Regulatory WWAN Antenna Information

Platform information				
Brand	**ODM**	**Platform model name**	**Platform type (ex: regular NB, convertible PC, AIO…etc)**	**˙SAR minimum separation (mm)**
HP Inc	Inventec	HSN-I49C-4	Notebook PC	229.5 mm

Antenna information						Maximum Peak gain
Vendor	**Type**	**Antenna Part number (Ant5 TX/RX)**	**Antenna Part number (Ant6 RX)**	**Antenna Part number (Ant7 RX)**	**Antenna Part number (Ant8 RX)**	**1850MHz**
HONG-BO	PIFA	6036B0308701 (00-3302700250)	6036B0308601 (00-3302700350)	6036B0309801 (00-2602749450)	6036B0310001 (00-2602749550)	1.75 dBi

Module information	
Model	**Form factor and suffixes (NGW/ HMW AND AN/ NB/ BN….)**
Phantasm	Fibocom FB520 WWAN 1x1 LTE Cat M1 radio module

Antenna vendor connect person	
Antenna Vendor	HONGBO Wireless Communication Technology Co., LTD
contact person	Mirabelle Chou
E-mail	mirabellechou@hong-bo.com.tw
Tel/Mobile	02-2792-6009 EXT: 683
Web address	https://www.hong-lin.com.cn/index.php

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 Assembly	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	Tx antenna Gain(Peak Gain W/ cable loss) *	Required	Required	Required	Required	Required
2	Dimensioned Photographs and Drawings of Tx and Rx antennas	Required	Required	Required	Required	Required
3	Radiation patterns of antennas loaded in the host platform.	N/A	Required	Required	Required	N/A
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

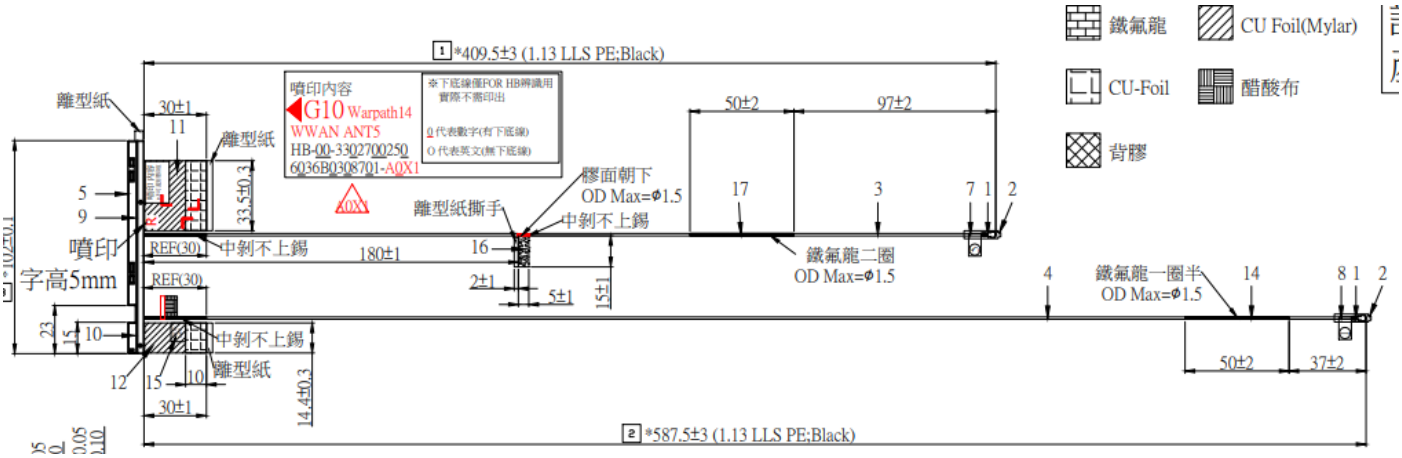
Communication System	Band	Frequency(MHz) from low to high spectrum		1A Part Number for Antenna Assembly	1B Antenna Manufacturer Name	1C Description of Antenna Type	1D Tx Antenna Gain(dBi) Ant5
LTE Cat.M1	1	1920	1980	Ant5 : 036B0308701	00-3302700250	PIFA	1.04
LTE Cat.M1	2	1850	1910				1.58
LTE Cat.M1	3	1710	1785				0.99
LTE Cat.M1	4	1710	1755				-0.82
GSM850 / LTE Cat.M1	5	824	849				-3.82
GSM900 / LTE Cat.M1	8	880	915				-3.49
LTE Cat.M1	12	699	716				-2.61
LTE Cat.M1	13	777	787				-1.3
LTE Cat.M1	14	788	798				-1.84
LTE Cat.M1	18	815	830				-3.37
LTE Cat.M1	19	830	845				-3.75
LTE Cat.M1	20	832	862				-3.73
GSM1900/ LTE Cat.M1	25	1850	1915				1.75
LTE Cat.M1	26	814	849				-3.37
LTE Cat.M1	27	802	824				-3.37
LTE Cat.M1	28	703	748				-1.8
GSM1800 / LTE Cat.M1	66	1710	1780				0.83
LTE Cat.M1	85	698	716				-2.61

- **Antenna Peak Gain required being test in system basis.**

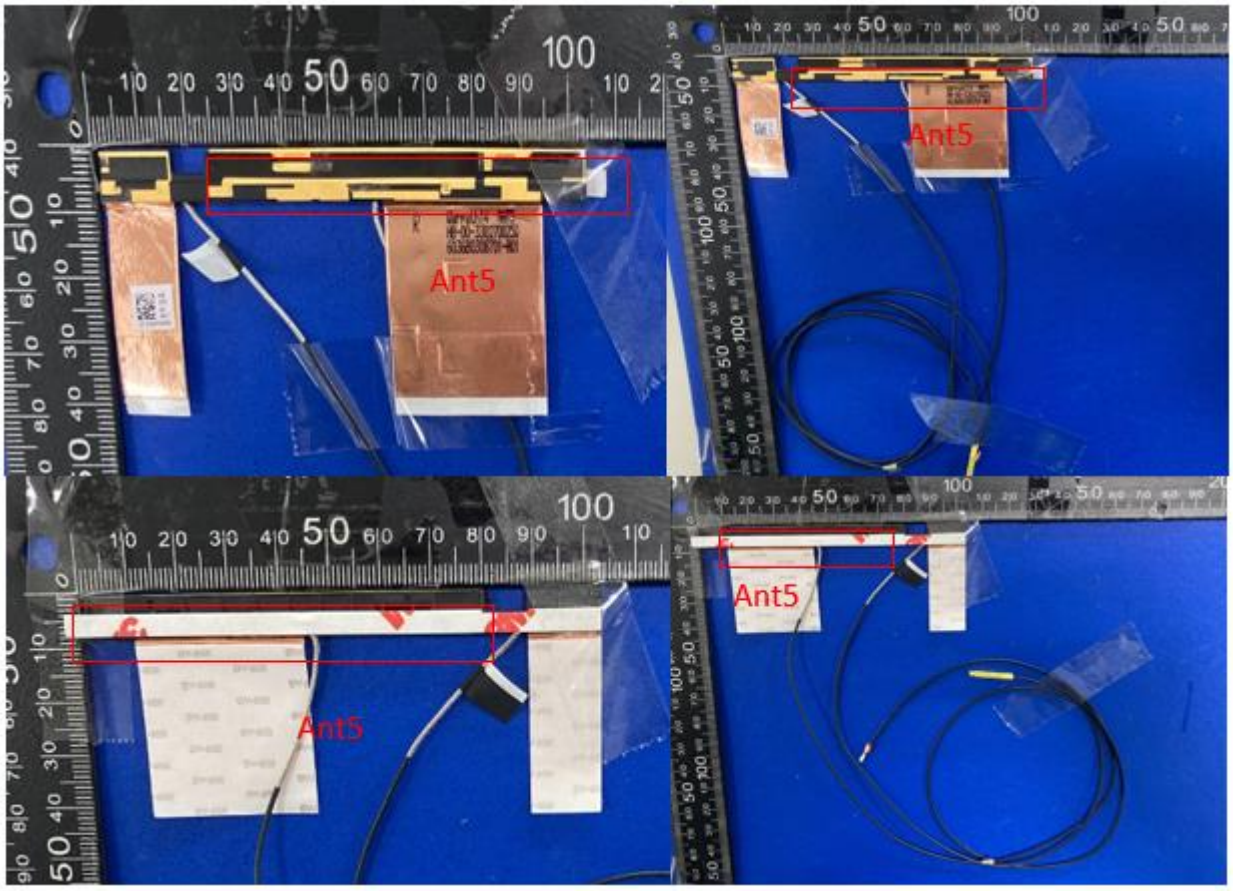
Section 2. Dimensioned Photos or Drawings of Antennas

	Ant supplier	Part number	Drawing	Photo
Ant5	6036B0308701	00-3302700250	V	V

Ant5 Dimensioned Drawing:

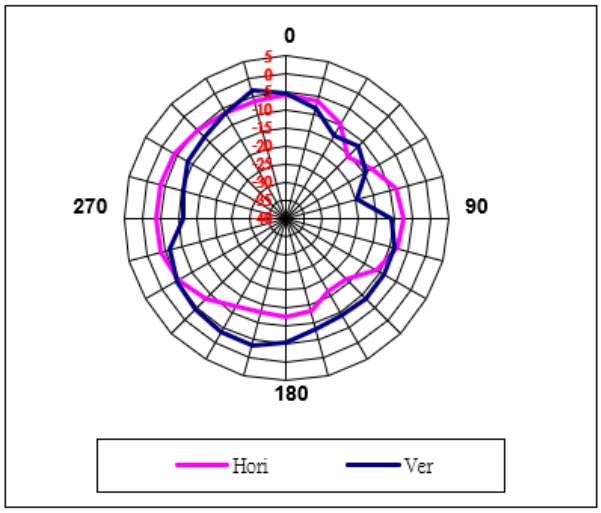


Ant5 Photo:



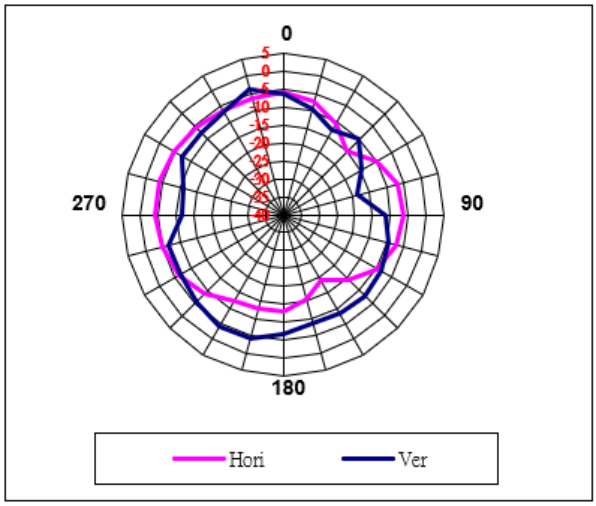
- **The listed frequency 2D radiation pattern is required**
- **Ant5:**

814MHz



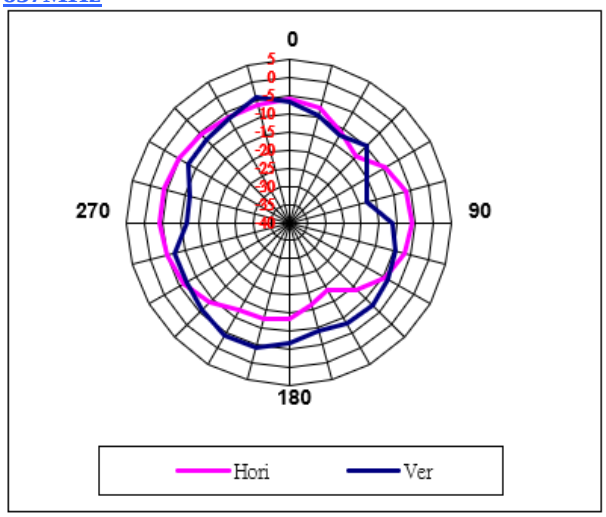
Center Frequency	**814MHz**
Horizontal (dBi) peak	**-3.69**
Vertical (dBi) peak	**-3.37**

832MHz



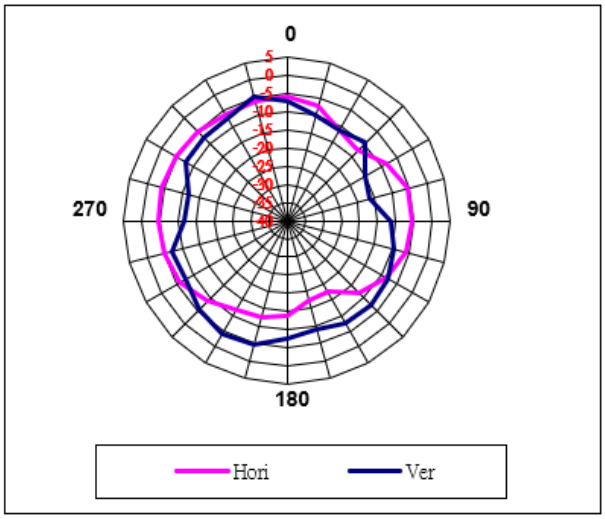
Center Frequency	**832MHz**
Horizontal (dBi) peak	**-4.02**
Vertical (dBi) peak	**-3.82**

837MHz



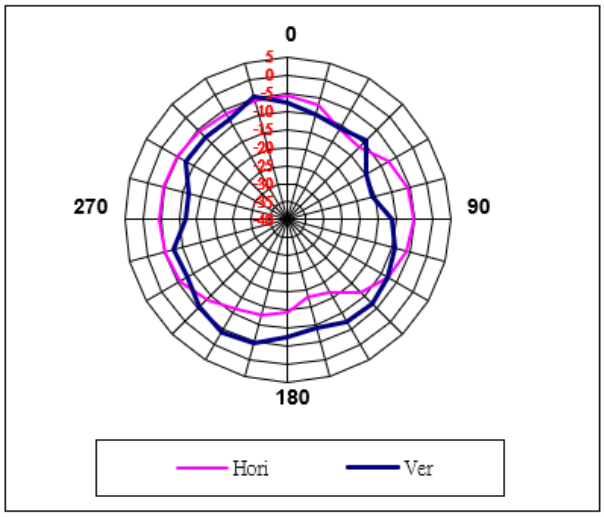
Center Frequency	**837MHz**
Horizontal (dBi) peak	**-4.13**
Vertical (dBi) peak	**-3.89**

845MHz



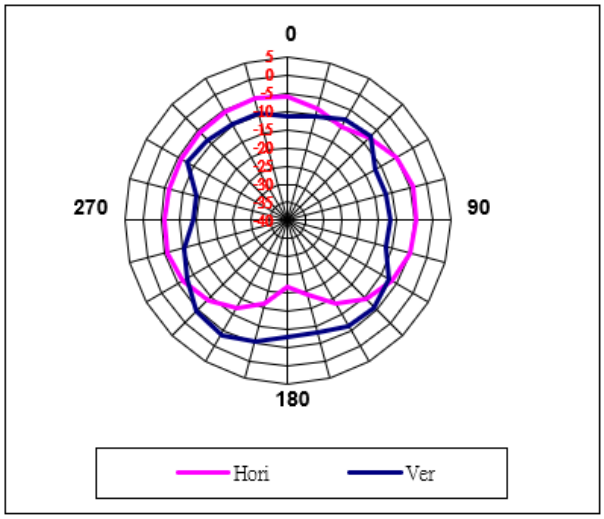
Center Frequency	**845MHz**
Horizontal (dBi) peak	**-4.29**
Vertical (dBi) peak	**-3.86**

849MHz



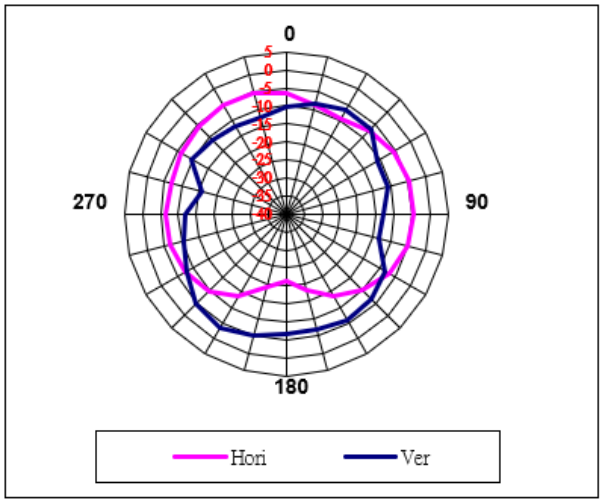
Center Frequency	**849MHz**
Horizontal (dBi) peak	**-4.50**
Vertical (dBi) peak	**-3.86**

880MHz



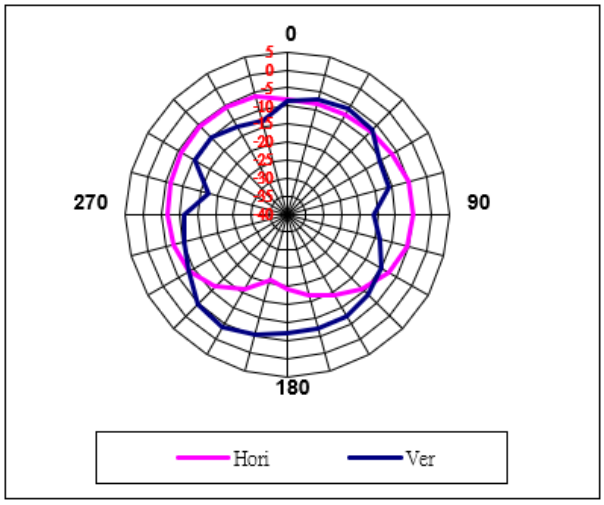
Center Frequency	**880MHz**
Horizontal (dBi) peak	**-4.14**
Vertical (dBi) peak	**-3.49**

894MHz



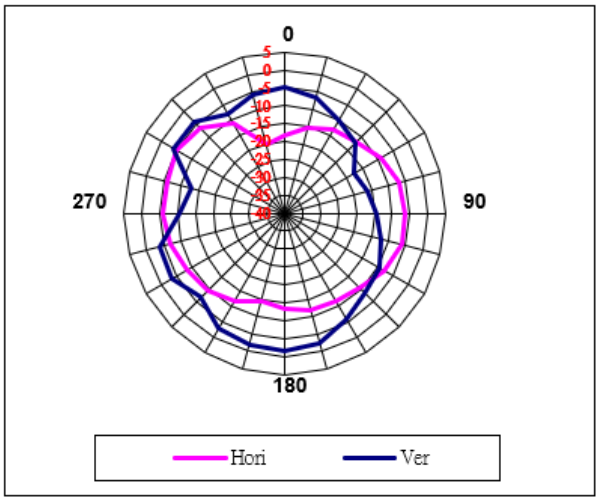
Center Frequency	**894MHz**
Horizontal (dBi) peak	**-4.47**
Vertical (dBi) peak	**-3.52**

915MHz



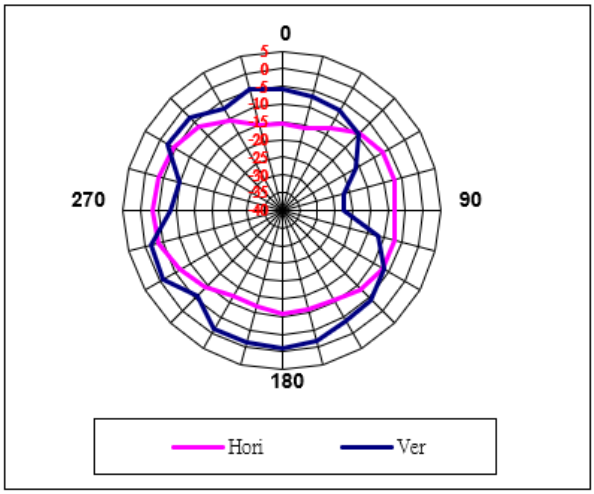
Center Frequency	**915MHz**
Horizontal (dBi) peak	**-4.95**
Vertical (dBi) peak	**-3.69**

1710MHz



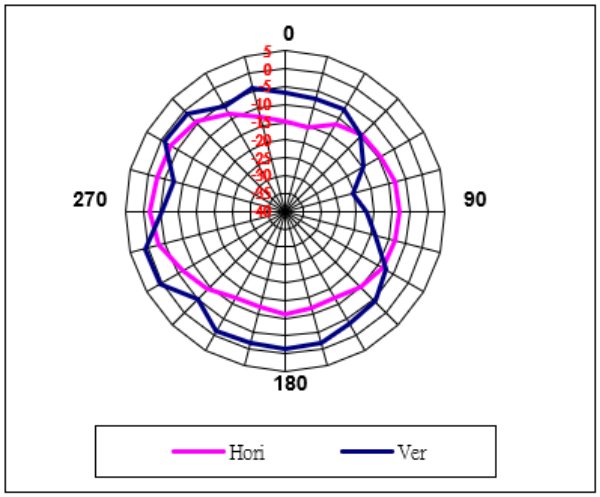
Center Frequency	**1710MHz**
Horizontal (dBi) peak	**-5.18**
Vertical (dBi) peak	**-1.39**

1750MHz



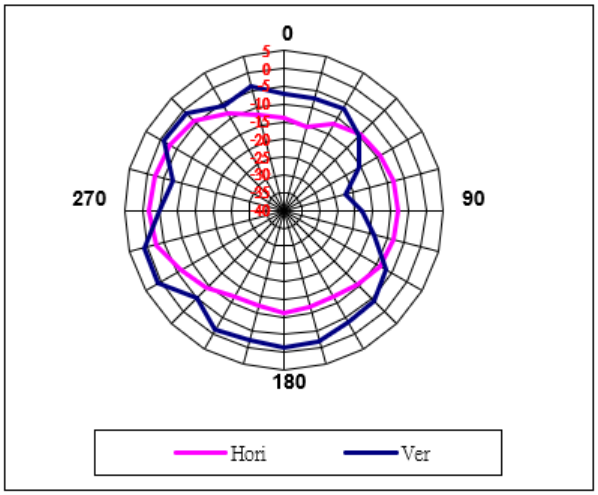
Center Frequency	**1750MHz**
Horizontal (dBi) peak	**-3.34**
Vertical (dBi) peak	**-0.82**

1780MHz



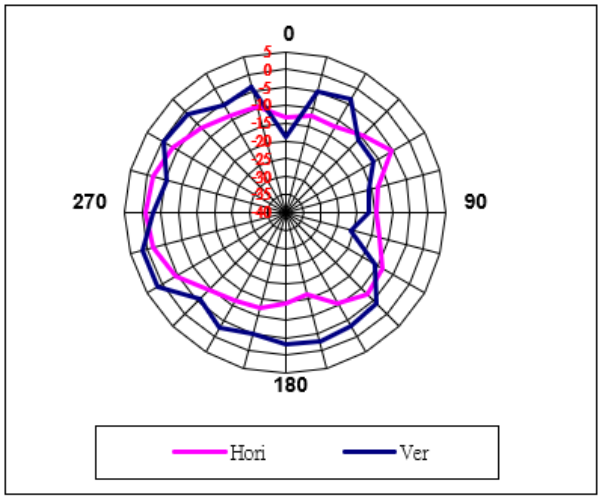
Center Frequency	**1780MHz**
Horizontal (dBi) peak	**-2.01**
Vertical (dBi) peak	**0.83**

1785MHz



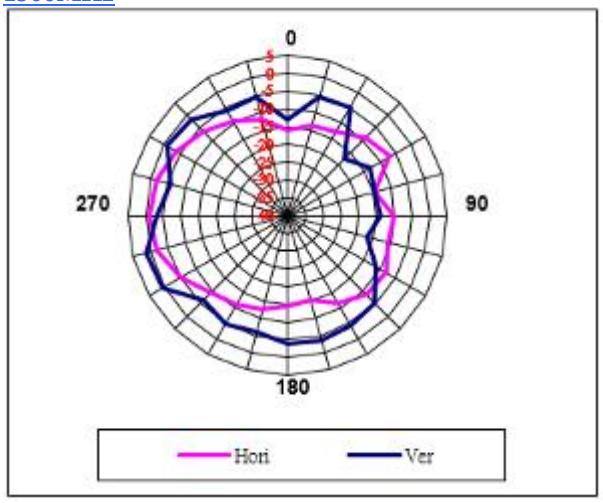
Center Frequency	**1785MHz**
Horizontal (dBi) peak	**-1.76**
Vertical (dBi) peak	**0.99**

1880MHz



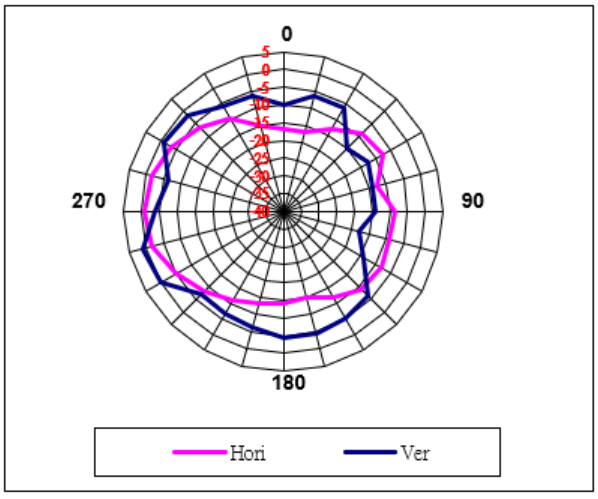
Center Frequency	**1880MHz**
Horizontal (dBi) peak	**-0.71**
Vertical (dBi) peak	**1.58**

1900MHz



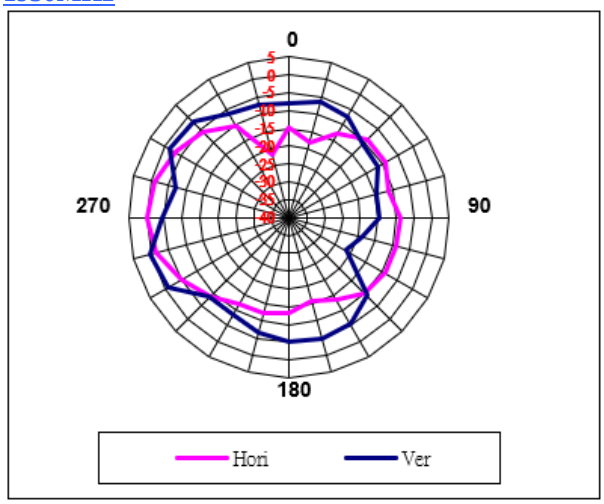
Center Frequency	**1900MHz**
Horizontal (dBi) peak	**-1.12**
Vertical (dBi) peak	**1.38**

1920MHz



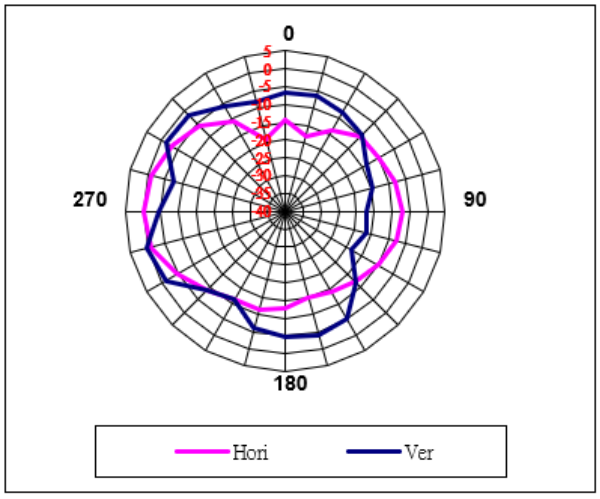
Center Frequency	**1920MHz**
Horizontal (dBi) peak	**-0.94**
Vertical (dBi) peak	**1.04**

1950MHz



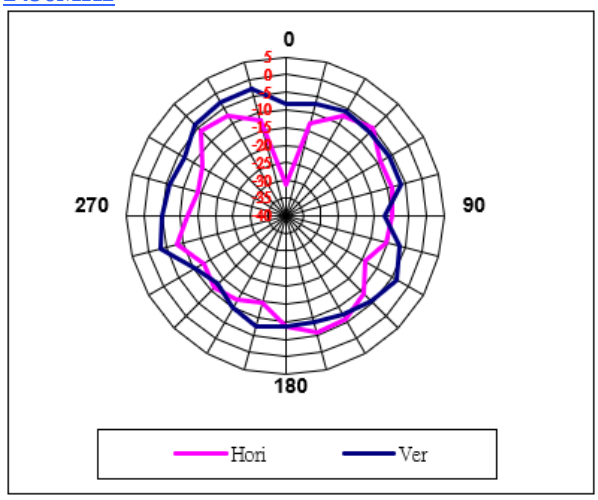
Center Frequency	**1950MHz**
Horizontal (dBi) peak	**-0.24**
Vertical (dBi) peak	**0.44**

1980MHz



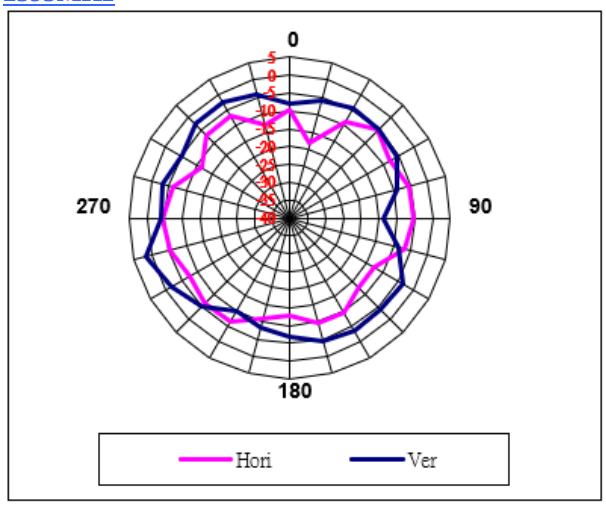
Center Frequency	**1980MHz**
Horizontal (dBi) peak	**-0.10**
Vertical (dBi) peak	**0.26**

2496MHz



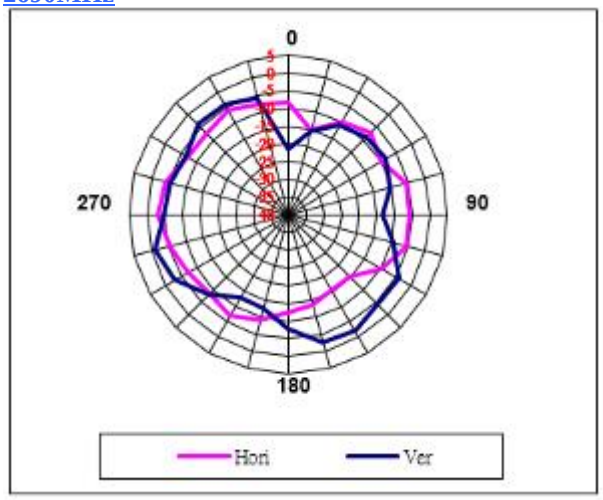
Center Frequency	**2496MHz**
Horizontal (dBi) peak	**-4.86**
Vertical (dBi) peak	**-0.06**

2595MHz



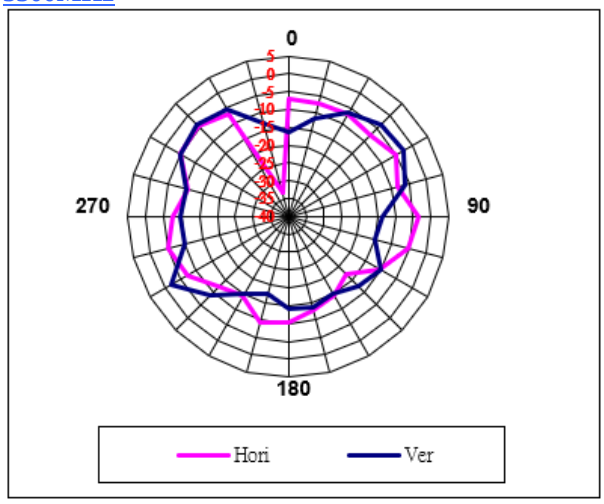
Center Frequency	**2595MHz**
Horizontal (dBi) peak	**-5.61**
Vertical (dBi) peak	**0.95**

2690MHz



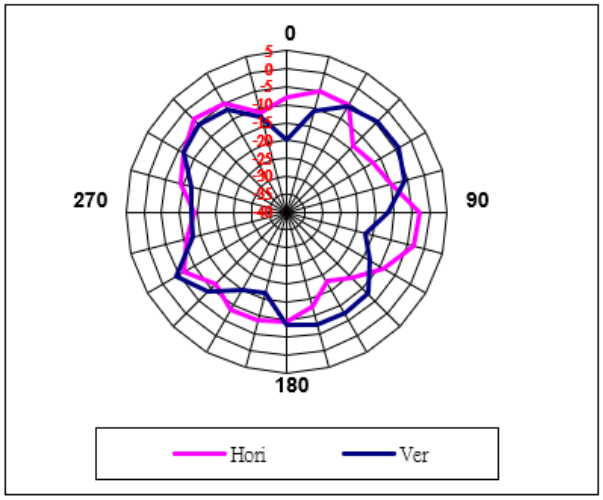
Center Frequency	**2690MHz**
Horizontal (dBi) peak	**-5.69**
Vertical (dBi) peak	**0.56**

3300MHz



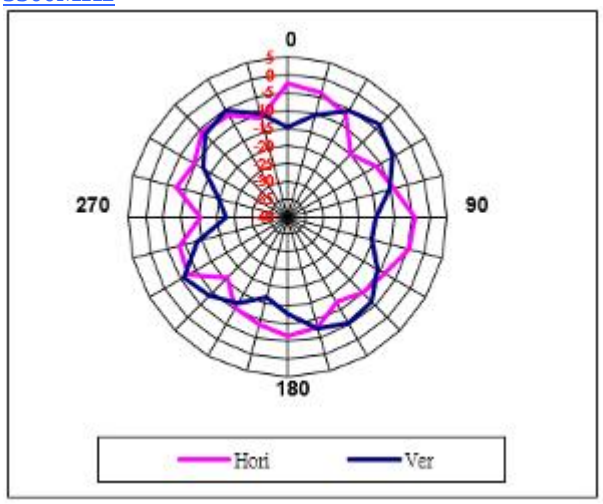
Center Frequency	**3300MHz**
Horizontal (dBi) peak	**-3.51**
Vertical (dBi) peak	**-4.00**

3400MHz



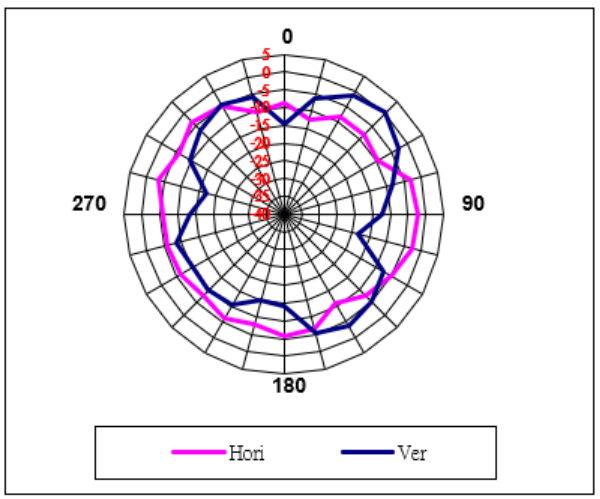
Center Frequency	**3400MHz**
Horizontal (dBi) peak	**-4.51**
Vertical (dBi) peak	**-2.59**

3500MHz



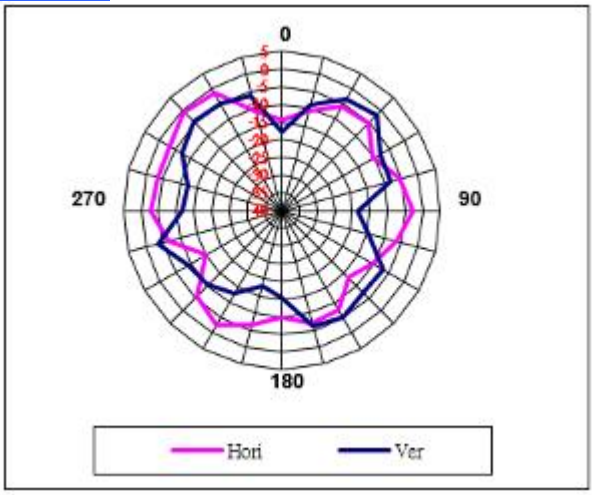
Center Frequency	**3500MHz**
Horizontal (dBi) peak	**-2.83**
Vertical (dBi) peak	**-0.34**

3600MHz



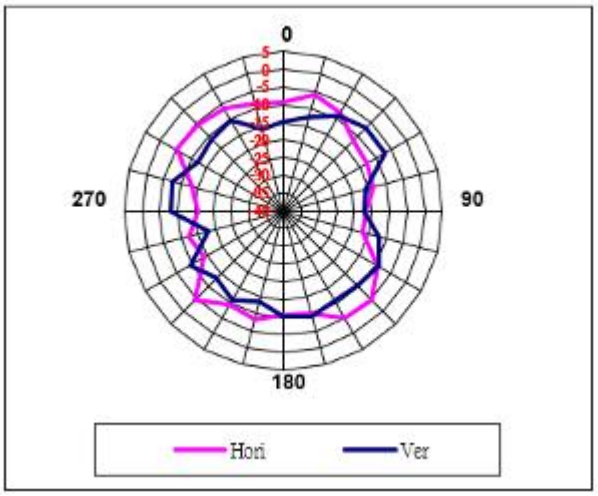
Center Frequency	**3600MHz**
Horizontal (dBi) peak	**-2.49**
Vertical (dBi) peak	**0.86**

3750MHz



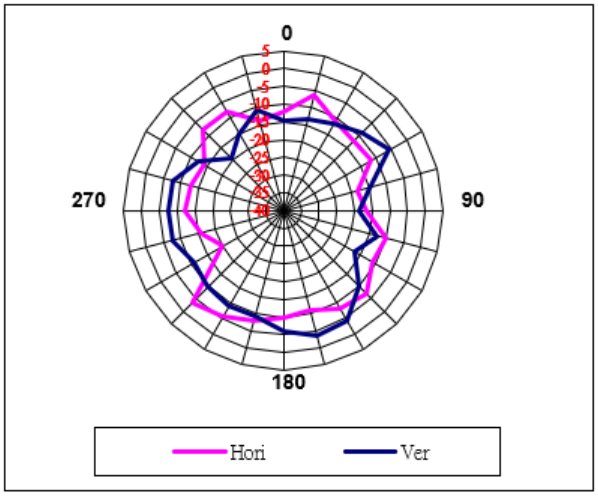
Center Frequency	**3750MHz**
Horizontal (dBi) peak	**-3.63**
Vertical (dBi) peak	**-1.88**

4200MHz



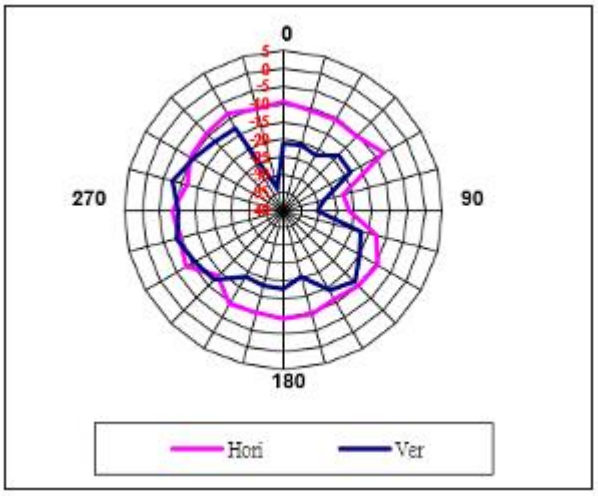
Center Frequency	**4200MHz**
Horizontal (dBi) peak	**-4.46**
Vertical (dBi) peak	**-3.16**

4400MHz



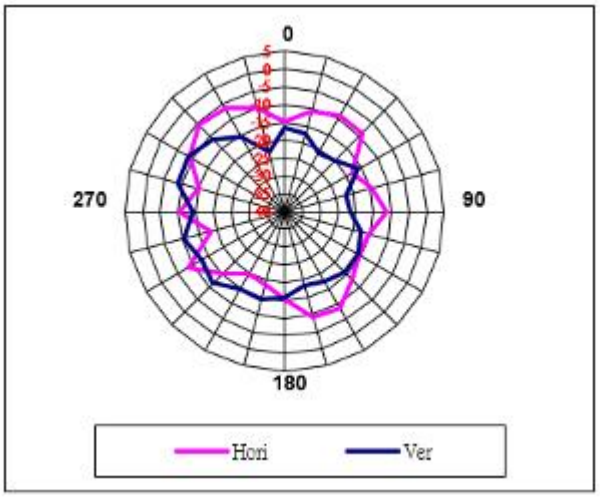
Center Frequency	**4400MHz**
Horizontal (dBi) peak	**-4.24**
Vertical (dBi) peak	**-2.96**

4800MHz



Center Frequency	**4800MHz**
Horizontal (dBi) peak	**-4.94**
Vertical (dBi) peak	**-6.41**

5000MHz

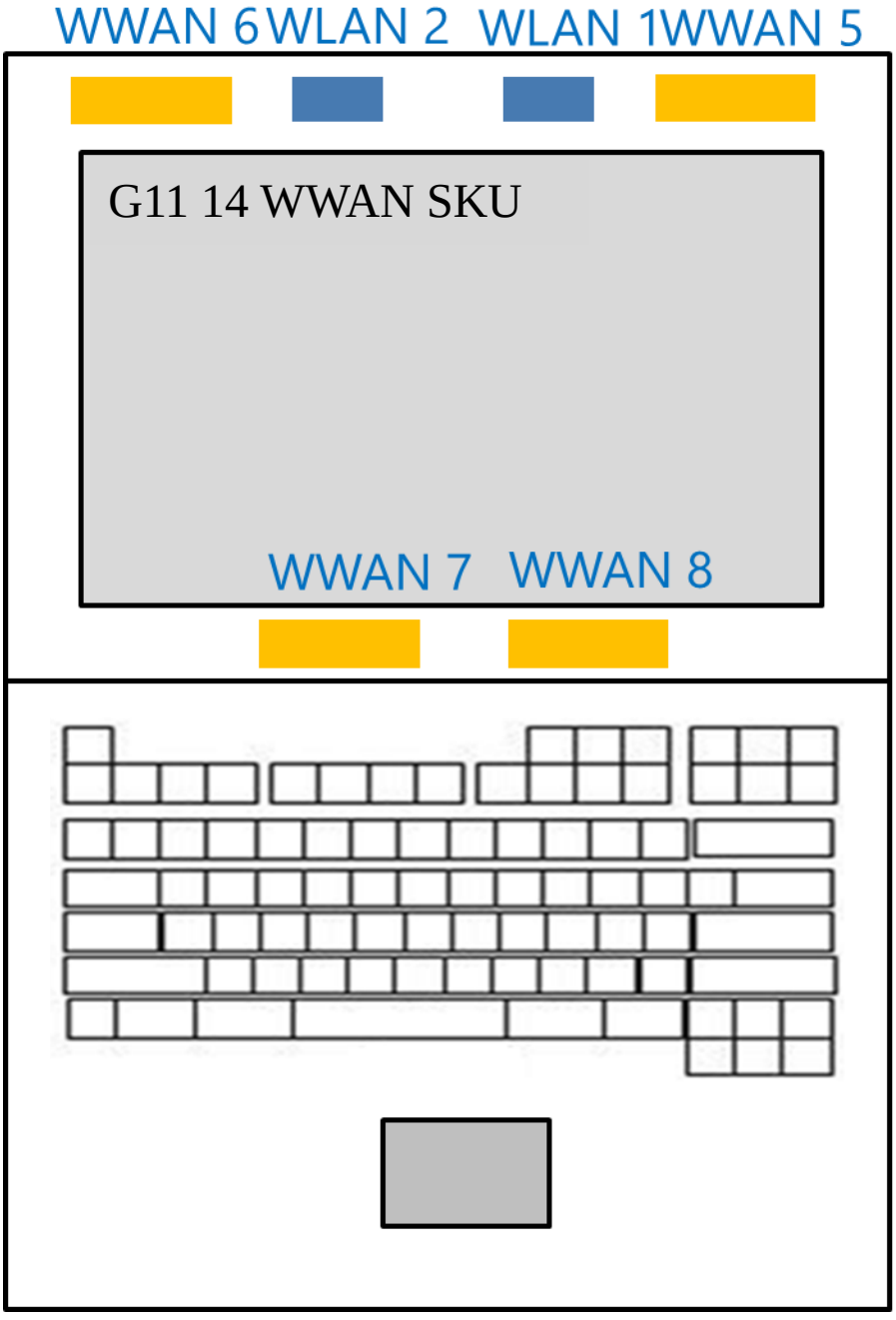


Center Frequency	**5000MHz**
Horizontal (dBi) peak	**-3.49**
Vertical (dBi) peak	**-4.75**

Section 4. Host Platform Information

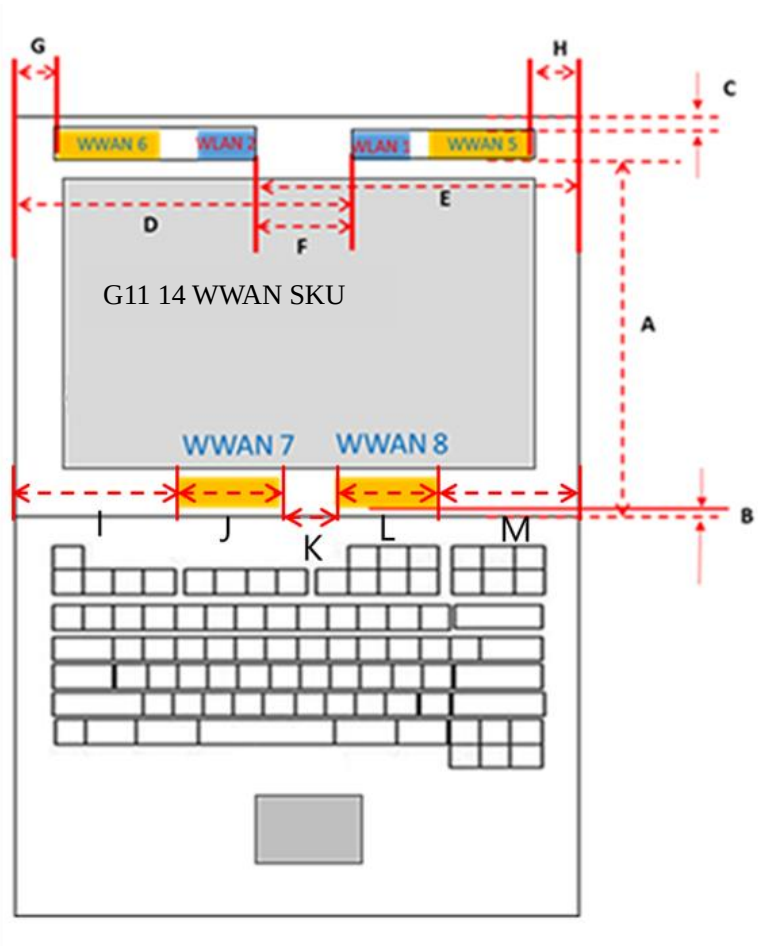
OEM / ODM Host platform:

Rating Label Photo:

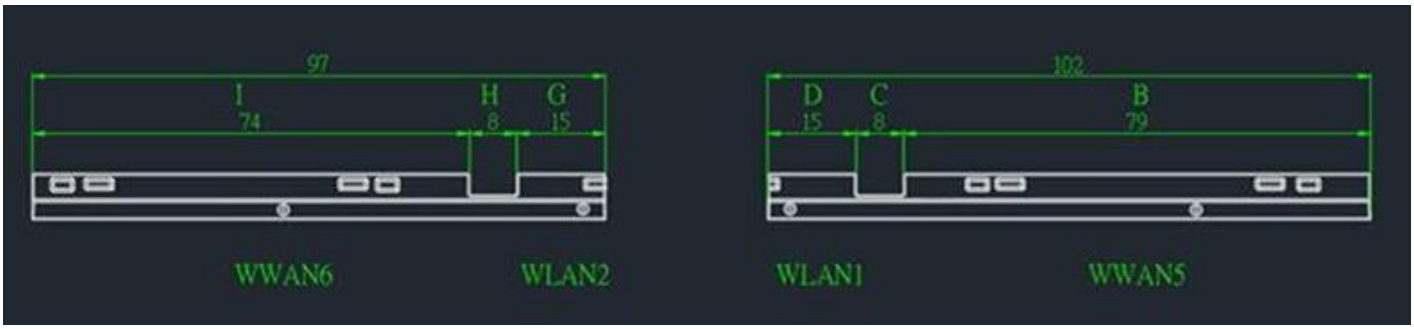


Section 5. Antenna Host Platform Location Information

Include a **dimensioned photo(s) or dimensioned drawing(s)** of Ant5,Ant6,Ant7,Ant8 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.
Example:

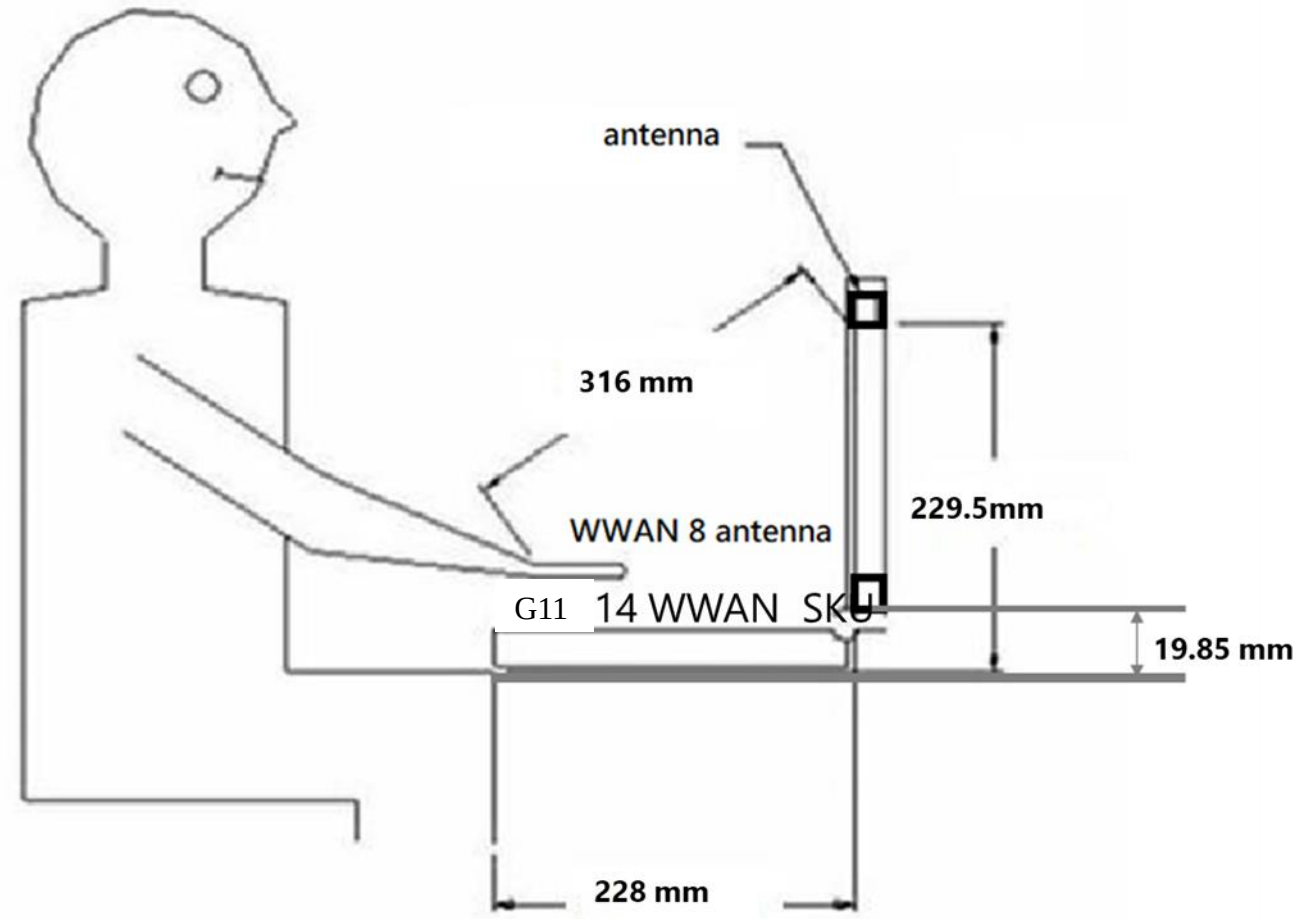


A	229.5mm
B	19.85mm
C	1.5mm
D	197.855mm
E	200.901mm
F	83.1mm
G	17.755mm
H	15.801mm
I	122.60mm
J	43.00mm
K	20.75mm
L	43.00mm
M	85.85mm



Section 6. Antenna dimensional information for SAR evaluation

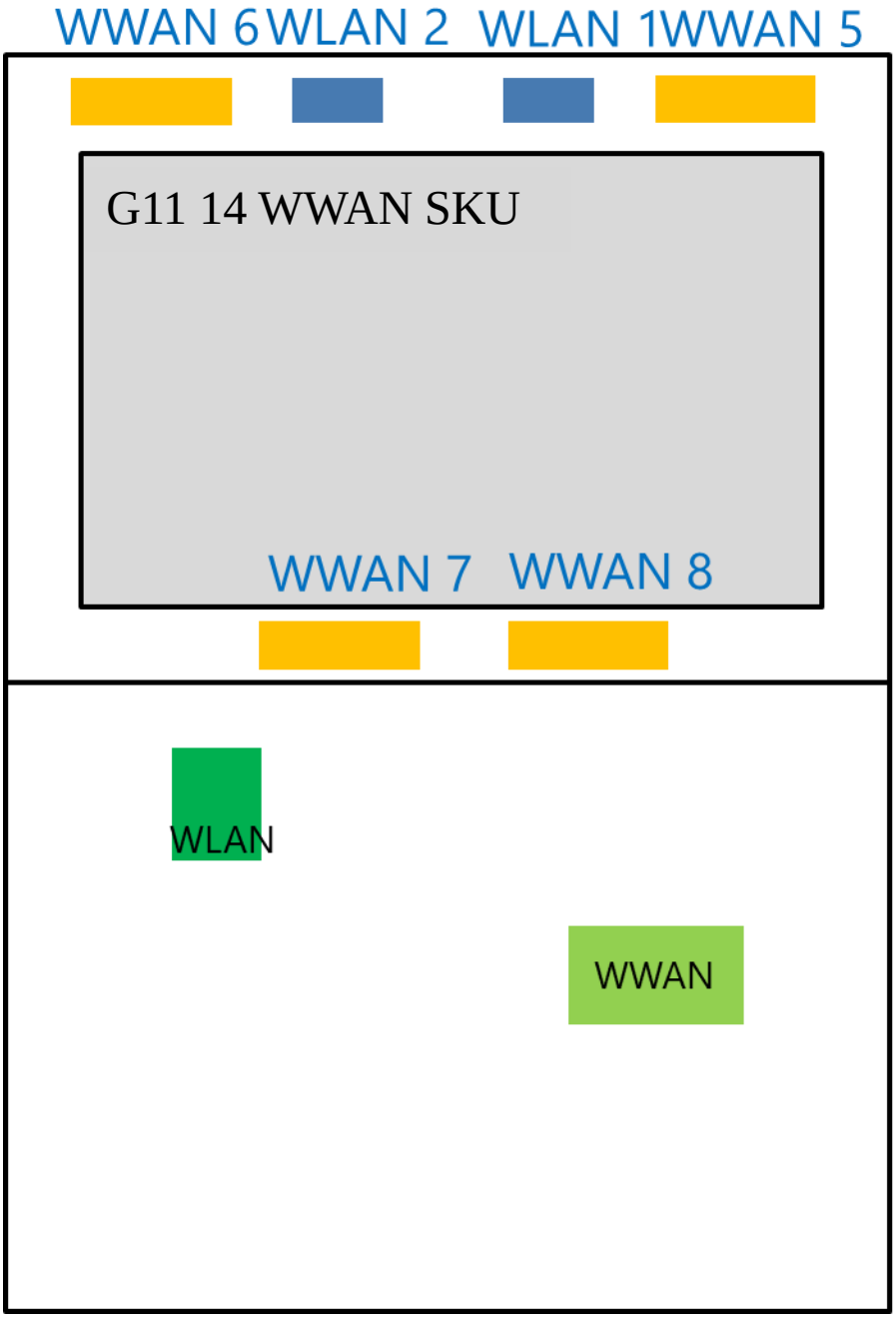
Include a **dimensioned photo(s) or dimensioned drawing(s)** showing the distance (mm) between the transmit antennas and the user (excluding hands, wrist, feet, and ankle). For notebook/laptop hosts show lapheld position (example below). For tablet hosts show all orientations including lapheld, primary & 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.
Example:



Section 7. 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 8. Local representative contact information

Local representative contact information is required for regulatory support for target countries below.

	Local company name	Contact name	Phone number	FAX Number	e-Mail Address	Notes
Argentina						
Azerbaijan						
Cambodia						
Indonesia						
Israel						
Malaysia						
Philippines						
Singapore						Telecommunication Equipment Dealer License Required
South Africa						
USA, Canada						
Vietnam						