TAOGLAS®

Datasheet

Optimus 2-in-1

Part No:
MA210.K.CG.001

Description:

Optimus 2-in-1 Low Profile Adhesive Mount 2*Wi-Fi® (including Wi-Fi® 6) MIMO With 3m Braided Cable Assembly

Features:

2.4GHz/5.8~7.125GHz Bands
2*Wi-Fi® (including Wi-Fi® 6) MIMO
3M Adhesive Mount
IP67 Rated Enclosure
Cables: 3000mm in Braid
Connectors: RP-SMA(M)
Dimensions: 62.8*68*12mm
RoHS & Reach Compliant

Ireland & USA
ISO 9001:2015
Certified

Taiwan
ISO 9001:2015
Certified

IATF16949

1. Introduction

The MA210 Optimus is an adhesive-mount Wi-Fi® MIMO 2-in-1 antenna with high efficiency across the full spectrum of Wi-Fi® (including Wi-Fi® 6) bands. The MIMO capabilities of this antenna allow for increased channel capacity and reduced transmitting power, making it an excellent choice for high speed wireless applications. The MA210 Optimus comes in a quality, low-profile housing with high grade 3M double-sided tape for quick and easy mounting on glass, plastic, or even out of sight under a dashboard. The enclosure is rated IP67 for water resistance and outdoor usage. The 360mm RG-174 cable pigtails combine with 2,640mm of braided CFD-200 cables to ensure low losses over the 3000mm cable length.

Many module manufacturers specify peak gain limits for any antennas that are to be connected to that module. Those peak gain limits are based on free space conditions. In practice, the peak gain of an antenna tested in free space can degrade by at least 1 or 2 dBi when put inside a device. So ideally you should go for a slightly higher peak gain antenna than mentioned on the module specification to compensate for this effect, giving you better performance.

Upon testing of any of our antennas with your device and a selection of appropriate layout, integration technique, or cable, Taoglas can make sure any of our antennas' peak gain will be below the peak gain limits. Taoglas can then issue a specification and/or report for the selected antenna in your device that will clearly show it complying with the peak gain limits, so you can be assured you are meeting regulatory requirements for that module.

For example, a module manufacturer may state that the antenna must have less than 2 dBi peak gain, but you don't need to select an embedded antenna that has a peak gain of less than 2 dBi in free space. This will give you a less optimized solution. It is better to go for a slightly higher free space peak gain of 3 dBi or more if available. Once that antenna gets integrated into your device, performance will degrade below this 2 dBi peak gain due to the effects of GND plane, surrounding components, and device housing. If you want to be absolutely sure, contact Taoglas and we will test. Choosing a Taoglas antenna with a higher peak gain than what is specified by the module manufacturer and enlisting our help will ensure you are getting the best performance possible without exceeding the peak gain limits.

Cables and Connectors are customizable, contact your regional Taoglas customer support team for further information.

2. Specifications

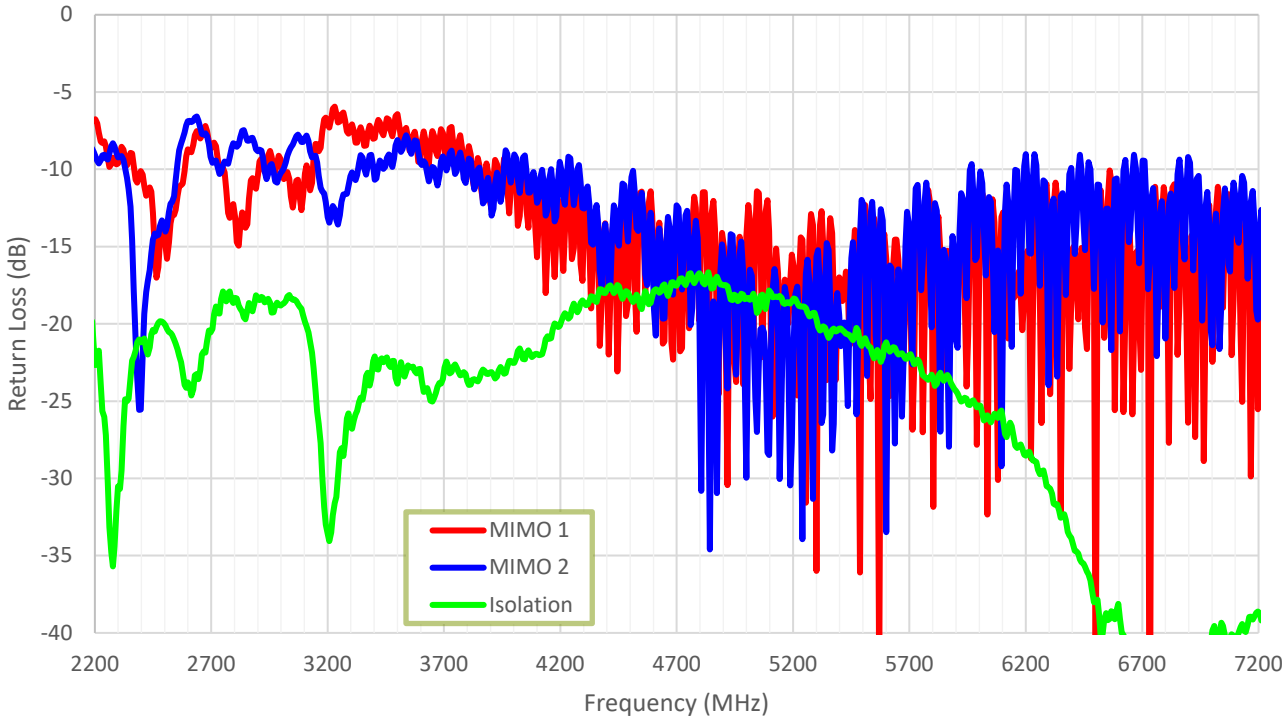
Wi-Fi MIMO Free Space Electrical								
Band	**Frequency (MHz)**	**Setup**	**Efficiency (%)**	**Average Gain (dB)**	**Peak Gain (dBi)**	**Impedance**	**Polarization**	**Radiation Pattern**
2.4GHz Wi-Fi	2400~2500	MIMO 1	28.7	-5.4	0.2	50 Ω	Linear	Omni-Directional
		MIMO2	31.5	-5	0.6			
5.8GHz Wi-Fi	5150~5850	MIMO 1	29.3	-5.4	1.4			
		MIMO2	31.8	-5	1.4			
7.1GHz Wi-Fi 6	5925~7125	MIMO 1	34.5	-4.7	1.9			
		MIMO2	28.9	-5.4	0.2			

Mechanical	
Antenna Dimensions	62.8mm x 68mm x 12mm
Casing	PC+ABS
Waterproof	IP67
Weight	290g
Adhesive	3M 9448 + CR-4305
Cable	360mm RG-174 with braided 2640mm CFD 200
Connector	RP-SMA(M)

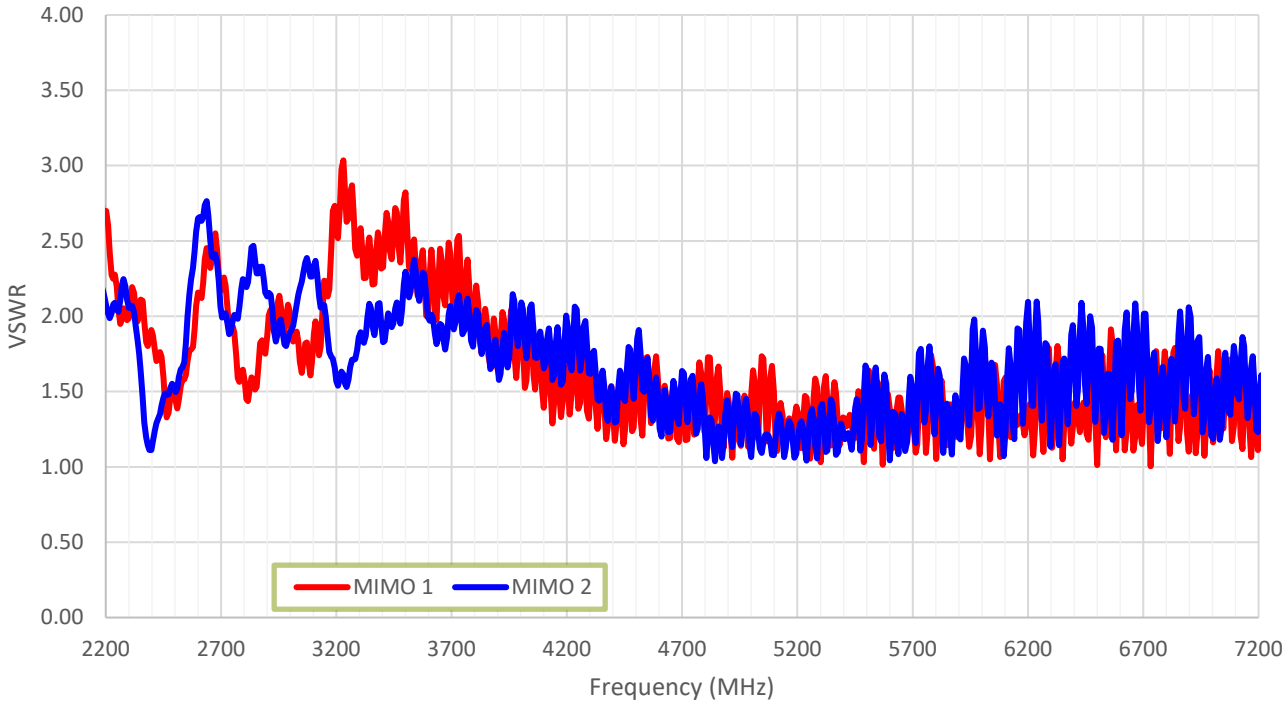
Environmental	
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 90°C
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

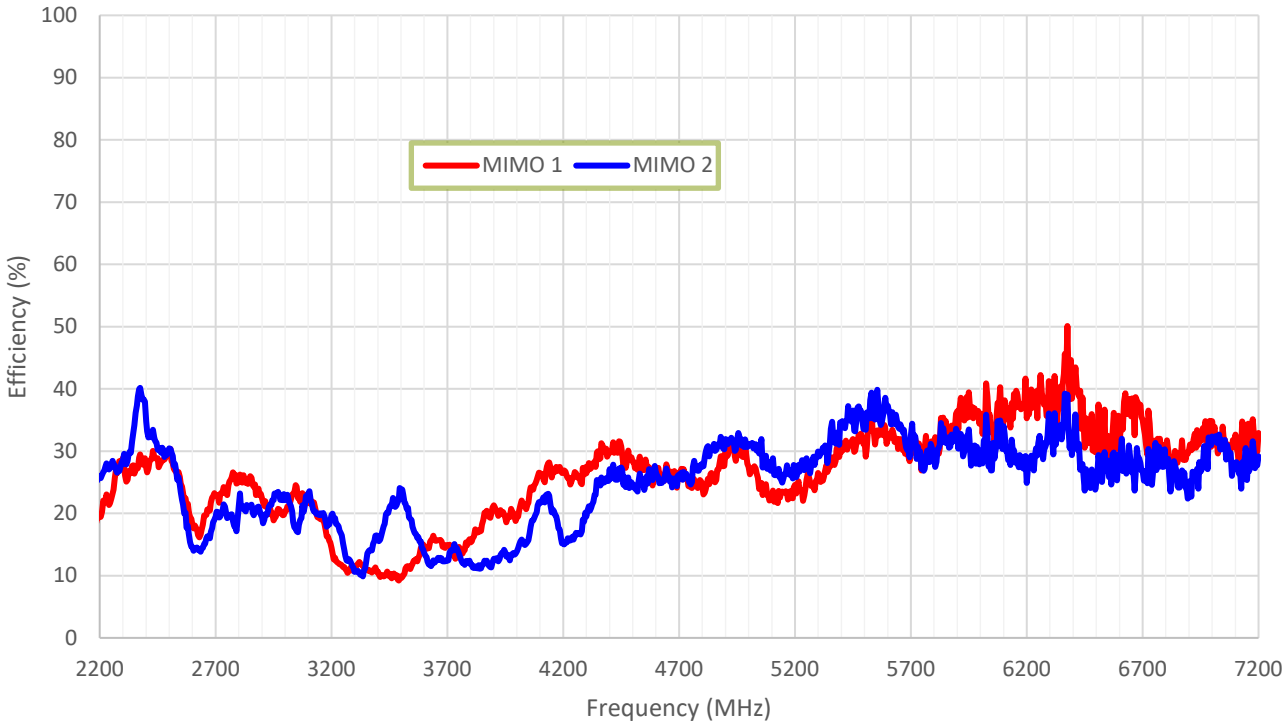
3.1 Return Loss



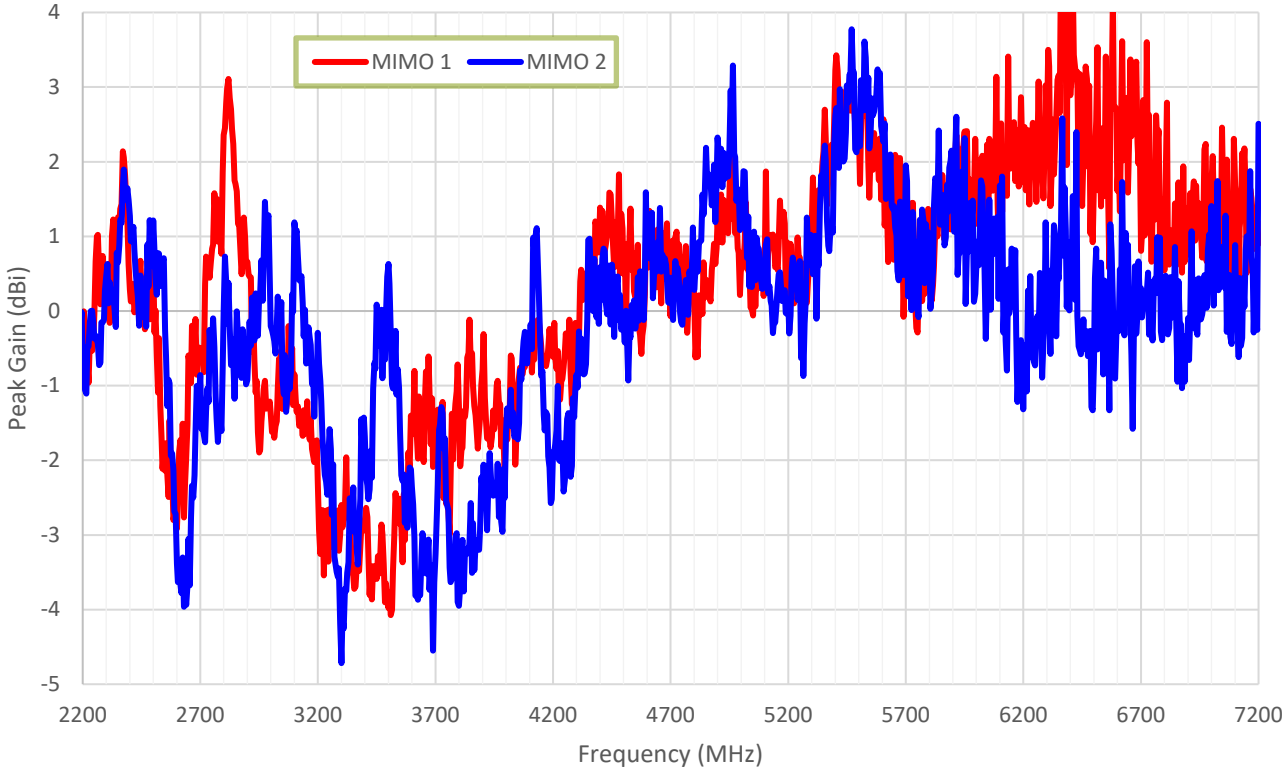
3.2 VSWR



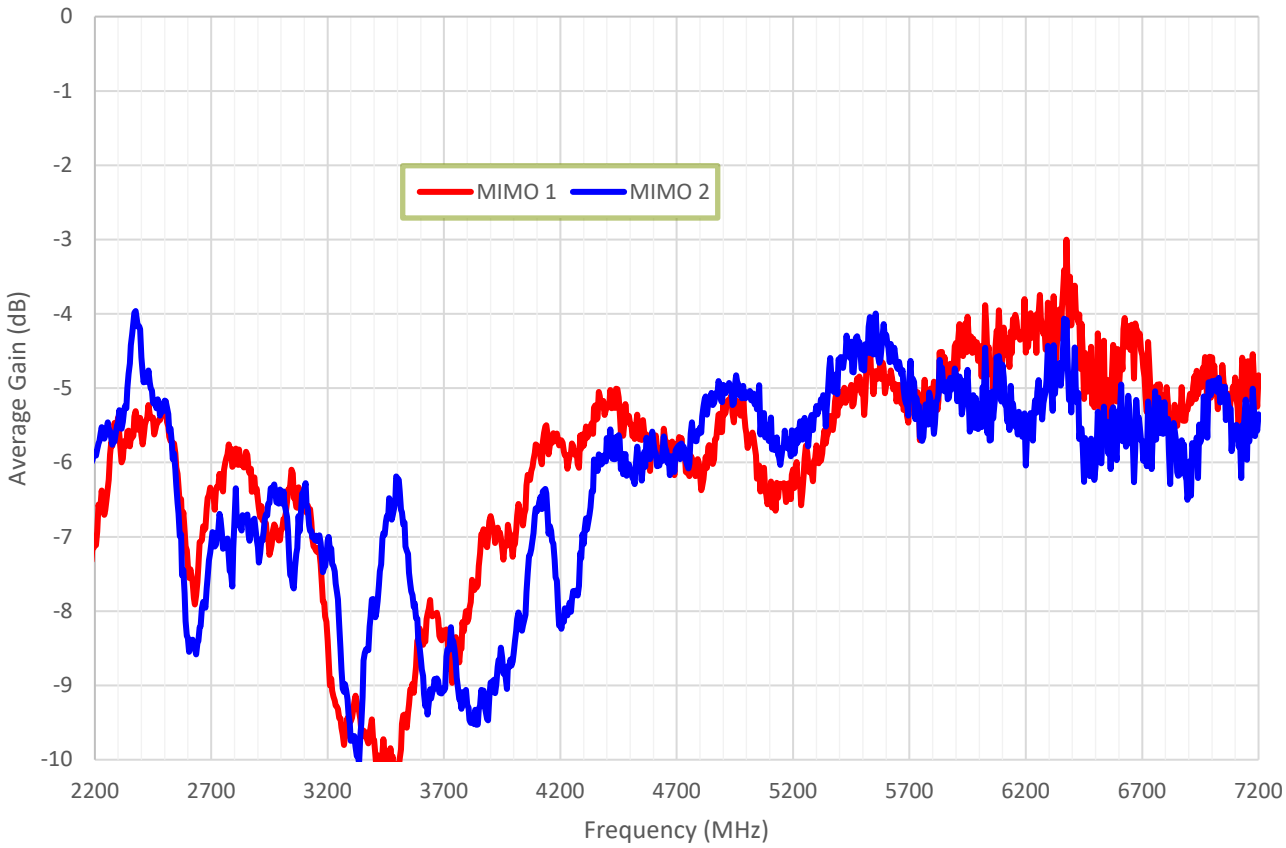
3.3 Efficiency



3.4 Peak Gain



3.5 Average Gain



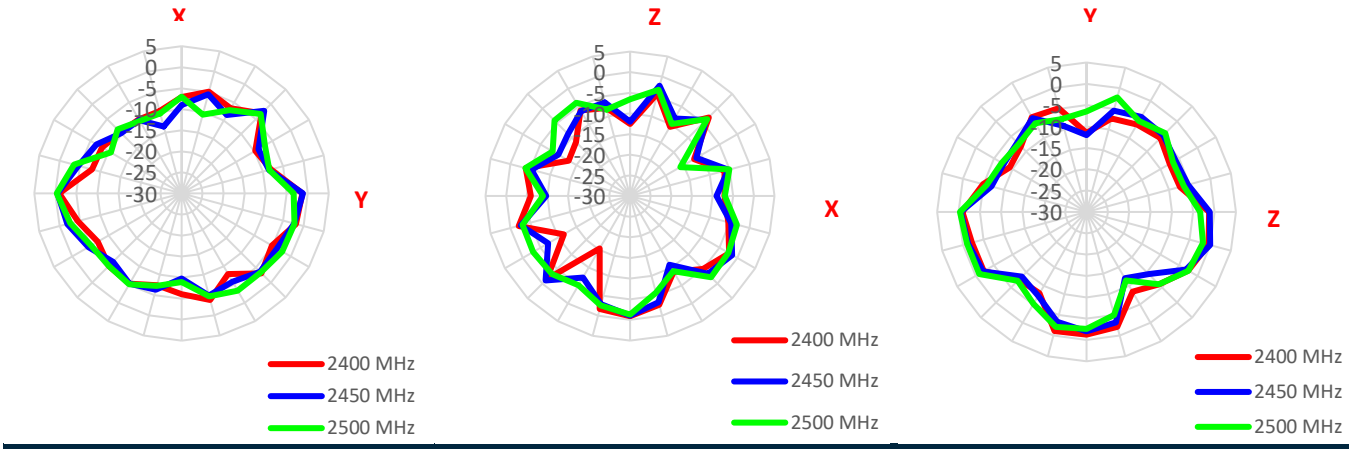
4. Radiation Patterns

4.1 Test Setup – Free Space

4.2 Wi-Fi MIMO 1 3D and 2D Radiation Patterns

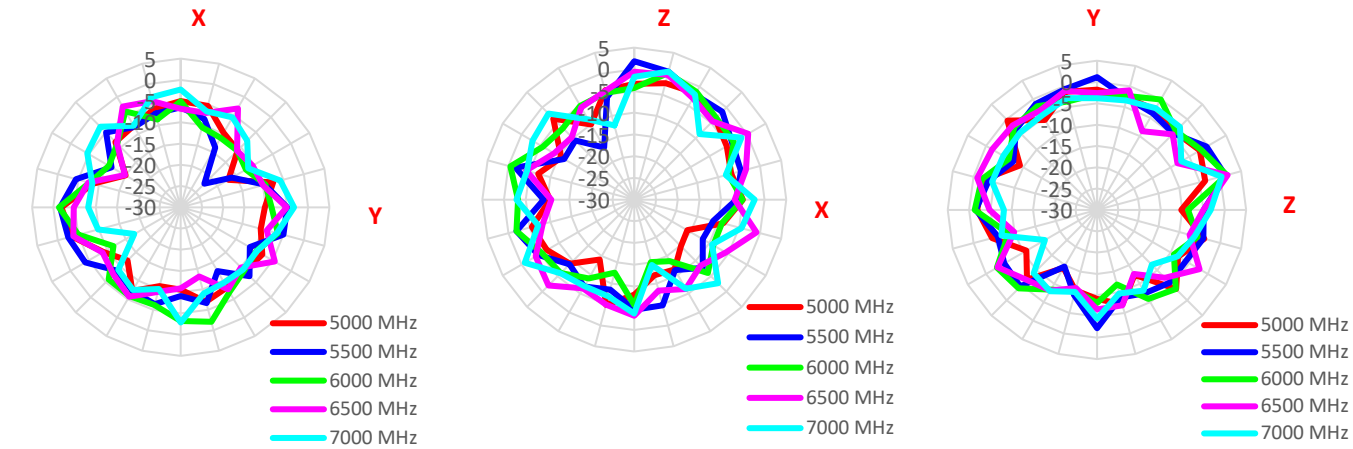
2400-2500MHz

XY Plane	XZ Plane	YZ Plane



5000-7000MHz

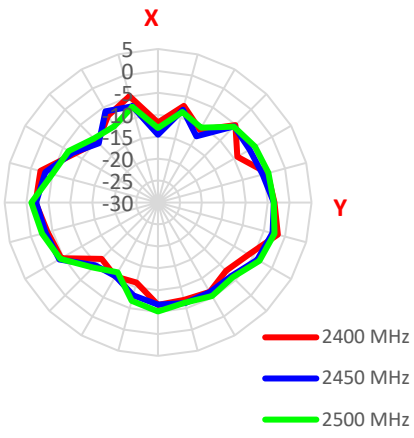
XY Plane	XZ Plane	YZ Plane



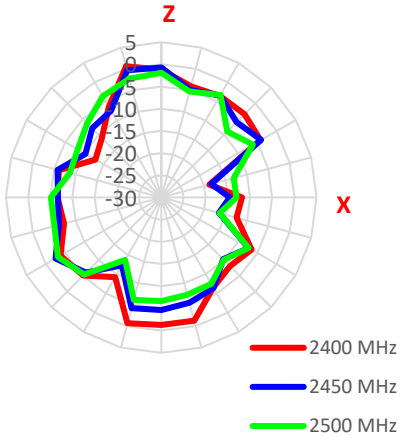
4.3 Wi-Fi MIMO 2 3D and 2D Radiation Patterns

2400-2500MHz

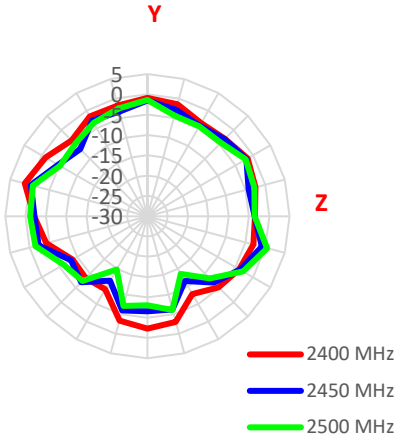
XY Plane



XZ Plane

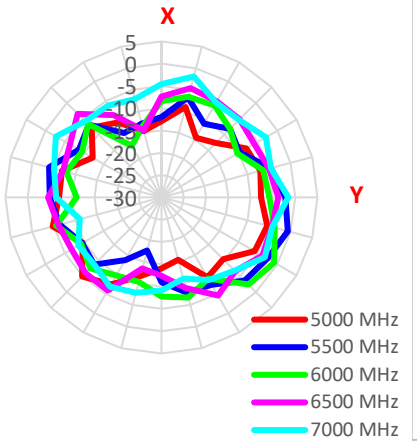


YZ Plane

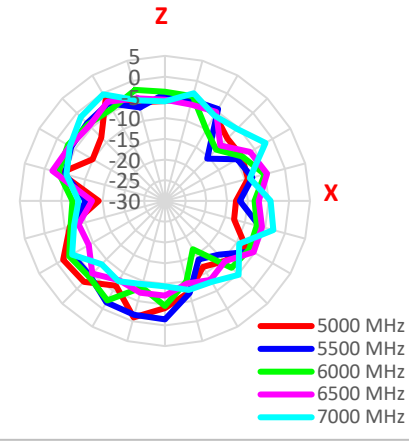


5000-7000MHz

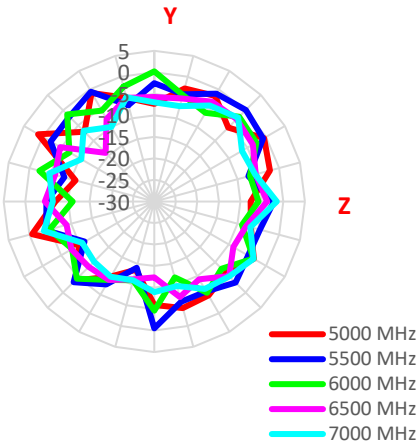
XY Plane



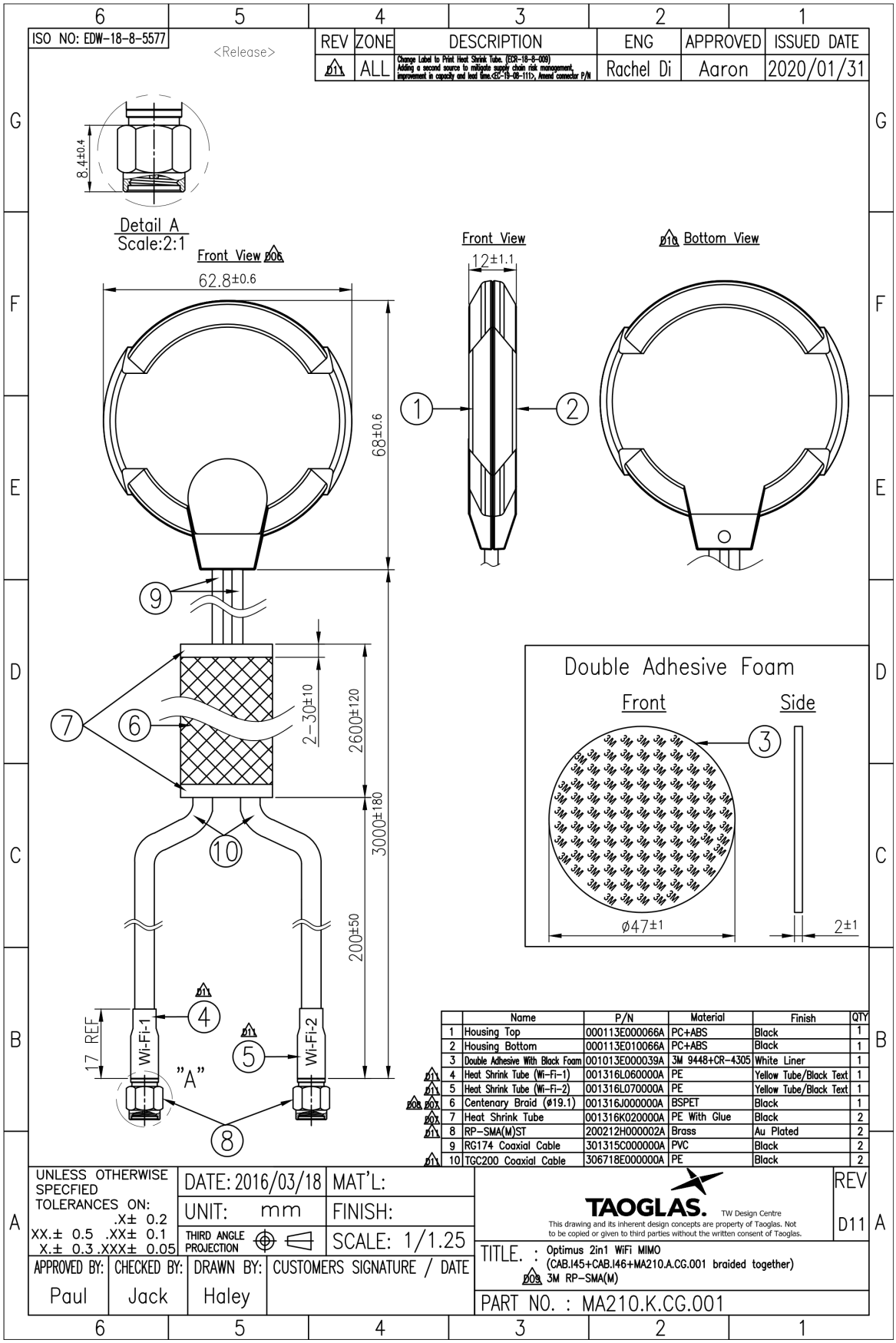
XZ Plane



YZ Plane

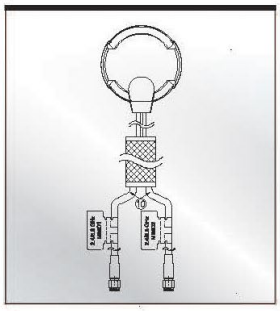


5. Mechanical Drawing (Units: mm)

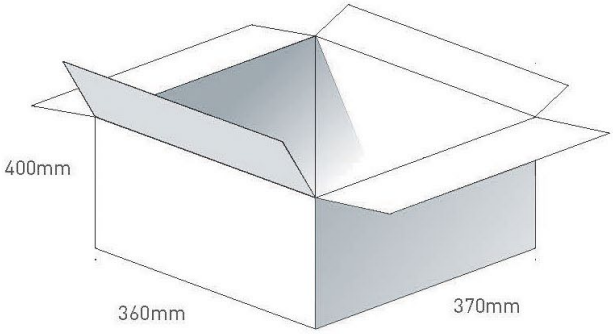


6. Packaging

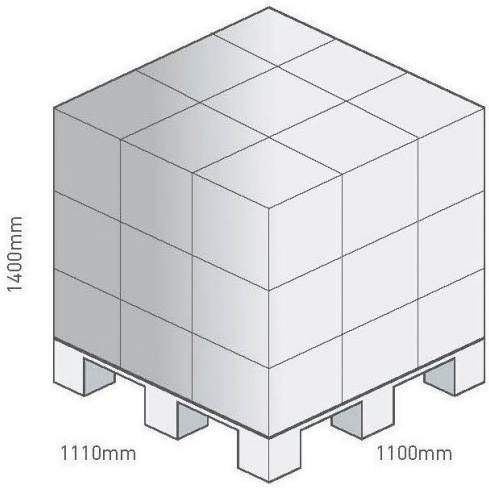
1pc MA210.K.CG.001 per small PE bag
Bag Dimensions - 310*420 mm
Weight - 315g



20pcs MA210.K.CG.001 per carton
Carton Dimensions - 360*370*400mm
Weight - 7.25Kg



Pallet Dimensions 1110mm*1100mm*1400mm
27 Cartons per Pallet
9 Cartons per layer
3 Layers



Changelog for the datasheet

SPE-18-8-049 – MA210.K.CG.001

Revision: C (Current Version)	
Date:	2020-09-16
Changes:	Wi-Fi 6 data Updated
Changes Made by:	Jack Conroy

Previous Revisions

Revision: B	
Date:	2020-03-26
Changes:	Drawing Updated
Changes Made by:	Jack Conroy

Revision: A (Original First Release)	
Date:	2018-04-17
Notes:	
Author:	Jack Conroy

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