

Antenna Datasheet

Passive Ceramic Antenna

Model:

BWGNSCNX16-6W2

Description:

BeiDou/GPS Passive Ceramic Antenna

Features:

1575±5MHz Frequency Range

1561±5MHz Frequency Range

360° Omnidirectional Radiation

Dimensions: 16mm x 6mm x 2mm

Compliant with RoHS & REACH Regulations

Contents

1.	Description	3
2.	Specifications	4
3.	Product Picture	5
4.	Mechanical Drawing	6
5.	Testing Equipment	7-8
6.	Performance Data	9-10
6.1	V.S.W.R	9
6.2	Return Loss	9
6.3	Gain	10
6.4	Efficiency	10
6.5	Antenna Gain and Efficiency	10
7.	Radiation Patterns	11-12
7.1	2D Radiation Patterns	11
7.2	3D Radiation Patterns	12



BWGNSCNX16-6W2

Part Number Explanation

BW	Company	Bat Wireless
GNS	Frequency	GNSS / GNSS
C	Name	Ceramic Antenna
N	Type	Internal
X	Constant	X
16-6	Dimensions	16-6mm
W	Type	Passive Antenna
2	Thickness	2mm

1. Description

Bat Wireless BWGNSCNX16-6W2 is a ceramic antenna, operating in the 1575 MHz and 1561 MHz frequency bands. It adopts a special ceramic dielectric material to reduce antenna size while maintaining good performance, featuring low dielectric loss and high radiation efficiency. With low loss and high stability, the ceramic dielectric minimizes signal attenuation and ensures excellent temperature stability, making it suitable for in-vehicle, outdoor, and other harsh environments, as well as for low-power applications.

The right-hand circular polarization design matches the polarization mode of BeiDou satellite signals, providing strong anti-multipath interference capability and improving positioning accuracy. It is easy to integrate, typically featuring an ANT connection pin and a ground pin for convenient soldering or modular design.

Classic Application Scenarios:

Automotive and Transportation: Vehicle navigation systems, commercial fleet management, intelligent transportation facilities

Consumer Electronics and Portable Devices: Smartphones/tablets, outdoor sports devices, shared-economy devices

IoT and Asset Tracking: Logistics tracking, agricultural IoT

Aerospace and Defense: UAVs, satellite communication terminals, military equipment

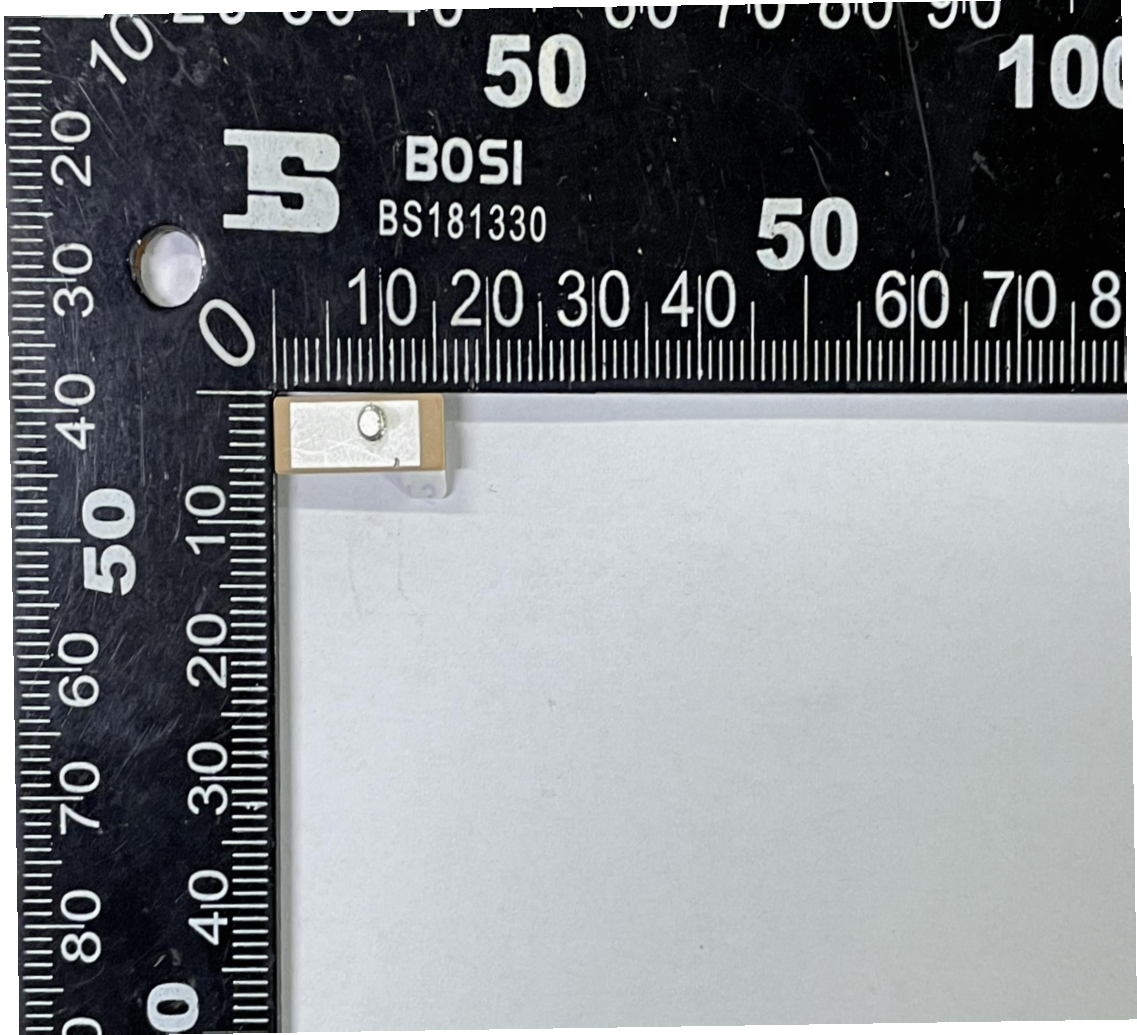
Bat Wireless provides customized services to optimize your equipment. We have a mature R&D team that can respond quickly to meet your needs. If you have any requirements, please contact our sales and FAE.



2. Specification

Parameters	Typ.	Unites	Notes
Electrical Characteristics			
Antenna Type	Ceramic Antenna		
Frequency Range	1575±5 , 1561±5	MHz	
Input Impedence	50	Ω	
V.S.W.R	<3		
Gain	1	dBi	
Polarization Type	RHCP		
Power Capacity	50	W	
Lightning Protection	-		
DC Voltage	-	V	
Radiator	-		
Mechanical Characteristics			
Dimensions	16 x 6 x 2	mm	
Connector Type	-		
Cable Type	-		
Cable Length	-	mm	
Mount way	-		
Color	Sliver White		
Meterial	Ceramic		
Weight	4.72	g	
Environmental Characteristics			
Waterproof Rating	-		
ROHS Compliant	Compliant		
Operating Temperature	-45~ +85	°C	
Storage Temperature	-45~ +85	°C	

3. Product Picture



5. Test Equipment



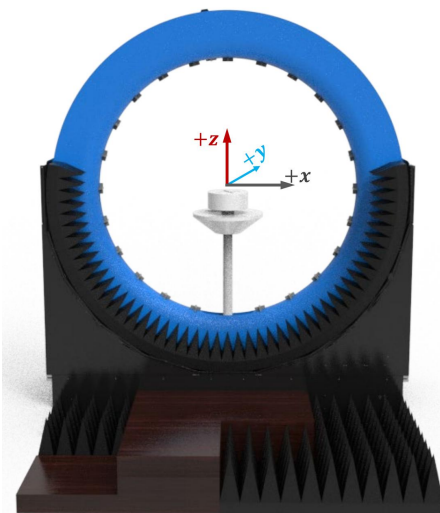
Keysight/E5071C Network Analyzer



R&S/CMW500 Comprehensive Tester



R&S/SMBV100B Signal Generator



DT-3500 Datasheet

Specification:

Specification:	Description
Test Frequency	400MHz-8.5GHz
System Size	L*W*H=4*3.5*3.5m
Number of Probes	23 (Probe) + 1 (link)
Interval Angle	15°
Sampling Diameter	2200mm
Carring Capacity	≤40kg

Testing Capability

Description

Active measurement

Capability : TRP、TIS、EIRP、EIS,. etc
Mode : 2G/3G/4G/5G、Wi-Fi b/g/n/a/ac/ax、BT、NB-IOT、Cat-M (eMTC)、GPS/BEIDOU/GLONASS、ZigBee、LoRa(Non-Signaling),.etc

Passive measurement

Test category : Gain、Efficiency、2D pattern、3D pattern、Pattern roundness、Axial Ratio、ECC,Phase center,. etc
Polarization : Circular polarization, linear polarization, elliptical polarization



RF Link diaram of multi probe spherical near-field testing system

RF Link Overview



RF Link of Passive measurement



RF Link Overview

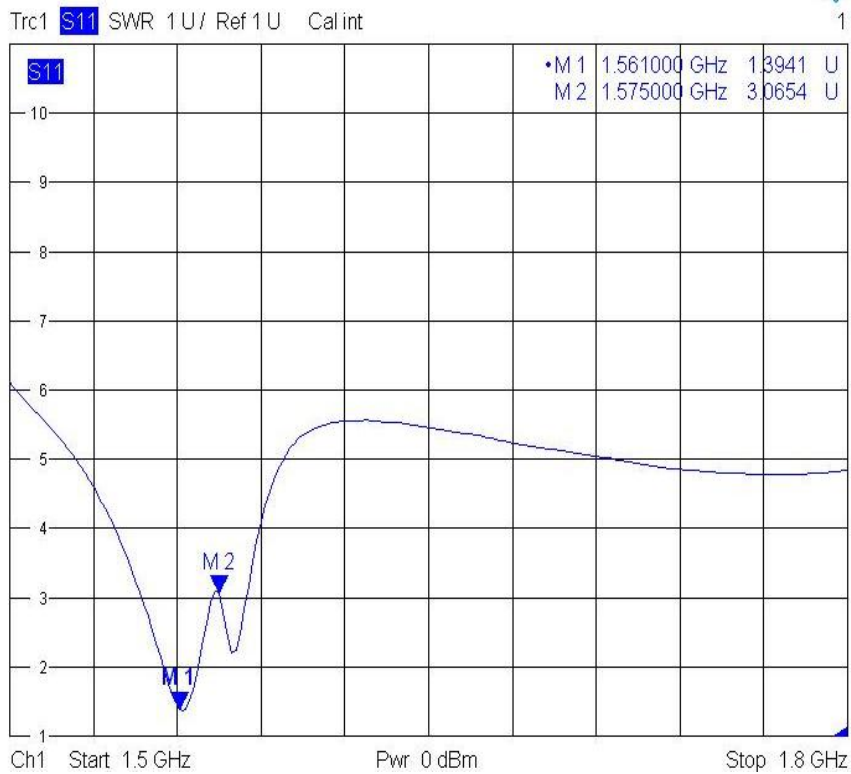


RF Link of Passive measurement

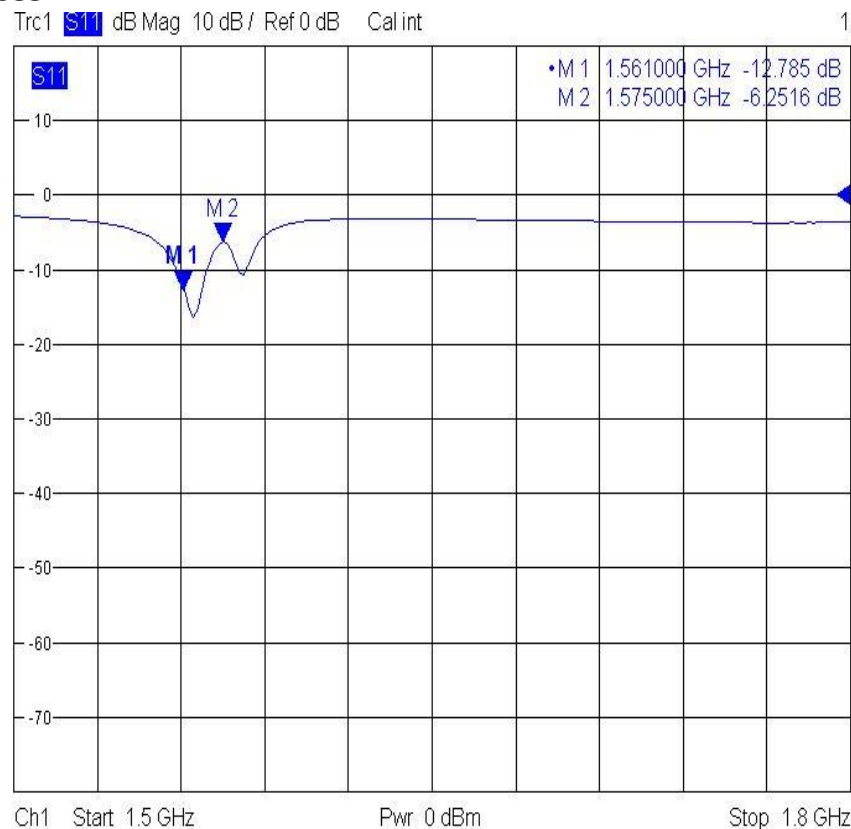


6. Performance Data

6.1 VSWR

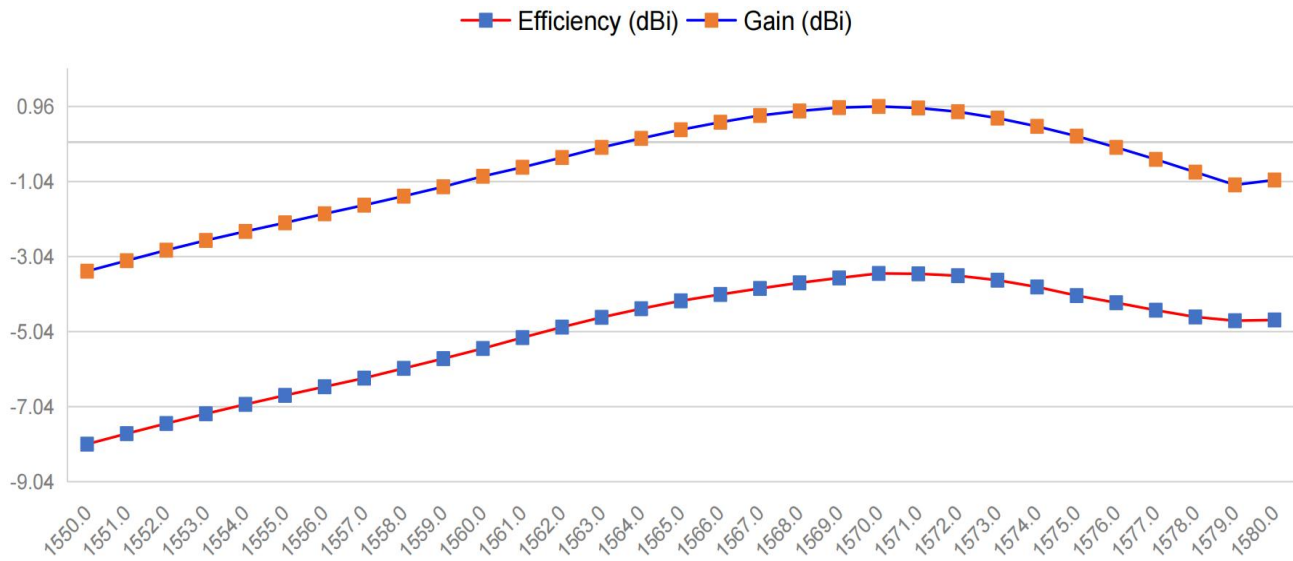


6.2 Return Loss

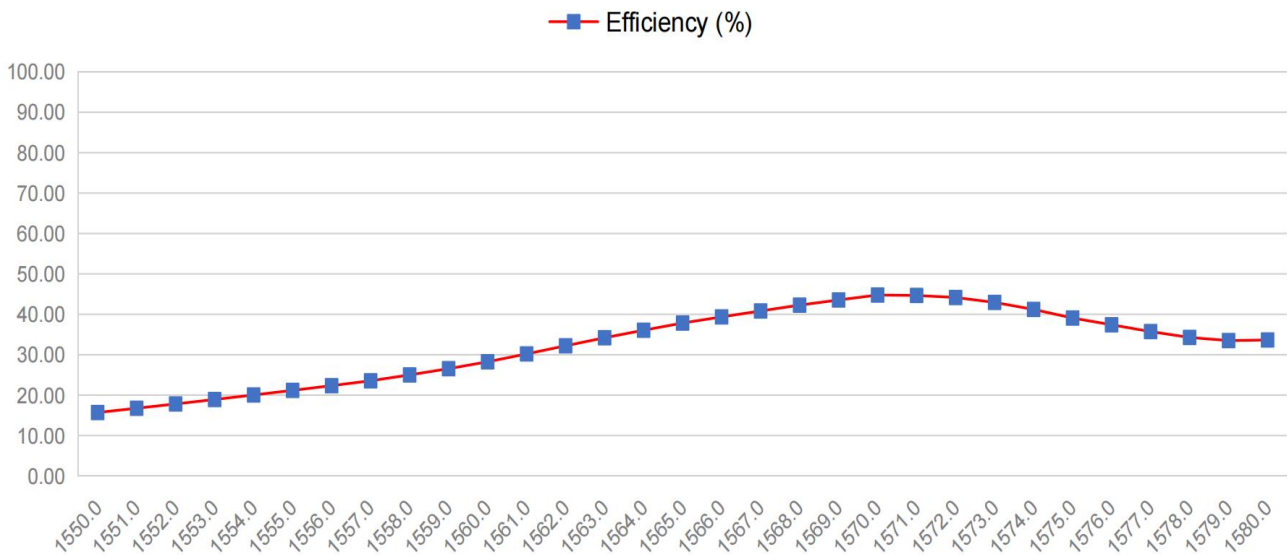


6. Performance Data

6.3 Gain



6.4 Efficiency

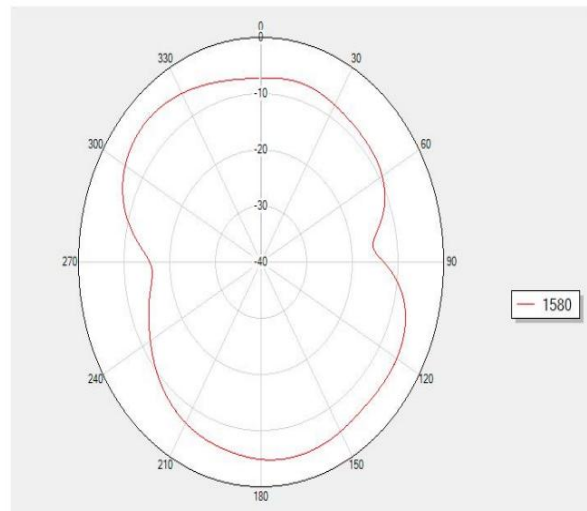
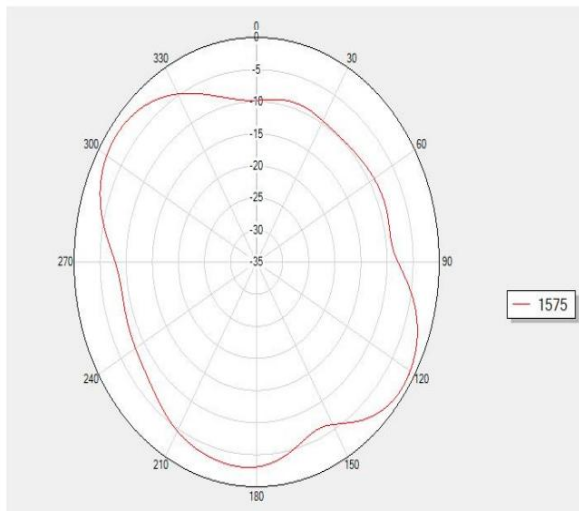
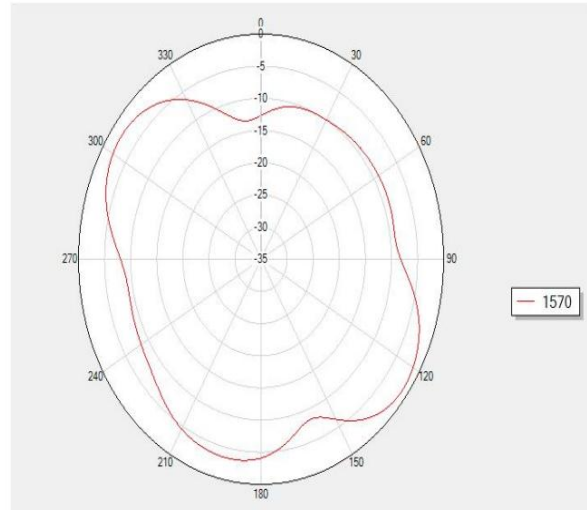
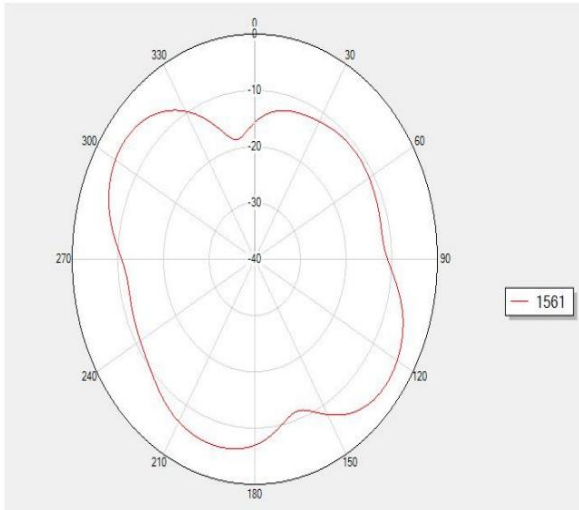


6.5 Gain and Efficiency

Frequency (MHz)	1561	1570	1575	1580
Gain (dBi)	-0.9	0.96	0.65	-0.79
Efficiency (%)	28.25	44.77	41.21	34.28

7. Radiation Patterns

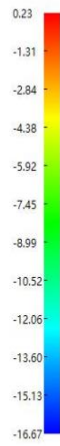
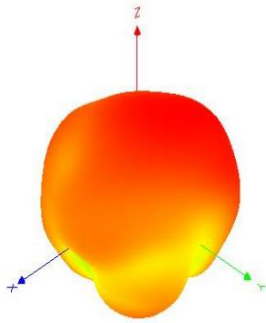
7.1 2 D Radiation Patterns



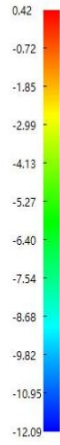
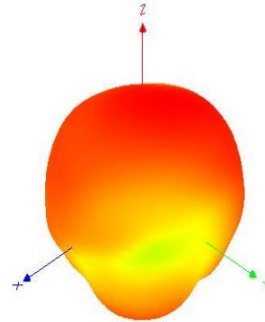


7.2 3D Radiation Patterns

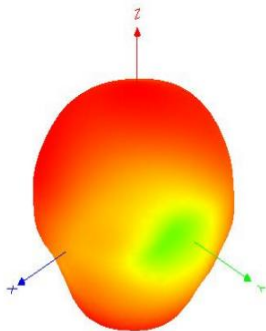
Frequency (MHz) : 1561



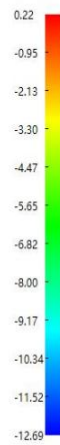
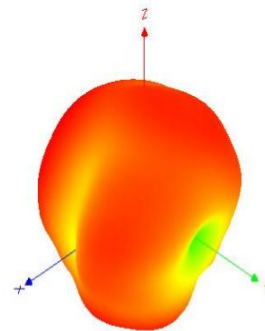
Frequency (MHz) : 1570



Frequency (MHz) : 1575



Frequency (MHz) : 1580





DECLARATION:

Legal Notice: In order to provide users with better service, Shenzhen Bat Wireless Technology Co., Ltd. (hereinafter referred to as ' Bat Wireless') will endeavour to present users with detailed and accurate product information in this manual. However, due to the time-sensitive nature of the content in this manual, Bat Wireless cannot guarantee the timeliness and applicability of this document at all times. Bat Wireless reserves the right to update the content of this manual without prior notice. To obtain the latest information, we kindly request users to regularly visit the Bat Wireless official website or contact Bat Wireless staff. Thank you for your understanding and support!

Copyright Notice: All content in this product manual (including text, charts, logos, and designs) is protected by copyright law and international copyright treaties. No entity or individual may reproduce, modify, distribute, or use any part or all of this manual in any form (including electronic, mechanical, photocopying, etc.) without prior written authorisation from our company. Infringers will be held legally liable. All rights reserved.

Trademark Notice: All product names and corporate logos of Bat Wireless mentioned in this manual are the lawful property of our company (including affiliated companies). Unauthorised use, reproduction, or imitation is strictly prohibited. Third-party trademarks referenced in this manual are the property of their respective owners, and their use is solely for illustrative purposes and does not imply any commercial affiliation or authorisation. Our company reserves all rights to pursue legal action against any infringement.

Disclaimer: The product information contained in this manual is for reference only. Actual product performance may vary depending on the usage environment and configuration differences. Our company makes no express or implied warranties regarding the accuracy, completeness, or applicability of the content of this manual and shall not be liable for any direct or indirect losses arising from the use or inability to use the content of this manual. Users should assess the applicability of the product and follow actual operating procedures. The final interpretation of this manual is reserved by our company.

Shenzhen Bat Wireless Technology Co.,Ltd

Office Add: Room 1301, 13th Floor, No. 8 Langhua Road, Xinshi Community, Dalang Street, Longhua District, Shenzhen

Email: marketing@batwireless.com

Tel: 0755-21031236



Documentation

Version :	August-21-2025-A01
Date :	2025-8-21
Remarks :	First update
Author:	Carly

Change Log
