

MACAO Regulatory WLAN Antenna Information

(English Language Required)

Brand Name	Samsung
Model Name	MACAO
Antenna Vendor	Foxconn
Antenna Part Number	☐ Main Antenna: WDAN-M1MA1001-DF
	☐ Aux Antenna: WDAN-M1MA1002-DF
With WLAN Module	☐ WM3B2100
(Check Box)	☐ WM3B2200BG
	☐ WM3B2915ABG
	☐ WM3945ABG

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

Section 1. Antenna Assembly Specifications

Antenna Assembly Summary:

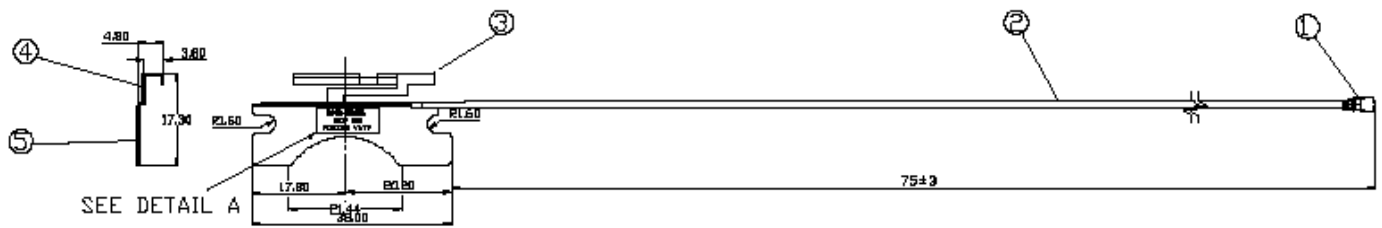
1A Antenna Part Number	1B Manufacture	1C Antenna Type	1D Cable Assembly Part Number and Information	1E Peak Gain W/ Cable loss (dBi)	1F Peak Gain w/o Cable Loss (dBi)	1G VSWR	1H Cable Loss (dBi)
(P/N: WDAN-M1MA1 001-DF) Main antenna	HON HAI PRECISION IND. CO.,LTD.	PIFA	1. Cable P/N: FOXCONN:703-3209-511 2. Cable type: 32 AWG O.D. 1.13 mm 50 ohm coaxial cable 3. Cable length: 65mm 4. Connector P/N: SGX0001	2400-2500MHz 1.03 dBi (peak)	2400-2500MHz 1.219 dBi (peak)	2400-2500MHz 2.0 max	2400-2500MHz -0.189 dB (peak)
				5150-5350MHz -0.08 dBi (peak)	5150-5350MHz 0.196dBi (peak)	5150-5350MHz 2.0 max	5150-5350MHz -0.276 dB (peak)
				5470-5850MHz -0.36 dBi (peak)	5470-5850MHz -0.071 dBi (peak)	5470-5850MHz 2.0 max	5470-5850MHz -0.289 dB (peak)
(P/N: WDAN-M1MA1 002-DF) Auxiliary antenna	HON HAI PRECISION IND. CO.,LTD.	PIFA	1. Cable P/N: FOXCONN:703-3200-511 2. Cable type: 32 AWG O.D. 1.13 mm 50 ohm coaxial cable 3. Cable length:215mm 4. Connector P/N: SGX0001	2400-2500MHz -1.82 dBi (peak)	2400-2500MHz -1.193 dBi (peak)	2400-2500MHz 2.0 max	2400-2500MHz -0.627 dB (peak)
				5150-5350MHz 1.97 dBi (peak)	5150-5350MHz 2.882 dBi (peak)	5150-5350MHz 2.0 max	5150-5350MHz -0.912 dB (peak)
				5470-5850MHz 0.22 dBi (peak)	5470-5850MHz 0.517 dBi (peak)	5470-5850MHz 2.0 max	5470-5850MHz -0.297 dB (peak)

Antenna Peak Gain Table:

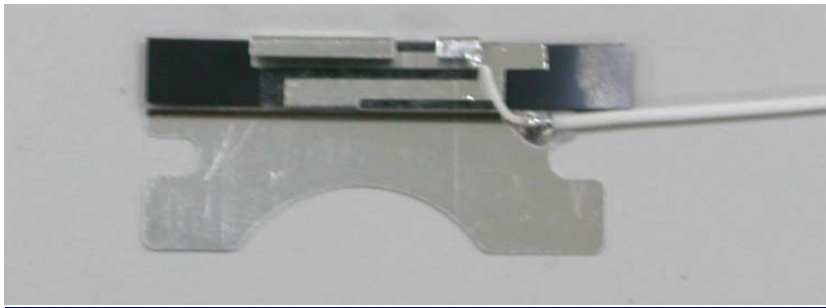
Frequency (MHz)	Main antenna			Aux Antenna		
	Horizontal (dBi)	Vertical (dBi)	Hori+Ver (dBi)	Horizontal (dBi)	Vertical (dBi)	Hori+Ver (dBi)
2400	-2.00	-0.74	0.59	-2.39	-4.34	-2.08
2450	-1.79	-0.91	0.66	-2.12	-3.73	-2.00
2500	-1.17	-0.49	1.03	-2.08	-3.91	-1.82
5150	-0.90	-1.94	-0.08	-1.97	0.99	1.97
5250	-1.48	-3.49	-0.99	-0.53	-1.07	1.66
5350	-1.97	-4.63	-1.52	-0.37	-2.85	1.47
5470	-2.20	-4.70	-0.54	-1.12	-4.50	-0.18
5600	-1.42	-4.30	-0.36	-0.84	-5.28	-0.40
5850	-2.46	-5.09	-2.05	-0.33	-3.47	0.22

Section 2. Dimensioned Photos or Drawings of Antennas

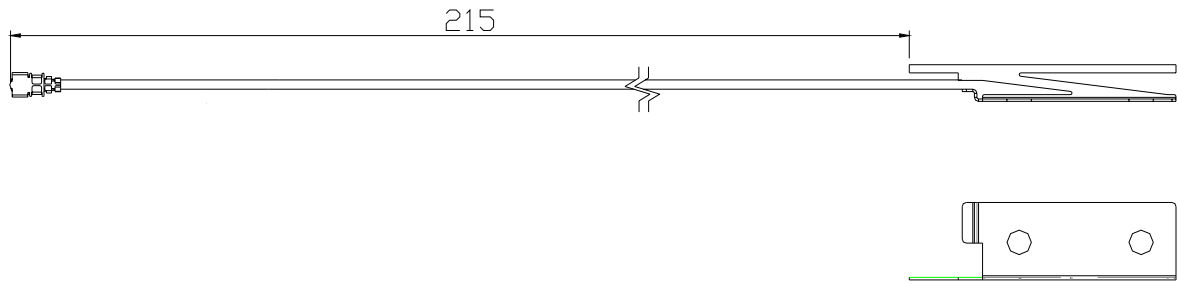
Include a dimensioned photo or dimensioned drawing of main antenna here.



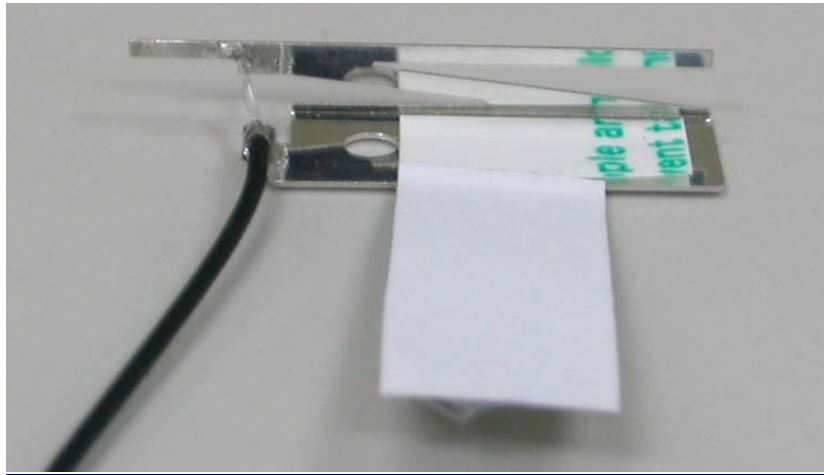
Antenna photo :



Include a dimensioned photo or dimensioned drawing of aux antenna here.



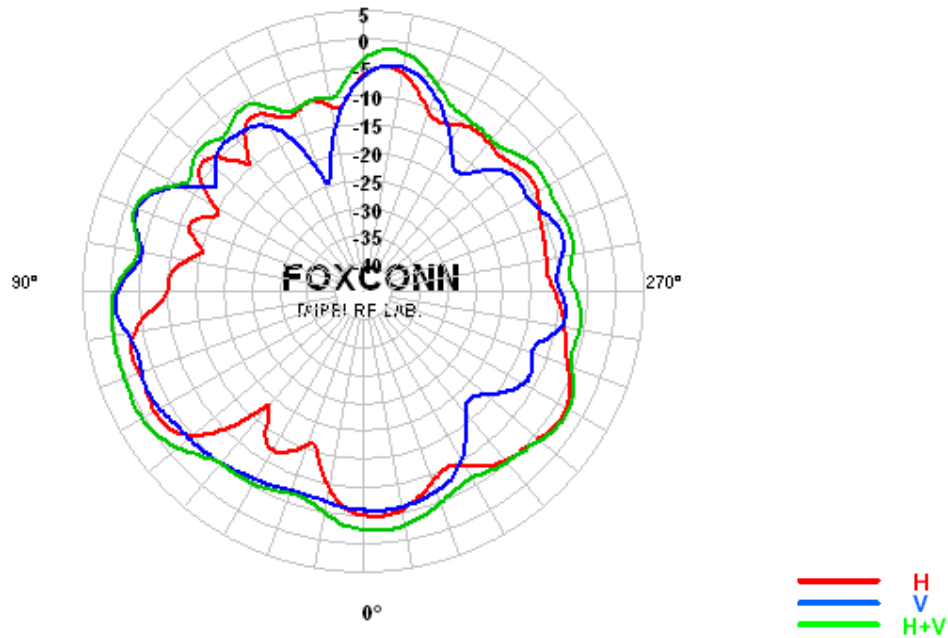
Antenna photo :



Section 3. Radiation characteristics of antennae Loaded in Host Platform

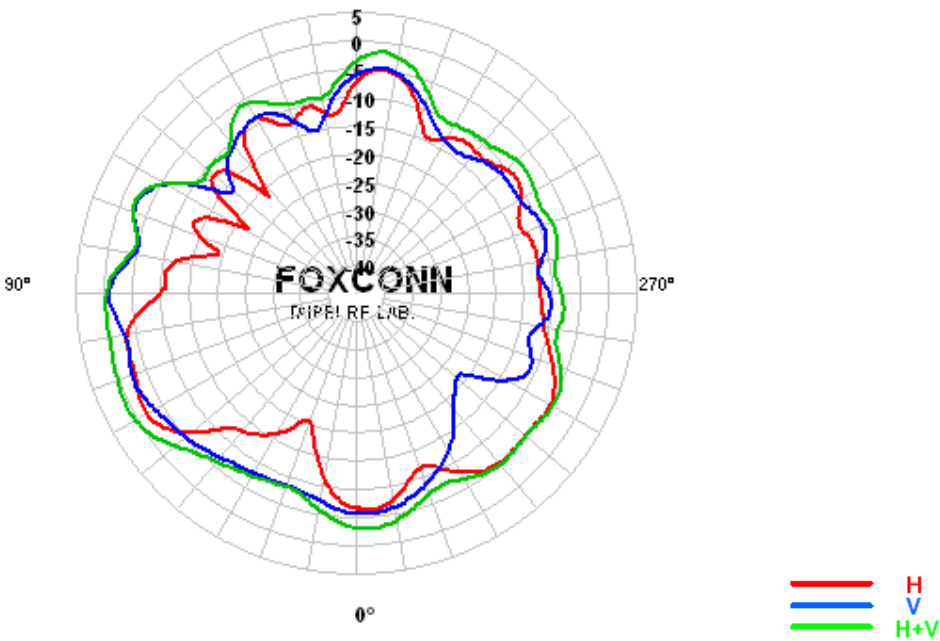
2400-2500MHz radiation characteristic

Main antenna: 2400 MHz



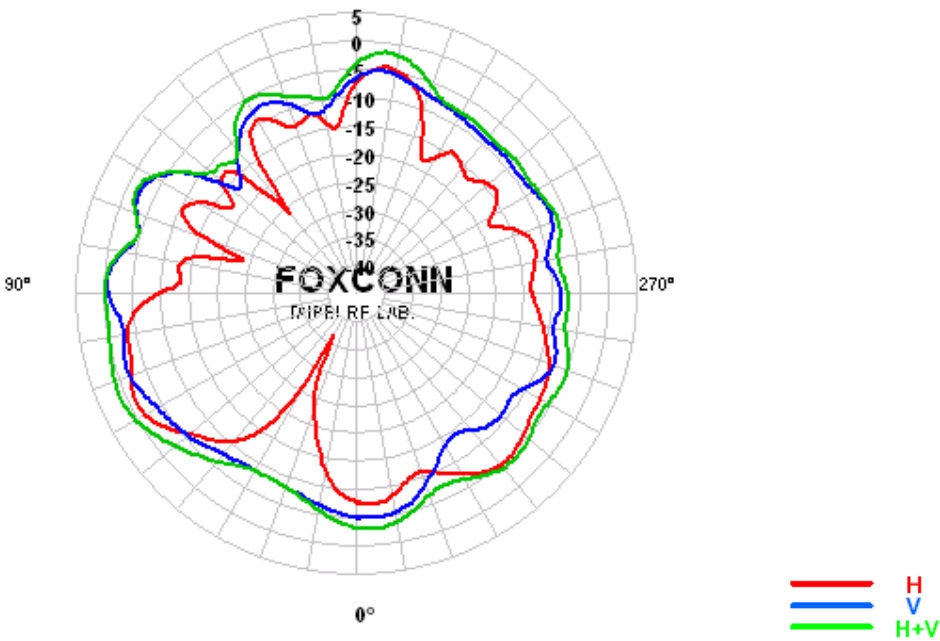
Center Frequency	2400 MHz
Horizontal (dBi) peak	-2.00
Vertical (dBi) peak	-0.74
Horz+Vert (dBi) peak	0.59

Main antenna: 2450 MHz



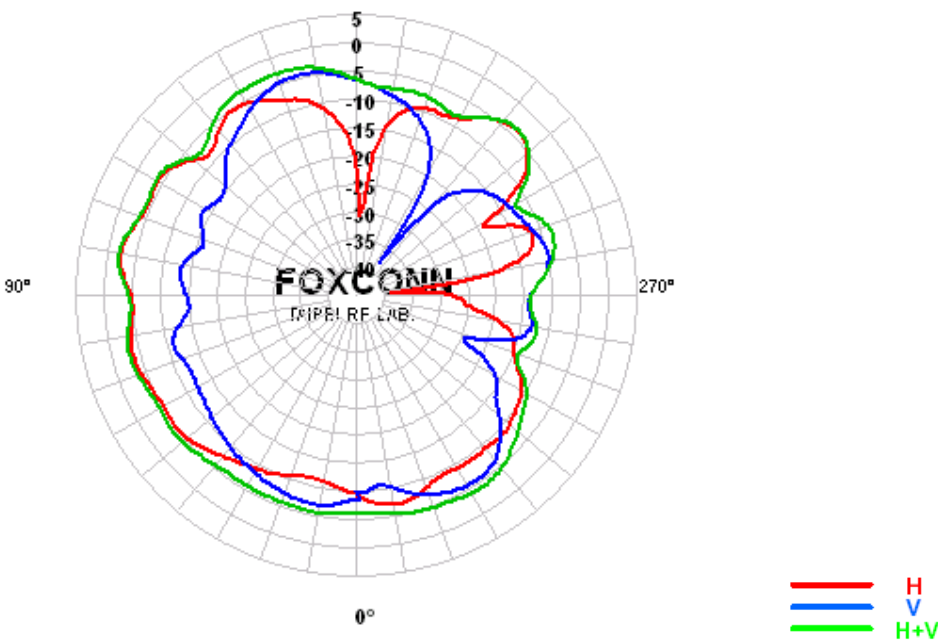
Center Frequency	2450 MHz
Horizontal (dBi) peak	-1.79
Vertical (dBi) peak	-0.91
Horz+Vert (dBi) peak	0.66

Main antenna: 2500 MHz



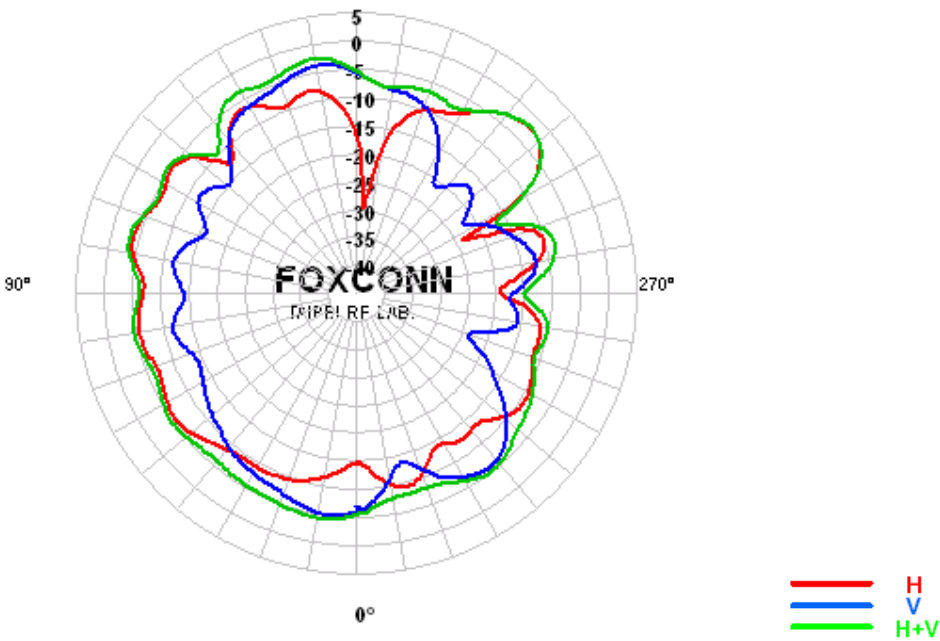
Center Frequency	2500 MHz
Horizontal (dBi) peak	-1.17
Vertical (dBi) peak	-0.49
Horz+Vert (dBi) peak	1.03

Auxiliary antenna: 2400 MHz



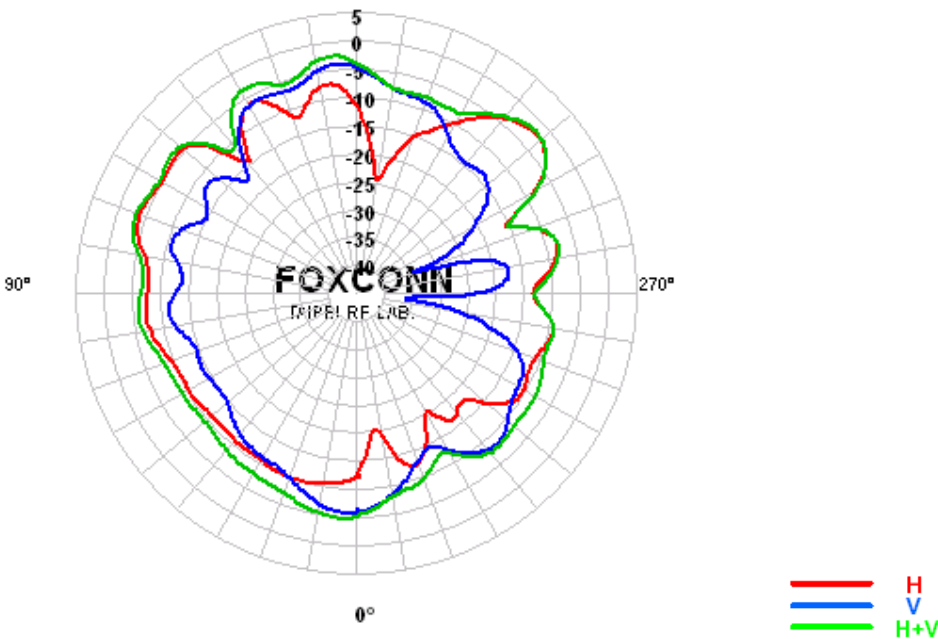
Center Frequency	2400 MHz
Horizontal (dBi) peak	-2.39
Vertical (dBi) peak	-4.34
Horz+Vert (dBi) peak	-2.08

Auxiliary antenna: 2450 MHz



Center Frequency	2450 MHz
Horizontal (dBi) peak	-2.12
Vertical (dBi) peak	-3.73
Horz+Vert (dBi) peak	-2.00

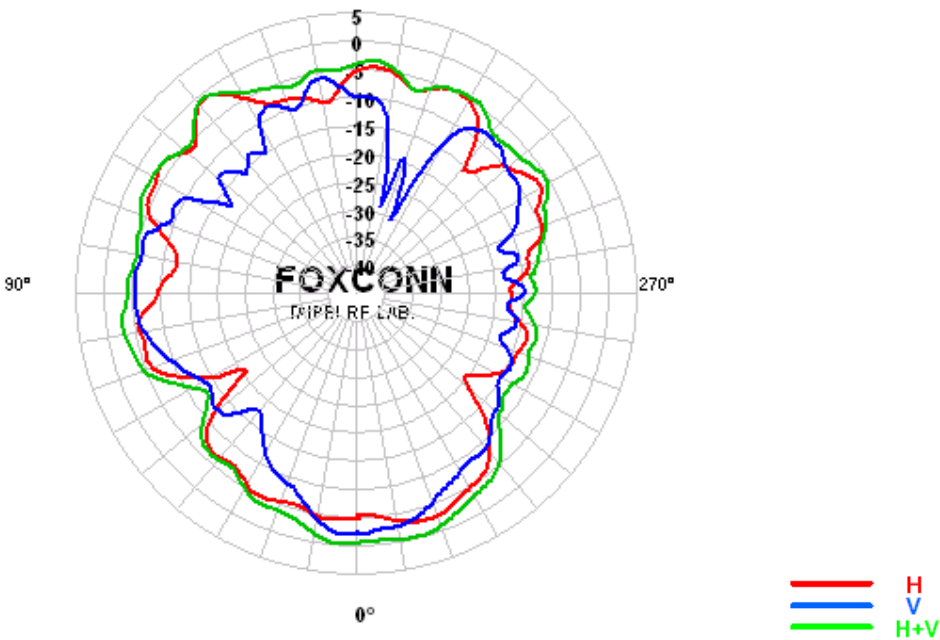
Auxiliary antenna: 2500 MHz



Center Frequency	2500 MHz
Horizontal (dBi) peak	-2.08
Vertical (dBi) peak	-3.91
Horz+Vert (dBi) peak	-1.82

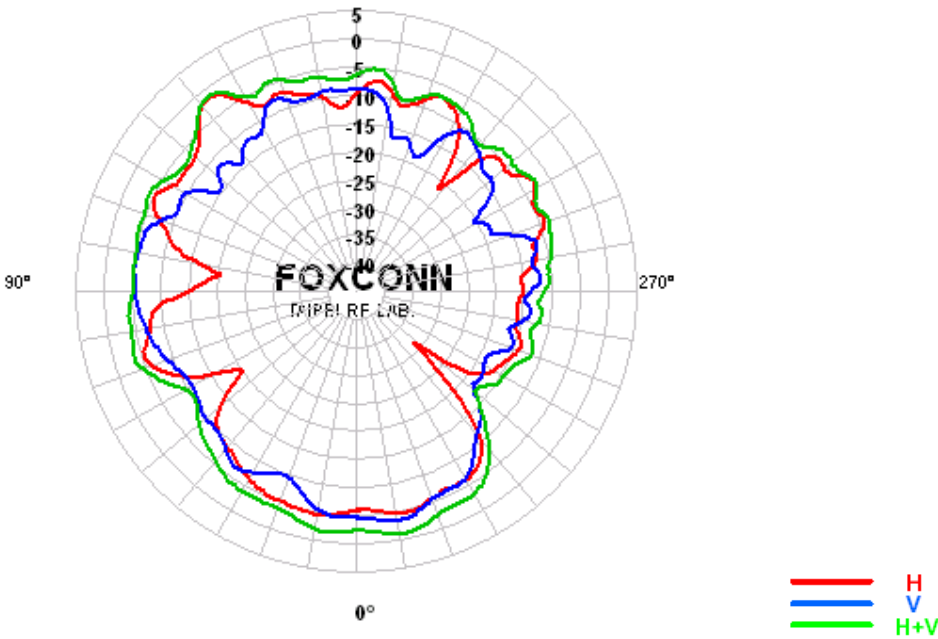
5150-5350 MHz radiation characteristic

Main antenna: 5150 MHz



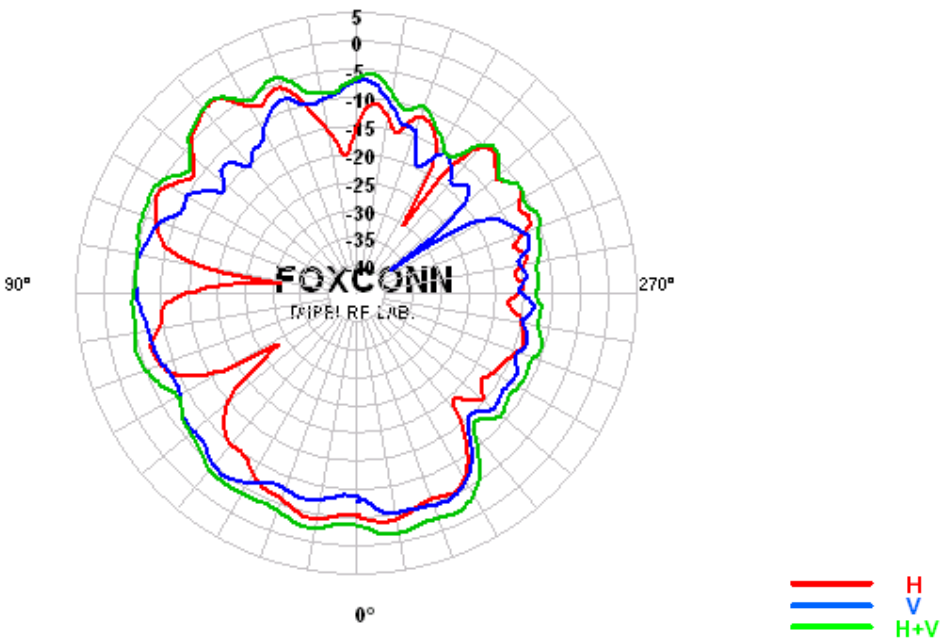
Center Frequency	5150 MHz
Horizontal (dBi) peak	-0.90
Vertical (dBi) peak	-1.94
Horz+Vert (dBi) peak	-0.08

Main antenna: 5250 MHz



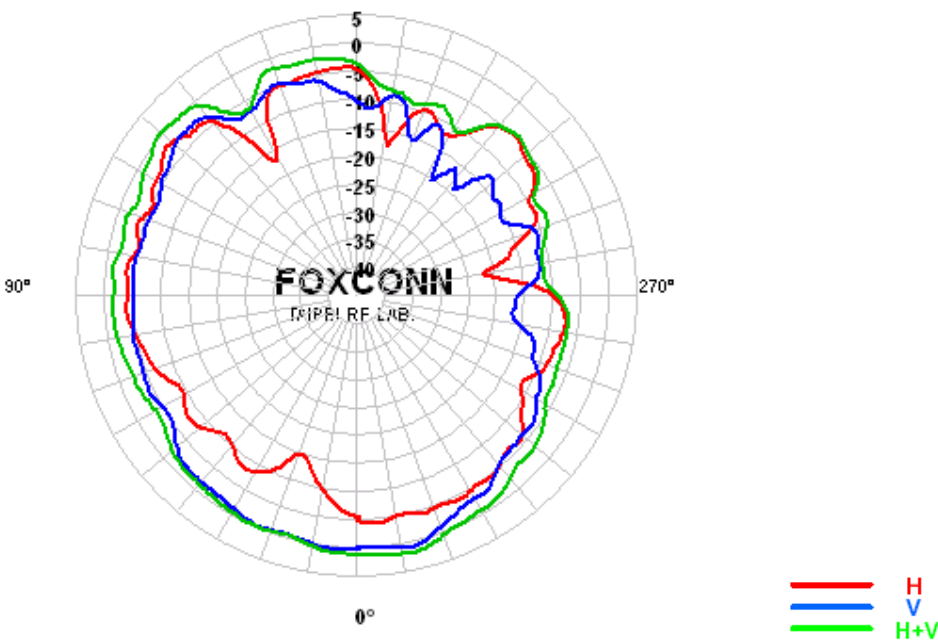
Center Frequency	5250 MHz
Horizontal (dBi) peak	-1.48
Vertical (dBi) peak	-3.49
Horz+Vert (dBi) peak	-0.99

Main antenna: 5350 MHz



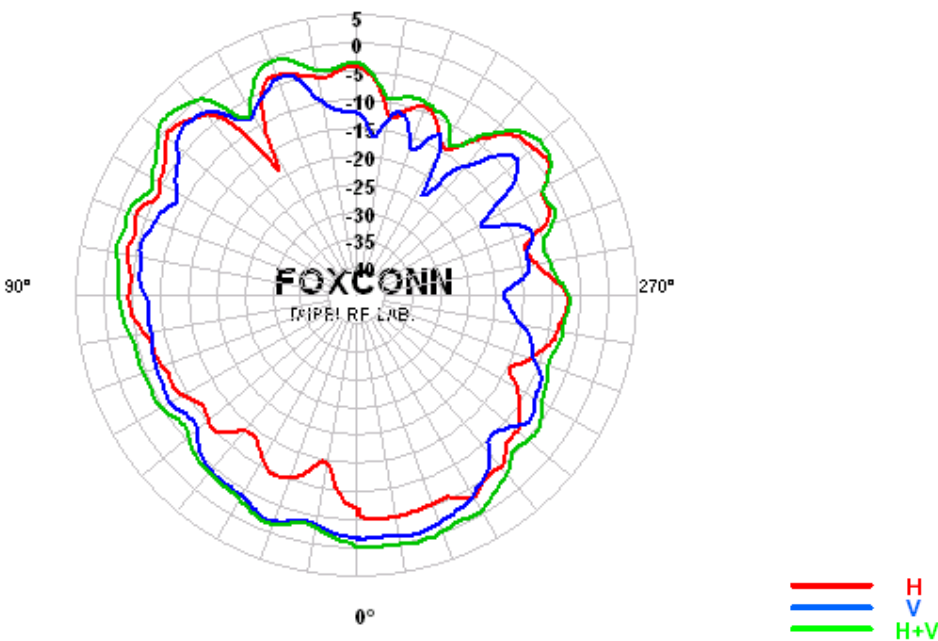
Center Frequency	5350 MHz
Horizontal (dBi) peak	-1.97
Vertical (dBi) peak	-4.63
Horz+Vert (dBi) peak	-1.52

Auxiliary antenna: 5150 MHz



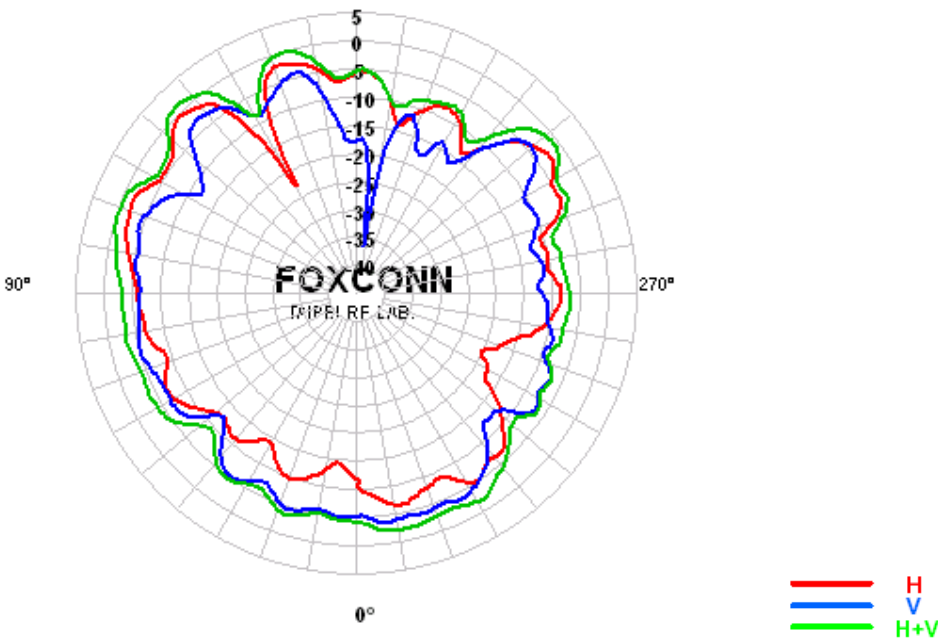
Center Frequency	5150 MHz
Horizontal (dBi) peak	-1.97
Vertical (dBi) peak	0.99
Horz+Vert (dBi) peak	1.97

Auxiliary antenna: 5250 MHz



Center Frequency	5250 MHz
Horizontal (dBi) peak	-0.53
Vertical (dBi) peak	-1.07
Horz+Vert (dBi) peak	1.66

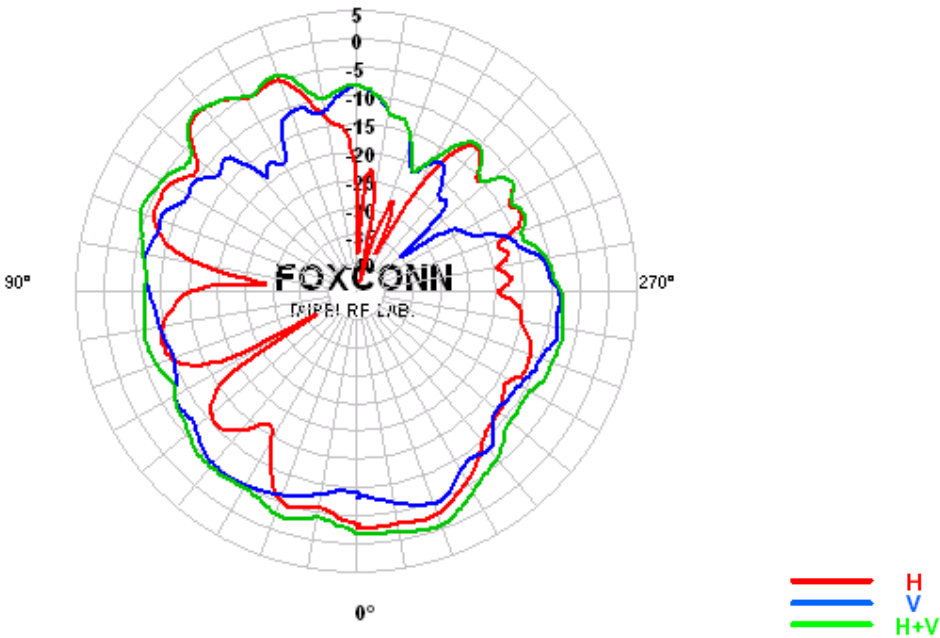
Auxiliary antenna: 5350 MHz



Center Frequency	5350 MHz
Horizontal (dBi) peak	-0.37
Vertical (dBi) peak	-2.85
Horz+Vert (dBi) peak	1.47

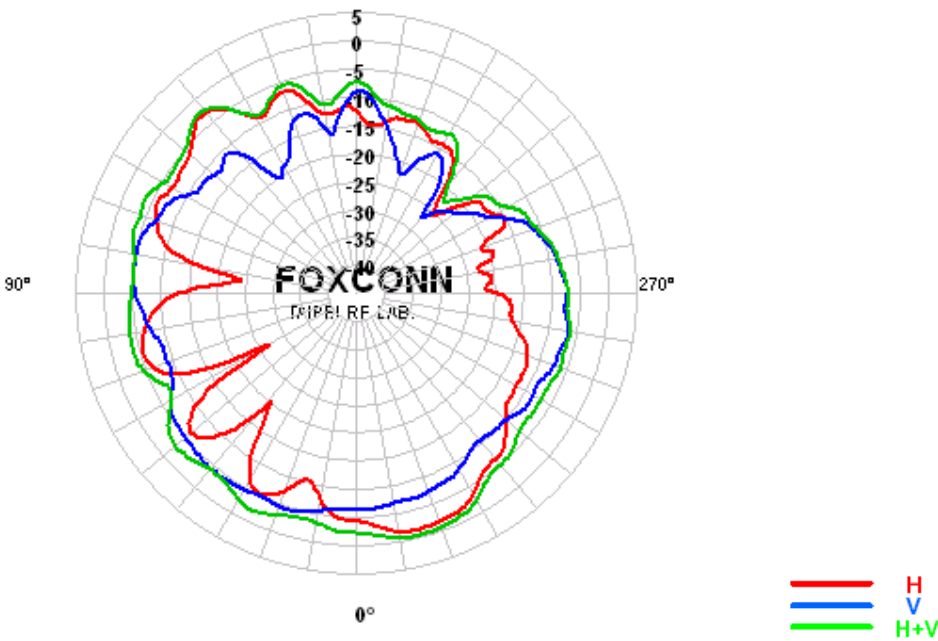
5470-5850MHz radiation characteristic

Main antenna: 5470 MHz



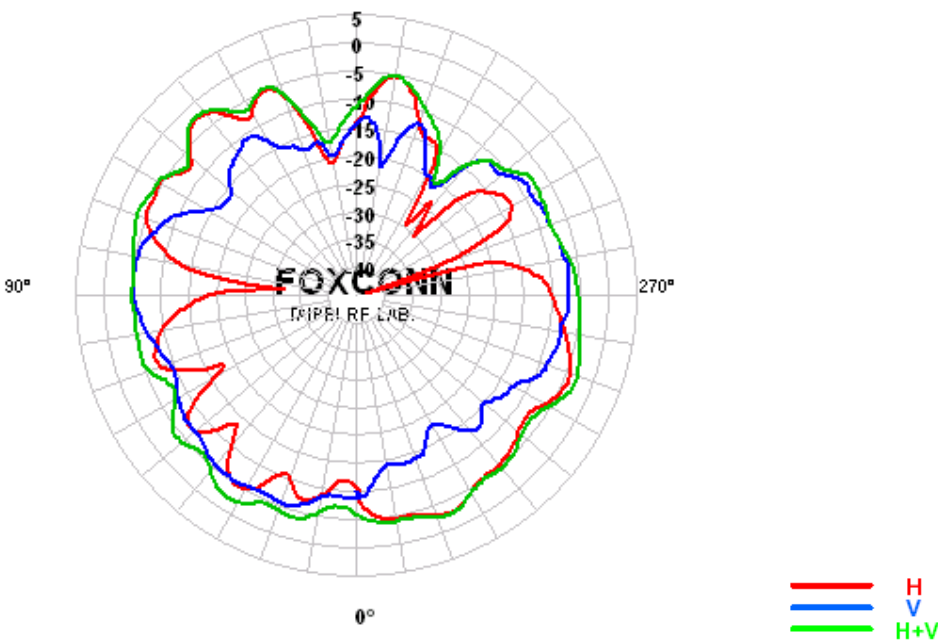
Center Frequency	5470 MHz
Horizontal (dBi) peak	-2.20
Vertical (dBi) peak	-4.70
Horz+Vert (dBi) peak	-0.54

Main antenna: 5600MHz



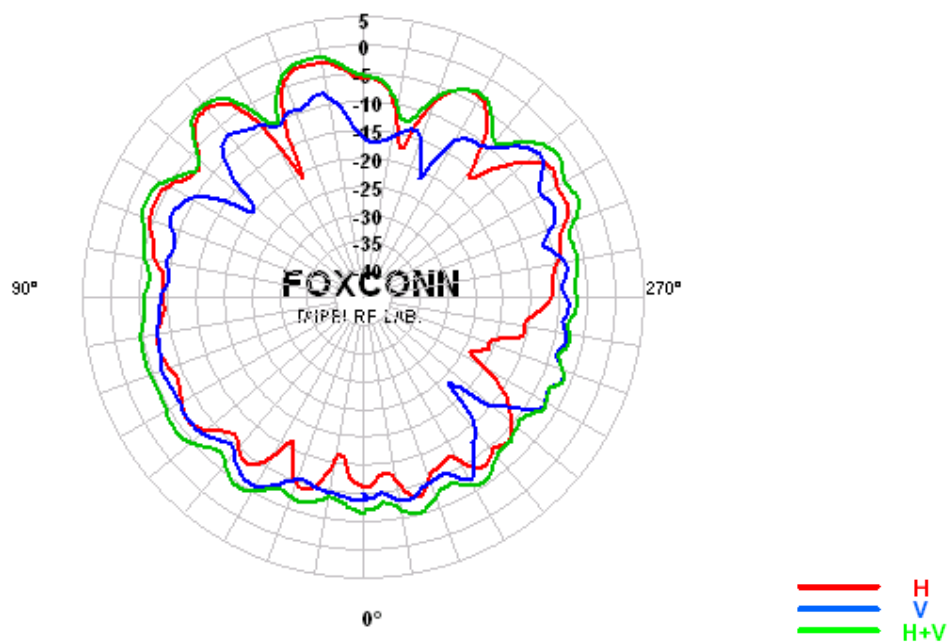
Center Frequency	5600 MHz
Horizontal (dBi) peak	-1.42
Vertical (dBi) peak	-4.30
Horz+Vert (dBi) peak	-0.36

Main antenna: 5850 MHz



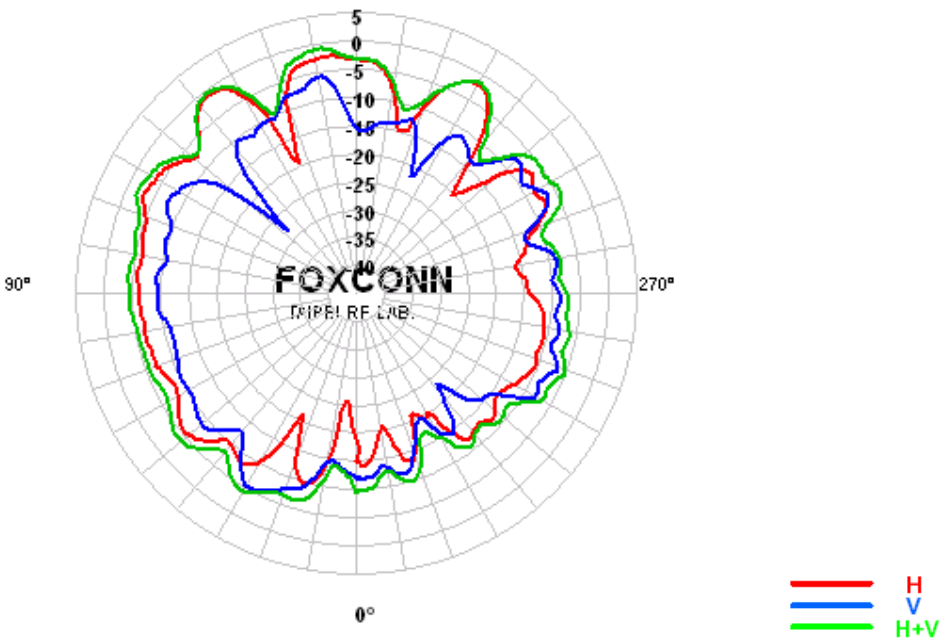
Center Frequency	5850 MHz
Horizontal (dBi) peak	-2.46
Vertical (dBi) peak	-5.09
Horz+Vert (dBi) peak	-2.05

Auxiliary antenna: 5470 MHz



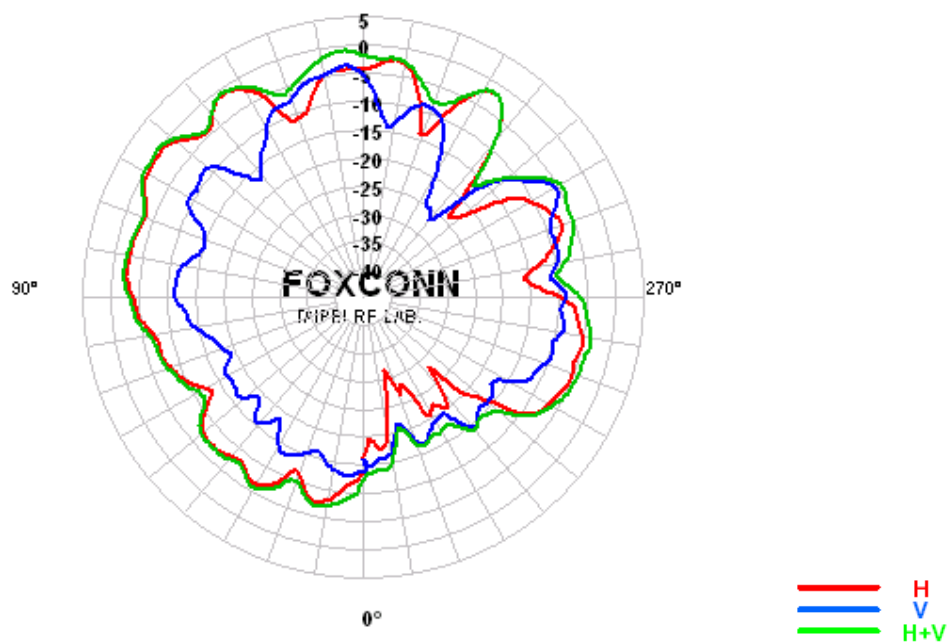
Center Frequency	5470 MHz
Horizontal (dBi) peak	-1.12
Vertical (dBi) peak	-4.50
Horz+Vert (dBi) peak	-0.18

Auxiliary antenna: 5600 MHz



Center Frequency	5600 MHz
Horizontal (dBi) peak	-0.84
Vertical (dBi) peak	-5.28
Horz+Vert (dBi) peak	-0.40

Auxiliary antenna: 5850 MHz



Center Frequency	5850 MHz
Horizontal (dBi) peak	-0.33
Vertical (dBi) peak	-3.47
Horz+Vert (dBi) peak	0.22

Section 4. Host Platform Information

OEM / ODM Host platform: (XXXXXXX) platform correlated to antenna data
Rating label photo

Module location photo

Section 5. Antenna Host Platform Location Information

Include a dimensioned photos or dimensioned drawings of main and auxiliary antenna placements.

Section 6. Antenna dimensional information for SAR evaluation

Include a dimensioned photos or 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)