

# Regulatory WWAN Antenna Information

(NB Mode)

Platform information						
Brand	ODM	Platform model name	Platform type (ex: regular NB, convertible PC, AIO...etc)			*SAR minimum separation (mm)
HP Inc.	Inventec	HSN-I61C	Convertible PC			219.68mm
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)	3600MHz
HONG-BO	PIFA	6036B0346901 (00-3302702850)	6036B0347001 (00-3302702750)	6036B0346201 (00-3302702950)	6036B0346901 (00-3302702850)	0.95
Module information						
Model	Form factor and suffixes ( NGW/ HMW AND AN/ NB/ BN....)					
Kahlua	Fibocom FM350-GL-16 WWAN 2x2 LTE radio module					
Antenna vendor connect person						
Antenna Vendor	HONGBO Wireless Communication Technology Co., LTD					
contact person	Mirabelle Chou					
E-mail	<a href="mailto:mirabellechou@hong-bo.com.tw">mirabellechou@hong-bo.com.tw</a>					
Tel/Mobile	02-2792-6009 EXT: 683					
Web address	<a href="https://www.hong-lin.com.cn/index.php">https://www.hong-lin.com.cn/index.php</a>					

## 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. <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

Test location: 1F, No. 8, Alley 15, Lane 120, Sec. 1, NeiHu Road Neihu District, Taipei City 11493, Taiwan  
 Testing date: 2023/10/26

Equipment list

Equipment Description	Manufacturer	Identification no.	Current calibration date	Next calibration date
Network analyzer	Agilent	E5071C	2023/06/16	2024/06/15
Measurement software	ETS-Lindgren	EMQuest	N/A	N/A
Multi axis positioning system(MAPSTM)	ETS-Lindgren	EMCO 2115	N/A	N/A
Multi axis positioning system(MAPSTM)	ETS-Lindgren	EMCO 2110	N/A	N/A
MAPSTM controller	ETS-Lindgren	EMCO 2090	N/A	N/A
Horn antenna	ETS-Lindgren	3164-10	2023/03/03	2024/03/03
ETS OTA Chamber	ETS-Lindgren	AMS-8500	2023/03/03	2024/03/03
Cable	ETS-Lindgren	RFC SMS-100-NMR Series	N/A	N/A

Note: Chamber calibration included full set of implement

## Antenna Information

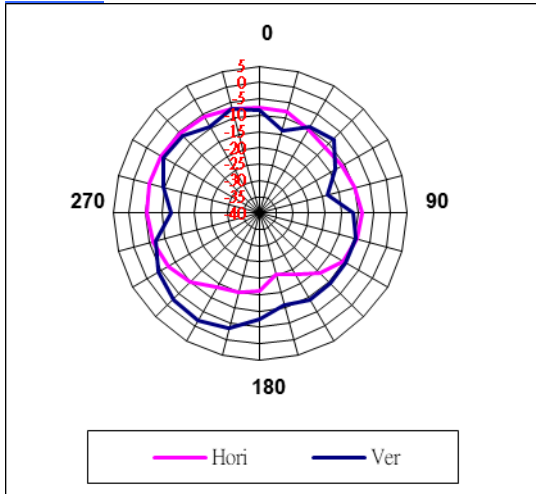
**Section 1. Antenna Assembly Specifications**

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
WCDMA/ LTE	1	1920	1980	Ant5 : 6036B0346901	00-3302702850	PIFA	-0.42
WCDMA/ LTE	2	1850	1910				0.56
LTE	3	1710	1785				0.41
WCDMA/ LTE	4	1710	1755				0.41
WCDMA/ LTE	5	824	849				-1.59
LTE	7	2500	2570				-0.87
WCDMA/ LTE	8	880	915				-0.04
LTE	12	699	716				-0.31
LTE	13	777	787				-0.46
LTE	14	788	798				-0.79
LTE	17	704	716				-0.31
LTE	18	815	830				-1.65
LTE	19	830	845				-1.87
LTE	20	832	862				-0.85
LTE	25	1850	1915				0.56
LTE	26	814	849				-1.59
LTE	28	703	748				-0.31
LTE	30	2305	2315				0.53
LTE	34	2010	2025				0.46
LTE	38	2570	2620				-0.55
LTE	39	1880	1920				0.22
LTE	40	2300	2400				0.56
LTE	41	2496	2690				-0.55
LTE	42	3400	3600				0.95
LTE	43	3600	3800				0.95
LTE	48	3550	3700				0.95
LTE	66	1710	1780				0.41
LTE	71	663	698				-1.71

- Antenna Peak Gain required being test in system basis.

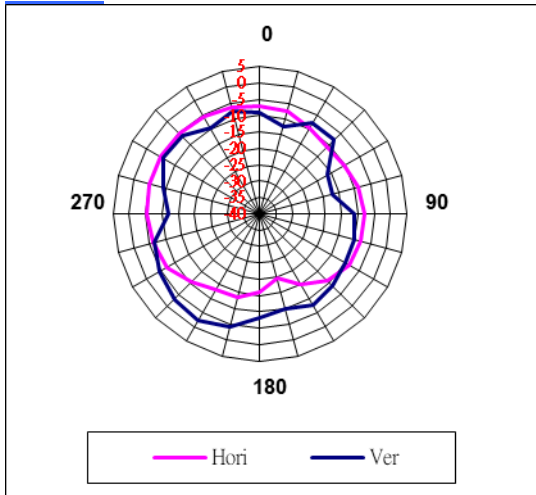
The listed frequency 2D radiation pattern is required

● **Ant5:**  
**814MHz**



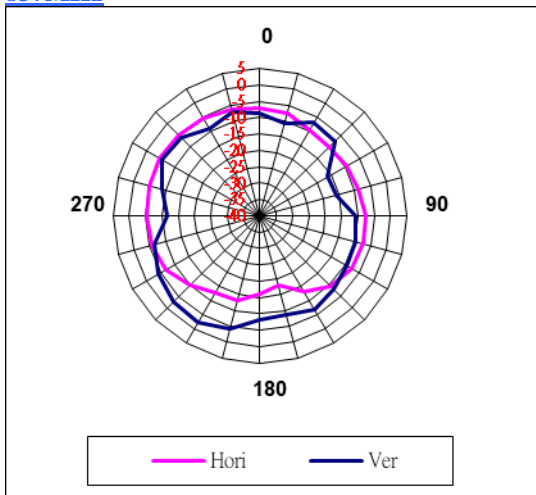
Center Frequency	<b>814MHz</b>
Horizontal (dBi) peak	<b>-4.86</b>
Vertical (dBi) peak	<b>-2.08</b>

**832MHz**



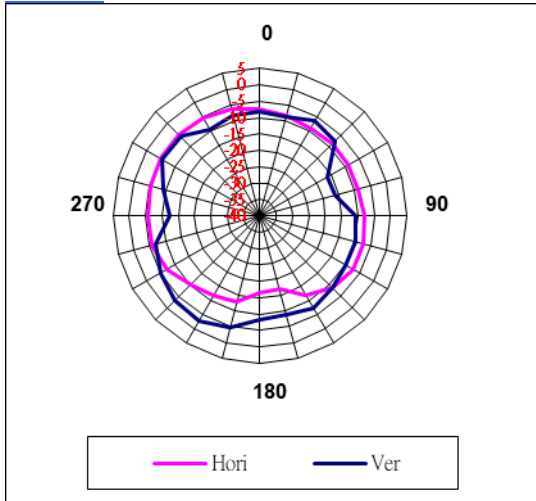
Center Frequency	<b>832MHz</b>
Horizontal (dBi) peak	<b>-4.87</b>
Vertical (dBi) peak	<b>-2.37</b>

**837MHz**



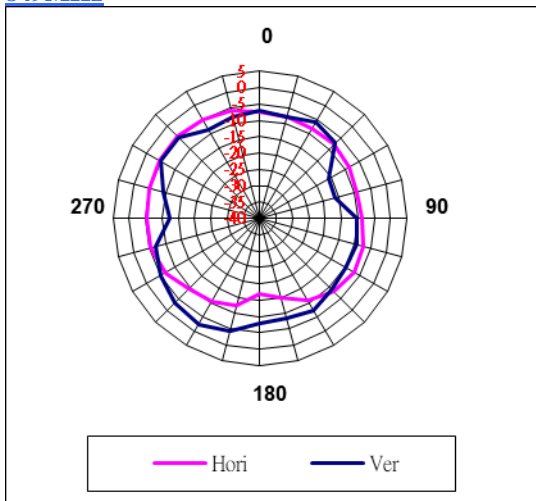
Center Frequency	<b>837MHz</b>
Horizontal (dBi) peak	<b>-4.63</b>
Vertical (dBi) peak	<b>-2.24</b>

**845MHz**



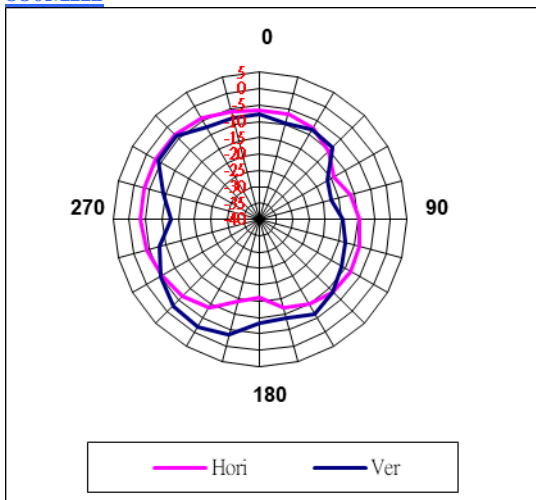
Center Frequency	<b>845MHz</b>
Horizontal (dBi) peak	<b>-4.87</b>
Vertical (dBi) peak	<b>-2.81</b>

**849MHz**



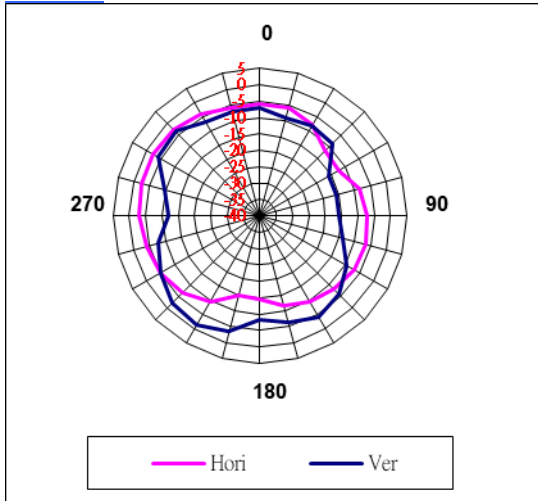
Center Frequency	<b>849MHz</b>
Horizontal (dBi) peak	<b>-4.27</b>
Vertical (dBi) peak	<b>-2.65</b>

**880MHz**



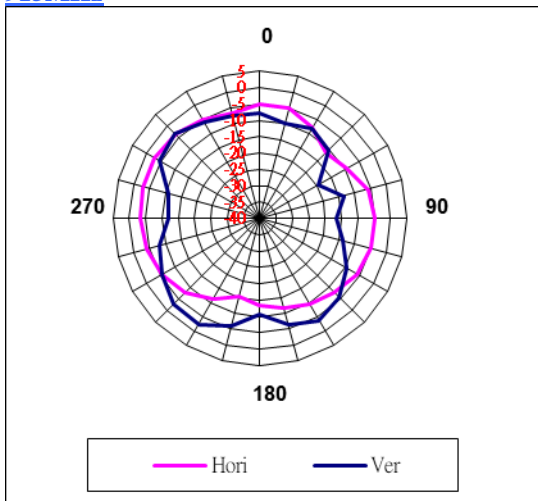
Center Frequency	<b>880MHz</b>
Horizontal (dBi) peak	<b>-2.99</b>
Vertical (dBi) peak	<b>-1.82</b>

**894MHz**



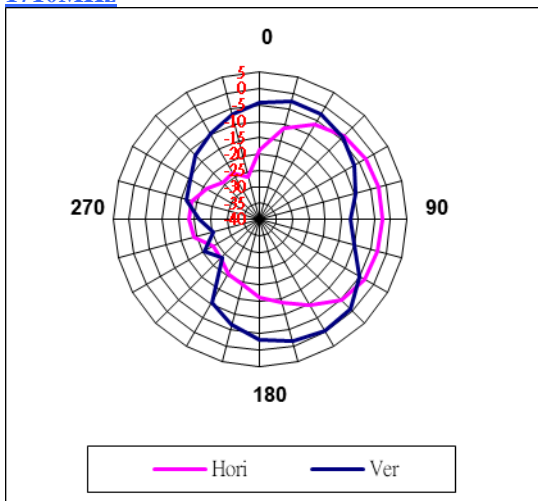
Center Frequency	<b>894MHz</b>
Horizontal (dBi) peak	<b>-2.39</b>
Vertical (dBi) peak	<b>-1.32</b>

**915MHz**



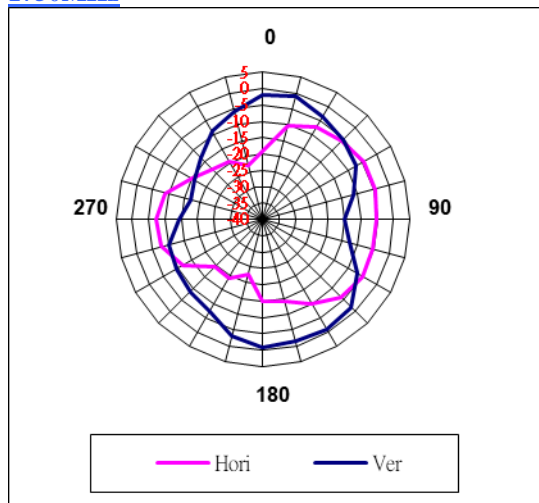
Center Frequency	<b>915MHz</b>
Horizontal (dBi) peak	<b>-2.78</b>
Vertical (dBi) peak	<b>-2.54</b>

**1710MHz**



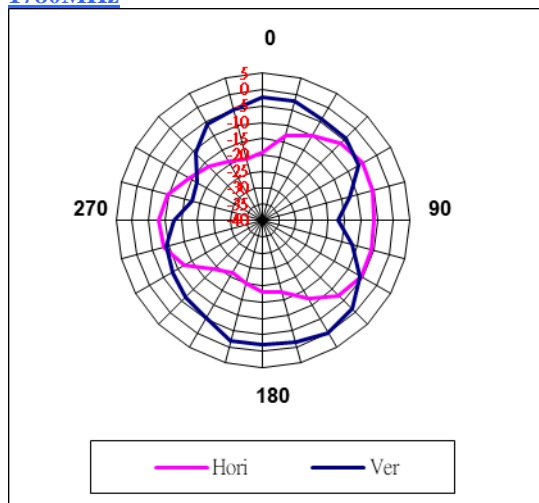
Center Frequency	<b>1710MHz</b>
Horizontal (dBi) peak	<b>-2.38</b>
Vertical (dBi) peak	<b>-0.54</b>

**1750MHz**



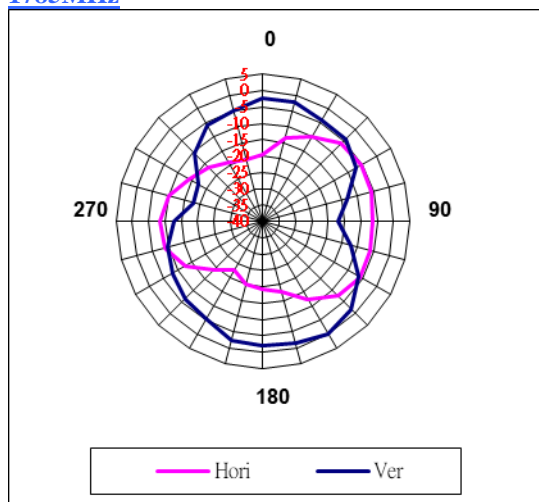
Center Frequency	<b>1750MHz</b>
Horizontal (dBi) peak	<b>-4.41</b>
Vertical (dBi) peak	<b>-0.88</b>

**1780MHz**



Center Frequency	<b>1780MHz</b>
Horizontal (dBi) peak	<b>-4.95</b>
Vertical (dBi) peak	<b>-0.37</b>

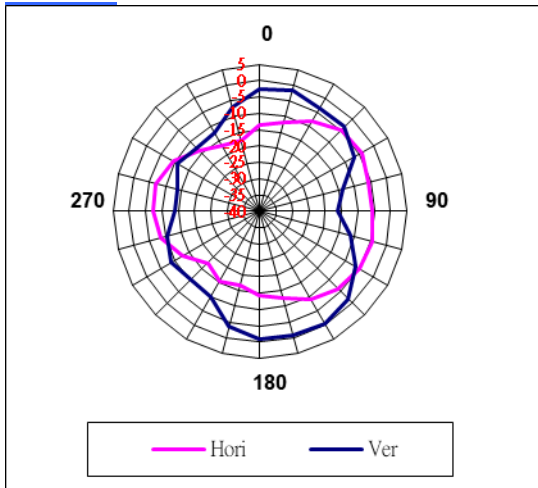
**1785MHz**



Center Frequency	<b>1785MHz</b>
Horizontal (dBi) peak	<b>-5.11</b>
Vertical (dBi) peak	<b>-0.38</b>

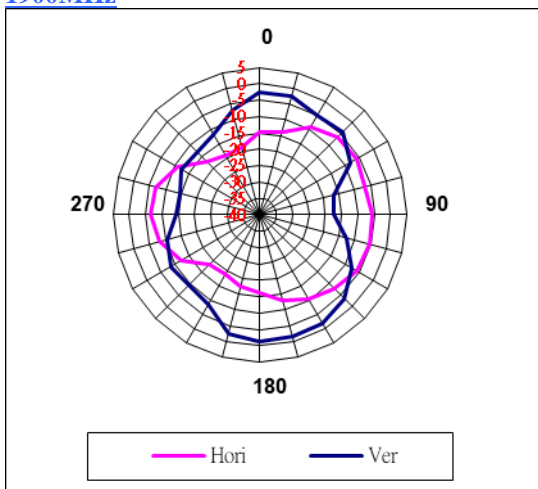


**1880MHz**



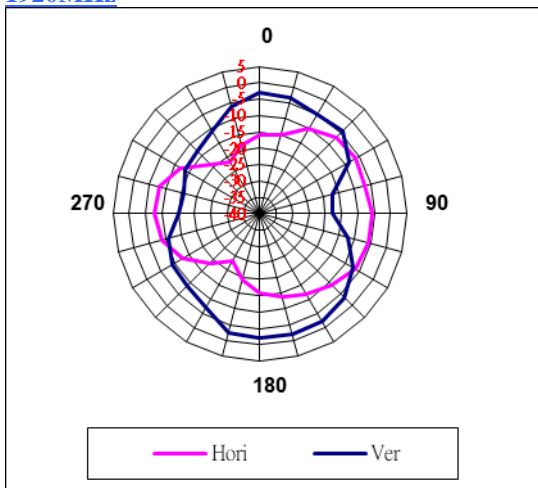
Center Frequency	<b>1880MHz</b>
Horizontal (dBi) peak	<b>-4.05</b>
Vertical (dBi) peak	<b>-0.32</b>

**1900MHz**



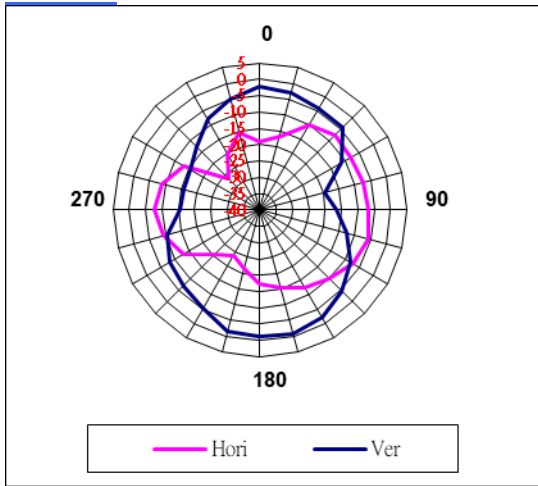
Center Frequency	<b>1900MHz</b>
Horizontal (dBi) peak	<b>-5.14</b>
Vertical (dBi) peak	<b>-1.25</b>

**1920MHz**



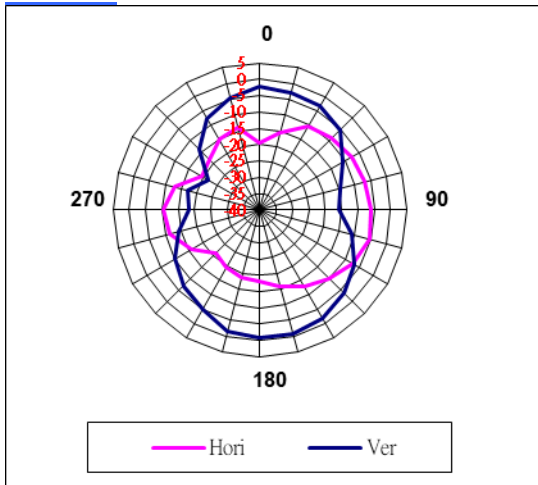
Center Frequency	<b>1920MHz</b>
Horizontal (dBi) peak	<b>-5.59</b>
Vertical (dBi) peak	<b>-1.84</b>

**1950MHz**



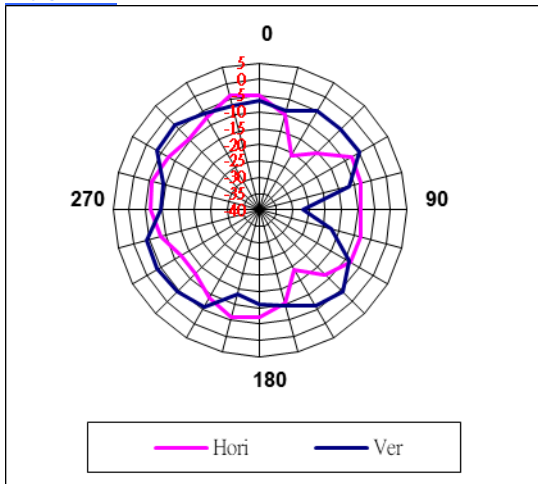
Center Frequency	<b>1950MHz</b>
Horizontal (dBi) peak	<b>-5.82</b>
Vertical (dBi) peak	<b>-0.88</b>

**1980MHz**



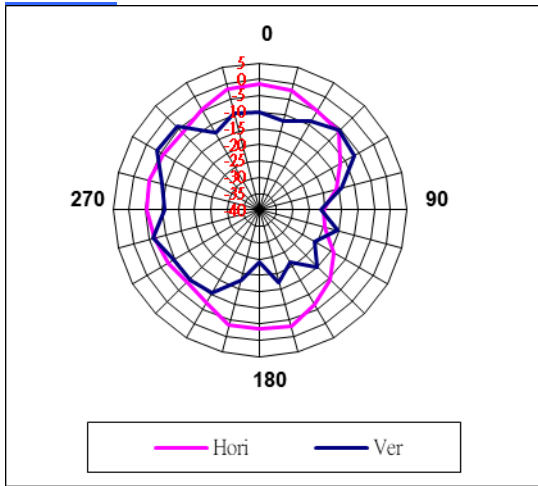
Center Frequency	<b>1980MHz</b>
Horizontal (dBi) peak	<b>-5.27</b>
Vertical (dBi) peak	<b>-0.54</b>

**2496MHz**



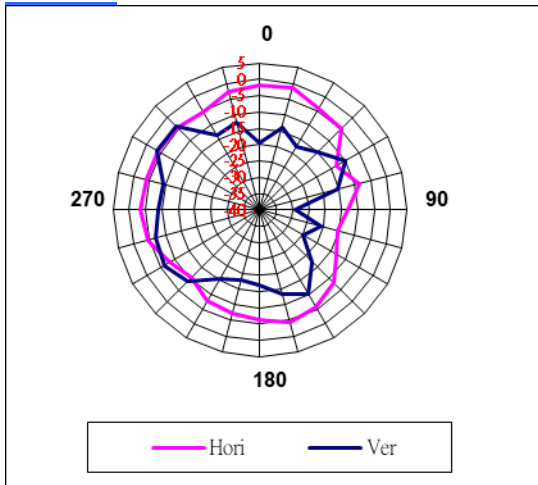
Center Frequency	<b>2496MHz</b>
Horizontal (dBi) peak	<b>-3.84</b>
Vertical (dBi) peak	<b>-3.11</b>

**2595MHz**



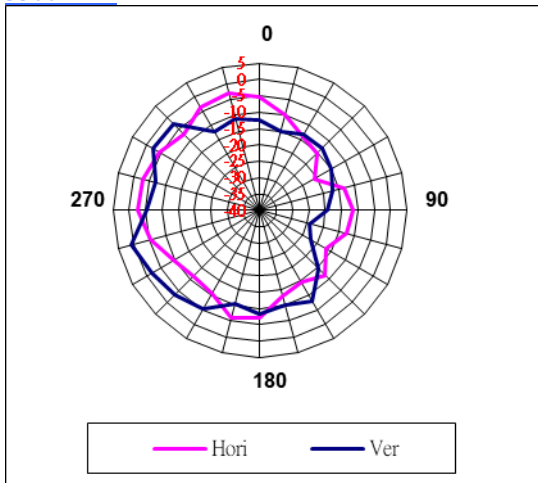
Center Frequency	<b>2595MHz</b>
Horizontal (dBi) peak	<b>-1.30</b>
Vertical (dBi) peak	<b>-3.45</b>

**2690MHz**



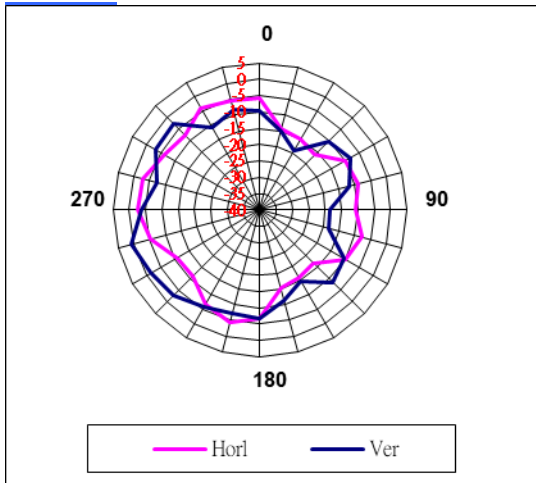
Center Frequency	<b>2690MHz</b>
Horizontal (dBi) peak	<b>-1.10</b>
Vertical (dBi) peak	<b>-3.37</b>

**3300MHz**



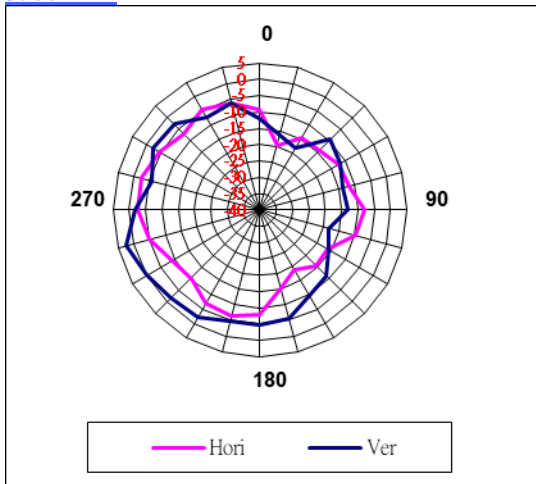
Center Frequency	<b>3300MHz</b>
Horizontal (dBi) peak	<b>-2.66</b>
Vertical (dBi) peak	<b>-0.69</b>

**3400MHz**



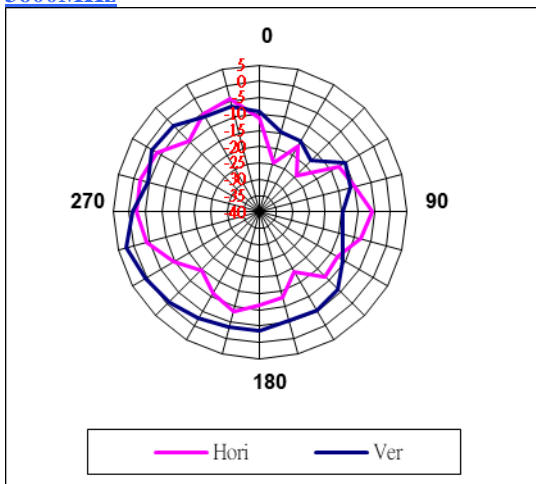
Center Frequency	<b>3400MHz</b>
Horizontal (dBi) peak	<b>-2.59</b>
Vertical (dBi) peak	<b>0.35</b>

**3500MHz**



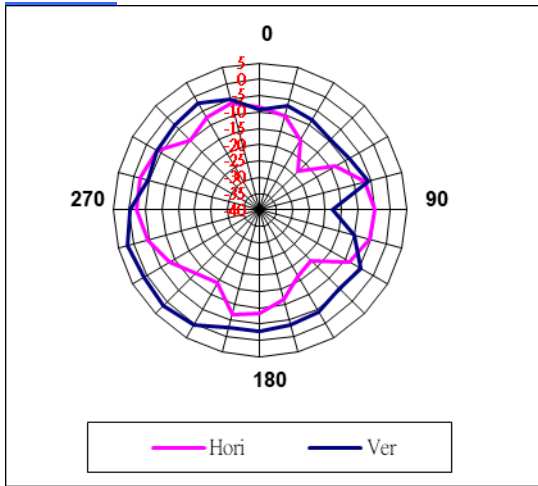
Center Frequency	<b>3500MHz</b>
Horizontal (dBi) peak	<b>-2.30</b>
Vertical (dBi) peak	<b>0.23</b>

**3600MHz**



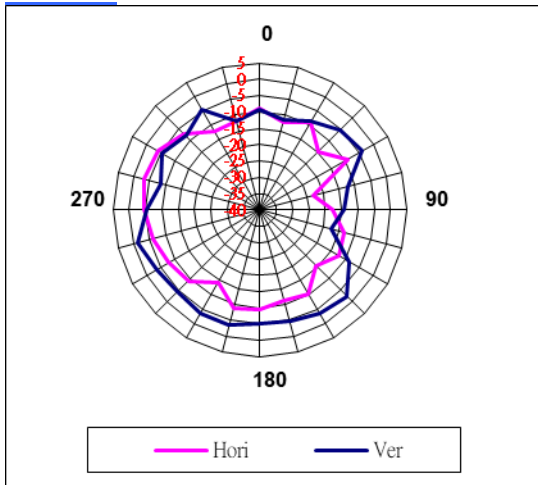
Center Frequency	<b>3600MHz</b>
Horizontal (dBi) peak	<b>-1.88</b>
Vertical (dBi) peak	<b>0.41</b>

**3750MHz**



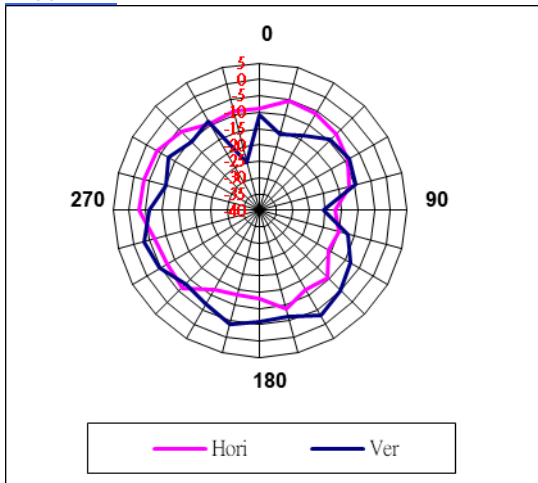
Center Frequency	<b>3750MHz</b>
Horizontal (dBi) peak	<b>-1.87</b>
Vertical (dBi) peak	<b>1.95</b>

**4200MHz**



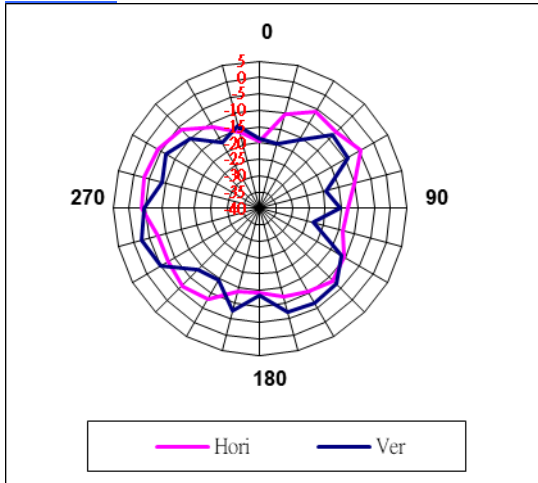
Center Frequency	<b>4200MHz</b>
Horizontal (dBi) peak	<b>-3.39</b>
Vertical (dBi) peak	<b>-1.29</b>

**4400MHz**



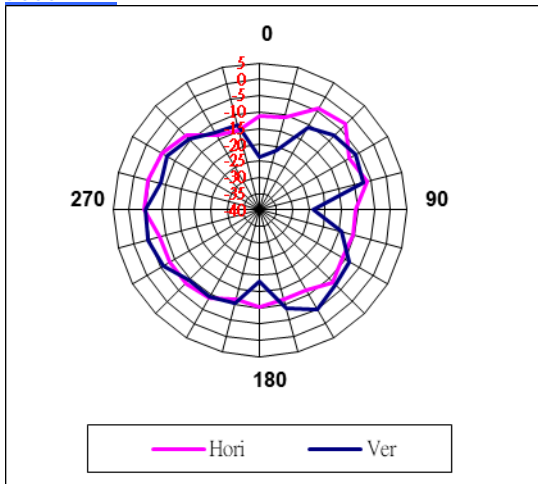
Center Frequency	<b>4400MHz</b>
Horizontal (dBi) peak	<b>-3.02</b>
Vertical (dBi) peak	<b>-2.91</b>

**4800MHz**



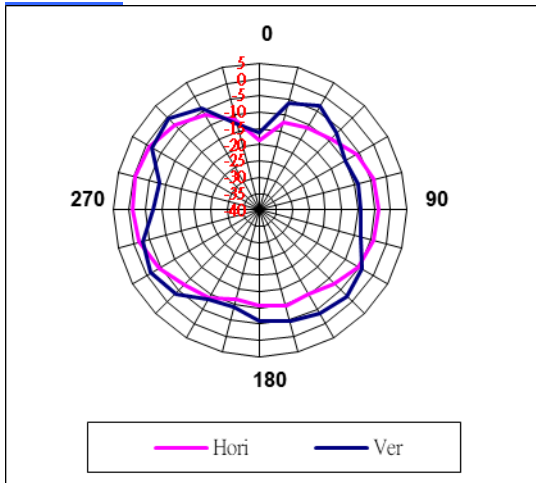
Center Frequency	<b>4800MHz</b>
Horizontal (dBi) peak	<b>-3.46</b>
Vertical (dBi) peak	<b>-2.38</b>

**5000MHz**



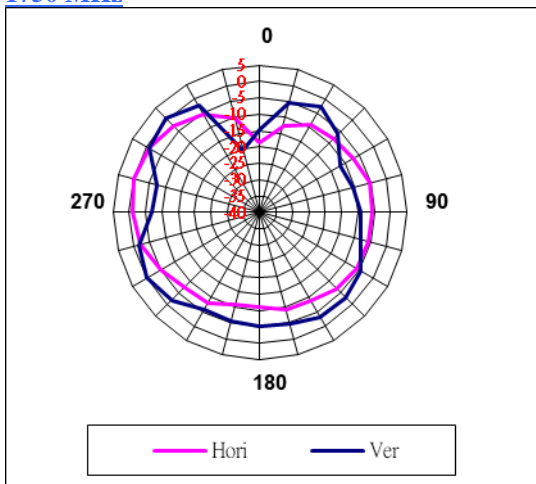
Center Frequency	<b>5000MHz</b>
Horizontal (dBi) peak	<b>-2.85</b>
Vertical (dBi) peak	<b>-4.32</b>

● **Ant8:**  
**1710 MHz**



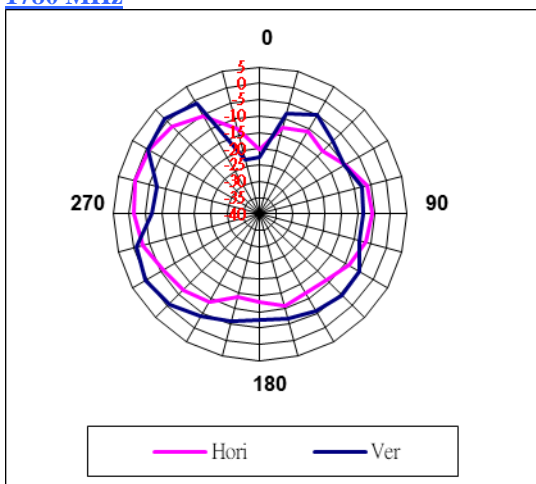
Center Frequency	<b>1710MHz</b>
Horizontal (dBi) peak	<b>-0.34</b>
Vertical (dBi) peak	<b>-0.34</b>

**1750 MHz**



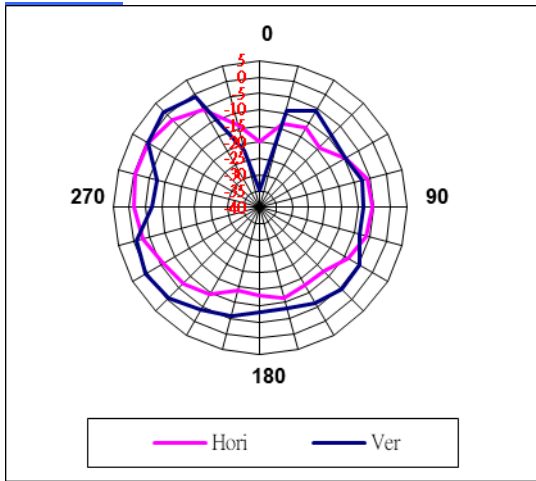
Center Frequency	<b>1750MHz</b>
Horizontal (dBi) peak	<b>-0.01</b>
Vertical (dBi) peak	<b>0.72</b>

**1780 MHz**



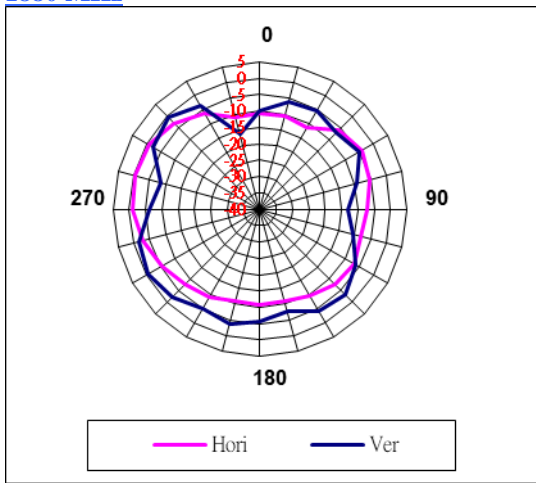
Center Frequency	<b>1780MHz</b>
Horizontal (dBi) peak	<b>-0.37</b>
Vertical (dBi) peak	<b>1.44</b>

**1785 MHz**



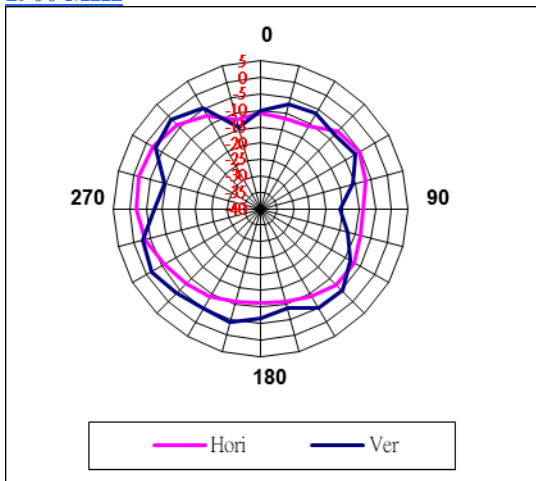
Center Frequency	<b>1785MHz</b>
Horizontal (dBi) peak	<b>-0.35</b>
Vertical (dBi) peak	<b>1.58</b>

**1880 MHz**



Center Frequency	<b>1880MHz</b>
Horizontal (dBi) peak	<b>-0.26</b>
Vertical (dBi) peak	<b>-0.37</b>

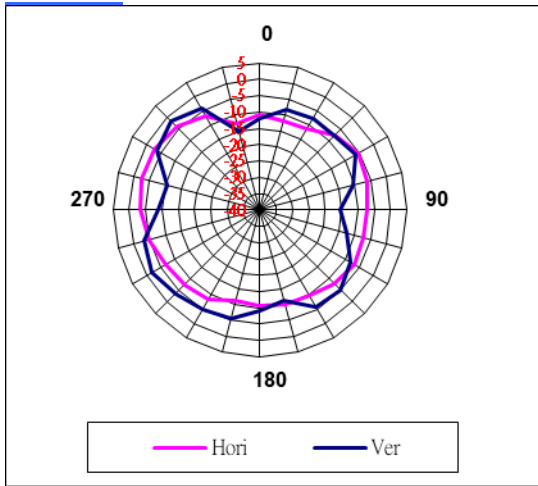
**1900 MHz**



Center Frequency	<b>1900MHz</b>
Horizontal (dBi) peak	<b>-1.38</b>
Vertical (dBi) peak	<b>-1.38</b>

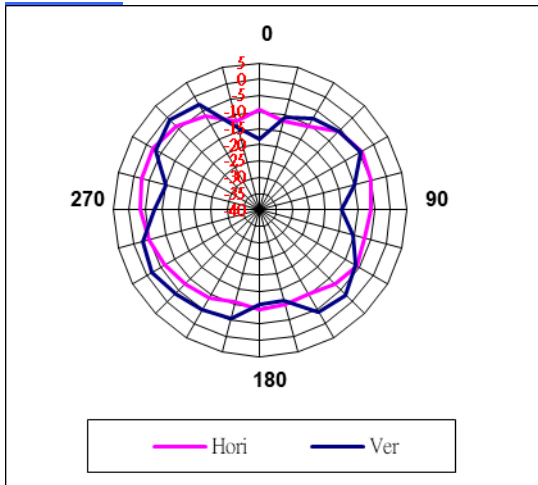


**1920 MHz**



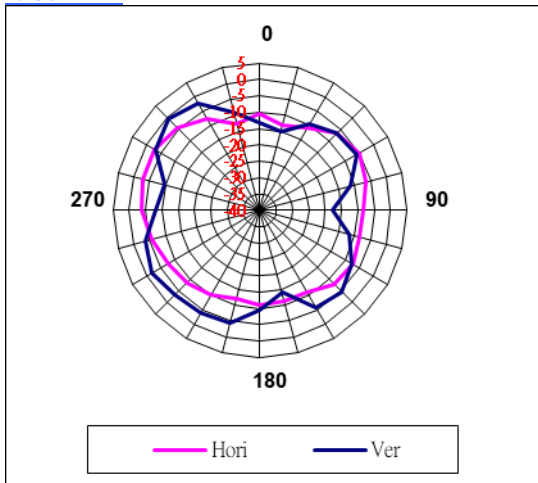
Center Frequency	<b>1920MHz</b>
Horizontal (dBi) peak	<b>-2.49</b>
Vertical (dBi) peak	<b>-1.65</b>

**1950 MHz**



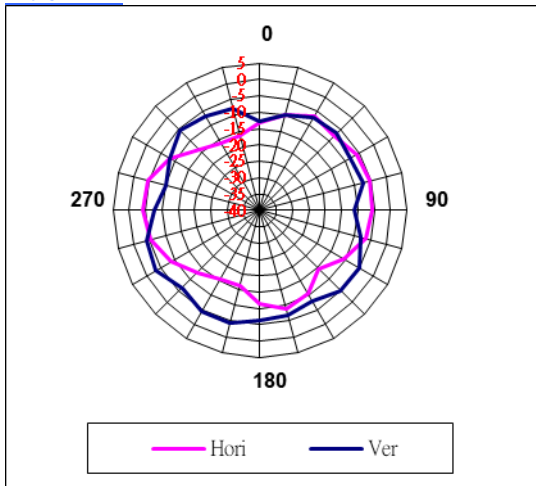
Center Frequency	<b>1950MHz</b>
Horizontal (dBi) peak	<b>-2.29</b>
Vertical (dBi) peak	<b>-0.80</b>

**1980 MHz**



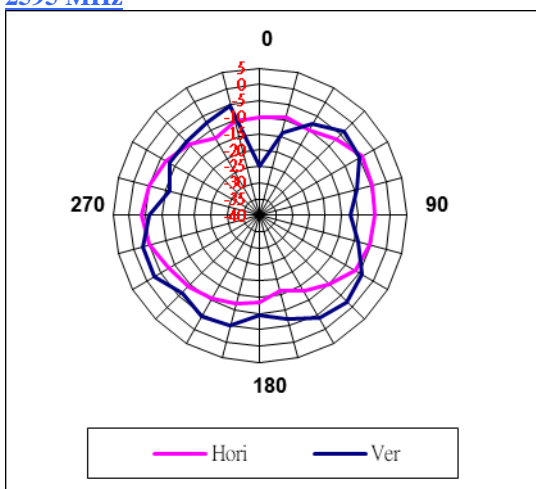
Center Frequency	<b>1980MHz</b>
Horizontal (dBi) peak	<b>-2.84</b>
Vertical (dBi) peak	<b>-0.57</b>

**2496 MHz**



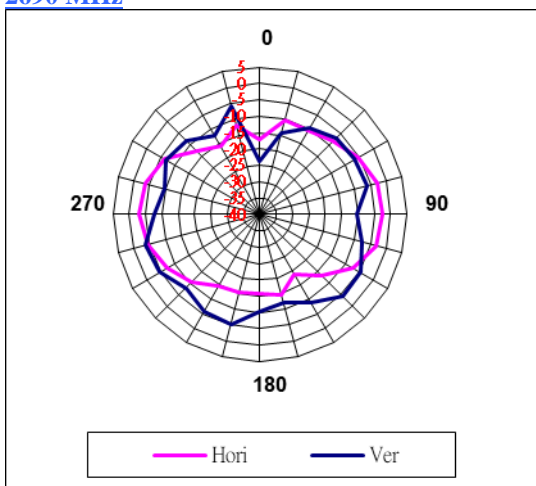
Center Frequency	<b>2496MHz</b>
Horizontal (dBi) peak	<b>-4.11</b>
Vertical (dBi) peak	<b>-3.18</b>

**2595 MHz**



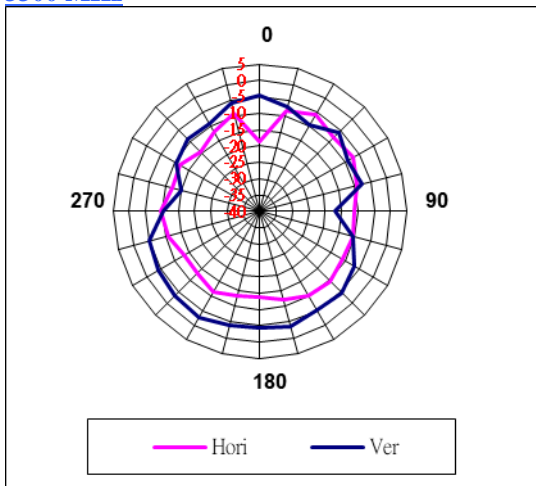
Center Frequency	<b>2595MHz</b>
Horizontal (dBi) peak	<b>-3.85</b>
Vertical (dBi) peak	<b>-2.36</b>

**2690 MHz**



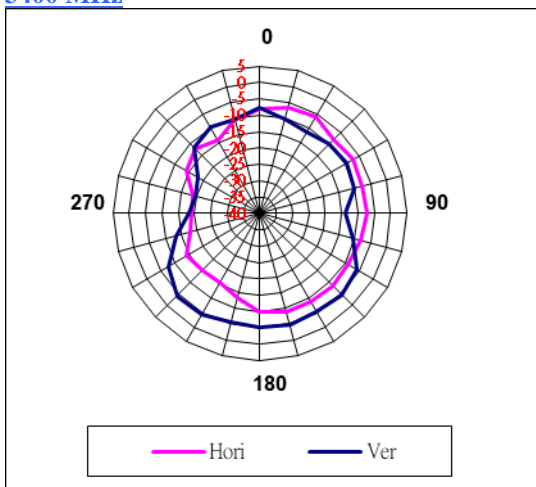
Center Frequency	<b>2690MHz</b>
Horizontal (dBi) peak	<b>-2.55</b>
Vertical (dBi) peak	<b>-3.62</b>

**3300 MHz**



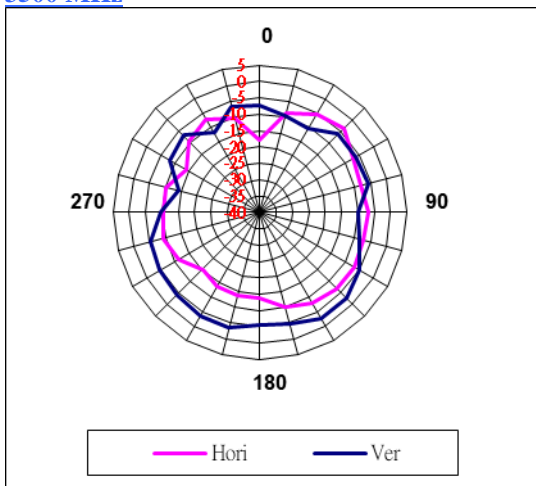
Center Frequency	<b>3300MHz</b>
Horizontal (dBi) peak	<b>-6.04</b>
Vertical (dBi) peak	<b>-2.69</b>

**3400 MHz**



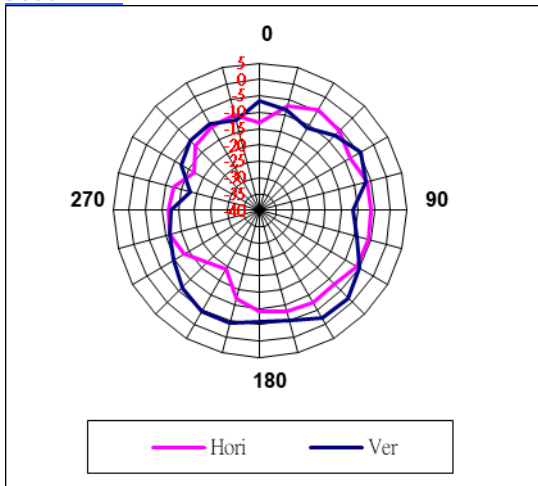
Center Frequency	<b>3400MHz</b>
Horizontal (dBi) peak	<b>-5.91</b>
Vertical (dBi) peak	<b>-4.21</b>

**3500 MHz**



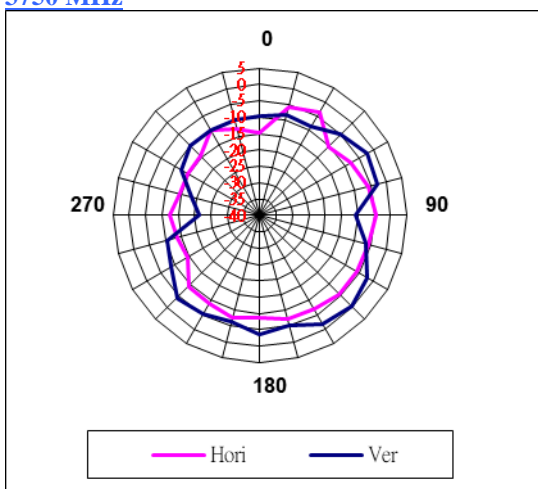
Center Frequency	<b>3500MHz</b>
Horizontal (dBi) peak	<b>-3.82</b>
Vertical (dBi) peak	<b>-2.48</b>

**3600 MHz**



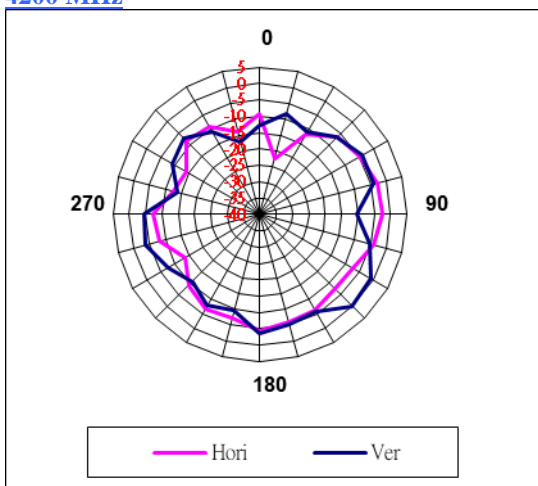
Center Frequency	<b>3600MHz</b>
Horizontal (dBi) peak	<b>-4.51</b>
Vertical (dBi) peak	<b>-1.89</b>

**3750 MHz**



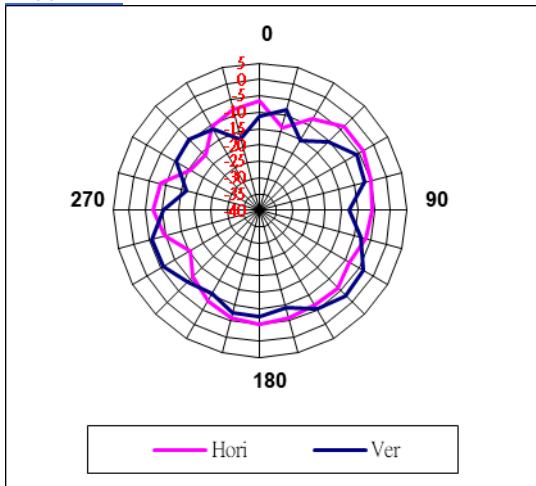
Center Frequency	<b>3750MHz</b>
Horizontal (dBi) peak	<b>-3.74</b>
Vertical (dBi) peak	<b>-0.52</b>

**4200 MHz**



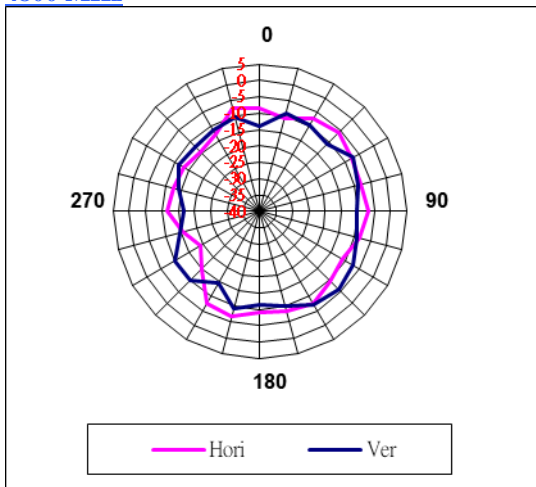
Center Frequency	<b>4200MHz</b>
Horizontal (dBi) peak	<b>-2.49</b>
Vertical (dBi) peak	<b>-0.06</b>

**4400 MHz**



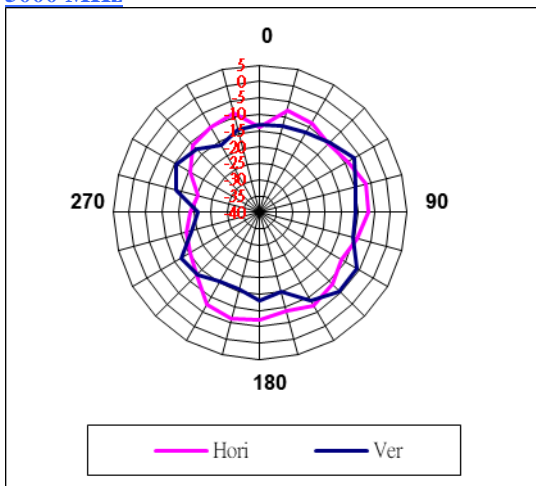
Center Frequency	<b>4400MHz</b>
Horizontal (dBi) peak	<b>-3.69</b>
Vertical (dBi) peak	<b>-2.85</b>

**4800 MHz**



Center Frequency	<b>4800MHz</b>
Horizontal (dBi) peak	<b>-5.95</b>
Vertical (dBi) peak	<b>-6.03</b>

**5000 MHz**



Center Frequency	<b>5000MHz</b>
Horizontal (dBi) peak	<b>-6.29</b>
Vertical (dBi) peak	<b>-5.59</b>

## 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						