

TEST REPORT

Report No.: 8331EU011701W3

Applicant: Shenzhen Osidi Technology Co., Ltd.

Address: Room 703, 7th Floor, No. 111-3, Huangjinshan, Bantian Community, Bantian Street, Longgang District, Shenzhen, China

Product Name: Projector

Model No.: C6 (refer to clause 2.4)

Trademark: CHEERLUX

Test Standard(s): MIC Notice No.88 Appendix No.45
Ordinance of MPT No.37, 1981:
Article 2 paragraph 1 item (19)-3

Test Result: Pass

Date of Receipt: Jun. 17, 2025

Test Date: Jun. 17, 2025 – Jul. 02, 2025

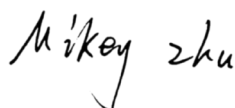
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2 General Information

2.1 Applicant Information

Applicant	Shenzhen Osidi Technology Co., Ltd.
Address	Room 703, 7th Floor, No. 111-3, Huangjinshan, Bantian Community, Bantian Street, Longgang District, Shenzhen, China

2.2 Manufacturer Information

Manufacturer	Cheerlux (Shenzhen) Electronic Technology Co., Ltd.
Address	Room 201 2 nd Floor Building 2 LongBi industrial Area No.27 DaFa Rd. DaFaPu Community Bantian Street Longgang District Shenzhen. Guangdong Province, China

2.3 Factory Information

Factory	Cheerlux (Shenzhen) Electronic Technology Co., Ltd.
Address	Room 201 2 nd Floor Building 2 LongBi industrial Area No.27 DaFa Rd. DaFaPu Community Bantian Street Longgang District Shenzhen. Guangdong Province, China

2.4 General Description of E.U.T.

Product Name	Projector
Model No. Under Test	C6
List Model No.	C12, E2, C16G, C26, L1
Description of Model differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in appearance color and model name. (this information provided by the customer)
Rating(s)	Input: 22.0V---2.18A (Adapter Input: 100-240V~, 50-60Hz, 1.5A; Output: 22.0V---2.18A)
Adapter	Model No.: SAN-2202180JA Input: 100-240V~, 50-60Hz, 1.5A Output: 22.0V---2.18A Manufacturer: Shenzhen ShiAn Power Technology Co.,Ltd
Product Type	☒ Mobile ☐ Portable ☐ Fix Location
Test Sample No.	-1/2(Normal Sample), -2/2(Engineering Sample)
Hardware Version	V1.1 20250402
Software Version	20250507154305
Remark	For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.5 Technical Information of E.U.T.

Network and Wireless Connectivity	Bluetooth (BDR+EDR) WiFi 2.4G: 802.11b, 802.11g, 802.11n(HT20/40) WiFi 5G: 802.11a, 802.11n(HT20/40)
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The requirement for the following technical information of the EUT was tested in this report:

Technology	WiFi 5G
Operation Mode	☒ a ☒ n(HT20) ☒ n(HT40) ☐ ac(VHT20)
	☐ ac(VHT40) ☐ ac(VHT80) ☐ ac(VHT160) ☐ ax(HEW20)
	☐ ax(HEW40) ☐ ax(HEW80) ☐ ax(HEW160)
Operating Frequency	5150 MHz to 5250 MHz
Modulation Technology	OFDM
Modulation Type	802.11a/ n: 64QAM, 16QAM, BPSK, QPSK
Transfer Rate (Mbps) (Single RF path)	☒ 802.11a: 54/ 48/ 36/ 24/ 18/ 12/ 9/ 6 Mbps ☒ 802.11n: up to 150 Mbps ☐ 802.11ac: up to VHT-MCS9 ☐ 802.11ax: up to 1201 Mbps
Antenna Type	FPC Antenna
Antenna Gain(Peak)	3.17 dBi
Antenna Impedance	50Ω
Rated output Power	802.11a: 3.200 mW/MHz 802.11n(HT20): 1.800 mW/MHz 802.11n(HT40): 0.530 mW/MHz
Remark	The above information are declared by the applicant, EU-LAB is not responsible for the information accuracy provided by the applicant.

All channels were listed on the following table:

20 MHz		40 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	/	/
48	5240	/	/

Note: The Lowest frequency, the middle frequency and the highest frequency of channel were selected to perform the test, and the selected channel see below:

✧ **For 802.11a/n(HT20)**

Band I (5150 - 5250 MHz)		
Channel Number	Channel	Frequency (MHz)
36	Low	5180
44	Mid	5200
48	High	5240

✧ **For 802.11n(HT40)**

Band I (5150 - 5250 MHz)		
Channel Number	Channel	Frequency (MHz)
38	Low	5190
46	High	5230

Note: Preliminary tests were performed in different data rate in above table to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

3 Test Summary

3.1 Test Standard

The tests were performed according to following standards:

No.	Identity	Document Title
1	MIC Notice No.88 Appendix No.45 Ordinance of MPT No.37, 1981: Article 2 paragraph 1 item (19)-3	Low power data communications system in the 5GHz band

Remark:

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission should be checked to ensure compliance has been maintained.

3.2 Test Verdict

Part	Test Items	Mode	Data Rate	Modulation Technology	Band I	Verdict
					Channel	
1	Frequency Tolerance	11a	6	OFDM	48/44/36	Pass
		11n(20 MHz)	6.5	OFDM	48/44/36	Pass
		11n(40 MHz)	13.5	OFDM	46/38	Pass
2	Occupied Bandwidth	11a	6	OFDM	48/44/36	Pass
		11n(20 MHz)	6.5	OFDM	48/44/36	Pass
		11n(40 MHz)	13.5	OFDM	46/38	Pass
3	Antenna Power	11a	6	OFDM	48/44/36	Pass
		11n(20 MHz)	6.5	OFDM	48/44/36	Pass
		11n(40 MHz)	13.5	OFDM	46/38	Pass
4	Adjacent Channel Emitted power	11a	6	OFDM	48/44/36	Pass
		11n(20 MHz)	6.5	OFDM	48/44/36	Pass
		11n(40 MHz)	13.5	OFDM	46/38	Pass
5	Transmission burst length	11a	6	OFDM	48/44/36	Pass
		11n(20 MHz)	6.5	OFDM	48/44/36	Pass
		11n(40 MHz)	13.5	OFDM	46/38	Pass
6	Unwanted Emission Strength	11a	6	OFDM	48/44/36	Pass
		11n(20 MHz)	6.5	OFDM	48/44/36	Pass
		11n(40 MHz)	13.5	OFDM	46/38	Pass
7	Interference prevention function	11a	6	OFDM	48/44/36	Pass
		11n(20 MHz)	6.5	OFDM	48/44/36	Pass
		11n(40 MHz)	13.5	OFDM	46/38	Pass
8	Secondary Radiated Emissions Test	11a	6	OFDM	48/44/36	Pass
		11n(20 MHz)	6.5	OFDM	48/44/36	Pass
		11n(40 MHz)	13.5	OFDM	46/38	Pass
9	Carrier sensing function	11a	6	OFDM	48/44/36	Pass
		11n(20 MHz)	6.5	OFDM	48/44/36	Pass
		11n(40 MHz)	13.5	OFDM	46/38	Pass
10	Dynamic frequency selection (DFS)	--	--	--	--	N/A ^{Note 2}

Note 1: The tests were performed according to the method of measurements prescribed in MIC Ordinance Regulating Radio Equipment Section 4.17 of Article 49.20.

Note 2: The EUT is a slave device and DFS is controlled by the matching master device, So the DFS test is not applicable.

3.3 Test Laboratory

Test Laboratory	Shenzhen EU Testing Laboratory Limited
Address	101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China

4 Test Configuration

4.1 Test Environment

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

Relative Humidity	55 %	
Atmospheric Pressure	101 kPa	
Temperature	NT (Normal Temperature)	+26°C
Working Voltage of the EUT	NV (Normal Voltage)	100 V
	LV (Low Voltage)	90 V
	HV (High Voltage)	110 V

Power Supply Voltage Fluctuation Test

Voltage Fluctuation Test	Normal Voltage	High Voltage +10% of Normal Voltage	Low Voltage -10% of Normal Voltage
Input To EUT	AC 100V	AC 110V	AC 90V
Output To RF Module	DC 3.3V	DC 3.3V	DC 3.3V
Voltage Variation (%)	--	0.00%	0.00%

Note:

Voltage Variation (%)=(Output high or Low Voltage - Output Normal Voltage)/ Output Normal Voltage* 100%

For extreme voltage test, we have tested the relationship between the external power supply and RF IC power supply. Base on the test results, only the normal voltage was selected to perform all items.

4.2 Test Equipment

Radiated Emission and RF Test					
Equipment	Manufacturer	Model No	Serial No	Cal Date	Cal Due Date
EMI Test Receiver	ROHDE & SCHWARZ	ESPI	EE-006	2025/01/08	2026/01/07
Bilog Broadband Antenna	SCHWARZBECK	VULB 9163	EE-007	2023/01/14	2026/01/13
Double Ridged Horn Antenna	A-INFOMW	LB-10180-NF	EE-008	2023/01/12	2026/01/11
Pre-amplifier	Agilent	8447D	EE-009	2025/01/08	2026/01/07
Pre-amplifier	Agilent	8449B	EE-010	2025/01/08	2026/01/07
MXA Signal Analyzer	Agilent	N9020A	EE-011	2025/01/08	2026/01/07
MXG RF Vector Signal Generator	Agilent	N5182A	EE-012	2025/01/08	2026/01/07
Test Software	Farad	EZ-EMC	EE-015	N.C.R	N.C.R
MIMO Power Measurement Module	TSTPASS	TSPS 2023R	EE-016	2025/01/08	2026/01/07
RF Test Software	TSTPASS	TS32893 V2.0	EE-017	N.C.R	N.C.R
Wideband Radio Communication Tester	ROHDE & SCHWARZ	CMW500	EE-402	2025/02/14	2026/02/13
Loop Antenna	TESEQ	HLA6121	EE-403	2025/02/14	2026/02/13
MXG RF Analog Signal Generator	Agilent	N5181A	EE-406	2025/02/14	2026/02/13
Constant Temperature Humidity Chamber	Guangxin	GXP-401	ES-002	2025/02/14	2026/02/13
Power Sensor	ROHDE&SCHWA RZN	NRP18S	ES-052	2025/02/14	2026/02/13
DC Power Source	QJE	QJ3020E	ES-037	2024/07/30	2025/07/29
Note ¹ : Calibration Company: Shenzhen Academy Of Metrology& Quality inspection.					
Note ² : Calibration method: Calibration conducted in foreign countries, which is equivalent to calibration conducted by the NICT or a designated calibration agency under Article 102-18-1 and Article 24-2, Paragraph 4 of the Radio Act.					

4.3 Description of Support Unit

No.	Title	Manufacturer	Model No.	Serial No.
1	Lenovo Notebook	Lenovo	Xiaoxin Air 14ALC 2021	EMC-PJ-052

4.4 Measurement Uncertainty

Parameters	Uncertainty
Frequency Error / 99% Bandwidth	$(3.2 \times f \times 10^{-6})$ Hz
Antenna Power	1.82 dB
TX-RX Spurious Emissions	1.84 dB
Transmission Antenna Gain	5.36 dB
Temperature	0.82 °C
Humidity	4.1%
DC / AC Power Source	0.04%
Duty Cycle	0.05%
Dwell Time	1.8 %

Noet: "f" is the nominal signal frequency in Hz.

Note: This uncertainty represents as expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5 Test Items

5.1 Frequency Tolerance Test

5.1.1 Test Requirement

Item	Limits
Frequency Tolerance	$\leq \pm 20$ ppm

5.1.2 Test Setup Diagram



5.1.3 Test Procedure

Test Frequency= test channel
 RBW=VBW=100KHz
 Span=40/80MHz
 Sweep time=Auto
 Detector mode=Positive peak
 Indication mode=Max hold
 EUT have transmitted modulation signal and fixed channelize. f is using the mark cursor to mark the peak frequency value, f_c is declaring of channel frequency. Then the frequency error formula is $(f-f_c)/f_c \times 10^6$ ppm and the limit is less than ± 50 ppm.

5.1.4 Test Deviation

There is no deviation with the original standard.

5.1.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, modulated waveform mode (computing).

5.1.6 Test Data

PASS.

Please refer to Annex F for details.

5.2 Occupied Bandwidth and Spread-spectrum Bandwidth / Factor

5.2.1 Test Requirement

Test Mode	Limits						
	DSSS		OFDM				
	20 MHz	40 MHz	20 MHz	40 MHz	80 MHz	80MHz+80MHz (Not adjacent band)	160MHz
5.2 GHz Band	18.0 MHz	--	20.0 MHz	40.0 MHz	80.0 MHz	80.0 MHz	160.0 MHz
5.3 GHz Band	18.0 MHz	--	20.0 MHz	40.0 MHz	80.0 MHz	80.0 MHz	160.0 MHz
5.6 GHz Band	18.0 MHz	--	20.0 MHz	40.0 MHz	80.0 MHz	80.0 MHz	160.0 MHz

5.2.2 Test Setup Diagram



5.2.3 Test Procedure

Set the spectrum analyzer as follows:

Center frequency: Test frequency (e.g. 5180 MHz);

Frequency sweep width: 2 to 3.5 times wider than the tolerance (e.g. 40 MHz);

Resolution bandwidth: 3% or less of the tolerance (e.g. 300 kHz);

Video bandwidth: Approximately same as the resolution bandwidth;

Y-axis scale: 10 dB / div;

Input level: Carrier level shall be enough higher than noise level of the spectrum analyzer;

Sweep time: Minimum time to ensure the measuring accuracy (In case of burst wave, one burst shall be included in one sample at least.);

Number of data points: 400 points or more (e.g. 1001 points);

Sweep mode: Continuous sweep;

Number of times for averaging: 10 times or more;

Detection mode: Sample (Positive peak for burst wave).

Values measured with a spectrum analyzer shall be processed using an external or a built-in computer.

5.2.4 Test Deviation

There is no deviation with the original standard.

5.2.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.2.6 Test Data

PASS.

Please refer to Annex F for details.

5.3 Antenna Power Test

5.3.1 Test Requirement

Test Mode	Limits (Antenna Power)						Antenna Power Tolerance
	DSSS	OFDM					
	20 MHz	20 MHz	40 MHz	80 MHz	80MHz+80MHz (Not adjacent band)	160MHz	
5.2 GHz Band	10 mW/MHz	10 mW/MHz	5 mW/MHz	2.5 mW/MHz	1.25 mW/MHz	1.25 mW/MHz	+20%~-80%
5.3 GHz Band	10 mW/MHz	10 mW/MHz	5 mW/MHz	2.5 mW/MHz	1.25 mW/MHz	1.25 mW/MHz	
5.6 GHz Band	10 mW/MHz	10 mW/MHz	5 mW/MHz	2.5 mW/MHz	1.25 mW/MHz	1.25 mW/MHz	+50%~-50%

Test Mode	Limits (E.I.R.P)					
	DSSS	OFDM				
	20 MHz	20 MHz	40 MHz	80 MHz	80MHz+80MHz (Not adjacent band)	160MHz
5.2 GHz Band	10 mW/MHz	10 mW/MHz	5 mW/MHz	2.5 mW/MHz	1.25 mW/MHz	1.25 mW/MHz
5.3 GHz Band	10 mW/MHz: with TPC 5 mW/MHz: without TPC	10 mW/MHz: with TPC 5 mW/MHz: without TPC	5 mW/MHz: with TPC 2.5 mW/MHz: without TPC	2.5 mW/MHz: with TPC 1.25 mW/MHz: without TPC	1.25 mW/MHz: with TPC 0.625 mW/MHz: without TPC	1.25 mW/MHz: with TPC 0.625 mW/MHz: without TPC
5.6 GHz Band	50 mW/MHz: with TPC 25 mW/MHz: without TPC	50 mW/MHz: with TPC 25 mW/MHz: without TPC	25 mW/MHz: with TPC 12.5 mW/MHz: without TPC	12.5 mW/MHz: with TPC 6.25 mW/MHz: without TPC	1.25 mW/MHz: with TPC 0.625 mW/MHz: without TPC	6.25 mW/MHz: with TPC 3.125 mW/MHz: without TPC

5.3.2 Test Setup Diagram



5.3.3 Test Procedure

[Setting 1] – Search for peak power frequency	
Center Frequency:	Test frequency
Span:	Approximately twice the occupied bandwidth
RBW:	1MHz
VBW:	Approximately three times the RBW
Sweep time:	Auto
Sweep data points:	1001 or greater
Detector mode:	Positive peak
Indication mode:	Max hold

[Setting 2] – Measurement of average antenna power for FHSS, DSSS, OFDM	
Frequency:	Frequency of peak power found using [Setting 1]
Span:	0 Hz
RBW:	3 MHz (FHSS in 7.4.1.1) 1MHz (DSSS, OFDM, FHSS in 7.4.1.2)
Detector mode:	Sample
Sweep:	Minimum time required to make an accurate measurement.
	For burst type (intermittent) transmission sweep time shall be greater than one burst interval
Sweep data points:	1001 or greater

- (1) After configuring the spectrum analyzer to [Setting 1], find the frequency of maximum transmitted power
- (2) After configuring the spectrum analyzer to [Setting 2], measure the Average Burst Power of the frequency found in (1)

Antenna Power (W/MHz) = Average Burst Power

- (3) If the EUT has an 80+80MHz bandwidth system then antenna power shall be measured separately, on each channel, but with both 80MHz transmitters simultaneously enabled.

Note: Measure the period A-B in the figure below:

A B

Measurement of Average Burst Power (A to B)

5.3.4 Test Deviation

There is no deviation with the original standard.

5.3.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.3.6 Test Data

PASS.

Please refer to Annex F for details.

5.4 Adjacent channel Emitted power Test

5.4.1 Test Requirement

Adjacent channel leakage power limit

Test Mode	Limits						
	DSSS		OFDM				
	20 MHz	40 MHz	20 MHz	40 MHz	80 MHz	80MHz+80MHz (Not adjacent band)	160MHz
5GHz Band	Fc ± 20 MHz ±10 MHz BW:-25 dBc	--	Fc ± 20 MHz ± 10 MHz BW:-25dBc	Fc ± 40 MHz ± 20 MHz BW:-25dBc	Fc ± 80 MHz ±40 MHz BW:-25 dBc	Fc ± 80 MHz ±40 MHz BW:-25 dBc	--
	Fc±40 MHz ±10 MHz BW:-40 dBc	--	Fc ± 40 MHz ±10 MHz BW:-40 dBc	Fc ± 80 MHz ±20 MHz BW:-40 dBc			

5.4.2 Test Setup Diagram



5.4.3 Test Procedure

1. Set the spectrum analyzer as follows to measure adjacent channel leakage power:

Center frequency: Frequency shown in " Measuring procedures"

Frequency sweep width: Width shown in "Note 1";

Resolution bandwidth: 300 kHz

Video bandwidth: 300 kHz

T-axis scale: 10 dB / div.

Input level: A level to obtain the maximum dynamic range;

Number of data points: 400 points or more;

Sweep mode: Single sweep;

Detection mode: Sample. However, positive peak for burst wave;

Number of times for averaging amplitude levels: Until spectrum fluctuation is not observed

Note 1: Frequency sweep width shall be as follows:

Band	Modulation other than OFDM	bandwidth≤20 MHz	20<bandwidth≤40 MHz	40<bandwidth≤80 MHz
5.2 GHz Band	20 MHz	20 MHz	40 MHz	80 MHz
5.3 GHz Band	20 MHz	20 MHz	40 MHz	80 MHz
5.6 GHz Band	20 MHz	20 MHz	40 MHz	80 MHz

Measurement procedures

- I) Measurement of adjacent channel leakage power:

1. Set the spectrum analyzer according to spectrum analyzer settings.

2. Measurement of carrier power (Pc)

- (a). Sweep by setting the center frequency to the carrier frequency.

- (b). Store the values at all data points into the computer array variables.

- (c). Convert dB values at all data points into antilogarithm on the power dimension.

- (d). Calculate sum total of the power at all data points and store it as "Pc".

3. Measurement of upper adjacent channel leakage power (PU)
 - (a). Sweep by setting the center frequency to "carrier frequency + 20 MHz or 40 MHz (Note 3)".
 - (b). Store the values at all data points into the computer array variables.
 - (c). Convert dB values at all data points into antilogarithm on the power dimension.
 - (d). Calculate sum total of the power at all data points and store it as "Pu".
 - (e). Sweep by setting the center frequency to "carrier frequency + 40 MHz or 80 MHz (Note 3)" and then repeat the procedures of (b) to (d).
4. Measurement of lower adjacent channel leakage power (PL)
 - (a). Sweep by setting the center sequence to "carrier frequency - 20 MHz or 40 MHz (Note 3)".
 - (b). Store the values at all data points into the computer array variables.
 - (c). Convert dB values at all data points into antilogarithm on the power dimension.
 - (d). Calculate sum total of the power at all data points and store it as "PL".
 - (e). Sweep by setting the center frequency to "carrier frequency - 40 MHz or 80 MHz (Note 3)" and then repeat the procedures of (b) to (d).
5. When EUT has plural antenna terminals, above measurement shall be conducted in the state that the terminals are connected through a combiner besides the measurement at each antenna terminal.

5.4.4 Test Deviation

There is no deviation with the original standard.

5.4.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.4.6 Test Data

PASS.

Please refer to Annex F for details.

5.5 Transmission burst length Test

5.5.1 Test Requirement

Item	Limits
All of mode	8 ms or less

5.5.2 Test Setup Diagram



5.5.3 Test Procedure

Set the spectrum analyzer as follows:

Center frequency: Test frequency;

Frequency sweep width: 0 Hz;

Resolution bandwidth: 8 MHz;

Video bandwidth: Approximately same as the resolution bandwidth;

Sweep time: Minimum time to ensure the measuring accuracy;

Y-axis scale: 10 dB / div;

Detection mode: Positive peak;

Trigger condition: Leading edge of level.

Measuring procedures

(1) Set the spectrum analyzer according to "2" above. Then set the trigger condition to a leading edge trigger and the EUT to transmission state.

(2) When EUT has plural antenna terminals, combine the output of the antenna terminals referring to "6. Supplementary explanation" and measure the time from start of radio wave transmission by an antenna to termination of radio wave transmission by all antennas.

5.5.4 Test Deviation

There is no deviation with the original standard.

5.5.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.5.6 Test Data

PASS.

Please refer to Annex F for details.

5.6 Unwanted Emission Strength

5.6.1 Test Requirement

Unwanted Emission Strength Limit

W52			
20MHz system		40MHz system	80MHz system
OBW : 18MHz or less	OBW : 18 - 20 MHz		
5,142 MHz or less : 2.5 μ W/MHz	5,142 MHz or less : 2.5 μ W/MHz	5,141.6 MHz or less : 2.5 μ W/MHz	5,123.2 MHz or less : 2.5 μ W/MHz
5,142 - 5,150 MHz : 15 μ W/MHz	5,142 - 5,150 MHz : 15 μ W/MHz	5,141.6 - 5,150 MHz : 15 μ W/MHz	5,123.2 - 5,150 MHz : 15 μ W/MHz
	5,250 - 5,250.2 MHz : $10^{1-(9/3)(f-5250)}$ mW/MHz		
5,250 - 5,251 MHz : $10^{1-(f-5250)}$ mW/MHz	5,250.2 - 5,251 MHz : $10^{1-(f-5250)}$ mW/MHz	5,250 - 5,251 MHz : $10^{-(f-5250)+\log(1/2)}$ mW/MHz	5,250 - 5,251 MHz : $10^{-(f-5250)+\log(1/4)}$ mW/MHz
5,251 - 5,260 MHz : $10^{1-(8/90)(f-5251)}$ mW/MHz	5,251 - 5,260 MHz : $10^{1-(8/90)(f-5251)}$ mW/MHz	5,251 - 5,270 MHz : $10^{-(8/190)(f-5251)-1+\log(1/2)}$ mW/MHz	5,251 - 5,290 MHz : $10^{-(8/390)(f-5251)-1+\log(1/4)}$ mW/MHz
5,260 - 5,266.7 MHz : $10^{1-(6/50)(f-5260)}$ mW/MHz	5,260 - 5,266.7 MHz : $10^{1-(6/50)(f-5260)}$ mW/MHz	5,270 - 5,278.4 MHz : $10^{-(3/50)(f-5270)-1.8+\log(1/2)}$ mW/MHz	5,290 - 5,296.7 MHz : $10^{-(3/100)(f-5290)-1.8+\log(1/4)}$ mW/MHz
5,266.7 MHz or more : 2.5 μ W/MHz	5,266.7 MHz or more : 2.5 μ W/MHz	5,278.4 MHz or more : 2.5 μ W/MHz	5,296.7 MHz or more : 2.5 μ W/MHz
f = MHz, Difference from 5240 (MHz)	f = MHz, Difference from 5240 (MHz)	f = MHz, Difference from 5230 (MHz)	f = MHz, Difference from 5210 (MHz)

W53			
20MHz system		40MHz system	80MHz system
OBW : 18MHz or less	OBW : 18 - 20 MHz		
5,233.3 MHz or less : 2.5 μ W/MHz	5,233.3 MHz or less : 2.5 μ W/MHz	5,221.6 MHz or less : 2.5 μ W/MHz	5,203.3 MHz or less : 2.5 μ W/MHz
5,233.3 - 5,240 MHz : $10^{1-(8/50)(f-5233)}$ mW/MHz	5,233.3 - 5,240 MHz : $10^{1-(8/50)(f-5233)}$ mW/MHz	5,221.6 - 5,230 MHz : $10^{-(3/50)(f-5221)-1.8+\log(1/2)}$ mW/MHz	5,203.3 - 5,210 MHz : $10^{-(3/100)(f-5203)-1.8+\log(1/4)}$ mW/MHz
5,240 - 5,249 MHz : $10^{1-(8/90)(f-5240)}$ mW/MHz	5,240 - 5,249 MHz : $10^{1-(8/90)(f-5240)}$ mW/MHz	5,230 - 5,249 MHz : $10^{-(8/190)(f-5230)-1+\log(1/2)}$ mW/MHz	5,210 - 5,249 MHz : $10^{-(8/390)(f-5210)-1+\log(1/4)}$ mW/MHz
5,249 - 5,250 MHz : $10^{1-(f-5249)}$ mW/MHz	5,249 - 5,249.8 MHz : $10^{1-(f-5249)}$ mW/MHz	5,249 - 5,250 MHz : $10^{-(f-5249)+\log(1/2)}$ mW/MHz	5,249 - 5,250 MHz : $10^{-(f-5249)+\log(1/4)}$ mW/MHz
5,350 MHz or more : 2.5 μ W/MHz	5,249.8 - 5,250 MHz : $10^{1-(8/3)(f-5249)}$ mW/MHz	5,350 - 5,358.4 MHz : 15 μ W/MHz	5,350 - 5,376.8 MHz : 15 μ W/MHz
f = MHz, Difference from 5260 (MHz)	f = MHz, Difference from 5260 (MHz)	5,358.4 MHz or more : 2.5 μ W/MHz	5,376.8 MHz or more : 2.5 μ W/MHz
		f = MHz, Difference from 5270 (MHz)	f = MHz, Difference from 5290 (MHz)

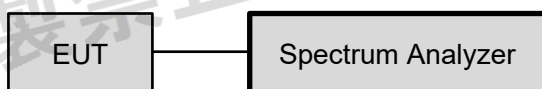
W56			
20MHz system		40MHz system	80MHz system
DSSS, etc.	OFDM		
5,470 MHz or less : 12.5 μ W/MHz	5,460 MHz or less : 2.5 μ W/MHz	5,460 MHz or less : 12.5 μ W/MHz	5,460 MHz or less : 12.5 μ W/MHz
	5,460 - 5,470 MHz : 12.5 μ W/MHz	5,460 - 5,470 MHz : 50 μ W/MHz	5,460 - 5,469.5 MHz : 50 μ W/MHz
5,730 MHz or more : 12.5 μ W/MHz	5,745 - 5,765 MHz : 12.5 μ W/MHz	5,770 MHz or more : 12.5 μ W/MHz	5,469.5 - 5,470 MHz : 51.2 μ W/MHz
	Over 5,765 MHz : 2.5 μ W/MHz		5,770 MHz or more : 12.5 μ W/MHz

W52 + W53	W56
160MHz system	
5,099.6 MHz or less : 2.5 μ W/MHz	5,419.6 MHz or less : 12.5 μ W/MHz
5,099.6 - 5,150 MHz : 15 μ W/MHz	5,419.6 - 5,470 MHz : 50 μ W/MHz
5,350 - 5,400.4 MHz : 15 μ W/MHz	5,725 MHz or more : 12.5 μ W/MHz
5,400.4 MHz or more : 2.5 μ W/MHz	

* A rated value is defined by the E.I.R.P.
* Measurement range: 30MHz to 26GHz

5.21GHz & (5.53GHz, 5.61GHz or 5.69GHz)	5.29GHz & (5.53GHz, 5.61GHz or 5.69GHz)	5.53GHz & 5.69GHz
80MHz + 80MHz system (Not adjacent radio)		
5,134.8 MHz or less : 2.5 μ W/MHz	5,214.8 MHz or less : 2.5 μ W/MHz	5,419.6 MHz or less : 12.5 μ W/MHz
5,134.8 - 5,150 MHz : 162.5 μ W/MHz	5,214.8 - 5,249 MHz : $10^{-(8/390)(f-5214)-1+\log(1/8)}$ mW/MHz	5,419.6 - 5,470 MHz : 50 μ W/MHz
5,250 - 5,251 MHz : $10^{-(f-5250)+\log(1/8)}$ mW/MHz	5,249 - 5,250 MHz : $10^{-(f-5249)+\log(1/8)}$ mW/MHz	
5,251 - 5,285.2 MHz : $10^{-(8/390)(f-5251)-1+\log(1/8)}$ mW/MHz	5,350 - 5,365.2 MHz : 15 μ W/MHz	5,770 MHz or more : 12.5 μ W/MHz
5,285.2 - 5,370 MHz : 2.5 μ W/MHz	5,365.2 - 5,410 MHz : 2.5 μ W/MHz	
5,370 - 5,454.8 MHz : 2.5 μ W/MHz (When used simultaneously with a 5.2GHz band high-power radio station : 12.5 μ W/MHz)	5,410 - 5,454.8 MHz : 2.5 μ W/MHz	
5,454.8 - 5,470 MHz : 15 μ W/MHz (When used simultaneously with a 5.2GHz band high-power radio station : 50 μ W/MHz)	5,454.8 - 5,470 MHz : 15 μ W/MHz	
5,730 MHz or more : 15 μ W/MHz	5,730 MHz or more : 15 μ W/MHz	
(*When used 5690MHz)	(*When used 5690MHz)	
5,770 MHz or more : 15 μ W/MHz	5,770 MHz or more : 15 μ W/MHz	
f = MHz, Difference from 5210 (MHz)	f = MHz, Difference from 5290 (MHz)	

5.6.2 Test Setup Diagram



5.6.3 Test Procedure

1. Set the spectrum analyzer as follows to search for unwanted emissions:
 Frequency sweep width: (See Note 1);
 Resolution bandwidth: 1 MHz;
 Video bandwidth: Approximately same as the resolution bandwidth;
 Y-axis scale: 10 dB / div;
 Input level: A level to obtain the maximum dynamic range;
 Sweep time: Minimum time to ensure the measuring accuracy (See Note 2);
 Number of data points: 400 points or more (e.g. 1001 points);
 Sweep mode: Single sweep;
 Detection mode: Positive peak.
2. Set the spectrum analyzer as follows to measure unwanted emission level:
 Center frequency: Unwanted emission frequency (searched frequency);
 Frequency sweep width: 0 Hz;
 Resolution bandwidth: 1 MHz;
 Video bandwidth: Approximately same as the resolution bandwidth;
 Y-axis scale: 10 dB / div;
 Input level: A level to obtain the maximum dynamic range;
 Sweep time: Minimum time to ensure the measuring accuracy. However, for burst wave, the time shall be longer than duration of one burst.
 Number of data points: 400 points or more (e.g. 1001 points);
 Sweep mode: Single sweep;
 Detection mode: Sample.

Note 1: Search for unwanted emissions from 30 MHz to 26 GHz excluding the following frequency range:

Band	Bandwidth 18≤MHz	Bandwidth >18MHz and ≤19 MHz	Bandwidth >19 MHz and ≤38 MHz
5.2 GHz Band	5140 MHz to 5360 MHz	5135 MHz to 5365 MHz	5100 MHz to 5400 MHz
5.3 GHz Band	5140 MHz to 5360 MHz	5135 MHz to 5365 MHz	5100 MHz to 5400 MHz
5.6 GHz Band	5460 MHz to 5740 MHz	5455 MHz to 5745 MHz	5420 MHz to 5760 MHz
Band	Bandwidth >38 MHz and ≤78 MHz	Bandwidth >78 MHz	
5.2 GHz Band	5020 MHz to 5480 MHz	4916 MHz to 5584 MHz	
5.3 GHz Band	5020 MHz to 5480 MHz	4916 MHz to 5584 MHz	
5.6 GHz Band	5340 MHz to 5800 MHz	5236 MHz to 5904 MHz	

Note 2: In case of burst wave, sweep time can be set in accordance with the following formula to shorten the sweep time:

Sweep time (s) $\geq$ (frequency sweep width (MHz) / resolution bandwidth (MHz)) x burst repetition period (sec).
 However detected signal level may be observed as lower than the actual level by 3 dB at the maximum and therefore careful measurement is required.

Measuring procedures

(1) Set the spectrum analyzer according to spectrum analyzer settings and search for unwanted emissions by sweeping. When amplitude level of the searched emission is within the tolerance ("tolerance - 3 dB" in case of Note 3 in analyzer settings), the amplitude level is used as the measured value and the measurement in spectrum analyzer settings is not necessary.

- (2) When amplitude level of the searched emission exceeds the tolerance ("tolerance - 3 dB" in case of Note 3 in analyzer settings), narrow down the frequency sweep width sequentially from 100 MHz in order to raise frequency accuracy of the spectrum analyzer and measure frequency of the unwanted emission precisely. Set the spectrum analyzer according to spectrum analyzer settings and obtain the mean value of amplitude levels of the unwanted emission. In case of burst wave, obtain the mean value within each burst.
- (3) When EUT has plural antenna terminals, perform above measurement for each antenna terminal.

5.6.4 Test Deviation

There is no deviation with the original standard.

5.6.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.6.6 Test Data

PASS.

Please refer to Annex F for details.

5.7 Secondary Radiated Emissions Test

5.7.1 Test Requirement

Item	Limits
RX Spurious Emission	$\leq 4\text{nW}$ ($f < 1\text{GHz}$)
	$\leq 20\text{nW}$ ($1\text{GHz} \leq f$)

5.7.2 Test Setup Diagram



5.7.3 Test Procedure

- (1) Set the dummy load attenuation to a range as low as possible (20 dB or less) because of low level measurement.
- (2) Set the spectrum analyzer as follows to search for secondary radiated emissions;
 - Frequency sweep width: (See Note 2.)
 - Resolution bandwidth: 100 kHz for frequency of below 1 GHz; 1 MHz for frequency of 1 GHz or higher.
 - Video bandwidth: Approximately same as the resolution bandwidth
 - Sweep time: Minimum time to ensure the measuring accuracy
 - Y-axis scale: 10 dB / div
 - Number of data points: 400 points or more (e.g. 1001 points)
 - Sweep mode: Single sweep
 - Detection mode: Positive peak

Note 2: Search for secondary radiated emissions from 30 MHz to 26 GHz.

- (3) Set the spectrum analyzer as follows to measure secondary radiated emission levels;
 - Center frequency: Frequency of secondary radiated emission to be measured (searched frequency)
 - Frequency sweep width: 0 Hz
 - Resolution bandwidth: 100 kHz for frequency of below 1 GHz; 1 MHz for frequency of 1 GHz or higher
 - Video bandwidth: Approximately same as the resolution bandwidth
 - Sweep time: Minimum time to ensure the measuring accuracy
 - Y-axis scale: 10 dB / div;
 - Number of data points: 400 points or more (e.g. 1001 points)
 - Sweep mode: Single sweep
 - Detection mode: Positive peak

Measuring procedures

- (1) Set the spectrum analyzer according to spectrum analyzer settings and search for the maximum amplitude level of secondary radiated emissions.
- (2) When the maximum amplitude level of the searched emissions is one tenth (1 / 10) or less of the tolerance, put the level as the measured value.
- (3) When the maximum amplitude level of the searched emissions is over one tenth (1 / 10) of the tolerance, narrow down the frequency sweep width sequentially from 100 MHz up to approximately 10 times the resolution bandwidth in order to raise the center frequency accuracy of the spectrum analyzer and read the frequency. Then set the spectrum analyzer according to spectrum analyzer settings and measure the mean power by averaging the levels.
- (4) When EUT has plural antenna terminals, above measurement shall be conducted for each terminal.

5.7.4 Test Deviation

There is no deviation with the original standard.

5.7.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.7.6 Test Data

PASS.

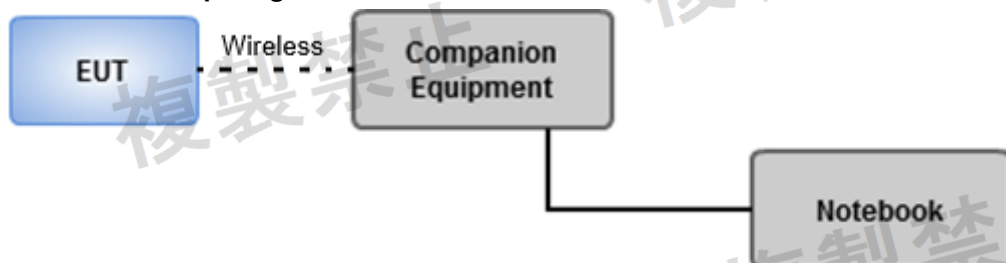
Please refer to Annex F for details.

5.8 Interference Prevention Function

5.8.1 Test Requirement

Item	Limits
	EUT shall have a function of automatic transmission or reception of identification code.

5.8.2 Test Setup Diagram



5.8.3 Test Procedure

- (1) The demodulator shall be able to demodulate signals transmitted from the EUT and display description on a received identification code.
- (2) The "equipment to communicate with EUT" shall be able to transmit identification code equivalent to the code transmitted from the EUT.

Measuring procedures

- (1) In case that the EUT has a function to transmit identification code automatically;
 - a. Transmit a specified identification code from the EUT.
 - b. Verify the transmitted identification code using the demodulator.
- (2) In case that the EUT has a function to receive identification code automatically;
 - a. Transmit a specified identification code from the "equipment to communicate with EUT".
 - b. Verify that communication is normally conducted.
 - c. Transmit a code other than the specified identification code from the "equipment to communicate with EUT".
 - d. Verify that the EUT stops the transmission or the display indicates message showing wrong identification code.
- (3) If above conditions cannot be achieved, confirm them from the submitted documents.

5.8.4 Test Deviation

There is no deviation with the original standard.

5.8.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.8.6 Test Data

PASS.

Mode	ID Code	Test Results
5G WiFi	B2:17:34:45:A3:21	Pass

5.9 Carrier sensing function

5.9.1 Test Requirement

Item	Limits
	Field intensity in the direction of the maximum gain of a receiving antenna: 100mV/m Start transmission after performing a carrier sense. However, when transmission and reception are controlled from the radio equipment and when the radio equipment which performed transmission resumes transmission within 8millisecond after a career sense, it can omit performing a career sense.

5.9.2 Test Setup Diagram



5.9.3 Test Procedure

- (1) Set the dummy load attenuation to a range as low as possible (20 dB or less) because of low level measurement.
- (2) Set the spectrum analyzer as follows to search for secondary radiated emissions;
 - Frequency sweep width: (See Note 2.)
 - Resolution bandwidth: 100 kHz for frequency of below 1 GHz; 1 MHz for frequency of 1 GHz or higher.
 - Video bandwidth: Approximately same as the resolution bandwidth
 - Sweep time: Minimum time to ensure the measuring accuracy
 - Y-axis scale: 10 dB / div
 - Number of data points: 400 points or more (e.g. 1001 points)
 - Sweep mode: Single sweep
 - Detection mode: Positive peak

Note 2: Search for secondary radiated emissions from 30 MHz to 26 GHz.

- (3) Set the spectrum analyzer as follows to measure secondary radiated emission levels;
 - Center frequency: Frequency of secondary radiated emission to be measured (searched frequency)
 - Frequency sweep width: 0 Hz
 - Resolution bandwidth: 100 kHz for frequency of below 1 G Hz; 1 MHz for frequency of 1 GHz or higher
 - Video bandwidth: Approximately same as the resolution bandwidth
 - Sweep time: Minimum time to ensure the measuring accuracy
 - Y-axis scale: 10 dB / div;
 - Number of data points: 400 points or more (e.g. 1001 points)
 - Sweep mode: Single sweep
 - Detection mode: Positive peak

Measuring procedures

- (1) Set the spectrum analyzer according to spectrum analyzer settings and search for the maximum amplitude level of secondary radiated emissions.
- (2) When the maximum amplitude level of the searched emissions is one tenth (1 / 10) or less of the tolerance, put the level as the measured value.
- (3) When the maximum amplitude level of the searched emissions is over one tenth (1 / 10) of the tolerance, narrow down the frequency sweep width sequentially from 100 MHz up to approximately 10 times the resolution bandwidth in order to raise the center frequency accuracy of the spectrum analyzer and read the frequency. Then set the spectrum analyzer according to spectrum analyzer settings and measure the mean power by averaging the levels.
- (4) When EUT has plural antenna terminals, above measurement shall be conducted for each terminal.

5.9.4 Test Deviation

There is no deviation with the original standard.

5.9.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.9.6 Test Data

PASS.

Test Data:

Mode	Normal Voltage	High Voltage	Low Voltage	Verdict
802.11a	Ok	N/A	N/A	Pass
802.11n(HT20)	Ok	N/A	N/A	Pass
802.11n(HT40)	Ok	N/A	N/A	Pass

Note:

$P_{in} = 22.79 + Gr - 20 \cdot \log(\text{Freq MHz}) [\text{dBm}]$

Limit: 100mw/m eirp

Confirmed at -50dBm

5.10 Dynamic frequency selection (DFS)

5.10.1 Test Requirement

DFS requirement values	
Parameter	values
Channel Availability Check Time	60 sec
Channel Move Time	10 sec
Channel Closing Transmission Time	260 ms
Non-occupancy period	Minimum 30 minutes

Band 2: Parameters DFS radar test signal				
Test Signal (#)	Pulse width(us)	Pulse repetition frequency PRF (Hz)	Pulses per burst (PPB)	Detection probability (%)
1	0.5-5	200-1000	10	≥ 60
2	0.5-15	200-1600	15	≥ 60
3	0.5-5	200-1000	Note	≥ 60
4	0.5-15	200-1600	Note	≥ 60
5	0.5-1.5	1114-1118	30	≥ 60
6	0.5-1.5	928-932	25	≥ 60
7	0.5-1.5	886-890	24	≥ 60
8	0.5-1.5	738-742	20	≥ 60
Note: Multiply the pulse repetition frequency by 0.026 (if the result is a fraction, round up), when the result is less than 22, the larger value between the result and 22 is taken. When the result is greater than 30, take the smaller value between the result and 30.				

Band 3: Un-modulation Parameters DFS radar test signal				
Test Signal (#)	Pulse width(us)	Pulse repetition frequency PRF (Hz)	Pulses per burst (PPB)	Detection probability (%)
1	0.5	720	18	≥ 60
2	1.0	700	18	≥ 60
3	2.0	250	18	≥ 60
4	1~5 (step 1)	4347-6667 (step 1)	23~29	≥ 60
5	6~10 (step 1)	2000-5000 (step 1)	16~18	≥ 60
6	11~20 (step 1)	2000-5000 (step 1)	12~16	≥ 60
Aggregate (Radar Types 1-6)				≥ 80

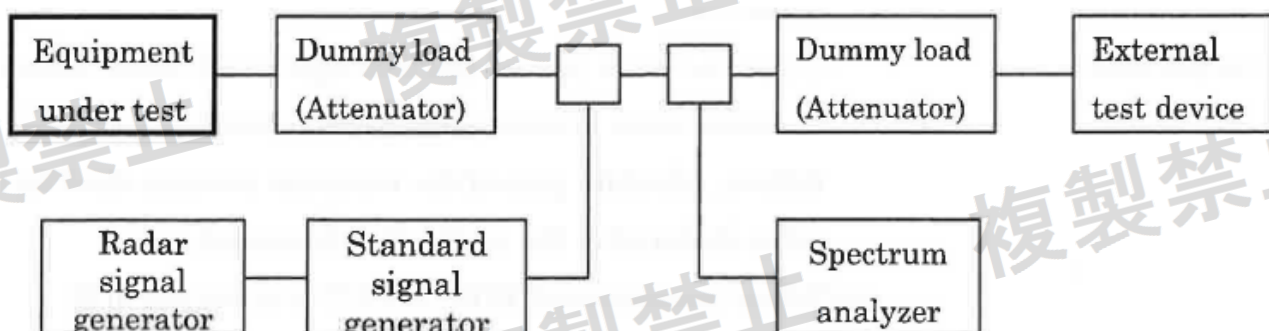
Band 3: Chirp Modulation (5-20 MHz) Parameters DFS radar test signal					
Test Signal (#)	Pulse width(us)	Pulse repetition frequency PRF (Hz)	Number of Pulses per Burst	Number of Bursts	Detection probability (%)
7	50-100 (step 1)	500-1000 (step 1)	1-3	8-10	≥ 80

Band 3: 5470-5725 MHz Frequency Hopping Modulation Parameters DFS radar test signal					
Test Signal (#)	Pulse width(us)	Pulse repetition frequency PRF (Hz)	Number of Pulses per Burst	Number of Bursts	Detection probability (%)
8	1	3000	9 (3ms)	300	≥ 70

DFS Threshold Level	
DFS Threshold level: -61.70	☒ At the antenna connector (conducted -61.70 dBm)
	☐ In front of the antenna (-64 dBm e.i.r.p)
Note 1: DFS Detection Threshold (dBm) = -61.70 dBm The DFS Detection Threshold Level is (-62 dBm) + 0.3 dBi = -61.70 dBm Note 2: Maximum + DFS Detection Threshold Level is (-62 dBm) + G _{ANT} Maximum EIRP ≥ 200mW (23dBm), DFS Detection Threshold Level is (-64 dBm) + G _{ANT}	
User Access Restrictions	
☒ DFS controls (hardware or software) related to radar detection are Not accessible to the user	

☒ Test transmission sequence is from the Master to the Slave
☒ For Band 2 (5250-5350 MHz) Monitoring of operating channel channel with about 50% loading over maximum signal transmission speed.
☒ For Band 3 (5470-5725 MHz) Monitoring of operating channel channel with about 17% loading over maximum signal transmission speed.
☒ No transmissions on channels being checked during a Channel Availability Check and Confirming Available Channels

5.10.2 Test Setup Diagram



5.10.3 Test Procedure

Verify the operation of dynamic frequency selection function using each test signal (fixed pulse radar wave test signal (fixed pulse 1, 2)) described in "2" as a quasi-radar pulse in accordance with the following procedures.

Verification of available channel

- Turn off the output of the standard signal generator.
- Initialize the EUT and set it to "verification state of available channel". Then verify using the spectrum analyzer or the external test device that radio wave is not transmitted.
- Turn on the output of the standard signal generator at a time selected randomly in 60 seconds that is the time for verifying available channel, and supply the specified input level of quasi radar pulse to the EUT.
- Repeat the procedures of (a) to (c) four times and record the result of quasi radar pulse detection as "Detected" or "Not detected".

Monitoring of operating channel

- Turn off the output of the standard signal generator.
- Initialize the EUT, set it to "monitoring state of operating channel" and transmit radio wave at the test frequency.
- Establish communications with the external test device under the specified loading condition.
- Turn on the output of the standard signal generator and supply the specified input level of quasi radar pulse to the EUT.
- When a quasi-radar pulse is supplied to the EUT first, verify using the spectrum analyzer whether the quasi radar pulse is detected. (EUT shall suspend the transmission when quasi radar pulse is detected.)
- Repeat the procedures of (a) to (e) twenty (20) times and record the result of quasi radar pulse detections. When the number of times of the quasi radar pulse detections becomes 15 times or more, terminate the measurement.
- When the number of times of quasi radar pulse detections is 11 to 14 times in (f), proceed to (h).
- Repeat the procedures of (a) to (e) additionally 20 times, record the number of times of the quasi radar pulse detections and obtain the total number of times by adding the number of times in (f).

5.10.4 Test Deviation

There is no deviation with the original standard.

5.10.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.10.6 Test Data

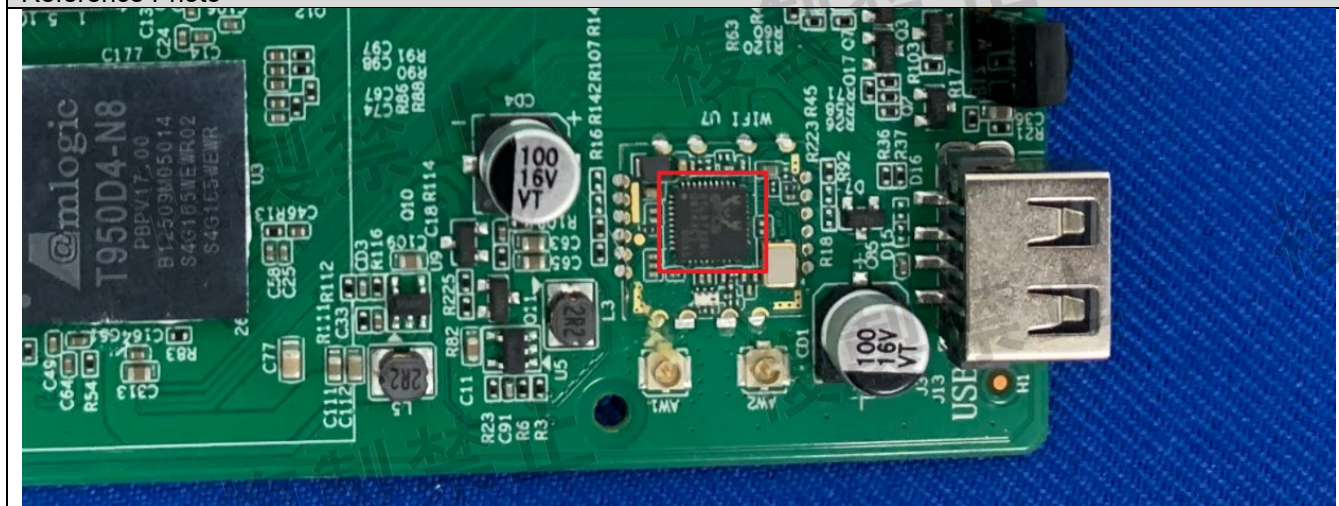
Note: Not applicable.

5.11 Construction Protection Confirmation Method

The RF and modulation portions are protected against illegal modification as following method:

Protected Method	Description
Structure protection	The terminal number is 40, terminal pitch is 1mm. it can't be easily opened and modified.

Reference Photo



ANNEX A TEST SETUP PHOTOS

Please refer to the document "8331EU011701W-AA.PDF"

ANNEX B EXTERNAL PHOTOS

Please refer to the document "8331EU011701W-AB.PDF"

ANNEX C INTERNAL PHOTOS

Please refer to the document "8331EU011701W-AC.PDF"

ANNEX D TEST DATA

Please refer to the document "8331EU011701W-AG.PDF"

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