



ACCREDITED

CERT #5473.03

No.:
GJWSZ2025-0571

TEST REPORT

NAME OF SAMPLE : Millimeter Wave Radar

APPLICANT : Shenzhen Cheng-Tech Co., Ltd.

CLASSIFICATION OF TEST : N/A

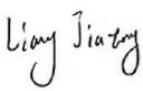
CVC Testing Technology (Shenzhen) Co., Ltd.



CVC Testing Technology (Shenzhen) Co., Ltd.

Test Report No.: GJWSZ2025-0571

Page 2 of 30

Applicant	Shenzhen Cheng-Tech Co., Ltd.	
Address	3F, 4F, 5F, Building C, Pingshan, Chengtouzhi Park, No. 37, Cuijing Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen, Guangdong, P. R. China	
Manufacturer	Shenzhen Cheng-Tech Co., Ltd.	
Address	3F, 4F, 5F, Building C, Pingshan, Chengtouzhi Park, No. 37, Cuijing Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen, Guangdong, P. R. China	
Product Name	Millimeter Wave Radar	
Brand Name	Cheng-Tech or below photo 	
Model Name	CTLRR-230 Pro	
Additional Model	N/A	
Date of Receipt.	Sep. 28, 2025	
Date of testing	Sep. 28, 2025 ~ Oct. 23, 2025	
Sample No.	202509289591-1	
Standard(s)	Article 2 Section 1 Item 8 MIC notification. No.88 of 2004, Annex 22-14	
CONCLUSION:	The equipment under test was found to comply with the requirements of the standard(s) applied. Seal of CVC Issue Date: Oct. 24, 2025	
Compiled by: Liang Jiatong	Reviewed by: Mo Xianbiao	Approved by: Dong Sanbi
Signature: 	Signature: 	Signature: 

This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.



TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1 SUMMARY OF TEST RESULTS	5
1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS	6
1.2 MEASUREMENT UNCERTAINTY	7
1.3 TEST LOCATION	7
2 GENERAL INFORMATION	8
2.1 GENERAL PRODUCT INFORMATION	8
2.2 TEST MODE	9
2.3 FAR FIELD CONDITION FOR FREQUENCY ABOVE 18GHZ	9
2.4 TEST SETUP	10
2.5 TEST ENVIRONMENTAL CONDITIONS	12
2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS	12
2.7 DESCRIPTION OF SUPPORT UNITS	12
3 TEST TYPES AND RESULTS	13
3.1 FREQUENCY RANGE AND FREQUENCY TOLERANCE	13
3.2 TOLERANCE OF OCCUPIED BANDWIDTH(99% POWER BANDWIDTH)	15
3.3 UNWANTED EMISSION	16
3.4 SECONDARY RADIATED EMISSION STRENGTH	20
3.5 ANTENNA POWER MEASUREMENT	23
3.6 ISOTROPIC GAIN OF TRANSMITTING ANTENNA	25
3.7 INTERFERENCE PREVENTION FUNCTION	26
3.8 CONSTRUCTION PROTECTION CONFIRMATION METHOD	27
4 PHOTOGRAPHS OF TEST SETUP	28
5 PHOTOGRAPHS OF THE EUT	29



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
GJWSZ2025-0571	Original release	Oct. 24, 2025



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

REPORT SECTION	TEST TYPE AND LIMIT	RESULT (PASS/FAIL)
3.1	Frequency Range	Pass
3.1	Frequency Tolerance	Pass
3.2	Tolerance of Occupied Bandwidth	Pass
3.3	Unwanted Emission	Pass
3.4	Secondary Radiated Emission Strength	Pass
3.5	Antenna Power Tolerance	Pass
3.6	Isotropic gain of transmitting antenna	Pass
3.7	Interference Prevention Function	Pass
3.8	Construction Protection Confirmation Method	Pass
/	Incident power density	Not applicable, This device is more than 20cm away from the human body



1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial Number	Cal. interval	Cal. Due	Calibration Body	Calibration Method
Radiation Spurious(Below 40GHz)					/		
Signal&Spectrum Analyzer	Rohde&Schwarz	FSV 40	101898	1 year	2026.4.28	CVC/CHN	3
EMI Test Receiver	Rohde&Schwarz	ESR3	102693	1 year	2026.5.21	CVC/CHN	3
Antenna(30MHz~1001MHz)	SCHWARZBECK	VULB 9168	01133	1 year	2026.1.22	SCM/CHN	3
Horn antenna(1GHz-18GHz)	ETS	3117	227611	1 year	2026.3.28	LISAI/CHN	3
Horn antenna(18GHz-40GHz)	QMS	QMS-00880	22051	1 year	2026.3.21	LISAI/CHN	3
3m anechoic chamber	MORI	966	CS0300011	3 year	2026.5.18	LISAI/CHN	3
Filter group(RSE-BT/WiFi)	Rohde&Schwarz	WiFi /BT Variant 1	100820	1 year	2026.4.22	CVC/CHN	3
Filter group(RSE-Cellular)	Rohde&Schwarz	Cellular Variant 1	100768	1 year	2026.4.22	CVC/CHN	3
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100799	1 year	2026.4.22	CVC/CHN	3
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100801	1 year	2026.4.22	CVC/CHN	3
Preamplifier(18Gz-40GHz)	Rohde&Schwarz	SCU-40A	101209	1 year	2026.4.22	CVC/CHN	3
#2 control room	MORI	433	CS0200059	3 year	2026.5.16	LISAI/CHN	3
Antenna tower	Max-Full	MFA-515DB SN	1308650	N/A	N/A	N/A	3
Temperature and humidity meter	/	C19356151 7	C19356151 7	1 year	2026.4.28	CVC/CHN	3
Radiation Spurious(Above 40GHz)					/		
Equipment	Manufacturer	Model No.	Serial Number	Cal. interval	Cal. Due		
3m anechoic chamber	MORI	966	CS0300011	3 year	2026.5.18	LISAI/CHN	3
#2 control room	MORI	433	CS0300028	3 year	2026.5.16	CVC/CHN	3
Temperature and humidity meter	/	C19356151 7	C19356151 7	1 year	2026.4.28	CVC/CHN	3
Signal&Spectrum Analyzer	keysight	N9040B	CS0300074	1 year	2026.5.22	CVC/CHN	3
SA Expansion Module(40-60GHz)	VDI	N9029AV19	CS0300075	3 year	2028.9.14	VDI/US	3
SA Expansion Module(60-90GHz)	VDI	N9029AV12	CS0300076	3 year	2028.9.14	VDI/US	3
SA Expansion Module(90-140GHz)	VDI	N9029AV08	CS0300077	3 year	2028.9.14	VDI/US	3
SA Expansion Module(140-220GHz)	VDI	N9029AV05	CS0300078	3 year	2028.9.14	VDI/US	3
Horn antenna(40-60GHz)	CMI	HO19R	CS0300086	3 year	2028.9.14	CMI/US	3
Horn antenna(60-90GHz)	CMI	HO12R	CS0300088	3 year	2028.9.14	CMI/US	3
Horn antenna(90-140GHz)	CMI	HO08R	CS0300090	3 year	2028.9.14	CMI/US	3
Horn antenna(140-220GHz)	CMI	HO05R	CS0300092	3 year	2028.9.14	CMI/US	3

1. Calibration conducted by the National Institute of Information and Communications Technology (NICT) in Japan (hereinafter referred to as *NICT*) or a designated calibration agency under Article 102-18 paragraph (1) in JRL.
2. Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act (Act No. 51 of 1992)
3. Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).
4. Calibration, etc. conducted by using measuring instruments and other equipment listed in the right column of appended table No. 3, which shall have been given any type of calibration, etc. listed above from (2) to (4).



1.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement Uncertainty		
No.	Item	Measurement Uncertainty
1	Occupied Channel Bandwidth	$\pm 1.86\%$
2	Radiated Emissions(30MHz-1GHz)	$\pm 5.0\text{dB}$
3	Radiated Emissions(1GHz-18GHz)	$\pm 4.8\text{dB}$
4	Radiated Emissions(18GHz-40GHz)	$\pm 5.1\text{dB}$
5	Radiated Emissions(40GHz-60GHz)	$\pm 4.8\text{dB}$
6	Radiated Emissions(60GHz-90GHz)	$\pm 4.8\text{dB}$
7	Radiated Emissions(90GHz-140GHz)	$\pm 5.0\text{dB}$
8	Radiated Emissions(140GHz-220GHz)	$\pm 5.1\text{dB}$
10	Temperature	$\pm 0.73^{\circ}\text{C}$
11	Supply voltages	$\pm 0.37\%$
12	Humidity	$\pm 3.9\%$
Remark: 95% Confidence Levels, $k=2$.		

1.3 TEST LOCATION

The tests and measurements refer to this report were performed by EMC testing Lab. of CVC Testing Technology (Shenzhen) Co., Ltd.

Lab Address: No. 1301-14, Guanguang Road, Xinlan Community, Guanlan Street, Longhua District, Shenzhen City, Guangdong Province 518110 P.R.China

Post Code: 518110 Tel: 0755-23763060-8805

Fax: 0755-23763060 E-mail: sz-kf@cvc.org.cn

FCC(Test firm designation number: CN1363)

IC(Test firm CAB identifier number: CN0137)

CNAS(Test firm designation number: L16091)



2 GENERAL INFORMATION

2.1 GENERAL PRODUCT INFORMATION

PRODUCT	Millimeter Wave Radar
BRAND	Cheng-Tech or below photo 
MODEL	CTLRR-230 Pro
ADDITIONAL MODEL	N/A
POWER SUPPLY	9V~16V
TYPE OF EQUIPMENT	76 ~ 77GHz
MODULATION TYPE	FMCW(F3N)
OPERATING TEMPERATURE RANGE	-40℃~85℃
NORMAL HUMIDITY	N/A
HW-RELEASE NO	3.2.6.2
SW-RELEASE NO	6.0.2.0
I/O PORTS	Refer to user' s manual
NOTE: 1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.	



2.2 TEST MODE

Test Mode	DESCRIPTION	ANTENNA	TEST ITEM
Mode 1	76.2~76.6GHz	MIMO	ALL
Mode 2	76.12~76.87GHz	MIMO	ALL
Mode 3	IDLE	MIMO	RX

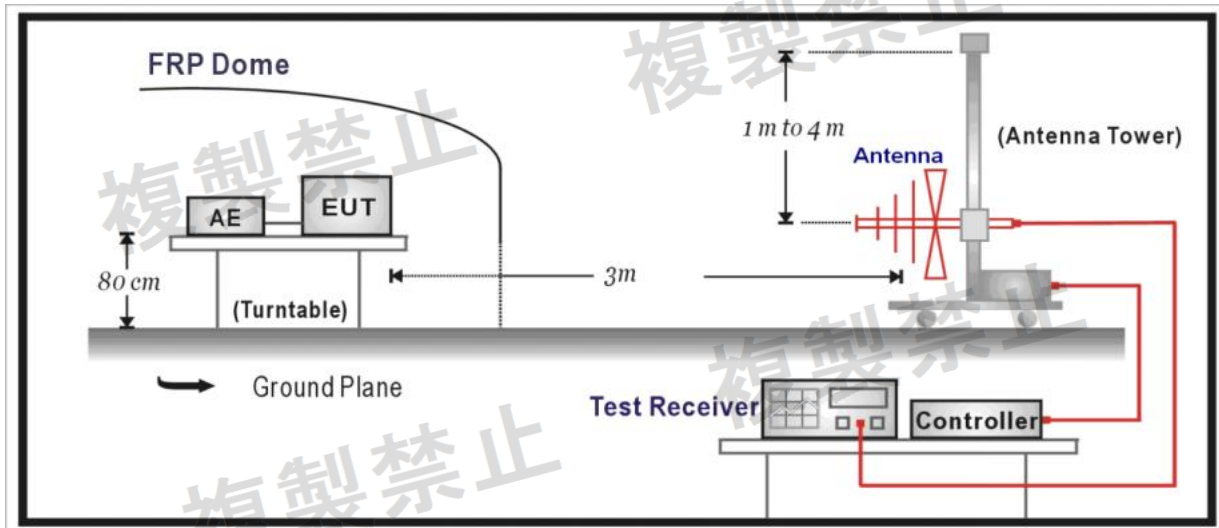
2.3 FAR FIELD CONDITION FOR FREQUENCY ABOVE 18GHZ

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable. The measurement antenna is in the far field of the EUT per formula $2D^2/\lambda$ where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, "D" is the largest dimension of the measurement antenna. The EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

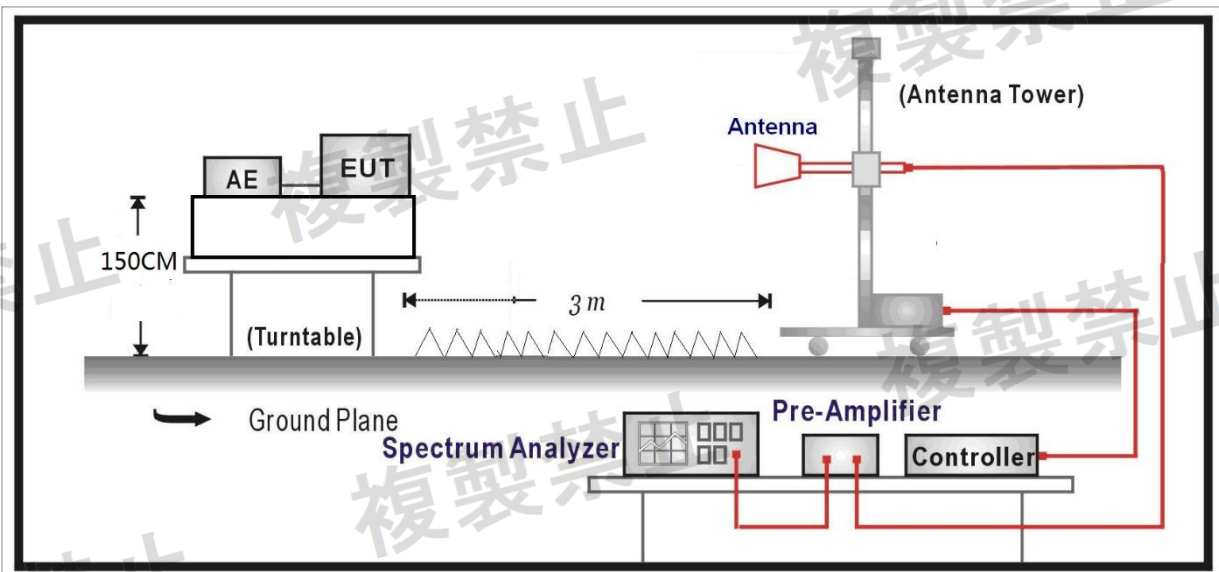
Horn Antenna	Frequency (GHz)	Antenna Dimension A(m)	Wavelength (λ)(m)	Far field R(m) $\geq 2D^2/\lambda$	Measurement Distance(D)(m)
QMS-00880	18	0.08	0.0167	0.77	2
	40	0.08	0.0075	1.71	
HO19R	40	0.046	0.0075	0.56	1
	60	0.046	0.005	0.85	
HO12R	60	0.03	0.005	0.36	1
	90	0.03	0.0033	0.55	
HO8R	90	0.019	0.0033	0.22	1
	140	0.019	0.0021	0.34	
HO5R	140	0.012	0.0021	0.14	1
	220	0.012	0.0014	0.21	
HO3R	220	0.008	0.0014	0.09	1
	330	0.008	0.0009	0.14	

2.4 TEST SETUP

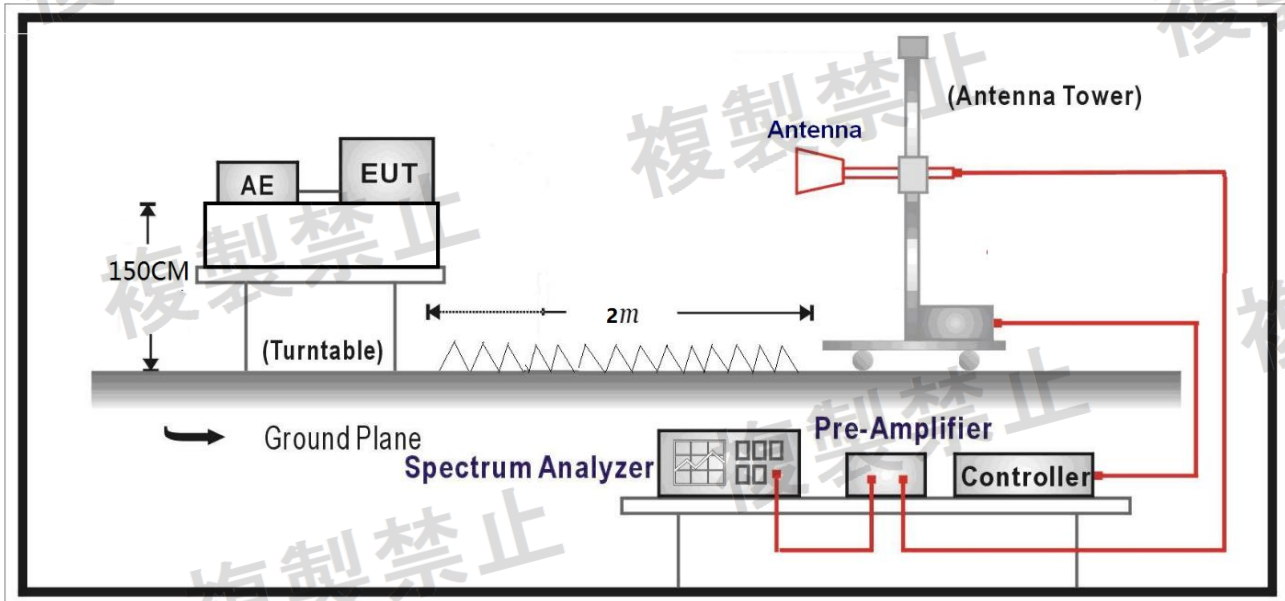
30MHz-1GHz Test Setup:



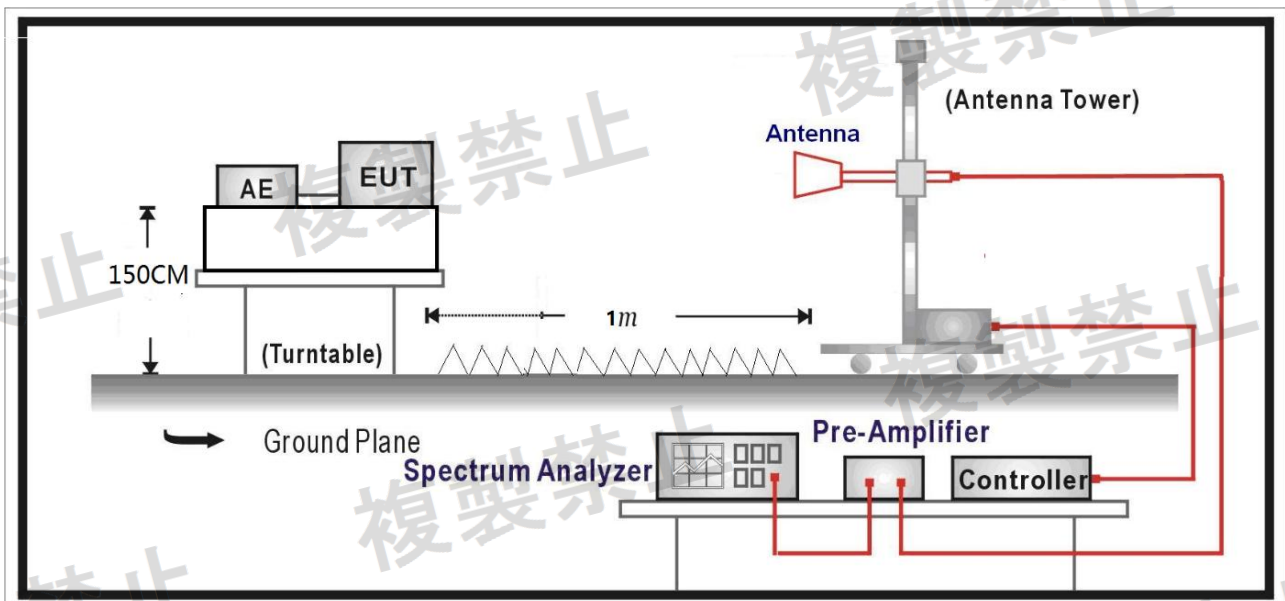
1GHz -18GHz Test Setup:



18GHz-40GHz Test Setup:



Above 40GHz Test Setup:





2.5 TEST ENVIRONMENTAL CONDITIONS

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

Battery Voltage	Normal Voltage / NV	-
	Low Voltage / LV	-
	High Voltage / HV	-
RF Chip Voltage	Normal Voltage / NV	3.3V
	Low Voltage / LV	3.3V
	High Voltage / HV	3.3V
Adapter Voltage	Normal Voltage / NV	DC 12.0V
	Low Voltage / LV	DC 10.8V
	High Voltage / HV	DC 13.2V
Temperature	Low Temperature/ LT	-40℃
	Normal Temperature/ NT	25℃
	High Temperature/ HT	+85℃
Vibration	Total amplitude 3mm	See page 13
	Total amplitude 1mm	See page 13
Other	Humidity/HH	95%
	Air Pressure	1004 hPa

Note: After checking the fluctuation of input voltage to the circuit of the radio part (excluding the power supply) of the equipment to be tested, the fluctuation less than +/- 1 % when input voltage from an external supply into the equipment fluctuates +/- 10%, therefore, the test is carried out only at the normal voltage.

2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

ARTICLE 2 SECTION 1 ITEM 8

MIC NOTIFICATION. NO.88 OF 2004, ANNEX 22-14

All test items have been performed and recorded as per the above standard

2.7 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support Equipment							
NO	Description	Brand	Model No.	Serial Number	Supplied by		
1	Laptop	Lenovo	MP20KR8E	N/A	Lab		
2	CNA	Guangcheng USB CNA	USBCNA-II FD	GC222081915	client		
Support Cable							
NO	Description	Quantity (Number)	Length (m)	Detachable (Yes/ No)	Shielded (Yes/ No)	Cores (Number)	Supplied by
1	USB	1	1	Yes	No	N/A	client



3 TEST TYPES AND RESULTS

3.1 FREQUENCY RANGE AND FREQUENCY TOLERANCE

3.1.1 Limit

Item	Limit
FREQUENCY RANGE	Within 76 ~ 77GHz

3.1.2 Test Procedure

1. Setting of SA is following as: RBW:3MHz / VBW:50MHz.
2. The frequency tolerance test case is directly measured using spectrum analyzer.
3. Calculate occupied frequency range within specific frequency range.

a. Vibration test conditions

(1) The total amplitude shall be 3 mm, and vibrations from the minimum frequency to 500 vibrations per minute shall be applied up and down, left and right, and front and back for 15 minutes each. The frequency sweep cycle shall be 10 minutes, and the frequency shall be swept in the order of the minimum frequency, 500 vibrations per minute, and minimum frequency. In other words, 1.5 frequency sweeps shall be performed in 15 minutes.

(Note) The minimum vibration frequency shall be the lowest frequency that can be set by the vibration tester (but not exceeding 300 vibrations per minute).

(2) Vibration shall be performed for 15 minutes each in the up-down, left-right, and front-back directions, with a total amplitude of 1 mm and frequencies between 500 and 1,800 vibrations per minute. The frequency sweep period shall be 10 minutes, and the frequency shall be changed in the order of 500 vibrations per minute, 1,800 vibrations per minute, and 500 vibrations per minute. In other words, the frequency shall be swept for 1.5 cycles in 15 minutes.

b. Temperature and humidity test conditions

(1) Low temperature test

(a) Place the test equipment in the temperature and humidity test chamber in a non-operating state, and in this state set the temperature inside the temperature and humidity test chamber to a low temperature (0°C, -10°C, or -20°C, whichever is the lowest within the range of the test equipment's specifications).

(b) Leave in this state for one hour.

(2) High temperature test

(a) Place the test equipment in a temperature and humidity test chamber in a non-operating state, and in this state set the temperature in the temperature and humidity test chamber to a high temperature (40°C, 50°C, or 60°C, whichever is the highest within the specifications of the test equipment) and normal humidity.

(b) Leave it in this state for one hour.

(3) Humidity test

(a) Place the test equipment in a temperature and humidity test chamber in a non-operating state, and in this state set the temperature in the temperature and humidity test chamber to 35°C and the relative humidity to 95% or the maximum humidity specified in the specifications of the test equipment.

(b) Leave it in this state for four hours.



3.1.3 Test setup

See section 2.5 of this report.

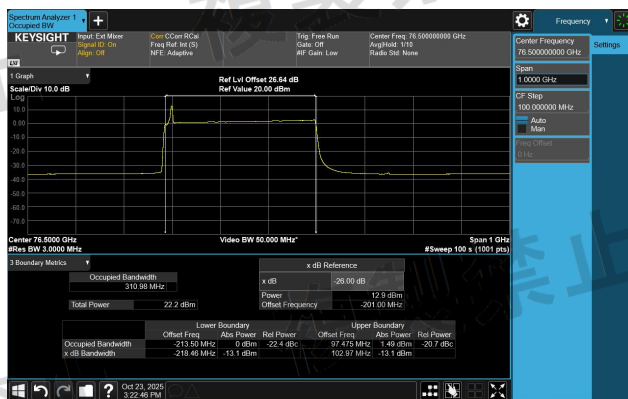
3.1.4 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

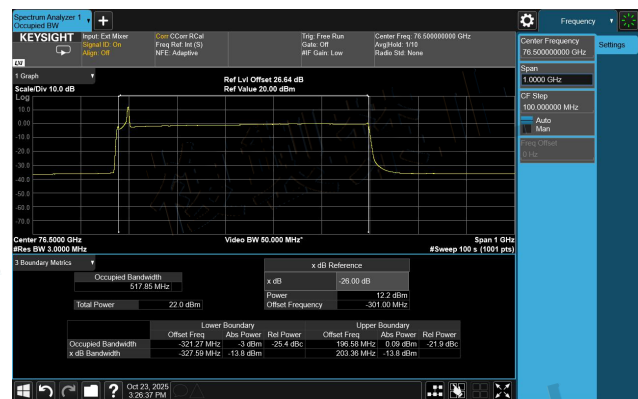
3.1.5 Test results

Test Condition	TM	Low Operating Band Edge(GHz)	High Operating Band Edge(GHz)	Limit (GHz)	Verdict
LTNV	Mode 1	76.402	76.602	76 ~ 77	PASS
HTNV	Mode 2	76.303	76.703	76 ~ 77	PASS

Only the worst case (temperature test, humidity test, vibration test) is shown in the test report.



Mode 1-LTNV



Mode 2-HTNV



3.2 TOLERANCE OF OCCUPIED BANDWIDTH(99% POWER BANDWIDTH)

3.2.1 Limit

Item	Limit
Occupied Bandwidth	$\leq 1\text{GHz}$

3.2.2 Test Procedure

- Setting of SA is following as: RBW: 3MHz / VBW:50MHz / Sweep Mode: Single sweep / Detect mode: Positive peak / Trace mode: Clear write.
- EUT have transmitted each modulation signal and fixed channelize. SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 1GHz.

3.2.3 Test setup

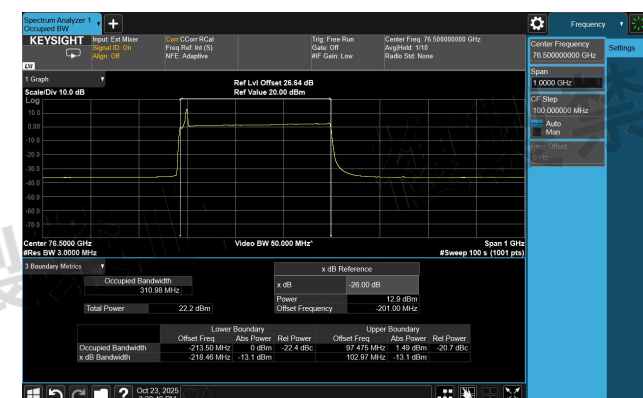
See section 2.5 of this report.

3.2.4 EUT Operation during Test

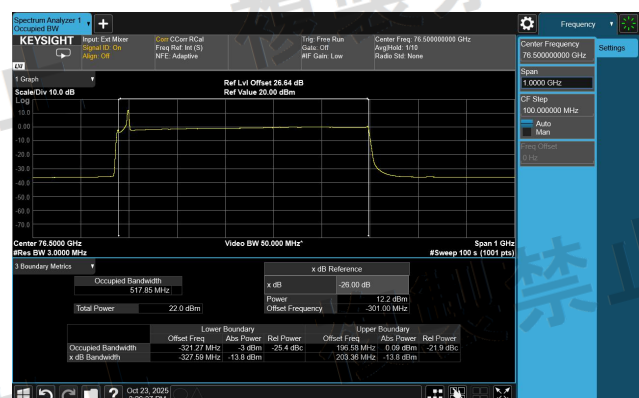
The EUT was programmed to be in continuously transmitting mode.

3.2.5 Test result

TM	Occupied Bandwidth(MHz)	Limit(MHz)	Verdict
Mode 1	310.98	≤ 1000	PASS
Mode 2	517.85	≤ 1000	PASS



Mode 1



Mode 2



3.3 UNWANTED EMISSION

3.3.1 Limits

Item	Frequency	Limits
Tx Spurious Emission	$f \leq 74.5\text{GHz}$	-13dBm/MHz
	$74.5\text{GHz} < f \leq 76\text{GHz}$	-10dBm/MHz
	$77\text{GHz} < f \leq 78.5\text{GHz}$	-10dBm/MHz
	$78.5\text{GHz} < f \leq 2 \text{ times of operational frequency}$	-13dBm/MHz

3.3.2 Test Procedure

Test setup for Step 1:
Frequency: 30 MHz – 170GHz
RBW 1 MHz
VBW 1 MHz
Sweep Time Auto
Trace mode Max hold
Detector mode: Peak

Test setup for Step 2:
Frequency: Spurious Frequency
Span 0 Hz
RBW 1 MHz
VBW 1 MHz
Sweep Time Auto
Detector mode Sample
Trace mode Max hold

3.3.3 Test setup

See section 2.5 of this report.

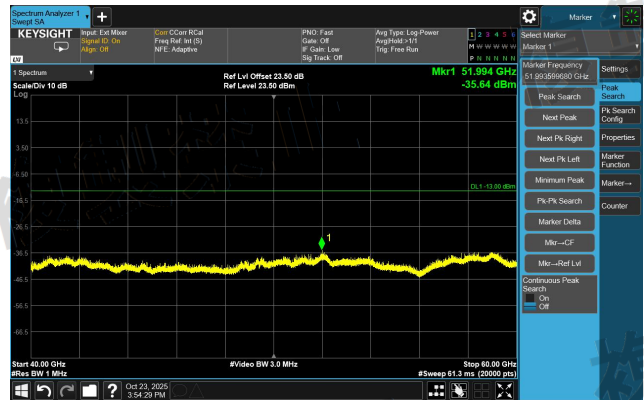
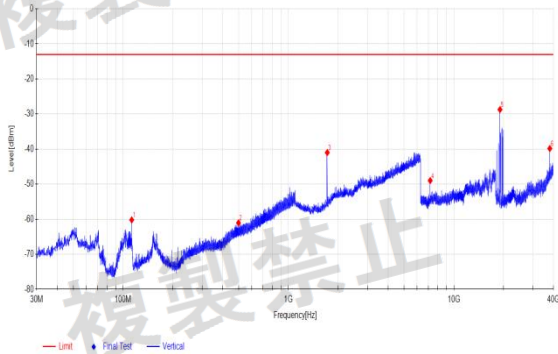
3.3.4 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



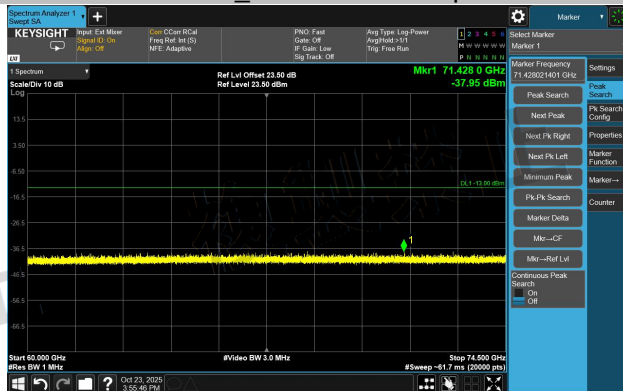
3.3.5 Test result

Test Mode	Freq.Range [MHz]	Result [dBm]	Limit [dBm]	Verdict
TM1	30~40000	-28.72	≤ -13	PASS
TM1	40000-60000	-35.64	≤ -13	PASS
TM1	60000-74500	-37.95	≤ -13	PASS
TM1	74500-76000	-37.14	≤ -10	PASS
TM1	77000-78500	-37.38	≤ -10	PASS
TM1	78500-90000	-38.37	≤ -13	PASS
TM1	90000-140000	-38.02	≤ -13	PASS
TM1	140000-170000	-28.08	≤ -13	PASS
TM2	30~40000	-28.42	≤ -13	PASS
TM2	40000-60000	-20.85	≤ -13	PASS
TM2	60000-74500	-37.95	≤ -13	PASS
TM2	74500-76000	-37.14	≤ -10	PASS
TM2	77000-78500	-37.38	≤ -10	PASS
TM2	78500-90000	-38.37	≤ -13	PASS
TM2	90000-140000	-38.02	≤ -13	PASS
TM2	140000-170000	-27.30	≤ -13	PASS



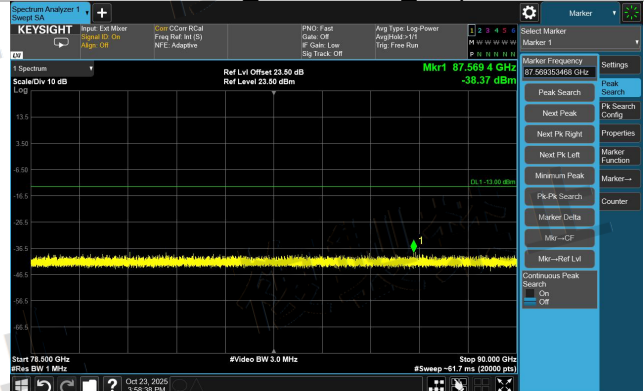
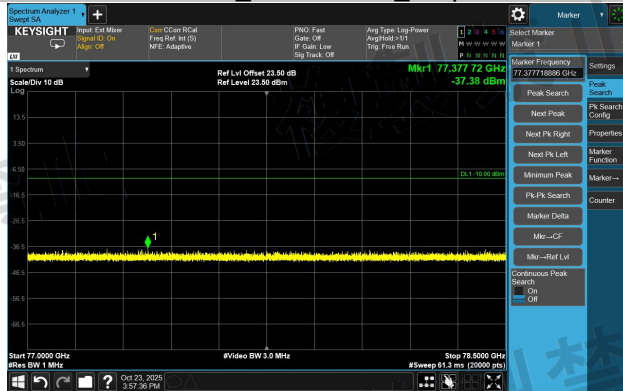
Mode 1_30M-40GHz- Step 1

Mode 1_40-60GHz Step 1



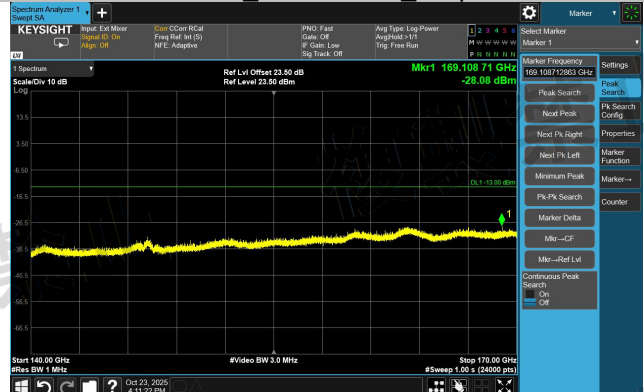
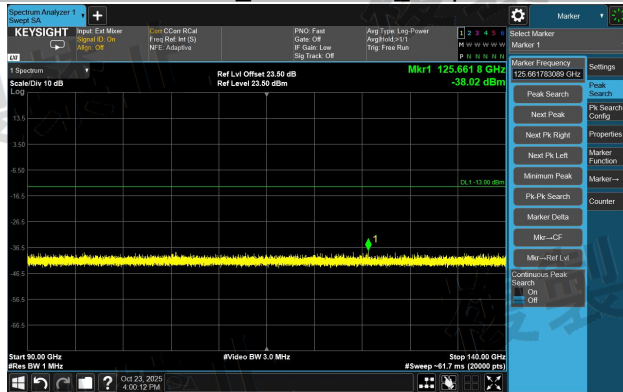
Mode 1_60-74.5GHz Step 1

Mode 1_74.5-76GHz Step 1



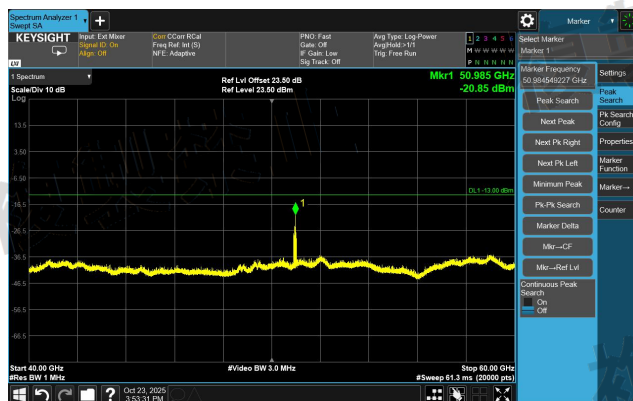
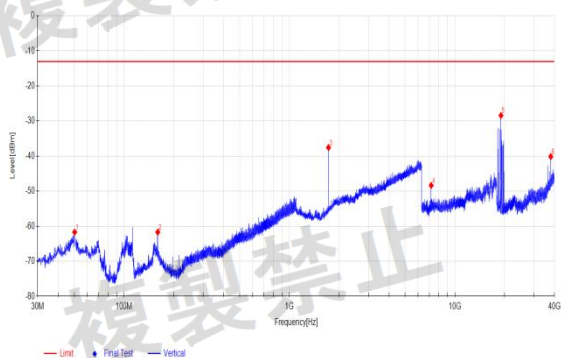
Mode 1_77-78.5GHz Step 1

Mode 1_78.5-90GHz Step 1

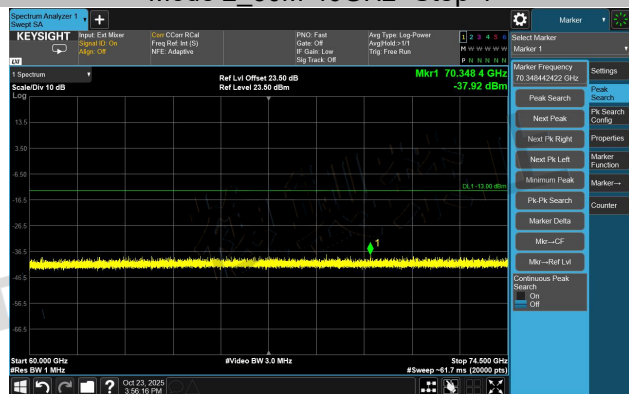


Mode 1_90-140GHz Step 1

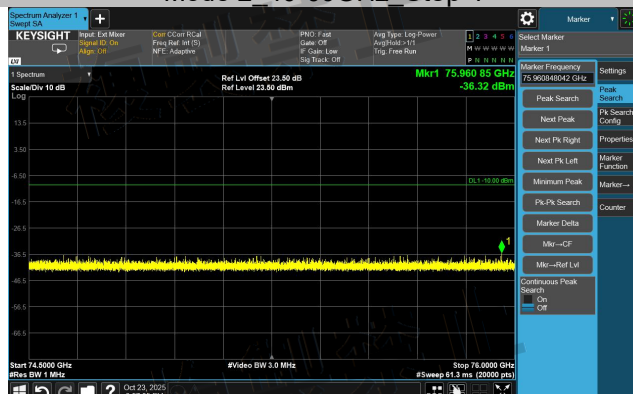
Mode 1_140-170GHz Step 1



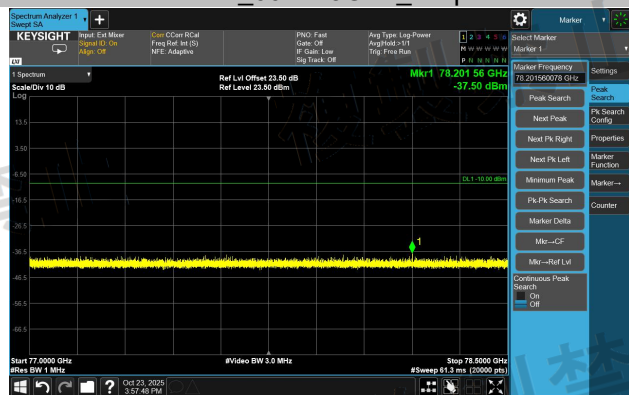
Mode 2_30M-40GHz_ Step 1



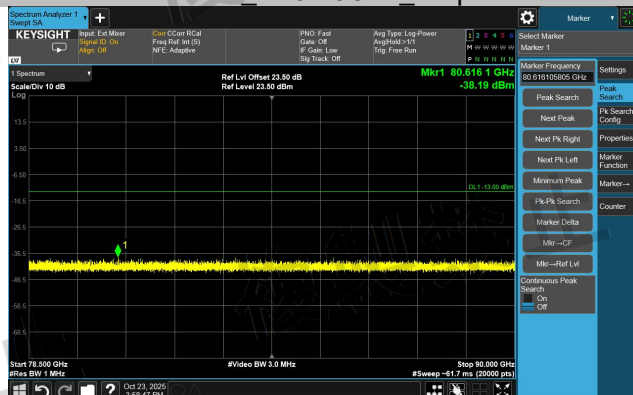
Mode 2_40-60GHz_ Step 1



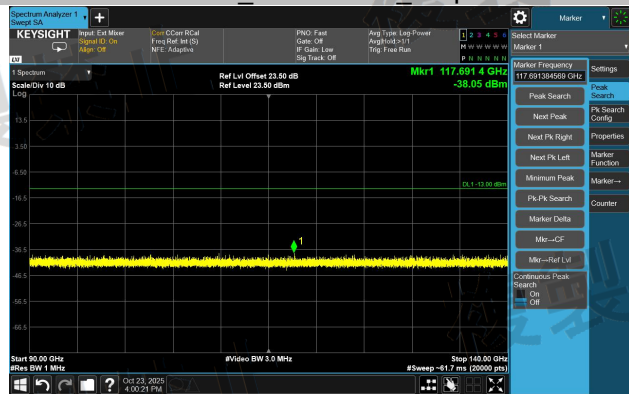
Mode 2_60-74.5GHz_ Step 1



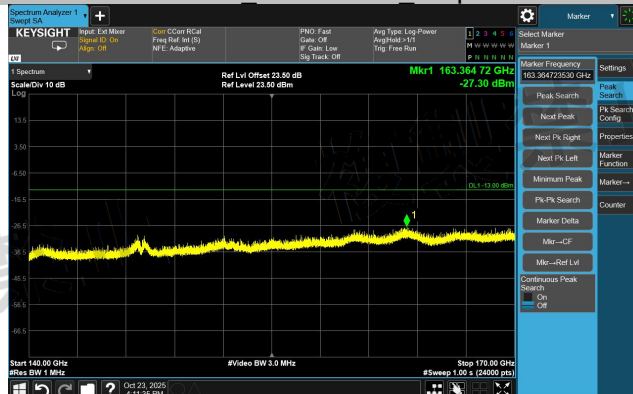
Mode 2_74.5-76GHz_ Step 1



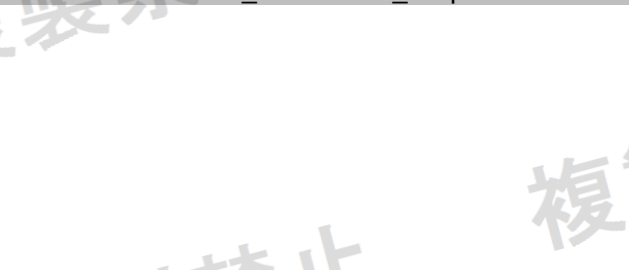
Mode 2_77-78.5GHz_ Step 1



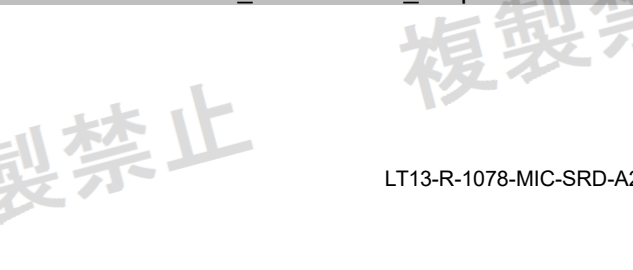
Mode 2_78.5-90GHz_ Step 1



Mode 2_90-140GHz_ Step 1



Mode 2_140-170GHz_ Step 1





3.4 SECONDARY RADIATED EMISSION STRENGTH

3.4.1 Limits

Item	Frequency	Limits
Rx Spurious Emission	$f \leq 74.5\text{GHz}$	-13dBm/MHz
	$74.5\text{GHz} < f \leq 76\text{GHz}$	-10dBm/MHz
	$77\text{GHz} < f \leq 78.5\text{GHz}$	-10dBm/MHz
	$78.5\text{GHz} < f \leq 2 \text{ times of operational frequency}$	-13dBm/MHz

3.4.2 Test Procedure

Test setup for Step 1:
Frequency: 30 MHz – 170GHz
RBW 1 MHz
VBW 1 MHz
Sweep Time Auto
Trace mode Max hold
Detector mode: Peak

Test setup for Step 2:
Frequency: Spurious Frequency
Span 0 Hz
RBW 1 MHz
VBW 1 MHz
Sweep Time Auto
Detector mode Sample
Trace mode Max hold

3.4.3 Test setup

See section 2.4 of this report.

3.4.4 EUT Operation during Test

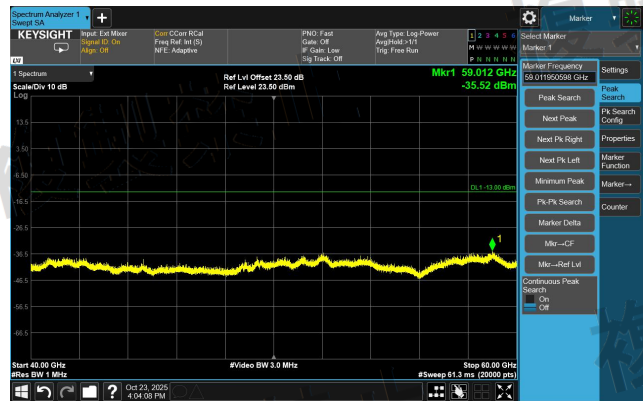
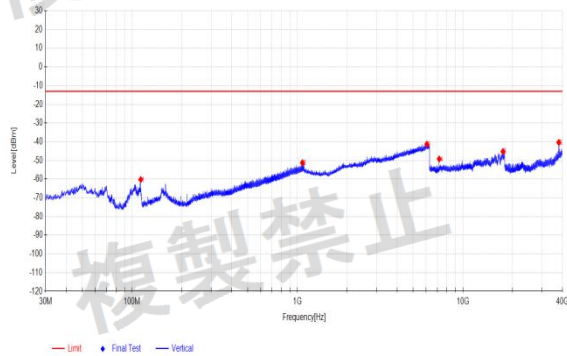
The EUT was programmed to be in Standby mode.



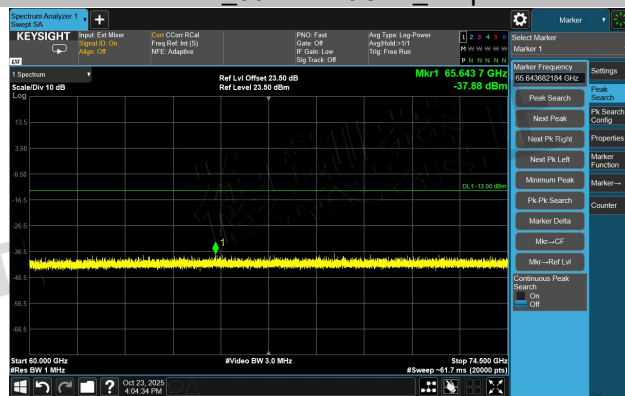
3.4.5 Test result

Test Mode	Freq.Range [MHz]	Result [dBm]	Limit [dBm]	Verdict
TM3	30~40000	-40.35	≤ -13	PASS
TM3	40000-60000	-35.52	≤ -13	PASS
TM3	60000-74500	-37.88	≤ -13	PASS
TM3	74500-76000	-37.33	≤ -10	PASS
TM3	77000-78500	-36.01	≤ -10	PASS
TM3	78500-90000	-37.42	≤ -13	PASS
TM3	90000-140000	-37.51	≤ -13	PASS
TM3	140000-170000	-28.01	≤ -13	PASS

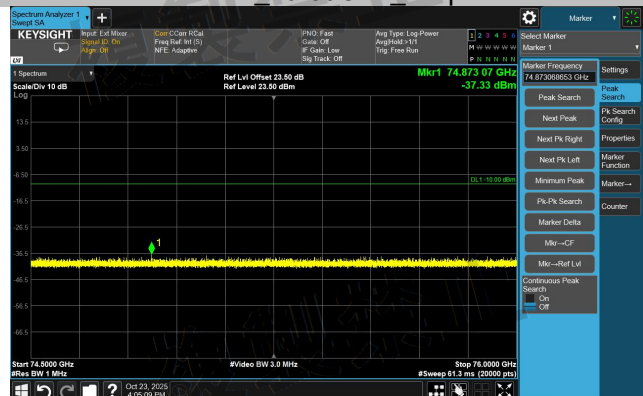
Only show the worst case in test report



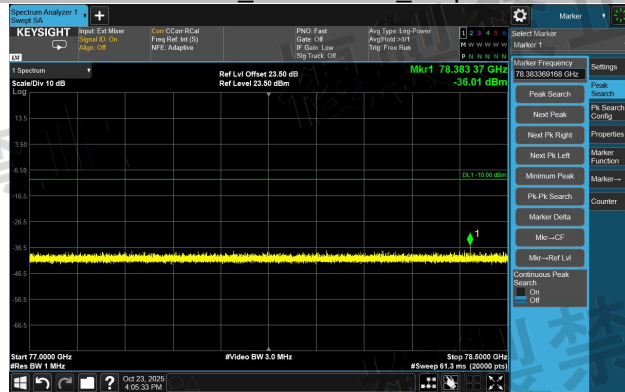
Mode 1_30MHz-40GHz_Step 1



Mode 1_40-60GHz_Step 1



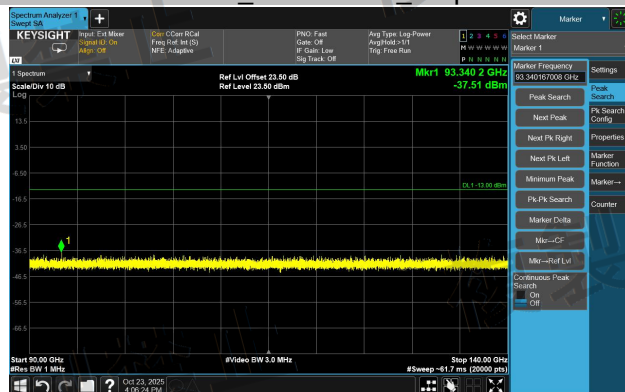
Mode 1_60-74.5GHz_Step 1



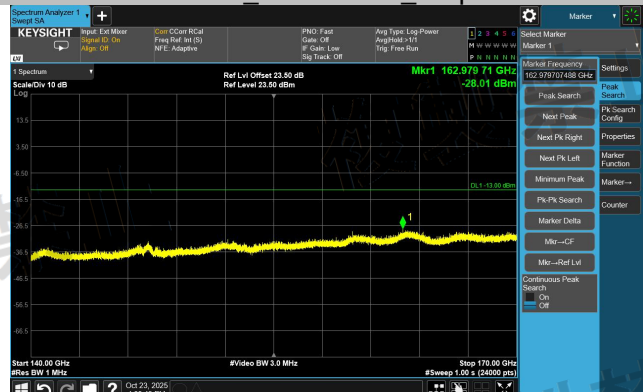
Mode 1_74.5-76GHz_Step 1



Mode 1_77-78.5GHz_Step 1



Mode 1_78.5-90GHz_Step 1



Mode 1_90-140GHz_Step 1

Mode 1_140-170GHz_Step 1



3.5 ANTENNA POWER MEASUREMENT

3.5.1 Limits

Frequency band used	Antenna power	Antenna Power Error
76 ~ 77GHz	10mW	+50% (upper value) and -70% (lower value).

3.5.2 Test Procedure

1. Connect RF detector to the Oscilloscope, and find worst angle of EUT.
2. Record the worst peak voltage reading on the Oscilloscope.
3. Replace EUT with a signal generator. Set the generator at the same frequency as the EUT.
4. Place an adjustable attenuator at the output of signal generator.
5. Adjust the attenuator until the peak voltage reading on the Oscilloscope is same as the value recorded in step 2.
6. Measure the power with power meter after the adjusting is done.
7. The measured power + horn antenna gain is the EIRP power of EUT.
8. Antenna Power = EIRP - Antenna gain

3.5.3 Test setup

See section 2.5 of this report.

3.5.4 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



3.5.5 Test result

ANTENNA POWER						
TM	EIRP (dBm)	Antenna Gain(dBi)	Antenna power (dBm)	Antenna power (mW)	Antenna power Limit (mW)	Verdict
Mode 1	18.93	20.82	-1.89	0.64	10	PASS
Mode 2	18.84	20.82	-1.98	0.63	10	PASS

ANTENNA POWER ERROR					
TM	Antenna power (mW)	Rated Power (mW)	Antenna Power Error(%)	Limit	Verdict
Mode 1	0.64	1	-36	-70 ~ +50%	PASS
Mode 2	0.63	1	-37	-70 ~ +50%	PASS



3.6 ISOTROPIC GAIN OF TRANSMITTING ANTENNA

3.6.1 Limit

Item	Limit
Antenna Gain	< 40dBi

3.6.2 ANTENNA GAIN

MODULATION MODE	ANT.array	Ant. Type	Connector Type	Highest Peak Gain (dBi)	
				Single Antenna	Antenna Array
FMCW	1	Microstrip Antenna	N/A	Ant1: 14 dBi Ant2: 14.8 dBi Ant3: 14.4 dBi Ant4: 14 dBi	20.82

3.6.3 ANTENNA PATTERN

Please refer to the attached file (Antenna report).



3.7 INTERFERENCE PREVENTION FUNCTION

3.7.1 Limits

Radio equipment used mainly on the same premises and automatically transmits or receives identification code

3.7.2 Test setup

See section 2.4 of this report.

3.7.3 Test result

Item	Limit	Verdict
Interference Prevention Function	GOOD	PASS



3.8 CONSTRUCTION PROTECTION CONFIRMATION METHOD

3.8.1 Requirement

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

3.8.2 Confirmation Method

☐ Sealed with special screws.
☐ Plastic chassis is being welded using ultrasonic waves.
☐ Chassis is glued using a special adhesive.
☐ Metal covers are spot-fused.
☐ Cover is specially interlocked.
☐ RF and Modulation components are covered with shielding case and this shielding case is soldered.
☐ Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.
☐ Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive.
☐ Shield case is welded at RF and modulation parts, and ID-ROM is glued with a non-transparent laminating agent.
☒ Other : a declaration letter is provided by manufacturer



4 PHOTOGRAPHS OF TEST SETUP

Please refer to the attached file (Test Setup Photo).



5 PHOTOGRAPHS OF THE EUT

Please refer to the attached file (EUT Photos report).

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



Important

- (1) The test report is invalid without the official stamp of CVC;
- (2) Any part photocopies of the test report are forbidden without the written permission from CVC;
- (3) The test report is invalid without the signatures of tester, reviewer and approver;
- (4) The test report is invalid if altered;
- (5) Objections to the test report must be submitted to CVC within 15 days;
- (6) Generally, commission test results apply to the samples as received. The sample information is provided by the customer and laboratory is not responsible for its authenticity;
- (7) As for the test result “-” or “N” means “not applicable”, “/” means “not test”, “P” means “pass” and “F” means “fail”

Lab Address: No. 1301-14&16, Guangguang Road, Xinlan Community, Guanlan Subdistrict, Longhua District, Shenzhen, Guangdong, China

Post Code: 518110 Tel: 0755-23763060-8805

Fax: 0755-23763060 E-mail: sz-kf@cvc.org.cn