



# TAOGLAS®



# Datasheet

**Part No:**  
WDP.2458.25.4.B.02

**Description:**  
Wi-Fi Dual-band 2.4/5 GHz  
Embedded Ceramic Patch Antenna  
6dBi+ at 2.4GHz  
6dBi+ on 5 to 6 GHz

**Features:**  
Dimensions: 25mm\*25mm\*4mm  
2400MHz to 2500MHz/5150MHz to 5850MHz  
Pin Type  
Supports IEEE 802.11 Dual-band Wi-Fi systems  
Dual linear polarization  
Tuned for 70x70mm ground plane  
RoHS and REACH Compliant

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# 1. Introduction



This unique patent pending high gain, high efficiency embedded ceramic patch antenna is designed for professional Wi-Fi dual-band IEEE 802.11 applications. It is mounted via pin and double-sided adhesive. The passive patch offers stable high gain response from 4 dBi to 6dBi on the 2.4GHz band and from 5dBi to 8dBi on the 5 ~6 GHz band. Efficiency values are impressive also across the bands with on average 60%+.

The WDP.25's high gain, high efficiency performance is the perfect solution for directional dual-band WiFi application which need long range but which want to use small compact embedded antennas. The much higher gain and efficiency of the WDP.25 over smaller less efficient more omni-directional chip antennas (these typically have no more than 2dBi gain, 30% efficiencies) means it can deliver much longer range over a wide sector.

Typical applications are

- Access Points
- Tablets
- High definition high throughput video streaming routers
- High data MIMO bandwidth routers
- Automotive
- Home and industrial in-wall WiFi automation
- Drones/Quad-copters
- UAV
- Long range WiFi remote control applications

The WDP patch antenna has two distinct linear polarizations, on the 2.4 and 5GHz bands, increasing isolation between bands.

Custom tuned versions for different ground-planes and housing environments can be made subject to a minimum order quantity.

Contact your regional Taoglas customer support team for further information or to integrate and test this antenna performance in your device.

## 2. Specifications

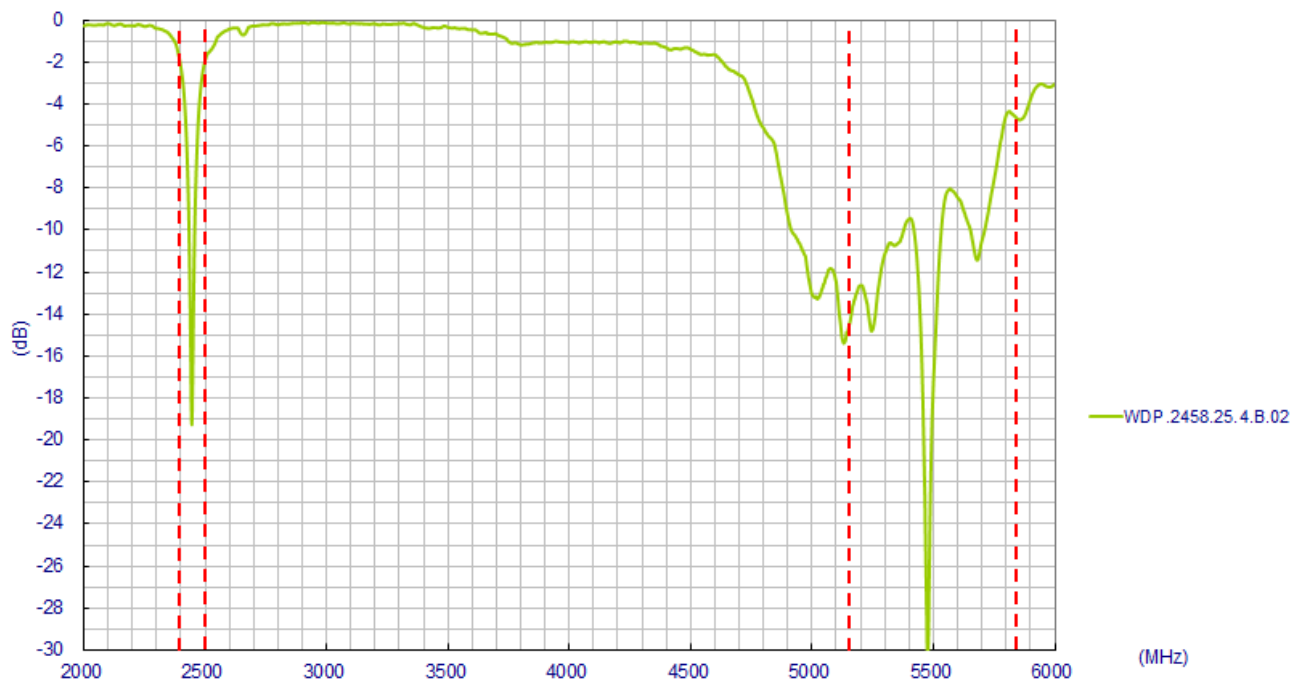
| GNSS Electrical                 |                            |              |
|---------------------------------|----------------------------|--------------|
| Frequency Range (MHz)           | 2400-2500                  | 5150-5850    |
| Return Loss (dB)                | Min. -19, -2 at edge       | <-5          |
| Antenna Efficiency (%)          | Max. 80, 25+ at edge       | 50+ in bands |
| Antenna Peak Gain (dBi)         | 6                          | 8            |
| Antenna Polarization            | Linear                     |              |
| Impedance                       | 50 ohm                     |              |
| Input Power                     | 10W                        |              |
| Mechanical                      |                            |              |
| Height                          | 4 mm                       |              |
| Planner Dimension               | 25 x 25 mm                 |              |
| Environmental                   |                            |              |
| Frequency Temp Coefficient (Tf) | 0±20ppm/°C                 |              |
| Operating Temperature           | -40°C to +105°C            |              |
| Humidity                        | Non-condensing 65°C 95% RH |              |

\*All tests were done on a 70mm\*70mm ground plane.

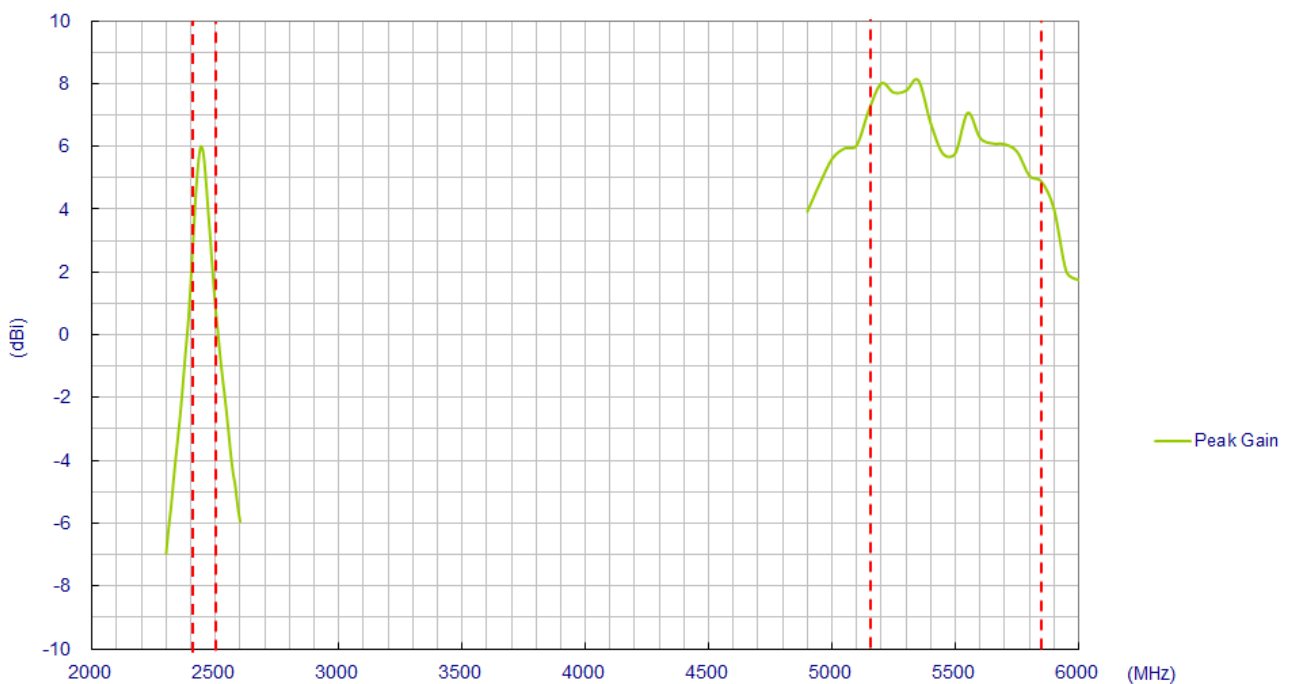


### 3. Antenna Characteristics

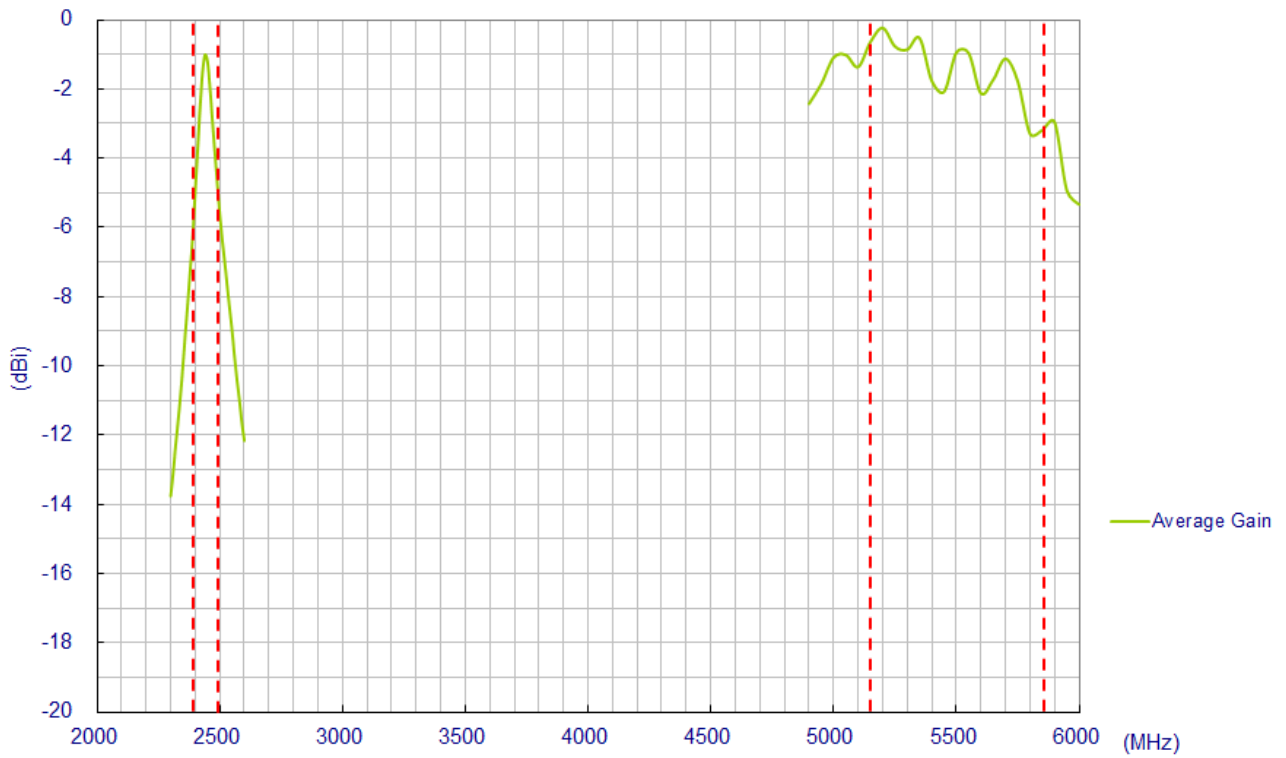
#### 3.1 Return Loss



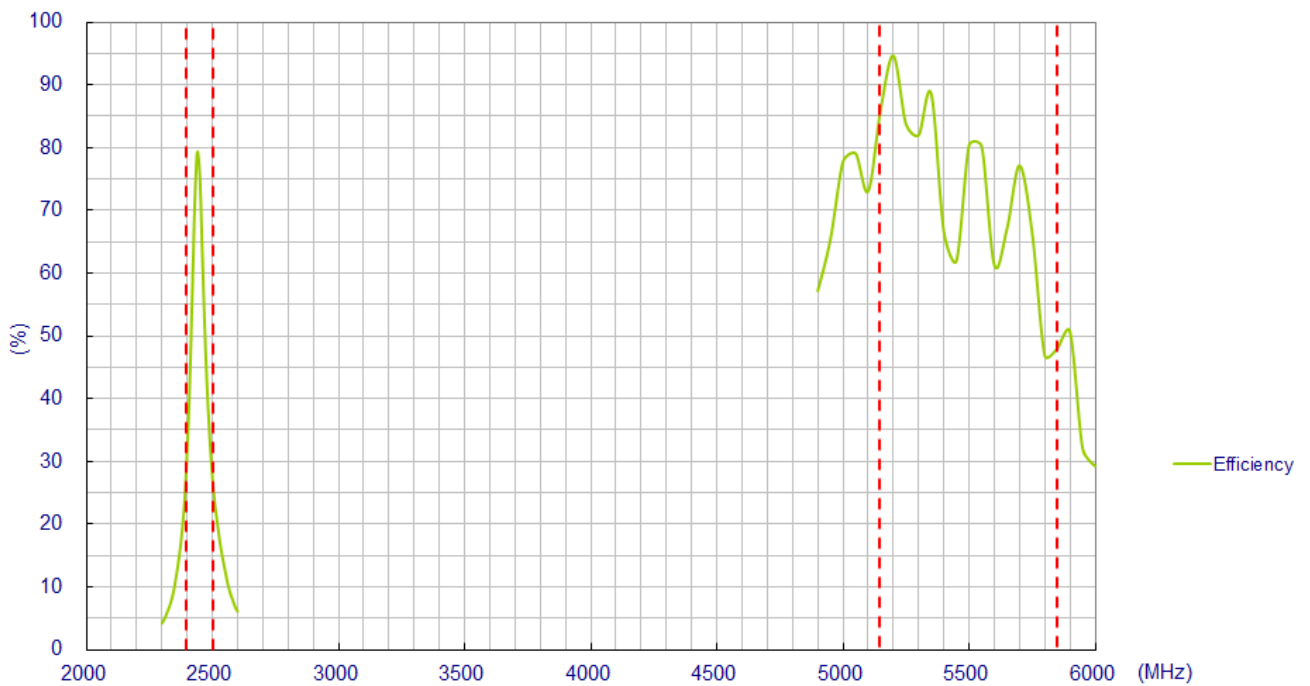
#### 3.2 Peak Gain



### 3.3 Average Gain Gain

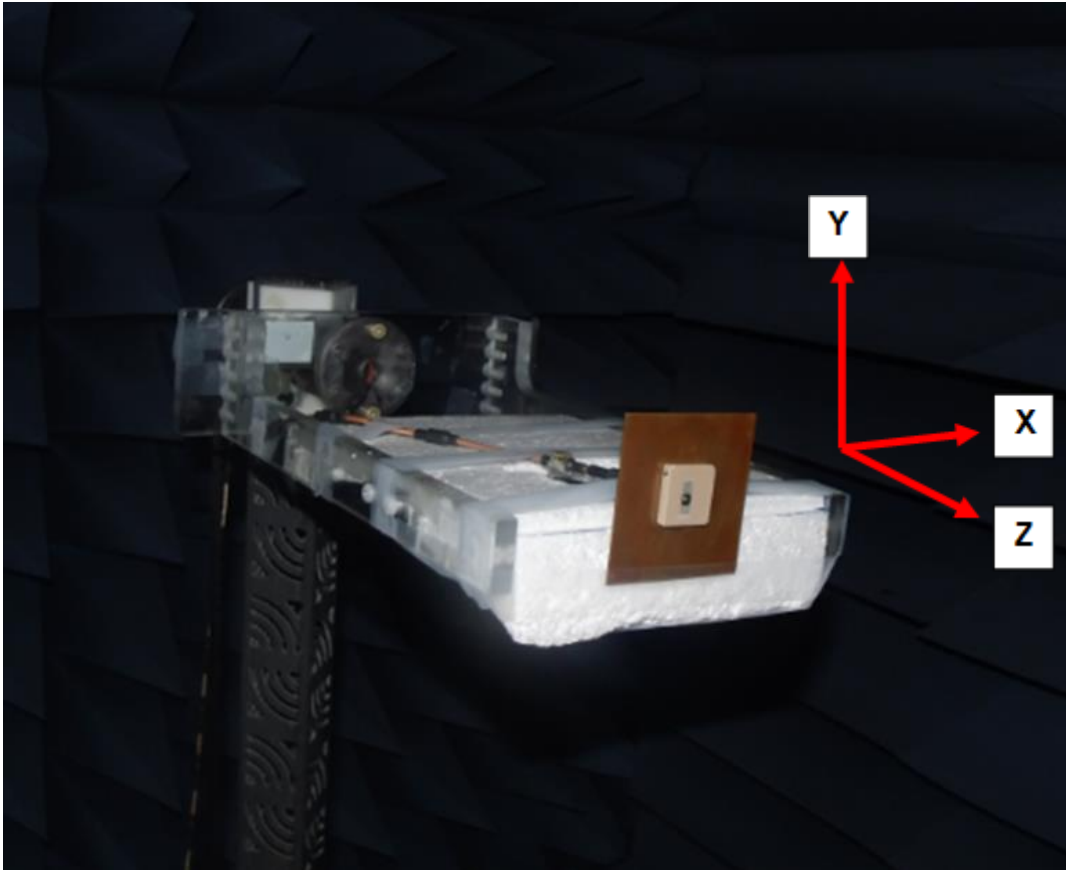


### 3.4 Efficiency



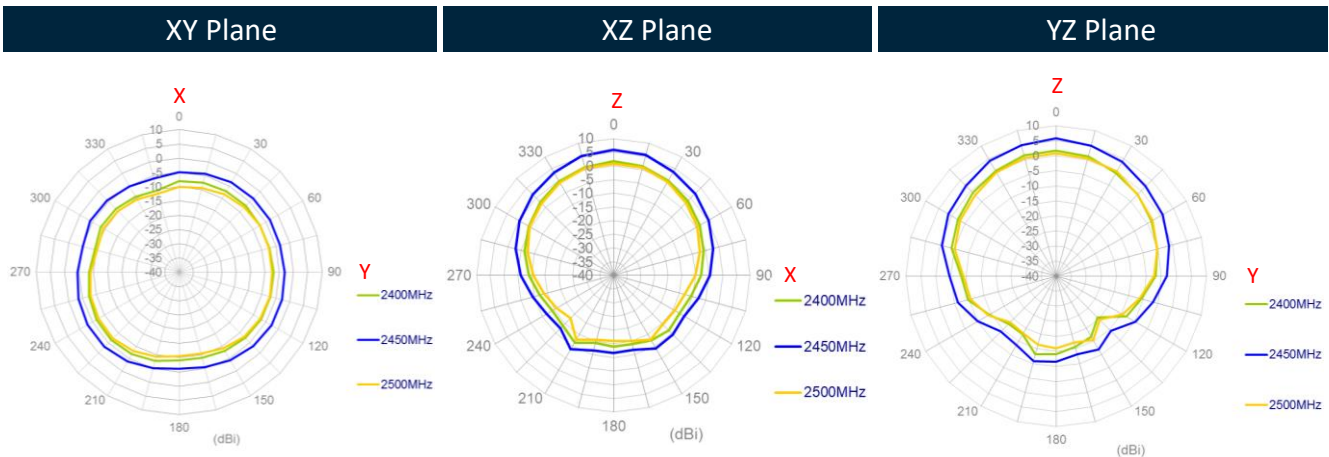
## 4. Radiation Patterns

### 4.1 Test Setup

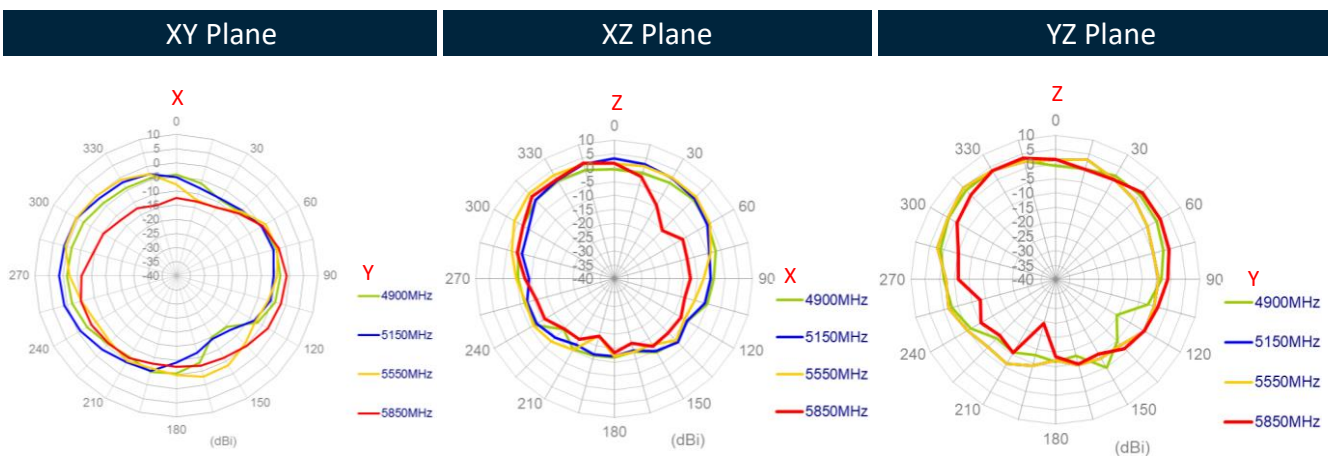


The antenna radiation pattern measurement setup as shown below,

## 4.2 2400MHz, 2450MHz & 2500MHz 2D Radiation Patterns

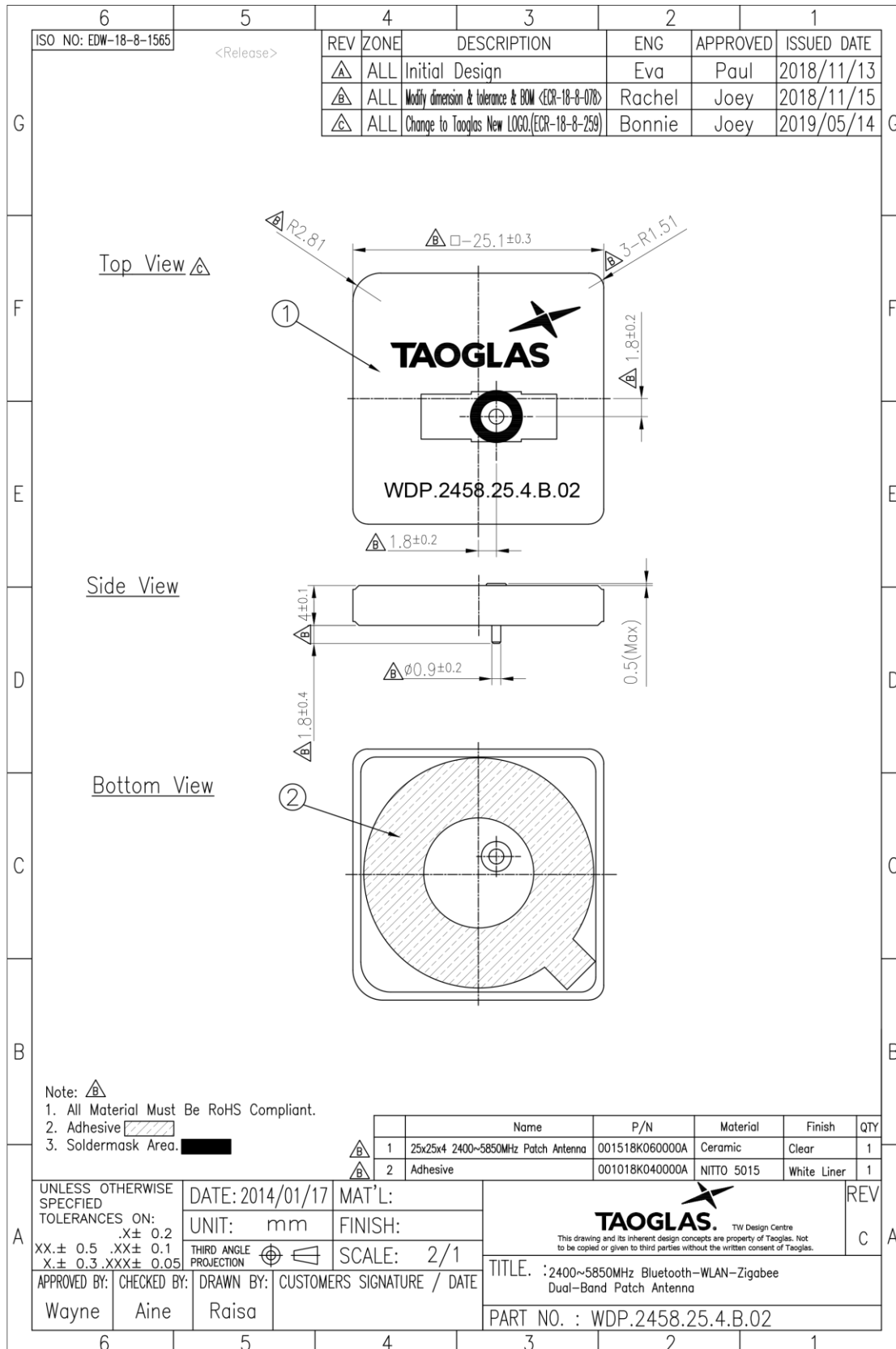


## 4.3 4900MHz, 5150MHz, 5550MHz & 5850MHz 2D Radiation Patterns



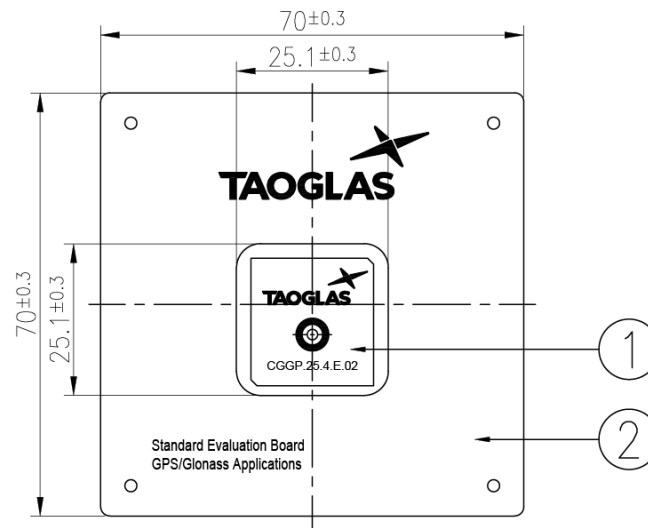


# 5. Mechanical Drawing (Units: mm)

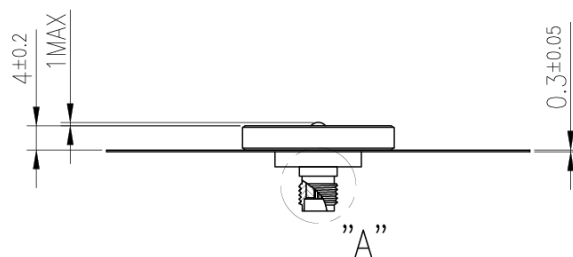


## 6. Footprint

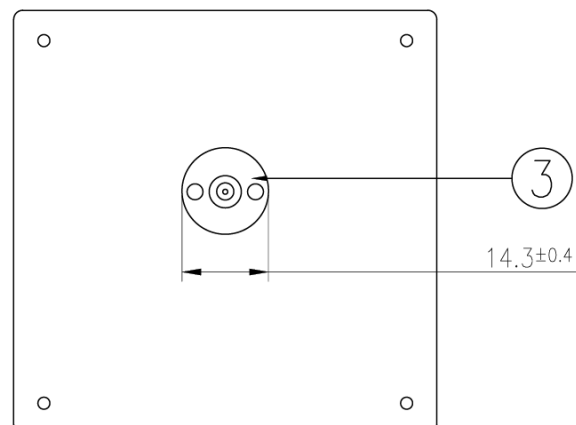
Top View



Side View



Bottom View



NOTE:

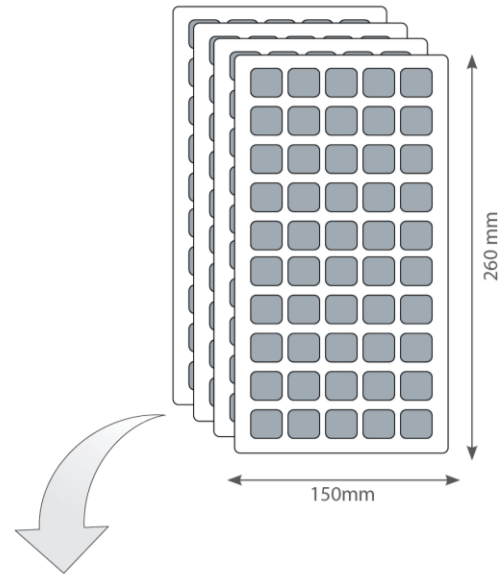
- 1.All material must be RoHS compliant.
- 2.Open/short QC, VSWR required.
- 3.Soldermask Area

|   | Name         | P/N            | Material | Finish    | QTY |
|---|--------------|----------------|----------|-----------|-----|
| 1 | Patch        | 001515H040007A | Ceramic  | Clear     | 1   |
| 2 | Ground-Plane | 000514B000007A | SPTe     | Silver    | 1   |
| 3 | SMA(F)ST     | 200419A000094A | Brass    | Au Plated | 1   |

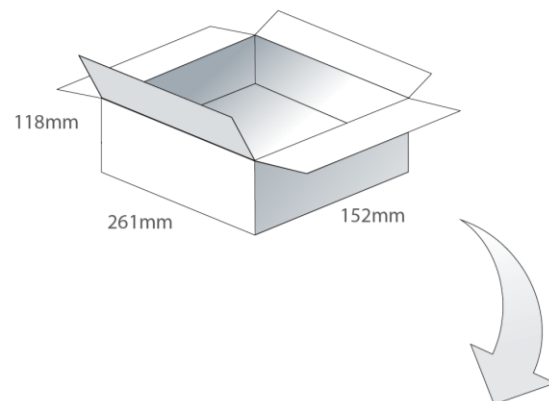
## 7. Packaging

50 pcs WDP.2458.25.4.B.02 per tray  
Tray Dimensions - 260\*150mm

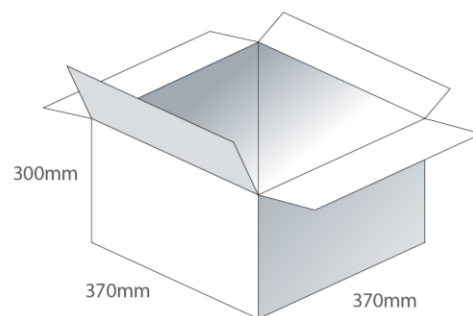
Weight - 223g



200 pcs WDP.2458.25.4.B.02 per Inner Carton  
Inner Carton Dimensions - 261\*152\*118mm



800 pcs WDP.2458.25.4.B.02 per Carton  
Carton Dimensions - 370\*370\*300mm



Changelog for the datasheet

**SPE-14-8-039 – WDP.2458.25.4.B.02**

| <b>Revision: D (Current Version)</b> |                                                 |
|--------------------------------------|-------------------------------------------------|
| Date:                                | 2018-03-27                                      |
| Changes:                             | Updated Datasheet Template<br>Updated Packaging |
| Changes Made by:                     | Paul Doyle                                      |

**Previous Revisions**

| <b>Revision: C</b> |                           |
|--------------------|---------------------------|
| Date:              | 2017-03-08                |
| Changes:           | Packaging Details Updated |
| Changes Made by:   | Made by Andy Mahoney      |

| <b>Revision: B</b> |                           |
|--------------------|---------------------------|
| Date:              | 2017-08-17                |
| Changes:           | Packaging Details Updated |
| Changes Made by:   | Andy Mahoney              |

| <b>Revision: A (Original First Release)</b> |             |
|---------------------------------------------|-------------|
| Date:                                       | 2017-08-10  |
| Notes:                                      |             |
| Author:                                     | Jack Conroy |

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**Previous Revisions (Continued)**

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