

FCC Test Report

Report No. : 1821C50002612501

Applicant : Launch Tech Co., Ltd.

Address : No.4012, Launch Industrial Park, North Wuhe
Rd, Bantian Street, Longgang District 518129,
China

Product Name : Professional Diagnostic Tool

Report Date : Mar. 17, 2025

Shenzhen Anbotek Compliance Laboratory Limited

Shenzhen Anbotek Compliance Laboratory Limited

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TEST REPORT

Applicant : Launch Tech Co., Ltd.

Manufacturer : Launch Tech Co., Ltd.

Product Name : Professional Diagnostic Tool

Model No. : Creader Professional 919E, Millennium Max, Creader Professional 919x, Creader Professional 919x PLUS ("x"=A~Z), Creader Professional 359, 59582

Trade Mark : LAUNCH

Rating(s) : Input: AC 100-240V, 50/60Hz(with DC 3.7V, 6000mAh Battery inside)

Test Standard(s) : **47 CFR Part 15.247**
ANSI C63.10-2020
KDB 558074 D01 15.247 Meas Guidance v05r02

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with above listed standard(s) requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt: Mar. 06, 2025

Date of Test: Mar. 06, 2025 to Mar. 13, 2025

Prepared By:



(Haidi Huang)

Approved & Authorized Signer:



(Hugo Chen)

Shenzhen Anbotek Compliance Laboratory Limited

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Revision History

Report Version	Description	Issued Date
R00	Original Issue.(Note 1)	Mar. 17, 2025

Note 1:

This is a Class II application which was based on the original report 18220WC20090301.FCC ID: XUJCRP349PLUS, issued on May 26, 2022. The difference between the original device and current one described as following:

1. The motherboard and PCB layout remain unchanged, but the electronic materials are replaced with substitute materials. The packaging and specifications of the substitute materials are the same as the original main materials.
2. Add the Model No.: 59582.
3. Change the battery capacity to “6000mAh”.
4. Delete factory information.
5. Update the EUT Photograph.
6. Change the company address of Applicant and Manufacturer.

The changes are not related with the other RF parameters, only conducted emission and spurious emission were retested.

Shenzhen Anbotek Compliance Laboratory Limited

1. General Information

1.1. Client Information

Applicant	:	Launch Tech Co., Ltd.
Address	:	No.4012, Launch Industrial Park, North Wuhe Rd, Bantian Street, Longgang District 518129, China
Manufacturer	:	Launch Tech Co., Ltd.
Address	:	No.4012, Launch Industrial Park, North Wuhe Rd, Bantian Street, Longgang District 518129, China

1.2. Description of Device (EUT)

Product Name	:	Professional Diagnostic Tool
Model No.	:	Creader Professional 919E, Millennium Max, Creader Professional 919x, Creader Professional 919x PLUS ("x"=A~Z), Creader Professional 359, 59582 (Note: All samples are the same except the model number, Rubber cover, appearance shape, Key decorative ring color. So we prepare "Creader Professional 919E" for test only.)
Trade Mark	:	LAUNCH
Test Power Supply	:	AC 120V, 60Hz for Adapter/ DC 3.7V Battery inside
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	Model: FY0502500 Input: 100-240V~50/60Hz, 0.6A Max. Output: DC 5V, 2.5A

RF Specification

Operation Frequency	:	2402MHz to 2480MHz
Number of Channel	:	79
Modulation Type	:	GFSK, $\pi/4$ DQPSK, 8DPSK
Antenna Type	:	FPC Antenna
Antenna Gain(Peak)	:	4.49dBi

Remark:

- (1) All of the RF specification are provided by customer.
- (2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

1.3. Auxiliary Equipment Used During Test

Title	Manufacturer	Model No.	Serial No.
/	/	/	/

1.4. Operation channel list

Operation Band:

Channel	Frequency (MHz)						
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461	-	-

1.5. Description of Test Modes

Pretest Modes	Descriptions
TM1	Keep the EUT in continuously transmitting mode (non-hopping) with GFSK modulation.
TM2	Keep the EUT in continuously transmitting mode (non-hopping) with $\pi/4$ DQPSK modulation.
TM3	Keep the EUT in continuously transmitting mode (non-hopping) with 8DPSK modulation.
TM4	Keep the EUT in continuously transmitting mode (hopping) with GFSK modulation.,,
TM5	Keep the EUT in continuously transmitting mode (hopping) with $\pi/4$ DQPSK modulation.
TM6	Keep the EUT in continuously transmitting mode (hopping) with 8DPSK modulation.

1.6. Measurement Uncertainty

Parameter	Uncertainty
Conducted emissions (AMN 150kHz~30MHz)	3.2dB
Conducted Output Power	0.76dB
Radiated emissions (Below 30MHz)	3.26dB
The measurement uncertainty and decision risk evaluated according to AB/WI-RF-F-032. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

1.7. Test Summary

Test Items	Test Modes	Status
Antenna requirement	/	P
Conducted Emission at AC power line	Mode1,2,3	P
Maximum Conducted Output Power	Mode1,2,3	P
Emissions in frequency bands (below 1GHz)	Mode1,2,3	P
Note: P: Pass N: N/A, not applicable		

1.8. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.:434132

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 434132.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

Sogood Industrial Zone Laboratory & 1/F. of Building D, Sogood Science and Technology Park, Sanwei Community, Hangcheng Subdistrict, Bao'an District, Shenzhen, Guangdong, China.

1.9. Disclaimer

1. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
2. The test report is invalid if there is any evidence and/or falsification.
3. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
4. This document may not be altered or revised in any way unless done so by Anbotek and all revisions are duly noted in the revisions section.
5. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
6. The authenticity of the information provided by the customer is the responsibility of the customer and the laboratory is not responsible for its authenticity.

The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

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1.10. Test Equipment List

Conducted Emission at AC power line						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	2024-09-09	2025-09-08
2	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040D T001	2025-01-13	2026-01-12
3	Software Name EZ-EMC	Farad Technology	ANB-03A	N/A	/	/
4	EMI Test Receiver(CE2#)	Rohde & Schwarz	ESPI3	100926	2024-09-09	2025-09-08

Maximum Conducted Output Power						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	2021-10-22	2022-10-21
2	DC Power Supply	IVYTECH	IV3605	1804D360 510	2021-10-22	2022-10-21
3	Power Sensor	DAER	RPR3006W	15I00041S N045	2021-10-22	2022-10-21
4	Power Sensor	DAER	RPR3006W	15I00041S N046	2021-10-22	2022-10-21
5	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY532800 32	2021-10-22	2022-10-21
6	Signal Generator	Agilent	E4421B	MY410007 43	2021-10-22	2022-10-21
7	MXG RF Vector Signal Generator	Agilent	N5182A	MY481806 56	2021-10-22	2022-10-21

Emissions in frequency bands (below 1GHz)						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	EMI Test Receiver(RE2/3#)	Rohde & Schwarz	ESR26	101481	2025-01-14	2026-01-13
2	Pre-amplifier	SONOMA	310N	186860	2025-01-14	2026-01-13
3	Bilog Broadband Antenna	Schwarzbeck	VULB9163	345	2022-10-23	2025-10-22
4	Loop Antenna (9K-30M)	Schwarzbeck	FMZB1519 B	00053	2024-09-12	2025-09-11
5	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	/	/

2. Antenna requirement

Test Requirement:

Refer to 47 CFR Part 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

2.1. Conclusion

The antenna is a **FPC antenna** which permanently attached, and the best case gain of the antenna is **4.49dBi**. It complies with the standard requirement.

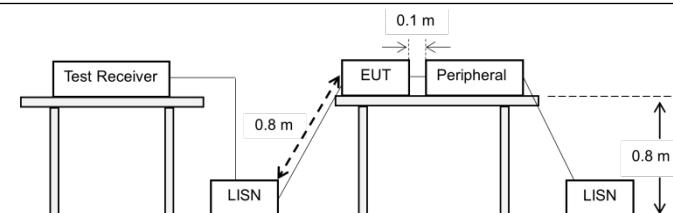
3. Conducted Emission at AC power line

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average	
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
*Decreases with the logarithm of the frequency.			
Test Method:	ANSI C63.10-2020 section 6.2		
Procedure:	Refer to ANSI C63.10-2020 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		

3.1. EUT Operation

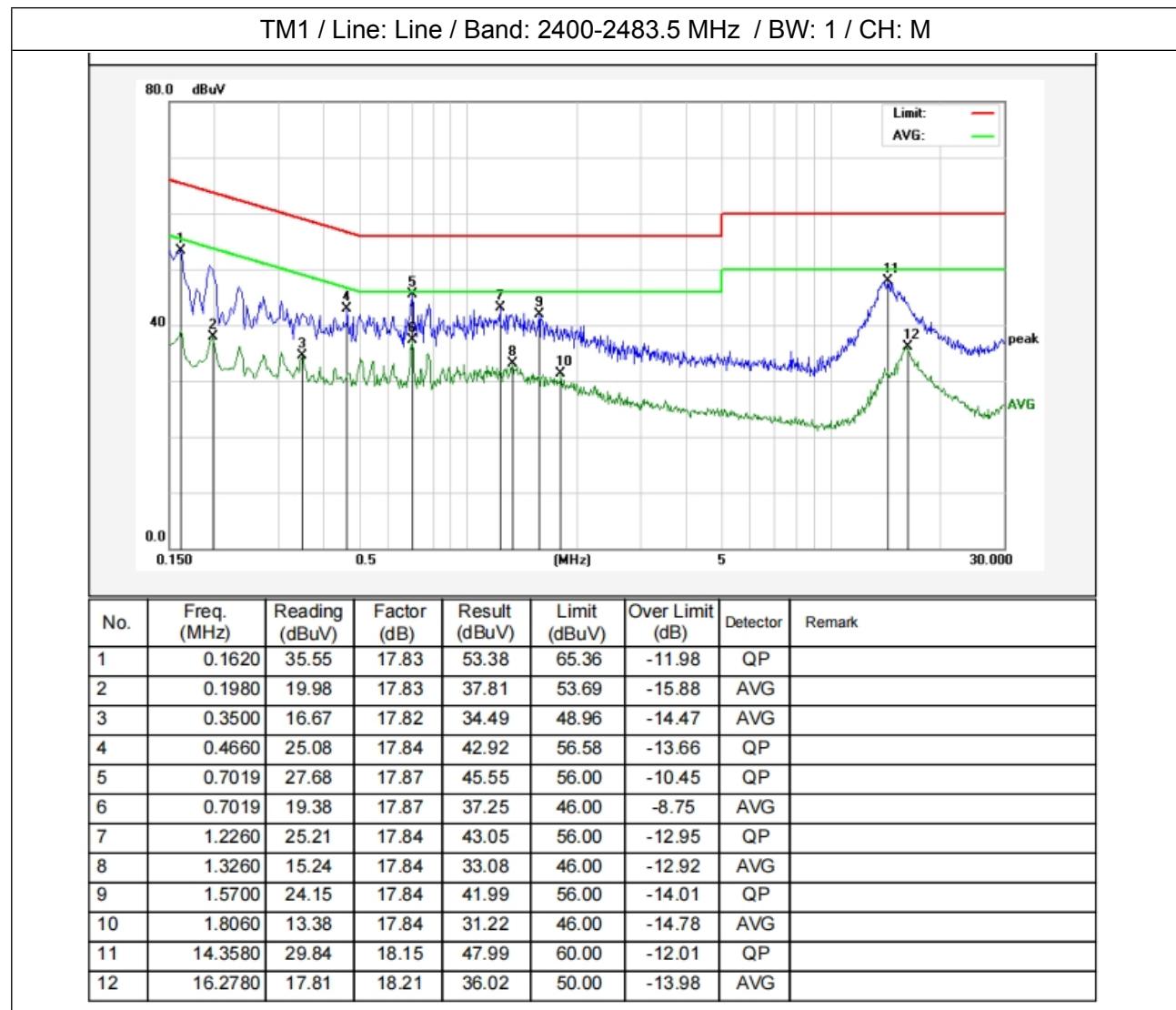
Operating Environment:	
Test mode:	1: TX-GFSK (Non-Hopping): Keep the EUT in continuously transmitting mode (non-hopping) with GFSK modulation. 2: TX- π /4-DQPSK (Non-Hopping): Keep the EUT in continuously transmitting mode (non-hopping) with π /4 DQPSK modulation. 3: TX-8DPSK (Non-Hopping): Keep the EUT in continuously transmitting mode (non-hopping) with 8DPSK modulation.

3.2. Test Setup

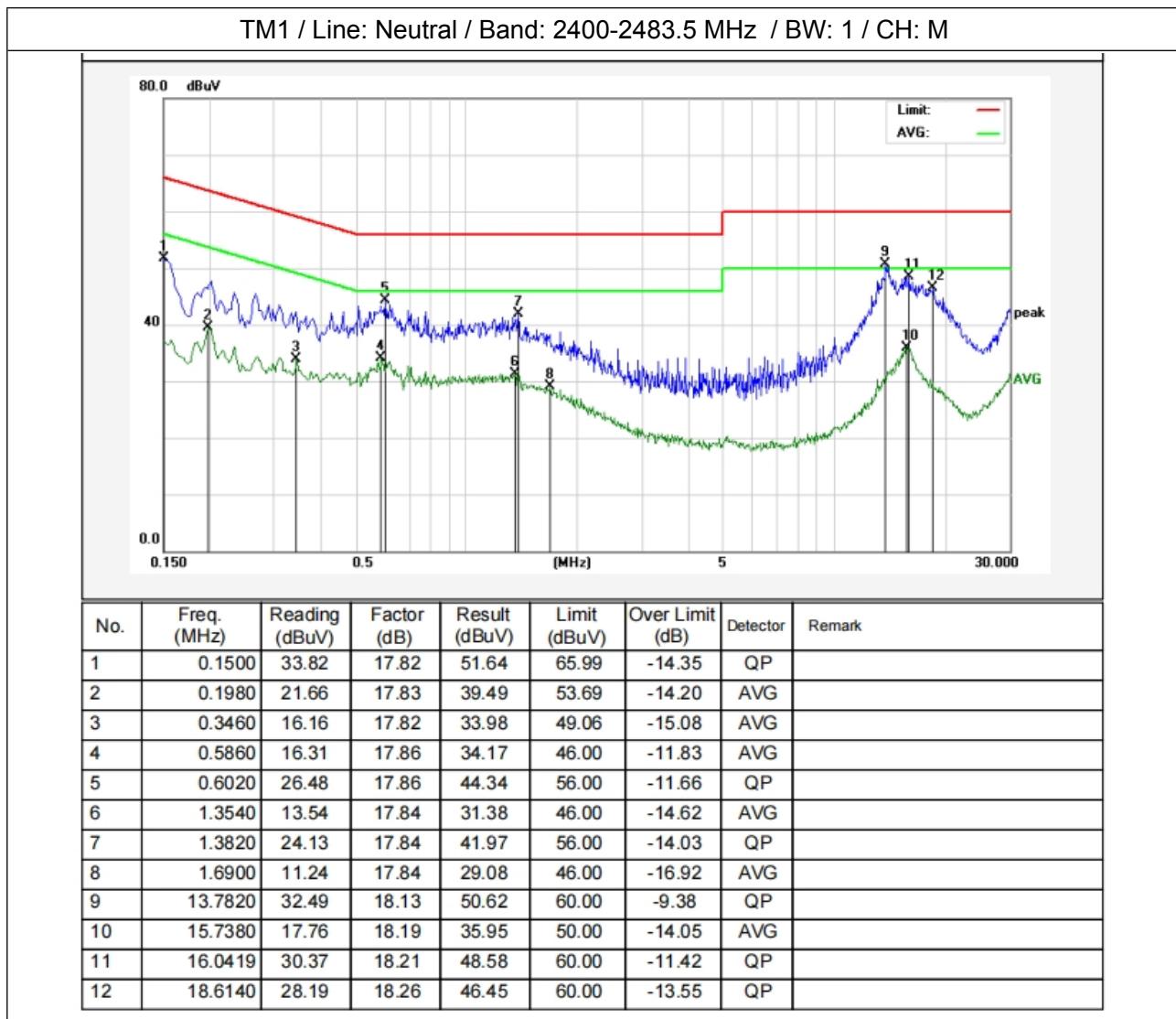


3.3. Test Data

Temperature:	22.1 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa
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Temperature:	22.1 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa
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Note: Only the worst case data was showed in the report.

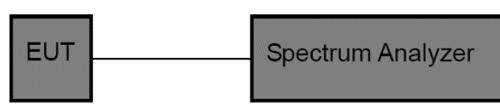
4. Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(1)
Test Limit:	Refer to 47 CFR 15.247(b)(1), For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.
Test Method:	ANSI C63.10-2020, section 7.8.5 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	<p>This is an RF-conducted test to evaluate maximum peak output power. Use a direct connection between the antenna port of the unlicensed wireless device and the spectrum analyzer, through suitable attenuation. Frequency hopping shall be disabled for this test. Use the following spectrum analyzer settings:</p> <ul style="list-style-type: none"> a) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel. b) RBW > 20 dB bandwidth of the emission being measured. c) VBW \geq RBW. d) Sweep: No faster than coupled (auto) time. e) Detector function: Peak. f) Trace: Max-hold. g) Allow trace to stabilize. h) Use the marker-to-peak function to set the marker to the peak of the emission. i) The indicated level is the peak output power, after any corrections for external attenuators and cables. j) A spectral plot of the test results and setup description shall be included in the test report. <p>NOTE—A peak responding power meter may be used, where the power meter and sensor system video bandwidth is greater than the occupied bandwidth of the unlicensed wireless device, rather than a spectrum analyzer.</p>

4.1. EUT Operation

Operating Environment:	
Test mode:	<p>1: TX-GFSK (Non-Hopping): Keep the EUT in continuously transmitting mode (non-hopping) with GFSK modulation.</p> <p>2: TX-$\pi/4$-DQPSK (Non-Hopping): Keep the EUT in continuously transmitting mode (non-hopping) with $\pi/4$ DQPSK modulation.</p> <p>3: TX-8DPSK (Non-Hopping): Keep the EUT in continuously transmitting mode (non-hopping) with 8DPSK modulation.</p>

4.2. Test Setup



4.3. Test Data

Temperature:	24.3 °C	Humidity:	56.2 %	Atmospheric Pressure:	101 kPa
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TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	7.26	≤20.97	PASS
		2441	7.94	≤20.97	PASS
		2480	6.64	≤20.97	PASS
2DH5	Ant1	2402	6.00	≤20.97	PASS
		2441	6.98	≤20.97	PASS
		2480	5.71	≤20.97	PASS
3DH5	Ant1	2402	6.00	≤20.97	PASS
		2441	6.99	≤20.97	PASS
		2480	5.82	≤20.97	PASS

Note: For pre-scan, the result is equal to original, so the original data is referenced.

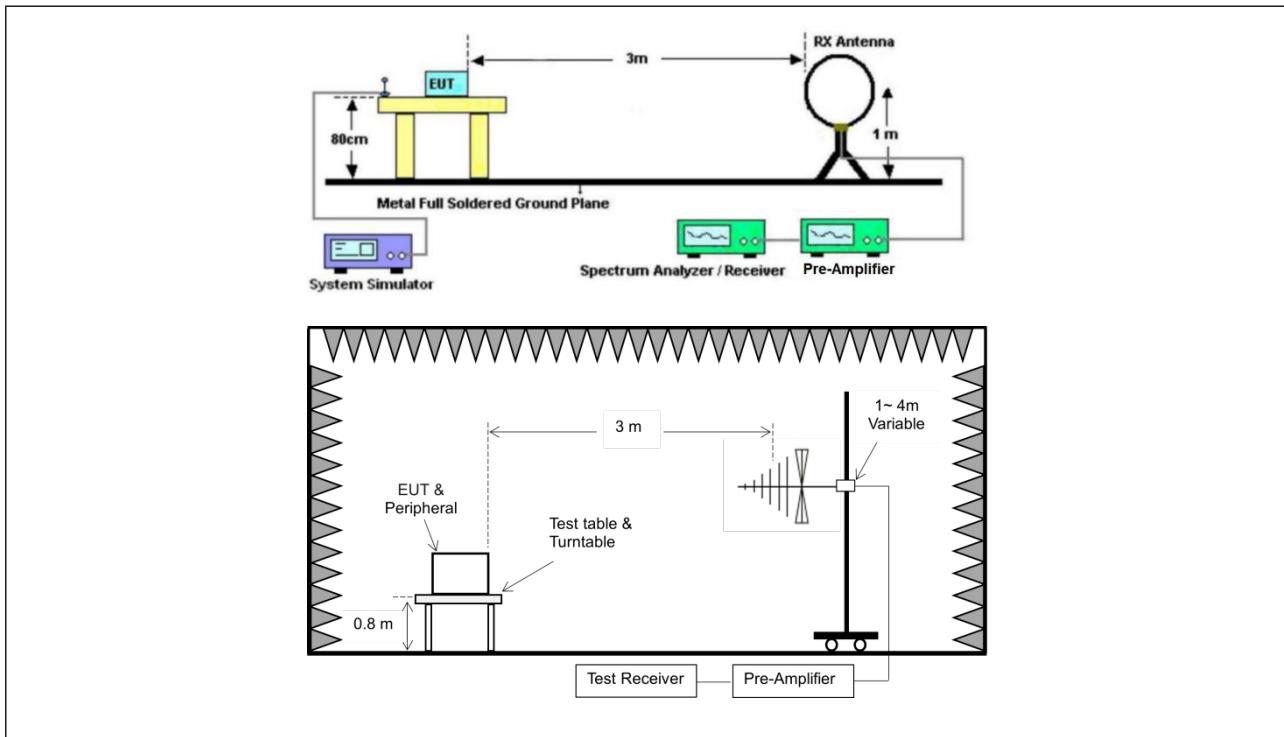
5. Emissions in frequency bands (below 1GHz)

Test Requirement:	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
<p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges.</p> <p>The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p>			
Test Method:	ANSI C63.10-2020 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02		
Procedure:	ANSI C63.10-2020 section 6.6.4		

5.1. EUT Operation

Operating Environment:	
Test mode:	<p>1: TX-GFSK (Non-Hopping): Keep the EUT in continuously transmitting mode (non-hopping) with GFSK modulation.</p> <p>2: TX-$\pi/4$-DQPSK (Non-Hopping): Keep the EUT in continuously transmitting mode (non-hopping) with $\pi/4$ DQPSK modulation.</p> <p>3: TX-8DPSK (Non-Hopping): Keep the EUT in continuously transmitting mode (non-hopping) with 8DPSK modulation.</p>

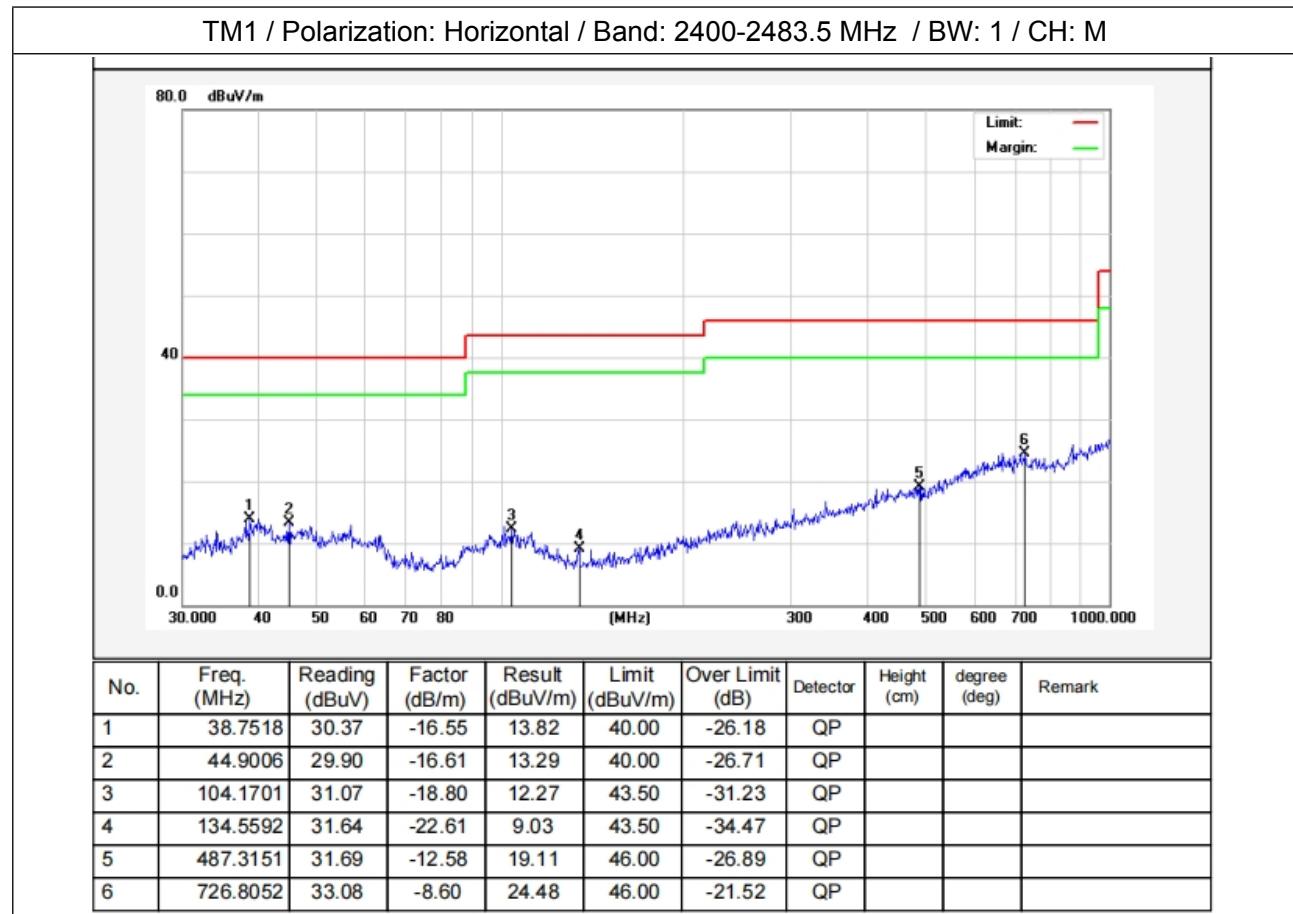
5.2. Test Setup



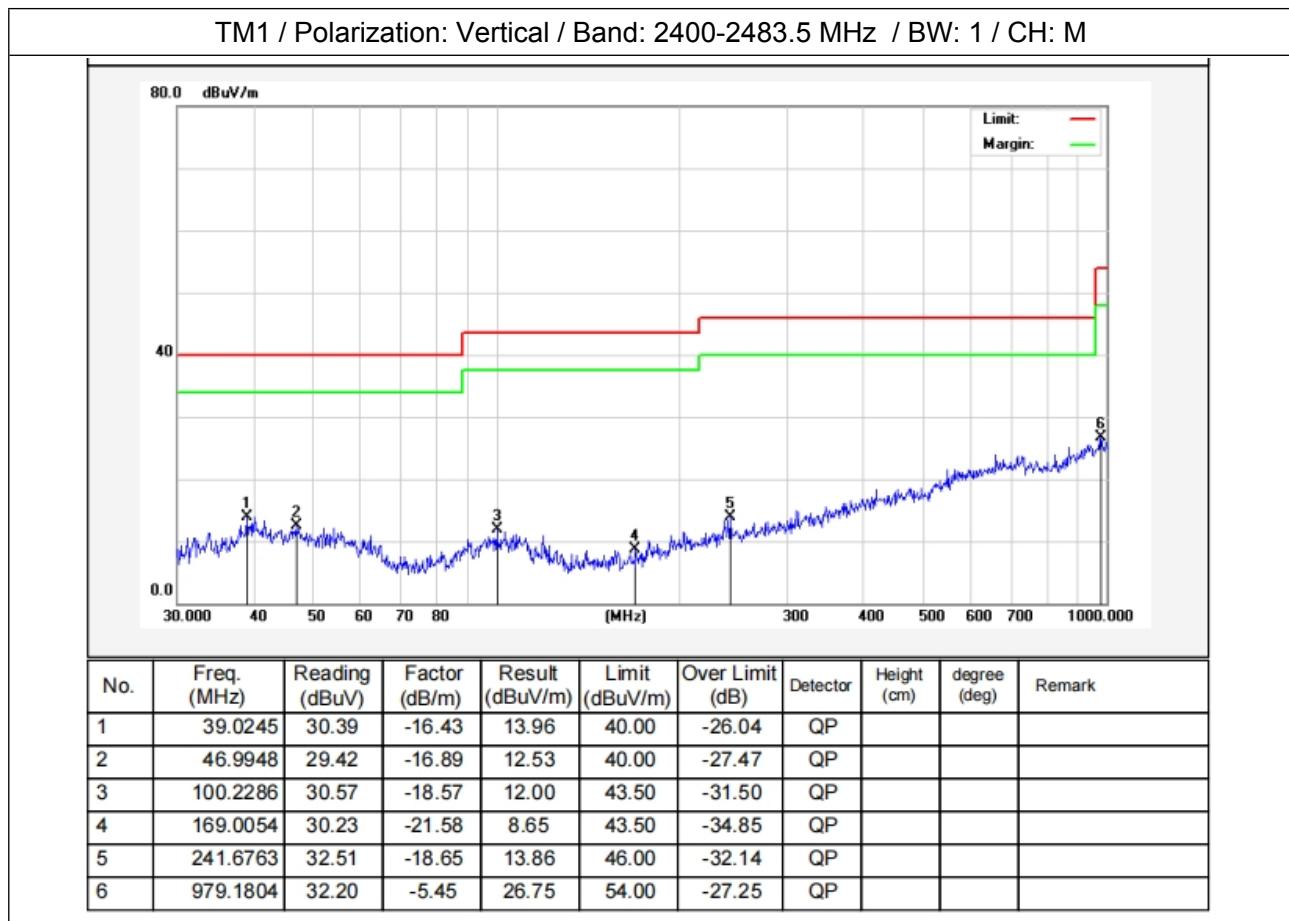
5.3. Test Data

The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Temperature:	25.3 °C	Humidity:	54 %	Atmospheric Pressure:	101 kPa
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Temperature:	25.3 °C	Humidity:	54 %	Atmospheric Pressure:	101 kPa
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Note: Only the worst case data was showed in the report.

APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph_RF

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

----- End of Report -----