

# TEST REPORT

**Applicant:** Titan Company Limited  
**Address:** Integrity, #193, Veerasandra, Electronics City P.O.,  
Off Hosur Main Road Bangalore, India, 560100  
**Equipment Type:** Smart watch  
**Model Name:** 38082  
**Brand Name:** N/A  
**Test Standard:** IEEE Std 149-2021  
**Sample Arrival Date:** Jan. 12, 2023  
**Test Date:** Jan. 13, 2023  
**Date of Issue:** Jan. 31, 2023

**ISSUED BY:**

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Mai Jintian

*Mai Jintian*

**Checked by:** Zou Liu

*Zou Liu*

**Approved by:** Tolan Tu  
(Testing Director)

*Tolan Tu*

<b>Revision History</b>		
Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Jan. 31, 2023</u>	<u>Initial Issue</u>

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# 1 GENERAL INFORMATION

## 1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

## 1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	<input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	<input type="checkbox"/> 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China

## 2 PRODUCT INFORMATION

### 2.1 Applicant Information

Applicant	Titan Company Limited
Address	Integrity, #193, Veerasandra, Electronics City P.O., Off Hosur Main Road Bangalore, India, 560100

### 2.2 Manufacturer Information

Manufacturer	JIANGSU SOP TECHNOLOGY CO LTD
Address	D/F BLOCK 8 INTELLIGENT TERMINAL INDUSTRIAL PARK HI-TECH ZONE YANCHENG JIANGSU

### 2.3 General Description for Equipment under Test (EUT)

EUT Name	Smart watch
Model Name Under Test	38082
Antenna Type	Wire Antenna
Dimensions	18 mm

### 2.4 Ancillary Equipment

Note: Not applicable.

### 2.5 Technical Information

Test Frequencies	2400MHz, 2410MHz, 2420MHz, 2430MHz, 2440MHz, 2450MHz, 2460MHz, 2470MHz, 2480MHz, 2490MHz, 2500MHz
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### 3 SUMMARY OF TEST RESULTS

#### 3.1 Test Standards

No.	Identity	Document Title
1	IEEE Std 149-2021	IEEE Standard Test Procedures for Antennas

#### 3.2 Test Verdict

Report Section	Description	Remark
ANNEX A.1	Gain and Efficiency	--
ANNEX A.2	VSWR	--
ANNEX B	Radiation Pattern	--

#### 3.3 Test Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Item	Uncertainty
VSWR(S11)	$\pm 0.61$
Gain	$\pm 1.92\text{dB}$

## 4 GENERAL TEST CONFIGURATIONS

### 4.1 Test Condition

Environment Parameter	Selected Values During Tests			
	Ambient Pressure(KPa)	Temperature(°C)	Voltage	Relative Humidity (%)
Normal Temperature, Normal Voltage (NTNV)	101	21.9	N/A	51

### 4.2 Test Equipment List

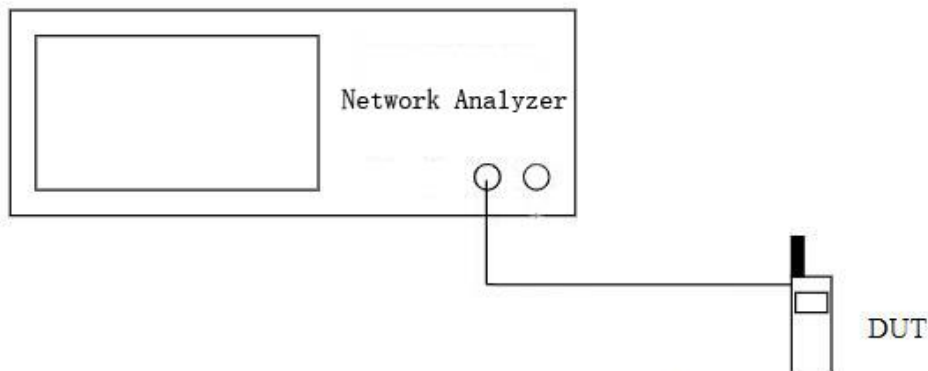
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
SG24 Multi-probe Antenna Measurement System	SATIMO	SG24-L	1101855-0001	2021.11.12	2024.11.11
Vector Network Analyzer	Agilent	E5071B	MY42404001	2022.04.02	2023.04.01
Description	Manufacturer	Name		Version	
Test Software	MVG	SPM		V 1.8	

### 4.3 Test Setup

#### 4.3.1 Antenna gain, efficiency and radiation pattern test setup



#### 4.3.2 S11 parameter test setup



## ANNEX A TEST RESULTS

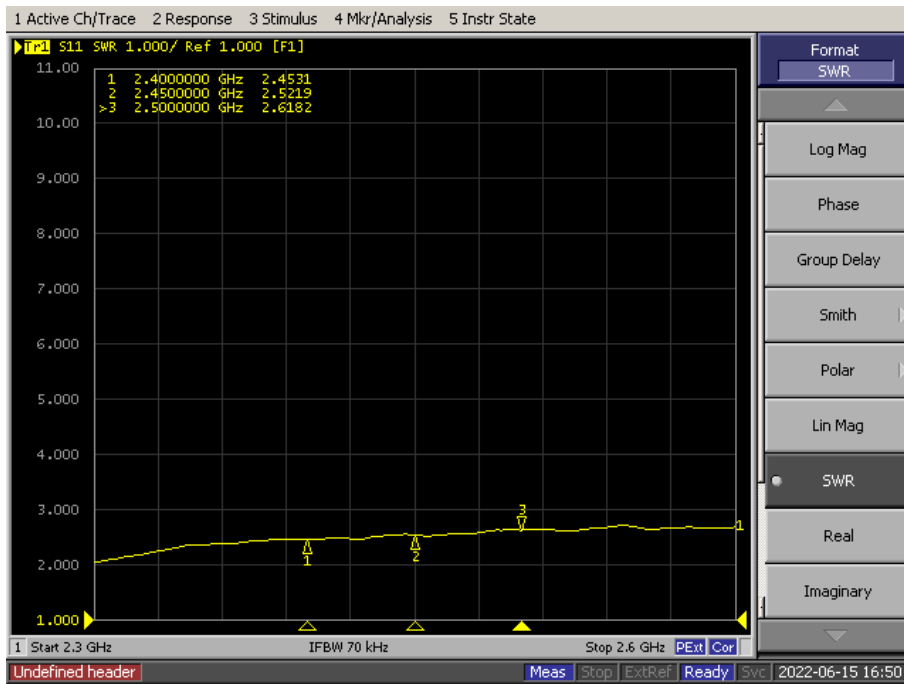
### A.1 Gain and Efficiency

Frequency	Gain (dBi)	Efficiency (%)
2400MHz	-1.01	23
2410MHz	<b>-0.91</b>	24
2420MHz	-0.98	24
2430MHz	-1.15	24
2440MHz	-1.22	25
2450MHz	-1.24	25
2460MHz	-1.30	25
2470MHz	-1.13	25
2480MHz	-1.23	<b>26</b>
2490MHz	-1.24	26
2500MHz	-1.07	25



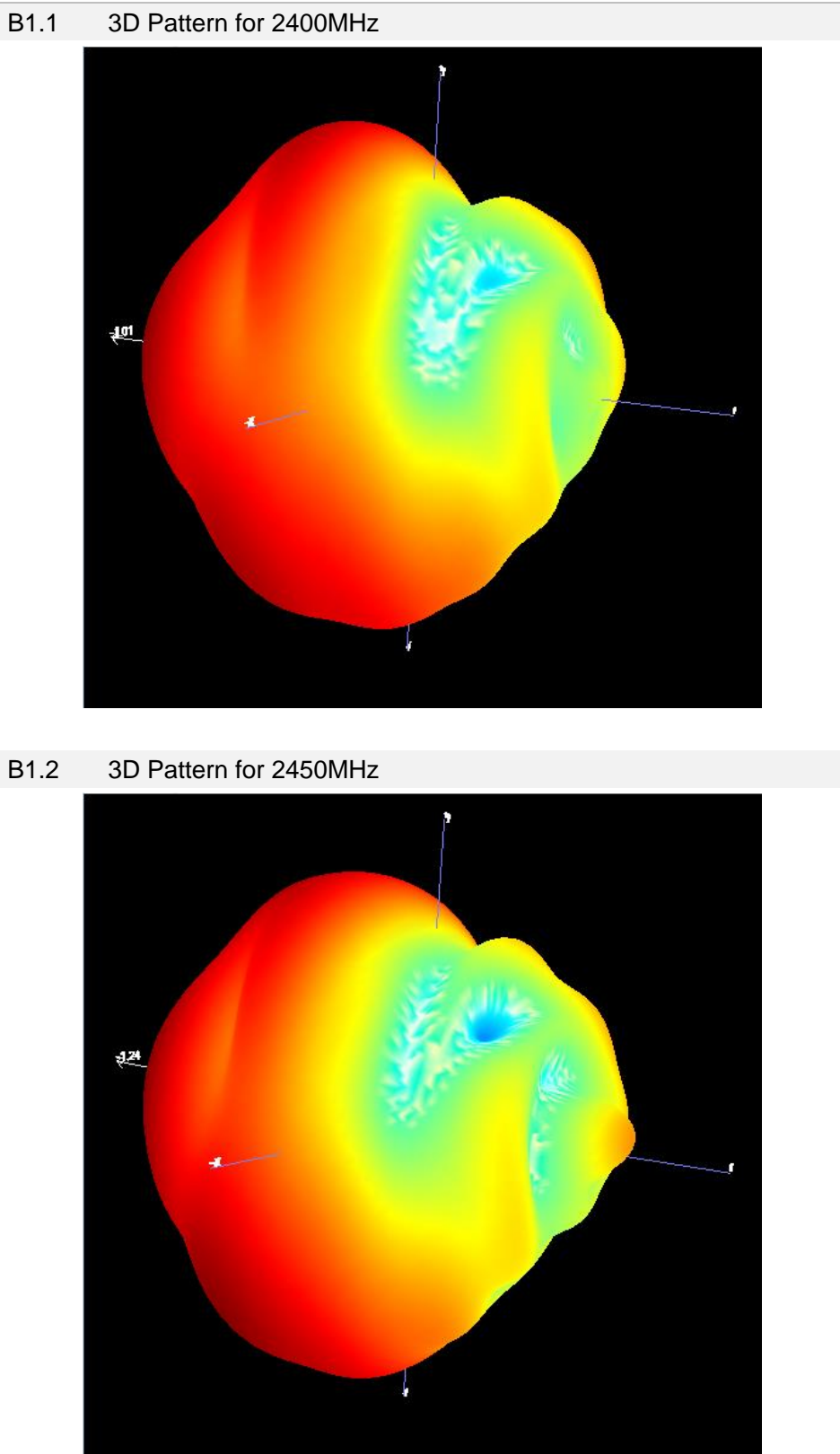
## A.2 VSWR

Frequency	VSWR
2400MHz	2.45
2450MHz	2.52
2500MHz	2.62

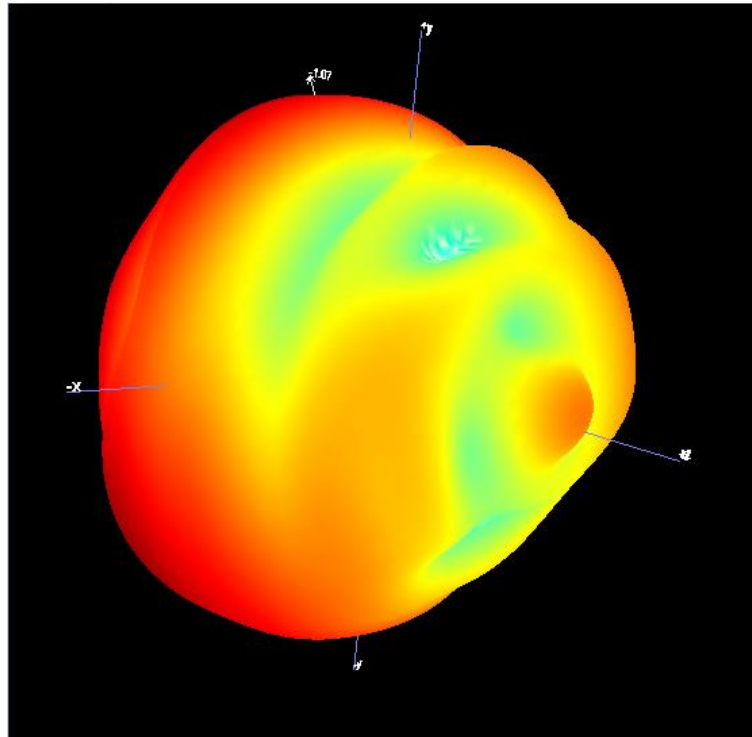


## ANNEX B RADIATION PATTERN

### B.1 3D Pattern

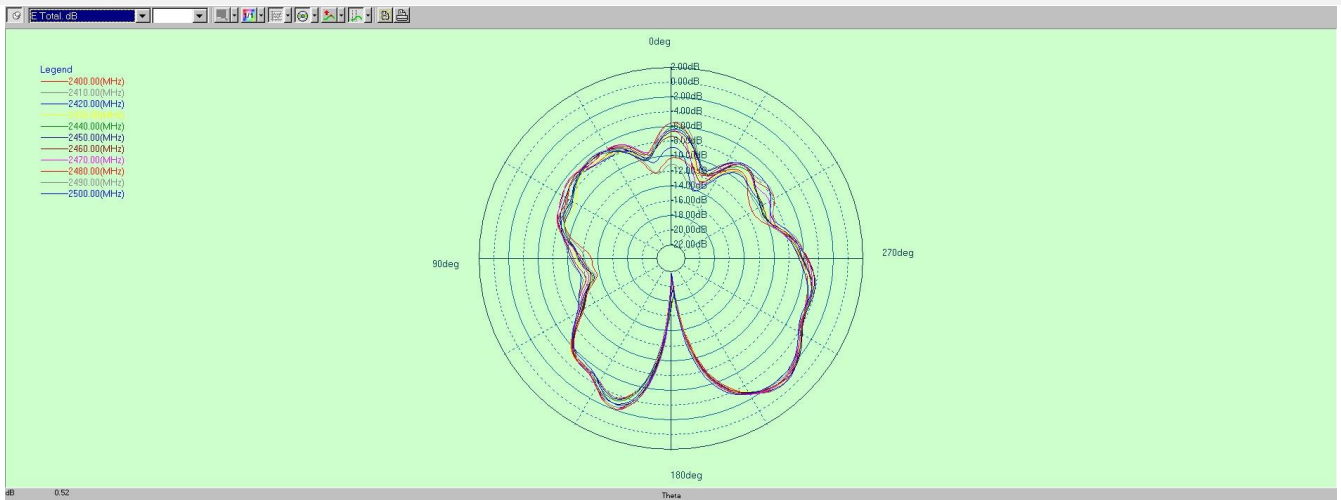


B1.3 3D Pattern for 2500MHz

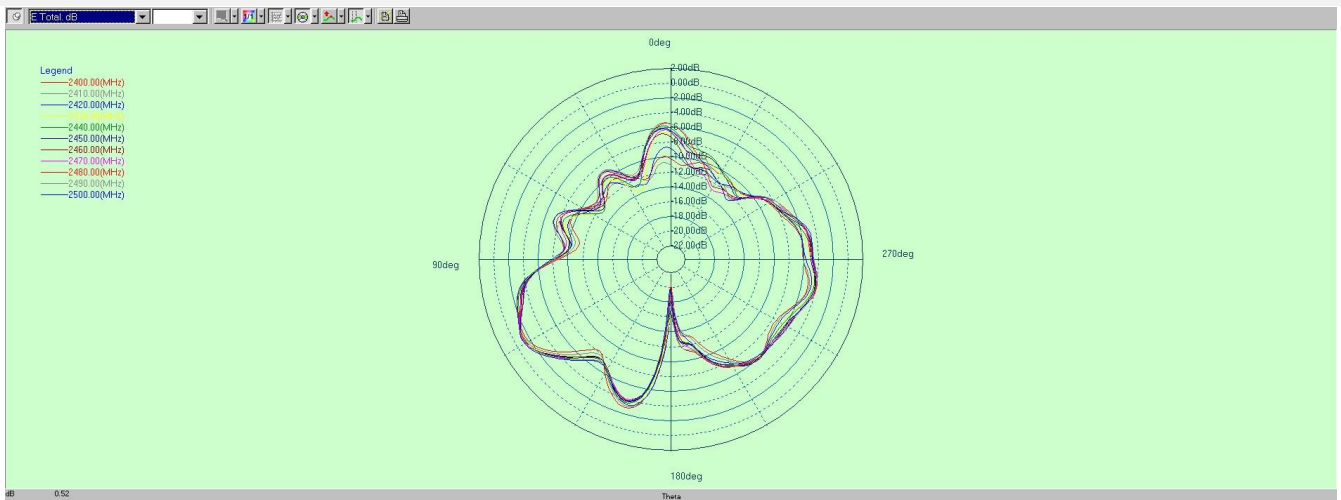


## B.2 1D Radiation Pattern

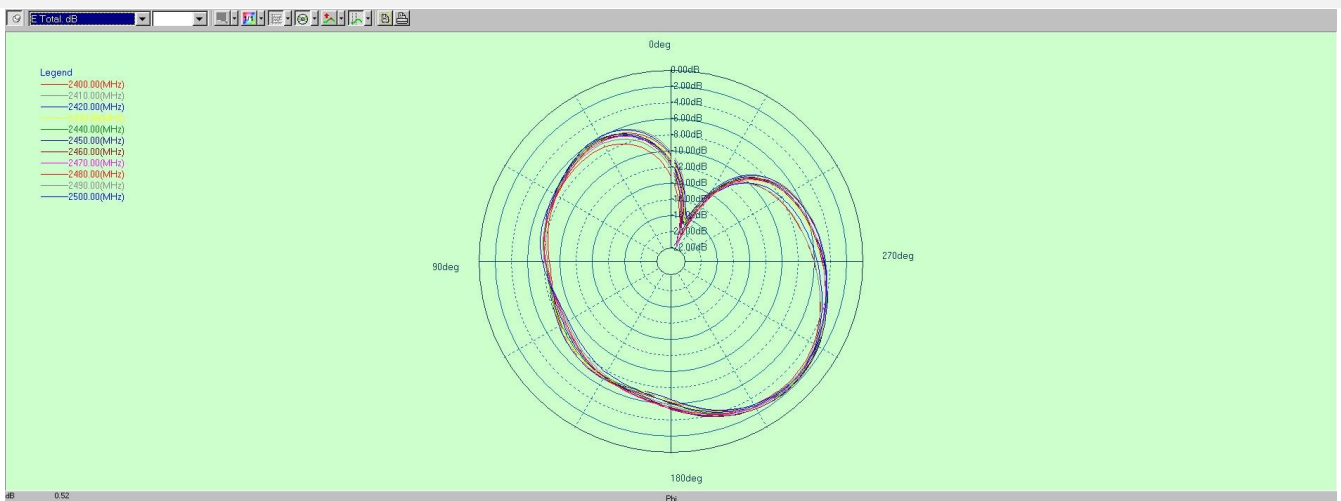
### B2.1 PHI=0



### B2.2 PHI=90



### B2.3 THETA=90



## **ANNEX C TEST SETUP PHOTOS**

Please refer the document “BL-SZ2310466-AO.PDF”.

## **ANNEX D EUT PHOTO**

Please refer the document “BL-SZ2310466-AA.PDF”.

## Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
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7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--END OF REPORT--