



REPORT No.: SZ24080021E01

TEST REPORT

APPLICANT : GP Electronics (SZ) Limited

PRODUCT NAME : FPC Antenna (Dipole Type) of GPE Bluetooth BK32881 Module

MODEL NAME : C4207-810023-A(SSR-2400194)-X3
C4207-810024-A(SSR-2400191)-X3

TRADE NAME : MGear

BRAND NAME : N/A

STANDARD(S) : IEEE Std 149-2021

RECEIPT DATE : 2024-08-01

TEST DATE : 2024-08-06

ISSUE DATE : 2024-08-15

Edited by:

Mao Rujie(Rapporteur)

Approved by:

Chi Shide(Supervisor)

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Change History		
Version	Date	Reason for change
1.0	2024-08-15	First edition



1. Technical Information

Note: Provide by applicant.

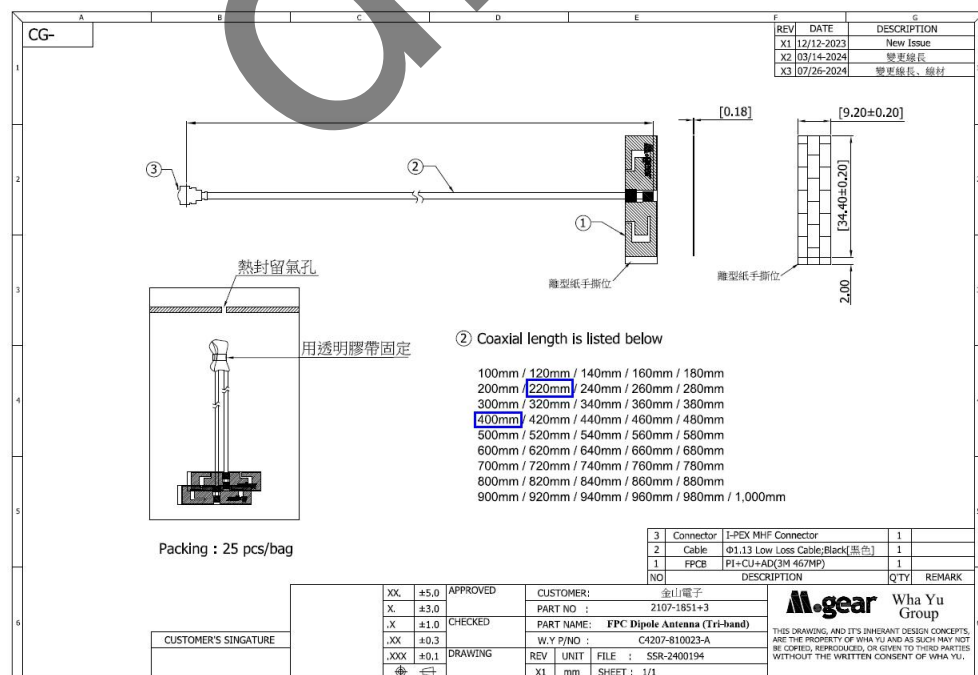
1.1. Applicant and Manufacturer Information

Applicant:	GP Electronics (SZ) Limited
Applicant Address:	15/F, T1 Building, Shumyip Upperhills, No.5001 Huanggang RD, Futian District, Shenzhen, Guangdong, China (Postal Code: 518038)
Manufacturer:	GP Electronics (Huizhou) Co., Ltd.
Manufacturer Address:	(BOSSMING Technology Park) No.3, Xing Ping East Road, Dong Jiang Science & Technology Park, Zhong Kai Hi-Tech Ind. Dev. Zone, Huizhou, Guangdong, China (Postal Code: 516255)
Factory:	N/A
Factory Address:	N/A

1.2. Equipment Under Test (EUT) Description

Wireless Type	Bluetooth
Frequency	2400MHz-2500MHz
IMEI	N/A
Sample No.	1#&2#

Dimensions:



2. Test Results

2.1. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	IEEE Std 149-2021	IEEE Recommended Practice for Antenna Measurements

2.2. Test Conditions

Test Environment Conditions:

Relative Humidity(%):	25 - 75
Temperature(°C):	10 - 30

2.3. Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in Measurement” (GUM) published by ISO. When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% Confidence intervals.

2.4. Test Results lists

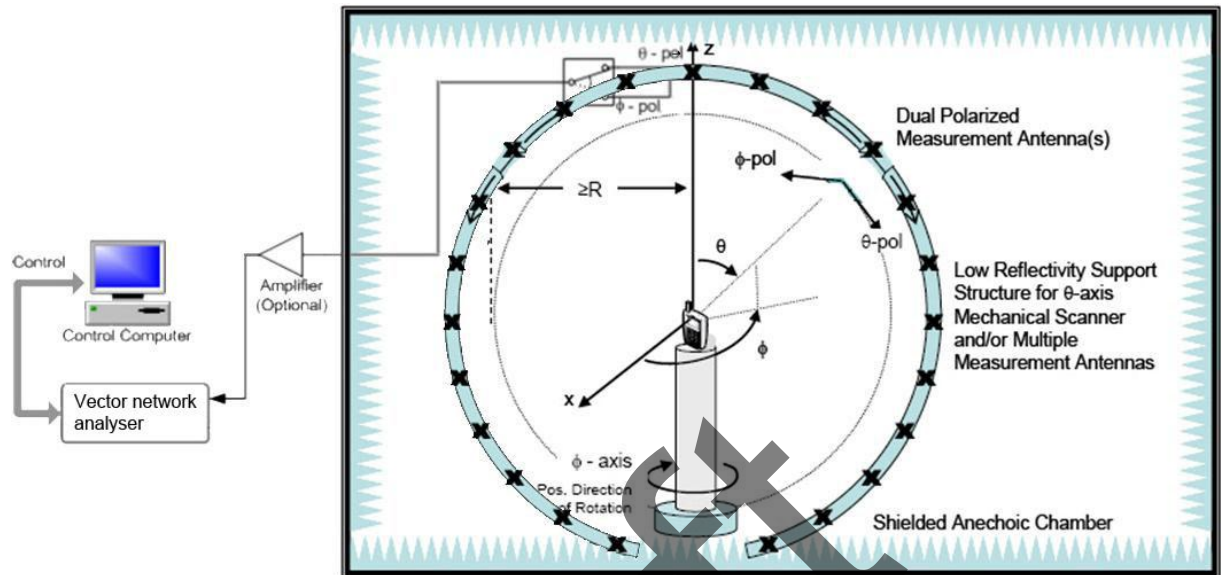
2.4.1. Gain

Frequency (MHz)	Gain(dBi)	
	C4207-810023-A (SSR-2400194)- X3	C4207-810024-A (SSR-2400191)- X3
2400	1.45	0.85
2410	1.29	0.53
2420	1.33	0.40
2430	1.47	0.58
2440	1.49	0.72
2450	1.66	0.84
2460	1.72	0.62
2470	1.63	0.58
2480	1.42	0.79
2490	1.13	0.92
2500	1.24	1.29

2.4.2. Return Loss

Frequency (MHz)	Return Loss(dB)	
	C4207-810023-A(SSR-2400194)-X3	C4207-810024-A(SSR-2400191)-X3
2400	-7.91	-8.56
2440	-8.38	-8.96
2480	-8.67	-9.63

Annex A Test Setup Photos



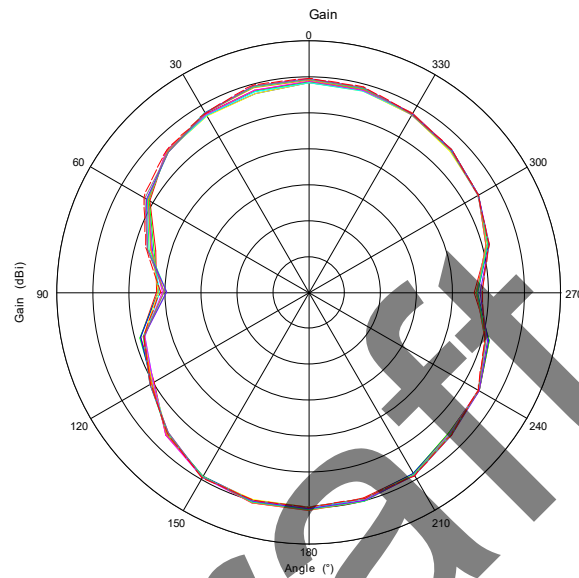


Annex B Figures

1. 2D Radiation Pattern

Phi=0°

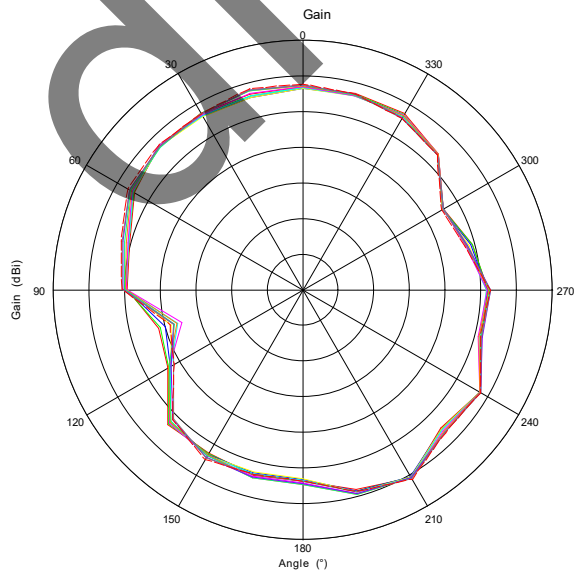
Max: 10
Min: -60
Scale: 10/div



2400.MHz
2410.MHz
2420.MHz
2430.MHz
2440.MHz
2450.MHz
2460.MHz
2470.MHz
2480.MHz
2490.MHz
2500.MHz

C4207-810023-A(SSR-2400194)-X3

Max: 10
Min: -60
Scale: 10/div



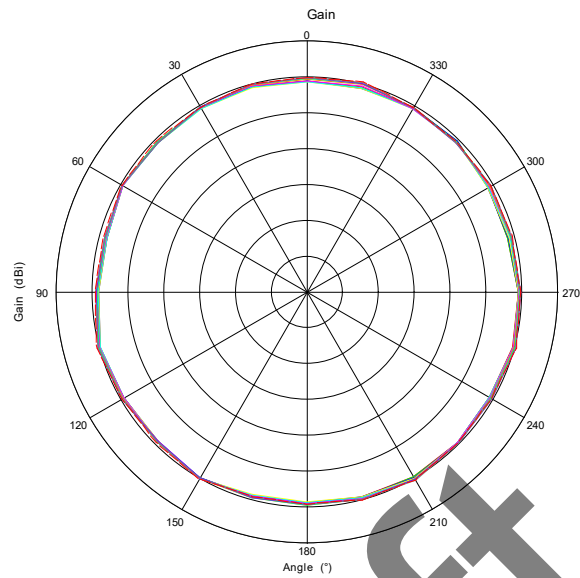
2400.MHz
2410.MHz
2420.MHz
2430.MHz
2440.MHz
2450.MHz
2460.MHz
2470.MHz
2480.MHz
2490.MHz
2500.MHz

C4207-810024-A(SSR-2400191)-X3



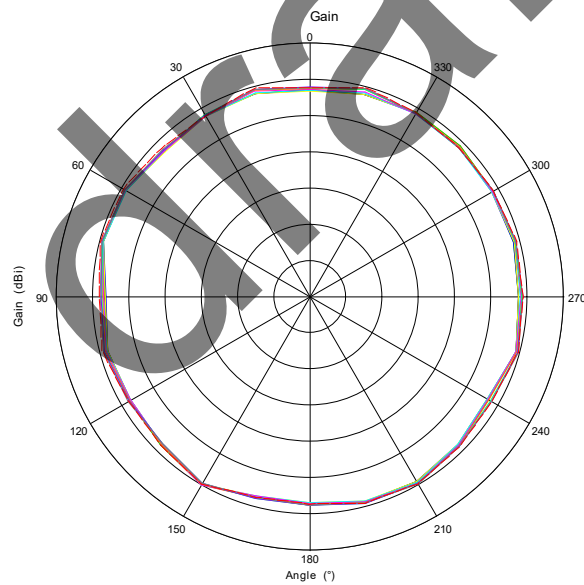
REPORT No.: SZ24080021E01

Phi=90°



2400 MHz
2410 MHz
2420 MHz
2430 MHz
2440 MHz
2450 MHz
2460 MHz
2470 MHz
2480 MHz
2490 MHz
2500 MHz

C4207-810023-A(SSR-2400194)-X3



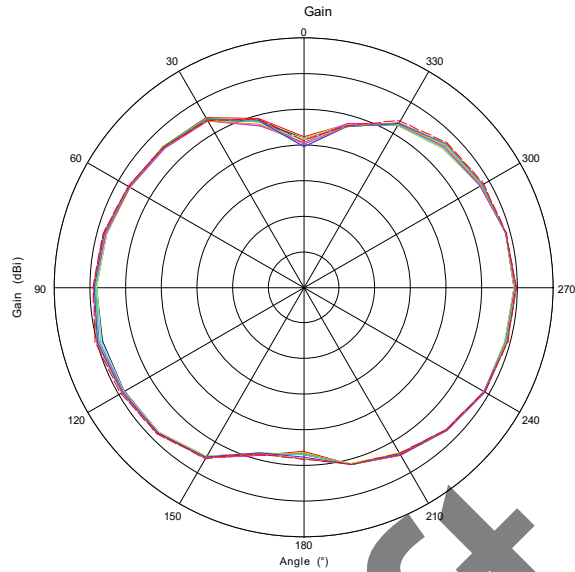
2400 MHz
2410 MHz
2420 MHz
2430 MHz
2440 MHz
2450 MHz
2460 MHz
2470 MHz
2480 MHz
2490 MHz
2500 MHz

C4207-810024-A(SSR-2400191)-X3



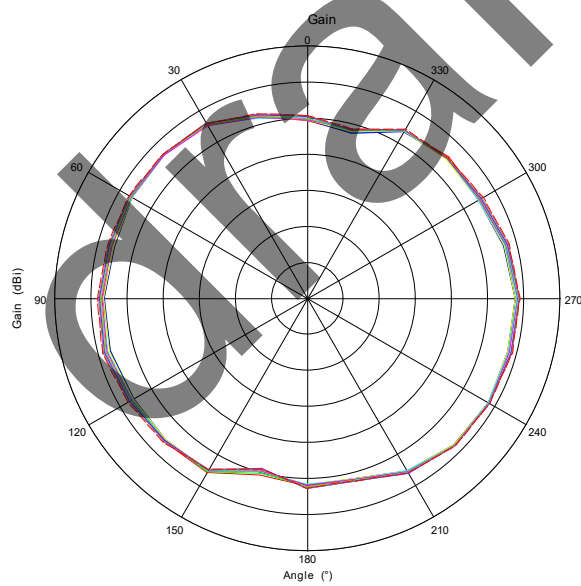
REPORT No.: SZ24080021E01

Theta=90°



2400 MHz
2410 MHz
2420 MHz
2430 MHz
2440 MHz
2450 MHz
2460 MHz
2470 MHz
2480 MHz
2490 MHz
2500 MHz

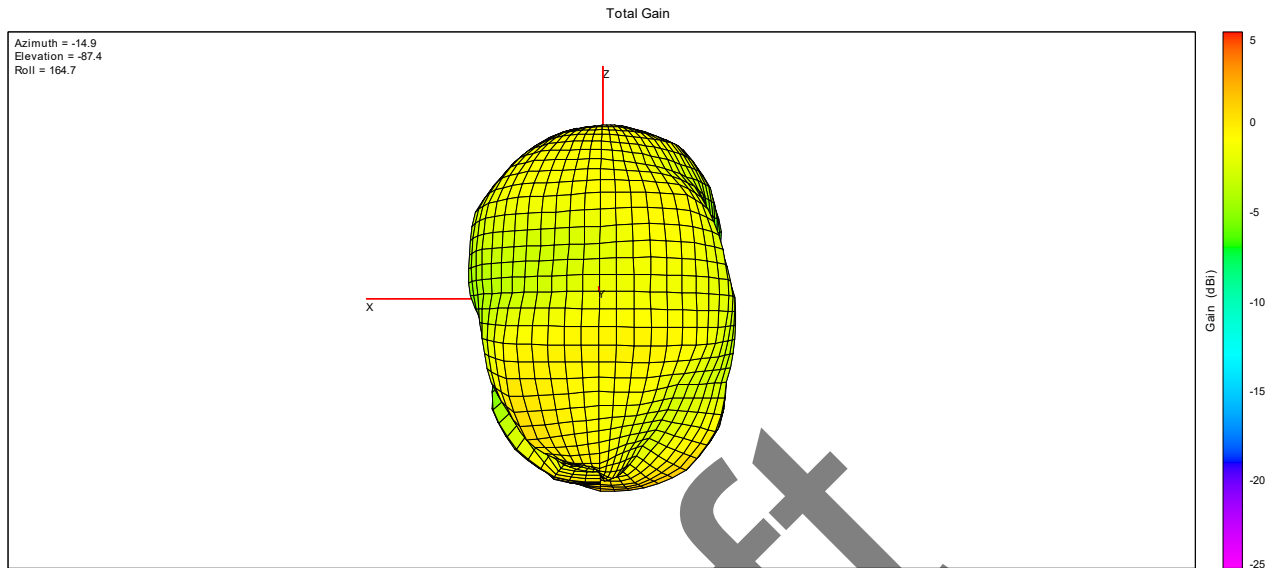
C4207-810023-A(SSR-2400194)-X3



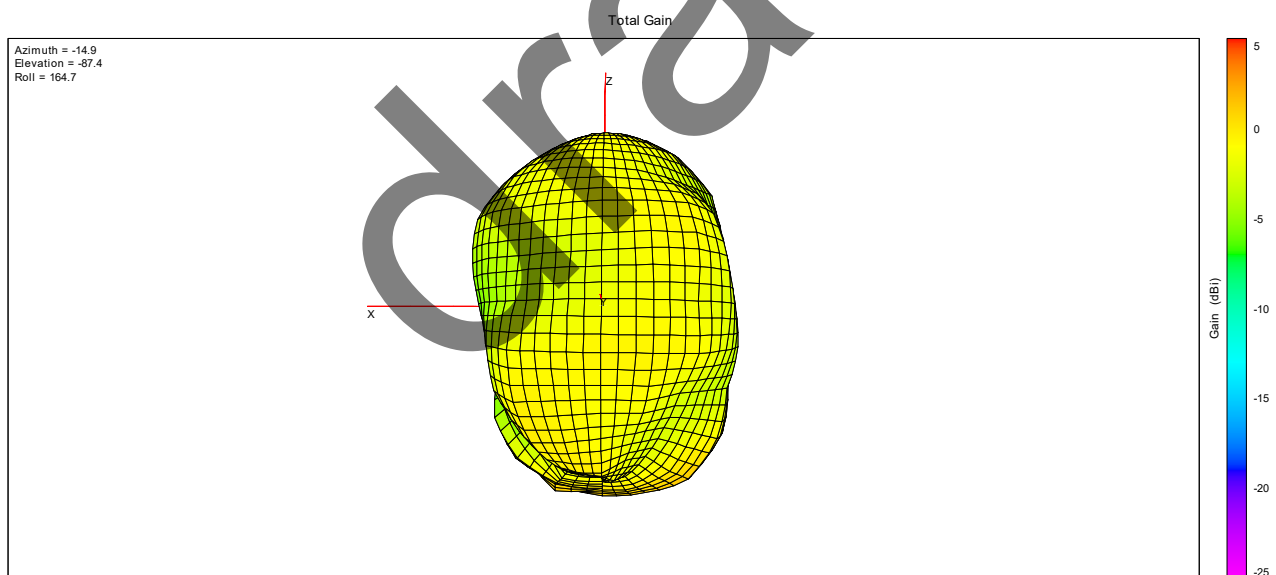
2400 MHz
2410 MHz
2420 MHz
2430 MHz
2440 MHz
2450 MHz
2460 MHz
2470 MHz
2480 MHz
2490 MHz
2500 MHz

C4207-810024-A(SSR-2400191)-X3

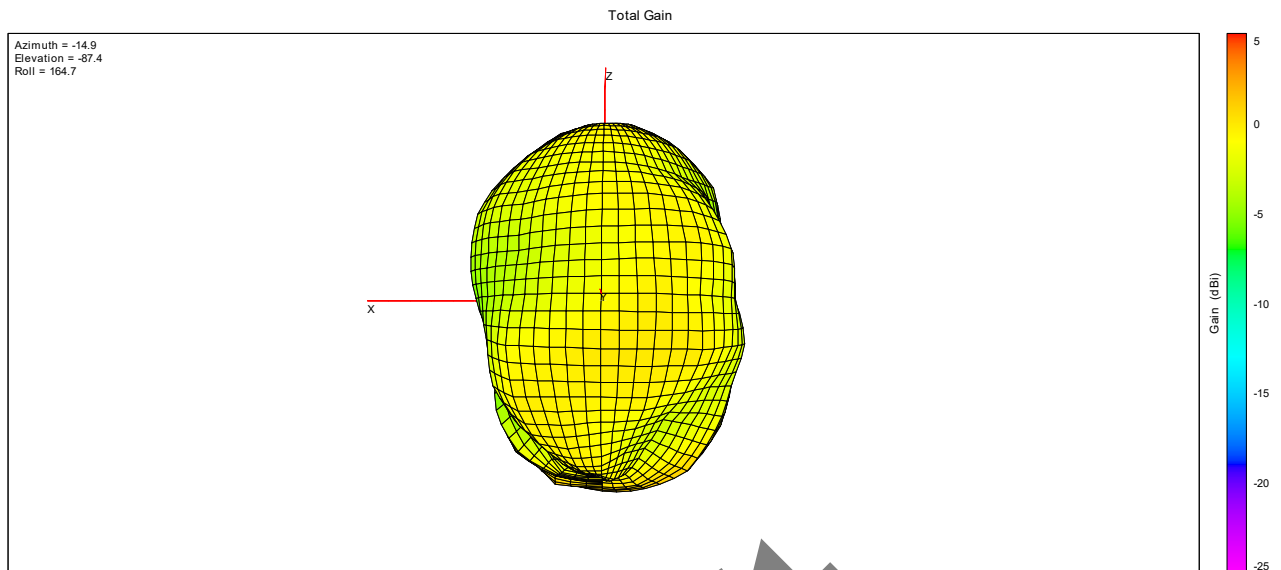
2. 3D Radiation Pattern



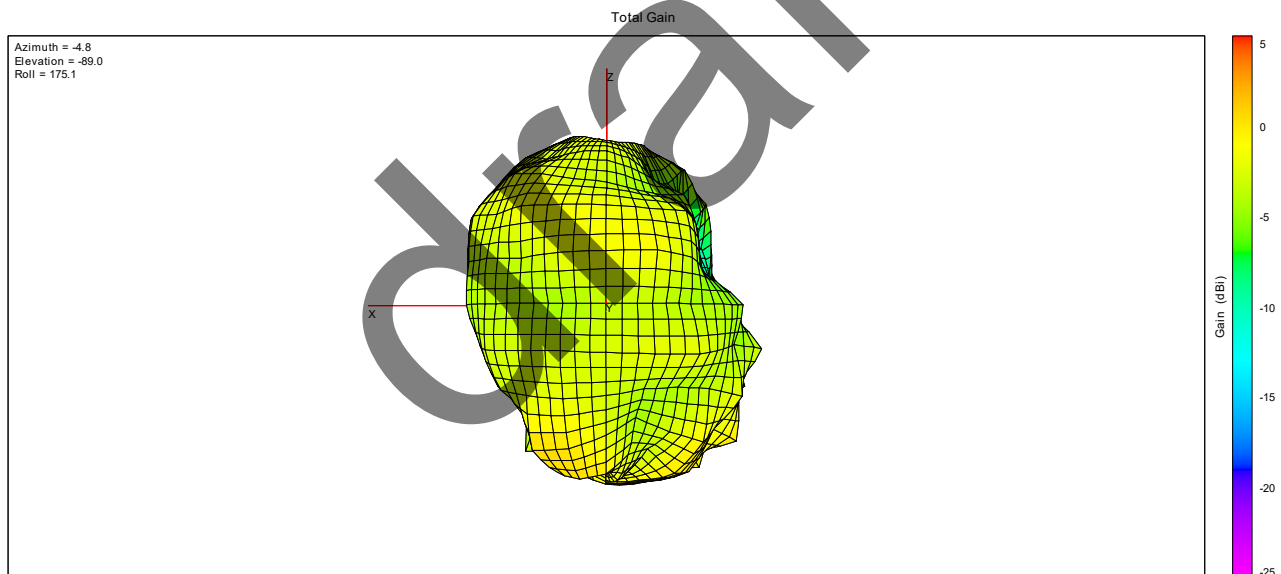
2400MHz_C4207-810023-A(SSR-2400194)-X3



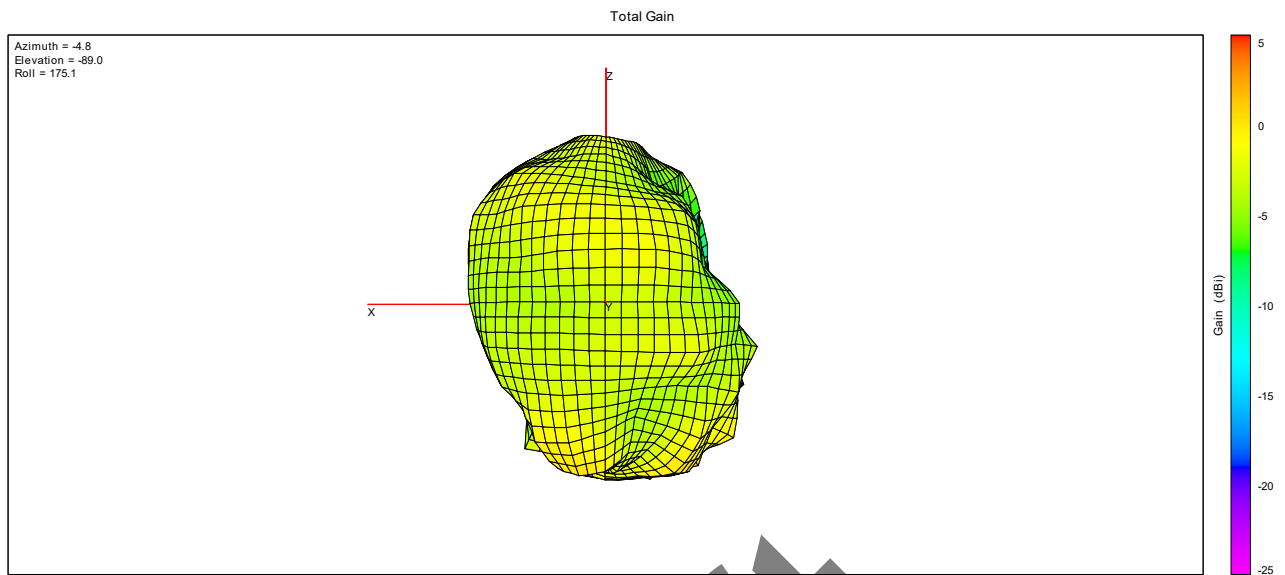
2440MHz_C4207-810023-A(SSR-2400194)-X3



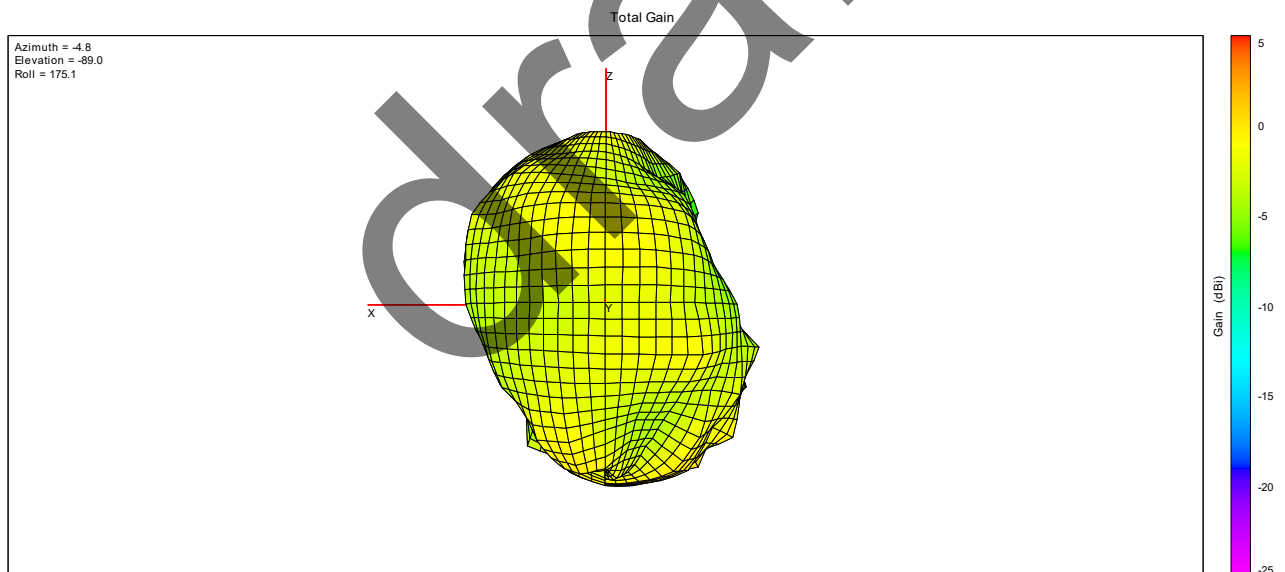
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2400MHz_C4207-810024-A(SSR-2400191)-X3



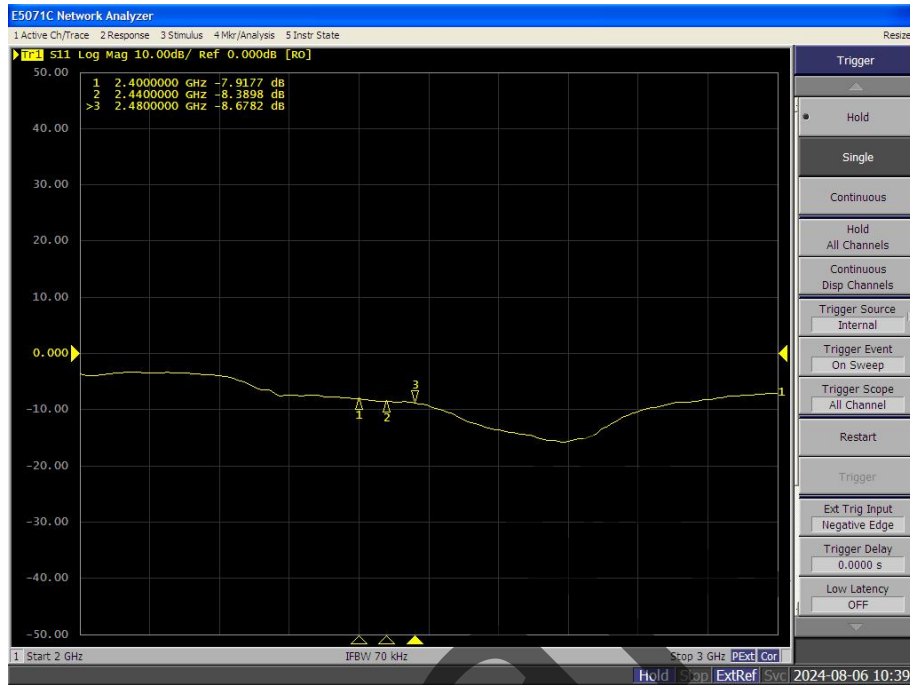
2440MHz_C4207-810024-A(SSR-2400191)-X3



2480MHz_C4207-810024-A(SSR-2400191)-X3



3. Return Loss



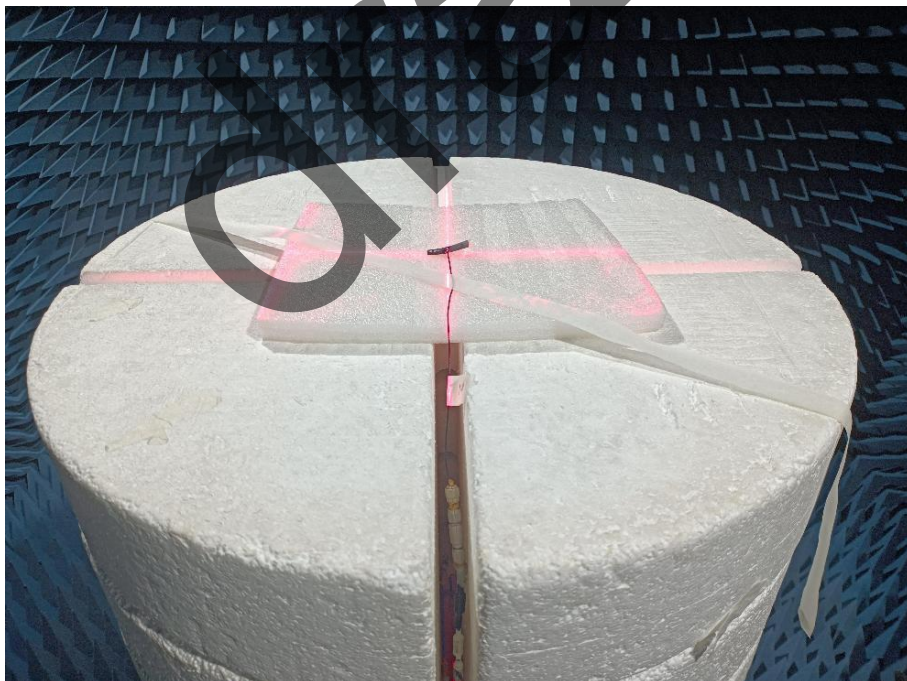
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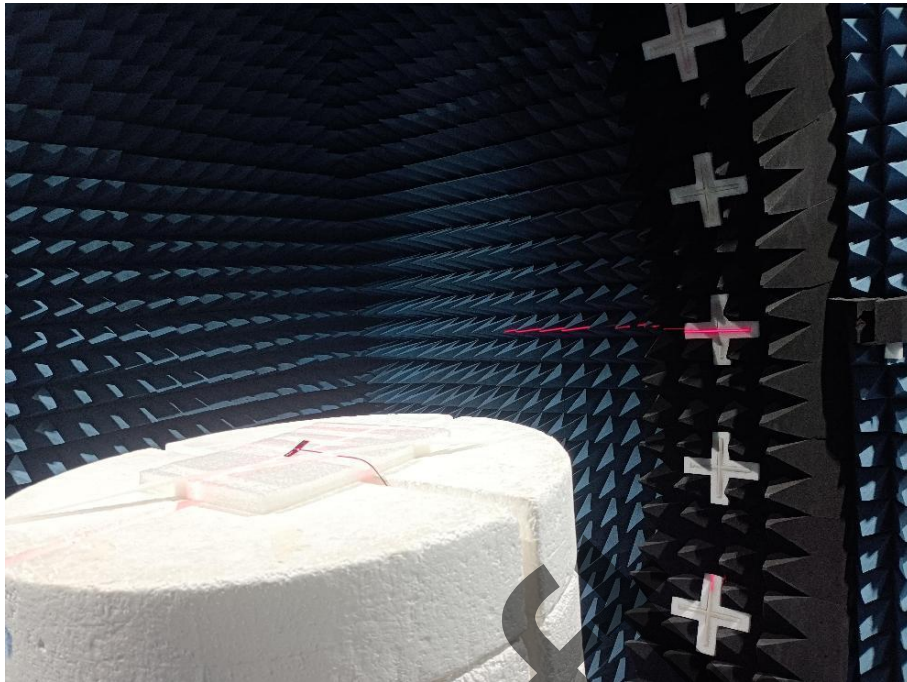
C4207-810024-A(SSR-2400191)-X3

Annex C EUT Photos

1. Test environment

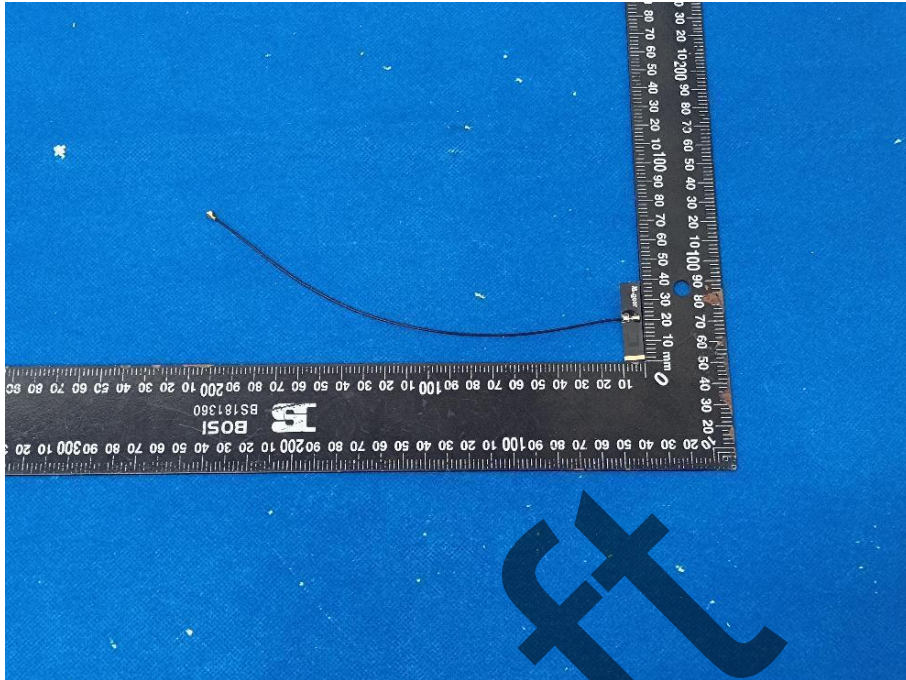


C4207-810023-A(SSR-2400194)-X3



C4207-810024-A(SSR-2400191)-X3

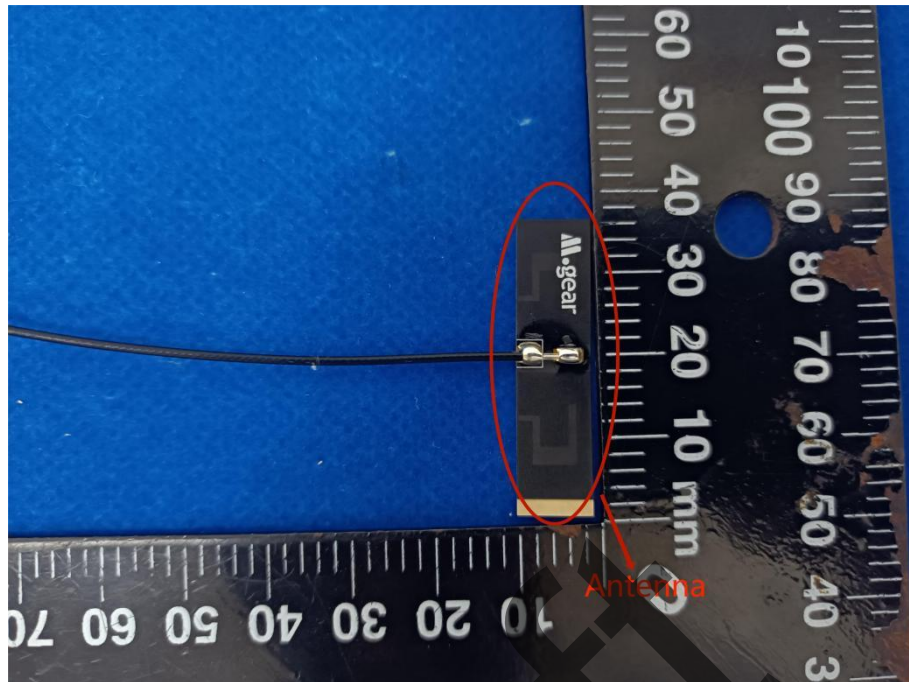
2. EUT



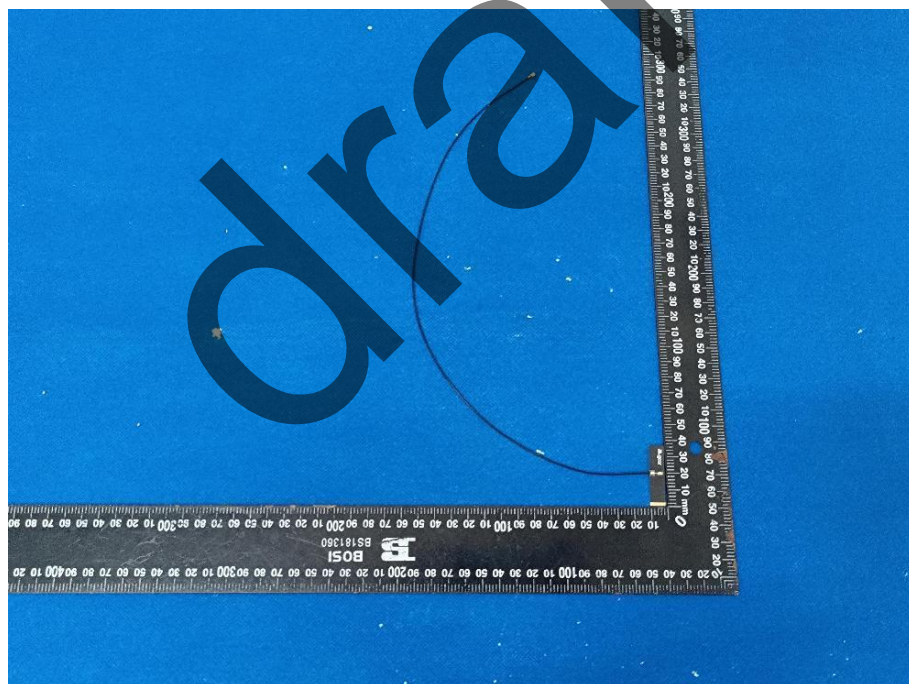
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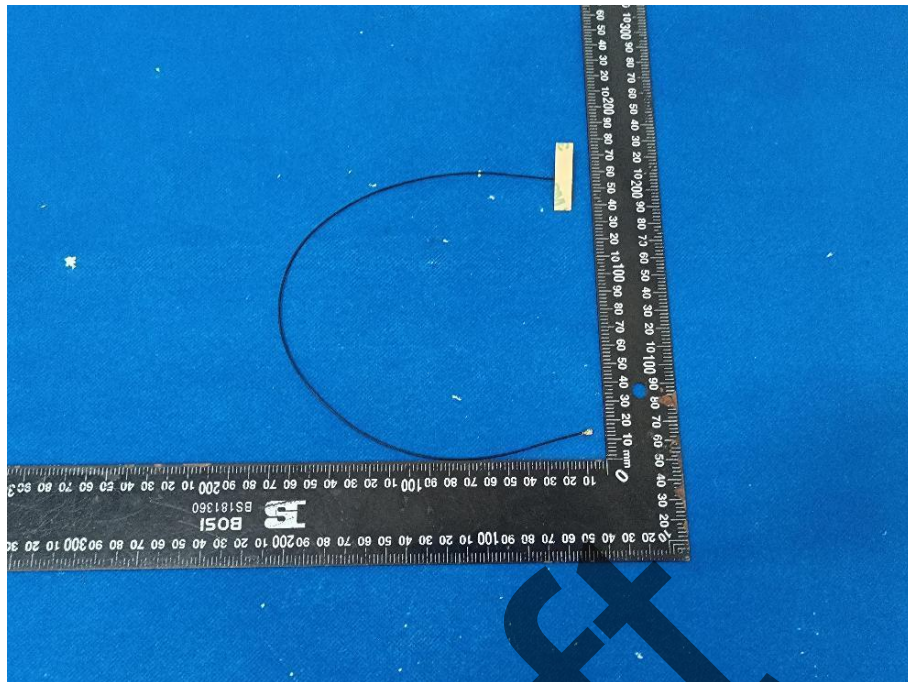
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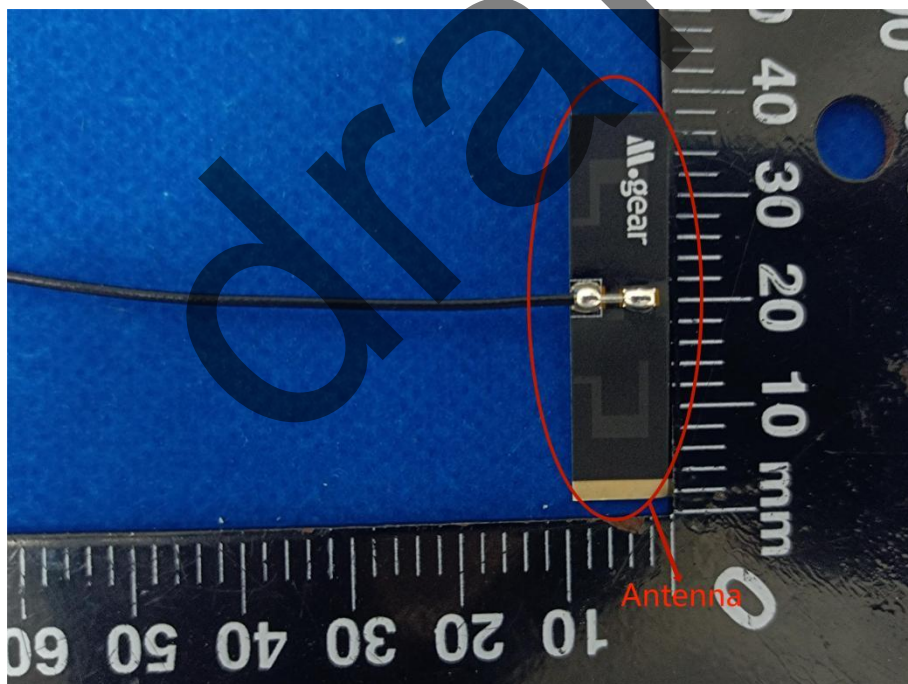
C4207-810023-A(SSR-2400194)-X3



C4207-810024-A(SSR-2400191)-X3



C4207-810024-A(SSR-2400191)-X3



C4207-810024-A(SSR-2400191)-X3



Annex D General Information

1.1 Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block67, BaoAn District, ShenZhen , Guangdong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

1.2 Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block67, BaoAn District, ShenZhen , Guangdong Province, P. R. China

1.3 Test Equipments Utilized

No.	Equipment Name	Serial No.	Type	Manufacturer	Cal.Date	Cal.Due Date
1	Network Analyzer	MY46110140	E5071C	Agilent	2024.05.30	2025.05.29
2	OTA Chamber	TJ2235-Q1793	AMS-8923 -150	ETS	2022.11.30	2025.11.29

1.4 Test Software Utilized

No.	Software Name	Serial No.	Version	Manufacturer
1	Antenna Measurement System	1685	EMQuest EMQ-100 V 1.13 Build 21267	ETS

————— END OF REPORT —————