FCC PART 15.231
TEST REPORT

On Behalf of

CCL ELECTRONICS LTD

Unit 1-3, 9/F., Wang Lung Industrial Building, 11 Lung Tak Street, Tsuen Wan, KongHong

FCC ID: 2ALZ7-3163A0704

Model: C3163A

August 14, 2026

This Report Concerns:	**Equipment Type:**
☒ Original Report	Wireless Thermo-Hygro Transmitter

Test Engineer:	Fan Yang / Fan Yang
Report Number:	**QCT26HR-1872E-01**
Test Date:	August 5-13, 2026
Test Result:	Pass
Reviewed By:	Vincent Yang / Vincent Yang
Approved By:	Kendy Wang / Kendy Wang
Prepared By:	**Shenzhen QC Testing Laboratory Co., Ltd.** East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China **Tel: 0755-23008269** **Fax: 0755-23726780**

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Revision History of This Test Report

Report Number	Description	Issued Date
QCT26HR-1872E-01	Initial Issue	2026-08-14

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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Description:	Wireless Thermo-Hygro Transmitter
Model No.	C3163A
Tested Model:	C3163A
Sample(s) Status:	Engineer sample
Operation Frequency:	434.01 MHz
Channel numbers:	1
Modulation type:	ASK
Antenna Type:	Spring Antenna
Antenna gain*1:	-0.64dBi
Power supply:	DC 3V (Powered by 2*1.5V AAA battery)
Trade Mark:	N/A
Applicant:	CCL ELECTRONICS LTD
Address:	Unit 1-3, 9/F., Wang Lung Industrial Building, 11 Lung Tak Street, Tsuen Wan, KongHong
Manufacturer:	CCL ELECTRONICS LTD
Address:	Unit 1-3, 9/F., Wang Lung Industrial Building, 11 Lung Tak Street, Tsuen Wan, KongHong
Sample No.:	Y26H1872E01YN
Description of the EUT:	The product is a activated automatically transmitter.

Note: *1This information provided by Manufacturer, SZ QC Lab is not responsible for the accuracy of this information.

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1.2 System Test Configuration

1.2.1 Support Equipment

N/A

1.2.2 Test mode and voltage

Transmitting mode: The manufacturer provides the engineering sample to set the continuously transmitting mode, and the power level is the default.

Test voltage: DC 3V(All the test modes can be supply by new battery)

RF power setting	Default power
Test software	Press and hold the button while powering on, and keep it pressed for more than 3 seconds.

1.3 Test Facility

Test Firm: Shenzhen QC Testing Laboratory Co., Ltd.

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19. The testing quality system of our laboratory meets with ISO/IEC-17025 requirements. This approval result is accepted by MRA of APLAC.

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

CNAS – Registration No.: L8464

The EMC Laboratory has been accredited by CNAS, and in compliance with ISO/IEC 17025:2017 General Requirements for testing Laboratories.

A2LA Certificate Number: 6759.01

The EMC Laboratory has been accredited by A2LA, and in compliance with ISO/IEC 17025:2017 General Requirements for testing Laboratories.

FCC Registration Number: 561109

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission.

IC Registration Number: 29628

CAB identifier: CN0141

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada.

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1.4 Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	3.43%
RF output power, conducted	0.63dB
Power Spectral Density, conducted	0.69dB
Unwanted Emissions, conducted	0.90dB
AC Power Line Conducted Emission	2.70dB
Radiated Spurious Emission test (9kHz-30MHz)	2.68dB
Radiated Spurious Emission test (30MHz-1000MHz)	3.94dB
Radiated Spurious Emission test (1000MHz-18000MHz)	4.70dB
Radiated Spurious Emission test (18GHz-40GHz)	4.80dB
Temperature	0.375℃
Humidity	1.2679%
DC and low frequency voltages	0.18%
Time	0.133%
Duty cycle	0.133%

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

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2. Summary of Test Results

Test Item	Section	Result
Antenna Requirement	FCC Part 15.203	Pass
Conduction Emission	FCC Part 15.207	N/A
Radiated Emission	FCC Part 15.231(e)	Pass
20dB Bandwidth	FCC Part 15.231(c)	Pass
Release Time Measurement	FCC Part 15.231(e)	Pass
Duty Cycle	FCC Part 15.231	Pass

Note: 1. “N/A” means “not applicable”.

2. Test according to ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024.

3. In the configuration tested, the EUT complied with the standards specified above.

4. All indications of Pass/Fail in this report are opinions expressed by Shenzhen QC Testing Laboratory Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.

5. The EUT is powered by the battery, and Conduction Emission is not applicable.

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3. List of Test and Measurement Instruments

3.1 Radiated Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EMI Test Receiver	R&S	ESIB 7	2277573376	2026.03.12	2027.03.11
2	EMI Test Receiver	ESPI3	ESPI3	101131	2026.03.12	2027.03.11
3	Spectrum Analyzer	Rohde&Schwarz	FSV 40	101458	2026.03.13	2027.03.12
4	TRILOG Broadband Test-Antenna	SCHWARZBECK	VULB9168	VULB9168-588	2026.03.14	2028.03.13
5	Loop Antenna	EMCO	6502	2133	2026.03.14	2028.03.13
6	horn antenna	SCHWARZBECK	BBHA9120D	2069	2026.03.14	2028.03.13
7	Horn Antenna	COM-MW	ZLB7-18-40G -950	12221225	2025.08.19	2027.08.18
8	Pre-amplifier	MITEQ	TTA0001-18	2063645	2026.03.12	2027.03.11
9	Pre-amplifier	MITEQ	TTA1800-30-HG	2063644	2026.03.12	2027.03.11
10	Pre-amplifier	COM-MW	DLAN-18000 -40000-02	10229104	2026.03.12	2027.03.11
11	966 Camber	ZhongYU	9*6*6	/	2025.08.12	2028.08.11
12	Test Software	Farad	EZ-EMC Ver QCT03A2 RE+	N/A	N/A	N/A

3.2 RF Conducted test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1.	Spectrum Analyzer	ROHDE& SCHWARZ	FSV 40	101458	2026.03.13	2027.03.12

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4. Antenna requirement

Standard requirement: FCC Part15 C Section 15.203

15.203 requirement:
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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna: The antenna is Spring Antenna, reference to the Internal Photos for details.

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5. Radiated Emission Method

5.1 Applicable Standard

FCC Part15 C Section 15.231 (e) & Section 15.209

5.2 Limit

In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolt/meter) at 3m	Field Strength of Spurious Emissions (microvolt/meter) at 3m
40.66~40.70	1000	100
70~130	500	50
130~174	500 to 1500(**)	50 to 150(**)
174~260	1500	150
260~470	1500 to 5000(**)	150 to 500(**)
Above 470	5000	500

** Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

(1) for the band 130~174 MHz, uV/m at 3 meters= 22.7273(F) – 2454.5455;

(2) for the band 260~470 MHz, uV/m at 3 meter= 16.6667(F)-2833.3333.

(3) The maximum permitted unwanted emissions level is 20 dB below the maximum permitted fundamental level. In addition field strength of any emissions which appear inside of the restriction band shall not exceed the general radiated emissions limits in FCC Part15.209.

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note:

(1) The tighter limit applies at the band edges.

(2) For above 30MHz:

Emission Level(dBuV/m)=20log Emission Level(uV/m)

For 0.009~0.490MHz:

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Emission Level(dBuV/m)=20log Emission Level(uV/m) +40log(300/3)
For 0.049~30MHz:
Emission Level(dBuV/m)=20log Emission Level(uV/m) +40log(30/3)

So the field strength of emission limits have been calculated in below table.

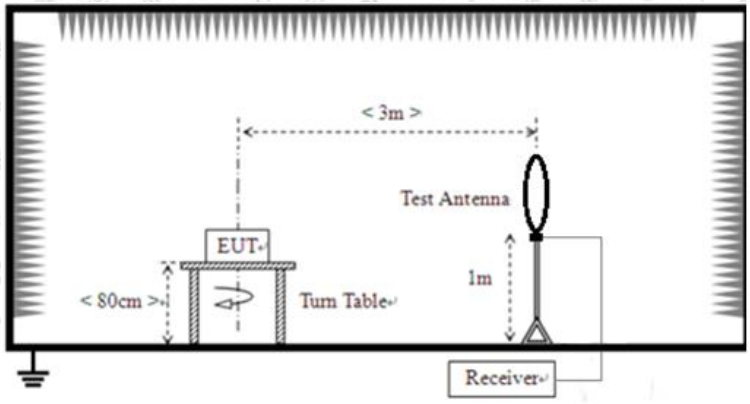
Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolt/meter) at 3m
434.01 MHz	72.87 (Average)
434.01 MHz	92.87 (Peak)

5.3 Receiver setup

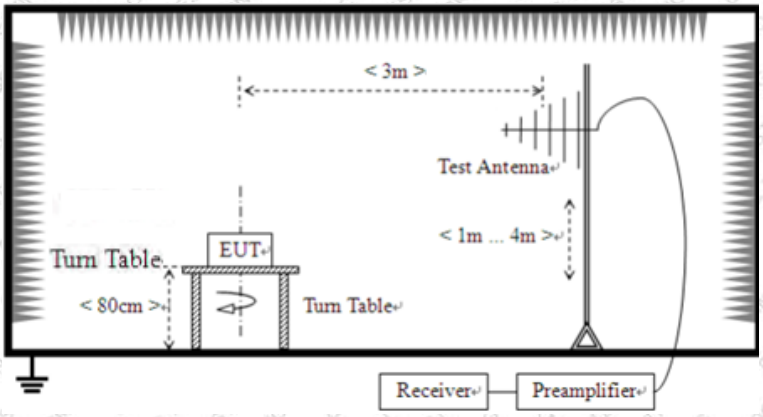
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

5.4 Test setup

For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz



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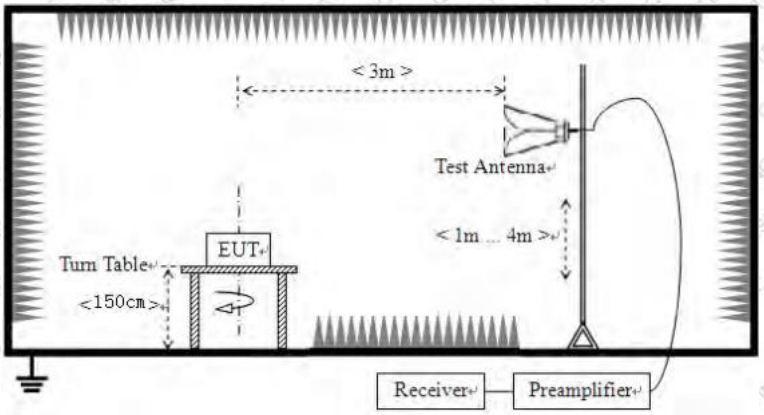
For radiated emissions above 1GHz



5.5 Test Procedure

1. The EUT was placed on the top of a rotating table (0.8 meters for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

5.6 Test Data

Temperature	25-26℃	Humidity	49-54%
ATM Pressure	101kPa	Antenna Gain	-0.64dBi
Test by	Fan Yang	Test result	PASS

Remarks:

1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.
2. Data of measurement within frequency range 9kHz-30MHz, 1-5GHz are the noise floor or attenuated more than 20dB below the permissible limits or the field strength is too small to be measured, so test data does not present in this report.

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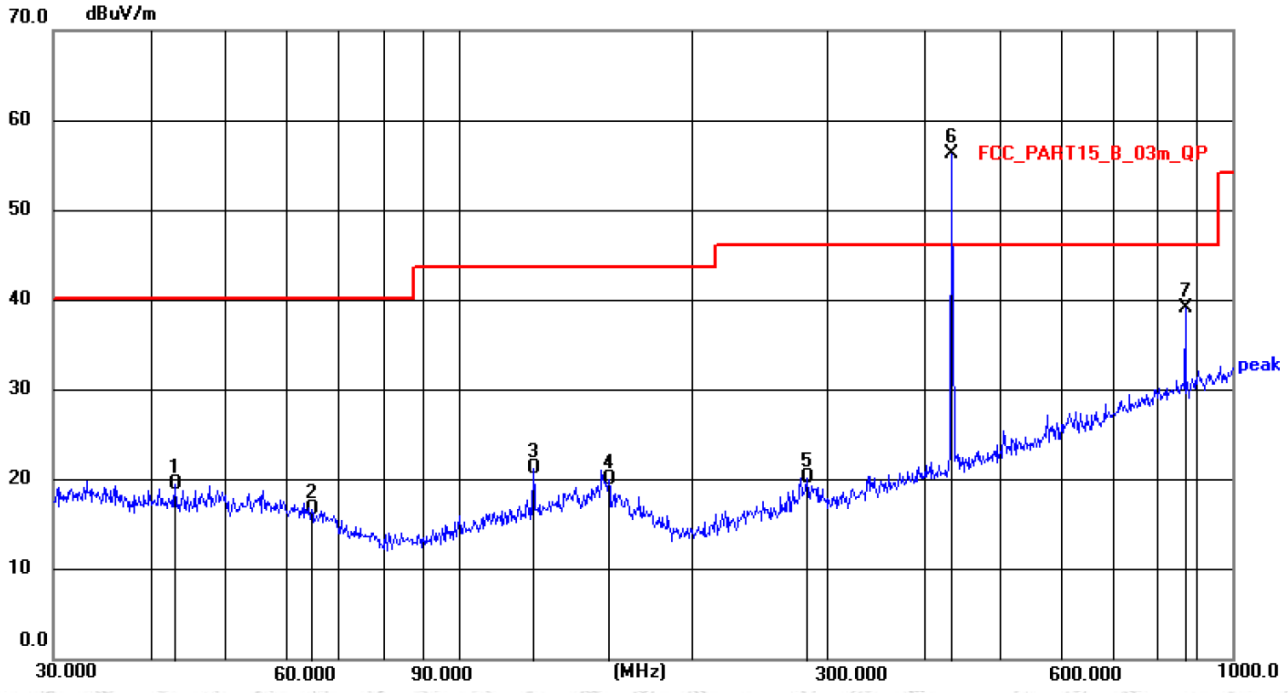
Below 1GHz:
Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	43.0504	4.88	14.60	19.48	40.00	20.52	QP
2	64.6594	3.80	12.87	16.67	40.00	23.33	QP
3	125.0065	7.69	13.53	21.22	43.50	22.28	QP
4	156.4576	5.59	14.51	20.10	43.50	23.40	QP
5	281.9945	5.41	14.82	20.23	46.00	25.77	QP
6	434.0100	37.87	18.35	56.22	/	/	peak
7	868.0200	13.32	25.79	39.11	/	/	peak

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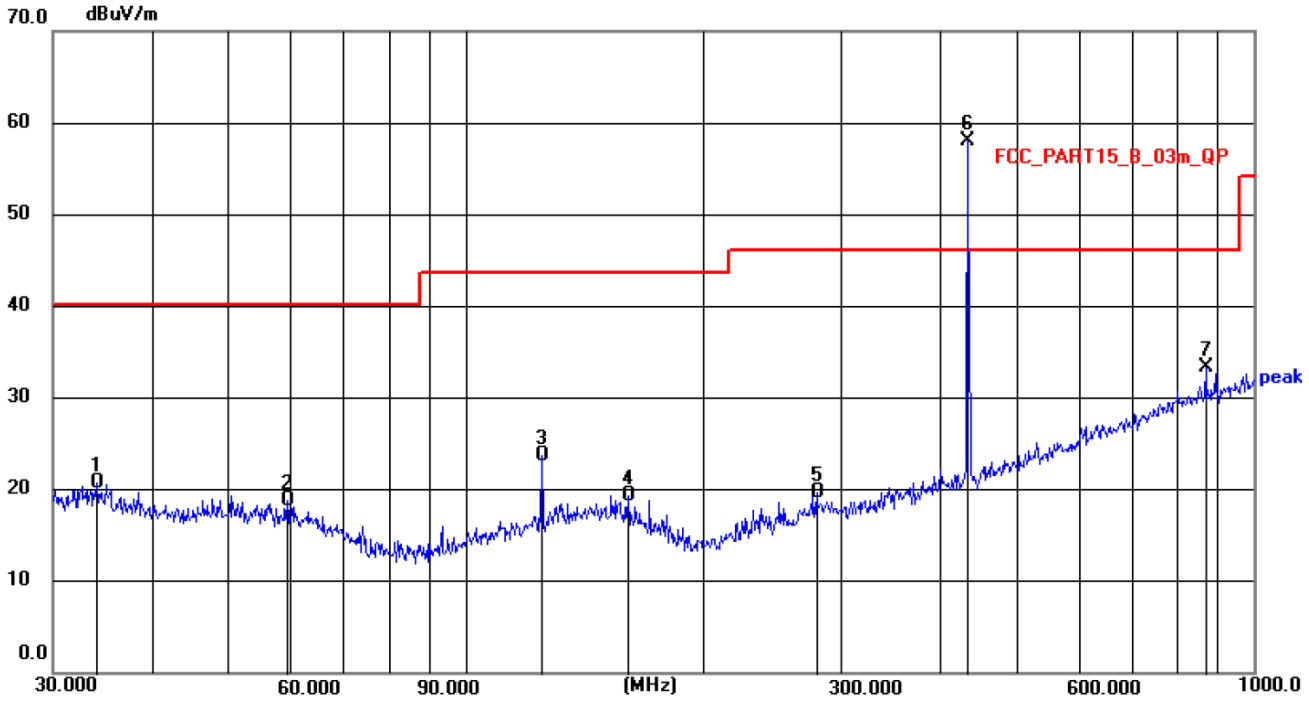
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	34.0363	5.30	15.42	20.72	40.00	19.28	QP
2	59.4405	5.15	13.74	18.89	40.00	21.11	QP
3	125.0065	10.10	13.53	23.63	43.50	19.87	QP
4	160.9088	4.96	14.43	19.39	43.50	24.11	QP
5	279.0436	4.83	14.78	19.61	46.00	26.39	QP
6 *	434.0100	39.60	18.35	57.95	/	/	peak
7	868.0200	7.62	25.79	33.41	/	/	peak

Frequency (MHz)	Read Level (dBμV)	polarization	Factor (dB/m)	Peak value (dBμV/m)	Average Limit (dBμV/m)	Margin (dB)
434.01	37.87	H	18.35	56.22	72.87	16.65
868.02	13.32	H	25.79	39.11	52.87	13.76
434.01	39.6	V	18.35	57.95	72.87	14.92
868.02	7.62	V	25.79	33.41	52.87	19.46

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Above 1G:

Frequency (MHz)	Reading (dBμV/m)	Factor Corr.	Average Factor	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)		Polarization
	PEAK	(dB)	(dB)	AV	PEAK	AV	PEAK	AV	PEAK	
1736.483	67.86	-24.2	-5.98	37.68	43.66	52.87	72.87	15.19	29.21	Horizontal
2168.51	72.28	-22.33	-5.98	43.97	49.95	52.87	72.87	8.9	22.92	
2458.283	65.13	-21.82	-5.98	37.33	43.31	52.87	72.87	15.54	29.56	
2603.351	66.41	-21.48	-5.98	38.95	44.93	52.87	72.87	13.92	27.94	
3037.063	69.83	-20.47	-5.98	43.38	49.36	52.87	72.87	9.49	23.51	
3473.882	69.35	-20.43	-5.98	42.94	48.92	52.87	72.87	9.93	23.95	
3909.967	76.59	-20.32	-5.98	50.29	56.27	52.87	72.87	2.58	16.6	
4345.943	67.78	-19.57	-5.98	42.23	48.21	52.87	72.87	10.64	24.66	
4778.879	73.11	-18.45	-5.98	48.68	54.66	52.87	72.87	4.19	18.21	
5645.392	64.6	-16.56	-5.98	42.06	48.04	52.87	72.87	10.81	24.83	
1736.483	67.86	-24.2	-5.98	37.68	43.66	52.87	72.87	15.19	29.21	Vertical
2168.51	72.28	-22.33	-5.98	43.97	49.95	52.87	72.87	8.9	22.92	
2458.283	65.13	-21.82	-5.98	37.33	43.31	52.87	72.87	15.54	29.56	
2603.351	66.41	-21.48	-5.98	38.95	44.93	52.87	72.87	13.92	27.94	
3037.063	69.83	-20.47	-5.98	43.38	49.36	52.87	72.87	9.49	23.51	
3473.882	69.35	-20.43	-5.98	42.94	48.92	52.87	72.87	9.93	23.95	
3909.967	76.59	-20.32	-5.98	50.29	56.27	52.87	72.87	2.58	16.6	
4345.943	67.78	-19.57	-5.98	42.23	48.21	52.87	72.87	10.64	24.66	
4778.879	73.11	-18.45	-5.98	48.68	54.66	52.87	72.87	4.19	18.21	
5645.392	64.6	-16.56	-5.98	42.06	48.04	52.87	72.87	10.81	24.83	

Remarks:

1. Level =Receiver Read level + Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. If the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in above table if the peak value complies with average limit.

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6. 20dB Occupy Bandwidth

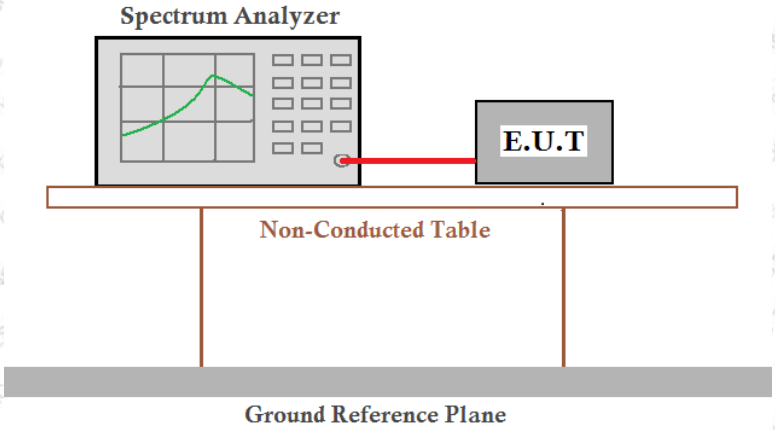
6.1 Applicable Standard

FCC Part15 C Section 15.231 (c)

6.2 Limit

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

6.3 Test setup



6.4 Test Data

Temperature	22.8℃	Humidity	47%
ATM Pressure	101kPa	Antenna Gain	-0.64dBi
Test by	Fan Yang	Test result	PASS

Please refer to following table and plots.

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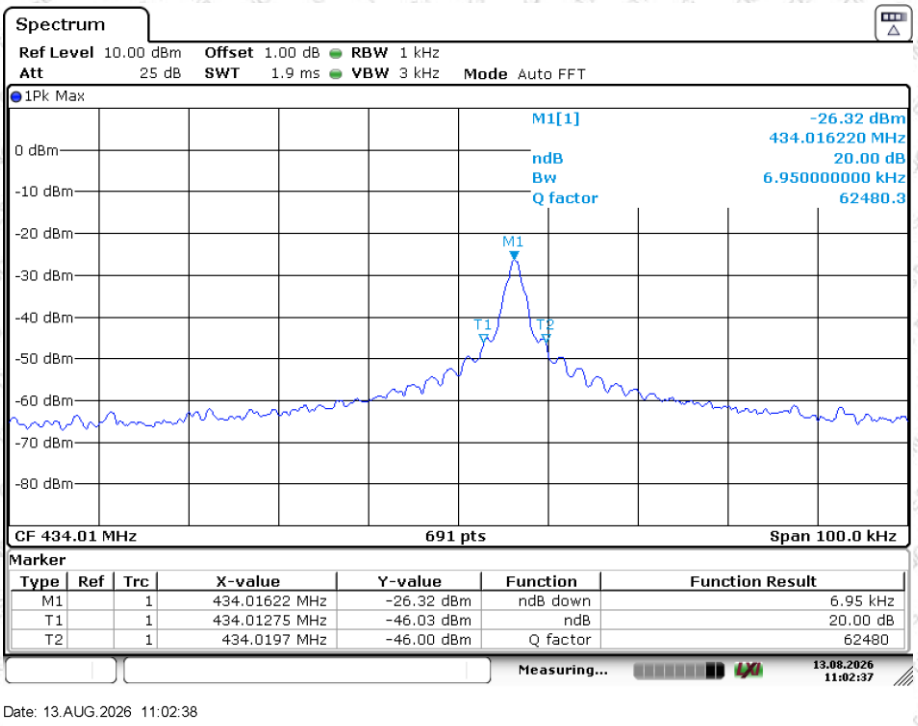
Test Frequency (MHz)	20dB bandwidth (MHz)	Limit (MHz)	Result
434.01	0.007	1.085	Pass

Note: Limit= Fundamental frequency×0.25%

434.01×0.25%=1.085MHz

Test plot as follows:



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7. Release Time Measurement

7.1 Applicable Standard

FCC Part15 C Section 15.231 (e)

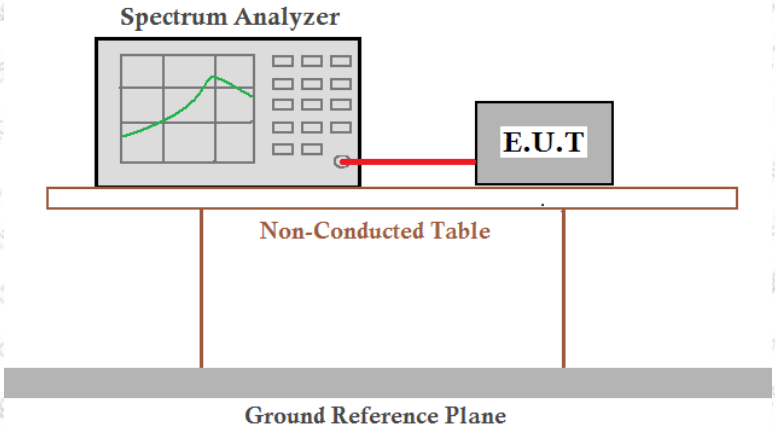
7.2 Limit

According to FCC §15.231(e), Section 15.231(e) devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10seconds.

7.3 Test Procedure

1. Set SPA Center Frequency = Fundamental frequency, RBW = 100 kHz, VBW = 300 kHz, Span = 0 Hz.
2. Set EUT as normal operation and press Transmitter button.
3. Set SPA View. Delta Mark time.

7.4 Test setup



7.5 Test Data

Temperature	22.8℃	Humidity	47%
ATM Pressure	101kPa	Antenna Gain	-0.64dBi
Test by	Fan Yang	Test result	PASS

Please refer to following table and plots.

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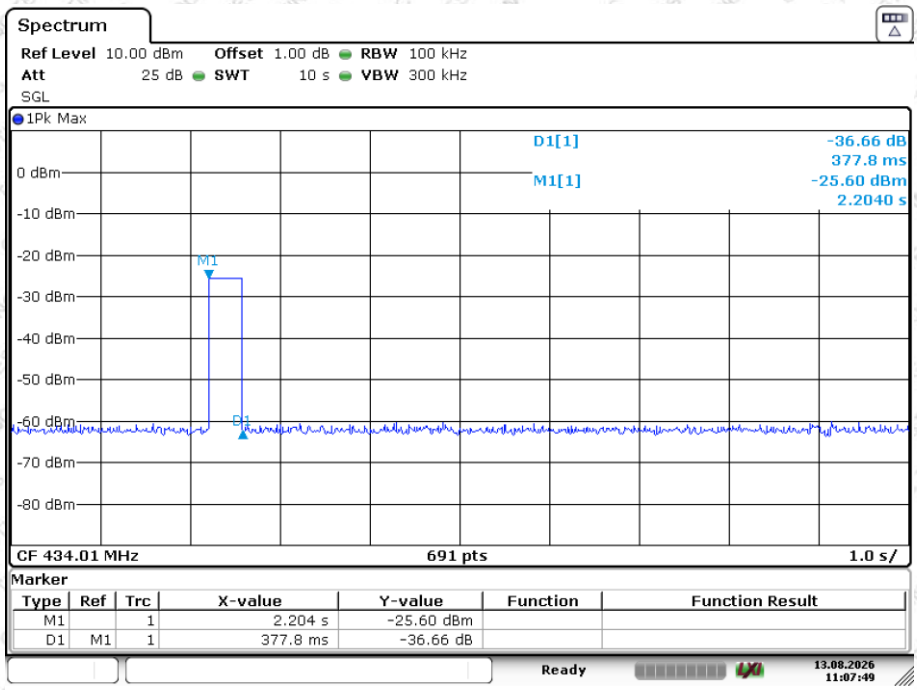
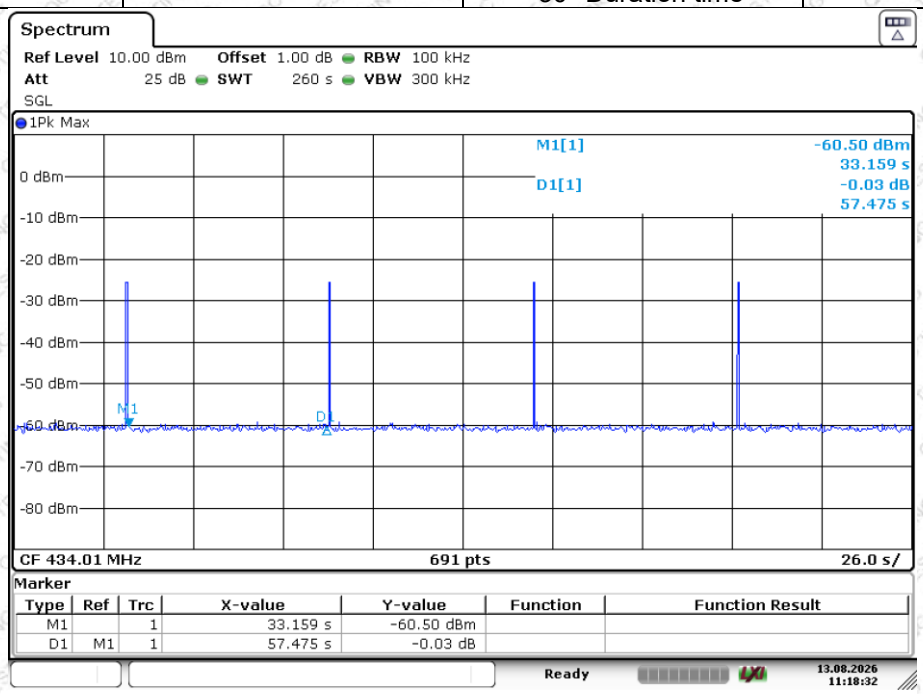
Frequency (MHz)	Duration of each TX (second)	Limit (second)	Result
434.01	0.378	<1	Pass



Date: 13.AUG.2026 11:07:49

Frequency (MHz)	Silent time (second)	Limit (second)	Result
434.01	57.475	>10s >30* Duration time	Pass



Date: 13.AUG.2026 11:18:32

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8. Duty Cycle

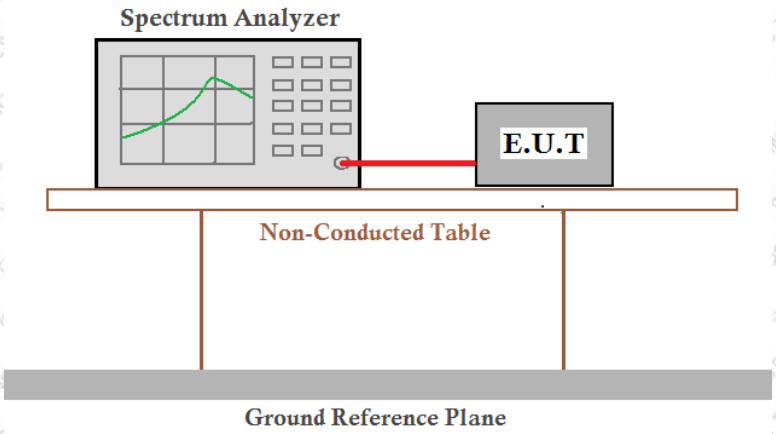
8.1 Applicable Standard

FCC Part15 C Section 15.231

8.2 Limit

No dedicated limit specified in the Rules.

8.3 Test setup



8.4 Test Procedure

1.Place the EUT on the table and set it in transmitting mode.

2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

3. Set centre frequency of spectrum analyzer=operating frequency.

4. Set the spectrum analyzer as RBW=100kHz, VBW=300KHz, Span=0Hz, Adjust Sweep=100ms to obtain the “worst-case” pulse on time

5. Repeat above procedures until all frequency measured was complete.

8.5 Test Dat

2 Temperature	22.8℃	Humidity	47%
ATM Pressure	101kPa	Antenna Gain	-0.64dBi
Test by	Fan Yang	Test result	PASS

Please refer to following table and plots.

Calculate Formula: Duty cycle factor =20 log(Duty cycle)

Duty cycle=on time/0.1 seconds or period, whichever is less

Test data:

T on time =56*0.507ms+0.993*22 =50.24(ms)

T period =100(ms)

Duty cycle=50.24/100=50.24%

Duty cycle factor =20log(0.5024)=-5.98

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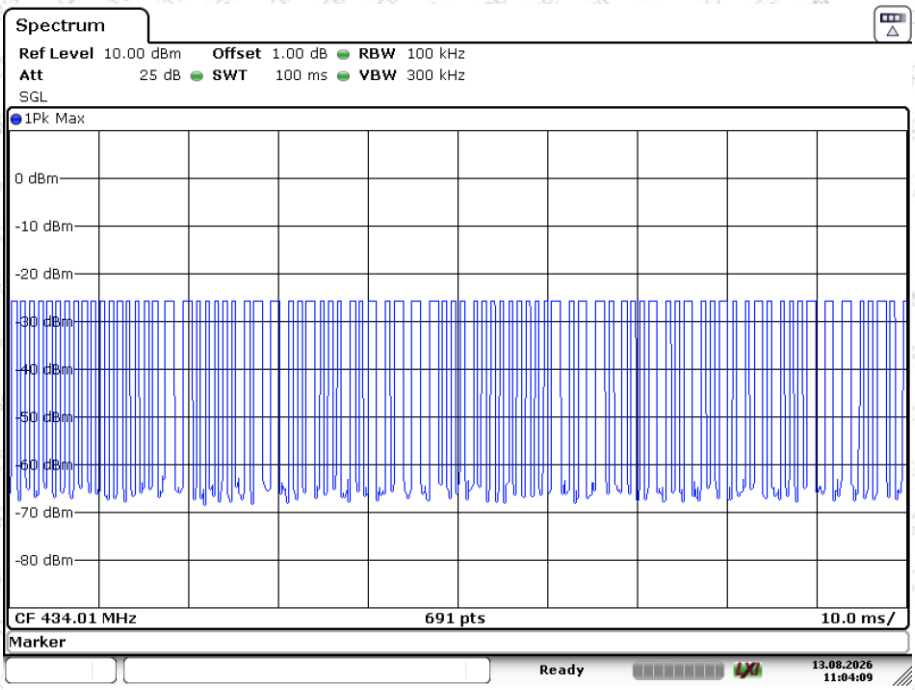
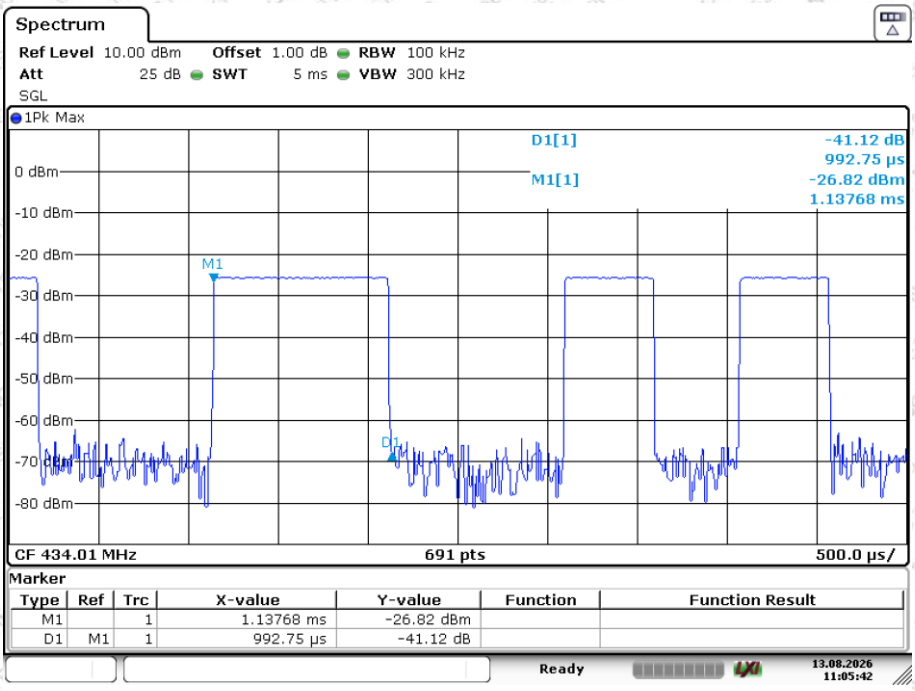


Date: 13.AUG.2026 11:04:09



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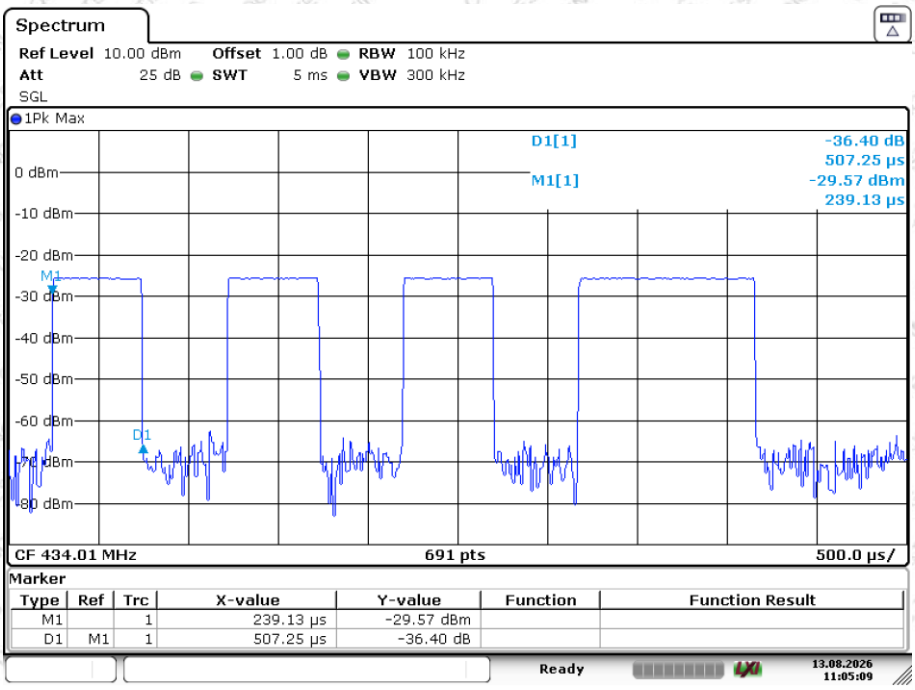

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---------- THE END OF TEST REPORT ----------

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