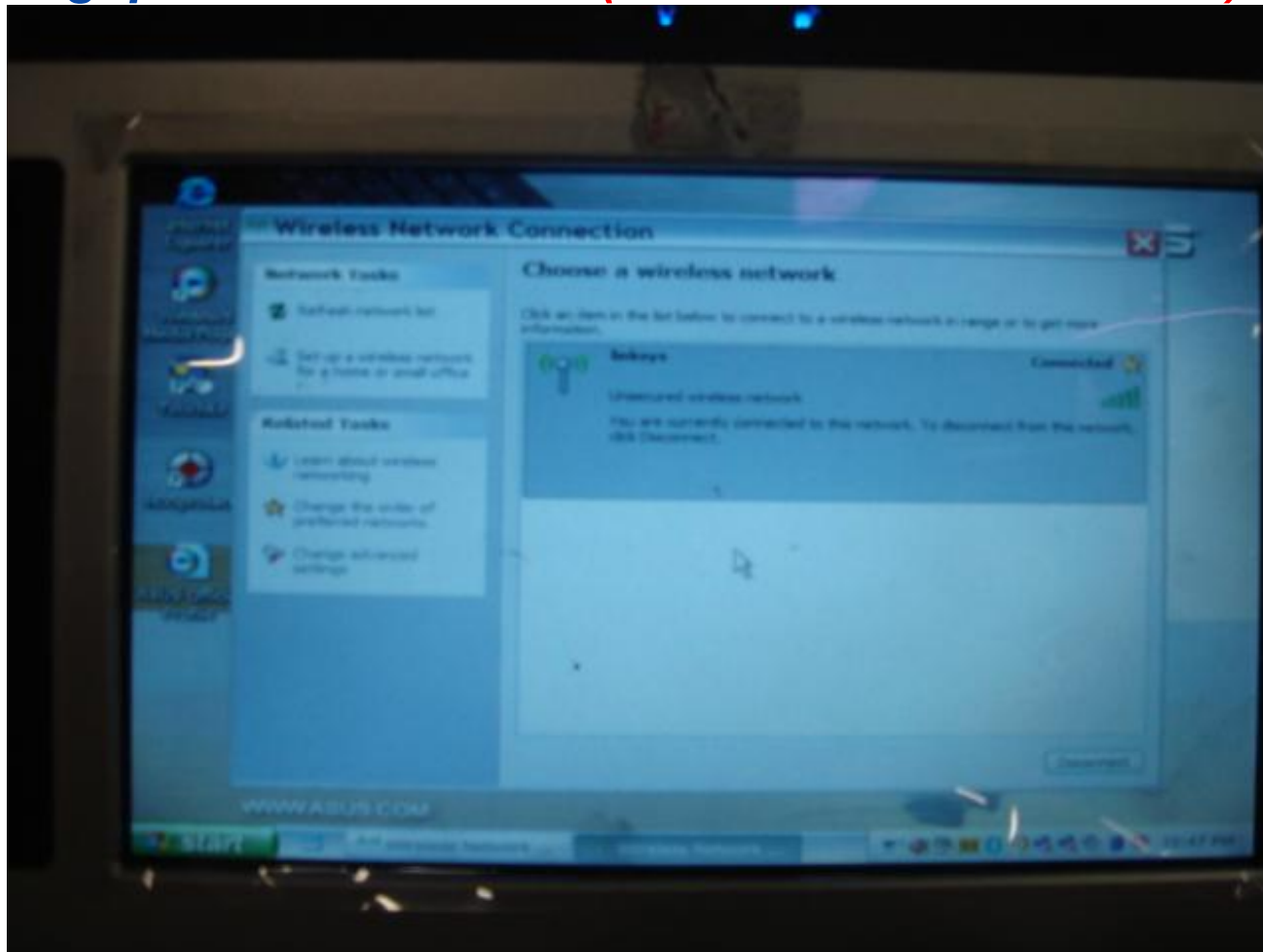
Test Configuration:

- Chariot is used to transmit a 1000k file for 2 min
- OS: Vista
- AP: Linksys WRT300N; Cannel: 6
- TP Test Environment: NO AP Devise Space
- Radio Card used: Intel 4965 Module 802.11a/b/g/n
- Data was taken in 4 orientations: 0, 90, 180 & 270 deg
- Data was taken by each 10m (802.11g)



Open Field (Throughput) Test 1

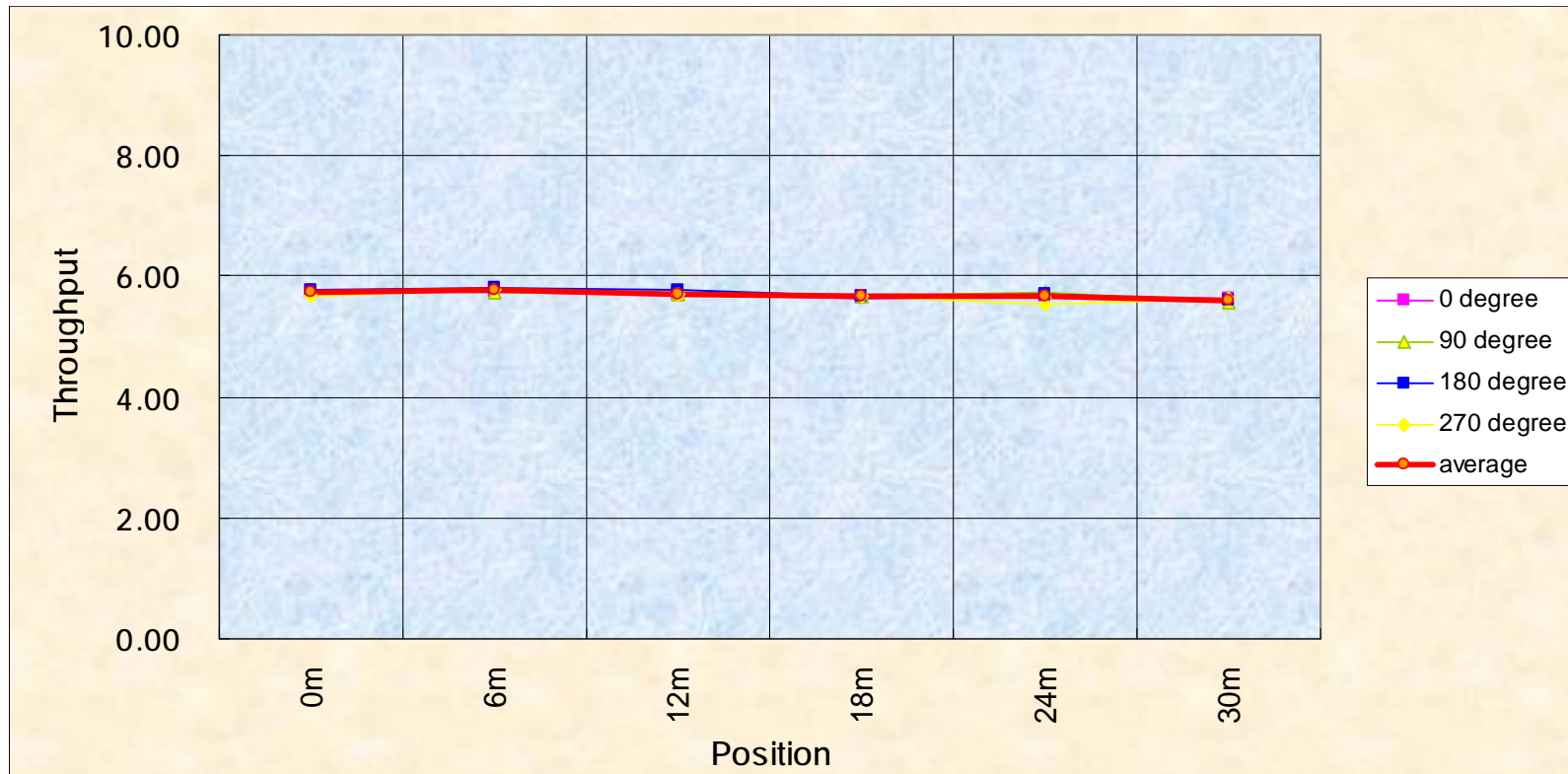
- Throughput Test Condition **(no other AP connections)**



Open Field (Throughput Test)

- Test Results (802.11b, Average values): **From NB to PIT-1701**

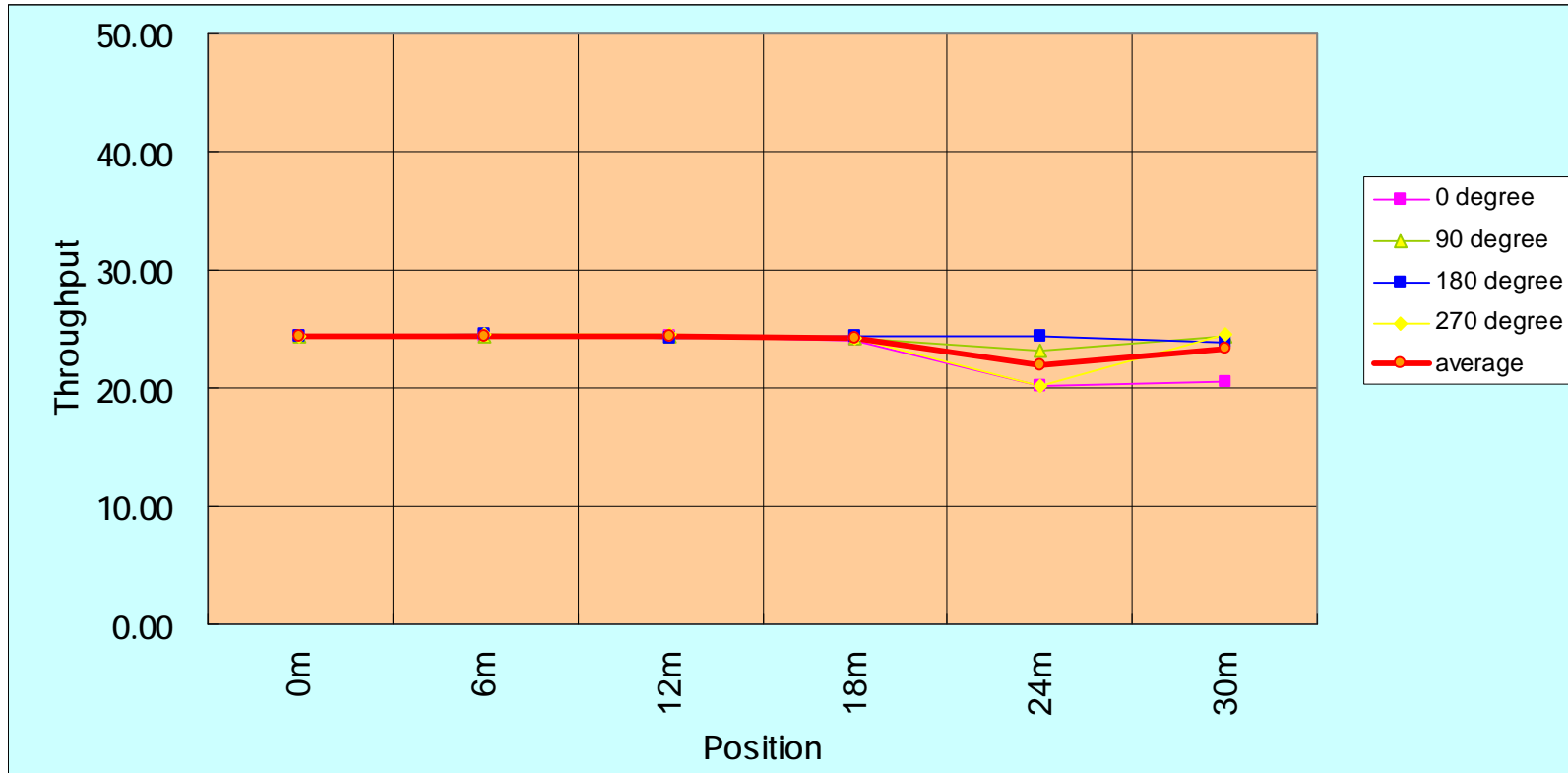
Test Result : Throughput (Mbps) - Graph



Open Field (Throughput Test)

- Test Results (802.11g, Average values): **From NB to PIT-1701**

Test Result : Throughput (Mbps) - Graph



Conclusion

- Test Results:

- **Please take care mockup or system issue if you have any update information about that, and let us to design better antenna performance and meet Advantech team any update or request.**
- **YAGEO R&D team will base on different mockup and fine tuning antenna patch continue.**

Thanks for your fully support to YAGEO always...