



SPECIFICATION FOR APPROVAL/产品承认书

Customer Name

客户名称:

NEW POS

Customer P/N.

客户料号:

200207011000129

Product Description

产品描述:

LTE external antenna -2 mode 13 frequency -512  
black - rod-shaped 156.8mm - lead 2000mm -  
SMA-J head RG174 black wire - BGS

BGS P/N

博格斯料号:

BGS-512I

Manufacturer

制造商:

Shenzhen Borgesi Communication Technology Co.,  
Ltd.

Approve Date

承认日期:

July 7, 2025

| BGS Sign and Seal/供应商签章                                                             | Customer Sign and Seal/客户签章 |
|-------------------------------------------------------------------------------------|-----------------------------|
|  | 方兆宇<br>2025/7/8             |

| Change the content/变更内容 | Version/版本 | Date/日期   |
|-------------------------|------------|-----------|
| First edition           | RA         | 2025/6/23 |
|                         |            |           |
|                         |            |           |

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1. Antenna Specification/天线技术参数

| 1.1: Electrical Specification/电气特性    |                         |
|---------------------------------------|-------------------------|
| Freq. Range/频段范围（MHz）                 | 700-960MHz；1427-2700MHz |
| Impedance/阻抗（Ω）                       | 50                      |
| VSWR/驻波比                              | ≤3.0                    |
| Directional/辐射方向                      | Omni directional        |
| Polarization/极化方式                     | Linear                  |
| Peak Gain/峰值增益（dBi）                   | 700-960MHz:2.99dbi      |
|                                       | 1427-2700MHz：-0.44dbi   |
| 1.2: Mechanical Specification/机械指标    |                         |
| Material/材质                           | PC+PCB                  |
| RF Cable Type/射频线型号                   | RG174                   |
| Connector Type/连接器类型                  | SMA-J                   |
| 1.3: Environmental Specification/环境指标 |                         |
| Operation temp/工作温度                   | -40℃～+85℃               |
| Storage temp/储存温度                     | -40℃～+85℃               |



## 2. Antenna Picture And Installation Instructions/天线图片及安装说明

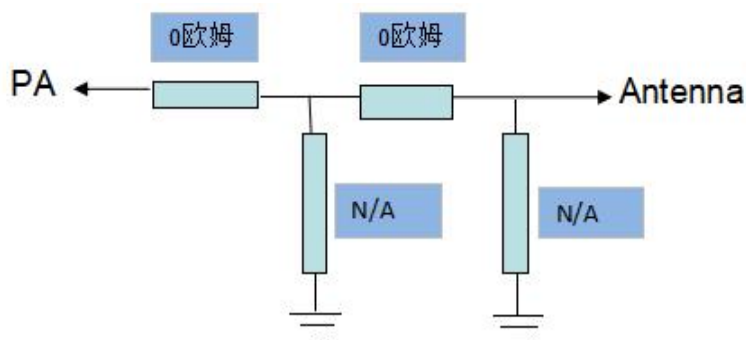
### 2.1: Antenna Picture/天线图片





### 3. Test Report/测试报告

#### 3.1: The matching circuits/匹配电路



#### 3.2: Active test data/有源测试数据

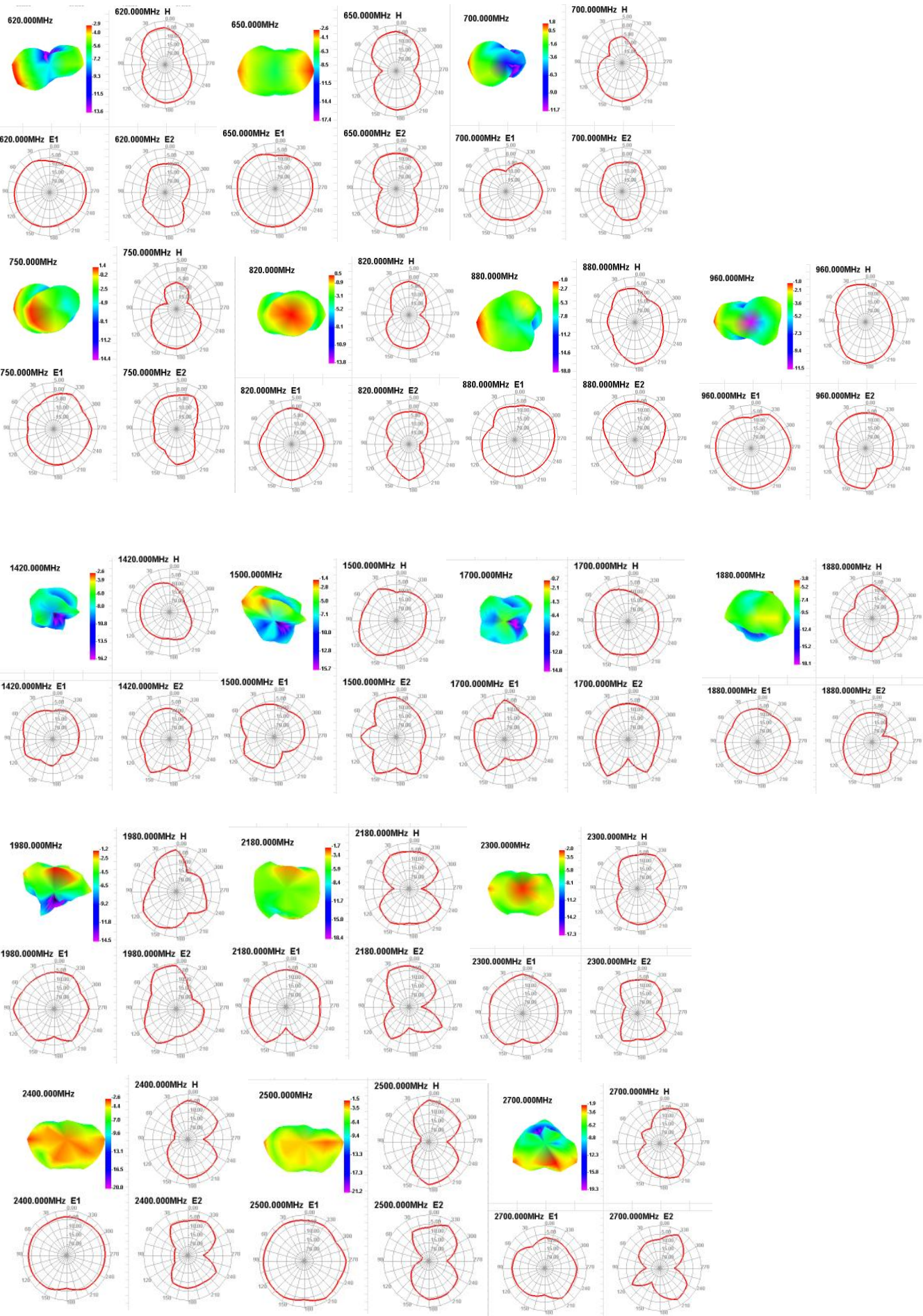
| Band           | Channel | TRP   | TIS    |
|----------------|---------|-------|--------|
| LTE2<br>(10M)  | Low     | 19.41 |        |
|                | Mid     | 19.54 |        |
|                | High    | 19.24 | -94.89 |
| LTE4<br>(10M)  | Low     | 19.3  |        |
|                | Mid     | 19.43 |        |
|                | High    | 18.78 | -93.09 |
| LTE5<br>(10M)  | Low     | 20.49 |        |
|                | Mid     | 20.43 |        |
|                | High    | 20.54 | -92.36 |
| LTE7<br>(10M)  | Low     | 18.43 |        |
|                | Mid     | 18.62 |        |
|                | High    | 18.94 | -94.13 |
| LTE12<br>(10M) | Low     | 13.84 |        |
|                | Mid     | 13.49 |        |
|                | High    | 12.71 | -93.16 |
| LTE13<br>(10M) | Low     |       |        |
|                | Mid     | 17.44 | -91.03 |
|                | High    |       |        |
| LTE14<br>(10M) | Low     |       |        |
|                | Mid     | 17.91 | -90.08 |
|                | High    |       |        |
| LTE17<br>(10M) | Low     | 14.8  |        |
|                | Mid     | 14.09 |        |
|                | High    | 13.4  | -91.77 |
| LTE25<br>(10M) | Low     | 18.04 |        |
|                | Mid     | 18.01 |        |
|                | High    | 17.76 | -94.05 |
| LTE26<br>(10M) | Low     | 18.21 |        |
|                | Mid     | 18.95 |        |
|                | High    | 19.44 | -94.76 |
| LTE66<br>(10M) | Low     | 19.29 |        |
|                | Mid     | 19.25 |        |
|                | High    | 19.52 | -92.86 |
| LTE71<br>(10M) | Low     | 15.56 |        |
|                | Mid     | 16.66 |        |
|                | High    | 15.21 | -88.65 |
| LTE41<br>(20M) | Low     | 17.34 |        |
|                | Mid     | 17.01 |        |
|                | High    | 17.45 | -91.06 |

## Efficiency and gain

| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
|---------------|-------------|--------------|---------------|
| 600           | 23.24       | -6.34        | -2.91         |
| 610           | 23.8        | -6.23        | -3.05         |
| 620           | 22.92       | -6.4         | -2.89         |
| 630           | 26.92       | -5.7         | -2.25         |
| 640           | 28.06       | -5.52        | -2.49         |
| 650           | 27.4        | -5.62        | -2.61         |
| 660           | 39.58       | -4.03        | -1.2          |
| 670           | 45.02       | -3.47        | 0.62          |
| 680           | 43.78       | -3.59        | 1.42          |
| 690           | 43.27       | -3.64        | 1.67          |
| 700           | 44.3        | -3.54        | 1.81          |
| 710           | 48.44       | -3.15        | 2.16          |
| 720           | 51.42       | -2.89        | 2.35          |
| 730           | 50.76       | -2.94        | 2.15          |
| 740           | 51.59       | -2.87        | 1.95          |
| 750           | 48.9        | -3.11        | 1.41          |
| 760           | 49.41       | -3.06        | 1.23          |
| 770           | 48.02       | -3.19        | 1.03          |
| 780           | 44.44       | -3.52        | 2.03          |
| 790           | 45.05       | -3.46        | 2.99          |
| 800           | 46.83       | -3.29        | 2.22          |
| 810           | 46.86       | -3.29        | 0.94          |
| 820           | 46.68       | -3.31        | 0.52          |
| 830           | 43.48       | -3.62        | 0.17          |
| 840           | 40.25       | -3.95        | 0.69          |
| 850           | 36.76       | -4.35        | 0.93          |
| 860           | 33.78       | -4.71        | -0.35         |
| 870           | 31.02       | -5.37        | -0.96         |
| 880           | 30.2        | -5.65        | -1.01         |
| 890           | 31.91       | -4.96        | -1.28         |
| 900           | 31.38       | -5.03        | -0.75         |
| 910           | 33.59       | -4.74        | -1.24         |
| 920           | 38.62       | -4.13        | -0.81         |
| 930           | 40.23       | -3.95        | -0.77         |
| 940           | 42.53       | -3.71        | -0.83         |
| 950           | 41.79       | -3.79        | -0.73         |
| 960           | 38          | -4.2         | -1.01         |

| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) | Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
|---------------|-------------|--------------|---------------|---------------|-------------|--------------|---------------|
| 1400          | 16.87       | -7.73        | -2.83         | 2060          | 32.61       | -4.87        | -0.64         |
| 1420          | 16.39       | -7.85        | -2.56         | 2080          | 32.96       | -4.82        | -1.01         |
| 1440          | 18.11       | -7.42        | -2.19         | 2100          | 29.74       | -5.27        | -1.81         |
| 1460          | 20.99       | -6.78        | -2.49         | 2120          | 27.79       | -5.56        | -1.89         |
| 1480          | 22.19       | -6.54        | -2.17         | 2140          | 26.22       | -5.81        | -1.97         |
| 1500          | 26.57       | -5.76        | -1.39         | 2160          | 27.62       | -5.59        | -1.64         |
| 1520          | 26.85       | -5.71        | -0.87         | 2180          | 28.62       | -5.43        | -1.7          |
| 1540          | 23.59       | -6.27        | -1.27         | 2200          | 29.7        | -5.27        | -1.9          |
| 1560          | 30.05       | -5.22        | -0.44         | 2220          | 29.58       | -5.29        | -1.52         |
| 1580          | 29.1        | -5.36        | -1.31         | 2240          | 30.72       | -5.13        | -0.82         |
| 1600          | 31.75       | -4.98        | -1.31         | 2260          | 27.95       | -5.54        | -1.59         |
| 1620          | 29.41       | -5.31        | -1.71         | 2280          | 27.42       | -5.62        | -1.88         |
| 1640          | 22.22       | -6.53        | -1.86         | 2300          | 26.5        | -5.77        | -2.01         |
| 1660          | 25.68       | -5.9         | -1.17         | 2320          | 25.72       | -5.9         | -2.13         |
| 1680          | 26.73       | -5.73        | -1.01         | 2340          | 25.5        | -5.93        | -2.56         |
| 1700          | 26.55       | -5.76        | -0.73         | 2360          | 25.84       | -5.88        | -2.26         |
| 1720          | 26.46       | -5.77        | -0.51         | 2380          | 29.49       | -5.3         | -2.08         |
| 1740          | 24.65       | -6.08        | -1.33         | 2400          | 25.53       | -5.93        | -2.63         |
| 1760          | 24.39       | -6.13        | -1.46         | 2420          | 29.78       | -5.26        | -2.23         |
| 1780          | 21.62       | -6.65        | -1.87         | 2440          | 30.85       | -5.11        | -1.74         |
| 1800          | 21.03       | -6.77        | -2            | 2460          | 30.49       | -5.16        | -1.74         |
| 1820          | 18.47       | -7.33        | -2.55         | 2480          | 30.9        | -5.1         | -1.54         |
| 1840          | 14.45       | -8.4         | -3.14         | 2500          | 28.6        | -5.44        | -1.5          |
| 1860          | 13.47       | -8.71        | -3.59         | 2520          | 27.49       | -5.61        | -1.62         |
| 1880          | 17.42       | -7.59        | -3.77         | 2540          | 28.32       | -5.48        | -1.45         |
| 1900          | 23.8        | -6.23        | -2.37         | 2560          | 26.73       | -5.73        | -1.72         |
| 1920          | 23.45       | -6.3         | -1.55         | 2580          | 25.97       | -5.86        | -2.02         |
| 1940          | 25.14       | -6           | -1.67         | 2600          | 28.93       | -5.39        | -1.64         |
| 1960          | 25.62       | -5.91        | -2.08         | 2620          | 26.39       | -5.78        | -2.18         |
| 1980          | 26.94       | -5.7         | -1.21         | 2640          | 25.95       | -5.86        | -1.99         |
| 2000          | 27.84       | -5.55        | -0.59         | 2660          | 25.34       | -5.96        | -1.64         |
| 2020          | 29.38       | -5.32        | -1.11         | 2680          | 23.62       | -6.27        | -1.82         |
| 2040          | 31.44       | -5.03        | -0.91         | 2700          | 23.44       | -6.3         | -1.89         |

Directionl





ROHS Report/ROHS报告

| Product Description<br>产品描述 |                   | LTE external antenna                | BGS P/N<br>博格斯料号                                                                                              |       | BGS-512I |      |     | Declaration Date<br>宣告日期 |                                | 2025/7/7          |
|-----------------------------|-------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------|-------|----------|------|-----|--------------------------|--------------------------------|-------------------|
| No.<br>序号                   | Part name<br>部件名称 | Homogeneous Material Name<br>均质材料名称 | The homogeneous material contains the value of<br>RoHS restricted substance (ppm)<br>均质物料内含有RoHS限制物质的量值 (ppm) |       |          |      |     |                          | Certification number<br>检测报告编号 | Test date<br>检测日期 |
|                             |                   |                                     | Cd                                                                                                            | Pb    | Hg       | Cr+6 | PBB | PBDE                     |                                |                   |
| No.<br>序号                   | Part name<br>部件名称 | Homogeneous Material Name<br>均质材料名称 | The homogeneous material contains the value of<br>RoHS restricted substance (ppm)<br>均质物料内含有RoHS限制物质的量值 (ppm) |       |          |      |     |                          | Certification number<br>检测报告编号 | Test date<br>检测日期 |
|                             |                   |                                     | Cd                                                                                                            | Pb    | Hg       | Cr+6 | PBB | PBDE                     |                                |                   |
| 1                           | PCB               | FR4                                 | ND                                                                                                            | 12    | ND       | ND   | ND  | ND                       | SHAEC24022792308               | 2024/10/15        |
| 2                           |                   | Solder resist ink/阻焊油墨              | ND                                                                                                            | ND    | ND       | ND   | ND  | ND                       | A2240398136102002E             | 2024/7/11         |
| 3                           |                   | Curing symbol ink/文字油墨              | ND                                                                                                            | ND    | ND       | ND   | ND  | ND                       | A2240627113101003E             | 2024/10/17        |
| 4                           | SMA               | Cu/黄铜                               | 20                                                                                                            | 23082 | ND       | ND   | ND  | ND                       | NGBEC24004990404               | 2024/9/6          |
| 5                           |                   | Gold plating/金镀层                    | ND                                                                                                            | ND    | ND       | ND   | ND  | ND                       | A2250135600101001C             | 2025/3/25         |
| 6                           |                   | Nickel plating/镍镀层                  | ND                                                                                                            | ND    | ND       | ND   | ND  | ND                       | A2250135600101003              | 2025/3/25         |
| 7                           | CABLE             | RG coaxial cable/RG同轴电缆             | ND                                                                                                            | ND    | ND       | ND   | ND  | ND                       | SZXEC24002490602               | 2024/8/8          |

Notes:

Material analysis expansion table is similar to our company's machine type BOM, which describes the composition of each material provided by the supplier, and then conducts RoHS control on each component (or the supplier shall conduct RoHS compliance management on his supplier, and provide tripartite inspection certificate).

A complete material analysis expansion table that includes:

1. Material expansion table: component composition decomposition
2. Third-party verification report of each component

说明：

材质分析展开表类似于我们公司的机种 BOM，就供应商提供的每个物料进行组成说明，然后就每一种组成进行 ROHS 控制（或者说供应商要对他的供应商进行 ROHS 符合性管理，提供每三方检测证明）。

一份完整的材质分析展开表，它包括：

- 1 材质展开表:零件组成分解
- 2 各组成的第三方验证报告