



# TAOGLAS®



## Datasheet

### Meteor

**Part No:**  
**FW.24.SMA.M**

### Description:

Meteor 2.4GHz Flexible Whip Monopole Antenna

### Features:

- External 2.4GHz Monopole Antenna
- Rugged Design for Outdoor Use
- Over 70% Efficiency\*
- Over 4dBi Peak Gain\*
- Robust Inner Steel Core
- Antenna height 316mm
- SMA(M) Straight Connector
- IP65 dust and water-resistant
- \*Tested on 30\*30cm Ground Plane
- RoHS Compliant

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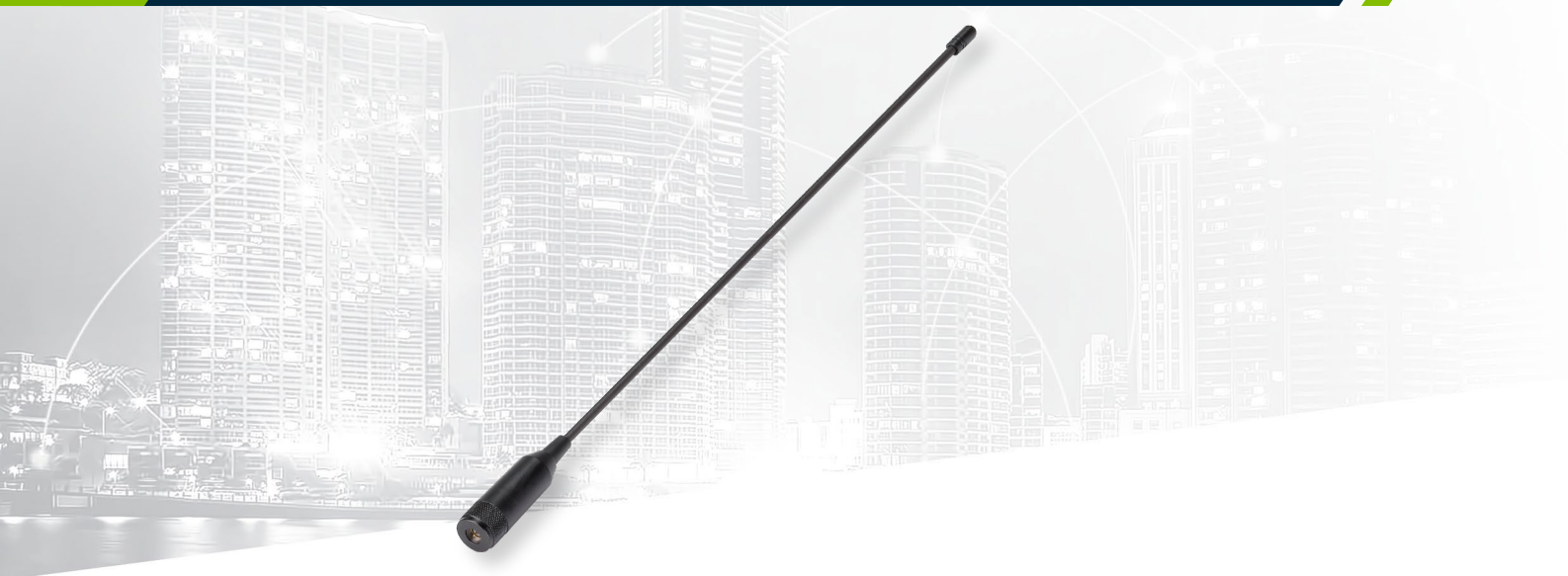
Ireland & USA  
ISO 9001:2015  
Certified



Taiwan  
ISO 9001:2015  
Certified



## 1. Introduction



The FW.24 is a flexible 2.4GHz whip antenna with a SMA(M) connector for outdoor use. It features excellent efficiency (>75%) and high peak gain (>4 dBi) between 2400-2500MHz on a 30\*30cm ground plane.

The antenna was specifically developed for applications such as weather monitoring systems, motion/vibration sensors, pollution monitoring, and border guard monitoring systems.

The FW.24 works in the 2.4 GHz Wi-Fi<sup>®</sup>/Bluetooth<sup>®</sup>/ISM band with high efficiency, meaning that it allows your radio to consume less power than with a lower efficiency antenna when transferring data. The antenna performs at its best while attached to a ground plane with dimensions of at least 30\*30cm.

The whip is made of a flexible inner steel core covered by PE so it is extremely resistant to abrasion and maintains its original shape and RF performance. This rugged design and IP65 rating has been tested by customers to withstand environmental stress and moderate physical shock in the field.

The FW.24.SMA.M 2.4GHz antenna provides a simple solution to any outdoor devices where the FW.24 antenna's rugged design and high efficiency can provide the best value to the application. For example, a module manufacturer may state that the antenna must have less than 2dBi peak gain, but you don't need to select an embedded antenna that has a peak gain of less than 2dBi 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 3dBi or more if available. Once that antenna gets integrated into your device, performance will degrade below this 2dBi 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.

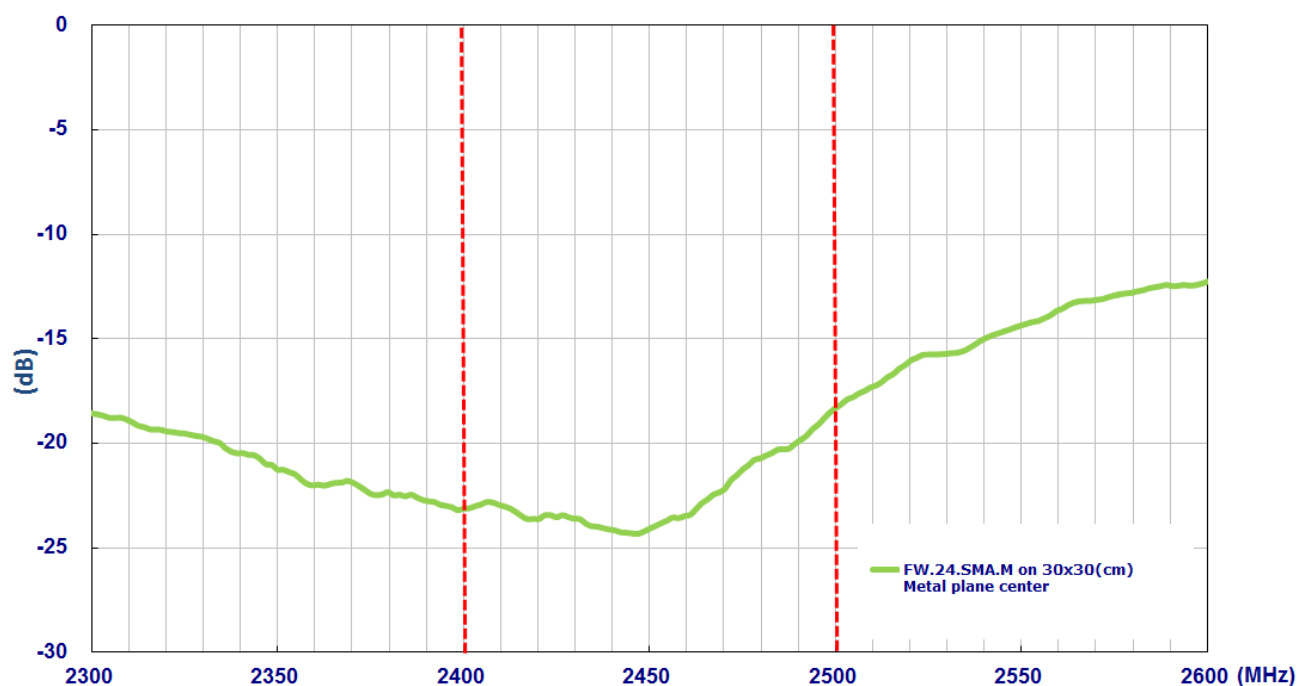
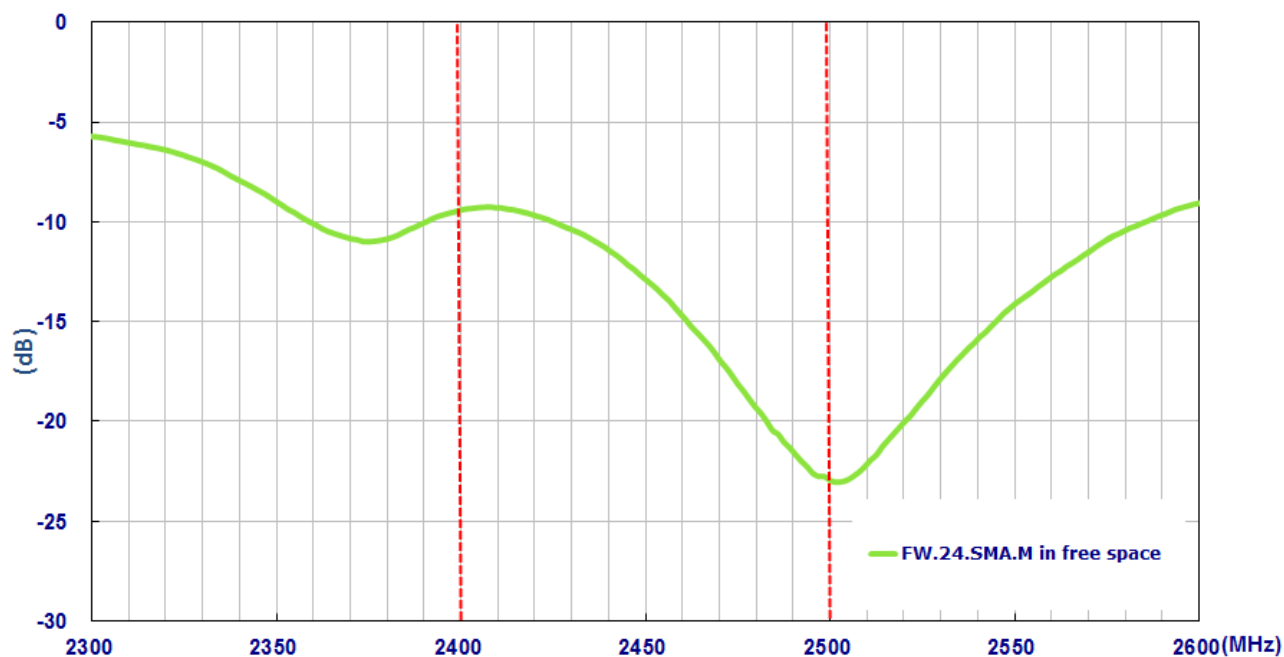
Other connector options are available or custom versions can be made subject to NRE and MOQ. Contact your regional Taoglas office for details.

## 2. Specifications

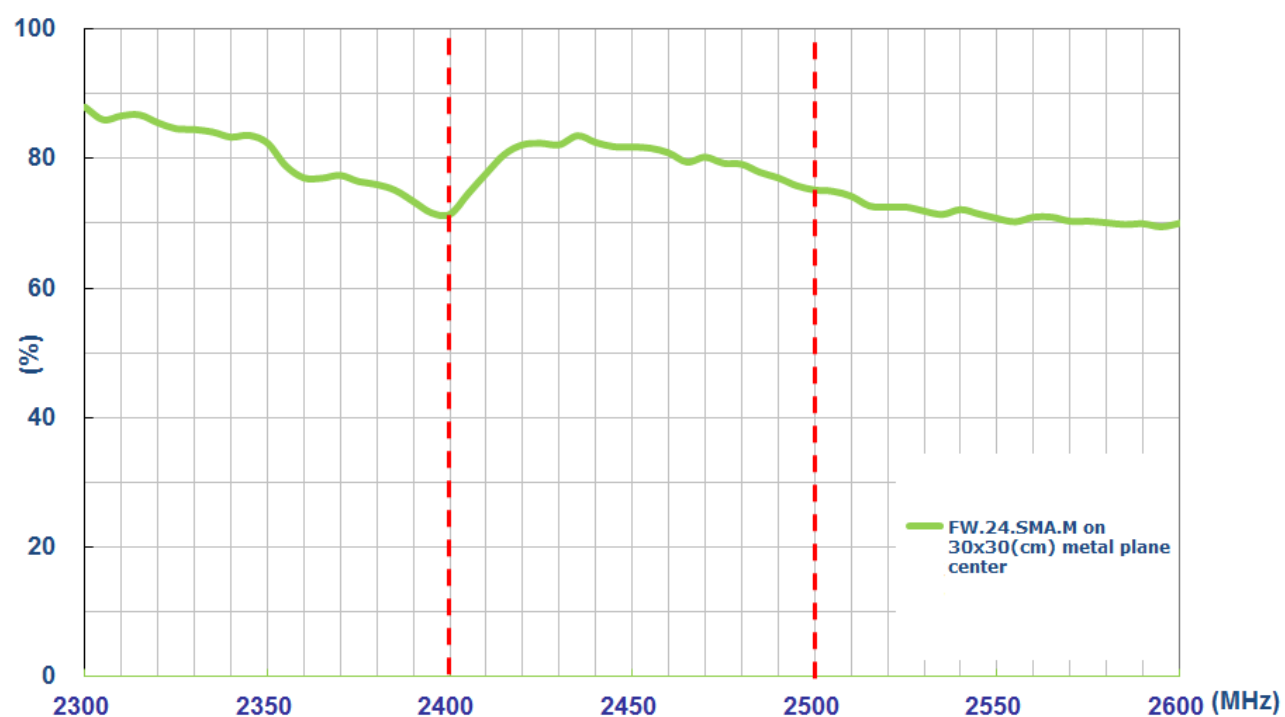
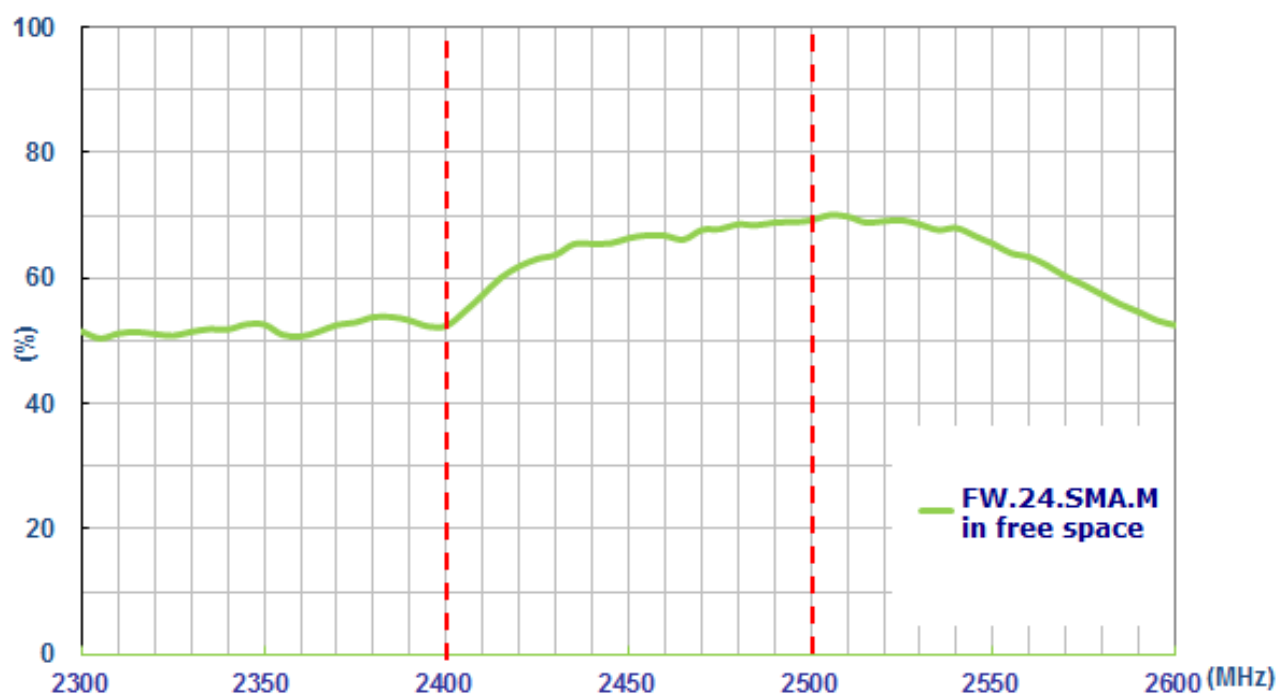
2.4GHz Wi-Fi		
Frequency	2400~2500MHz	
	In free space	On 30x30cm ground
Efficiency	64.5%	79.3%
Peak Gain	4.26dBi	4.48dBi
Return loss	< -6dB	< -10dB
VSWR	≤ 3:1	≤ 2:1
Impedance	50Ω	
Polarization	Linear	
Radiation Pattern	Omni-Directional	
Input Power	2 W	
Total Power	10 W	
Mechanical		
Dimensions	Height 307 ± 6 mm	
Base Diameter	16 ± 0.8 mm	
Whip Diameter	6.2 ± 0.6 mm	
Casing	ABS	
Connector	SMA Male Straight	
Weight	46.6 g	
Dust and Water Resistance	IP65	
Environmental		
Temperature Range	-40°C to 85°C	
Humidity	Non-condensing 65°C 95% RH	

## 3. Antenna Characteristics

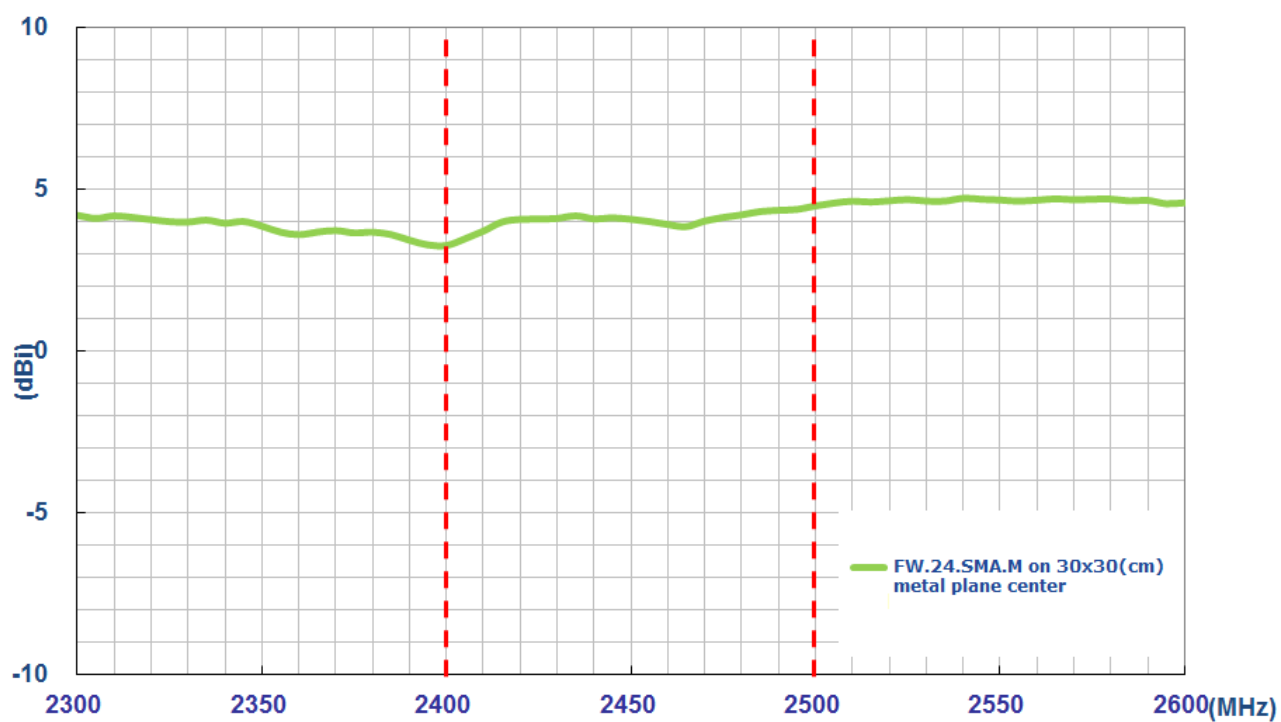
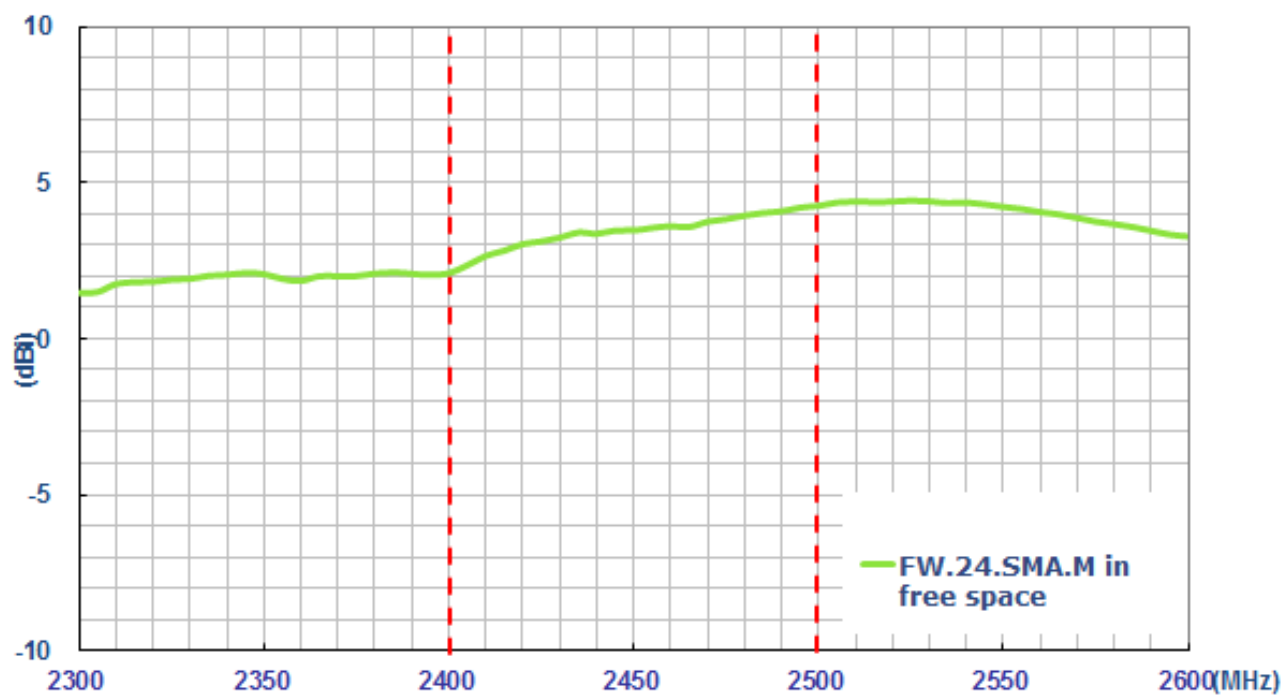
### 3.1 Return Loss



## 3.2 Efficiency

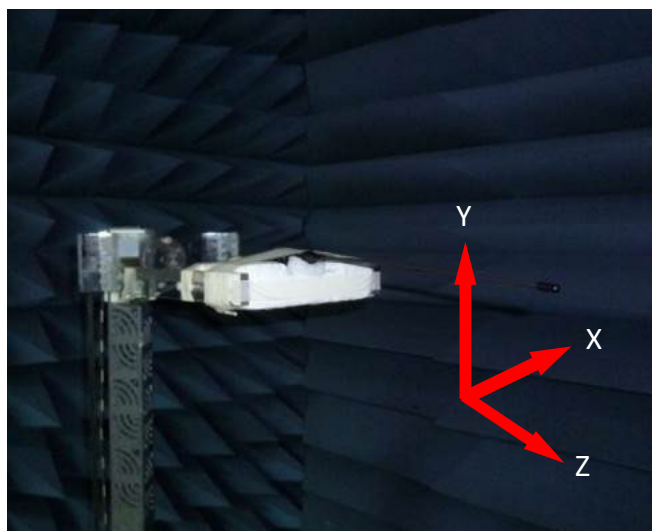


### 3.3 Peak Gain

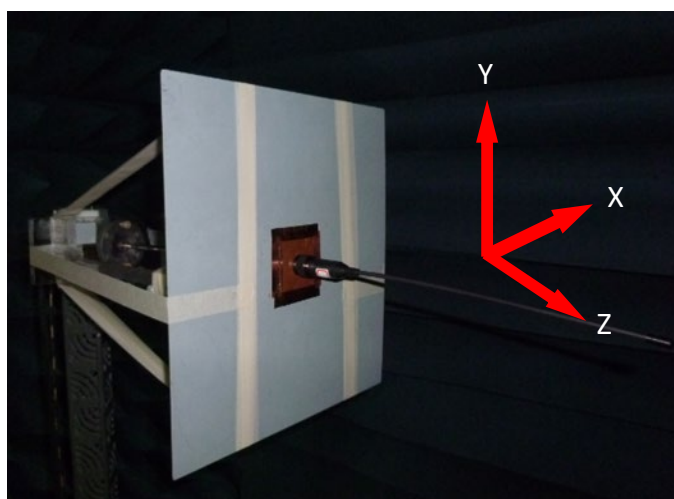


## 4. Radiation Patterns

### 4.1 Test Setup



Free space

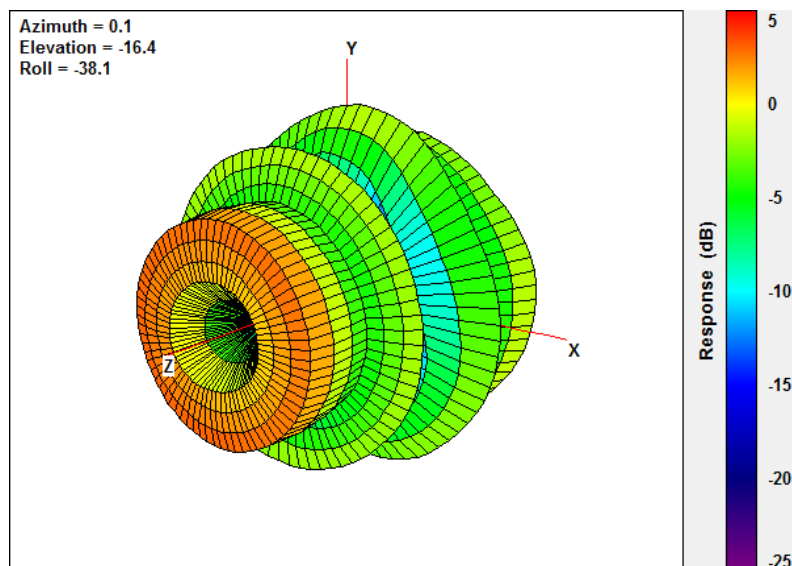


On 30x30 cm ground plane



## 4.2 3D and 2D Radiation Patterns

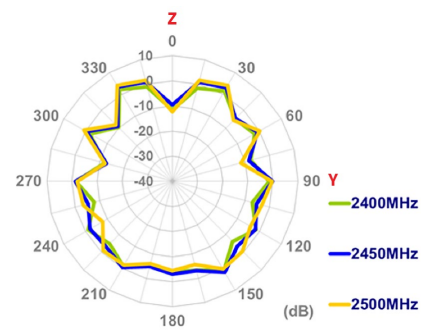
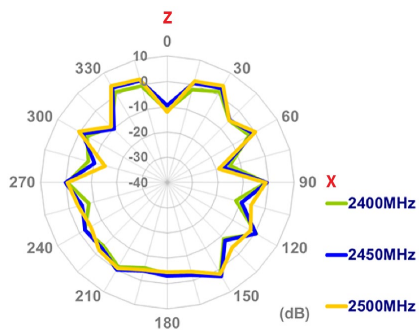
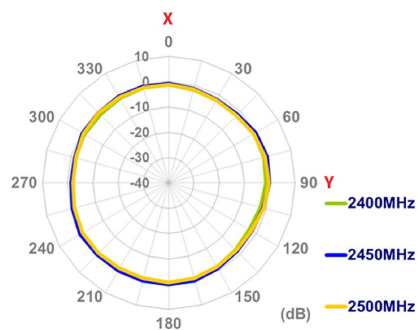
3-D Radiation Pattern in free space @2450MHz



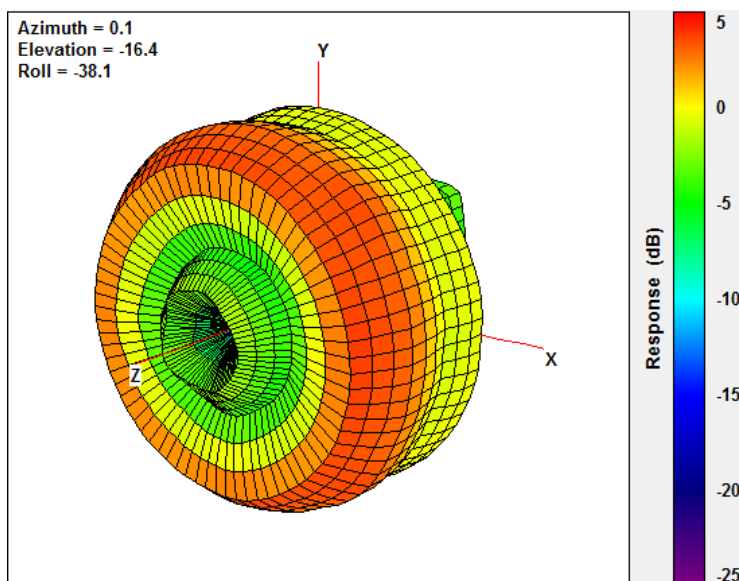
XY Plane

XZ Plane

YZ Plane



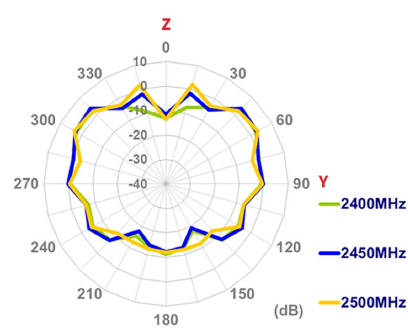
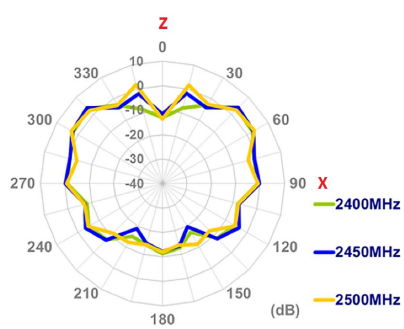
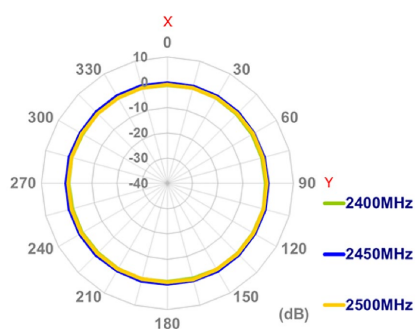
### 3-D Radiation Pattern on 30cm\*30cm Ground Plane @2450MHz



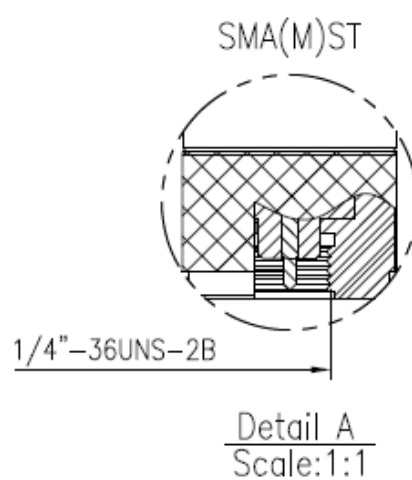
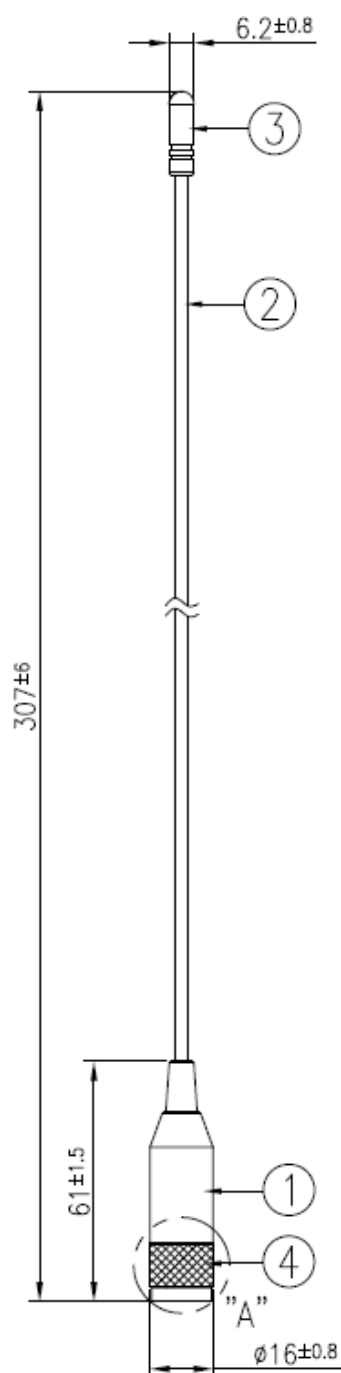
XY Plane

XZ Plane

YZ Plane



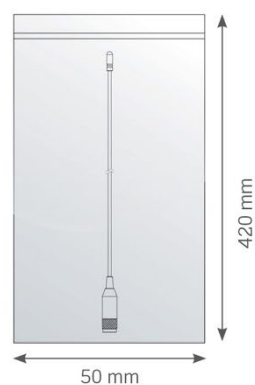
## 5. Mechanical Drawing (Units: mm)



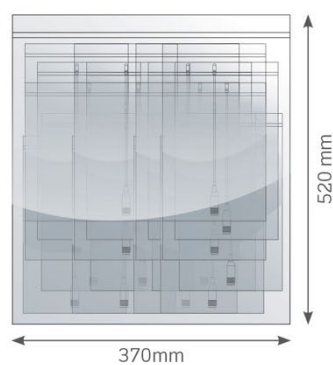
	Name	P/N	Material	Finish	QTY
1	Housing	000116J060000A	ABS	Black	1
2	Flexible Whip	001116J000000A	Steel+PE Jacket	Black	1
3	Cap	000716J000000A	POM	Black	1
4	SMA(M)ST	210216J000002A	Brass	Black	1

## 6. Packaging

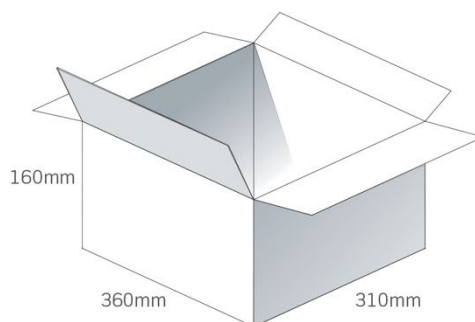
1pcs FW.24.SMA.M per PE Bag  
Bag Dimensions - 420\*50mm  
Weight - 41g



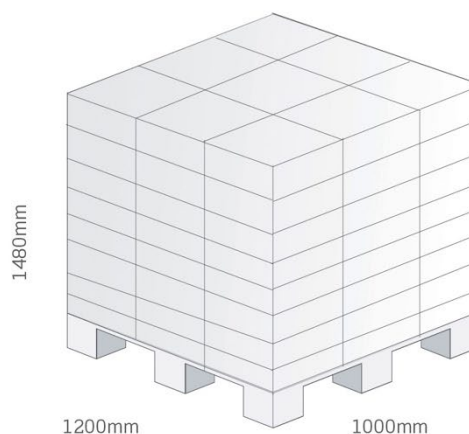
50pcs FW.24.SMA.M per Large PE Bag  
Bag Dimensions - 520\*370mm  
Weight - 2.2Kg



200pcs FW.24.SMA.M per Carton  
Carton Dimensions - 360\*310\*160mm  
Weight - 8.4Kg



**Pallet Dimensions:**  
1200\*1000\*1480mm  
72 Cartons Per Pallet  
9 Cartons Per Layer  
8 Layers



## Changelog for the datasheet

### SPE-17-8-003 - FW.24.SMA.M

#### Revision: C

Date:	2019-08-16
Changes:	Updated to new format
Changes Made by:	Dan Cantwell

#### Previous Revisions

#### Revision: B (Current Version)

Date:	2017-10-19
Changes:	Changed IP Rating to IP65
Changes Made by:	Carol Faughnan

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

Date:	2017-06-01
Notes:	
Author:	Andrew Wei



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