

Regulatory WLAN Antenna Information

Platform	
Platform Owner	Samsung
Brand Name	Samsung
Model Name	Pebble
ODM	
Target Launch Date	(YYYY/ MM/ DD)
Antenna	
Brand Name	WNC
Part Number	<input type="checkbox"/> Tx1 Antenna:81.EHD15.G09
	<input type="checkbox"/> Tx2 Antenna:81.EHD15.G10
Module	
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 3rd 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:81.EHD15.G09) Tx1 antenna	Wistron Neweb Corporation	PIFA	P/N: 1371409W(221) 50 ohm Coaxial. length: 409cm diameter: 1.37mm Connector: I-PEX	2400-2500MHz -0.31dBi (peak)	2400-2500MHz 1.39dBi (peak)	2400-2500MHz 2.0 max	2400-2500MHz 1.08 dBi (peak)
				2496-2690MHz 0.37dBi (peak)	2496-2690MHz 1.45dBi (peak)	2496-2690MHz 2.0 max	2496-2690MHz 1.08 dBi (peak)
				5150-5350MHz 0.54 dBi (peak)	5150-5350MHz 2.21 dBi (peak)	5150-5350MHz 2.5max	5150-5350MHz 1.67 dBi (peak)
				5470-5725MHz 1.38 dBi (peak)	5470-5725MHz 3.14 dBi (peak)	5470-5725MHz 2.5 max	5470-5725MHz 1.76 dBi (peak)
				5725-5850MHz 0.92 dBi (peak)	5725-5850MHz 2.71 dBi (peak)	5725-5850MHz 2.5 max	5725-5850MHz 1.79 dBi (peak)
(P/N: 81.EHD15.G10) Tx2 (or Rx2 for 512 family) antenna	Wistron Neweb Corporation	PIFA	P/N: 1371557W(221) 50 ohm Coaxial. length: 557cm diameter: 1.37mm Connector: I-PEX	2400-2500MHz -1.21 dBi (peak) *	2400-2500MHz 0.18 dBi (peak) *	2400-2500MHz 2.0 max *	2400-2500MHz 1.39dBi (peak) *
				2496-2690MHz -1.19 dBi (peak)	2496-2690MHz 0.20 dBi (peak)	2496-2690MHz 2.0 max	2496-2690MHz 1.39 dBi (peak)
				5150-5350MHz 0.47 dBi (peak) *	5150-5350MHz 2.65 dBi (peak) *	5150-5350MHz 2.5 max *	5150-5350MHz 2.18 dBi (peak) *
				5470-5725MHz 0.41 dBi (peak) *	5470-5725MHz 2.72 dBi (peak) *	5470-5725MHz 2.5 max *	5470-5725MHz 2.31 dBi (peak) *
				5725-5850MHz -0.81 dBi (peak) *	5725-5850MHz 1.53 dBi (peak) *	5725-5850MHz 2.5 max *	5725-5850MHz 2.34 dBi (peak) *

NOTE:

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

Antenna Peak Gain Table:

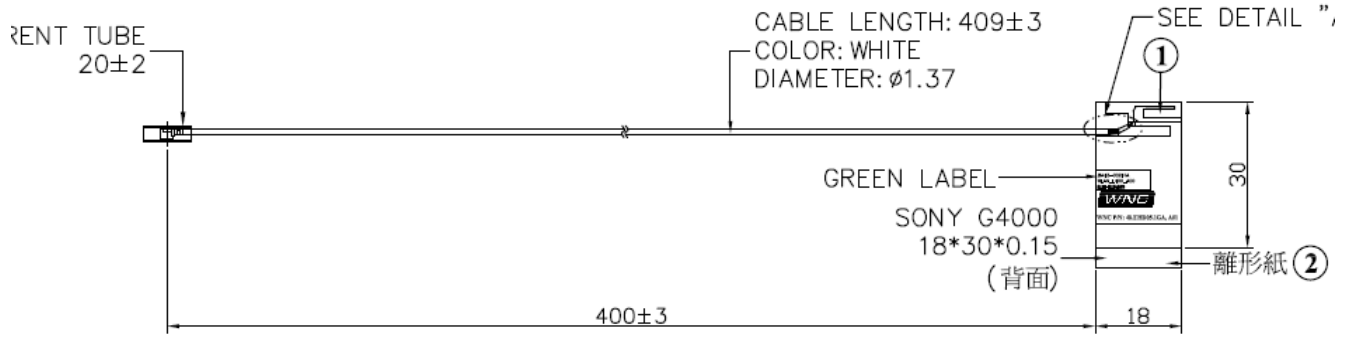
Frequency (MHz)	Tx1 antenna			Tx2 (or Rx2) Antenna		
	Horizontal (dBi)	Vertical (dBi)	Total (dBi)	Horizontal (dBi)	Vertical (dBi)	Total (dBi)
2400	-2.61	-1.05	0.9	-4.22	-2.41	-1.17
2450	-1.88	-1.23	0.78	-4.17	-3.38	-0.75
2500	-1.42	-0.31	1.86	-2.39	-1.21	1.19
2501	-1.47	0.25	1.8	-2.52	-1.19	1.08
2593	-3	0.37	1.34	-3.45	-2.08	-0.59
2685	-4.47	-1.62	-1.04	-5.98	-5.21	-4.53
5150	-0.07	-0.32	1.86	-2.58	-1.4	-0.63
5250	-0.97	-0.48	1.02	-2.63	-0.51	0.31
5350	-0.94	0.54	1.84	-3.58	0.47	0.64
5470	-1.02	0.58	2.07	-4.24	0.41	0.69
5600	-1.72	0.53	1.51	-3.06	-1.11	-0.66
5725	-1.08	1.38	1.87	-2.49	-1.61	0.29
5785	-1.83	0.92	1.2	-2.91	-0.81	0.45
5850	-4.11	0.12	0.37	-3.35	-1.03	0.02

- Antenna Peak Gain required being test in system basis.
- 1E frame contend absolutely peak antenna gain include H/V
- If Rx2 only (2nd antenna receives only, e.g. for 512 family) then the information is not required for Rx2.
- If Rx3 only (3rd 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:

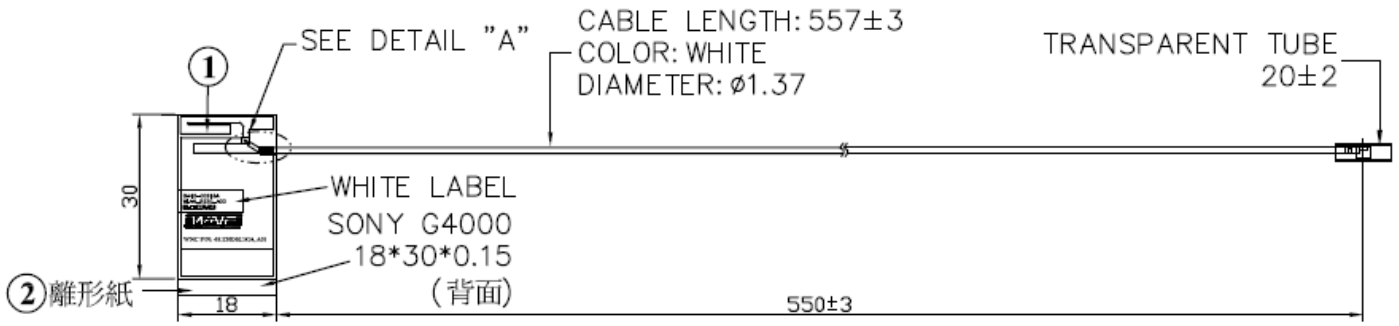


Tx1 Antenna Photo:



Include a dimensioned photo and dimensioned drawing of Tx2 (or Rx2) antenna here.

Tx2 (or Rx2) Antenna Dimensioned Drawing:



Tx2 (or Rx2) Antenna Photo:



Include front view photo of all 2 antennas here.

Antenna Manufacturer: Wistron Neweb Corportation

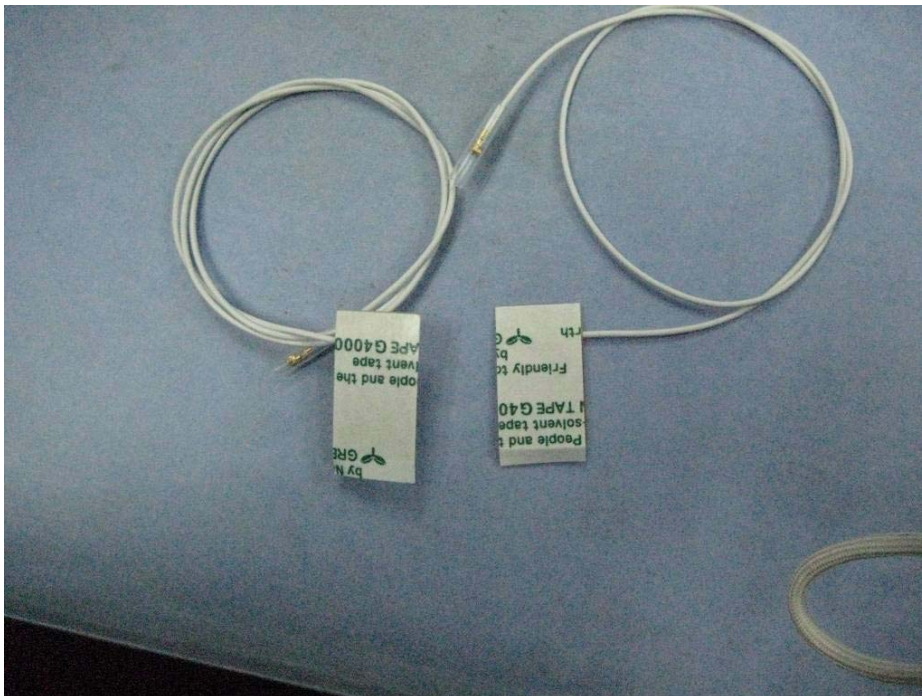
Antenna Part Number: 81.EHD15.G09 (Tx1), 81.EHD15.G10 (Tx2 or Rx2),



Include back view photo of all 2 antennas here.

Antenna Manufacturer: Wistron Neweb Corportation

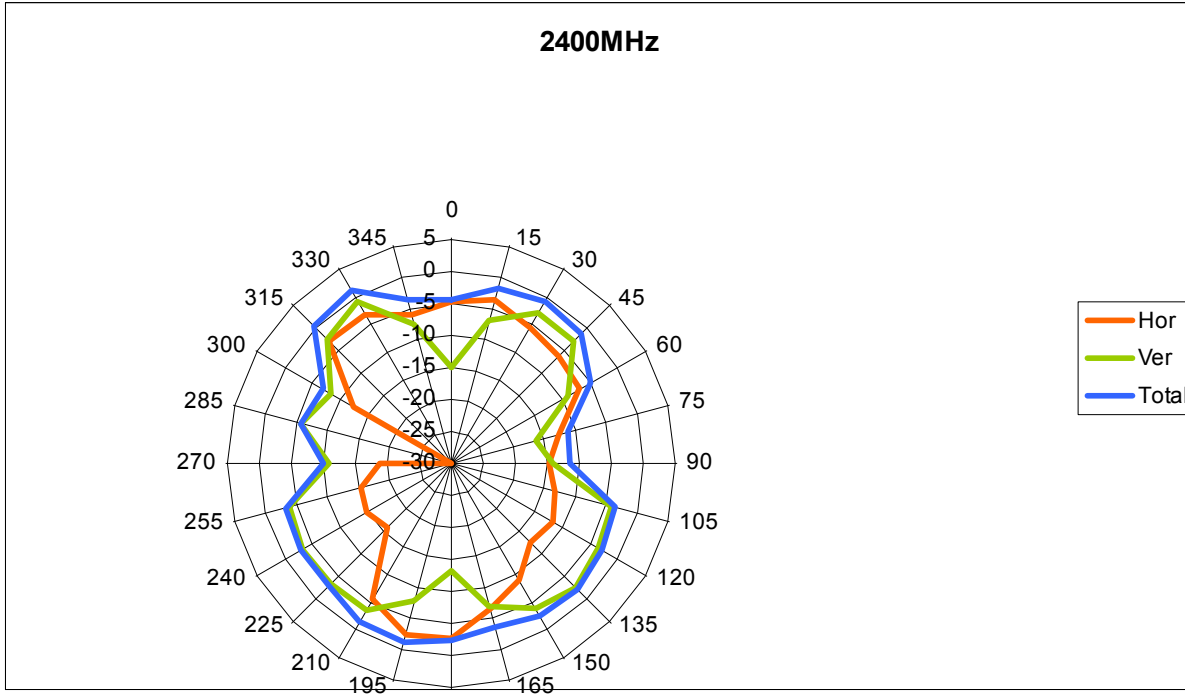
Antenna Part Number: 81.EHD15.G09 (Main), 81.EHD15.G10 (Aux)



Section 3. Radiation characteristics of antennae Loaded in Host Platform

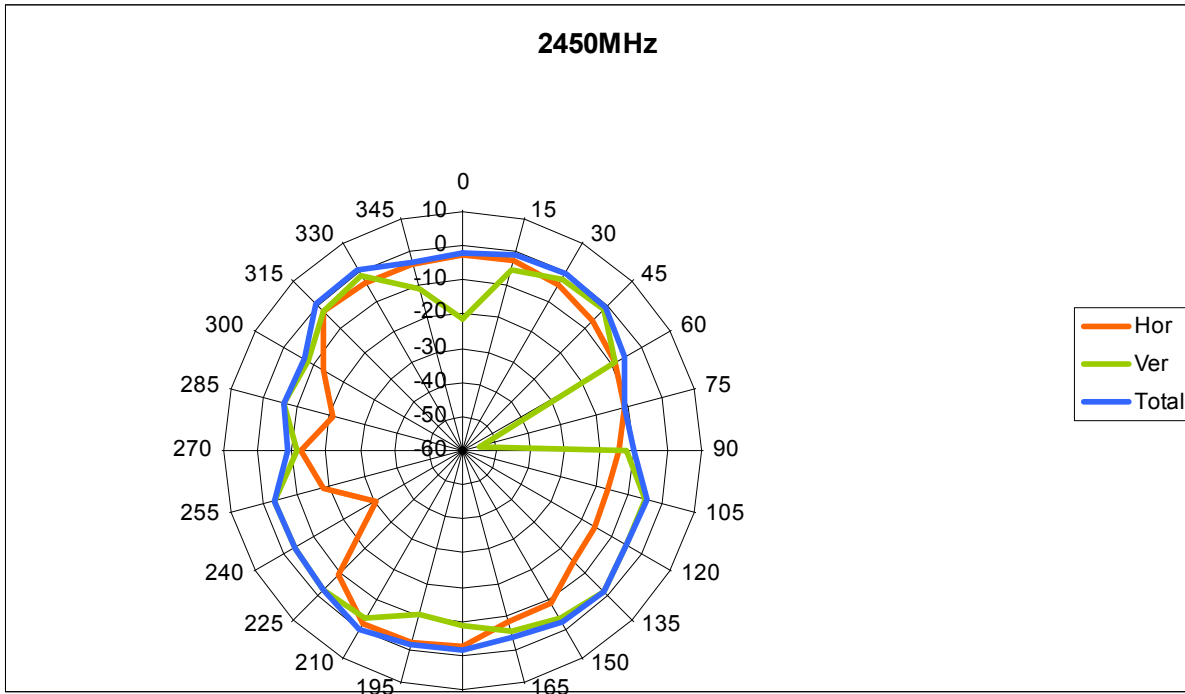
2400-2500MHz radiation characteristic

Tx1 antenna: 2400 MHz



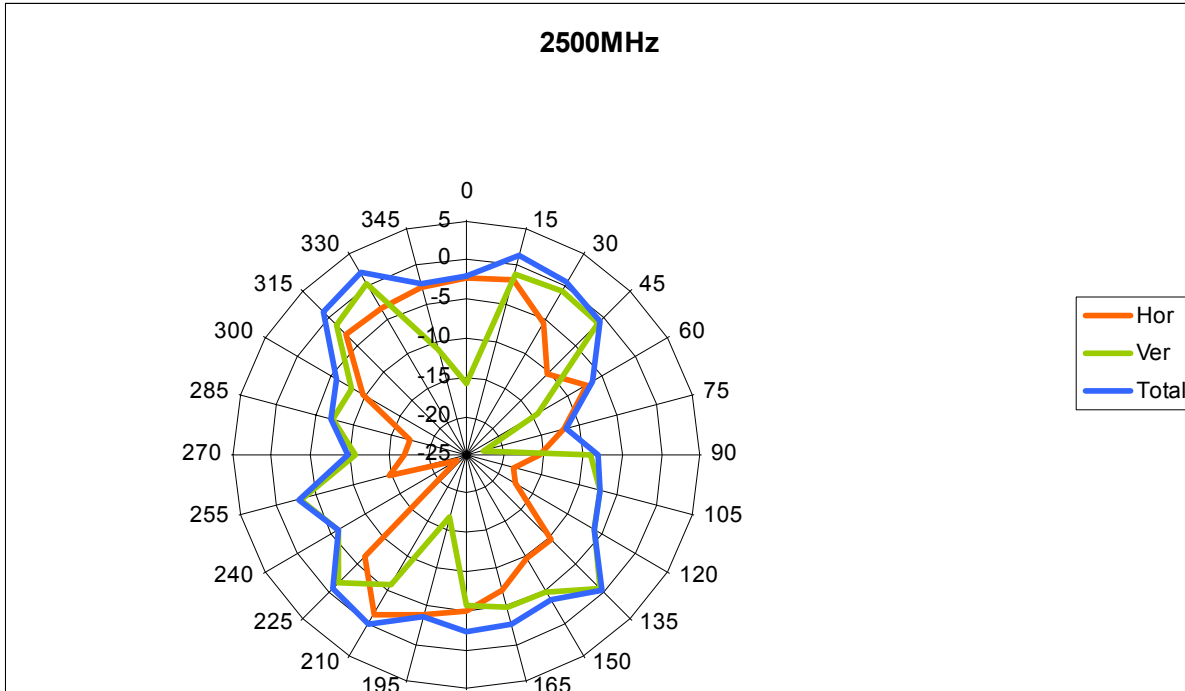
Center Frequency	2400 MHz
Horizontal (dBi) peak	-2.61
Vertical (dBi) peak	-1.05

Tx1 antenna: 2450 MHz



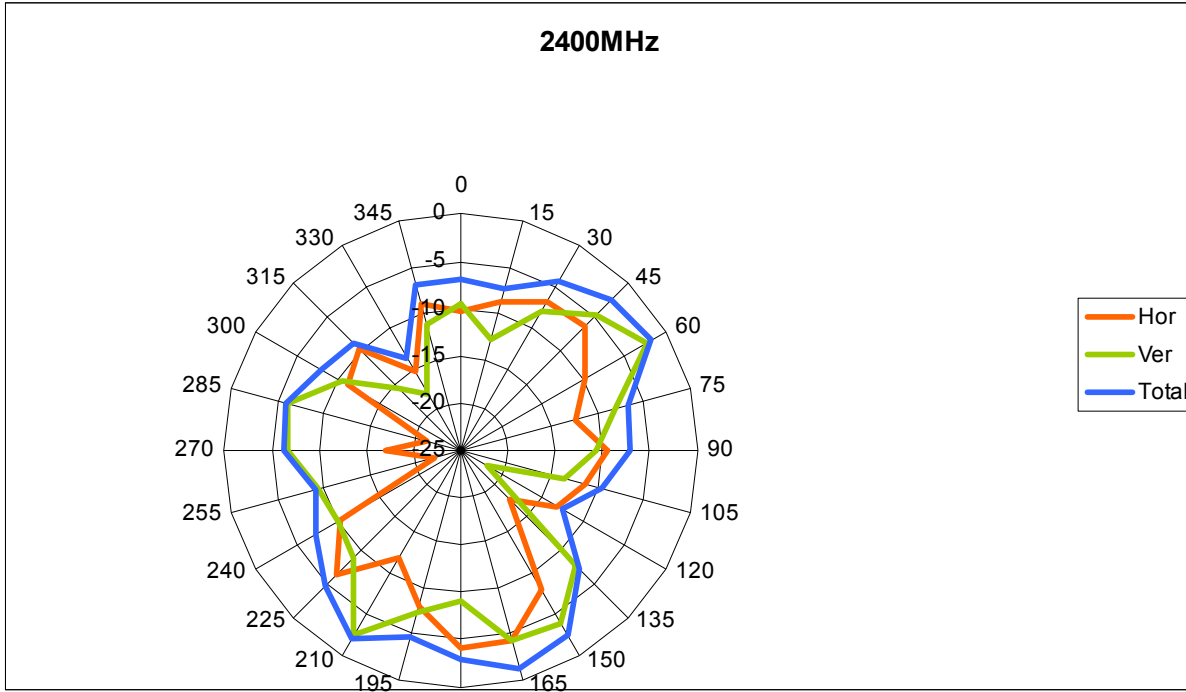
Center Frequency	2450 MHz
Horizontal (dBi) peak	-1.88
Vertical (dBi) peak	-1.23

Tx1 antenna: 2500MHz



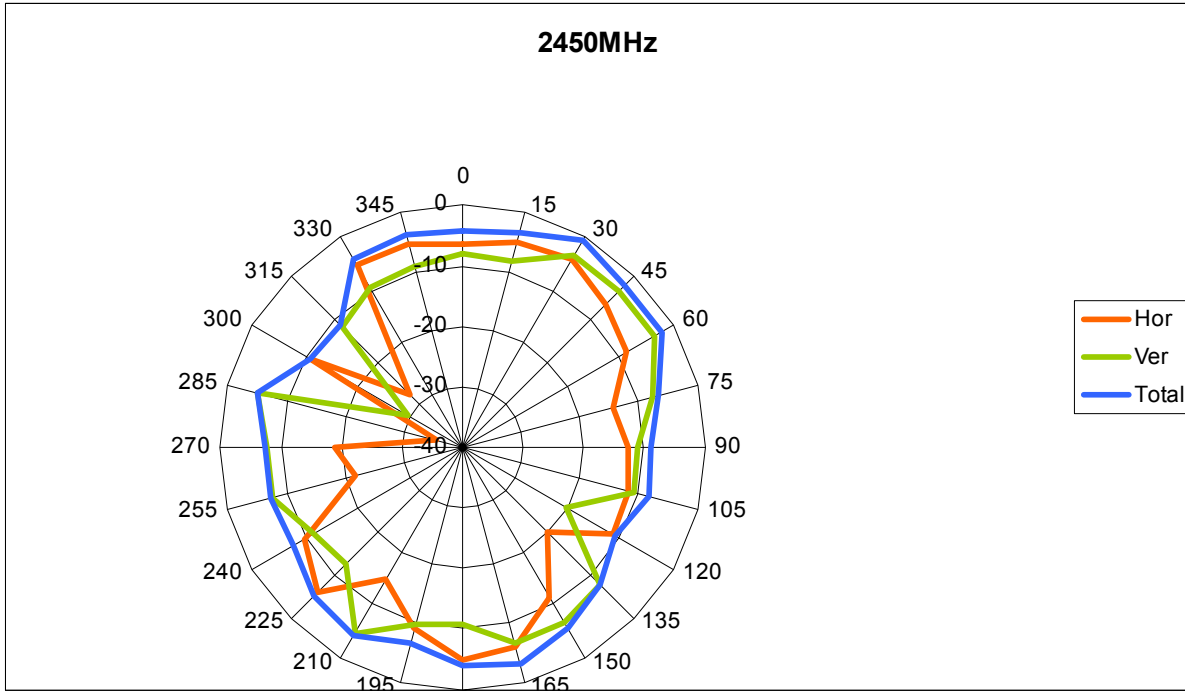
Center Frequency	2500 MHz
Horizontal (dBi) peak	-1.42
Vertical (dBi) peak	-0.31

Tx2 (or Rx2) antenna: 2400 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



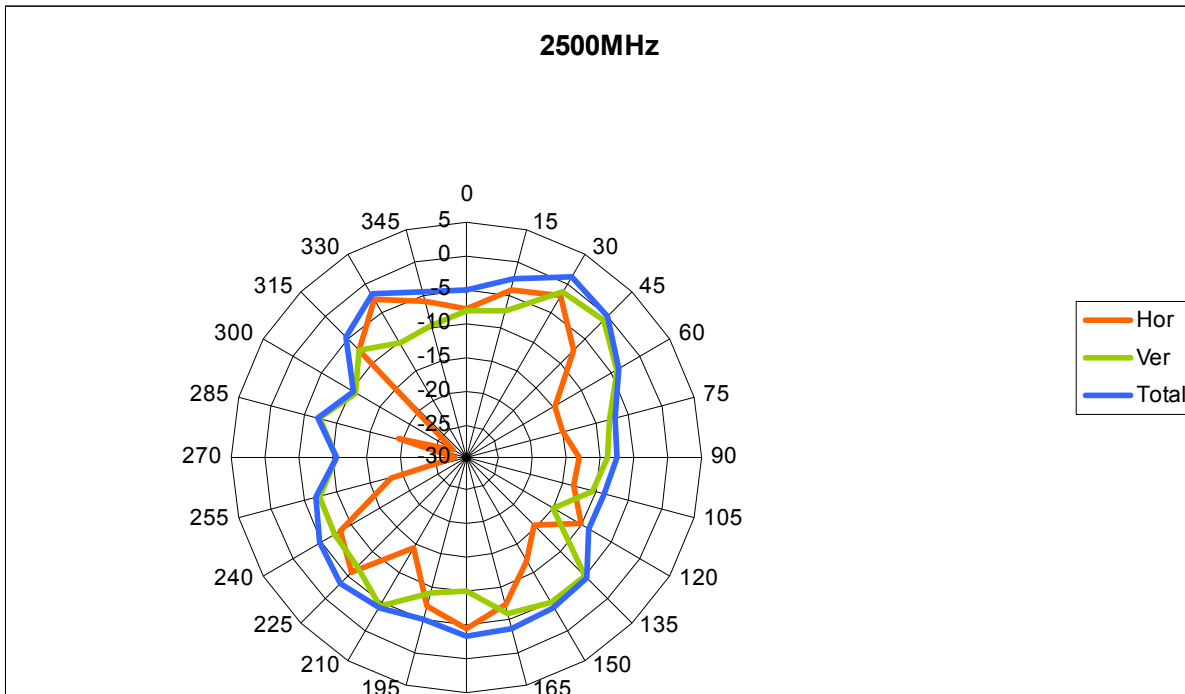
Center Frequency	2400 MHz
Horizontal (dBi) peak	-4.22
Vertical (dBi) peak	-2.41

Tx2 (or Rx2) antenna: 2450MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	2450MHz
Horizontal (dBi) peak	-4.17
Vertical (dBi) peak	-3.38

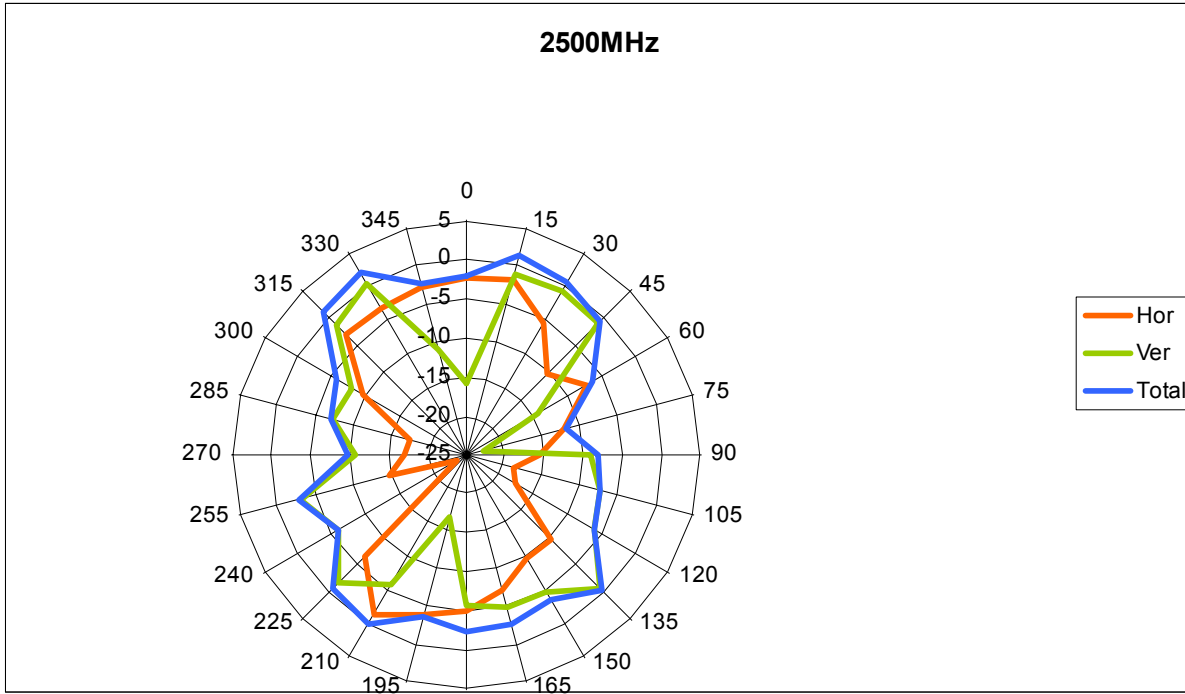
Tx2 (or Rx2) antenna: 2500 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	2500 MHz
Horizontal (dBi) peak	-2.39
Vertical (dBi) peak	-1.21

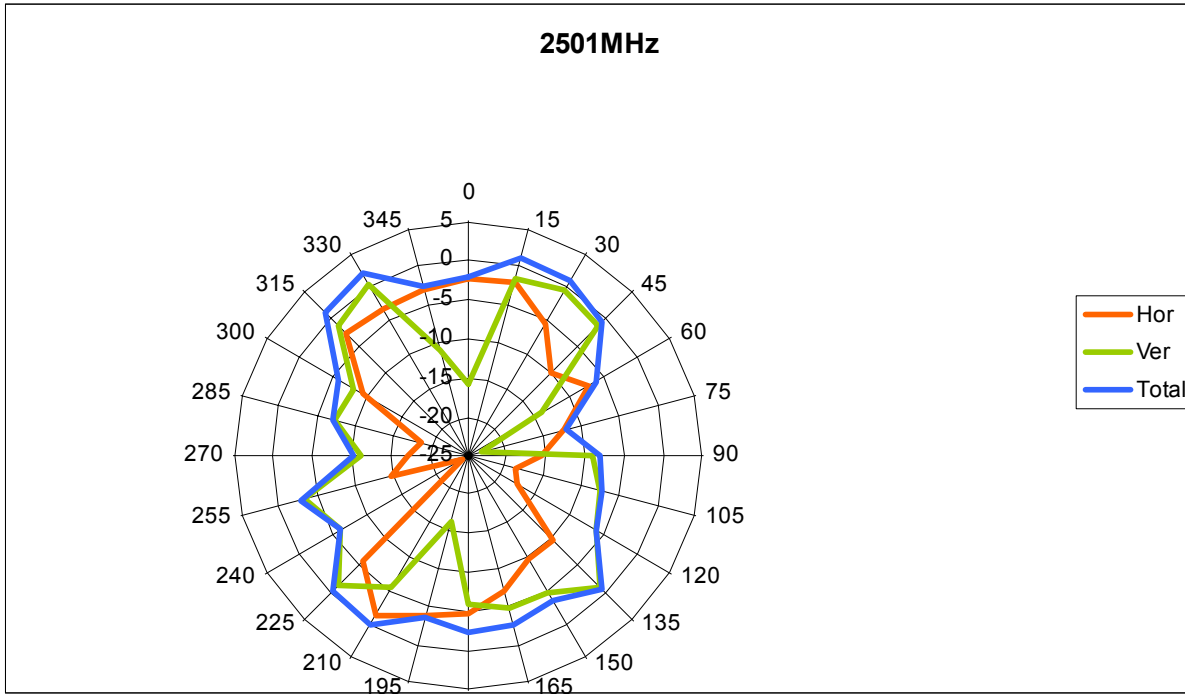
2496-2690MHz radiation characteristic

Tx1 antenna: 2500MHz



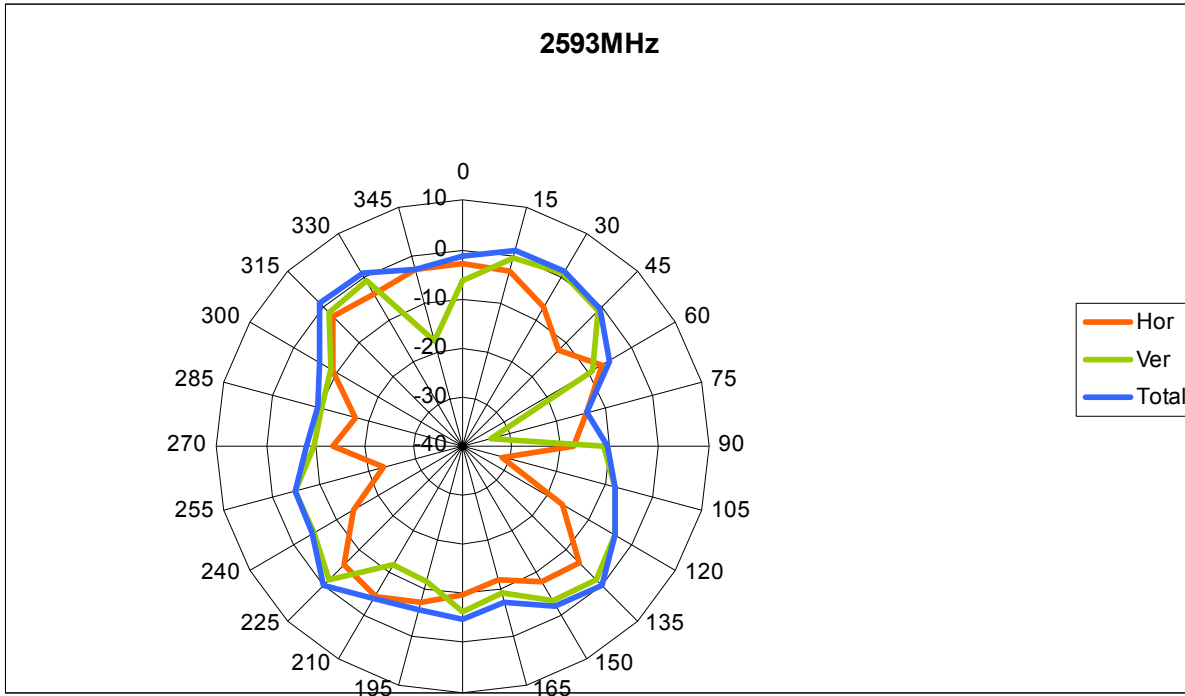
Center Frequency	2500 MHz
Horizontal (dBi) peak	-1.42
Vertical (dBi) peak	-0.31

Tx1 antenna: 2501MHz



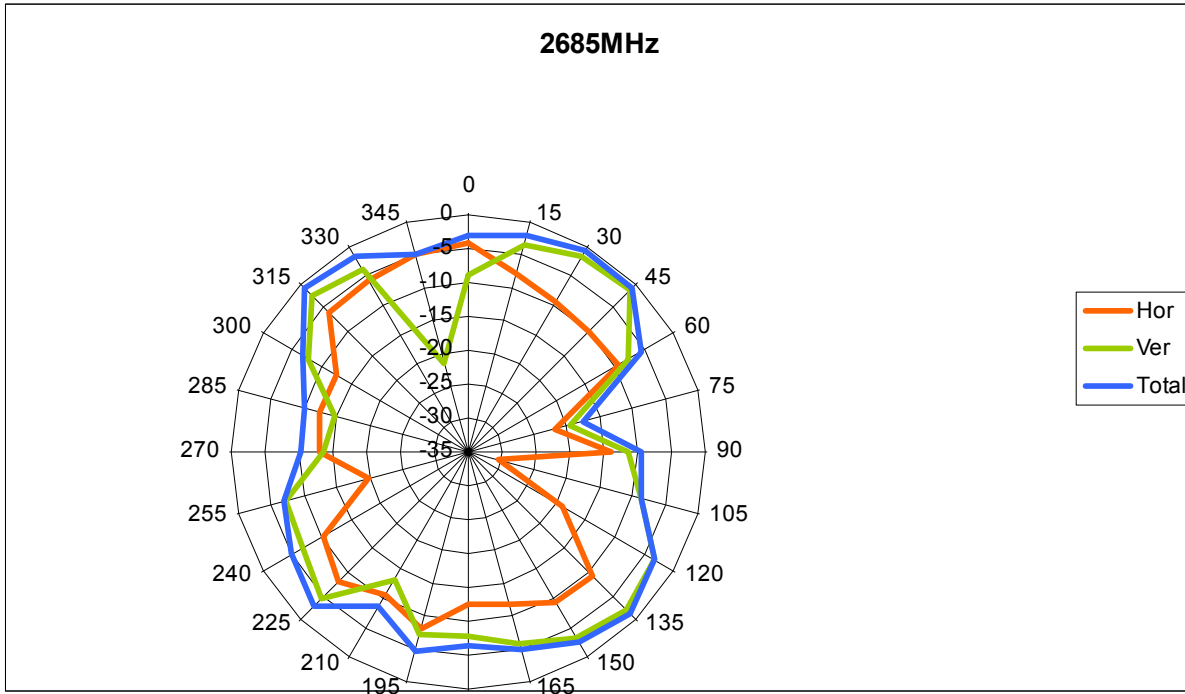
Center Frequency	2501 MHz
Horizontal (dBi) peak	-1.47
Vertical (dBi) peak	0.25

Tx1 antenna: 2593MHz



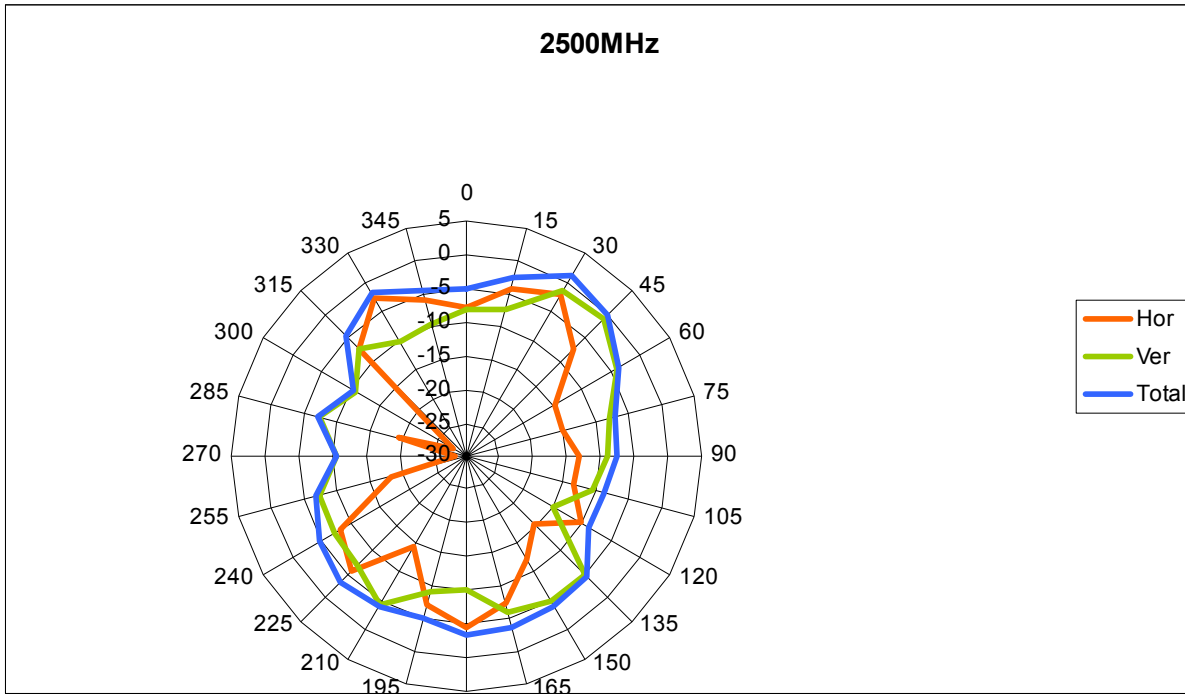
Center Frequency	2593 MHz
Horizontal (dBi) peak	-3.00
Vertical (dBi) peak	0.37

Tx1 antenna: 2685MHz



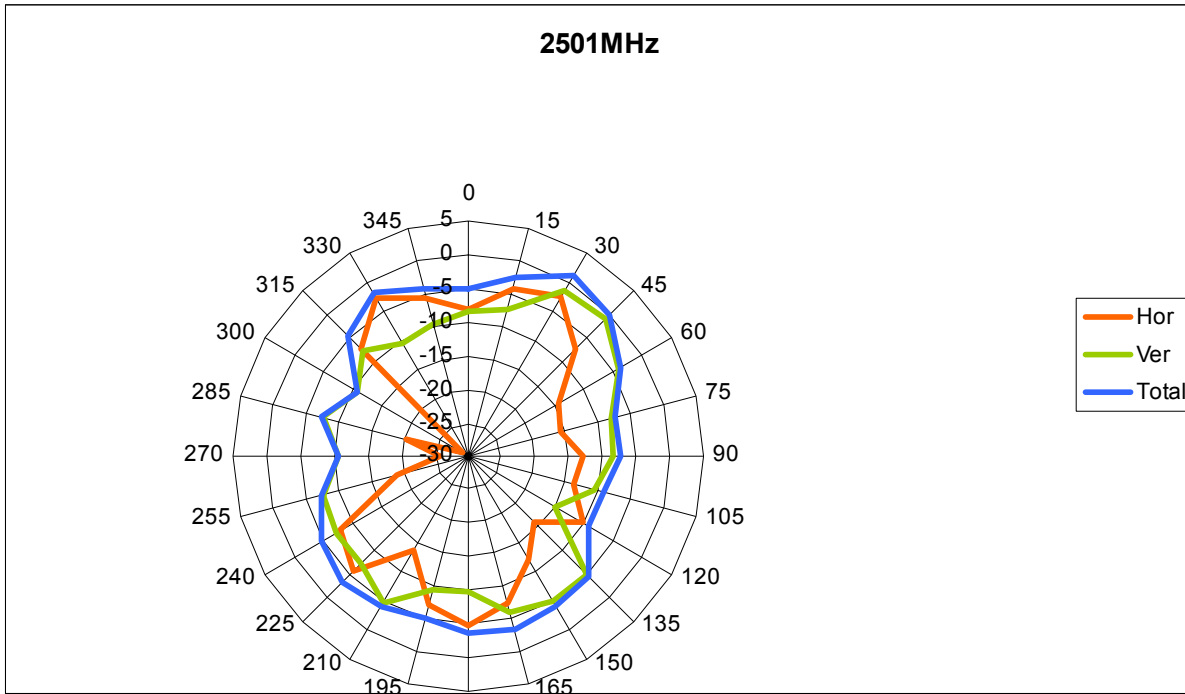
Center Frequency	2685 MHz
Horizontal (dBi) peak	-4.47
Vertical (dBi) peak	-1.62

Tx2 (or Rx2) antenna: 2500 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



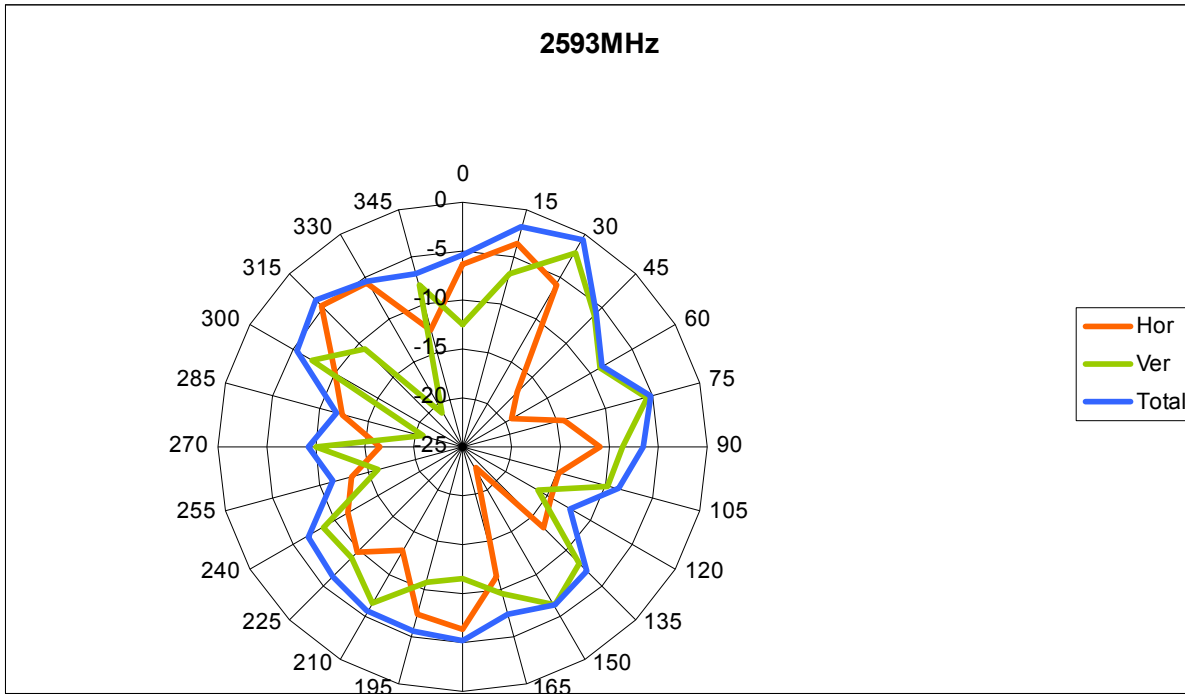
Center Frequency	2500 MHz
Horizontal (dBi) peak	-2.39
Vertical (dBi) peak	-1.21

Tx2 (or Rx2) antenna: 2501MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



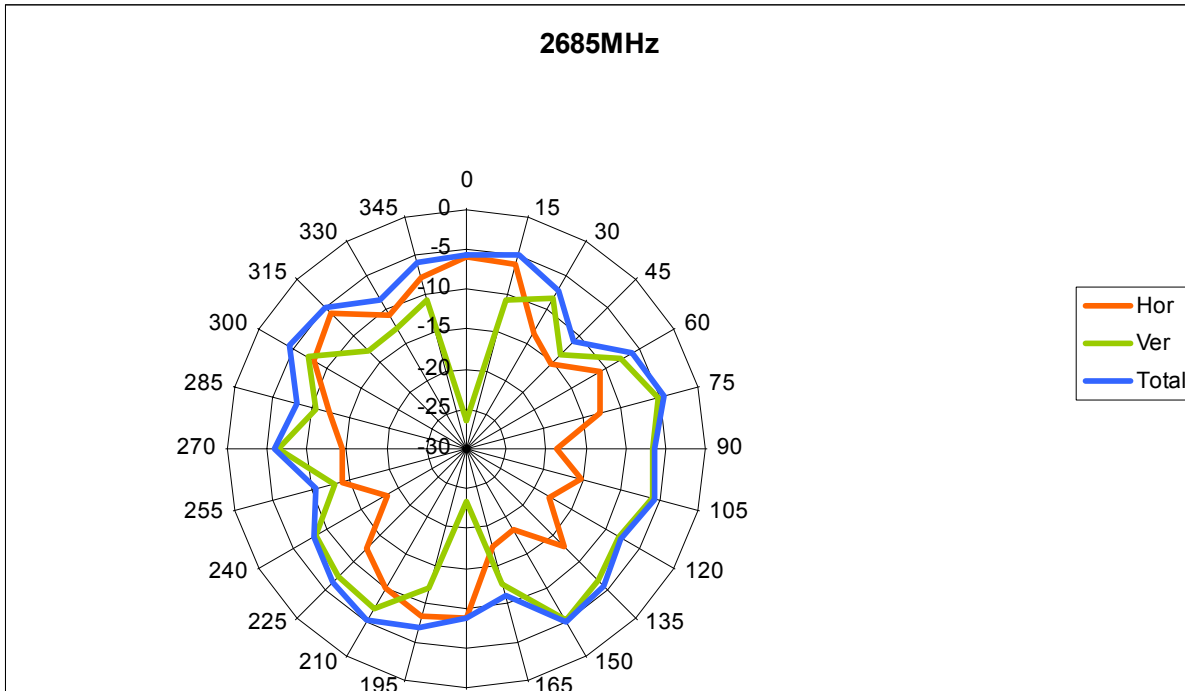
Center Frequency	2501 MHz
Horizontal (dBi) peak	-2.52
Vertical (dBi) peak	-1.19

Tx2 (or Rx2) antenna: 2593MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	2593 MHz
Horizontal (dBi) peak	-3.45
Vertical (dBi) peak	-2.08

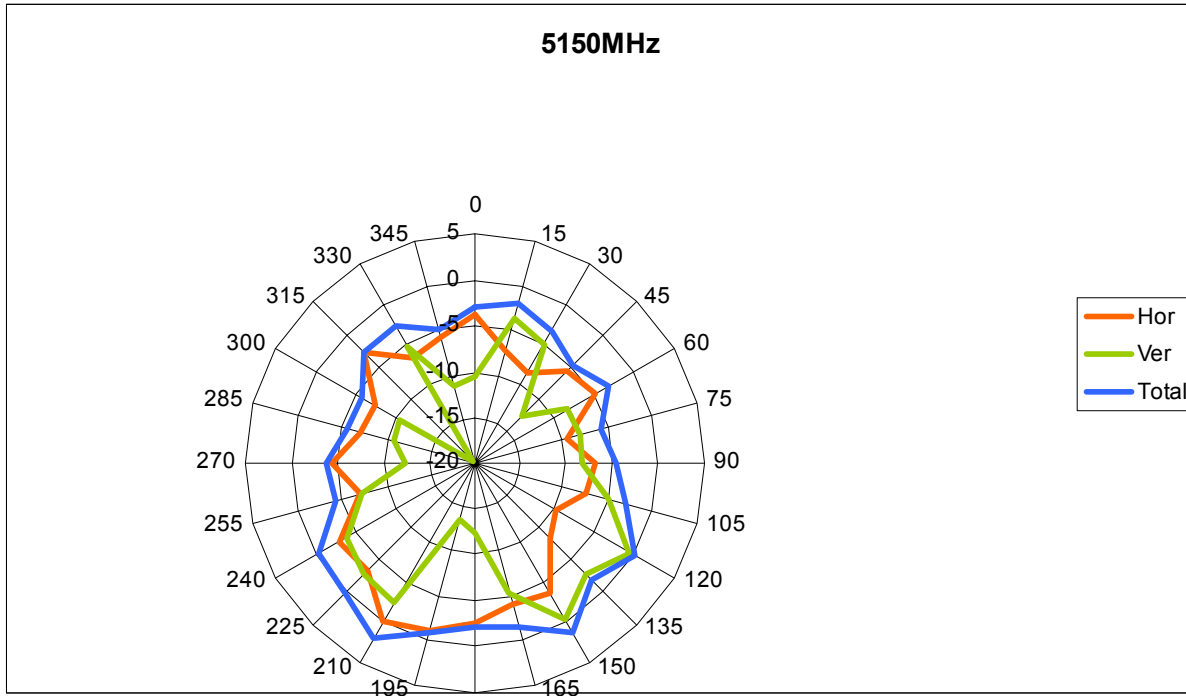
Tx2 (or Rx2) antenna: 2685MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	2685 MHz
Horizontal (dBi) peak	-5.98
Vertical (dBi) peak	-5.21

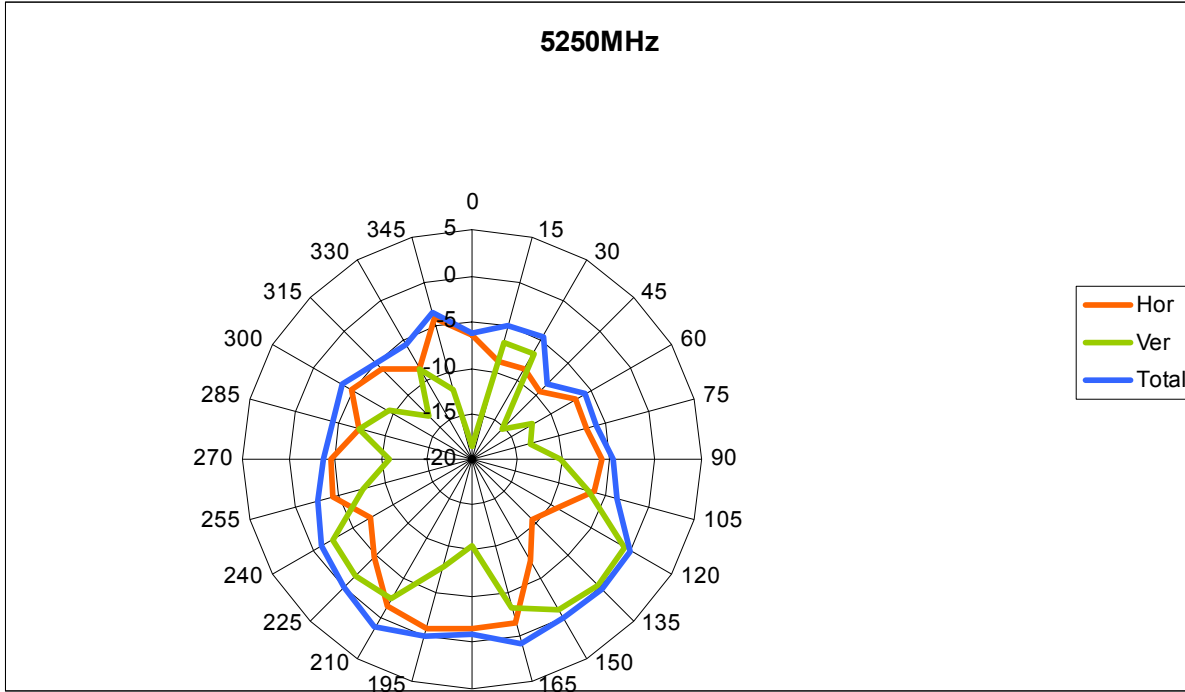
5150-5350 MHz radiation characteristic

Tx1 antenna: 5150 MHz



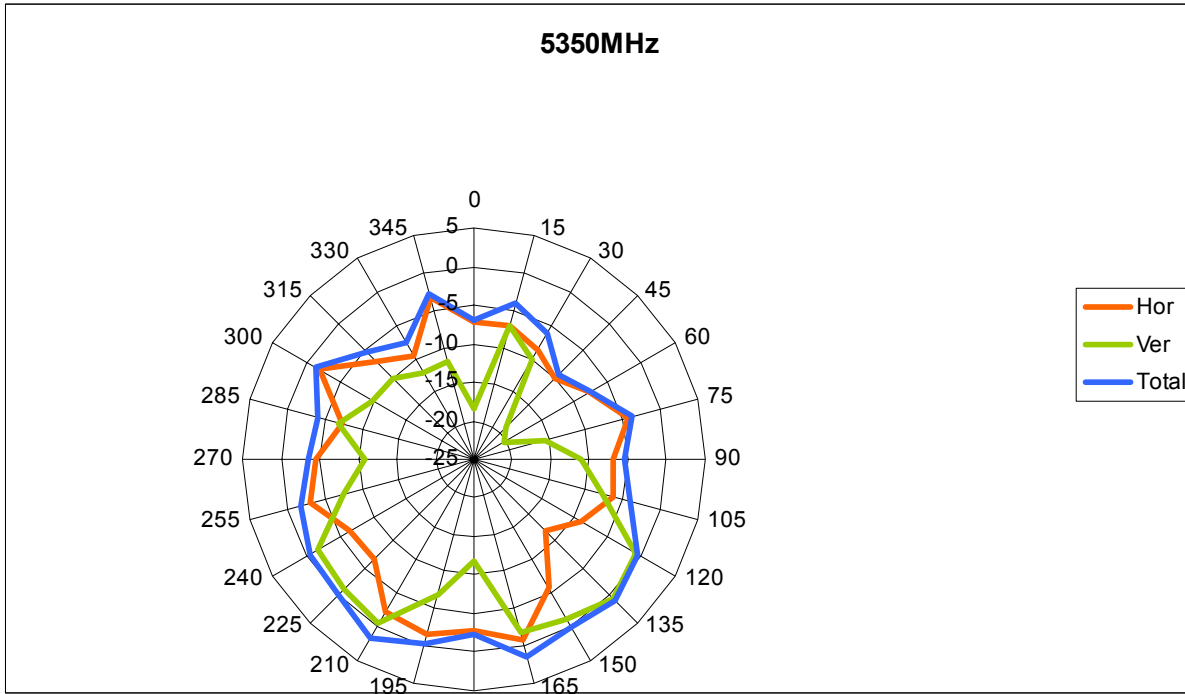
Center Frequency	5150 MHz
Horizontal (dBi) peak	-0.07
Vertical (dBi) peak	-0.32

Tx1 antenna: 5250 MHz



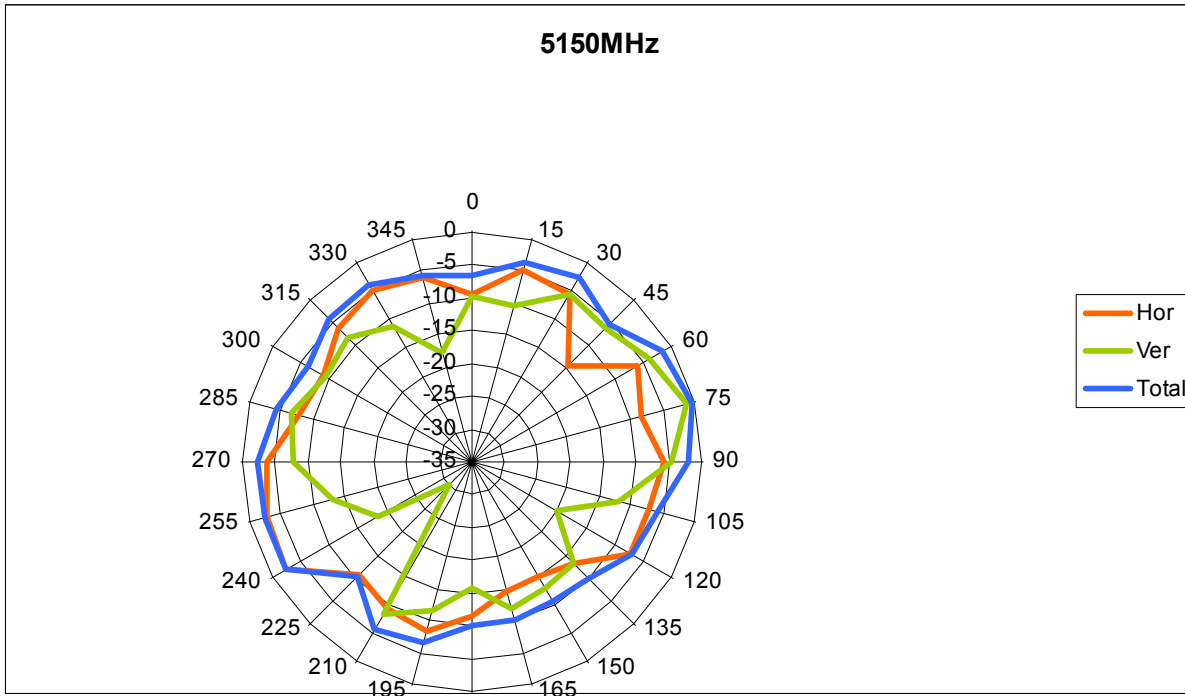
Center Frequency	5250 MHz
Horizontal (dBi) peak	-0.97
Vertical (dBi) peak	-0.48

Tx1 antenna: 5350 MHz



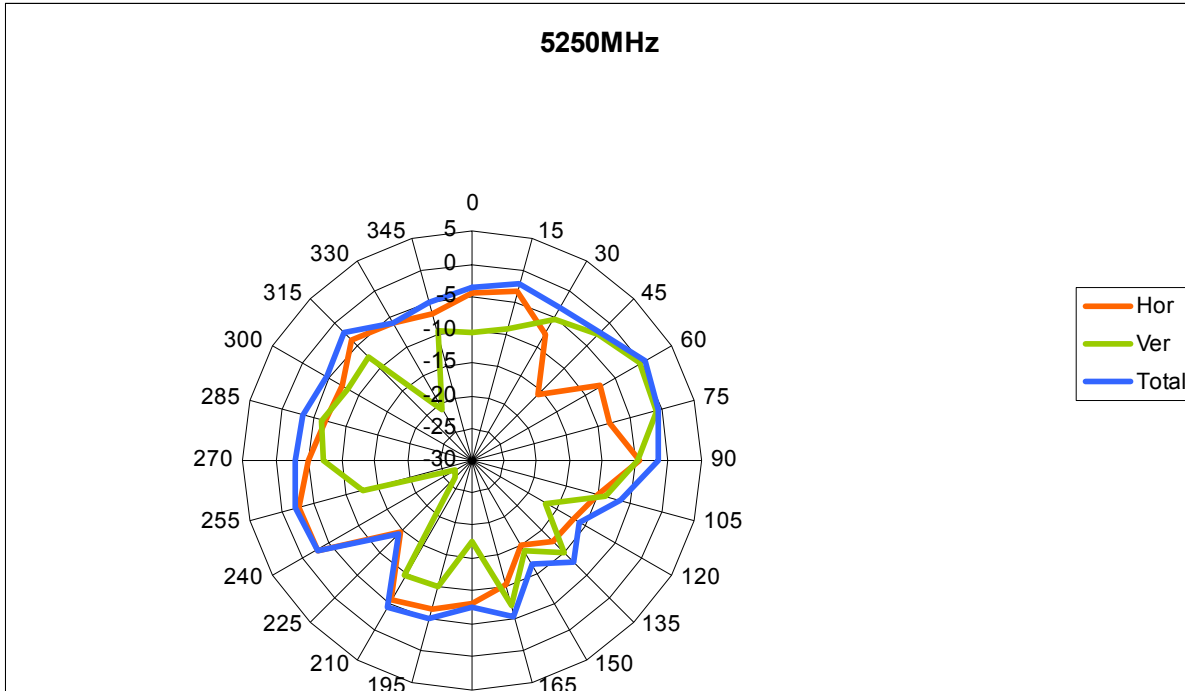
Center Frequency	5350 MHz
Horizontal (dBi) peak	-0.94
Vertical (dBi) peak	0.54

Tx2 (or Rx2) antenna: 5150 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



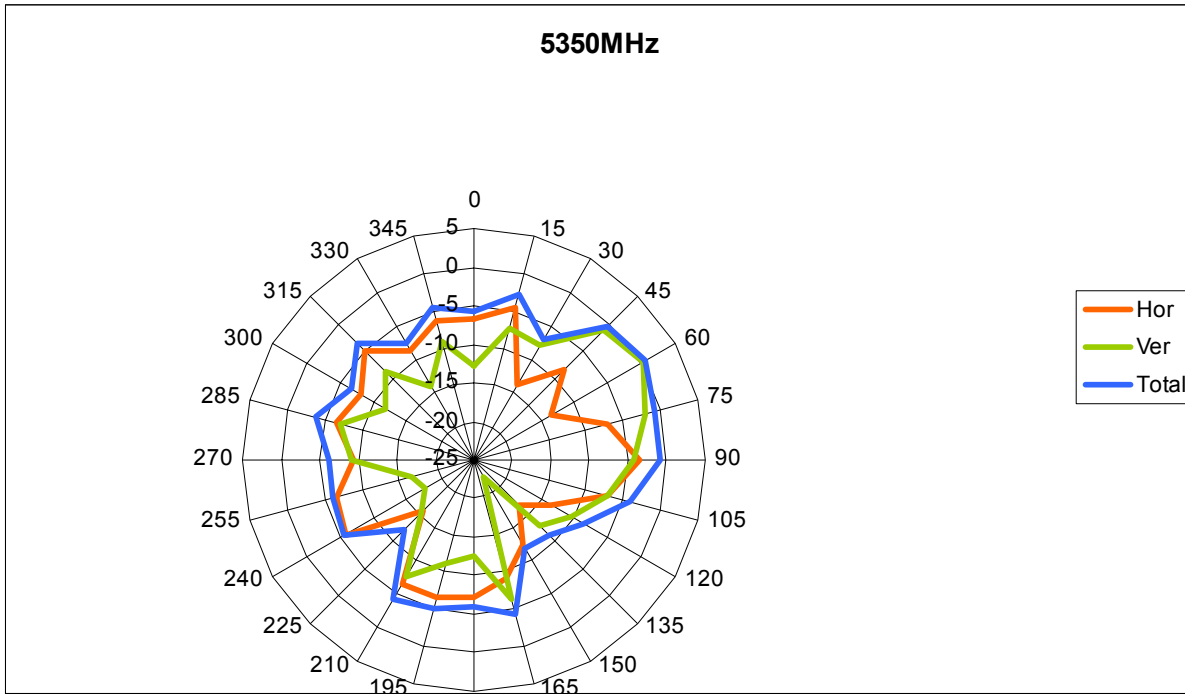
Center Frequency	5150 MHz
Horizontal (dBi) peak	-2.58
Vertical (dBi) peak	-1.4

Tx2 (or Rx2) antenna: 5250 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	5250 MHz
Horizontal (dBi) peak	-2.63
Vertical (dBi) peak	-0.51

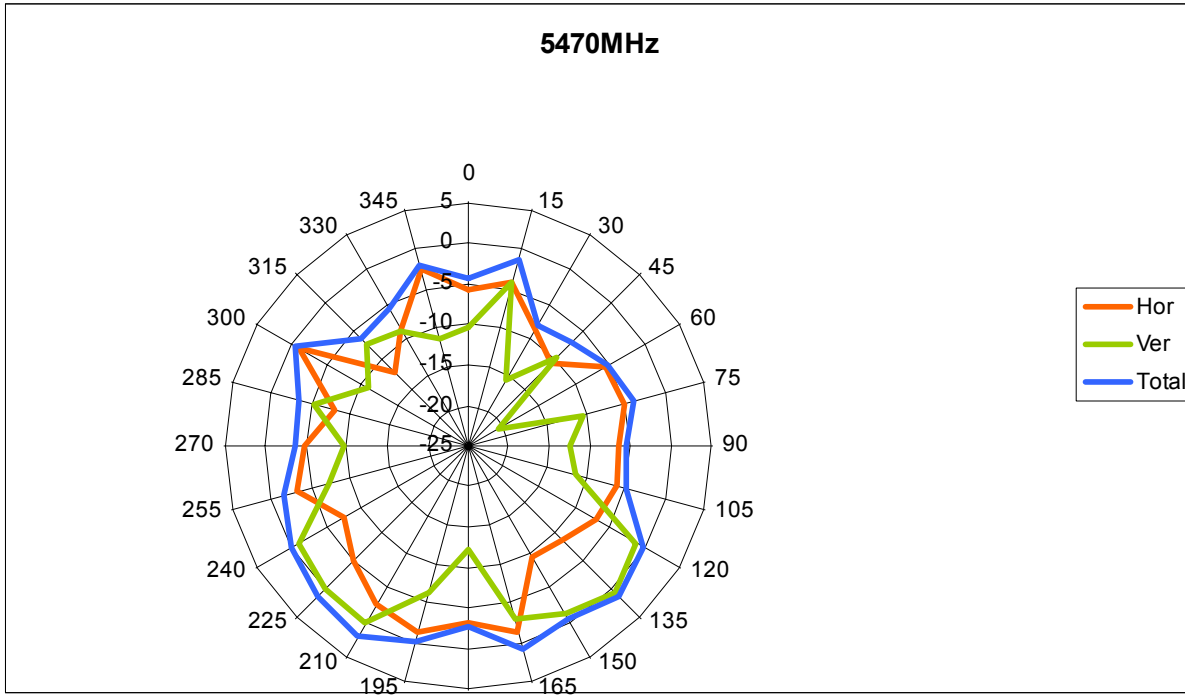
Tx2 (or Rx2) antenna: 5350 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	5350 MHz
Horizontal (dBi) peak	-3.58
Vertical (dBi) peak	0.47

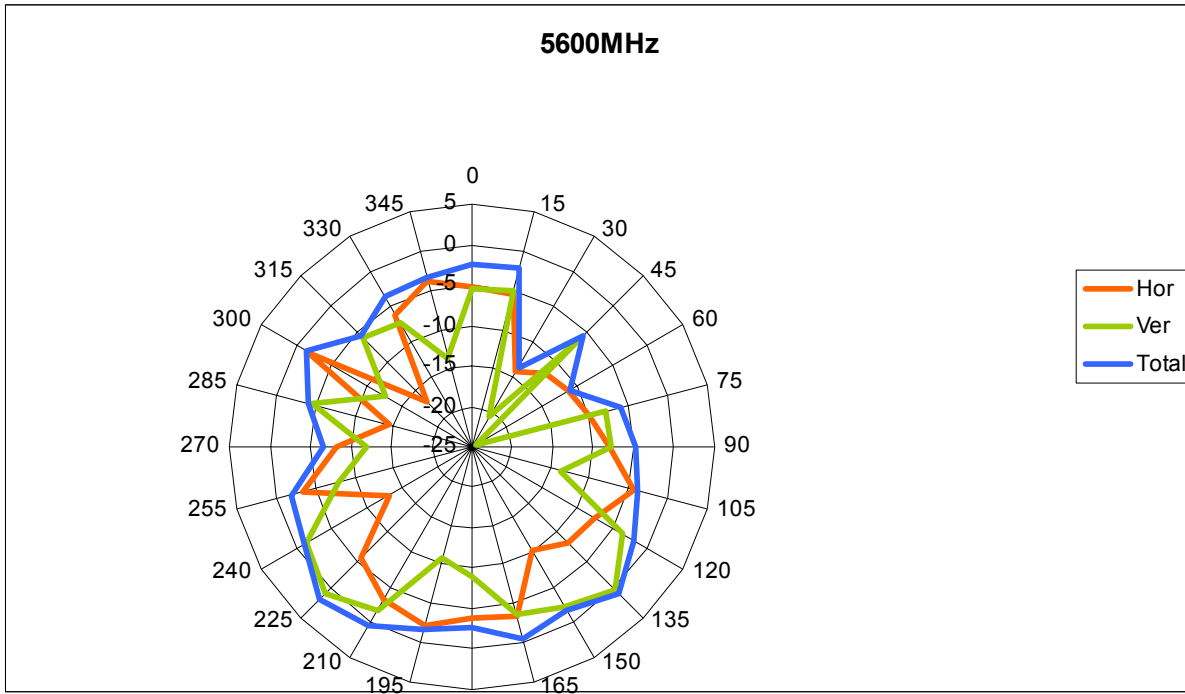
5470-5725MHz radiation characteristic

Tx1 antenna: 5470 MHz



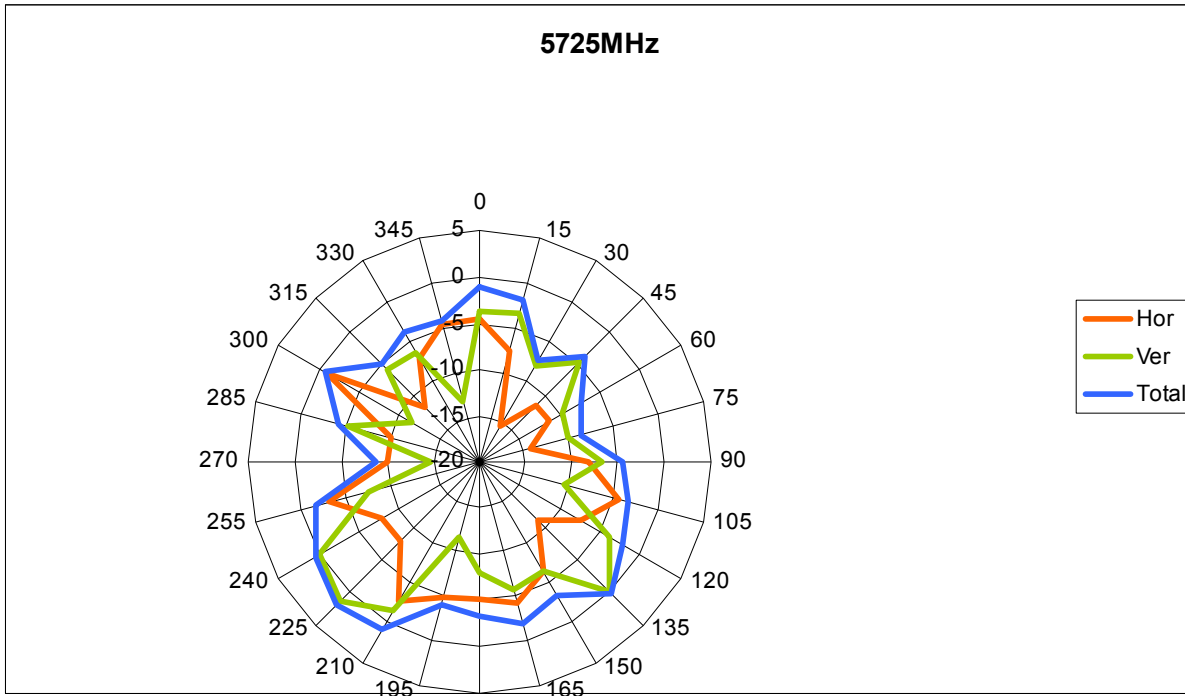
Center Frequency	5470 MHz
Horizontal (dBi) peak	-1.02
Vertical (dBi) peak	0.58

Tx1 antenna: 5600 MHz



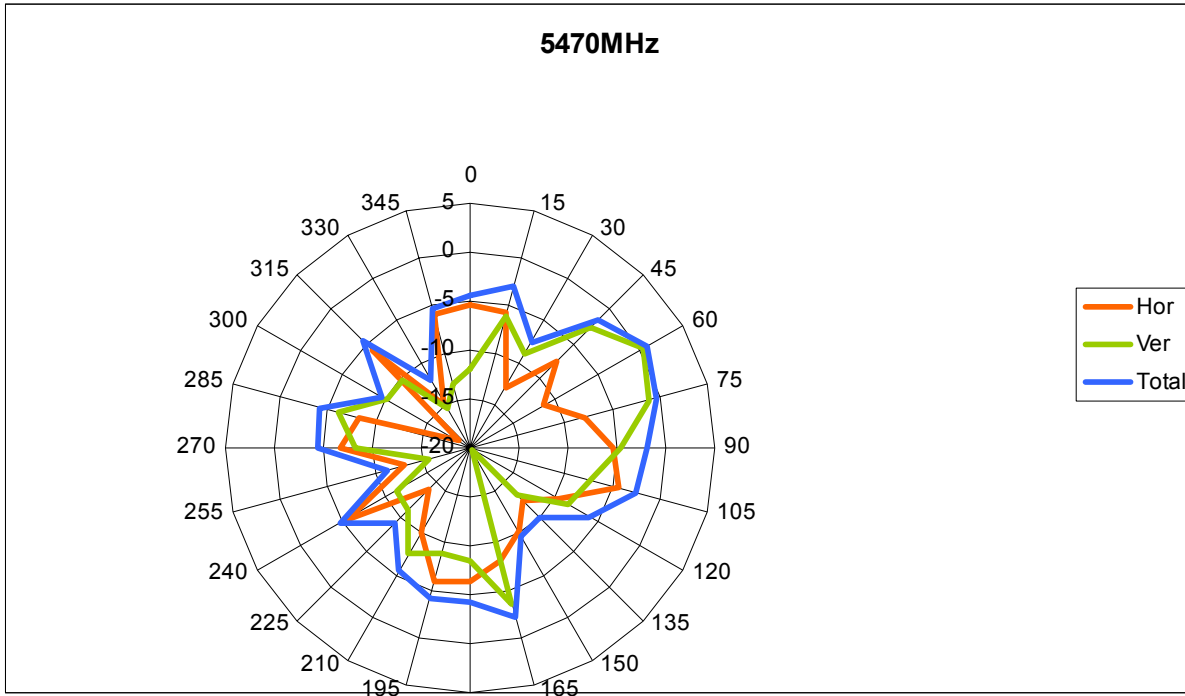
Center Frequency	5600 MHz
Horizontal (dBi) peak	-1.72
Vertical (dBi) peak	0.53

Tx1 antenna: 5725 MHz



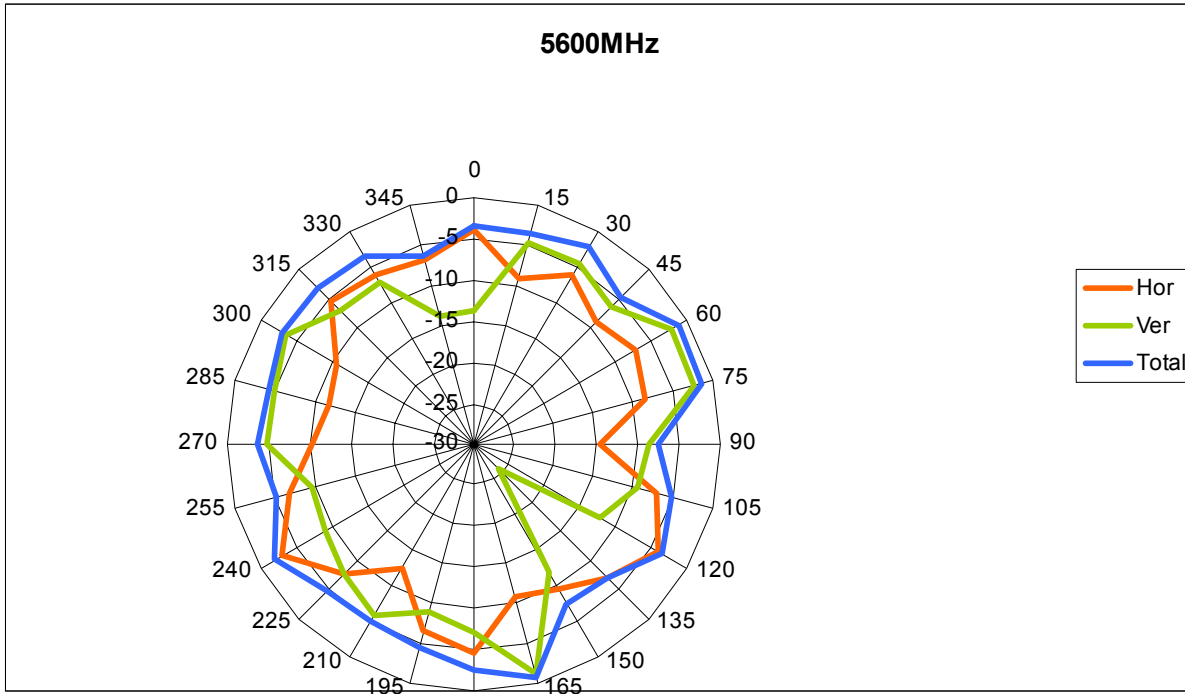
Center Frequency	5725 MHz
Horizontal (dBi) peak	-1.08
Vertical (dBi) peak	1.38

Tx2 (or Rx2) antenna: 5470 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



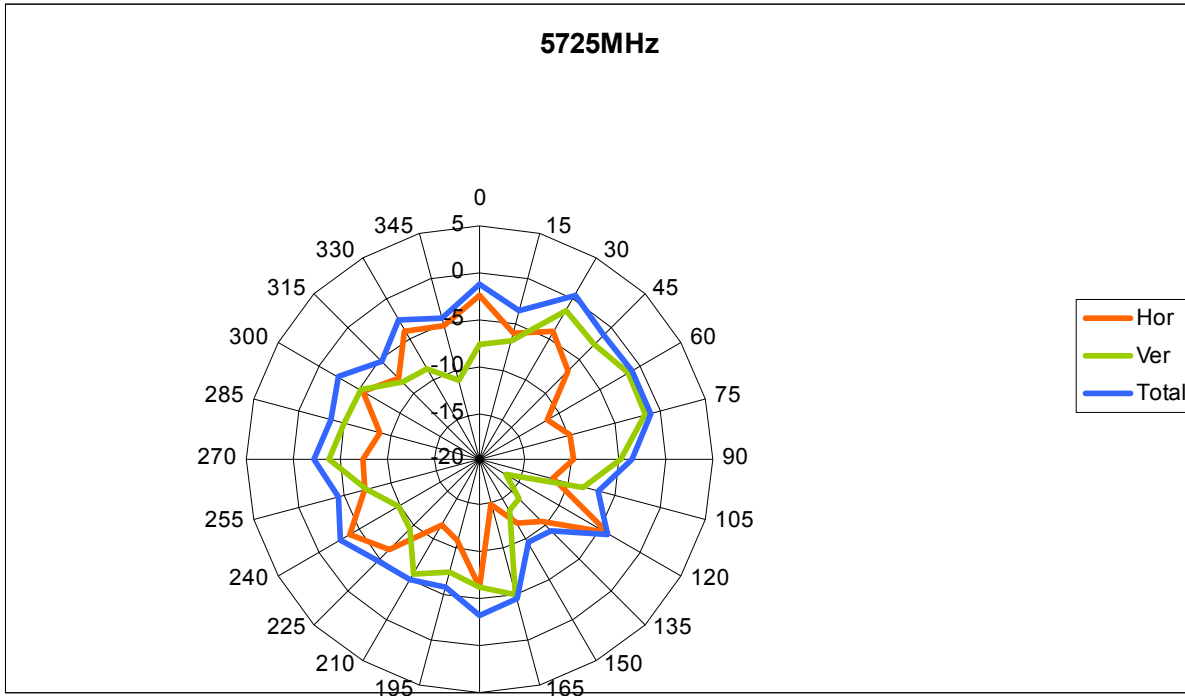
Center Frequency	5470 MHz
Horizontal (dBi) peak	-4.24
Vertical (dBi) peak	0.41

Tx2 (or Rx2) antenna: 5600 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	5600 MHz
Horizontal (dBi) peak	-3.06
Vertical (dBi) peak	-1.11

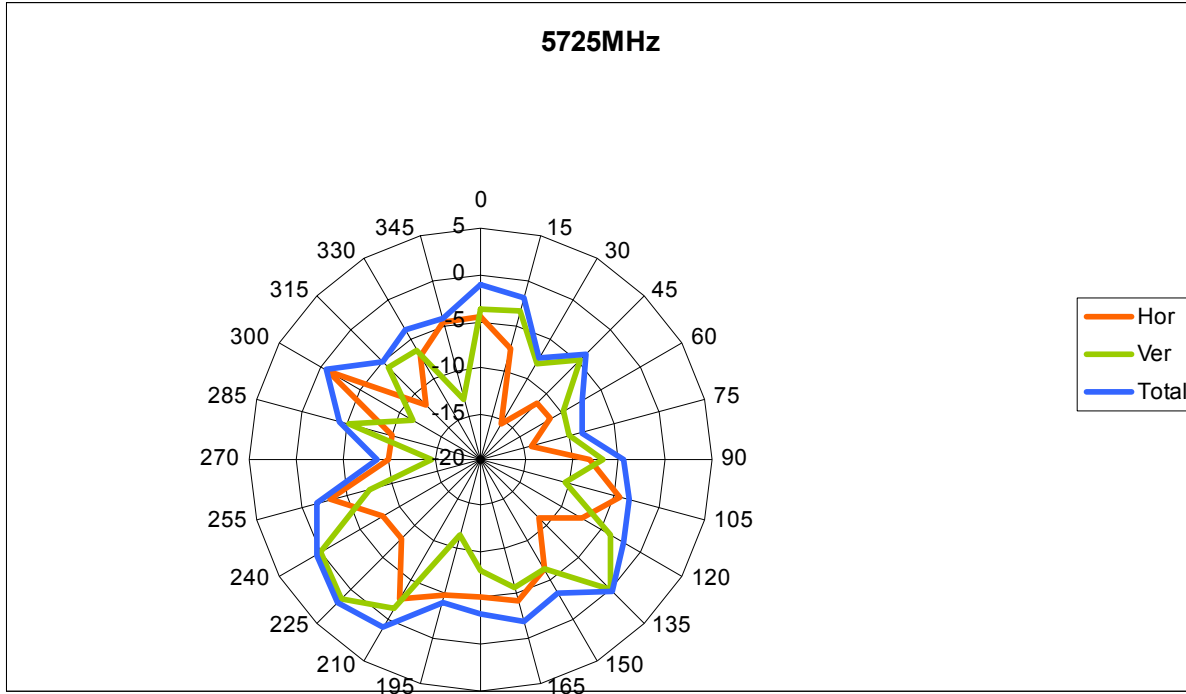
Tx2 (or Rx2) antenna: 5725 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	5725 MHz
Horizontal (dBi) peak	-2.49
Vertical (dBi) peak	-1.61

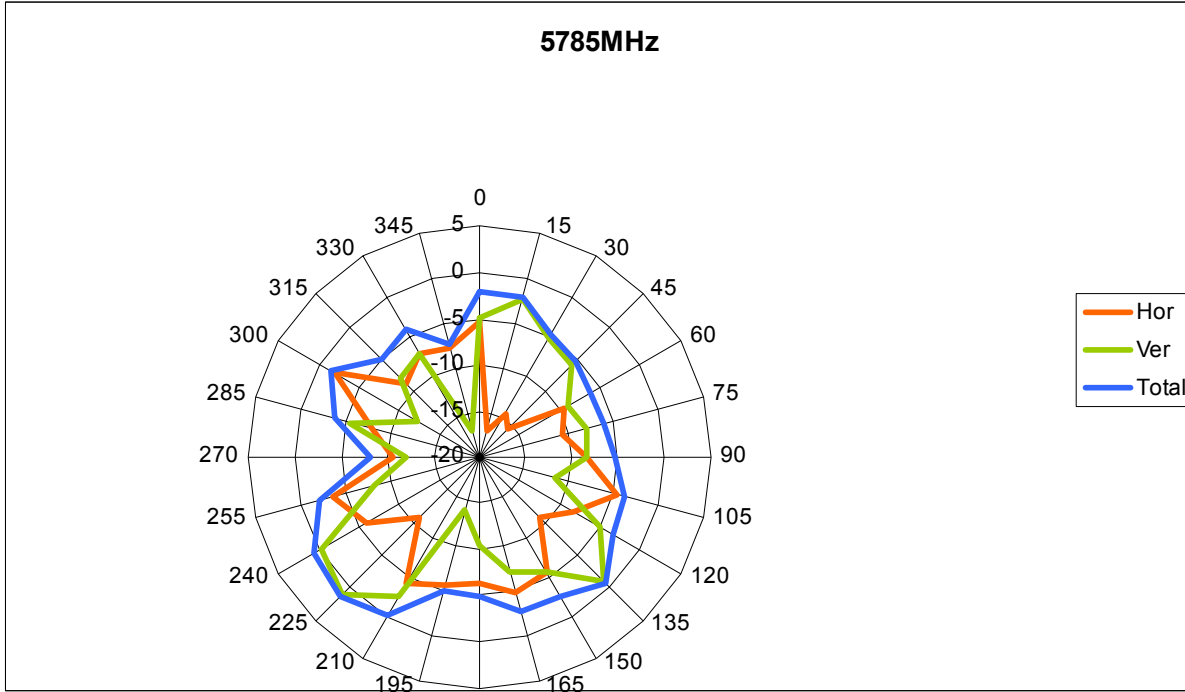
5725-5850 MHz radiation characteristic

Tx1 antenna: 5725 MHz



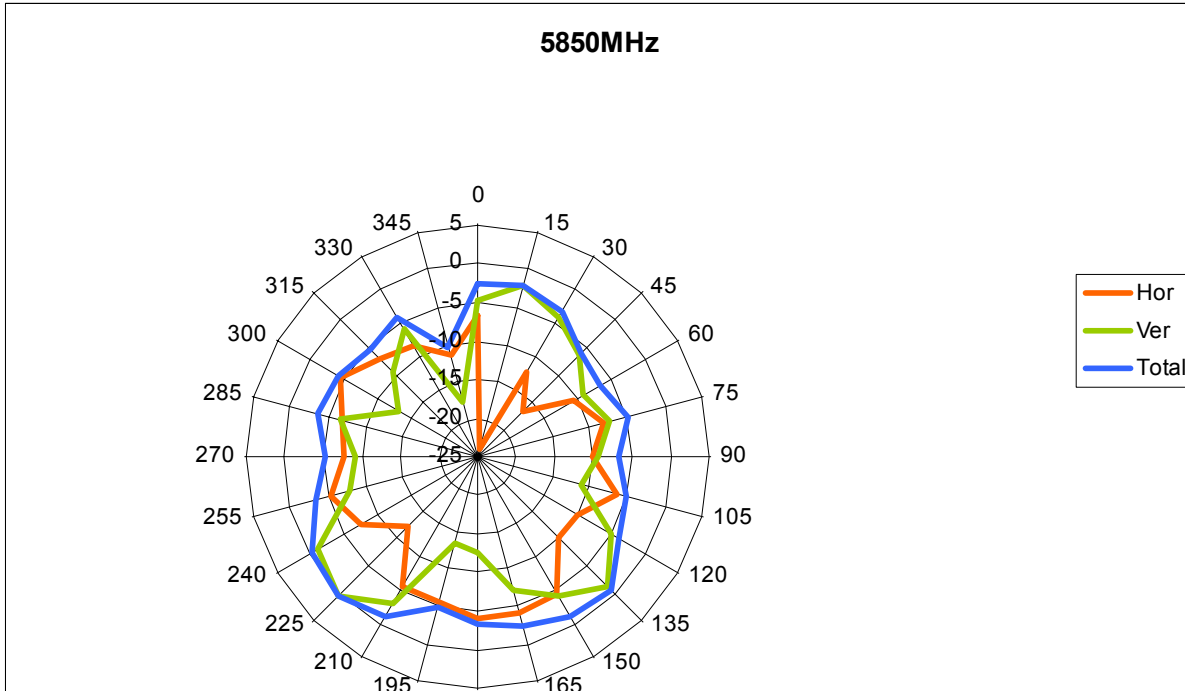
Center Frequency	5725 MHz
Horizontal (dBi) peak	-1.08
Vertical (dBi) peak	1.38

Tx1 antenna: 5785 MHz



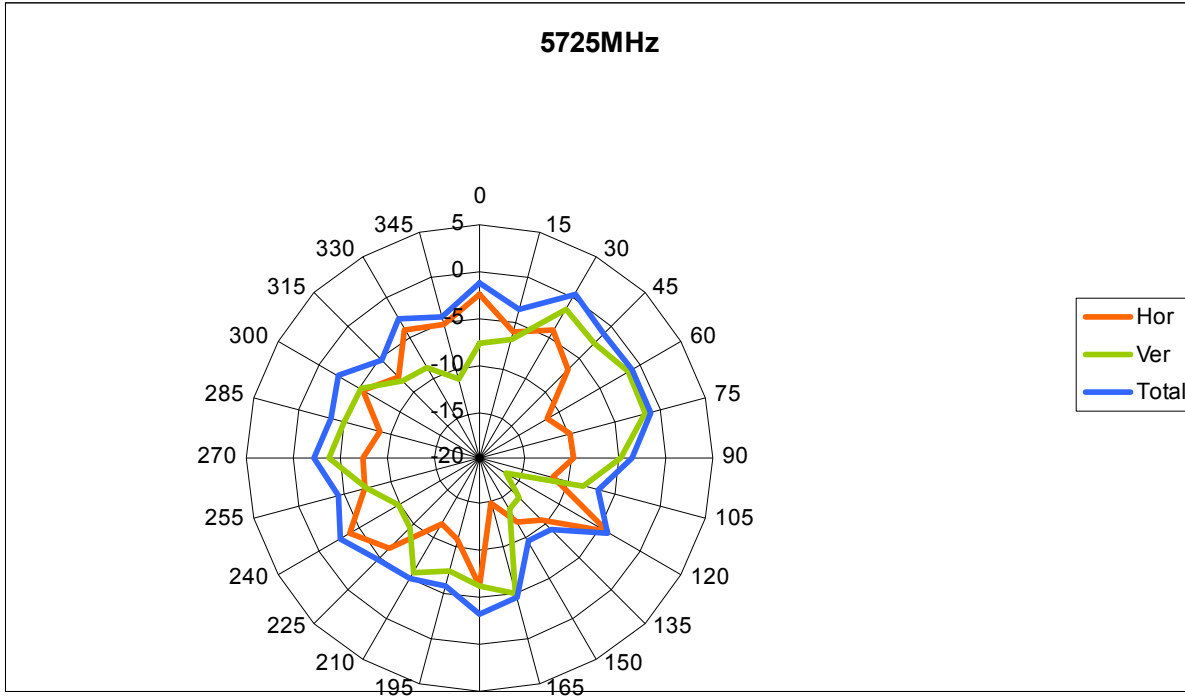
Center Frequency	5785 MHz
Horizontal (dBi) peak	-1.83
Vertical (dBi) peak	0.92

Tx1 antenna: 5850 MHz



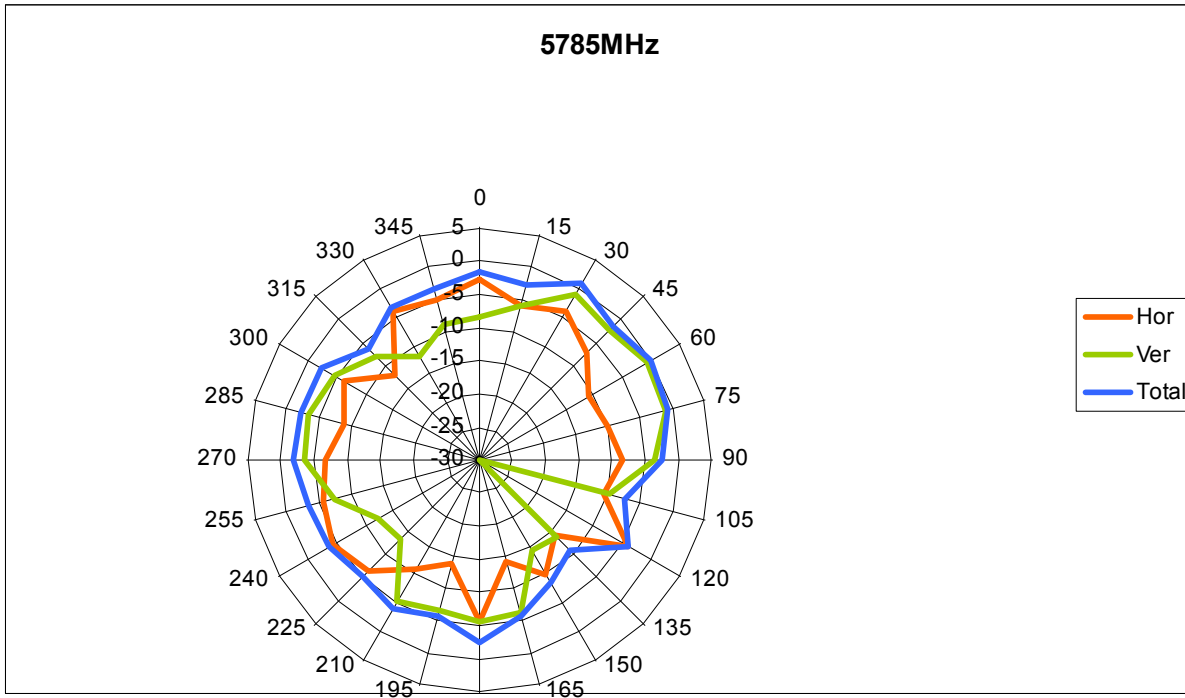
Center Frequency	5850 MHz
Horizontal (dBi) peak	-4.11
Vertical (dBi) peak	0.12

Tx2 (or Rx2) antenna: 5725 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



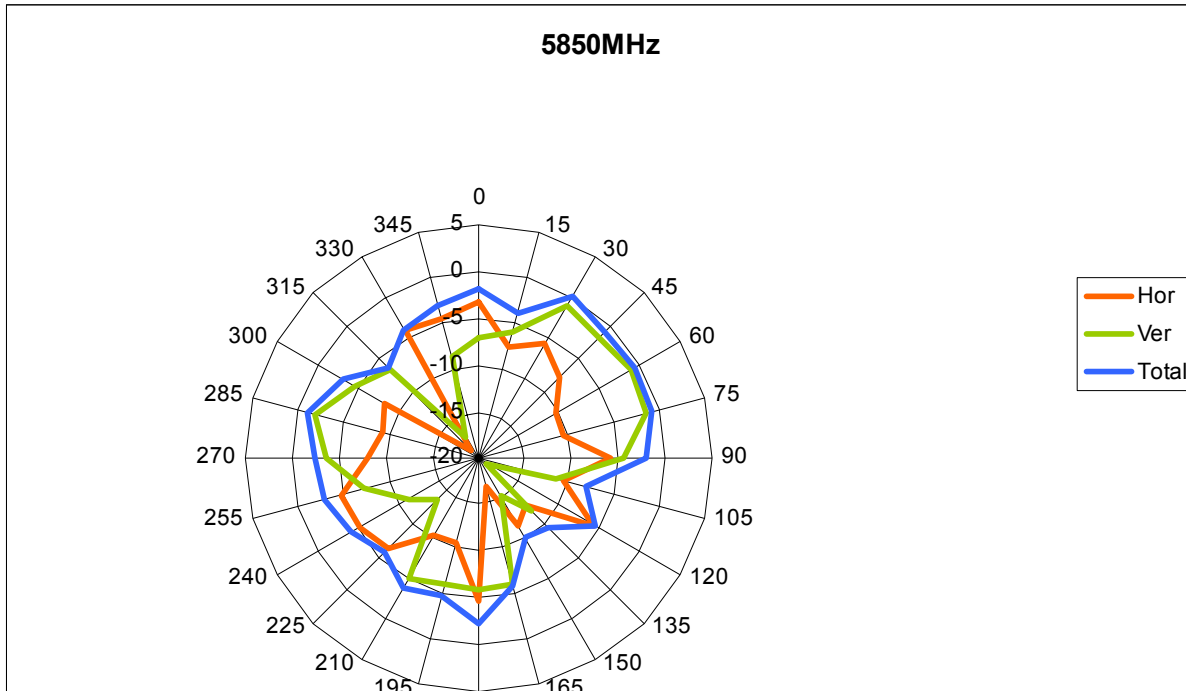
Center Frequency	5725 MHz
Horizontal (dBi) peak	-2.49
Vertical (dBi) peak	-1.61

Tx2 (or Rx2) antenna: 5785 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	5785 MHz
Horizontal (dBi) peak	-2.91
Vertical (dBi) peak	-0.81

Tx2 (or Rx2) antenna: 5850 MHz (Plot is not required if 2nd Antenna is receive only e.g. Rx2 for 512 family)



Center Frequency	5850 MHz
Horizontal (dBi) peak	-3.35
Vertical (dBi) peak	-1.03