AK448

Shenzhen Dalang Communication Technology Co., Ltd

Dalang Communication Technology Co., Ltd Product Specification

Shenzhen Dalang Communication Technology Co., Ltd

Product Name:	4G Antenna（AT）
Product Model:	AK448
Version Number:	V 1.0
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1 Product Application Scenarios

AK448 is a high-performance PCB/FPC antenna designed specifically for 4G LTE applic ations. It adopts our proprietary technology and performs excellently in multiple frequency ba nds such as LTE Band 2/4/12, with high stability and sensitivity, providing efficient signal tra nsmission and reception capabilities, and complying with RoHS standards. This product is des igned specifically for devices that require stable multi band 4G connectivity, especially for ter minal products targeting North America and similar markets, such as smart security cameras, i n car smart terminals, industrial IoT devices, portable commercial terminals, and smart utility devices. It can meet the stringent requirements for long-term reliable communication in compl ex environments. Refer to Figure 1 for 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 AK448, detailing how it plays a pivotal role in various applications as follows:

1. **Multi band coverage:** Supports LTE Band 2 (1850-1910MHz), Band 4 (1710-1750MHz), Band 12 (703-710MHz), meeting network requirements in North America and some regions.
2. **High performance:** Provides high TRP (transmission) and excellent TIS (reception) values in all supported frequency bands.
3. **High reliability:**Based on proprietary PCB&FPC technology, the performance is stable and consistent.
4. **Compact structure:**Exquisite size, easy to integrate in devices with limited space.
5. **Environmental compliance:** Compliant with RoHS directive requirements.

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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.

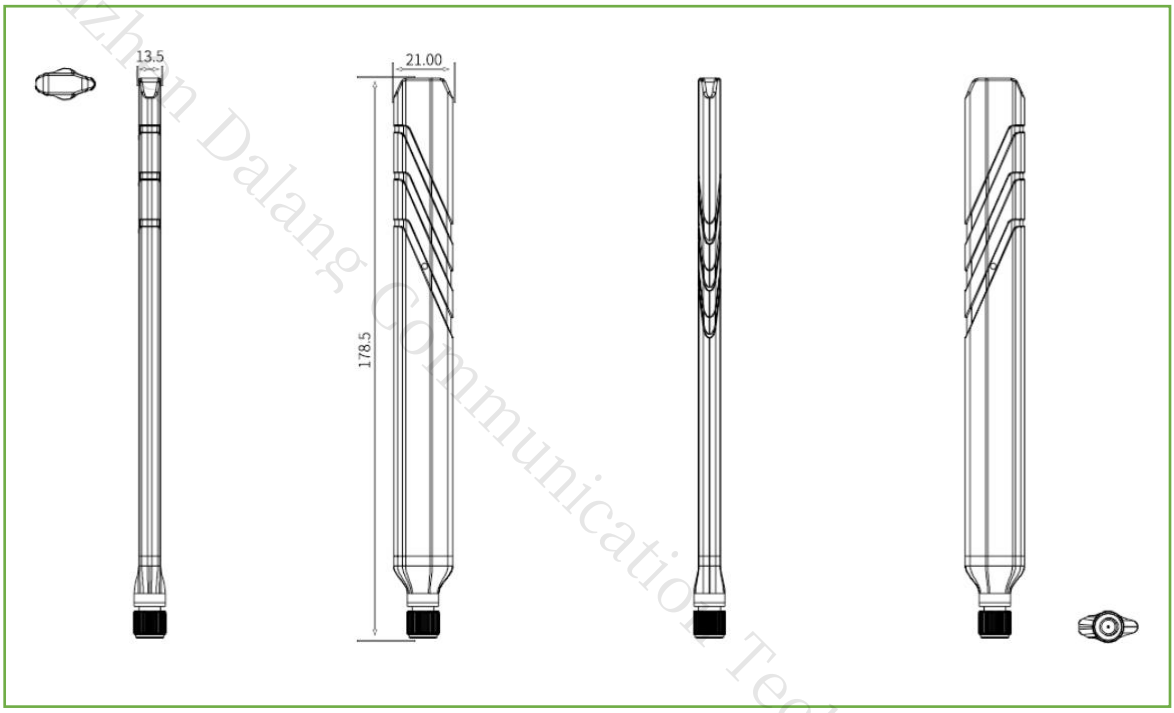

Figure 2 Main Antenna Structure Diagram

Figure 3 Product Comparison Diagram

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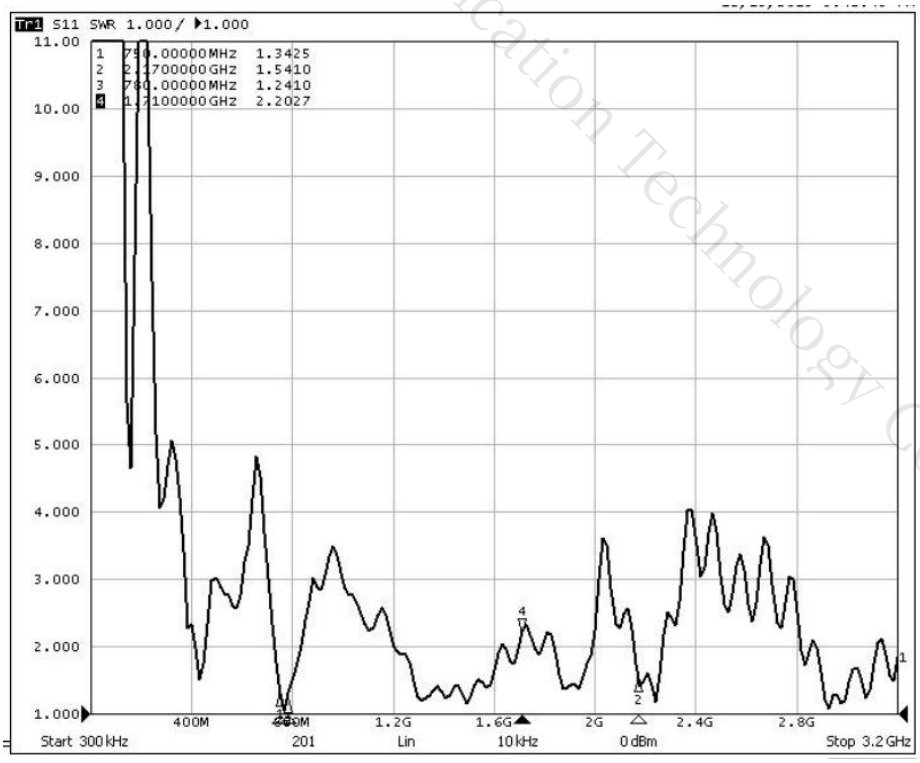
4 Specifications

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.

Table 1 Product Specifications

Electrical specifications		
Antenna	operating frequency band	LTE Band 2/4/12
	impedance	50 Ω
	polarization mode	linear polarization
	Bandwidth (return loss ≤ -10dB)	130Min MHZ
	VSWR (Voltage Standing Wave Ratio)	4Max
	Dimensions (L x W x H)	178.5 x 13.5 x 21.0mm

Main Antenna VSWR:



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5 Antenna TRP&TIS

Test conditions: Installed on the designated grounding plate in a standard microwave anechoi c chamber for testing

LTE Band 2:

Test	LTE2 TRP		
Result	18650	18900	19150
Frequency (MHz)	1855	1880	1905
TRP(dBm)	20.04	20.32	20.39
NHPRP(dBm)	19.09	19.22	19.12
MAX(dBm)	23.92	23.93	24
Min(dBm)	1.71	5.57	7.32
Attenuation Horiz	38.94	39.22	39.62
Attenuation Verti	38.88	38.99	39.46

Test	LTE2 TIS		
Result	650	900	1150
Frequency (MHz)	1935	1960	1985
TIS(dBm)	-93.11	-91.69	-92.72
NHPIS(dBm)	-91.87	-90.5	-91.49
MAX(dBm)	-96.7	-95.61	-96.32
Min(dBm)	-77.76	-78.93	-80.69
Attenuation Horiz	40.05	39.88	40.74
Attenuation Verti	39.99	39.92	40.79

LTE Band 4:

Test	LTE4 TRP		
Result	20000	20175	20350
Frequency (MHz)	1715	1732.5	1750
TRP(dBm)	20.37	20.4	20.17
NHPRP(dBm)	19.76	19.84	19.67
MAX(dBm)	22.96	23.14	22.89
Min(dBm)	9.78	8.45	7.26
Attenuation Horiz	38.42	39.53	39.11
Attenuation Verti	38.43	39.45	39.12

Test	LTE4 TIS		
Result	2000	2175	2350
Frequency (MHz)	2115	2132.5	2150
TIS(dBm)	-93.35	-94.57	-93.45
NHPIS(dBm)	-92.86	-94.02	-92.63
MAX(dBm)	-97.65	-98.4	-97.32
Min(dBm)	-79.69	-77.59	-77.5
Attenuation Horiz	40.04	40.53	40.65
Attenuation Verti	40.12	40.4	40.56

LTE Band 12:

Test	LTE12 TRP		
Result	23060	23095	23130
Frequency (MHz)	703	706.5	710
TRP(dBm)	18.11	18.62	19.83
NHPRP(dBm)	17.47	17.98	19.2
MAX(dBm)	20.23	20.66	22.14
Min(dBm)	0.32	2.83	3.74
Attenuation Horizo	34.69	34.42	34.31
Attenuation Vertic	34.5	34.25	34.15

Test	LTE12 TIS		
Result	5060	5095	5130
Frequency (MHz)	733	736.5	740
TIS(dBm)	-90.79	-90.49	-90.02
NHPIS(dBm)	-90.12	-89.82	-89.37
MAX(dBm)	-93.23	-92.85	-92.22
Min(dBm)	-62.97	-70	-75.18
Attenuation Horiz	33.58	33.69	33.6
Attenuation Verti	33.53	33.74	33.63

6 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 4 Product Images

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