JET Topaz Project

Regulatory WLAN Antenna Information

Quanta NB3

Antenna Sample / Antenna Data
Requirements for worldwide regulatory approval

Section	Description of Required OEM / ODM Antenna Information	US / IC	EU	Japan	Taiwan	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 or 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.	Required	Required	Desired	Required	Desired
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

Antenna Information Example

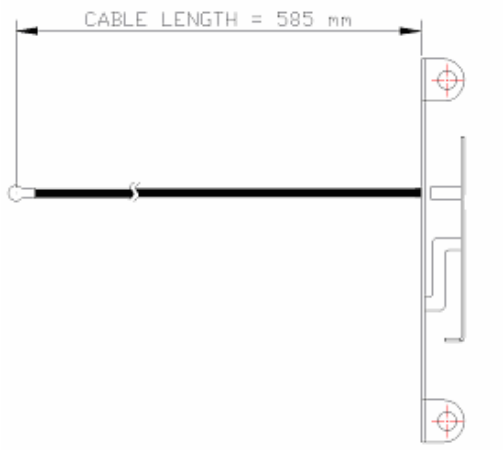
Section 1. Antenna Assembly Specifications

Antenna Assembly Summary:

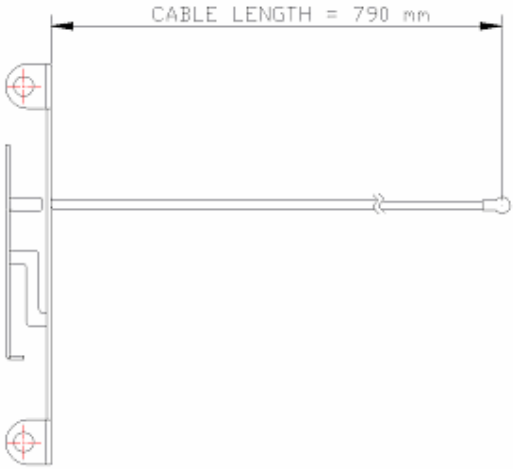
1A Antenna Part Number	1B Manufacture	1C Antenna Type	1D Cable Assembly Part Number and Information	1E Peak Gain W/ Cable loss (dBi)	1F Peak Gain w/o Cable Loss (dBi)	1G VSWR	1H Cable Loss (dBi)
Quanta P/N: DQ652003007 Main antenna	Whayu P/N: C680-520030-A	PIFA	(P/N:FWS5030) 50 ohm Coaxial. length: 58.5cm diameter: 1.13mm Connector: U.F.L-LP-066	2400-2500MHz 1.65dBi (peak)	2400-2500MHz 3.538dBi (peak)	2400-2500MHz 2.0 max	2400-2500MHz 1.888dBi (peak)
				5150-5350MHz 0.79dBi (peak)	5150-5350MHz 3.622dBi (peak)	5150-5350MHz 2.0 max	5150-5350MHz 2.832dBi (peak)
				5470-5725MHz 0.86dBi (peak)	5470-5725MHz 3.810dBi (peak)	5470-5725MHz 2.0 max	5470-5725MHz 2.950dBi (peak)
				5725-5850MHz 0.98dBi (peak)	5725-5850MHz 4.107dBi (peak)	5725-5850MHz 2.0 max	5725-5850MHz 3.127dBi (peak)
Quanta P/N: DQ652003007 Auxiliary antenna	Whayu P/N: C680-520030-A	PIFA	(P/N:FWS5030) 50 ohm Coaxial. length: 79cm diameter: 1.13mm Connector: U.F.L-LP-066	2400-2500MHz 1.30dBi (peak)	2400-2500MHz 3.844dBi (peak)	2400-2500MHz 2.0 max	2400-2500MHz 2.544dBi (peak)
				5150-5350MHz -0.19dBi (peak)	5150-5350MHz 3.626dBi (peak)	5150-5350MHz 2.0 max	5150-5350MHz 3.816dBi (peak)
				5470-5725MHz 0.87dBi (peak)	5470-5725MHz 4.845dBi (peak)	5470-5725MHz 2.0 max	5470-5725MHz 3.975dBi (peak)
				5725-5850MHz 0.72dBi (peak)	5725-5850MHz 4.934dBi (peak)	5725-5850MHz 2.0 max	5725-5850MHz 4.214dBi (peak)

Section 2. Dimensioned Photos or Drawings of Antennas

The dimensioned drawing of main antenna here.



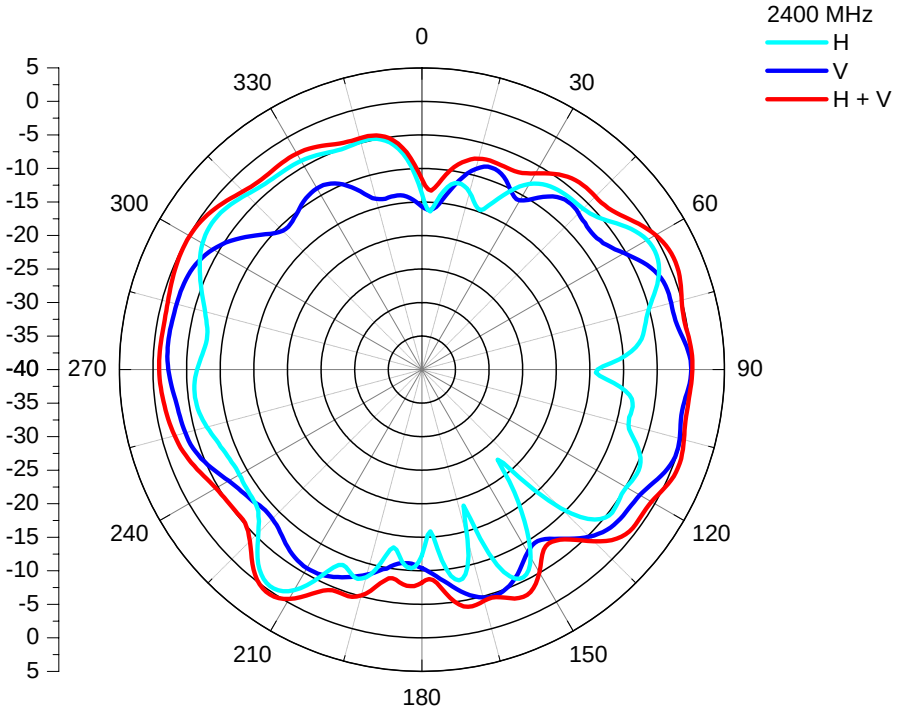
The dimensioned drawing of aux antenna here.



Section 3. Radiation characteristics of antennae Loaded in Host Platform

2400-2500MHz radiation characteristic

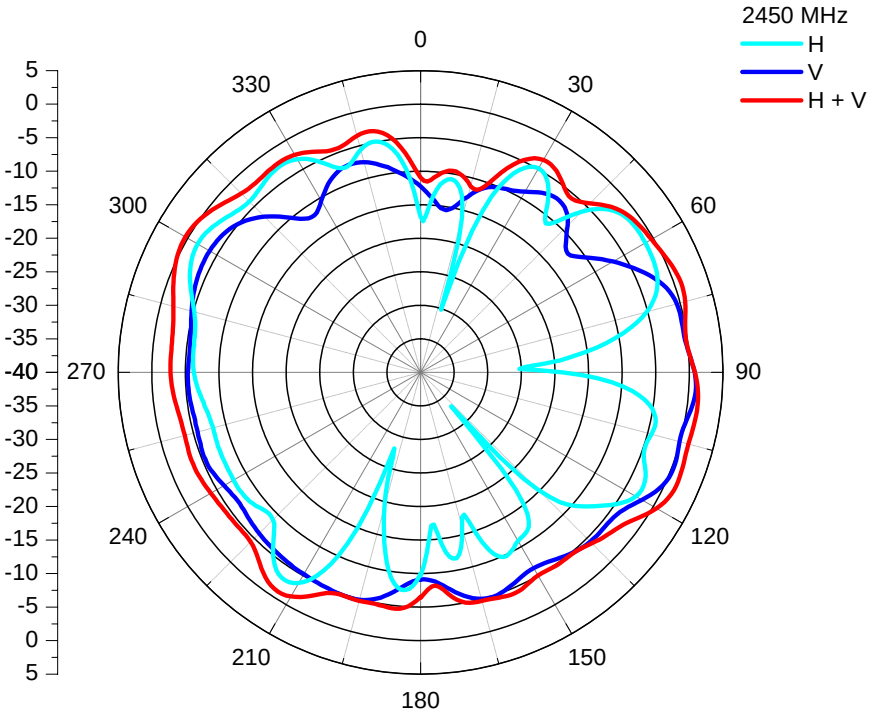
Main antenna: 2400 MHz



Center Frequency	**2400 MHz**
Horizontal (dBi) peak	**-0.60**
Vertical (dBi) peak	**0.06**
Horz+Vert (dBi) peak	**1.00**

Center Frequency	**2400 MHz**
Horizontal (dBi) average	**-5.86**
Vertical (dBi) average	**-4.87**
Horz+Vert (dBi) average	**-2.33**

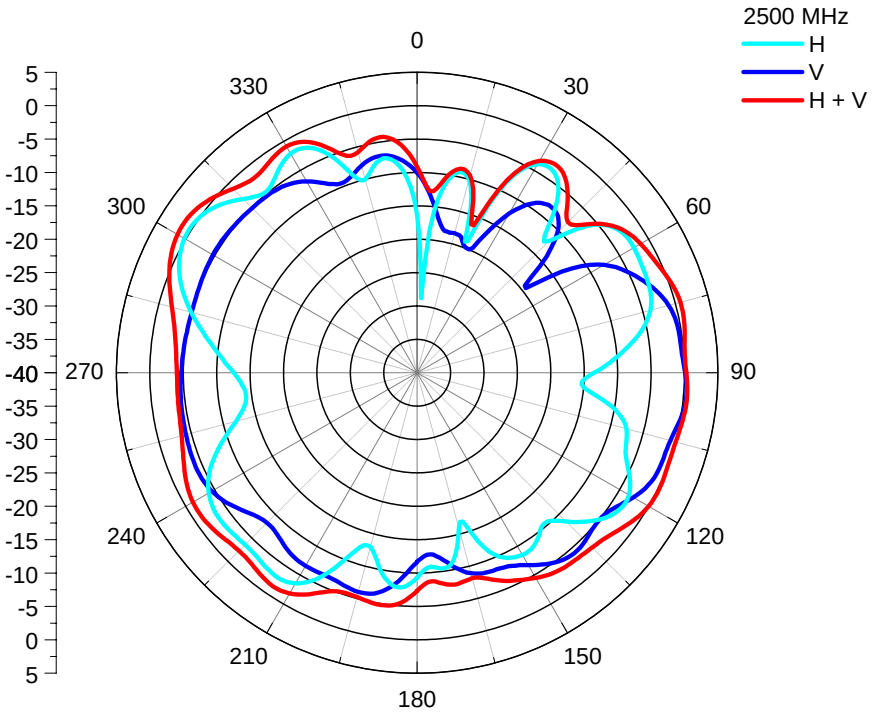
Main antenna: 2450 MHz



Center Frequency	**2450 MHz**
Horizontal (dBi) peak	**-1.33**
Vertical (dBi) peak	**1.06**
Horz+Vert (dBi) peak	**1.65**

Center Frequency	**2450 MHz**
Horizontal (dBi) average	**-6.04**
Vertical (dBi) average	**-4.67**
Horz+Vert (dBi) average	**-2.29**

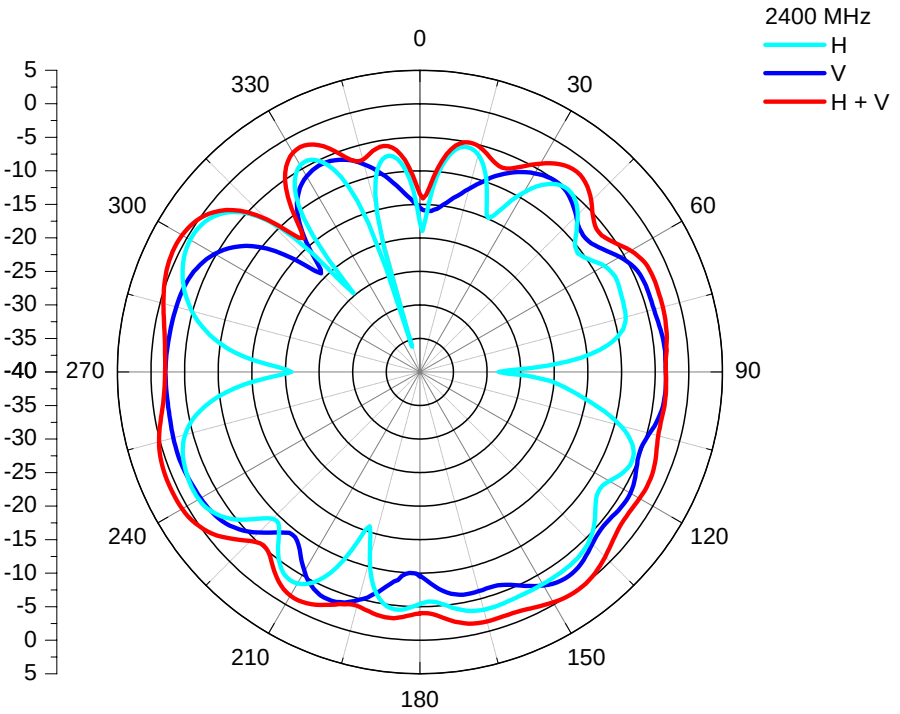
Main antenna: 2500 MHz



Center Frequency	**2500 MHz**
Horizontal (dBi) peak	**0.30**
Vertical (dBi) peak	**0.42**
Horz+Vert (dBi) peak	**1.49**

Center Frequency	**2500 MHz**
Horizontal (dBi) average	**-5.61**
Vertical (dBi) average	**-5.11**
Horz+Vert (dBi) average	**-2.34**

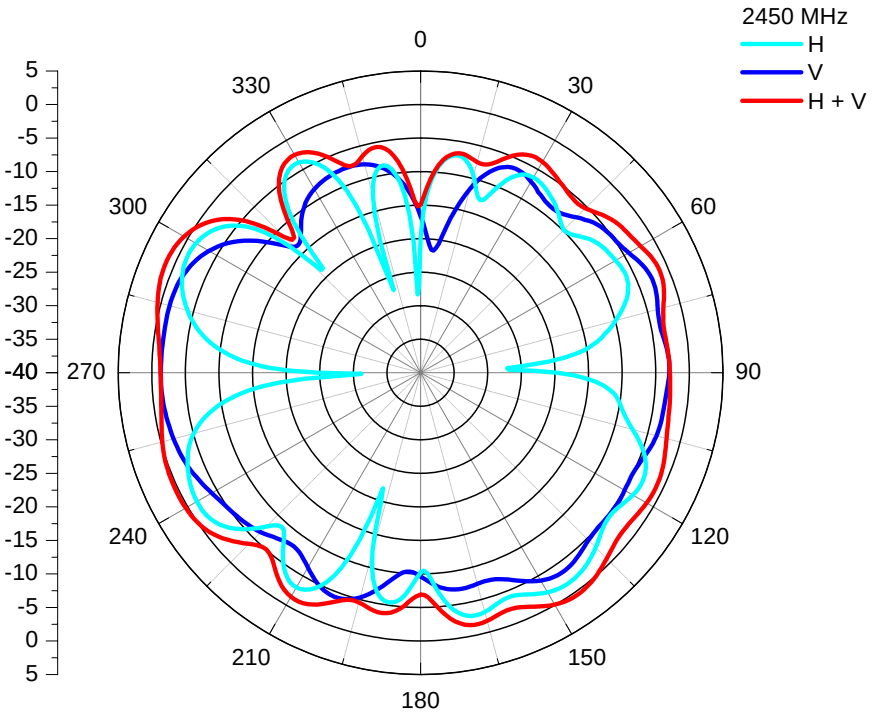
Auxiliary antenna: 2400 MHz



Center Frequency	**2400 MHz**
Horizontal (dBi) peak	**-0.55**
Vertical (dBi) peak	**-1.94**
Horz+Vert (dBi) peak	**0.95**

Center Frequency	**2400 MHz**
Horizontal (dBi) average	**-5.87**
Vertical (dBi) average	**-4.95**
Horz+Vert (dBi) average	**-2.37**

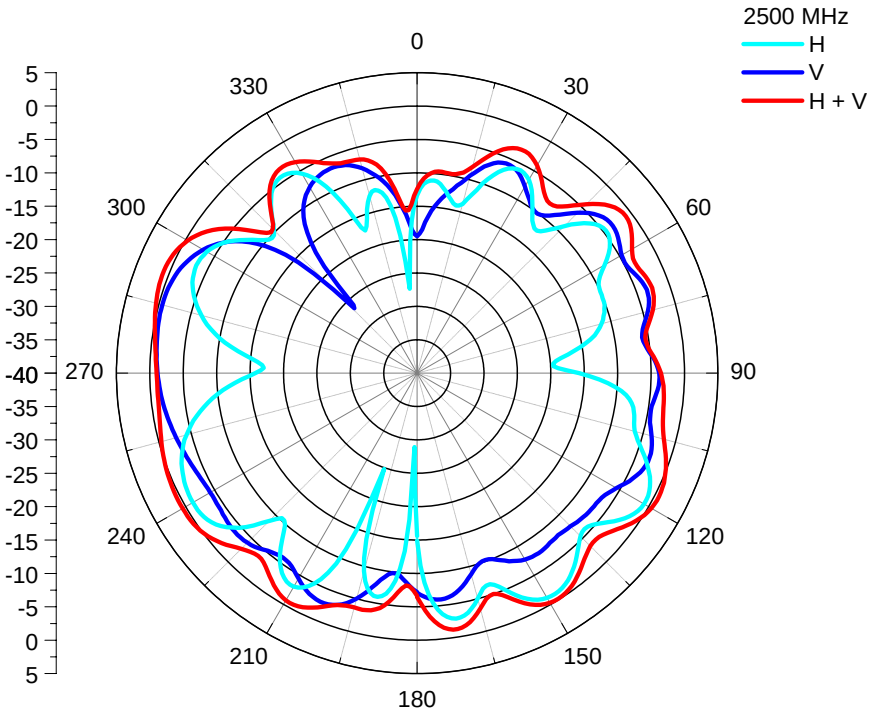
Auxiliary antenna: 2450 MHz



Center Frequency	**2450 MHz**
Horizontal (dBi) peak	**-1.19**
Vertical (dBi) peak	**-1.32**
Horz+Vert (dBi) peak	**1.30**

Center Frequency	**2450 MHz**
Horizontal (dBi) average	**-5.65**
Vertical (dBi) average	**-4.97**
Horz+Vert (dBi) average	**-2.29**

Auxiliary antenna: 2500 MHz

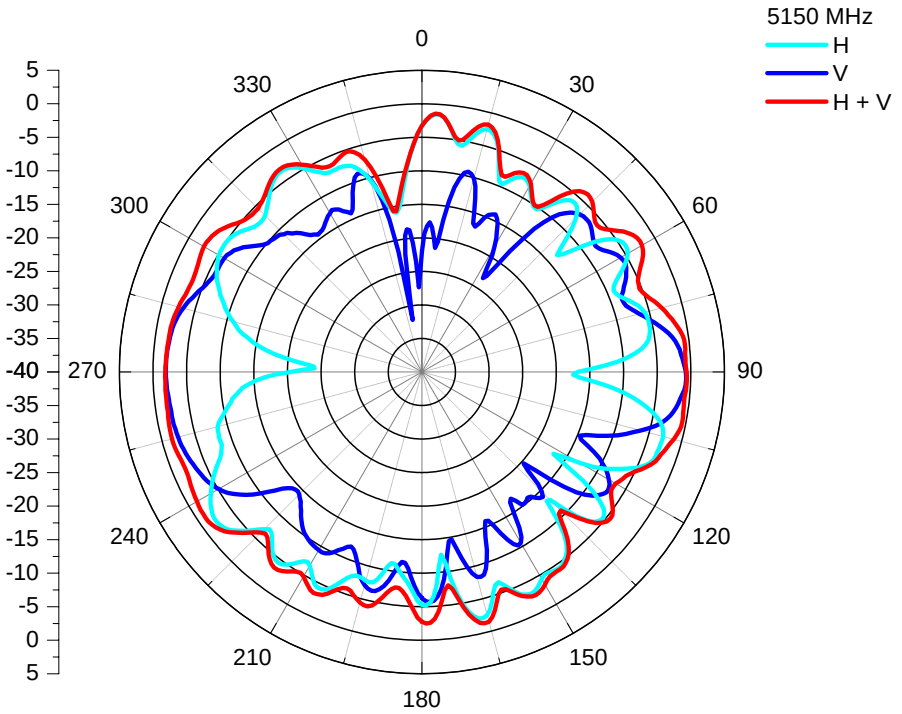


Center Frequency	**2500 MHz**
Horizontal (dBi) peak	**-0.79**
Vertical (dBi) peak	**-0.51**
Horz+Vert (dBi) peak	**0.87**

Center Frequency	**2500 MHz**
Horizontal (dBi) average	**-5.85**
Vertical (dBi) average	**-5.02**
Horz+Vert (dBi) average	**-2.40**

5150-5350 MHz radiation characteristic

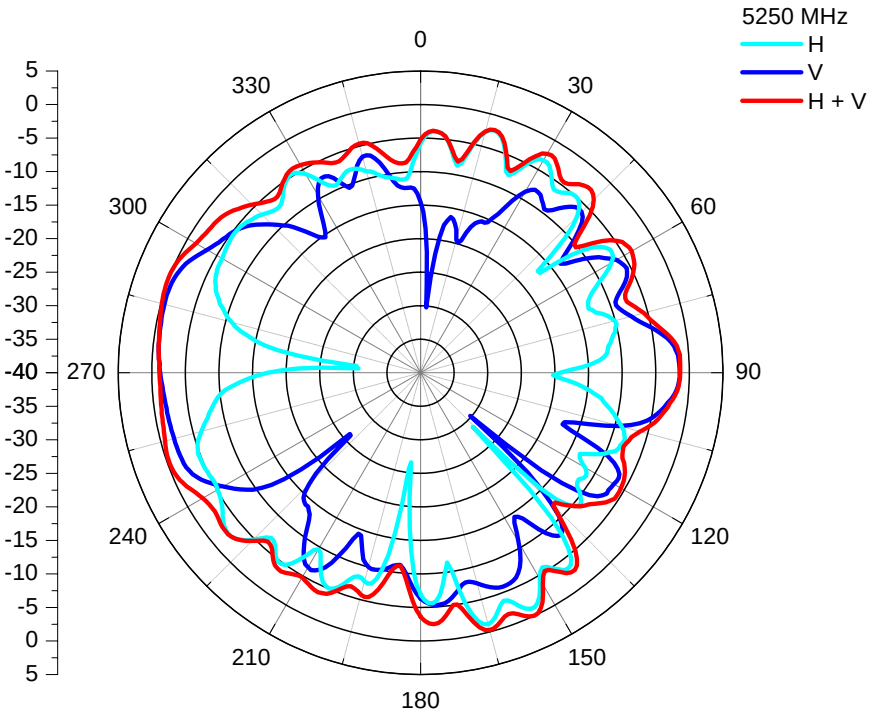
Main antenna: 5150 MHz



Center Frequency	**5150 MHz**
Horizontal (dBi) peak	**-1.51**
Vertical (dBi) peak	**-0.68**
Horz+Vert (dBi) peak	**-0.57**

Center Frequency	**5150 MHz**
Horizontal (dBi) average	**-6.25**
Vertical (dBi) average	**-6.88**
Horz+Vert (dBi) average	**-3.54**

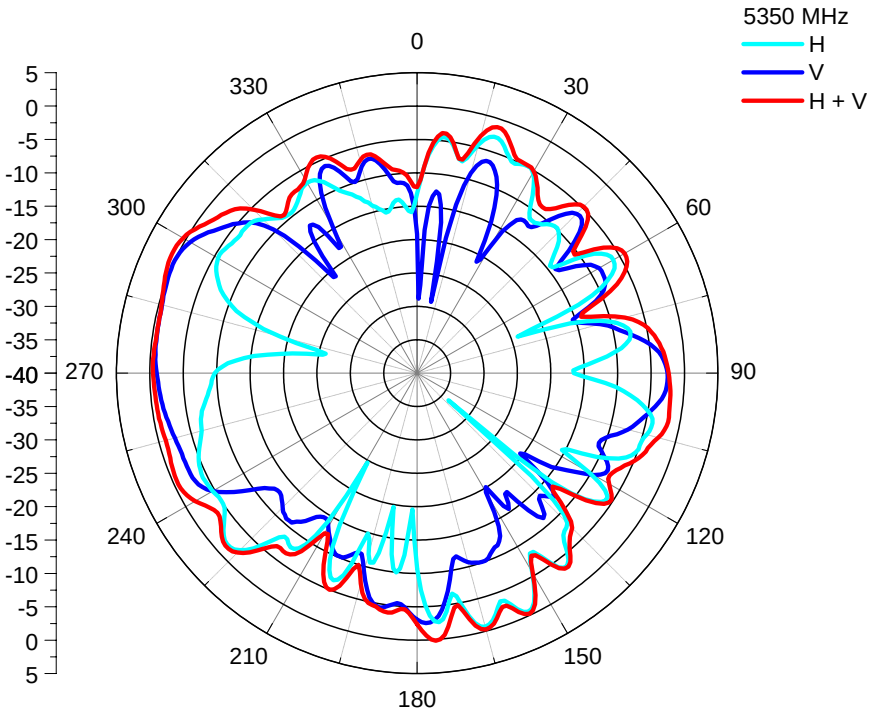
Main antenna: 5250 MHz



Center Frequency	**5250 MHz**
Horizontal (dBi) peak	**-1.14**
Vertical (dBi) peak	**-0.49**
Horz+Vert (dBi) peak	**0.09**

Center Frequency	**5250 MHz**
Horizontal (dBi) average	**-6.78**
Vertical (dBi) average	**-6.02**
Horz+Vert (dBi) average	**-3.37**

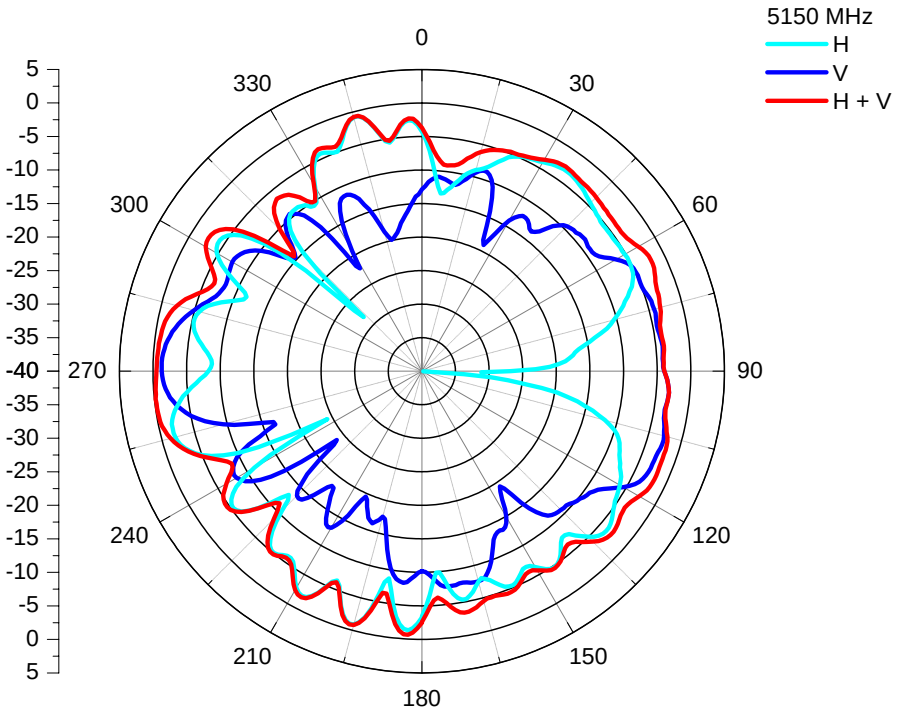
Main antenna: 5350 MHz



Center Frequency	**5350 MHz**
Horizontal (dBi) peak	**-0.57**
Vertical (dBi) peak	**0.03**
Horz+Vert (dBi) peak	**0.79**

Center Frequency	**5350 MHz**
Horizontal (dBi) average	**-6.89**
Vertical (dBi) average	**-6.01**
Horz+Vert (dBi) average	**-3.41**

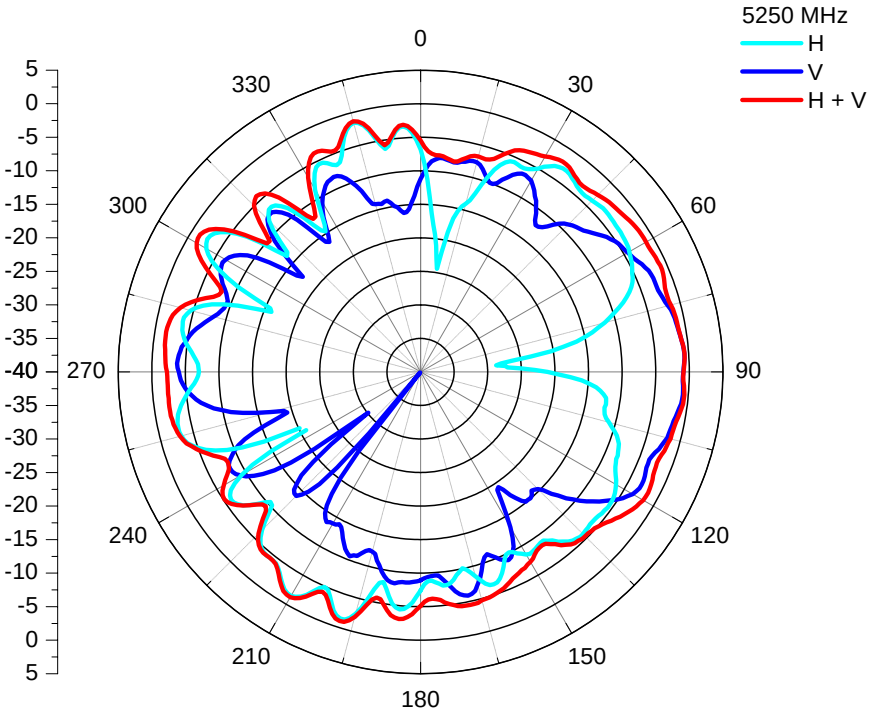
Auxiliary antenna: 5150 MHz



Center Frequency	**5150 MHz**
Horizontal (dBi) peak	**-0.81**
Vertical (dBi) peak	**-1.28**
Horz+Vert (dBi) peak	**-0.19**

Center Frequency	**5150 MHz**
Horizontal (dBi) average	**-5.79**
Vertical (dBi) average	**-7.60**
Horz+Vert (dBi) average	**-3.59**

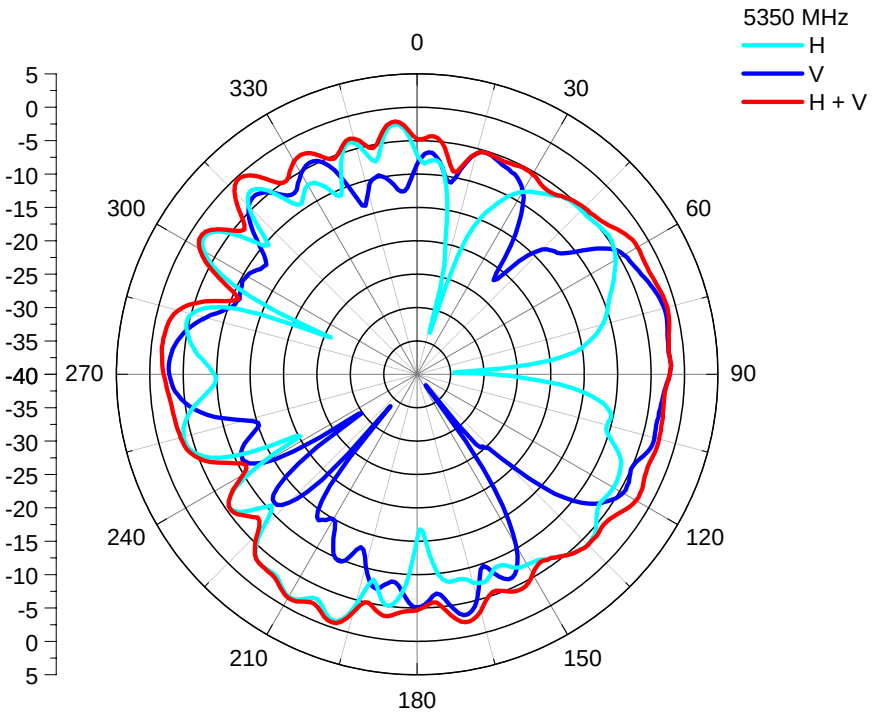
Auxiliary antenna: 5250 MHz



Center Frequency	**5250 MHz**
Horizontal (dBi) peak	**-1.34**
Vertical (dBi) peak	**-0.64**
Horz+Vert (dBi) peak	**-0.60**

Center Frequency	**5250 MHz**
Horizontal (dBi) average	**-6.11**
Vertical (dBi) average	**-6.79**
Horz+Vert (dBi) average	**-3.43**

Auxiliary antenna: 5350 MHz

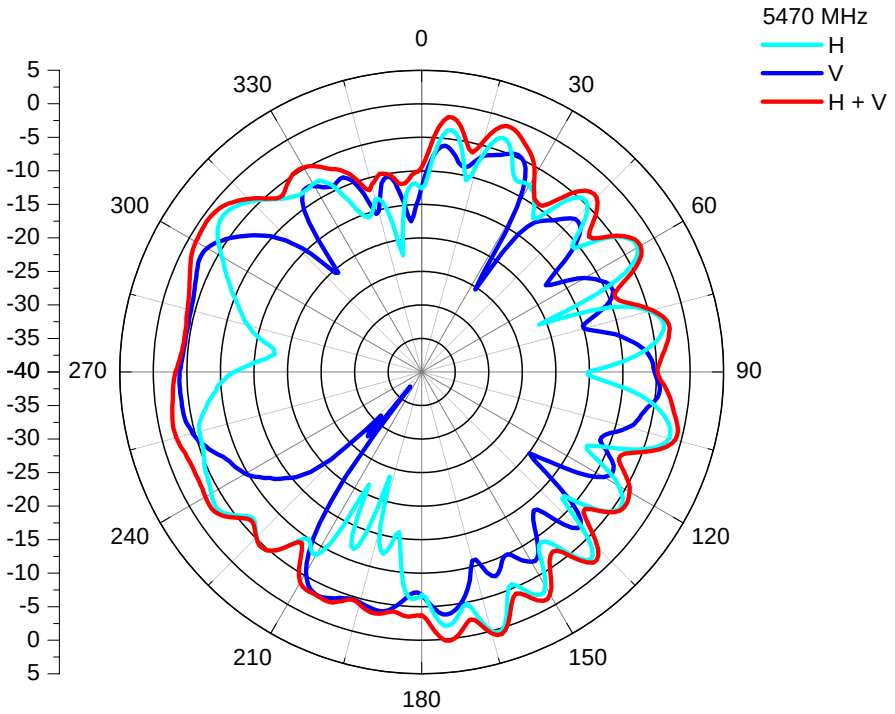


Center Frequency	**5350 MHz**
Horizontal (dBi) peak	**-1.04**
Vertical (dBi) peak	**-1.69**
Horz+Vert (dBi) peak	**-0.37**

Center Frequency	**5350 MHz**
Horizontal (dBi) average	**-6.44**
Vertical (dBi) average	**-6.65**
Horz+Vert (dBi) average	**-3.54**

5470-5725MHz radiation characteristic

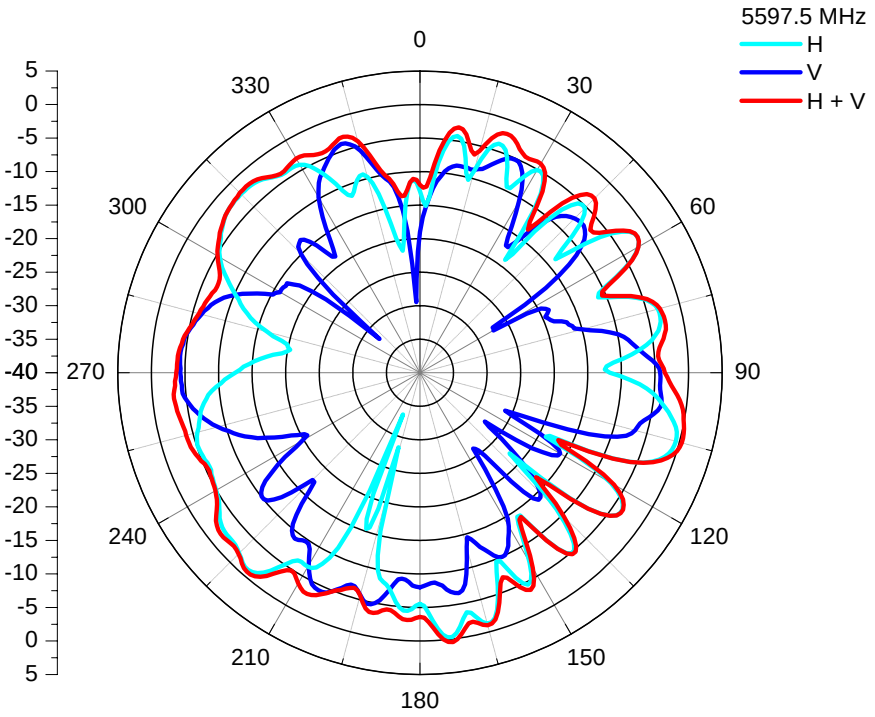
Main antenna: 5470 MHz



Center Frequency	**5470 MHz**
Horizontal (dBi) peak	**0.52**
Vertical (dBi) peak	**-2.82**
Horz+Vert (dBi) peak	**0.86**

Center Frequency	**5470 MHz**
Horizontal (dBi) average	**-6.16**
Vertical (dBi) average	**-7.23**
Horz+Vert (dBi) average	**-3.65**

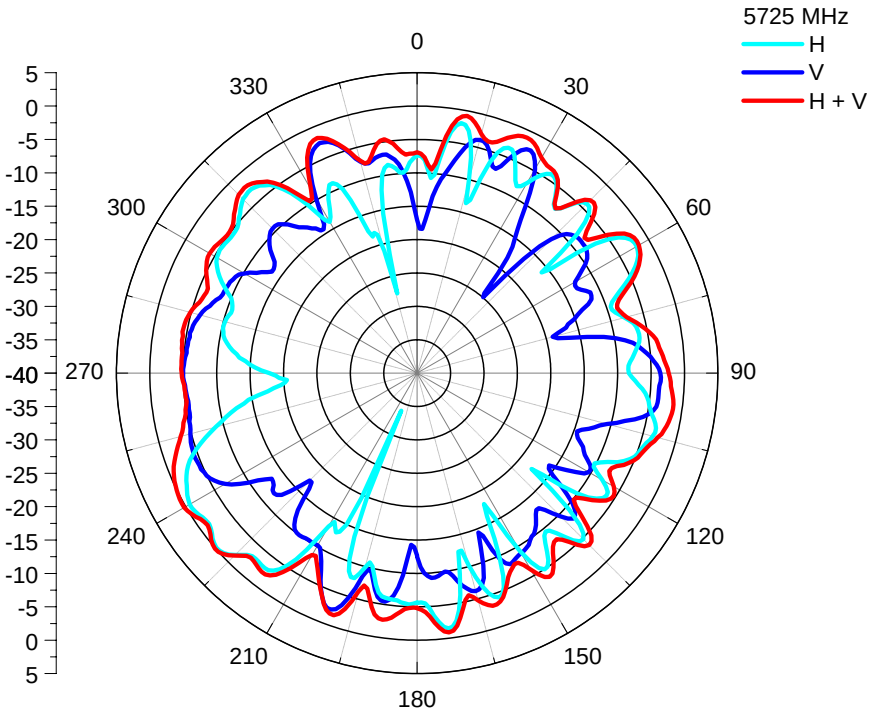
Main antenna: 5597.5 MHz



Center Frequency	**5597.5 MHz**
Horizontal (dBi) peak	**-0.32**
Vertical (dBi) peak	**-3.74**
Horz+Vert (dBi) peak	**0.45**

Center Frequency	**5597.5 MHz**
Horizontal (dBi) average	**-5.56**
Vertical (dBi) average	**-8.78**
Horz+Vert (dBi) average	**-3.87**

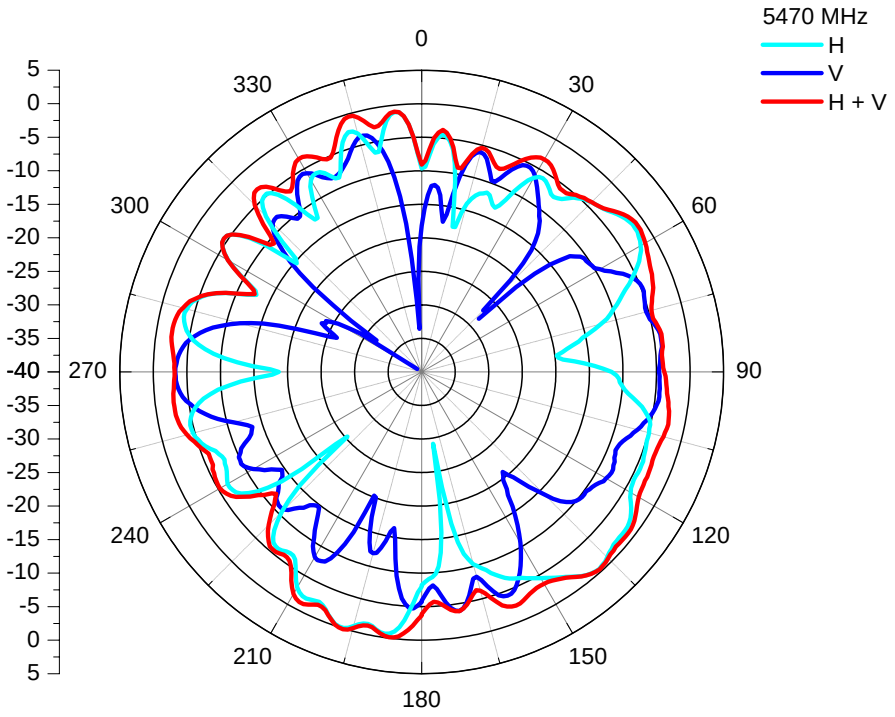
Main antenna: 5725 MHz



Center Frequency	**5725 MHz**
Horizontal (dBi) peak	**-0.19**
Vertical (dBi) peak	**-2.32**
Horz+Vert (dBi) peak	**0.25**

Center Frequency	**5725 MHz**
Horizontal (dBi) average	**-5.92**
Vertical (dBi) average	**-7.65**
Horz+Vert (dBi) average	**-3.69**

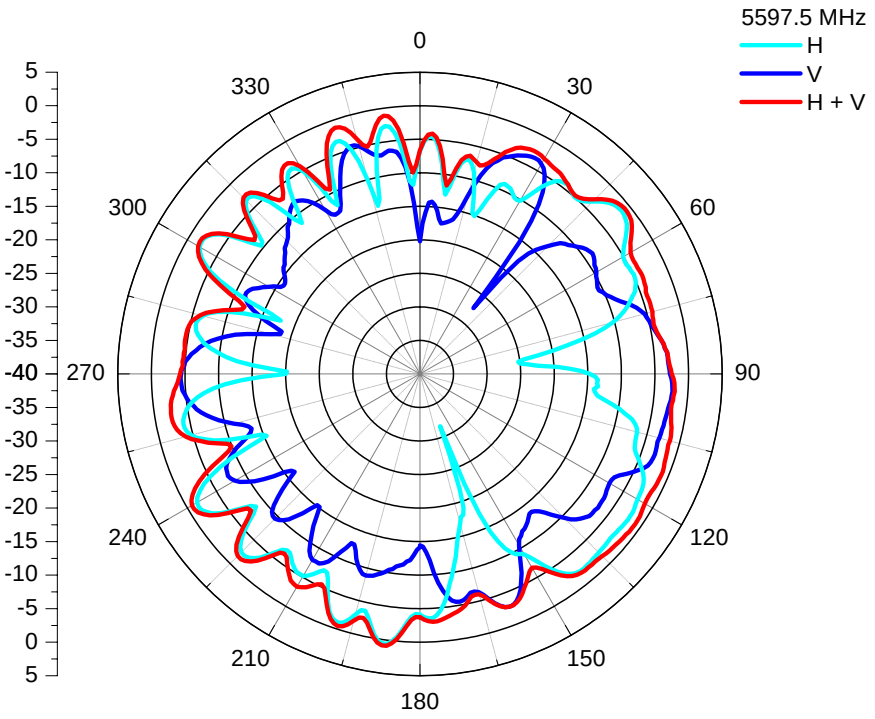
Auxiliary antenna: 5470 MHz



Center Frequency	**5470 MHz**
Horizontal (dBi) peak	**-0.08**
Vertical (dBi) peak	**-3.28**
Horz+Vert (dBi) peak	**0.12**

Center Frequency	**5470 MHz**
Horizontal (dBi) average	**-5.27**
Vertical (dBi) average	**-8.02**
Horz+Vert (dBi) average	**-3.42**

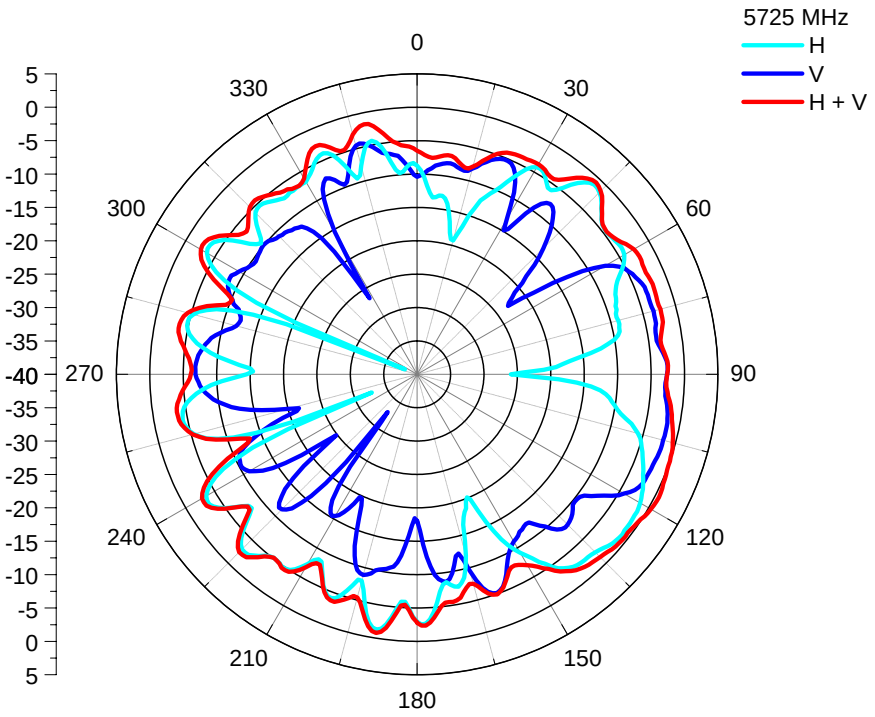
Auxiliary antenna: 5597.5 MHz



Center Frequency	**5597.5 MHz**
Horizontal (dBi) peak	**0.57**
Vertical (dBi) peak	**-2.29**
Horz+Vert (dBi) peak	**0.87**

Center Frequency	**5597.5 MHz**
Horizontal (dBi) average	**-5.31**
Vertical (dBi) average	**-7.55**
Horz+Vert (dBi) average	**-3.28**

Auxiliary antenna: 5725 MHz

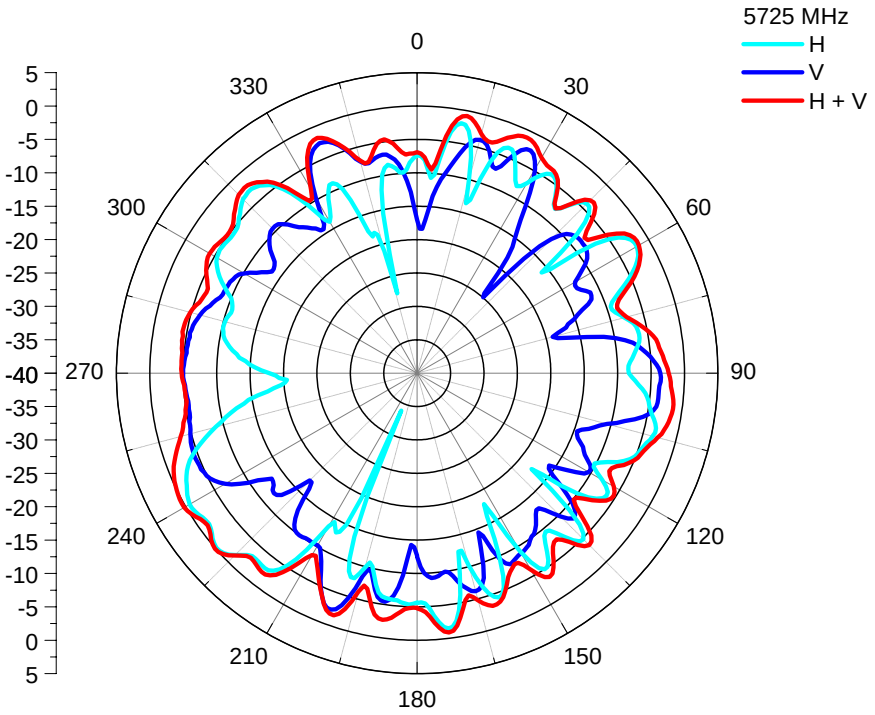


Center Frequency	**5725 MHz**
Horizontal (dBi) peak	**-1.04**
Vertical (dBi) peak	**-1.84**
Horz+Vert (dBi) peak	**0.58**

Center Frequency	**5725 MHz**
Horizontal (dBi) average	**-5.71**
Vertical (dBi) average	**-7.62**
Horz+Vert (dBi) average	**-3.55**

5725-5850 MHz radiation characteristic

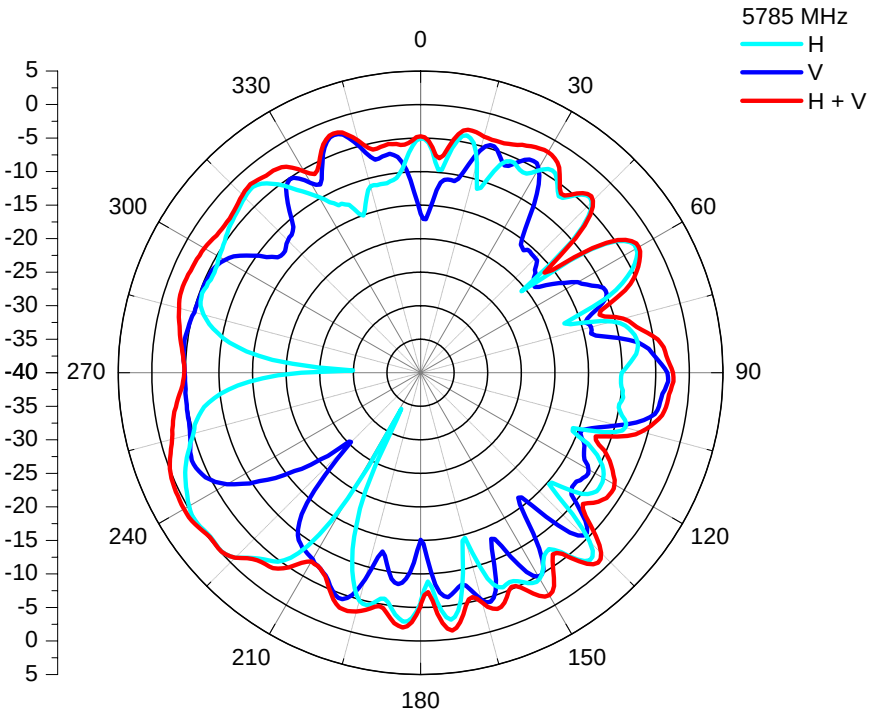
Main antenna: 5725 MHz



Center Frequency	**5725 MHz**
Horizontal (dBi) peak	**-0.19**
Vertical (dBi) peak	**-2.32**
Horz+Vert (dBi) peak	**0.25**

Center Frequency	**5725 MHz**
Horizontal (dBi) average	**-5.92**
Vertical (dBi) average	**-7.65**
Horz+Vert (dBi) average	**-3.69**

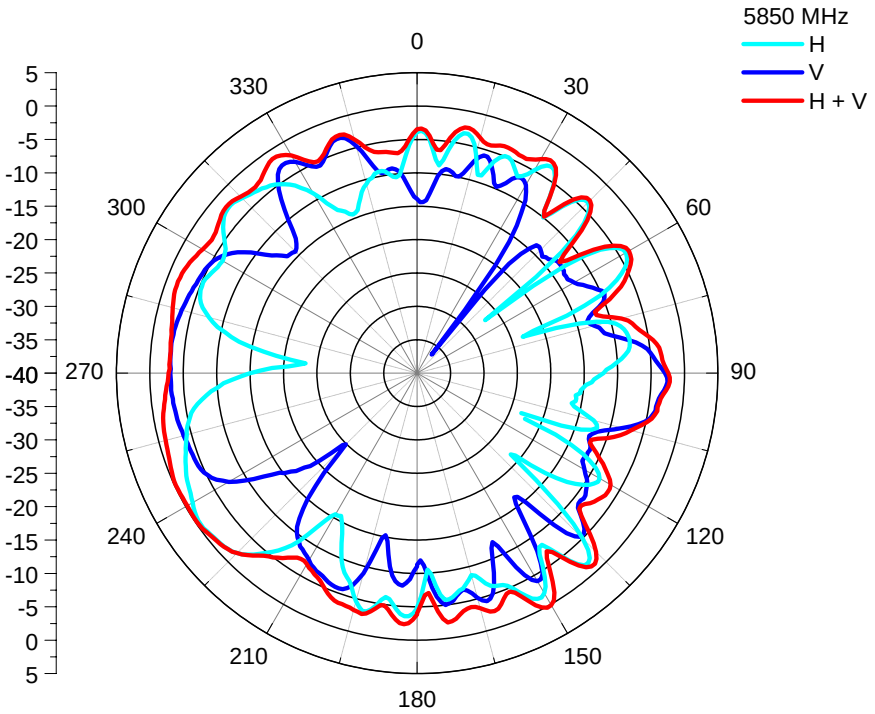
Main antenna: 5785 MHz



Center Frequency	**5785 MHz**
Horizontal (dBi) peak	**0.30**
Vertical (dBi) peak	**-2.14**
Horz+Vert (dBi) peak	**0.98**

Center Frequency	**5785 MHz**
Horizontal (dBi) average	**-5.71**
Vertical (dBi) average	**-7.32**
Horz+Vert (dBi) average	**-3.43**

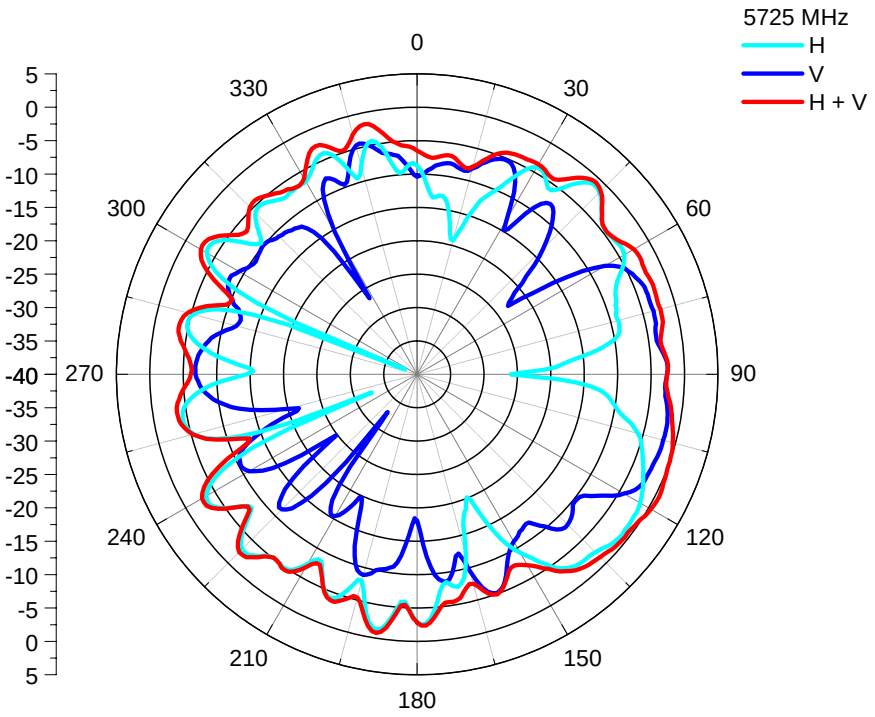
Main antenna: 5850 MHz



Center Frequency	**5850 MHz**
Horizontal (dBi) peak	**-0.48**
Vertical (dBi) peak	**-2.51**
Horz+Vert (dBi) peak	**0.18**

Center Frequency	**5850 MHz**
Horizontal (dBi) average	**-5.99**
Vertical (dBi) average	**-6.92**
Horz+Vert (dBi) average	**-3.42**

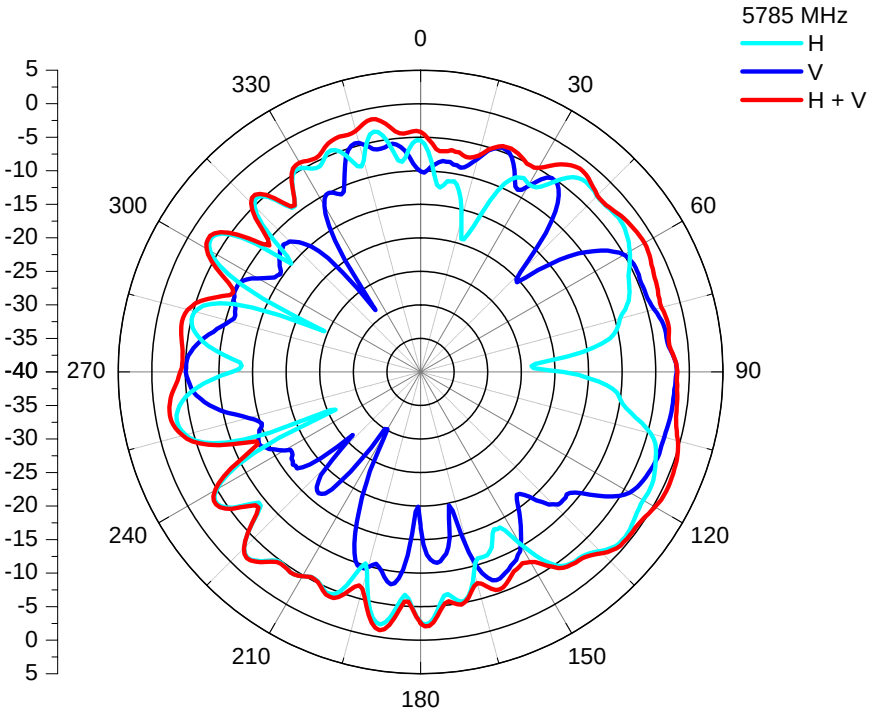
Auxiliary antenna: 5725 MHz



Center Frequency	**5725 MHz**
Horizontal (dBi) peak	**-1.04**
Vertical (dBi) peak	**-1.84**
Horz+Vert (dBi) peak	**0.58**

Center Frequency	**5725 MHz**
Horizontal (dBi) average	**-5.71**
Vertical (dBi) average	**-7.62**
Horz+Vert (dBi) average	**-3.55**

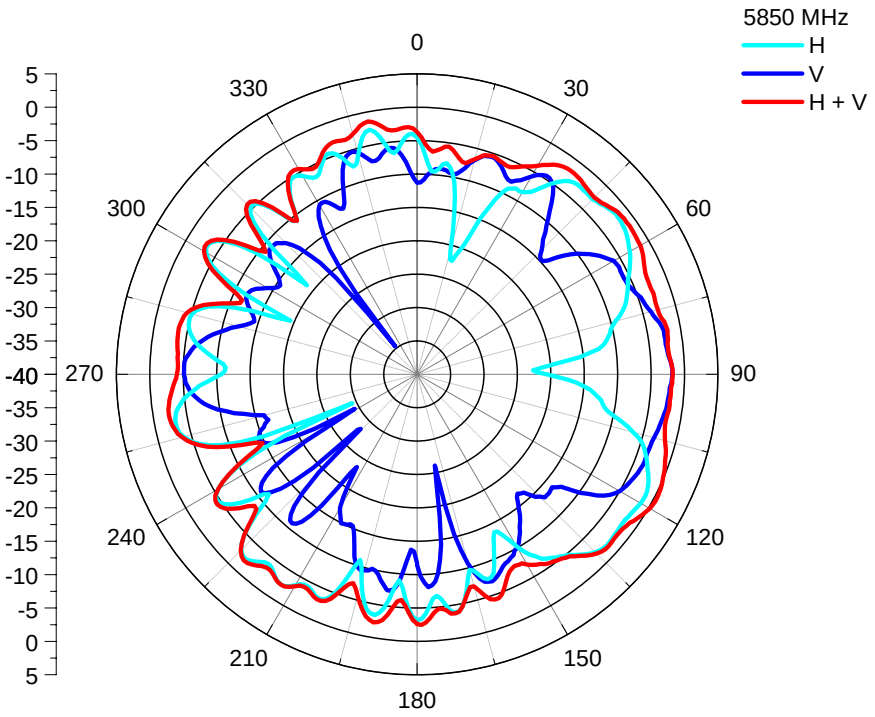
Auxiliary antenna: 5785 MHz



Center Frequency	**5785 MHz**
Horizontal (dBi) peak	**-0.62**
Vertical (dBi) peak	**-1.84**
Horz+Vert (dBi) peak	**0.72**

Center Frequency	**5785 MHz**
Horizontal (dBi) average	**-5.66**
Vertical (dBi) average	**-7.46**
Horz+Vert (dBi) average	**-3.46**

Auxiliary antenna: 5850 MHz



Center Frequency	**5850 MHz**
Horizontal (dBi) peak	**-1.31**
Vertical (dBi) peak	**-1.81**
Horz+Vert (dBi) peak	**0.39**

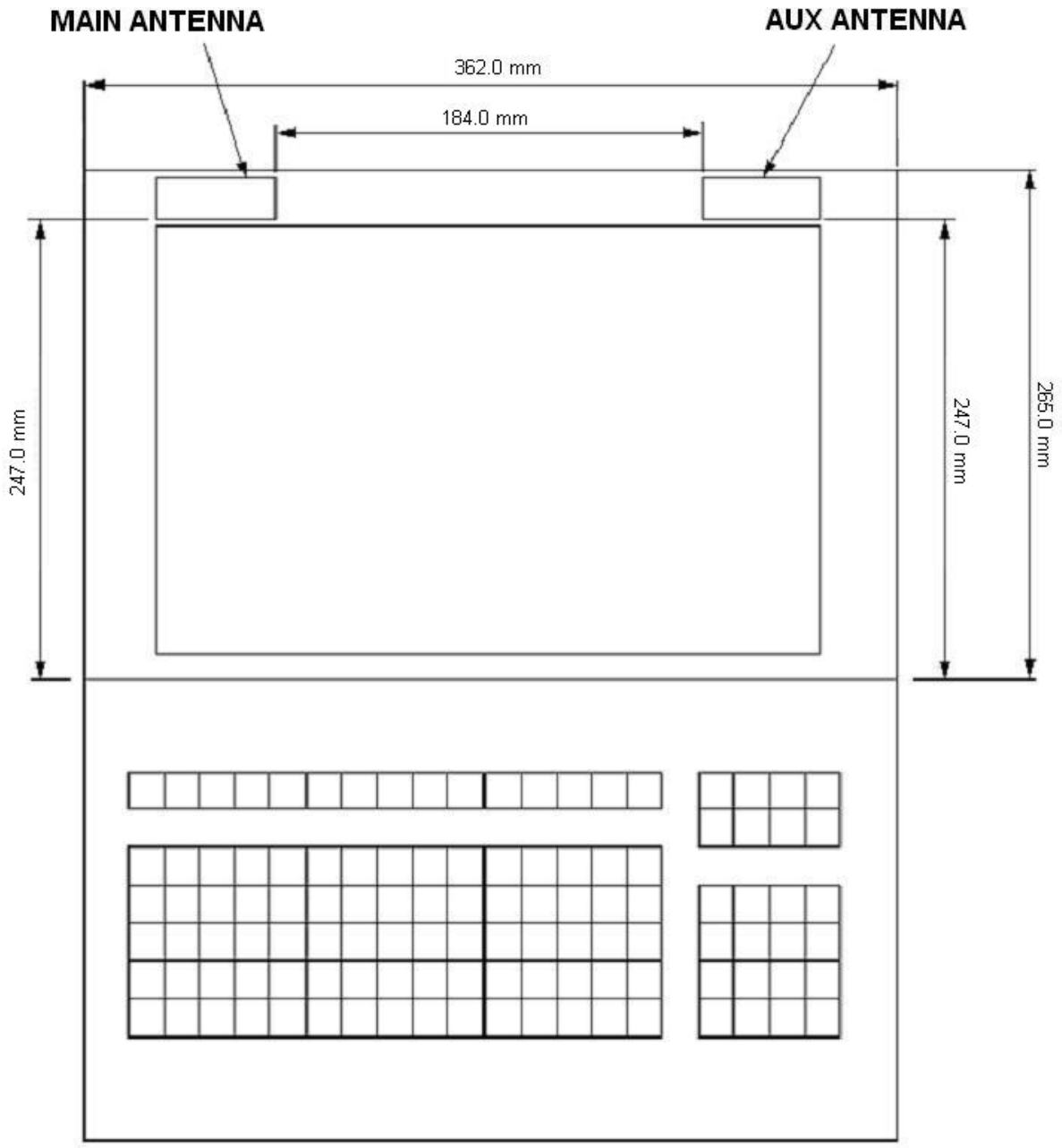
Center Frequency	**5850 MHz**
Horizontal (dBi) average	**-5.49**
Vertical (dBi) average	**-7.80**
Horz+Vert (dBi) average	**-3.49**

Section 4. Host Platform Information

OEM / ODM Host platform: JET Topaz platform correlated to antenna data

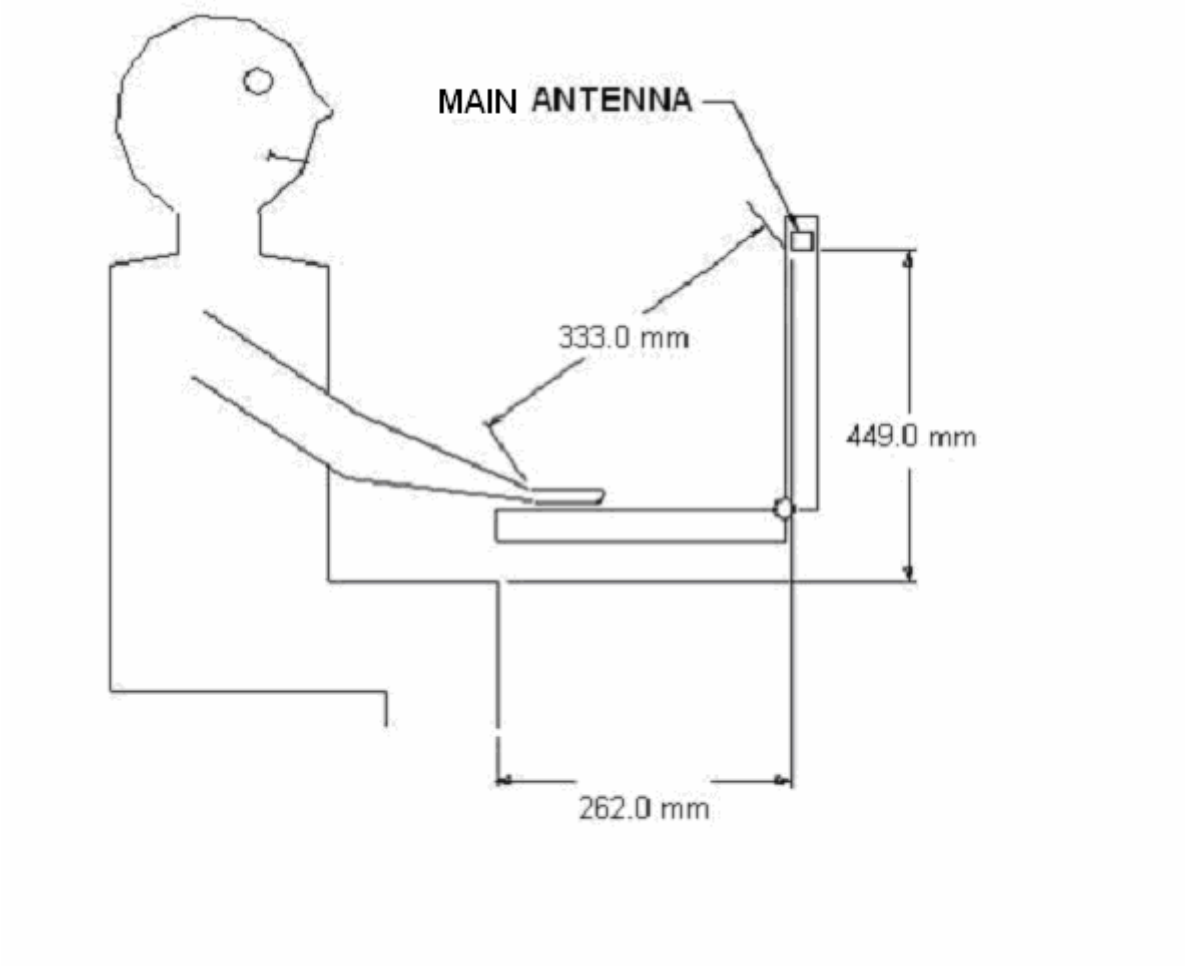
Section 5. Antenna Host Platform Location Information

The dimensioned drawings of main and auxiliary antenna placements.



Section 6. Antenna dimensional information for SAR evaluation

The dimensioned drawings 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

Indicate distance between WLAN module antennas and Bluetooth/other radio antenna element.

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