



# 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

1. Introduction	3
2. Specifications	4
3. Antenna Characteristics	10
4. Radiation Patterns	15
5. Mechanical Drawing	17
6. Footprint	18
7. Packaging	19
<hr/>	
Changelog	20

Taoglas makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Taoglas reserves all rights to this document and the information contained herein. Reproduction, use or disclosure to third parties without express permission is strictly prohibited.



# 1. Introduction



The Ultima MA530 MIMO antenna is low profile, heavy-duty, fully IP67 waterproof external Wi-Fi antenna with Wi-Fi 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 and Wi-Fi 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.

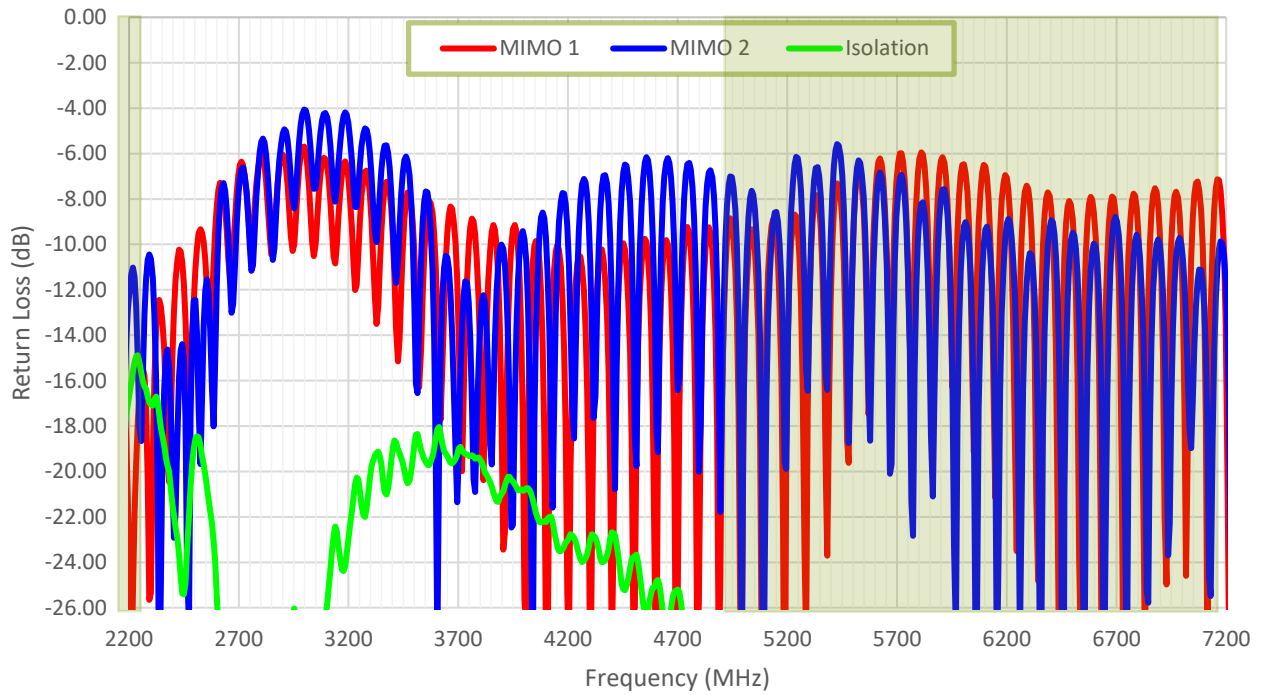
## 2. Specifications

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 Ω	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				

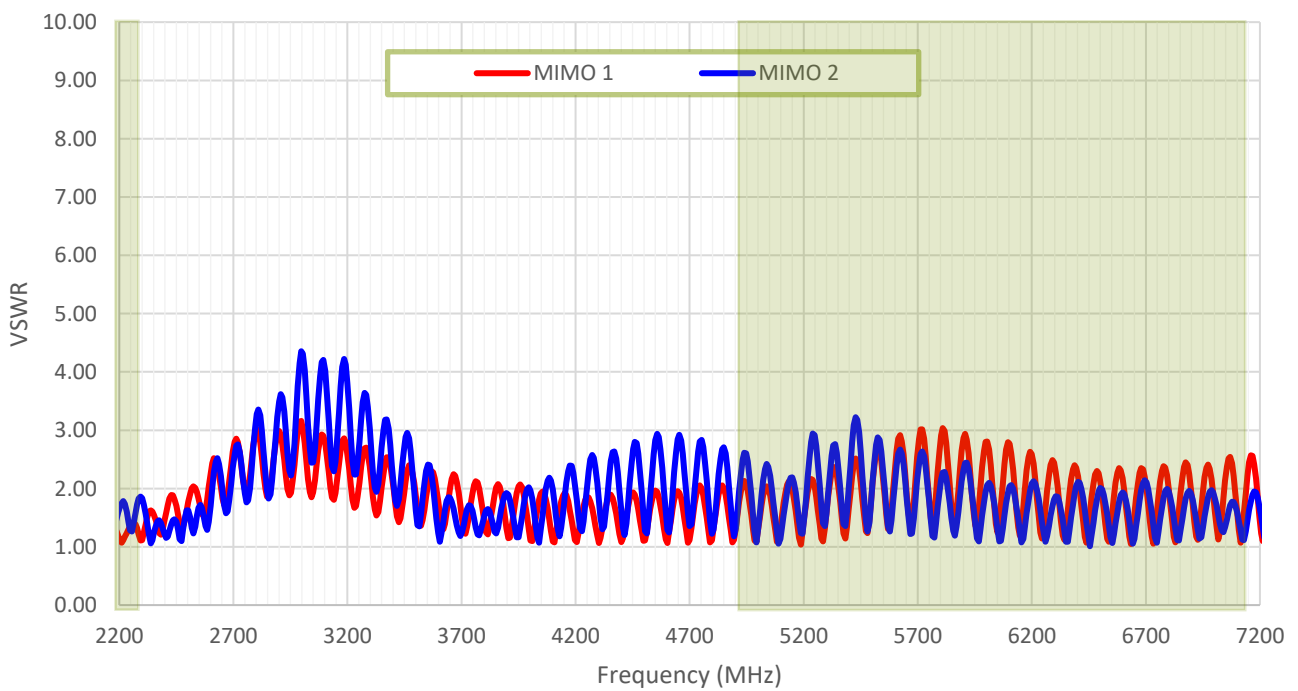
Mechanical	
Dimensions (mm)	Height=19.6 Diameter=55.23
Cable	1M RG-174, Fully Customizable
Casing	PC
Base and Thread	Plastic
Weather proof gasket	CR4305 foam with 3M9448B double-side adhesive
Connector	RP-SMA Male, Fully Customizable
Thread Diameter (mm)	M24
Sealant	Rubber Stopper
Weight	0.06Kg
Environmental	
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

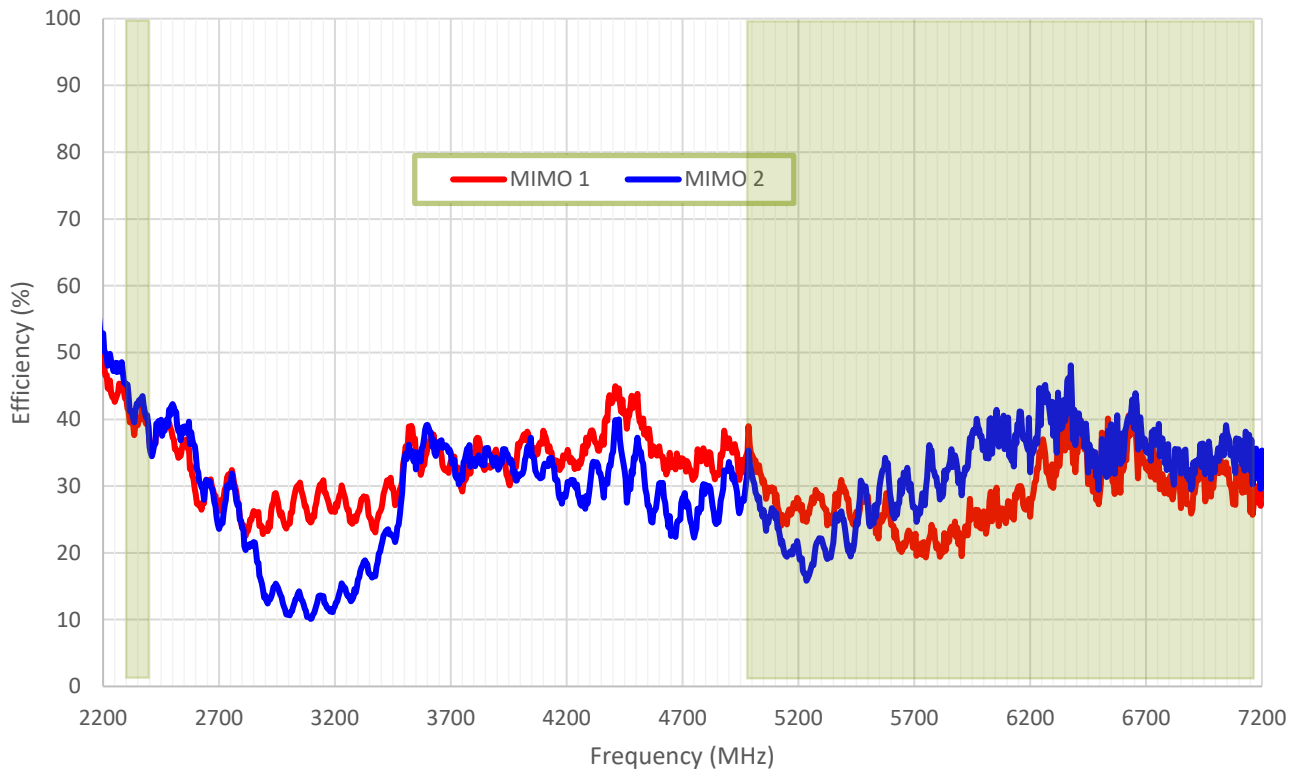
#### 3.1 Return Loss



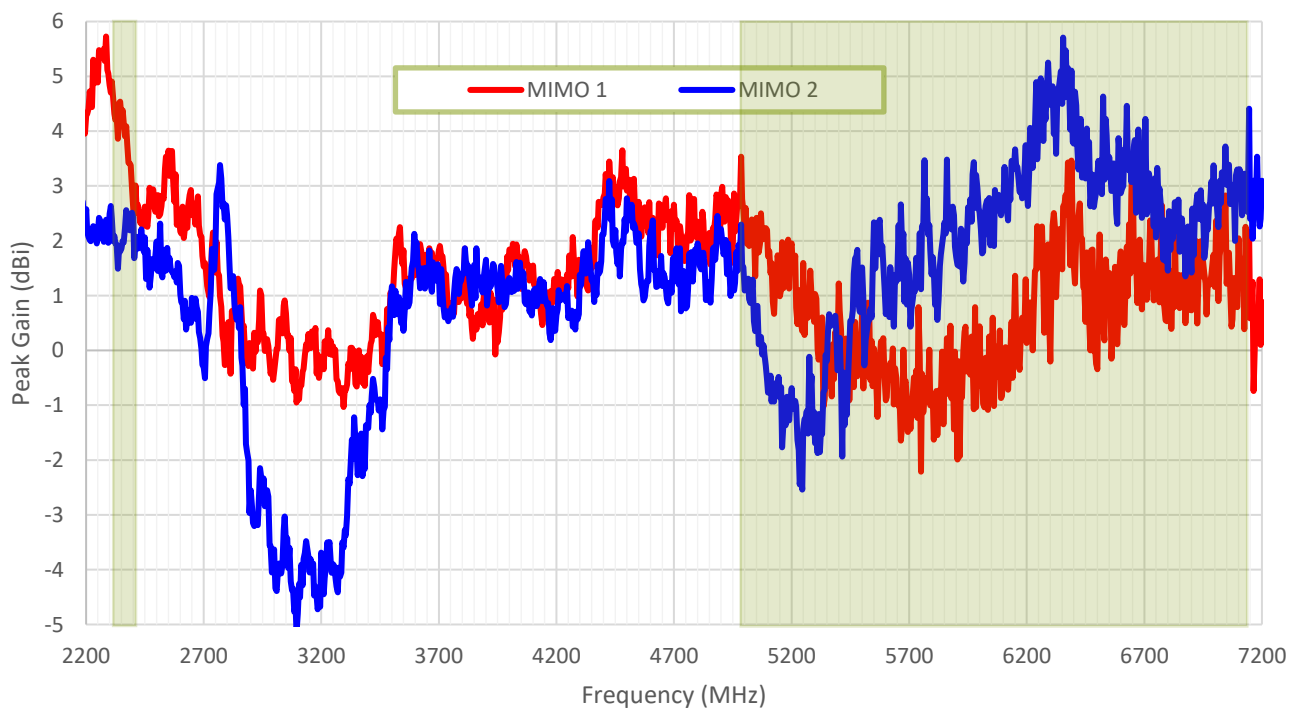
#### 3.2 VSWR



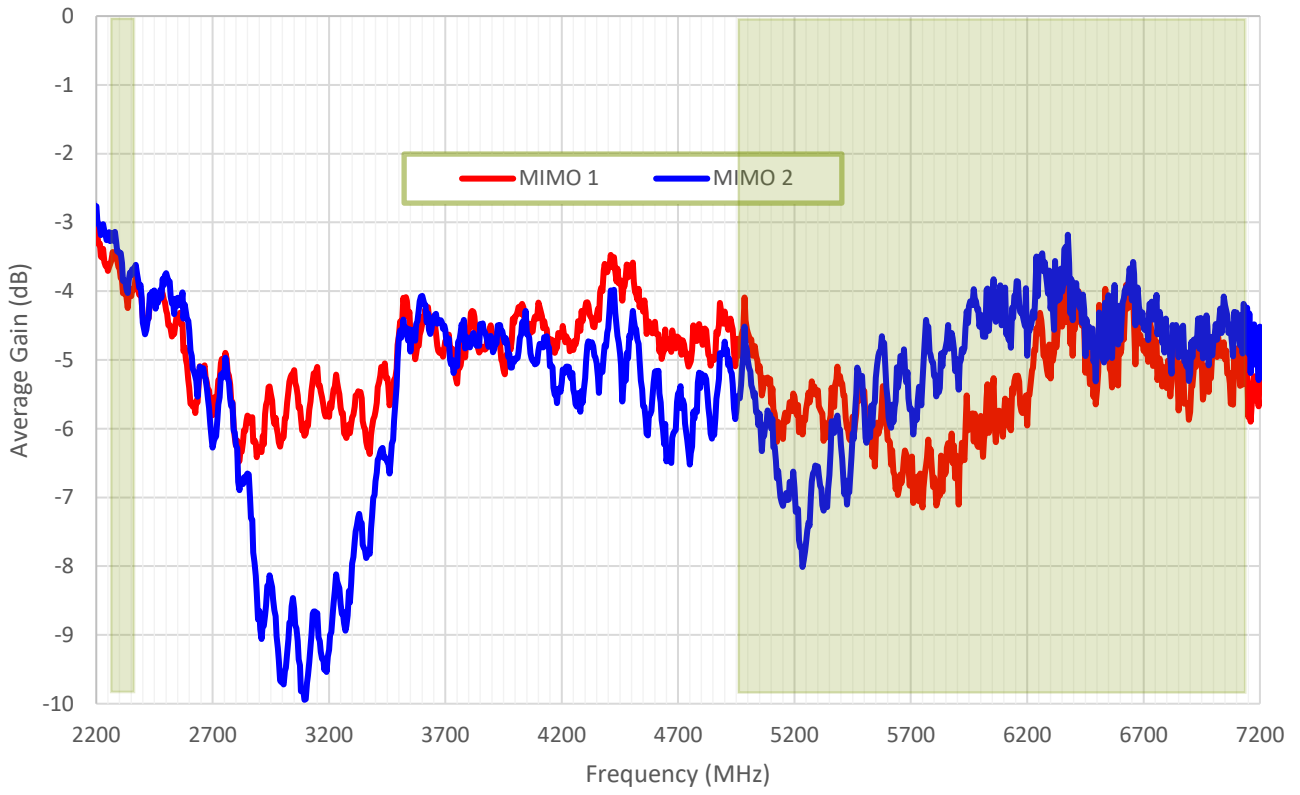
### 3.3 Efficiency



### 3.4 Peak Gain

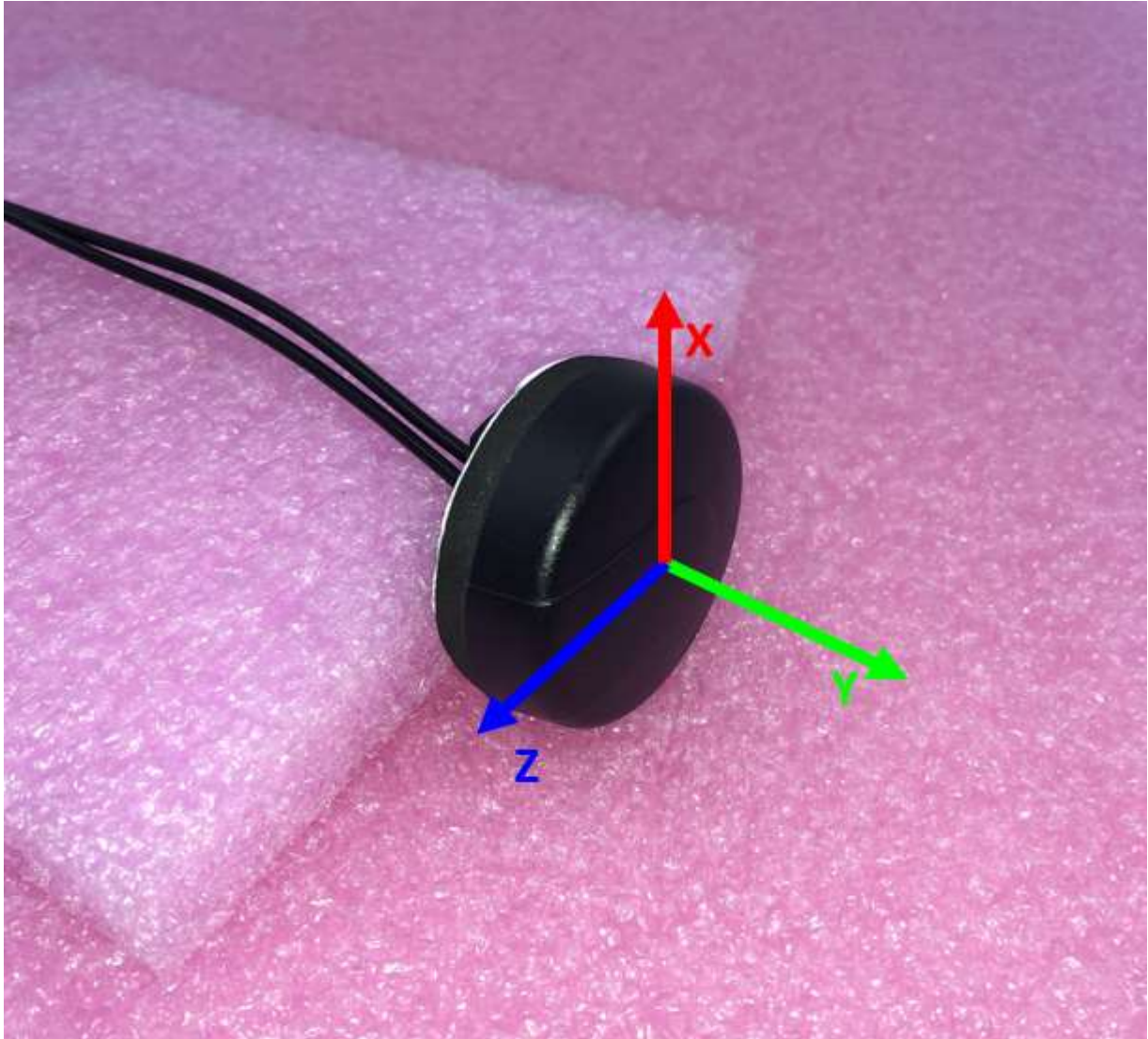


### 3.5 Average Gain



## 4. Radiation Patterns

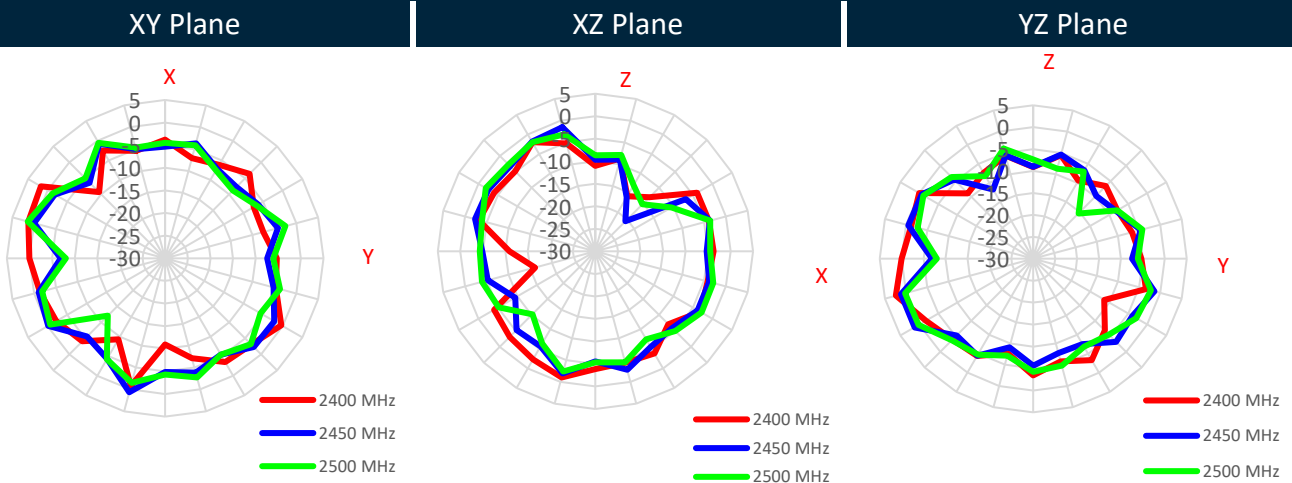
### 4.1 Test Setup – Free Space



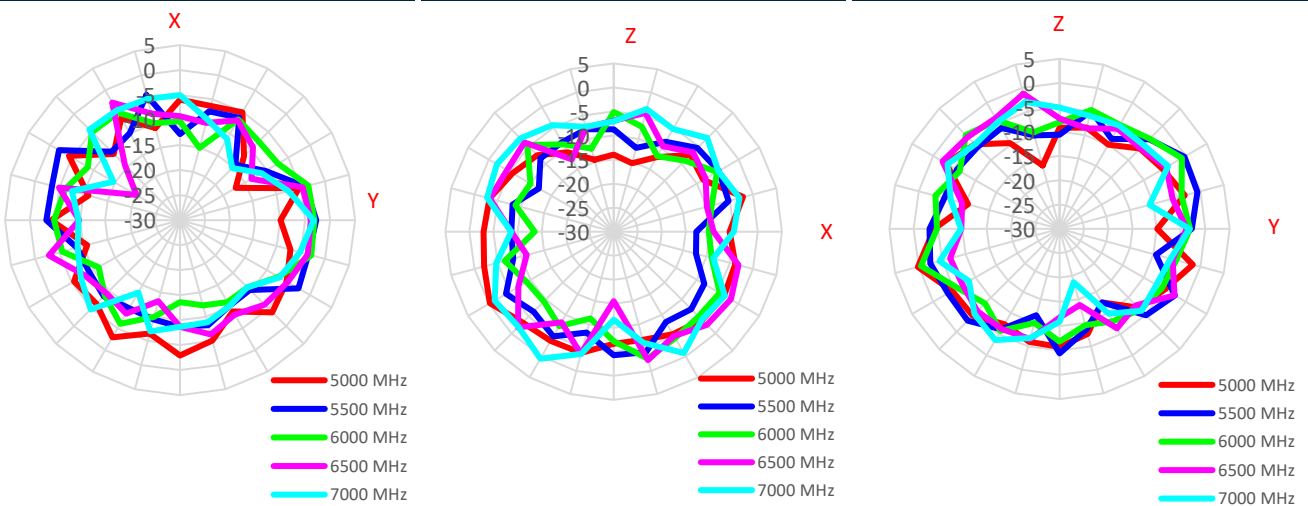


## 4.2 2D Radiation Patterns – MIMO 1

### 2400-2500MHz



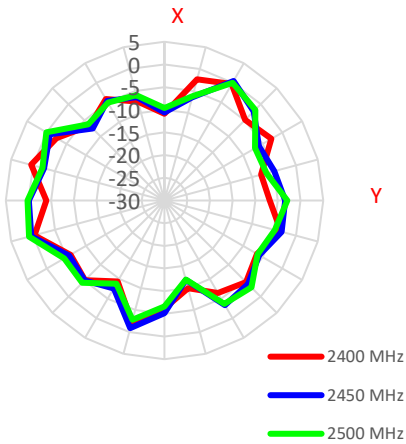
### 5000-7000MHz



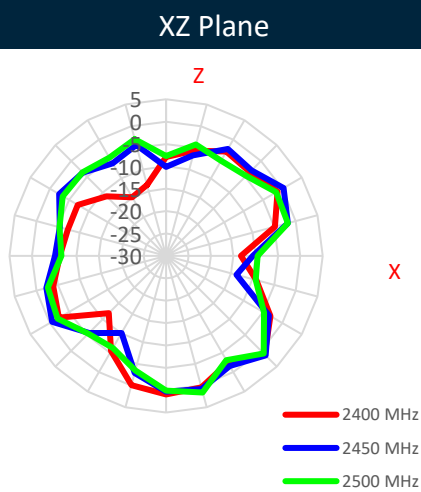
### 4.3 2D Radiation Patterns – MIMO 2

#### 2400-2500MHz

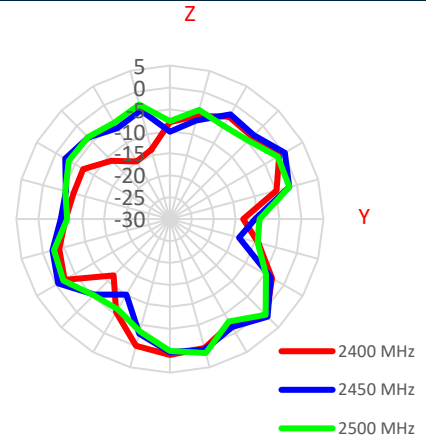
XY Plane



XZ Plane

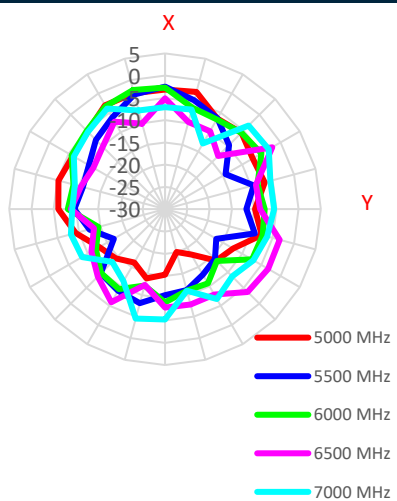


YZ Plane

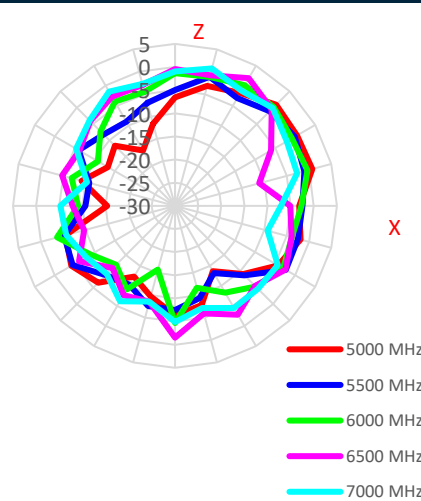


#### 5000-7000MHz

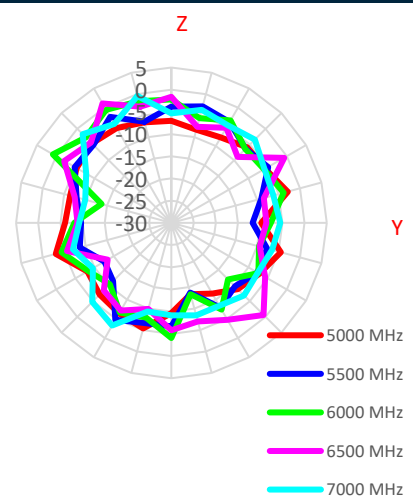
XY Plane



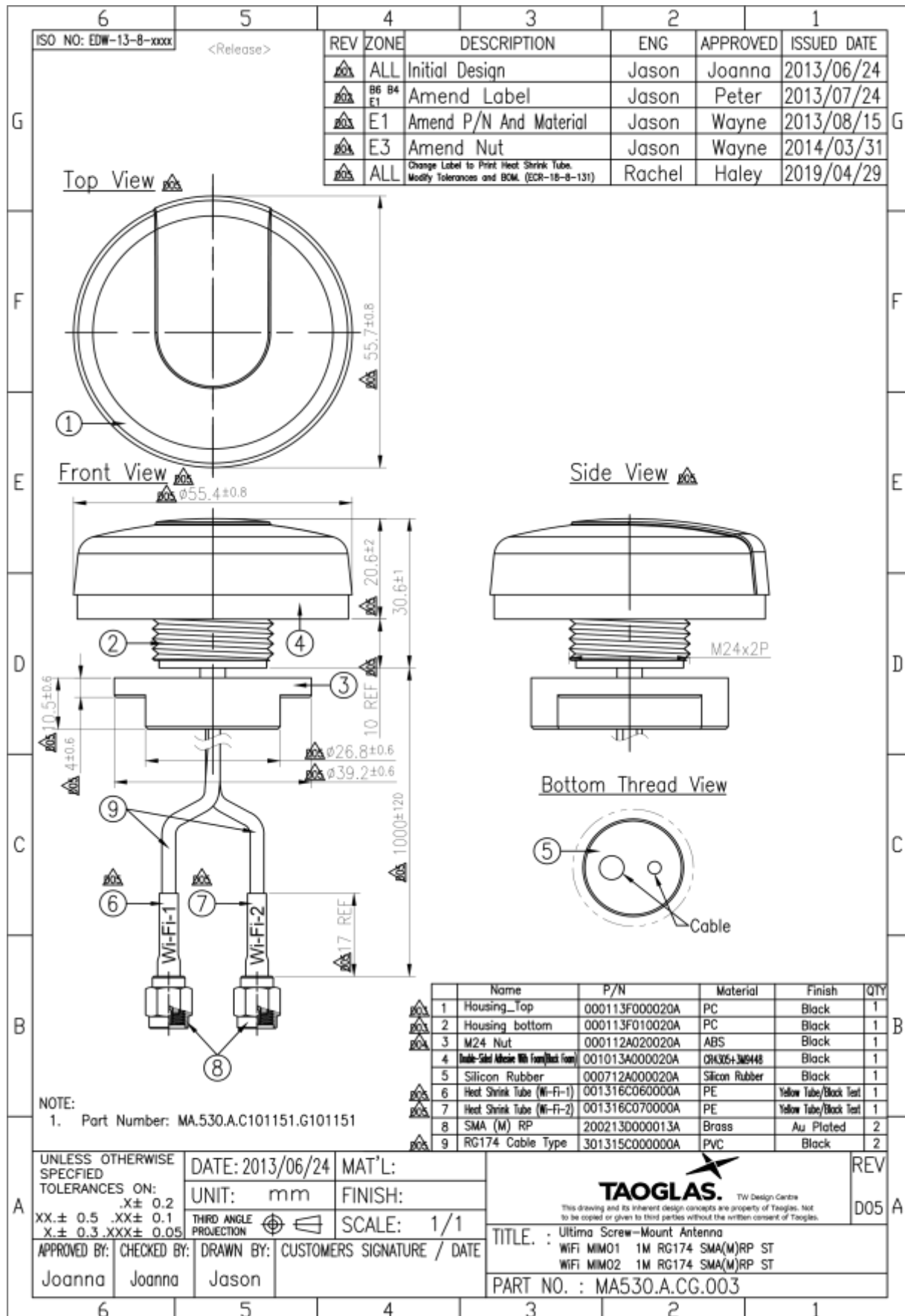
XZ Plane



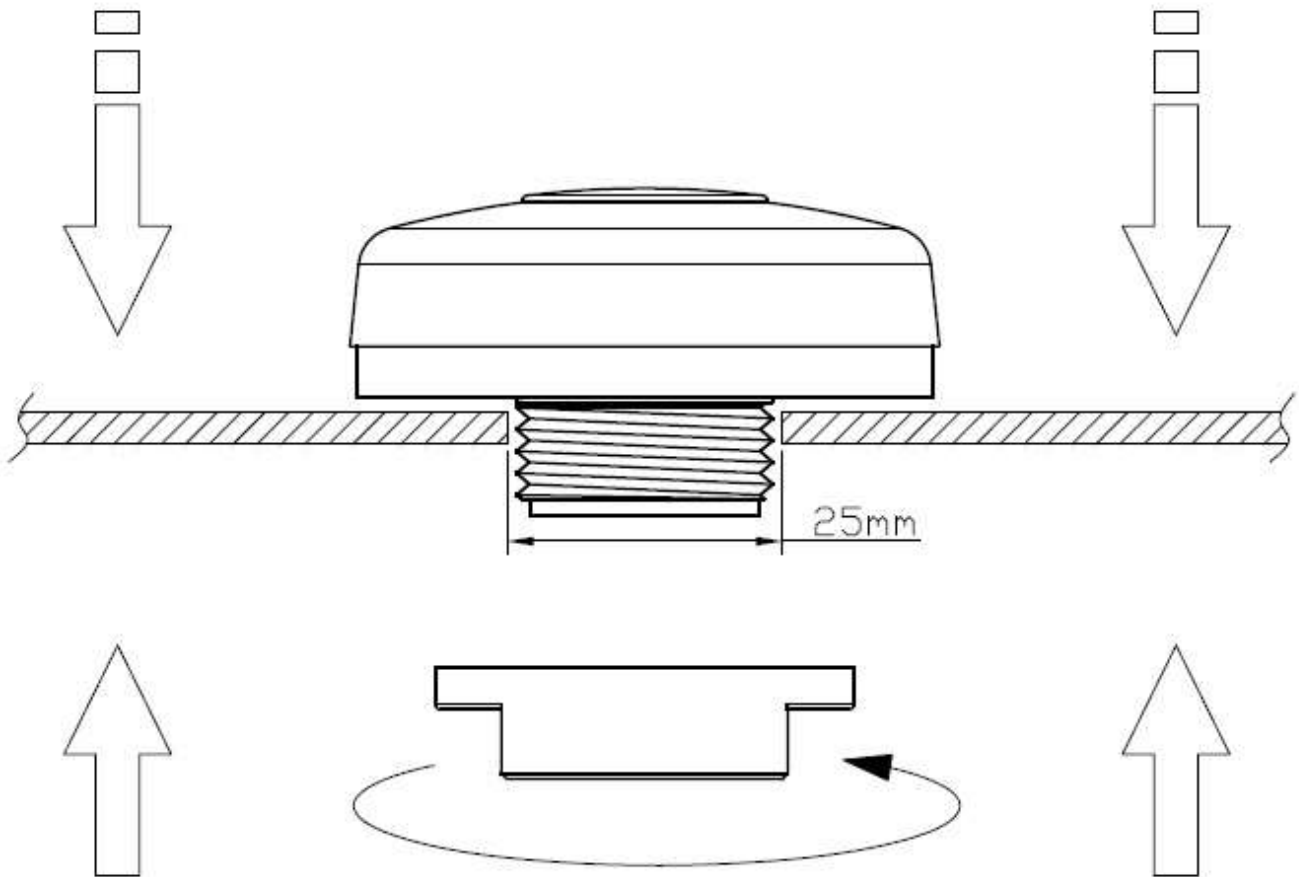
YZ Plane



# 5. Mechanical Drawing (Units: mm)



## 6. Installation Instructions

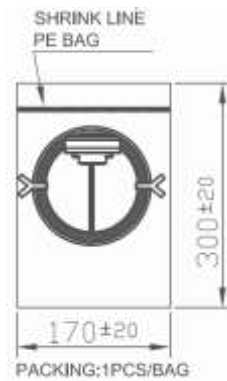


Recommended torque for mounting is 3.92 N·m or 40 kgf.cm

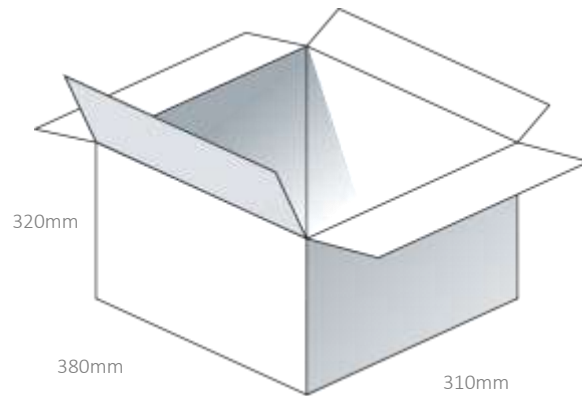
Maximum torque for mounting is 4.9 N·m or 50 kgf.cm

## 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



[www.taoglas.com](http://www.taoglas.com)

