Innovative Service Around the Globe YAGEO

Phycomp
A YAGEO COMPANY

Progress Report

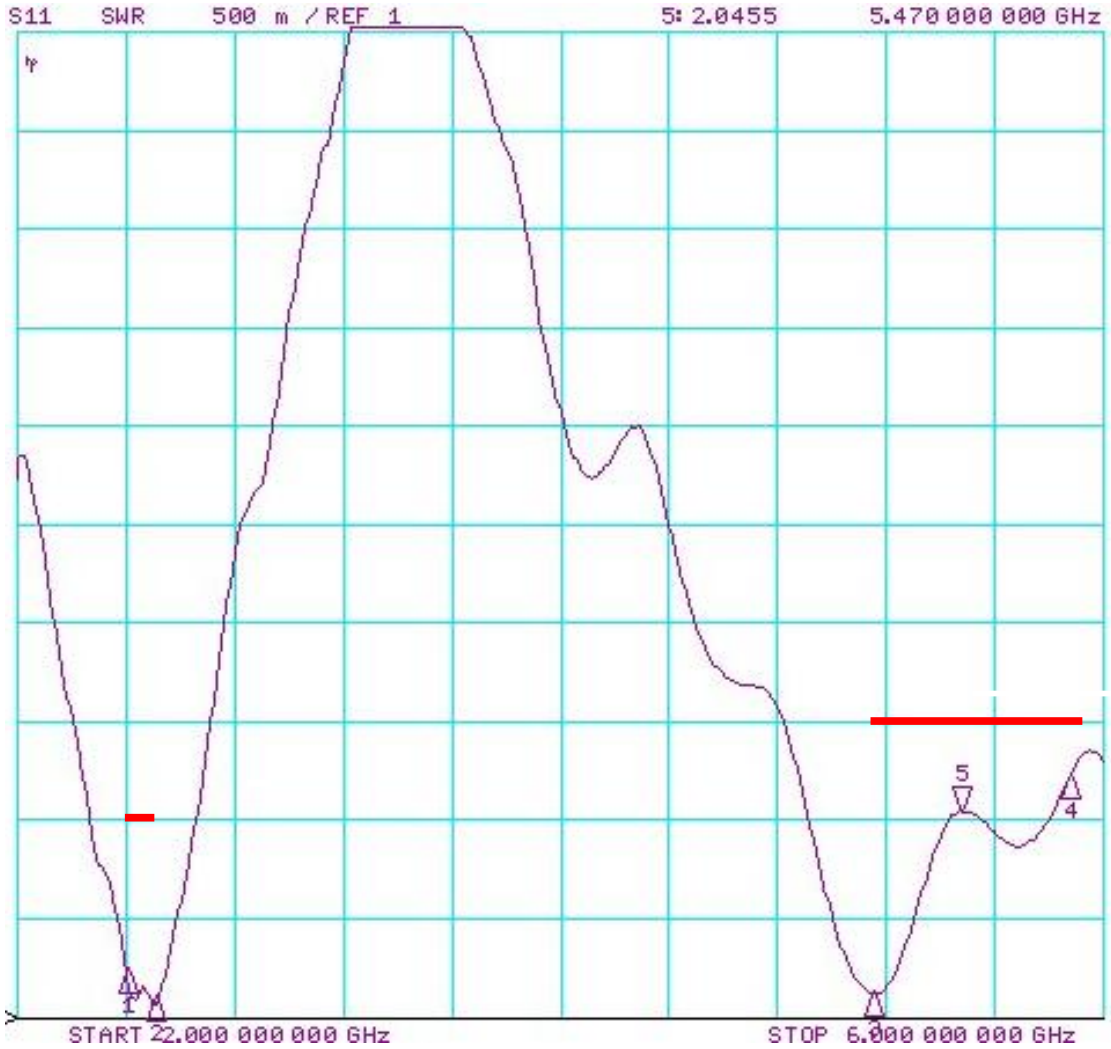
***Platform:* Bandera (EAX00) DVT2**
(5% Carbon Doped Plastic)

Antenna Version: X05

YAGEO Multi-Band Wireless LAN Antenna

Special Product Division (SPD),
R&D Technology Center,
Yageo Corporation
Date: April. 25, 2005

VSWR of Main Antenna (White cable, Left antenna)



2.45GHz Band

5GHz Band

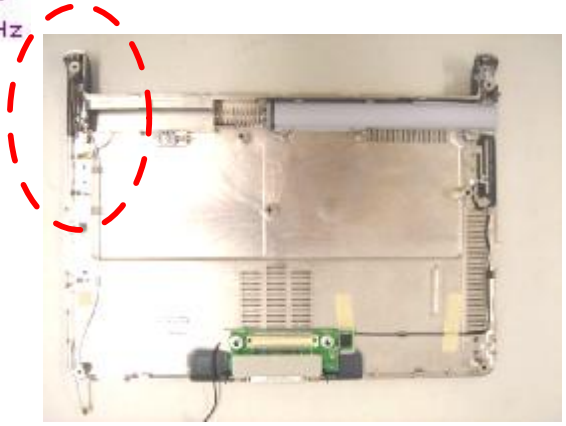
CH1 Markers

1: 1.2415
2.40000 GHz

2: 1.0974
2.50000 GHz

3: 1.1208
5.15000 GHz

4: 2.2259
5.87500 GHz

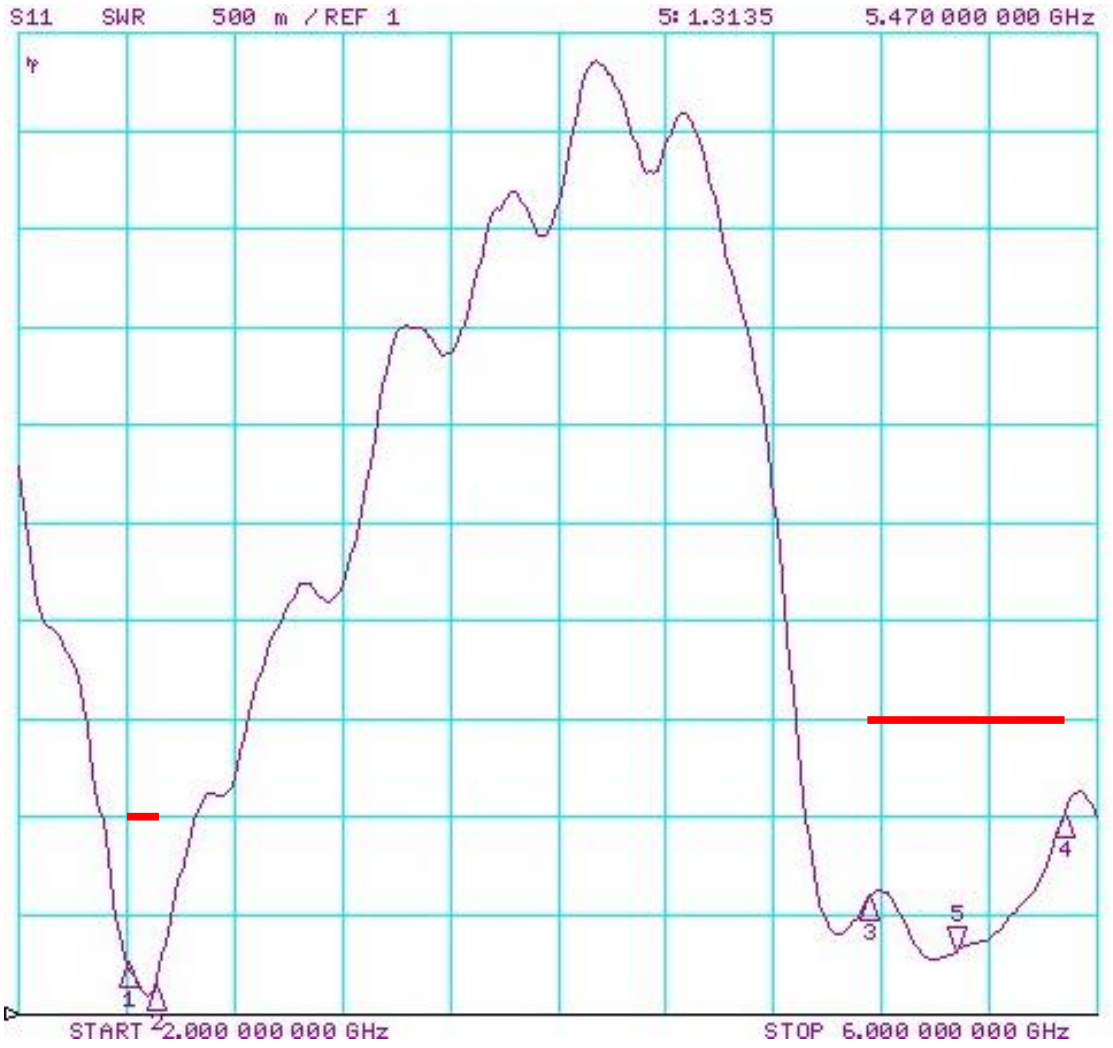


Spec:

VSWR < 2.0 @ 2.4 ~ 2.5 GHz

VSWR < 2.5 @ 5.15 ~ 5.875 GHz

VSWR of Aux Antenna (Black cable, Right antenna)



CH1 Markers

1: 1.2532
2.40000 GHz

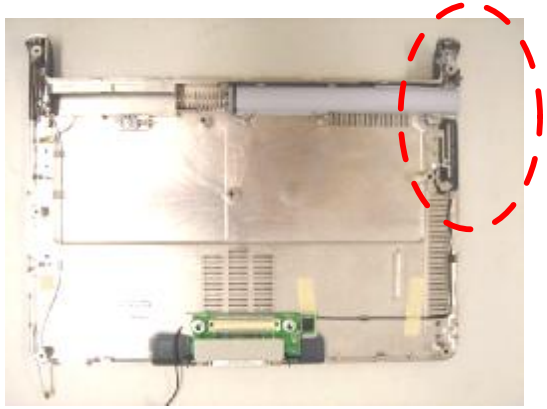
2: 1.1351
2.50000 GHz

3: 1.5898
5.15000 GHz

4: 2.0174
5.87500 GHz

2.45GHz Band

5GHz Band



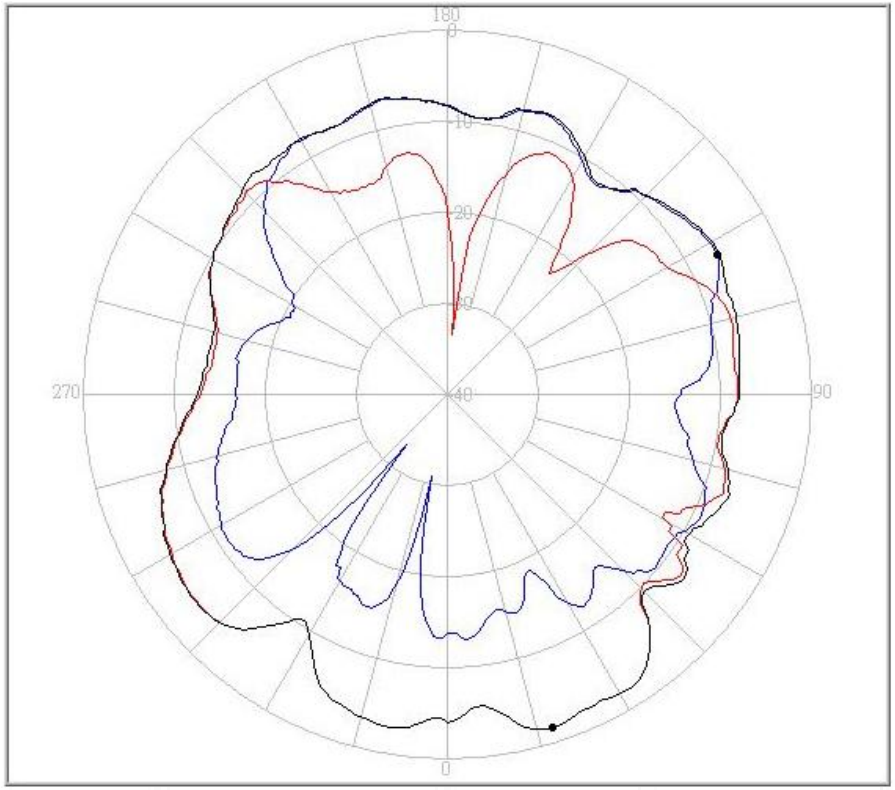
Spec:

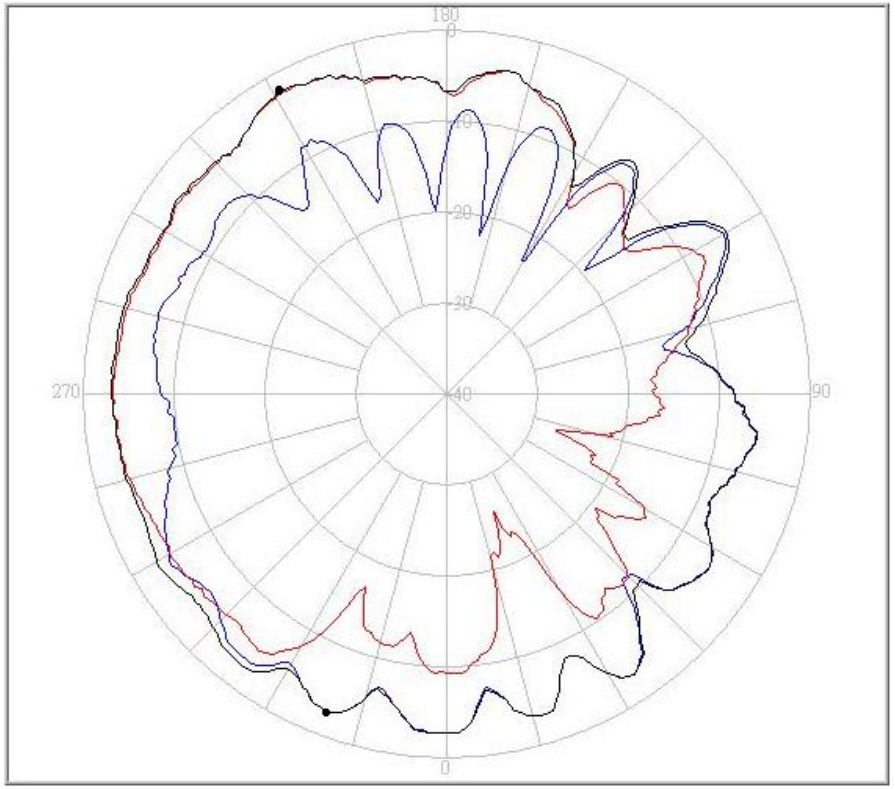
VSWR < 2.0 @ 2.4 ~ 2.5 GHz

VSWR < 2.5 @ 5.15 ~ 5.875 GHz

Radiation Pattern and Gain of Bandera Main Antenna

Horizontal
Vertical
H + V



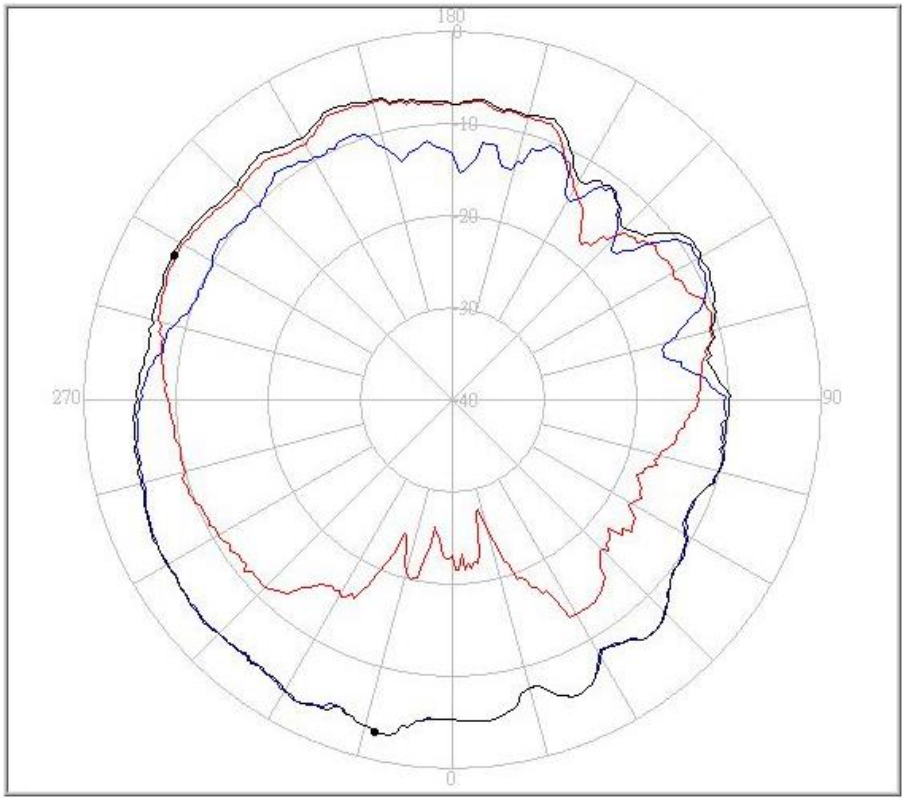


Freq(MHz)	Source Polarization	Max gain(dBi)	Avg. gain(dBi)
2450	Horizontal	-6.61	-11.13
2450	Vertical	-1.61	-7.56
2450	H+V	-1.61	-6.63

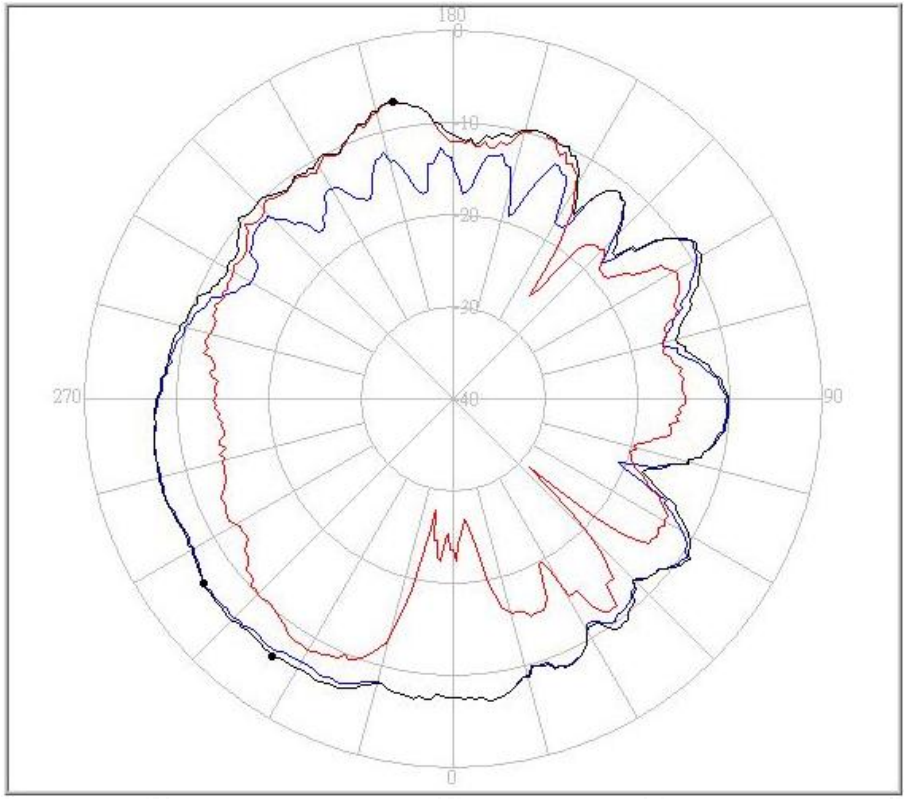
Freq(MHz)	Source Polarization	Max gain(dBi)	Avg. gain(dBi)
5150	Horizontal	-2.61	-7.10
5150	Vertical	-1.94	-6.83
5150	H+V	-1.83	-4.84

Radiation Pattern and Gain of Bandera Main Antenna

Horizontal
Vertical
H + V



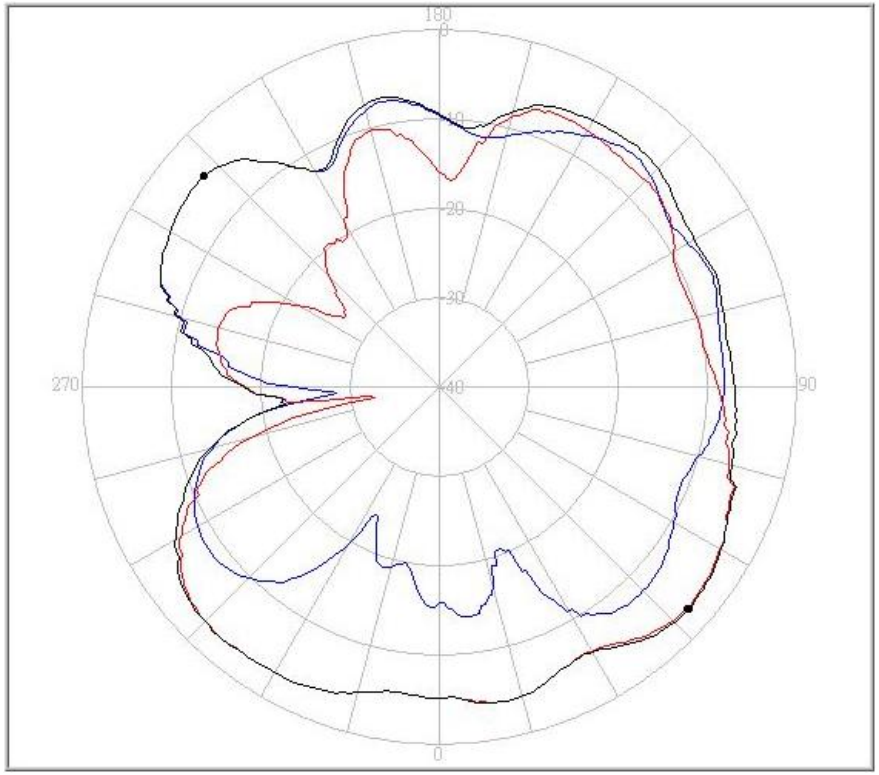
Freq(MHz)	Source Polarization	Max gain(dBi)	Avg. gain(dBi)
5470	Horizontal	-3.00	-7.56
5470	Vertical	-6.00	-10.54
5470	H+V	-3.00	-6.61



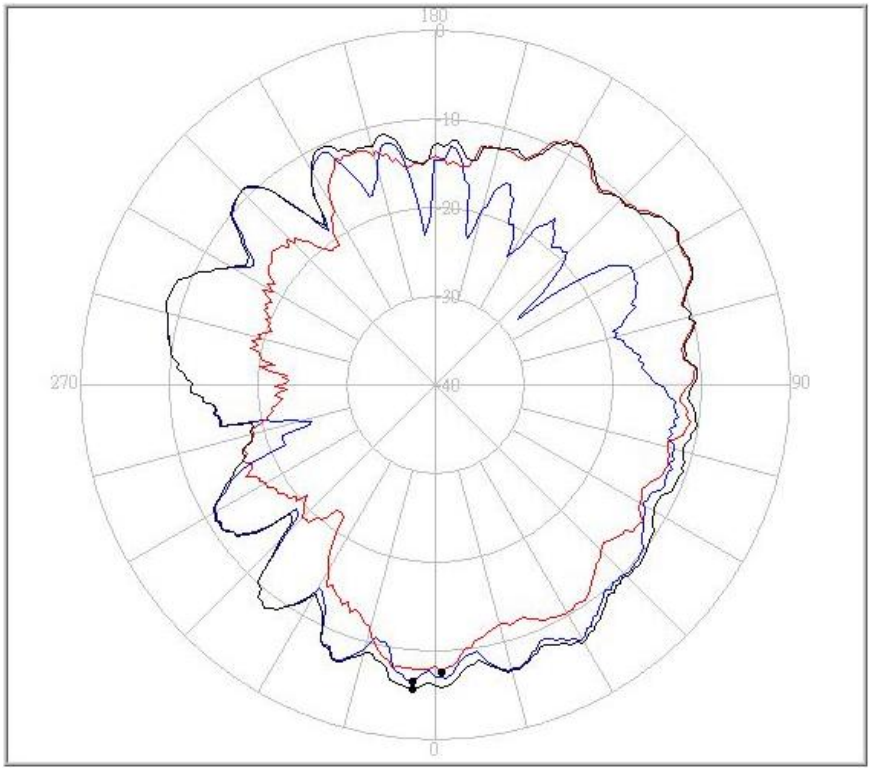
Freq(MHz)	Source Polarization	Max gain(dBi)	Avg. gain(dBi)
5875	Horizontal	-6.36	-10.04
5875	Vertical	-7.03	-12.67
5875	H+V	-5.89	-9.12

Radiation Pattern and Gain of Bandera Aux Antenna

Horizontal
Vertical
H + V



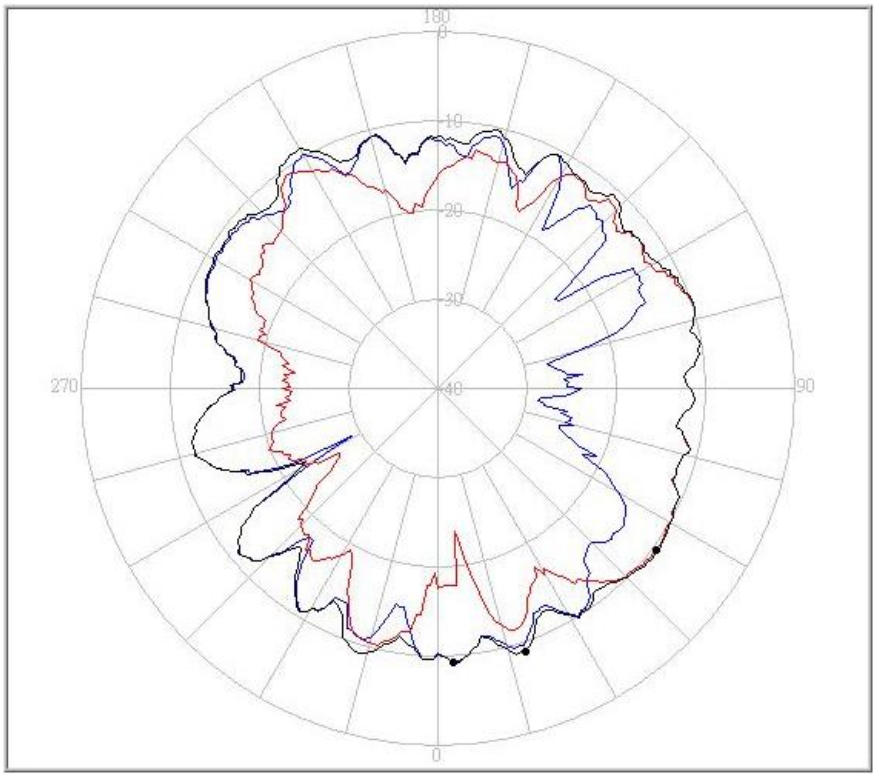
Freq(MHz)	Source Polarization	Max gain(dBi)	Avg. gain(dBi)
2450	Horizontal	-4.61	-9.29
2450	Vertical	-2.78	-7.06
2450	H+V	-2.59	-5.85

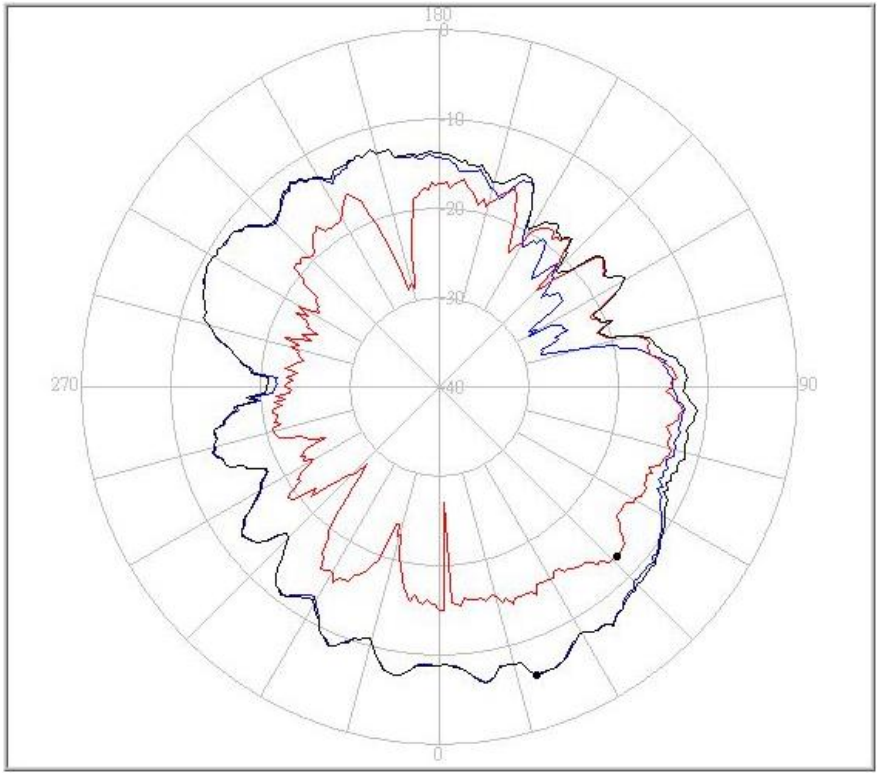


Freq(MHz)	Source Polarization	Max gain(dBi)	Avg. gain(dBi)
5150	Horizontal	-6.44	-11.56
5150	Vertical	-7.61	-12.47
5150	H+V	-5.50	-10.00

Radiation Pattern and Gain of Bandera Aux Antenna

Horizontal
Vertical
H + V





Freq(MHz)	Source Polarization	Max gain(dBi)	Avg. gain(dBi)
5470	Horizontal	-9.33	-13.33
5470	Vertical	-9.50	-13.68
5470	H+V	-8.94	-11.47

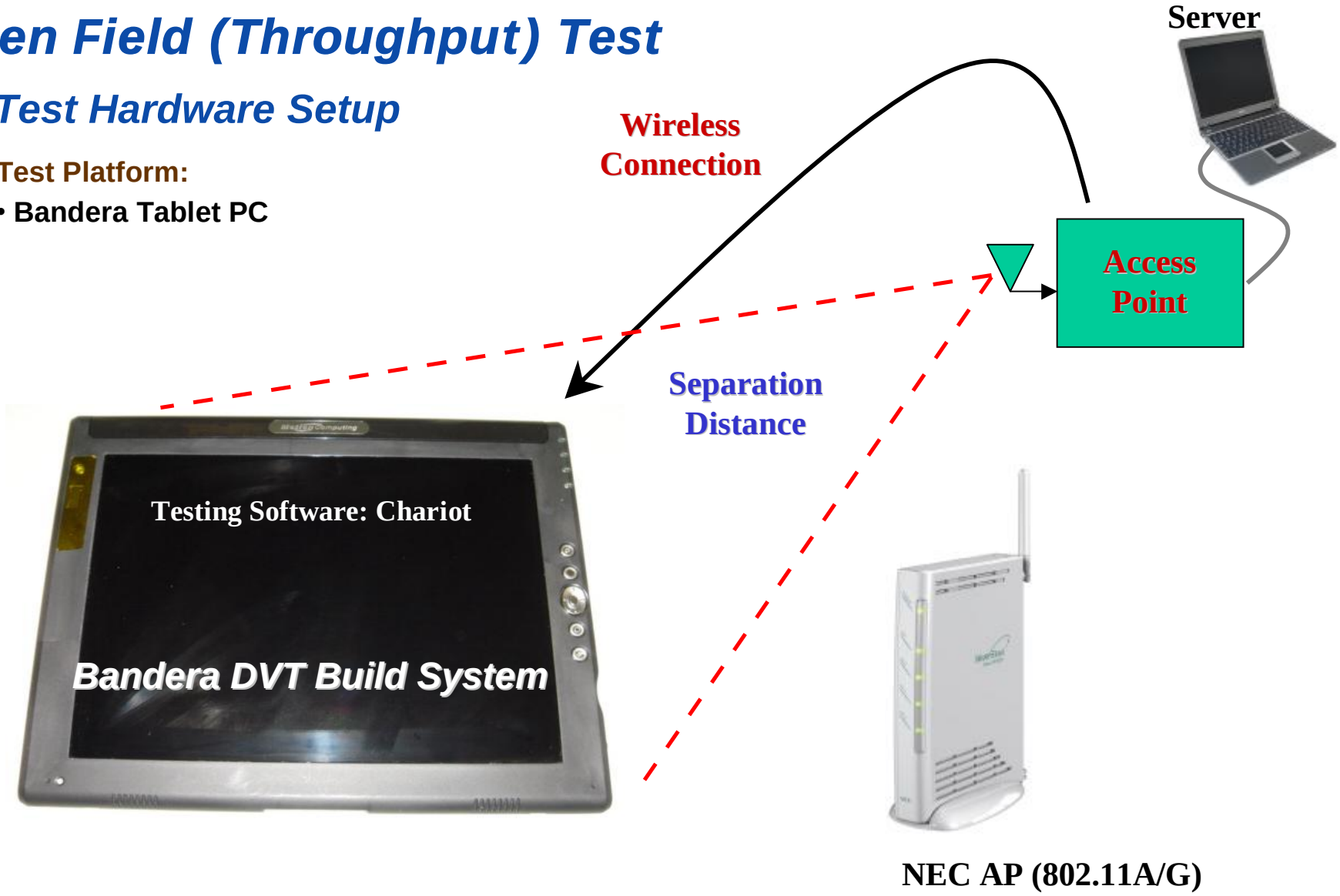
Freq(MHz)	Source Polarization	Max gain(dBi)	Avg. gain(dBi)
5875	Horizontal	-6.03	-11.96
5875	Vertical	-12.53	-17.37
5875	H+V	-5.98	-11.64

Open Field (Throughput) Test

- Test Hardware Setup

Test Platform:

- **Bandera Tablet PC**

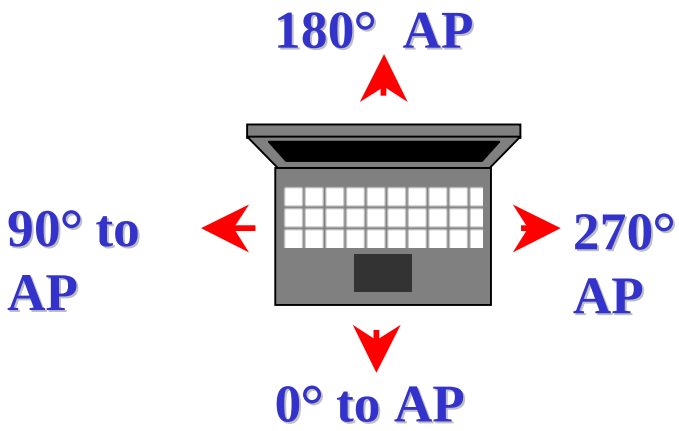


Open Field (Throughput) Test

- Throughput Test Environment

Test Configuration:

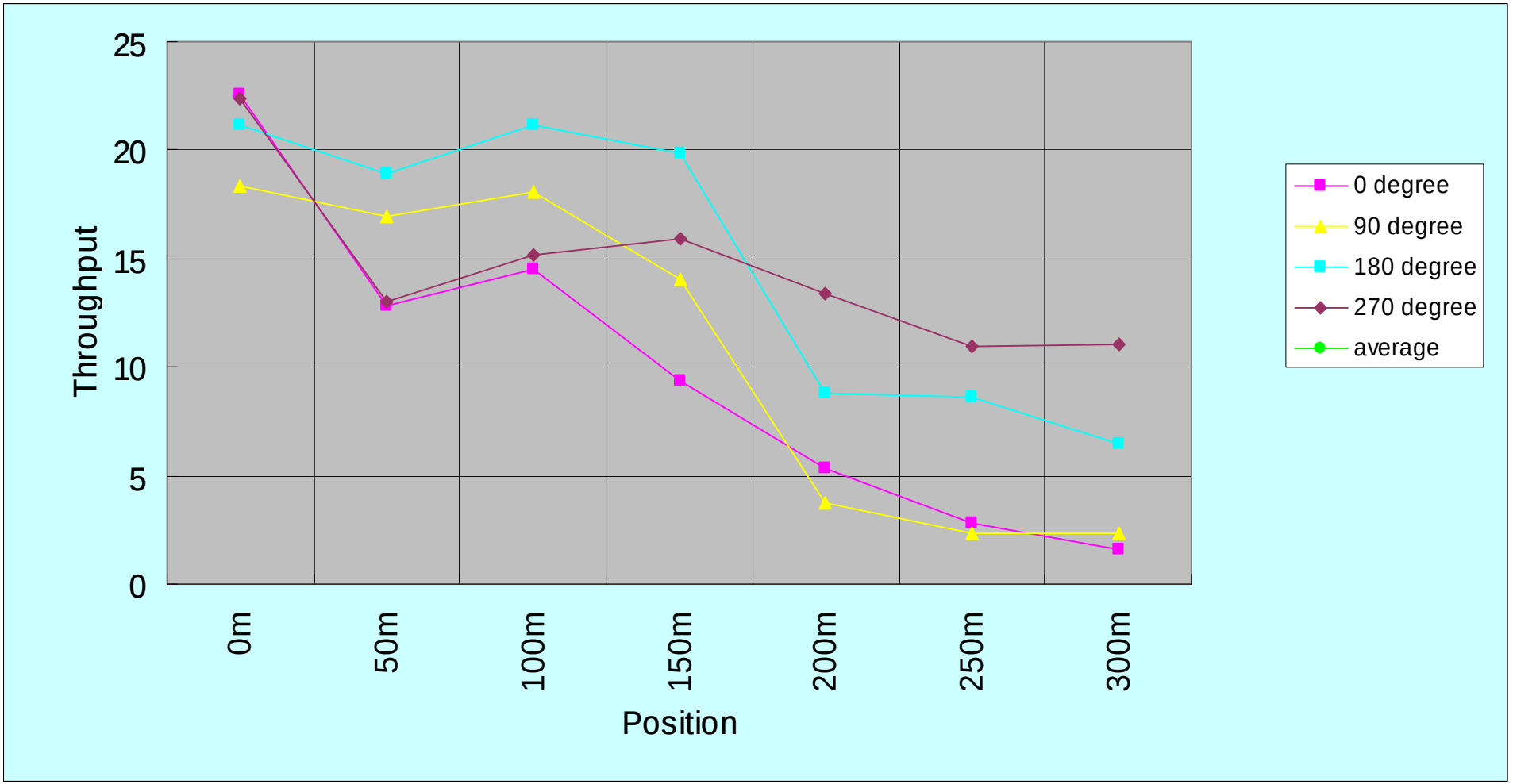
- Chariot is used to transmit a 100k file for 30 sec
- CPU: Intel(R) Pentium(R) M processor 1.2 GHz / RAM: 512DDRII / OS: Windows XP Tablet System
- AP: NEC (802.11A/G)
- Radio Card used: Intel PRO/Wireless 2915ABG Network Connection
- Data was taken in 4 orientations: 0, 90, 180 & 270 deg
- Data was taken by each 50m (802.11a/b/g)



Open Field (Throughput Test)

- Test Results (802.11a, Average values):

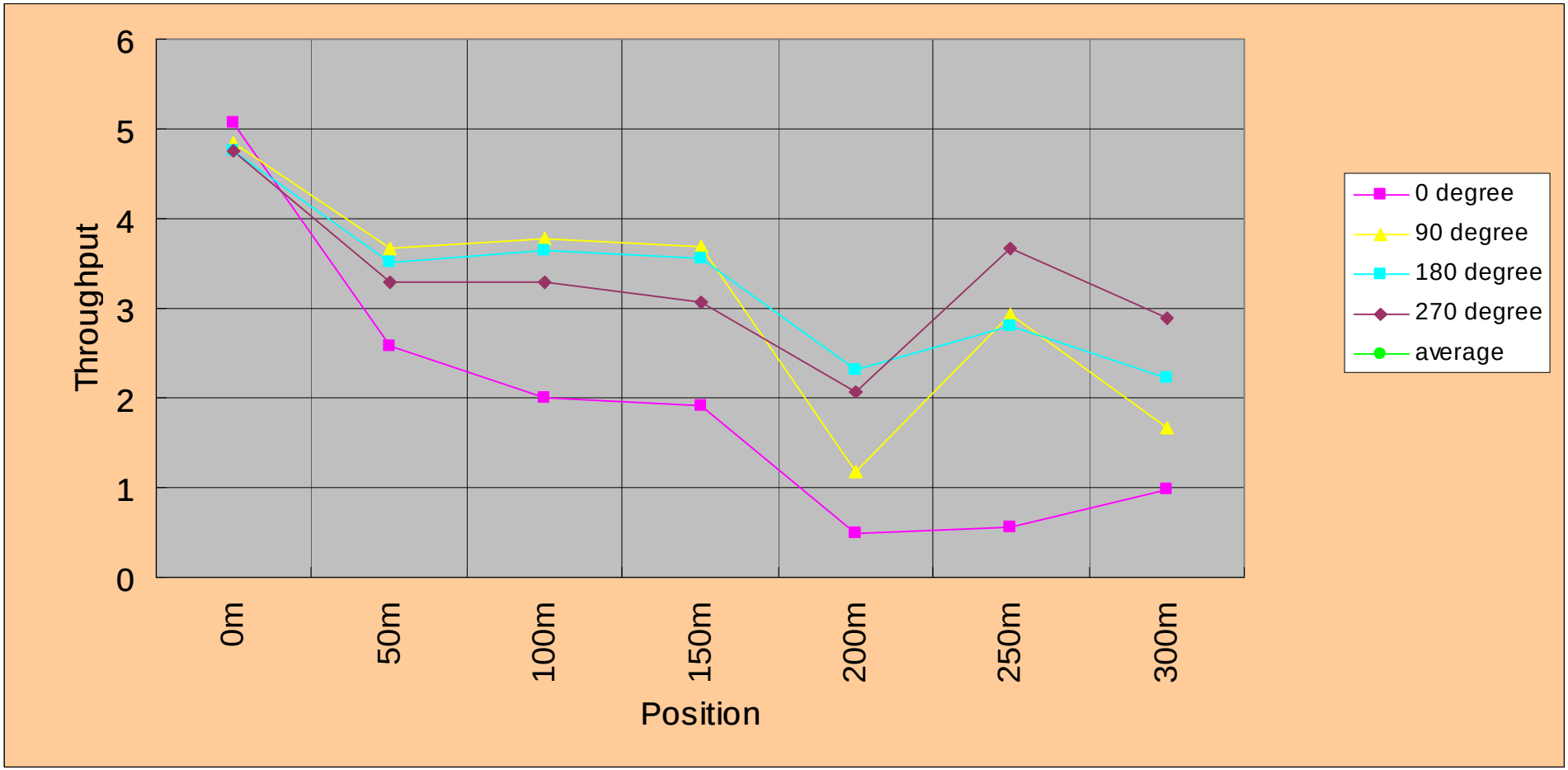
Test Result : Throughput (Mbps) - Graph



Open Field (Throughput Test)

- Test Results (802.11b, Average values):

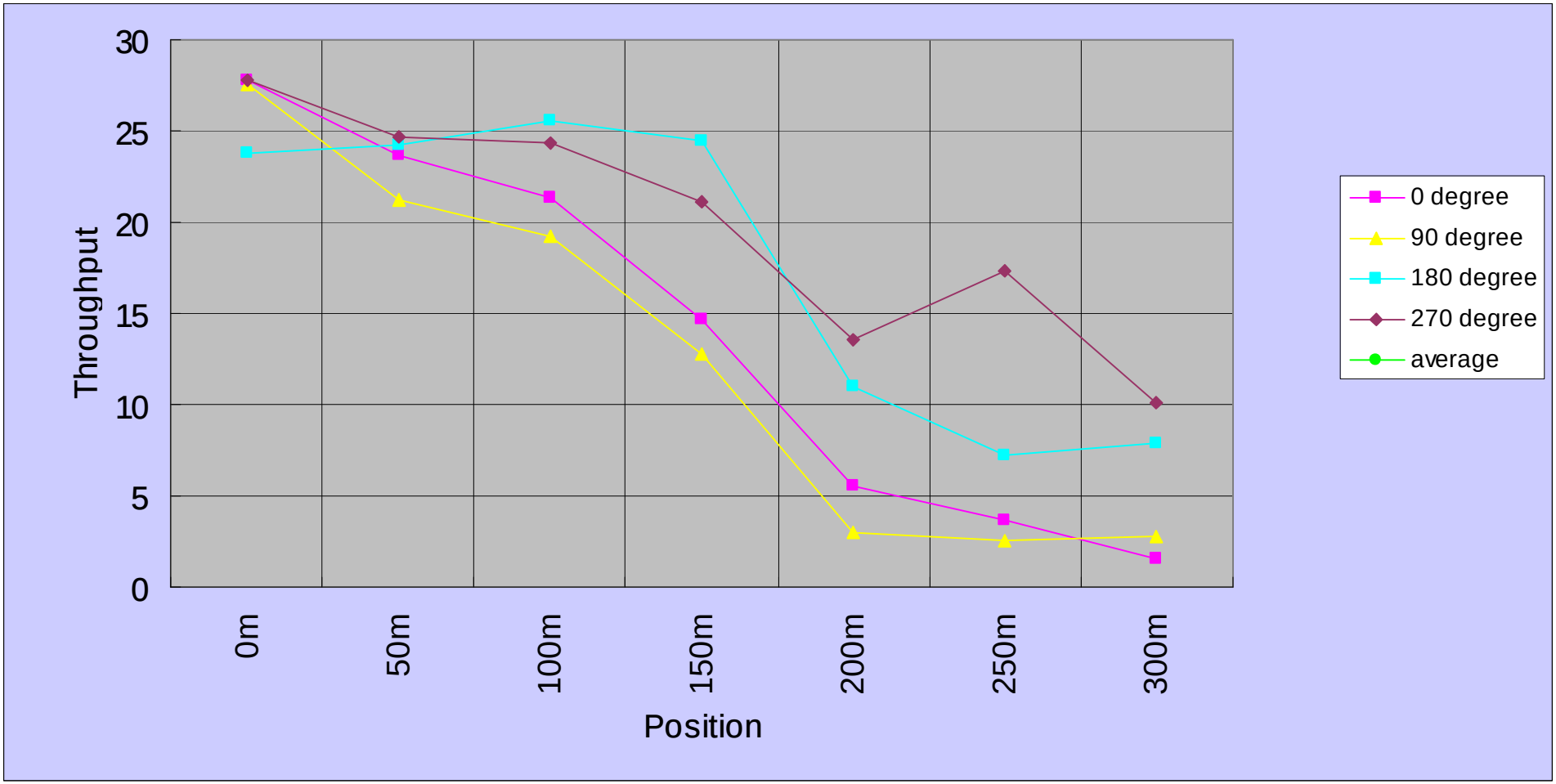
Test Result : Throughput (Mbps) - Graph



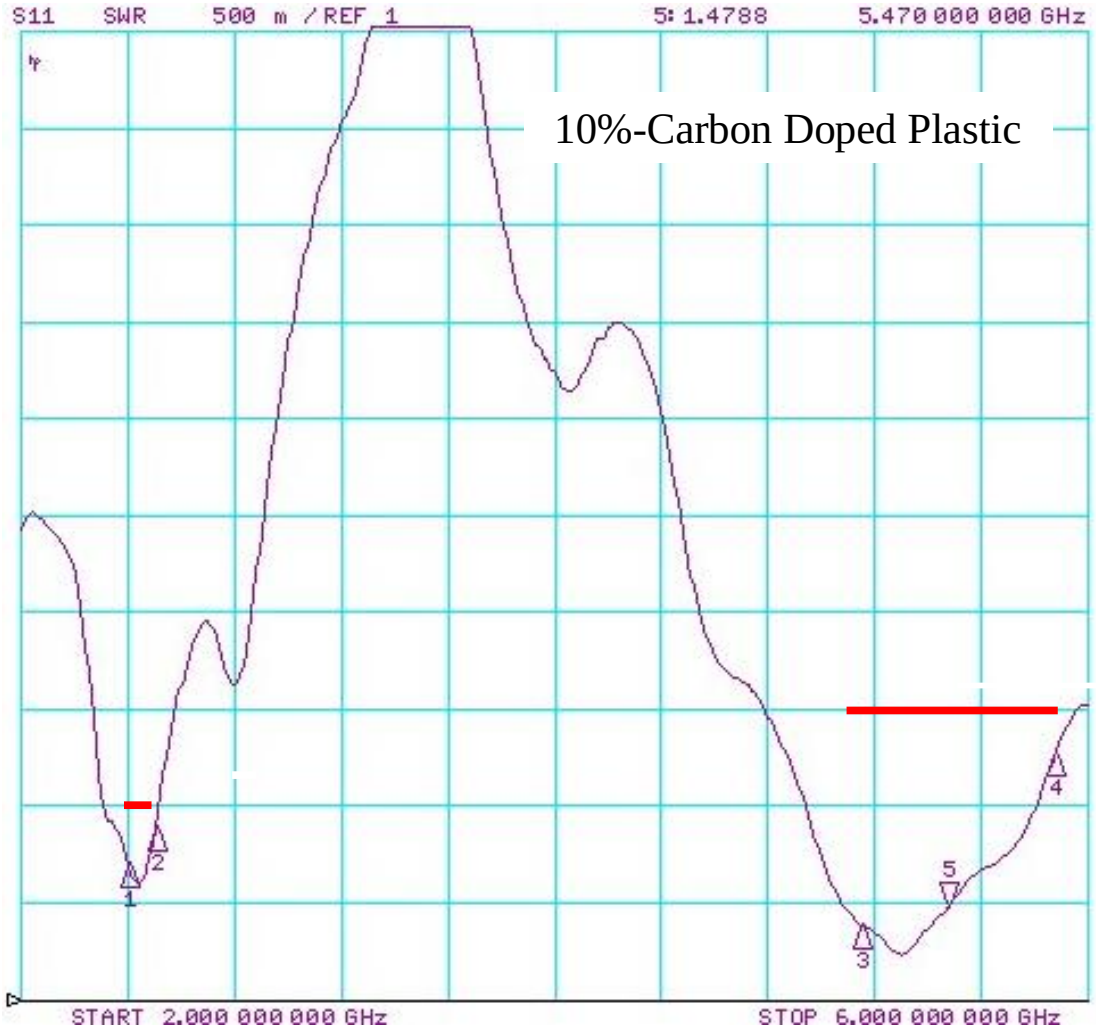
Open Field (Throughput Test)

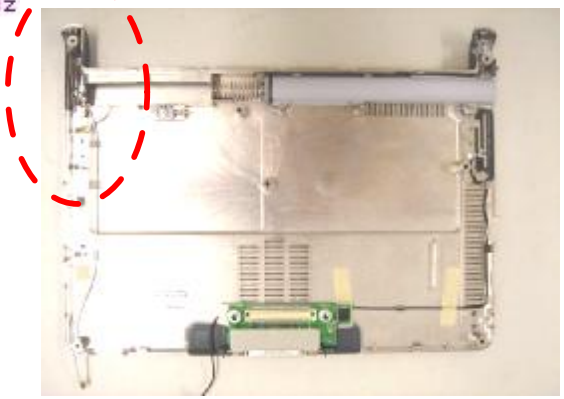
- Test Results (802.11g, Average values):

Test Result : Throughput (Mbps) - Graph



VSWR of Main Antenna (White cable, Left antenna)





2.45GHz Band

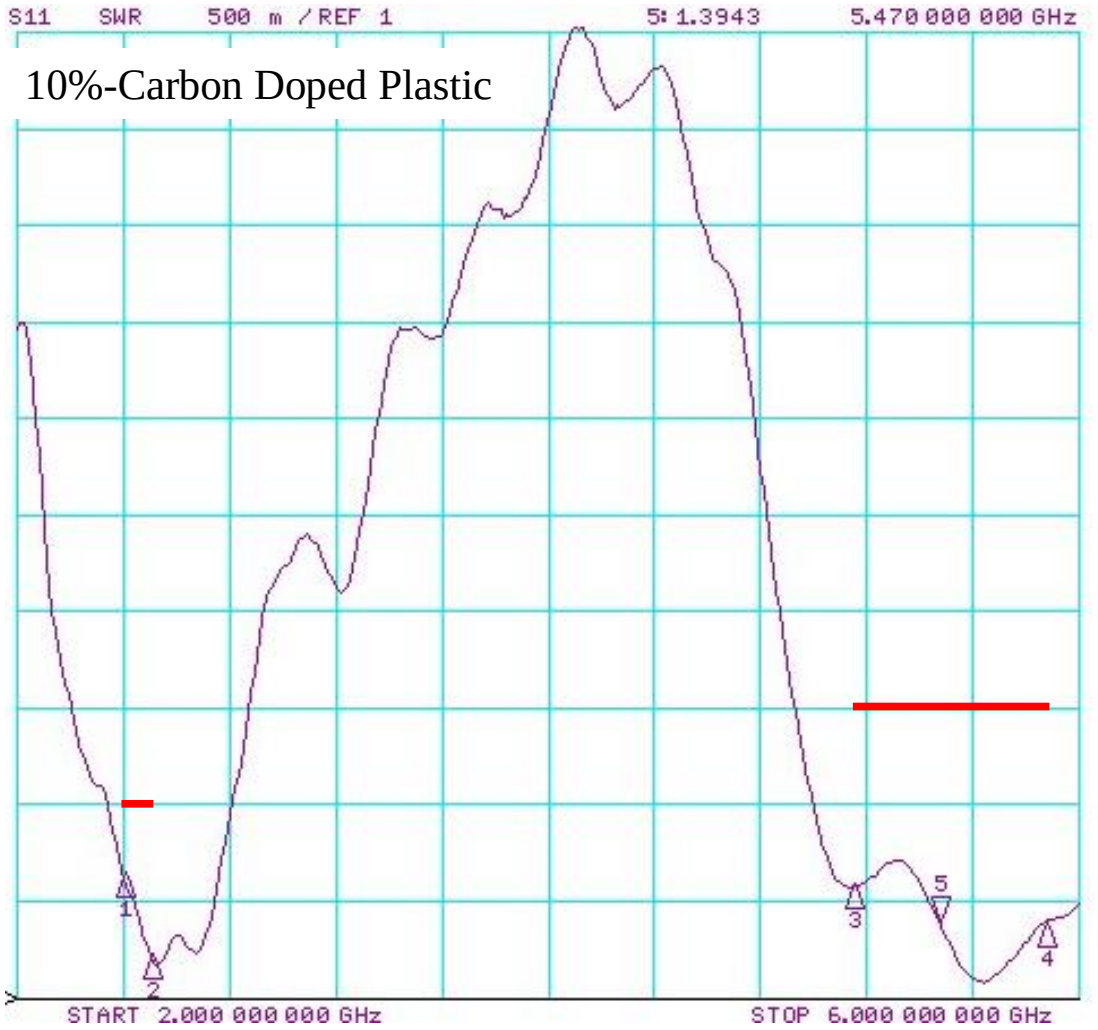
5GHz Band

Spec:

VSWR < 2.0 @ 2.4 ~ 2.5 GHz

VSWR < 2.5 @ 5.15 ~ 5.875 GHz

VSWR of Aux Antenna (Black cable, Right antenna)



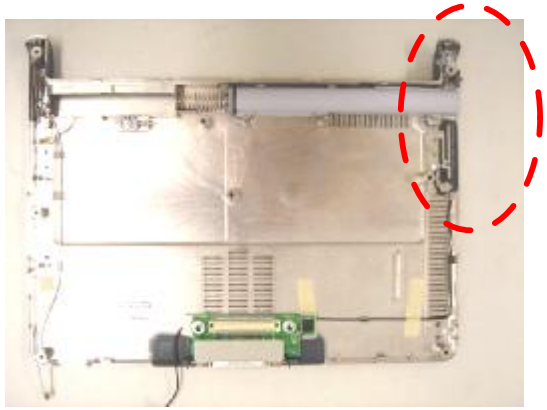
CH1 Markers

1: 1.6392
2.40000 GHz

2: 1.2160
2.50000 GHz

3: 1.5812
5.15000 GHz

4: 1.3880
5.87500 GHz



2.45GHz Band

5GHz Band

Spec:

VSWR < 2.0 @ 2.4 ~ 2.5 GHz

VSWR < 2.5 @ 5.15 ~ 5.875 GHz

Comparison of Main Antenna Gain with 5% & 10% Carbon-doped Plastic

		5% Carbon-doped		10% Carbon-doped	
Freq(MHz)	Source Polarization	Max gain(dBi)	Avg. gain(dBi)	Max gain(dBi)	Avg. gain(dBi)
2450	Horizontal	-6.61	-11.13	-5.44	-10.03
2450	Vertical	-1.61	-7.56	-4.78	-10.53
2450	H+V	-1.61	-6.63	-4.75	-8.10
5150	Horizontal	-2.61	-7.10	-3.11	-7.59
5150	Vertical	-1.94	-6.83	-0.28	-5.75
5150	H+V	-1.83	-4.84	-0.10	-4.64
5470	Horizontal	-3.00	-7.56	-2.33	-7.93
5470	Vertical	-6.00	-10.54	-4.67	-10.41
5470	H+V	-3.00	-6.61	-2.33	-6.81
5875	Horizontal	-6.36	-10.04	-5.69	-9.95
5875	Vertical	-7.03	-12.67	-4.19	-9.56
5875	H+V	-5.89	-9.12	-4.10	-7.58

Comparison of Aux Antenna Gain with 5% & 10% Carbon-doped Plastic

		5% Carbon-doped		10% Carbon-doped	
Freq(MHz)	Source Polarization	Max gain(dBi)	Avg. gain(dBi)	Max gain(dBi)	Avg. gain(dBi)
2450	Horizontal	-4.61	-9.29	-5.78	-9.96
2450	Vertical	-2.78	-7.06	-4.11	-8.43
2450	H+V	-2.59	-5.85	-3.62	-7.04
5150	Horizontal	-6.44	-11.56	-6.44	-11.39
5150	Vertical	-7.61	-12.47	-11.78	-15.80
5150	H+V	-5.50	-10.00	-6.39	-10.91
5470	Horizontal	-9.33	-13.33	-11.17	-14.73
5470	Vertical	-9.50	-13.68	-10.33	-15.52
5470	H+V	-8.94	-11.47	-10.03	-12.98
5875	Horizontal	-6.03	-11.96	-6.69	-10.25
5875	Vertical	-12.53	-17.37	-10.53	-15.01
5875	H+V	-5.98	-11.64	-6.69	-9.78