

# Testing Report


Customer Name: SHENZHEN QIAOHUA INDUSTRIES LIMITED

Product Name: Fog Bubble Machine

Sample Model: QB-807RF

Reference Standard: *GB/T 9410-2008; ANSI/IEEE Std149-1979*

Issue Date: 2024.9.9

Engineer: Zkmis	Date: 2024.9.9	
Auditor: Eason	Date: 2024.9.9	
Approver: Aamon	Date: 2024.9.9	

## Version

Version No.	Date	Description	Formulate	Approval
A0	2024.9.9	For the first time, formulate	Zkris	Eason

## Contents

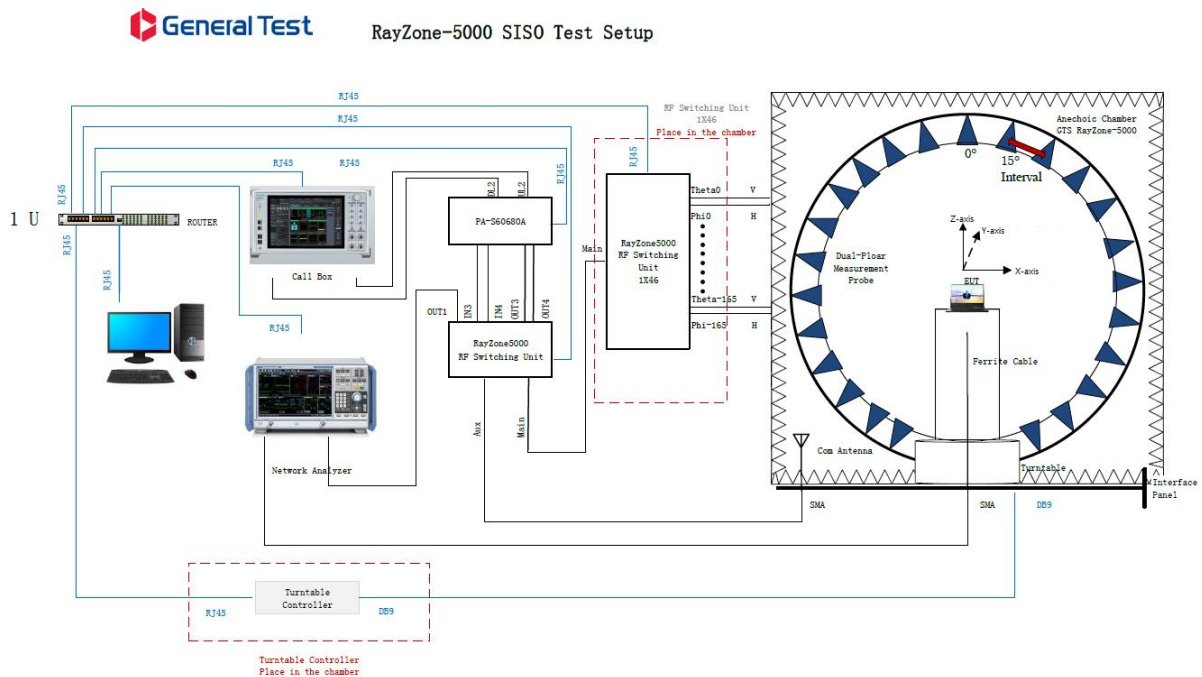
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# 1. General Information

## 1.1 General information of testing institutions

<b>Name</b>	Shenzhen RFI-LAB Communication Technology Co., Ltd.
<b>Address</b>	103 Building 1 Tingwei Industrial Park, No.6, Liufang Road, Zone 67Xingdong, Xin'an Subdistrict, Bao'an District, Shenzhen, Guangdong, China
<b>Tel</b>	13682621346
<b>E-mail</b>	rfi-lab_cs@tech-now.com
<b>Equipment</b>	All the equipment used in the report is fixed in 103 Building 1 Tingwei Industrial Park, No.6, Liufang Road, Zone 67Xingdong, Xin'an Subdistrict, Bao'an District, Shenzhen, Guangdong, China

## 1.2 Testing principle



### 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	2024.5.6	2025.5.5
Network Analyzer	E5071C	RFI-LAB-RF-C02	KEYSIGHT	2024.5.6	2025.5.5

### 1.4 Test environment

Temperature	23.9°C
Humidity	58%RH
Pressure	100.21kPa

### 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

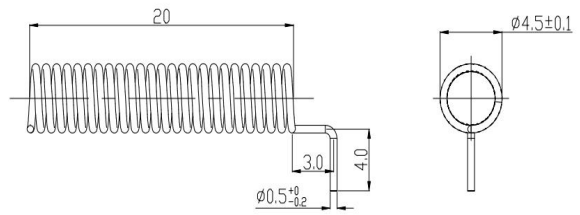
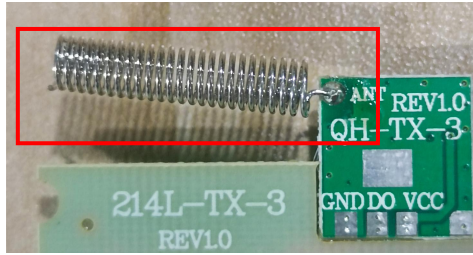
### 2.1 Client information

<b>Name</b>	SHENZHEN QIAOHUA INDUSTRIES LIMITED
<b>Address</b>	301, No.1 Building, Qiaohua Industrial Zone, Luotian Forestry Center, Yanchuan, Yanluo, Bao An, Shenzhen, Guangdong, China.518127
<b>Contacts</b>	/
<b>Tel</b>	/
<b>E-mail</b>	disco.rnd@quhwa.com
<b>Manufacturer</b>	SHENZHEN QIAOHUA INDUSTRIES LIMITED

### 2.2 Description of EUT(S)

<b>Product Name</b>	Fog Bubble Machine
<b>Sample Model</b>	QB-807RF
<b>Serial No.</b>	QB-807,6-SP03US01, QB-807A, QB-807B, QB-807C, QB-807D, QB-807S, QB-807W, QB-807IR, QB-810, QB-810A, QB-810B, QB-810C, QB-810D, QB-810S, QB-810W, QB-810RF, QB-810IR, 7-TS-QB807, 7-TS-QB807RF, 7-TS-QB807IR. QB-807ARF, 7-TS-QB807ARF
<b>Antenna Size</b>	/
<b>Antenna Type</b>	Spring Antenna
<b>Test Item</b>	VSWR; Antenna gain; Efficiency; Radiation pattern
<b>Frequency Range</b>	428-438MHz
<b>Received Date</b>	2024.9.6
<b>Test Date</b>	2024.9.9
<b>Remark</b>	/

### 2.3 EUT appearance

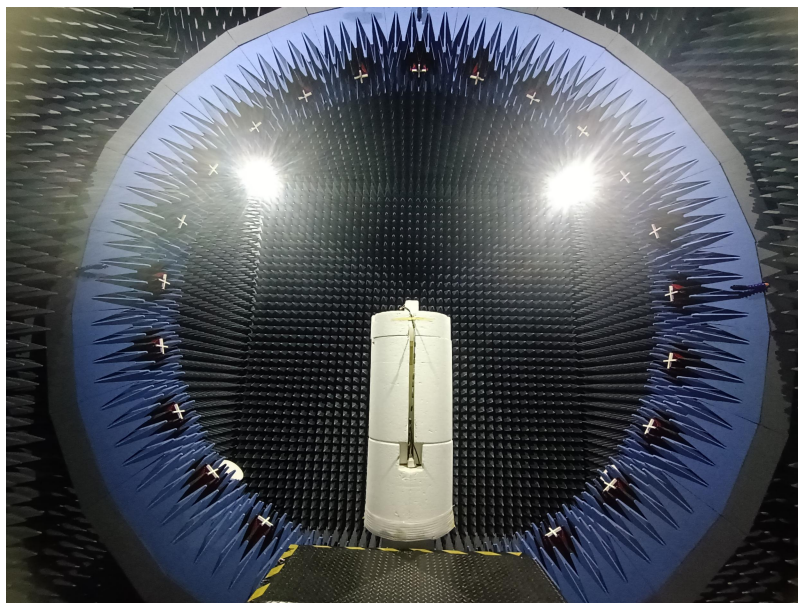


### 2.4 EUT setup photo of free space OTA testing

Planform



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 149-1979
	Gain and directivity		

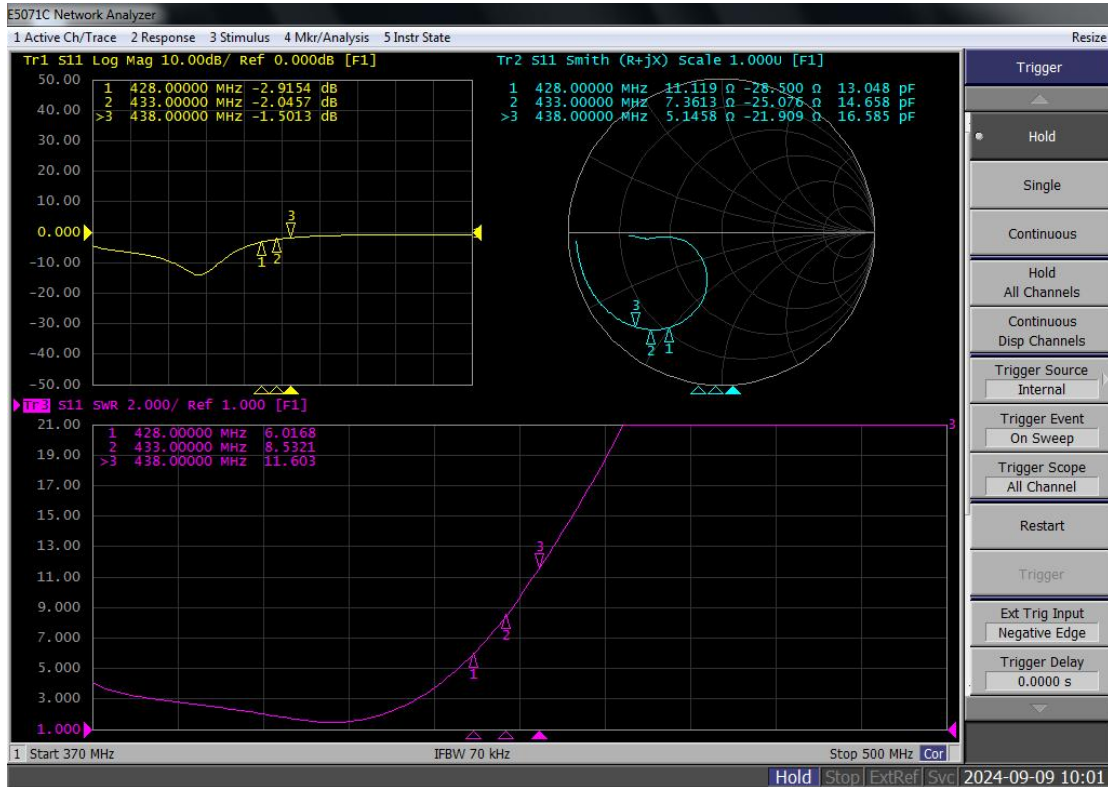
### 3.2 Test uncertainty

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	$\pm 0.3$
Antenna gain	$\pm 0.72\text{dB}$
Radiation efficiency	$\pm 0.72\text{dB}$

### 3.3 Test data

#### 3.3.1 S11 parameters



#### 3.3.2 S11 data

Frequency/MHz	428	433	438
VSWR	6.0168	8.5321	11.603

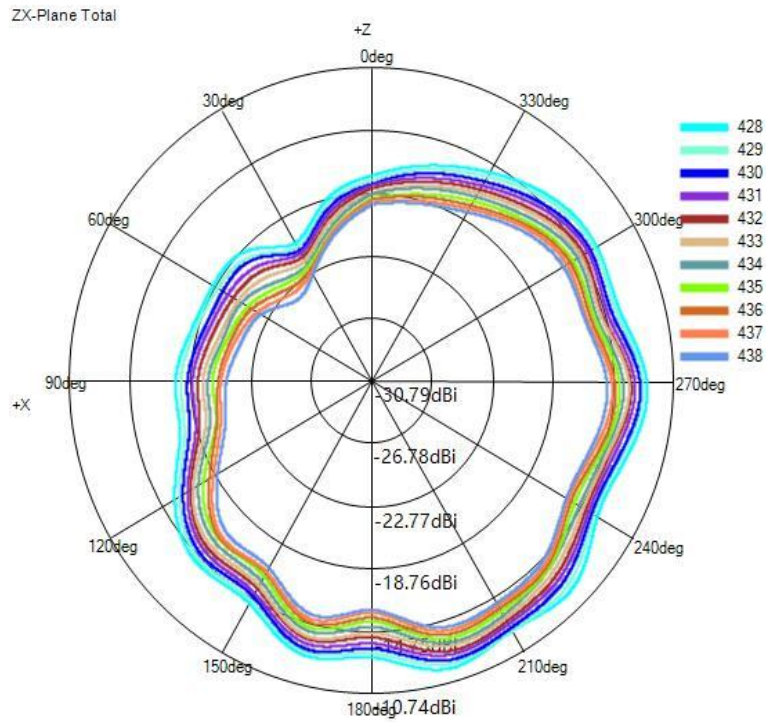
#### 3.3.3 Typical free space efficiency and gain

Frequency/MHz	428	429	430	431	432	433	434	435	436	437	438
Peak Gain/dBi	-10.90	-11.23	-11.47	-11.70	-11.94	-12.17	-12.35	-12.80	-13.07	-13.25	-13.47
Efficiency/%	3.35	3.15	2.97	2.78	2.61	2.48	2.33	2.18	2.07	1.97	1.86

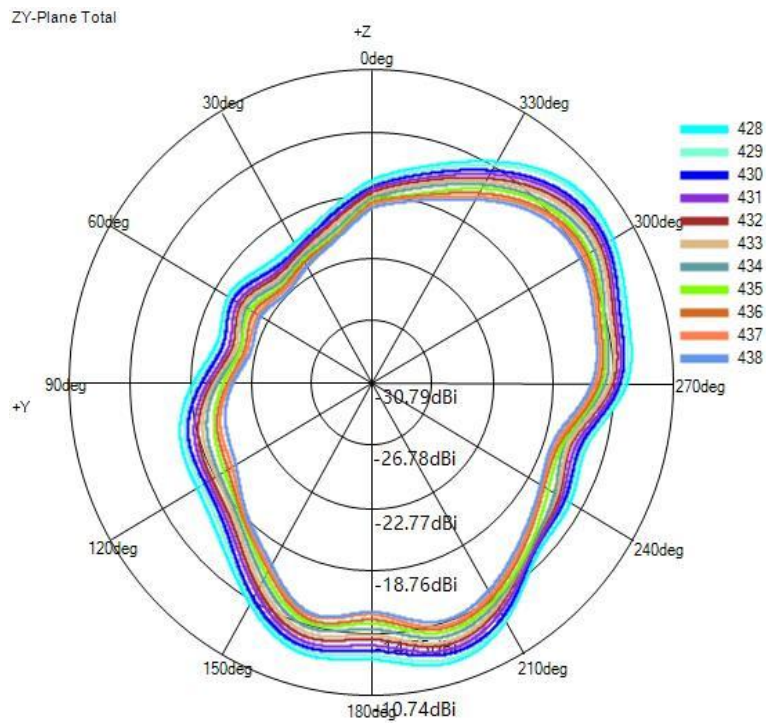


### 3.3.4 Typical free space radiation pattern

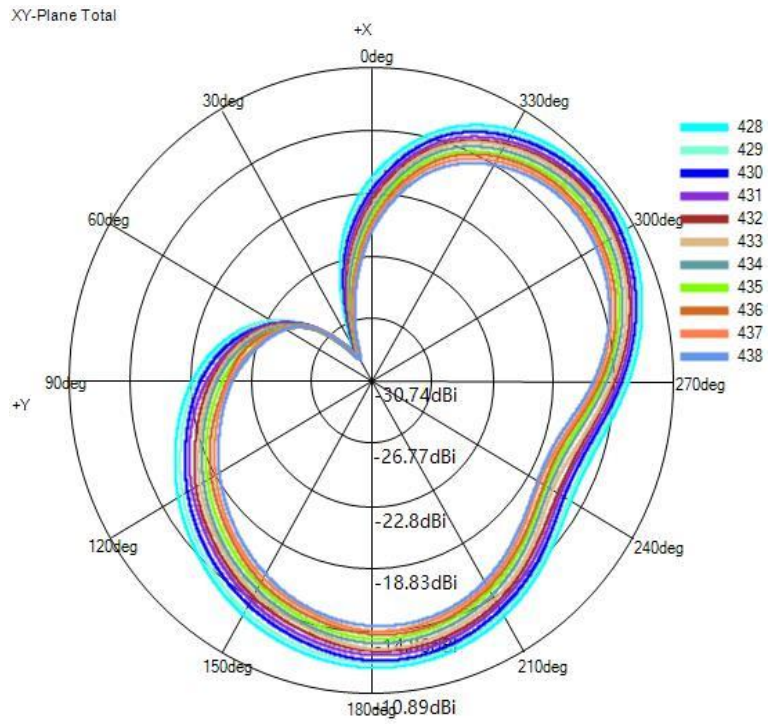
(1) X-Z Plane(unit:dBi):



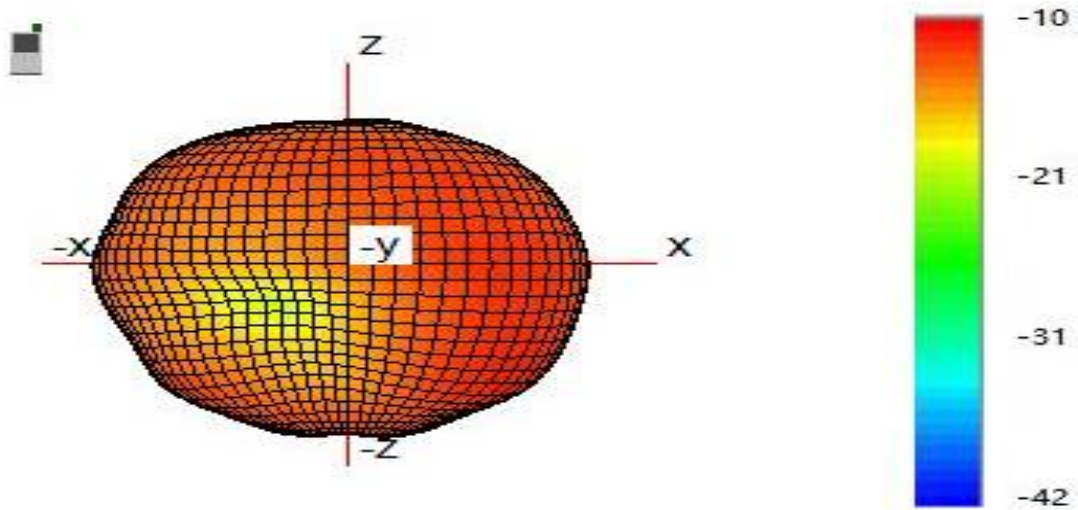
(2) Y-Z Plane(unit:dBi):



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



(4) Typical Free Space 3D Radiation Pattern at 428MHz(unit:dBi):



End

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