FCC REPORT

Product Name	:	Wireless remote control
Trade mark	:	Lang Xun Zhi Kong
Model No.	:	21Key Remote Control, LXZK-TX1021
FCC ID	:	2AUSN-LXZK1021
Report Number	:	BLA-EMC-201910-A06-01
Date of sample receipt	:	October 8, 2019
Date of Test	:	October 8, 2019-October 11, 2019
Date of Issue	:	October 24, 2019
Test standard	:	FCC CFR Title 47 Part 15 Subpart C Section 15.231
Test result	:	PASS

Prepared for:

Shenzhen Langxun Intelligence Control Technology Co. Ltd.

3Rd Floor, No. 52-10 Kapok Road, Kapok Bay, Phuket Street, Longgang District, Shenzhen

Prepared by:

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.

IOT Test Centre of BlueAsia

No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen, China

Compiled by: Bason

Review by: Sweet Liang

Approved by: Emen_Li

Date: October 24, 2019

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.
IOT Test Centre of BlueAsia,
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2 Version

Version No.	Date	Description
00	October 24, 2019	*Original*

3 Contents

4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
Field strength of the fundamental signal	15.231 (b)	Pass
Spurious emissions	15.231 (b)/15.209	Pass
20dB Bandwidth	15.231(c)	Pass
Dwell time	15.231 (a) (1)	Pass
Conducted Emission	15.207	N/A

Remarks:

N/A: The EUT not applicable of the test item.

Pass: The EUT complies with the essential requirements in the standard.

Test according to ANSI C63.4:2014 and ANSI C63.10:2013.

5 General Information

5.1 Client Information

Applicant:	Shenzhen Langxun Intelligence Control Technology Co. Ltd.
Address of Applicant:	3Rd Floor, No. 52-10 Kapok Road, Kapok Bay, Phuket Street, Longgang District, Shenzhen
Manufacturer/ Factory:	Shenzhen Langxun Intelligence Control Technology Co. Ltd.
Address of Manufacturer/ Factory:	4Th Floor, G Building, Huihong Industrial Park, Fenggang Town, Dongguan City, Guangdong Province

5.2 General Description of E.U.T.

Product Name:	Wireless remote control
Model No.:	21Key Remote Control
Serial No.:	LXZK-TX1021-A
Operation Frequency:	433.92MHz
Channel numbers:	1
Modulation type:	ASK
Antenna Type:	PCB antenna
Antenna gain:	-3.0dBi
Power supply:	DC 3.0V

5.3 Test mode

Transmitting mode:	Keep the EUT in transmitting mode with modulation (new battery is used)
Final Test Mode:	
According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup”: X axis (see the test setup photo)	

5.4 Description of Support Units

N/A

5.5 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

● FCC — Designation No.: CN1252

BlueAsia of Technical Services(Shenzhen) Co.,Ltdhas been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. DesignationCN1252.

●ISED — CAB identifier No.: CN0028

BlueAsia of Technical Services(Shenzhen) Co.,Ltd has been registered by Certification and Engineering Bureau of ISED for radio equipment testing with CAB identifier CN0028

5.6 Laboratory Location

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.
IOT Test Centre of BlueAsia,
No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen,China
Telephone: TEL: +86-755-28682673
FAX: +86-755-28682673

5.7 Measurement Uncertainty

Items	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 30MHz)	2.14 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	4.24 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)

5.8 Test Instrumentslist

Radiated Emission:

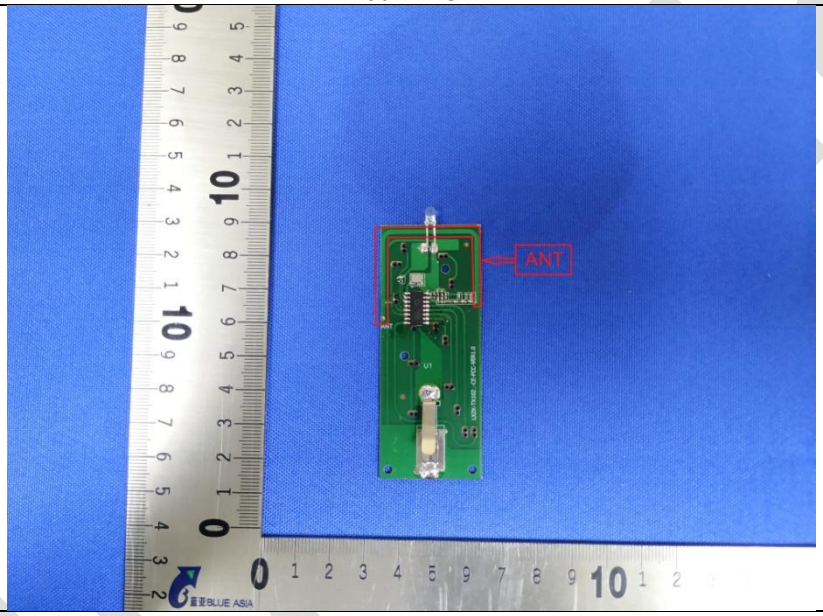
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m SAC	SKET	9m*6 m*6m	966	06-10-2018	06-09-2023
2	Broadband Antenna	SCHWARZBECK	VULB9168	00836 P:00227	07-14-2019	07-13-2020
3	Horn Antenna	SCHWARZBECK	9120D	01892 P:00331	07-14-2019	07-13-2020
4	EMI Test Software	EZ	EZ	N/A	N/A	N/A
5	Pre-amplifier	SKET	N/A	N/A	07-19-2019	07-18-2020
6	Spectrum analyzer	Rohde & Schwarz	FSP40	100817	05-24-2019	05-23-2020
7	EMI Test Receiver	Rohde & Schwarz	ESR7	101199	03-21-2019	03-20-2020
8	Controller	SKET	N/A	N/A	N/A	N/A
9	Vector Signal Generator	Agilent	E4438C	MY45092582	05-24-2019	05-23-2020
10	Signal Generator	Agilent	E8257D	MY44320250	05-24-2019	05-23-2020
11	Coaxial Cable	BlueAsia	BLA-XC-02	N/A	N/A	N/A
12	Coaxial Cable	BlueAsia	BLA-XC-03	N/A	N/A	N/A
13	Coaxial Cable	BlueAsia	BLA-XC-01	N/A	N/A	N/A

Conducted Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	EMI Test Receiver	Rohde & Schwarz	ESPI3	101082	06-10-2019	06-09-2020
2	LISN	CHASE	MN2050D	1447	12-18-2018	12-17-2019
3	LISN	Rohde & Schwarz	ENV216	3560.6550.15	07-19-2019	07-18-2020
4	EMI Test Software	EZ	EZ	N/A	N/A	N/A
5	Temperature Humidity Chamber	Mingle	TH101B	N/A	07-19-2019	07-18-2020
6	Coaxial Cable	BlueAsia	BLA-XC-05	N/A	N/A	N/A

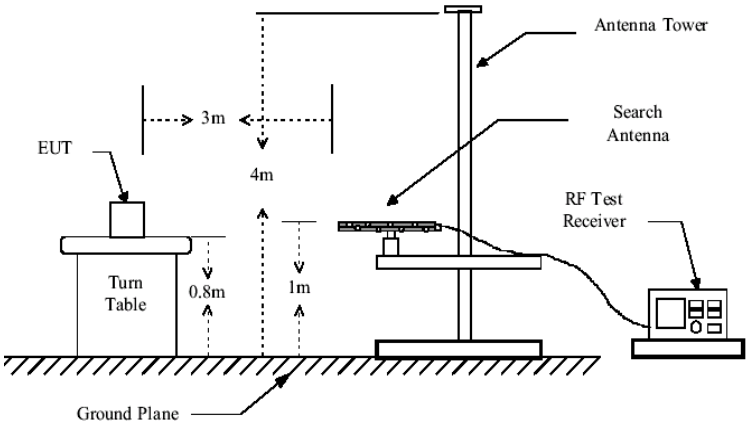
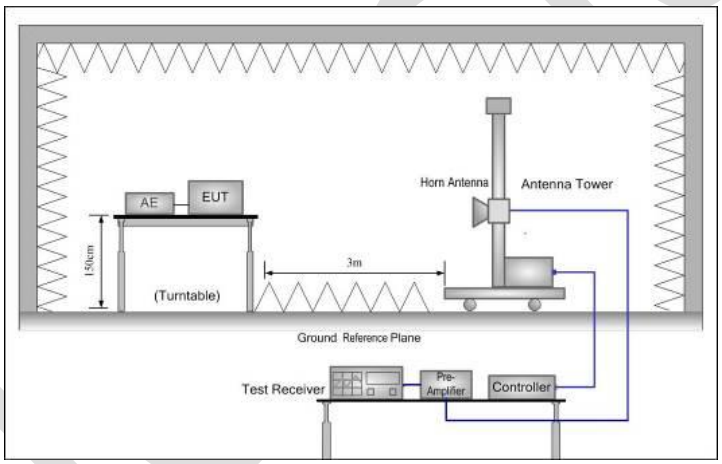
6 Test results and Measurement Data

6.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
E.U.T Antenna:	
The EUT make use of an PCB antenna, The typical gain of the antenna is -3.0dBi.	
	

6.2 Radiated Emission

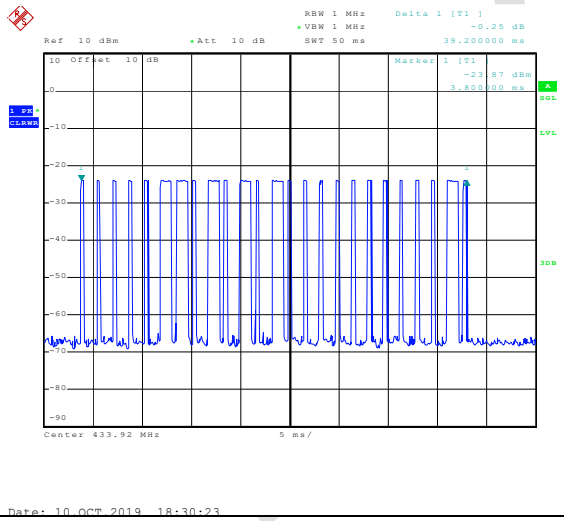
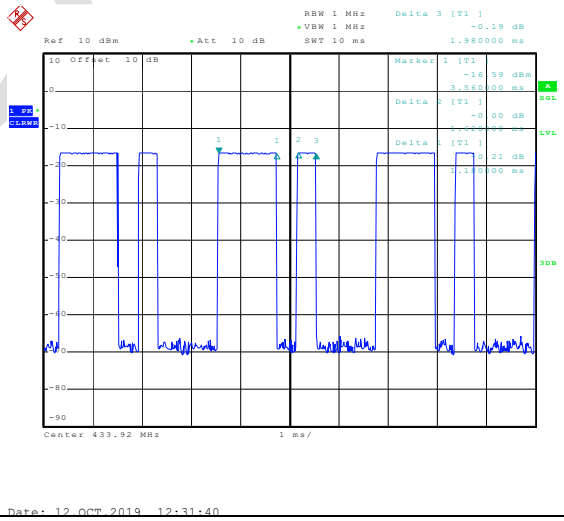
<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part15 C Section 15.231(b) and 15.209</td></tr>
<tr><td>Test Method:</td><td colspan="5">ANSI C63.4:2014</td></tr>
<tr><td>TestFrequencyRange:</td><td colspan="5">30MHz to 5000MHz</td></tr>
<tr><td>Test site:</td><td colspan="5">Measurement Distance: 3m(Semi-Anechoic Chamber)</td></tr>
<tr><td rowspan="4">Receiver setup:</td><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td rowspan="3">Limit:
(Field strength of the fundamental signal)</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td colspan="2" rowspan="2">433.92 MHz</td><td colspan="2">80.8</td><td>Average Value</td></tr>
<tr><td colspan="2">100.8</td><td>Peak Value</td></tr>
<tr><td rowspan="8">Limit:
(Spurious Emissions)</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td colspan="2">30MHz-88MHz</td><td colspan="2">40.0</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2">88MHz-216MHz</td><td colspan="2">43.5</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2">216MHz-960MHz</td><td colspan="2">46.0</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2">960MHz-1GHz</td><td colspan="2">54.0</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2" rowspan="2">Above 1GHz</td><td colspan="2">54.0</td><td>Average Value</td></tr>
<tr><td colspan="2">74.0</td><td>Peak Value</td></tr>
<tr><td colspan="5">Or The maximum permitted unwanted emission level is 20 dB below themaximum permitted fundamental level whichever limit permits higher field strength.</td></tr>
<tr><td>Test Procedure:</td><td colspan="5">a. The EUT was placed on the top of a rotating table 0.8m(below 1GHz) /1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, whichwas mounted on the top of a variable-height antenna tower.
c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatabletable was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe reported. Otherwise the emissions that did not have 10dB margin would bere-tested one by one using peak, quasi-peak or average method as specified andthen reported in a data sheet.X,Y,Z polarity of eut all have been tested ,only worse case is reported.</td></tr>
</table>

Test setup:	Below 1GHz  Above 1GHz 
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

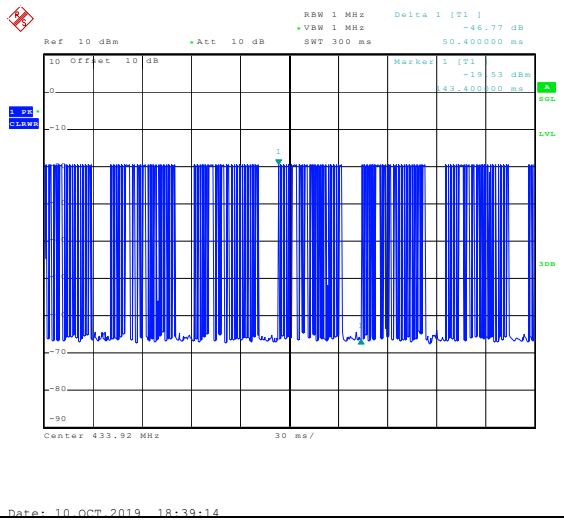
6.2.1 Field Strength Of The Fundamental Signal

Peak value						
Frequency (MHz)	Read Level (dBuV)	Correct Facor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
433.92	45.19	17.31	62.50	100.80	-38.30	Vertical
433.92	60.27	17.31	77.58	100.80	-23.22	Horizontoal
Average value						
Frequency (MHz)	Peak value	Duty cycle factor	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
433.92	62.50	-11.18	51.32	80.80	-29.48	Vertical
433.92	77.58	-11.18	66.40	80.80	-14.40	Horizontoal

Calculate Formula:	Average value = Peak value + Duty Cycle Factor
	Duty cycle factor = 20log(Duty cycle)
	Duty cycle = on time/ period
Test data:	T on time =1.18*6(ms) +0.36*19 (ms)=13.92(ms)
	T period =50.40(ms)
	Duty cycle =27.6%
	Duty cycle factor = 20log(Duty cycle) = -11.18

T on time slot-1:	T on time slot-2:
	

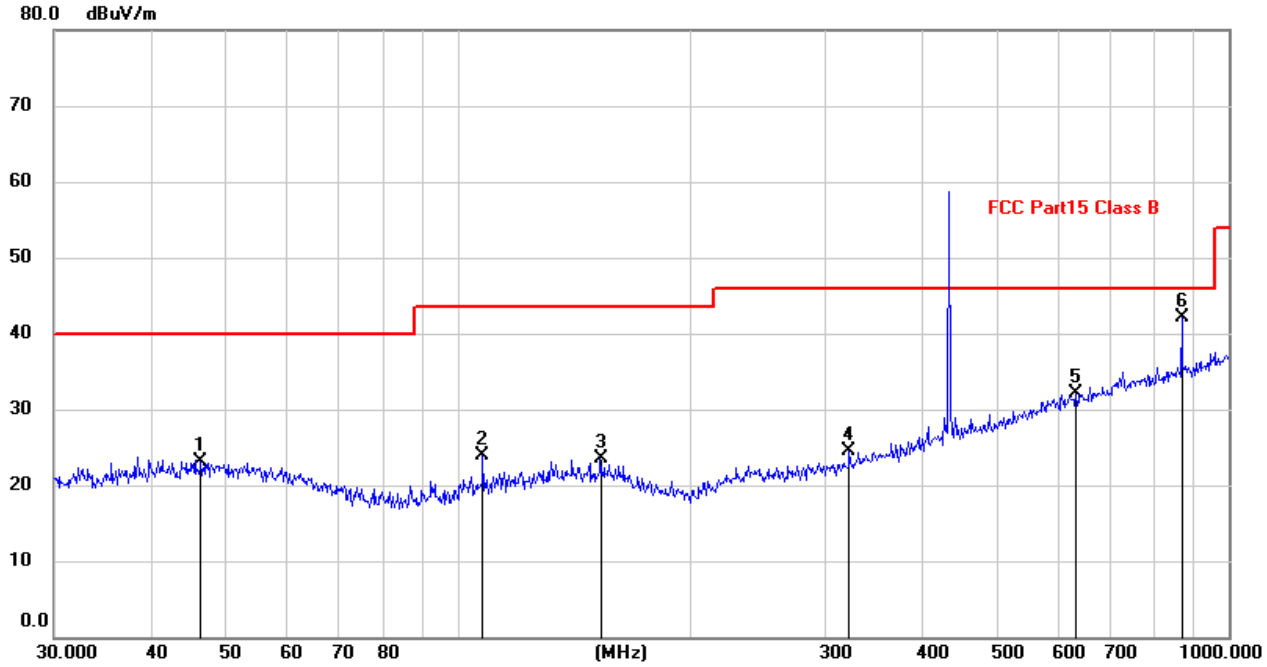
T period



Date: 10.OCT.2019 18:39:14

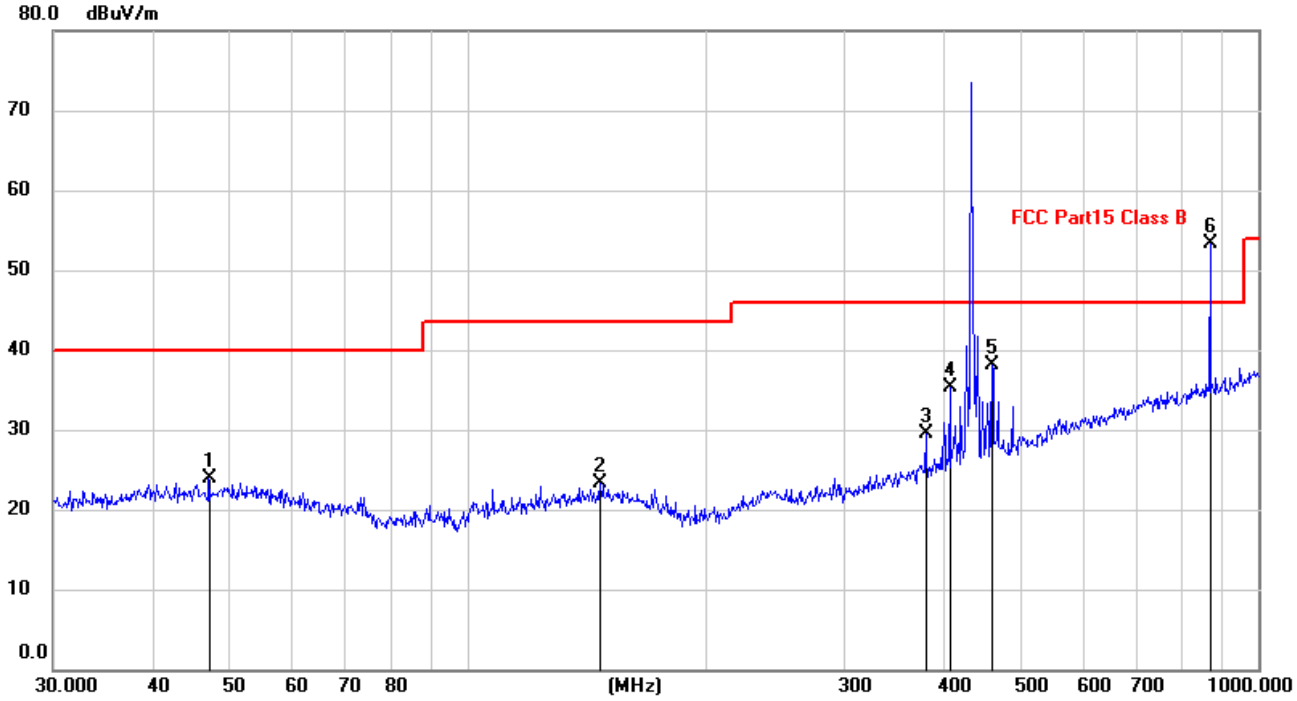
Below 1G

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	46.5030	9.29	13.88	23.17	40.00	-16.83	QP
2	107.8877	12.74	11.12	23.86	43.50	-19.64	QP
3	153.2004	10.44	13.03	23.47	43.50	-20.03	QP
4	322.1886	10.33	14.11	24.44	46.00	-21.56	QP
5	633.9073	10.67	21.43	32.10	46.00	-13.90	QP
6	869.1302	17.36	24.76	42.12	60.80	-18.68	2^{th} Harmonics(PK)

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	47.1600	9.99	13.90	23.89	40.00	-16.11	QP
2	147.4036	10.32	13.04	23.36	43.50	-20.14	QP
3	379.9141	13.61	15.92	29.53	46.00	-16.47	QP
4	407.5145	18.59	16.68	35.27	46.00	-10.73	QP
5	460.7271	20.11	17.95	38.06	46.00	-7.94	QP
6	869.1302	28.51	24.76	53.27	60.80	-7.53	2^{th} Harmonics(PK)

Above 1GHz

Peak value:

Horizontal

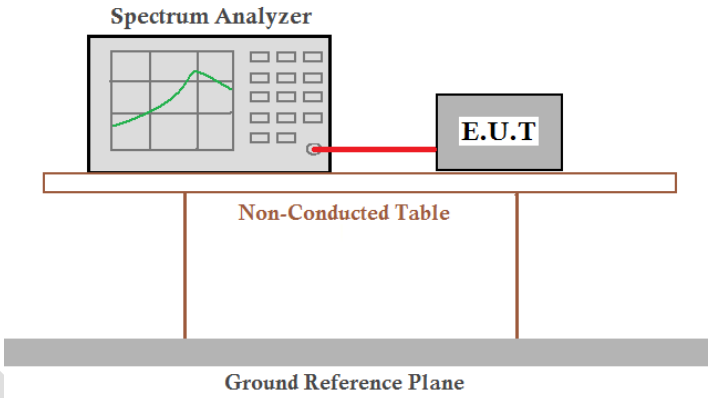
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		1302.060	64.53	-19.41	45.12	74.00	-28.88	peak
2		1736.788	62.32	-17.17	45.15	74.00	-28.85	peak
3		2168.725	61.32	-15.29	46.03	74.00	-27.97	peak
4		2605.477	68.79	-12.96	55.83	74.00	-18.17	peak
5		3040.803	61.30	-11.11	50.19	74.00	-23.81	peak
6	*	3475.384	70.20	-10.00	60.20	74.00	-13.80	peak
7		4339.709	61.86	-7.41	54.45	74.00	-19.55	peak

Vertical

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		1302.060	83.02	-19.71	63.31	74.00	-10.69	peak
2		1736.788	78.33	-17.37	60.96	74.00	-13.04	peak
3		2168.725	76.19	-15.49	60.70	74.00	-13.30	peak
4	*	2605.477	77.36	-13.29	64.07	74.00	-9.93	peak
5		3040.803	66.84	-11.19	55.65	74.00	-18.35	peak
6		3475.384	71.44	-9.91	61.53	74.00	-12.47	peak
7		4339.709	63.89	-7.31	56.58	74.00	-17.42	peak

Note: AV Value of worse case is :PK-11.18
64.07-11.18=52.89dBuV/m@3m@2605.477MHz(vertical)

6.3 20dB Bandwidth

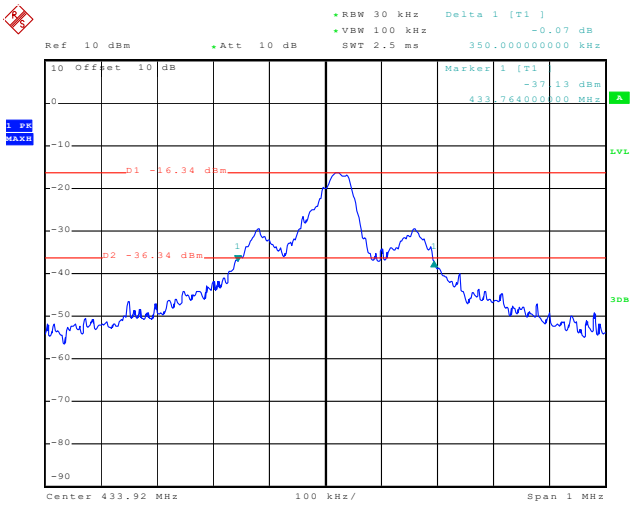
Test Requirement:	FCC Part15 C Section 15.231 (c)
Test Method:	ANSI C63.4:2014
Receiver setup:	RBW=30kHz, VBW=100kHz, detector: Peak
Limit:	The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set the EUT to proper test channel. 3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points. 4. Read 20dB bandwidth.
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

20dB bandwidth (MHz)	Limit (MHz)	Results
0.350	1.0848	Passed

Note: Limit= Fundamental frequency×0.25%=433.92×0.25%=1.0848MHz

Test plot as follows:



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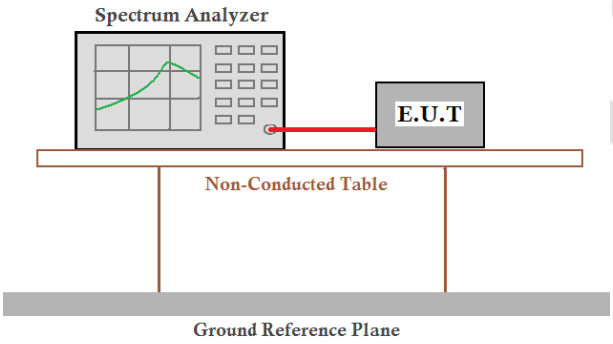
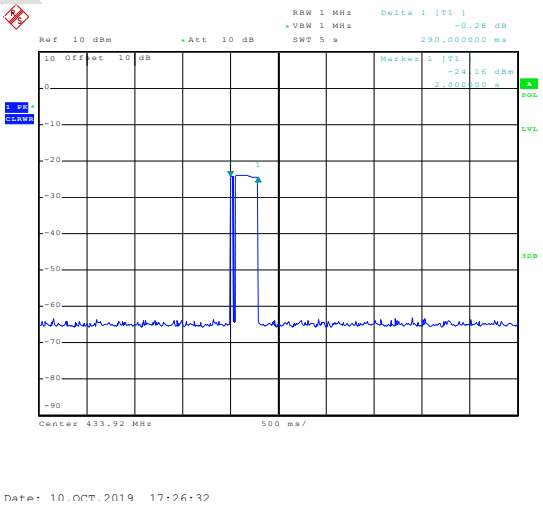
6.4 Duration Time

Test Requirement:	FCC Part15 C Section 15.231 (a) (1)
Test Method:	ANSI C63.4:2014
Receiver setup:	RBW=100kHz, VBW=300kHz, span=0Hz, detector: Peak
Limit:	Not more than 5 seconds
Test mode:	Transmitting mode
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set the EUT to proper test channel. 3. Single scan the transmission, and read the transmission time.
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

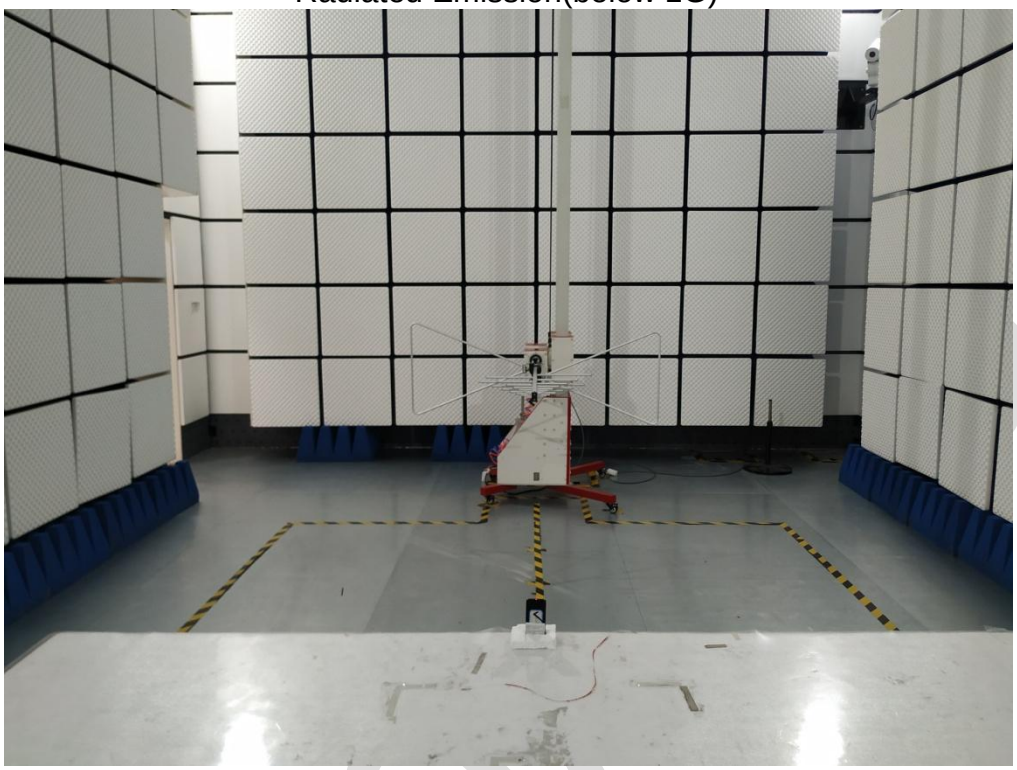
Duration time (second)	Limit (second)	Result
0.29	<5.0	Pass

Test plot as follows:



7 Test Setup Photos

Radiated Emission(below 1G)



Radiated Emission(above 1G)

8 EUT Constructional Photos

Exterior Photo

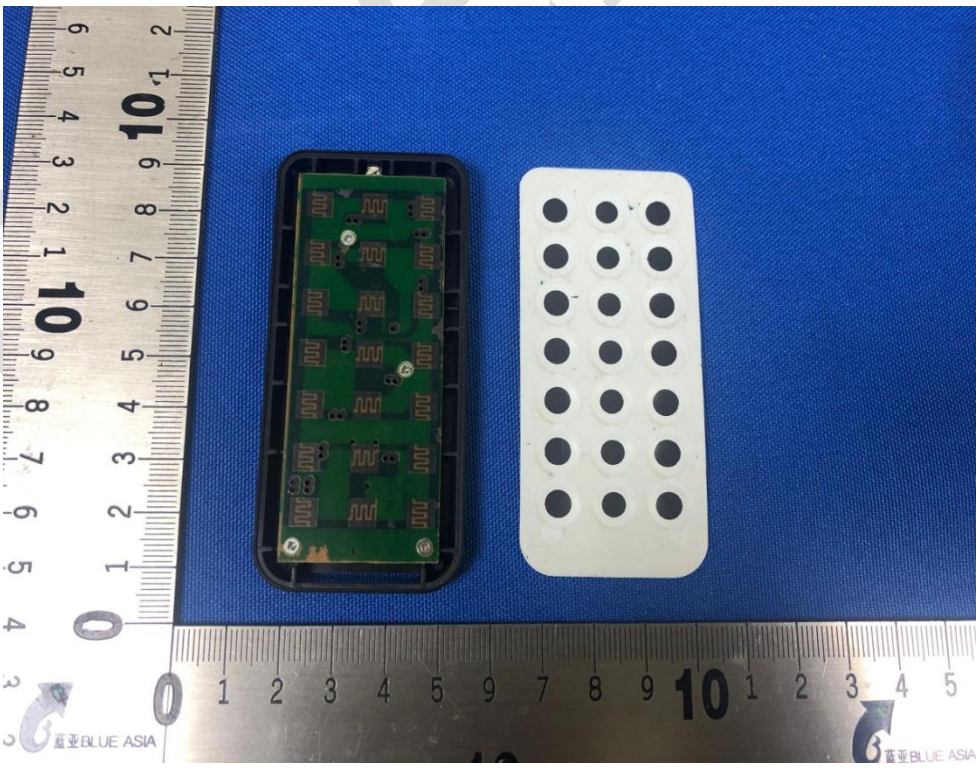

On
AUTO
Off
S+
M+
S-
M-

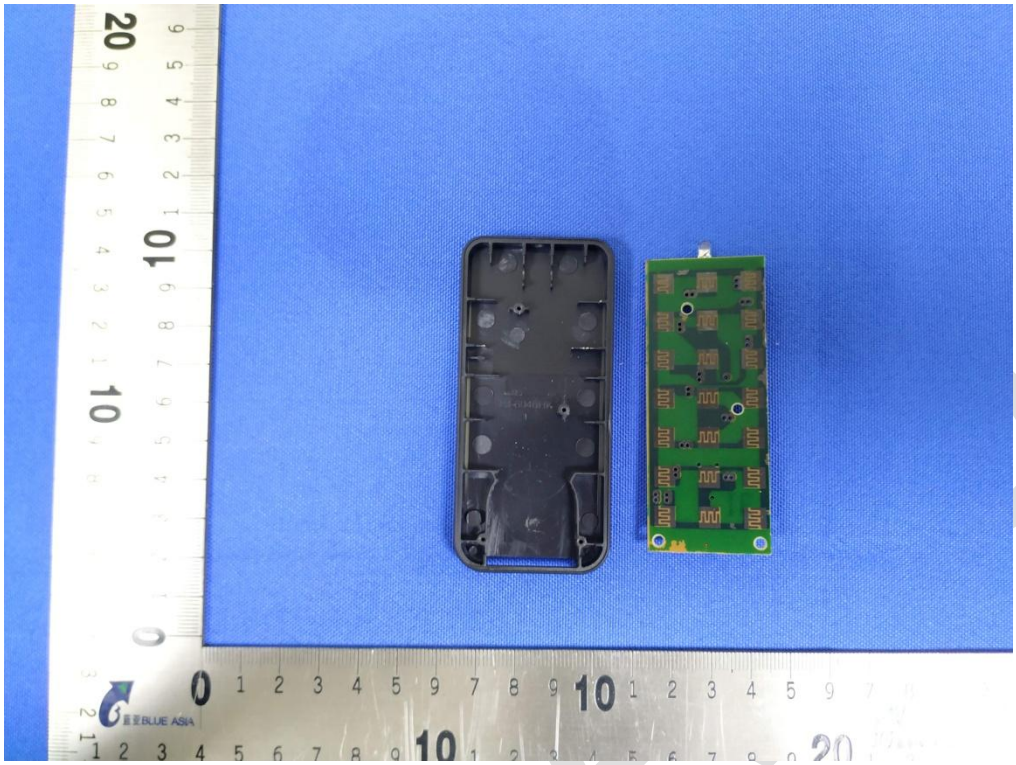

On
S-
S+
M-
M+
AUTO
Off

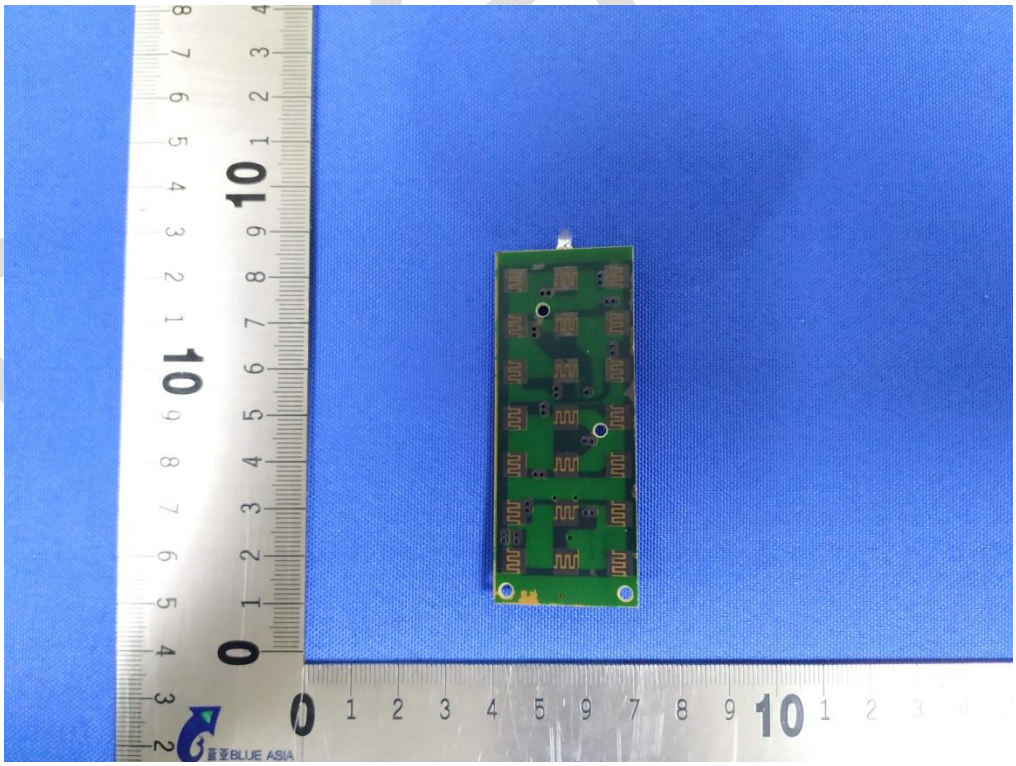

On
AUTO
Off
S+
M+
M-
S-

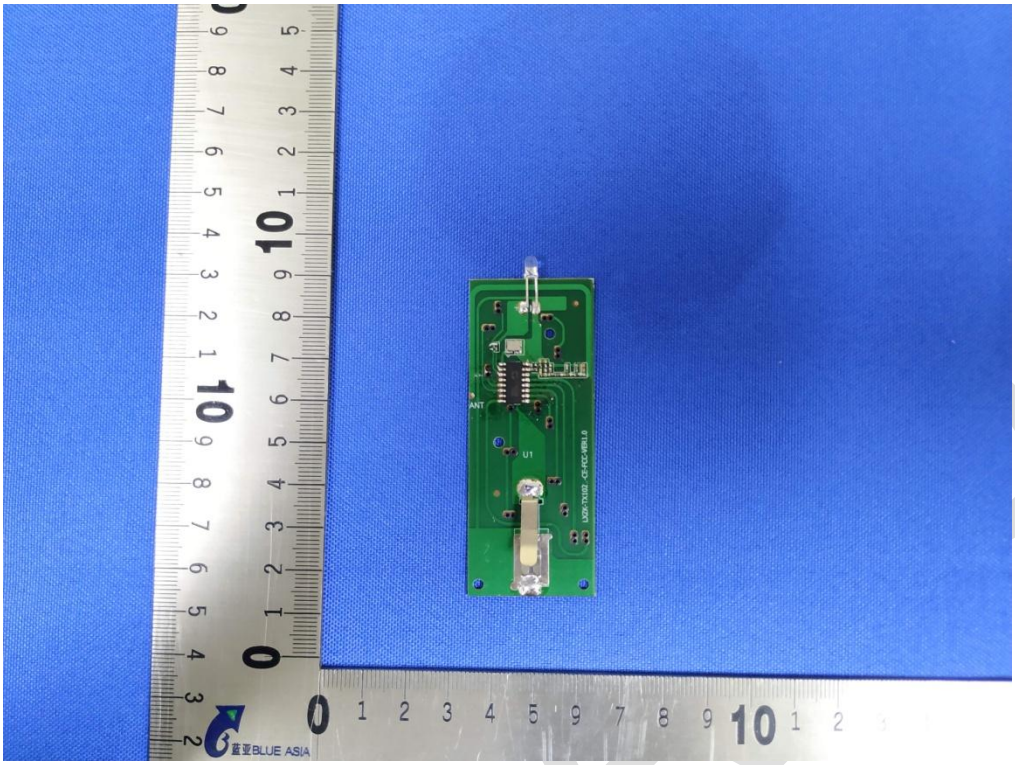

Off
AUTO
M+
M-
On
S+
S-

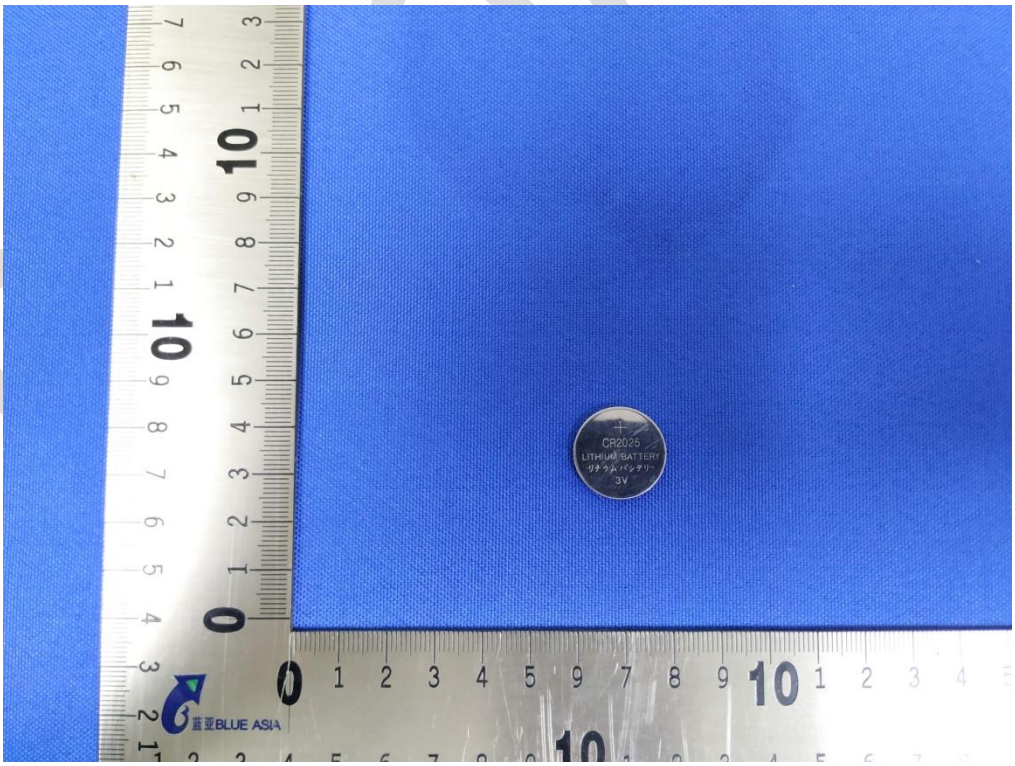
Interior photo

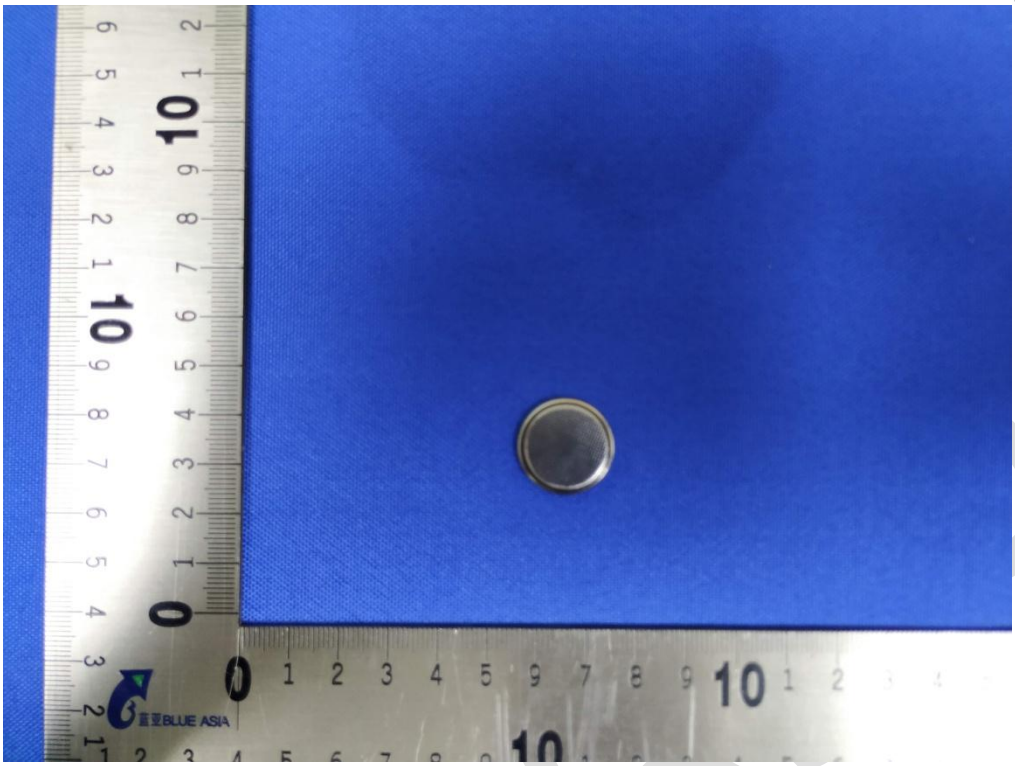









CR2025
LITHIUM BATTERY
3V



------End of report------