

Regulatory WLAN Antenna Information

| Platform information | | | | | | | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------|---------------------------------------|--------------------------------------------------------------|------------------------------|------------------------|----------------------------------|------------------------|------------------------|-------------------------|--|
| Brand | ODM | RMN | Intel platform (ex: Yes, No or NA) | Platform type (ex: regular NB, convertible PC, AIO...etc) | *SAR minimum separation (mm) | | | | | | |
| HP Inc. | Compal | TPN-C176 | Yes | Regular NB | 5.75 | | | | | | |
| ****Please fill in exact product model name and make sure the model name is visible on product cover or any parts for end users recognize for authority inspection. | | | | | | | | | | | |
| Antenna information | | | | | | | | | | | |
| Vendor | | Type | Antenna Part number (Main/Tx2) | | | | Antenna Part number (Aux/Tx1) | | | | |
| INPAQ | | PIFA | DC33002XB00 (WA-P-LE-02-227) | | | | DC33002XB10 (WA-P-LE-02-228) | | | | |
| Peak gain w/ cable loss (dBi)* | | | | | | | | | | | |
| | 2.4GHz 2400-2483.5 MHz | 5.2GHz 5150-5250MHz | 5.3GHz 5250-5350MHz | 5.6GHz 5470-5725MHz | 5.8GHz 5725-5850MHz | 5.9GHz 5850-5895MHz | 6.2GHz 5925-6425MHz | 6.5GHz 6425-6525MHz | 6.7GHz 6525-6875MHz | 7.0 GHz 6875-7125MHz | |
| Main | 1.47 | 1.45 | 2.33 | 2.90 | 2.85 | 0.81 | 0.69 | 0.66 | 0.78 | 0.43 | |
| Aux | 0.59 | 0.01 | 1.41 | 2.67 | 2.67 | 2.81 | 2.98 | 0.69 | 0.67 | 0.38 | |
| Module Information | | | | | | | | | | | |
| Model | Form factor and suffixes | | | | | | | | | | |
| AX211NGW | Intel Garfield Peak 2 AX211 Wi-Fi 6e +Bluetooth 5.2 M.2 2230 160MHz CNVi WW WLAN | | | | | | | | | | |
| BE200NGW | Intel Gale Peak 2 BE200 M.2 2230 Wi-Fi 7 +Bluetooth 5.4 non-vPro WW WLAN | | | | | | | | | | |

Address of the antenna manufacturer:

No. 11, Keyi St., 11th Neighborhood, Gongyi Vil., Zhunan Township, Miaoli County 350402, Taiwan (R.O.C.)

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1. **Applicable test methods**

ETS-Lindgren AMS-8500 system is 3D fully anechoic chamber, it is applied to the “Conical Cut test method”, the detail description is described as below.

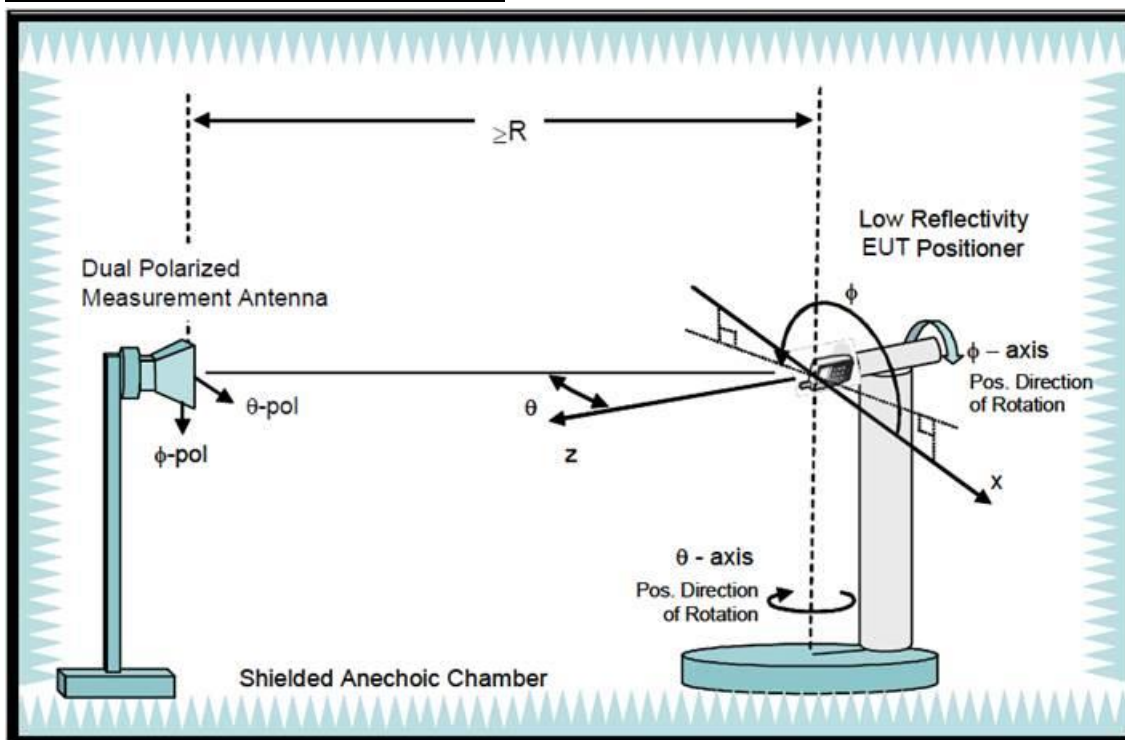
The Conical Cut method requires the ability of the Measurement Antenna to be physically rotated in the theta plane (overhead) of the EUT for implementations using a single Measurement Antenna, Eleven conical cuts are required to capture data at every 15 degrees from the EUT, with the top (0 degrees) and bottom (180 degrees) cuts not being measured. Typically, the EUT will remain affixed to a turntable during the entire measurement process. The Measurement Antenna will be positioned at a starting theta angle. The EUT will then be rotated around the full 360 degrees of phi rotation. The Measurement Antenna will then be positioned at the next theta angle, and the process repeated.

| | | θ -Axis | Φ -Axis |
|---------|----------------|--------------------|-------------------|
| Passive | Step size | 15°~165° step: 15° | 0°~345° step: 15° |
| | N / M (Points) | 12 | 24 |

2. **Test & System Description**

a. Test setup

Typical Setup for ETS-Lindgren AMS-8500:



b. Equipment list

Anechoic Chamber

| Equipment Description | Manufacturer | Identification no. | Current calibration date | Next calibration date |
|---------------------------------------|--------------|--------------------|--------------------------|-----------------------|
| Network analyzer | Agilent | E5071C | 2023/01/07 | 2024/01/06 |
| Measurement software | ETS-Lindgren | EMQuest | 2023/03/03 | 2024/03/03 |
| Multi axis positioning system(MAPSTM) | ETS-Lindgren | EMCO 2115 | 2023/03/03 | 2024/03/03 |
| Multi axis positioning system(MAPSTM) | ETS-Lindgren | EMCO 2110 | 2023/03/03 | 2024/03/03 |
| MAPSTM controller | ETS-Lindgren | EMCO 2090 | 2023/03/03 | 2024/03/03 |
| Horn antenna | ETS-Lindgren | 3164-10 | 2023/03/03 | 2024/03/03 |
| Cable 40cm 18 GHz | Jmtt | 201EH012010400 | 2023/04/07 | 2024/04/07 |
| Cable 6m 18 GHz | Jmtt | 201EH012016000 | 2023/04/07 | 2024/04/07 |
| Cable 6m 18 GHz | Jmtt | 201EH012016000 | 2023/04/07 | 2024/04/07 |
| Cable 3.5m 18 GHz | Jmtt | 201EH012013500 | 2023/04/07 | 2024/04/07 |
| Cable 1.5m 18 GHz | Jmtt | 201EH012011500 | 2023/04/07 | 2024/04/07 |

Antenna Information

Section 1. Antenna Assembly Specifications

| 1A | 1B | 1C | 1D | 1E | 1F | 1G | 1H | |
|---------------------------------------------------------------------------------------------------------------|--------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------|--------------------------------|----------|-----------------|
| Antenna Part Number | Manufacturer | Antenna Type | Cable Assembly Part Number and Information | Freq Range MHz | * Peak Gain W/ Cable loss (dBi) | Peak Gain w/o Cable Loss (dBi) | Max VSWR | Cable Loss (dB) |
| P/N: DC33002XB00 (WA-P-LE-02-227) Main Antenna (TX2) | INPAQ | PIFA | 50 ohm Coaxial length:227mm diameter: 1.13mm Connector Type: IPEX MHF-4L 20565-001R-13 | 2400-2495 | 1.47 | 2.10 | 3.00 MAX | 0.63 |
| | | | | 5150-5250 | 1.45 | 2.39 | 3.00 MAX | 0.94 |
| | | | | 5250-5350 | 2.33 | 3.28 | 3.00 MAX | 0.95 |
| | | | | 5470-5725 | 2.90 | 3.87 | 3.00 MAX | 0.97 |
| | | | | 5725-5850 | 2.85 | 3.83 | 3.00 MAX | 0.98 |
| | | | | 5850-5895 | 0.81 | 1.80 | 3.00 MAX | 0.99 |
| | | | | 5925-6425 | 0.69 | 1.72 | 3.00 MAX | 1.03 |
| | | | | 6425-6525 | 0.66 | 1.71 | 3.00 MAX | 1.05 |
| | | | | 6525-6875 | 0.78 | 1.86 | 3.00 MAX | 1.08 |
| 6875-7125 | 0.43 | 1.54 | 3.00 MAX | 1.11 | | | | |
| P/N: DC33002XB10 (WA-P-LE-02-228) Aux Antenna (TX1) | INPAQ | PIFA | 50 ohm Coaxial length: 292mm diameter: 1.37mm Connector Type: IPEX MHF-4L 20632-001R-37 | 2400-2495 | 0.59 | 1.27 | 3.00 MAX | 0.68 |
| | | | | 5150-5250 | 0.01 | 1.02 | 3.00 MAX | 1.01 |
| | | | | 5250-5350 | 1.41 | 2.43 | 3.00 MAX | 1.02 |
| | | | | 5470-5725 | 2.67 | 3.72 | 3.00 MAX | 1.05 |
| | | | | 5725-5850 | 2.67 | 3.73 | 3.00 MAX | 1.06 |
| | | | | 5850-5895 | 2.81 | 3.88 | 3.00 MAX | 1.07 |
| | | | | 5925-6425 | 2.98 | 4.09 | 3.00 MAX | 1.11 |
| | | | | 6425-6525 | 0.69 | 1.83 | 3.00 MAX | 1.14 |
| | | | | 6525-6875 | 0.67 | 1.83 | 3.00 MAX | 1.16 |
| 6875-7125 | 0.38 | 1.58 | 3.00 MAX | 1.20 | | | | |

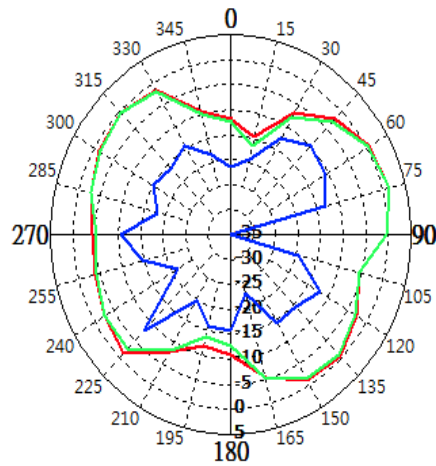
Section 2. Radiation characteristics of antenna loaded in Host Platform

Main Antenna

Max Antenna 2D Radiation Pattern 2400 – 2495 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 2400-2495 | 1.47 |

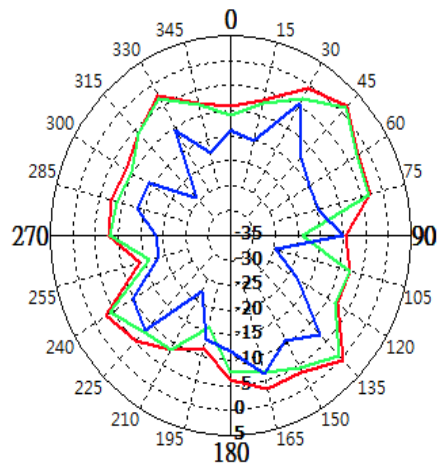
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5150-5250 | 1.45 |

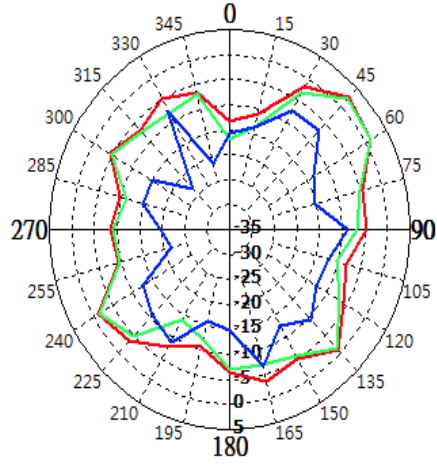
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- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5250-5350 | 2.33 |

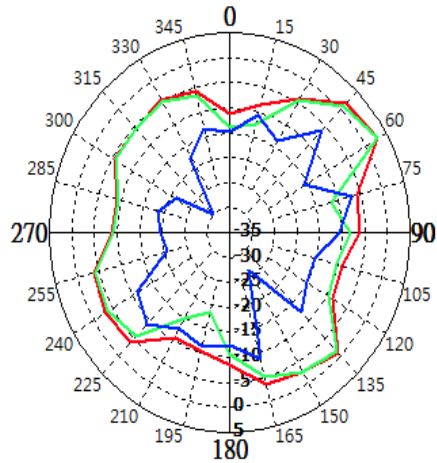
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5470-5725 | 2.90 |

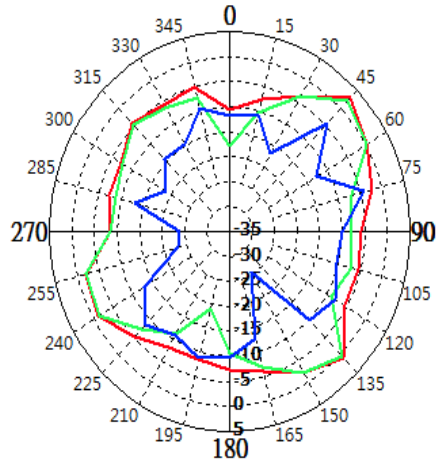
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5725-5850 | 2.85 |

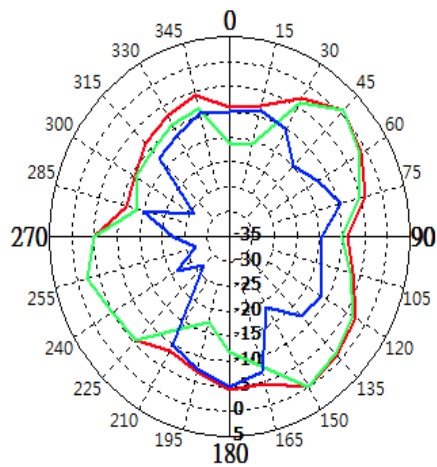
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5850-5895 | 0.81 |

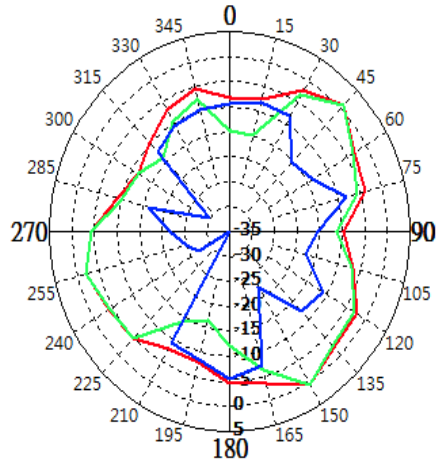
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5925-6425 | 0.69 |

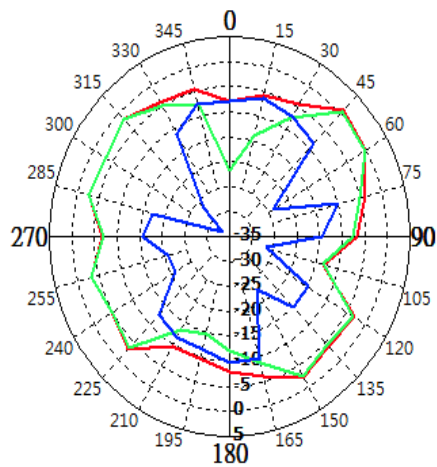
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 6425-6525 | 0.66 |

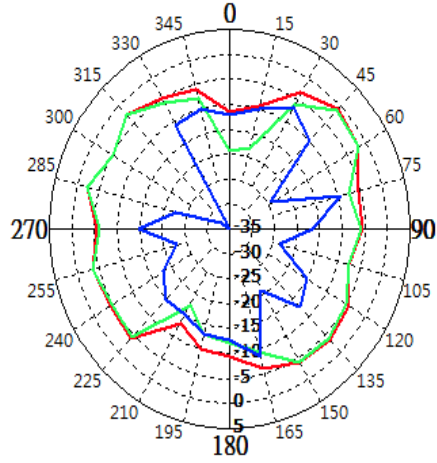
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 6525-6875 | 0.78 |

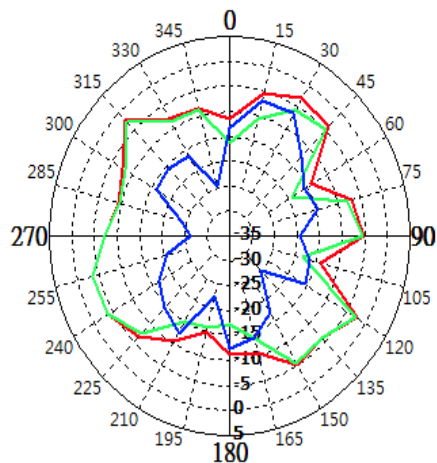
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 6875-7125 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 6875-7125 | 0.43 |

- TOTAL
- H_POL
- V_POL

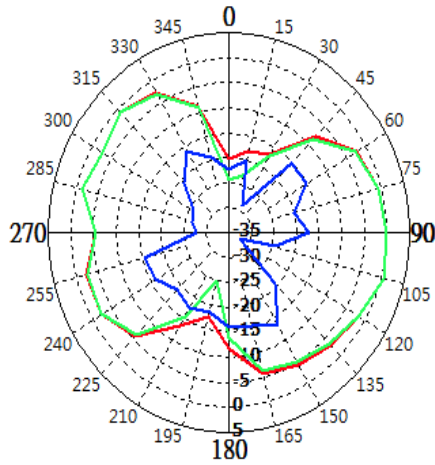


Auxiliary Antenna

Max Antenna 2D Radiation Pattern 2400 – 2483.5 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 2400-2483.5 | 0.59 |

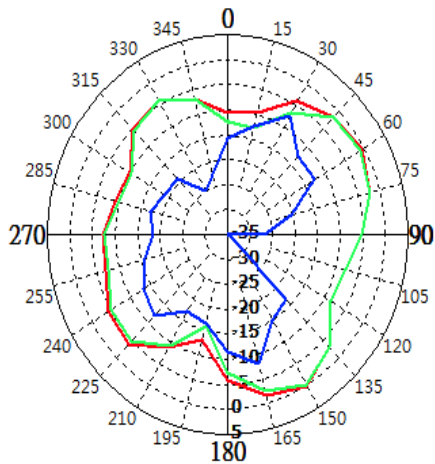
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5150-5250 | 0.01 |

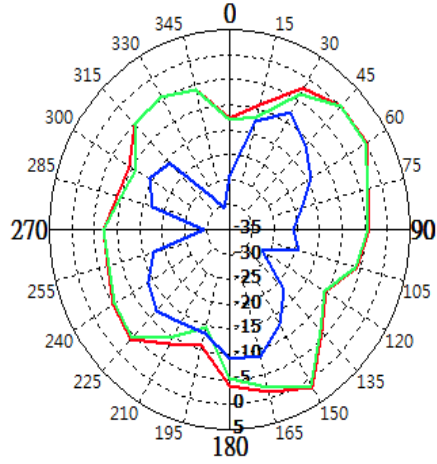
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5250-5350 | 1.41 |

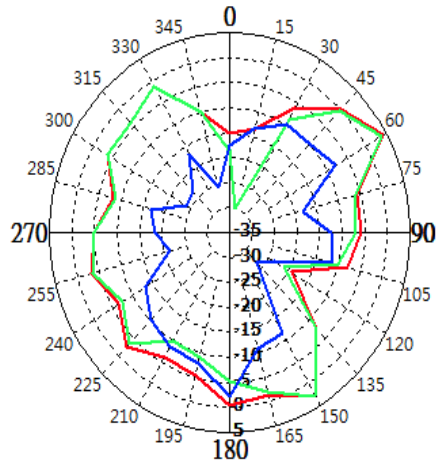
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5470-5725 | 2.67 |

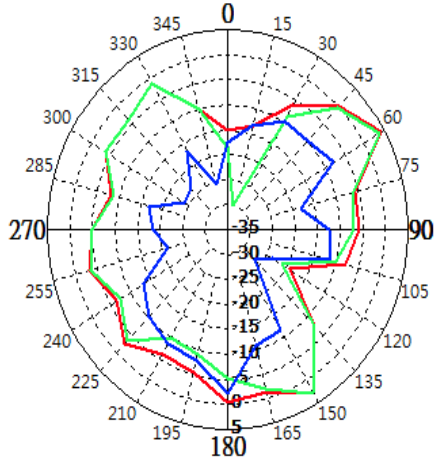
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5725-5850 | 2.67 |

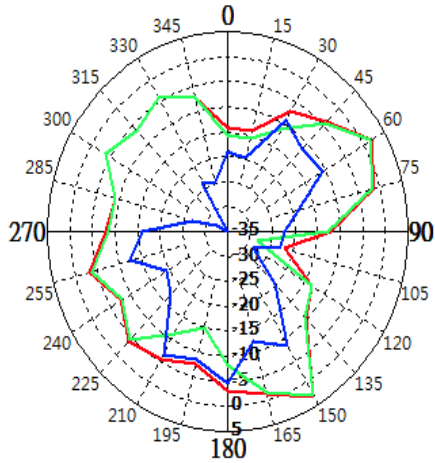
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5850-5895 | 2.81 |

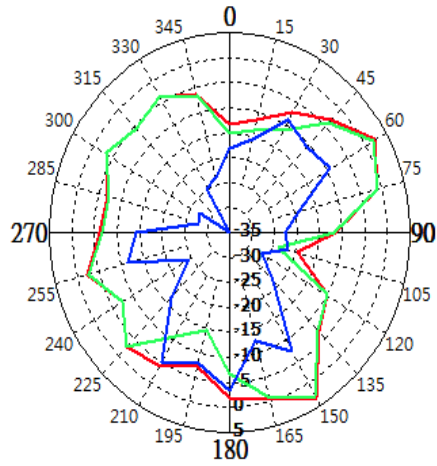
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 5925-6425 | 2.98 |

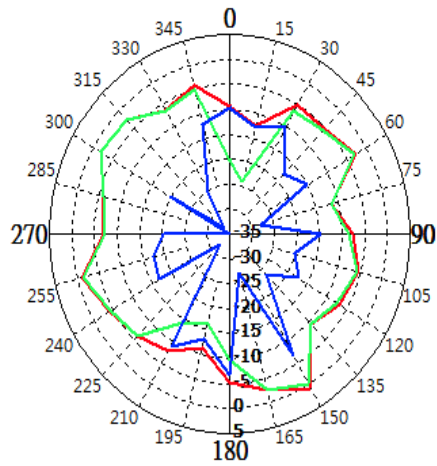
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 6425-6525 | 0.69 |

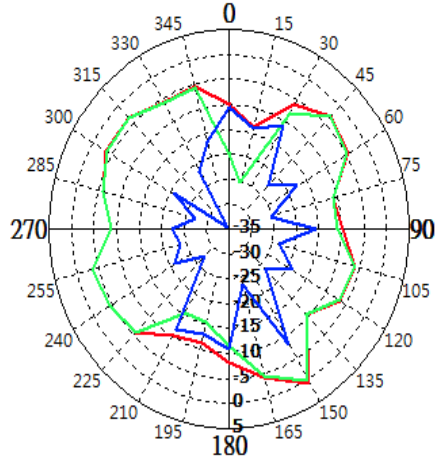
- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 6525-6875 | 0.67 |

- TOTAL
- H_POL
- V_POL



Max Antenna 2D Radiation Pattern 6875-7125 MHz

| Frequency (MHz) | Horizontal+ Vertical (dBi) peak (dBi) |
|-----------------|---------------------------------------|
| 6875-7125 | 0.38 |

- TOTAL
- H_POL
- V_POL

