

# Testing Report

Customer Name: Xiamen VBeT Electronics Co., Ltd

Product Name: 1.9GHz Antenna

Sample Model: W320BS B

Reference Standard: *GB/T 9410-2008; ANSI/IEEE Std 149-2021*

Issue Date: 2023.3.8

Engineer: Zkmis	Date: 2023.3.7
Auditor: Eason	Date: 2023.3.8
Approver: Janson	Date: 2023.3.08



### Version

Version No.	Date	Description	Formulate	Approval
A0	2023.3.8	For the first time, formulate	Zkris	Eason

### Contents

- 1.General Information .....3
  - 1.1 General information of testing institutions .....3
  - 1.2 Testing principle ..... 3
  - 1.3 Test equipment .....4
  - 1.4 Test environment .....4
  - 1.5 Statement ..... 4
- 2.Sample Information ..... 5
  - 2.1 Client information .....5
  - 2.2 Description of EUT(S) .....5
  - 2.3 EUT appearance .....6
  - 2.4 EUT setup photo of free space OTA tesing ..... 6
- 3.Test Results ..... 7
  - 3.1 Test standard ..... 7
  - 3.2 Test uncertainty .....7
  - 3.3 Test data ..... 8
    - 3.3.1 VSWR parameters ..... 8
    - 3.3.2 VSWR data ..... 8
    - 3.3.3 Typical free space efficiency and gain ..... 8
    - 3.3.4 Typical free space radiation pattern .....9
  - (The following is blank) ..... 10

# 1.General Information

## 1.1 General information of testing institutions

<b>Name</b>	Shenzhen RFI-LAB Communication Technology Co., Ltd.
<b>Address</b>	10/F A, Lingyun Bld, Liufang Rd, Baoan District, SZ
<b>Tel</b>	/
<b>E-mail</b>	/
<b>Equipment</b>	All the equipment used in the report is fixed in Zone B, West Side of 1/F, Building 1, Tingwei Industrial Park, No.6 Liufang Road, Bao 'an District, Shenzhen

## 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	2021.3.15	2023.3.14
Network Analyzer	E5071C	RFI-LAB-RF-D01	KEYSIGHT	2022.5.13	2023.5.12

### 1.4 Test environment

Temperature	23.9°C
Humidity	58%RH
Pressure	100.15kPa

### 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

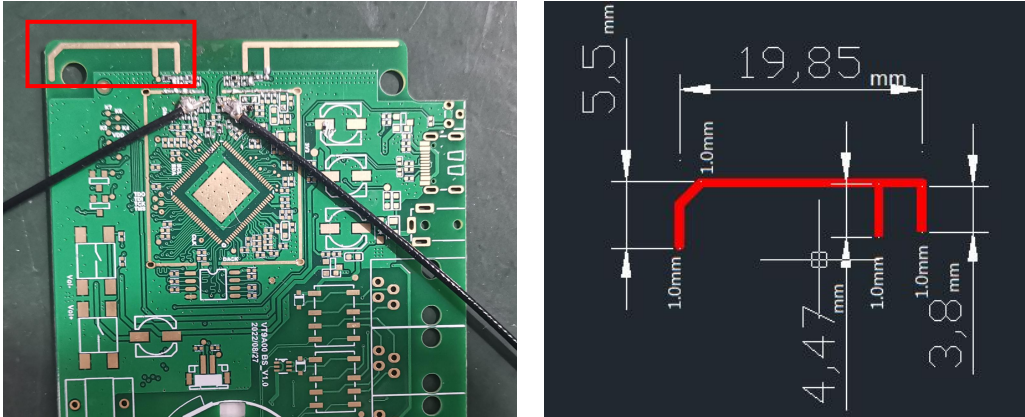
### 2.1 Client information

<b>Name</b>	Xiamen VBeT Electronics Co., Ltd
<b>Address</b>	N403, Weiye Building, Xiamen Pioneering Park for Overseas Chinese Scholars, PRC
<b>Contacts</b>	Manager Lin
<b>Tel</b>	18850172684
<b>E-mail</b>	lingyang.lin@vbet.cn
<b>Manufacturer</b>	/

### 2.2 Description of EUT(S)

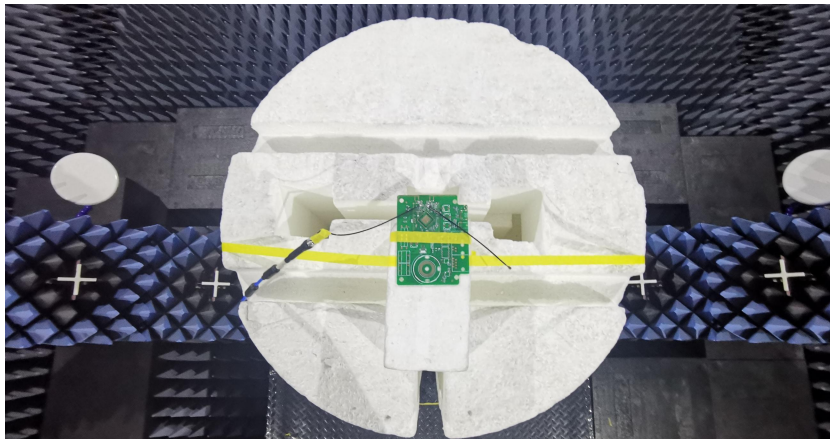
<b>Product Name</b>	1.9GHz Antenna
<b>Sample Model</b>	W320BS B
<b>Antenna Size</b>	/
<b>Serial No.</b>	/
<b>Antenna Type</b>	PCB Antenna
<b>Test Item</b>	VSWR; Antenna gain; Efficiency; Radiation pattern
<b>Frequency Range</b>	1910-1930MHz
<b>Received Date</b>	2023.3.6
<b>Test Date</b>	2023.3.7
<b>Remark</b>	The length of the RF cable is 90mm

### 2.3 EUT appearance

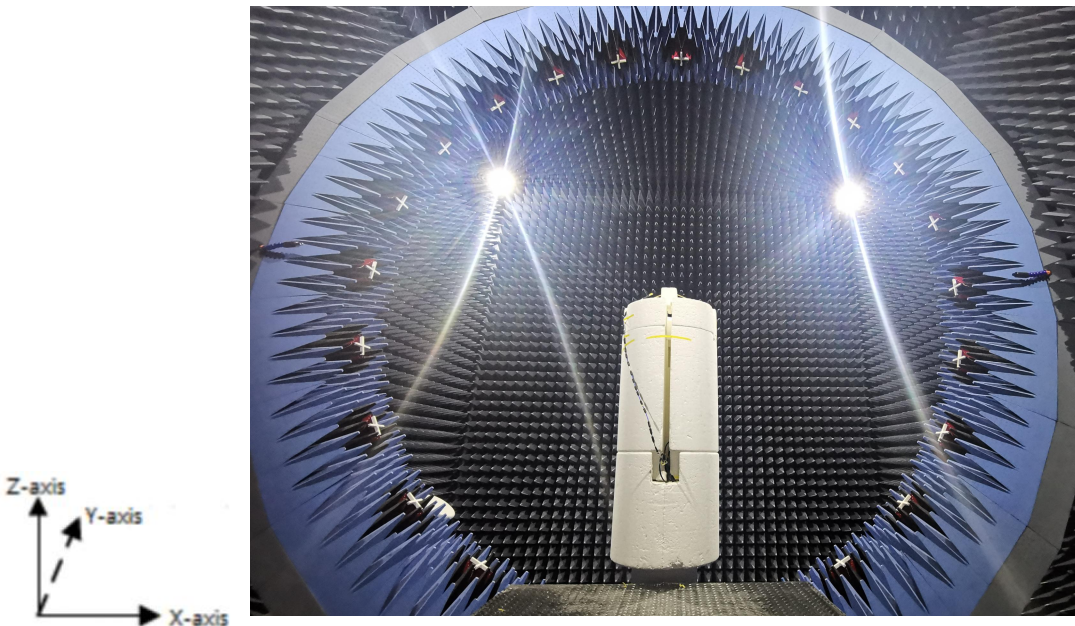


### 2.4 EUT setup photo of free space OTA testing

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 149-2021
	Gain and directivity		

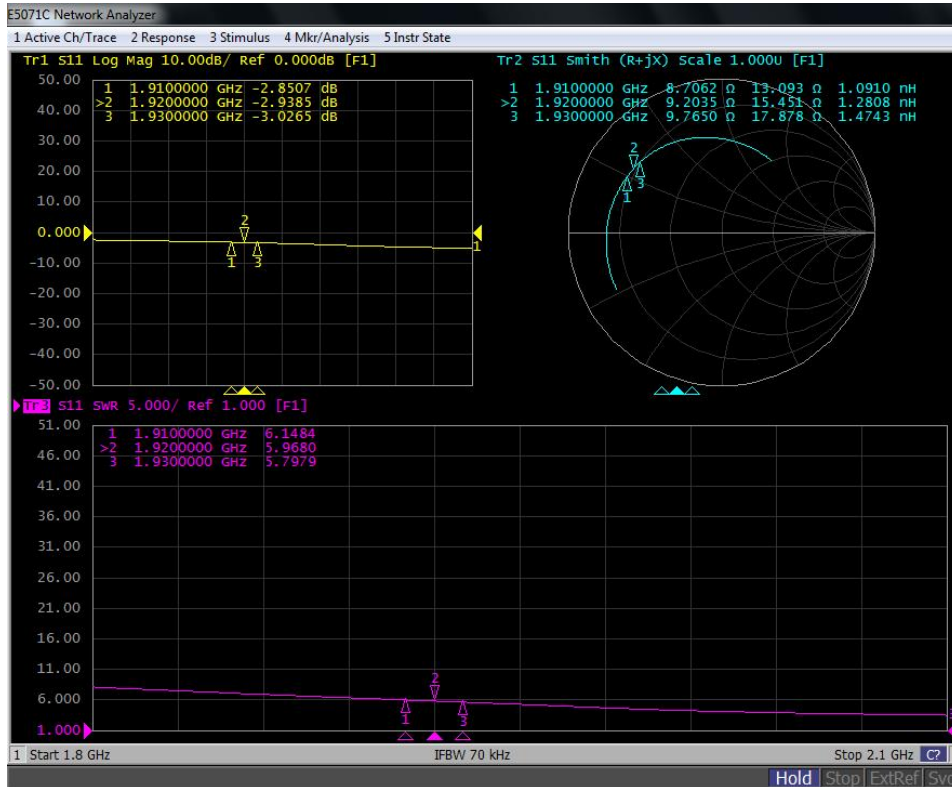
### 3.2 Test uncertainty

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	$\pm 0.3$
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	1910	1920	1930
VSWR	6.1484	5.9680	5.7979

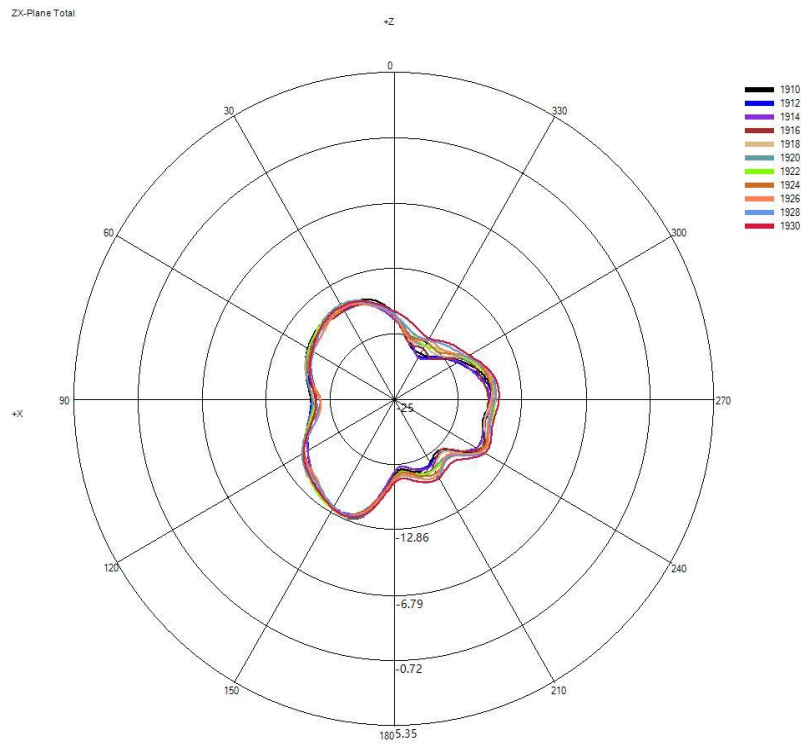
#### 3.3.3 Typical free space efficiency and gain

Frequency/MHz	1910	1912	1914	1916	1918	1920	1922	1924	1926	1928	1930
Peak Gain/dBi	-10.36	-10.58	-10.95	-10.91	-10.90	-10.95	-11.19	-11.49	-11.69	-11.74	-11.75
Efficiency/%	2.72	2.60	2.49	2.50	2.60	2.66	2.59	2.48	2.42	2.48	2.59

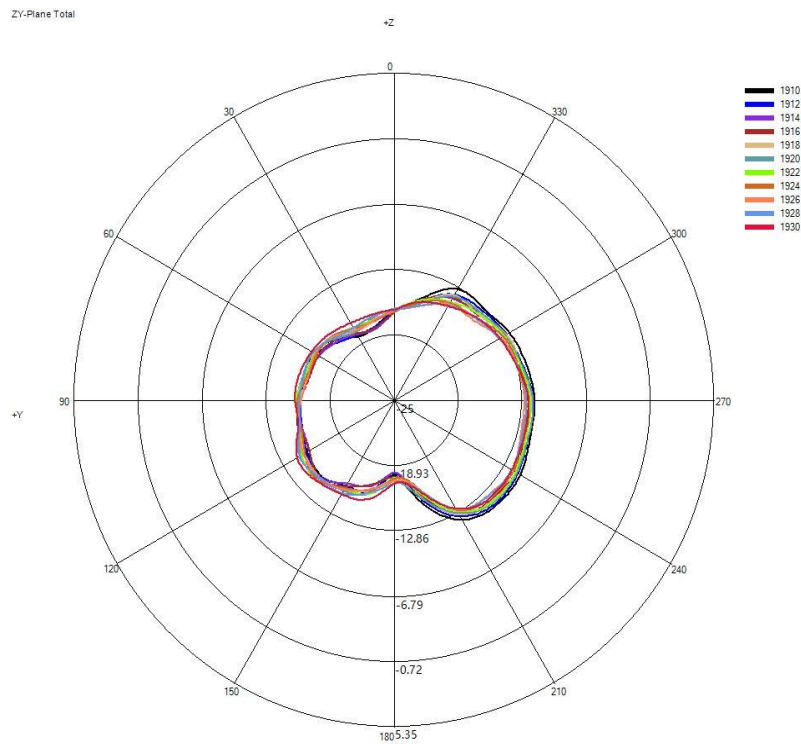


### 3.3.4 Typical free space radiation pattern

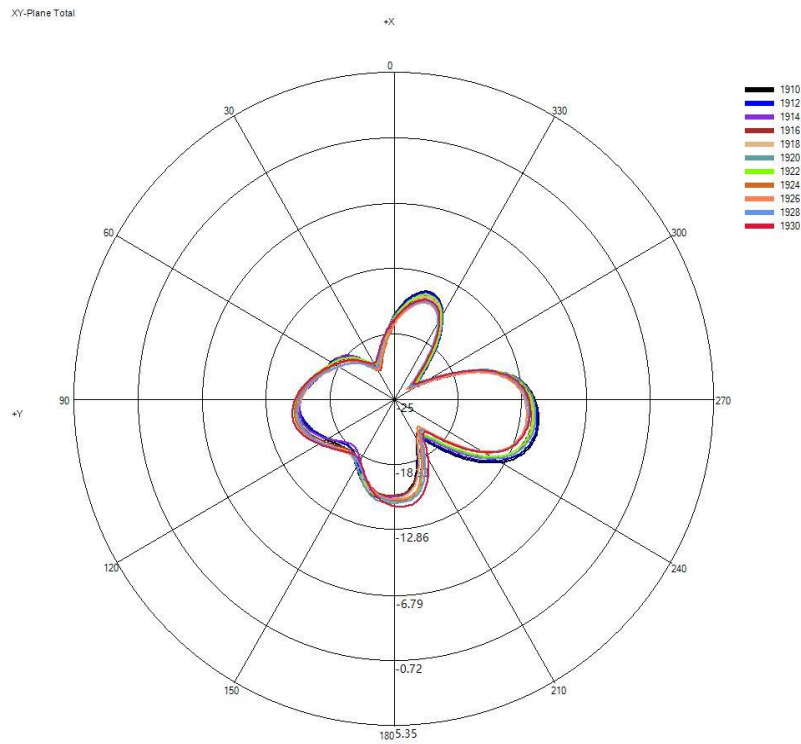
(1) X-Z Plane(unit:dBi):



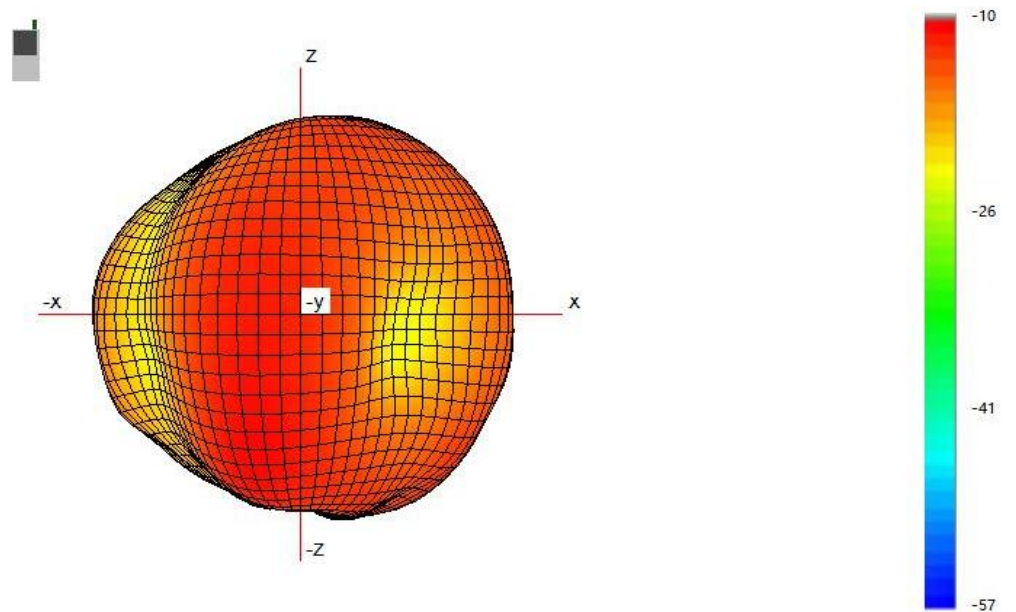
(2) Y-Z Plane(unit:dBi):



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



(4) Typical Free Space 3D Radiation Pattern at 1910MHz(unit:dBi):



-----  
**End**

**(The following is blank)**