

TEST REPORT

On behalf of

LIVOLO INTERNATIONAL ELECTRIC LTD.

Product Name	Model Number
Wireless module	TLR8258

FCC ID: 2BVO2TLR8258

Prepared For: LIVOLO INTERNATIONAL ELECTRIC LTD.
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File No. : C1D2510057
Report No. : ACI-F26032
Date of Test : 2026.01.29-05.24
Date of Report : 2026.05.28

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

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APPENDIX II PHOTOGRAPHS OF EUT	TOTAL 5 PAGES

TEST REPORT

Applicant : LIVOLO INTERNATIONAL ELECTRIC LTD.
EUT Description : Wireless module
(A) Model No. : TLSR8258
(B) Power Supply : DC 3.3V
(C) Test Voltage : DC 3.3V from Test Fixture

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART C
AND ANSI C63.10:2020*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report also shows that the EUT (M/N: Refer to Sec2.1), which was tested is technically compliance with the FCC limits.

This report applies to above tested Sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

Date of Test : 2026.01.29-05.24 Date of Report : 2026.05.28

Producer :

Huimin Yan

HUIMIN YAN / Assistant

Review :

Jarey Lu

JAREY LU / Deputy Assistant Manager

AUDIX[®]

For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory :

Kamp Chen

Authorized Signature(s) KAMP CHEN / Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The result is determined according to the decision rules of customer selection in the ASC-403 application service form.

1. According to IEC GUIDE 115 Procedure 2 and ILAC-G8, the uncertainties value is not used in determining the PASS/FAIL results.

2. If the required specification or standard already contains the decision rules, it will be carried out in accordance with the regulations or standard documents or the requirements of the competent units. If the required specification or standard does not contain a decision rule, the same paragraph 1.

3. If your company has a required decision rule, it will be implemented in accordance with the requirements and ISO/IEC Guide 98-4 specifications.

The EUT have been tested according to the applicable standards as referenced below:

Description / Test Item	Test Standard	Results	Meets Limit
EMISSION			
Conducted Emission	FCC RULES AND REGULATIONS PART 15 SUBPART C AND ANSI C63.10:2020	Pass	N/A
Radiated Emission	FCC RULES AND REGULATIONS PART 15 SUBPART C AND ANSI C63.10:2020	Pass	15.209(a) 15.205(a)(c)
6 dB Bandwidth Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART C AND ANSI C63.10:2020	Pass	15.247(a)(2)
Maximum Peak Output Power Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART C AND ANSI C63.10:2020	Pass	15.247(b)(3)
Emission Limitations Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART C AND ANSI C63.10:2020	Pass	15.247(d)
Band Edge Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART C AND ANSI C63.10:2020	Pass	15.247(d)
Power Spectral Density Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART C AND ANSI C63.10:2020	Pass	15.247(e)
Antenna Requirement	FCC RULES AND REGULATIONS PART 15 SUBPART C AND ANSI C63.10:2020	Pass	15.203
N/A is an abbreviation for Not Applicable.			

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : Wireless module

Model Number : T8SR8258

Type of EUT : ☒ Production ☐ Pre-product ☐ Pro-type

Radio Tech : IEEE 802.15.4;

Channel Freq. : IEEE 802.15.4: 2405MHz;

Modulation : IEEE 802.15.4: OQPSK;

Antenna Info. : Antenna Type: integral Antenna
Antenna Gain: 2dBi

Note : The Antenna information was provided by the customer.

Applicant : LIVOLO INTERNATIONAL ELECTRIC LTD.
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16 Binhai 2nd Road, Yongxing Str Wenzhou, Zhejiang,
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2.2 EUT Specifications Assessed in Current Report

Mode	Modulation	Data Rate(kbps)
IEEE 802.15.4	OQPSK	250

Channel List			
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
11	2405	--	--

2.3 Test Information

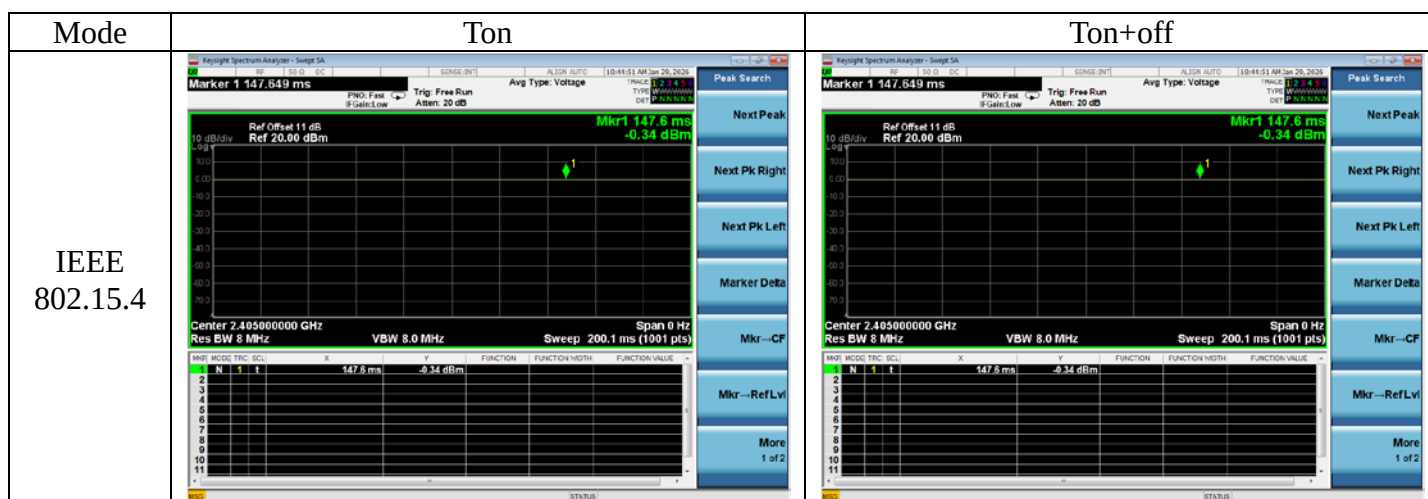
The test software “EMI Test Tool.exe” was used to control EUT work in TX mode, Power Setting and select test channel.

Mode	data rate (kbps)	Power Setting	Test Channel		Frequency (MHz)
IEEE 802.15.4	250	2.4	--	11	2405

Note: The setting information was provided by the customer.

2.4 Duty Cycle Check

Mode	Transmission Duration (ms)	Transmission Period (ms)	Duty Cycle (%)
IEEE 802.15.4	100	100	100



2.5 Sample Description

Test Item	Model Number	Sample Number	Date of receipted
Radiated Emission	TLR8258	E20251029-04-01/01	2025.10.29
Conducted RF Test	TLR8258	E20251029-04-01/01	2025.10.29

2.6 Supported equipment

Brand : Acer
Product Name: : Notebook PC
Model Name : TravelMate P238 series
Model Number : N15W8

Brand : TELINK
Product Name : Test Fixture

2.7 Description of Test Facility

Name of Firm : Audix Technology (Shanghai) Co., Ltd.
Site Location : 3F, Building 34, No. 680 Guiping Rd.,
Caohejing, Hi-Tech Park,
Shanghai 200233, China
Accredited by NVLAP, Lab Code : 200371-0
FCC Designation Number : CN5027
Test Firm Registration Number : 954668

3 RADIATED EMISSION TEST

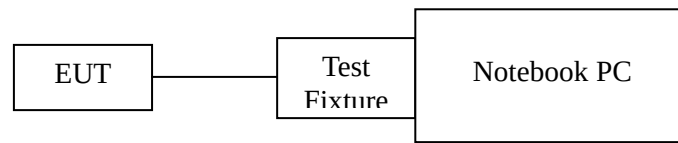
3.1 Test Equipment

The following test equipment are used during the radiated emission test in a semi-anechoic chamber:

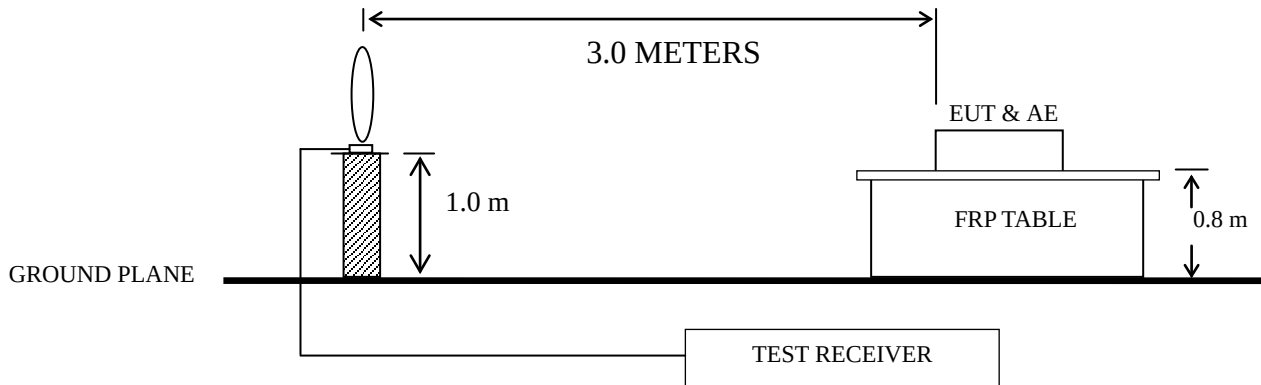
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Preamplifier	Agilent	8447D	2944A10548	2026.02.24	1 Year
2.	Preamplifier	HP	8449B	3008A00864	2026.02.24	1 Year
3.	Preamplifier	EM Electronics	EM18G40GA	060770	2026.02.24	1 Year
4.	EXA Signal Analyzer	Agilent	N9010A	MY52221182	2025.07.03	1 Year
5.	Test Receiver	R&S	ESCI	101303	2026.02.24	1 Year
6.	Loop Antenna	Schaffner	HLA6120	1193	2025.08.04	1 Year
7.	Bilog Antenna+6dB Attenuator	Schwarzbeck	VULB 9168+EMCI-N-6-06	708+AT-N0638	2026.01.15	1 Year
8.	Horn Antenna	EMCO	3115	96074878	2025.08.13	1 Year
9.	Horn Antenna	EMCO	3116	00062643	2025.01.21	2 Year
10.	RF Cable-0.6m+4m	EM Electronics	EM102-0.6M+E M102-4M	W0061790001+W0061800001	2026.02.24	1 Year
11.	RE Cable-5m	TIMES	SFT205-SMNM-5.0M	20250211-0001	2026.02.24	1 Year
12.	RE Cable-3m+Coaxial Switch	TIMES+ANRI TSU	LMR400-NMNM-3.0M+MP59B	20250211-0001+6200655086	2026.02.24	1 Year
13.	RE Cable-1m	TIMES	LMR400UF-NMNM-1.0M	20260303-001	2026.02.24	1 Year
14.	RE Cable-11m	TIMES	LMR400UF-NMNM-11.0M	20260303-001	2026.02.24	1 Year
15.	Software	Audix	e3	e3.v9.210616	--	--

3.2 Block Diagram of Test Setup

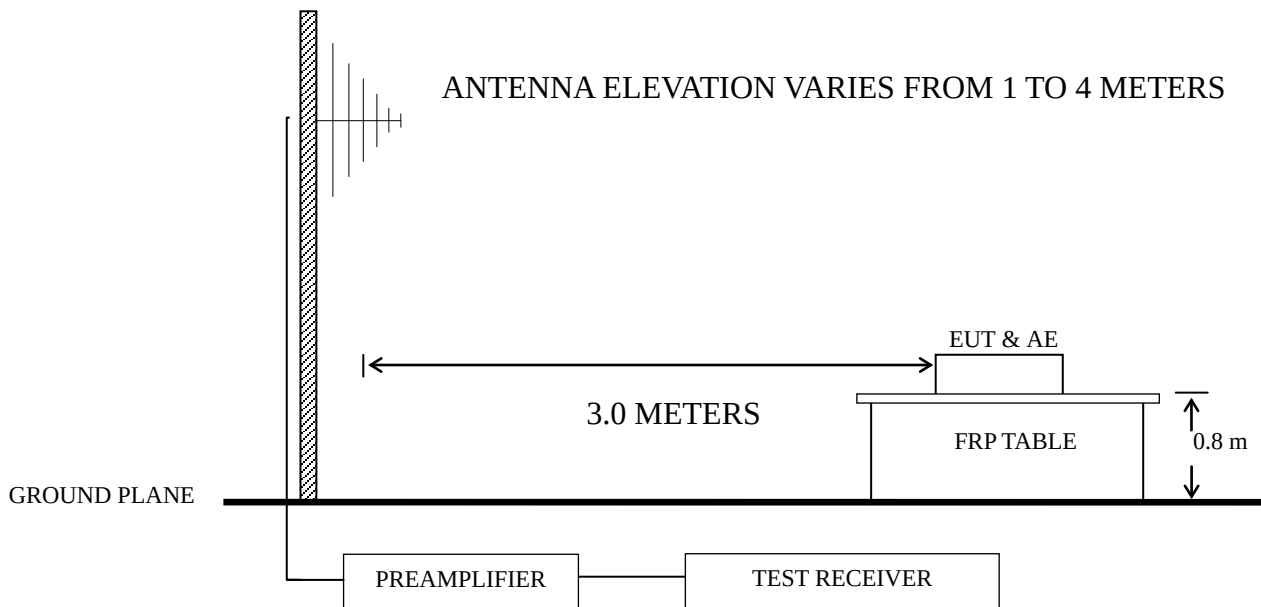
3.2.1 EUT & Peripherals



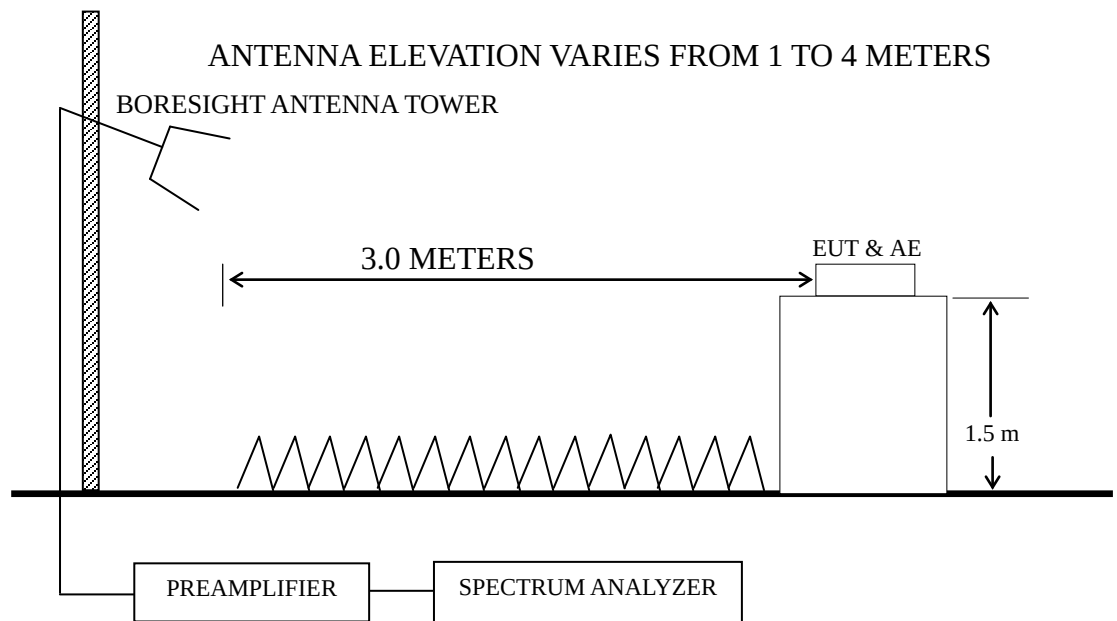
3.2.2 9kHz to 30MHz



3.2.3 Below 1GHz



3.2.4 Above 1GHz



3.3 Radiated Emission Limit

§15.209:

Frequency (MHz)	Distance (m)	Field strength limits (μV/m)	
		(μV/m)	dB(μV/m)
0.009 ~ 0.49	300	2400/F(kHz)	20 log[2400/F(kHz)]
0.49 ~ 1.075	30	24000/F(kHz)	20 log[24000/F(kHz)]
1.075 ~ 30	30	30	29.5
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
NOTE 1 - Emission Level dB (μV/m) = 20 log Emission Level (μV/m) NOTE 2 - The tighter limit applies at the band edges. NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. NOTE 4 - The emission limits shown in the table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT			

3.4 Test Configuration

The EUT (listed in Sec.2.1) and the simulators (listed in Sec.2.2) were installed as shown on Sec.4.2 to meet FCC requirements and operating in a manner that tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT as shown in Sec. 3.2.

3.5.2 Connect EUT to the Test Fixture (VCC to 3V3, SWS to SWM, GND to GND)

3.5.3 Connect the test fixture to the Notebook PC through USB cable.

3.5.4 Use the software as section 2.3 to select the test mode, then test.

3.5.5 Repeat step 3.5.2 and 3.5.4, until the test of all modes finished.

3.6 Test Procedures

Radiated emission test applies to harmonics/spurs that fall in the restricted bands listed in Section 15.205. The maximum permitted average field strength is listed in Section 15.209. A pre-amp is necessary for this measurement. For measurement above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.

The EUT was placed on a turntable. Below 1 GHz, the table height is 80 cm above the reference ground plane. Above 1 GHz, the table height is 1.5 m. The turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (Calibrated Bilog Antenna) or Horn antenna was used as receiving antenna. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.10:2020 requirements during radiated emission test.

The bandwidth of Test Receiver R&S ESCI was set at 200 Hz from 9kHz to 150kHz, set at 9k Hz from 150kHz to 30MHz, set at 120 kHz from 30MHz to 1000MHz.

The bandwidth of Agilent N9010A was set at 1MHz for above 1GHz.

The frequency range up to 25 GHz (Up to 10th harmonics from fundamental frequency) was checked.

All the test results are listed in Sec.3.7.

3.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Frequency range: below 1GHz (Worst case emission)

No.	Operation	Mode	Channel	Frequency	Data Page
1.	Transmitting	IEEE 802.15.4	11	2405 MHz	P15-16

Frequency range: Above 1GHz: (1~18GHz) (Worst case emission)

No.	Operation	Mode	Channel	Frequency	Data Page
1.	Transmitting	IEEE 802.15.4	11	2405 MHz	P17-20

Frequency range: Above 1GHz: (18~25GHz) (Worst case emission)

No.	Operation	Mode	Channel	Frequency	Data Page
1.	Transmitting	IEEE 802.15.4	11	2405 MHz	P21-22

Band-Edge and Restricted bands:

No.	Operation	Mode	Channel	Frequency	Data Page
1.	Transmitting	IEEE 802.15.4	11	2405 MHz	P23-24
2.			11	2405 MHz	P25-26

NOTE 1 – Emission Level (dBμV/m) = Read Level (dBμV) + Antenna Factor (dB/m)
+ Cable Loss (dB) - Preamp Factor (dB)

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m).

NOTE 2 – “QP” means “Quasi-Peak” values.

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The emission levels which not reported are too low against the official limit.

NOTE 5 – The emission levels recorded below is data of EUT configured in Lying direction, for this direction was the maximum emission direction during the test. The data of Side & Standing direction are too low against the official limit to be reported.

NOTE 6 – All reading are Quasi-Peak values below or equal to 1GHz, Peak and Average values above 1GHz.

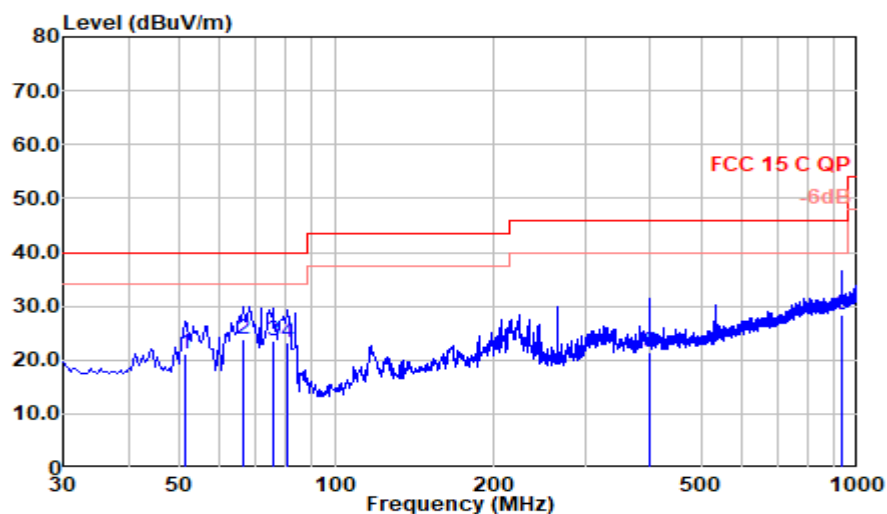
For above 1GHz test, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.

NOTE 7 – The frequency range 2310-2390MHz & 2483.5-2500MHz were tested for Restricted bands.

NOTE 8 – For the Emission 9kHz to 30MHz, the emissions were too low against to the limit.

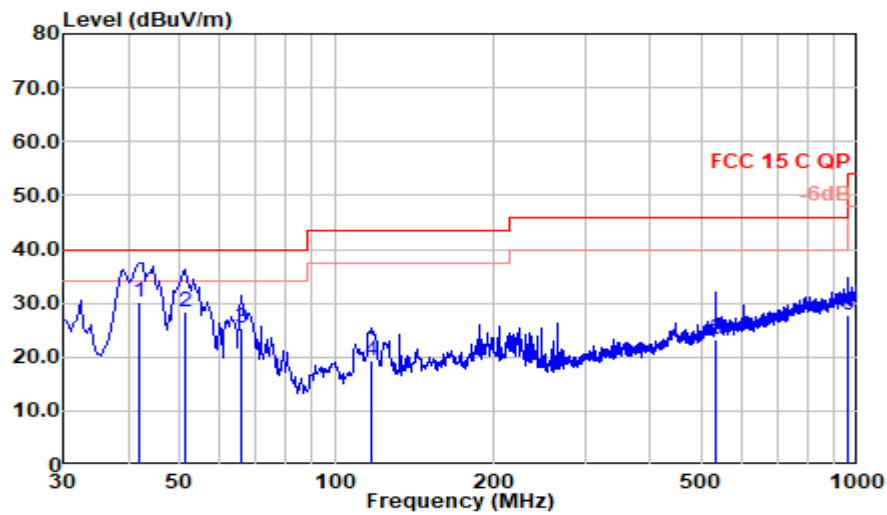
Radiated emission < 1GHz

Test Date:	2026.05.24	Temp./Hum.:	22°C/51%RH	Test By:	Jarey
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Mode: IEEE 802.15.4 CH2405MHz

Polarization at Horizontal

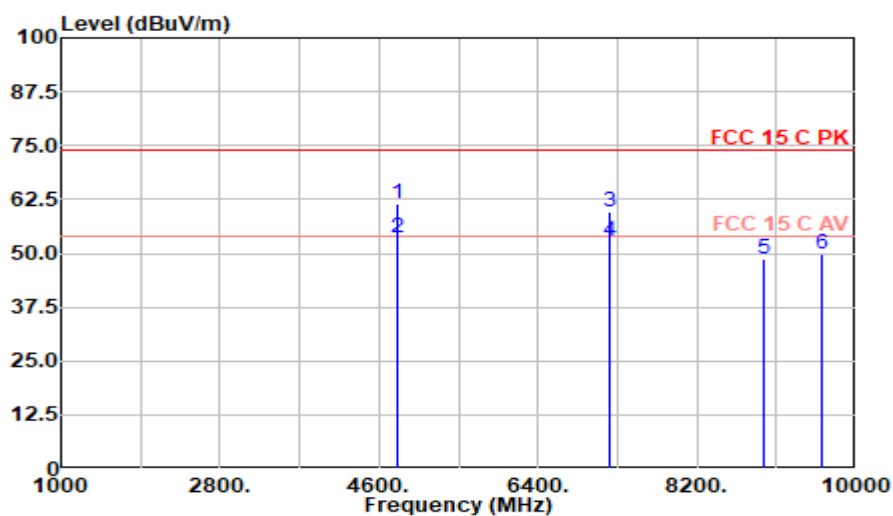
Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
51.340	30.36	19.77	0.64	29.49	21.28	40.00	18.72	QP
66.375	33.84	18.86	0.68	29.44	23.95	40.00	16.05	QP
75.590	35.21	17.18	0.71	29.41	23.68	40.00	16.32	QP
80.925	36.32	15.51	0.72	29.41	23.16	40.00	16.84	QP
398.600	26.99	21.57	1.55	28.80	21.31	46.00	24.69	QP
930.160	23.77	29.60	2.40	27.38	28.40	46.00	17.60	QP

Mode: IEEE 802.15.4 CH2405MHz**Polarization at Vertical**

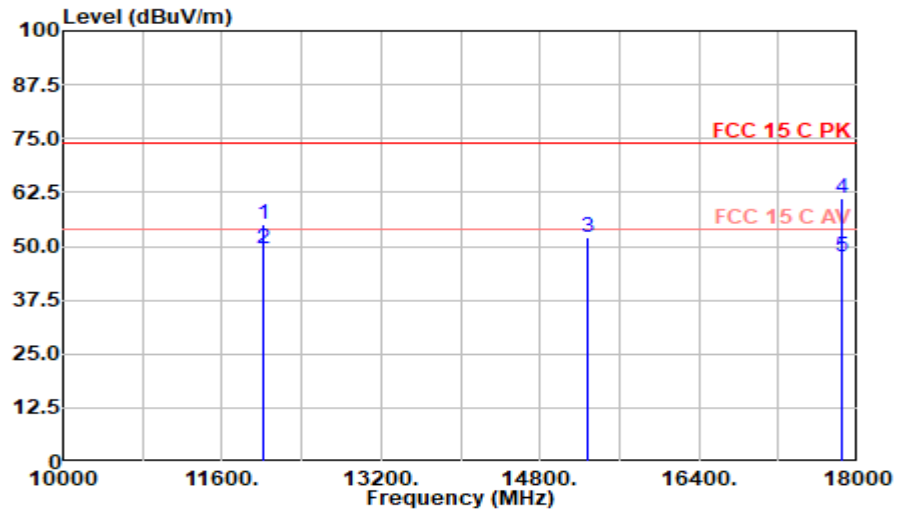
Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
42.125	39.48	19.57	0.61	29.53	30.13	40.00	9.87	QP
51.340	37.56	19.77	0.64	29.49	28.48	40.00	11.52	QP
65.890	35.32	18.90	0.68	29.44	25.46	40.00	14.54	QP
117.300	31.03	16.96	0.85	29.41	19.43	43.50	24.07	QP
533.430	26.12	24.07	1.81	28.89	23.11	46.00	22.89	QP
959.745	22.98	29.51	2.45	27.16	27.78	46.00	18.22	QP

Radiated Emission > 1GHz

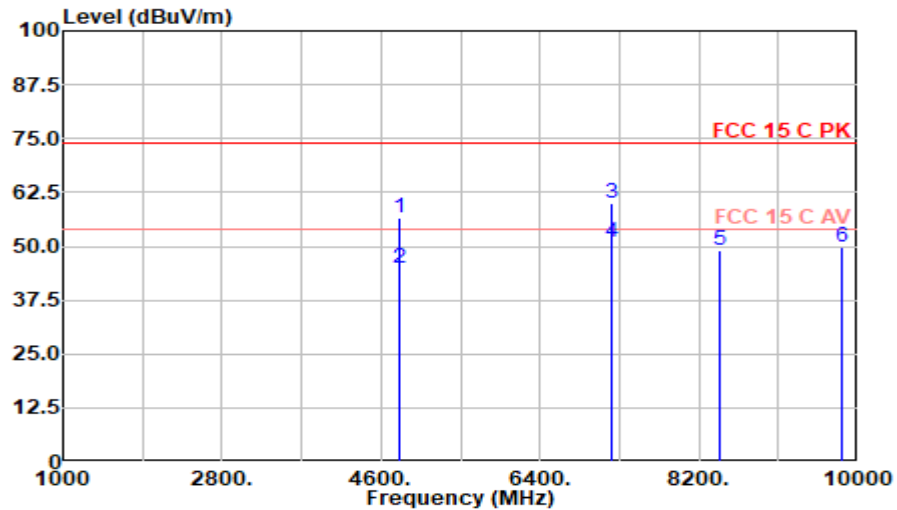
Test Date:	2026.05.24	Temp./Hum.:	22°C/51%RH	Test By:	Jarey
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Mode: IEEE 802.15.4 CH2405MHz**Polarization at Horizontal**

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
4810.125	61.55	32.22	4.27	36.43	61.61	74.00	12.39	Peak
4810.125	53.57	32.22	4.27	36.43	53.63	54.00	0.37	Average
7213.500	55.75	35.55	5.34	36.99	59.65	74.00	14.35	Peak
7213.500	48.97	35.55	5.34	36.99	52.88	54.00	1.12	Average
8962.375	42.83	37.58	5.68	37.30	48.78	74.00	25.22	Peak
9619.000	43.59	37.40	6.05	37.11	49.93	74.00	24.07	Peak

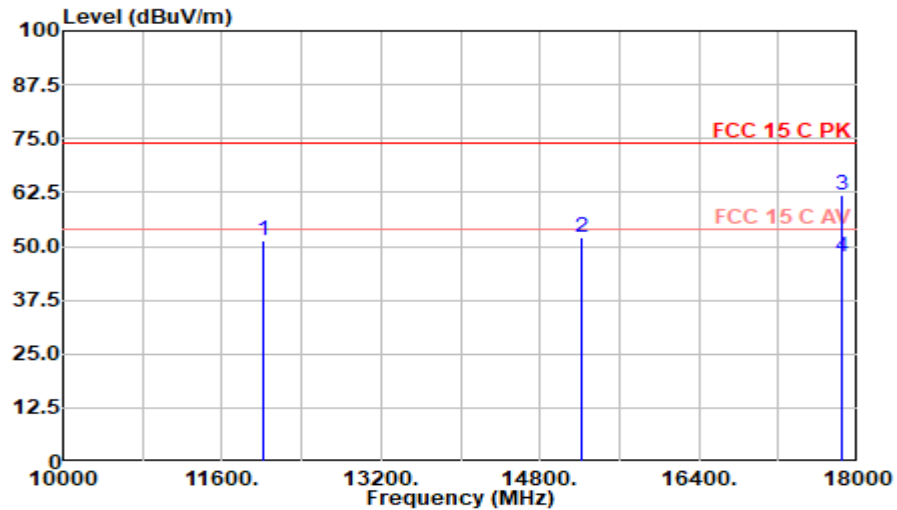
Mode: IEEE 802.15.4 CH2405MHz**Polarization at Horizontal**

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
12022.380	46.32	38.36	7.15	36.72	55.11	74.00	18.89	Peak
12022.380	40.63	38.36	7.15	36.72	49.42	54.00	4.58	Average
15280.000	41.79	39.12	8.08	36.97	52.02	74.00	21.98	Peak
17842.750	42.25	45.79	9.45	36.23	61.26	74.00	12.74	Peak
17842.750	28.53	45.79	9.45	36.23	47.53	54.00	6.47	Average

Mode: IEEE 802.15.4 CH2405MHz

Polarization at Vertical

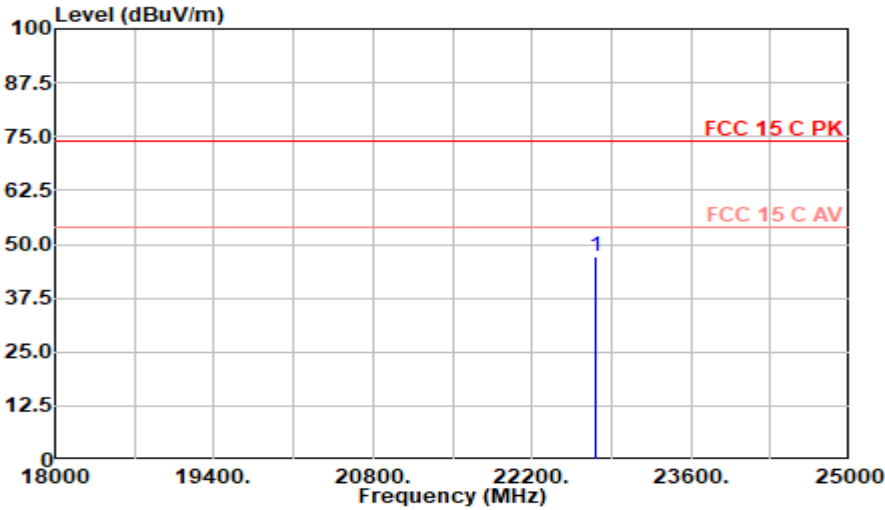
Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
4808.000	56.72	32.22	4.27	36.43	56.78	74.00	17.22	Peak
4808.000	45.01	32.22	4.27	36.43	45.07	54.00	8.93	Average
7213.500	56.10	35.55	5.34	36.99	60.01	74.00	13.99	Peak
7213.500	46.97	35.55	5.34	36.99	50.88	54.00	3.12	Average
8426.875	43.29	37.45	5.54	37.30	48.98	74.00	25.02	Peak
9829.375	43.04	37.50	6.18	37.05	49.67	74.00	24.33	Peak

Mode: IEEE 802.15.4 CH2405MHz

Polarization at Vertical

Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)	Remark
12022.380	42.46	38.36	7.15	36.72	51.25	74.00	22.75	Peak
15214.130	41.60	39.52	8.01	36.93	52.19	74.00	21.81	Peak
17844.880	42.83	45.79	9.45	36.23	61.84	74.00	12.16	Peak
17844.880	28.38	45.79	9.45	36.23	47.39	54.00	6.61	Average

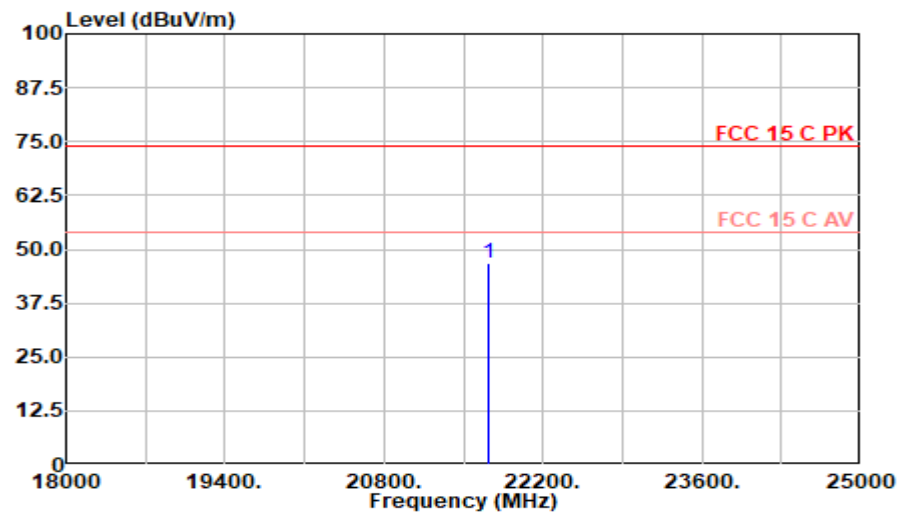
Mode: IEEE 802.15.4 CH2405MHz



Polarization at Horizontal

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
22754.000	47.46	45.10	8.41	53.85	47.12	74.00	26.88	Peak

Mode: IEEE 802.15.4 CH2405MHz

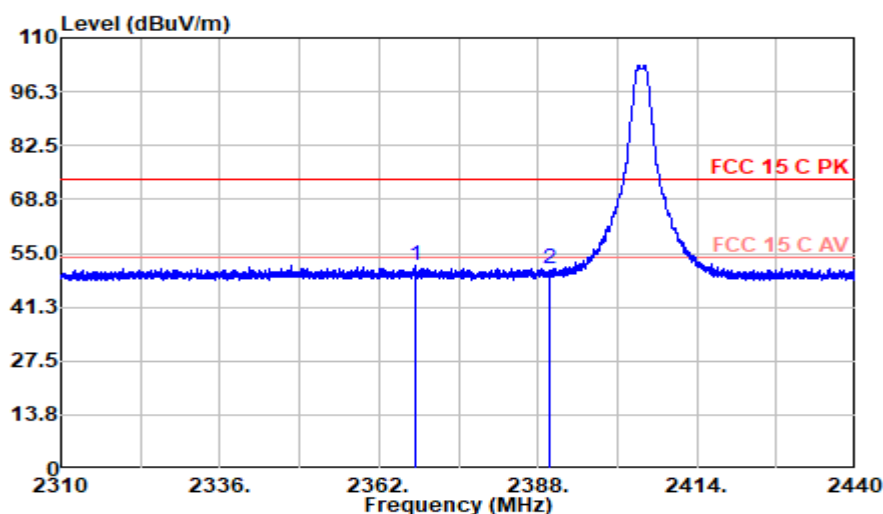


Polarization at Vertical

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
21714.000	47.72	44.93	8.27	54.00	46.92	74.00	27.08	Peak

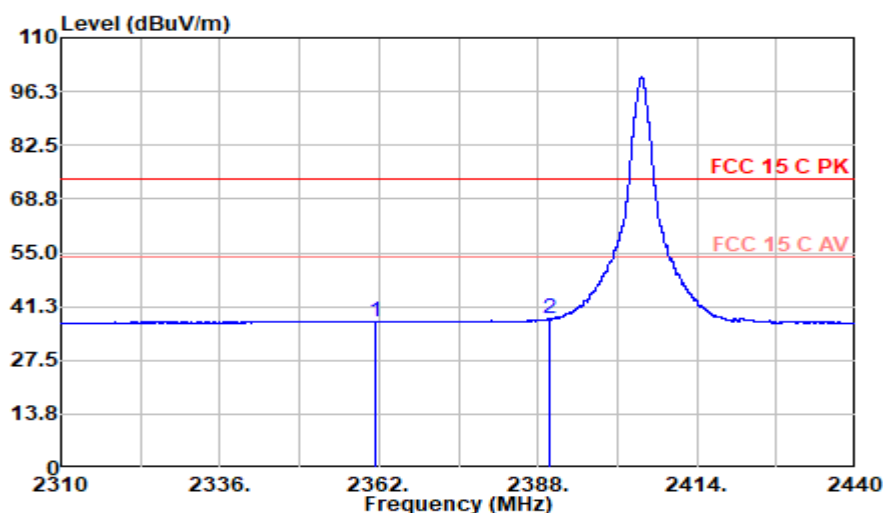
Band-Edge and Restricted bands:

Test Date:	2026.05.24	Temp./Hum.:	22°C/51%RH	Test By:	Jarey
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Mode: IEEE 802.15.4 CH2405MHz

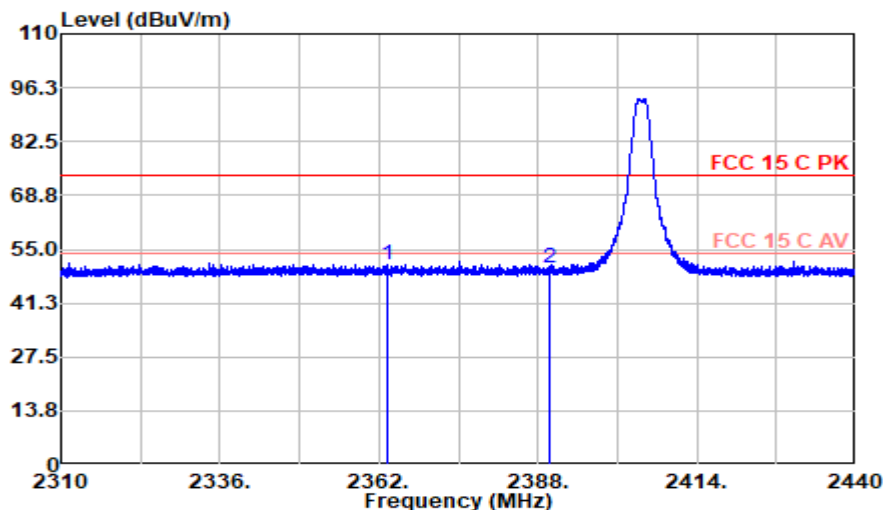
Polarization at Horizontal

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
2368.116	57.41	27.80	2.92	36.16	51.98	74.00	22.02	Peak
2390.000	56.38	27.80	2.94	36.13	50.99	74.00	23.01	Peak

Mode: IEEE 802.15.4 CH2405MHz

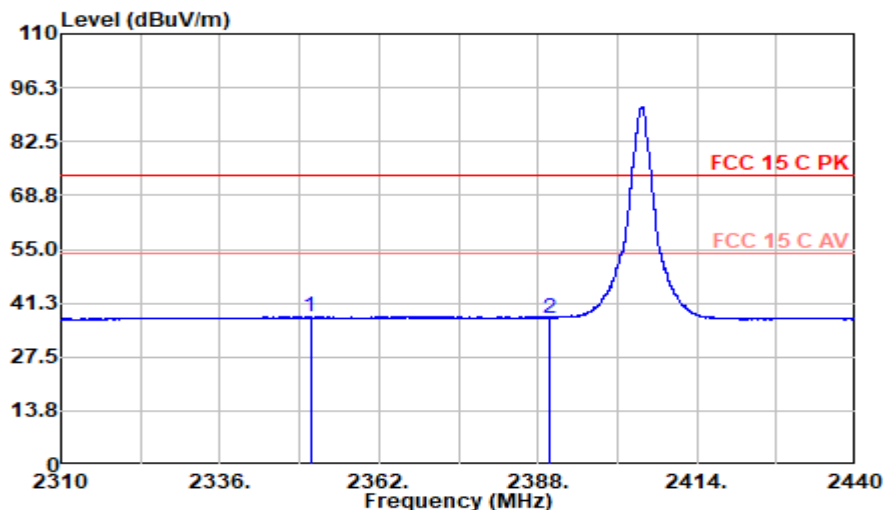
Polarization at Horizontal

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
2361.514	42.95	27.80	2.92	36.17	37.50	54.00	16.50	Average
2389.990	43.47	27.80	2.94	36.13	38.08	54.00	15.92	Average

Mode: IEEE 802.15.4 CH2405MHz

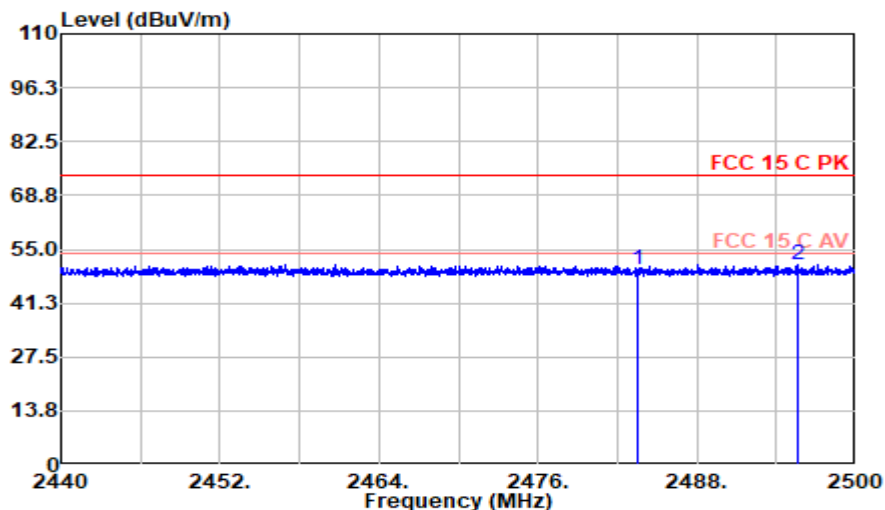
Polarization at Vertical

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
2363.390	56.70	27.80	2.92	36.16	51.26	74.00	22.74	Peak
2389.990	55.63	27.80	2.94	36.13	50.24	74.00	23.76	Peak

Mode: IEEE 802.15.4 CH2405MHz

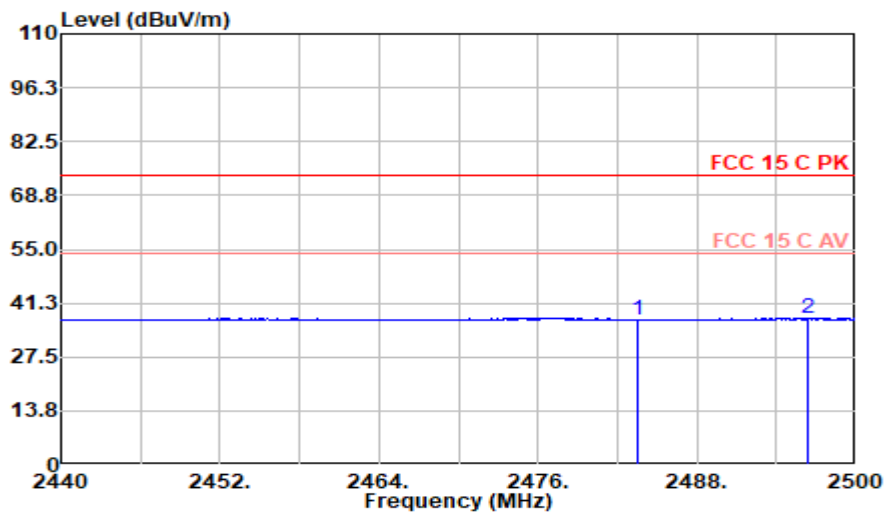
Polarization at Vertical

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
2350.779	43.22	27.80	2.92	36.18	37.76	54.00	16.24	Average
2390.000	42.91	27.80	2.94	36.13	37.51	54.00	16.49	Average

Mode: IEEE 802.15.4 CH2405MHz

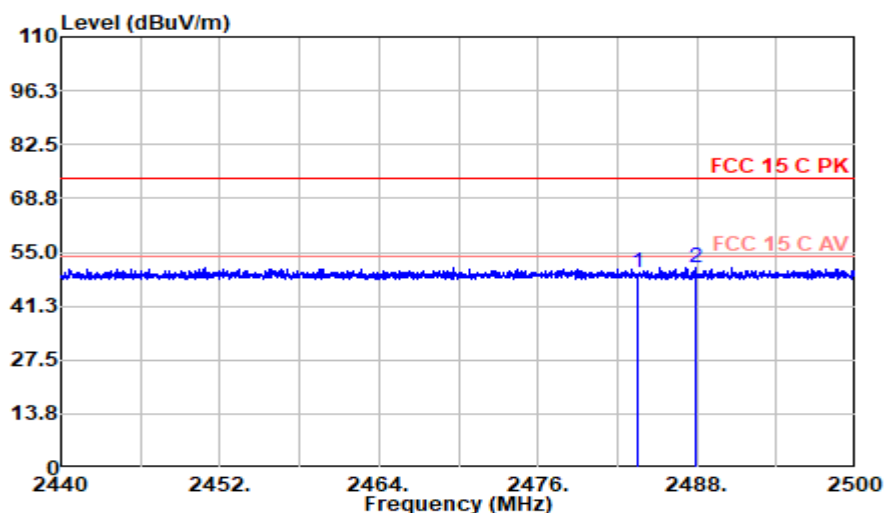
Polarization at Horizontal

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
2483.494	55.44	27.50	2.98	36.01	49.92	74.00	24.08	Peak
2495.677	56.52	27.50	2.99	35.99	51.02	74.00	22.98	Peak

Mode: IEEE 802.15.4 CH2405MHz

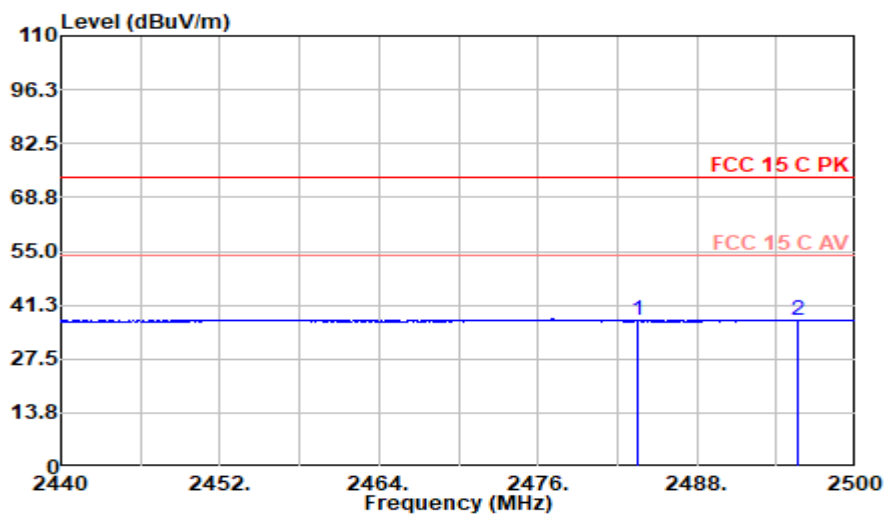
Polarization at Horizontal

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
2483.500	42.55	27.50	2.98	36.01	37.02	54.00	16.98	Average
2496.390	42.80	27.50	2.99	35.99	37.30	54.00	16.70	Average

Mode: IEEE 802.15.4 CH2405MHz

Polarization at Vertical

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
2483.494	55.48	27.50	2.98	36.01	49.96	74.00	24.04	Peak
2487.887	56.56	27.50	2.98	36.00	51.05	74.00	22.95	Peak

Mode: IEEE 802.15.4 CH2405MHz

Polarization at Vertical

Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
2483.500	42.69	27.50	2.98	36.01	37.16	54.00	16.84	Average
2495.583	42.95	27.50	2.99	35.99	37.45	54.00	16.55	Average

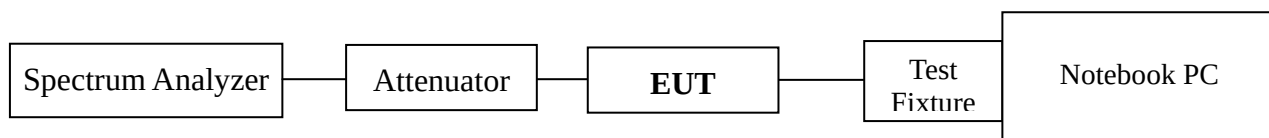
4 6 dB BANDWIDTH MEASUREMENT

4.1 Test Equipment

The following test equipment was used during the Emission Bandwidth measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2025.07.03	1 Year
2.	RF Cable	Mini-Circuits	FLC-3FT-SM SM+	22022838	2025.08.09	1 Year
3.	10 dB Attenuator	Mini-Circuits	BW-S10W2+	001	2025.09.21	1 Year

4.2 Block Diagram of Test Setup



4.3 Specification Limits (§15.247(a)(2))

The minimum 6 dB bandwidth shall be at least 500 kHz.

4.4 Operating Condition of EUT

The software as section 2.3 was used to enable the EUT to change the test mode one by one.

4.5 Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with settings: RBW = 100kHz, VBW $\geq 3 \times$ RBW.

The 6 dB bandwidth is defined as the total spectrum the power of which is lower than peak power minus 6 dB .

The test procedure is defined in ANSI C63.10:2020 (the 11.8.2 Measurement Procedure “Option 2” was used).

4.6 Test Results

PASSED.

All the test results are attached in next pages.

Test Date:	2026.01.29	Temp./Hum.:	23°C/51%RH	Test By:	DoraMa
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Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit
IEEE 802.15.4	11	2405	1.583	500 kHz

IEEE 802.15.4

CH2405



5 MAXIMUM PEAK OUTPUT POWER MEASUREMENT

5.1 Test Equipment

The following test equipment was used during the maximum peak output power measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2025.07.03	1 Year
2.	RF Cable	Mini-Circuits	FLC-3FT-SM SM+	22022838	2025.08.09	1 Year
3.	10 dB Attenuator	Mini-Circuits	BW-S10W2+	001	2025.09.21	1 Year

5.2 Block Diagram of Test Setup

The Same as Section. 5.2.

5.3 Specification Limits ((§15.247(b)(3))

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5 MHz is: 1 Watt. (30 dBm)

5.4 Operating Condition of EUT

The software as section 2.3 was used to enable the EUT to change the test mode one by one.

5.5 Test Procedure

The transmitter output was connected to the spectrum analyzer.

The following procedure shall be used when an instrument with a resolution bandwidth that is greater than the DTS bandwidth is available to perform the measurement:

- a) $RBW \geq DTS \text{ Bandwidth}$.
- b) $VBW \geq [3 \times RBW]$.
- c) $\text{Span} \geq [3 \times RBW]$.
- d) Sweep time = auto.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.

The test procedure is defined in ANSI C63.10:2020 (11.9.1.1 Measurement Procedure “ $RBW \geq DTS \text{ bandwidth}$ ” was used).

5.6 Test Results

PASSED.

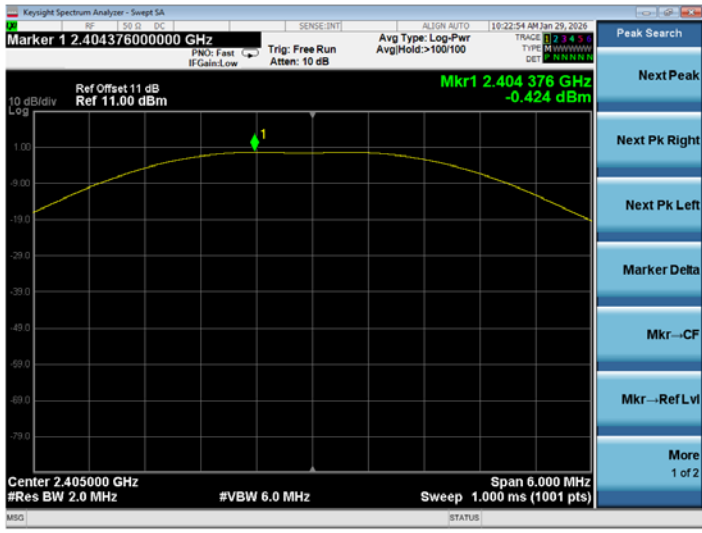
All the test results are listed below.

Test Date:	2026.01.29	Temp./Hum.:	23°C/51%RH	Test By:	DoraMa
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Mode	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit
IEEE 802.15.4	11	2405	-0.424	30 dBm

IEEE 802.15.4

CH2405



6 EMISSION LIMITATIONS MEASUREMENT

6.1 Test Equipment

The following test equipment was used during the emission limitations test:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2025.07.03	1 Year
2.	RF Cable	Mini-Circuits	FLC-3FT-SM SM+	22022838	2025.08.09	1 Year
3.	10 dB Attenuator	Mini-Circuits	BW-S10W2+	001	2025.09.21	1 Year

6.2 Block Diagram of Test Setup

The Same as Section. 5.2.

6.3 Specification Limits (§15.247(d))

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)). (※This test result attaching to Section. 3.7)

6.4 Operating Condition of EUT

The software as section 2.3 was used to enable the EUT to change the test mode one by one.

6.5 Test Procedure

The transmitter output was connected to the spectrum analyzer.

Establish a reference level by using the following procedure:

- Set instrument center frequency to DTS channel center frequency.
- Set the span to ≥ 1.5 times the DTS bandwidth.
- Set the RBW = 100 kHz.
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Establish an emission level by using the following procedure:

- a) Set the center frequency and span to encompass frequency range to be measured.
 - b) Set the RBW = 100 kHz.
 - c) Set the VBW $\geq [3 \times \text{RBW}]$.
 - d) Detector = peak.
 - e) Sweep time = auto couple.
 - f) Trace mode = max hold.
 - g) Allow trace to fully stabilize.
 - h) Use the peak marker function to determine the maximum amplitude level.
- Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

Scan up through 10th harmonic.

The test procedure is defined in ANSI C63.10:2020 (11.11.2 Reference level measurement and 11.11.3 Emission level measurement was used).

6.6 Test Results

PASSED.

The test data was attached in the next pages.

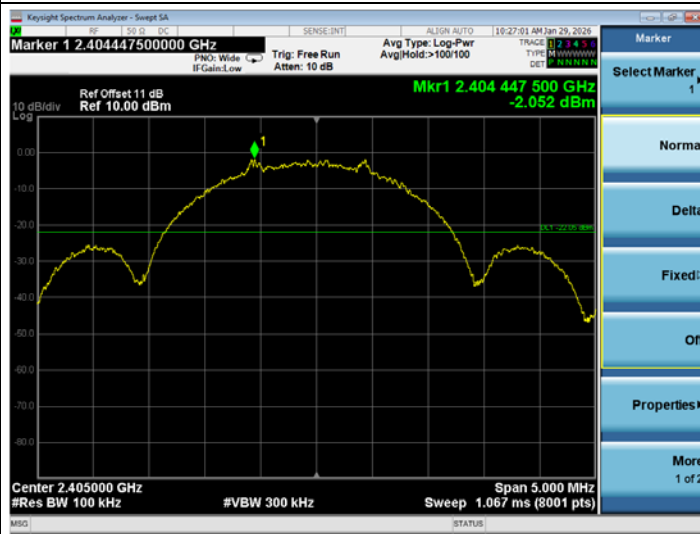
Test Date:	2026.01.29	Temp./Hum.:	23°C/51%RH	Test By:	DoraMa
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Mode	Channel	Frequency (MHz)	Data Page
IEEE 802.15.4	11	2405	P35

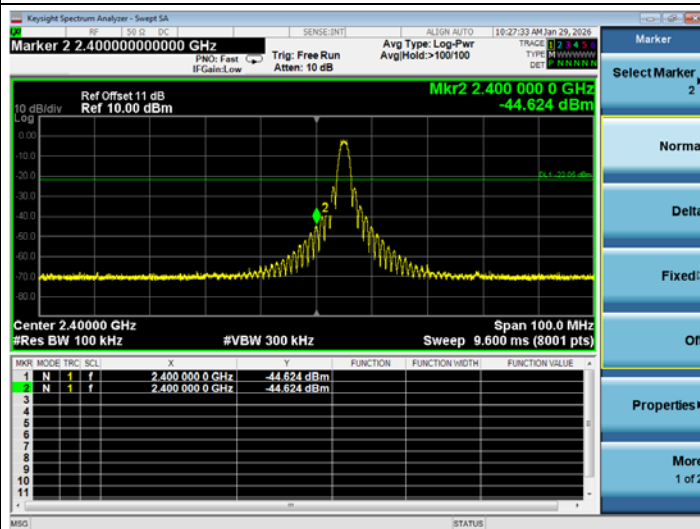
IEEE 802.15.4

CH2405

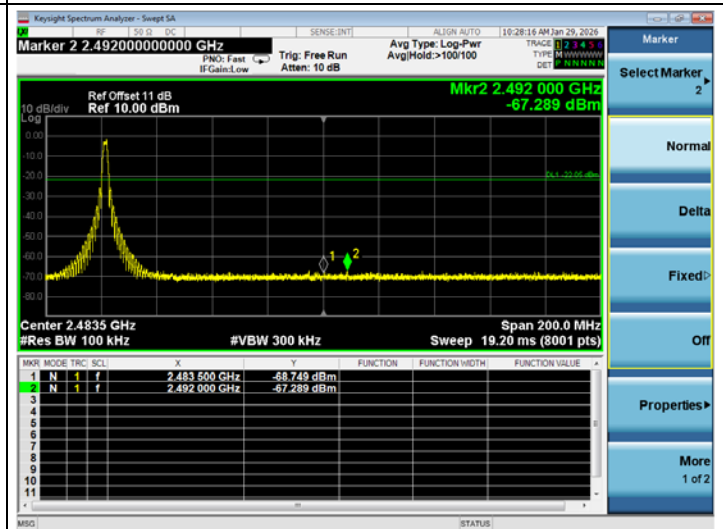
Reference Level



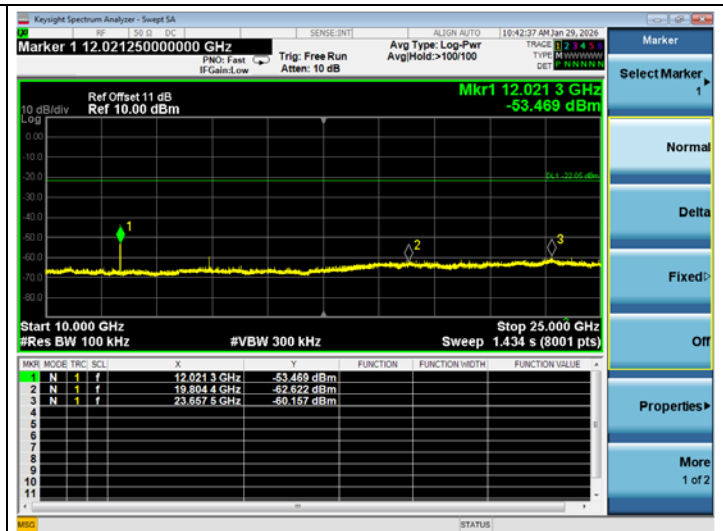
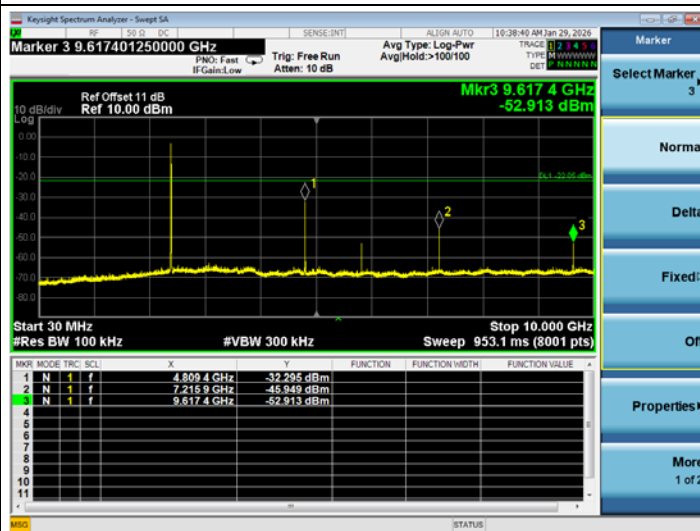
Lower Edge



Higher Edge



Emission Level



7 POWER SPECTRAL DENSITY MEASUREMENT

7.1 Test Equipment

The following test equipment was used during the power spectral density measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2025.07.03	1 Year
2.	RF Cable	Mini-Circuits	FLC-3FT-SM SM+	22022838	2025.08.09	1 Year
3.	10 dB Attenuator	Mini-Circuits	BW-S10W2+	001	2025.09.21	1 Year

7.2 Block Diagram of Test Setup

The Same as section 5.2.

7.3 Specification Limits (§15.247(e))

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band.

7.4 Operating Condition of EUT

The software as section 2.3 was used to enable the EUT to change the test mode one by one.

7.5 Test Procedure

The transmitter output was connected to the spectrum analyzer.

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

The test procedure is defined in ANSI C63.10:2020 (11.10.2 Measurement Procedure “Method PKPSD (peak PSD)” was used).

7.6 Test Results

PASSED.

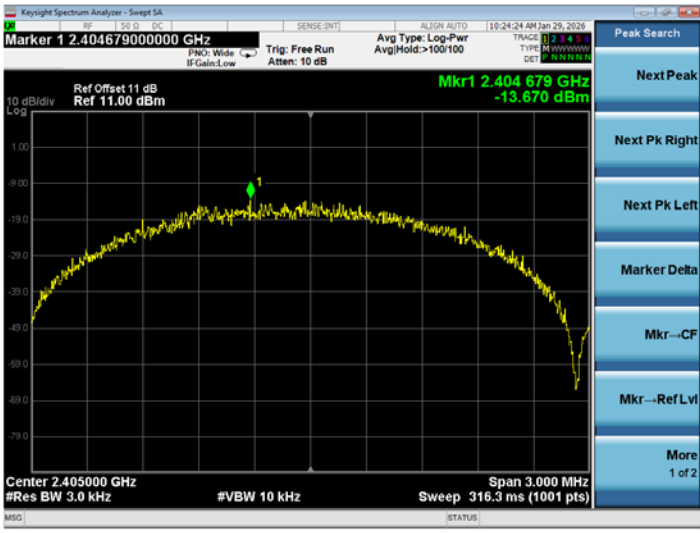
All the test results are attached in next pages.

Test Date:	2026.01.29	Temp./Hum.:	23°C/51%RH	Test By:	DoraMa
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Mode	Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
IEEE 802.15.4	11	2405	-13.67	8

IEEE 802.15.4

CH2405



8 ANTENNA REQUIREMENT

8.1 Specification Limits (§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.

8.2 Result

According to KDB 353028 D1, the following describes the three ways that can be used to demonstrate compliance to Section 15.203:

- a) Antenna permanently attached.
- b) Unique (non-standard) antenna connector.
- c) Professional installation.

For this product, the antenna is:

- ☒ Antenna permanently attached
- ☐ Unique (non-standard) antenna connector
- ☐ Professional installation
- ☐ not meet any of ways list above

that

- ☒ compliant
- ☐ not compliant

with the requirement of Section 15.203.

9 DEVIATION TO TEST SPECIFICATIONS

None.

10 MEASUREMENT UNCERTAINTY LIST

The measurement uncertainty was estimated for test on the EUT according to CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage of K=2.

The uncertainties value is not used in determining the PASS/FAIL results.

Test Items/Facilities	Frequency/Equipment/Unit	Uncertainty
Conducted Emission No.1 Shielded Room	9kHz~150kHz	±3.74 dB
	150kHz~30MHz	±3.33 dB
Conducted Emission No.3 Shielded Room	150kHz~30MHz	±3.33 dB
Radiated Emission	30M~200MHz (Vertical)	±4.77 dB
	30M~200MHz (Horizontal)	±4.59 dB
	200M~1000MHz (Vertical)	±5.36 dB
	200M~1000MHz (Horizontal)	±4.11 dB
	1G~6GHz	±4.65 dB
	6G~18G Hz	±4.62 dB
Output Power Test	50MHz~18GHz	0.65 dB
RF Frequency Test	9kHz~40GHz	37.4ppm
RF Radiated Power Test	30MHz~1000MHz	3.08 dB
Conducted Output Power Test	50MHz~18GHz	0.84 dB
AC Voltage(<10kHz) Test	120V~230V	0.11 %
DC Power Test	0V~30V	0.02 %
Temperature	-40°C~+100°C	0.68 °C
Humidity	30%~95%	3.4 %

---END of REPORT---