

# Regulatory WLAN Antenna Information (Example)

(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)**

<b>Platform</b>	
Platform Owner	Lenovo
Brand Name	Lenovo S10-3T
Model Name	CS2
ODM	Quanta Computer Inc.
Target Launch Date	(2009/ 09/ 18)
<b>Antenna</b>	
Brand Name	QUANTA
Part Number	<input checked="" type="checkbox"/> Tx1 Antenna:QADCFL2_WL_M
	<input checked="" type="checkbox"/> Tx2 Antenna:QADCFL2_WL_A
	<input type="checkbox"/> Tx3 (or Rx3) Antenna (Rx3 for 4965AGN ONLY)
<b>Module</b>	
With WLAN Module	<input type="checkbox"/> WM3B2200BG
(Check Box)	<input type="checkbox"/> WM3B2915ABG
	<input type="checkbox"/> WM3945ABG
	<input type="checkbox"/> 4965AGN
	<input type="checkbox"/> 4965AG_
	<input type="checkbox"/> 533ANX Family
	<input type="checkbox"/> 512ANX Family
	<input type="checkbox"/> 533AN Family
	<input type="checkbox"/> 512AN Family

## 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 <u>and</u> 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. <u>(S. Korea requires photographs of antennas for approval submission). Taiwan requires pictures of each antenna type shown in the system.</u>	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

**NOTE:**

(\*) if 3<sup>rd</sup> antenna is Rx only (e.g. receive only for 4965AGN) then peak gain and cable loss not required

# 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)
QADCF2_WL _M Tx1 antenna	Quanta Computer Inc.	PIFA	50 ohm Coaxial. length: 370mm diameter: 1.13mm	2400-2500MHz _1.4_ dBi (peak)	2400-2500MHz _0.2_ dBi (peak)	2400-2500MHz _2.0_ max	2400-2500MHz _1.2_ dBi (peak)
				2496-2690MHz -0.3_ dBi (peak)	2496-2690MHz _1.0_ dBi (peak)	2496-2690MHz _2.0_ max	2496-2690MHz _1.3_ dBi (peak)
				5150-5350MHz -0.1_ dBi (peak)	5150-5350MHz _1.8_ dBi (peak)	5150-5350MHz _2.0_ max	5150-5350MHz _1.9_ dBi (peak)
				5470-5725MHz _0.9_ dBi (peak)	5470-5725MHz _2.9_ dBi (peak)	5470-5725MHz _2.0_ max	5470-5725MHz _2.0_ dBi (peak)
				5725-5850MHz -0.9_ dBi (peak)	5725-5850MHz _1.1_ dBi (peak)	5725-5850MHz _2.0_ max	5725-5850MHz _2.0_ dBi (peak)
QADCF2_WL _A Tx2 antenna	Quanta Computer Inc.	PIFA	50 ohm Coaxial. length: 350mm diameter: 1.13mm	2400-2500MHz -0.4_ dBi (peak)	2400-2500MHz _0.8_ dBi (peak)	2400-2500MHz _2.0_ max	2400-2500MHz _1.2_ dBi (peak)
				2496-2690MHz -1.2_ dBi (peak)	2496-2690MHz _0.0_ dBi (peak)	2496-2690MHz _2.0_ max	2496-2690MHz _1.2_ dBi (peak)
				5150-5350MHz _0.3_ dBi (peak)	5150-5350MHz _2.1_ dBi (peak)	5150-5350MHz _2.0_ max	5150-5350MHz _1.8_ dBi (peak)
				5470-5725MHz _0.9_ dBi (peak)	5470-5725MHz _2.8_ dBi (peak)	5470-5725MHz _2.0_ max	5470-5725MHz _1.9_ dBi (peak)
				5725-5850MHz -0.7_ dBi (peak)	5725-5850MHz _1.2_ dBi (peak)	5725-5850MHz _2.0_ max	5725-5850MHz _1.9_ dBi (peak)
				2400-2500MHz _ _ _ dBi (peak) *	2400-2500MHz _ _ _ dBi (peak) *	2400-2500MHz _ _ _ max *	2400-2500MHz _ _ _ dBi (peak) *
				2496-2690MHz _ _ _ dBi (peak) *	2496-2690MHz _ _ _ dBi (peak) *	2496-2690MHz _ _ _ max *	2496-2690MHz _ _ _ dBi (peak) *
				5150-5350MHz _ _ _ dBi (peak) *	5150-5350MHz _ _ _ dBi (peak) *	5150-5350MHz _ _ _ max *	5150-5350MHz _ _ _ dBi (peak) *
				5470-5725MHz _ _ _ dBi (peak) *	5470-5725MHz _ _ _ dBi (peak) *	5470-5725MHz _ _ _ max *	5470-5725MHz _ _ _ dBi (peak) *
				5725-5850MHz _ _ _ dBi (peak) *	5725-5850MHz _ _ _ dBi (peak) *	5725-5850MHz _ _ _ max *	5725-5850MHz _ _ _ dBi (peak) *

#### NOTE:

(\*) If Rx3 only (3<sup>rd</sup> antenna receives only, e.g. for 4965AGN) then the information marked with \* is not required

**Antenna Peak Gain Table:**

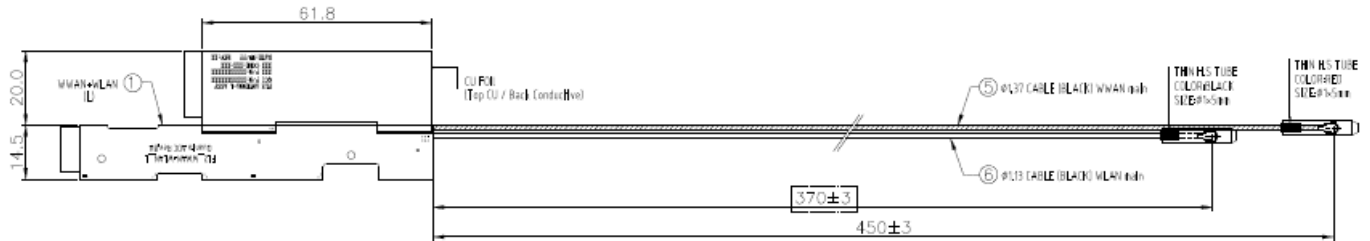
Frequency (MHz)	Tx1 antenna		Tx2 Antenna		Tx3 (or Rx3) Antenna	
	Horizontal (dBi)	Vertical (dBi)	Horizontal (dBi)	Vertical (dBi)	Horizontal (dBi)	Vertical (dBi)
2400	-7.2	-2.8	-0.4	-3.8		
2450	-2.4	-1.9	-0.6	-4.6		
2500	-1.4	-2.6	-1.4	-6.2		
2501	-1.1	-2.8	-1.2	-5.8		
2593	-3.8	-0.8	-1.2	-5.8		
2685	-4.3	-0.3	-2.4	-6.4		
5150	-3.7	-0.2	-0.5	-2.8		
5250	-3.8	-0.1	-0.5	-6.2		
5350	-1.3	-0.5	0.3	-5.9		
5470	-1.3	0.9	-0.8	-4.9		
5600	-0.1	0.2	0.9	-8.1		
5725	-1.2	-2.6	-0.7	-4.7		
5785	-0.9	-1.2	-1.5	-3.1		
5850	-1.2	-2.4	-1.5	-3.7		

- Antenna Peak Gain required being test in system basis.
- 1E frame content absolutely peak antenna gain include H/V
- If Rx3 only (3<sup>rd</sup> antenna receives only, e.g. for 4965AGN) then the information is not required for Rx3.

**Section 2. Dimensioned Photos or Drawings of Antennas**

Include a dimensioned photo and dimensioned drawing of Tx1 antenna here.

**Tx1 Antenna Dimensioned Drawing:**

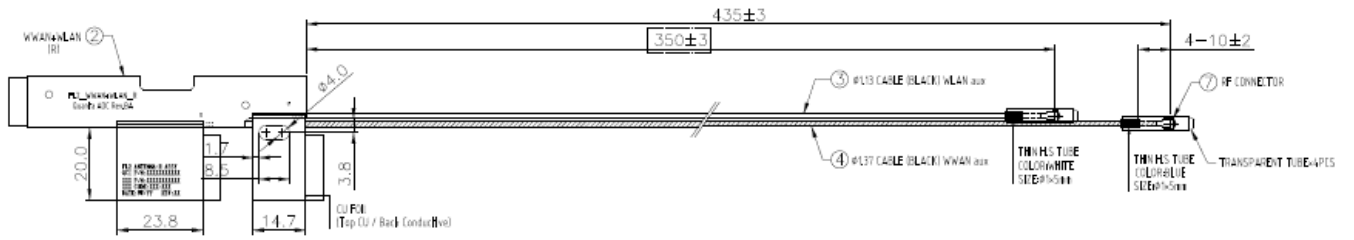


**Tx1 Antenna Photo:**

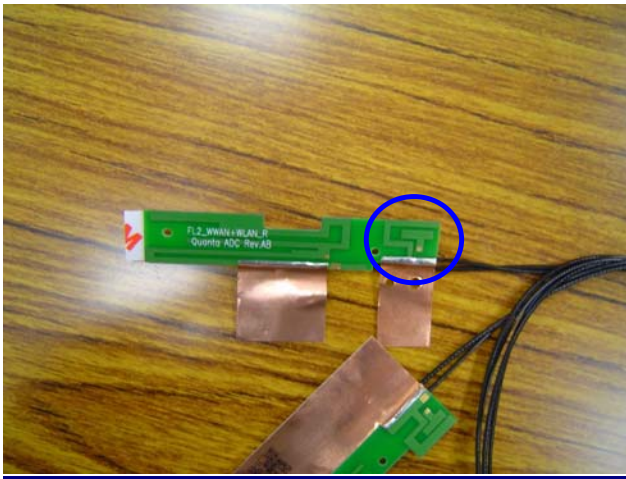


Include a dimensioned photo and dimensioned drawing of Tx2 antenna here.

**Tx2 Antenna Dimensioned Drawing:**

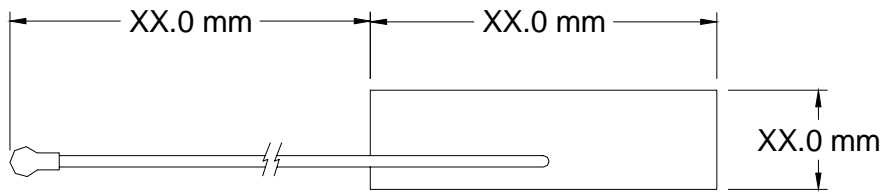


**Tx2 Antenna Photo:**



**Include a dimensioned photo and dimensioned drawing of Tx3 (or Rx3) antenna here.**

**Tx3 (or Rx3) Antenna Dimensioned Drawing:**

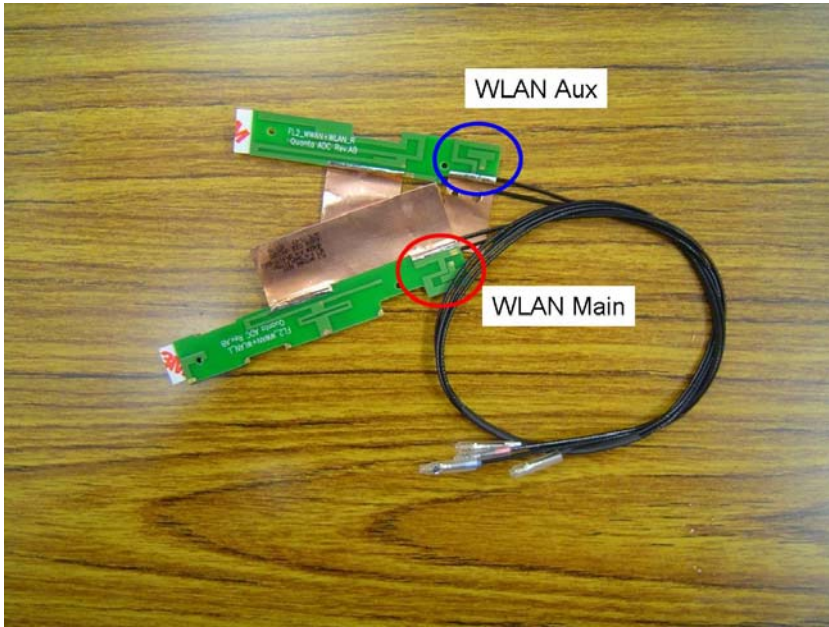


**Tx3 (or Rx3) Antenna Photo:**

**Include front view photo of all 3 antennas here.**

Antenna Manufacturer: Quanta

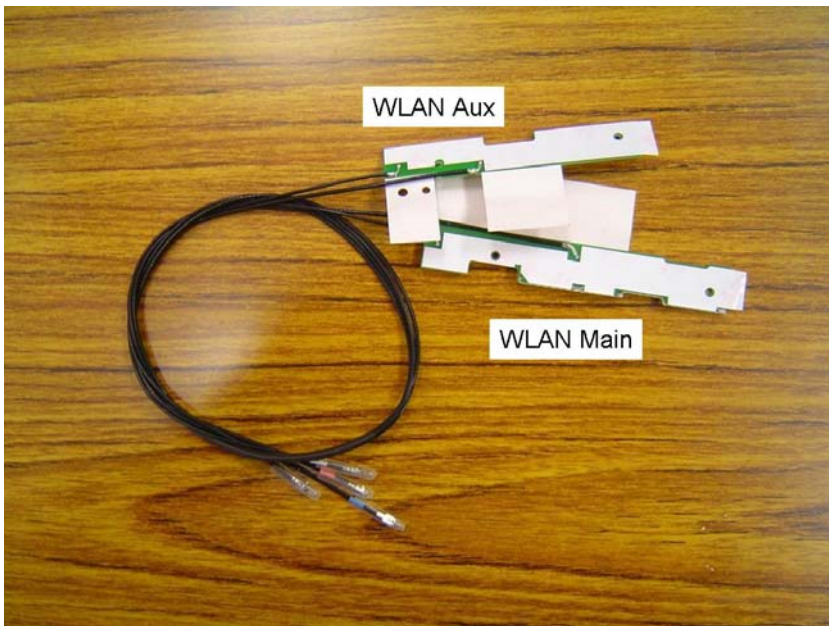
Antenna Part Number: QADCFL2\_WL\_M(Tx1), QADCFL2\_WL\_A (Tx2)



**Include back view photo of all 3 antennas here.**

Antenna Manufacturer: Quanta

Antenna Part Number: QADCFL2\_WL\_M(Tx1), QADCFL2\_WL\_A (Tx2)

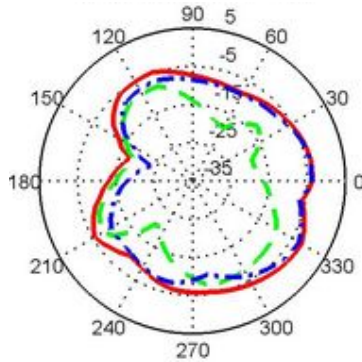




## Section 3. Radiation characteristics of antennae Loaded in Host Platform

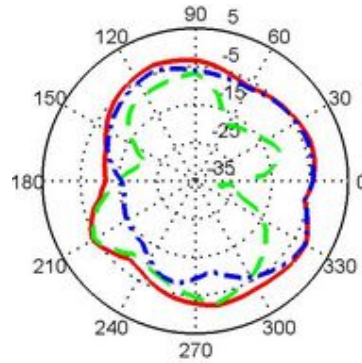
### 2400-2500MHz radiation characteristic

#### Tx1 antenna: 2400 MHz



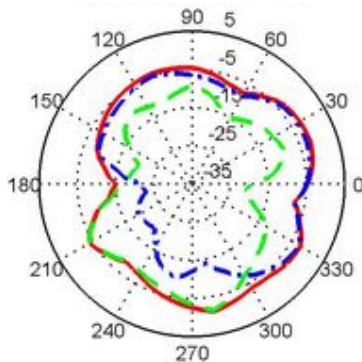
Center Frequency	<b>2400 MHz</b>
Horizontal (dBi) peak	<b>-7.2</b>
Vertical (dBi) peak	<b>-2.8</b>

#### Tx1 antenna: 2450 MHz



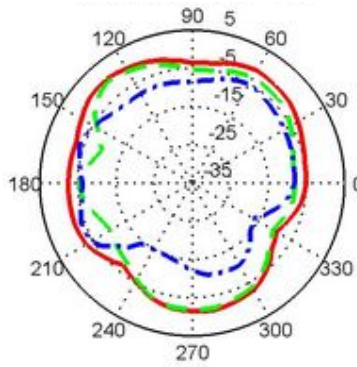
Center Frequency	<b>2450 MHz</b>
Horizontal (dBi) peak	<b>-2.4</b>
Vertical (dBi) peak	<b>-1.9</b>

#### Tx1 antenna: 2500 MHz



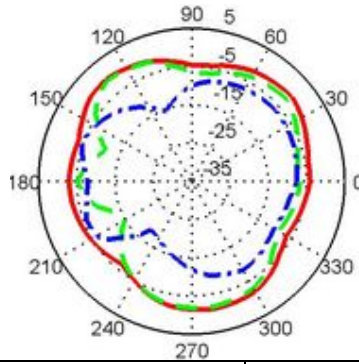
Center Frequency	<b>2500 MHz</b>
Horizontal (dBi) peak	<b>-1.4</b>
Vertical (dBi) peak	<b>-2.6</b>

**Tx2 antenna: 2400 MHz**



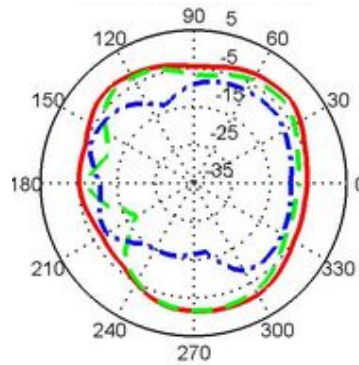
Center Frequency	<b>2400 MHz</b>
Horizontal (dBi) peak	<b>-0.4</b>
Vertical (dBi) peak	<b>-3.8</b>

**Tx2 antenna: 2450 MHz**



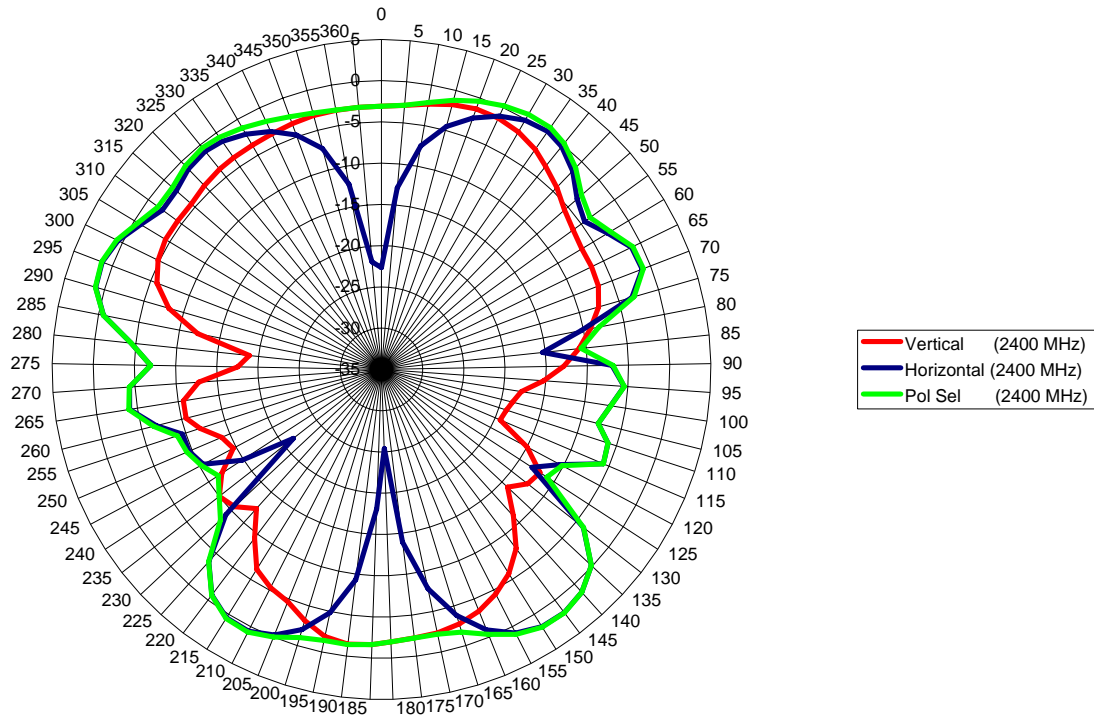
Center Frequency	<b>2450 MHz</b>
Horizontal (dBi) peak	<b>-0.6</b>
Vertical (dBi) peak	<b>-4.6</b>

**Tx2 antenna: 2500 MHz**



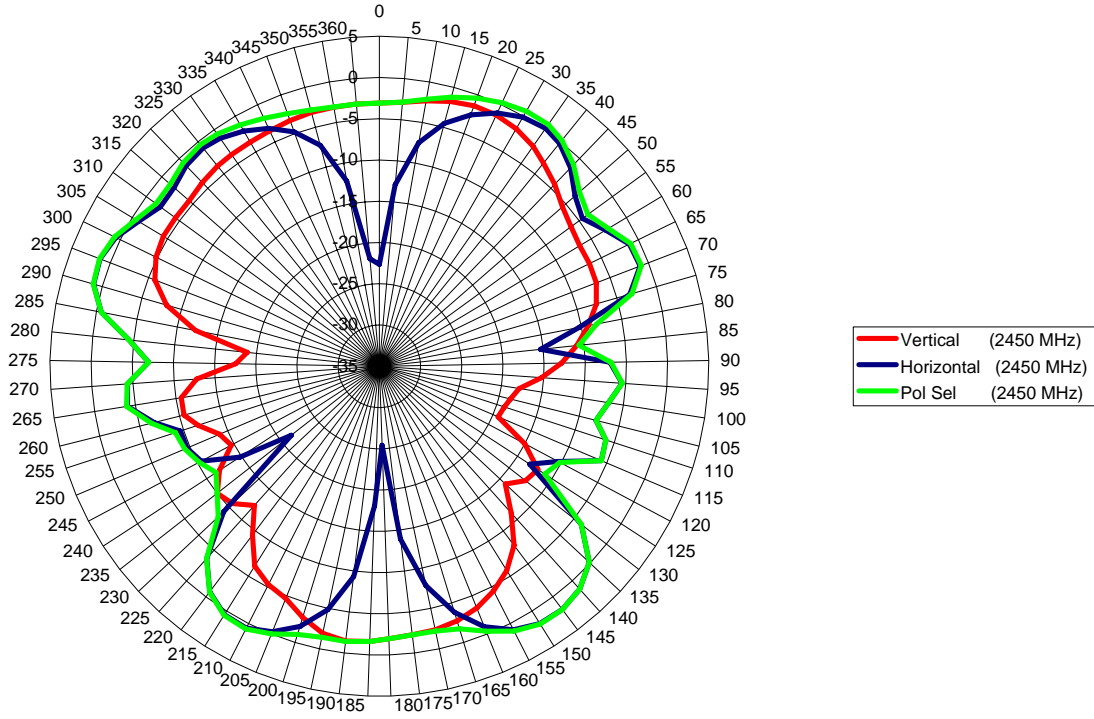
Center Frequency	<b>2500 MHz</b>
Horizontal (dBi) peak	<b>-1.4</b>
Vertical (dBi) peak	<b>-6.2</b>

**Tx3 (or Rx3) antenna: 2400 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



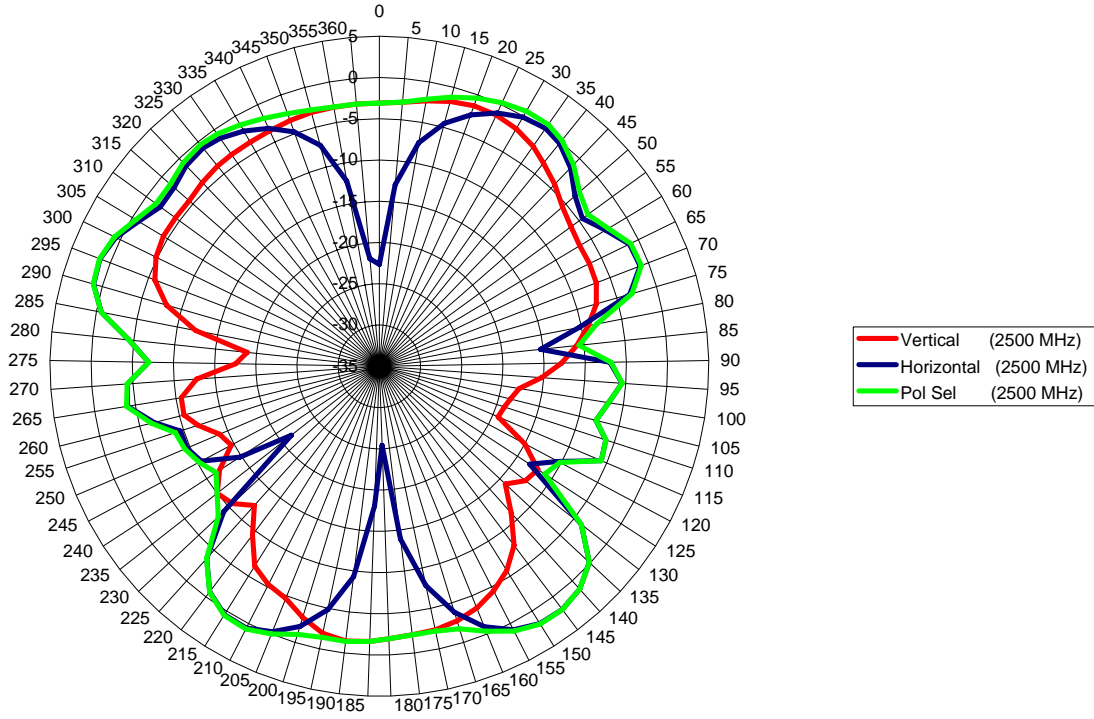
Center Frequency	<b>2400 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

**Tx3 (or Rx3) antenna: 2450 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>2450 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

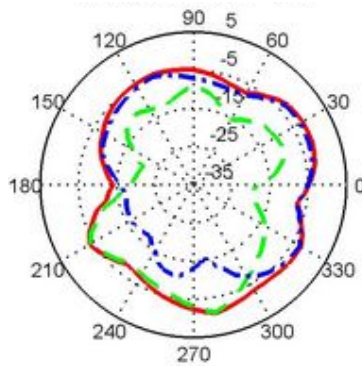
**Tx3 (or Rx3) antenna: 2500 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>2500 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

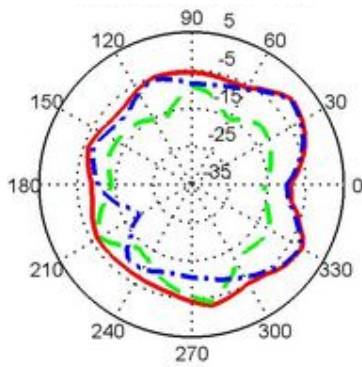
**2490-2700MHz radiation characteristic**

**Tx1 antenna: 2501MHz**



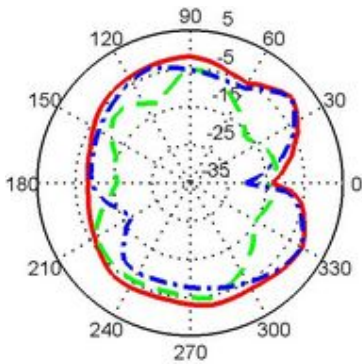
Center Frequency	<b>2501 MHz</b>
Horizontal (dBi) peak	<b>-1.1</b>
Vertical (dBi) peak	<b>-2.8</b>

**Tx1 antenna: 2593MHz**



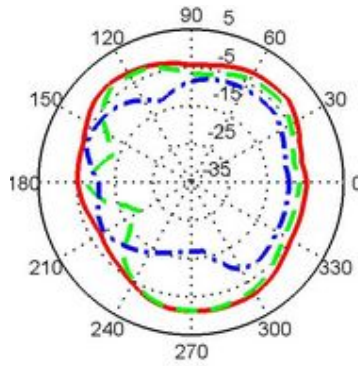
Center Frequency	<b>2593 MHz</b>
Horizontal (dBi) peak	<b>-3.8</b>
Vertical (dBi) peak	<b>-0.8</b>

**Tx1 antenna: 2685 MHz**



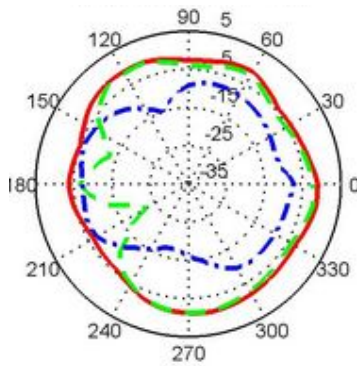
Center Frequency	<b>2685 MHz</b>
Horizontal (dBi) peak	<b>-4.3</b>
Vertical (dBi) peak	<b>-0.3</b>

**Tx2 antenna: 2501MHz**



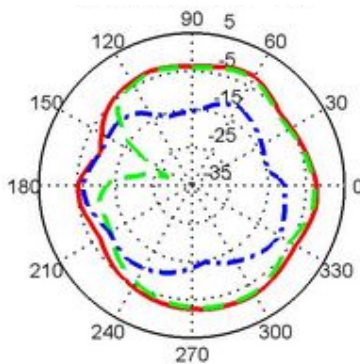
Center Frequency	<b>2501 MHz</b>
Horizontal (dBi) peak	<b>-1.2</b>
Vertical (dBi) peak	<b>-5.8</b>

**Tx2 antenna: 2593MHz**



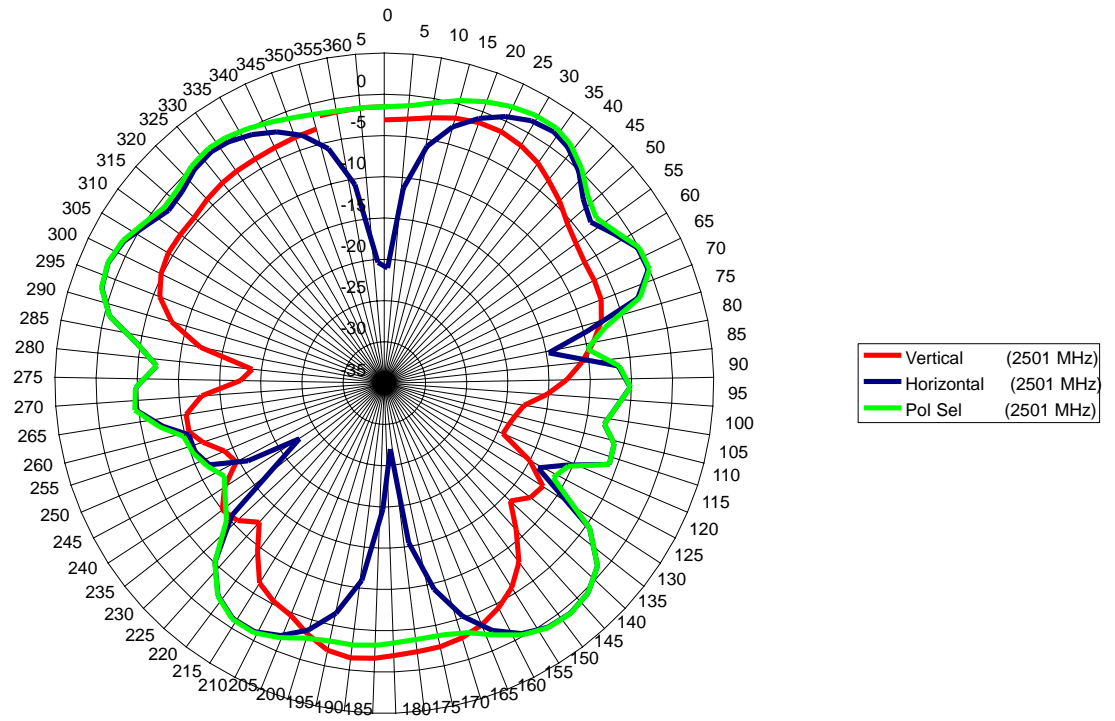
Center Frequency	<b>2593 MHz</b>
Horizontal (dBi) peak	<b>-1.2</b>
Vertical (dBi) peak	<b>-5.8</b>

**Tx2 antenna: 2685 MHz**



Center Frequency	<b>2685 MHz</b>
Horizontal (dBi) peak	<b>-2.4</b>
Vertical (dBi) peak	<b>-6.4</b>

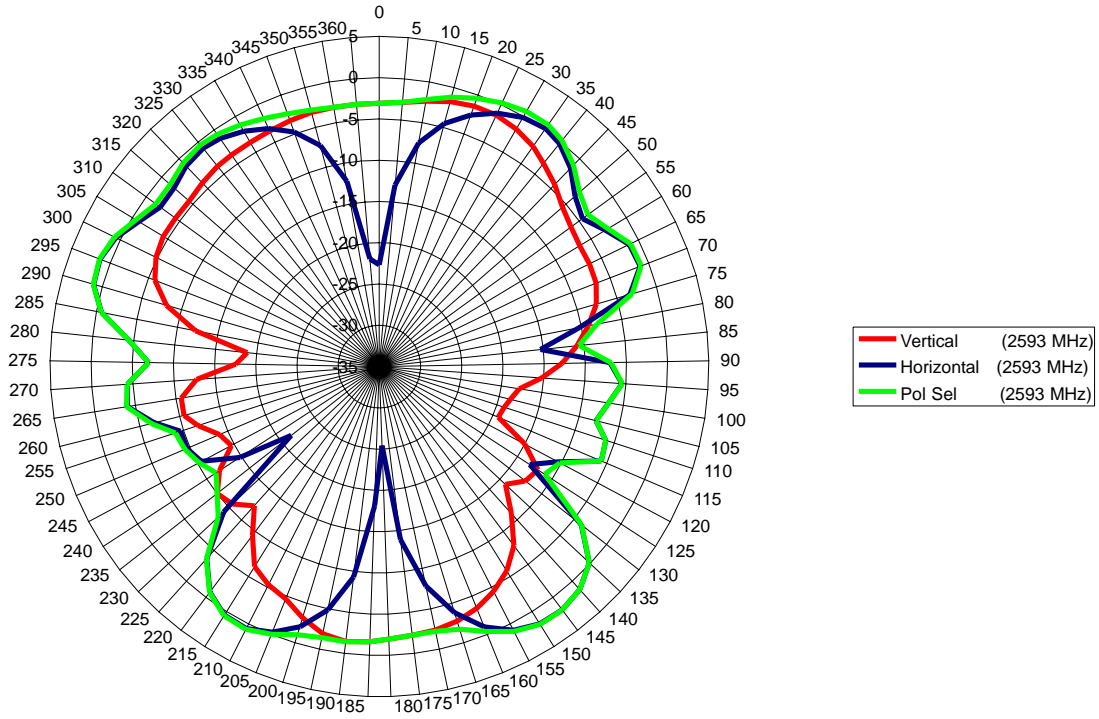
**Tx3 (or Rx3) antenna: 2501 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>2501 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

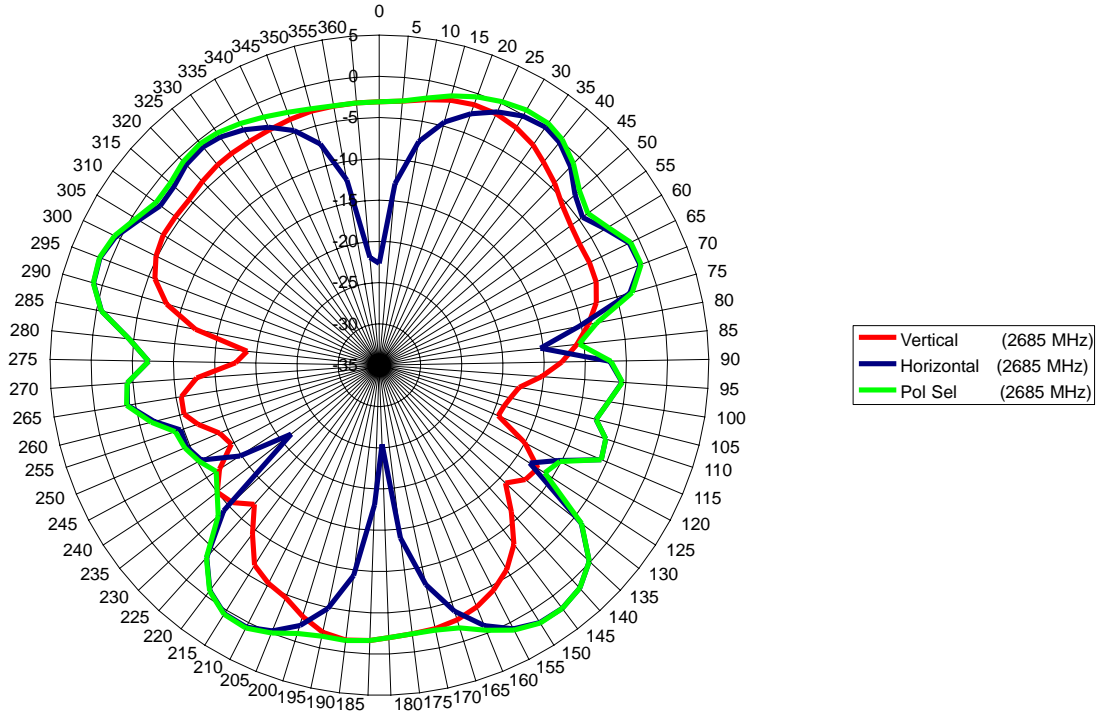


**Tx3 (or Rx3) antenna: 2593MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>2593 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

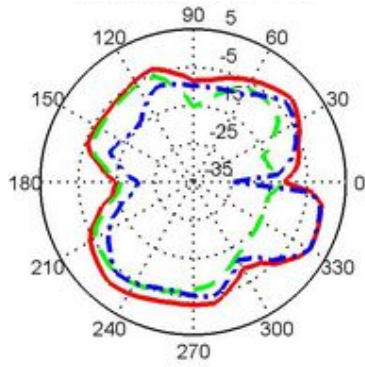
**Tx3 (or Rx3) antenna: 2685 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>2685 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

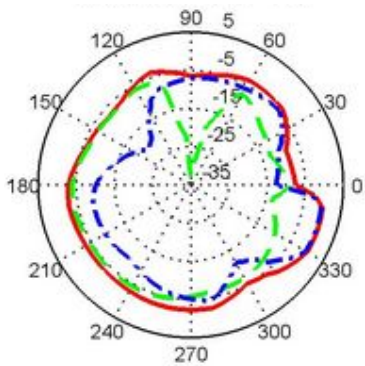
**5150-5350 MHz radiation characteristic**

**Tx1 antenna: 5150 MHz**



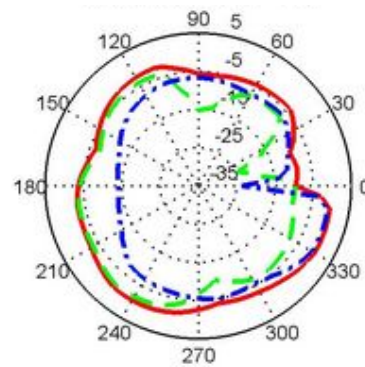
Center Frequency	<b>5150 MHz</b>
Horizontal (dBi) peak	<b>-3.7</b>
Vertical (dBi) peak	<b>0.2</b>

**Tx1 antenna: 5250 MHz**



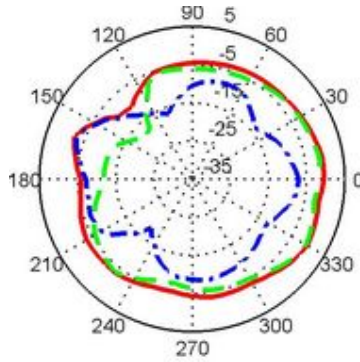
Center Frequency	<b>5250 MHz</b>
Horizontal (dBi) peak	<b>-3.8</b>
Vertical (dBi) peak	<b>-0.1</b>

**Tx1 antenna: 5350 MHz**



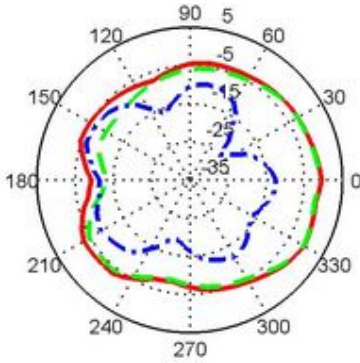
Center Frequency	<b>5350 MHz</b>
Horizontal (dBi) peak	<b>-1.3</b>
Vertical (dBi) peak	<b>-0.5</b>

**Tx2 antenna: 5150 MHz**



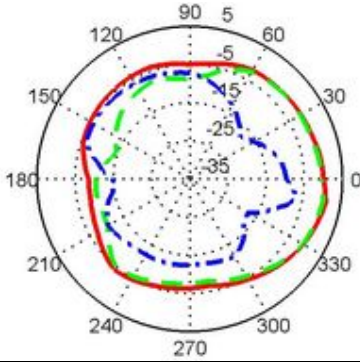
Center Frequency	<b>5150 MHz</b>
Horizontal (dBi) peak	<b>-0.5</b>
Vertical (dBi) peak	<b>-2.8</b>

**Tx2 antenna: 5250 MHz**



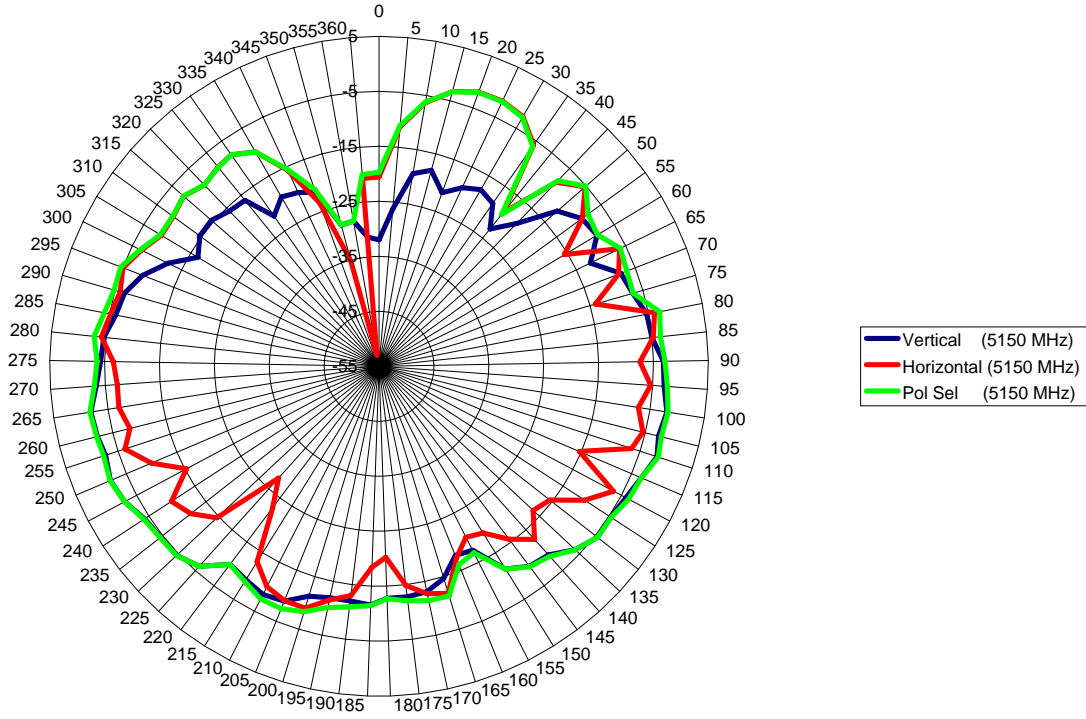
Center Frequency	<b>5250 MHz</b>
Horizontal (dBi) peak	<b>-0.5</b>
Vertical (dBi) peak	<b>-6.2</b>

**Tx2 antenna: 5350 MHz**



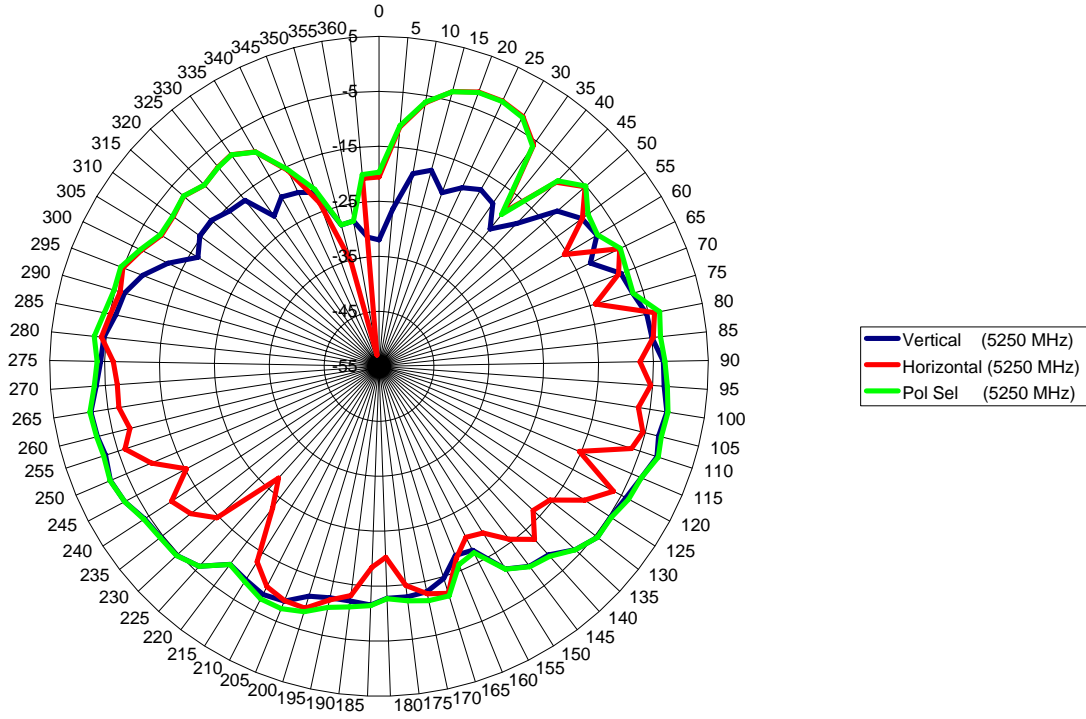
Center Frequency	<b>5350 MHz</b>
Horizontal (dBi) peak	<b>0.3</b>
Vertical (dBi) peak	<b>-5.9</b>

**Tx3 (or Rx3) antenna: 5150 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



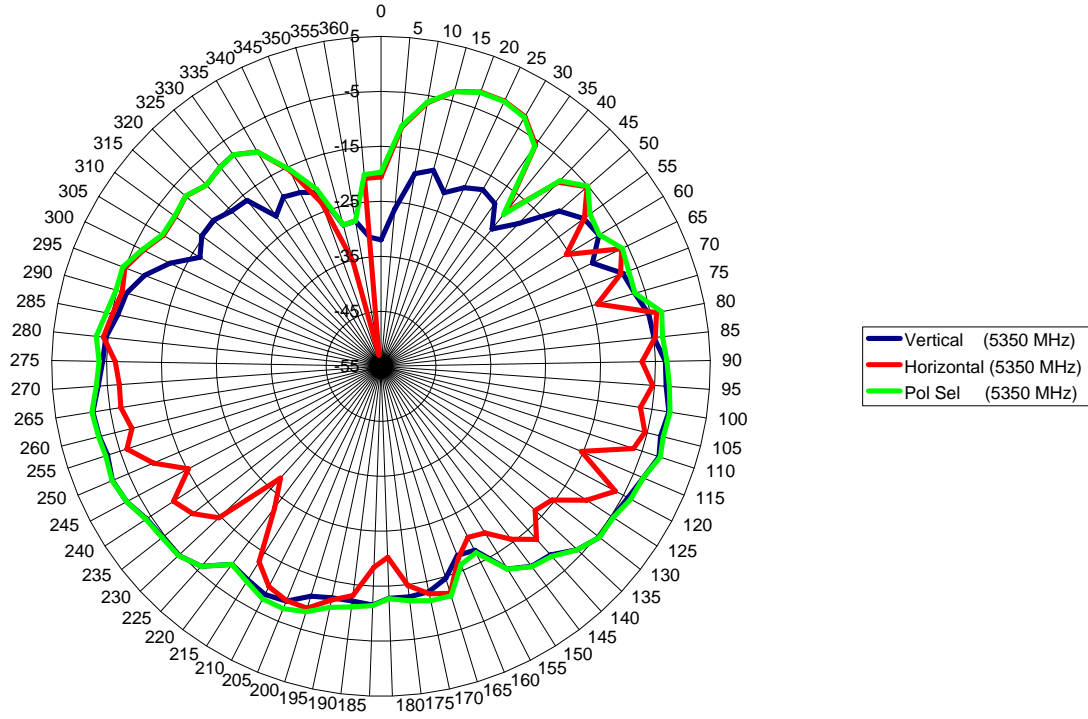
Center Frequency	<b>5150 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

**Tx3 (or Rx3) antenna: 5250 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>5250 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

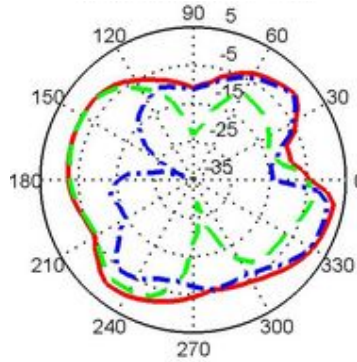
**Tx3 (or Rx3) antenna: 5350 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>5350 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

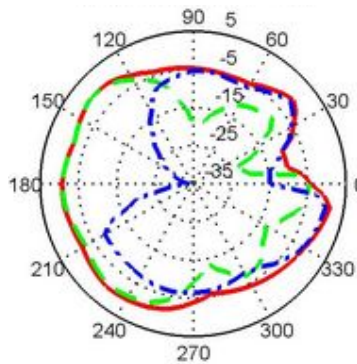
**5470-5725MHz radiation characteristic**

**Tx1 antenna: 5470 MHz**



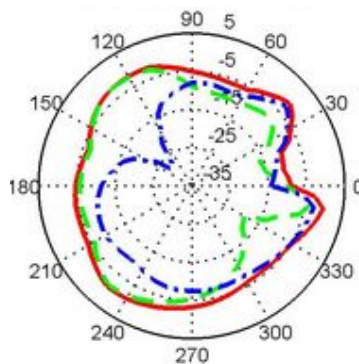
Center Frequency	<b>5470 MHz</b>
Horizontal (dBi) peak	<b>-1.3</b>
Vertical (dBi) peak	<b>0.9</b>

**Tx1 antenna: 5597.5 MHz**



Center Frequency	<b>5597.5 MHz</b>
Horizontal (dBi) peak	<b>-0.1</b>
Vertical (dBi) peak	<b>0.2</b>

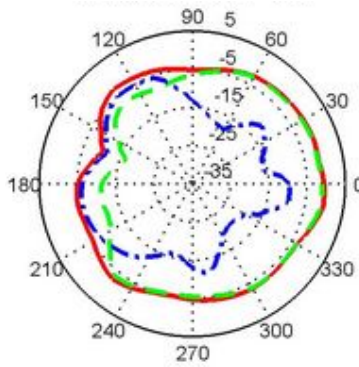
**Tx1 antenna: 5725 MHz**



Center Frequency	<b>5725 MHz</b>
Horizontal (dBi) peak	<b>-1.2</b>
Vertical (dBi) peak	<b>-2.6</b>

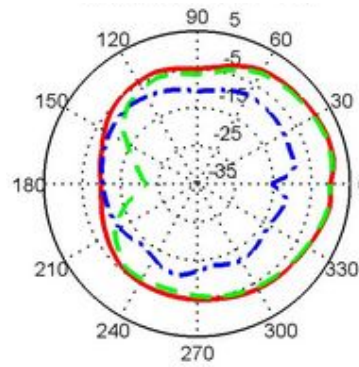


**Tx2 antenna: 5470 MHz**



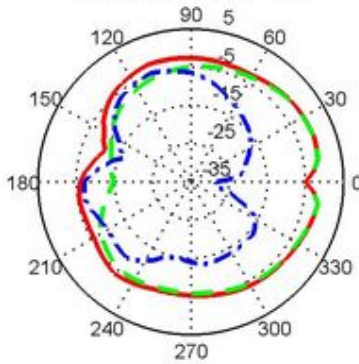
Center Frequency	<b>5470 MHz</b>
Horizontal (dBi) peak	<b>-0.8</b>
Vertical (dBi) peak	<b>-4.9</b>

**Tx2 antenna: 5597.5 MHz**



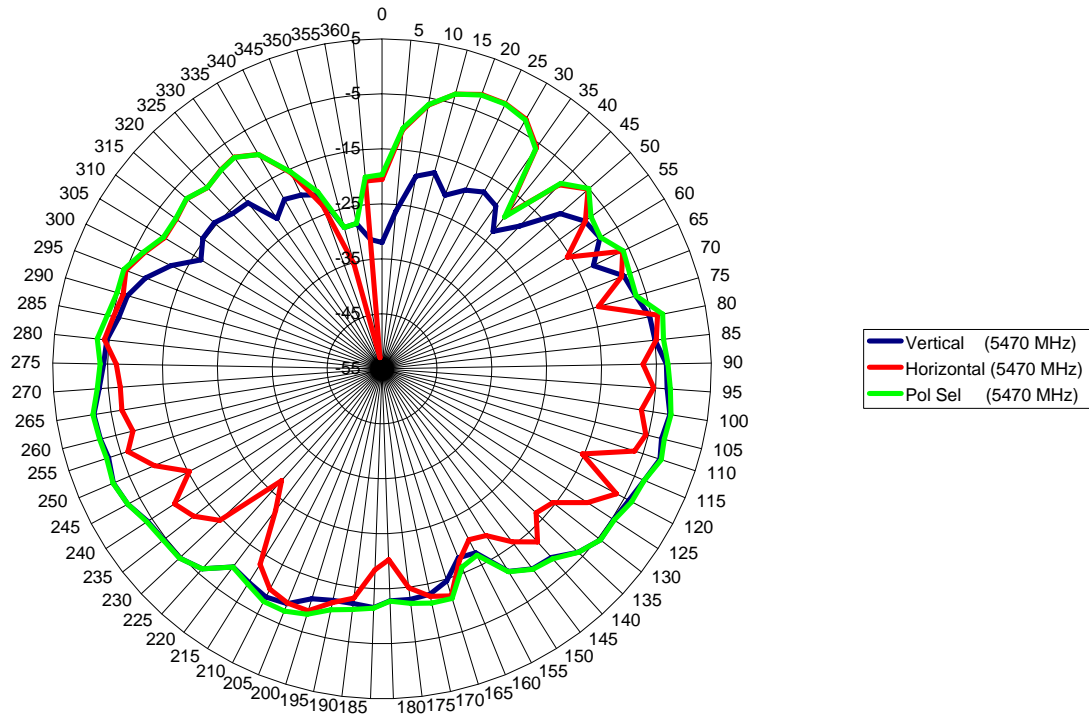
Center Frequency	<b>5597.5 MHz</b>
Horizontal (dBi) peak	<b>0.9</b>
Vertical (dBi) peak	<b>-8.1</b>

**Tx2 antenna: 5725 MHz**



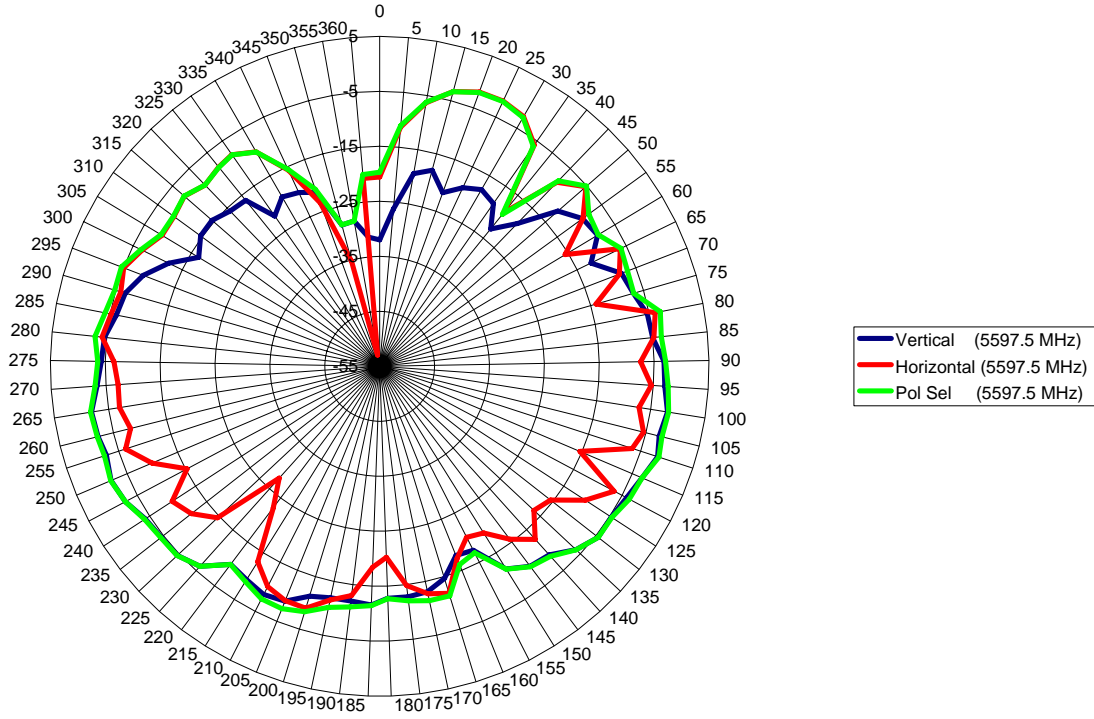
Center Frequency	<b>5725 MHz</b>
Horizontal (dBi) peak	<b>-0.7</b>
Vertical (dBi) peak	<b>-4.7</b>

**Tx3 (or Rx3): 5470 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



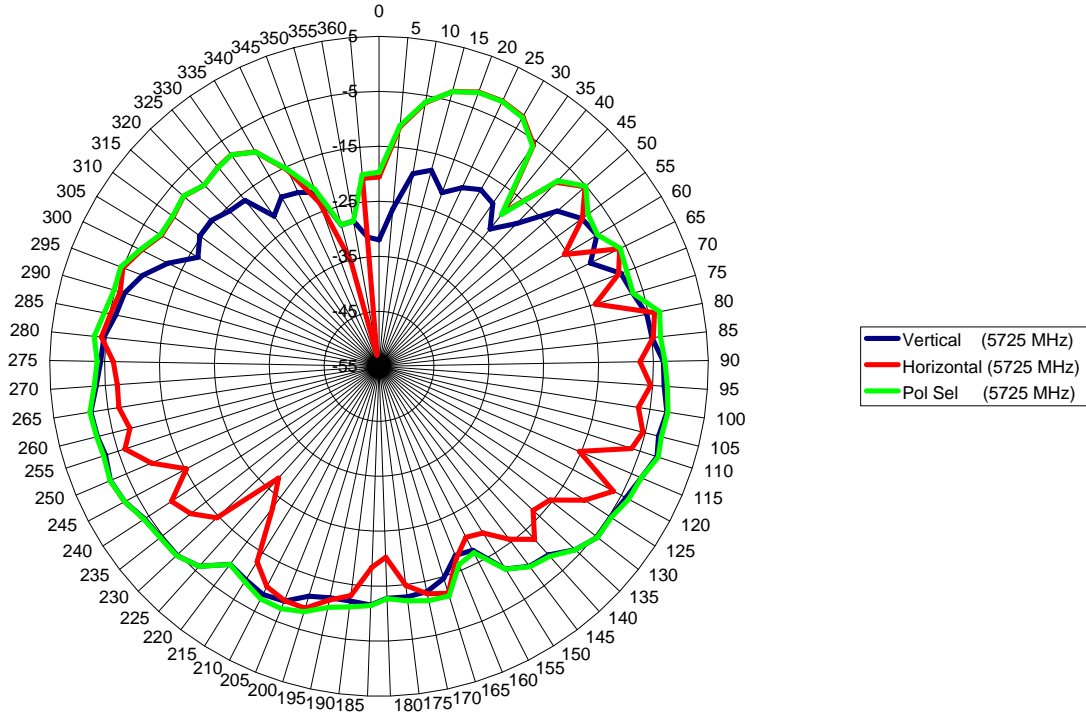
Center Frequency	<b>5470 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

**Tx3 (or Rx3) antenna: 5597.5 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>5597.5 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

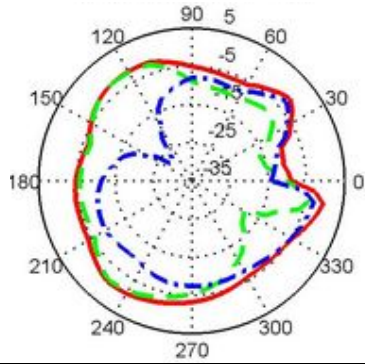
**Tx3 (or Rx3) antenna: 5725 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>5725 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

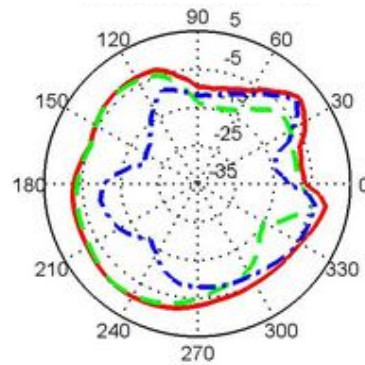
**5725-5850 MHz radiation characteristic**

**Tx1 antenna: 5725 MHz**



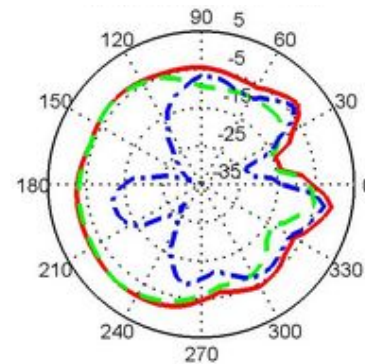
Center Frequency	<b>5725 MHz</b>
Horizontal (dBi) peak	<b>-1.2</b>
Vertical (dBi) peak	<b>-2.6</b>

**Tx1 antenna: 5785 MHz**



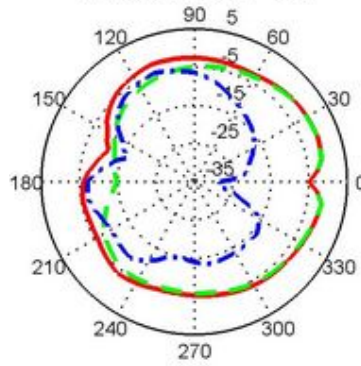
Center Frequency	<b>5785 MHz</b>
Horizontal (dBi) peak	<b>-0.9</b>
Vertical (dBi) peak	<b>-1.2</b>

**Tx1 antenna: 5850 MHz**



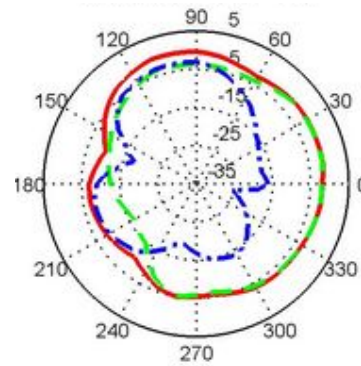
Center Frequency	<b>5850 MHz</b>
Horizontal (dBi) peak	<b>-1.2</b>
Vertical (dBi) peak	<b>-2.4</b>

**Tx2 antenna: 5725 MHz**



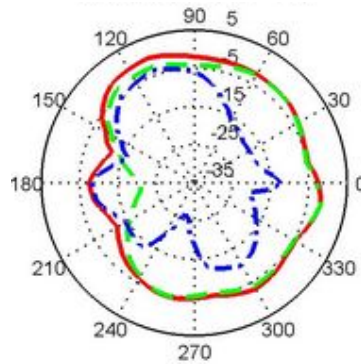
Center Frequency	<b>5725 MHz</b>
Horizontal (dBi) peak	<b>-0.7</b>
Vertical (dBi) peak	<b>-4.7</b>

**Tx2 antenna: 5785 MHz**



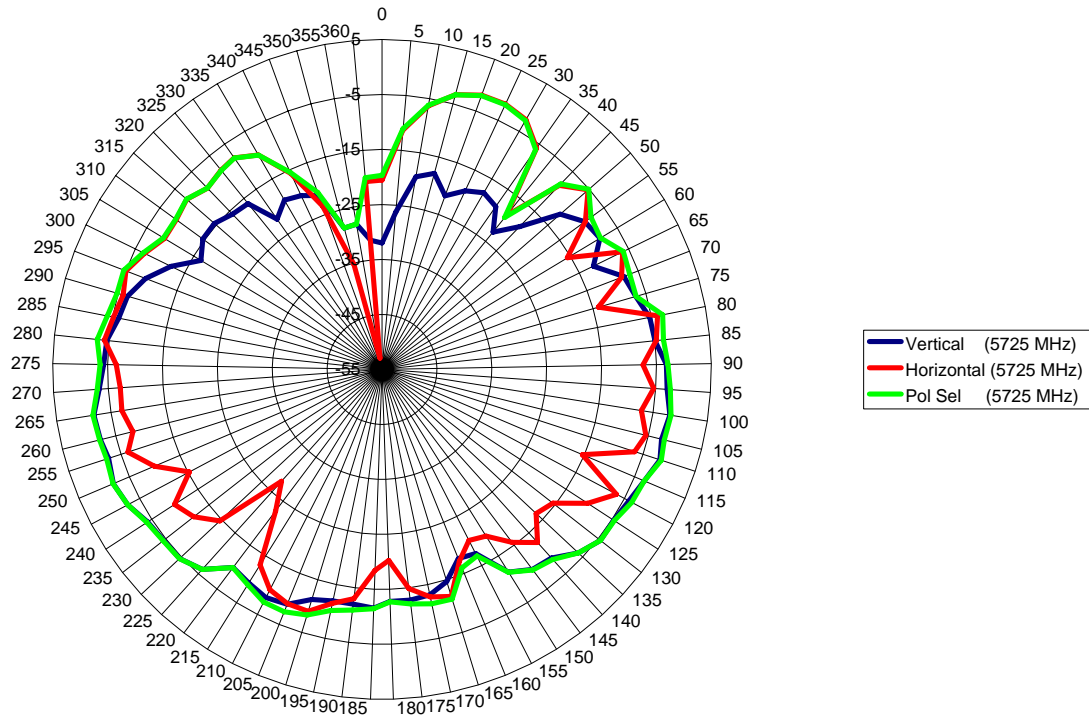
Center Frequency	<b>5785 MHz</b>
Horizontal (dBi) peak	<b>-1.5</b>
Vertical (dBi) peak	<b>-3.1</b>

**Tx2 antenna: 5850 MHz**



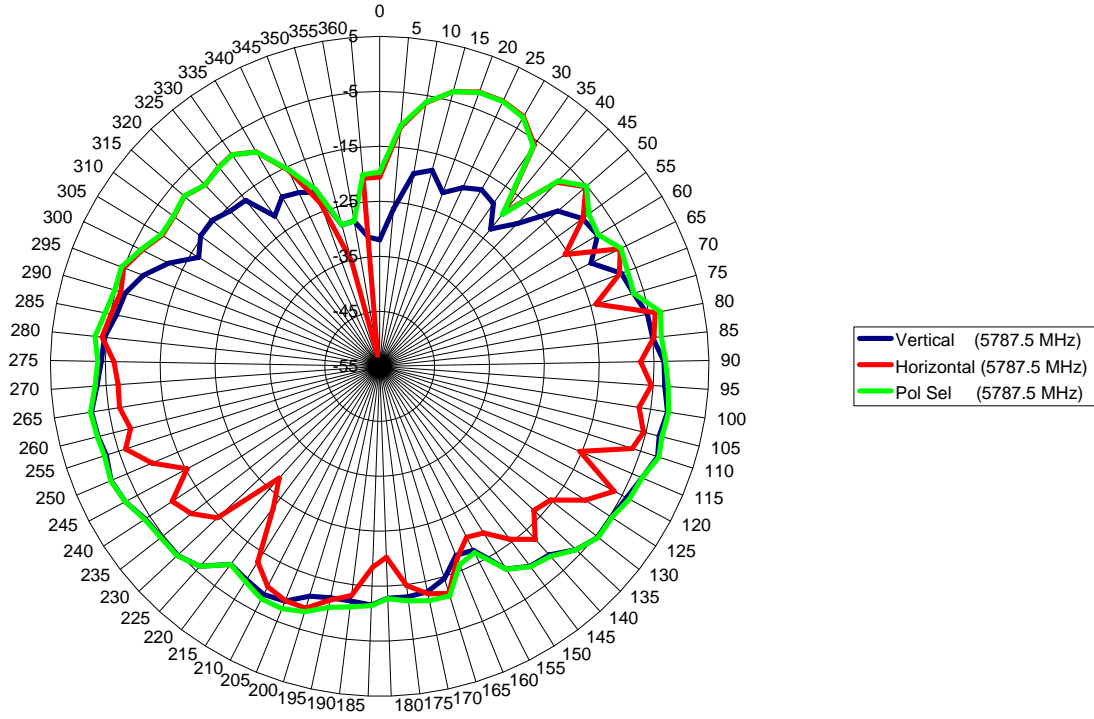
Center Frequency	<b>5850 MHz</b>
Horizontal (dBi) peak	<b>-1.5</b>
Vertical (dBi) peak	<b>-3.7</b>

**Tx3 (or Rx3) antenna: 5725 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>5725 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

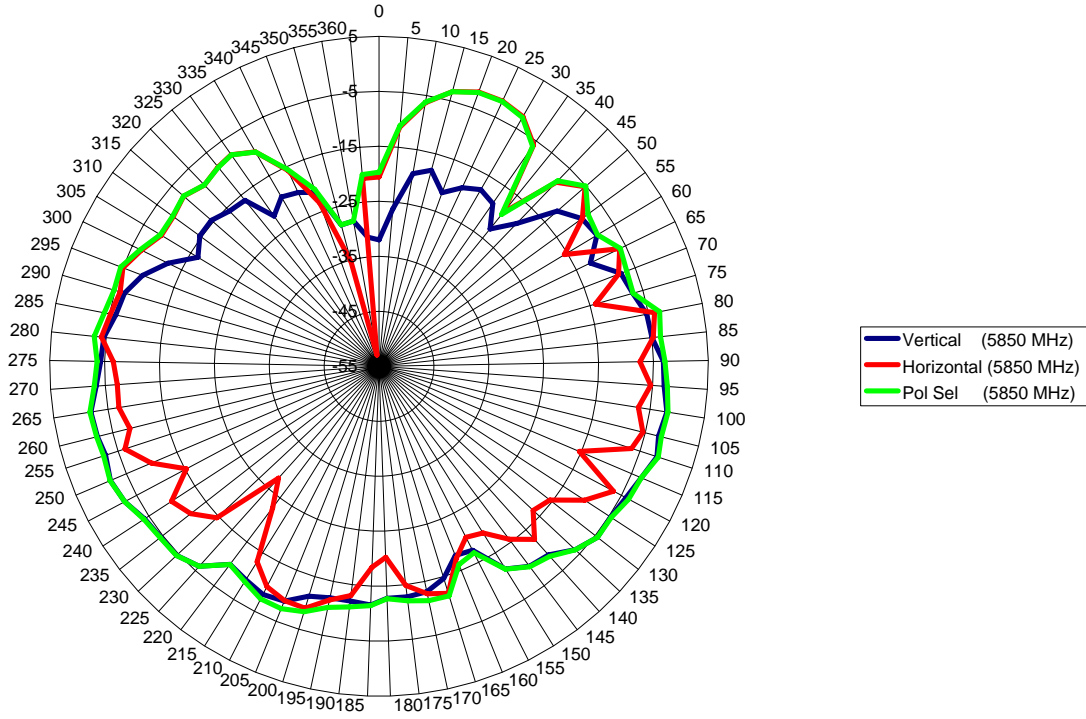
**Tx3 (or Rx3) antenna: 5785 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx3 for 4965AGN)**



Center Frequency	<b>5785 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>



**Tx3 (or Rx3) antenna: 5850 MHz (Plot is not required if 3<sup>rd</sup> Antenna is receive only e.g. Rx 3 for 4965AGN)**



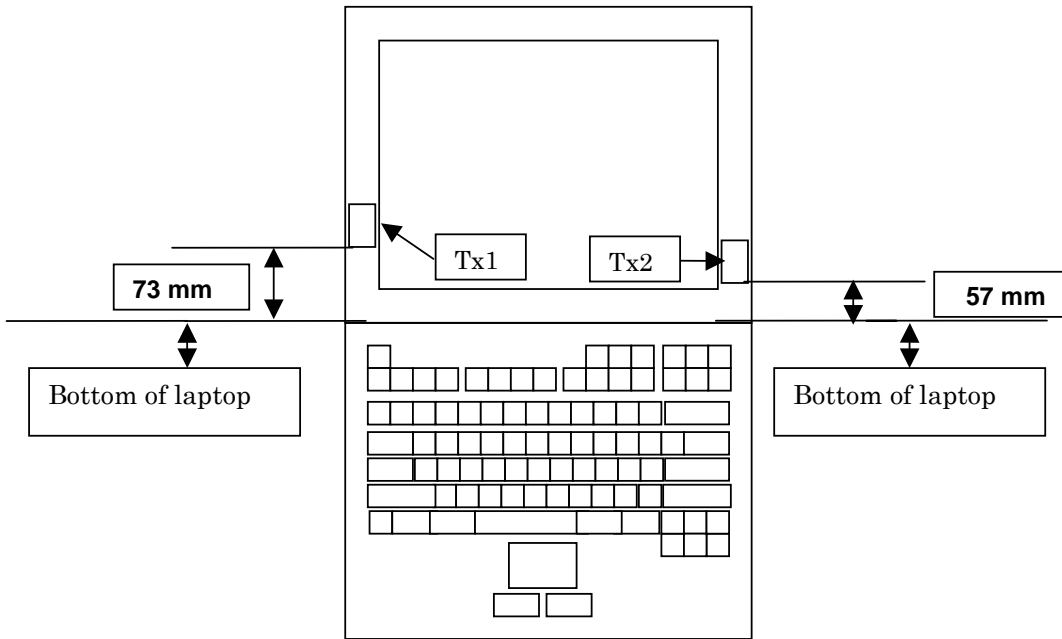
Center Frequency	<b>5850 MHz</b>
Horizontal (dBi) peak	<b>X.XX</b>
Vertical (dBi) peak	<b>X.XX</b>

## Section 4. Host Platform Information

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

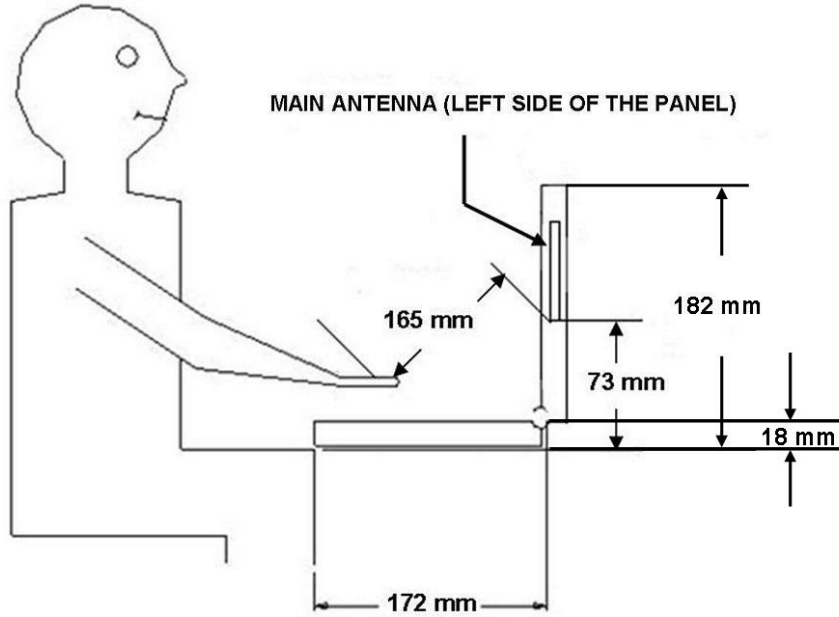
## Section 5. Antenna Host Platform Location Information

Include a **dimensioned photo or dimensioned drawing** of Tx1, Tx2 and Tx3 antenna placements (measurements are not required for receive-only antenna). Any antenna that transmits must show dimensions to bottom of laptop.



## Section 6. Antenna dimensional information for SAR evaluation

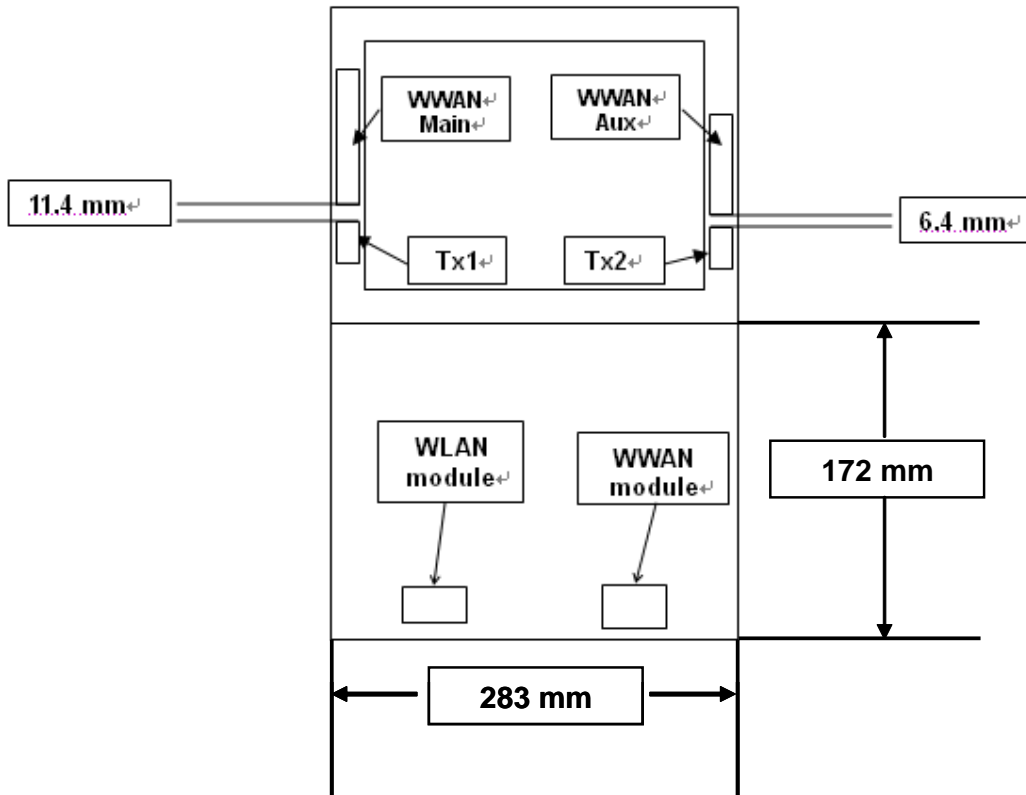
Include a **dimensioned photo or dimensioned drawing** showing the distance (mm) between the transmit antennas and the user (excluding hands, wrist, feet, lap/ thigh, and ankle)



## 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						
Brazil						
Indonesia						
Israel						
Malaysia						
Mexico						
Singapore						Telecommunication Equipment Dealer License Required
South Africa						
USA, Canada						