

Regulatory WLAN Antenna Information

(English Language Required for Module Vendor Regulatory Review / Approval)

[illegible]

Antenna Sample / Antenna Data

Requirements for worldwide regulatory approval

Section	Description of Required OEM / ODM Antenna Information	US / IC
1A	Part Number for Antenna only	Required
1B	Antenna Manufacturer Name	Required
1C	Description of Antenna Type	Required
1D	Part number of Antenna Assembly / cable impedance, length & diameter.	Required
1E	Tx1, Tx2 & Tx3 antenna (Peak Gain W/ cable loss) *	Required
	1E OR 1F, 1G, 1H	
1F	Tx1, Tx2 & Tx3 antenna (Peak Gain only) *	Required
1G	VSWR of cable including connector	Required
1H	Tx1, Tx2 & Tx3 antenna (Cable loss W/ connector) *	Required
2	Dimensioned Photographs and Drawings of Tx1, Tx2, and Tx3 (or Rx3) antennas	Required
3	Radiation patterns of antennas loaded in the host platform.	Required
4	Platform model name / number - correlated to antenna manufacturer and antenna part number	Required
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
6	Mech. drawings / photos with dimensions of antenna locations and distance from end-user (For evaluation of SAR testing requirement).	Required
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
8	Local representative contact information for LMA/ PARS process.	Required

Antenna Information

Section 1. Antenna Assembly Specifications

Antenna Part Number	1B Manu-facturer	1C Antenna Type	Cable Assembly Part Number and Information	*Peak Gain w/ Cable loss (dBi)	Avg. Gain w/ Cable Loss (dBi)	Max VSWR	Freq Range MHz
(P/N: 025.9022E.0001 (0ACAR021029N)) Main Antenna	High-Tek Electronics Co., Ltd	PIFA	Connector:SpeedTech C87P115-00002-H 50 Ohm Coaxial Cable Length: 125 mm Diameter:1.13 mm	1.96	-3.52	3.00	2400-2500
				2.92	-3.54	3.00	5150-5350
				2.65	-3.64	3.00	5470-5725
				2.65	-3.64	3.00	5725-5850
							5925-6425
							6425-6525
							6525-6875
							6875-7125
(P/N: 025.9022F.0001 (0ACAR021030N)) Aux Antenna	High-Tek Electronics Co., Ltd	PIFA	Connector:SpeedTech C87P115-00002-H 50 Ohm Coaxial Cable Length: 120 mm Diameter:1.13 mm	1.6	-3.66	3.00	2400-2500
				2.29	-3.57	3.00	5150-5350
				1.03	-3.47	3.00	5470-5725
				1.25	-3.47	3.00	5725-5850
							5925-6425
							6425-6525
							6525-6875
							6875-7125

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

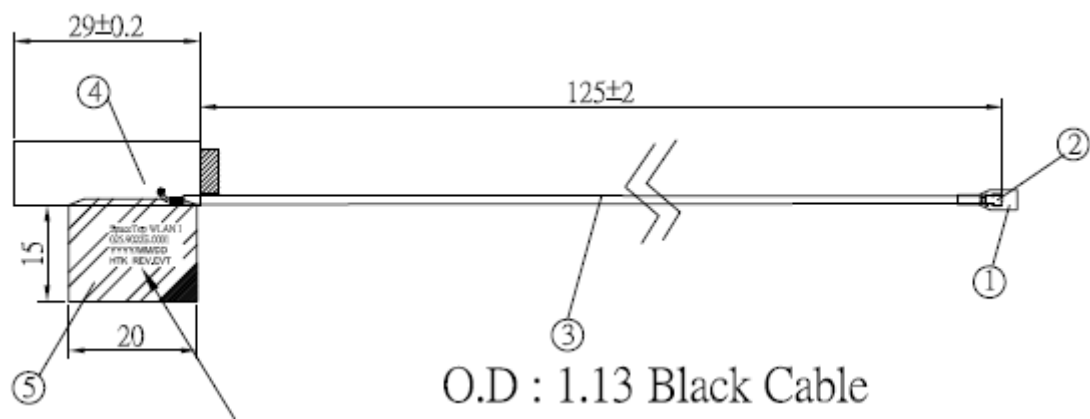
Antenna Peak Gain Table:

	Main(WLAN1) antenna	Aux(WLAN2) Antenna
Frequency (MHz)	H+V(dBi)	H+V(dBi)
2400	1.96	1.60
2450	0.86	0.56
2500	0.39	0.28
5150	2.92	0.59
5250	2.61	1.59
5350	2.60	2.29
5470	2.36	1.03
5600	1.55	-0.20
5725	2.65	0.79
5785	2.35	0.47
5850	2.19	1.25
5925	N/A	N/A
6000	N/A	N/A
6125	N/A	N/A
6225	N/A	N/A
6325	N/A	N/A
6425	N/A	N/A
6525	N/A	N/A
6625	N/A	N/A
6725	N/A	N/A
6875	N/A	N/A
6925	N/A	N/A
7000	N/A	N/A
7125	N/A	N/A

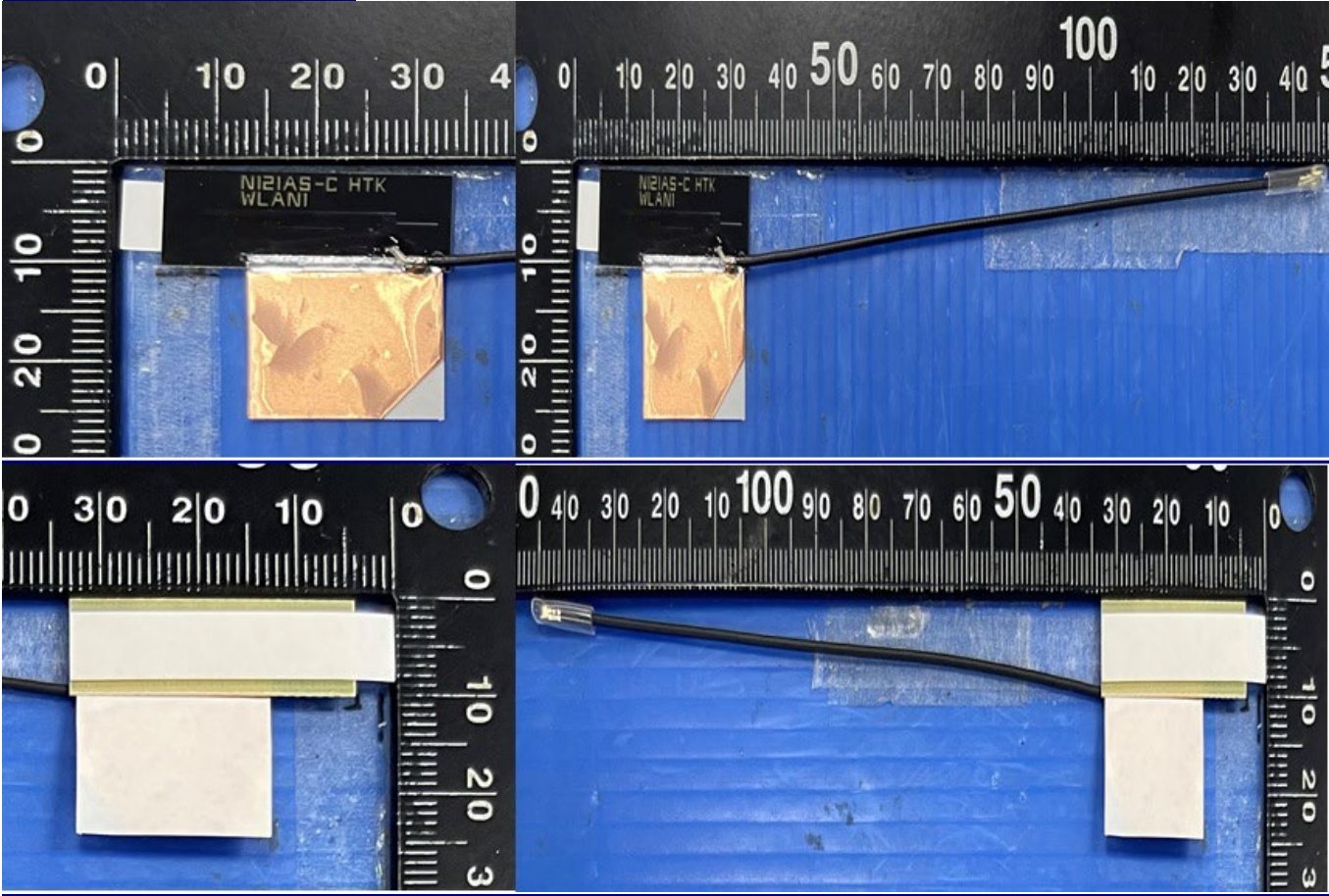
Section 2. Dimensioned Photos or Drawings of Antennas

Include a dimensioned photo and dimensioned drawing of WLAN1 antenna here.

WLAN1 Antenna Dimensioned Drawing:

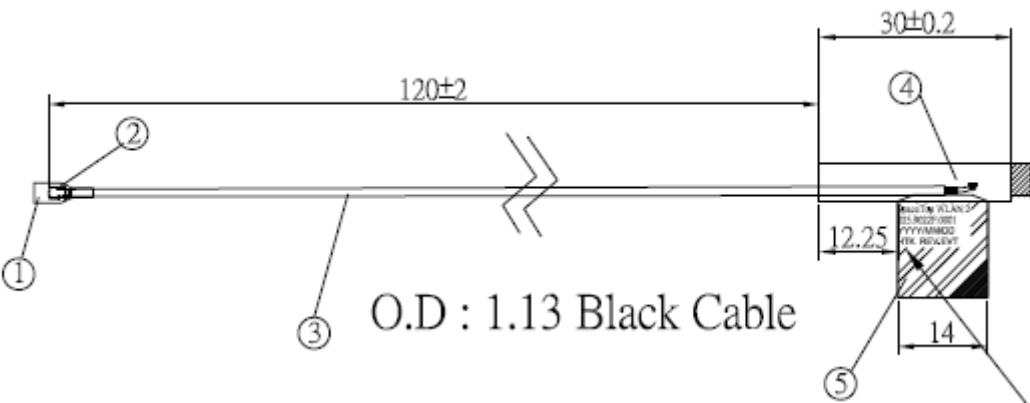


WLAN1 Antenna Photo:

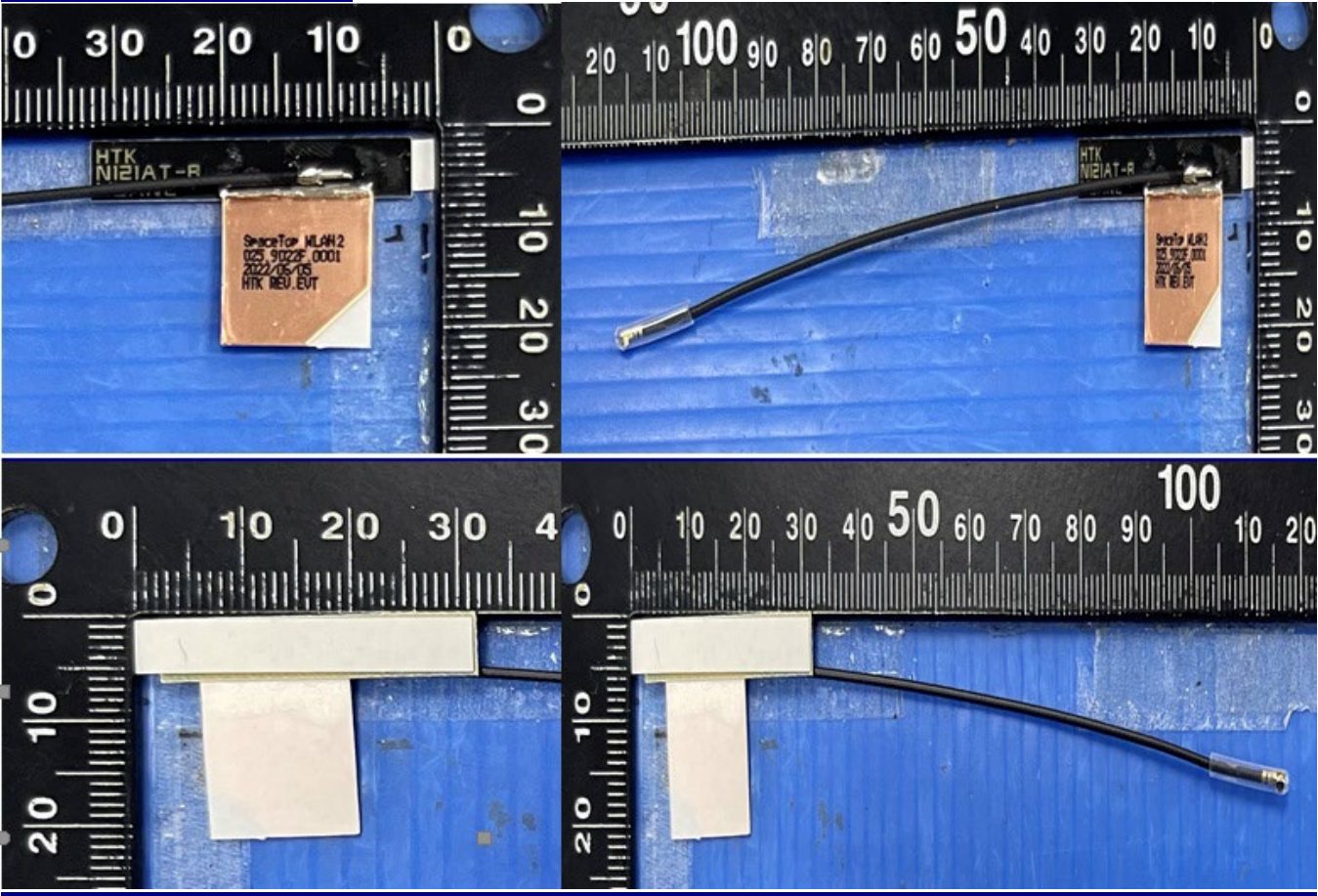


Include a dimensioned photo and dimensioned drawing of WLAN2 antenna here.

WLAN2 Antenna Dimensioned Drawing:



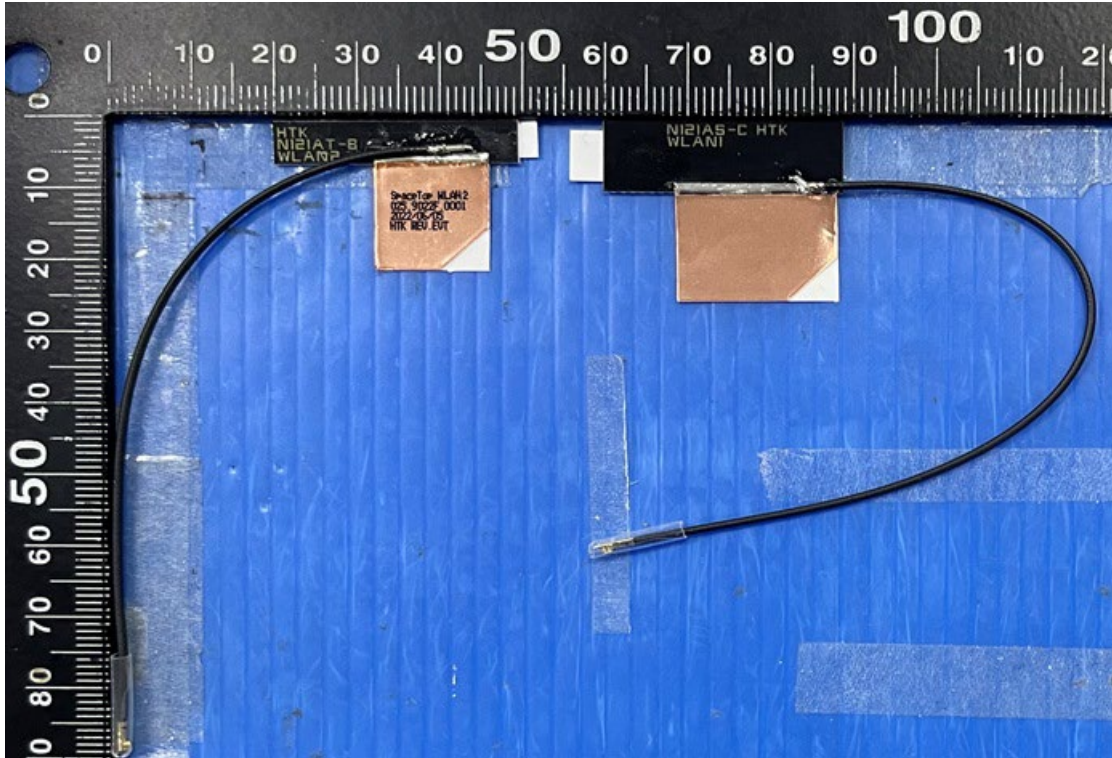
WLAN2 Antenna Photo:



Include front view photo of all 2 antennas here.

Antenna Manufacturer: High-Tek Electronics Co., Ltd

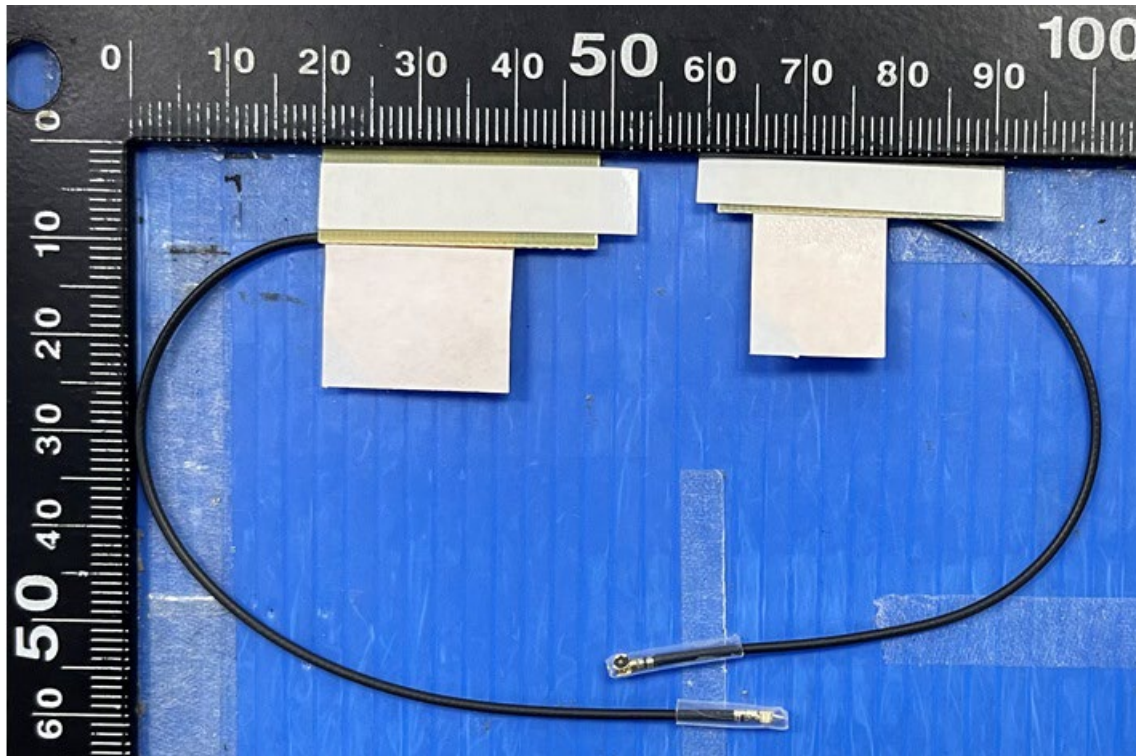
Antenna Part Number : 025.9022E.0001 (0ACAR021029N) (WLAN1),025.9022F.0001 (0ACAR021030N) (WLAN2)



Include back view photo of all 2 antennas here.

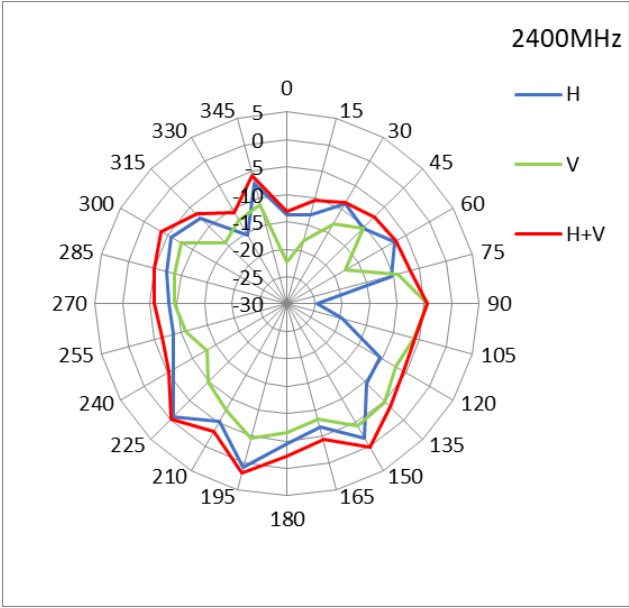
Antenna Manufacturer: High-Tek Electronics Co., Ltd

Antenna Part Number : 025.9022E.0001 (0ACAR021029N) (WLAN1),025.9022F.0001 (0ACAR021030N) (WLAN2)



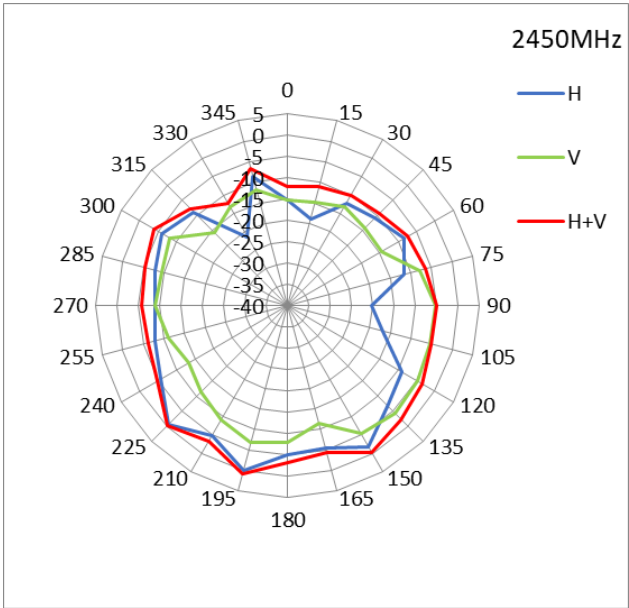
Section 3. Radiation characteristics of antennae Loaded in Host Platform
2400-2500MHz radiation characteristic

WLAN1 antenna: 2400 MHz

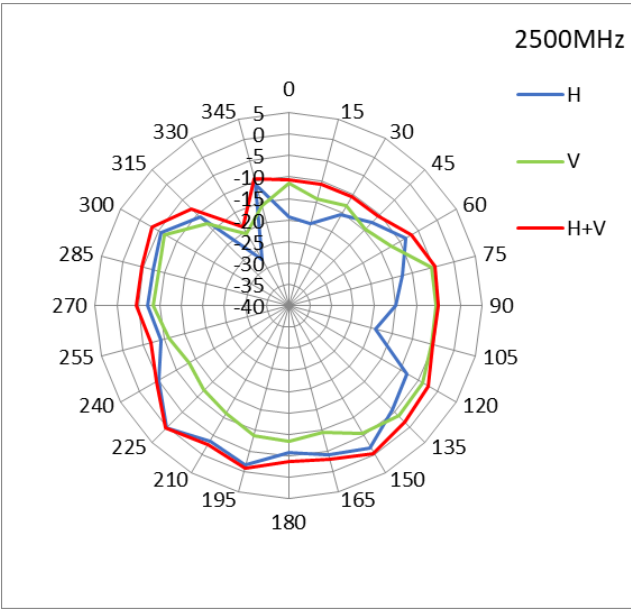


Center Frequency	2400 MHz
Horizontal+ Vertical (dBi) peak	1.96

WLAN1 antenna: 2450 MHz

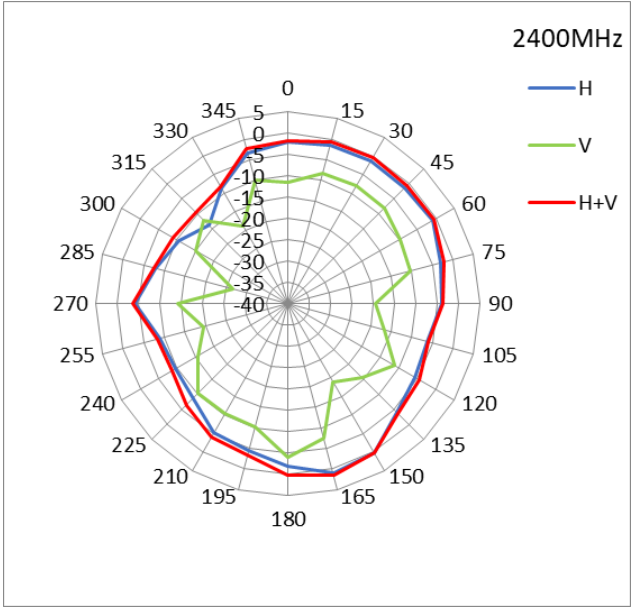


Center Frequency	2450 MHz
Horizontal+ Vertical (dBi) peak	0.86

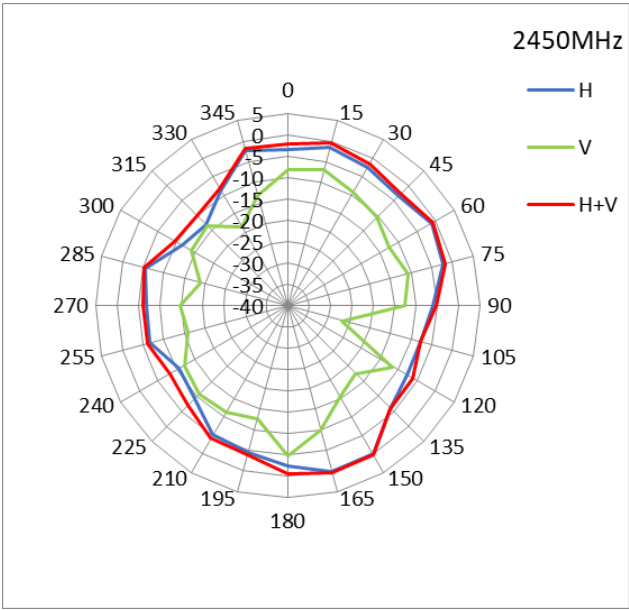


Center Frequency	2500 MHz
Horizontal+ Vertical (dBi) peak	0.39

WLAN2 antenna: 2400 MHz

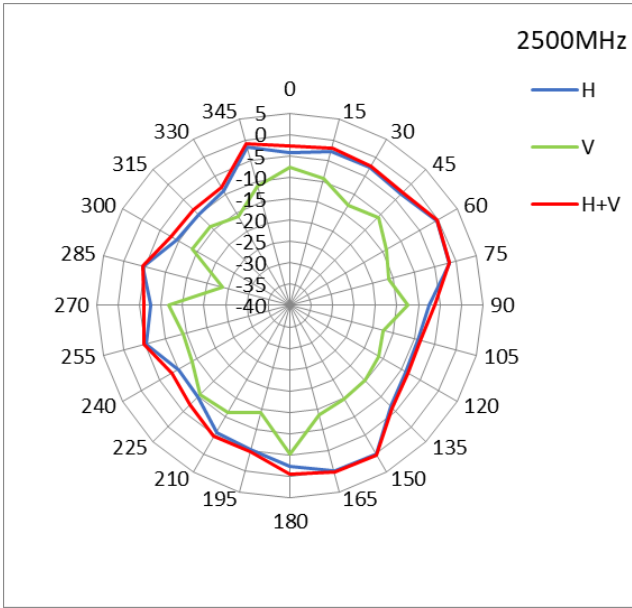


Center Frequency	2400 MHz
Horizontal+ Vertical (dBi) peak	1.60

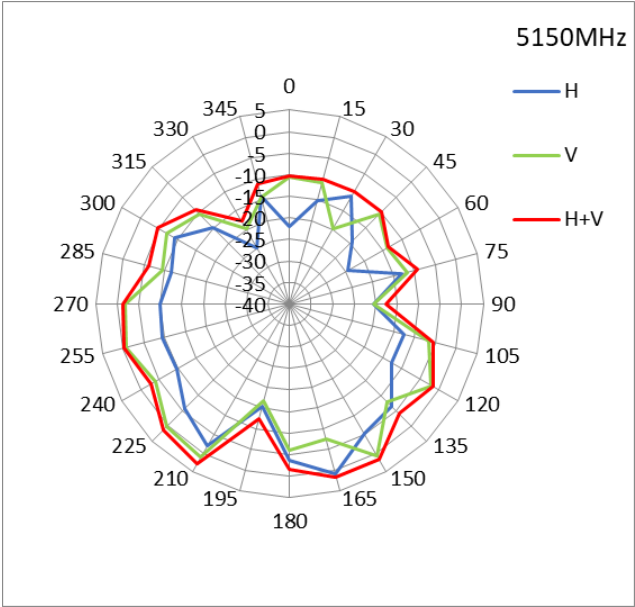


Center Frequency	2450 MHz
Horizontal+ Vertical (dBi) peak	0.56

WLAN2 antenna: 2500 MHz

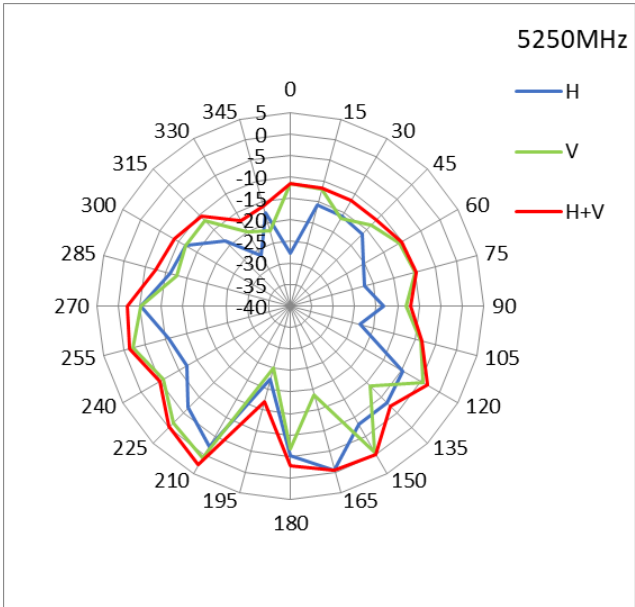


Center Frequency	2500 MHz
Horizontal+ Vertical (dBi) peak	0.28

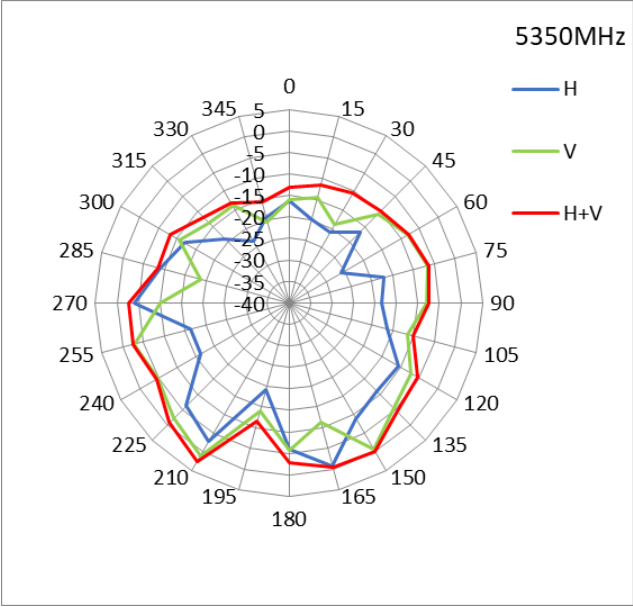


Center Frequency	5150 MHz
Horizontal+ Vertical (dBi) peak	2.92

WLAN1 antenna: 5250 MHz

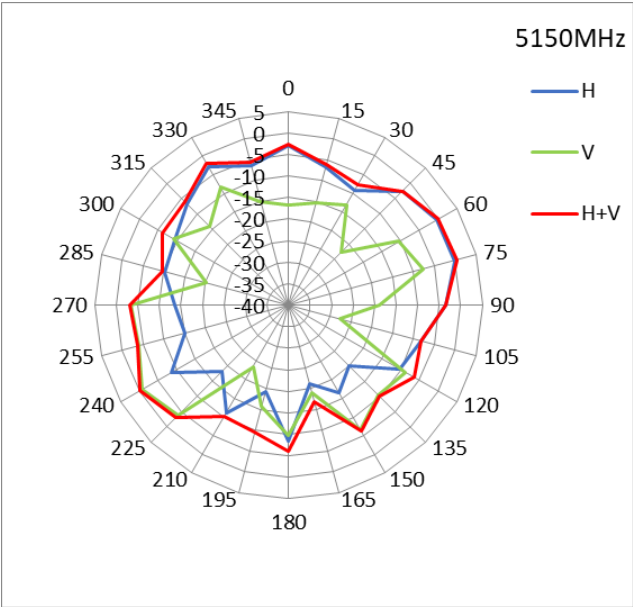


Center Frequency	5250 MHz
Horizontal+ Vertical (dBi) peak	2.61

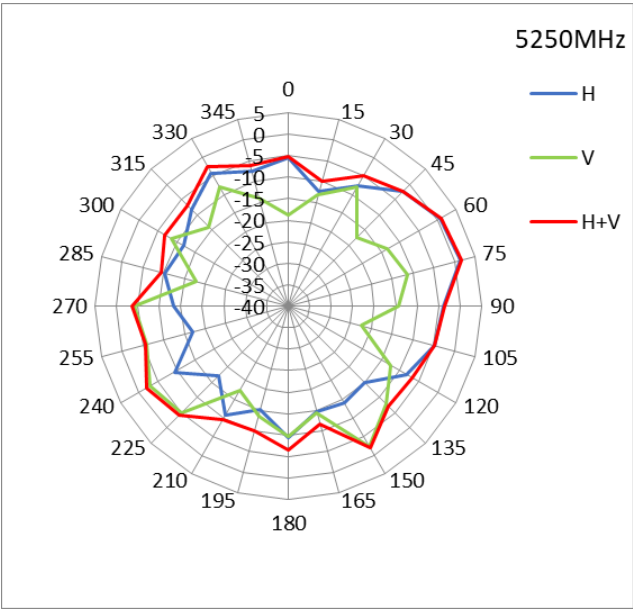


Center Frequency	5350 MHz
Horizontal+ Vertical (dBi) peak	2.60

WLAN2 antenna: 5150 MHz

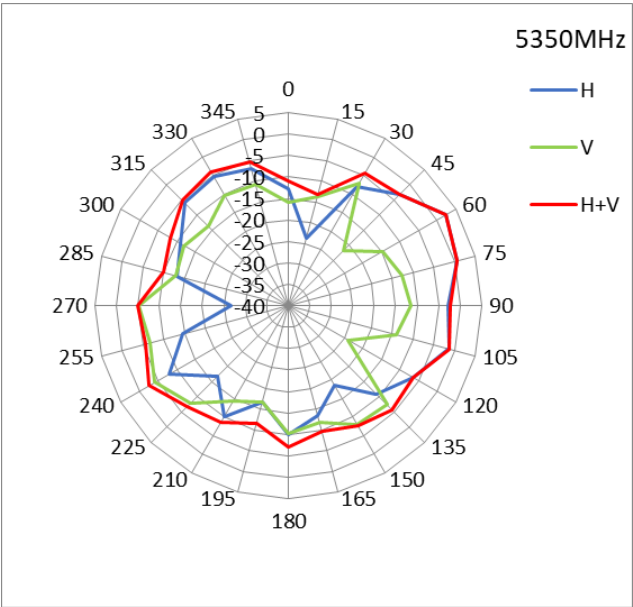


Center Frequency	5150 MHz
Horizontal+ Vertical (dBi) peak	0.59



Center Frequency	5250 MHz
Horizontal+ Vertical (dBi) peak	1.59

WLAN2 antenna: 5350 MHz

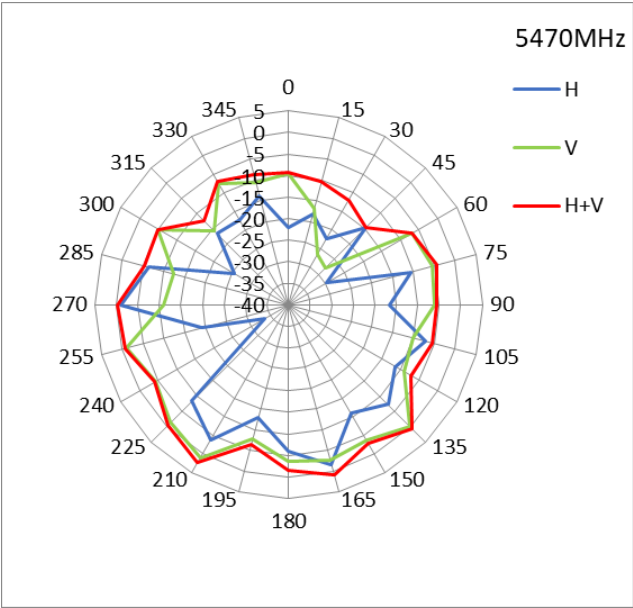


Center Frequency	5350 MHz
Horizontal+ Vertical (dBi) peak	2.29

Doc.No.:3.8.05 Rev – 8.0 draft

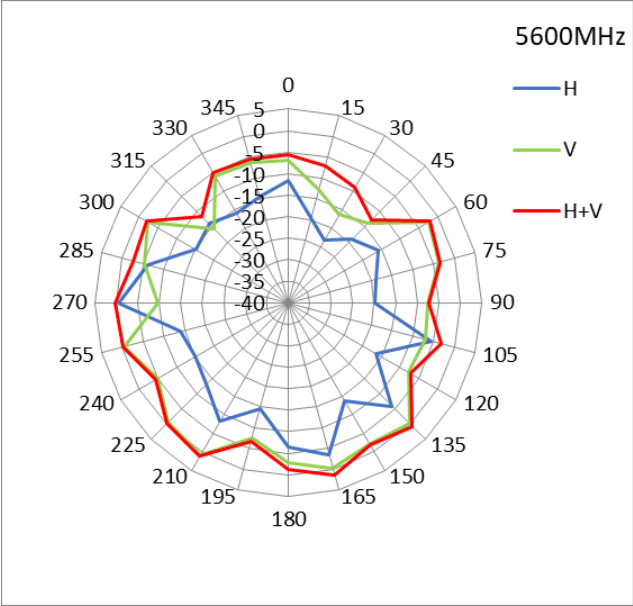
5470-5725MHz radiation characteristic

WLAN1 antenna: 5470 MHz

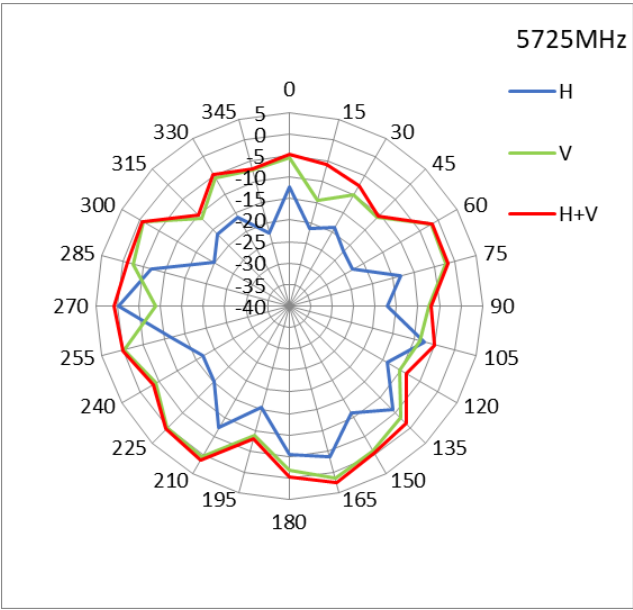


Center Frequency	5470 MHz
Horizontal+ Vertical (dBi) peak	2.36

WLAN1 antenna: 5600 MHz

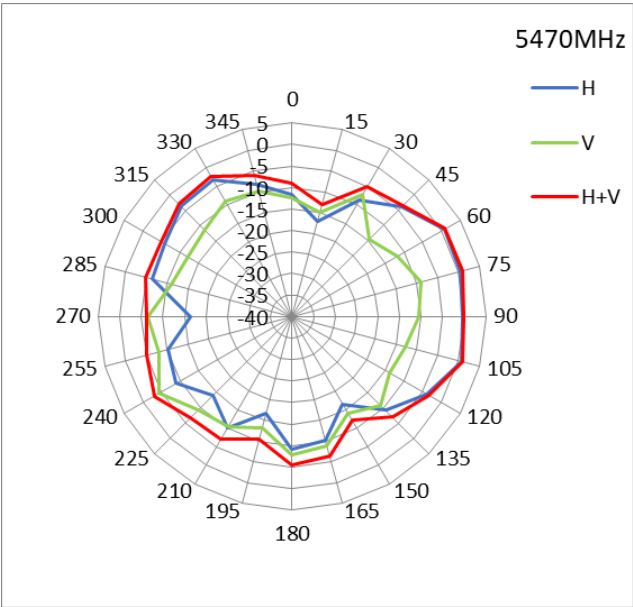


Center Frequency	5600 MHz
Horizontal+ Vertical (dBi) peak	1.55

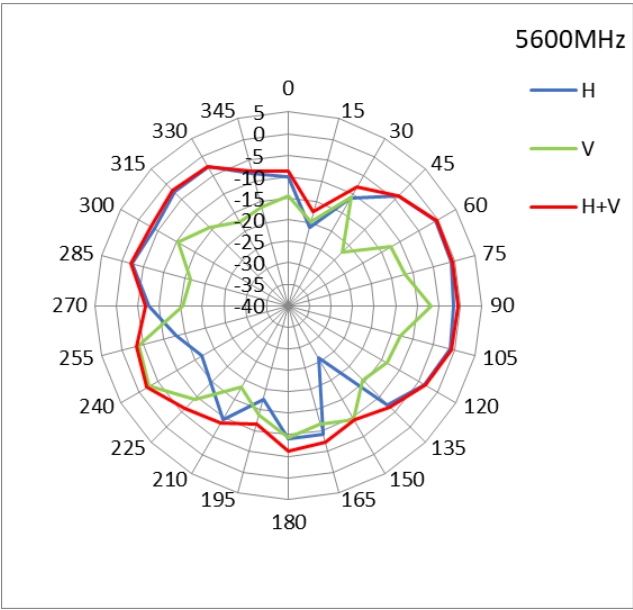


Center Frequency	5725 MHz
Horizontal+ Vertical (dBi) peak	2.65

WLAN2 antenna: 5470 MHz

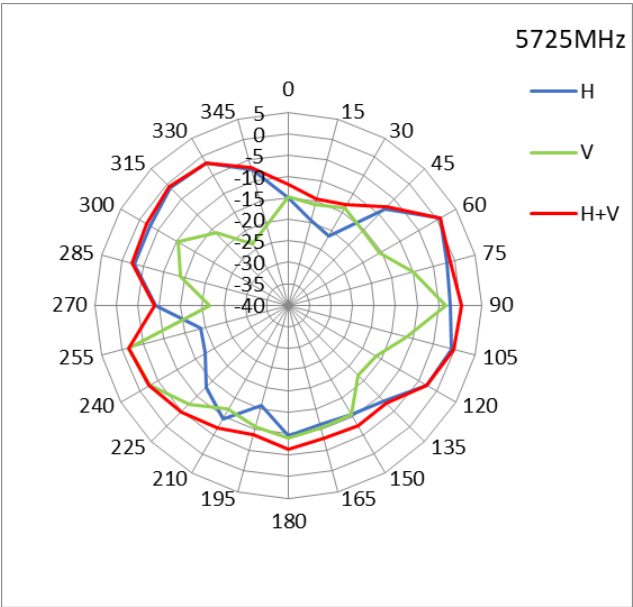


Center Frequency	5470 MHz
Horizontal+ Vertical (dBi) peak	1.03



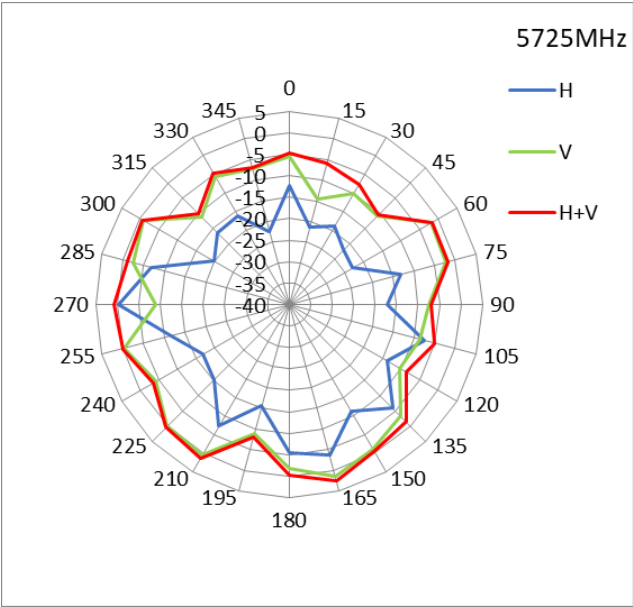
Center Frequency	5600 MHz
Horizontal+ Vertical (dBi) peak	-0.20

WLAN2 antenna: 5725 MHz



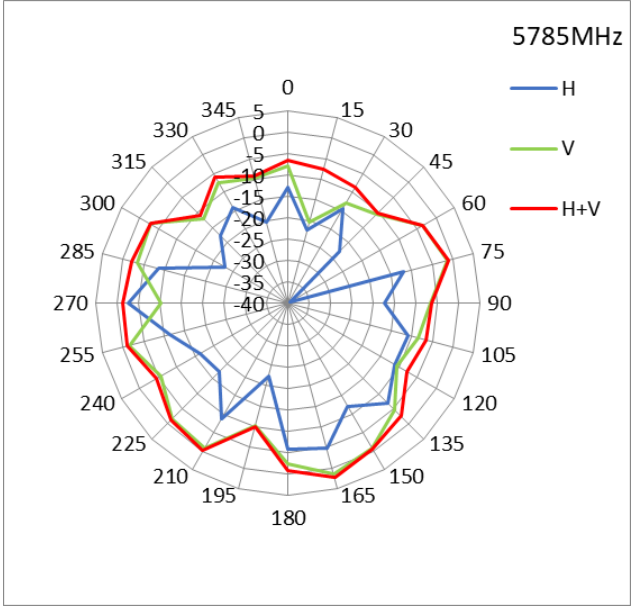
Center Frequency	5725 MHz
Horizontal+ Vertical (dBi) peak	0.79

WLAN1 antenna: 5725 MHz

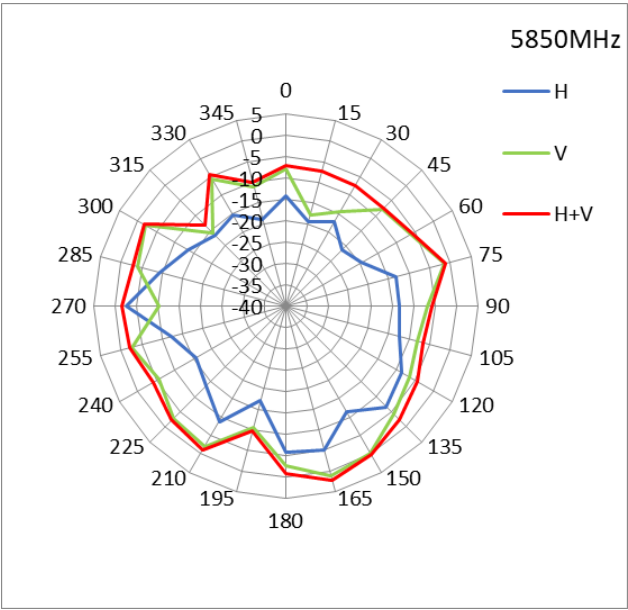


Center Frequency	5725 MHz
Horizontal+ Vertical (dBi) peak	2.65

WLAN1 antenna: 5785 MHz

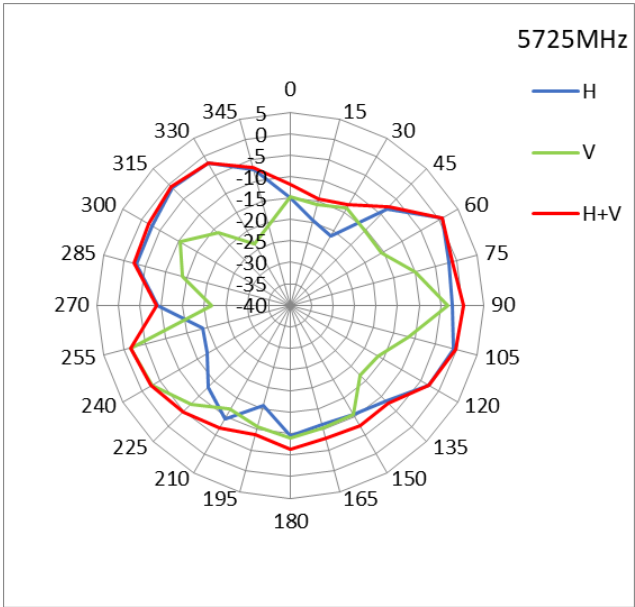


Center Frequency	5785 MHz
Horizontal+ Vertical (dBi) peak	2.35

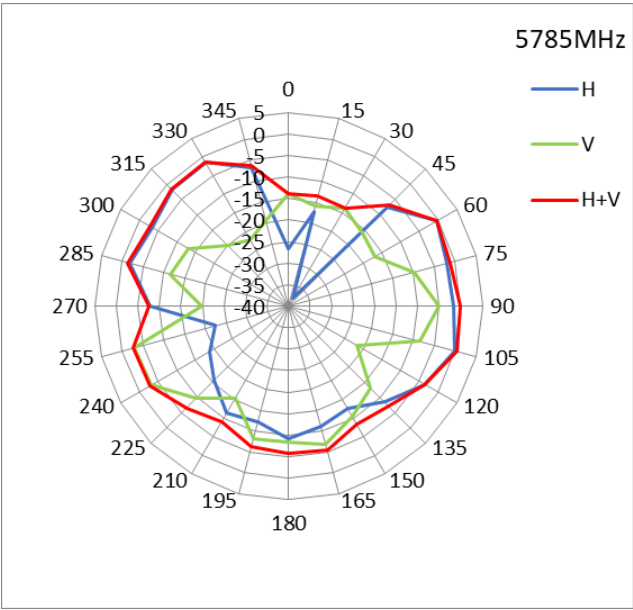


Center Frequency	5850 MHz
Horizontal+ Vertical (dBi) peak	2.19

WLAN2 antenna: 5725 MHz

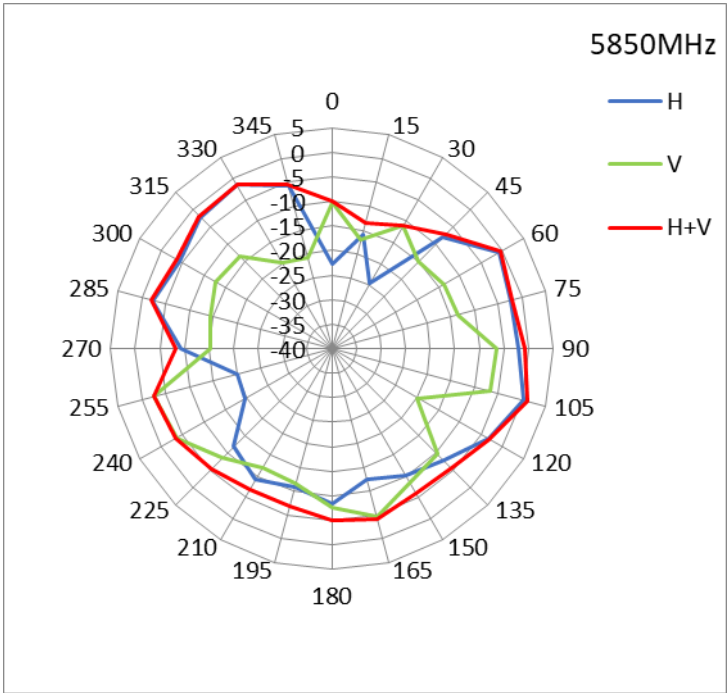


Center Frequency	5725 MHz
Horizontal+ Vertical (dBi) peak	0.79



Center Frequency	5785 MHz
Horizontal+ Vertical (dBi) peak	0.47

WLAN2 antenna: 5850 MHz



Center Frequency	5850 MHz
Horizontal+ Vertical (dBi) peak	1.25

Center Frequency	5925 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN1 antenna: 6000 MHz

Center Frequency	6000 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN1 antenna: 6125 MHz

Center Frequency	6125 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN1 antenna: 6225 MHz

Center Frequency	6225 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN1 antenna: 6325 MHz

Center Frequency	6325 MHz
Horizontal+ Vertical (dBi) peak	N/A

Center Frequency	6425 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 5925 MHz

Center Frequency	5925 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 6000 MHz

Center Frequency	6000 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 6125 MHz

Center Frequency	6125 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 6225 MHz

Center Frequency	6225 MHz
Horizontal+ Vertical (dBi) peak	N/A

Center Frequency	6325 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 6425 MHz

Center Frequency	6425 MHz
Horizontal+ Vertical (dBi) peak	N/A

6425-6525MHz radiation characteristic

WLAN1 antenna: 6425 MHz

Center Frequency	6425 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN1 antenna: 6525 MHz

Center Frequency	6525 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 6425 MHz

Center Frequency	6425 MHz
Horizontal+ Vertical (dBi) peak	N/A

Center Frequency	6525 MHz
Horizontal+ Vertical (dBi) peak	N/A

6525-6875MHz radiation characteristic

WLAN1 antenna: 6525 MHz

Center Frequency	6525 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN1 antenna: 6625 MHz

Center Frequency	6625 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN1 antenna: 6725 MHz

Center Frequency	6725 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN1 antenna: 6875 MHz

Center Frequency	6875 MHz
Horizontal+ Vertical (dBi) peak	N/A

Center Frequency	6525 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 6625 MHz

Center Frequency	6625 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 6725 MHz

Center Frequency	6725 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 6875 MHz

Center Frequency	6875 MHz
Horizontal+ Vertical (dBi) peak	N/A

6875-7125MHz radiation characteristic

WLAN1 antenna: 6875 MHz

Center Frequency	6875 MHz
Horizontal+ Vertical (dBi) peak	N/A

Center Frequency	6925 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN1 antenna: 7000 MHz

Center Frequency	7000 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN1 antenna: 7125 MHz

Center Frequency	7125 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 6875 MHz

Center Frequency	6875 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 6925 MHz

Center Frequency	6925 MHz
Horizontal+ Vertical (dBi) peak	N/A

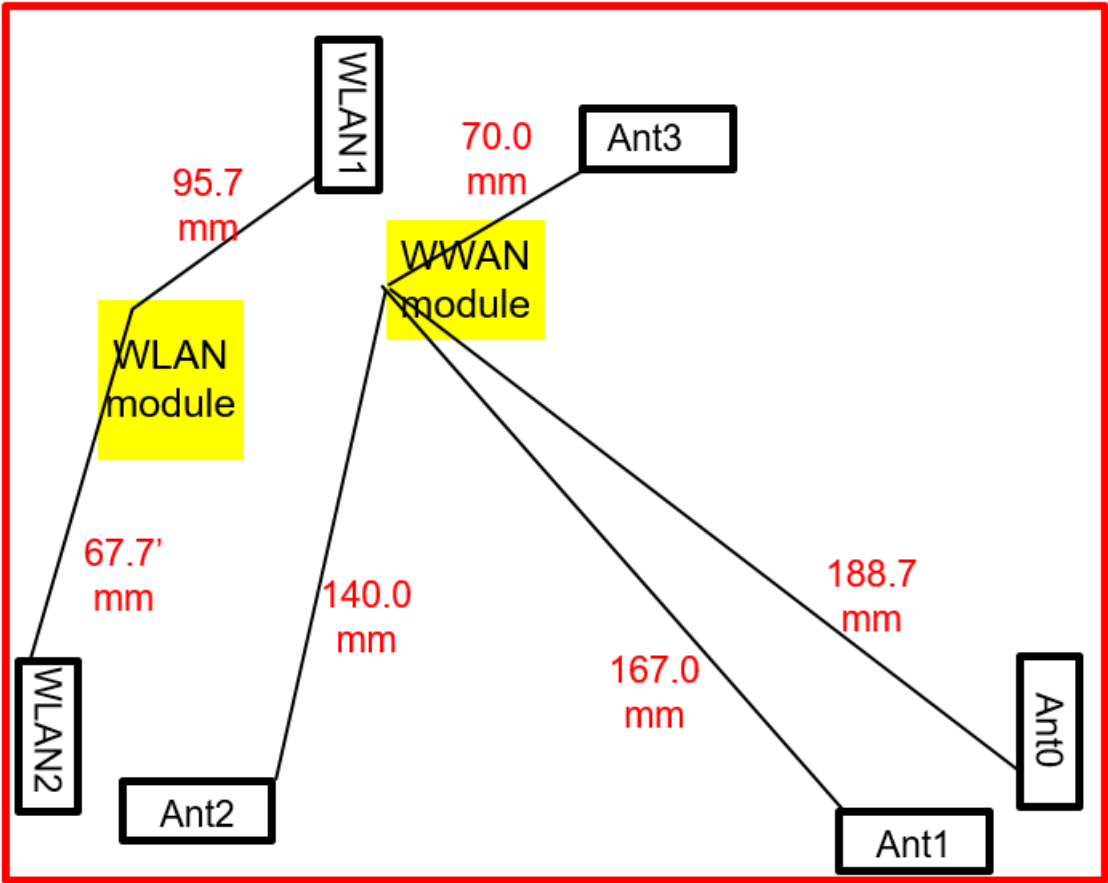
Center Frequency	7000 MHz
Horizontal+ Vertical (dBi) peak	N/A

WLAN2 antenna: 7125 MHz

Center Frequency	7125 MHz
Horizontal+ Vertical (dBi) peak	N/A

Section 4. Antenna Host Platform Location Information

Include a **dimensioned photo(s) or dimensioned drawing(s)** of Main and Aux antenna placements (measurements are not required for receive-only antenna). Any antenna that transmits must show dimensions to bottom of laptop. Provide a description of the materials that are used for supporting or surrounding transmit antennas; for example, non-conductive plastics vs. conductive coated plastic or metallic materials.



Section 6. Diagram Example of Co-Location Antenna Separation

Include a **dimensioned photo or dimensioned drawing** showing the distance (mm) between all WLAN transmit antennas and other co-located radiator transmit antenna such as Bluetooth, WWAN,..

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

