

FCC/ISED - TEST REPORT

Report Number	: 6891225003001Rev.01	Date of Issue: 2025-09-18
Model	: KPW5	
Product Type	: Wireless Commercial Keypad	
Applicant	: Chamberlain Group LLC, The	
Address	: 300 Windsor Drive, Oak Brook, Illinois 60523, United States	
Manufacturer	: Chamberlain Group LLC, The	
Address	: 300 Windsor Drive, Oak Brook, Illinois 60523, United States	
Test Result	: <input checked="" type="checkbox"/> Positive <input type="checkbox"/> Negative	
Total pages including Appendices	: 20	

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2 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong, China

Telephone: 86 755 8828 6998

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FCC Registration No.: 514049

FCC Designation Number: CN5009

ISED CAB identifier: CN0077

IC Registration No.: 10320A

3 Description of the Equipment Under Test

Product:	Wireless Commercial Keypad
Model no.:	KPW5
Product Marketing Name (PMN):	Wireless Commercial Keypad
Hardware Version Identification No. (HVIN):	KPW5-1
Software version:	CGI08A 15-1-6 V1.1
FCC ID:	HBW1808-1
IC:	2666A-18081
Options and accessories:	--
Ratings:	9VDC by Lithium Battery
RF Transmission Frequency:	315MHz
No. of Operated Channel:	Single channel
Modulation:	OOK
Antenna Type:	Internal antenna
Description of the EUT:	The EUT is a Wireless Commercial Keypad with 315MHz SRD functions.
Remark:	--

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2024 Edition	RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators
RSS-Gen Issue 5, April 2018 Amendment 1, March 2019 + Amendment 2, February 2021	General Requirements and Information for the Certification of Radio Apparatus
RSS-210 Issue 11 June 25, 2024	Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment

All the test methods were according to ANSI C63.10-2020.

5 Summary of Test Results

Technical Requirements						
FCC Part 15.231 Subpart C, RSS-210 Issue 11						
Test Condition			Pages	Test Result	Test Environment (See note 3)	Test Site
§15.207	RSS-GEN A8.8	Conducted emission AC power port	N/A	N/A See note 2	N/A	N/A
§15.205, §15.209, 15.35 (c)§15.231(b)	RSS-210 A.1.3 RSS-GEN 8.9	The Field strength of Emissions	10	Pass	T: 23.5°C H: 49.3%	Site 1
§15.231(c)	RSS-210 A.1.4	Bandwidth Measurement	15	Pass	T: 22.4°C H: 51.3%	Site 1
§15.231(a)(1)	RSS-210 A.1.2(a)	Deactivation Time	17	Pass	T: 22.4°C H: 51.3%	Site 1
§15.203	RSS-Gen 6.8	Antenna requirement	N/A	See note 3	--	Site 1

Note 1: N/A=Not Applicable.

Note 2: For battery toys, without possibility for external electric connection, therefore has no requirements for the terminal lines.

Note 3: The EUT uses an Internal antenna. In accordance to §15.203 and RSS-Gen 6.8, It is considered sufficiently to comply with the provisions of this section.

Note 4: T means Temperature, H means Humidity.

6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: HBW1808-1, IC: 2666A-18081 complies with Section 15.205, 15.207, 15.209, 15.231 of the FCC Part 15, Subpart C Rules, RSS-Gen Issue 5 A1:2019+ A2:2021 and RSS-210 Issue 11 June 25, 2024.

Report Version

Revision	Release Date	Modification Description
1.0	2025-09-02	Initial Release
Rev.01	2025-09-18	Changed the HVIN

SUMMARY:

All tests according to the regulations cited on page 5 were.

- Performed

- Not Performed

The Equipment Under Test

- **Fulfils** the general approval requirements.

- **Does not** fulfill the general approval requirements.

Sample Received Date: 2025-07-22

Testing Start Date: 2025-07-22

Testing End Date: 2025-07-28

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch -

Reviewed by:



Dawi Xu
Project Manager

Prepared by:



Richard He
Project Engineer

Tested by:



Carry Cai
Test Engineer

7 Systems test configuration

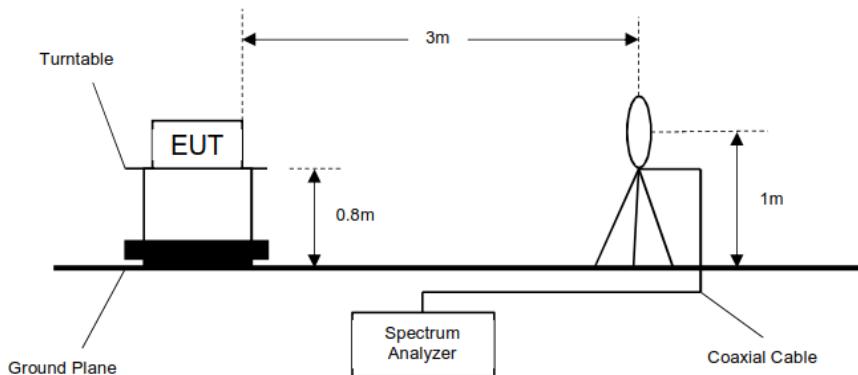
Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.	S/N
--	--	--	--

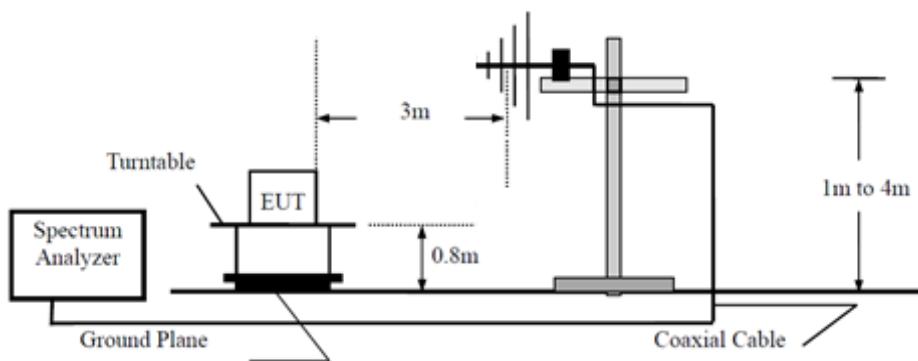
8 Test Setups

8.1 Radiated test setups

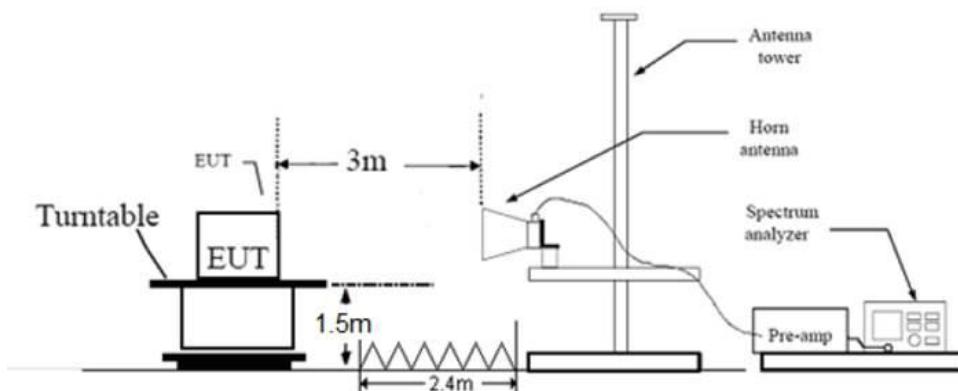
9kHz - 30MHz



Below 1GHz



Above 1GHz



9 Test Methodology

9.1 Radiated Emission

Test Method

- 1: The EUT was place on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. 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 height of antenna 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

5: Use the following spectrum analyzer settings According to C63.10:

9kHz -150kHz

RBW = 200Hz, VBW = 1kHz for peak measurement, Sweep = auto,
Detector function = peak, Trace = max hold.

150kHz - 30MHz

RBW = 10 kHz, VBW = 30 kHz for peak measurement, Sweep = auto,
Detector function = peak, Trace = max hold.

30MHz - 1GHz

RBW = 100 kHz, VBW = 300 kHz for peak measurement, Sweep = auto,
Detector function = peak, Trace = max hold.

For Above 1GHz

RBW = 1MHz, VBW \geq 3RBW for peak measurement, Sweep = auto, Detector function = peak,
Trace = max hold.

Limit

1. FCC Limit:

In addition to the provisions of § 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 (Microvolts /meter)	Field Strength of spurious emissions ((Microvolts /meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	1,250 to 3,370 *	125 to 375 *
174-260	3,750	375
260-470	3,750 to 12, 500*	375 to 1,250*
Above 470	12,500	1,250

*Linear interpolation with frequency

(a) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.

(b) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in § 15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of § 15.205 shall be demonstrated using the measurement instrumentation specified in that section.

(c) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in § 15.209, whichever limit permits a higher field strength.

Limits for 15.209 Radiated emission limits

Frequency (MHz)	Field strength (microvolts/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

2. ISED Limit:

(a) The field strength of emissions from momentarily operated intentional radiators shall not exceed the limits in table A1, based on the average value of the measured emissions. The requirements of the “Pulsed Operation” section of RSS-Gen apply for averaging pulsed emissions and limiting peak emissions. Alternatively, compliance with the limits in table A1 may be based on the use of a CISPR quasi-peak detector.

(b) Unwanted emissions shall be 10 times below the fundamental emissions field strength limits in table A1 or comply with the limits specified in RSS-Gen, whichever is less stringent.

Table A1: Permissible field strength limits for momentarily operated devices

Fundamental frequency (MHz)	Field Strength of Fundamental (Microvolts /meter @ 3m)	Field Strength of spurious emissions ((Microvolts /meter @ 3m)
70-130	1,250	125
130-174	1,250 to 3,370 *	125 to 3750 *
174-260	3,750	375
260-470	3,750 to 12,500*	375 to 1,250*
Above 470	12,500	1,250

*Linear interpolation with frequency

General field strength limits at frequencies below 30 MHz

Frequency	Magnetic field strength (H-Field) (μ A/m)	Measurement distance (meters)
9 – 490 kHz*	6.37/F (F in kHz)	300
490 – 1705 kHz	63.7/F (F in kHz)	30
1.705-30.0 MHz	0.08	30

*The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

Note 1: Limit 3m(dB μ V/m)=Limit 300m(dB μ V/m)+40Log(300m/3m) (Below 30MHz)

Note 2: Limit 3m(dB μ V/m)=Limit 30m(dB μ V/m)+40Log(30m/3m) (Below 30MHz)

Note 3: dB μ V/m = 20log(μ V/m), dB μ A/m = 20log(μ A/m)

Spurious radiated emissions for transmitter

According to C63.10, 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 below table if the peak value complies with average limit.

Radiated Emission									
Value	Emissions Frequency MHz	E-Field Polarity	PK Emission dB μ V/m	Corr.	Average Factor dB	AV Emission dB μ V/m	Limit dB μ V/m	Margin	Emission Type
Below 1GHz									
PK	315.0183	H	74.02	18.94	/	/	95.62	21.6	Fundamental
AV	315.0183	H	74.02	/	-15.16	58.86	75.62	16.76	Fundamental
PK	315.0183	V	86.7	18.94	/	/	95.62	8.92	Fundamental
AV	315.0183	V	86.7	/	-15.16	71.54	75.62	4.08	Fundamental
PK	945.0333	H	45.44	29.68	/	/	55.62	10.18	Spurious
AV	945.0333	H	45.44	/	-15.16	30.28	55.62	25.34	Spurious
PK	945.0333	V	43.92	29.68	/	/	55.62	11.7	Spurious
AV	945.0333	V	43.92	/	-15.16	28.76	55.62	26.86	Spurious
Above 1GHz									
PK	2644	H	45.62	2.34	/	/	74	28.38	Spurious
AV	2644	H	45.62	/	-15.16	30.46	54	23.54	Spurious
PK	3070.5	H	48.03	2.1	/	/	74	25.97	Spurious
AV	3070.5	H	48.03	/	-15.16	32.87	54	21.13	Spurious
PK	3301.5	H	46.72	3.88	/	/	74	27.28	Spurious
AV	3301.5	H	46.72	/	-15.16	31.56	54	22.44	Spurious
PK	3083.5	V	47.99	2.34	/	/	74	26.01	Spurious
AV	3083.5	V	47.99	/	-15.16	32.83	54	21.17	Spurious
PK	3646	V	48.17	2.1	/	/	74	25.83	Spurious
AV	3646	V	48.17	/	-15.16	33.01	54	20.99	Spurious
PK	4287	V	50.21	3.88	/	/	74	23.79	Spurious
AV	4287	V	50.21	/	-15.16	35.05	54	18.95	Spurious

Remark:

1: AV Emission Level= PK Emission Level+20log(dutycycle)

2: ** means the emission(s) appear within the restrict bands shall follow the requirement of section 15.205.

3: Level= Reading Level + Correction Factor

Correction Factor = Antenna Factor + Cable Loss- Amplifier Gain

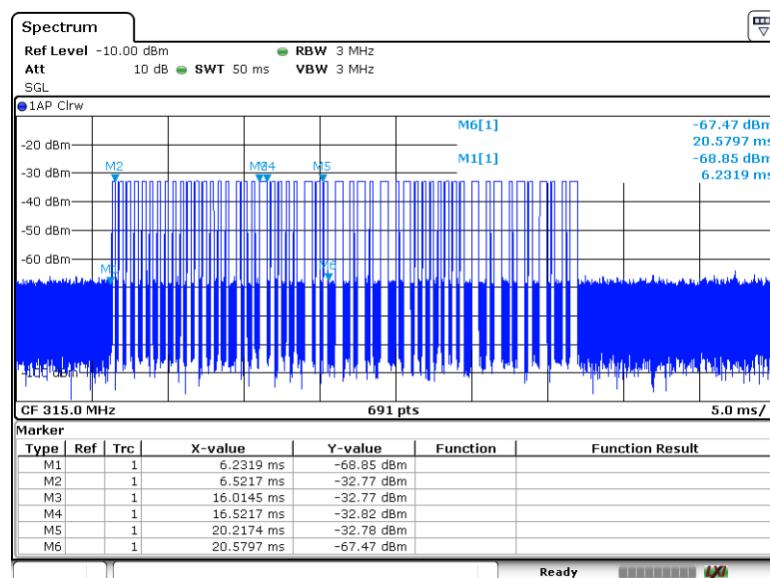
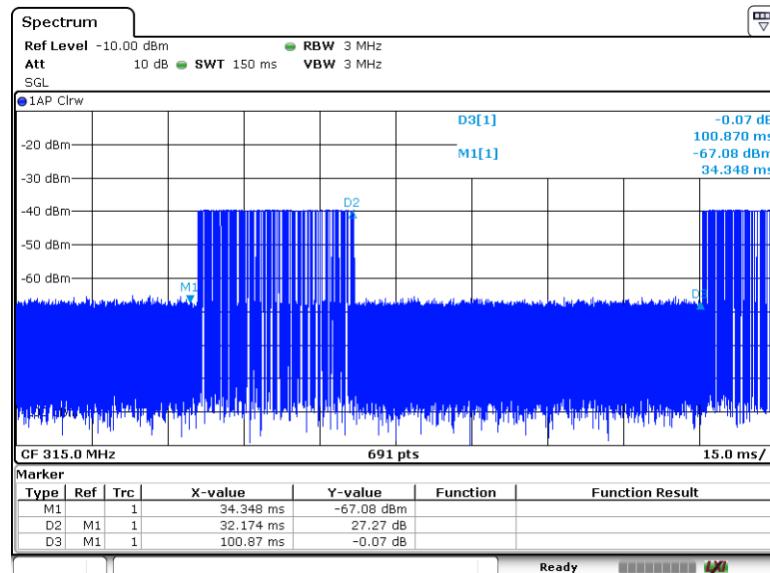
(The Reading Level is recorded by software which is not shown in the sheet)

Effective time one cycle=0.29*21+0.51*11+0.36*16=17.46(ms)

Duty Cycle= Effective time one cycle/ Total time one cycle=17.46(ms)/100(ms) =0.1746

The actually cycle of EUT is 100.87ms

Duty Cycle Factor =20log (Duty Cycle) =-15.16



9.2 Bandwidth Measurement

Test Method

1. The EUT was placed on 0.8m height table, the RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
Use the following test receiver settings:
RBW = 1% to 5% of the OBW, VBW \geq 3RBW, Sweep = auto, Detector function = peak, Trace = max hold
3. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Use the 99 % power bandwidth function of the instrument. Record the frequency difference as the emission bandwidth. Record the results.

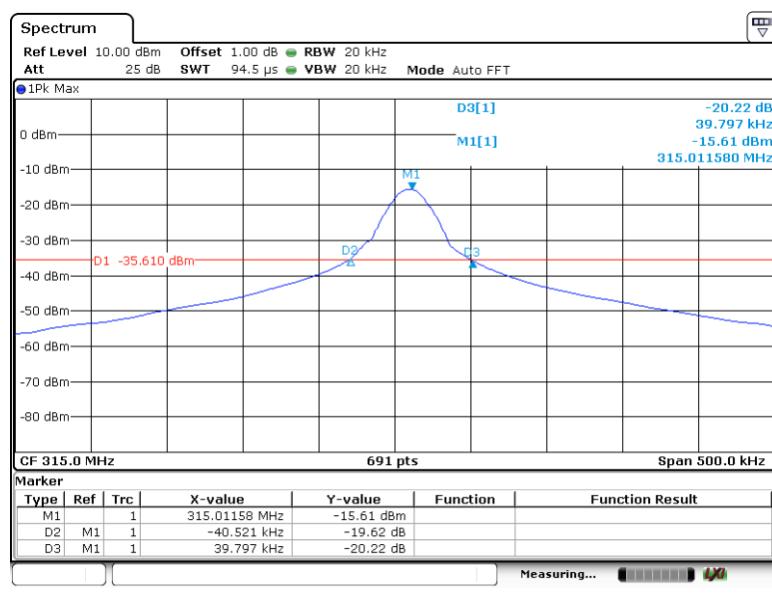
Limit

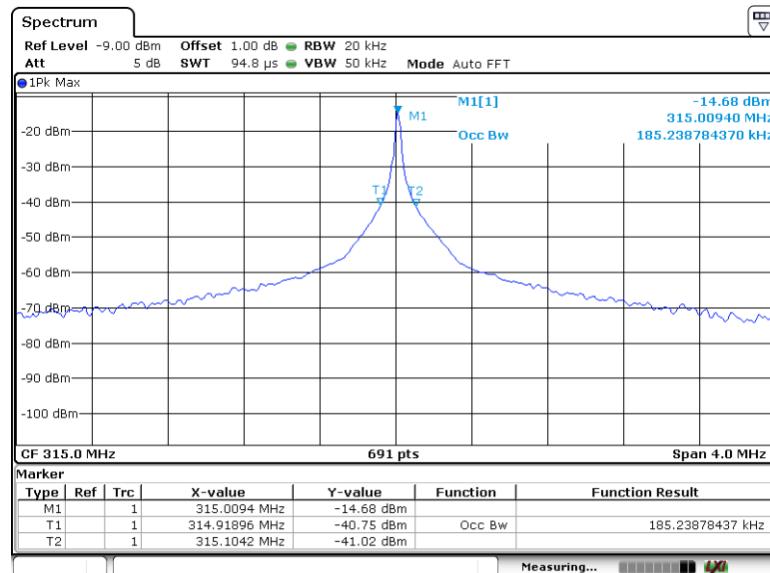
The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz. For devices operating above 900MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20dB down from the modulated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

The limit for the EUT = 0.25% * 315 MHz = 787.5 kHz

Test Result

Channel	20dB Bandwidth (kHz)	99% bandwidth (kHz)	Limit (kHz)
1	80.318kHz	185.24kHz	\leq 787.5





99% bandwidth

9.3 Deactivation Time

Test Method

1. The EUT was placed on 0.8m height table, the RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT in transmitting mode.
3. Set center frequency of spectrum analyzer=operating frequency.
4. Set the spectrum analyzer as $RBW \geq OBW$, $VBW \geq RBW$, Span=0Hz, detector=peak.
5. Repeat above procedures until all frequency measured was complete.

Limit

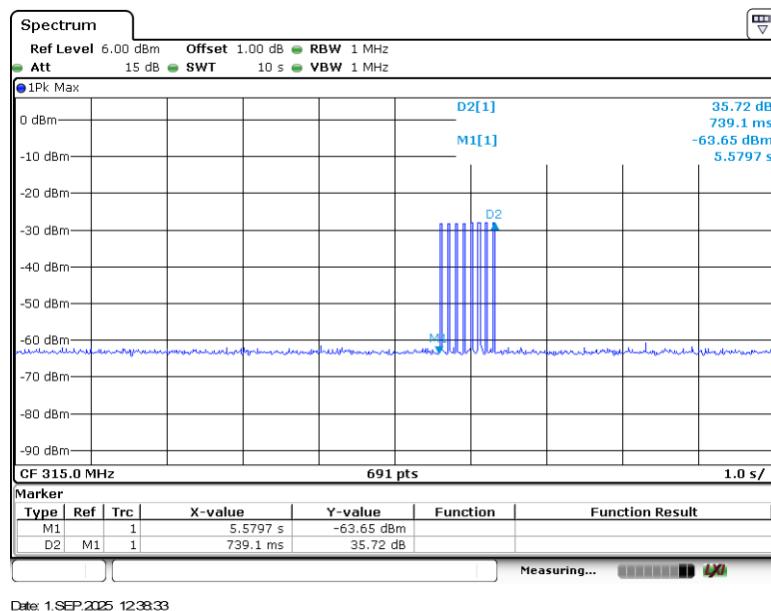
(✓) (1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

(3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

Test Result

Channel	Frequency	Deactivation Time	Limit	Result
1	315MHz	739.1ms	≤5s	Pass



10 Test Equipment List

List of Test Instruments

Radiated Emission Test (9kHz-30MHz) (SAC-3 #1)

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 7	68-4-74-19-001	102176	1	2026-4-25
Loop Antenna	Rohde & Schwarz	HFH2-Z2	68-4-80-14-006	100398	1	2026-7-17
Cable	HUBER-SUHNER	RG214	68-4-90-14-001-A21	----	----	----
3m Semi-anechoic chamber	TDK	SAC-3 #1	68-4-90-14-001	----	3	2026-10-25
Test software	Rohde & Schwarz	EMC32	68-4-90-14-001-A10	Version10.35.02	N/A	N/A

Radiated Emission Test (30MHz-1GHz) (SAC-3 #2)

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	68-4-74-14-002	101269	1	2026-4-25
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9162	68-4-80-19-003	284	1	2026-2-11
Attenuator	Mini-circuits	UNAT-6+	68-4-81-21-002	15542	1	2026-4-19
Cable	OUQIAO	18DLB5-NMNM-7000	68-4-90-19-006-A22	----	----	----
3m Semi-anechoic chamber	TDK	SAC-3 #2	68-4-90-19-006	----	3	2026-10-25
Test software	Rohde & Schwarz	EMC32	68-4-90-19-006-A01	Version10.35.02	N/A	N/A

Radiated Emission Test (1GHz-18GHz) (SAC-3 #2)

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	68-4-74-14-002	101269	1	2026-4-25
Wave Guide Antenna	ETS	3117	68-4-80-19-001	00218954	1	2026-3-10
Pre-amplifier	Rohde & Schwarz	SCU 18F	68-4-29-19-001	100745	1	2026-4-19
Pre-amplifier	Rohde & Schwarz	SCU 18F	68-4-29-19-003	100747	1	2026-4-19
Cable	OUQIAO	18DLB5-NMNM-7000	68-4-90-19-006-A22	----	----	----
3m Semi-anechoic chamber	TDK	SAC-3 #2	68-4-90-19-006	----	3	2026-10-25
Test software	Rohde & Schwarz	EMC32	68-4-90-19-006-A01	Version10.35.02	N/A	N/A

RF Test System

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMB100A	68-4-48-14-001	108272	1	2026-4-18
Signal Analyzer	Rohde & Schwarz	FSV40	68-4-74-14-004	101030	1	2026-4-18
Cable	JUNFLON	J12J103539	68-4-90-19-003-A20	----	----	----
Shielding Room	TDK	TS8997	68-4-90-19-003	----	3	2025-10-15

11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Uncertainty for Radiated Emission in 3m chamber (68-4-90-14-001) 9kHz-30MHz	4.69dB
Uncertainty for Radiated Emission in new 3m chamber (68-4-90-19-006) 30MHz-1000MHz	Horizontal: 4.79dB; Vertical: 5.86dB;
Uncertainty for Radiated Emission in new 3m chamber (68-4-90-19-006) 1000MHz-18000MHz	Horizontal: 5.37dB; Vertical: 5.37dB;
Uncertainty for Conducted RF test with TS 8997	RF Power Conducted: 1.31dB Frequency test involved: 0.6×10^{-8} or 1%

Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2023, clause 4.3.3 and 4.3.4.

---END OF REPORT---