

Testing Report

Customer Name: Perixx Computer GmbH

Product Name: BT/2.4G Antenna

Sample Model: PERIBOARD-835

Reference Standard: *GB/T 9410-2008; ANSI/IEEE Std149-2021*

Issue Date: 2023.4.21

| | |
|-----------------|-----------------|
| Engineer: Zkmis | Date: 2023.4.20 |
| Auditor: Eason | Date: 2023.4.21 |
| Approver: Jaron | Date: 2023.4.21 |



Version

| Version No. | Date | Description | Formulate | Approval |
|-------------|-----------|-------------------------------|-----------|----------|
| A0 | 2023.4.21 | For the first time, formulate | Zkris | Eason |
| | | | | |
| | | | | |

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1.3 Test equipment

| Equipment | Model No. | Serial No. | Manufacturer | Calibration date | Next calibration date |
|------------------|--------------|----------------|--------------|------------------|-----------------------|
| OTA Test System | RayZone-5000 | RFI-LAB-RF-D00 | GTS | 2023.3.14 | 2025.3.13 |
| Network Analyzer | E5071C | RFI-LAB-RF-D01 | KEYSIGHT | 2022.5.13 | 2023.5.12 |

1.4 Test environment

| | |
|-------------|-----------|
| Temperature | 23.7°C |
| Humidity | 60%RH |
| Pressure | 100.14kPa |

1.5 Statement

- (1) The test results in the report are only applicable to the tested samples and the tested samples work under the environment described in the report.
- (2) Only Shenzhen RFI-LAB Communication Technology Co., Ltd. have the right to modify the report, and the modification information shall be annotated in the revision form.
- (3) Any objection to this report shall be raised within 30 days after formal confirmation of the report.
- (4) This report is invalid if there is any evidence that the sample information provided is falsified.
- (5) The report is invalid without the signature of the auditor and approver.

2. Sample Information

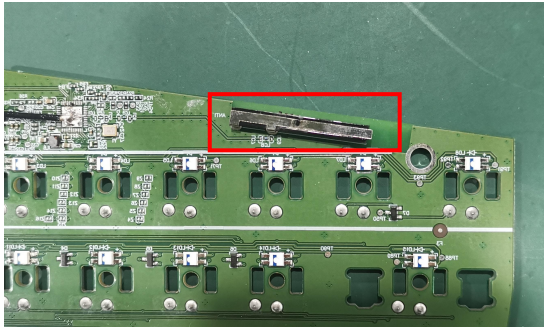
2.1 Client information

| | |
|-----------------|---|
| Name | Perixx Computer GmbH |
| Address | Heerdter Landstrasse 189e 40549 Dusseldorf, Germany |
| Contacts | / |
| Tel | / |
| E-mail | / |

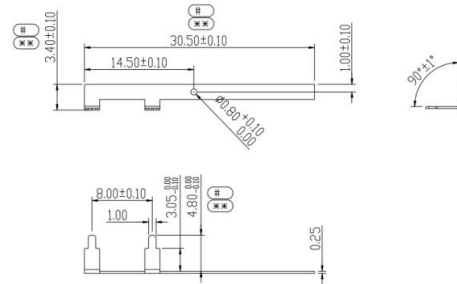
2.2 Description of EUT(S)

| | |
|------------------------|--|
| Product Name | BT/2.4G Antenna |
| Sample Model | PERIBOARD-835 |
| Antenna Size | / |
| Serial No. | / |
| Antenna Type | Shrapnel Antenna |
| Test Item | VSWR;Antenna gain; Efficiency; Radiation pattern |
| Frequency Range | 2400-2500MHz |
| Received Date | 2023.4.20 |
| Test Date | 2023.4.20 |
| Remark | The length of the RF cable is 90mm |

2.3 EUT appearance

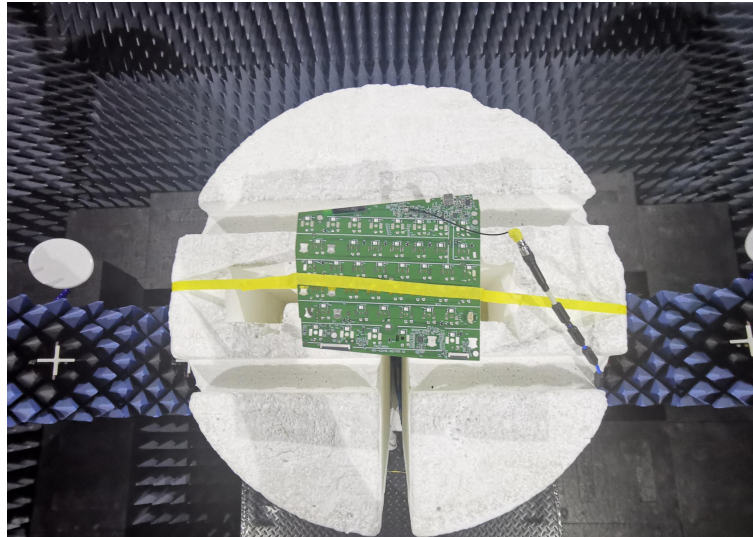


Units: mm

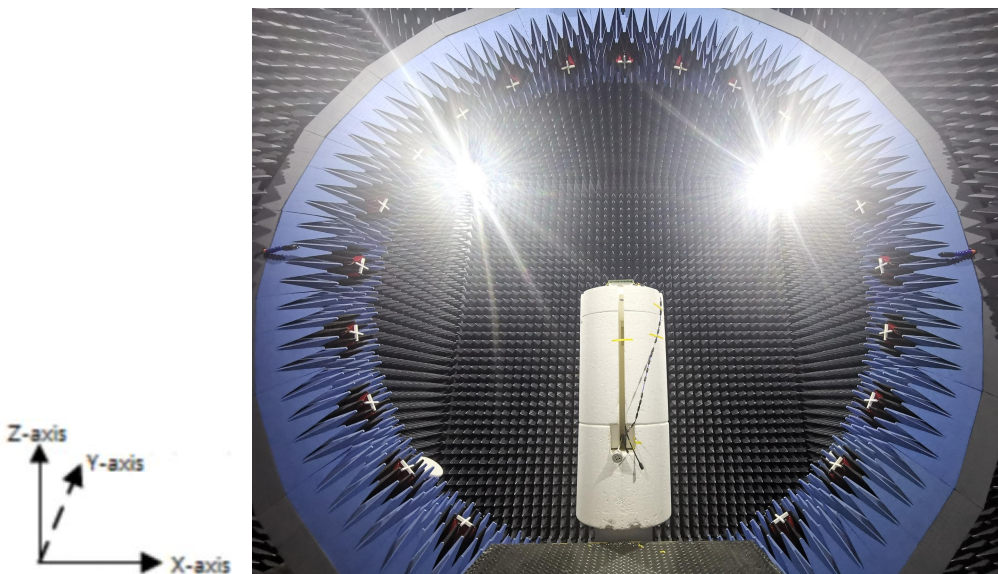


2.4 EUT setup photo of free space OTA testing

Platform



Front view



3. Test Results

3.1 Test standard

| Name | Parameter | Method | Standard no. |
|------------------------------|----------------------|--|------------------------|
| Mobile communication antenna | Antenna gain | Generic specification for antennas used in the mobile communications | GB/T 9410-2008 |
| | Radiation pattern | | |
| | VSWR | | |
| Antenna | Radiation efficiency | IEEE Standard Test Procedures for Antennas | ANSI/IEEE Std 149-2021 |
| | Gain and directivity | | |

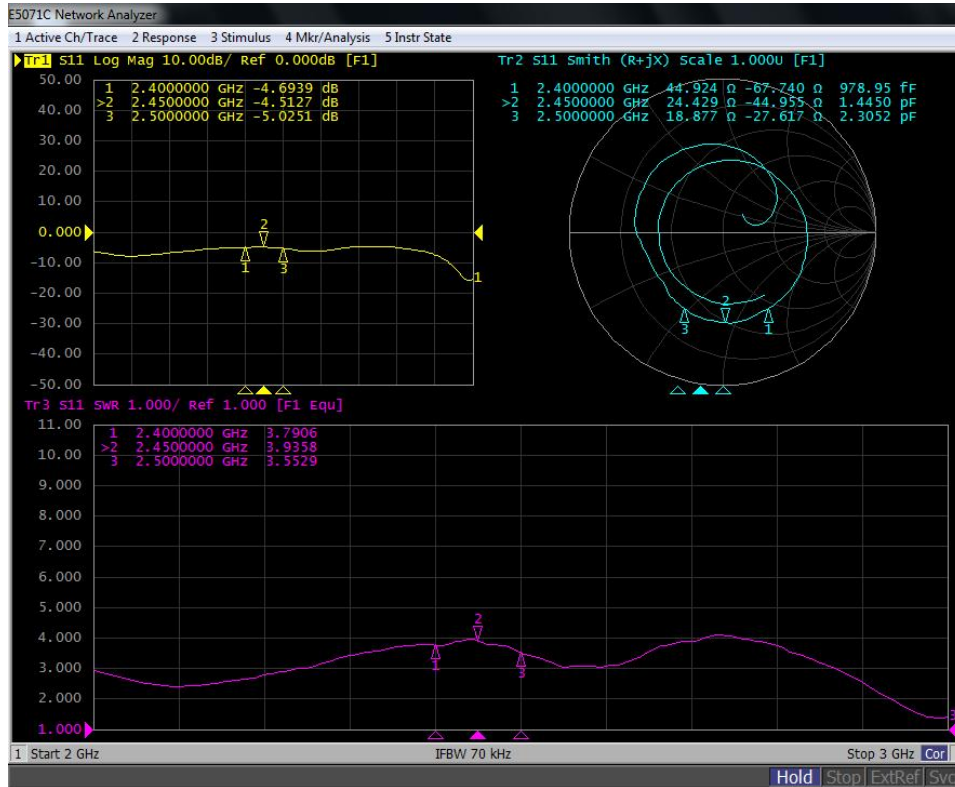
3.2 Test uncertainty

The uncertainty was calculated on the basis of the GUM published by ISO, using the inclusion factor of $K=2$ and the 95% confidence level to express the extended uncertainty.

| Item | Uncertainty |
|----------------------|------------------|
| VSWR | ± 0.3 |
| Antenna gain | $\pm 1\text{dB}$ |
| Radiation efficiency | $\pm 10\%$ |

3.3 Test data

3.3.1 VSWR parameters



3.3.2 VSWR data

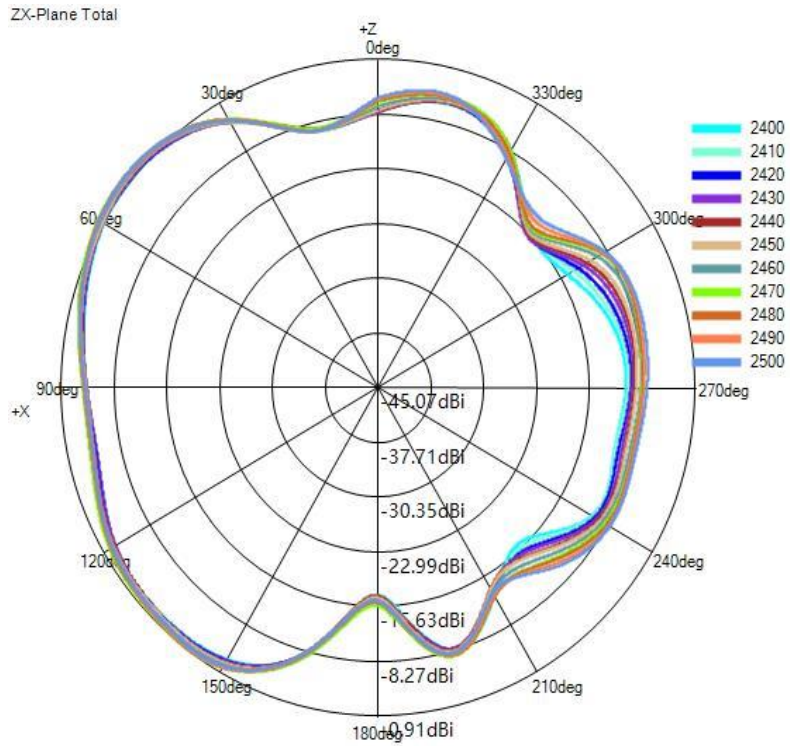
| Frequency/MHz | 2400 | 2450 | 2500 |
|---------------|--------|--------|--------|
| VSWR | 3.7906 | 3.9358 | 3.5529 |

3.3.3 Typical free space efficiency and gain

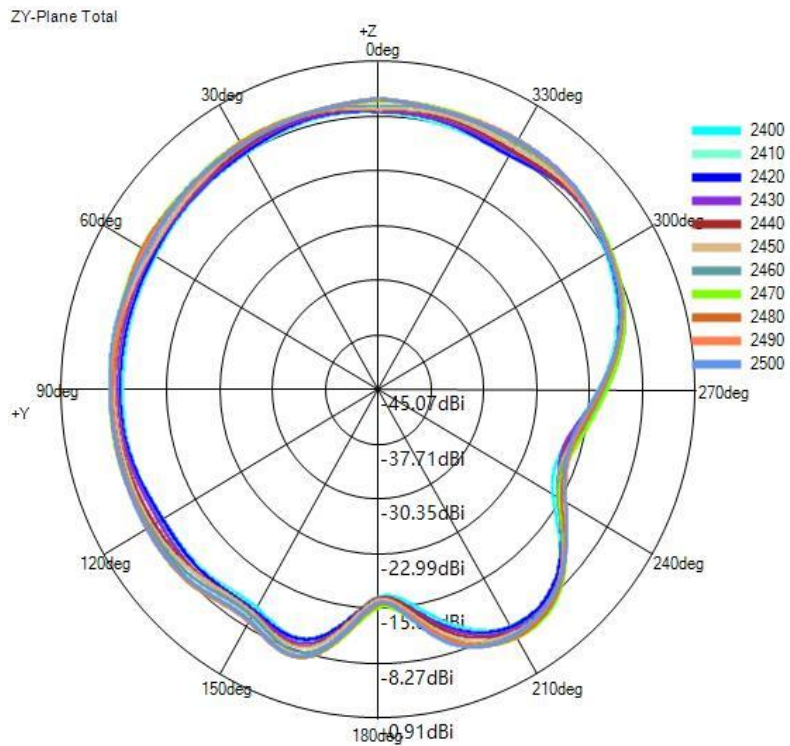
| Frequency/MHz | 2400 | 2410 | 2420 | 2430 | 2440 | 2450 | 2460 | 2470 | 2480 | 2490 | 2500 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Peak Gain/dBi | -0.22 | -0.13 | 0.00 | 0.12 | 0.13 | 0.19 | 0.44 | 0.57 | 0.45 | 0.37 | 0.32 |
| Efficiency/% | 29.70 | 29.46 | 29.75 | 30.80 | 31.52 | 31.90 | 33.58 | 34.78 | 33.51 | 33.09 | 32.85 |

3.3.4 Typical free space radiation pattern

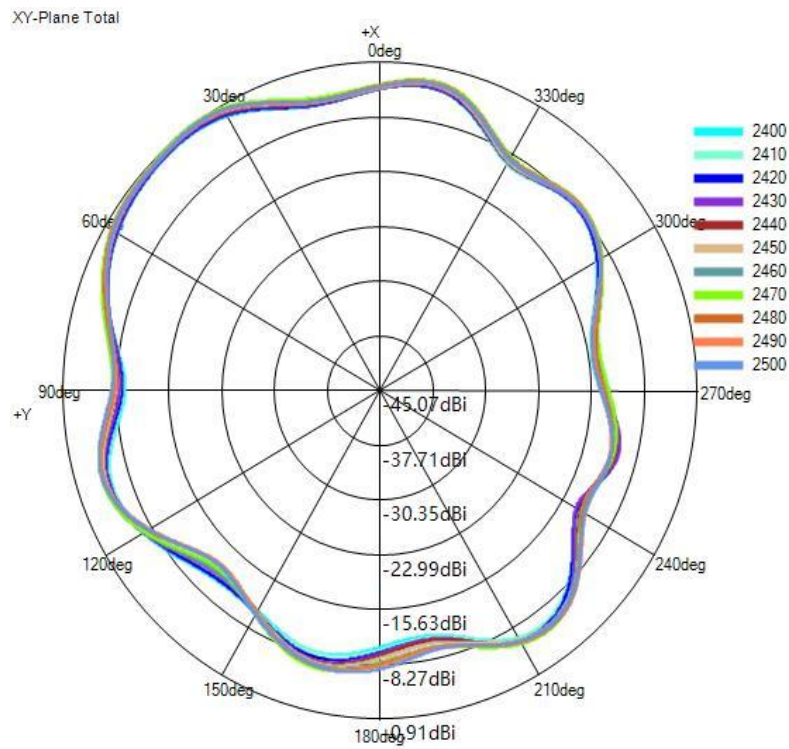
(1) X-Z Plane(unit:dBi):



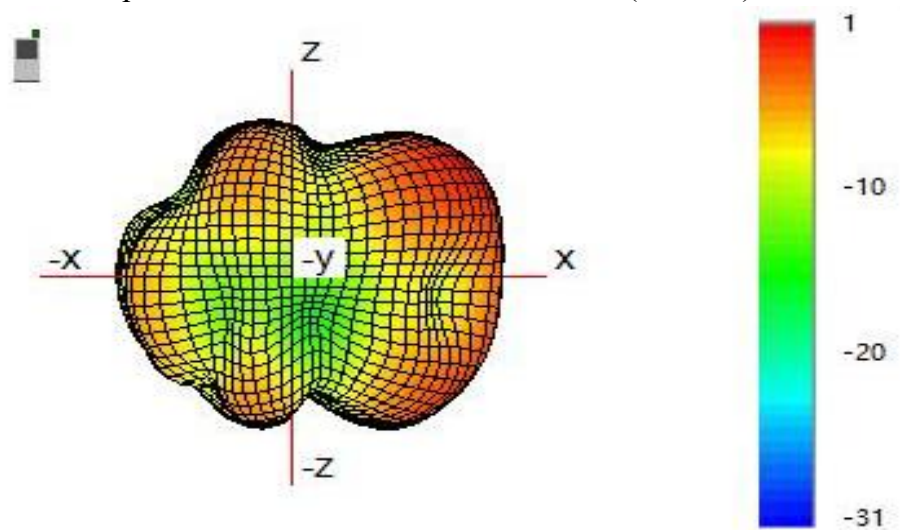
(2) Y-Z Plane(unit:dBi):



(3) X-Y Plane(unit:dBi):



(4) Typical Free Space 3D Radiation Pattern at 2470MHz(unit:dBi):



End

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