



Part No: GW.05.AE23

Description:

Dual-Band Wi-Fi® 2.4~2.5GHz/5.15~7.2GHz Terminal Mount Monopole Antenna Also Covering Wi-Fi® 6 Frequencies

Features:

High Efficiency – with and without ground plane Wi-Fi® 2.4/5.8/7.1GHz Covers Wi-Fi® 6 Frequencies: 5.9-7.2GHz Extremely Compact – 69.6mm Aesthetic look and feel Unique can rotate 360 degrees and articulate through 180 degrees Max Peak Gain compliant with most Wi-Fi® modules Connector: Fakra Code I Beige SMB(F) Dimensions: 69.6*Ø10mm CE Certified RoHS & Reach Compliant





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Introduction

1.



The GW.05 dual band Wi-Fi® Hinged Rotatable Antenna is a high efficiency monopole antenna with the capacity to cover Wi-Fi® 6 frequencies up to 7.125GHz. Compared to other much larger antennas on the market, it has superior wide-band high efficiency characteristics. The direct mount Fakra connector enables a more robust mating to the device compared to a SMA, the locking feature prevents the antenna coming loose due to vibration or shock. The FAKRA Connector means it is also suitable for use in conjunction with the next generation of Routers and Gateways.

The GW.05, as all monopole antennas, works best connected directly to the ground-plane of the device main PCB or to the outside of a metal housing. However, it still has very good performance (>50%) even without connecting to a ground-plane, making it the best all round small Wi-Fi[®] terminal antenna on the market.

In the un-grounded installation condition, it also comes below the max peak gain requirements for most Wi-Fi[®] modules which are usually 2dBi, so it can comply with FCC regulations. The GW.05 is for Wi-Fi[®], WLAN, Zigbee[®], Bluetooth[®], and 802.11a/b/g/n/ac applications.

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 2dBi 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 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.

It is better not to select an embedded antenna with very low free-space peak gain (<2dBi) directly, as this antenna would have worse performance in your device, and lead to compromised performance compared to using a Taoglas antenna.

This antenna's colour and connector and be customized subject to NRE, for further information please contact your regional Taoglas customer support team.





2. Specifications

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	Straight	60.3	-2.19	-0.83	500		Lincar	Omnidirectional
		90° Bent	46.3	-3.35	2.92		1014/		
5.8GHz Wi-Fi		Straight	64.2	-1.93	2.64				
	2120 2820	90° Bent	65.8	-1.82	2.91	5002	TOAA	Linear	
7.1GHz Wi-Fi 6	5925~7125	Straight	33.6	-4.74	1.41				
		90° Bent	53.3	-2.73	2.61				

Mechanical					
Antenna length	69.6mm				
Antenna Diameter	10mm				
Casing	POM				
Connector	FAKRA Code I Beige Jack				
Weight	8g				
Environmental					
Operation Temperature	-40°C ~ + 85°C				
Storage Temperature	-40°C ~ + 85°C				
Humidity	Non-condensing 65°C 95% RH				















3.3 Efficiency – Free Space



3.4 Average Gain – Free Space





3.5 Peak Gain – Free Space











4.2 Test Setup – Bent (90°)













































5.



Packaging

6.





Changelog for the datasheet				
SPE-21-8-121 – GW.05.AE23				
Revision: A (Origina	l First Release)			
Date:	2021-12-13			
Notes:				
Author:	Jack Conroy			

Previous Revisions



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