

Testing Report

Customer Name: Shenzhen Zowee Tech. Co., Ltd.

Product Name: ZW201-HVT

Reference Standard: *GB/T9410-2008; ANSI/IEEE Std 149-1979*

Issue Date: 2024.4.30

Engineer:	Huangjunjie	Date	2024.4.30
Auditor:	Yaochangqing	Date	2024.4.30
Approve	Yangzhigang	Date	2024.4.30

Content

1. General Information

- 1.1 General information of testing institutions
- 1.2 Test equipment
- 1.3 Test environment
- 1.4 Statement

2. Sample Information

- 2.1 Client information
- 2.2 Description of EUT(S)
- 2.3 EUT appearance
- 2.4 DUT setup photo of free space testing
- 2.5 Matching circuit

3. Test Result

- 3.1 Test standard
- 3.2 Test uncertainty
- 3.3 Test data
 - 3.3.1 S11 parameters
 - 3.3.2 VSWR
 - 3.3.3 Max Gain
 - 3.3.4 Typical free space efficiency and gain
 - 3.3.5 Typical free space radiation patter

4. Product specifications

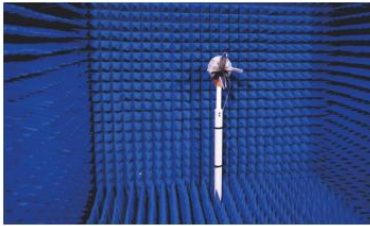
5. Environmental regulations and packaging

1. General Information

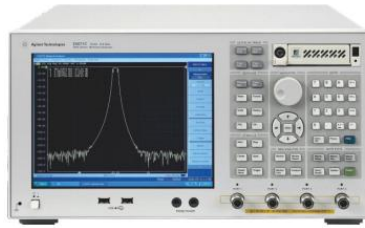
1.1 General information of testing institutions

Name	Shenzhen DBT Communication Device Co., Ltd
Address	Rm505, 8th building, Yungu 2nd period, pingshan No.1 Road, Xili Town, Nanshan District, ShenZhen, China
Tel	0755-83763273
E-mail	Dbt_yang@163.com
Equipment	1. ETS 2. Keysight E5071C 3. CMW500

1.2 Test equipment



ETS



E5071C



Cmw500

Model No.	Manufacturer	Calibration date	Next calibration date
ETS	RFI-LAB-RF-A00	2023.11. 13	2024.11. 13
Cmw500	ROHDE&SCHWAR	2024.03. 15	2025.03. 15
E5071C	Agilent	2024.05. 15	2025.03. 15

1.3 Test environment

Temperature	25. 0*C
Humidity	59%RH
Pressure	100.12kPa

1.4 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) Any objection to this report shall be raised 30 days after formal confirmation of the report.
- (3) The report is invalid without the signature of the auditor and approver.

2. Sample Information

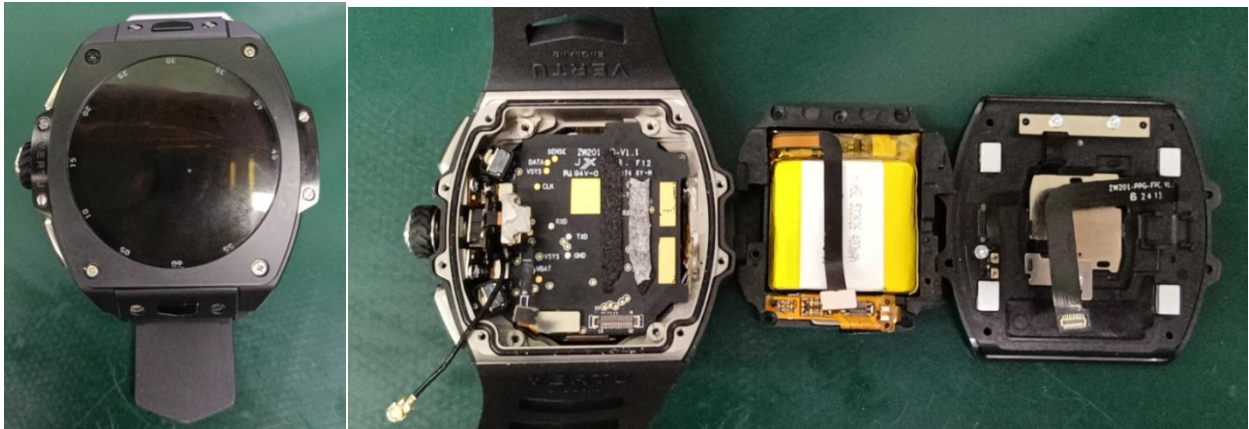
2.1 Client information

Name	Shenzhen Zowee Tech. Co., Ltd.
Address	
Contacts	
Tel	
E-mail	

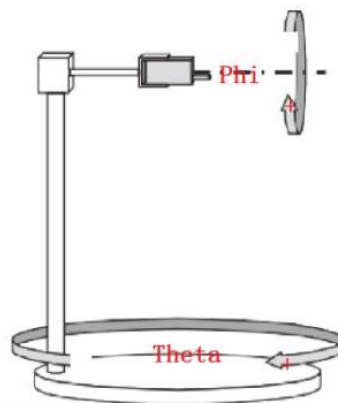
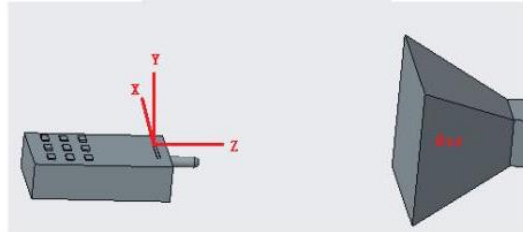
2.2 Description of EUT(S)

Product Name	ZW201-HVT
Antenna Size	56.01*53,88*17.69mm
Antenna Type	PIFA Antenna
Test Item	VSWR; Gain; Efficiency; Radiation pattern
Frequency Range	1170-2500MHZ
Received Date	2024.4.24
Test Date	2023.4.24
Remark	

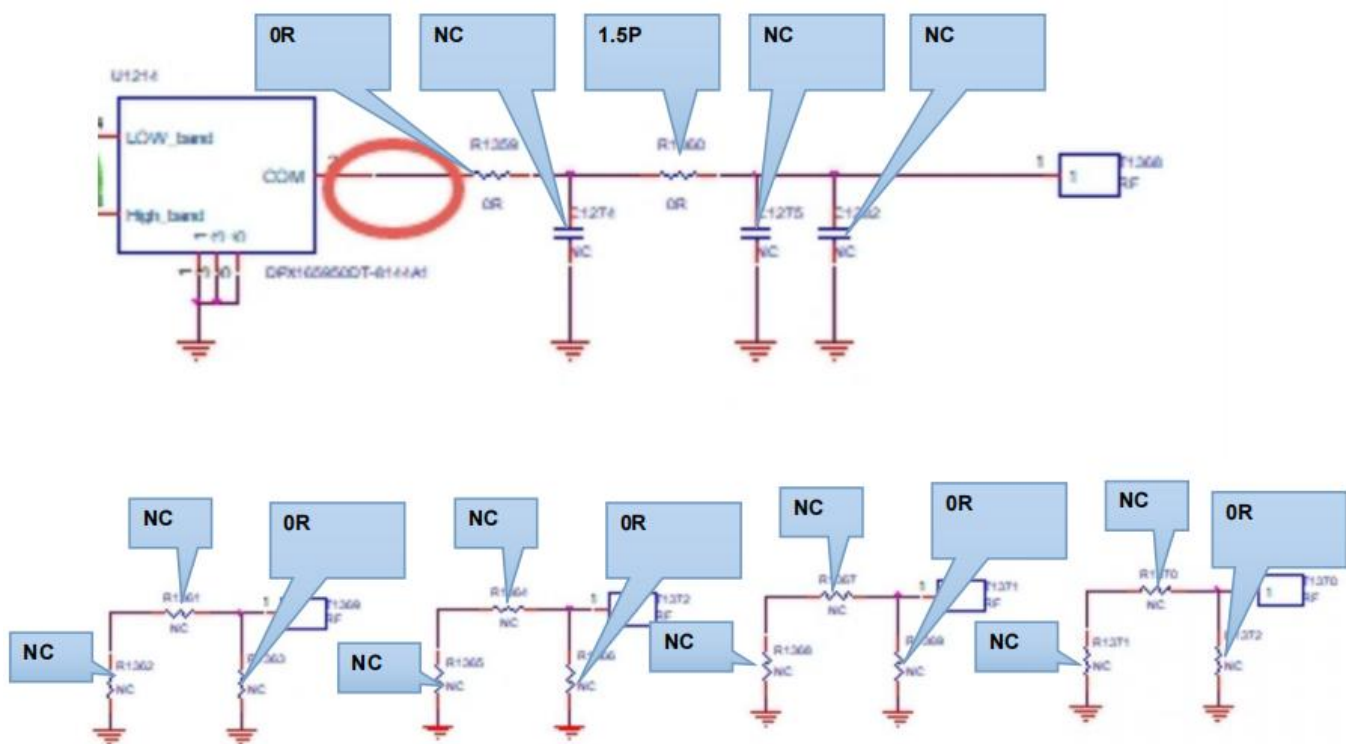
2.3 EUT appearance



2.4 DUT setup photo of free space testing



2.5 Matching circuit



3. Test Results

3.1 Test standard

Name	Parameter	Method	Standard no.
Mobile Communication antenna	VSWR	Generic specification for antennas used in the mobile communications	GB/T 9410-2008
	Antenna gain		
	Radiation pattern		
Antenna	Radiation efficiency	IEEE Standard Test Procedures for Antennas	ANSI/IEEE Std 149-1979

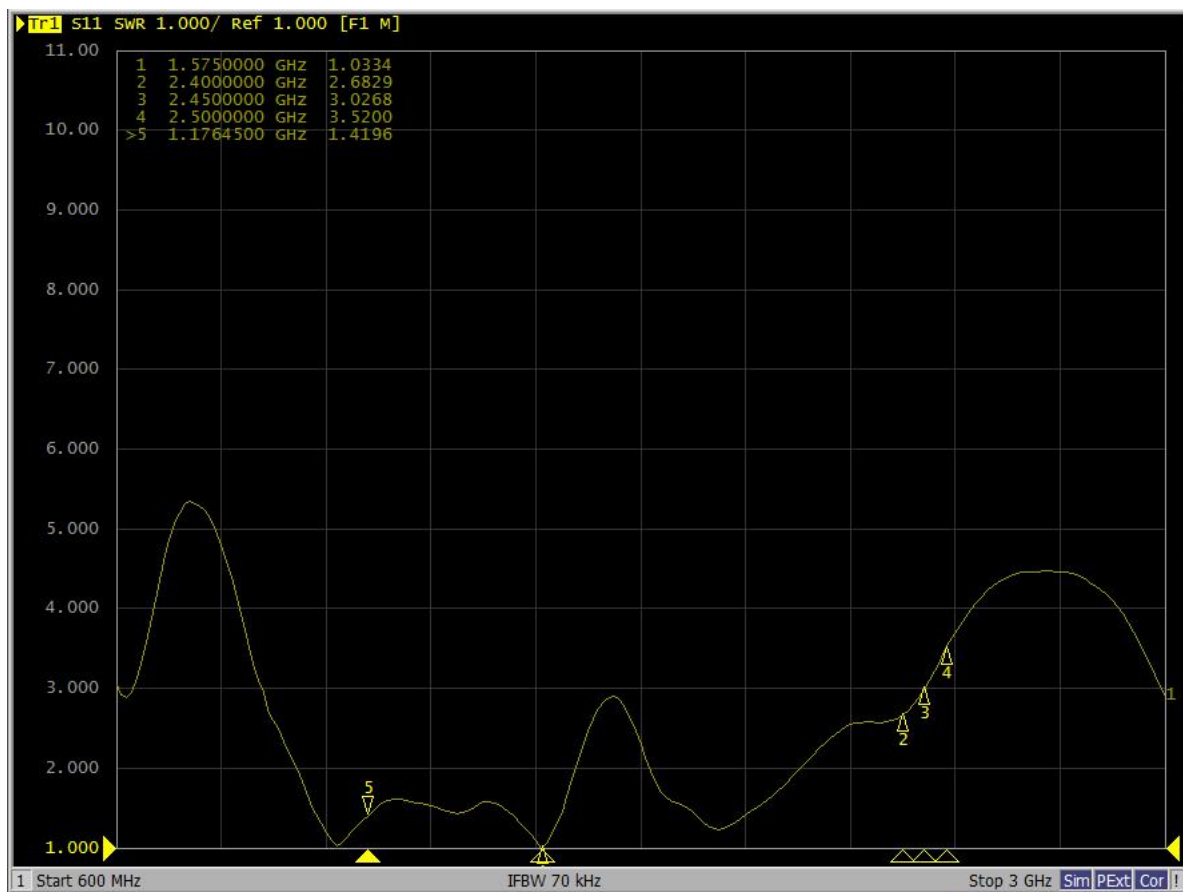
3.2 Test uncertainty

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	+ 1dB
Radiation efficiency	$\pm 10\%$

3.3 Test data

3.3.1 S11 parameters(Switch Logic)



3.3.2 VSWR

Frequency/MHz	1176.45	1575	
VSWR	1.4	1.03	
Frequency/MHz	2400	2450	2500
VSWR	2.6	3.0	3.5

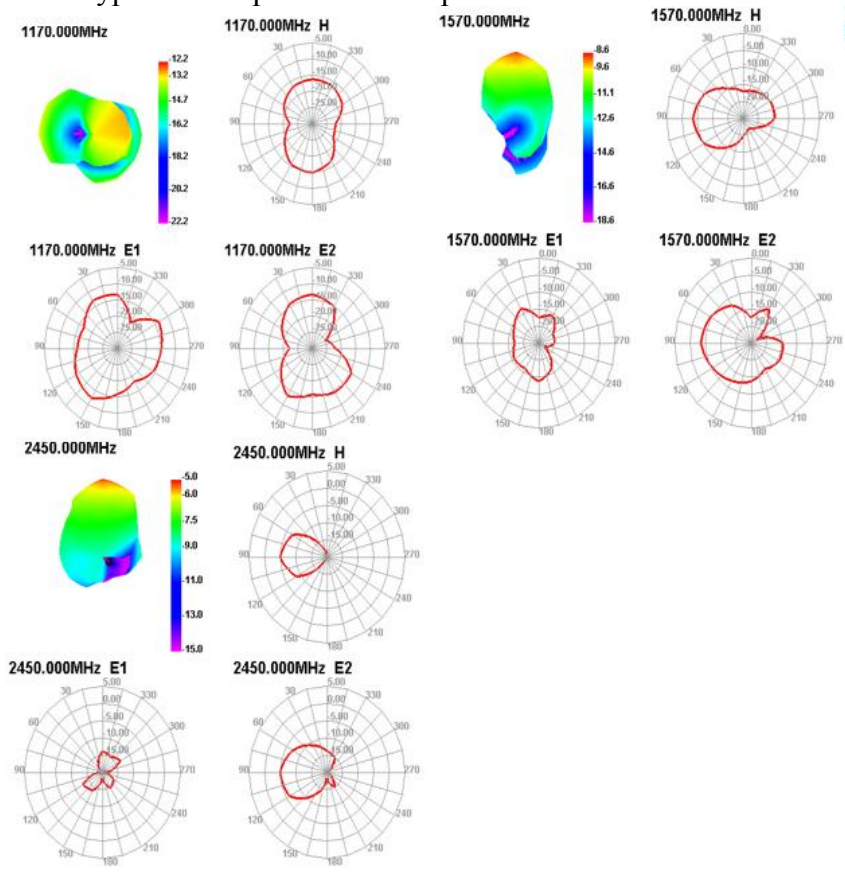
3.3.3 Max Gain

Antenna Gain	
GPS L1	-8.5dBi
GPS L5	-12.2dBi
BT	-4.6dBi

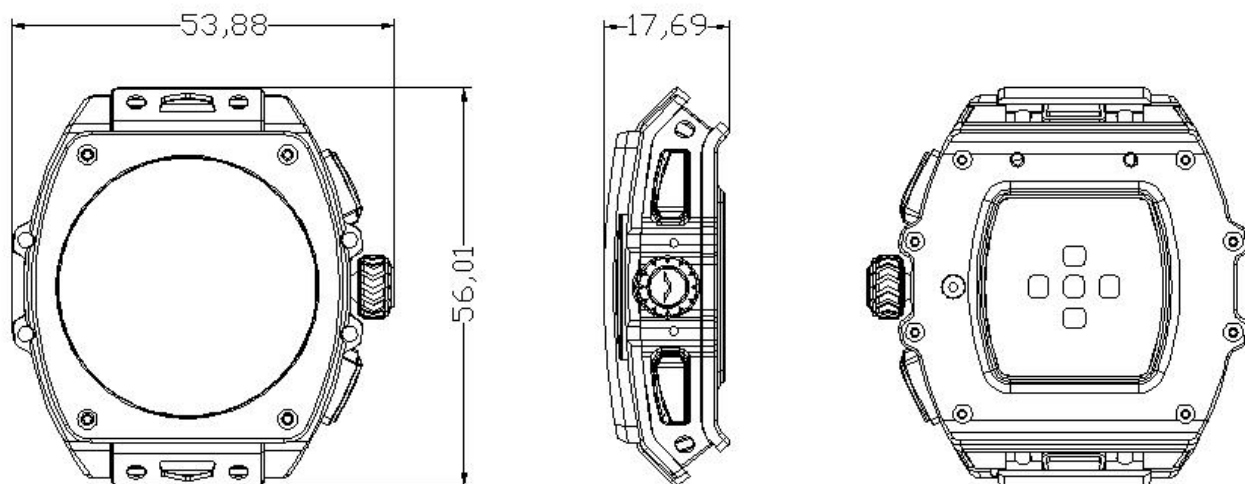
3.3.4 Typical free space efficiency and gain

			BT		
			Freq (MHz)	Effi (%)	Gain (dBi)
GPS			2400	5.7	-4.79
Freq (MHz)	Effi (%)	Gain (dBi)	2410	4.71	-5.69
1170	2.56	-12.23	2420	5.24	-5.06
1180	2.62	-12.46	2430	4.81	-5.41
1560	3.84	-8.61	2440	5.78	-4.64
1570	3.83	-8.64	2450	5.32	-4.96
1580	3.94	-8.53	2460	5.31	-4.98
1590	3.87	-8.58	2470	4.59	-5.69
1600	3.68	-8.85	2480	5.62	-4.75
1610	3.7	-8.97	2490	4.86	-5.54
			2500	5.62	-5.03

3.3.5 Typical free space radiation patter



4. Product specifications



5. Environmental regulations and packaging

Operating Temperature Range: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$

Storage Temperature Range: $-40^{\circ}\text{C} \sim +120^{\circ}\text{C}$

Antenna be exposed in a 35°C , 5% salt fog chamber for 24 hours then check the appearance and performance

against the specifications in normal temperature.

The antenna is subjected to the following test:

Temperatures:

$+70^{\circ}\text{C}$ and 90%--95%RH

Test Duration:

24 Hours

The antenna should not undergo any structural or functional change and remain within the electrical/mechanical specification.

The antennas will be packed in bags, There are 200 or 500 antennas per bag. The bags are packed in corrugated fibreboard over box.