FCC AND ISED CERTIFICATION TEST REPORT

Applicant	:	Dongguan Siyoto Electronics Co.,Ltd.
Address of Applicant	:	No.10, North 7th Street, Qiaotou Qiaodong Road, Qiaotou Town, Dongguan City, Guangdong Province.
Manufacturer	:	Dongguan Siyoto Electronics Co.,Ltd.
Address of Manufacturer	:	No.10, North 7th Street, Qiaotou Qiaodong Road, Qiaotou Town, Dongguan City, Guangdong Province.
Equipment under Test	:	WIRELESS HEADPHONES
Model No.	:	HA-EC75T
FCC ID	:	2ADZH-EC75T
IC	:	23340-EC75T
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart C, RSS-247 Issue 3 August 2023, ANSI C63.10:2013, RSS-Gen Issue 5, Apr. 2018, Amendment 2 (February 2021)
Report No.	:	DDT-RE24103004-1E02
Issue Date	:	2025/04/30
Issue By	:	Guangdong Dongdian Testing Service Co., Ltd. Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

REPORT

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Test Report Declare

Applicant	:	Dongguan Siyoto Electronics Co.,Ltd.
Address of Applicant	:	No.10, North 7th Street, Qiaotou Qiaodong Road, Qiaotou Town, Dongguan City, Guangdong Province.
Equipment under Test	:	WIRELESS HEADPHONES
Model No.	:	HA-EC75T
Manufacturer	:	Dongguan Siyoto Electronics Co.,Ltd.
Address of Manufacturer	:	No.10, North 7th Street, Qiaotou Qiaodong Road, Qiaotou Town, Dongguan City, Guangdong Province.

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C,
RSS-247 Issue 3 August 2023,
ANSI C63.10:2013,
RSS-Gen Issue 5, Apr. 2018, Amendment 2 (February 2021)

We Declare:

The equipment described above is tested by Guangdong Dongdian Testing Service 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 Guangdong Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

Report No.:	DDT-RE24103004-1E02		
Date of Receipt:	2024/11/29	**Date of Test:**	2024/11/29 - 2025/04/30

Prepared By:	**Approved By:**
Bobo Chen	Damon Hu
Bobo Chen/Engineer	**Damon Hu/EMC Manager**

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Guangdong Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	2025/04/30	

1. Summary of Test Results

No.	Test Parameter	Clause No.	Condition	Result
1	6 dB Bandwidth and 99% Bandwidth	FCC Part 15: 15.247(a)(2), RSS-247 Issue 3 clause 5.2(a), RSS-Gen Issue 5 clause 6.7	/	Pass
2	Peak Output Power	FCC Part 15: 15.247(b)(3), RSS-247 Issue 3 clause 5.4(d)	/	Pass
3	Power Spectral Density	FCC Part 15:15.247(e), RSS-247 Issue 3 clause 5.2(b)	/	Pass
4	RF Conducted Spurious Emissions	FCC Part 15: 15.247(d), RSS-247 Issue 3 clause 5.5	/	Pass
5	Radiated Emission	FCC Part 15: 15.205, FCC Part 15: 15.209, FCC Part 15: 15.247(d), RSS-247 Issue 3 clause 5.5, RSS-Gen Issue 5 clause 8.9, RSS-Gen Issue 5 clause 8.10	/	Pass
6	Band Edge Compliance	FCC Part 15: 15.205, FCC Part 15: 15.209, FCC Part 15: 15.247(d), RSS-247 Issue 3 clause 5.5, RSS-Gen Issue 5 clause 8.9, RSS-Gen Issue 5 clause 8.10	/	Pass
7	Power Line Conducted Emissions	FCC Part 15: 15.207(a), RSS-Gen Issue 5 clause 8.8	/	Pass
8	Antenna Requirement	FCC Part 15: 15.203, RSS-Gen Issue 5 clause 6.8	/	Pass
Note: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device or no need to test according to standard.				

2. General Test Information

2.1. Description of EUT

EUT Name	:	WIRELESS HEADPHONES
Model Number	:	HA-EC75T
EUT Function Description	:	Please reference user manual of this device
Power Supply	:	CHARGING CASE: DC 5V from USB cable EARBUDS: DC 5V from external charging case CHARGING CASE: DC 3.7V Lithium-ion built-in battery EARBUDS: DC 3.85V Lithium-ion built-in battery

Note 1: This EUT support Bluetooth BR/EDR/LE, this report only for Bluetooth BR/EDR.
Note 2: The headphones are available in multiple color options, with different circuit layouts on the left and right sides, and tests on both sides.

Radio Specification	:	Bluetooth LE
Operation Frequency	:	2402 MHz-2480 MHz
Modulation	:	GFSK

Antenna information		
Antenna Type	:	FPC
Left side max antenna Gain(dBi)	:	2.22
Right side max antenna Gain(dBi)		0.97

Bluetooth LE 1Mbps 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		
Bluetooth LE 2Mbps 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		
The channels denoted with the grey background are excluded, because they are primary advertising channel only for the Bluetooth LE 1Mbps according to the Bluetooth Core Specification.					

Note: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

“☒” means to be chosen or applicable; “□” means don’t to be chosen or not applicable; This note applies to entire report.

2.2. Accessories of EUT

Accessories	Manufacturer	Model number	Description
USB cable	N/A	N/A	Length: 0.2m, unshielded

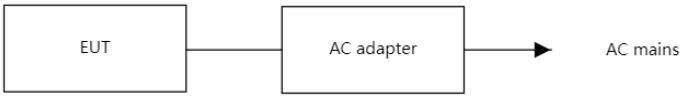
2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
NoteBook	Lenovo	i7-3520M	N/A	00426-OEM-8992662-00400

2.4. Block diagram of EUT configuration for test

For Conducted Method Testing and Radiated Method Testing:

For Power Line Conducted Emissions Method Testing:



2.5. Decision of final test mode

According pre-test, the worst test modes were reported as below:

Test software: FCC_assist_1.0.2.2.exe

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: 0.5dB (According to the manufacturer's claims)

Tested mode, channel, information			
Mode	Setting Tx Power	Channel	Frequency (MHz)
GFSK 1M	Default	CH0	2402
	Default	CH19	2440
	Default	CH39	2480
GFSK 2M	Default	CH1	2404
	Default	CH19	2440
	Default	CH38	2478

2.6. Deviations of test standard

No deviation.

2.7. Test environment conditions

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

Temperature range:	+15℃ to +35 ℃
Humidity range:	20% to 75%
Pressure range:	86 kPa to106 kPa

Note: The specific temperature and humidity information of each test item refers to the temperature and humidity record in the corresponding test data.

2.8. Test laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808.

Tel.: +86-0769-38826678, http://www.dgddt.com, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20155, G-20118

2.9. Measurement uncertainty

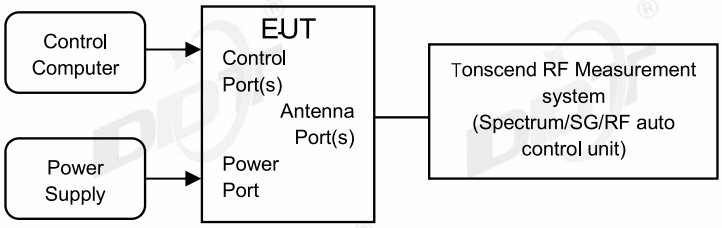
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Frequencies Stability	6.7 x 10^{-8} (Antenna couple method)
	5.5 x 10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.40 dB (3.6 GHz ≤ f < 8 GHz)
	1.66 dB (8 GHz ≤ f < 26.5 GHz)
Uncertainty for radio frequency (RBW < 20 kHz)	3×10^{-8}
Temperature	0.4 ℃
Humidity	2 %
Uncertainty for Radiation Emission test (9 kHz – 30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz - 40 GHz)	4.10 dB (1 - 6 GHz)
	4.40 dB (6 GHz - 18 GHz)
	3.54 dB (18 GHz - 26 GHz)
	4.30 dB (26 GHz - 40 GHz)
Uncertainty for Power line conduction emission test	3.34dB (150KHz-30MHz)
	3.72dB (9KHz-150KHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. Equipment Used During Conductive Test

Equipment	Manufacturer	Model No.	Serial Number	Due Date
☒RF Connected Test (RF Measurement System 4#)				
Signal &Spectrum Analyzer	R&S	FSV3044	101173	2025/03/31
Wideband Radio Communication Tester	R&S	CMW500	168801	2025/03/31
MXG Vector Signal Generator	Agilent	N5182A	MY48180737	2025/03/31
PSG Vector Signal Generator	Agilent	E8267D	US49060192	2025/08/25
RF Control Unit	Tonsend	JS0806-2	21I8060485	2025/03/31
TEMP&HUMI Programmable Chamber	ZHIXIANG	ZXGDJS-150L	ZX170110-A	2025/04/22
Test Software	Tonscend	JS1120-3	Ver.3.2.22	N/A

4. 6 dB Bandwidth

4.1. Block diagram of test setup



4.2. Limits

For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz

4.3. Test procedure

(1) The test according to ANSI C63.10-2013 clause 11.8.
(2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results
(3) Set the EUT as maximum power setting and enable the EUT transmit continuously
(4) Use the following spectrum analyzer settings for 6 dB Bandwidth:

RBW:	100 kHz
VBW:	≥ [3 × RBW]
Detector Mode:	Peak
Sweep time:	Auto
Trace mode	Max hold

(5) Allow the trace to stabilize, measure the 6 dB bandwidth of signal, and record the results in the report.

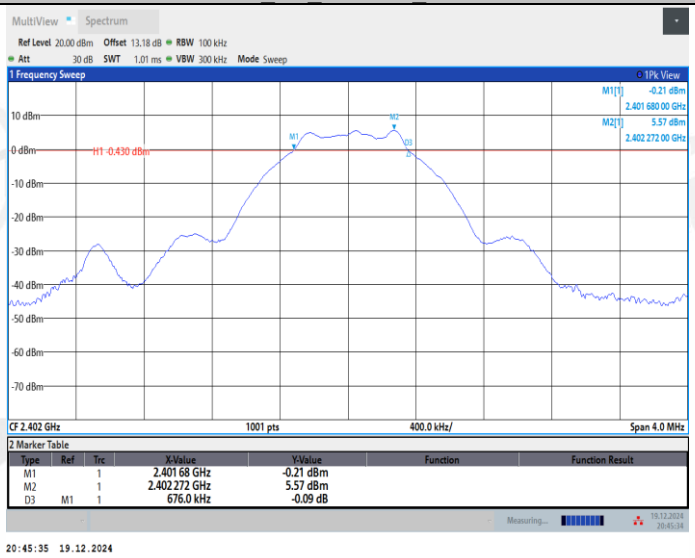
4.4. Test result

Test Engineer:	Zoe	Test Site:	RF Measurement System 4#
Ambient Condition:	23.1℃,48.9%RH	Test Date:	2024.12.18-2024.12.20
Test Power Supply:	Battery	Sample Number:	S24103004-013

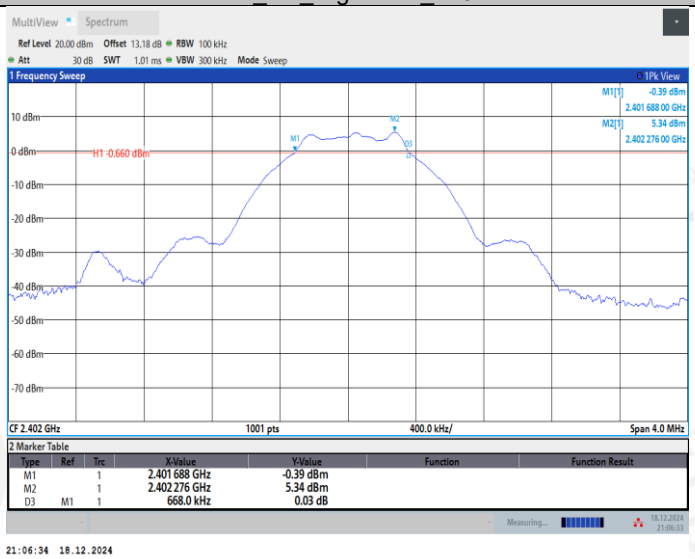
Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
BLE_1M	Left side	2402	0.68	2401.68	2402.36	≥0.5	PASS
	Right side	2402	0.67	2401.69	2402.36	≥0.5	PASS
	Left side	2440	0.67	2439.68	2440.35	≥0.5	PASS
	Right side	2440	0.68	2439.68	2440.36	≥0.5	PASS
	Left side	2480	0.68	2479.67	2480.35	≥0.5	PASS
	Right side	2480	0.68	2479.68	2480.36	≥0.5	PASS
BLE_2M	Left side	2404	1.17	2403.43	2404.60	≥0.5	PASS
	Right side	2404	1.17	2403.44	2404.61	≥0.5	PASS
	Left side	2440	1.17	2439.44	2440.61	≥0.5	PASS
	Right side	2440	1.17	2439.44	2440.61	≥0.5	PASS
	Left side	2478	1.17	2477.44	2478.61	≥0.5	PASS
	Right side	2478	1.17	2477.44	2478.61	≥0.5	PASS

4.5. Test graphs

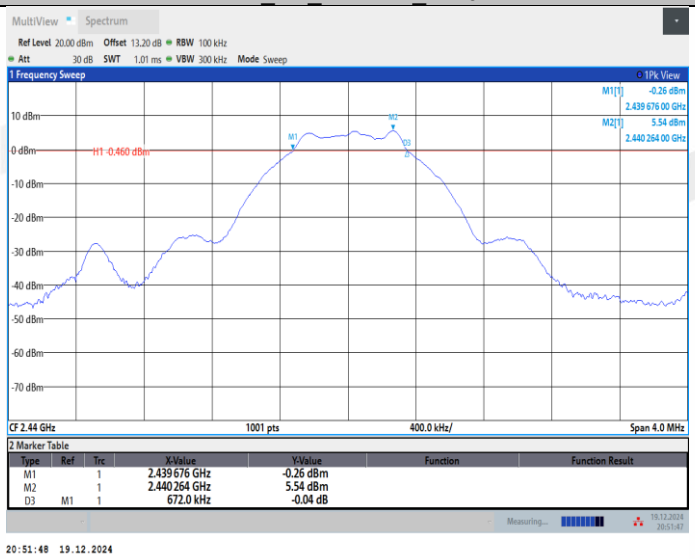
BLE_1M_Left side_2402



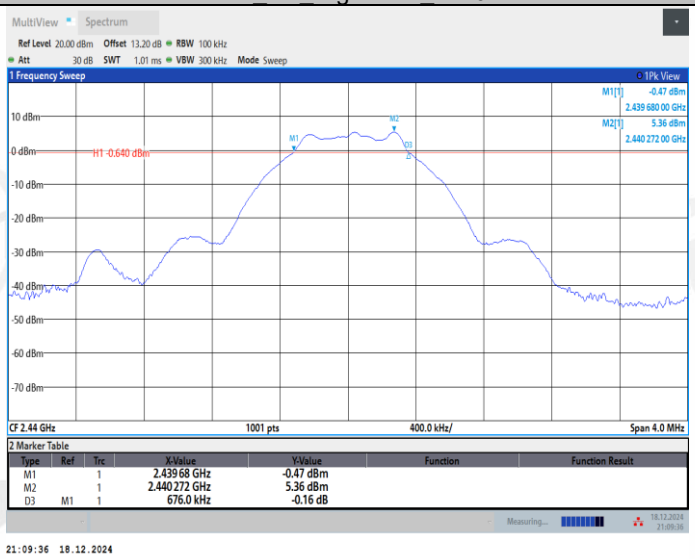
BLE_1M_Right side_2402



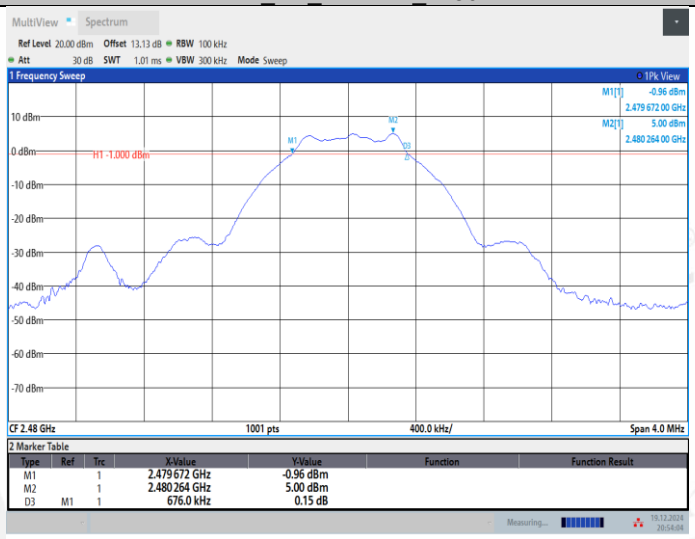
BLE_1M_Left side_2440



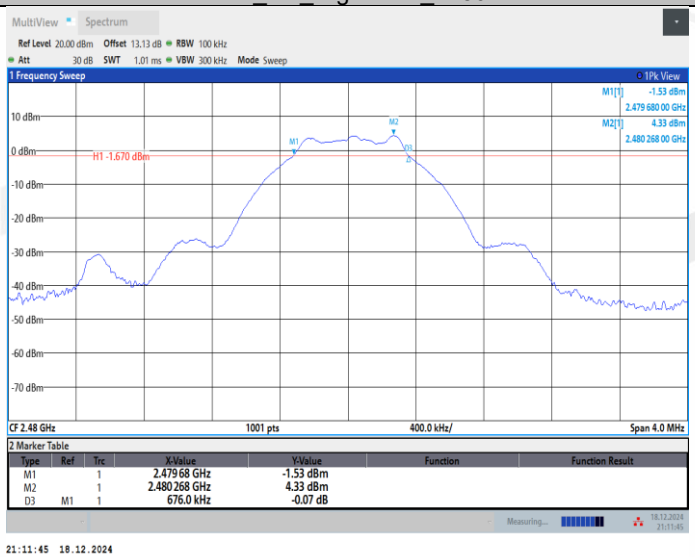
BLE_1M_Right side_2440



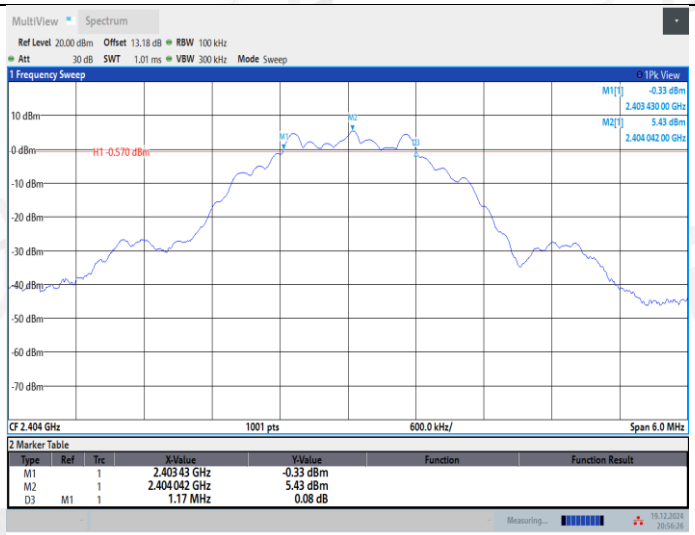
BLE_1M_Left side_2480



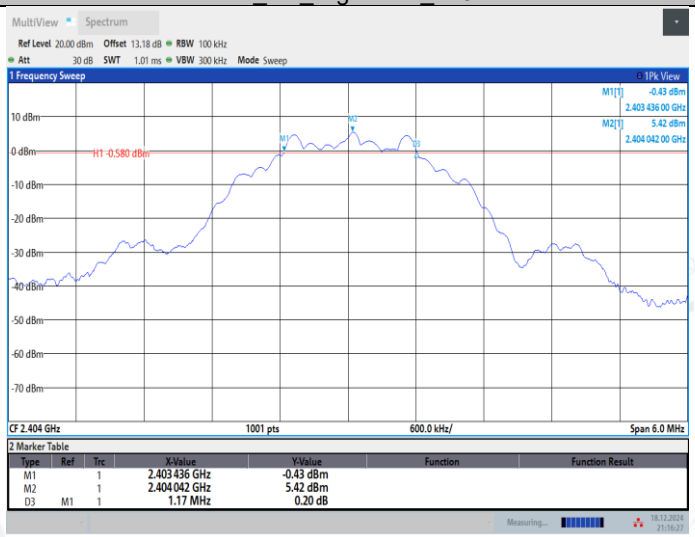
BLE_1M_Right side_2480



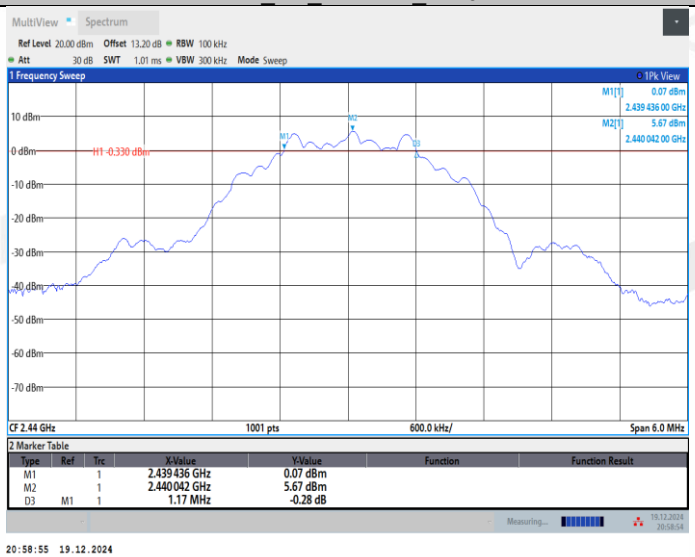
BLE_2M_Left side_2404



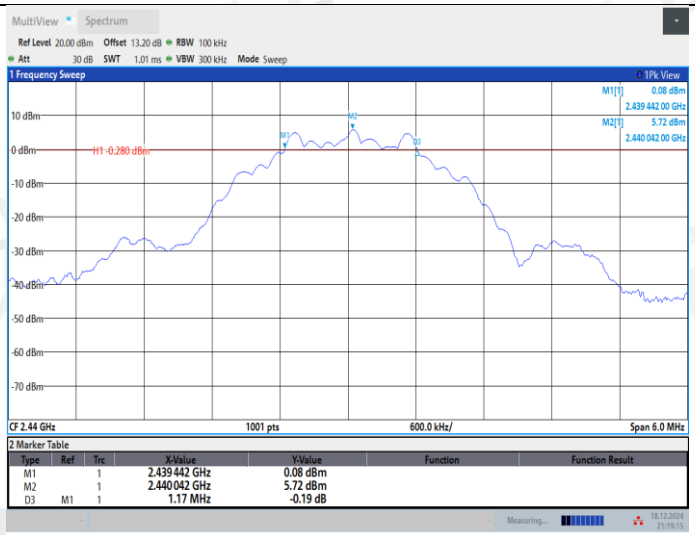
BLE_2M_Right side_2404



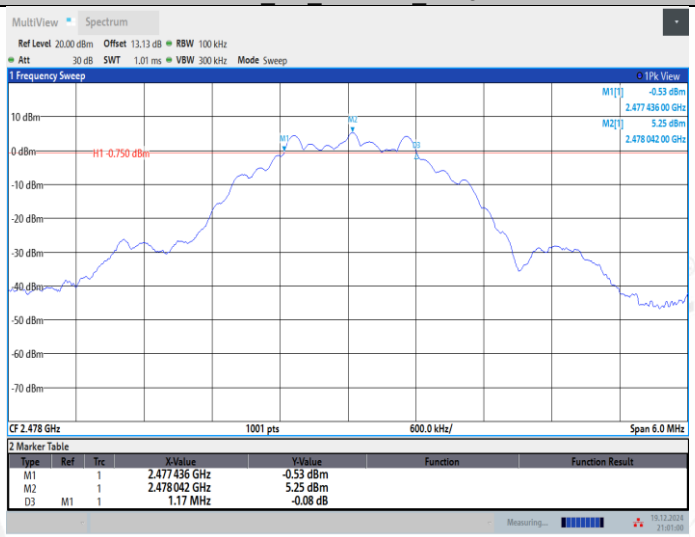
BLE_2M_Left side_2440



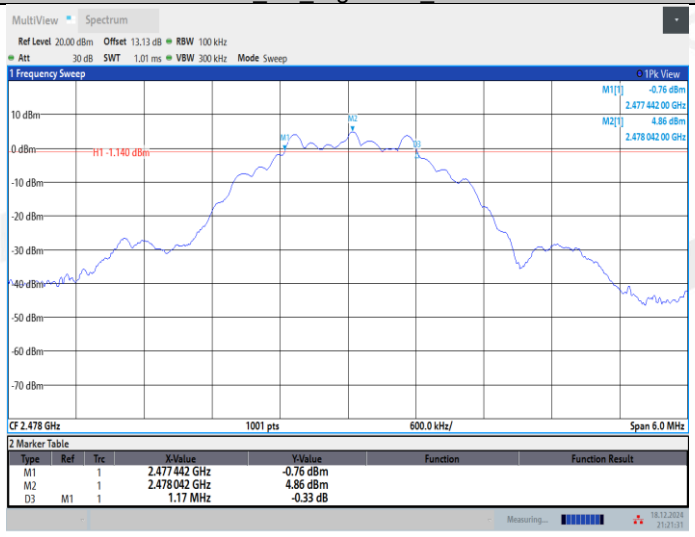
BLE_2M_Right side_2440



BLE_2M_Left side_2478

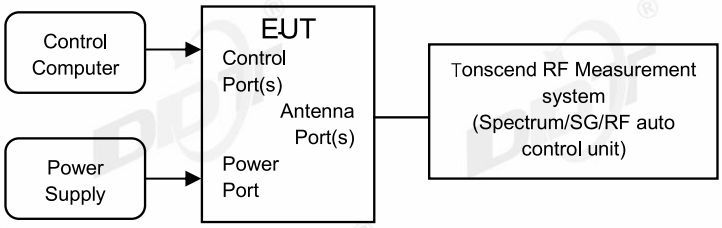


BLE_2M_Right side_2478



5. 99% Bandwidth

5.1. Block diagram of test setup



5.2. Limits

Just for Report.

5.3. Test procedure

(1) The test according to ANSI C63.10-2013 clause 6.9.3.
(2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results
(3) Set the EUT as maximum power setting and enable the EUT transmit continuously
(4) Use the following spectrum analyzer settings for the 99% Bandwidth:

RBW:	1% to 5% of the OBW
VBW:	approximately three times RBW
Span:	between 1.5 times and 5.0 times the OBW
Detector Mode:	Peak
Sweep time:	Auto
Trace mode	Max hold

(5) Allow the trace to stabilize, measure the 99% bandwidth of signal, and record the results in the report.

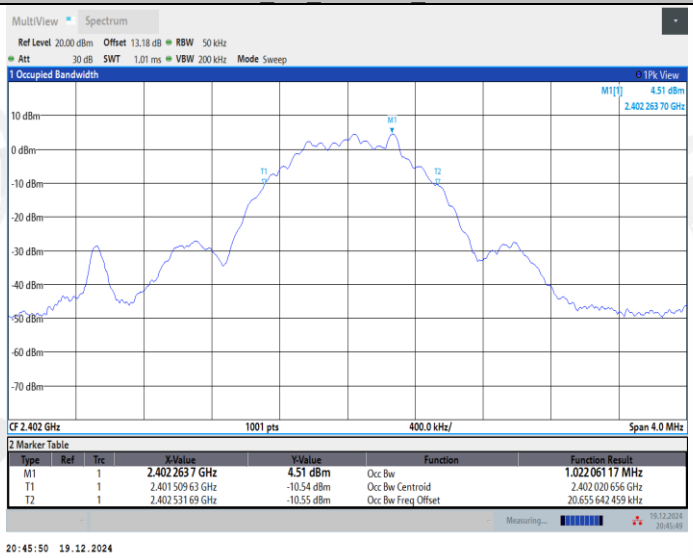
5.4. Test result

Test Engineer:	Zoe	Test Site:	RF Measurement System 4#
Ambient Condition:	23.1℃,48.9%RH	Test Date:	2024.12.18-2024.12.20
Test Power Supply:	Battery	Sample Number:	S24103004-013

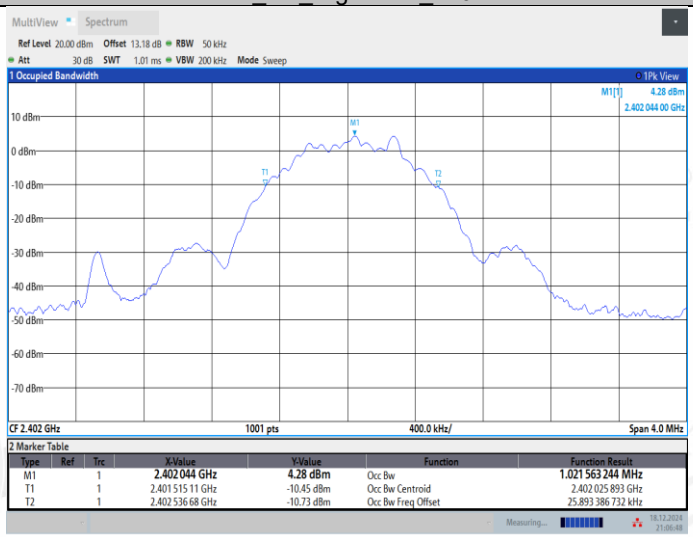
Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
BLE_1M	Left side	2402	1.022	2401.5096	2402.5317	---	---
	Right side	2402	1.022	2401.5151	2402.5367	---	---
	Left side	2440	1.022	2439.5062	2440.5279	---	---
	Right side	2440	1.022	2439.5110	2440.5326	---	---
	Left side	2480	1.021	2479.5056	2480.5270	---	---
	Right side	2480	1.022	2479.5101	2480.5317	---	---
BLE_2M	Left side	2404	2.034	2403.0112	2405.0455	---	---
	Right side	2404	2.035	2403.0170	2405.0516	---	---
	Left side	2440	2.036	2439.0137	2441.0492	---	---
	Right side	2440	2.037	2439.0196	2441.0562	---	---
	Left side	2478	2.037	2477.0134	2479.0503	---	---
	Right side	2478	2.039	2477.0178	2479.0570	---	---

5.5. Test graphs

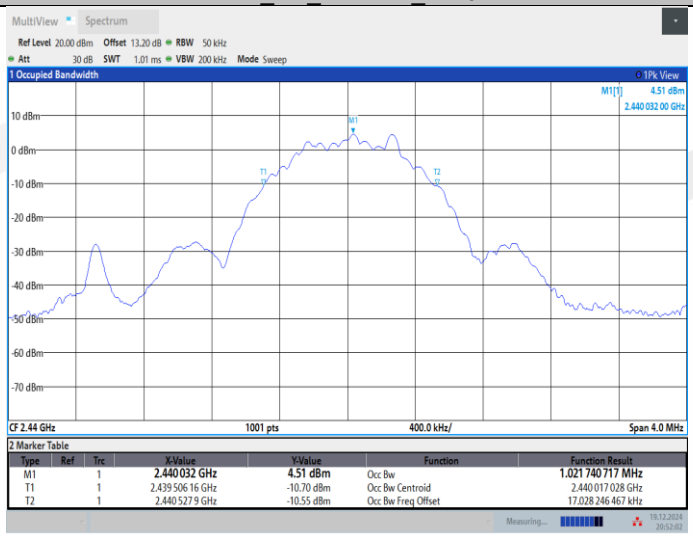
BLE_1M_Left side_2402



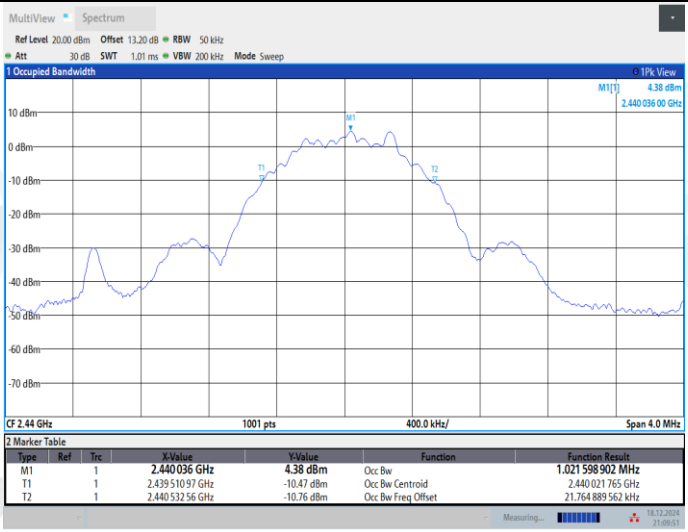
BLE_1M_Right side_2402



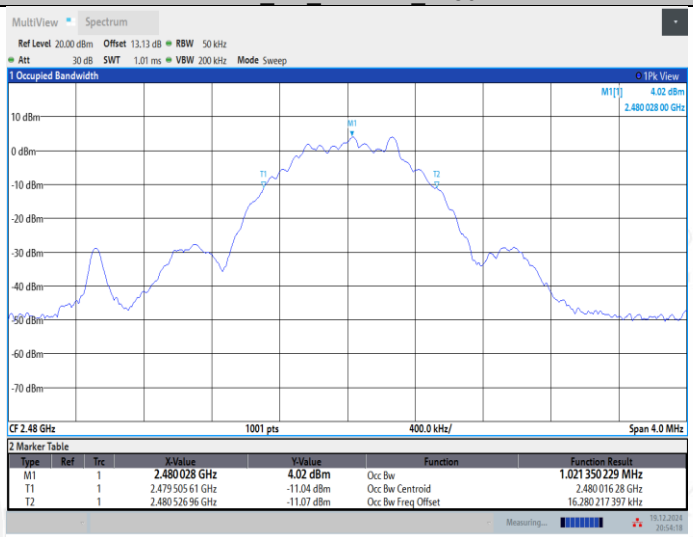
BLE_1M_Left side_2440



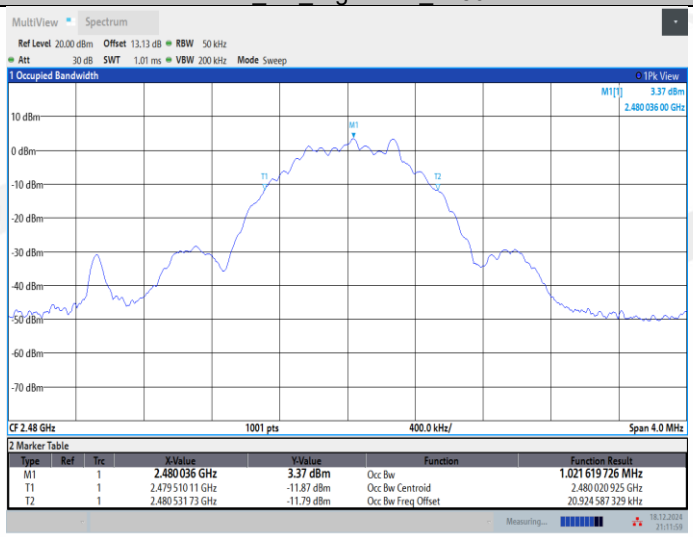
BLE_1M_Right side_2440



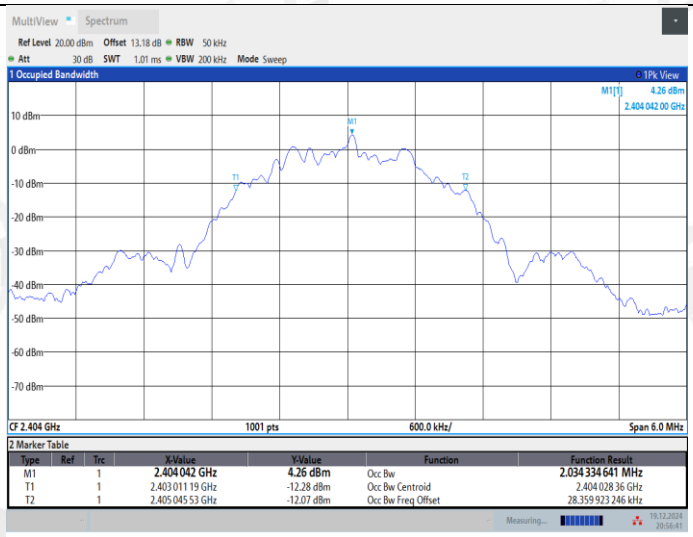
BLE_1M_Left side_2480



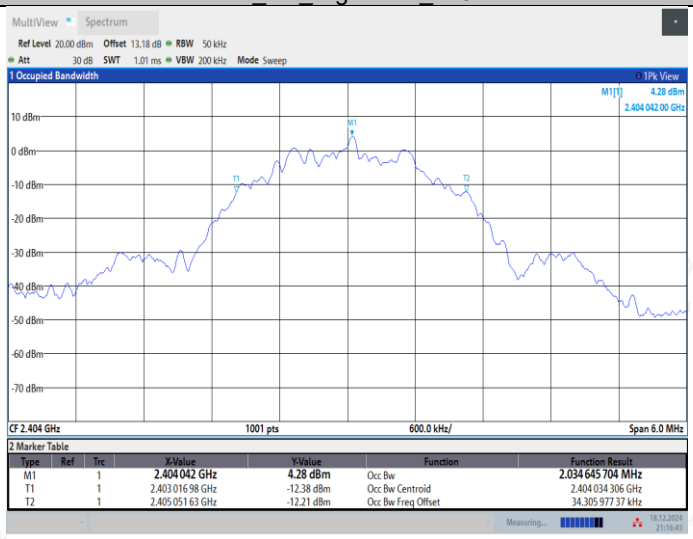
BLE_1M_Right side_2480



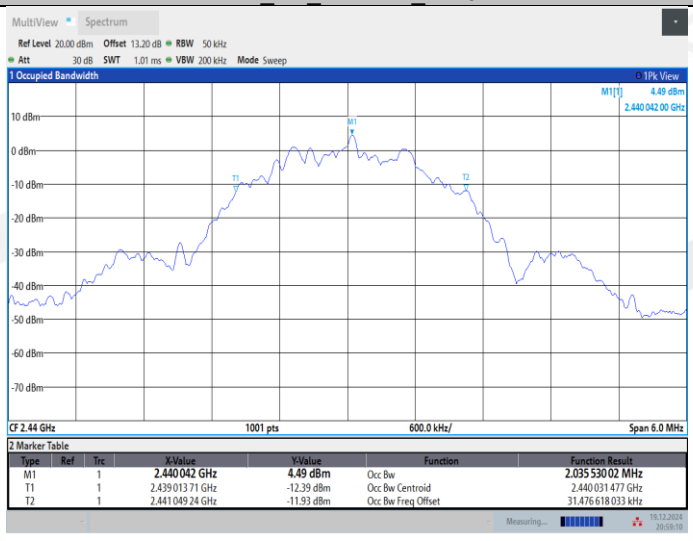
BLE_2M_Left side_2404



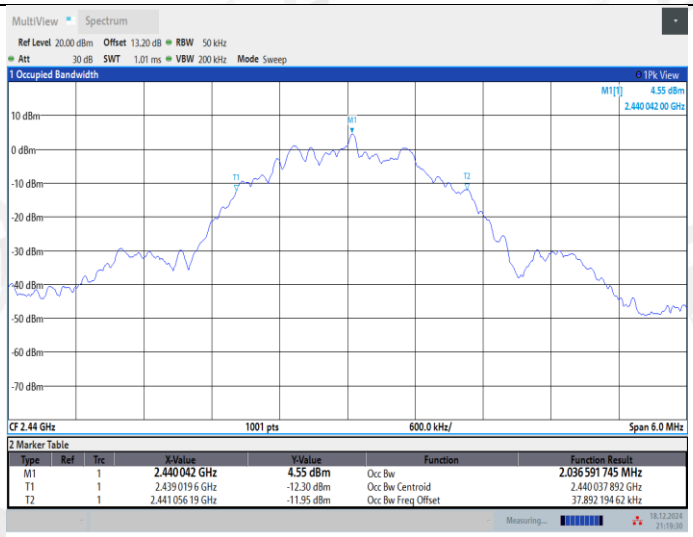
BLE_2M_Right side_2404



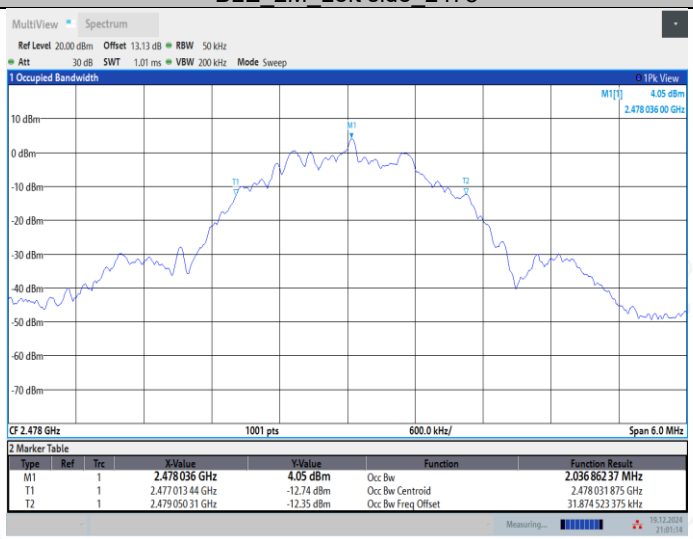
BLE_2M_Left side_2440



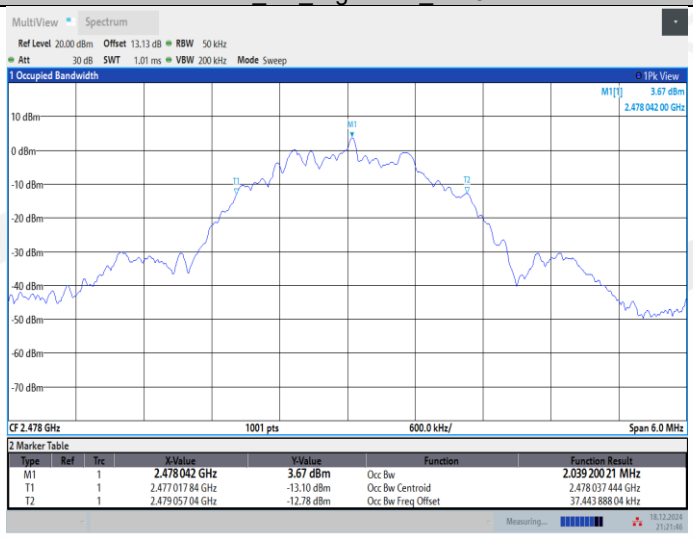
BLE_2M_Right side_2440



BLE_2M_Left side_2478

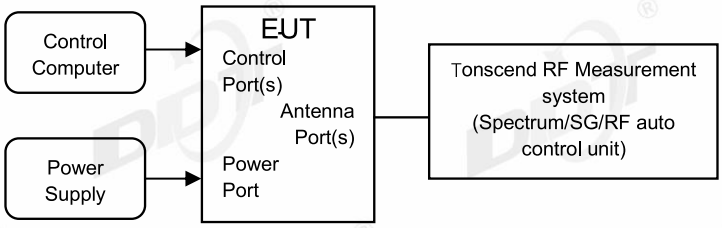


BLE_2M_Right side_2478



6. Maximum Peak Output Power

6.1. Block diagram of test setup



6.2. Limits

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. 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, the e.i.r.p shall not exceed 4W.

6.3. Test procedure

(1) The test according to ANSI C63.10-2013 clause 11.9.1.1.
(2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results.
(3) Set the EUT as maximum power setting and enable the EUT transmit continuously.
(4) Use the following spectrum analyzer settings for the maximum peak output power measurement:

RBW:	≥DTS bandwidth
VBW:	≥3 x RBW
Span	≥3 x RBW
Detector Mode:	Peak
Sweep time:	Auto
Trace mode	Max hold

(5) Allow the trace to stabilize, use peak marker function to determine the peak amplitude level.

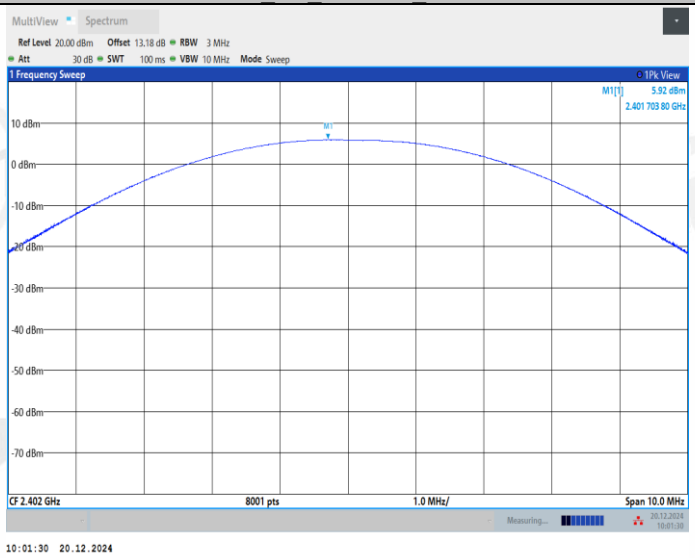
6.4. Test result

Test Engineer:	Zoe	Test Site:	RF Measurement System 4#
Ambient Condition:	23.1℃,48.9%RH	Test Date:	2024.12.18-2024.12.20
Test Power Supply:	Battery	Sample Number:	S24103004-013

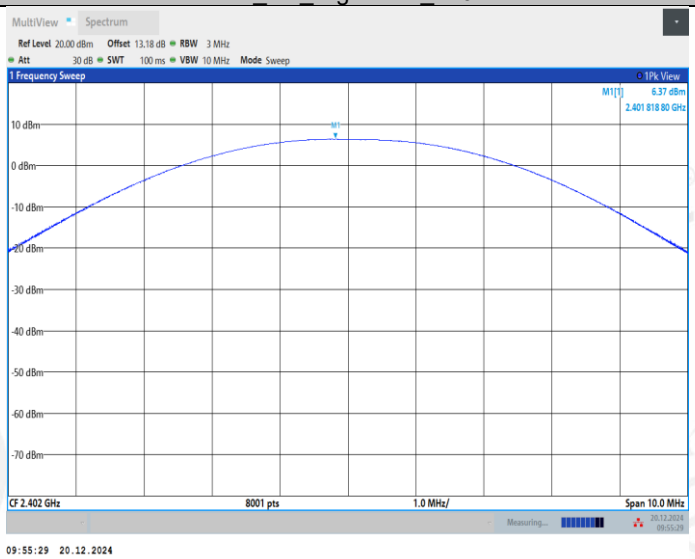
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
BLE_1M	Left side	2402	5.92	≤30	8.14	≤36	PASS
	Right side	2402	6.37	≤30	7.34	≤36	PASS
	Left side	2440	5.99	≤30	8.21	≤36	PASS
	Right side	2440	6.36	≤30	7.33	≤36	PASS
	Left side	2480	5.41	≤30	7.63	≤36	PASS
	Right side	2480	5.74	≤30	6.71	≤36	PASS
BLE_2M	Left side	2404	5.92	≤30	8.14	≤36	PASS
	Right side	2404	6.40	≤30	7.37	≤36	PASS
	Left side	2440	6.09	≤30	8.31	≤36	PASS
	Right side	2440	6.52	≤30	7.49	≤36	PASS
	Left side	2478	5.65	≤30	7.87	≤36	PASS
	Right side	2478	6.00	≤30	6.97	≤36	PASS

6.5. Test graphs

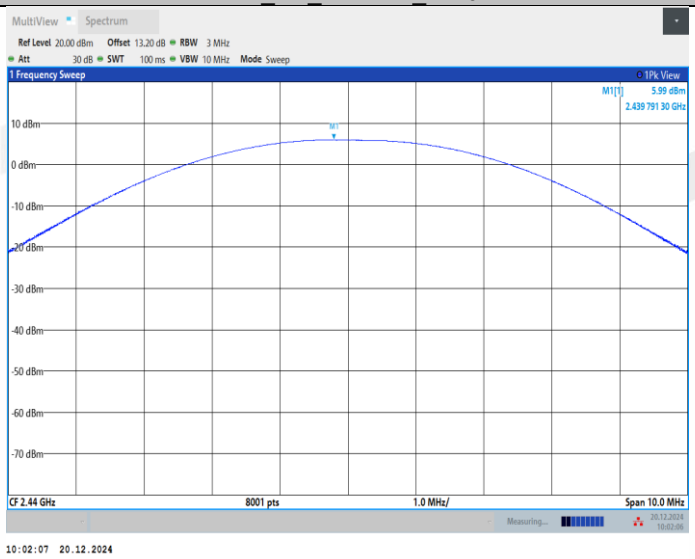
BLE_1M_Left side_2402



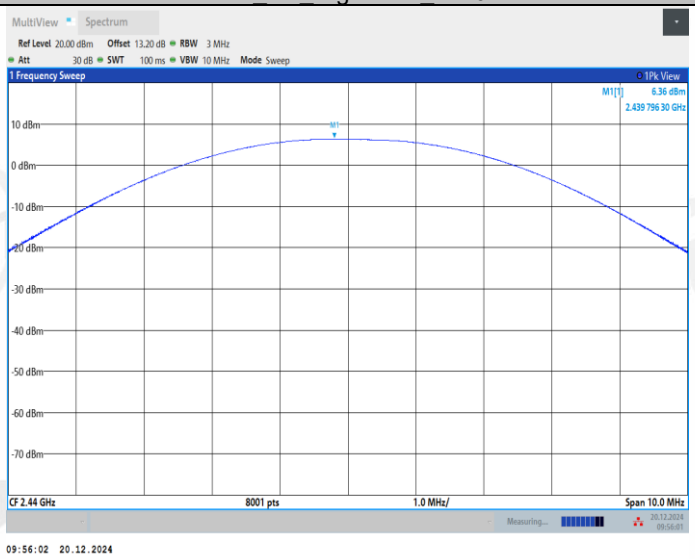
BLE_1M_Right side_2402



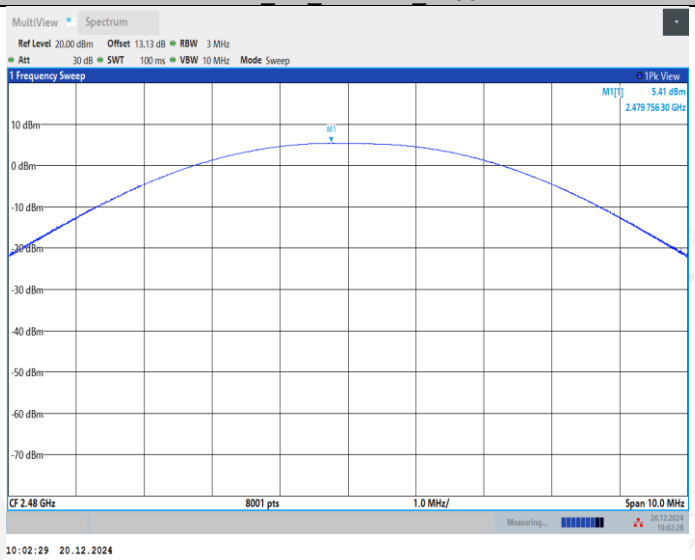
BLE_1M_Left side_2440



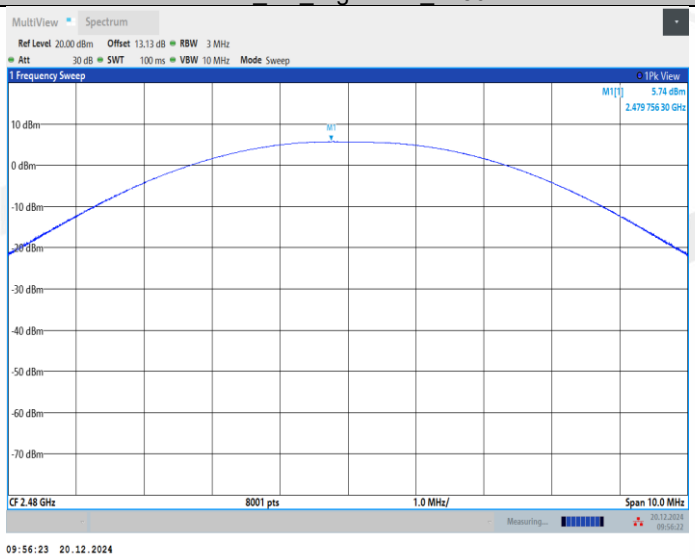
BLE_1M_Right side_2440



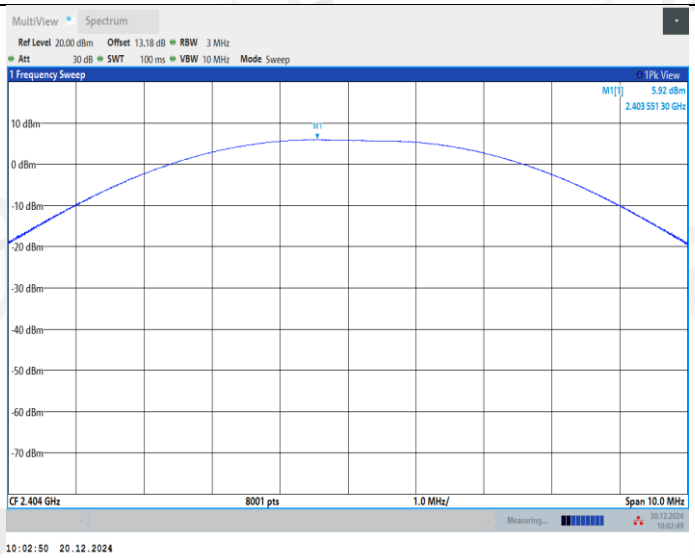
BLE_1M_Left side_2480



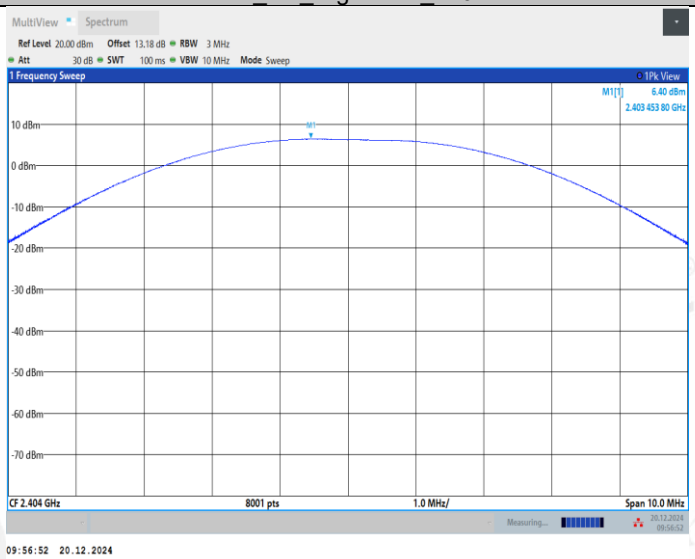
BLE_1M_Right side_2480



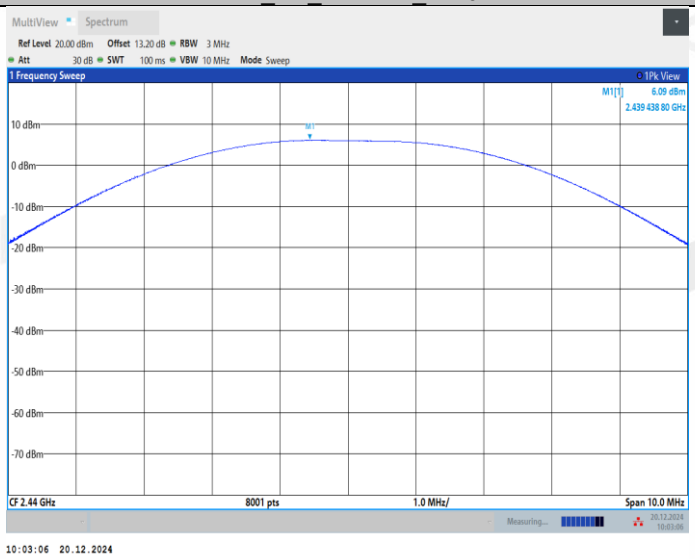
BLE_2M_Left side_2404



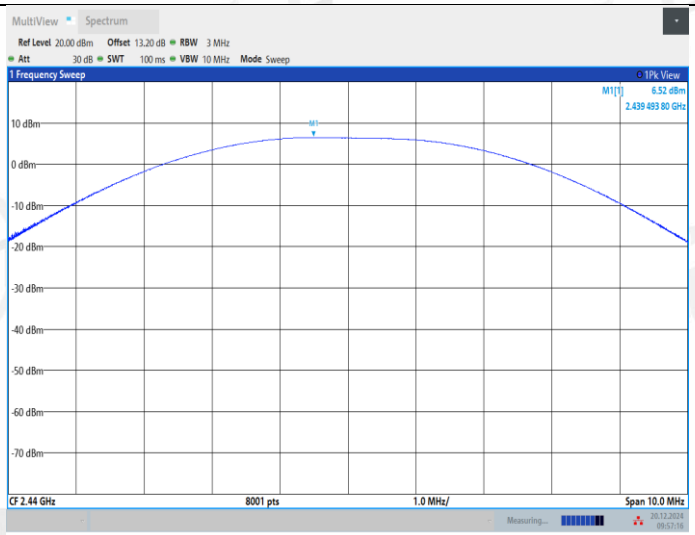
BLE_2M_Right side_2404



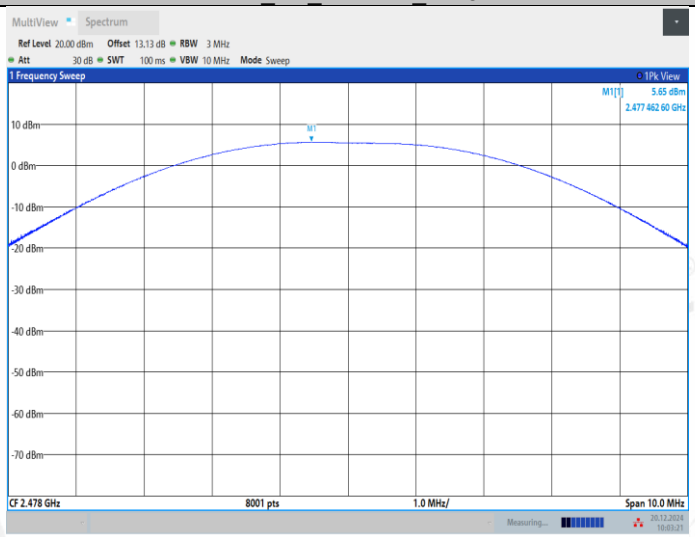
BLE_2M_Left side_2440



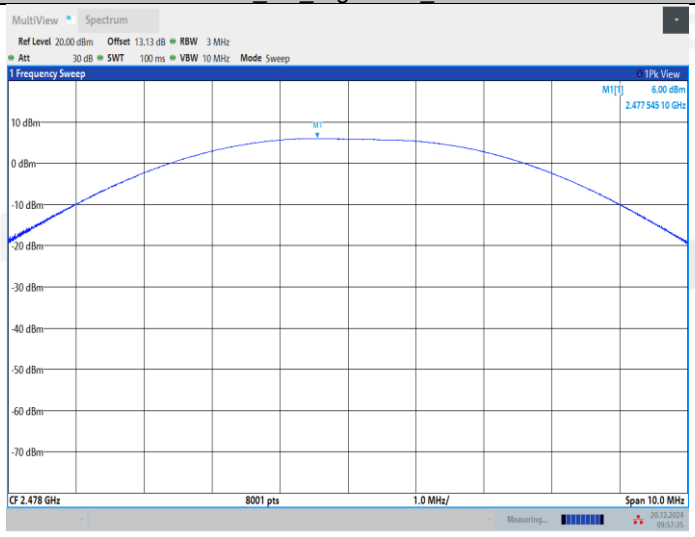
BLE_2M_Right side_2440



BLE_2M_Left side_2478

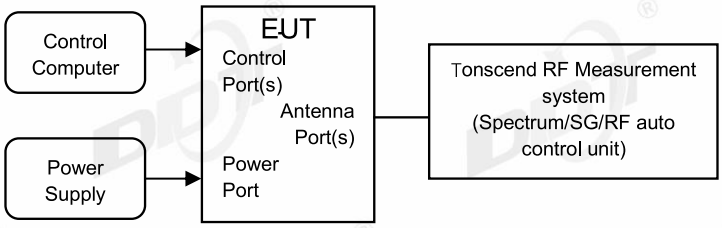


BLE_2M_Right side_2478



7. Power Spectral Density

7.1. Block diagram of test setup



7.2. Limits

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.3. Test procedure

(1) The test according to ANSI C63.10-2013 clause 11.10.2.
(2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results.
(3) Set the EUT as maximum power setting and enable the EUT transmit continuously.
(4) Use the following spectrum analyzer settings for Power Spectral Density measurement:

Center frequency	DTS Channel center frequency
RBW:	3 kHz ≤ RBW ≤ 100 kHz
VBW:	≥ 3RBW
Span	1.5 times the DTS bandwidth
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 level within the RBW.

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

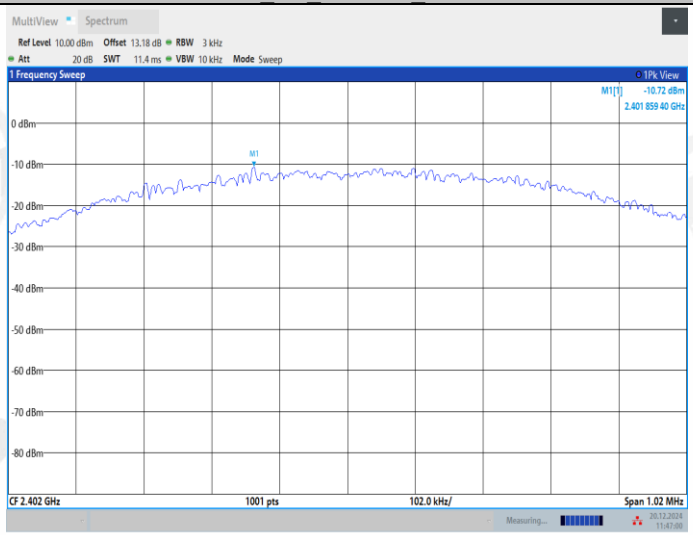
7.4. Test result

Test Engineer:	Zoe	Test Site:	RF Measurement System 4#
Ambient Condition:	23.1℃,48.9%RH	Test Date:	2024.12.18-2024.12.20
Test Power Supply:	Battery	Sample Number:	S24103004-013

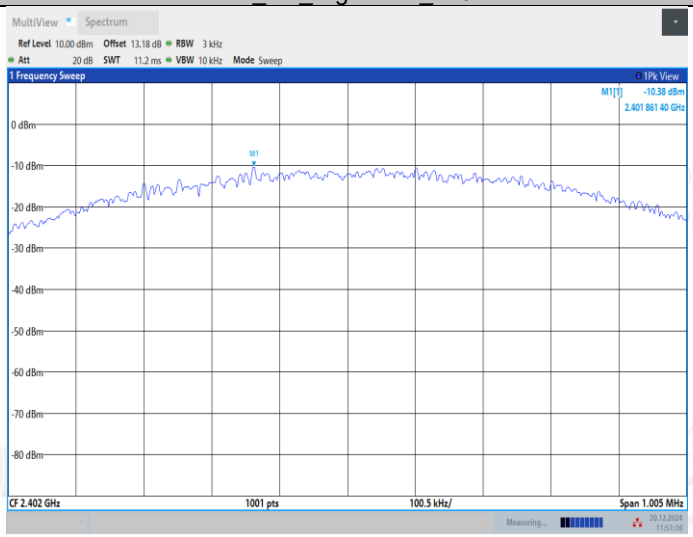
Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE_1M	Left side	2402	-10.72	≤8.00	PASS
	Right side	2402	-10.38	≤8.00	PASS
	Left side	2440	-10.59	≤8.00	PASS
	Right side	2440	-10.40	≤8.00	PASS
	Left side	2480	-11.29	≤8.00	PASS
	Right side	2480	-11.12	≤8.00	PASS
BLE_2M	Left side	2404	-12.79	≤8.00	PASS
	Right side	2404	-12.44	≤8.00	PASS
	Left side	2440	-12.46	≤8.00	PASS
	Right side	2440	-12.36	≤8.00	PASS
	Left side	2478	-13.14	≤8.00	PASS
	Right side	2478	-13.61	≤8.00	PASS

7.5. Test graphs

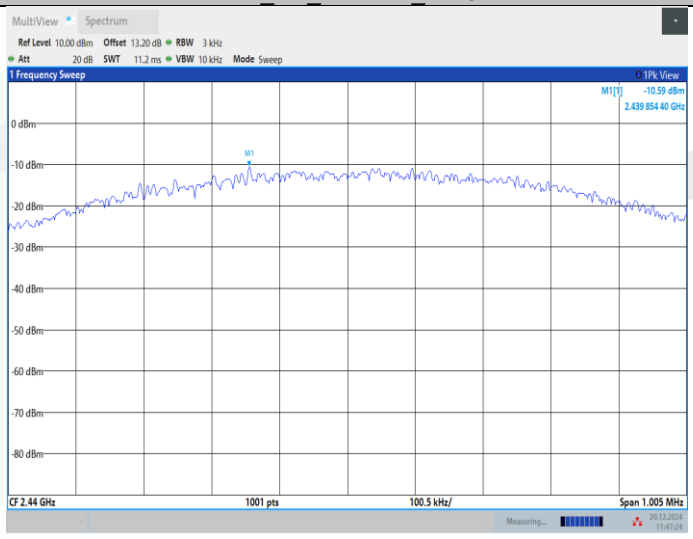
BLE_1M_Left side_2402



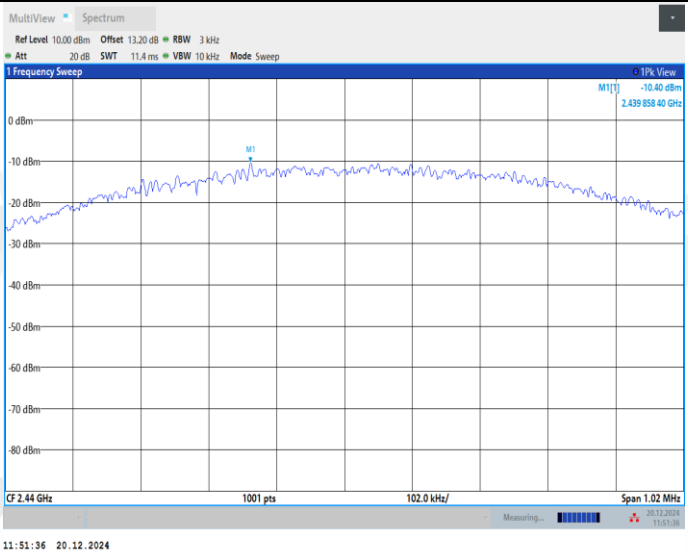
BLE_1M_Right side_2402



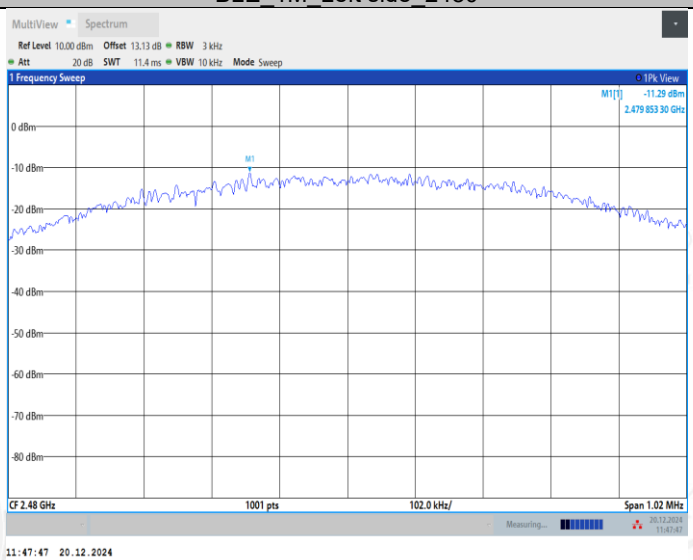
BLE_1M_Left side_2440



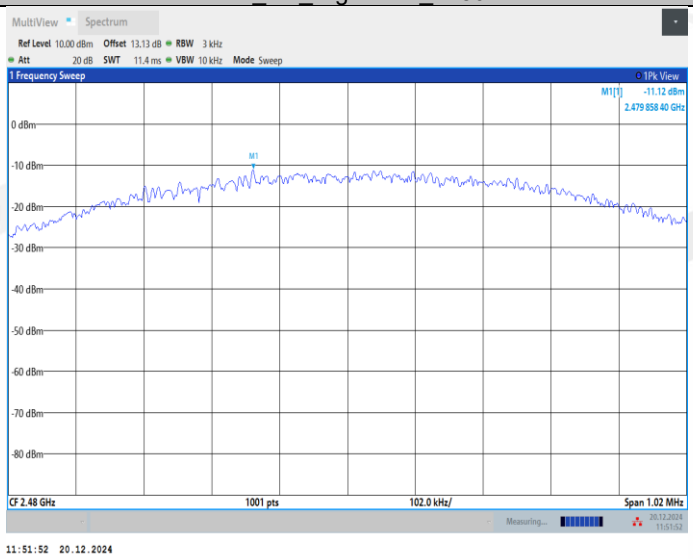
BLE_1M_Right side_2440



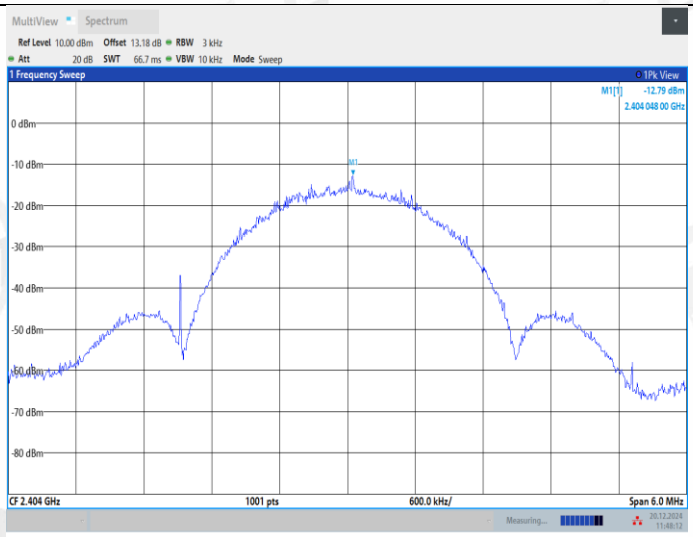
BLE_1M_Left side_2480



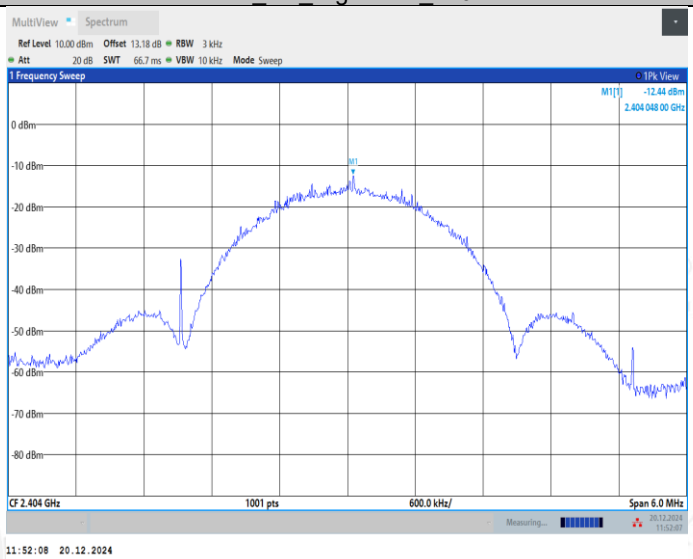
BLE_1M_Right side_2480



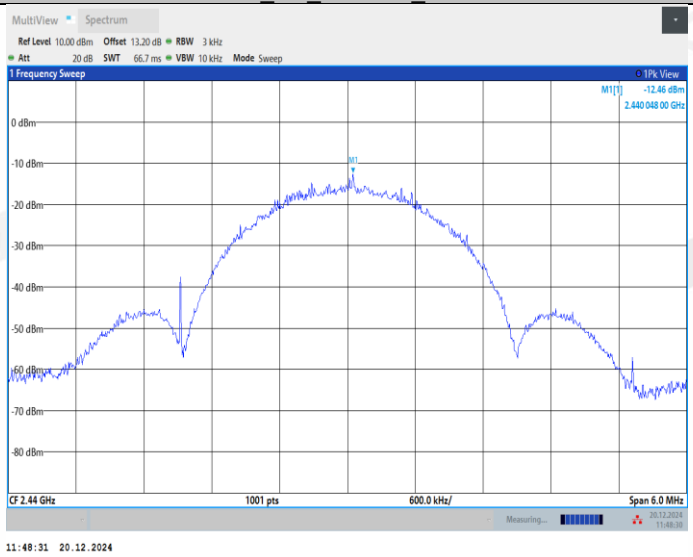
BLE_2M_Left side_2404



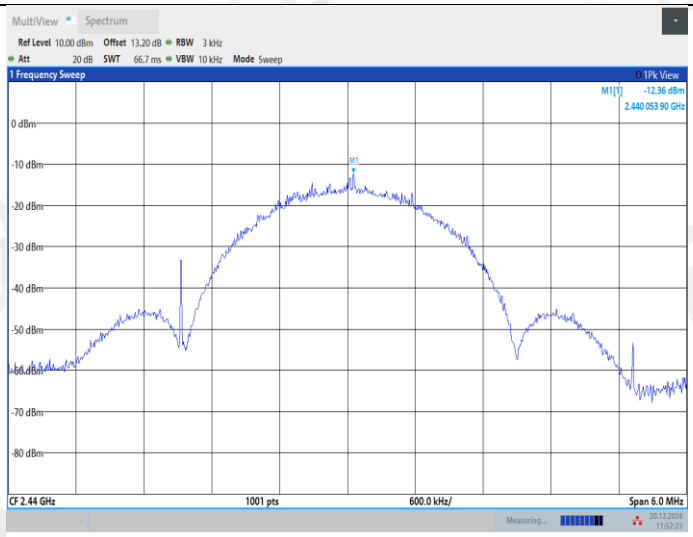
BLE_2M_Right side_2404



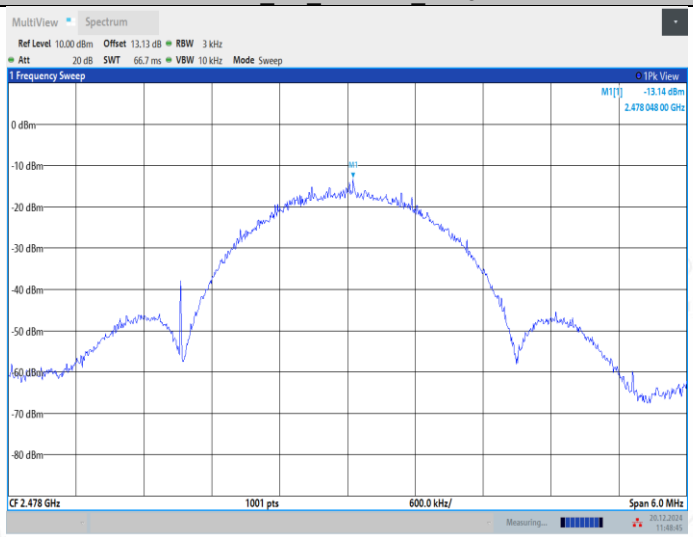
BLE_2M_Left side_2440



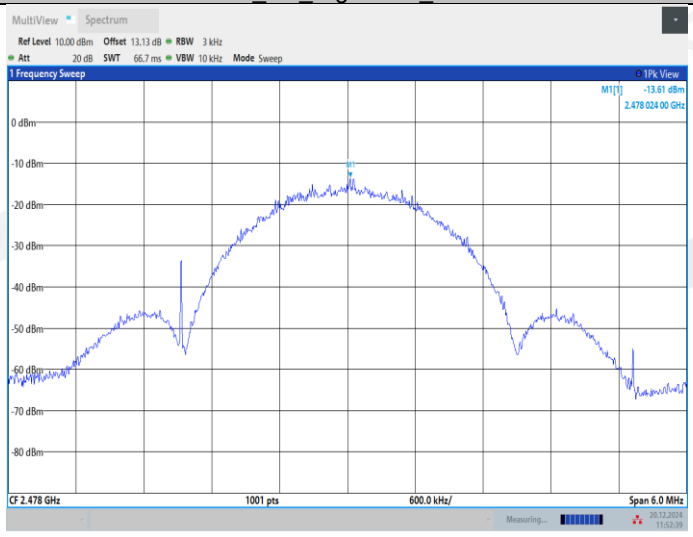
BLE_2M_Right side_2440



BLE_2M_Left side_2478

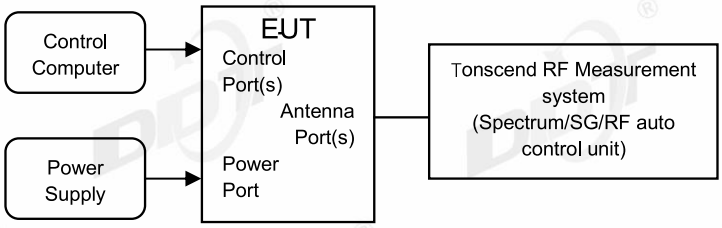


BLE_2M_Right side_2478



8. Band Edge Compliance (Conducted Method)

8.1. Block diagram of test setup



8.2. Limits

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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) Establish a reference level by using the following procedure:

RBW:	100 kHz
VBW:	300 kHz
Span	Encompass frequency range to be measured
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) Then mark the maximum amplitude of all unwanted emissions outside of the authorized frequency band.

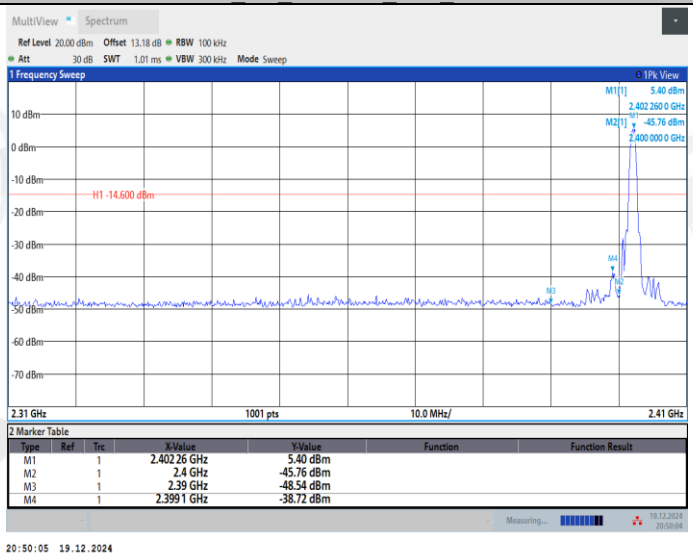
8.4. Test result

Test Engineer:	Zoe	Test Site:	RF Measurement System 4#
Ambient Condition:	23.1℃,48.9%RH	Test Date:	2024.12.18-2024.12.20
Test Power Supply:	Battery	Sample Number:	S24103004-013

EUT Set Mode	CH or Frequency	Measured Range	Verdict
GFSK 1M	2402	2.310 GHz - 2.410 GHz	Pass
	2480	2.470 GHz - 2.500 GHz	Pass
GFSK 2M	2404	2.310 GHz - 2.410 GHz	Pass
	2478	2.470 GHz - 2.500 GHz	Pass

8.5. Test graphs

BLE_1M_Left side_Low_2402



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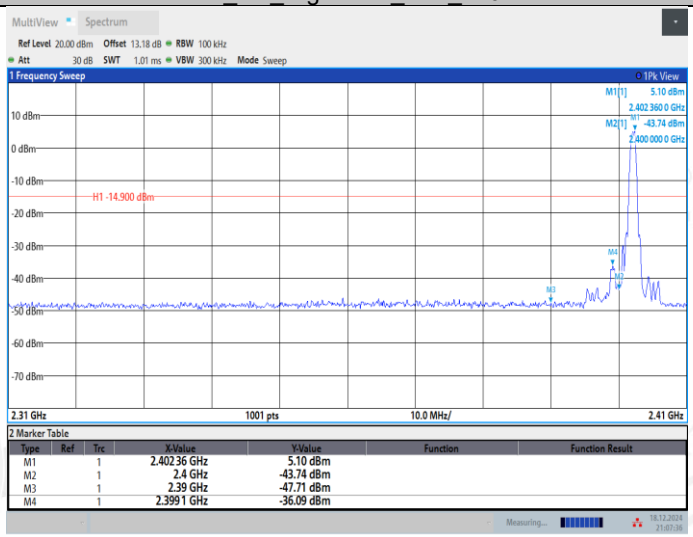
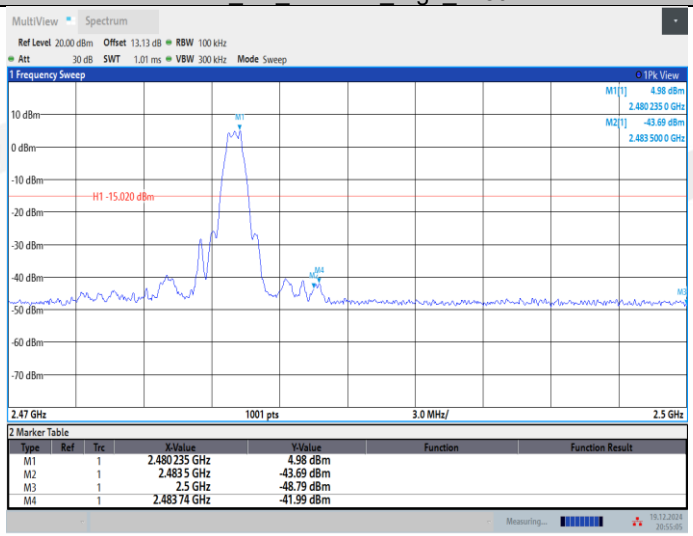
BLE_1M_Right side_Low_2402



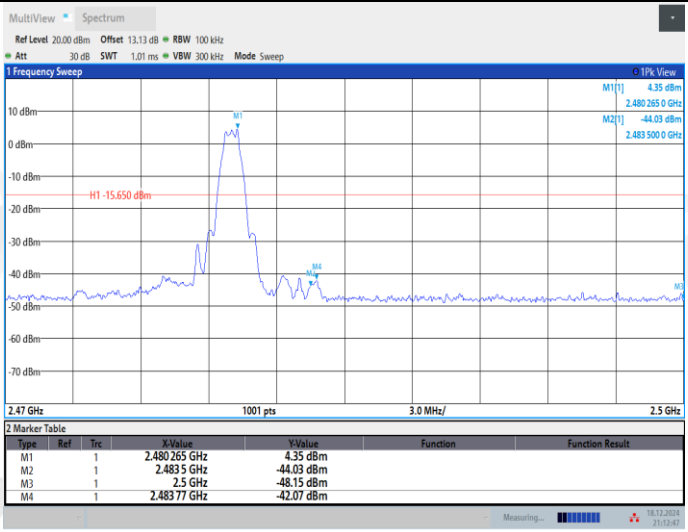
21:07:36 18.12.2024

BLE_1M_Left side_High_2480

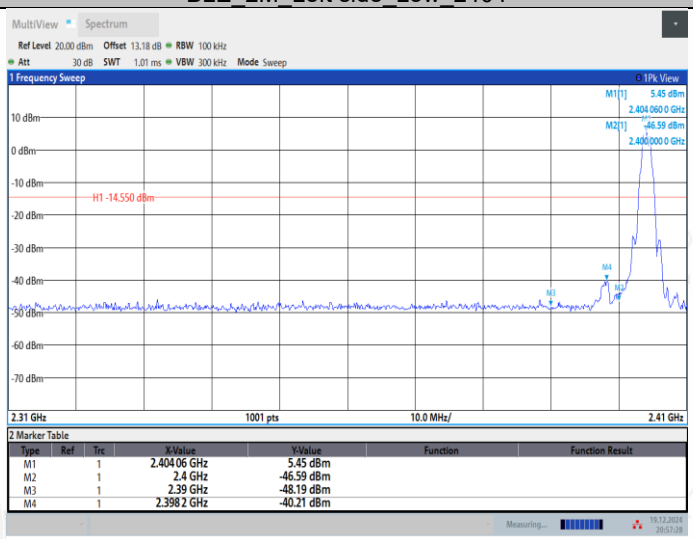


20:55:06 19.12.2024

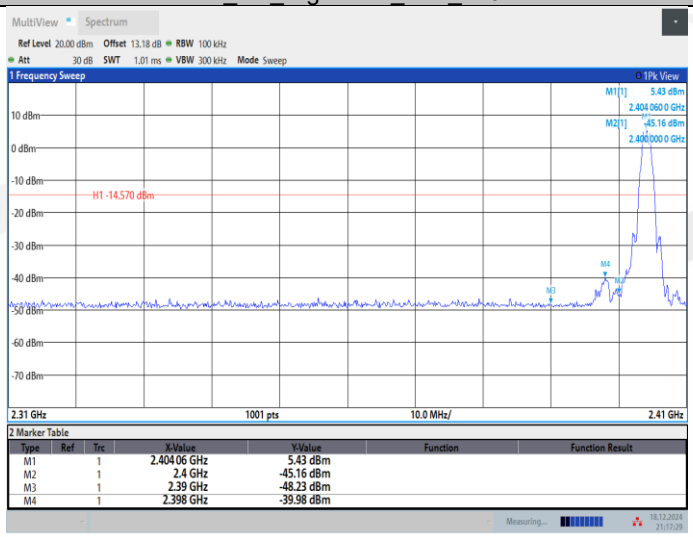
BLE_1M_Right side_High_2480



BLE_2M_Left side_Low_2404



BLE_2M_Right side_Low_2404



BLE_2M_Left side_High_2478