

FCC Test Report

Test report
On Behalf of
Doc Johnson Enterprises
For
MAIN SQUEEZE-THE ORIGINAL VIBRO PW/BULLET &REMOTE
Model No.: I-MX-5100-05

FCC ID: 2AVJ9-I-MX-5100-05

Prepared for: Doc Johnson Enterprises

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Prepared By: Shenzhen HUAK Testing Technology Co., Ltd.

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Date of Test: Mar. 09, 2022 ~ Jan. 11, 2023

Date of Report: Jan. 11, 2023

Report Number: HK2203090970-E

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TEST RESULT CERTIFICATION

Report No.: HK2203090970-E

Applicant's name	Doc Johnson	Enterprises
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11933 Vose Street, North Hollywood, California 91605 United Address

States

Manufacture's Name...... Doc Johnson Enterprises

11933 Vose Street, North Hollywood, California 91605 United Address

States

Product description

Trade Mark: N/A

Product name MAIN SQUEEZE-THE ORIGINAL VIBRO PW/BULLET &REMOTE

Model and/or type reference :: I-MX-5100-05

FCC Part15 Subpart C 2017, Section 15.231 Standards

ANSI C63.10: 2013

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Date of Test

Date (s) of performance of tests Mar. 09, 2022 ~ Jan. 11, 2023

Date of Issue....: Jan. 11, 2023

Test Result **Pass**

Testing Engineer

(Gary Qian)

Technical Manager

(Eden Hu)

Authorized Signatory:

(Jason Zhou)

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Contents

Report No.: HK2203090970-E

1 . Test Summary	
1.1 Test Facility	<u> </u>
1.2 Information of The Test Laboratory	
1.3 Measurement Uncertainty	
2. General Information	
2.1. Description of Device (EUT)	
2.2. Description of Test Setup	
2.3. List of Channels	
2.4. Test Equipment List	
Conducted Emission Test	
3.1 Conducted Power Line Emission Limit	
3.2 Test Setup	
3.3 Test Procedure	
3.4 Test Data	
4. Radiated Emissions	
4.1. Standard Applicable	
4.2. Test Procedure	
4.3. Corrected Amplitude & Margin Calculation	
4.4. Environmental Conditions	
4.5. Test Data	
5. 20db Occupy Bandwidth Test	1
5.1. Standard Applicable	
5.2. Test Procedure	
5.3. Test Data	10
6. Transmission Time	1
6.1. Standard Applicable	<u>1</u>
6.2. Test Procedure	1
6.3. Environmental Conditions	1
6.4. Test Data	1
7. Duty Cycle	
7.1. Standard Applicable	19
7.2. Test Procedure	1
7.3. Introduction To Pdcf Reference:	1
7.4. Test Data	
8. Antenna Connected Construction	2
9. Photograph of Test	24
10. Photos of The EUT	21

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** Modified History **

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Jan. 11, 2023	Jason Zhou
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1. Test Summary

1.1 Test Facility

Standard Section	Test Item	Result
15.203	Antenna Requirement	PASS
15.207	Conducted Emission	N/A
15.205/15.209/15.231(b)	Spurious Emission	PASS
15.231(c)	20dB Occupied Bandwidth	PASS
15.231(a)	Deactivation Testing	PASS

1.2 Information of The Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.

Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping,

Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Testing Laboratory Authorization:

A2LA Accreditation Code is 4781.01.

FCC Designation Number is CN1229.

Canada IC CAB identifier is CN0045.

CNAS Registration Number is L9589.

1.3 Measurement Uncertainty

Measurement uncertainty	HUAKTED .	MAKTE
Parameter	Conditions	Uncertainty
Occupied Bandwidth	Conducted	±1.5%
Conducted Spurious Emission	Conducted	±2.17dB
Transmission Time	Conducted	±5%
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

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2. General Information

2.1. Description of Device (EUT)

Product Name	:	MAIN SQUEEZE-THE ORIGINAL VIBRO PW/BULLET &REMOTE		
Model No.	:	I-MX-5100-05	Mary Mary	
Series Models	:	N/A	TING	
Model Difference	:	N/A MARCH	W HARTE	
Trade Mark	:	N/A	Mulius Human	
Test Power Supply	:	DC 3V from battery	"IANTESTING	
Product :		Operation Frequency:	434.08MHz	
		Number of Channel:	1 Channels	
		Modulation Type:	ASK	
Description		Antenna Type:	PCB Antenna	
		Antenna Gain(Peak):	OdBi Munda	

Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



Report No.: HK2203090970-E

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2.2. Description of Test Setup

	VSAR/	18389	
Operation of EUT d	uring testing:		
	NYTESTING.		
	EUT		

The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. The worst case is X position

2.3. List of Channels

Channal	Freq.	Note	
Channel	(MHz)	(Modulation Type)	
01	434.08	ASK	

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2.4. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
res _{Th} G	L.I.S.N. Artificial Mains Network	R&S	ENV216	HKE-002	Feb. 18, 2022	1 Year
٥ 2 .	Receiver	R&S	ESCI 7	HKE-010	Feb. 18, 2022	1 Year
3.	RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 18, 2022	1 Year
4.	Spectrum analyzer	R&S	FSP40	HKE-025	Feb. 18, 2022	1 Year
5.	Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 18, 2022	1 Year
6.	Preamplifier	Schwarzbeck	BBV 9743	HKE-006	Feb. 18, 2022	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESCI 7	HKE-010	Feb. 18, 2022	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	HKE-012	Feb. 18, 2022	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Feb. 18, 2022	1 Year
10.	Horn Antenna	Schewarzbeck	9120D	HKE-013	Feb. 18, 2022	1 Year
11.	Pre-amplifier	EMCI	EMC051845 SE	HKE-015	Feb. 18, 2022	1 Year
12.	Pre-amplifier	Agilent	83051A	HKE-016	Feb. 18, 2022	1 Year
13.	EMI Test Software EZ-EMC	Tonscend	JS1120-B Version	HKE-083	N/A	N/A
14.	Power Sensor	Agilent	E9300A	HKE-086	Feb. 18, 2022	1 Year
15.	Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 18, 2022	1 Year
16.	Signal generator	Agilent	N5182A	HKE-029	Feb. 18, 2022	1 Year
_. 17.	Signal Generator	Agilent	83630A	HKE-028	Feb. 18, 2022	1 Year
18.	Shielded room	Shiel Hong	4*3*3	HKE-039	Dec. 09, 2021	3 Year
	45.73	the second secon	AF (T.)	amounts, 1, 7	4577	

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3. Conducted Emission Test

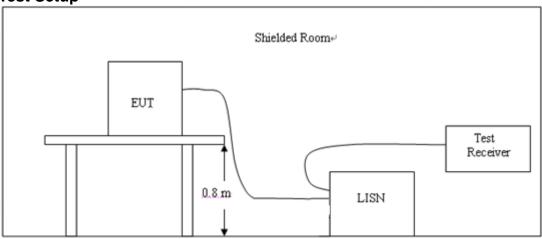
3.1 Conducted Power Line Emission Limit

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

Frequency (MHz)	Maximum RF Line Voltage (dΒμV)			
	CLASS A		CLASS B	
(11112)	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

^{*} Decreasing linearly with the logarithm of the frequency
For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

3.2 Test Setup



3.3 Test Procedure

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5. All support equipments received AC power from a second LISN, if any.
- 6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

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3.4 Test Data

Not applicable.

Note: EUT power supply by DC Power, so this test item not applicable.

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4. Radiated Emissions

4.1. Standard Applicable

According to §15.231(b), 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 3,750 **	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 interpolations

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.

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

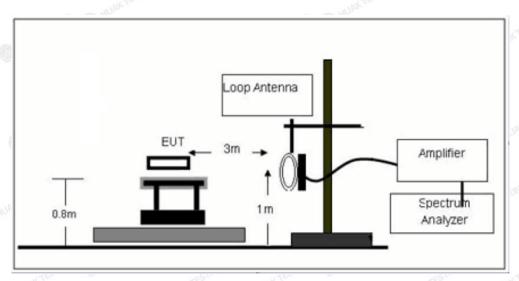
Compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

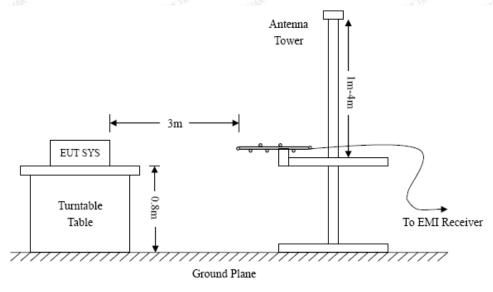
4.2. Test Procedure

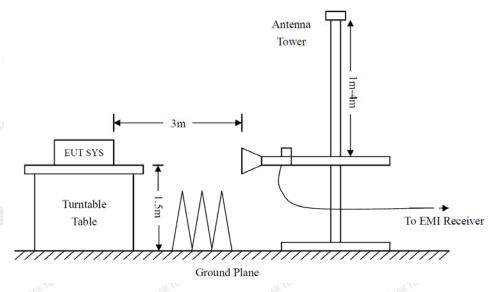
The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.231(b) and FCC Part 15.209 Limit.

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WAXTES

Report No.: HK2203090970-E

4.3. Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading +Ant.Loss +Cab. Loss - Ampl.Gain

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB V means the emission is 6dB V below the maximum limit. The equation for margin calculation is as follows:

Margin = Corr. Ampl. - FCC Part15C Limit

4.4. Environmental Conditions

Temperature:	21 ℃	HUAKTES	MINAK TES	MINA HUAN
Relative Humidity:	50%	VG	NK TESTING	- ~
ATM Pressure:	1011 mbar	HUAKTESTIN	(a) 1107	HUAKTESTIL

4.5. Test Data

According to the data below, the FCC Part 15.205, 15.209 and 15.231 standards, and had the worst margin of:

Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

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Horizontal

No.	Frequency	Reading	Corr.	Duty cycle	Result	Limit	Margin	Deg.	Height	Remark
	MHz	dBuV/m	Factor (dB)	Factor (dB)	dBuV/m	dBuV/m	dB	(°)	(cm)	
^G 1	434.0800	56.79	12.33	-8.10	69.12	80.83	-11.71	[™] 177	100	QP
2	868.1600	27.34	15.82	-8.10	43.16	60.83	-17.67	64	100	QP
3	128.0681	26.12	15.82	-8.10	41.94	60.83	-18.89	64	100	QP
4	164.9650	24.82	15.82	-8.10	40.64	60.83	-20.19	64	100	QP
5 E	199.9199	22.16	15.82	-8.10	37.98	60.83	-22.85	64	100	QP

Vertical

No.	Frequency	Reading	Corr.	Duty cycle	Result	Limit	Margin	Deg.	Height	Remark
	MHz	dBuV/m	Factor (dB)	Factor (dB)	dBuV/m	dBuV/m	dB	(°)	(cm)	
1	434.0800	56.77	12.23	-8.10	69.00	80.83	-11.83	117	300	QP
2	868.1600	28.17	16.26	-8.10	44.43	60.83	-16.4	36	200	QP
3	122.2422	25.39	16.26	-8.10	41.65	60.83	-19.18	36	200	QP
4	162.0521	23.55	16.26	-8.10	39.81	60.83	-21.02	36	200	QP
5	261.0911	21.69	16.26	-8.10	37.95	60.83	-22.88	36	200	QP

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Above 1GHz Horizontal

No.	Frequency	Reading	Corr.	Duty cycle	Result	Limit	Margin	Deg.	Height	Remark
	MHz	dBuV/m	Factor (dB)	Factor (dB)	dBuV/m	dBuV/m	dB	(°)	(cm)	
1	1302.2	25.71	25.83	N/A	51.54	74	-22.46	41	100	Peak
li v	1302.2	NG /	1	-8.10	43.44	3 54	-10.56	306	100	Ave
2	1736.3	22.03	27.25	N/A	49.28	74	-24.72	204	100	Peak
	1736.3	1	1	-8.10	41.18	54	-12.82	87	100	Ave

Vertical

No.	Frequency	Reading	Corr.	Duty cycle	Result	Limit	Margin	Deg.	Height	Remark
	MHz	dBuV/m	Factor (dB)	Factor (dB)	dBuV/m	dBuV/m	dB	(°)	(cm)	
_ 1	1302.2	24.79	25.83	N/A	50.62	74	-23.38	151	100	Peak
0	1302.2	NG 1	1	-8.10	42.52	3 54	-11.48	74	100	Ave
2	1736.3	23.61	27.25	N/A	50.86	74	-23.14	332	100	Peak
	1736.3	1	1 TES	-8.10	42.76	54	-11.24	51	100	Ave

Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5th Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

The fundamental frequency is 434.08MHz, so the fundamental and spurious emissions radiated limit base on the the operating frequency 434.08MHz.

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m ((dBμV/m	Limit@	⊋3m (dBµV/m)
	HUAR	- me	HUAK	.a
IK TESTI	MAKTE	STILL HUAK TES		JAKTESTI HUAKTES
<u> </u>		<u></u>	🔘 `	

Note: 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

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5. 20db Occupy Bandwidth Test

5.1. Standard Applicable

According to FCC Part 15.231(c), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

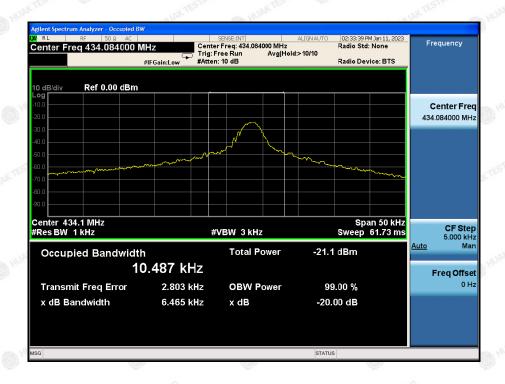
5.2. Test Procedure

With the EUT's antenna attached, the EUT's 20dB Bandwidth power was received by the test antenna, which was connected to the spectrum analyzer with the START, and STOP frequencies set to the EUT's operation band.

Temperature:	21℃	
Relative Humidity:	52%	10
ATM Pressure:	1011 mbar	HUAKTESTING

5.3. Test Data

Freq. (MHz)	Modulation Type	Bandwidth (kHz)	Limit (kHz)	Results
434.08	ASK	6.465	<1084.8	PASS



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6. Transmission Time

6.1. Standard Applicable

According to FCC Part 15.231(a), the transmitter shall be complied the following requirements:

- (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.

6.2. Test Procedure

With the EUT's antenna attached, the EUT's output signal was received by the test antenna, which was connected to the spectrum analyzer. Set the center frequency to 434.08MHz, than set the spectrum analyzer to Zero Span for the release time reading. During the testing, the switch was released then the EUT automatically deactivated.

6.3. Environmental Conditions

Temperature:	20℃
Relative Humidity:	52%
ATM Pressure:	1011 mbar

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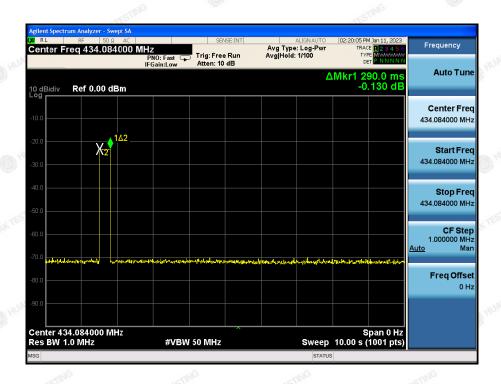
Report No.: HK2203090970-E



6.4. Test Data

Transmission Type	Test Frequency MHz	Transmission Time seconds	Limit s	Result
Manually	434.08	0.29	5	PASS

Please refer the following plot.



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Report No.: HK2203090970-E





7. Duty Cycle

7.1. Standard Applicable

According to FCC Part 15.231(b)(2) and 15.35 (c), For pulse operation transmitter, the averaging pulsed emissions are calculated by peak value of measured emission plus duty cycle factor.

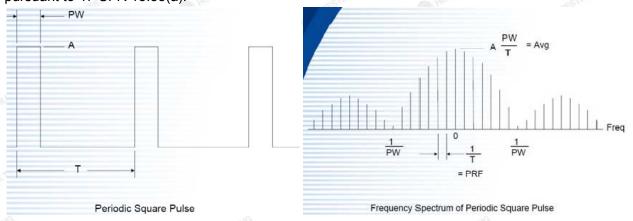
7.2. Test Procedure

- 1) The EUT was placed on a turntable which is 0.8m above ground plane.
- 2) Set EUT operating in continuous transmitting mode
- 3) Set Test Receiver into spectrum analyzer mode, Tune the spectrum analyzer to the transmitter carrier frequency, and set the spectrum analyzer resolution bandwidth(RBW) to 1000kHz and video bandwidth(VBW) to 1000kHz, Span was set to 0Hz.
- 4) The Duty Cycle was measured and recorded.

7.3. Introduction To Pdcf Reference:

(§15.35 Measurement detector functions and bandwidths.)

1) Part 15 of the FCC Rules provides for the operation of low power communication devices without an individual license (e.g., intrusion detectors, pulsed water tank level gauges, etc.), subject to certain requirements. Some of these devices use extremely narrow pulses to generate wideband emissions, which are measured to determine compliance with the rules. These measurements are typically performed with a receiver or spectrum analyzer. Depending on a number of factors (e.g., resolution bandwidth, pulse width, etc.), the spectrum analyzer may not always display the true peak value of the measured emission. This effect, called "pulse desensitization," relates to the capabilities of the measuring instrument. For the measurement and reporting of the true peak of pulsed emissions, it may be necessary to apply a "pulse desensitization correction factor" (PDCF) to the measured value, pursuant to 47 CFR 15.35(a).



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If using spectrum analyzer to measure pulse signal, it have to make sure the RBW use is at least 2/PW. •When RBW is less than 2/PW, you are able to measure the true peak level of the pulse signal. If this is the case,

Report No.: HK2203090970-E

PDCF is required to compensate to determine true peak value.

Pulse desensitization:

PW =29250usec (0.6* 13+ 1.65*13), Period=67500usec, Level=A

RBW>2/PW=0.068K, 1/T=0.15K

NOTE: 2 / PW < RBW, first don't need

2). For the actual test, please refer to the ANSI C63.10, Annex C refer to section 5 for more detail

7.4. Test Data

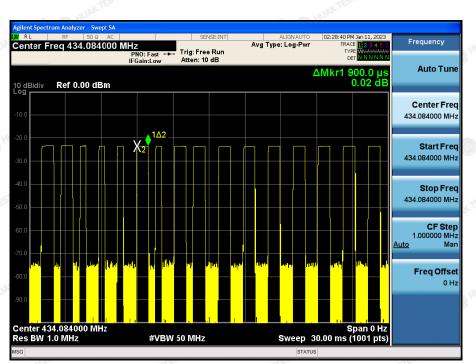
Type of Pulse	Width of Pulse	Quantity of Pulse	Transmission Time	Total Time(T _{on})
	ms		ms	ms
Pulse 1 (Wide)	0.90	14	12.6	
Pulse 2 (Narrow)	0.45	4 mis	1.8	14.4

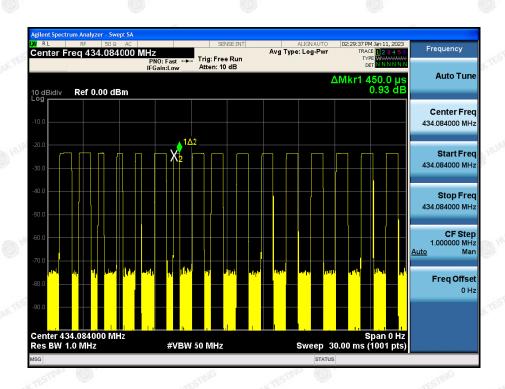
Test Period (T _p)	Total Time (T _{on})	Duty Cycle	Duty Cycle Factor	
ms	ms	%	dB	
36.60	14.4	39.34	-8.10	

Remark: Duty Cycle Factor=20*log (Duty Cycle)

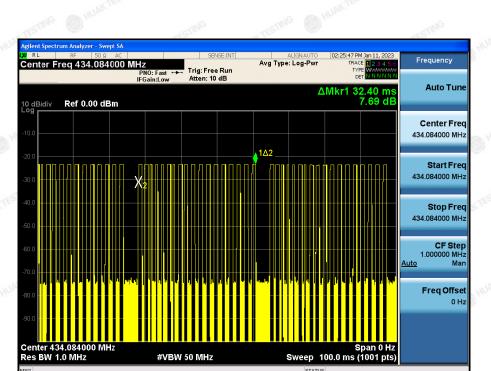
Please refer to the attached test plots

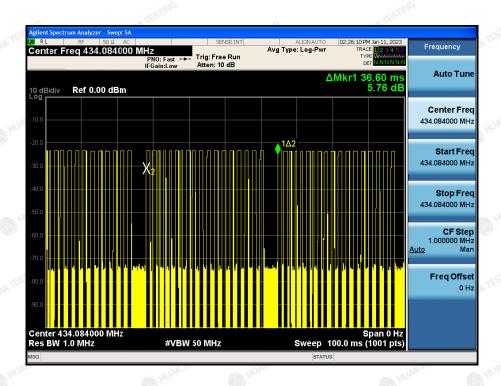
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannont be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com





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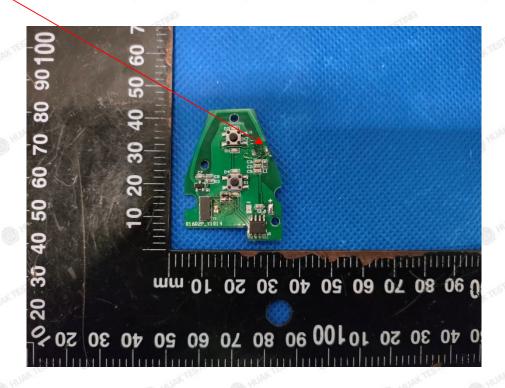
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannont be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



8. Antenna Connected Construction

The antenna used for test in this product is a PCB Antenna, which permanently attached. It conforms to the standard requirements. The directional gains of antenna used for transmitting is 0dBi.

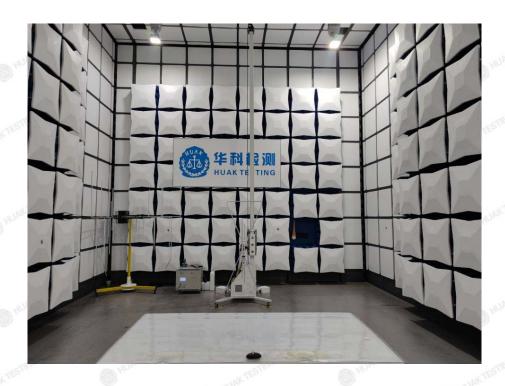
ANTENNA

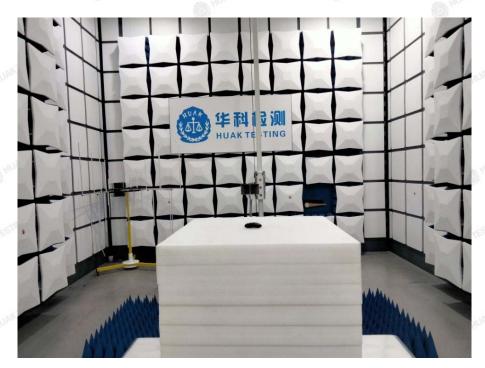


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9. Photograph of Test





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10. Photos of The EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos

*****End of Report****

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