



FCC TEST REPORT

Test report
On Behalf of
Libertybelle Marketing Ltd
For
Boost
Model No.: Boost

FCC ID: 2AX3V-BOOST

Prepared for: Libertybelle Marketing Ltd

30b Spice Quay Shad Thames London, SE1 2YG United Kingdom

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

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

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

Date of Test: Oct. 14, 2021 ~ Oct. 21, 2021

Date of Report: Oct. 21, 2021

Report Number: HK2110133842-E

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.



WANTES

Report No.: HK2110133842-E

TEST RESULT CERTIFICATION

Applicant's name Libertybelle Marketing Ltd

Manufacture's Name...... Top-reliable Technology Co., Ltd.

Product description

FCC Part15 Subpart C 2017, Section 15.231

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen HUAK Testing Technology Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen HUAK Testing Technology Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Date of Test

Date (s) of performance of tests Oct. 14, 2021 ~ Oct. 21, 2021

Date of Issue Oct. 21, 2021

Test Result Pass

Testing Engineer :

(Gary Qian)

Technical Manager

(Eden Hu)

Authorized Signatory:

(Jason Zhou)

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



Contents

1. TEST SUMMARY	, and	
1.1 TEST FACILITY	MAKTE	MAK TES
1.2 INFORMATION OF THE TEST LABORATORY	(<u> </u>
1.3 MEASUREMENT UNCERTAINTY	THE .	
2. General Information	LUAK TE	6
2.1. Description of Device (EUT)		NAK 1
2.2. DESCRIPTION OF TEST SETUP		
2.3. List of channels		
2.5. Test Equipment List	(D)	8
3. Conducted Emission Test	White.	M HUAT
3.1 Conducted Power Line Emission Limit		9
3.2 Test Setup		
3.3 Test Procedure	THIC .	CTING C
3.4 Test Data	HVAKTE	10
4. Radiated Emissions		
4.1. Standard Applicable	TES TIME	12
4.2. Test Procedure		
4.3. Corrected Amplitude & Margin Calculation		14
4.4. Environmental Conditions		
4.5. Test Data		
5. 20DB Occupy Bandwidth Test		
5.1. Standard Applicable		
5.2. Test Procedure		
5.4. Test Data		
6. Transmission Time		
6.1. Standard Applicable	MAN.	
6.2. Test Procedure		
6.3. Environmental Conditions	TES TIME	19
6.4. Test Data	CO HOM	19
7. Duty Cycle		
7.1. Standard Applicable		
7.2. Test Procedure		
7.4. INTRODUCTION TO PDCF reference:		
7.5. Test Data		
8. Antenna Connected Construction		
9. PHOTOGRAPH OF TEST		
10. PHOTOS OF THE EUT		

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 cannon 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.



Page 4 of 28 Report No.: HK2110133842-E

** Modified History **

Revision	Description		Description Issued Data		Issued Data	Remark	
Revision 1.0	Initial Test Report F	Release	Oct. 21, 2021	Jason Zhou			
HUAK	HUAR	HI AK	HUAK	HUAK			

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.

HUAK Testing Lab TEL: +86-755 2302 9901 FAX: +86-755 2302 9901 E-mail: service@cer-mark.com



1. TEST SUMMARY

1.1 TEST FACILITY

Standard Section	Test Item	Result
15.203	Antenna Requirement	PASS
15.207	Conducted Emission	PASS
15.205/15.209/15.231(b)	Spurious Emission	PASS
15.231(c)	20dB Occupied Bandwidth	PASS
15.231(a)	Deactivation Testing	PASS
Remark: "N/A" is an abbrev	riation for Not Applicable.	

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	HUAT	HUAL
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

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

Report No.: HK2110133842-E



2. General Information

2.1. Description of Device (EUT)

Product Name	:	Boost	AKTESTING AKTESTING
Model No.	:	Boost	
Series models	:	N/A	TESTING
Model Difference	:	N/A HUM	THE THE THE
Trade Mark	:	NEXUS	THE STATES
Test Power Supply	:	DC 5V from adapter or DC 3.7	7V from battery
	:	Operation Frequency:	433.9MHz
		Number of Channel:	1 Channels
Product Description		Modulation Type:	ASK
Decompliant		Antenna Type:	PCB Antenna
		Antenna Gain(Peak):	0dBi

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

AFICATION.

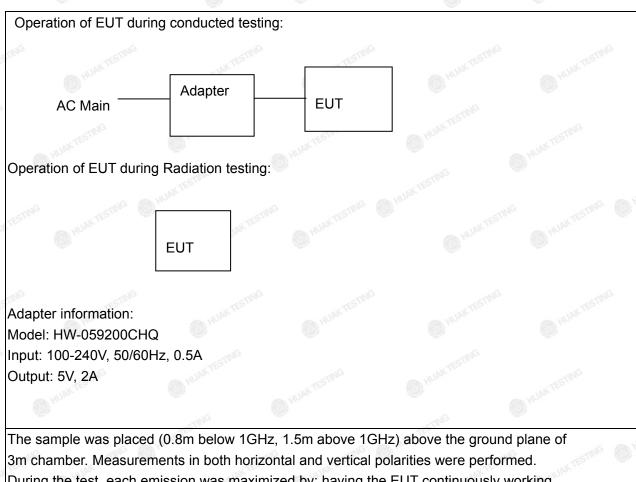
Report No.: HK2110133842-E

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





2.2. DESCRIPTION OF TEST SETUP



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

Channel	Freq.	Note	
Chainlei	(MHz)	(Modulation Type)	
TESTING 01	433.9	ASK	

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





2.5. Test Equipment List

	Car House					
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
resting 1.	L.I.S.N. Artificial Mains Network	R&S	ENV216	HKE-002	Dec. 10, 2020	1 Year
[©] 2.	Receiver	R&S	ESCI 7	HKE-010	Dec. 10, 2020	1 Year
3.	RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 10, 2020	1 Year
4.	Spectrum analyzer	R&S	FSP40	HKE-025	Dec. 10, 2020	1 Year
5.	Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 10, 2020	1 Year
6.	Preamplifier	Schwarzbeck	BBV 9743	HKE-006	Dec. 10, 2020	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESCI 7	HKE-010	Dec. 10, 2020	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	HKE-012	Dec. 10, 2020	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Dec. 10, 2020	1 Year
10.	Horn Antenna	Schewarzbeck	9120D	HKE-013	Dec. 10, 2020	1 Year
11.	Pre-amplifier	EMCI	EMC051845 SE	HKE-015	Dec. 10, 2020	1 Year
12.	Pre-amplifier	Agilent	83051A	HKE-016	Dec. 10, 2020	1 Year
13.	EMI Test Software EZ-EMC	Tonscend	JS1120-B Version	HKE-083	Dec. 10, 2020	N/A
14.	Power Sensor	Agilent	E9300A	HKE-086	Dec. 10, 2020	1 Year
15.	Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 10, 2020	1 Year
16.	Signal generator	Agilent	N5182A	HKE-029	Dec. 10, 2020	1 Year
©17.	Signal Generator	Agilent	83630A	HKE-028	Dec. 10, 2020	1 Year
18.	Shielded room	Shiel Hong	4*3*3	HKE-039	Dec. 17, 2020	3 Year

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,

Report No.: HK2110133842-E



10 TESTIN

Report No.: HK2110133842-E

3. Conducted Emission Test

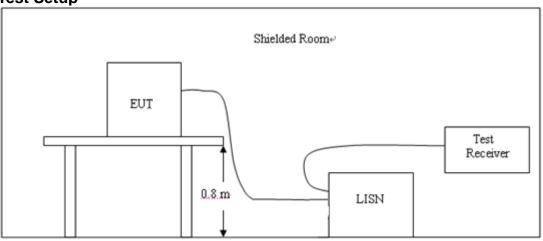
3.1 Conducted Power Line Emission Limit

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

Eroguenev	Maximum RF Line Voltage (dBμV)					
Frequency (MHz)	CLAS	CLASS A		CLASS B		
(111112)	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

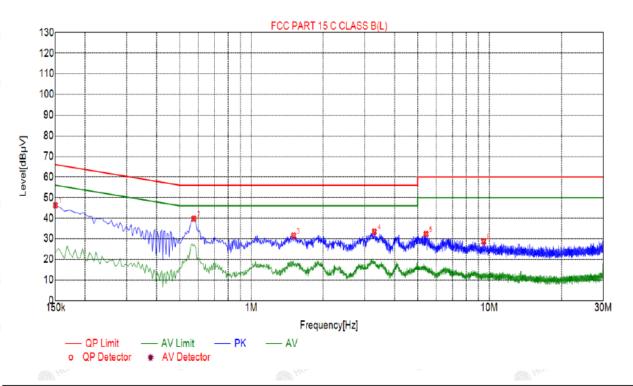
- 1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2, Support equipment, if needed, was placed as per 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

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



3.4 Test Data

Test Specification: Line



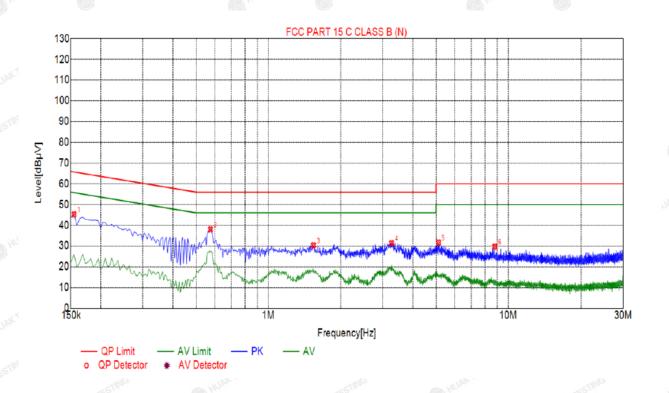
Sus	Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре	
1	0.1500	46.21	20.03	66.00	19.79	26.18	PK	L	
2	0.5730	39.79	20.05	56.00	16.21	19.74	PK	٦	
3	1.5045	31.51	20.11	56.00	24.49	11.40	PK	L	
4	3.2910	33.35	20.24	56.00	22.65	13.11	PK	L	
5	5.4285	32.28	20.26	60.00	27.72	12.02	PK	L	
6	9.4785	28.67	20.09	60.00	31.33	8.58	PK	L	

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss Level=Test receiver reading + correction factor

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.

Test Specification: Neutral



	Suspected List								
10	NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре
	1	0.1545	45.23	20.03	65.75	20.52	25.20	PK	N
7	2	0.5730	38.02	20.05	56.00	17.98	17.97	PK	N
	3	1.5405	30.37	20.11	56.00	25.63	10.26	PK	N
27	4	3.2640	31.38	20.23	56.00	24.62	11.15	PK	N
	5	5.1225	31.67	20.26	60.00	28.33	11.41	PK	N
	6	8.7990	29.69	20.11	60.00	30.31	9.58	PK	N

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss Level=Test receiver reading + correction factor

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.



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

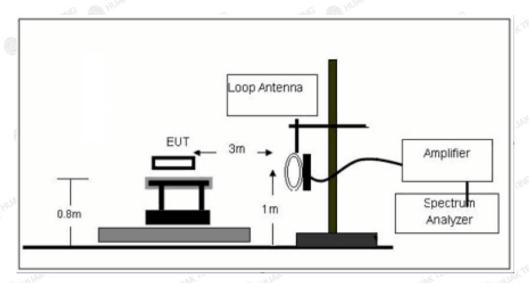
The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.231(b) and FCC Part 15.209 Limit.

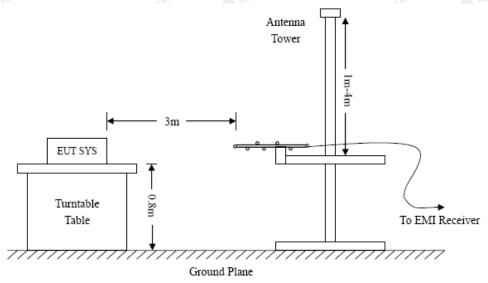
AFICATION.

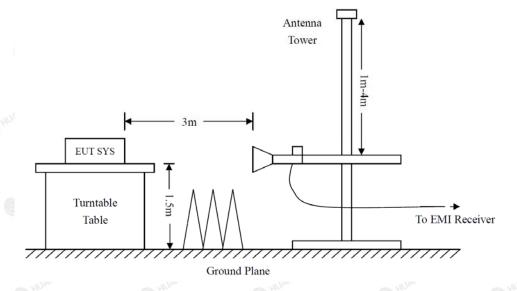
Report No.: HK2110133842-E

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 cannon 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









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.



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

	. 7.1/	.7.1/	. 7.1/	
Temperature:	21℃			HUAN
Relative Humidity:	50%	TING	HUAKTESTING	TINE
ATM Pressure:	1011 mbar	HUAKTE		HUAKTE

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.

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

HUAK Testing Lab TEL: +86-755 2302 9901 FAX: +86-755 2302 9901 E-mail: service@cer-mark.com
1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China





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	433.9000	65.79	12.33	N/A	78.12	80.83	-2.71	177	100	QP
2	867.8000	26.31	15.82	N/A	42.13	60.83	-18.70	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	433.9000	66.07	12.23	N/A	78.30	80.83	-2.53	117	300	QP
[©] 2	867.8000	26.34	16.26	N/A	42.60	60.83	-18.23	³⁶	200	QP

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 cannon 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.



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	26.13	25.83	N/A	51.96	₃ 74	-22.04	41	100	Peak
	1302.2	1		-12.45	39.51	54	-14.49	306	100	Ave
2	1736.3	25.71	27.25	™ N/A	52.96	74	-21.04	204	100	Peak
	1736.3	STAG	My HUAR	-12.45	40.51	54	-13.49	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)	
ß1	1302.2	28.62	25.83	N/A	54.45	74	-19.55	151	100	Peak
	1302.2	Mg 1	I H	-12.45	42.00	³ 54	-12	74	100	Ave
2	1736.3	26.34	27.25	N/A	53.59	74	-20.41	332	100	Peak
	1736.3	1	MAKTES	-12.45	41.14	54	-12.86	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 433.9MHz, so the fundamental and spurious emissions radiated limit base on the the operating frequency 433.9MHz.

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m	(dBμV/m	Limit@	⊋3m (dBμV/m)
	HUAKTEST		HUAKTES	
TESTING ON TESTING	<u> </u>	STING - OK TESTING	<u> </u>	TESTING LOK TES
O HO	NUAN	<u> </u>	O'	JAP PI

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.

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.co

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'soperation band.

Temperature:	21 ℃	OK TESTING	N. TESTING
Relative Humidity:	52%	O HOM	MILION TO HATTER
ATM Pressure:	1011	mbar	./G

5.4. Test Data

	Freq. (MHz)	Modulation Type	Bandwidth (kHz)	Limit (kHz)	Results
3	433.9	ASK	7.975	<1084.8	PASS

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 cannon 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



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 cannon 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.



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 433.9MHz, 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

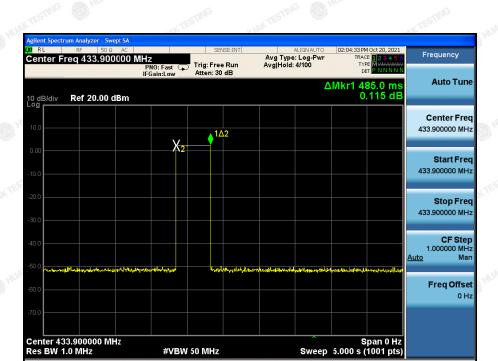
Temperature:	20℃	ESTING	ESTING
Relative Humidity:	52%		MAN.
ATM Pressure:	1011	mbar	.6

6.4. Test Data

Transmission Type	Test Frequency	Transmission Time	Limit	Result	
	MHz	seconds	s	Nesuit	
Manually	433.9	0.485	5	PASS	

Please refer the following plot.

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 cannon 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



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 cannot 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.



7. Duty Cycle

7.1. Standard Applicable

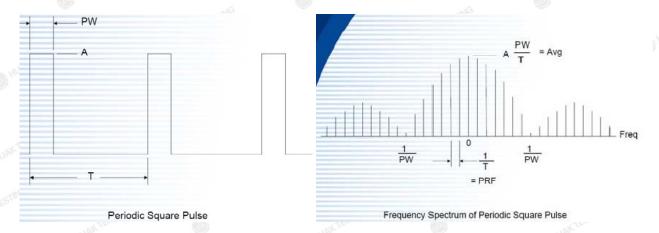
According to FCC Part 15.231(b) (2) and 15.35 (c), for pulse operation transmitter, the averaging pulsed emissions are calculated by peak value of measured emission plus duty cycle factor.

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.

7.4. 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, pulsewidth, 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).



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



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.

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

7.5. Test Data

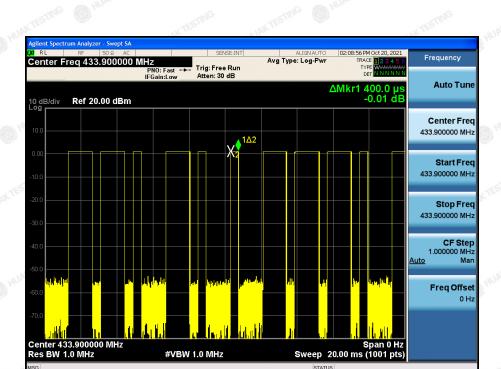
Type of Pulse	Width of Pulse ms	Quantity of Pulse	Transmission Time	Total Time(T _{on}) ms
Pulse 1	0.4	20	MINN TESTIN	23.84
Pulse 2	1.32	12	15.84	23.04

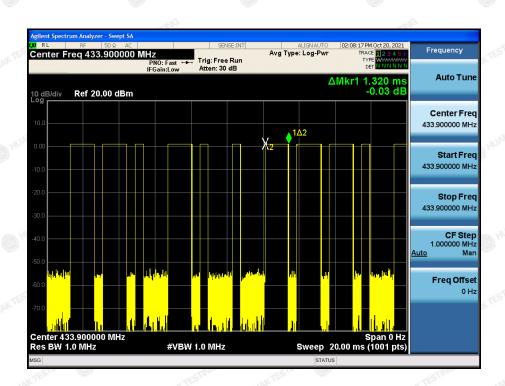
	Test Period (T _p)	Total Time (T _{on})	Duty Cycle	Duty Cycle Factor	
16	ms	ms	%	dB	
(G	100	23.84	23.84	-12.45	

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

Please refer to the attached test plots

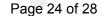
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannont be reproduced except in full with our prior written permission. The more details and the authenticity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

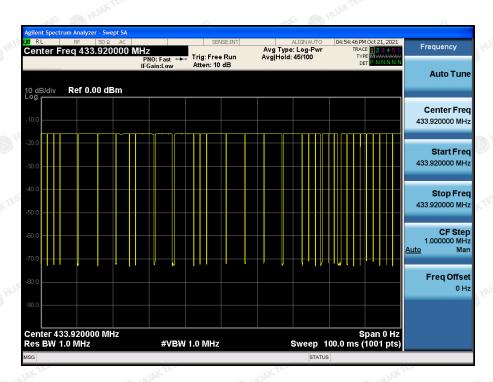




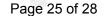
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannon be reproduced except in full with our prior written permission. The more details and the authenticity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

1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China





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 cannon 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 RF antenna is a Internal Antenna which permanently attached, and the best case gain of the Antenna is 0dBi. It complies with the standard requirement.

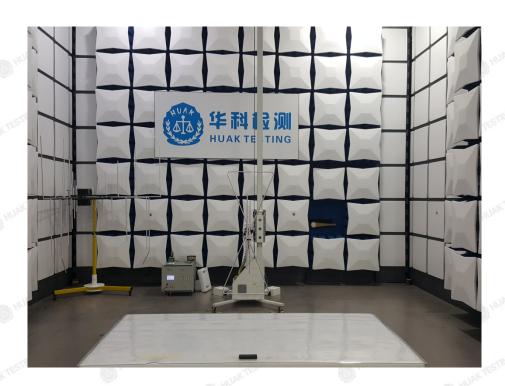
ANTENNA

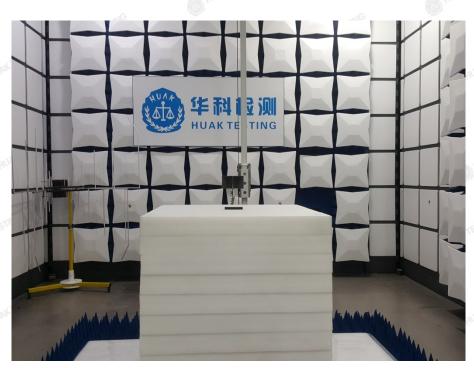


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannon be reproduced except in full with our prior written permission. The more details and the authenticity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



9. PHOTOGRAPH OF TEST





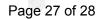
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannont be reproduced except in full with our prior written permission. The more details and the authenticity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

HUAK Testing Lab TEL: +86-755 2302 9901 FAX: +86-755 2302 9901 E-mail: service@cer-mark.com

1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



Report No.: HK2110133842-E





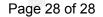


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannont be reproduced except in full with our prior written permission. The more details and the authenticity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

HUAK Testing Lab TEL: +86-755 2302 9901 FAX: +86-755 2302 9901 E-mail: service@cer-mark.com
1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



Report No.: HK2110133842-E





10. PHOTOS OF THE EUT

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

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

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 cannon 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.