



RADIO TEST REPORT

Applicant	:	Guangzhou FIIO Electronics Technology Co., Ltd.
Address of Applicant	:	No.21, Longliang Road, Xialiang Village, Longgui Street, Baiyun District, Guangzhou, Guangdong, P.R. China
Manufacturer	:	Guangzhou FIIO Electronics Technology Co., Ltd.
Address of Manufacturer	:	No.21, Longliang Road, Xialiang Village, Longgui Street, Baiyun District, Guangzhou, Guangdong, P.R. China
Equipment under Test	:	Streaming Amplifier
Model No.	:	F3001A, F3002A, F3003A, F3004A, F3005A
FCC ID	:	R56-FC3002
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart C, ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024
Report No.	:	DDT-RE26051409-1E02
Issue Date	:	2026/08/17
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	:	Guangzhou FIIO Electronics Technology Co., Ltd.
Address of Applicant	:	No.21, Longliang Road, Xialiang Village, Longgui Street, Baiyun District, Guangzhou, Guangdong, P.R. China
Equipment under Test	:	Streaming Amplifier
Model No.	:	F3001A, F3002A, F3003A, F3004A, F3005A
Manufacturer	:	Guangzhou FIIO Electronics Technology Co., Ltd.
Address of Manufacturer	:	No.21, Longliang Road, Xialiang Village, Longgui Street, Baiyun District, Guangzhou, Guangdong, P.R. China

Test Standard Used:
FCC Rules and Regulations Part 15 Subpart C,
ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024

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-RE26051409-1E02		
Date of Receipt:	2026/05/19	Date of Test:	2026/05/19 - 2026/07/30

Created: Zoe Peng	Reviewed: Bobo Chen	Approved: Ella Gong
		
2026/07/31	2026/08/17	2026/08/17

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

Version	Revision Content	Issue Date	Approved
V0	Initial issue	2026/08/17	Ella Gong

1. Summary of Test Results

No.	Test Parameter	Clause No.	Condition	Result
1	6 dB Bandwidth and 99% Bandwidth	47 CFR Part 15 15.247(a)(2)	/	Pass
2	Peak Output Power	47 CFR Part 15 15.247(b)(3)	/	Pass
3	Power Spectral Density	47 CFR Part 15 15.247(e)	/	Pass
4	RF Conducted Spurious Emissions	47 CFR Part 15 15.247(d)	/	Pass
5	Radiated Emission	47 CFR Part 15 15.205, 47 CFR Part 15 15.209, 47 CFR Part 15 15.247(d)	/	Pass
6	Band Edge Compliance	47 CFR Part 15 15.205, 47 CFR Part 15 15.209, 47 CFR Part 15 15.247(d)	/	Pass
7	Antenna Requirement	47 CFR Part 15 15.203	/	Pass
8	Power Line Conducted Emissions	47 CFR Part 15 15.207(a)	/	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	: Streaming Amplifier
Model Number	: F3001A, F3002A, F3003A, F3004A, F3005A
Difference of model number	: All models are identical except the appearance and model, therefore the test performed on the model F3001A
EUT Function Description	: Please reference user manual of this device
Power Supply	: DC 48V/5A from external AC/DC Adapter
Antenna Type	: FPC Antenna
Max Antenna Gain(dBi)	: 7.25
Radio Specification	: Bluetooth LE
Operation Frequency	: 2402 MHz to 2480 MHz
Modulation	: GFSK

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.					

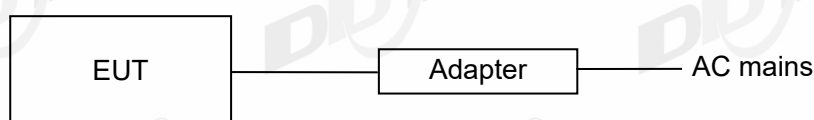
Note: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's 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
AC/DC ADAPTER	Merryking	ESA-48000500AE	Input: 100-240V~ 50/60Hz Output: DC 48.0V 5.0A

2.3. Block diagram of EUT configuration for test



2.4. Decision of final test mode

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

Test software: SecureCRT.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, Tx Power Setting, Channel, and Frequency			
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

2.5. Deviations of test standard

No deviation.

2.6. Test environment conditions

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

Temperature range:	+15°C to +35 °C
Humidity range:	20% to 75%
Pressure range:	86 kPa to 106 kPa

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

2.7. 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-20240, G-20118

2.8. Measurement uncertainty

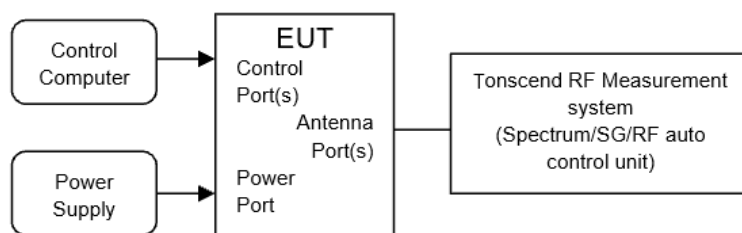
Test Item	Uncertainty
Bandwidth	1.9%
Peak Output Power (Conducted) (Spectrum analyzer)	0.98 dB
Peak Output Power (Conducted) (Power Sensor)	1.18 dB
Power Spectral Density (Base EIRP)	1.51 dB
Power Spectral Density (Spectrum analyzer)	0.98 dB
Frequencies Stability	1.9 kHz
Conducted spurious emissions	1.21 dB ($9\text{ kHz} \leq f < 7\text{ GHz}$);
	3.31 dB ($7\text{ GHz} \leq f < 40\text{ GHz}$)
Uncertainty for radio frequency (RBW < 20 kHz)	5.5×10^{-8}
Time	0.11%
Temperature	0.3 °C
Humidity	2 %
Uncertainty for Radiation Emission test (9 kHz – 30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.28 dB (Antenna Polarize: V)
	4.14 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz - 40 GHz)	4.22 dB (1 - 6 GHz)
	4.52 dB (6 GHz - 18 GHz)
	4.58 dB (18 GHz - 40 GHz)
Uncertainty for Power line conduction emission test	3.32dB (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 5#)				
Spectrum Analyzer	R&S	FSV40-N	101903	2027/02/27
Wideband Radio Communication Tester	R&S	CMW500	132871	2027/01/15
EXG Vector Generator	Agilent	N5172B	MY53051914	2027/01/06
MXG Vector Signal Generator	Agilent	N5173B	MY62220219	2027/03/18
RF Control Unit	Tonscend	JS0806-2	23180620727	2027/03/17
TEMP&HUMI Programmable Chamber	ZHIXIANG	ZXGDJS-150L	ZX170110-A	2027/02/27
Test Software	Tonscend	JS1120-3	V3.6.21	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 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:	$\geq [3 \times \text{RBW}]$
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.

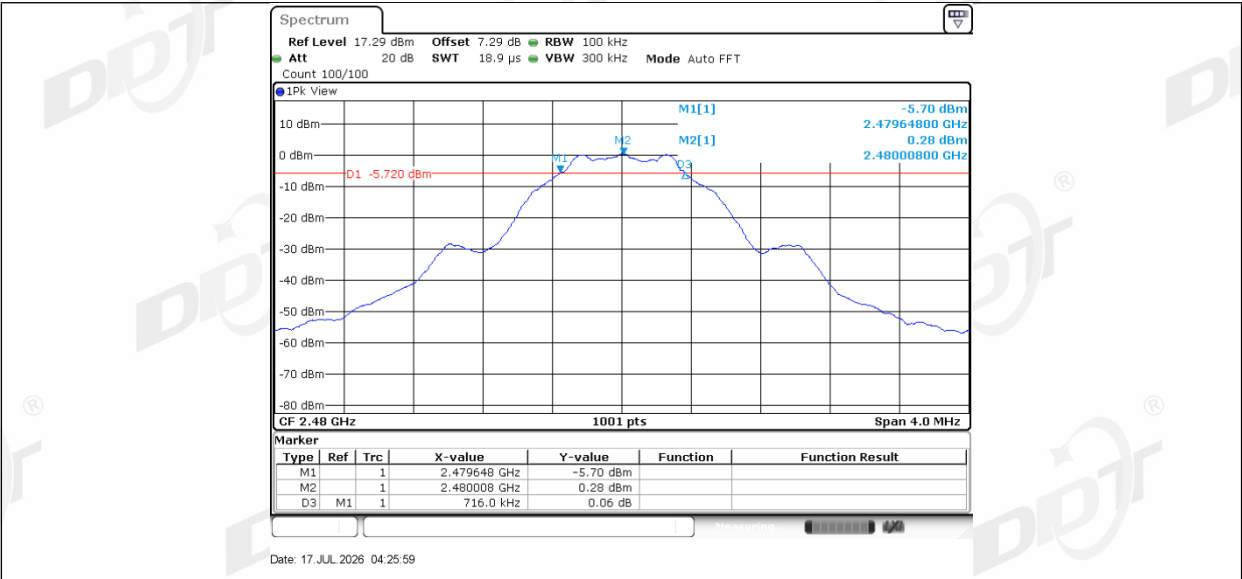
4.4. Test result

Test Engineer:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.5-26.3℃,40.3-46.5%RH	Test Date:	2026.6.24-2026.7.17
Test Power Supply:	DC 48V	Sample Number:	S26051409-004

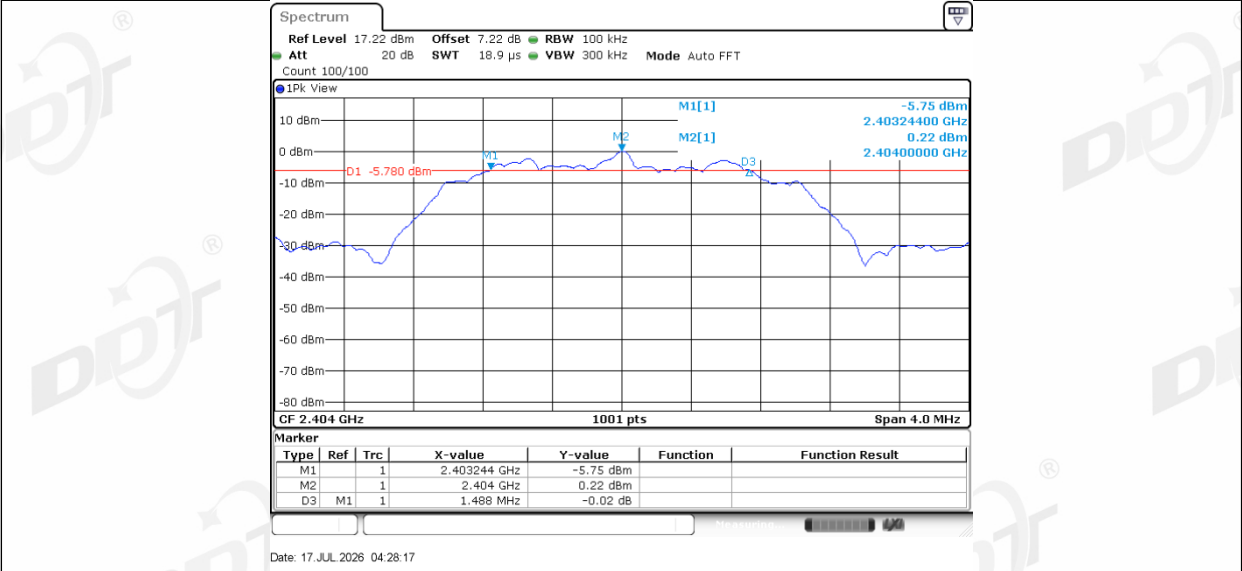
Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	0.70	2401.65	2402.35	0.5	PASS
		2440	0.71	2439.65	2440.36	0.5	PASS
		2480	0.72	2479.65	2480.36	0.5	PASS
BLE_2M	Ant1	2404	1.49	2403.24	2404.73	0.5	PASS
		2440	1.48	2439.25	2440.73	0.5	PASS
		2478	1.48	2477.25	2478.74	0.5	PASS

4.5. Test graphs

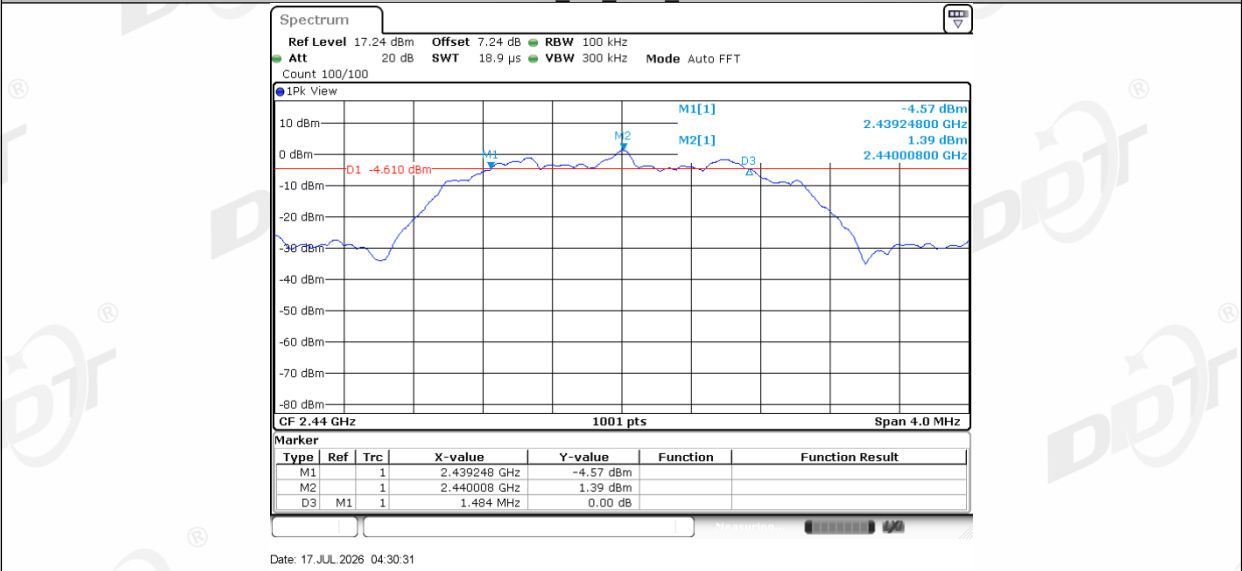




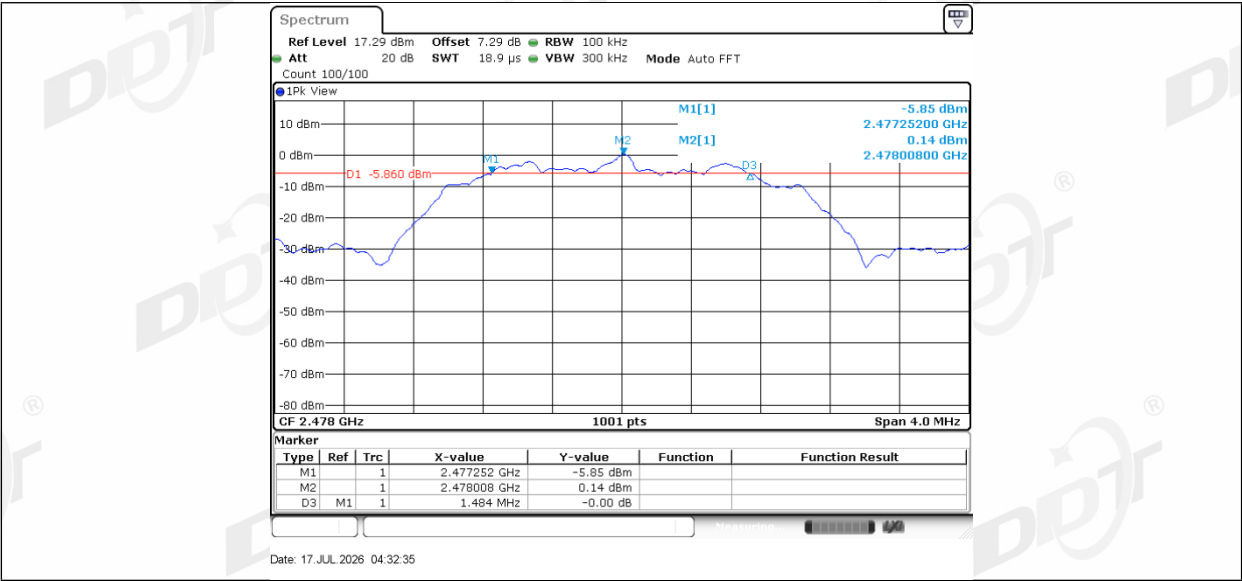
BLE_2M_Ant1_2404



BLE_2M_Ant1_2440

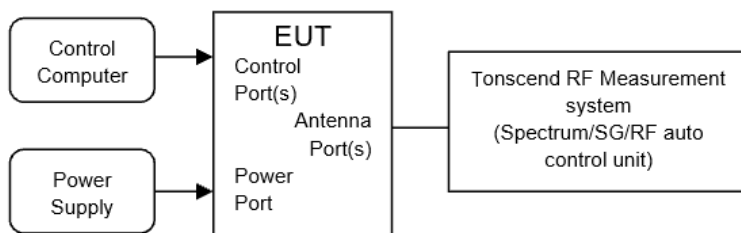


BLE_2M_Ant1_2478



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 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

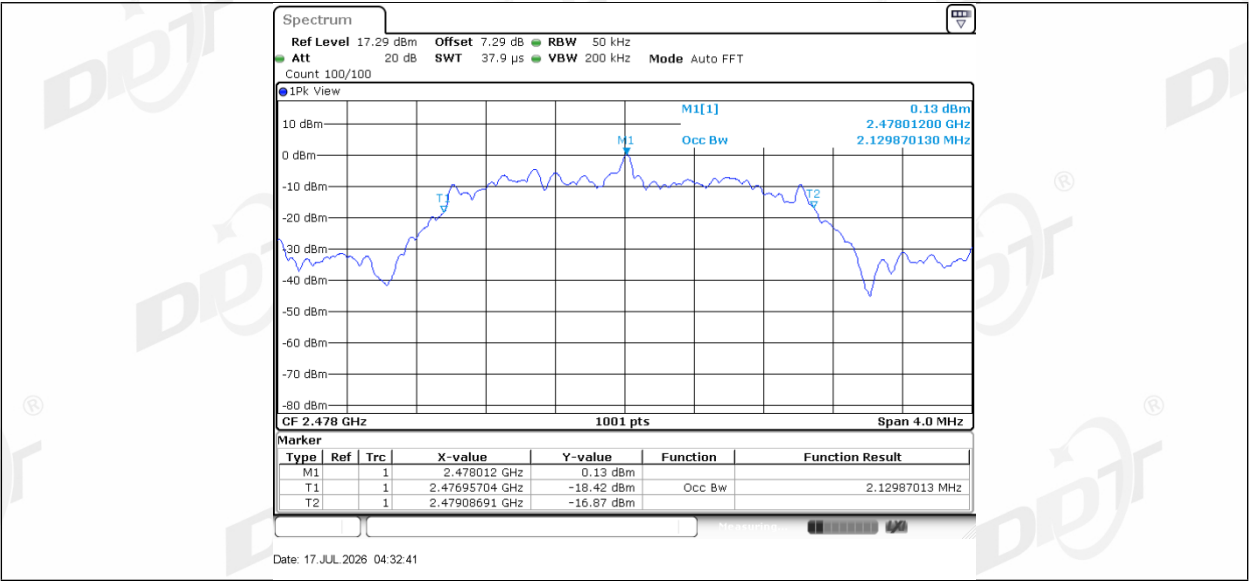
Test Engineer:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.5-26.3℃,40.3-46.5%RH	Test Date:	2026.6.24-2026.7.17
Test Power Supply:	DC 48V	Sample Number:	S26051409-004

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	1.0629	2401.4765	2402.5395	---	---
		2440	1.0629	2439.4805	2440.5435	---	---
		2480	1.0629	2479.4845	2480.5475	---	---
BLE_2M	Ant1	2404	2.1299	2402.9491	2405.0789	---	---
		2440	2.1299	2438.9530	2441.0829	---	---
		2478	2.1299	2476.9570	2479.0869	---	---

5.5. Test graphs

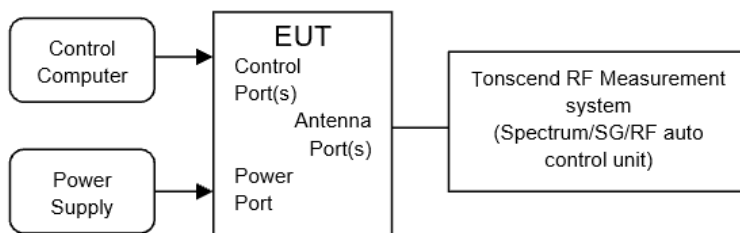






6. Maximum Peak Output Power

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 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.

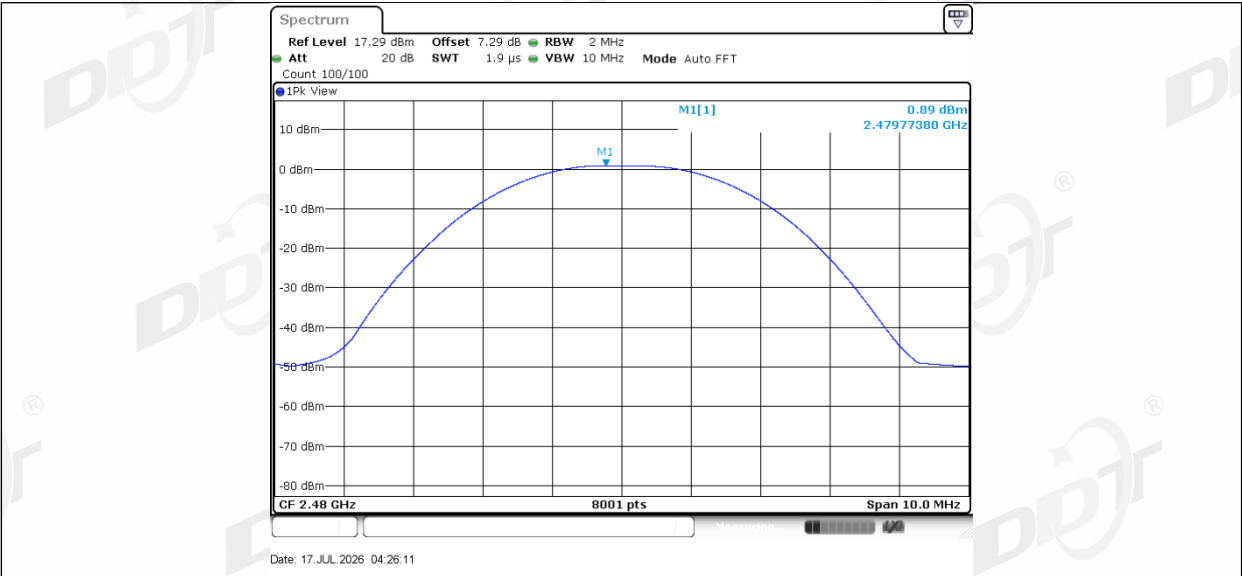
6.4. Test result

Test Engineer:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.5-26.3℃,40.3-46.5%RH	Test Date:	2026.6.24-2026.7.17
Test Power Supply:	DC 48V	Sample Number:	S26051409-004

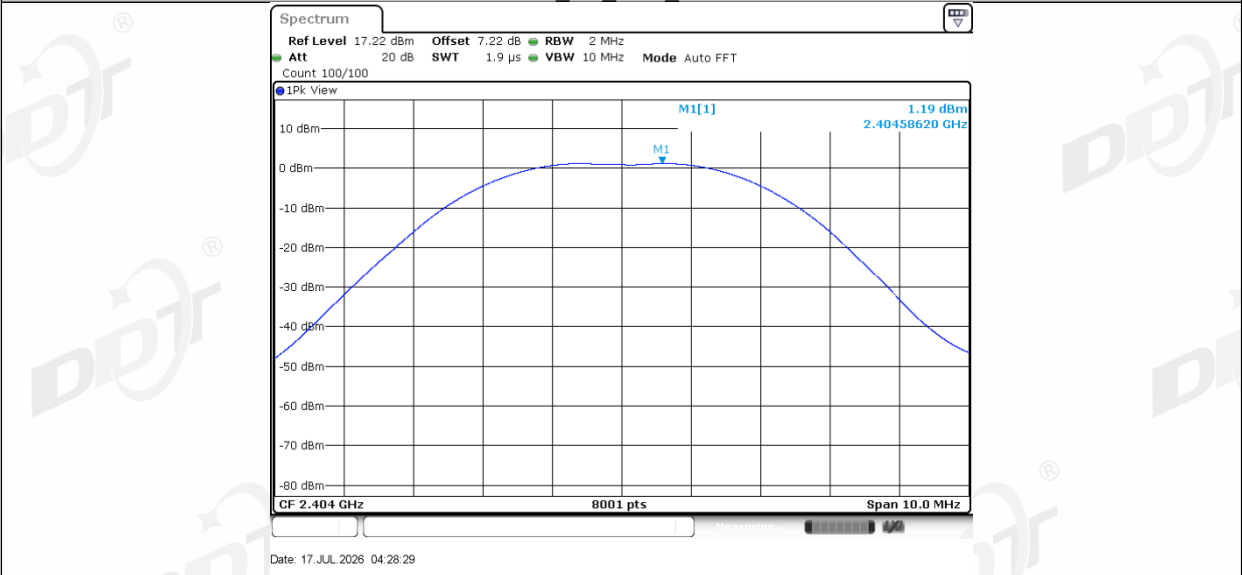
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.97	≤28.75	8.22	≤36	PASS
		2440	2.25	≤28.75	9.50	≤36	PASS
		2480	0.89	≤28.75	8.14	≤36	PASS
BLE_2M	Ant1	2404	1.19	≤28.75	8.44	≤36	PASS
		2440	2.38	≤28.75	9.63	≤36	PASS
		2478	1.17	≤28.75	8.42	≤36	PASS

6.5. Test graphs

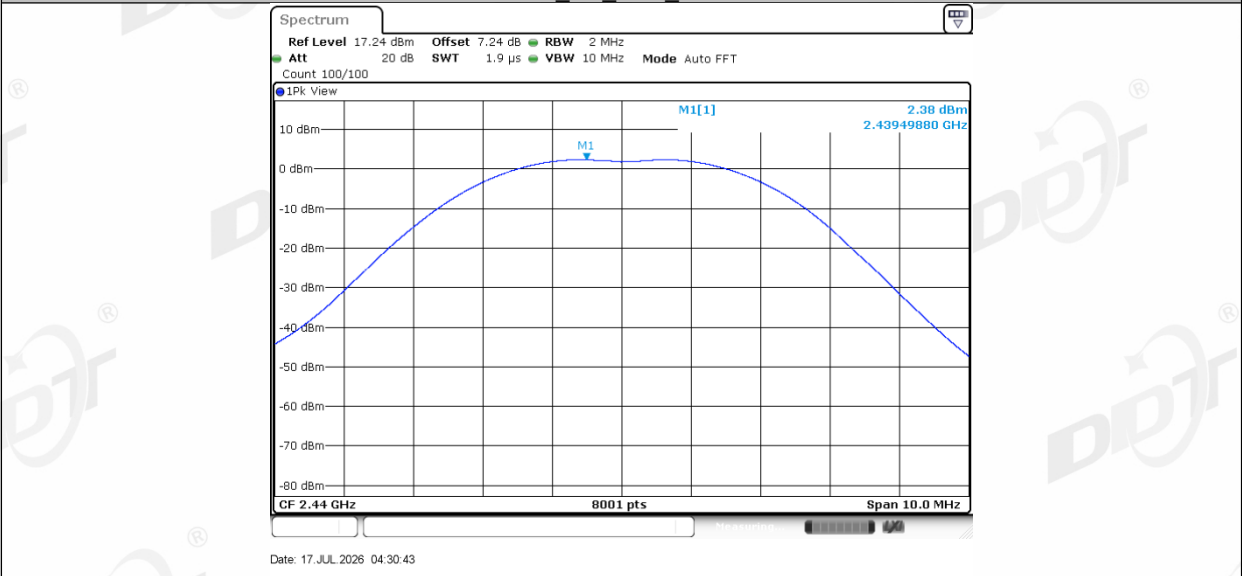




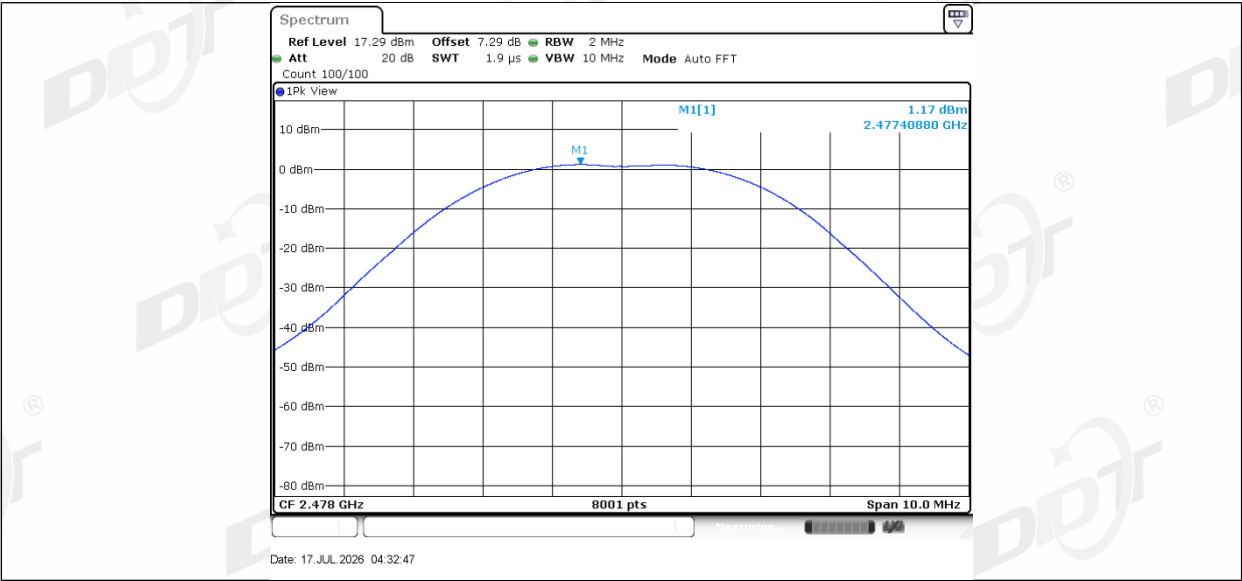
BLE_2M_Ant1_2404



BLE_2M_Ant1_2440

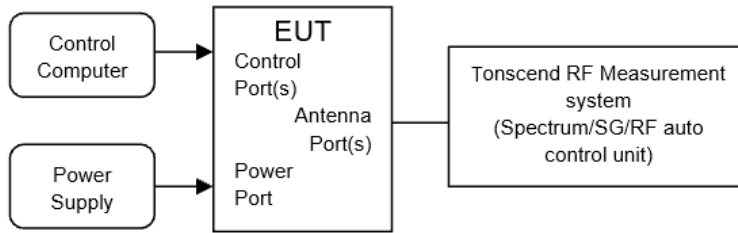


BLE_2M_Ant1_2478



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

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

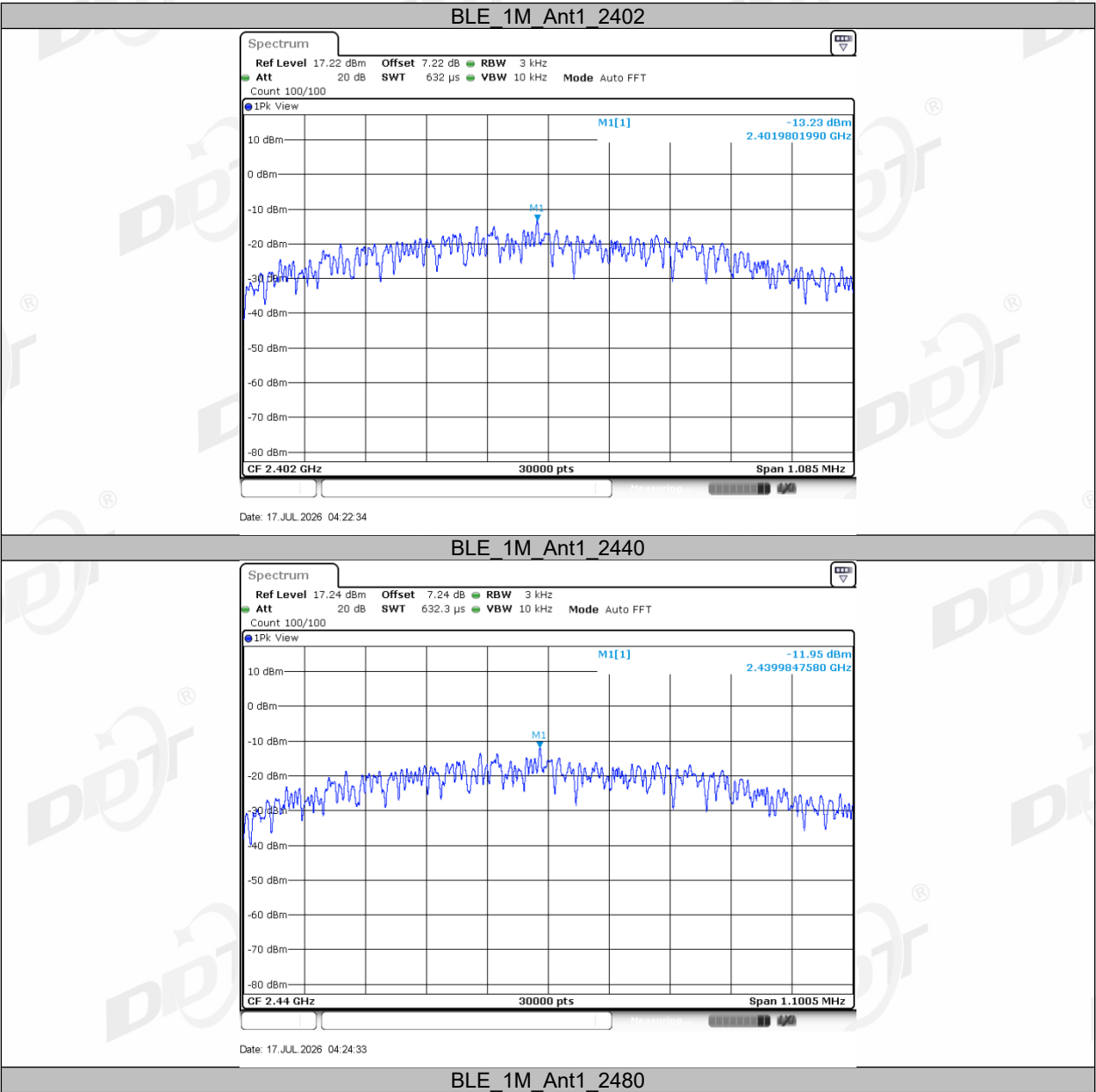
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

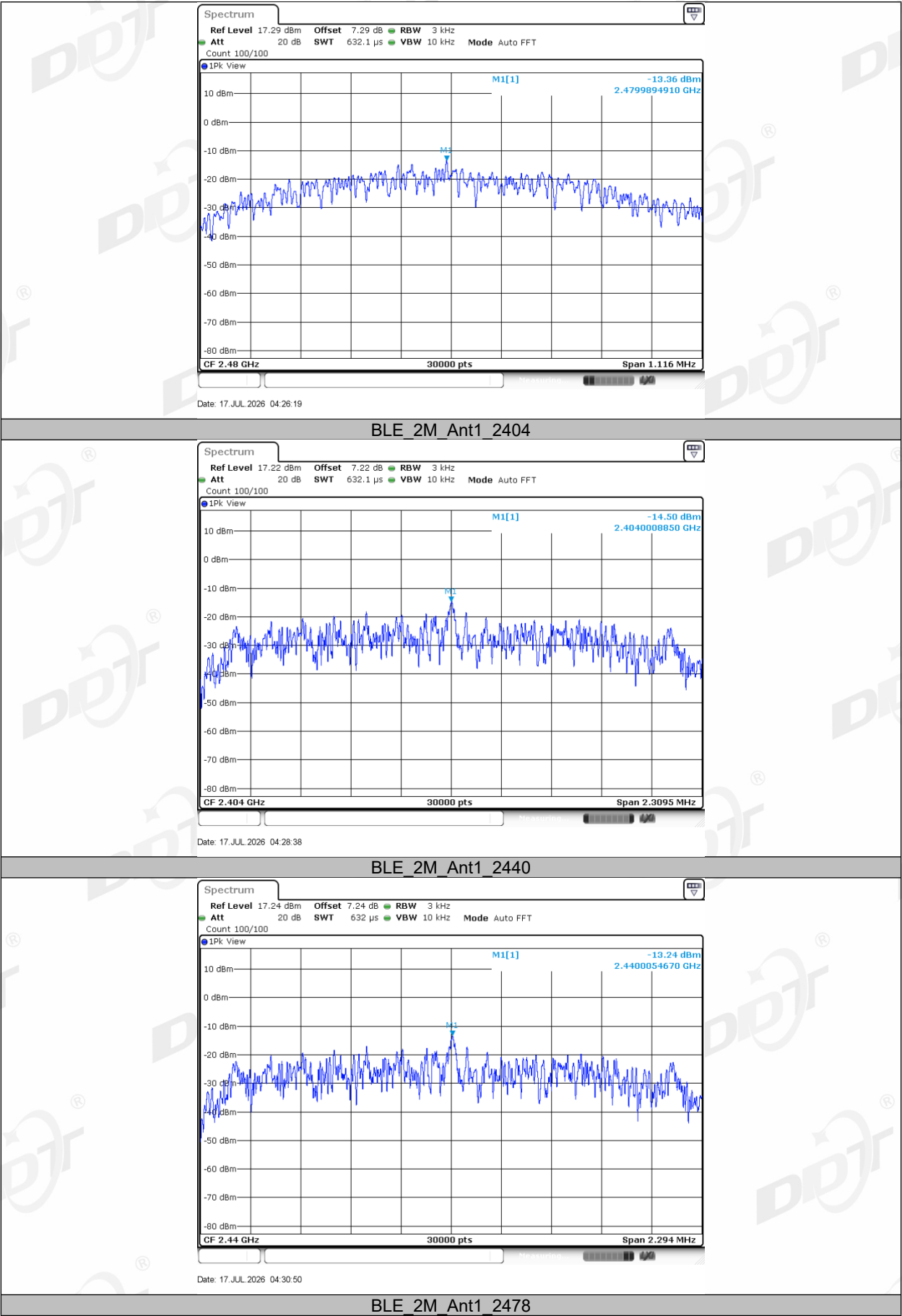
7.4. Test result

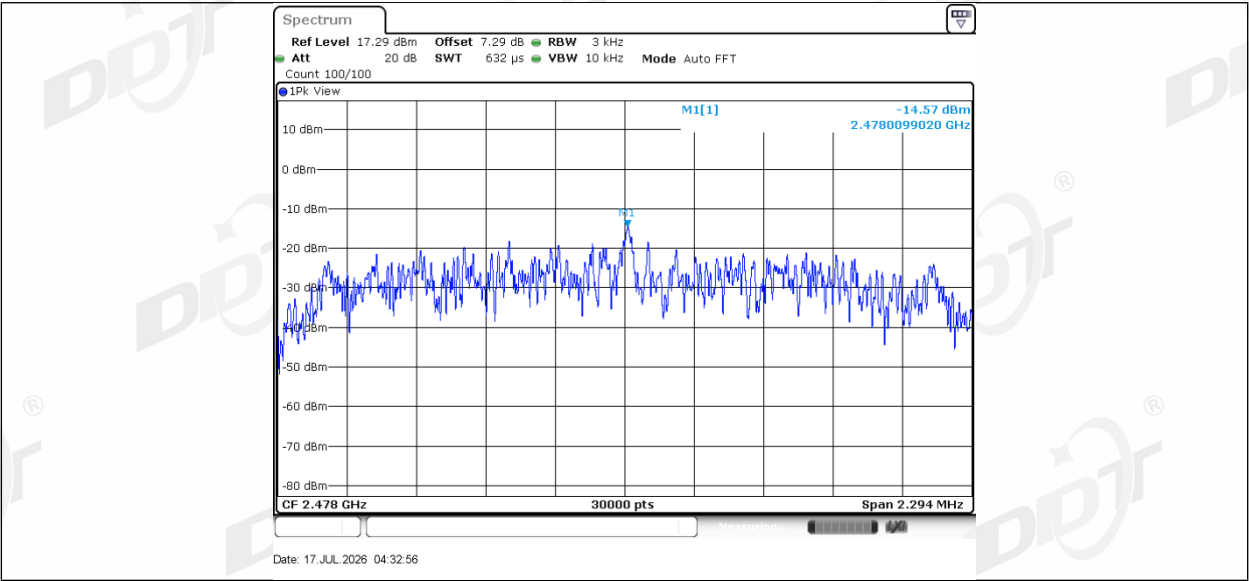
Test Engineer:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.5-26.3℃,40.3-46.5%RH	Test Date:	2026.6.24-2026.7.17
Test Power Supply:	DC 48V	Sample Number:	S26051409-004

Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-13.23	≤8.00	PASS
		2440	-11.95	≤8.00	PASS
		2480	-13.36	≤8.00	PASS
BLE_2M	Ant1	2404	-14.50	≤8.00	PASS
		2440	-13.24	≤8.00	PASS
		2478	-14.57	≤8.00	PASS

7.5. Test graphs

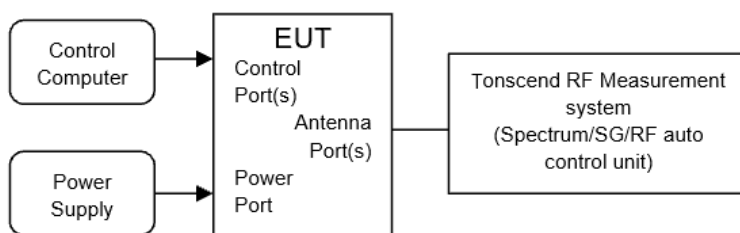






8. Band Edge Compliance (Conducted Method)

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 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) 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:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.5-26.3℃,40.3-46.5%RH	Test Date:	2026.6.24-2026.7.17
Test Power Supply:	DC 48V	Sample Number:	S26051409-004

Mode	Frequency [MHz]	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

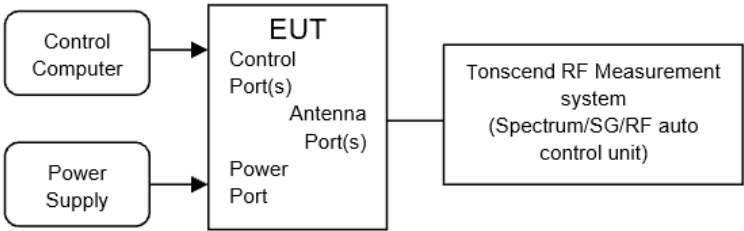
8.5. Test graphs





9. RF Conducted Spurious Emissions

9.1. Block diagram of test setup



9.2. Limits

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	$\geq \text{Span}/\text{RBW}$
Detector Mode:	Peak
Sweep time:	Auto
Trace mode	Max hold

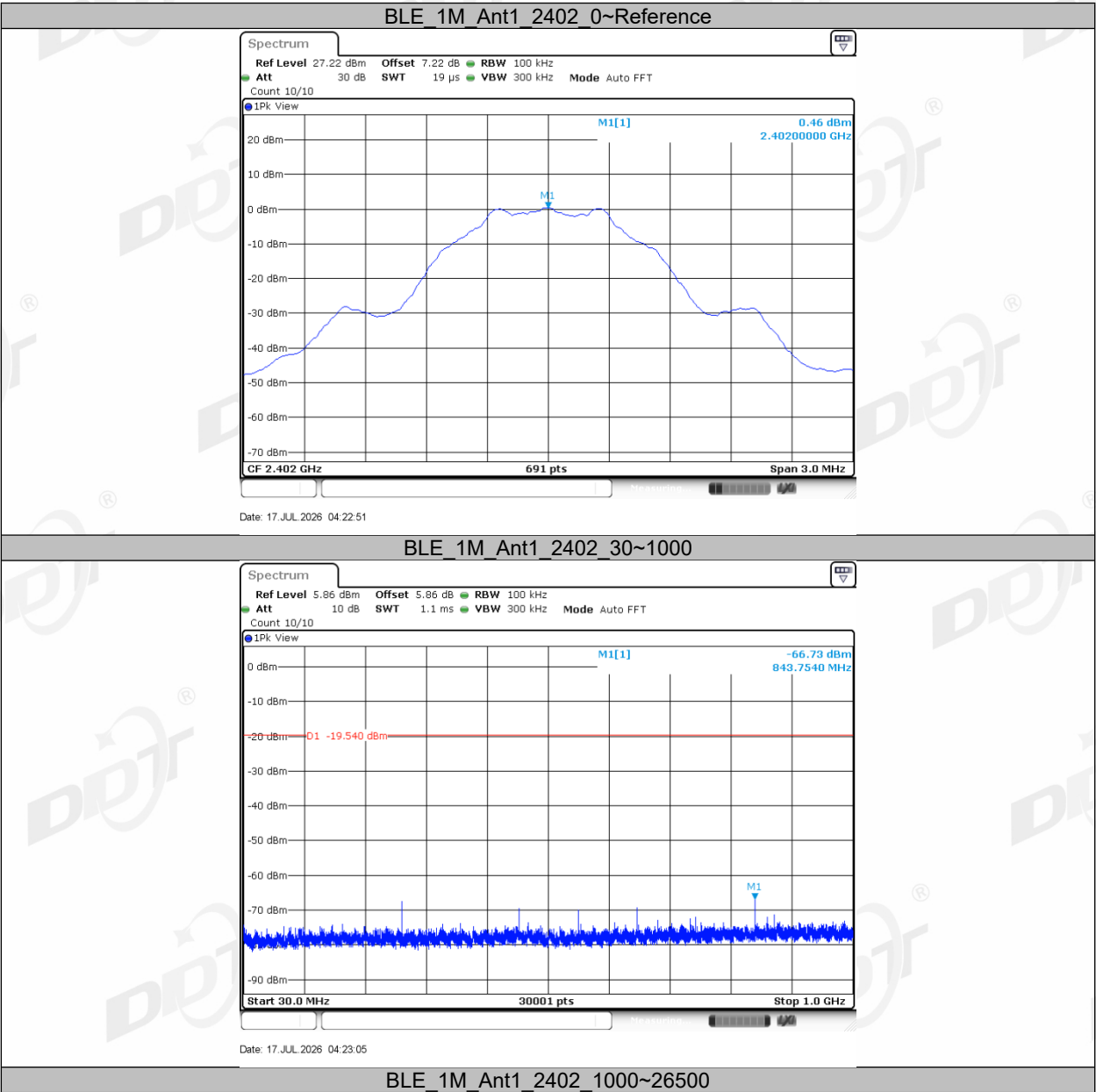
Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

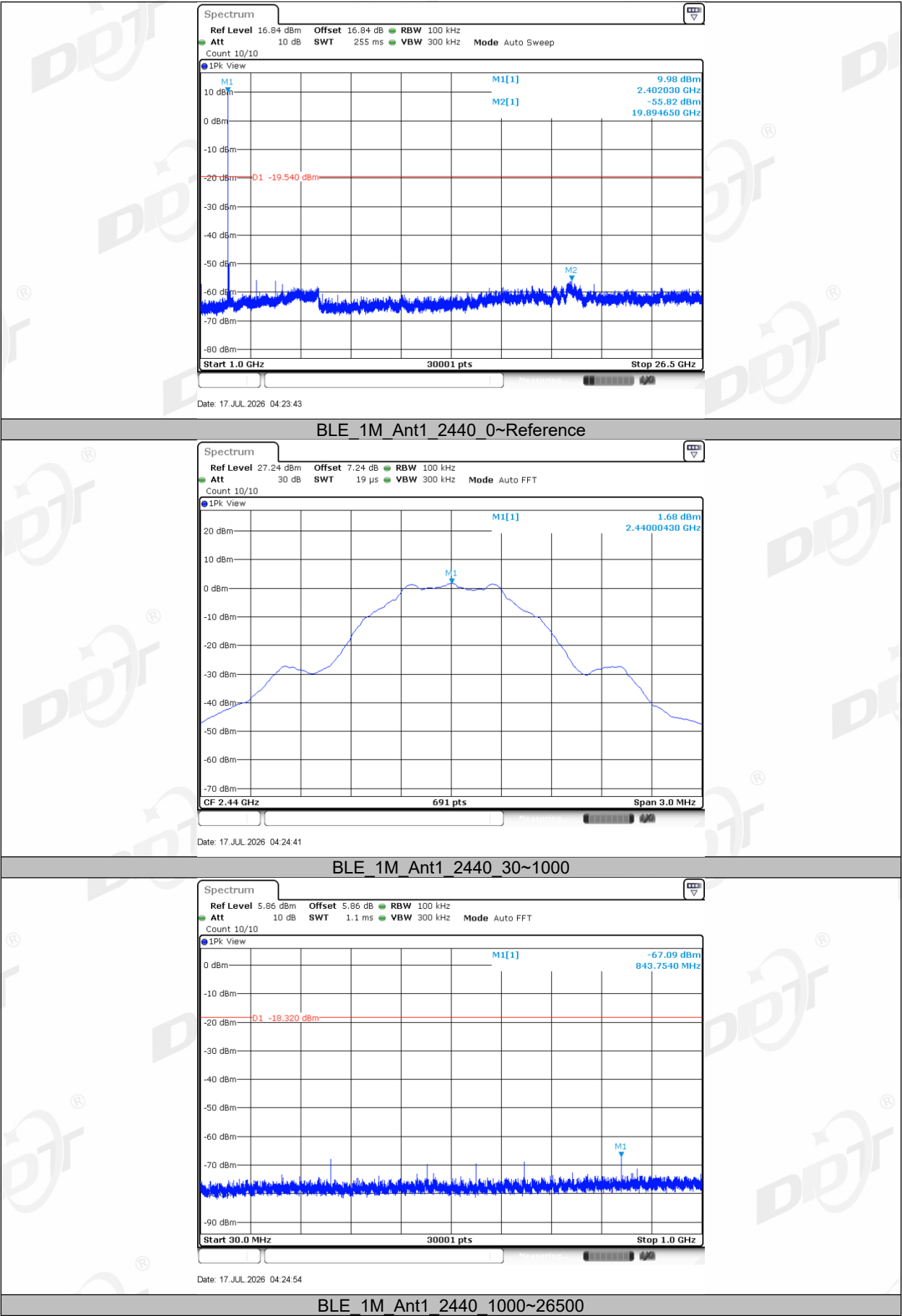
9.4. Test result

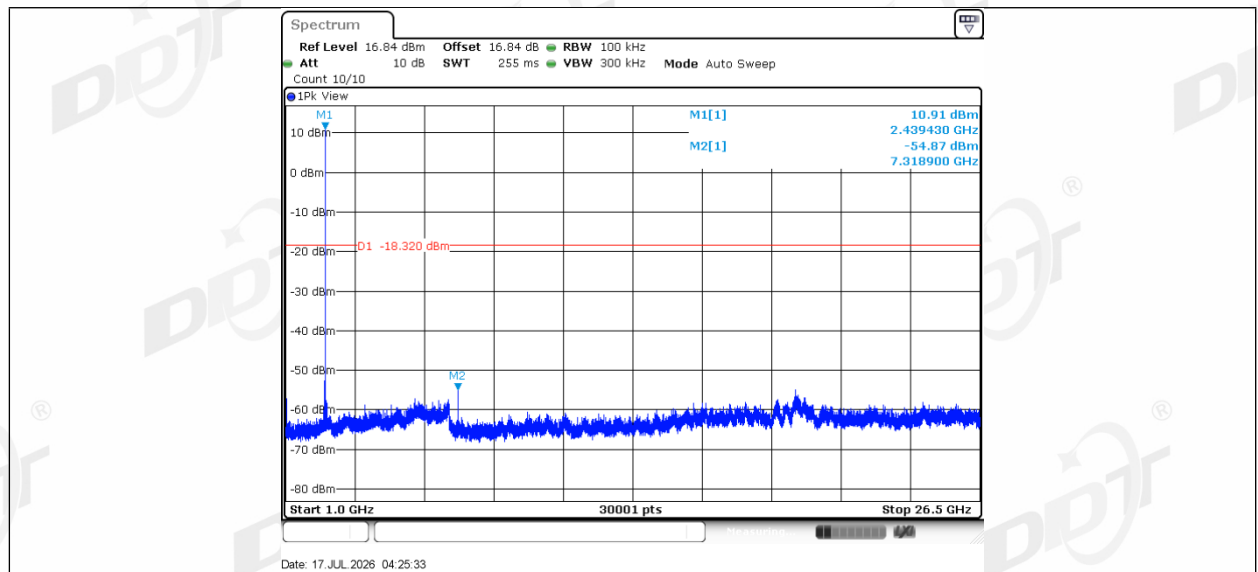
Test Engineer:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.5-26.3℃,40.3-46.5%RH	Test Date:	2026.6.24-2026.7.17
Test Power Supply:	DC 48V	Sample Number:	S26051409-004

Mode	Frequency [MHz]	Verdict
GFSK 1M	2402	Pass
	2440	Pass
	2480	Pass
GFSK 2M	2404	Pass
	2440	Pass
	2478	Pass

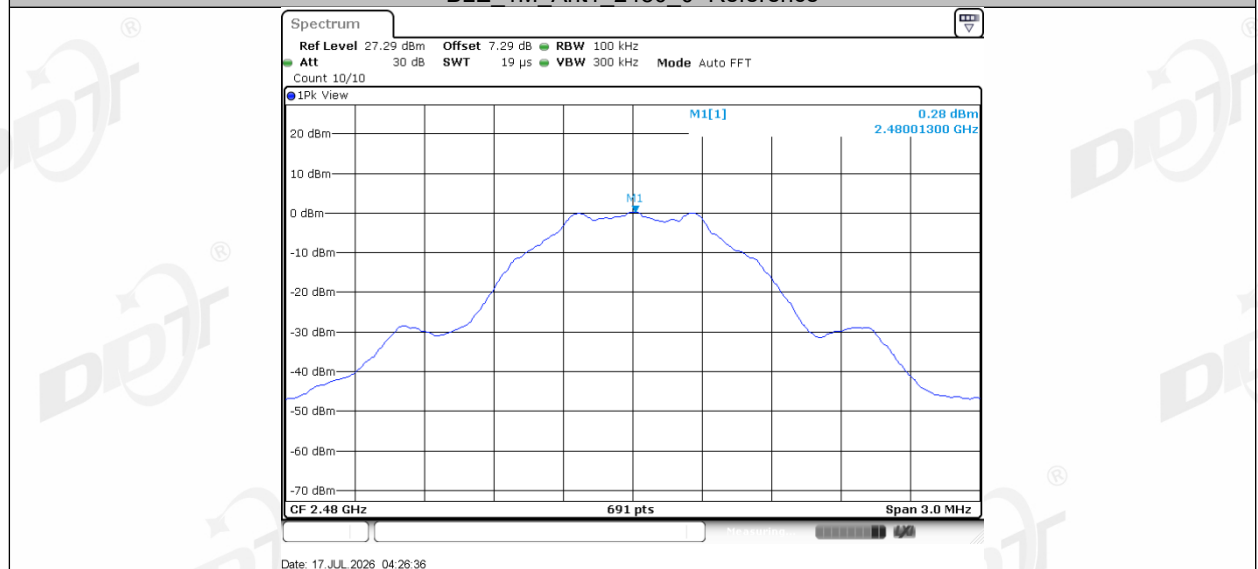
9.5. Test graphs



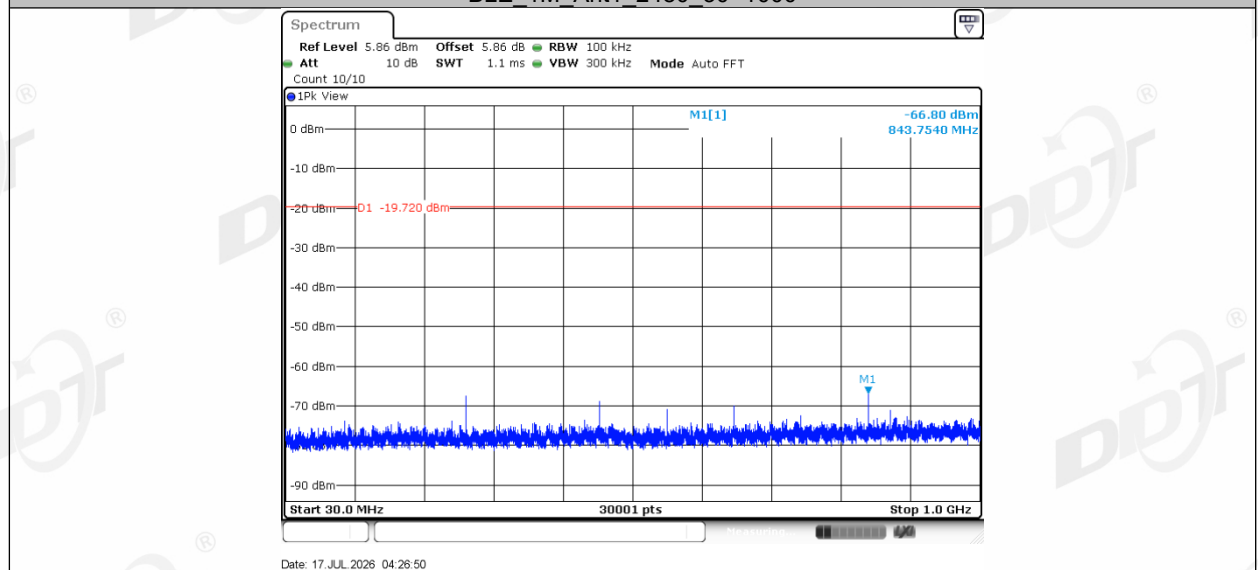




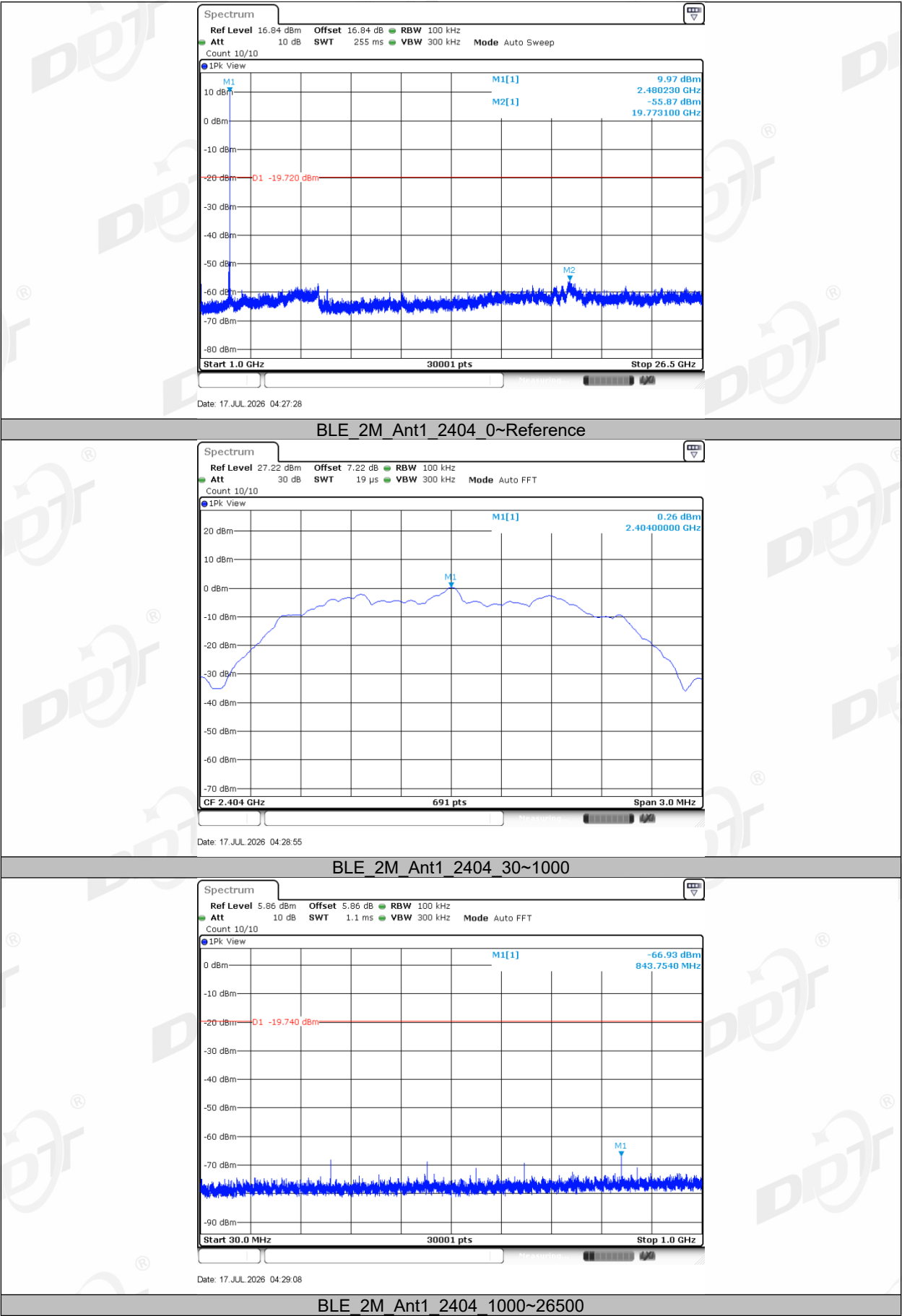
BLE_1M_Ant1_2480_0~Reference

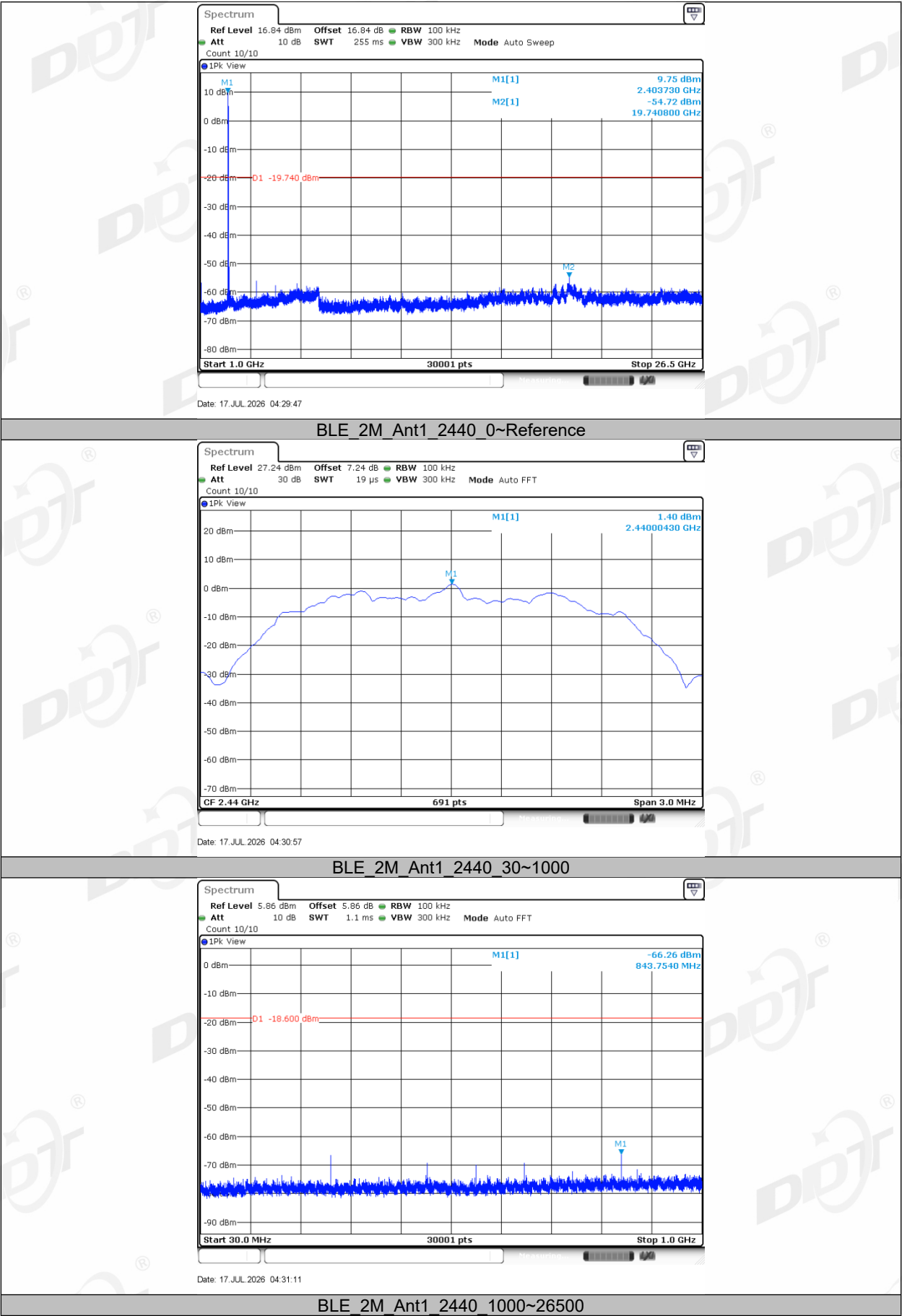


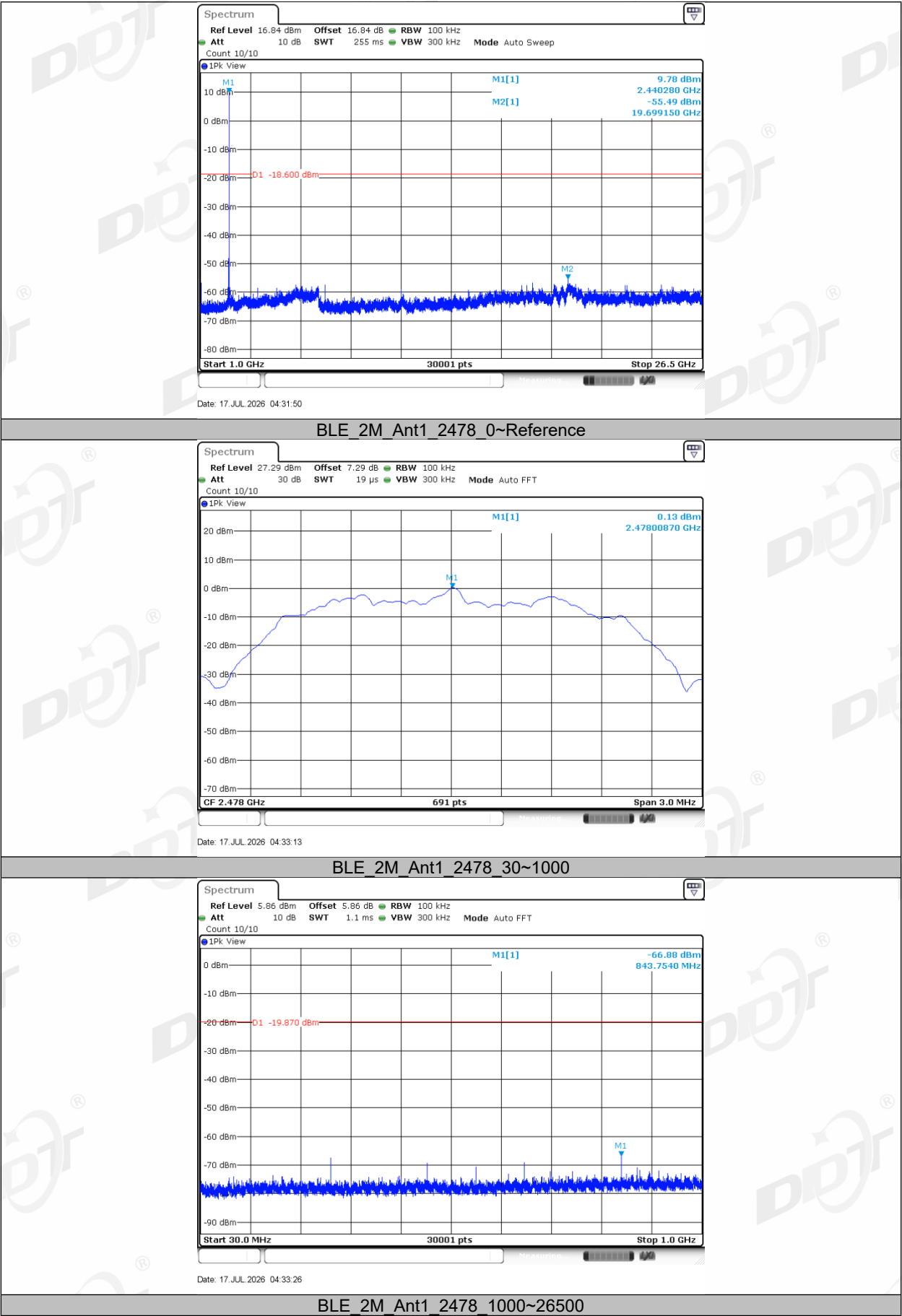
BLE_1M_Ant1_2480_30~1000

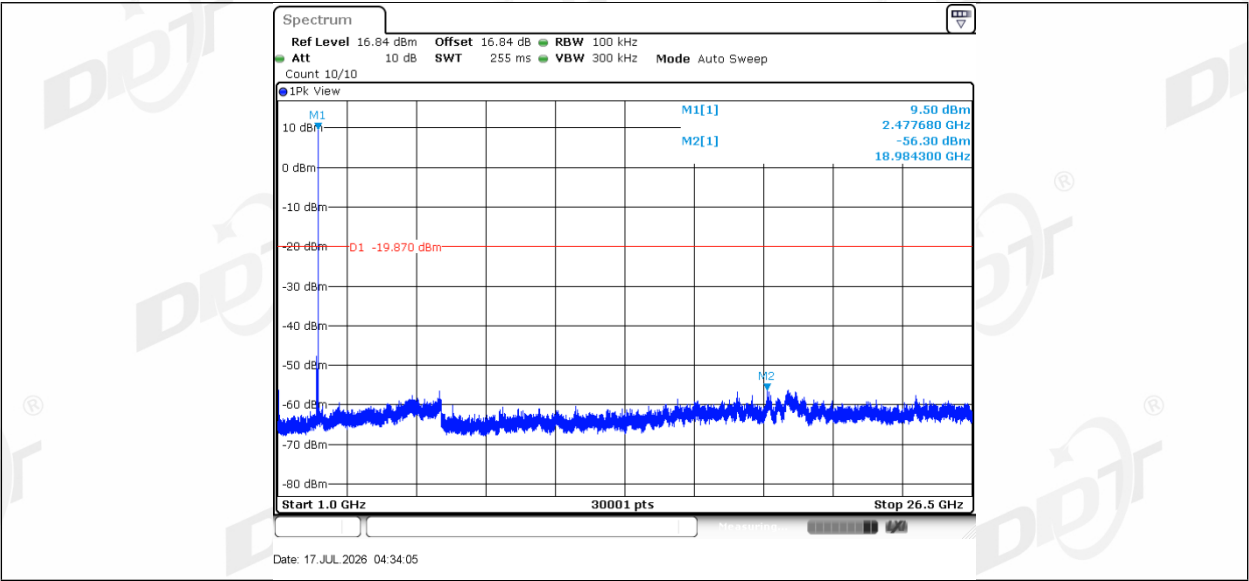


BLE	1M	Ant1	2480	1000~26500
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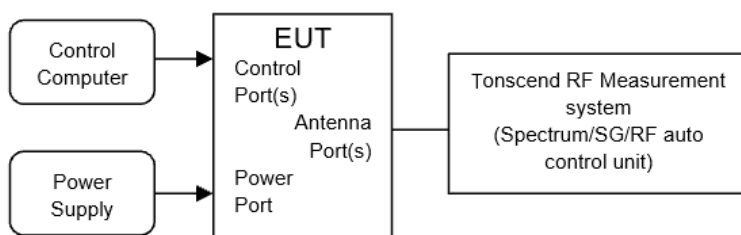






10. Duty Cycle

10.1. Block diagram of test setup



10.2. Limit

Just for Report.

10.3. Test procedure

- (1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.

Set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the middle hopping channel.

Resolution BW: 10 MHz.

Video BW: 10 MHz.

Span: Zero span.

Detector: Peak.

Trace Mode: Clear Write.

Sweep: Video Trigger

- (2) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.
- (3) Calculate dwell time follow below formula:
$$\text{Duty cycle} = \text{Pulse's on time} / \text{Burst cycle}$$

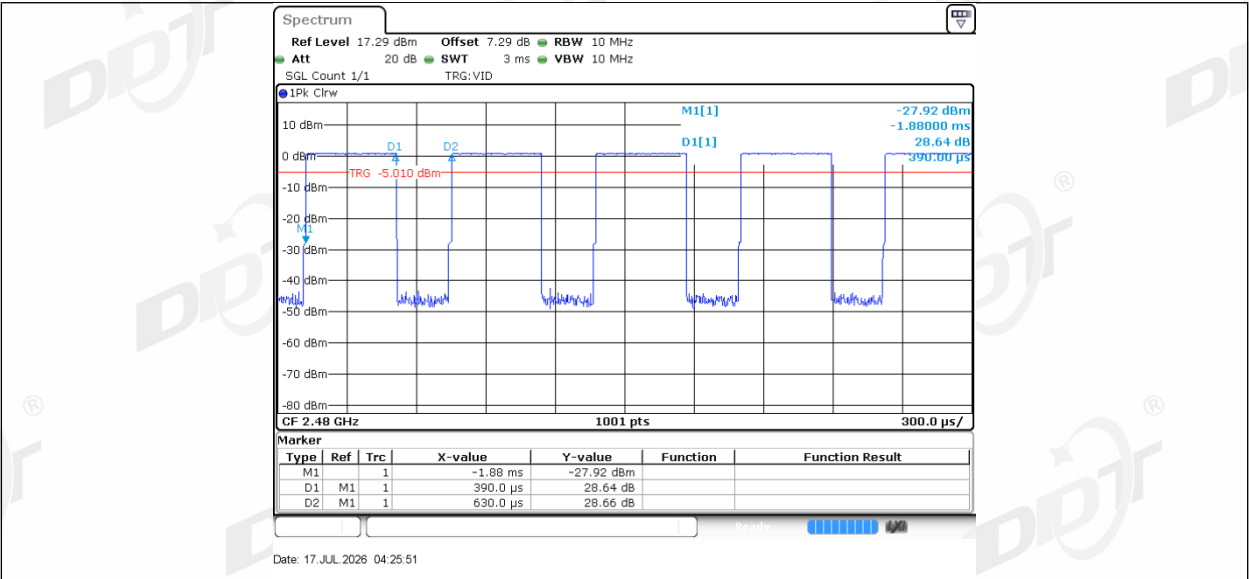
10.4. Test result

Test Engineer:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.5-26.3℃,40.3-46.5%RH	Test Date:	2026.6.24-2026.7.17
Test Power Supply:	DC 48V	Sample Number:	S26051409-004

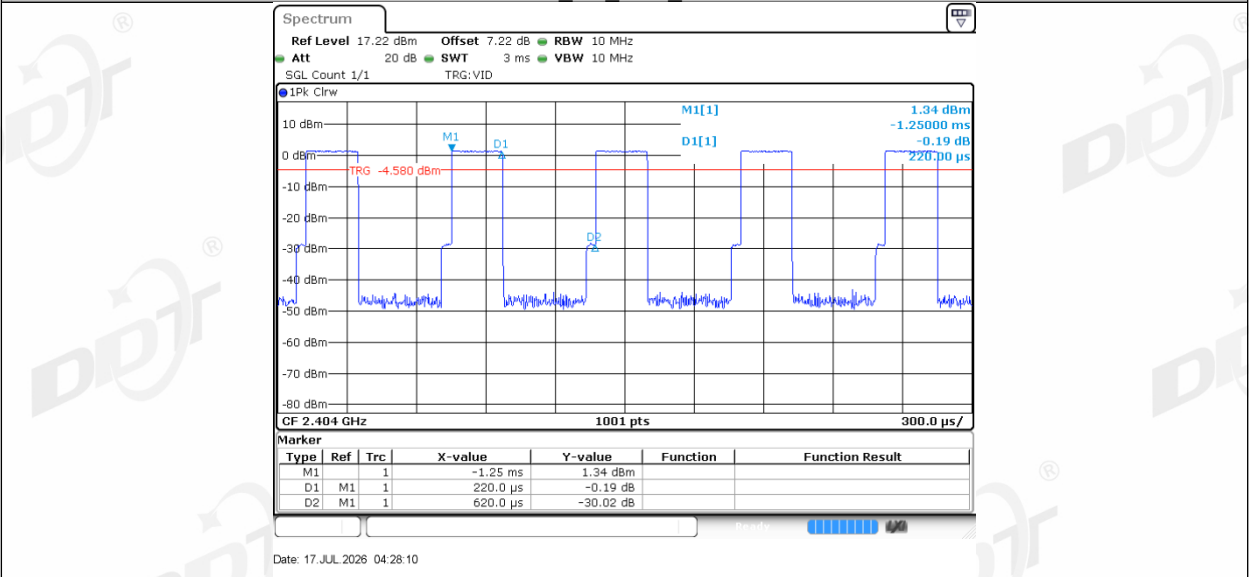
Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	0.39	0.63	61.90	2.08
		2440	0.39	0.63	61.90	2.08
		2480	0.39	0.63	61.90	2.08
BLE_2M	Ant1	2404	0.22	0.62	35.48	4.50
		2440	0.22	0.62	35.48	4.50
		2478	0.22	0.62	35.48	4.50

10.5. Test graphs

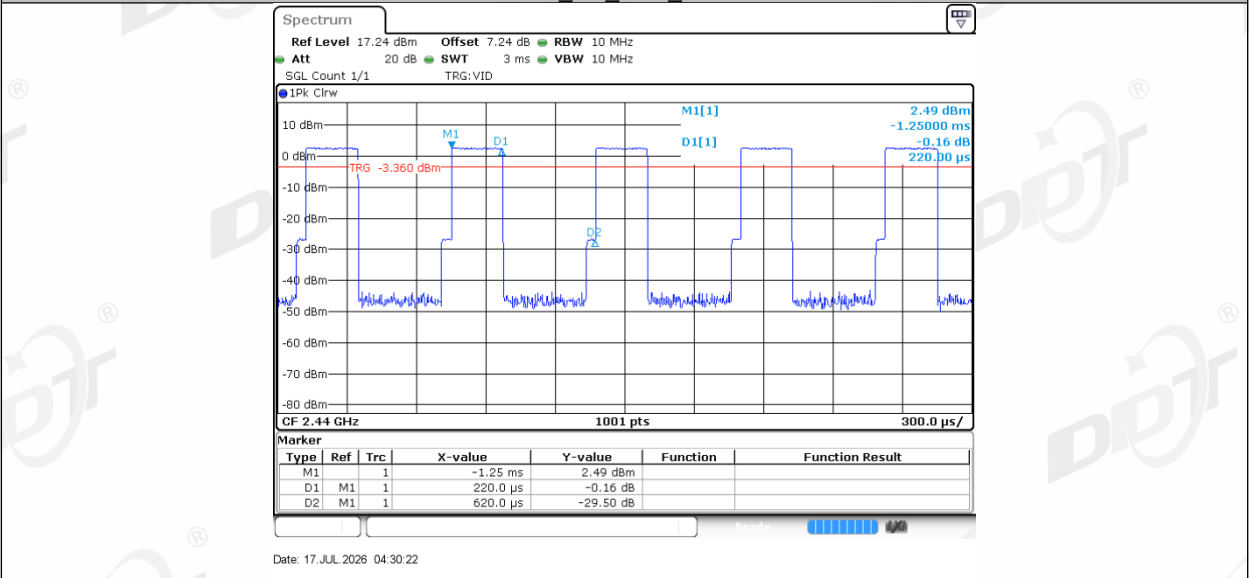




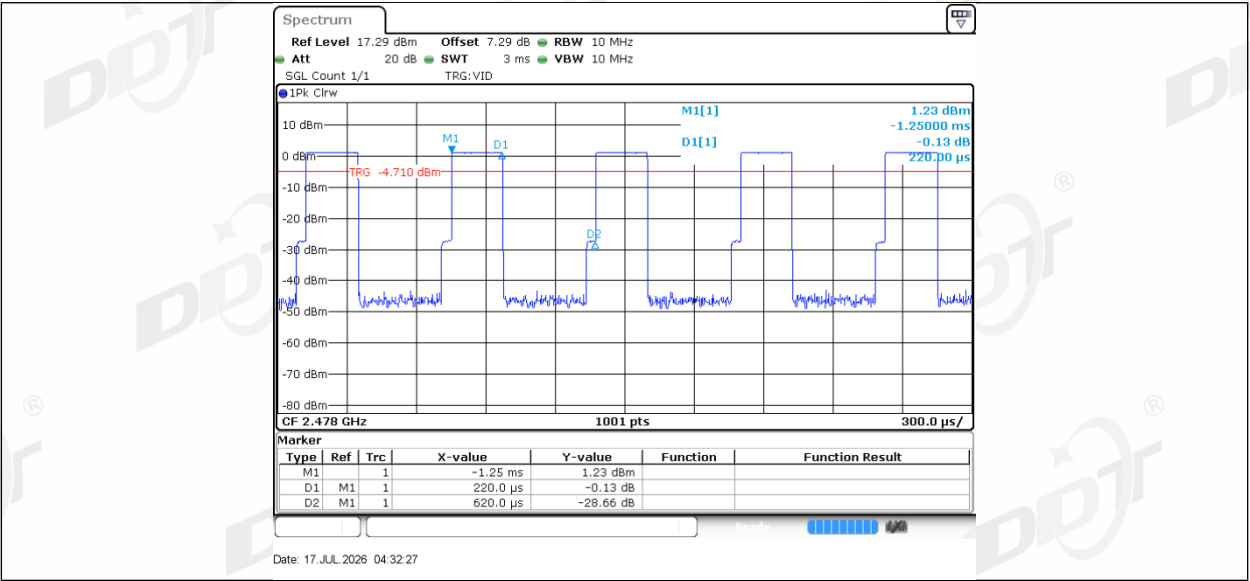
BLE 2M Ant1 2404



BLE 2M Ant1 2440



BLE 2M Ant1 2478



11. Antenna Requirements

11.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2. Result

The antenna used for this product as Antenna information described in section 2.1 of the report, and there is no other antenna than that furnished by the responsible party shall be used with the device.

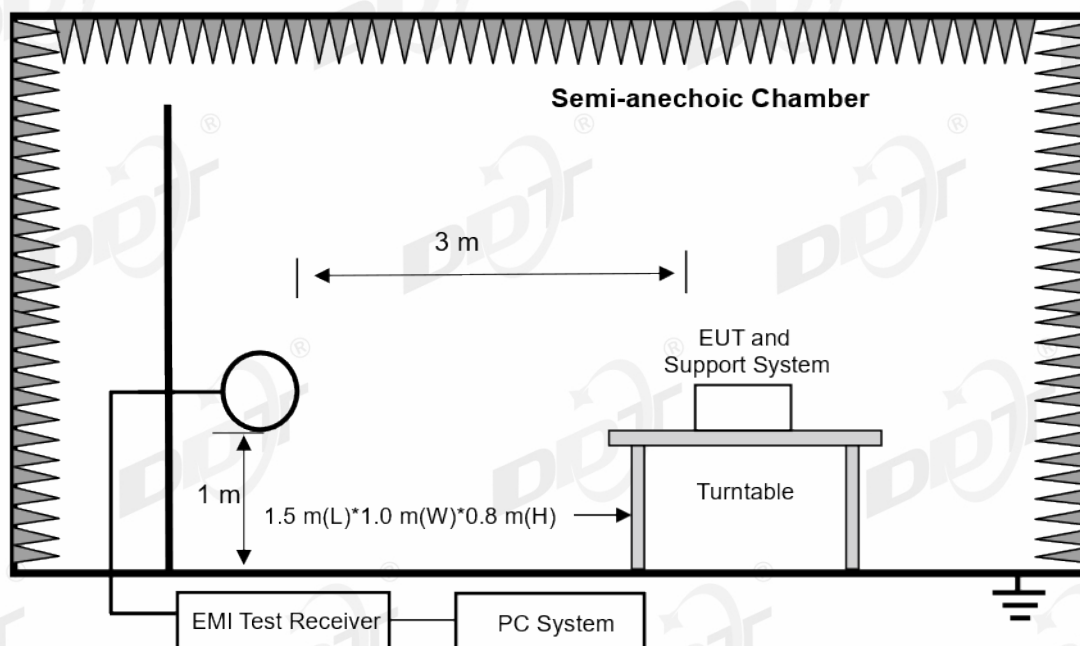
12. Radiated Emission

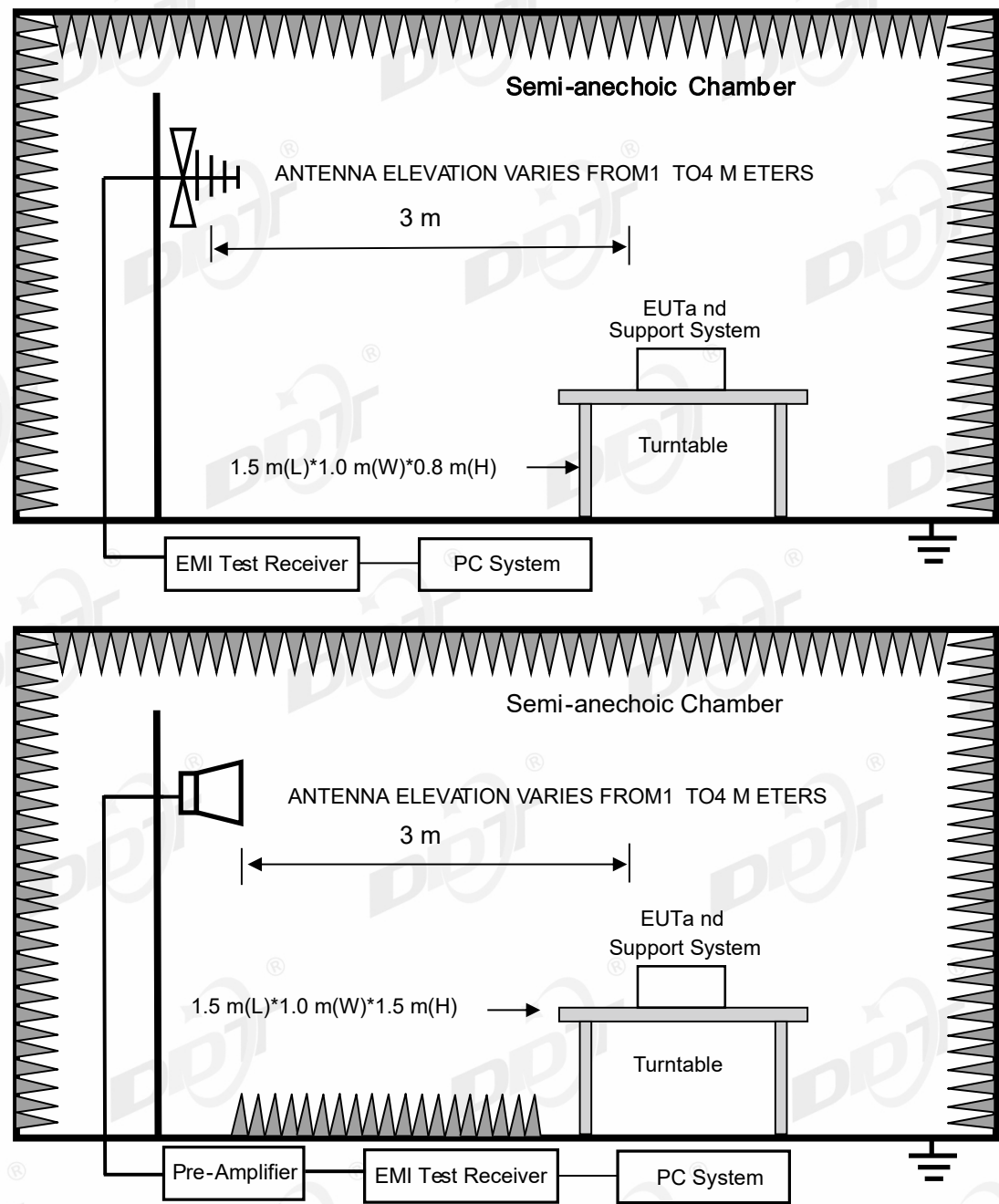
12.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal Due To
High pass filter	Micro-Tronics	HPM50102	DDT-ZC00561	2027/02/27
RF cable	Zhongke Junchuang	Z805UF-NJ-NJ-10M	DDT-ZC05591	2026/10/10
RF cable	Zhongke Junchuang	Z805UF-NJ-NJ-3M	DDT-ZC05590	2026/10/10
RF cable	Zhongke Junchuang	JCTB510-NJW-NJW-0.6M	DDT-ZC04595	2026/10/10
RF cable	Zhongke Junchuang	JCT40P-2.92J-2.92J-1M	DDT-ZC03802	2026/10/10
RF cable	Yuhu Technology	ZT26S-SMAJ-SMAJ-1M	DDT-ZC02037	2026/10/10
RF cable	Zhongke Junchuang	JCT40P-2.92J-2.92J-5M	DDT-ZC03800	2026/10/10
Radiation disturbance fully automated test software	Tonscend	JS32-RE (V5.0.0)	DDT-ZC02739	/
Pre-amplifier	SONOMA	310N	DDT-ZC01969	2027/06/25
Pre-amplifier	SONOMA	310N	DDT-ZC01969	2026/07/06
Pre-amplifier	COM-POWER	PAM-840A	DDT-ZC01693	2027/03/05
Pre-amplifier	COM-POWER	PAM-118A	DDT-ZC01293	2027/07/08
Pre-amplifier	COM-POWER	PAM-118A	DDT-ZC01293	2026/08/10
EMI TEST RECEIVER	R&S	ESU26	DDT-ZC01909	2027/02/27
Micro-Tronics filters	REBES	BRM50702	DDT-ZC03242	/
High pass filter	Micro-Tronics	HPM50108	DDT-ZC00560	2027/02/27
High Pass filter	Xi'an Xingbo	XBLBQ-GTA67	DDT-ZC02179	2027/02/27
Micro-Tronics filters	REBES	BRM50716	DDT-ZC03240	/
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2027/03/04
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02050	2027/07/10
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02050	2026/07/25
Hochgewinn-Hornantenne	SCHWARZBEC K	BBHA 9120 D	DDT-ZC02129	2027/07/10
Hochgewinn-Hornantenne	SCHWARZBEC K	BBHA 9120 D	DDT-ZC02129	2026/08/18
Active Loop Antenna	Schwarzbeck	FMZB1519	DDT-ZC00524	2027/07/10
Active Loop Antenna	Schwarzbeck	FMZB1519	DDT-ZC00524	2026/08/18
PSA Series Spectrum Analyzer	Agilent	E4447A	DDT-ZC00517	2027/02/27
Band Reject Filter Group	Tonscend	JS0806-F	DDT-ZC05733	/
Hochgewinn-Hornantenne	SCHWARZBEC K	BBHA 9120 D	DDT-ZC05922	2027/01/06
Broadband Preamplifier	HPX	BP-01G-18G	DDT-ZC05923	2027/01/06
Pre-amplifier	COM-POWER	PAM-840A	DDT-ZC01693	2027/03/05
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2027/03/04

Signal & Spectrum analyzer	R&S	FSV40-N	DDT-ZC04979	2027/07/10
Signal & Spectrum analyzer	R&S	FSV40-N	DDT-ZC04979	2026/07/04
SPECTRUM ANALYZER	R&S	FSU26	DDT-ZC00236	2027/06/25
SPECTRUM ANALYZER	R&S	FSU26	DDT-ZC00236	2026/07/06
RF Cable	Tonscend	7+1+1+0.5+0.5m	DDT-ZC05978	2027/01/29
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2027/03/04
PSA Series Spectrum Analyzer	Agilent	E4447A	DDT-ZC00517	2027/02/27
RF cable	Zhongke Junchuang	JCT40P-2.92J-2.92J-1M	DDT-ZC03802	2026/10/10
Radiation disturbance fully automated test software	Tonscend	JS-RE&RSE (V5.0.0)	DDT-ZC06466	/

12.2. Block diagram of test setup





12.3. Limits

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.1772&4.1775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.2075	73-74.6	1645.5-1646.5	9.3-9.5

6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

1 Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

2 Above 38.6

(2) FCC 15.209 Limit

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMIT	
MHz	Meters	uV/m	dBuV/m
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30~88	3	100	40.0
88~216	3	150	43.5
216~960	3	200	46.0
960~1000	3	500	54.0
Above 1000	3	74.0 dBuV/m(Peak) 54.0 dBuV/m(Average)	

Note:

(1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz and above 1000 MHz, radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3m}(\text{dBuV/m}) = \text{Limit}_{30m}(\text{dBuV/m}) + 40\text{Log}(30m/3m)$$

(3) Limit for this EUT

The emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20 dB below the fundamental emissions or comply with 15.209 limits.

12.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

12.5. Test procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber for below 1G and 150 cm above the ground plane inside a fully-anechoic chamber for above 1G.

(2) Test antenna was located 3 m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test antenna distance
9 kHz - 30 MHz	Active Loop antenna	3 m
30 MHz - 1 GHz	Trilog Broadband Antenna	3 m
1 GHz - 18 GHz	Double Ridged Horn Antenna(1 GHz-18 GHz)	3 m
18 GHz - 40 GHz	Horn Antenna(18 GHz-40 GHz)	1 m

According ANSI C63.10 clause 6.4.6 and 6.5.3, for measurements below 30 MHz, Antenna was located 3 m from EUT, the loop antenna was positioned in three antenna orientations (parallel, perpendicular, and round-parallel), for each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable, and the lowest height of the magnetic antenna shall be 1 m above the ground. For measurement above 30MHz, the trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 25 GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1 m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9 kHz to 25 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 18 GHz to 25 GHz, so below final test was performed with frequency range from 9 kHz to 18 GHz.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to ANSI C63.10 on Radiated Emission test.

(5) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz, for emissions from 9 kHz - 90 kHz, 110 kHz - 490 kHz and above 1 GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW.

Frequency band	RBW
9 kHz - 150 kHz	200 Hz
150 kHz - 30 MHz	9 kHz
30 MHz - 1 GHz	120 kHz

(7) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; According ANSI C63.10 clause 4.1.5.2.2 procedure for average measure.

(8) For portable device, X axis, Y axis, Z axis are tested, and worse setup is reported.

(9) According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

(10) For 30 MHz ~ 25 GHz: (Scan with all mode, the worst case is reported)

(11) For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in worst mode.

Test result

PASS. (See below detailed test result)

12.6. Test data

TR-4-E-009 Radiated Emission Test Result

Test Date:

2026-07-28

Tested By:

Li Xiongbín

Test Mode:

TX BLE1M 2402MHz Mode

Power Supply:

DC 48V

Condition:

Temp:19.8°C;Humi:53.2%

Test Site:

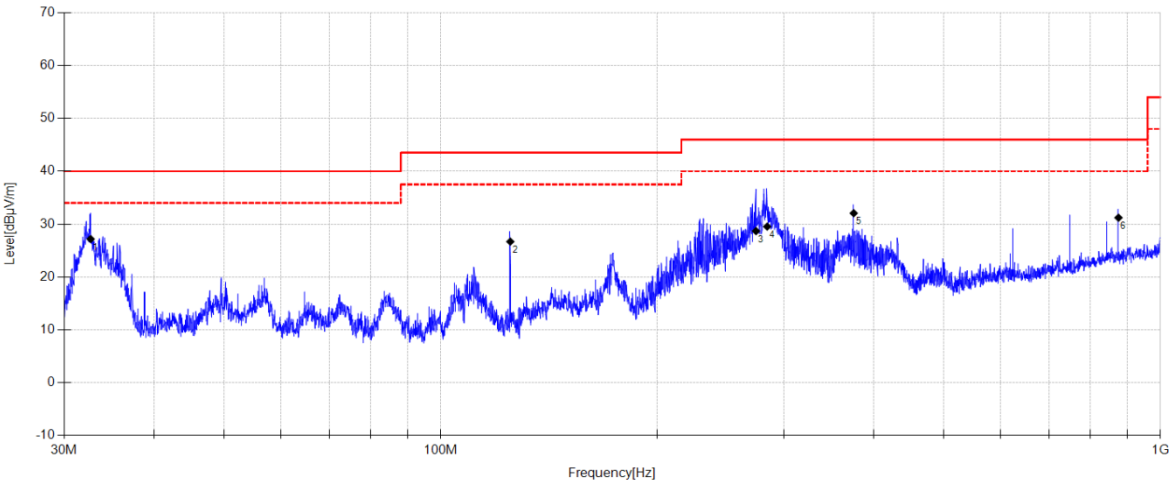
DDT 3# Chamber

File Path:

d:\ts\2026 report data\Q26051409-2E\FCC Below 1G\20260728-053552_H

Memo:

Sample Number:S26051409-009

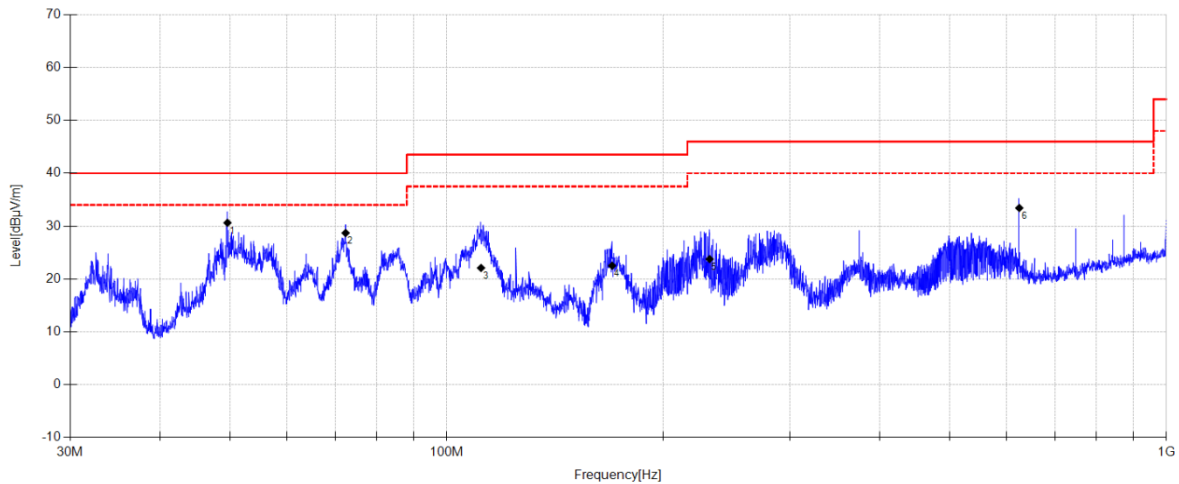


Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	32.633	44.76	10.90	3.82	27.18	40.00	12.82	QP	Horizontal
2	124.971	45.38	9.20	4.44	26.70	43.50	16.80	QP	Horizontal
3	274.265	43.42	12.49	5.18	28.69	46.00	17.31	QP	Horizontal
4	284.250	43.62	13.10	5.22	29.54	46.00	16.46	QP	Horizontal
5	374.959	44.13	14.81	5.60	32.07	46.00	13.93	QP	Horizontal
6	874.657	34.87	21.33	7.07	31.22	46.00	14.78	QP	Horizontal

Note:

- Level = Reading + Cable Loss + Antenna Factor + AMP
- If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
- Test setup: 9kHz-150kHz RBW: 300Hz, VBW: 1 kHz, Sweep time: auto.
150kHz-30MHz RBW: 10kHz, VBW: 30kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

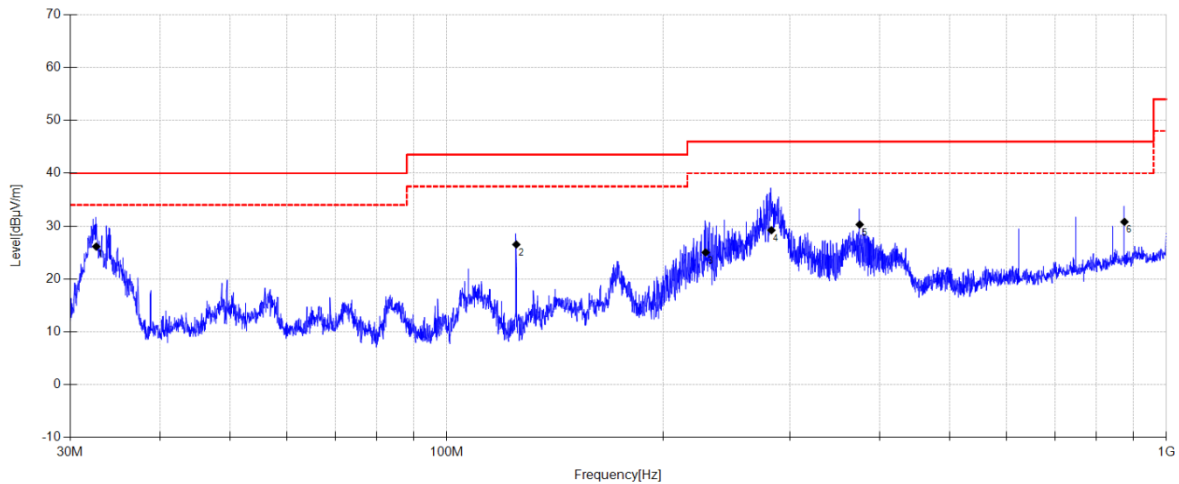
Test Date: 2026-07-28**Tested By:** Li Xiongbin**Test Mode:** TX BLE1M 2402MHz Mode**Power Supply:** DC 48V**Condition:** Temp:19.8°C;Humi:53.2%**Test Site:** DDT 3# Chamber**File Path:** d:\ts\2026 report data\Q26051409-2E\FCC Below 1G\20260728-053643_V**Memo:** Sample Number:S26051409-009

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	49.597	45.47	13.48	3.98	30.63	40.00	9.37	QP	Vertical
2	72.376	47.44	9.39	4.17	28.70	40.00	11.30	QP	Vertical
3	111.630	38.07	11.96	4.37	22.09	43.50	21.41	QP	Vertical
4	169.778	40.78	9.40	4.70	22.51	43.50	20.99	QP	Vertical
5	231.948	39.23	11.93	5.01	23.77	46.00	22.23	QP	Vertical
6	624.699	41.16	18.72	6.46	33.43	46.00	12.57	QP	Vertical

Note:

1. Level = Reading + Cable Loss + Antenna Factor + AMP
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: 9kHz-150kHz RBW: 300Hz, VBW: 1 kHz, Sweep time: auto.
150kHz-30MHz RBW: 10kHz, VBW: 30kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2026-07-28**Tested By:** Li Xiongbin**Test Mode:** TX BLE2M 2404MHz Mode**Power Supply:** DC 48V**Condition:** Temp:19.8°C;Humi:53.2%**Test Site:** DDT 3# Chamber**File Path:** d:\ts\2026 report data\Q26051409-2E\FCC Below 1G\20260728-053739_H**Memo:** Sample Number:S26051409-009

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	32.588	43.72	10.90	3.82	26.14	40.00	13.86	QP	Horizontal
2	124.971	45.21	9.20	4.44	26.53	43.50	16.97	QP	Horizontal
3	229.039	40.35	12.07	5.00	25.02	46.00	20.98	QP	Horizontal
4	282.660	43.32	13.10	5.21	29.23	46.00	16.77	QP	Horizontal
5	374.959	42.36	14.81	5.60	30.30	46.00	15.70	QP	Horizontal
6	874.657	34.46	21.33	7.07	30.81	46.00	15.19	QP	Horizontal

Note:

1. Level = Reading + Cable Loss + Antenna Factor + AMP
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: 9kHz-150kHz RBW: 300Hz, VBW: 1 kHz, Sweep time: auto.
150kHz-30MHz RBW: 10kHz, VBW: 30kHz, Sweep time: auto.