



FCC CERTIFICATION TEST REPORT

Applicant	:	PEAG, LLC dba JLab Audio
Address of Applicant	:	5927 LANDAU CT, Carlsbad, CA 92008, United States
Manufacturer	:	GuangDong Simpreal Intelligent Technology Co., Ltd
Address of Manufacturer	:	Room 2408, JiaHong ZhenXing DaSha, DongGuan Avenue #13, DongCheng District, DongGuan City, GuangDong Province, P.R. China
Equipment under Test	:	True Wireless Earbuds
Model No.	:	Epic Sport ANC 3
FCC ID	:	2AHYV-ESPRT3
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart C, ANSI C63.10:2013
Report No.	:	DDT-RE24052818-1E02
Issue Date	:	2024/10/11
Issue By	:	Guangdong Dongdian Testing Service Co., Ltd. Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

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Test Report Declare

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Equipment under Test	:	True Wireless Earbuds
Model No.	:	Epic Sport ANC 3
Manufacturer	:	GuangDong Simpreal Intelligent Technology Co., Ltd
Address of Manufacturer	:	Room 2408, JiaHong ZhenXing DaSha, DongGuan Avenue #13, DongCheng District, DongGuan City, GuangDong Province, P.R. China

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C,
ANSI C63.10:2013

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-RE24052818-1E02		
Date of Receipt:	2024/07/31	Date of Test:	2024/07/31 - 2024/10/11

Prepared By:

Ziqin Chen
Ziqin Chen/Engineer

Approved By:


Damon Hu
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	2024/10/11	

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)	/	Pass
2	Peak Output Power	FCC Part 15: 15.247(b)(3)	/	Pass
3	Power Spectral Density	FCC Part 15:15.247(e)	/	Pass
4	RF Conducted Spurious Emissions	FCC Part 15: 15.247(d)	/	Pass
5	Radiated Emission	FCC Part 15: 15.205, FCC Part 15: 15.209, FCC Part 15: 15.247(d)	/	Pass
6	Band Edge Compliance	FCC Part 15: 15.205, FCC Part 15: 15.209, FCC Part 15: 15.247(d)	/	Pass
7	Power Line Conducted Emissions	FCC Part 15: 15.207(a)	/	Pass
8	Antenna Requirement	FCC Part 15: 15.203	/	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	: True Wireless Earbuds
Model Number	: Epic Sport ANC 3
Difference of model number	: /
EUT Function Description	: Please reference user manual of this device
Power Supply	: Case: DC 5V from USB cable or DC 3.7V built-in battery; Earbud: DC 5V from external charging case or DC 3.7V built-in battery
Hardware Version	: L: V1.4 R: V1.3
Software Version	: 2.9.1
Antenna Type	: Chip Antenna
Max Antenna Gain(dBi)	: L: 0.71 dBi; R: 0.50 dBi

Note: This EUT support Bluetooth BR/EDR/LE, this report only for Bluetooth LE.

Radio Specification	: Bluetooth LE
Operation Frequency	: 2402 MHz-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.

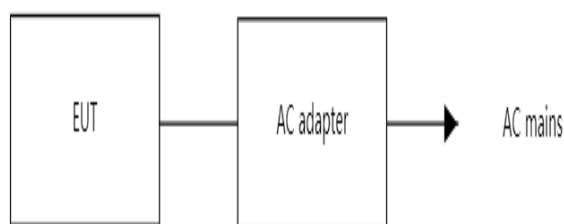
Note: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's 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
/	/	/	/

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: BQB.exe(firmware or software)

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

2.5. 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 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.

2.7. 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-20155, G-20118

2.8. Measurement uncertainty

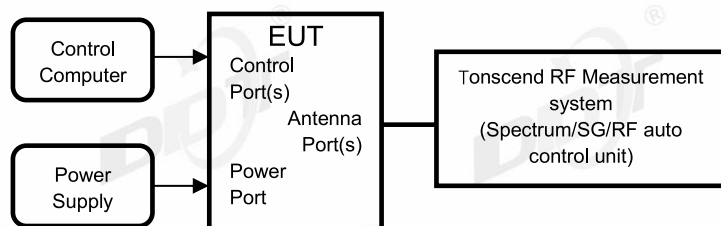
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Frequencies Stability	6.7×10^{-8} (Antenna couple method) 5.5×10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.40 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$) 1.66 dB ($8 \text{ GHz} \leq f < 26.5 \text{ GHz}$)
Uncertainty for radio frequency (RBW < 20 kHz)	3×10^{-8}
Temperature	0.4 °C
Humidity	2 %
Uncertainty for Radiation Emission test (9 kHz – 30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.70 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 3#)				
SIGNAL ANALYZER	R&S	FSV40	101407	2025/07/08
Wideband Radio Communication Tester	R&S	CMW500	117491	2025/03/31
EXG Analog Signal Generator	KEYSIGHT	N5173B	MY62153058	2025/07/08
MXG Vector Signal Generator	Agilent	N5182A	MY48180912	2025/03/31
RF Control Unit	Tonscend	JS0806-2	20C8060230	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:	$\geq [3 \times \text{RBW}]$
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.

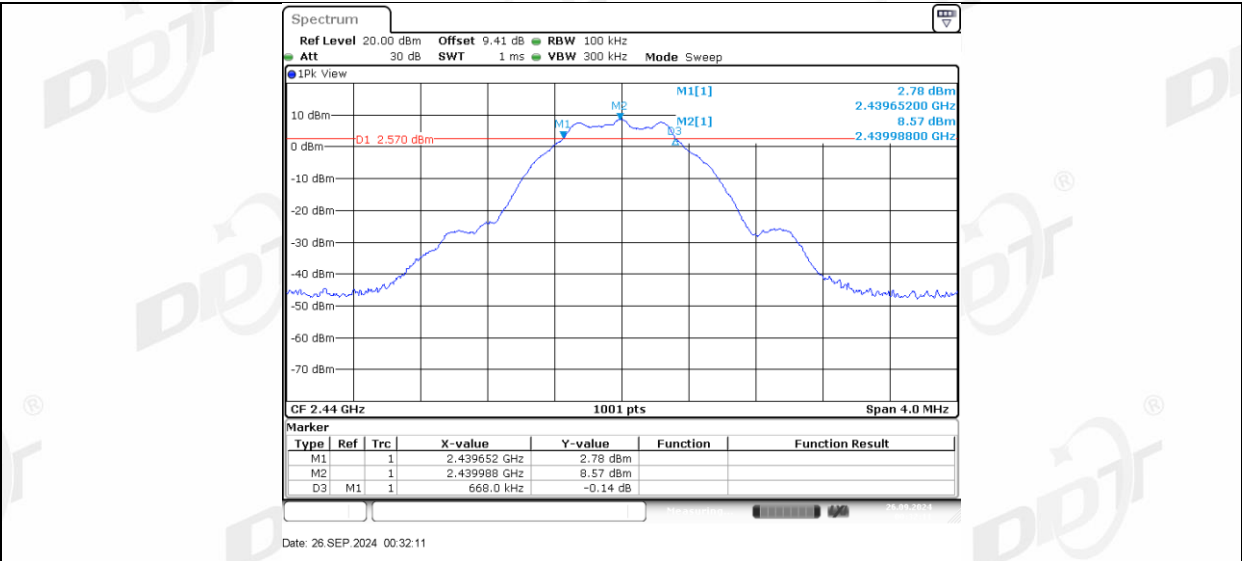
4.4. Test result

Test Engineer:	Haofeng	Test Site:	RF Measurement System 3#
Ambient Condition:	26.9℃,46.3%RH	Test Date:	2024.09.25-2024.09.26
Test Power Supply:	DC 3.3V	Sample Number:	S24052818-007

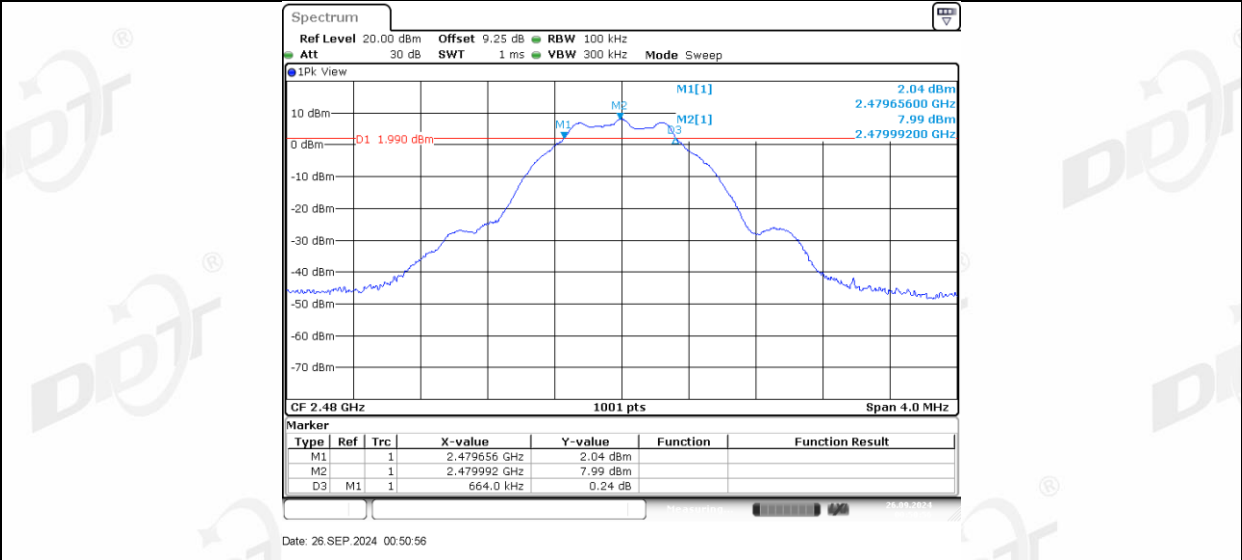
Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1_L	2402	0.67	2401.66	2402.33	0.5	PASS
	Ant2_R	2402	0.67	2401.65	2402.32	0.5	PASS
	Ant1_L	2440	0.67	2439.66	2440.32	0.5	PASS
	Ant2_R	2440	0.67	2439.65	2440.32	0.5	PASS
	Ant1_L	2480	0.66	2479.66	2480.32	0.5	PASS
	Ant2_R	2480	0.67	2479.65	2480.32	0.5	PASS
BLE_2M	Ant1_L	2404	1.12	2403.44	2404.56	0.5	PASS
	Ant2_R	2404	1.12	2403.44	2404.56	0.5	PASS
	Ant1_L	2440	1.12	2439.44	2440.56	0.5	PASS
	Ant2_R	2440	1.12	2439.44	2440.56	0.5	PASS
	Ant1_L	2478	1.12	2477.45	2478.56	0.5	PASS
	Ant2_R	2478	1.12	2477.44	2478.56	0.5	PASS

4.5. Test graphs

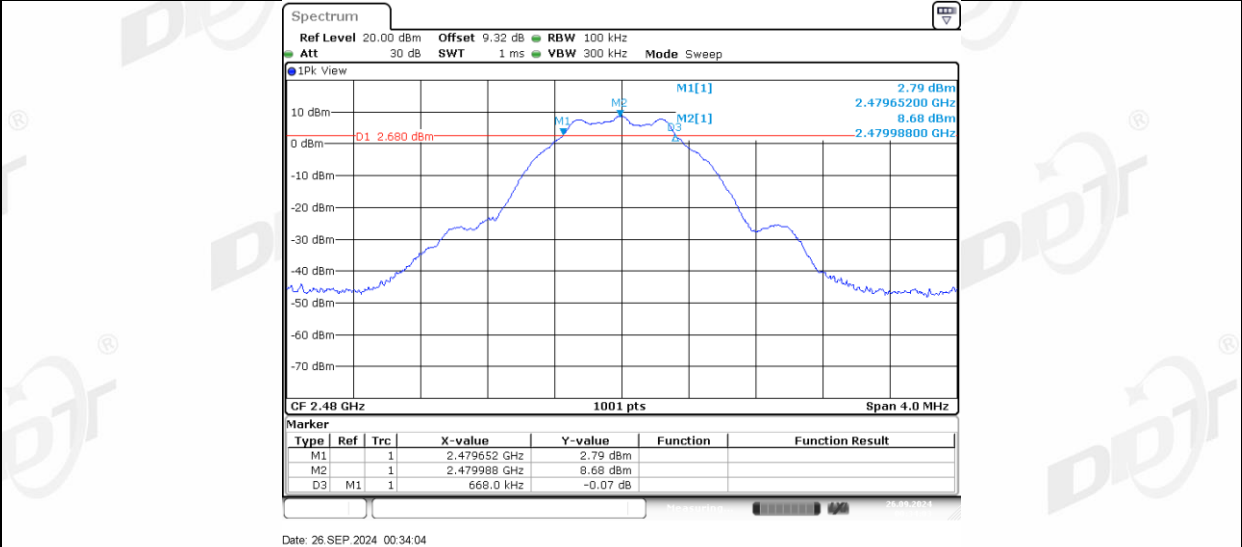




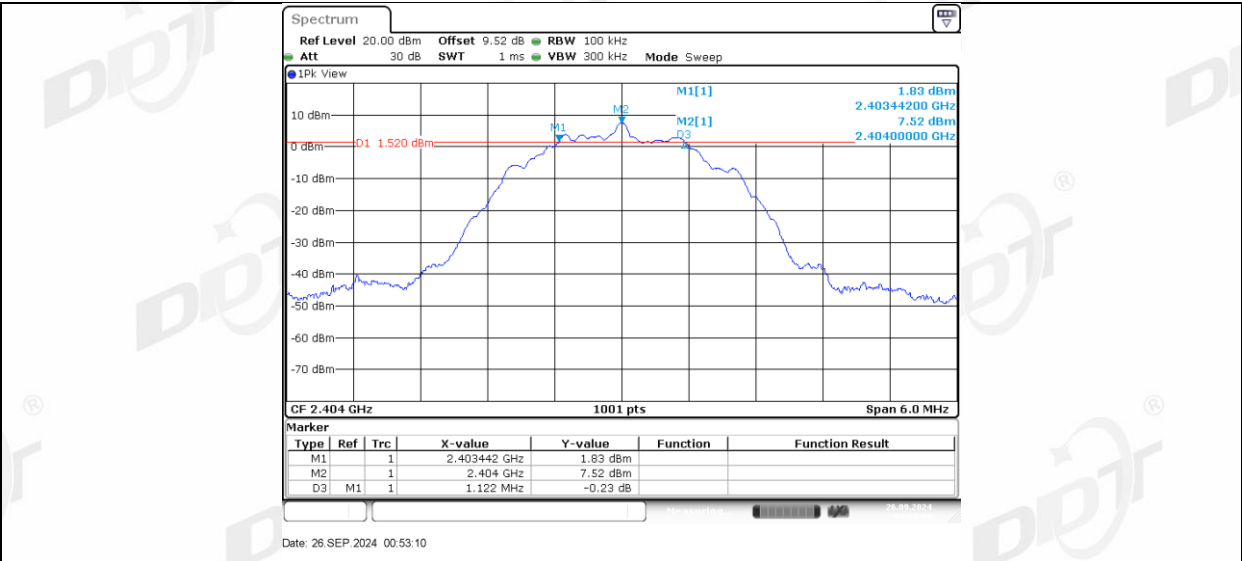
BLE_1M_Ant1_L_2480



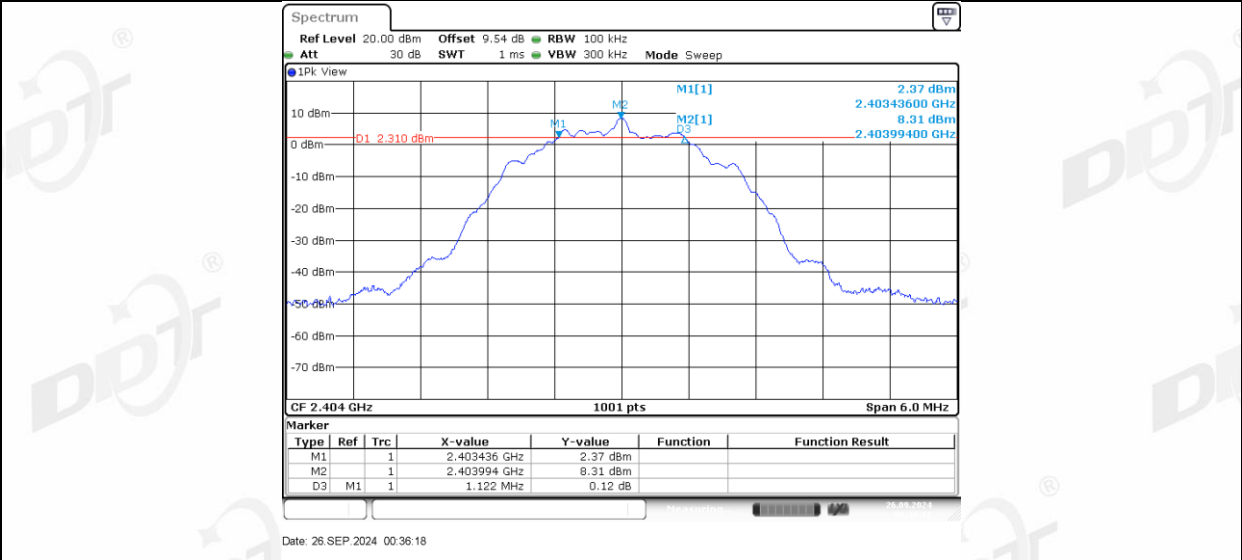
BLE_1M_Ant2_R_2480



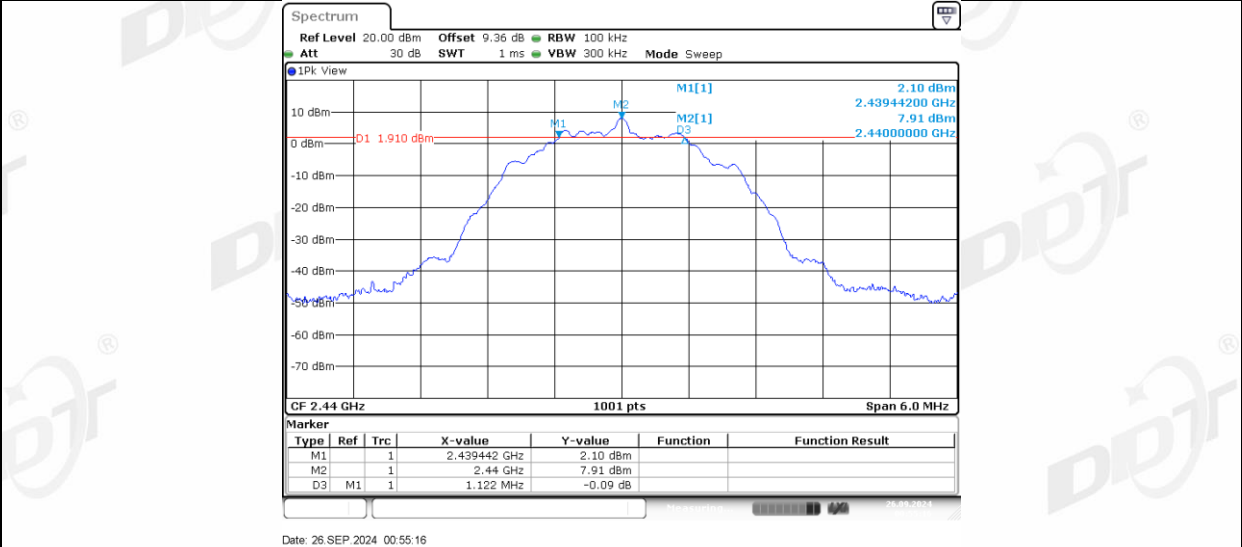
BLE_2M_Ant1_L_2404



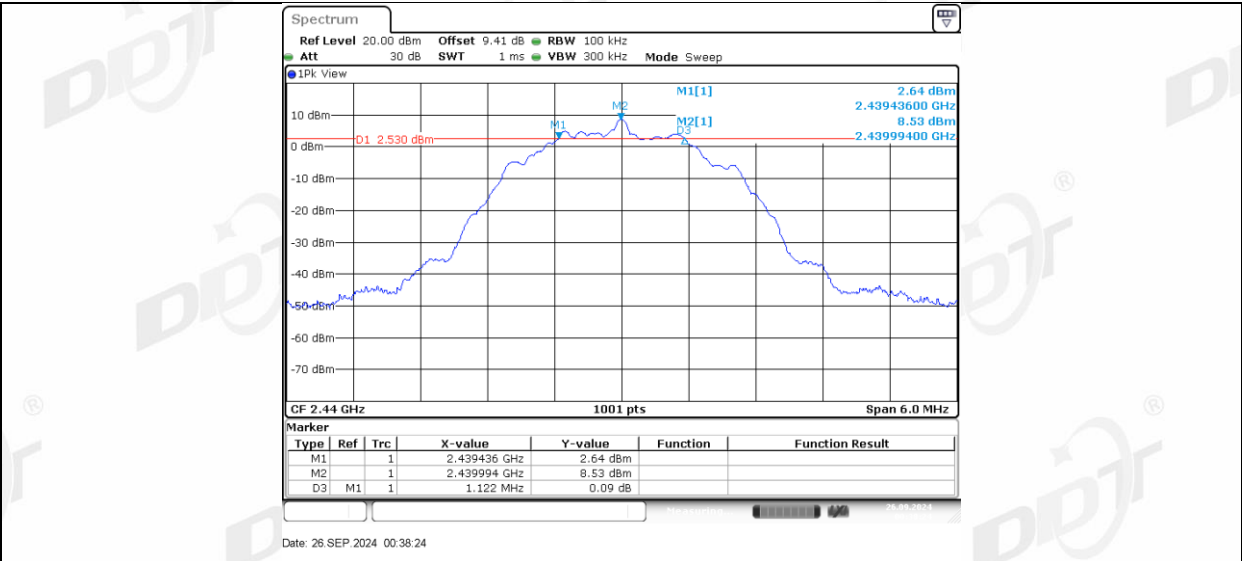
BLE_2M_Ant2_R_2404



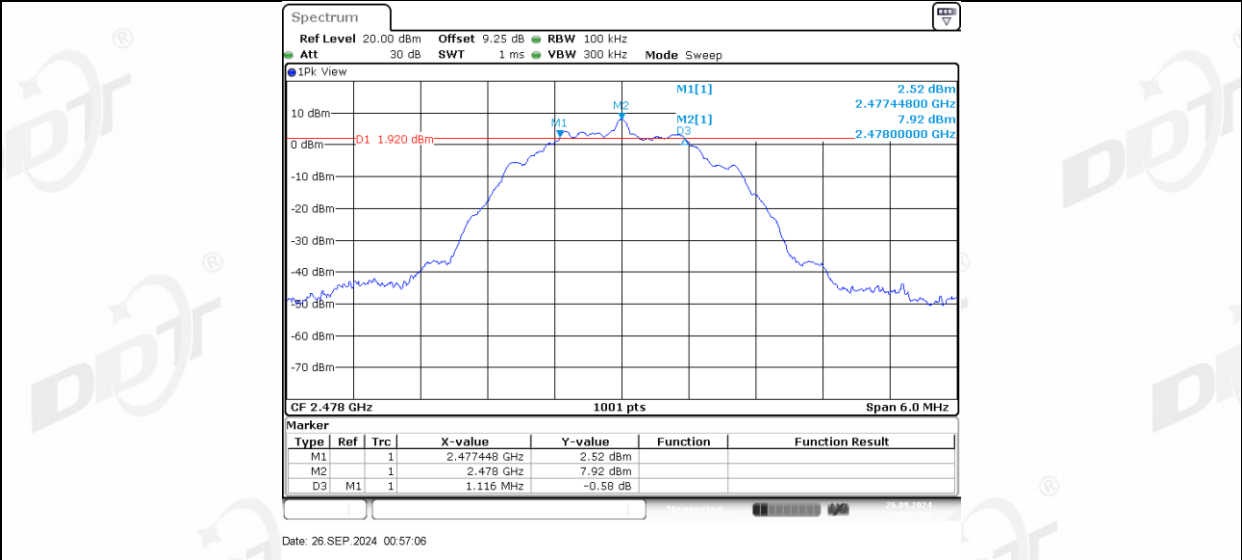
BLE_2M_Ant1_L_2440



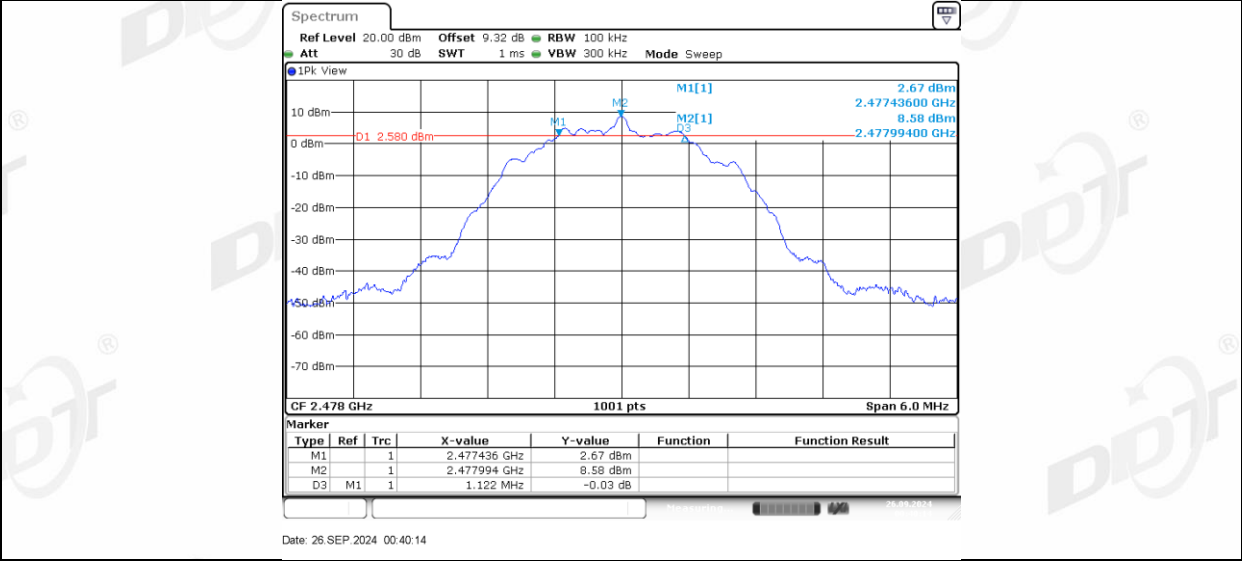
BLE_2M_Ant2_R_2440



BLE_2M_Ant1_L_2478

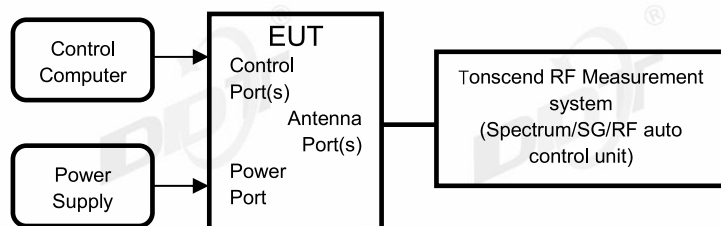


BLE_2M_Ant2_R_2478



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

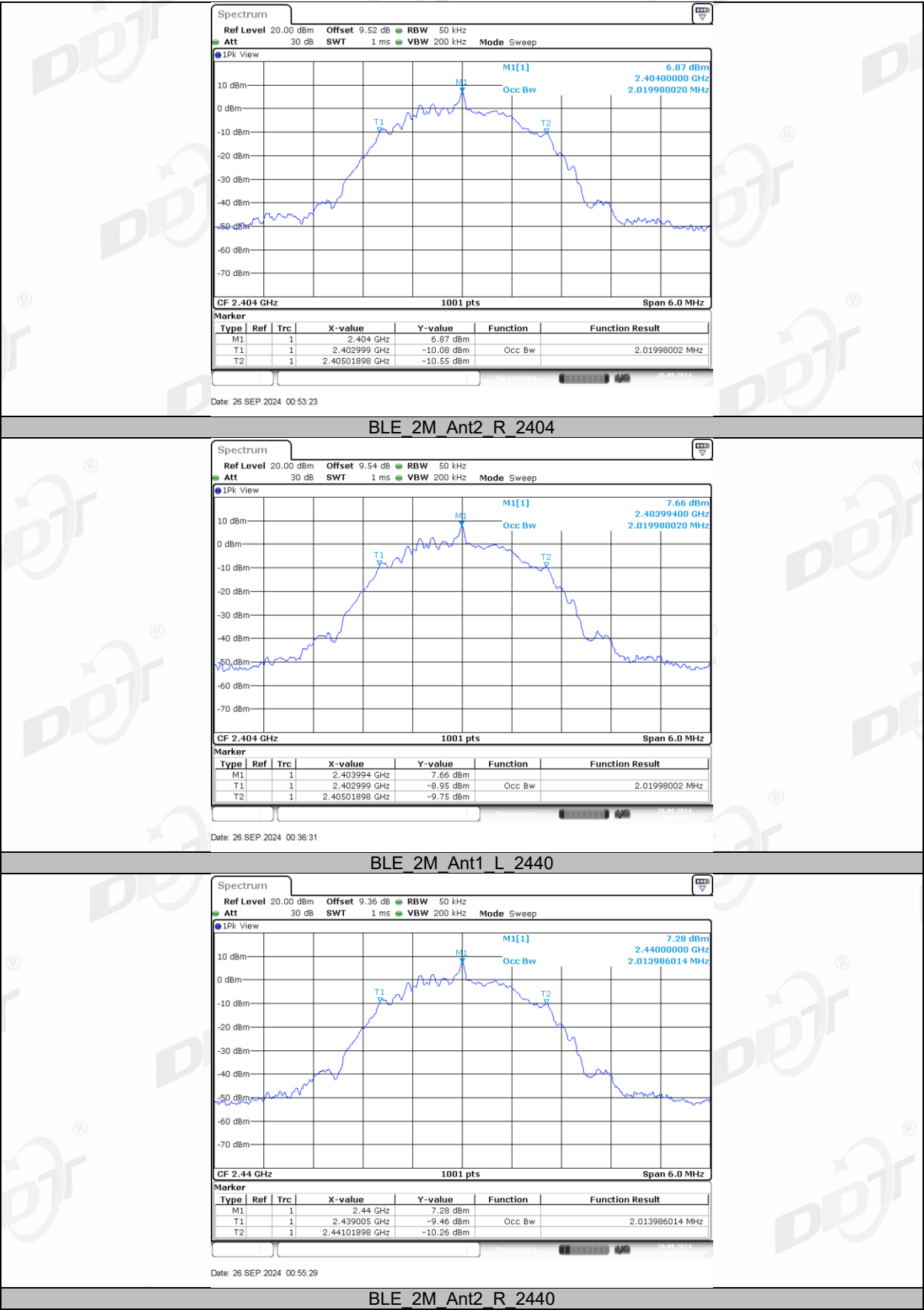
Test Engineer:	Haofeng	Test Site:	RF Measurement System 3#
Ambient Condition:	26.9℃,46.3%RH	Test Date:	2024.09.25-2024.09.26
Test Power Supply:	DC 3.3V	Sample Number:	S24052818-007

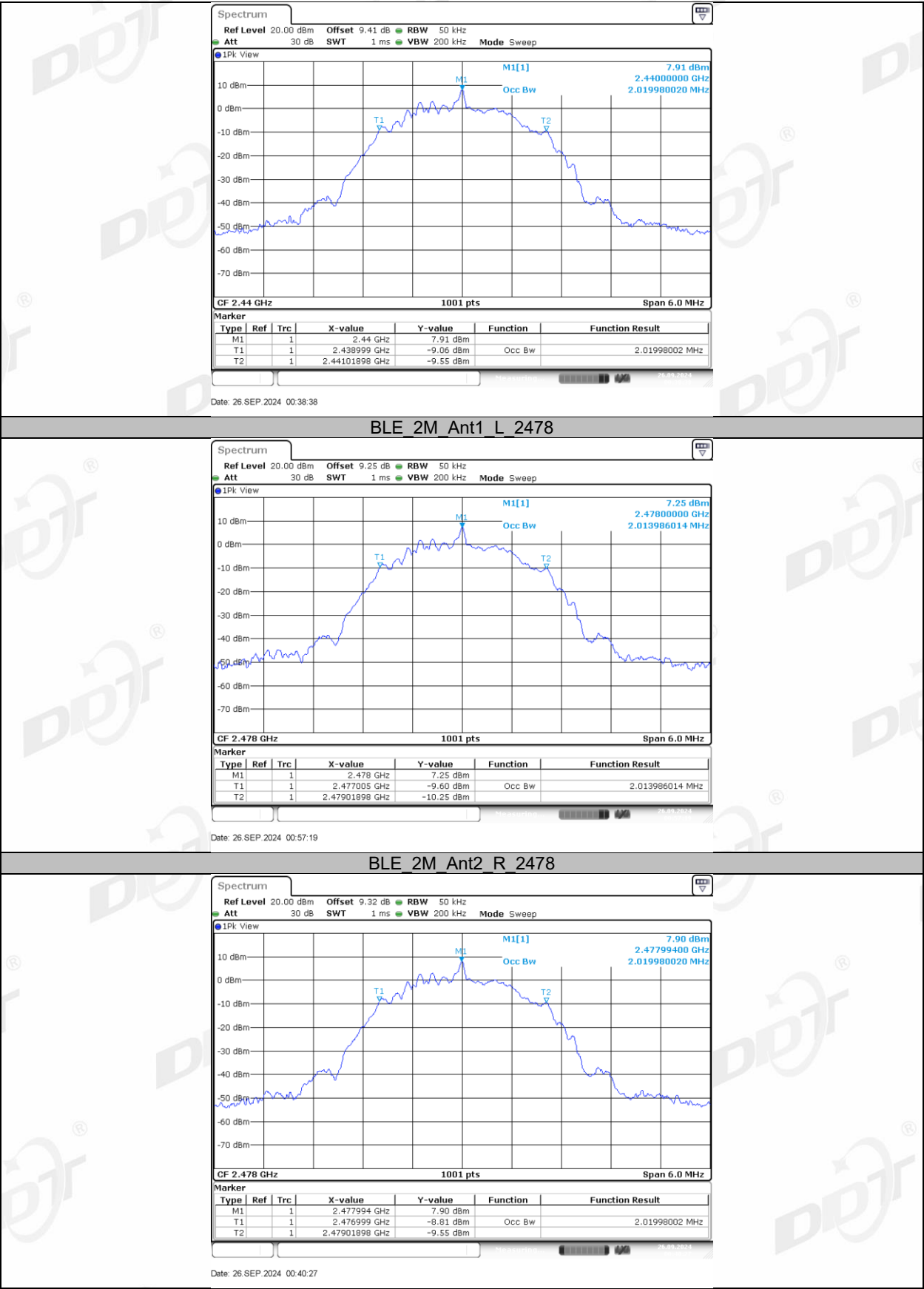
Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1_L	2402	1.019	2401.4925	2402.5115	---	---
	Ant2_R	2402	1.023	2401.4845	2402.5075	---	---
	Ant1_L	2440	1.015	2439.4925	2440.5075	---	---
	Ant2_R	2440	1.019	2439.4845	2440.5035	---	---
	Ant1_L	2480	1.015	2479.4925	2480.5075	---	---
	Ant2_R	2480	1.019	2479.4845	2480.5035	---	---
BLE_2M	Ant1_L	2404	2.02	2402.9990	2405.0190	---	---
	Ant2_R	2404	2.02	2402.9990	2405.0190	---	---
	Ant1_L	2440	2.014	2439.0050	2441.0190	---	---
	Ant2_R	2440	2.02	2438.9990	2441.0190	---	---
	Ant1_L	2478	2.014	2477.0050	2479.0190	---	---
	Ant2_R	2478	2.02	2476.9990	2479.0190	---	---

5.5. Test graphs



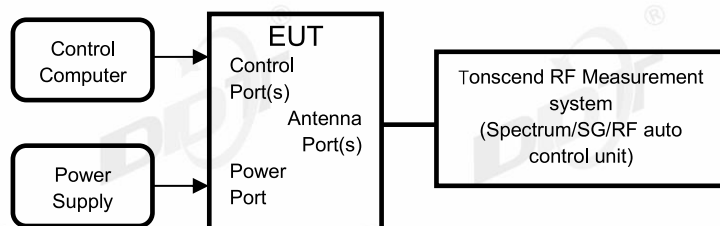






6. Maximum Peak Output Power

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 C63.10-2013 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.

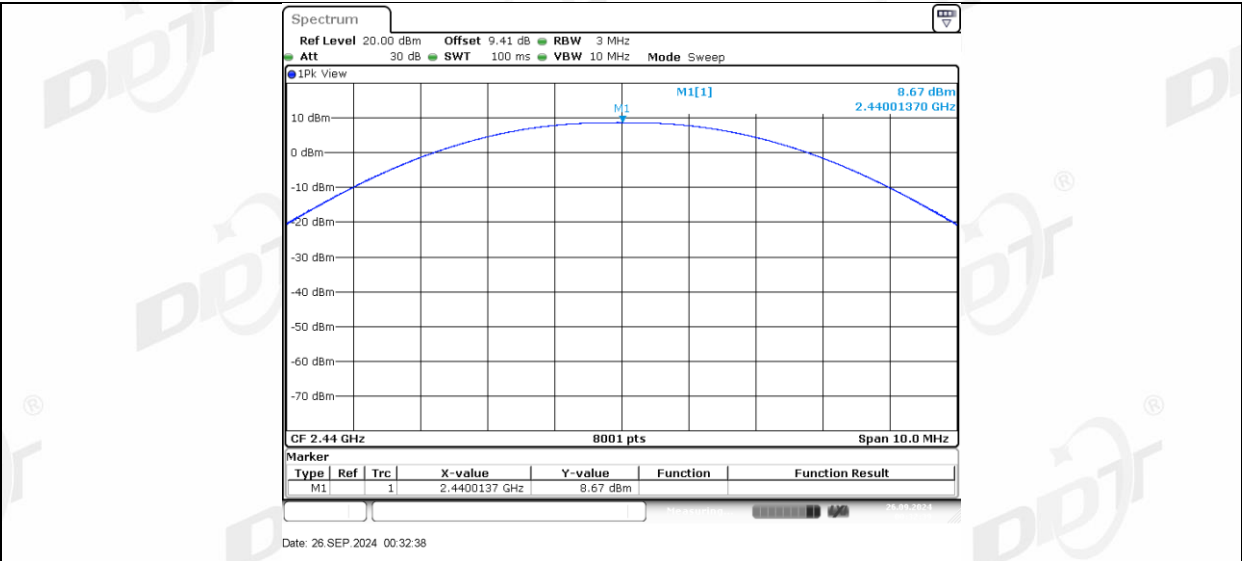
6.4. Test result

Test Engineer:	Haofeng	Test Site:	RF Measurement System 3#
Ambient Condition:	26.9℃,46.3%RH	Test Date:	2024.09.25-2024.09.26
Test Power Supply:	DC 3.3V	Sample Number:	S24052818-007

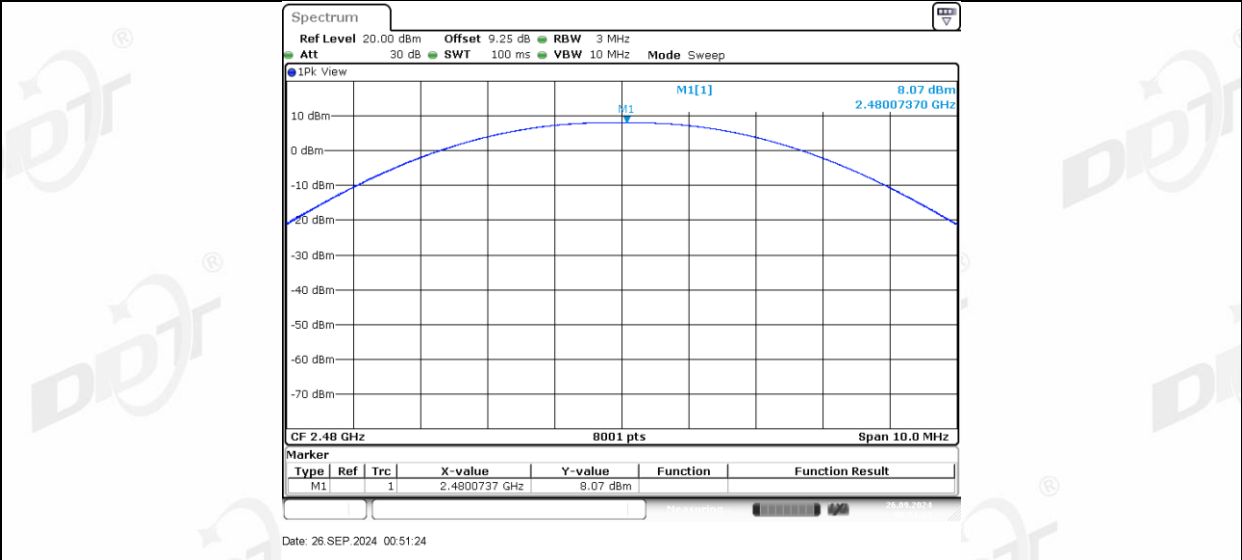
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
BLE_1M	Ant1_L	2402	7.55	≤30	8.26	≤36	PASS
	Ant2_R	2402	8.41	≤30	8.91	≤36	PASS
	Ant1_L	2440	7.97	≤30	8.68	≤36	PASS
	Ant2_R	2440	8.67	≤30	9.17	≤36	PASS
	Ant1_L	2480	8.07	≤30	8.78	≤36	PASS
	Ant2_R	2480	8.76	≤30	9.26	≤36	PASS
BLE_2M	Ant1_L	2404	7.65	≤30	8.36	≤36	PASS
	Ant2_R	2404	8.48	≤30	8.98	≤36	PASS
	Ant1_L	2440	7.96	≤30	8.67	≤36	PASS
	Ant2_R	2440	8.62	≤30	9.12	≤36	PASS
	Ant1_L	2478	8.01	≤30	8.72	≤36	PASS
	Ant2_R	2478	8.67	≤30	9.17	≤36	PASS

6.5. Test graphs

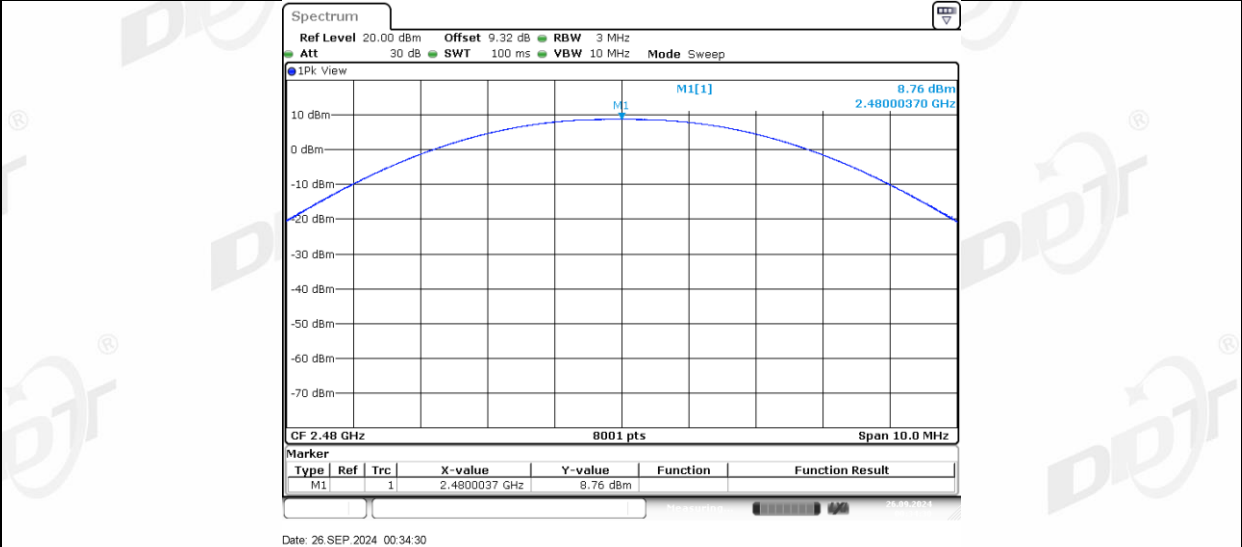




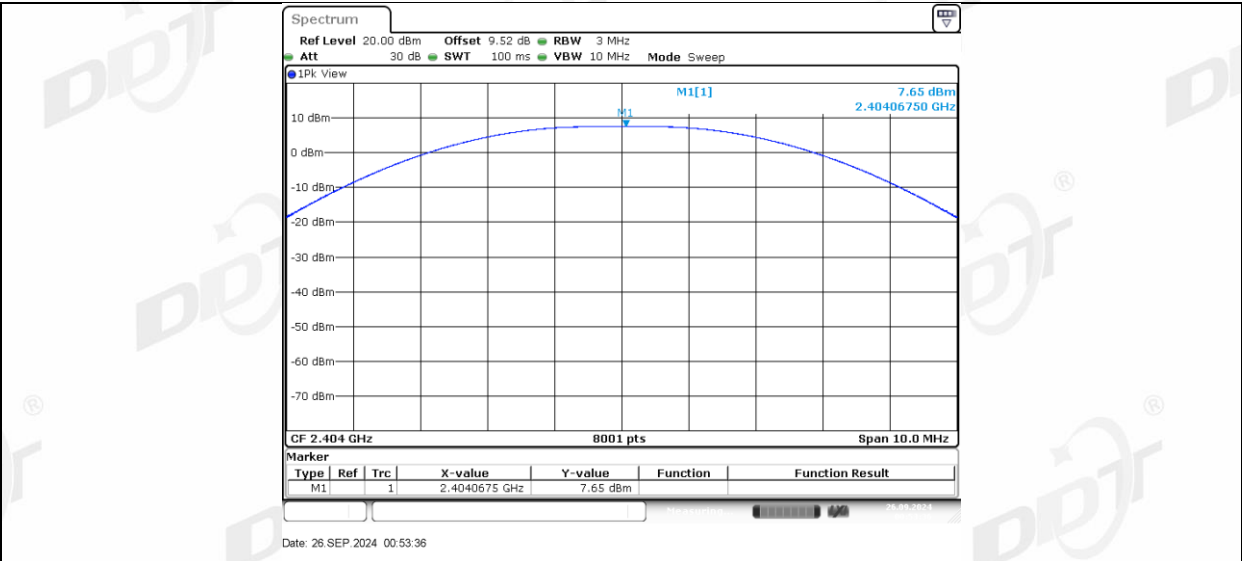
BLE_1M_Ant1_L_2480



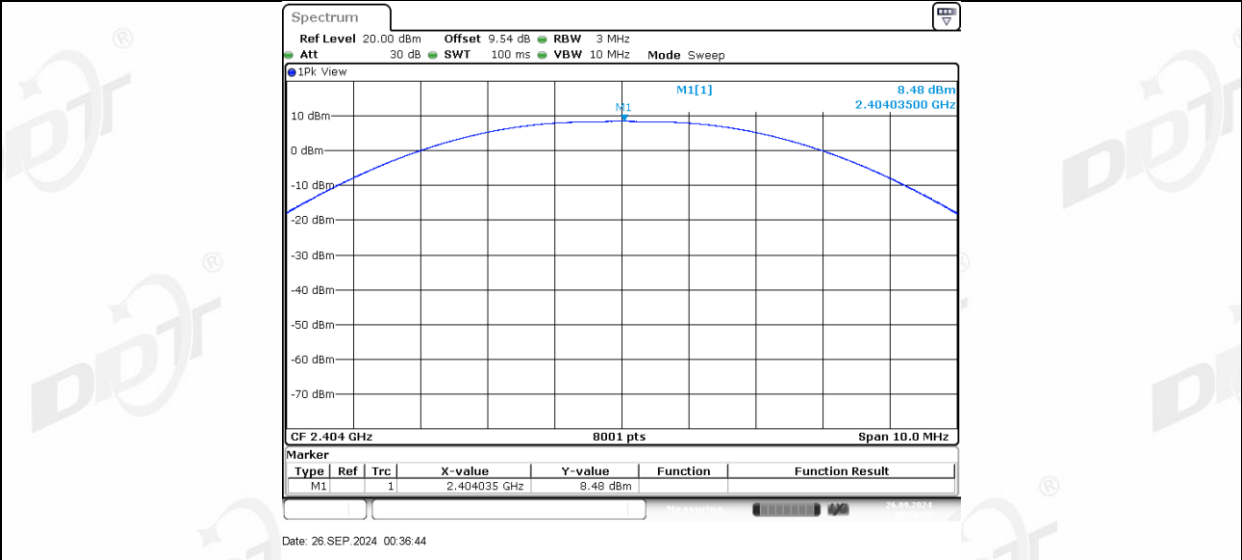
BLE_1M_Ant2_R_2480



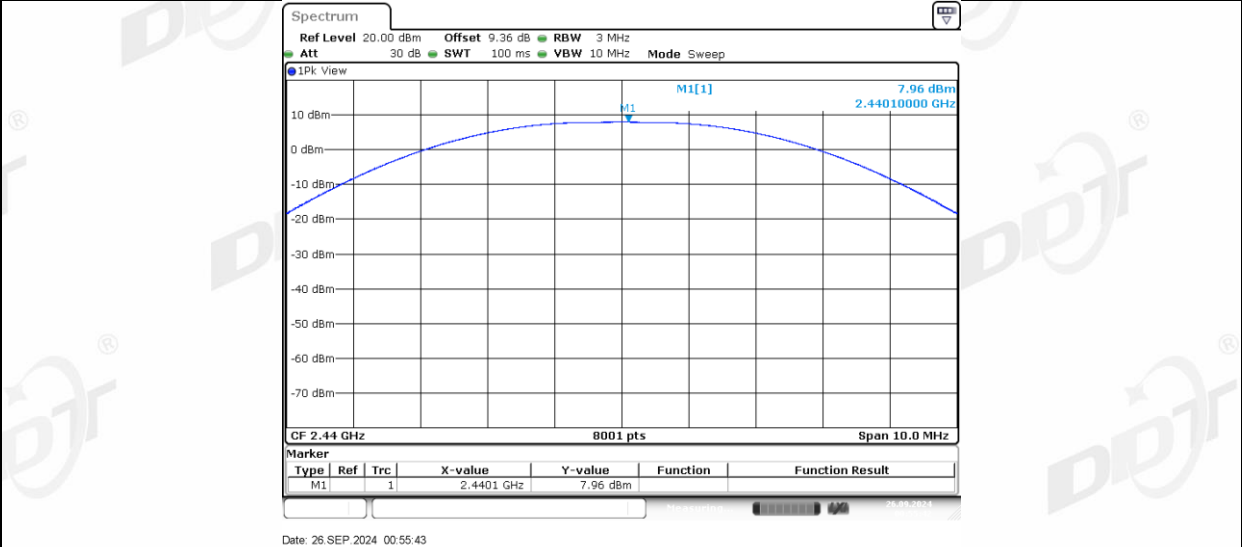
BLE_2M_Ant1_L_2404



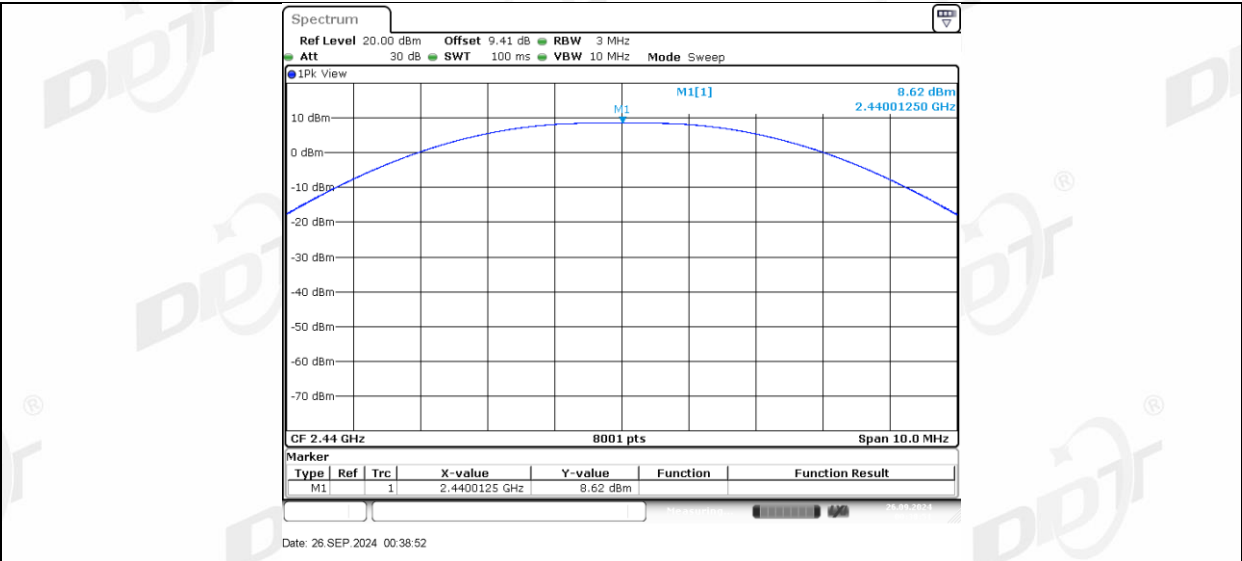
BLE_2M_Ant2_R_2404



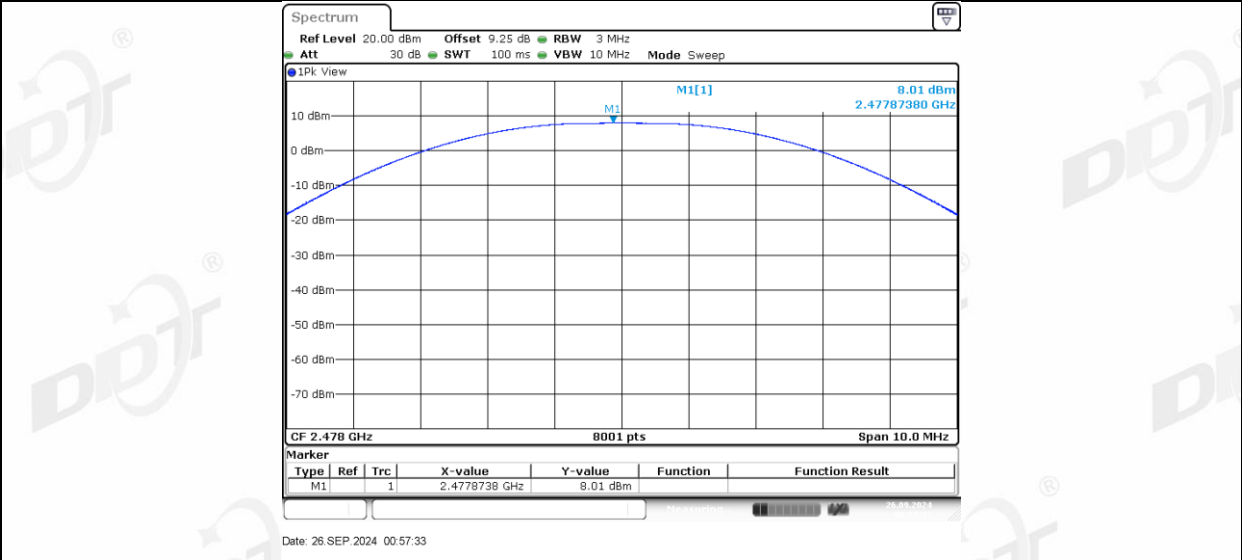
BLE_2M_Ant1_L_2440



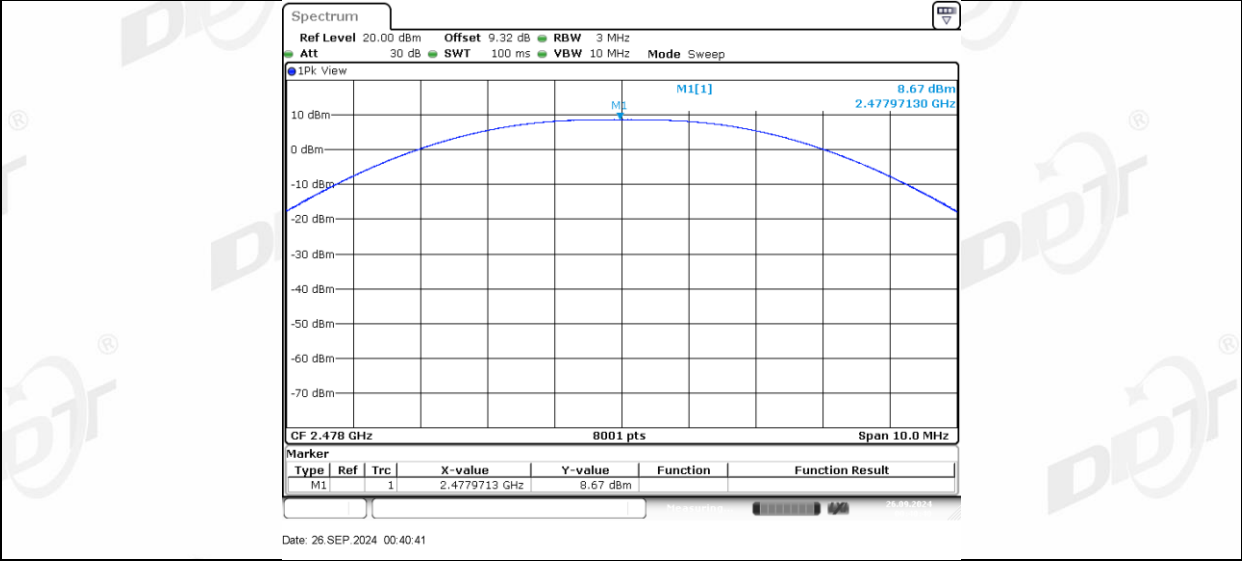
BLE_2M_Ant2_R_2440



BLE_2M_Ant1_L_2478

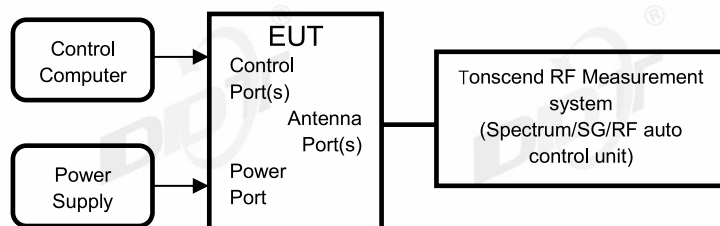


BLE_2M_Ant2_R_2478



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:

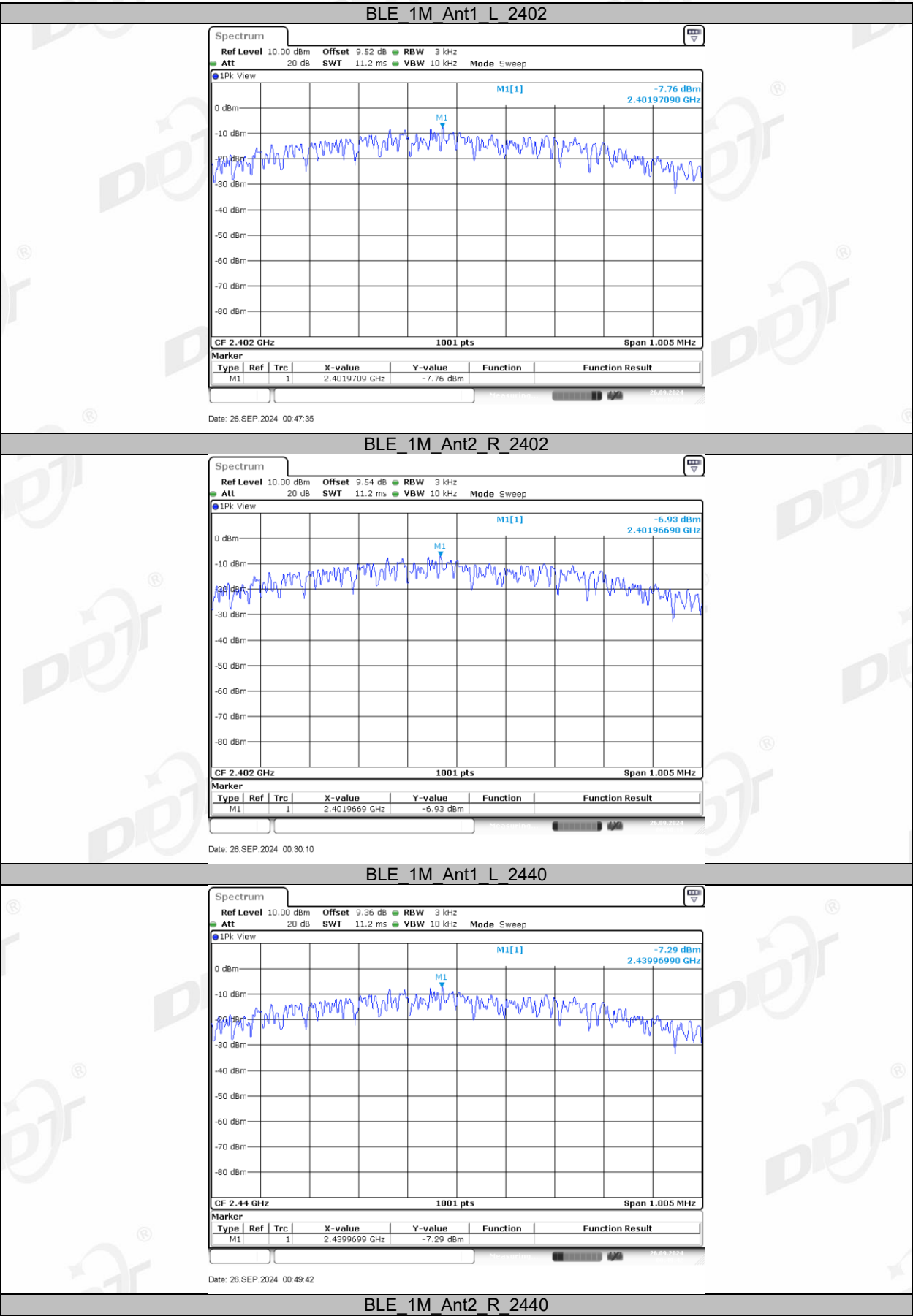
Center frequency	DTS Channel center frequency
RBW:	$3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$
VBW:	$\geq 3\text{RBW}$
Span	1.5 times the DTS bandwidth
Detector Mode:	Peak
Sweep time:	Auto
Trace mode	Max hold
 - (5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

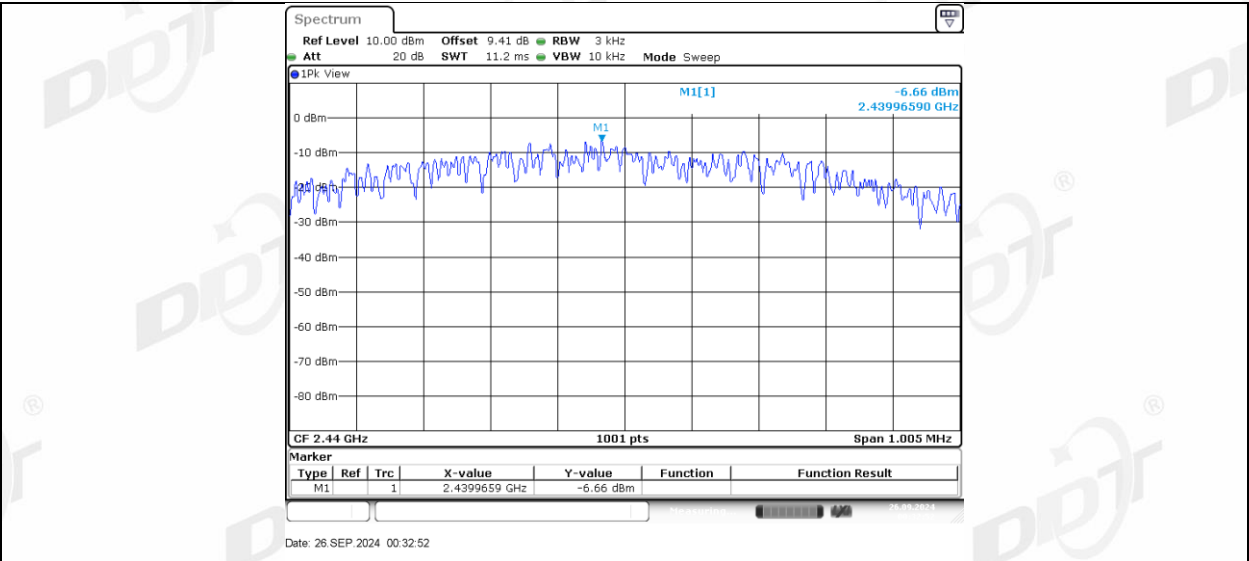
7.4. Test result

Test Engineer:	Haofeng	Test Site:	RF Measurement System 3#
Ambient Condition:	26.9℃,46.3%RH	Test Date:	2024.09.25-2024.09.26
Test Power Supply:	DC 3.3V	Sample Number:	S24052818-007

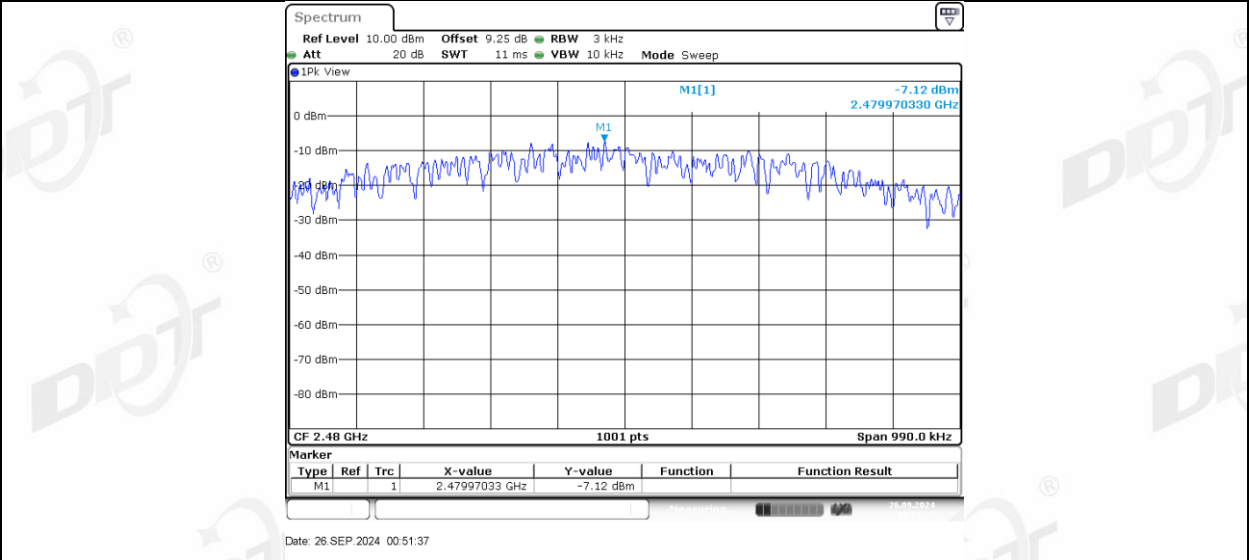
Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE_1M	Ant1_L	2402	-7.76	≤8.00	PASS
	Ant2_R	2402	-6.93	≤8.00	PASS
	Ant1_L	2440	-7.29	≤8.00	PASS
	Ant2_R	2440	-6.66	≤8.00	PASS
	Ant1_L	2480	-7.12	≤8.00	PASS
	Ant2_R	2480	-6.56	≤8.00	PASS
BLE_2M	Ant1_L	2404	-10.00	≤8.00	PASS
	Ant2_R	2404	-9.27	≤8.00	PASS
	Ant1_L	2440	-9.59	≤8.00	PASS
	Ant2_R	2440	-8.99	≤8.00	PASS
	Ant1_L	2478	-9.61	≤8.00	PASS
	Ant2_R	2478	-8.95	≤8.00	PASS

7.5. Test graphs

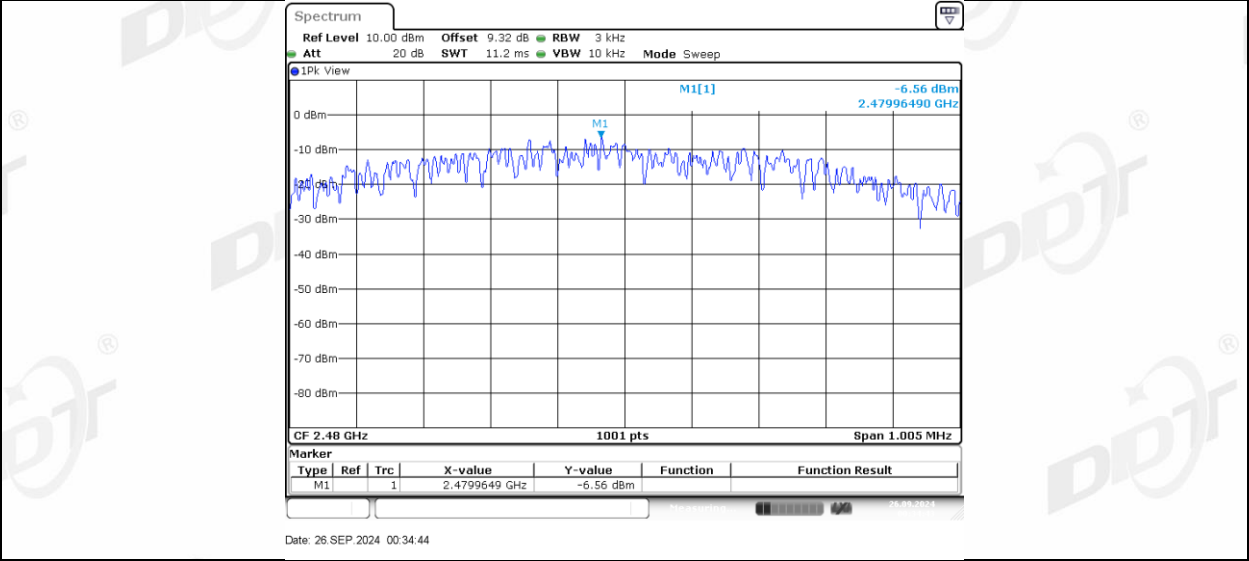




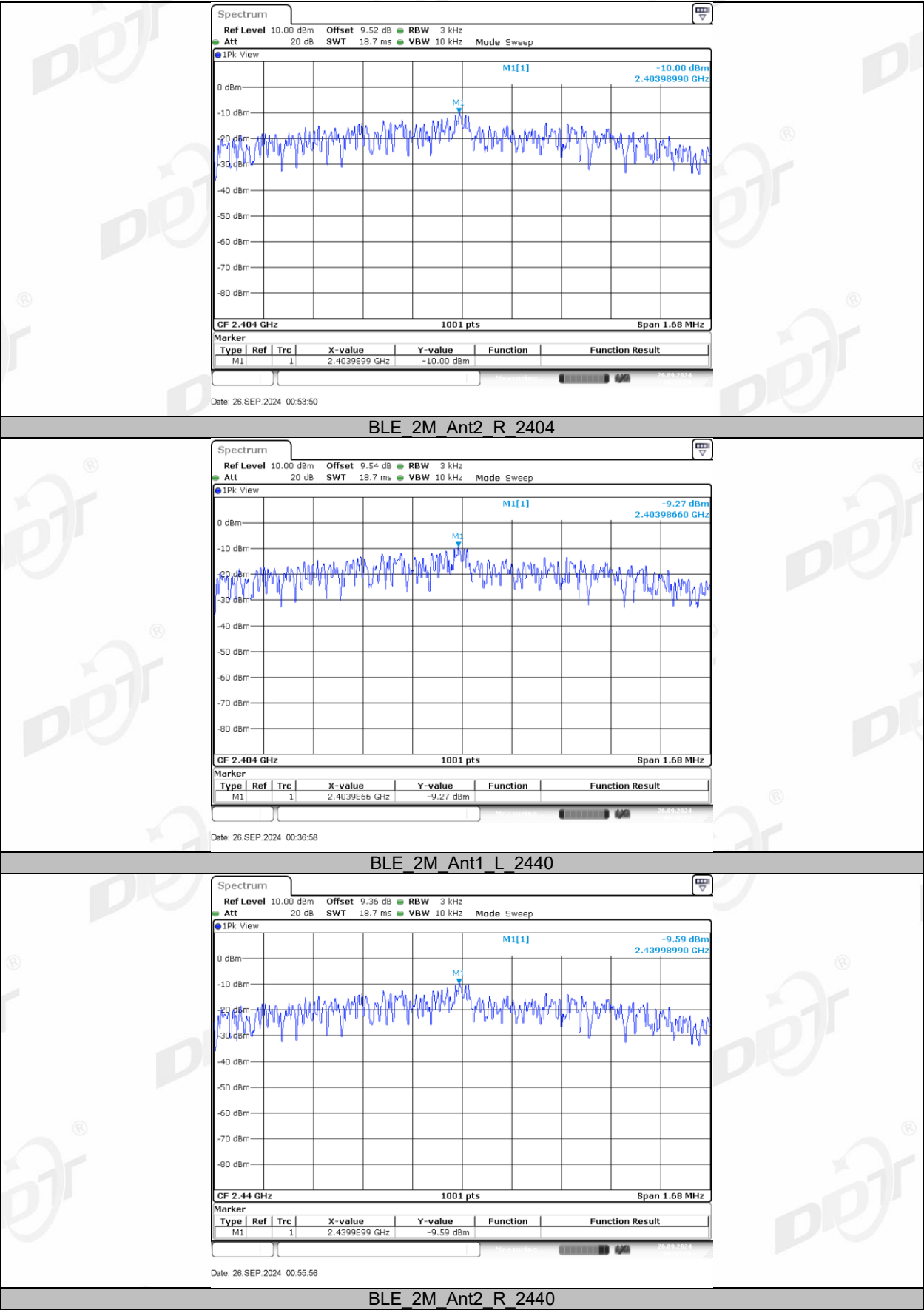
BLE_1M_Ant1_L_2480

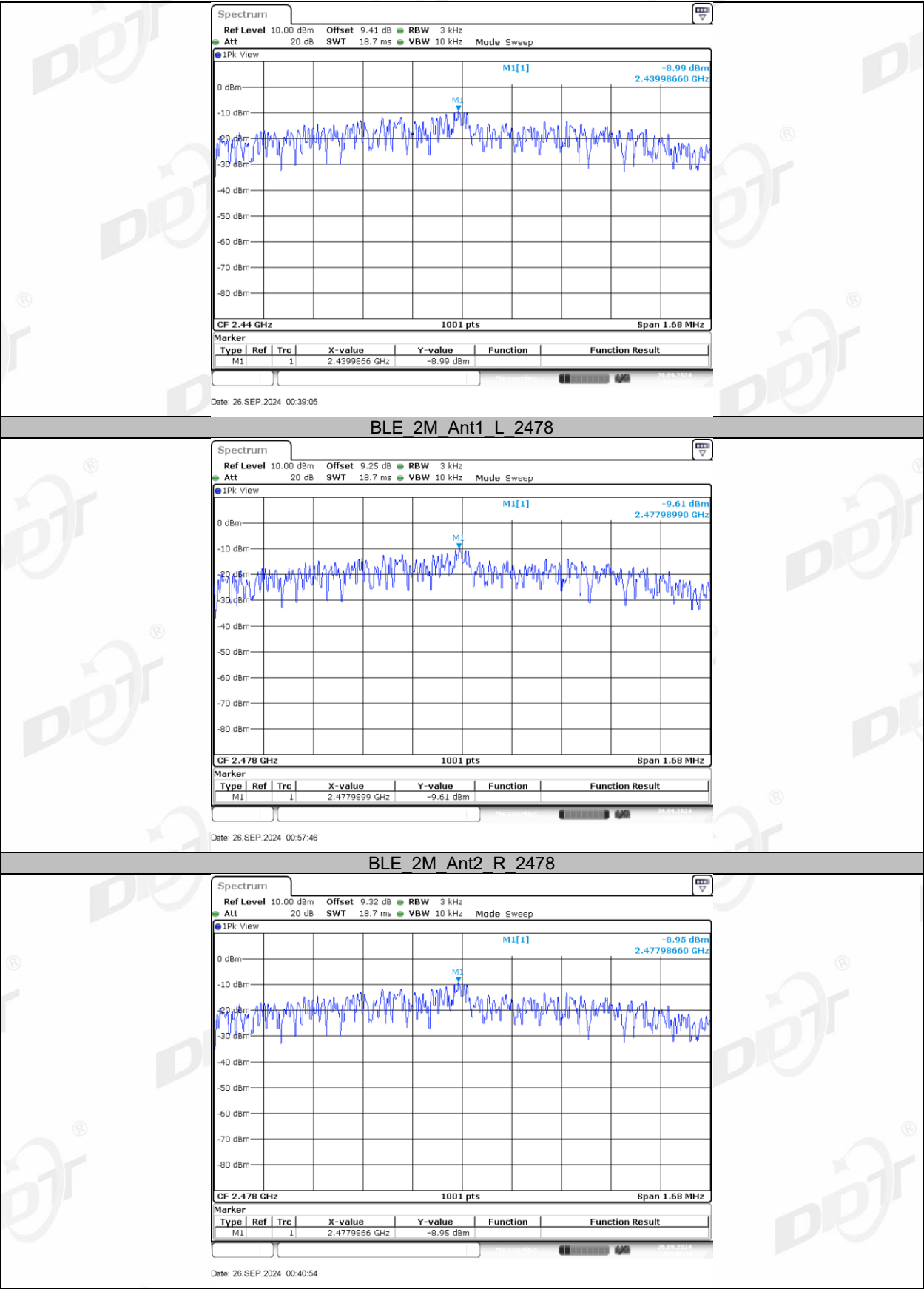


BLE_1M_Ant2_R_2480



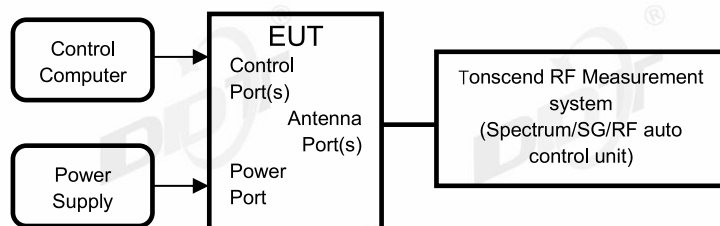
BLE_2M_Ant1_L_2404





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.

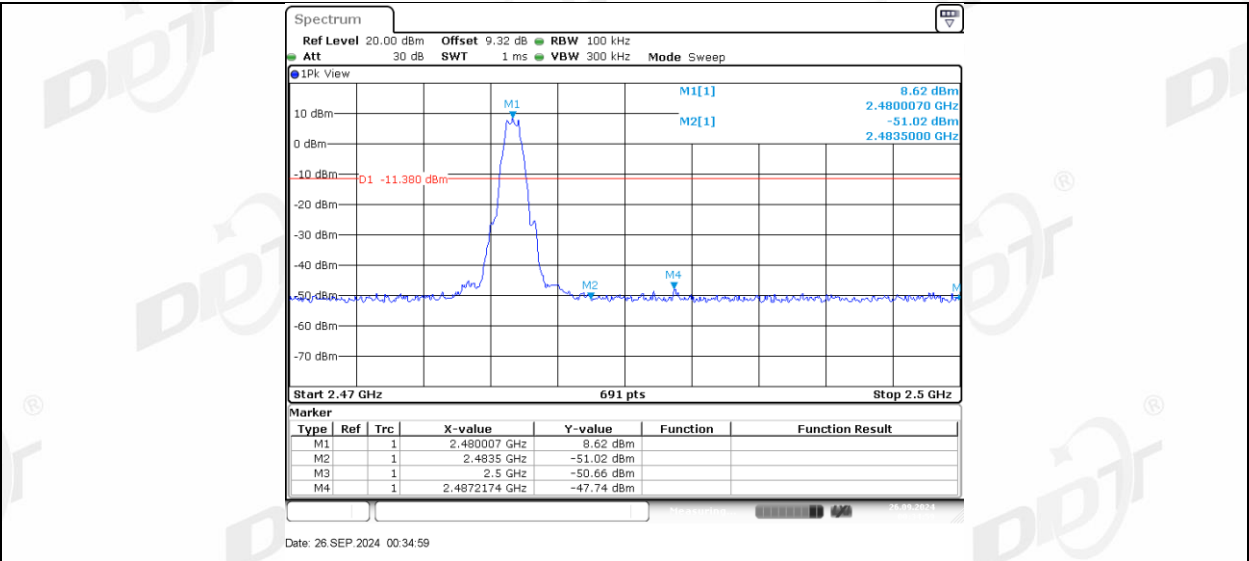
8.4. Test result

Test Engineer:	Haofeng	Test Site:	RF Measurement System 3#
Ambient Condition:	26.9℃,46.3%RH	Test Date:	2024.09.25-2024.09.26
Test Power Supply:	DC 3.3V	Sample Number:	S24052818-007

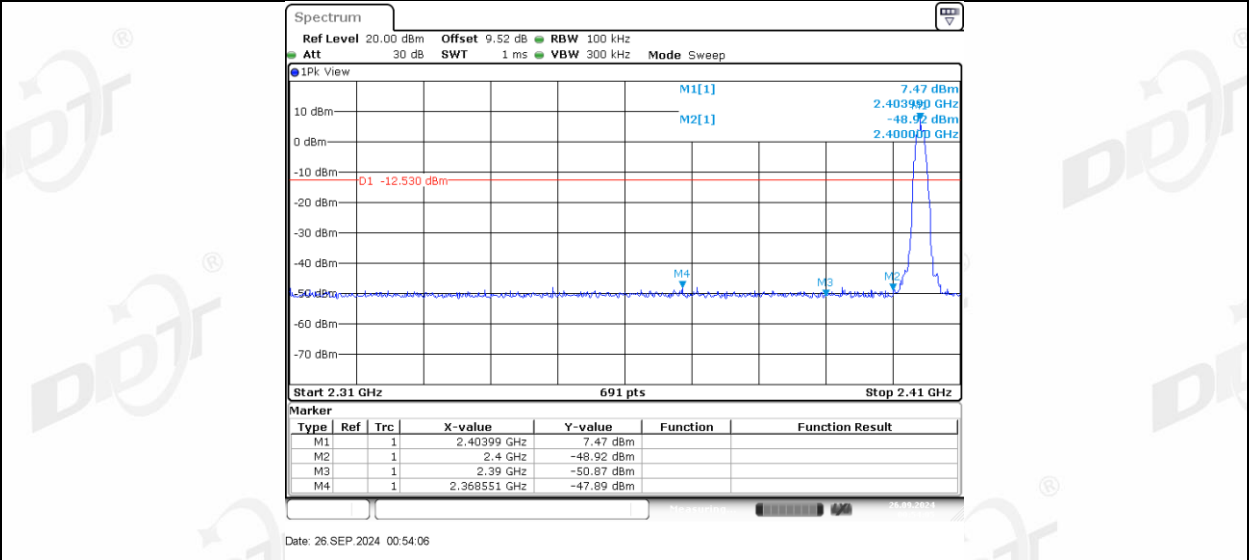
EUT Set Mode	CH or Frequency	Measured Range	Verdict
GFSK 1M	2402	2.310 GHz - 2.410 GHz	Pass
	2480	2.470 GHz - 2.500 GHz	Pass
GFSK 2M	2404	2.310 GHz - 2.410 GHz	Pass
	2478	2.470 GHz - 2.500 GHz	Pass

8.5. Test graphs

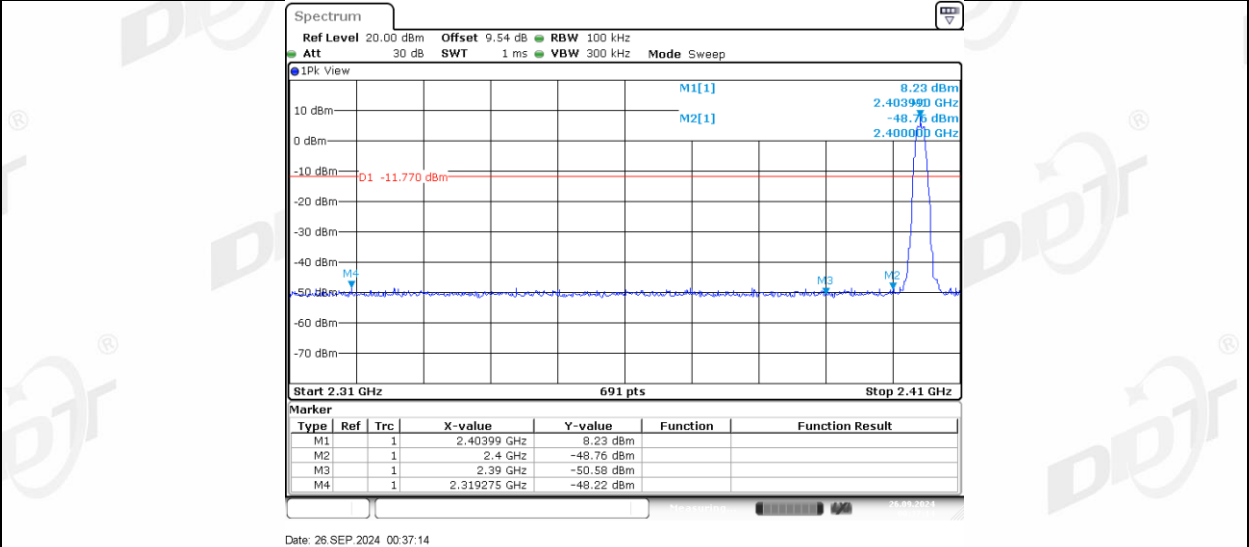




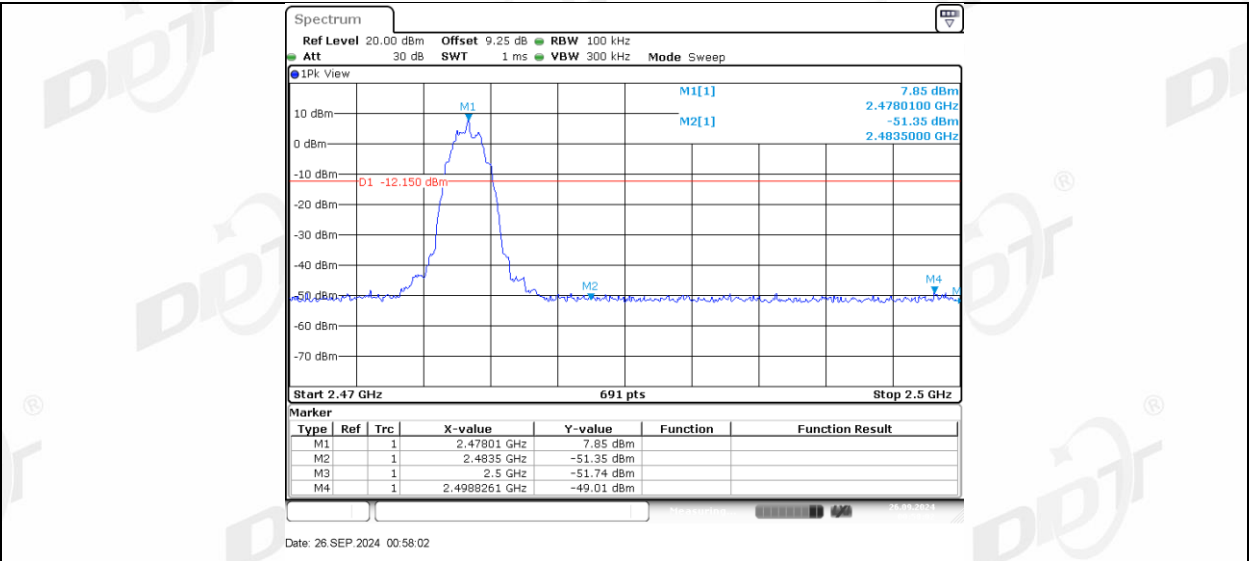
BLE 2M Ant1 L Low 2404



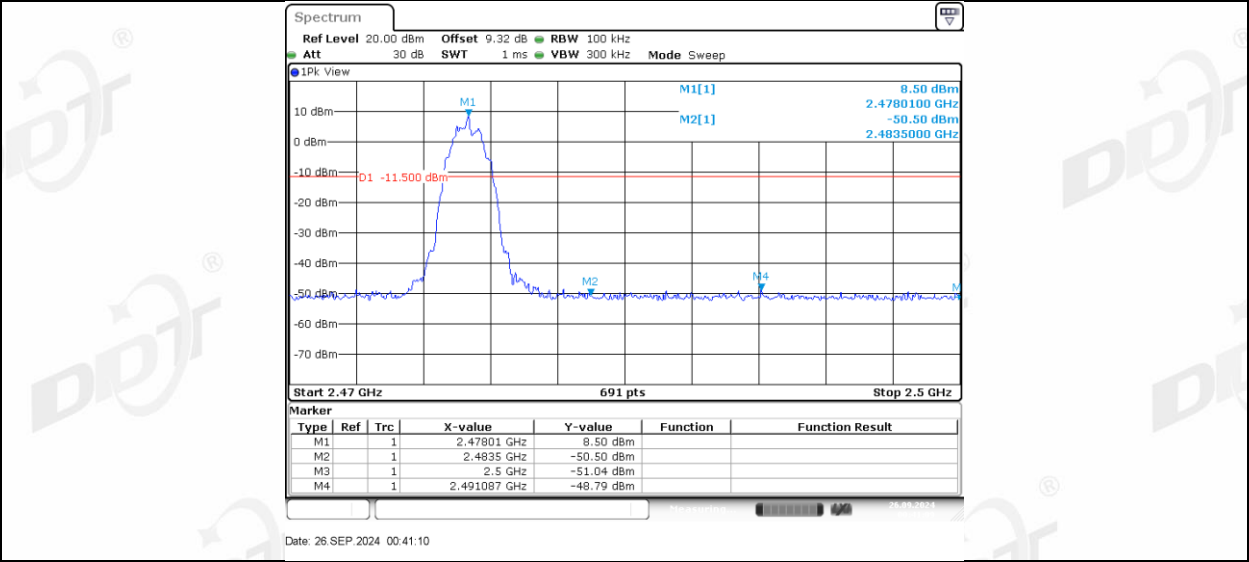
BLE 2M Ant2 R Low 2404



BLE 2M Ant1 L High 2478

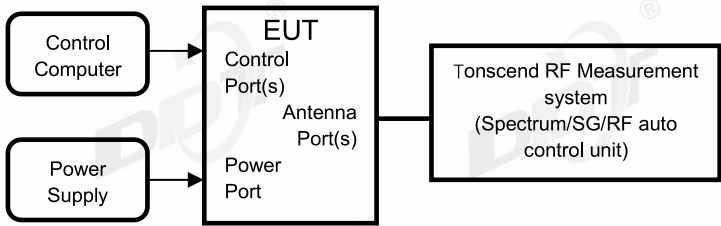


BLE_2M_Ant2_R_High_2478



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

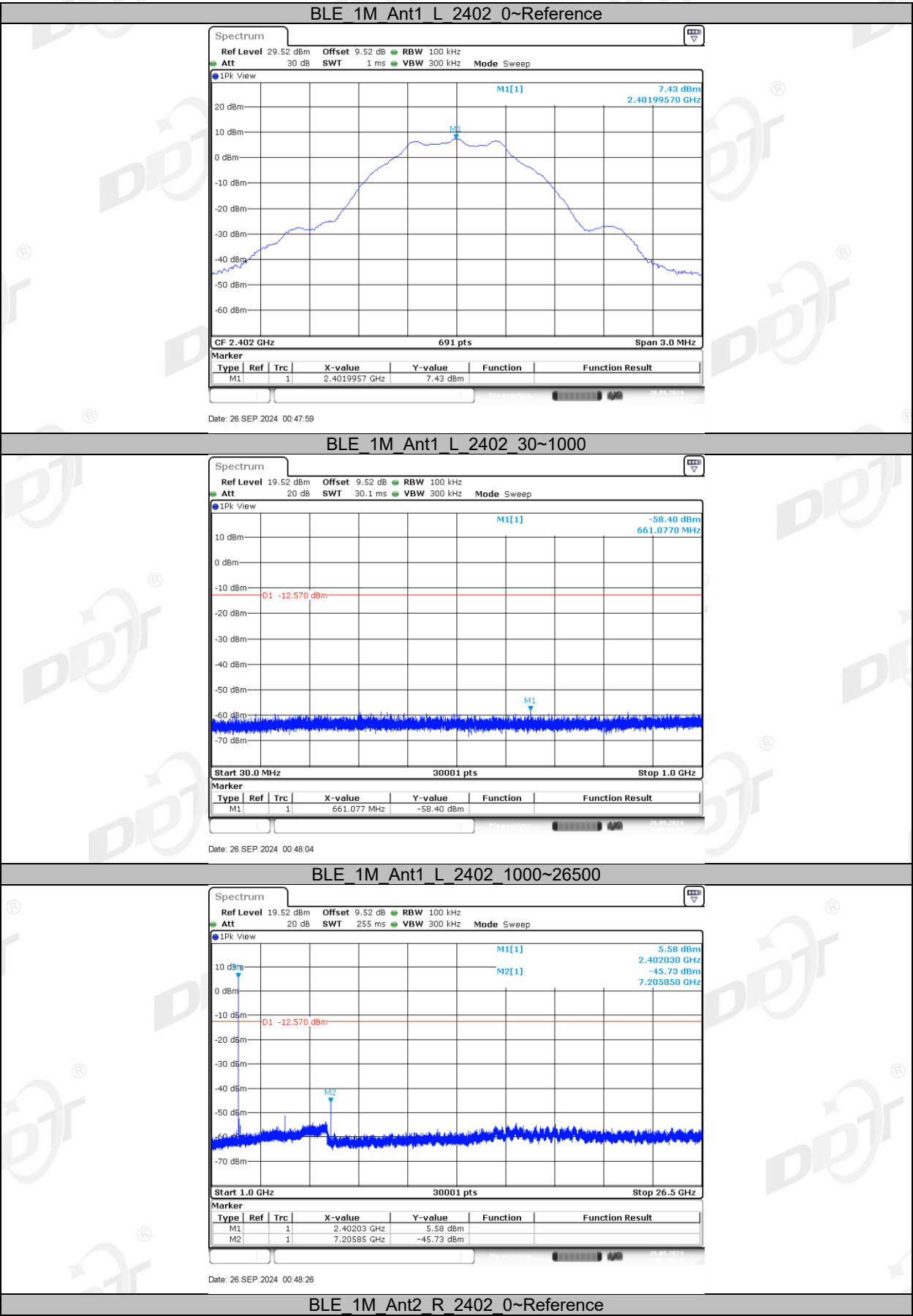
Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

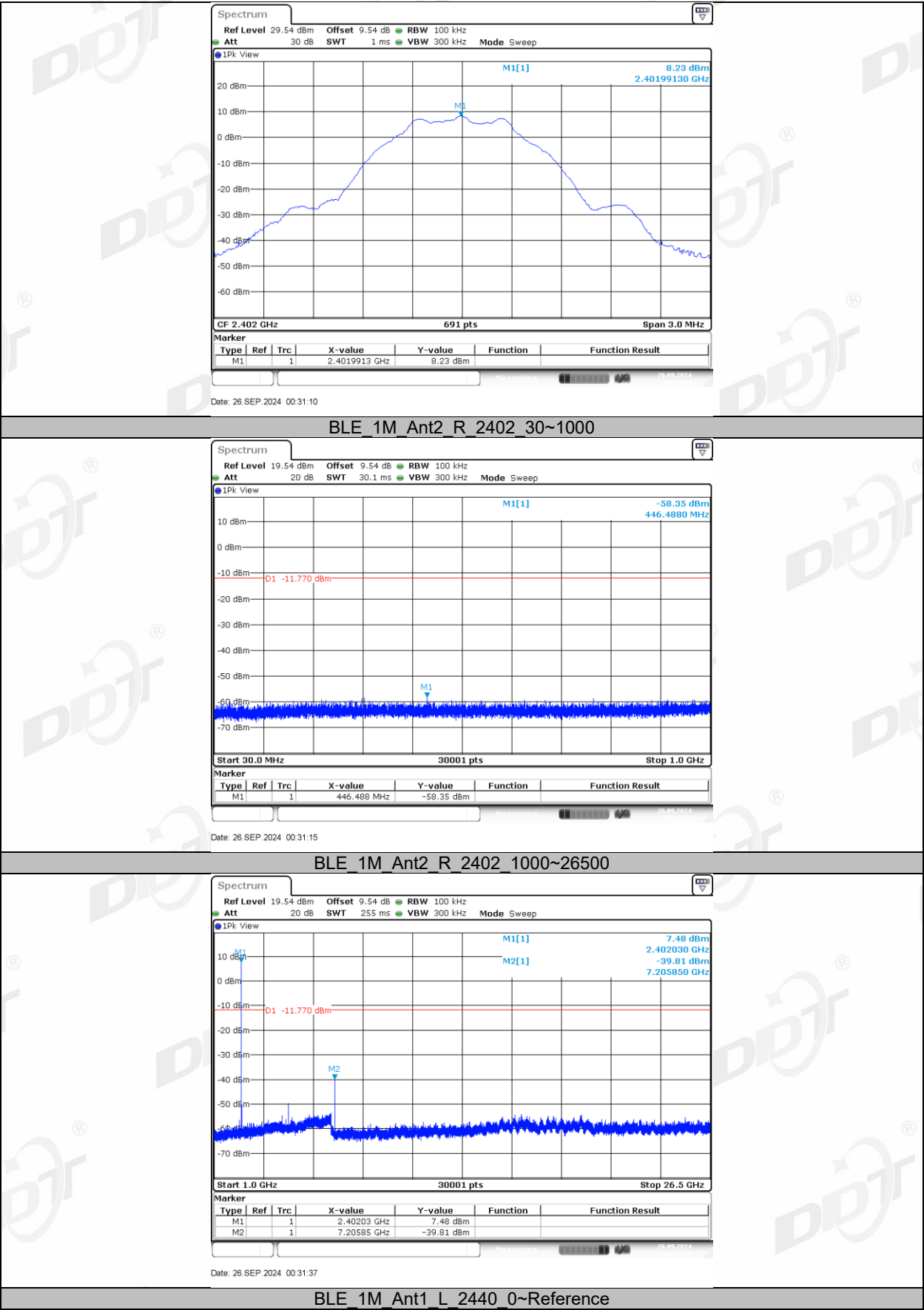
9.4. Test result

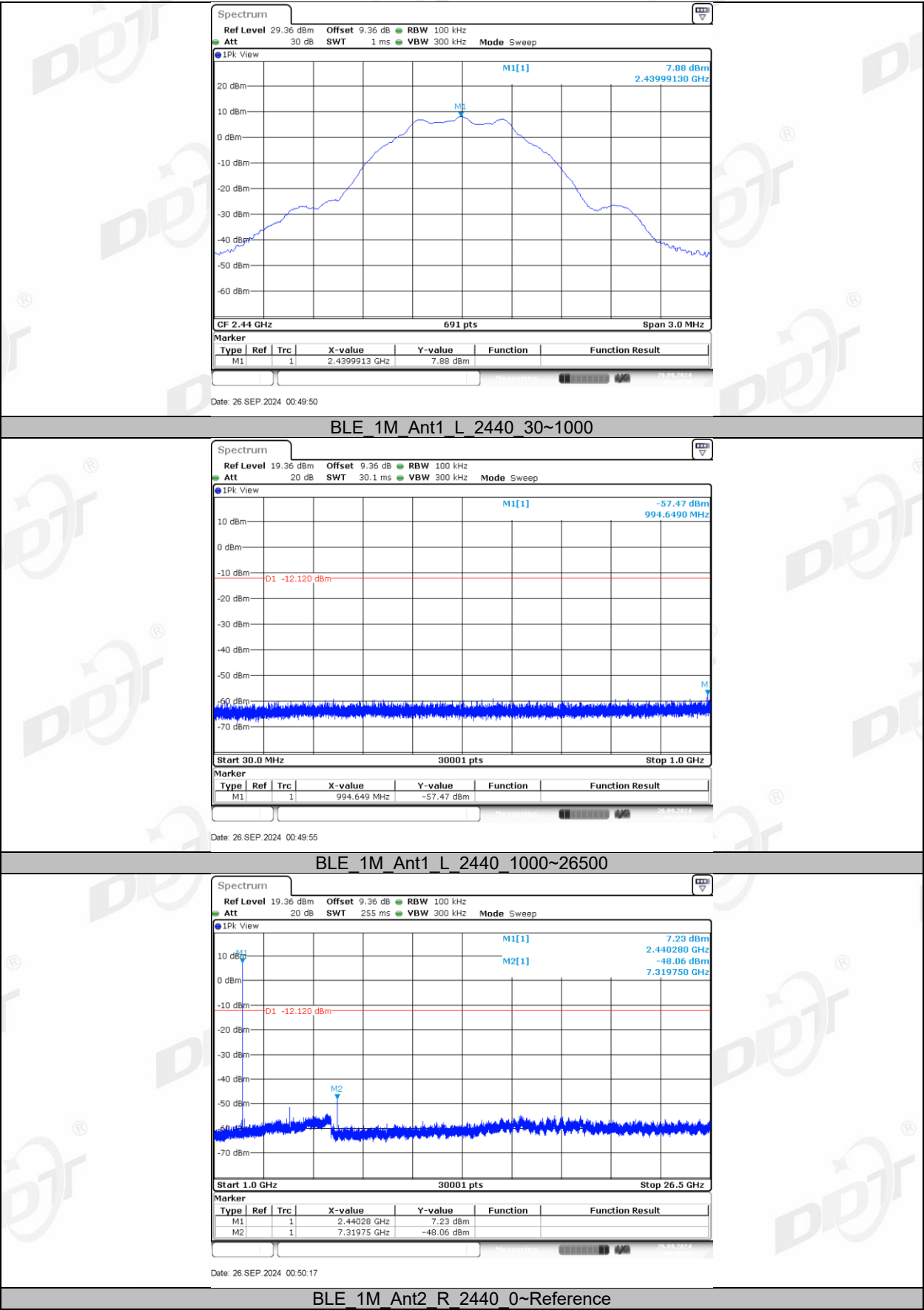
Test Engineer:	Haofeng	Test Site:	RF Measurement System 3#
Ambient Condition:	26.9℃,46.3%RH	Test Date:	2024.09.25-2024.09.26
Test Power Supply:	DC 3.3V	Sample Number:	S24052818-007

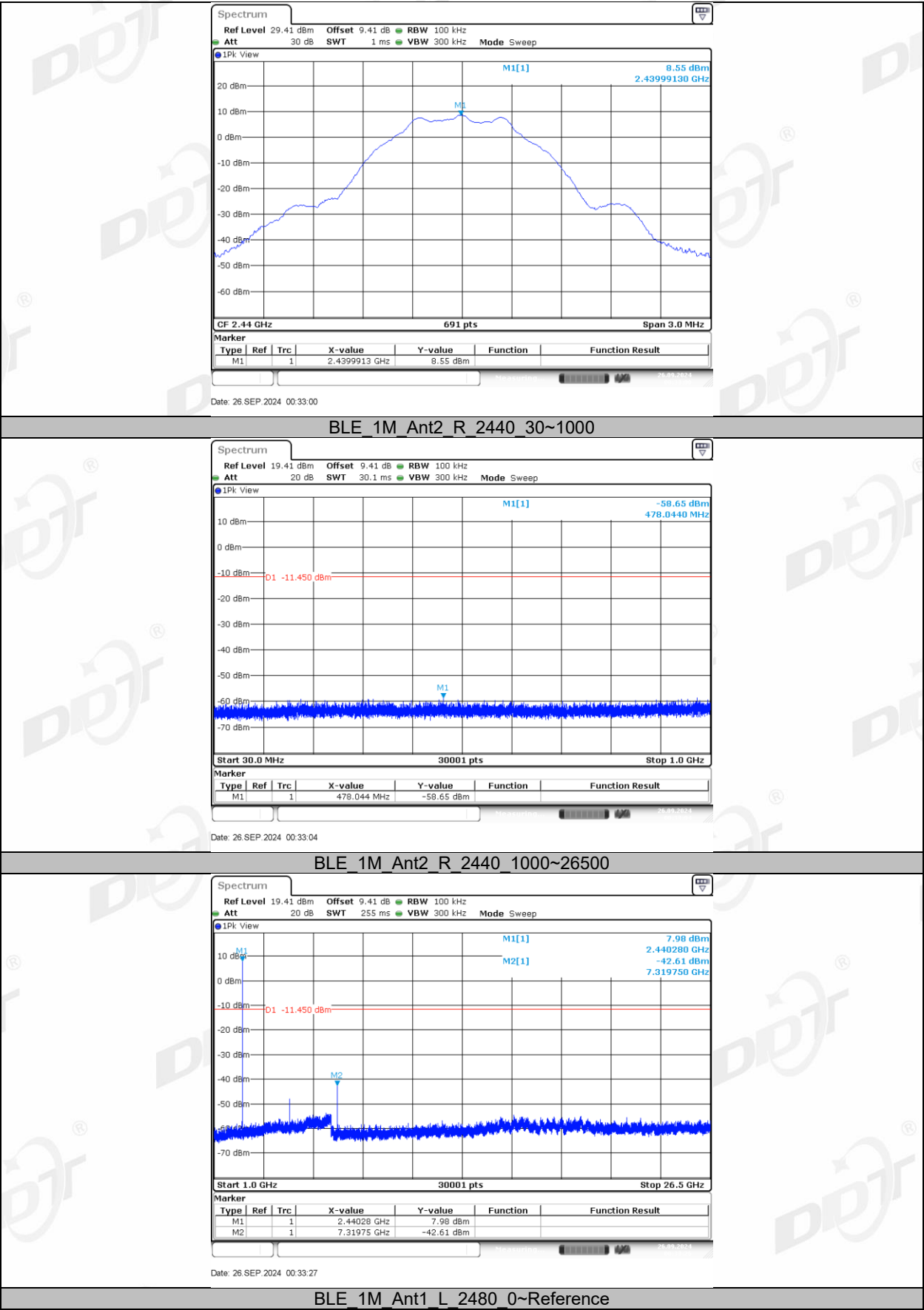
Mode	Freq. (MHz)	Verdict
GFSK 1M	2402	Pass
	2440	Pass
	2480	Pass
GFSK 2M	2404	Pass
	2440	Pass
	2478	Pass

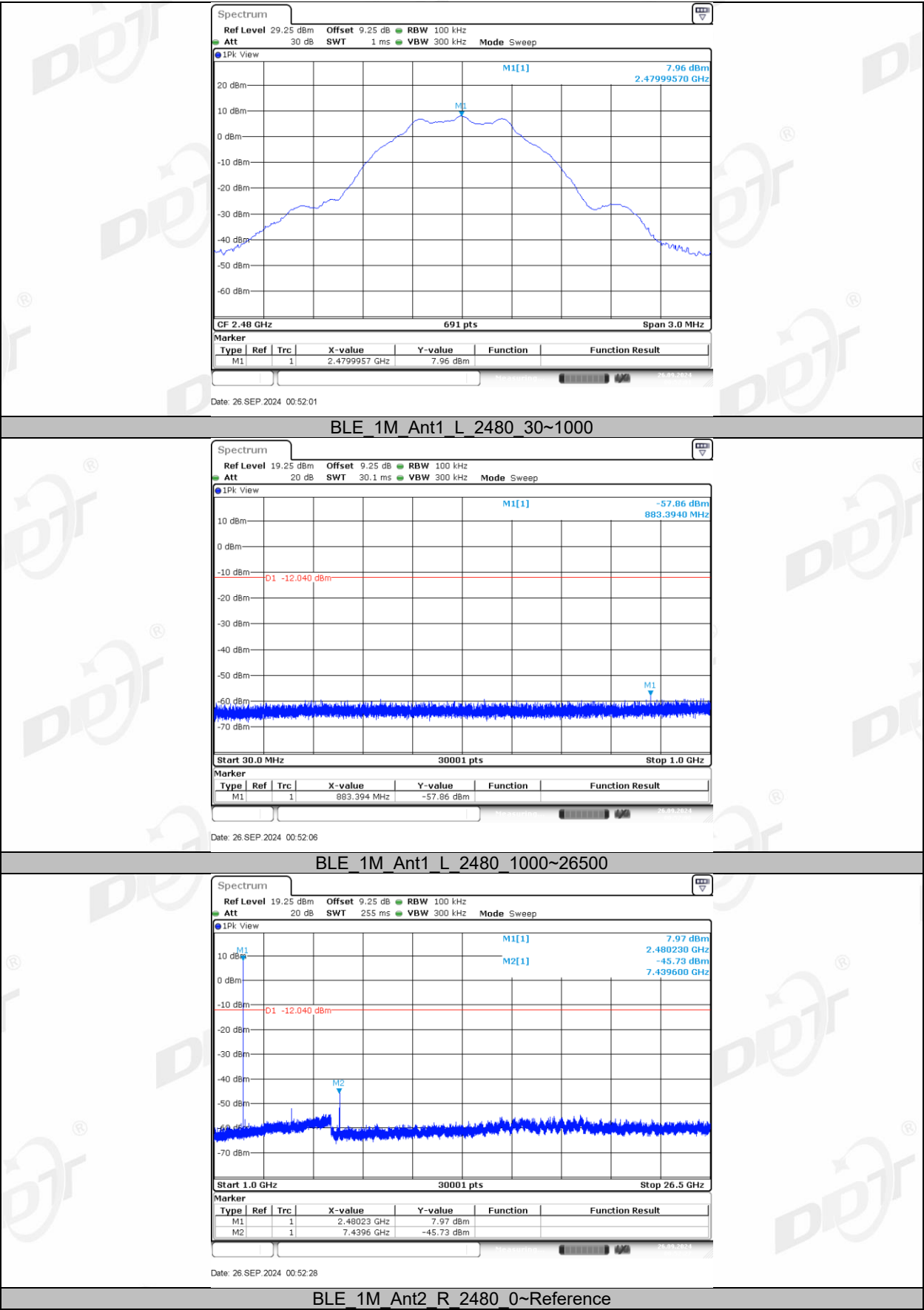
9.5. Test graphs

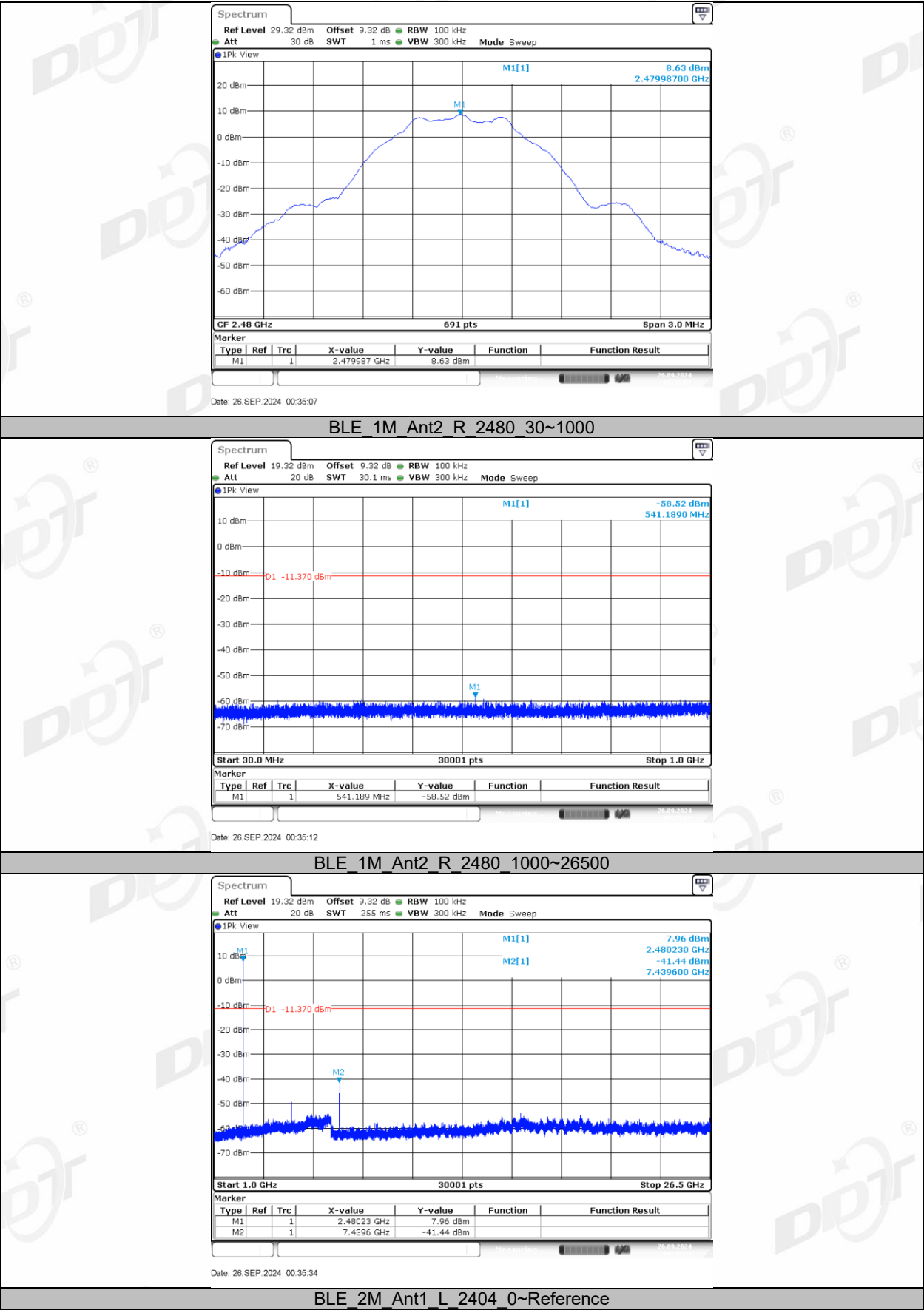


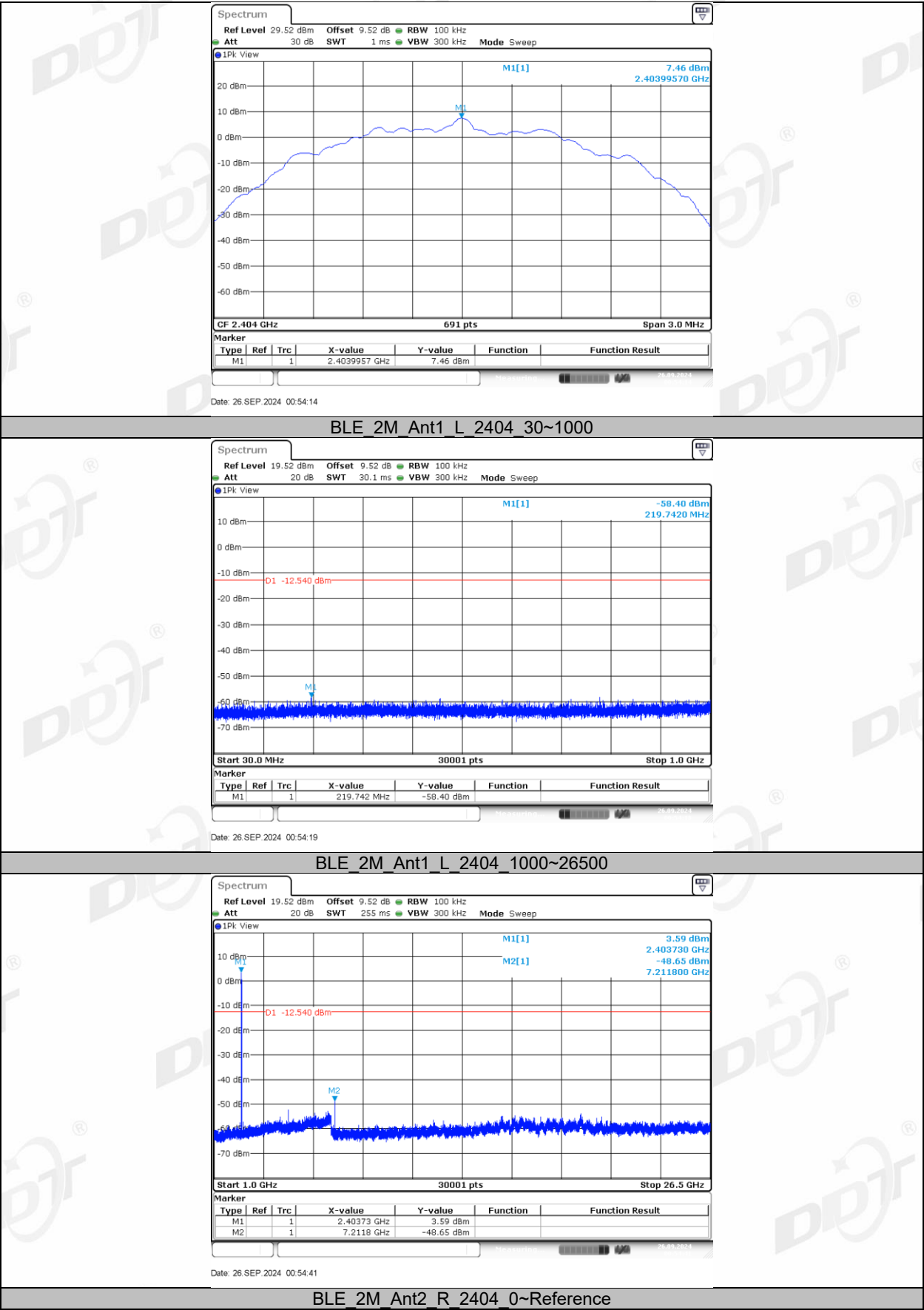


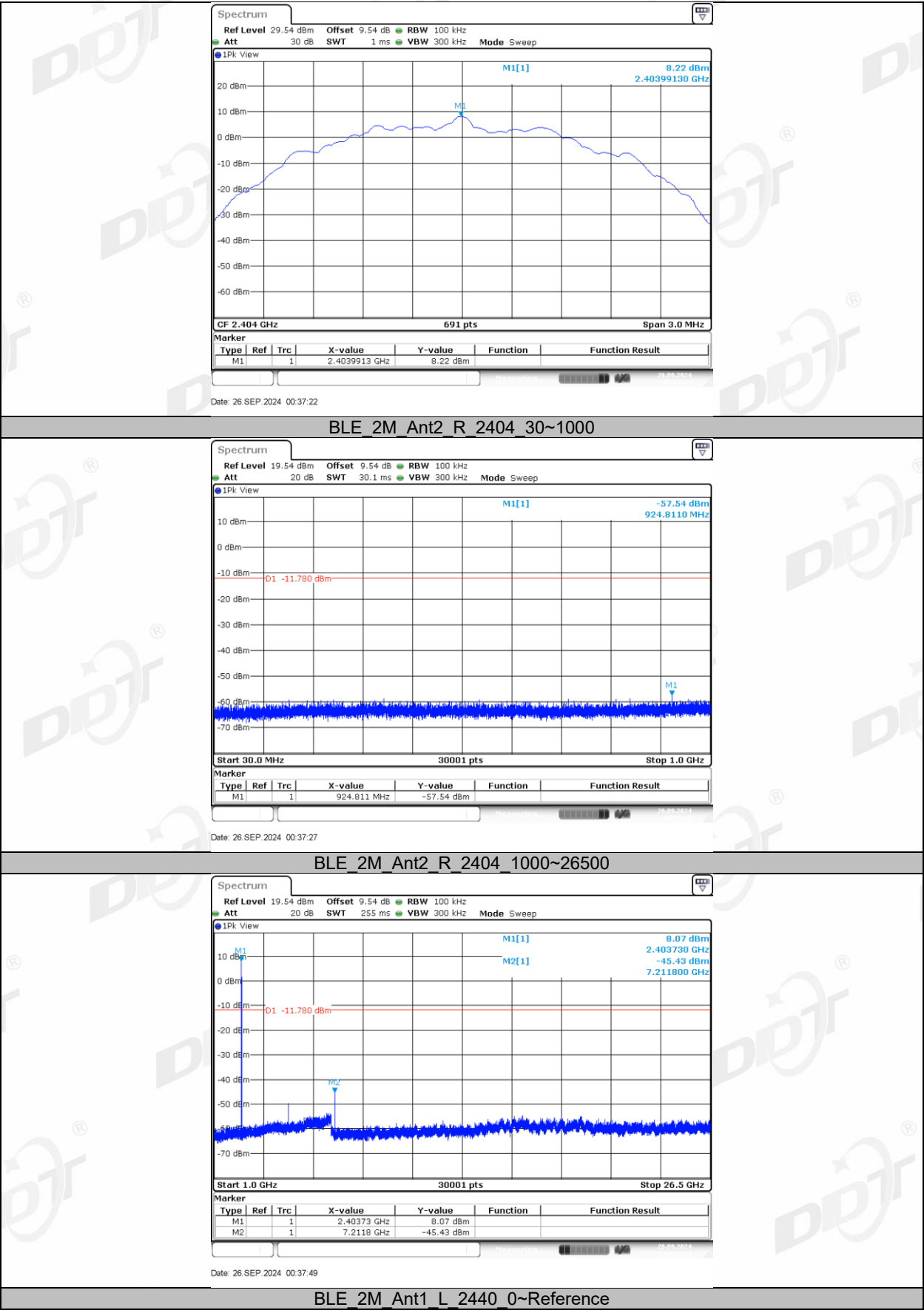


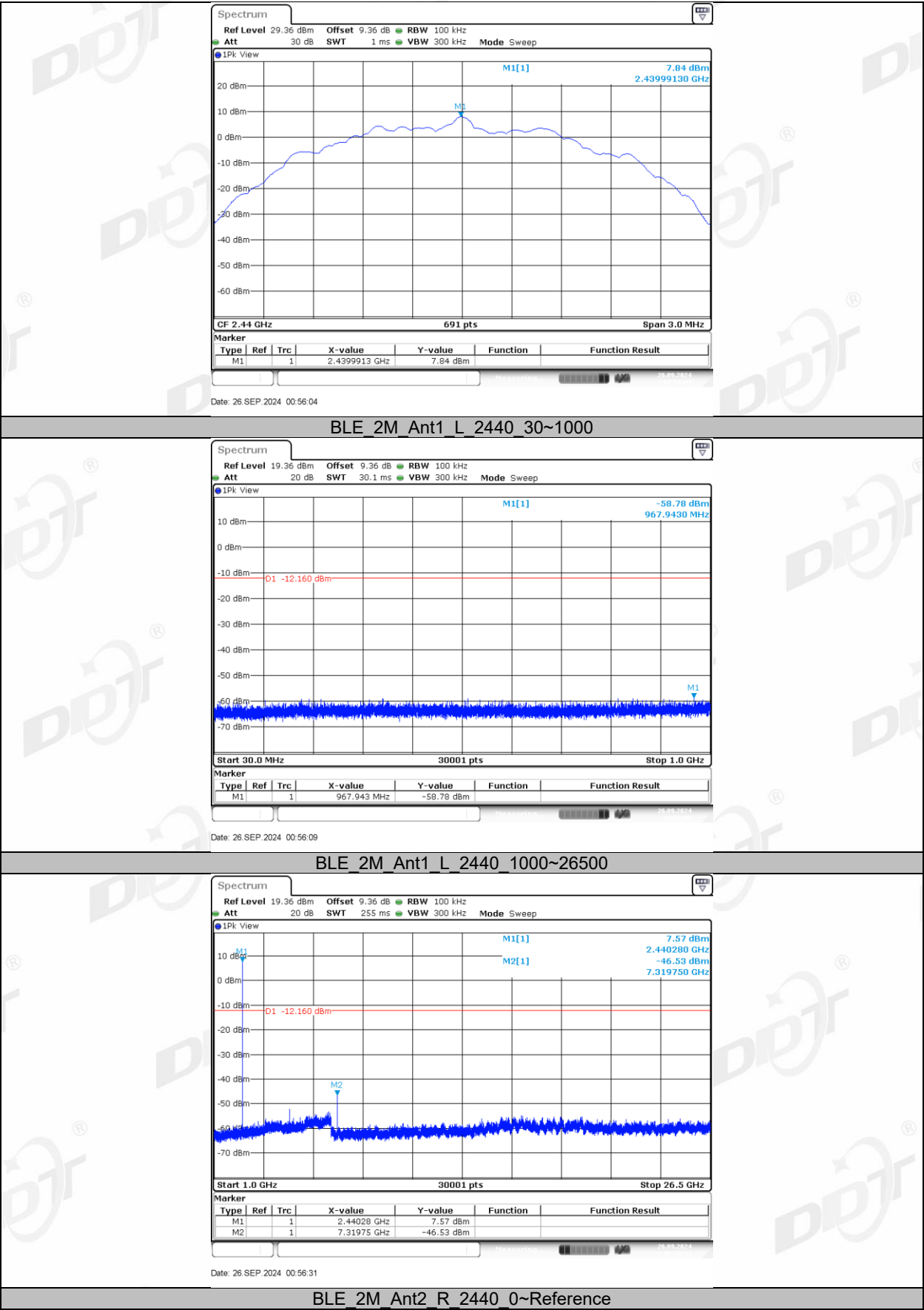


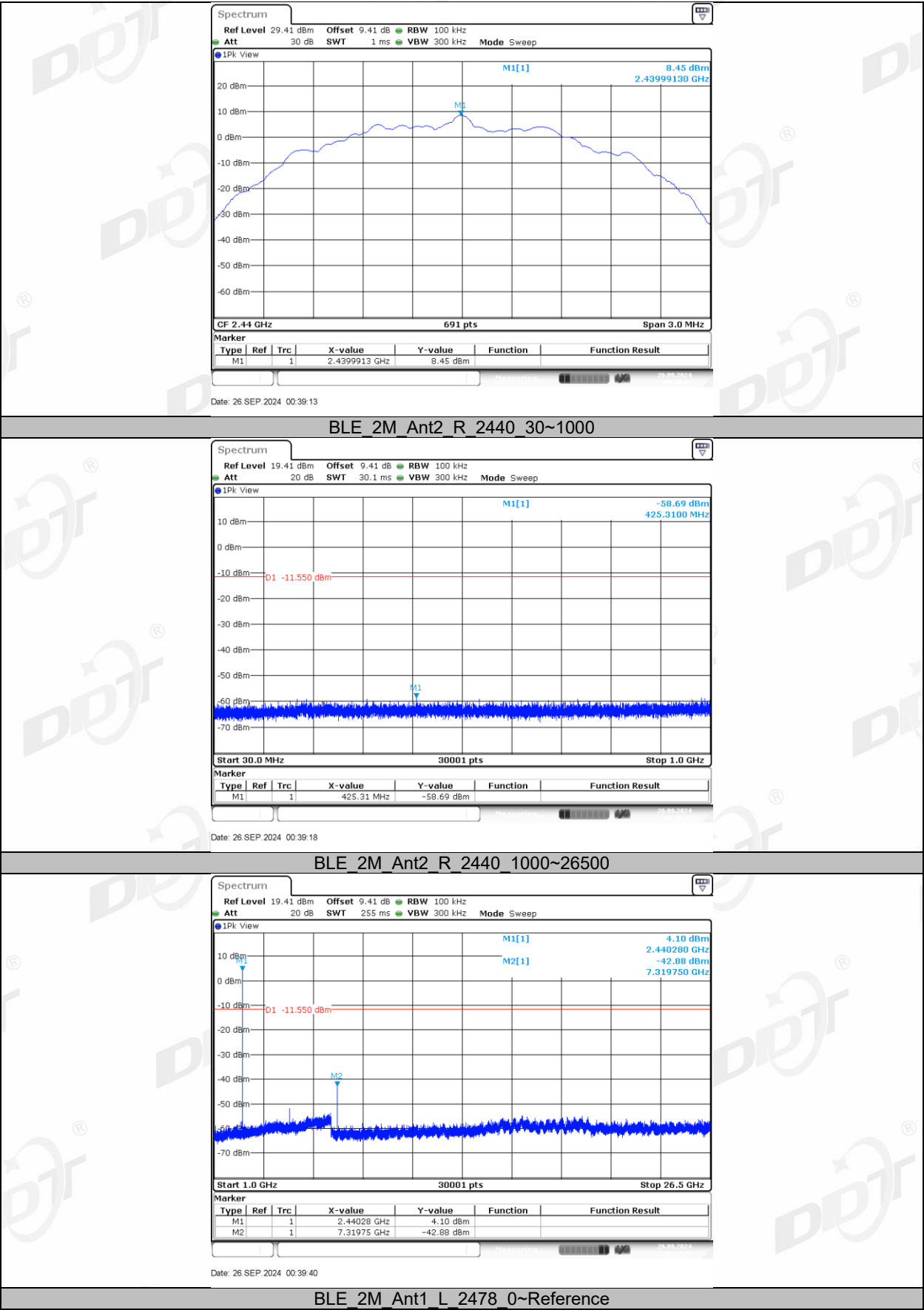


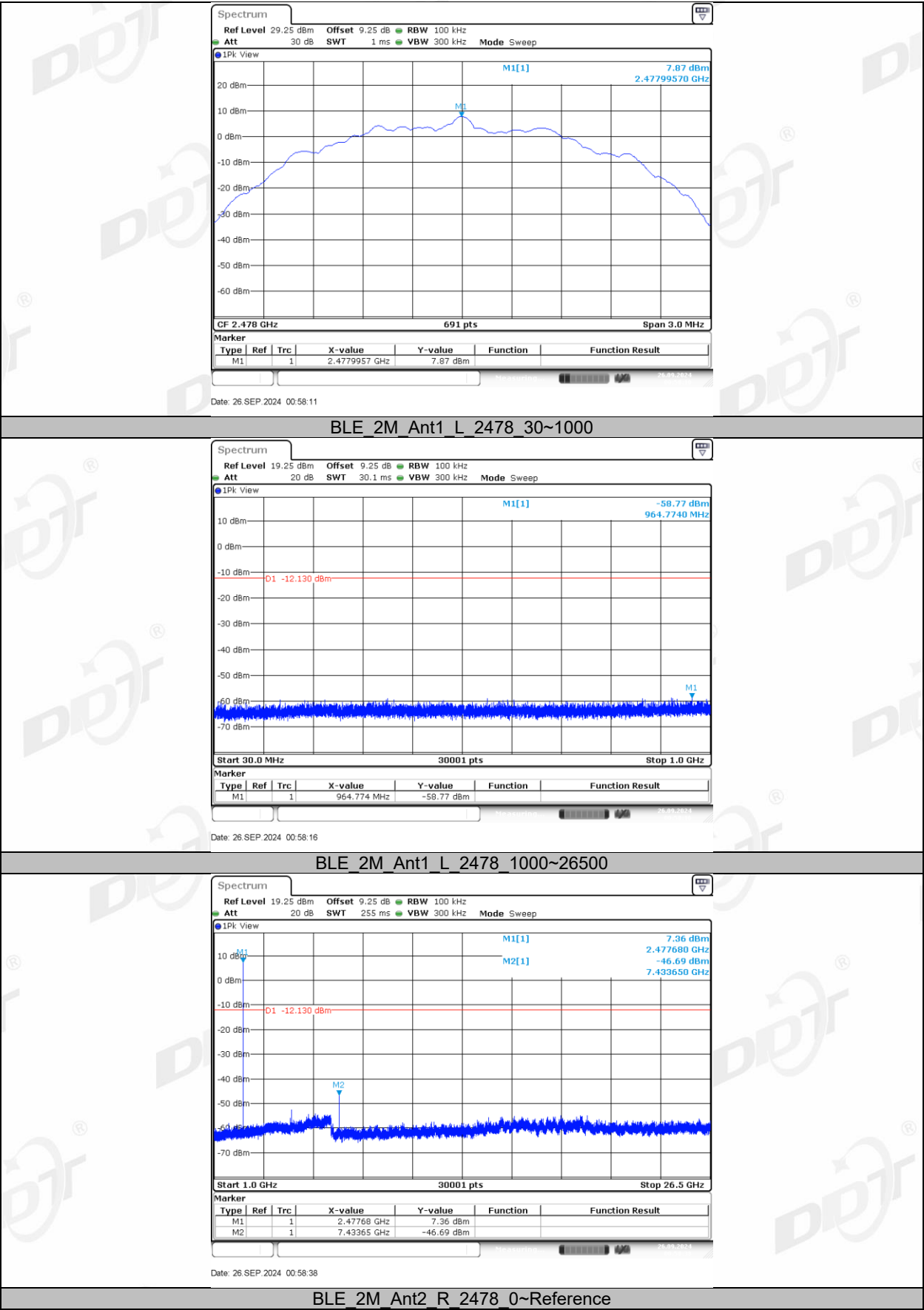


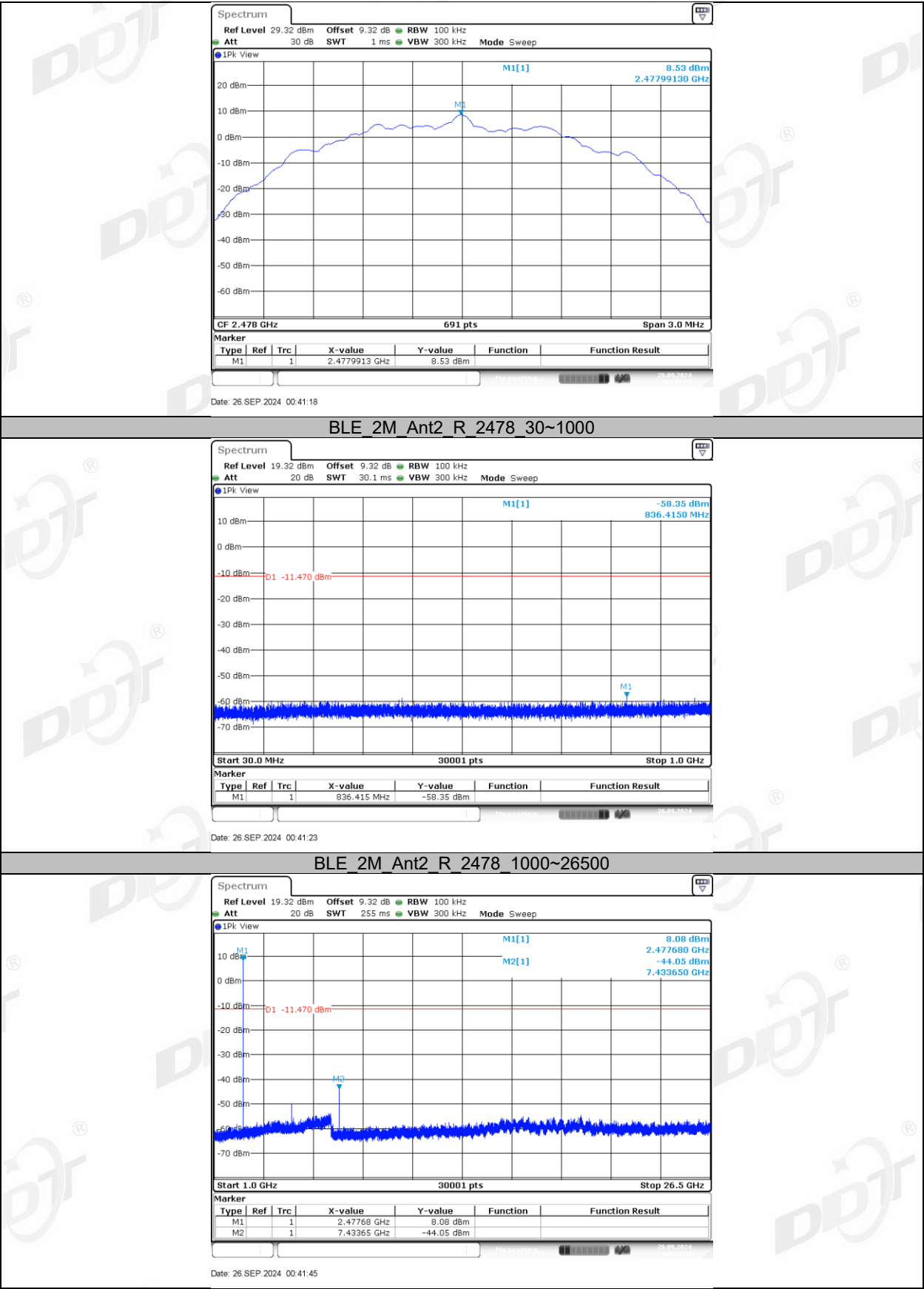






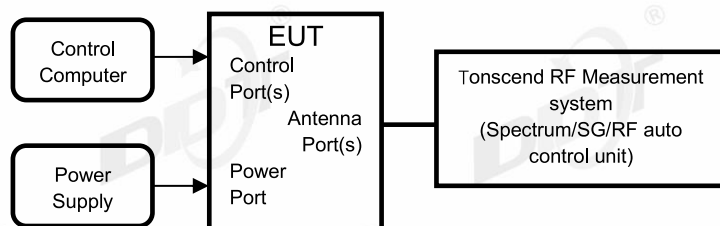






10. Duty Cycle

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:
Duty cycle= Pulse's on time / Burst cycle

10.4. Test result

Test Engineer:	Haofeng	Test Site:	RF Measurement System 3#
Ambient Condition:	26.9℃,46.3%RH	Test Date:	2024.09.25-2024.09.26
Test Power Supply:	DC 3.3V	Sample Number:	S24052818-007

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1_L	2402	0.39	0.62	62.90	2.01
	Ant2_R	2402	0.39	0.62	62.90	2.01
	Ant1_L	2440	0.39	0.62	62.90	2.01
	Ant2_R	2440	0.39	0.62	62.90	2.01
	Ant1_L	2480	0.39	0.62	62.90	2.01
	Ant2_R	2480	0.39	0.62	62.90	2.01
BLE_2M	Ant1_L	2404	0.21	0.63	33.33	4.77
	Ant2_R	2404	0.21	0.63	33.33	4.77
	Ant1_L	2440	0.21	0.63	33.33	4.77
	Ant2_R	2440	0.21	0.63	33.33	4.77
	Ant1_L	2478	0.21	0.63	33.33	4.77
	Ant2_R	2478	0.21	0.63	33.33	4.77

10.5. Test graphs









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
PSA Series Spectrum Analyzer	Agilent	E4447A	DDT-ZC00517	2025/03/31
RF cable	Yuhu Technology	JCTB810-NJ-NJ-9M	DDT-ZC02538	2025/03/31
Hochgewinn-Hornantenne	SCHWARZBEC K	BBHA 9120 D	DDT-ZC02129	2025/09/18
High Pass filter	Xi'an Xingbo	XBLBQ-GTA67	DDT-ZC02179	2025/04/22
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2025/04/26
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02050	2025/07/11
RF Cable	N/A	W13.02 AP1-X2	DDT-ZC04023	2025/03/31
ELECTRIC AND MAGNETIC FIELD ANALYZER	Narda	EHP-200A	DDT-ZC01401	2025/08/28
Active Loop Antenna	Schwarzbeck	FMZB1519	DDT-ZC00524	2025/09/11
High pass filter	Micro-Tronics	HPM50108	DDT-ZC00560	2025/04/22
High pass filter	Micro-Tronics	HPM50102	DDT-ZC00561	2025/04/22
Micro-Tronics filters	REBES	BRM50716	DDT-ZC03240	/
RF cable	Yuhu Technology	ZT26S-SMAJ-SMAJ-1M	DDT-ZC02037	2025/03/31
RF Cable	N/A	W24.02 HL-562	DDT-ZC04022	2025/03/31
RF cable	Zhongke Junchuang	JCT26S-NJ-NJ-1.5M	DDT-ZC02762	2025/03/31
Micro-Tronics filters	REBES	BRM50702	DDT-ZC03242	/
EMI TEST RECEIVER	R&S	ESU26	DDT-ZC01909	2025/03/31
Pre-amplifier	COM-POWER	PAM-840A	DDT-ZC01693	2025/03/31
Pre-amplifier	COM-POWER	PAM-118A	DDT-ZC01293	2025/08/25