

Regulatory WLAN Antenna Information ()

(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	****End product model name				Intel platform (ex: Yes, No or NA)	Platform type (ex: regular NB, convertible PC, AIO...etc)			*SAR minimum separation (mm)		
****Please fill in exact product model name and make sure the model name is visible on product cover or any parts for end users recognize for authority inspection.												
Antenna information						Peak gain w/ cable loss (dBi)						
Vendor	Type	Antenna Part number				2.4GHz 2400-2500MHz	5.2&5.3GHz 5150-5350MHz	5.5GHz 5470-5725MHz	5.8GHz 5785-5850MHz			
APPS	Metal plate Antenna	AE-WDW2005M001				0.93	1.47	2.89	2.14			
Module information												
(Please check with "x" when applies, or to fill-in proper model in empty column and specify (manual key-in) if you use non-regular sku, ie. Low power sku or mid power sku.)												
Model	Form factor and suffixes											
9560 (JfP 2)		NGW		D2W		D2WL	AX200 (CcP2)		NGW		D2WL	
9260 (ThP 2)		NGW		D2WL			AX101 (HrP1)		NGW		D2W	
9461 (JfP 1)		NGW		D2W			AX210 (TyP2)		NGW			
9462 (JfP 1)		NGW		D2W			AX211 (GfP2)		NGW			
AX201 (HrP2)		NGW		D2W		D2WL	Other Intel model					
Intel Reference Gain/Type/ Separation distance												
Antenna Type	Antenna Peak gain (In dBi)					Distance to the end user (mm)						
	2.4GHz 2400-2500MHz	5.2GHz 5150-5250MHz	5.3GHz 5250-5350MHz	5.5GHz 5470-5725MHz	5.8GHz 5725-5850MHz							
						Generic sku: refer to modular FCC SAR report Mid-power sku: ≥8 Low power sku: ≥5						
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) - Mini-tablet: Minimum antenna-to-edge (6 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 & Tx3 antenna (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	<u>Required (Photos)</u>	<u>Required (Photos)</u>
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	1B	1C	1D	1E	1F	1G	1H
Antenna Part Number	Manufacture	Antenna Type	Cable Assembly Part Number and Information	*Peak Gain W/ Cable loss (dBi)	Peak Gain w/o Cable Loss (dBi)	VSWR	Cable Loss (dB)
(P/N:) Antenna		Type Antenna	(Connector:) 50 ohm Coaxial length: mm diameter: mm	2400-2500MHz 0.93dBi (peak)	2400-2500MHz XXX(peak)	2400-2500MHz max 1.88	2400-2500MHz XXX (peak)
				5150-5350MHz 1.47dBi (peak)	5150-5350MHz XXX (peak)	5150-5350MHz max 1.68	5150-5350MHz XXX (peak)
				5470-5725MHz 2.89dBi (peak)	5470-5725MHz XXX (peak)	5470-5725MHz max 1.73	5470-5725MHz XXX (peak)
				5785-5850MHz 2.14dBi (peak)	5785-5850MHz XXX(peak)	5785-5850MHz max 1.86	5785-5850MHz XXX (peak)

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

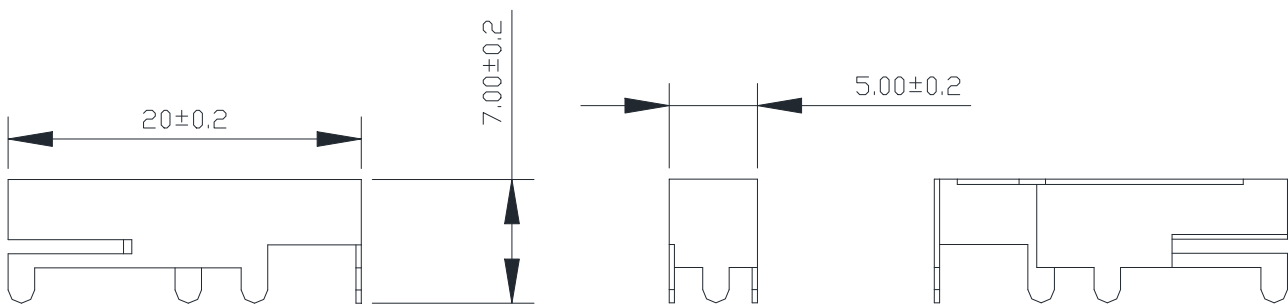
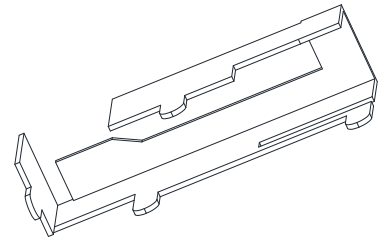
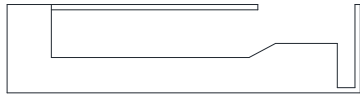
Antenna Peak Gain Table:

Antenna	
Frequency (MHz)	(dBi)
2400	0.33
2450	-0.21
2500	0.00
5150	-3.23
5250	-1.94
5350	-0.34
5470	-0.12
5600	-0.48
5725	-0.08
5785	-0.37
5800	-0.40
5850	-0.51

Section 2. Dimensioned Photos or Drawings of Antennas

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

Antenna Dimensioned Drawing:



Notes

- 1.Thickness:0.3mm.
- 2.Standard material stainless steel 304.
- 3.Nickel plating $1\mu\text{m} \sim 2\mu\text{m}$ on the surface.
4. "*" is critical dimension, " CPK " is CPK dimension.

Antenna Photo:

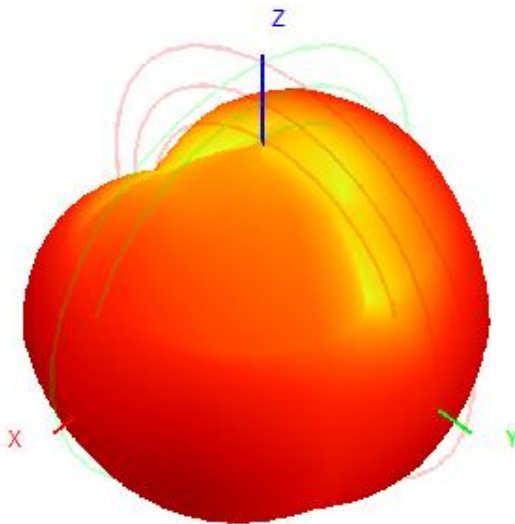
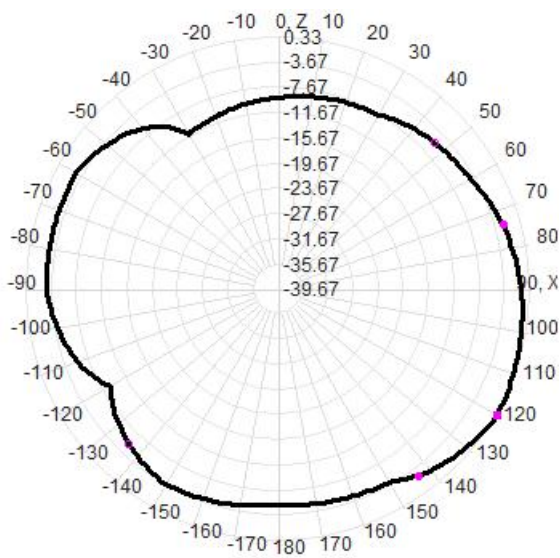


Section 3. Radiation characteristics of antennae Loaded in Host Platform

2400-2500MHz radiation characteristic

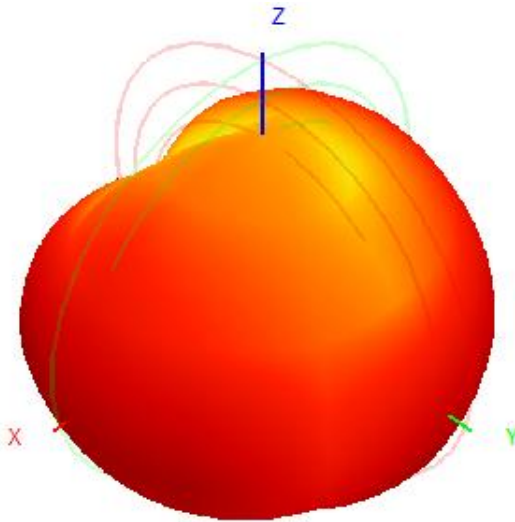
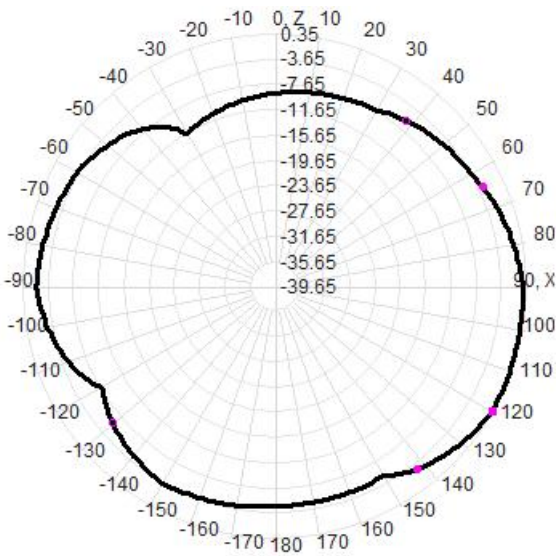
2400 MHz

Frequency	theta=90° MAX Gain(Unit: dBi)
2400	0.33



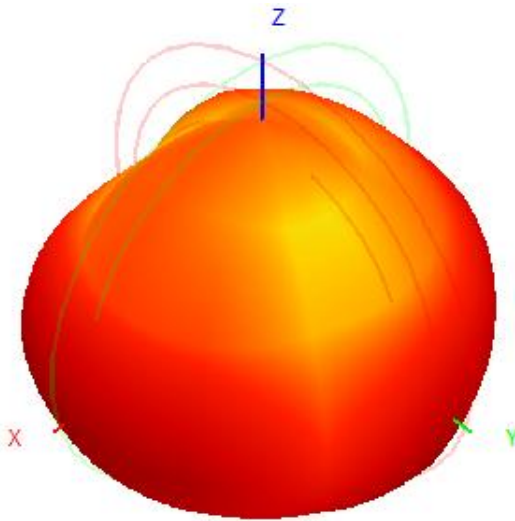
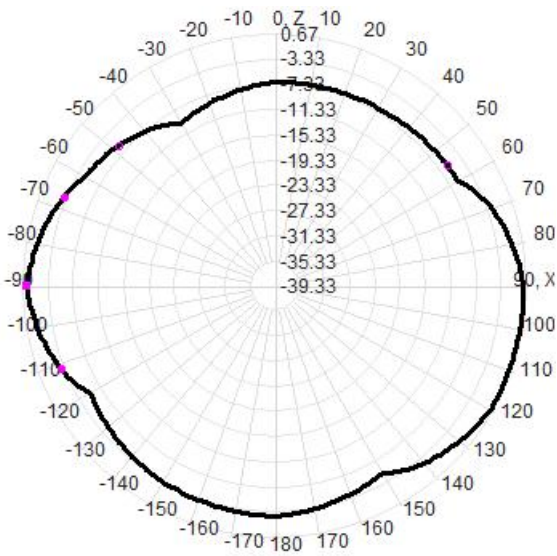
2450 MHz

Frequency	theta=90° MAX Gain(Unit: dBi)
2450	-0.21



2500 MHz

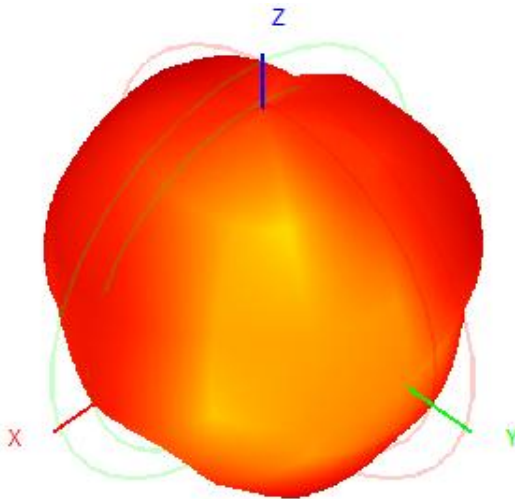
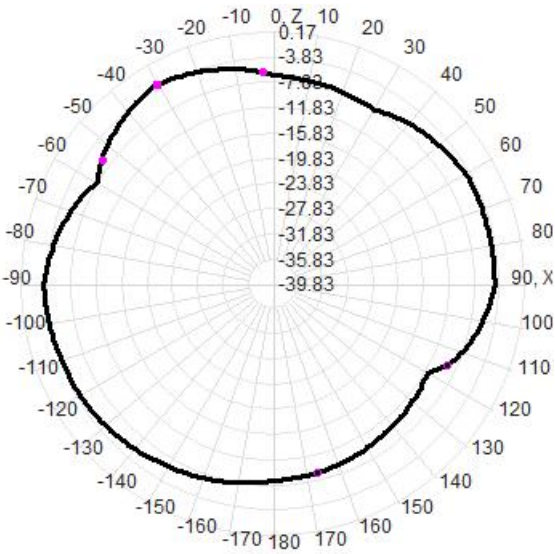
Frequency	theta=90° MAX Gain(Unit: dBi)
2500	0.00



5150-5350 MHz radiation characteristic

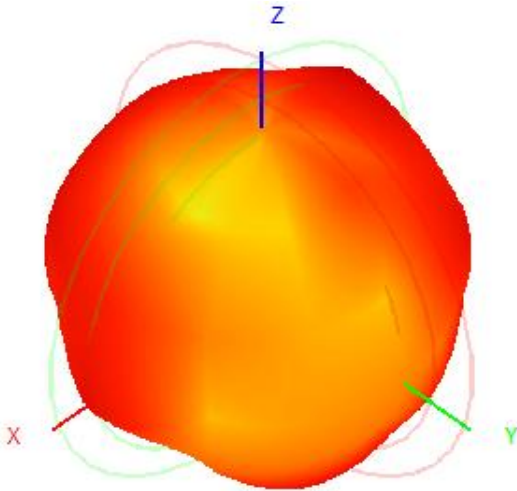
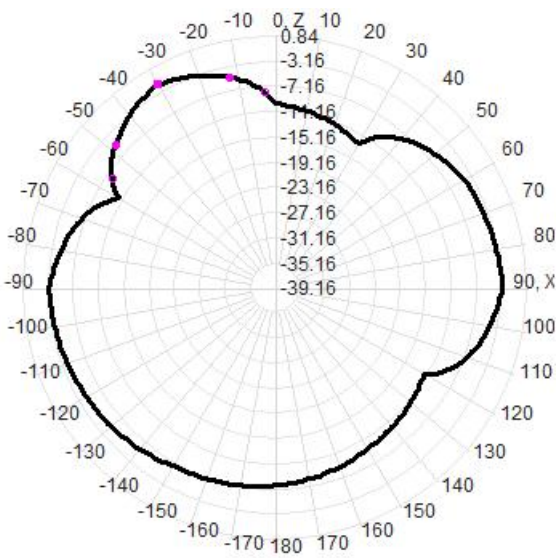
5150 MHz

Frequency	theta=90° MAX Gain(Unit: dBi)
5150	-3.23



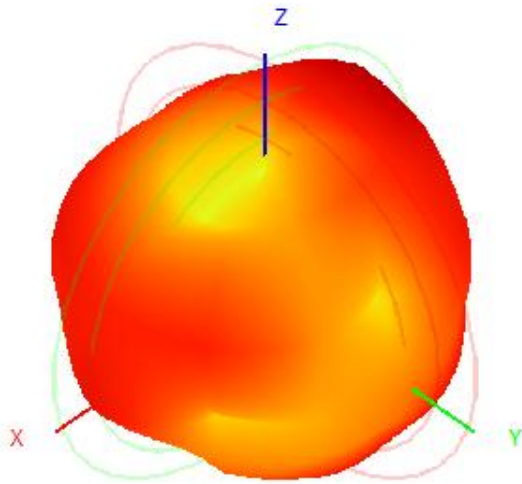
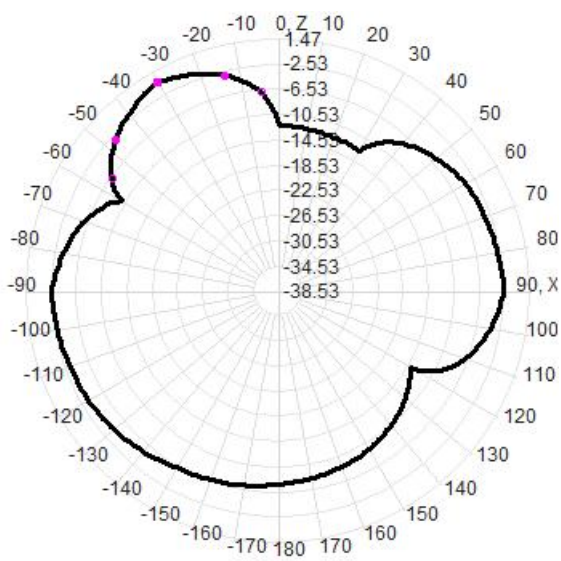
5250 MHz

Frequency	theta=90° MAX Gain(Unit: dBi)
5250	-1.94



5350 MHz

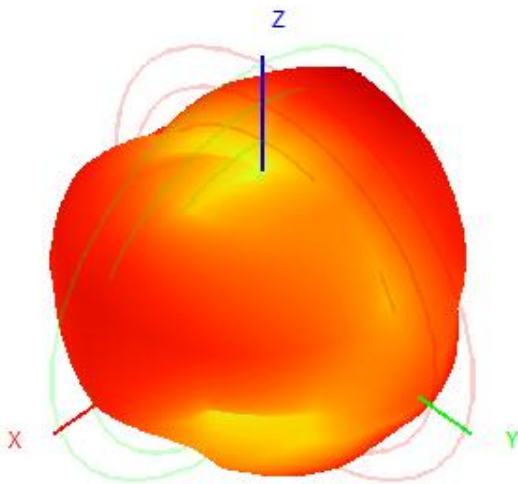
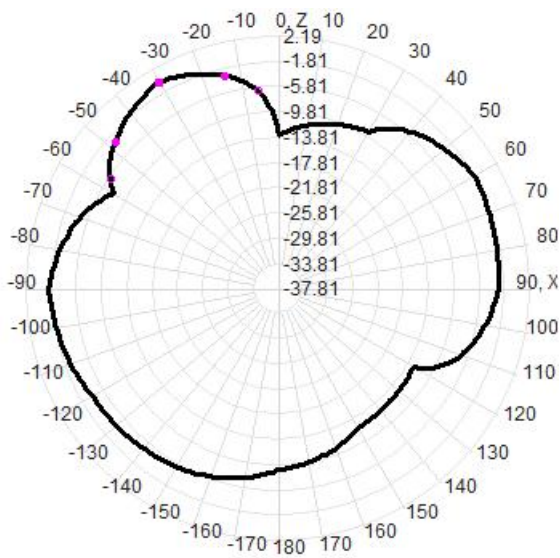
Frequency	theta=90° MAX Gain(Unit: dBi)
5350	-0.34



5470-5725 MHz radiation characteristic

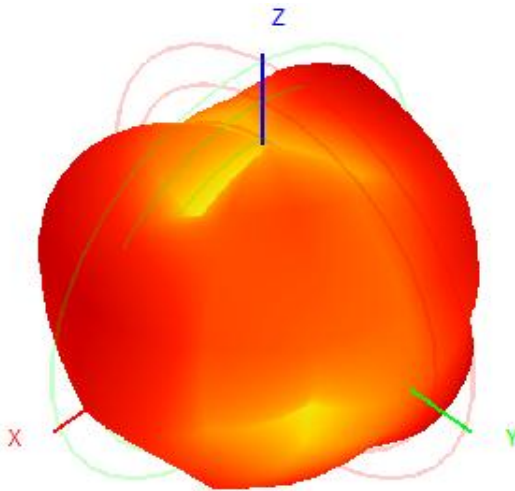
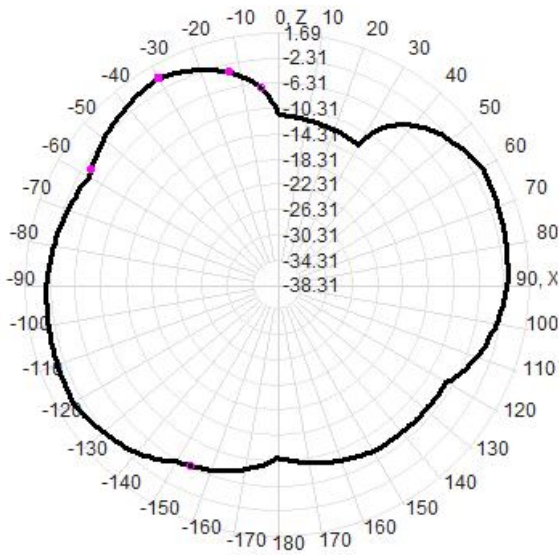
5470 MHz

Frequency	theta=90° MAX Gain(Unit: dBi)
5470	-0.12



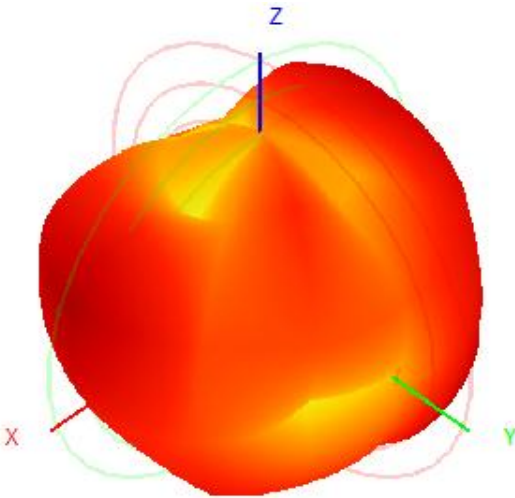
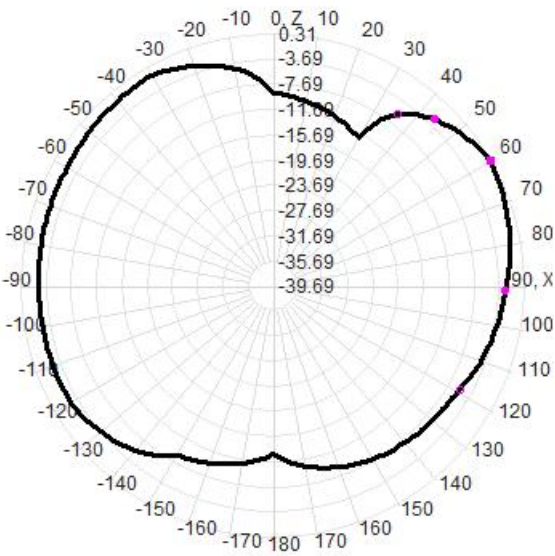
5600MHz

Frequency	theta=90° MAX Gain(Unit: dBi)
5600	-0.48



5725 MHz

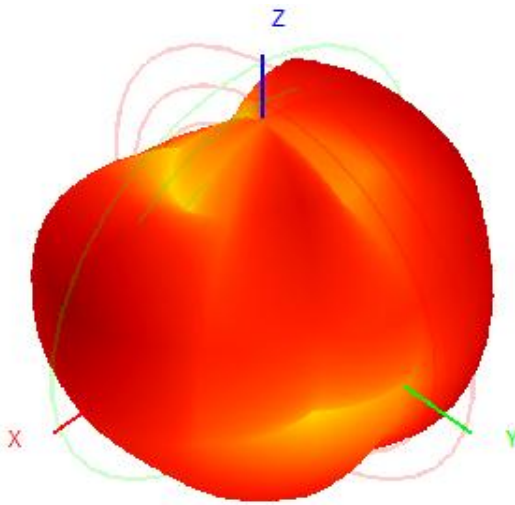
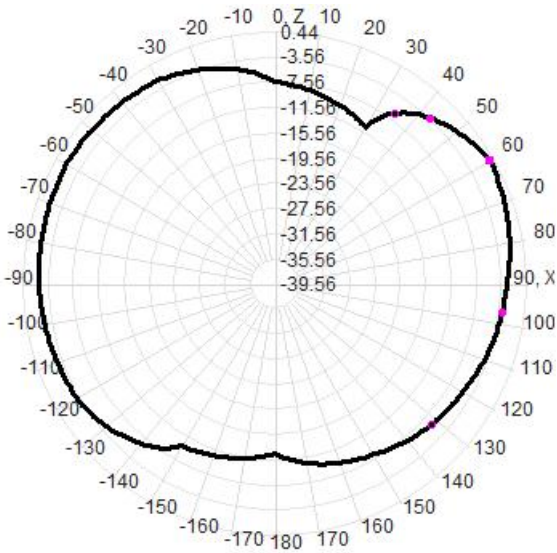
Frequency	theta=90° MAX Gain(Unit: dBi)
5725	-0.08



5785-5850 MHz radiation characteristic

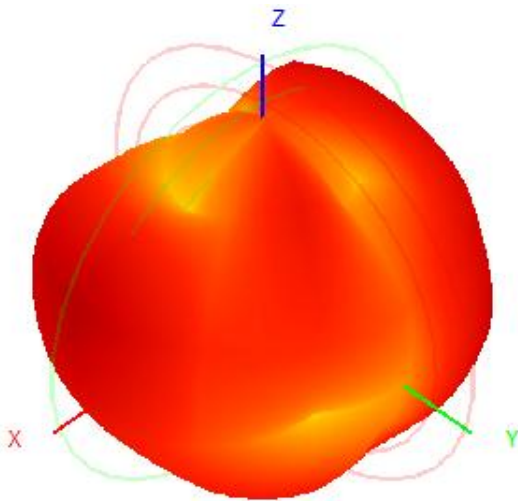
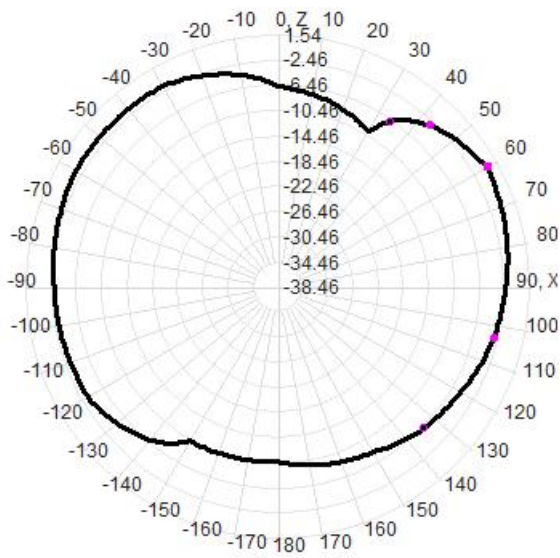
5785 MHz

Frequency	theta=90° MAX Gain(Unit: dBi)
5785	-0.37



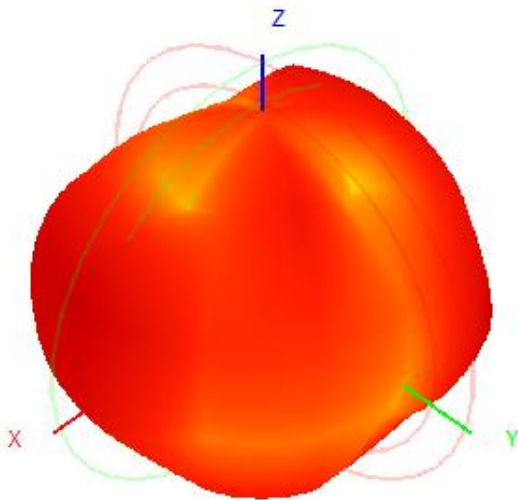
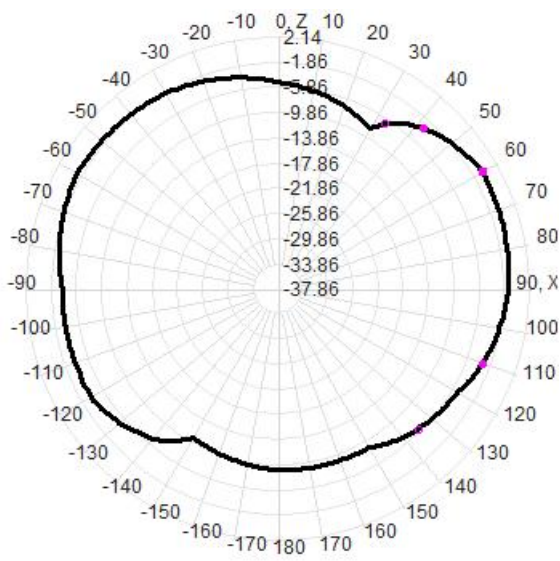
5800 MHz

Frequency	theta=90° MAX Gain(Unit: dBi)
5800	-0.40



5850 MHz

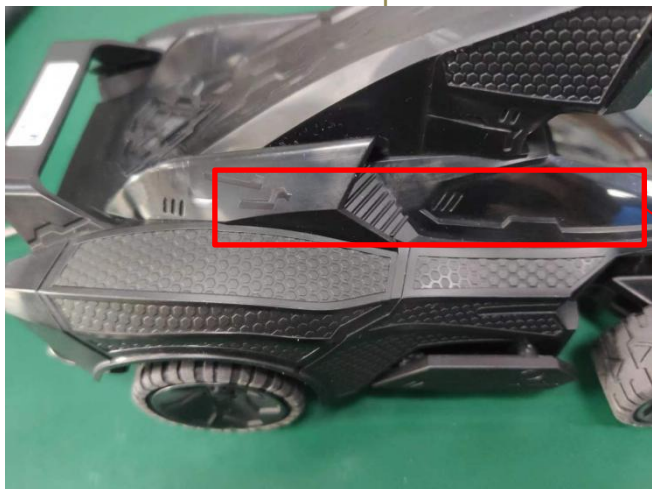
Frequency	theta=90° MAX Gain(Unit: dBi)
5850	-0.51



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 5. Antenna dimensional information for SAR evaluation

Include a dimensioned photo(s) or dimensioned drawing(s) showing the distance (mm) between the transmit antennas and the user. 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 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)

Section 7. Origin of The Goods

Manufacturer Information: KUNSHAN HUBBLE ELECTRONICS TECHNOLOGY CO., LTD.

Manufacturer Address: No.100 Binjing North Road, Zhangpu Town, Kunshan,P.R.C