



FCC RF Test Report

APPLICANT : Ring LLC
EQUIPMENT : Environmental Alert Device
BRAND NAME : ring
MODEL NAME : 7AFYA4
FCC ID : 2AEUP-7AFYA4
STANDARD : FCC Part 15 Subpart C §15.249
CLASSIFICATION : (DXX) Low Power Communication Device Transmitter
TEST DATE(S) : Nov. 01, 2025 ~ Nov. 06, 2025

We, Sporton International Inc. (ShenZhen), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (ShenZhen), the test report shall not be reproduced except in full.

Fly Liang

Approved by: Fly Liang



Sporton International Inc. (ShenZhen)

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People's Republic of China



TABLE OF CONTENTS

SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION.....	5
1.1 Applicant	5
1.2 Product Feature of Equipment Under Test.....	5
1.3 Product Specification of Equipment Under Test.....	5
1.4 Modification of EUT	5
1.5 Testing Location	6
1.6 Test Software.....	6
1.7 Applicable Standards.....	6
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST.....	7
2.1 Descriptions of Test Mode	7
2.2 Test Mode	7
2.3 Test Configurations.....	8
2.4 EUT Operation Test Setup	8
2.5 Measurement Results Explanation Example.....	8
3 TEST RESULT	9
3.1 20dB and & 99% Occupied Bandwidth.....	9
3.2 Field Strength of Fundamental Emissions and Radiated Spurious Emissions	12
3.3 Antenna Requirements.....	16
4 LIST OF MEASURING EQUIPMENT.....	17
5 UNCERTAINTY OF EVALUATION.....	18
APPENDIX A. RADIATED SPURIOUS EMISSION	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR5N0304E	Rev. 01	Initial issue of report	Dec. 16, 2025



SUMMARY OF TEST RESULT

Part	FCC Rule	Description of Test	Result	Remark
-	15.207	AC Power Line Conducted Emissions	Not Applicable	1
3.1	15.215(c) 2.1049	20dB & 99% Occupied Bandwidth	Complies	-
3.2	15.249(a)	Field Strength of Fundamental Emissions	Complies	Under limit 0.37 dB at 908.42 MHz for Quasi-Peak
3.2	15.249(a)(d)	Radiated Spurious Emissions	Complies	Under limit 7.73 dB at 937.90 MHz
3.3	15.203	Antenna Requirements	Complies	-

Remark1: Powered by a button battery only.

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



1 General Description

1.1 Applicant

Ring LLC

12515 Cerise Ave, Hawthorne, CA 90250, USA

1.2 Product Feature of Equipment Under Test

Product Feature	
Equipment	Environmental Alert Device
Brand Name	ring
Model Name	7AFYA4
FCC ID	2AEUP-7AFYA4
SN Code	N/A
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.3 Product Specification of Equipment Under Test

Standards-related Product Specification	
Frequency Range	40 kbps: 908.4 MHz 9.6 kbps: 908.42 MHz 100 kbps: 916 MHz
Channel Bandwidth (99%)	40 kbps: 218.28 kHz 9.6 kbps: 217.78 kHz 100 kbps: 218.28 kHz
Max. Field Strength (Quasi-Peak)	40 kbps: 93.50 dB μ V/m 9.6 kbps: 93.63 dB μ V/m 100 kbps: 93.42 dB μ V/m
Antenna Type / Gain	PCB IFA antenna with gain -0.55 dBi
Type of Modulation	40 kbps and 9.6 kbps: FSK 100 kbps: GFSK

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Testing Location

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province 518103 People's Republic of China TEL: +86-755-86066985		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	TH01-SZ 03CH03-SZ	CN1256	421272

1.6 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH03-SZ	AUDIX	E3	6.2009-8-24

1.7 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.249
- ANSI C63.10-2020

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Descriptions of Test Mode

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode
Field Strength of Fundamental Emissions	CTX
Bandwidth	CTX
Radiated Emissions	CTX

Note:

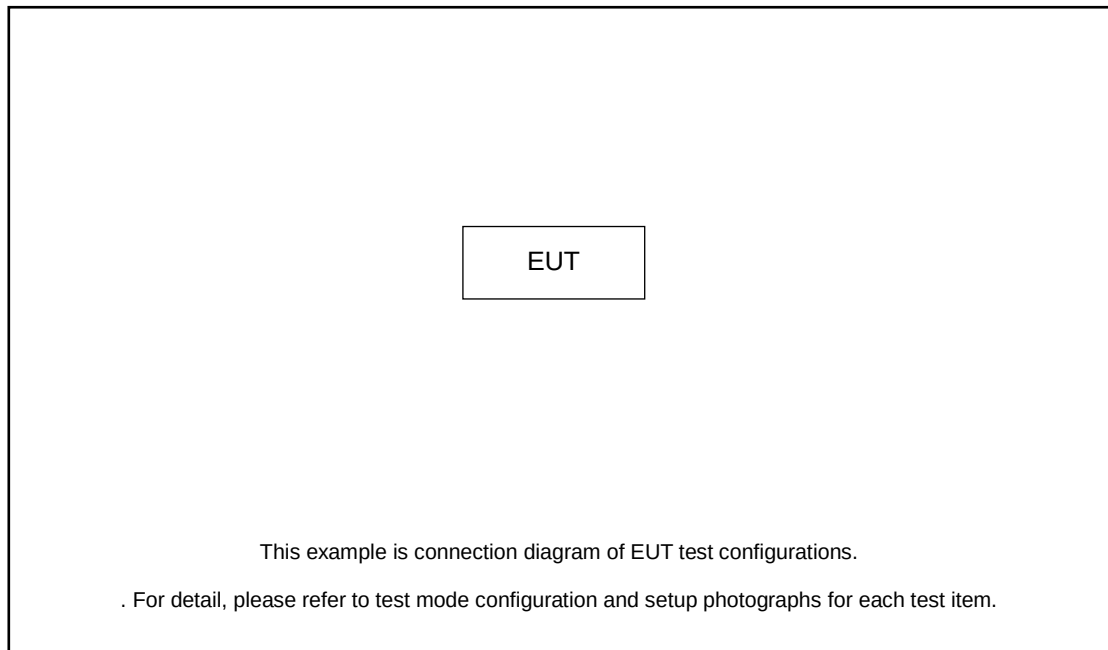
1. CTX=continuously transmitting.
2. The programmed RF utility, "Test Tool" installed in the notebook to make the EUT get into the engineering modes to continuously transmit.

2.2 Test Mode

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases	
Test Item	Z-wave
Conducted TCs	Mode 1: 40kbps
	Mode 2: 9.6kbps
	Mode 3: 100kbps
Radiated TCs	Mode 1: 40kbps
	Mode 2: 9.6kbps
	Mode 3: 100kbps

2.3 Test Configurations



2.4 EUT Operation Test Setup

The RF test items, the engineering test program was provided and enabled to make EUT continuous transmit.

2.5 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 0.3 dB and 20dB attenuator.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 0.3 + 20 = 20.3 \text{ (dB)}\end{aligned}$$

3 Test Result

3.1 20dB and & 99% Occupied Bandwidth

3.1.1 Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emissions in the specific band.

3.1.2 Measuring Instruments

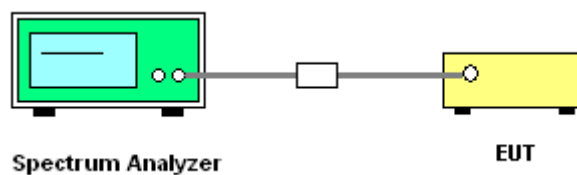
The section 4.0 of List of Measuring Equipment of this test report is used for test.

3.1.3 Test Procedures

1. The transmitter output port was connected to the spectrum analyzer.
2. Set the RBW=100kHz, the VBW=300kHz, Sweep=auto; Detector=sample, Trace=max hold; Span > 20dB bandwidth;
3. Measure the 99% OBW.

Remark: Because the measured signal is CW adjusting the RBW would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

3.1.4 Test Setup



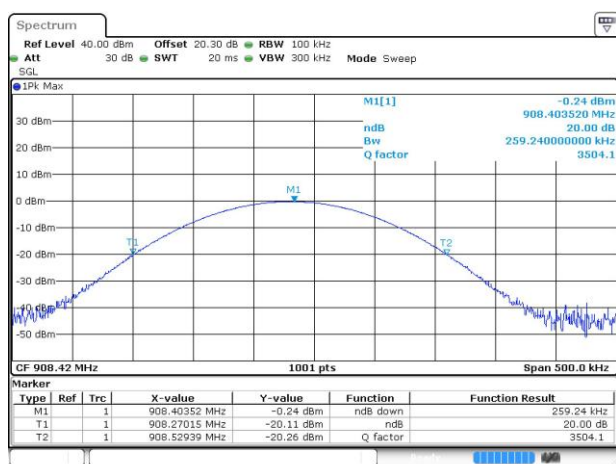


3.1.5 Test Result of 20dB Spectrum Bandwidth

Temperature :	21~25°C	Relative Humidity :	51~54%
Test Engineer :	Liu Qiu Qiu	Test Voltage :	120Vac / 60Hz

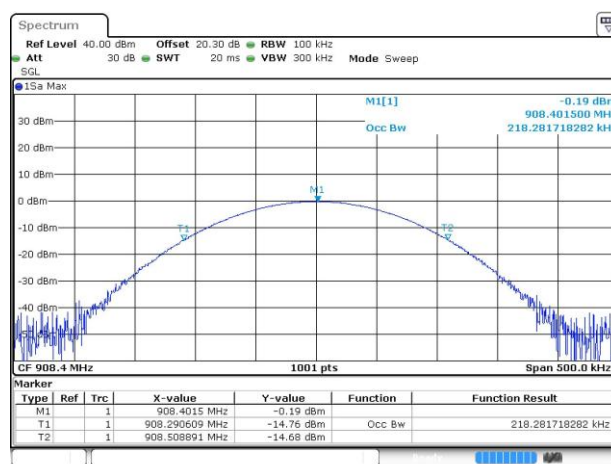
Frequency	20dB BW (kHz)	99% OBW (kHz)
40kbps	259.24	218.28
9.6kbps	259.24	217.78
100kbps	259.24	218.28

20 dB Bandwidth Plot on 40kbps



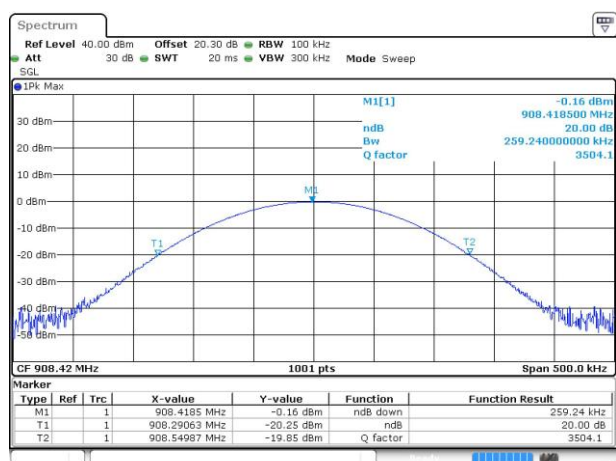
Date: 6 NOV 2025 17:19:50

99% Bandwidth Plot on 40kbps



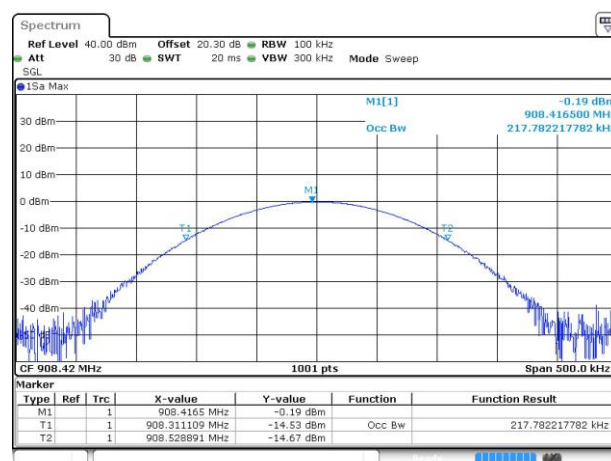
Date: 6 NOV 2025 17:19:13

20 dB Bandwidth Plot on 9.6kbps



Date: 6 NOV 2025 17:14:43

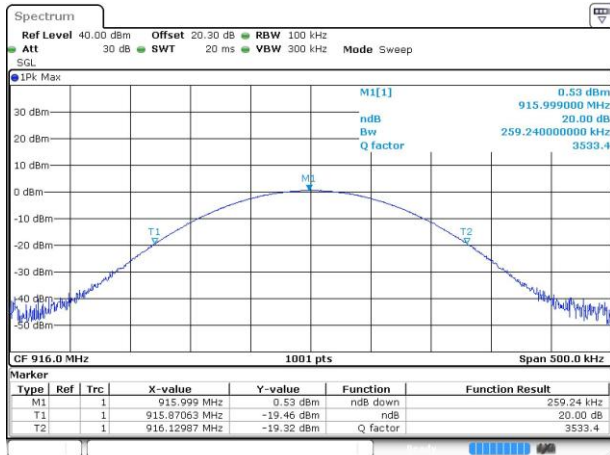
99% Bandwidth Plot on 9.6kbps



Date: 6 NOV 2025 17:15:32

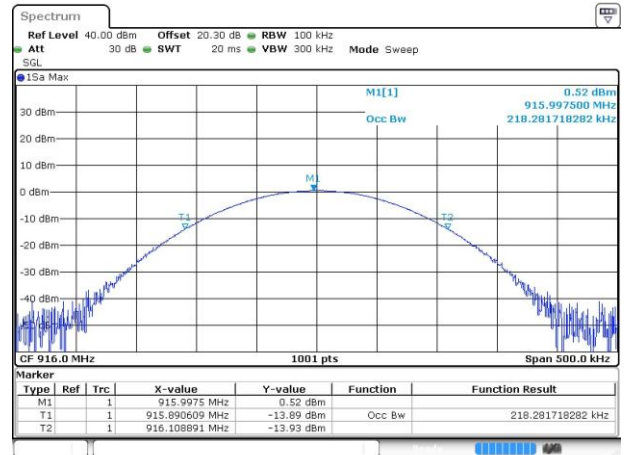


20 dB Bandwidth Plot on 100kbps



Date: 6 NOV 2025 17:20:48

99% Bandwidth Plot on 100kbps



Date: 6 NOV 2025 17:21:21

3.2 Field Strength of Fundamental Emissions and Radiated Spurious Emissions

3.2.1 Limit

The field strength measured at 3 meters shall not exceed the limits in the following table:

Fundamental Frequencies(MHz)	Field Strength(millivolts/m)	
	Fundamental	Harmonics
902~928	50	0.5
2400~2483.5	50	0.5
5725~5875	50	0.5

Note: The limits shown in the above table are based on measurements using an average detector, except for the fundamental emission in the frequency band 902-928 MHz, which is based on measurements using a CISPR quasi-peak detector.

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general field strength limits listed as below, whichever is less stringent.

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



3.2.2 Measuring Instruments

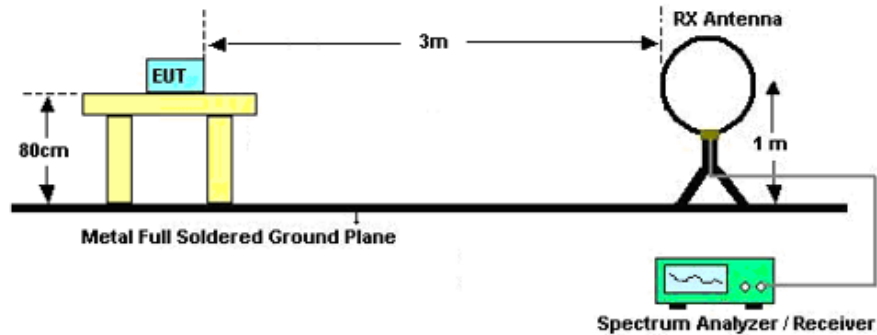
The section 4.0 of List of Measuring Equipment of this test report is used for test.

3.2.3 Test Procedures

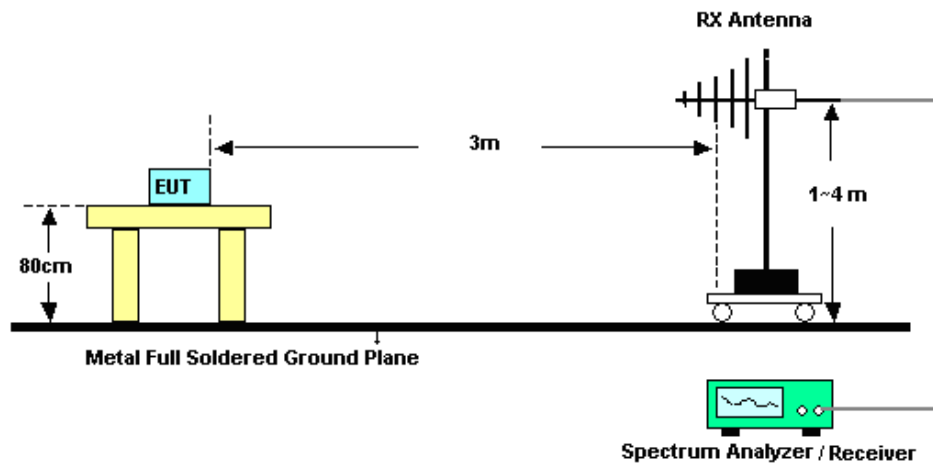
1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Use the following spectrum analyzer settings:
Span shall wide enough to fully capture the emission being measured;
Set RBW=120 kHz for $f < 1 \text{ GHz}$, RBW=1MHz for $f > 1\text{GHz}$; VBW $\geq$ RBW; Sweep = auto;
Detector function = peak; Trace = max hold for peak
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.2.4 Test Setup

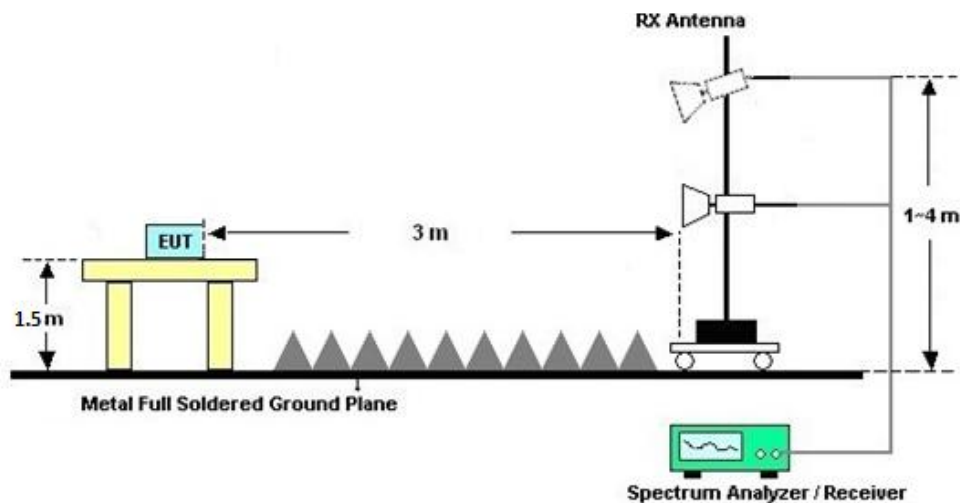
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



**3.2.5 Test Deviation**

There is no deviation with the original standard.

3.2.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.2.7 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit not reported.

3.2.8 Test Result of Field Strength of Fundamental Emissions

Please refer to Appendix A.

3.2.9 Test Result of Radiated Spurious Emissions (30 MHz~10GHz)

Please refer to Appendix A.



3.3 Antenna Requirements

3.3.1 Standard Applicable

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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 shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited

3.3.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 08, 2025	Nov. 06, 2025	Apr. 07, 2026	Conducted (TH01-SZ)
Attenuatore	Woken Tech	WK0602-10	4	10dB	Jan. 13, 2025	Nov. 06, 2025	Jan. 12, 2026	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 02, 2025	Nov. 01, 2025	Apr. 01, 2026	Radiation (03CH03-SZ)
EXA Signal Analyzer	KEYSIGHT	N9010B	MY59071191	10KHz-44GHz	Apr. 02, 2025	Nov. 01, 2025	Apr. 01, 2026	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2E	101141	9kHz~30MHz	Dec. 28, 2024	Nov. 01, 2025	Dec. 27, 2025	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	Aug. 19, 2025	Nov. 01, 2025	Aug. 18, 2026	Radiation (03CH03-SZ)
Double Ridege Guide Antenna	ETS-Lindgren	Burgeon-3117	00240107	1GHz~18GHz	Jul. 13, 2025	Nov. 01, 2025	Jul. 12, 2026	Radiation (03CH03-SZ)
Amplifier	EM Electronics	EM330	060756	0.01Hz~3000MHz	Apr. 02, 2025	Nov. 01, 2025	Apr. 01, 2026	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 14, 2025	Nov. 01, 2025	Oct. 13, 2026	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010002729	N/A	Oct. 17, 2025	Nov. 01, 2025	Oct. 16, 2026	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Nov. 01, 2025	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Nov. 01, 2025	NCR	Radiation (03CH03-SZ)

NCR: No Calibration Required

5 Uncertainty of Evaluation

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Occupied Channel Bandwidth	$\pm 0.012\text{MHz}$

Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	$\pm 5.0\text{dB}$
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	$\pm 5.0\text{dB}$
--	--------------------

Uncertainty of Radiated Emission Measurement (1GHz~18GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	$\pm 4.9\text{dB}$
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----- THE END -----



Appendix A. Radiated Spurious Emission Test Data

Test Engineer :	HuaCong Liang	Relative Humidity :	48~49%
		Temperature :	24~25℃

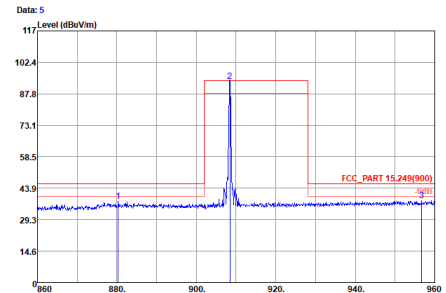
Radiated Spurious Emission Test Modes

Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 1	902-928	1	Z-wave_FSK	R1	908.42	9.6kbps	-	-
Mode 2	902-928	1	Z-wave_FSK	R2	908.4	40Kbps	-	-
Mode 3	902-928	1	Z-wave_GFSK	R3	916	100Kbps	-	-
Mode 4	902-928	1	Z-wave_FSK	R2	908.4	40Kbps		LF

Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
1	Z-wave_FSK	R1	956.70	38.13	46.00	-7.87	H	Peak	Pass	Band Edge
1	Z-wave_FSK	R1	2725.26	43.14	74.00	-30.86	H	Peak	Pass	Harmonic
2	Z-wave_FSK	R2	937.90	38.27	46.00	-7.73	V	Peak	Pass	Band Edge
2	Z-wave_FSK	R2	3633.60	43.13	74.00	-30.87	V	Peak	Pass	Harmonic
3	Z-wave_GFSK	R3	947.50	38.21	46.00	-7.79	V	Peak	Pass	Band Edge
3	Z-wave_GFSK	R3	2748	43.27	74.00	-30.73	V	Peak	Pass	Harmonic
2	Z-wave_FSK	R2	864.20	32.12	46.00	-13.88	V	Peak	Pass	LF



Mode	1																																																																
	Band Edge																																																																
	Z-wave_FSK_R1_908.42MHz																																																																
ANT	1																																																																
Pol.	Horizontal					Fundamental																																																											
Peak	Data: 5  <table><tr><th></th><th>Freq</th><th>Level</th><th>Over</th><th>Limit</th><th>ReadAntenna</th><th>Cable</th><th>Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dB</th><th>dBuV/m</th><th>Level</th><th>Factor</th><th>Loss</th><th>Factor</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>880.30</td><td>37.82</td><td>-8.18</td><td>46.00</td><td>38.35</td><td>29.09</td><td>4.40</td><td>34.02</td><td>---</td><td>--- Peak</td></tr><tr><td>2</td><td>908.42</td><td>93.63</td><td>-0.37</td><td>94.00</td><td>93.90</td><td>29.29</td><td>4.44</td><td>34.00</td><td>---</td><td>--- QP</td></tr><tr><td>3</td><td>956.70</td><td>38.13</td><td>-7.87</td><td>46.00</td><td>37.34</td><td>30.27</td><td>4.52</td><td>34.00</td><td>---</td><td>--- Peak</td></tr></table>											Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark		MHz	dBuV/m	dB	dBuV/m	Level	Factor	Loss	Factor	cm	deg	1	880.30	37.82	-8.18	46.00	38.35	29.09	4.40	34.02	---	--- Peak	2	908.42	93.63	-0.37	94.00	93.90	29.29	4.44	34.00	---	--- QP	3	956.70	38.13	-7.87	46.00	37.34	30.27	4.52	34.00	---	--- Peak
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark																																																							
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Mode	1																																																																	
	Band Edge																																																																	
	Z-wave_FSK_R1_908.42MHz																																																																	
ANT	1																																																																	
Pol.	Vertical						Fundamental																																																											
Peak	Data: 6 Level (dBuV/m) 117 102.4 87.8 73.1 58.5 43.9 29.3 14.6 0 860 880 900 920 940 960 Frequency (MHz) 1 2 3 FCG_PART 15.249(900) --- --- <table><tr><th></th><th>Freq</th><th>Level</th><th>Over</th><th>Limit</th><th>ReadAntenna</th><th>Cable</th><th>Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>Limit</th><th>Line</th><th>Level</th><th>Factor</th><th>Loss</th><th>Factor</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>882.90</td><td>38.13</td><td>-7.87</td><td>46.00</td><td>38.65</td><td>29.09</td><td>4.41</td><td>34.02</td><td>---</td><td>--- Peak</td></tr><tr><td>2</td><td>908.42</td><td>86.33</td><td>-7.67</td><td>94.00</td><td>86.60</td><td>29.29</td><td>4.44</td><td>34.00</td><td>---</td><td>--- QP</td></tr><tr><td>3</td><td>950.00</td><td>38.08</td><td>-7.92</td><td>46.00</td><td>37.29</td><td>30.28</td><td>4.51</td><td>34.00</td><td>---</td><td>--- Peak</td></tr></table>												Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark		MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	cm	deg	1	882.90	38.13	-7.87	46.00	38.65	29.09	4.41	34.02	---	--- Peak	2	908.42	86.33	-7.67	94.00	86.60	29.29	4.44	34.00	---	--- QP	3	950.00	38.08	-7.92	46.00	37.29	30.28	4.51	34.00	---	--- Peak
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark																																																								
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3	950.00	38.08	-7.92	46.00	37.29	30.28	4.51	34.00	---	--- Peak																																																								



Mode	1											
	Harmonic											
	Z-wave_FSK_R1_908.42MHz											
ANT	1											
Pol.	Horizontal						Vertical					
Peak Avg	Data: 7 Level (dBuV/m) <											



Mode	2									
	Band Edge									
	Z-wave_FSK_R2_908.4MHz									
ANT	1									
Pol.	Horizontal					Fundamental				
Peak	Data: 5 Level (dBuV/m)									

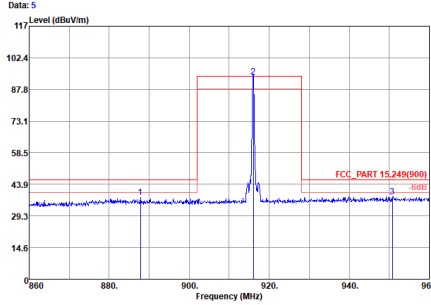


Mode	2	
	Band Edge	
	Z-wave_FSK_R2_908.4MHz	
ANT	1	
Pol.	Vertical	Fundamental
Peak		



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