Regulatory WLAN Antenna Information

(English Language Required for Intel Regulatory Review / Approval)

Brand Name	MSI
Model Name	MS-1311
Antenna Vendor	Yageo
Antenna Part Number	■ Main Antenna: **CAN4313582022501B**
	■ Aux Antenna: **CAN4313582012501B**
With WLAN Module	■ WM3945ABG
(Check Box)	■ MS-6877
	■ MS-6877
	☐

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	Main & Aux antenna (Peak Gain W/ cable loss)	Required	Required	Required	Required	Required
	1E OR 1F, 1G, 1H					
1F	Main & Aux antenna (Peak Gain only)	Required	Required	Required	Required	Required
1G	VSWR of cable including connector	Required	Required	Required	Required	Required
1H	Main & Aux antenna (Cable loss W/ connector)	Required	Required	Required	Required	Required
2	Dimensioned Photographs and Drawings of main & auxiliary 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. (S. Korea requires photographs of antennas for approval submission). Taiwan requires pictures of each antenna type shown in the system.	Required	Required	Desired	Required (Photos)	Required (Photos)
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, BT, 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

Antenna Information

Section 1. Antenna Assembly Specifications

Antenna Assembly Summary:

1A Antenna Part Number	1B Manufacture	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)
Main Antenna: **CAN43135 82022501B**	: YAGEO Corporation	: PIFA (RoHS:Yes)	: 50 ohm Coaxial. length: 620mm diameter: 1.13mm Connector: Hirose U.FL-LP-066/ I-Pex 20278-111R-13 MHF Plug U.FL (RoHS:Yes)	2400-2500MHz -1.44 dBi (peak) 5150-5350MHz -0.16 dBi (peak)	2400-2500MHz -0.16 dBi (peak) 5150-5350MHz 1.21 dBi (peak)	2400-2500MHz 1.29 max 5150-5350MHz 1.39 max	2400-2500MHz 1.28 dBi (peak) 5150-5350MHz 1.37 dBi (peak)
				5475-5725MHz -0.62 dBi (peak)	5475-5725MHz 1.08 dBi (peak)	5475-5725MHz 1.24 max	5475-5725MHz 1.7 dBi (peak)
				5725-5875MHz -0.28 dBi (peak)	5725-5875MHz 1.61 dBi (peak)	5725-5875MHz 2.5 max	5725-5875MHz 1.89 dBi (peak)
Auxiliary Antenna: **CAN43135 82012501B**	: YAGEO Corporation	: PIFA (RoHS:Yes)	: 50 ohm Coaxial. length: 825mm diameter: 1.13mm Connector: Hirose U.FL-LP-066/ I-Pex 20278-111R-13 MHF Plug U.FL (RoHS:Yes)	2400-2500MHz -0.98 dBi (peak)	2400-2500MHz 0.72 dBi (peak)	2400-2500MHz 2.08 max	2400-2500MHz 1.70 dBi (peak)
				5150-5350MHz 1.37 dBi (peak)	5150-5350MHz 3.19 dBi (peak)	5150-5350MHz 1.47 max	5150-5350MHz 1.82 dBi (peak)
				5475-5725MHz 1.61 dBi (peak)	5475-5725MHz 3.87 dBi (peak)	5475-5725MHz 1.37 max	5475-5725MHz 2.26 dBi (peak)
				5725-5875MHz 1.61 dBi (peak)	5725-5875MHz 4.12 dBi (peak)	5725-5875MHz 1.87 max	5725-5875MHz 2.51 dBi (peak)

Antenna Peak Gain Table:

	Main antenna			Aux Antenna		
Frequency (MHz)	Horizontal (dBi)	Vertical (dBi)	Hori+Ver (dBi)	Horizontal (dBi)	Vertical (dBi)	Hori+Ver (dBi)
2400	-1.44	-2.79	0.54	-1.12	-3.07	0.78
2450	-1.93	-2.19	0.7	-0.98	-3.58	0.69
2500	-1.71	-3.49	-0.08	-2.06	-3.71	-0.19
5150	-0.16	-1.18	0.71	1.37	0.4	3.81
5250	-0.48	-0.65	1.09	0.32	-0.03	3.01
5350	-0.94	-1.74	-0.01	1.32	-0.02	3.47
5475	-1.75	-2.9	0.14	1.3	-0.33	3.45
5600	-0.95	-1.67	1.26	0.22	-0.9	2.47
5725	-0.62	-1.53	1	1.61	-0.28	3.59
5800	-0.35	-2.92	1.09	1.29	-0.81	3.29
5875	-0.28	-1.99	1.75	0.45	-1.87	2.29

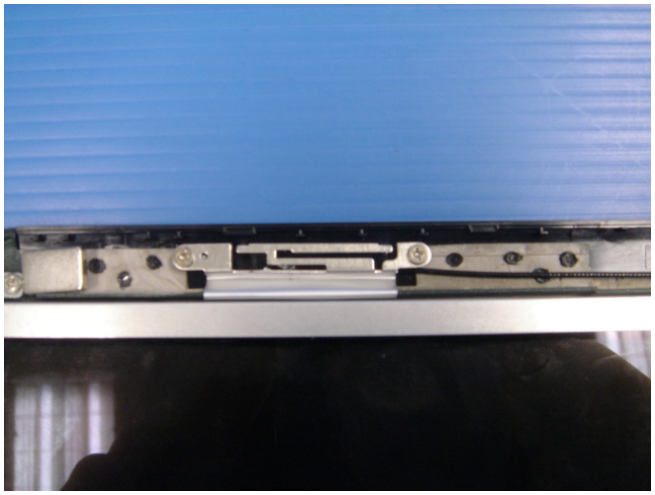
Antenna Peak Gain required being test in system basis.
1E frame contend absolutely peak antenna gain include H/ V/ H+V.

Section 2. Dimensioned Photos or Drawings of Antennas

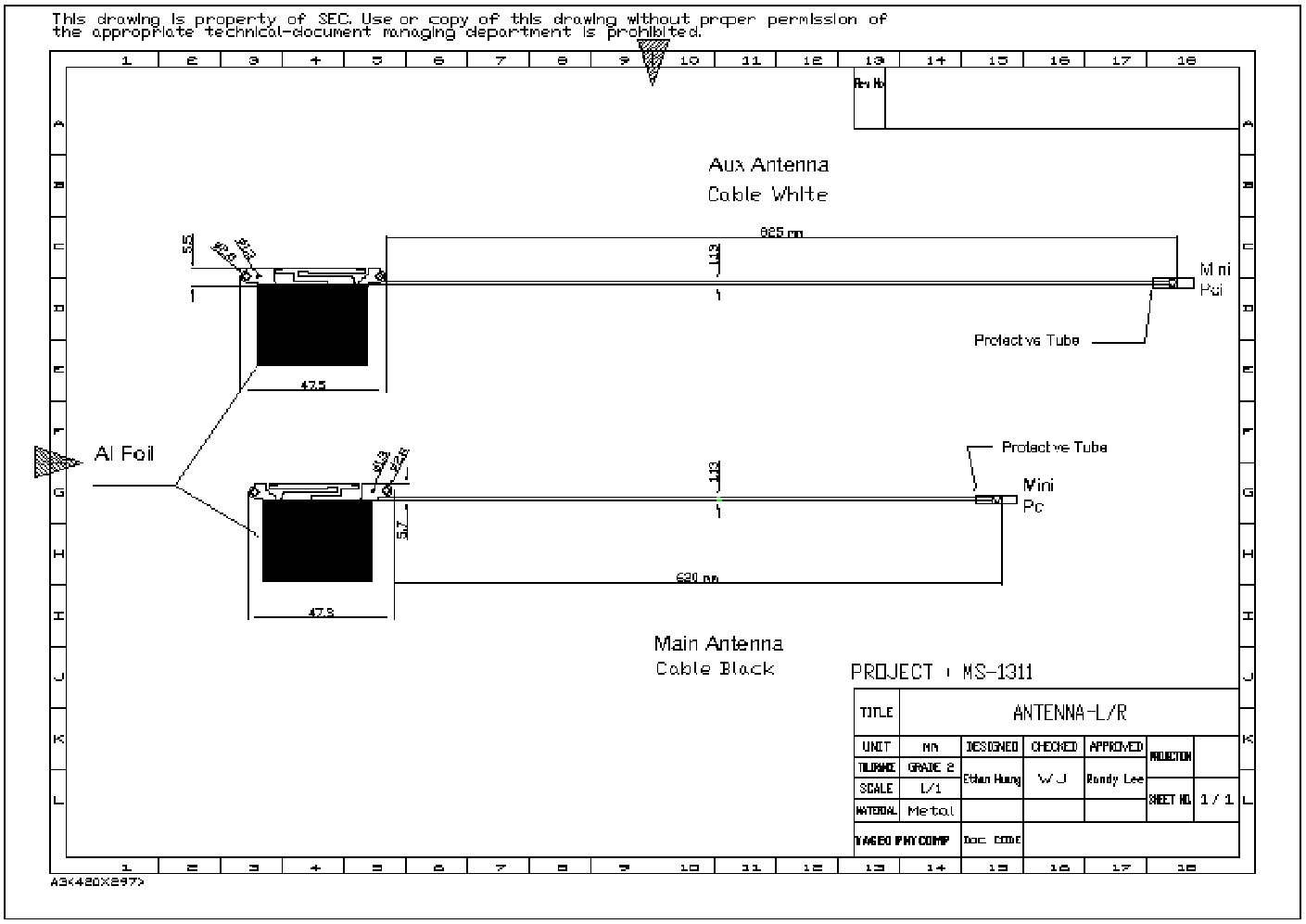
Include a dimensioned photo and dimensioned drawing of antenna here.

Main Antenna Photo:

Aux Antenna Photo:



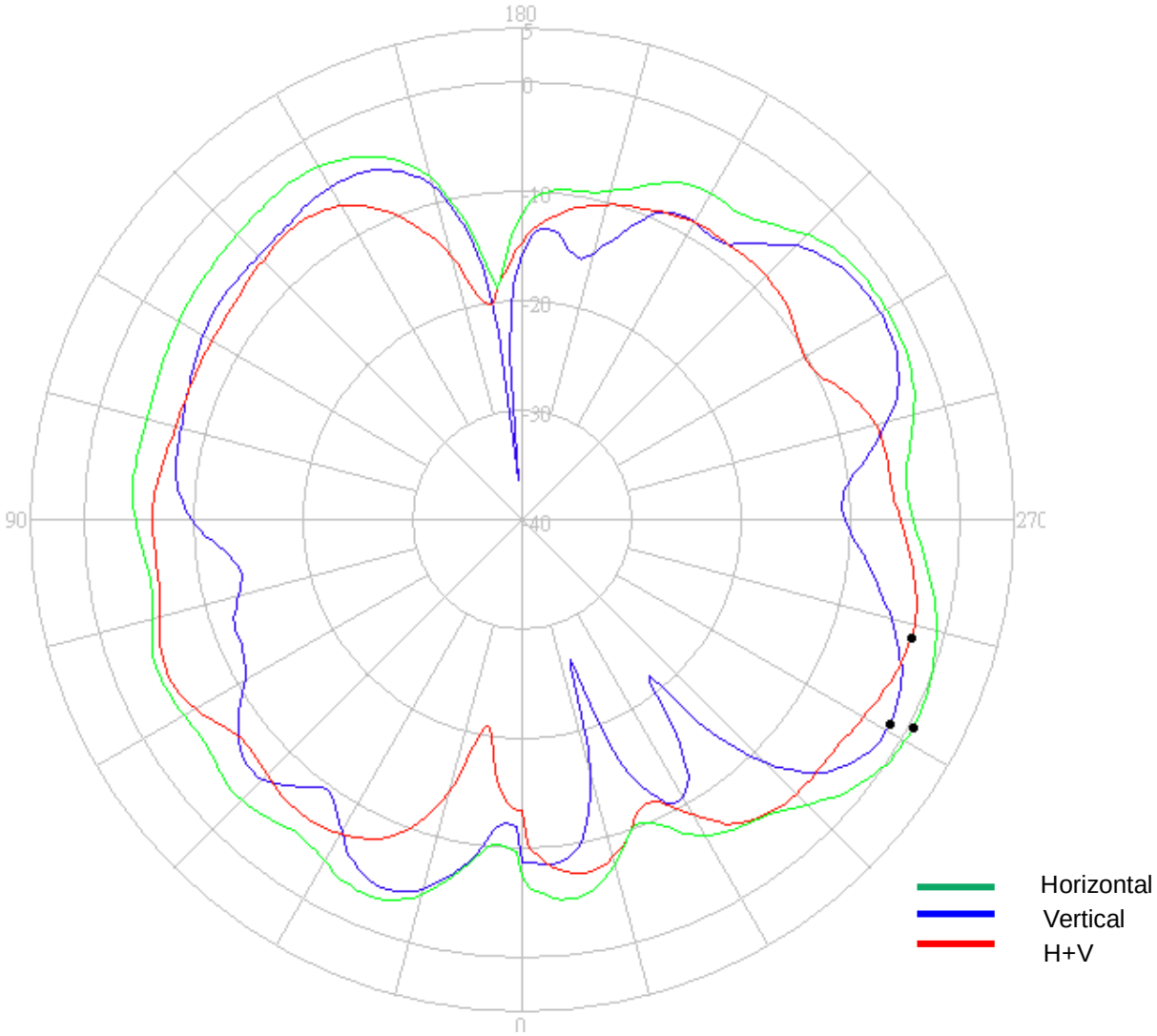
Antenna Dimensioned Drawing:



Section 3. Radiation characteristics of antennae Loaded in Host Platform

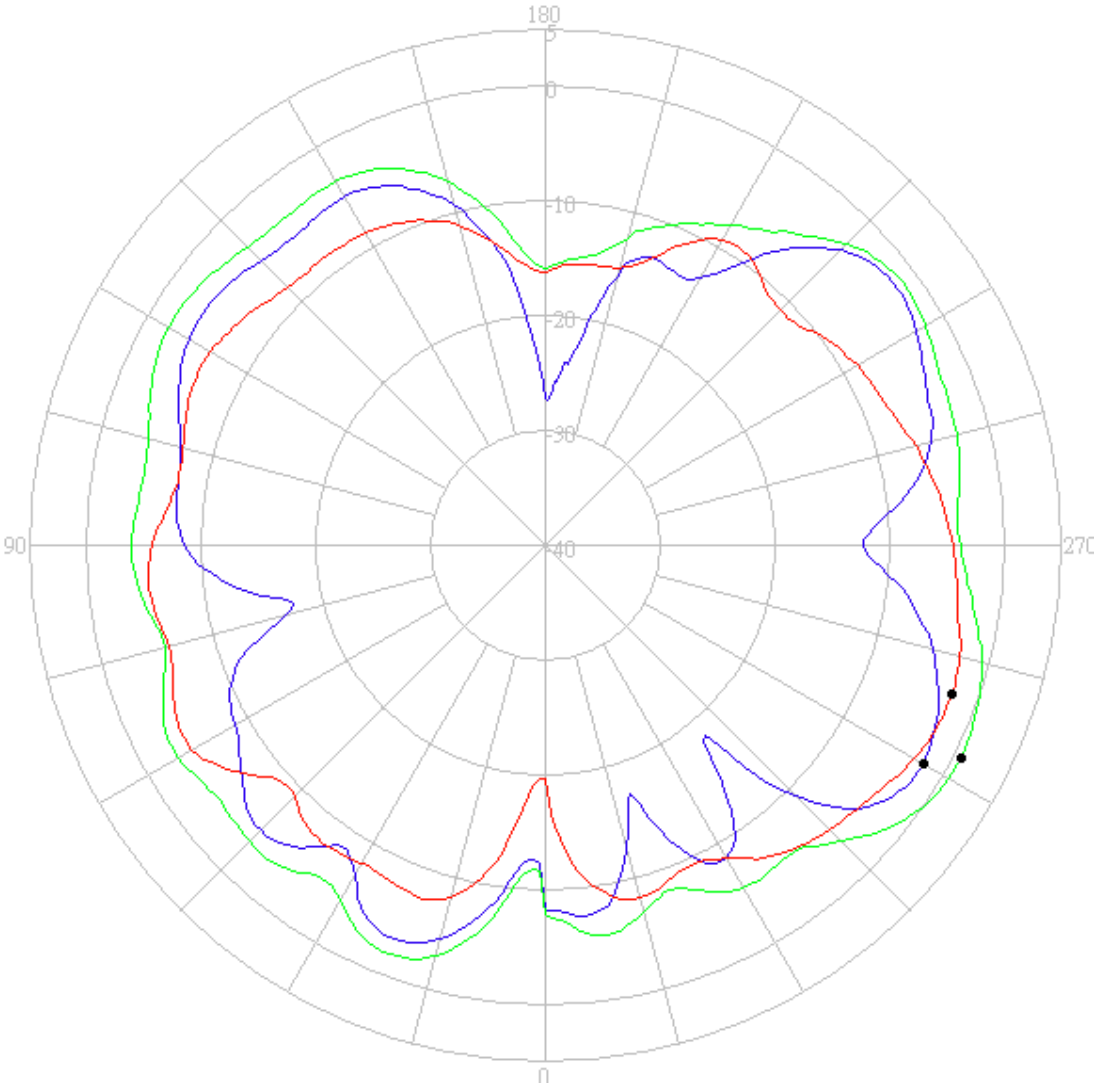
2400-2500MHz radiation characteristic

Main antenna: 2400 MHz



Center Frequency	**2400 MHz**
Horizontal (dBi) peak	**-1.44**
Vertical (dBi) peak	**-2.79**
Horz+Vert (dBi) peak	**0.54**

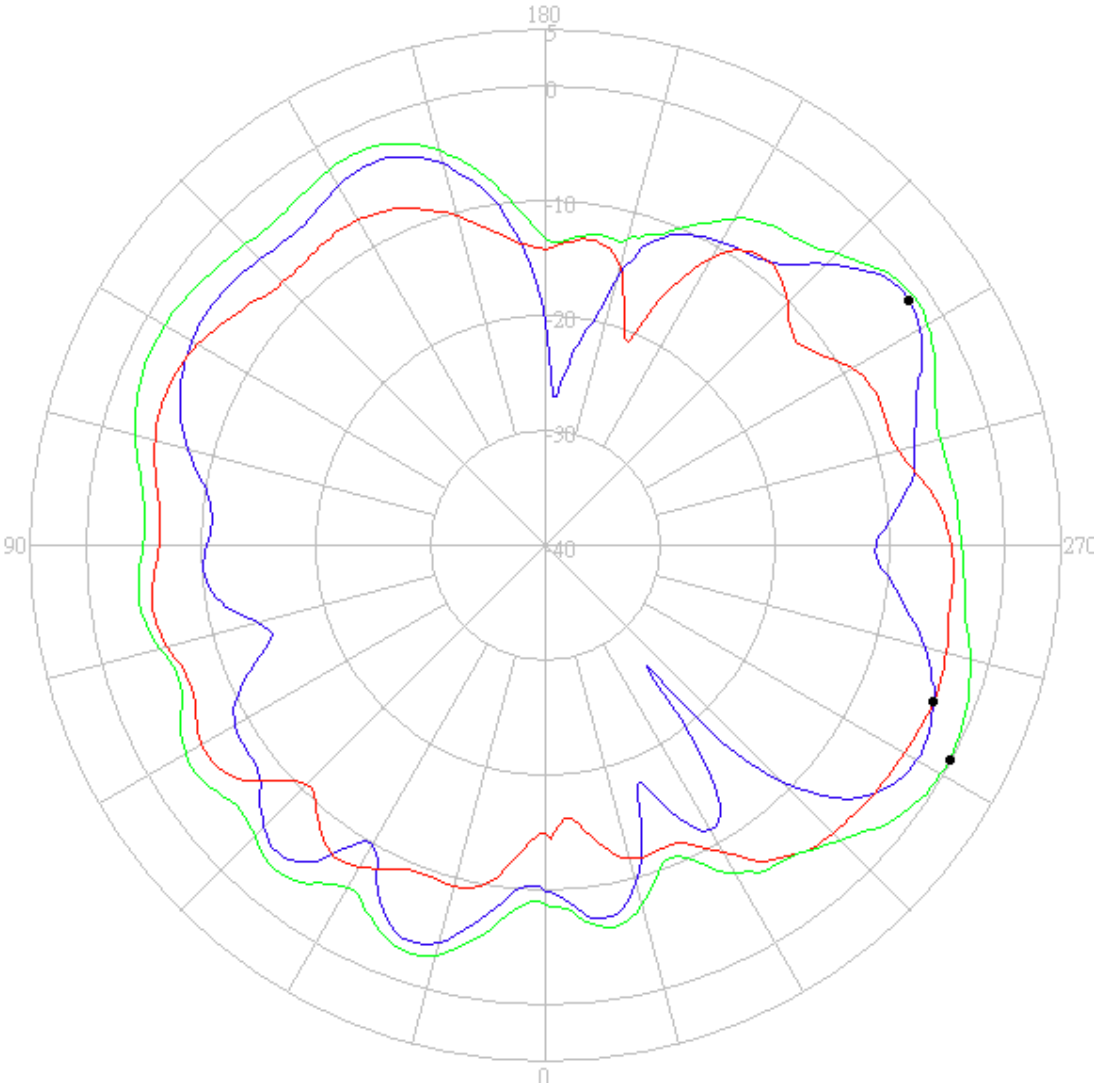
Main antenna: 2450 MHz



Center Frequency	**2450 MHz**
Horizontal (dBi) peak	**-1.93**
Vertical (dBi) peak	**-2.19**
Horz+Vert (dBi) peak	**0.70**

Horizontal
Vertical
H+V

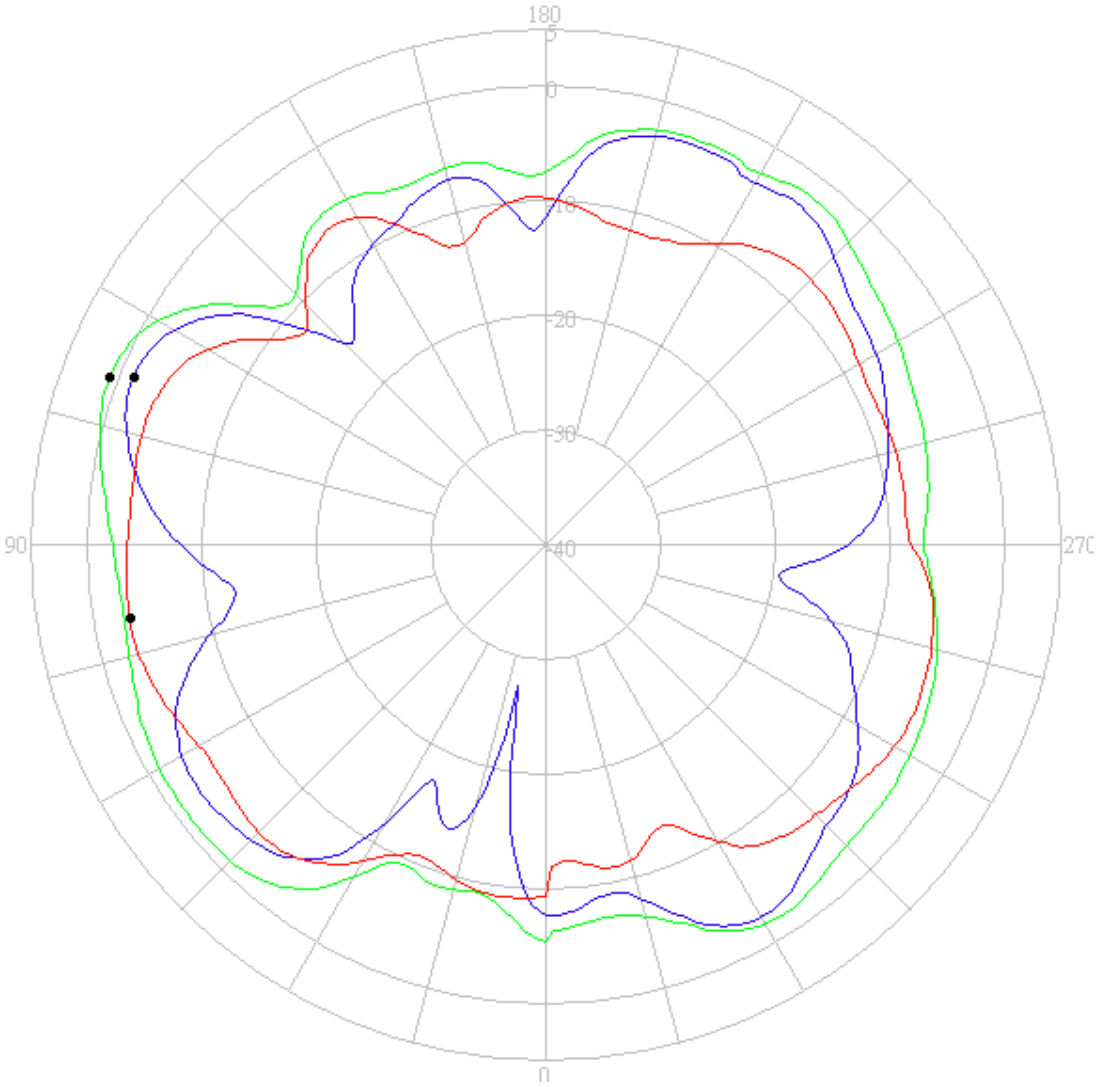
Main antenna: 2500 MHz



Center Frequency	**2500 MHz**
Horizontal (dBi) peak	**-1.71**
Vertical (dBi) peak	**-3.49**
Horz+Vert (dBi) peak	**-0.08**

Horizontal
Vertical
H+V

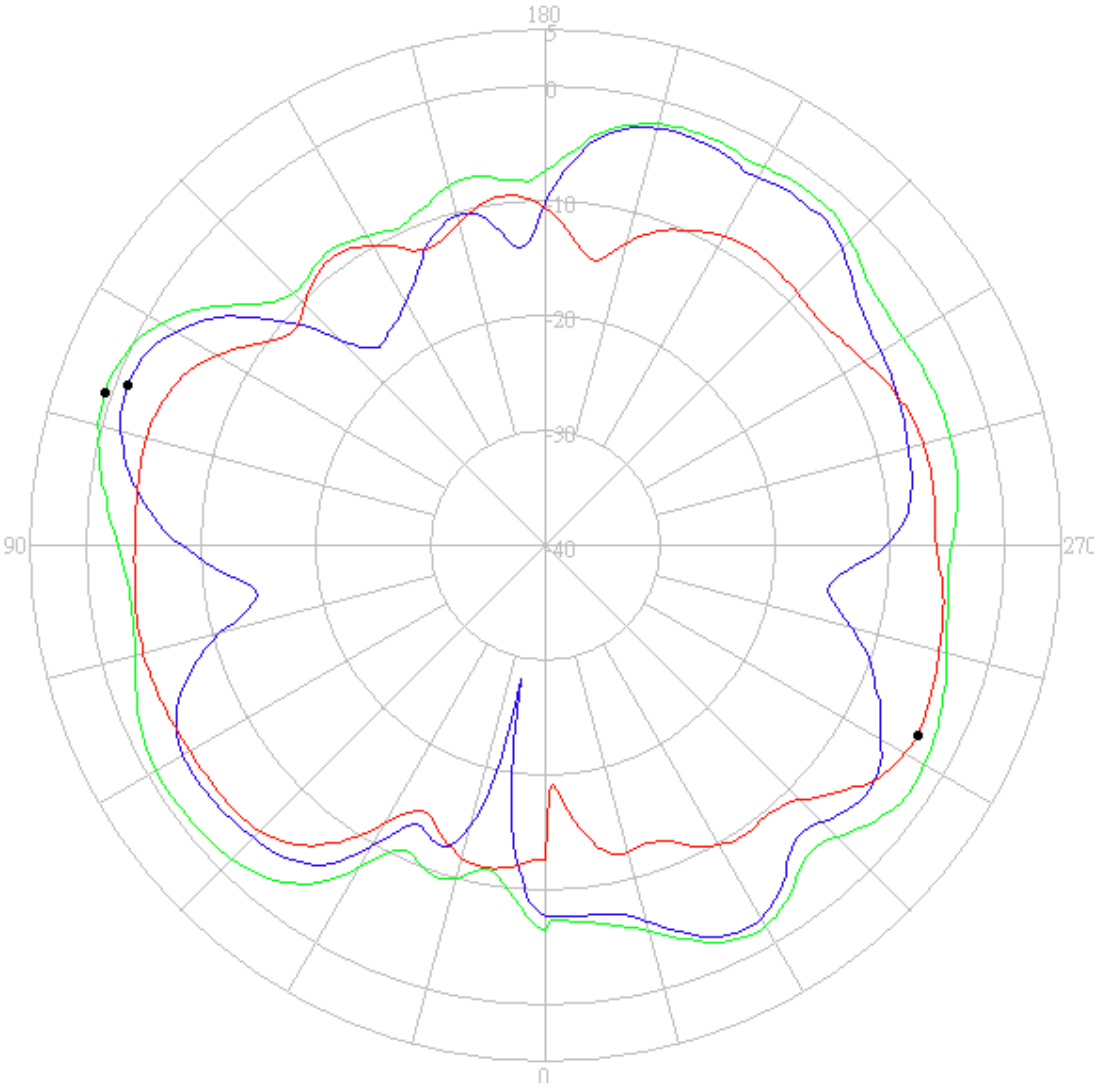
Auxiliary antenna: 2400 MHz



Center Frequency	**2400 MHz**
Horizontal (dBi) peak	**-1.12**
Vertical (dBi) peak	**-3.07**
Horz+Vert (dBi) peak	**0.78**

Horizontal
Vertical
H+V

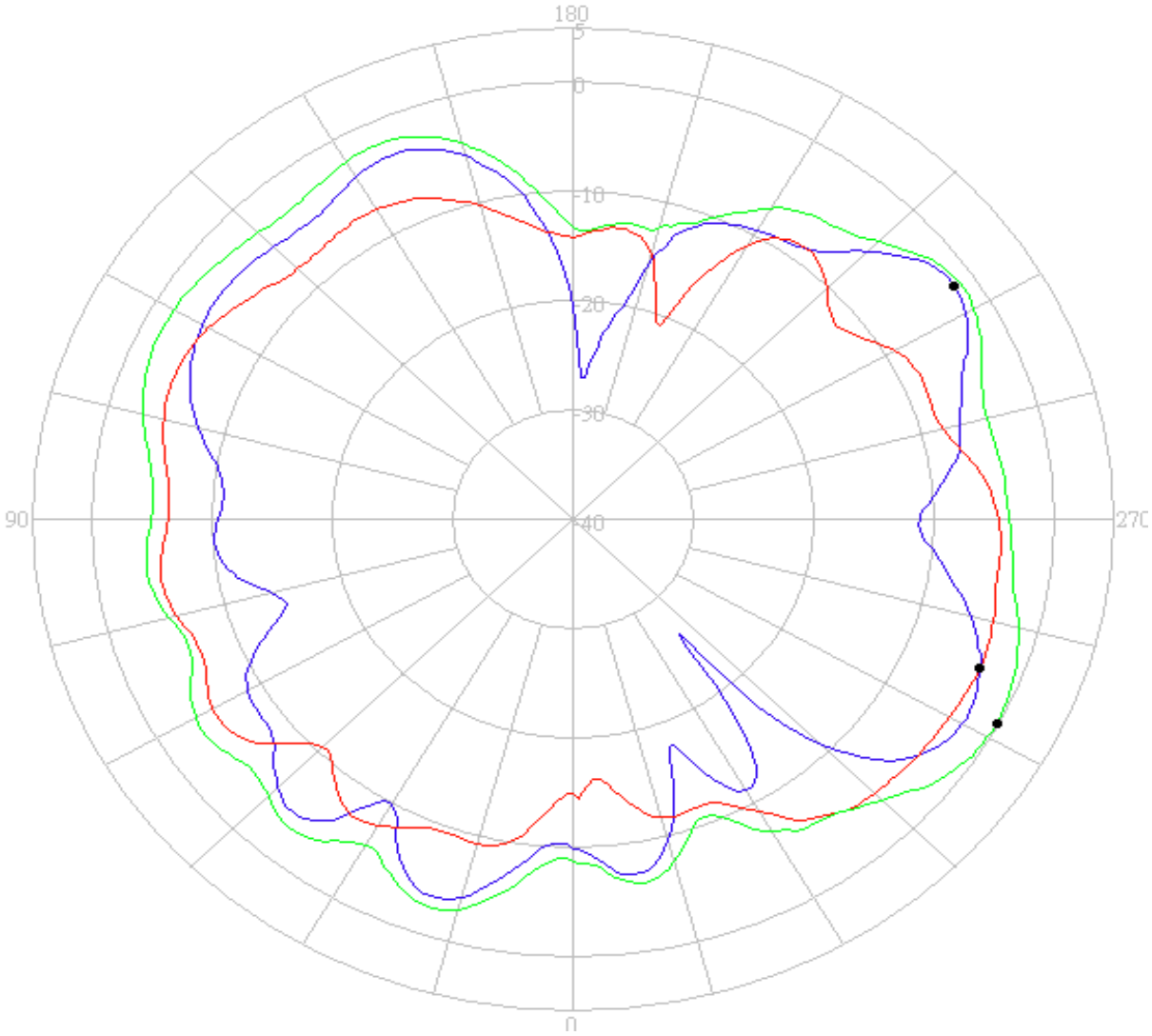
Auxiliary antenna: 2450 MHz



Center Frequency	**2450 MHz**
Horizontal (dBi) peak	**-0.98**
Vertical (dBi) peak	**-3.58**
Horz+Vert (dBi) peak	**0.69**

Horizontal
Vertical
H+V

Auxiliary antenna: 2500 MHz

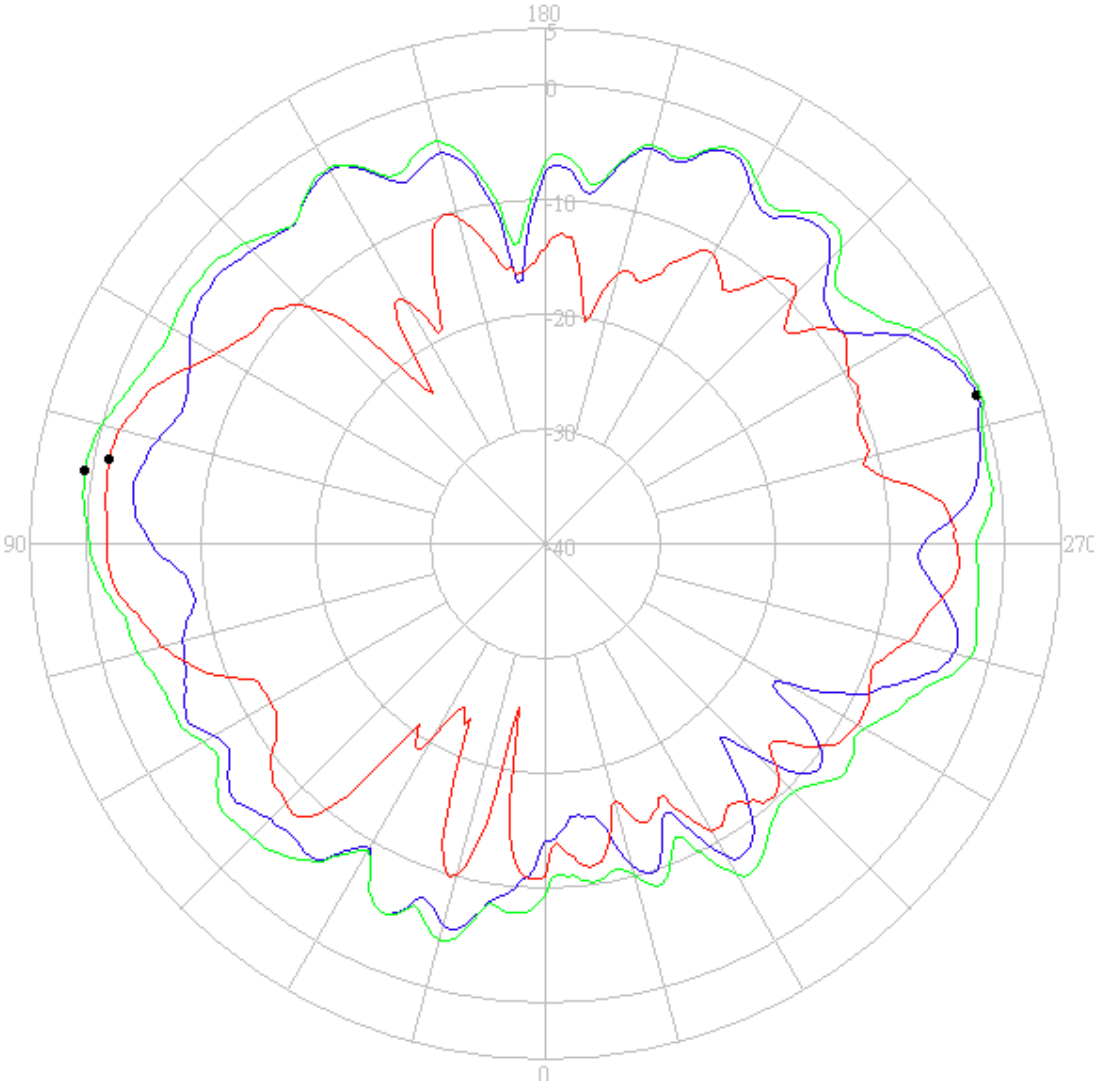


Center Frequency	**2500 MHz**
Horizontal (dBi) peak	**-2.06**
Vertical (dBi) peak	**-3.71**
Horz+Vert (dBi) peak	**-0.19**

Horizontal
Vertical
H+V

5150-5350 MHz radiation characteristic

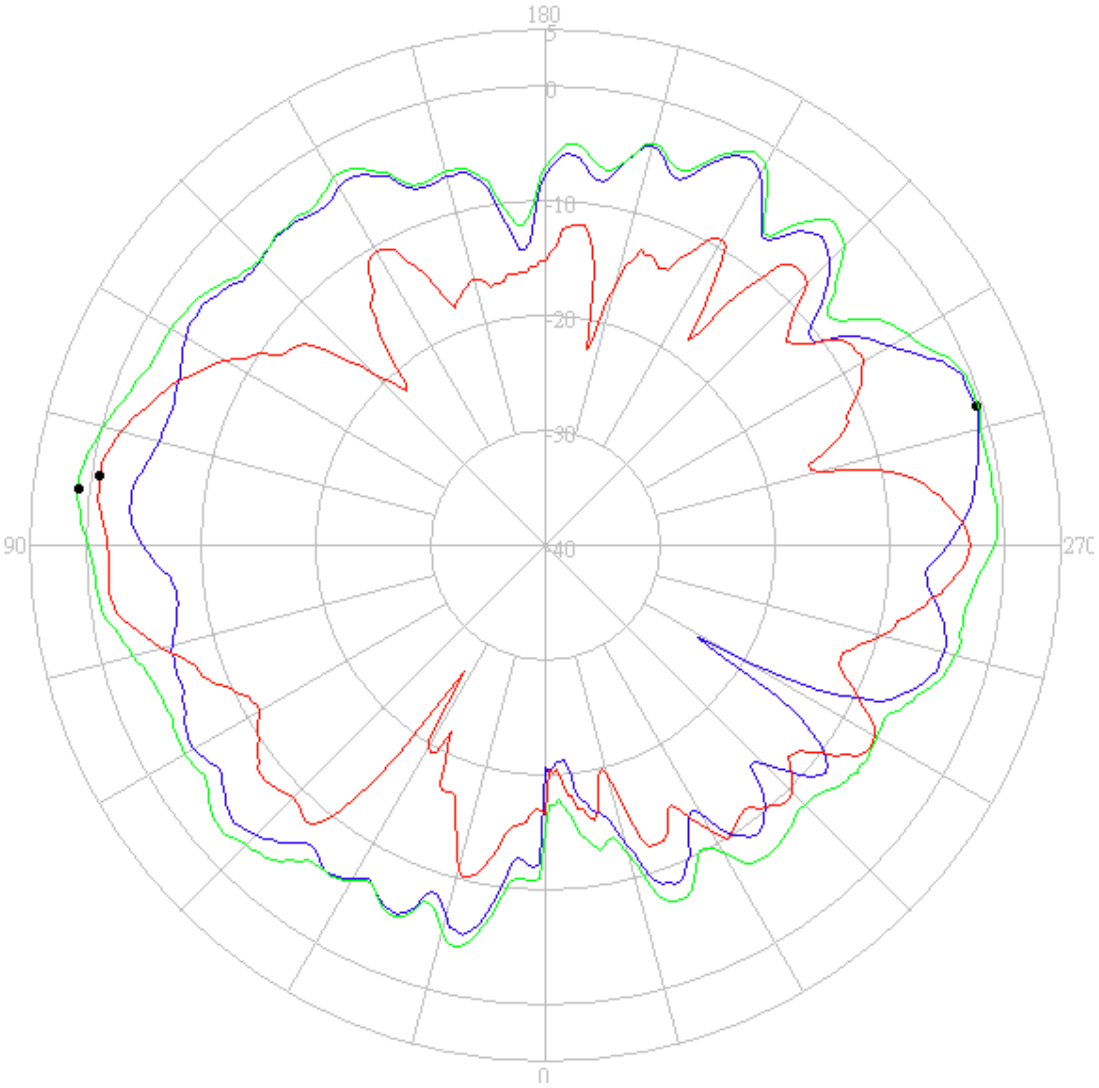
Main antenna: 5150 MHz



Center Frequency	**5150 MHz**
Horizontal (dBi) peak	**-0.16**
Vertical (dBi) peak	**-1.18**
Horz+Vert (dBi) peak	**0.71**

Horizontal
Vertical
H+V

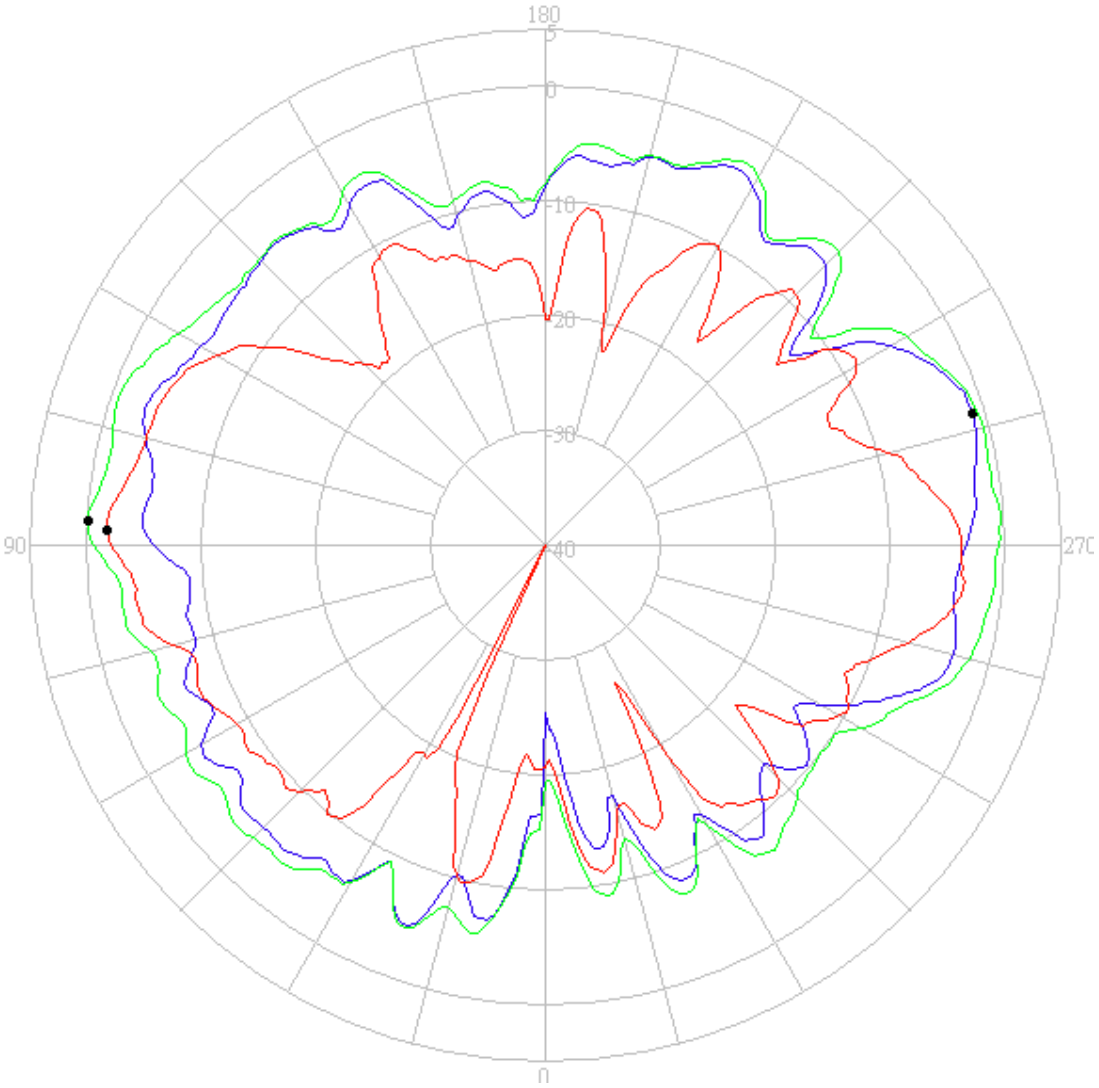
Main antenna: 5250 MHz



Center Frequency	**5250 MHz**
Horizontal (dBi) peak	**-0.48**
Vertical (dBi) peak	**-0.65**
Horz+Vert (dBi) peak	**1.09**

Horizontal
Vertical
H+V

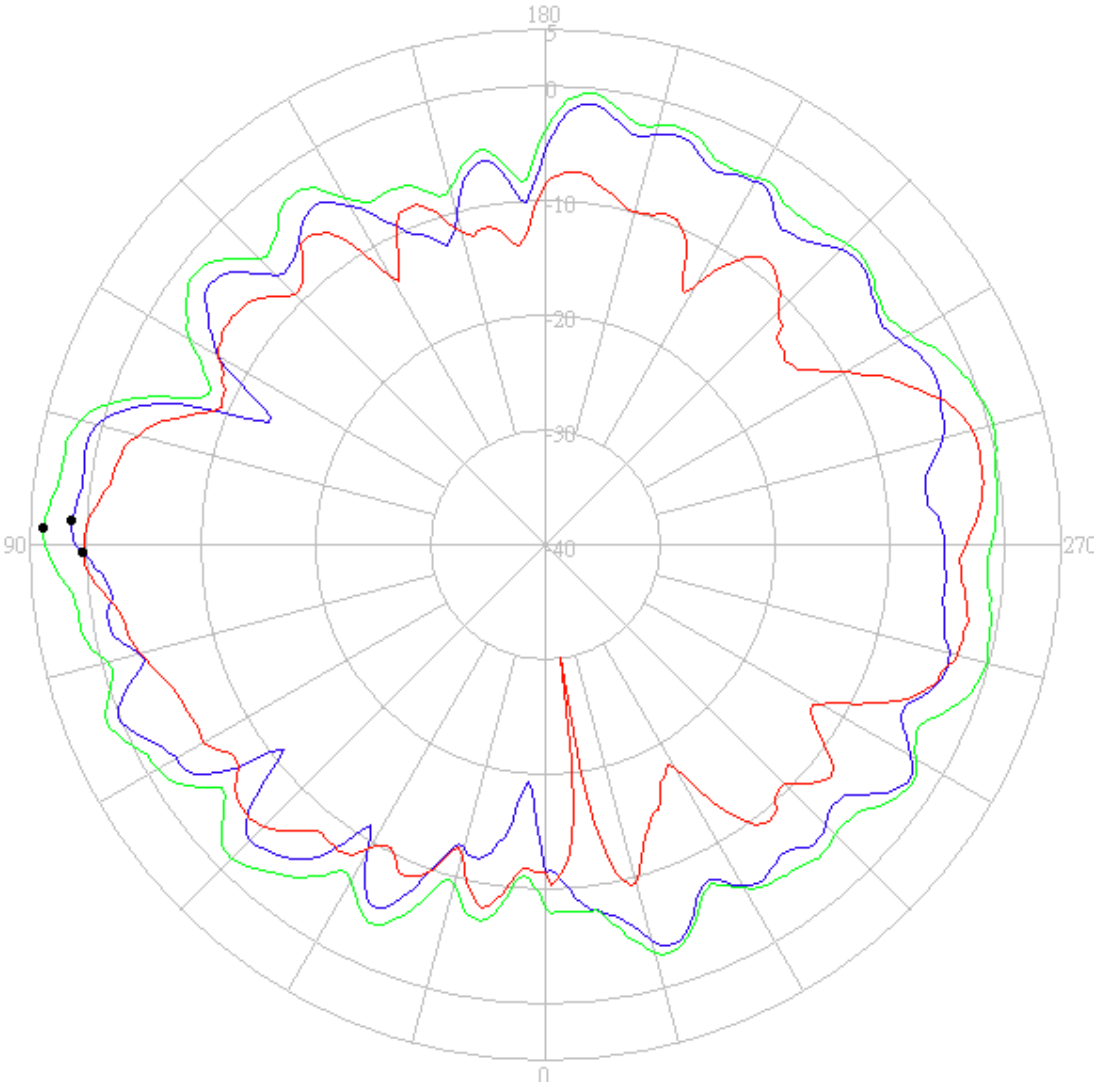
Main antenna: 5350 MHz



Center Frequency	**5350 MHz**
Horizontal (dBi) peak	**-0.94**
Vertical (dBi) peak	**-1.74**
Horz+Vert (dBi) peak	**-0.01**

Horizontal
Vertical
H+V

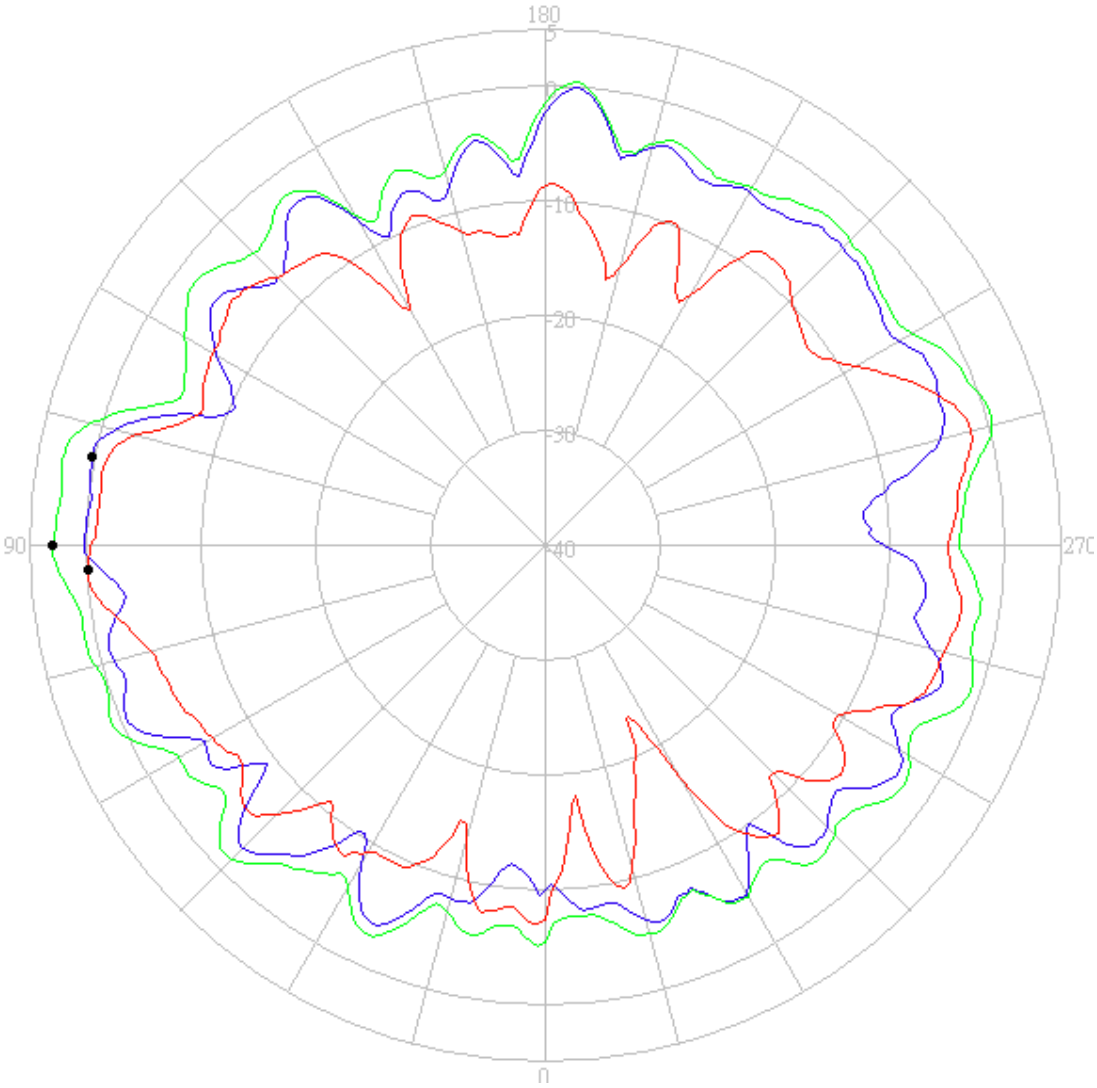
Auxiliary antenna: 5150 MHz



Center Frequency	**5150 MHz**
Horizontal (dBi) peak	**1.37**
Vertical (dBi) peak	**0.40**
Horz+Vert (dBi) peak	**3.81**

Horizontal
Vertical
H+V

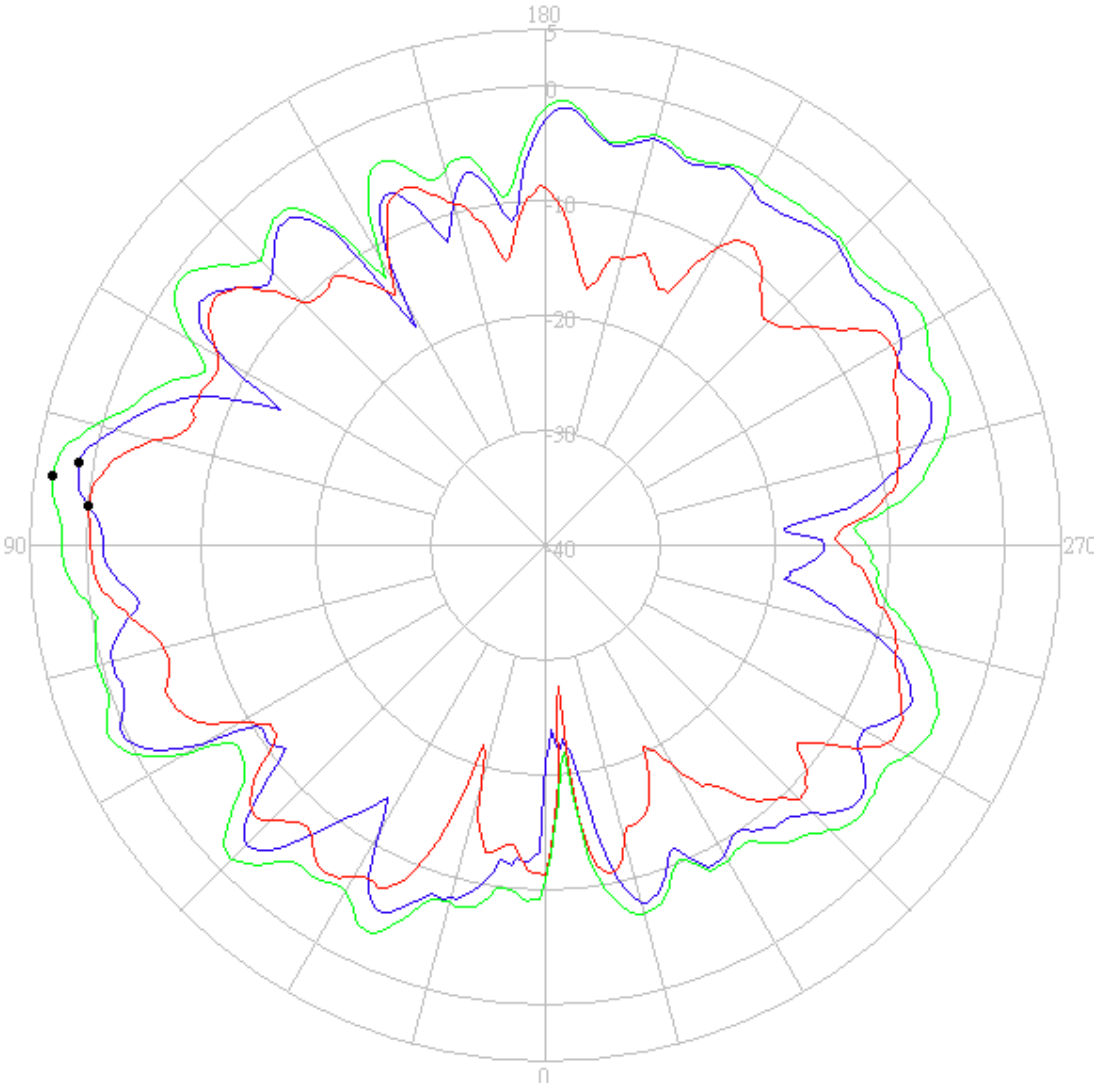
Auxiliary antenna: 5250 MHz



Center Frequency	**5250 MHz**
Horizontal (dBi) peak	**0.32**
Vertical (dBi) peak	**-0.03**
Horz+Vert (dBi) peak	**3.01**

Horizontal
Vertical
H+V

Auxiliary antenna: 5350 MHz

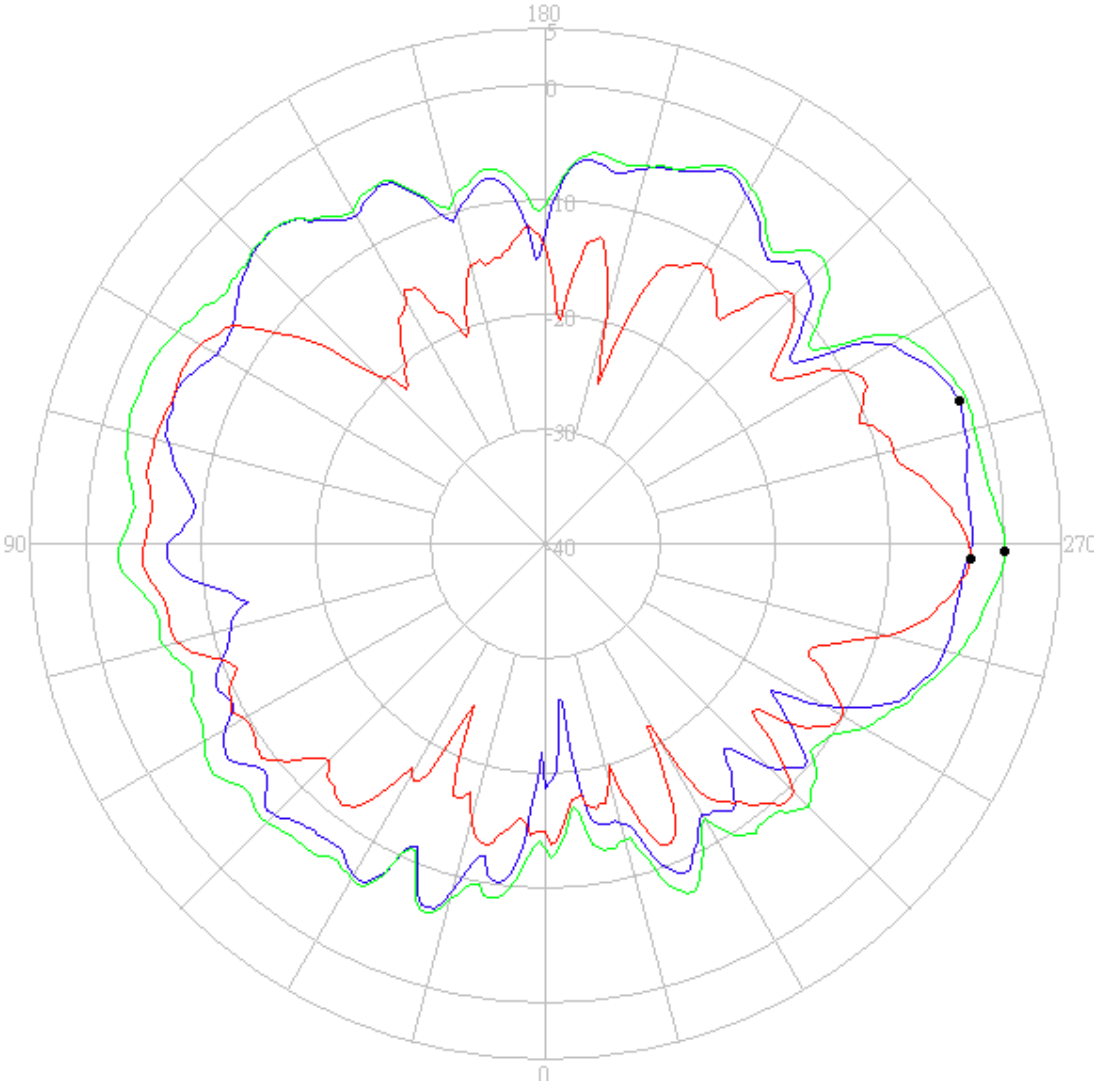


Center Frequency	**5350 MHz**
Horizontal (dBi) peak	**1.32**
Vertical (dBi) peak	**-0.02**
Horz+Vert (dBi) peak	**3.47**

Horizontal
Vertical
H+V

5475-5725MHz radiation characteristic

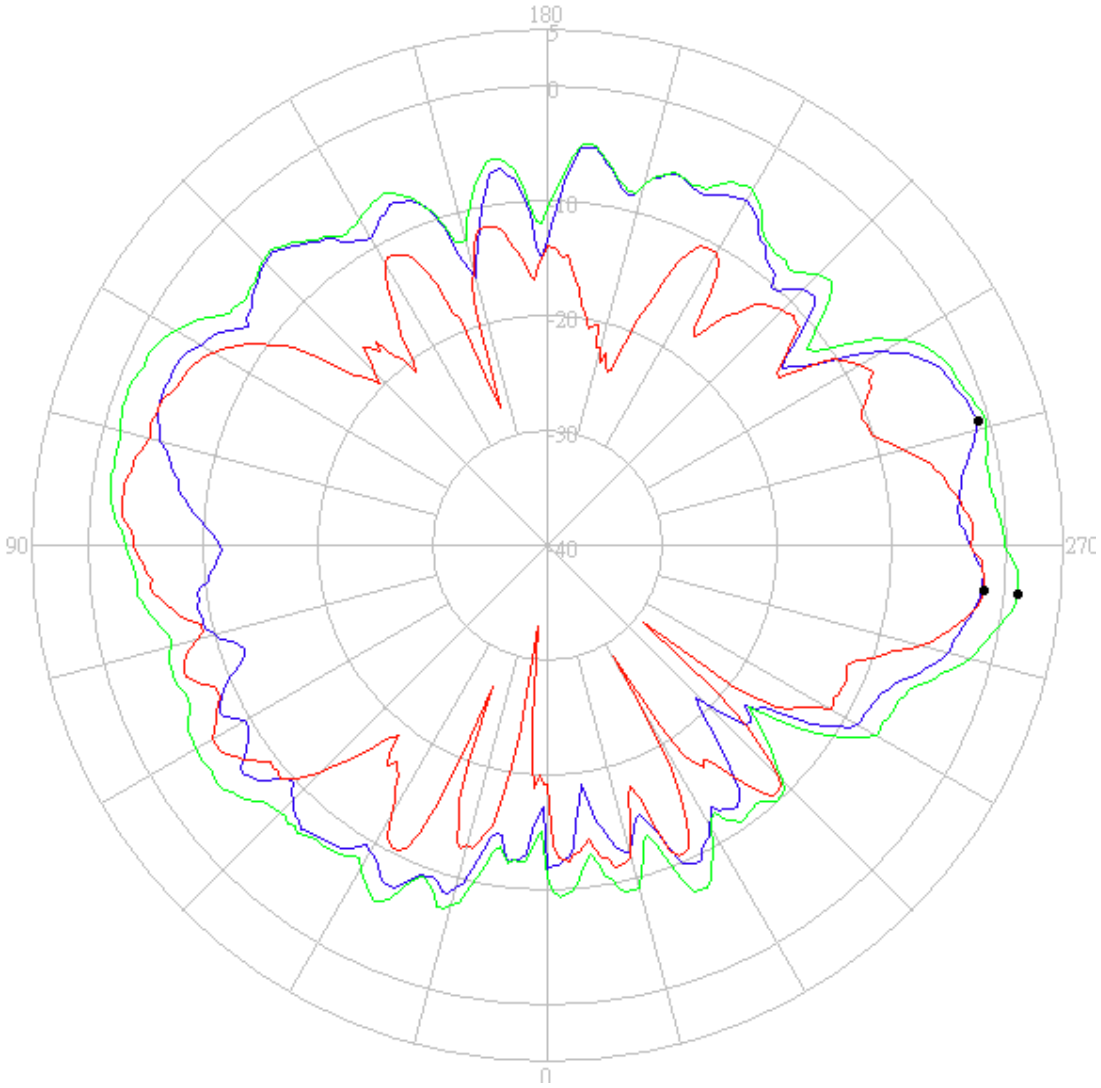
Main antenna: 5475 MHz



Center Frequency	**5475 MHz**
Horizontal (dBi) peak	**-1.75**
Vertical (dBi) peak	**-2.90**
Horz+Vert (dBi) peak	**0.14**

Horizontal
Vertical
H+V

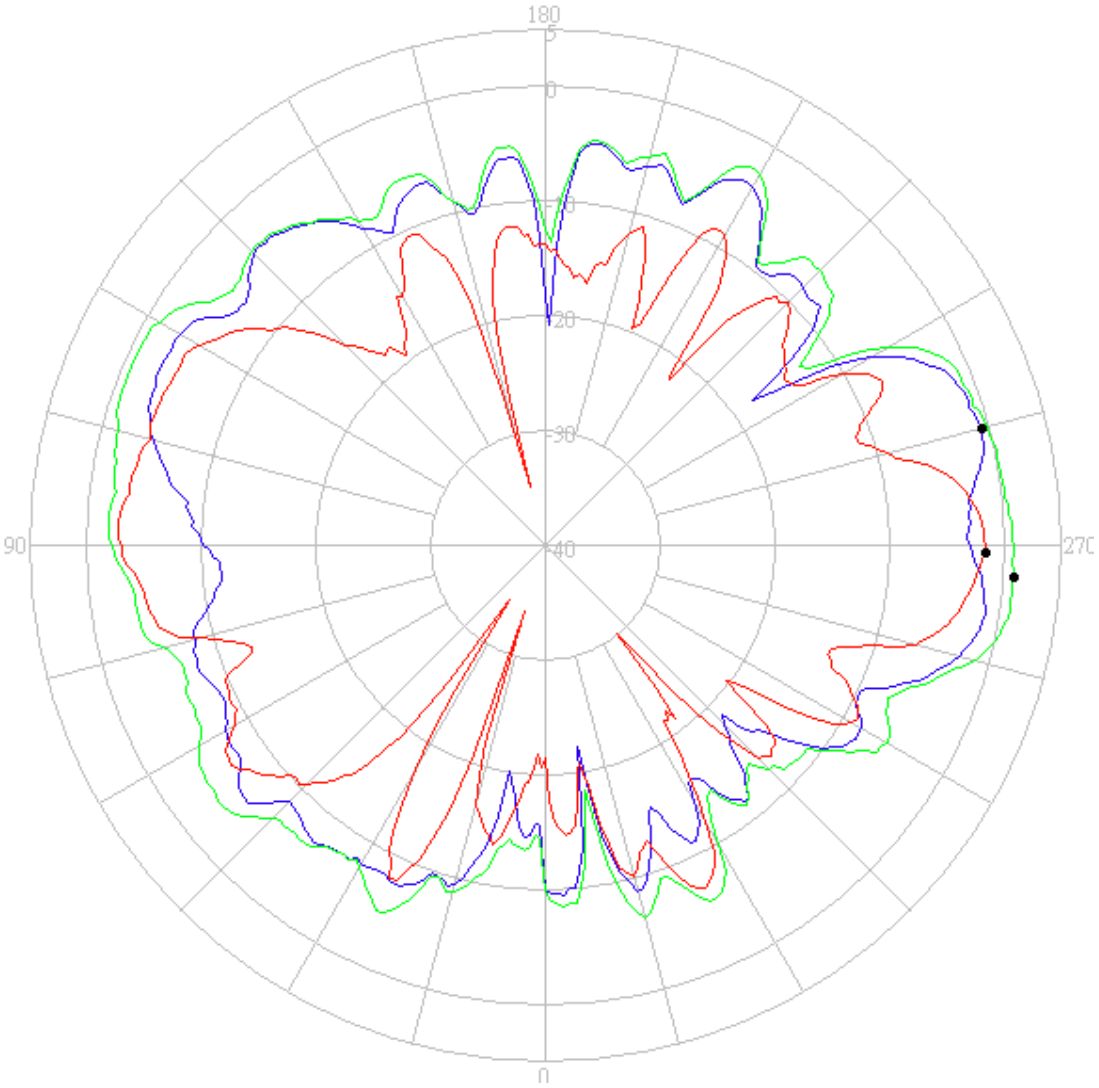
Main antenna: 5600 MHz



Center Frequency	**5600 MHz**
Horizontal (dBi) peak	**-0.95**
Vertical (dBi) peak	**-1.67**
Horz+Vert (dBi) peak	**1.26**

Horizontal
Vertical
H+V

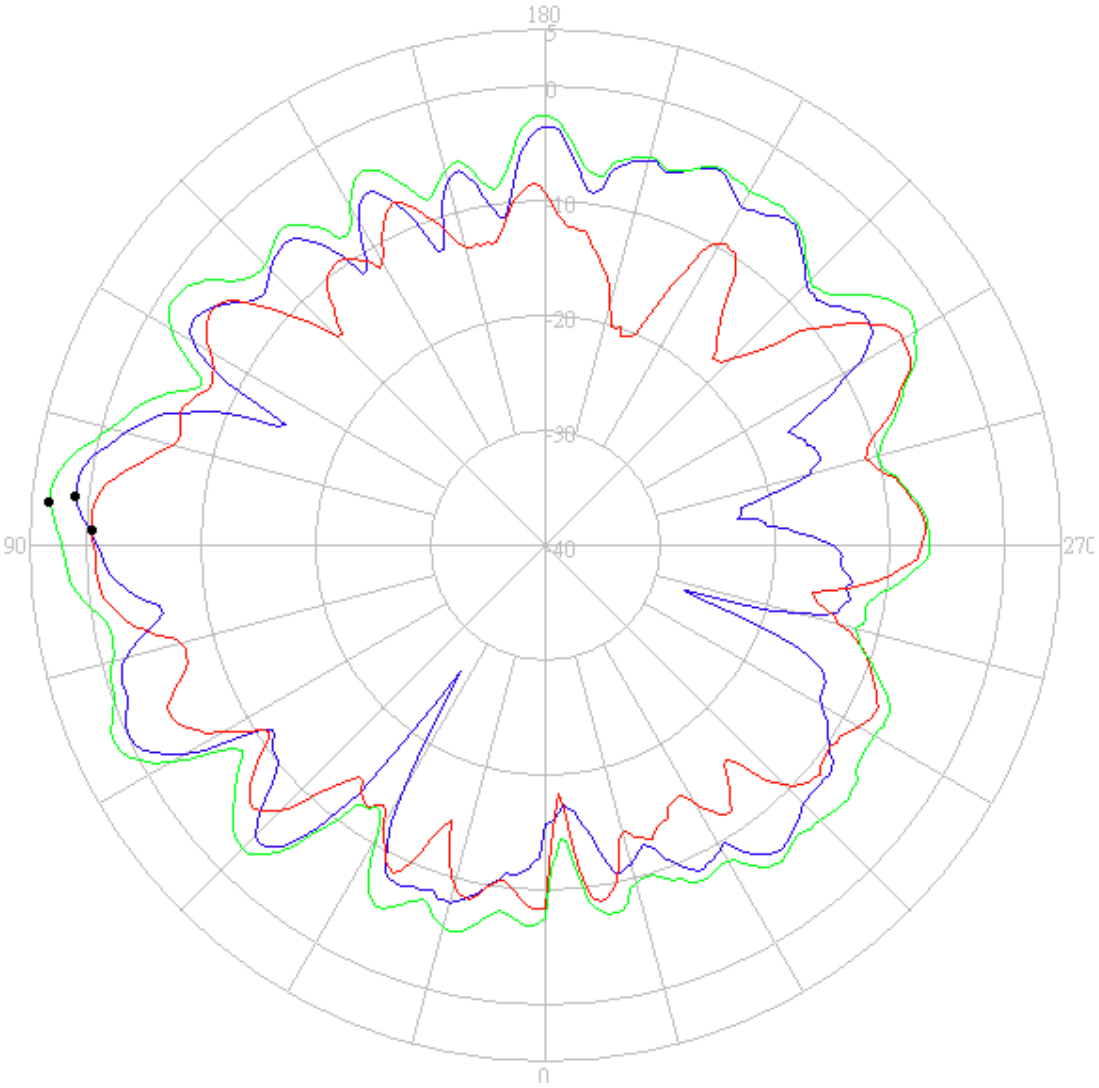
Main antenna: 5725 MHz



Center Frequency	**5725 MHz**
Horizontal (dBi) peak	**-0.62**
Vertical (dBi) peak	**-1.53**
Horz+Vert (dBi) peak	**1.00**

Horizontal
Vertical
H+V

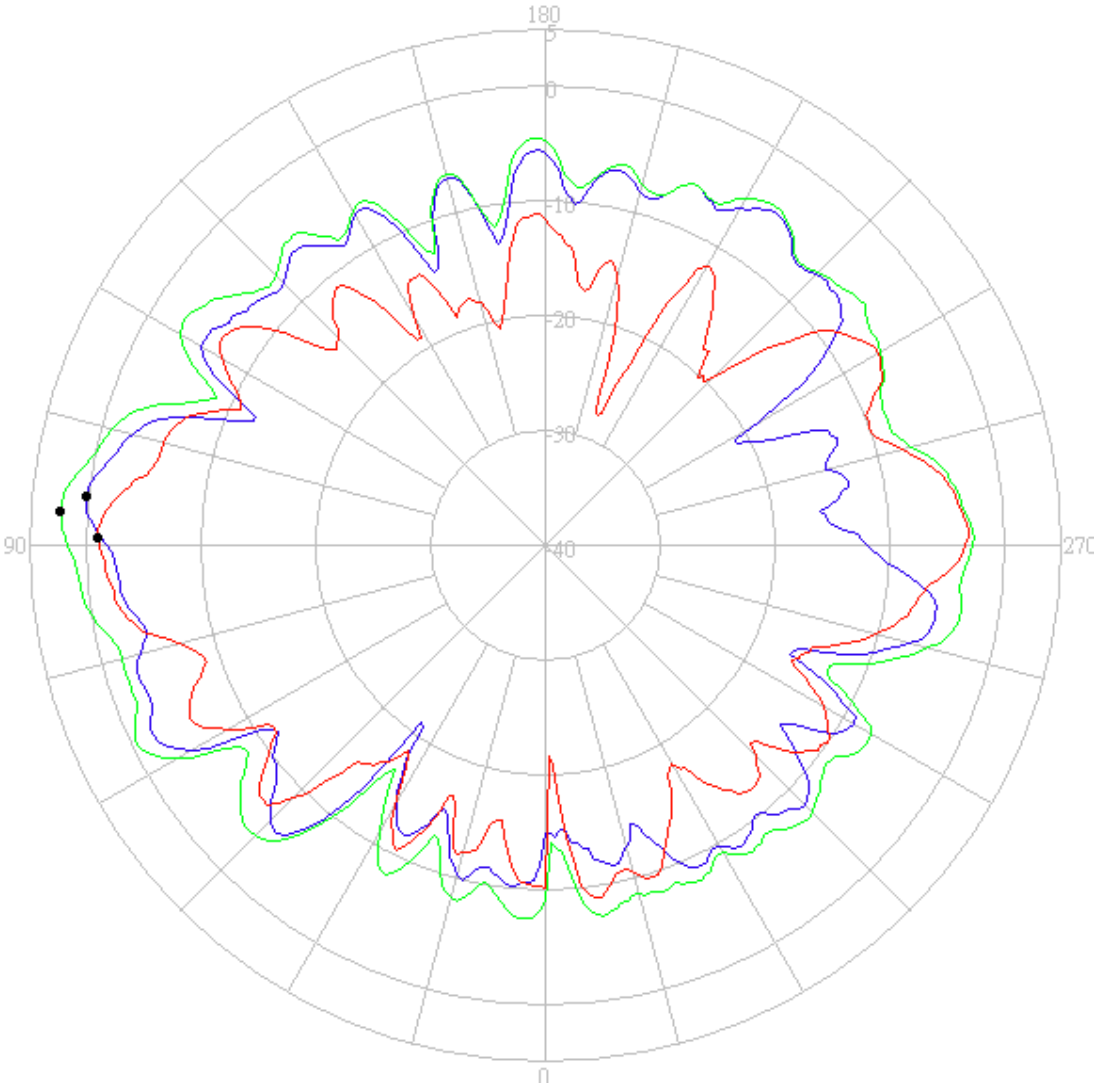
Auxiliary antenna: 5475 MHz



Center Frequency	**5475 MHz**
Horizontal (dBi) peak	**1.30**
Vertical (dBi) peak	**-0.33**
Horz+Vert (dBi) peak	**3.45**

Horizontal
Vertical
H+V

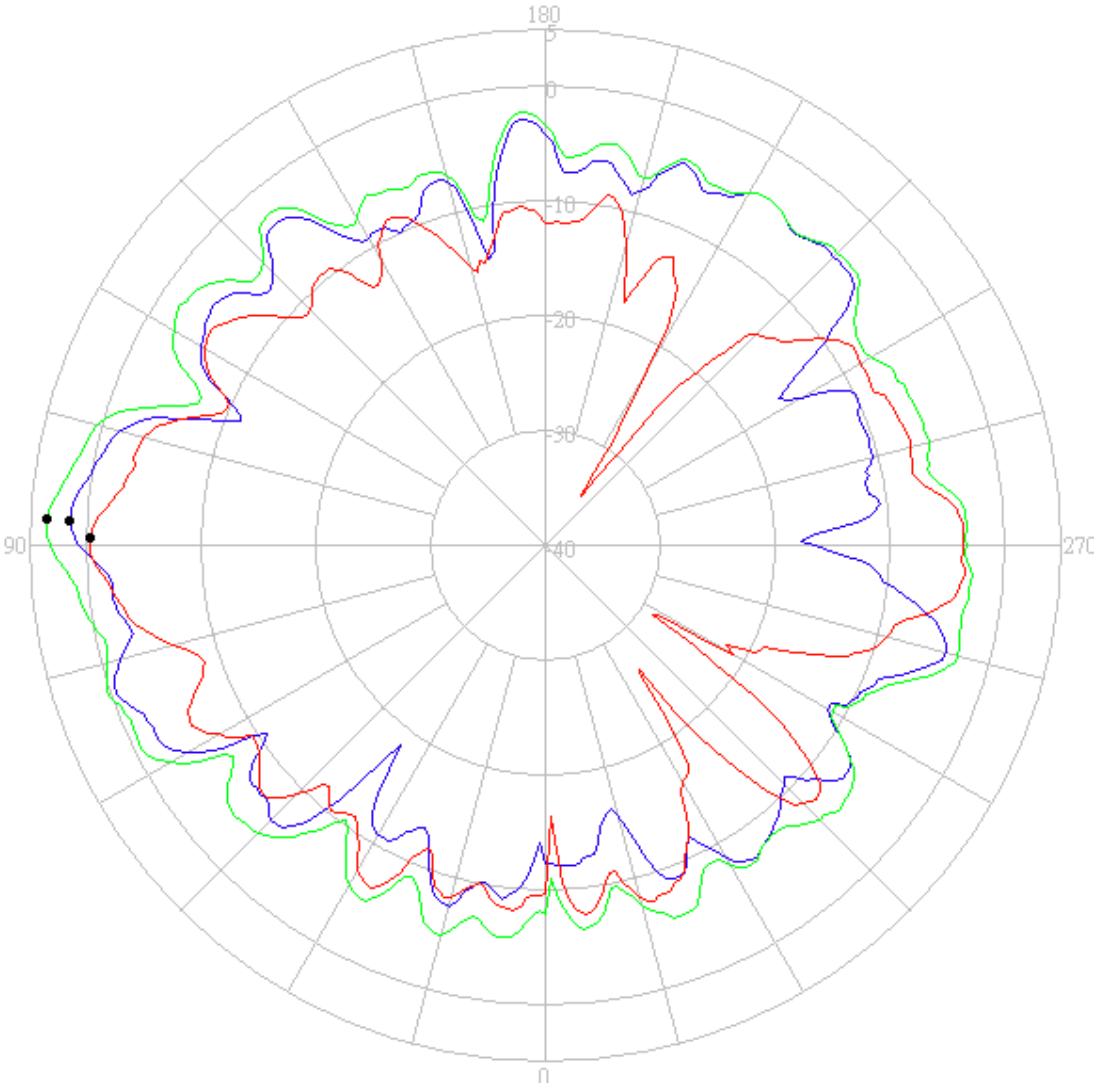
Auxiliary antenna: 5600 MHz



Center Frequency	**5600 MHz**
Horizontal (dBi) peak	**0.22**
Vertical (dBi) peak	**-0.90**
Horz+Vert (dBi) peak	**2.47**

Horizontal
Vertical
H+V

Auxiliary antenna: 5725 MHz

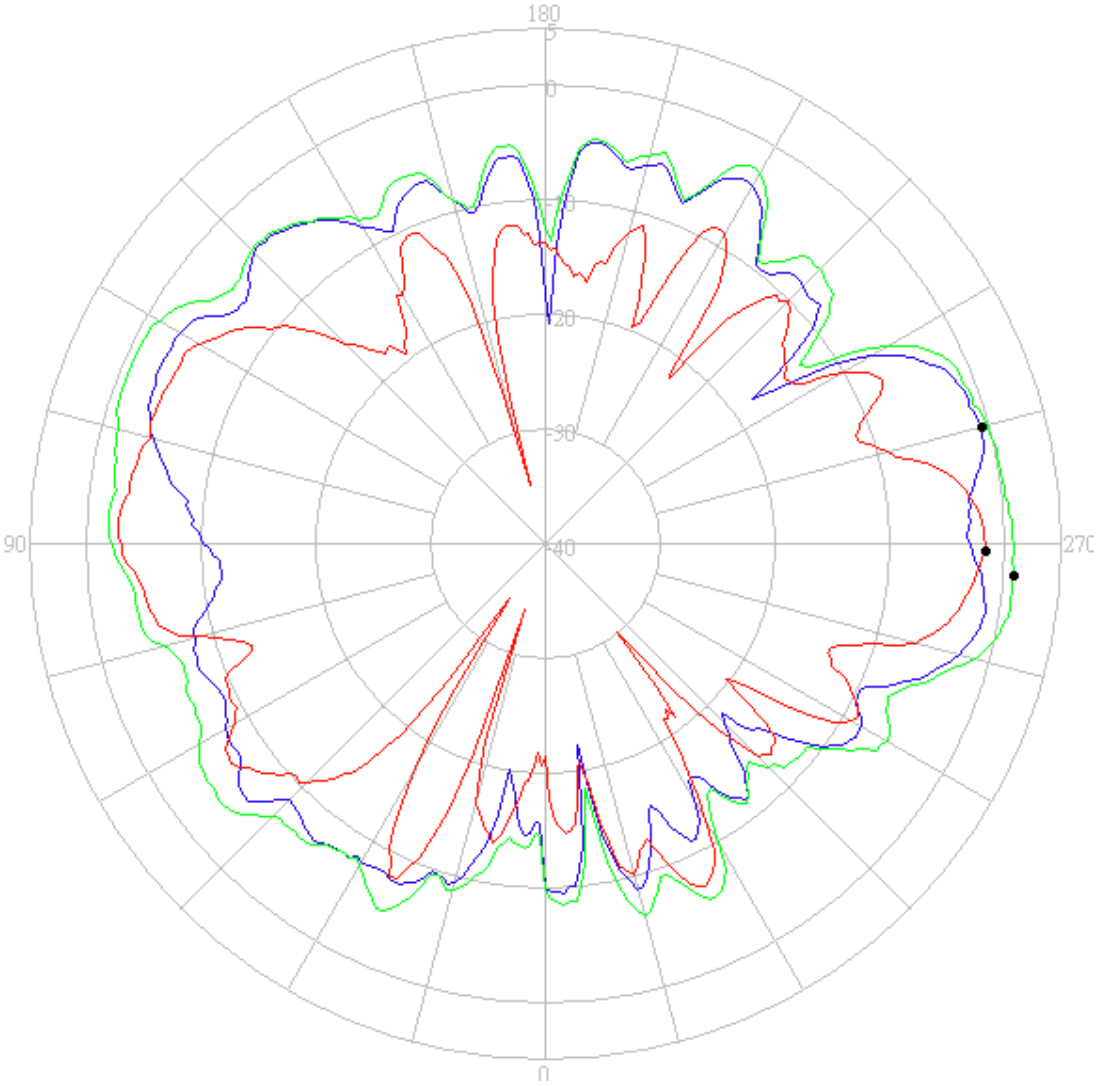


Center Frequency	**5725 MHz**
Horizontal (dBi) peak	**1.61**
Vertical (dBi) peak	**-0.28**
Horz+Vert (dBi) peak	**3.59**

Horizontal
Vertical
H+V

5725-5875 MHz radiation characteristic

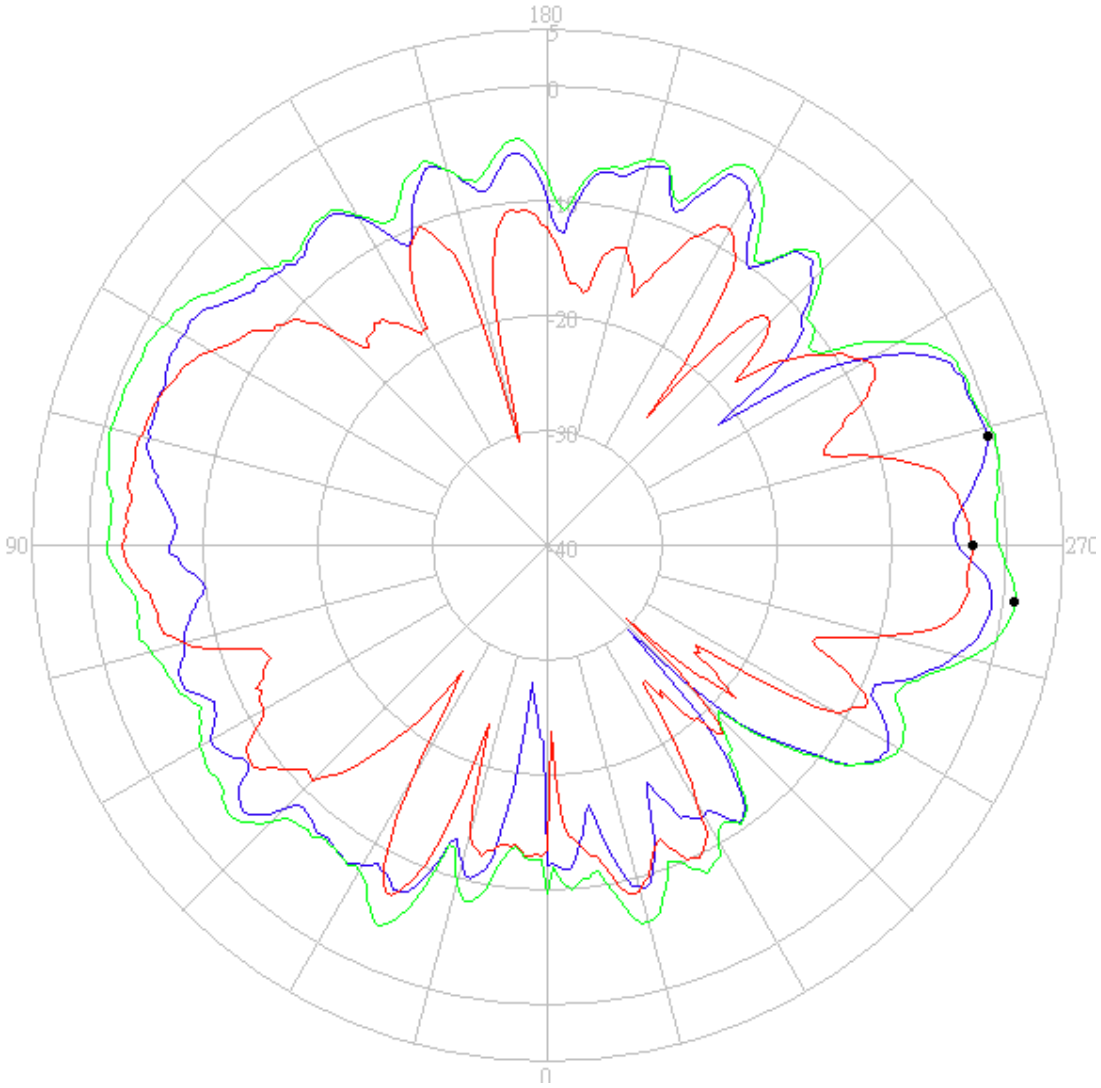
Main antenna: 5725 MHz



Center Frequency	**5725 MHz**
Horizontal (dBi) peak	**-0.62**
Vertical (dBi) peak	**-1.53**
Horz+Vert (dBi) peak	**1.00**

Horizontal
Vertical
H+V

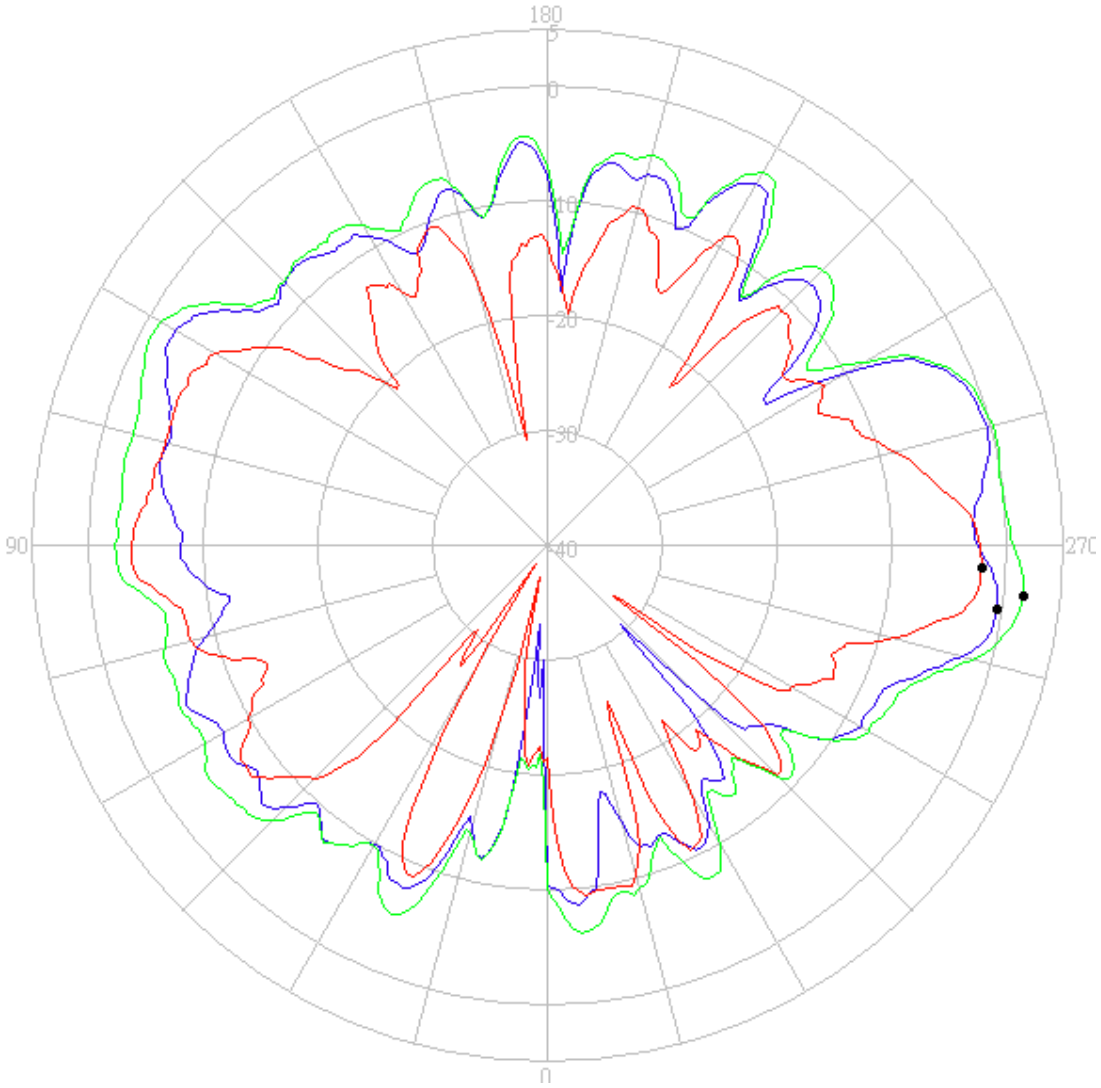
Main antenna: 5800 MHz



Center Frequency	**5800 MHz**
Horizontal (dBi) peak	**-0.35**
Vertical (dBi) peak	**-2.92**
Horz+Vert (dBi) peak	**1.09**

Horizontal
Vertical
H+V

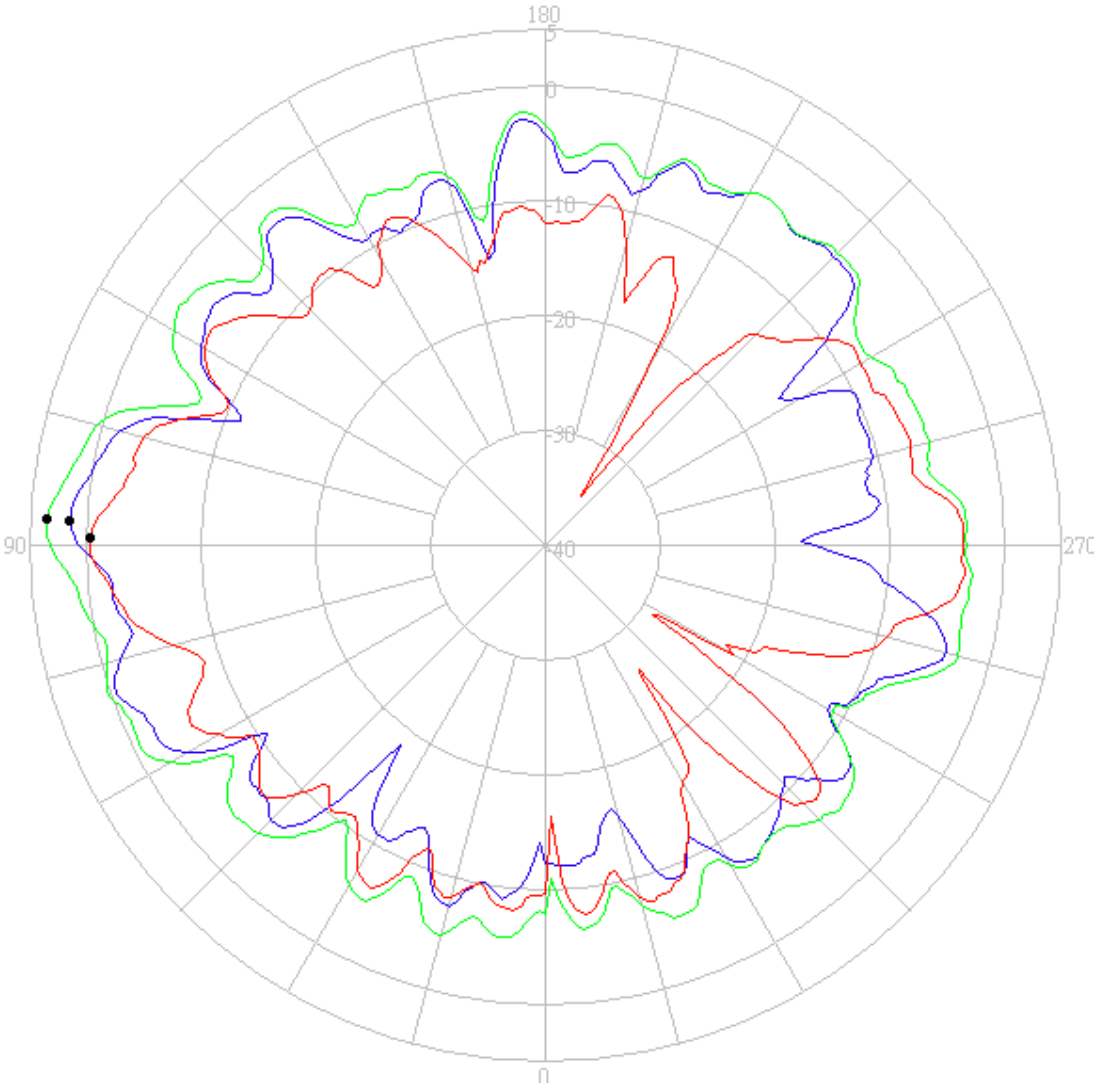
Main antenna: 5875 MHz



Center Frequency	**5875 MHz**
Horizontal (dBi) peak	**-0.28**
Vertical (dBi) peak	**-1.99**
Horz+Vert (dBi) peak	**1.75**

Horizontal
Vertical
H+V

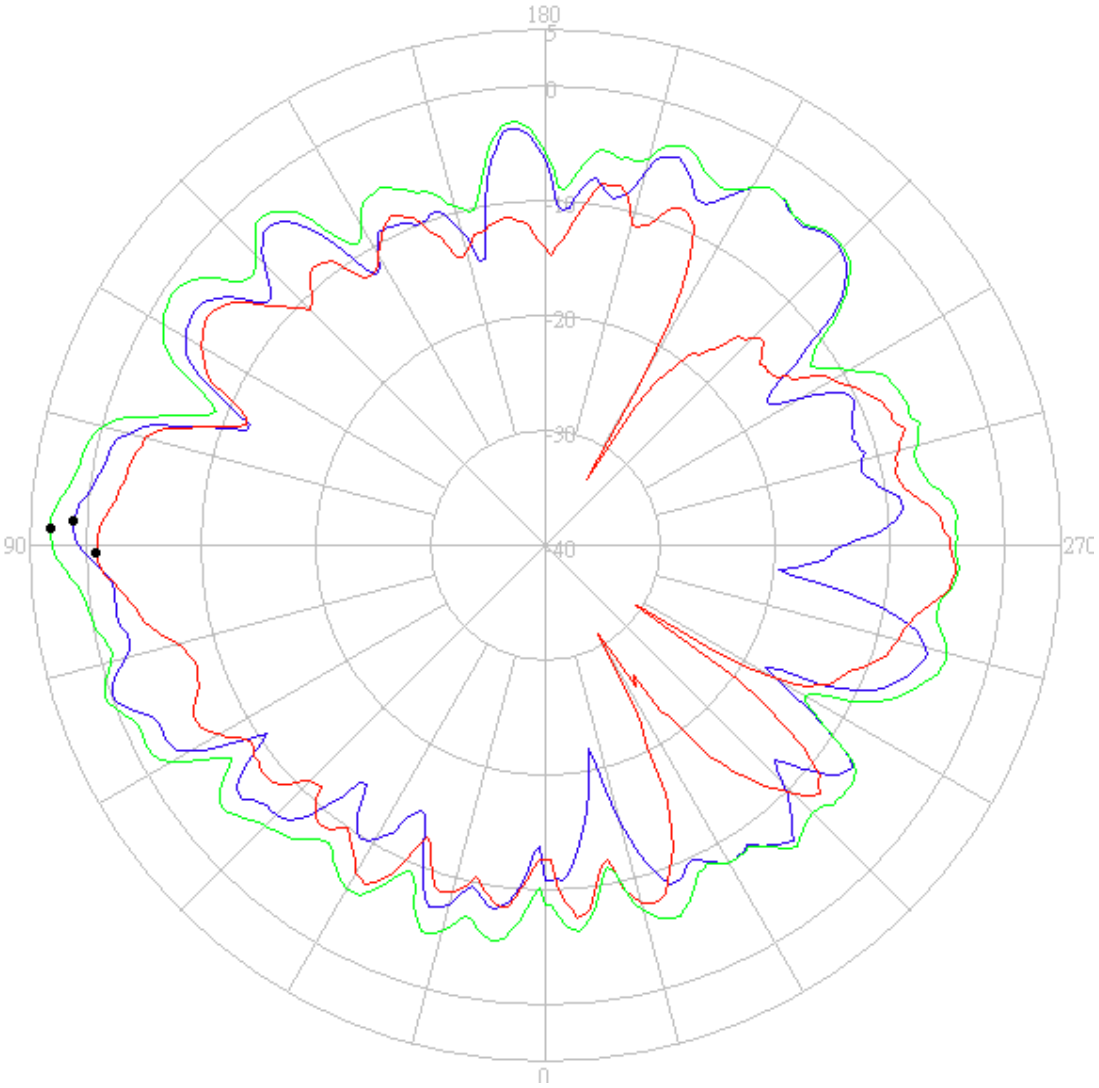
Auxiliary antenna: 5725 MHz



Center Frequency	**5725 MHz**
Horizontal (dBi) peak	**1.61**
Vertical (dBi) peak	**-0.28**
Horz+Vert (dBi) peak	**3.59**

Horizontal
Vertical
H+V

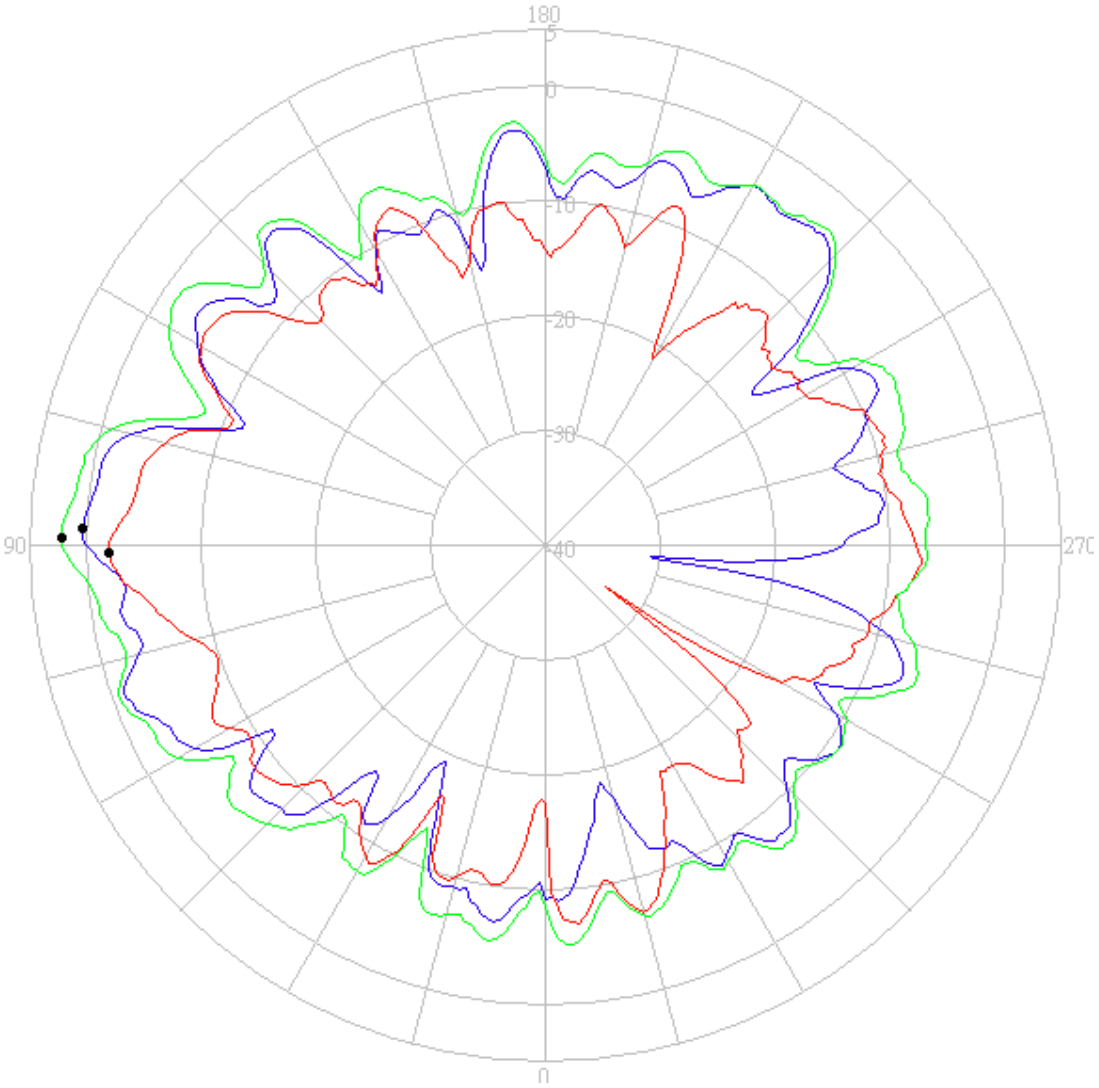
Auxiliary antenna: 5800 MHz



Center Frequency	**5800 MHz**
Horizontal (dBi) peak	**1.29**
Vertical (dBi) peak	**-0.81**
Horz+Vert (dBi) peak	**3.29**

Horizontal
Vertical
H+V

Auxiliary antenna: 5875 MHz



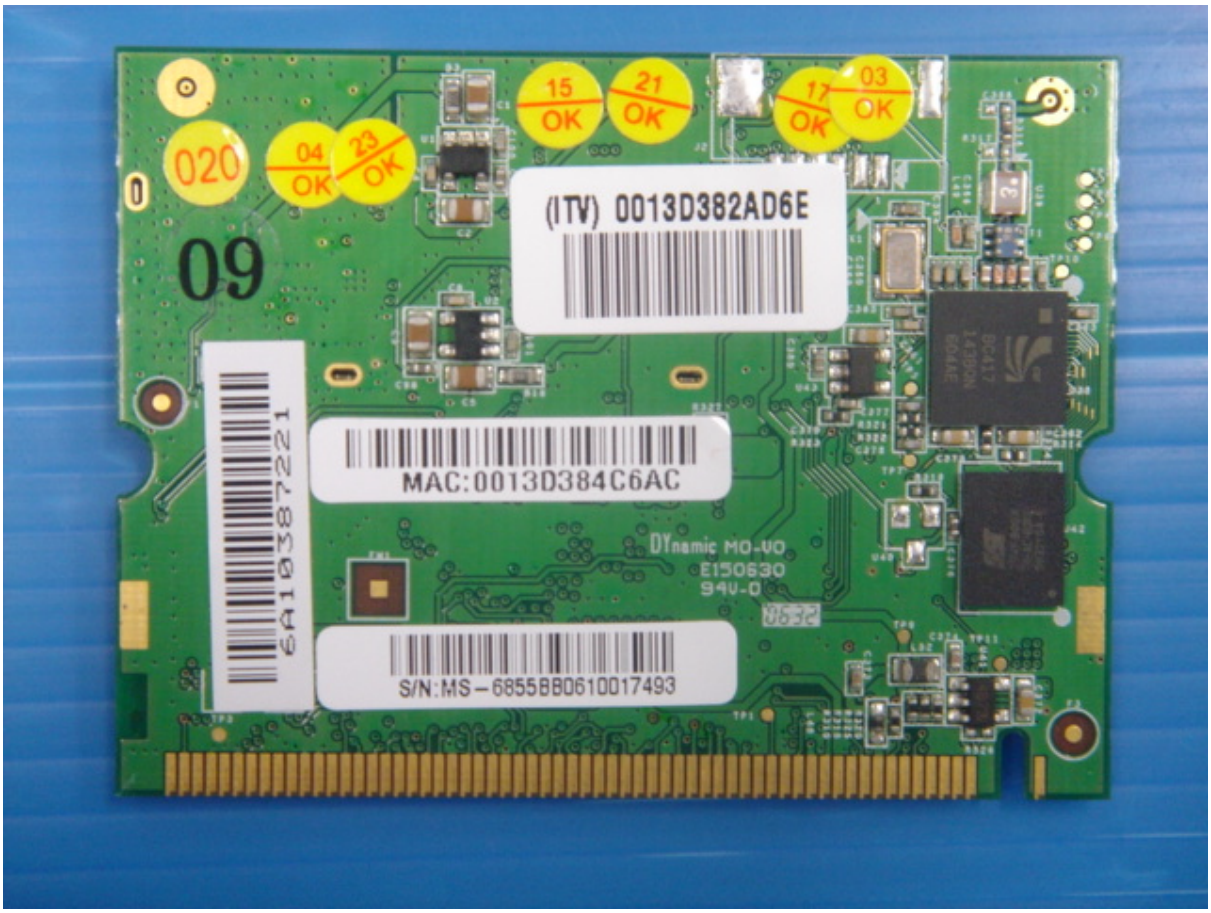
Center Frequency	**5875 MHz**
Horizontal (dBi) peak	**0.45**
Vertical (dBi) peak	**-1.87**
Horz+Vert (dBi) peak	**2.29**

Horizontal
Vertical
H+V

Section 4. Host Platform Information

OEM / ODM Host platform: MSI MS1311 platform correlated to antenna data

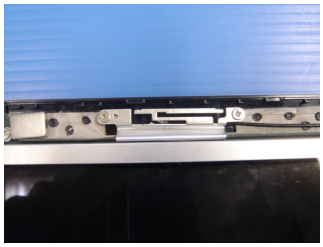
Rating Label Photo:

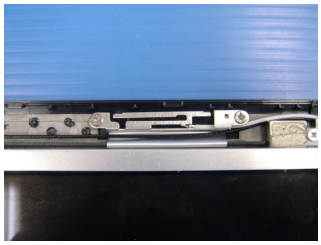


Module Location Photo: (if Singapore required)

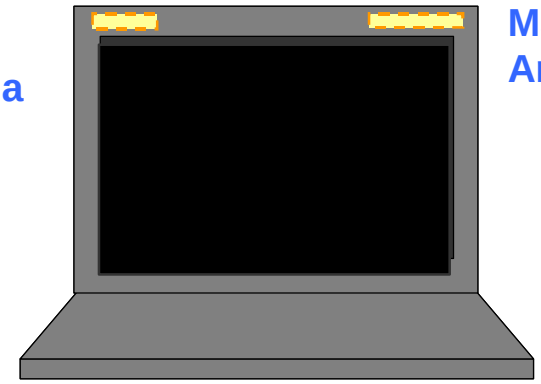
Section 5. Antenna Host Platform Location Information

Include a **dimensioned photo or dimensioned drawing** of main and auxiliary antenna placements.





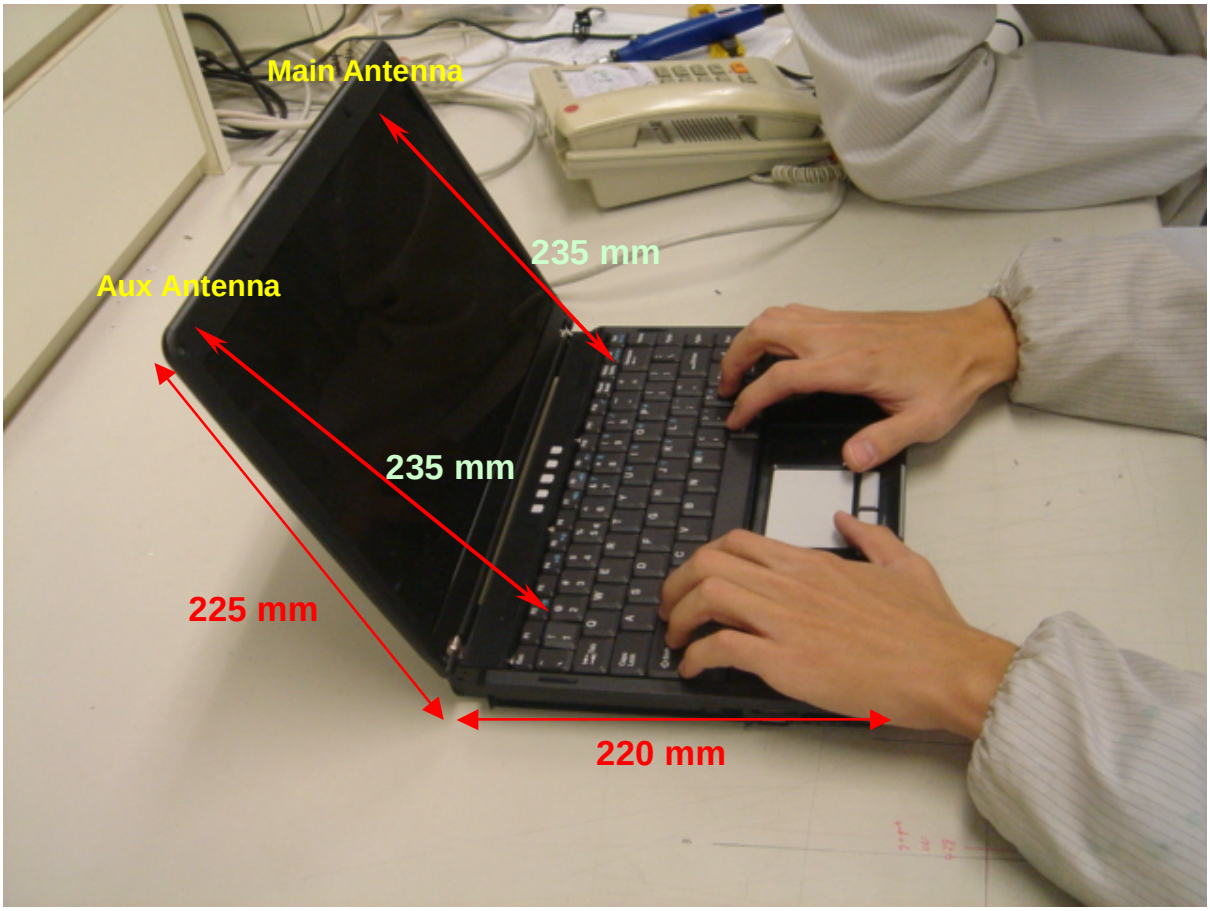
Aux Antenna



Main Antenna

Section 6. Antenna dimensional information for SAR evaluation

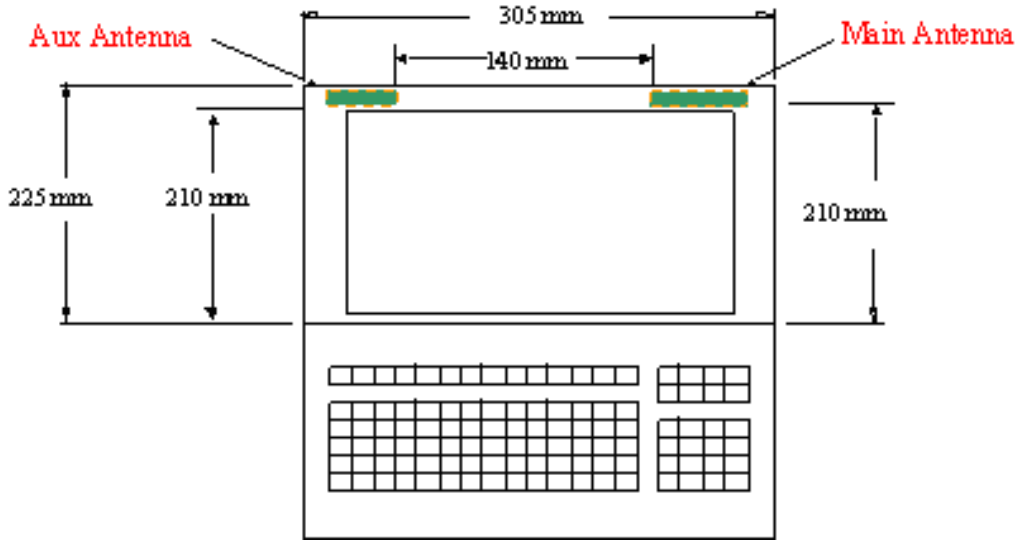
Include a **dimensioned photo or dimensioned drawing** showing the distance (mm) between the transmit (main) antenna and the user (excluding hands, wrist, feet, and ankle)



Section 7. Diagram Example of Co-Location Antenna Separation

Include a **dimensioned photo or dimensioned drawing** showing the distance (mm) between WLAN antenna and 2nd radiator transmit antenna.

(Note: Due to the evolving rules regarding co-location, each platform will need to be reviewed on a case by case basis)



Section 8. Local representative contact information

Local representative contact information is required for regulatory support for target countries below.

	Local company name	Contact name	Phone number	FAX Number	e-Mail Address	Notes
Argentina						
Brazil						
Indonesia						
Israel						
Malaysia						
Mexico						
Singapore						Telecommunication Equipment Dealer License Required
USA, Canada						