

Antenna Approval

Customer Name:

Supplier: Shenzhen Kinghelm Electronics Co.,Ltd

Project: _____

Material Name: KH-GNSS/WLAN-A

Material Specifications: KH-GNSS.WLAN-FAKRA-L3M

Material Code: _____

Signature:

Research and Development	Structure: Haibin Deng	Approval: Chengkai Du
	Radio Frequency: Jiren Lai	

Customer's Signature:

Production date: 29/8/2018

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I. Overview

The function of the GNSS+WLAN multi-mode full-network-communication receiving antenna is to convert the electromagnetic wave energy of the radio signals transmitted by satellites and base stations into the power source that can be ingested and applied by the electronic components of the receiver. Our company's GNSS antenna is composed of a ceramic antenna body and an active amplifier. The 4G full-network-communication antenna/WIFI antenna is composed of a PCB microstrip. It is encapsulated with a plastic shell and has the characteristics of waterproof and moisture-proof. This product is small in size. The bottom of the antenna is equipped with 3M double-sided adhesive, which is convenient for installation and use.

II. Product Appearance

Size	93*46*17	Mounting	Sticking
Weight	< 110 gram	Connector	FAKRA Straight
Color	Black	Cable	RG174 1.5meters

III. Working Conditions

Temperature: -40°C~+85°C

Humidity: 95%~100%

IV. Storage Conditions

Temperature: -40°C~+85°C

Humidity: 95%~100%

V. GPS/BD Antenna Characteristics

No.	Item	Specifications	Post Environmental Tolerance
1	Range of Receiving Frequency (MHz)	1561.098-1575.42	±2.5 (MHz)
2	Center Frequency (MHz) (with 30mm ² GND plane)	1568 (MHz)	±25 (MHz)
3	Band Width (MHz) (Return Loss ≤ -10dB)	≥20 (MHz)	±25 (MHz)
4	V.S.W.R (in Center Frequency)	≤1.5	±0.5
5	Gain (Zenith) (dBi typ)	6.0	±0.5

	(with 70mm ² GND plane)		
6	Axial Ratio (with 70mm ² GND plan)	3.0dB	±0.2
7	Polarization	Right-Handed Circular	----
8	Impedance()	50	----
9	Frequency Temperature Coefficient (ppm/°C)	0±10	----

VI. GPS/BD Amplifier Characteristics

No.	Item	Specifications
1	Frequency Range	(Type A)1561.098-1575.42(MHz) (Type B)1550-1610(MHz)
2	Amplifier Gain	28 dB ± 2 dB (Type A)/36 dB ± 2dB (Type B)
3	V.S.W.R	<1.5
4	Coefficient of Noise	≤1.5dB
5	DC Voltage	2.7-5V
6	DC Current	≤15mA

VII. 4G Full Netcom Antenna Characteristics

Main Technical Specifications	
Frequency Range (MHz)	850/1850/2700
VSWR	≤2.0
Gain (dBi)	3
Input Impedance ()	50
Maximum input power(W)	50
Polarization Type	Vertical or Horizontal

VIII. WIFI Antenna Characteristics

Main Technical Specifications	
Frequency Range (MHz)	2400-2500
VSWR	≤2.0
Gain (dBi)	4.5

Input Impedance ()	50
Maximum Input Power(W)	5
Polarization Type	Vertical or Horizontal

IX. Environmental testing

1. High-temperature Test: Placed in a drying oven at a temperature of 80°C for 48 hours, after checking the shape without deformation, after drying and placed at room temperature for 24 hours without oxidation, the performance test is as follows:

2. Low-temperature Test: Placed in the freezer at a temperature of -40°C for 48 hours, there is no deformation of the shape, no oxidized rust phenomenon after recovering in room temperature, and its performance test is as follows:

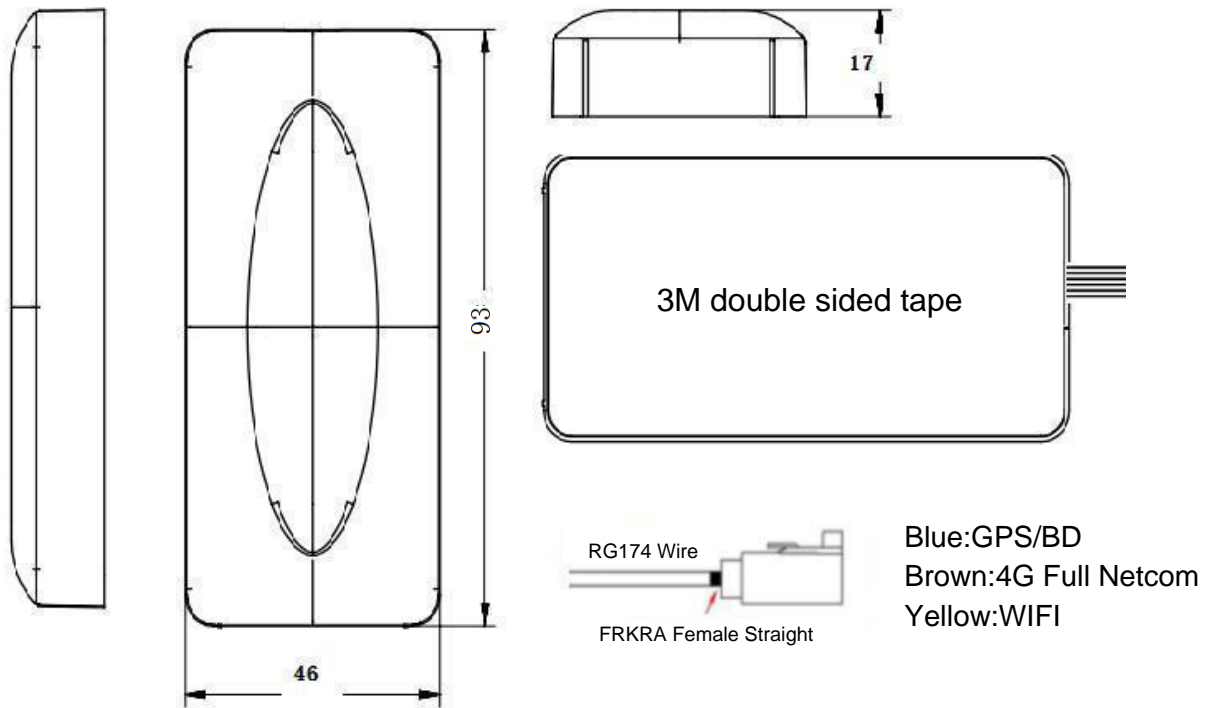
No.	Ordinary Temperatures	High-temperature Test Performance Deviation	Low-temperature Test Performance Deviation
1	Amplifier Gain 28dB±2	±2	±2
2	VSWR <2.0	±0.1	±0.3
3	Coefficient of Noise ≤2.0dB	±0.1	±0.3

3. Rain test: Placed under the faucet for 4 hours, so that the water rushes on the shell; four hours after picking up the product, the bottom of the phenomenon of no water, indicating that this product has a good waterproof function.

4. Salt spray test:

Tests	Suspension	Parameters	Check	Conclusion
2 Times	30° hanging, 3M cover for cut edge	Dust-free, atmospheric pressure 80 PA; solution pH: 6.9; concentration of salt solution at 35°C (42 G of sea salt solute per liter of solution); density: 1.0366; rinsed with flowing pure water at 32°C after the test; air-dried by hairdryer.	No oxidation , corrosion	The results of this test show that the product has superior oxidation and corrosion resistance.

X. Outline Structure Diagram



XI. Physical Drawings

