Regulatory WLANAntenna Information(Template)

(English Language Required for Intel Regulatory Review / Approval)
(OEM/ODM or antenna vendor is required to complete this document with platform antenna information.
Remove Intel references and make this your own document)

Platform information				
Brand	**ODM**	**Platform model name**	**Platform type (ex: regular NB, convertible PC, AIO…etc)**	**SAR minimum separation (mm)**
Lenovo	3nod	Lenovo Miix 520-12IKB	NB	

Antenna information				Peak gain w/ cable loss (dBi)			
Vendor	**Type**	**Antenna Part number (Main)**	**Antenna Part number (Aux)**	**2.4GHz**	**5.2GHz**	**5.5GHz**	**5.8GHz**
Shenzhen South Star Technology Co., LTD	PIFA	64451203900010	64451203900020	1.76	2.14	2.42	2.21

Module information (Pls check with "x" when applies, or to fill-in proper model in empty column)

Model	Form factor and suffixes												
3165 (StP 1)		NGW											
8265 (WP 2)		NGW											

Intel Reference Gain/Type/ Separation distance

	Antenna Peak gain (In dBi)				Distance to the end user (mm)	
Antenna Type	2.4GHz	5.2GHz	5.5GHz	5.8GHz		
PIFA	3	5	5	5	>8 (generic sku) >5 (low power sku)	

Notes (marked with •)

• SAR minimum separation (mm)

- Regular NB: Minimum antenna-to-body (from antenna bottom to the bottom of the device)
- Tablet / Convertible PC: Minimum antenna-to-edge (5 sides of the device)

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& Tx3antenna (Cable loss W/ connector)*	Required	Required	Required	Required	Required
2	Dimensioned Photographs and 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.(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, 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

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)
(64451203900010) Tx1/ Rx1 Antenna	Shenzhen South Star Technology Co., LTD	PIFA	Connector : IPEX 4 50 ohm Coaxial length: 118mm diameter:0.81mm	2400-2500MHz _.1.76_ dBi (peak)	2400-2500MHz _2.01_ dBi (peak)	2400-2500MHz _2.5_ max	2400-2500MHz _0.25_ dBi (peak)
				5150-5350MHz _2.14_ dBi (peak)	5150-5350MHz _2.54_ dBi (peak)	5150-5350MHz __2.5.__ max	5150-5350MHz _0.5_ dBi (peak)
				5450-5650MHz _2.42_ dBi (peak)	5450-5650MHz _3.02_ dBi (peak)	5450-5650MHz __2.5.__ max	5450-5650MHz _0.6_ dBi (peak)
				5750-5850MHz _2.21_ dBi (peak)	5750-5850MHz _2.86_ dBi (peak)	5750-5850MHz __2.5.__ max	5750-5850MHz _0.65_ dBi (peak)
(64451203900020) Tx2/ Rx2 Antenna	Shenzhen South Star Technology Co., LTD	PIFA	Connector : IPEX 4 50 ohm Coaxial length: 280mm diameter:0.81mm	2400-2500MHz _0.86_ dBi (peak)	2400-2500MHz _1.36_ dBi (peak)	2400-2500MHz __2.5__ max	2400-2500MHz _0.5_ dBi (peak)
				5150-5350MHz _1.32_ dBi (peak)	5150-5350MHz _2.33_ dBi (peak)	5150-5350MHz __2.5__ max	5150-5350MHz _1.1_ dBi (peak)
				5450-5650MHz _1.74_ dBi (peak)	5450-5650MHz _2.94_ dBi (peak)	5450-5650MHz __2.5_ max	5450-5650MHz _1.2_ dBi (peak)
				5750-5850MHz _1.37_ dBi (peak)	5750-5850MHz _2.52_ dBi (peak)	5750-5850MHz _2.5_ max	5750-5850MHz _1.2_ dBi (peak)

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

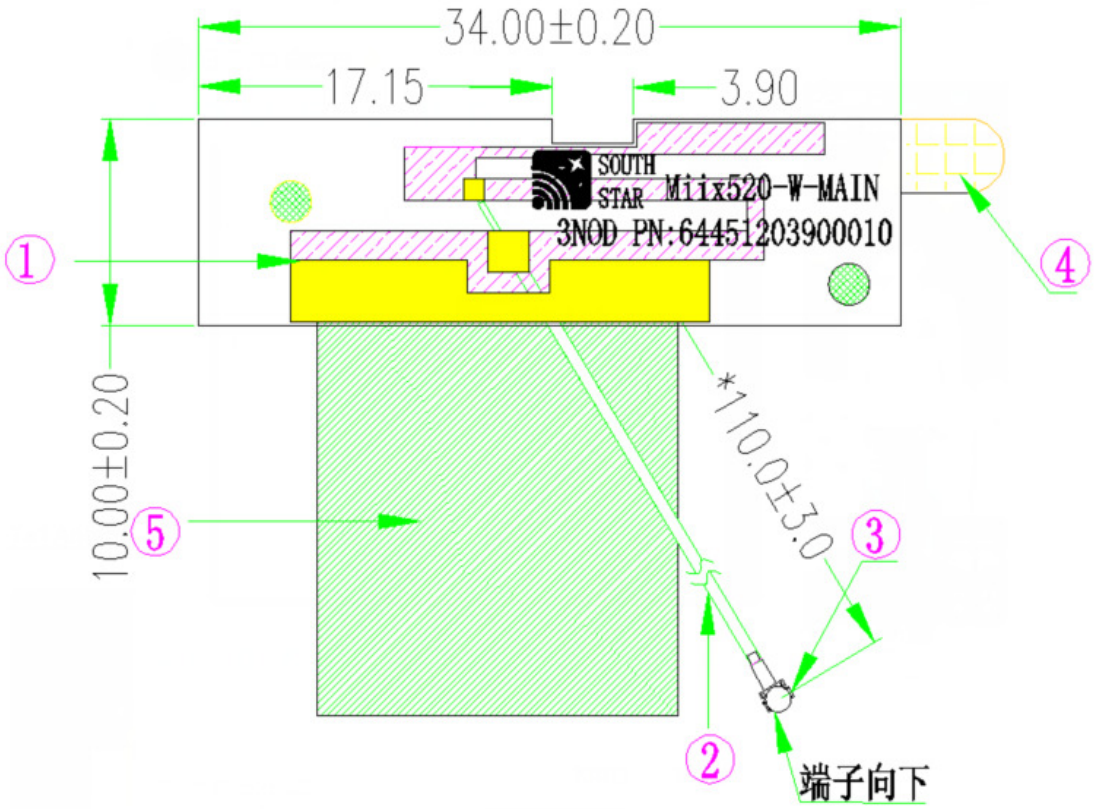
Antenna Peak Gain Table:

	Tx1 antenna		Tx2 (or Rx2) Antenna	
Frequency (MHz)	Horizontal (dBi)	Vertical (dBi)	Horizontal (dBi)	Vertical (dBi)
2400	1.32	0.37	0.86	0.42
2450	1.76	0.84	0.71	0.21
2500	1.67	0.82	0.83	0.64
5150	2.14	1.24	1.32	0.24
5250	1.86	0.79	0.87	0.48
5350	1.97	0.74	0.95	0.31
5450	2.25	0.83	1.24	0.27
5550	2.31	0.94	1.74	1.25
5650	2.42	0.88	1.57	1.14
5750	2.21	0.32	1.37	0.86
5850	1.93	0.47	1.35	1.24

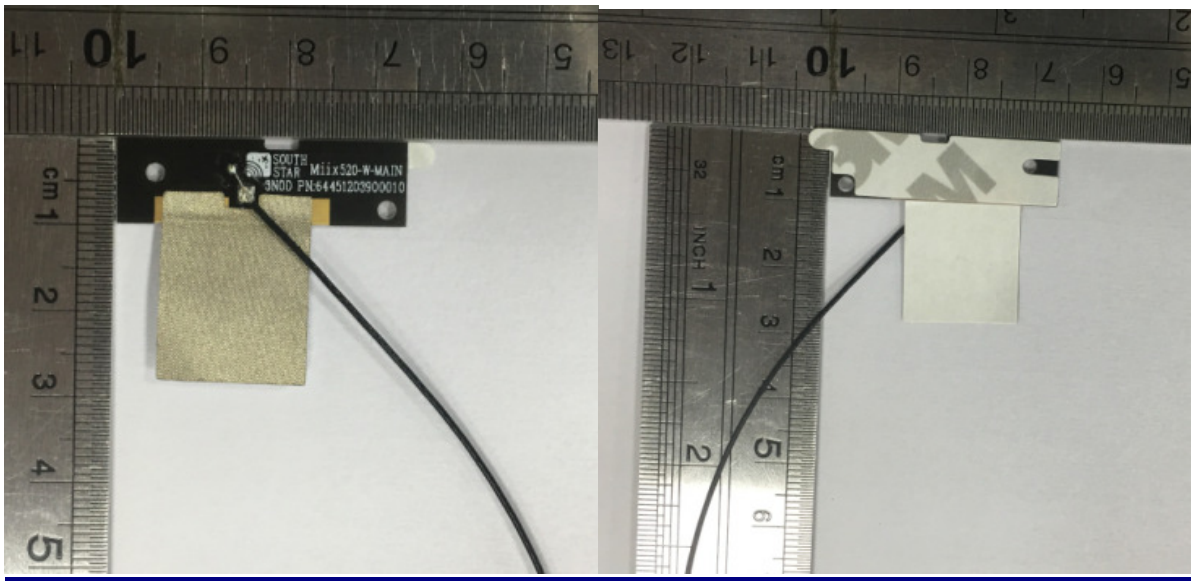
Section 2.Dimensioned Photos or Drawings of Antennas

Includea dimensioned photo and dimensioned drawing of Tx1antenna here.

Tx1 Antenna Dimensioned Drawing:

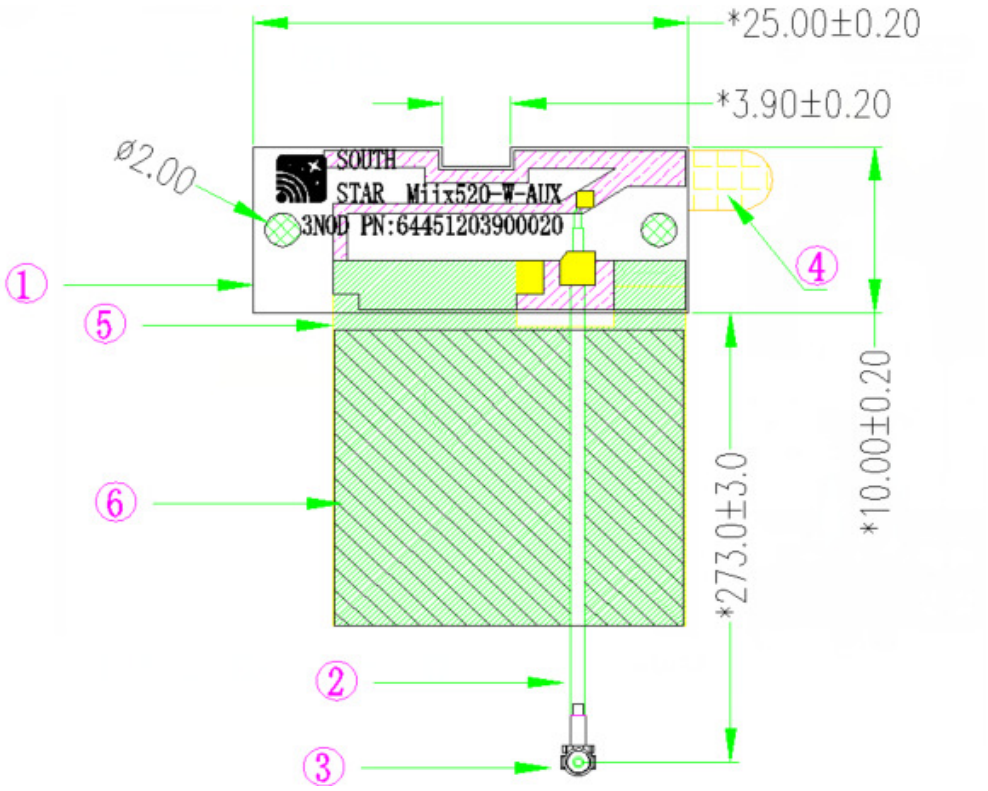


Tx1 Antenna Photo:

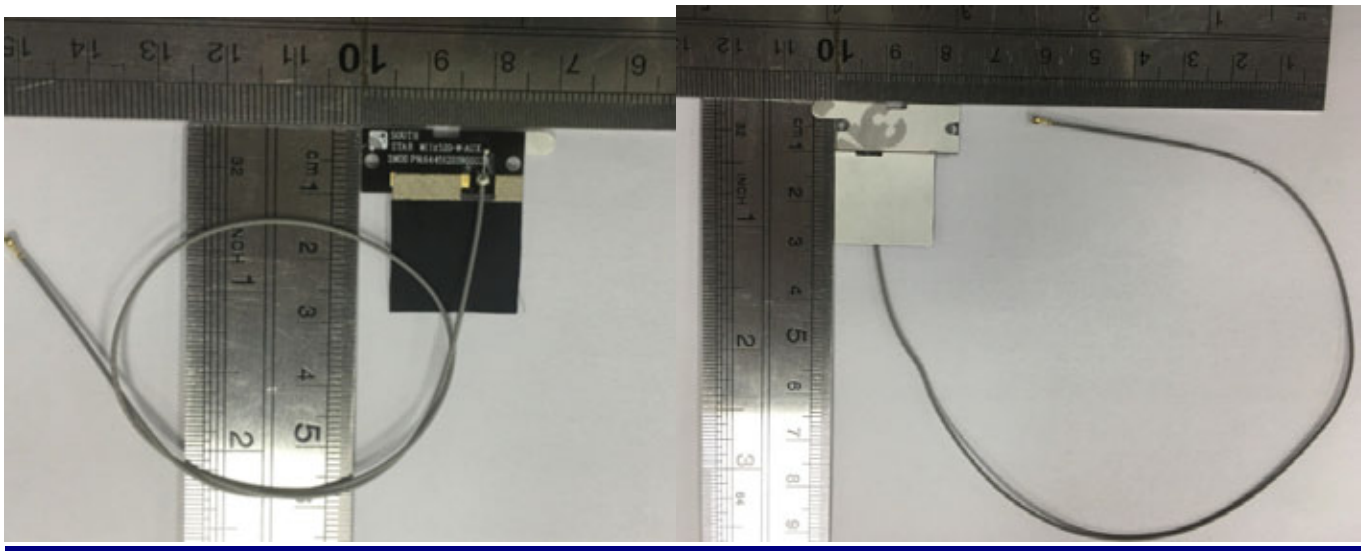


Include a dimensioned photo and dimensioned drawing of Tx2(or Rx2)antenna here.

Tx2(or Rx2) Antenna Dimensioned Drawing:

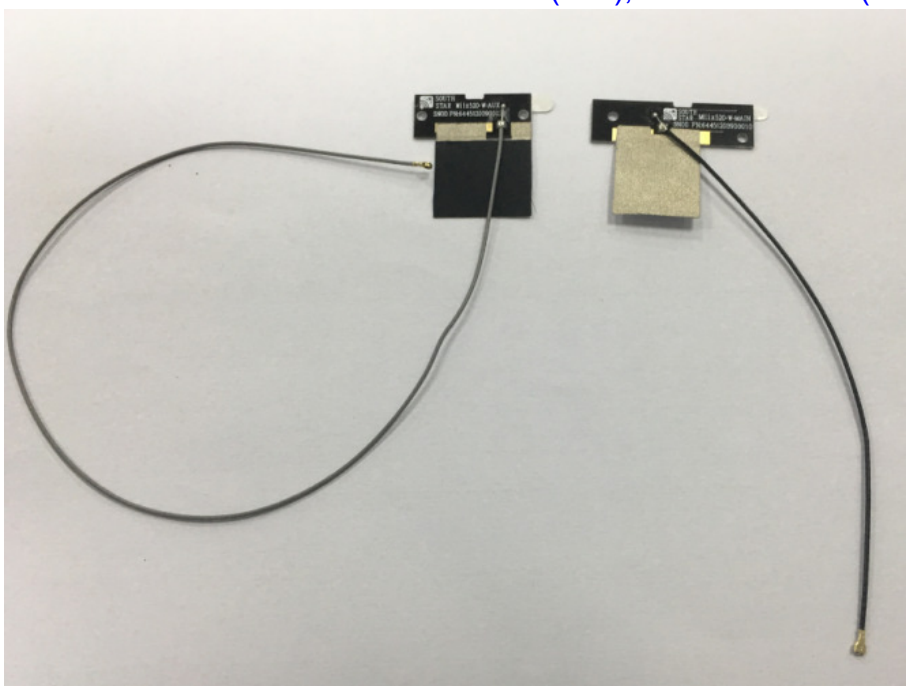


Tx2(or Rx2)Antenna Photo:



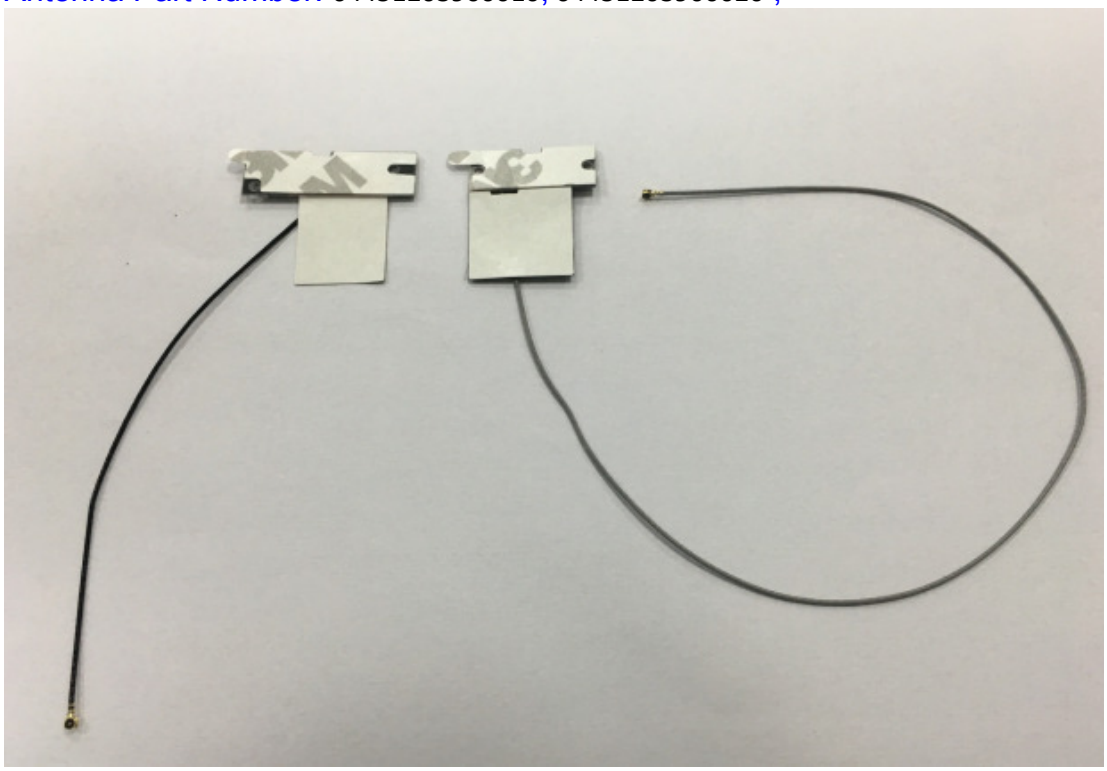
Includefront view photo of all 2antennas here.

Antenna Manufacturer: MIIX 520
Antenna Part Number: 64451203900010 (Tx1), 64451203900020 (Tx2or Rx2),



Includeback view photo of all 3 antennas here.

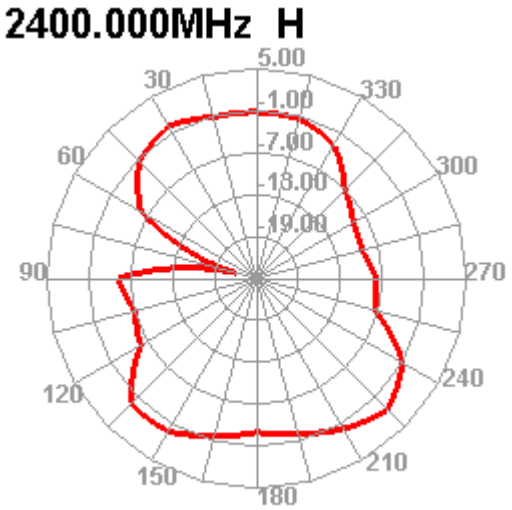
Antenna Manufacturer: MIIX 520
Antenna Part Number: 64451203900010, 64451203900020 ,

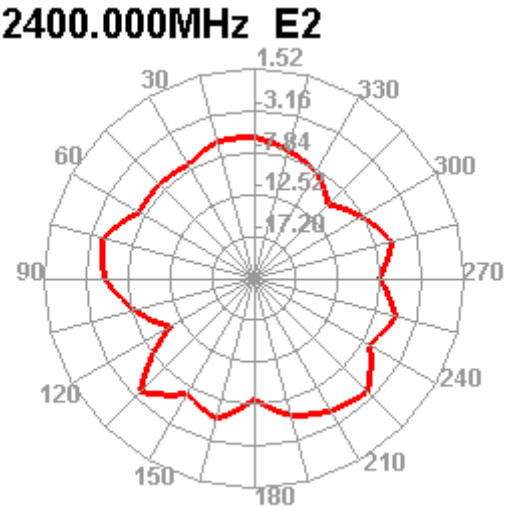


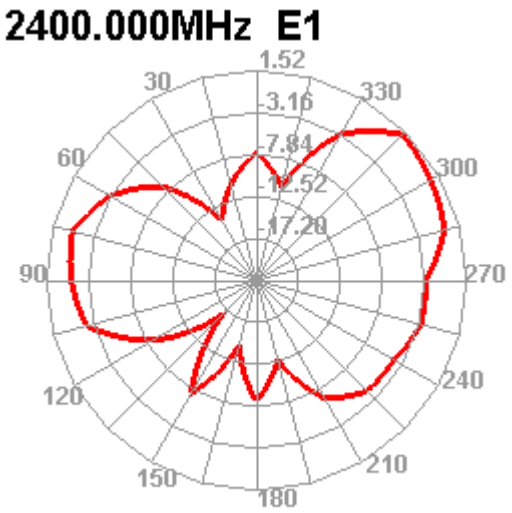
Section 3.Radiation characteristics of antennaeLoaded in Host Platform

2400-2500MHz radiation characteristic

Tx1 antenna: 2400 MHz

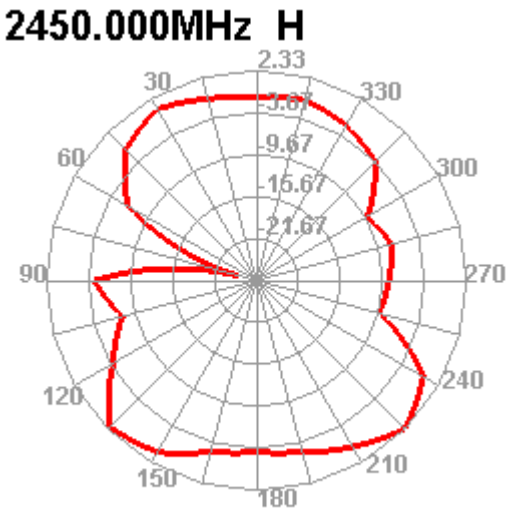


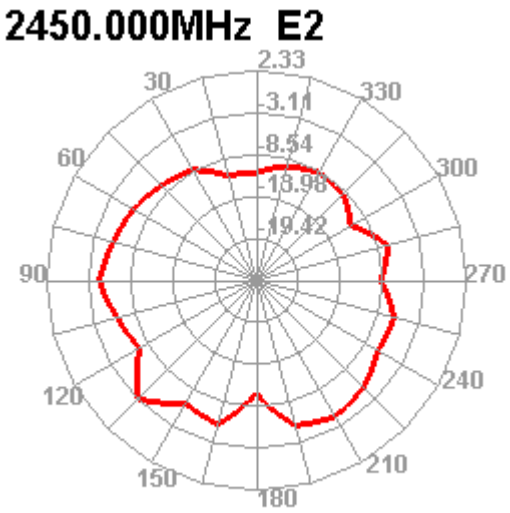


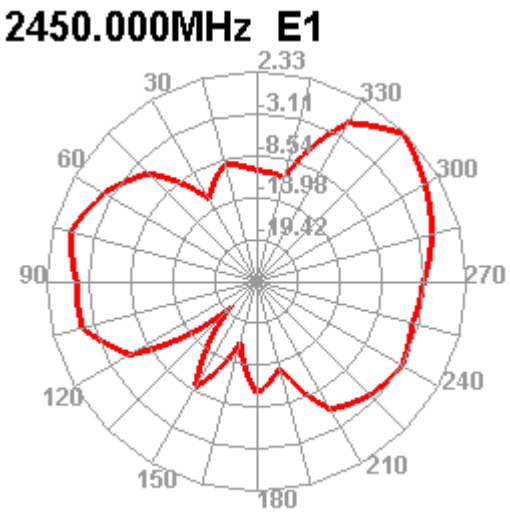


Center Frequency	**2400MHz**
Horizontal (dBi)peak	**1.32**
Vertical (dBi)peak	**0.37**

Tx1 antenna: 2450 MHz

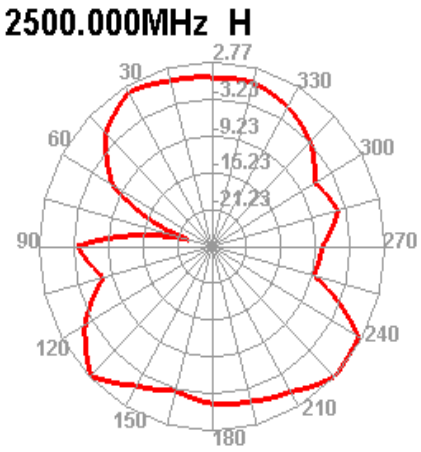


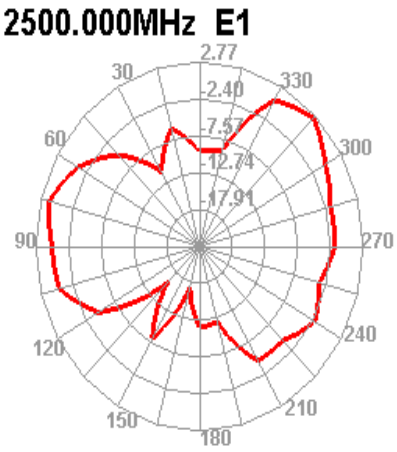


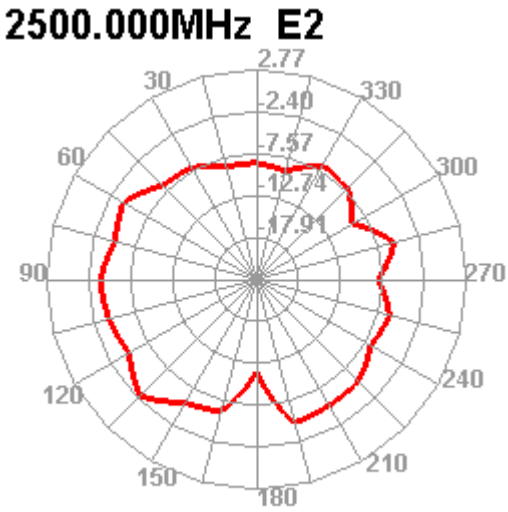


Center Frequency	**2450MHz**
Horizontal (dBi)peak	**1.76**
Vertical (dBi)peak	**0.84**

Tx1 antenna: 2500 MHz

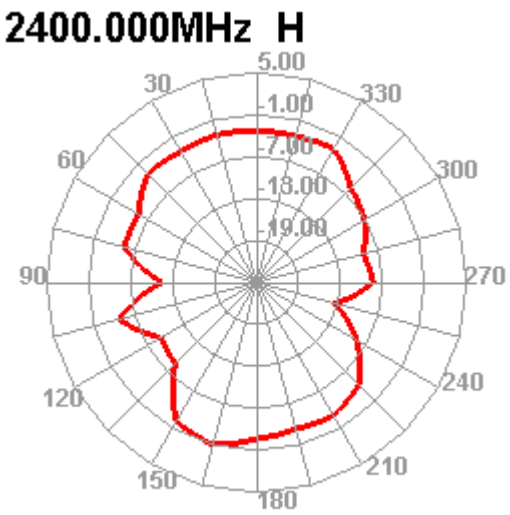






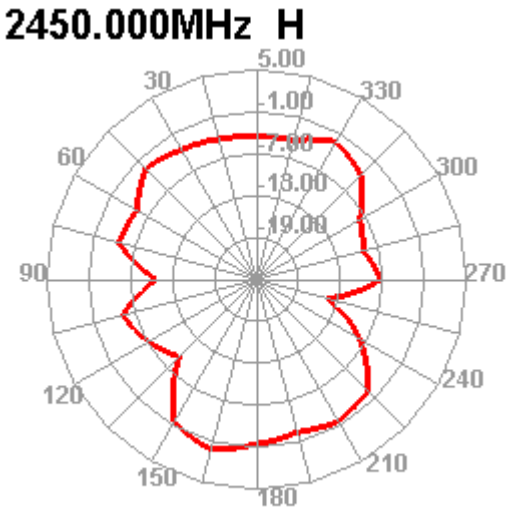
Center Frequency	**2500MHz**
Horizontal (dBi)peak	**1.67**
Vertical (dBi)peak	**0.82**

Tx2(or Rx2) antenna: 2400 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



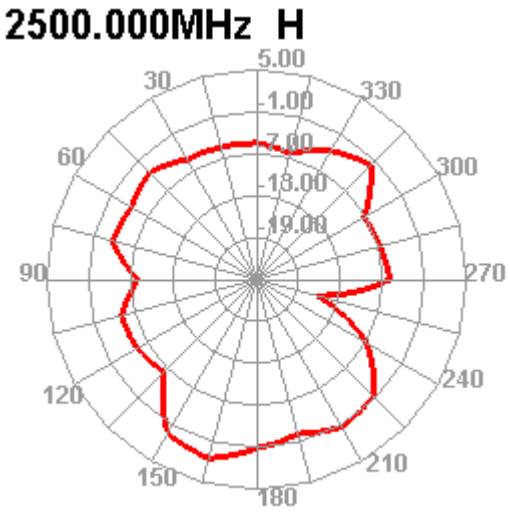
Center Frequency	**2400MHz**
Horizontal (dBi)peak	**0.86**
Vertical (dBi)peak	**0.42**

Tx2(or Rx2)antenna: 2450 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	**2450MHz**
Horizontal (dBi)peak	**0.71**
Vertical (dBi)peak	**0.21**

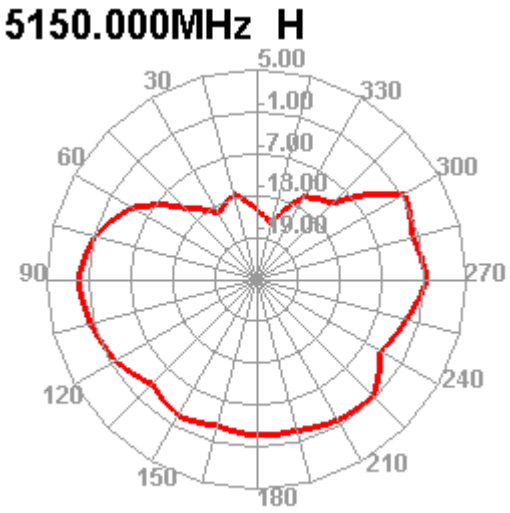
Tx2(or Rx2)antenna: 2500 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	**2500MHz**
Horizontal (dBi)peak	**0.83**
Vertical (dBi)peak	**0.64**

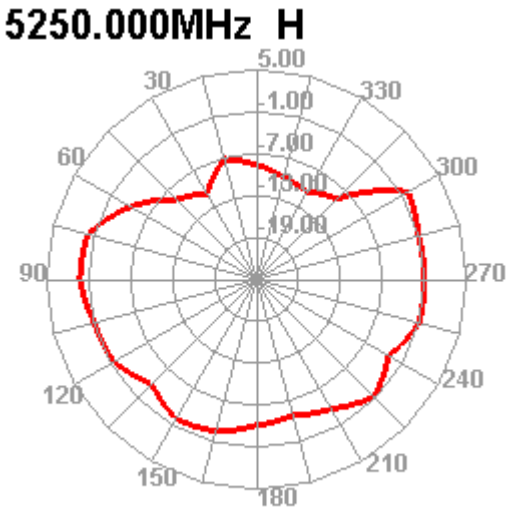
5150-5350MHz radiation characteristic

Tx1 antenna: 5150 MHz



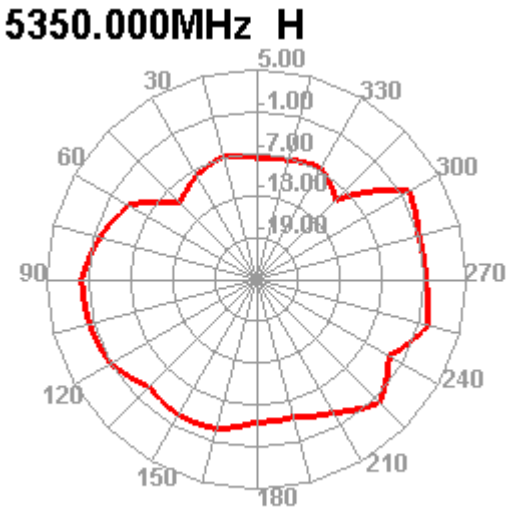
Center Frequency	**5150MHz**
Horizontal (dBi)peak	**2.02**
Vertical (dBi)peak	**1.21**

Tx1 antenna: 5250 MHz



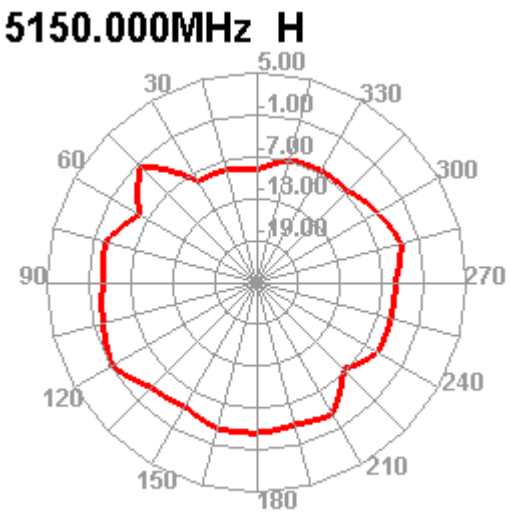
Center Frequency	**5250MHz**
Horizontal (dBi)peak	**1.86**
Vertical (dBi)peak	**0.79**

Tx1 antenna: 5350 MHz



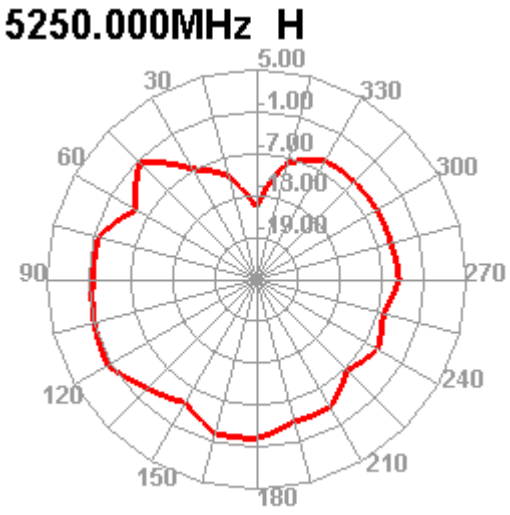
Center Frequency	**5350MHz**
Horizontal (dBi)peak	**1.97**
Vertical (dBi)peak	**0.74**

Tx2(or Rx2)antenna: 5150 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



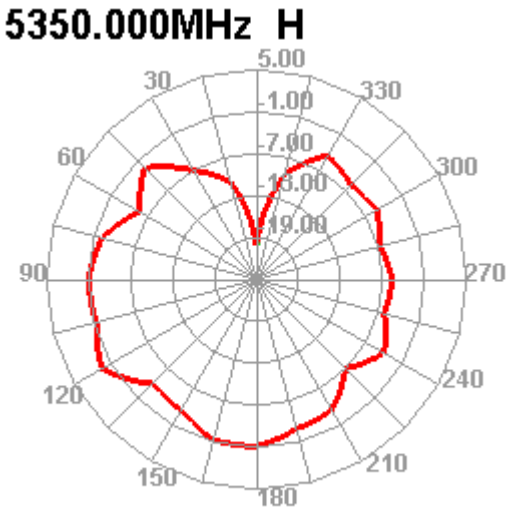
Center Frequency	**5150MHz**
Horizontal (dBi)peak	**1.32**
Vertical (dBi)peak	**0.24**

Tx2(or Rx2)antenna: 5250 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	**5250MHz**
Horizontal (dBi)peak	**0.87**
Vertical (dBi)peak	**0.48**

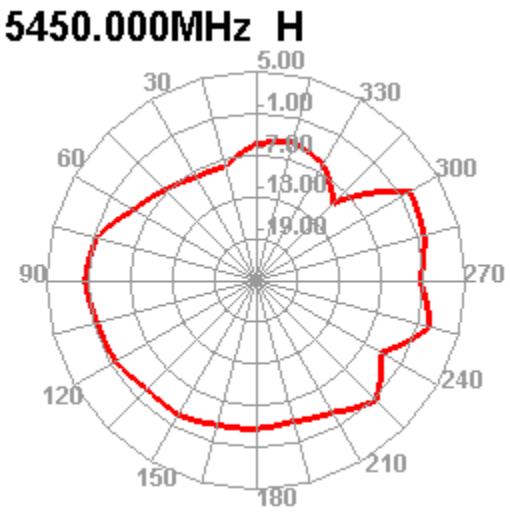
Tx2(or Rx2)antenna: 5350 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	**5350MHz**
Horizontal (dBi)peak	**0.95**
Vertical (dBi)peak	**0.31**

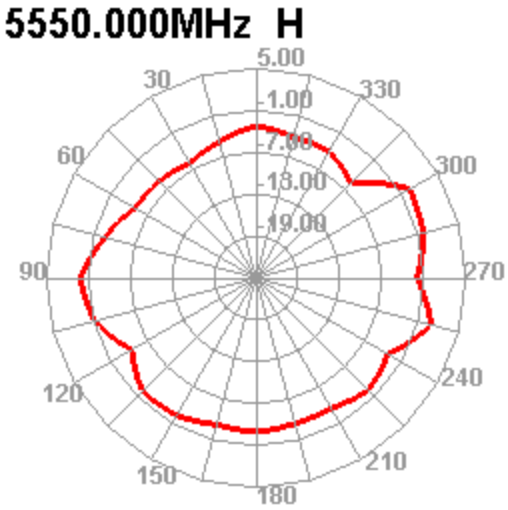
5450-5650MHz radiation characteristic

Tx1 antenna: 5450 MHz



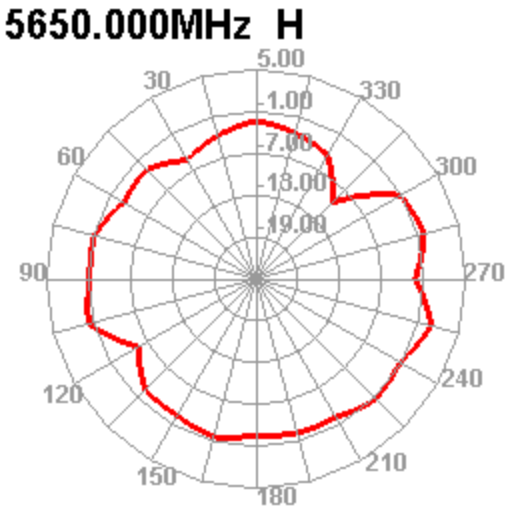
Center Frequency	5450MHz
Horizontal (dBi)peak	2.25
Vertical (dBi)peak	0.83

Tx1 antenna: 5550 MHz



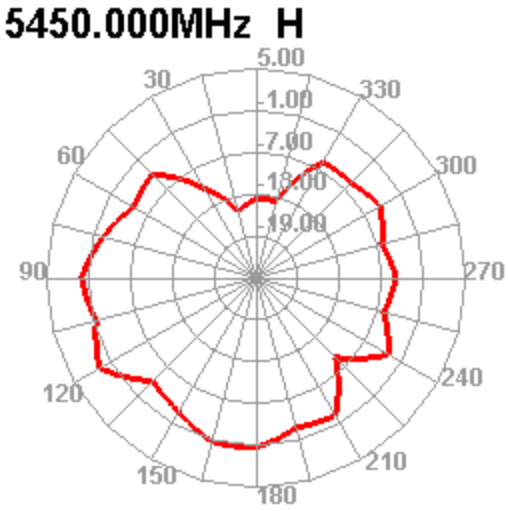
Center Frequency	5550MHz
Horizontal (dBi)peak	2.31
Vertical (dBi)peak	0.94

Tx1 antenna: 5650 MHz



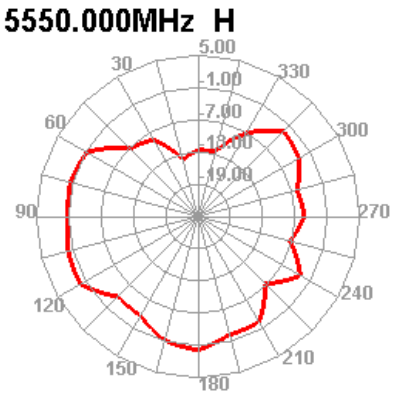
Center Frequency	5650MHz
Horizontal (dBi)peak	2.42
Vertical (dBi)peak	0.88

Tx2(or Rx2)antenna: 5450 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



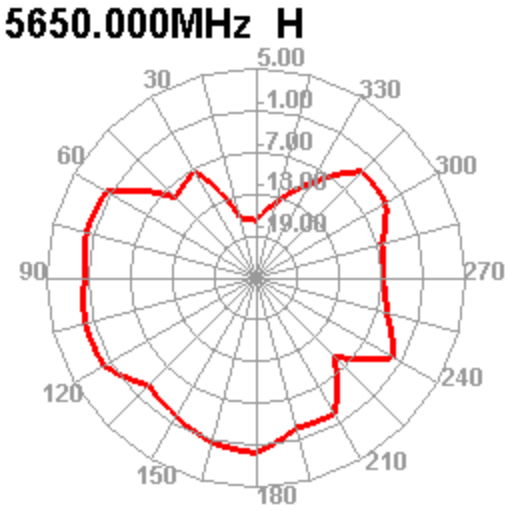
Center Frequency	5450MHz
Horizontal (dBi)peak	1.24
Vertical (dBi)peak	0.27

Tx2(or Rx2)antenna: 5550 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	**5550MHz**
Horizontal (dBi)peak	**1.74**
Vertical (dBi)peak	**1.25**

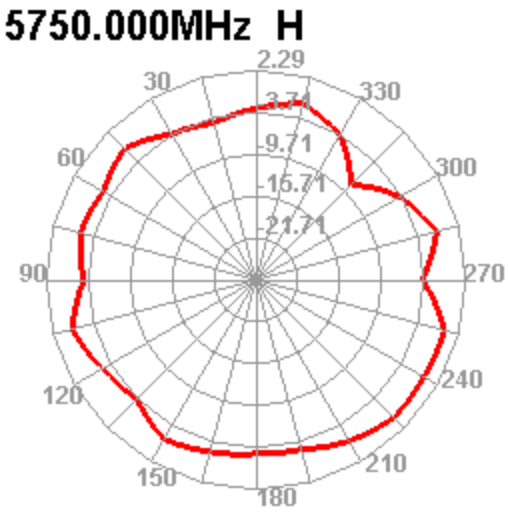
Tx2(or Rx2)antenna: 5650 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	**5650MHz**
Horizontal (dBi)peak	**1.57**
Vertical (dBi)peak	**1.14**

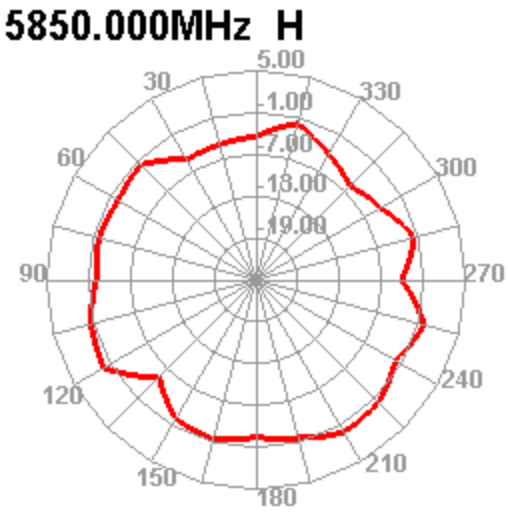
5750-5850 MHz radiation characteristic

Tx1 antenna: 5750 MHz



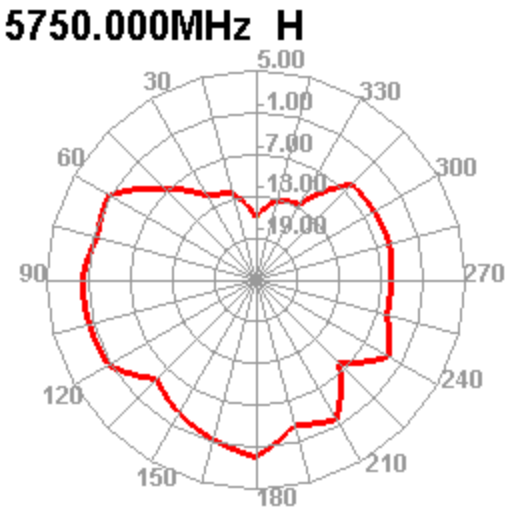
Center Frequency	5750MHz
Horizontal (dBi)peak	2.21
Vertical (dBi)peak	0.32

Tx1 antenna: 5850 MHz



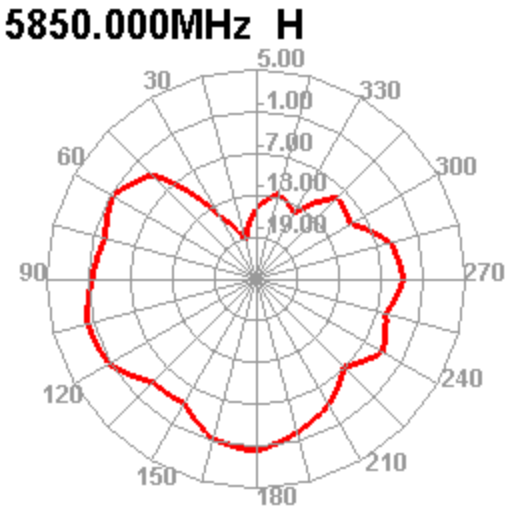
Center Frequency	5850MHz
Horizontal (dBi)peak	1.93
Vertical (dBi)peak	0.47

Tx2(or Rx2)antenna: 5750 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	5750MHz
Horizontal (dBi)peak	1.37
Vertical (dBi)peak	0.86

Tx2(or Rx2)antenna: 5850 MHz(Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)

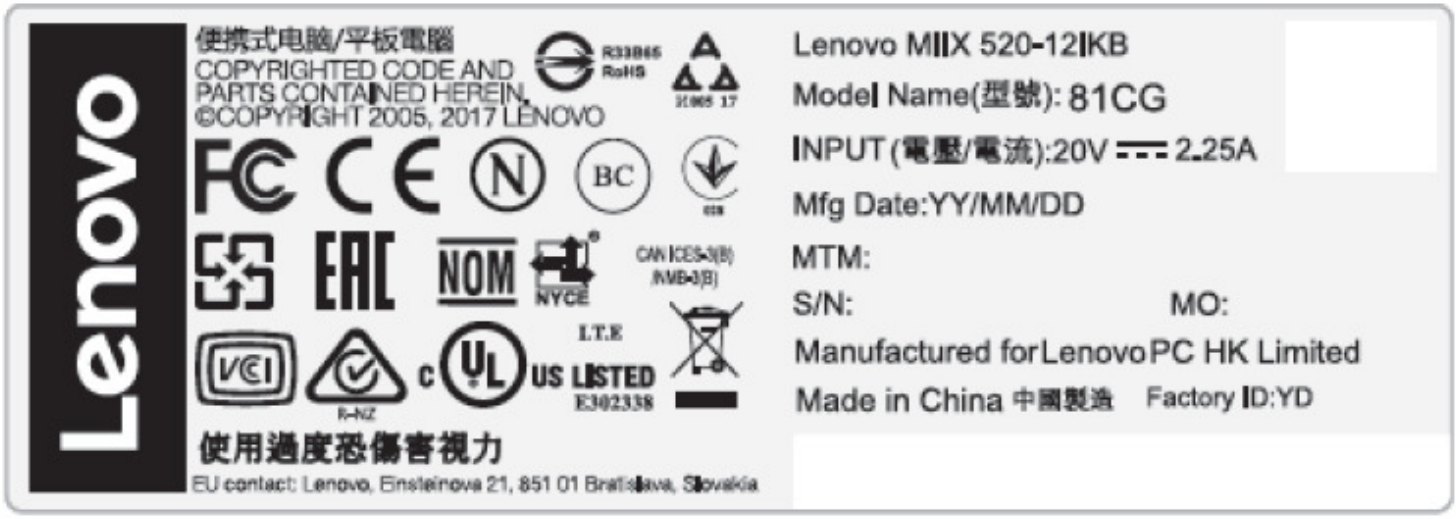


Center Frequency	5850MHz
Horizontal (dBi)peak	1.35
Vertical (dBi)peak	1.24

Section 4. Host Platform Information

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

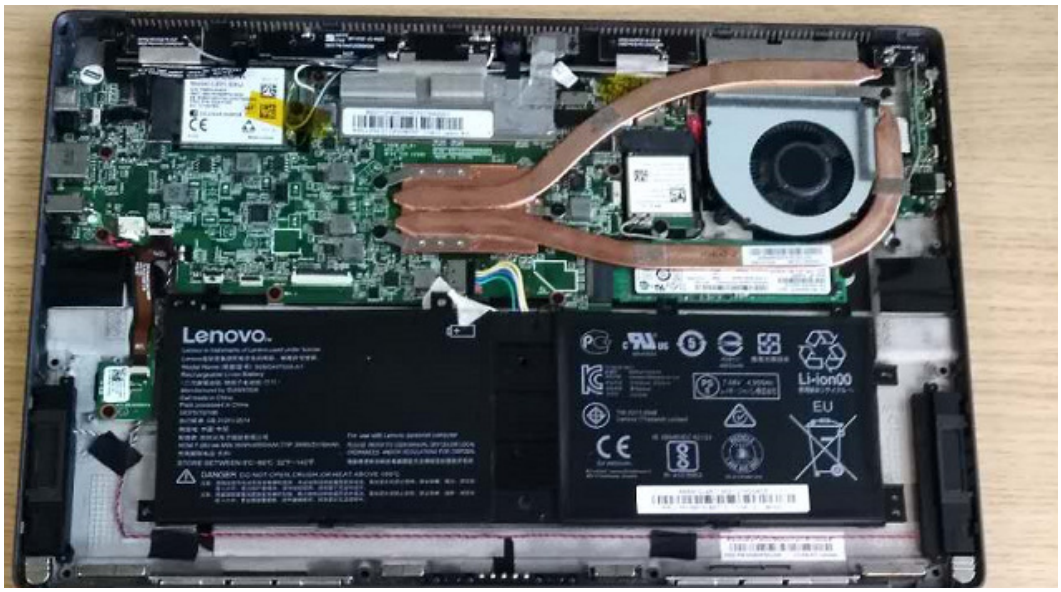
Rating Label Photo:



Section 5. Antenna Host Platform Location Information

Includea **dimensioned photo(s) or dimensioned drawing(s)** of Tx1, Tx2 and Tx3antennaplacements (measurements are not requiredfor receive-onlyantenna). 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.

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Section 6. Antenna dimensional information for SAR evaluation

Includea **dimensioned photo(s) or dimensioned drawing(s)**showing the distance (mm) betweenthe transmit antennas and the user (excluding hands, wrist, feet, and ankle). For notebook/laptop hosts show lapheld position (example below). For tablet hosts show all orientations including lapheld, primary & secondary portrait, primary & secondary landscape positions. Include a description of any proximity sensors or power throttling implementations that limit or exclude use of any host orientation.

Section 7.Diagram Example of Co-Location Antenna Separation

Includea **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)