

FCC CERTIFICATION TEST REPORT

Applicant	:	HANSHOW PTE. LTD.
Address	:	138 ROBINSON ROAD #02-33 OXLEY TOWER SINGAPORE(068906)
Manufacturer	:	HANSHOW PTE. LTD.
Address	:	138 ROBINSON ROAD #02-33 OXLEY TOWER SINGAPORE(068906)
Equipment under Test	:	electronic shelf label
Model No.	:	Nebular Ultra-260WQ-N D1
Trade Mark	:	N/A
FCC ID	:	2BPF3-NU2-260W
Report No.	:	LS-R26070313-1F02
Issue Date	:	Aug. 08, 2026



LabSure Testing Services (Suzhou) Co., Ltd.

Table of Contents

Test Report Declare	4
1. Summary of Test Results	6
2. General Test Information	7
2.1. Description of EUT	7
2.2. Accessories of EUT	7
2.3. Assistant equipment used for test	7
2.4. Block diagram of EUT configuration for test	8
2.5. Test environment conditions	8
2.6. Deviations of test standard	8
2.7. Test laboratory	9
2.8. Measurement uncertainty	9
4. Equipment Used During Test	11
5. 6 dB Bandwidth	13
5.1. Block diagram of test setup	13
5.2. Limits	13
5.3. Test procedure	13
5.4. Test result	14
5.5. Original test data	15
6. Maximum Peak Output Power	18
6.1. Block diagram of test setup	18
6.2. Limits	18
6.3. Test procedure	18
6.4. Test result	19
6.5. Original test data	20
7. Power Spectral Density	23
7.1. Block diagram of test setup	23
7.2. Limits	23
7.3. Test procedure	23
7.4. Test result	24
7.5. Original test data	25
8. Band Edge Compliance (Conducted Method)	28
8.1. Block diagram of test setup	28
8.2. Limits	28
8.3. Test procedure	28
8.4. Test result	28
8.5. Original test data	29
9. RF Conducted Spurious Emissions	32

9.1.	Block diagram of test setup	32
9.2.	Limits	32
9.3.	Test procedure.....	32
9.4.	Test result.....	33
9.5.	Original test data.....	34
10.	Radiated Emission.....	41
10.1.	Block diagram of test setup	41
10.2.	Limit.....	42
10.3.	Test Procedure	43
10.4.	Test result.....	45
11.	Emissions in Restricted Frequency Bands	75
11.1.	Block diagram of test setup	75
11.2.	Limit.....	75
11.3.	Test Procedure	75
11.4.	Test result.....	75
12.	Power Line Conducted Emission	84
12.1.	Block diagram of test setup	84
12.2.	Power line conducted emission limits	84
12.3.	Test procedure.....	84
12.4.	Test result.....	85
13.	Antenna Requirements	86
13.1.	Limit.....	86
13.2.	Result	86
14.	Test Setup Photograph.....	87
15.	Photos of the EUT	87

Test Report Declare

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Equipment under Test	:	electronic shelf label
Model No.	:	Nebular Ultra-260WQ-N D1
Trade Name	:	N/A

Test Standard Used:

47 CFR FCC Part 15 Subpart C (Section 15.247)

Test Procedure Used:

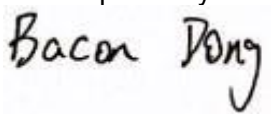
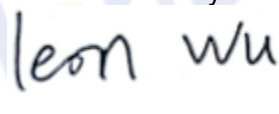
ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024

We Declare:

The equipment described above is tested by LabSure Testing Services (Suzhou) Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and LabSure Testing Services (Suzhou) Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above standards.

Report No:	LS-R26070313-1F02		
Date of Receipt:	Jul. 10, 2026	Date of Test:	Jul. 10, 2026 ~ Aug. 08, 2026

Prepared By: 	Reviewed By: 	Authorized By: 
Bacon Dong/Engineer	Leon Wu/Director	Chris Zhong/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of LabSure Testing Services (Suzhou) Co., Ltd. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

The results reported herein have been performed in accordance with the laboratory's terms of accreditation.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Aug. 08, 2026	

1. Summary of Test Results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	Standard	Verdict
6 dB Bandwidth	FCC Part 15.247 (a) (2)	Pass
Peak Output Power	FCC Part 15.247 (b) (3)	Pass
Power Spectral Density	FCC Part 15.247 (e)	Pass
Band Edge Compliance (conducted method)	FCC Part 15.247 (d)	Pass
Radiation Emission	FCC Part 15.209 FCC Part 15.205	Pass
RF Conducted Spurious Emissions	FCC Part 15.247 (d)	Pass
Emission in Restricted Frequency Bands	FCC Part 15.209 FCC Part 15.205	Pass
Power Line Conducted Emission	FCC Part 15.207	N/A
Antenna Requirement	FCC Part 15.203	Pass
Note: The measurement result for the sample received is <Pass> according to <ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024; FCC CFR 47 Part 2, FCC CFR 47 Part 15C(Part 15.247), when <Simple Acceptance> decision rule is applied.		

2. General Test Information

2.1. Description of EUT

EUT* Name	:	electronic shelf label
Test Model Number	:	Nebular Ultra-260WQ-N D1
EUT function description	:	Please reference user manual of this device.
Power Supply	:	DC 3V by Polymer Li-ion built-in battery
Operation Frequency	:	2402MHz-2480MHz
Modulation	:	GFSK
Data Rate	:	1Mbps & 2Mbps
Antenna Type	:	PCB Antenna
Antenna Gain	:	For BLE: PCB antenna 1, maximum PK gain: -1.5 dBi (Declare by customer and the lab isn't responsible for the value)

Note1: The lab isn't responsible for the value provide by customer (Such as RF cable loss, antenna gain etc..)

Channel information					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	14	2430	28	2458
1	2404	15	2432	29	2460
2	2406	16	2434	30	2462
3	2408	17	2436	31	2464
4	2410	18	2438	32	2466
5	2412	19	2440	33	2468
6	2414	20	2442	34	2470
7	2416	21	2444	35	2472
8	2418	22	2446	36	2474
9	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454		
13	2428	27	2456		

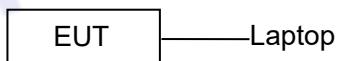
2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Description	Remark
N/A	N/A	N/A	N/A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
Notebook	ASUS	FX506L	N/A	Supplied by lab

2.4. Block diagram of EUT configuration for test



Test software: RF_Test, Version: V1.0.2.4

The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table.

The pathloss of external cable: 1dB

Tested mode, channel, and data rate information			
Mode	Setting Tx Power	Channel	Frequency (MHz)
BLE_1M Tx mode	3	Ch Low	2402
	3	Ch Middle	2440
	3	Ch High	2480
BLE_2M Tx mode	3	Ch Low	2404
	3	Ch Middle	2440
	3	Ch High	2478

Modulation Type	TX Configuration
GFSK	1TX

2.5. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Environment Parameter	Selected Values During Tests
Relative Humidity	40-75%
Atmospheric Pressure:	86-106 kPa
Temperature	21-25 °C
Voltage:	N/A

2.6. Deviations of test standard

No deviation.

2.7. Test laboratory

Lab Information	Company Name: LabSure Testing Services (Suzhou) Co., Ltd. Address: Phase II, No.16 Runsheng Road, Suzhou Industrial Park, Suzhou, People's Republic of China. Tel: +86-0512-62531270, E-mail: labsure@lab-sure.com, www.lab-sure.com
Accreditation Certificate	A2LA (Certificate No.: 7346.01) LabSure Testing Services (Suzhou) Co., Ltd. has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1397) LabSure Testing Services (Suzhou) Co., Ltd. has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules. IC (IC Designation No.: 32952; CAB No.:CN0182) LabSure Testing Services (Suzhou) Co., Ltd. has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules.
Note 1: All tests measurement facilities use to collect the measurement data are located at Phase II, No.16 Runsheng Road, Suzhou Industrial Park, Suzhou, China. Note 2: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. These measurements below 30MHz had been correlated to measurements performed on an OFS. Note 3: The test anechoic chamber in LabSure Testing Services (Suzhou) Co., Ltd. had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.	

2.8. Measurement uncertainty

3. Test Item	Uncertainty
Bandwidth	0.14%
Peak Output Power (Conducted) (Spectrum Analyzer)	0.12 dB (10 MHz $\leq$ f < 3.6 GHz); 0.32 dB (3.6 GHz $\leq$ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.51 dB
Power Spectral Density	0.12 dB (10 MHz $\leq$ f < 3.6 GHz); 0.32 dB (3.6 GHz $\leq$ f < 8 GHz)
Frequencies Stability	6.7 x 10 ⁻⁸ (Antenna couple method) 3.4 x 10 ⁻⁸ (Conducted method)
Conducted Spurious Emissions	0.12 dB (10 MHz $\leq$ f < 3.6 GHz); 0.32 dB (3.6 GHz $\leq$ f < 8 GHz) 0.52 dB (8 GHz $\leq$ f < 22 GHz)
Uncertainty for Radio Frequency (RBW < 20 kHz)	3×10 ⁻⁷
Uncertainty for Radiation Emission Test (9kHz - 1 GHz)	9kHz-30MHz: 4.5 dB 30MHz-1000MHz: 4.2 dB
Uncertainty for Radiation Emission Test (1 GHz - 40 GHz)	1GHz – 6GHz: 4.3 dB 6GHz – 18GHz: 4.6 dB

	18GHz – 40GHz: 4.3 dB
Uncertainty for Power Line Conduction Emission Test	3.4 dB (150 kHz - 30 MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

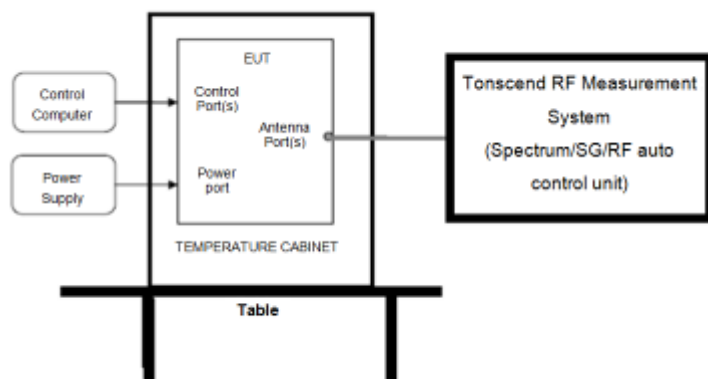
4. Equipment Used During Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
RF Conducted Test					
MXA Signal Analyzer (10Hz-50GHz)	Keysight	N9020B	MY63470246	2026/05/27	1 Year
MXA Signal Analyzer (10Hz-26.5GHz)	Keysight	N9020B	MY56080159	2026/03/06	1 Year
MXG Vector Signal Generator (100kHz-6GHz)	Agilent	N5182A	MY50144775	2026/01/25	1 Year
EXG Analog Signal Generator (9kHz-40GHz)	Keysight	N5173B	MY59101189	2026/05/27	1 Year
Vector Signal Generator (4kHz-7.125GHz)	Rohde&Schwarz	SMCV100B	1432.7000K02-106109-gD	2026/05/27	1 Year
Wireless Connectivity Test Set	Anritsu Corp.	MT8862A	6272445466	2026/05/27	1 Year
Wideband Radio Communication Tester	Rohde&Schwarz	CMW 500	1201.0002K50-158800-Qi	2026/02/11	1 Year
RF Control Unit	Tonscend	JS0806-2	806JS2X022505261006	2026/05/27	1 Year
Temperature, humidity and pressure recorder	Huahanwei	THP40W-E	c0222020002d	2026/03/02	1 Year
Programmable Temperature Humidity Chamber	Zhixiang	ZXGDJS-225L	ZX20171127A	2026/01/24	1 Year
RF Test Software	Tonscend	JS1120-3	3.6.21	N/A	N/A
Radiated Spurious Emission in 3m EMI Chamber					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
3m Anechoic Chamber	CRT	3m-SAC	N/A	2024/05/18	3 Year
Loop antenna (9kHz-30MHz)	SCHWARZBECK	FMZB1519-60D	00058	2024/11/05	3 Year
Hybrid antenna (30MHz-1GHz)	TESEQ	CBL6141B	27421	2024/01/10	3 Year
Horn antenna (1-18GHz)	ETS-Lindgren	3117	157735	2024/01/19	3 Year
Horn antenna (18-40GHz)	Tonscend	HA32-40	806HA006712251046	2026/05/11	3 Year
Low Noise Amplifier (30MHz-1GHz)	Tonscend	TAP10M1G40N	806JSAP039904251006	2026/01/25	1 Year
Pre-Amplifier_HF (1-18GHz)	COM-MW	DPA8-1000-18000-1012	05231257	2026/01/25	1 Year
Pre-Amplifier_HF (18-40GHz)	Tonscend	TAP18040050	806JSAP049504261033	2026/05/06	1Year
EMI Test Receiver	Rohde & Schwarz	ESCi7	101138	2026/01/25	1 Year
Spectrum Analyzer(9kHz-40GHz)	Rohde & Schwarz	FSV40-N	101642	2026/01/25	1 Year
Temperature, humidity and pressure recorder	Huahanwei	TH10R	c00286000EE1	2026/1/29	1 Year

Test software	TONSCEND	JS36-RSE	5.0.0	N/A	N/A
Power Line Conducted Emissions Test					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Shielding Room 1	Tai He Mao Rui	N/A	N/A	2024/01/25	3 Year
EMI Test Receiver	Rohde & Schwarz	ESC13	101705	2026/01/25	1 Year
Two-Line V-Network	Rohde & Schwarz	ENV216	101064	2026/01/25	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102704	2026/01/25	1 Year
Temperature, humidity and pressure recorder	HuaHanWei	THP40W-E	c0222020002 E	2026/01/25	1 Year
Test software	TONSCEND	JS32-CE	5.0.0	N/A	N/A

5. 6 dB Bandwidth

5.1. Block diagram of test setup



5.2. Limits

FCC Part15 (15.247), Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
FCC Part 15.247 (a) (2)	6dB Bandwidth	$\geq 500\text{kHz}$	2400-2483.5

5.3. Test procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
- (2) 6 dB Bandwidth set the spectrum analyzer as follows:

RBW:	100 kHz
VBW:	300 kHz
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold
- (3) Allow the trace to stabilize, measure the 6 dB bandwidth of signal.

5.4. Test result

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.704	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.704	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.692	0.5	Pass
NVNT	BLE 2M	2402	Ant1	1.164	0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.184	0.5	Pass
NVNT	BLE 2M	2480	Ant1	1.244	0.5	Pass

5.5. Original test data





BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



6. Maximum Peak Output Power

6.1. Block diagram of test setup

Same with 4.1

6.2. Limits

FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
FCC Part 15.247 (b)(3)	Output Power	1 watt or 30dBm	2400-2483.5
		4 watt or 36dBm (EIRP)	

If transmitting antennas of directional gain greater than 6dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows:

RBW: $\geq$ DTS bandwidth

VBW: $\geq 3 \times$ RBW

Span $\geq 3 \times$ RBW

Detector Mode: Peak

Sweep time: auto

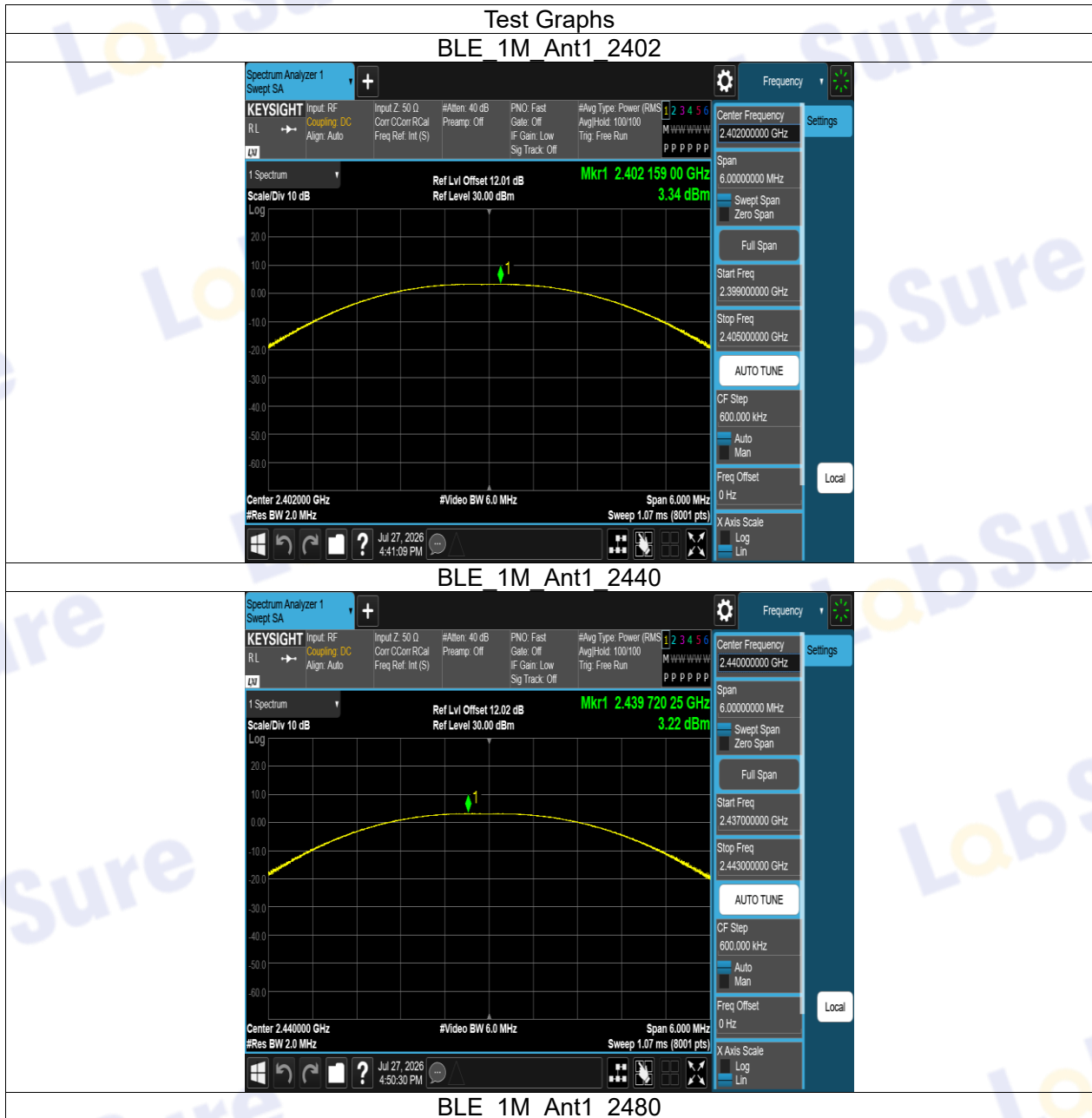
Trace mode Max hold

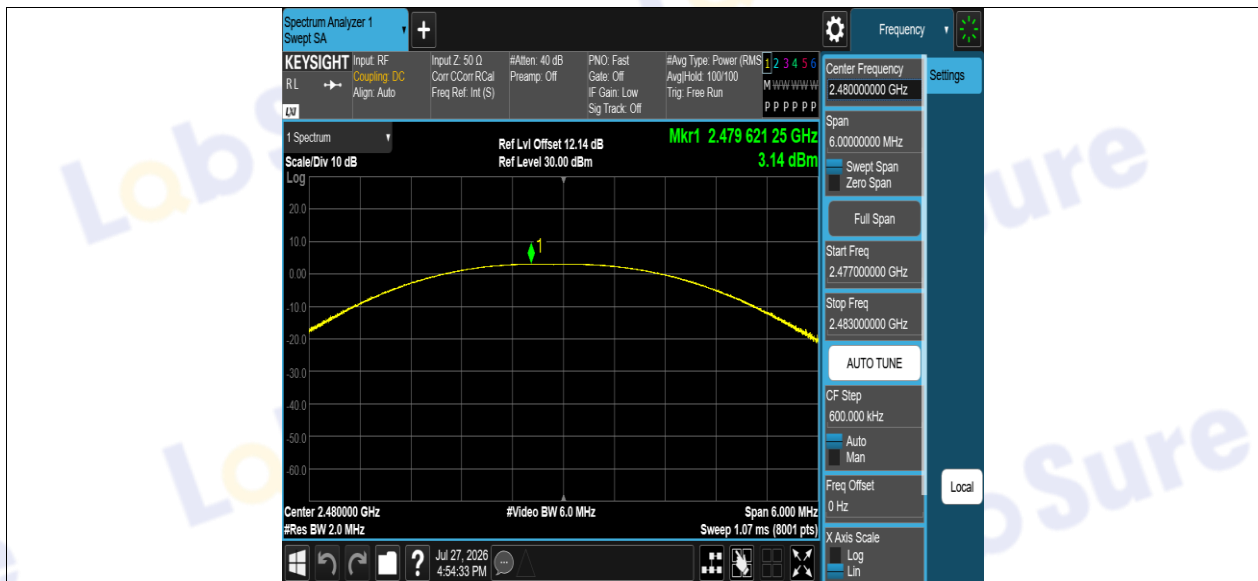
(3) Allow the trace to stabilize, Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges measure out the PK output power.

6.4. Test result

Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	3.35	30	Pass
NVNT	BLE 1M	2440	Ant1	3.22	30	Pass
NVNT	BLE 1M	2480	Ant1	3.14	30	Pass
NVNT	BLE 2M	2402	Ant1	3.36	30	Pass
NVNT	BLE 2M	2440	Ant1	3.22	30	Pass
NVNT	BLE 2M	2480	Ant1	3.13	30	Pass

6.5. Original test data





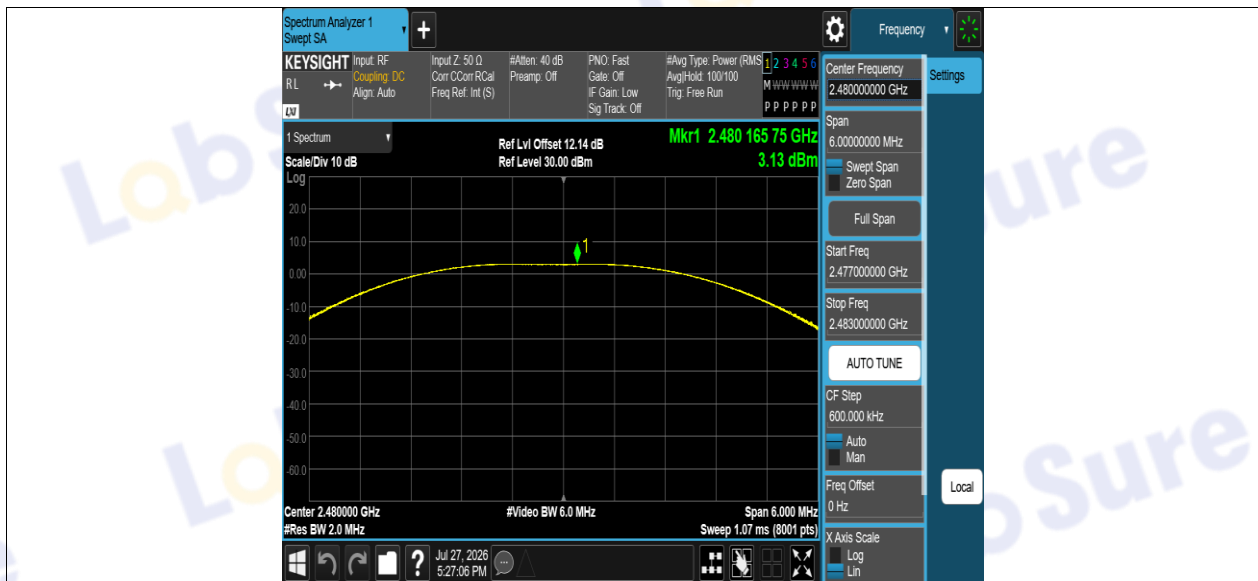
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



7. Power Spectral Density

7.1. Block diagram of test setup

Same with 4.1

7.2. Limits

FCC Part15 (15.247), Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
FCC Part 15.247 (e)	Power Spectral Density	8 dBm/3 kHz	2400-2483.5

7.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows:

Center frequency	DTS Channel center frequency
RBW:	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW:	$\geq 3\text{RBW}$
Span	1.5 times the DTS bandwidth
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

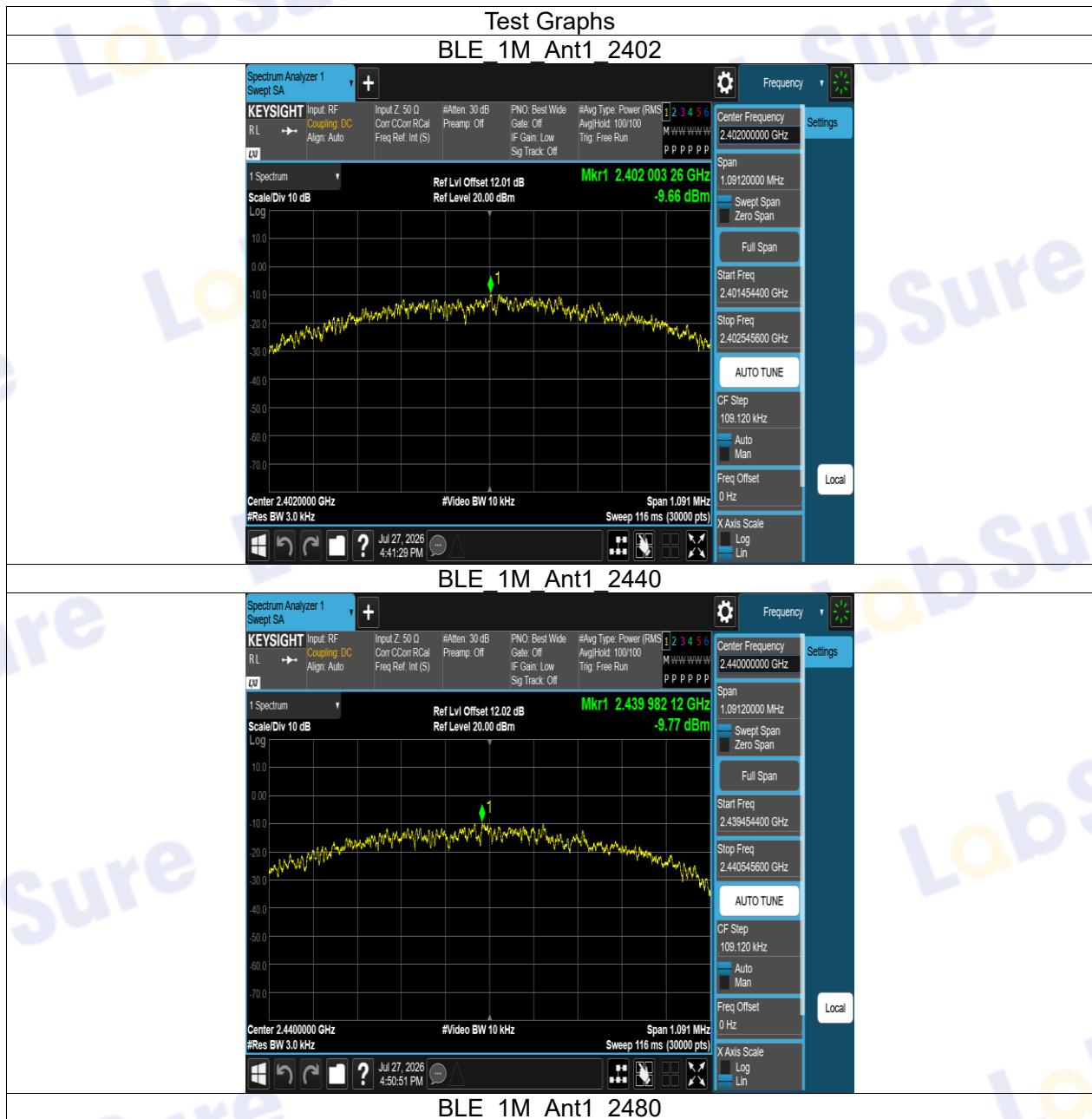
(3) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.

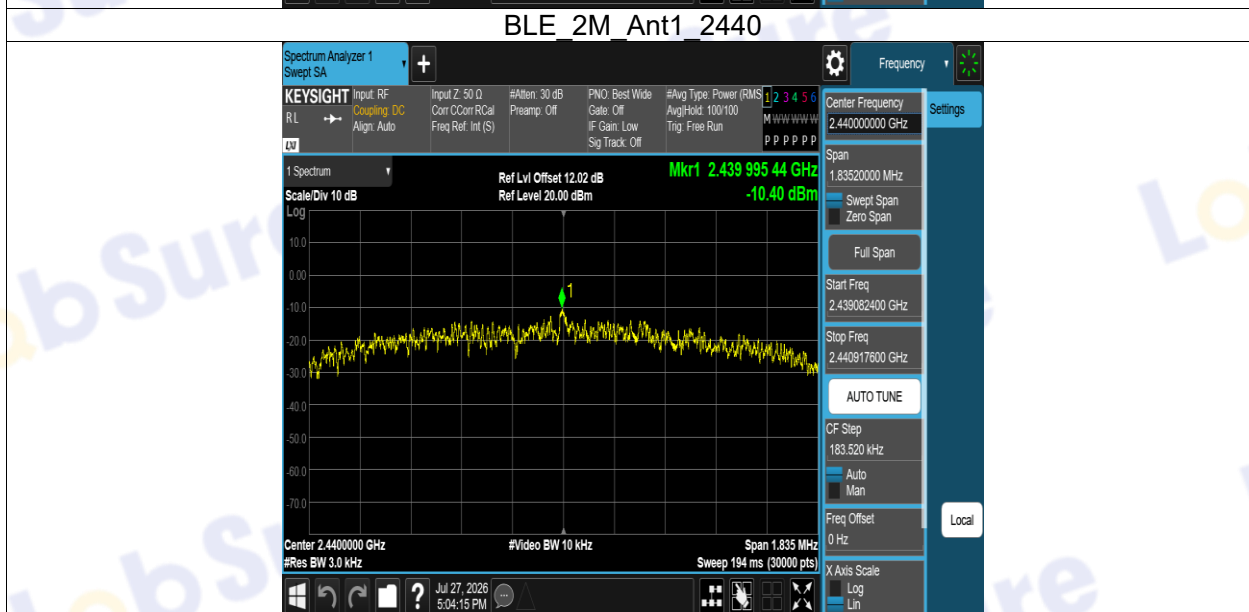
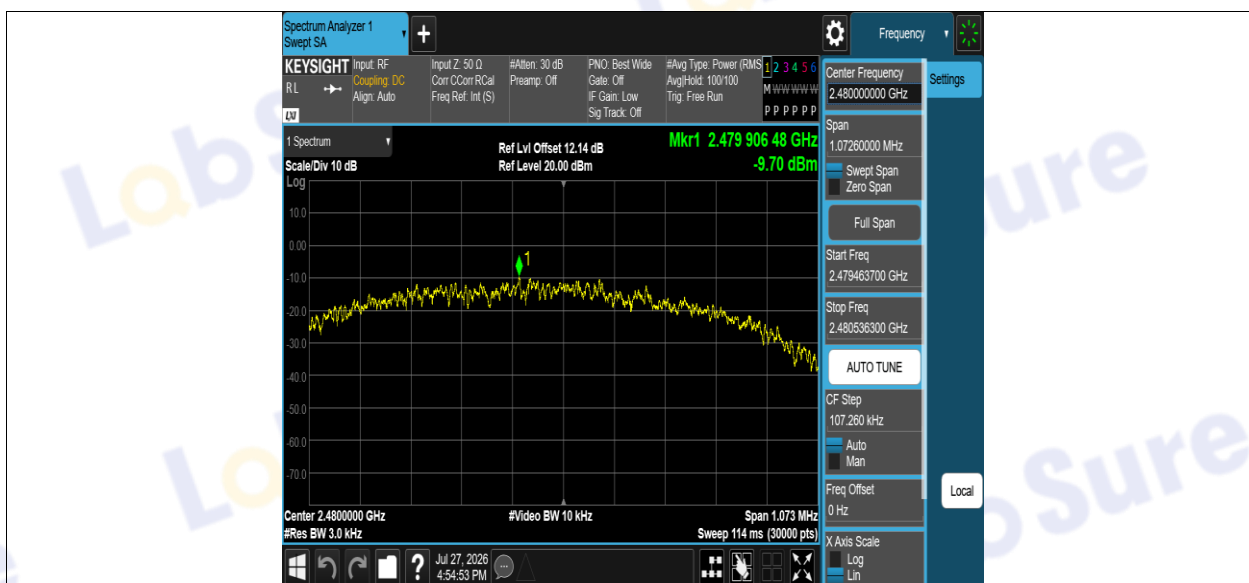
(4) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

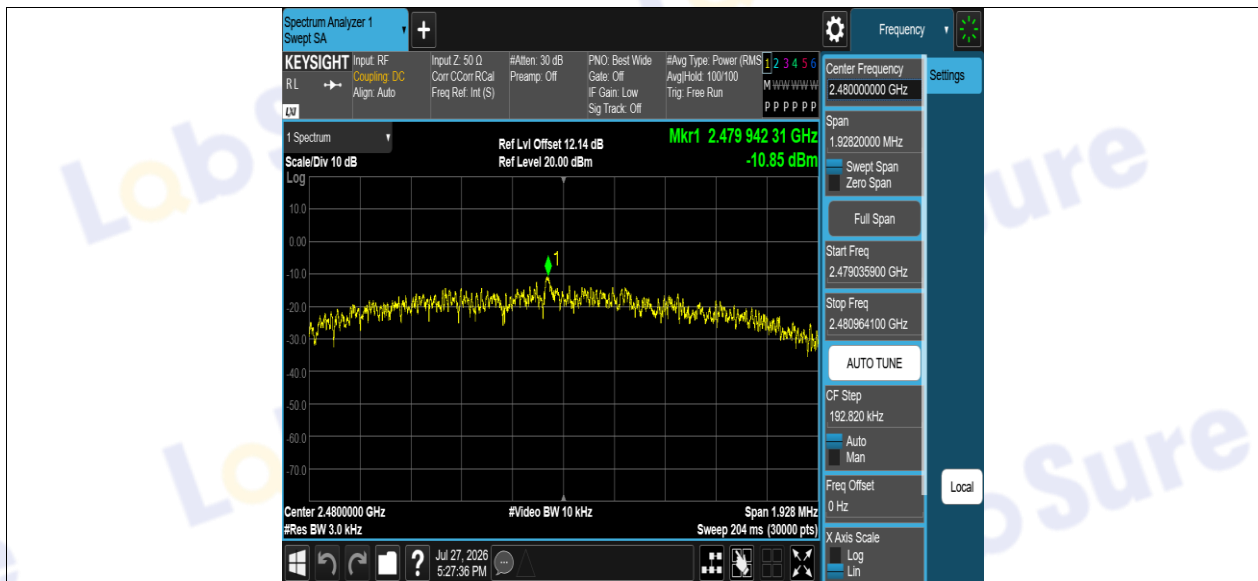
7.4. Test result

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	-9.66	8	Pass
NVNT	BLE 1M	2440	Ant1	-9.77	8	Pass
NVNT	BLE 1M	2480	Ant1	-9.70	8	Pass
NVNT	BLE 2M	2402	Ant1	-9.99	8	Pass
NVNT	BLE 2M	2440	Ant1	-10.40	8	Pass
NVNT	BLE 2M	2480	Ant1	-10.85	8	Pass

7.5. Original test data







8. Band Edge Compliance (Conducted Method)

8.1. Block diagram of test setup

Same with 4.1

8.2. Limits

FCC Part15 (15.247), Subpart C		
Section	Test Item	Limit
FCC §15.247 (d)	Conducted Bandedge	In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

8.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows:

RBW:	100 kHz
VBW:	300 kHz
Span	Encompass frequency range to be measured
Number of measurement points	$\geq \text{span}/\text{RBW}$
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

(3) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

8.4. Test result

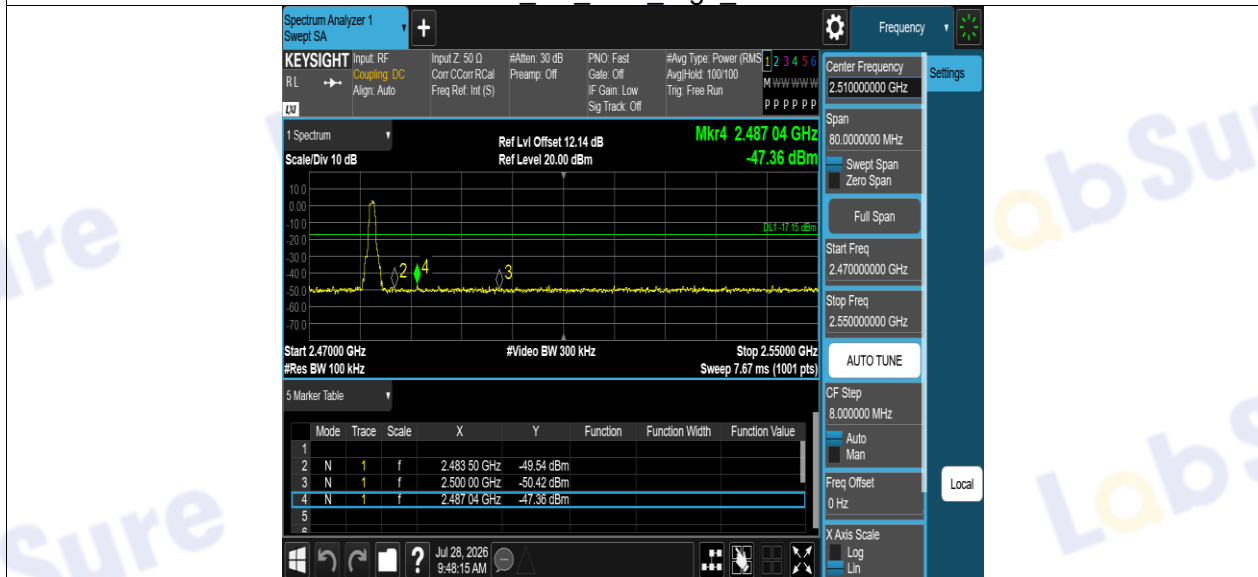
PASS

8.5. Original test data

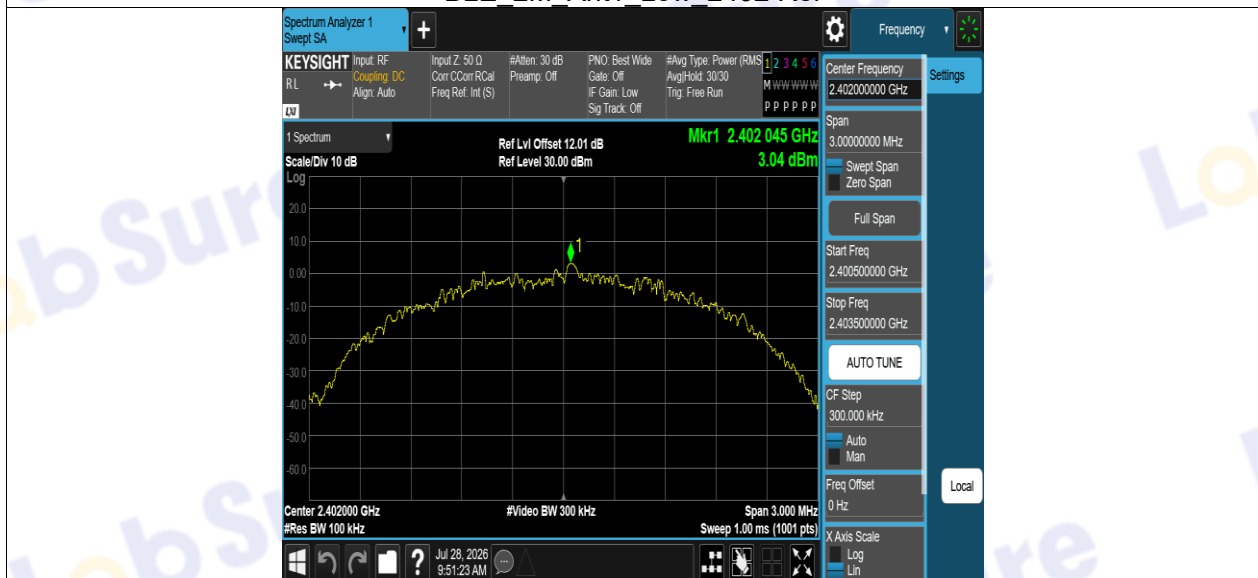




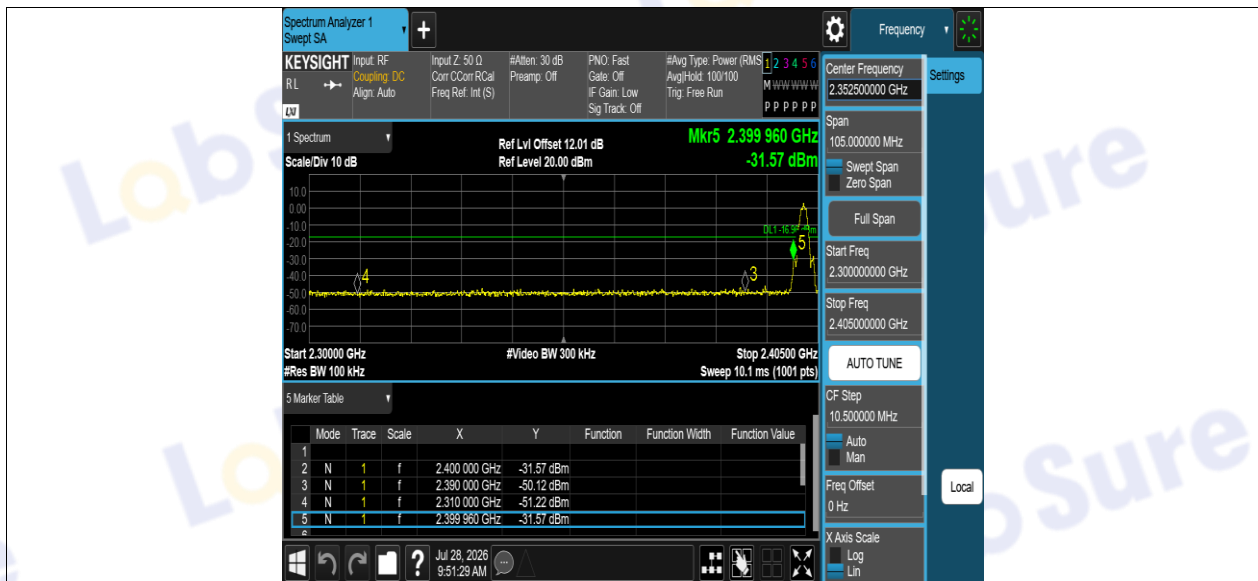
BLE 1M Ant1 High 2480



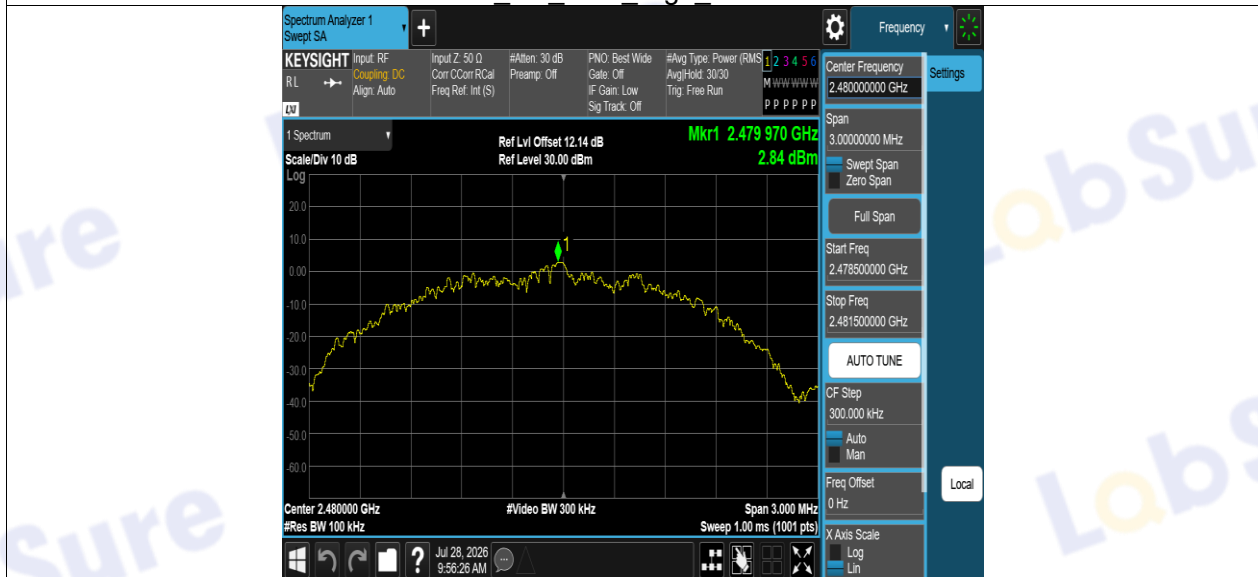
BLE 2M Ant1 Low 2402 Ref



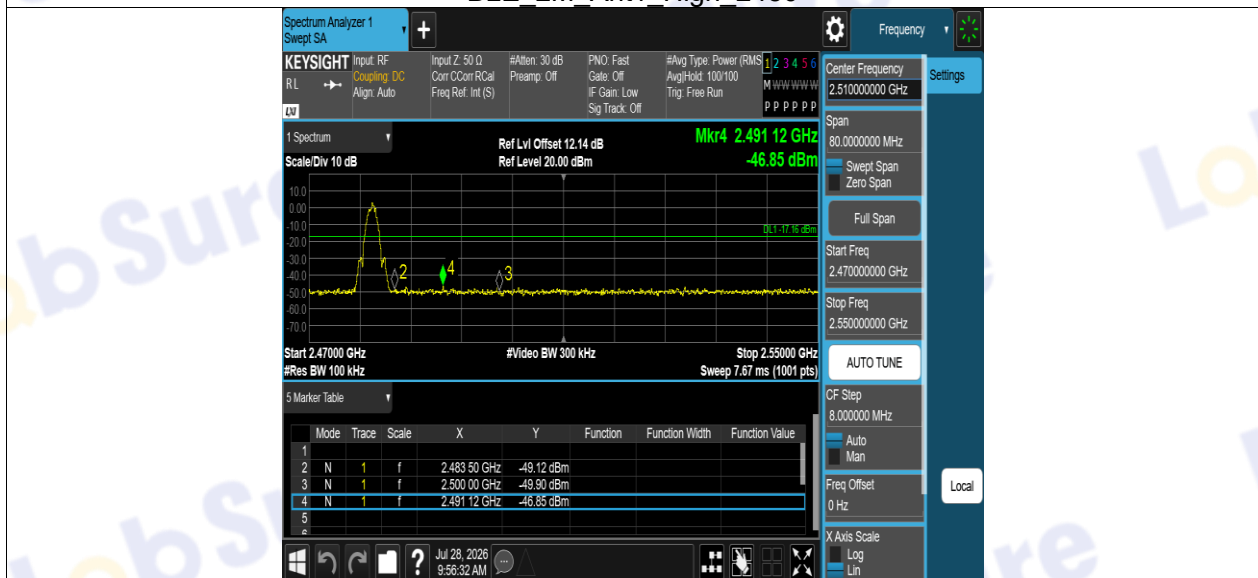
BLE 2M Ant1 Low 2402



BLE 2M Ant1_High 2480 Ref



BLE 2M Ant1_High 2480



9. RF Conducted Spurious Emissions

9.1. Block diagram of test setup

Same as section 4.1

9.2. Limits

FCC Part15 (15.247), Subpart C		
Section	Test Item	Limit
FCC Part 15.247 (d)	Conducted Spurious Emissions	In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

9.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Establish a reference level by using the following procedure:

Center frequency	Test frequency
RBW:	100 kHz
VBW:	300 kHz
Span	Wide enough to capture the peak level of the in-band emission
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

(3) Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.

(4) Set the spectrum analyzer as follows:

RBW:	100 kHz
------	---------

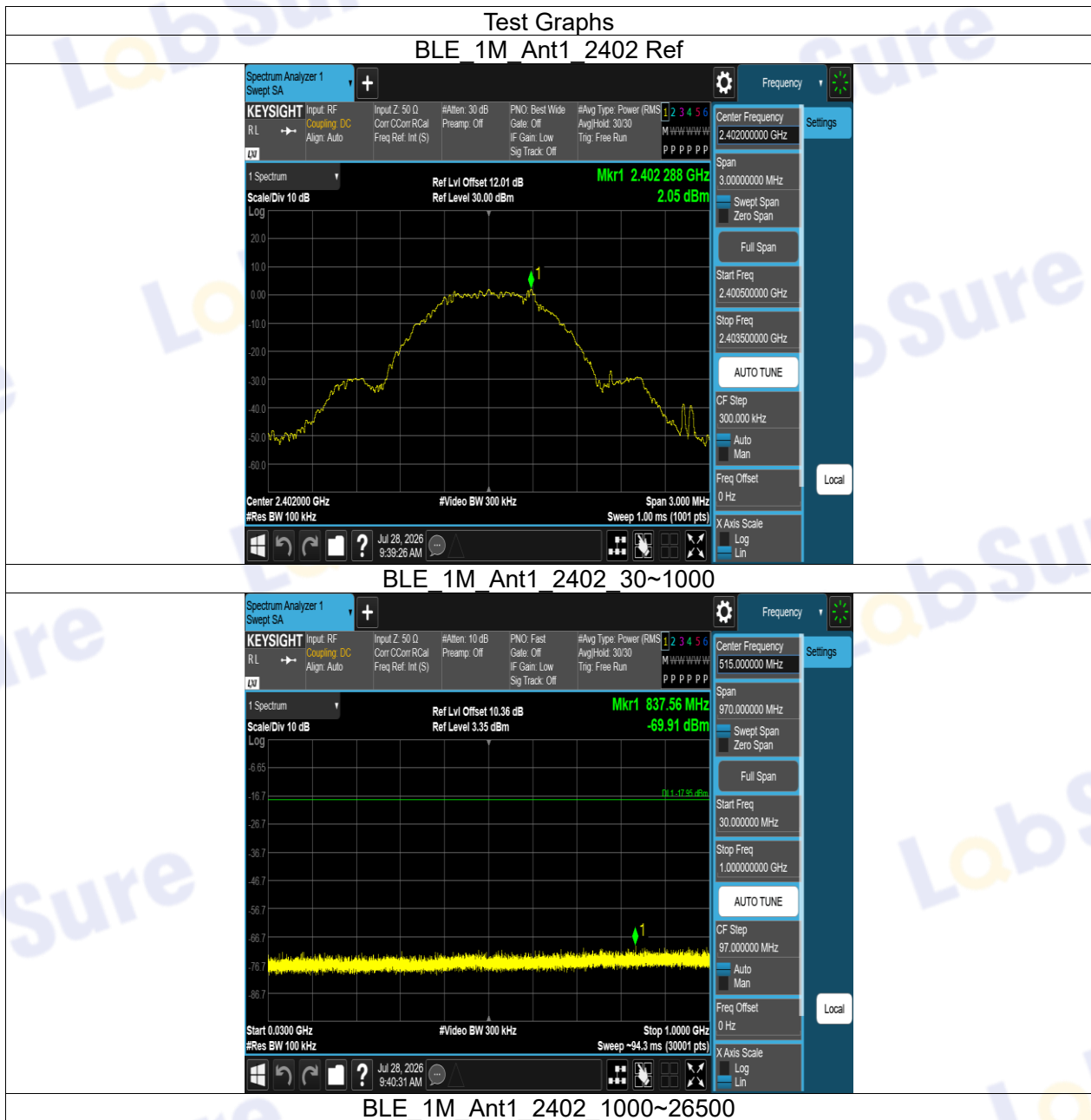
VBW:	300 kHz
Span	Encompass frequency range to be measured
Number of measurement points	$\geq \text{span/RBW}$
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

- (5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

9.4. Test result

Pass.

9.5. Original test data





BLE_1M_Ant1_2440 Ref



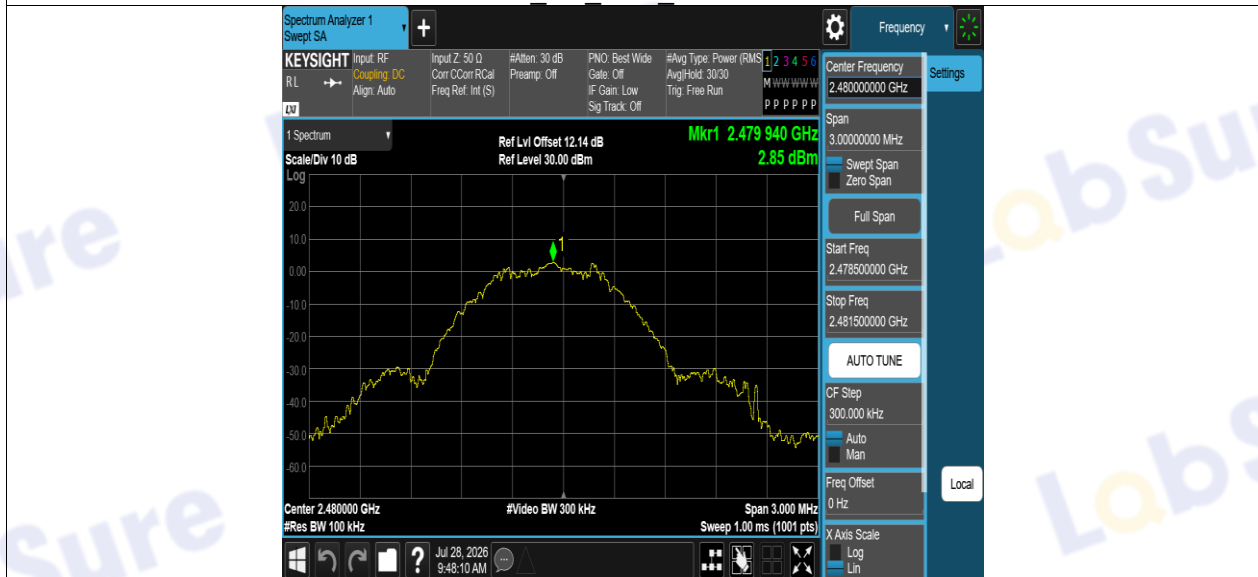
BLE_1M_Ant1_2440_30~1000



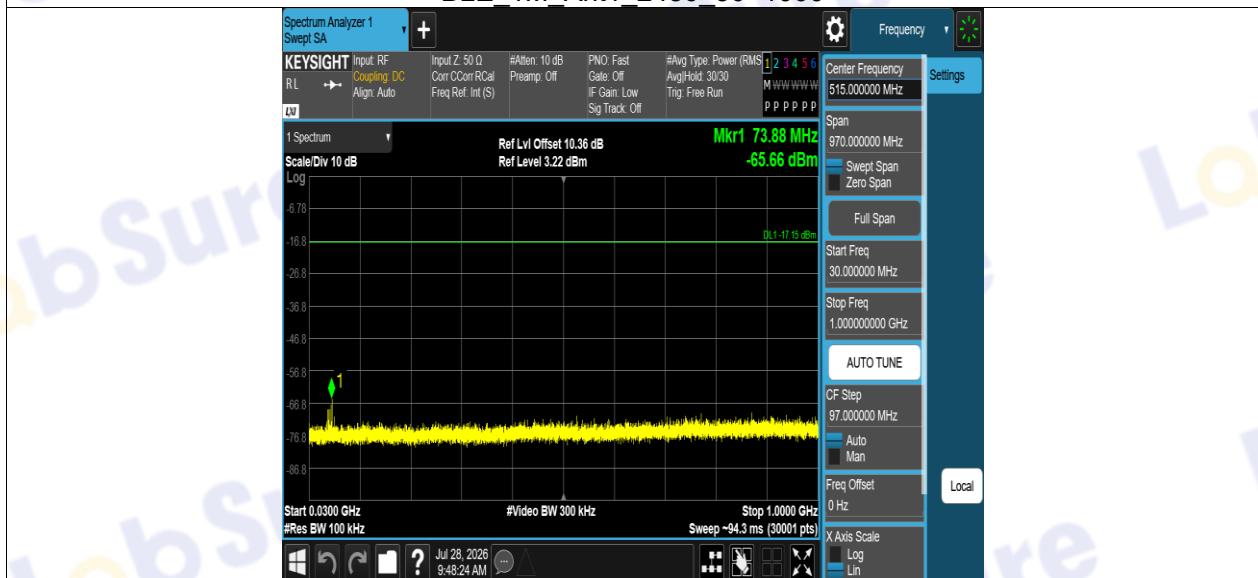
BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480 Ref



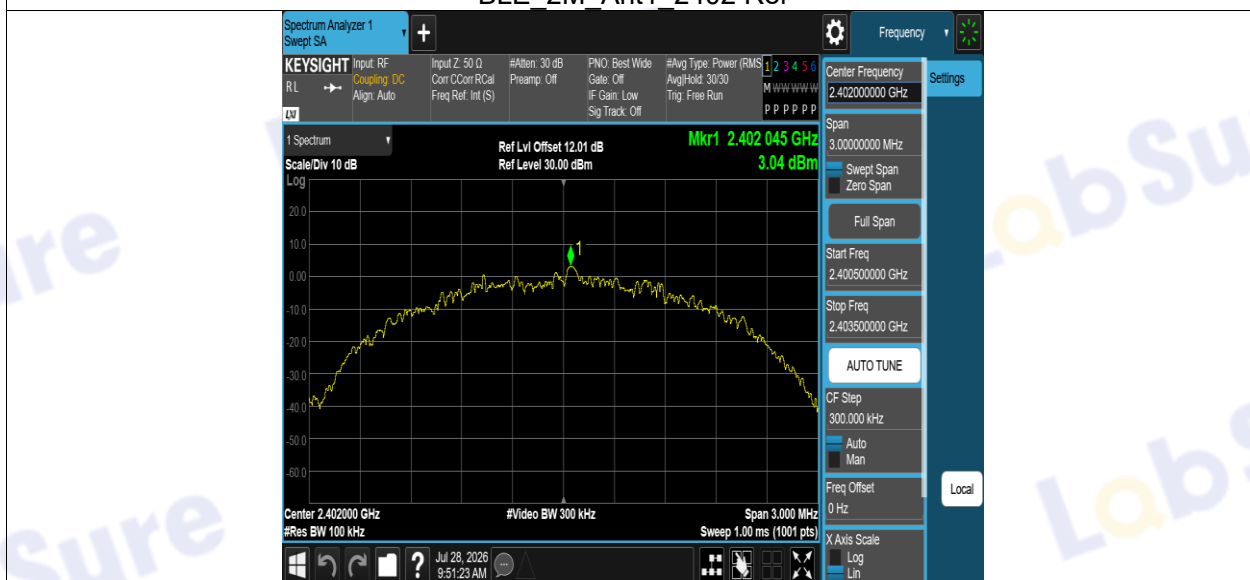
BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



BLE_2M_Ant1_2402 Ref



BLE_2M_Ant1_2402 30~1000



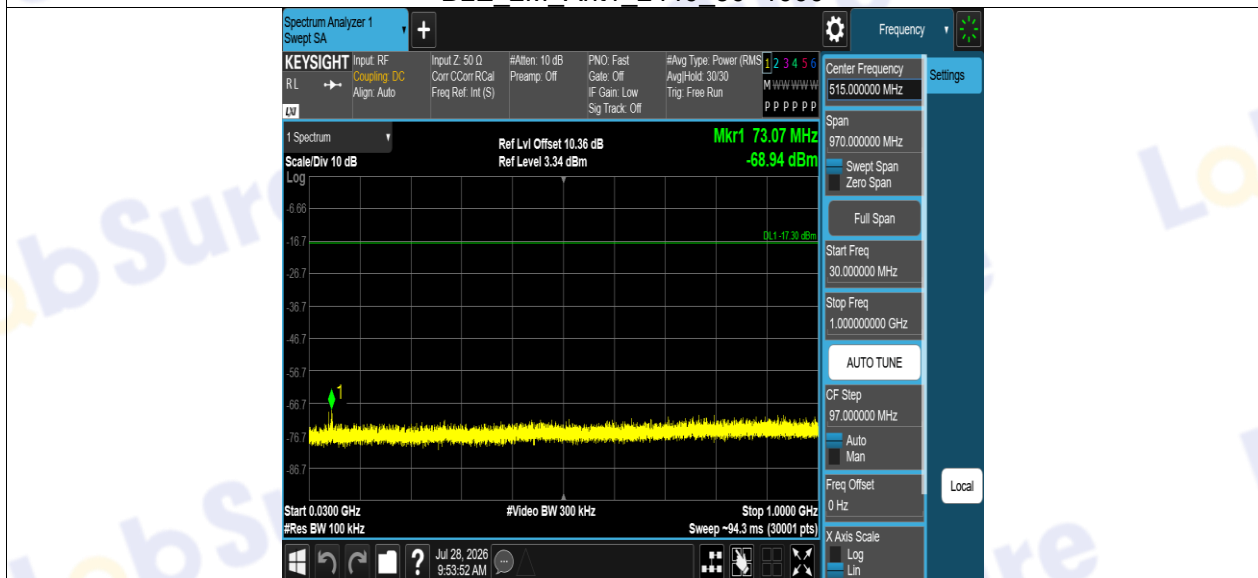
BLE_2M_Ant1_2402 1000~26500



BLE_2M_Ant1_2440 Ref



BLE_2M_Ant1_2440_30~1000



BLE_2M_Ant1_2440_1000~26500

