



**Product Name: PB50DMX Castle Patch Antenna**

**Part Number: H2P13648210100**

**Features:**

- Supporting: (L1+L2) GPS/GLONASS/BDS/Galileo/QZSS
- Dimensions: 50 x 50 x 8mm
- Stable and reliable in performances
- Low temperature coefficient of frequency
- RoHS 2.0 compliance

**Applications:**

- Automotive telematics
- Safety of life transportation
- Marine
- Navigation

# Castle Patch Antenna-508-2pins

**MODEL: PB50DMX**

Version: A

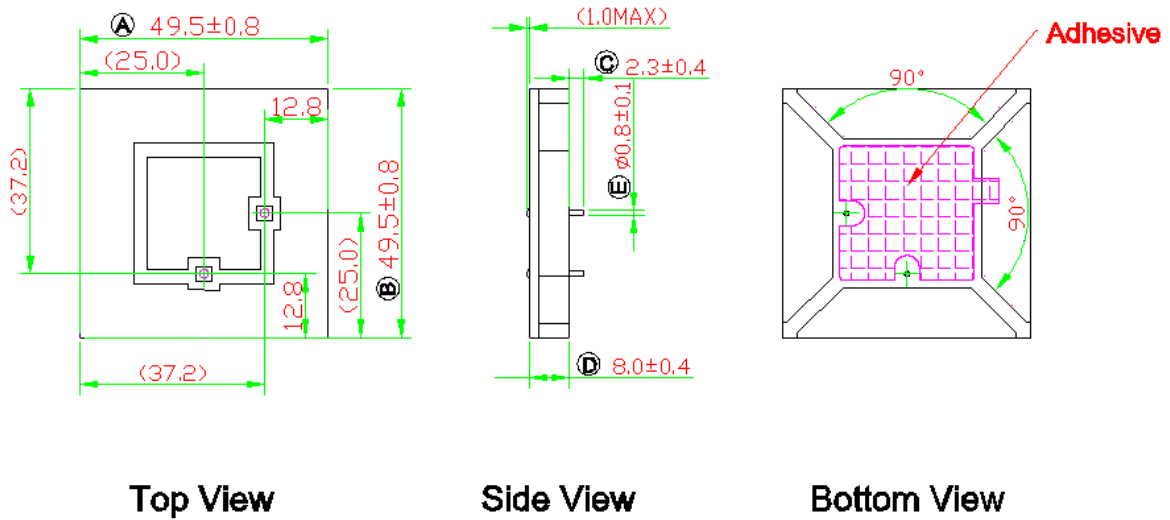
## I. Patch Antenna Specifications:

| Items                         | Specifications  |                                   |
|-------------------------------|---|-----------------------------------|
| <b>Navigation</b>             | GPS L1/<br>GLONASS G1/<br>Galileo E1/<br>BDS B1/<br>QZSS L1 | GPS L2/<br>GLONASS G2/<br>QZSS L2 |
| <b>Center Frequency (MHz)</b> | 1575.42   | 1227.6                            |
| <b>Peak Gain(dBi)</b>         | 4.5 Typ.  | 6.2 Typ.                          |
| <b>Return loss (dB)</b>       | < -10 Typ.  |                                   |
| <b>Axial Ratio (dB)</b>       | < 3 Typ.  |                                   |
| <b>Average Gain(dB)</b>       | -3.0 Typ.   | -1.2 Typ.                         |
| <b>Efficiency (%)</b>         | 53 Typ.   | 78 Typ.                           |
| <b>Test Condition</b>         | 100 x 100 mm <sup>2</sup> (Evaluation board)                |                                   |
| <b>Impedance(Ω)</b>           | 50  |                                   |
| <b>Polarization</b>           | RHCP  |                                   |

| Mechanical Specifications         |                       |
|-----------------------------------|-----------------------|
| <b>Dimensions (mm)</b>            | 50(L) x 50 (W) x8 (H) |
| <b>Material</b>                   | Ceramic               |
| Environmental Conditions          |                       |
| <b>Operation Temperature (°C)</b> | -40 ~ +85             |
| <b>Storage Temperature (°C)</b>   | -5 ~ +40              |
| <b>Relative Humidity</b>          | 10 ~ 70 %             |

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## II. Antenna Dimensions (unit: mm):

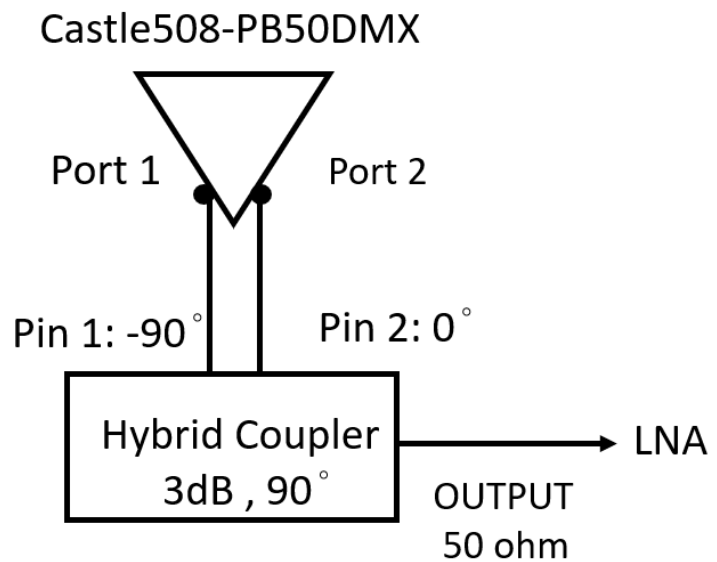
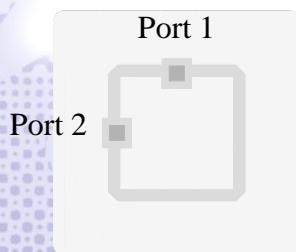


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### NOTE:

1. All materials are RoHS 2.0 compliant.
2. "A~E" Critical Dimensions.
3. "( )" Reference Dimensions.

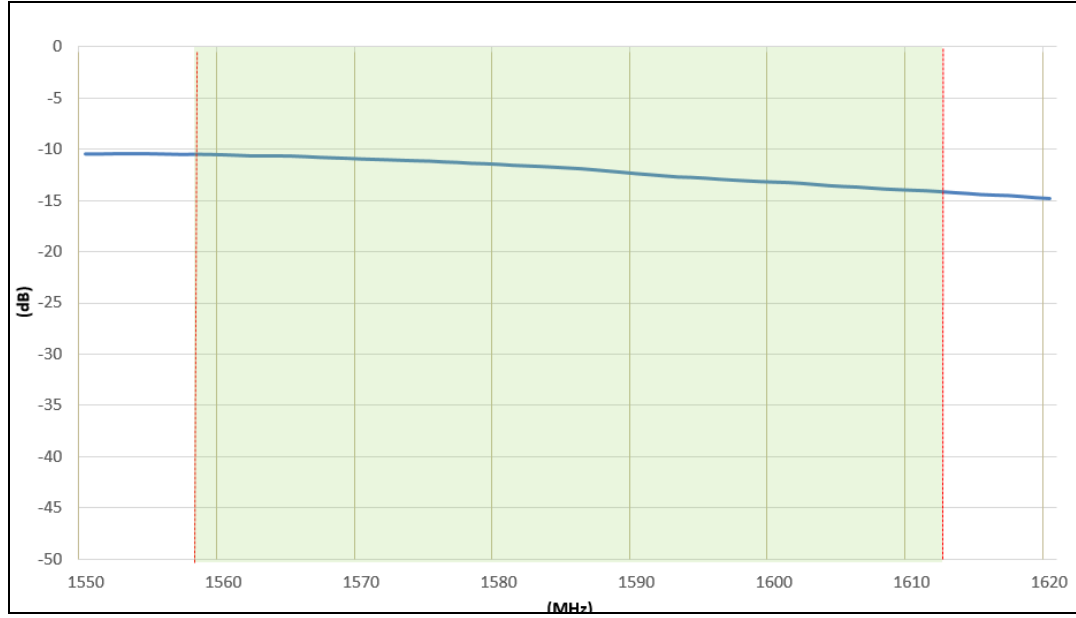
## III. Block Diagram



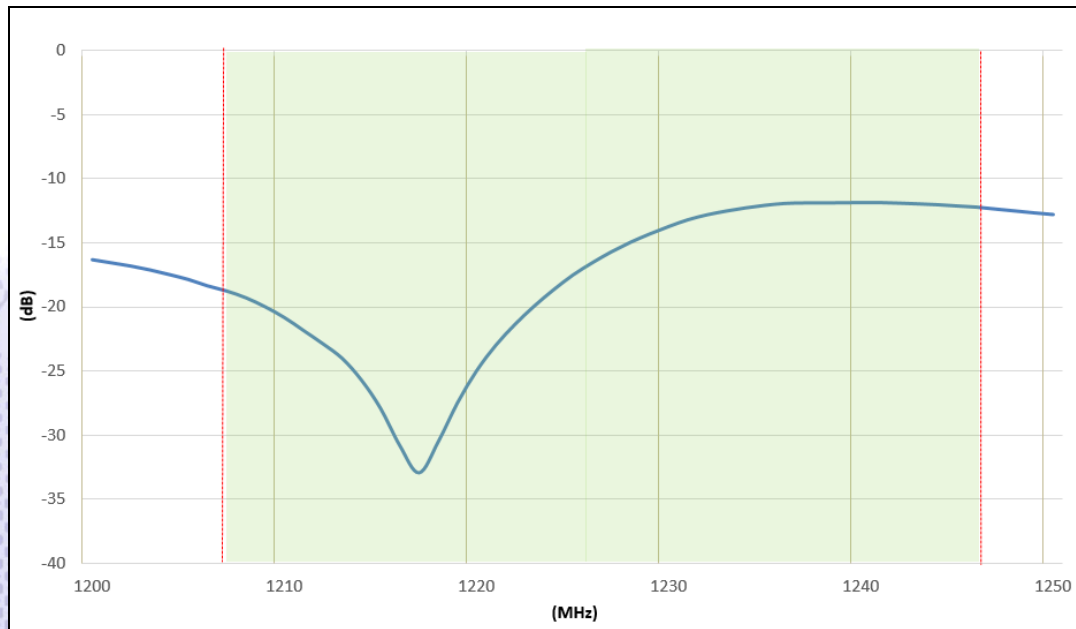
## IV. Properties:

### a) Return loss (dB)

#### I. GNSS L1 Band (with coupler)

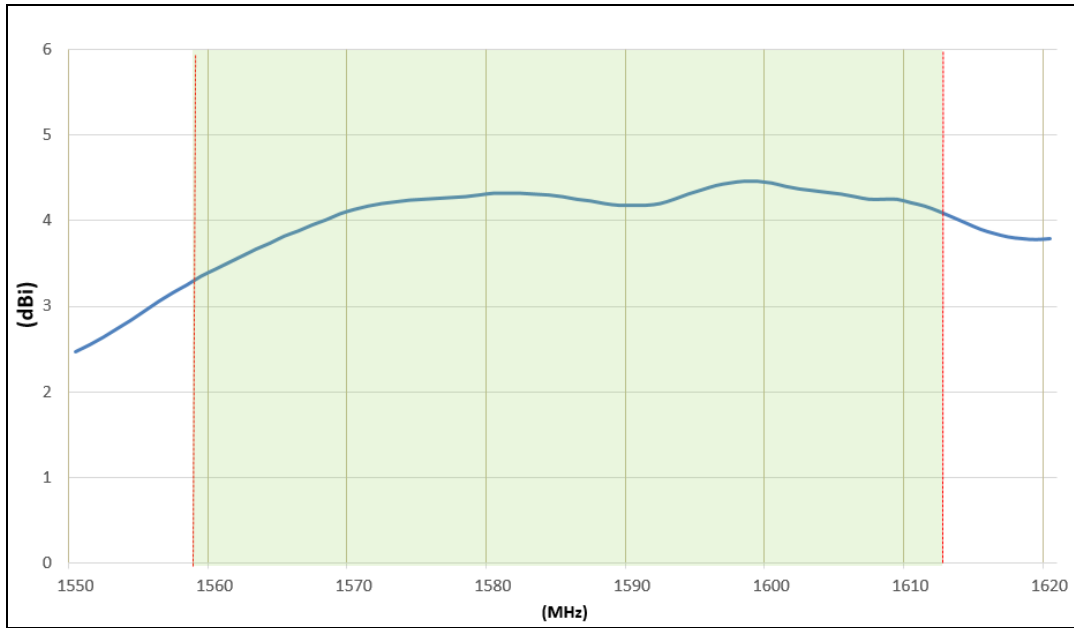


#### II. GNSS L2 Band (with coupler)

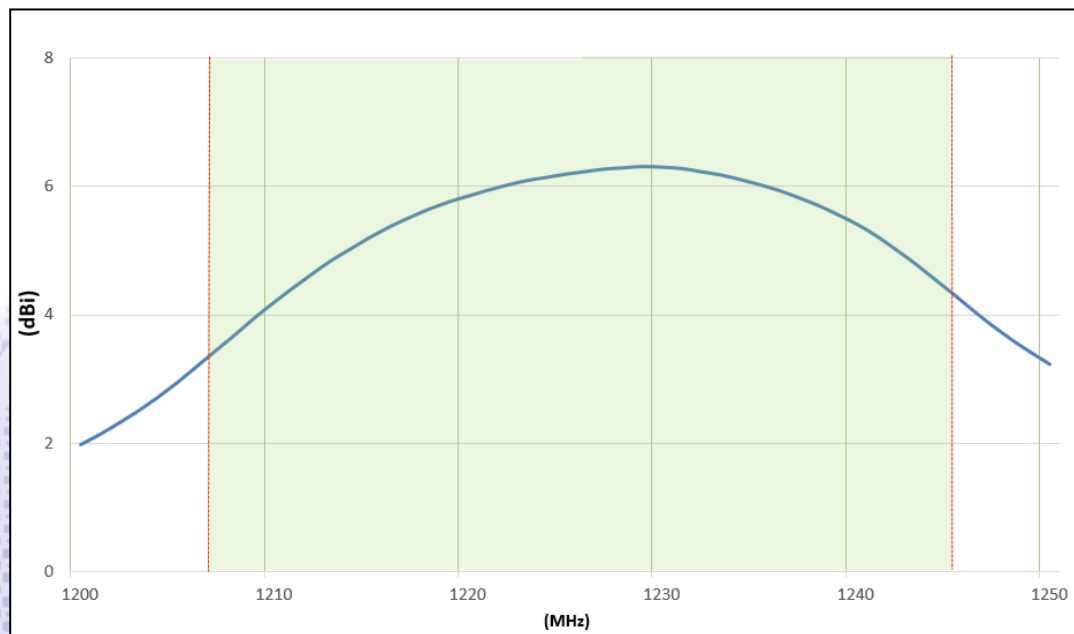


**b) Peak Gain vs. Frequency (with coupler)**

**I. GNSS L1 Band**



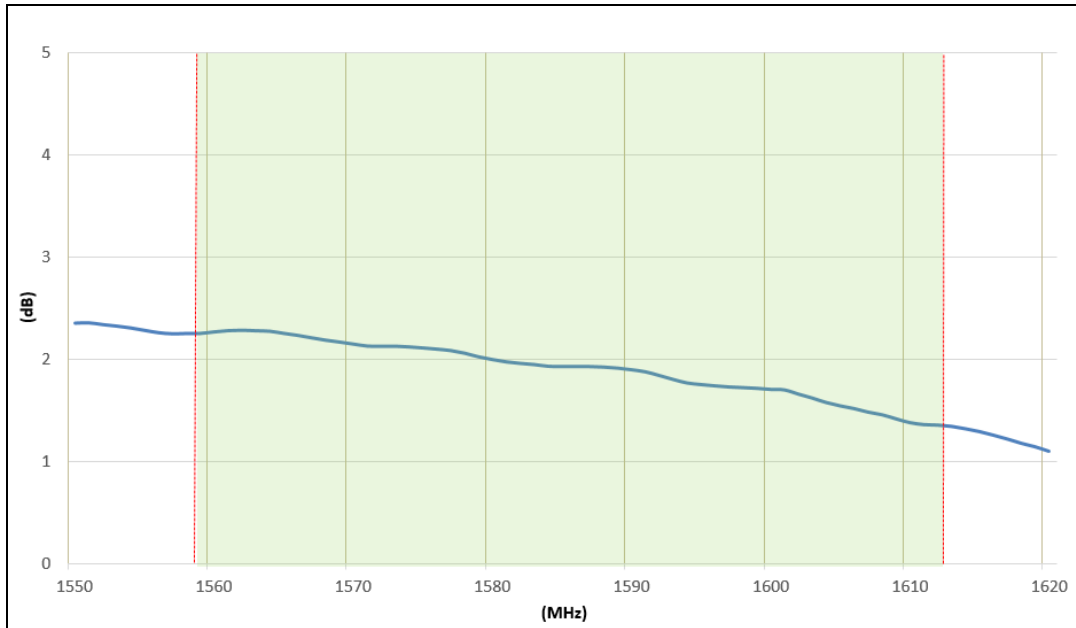
**II. GNSS L2 Band**



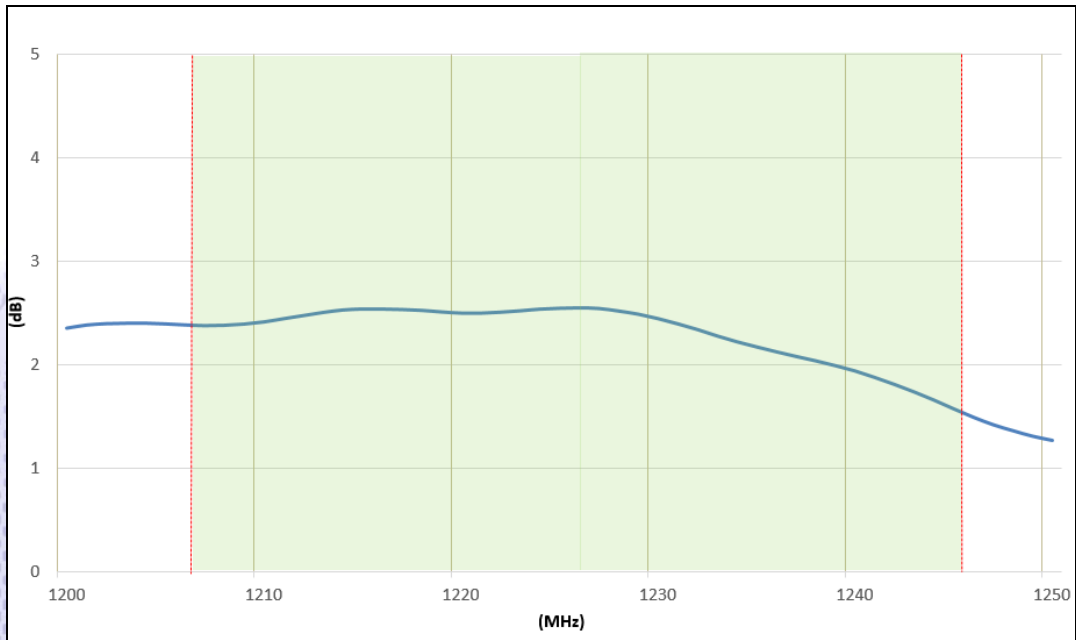
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**c) Axial vs. Frequency (with coupler)**

**I. GNSS L1 Band**



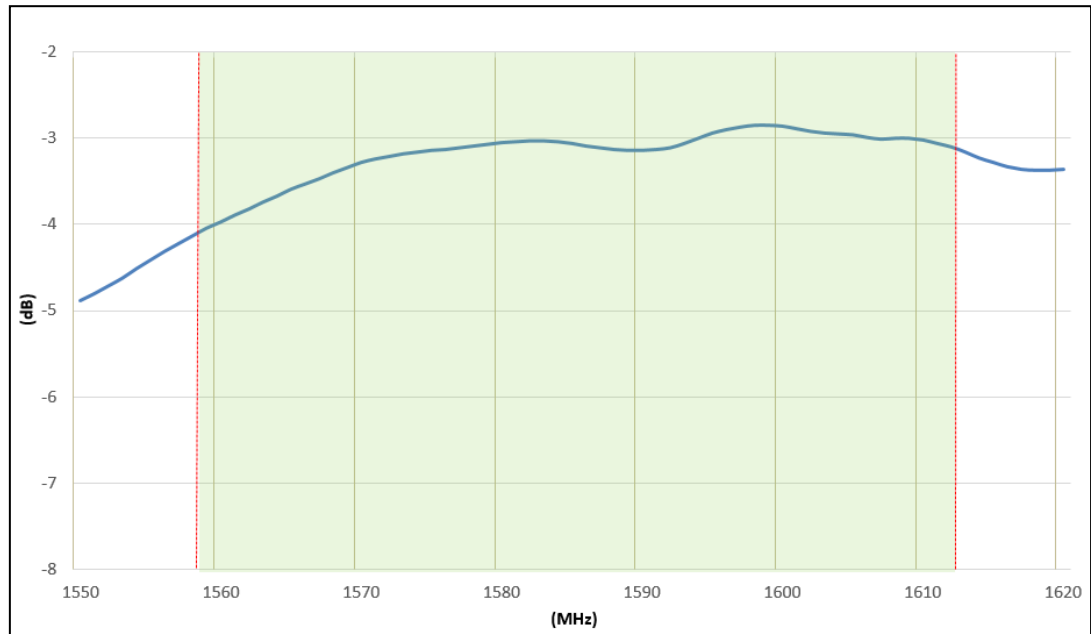
**II. GNSS L2 Band**



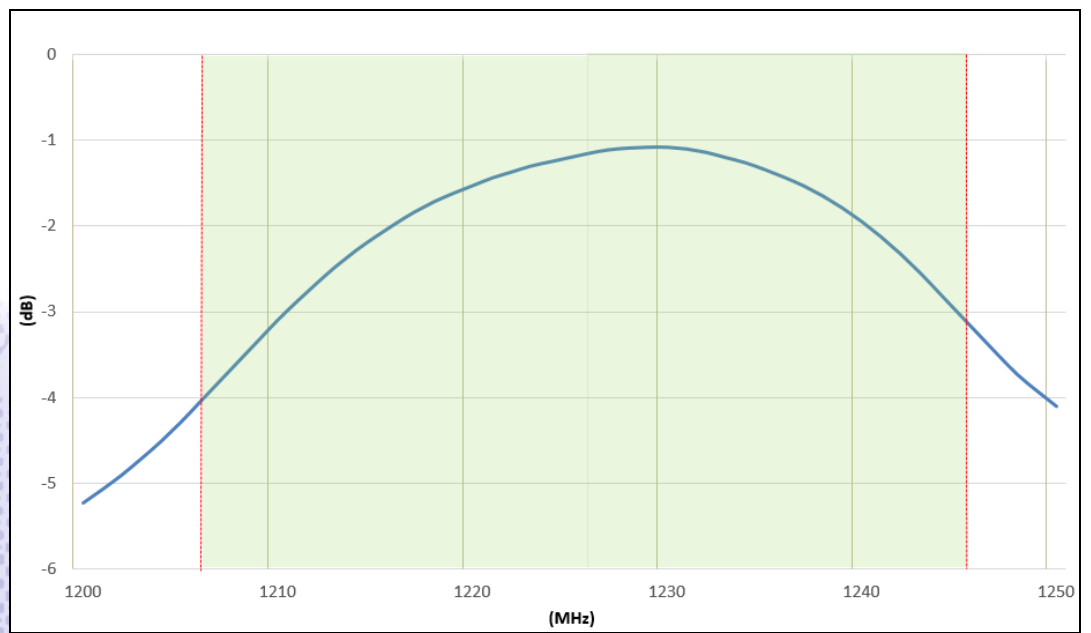
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**d) Average Gain(dB) (with coupler)**

**I. GNSS L1 Band**



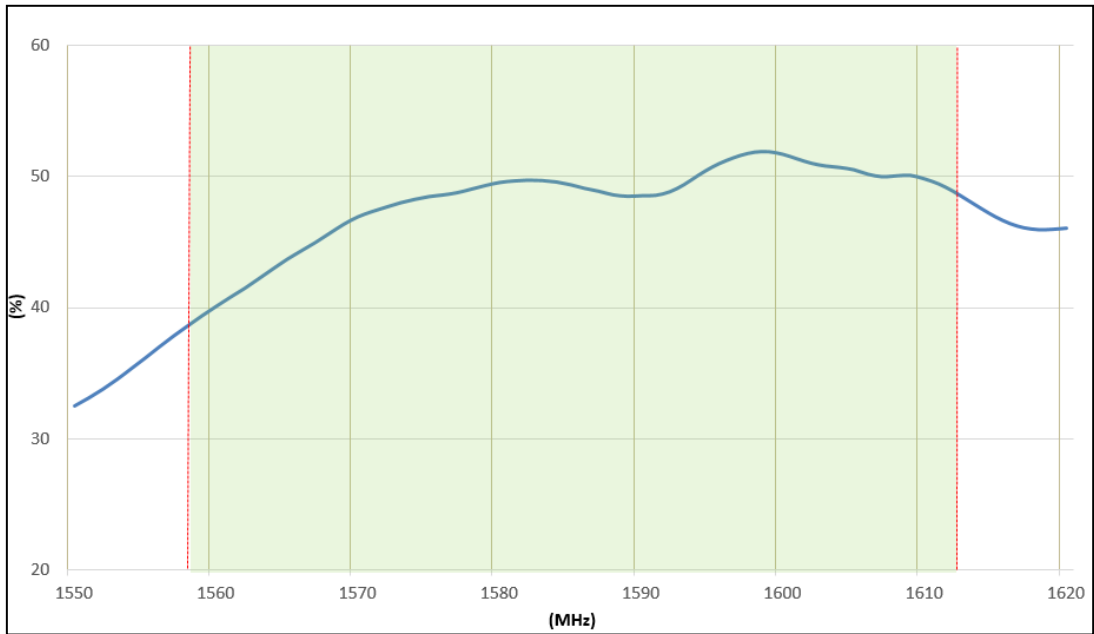
**II. GNSS L2 Band**



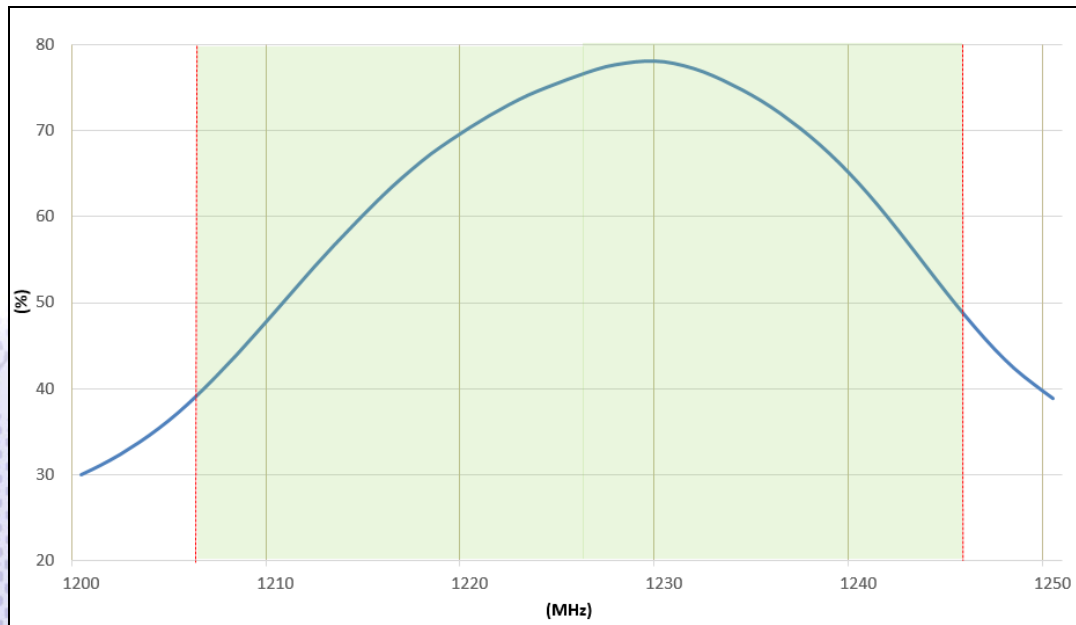
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**e) Efficiency (%) (with coupler)**

**I. GNSS L1 Band**



**II. GNSS L2 Band**



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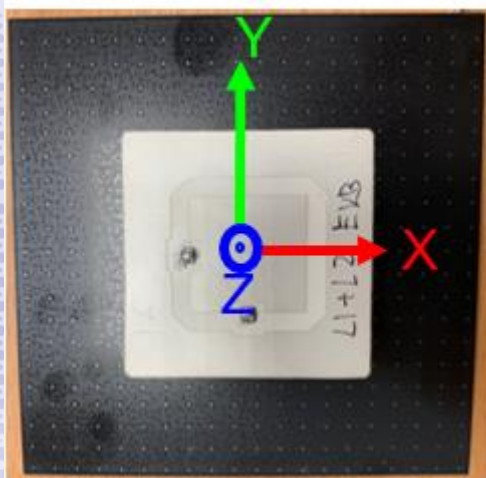
## V. Antenna Radiation Pattern Measurement:

The antenna radiation patterns are measured in Unictron's 3D Anechoic Chamber. The measurement setup is as show below.

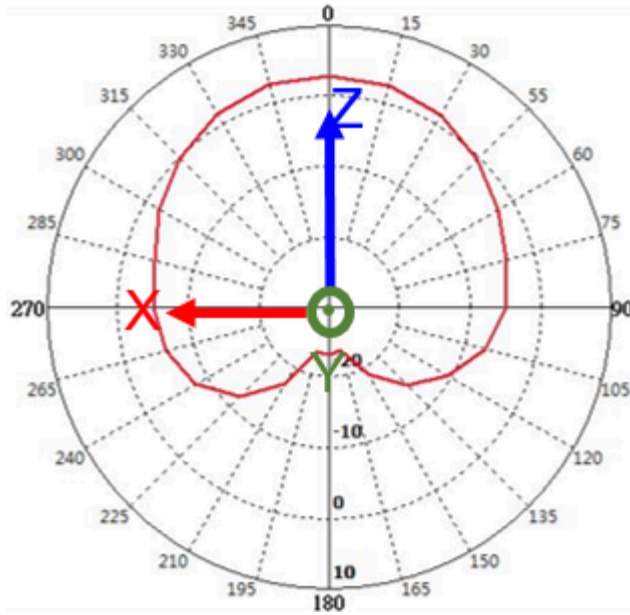


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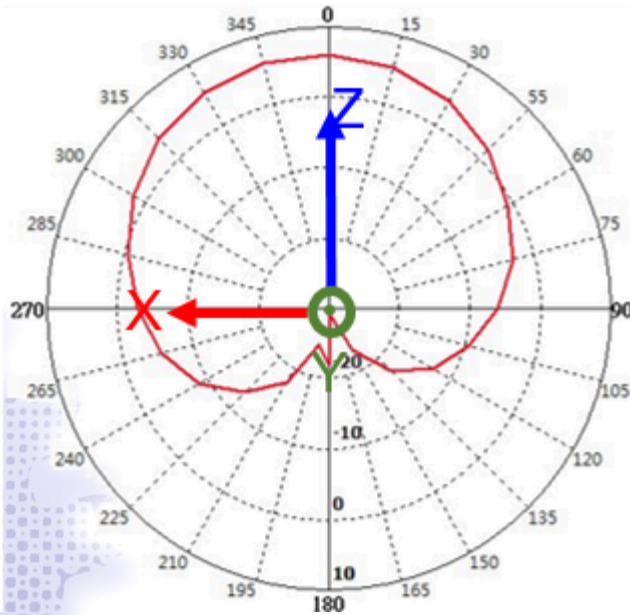
### 2D Radiation Gain Pattern



**a) GNSS L1 Band @1575.42MHz (unit: dBi)**



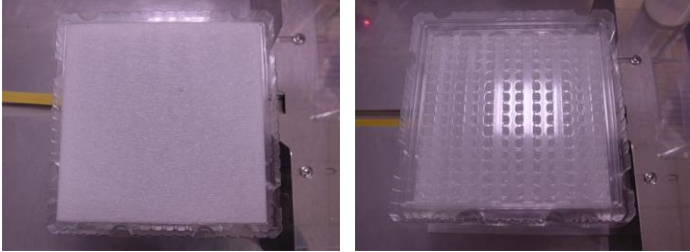
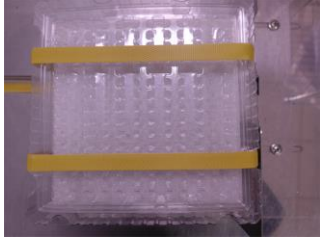


**b) GNSS L2 Band @1227.6MHz (unit: dBi)**



## VI. Packing:

- a) Weight:  
Unit Weight:  $38.8 \pm 4$  (g)
- b) Quantity:  
Each Vacuum Bag: 150 pcs  
Each Outer Box: 150 pcs

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| Step | Pictures  | Descriptions   |
|------|---|--|
| 1    |  | Place three trays into one stack. Once stacked, place a sheet of EPE in the depression on the top tray, and then another tray on top. Place another sheet of EPE beneath the bottom tray to complete the stack. Make sure the trays and the EPE sheets are lined up correctly. |
| 2    |  | Place the stacked trays on the packaging machine to be tape punched and tightly secured.   |
| 3    |  | Place the stacked trays into a vacuum bag to be vacuum sealed, and then labeled.   |
| 4    |  | Place one vacuum bags vertically into a carton and then seal the carton.   |