

Regulatory WLAN Antenna Information

(English Language Required for Intel Regulatory Review / Approval)

Platform	
Platform Owner	Lenovo
Brand Name	Lenovo
Model Name	Lenovo IdeaPad S10-3
ODM	Wistron
Target Launch Date	
Antenna	
Brand Name	Yageo
Part Number	WLAN Main Antenna: 25.91231.011
	WLAN AUX Antenna: 25.91231.001
Module	
With WiMAX Module	WM3B2200BG
(Check Box)	WM3B2915ABG
	WM3945ABG
	4965AGN
	4965AG_
	533ANX Family
	512ANX Family
	533AN Family
	<input checked="" type="checkbox"/> 512AN Family

Antenna Sample / Antenna Data Requirements for worldwide regulatory approval

Section	Description of Required OEM / ODM Antenna Information	US / IC	EU	Japan	Taiwan	S.Korea
1A	Part Number for Antenna only	Required	Required	Required	Required	Required
1B	Antenna Manufacturer Name	Required	Required	Required	Required	Required
1C	Description of Antenna Type	Required	N/A	N/A	N/A	N/A
1D	Part number of Antenna Assembly / cable impedance, length & diameter.	Required	Desired	Desired	Desired	Desired
1E	Tx1, Tx2 & Tx3 antenna (Peak Gain W/ cable loss) *	Required	Required	Required	Required	Required
	1E OR 1F, 1G, 1H					
1F	Tx1, Tx2 & Tx3 antenna (Peak Gain only) *	Required	Required	Required	Required	Required
1G	VSWR of cable including connector	Required	Required	Required	Required	Required
1H	Tx1, Tx2 & Tx3 antenna (Cable loss W/ connector) *	Required	Required	Required	Required	Required
2	Dimensioned Photographs <u>and</u> Drawings of Tx1, Tx2, and Tx3 (or Rx3) antennas	Required	Required	Required	Required	Required
3	Radiation patterns of antennas loaded in the host platform.	Required	Desired	Required	N/A	Required
4	Platform model name / number - correlated to antenna manufacturer and antenna part number	Required	Required	Desired	Required	Desired
5	Photograph(s) or Drawings showing location of antennas in platform. <u>(S. Korea requires photographs of antennas for approval submission). Taiwan requires pictures of each antenna type shown in the system.</u>	Required	Required	Desired	<u>Required (Photos)</u>	<u>Required (Photos)</u>
6	Mech. drawings / photos with dimensions of antenna locations and distance from end-user (For evaluation of SAR testing requirement).	Required	N/A	N/A	N/A	N/A
7	Photograph(s) or Drawings showing the location of all antennas (WLAN, other) and distance between those transmitting antennas. Information will be used to evaluate whether co-location testing is required.	Required	N/A	N/A	N/A	N/A
8	Local representative contact information for LMA/ PARS process.	Required	N/A	N/A	N/A	N/A

NOTE:

(*) if 3rd antenna is Rx only (e.g. receive only for 4965AGN) then peak gain and cable loss not required

Antenna Information

Section 1. Antenna Assembly Specifications

Antenna Assembly Summary:

1A Antenna Part Number	1B Manufacturer	1C Antenna Type	1D Cable Assembly Part Number and Information	1E Peak Gain W/ Cable Loss (dBi)	1F Peak Gain w/o Cable Loss (dBi)	1G VSWR	1H Cable Loss (dBi)
Wistron P/N: 25.91231.011 Yageo P/N: CAN43139W/WI00903 Tx1 antenna	YAGEO Corporation	PIFA	50 ohm Coaxial length: 332 mm diameter: 1.37 mm Connector: Hirose U.FL-LP IPEX MHF or equivalent	2400-2500MHz	2400-2500MHz	2400-2500MHz	2400-2500MHz
				-1.46 dBi (peak)	-0.63 dBi (peak)	3.00 max	0.83 dBi (peak)
				5150-5350MHz	5150-5350MHz	5150-5350MHz	5150-5350MHz
				2.40 dBi (peak)	3.70 dBi (peak)	3.00 max	1.30 dBi (peak)
Wistron P/N: 25.91231.001 Yageo P/N: CAN43139W/WI00904 TX2 antenna	YAGEO Corporation	PIFA	50 ohm Coaxial length: 160 mm diameter: 1.13 mm Connector: Hirose U.FL-LP IPEX MHF or equivalent	5470-5725MHz	5470-5725MHz	5470-5725MHz	5470-5725MHz
				3.30 dBi (peak)	4.66 dBi (peak)	3.00 max	1.36 dBi (peak)
				5725-5850MHz	5725-5850MHz	5725-5850MHz	5725-5850MHz
				2.10 dBi (peak)	3.49 dBi (peak)	3.00 max	1.39 dBi (peak)
Wistron P/N: 25.91231.001 Yageo P/N: CAN43139W/WI00904 TX2 antenna	YAGEO Corporation	PIFA	50 ohm Coaxial length: 160 mm diameter: 1.13 mm Connector: Hirose U.FL-LP IPEX MHF or equivalent	2400-2500MHz	2400-2500MHz	2400-2500MHz	2400-2500MHz
				0.23 dBi (peak)	0.63 dBi (peak)	3.00 max	0.40 dBi (peak)
				5150-5350MHz	5150-5350MHz	5150-5350MHz	5150-5350MHz
				2.51 dBi (peak)	3.14 dBi (peak)	3.00 max	0.63 dBi (peak)
Wistron P/N: 25.91231.001 Yageo P/N: CAN43139W/WI00904 TX2 antenna	YAGEO Corporation	PIFA	50 ohm Coaxial length: 160 mm diameter: 1.13 mm Connector: Hirose U.FL-LP IPEX MHF or equivalent	5470-5725MHz	5470-5725MHz	5470-5725MHz	5470-5725MHz
				0.73 dBi (peak)	1.39 dBi (peak)	3.00 max	0.66 dBi (peak)
				5725-5850MHz	5725-5850MHz	5725-5850MHz	5725-5850MHz
				-0.43 dBi (peak)	0.24 dBi (peak)	3.00 max	0.67 dBi (peak)

NOTE:

(* If Rx2/Rx3 only (2nd or 3rd antenna receives only, e.g. for 512 family & 4965AGN) then the information marked with * is not required

Antenna Peak Gain Table:

Frequency (MHz)	Tx1 Antenna		Frequency (MHz)	Tx2 Antenna	
	Horizontal	Vertical		Horizontal	Vertical
	(dBi)	(dBi)		(dBi)	(dBi)
2400	-2.38	-1.77	2400	-0.89	-0.42
2450	-2.17	-1.46	2450	-1.48	0.23
2500	-2.26	-2.37	2500	-2.99	-0.28
5150	-1.83	2.40	5150	-1.10	2.43
5250	-2.18	1.84	5250	0.02	2.51
5350	-2.12	1.87	5350	-0.03	1.05
5470	-4.29	1.83	5470	0.73	0.34
5600	-4.81	2.30	5600	0.33	0.32
5725	-5.15	2.10	5725	-0.43	-0.49
5750	-4.78	1.97	5750	-0.48	-0.47
5800	-4.86	1.67	5800	-0.81	-0.68
5850	-4.91	1.46	5850	-1.46	-1.08

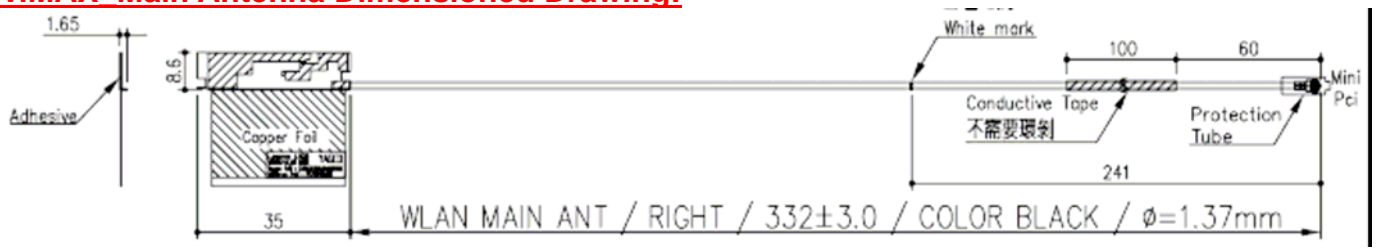
Antenna Peak Gain required being test in system basis.

- 1E frame contend absolutely peak antenna gain include H/V
- If Rx2 only (2nd antenna receives only, e.g. for 512 family) then the information is not required for Rx2.
- If Rx3 only (3rd antenna receives only, e.g. for 4965AGN) then the information is not required for Rx3.

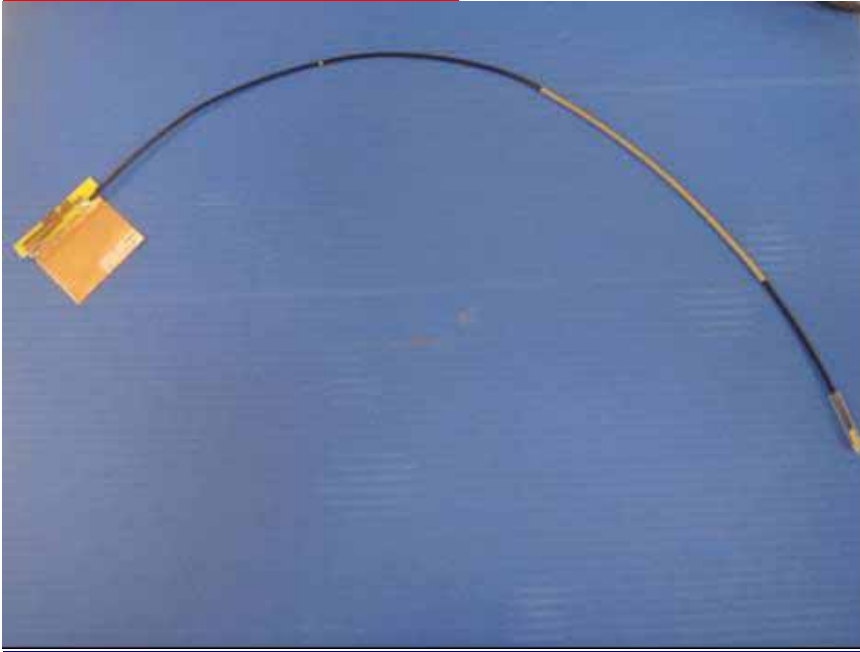
Section 2. Dimensioned Photos or Drawings of Antennas

Include a dimensioned photo and dimensioned drawing of Tx1 antenna here.

WiMAX Main Antenna Dimensioned Drawing:

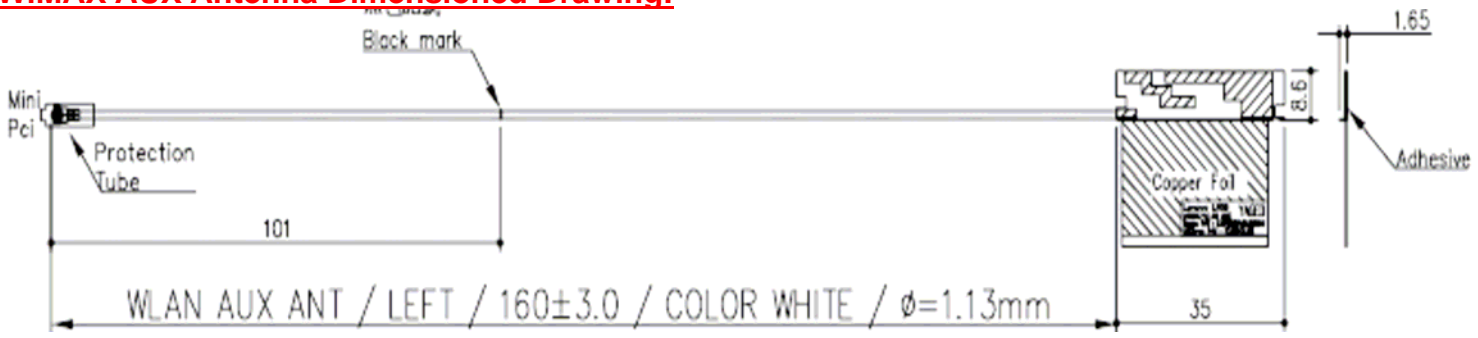


WiMAX Main Antenna Photo:



Include a dimensioned photo and dimensioned drawing of Tx2 antenna here.

WiMAX AUX Antenna Dimensioned Drawing:

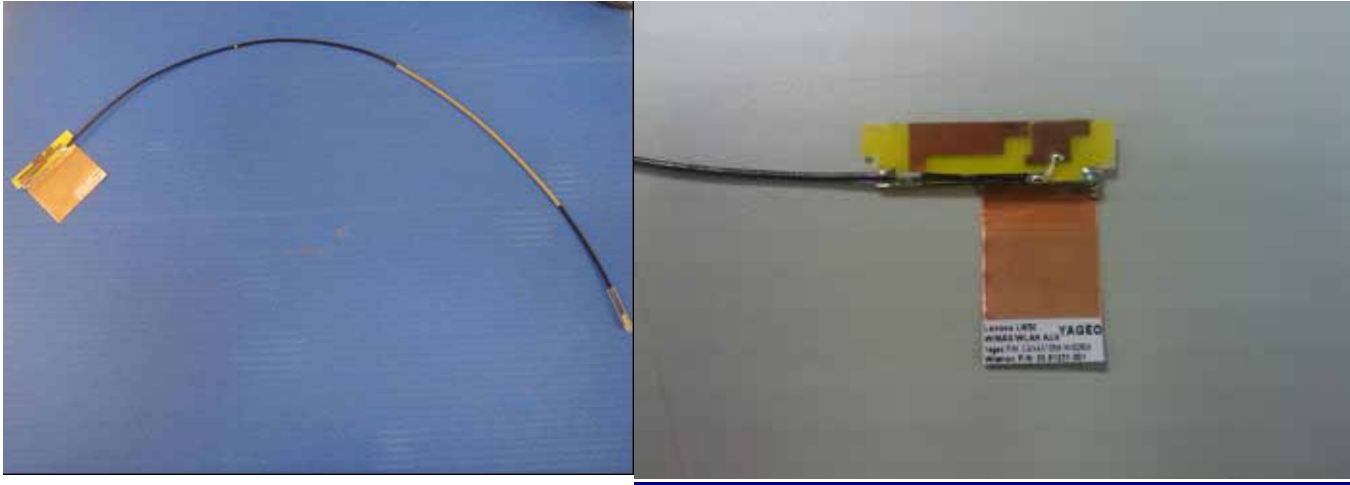


WiMAX AUX Antenna Photo:



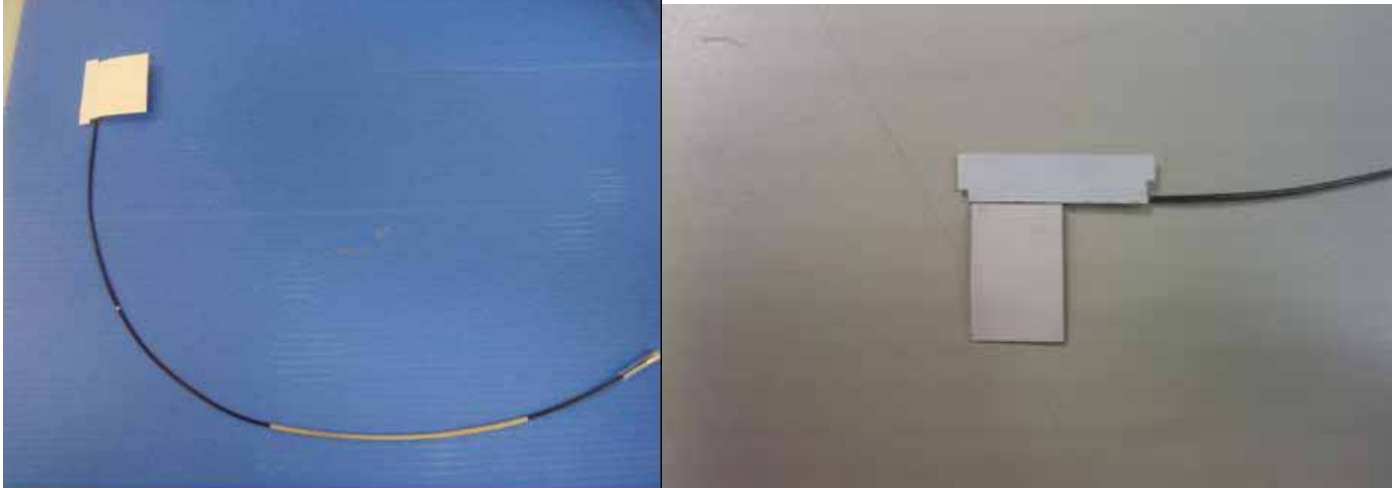
Include front view photo

Antenna Manufacturer: Yageo
Antenna Part Number: (Main) 25.91231.011 (AUX) 25.91231.001



Include back view photo

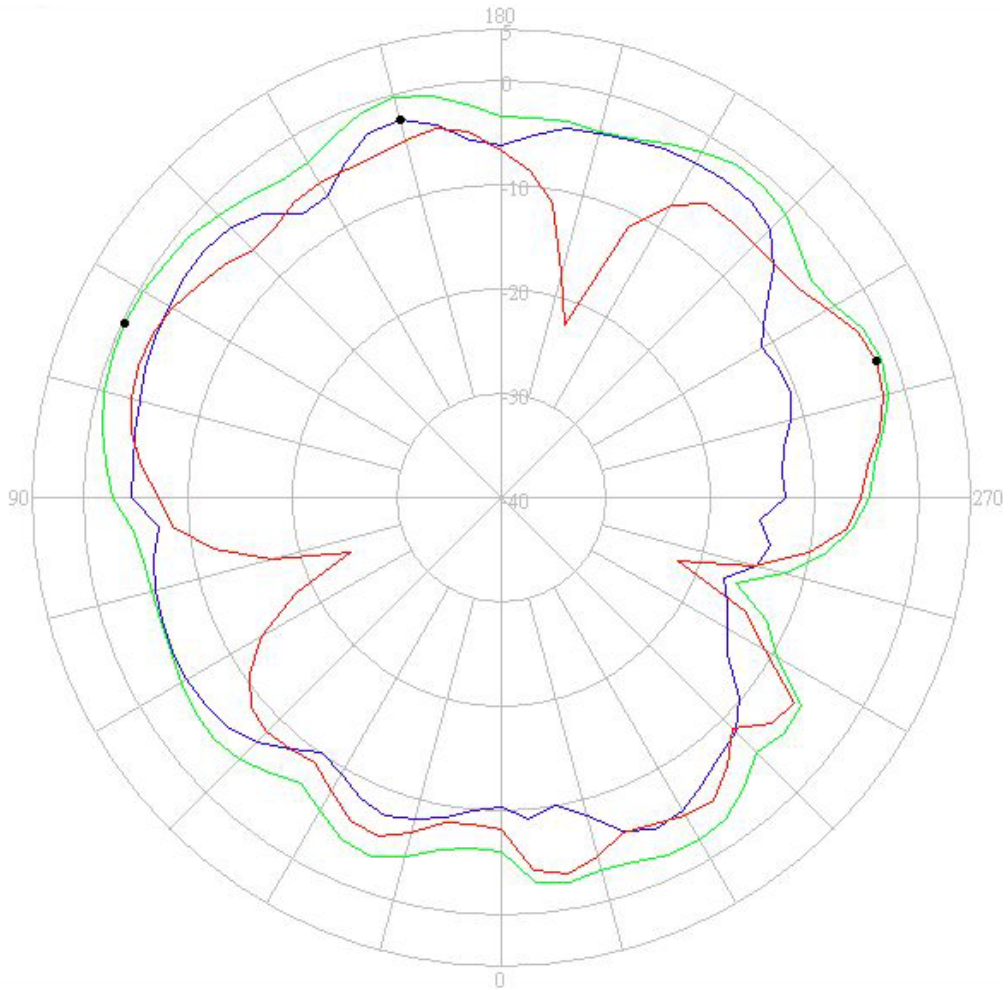
Antenna Manufacturer: Yageo
Antenna Part Number: (Main) 25.91231.011 (AUX) 25.91231.001



Section 3. Radiation characteristics of antennae Loaded in Host Platform

2400-2500MHz radiation characteristic

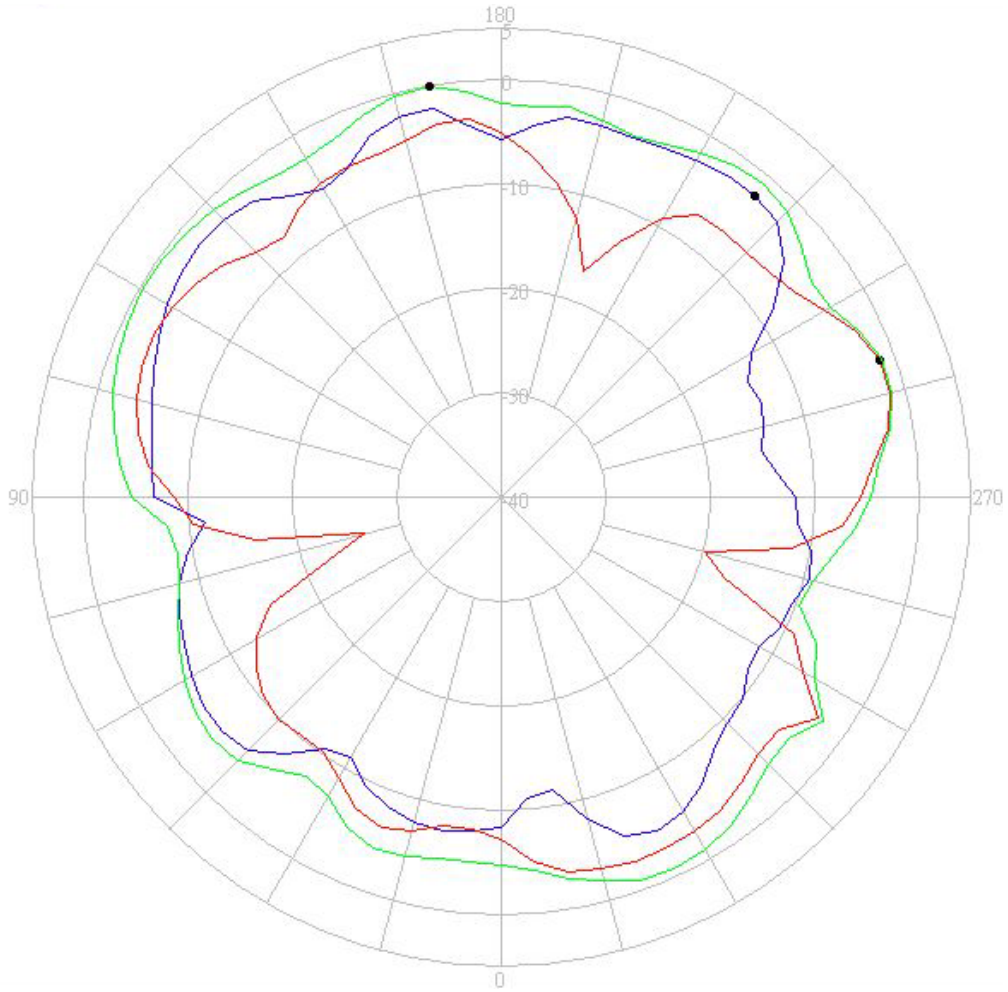
WLAN Main antenna: 2400 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	2400 MHz
Horizontal (dBi) peak	-2.38
Vertical (dBi) peak	-1.77

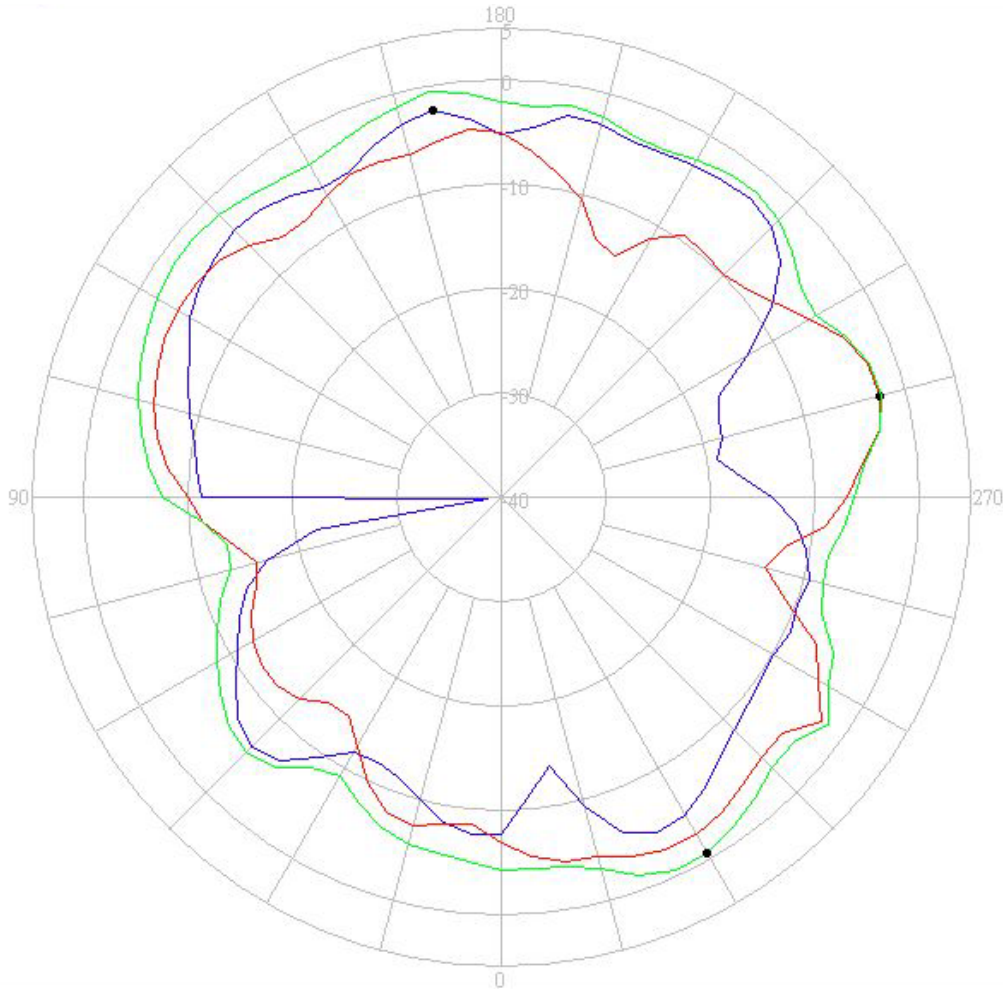
WLAN Main antenna: 2450 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	2450 MHz
Horizontal (dBi) peak	-2.17
Vertical (dBi) peak	-1.46

WLAN Main antenna: 2500 MHz

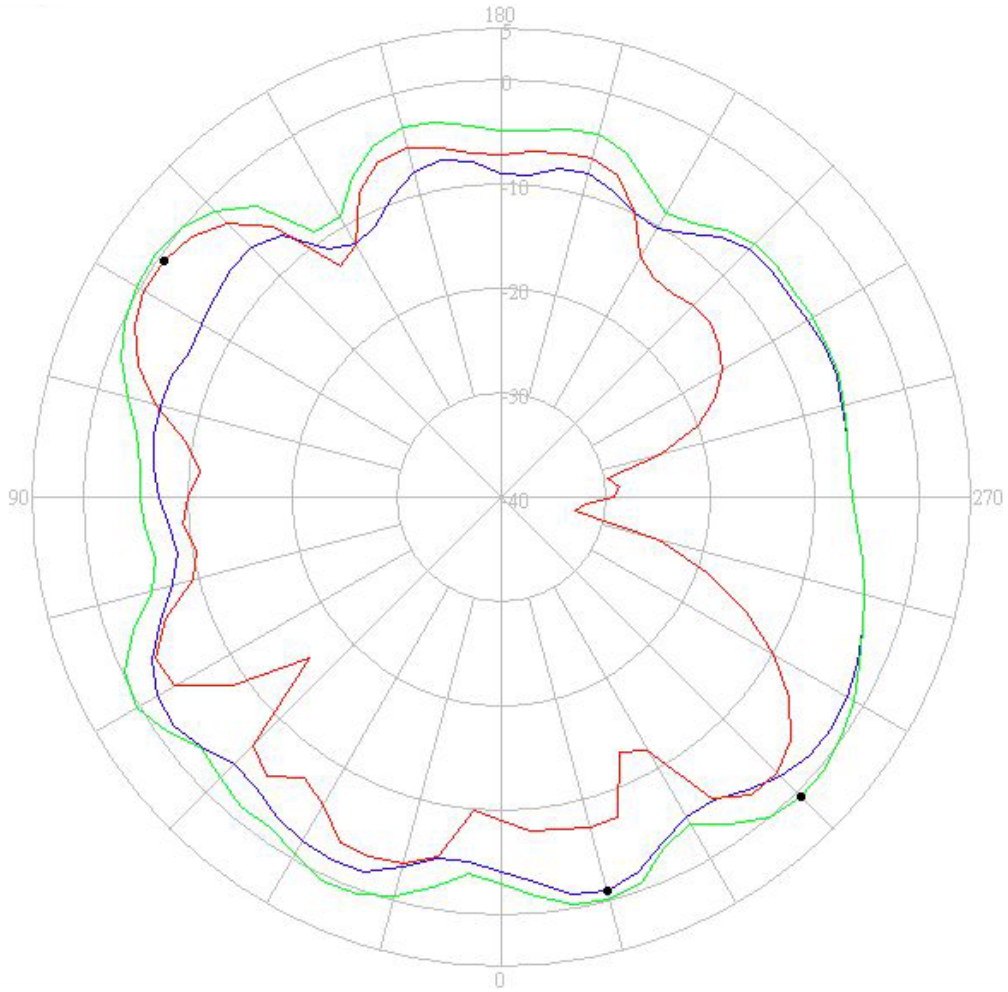


- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	2500 MHz
Horizontal (dBi) peak	-2.26
Vertical (dBi) peak	-2.37

2400-2500MHz radiation characteristic

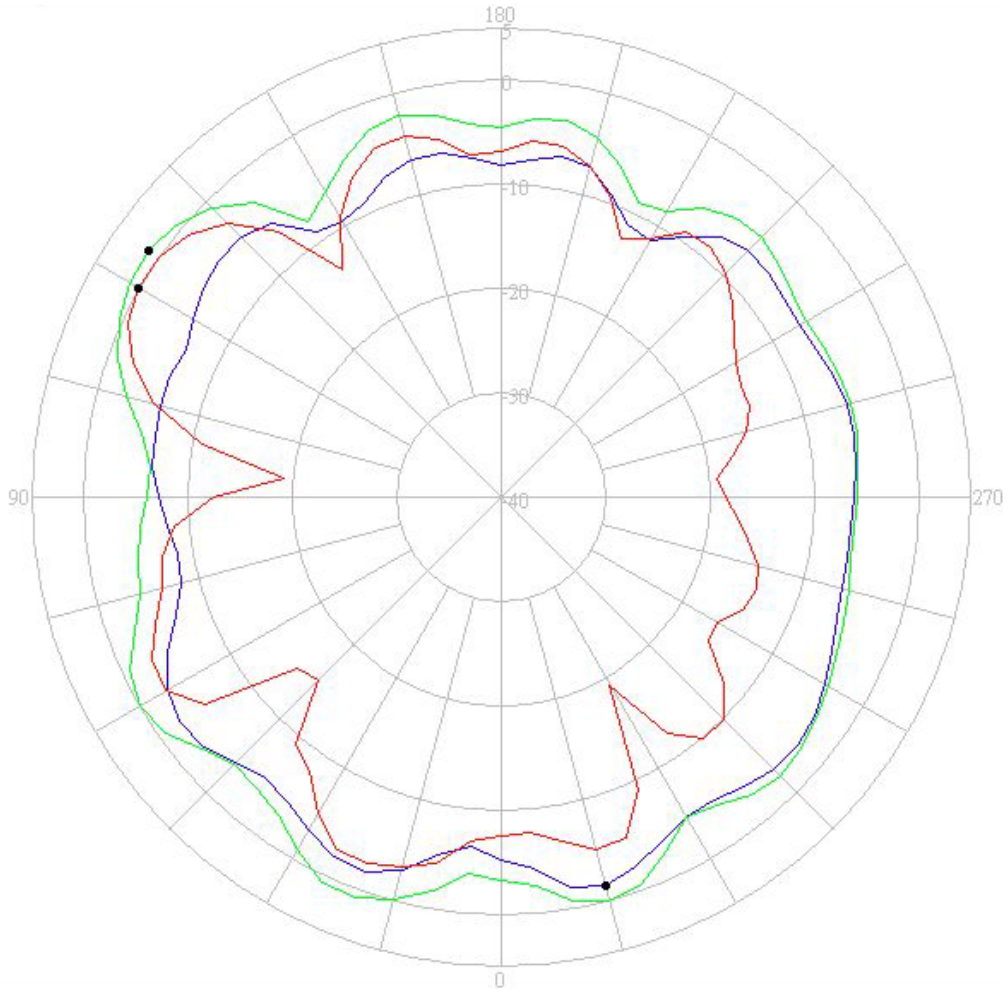
WLAN Aux antenna: 2400 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	2400 MHz
Horizontal (dBi) peak	-0.89
Vertical (dBi) peak	-0.42

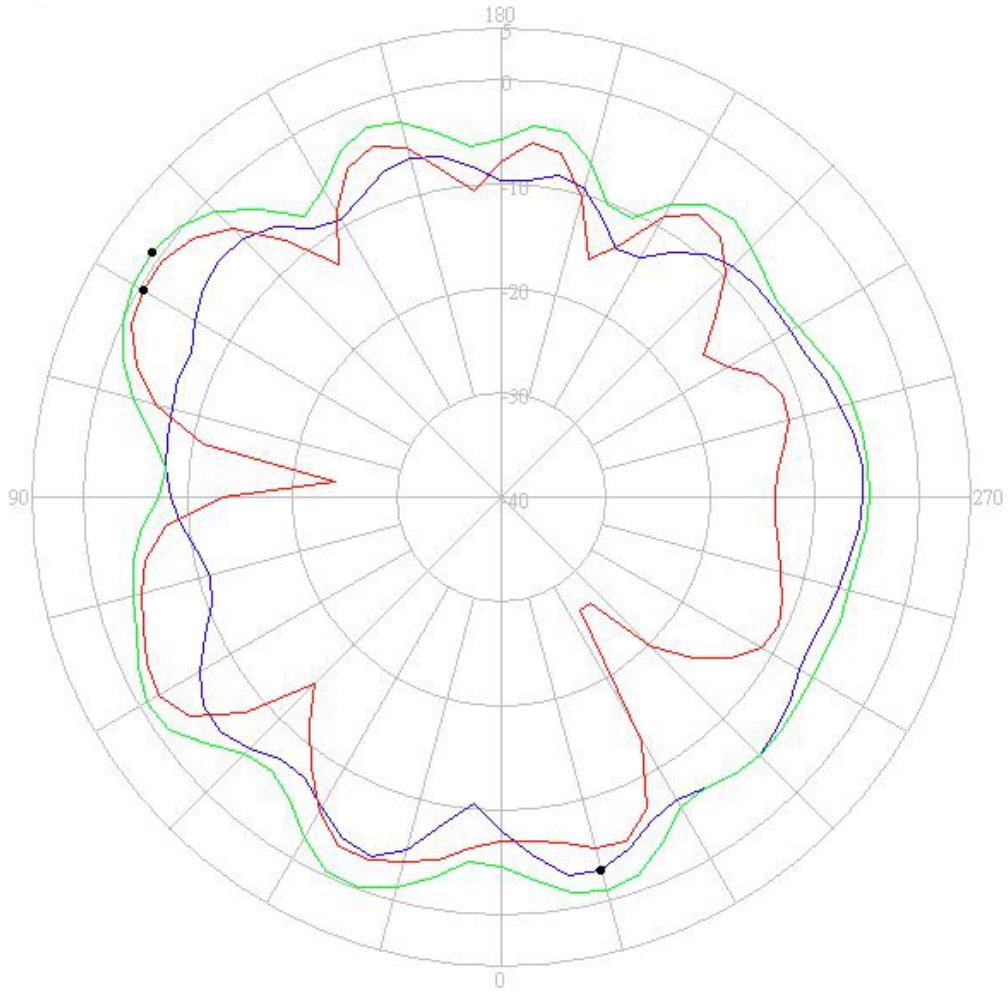
WLAN Aux antenna: 2450 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	2450 MHz
Horizontal (dBi) peak	-1.48
Vertical (dBi) peak	0.23

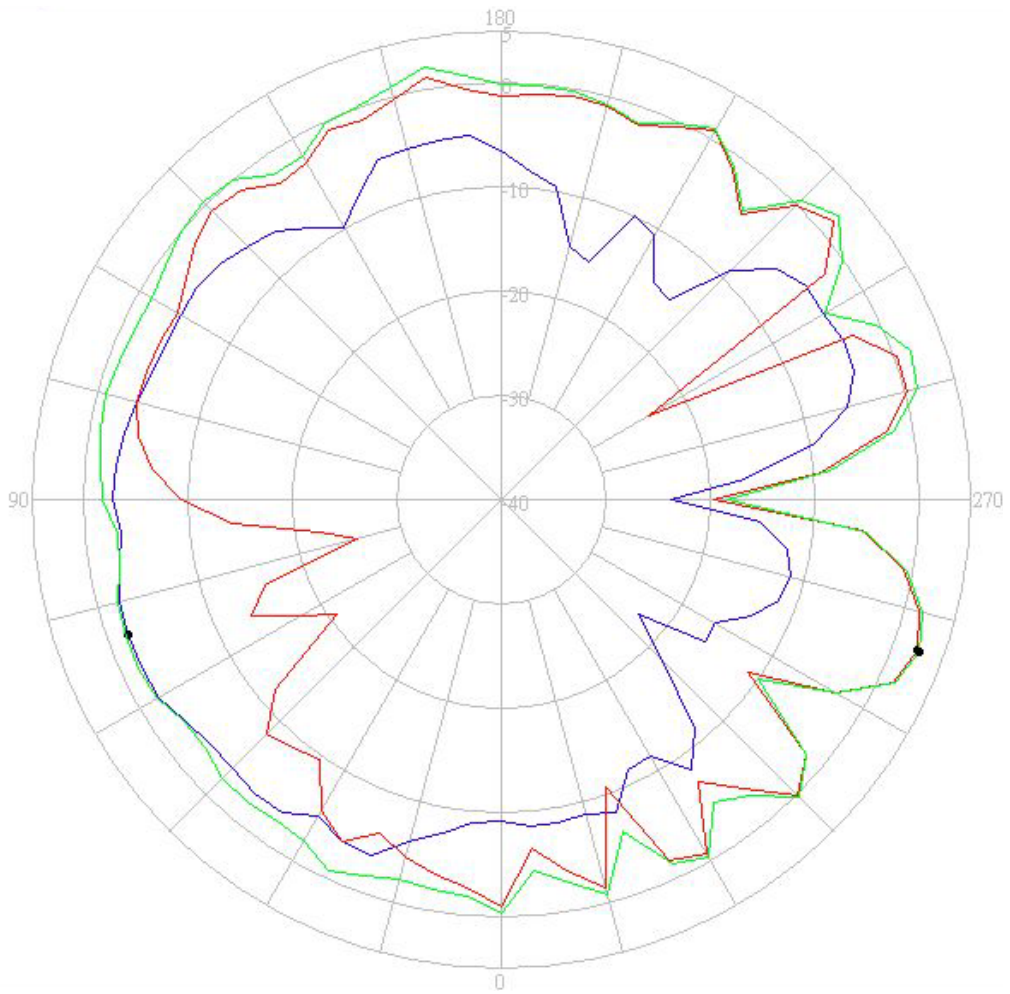
WLAN Aux antenna: 2500 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	2500 MHz
Horizontal (dBi) peak	-2.99
Vertical (dBi) peak	-0.28

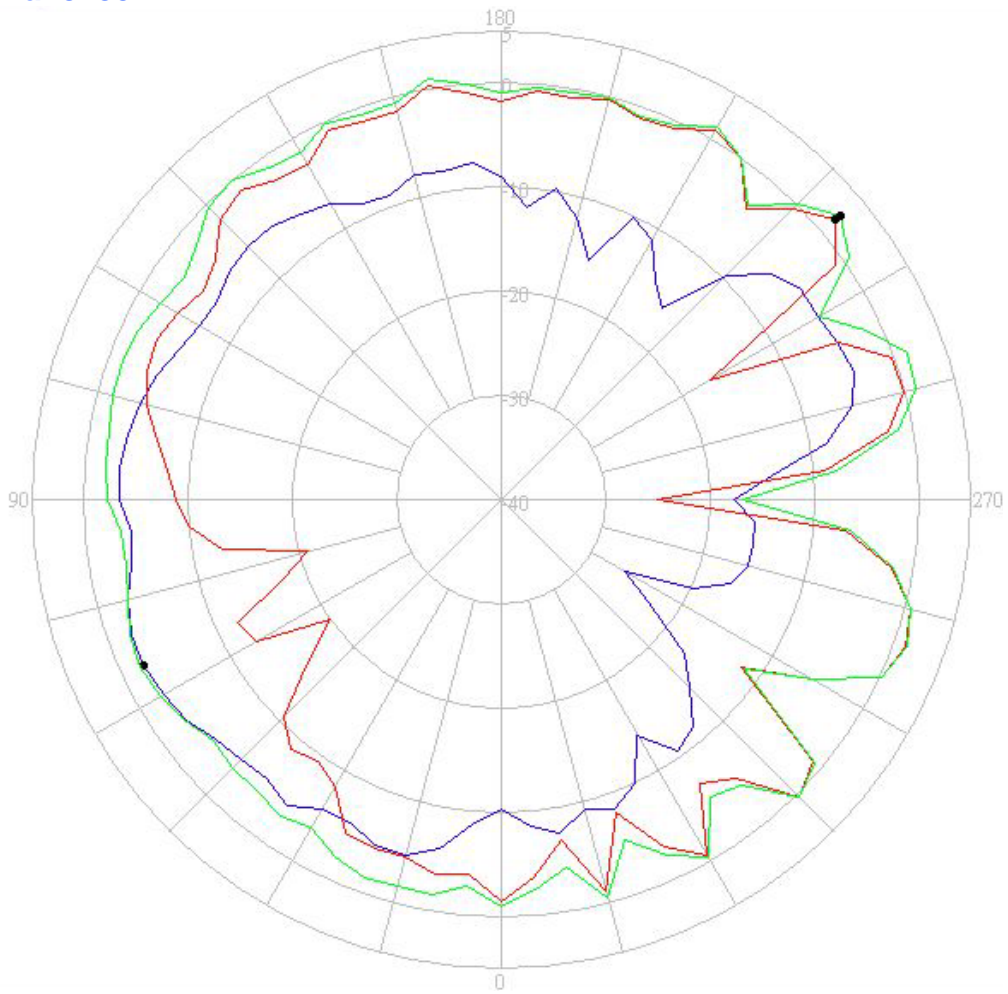
WLAN Main antenna: 5150 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	5150 MHz
Horizontal (dBi) peak	-1.83
Vertical (dBi) peak	2.40

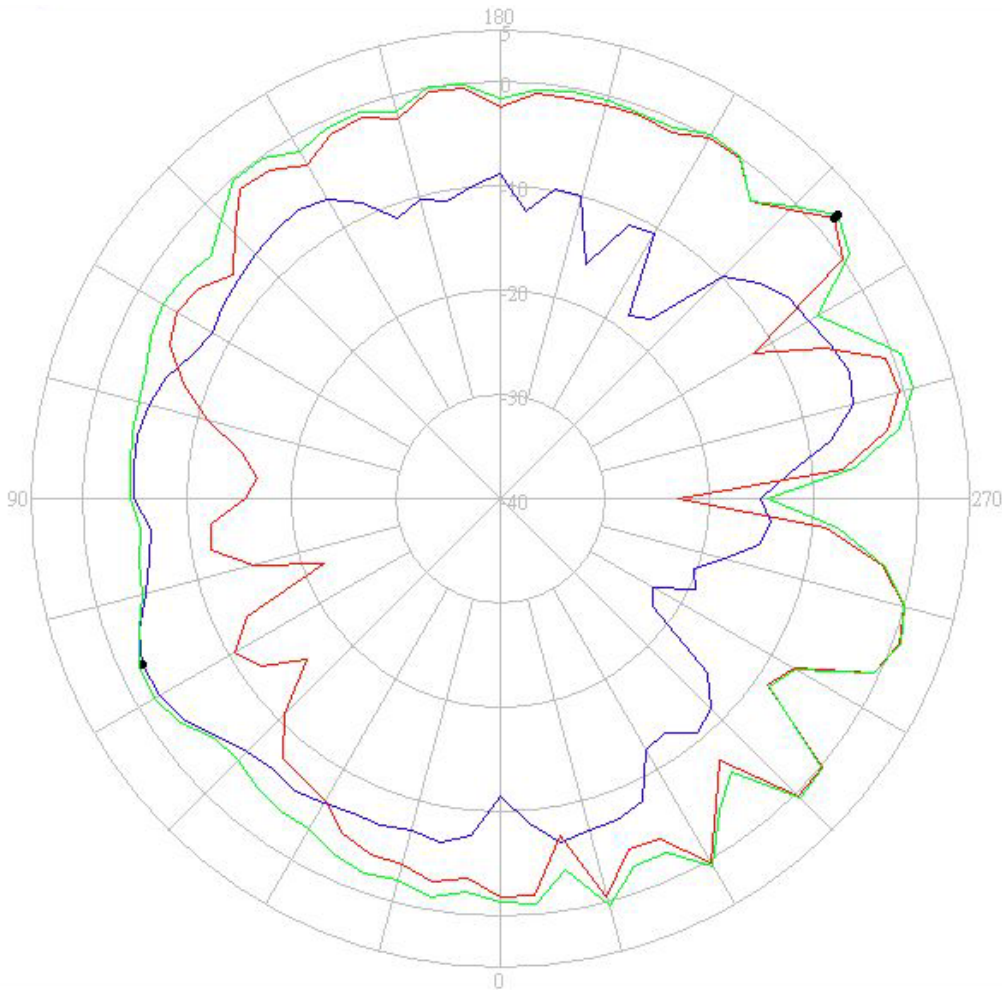
WLAN Main antenna: 5250 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	5250 MHz
Horizontal (dBi) peak	-2.18
Vertical (dBi) peak	1.84

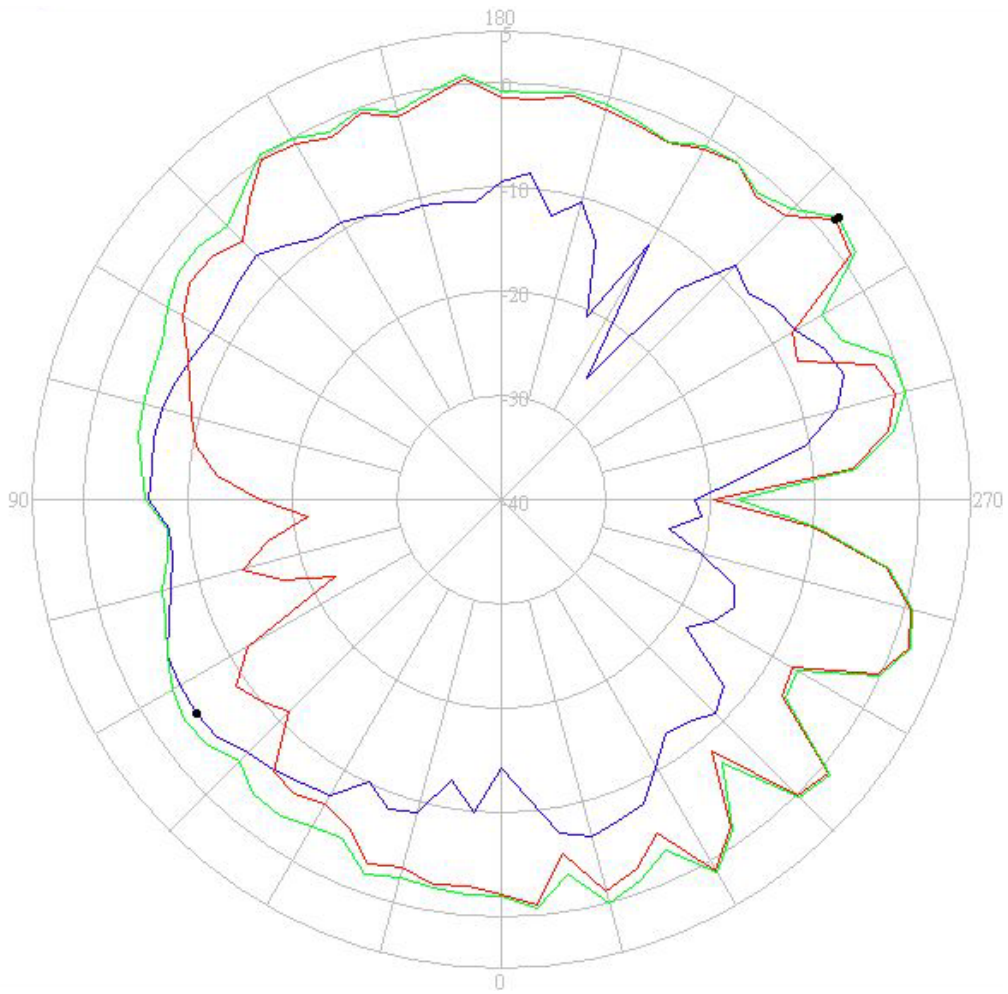
WLAN Main antenna:5350 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	5350 MHz
Horizontal (dBi) peak	-2.12
Vertical (dBi) peak	1.87

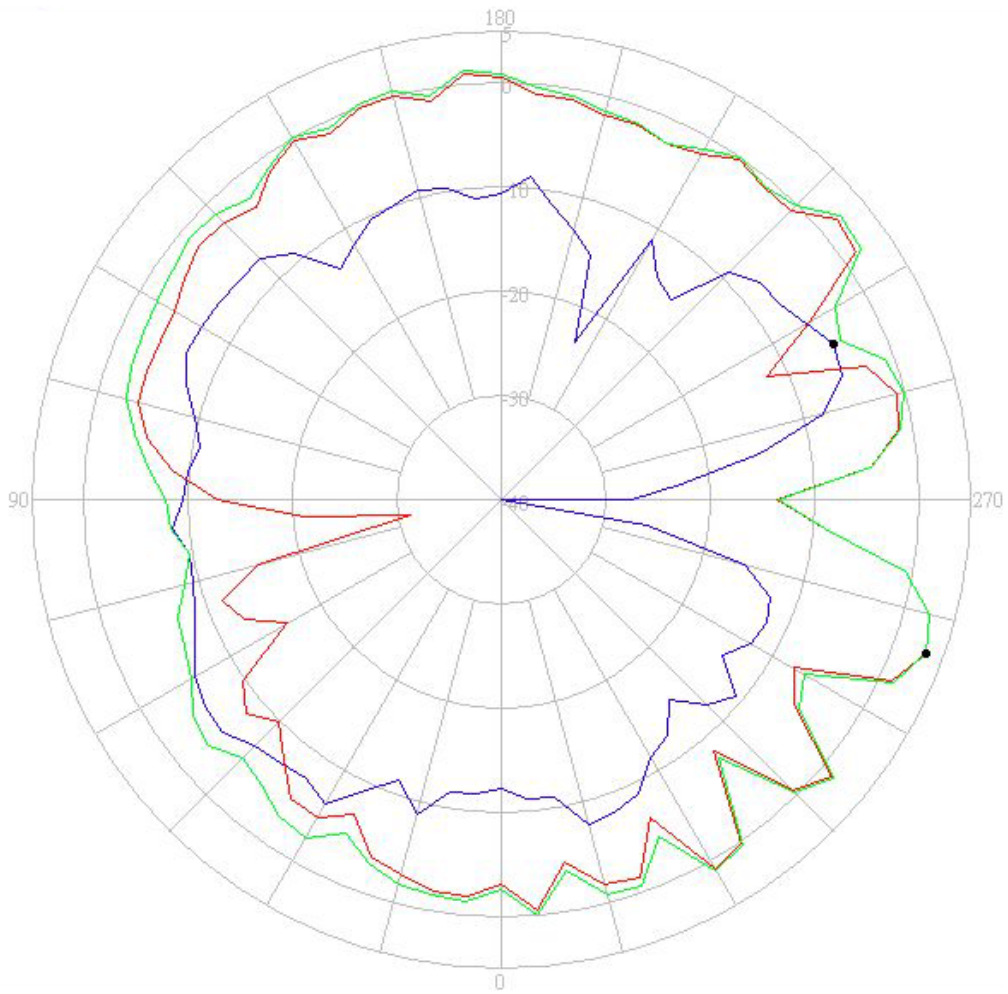
WLAN Main antenna: 5470 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	5470 MHz
Horizontal (dBi) peak	-4.29
Vertical (dBi) peak	1.83

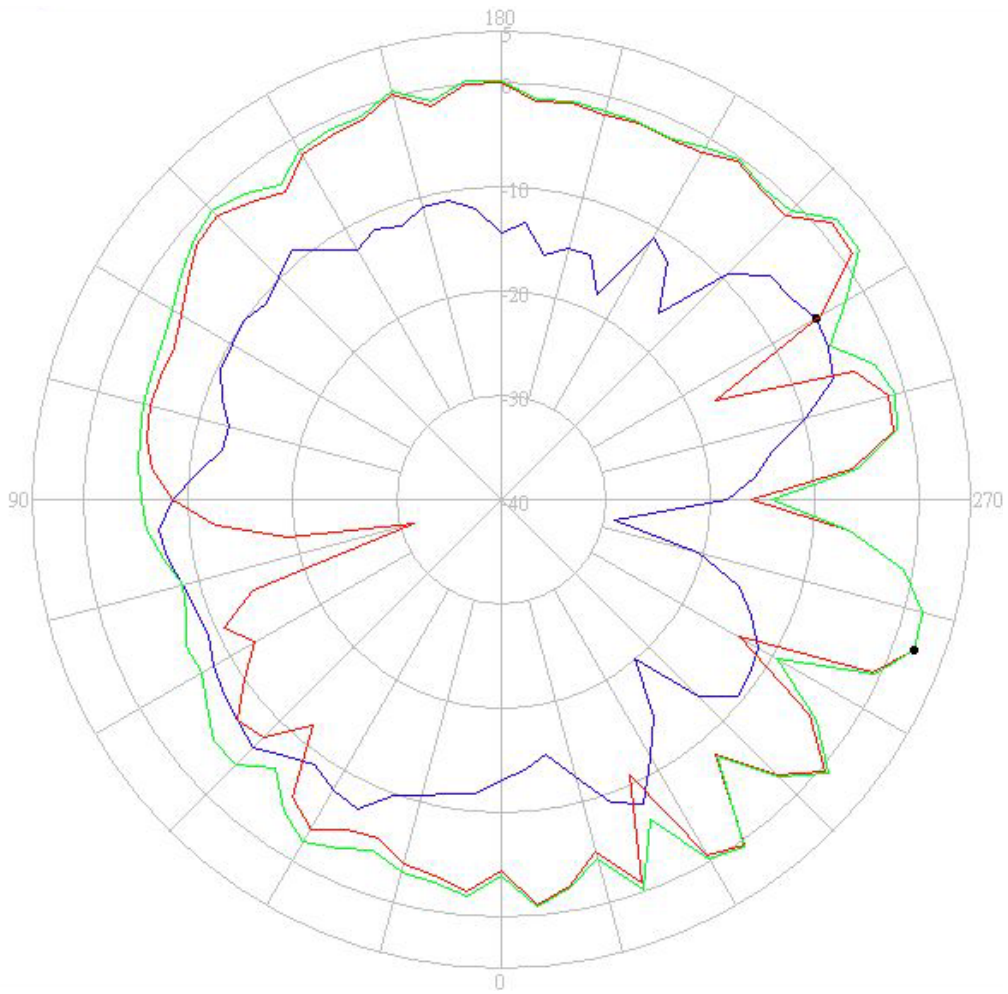
WLAN Main antenna: 5600 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	5600 MHz
Horizontal (dBi) peak	-4.81
Vertical (dBi) peak	2.27

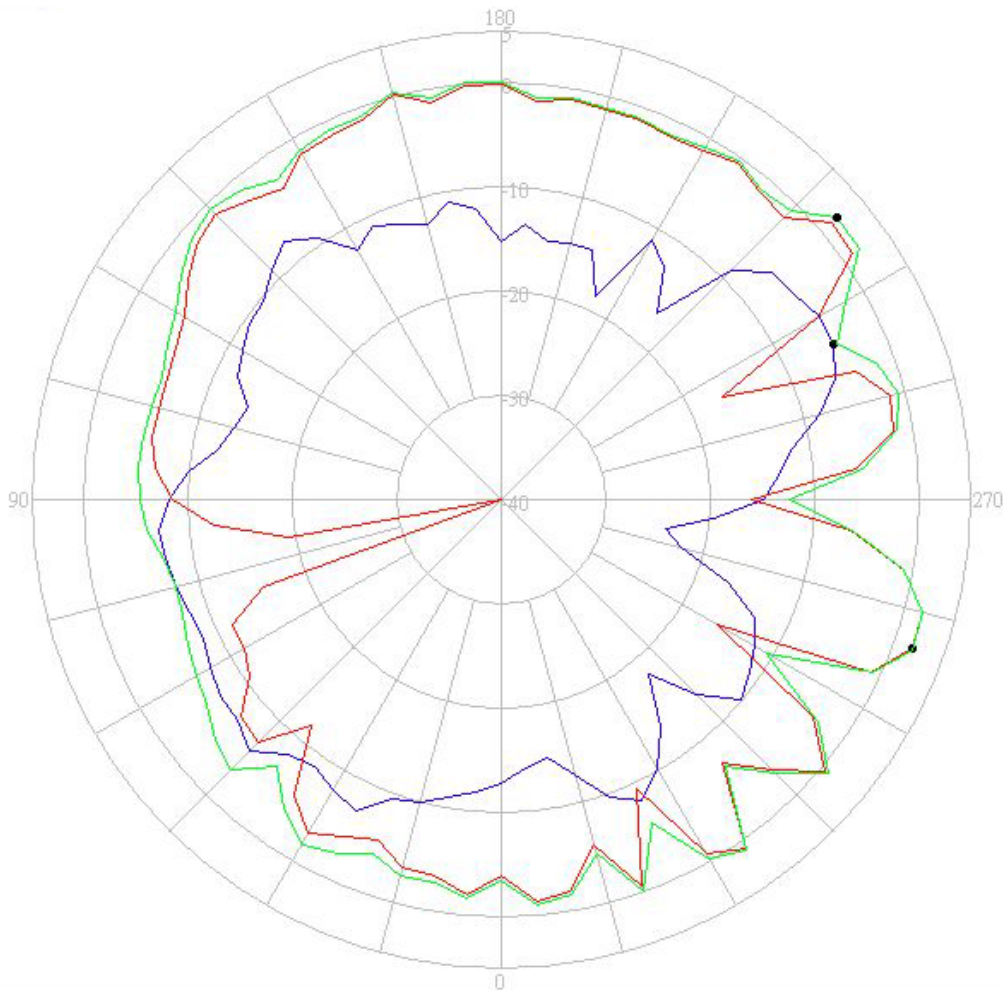
WLAN Main antenna: 5725 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	5725 MHz
Horizontal (dBi) peak	-5.15
Vertical (dBi) peak	2.10

WLAN Main antenna:5750 MHz



- **Horizontal**
- **Vertical**
- **H+V**

Center Frequency	5750 MHz
Horizontal (dBi) peak	-4.78
Vertical (dBi) peak	1.97