



REPORT No.: SZ24070093E01

TEST REPORT

APPLICANT : GP Electronics (SZ) Limited

PRODUCT NAME : On-board PCB PIFA Antenna of Bluetooth BK32881L Module

MODEL NAME : 8902-0750

TRADE NAME : N/A

BRAND NAME : N/A

STANDARD(S) : IEEE Std 149-2021

RECEIPT DATE : 2024-07-11

TEST DATE : 2024-07-12

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MORLAB

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Change History		
Version	Date	Reason for change
1.0	2024-07-31	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:	GP Electronics & Acoustics Co., Ltd.
Factory Address:	No. 19/6,7 Moo 2, Bangkratuek Sub-District, Sampran District, Nakhon Pathom Province Thailand

1.2. Equipment Under Test (EUT) Description

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



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

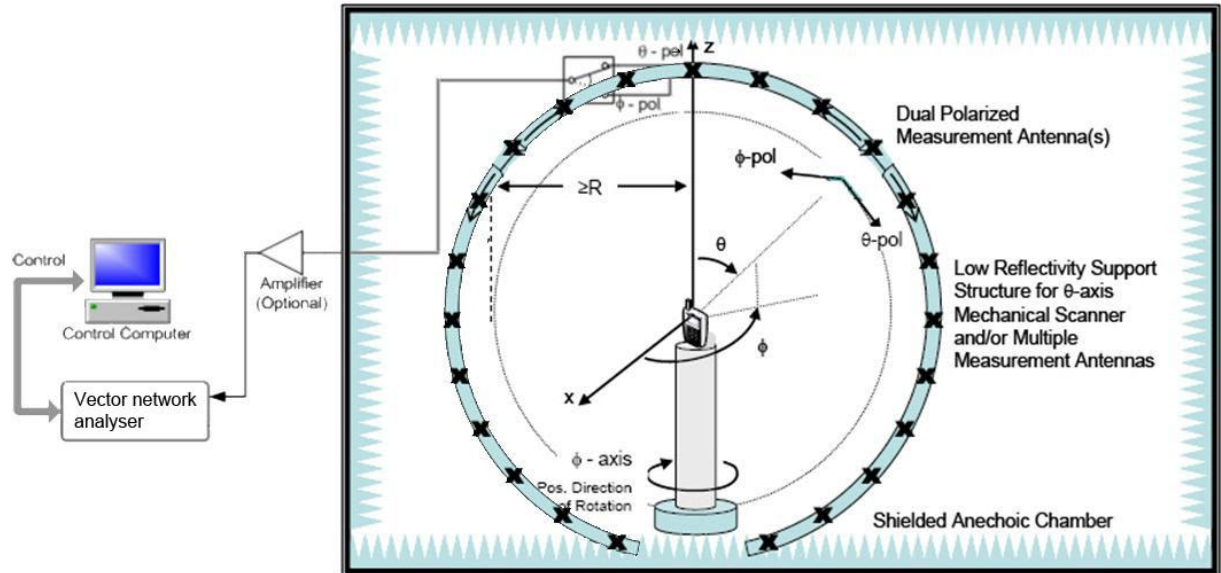
2.4.1. Gain

Frequency (MHz)	Gain(dBi)
2400	-8.11
2410	-8.64
2420	-8.94
2430	-9.15
2440	-9.22
2450	-9.23
2460	-9.64
2470	-10.07
2480	-10.05
2490	-10.02
2500	-9.99

2.4.2. Return Loss

Frequency (MHz)	Return Loss(dB)
2400	-2.25
2440	-1.97
2480	-1.87

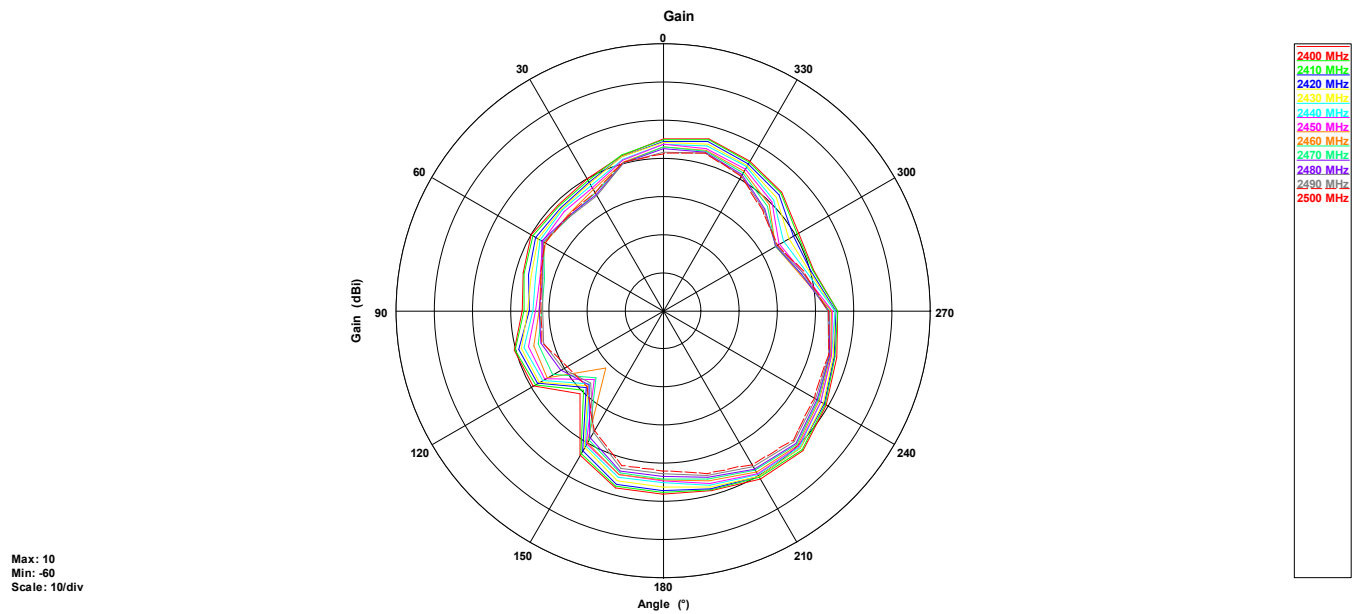
Annex A Test Setup Photos



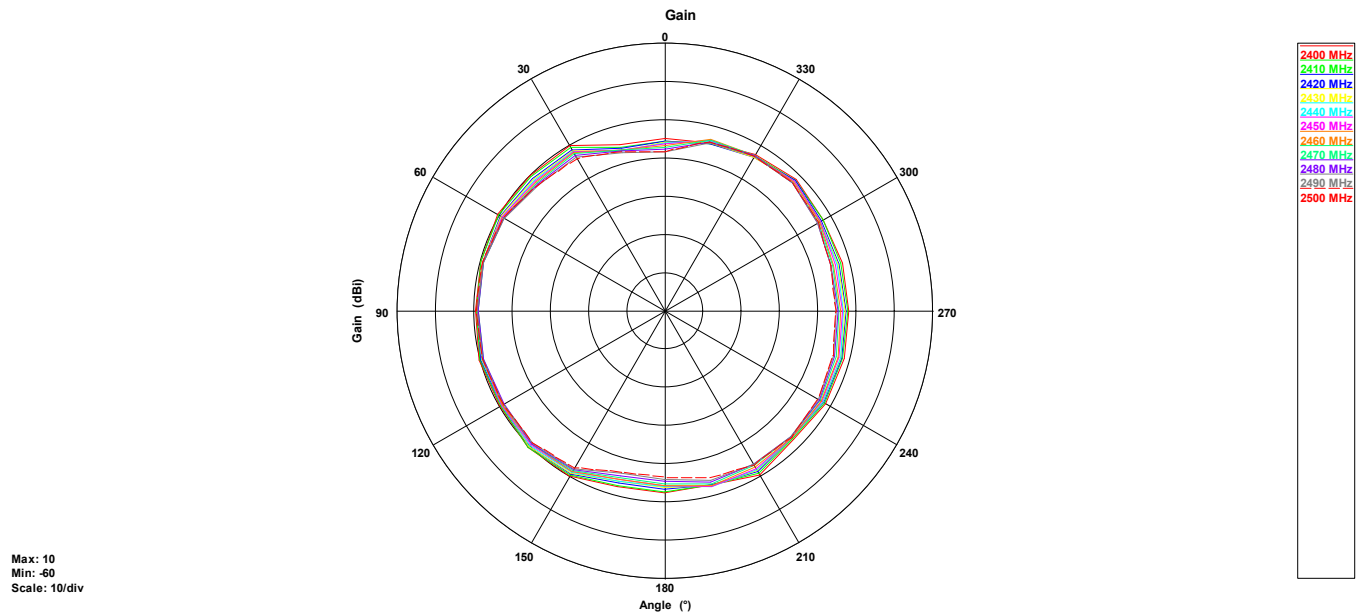


Annex B Figures

1. 2D Radiation Pattern



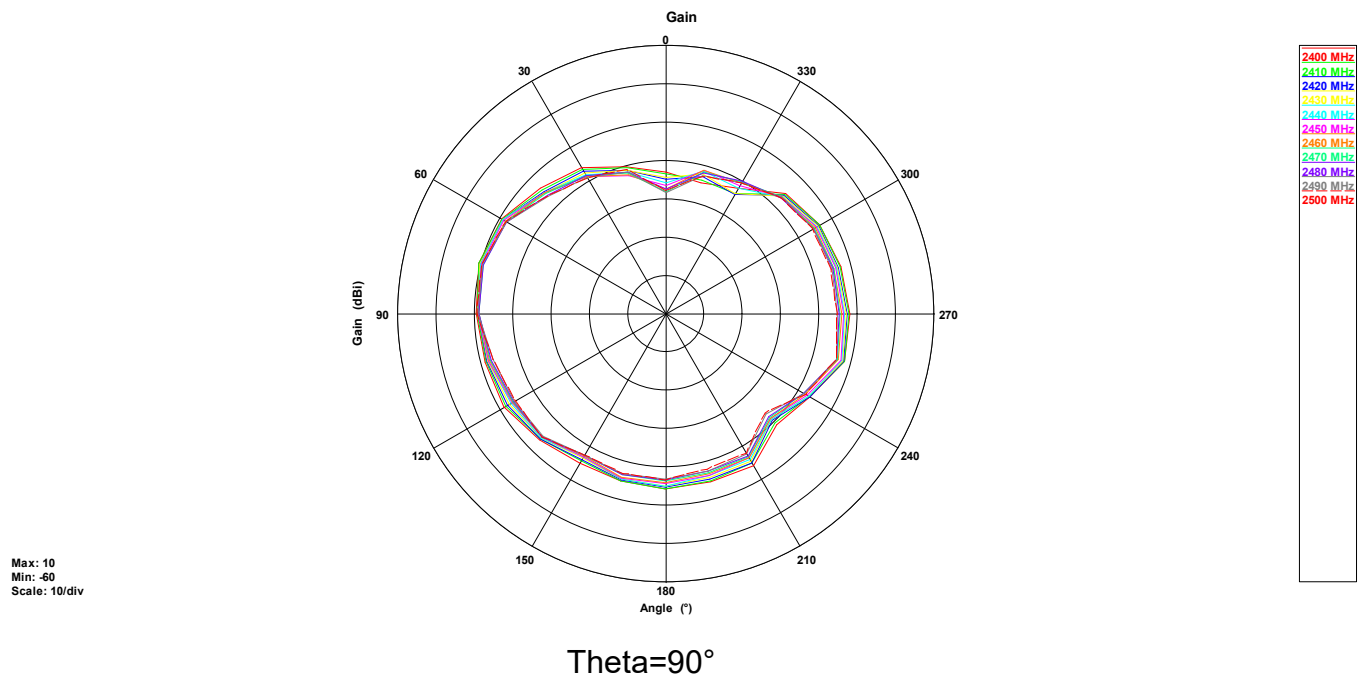
Phi=0°



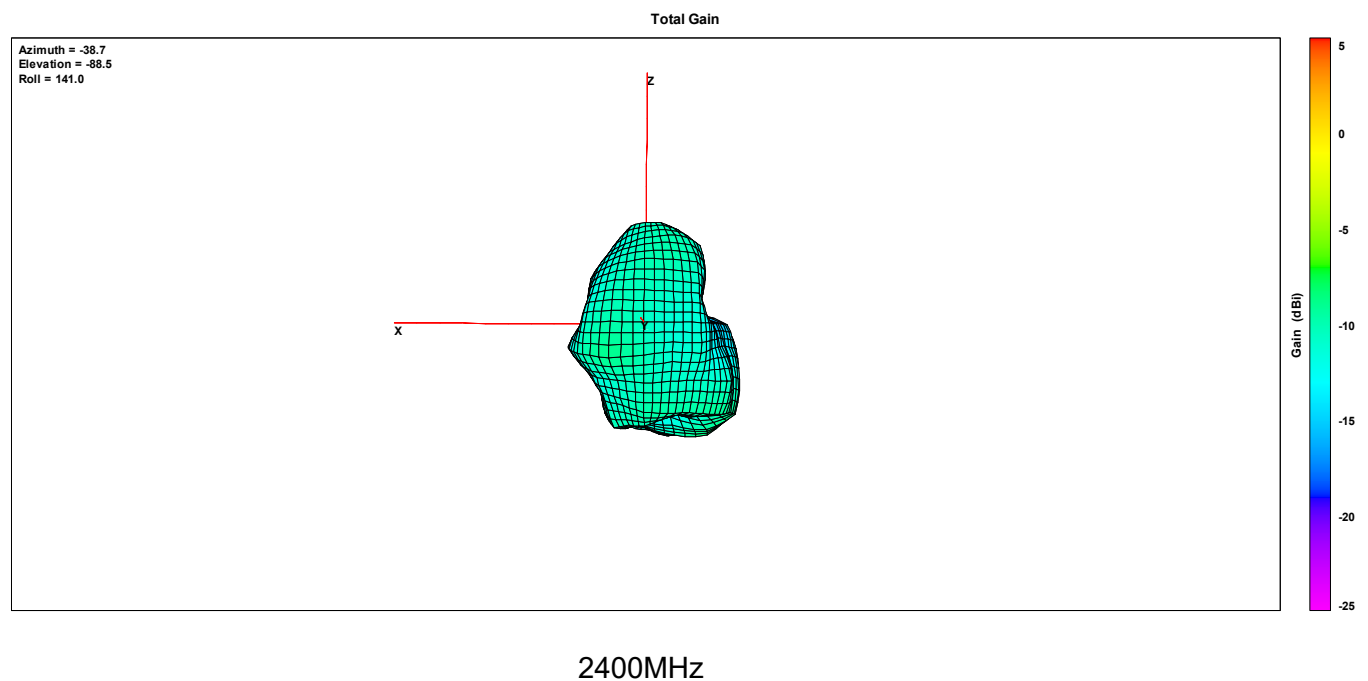
Phi=90°

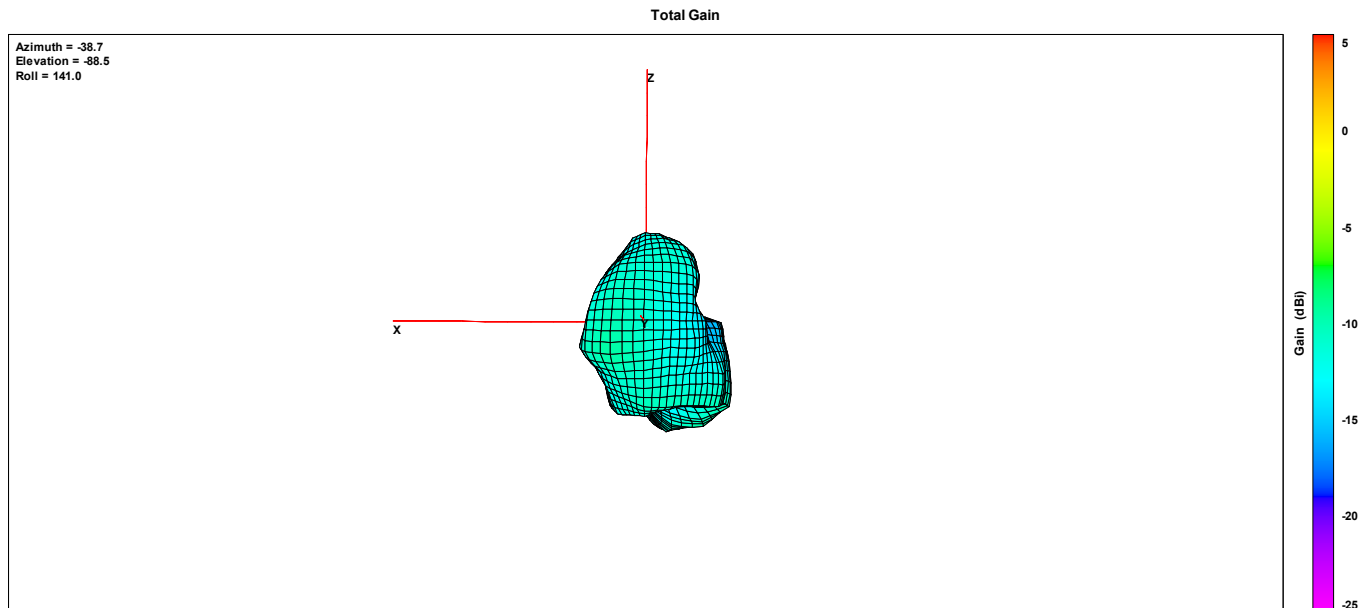


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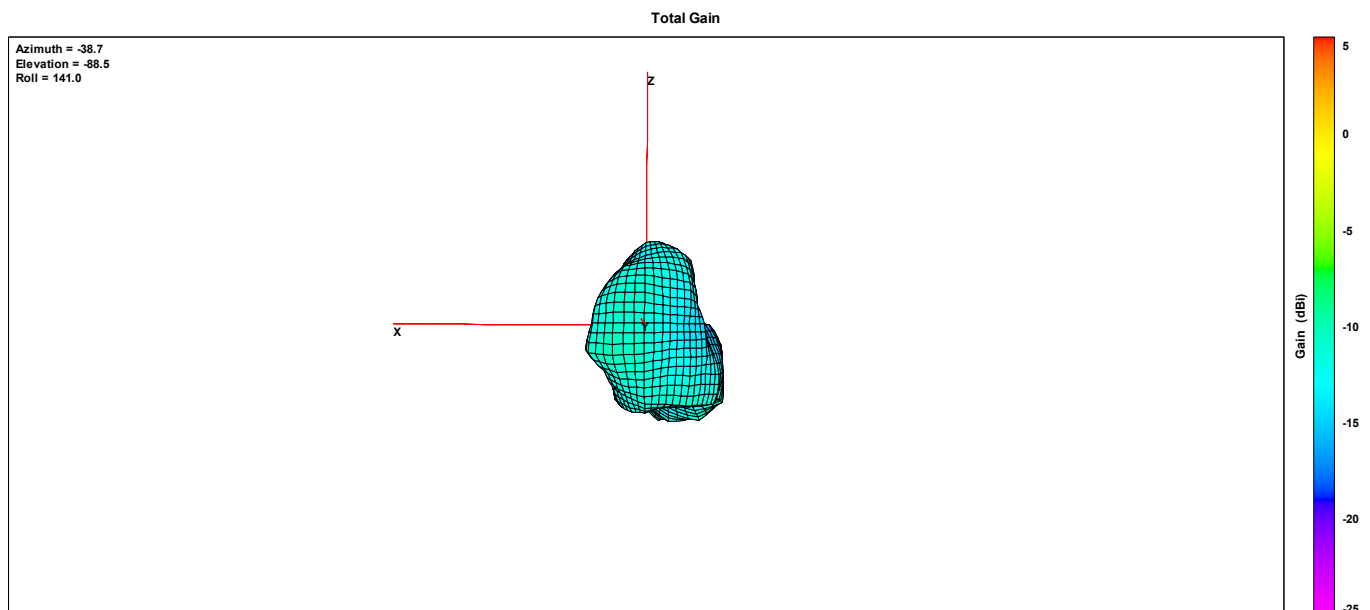


2. 3D Radiation Pattern





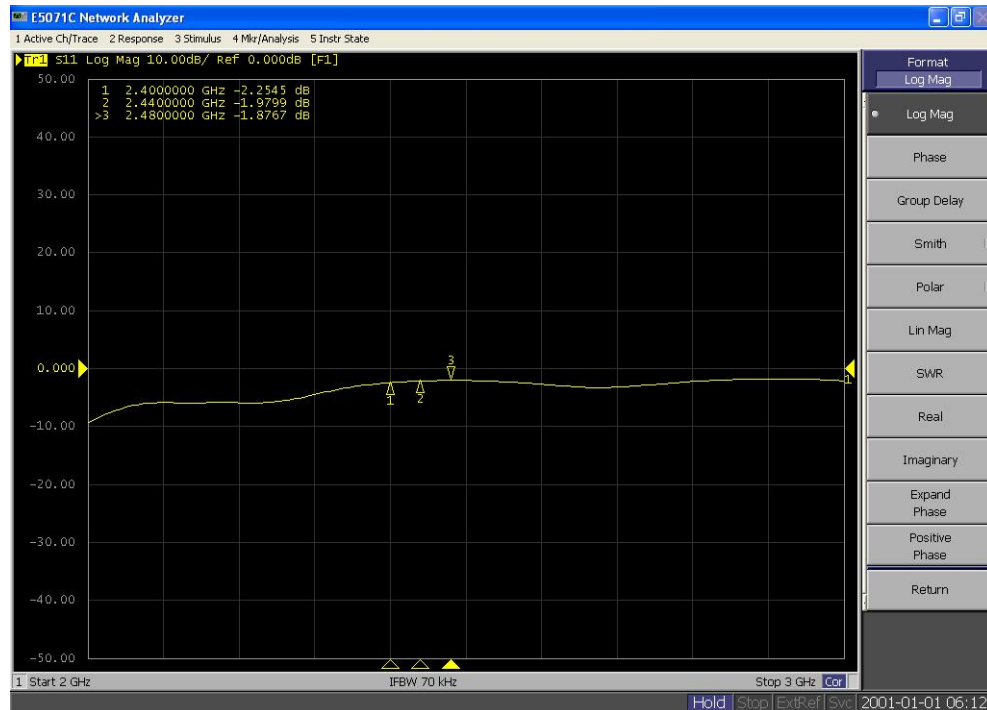
2440MHz



2480MHz



3. Return Loss





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.	Equipement 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

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