

# Regulatory Wireless Antenna Information

<b>Platform</b>	
Platform Owner	Lenovo (Beijing) Limited.
Brand Name	Lenovo
Model Name	ThinkPad Edge E145
ODM	Quanta
Target Launch Date	(2012/ 05/ 15)
<b>Antenna</b>	
Manufacturer	Wistron NeWeb Corporation, Ltd.
Part Number	■ Tx1/ Rx1 Antenna: DQ6G15G5800
	■ Tx2/Rx2 Antenna: DQ6G15G5700
<b>Module</b>	
With WLAN Module	RTL8188EE

## 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	Required	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 <u>photographs of antennas for approval submission</u> ). 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 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)
Main Antenna  Antenna P/N : DQ6G15G5800 (81.EKG15.G58)	Wistron Neweb Corporation	PIFA	50 ohm Coaxial. length: <b>562</b> mm diameter: <b>1.13</b> mm Connector: <b>IPEX</b>	2300 - 2500 MHz <b>-0.58</b> dBi (peak)	2300 - 2500 MHz <b>1.45</b> dBi (peak)	2300 - 2500 MHz <b>2.5</b> max	2300 - 2500 MHz <b>2.03</b> dBi (peak)
				2500 - 2700 MHz <b>-0.58</b> dBi (peak)	2500 - 2700 MHz <b>1.45</b> dBi (peak)	2500 - 2700 MHz <b>2.5</b> max	2500 - 2700 MHz <b>2.03</b> dBi (peak)
				5150 - 5350 MHz <b>-1.23</b> dBi (peak)	5150 - 5350 MHz <b>1.80</b> dBi (peak)	5150 - 5350 MHz <b>2.5</b> max	5150 - 5350 MHz <b>3.03</b> dBi (peak)
				5470 - 5725 MHz <b>-1.68</b> dBi (peak)	5470 - 5725 MHz <b>1.42</b> dBi (peak)	5470 - 5725 MHz <b>2.5</b> max	5470 - 5725 MHz <b>3.10</b> dBi (peak)
				5725 - 5850 MHz <b>-0.67</b> dBi (peak)	5725 - 5850 MHz <b>2.54</b> dBi (peak)	5725 - 5850 MHz <b>2.5</b> max	5725 - 5850 MHz <b>3.21</b> dBi (peak)
Aux Antenna  Antenna P/N : DQ6G15G5700 (81.EKG15.G57)	Wistron Neweb Corporation	PIFA	50 ohm Coaxial. length: <b>565</b> mm diameter: <b>1.13</b> mm Connector: <b>IPEX</b>	2300 - 2500 MHz <b>-0.14</b> dBi (peak)	2300 - 2500 MHz <b>1.88</b> dBi (peak)	2300 - 2500 MHz <b>2.5</b> max	2300 - 2500 MHz <b>2.02</b> dBi (peak)
				2500 - 2700 MHz <b>-0.47</b> dBi (peak)	2500 - 2700 MHz <b>1.55</b> dBi (peak)	2500 - 2700 MHz <b>2.5</b> max	2500 - 2700 MHz <b>2.02</b> dBi (peak)
				5150 - 5350 MHz <b>-1.00</b> dBi (peak)	5150 - 5350 MHz <b>2.02</b> dBi (peak)	5150 - 5350 MHz <b>2.5</b> max	5150 - 5350 MHz <b>3.02</b> dBi (peak)
				5470 - 5725 MHz <b>-1.02</b> dBi (peak)	5470 - 5725 MHz <b>2.07</b> dBi (peak)	5470 - 5725 MHz <b>2.5</b> max	5470 - 5725 MHz <b>3.09</b> dBi (peak)
				5725 - 5850 MHz <b>-0.47</b> dBi (peak)	5725 - 5850 MHz <b>2.45</b> dBi (peak)	5725 - 5850 MHz <b>2.5</b> max	5725 - 5850 MHz <b>3.19</b> dBi (peak)

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

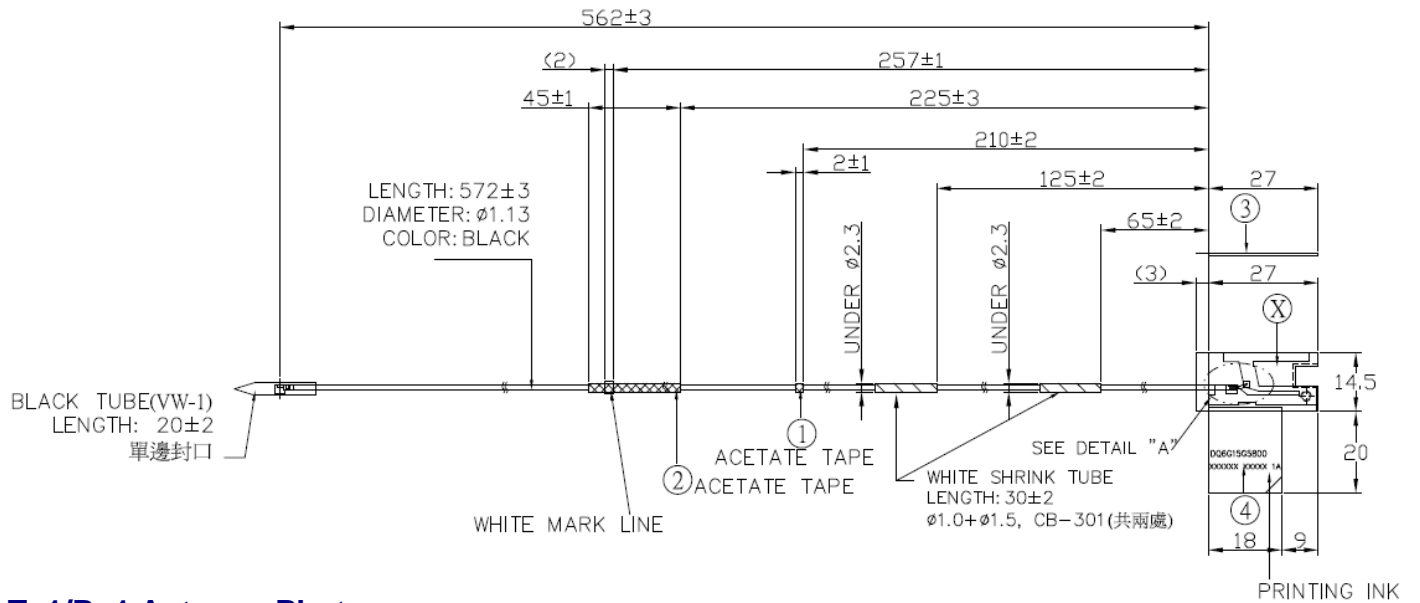
**Antenna Peak Gain Table:**

	Main antenna			Aux antenna	
Frequency (MHz)	Horizontal (dBi)	Vertical (dBi)	Frequency (MHz)	Horizontal (dBi)	Vertical (dBi)
2300	-2.37	-2.20	2300	-0.14	-3.95
2350	-1.00	-2.12	2350	-1.72	-3.68
2400	-2.41	-1.64	2400	-3.83	-3.12
2450	-1.94	-1.80	2450	-3.14	-2.66
2500	-1.07	-0.58	2500	-1.48	-2.46
2550	-1.35	-1.16	2550	-0.85	-1.93
2600	-1.19	-3.06	2600	-2.25	-1.23
2650	-0.80	-2.24	2650	-0.89	-2.21
2700	-2.05	-2.03	2700	-0.47	-3.59
5150	-2.95	-3.26	5150	-1.96	-4.26
5250	-1.57	-3.64	5250	-1.00	-3.60
5350	-1.23	-4.42	5350	-1.98	-2.46
5470	-1.69	-3.16	5470	-1.02	-3.36
5600	-1.68	-3.35	5600	-1.36	-2.69
5725	-3.60	-2.95	5725	-1.61	-2.18
5785	-2.75	-0.67	5785	-1.53	-0.74
5850	-3.67	-1.42	5850	-1.19	-0.47

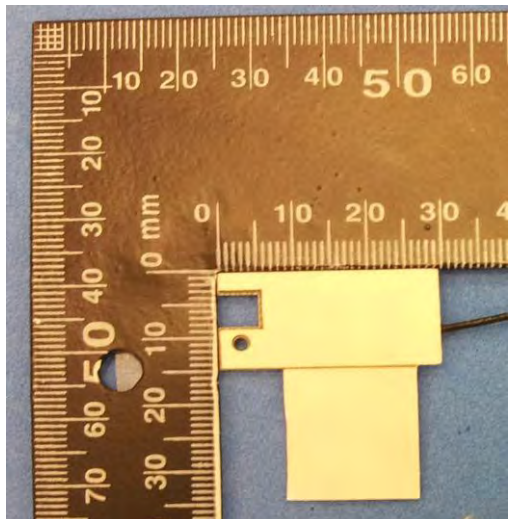
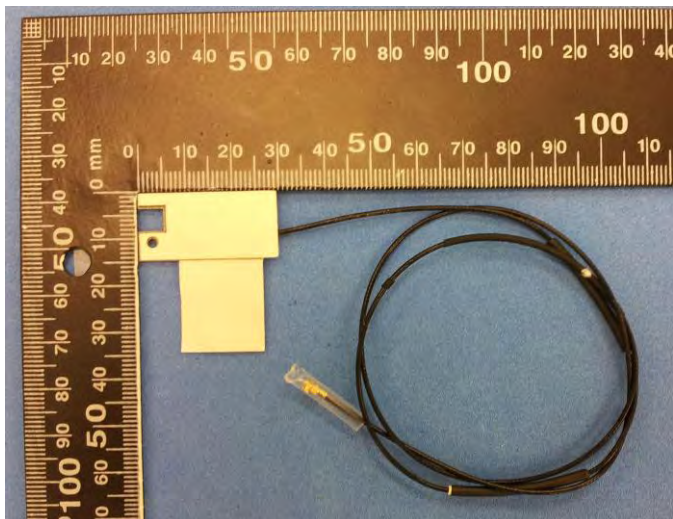
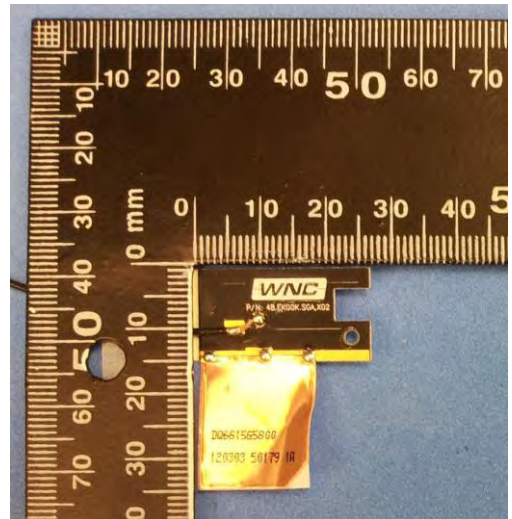
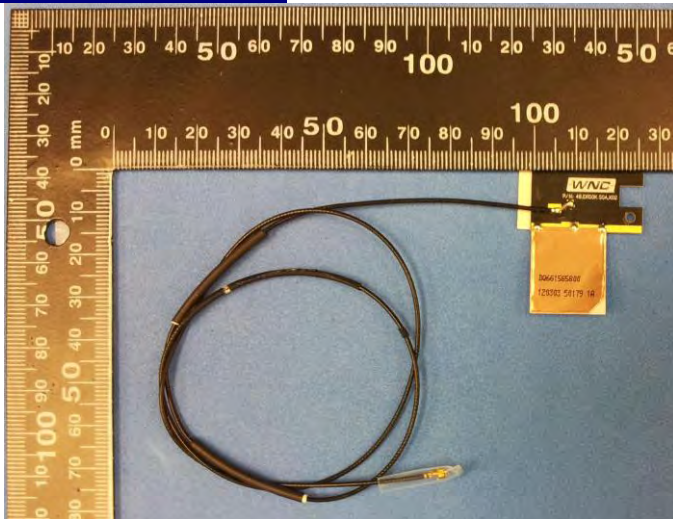
## Section 2. Dimensioned Photos or Drawings of Antennas

Include a dimensioned photo and dimensioned drawing of Tx1/Rx1 antenna here.

### Tx1/Rx1 Antenna Dimensioned Drawing:

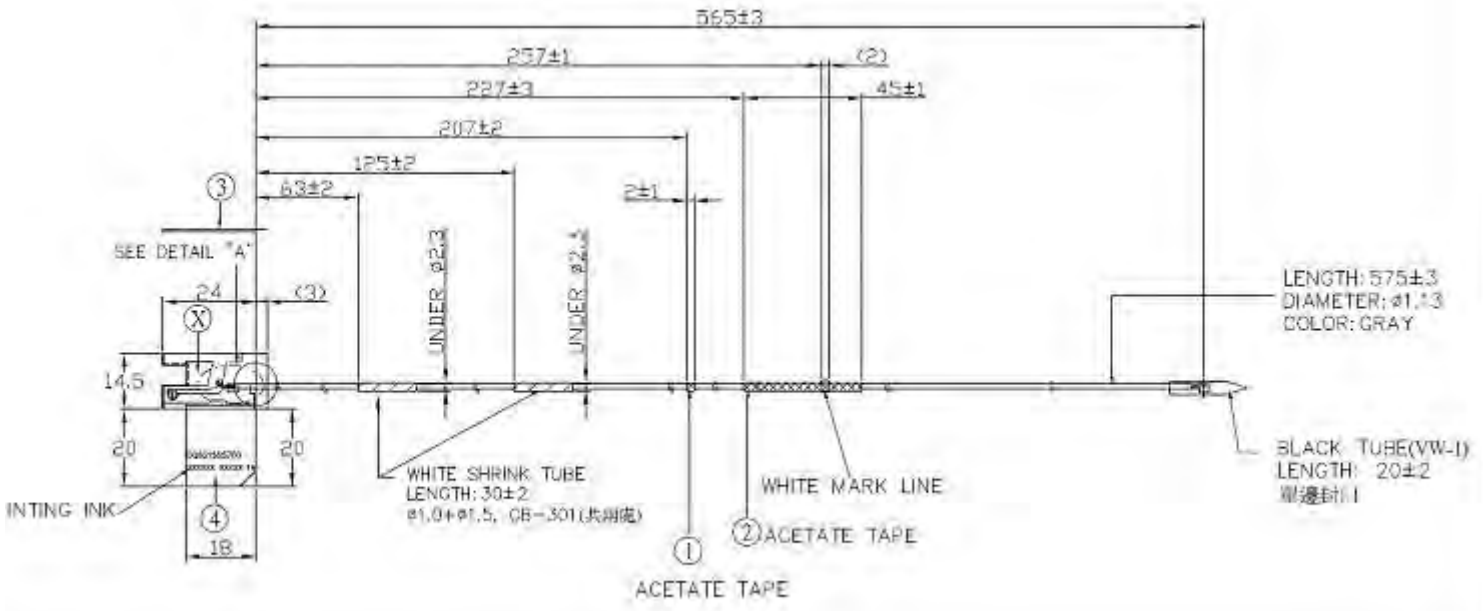


### Tx1/Rx1 Antenna Photo:

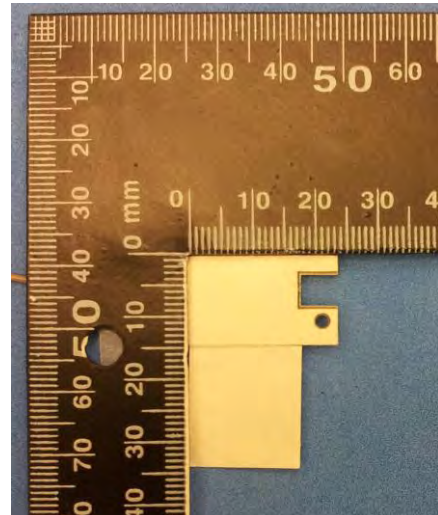
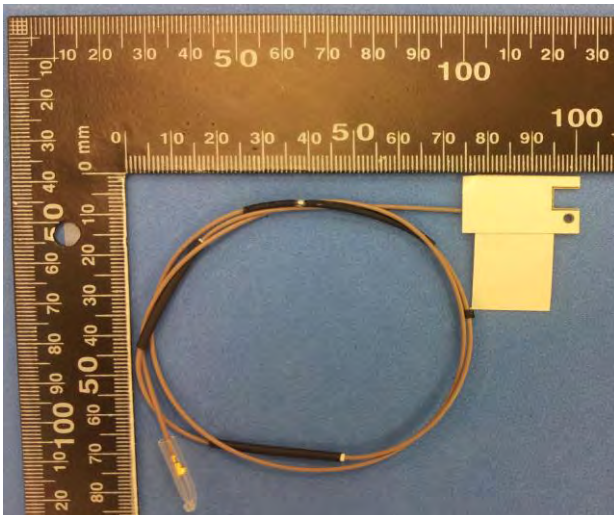
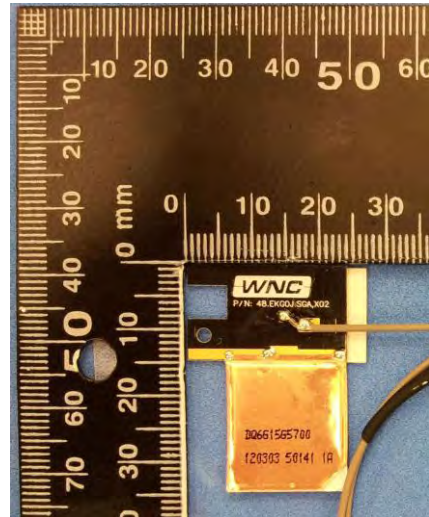
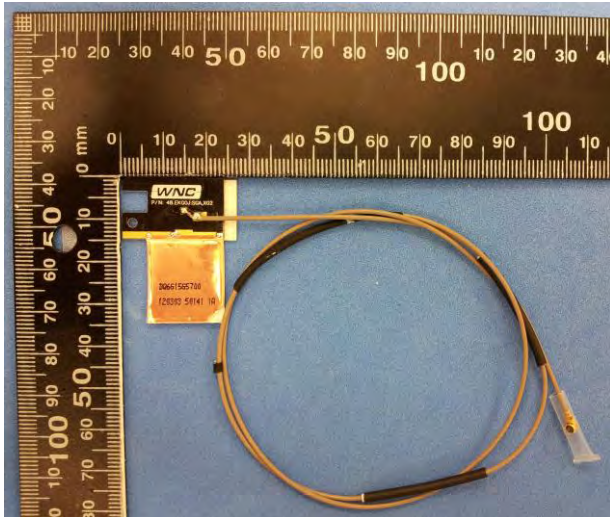


Include a dimensioned photo and dimensioned drawing of Rx2 antenna here.

**Tx2/Rx2 Antenna Dimensioned Drawing:**

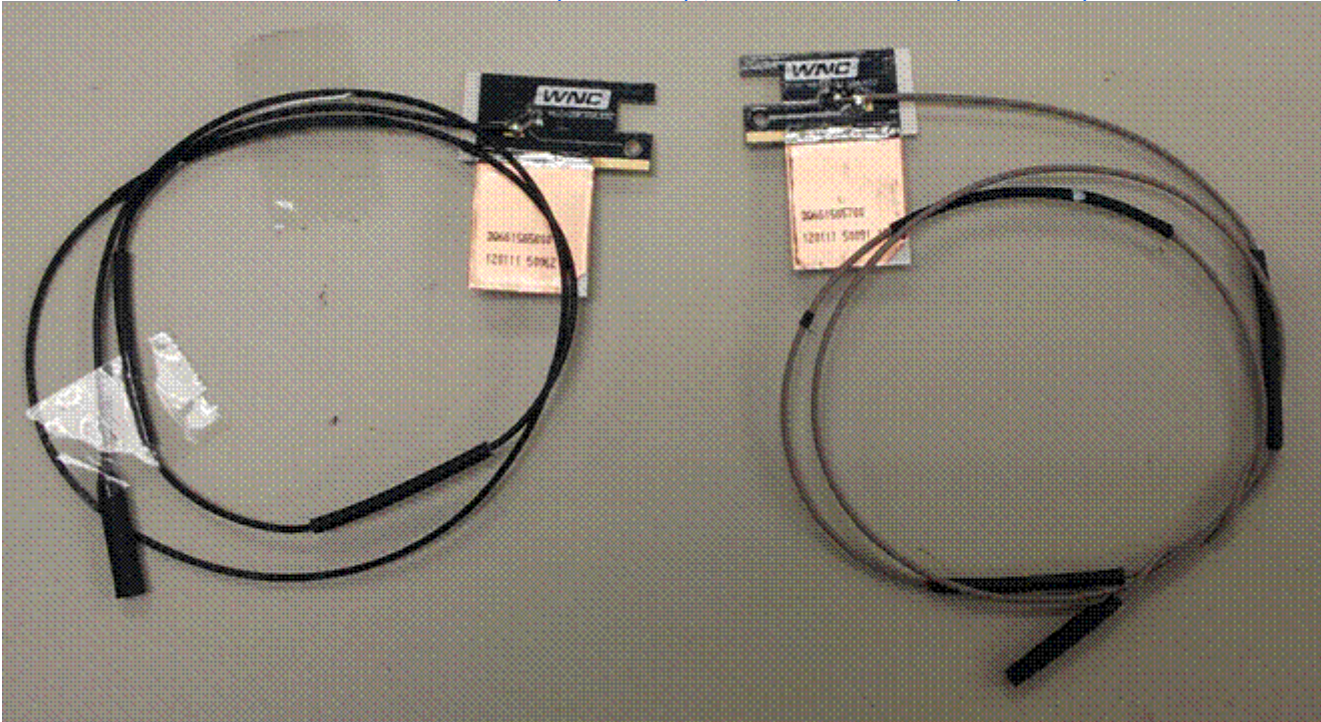


**Tx2/Rx2 Antenna Photo:**



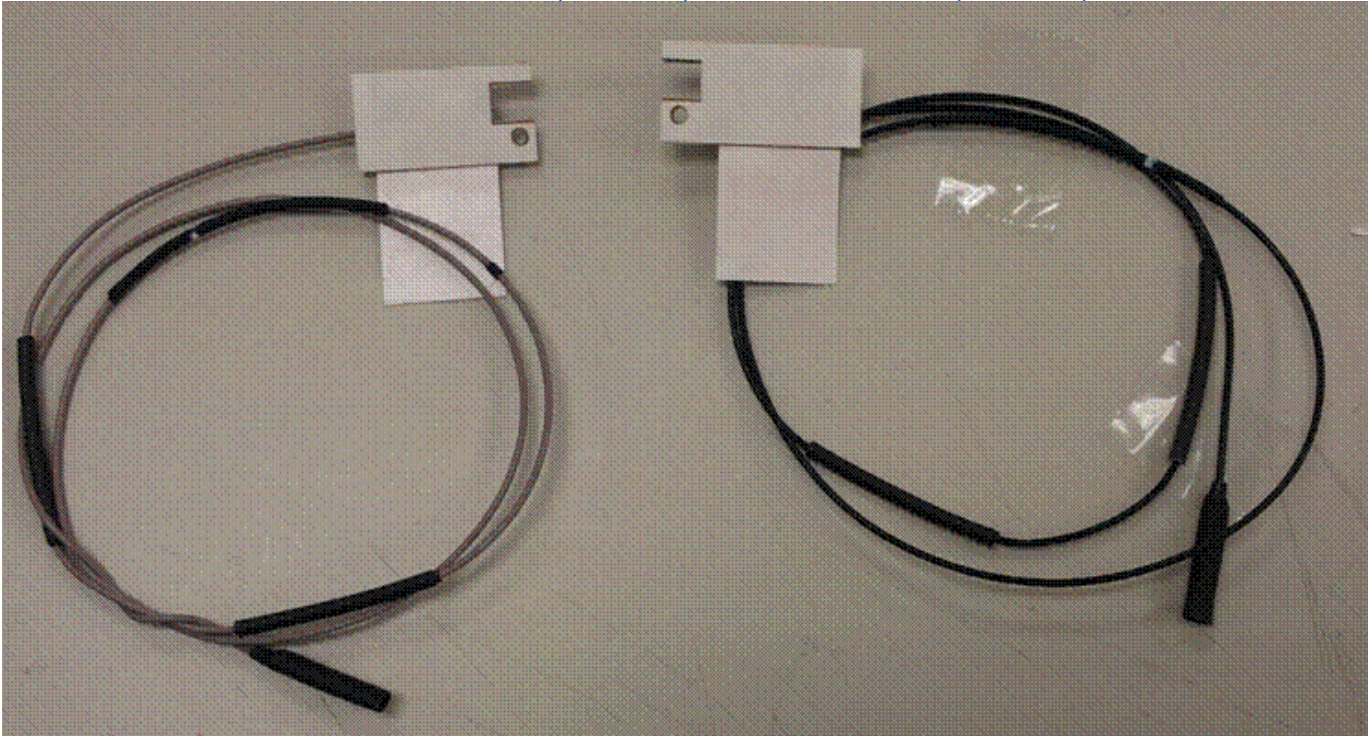
**Include front view photo of all 3 antennas here.**

Antenna Manufacturer: WNC  
Antenna Part Number: DQ6G15G5800(Tx1/Rx1) , DQ6G15G5700 (Tx2/Rx2)



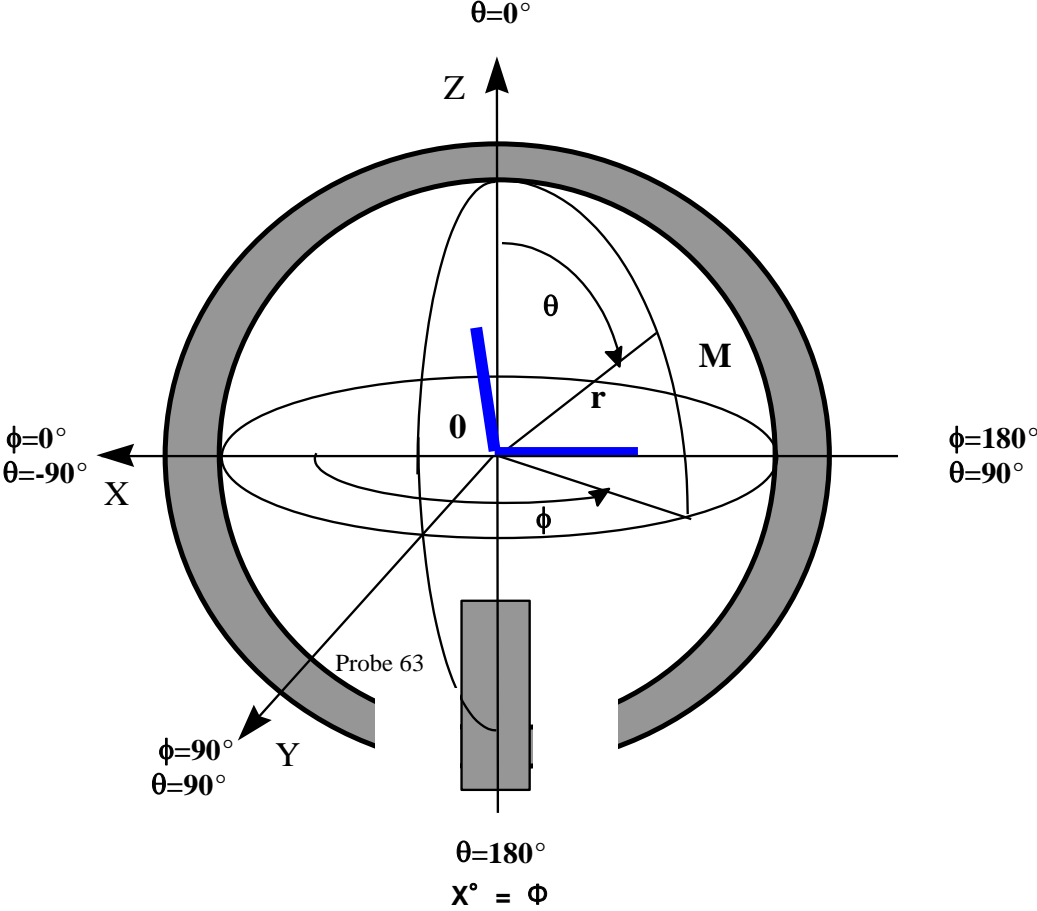
**Include back view photo of all 3 antennas here.**

Antenna Manufacturer: WNC  
Antenna Part Number: DQ6G15G5800(Tx1/Rx1) , DQ6G15G5700 (Tx2/Rx2)



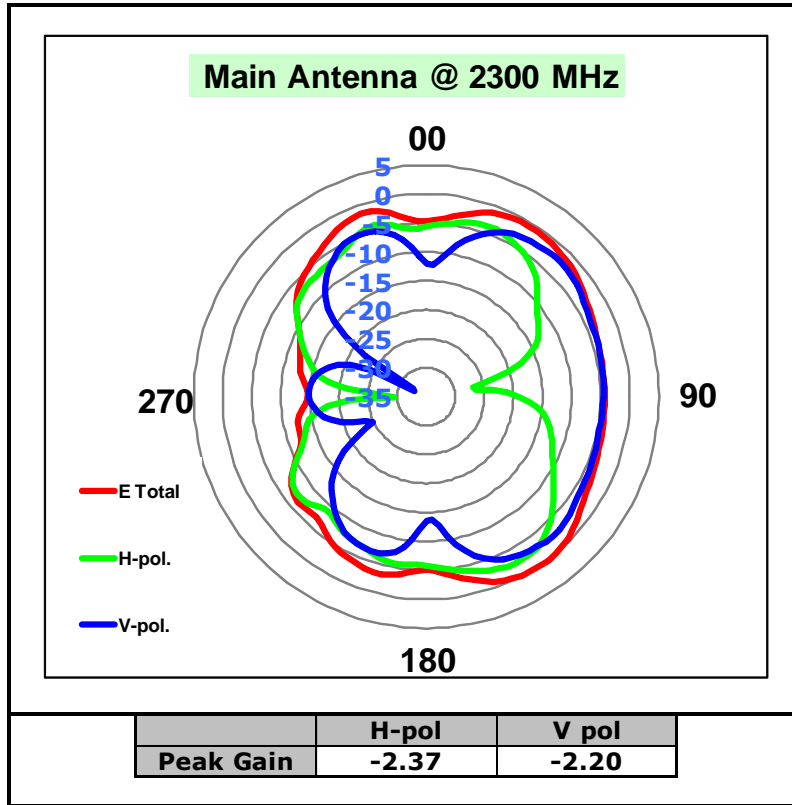
**Section 3. Radiation characteristics of antennae Loaded in Host Platform**  
**2300-2500MHz radiation characteristic**

Antenna Gain and Radiation Pattern Measuring Structure Diagram

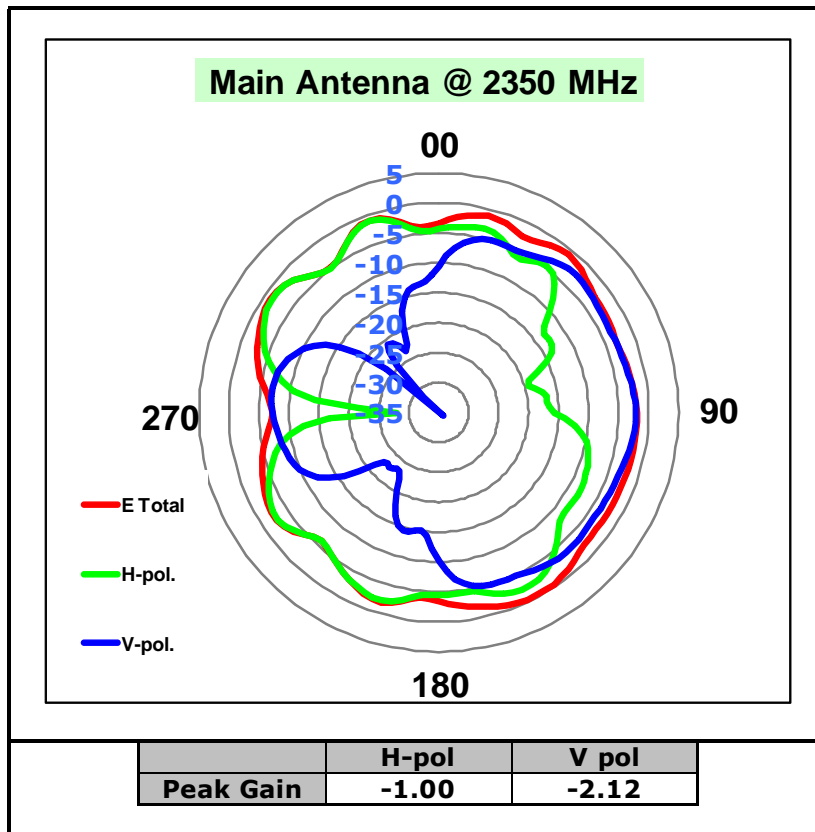




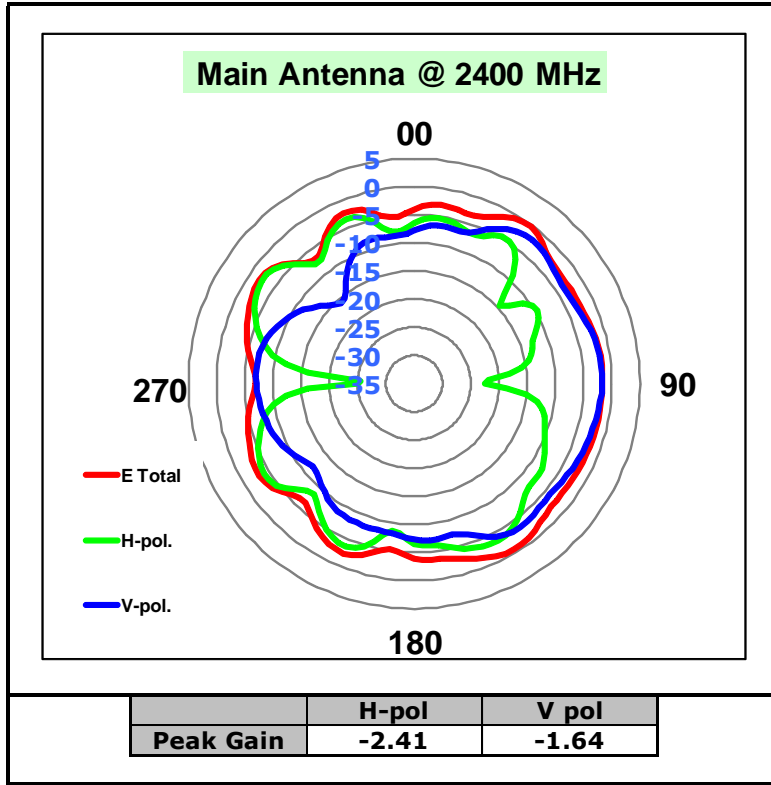
Tx1 antenna: 2300 MHz



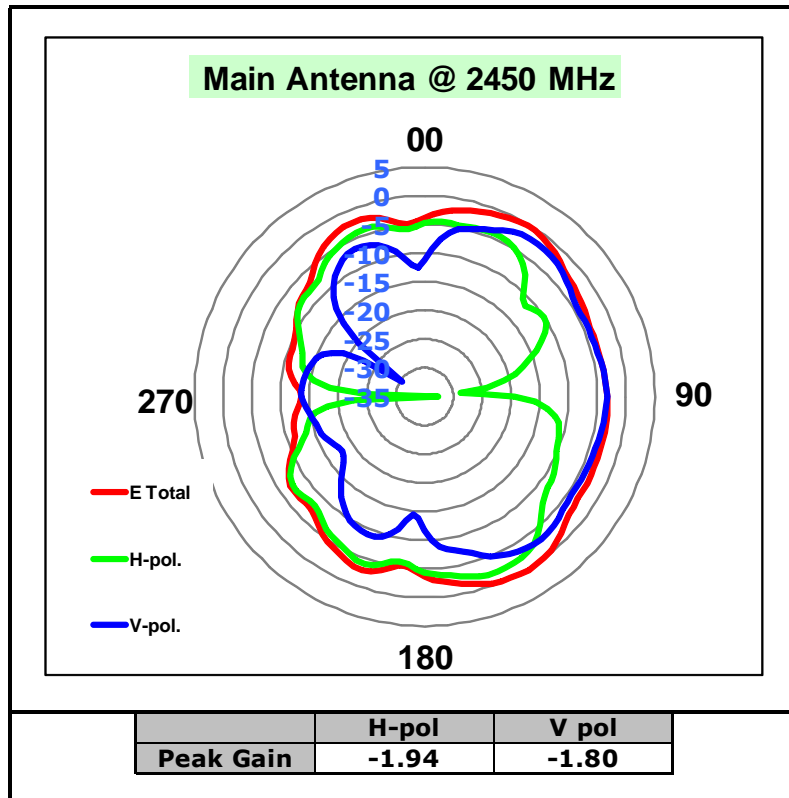
Tx1 antenna: 2350 MHz



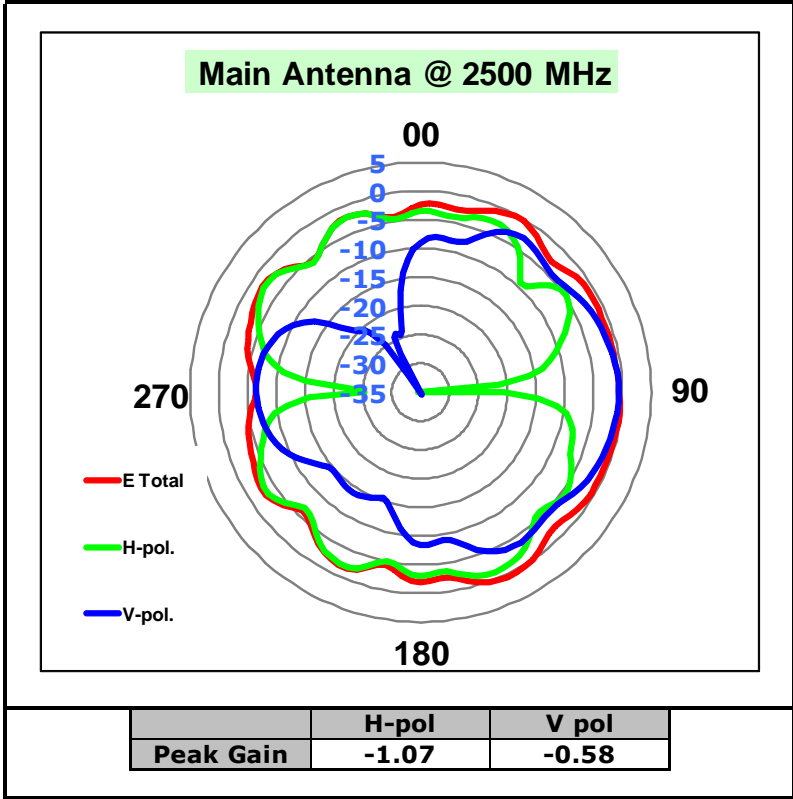
Tx1 antenna: 2400 MHz



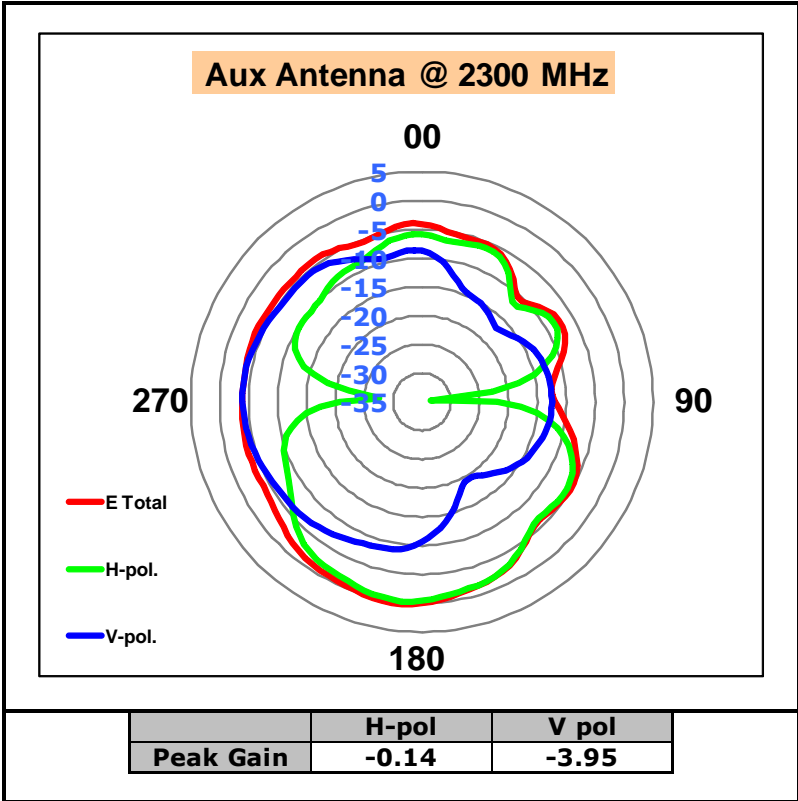
Tx1 antenna: 2450 MHz



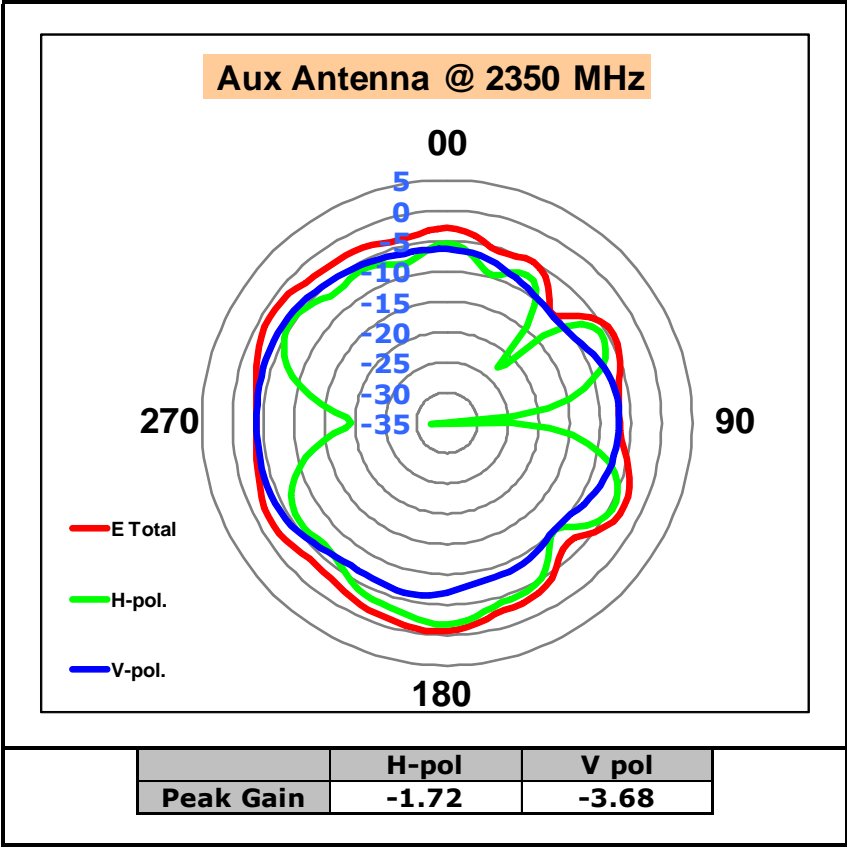
Tx1 antenna: 2500 MHz



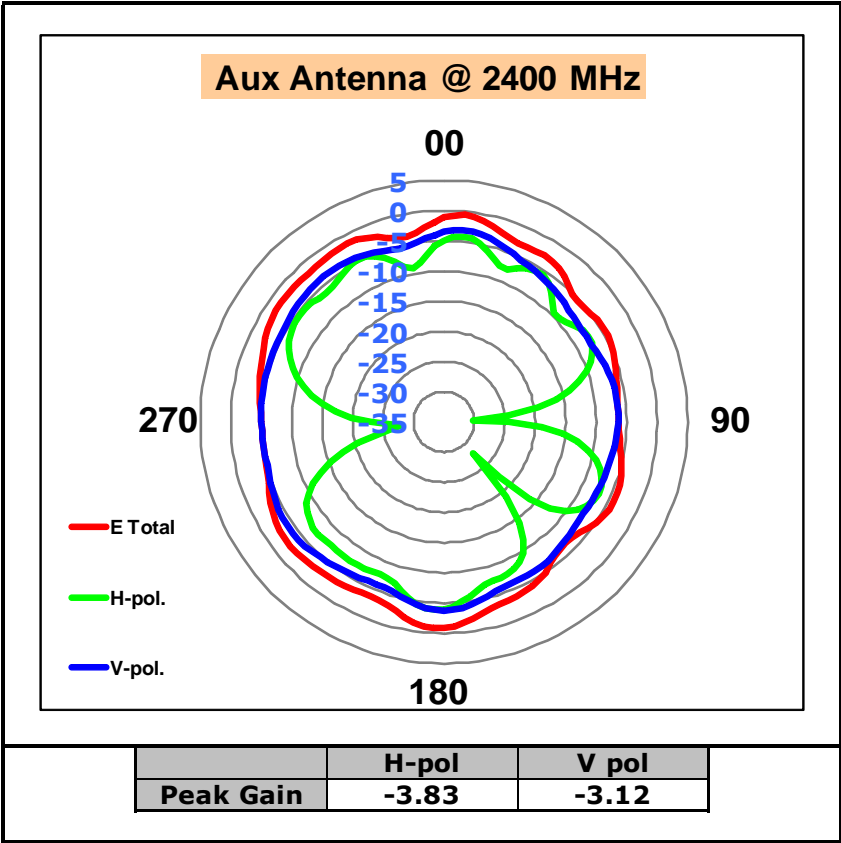
Rx2 antenna: 2300 MHz



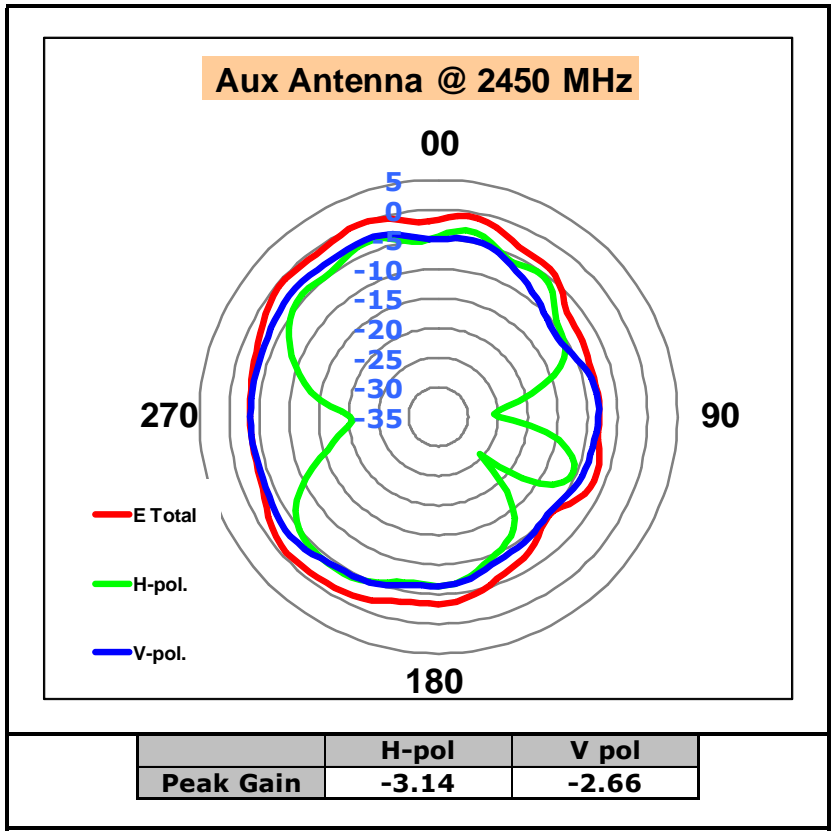
Rx2 antenna: 2350 MHz



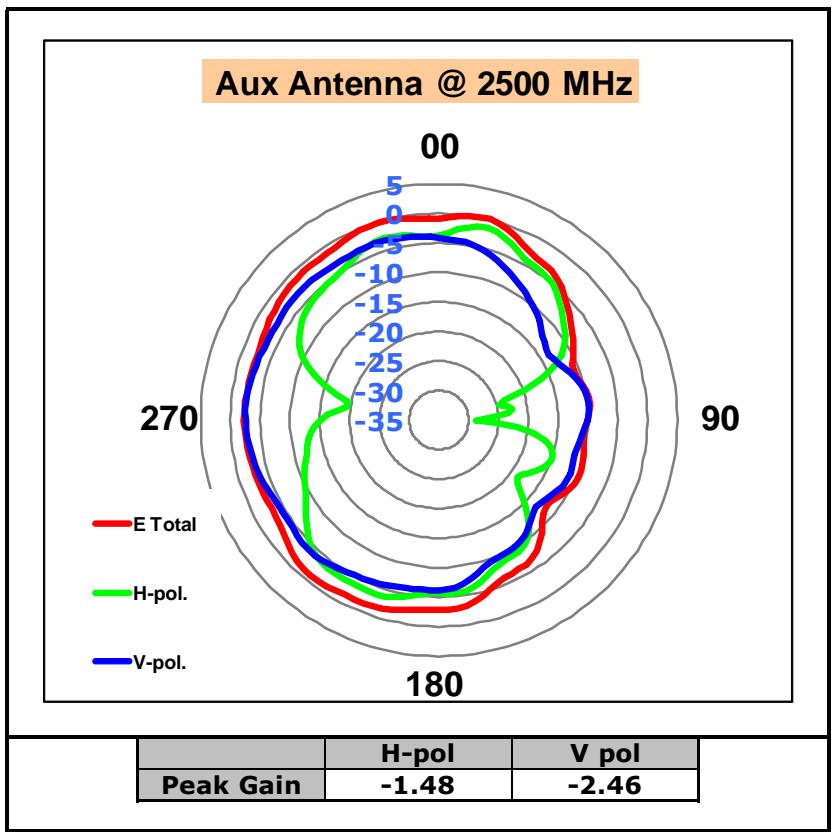
Rx2 antenna: 2400 MHz



Rx2 antenna: 2450 MHz

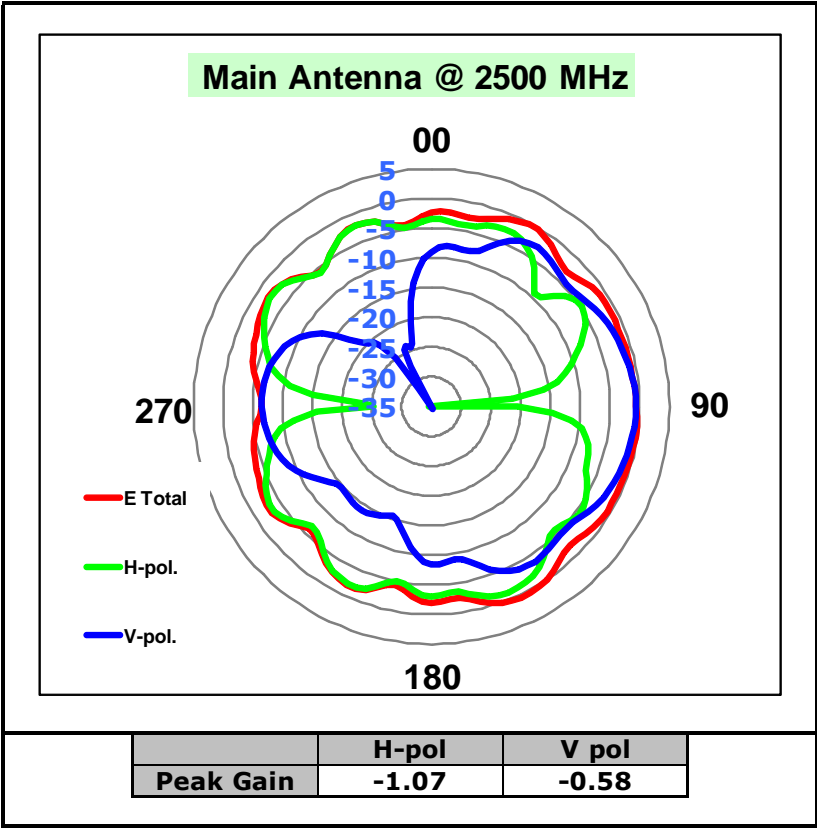


Rx2 antenna: 2500 MHz

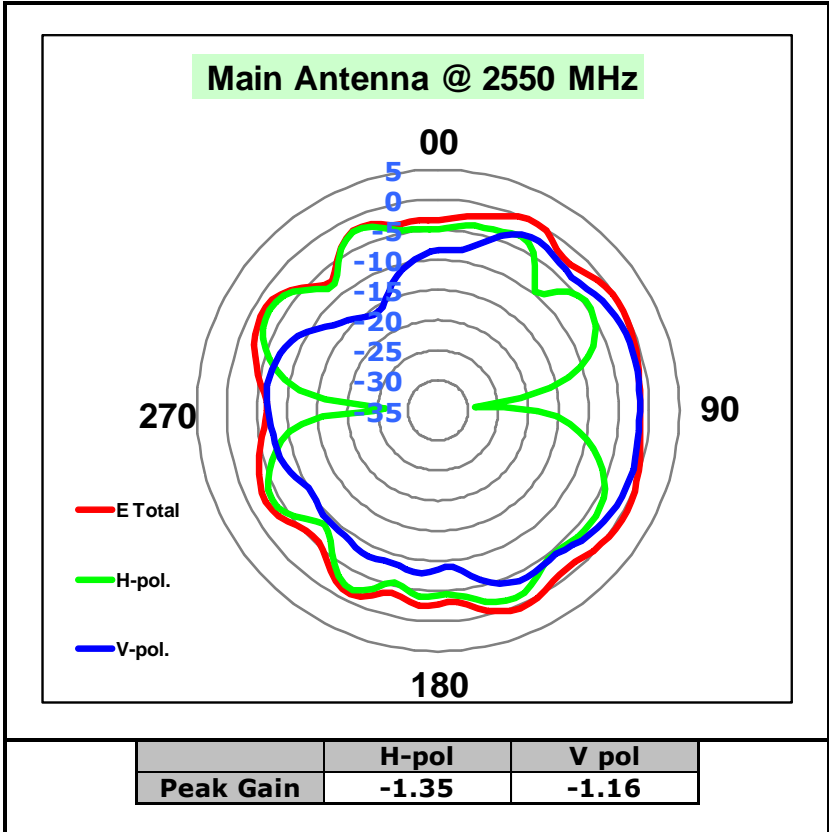


2500-2700 MHz radiation characteristic

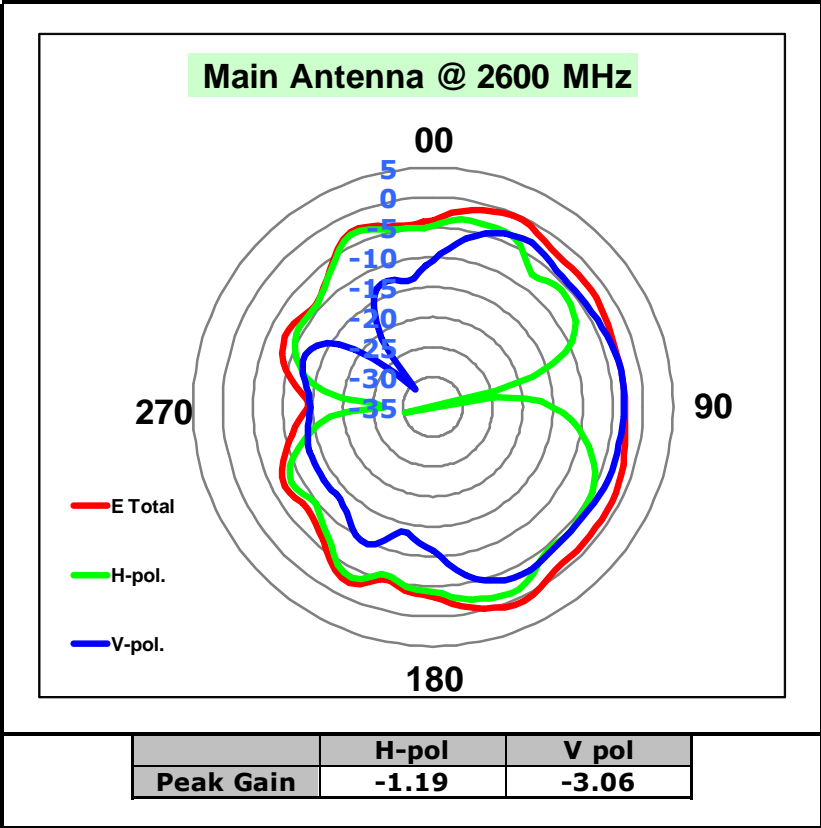
Tx1 antenna: 2500 MHz



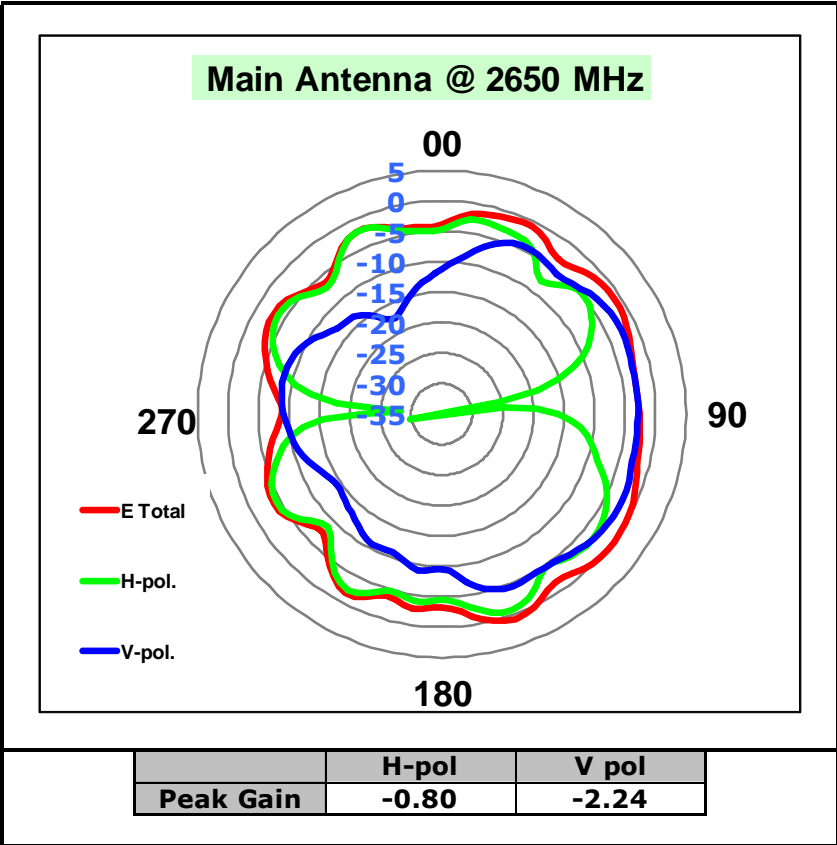
Tx1 antenna: 2550 MHz



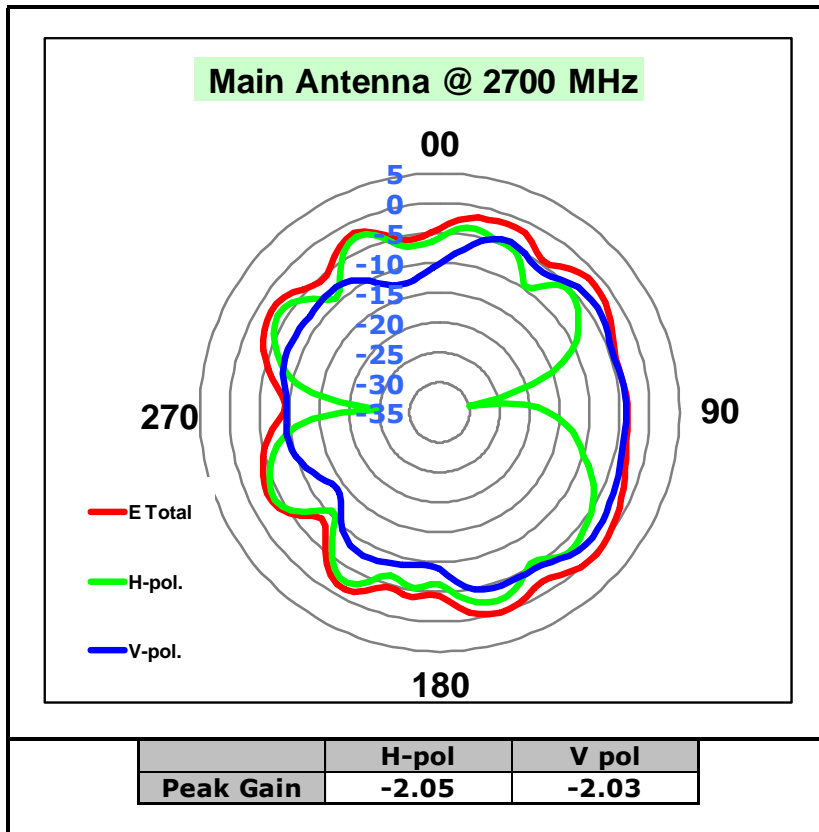
Tx1 antenna: 2600 MHz



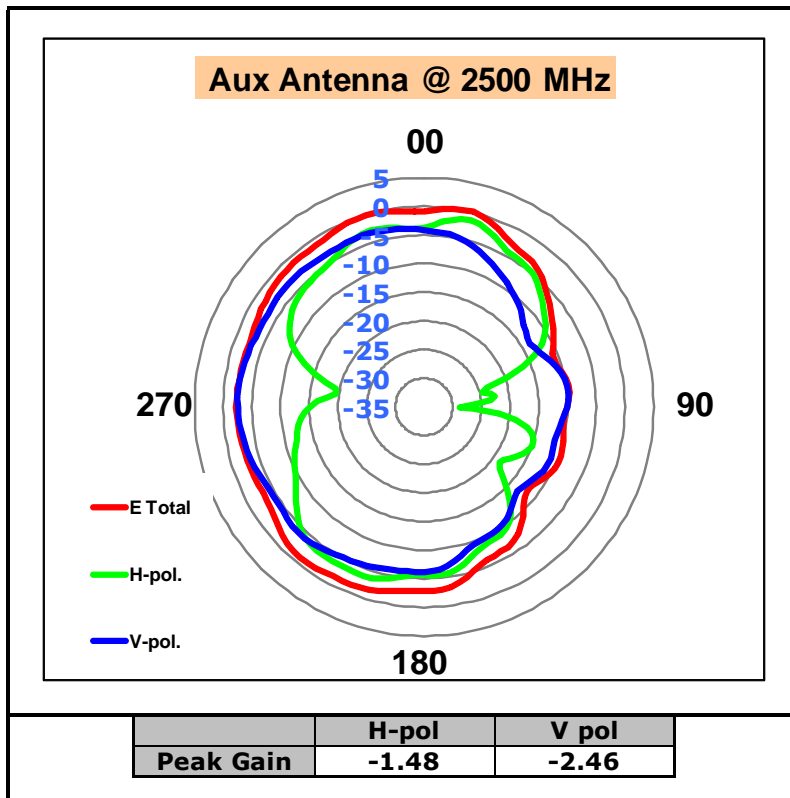
Tx1 antenna: 2650 MHz



Tx1 antenna: 2700 MHz

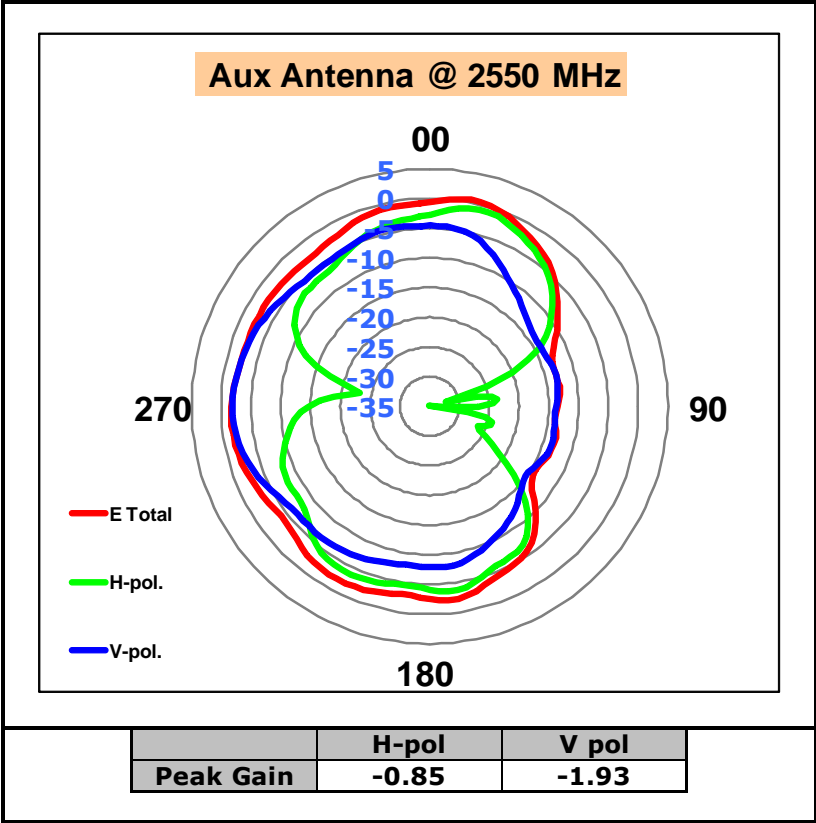


Rx2 antenna: 2500 MHz

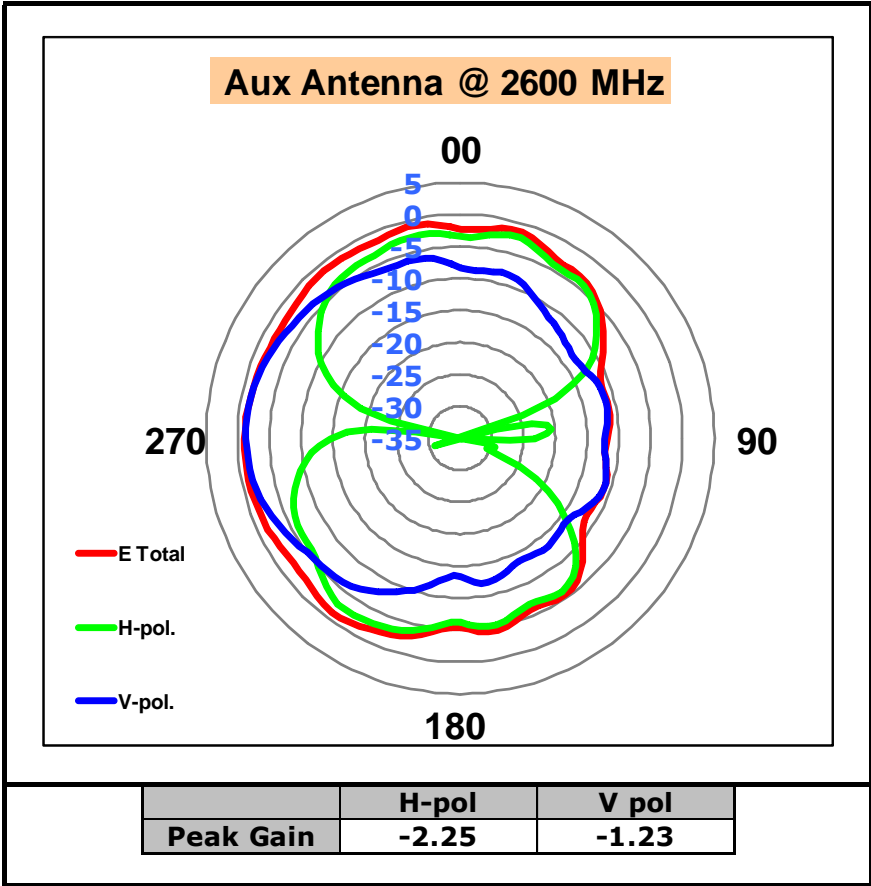




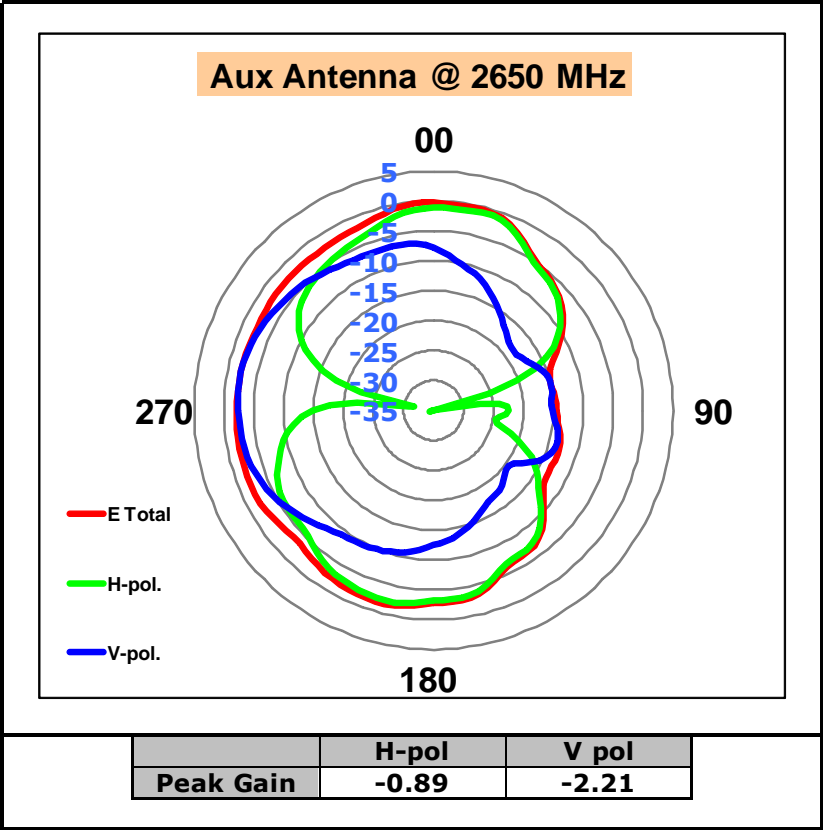
Rx2 antenna: 2550 MHz



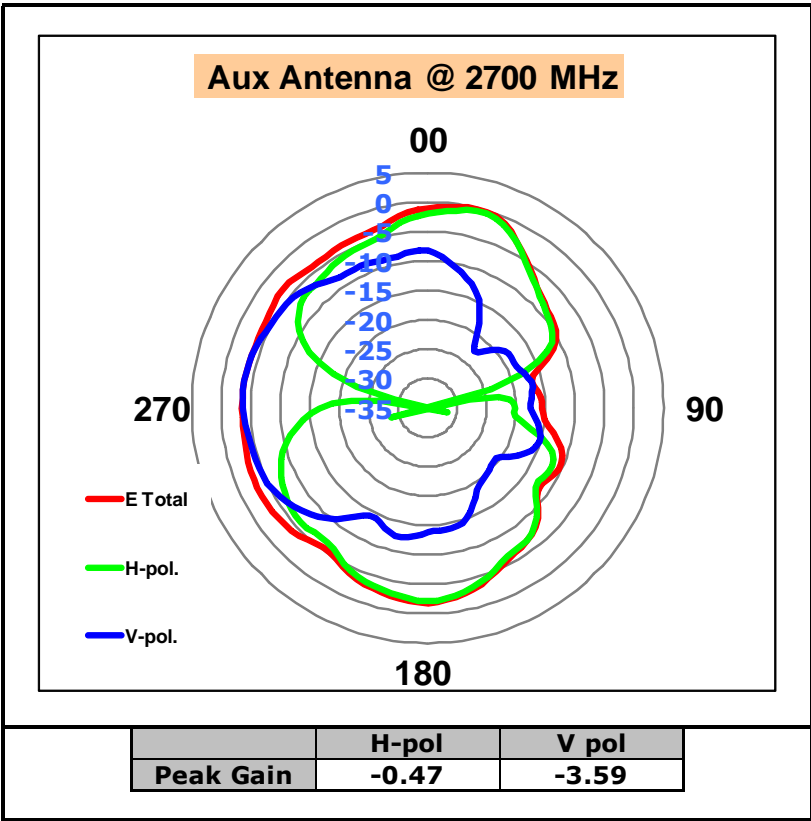
Rx2 antenna: 2600 MHz



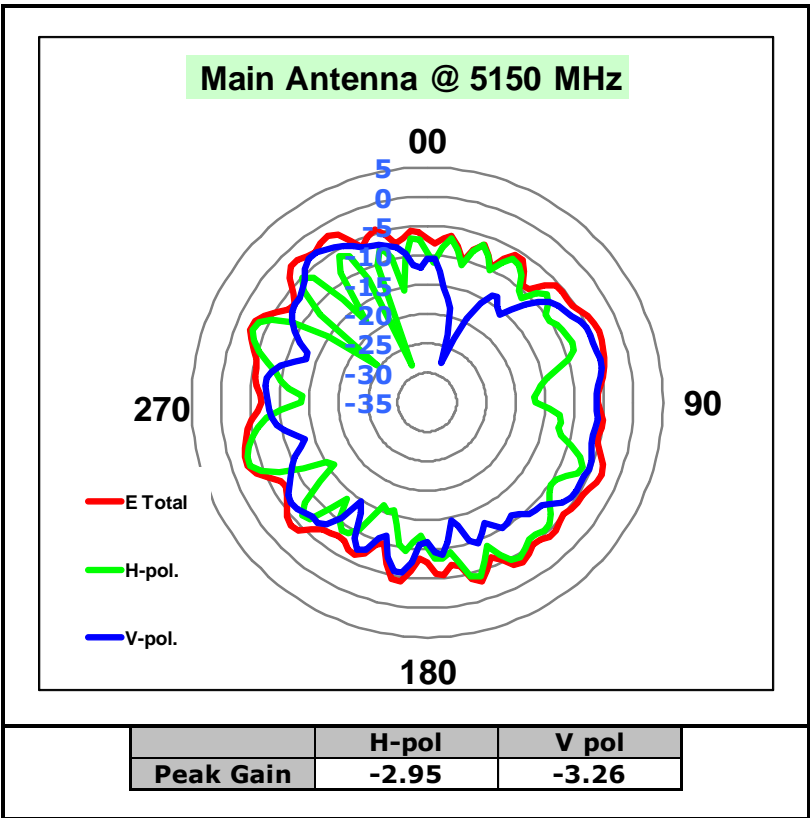
Rx2 antenna: 2650 MHz



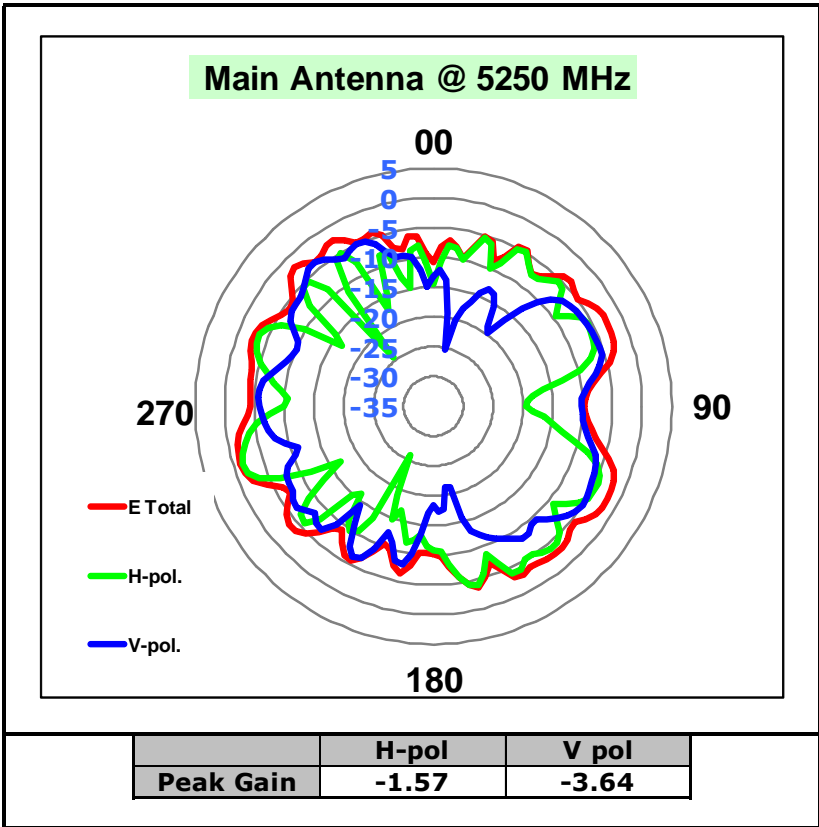
Rx2 antenna: 2700 MHz



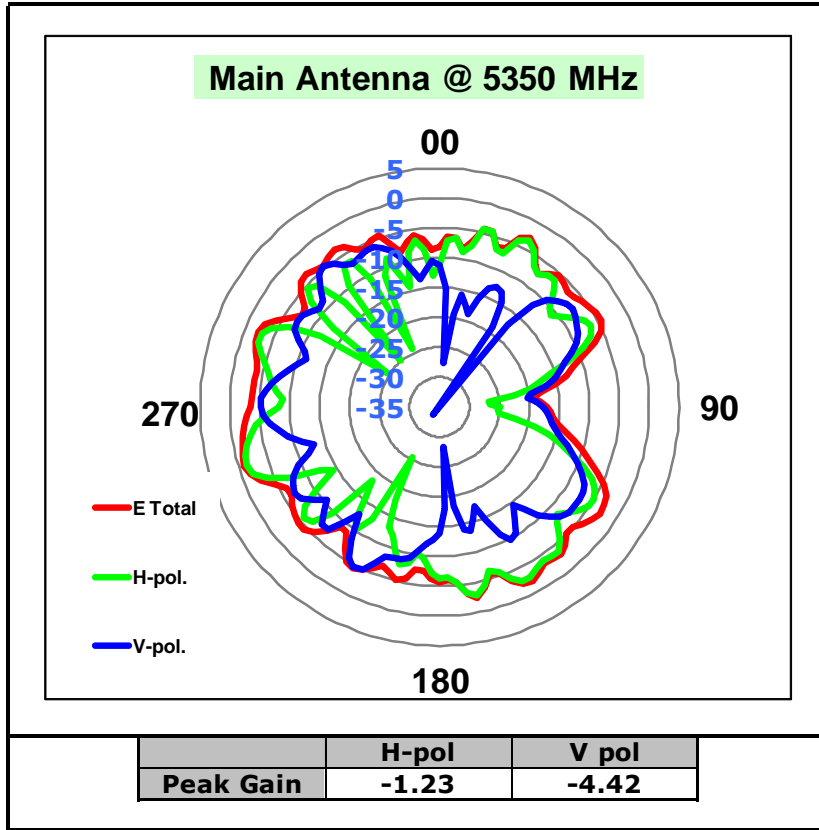
5150-5350 MHz radiation characteristic  
 Tx1 antenna: 5150 MHz



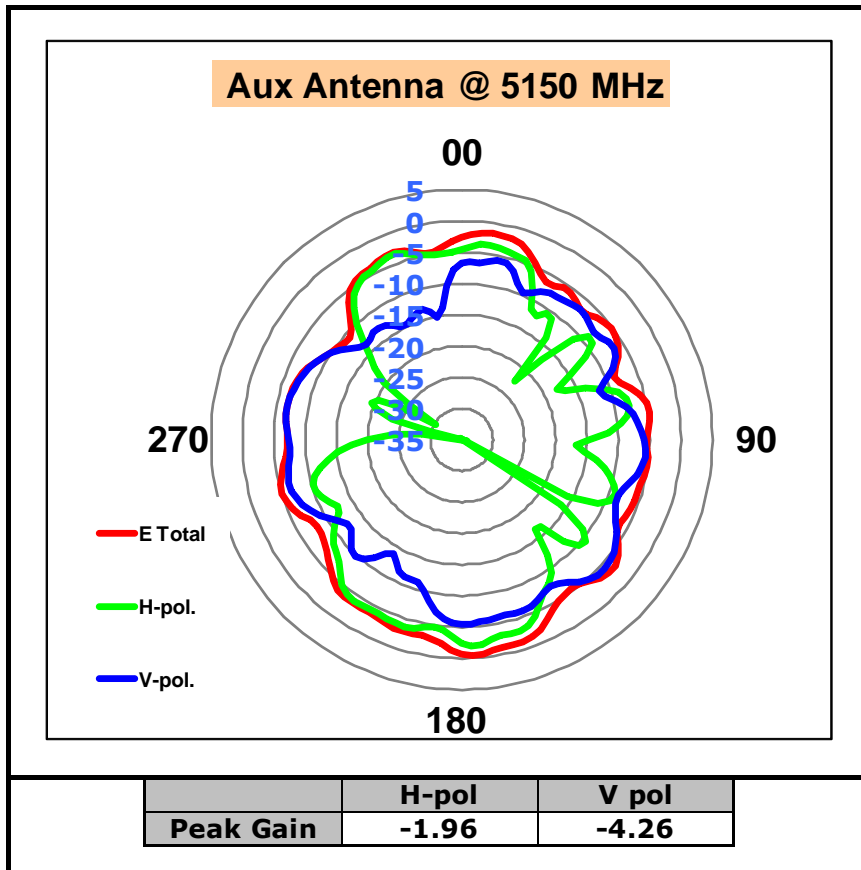
Tx1 antenna: 5250 MHz



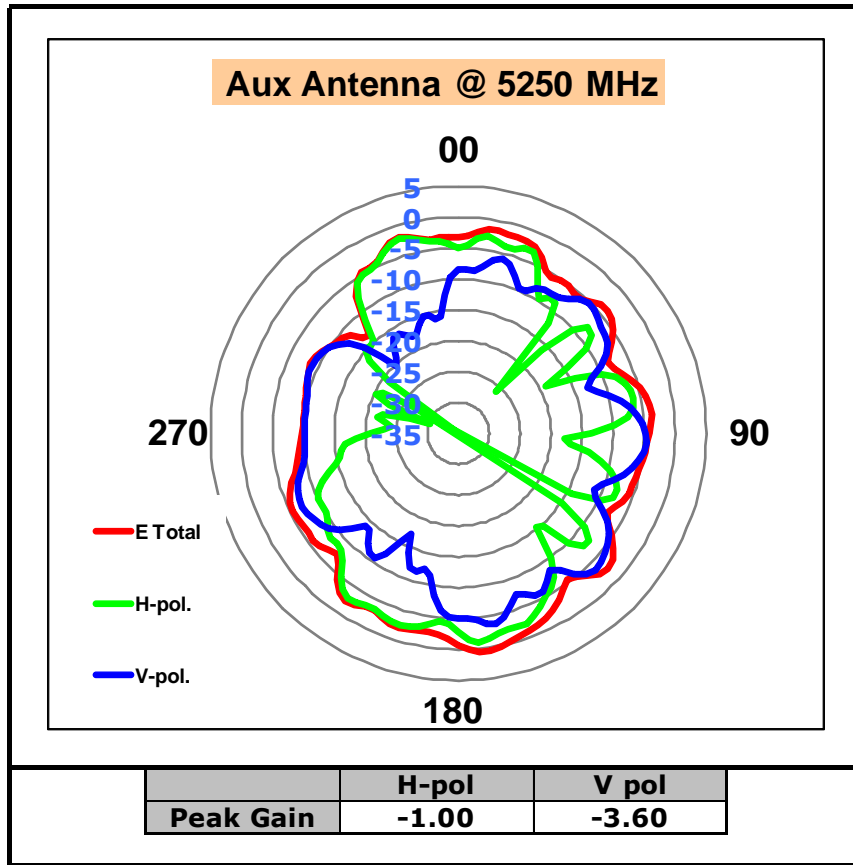
Tx1 antenna: 5350 MHz



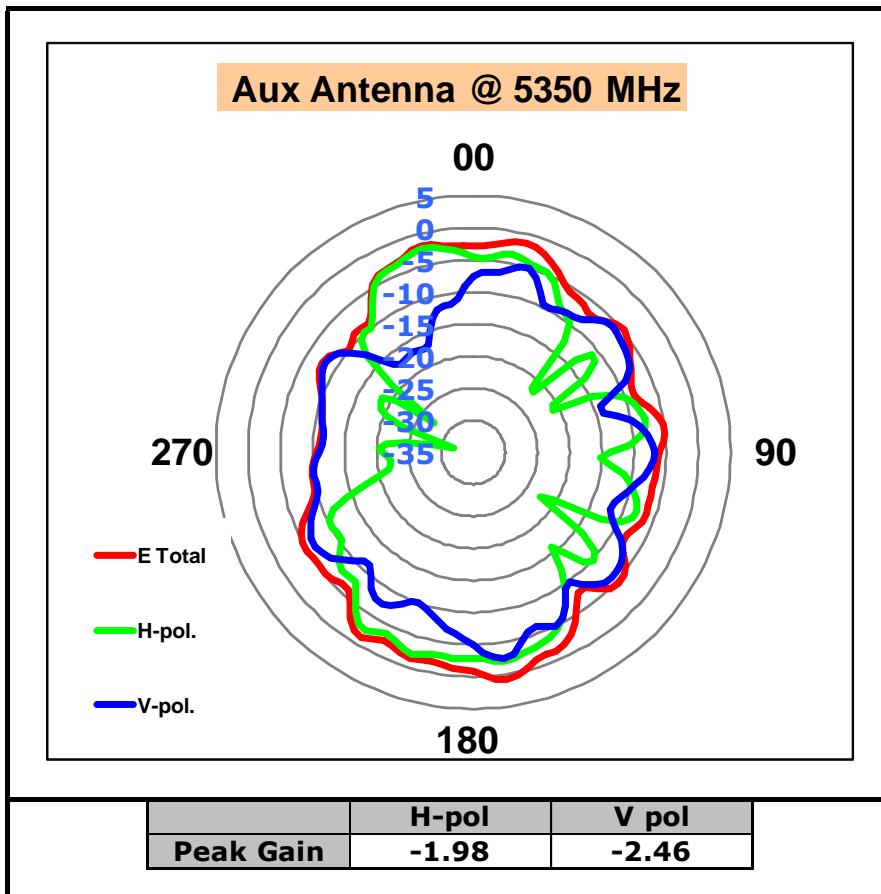
Rx2 antenna: 5150 MHz



Rx2 antenna: 5250 MHz

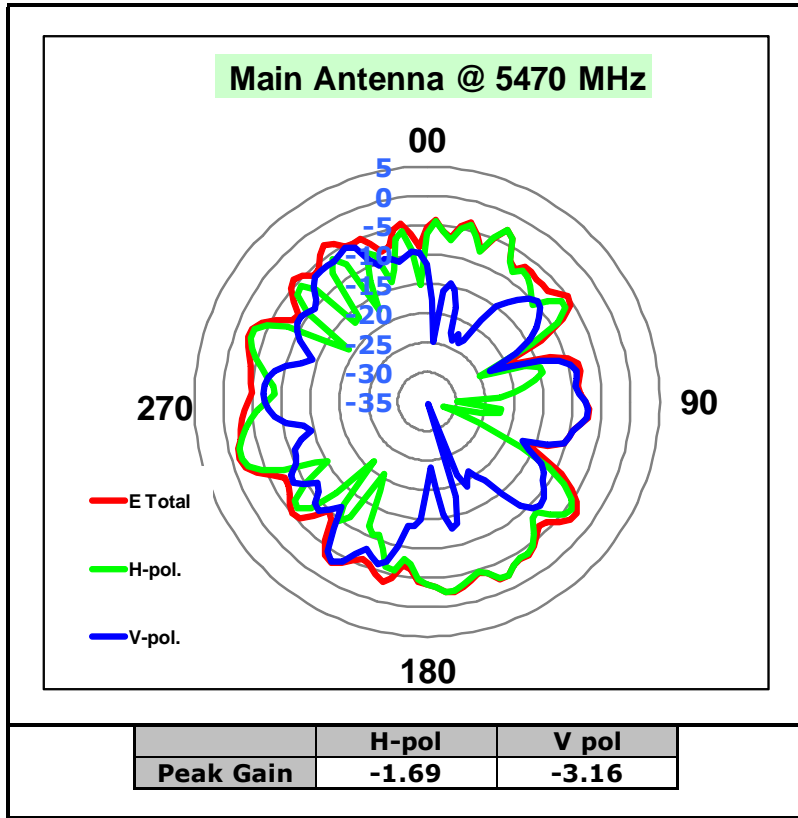


Rx2 antenna: 5350 MHz

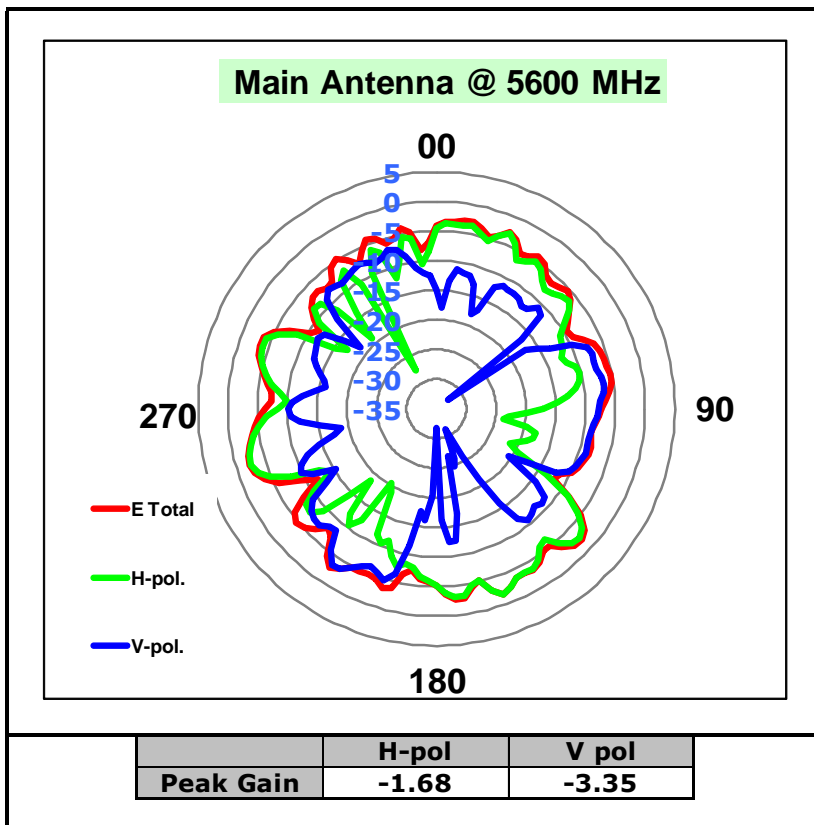


5470-5725MHz radiation characteristic

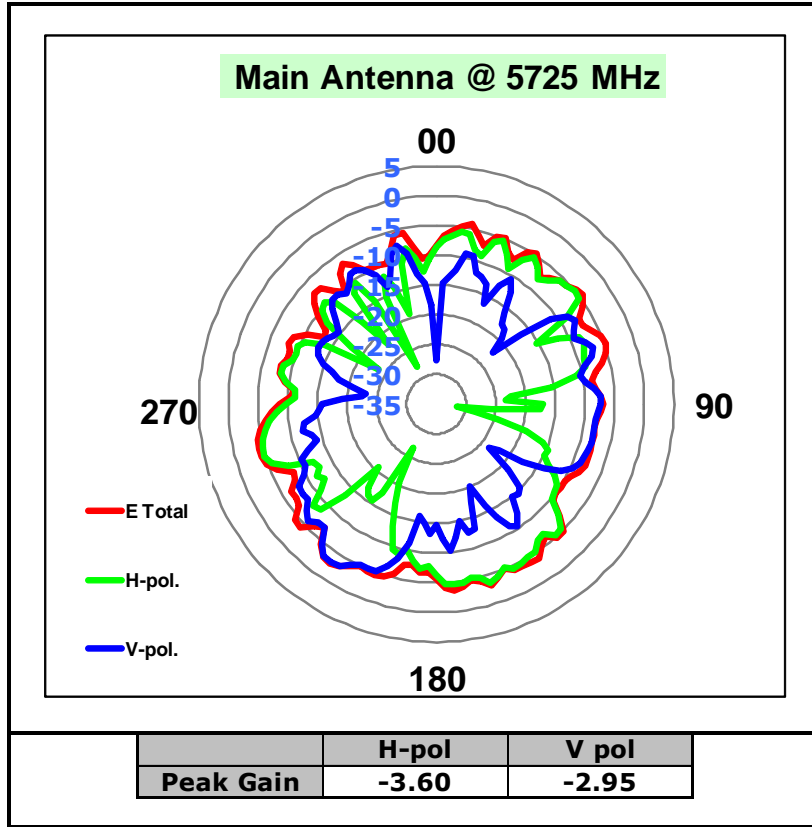
Tx1 antenna: 5470 MHz



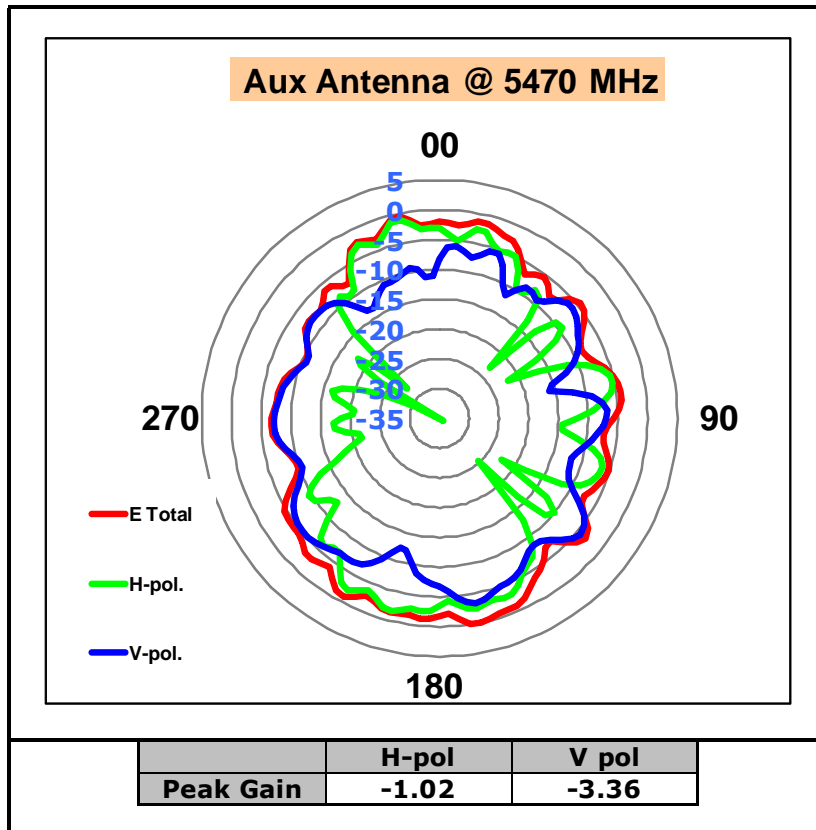
Tx1 antenna: 5600 MHz



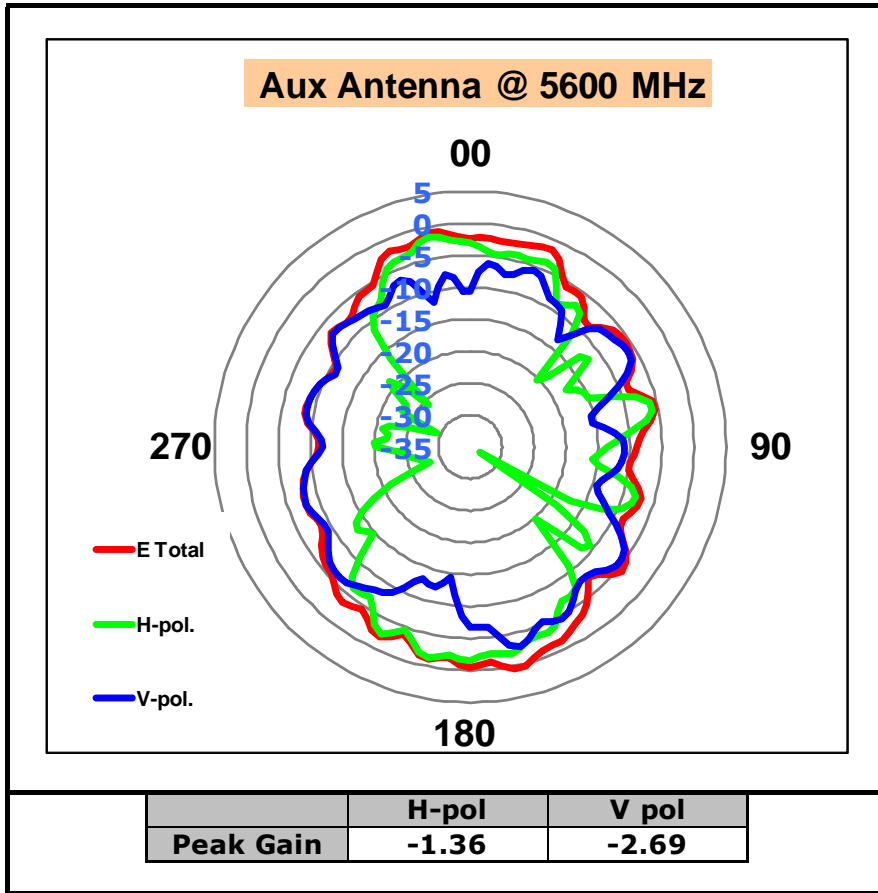
Tx1 antenna: 5725 MHz



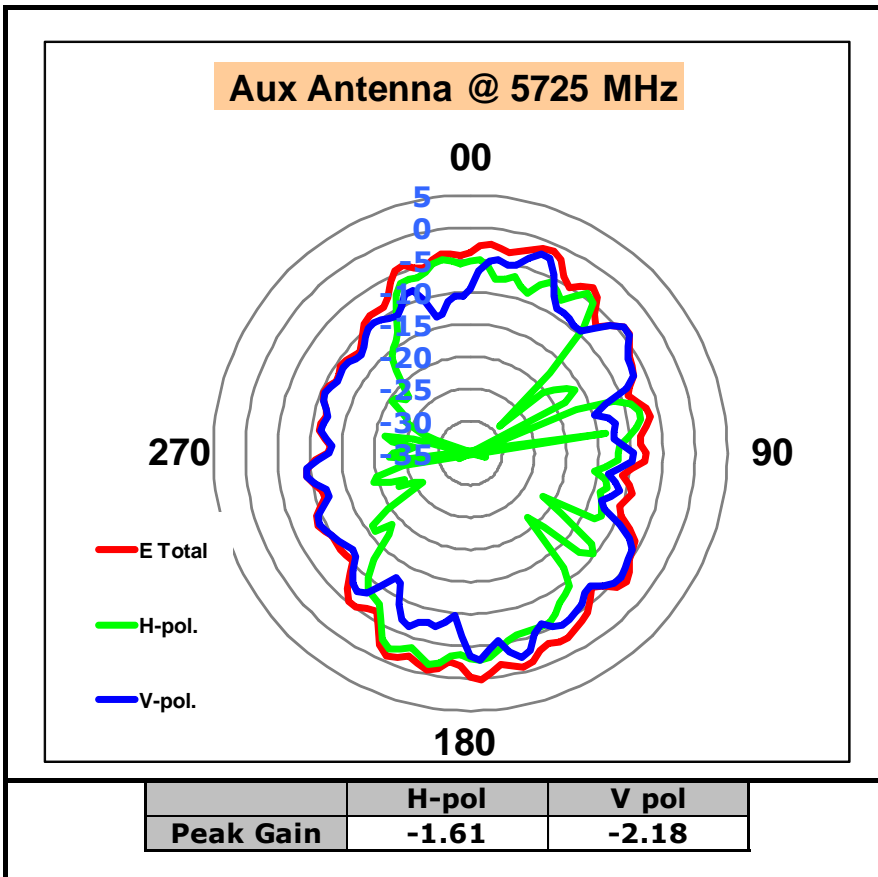
Rx2 antenna: 5470 MHz



Rx2 antenna: 5600 MHz



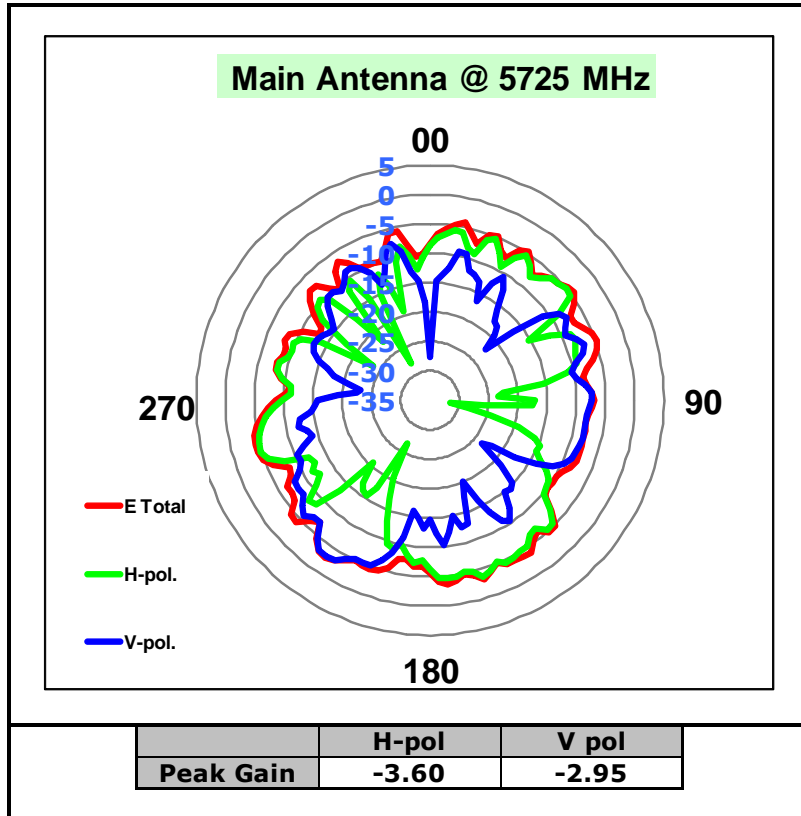
Rx2 antenna: 5725 MHz



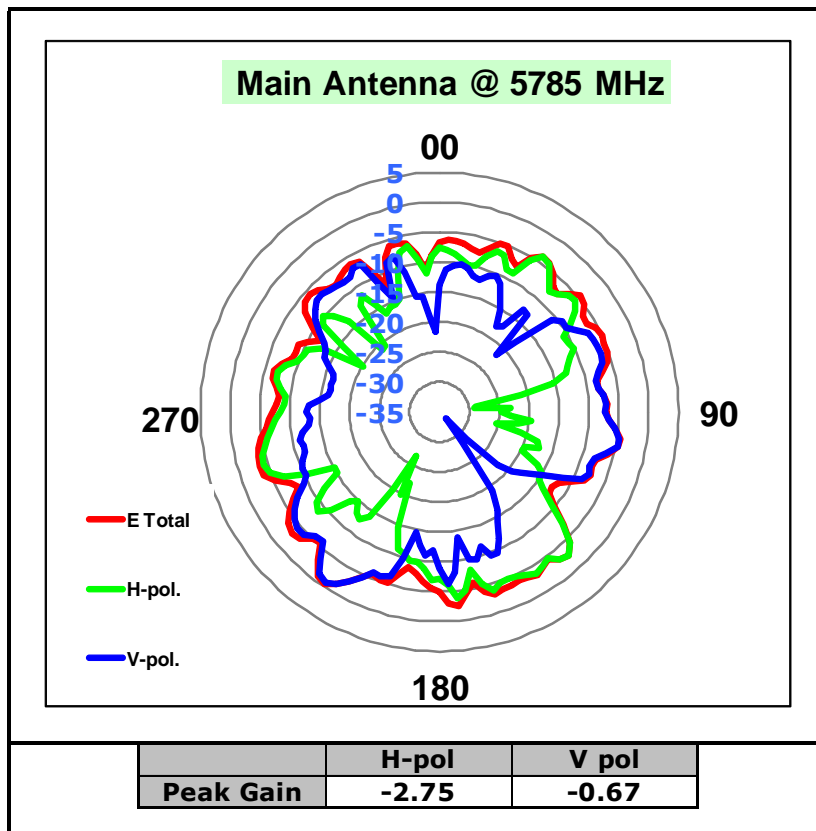


5725-5850MHz radiation characteristic

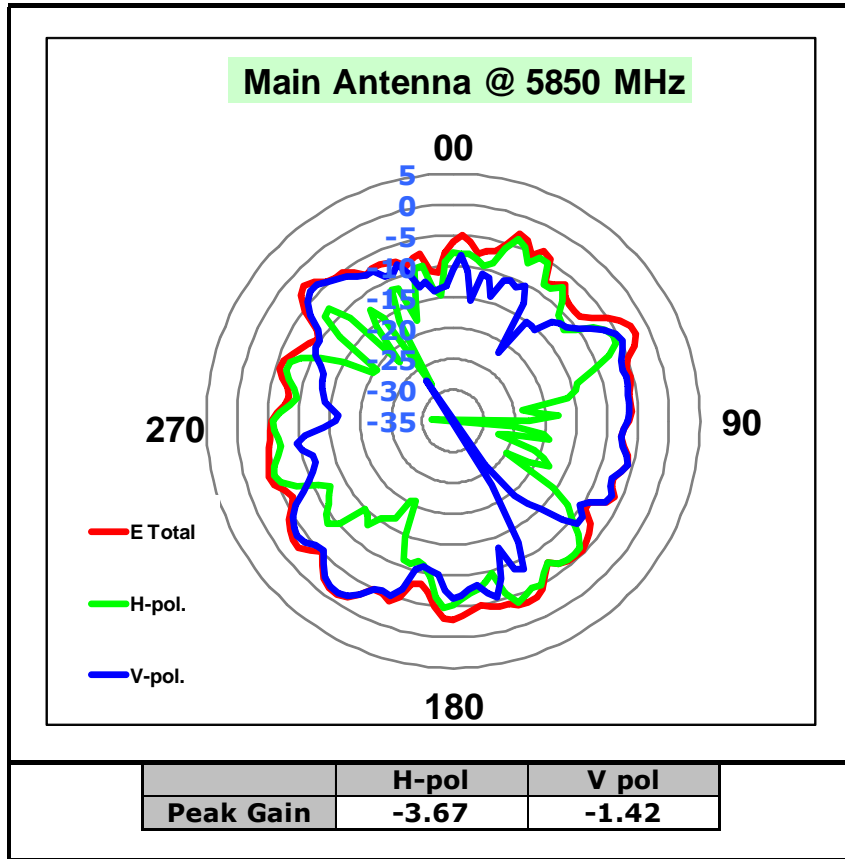
Tx1 antenna: 5725 MHz



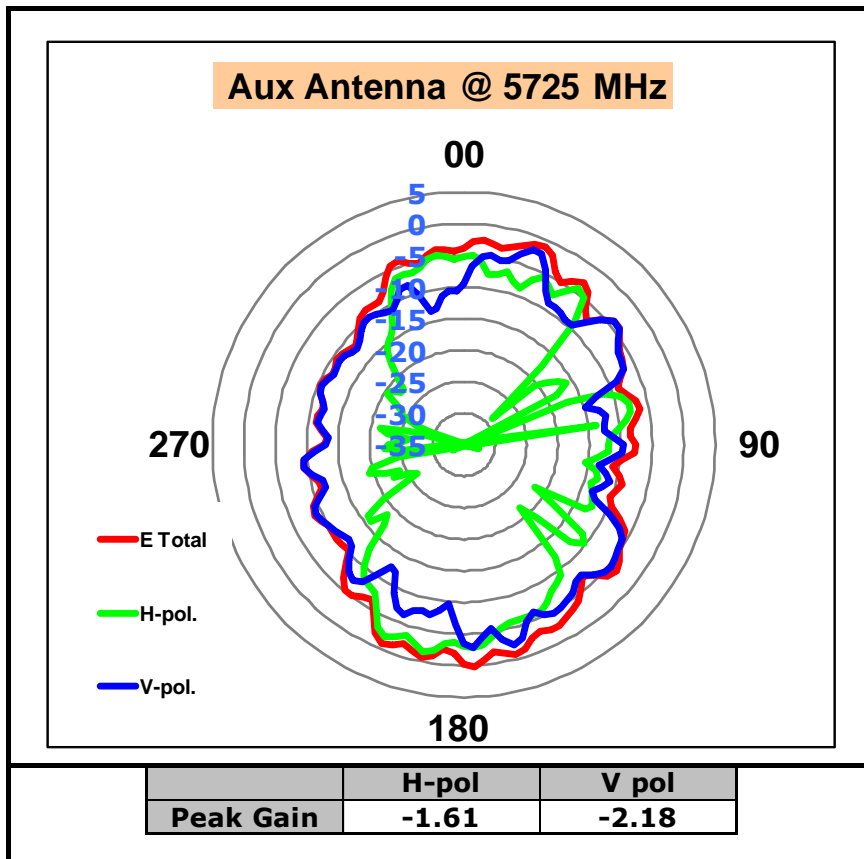
Tx1 antenna: 5785 MHz



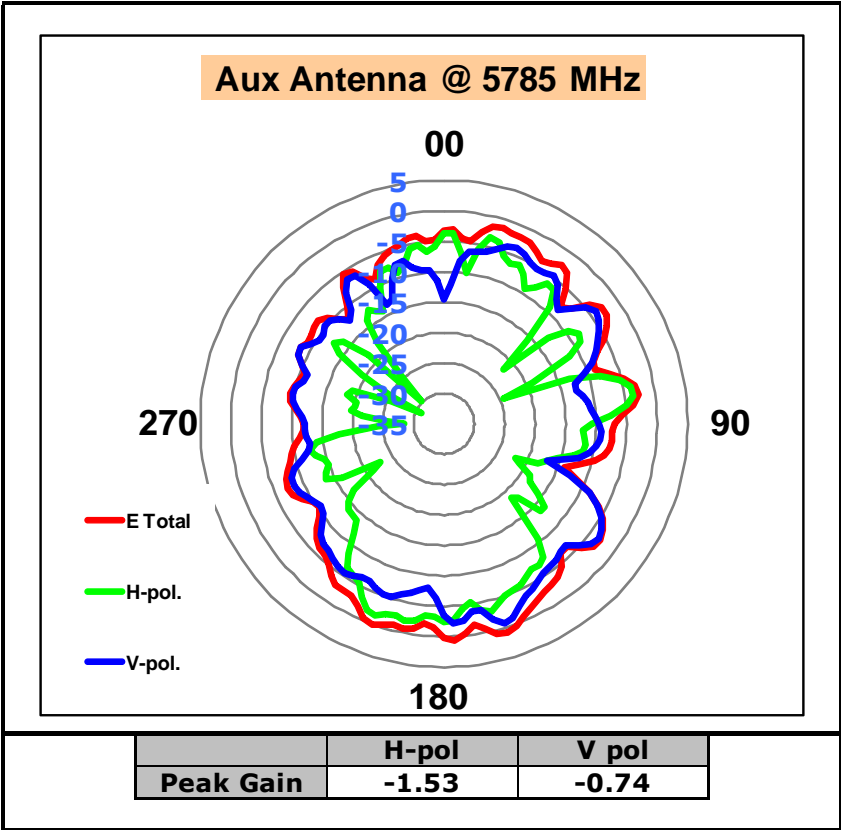
Tx1 antenna: 5850 MHz



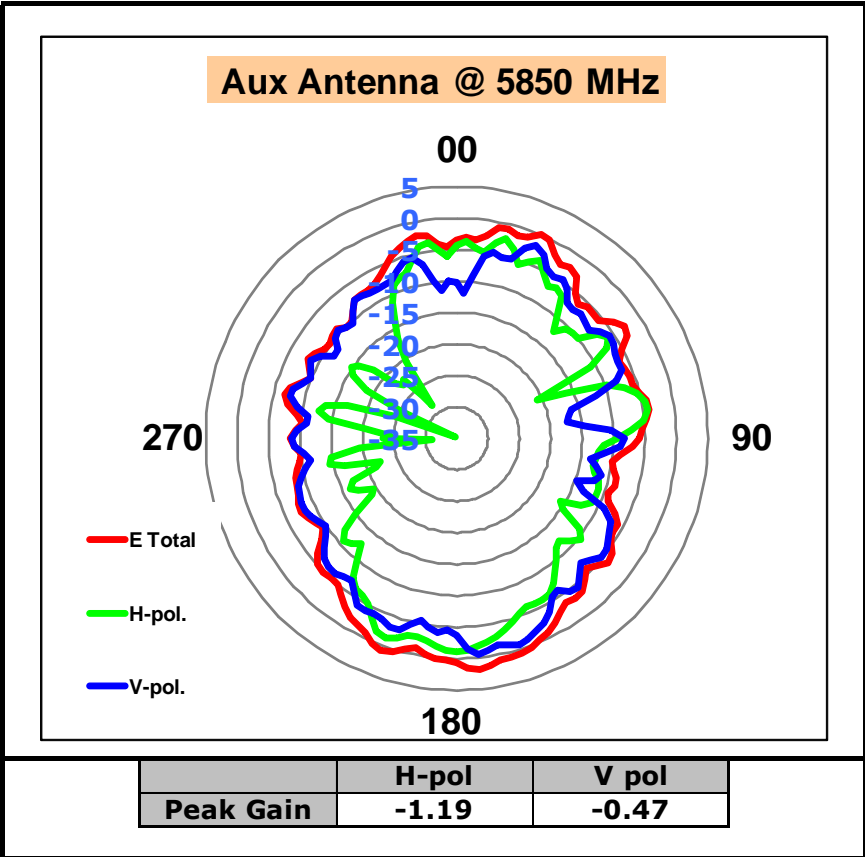
Rx2 antenna: 5725 MHz



Rx2 antenna: 5785 MHz



Rx2 antenna: 5850 MHz



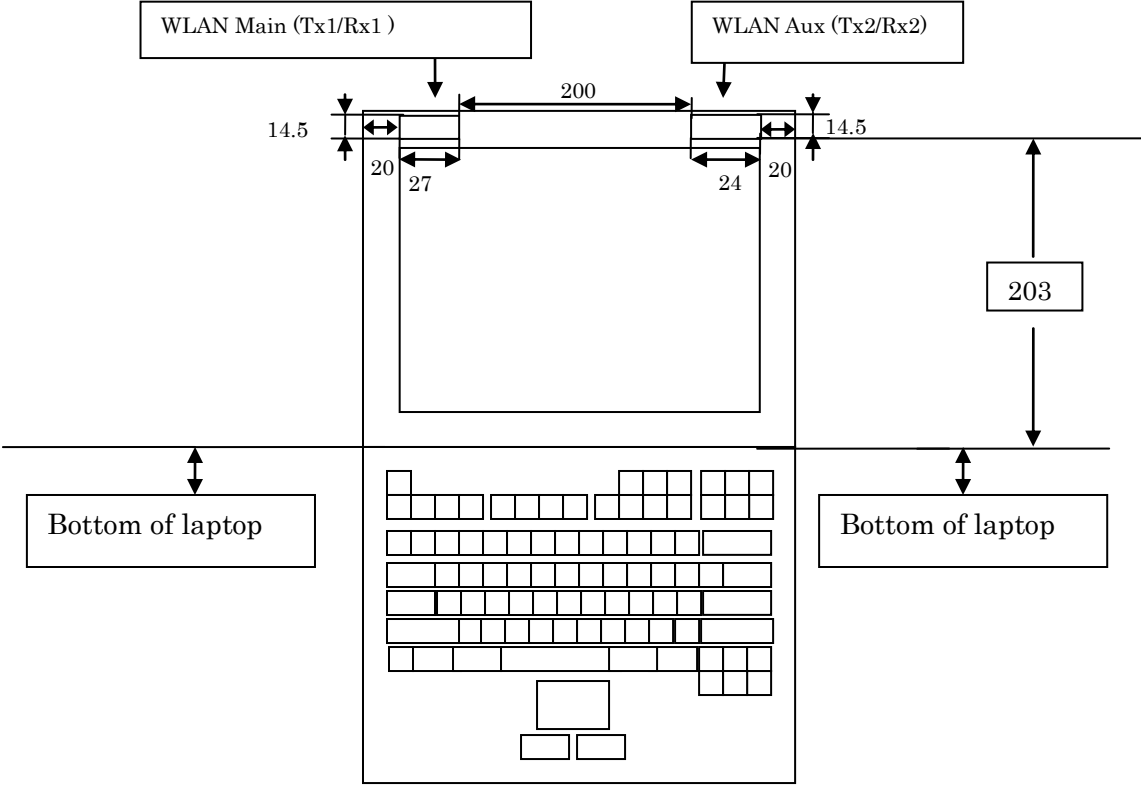
## Section 4. Host Platform Information

OEM / ODM Host platform: (ThinkPad Edge E130) platform correlated to antenna data  
Rating Label Photo:



## Section 5. Antenna Host Platform Location Information

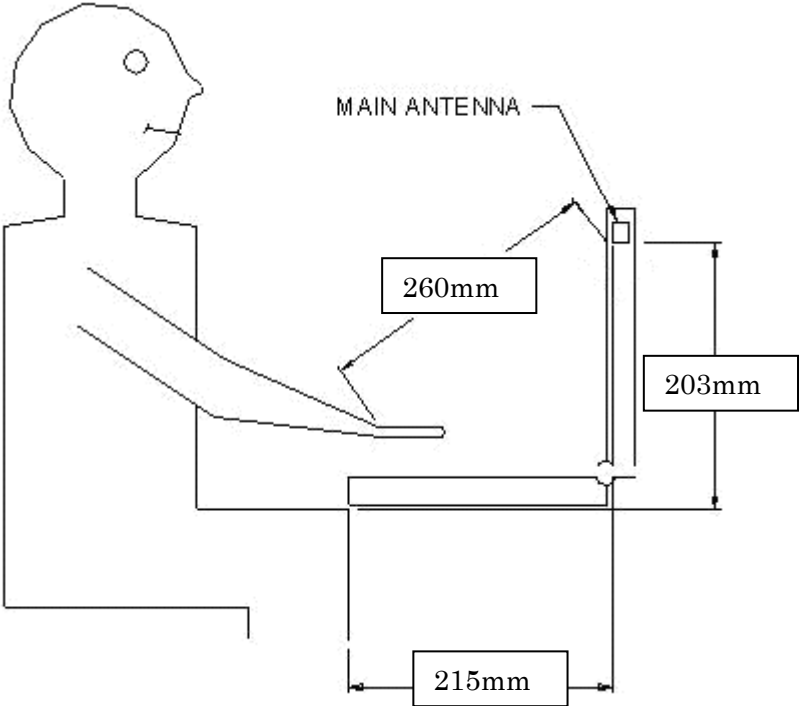
Include a **dimensioned photo or dimensioned drawing** of Tx1/Rx1, Rx2 antenna placements (measurements are not required for receive-only antenna). Any antenna that transmits must show dimensions to bottom of laptop.



Unit : mm

**Section 6. Antenna dimensional information for SAR evaluation**

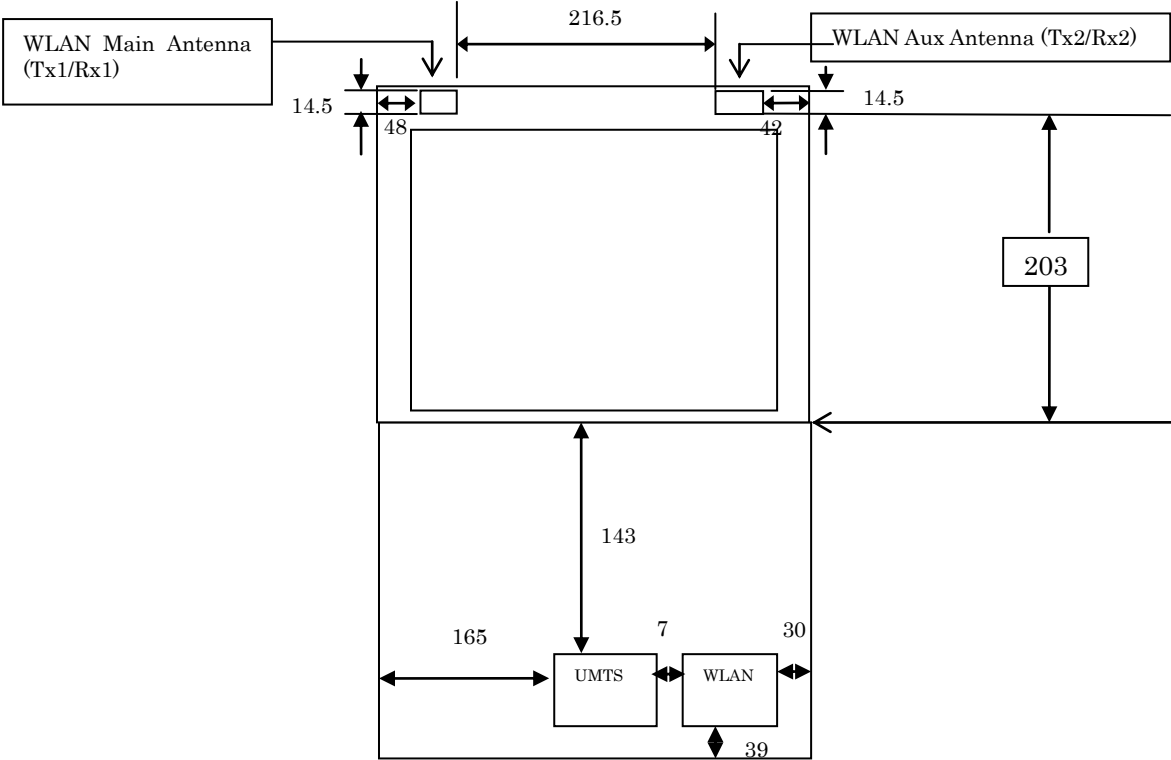
Include a **dimensioned photo or dimensioned drawing** showing the distance (mm) between the transmit antennas and the user (excluding hands, wrist, feet, and ankle)



## 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)



Unit : mm

## 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						
Canada						
Croatia						
Indonesia						
Israel						
Malaysia						
Moldova						
Philippines						
Singapore						Telecommunication Equipment Dealer License Required
South Africa						
Taiwan						
USA						
Vietnam						