

TEST REPORT

Applicant: Shenzhen Boyi Innovation Technology Co., Ltd
Address: North, 5 / F, Building 3, Tea West, Zone A, Huafeng
First Science Park, Hangcheng Street, Baoan
District, Shenzhen
Equipment Type: SE69D-BYKC(E7EC) A6 97
Model Name: SE69D V11 DICE
Brand Name: Boyi scientific and technological innovation
Test Standard: IEEE Std 149-2021
Sample Arrival Date: May 14, 2024
Test Date: May 14, 2024
Date of Issue: May 16, 2024

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Mai Jintian**Checked by:** Xia Long**Approved by:** Tolan Tu
(Testing Director)*Mai Jintian**Xia Long**Tolan Tu*

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>May 16, 2024</u>	<u>Initial Issue</u>

TABLE OF CONTENTS

1 GENERAL INFORMATION 3

1.1 Test Laboratory 3

1.2 Test Location..... 3

2 PRODUCT INFORMATION..... 4

2.1 Applicant Information 4

2.2 Manufacturer Information 4

2.3 General Description for Equipment under Test (EUT) 4

2.4 Ancillary Equipment 4

2.5 Technical Information..... 4

3 SUMMARY OF TEST RESULTS..... 5

3.1 Test Standards..... 5

3.2 Test Verdict 5

3.3 Test Uncertainty 5

4 GENERAL TEST CONFIGURATIONS..... 6

4.1 Test Condition 6

4.2 Test Equipment List 6

4.3 Test Setup..... 7

4.4 Test Frequencies 7

ANNEX A TEST RESULTS..... 8

A.1 Gain and Efficiency 8

ANNEX B RADIATION PATTERN 9

ANNEX C TEST SETUP PHOTO 12

ANNEX D EUT PHOTO 13

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	☒ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 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	Shenzhen Boyi Innovation Technology Co., Ltd
Address	North, 5 / F, Building 3, Tea West, Zone A, Huafeng First Science Park, Hangcheng Street, Baoan District, Shenzhen
Contact Person	Wang Weiyuan
Telephone Number	18675575732
E-mail Address	sparkwang2008@126.com

2.2 Manufacturer Information

Manufacturer	Shenzhen Boyi Innovation Technology Co., Ltd
Address	North, 5 / F, Building 3, Tea West, Zone A, Huafeng First Science Park, Hangcheng Street, Baoan District, Shenzhen

2.3 General Description for Equipment under Test (EUT)

EUT Name	SE69D-BYKC(E7EC) A6 97
Model Name Under Test	SE69D V11 DICE
Antenna Type	PCB Antenna
Dimensions	9*1mm

2.4 Ancillary Equipment

Note: Not applicable.

2.5 Technical Information

Frequency Range	2402MHz ~ 2480MHz
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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 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)	± 0.61
Gain	$\pm 1.92\text{dB}$

4 GENERAL TEST CONFIGURATIONS

4.1 Test Condition

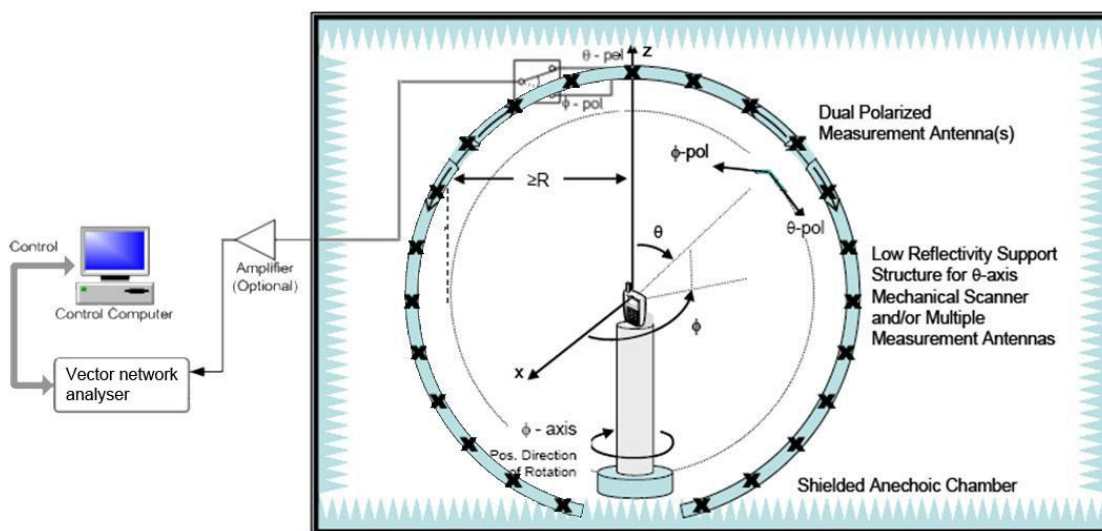
Environment Parameter	Selected Values During Tests			
	Ambient Pressure(KPa)	Temperature(°C)	Voltage	Relative Humidity (%)
Normal Temperature, Normal Voltage (NTNV)	100 to 102	21.7	N/A	44

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	2024.01.16	2025.01.15
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



4.4 Test Frequencies

Test Frequencies	2402MHz, 2440MHz, 2480MHz
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ANNEX A TEST RESULTS

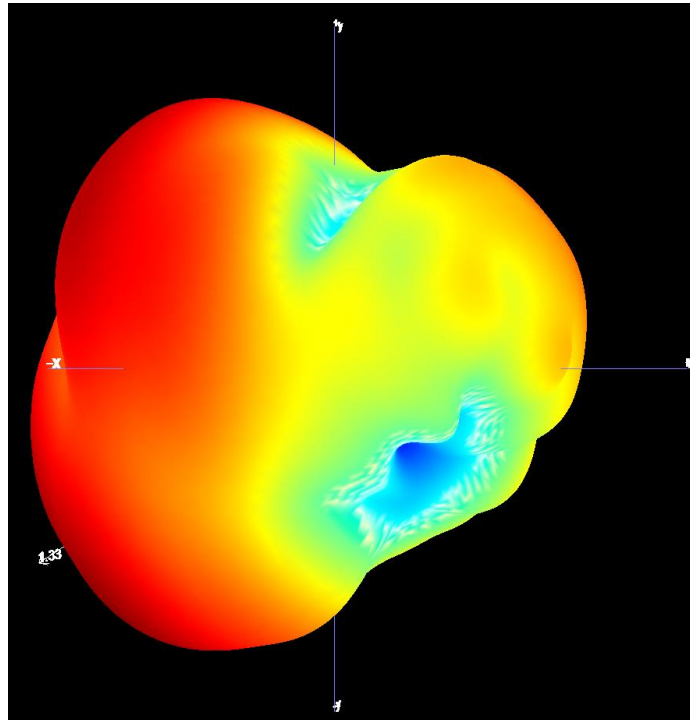
A.1 Gain and Efficiency

Frequency	Gain (dBi)	Efficiency (%)
2402MHz	1.33	40
2440MHz	1.69	42
2480MHz	1.71	43

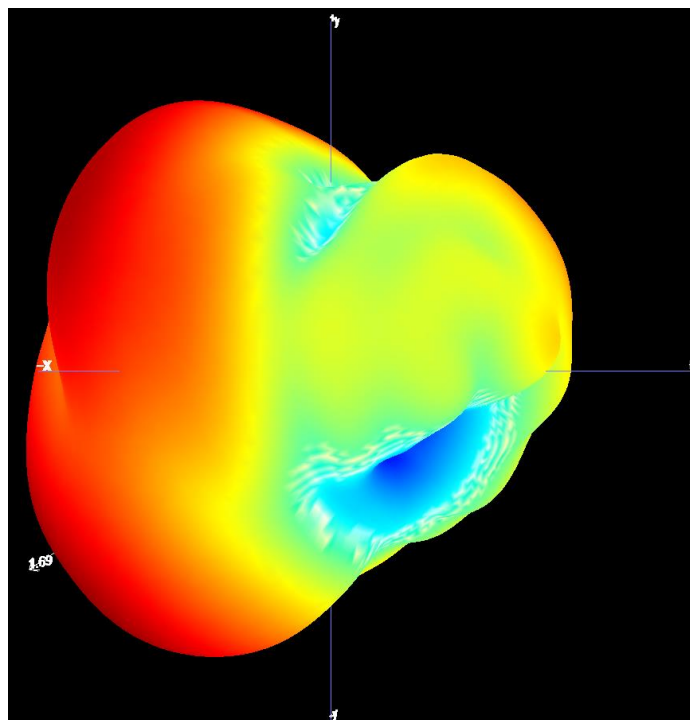
ANNEX B RADIATION PATTERN

B.1 3D Pattern

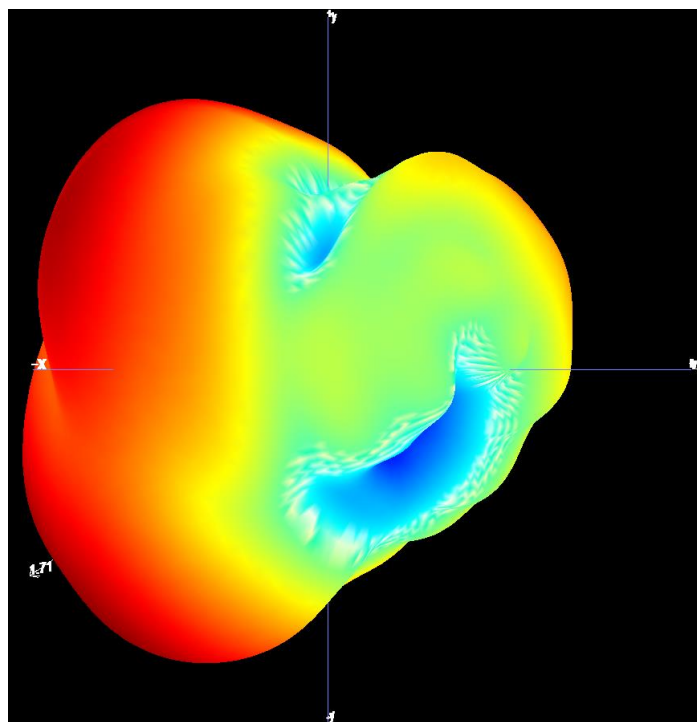
B1.1 3D Pattern for 2402MHz



B1.2 3D Pattern for 2440MHz



B1.3 3D Pattern for 2480MHz

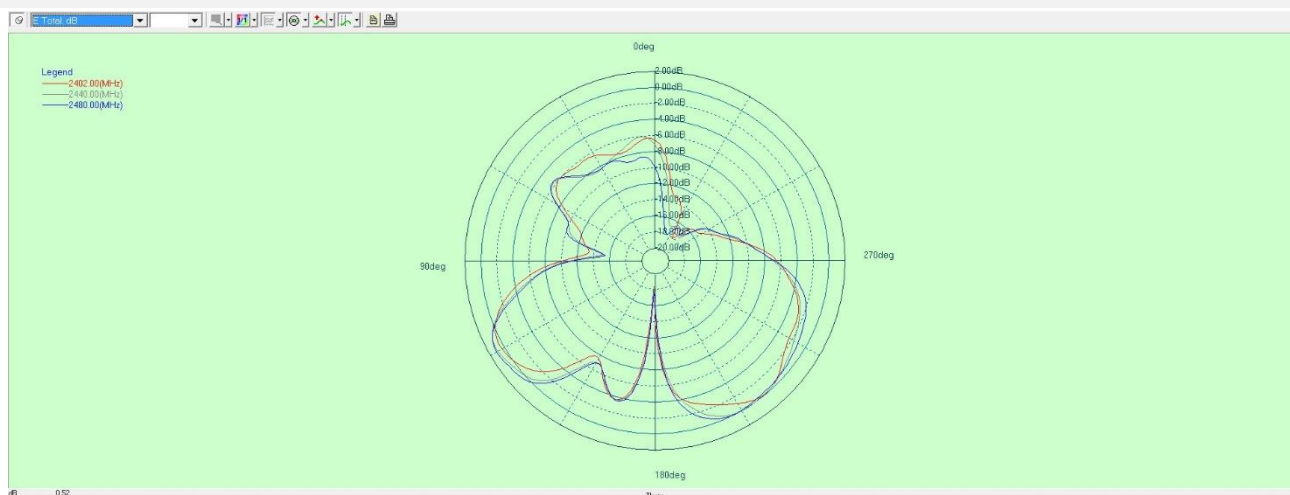


B.2 1D Radiation Pattern

B2.1 PHI=0



B2.2 PHI=90



B2.3 THETA=90



Statement

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--END OF REPORT--