

FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

MotiliCap Data Recorder

MODEL NUMBER: MO-US-8001

PROJECT NUMBER: 4791435852

REPORT NUMBER: 4791435852-2

FCC ID: 2ATXZMO8001

ISSUE DATE: Jan. 06, 2025

Prepared for

AnX Robotica Corp.

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	01/06/2025	Initial Issue	

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION	6
4. CALIBRATION AND UNCERTAINTY	7
4.1. MEASURING INSTRUMENT CALIBRATION	7
4.2. MEASUREMENT UNCERTAINTY	7
5. EQUIPMENT UNDER TEST	8
5.1. DESCRIPTION OF EUT	8
5.2. MAXIMUM OUTPUT POWER.....	9
5.3. CHANNEL LIST	9
5.4. TEST CHANNEL CONFIGURATION.....	9
5.5. THE WORSE CASE POWER SETTING PARAMETER	9
5.6. DESCRIPTION OF AVAILABLE ANTENNAS	10
5.7. THE WORSE CASE CONFIGURATIONS	10
5.8. TEST ENVIRONMENT	10
5.9. DESCRIPTION OF TEST SETUP.....	11
5.10. MEASURING INSTRUMENT AND SOFTWARE USED.....	13
6. MEASUREMENT METHODS	14
7. ANTENNA PORT TEST RESULTS	15
7.1. ON TIME AND DUTY CYCLE.....	15
7.2. 6 dB BANDWIDTH.....	17
7.3. CONDUCTED OUTPUT POWER	22
7.4. POWER SPECTRAL DENSITY	24
7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS.....	29
8. RADIATED TEST RESULTS.....	44
8.1. LIMITS AND PROCEDURE	44
8.2. TEST ENVIRONMENT	50
8.3. RESTRICTED BANDEDGE	50
8.4. SPURIOUS EMISSIONS	59
9. ANTENNA REQUIREMENTS.....	94

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: AnX Robotica Corp.
Address: 6010 W. Spring Creek Pkwy Plano, TX 75024 USA

Manufacturer Information

Company Name: Ankon Medical Technologies (Shanghai) Co., LTD.
Address: Floor 1, No. 435 Chuanqiao Road, Pilot Free Trade Zone, Pudong
New Area, Shanghai 201206, China

Factory Information

Company Name: Ankon Medical Technologies (Shanghai) Co., LTD.
Address: Floor 1, No. 435 Chuanqiao Road, Pilot Free Trade Zone, Pudong
New Area, Shanghai 201206, China

EUT Description

Product Name: MotiliCap Data Recorder
Model Name: MO-US-8001
Series Model Name: /
Model Difference: /
Sample Number: 7903353
Data of Receipt Sample: Dec. 05, 2024
Test Date: Dec. 05, 2024~ Jan. 05, 2025

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	PASS

Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	6 dB Bandwidth and 99% Occupied Bandwidth	FCC 15.247 (a) (2)	PASS
2	Conducted Power	FCC 15.247 (b) (3)	PASS
3	Power Spectral Density	FCC 15.247 (e)	PASS
4	Conducted Band edge And Spurious emission	FCC 15.247 (d)	PASS
5	Radiated Band edges and Spurious emission	FCC 15.247 (d) FCC 15.209 FCC 15.205	PASS
6	Conducted Emission Test for AC Power Port	FCC 15.207	PASS
7	Antenna Requirement	FCC 15.203	PASS
Note: The measurement result for the sample received is < Pass > according to < ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15C > when < Simple Acceptance > decision rule is applied.			

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 558074 D01 15.247 Meas Guidance v05r02, 414788 D01 Radiated Test Site v01r01, FCC 47 CFR Part 2, FCC 47 CFR Part 15, ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	A2LA (Certificate No.: 4829.01) UL-CCIC COMPANY LIMITED has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1247) UL-CCIC COMPANY LIMITED 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.: 25056; CAB No.: CN0073) UL-CCIC COMPANY LIMITED has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules.
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Note 1: All tests measurement facilities use to collect the measurement data are located at No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, 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 UL-CCIC COMPANY LIMITED 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.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Conduction emission	3.1dB
DTS Bandwidth	1.9%
Maximum Conducted Output Power	1.3dB
Maximum Power Spectral Density Level	1.5dB
Band-edge Compliance	1.9%
Unwanted Emissions in Non-restricted Freq Bands	9kHz-30MHz: ± 0.90 dB 30MHz-1GHz: ± 1.5 dB 1GHz-12.75GHz: ± 1.9 dB 12.75GHz-26.5GHz: ± 2.1 dB
Radiation Emission test (include Fundamental emission) (9kHz-30MHz)	3.4dB
Radiation Emission test (include Fundamental emission) (30MHz-1GHz)	3.4dB
Radiation Emission test (1GHz to 26GHz) (include Fundamental emission)	3.5dB (1GHz-18GHz)
	3.9dB (18GHz-26.5GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Equipment:	MotiliCap Data Recorder	
Model Name:	MO-US-8001	
Technology:	Bluetooth - Low Energy	
Transmit Frequency Range:	2402 MHz ~ 2480 MHz	
Modulation:	GFSK	
Data Rate:	LE 1M	1 Mbps
	LE 2M	2 Mbps
Test Software of EUT:	IPOP V4.1 (manufacturer declare)	
Antenna Type:	Chip Antenna	
Antenna Gain:	4.3 dBi	
	Note: This data is provided by customer and our lab isn't responsible for this data.	

5.2. MAXIMUM OUTPUT POWER

Bluetooth Mode	Frequency (MHz)	Channel Number	Max Output Power(dBm)
BLE 1M	2402-2480	0-39[40]	-0.69
BLE 2M	2402-2480	0-39[40]	-0.68

5.3. CHANNEL LIST

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

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel		Frequency
GFSK	Low Channel	CH 0	2402MHz
	Middle Channel	CH 19	2440MHz
	High Channel	CH 39	2480MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worst Case Power Setting Parameter under 2400 ~ 2483.5MHz Band				
Test Software		IPOP V4.1		
Modulation Type	Transmit Antenna Number	Test Channel		
		LCH	MCH	HCH
GFSK	1	default	default	default

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2400-2483.5	Chip Antenna	4.3 dBi

Note: This data is provided by customer and our lab isn't responsible for this data.

Test Mode	Transmit and Receive Mode	Description
BLE 1M	☒ 1TX, 1RX	Antenna1 can be used as transmitting/receiving antenna independently.
BLE 2M	☒ 1TX, 1RX	Antenna1 can be used as transmitting/receiving antenna independently.

5.7. THE WORSE CASE CONFIGURATIONS

For BLE module, the product only supports 1 Mbps and 2 Mbps, both the two data rate were tested and the test result was recorded in this report.

5.8. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	55 ~ 65%	
Atmospheric Pressure:	101kPa	
Temperature	TN	23 ~ 28°C
Voltage:	VL	N/A
	VN	DC 7.6V
	VH	N/A

Note: VL= Lower Extreme Test Voltage
VN= Nominal Voltage
VH= Upper Extreme Test Voltage
TN= Normal Temperature

5.9. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Description
1	Laptop	ThinkPad	E580	Supplied by UL Lab
	Fixed Frequency Board	/	/	Supplied by UL Lab

I/O PORT

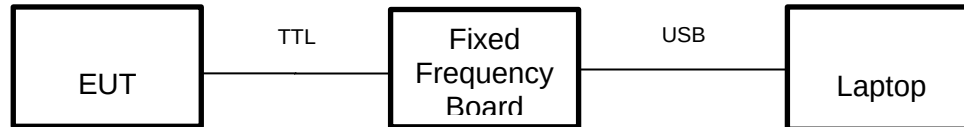
Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	USB-TTL	USB	100cm Length	/

ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	/	/	/	/

TEST SETUP

The EUT can work in an engineer mode with a software through a laptop.

SETUP DIAGRAM FOR TESTS

5.10. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions Test (Instrument)							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
☒	EMI Test Receiver	R&S	ESR3	126700	2023-11-25	2024-11-02	2025-11-01
☒	Two-Line V-Network	R&S	ENV216	126701	2023-11-25	2024-11-02	2025-11-01
Conducted Emissions Test (Software)							
Used	Description		Manufacturer		Name	Version	
☒	Software for Conducted Emissions Test		R&S		EMC32	9.25.00	
Radiated Emissions Test (Instrument)							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
☒	EMI test receiver	R&S	ESR7	222993	2023-04-08	2024-03-23	2025-03-22
☒	EMI test receiver	R&S	ESR26	126703	2023-11-25	2024-11-02	2025-11-01
☒	Spectrum Analyzer	R&S	FSV3044	222992	2023-04-08	2024-03-23	2025-03-22
☒	Receiver Antenna (9kHz-30MHz)	Schwarzbeck	FMZB 1513	155456	2021-06-03	2024-05-27	2027-05-26
☒	Receiver Antenna (30MHz-1GHz)	Schwarzbeck	VULB 9168	171952	2021-07-05	2024-07-04	2027-07-03
☒	Receiver Antenna (1GHz-18GHz)	R&S	HF907	126705	2019-01-27	2022-02-28	2025-02-27
☒	Receiver Antenna (18GHz-26.5GHz)	Schwarzbeck	BBHA9170	126706	2019-02-29	2022-02-28	2025-02-27
☒	Pre-amplification (To 18GHz)	Tonscnd	TAP01018050	224539	2023-10-10	2024-10-10	2025-10-09
☒	Pre-amplification (To 18GHz)	R&S	SCU-18D	134667	2023-11-25	2024-11-02	2025-11-01
☒	Pre-amplification (To 26.5GHz)	R&S	SCU-26D	135391	2023-11-25	2024-11-02	2025-11-01
☒	Band Reject Filter	Wainwright	WRCGV12-2375-2400-2485-2510-40SS	1	2023-12-18	2024-12-17	2025-12-16
☒	High Pass Filter	COM-MW	ZBF13-3-18G-01	2	2023-12-18	2024-12-17	2025-12-16
Radiated Emissions Test (Software)							
Used	Description		Manufacturer		Name	Version	
☒	Software for Radiated Emissions Test		Tonscnd		JS32-RE	5.0.0.2	
Antenna Port Test (Instrument)							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
☒	Spectrum Analyzer	Keysight	N9010B	155368	2023-04-08	2024-03-23	2025-03-22
☒	Power Meter	MWT	MW100-RFCB	221694	2023-04-08	2024-03-23	2025-03-22
☒	Attenuator	PASTERNAK	PE7087-6	1624	2023-04-08	2024-03-23	2025-03-22
Antenna Port Test (Software)							
Used	Description		Manufacturer		Name	Version	
☒	Software for Antenna Port Test		Tonscnd		JS1120-3 Test System	V3.2.22	

6. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6 dB Bandwidth and 99% Occupied Bandwidth	KDB 558074 D01 15.247 Meas Guidance v05r02	8.2
2	Output Power	KDB 558074 D01 15.247 Meas Guidance v05r02	8.3.1.3
3	Power Spectral Density	KDB 558074 D01 15.247 Meas Guidance v05r02	8.4
4	Out-of-band emissions in non-restricted bands	KDB 558074 D01 15.247 Meas Guidance v05r02	8.5
5	Out-of-band emissions in restricted bands	KDB 558074 D01 15.247 Meas Guidance v05r02	8.6
6	Band-edge	KDB 558074 D01 15.247 Meas Guidance v05r02	8.7
7	Conducted Emission Test for AC Power Port	ANSI C63.10-2013	6.2

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

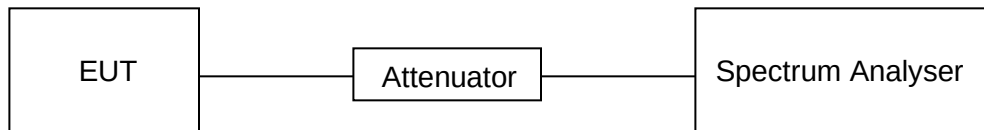
LIMITS

None; for reporting purposes only

PROCEDURE

FCC KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



TEST ENVIRONMENT

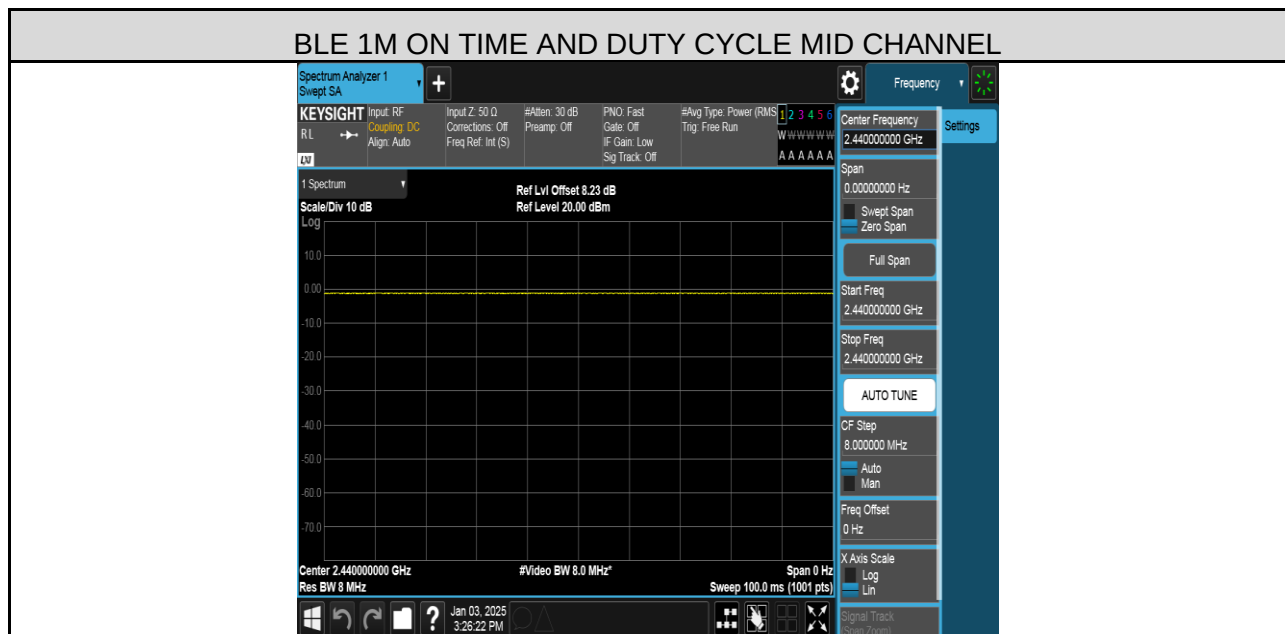
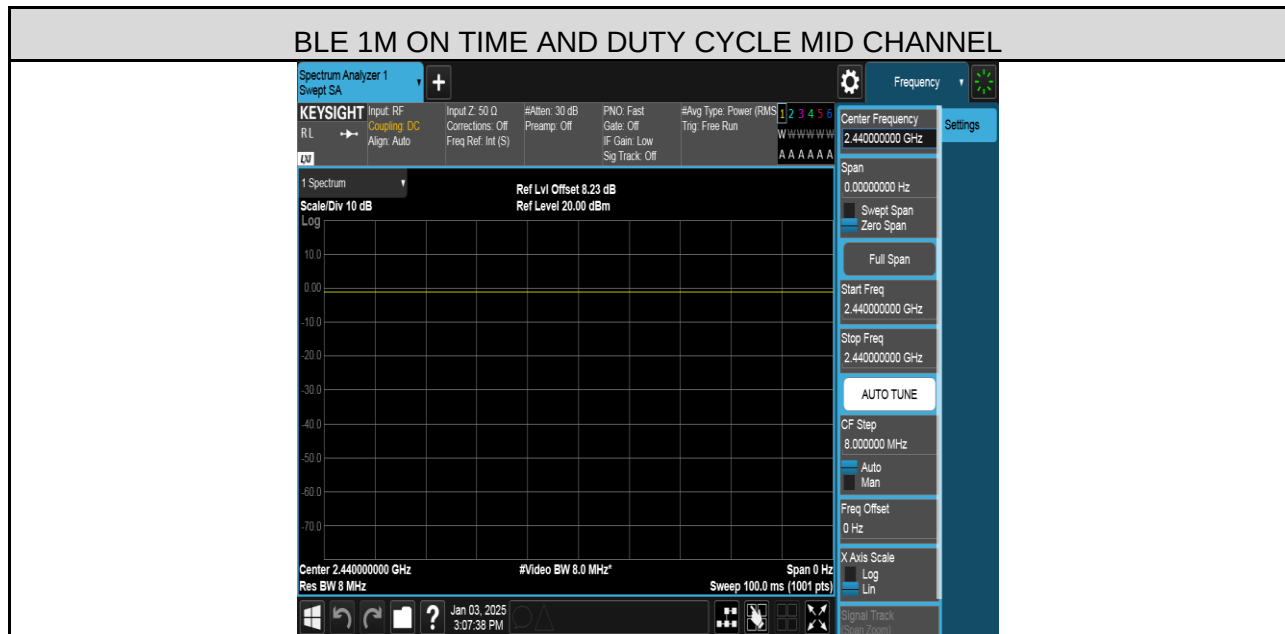
Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 7.6V

TEST RESULTS TABLE

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/T Minimum VBW (kHz)	Final VBW (kHz)
BLE 1M	100	100	1	100	0	0.01	0.01
BLE 2M	100	100	1	100	0	0.01	0.01

Note: 1) Duty Cycle Correction Factor=10log(1/x).
 2) Where: x is Duty Cycle (Linear)
 3) Where: T is On Time (transmit duration)

TEST GRAPHS



7.2. 6 dB BANDWIDTH

LIMITS

FCC Part15 (15.247), Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 47 CFR 15.247(a)(2)	6dB Bandwidth	$\geq 500\text{kHz}$	2400-2483.5

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.8 for DTS bandwidth and clause 6.9 for Occupied Bandwidth.

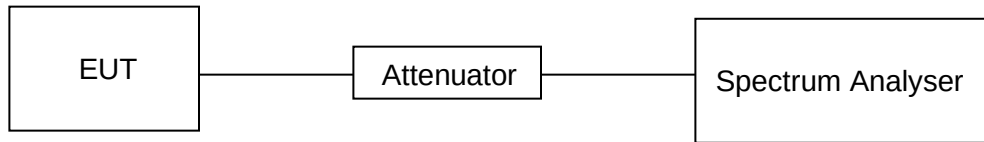
Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Frequency Span	Peak
Detector	For 6 dB Bandwidth: 100 kHz For 99% Occupied Bandwidth: 1% to 5% of the occupied bandwidth
RBW	For 6 dB Bandwidth: $\geq 3 \times \text{RBW}$ For 99% Occupied Bandwidth: $\geq 3 \times \text{RBW}$
VBW	Max hold
Trace	Max hold
Sweep	Auto couple

a) Use the 99% power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.

b) Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP

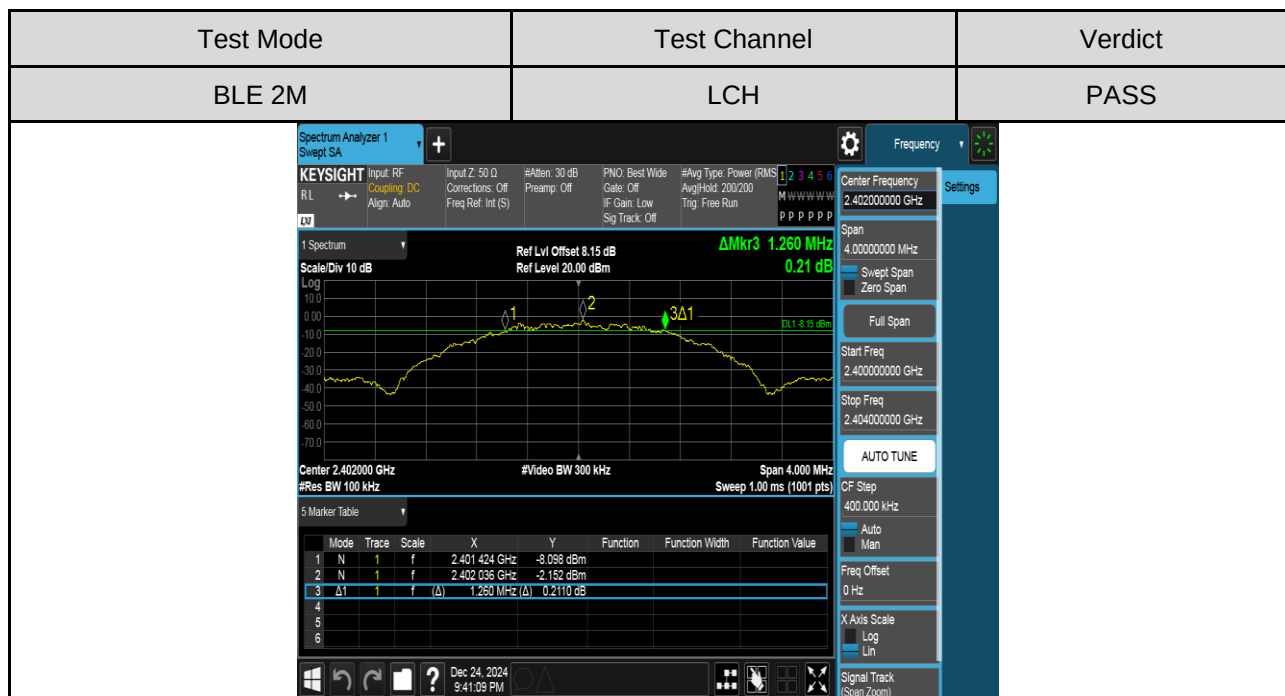
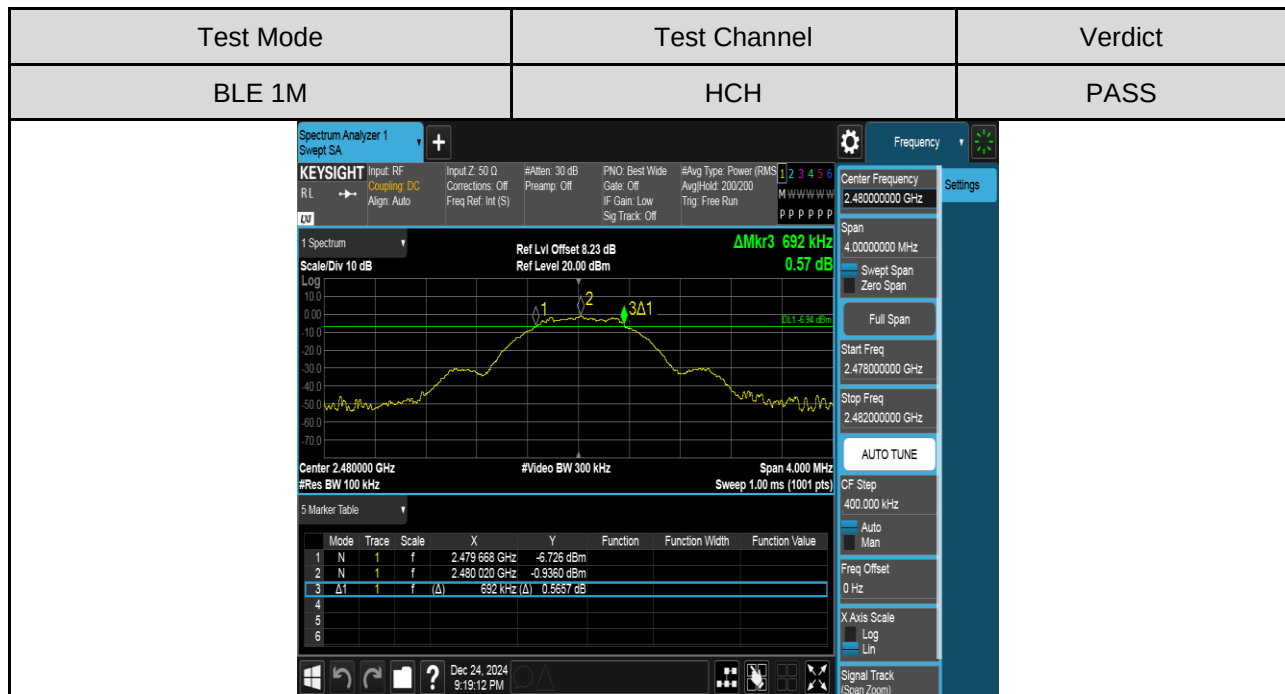


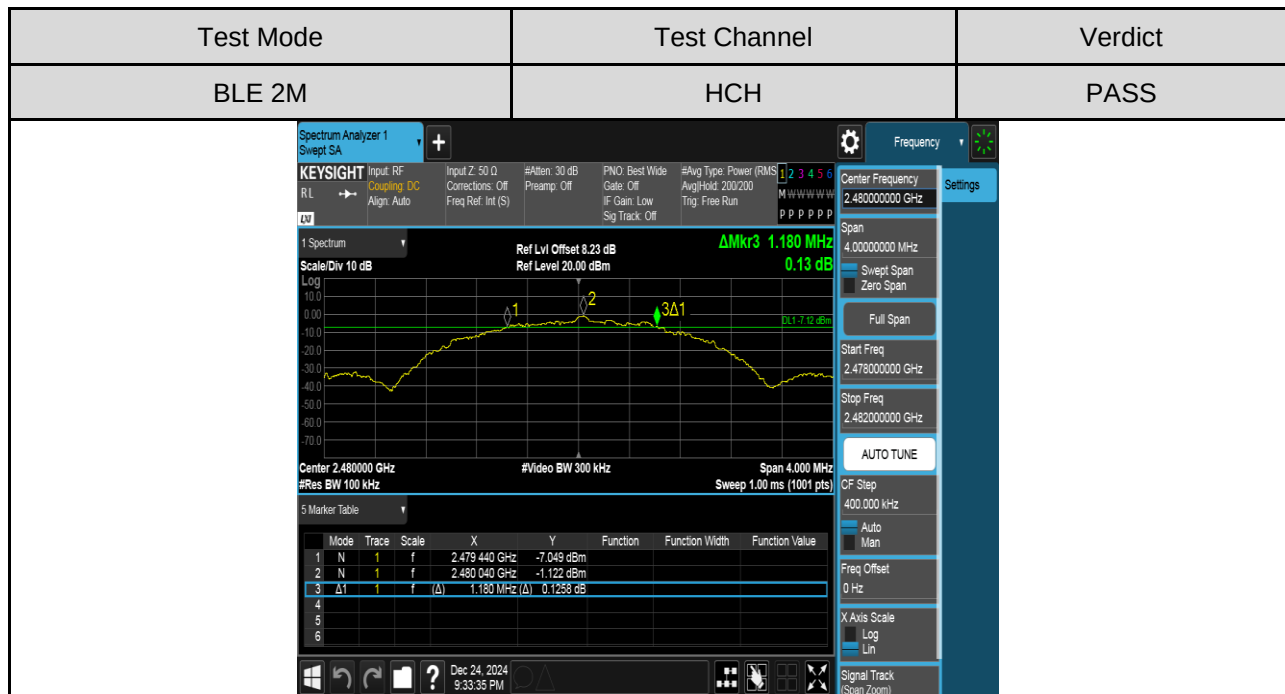
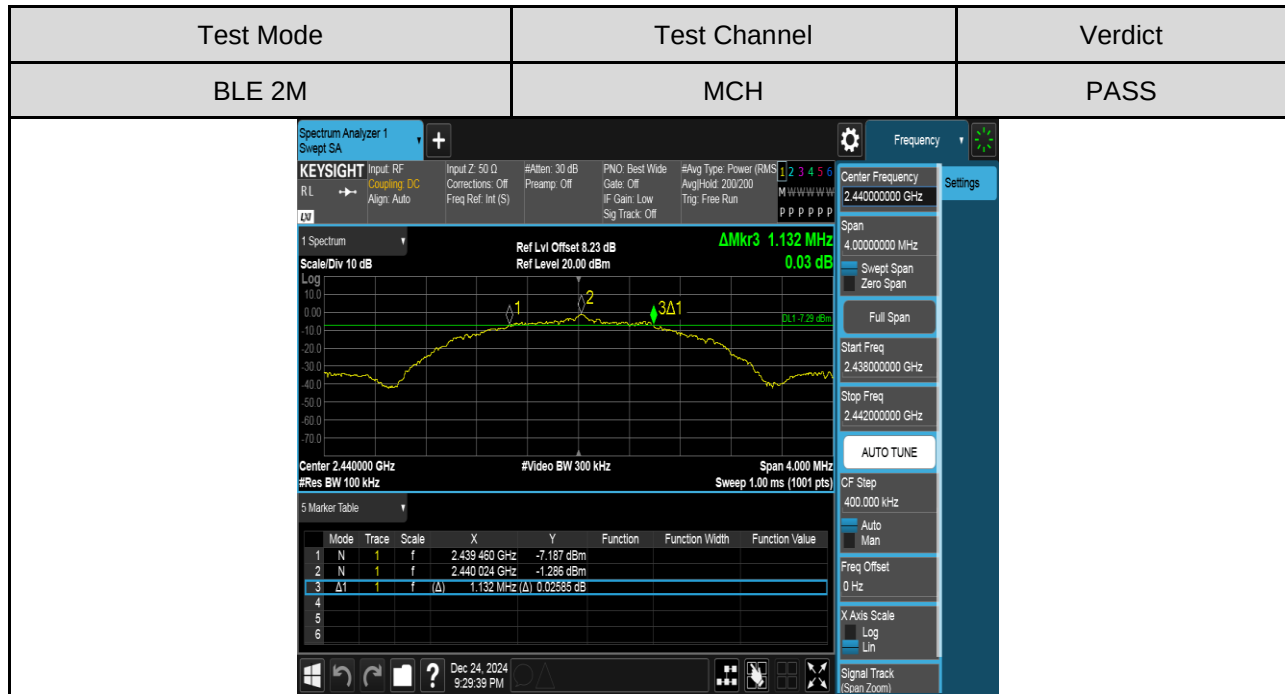
TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 7.6V

TEST RESULTS TABLE

Test Mode	Test Channel	6dB bandwidth (MHz)	Result
BLE 1M	LCH	0.696	Pass
	MCH	0.704	Pass
	HCH	0.692	Pass
BLE 2M	LCH	1.260	Pass
	MCH	1.132	Pass
	HCH	1.180	Pass





7.3. CONDUCTED OUTPUT POWER

LIMITS

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

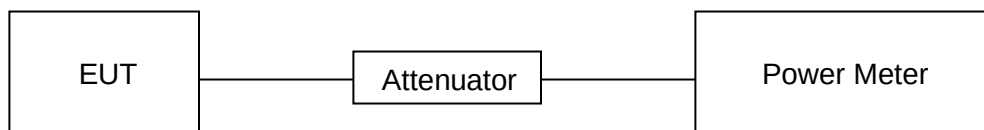
TEST PROCEDURE

Place the EUT on the table and set it in the transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.
Measure the power of each channel.
PK Detector used for PK result.

TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 7.6V

TEST SETUP



TEST RESULTS TABLE

Test Mode	Test Channel	Maximum Conducted Output Power (PK)	LIMIT
		dBm	dBm
BLE 1M	LCH	-1.59	30
	MCH	-1.15	30
	HCH	-0.69	30
BLE 2M	LCH	-1.61	30
	MCH	-1.15	30
	HCH	-0.68	30

7.4. POWER SPECTRAL DENSITY

LIMITS

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

TEST PROCEDURE

Refer to FCC KDB 558074, connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW	$\geq 3 \times \text{RBW}$
Span	$1.5 \times \text{DTS bandwidth}$
Trace	Max hold
Sweep time	Auto couple.

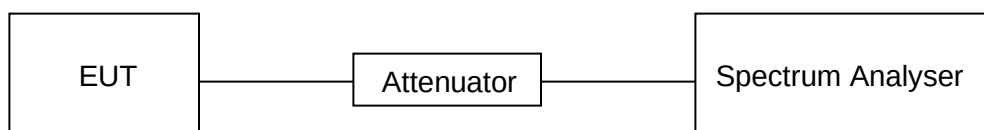
Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

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

TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 7.6V

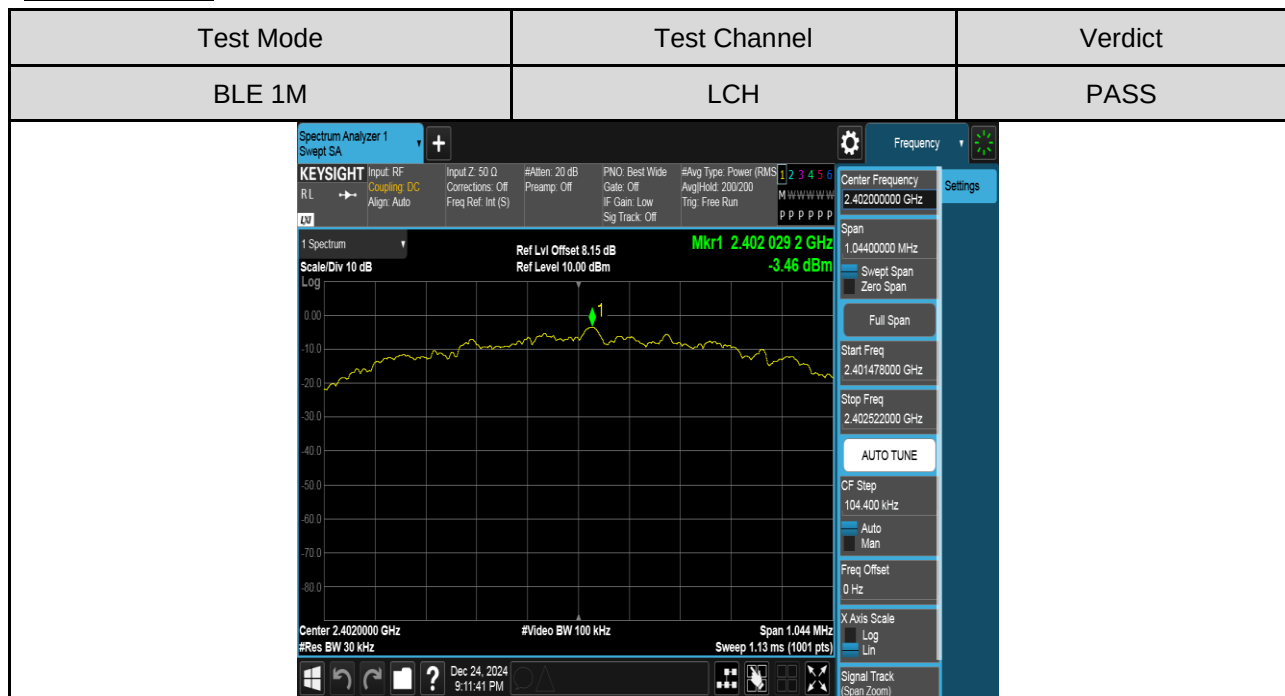
TEST SETUP

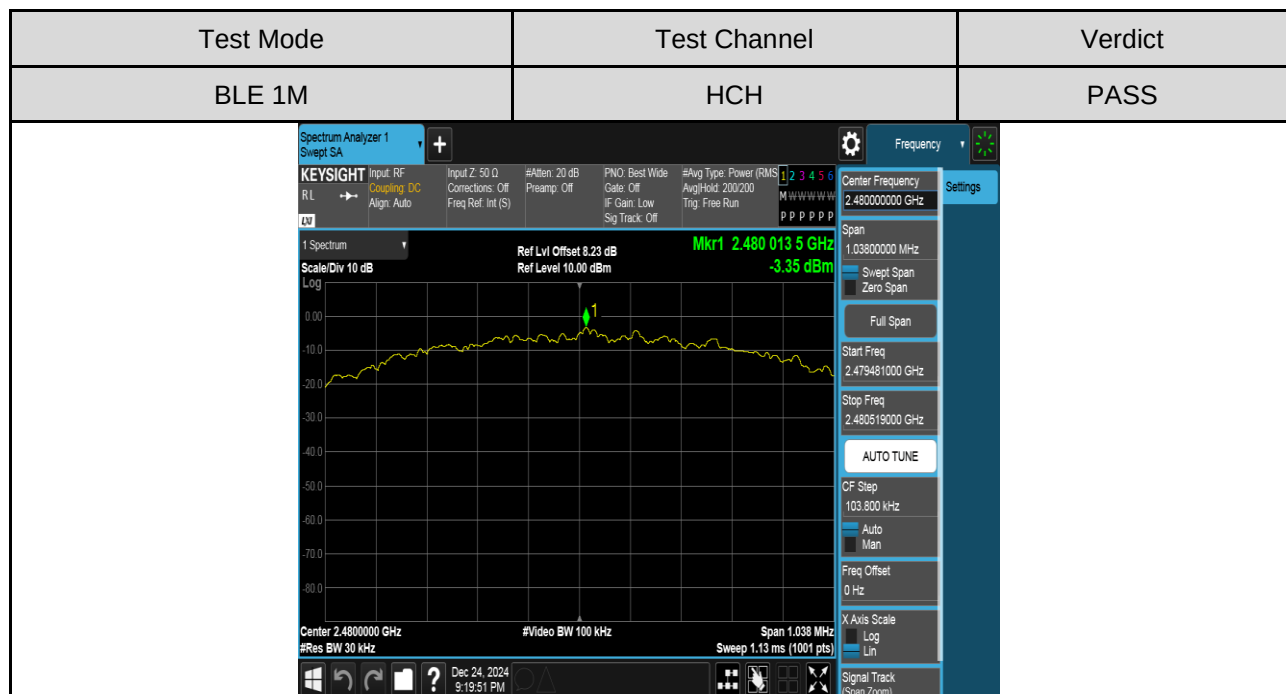
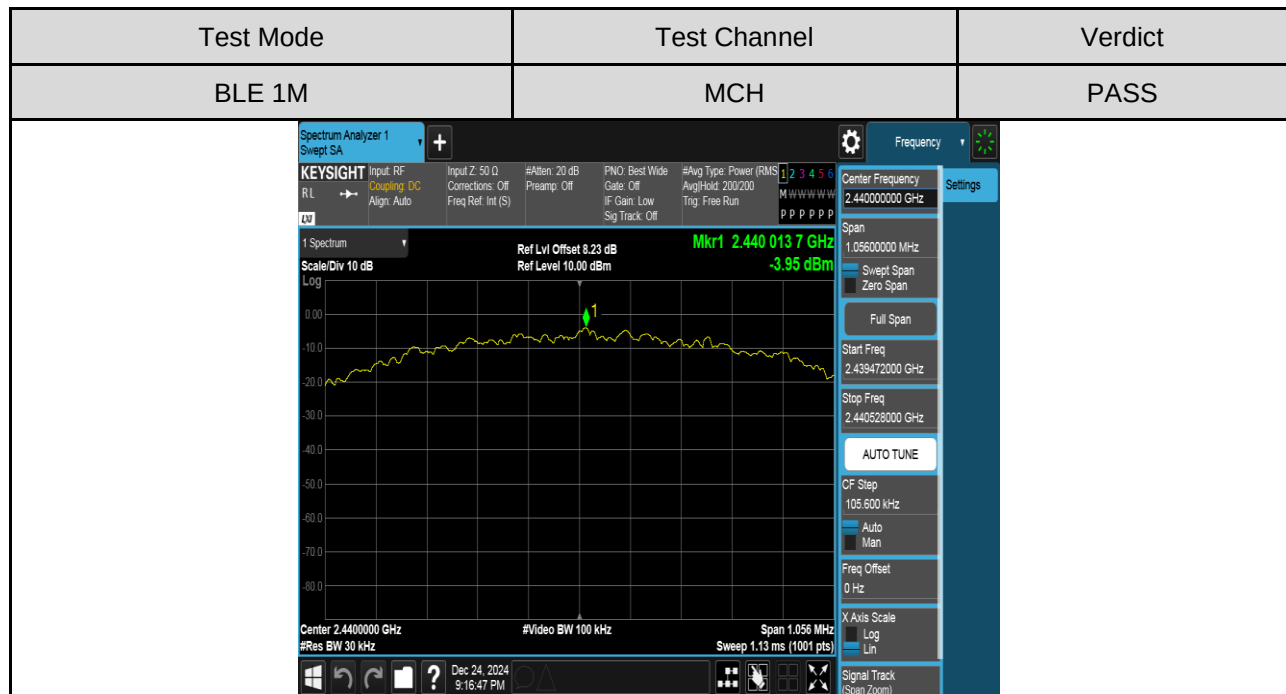


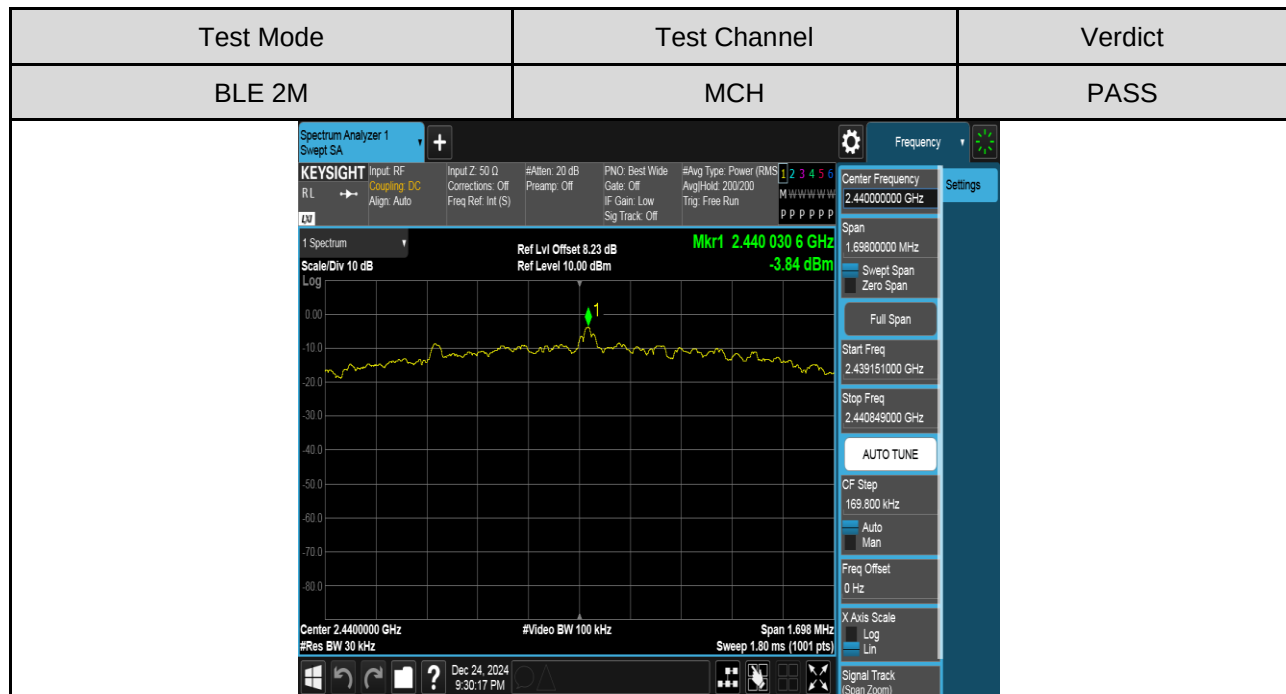
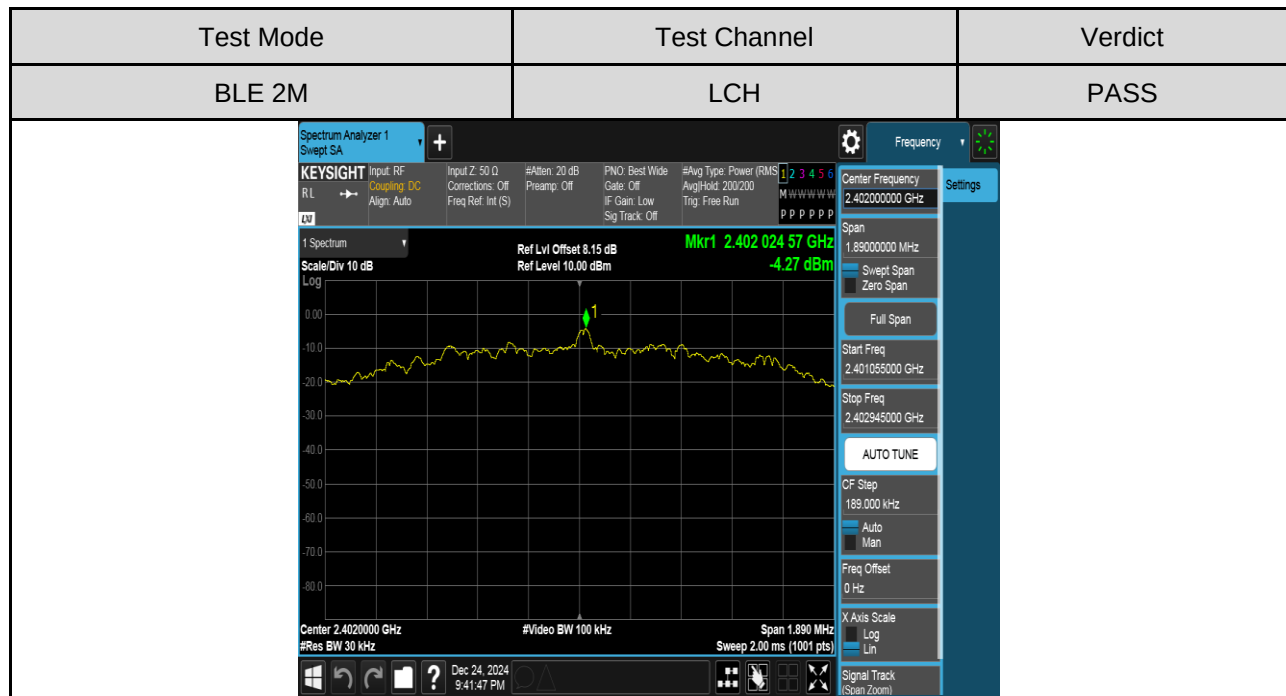
TEST RESULTS TABLE

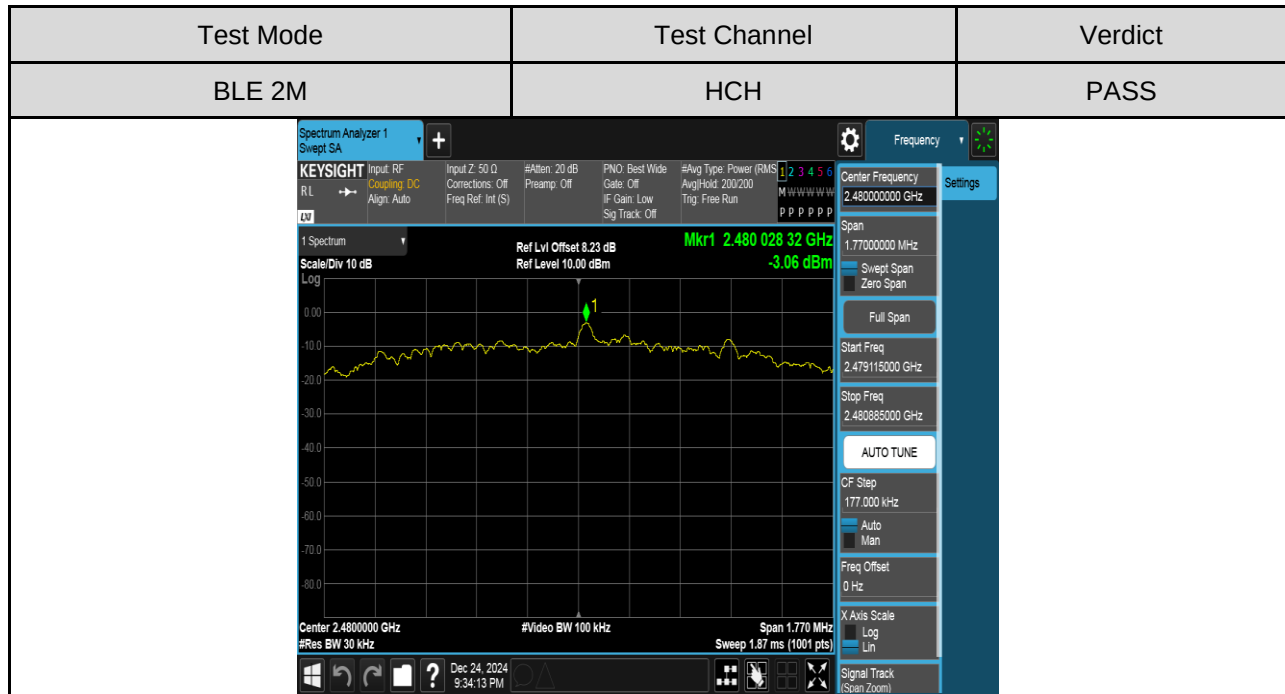
Test Mode	Test Channel	Maximum Peak power spectral density (dBm/30kHz)	Result
BLE 1M	LCH	-3.46	Pass
	MCH	-3.95	Pass
	HCH	-3.35	Pass
BLE 2M	LCH	-4.27	Pass
	MCH	-3.84	Pass
	HCH	-3.06	Pass

TEST GRAPHS









7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

FCC Part15 (15.247), Subpart C		
Section	Test Item	Limit
FCC §15.247 (d)	Conducted Bandedge and Spurious Emissions	20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

TEST PROCEDURE

Refer to FCC KDB 558074, connect the UUT to the spectrum analyser and use the following settings:

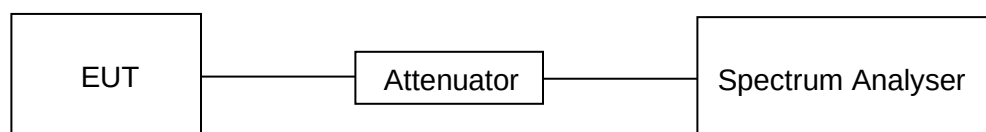
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	$1.5 \times \text{DTS bandwidth}$
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum PSD level.

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
measurement points	$\geq \text{span}/\text{RBW}$
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum amplitude level.

TEST SETUP



TEST ENVIRONMENT

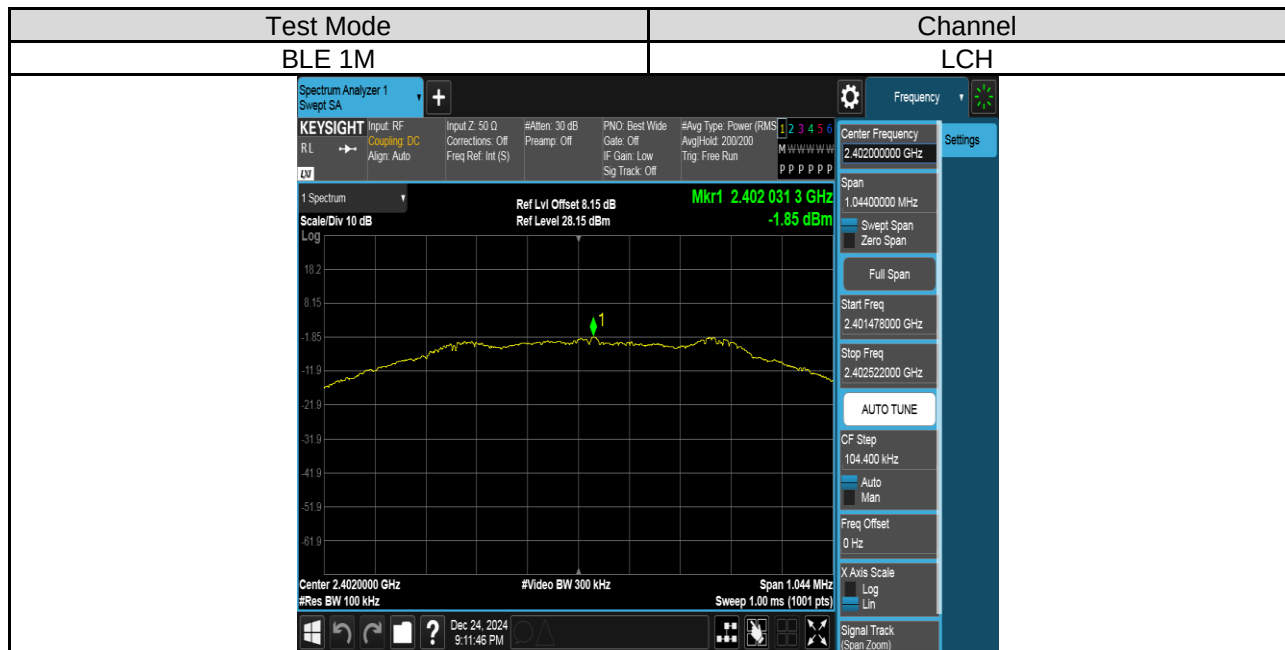
Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 7.6V

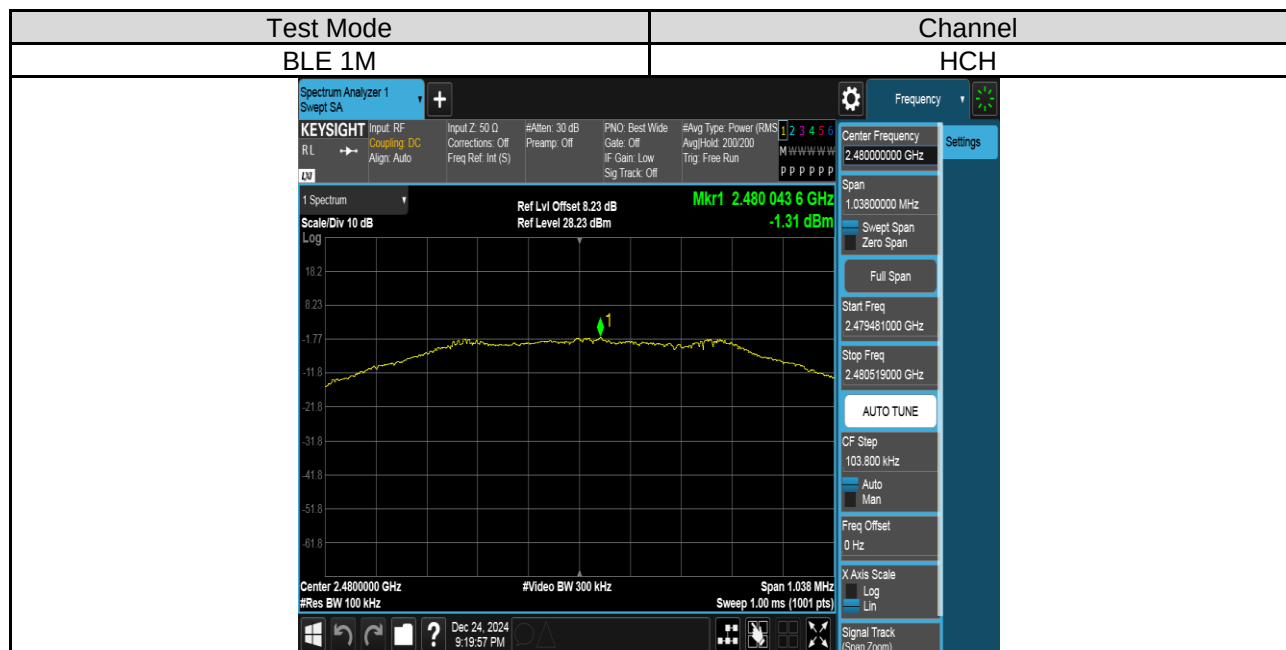
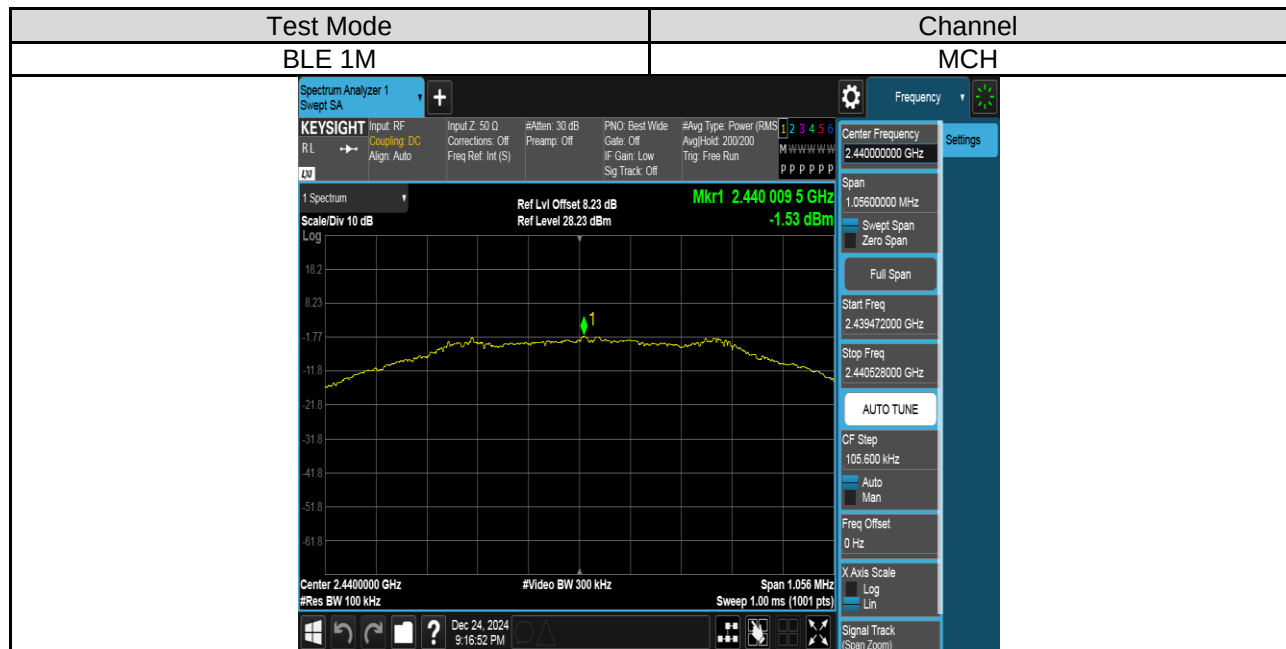
PART 1: REFERENCE LEVEL MEASUREMENT

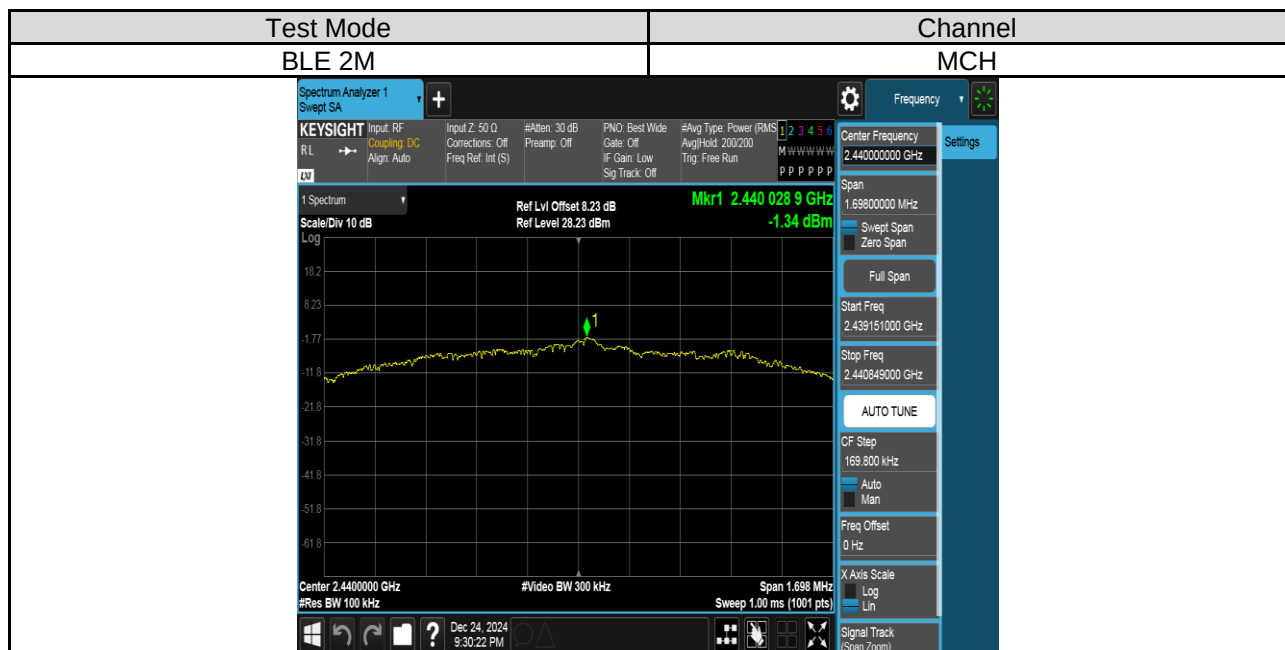
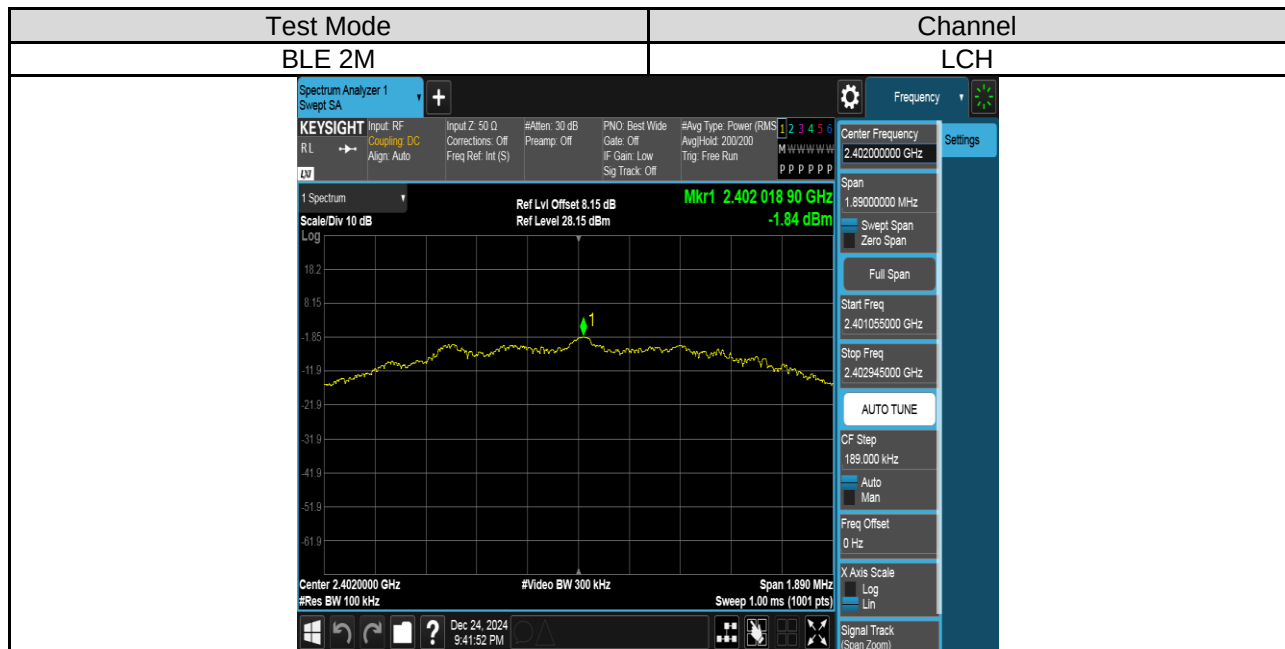
TEST RESULTS TABLE

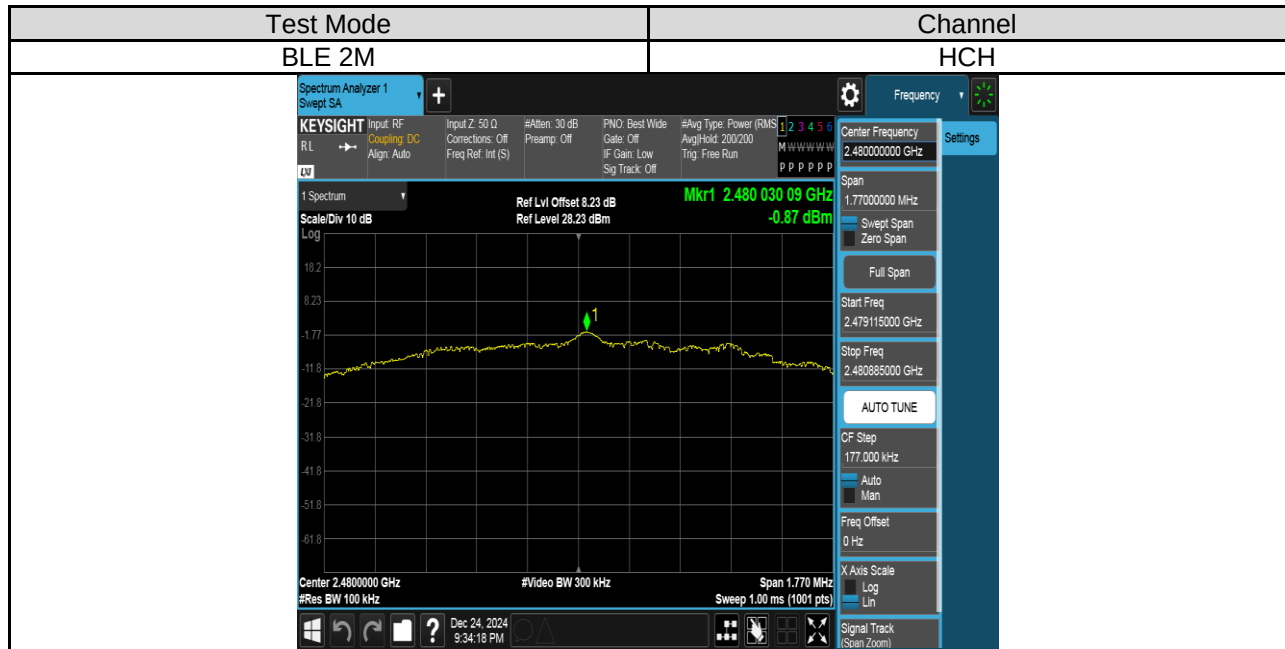
Test Mode	Test Channel	Result[dBm]
BLE 1M	LCH	-1.85
	MCH	-1.53
	HCH	-1.31
BLE 2M	LCH	-1.84
	MCH	-1.34
	HCH	-0.87

TEST GRAPHS





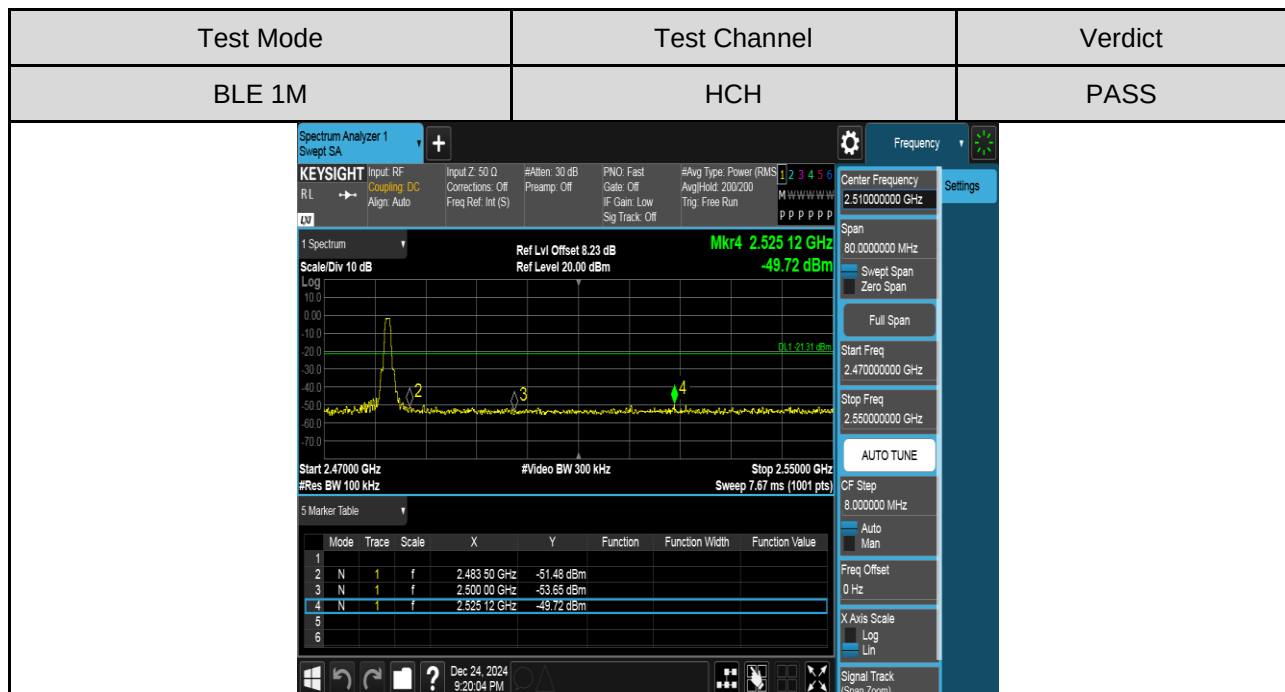
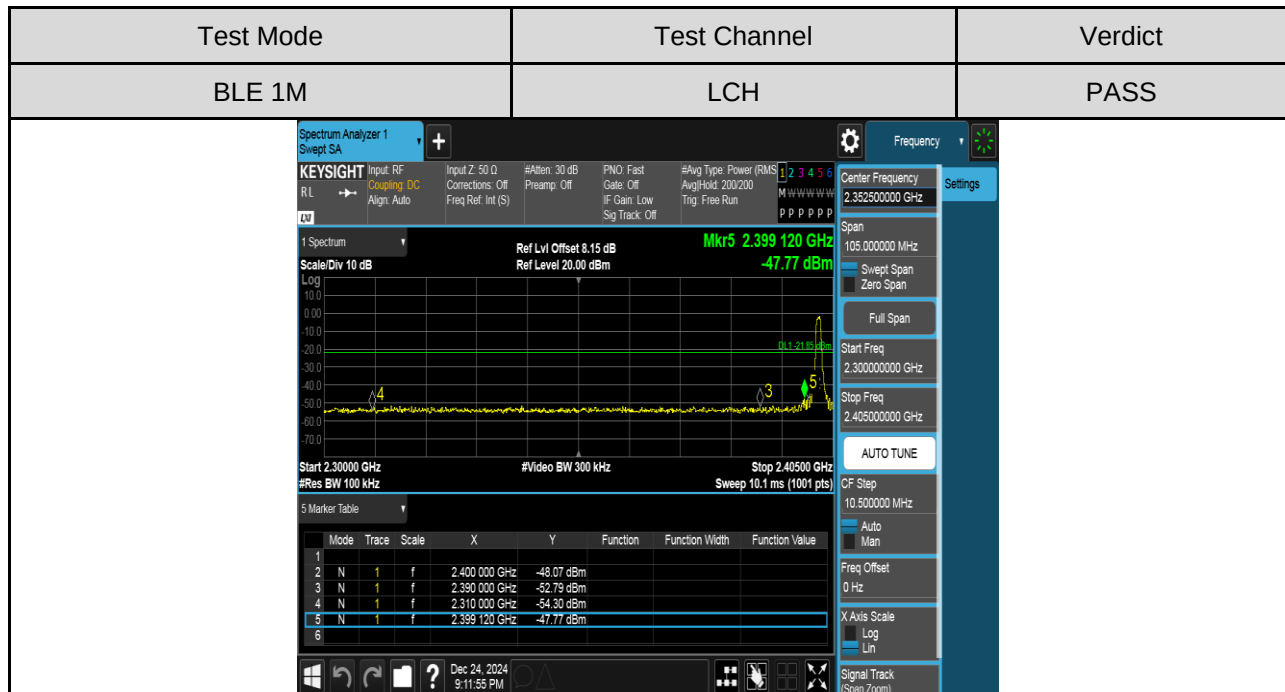


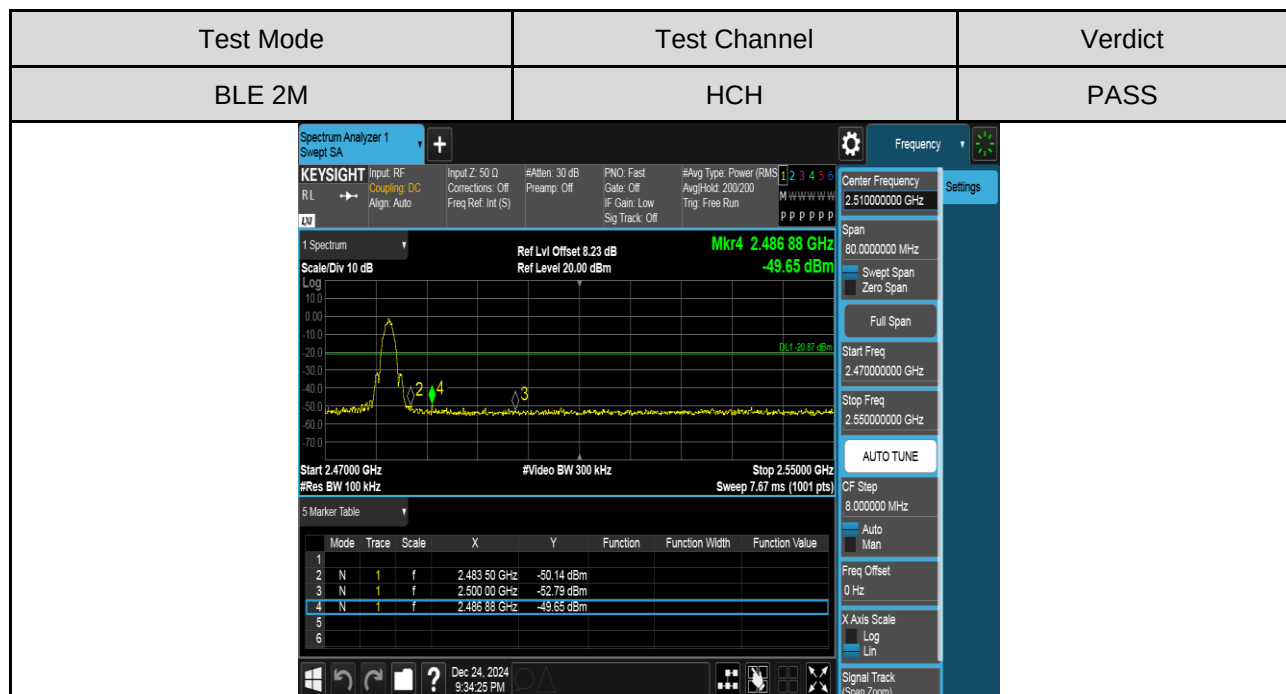
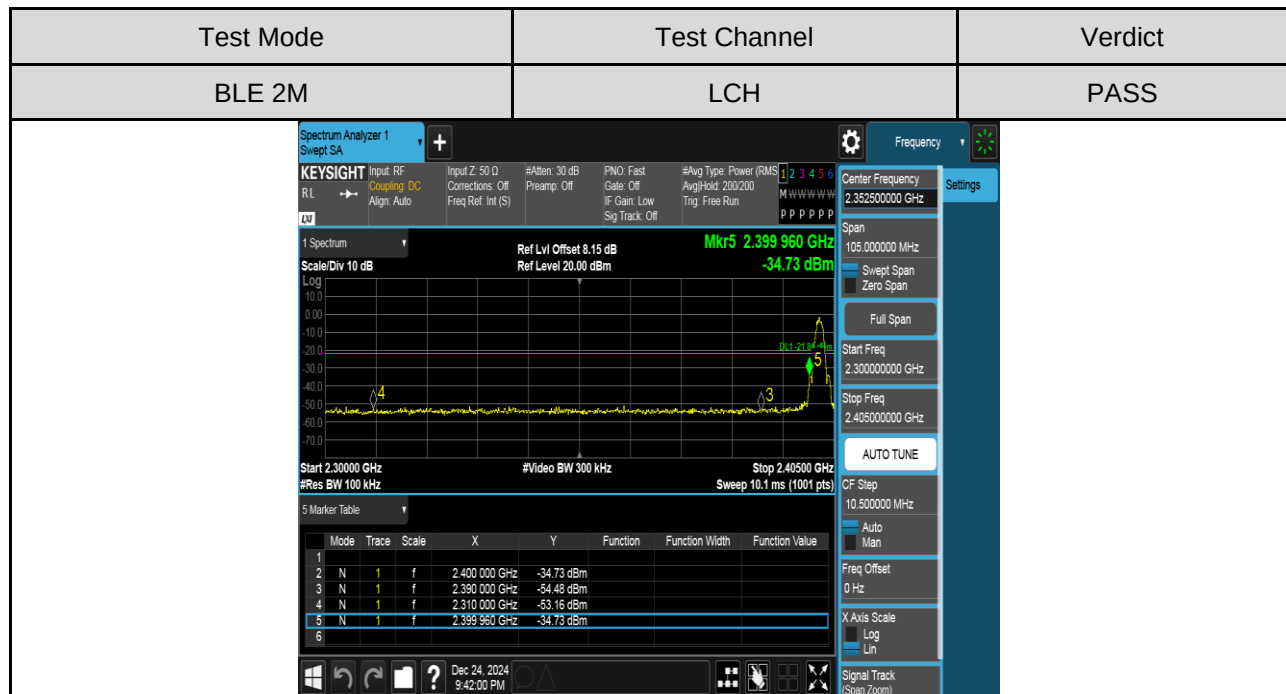


PART 2: CONDUCTED BANDEDGE**TEST RESULTS TABLE**

Test Mode	Test Channel	Result	Verdict
BLE 1M	LCH	Refer to the Test Graph	PASS
	HCH	Refer to the Test Graph	PASS
BLE 2M	LCH	Refer to the Test Graph	PASS
	HCH	Refer to the Test Graph	PASS

TEST GRAPHS



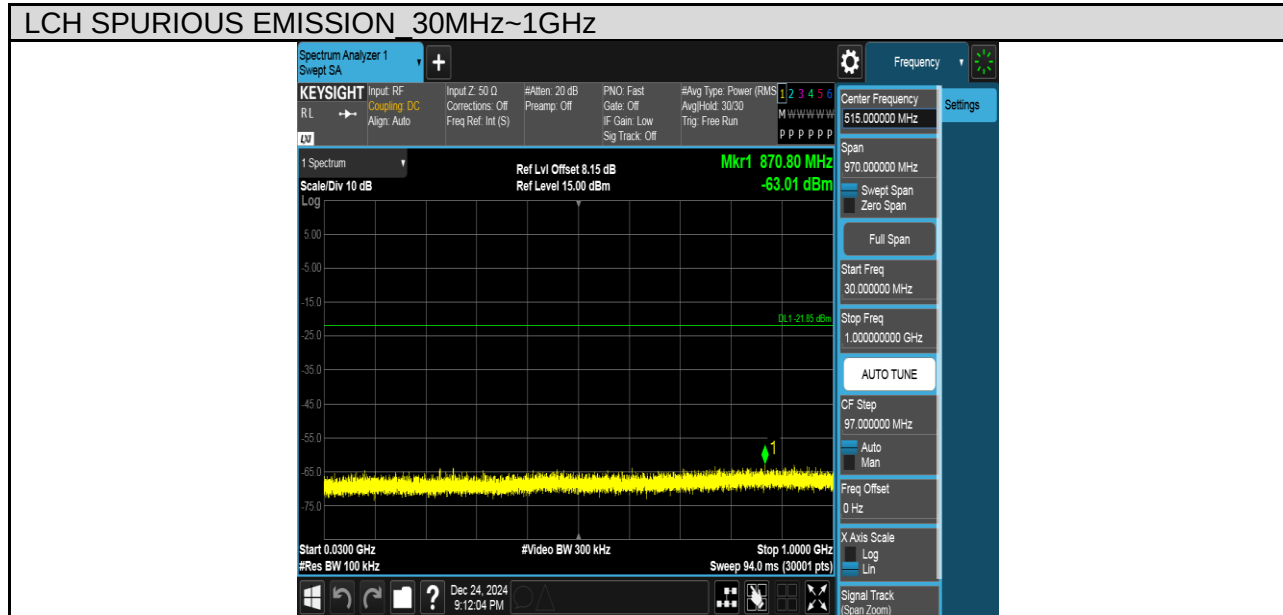


PART 3: CONDUCTED SPURIOUS EMISSION**TEST RESULTS TABLE**

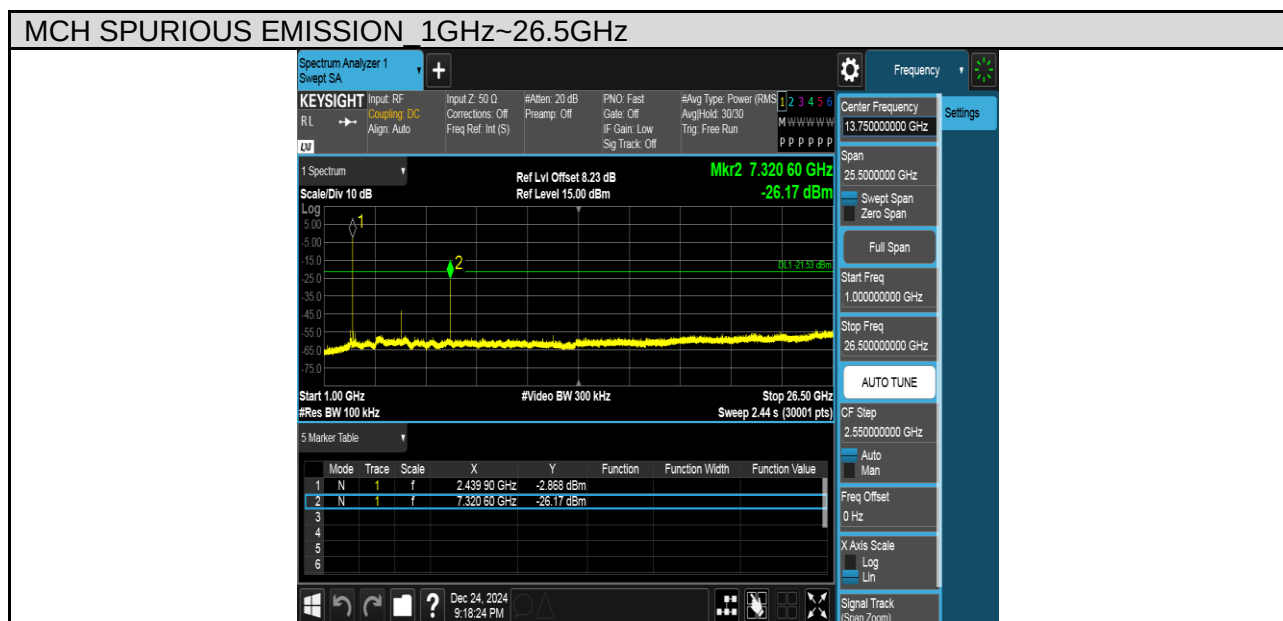
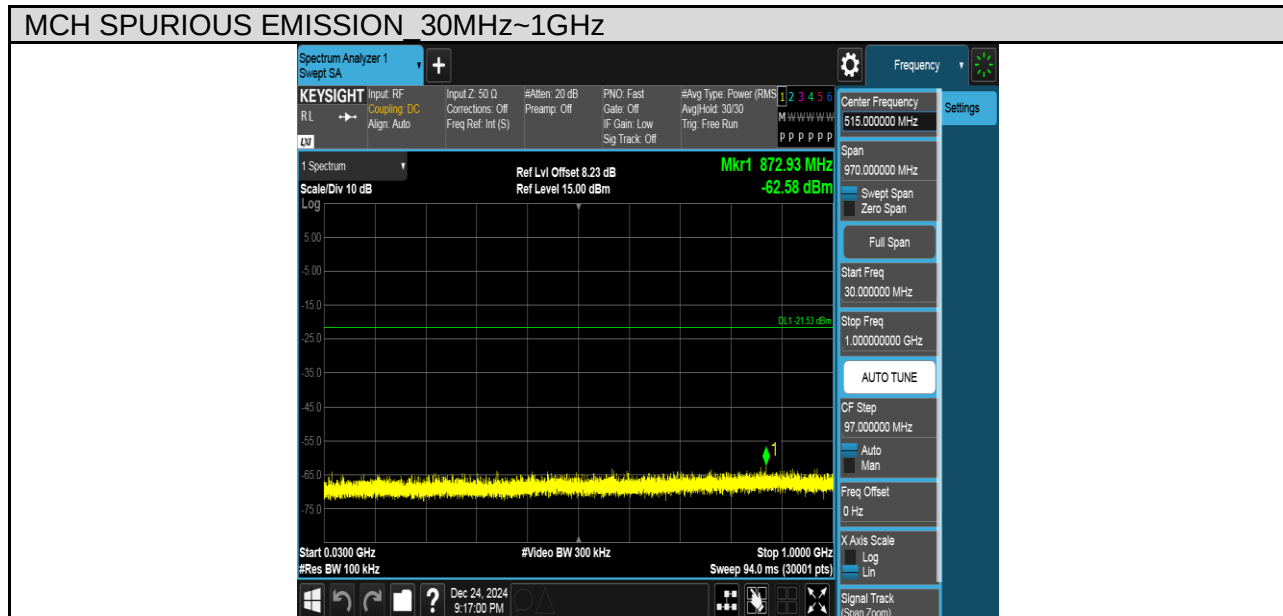
Test Mode	Test Channel	Result	Verdict
BLE 1M	LCH	Refer to the Test Graph	PASS
	MCH	Refer to the Test Graph	PASS
	HCH	Refer to the Test Graph	PASS
BLE 2M	LCH	Refer to the Test Graph	PASS
	MCH	Refer to the Test Graph	PASS
	HCH	Refer to the Test Graph	PASS

TEST GRAPHS

Test Mode	Channel	Verdict
BLE 1M	LCH	PASS

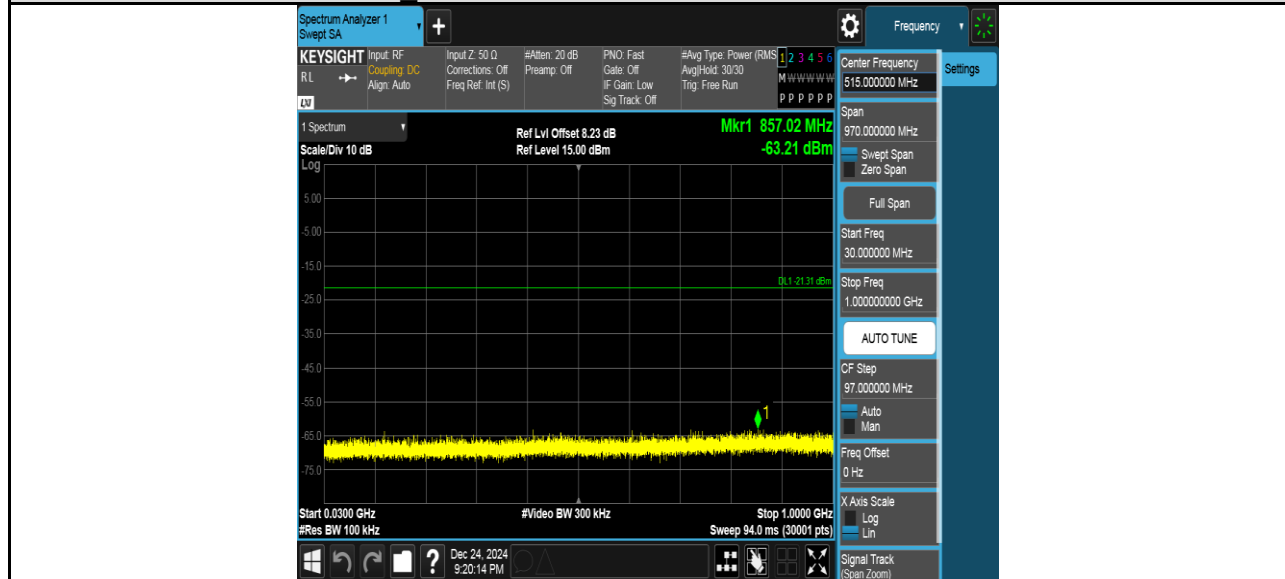


Test Mode	Channel	Verdict
BLE 1M	MCH	PASS



Test Mode	Channel	Verdict
BLE 1M	HCH	PASS

HCH SPURIOUS EMISSION 30MHz~1GHz



HCH SPURIOUS EMISSION 1GHz~26.5GHz



Test Mode	Channel	Verdict
BLE 2M	LCH	PASS

