

# Dalang

## AK338





# Dalang Communication Technology Co., Ltd Product Specification

Product Name: 4G L-Type Antenna (AT)

Product Model: AK338

Version Number: V 1.0

Revision Date: 2026.01.09

# Confidentiality Statement

This document and the information contained within are the property of **"Dalang Communication Technology Co., Ltd"**, and are for use only by authorized individuals for specific purposes. This document contains confidential information. Without explicit written permission from **"Dalang Communication Technology Co., Ltd"**, no person or group may copy, distribute, disseminate, display, or disclose this document or any part of it to a third party in any form. Recipients must strictly adhere to confidentiality obligations, protect the information in the document from being disclosed or misused, and ensure that all relevant personnel follow the same confidentiality rules. Individuals or organizations violating this statement will face legal prosecution and/or contractual penalties.

Thank you for your support and cooperation in protecting the confidential information of **"Dalang Communication Technology Co., Ltd"**.

# Contents

|   |   |
|---|---|
| 1 Product Application Scenarios .....         | 1 |
| Figure 1 Product Application Scenarios .....  | 1 |
| 2 Features .....                              | 2 |
| 3 Structural Characteristic .....             | 3 |
| Figure 2 Main Antenna Structure Diagram ..... | 3 |
| Figure 3 Product Comparison Diagram .....     | 3 |
| 4 Specifications .....                        | 4 |
| Table 1 Product Specifications .....          | 4 |
| 5 Antenna TRP&TIS .....                       | 5 |
| 6 Product Photos .....                        | 6 |
| Figure 4 Product Images .....                 | 6 |

Shenzhen Dalang Communication Technology Co., Ltd

# 1 Product Application Scenarios

AK338 is a high-performance PCB/FPC antenna designed specifically for 4G LTE applications. This antenna adopts our proprietary design and technology, demonstrating excellent stability and sensitivity in multiple frequency bands such as LTE Band 2/4/12, ensuring efficient signal reception and transmission capabilities. The product complies with RoHS environmental standards.

This product is designed specifically for devices that require stable multi band 4G connectivity, especially for terminal products targeting North America and similar markets, such as smart security cameras, in 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 complex 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 AK338, 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.
- Environmental compliance: Compliant with RoHS directive requirements.

### 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

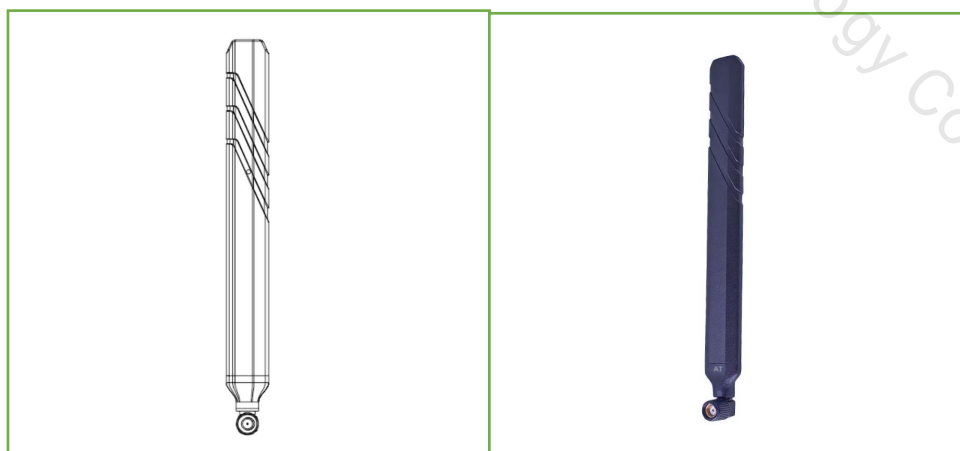


Figure 3 Product Comparison Diagram

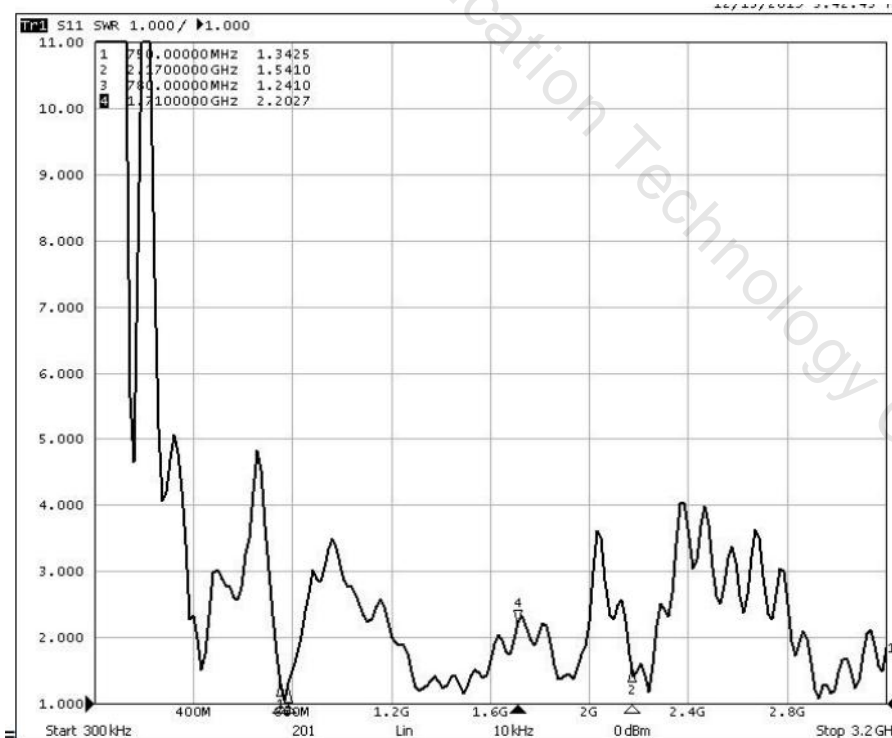
## 4 Specifications

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 $\Omega$           |
|                           | polarization mode                    | linear polarization   |
|                           | Bandwidth (return loss $\leq$ -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:



## 5 Antenna TRP&TIS

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

### LTE Band 2:

| Test                   | LTE2 TRP |       |       | Test                   | LTE2 TIS |        |        |
|------------------------|----------|-------|-------|------------------------|----------|--------|--------|
| Result                 | 18650    | 18900 | 19150 | Result                 | 650      | 900    | 1150   |
| Frequency (MHz)        | 1855     | 1880  | 1905  | Frequency (MHz)        | 1935     | 1960   | 1985   |
| TRP (dBm)              | 20.04    | 20.32 | 20.39 | TIS (dBm)              | -93.11   | -91.69 | -92.72 |
| NHPRP (dBm)            | 19.09    | 19.22 | 19.12 | NHPIS (dBm)            | -91.87   | -90.5  | -91.49 |
| MAX (dBm)              | 23.92    | 23.93 | 24    | MAX (dBm)              | -96.7    | -95.61 | -96.32 |
| Min (dBm)              | 1.71     | 5.57  | 7.32  | Min (dBm)              | -77.76   | -78.93 | -80.69 |
| Attenuation Horizontal | 38.94    | 39.22 | 39.62 | Attenuation Horizontal | 40.05    | 39.88  | 40.74  |
| Attenuation Vertical   | 38.88    | 38.99 | 39.46 | Attenuation Vertical   | 39.99    | 39.92  | 40.79  |

### LTE Band 4:

| Test                   | LTE4 TRP |        |       | Test                   | LTE4 TIS |        |        |
|------------------------|----------|--------|-------|------------------------|----------|--------|--------|
| Result                 | 20000    | 20175  | 20350 | Result                 | 2000     | 2175   | 2350   |
| Frequency (MHz)        | 1715     | 1732.5 | 1750  | Frequency (MHz)        | 2115     | 2132.5 | 2150   |
| TRP (dBm)              | 20.37    | 20.4   | 20.17 | TIS (dBm)              | -93.35   | -94.57 | -93.45 |
| NHPRP (dBm)            | 19.76    | 19.84  | 19.67 | NHPIS (dBm)            | -92.86   | -94.02 | -92.63 |
| MAX (dBm)              | 22.96    | 23.14  | 22.89 | MAX (dBm)              | -97.65   | -98.4  | -97.32 |
| Min (dBm)              | 9.78     | 8.45   | 7.26  | Min (dBm)              | -79.69   | -77.59 | -77.5  |
| Attenuation Horizontal | 38.42    | 39.53  | 39.11 | Attenuation Horizontal | 40.04    | 40.53  | 40.65  |
| Attenuation Vertical   | 38.43    | 39.45  | 39.12 | Attenuation Vertical   | 40.12    | 40.4   | 40.56  |

### LTE Band 12:

| Test                   | LTE12 TRP |       |       | Test                   | LTE12 TIS |        |        |
|------------------------|-----------|-------|-------|------------------------|-----------|--------|--------|
| Result                 | 23060     | 23095 | 23130 | Result                 | 5060      | 5095   | 5130   |
| Frequency (MHz)        | 703       | 706.5 | 710   | Frequency (MHz)        | 733       | 736.5  | 740    |
| TRP (dBm)              | 18.11     | 18.62 | 19.83 | TIS (dBm)              | -90.79    | -90.49 | -90.02 |
| NHPRP (dBm)            | 17.47     | 17.98 | 19.2  | NHPIS (dBm)            | -90.12    | -89.82 | -89.37 |
| MAX (dBm)              | 20.23     | 20.66 | 22.14 | MAX (dBm)              | -93.23    | -92.85 | -92.22 |
| Min (dBm)              | 0.32      | 2.83  | 3.74  | Min (dBm)              | -62.97    | -70    | -75.18 |
| Attenuation Horizontal | 34.69     | 34.42 | 34.31 | Attenuation Horizontal | 33.58     | 33.69  | 33.6   |
| Attenuation Vertical   | 34.5      | 34.25 | 34.15 | Attenuation Vertical   | 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