

JAPAN SPECIFIED RADIO EQUIPMENT

TEST REPORT

For

Wireless Immobilizer

Trade Name: iVIPER

Model: IMB-20

Issued to

加藤電機株式会社

〒475-8574 愛知県半田市花園町6-28-10

Issued by

Compliance Certification Services Inc.

Wugu Laboratory

No.11, Wugong 6th Rd., Wugu Dist.,

New Taipei City, Taiwan

Issued Date: January 27, 2026

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
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1. TEST RESULT CERTIFICATION

Applicant: 加藤電機株式会社
〒475-8574 愛知県半田市花園町6-28-10

Manufacturer: NUTEK CORPORATION
No.167, Lane 235, Bauchiau Rd., Xindian District, New Taipei City, 23145, Taiwan

Equipment Under Test: Wireless Immobilizer

Trade Name: iVIPER

Model Number: IMB-20

Detailed EUT Description: See Item 3 of this report

EUT Receive Date: December 22, 2025

Date of Test: January 6 ~ 9, 2026

APPLICABLE STANDARDS	
CLASSIFICATION	TEST RESULT
Article 2-1-19	Compliance
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in Article 2-1-19. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Measurement was conducted by the following test method: the test method of Ordinance Concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment in Annex 1, the Ministry of Internal Affairs and Communication notification in Annex 43 of Article 88, the Paragraph 1 test method more than equivalent.

Approved by:

sehni. Hu

Sehni Hu
Supervisor
Compliance Certification Services Inc.

2. SUMMARY OF TEST RESULTS

2.1 BLE (CH0~CH39) (FOR GFSK)

APPLIED STANDARD: Article 2-1-19			
Standard Section	Report Section	Test Type and Limit	Test Result
General provisions			
5	6.1	Frequency Error	PASS
6	6.4	Occupied Bandwidth	PASS
7	6.3	Unwanted Emission Strength	PASS
Transmitting equipment			
14	6.2	Antenna Power	PASS
14.2	-	SAR	-
Transmitting antenna			
20	3	Type, Configuration, etc., of Transmitting Antenna	PASS
22	-	Direction Pattern of Transmitting Antenna (Provided at Individual Antenna Report)	PASS
Receiving antenna			
24	6.5	Limitation of Collateral Emission of Receiver	PASS
26	3	Refer to All Articles for Transmitting Antenna	PASS
Operating frequency 2402~2480MHz			
49.20(1);a	4.4	RF Shielding Method	PASS
49.20(1);a	-	Communication Method	-
49.20(1);b	3	Spread-spectrum Method	PASS
49.20(1);d	-	Absolute Antenna Gain (Provided at Individual Antenna Report)	PASS
49.20(1);e	-	Spread-Spectrum Bandwidth	-
49.20(1);g	-	Hopping Frequency Dwell Time (FH employed)	-
-	7	Interference Prevention Function	Pass

3. EUT DESCRIPTION

Product	Wireless Immobilizer		
Model Number	IMB-20		
Trade Name	iVIPER		
Power Supply	Power from power supply. (DC 12V)		
Model Discrepancy	N/A		
Frequency Range	Bluetooth: 2402~2480MHz		
Rated Antenna Power (mW, mW/MHz)	BLE 1M:	0.121	mW
Measured Antenna Power (mW, mW/MHz)	BLE 1M:	0.121	mW
Modulation Technique	BLE 1M: GFSK		
Number of Channels	BLE 1M: 40 channels		
Antenna Specification	PCB MIFA Antenna, Gain: -4.09 dBi Brand: Nutek Corporation, Taiwan Model: TZ02		
Hardware Version	TZ02		
Software Version	NSZ22A		

Remark:

1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

4. TEST METHODOLOGY & CONDITIONS

4.1 TEST CONDITIONS

Temperature: 22.1 ~ 25.2°C

Test date: January 6 ~ 9, 2026

Humidity: 44 ~ 58% RH

Tested by: Jerry Chang

Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
Input DC Power	12	13.2	10.8
Output DC Power	3.3	3.3	3.3
Voltage Variation (%)	0	0	0
Voltage Regulator IC: MD8533			
Note: Voltage Variation (%) = (Output High or Low Voltage - Output Normal Voltage)/Output Normal Voltage X 100			
During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/- 1%. Exempt extremely high and low supply voltage condition tests, EUT only operated in normal voltage to test all regulations.			

BLE 1M

Environment of Test Room	Temperature	22.1~25.2	°C
	Humidity	44~58	%

Peak Antenna Gain	-4.09	dBi
Declaration Output Power	0.121	mW
Declaration Output Power	-9.155	dBm
E.I.R.P.	-13.245	dBm
Input Voltage	12	VDC

Tested Circuit Insertion Loss			dB
Burst	ON TIME	0.000395	sec
	OFF TIME	0.00023	sec
	Ratio	63.20	%
Packet Type (Mode)		BT LE_1M	mode

Test Category ;	2.4GHz Band Wideband Low-Power Data Communication System
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The reason why test are performed only rated voltage
When the input voltage to receiver RF circuit varies below $\pm 1\%$ as the input voltage from the external power supply to the receiver varies $\pm 10\%$ (excluding power supply).

4.2 DESCRIPTION OF TEST MODES

The EUT (model: IMB-20) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

BLE: Measurement was conducted by the following test method.

4.3 TESTING APPLIED STANDARDS

MIC Notice No.88 Appendix No. 1

MIC Notice No.88 Appendix No.43 (Latest Update of test method: Nov. 8, 2023)

MIC Certification Rule, Article 2 Paragraph 1 Item 19

ARIB STD-66

4.4 RF SHIELDING METHOD

The RF part is not easily accessible because the EUT is using a special screw as below.



4.5 SETUP OF EQUIPMENT UNDER TEST

Setup Diagram

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

Conducted_TELEC (All)						
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due	Remark
DC Power Cable	MISUMI	MCR3S-RE	N/A	N/A	N/A	1
NB(B)	Lenovo	T470	N/A	N/A	N/A	2

5. INSTRUMENT AND CALIBRATION

5.1 MEASURING INSTRUMENT CALIBRATION

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

5.2 TEST AND MEASUREMENT EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and other equivalent standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manual.

Equipment Used for Emission Measurement

Conducted_TELEC (All)								
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due	Calibration Lab	Accreditation Organization of the-Cal. Lab	Calibration Method
PXA Signal Analyzer	Keysight	N9030B	MY62291089	2025-09-24	2026-09-23	ETC	TAF	c
DC Blocks	Marvelous Microwave	MVE6411	MVE-001	2025-08-06	2026-08-05	ETC	TAF	c
DC Power Source	GWINSTEK	GPC-3030D	8070184	2025-09-15	2026-09-14	ETC	TAF	c
Software	N/A							

Remark:

- Each piece of equipment is scheduled for calibration once a year.
- Calibration Method:
 - Calibration conducted by the National Institute of Information and Communications Technology (NICT) (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1)
 - Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)
 - Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1)
 - Calibration conducted by using measuring instruments and other equipment listed in the right column of Table No. 3 attached hereto, which shall have been given any of calibration, etc. listed above from a) to c)

5.3 MEASUREMENT UNCERTAINTY

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR 100 028-1 [2] and shall correspond to an expansion factor (coverage factor) $k = 1,96$ or $k = 2$ (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table 6 is based on such expansion factors.

Table: Maximum measurement uncertainty

PARAMETER	UNCERTAINTY
RF Output Power	± 1.871 dB
Frequency Tolerance	± 1.890 dB
Unwanted Emission strength	± 1.871 dB
Occupied Bandwidth (99%)	± 1.971 dB
Spread-Spectrum Bandwidth (90%)	± 1.971 dB
Limitation of collateral emissions of receiver	± 1.870 dB

Remark:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

6. TEST RESULT FOR BLE (CH0~CH39)(FOR GFSK)

Temperature: 22.1 ~ 25.2°C

Test date: January 6 ~ 9, 2026

Humidity: 44 ~ 58% RH

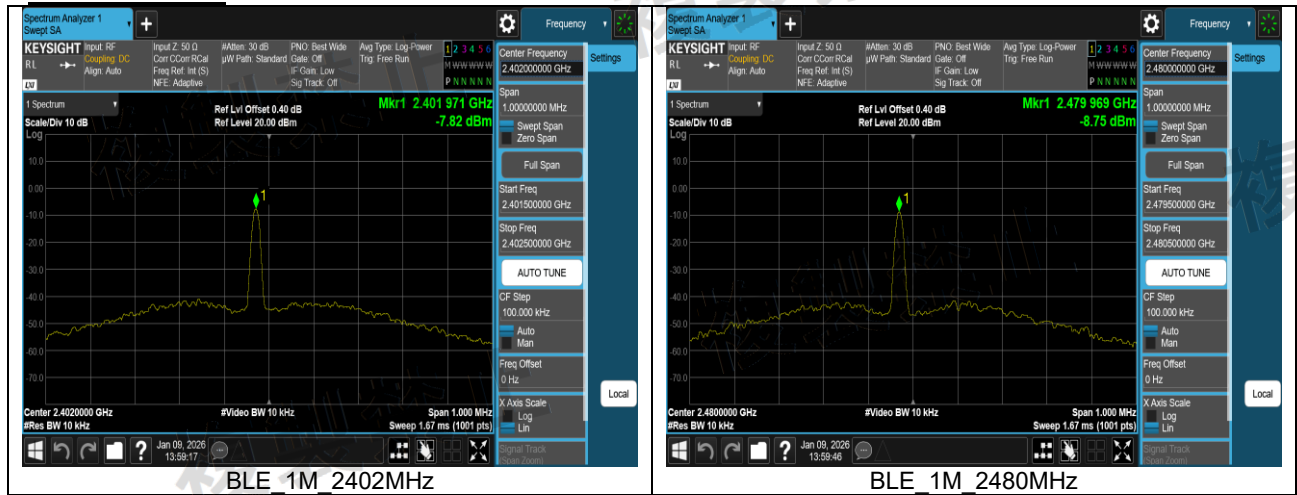
Tested by: Jerry Chang

TEST RESULT

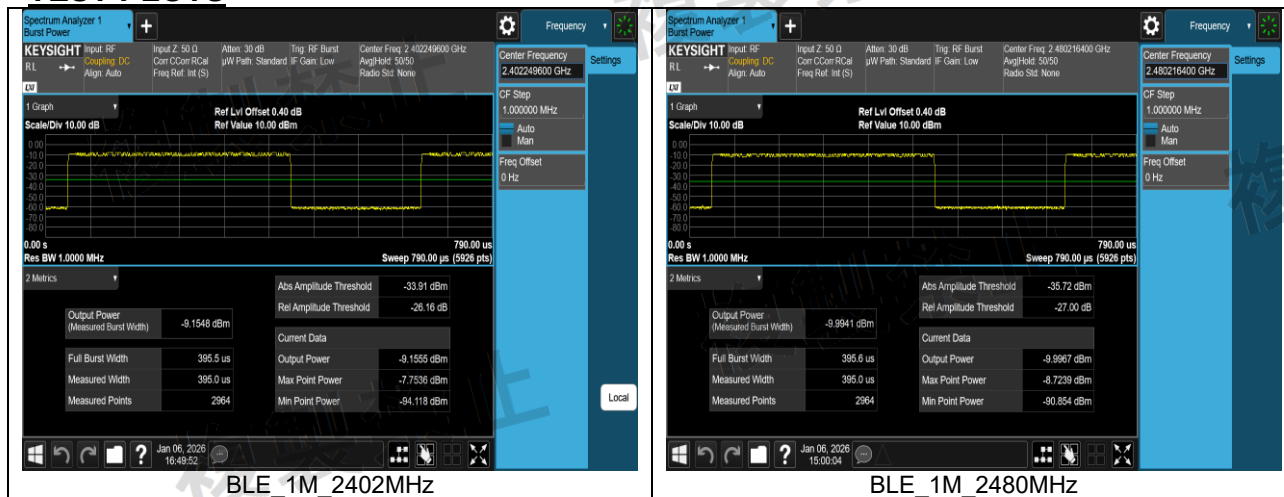
BLE 1M

Measurement Frequency	MHz	2402	2480	Limit	Result	NOTES
Channel Number	Ch.	0	39	----	----	
Reading Frequency	MHz	2401.971	2479.969	----	----	
Frequency Tolerance	ppm	-12.07327	-12.50000	$-50 \leq x \leq +50$	PASS	
Occupied Bandwidth	MHz	1.0480	1.0528	≤ 26 MHz	PASS	
RF Output Power	mW	0.121	0.100	≤ 10 mW	PASS	
	dBm	-9.155	-9.994	----		
RF Output Power Tolerance	%	-0.40	-17.68	≤ 20	PASS	
Unwanted Emission Strength (TX1)	Under 2387MHz	$\mu\text{W}/\text{MHz}$	0.013772	0.013490	$\leq 2.5\mu\text{W}/\text{MHz}$	PASS
		dBm/MHz	-48.61	-48.70	----	
		MHz	2150.60	2374.40	----	
	2387-2400MHz	$\mu\text{W}/\text{MHz}$	0.168655	0.013002	$\leq 25\mu\text{W}/\text{MHz}$	PASS
		dBm/MHz	-37.73	-48.86	----	
		MHz	2399.99	2392.24	----	
	2483.5-2496.5MHz	$\mu\text{W}/\text{MHz}$	0.010889	0.050466	$\leq 25\mu\text{W}/\text{MHz}$	PASS
		dBm/MHz	-49.63	-42.97	----	
		MHz	2494.31	2483.63	----	
	2496.5 - 12.5GHz	$\mu\text{W}/\text{MHz}$	0.035237	0.037844	$\leq 2.5\mu\text{W}/\text{MHz}$	PASS
		dBm/MHz	-44.53	-44.22	----	
		MHz	4048.50	3791.50	----	
Secondarily Emitted Radio Wave Strength (RX Spurious) (RX1)	Under 1GHz	nW	0.0085	0.0092	≤ 4 nW	PASS
		dBm/100kHz	-80.70	-80.34	----	
		MHz	894.30	865.30	----	
	1 - 12.5GHz	nW	0.3673	0.3581	≤ 20 nW	PASS
		dBm/MHz	-64.35	-64.46	----	
		MHz	3849.00	3611.00	----	
Interference Prevention Function	----	Good			PASS	

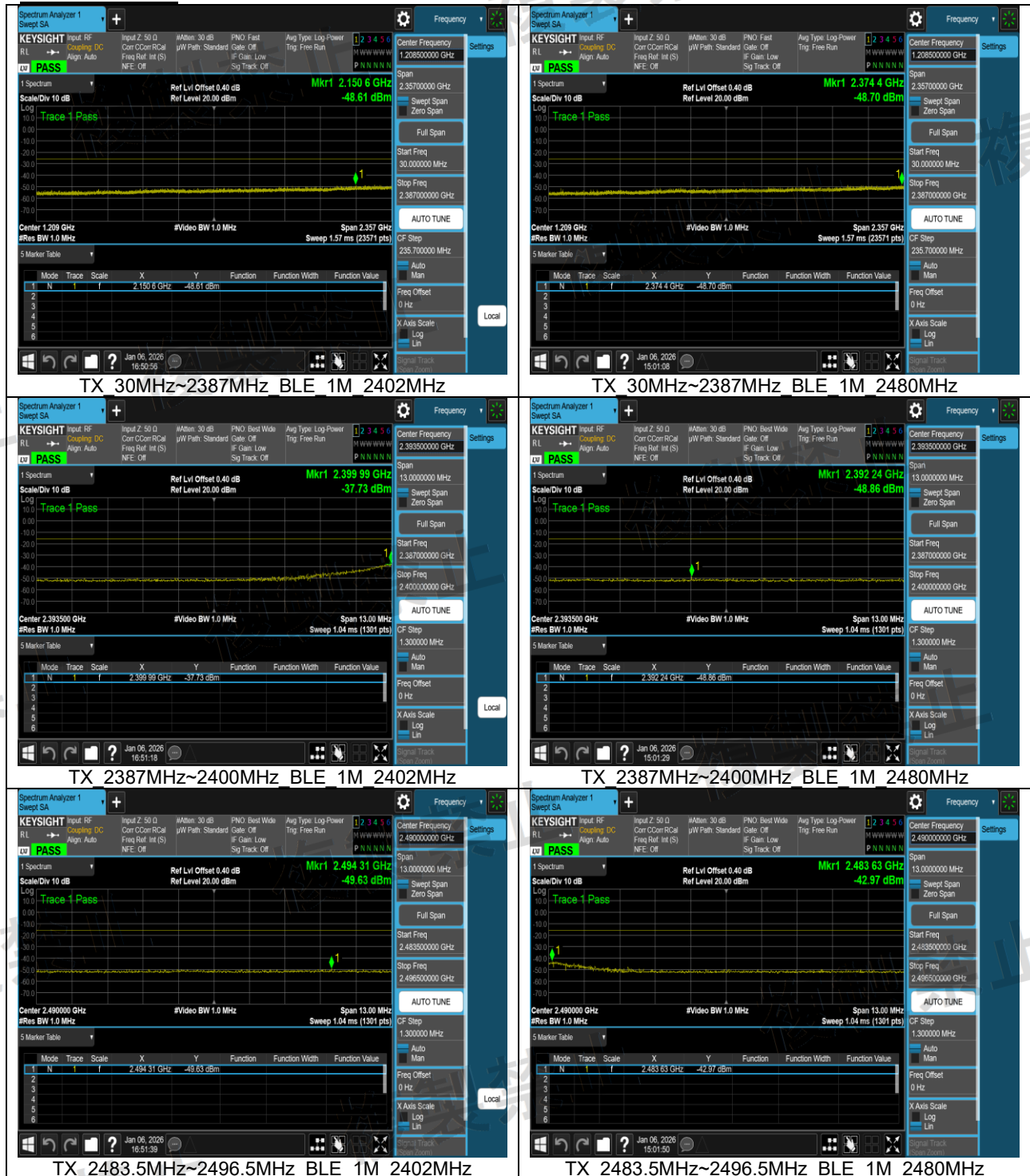
6.1 FREQUENCY ERROR TEST PLOTS

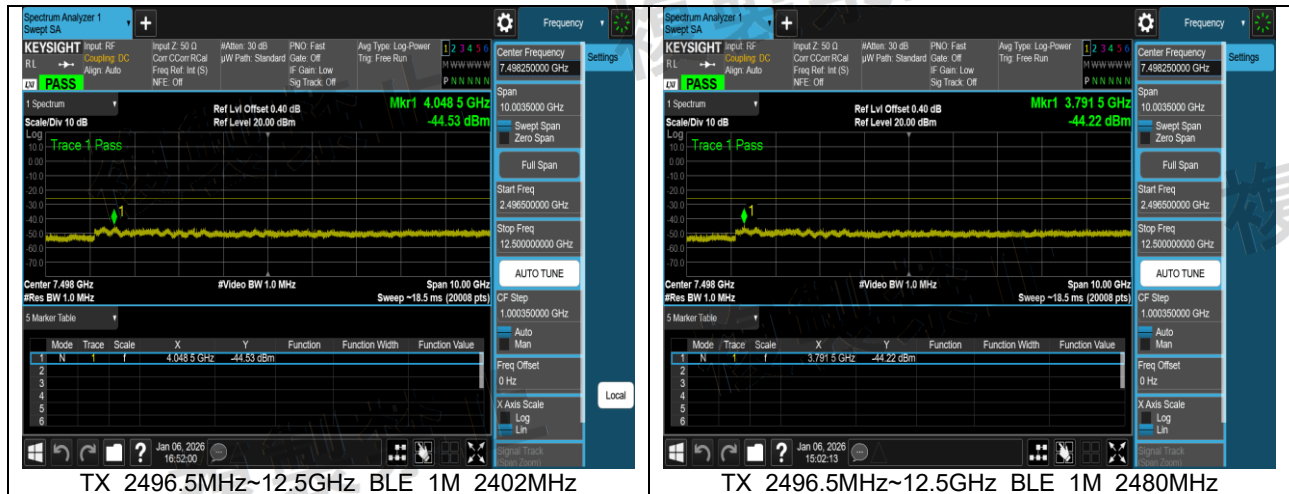


6.2 ANTENNA POWER TEST PLOTS



6.3 UNWANTED EMISSION STRENGTH TEST PLOTS

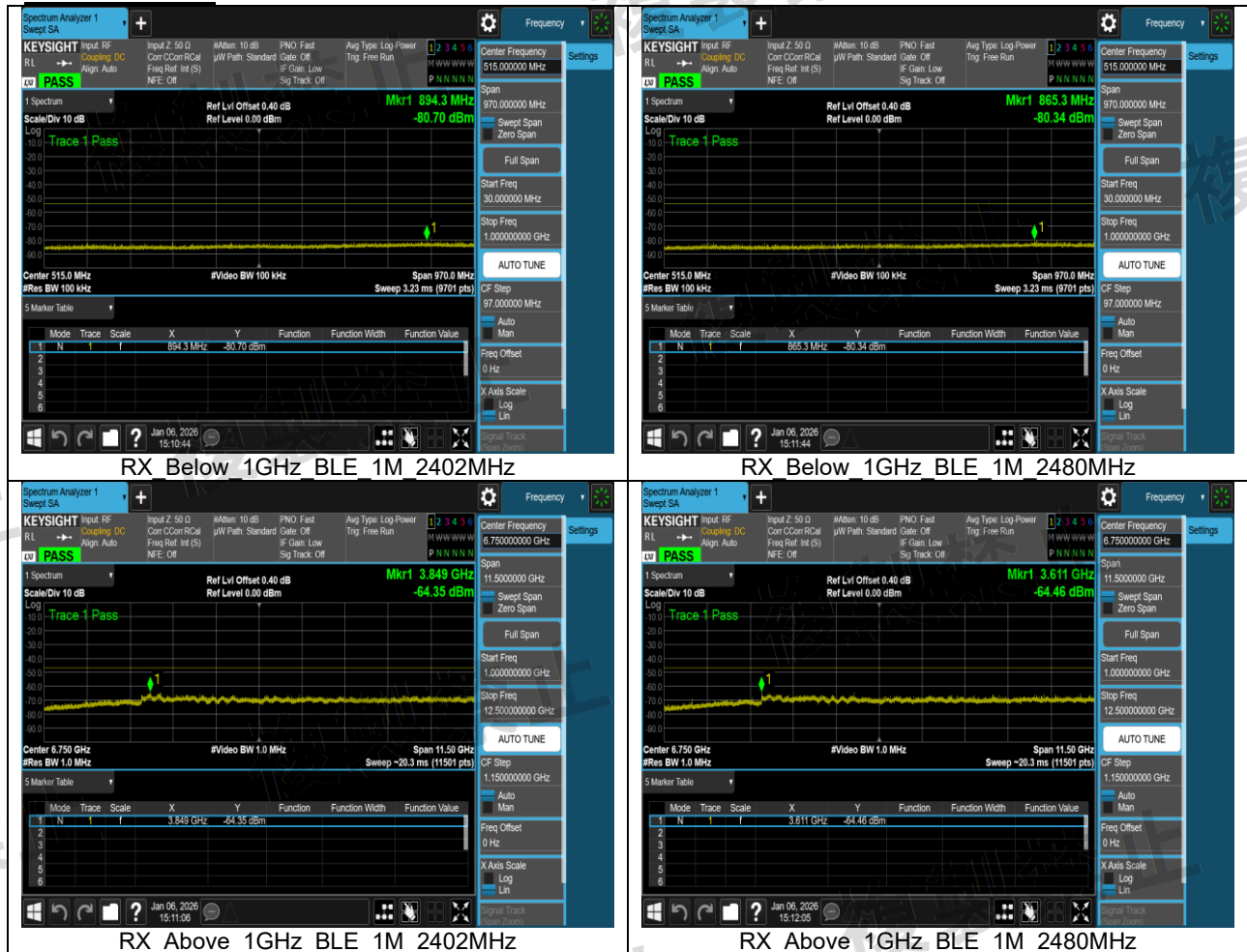




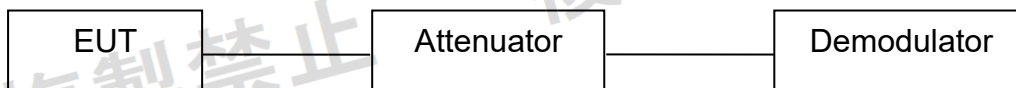
6.4 OCCUPIED BANDWIDTH –NORMAL (99%) TEST PLOTS



6.5 LIMITATION OF COLLATERAL EMISSIONS OF RECEIVER TEST PLOTS



7. Interference Prevention Function



Interference Prevention Function	By identifying the characteristics of the modulation scheme of the received radio waves and others, shall be able to identify the reflected waves of the radio waves which local station transmitted and the radio waves transmitted by other radio stations.
MAC address	02:7D:A7:02
Result	Pass

- End of Test Report -