AK710

Dalang Communication Technology Co., Ltd Product Specification

Product Name:	GNSS ANTENNA
Product Model:	AK710
Version Number:	V 1.0
Revision Date:	2025.04.28

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1 Product Application Scenarios

The AK710 is a high-performance GNSS survey antenna that receives signals from BeiDou, GPS, GLONASS, and GALILEO systems. Designed for multi-system compatibility and high-precision measurements, it meets diverse needs with optimized reception and reliability. Suitable for geodesy, marine surveying, precision agriculture, and deformation monitoring, its multi-feed point design enhances signal stability and reduces measurement errors. With strong signal processing capabilities, it performs well even in challenging environments, making it an ideal choice for professionals in various fields. See Figure 1for details.

Figure 1 Product Application Scenarios

2 Features

In this chapter, we will delve into and comprehensively elaborate on the functionalities and operating principles of the AK710, detailing how it plays a pivotal role in various applications as follows:

1. **Multi-system Compatibility**: Supports BDS, GPS, GLONASS, GALILEO and QZSS systems, accommodating various navigation needs.
2. **High precision design:** The upper white hemisphere receives signals and reduces wind resistance; The lower black base is equipped with interfaces and cables, significantly reducing measurement errors.
3. **Enhanced Reception Performance**: The antenna unit features high gain and low gain roll-off, making it particularly suitable for receiving low elevation satellite signals.
4. **Excellent Blockage Matching**: Reactance network suppression technology effectively reduces the interference of multipath signals on measurement accuracy.
5. **Suitable for Complex Environments**: Superior design ensures good signal reception even in heavily obstructed environments.

3 Structural Characteristic

In this section, we will conduct an in-depth analysis of the product's design details, presenting its aesthetic features and precise interface specifications through detailed structural diagrams. This perspective aims to provide a comprehensive framework, thereby enhancing the understanding and perception of the product's architecture. Refer to Figure 2,Figure 3 , Figure 4.

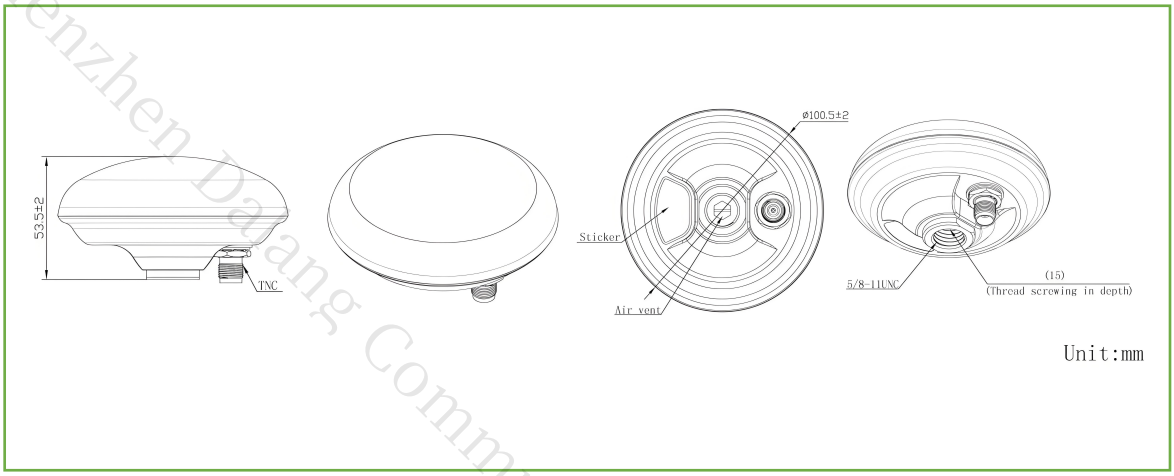


Figure 2 Product structure diagram

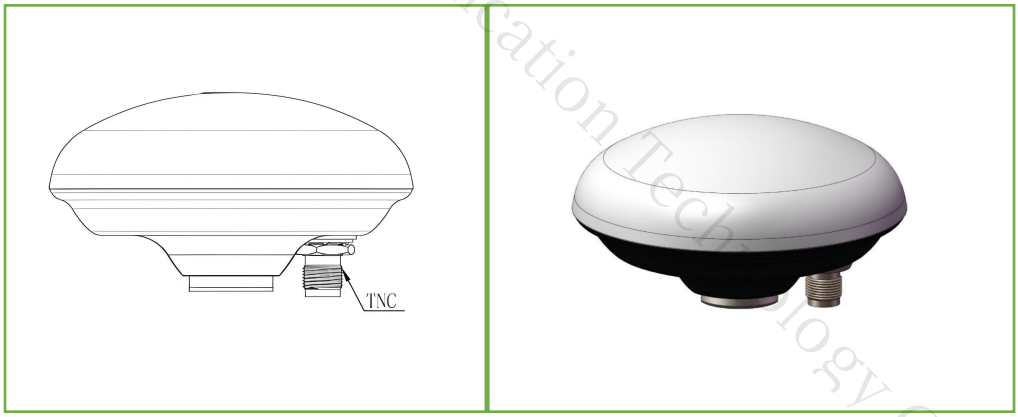


Figure 3 Product correlation chart

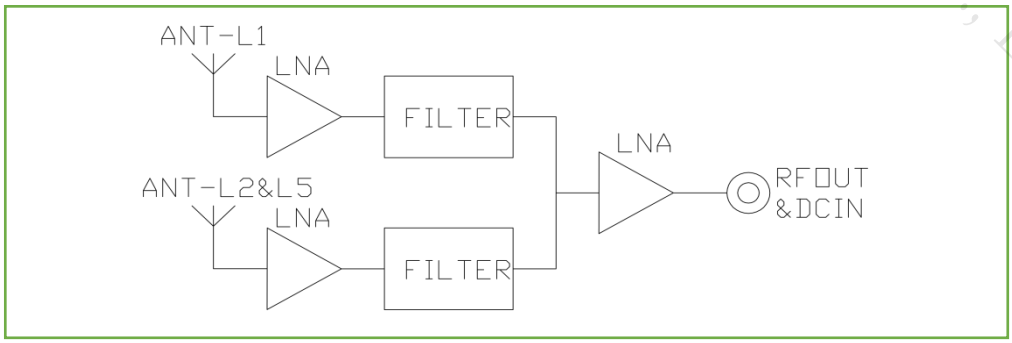


Figure 4 Process flow diagram

4 Specifications

In this section, we will provide a detailed list and explanation of the product's chip features, sensitivity, accuracy, operating principles, and other technical details, as detailed in Table 1.

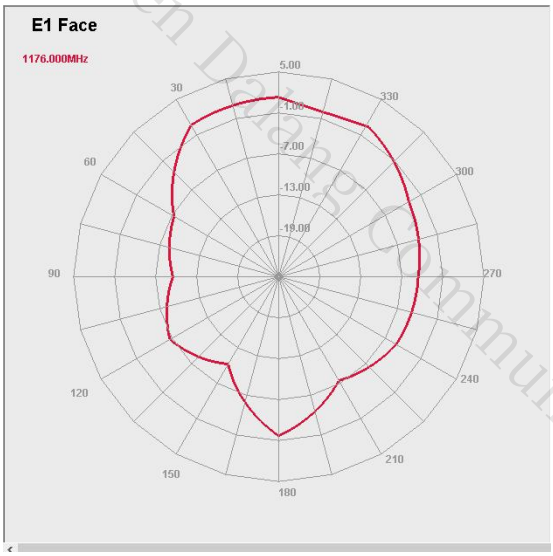
4.1 Table 1 Product Specifications

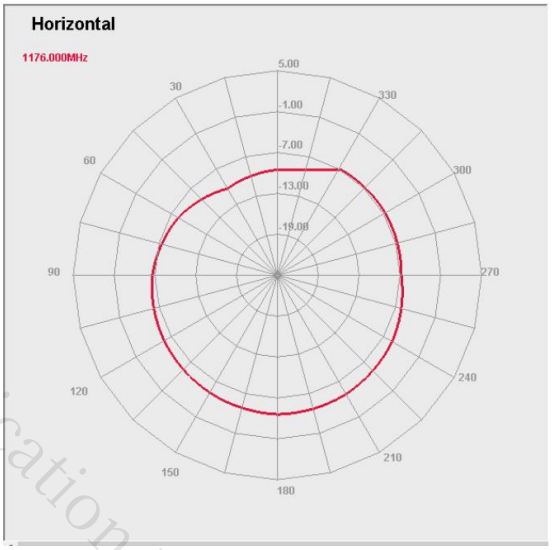
Specification parameters			
Antenna characteristics	1	Usage frequency	GPS: L1, L2, L5 BDS: B1I, B2I, B3I, B2a, B2b GLONASS: L1, L2, L3 Galileo: E1, E5b, E5a, E6 QZSS: L1, L2, L5, L6 IRNSS: L5
	2	Antenna specifications	GPS,BDS，GLONASS,GALILEO，QZSS
	3	V. S.W.R (standing wave ratio)	≤2.0
	4	Axial ratio	Elevation angle of 90 degrees: ⩽ 3, elevation angle of 15 degrees: ⩽ five
	5	Gain	Elevation angle of 90 degrees: ⩾ 6, elevation angle of 20 degrees: ⩾ 0 plane)
	6	Front to back ratio	± 60 degrees ⩾ 15dB
	7	Phase center (mm)	<2
	8	impedance	50Ω
	9	Polarization mode	RHCP
LNA	1	LNA gain	38±2dB
	2	V. S.W.R	＜2
	3	figure	＜2.0
	4	dc power	3.3~12V
	5	Working current	25~40mA
Mechanical structure	1	Radome material	ABS
	2	Antenna size	100*53mm
	3	Product weight	220g
	4	joint	TNC-K
	5	Installation method	spiral

Environmental	1	operation temperature	-40℃~+85℃, 10%~95% RH
	2	storage temperature	-55℃~+100℃, 10%~95% RH
	3	vibrate	Sine sweep frequency @ 1.5mmAM, 10~55Hz per axis

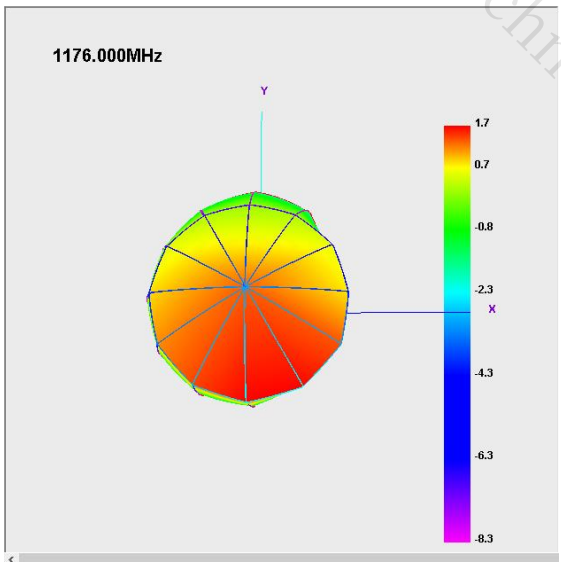
4.2 Radiation pattern test

4.2.1 1176MHZ(PEAK GAIN:1.7)



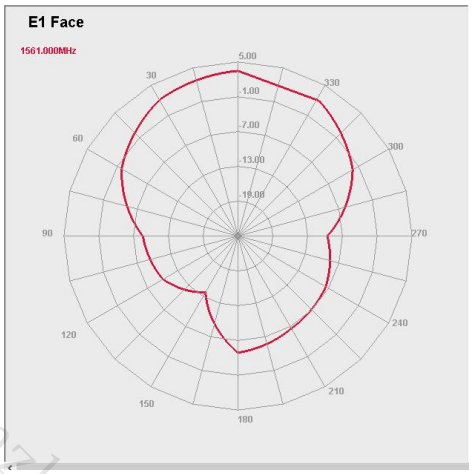


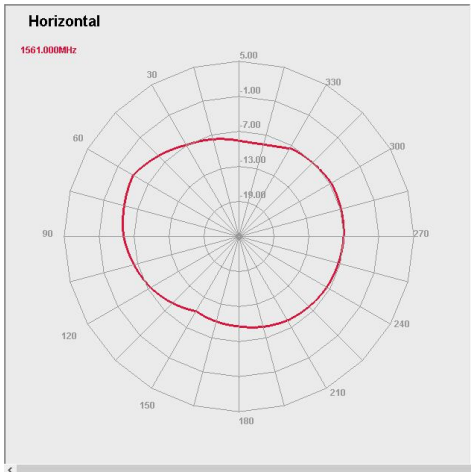
E-Plane **H-Plane**



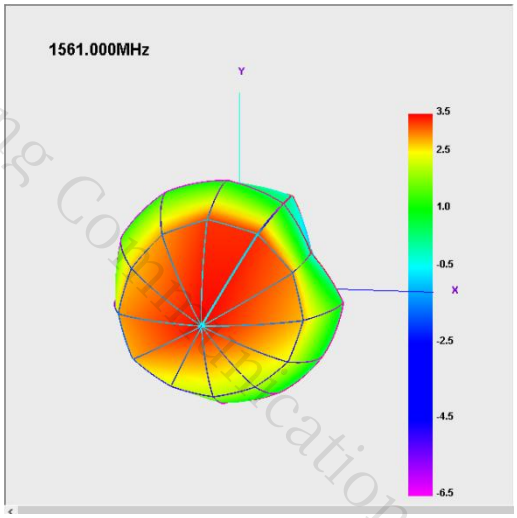
3D

4.2.2 1561MHZ(PEAK GAIN:3.5)



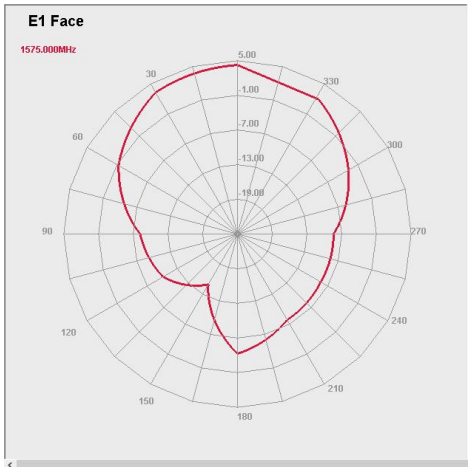


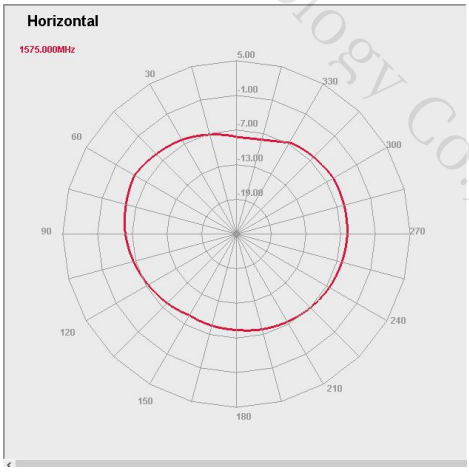
E-Plane **H-Plane**



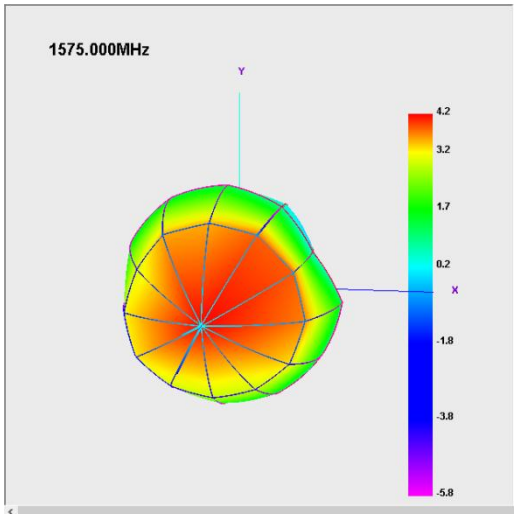
3D

4.2.2 1575MHZ(PEAK GAIN:4.2)



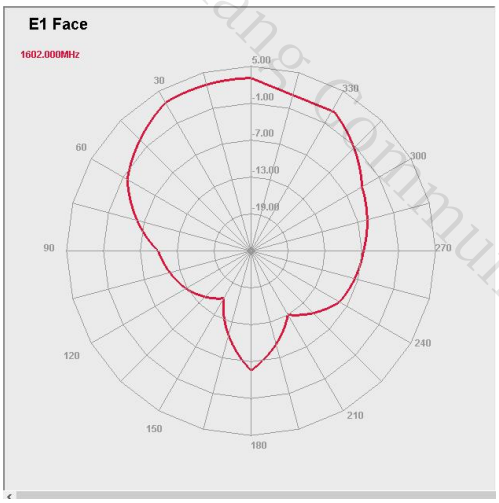


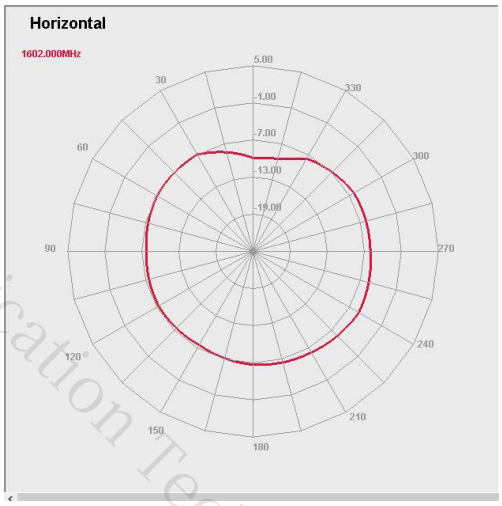
E-Plane **H-Plane**



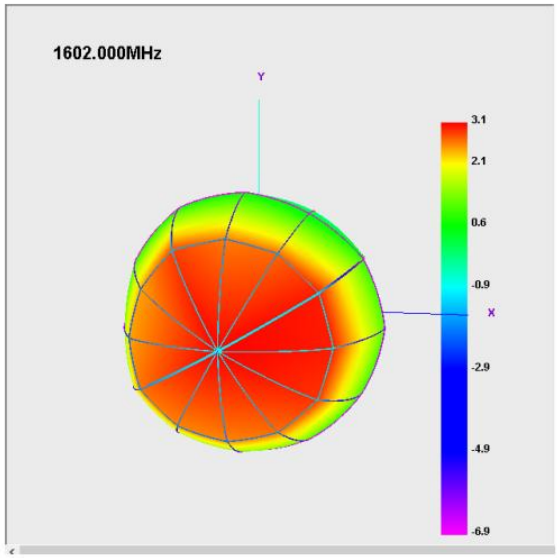
3D

4.2.2 1602MHZ(PEAK GAIN:3.1)





E-Plane **H-Plane**



3D

5 Product Photos

In this chapter, we will showcase real-life images of the product, as shown in Figure 5. These images provide a detailed view of our product from various angles and perspectives. We believe that through authentic representation, we can better convey the value and concept of the product, thereby enhancing your trust and satisfaction.

Figure 5 Product Images