Shenzhen CTL Testing Technology Co., Ltd.
Tel: +86-755-89486194 E-mail: ctl@ctl-lab.com

TEST REPORT

FOR FCC PART 15 SUBPART C 15.249

Report Reference No. ..... : **CTL2507183011-WF**

Compiled by: (position+printed name+signature)	Happy Guo (File administrators)	
Tested by: (position+printed name+signature)	Lydia Ou (Test Engineer)	
Approved by: (position+printed name+signature)	Ivan Xie (Manager)	

Product Name ..... :	Mini watch drone
Model/Type reference ..... :	399-F1
List Model(s)..... :	Please look at page 2
Trade Mark..... :	N/A
FCC ID..... :	**2A9UG-399F1**
Applicant's name ..... :	**XINZHICHEN TOYS FACTORY**
Address of applicant ..... :	2 ROAD, LIANDONG ROAD, XIA VILLAGE, LIANXIA TOWN, CHENGHAI DISTRICT, SHANTOU CITY, China
Test Firm..... :	**Shenzhen CTL Testing Technology Co., Ltd.**
Address of Test Firm ..... :	Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055
Test specification..... :	
Standard ..... :	**FCC Part 15.249:**Operation within the bands 920-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz and 24.0 - 24.25 GHz.
TRF Originator ..... :	Shenzhen CTL Testing Technology Co., Ltd.
Master TRF..... :	Dated 2011-01
Date of receipt of test item ..... :	Jul. 21, 2025
Date of Test Date..... :	Jul. 21, 2025-Jul. 31, 2025
Data of Issue..... :	Aug. 04, 2025
Result..... :	**Pass**

TEST REPORT

Test Report No. :	CTL2507183011-WF	Aug. 04, 2025
		Date of issue

Equipment under Test	:	Mini watch drone
Sample No.		CTL250718301003
Model /Type	:	399-F1
Listed Models	:	399-F2, 399-F3, 399-F4, 399-F5, 399-F6, 399-F7, 399-F8, 399-F9, 399-F10, 399-F11, 399-F12, 399-F13, 399-F14, 399-F15, 399-F16, 399-F17, 399-F18, 399-F19, 399-F20, 399-F21, 399-F22, 399-F23, 399-F24, 399-F25, 399-F26, 399-F27, 399-F28, 399-F29, 399-F30, 399-F31, 399-F32, 399-F33, 399-F34, 399-F35, 399-F36, 399-F37, 399-F38, 399-F39, 399-F40, 399-F41, 399-F42, 399-F43, 399-F44, 399-F45, 399-F46, 399-F47, 399-F48, 399-F49, 399-F50, 399-F51, 399-F52, 399-F53, 399-F54, 399-F55, 399-F56, 399-F57, 399-F58, 399-F59, 399-F60, 399-F61, 399-F62, 399-F63, 399-F64, 399-F65, 399-F66, 399-F67, 399-F68, 399-F69, 399-F70, 399-F71, 399-F72, 399-F73, 399-F74, 399-F75, 399-F76, 399-F77, 399-F78, 399-F79, 399-F80, 399-F81, 399-F82, 399-F83, 399-F84, 399-F85, 399-F86, 399-F87, 399-F88, 399-F89, 399-F90, 399-F91, 399-F92, 399-F93, 399-F94, 399-F95, 399-F96, 399-F97, 399-F98, 399-F99, 399-F100
Applicant	:	**XINZHICHEN TOYS FACTORY**
Address	:	2 ROAD, LIANDONG ROAD, XIA VILLAGE, LIANXIA TOWN, CHENGHAI DISTRICT, SHANTOU CITY, China
Manufacturer	:	**XINZHICHEN TOYS FACTORY**
Address	:	2 ROAD, LIANDONG ROAD, XIA VILLAGE, LIANXIA TOWN, CHENGHAI DISTRICT, SHANTOU CITY, China

Test result	Pass *

* In the configuration tested, the EUT complied with the standards specified page 5.

This device (product name: Mini watch drone) model name: 399-F1,
399-F2, 399-F3, 399-F4, 399-F5, 399-F6, 399-F7, 399-F8, 399-F9, 399-F10, 399-F11, 399-F12, 399-F13, 399-F14, 399-F15, 399-F16, 399-F17, 399-F18, 399-F19, 399-F20, 399-F21, 399-F22, 399-F23, 399-F24, 399-F25, 399-F26, 399-F27, 399-F28, 399-F29, 399-F30, 399-F31, 399-F32, 399-F33, 399-F34, 399-F35, 399-F36, 399-F37, 399-F38, 399-F39, 399-F40, 399-F41, 399-F42, 399-F43, 399-F44, 399-F45, 399-F46, 399-F47, 399-F48, 399-F49, 399-F50, 399-F51, 399-F52, 399-F53, 399-F54, 399-F55, 399-F56, 399-F57, 399-F58, 399-F59, 399-F60, 399-F61, 399-F62, 399-F63, 399-F64, 399-F65, 399-F66, 399-F67, 399-F68, 399-F69, 399-F70, 399-F71, 399-F72, 399-F73, 399-F74, 399-F75, 399-F76, 399-F77, 399-F78, 399-F79, 399-F80, 399-F81, 399-F82, 399-F83, 399-F84, 399-F85, 399-F86, 399-F87, 399-F88, 399-F89, 399-F90, 399-F91, 399-F92, 399-F93, 399-F94, 399-F95, 399-F96, 399-F97, 399-F98, 399-F99, 399-F100 electrical, PCB, BOM are the same, only the model name different, which does not affect the test results.

** Modified History **

Revision	Description	Issued Data	Report No.	Remark
Version 1.0	Initial Test Report Release	2025-08-04	CTL2507183011-WF	Tracy Qi

Table of Contents Page

1. SUMMARY

1.1. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15.249: Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz, 5725 - 5875 MHz, and 24.0 - 24.25 GHz.

ANSI C63.10:2013 : American National Standard for Testing Unlicensed Wireless Devices

1.2. Test Description

FCC PART 15.249		
FCC Part 15.249(a)	Field Strength of Fundamental	PASS
FCC Part 15.209	Spurious Emission	PASS
FCC Part 15.209	Band edge	PASS
FCC Part 15.215(c)	20dB bandwidth	PASS
FCC Part 15.207	Conducted Emission	N/A
FCC Part 15.203	Antenna Requirement	PASS

1.3. Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.
Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 32/EN 55032 requirements.

1.3.2 Laboratory accreditation

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

CNAS-Lab Code: L7497

Shenzhen CTL Testing Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 4343.01

Shenzhen CTL Testing Technology Co., Ltd, EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: 9618B

CAB identifier: CN0041

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements with Registration No.: 9618B.

1.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Measurement Uncertainty	Notes
Transmitter power conducted	±0.57 dB	(1)
Transmitter power Radiated	±2.90 dB	(1)
20dB Emission Bandwidth	±1.9%	(1)
Radiated Emission9KHz~30MHz	±3.66dB	(1)
Radiated Emission 30~1000MHz	±4.08dB	(1)
Radiated Emission Above 1GHz	±4.32dB	(1)
Conducted Disturbance0.15~30MHz	±3.20dB	(1)

This uncertainty represents an expanded uncertainty expressed at approximately the 95%

confidence level using a coverage factor of k=1.96.

2. GENERAL INFORMATION

2.1. Environmental conditions

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

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2. General Description of EUT

Product Name:	Mini watch drone
Model/Type reference:	399-F1
Power supply:	DC 3V from battery
Test Voltage	DC 3V
2.4G	
Modulation:	GFSK
Operation frequency:	2450MHz~2468MHz
Channel number:	20
Antenna type:	PCB Antenna
Antenna gain:	0.59dBi

Note1: For more details, please refer to the user's manual of the EUT.
Note2: Antenna gain provided by the applicant.
Note3: The product cannot be configured to operate outside the current frequency band plan through software configuration, Third parties are not allowed to change any software parameter configuration of the product.

2.3. Description of Test Modes and Test Frequency

The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing. There are 33 channels provided to the EUT and Channel 01/11/20 were selected for testing.

Operation Frequency List：

Channel	Frequency (MHz)
01	**2440**
02	2450
03	2451
04	2452
05	2453
06	2454
07	2455
08	2456
09	2457
10	2458
11	**2459**
12	2460
13	2461
14	2462

15	2463
16	2464
17	2465
18	2466
19	2467
20	**2468**

Note: The line display in grey is the channel selected to perform test.

2.4. Equipments Used during the Test

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
EMI Test Receiver		ROHDE & SCHWARZ	ESCI	1166.5950.03	2025/04/28	2026/04/27
LISN		ROHDE & SCHWARZ	ESH2-Z5	860014/010	2025/04/28	2026/04/27
Limitator		ROHDE & SCHWARZ	ESH3-Z2	100408	2025/04/28	2026/04/27
Software:						
Name of Software:				Version:		
ES-K1				V1.71		

Radiated Emissions and Band Edge					
Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
Active Loop Antenna	Da Ze	ZN30900A	/	2025/04/28	2026/04/27
Double cone logarithmic antenna	Sunol Sciences Corp.	JB1 Antenna	A061713	2023/02/13	2026/02/12
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2024/11/25	2027/11/24
Horn Antenna	Ocean Microwave	OBH100400	26999002	2025/02/21	2028/02/20
Amplifier	MRT Technology(Suzhou)Co., Ltd	MRT-AP01M06	S-001	2025/04/28	2026/04/27
Amplifier	Agilent	8449B	3008A02306	2025/04/28	2026/04/27
Amplifier	Brief&Smart	LNA-4018	2104197	2025/05/01	2026/04/30
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2025/04/28	2026/04/27
Spectrum Analyzer	RS	FSP	1164.4391.38	2025/05/01	2026/04/30
Test software					
Name of Software			Version		
EZ_EMC(Below 1GHz)			V1.1.4.2		
EZ_EMC(Above 1GHz)			V1.1.4.2		

Maximum Peak Output Power & 20dB Bandwidth & Frequency Separation & Number of hopping frequency & Dwell Time & Out-of-band Emissions					
Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
Spectrum Analyzer	Keysight	N9020A	MY53420874	2025/04/29	2026/04/28
Temperature/Humidity Meter	Ji Yu	MC501	/	2025/05/02	2026/05/01
Test Software					
Name of Software			Version		
TST-PASS			V2.0		

2.5. Related Submittal(s) / Grant(s)

This submittal(s) (test report) is intended to comply with Section 15.249 of the FCC Part 15, Subpart C Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

3. TEST CONDITIONS AND RESULTS

3.1. Conducted Emissions Test

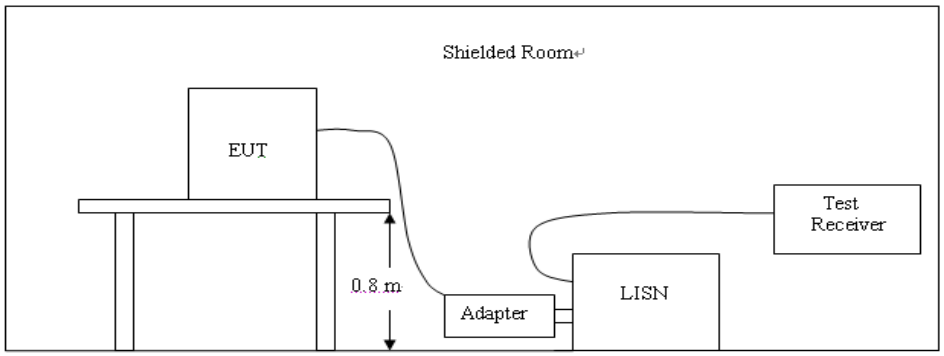
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Frequency range (MHz)	Limit (dBuV)	
	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 CONFIGURATION



TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

Battery powered products do not require this test.

3.2. Radiated Emissions and Band Edge

Limit

According 15.249, the field strength of emissions from intentional radiators operated within 2400MHz-2483.5 MHz shall not exceed 94dBμV/m (50mV/m):

FCC PART 15.249(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

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)

Radiated emission limits

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

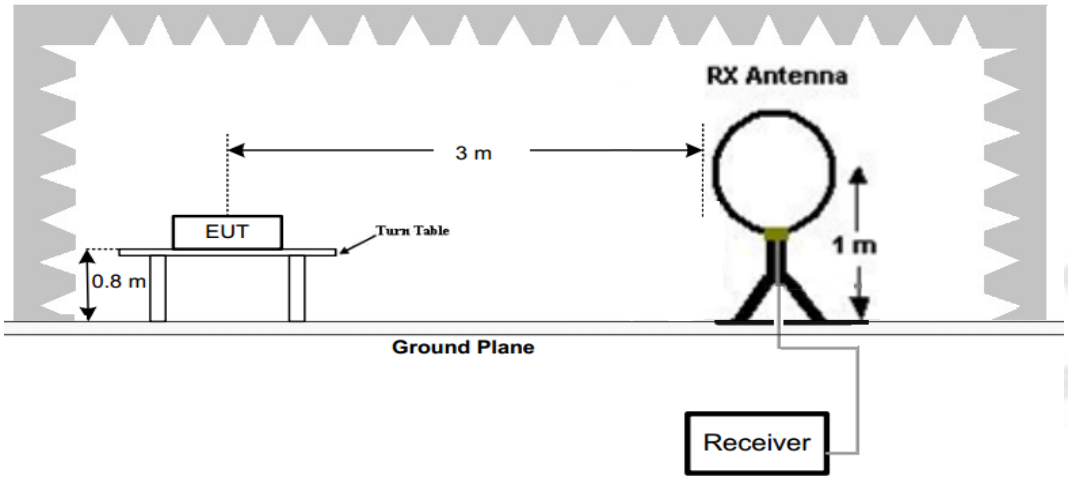
According to §15.249 (a): Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

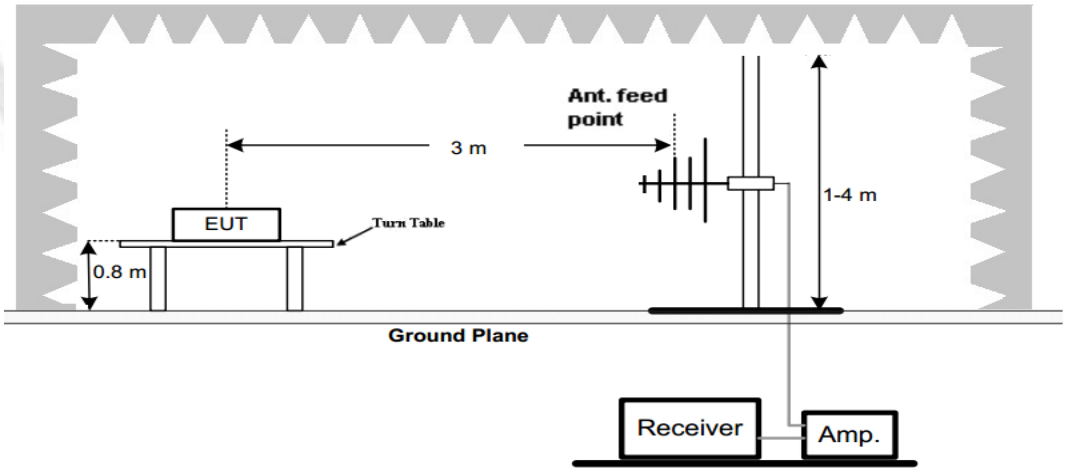
* Field strength limits are specified at a distance of 3 meters.
* As shown in §15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.
* Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

TEST CONFIGURATION

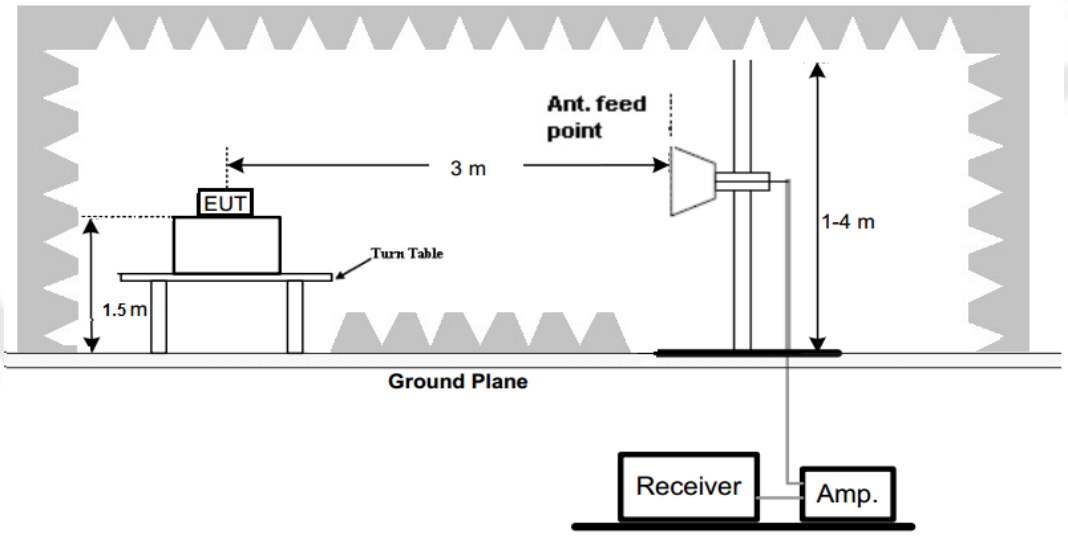
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



Test Procedure

1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. Radiated emission test frequency band from 9KHz to 25GHz.
6. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Bilog Antenna	3
1GHz-18GHz	Horn Antenna	3
18GHz-25GHz	Horn Anternna	1

7. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

TEST RESULTS

Remark:
1. We measured Radiated Emission at GFSK mode from 9 KHz to 25GHz and recorded worst case.
2. For below 1GHz testing recorded worst at GFSK low channel.
3. Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report.

For 30MHz-1GHz

Horizontal

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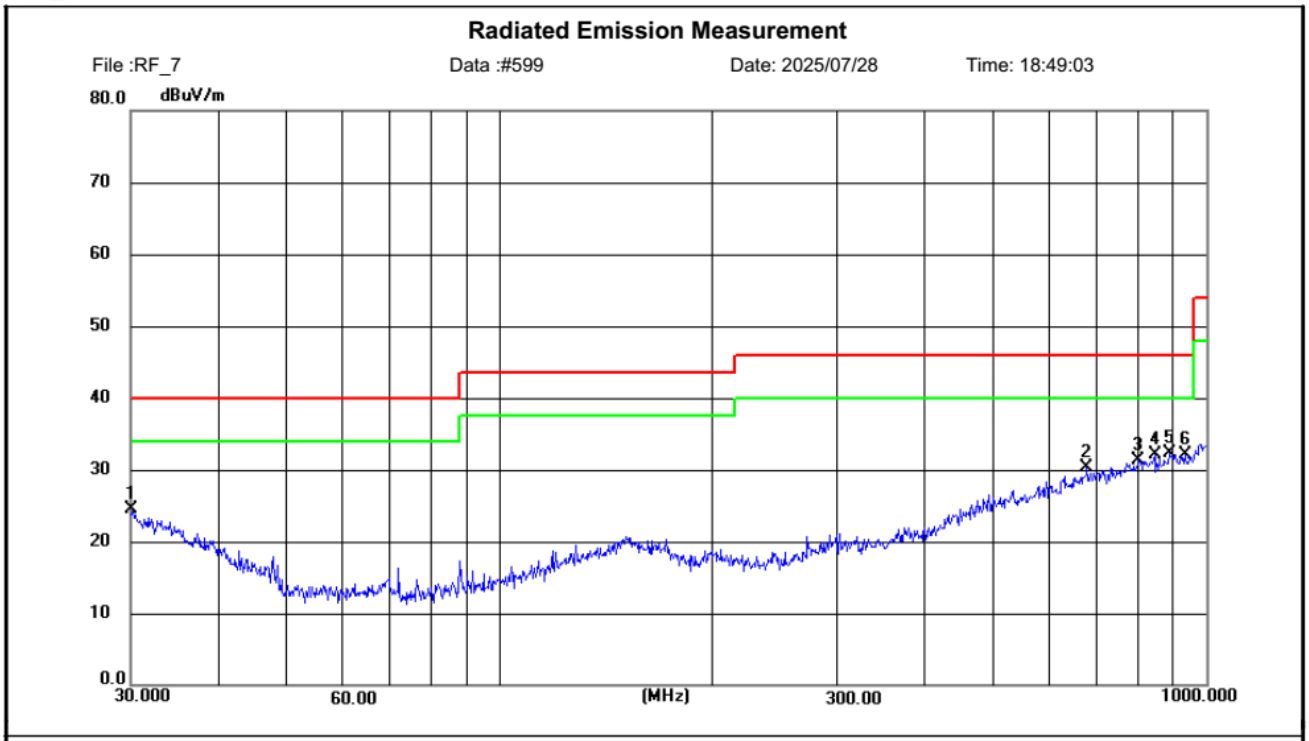

Site LAB Chamber 2
Limit: FCC Part15 RE-Class C_30-1000MHz
EUT: /
M/N:
Mode: 2440MHz
Note: CTL2507183011-WF
/

Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	30.0000	4.24	20.35	24.59	40.00	15.41	peak	100	224	P	
2	679.0664	7.34	23.04	30.38	46.00	15.62	peak	100	196	P	
3	802.1378	6.75	24.64	31.39	46.00	14.61	peak	100	210	P	
4	845.4582	7.42	24.72	32.14	46.00	13.86	peak	100	182	P	
5	890.7277	6.82	25.50	32.32	46.00	13.68	peak	100	350	P	
6	933.0891	6.19	25.88	32.07	46.00	13.93	peak	100	350	P	

Vertical

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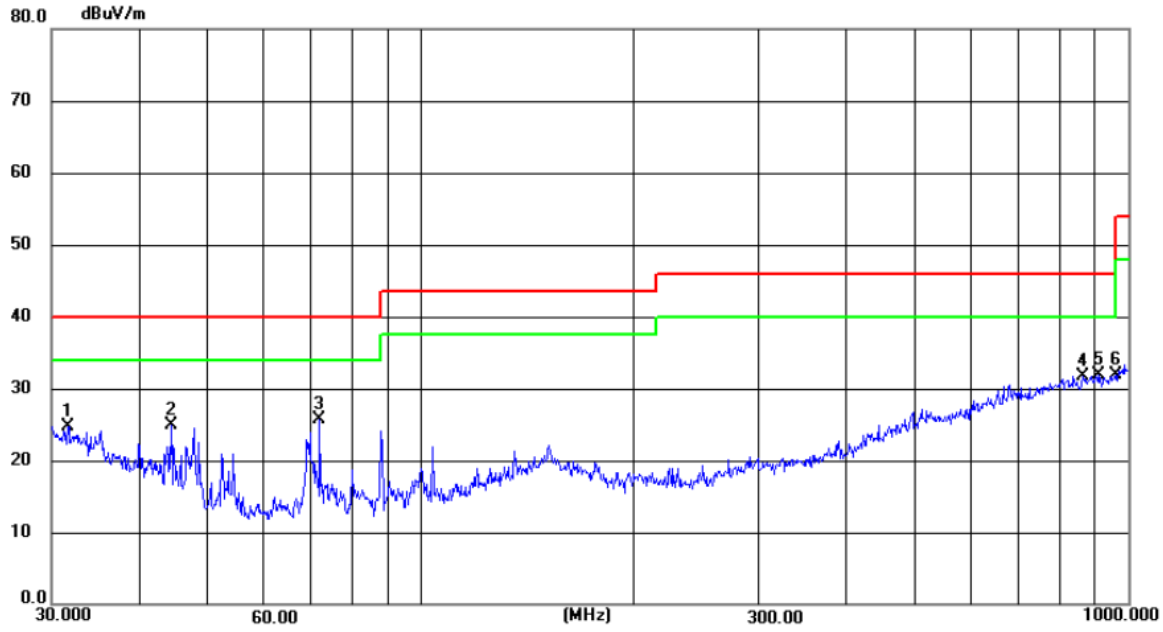
Radiated Emission Measurement

File :RF_7 Data :#600 Date: 2025/07/28 Time: 18:49:53



Site LAB Chamber 2
Limit: FCC Part15 RE-Class C_30-1000MHz
EUT: /
M/N:
Mode: 2440MHz
Note: CTL2507183011-WF
/

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	31.7174	5.58	19.17	24.75	40.00	15.25	peak	100	320	P	
2	44.2752	12.33	12.49	24.82	40.00	15.18	peak	100	108	P	
3	72.0528	16.51	9.23	25.74	40.00	14.26	peak	100	66	P	
4	863.8132	6.66	25.13	31.79	46.00	14.21	peak	100	52	P	
5	909.2680	6.36	25.64	32.00	46.00	14.00	peak	100	193	P	
6	960.4768	5.70	26.23	31.93	54.00	22.07	peak	100	360	P	

For 1GHz to 10GHz

2440MHz

Horizontal

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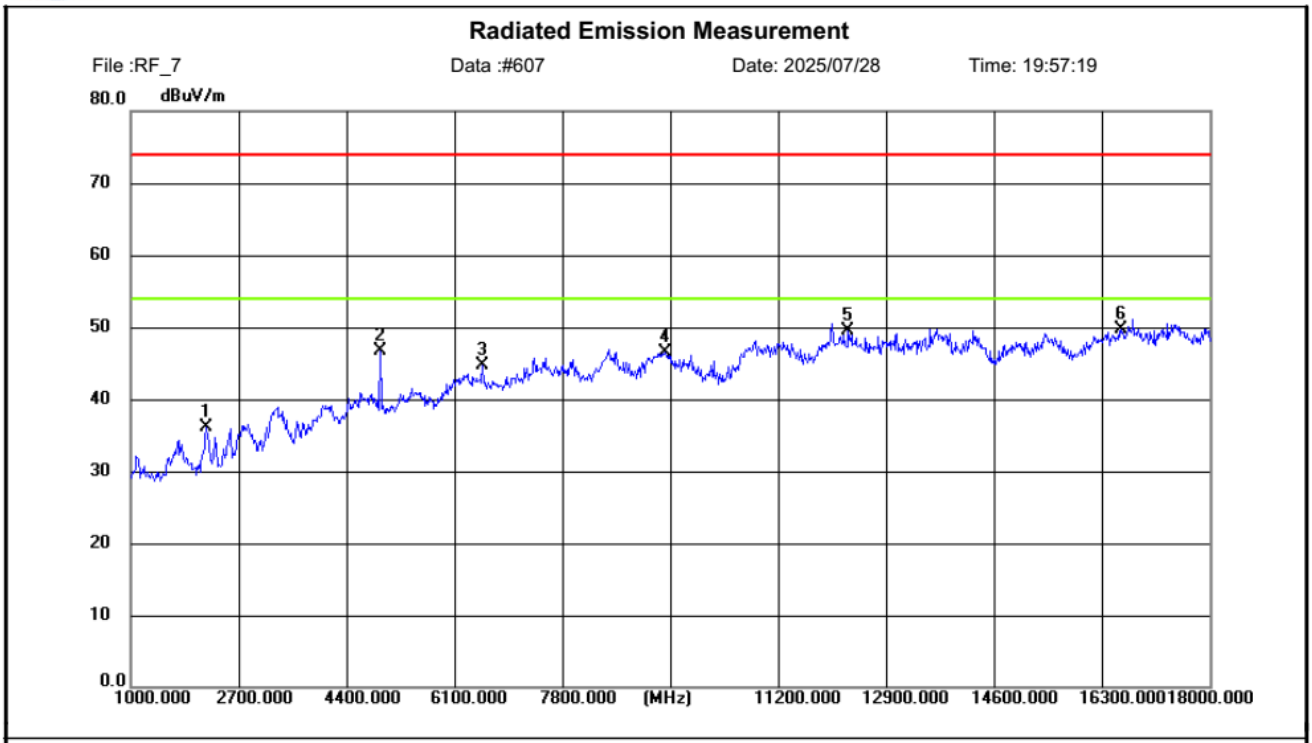

Site LAB Chamber 2
Limit: FCC Part15 RE-Class C_Above 1GHz_PK
EUT: /
M/N:
Mode: 2440MHz
Note: CTL2507183011-WF
/

Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2202.750	53.82	-17.70	36.12	74.00	37.88	peak	150	1	P	
2	4935.500	54.52	-7.87	46.65	74.00	27.35	peak	150	211	P	
3	6542.000	48.95	-4.26	44.69	74.00	29.31	peak	150	281	P	
4	9417.125	46.27	0.23	46.50	74.00	27.50	peak	150	239	P	
5	12307.125	47.41	2.18	49.59	74.00	24.41	peak	150	252	P	
6	16614.500	43.47	6.30	49.77	74.00	24.23	peak	150	182	P	

Vertical

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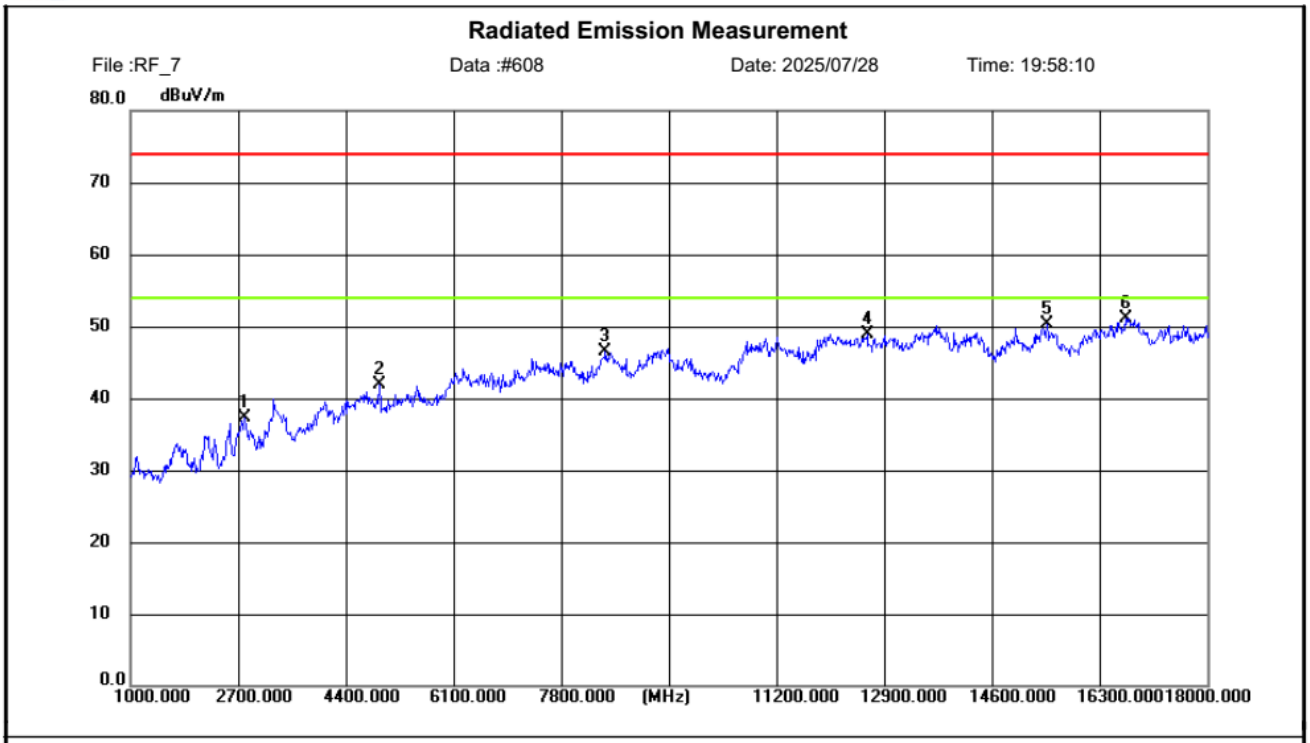

Site LAB Chamber 2
Limit: FCC Part15 RE-Class C_Above 1GHz_PK
EUT: /
M/N:
Mode: 2440MHz
Note: CTL2507183011-WF
/

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2816.875	52.26	-14.97	37.29	74.00	36.71	peak	150	206	P	
2	4935.500	49.78	-7.87	41.91	74.00	32.09	peak	150	206	P	
3	8507.625	48.31	-1.75	46.56	74.00	27.44	peak	150	107	P	
4	12634.375	46.70	2.22	48.92	74.00	25.08	peak	150	290	P	
5	15475.500	46.42	3.84	50.26	74.00	23.74	peak	150	360	P	
6	16712.250	44.59	6.49	51.08	74.00	22.92	peak	150	304	P	

2459MHz

Horizontal

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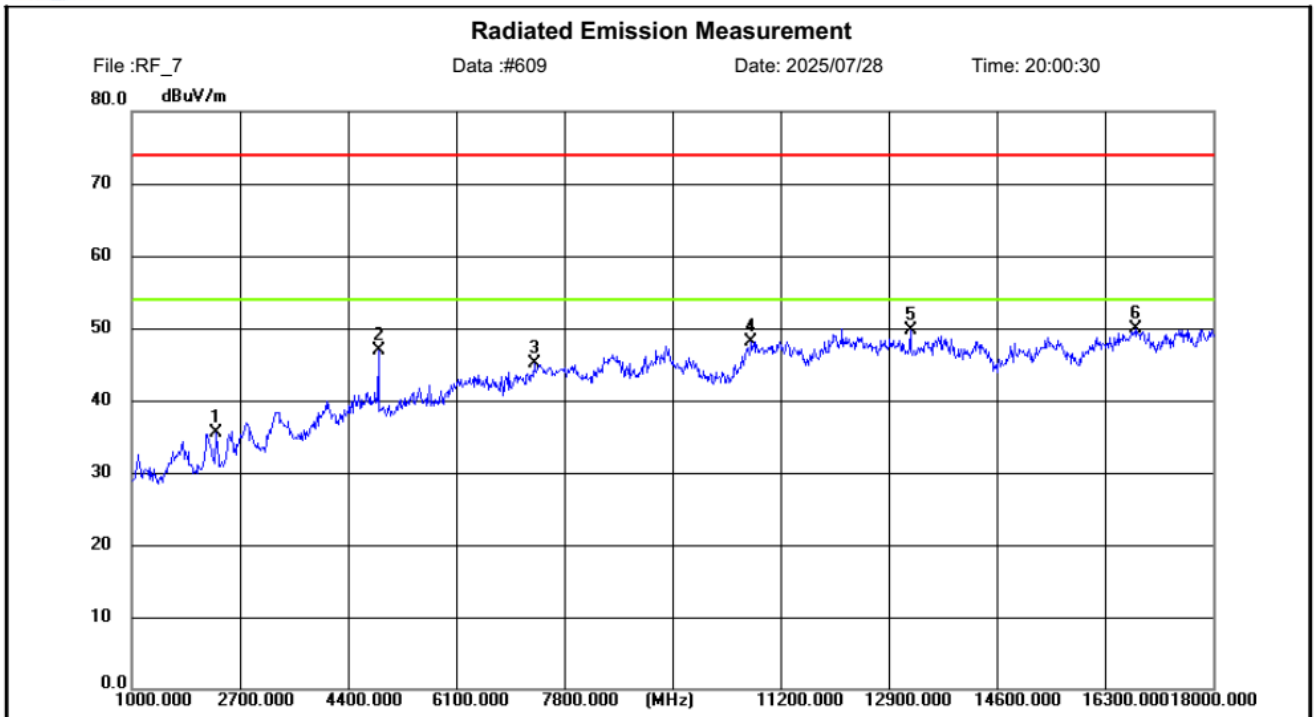

Site LAB Chamber 2
Limit: FCC Part15 RE-Class C_Above 1GHz_PK
EUT: /
M/N:
Mode: 2459MHz
Note: CTL2507183011-WF
/

Polarization: ***Horizontal***
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2338.750	52.71	-17.15	35.56	74.00	38.44	peak	150	14	P	
2	4880.250	54.84	-7.96	46.88	74.00	27.12	peak	150	127	P	
3	7334.625	48.10	-2.93	45.17	74.00	28.83	peak	150	1	P	
4	10745.250	47.71	0.33	48.04	74.00	25.96	peak	150	254	P	
5	13254.875	46.60	3.06	49.66	74.00	24.34	peak	150	70	P	
6	16793.000	43.39	6.57	49.96	74.00	24.04	peak	150	127	P	

Vertical

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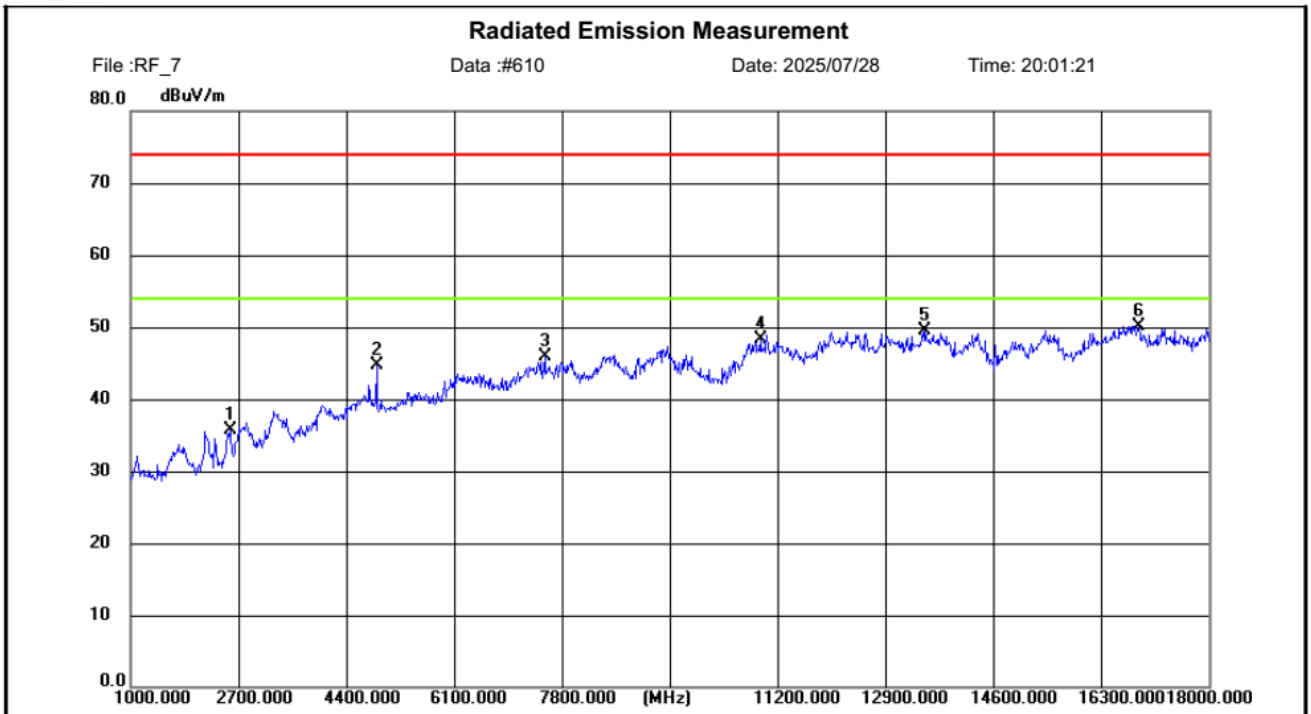

Site LAB Chamber 2
Limit: FCC Part15 RE-Class C_Above 1GHz_PK
EUT: /
M/N:
Mode: 2459MHz
Note: CTL2507183011-WF
/

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2572.500	52.03	-16.32	35.71	74.00	38.29	peak	150	121	P	
2	4880.250	52.74	-7.96	44.78	74.00	29.22	peak	150	22	P	
3	7532.250	48.65	-2.73	45.92	74.00	28.08	peak	150	22	P	
4	10932.250	47.53	0.68	48.21	74.00	25.79	peak	150	64	P	
5	13531.125	45.50	3.94	49.44	74.00	24.56	peak	150	64	P	
6	16895.000	43.52	6.66	50.18	74.00	23.82	peak	150	276	P	

2468MHz

Horizontal

Shenzhen CTL Testing Technology Co., Ltd
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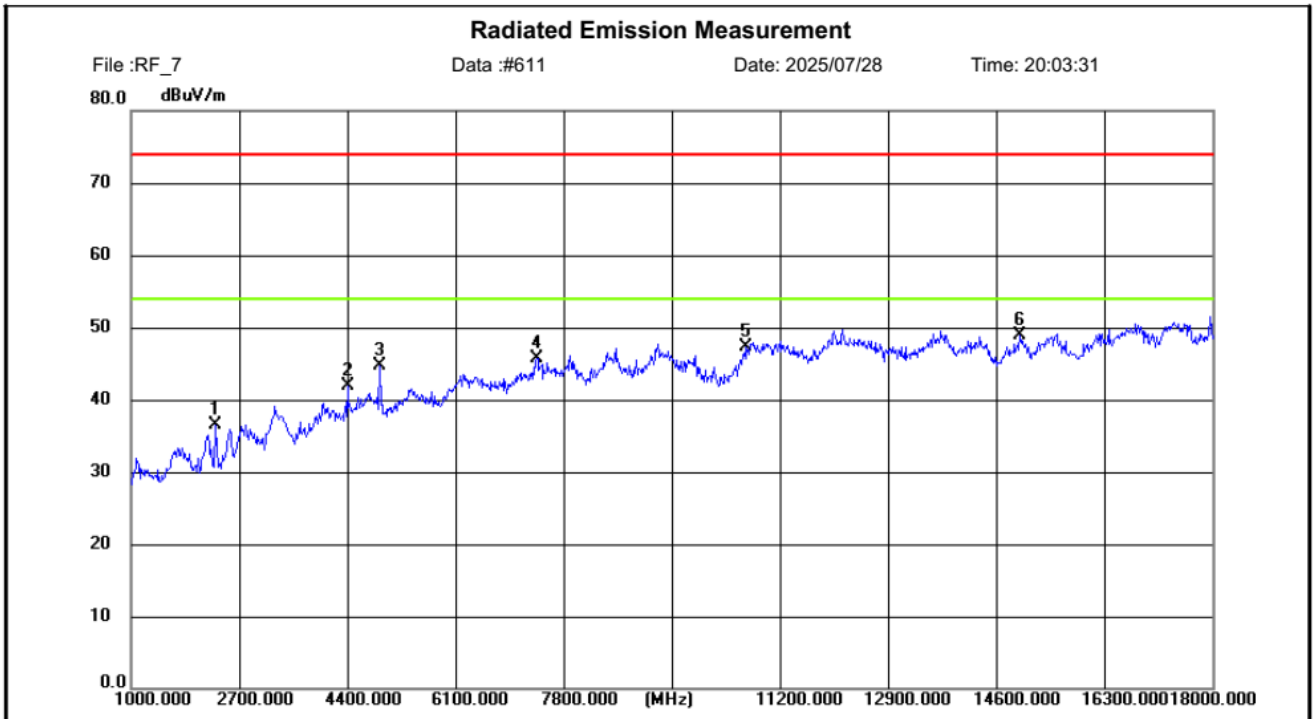

Site LAB Chamber 2
Limit: FCC Part15 RE-Class C_Above 1GHz_PK
EUT: /
M/N:
Mode: 2468MHz
Note: CTL2507183011-WF
/

Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2336.625	53.56	-17.15	36.41	74.00	37.59	peak	150	70	P	
2	4414.875	50.63	-8.70	41.93	74.00	32.07	peak	150	1	P	
3	4918.500	52.67	-7.89	44.78	74.00	29.22	peak	150	98	P	
4	7377.125	48.51	-2.83	45.68	74.00	28.32	peak	150	70	P	
5	10681.500	47.12	0.20	47.32	74.00	26.68	peak	150	253	P	
6	14978.250	45.59	3.29	48.88	74.00	25.12	peak	150	360	P	

Vertical

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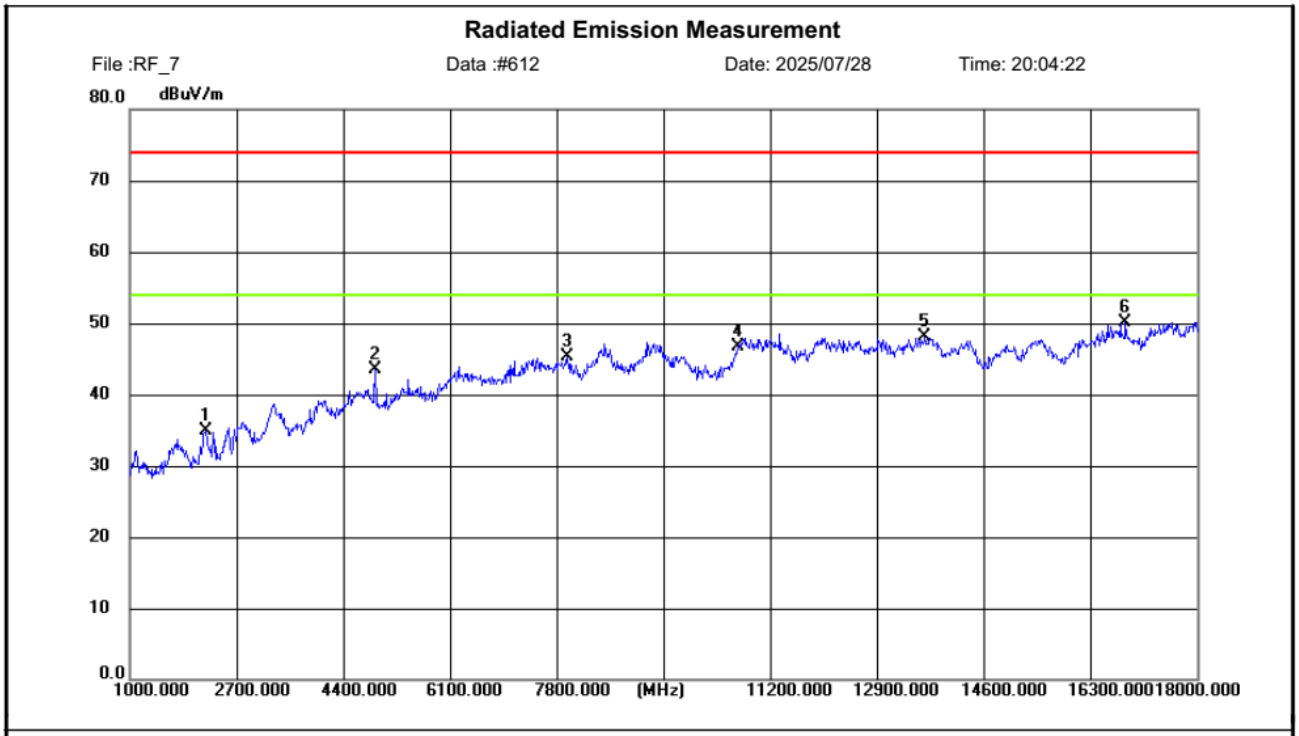

Site LAB Chamber 2
Limit: FCC Part15 RE-Class C_Above 1GHz_PK
EUT: /
M/N:
Mode: 2468MHz
Note: CTL2507183011-WF
/

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2213.375	52.50	-17.64	34.86	74.00	39.14	peak	150	20	P	
2	4918.500	51.32	-7.89	43.43	74.00	30.57	peak	150	34	P	
3	7980.625	48.24	-3.00	45.24	74.00	28.76	peak	150	345	P	
4	10704.875	46.56	0.24	46.80	74.00	27.20	peak	150	176	P	
5	13665.000	44.26	3.92	48.18	74.00	25.82	peak	150	332	P	
6	16871.625	43.40	6.63	50.03	74.00	23.97	peak	150	148	P	

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. The other emission levels were very low against the limit.
5. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.
6. For fundamental frequency, RBW 3MHz VBW 3MHz Peak detector is for PK Value ; RMS detector is for AV value.

Frequency bands

2440MHz

Horizontal

Shenzhen CTL Testing Technology Co., Ltd
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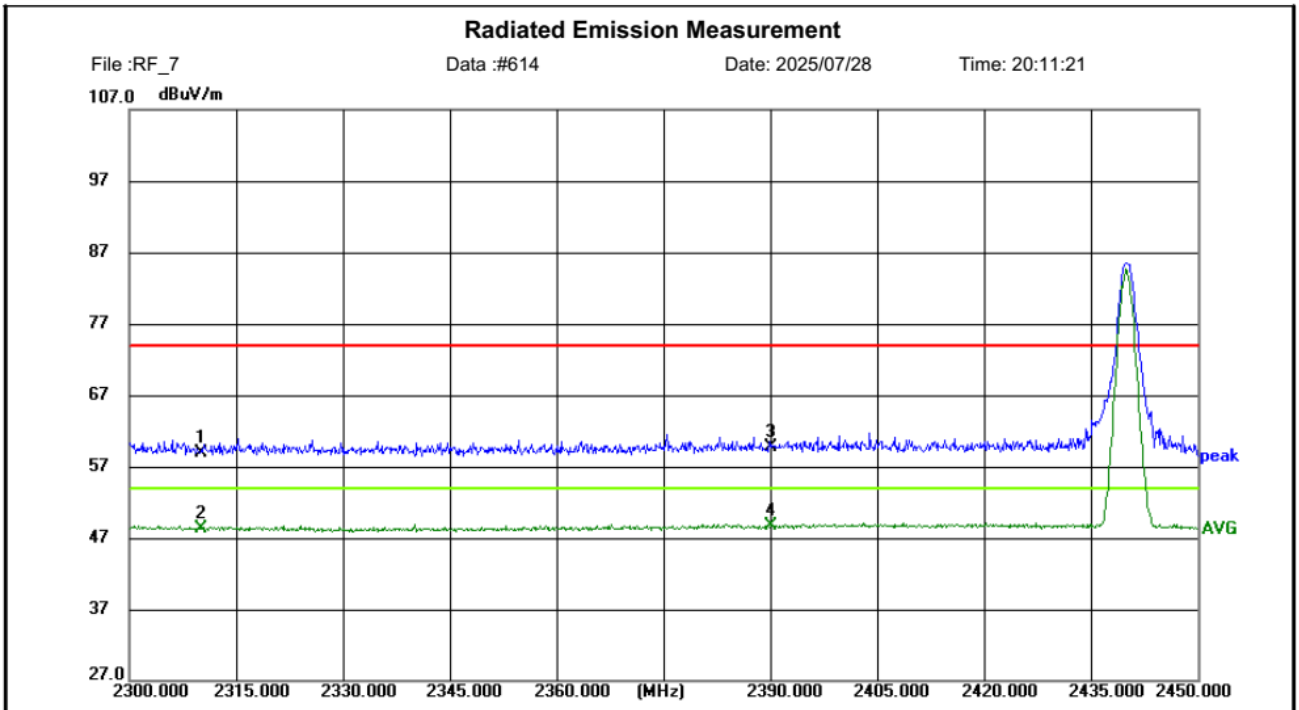


Site LAB Chamber 2
Limit: FCC Part 15 C
EUT: /
M/N:
Mode: 2440MHz
Note: CTL2507183011-WF
/

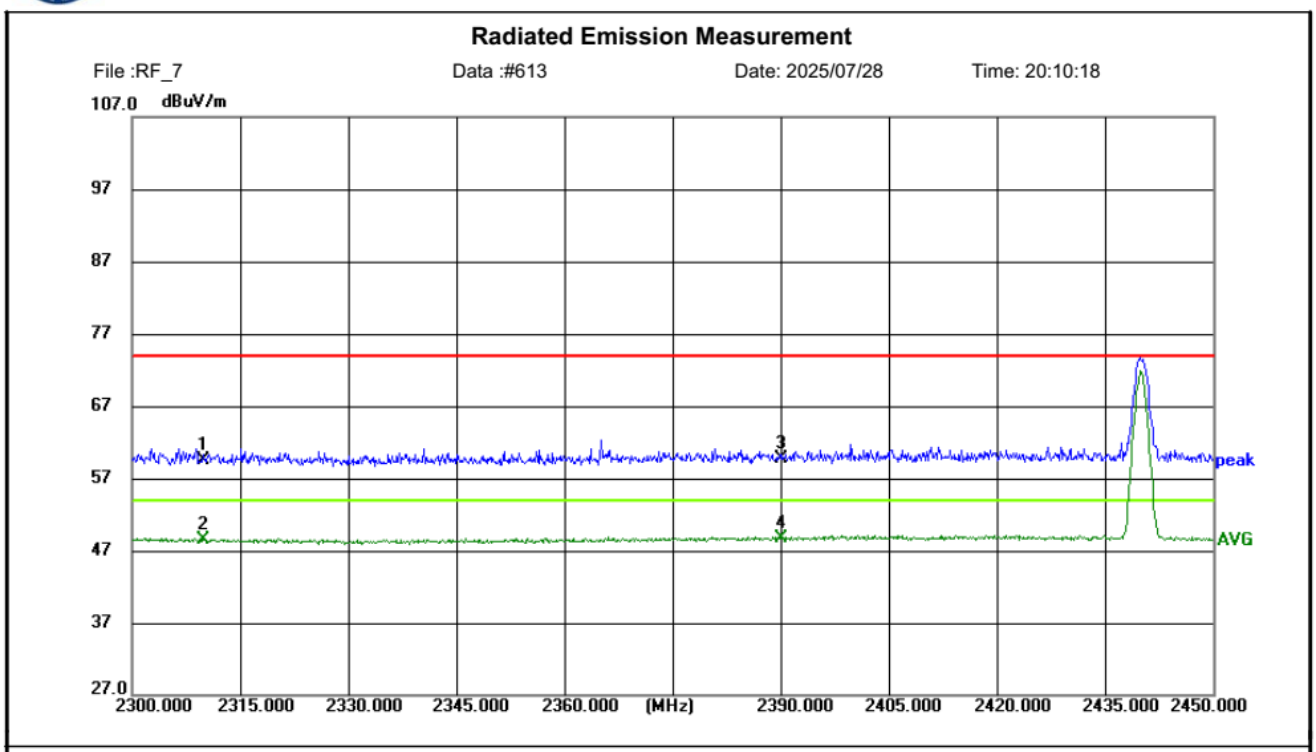
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	24.26	34.57	58.83	74.00	15.17	peak	150	0	P	
2	2310.000	13.71	34.57	48.28	54.00	5.72	AVG	150	0	P	
3	2390.000	24.99	34.75	59.74	74.00	14.26	peak	150	0	P	
4	2390.000	14.01	34.75	48.76	54.00	5.24	AVG	150	0	P	

Vertical

Shenzhen CTL Testing Technology Co., Ltd
Tel: +86-755-89486194



Site LAB Chamber 2
Limit: FCC Part 15 C
EUT: /
M/N:
Mode: 2440MHz
Note: CTL2507183011-WF
/

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

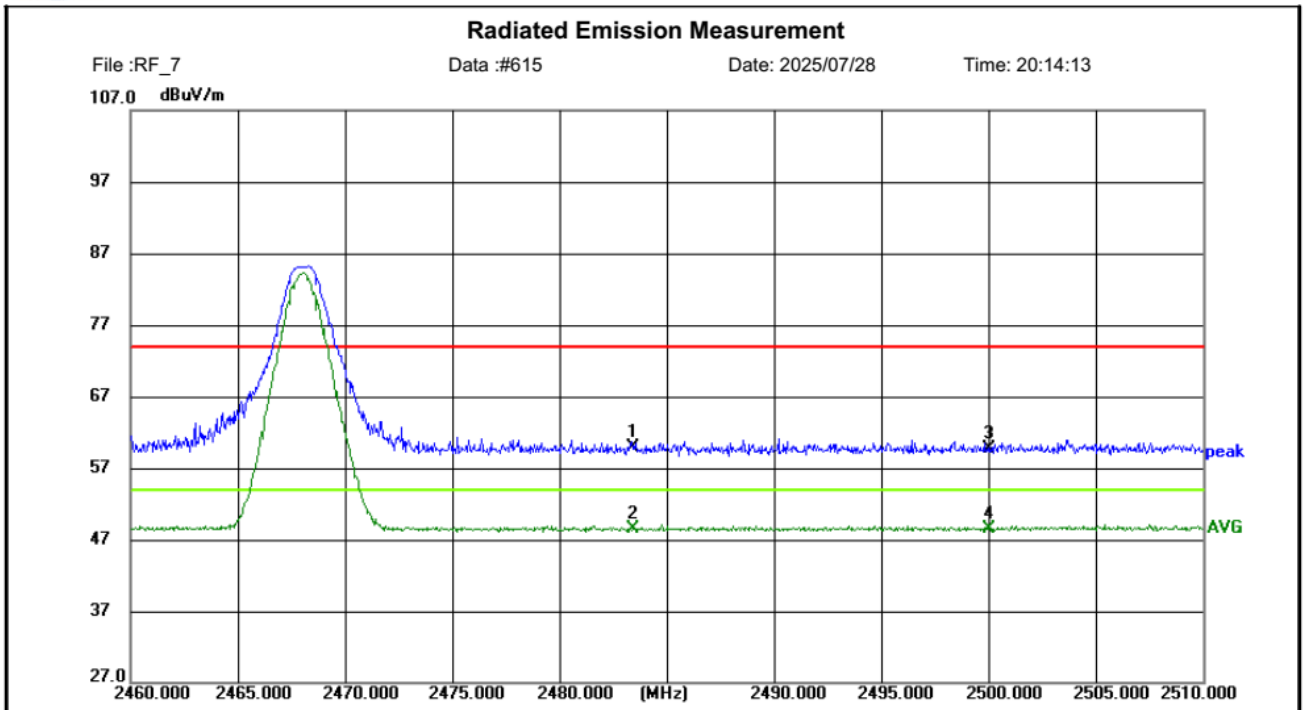
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	24.93	34.57	59.50	74.00	14.50	peak	150	360	P	
2	2310.000	13.86	34.57	48.43	54.00	5.57	AVG	150	360	P	
3	2390.000	24.94	34.75	59.69	74.00	14.31	peak	150	360	P	
4	2390.000	13.96	34.75	48.71	54.00	5.29	AVG	150	360	P	

Frequency bands

2468MHz

Horizontal

Shenzhen CTL Testing Technology Co., Ltd
Tel: +86-755-89486194



Site LAB Chamber 2
Limit: FCC Part 15 C
EUT: /
M/N:
Mode: 2468MHz
Note: CTL2507183011-WF
/

Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.500	24.93	35.03	59.96	74.00	14.04	peak	150	360	P	
2	2483.500	13.44	35.03	48.47	54.00	5.53	AVG	150	360	P	
3	2500.000	24.65	35.12	59.77	74.00	14.23	peak	150	360	P	
4	2500.000	13.39	35.12	48.51	54.00	5.49	AVG	150	360	P	

Vertical

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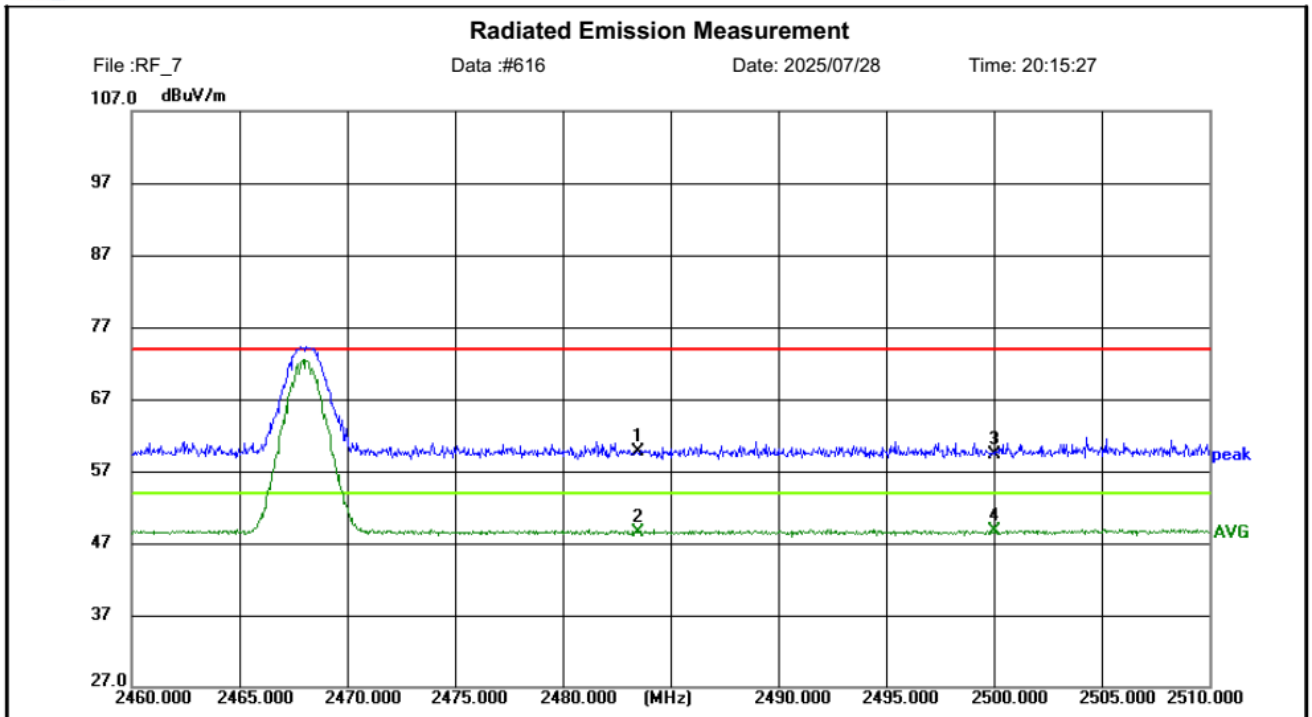

Site LAB Chamber 2
Limit: FCC Part 15 C
EUT: /
M/N:
Mode: 2468MHz
Note: CTL2507183011-WF
/

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.500	24.69	35.03	59.72	74.00	14.28	peak	150	0	P	
2	2483.500	13.47	35.03	48.50	54.00	5.50	AVG	150	0	P	
3	2500.000	24.28	35.12	59.40	74.00	14.60	peak	150	0	P	
4	2500.000	13.55	35.12	48.67	54.00	5.33	AVG	150	0	P	

Field Strength of Fundamental

Remark: This test was performed with EUT in X, Y, Z position and the worst case was found when EUT in X position.

2440MHz

Horizontal

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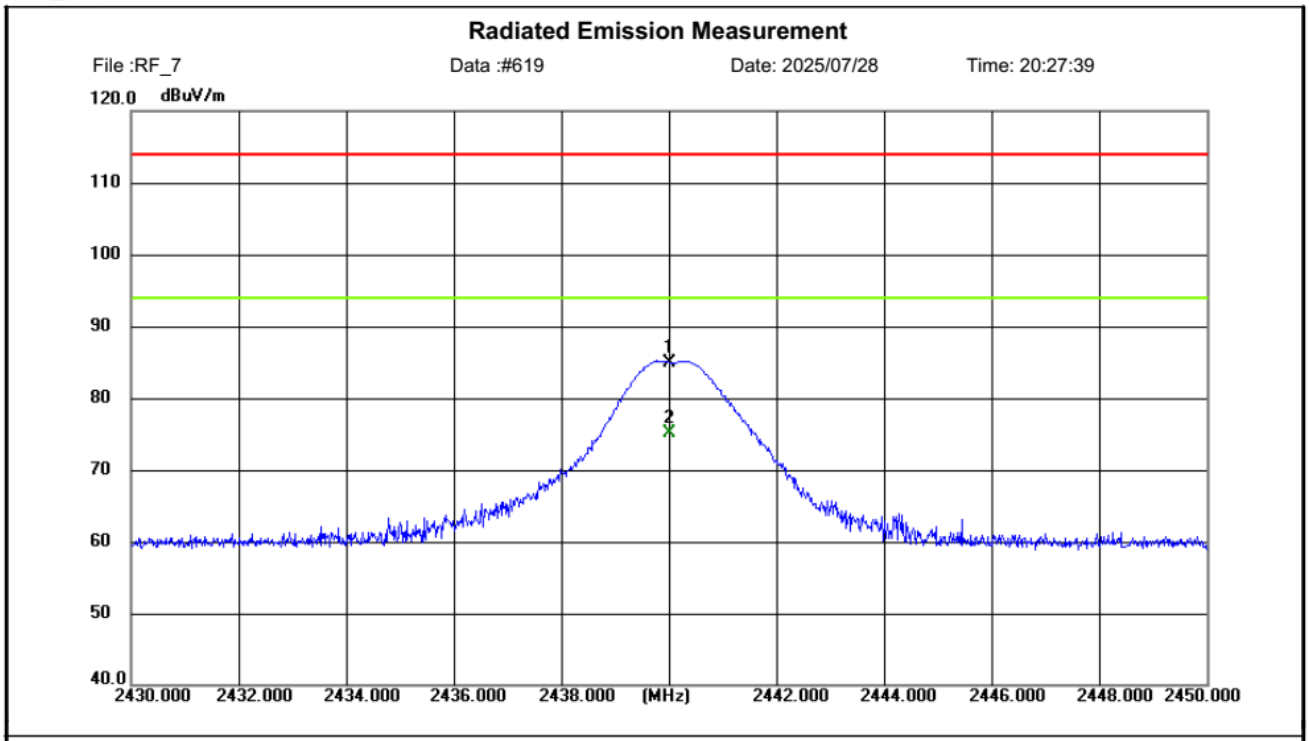

Site LAB Chamber 2
Limit: 114
EUT: /
M/N:
Mode: 2440MHz
Note: CTL2507183011-WF
/

Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2440.000	50.14	34.84	84.98	114.00	29.02	peak	150	360	P	
2	2440.000	40.18	34.84	75.02	94.00	18.98	AVG	150	360	P	

Vertical

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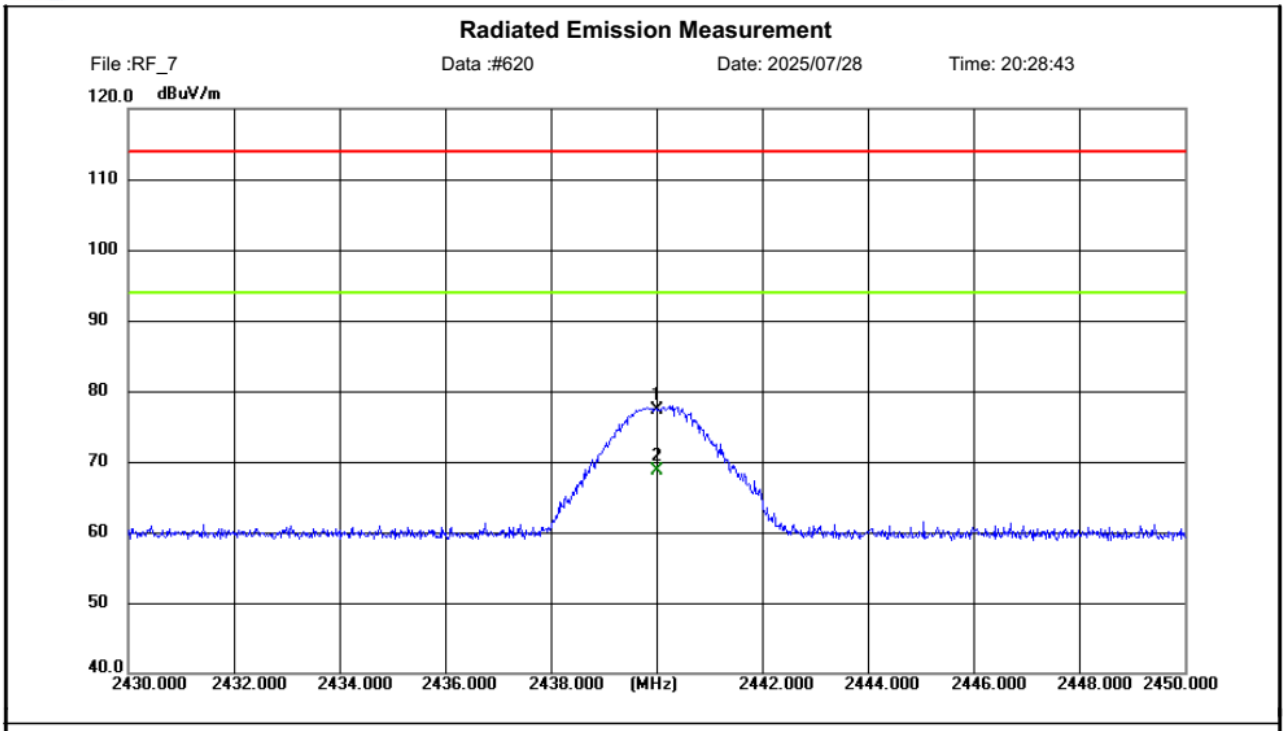
Tel: +86-755-89486194



Site LAB Chamber 2
Limit: 114
EUT: /
M/N:
Mode: 2440MHz
Note: CTL2507183011-WF
/

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2440.000	42.37	34.84	77.21	114.00	36.79	peak	150	0	P	
2	2440.000	33.95	34.84	68.79	94.00	25.21	AVG	150	0	P	

Field Strength of Fundamental

2459MHz

Horizontal

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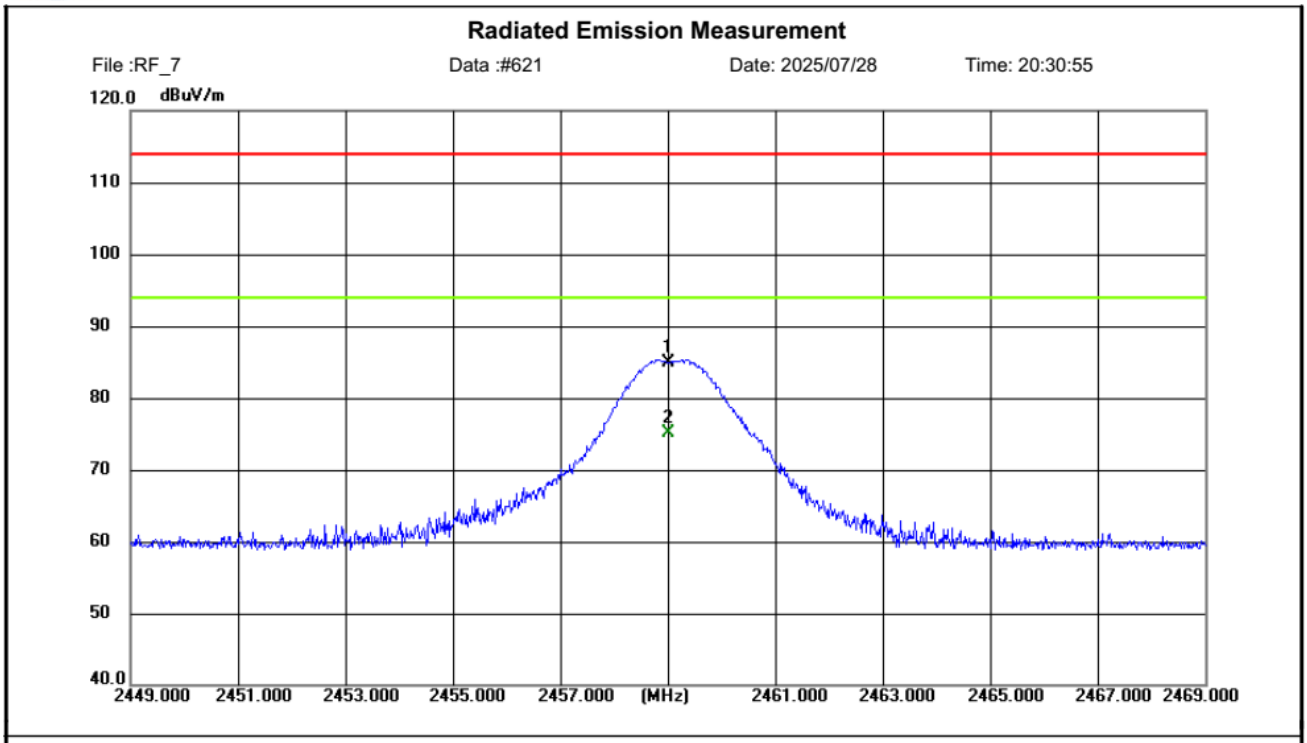

Site LAB Chamber 2
Limit: 114
EUT: /
M/N:
Mode: 2459MHz
Note: CTL2507183011-WF
/

Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2459.000	50.08	34.90	84.98	114.00	29.02	peak	150	360	P	
2	2459.000	40.12	34.90	75.02	94.00	18.98	AVG	150	360	P	

Vertical

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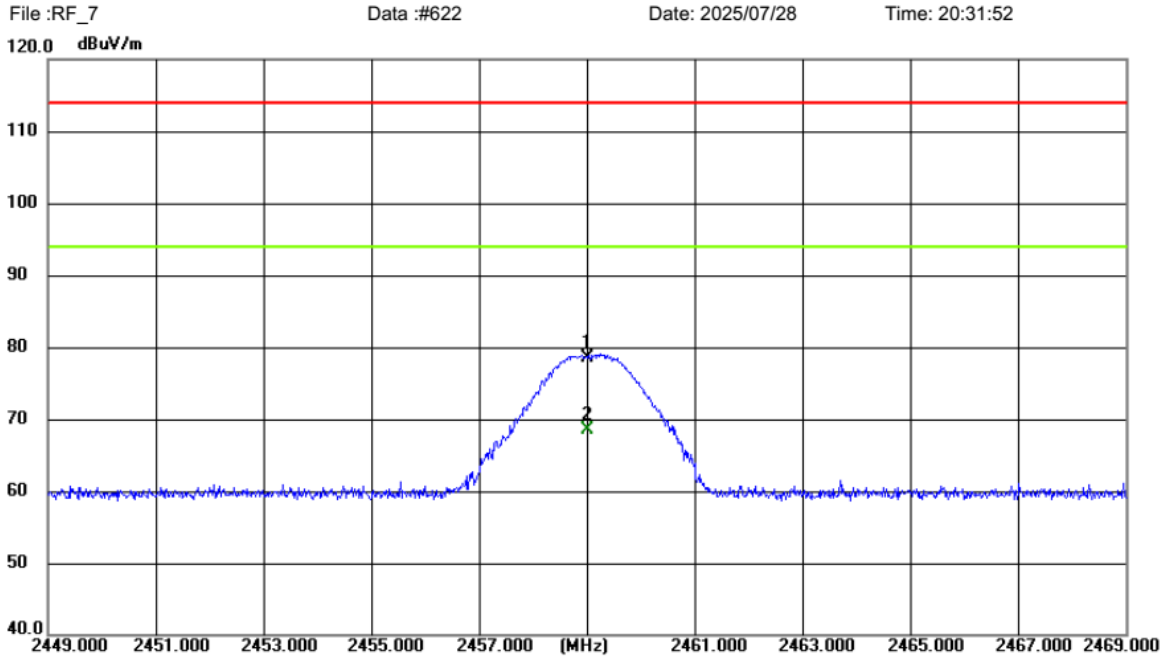
Radiated Emission Measurement



Site LAB Chamber 2
Limit: 114
EUT: /
M/N:
Mode: 2459MHz
Note: CTL2507183011-WF
/

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

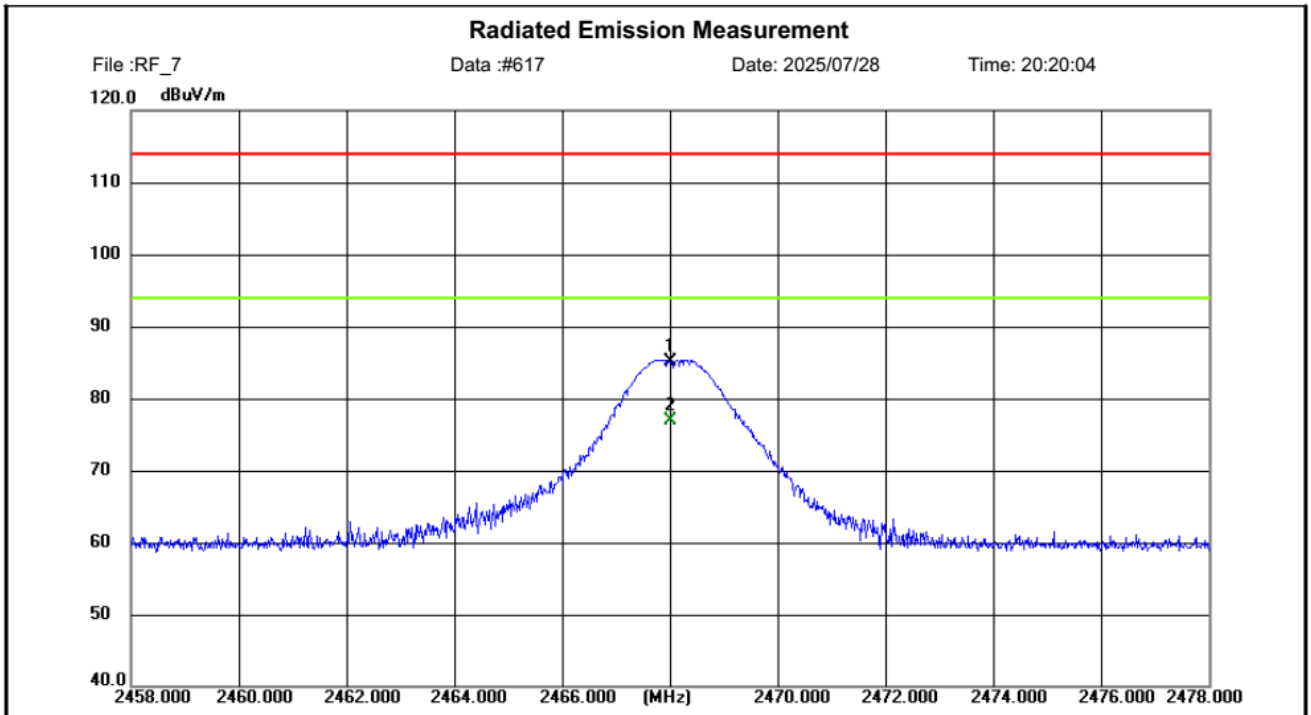
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2459.000	43.67	34.91	78.58	114.00	35.42	peak	150	0	P	
2	2459.000	33.51	34.91	68.42	94.00	25.58	AVG	150	0	P	

Field Strength of Fundamental

2468MHz

Horizontal

Shenzhen CTL Testing Technology Co., Ltd
Tel: +86-755-89486194



Site LAB Chamber 2
Limit: 114
EUT: /
M/N:
Mode: 2468MHz
Note: CTL2507183011-WF
/

Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2468.000	50.10	34.95	85.05	114.00	28.95	peak	150	360	P	
2	2468.000	42.00	34.95	76.95	94.00	17.05	AVG	150	360	P	

Vertical

Shenzhen CTL Testing Technology Co., Ltd
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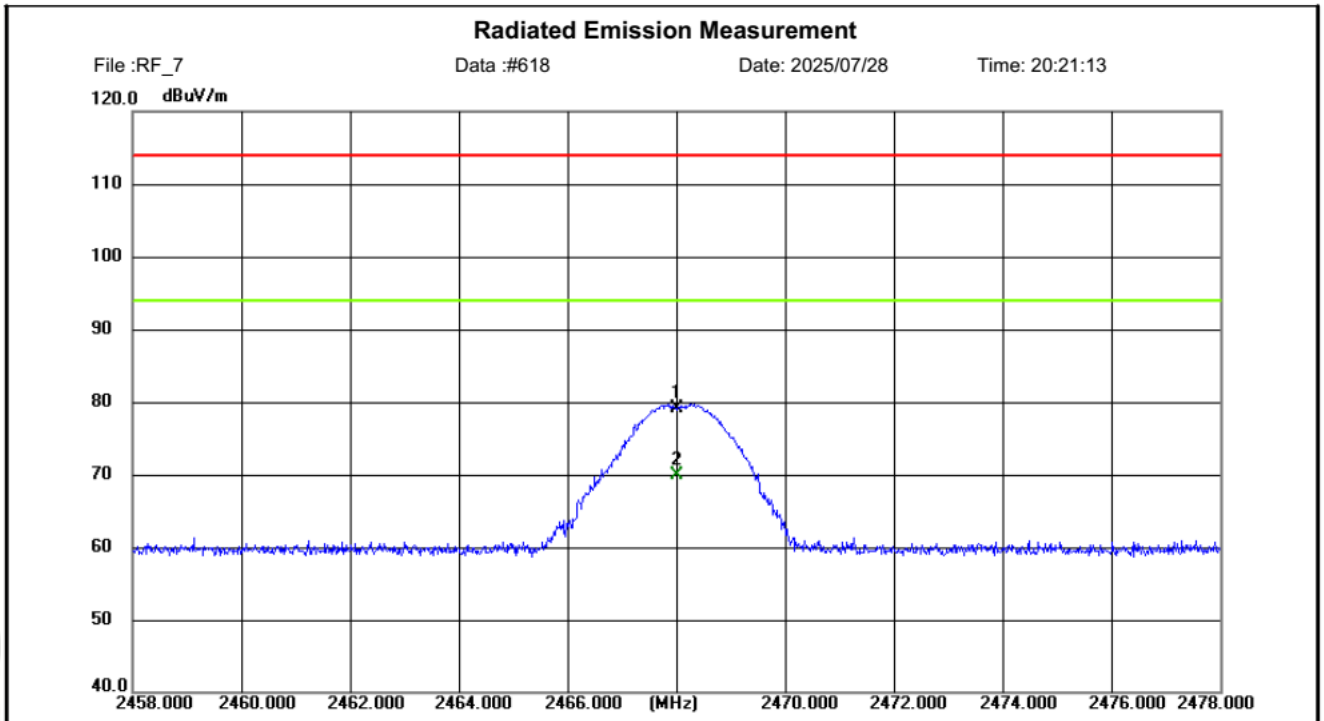


Site LAB Chamber 2
Limit: 114
EUT: /
M/N:
Mode: 2468MHz
Note: CTL2507183011-WF
/

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2468.000	44.12	34.95	79.07	114.00	34.93	peak	150	0	P	
2	2468.000	34.98	34.95	69.93	94.00	24.07	AVG	150	0	P	

REMARKS:

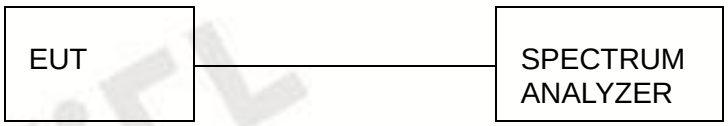
1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. The other emission levels were very low against the limit.
6. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.
7. For fundamental frequency, RBW 3MHz VBW 3MHz Peak detector is for PK Value; RMS detector is for AV value.

3.3. Occupied Bandwidth Measurement

Limit

N/A

Test Configuration



Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100KHz RBW and 300KHz VBW.

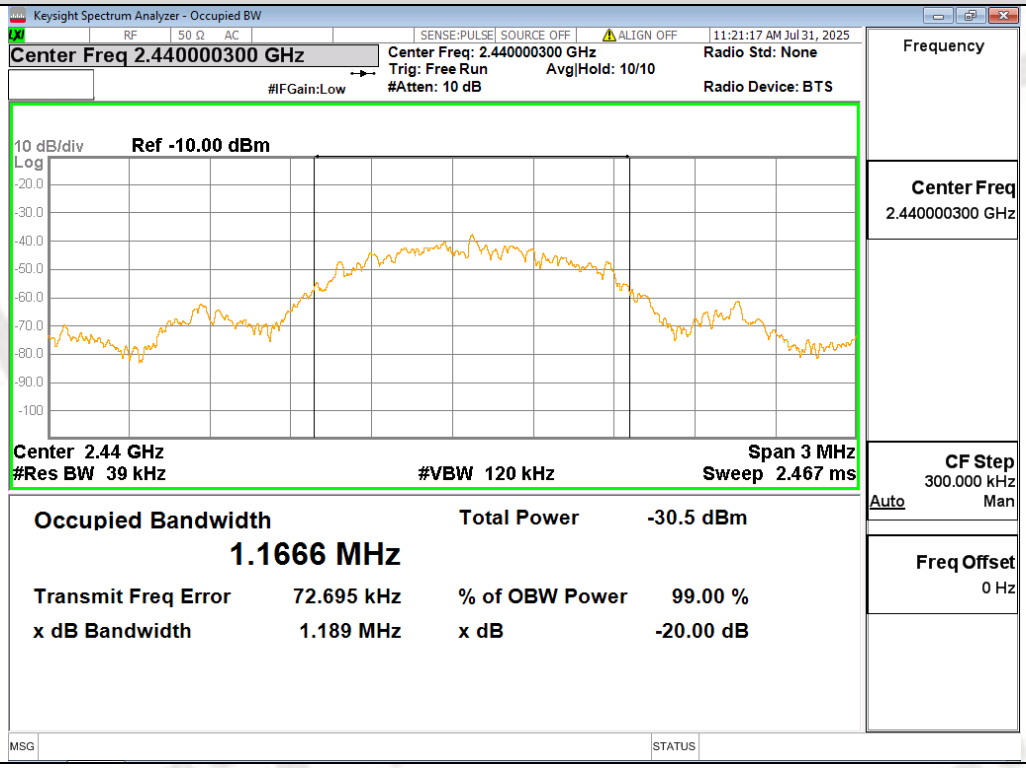
The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

Test Results

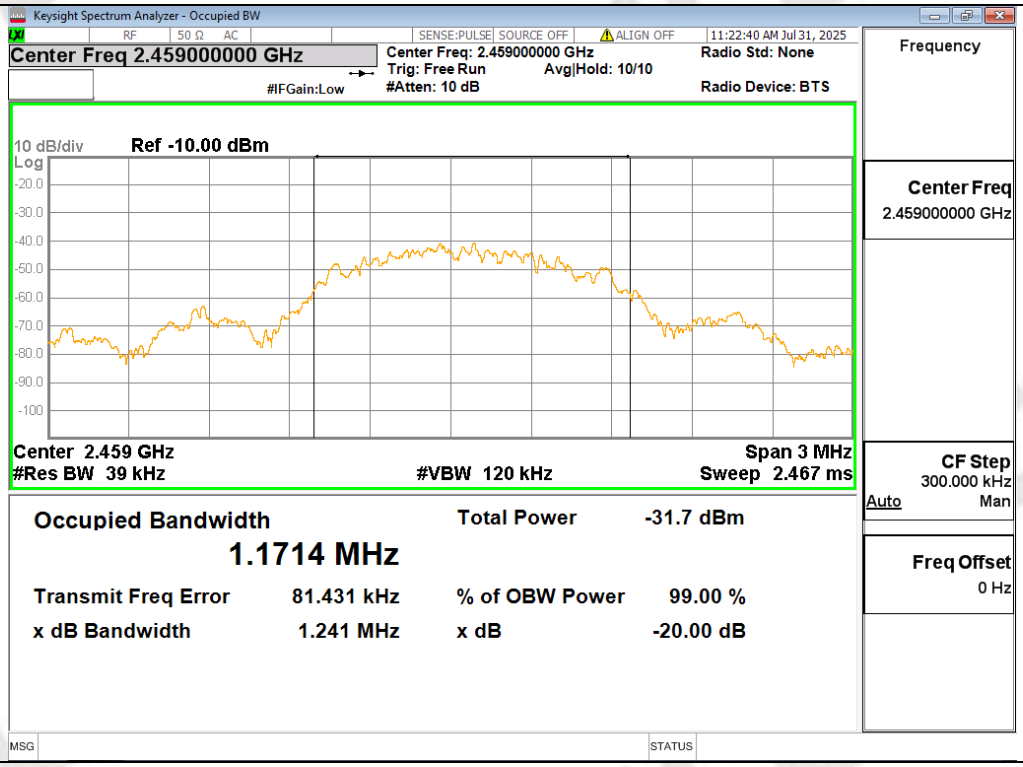
Modulation	Channel	99% OBW (MHz)	20dB bandwidth (MHz)	Result
GFSK	CH01	1.1666	1.1890	Pass
	CH11	1.1714	1.2410	
	CH20	1.2527	1.2270	

Test plot as follows:

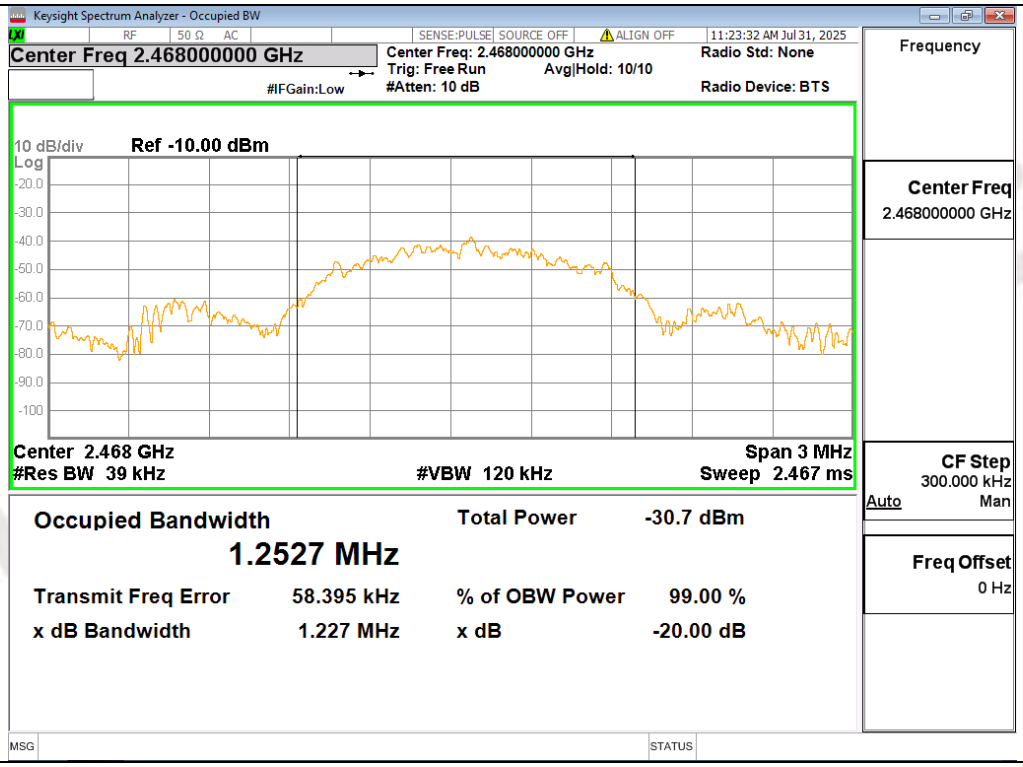
GFSK Modulation



CH01


Keysight Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:PULSE SOURCE OFF ALIGN OFF 11:22:40 AM Jul 31, 2025
Center Freq 2.459000000 GHz
Center Freq: 2.459000000 GHz
Trig: Free Run Avg|Hold: 10/10
#IFGain:Low #Atten: 10 dB
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div Ref -10.00 dBm
Log
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
Center 2.459 GHz
#Res BW 39 kHz
#VBW 120 kHz
Span 3 MHz
Sweep 2.467 ms
Occupied Bandwidth
1.1714 MHz
Total Power -31.7 dBm
Transmit Freq Error 81.431 kHz
% of OBW Power 99.00 %
x dB Bandwidth 1.241 MHz
x dB -20.00 dB
Center Freq
2.459000000 GHz
CF Step
300.000 kHz
Auto Man
Freq Offset
0 Hz
MSG
STATUS

CH11


Keysight Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:PULSE SOURCE OFF ALIGN OFF 11:23:32 AM Jul 31, 2025
Center Freq 2.468000000 GHz
Center Freq: 2.468000000 GHz
Trig: Free Run Avg|Hold: 10/10
#IFGain:Low #Atten: 10 dB
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div Ref -10.00 dBm
Log
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
Center 2.468 GHz
#Res BW 39 kHz
#VBW 120 kHz
Span 3 MHz
Sweep 2.467 ms
Occupied Bandwidth
1.2527 MHz
Total Power -30.7 dBm
Transmit Freq Error 58.395 kHz
% of OBW Power 99.00 %
x dB Bandwidth 1.227 MHz
x dB -20.00 dB
Center Freq
2.468000000 GHz
CF Step
300.000 kHz
Auto Man
Freq Offset
0 Hz
MSG
STATUS

CH20

3.4. Antenna Requirement

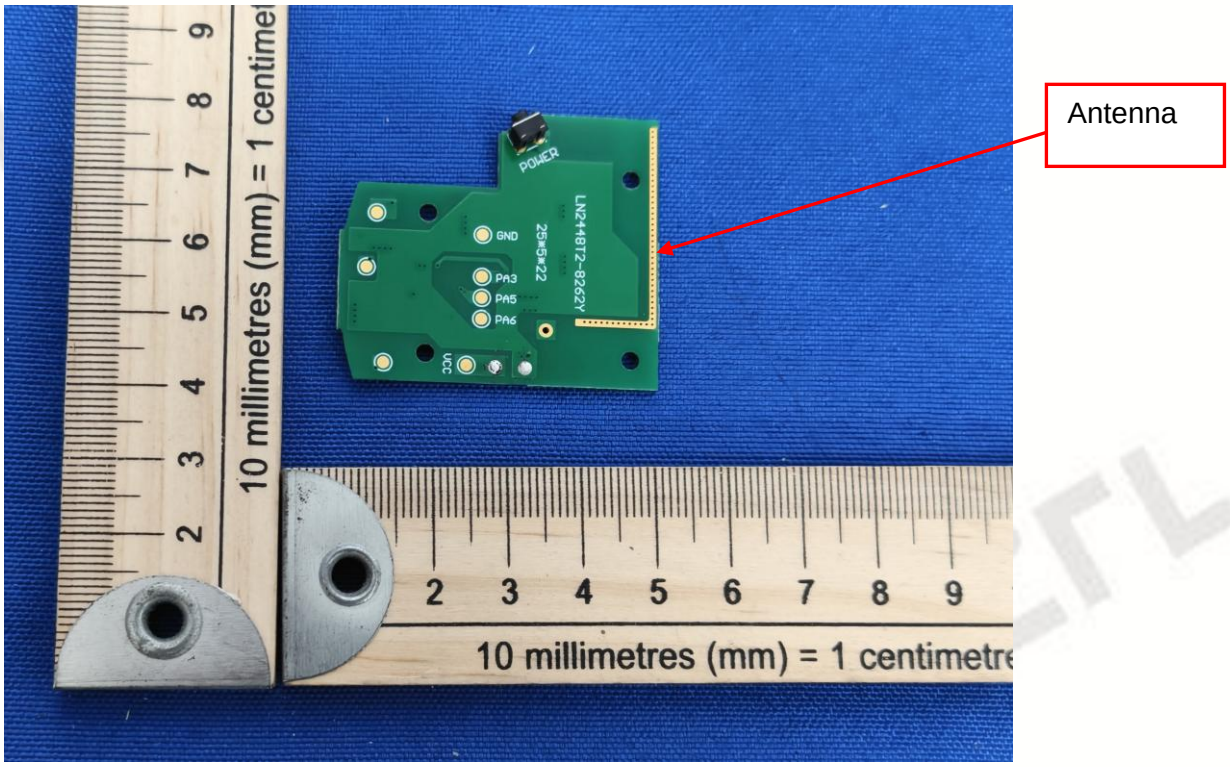
Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Refer to statement below for compliance.
The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

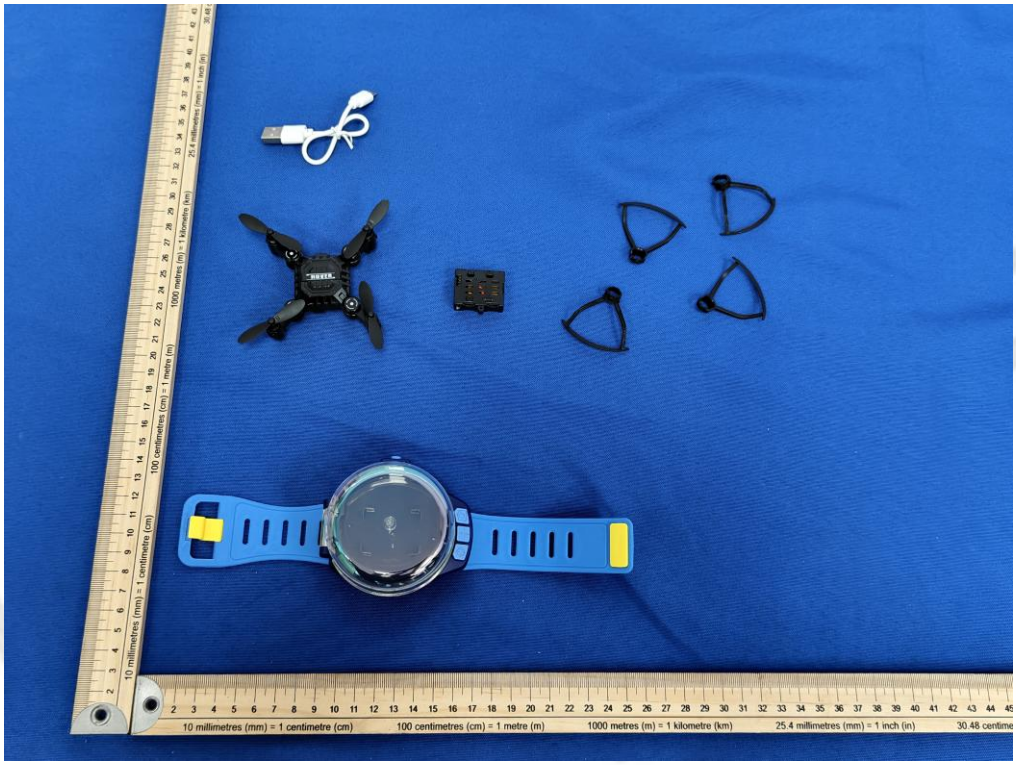
The antenna used in this product is a Built-in Antenna, The directional gains of antenna used for transmitting is 0.59dBi.



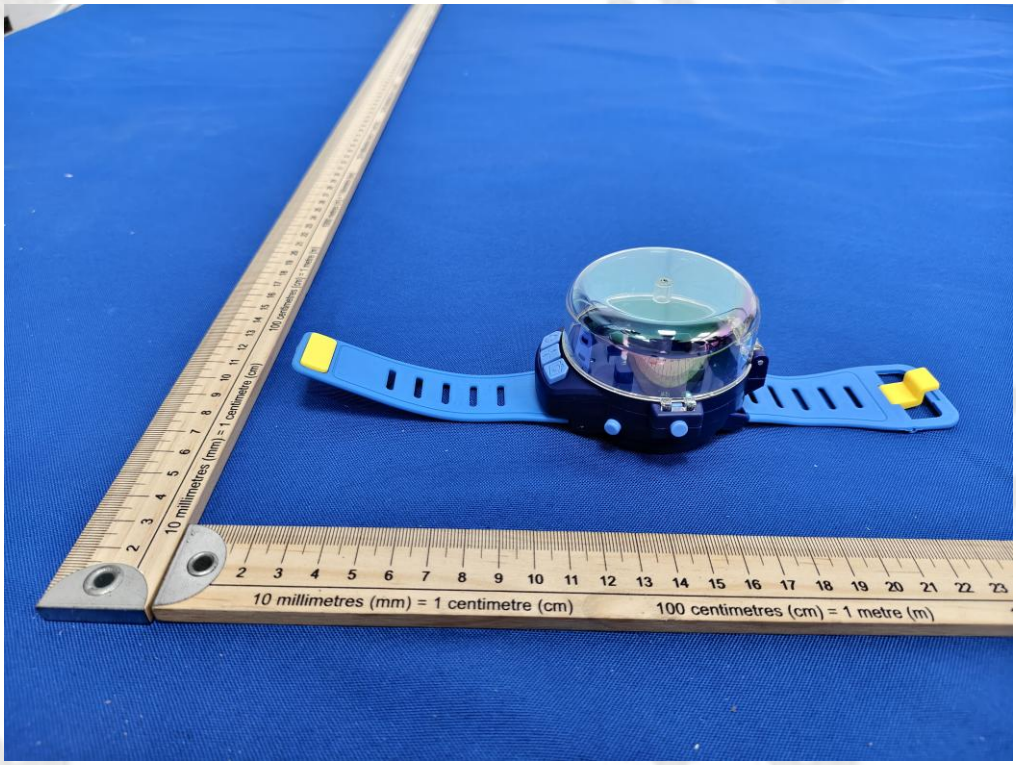
4. Test Setup Photos of the EUT

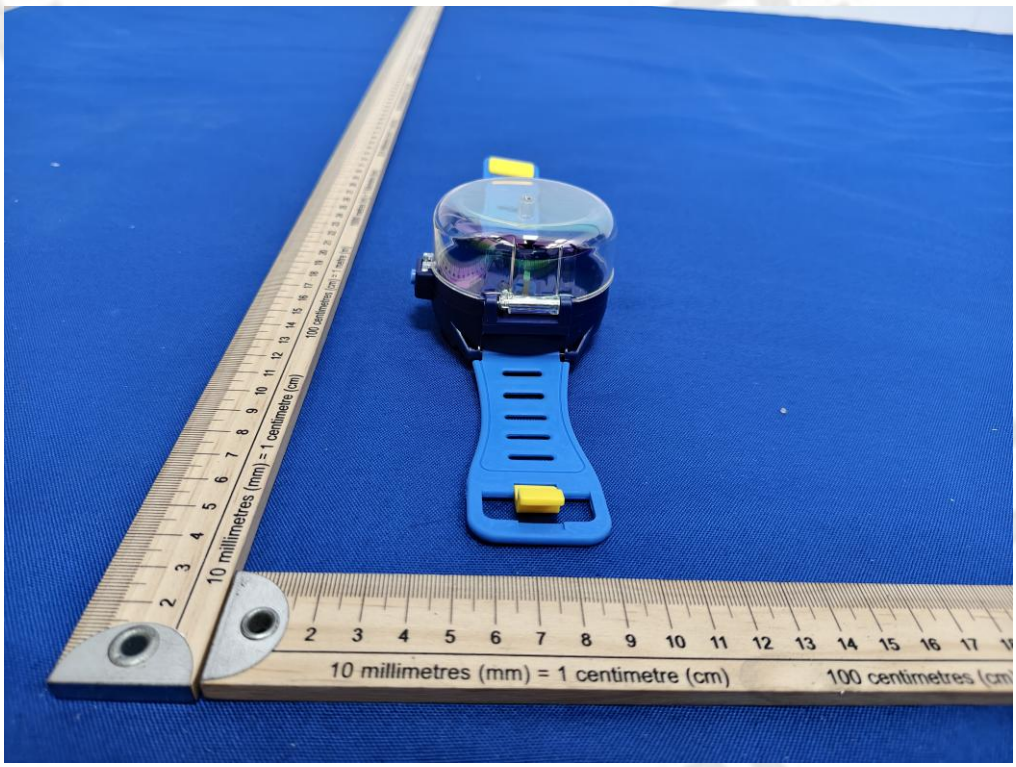
5. External and Internal Photos of the EUT

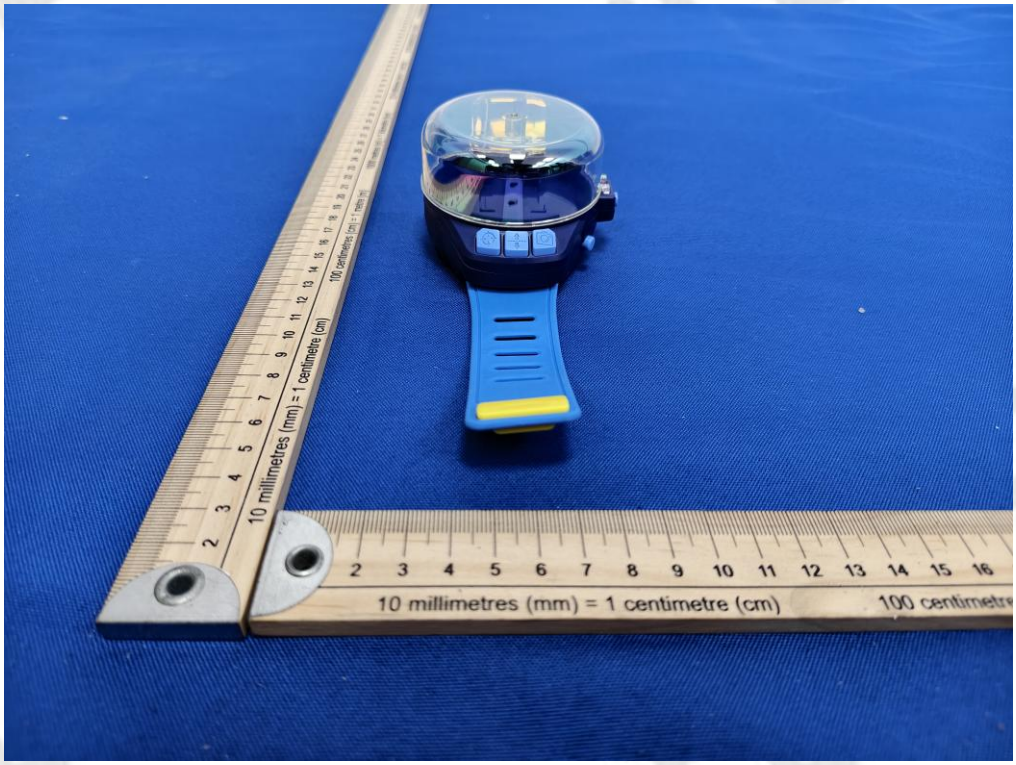
External Photos of EUT

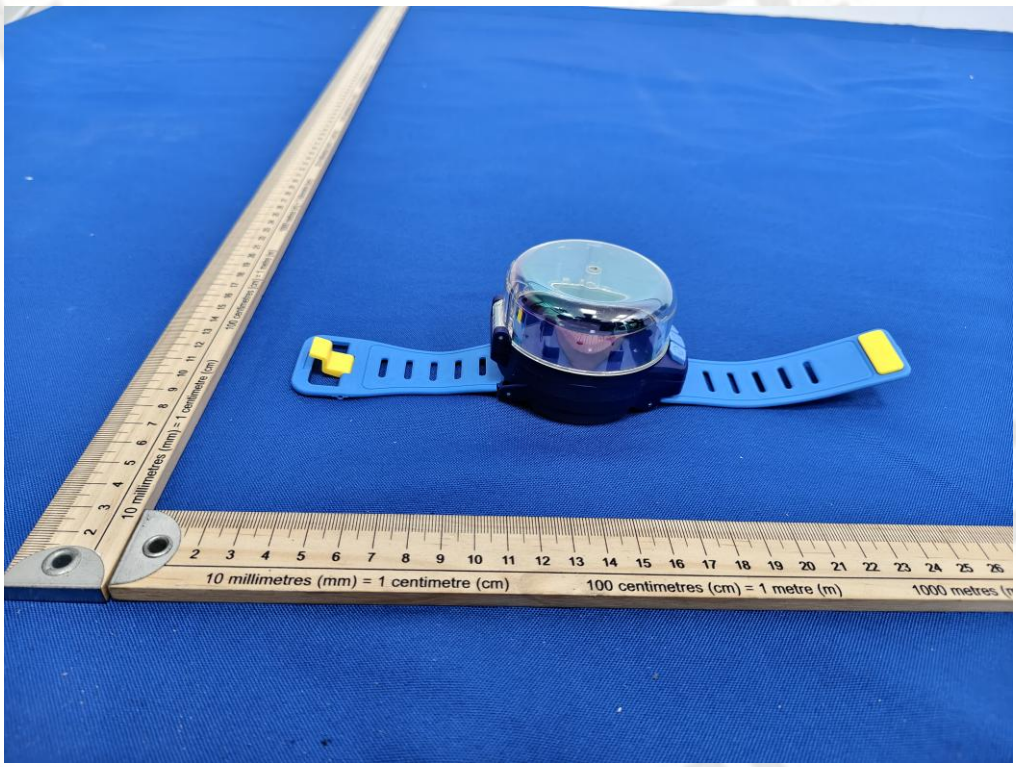


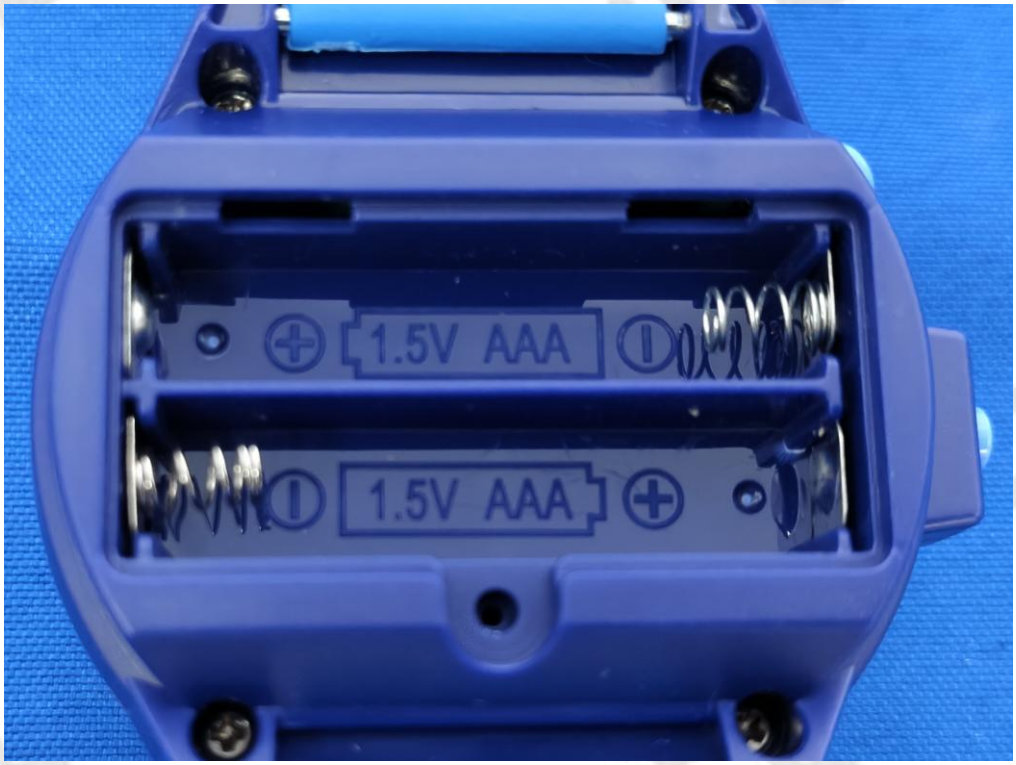

10 millimetres (mm) = 1 centimetre (cm)
100 centimetres (cm) = 1 metre (m)
1000 metres (m) = 1 kilometre


10 millimetres (mm) = 1 centimetre (cm)
100 centimetres (cm) = 1 metre (m)

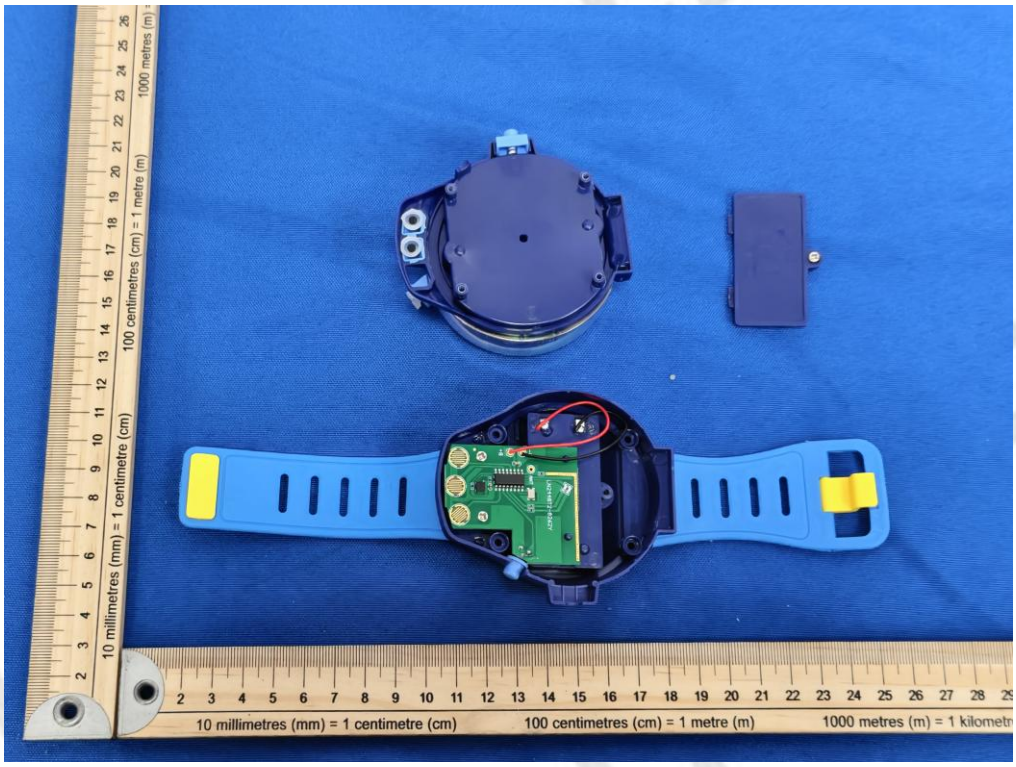

10 millimetres (mm) = 1 centimetre (cm)
100 centimetres (cm)

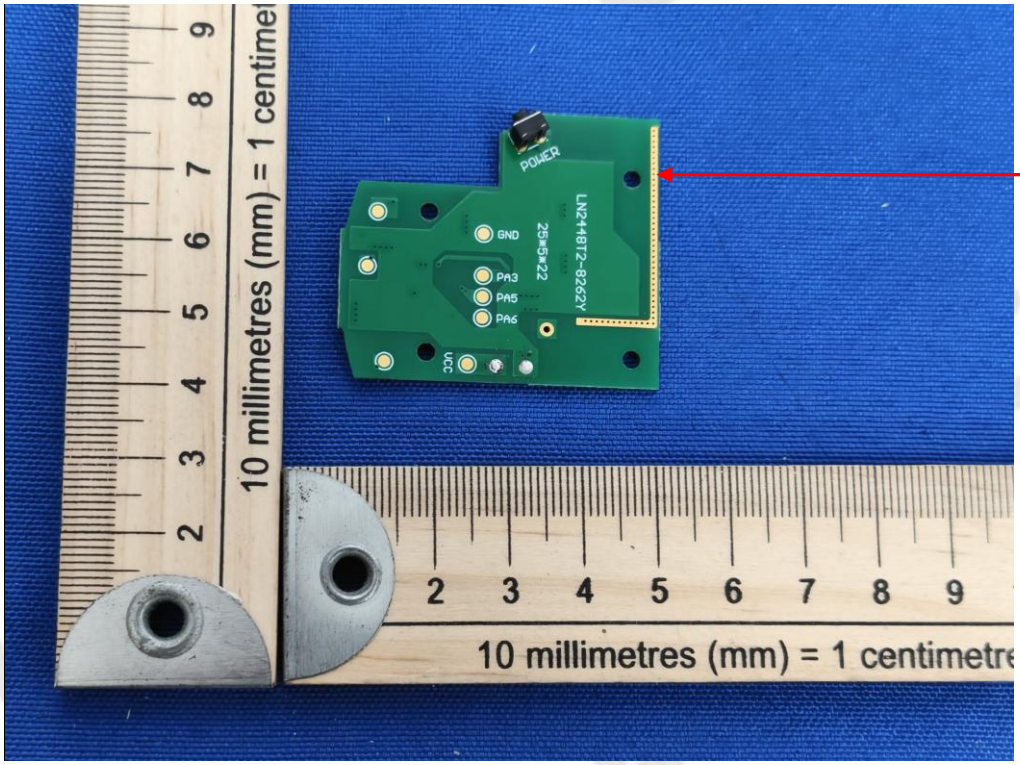

10 millimetres (mm) = 1 centimetre (cm)

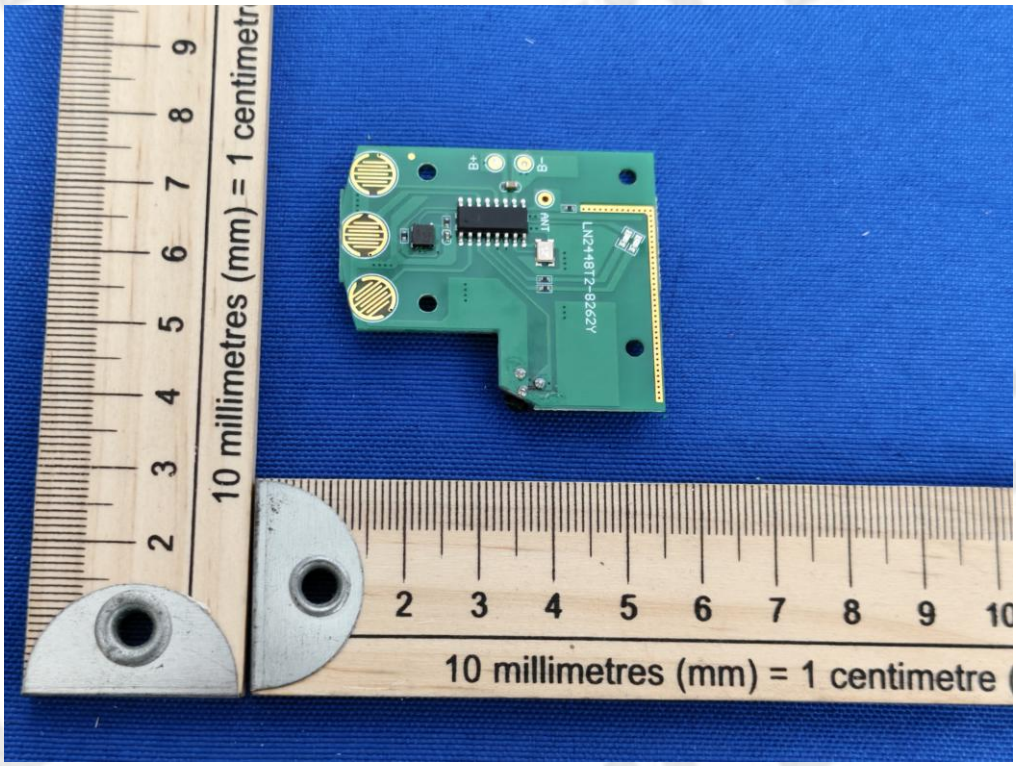

10 millimetres (mm) = 1 centimetre (cm)
100 centimetres (cm) = 1 metre (m)

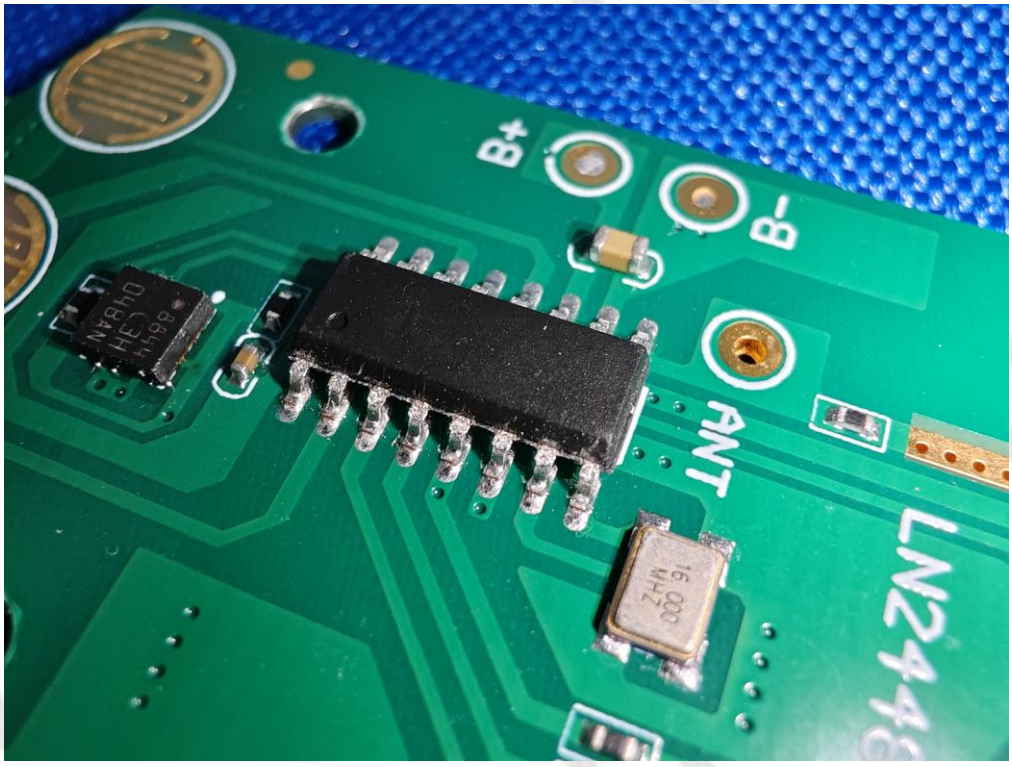

1.5V AAA
1.5V AAA

Internal Photos of EUT









********** End of Report **********