



# TAOGLAS®



## Datasheet

### Ultima

**Part No:**  
**MA530.A.CG.003**

### Description:

Ultima 2-in-1 Wi-Fi® MIMO (including Wi-Fi® 6) 2.4/5.1~7.2GHz Permanent Mount Antenna

### Features:

Full Wi-Fi® operation, including Wi-Fi® 6  
2.4/5.8/7.125GHz Wi-Fi® MIMO  
Powerful MIMO Technology in a Low-Profile Enclosure  
High Isolation between Antenna Elements  
Robust PC Housing  
Waterproof IP67 & IP69K Rated  
Height 19.6mm Diameter 55.23mm  
RoHS & Reach Compliant

|    |                         |    |
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## 1. Introduction



The Ultima MA530 MIMO antenna is low profile, heavy-duty, fully IP67 waterproof external Wi-Fi<sup>®</sup> antenna with Wi-Fi<sup>®</sup> 6 capabilities. This unique omnidirectional antenna provides high efficiency and high isolation between antennas elements in a heavy-duty low-profile compact structure, delivering powerful MIMO antenna technology for Wi-Fi<sup>®</sup> and Wi-Fi<sup>®</sup> 6 applications.

Typical applications include:

- Smart City
- Smart Home
- Routers and Gateways

The MIMO communication system has been one of the most promising technologies, well suited for high data rate communication. A MIMO (Multiple-Input-Multiple-Output) system use at least two antenna structures and is more advantageous than single-input single-output (SISO) in an aspect of increasing channel capacity and reducing transmitting power. MIMO antennas should have compact structure, high radiation efficiency, low envelope correlation, and high isolation between the signal ports.

In small structures (antennas spaced closely), the application of MIMO technology has been restricted by high degree of coupling and spatial correlation between antenna elements due to the limited available space. The isolation between antennas become critical as it can deteriorate the system performance and decreases channel capacity.

The antenna screws down permanently onto a roof or metal panel and can be pole or wall-mounted. One antenna element is vertically polarized and one is horizontally polarized to increase the isolation between antennas.

For industries such as remote monitoring, smart meter systems, construction equipment and public safety at only 19.6mm high, the Ultima MA530 MIMO antenna provides an unobtrusive, robust, rugged antenna that is durable even in extreme environments.

The cable and connector are fully customizable, for more information please contact your regional Taoglas customer support team.

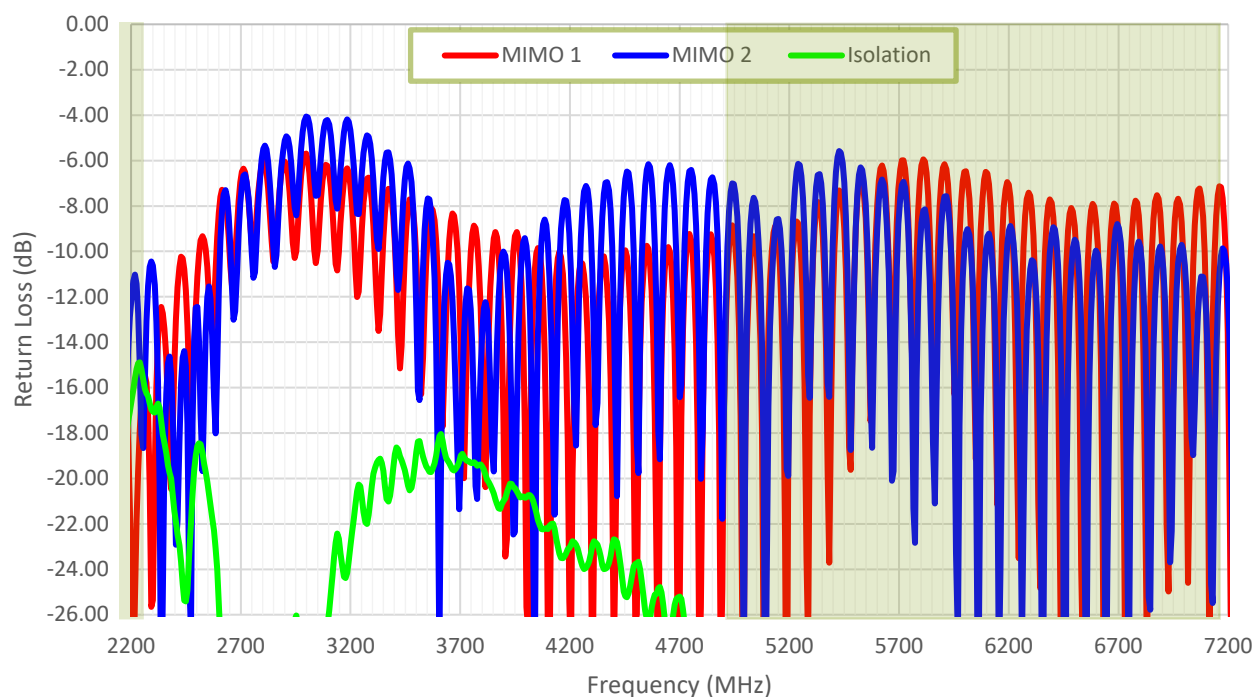
## 2. Specifications

| Wi-Fi MIMO Free Space Electrical |                 |        |                |                   |                 |             |                 |              |                   |
|----------------------------------|-----------------|--------|----------------|-------------------|-----------------|-------------|-----------------|--------------|-------------------|
| Band                             | Frequency (MHz) | Setup  | Efficiency (%) | Average Gain (dB) | Peak Gain (dBi) | Impedance   | Max Power Input | Polarization | Radiation Pattern |
| 2.4GHz Wi-Fi                     | 2400~2500       | MIMO 1 | 38             | -4.2              | 2.6             | 50 $\Omega$ | 5W              | Linear       | Omni-Directional  |
|                                  |                 | MIMO2  | 38.5           | -4.1              | 1.8             |             |                 |              |                   |
| 5.8GHz Wi-Fi                     | 5150~5850       | MIMO 1 | 24.8           | -6.1              | 0               |             |                 |              |                   |
|                                  |                 | MIMO2  | 26             | -5.9              | 0.5             |             |                 |              |                   |
| 7.1GHz Wi-Fi 6                   | 5925~7125       | MIMO 1 | 31.4           | -5.1              | 1.1             |             |                 |              |                   |
|                                  |                 | MIMO2  | 36.6           | -4.4              | 3.1             |             |                 |              |                   |

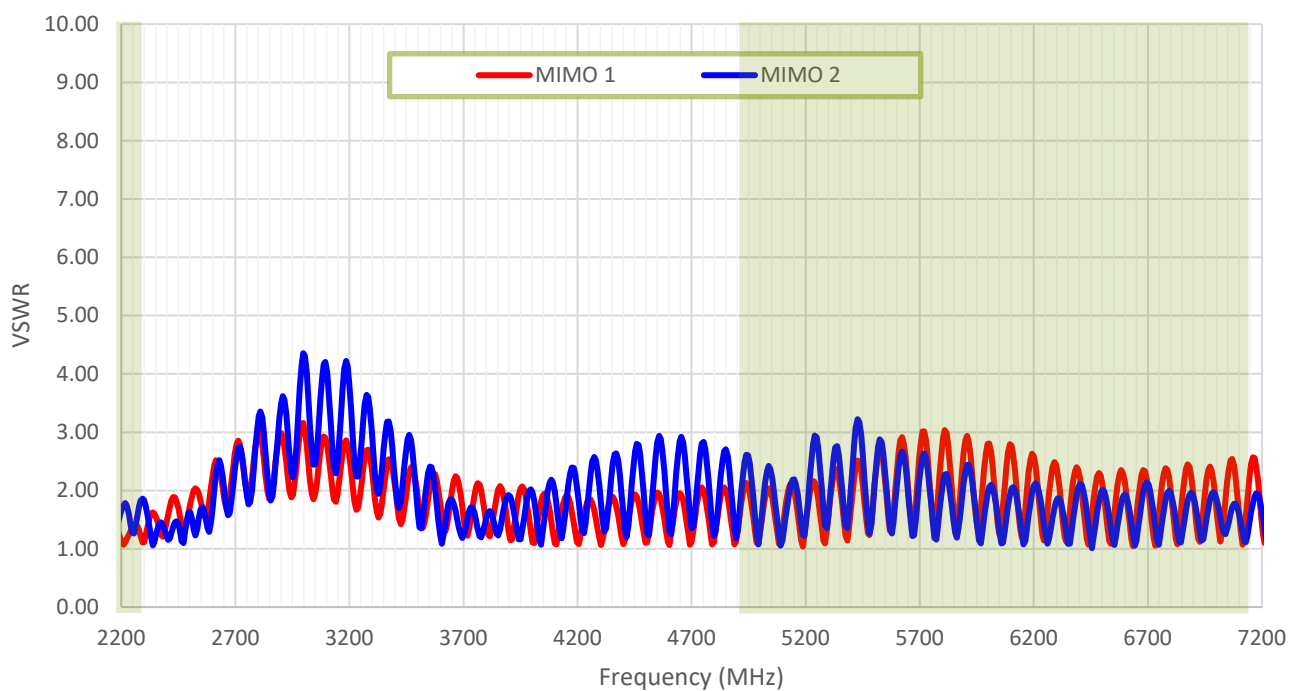
| Mechanical           |                                               |
|----------------------|-----------------------------------------------|
| Dimensions (mm)      | Height=19.6 Diameter=55.23                    |
| Cable                | 1M RG-174, Fully Customizable                 |
| Casing               | PC                                            |
| Base and Thread      | Plastic                                       |
| Weather proof gasket | CR4305 foam with 3M9448B double-side adhesive |
| Connector            | RP-SMA Male, Fully Customizable               |
| Thread Diameter (mm) | M24                                           |
| Sealant              | Rubber Stopper                                |
| Weight               | 0.06Kg                                        |
| Environmental        |                                               |
| Protection           | IP67 & IP69K rated                            |
| Temperature Range    | 40°C to +85°C                                 |
| Thermal Shock        | 5 cycles -40 C to +85 C                       |
| Humidity             | Non-condensing 65 C 95% RH                    |
| Shock (Drop Test)    | 1m drop on concrete 6 axes                    |
| Protection           | IP67 & IP69K rated                            |

## 3. Antenna Characteristics

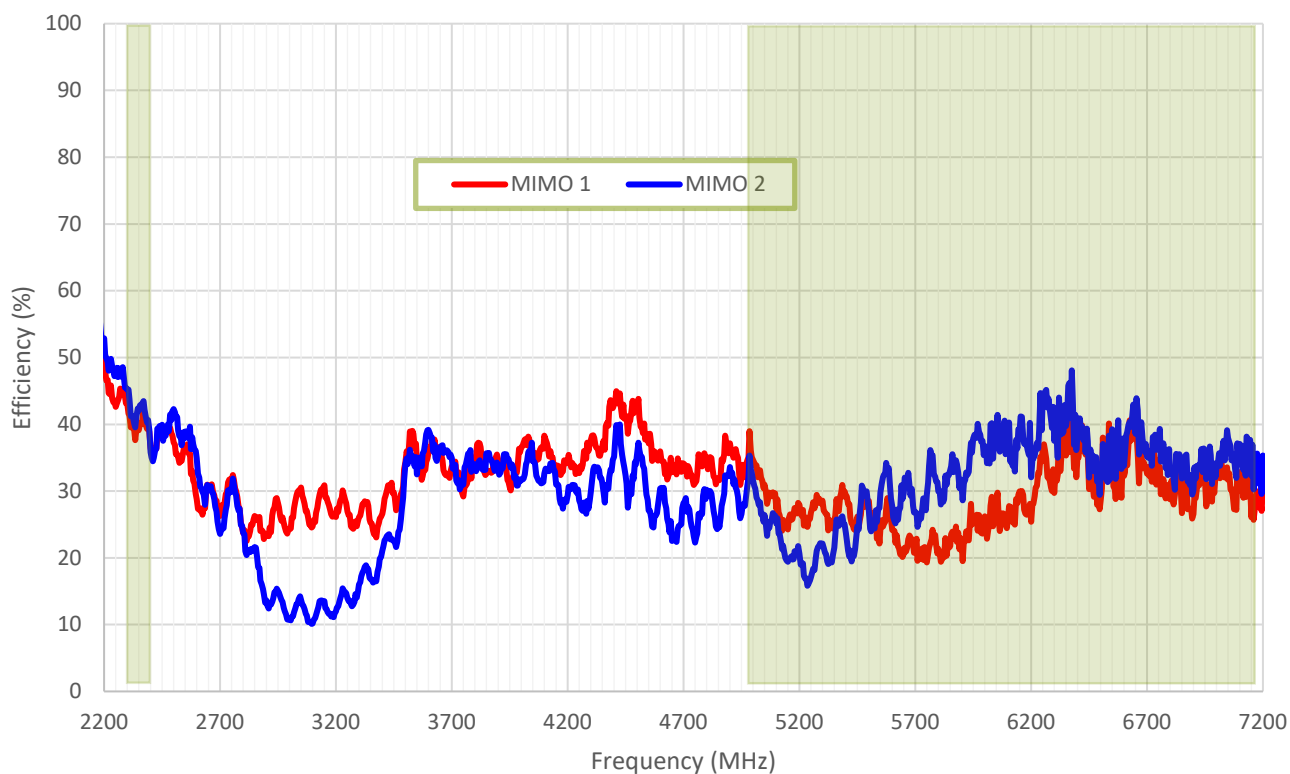
### 3.1 Return Loss



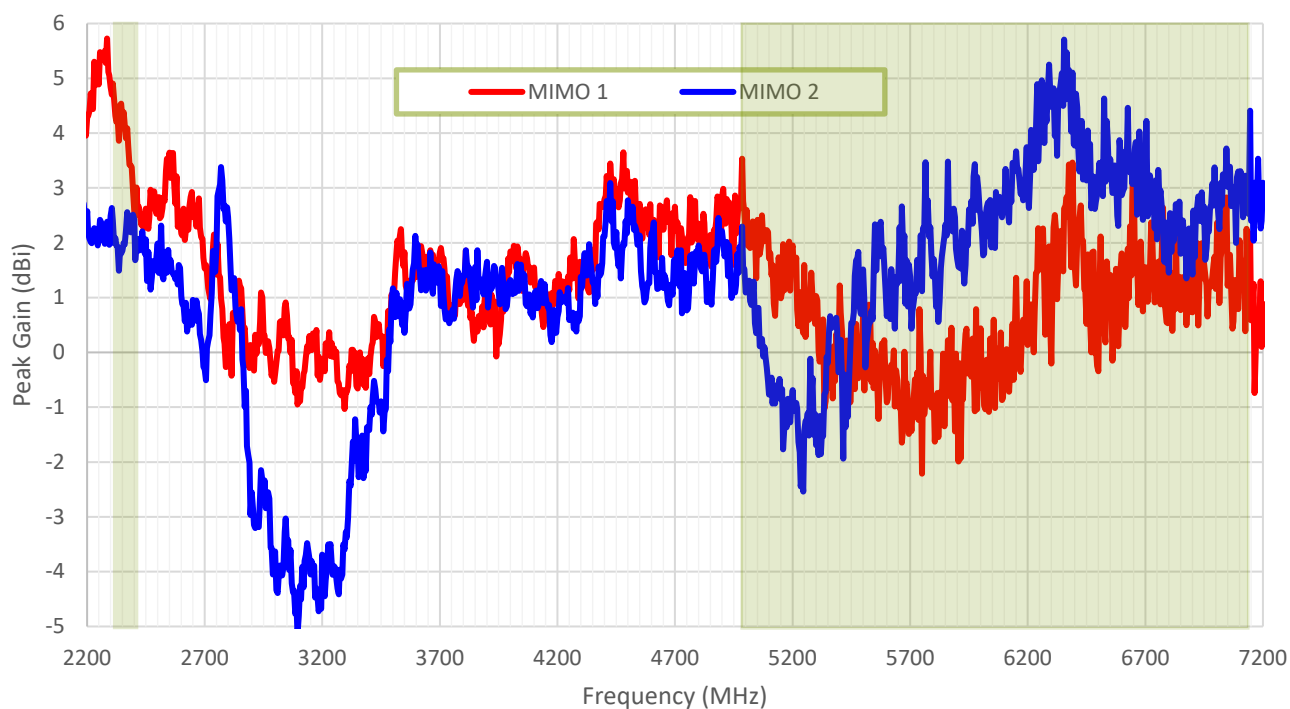
### 3.2 VSWR



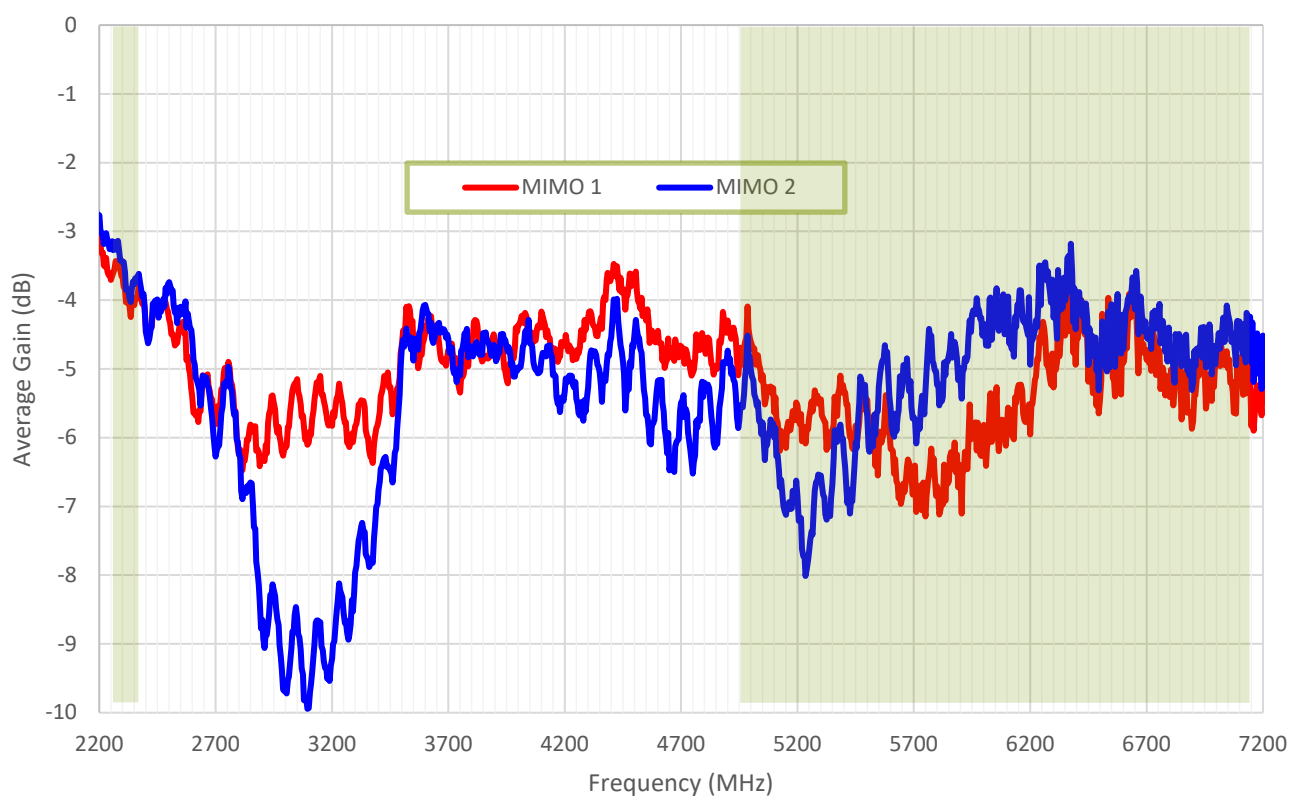
### 3.3 Efficiency



### 3.4 Peak Gain



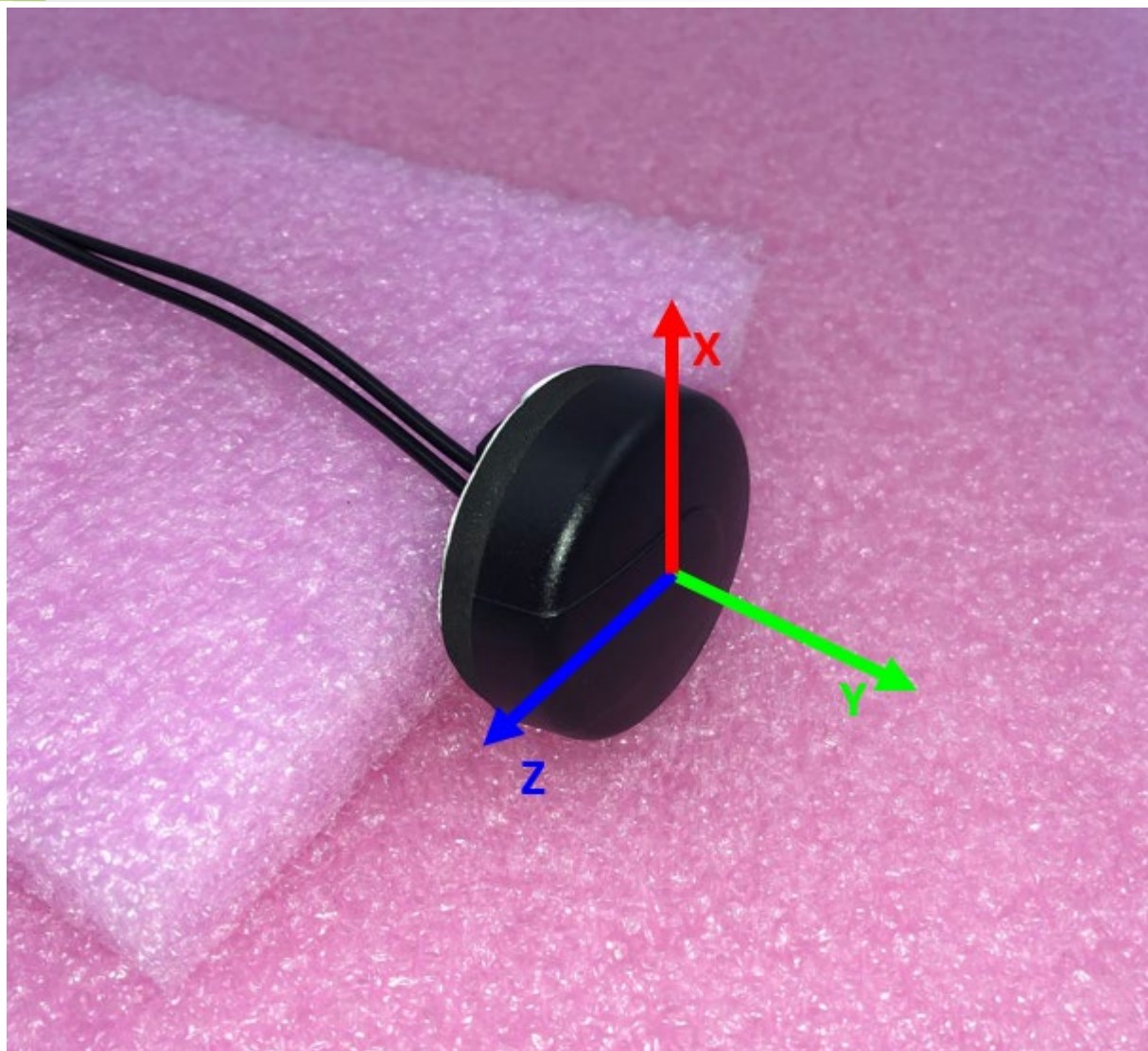
### 3.5 Average Gain





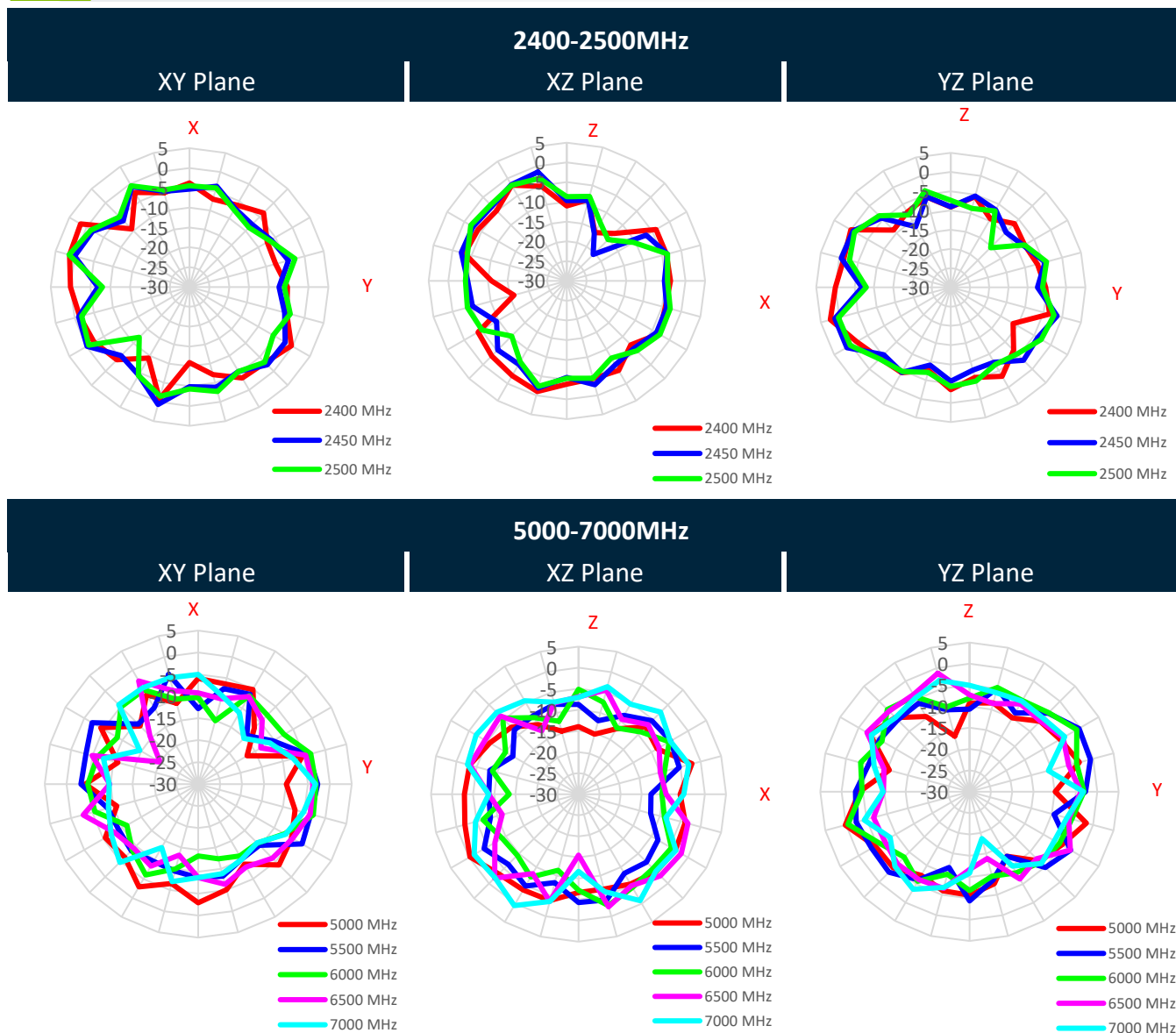
## 4. Radiation Patterns

### 4.1 Test Setup – Free Space

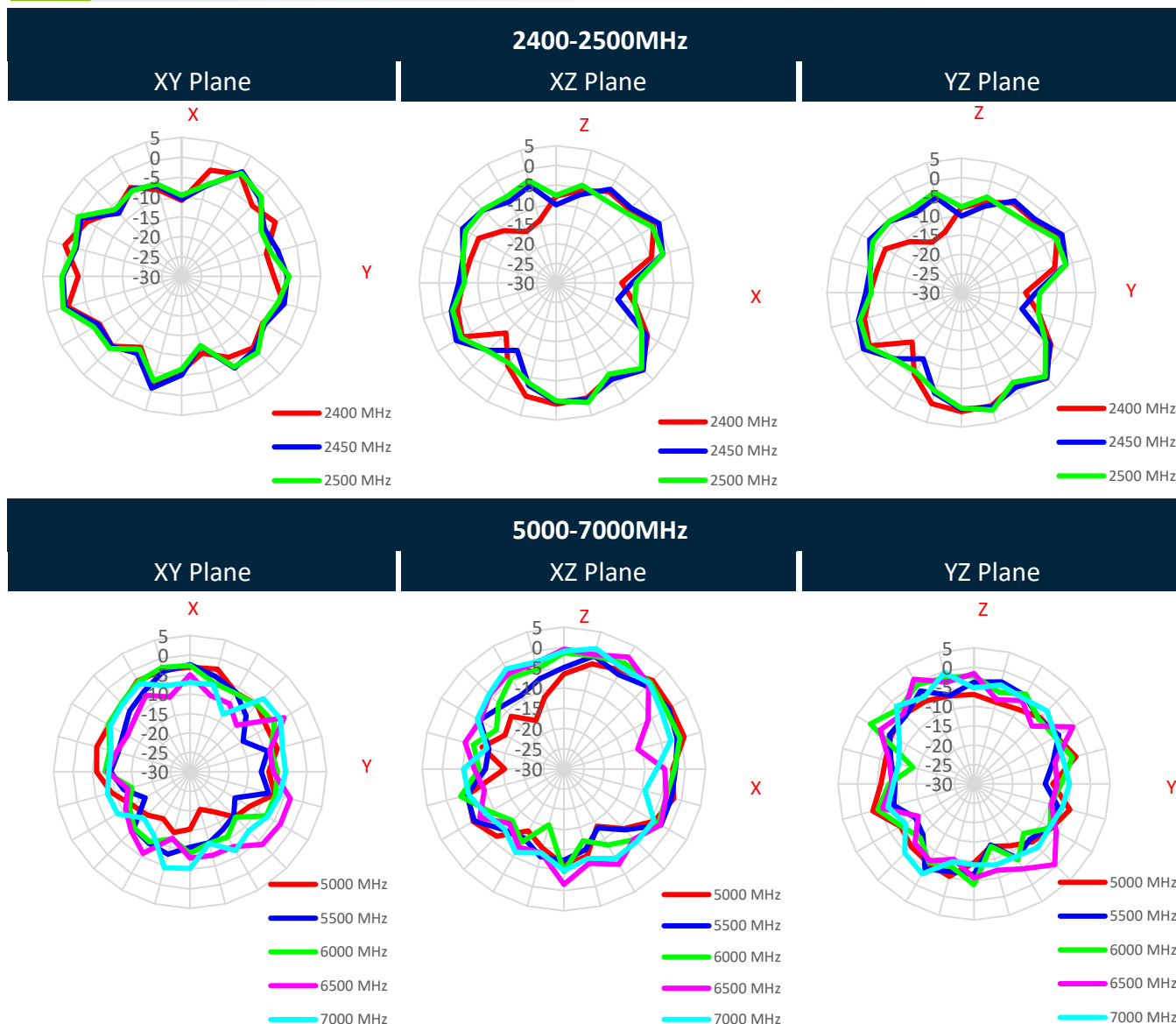




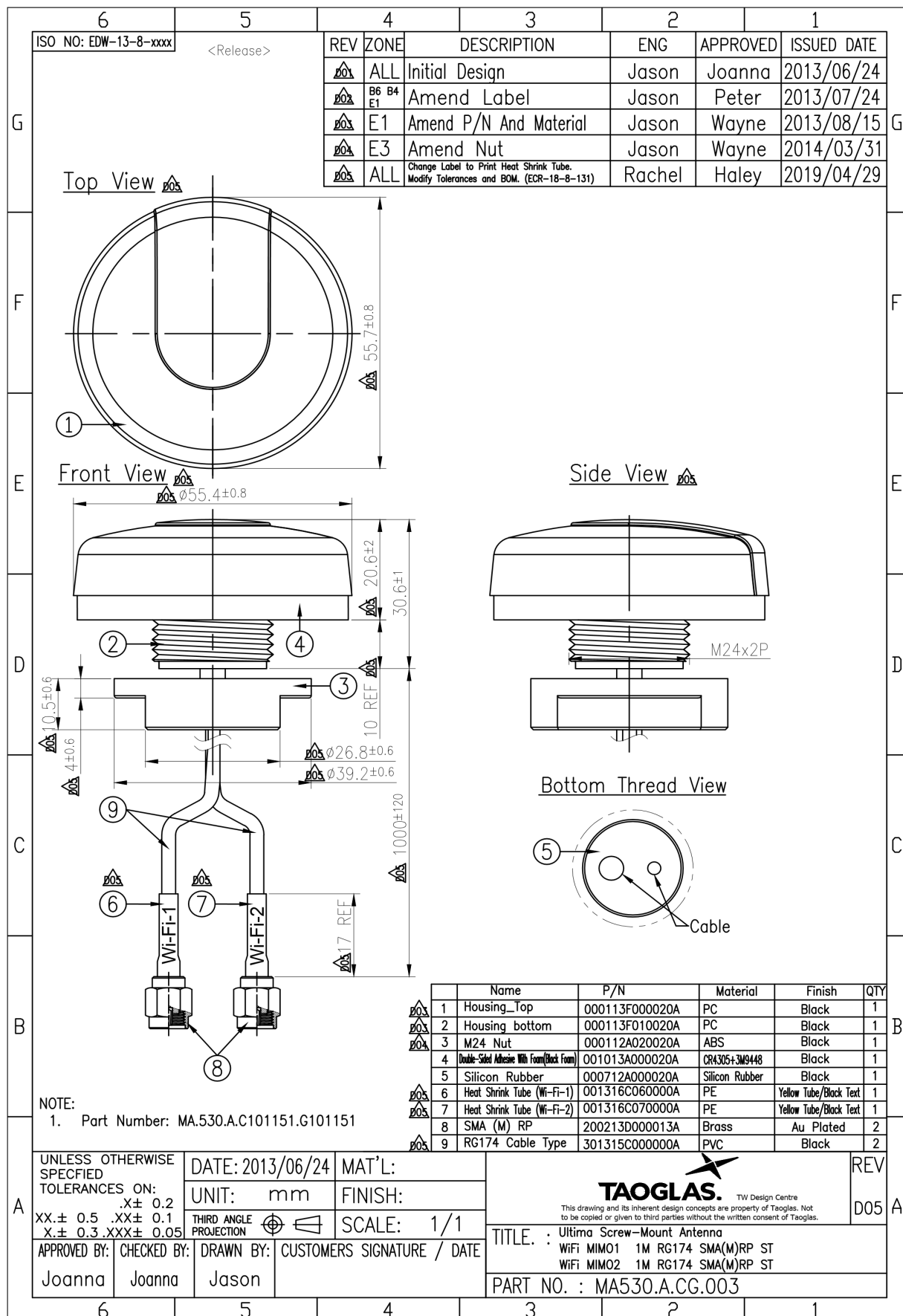
## 4.2 2D Radiation Patterns – MIMO 1



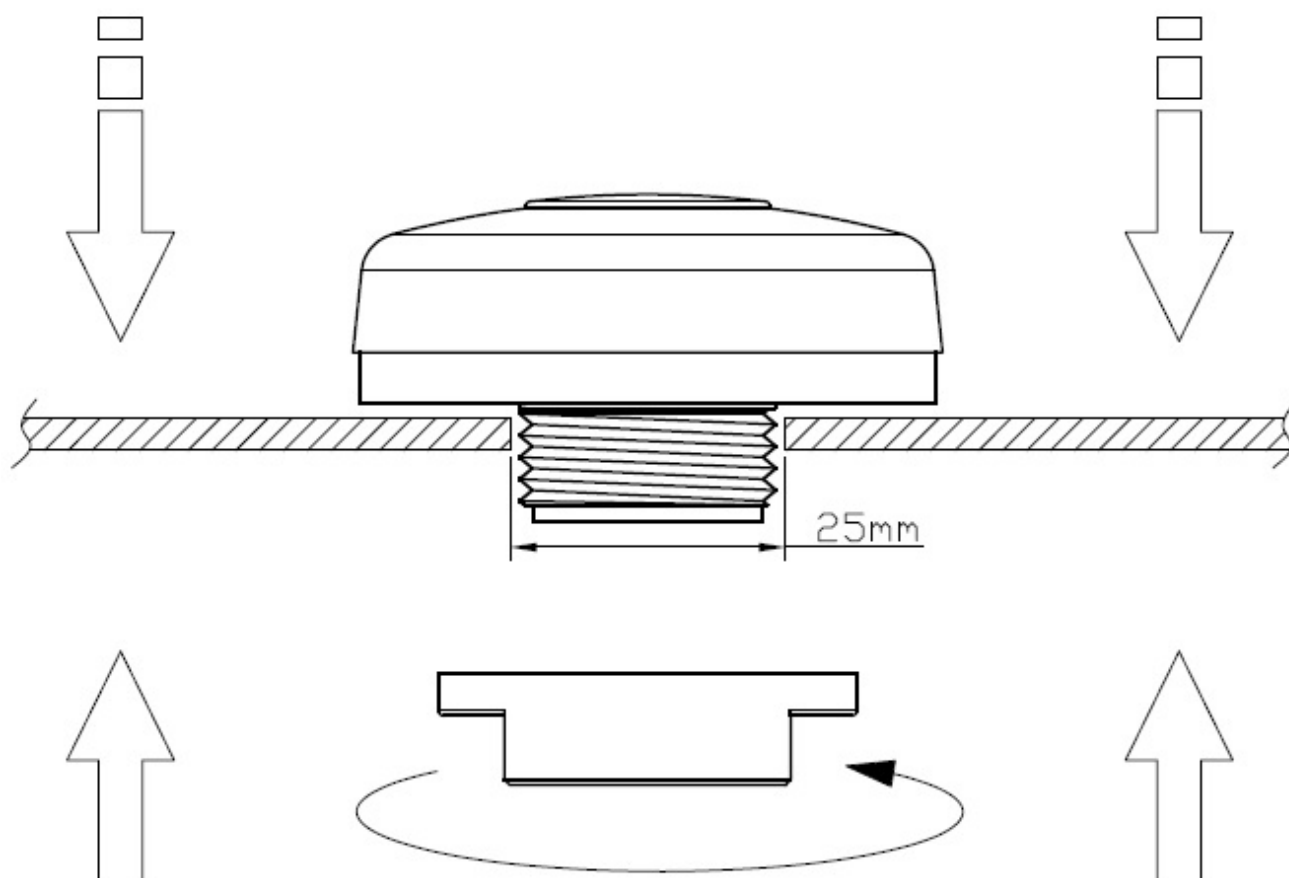
### 4.3 2D Radiation Patterns – MIMO 2



# 5. Mechanical Drawing (Units: mm)



## 6. Installation Instructions

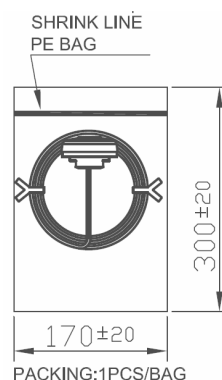


Recommended torque for mounting is 3.92 N·m or 40 kgf.cm

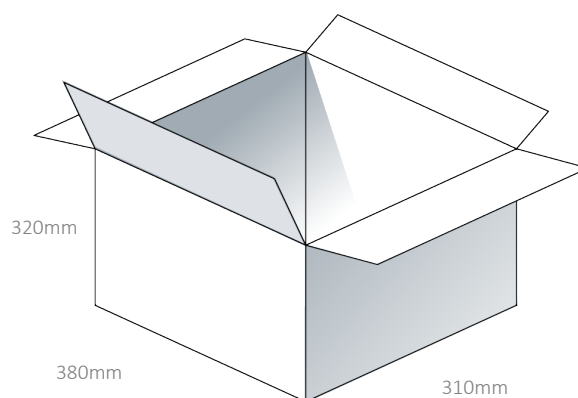
Maximum torque for mounting is 4.9 N·m or 50 kgf.cm

## 7. Packaging

1pcs MA530.A.CG.003 per PE Bag  
 Dimensions - 300\*170mm  
 Weight – 0.06Kg



100pcs MA530.A.CG.003 per carton  
 Dimensions - 380\*310\*320mm  
 Weight – 7.2Kg



## Changelog for the datasheet

### SPE-14-8-031 - MA530.A.CG.003

#### Revision: C (Current Version)

|                  |                                              |
|------------------|----------------------------------------------|
| Date:            | 2020-08-19                                   |
| Changes:         | Updated to reflect Wi-Fi 6 data and template |
| Changes Made by: | Jack Conroy                                  |

#### Previous Revisions

##### Revision: B

|                  |                            |
|------------------|----------------------------|
| Date:            | 2019-01-22                 |
| Changes:         | Updated Installation Guide |
| Changes Made by: | Jack Conroy                |

##### Revision: A (Original First Release)

|         |                  |
|---------|------------------|
| Date:   | 2014-04-04       |
| Notes:  |                  |
| Author: | Technical Writer |



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