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# Datasheet

**Part No:**
**TI.42.A113**

## Description

400-470MHz Terminal Mount Antenna with 90 Degree Hinged SMA(M) Connector

## Features:

Terminal Antenna with Sleek, Stylish Design
Covering ISM/UHF 400-470MHz
Dimensions: Ø13 x 198mm
Connector: SMA(M)
Custom Cables and Connectors Available
RoHS & Reach Compliant

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| | | |
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RNATIONAL
UKAS QUALITY MANAGEMENT 046
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# 1. Introduction



The TI.42.A113 is a high performance 433MHz and 450MHz Terminal mount antenna, it is 198mm tall and 13mm in diameter and can be mounted straight or right angled due to its hinged SMA(M) connector which comes as standard. This antenna performs very well with metal enclosures, which would be a common mounting placement for this antenna as it will be used with a variety of smart meters, remote monitoring devices.

The sub 600MHz spectrum has been opened up to a range of cellular bands between 400 and 500MHz, the TI.42 is the perfect antenna for these sub 500MHz bands such as band 87 and band 88.

Typical Application include:

- Smart Metering
- Remote Monitoring
- Industrial IoT
- Connected Enterprise

The TI.42 is manufactured using TPEE which makes it very lightweight at just 22.5g. The swivel and hinge mechanism allows the antenna to be orientated in different directions which helps to avoid other antennas or objects. The antenna connector type can be customizable, please contact your regional Taoglas customer support team for installation guidelines or additional support to integrate and test this antenna's performance in your device.

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# 2. Specification

| LTE Electrical | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Band** | **Frequency (MHz)** | **Test Set-up** | **Efficiency (%)** | **Average Gain (dB)** | **Peak Gain (dBi)** | **Impedance** | **Polarization** | **Radiation Pattern** |
| **433MHz** | 400-435 | Straight | 88 | -0.55 | 4.2 | 50 Ω | Linear | Omni |
| | | Bent | 80 | -1.0 | 3.7 | | | |
| **450MHz** | 450-470 | Straight | 72 | -1.4 | 2.5 | | | |
| | | Bent | 78 | -1.1 | 3.0 | | | |

| Mechanical | |
|---|---|
| **Dimensions** | Ø13 x 198mm |
| **Material** | PC+PBT |
| **Weight** | 23g |
| **Connector** | SMA(M) |

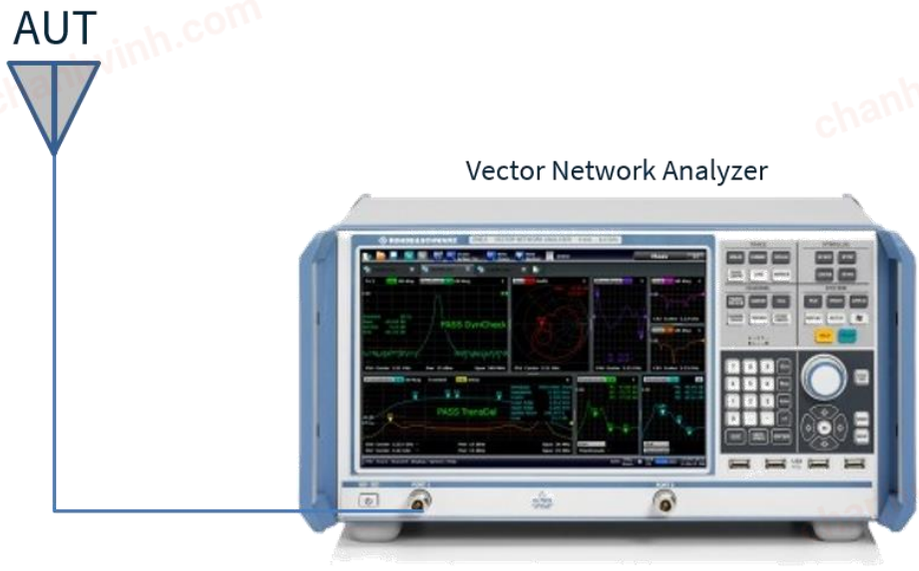
| Environmental | |
|---|---|
| **Operation Temperature** | -40°C - +85°C |
| **Storage Temperature** | -40°C - +85°C |

*Measure the antenna with 110X90X30mm metal housing.

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# 3. Antenna Characteristics

## 3.1 Test Set-up

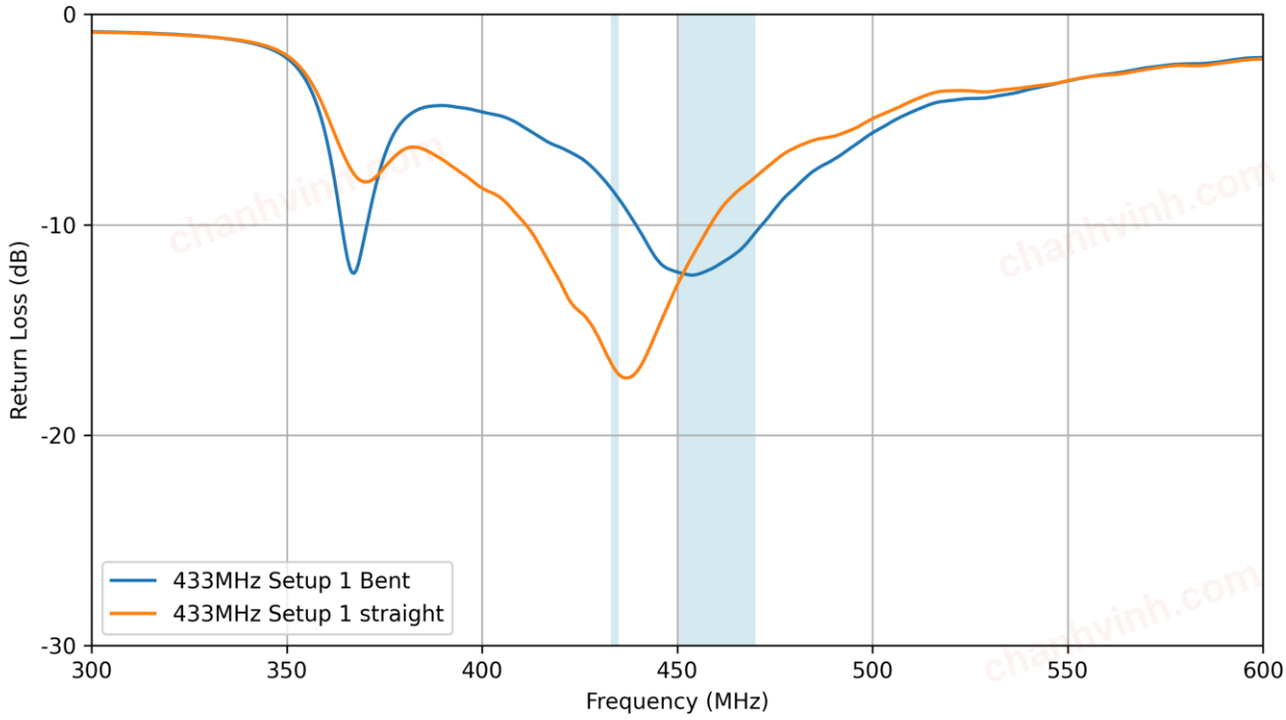




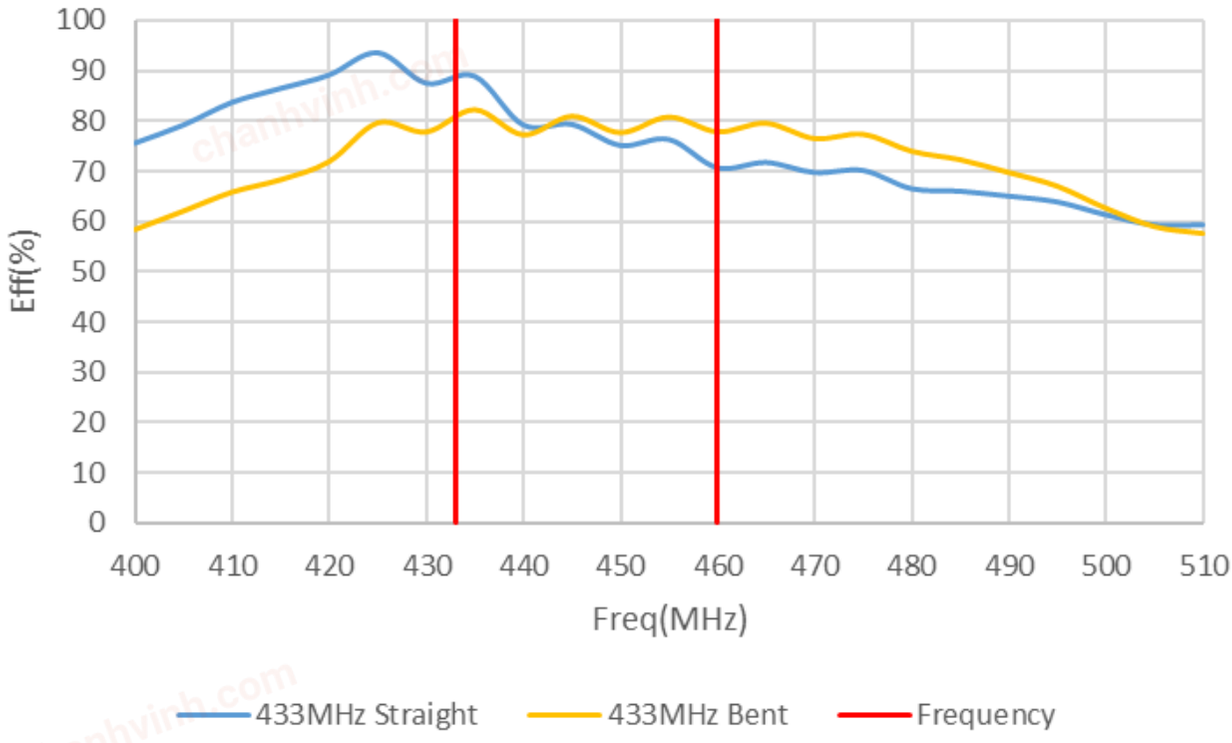

Straight Bent

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## 3.2 Return Loss

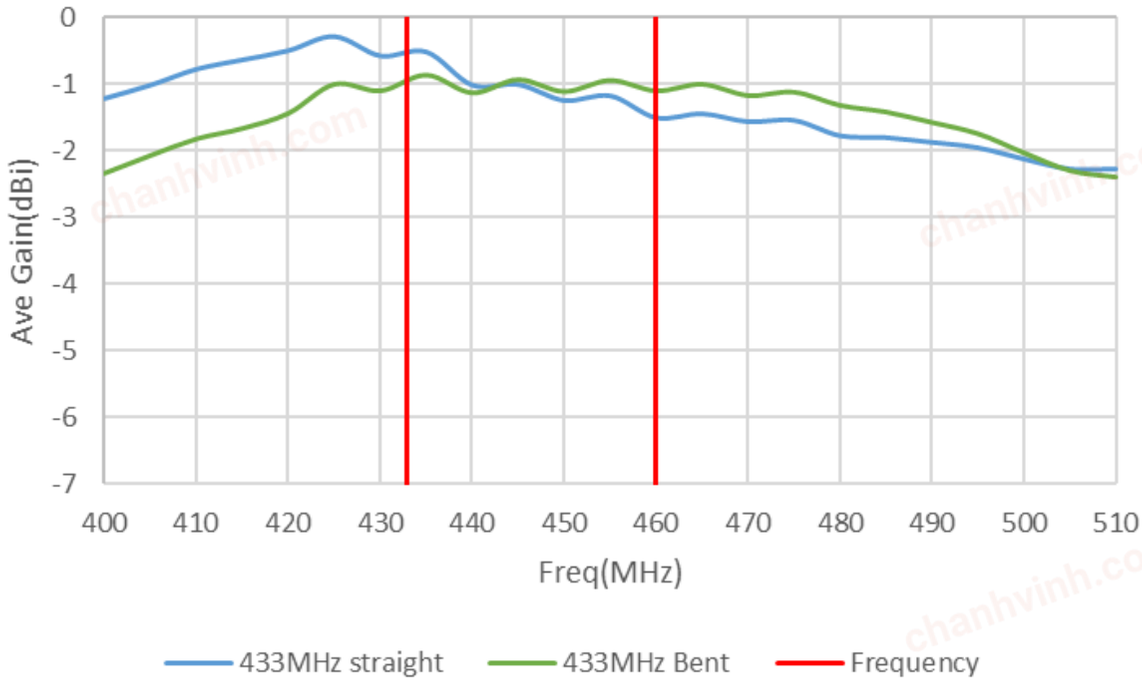



## 3.3 Efficiency

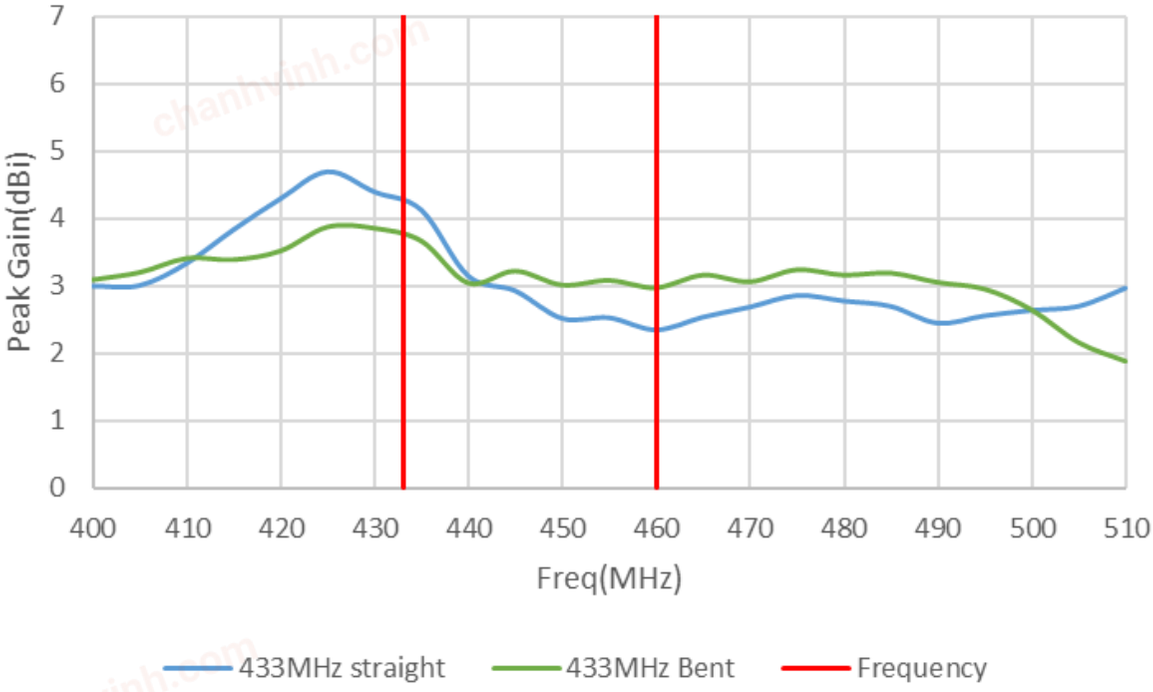


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## 3.4 Average Gain



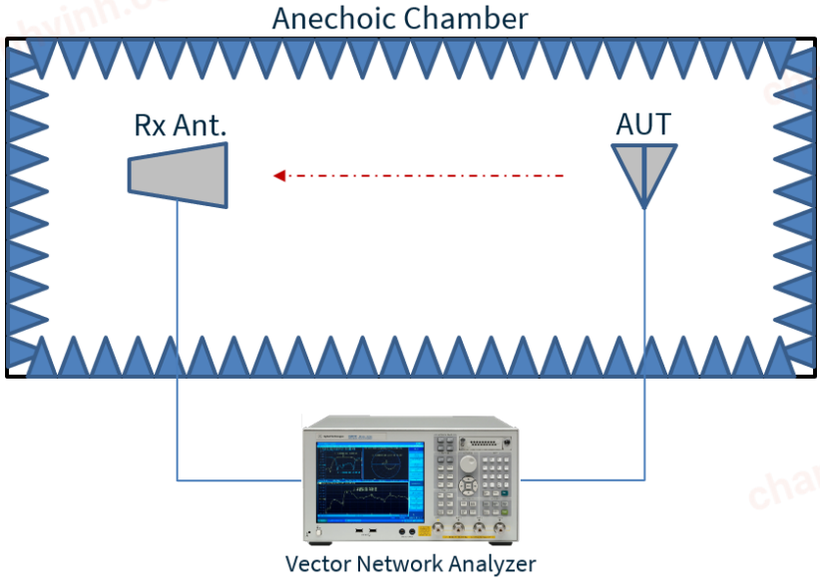

## 3.5 Peak Gain

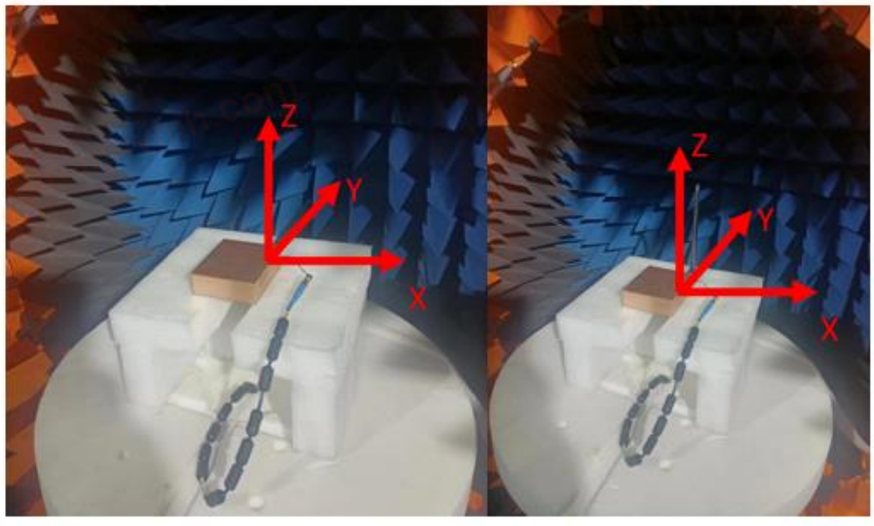


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# 4. Radiation Patterns

## 4.1 Test Setup

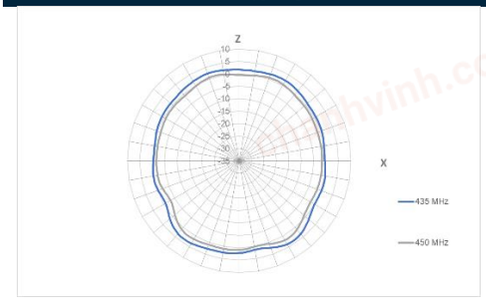
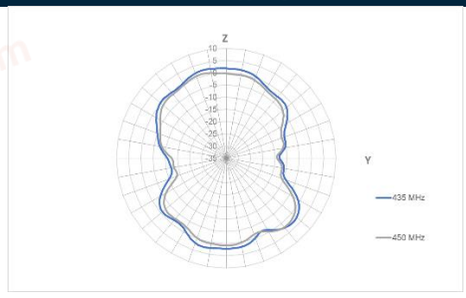
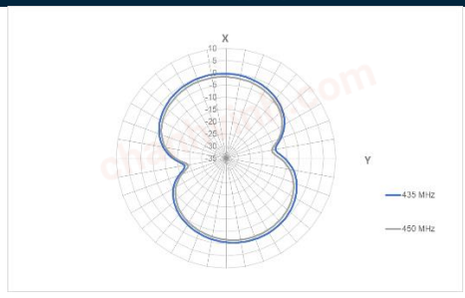



Straight Bent

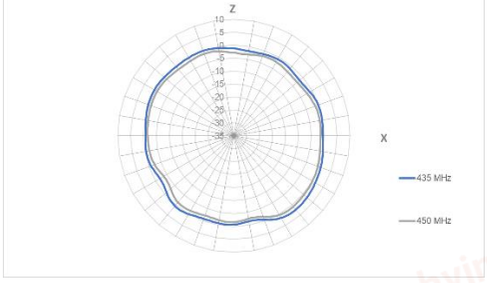
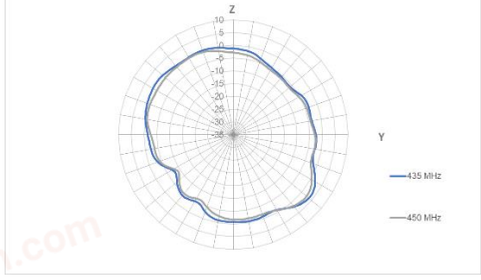
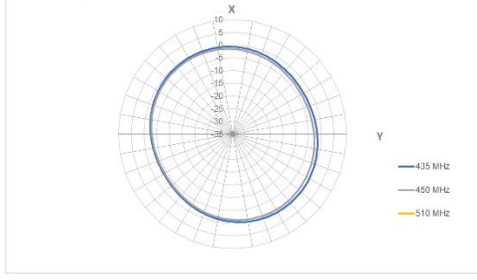
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## 4.2 Straight - Patterns at 435 & 450 MHz

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |



## 4.3 Bent - Patterns at 435 & 450 MHz

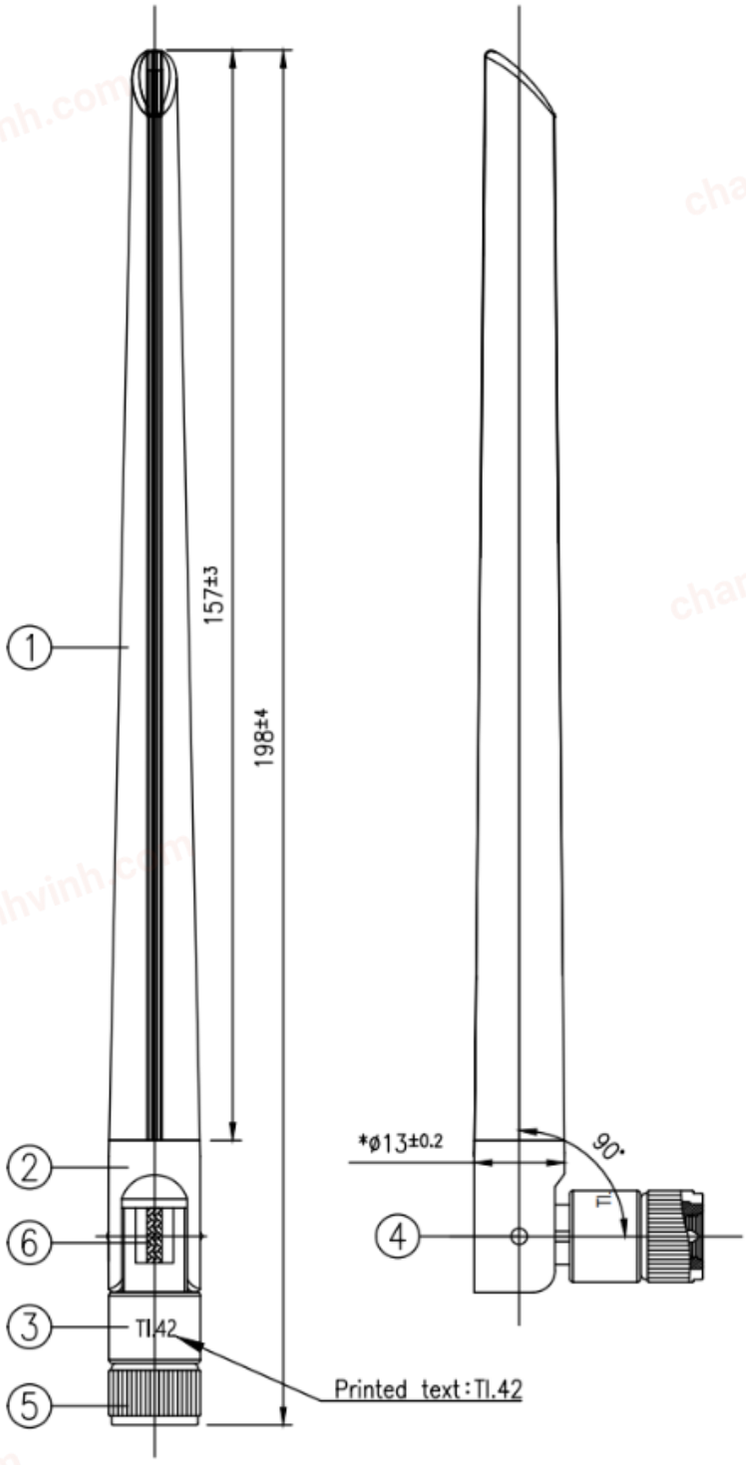
| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |



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# 5. Mechanical Drawing

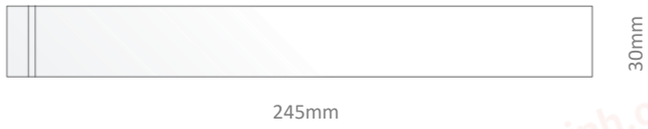



| | Name | Material | Finish | QTY |
|---|---|---|---|---|
| 1 | Antenna Cap | TPEE | Black | 1 |
| 2 | Upper Base | PBT+PC | Black | 1 |
| 3 | Bottem Base | PBT+PC | Black | 1 |
| 4 | Rivet | PBT+PC | Black | 2 |
| 5 | SMA(M) | Brass | Au Plated | 1 |
| 6 | RG178 Coaxial Cable | FEP | Brown | 1 |

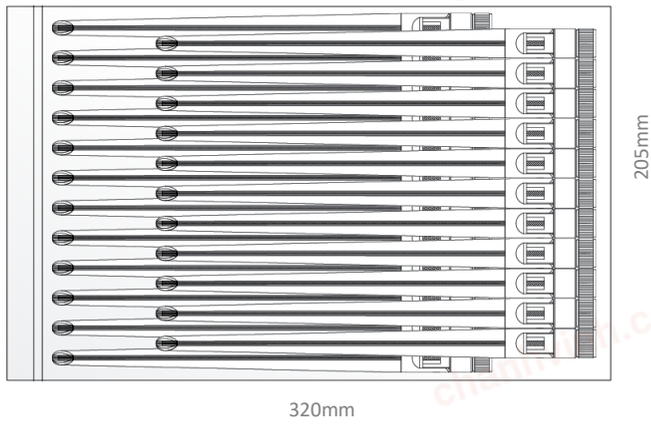
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# 6. Packaging

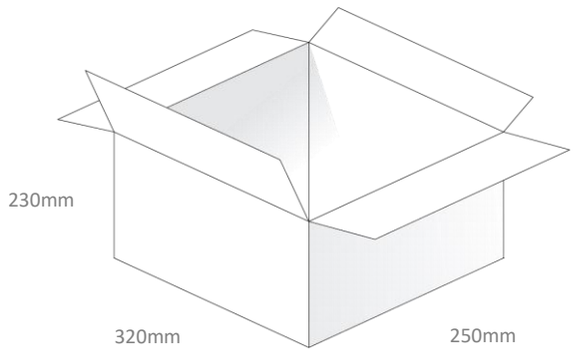
1pc TI.42.A113 per PE Bag
Bag Dimension: 245*30mm
Weight: 23g



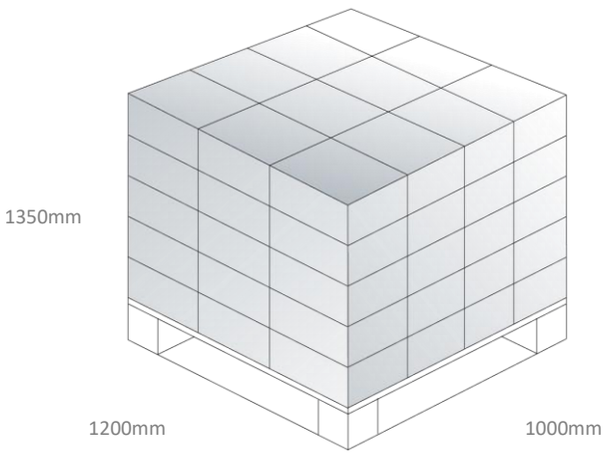

40pcs TI.42.A113 per Large PE Bag
Bag Dimensions: 320*205mm
Weight: 0.9Kg




400pcs TI.42.A113 per Carton
Dimensions: 320*250*230mm
Weight: 10Kg




Pallet Dimensions:
1200*1000*1350mm
60 Cartons Per Pallet
12 Cartons Per Layer, 5 Layers

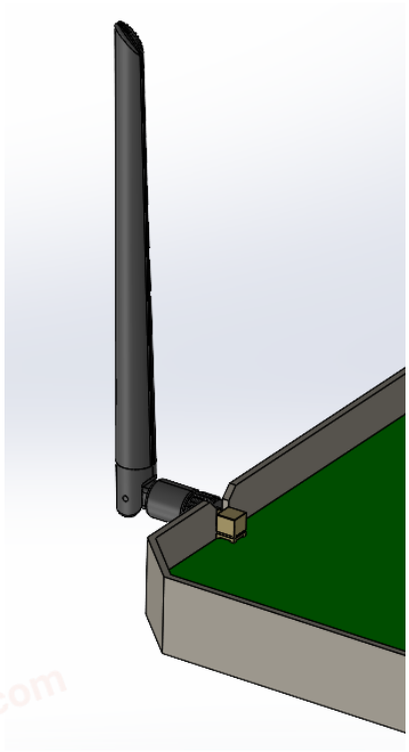


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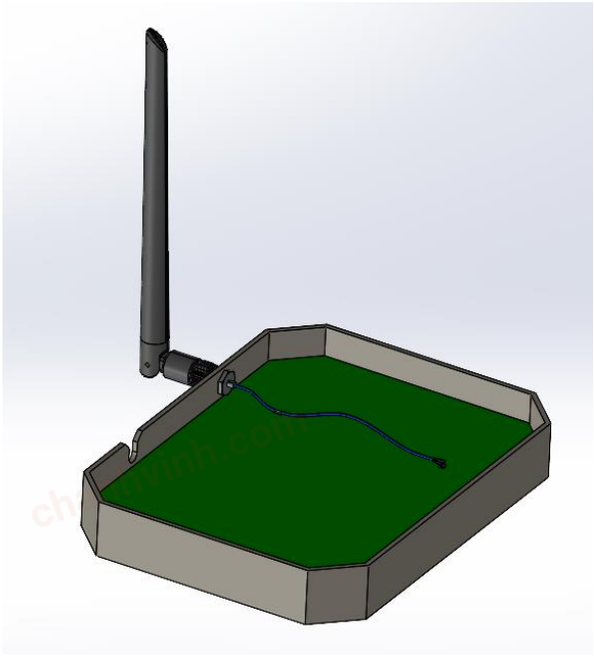
# 7. Application Note

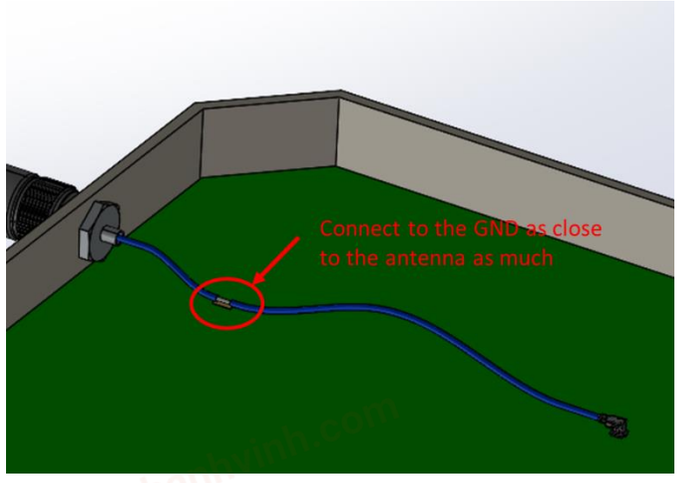
TI.45.A113 has been designed to not only work with metal enclosures, but also with plastic enclosures and device's main board.

Installation using PCB mount SMA female connector as below picture:



Installation using a cable assembly, the cable assembly needs to be connected to the ground of the main PCB of the device such as below picture:





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Changelog for the datasheet

## SPE-23-8-280 – TI.42.A113

| Revision: A (Original First Release) | |
|---|---|
| Date: | 2023-09-27 |
| Notes: | Initial Release |
| Author: | Gary West |

**Previous Revisions**

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