

# 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)**

<b>Platform</b>	IdeaPad U130
Platform Owner	Lenovo
Brand Name	Ideapad
Model Name	Leo2
ODM	Pegatron
Target Launch Date	(2009/ 01/22)
<b>Antenna</b>	
Brand Name	Ready Two
Part Number	<input type="checkbox"/> Tx1 Antenna: LX1564-11-000-R
	<input type="checkbox"/> Tx2 Antenna: LX1565-11-000-R
<b>Module</b>	
With WLAN Module	<input type="checkbox"/> 533ANX Family
(Check Box)	<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. (S. Korea requires <u>photographs of antennas for approval submission</u> ). <u>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)
(P/N: LX1564-11-000-R)  Tx1 antenna	Amphenol	PIFA	50 ohm Coaxial. length: 518mm diameter: 1.13mm Connector: U.FL	2400-2500MHz 2.04 dBi (peak)	2400-2500MHz 3.75 dBi (peak)	2400-2500MHz 1.9 max	2400-2500MHz 1.71 dBi (peak)
				2496-2690MHz 1.46 dBi (peak)	2496-2690MHz 3.25 dBi (peak)	2496-2690MHz 1.7 max	2496-2690MHz 1.79 dBi (peak)
				5150-5350MHz 3.58 dBi (peak)	5150-5350MHz 6.22 dBi (peak)	5150-5350MHz 1.3 max	5150-5350MHz 2.64 dBi (peak)
				5470-5725MHz 4.54 dBi (peak)	5470-5725MHz 7.27 dBi (peak)	5470-5725MHz 1.4 max	5470-5725MHz 2.73 dBi (peak)
				5725-5850MHz 3.90 dBi (peak)	5725-5850MHz 6.73 dBi (peak)	5725-5850MHz 1.4 max	5725-5850MHz 2.83 dBi (peak)
(P/N: LX1565-11-000-R)  Tx2 antenna	Amphenol	PIFA	50 ohm Coaxial. length: 667mm diameter: 1.13mm Connector: U.FL	2400-2500MHz 2.60 dBi (peak) *	2400-2500MHz 4.44 dBi (peak) *	2400-2500MHz 1.3 max *	2400-2500MHz 1.84 dBi (peak) *
				2496-2690MHz 2.76 dBi (peak) *	2496-2690MHz 4.68 dBi (peak) *	2496-2690MHz 1.6 max *	2496-2690MHz 1.92 dBi (peak) *
				5150-5350MHz 2.77 dBi (peak) *	5150-5350MHz 5.59 dBi (peak) *	5150-5350MHz 1.4 max *	5150-5350MHz 2.82 dBi (peak) *
				5470-5725MHz 2.47 dBi (peak) *	5470-5725MHz 5.39 dBi (peak) *	5470-5725MHz 1.5 max *	5470-5725MHz 2.92 dBi (peak) *
				5725-5850MHz 1.40 dBi (peak) *	5725-5850MHz 4.37 dBi (peak) *	5725-5850MHz 1.5 max *	5725-5850MHz 2.97 dBi (peak) *

(\* ) If Rx2/Rx3 only (2<sup>nd</sup> or 3<sup>rd</sup> antenna receives only, e.g. for 512 family & 4965AGN) then the information marked with \* is not required

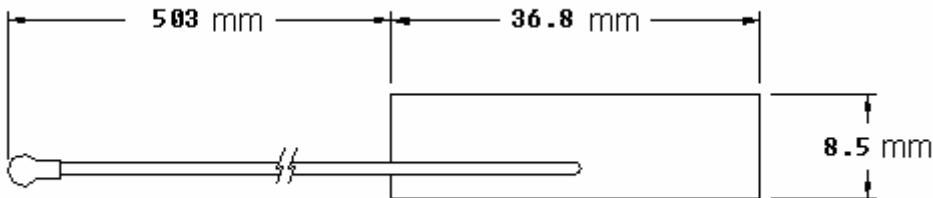
**Antenna Peak Gain Table:**

Frequency (MHz)	Tx1 Antenna		Tx2 Antenna	
	Horizontal (dBi)	Vertical (dBi)	Horizontal (dBi)	Vertical (dBi)
2400	-1.69	-3.11	-0.84	-0.10
2450	-1.53	-3.64	0.49	0.73
2500	-0.98	-1.75	0.59	0.67
2501	-0.59	-1.32	-0.02	1.00
2593	-3.45	-1.88	-0.67	0.89
2685	-4.49	-1.96	-1.18	0.52
5150	1.30	0.71	-3.09	-0.09
5250	1.16	0.79	-1.83	0.41
5350	1.88	2.20	-1.35	0.89
5470	1.08	0.58	-1.81	0.91
5600	2.03	2.72	-0.97	0.67
5725	2.11	2.25	-3.30	-1.99
5785	2.41	1.07	-1.93	-1.50
5850	0.59	0.54	-2.31	-1.79

- Antenna Peak Gain required being test in system basis.
- 1E frame contend absolutely peak antenna gain include H/V
- If Rx2 only (2<sup>nd</sup> antenna receives only, e.g. for 512 family) then the information is not required for Rx2.
- 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**

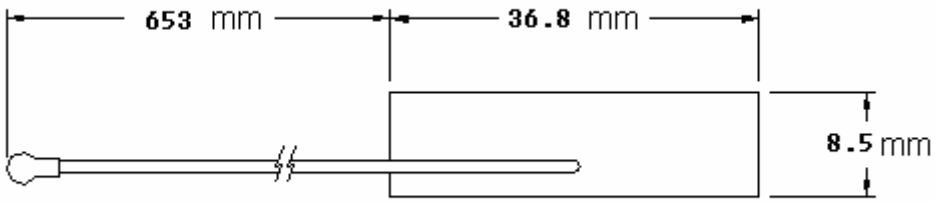
Include a dimensioned photo and dimensioned drawing of Tx1 antenna here.

**Tx1 Antenna Dimensioned Drawing:****Tx1 Antenna Photo:**



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

**Tx2 Antenna Dimensioned Drawing:**

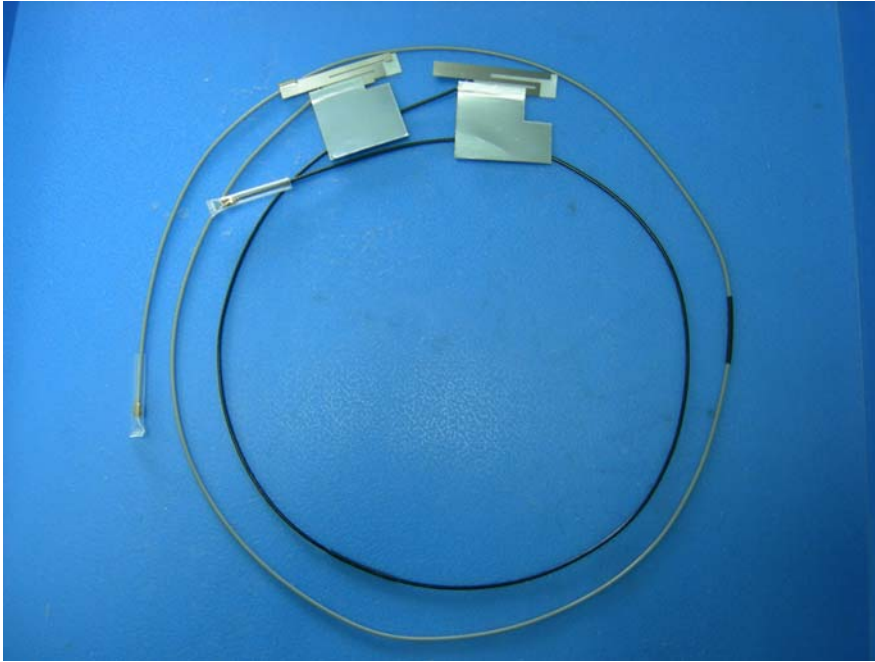


**Tx2 Antenna Photo:**



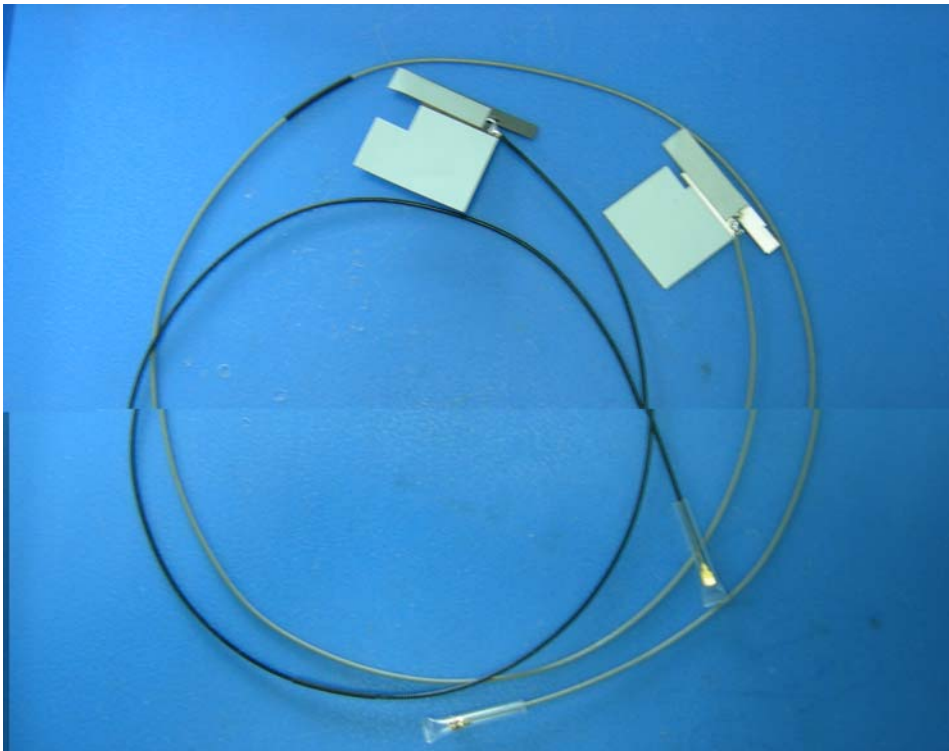
**Include front view photo of all 2 antennas here.**

Antenna Manufacturer: Amphenol  
Antenna Part Number: LX1564-11-000-R(Tx1), LX1565-11-000-R(Tx2)



**Include back view photo of all 2 antennas here.**

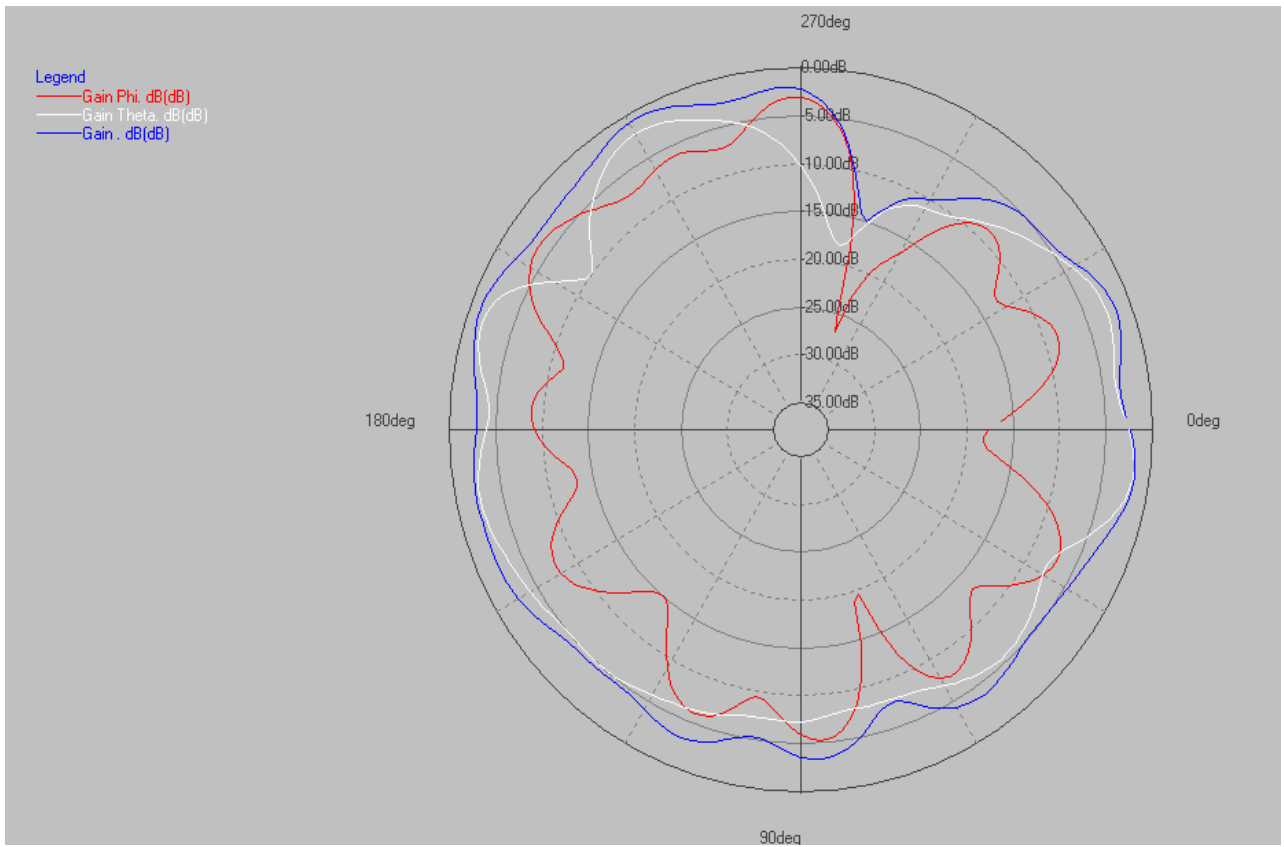
Antenna Manufacturer: Amphenol  
Antenna Part Number: LX1564-11-000-R (Tx1), LX1565-11-000-R (Tx2)



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

### 2400-2500MHz radiation characteristic

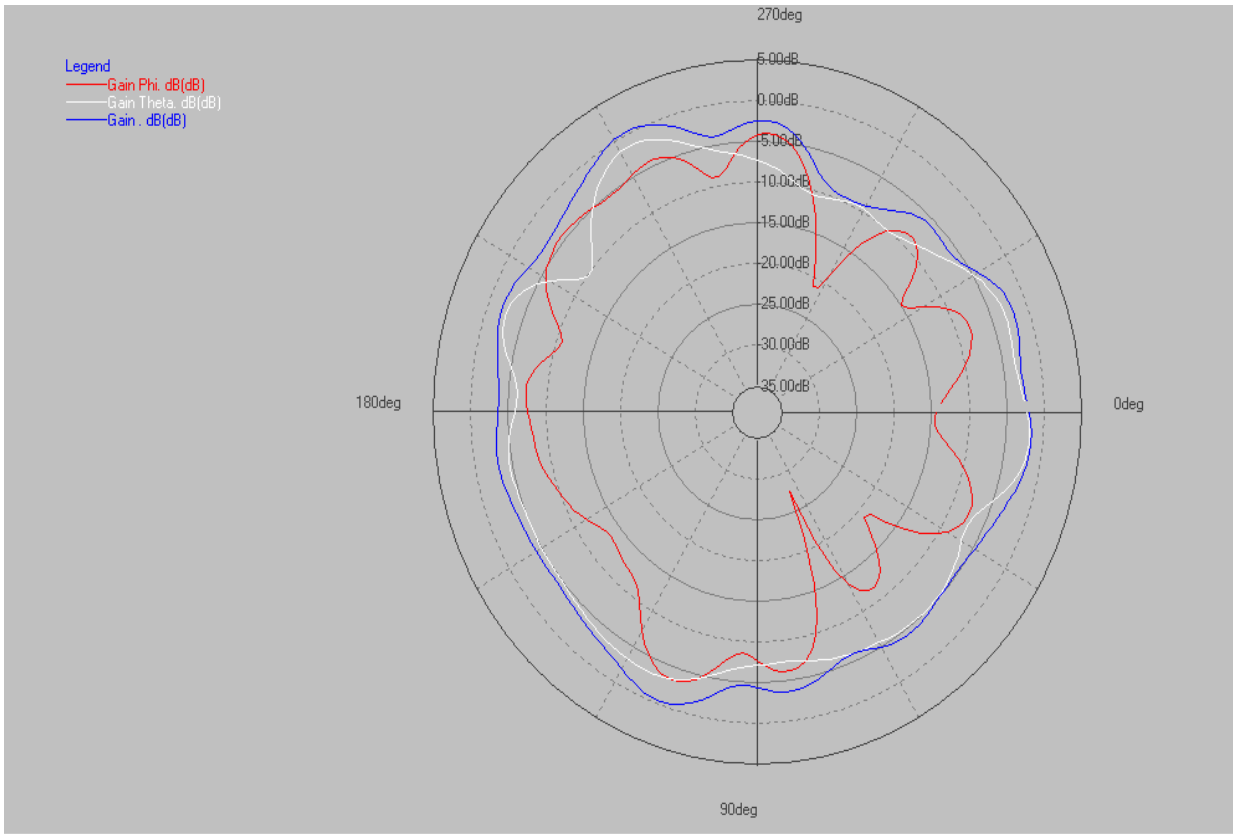
#### Tx1 antenna: 2400 MHz



Center Frequency	<b>2400 MHz</b>
Horizontal (dBi) peak	<b>-1.69</b>
Vertical (dBi) peak	<b>-3.11</b>

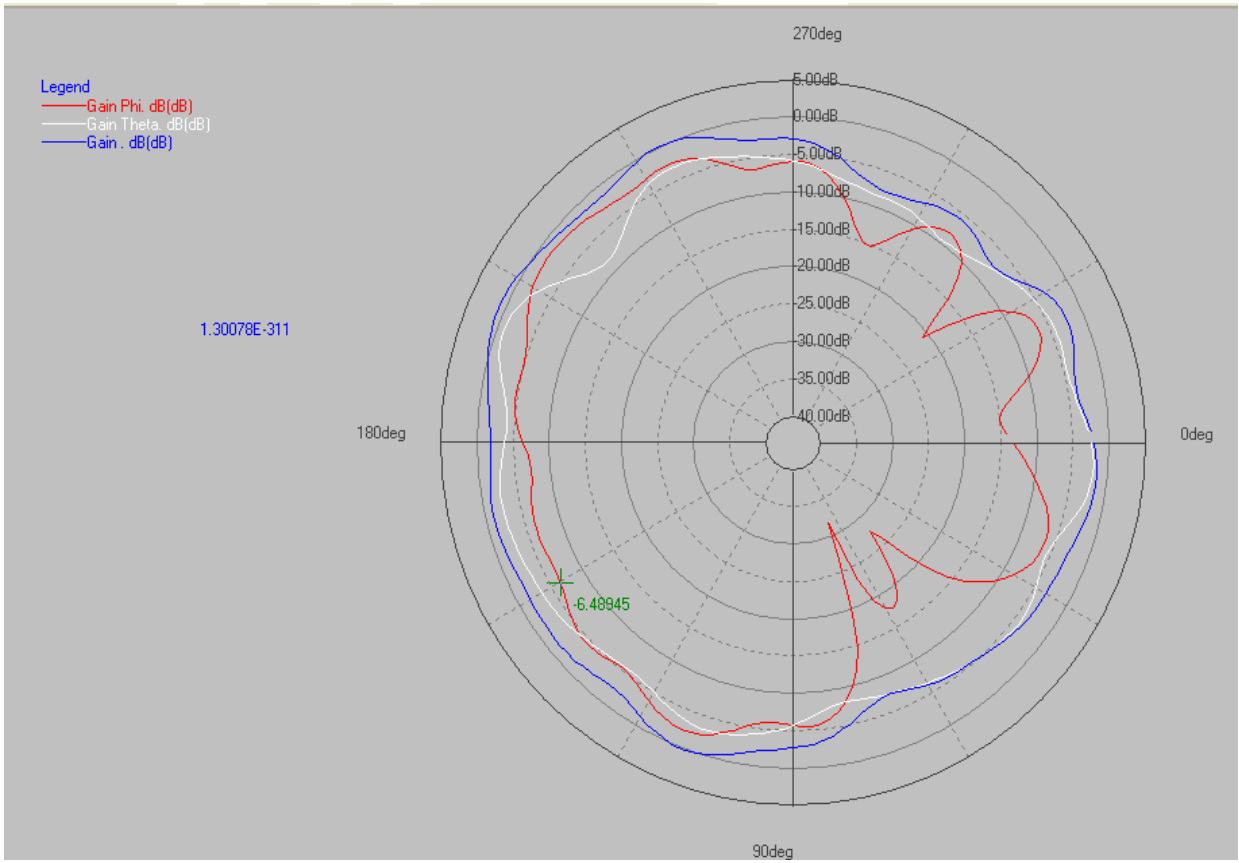


**Tx1 antenna: 2450 MHz**



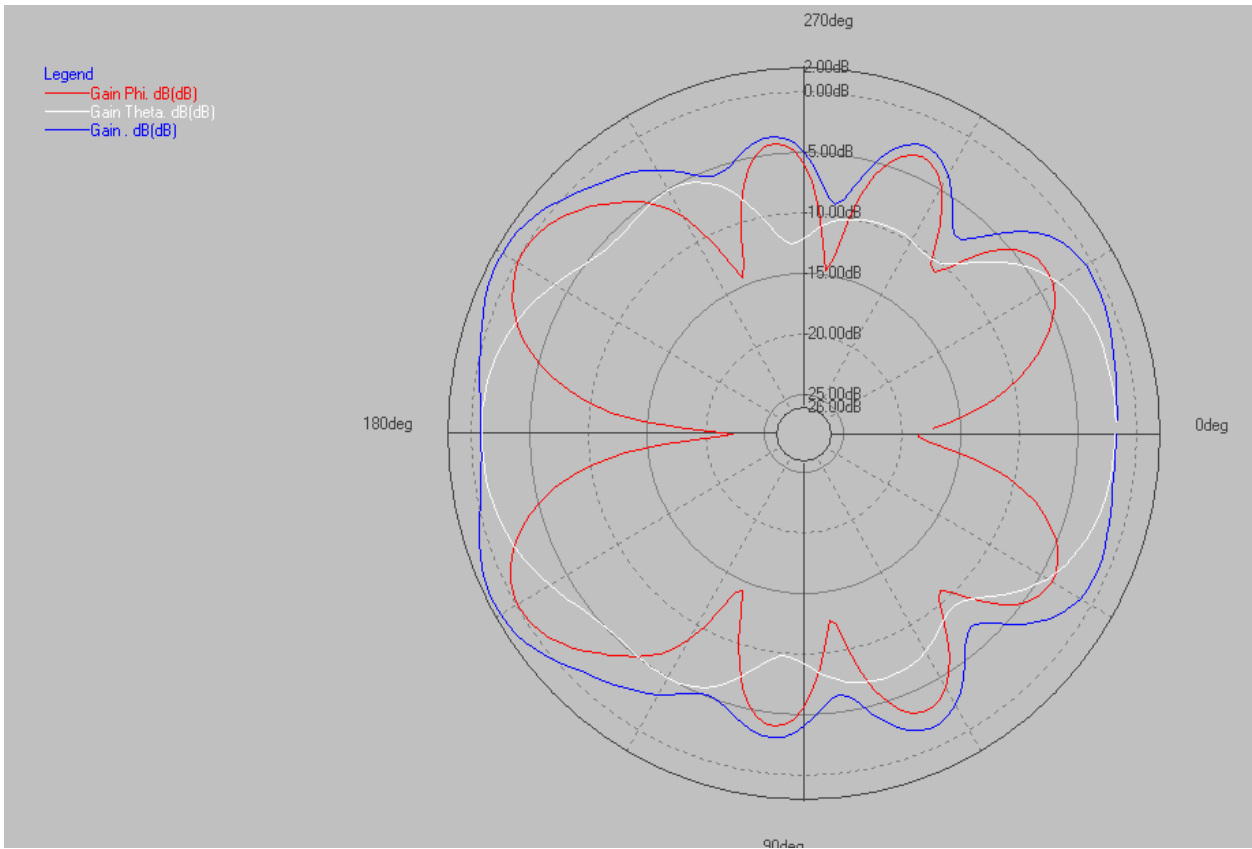
Center Frequency	<b>2450 MHz</b>
Horizontal (dBi) peak	<b>-1.53</b>
Vertical (dBi) peak	<b>-3.64</b>

### Tx1 antenna: 2500 MHz



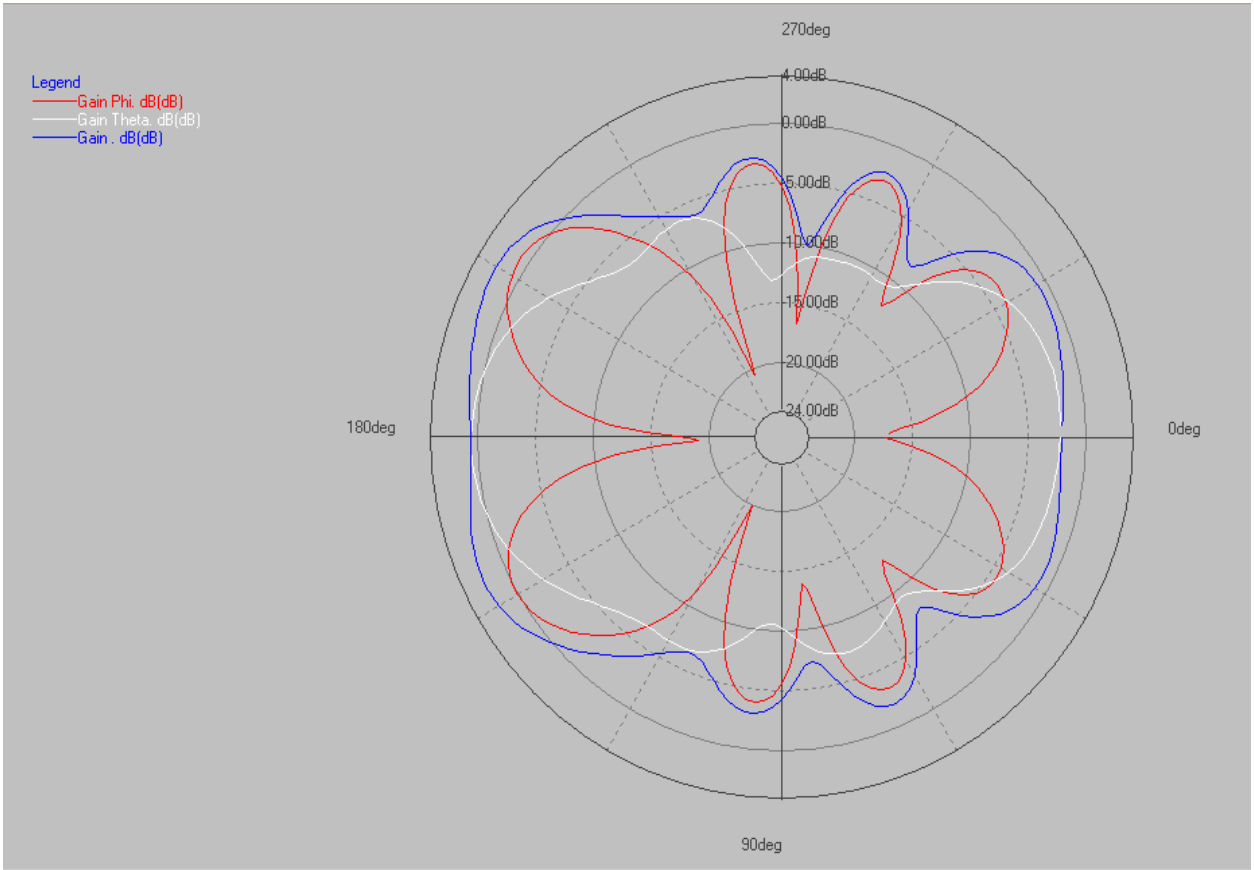
Center Frequency	<b>2500 MHz</b>
Horizontal (dBi) peak	<b>-0.98</b>
Vertical (dBi) peak	<b>-1.75</b>

## Tx2 antenna: 2400 MHz



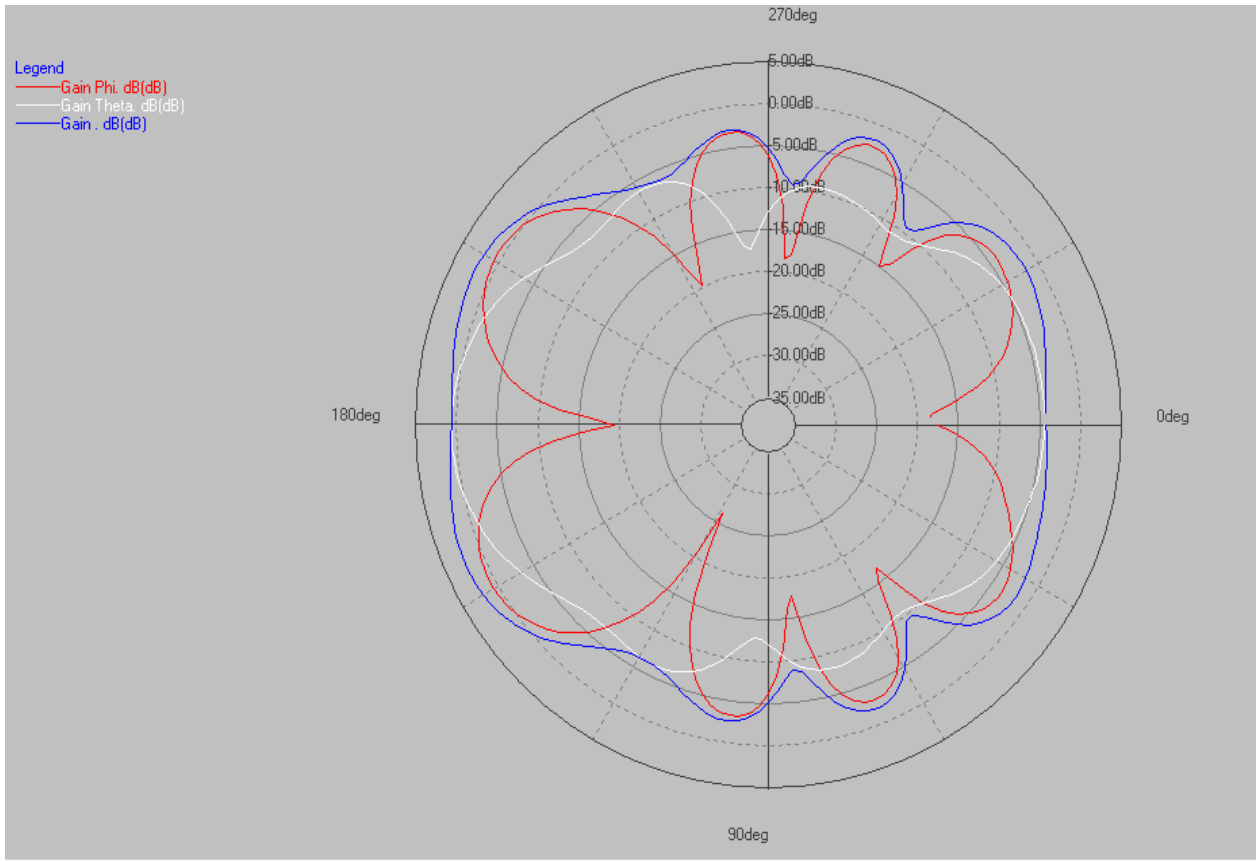
Center Frequency	<b>2400 MHz</b>
Horizontal (dBi) peak	<b>-0.84</b>
Vertical (dBi) peak	<b>-0.10</b>

**Tx2 antenna: 2450 MHz**



Center Frequency	<b>2450 MHz</b>
Horizontal (dBi) peak	<b>0.49</b>
Vertical (dBi) peak	<b>0.73</b>

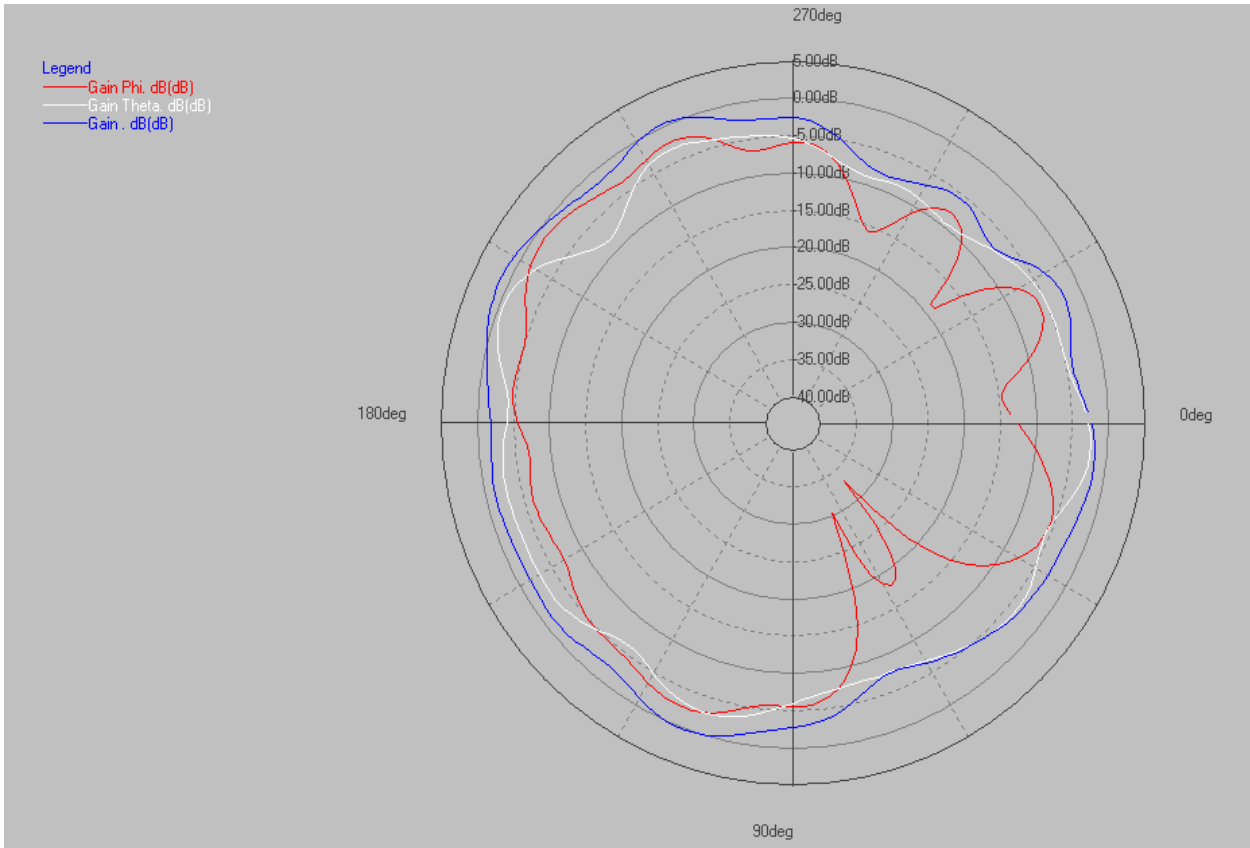
## Tx2 antenna: 2500 MHz



Center Frequency	<b>2500 MHz</b>
Horizontal (dBi) peak	<b>0.59</b>
Vertical (dBi) peak	<b>0.67</b>

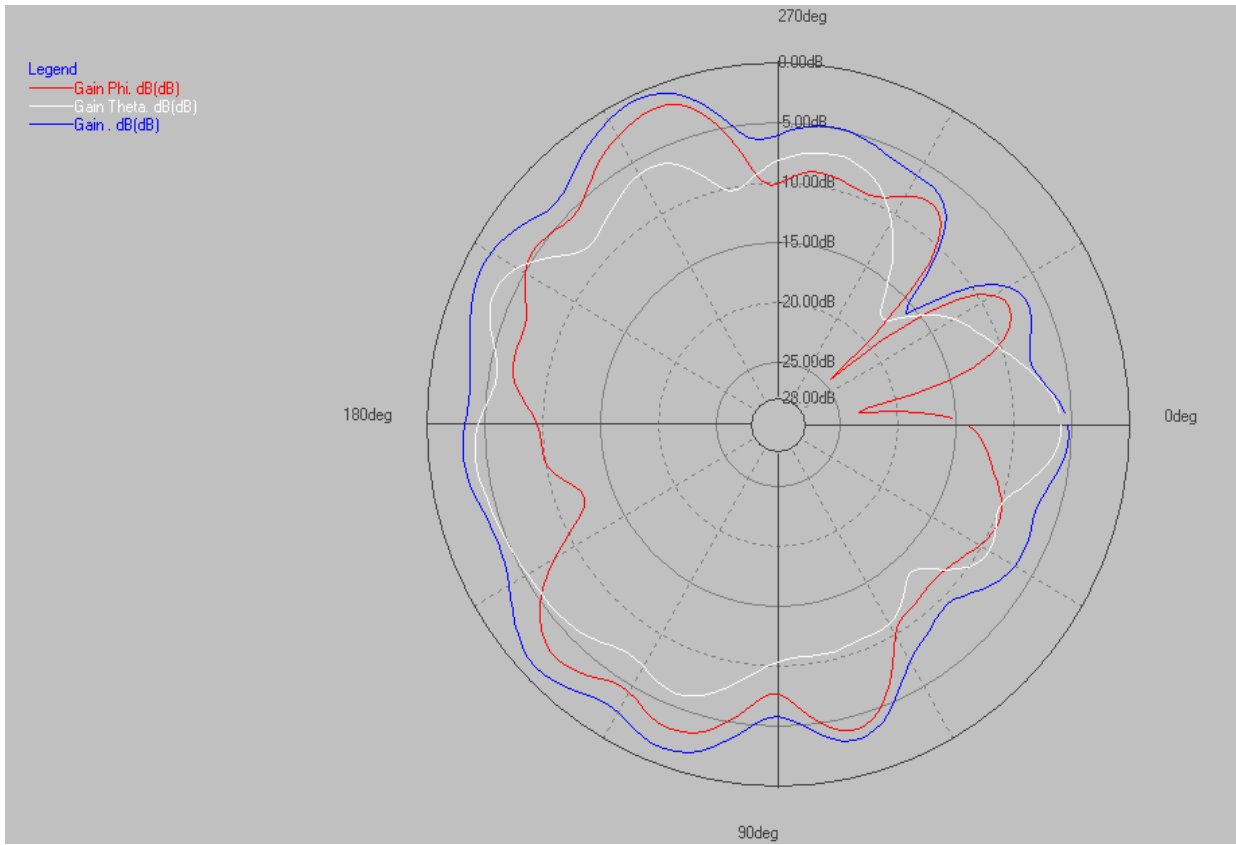
**2501-2700MHz radiation characteristic**

**Tx1 antenna: 2501MHz**



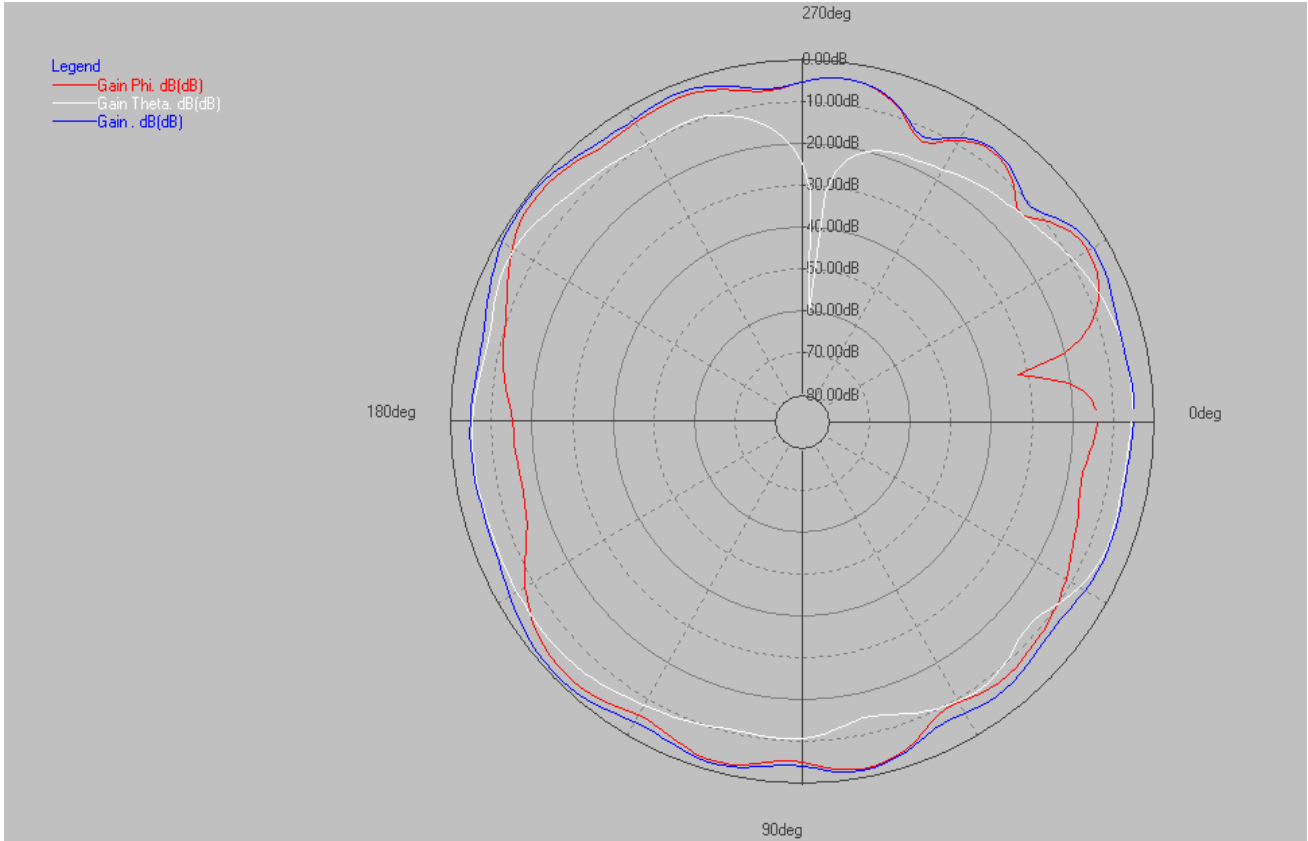
Center Frequency	<b>2501MHz</b>
Horizontal (dBi) peak	<b>-0.59</b>
Vertical (dBi) peak	<b>-1.32</b>

**Tx1 antenna: 2593MHz**



Center Frequency	<b>2593 MHz</b>
Horizontal (dBi) peak	<b>-3.45</b>
Vertical (dBi) peak	<b>-1.88</b>

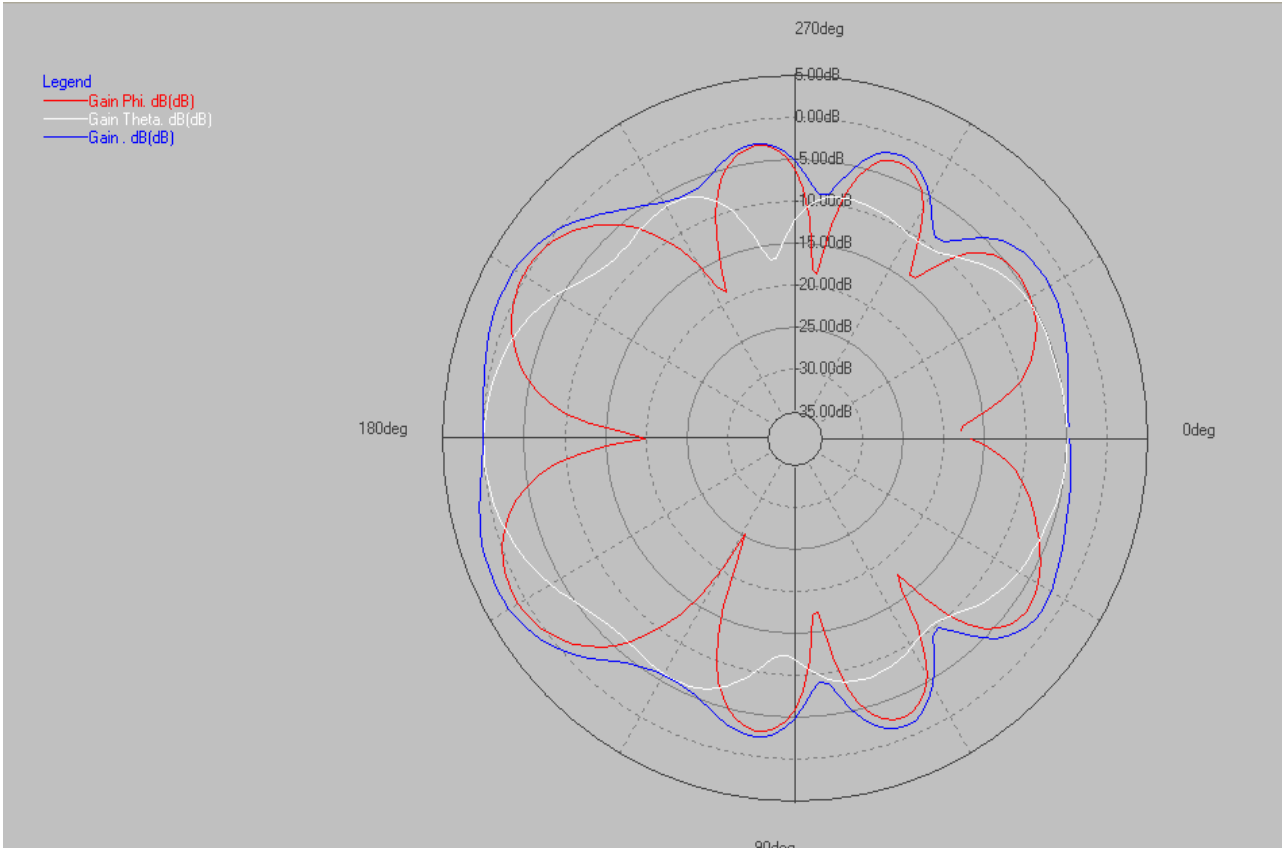
**Tx1 antenna: 2685 MHz**



Center Frequency	<b>2685 MHz</b>
Horizontal (dBi) peak	<b>-4.49</b>
Vertical (dBi) peak	<b>-1.96</b>

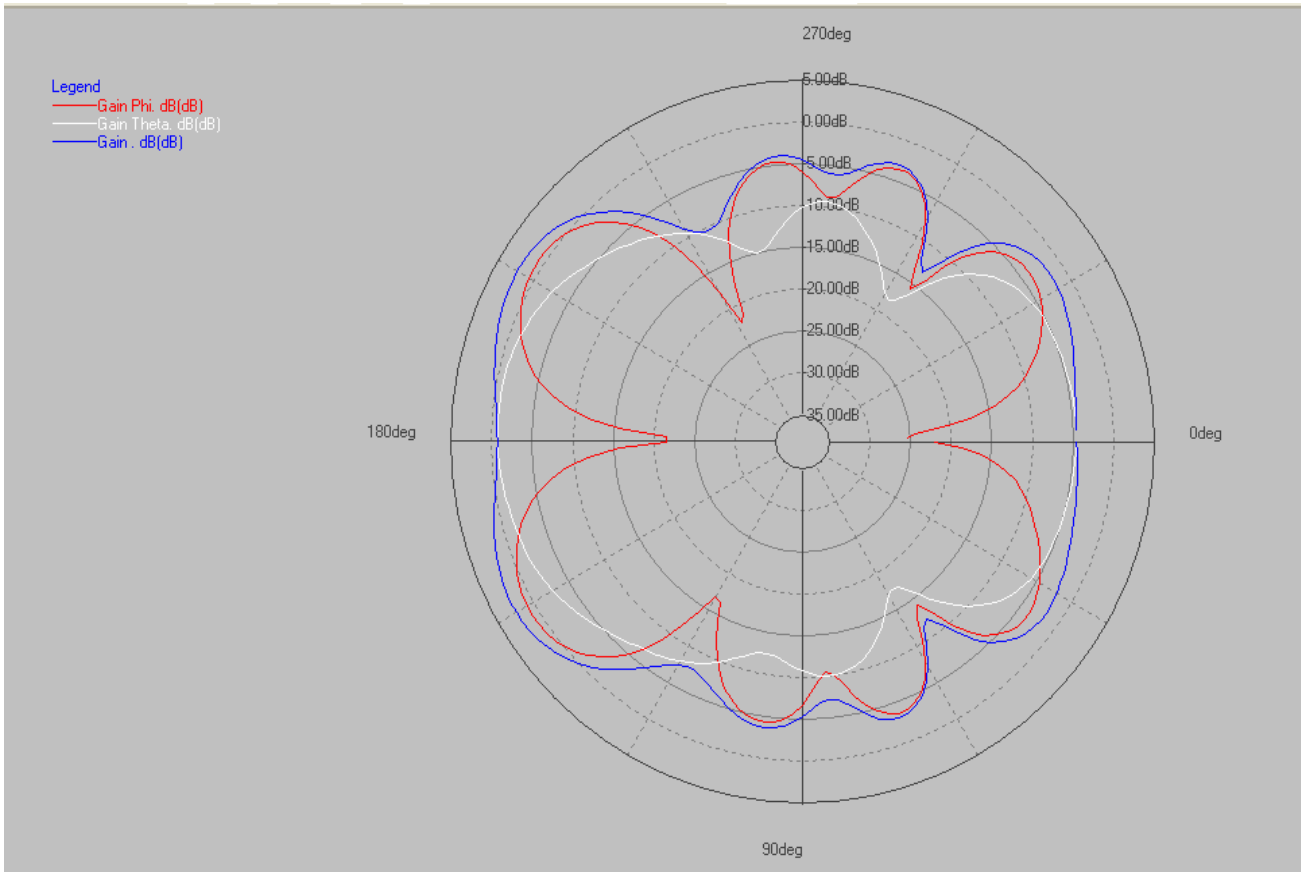


**Tx2 antenna: 2501MHz**



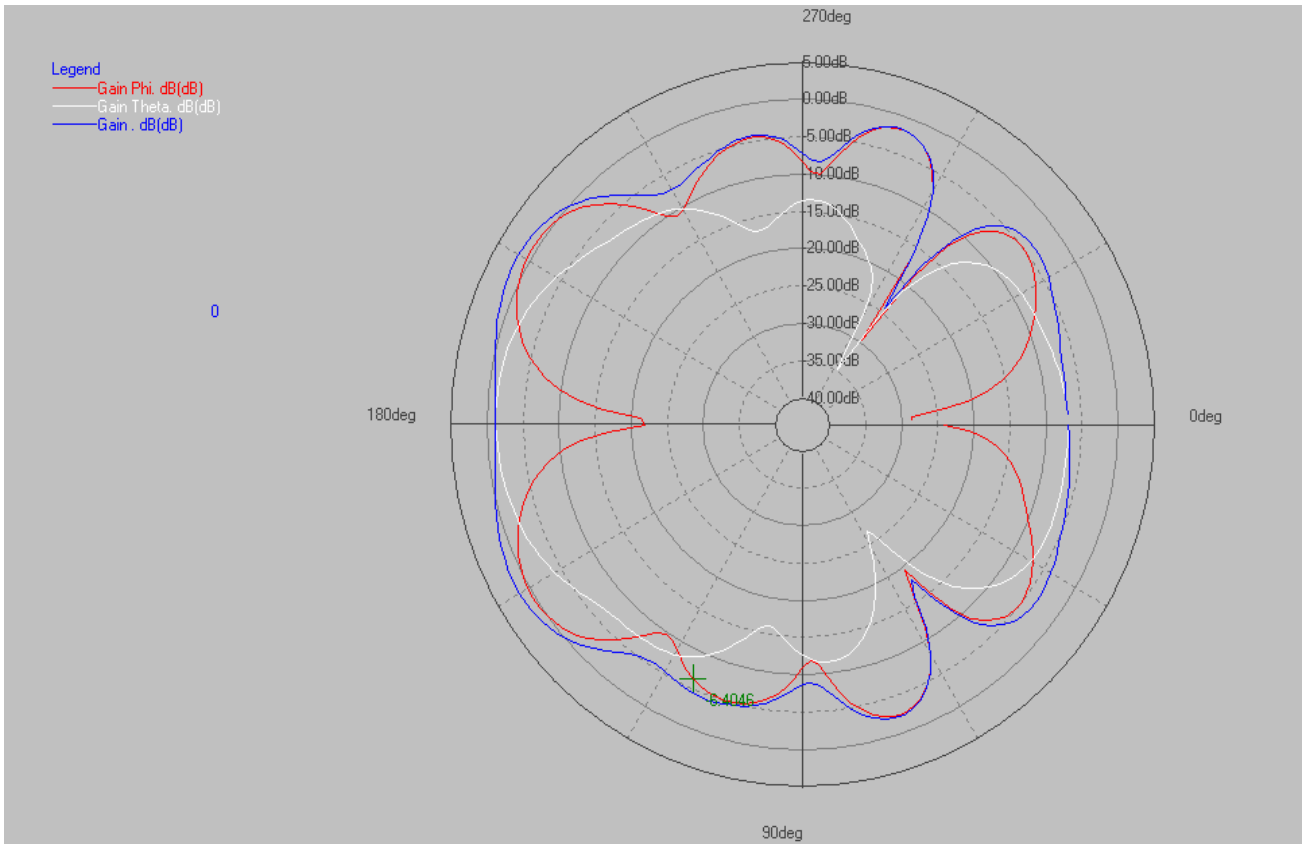
Center Frequency	<b>2501 MHz</b>
Horizontal (dBi) peak	<b>-0.02</b>
Vertical (dBi) peak	<b>1.00</b>

**Tx2 antenna: 2593MHz**



Center Frequency	<b>2593 MHz</b>
Horizontal (dBi) peak	<b>-0.67</b>
Vertical (dBi) peak	<b>0.89</b>

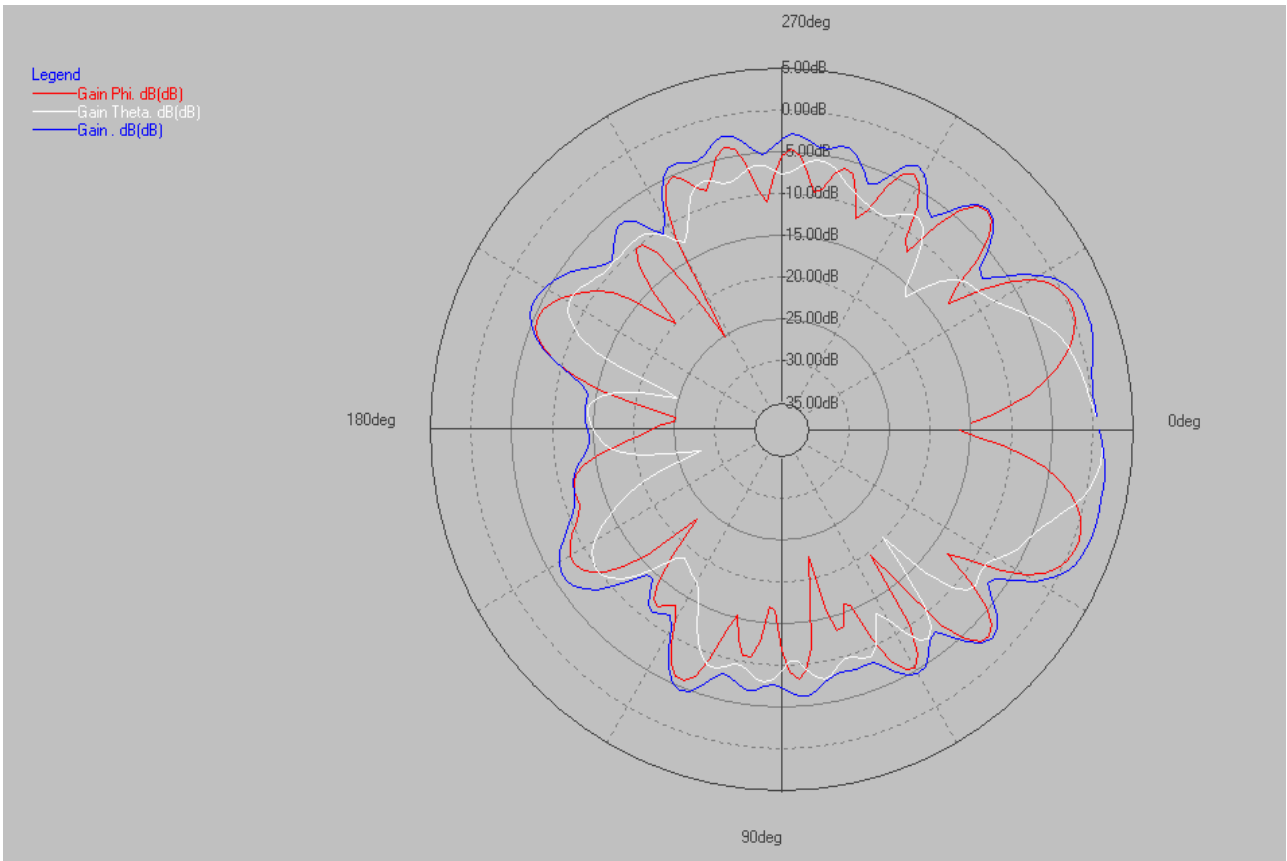
**Tx2 antenna: 2685 MHz**



Center Frequency	<b>2685 MHz</b>
Horizontal (dBi) peak	<b>-1.18</b>
Vertical (dBi) peak	<b>0.52</b>

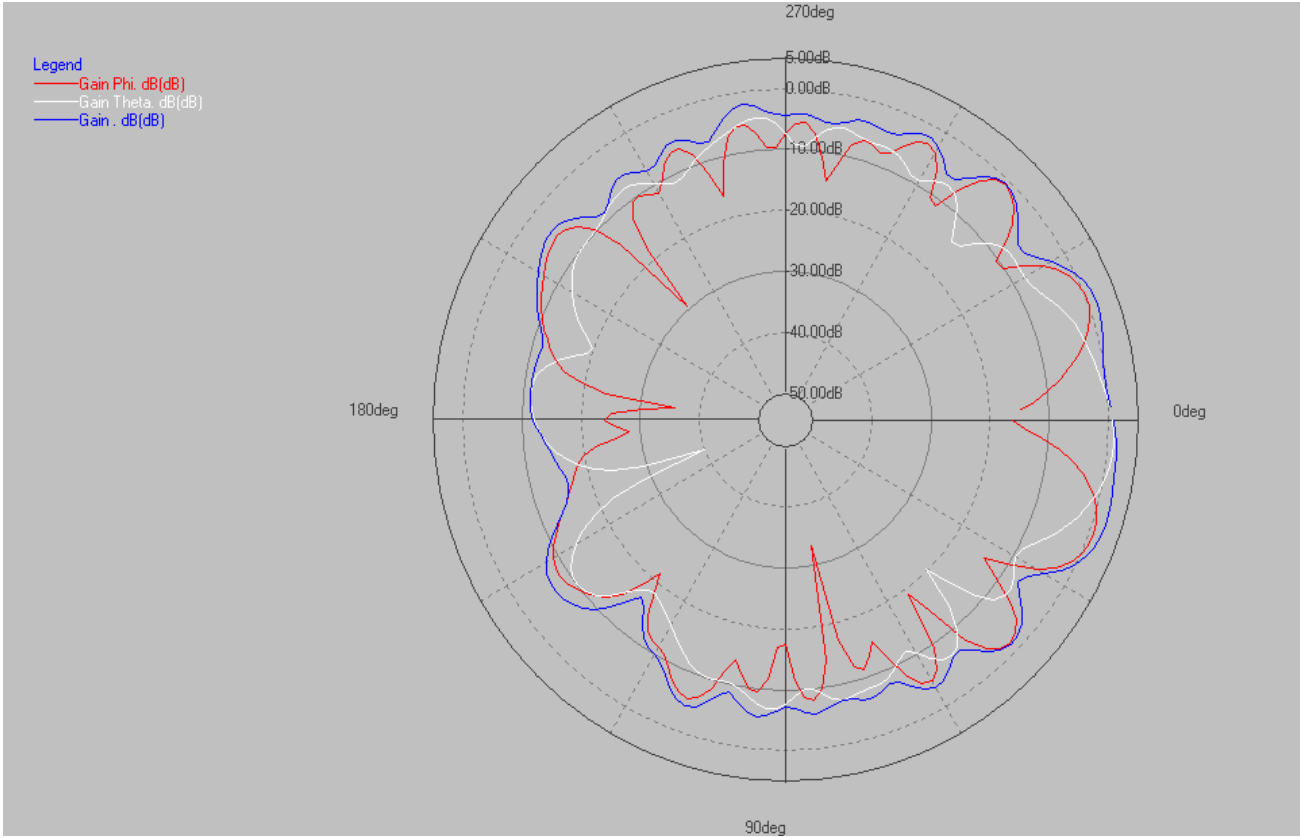
**5150-5350 MHz radiation characteristic**

**Tx1 antenna: 5150 MHz**



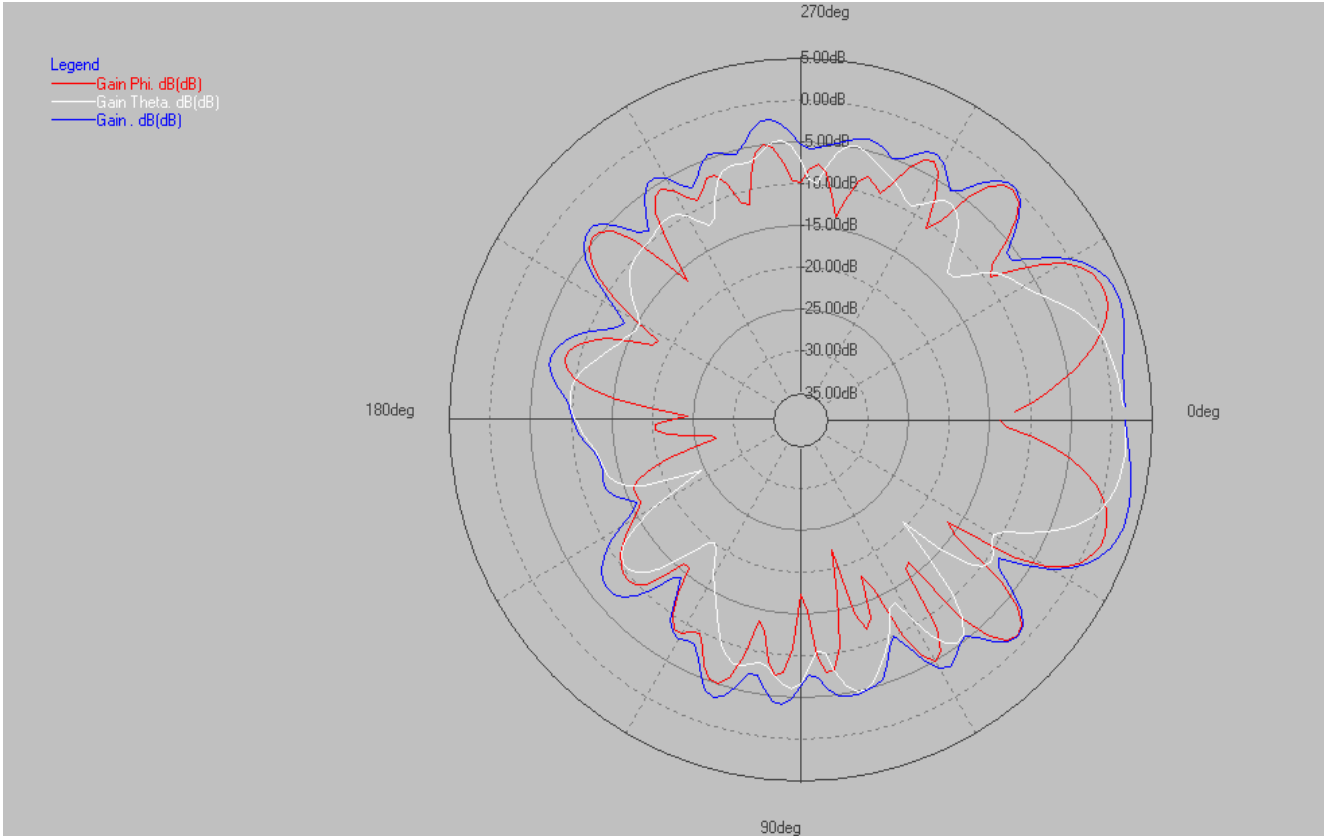
Center Frequency	<b>5150 MHz</b>
Horizontal (dBi) peak	<b>1.30</b>
Vertical (dBi) peak	<b>0.71</b>

**Tx1 antenna: 5250 MHz**



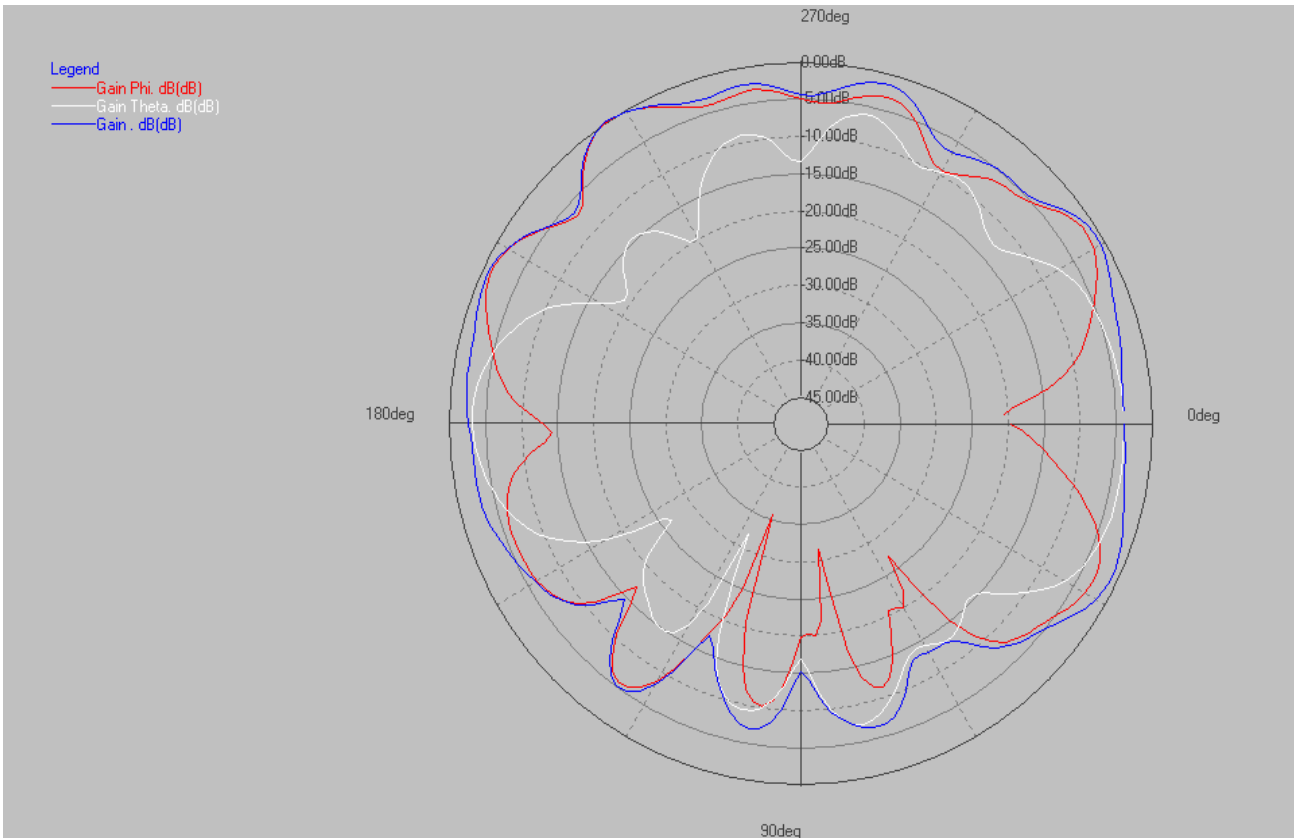
Center Frequency	<b>5250 MHz</b>
Horizontal (dBi) peak	<b>1.16</b>
Vertical (dBi) peak	<b>0.79</b>

### Tx1 antenna: 5350 MHz



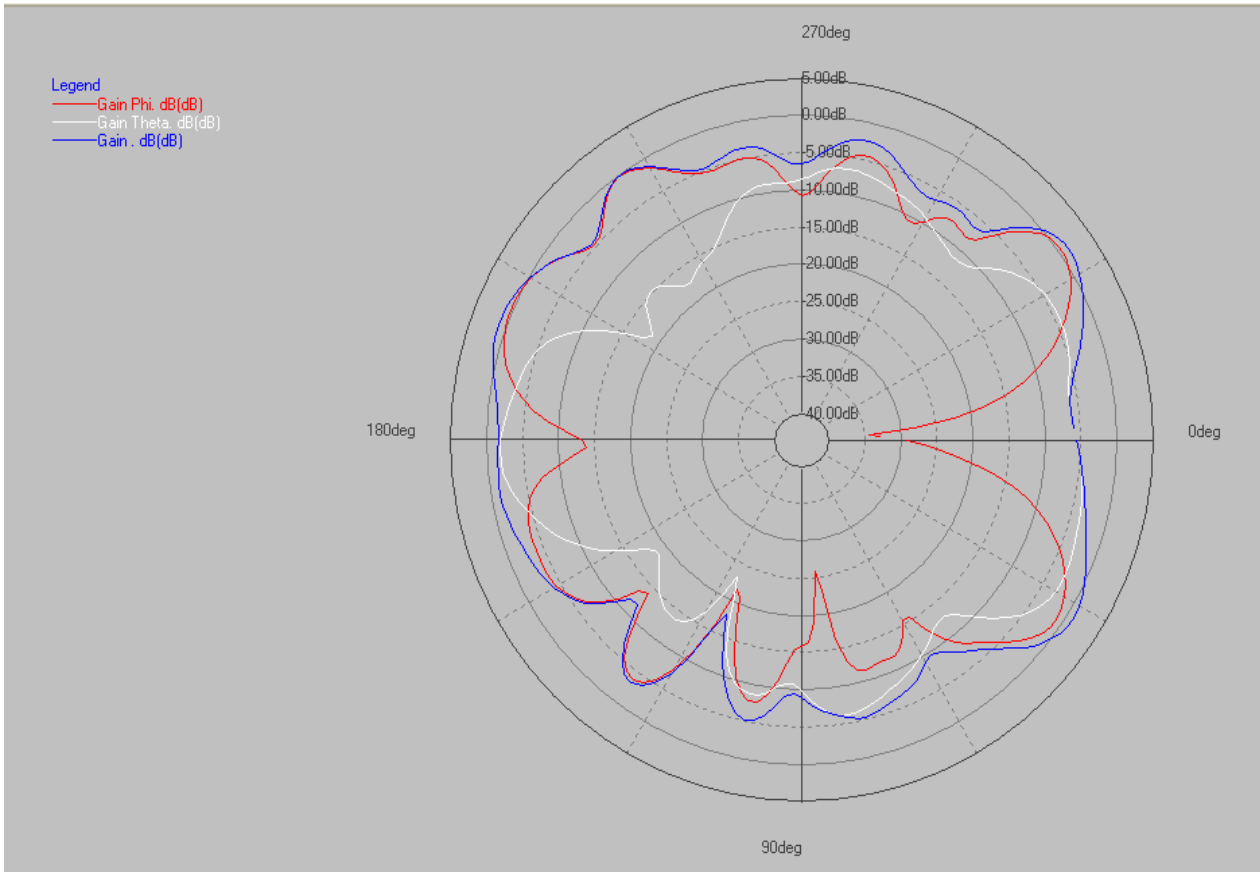
Center Frequency	<b>5350 MHz</b>
Horizontal (dBi) peak	<b>1.88</b>
Vertical (dBi) peak	<b>2.20</b>

### Tx2 antenna: 5150 MHz



Center Frequency	<b>5150 MHz</b>
Horizontal (dBi) peak	<b>-3.09</b>
Vertical (dBi) peak	<b>-0.09</b>

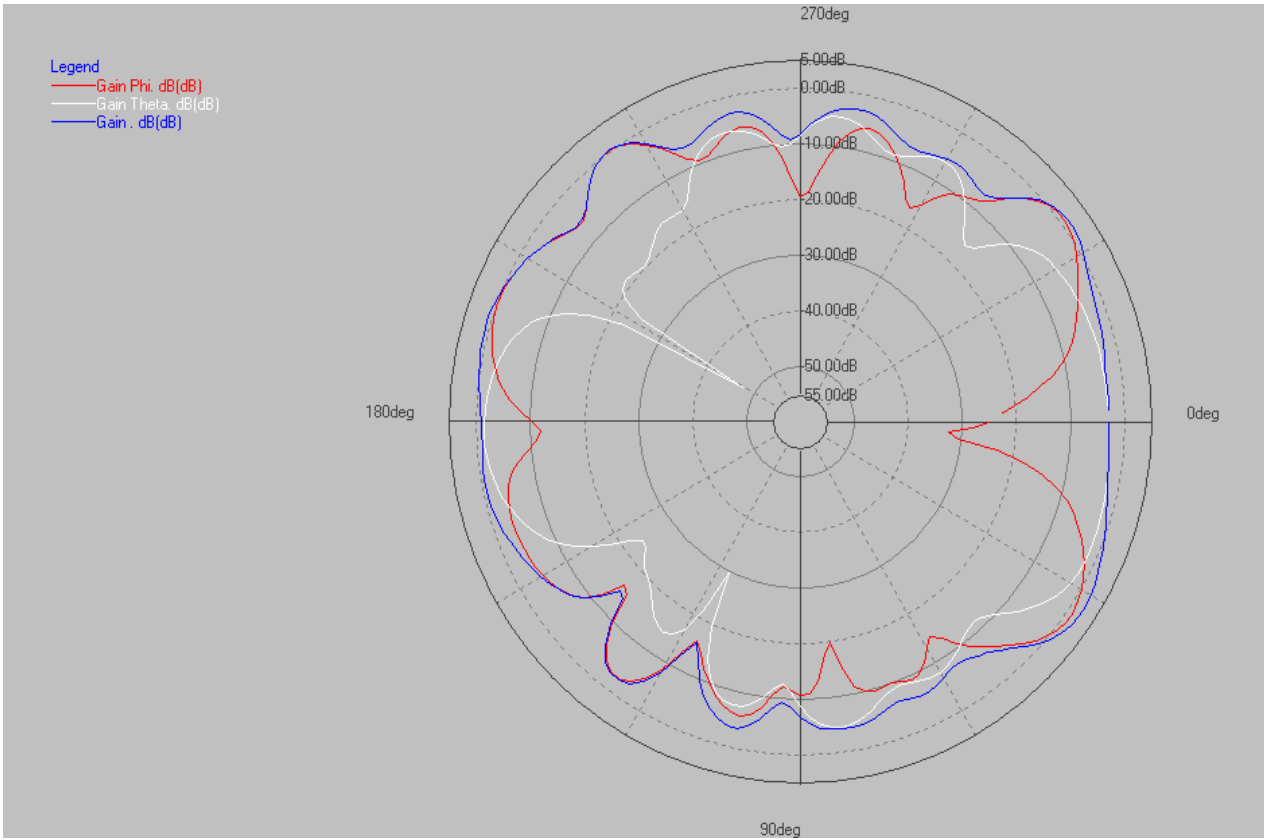
**Tx2 antenna: 5250 MHz**



Center Frequency	<b>5250 MHz</b>
Horizontal (dBi) peak	<b>-1.83</b>
Vertical (dBi) peak	<b>0.41</b>



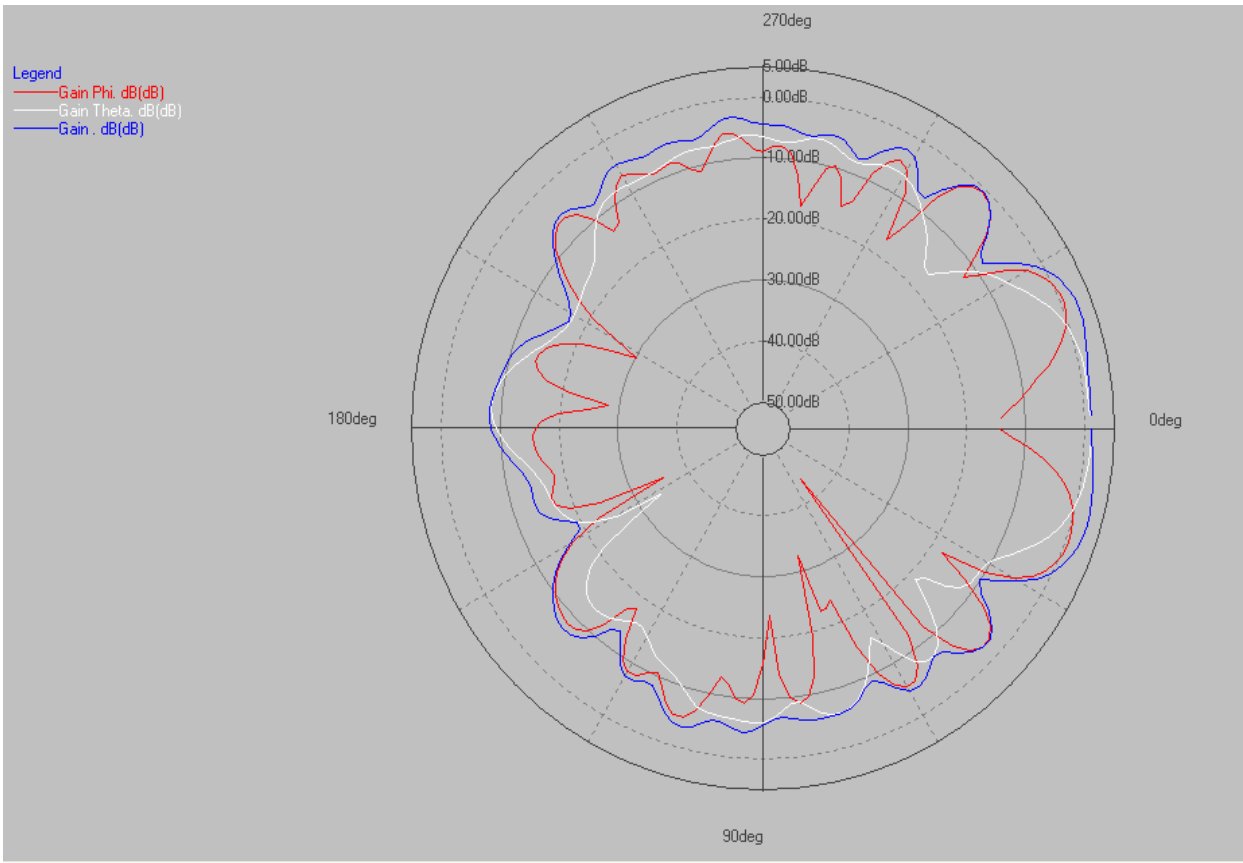
**Tx2 antenna: 5350 MHz**



Center Frequency	<b>5350 MHz</b>
Horizontal (dBi) peak	<b>-1.35</b>
Vertical (dBi) peak	<b>0.89</b>

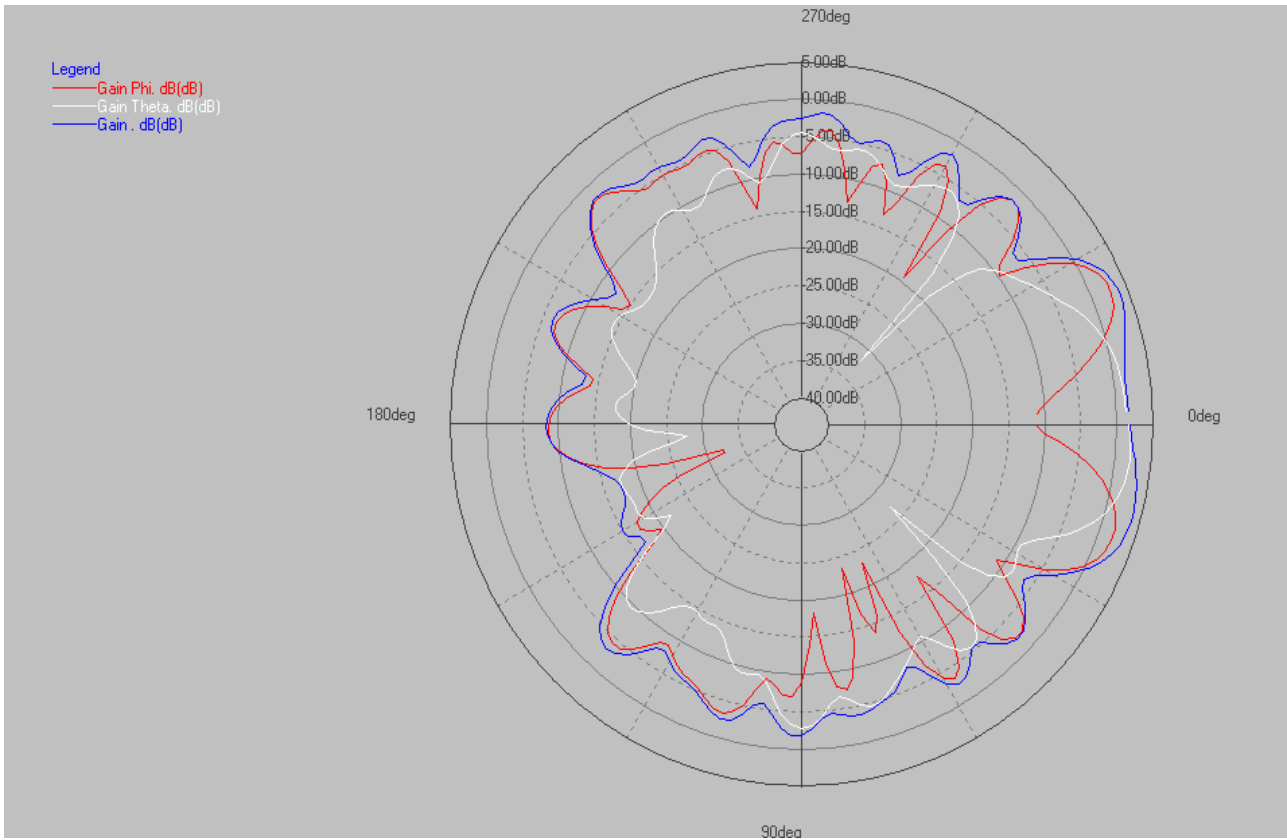
## 5470-5725MHz radiation characteristic

### Tx1 antenna: 5470 MHz



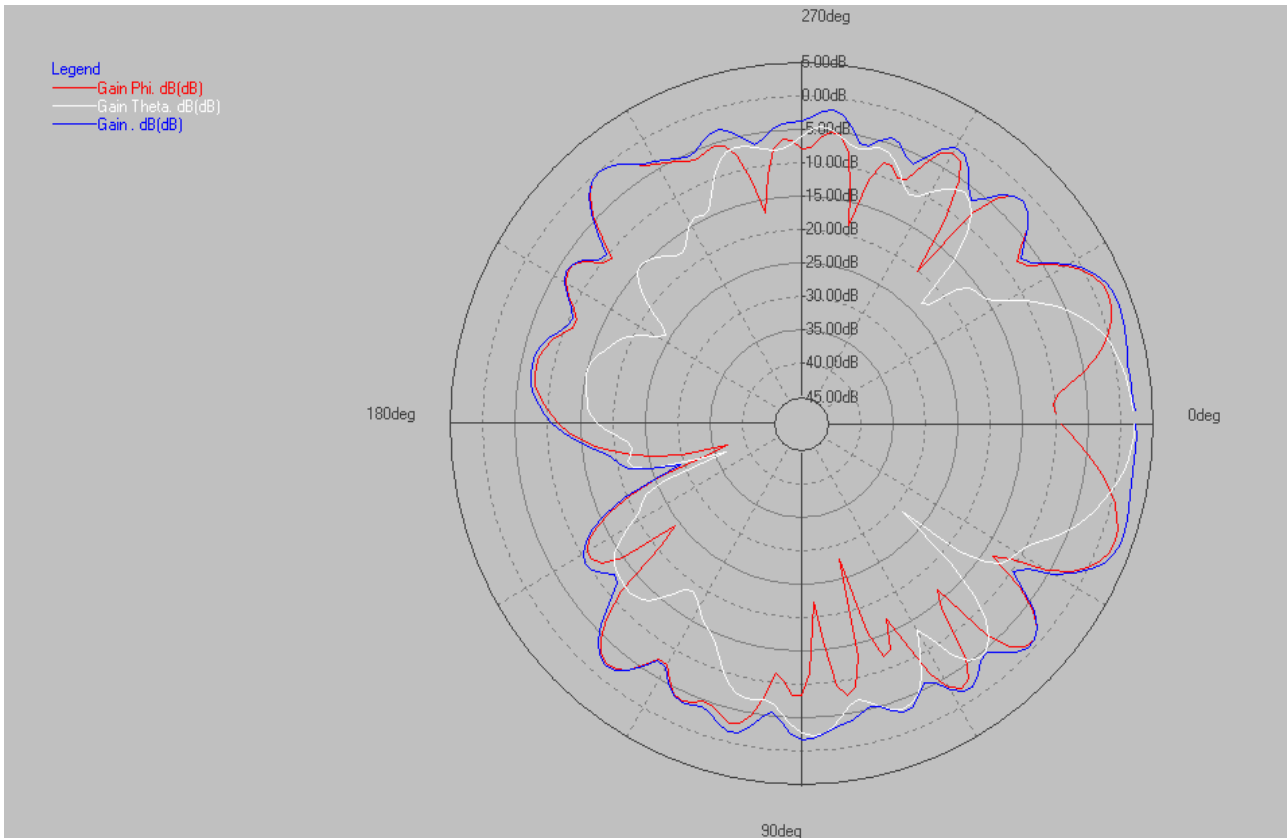
Center Frequency	<b>5470 MHz</b>
Horizontal (dBi) peak	<b>1.08</b>
Vertical (dBi) peak	<b>0.58</b>

**Tx1 antenna: 5600 MHz**



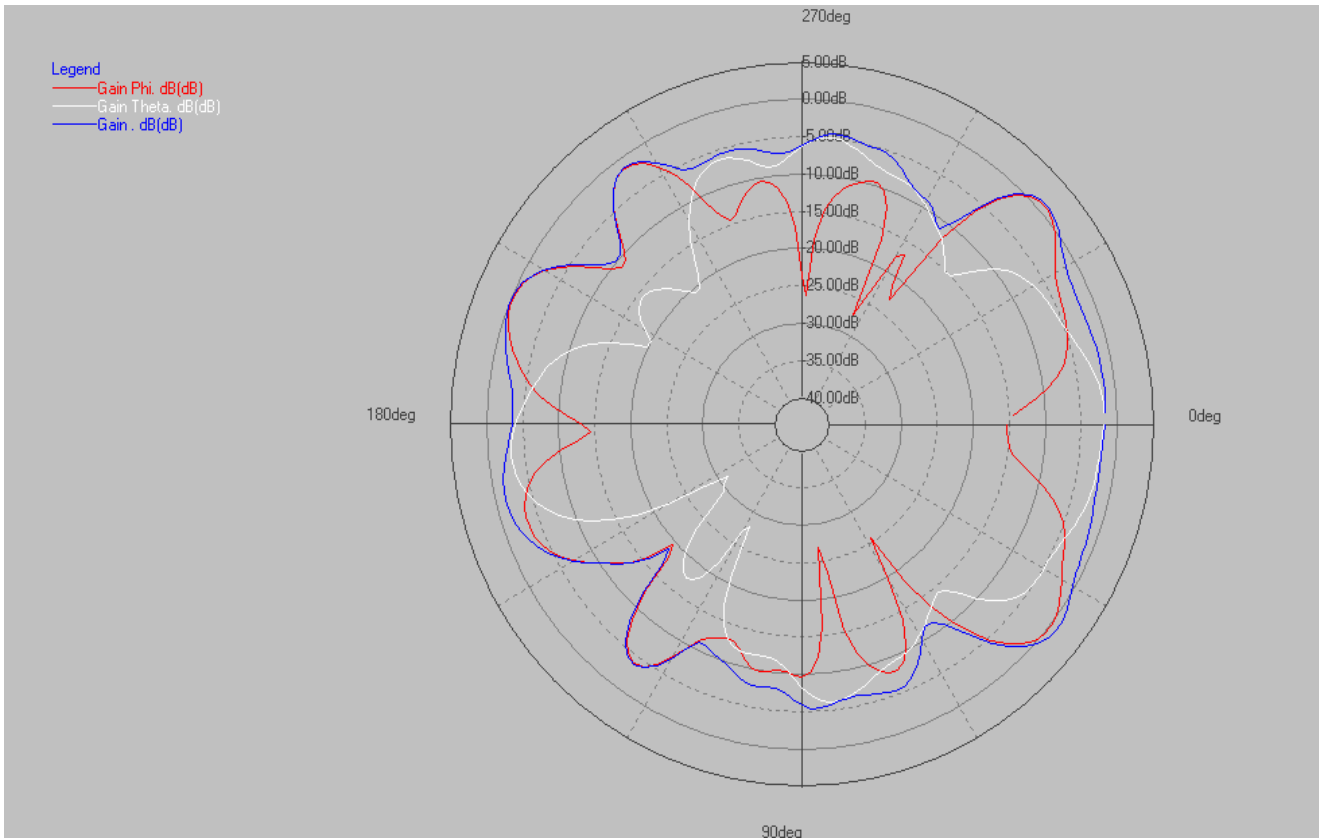
Center Frequency	<b>5600 MHz</b>
Horizontal (dBi) peak	<b>2.03</b>
Vertical (dBi) peak	<b>2.72</b>

**Tx1 antenna: 5725 MHz**



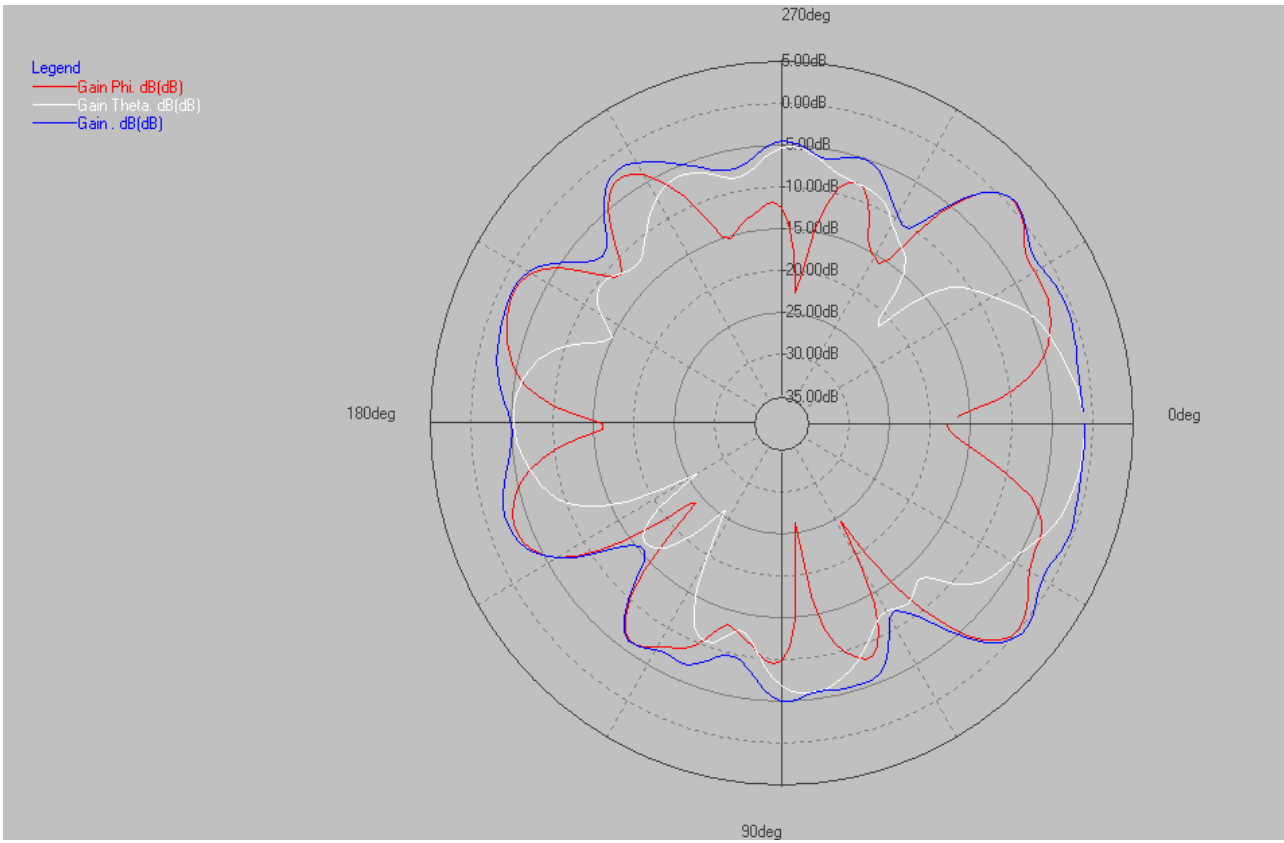
Center Frequency	<b>5725 MHz</b>
Horizontal (dBi) peak	<b>2.11</b>
Vertical (dBi) peak	<b>2.25</b>

**Tx2 antenna: 5470 MHz**



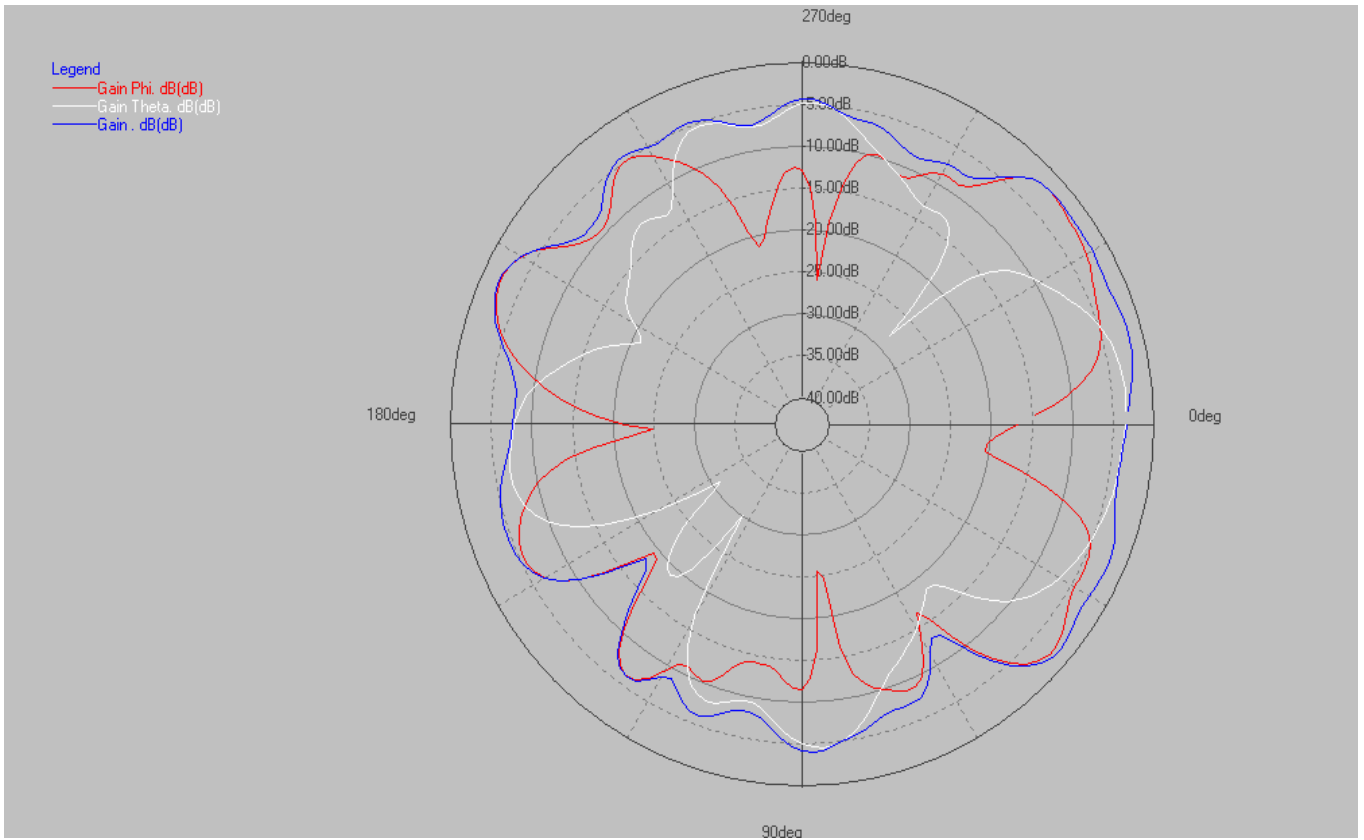
Center Frequency	<b>5470 MHz</b>
Horizontal (dBi) peak	<b>-1.81</b>
Vertical (dBi) peak	<b>0.91</b>

**Tx2 antenna: 5600 MHz**



Center Frequency	<b>5600 MHz</b>
Horizontal (dBi) peak	<b>-0.97</b>
Vertical (dBi) peak	<b>0.67</b>

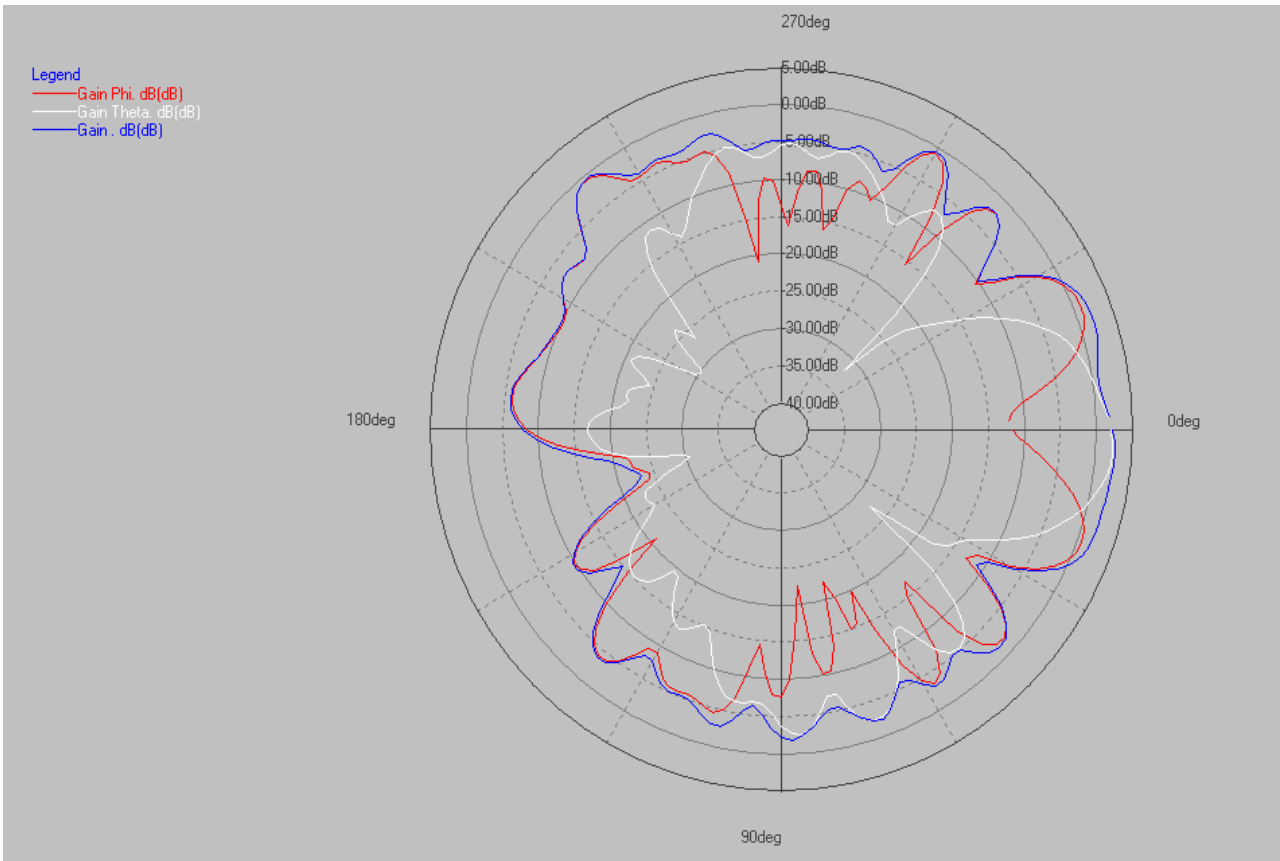
**Tx2 antenna: 5725 MHz**



Center Frequency	<b>5725 MHz</b>
Horizontal (dBi) peak	<b>-3.30</b>
Vertical (dBi) peak	<b>-1.99</b>

**5785-5850 MHz radiation characteristic**

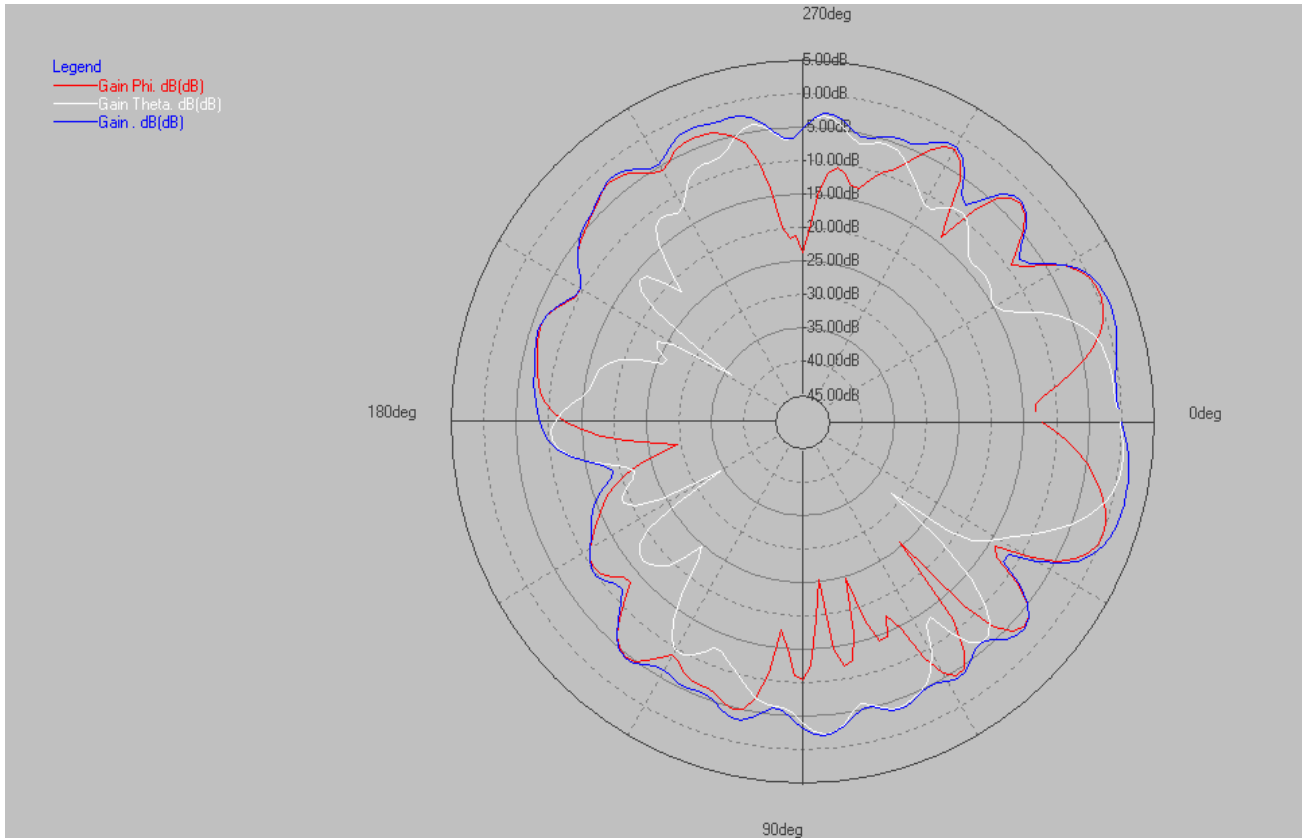
**Tx1 antenna: 5785 MHz**



Center Frequency	<b>5785 MHz</b>
Horizontal (dBi) peak	<b>2.41</b>
Vertical (dBi) peak	<b>1.07</b>

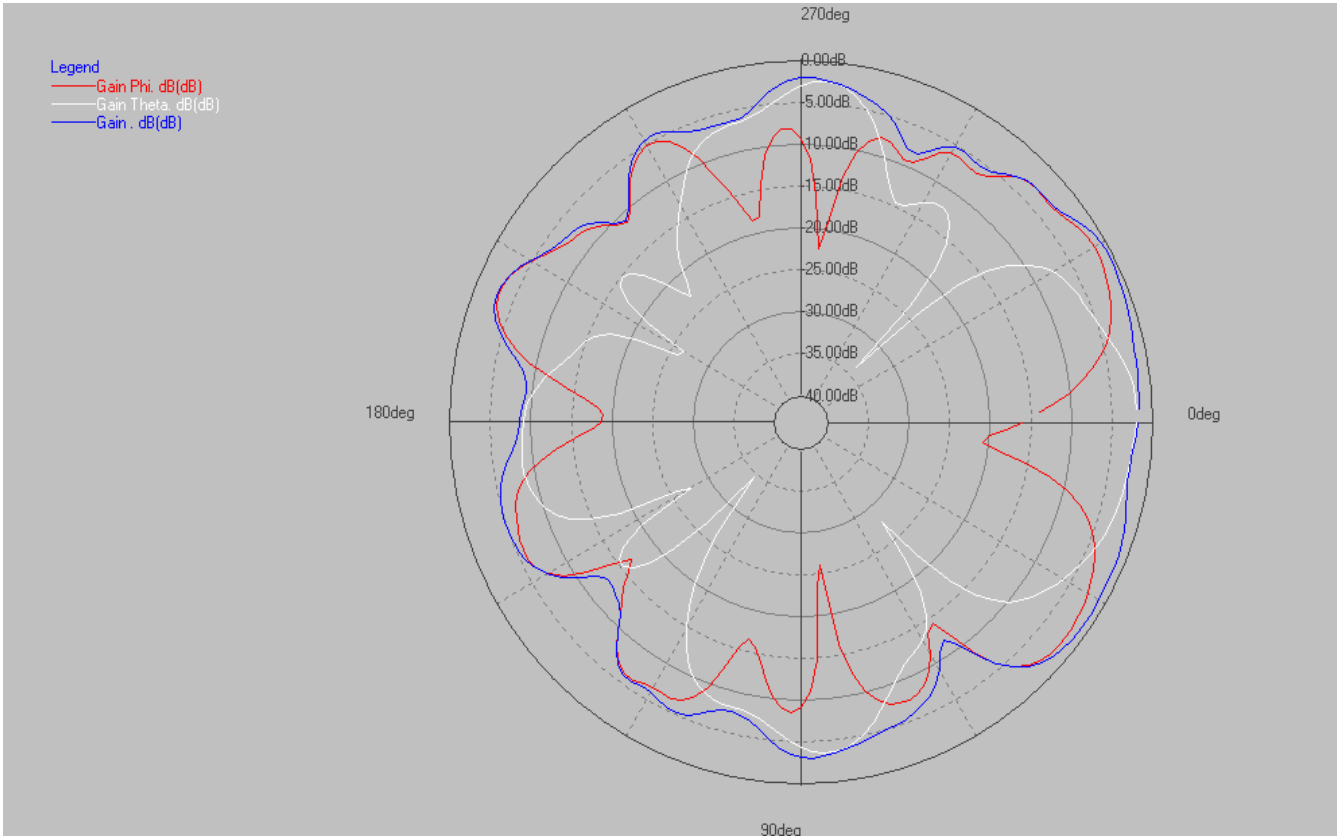


**Tx1 antenna: 5850 MHz**



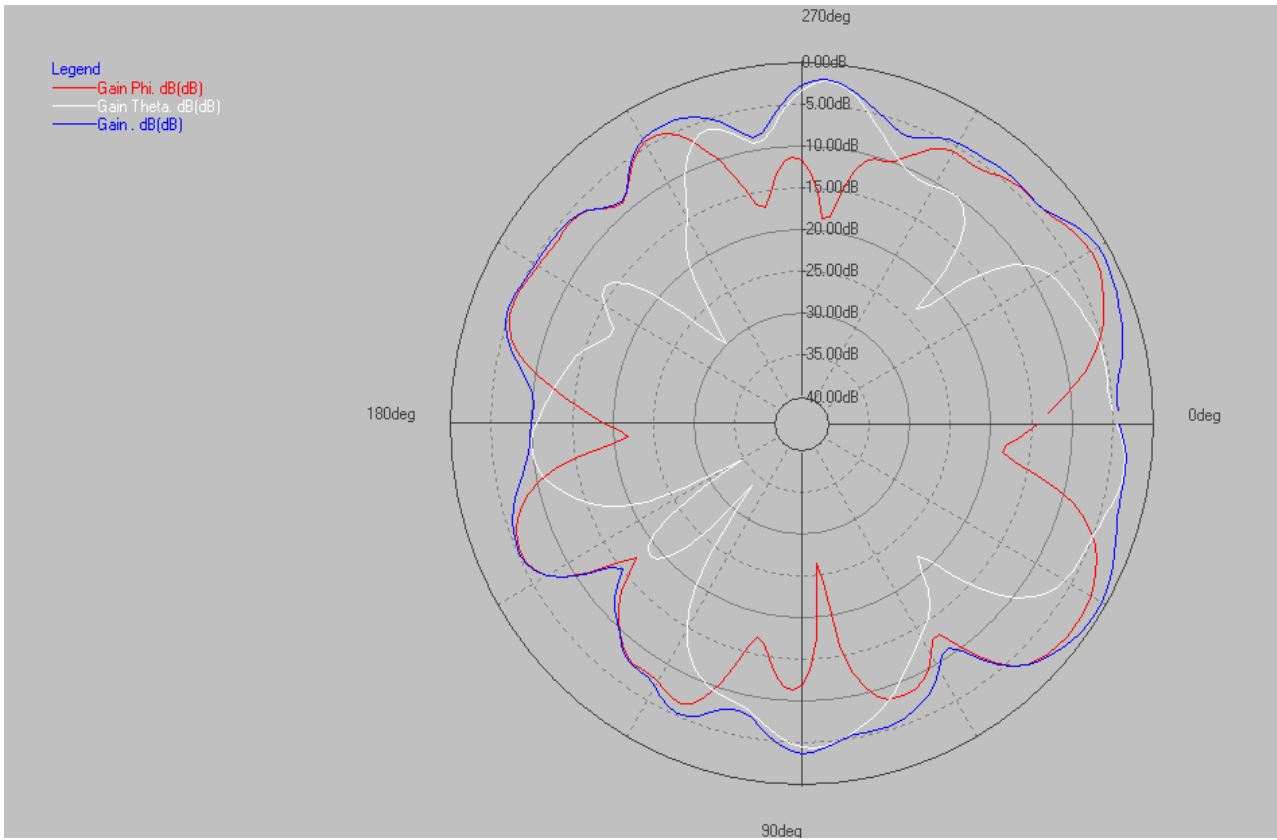
Center Frequency	<b>5850 MHz</b>
Horizontal (dBi) peak	<b>0.59</b>
Vertical (dBi) peak	<b>0.54</b>

**Tx2 antenna: 5785 MHz**



Center Frequency	<b>5785 MHz</b>
Horizontal (dBi) peak	<b>-1.93</b>
Vertical (dBi) peak	<b>-1.50</b>

**Tx2 antenna: 5850 MHz**



Center Frequency	<b>5850 MHz</b>
Horizontal (dBi) peak	<b>-2.31</b>
Vertical (dBi) peak	<b>-1.79</b>

## Section 4. Host Platform Information

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

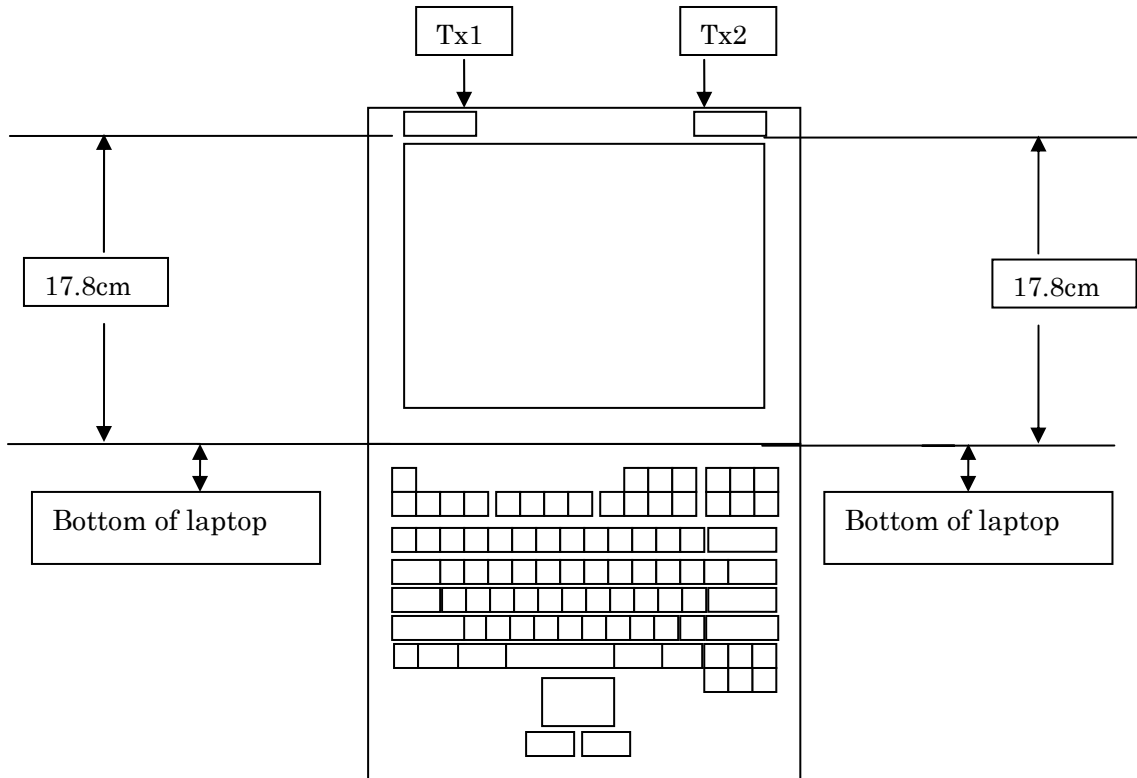
Rating Label Photo:



客户	
机种	READY TWO
品名	WLAN_ANTENNA
料号	
数量	
出货日期	
使用时间	
QC 检验	

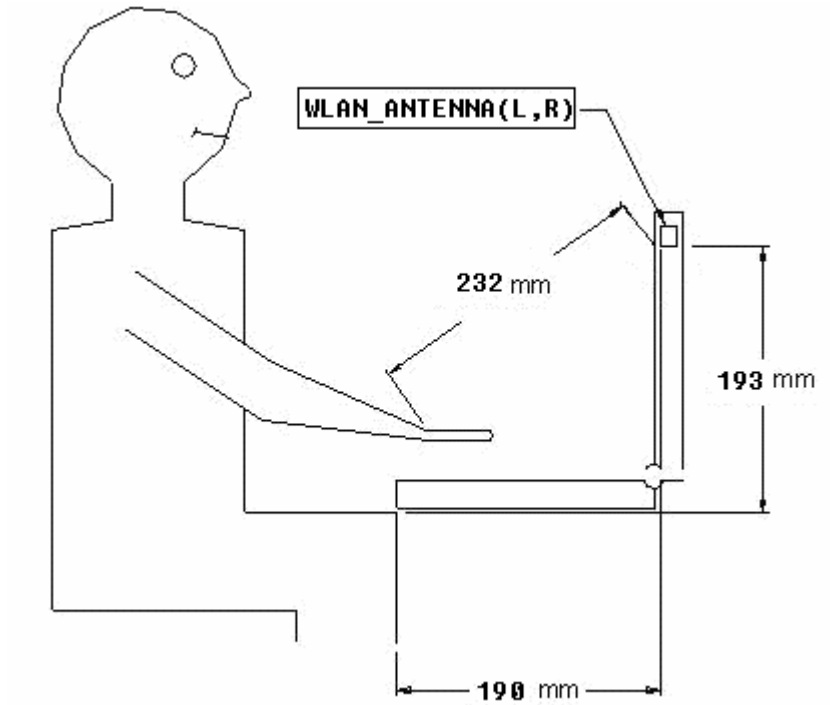
## Section 5. Antenna Host Platform Location Information

Include a **dimensioned photo or dimensioned drawing** of Tx1, Tx2 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

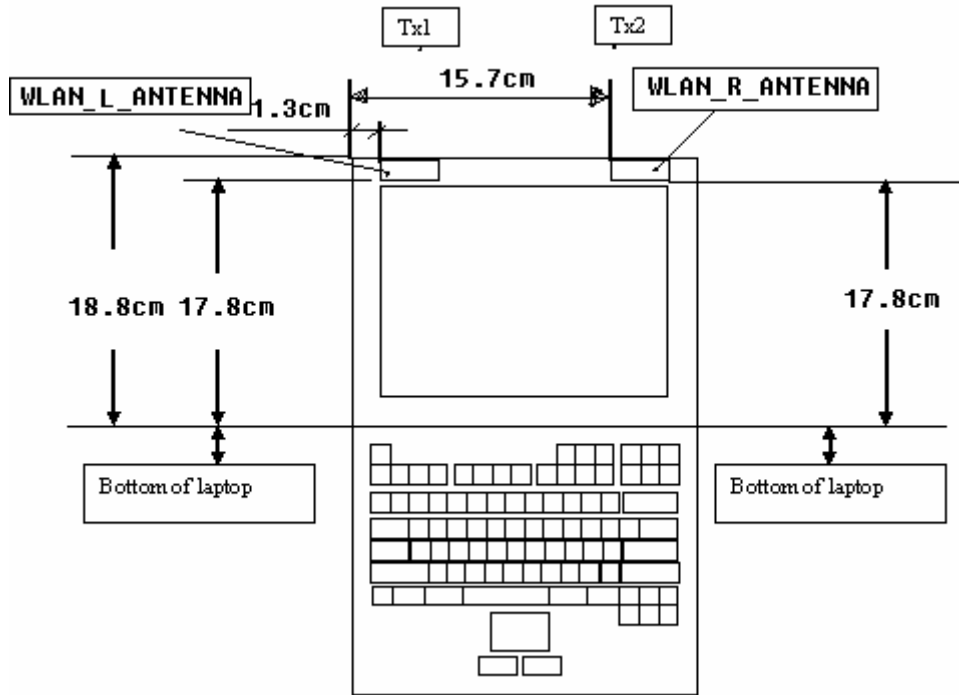
Include a **dimensioned photo or dimensioned drawing** showing the distance (mm) between the transmit antennas and the user (excluding hands, wrist, feet, lap/ thigh, and ankle)



## 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						