

## Saward Antenna Debugging Report

Customer Name: Yizhong

Project Name: VK7B

Date: January 15, 2024

## Project contact information

Customer contact person:

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Saward structure:

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## Project Introduction

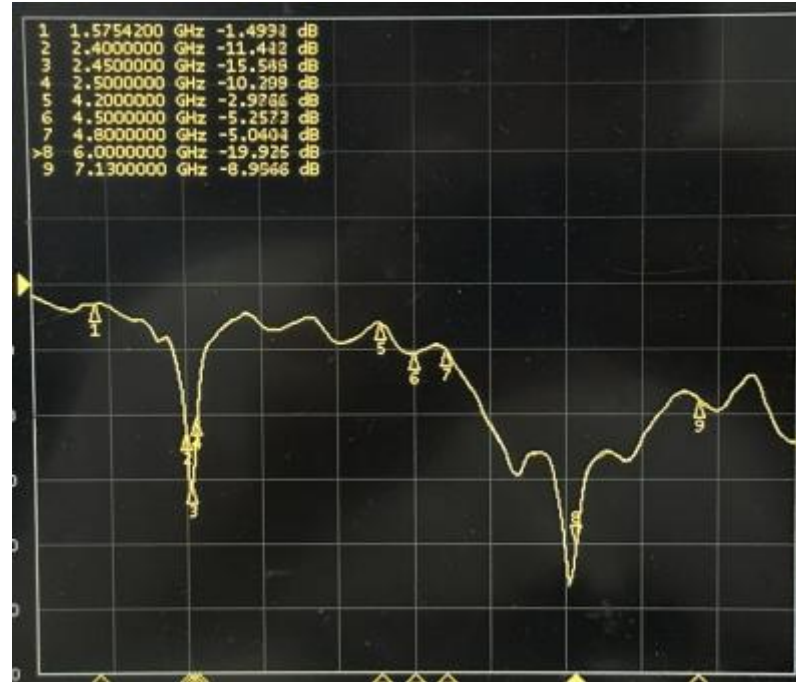
### 1. Project Description

|                                       |              |
|---------------------------------------|--------------|
| Number of project antennas            | Machine type |
| 2                                     | flat         |
| Machine shell material: plastic shell |              |

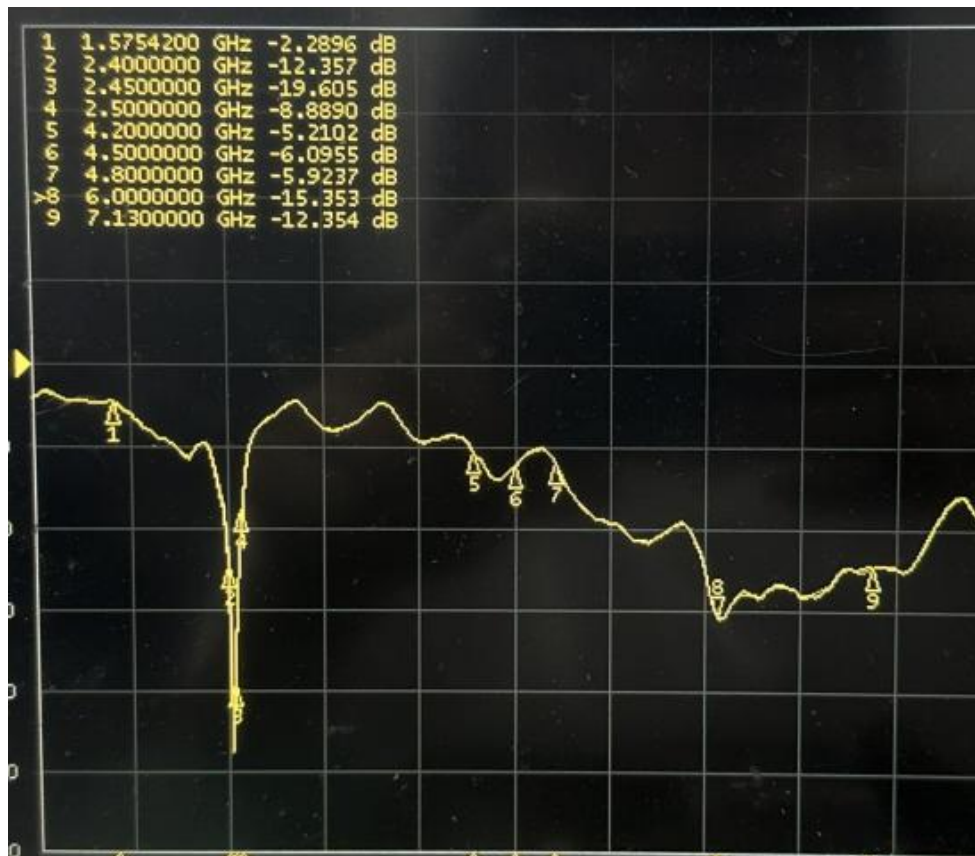
### 2. Antenna Overview

| Antenna number | name           | Working frequency band/MHZ | Material/Structure |
|----------------|----------------|----------------------------|--------------------|
| 1              | WIFI&BT&5Gwifi | 2400MHz/2500MHz&5.8GHz     | PCB                |
| 2              | WIFI&BT&5Gwifi | 2400MHz/2500MHz&5.8GHz     | PCB                |

## WIFI&BT main antenna S11



## WIFI&BT sub antenna S11



## WIFI antenna active data

| Test            | 802.11b : 11Mbps |        |        |
|-----------------|------------------|--------|--------|
| Result          | 1                | 6      | 11     |
| Frequency (MHz) | 2412             | 2437   | 2462   |
| TRP (dBm)       | 16.02            | 16.25  | 16.69  |
| TIS (dBm)       | -81.05           | -79.71 | -84.41 |
| Test            | 802.11g : 54Mbps |        |        |
| Result          | 1                | 6      | 11     |
| Frequency (MHz) | 2412             | 2437   | 2462   |
| TRP (dBm)       | 13.6             | 14.77  | 15.23  |
| TIS (dBm)       | -72.23           | -71.87 | -74.23 |
| Test            | 802.11n : MCS7   |        |        |
| Result          | 1                | 6      | 11     |
| Frequency (MHz) | 2412             | 2437   | 2462   |
| TRP (dBm)       | 14.5             | 15.19  | 15.09  |
| TIS (dBm)       | -70.12           | -68.54 | -71.45 |

| Test            | 802.11n : MCS7   |        |        |
|-----------------|------------------|--------|--------|
| Result          | 36               | 100    | 161    |
| Frequency (MHz) | 5180             | 5500   | 5805   |
| TRP (dBm)       | 14.07            | 14.46  | 14.45  |
| TIS (dBm)       | -70.55           | -70.1  | -70.59 |
| Test            | 802.11a : 54Mbps |        |        |
| Result          | 36               | 100    | 161    |
| Frequency (MHz) | 5180             | 5500   | 5805   |
| TRP (dBm)       | 15.82            | 15.63  | 15.64  |
| TIS (dBm)       | -71.4            | -71.21 | -71.78 |

## WIFI antenna throughput test (test image)

Test data 2.4Gwifi upload/download

```
Client connecting to 192.168.2.103, TCP port 8001
TCP window size: 2.00 MByte (WARNING: requested 1.00 MByte)
[3] local 192.168.2.135 port 52324 connected with 192.168.2.103 port 5001
ID Interval Transfer Bandwidth
[3] 0.0-1.0 sec 12.6 MBytes 106 Mbits/sec
[3] 1.0-2.0 sec 8.88 MBytes 74.4 Mbits/sec
[3] 2.0-3.0 sec 10.2 MBytes 85.0 Mbits/sec
[3] 3.0-4.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 4.0-5.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 5.0-6.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 6.0-7.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 7.0-8.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 8.0-9.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 9.0-10.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 10.0-11.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 11.0-12.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 12.0-13.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 13.0-14.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 14.0-15.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 15.0-16.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 16.0-17.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 17.0-18.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 18.0-19.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 19.0-20.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 20.0-21.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 21.0-22.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 22.0-23.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 23.0-24.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 24.0-25.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 25.0-26.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 26.0-27.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 27.0-28.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 28.0-29.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 29.0-30.0 sec 9.1 MBytes 76.8 Mbits/sec
[3] 0.0-30.0 sec 286 MBytes 80.0 Mbits/sec
```

```
[352] 4.0- 5.0 sec 12.5 MBytes 105 Mbits/sec
[352] 5.0- 6.0 sec 12.4 MBytes 104 Mbits/sec
[352] 6.0- 7.0 sec 12.8 MBytes 107 Mbits/sec
[352] 7.0- 8.0 sec 12.2 MBytes 102 Mbits/sec
[352] 8.0- 9.0 sec 13.0 MBytes 109 Mbits/sec
[352] 9.0-10.0 sec 11.9 MBytes 99.9 Mbits/sec
[352] 10.0-11.0 sec 12.9 MBytes 108 Mbits/sec
[352] 11.0-12.0 sec 12.4 MBytes 104 Mbits/sec
[352] 12.0-13.0 sec 13.1 MBytes 110 Mbits/sec
[352] 13.0-14.0 sec 12.7 MBytes 107 Mbits/sec
[352] 14.0-15.0 sec 12.0 MBytes 101 Mbits/sec
[352] 15.0-16.0 sec 14.5 MBytes 121 Mbits/sec
[352] 16.0-17.0 sec 15.1 MBytes 126 Mbits/sec
[352] 17.0-18.0 sec 13.4 MBytes 113 Mbits/sec
[352] 18.0-19.0 sec 14.7 MBytes 123 Mbits/sec
[352] 19.0-20.0 sec 13.7 MBytes 115 Mbits/sec
[ ID] Interval Transfer Bandwidth
[352] 20.0-21.0 sec 14.7 MBytes 123 Mbits/sec
[352] 21.0-22.0 sec 13.9 MBytes 116 Mbits/sec
[352] 22.0-23.0 sec 14.1 MBytes 118 Mbits/sec
[352] 23.0-24.0 sec 13.9 MBytes 117 Mbits/sec
[352] 24.0-25.0 sec 14.4 MBytes 121 Mbits/sec
[352] 25.0-26.0 sec 13.4 MBytes 112 Mbits/sec
[352] 26.0-27.0 sec 15.0 MBytes 126 Mbits/sec
[352] 27.0-28.0 sec 14.2 MBytes 119 Mbits/sec
[352] 28.0-29.0 sec 13.6 MBytes 114 Mbits/sec
[352] 29.0-30.0 sec 14.6 MBytes 122 Mbits/sec
[352] 30.0-30.1 sec 398 MBytes 111 Mbits/sec
```

## WIFI antenna throughput test (test image)

Test data uploaded/downloaded via 5Gwifi

| ID | Interval      | Transfer    | Bandwidth     |
|----|---------------|-------------|---------------|
| 3  | 0.0-1.0 sec   | 15.2 MBytes | 128 Mbits/sec |
| 3  | 1.0-2.0 sec   | 14.1 MBytes | 118 Mbits/sec |
| 3  | 2.0-3.0 sec   | 13.8 MBytes | 115 Mbits/sec |
| 3  | 3.0-4.0 sec   | 12.8 MBytes | 107 Mbits/sec |
| 3  | 4.0-5.0 sec   | 12.9 MBytes | 108 Mbits/sec |
| 3  | 5.0-6.0 sec   | 12.8 MBytes | 108 Mbits/sec |
| 3  | 6.0-7.0 sec   | 12.9 MBytes | 109 Mbits/sec |
| 3  | 7.0-8.0 sec   | 12.8 MBytes | 107 Mbits/sec |
| 3  | 8.0-9.0 sec   | 12.9 MBytes | 108 Mbits/sec |
| 3  | 9.0-10.0 sec  | 12.9 MBytes | 108 Mbits/sec |
| 3  | 10.0-11.0 sec | 12.0 MBytes | 101 Mbits/sec |
| 3  | 11.0-12.0 sec | 12.8 MBytes | 107 Mbits/sec |
| 3  | 12.0-13.0 sec | 12.4 MBytes | 104 Mbits/sec |
| 3  | 13.0-14.0 sec | 12.4 MBytes | 104 Mbits/sec |
| 3  | 14.0-15.0 sec | 13.8 MBytes | 115 Mbits/sec |
| 3  | 15.0-16.0 sec | 13.5 MBytes | 113 Mbits/sec |
| 3  | 16.0-17.0 sec | 12.8 MBytes | 107 Mbits/sec |
| 3  | 17.0-18.0 sec | 13.2 MBytes | 111 Mbits/sec |
| 3  | 18.0-19.0 sec | 12.8 MBytes | 107 Mbits/sec |
| 3  | 19.0-20.0 sec | 13.1 MBytes | 110 Mbits/sec |
| 3  | 20.0-21.0 sec | 13.5 MBytes | 113 Mbits/sec |
| 3  | 21.0-22.0 sec | 13.0 MBytes | 109 Mbits/sec |
| 3  | 22.0-23.0 sec | 13.2 MBytes | 111 Mbits/sec |
| 3  | 23.0-24.0 sec | 13.1 MBytes | 110 Mbits/sec |
| 3  | 24.0-25.0 sec | 12.2 MBytes | 103 Mbits/sec |
| 3  | 25.0-26.0 sec | 12.8 MBytes | 107 Mbits/sec |
| 3  | 26.0-27.0 sec | 13.6 MBytes | 114 Mbits/sec |
| 3  | 27.0-28.0 sec | 13.8 MBytes | 115 Mbits/sec |
| 3  | 28.0-29.0 sec | 13.2 MBytes | 111 Mbits/sec |
| 3  | 29.0-30.0 sec | 14.0 MBytes | 117 Mbits/sec |
| 3  | 0.0-30.0 sec  | 395 MBytes  | 110 Mbits/sec |

| ID    | Interval      | Transfer    | Bandwidth     |
|-------|---------------|-------------|---------------|
| [328] | 4.0- 5.0 sec  | 12.6 MBytes | 106 Mbits/sec |
| [328] | 5.0- 6.0 sec  | 12.9 MBytes | 108 Mbits/sec |
| [328] | 6.0- 7.0 sec  | 12.8 MBytes | 108 Mbits/sec |
| [328] | 7.0- 8.0 sec  | 13.6 MBytes | 114 Mbits/sec |
| [328] | 8.0- 9.0 sec  | 14.1 MBytes | 118 Mbits/sec |
| [328] | 9.0-10.0 sec  | 13.9 MBytes | 116 Mbits/sec |
| [328] | 10.0-11.0 sec | 13.6 MBytes | 114 Mbits/sec |
| [328] | 11.0-12.0 sec | 14.4 MBytes | 120 Mbits/sec |
| [328] | 12.0-13.0 sec | 14.0 MBytes | 118 Mbits/sec |
| [328] | 13.0-14.0 sec | 14.1 MBytes | 118 Mbits/sec |
| [328] | 14.0-15.0 sec | 14.2 MBytes | 119 Mbits/sec |
| [328] | 15.0-16.0 sec | 14.3 MBytes | 120 Mbits/sec |
| [328] | 16.0-17.0 sec | 13.5 MBytes | 113 Mbits/sec |
| [328] | 17.0-18.0 sec | 14.2 MBytes | 119 Mbits/sec |
| [328] | 18.0-19.0 sec | 13.7 MBytes | 115 Mbits/sec |
| [328] | 19.0-20.0 sec | 15.0 MBytes | 126 Mbits/sec |
| ID    | Interval      | Transfer    | Bandwidth     |
| [328] | 20.0-21.0 sec | 15.1 MBytes | 127 Mbits/sec |
| [328] | 21.0-22.0 sec | 15.3 MBytes | 129 Mbits/sec |
| [328] | 22.0-23.0 sec | 15.2 MBytes | 128 Mbits/sec |
| [328] | 23.0-24.0 sec | 14.6 MBytes | 123 Mbits/sec |
| [328] | 24.0-25.0 sec | 14.7 MBytes | 123 Mbits/sec |
| [328] | 25.0-26.0 sec | 14.1 MBytes | 118 Mbits/sec |
| [328] | 26.0-27.0 sec | 14.2 MBytes | 119 Mbits/sec |
| [328] | 27.0-28.0 sec | 14.7 MBytes | 123 Mbits/sec |
| [328] | 28.0-29.0 sec | 15.3 MBytes | 128 Mbits/sec |
| [328] | 29.0-30.0 sec | 14.3 MBytes | 120 Mbits/sec |
| [328] | 30.0-30.1 sec | 423 MBytes  | 118 Mbits/sec |



## WIFI antenna throughput test (test image)

Test data 6Gwifi upload/download

```
Client connecting to 192.168.2.103, TCP port 5001
TCP window size: 2.00 MByte (WARNING: requested 1.00 MByte)

[3] local 192.168.2.135 port 52332 connected with 192.168.2.11
[ID] Interval Transfer Bandwidth
[3] 0.0-1.0 sec 15.6 MBytes 131 Mbits/sec
[3] 1.0-2.0 sec 14.2 MBytes 120 Mbits/sec
[3] 2.0-3.0 sec 14.1 MBytes 110 Mbits/sec
[3] 3.0-4.0 sec 14.0 MBytes 117 Mbits/sec
[3] 4.0-5.0 sec 14.0 MBytes 117 Mbits/sec
[3] 5.0-6.0 sec 14.0 MBytes 117 Mbits/sec
[3] 6.0-7.0 sec 14.0 MBytes 117 Mbits/sec
[3] 7.0-8.0 sec 14.0 MBytes 117 Mbits/sec
[3] 8.0-9.0 sec 13.6 MBytes 114 Mbits/sec
[3] 9.0-10.0 sec 14.2 MBytes 120 Mbits/sec
[3] 10.0-11.0 sec 13.2 MBytes 111 Mbits/sec
[3] 11.0-12.0 sec 12.9 MBytes 108 Mbits/sec
[3] 12.0-13.0 sec 13.6 MBytes 114 Mbits/sec
[3] 13.0-14.0 sec 13.5 MBytes 113 Mbits/sec
[3] 14.0-15.0 sec 13.5 MBytes 113 Mbits/sec
[3] 15.0-16.0 sec 13.6 MBytes 114 Mbits/sec
[3] 16.0-17.0 sec 11.4 MBytes 95.4 Mbits/sec
[3] 17.0-18.0 sec 13.0 MBytes 109 Mbits/sec
[3] 18.0-19.0 sec 14.5 MBytes 122 Mbits/sec
[3] 19.0-20.0 sec 13.5 MBytes 113 Mbits/sec
[3] 20.0-21.0 sec 13.1 MBytes 110 Mbits/sec
[3] 21.0-22.0 sec 14.1 MBytes 118 Mbits/sec
[3] 22.0-23.0 sec 13.9 MBytes 116 Mbits/sec
[3] 23.0-24.0 sec 13.5 MBytes 113 Mbits/sec
[3] 24.0-25.0 sec 13.1 MBytes 110 Mbits/sec
[3] 25.0-26.0 sec 13.0 MBytes 109 Mbits/sec
[3] 26.0-27.0 sec 13.8 MBytes 115 Mbits/sec
[3] 27.0-28.0 sec 13.5 MBytes 113 Mbits/sec
[3] 28.0-29.0 sec 13.9 MBytes 116 Mbits/sec
[3] 29.0-30.0 sec 12.8 MBytes 107 Mbits/sec
[3] 0.0-30.0 sec 408 MBytes 114 Mbits/sec
```

```
[328] 4.0- 5.0 sec 13.9 MBytes 117 Mbits/sec
[328] 5.0- 6.0 sec 14.9 MBytes 125 Mbits/sec
[328] 6.0- 7.0 sec 14.0 MBytes 117 Mbits/sec
[328] 7.0- 8.0 sec 13.8 MBytes 115 Mbits/sec
[328] 8.0- 9.0 sec 14.8 MBytes 124 Mbits/sec
[328] 9.0-10.0 sec 15.2 MBytes 127 Mbits/sec
[328] 10.0-11.0 sec 14.2 MBytes 119 Mbits/sec
[328] 11.0-12.0 sec 15.3 MBytes 128 Mbits/sec
[328] 12.0-13.0 sec 15.5 MBytes 130 Mbits/sec
[328] 13.0-14.0 sec 14.8 MBytes 124 Mbits/sec
[328] 14.0-15.0 sec 14.5 MBytes 122 Mbits/sec
[328] 15.0-16.0 sec 15.4 MBytes 129 Mbits/sec
[328] 16.0-17.0 sec 15.1 MBytes 127 Mbits/sec
[328] 17.0-18.0 sec 14.9 MBytes 125 Mbits/sec
[328] 18.0-19.0 sec 15.5 MBytes 130 Mbits/sec
[328] 19.0-20.0 sec 14.3 MBytes 120 Mbits/sec
[ ID] Interval Transfer Bandwidth
[328] 20.0-21.0 sec 14.9 MBytes 125 Mbits/sec
[328] 21.0-22.0 sec 14.8 MBytes 124 Mbits/sec
[328] 22.0-23.0 sec 14.9 MBytes 125 Mbits/sec
[328] 23.0-24.0 sec 15.0 MBytes 126 Mbits/sec
[328] 24.0-25.0 sec 14.9 MBytes 125 Mbits/sec
[328] 25.0-26.0 sec 14.9 MBytes 125 Mbits/sec
[328] 26.0-27.0 sec 15.5 MBytes 130 Mbits/sec
[328] 27.0-28.0 sec 15.5 MBytes 130 Mbits/sec
[328] 28.0-29.0 sec 15.0 MBytes 126 Mbits/sec
[328] 29.0-30.0 sec 15.5 MBytes 130 Mbits/sec
[328] 0.0-30.1 sec 446 MBytes 124 Mbits/sec
```

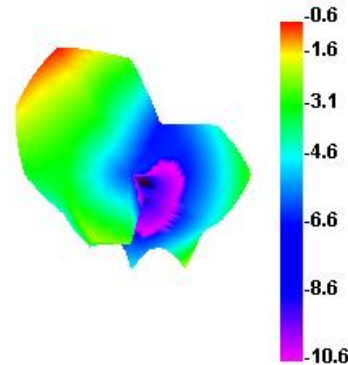
## BT antenna measured distance

| Actual measurement effect |                   |
|---------------------------|-------------------|
| Model number              | 1                 |
| testing environment       | Soward R&D Center |
| Test equipment            | huaiwei AM08      |
| test distance             | 10m $\geq$        |

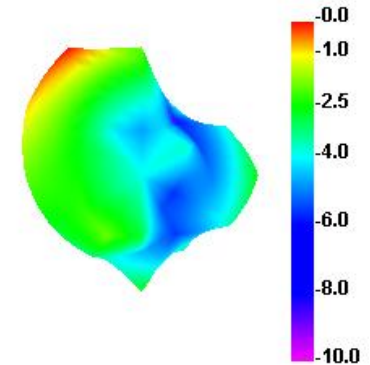
## WIFI&BT antenna 1 efficiency

| Passive Test For 2.4G |       |       |       |
|-----------------------|-------|-------|-------|
| Freq                  | Effi  | Effi  | Gain  |
| (MHz)                 | (%)   | (dB)  | (dBi) |
| 2400                  | 30.79 | -5.12 | -0.58 |
| 2410                  | 32.4  | -4.89 | -0.3  |
| 2420                  | 32.69 | -4.86 | -0.22 |
| 2430                  | 31.53 | -5.01 | -0.31 |
| 2440                  | 31.82 | -4.97 | -0.19 |
| 2450                  | 32.37 | -4.9  | -0.05 |
| 2460                  | 33.59 | -4.74 | 0.15  |
| 2470                  | 33.42 | -4.76 | -0.09 |
| 2480                  | 31.33 | -5.04 | -0.72 |
| 2490                  | 31.21 | -5.06 | -1.16 |
| 2500                  | 28.75 | -5.41 | -1.9  |

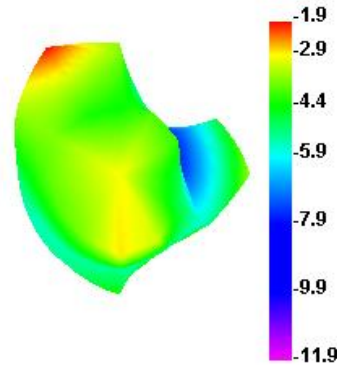
2400.000MHz



2450.000MHz



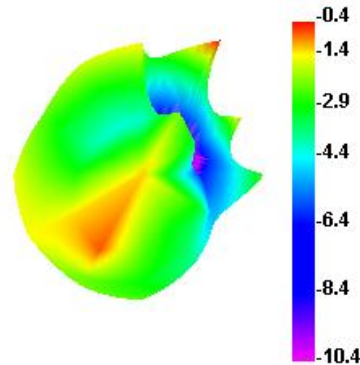
2500.000MHz



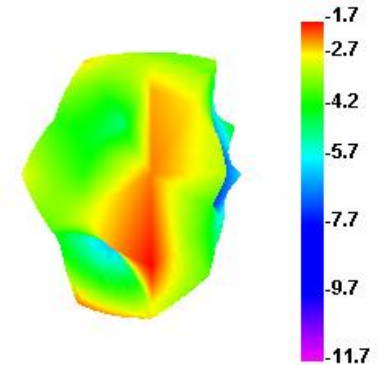
## 5GWIFI antenna 1 efficiency

| Passive Test For 5G-WIFI |       |       |       |
|--------------------------|-------|-------|-------|
| Freq                     | Effi  | Effi  | Gain  |
| (MHz)                    | (%)   | (dB)  | (dBi) |
| 5000                     | 29.97 | -5.23 | -0.35 |
| 5100                     | 28.57 | -5.44 | -1.05 |
| 5200                     | 29.04 | -5.37 | -1.18 |
| 5300                     | 26.07 | -5.84 | -1.96 |
| 5400                     | 24.92 | -6.03 | -2    |
| 5500                     | 27.78 | -5.56 | -1.71 |
| 5600                     | 24.05 | -6.19 | -1.99 |
| 5700                     | 28.82 | -5.4  | -0.88 |
| 5800                     | 27.6  | -5.59 | -2.22 |
| 5900                     | 28.97 | -5.38 | -1.13 |
| 6000                     | 29.89 | -5.25 | -0.55 |

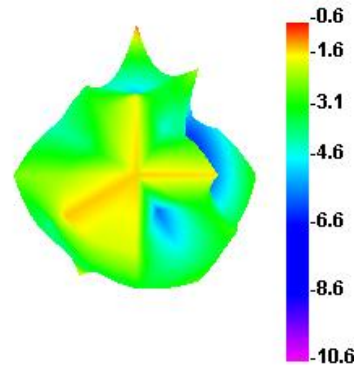
5000.000MHz



5500.000MHz



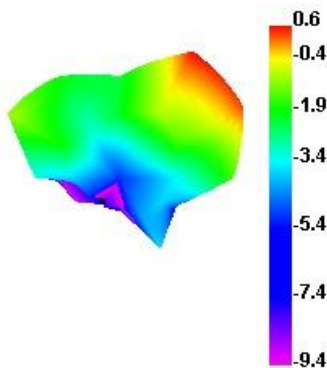
6000.000MHz



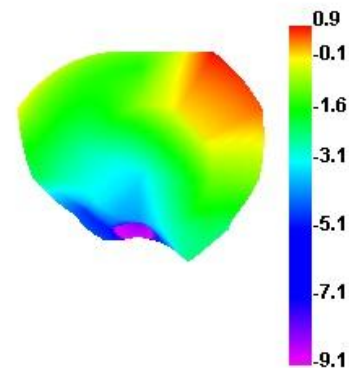
## WIFI 6 antenna 1 efficiency

| Passive Test For 6G-WIFI |       |       |       |
|--------------------------|-------|-------|-------|
| Freq                     | Effi  | Effi  | Gain  |
| (MHz)                    | (%)   | (dB)  | (dBi) |
| 6100                     | 27.95 | -5.54 | 0.65  |
| 6200                     | 29.35 | -5.32 | 0.86  |
| 6300                     | 29.96 | -5.23 | 0.92  |
| 6400                     | 27.9  | -5.54 | 0.36  |
| 6500                     | 27.01 | -5.68 | 1.54  |
| 6600                     | 29.36 | -5.32 | 1.87  |
| 6700                     | 28.19 | -5.50 | 2.13  |
| 6800                     | 32.86 | -4.83 | 3.82  |
| 6900                     | 30.23 | -5.20 | 3.63  |
| 7000                     | 22.86 | -6.41 | 1.6   |

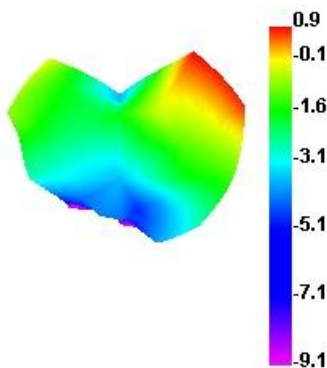
6100.000MHz



6300.000MHz



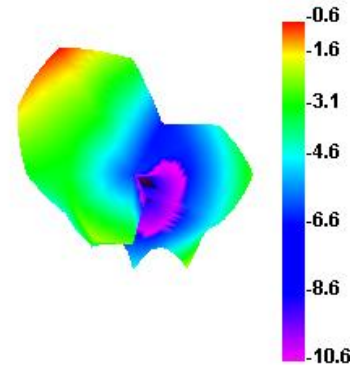
6600.000MHz



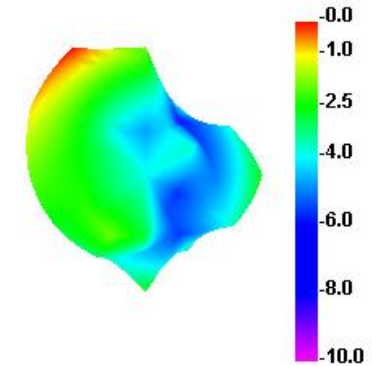
## WIFI&BT antenna 2 efficiency

| Passive Test For 2.4G |       |       |       |
|-----------------------|-------|-------|-------|
| Freq                  | Effi  | Effi  | Gain  |
| (MHz)                 | (%)   | (dB)  | (dBi) |
| 2400                  | 30.79 | -5.12 | -0.58 |
| 2410                  | 32.4  | -4.89 | -0.3  |
| 2420                  | 32.69 | -4.86 | -0.22 |
| 2430                  | 31.53 | -5.01 | -0.31 |
| 2440                  | 31.82 | -4.97 | -0.19 |
| 2450                  | 32.37 | -4.9  | -0.05 |
| 2460                  | 33.59 | -4.74 | 0.15  |
| 2470                  | 33.42 | -4.76 | -0.09 |
| 2480                  | 31.33 | -5.04 | -0.72 |
| 2490                  | 31.21 | -5.06 | -1.16 |
| 2500                  | 28.75 | -5.41 | -1.9  |

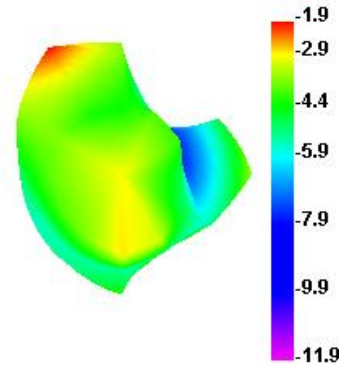
2400.000MHz



2450.000MHz



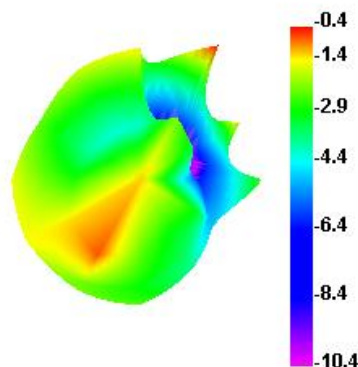
2500.000MHz



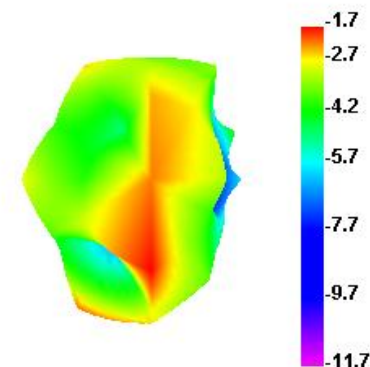
## 5GWIFI antenna 2 efficiency

| Passive Test For 5G-WIFI |       |       |       |
|--------------------------|-------|-------|-------|
| Freq                     | Effi  | Effi  | Gain  |
| (MHz)                    | (%)   | (dB)  | (dBi) |
| 5000                     | 29.97 | -5.23 | -0.35 |
| 5100                     | 28.57 | -5.44 | -1.05 |
| 5200                     | 29.04 | -5.37 | -1.18 |
| 5300                     | 26.07 | -5.84 | -1.96 |
| 5400                     | 24.92 | -6.03 | -2    |
| 5500                     | 27.78 | -5.56 | -1.71 |
| 5600                     | 24.05 | -6.19 | -1.99 |
| 5700                     | 28.82 | -5.4  | -0.88 |
| 5800                     | 27.6  | -5.59 | -2.22 |
| 5900                     | 28.97 | -5.38 | -1.13 |
| 6000                     | 29.89 | -5.25 | -0.55 |

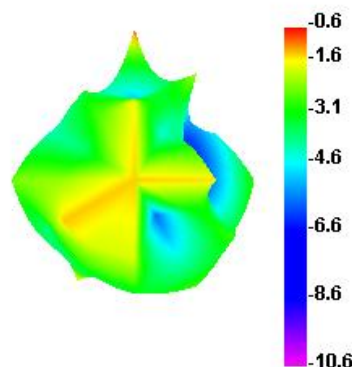
5000.000MHz



5500.000MHz



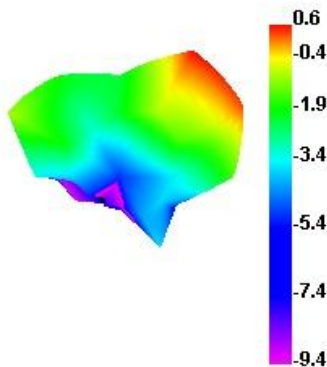
6000.000MHz



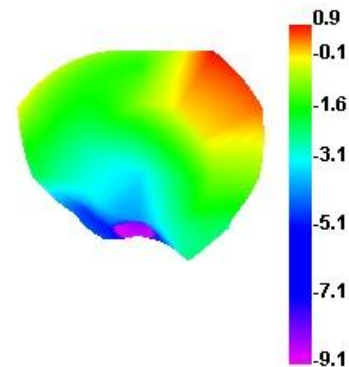
## WIFI 6 antenna 2 efficiency

| Passive Test For 6G-WIFI |       |       |       |
|--------------------------|-------|-------|-------|
| Freq                     | Effi  | Effi  | Gain  |
| (MHz)                    | (%)   | (dB)  | (dBi) |
| 6100                     | 27.95 | -5.54 | 0.65  |
| 6200                     | 29.35 | -5.32 | 0.86  |
| 6300                     | 29.96 | -5.23 | 0.92  |
| 6400                     | 27.9  | -5.54 | 0.36  |
| 6500                     | 27.01 | -5.68 | 1.54  |
| 6600                     | 29.36 | -5.32 | 1.87  |
| 6700                     | 28.19 | -5.50 | 2.13  |
| 6800                     | 32.86 | -4.83 | 3.82  |
| 6900                     | 30.23 | -5.20 | 3.63  |
| 7000                     | 22.86 | -6.41 | 1.6   |

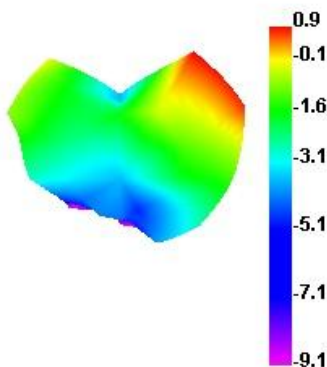
6100.000MHz



6300.000MHz



6600.000MHz





## WIFI antenna signal strength measured image (data)



Testing location: Our R&D  
office

Test time: 14:00-14:30

Testing distance: 10-15  
meters

Signal strength: -48dBm to -  
38dBm

Note: 1. This report is based on the actual debugging and testing of the prototype, including environmental treatment, antenna position, and assembly position of various components

Cannot be changed arbitrarily;

2. If there are any changes to the materials used in the prototype, please provide timely feedback to our company for re verification;

3. List of sensitive devices:

TP (material, coating, wiring, etc.)

Screen (amplification circuit, LED, ribbon design, etc.)

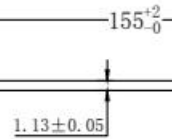
Shell material (antenna assembly method, structural interference, shell material, antenna position height and area, etc.)

Motherboard (motherboard conduction, RF circuit matching, PA, dual power, filtering, LNA, power circuit, etc.)

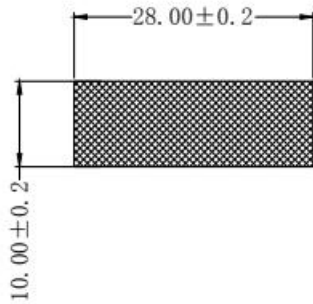
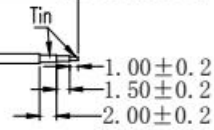
Camera, battery, motor, MIC, fingerprint recognition module, etc

4. Due to the small number or only one testing machine, some probabilistic issues cannot be completely identified. It is recommended to conduct small-scale trial production before mass production to identify problem points (such as flashing screens, speaker noise, TP jumping, black screen crash, signal diving, etc.)

The 1 generation terminals



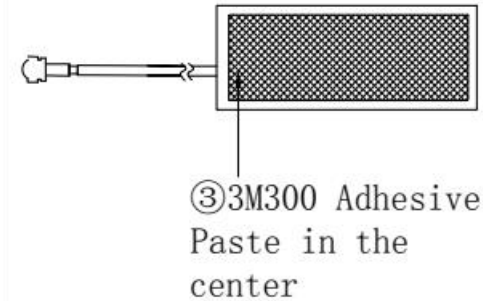
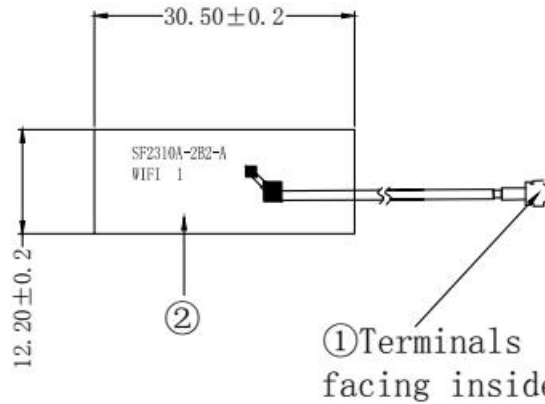
Motherboard welding



3M300 Adhesive

technical requirements:

- 1.\* for critical dimensions;
- 2.Size conform to the requirements of the drawings;
- 3.No virtual welding welding point, false welding. Require full welding points.
- 4.Network test pass.
- 5.No marked tolerance according toSJ/T 10628 1995 6classes;



**SWARD**

ShenZhen SWARD Communication Technology Co.Ltd

SF2310A-2R11B-155-A

|   |              |        |          |                |        |     |            |          |  |  |             |            |
|---|--------------|--------|----------|----------------|--------|-----|------------|----------|--|--|-------------|------------|
| 5 |              |        |          |                |        |     |            |          |  |  |             |            |
| 4 |              |        |          |                |        |     |            |          |  |  |             |            |
| 3 | Adhesive     | yellow | 1        | 28*10mm        | RD     | YWD | 2023.12.11 | Q C      |  |  | time markup | percentage |
| 2 | PCB          | black  | 1        | SF2310A-2B2-A  | RD     | YWD | 2023.12.11 | Q C      |  |  |             |            |
| 1 | coaxial line | black  | 1        | φ=1.13mm       | RF     |     |            |          |  |  | 1           | A          |
|   | name         | color  | quantity | specifications | audits |     |            | approval |  |  |             |            |

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ROHS