



FCC PART 15.231 TEST REPORT

On Behalf of

PGST CO., LTD

1st Floor, 9th Block, Huaifu Industrial Park, Langkou Community, Dalang, Longhua

District, Shenzhen City

FCC ID: 2AIT9-PG-S12

Model: PG-S12, PG-S13, PG-S14, PG-S15, PG-S16

July 06, 2026

This Report Concerns:

☒ Original Report

Equipment Type:

Wireless Interlinked Smoke Alarm

Test Engineer:

Fan Yang *Fan Yang*

Report Number:

QCT26ER-0091 -01

Test Date:

May 20 2026~June 03, 2026

Test Result:

Pass

Reviewed By:

Vincent Yang *Vincent Yang*

Approved By:

Kendy Wang *Kendy Wang*

Prepared By:

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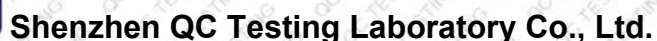
Fax: 0755-23726780





Table of Contents

1. GENERAL INFORMATION	4
1.1 Product Description for Equipment under Test (EUT)	4
1.2 System Test Configuration	4
1.3 Test Facility	5
1.4 Measurement Uncertainty	5
2. SUMMARY OF TEST RESULTS	6
3. LIST OF TEST AND MEASUREMENT INSTRUMENTS	7
3.1 Radiated Emission Test	7
3.2 RF Conducted test	7
4. ANTENNA REQUIREMENT	8
5. RADIATED EMISSION METHOD	9
5.1 Applicable Standard	9
5.2 Limit	9
5.3 Receiver setup	10
5.4 Test setup	10
5.5 Test Procedure	11
5.6 Test Data	11
6. 20DB OCCUPY BANDWIDTH	12
6.1 Applicable Standard	16
6.2 Limit	16
6.3 Test setup	16
6.4 Test Data	16
7. RELEASE TIME MEASUREMENT	17
7.1 Applicable Standard	18
7.2 Limit	18
7.3 Test Procedure	18
7.4 Test setup	18
7.5 Test Data	18
8. DUTY CYCLE	20
8.1 Applicable Standard	20
8.2 Limit	20
8.3 Test setup	20
8.4 Test Procedure	20
8.5 Test Data	20



Revision History of This Test Report

[illegible]



1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Description:	Wireless Interlinked Smoke Alarm
Model No.	PG-S12, PG-S13, PG-S14, PG-S15, PG-S16
Model Difference:	PCB board, structure and internal of these model(s) are the same, Just difference is the shell and model.
Tested Model:	PG-S12
Sample(s) Status:	Engineer sample
Operation Frequency:	433.92 MHz
Channel numbers:	1
Modulation type:	FSK
Antenna Type:	Spring Antenna
Antenna gain*1:	0dBi
Power supply:	DC 3V (ReplaceableCR123A Lithium Battery)
Trade Mark:	N/A
Applicant:	PGST CO., LTD
Address:	1st Floor, 9th Block, Huaifu Industrial Park, Langkou Community, Dalang,Longhua District, Shenzhen City
Manufacturer:	PGST CO., LTD
Address:	1st Floor, 9th Block, Huaifu Industrial Park, Langkou Community, Dalang,Longhua District, Shenzhen City
Sample No.:	Y26E0091E01WC
Description of the EUT:	This product is a manually activated transmitter.

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

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	Add a bistable circuit to set the continuously transmitting mode



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.

1.4 Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	$\pm 1.42 \times 10^{-4}\%$
RF output power, conducted	$\pm 1.06\text{dB}$
Power Spectral Density, conducted	$\pm 1.06\text{dB}$
Unwanted Emissions, conducted	$\pm 2.51\text{dB}$
AC Power Line Conducted Emission	$\pm 1.80\text{dB}$
Radiated Spurious Emission test (9kHz-30MHz)	$\pm 2.66\text{dB}$
Radiated Spurious Emission test (30MHz-1000MHz)	$\pm 4.04\text{dB}$
Radiated Spurious Emission test (1000MHz-18000MHz)	$\pm 4.70\text{ dB}$
Radiated Spurious Emission test (18GHz-40GHz)	$\pm 4.80\text{dB}$
Temperature	$\pm 0.8^{\circ}\text{C}$
Humidity	$\pm 3.2\%$
DC and low frequency voltages	$\pm 0.1\%$
Time	$\pm 5\%$
Duty cycle	$\pm 5\%$

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



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(b)	Pass
20dB Bandwidth	FCC Part 15.231(c)	Pass
Time Measurement	FCC Part 15.231(a)	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

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.



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
13	High frequency cable	TIMES Microwave Ststems	SFT205-NMRANM 18G	20202030-001	/	/
14	Low frequency cable	TIMES Microwave Ststems	SFT205PUR-NMRANM	558700-0001	/	/
Radiated Emission Measurement Software: EZ_EMC Ver QCT03A2 RE+						

3.2 RF Conducted test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1.	Wideband Radio Communication Tester	Rohde & Schwarz	CW500	151583	2026.03.12	2027.03.11
2.	MXA Signal Analyzer	Keysight	N9020A	MY51281805	2026.03.13	2027.03.12
3.	Signal Generator	Agilent	N5182A	MY50141563	2026.03.12	2027.03.11
4.	RF Automatic Test System	MW	MW100-RFCB/MW100-PSB	MW2007004	2026.03.13	2027.03.12
RF Conducted Measurement Software: MTS 8310 Ver 2.0.0.0						



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.

5. Radiated Emission Method

5.1 Applicable Standard

FCC Part15 C Section 15.231 (b) & 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	2,250	225
70~130	1,250	125
130~174	¹ 1,250 to 3,750	¹ 125 to 375
174~260	3,750	375
260~470	¹ 3,750 to 12,500	¹ 375 to 1,250
Above 470	12,500	1,250

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

- (1) for the band 130~174 MHz, $\mu\text{V/m}$ at 3 meters= $22.7273(F) - 2454.5455$;
- (2) for the band 260~470 MHz, $\mu\text{V/m}$ 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($\mu\text{V/m}$)
For 0.009~0.490MHz:

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.

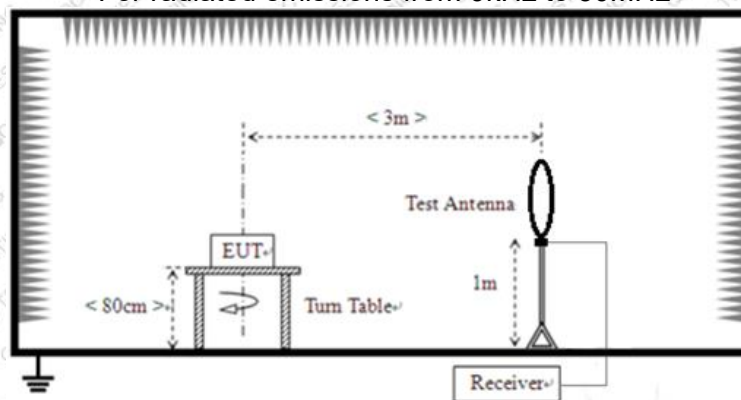
Fundamental Frequency (MHz)	Limit (dBuV/m @3m)
433.92 MHz	80.8 (Average)
433.92 MHz	100.8 (Peak)

5.3 Receiver setup

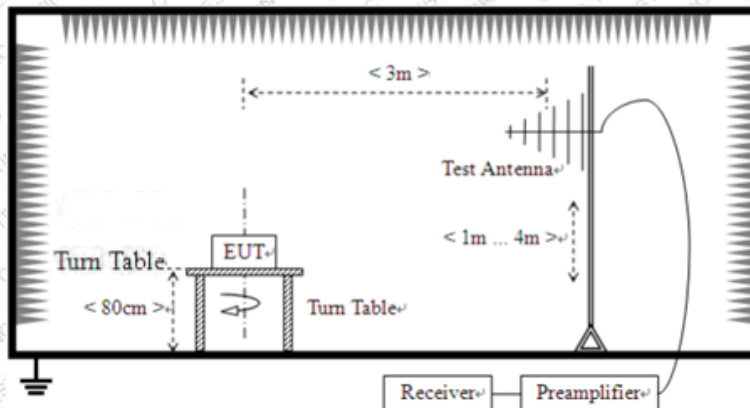
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

5.4 Test setup

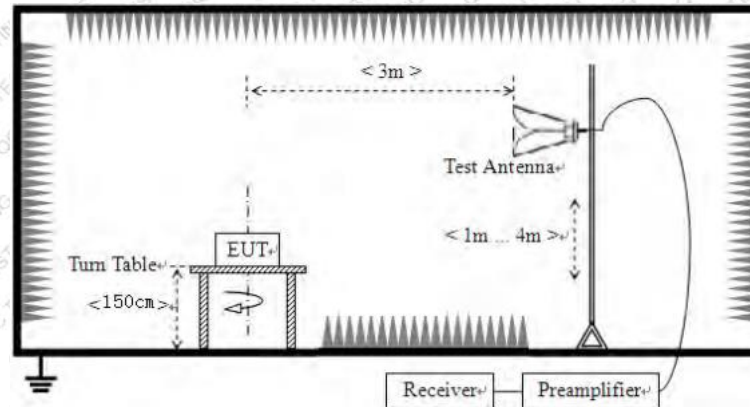
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz



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°C	Humidity	49-54%
ATM Pressure	101kPa	Antenna Gain	0dBi
Test by	Fan Yang	Test result	PASS

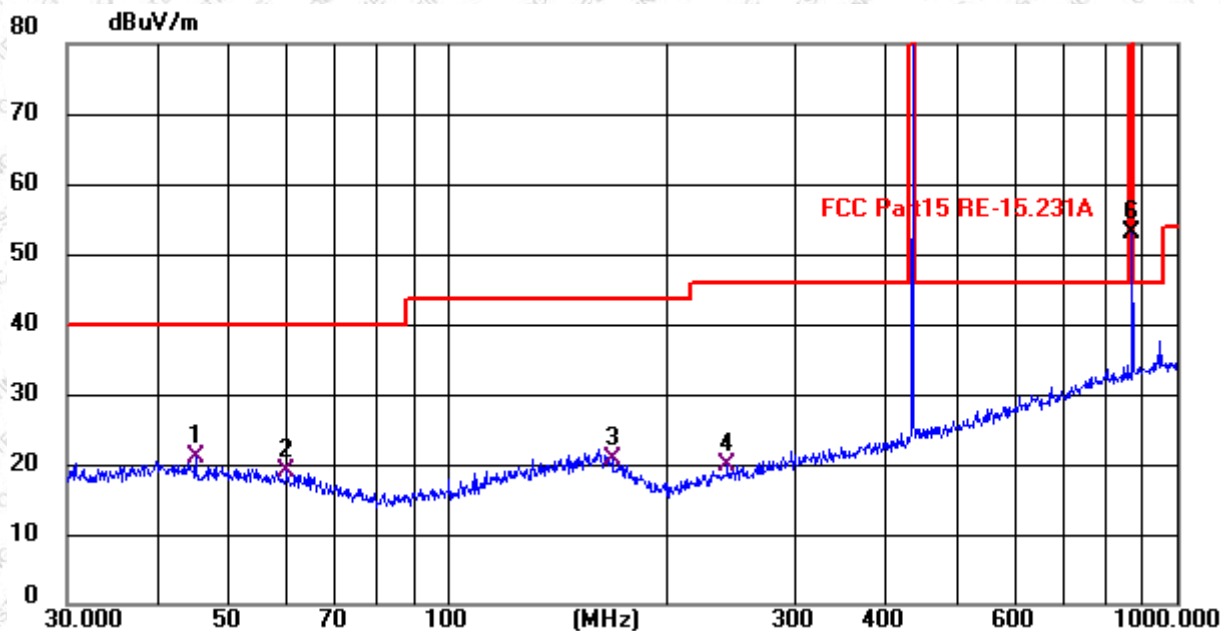
Measurement data:

9 kHz ~ 30 MHz

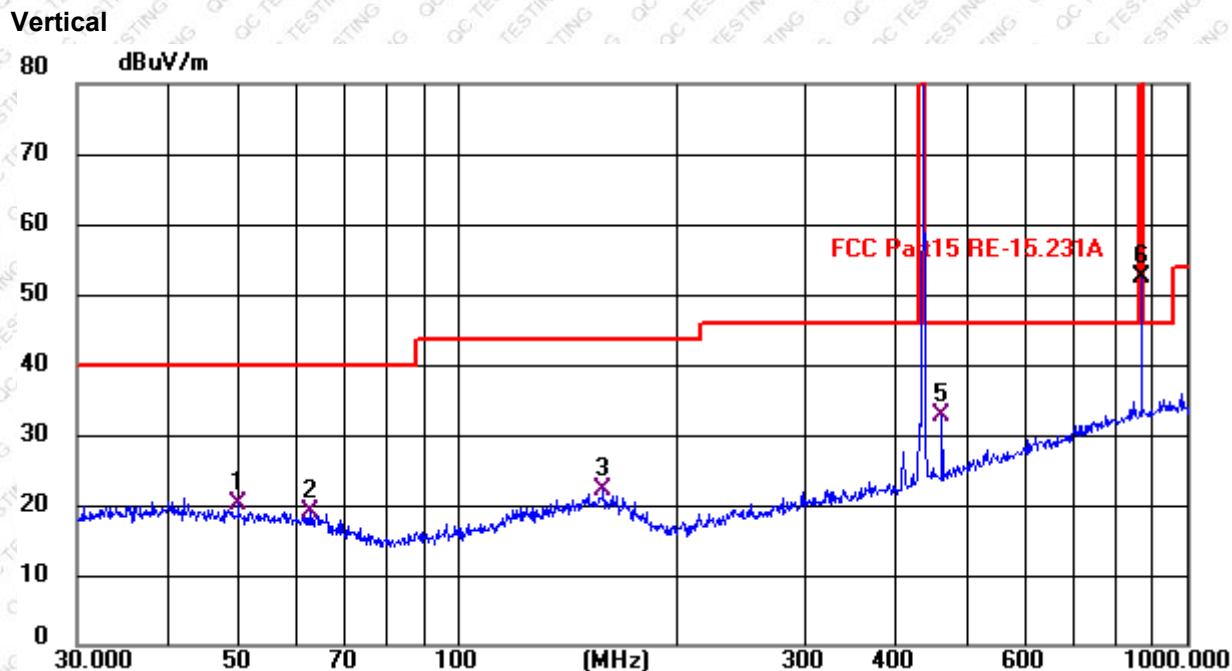
1. The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.



Below 1GHz:
Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	44.9714	35.75	-14.63	21.12	40.00	-18.88	QP
2	60.0270	34.62	-15.63	18.99	40.00	-21.01	QP
3	168.1777	34.88	-14.22	20.66	43.50	-22.84	QP
4	241.5915	35.48	-15.71	19.77	46.00	-26.23	QP
5 *	433.9890	100.33	-10.62	89.71	100.80	-11.09	peak
6	867.9120	55.94	-2.86	53.08	80.80	-27.72	peak



No.	Frequency (MHz)	Reading (dBUV)	Factor (dB)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	49.9163	35.06	-14.93	20.13	40.00	-19.87	QP
2	62.8266	35.07	-16.00	19.07	40.00	-20.93	QP
3	157.9461	35.62	-13.49	22.13	43.50	-21.37	QP
4 *	433.9890	101.29	-10.62	90.67	100.80	-10.13	peak
5	459.9200	42.66	-10.06	32.60	46.00	-13.40	QP
6	867.9120	55.37	-2.86	52.51	80.80	-28.29	peak



Field Strength of The Fundamental Signal

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	
433.9890	89.71	-10.62	-8.58	70.51	79.09	80.80	100.80	-10.29	-21.71	H
433.9890	90.67	-10.62	-8.58	71.47	80.05	80.80	100.80	-9.33	-20.75	V
867.9120	53.08	-2.86	-8.58	41.64	50.22	60.80	80.80	-19.16	-30.58	H
867.9120	52.51	-2.86	-8.58	41.07	49.65	60.80	80.80	-19.73	-31.15	V

Above 1G:

Frequency (MHz)	Read Level (dBμV)	polarization	Factor (dB/m)	Level (dBμV/m)	Limit		Margin(dB)	
					PK	AV	PK	AV
1239.848	76.88	H	-25.20	51.68	74	54	-22.32	-2.32
1965.015	79.33	H	-23.41	55.92	74	54	-18.08	1.92
2580.153	62.03	H	-21.94	40.09	74	54	-33.91	-13.91
3286.168	67.49	H	-20.87	46.62	74	54	-27.38	-7.38
4081.788	62.33	H	-20.80	41.53	74	54	-32.47	-12.47
4988.844	58.15	H	-18.29	39.86	74	54	-34.14	-14.14
1301.332	66.37	V	-25.20	41.17	74	54	-32.83	-12.83
1902.639	66.16	V	-23.85	42.31	74	54	-31.69	-11.69
2304.722	64.19	V	-22.56	41.63	74	54	-32.37	-12.37
2898.824	63.06	V	-21.05	42.01	74	54	-31.99	-11.99
3256.879	63.77	V	-20.86	42.91	74	54	-31.09	-11.09
4322.645	64.13	V	-20.25	43.88	74	54	-30.12	-10.12

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.
4. Data with margin greater than 20dB was not recorded in the report.

6. 20dB Occupy Bandwidth

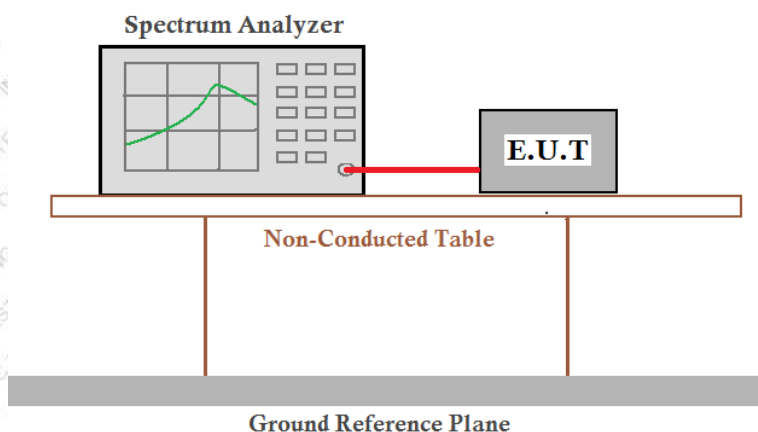
6.1 Applicable Standard

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	25.8℃	Humidity	49%
ATM Pressure	101kPa	Antenna Gain	0dBi
Test by	Fan Yang	Test result	PASS

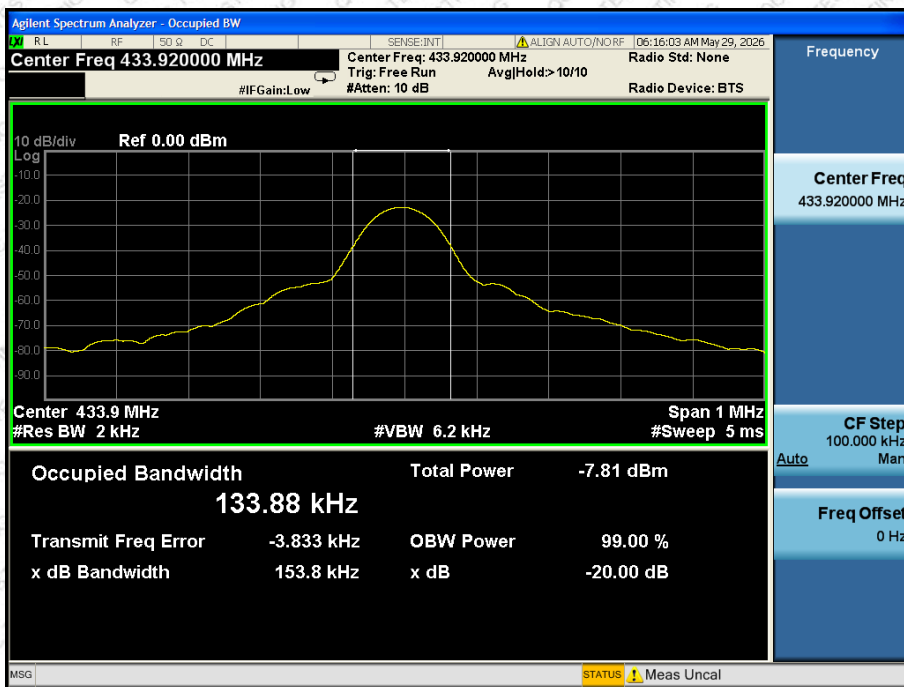
Please refer to following table and plots.



Test Frequency (MHz)	20dB bandwidth (MHz)	Limit (MHz)	Result
433.92	0.154	≤1.085	Pass

Note: Limit= Fundamental frequency×0.25%
 $433.92 \times 0.25\% = 1.085\text{MHz}$

Test plot as follows:



7. Release Time Measurement

7.1 Applicable Standard

FCC Part15 C Section 15.231 (a)

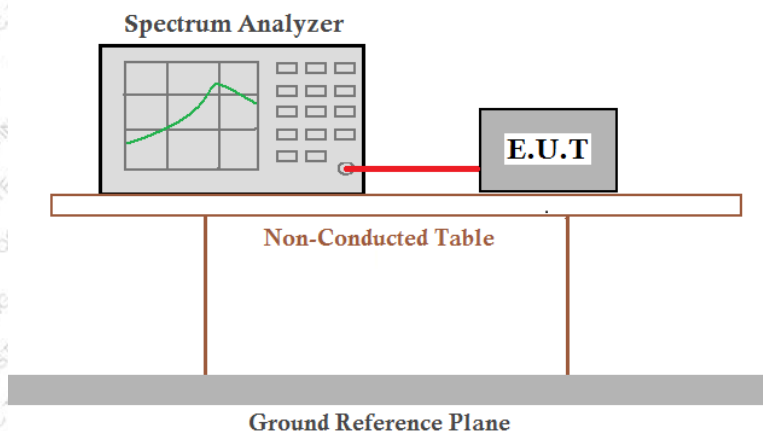
7.2 Limit

FCC Part15(15.231(a))	
Section	Description
15.231a	A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

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



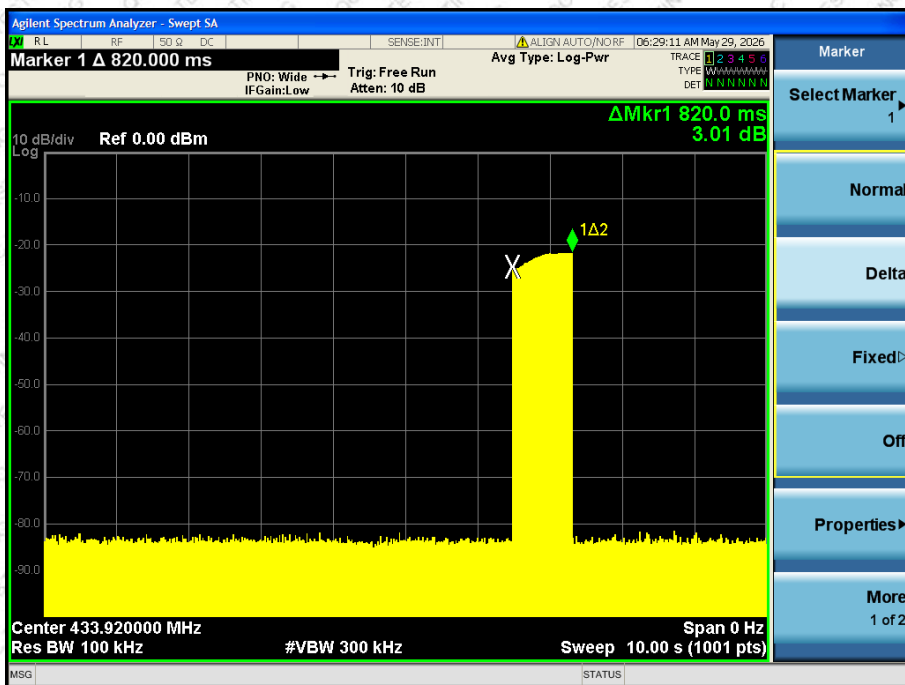
7.5 Test Data

Temperature	25.8℃	Humidity	49%
ATM Pressure	101kPa	Antenna Gain	0dBi
Test by	Fan Yang	Test result	PASS

Please refer to following table and plots.



	Transmission cease time (second)	Limit (second)	Result
Normal	0.82	<5s	Pass



8. Duty Cycle

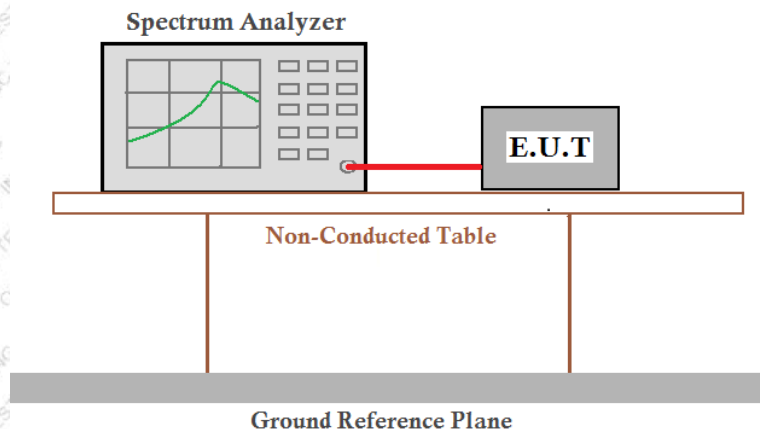
8.1 Applicable Standard

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 Data

Temperature	25.8 °C	Humidity	49%
ATM Pressure	101kPa	Antenna Gain	0dBi
Test by	Fan Yang	Test result	PASS

Please refer to following table and plots.

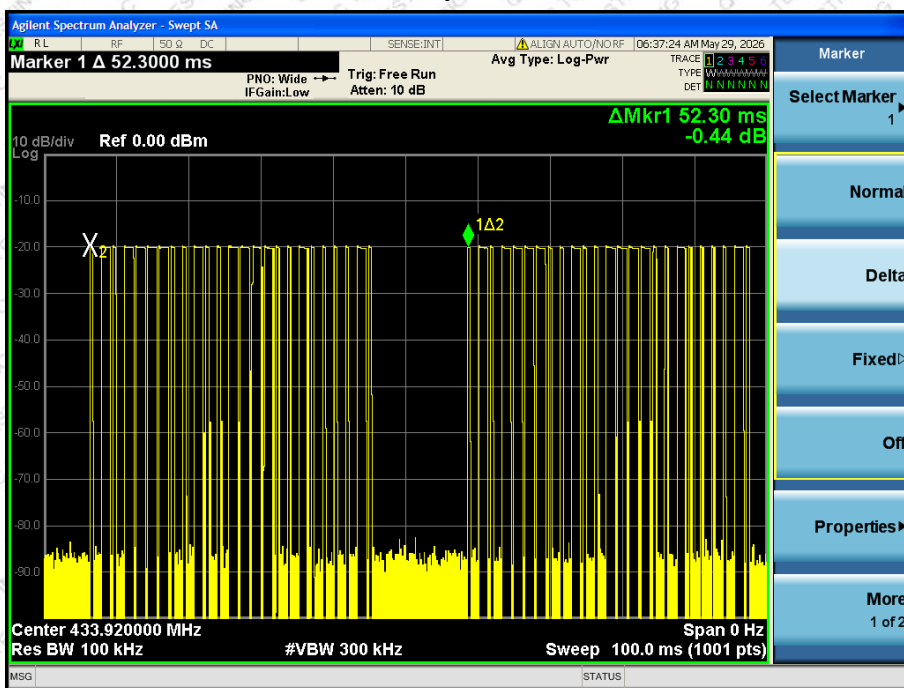
Calculate Formula: Duty cycle factor = $20 \log(\text{Duty cycle})$
Duty cycle = on time / 0.1 seconds or period, whichever is less

Test data:

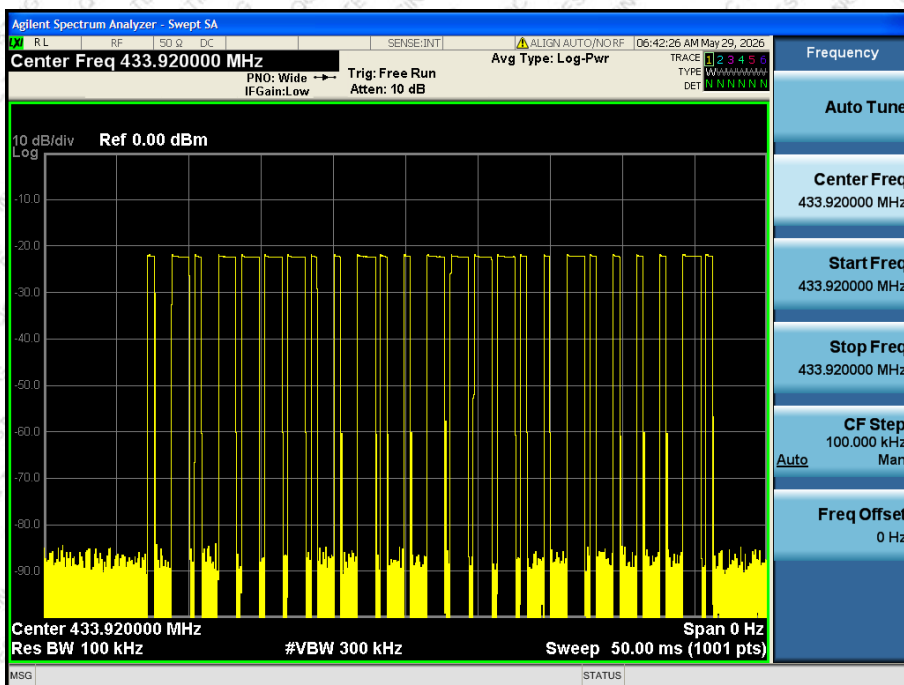
T on time = $0.4 \times 13 + 1.19 \times 12 = 19.48(\text{ms})$
T period = 52.3ms)
Duty cycle = T on time / T period = $19.48 / 52.3 = 37.25\%$
Duty cycle factor = $20 \log(0.3725) = -8.58$



Cycle

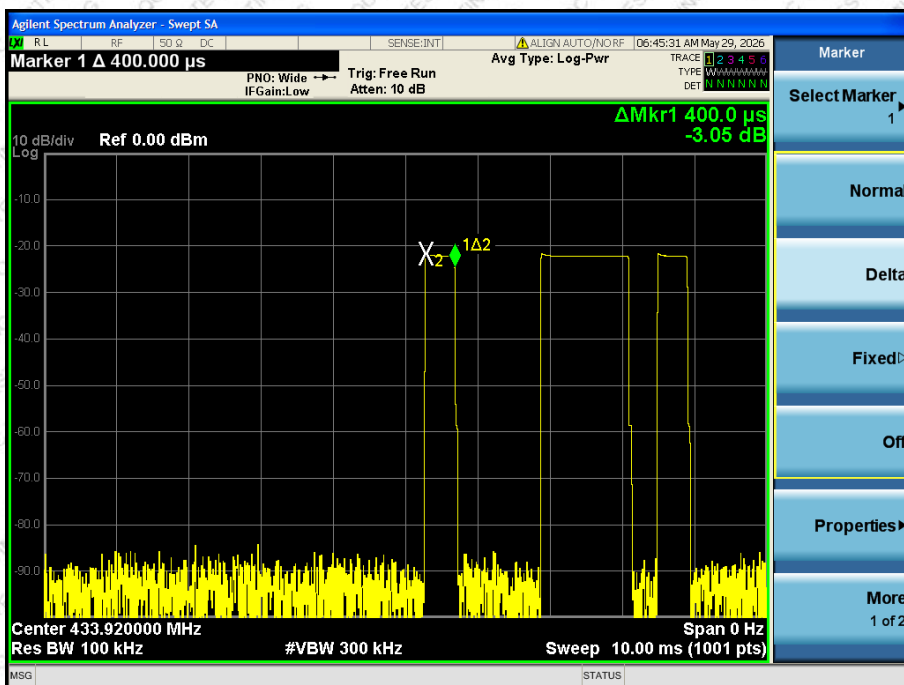


Pulse

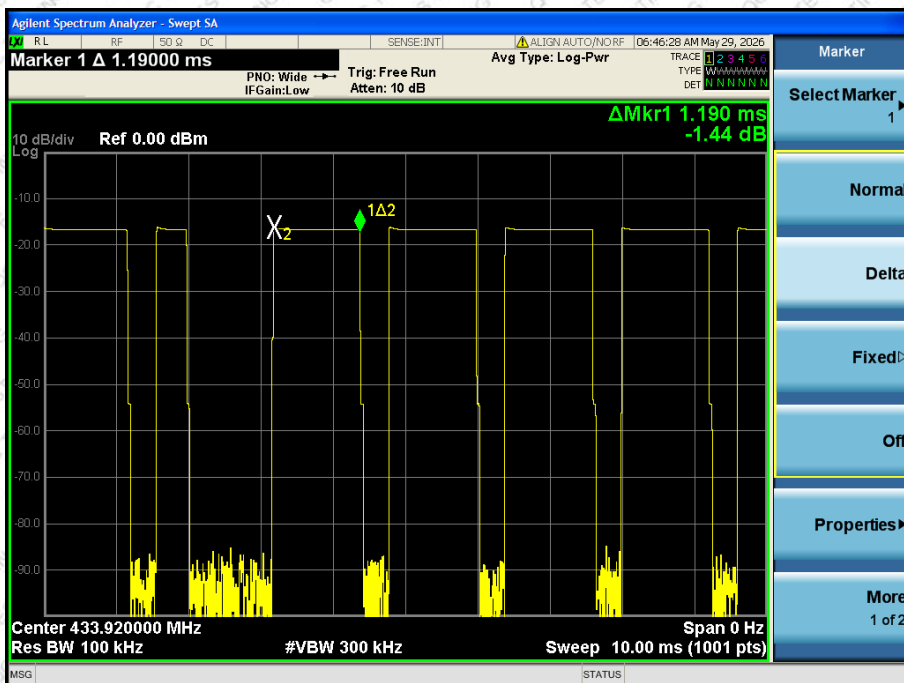




On-Time1



On-Time2



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