

Specification

# SPECIFICATION

Model No. : **MA.501.B**

Product Name : Heavy Duty Combination Screw Mount Antenna – GPS/Dual-Band 2.4~5.2GHz

Description : Combination GPS(1575MHz)/  
2.4GHz~5.2GHz suitable for  
ISM Bands/ZigBee/WLAN/Bluetooth  
IEEE.802.11/IEEE.802.15  
IP69K – No ingress of dust and no water ingress permitted  
from powerful pressure jets in all directions and no  
performance degradation  
Height 29mm Diameter 49mm  
**RoHS Compliant**



Version	Date	Page	Revision Description	Prepared	Approved
B	Jul 30 <sup>th</sup> 2010	All	Mechanical Change	TW Product Centre	Zita Lin



## Specification

### I. Scope

MA.501 is a combination of high performance GPS and dual band Wi-Fi (2.4~2.5/5.2GHz) antenna solution for reliable location information with localised data transfer via WLAN, Zigbee or Wi-Fi. This product incorporates the industry's most advanced GPS active ceramic patch technology (XtremeGain™) allowing for gains of up to 300% in accuracy compared to traditional antennas. Time to first fix is under 1 minute with all of the industry leading GPS receivers. XtremeGain technology means the antenna has been tuned for the Hercules environment giving you the optimum antenna solution to enable elimination of data gaps.

The 2.4/5.2GHz antenna inside has also been tuned for this enclosure; hence performance is excellent at all bands meaning the antenna works worldwide.

It was designed mainly for commercial vehicle and outdoor equipment installations, with extra thick threads, with the cables exiting through the bottom for ease of install. Durable and robust UV resistant PVC housing is resistant to vandalism and direct attack. It is designed for covert mounting as it is only 3cm high when mounted, thus complies with the latest EU directives for height restrictions.

### II. Features

#### GPS

- High LNA Gain up to 32 dB  $\pm$  2 dB
- Miniaturized – diameter 49mm
- Low Noise (1.5 dB max)
- Resides in its own chamber and is tuned for the Hercules environment to enhance performance

#### WLAN / Wi-Fi

- Advanced dual-band antenna for worldwide application
- Tuned for the Hercules environment to enhance performance

#### Other

- IP69K – No ingress of dust and no water ingress permitted from powerful pressure jets in all directions and no performance degradation
- Quality textured covert and low profile design
- UV and Vandal resistant PVC housing
- Convenient integrated cable routing system
- Optional cables and connectors

© All Rights Reserved

Taoglas Limited, Unit 7 Peare Campus, Moyne Business Park, Enniscorthy, Co. Wexford, Ireland

[info@taoglas.com](mailto:info@taoglas.com)

+353 53 9169500

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



## Specification

## III. Specifications

GPS						
Frequency	1575.42MHz					
Average Gain	32dB typ.					
Gain @ Zenith	2.0dBi min.					
Gain @ 10 o Elevation	-4.0dBi min.					
Axial Ratio	3.0dB max.					
Polarization	Right Hand Circular					
VSWR	<=2.0:1					
Impedance	50Ω					
Noise Figure	1.5dB max.					
Bandwidth	10Mhz min.					
LNA Out-band Attenuation	fo = 1575.42MHz fo ± 20 MHz 7dB Min. fo ± 30 MHz 12dB Min. fo ± 50 MHz 20dB Min. fo ± 100 MHz 30dB Min.					
Power Consumption	13mA typ. 16mA max. @ 3.0V 18mA typ. 22mA max. @ 5.0V					
Cable	3m RG174 standard, fully customizable					
Connector	SMA(M) standard, standard, fully customizable					
WiFi						
Frequency (GHz)	2.40	2.45	2.50	5.15	5.25	5.35
Average Gain (dBi)	-2.24	-2.06	-2.19	-3.74	-4.26	-3.84
Peak Gain (dBi)	3.05	4.05	4.11	4.74	4.37	4.71
Efficiency	63.3%	68.9%	66.4%	50.0%	41.6%	47.5%
Return Loss (dB)	-14.5	-12.1	-12.7	-11.4	-15.3	-14.2
VSWR	<=1.8:1					
Impedance	50Ω					
Polarization	Linear - Horizontal					
Radiation Pattern	Omni					
Cable	CFD-200 standard, fully customizable					
Connector	RP-SMA(M) standard, standard, fully customizable					
MECHANICAL						
Dimensions	Height 29mm x Diameter 49mm					
Casing	UV resistant PVC					
Base and thread	Nickel plated steel					

© All Rights Reserved

Taoglas Limited, Unit 7 Peare Campus, Moyne Business Park, Enniscorthy, Co. Wexford, Ireland

info@taoglas.com

+353 53 9169500

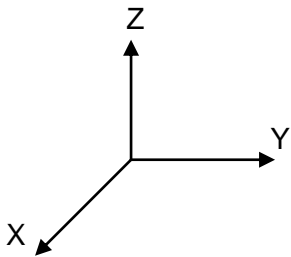
www.taoglas.com



Specification

Thread diameter	18mm
Weather proof gasket	CR4305 foam with 3M9448B double-side adhesive
Cable pull	8 Kgf
Recommended Mounting Torque	95Nm
Maximum Mounting Torque	135Nm
<b>ENVIRONMENTAL</b>	
Waterproof	IP69K (DIN 40050-9/IEC 60529)
Corrosion	5% NaCl for 96hrs - Nickel plated steel base and thread
Temperature Range	-40°C to +85°C
Thermal Shock	100 cycles -40°C to +80°C
Humidity	Non-condensing 65°C 95% RH
Shock (drop test)	1m drop on concrete 6 axes

**IV.S11 Return Loss management (Wi-Fi / WLAN)**

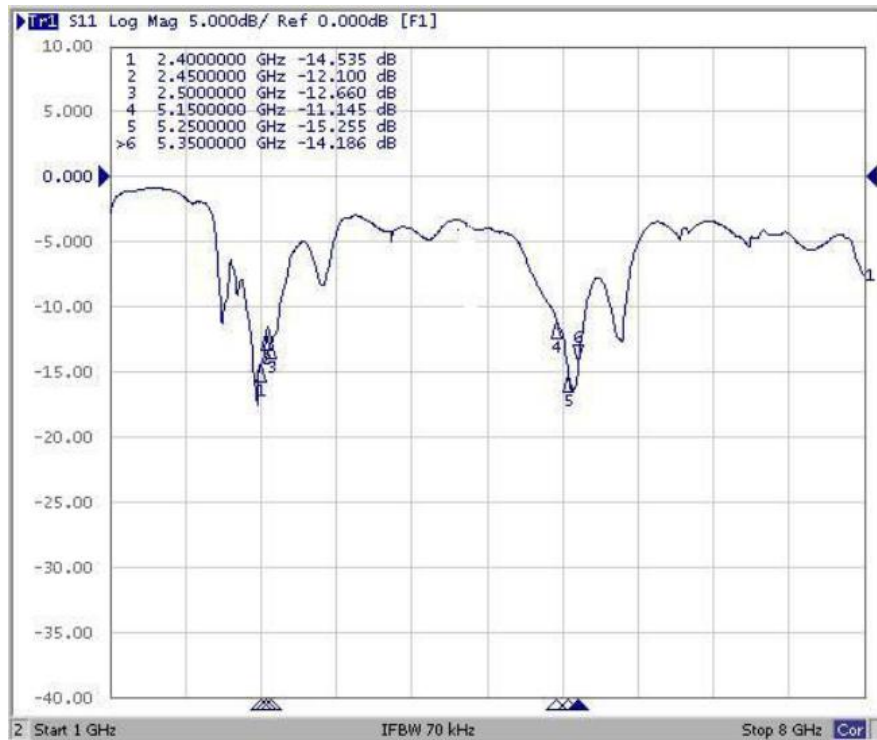


Note : 1. The upper of the PCB is X direction.  
 2. Connector is toward Z direction.





Specification



© All Rights Reserved

Taoglas Limited, Unit 7 Peare Campus, Moyne Business Park, Enniscorthy, Co. Wexford, Ireland

info@taoglas.com

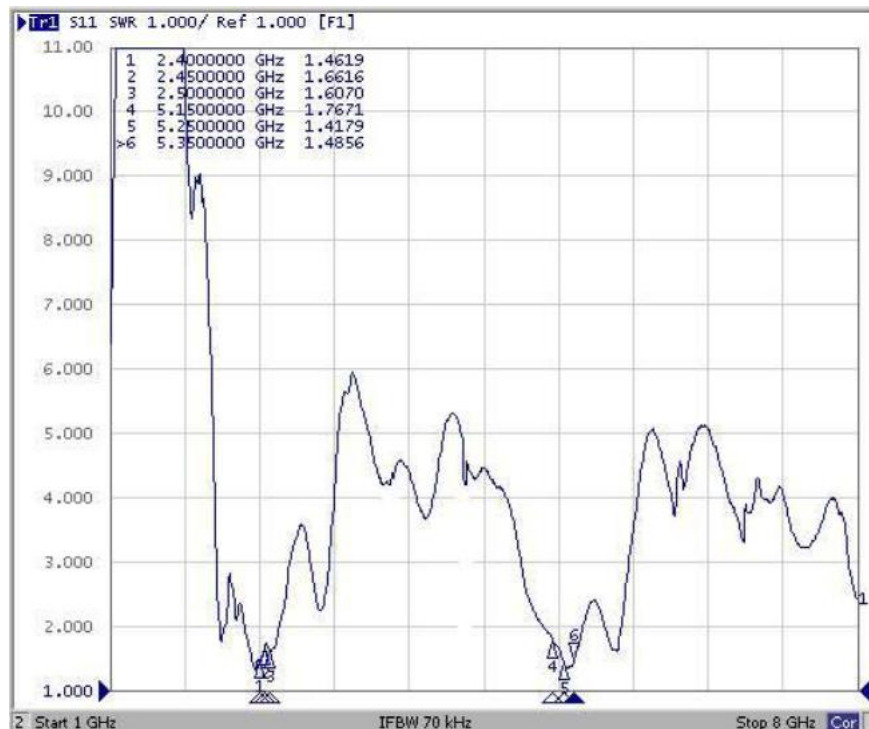
+353 53 9169500

www.taoglas.com



Specification

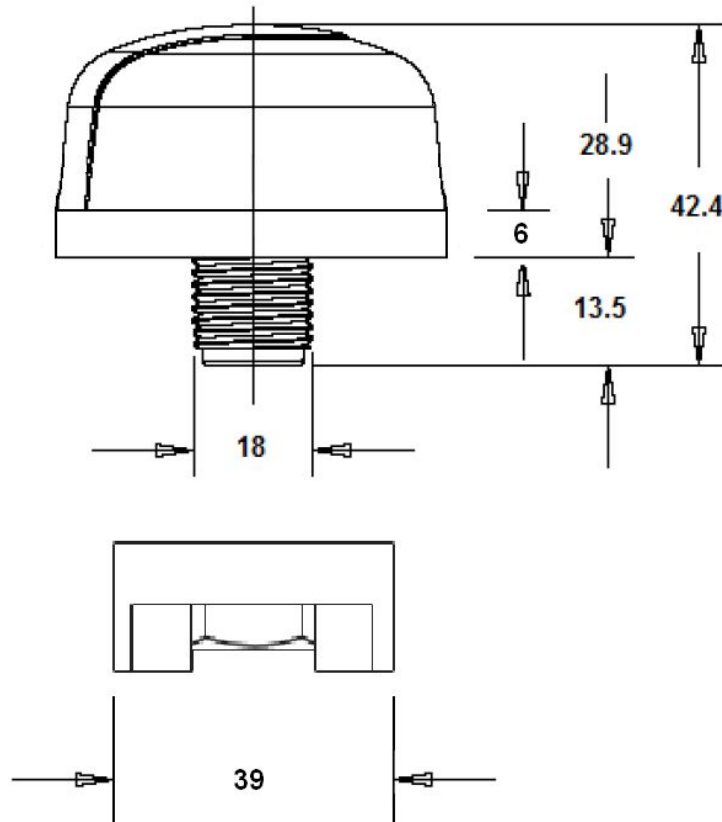
### V. VSWR (Wi-Fi / WLAN)





Specification

## VI. Drawings

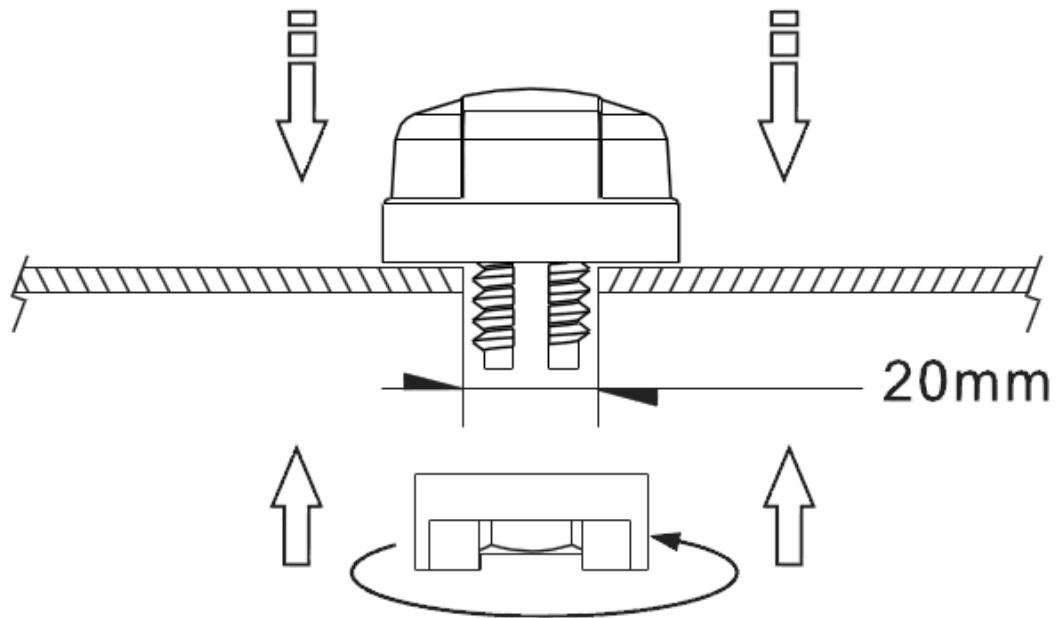


Unit : mm



Specification

## VII. Installation



Recommended torque for mounting is 95Nm or 70ftlbs

Maximum torque for mounting is 135.6Nm or 100ft lbs



© All Rights Reserved

Taoglas Limited, Unit 7 Peare Campus, Moyne Business Park, Enniscorthy, Co. Wexford, Ireland

[info@taoglas.com](mailto:info@taoglas.com)

+353 53 9169500

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