FCC Report (RFID)

Applicant:	KEYDIY HK TECH LIMITED
Address of Applicant:	Room1318-19, 13/F, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hong Kong
Manufacturer/Factory:	Shenzhen Ecartek Co., Ltd
Address of Manufacturer/Factory:	Room 201, Building A, 5#, Chuangwei Innovation Valley, Tangtou No.1 Road, Shiyan Subdistrict, Bao'an Shenzhen, China

Equipment Under Test (EUT)

Product Name:	Remote programmer KD-X2
Model No.:	KD-X2
Trade mark:	N/A
FCC ID:	2AJMY-KD-X2
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.209
Date of sample receipt:	May 8, 2018
Date of Test:	May 8, 2018-May 24, 2018
Date of report issued:	May 24, 2018
Test Result :	PASS *

*** In the configuration tested, the EUT complied with the standards specified above.**

Authorized Signature:

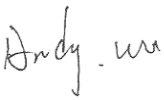
Robinson Lo
Laboratory Manager

Version

Version No.	Date	Description
00	*May 24, 2018*	*Original*

Prepared By:  ***Date:*** ***May 24, 2018***

Project Engineer

Check By:  ***Date:*** ***May 24, 2018***

Reviewer

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1. Test Certification

Product:	Remote programmer KD-X2
Model No.:	KD-X2
Additional Model No.:	N/A
Trade Mark:	N/A
Applicant:	KEYDIY HK TECH LIMITED
Address:	Room1318-19, 13/F, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hong Kong
Manufacturer:	Shenzhen Ecartek Co., Ltd
Address:	Room 201, Building A, 5#, Chuangwei Innovation Valley, Tangtou No.1 Road, Shiyan Subdistrict, Bao'an Shenzhen, China
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C

The above equipment has been tested by Global United Technology Services Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Spurious Emission	§15.209(a)(f)	PASS
Occupied Bandwidth	§15.215 (c)	PASS

Note:

1. PASS: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

3. EUT Description

Product:	Remote programmer KD-X2
Model No.:	KD-X2
Additional Model No.:	N/A
Trade Mark:	N/A
Number of Channel	2 channels
Operation Frequency:	125KHz, 134.2KHz
Modulation Technology:	PFM
Antenna Type:	Coil Antenna
Antenna Gain:	10dBi

4. Genera Information

4.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 98.46%) with Fully-charged battery.
The sample was placed (0.1m 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.	

4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	Certification
Notebook	ZQT	N/A	DOC

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

5. Facilities and Accreditations

5.1. Facilities

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

● Industry **Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016.

5.2. Location

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.3. Measurement Uncertainty

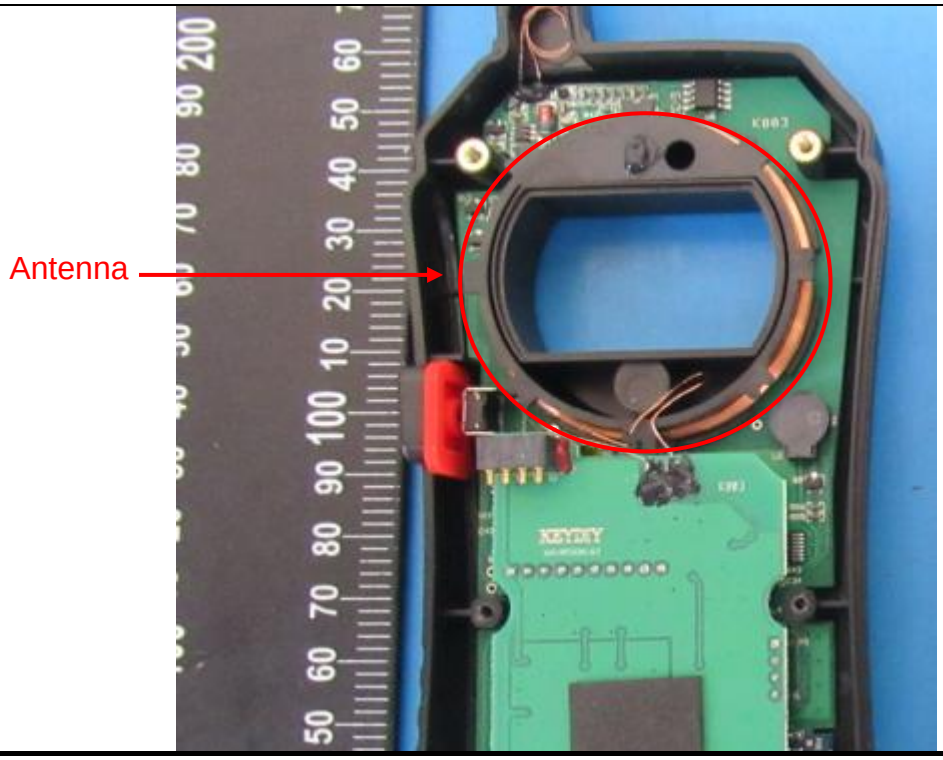
The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

6. Test Results and Measurement Data

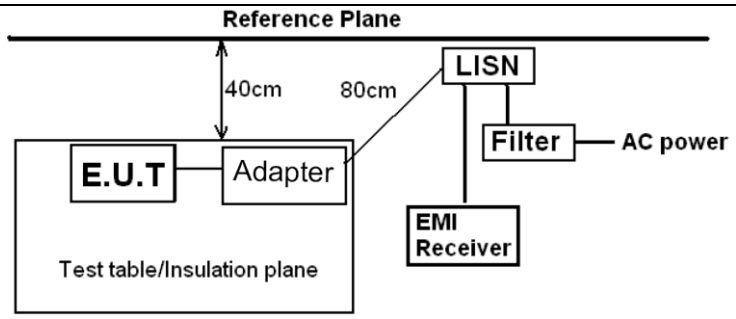
6.1. Antenna requirement

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 antenna is coil antenna which permanently attached, and the best case gain of the antenna is 10dBi.	



6.2. Conducted Emission

6.2.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Frequency Range:</td><td>150 kHz to 30 MHz</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9 kHz, VBW=30 kHz, Sweep time=auto</td></tr>
<tr><td>Limits:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
</td></tr>
<tr><td>Test Setup:</td><td> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test Mode:</td><td>Charging + Transmitting Mode</td></tr>
<tr><td>Test Procedure:</td><td>1. The E.U.T is connected to an adapter through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</td></tr>
<tr><td>Test Result:</td><td>PASS</td></tr>
</table>

6.2.2. Test Instruments

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.16 2014	May.15 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June 28 2017	June 27 2018
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June 28 2017	June 27 2018
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June 28 2017	June 27 2018
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June 28 2017	June 27 2018

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

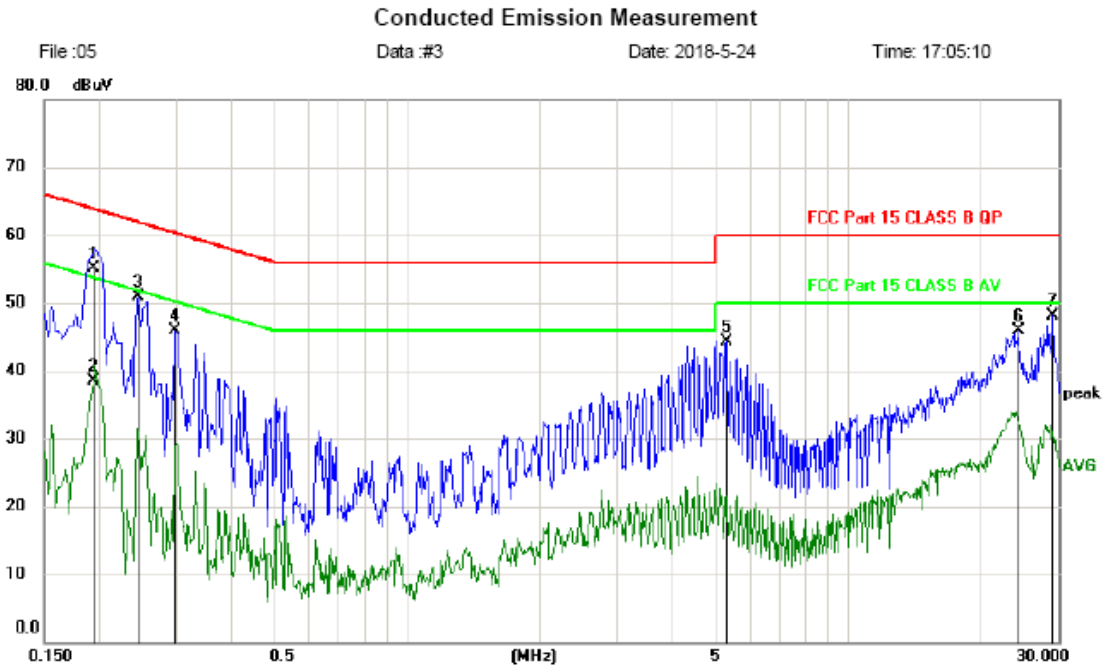
6.2.3. Test data

Please refer to following diagram for individual

Test Mode :	Working
Test Results :	**PASS**
Note:	The test results are listed in next pages. This mode is worst case mode, so this report only reflected the worst mode. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out. If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.

125KHz for work

Line:

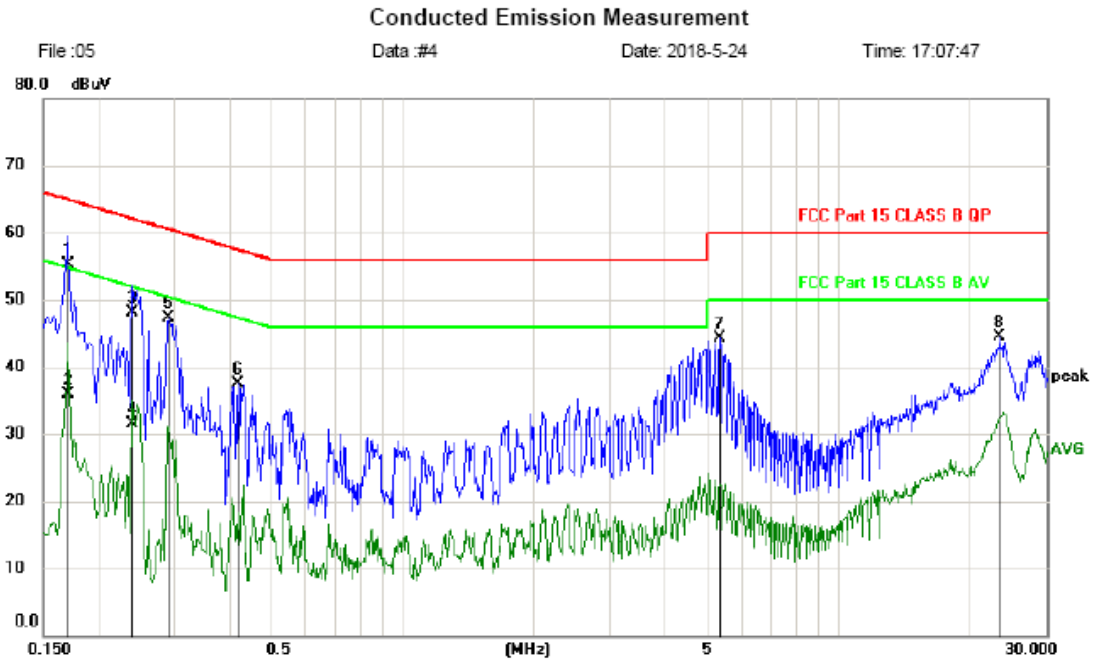


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1949	45.38	9.74	55.12	63.83	-8.71	QP	
2		0.1949	28.78	9.74	38.52	53.83	-15.31	AVG	
3		0.2460	41.13	9.76	50.89	61.89	-11.00	peak	
4		0.2970	36.22	9.76	45.98	60.33	-14.35	peak	
5		5.2890	34.07	10.20	44.27	60.00	-15.73	peak	
6		24.2939	35.07	10.74	45.81	60.00	-14.19	peak	
7		29.1840	36.87	11.14	48.01	60.00	-11.99	peak	

*:Maximum data x:Over limit !:over margin

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

Neutral:



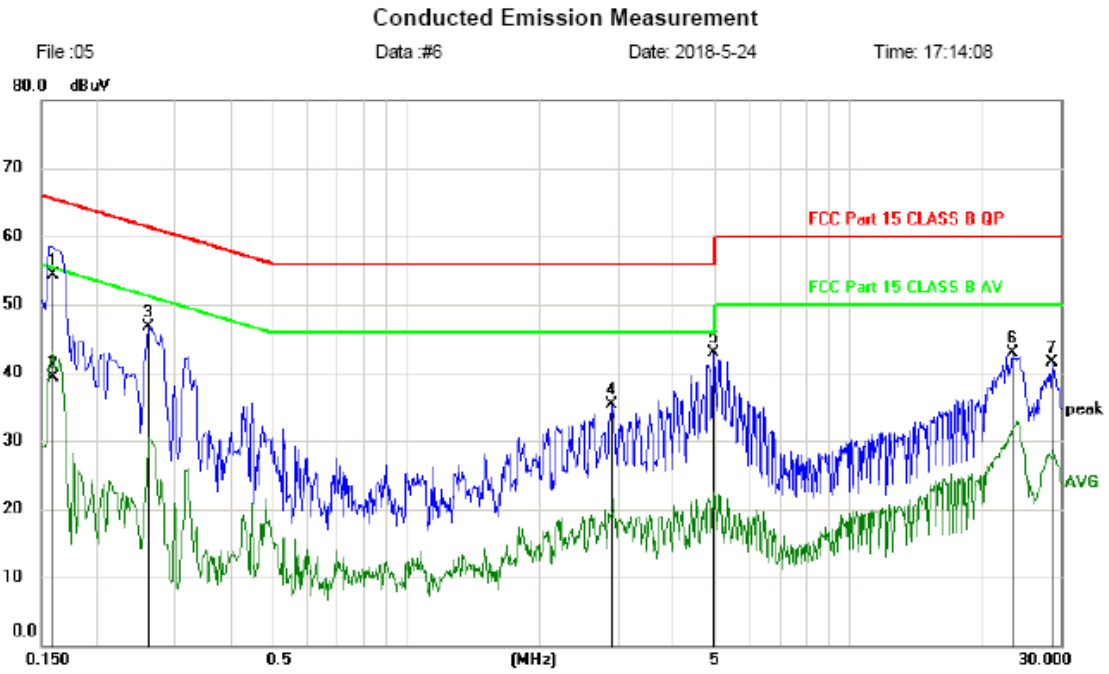
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1710	45.60	9.73	55.33	64.91	-9.58	QP	
2		0.1710	26.26	9.73	35.99	54.91	-18.92	AVG	
3		0.2400	38.39	9.75	48.14	62.10	-13.96	QP	
4		0.2400	21.79	9.75	31.54	52.10	-20.56	AVG	
5		0.2910	37.55	9.76	47.31	60.50	-13.19	peak	
6		0.4200	27.69	9.78	37.47	57.45	-19.98	peak	
7		5.3490	34.03	10.20	44.23	60.00	-15.77	peak	
8		23.4750	33.82	10.68	44.50	60.00	-15.50	peak	

*:Maximum data x:Over limit !:over margin

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

134.2*KHz for work*

Line:

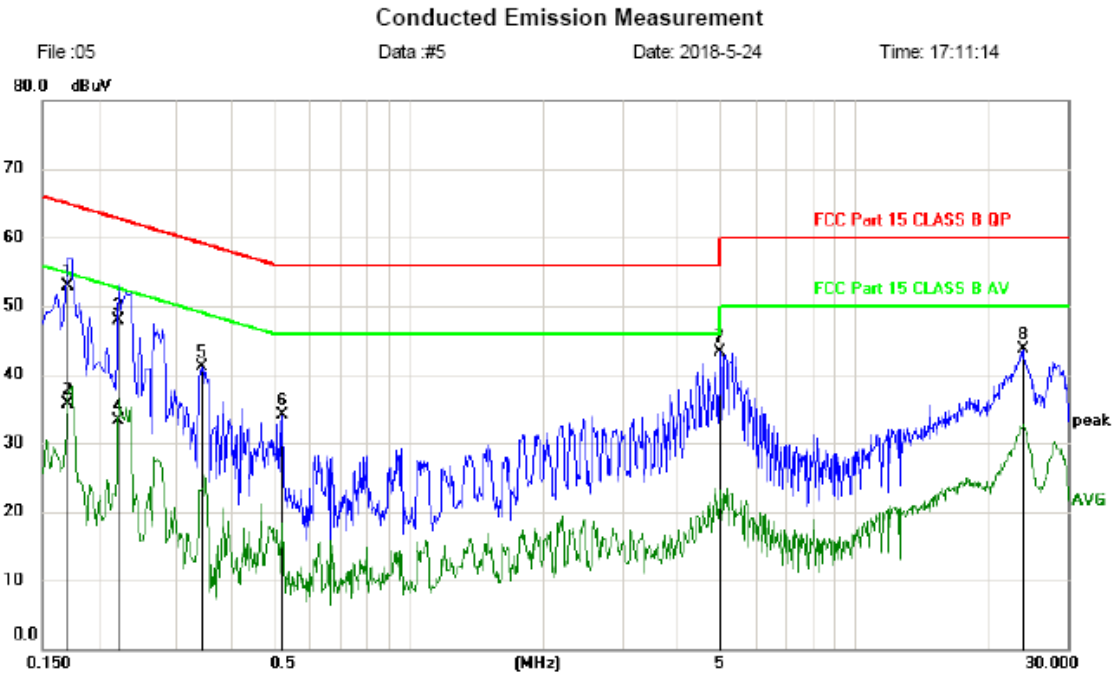


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1590	44.63	9.73	54.36	65.52	-11.16	QP	
2		0.1590	29.50	9.73	39.23	55.52	-16.29	AVG	
3		0.2610	36.91	9.76	46.67	61.40	-14.73	peak	
4		2.9070	25.30	10.03	35.33	56.00	-20.67	peak	
5		4.9260	32.63	10.19	42.82	56.00	-13.18	peak	
6		23.3520	32.17	10.68	42.85	60.00	-17.15	peak	
7		28.6950	30.42	11.08	41.50	60.00	-18.50	peak	

*:Maximum data x:Over limit !:over margin

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

Neutral:



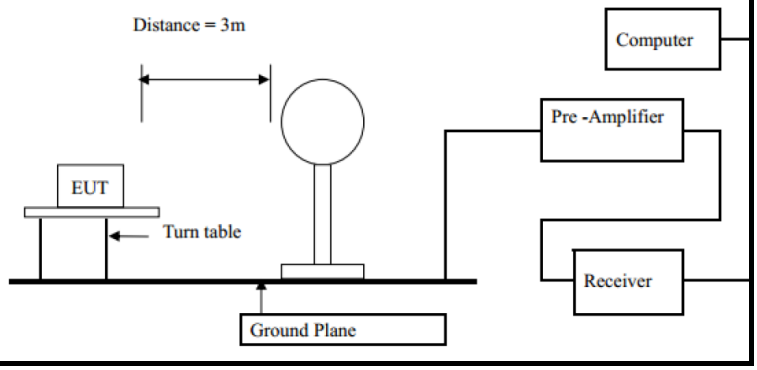
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1710	43.26	9.73	52.99	64.91	-11.92	QP	
2		0.1710	25.90	9.73	35.63	54.91	-19.28	AVG	
3		0.2220	38.25	9.75	48.00	62.74	-14.74	QP	
4		0.2220	23.48	9.75	33.23	52.74	-19.51	AVG	
5		0.3420	31.24	9.77	41.01	59.15	-18.14	peak	
6		0.5190	24.34	9.79	34.13	56.00	-21.87	peak	
7		4.9980	33.03	10.19	43.22	56.00	-12.78	peak	
8		23.7720	32.92	10.70	43.62	60.00	-16.38	peak	

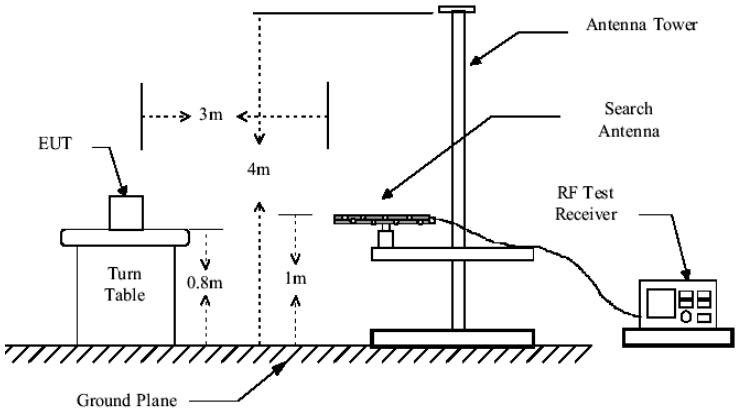
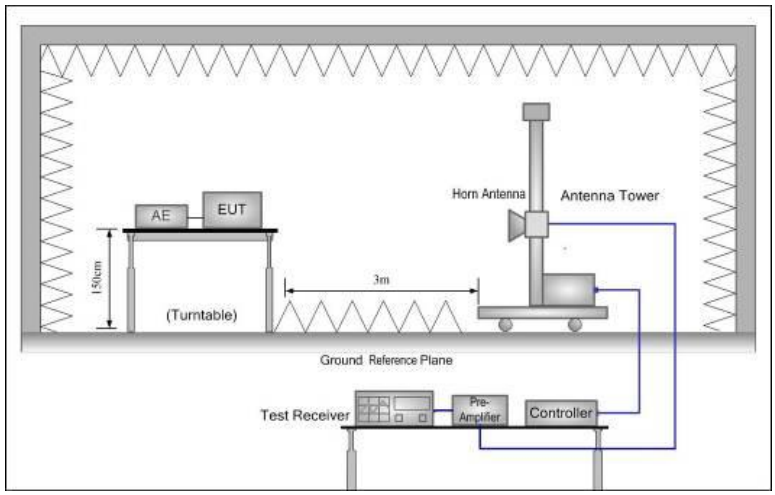
*:Maximum data x:Over limit !:over margin

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

6.3. Radiated Spurious Emission Measurement

6.3.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013</td></tr>
<tr><td>Frequency Range:</td><td>9 kHz to 25 GHz</td></tr>
<tr><td>Measurement Distance:</td><td>3 m</td></tr>
<tr><td>Antenna Polarization:</td><td>Horizontal & Vertical</td></tr>
<tr><td>Operation mode:</td><td>Refer to item 4.1</td></tr>
<tr><td>Receiver Setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>9kHz- 150kHz</td><td>Quasi-peak</td><td>200Hz</td><td>1kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>150kHz-30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency</td><td>Field Strength (microvolts/meter)</td><td>Measurement Distance (meters)</td></tr>
<tr><td>0.009-0.490</td><td>2400/F(KHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(KHz)</td><td>30</td></tr>
<tr><td>1.705-30</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
<table>
<tr><td>Frequency</td><td>Field Strength (microvolts/meter)</td><td>Measurement Distance (meters)</td><td>Detector</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>500</td><td>3</td><td>Average</td></tr>
<tr><td>5000</td><td>3</td><td>Peak</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td>For radiated emissions below 30MHz
 
</td></tr>
</table>

	30MHz to 1GHz  Above 1GHz 
Test Procedure:	1. For the radiated emission test below 1GHz: The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. 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. For the radiated emission test above 1GHz: Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna

	may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. 2. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 3. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 4. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for f 1 GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test mode:	Refer to section 4.1 for details
Test results:	PASS

6.3.2. Test Instruments

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June 28 2017	June 27 2018
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June 28 2017	June 27 2018
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June 28 2017	June 27 2018
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 28 2017	June 27 2018
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	June 28 2017	June 27 2018
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	GTS	N/A	GTS213	June 28 2017	June 27 2018
10	Coaxial Cable	GTS	N/A	GTS211	June 28 2017	June 27 2018
11	Coaxial cable	GTS	N/A	GTS210	June 28 2017	June 27 2018
12	Coaxial Cable	GTS	N/A	GTS212	June 28 2017	June 27 2018
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June 28 2017	June 27 2018
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June 28 2017	June 27 2018
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 28 2017	June 27 2018
16	Band filter	Amindeon	82346	GTS219	June 28 2017	June 27 2018

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.3.3. Test Data

Please refer to following diagram for individual

Frequency Range	:	9KHz~30MHz
Test Mode	:	TX 125.0KHz
Test Results	:	**PASS**

Note: 1. The test results are listed in next pages.

2. This mode is worst case mode, so this report only reflected the worst mode.

3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the quasi-peak detector need not be carried out.

Freq.	Reading	Antenna Factor	Cable loss	Amp Factor	Result	Limit	Margin	Detector	State
(MHz)	(dBuV/m)	dB/m	dB	dB	(dBuV/m)	(dBuV/m) at 3 m	(dB)		P/F
0.11	46.07	48.34	0.16	29.87	64.70	126.77	-62.07	PK	PASS
0.11	44.72	48.34	0.16	29.87	63.35	106.77	-43.42	AV	PASS
0.125	82.11	48.34	0.16	29.87	100.74	122.95	-22.21	PK	PASS
0.125	69.53	48.34	0.16	29.87	88.16	102.95	-14.79	AV	PASS
0.21	47.96	48.38	0.17	29.89	66.62	120.76	-54.14	PK	PASS
0.21	46.45	48.38	0.17	29.89	65.11	100.76	-35.65	AV	PASS
0.35	45.63	48.44	0.19	29.89	64.37	117.78	-53.41	PK	PASS
0.35	44.51	48.44	0.19	29.89	63.25	97.78	-34.53	AV	PASS
0.45	48.49	48.47	0.19	29.89	67.26	115.35	-48.09	PK	PASS
0.45	44.77	48.47	0.19	29.89	63.54	95.35	-31.81	AV	PASS
1.928	26.43	49.12	0.2	29.94	45.81	70	-24.19	QP	PASS
1.920	25.20	49.12	0.2	29.94	44.58	50	-5.42	AV	PASS

Frequency Range	:	9KHz~30MHz
Test Mode	:	TX 134.2KHz
Test Results	:	**PASS**

Note: 1. The test results are listed in next pages.

2. This mode is worst case mode, so this report only reflected the worst mode.

3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the quasi-peak detector need not be carried out.

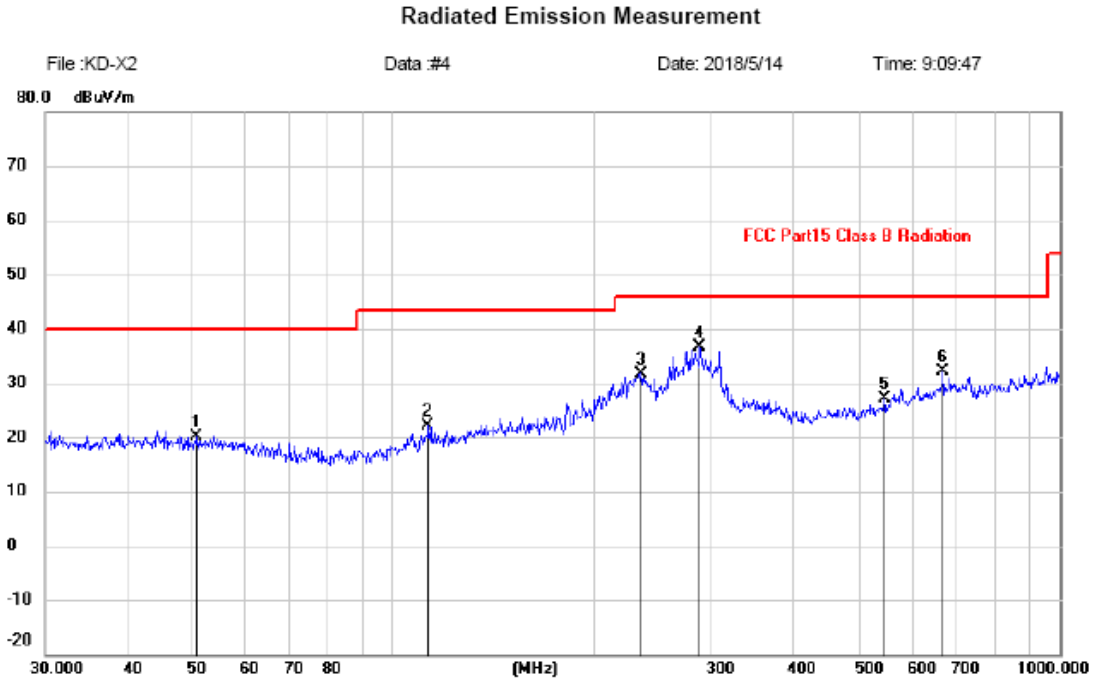
Freq.	Reading	Antenna Factor	Cable loss	Amp Factor	Result	Limit	Margin	Detector	State
(MHz)	(dBuV/m)	dB/m	dB	dB	(dBuV/m)	(dBuV/m) at 3 m	(dB)		P/F
0.11	45.70	48.34	0.16	29.87	64.33	126.77	-62.44	PK	PASS
0.11	44.72	48.34	0.16	29.87	63.35	106.77	-43.42	AV	PASS
0.1342	81.44	48.34	0.16	29.87	100.07	122.95	-22.88	PK	PASS
0.1342	69.12	48.34	0.16	29.87	87.75	102.95	-15.20	AV	PASS
0.21	48.32	48.38	0.17	29.89	66.98	120.76	-53.78	PK	PASS
0.21	46.57	48.38	0.17	29.89	65.23	100.76	-35.53	AV	PASS
0.35	46.39	48.44	0.19	29.89	65.13	117.78	-52.65	PK	PASS
0.35	44.37	48.44	0.19	29.89	63.11	97.78	-34.67	AV	PASS
0.45	48.03	48.47	0.19	29.89	66.80	115.35	-48.55	PK	PASS
0.45	45.02	48.47	0.19	29.89	63.79	95.35	-31.56	AV	PASS
1.928	26.19	49.12	0.2	29.94	45.57	70	-24.43	QP	PASS
1.920	24.87	49.12	0.2	29.94	44.25	50	-5.75	AV	PASS

Frequency Range	:	30MHz~1000MHz
Test Mode	:	Working(125KHz, 134.2KHz)
Test Results	:	**PASS**
Note:	1. The test results are listed in next pages. 2. This mode is worst case mode, so this report only reflected the worst mode. 3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the quasi-peak detector need not be carried out.	

Frequency Range	:	Above 1GHz			
EUT	:	/	Test Date	:	/
M/N	:	/	Temperature	:	/
Test Engineer	:	/	Humidity	:	/
Test Mode	:	/			
Test Results	:	N/A			
Note:	1. The highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. So the frequency rang above 1GHz radiation test not applicable.				

30MHz-1GHz for 125KHz work

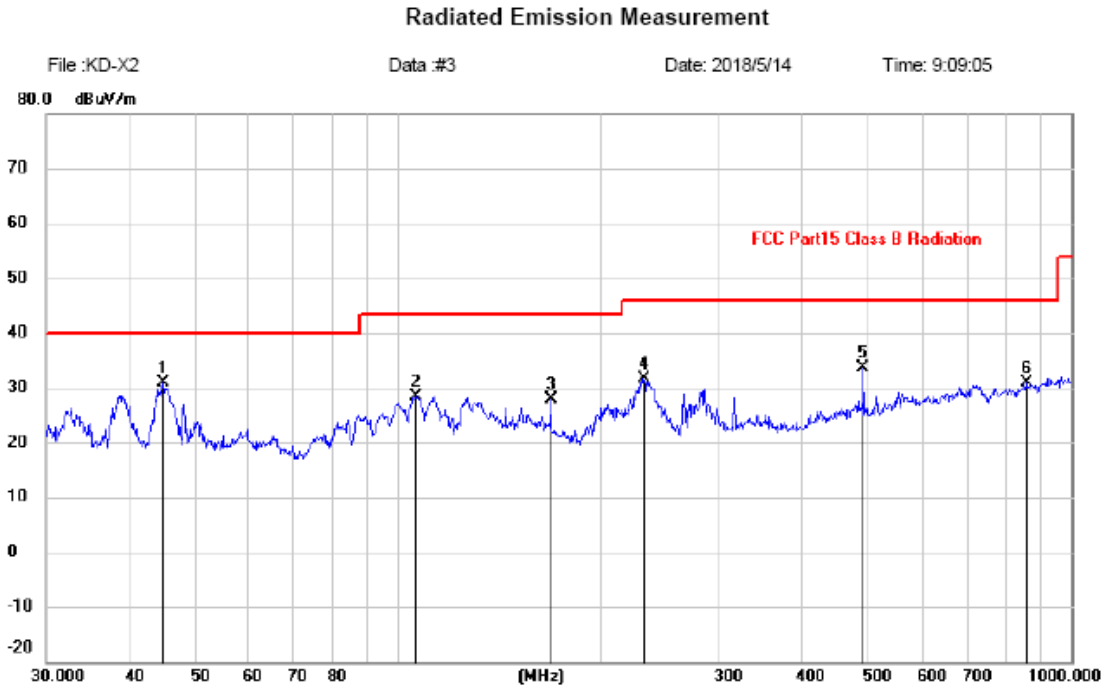
Horizontal:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		50.7637	6.57	13.65	20.22	40.00	-19.78	peak			
2		112.5244	10.45	11.78	22.23	43.50	-21.27	peak			
3		234.1684	19.88	11.87	31.75	46.00	-14.25	peak			
4	*	287.9904	23.48	13.09	36.57	46.00	-9.43	peak			
5		547.0977	8.87	18.16	27.03	46.00	-18.97	peak			
6		670.4893	11.66	20.51	32.17	46.00	-13.83	peak			

Note:1. *:Maximum data; x:Over limit; !:over margin.
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

Vertical:

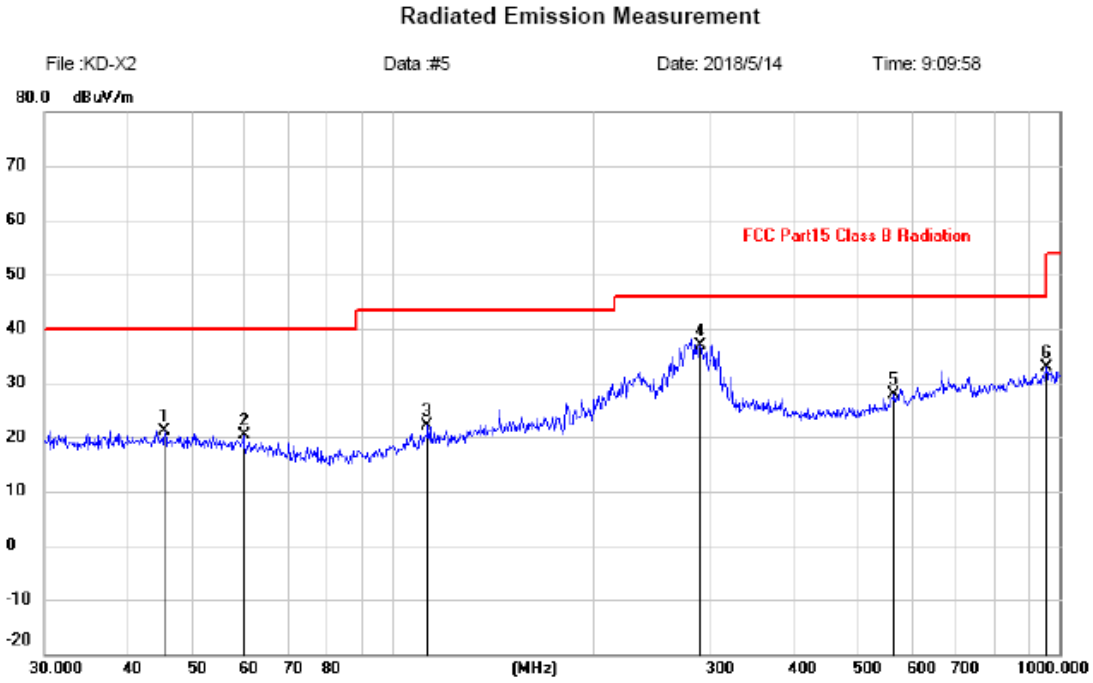


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	44.7433	17.22	13.74	30.96	40.00	-9.04	peak			
2		106.0126	17.28	11.15	28.43	43.50	-15.07	peak			
3		169.0054	14.13	13.85	27.98	43.50	-15.52	peak			
4		231.7179	19.70	11.82	31.52	46.00	-14.48	peak			
5		490.7447	16.28	17.39	33.67	46.00	-12.33	peak			
6		860.0352	8.45	22.46	30.91	46.00	-15.09	peak			

Note:1. *:Maximum data; x:Over limit; !:over margin.
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

30MHz-1GHz for 134.2KHz work

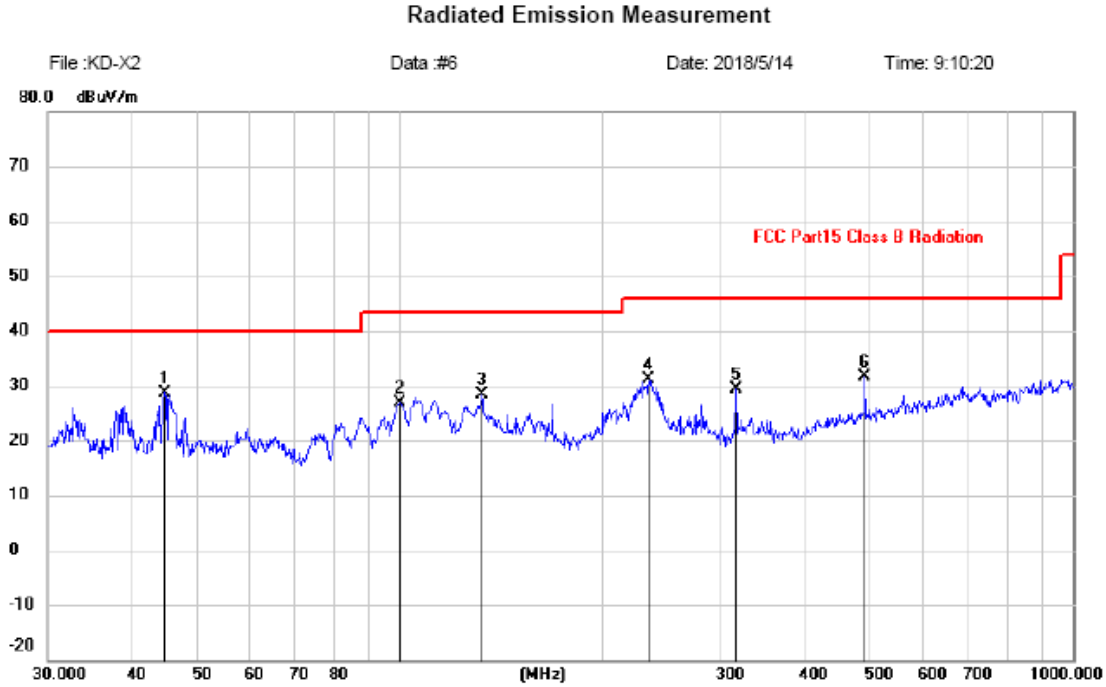
Horizontal:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		45.3755	7.41	13.69	21.10	40.00	-18.90	peak			
2		59.6493	7.27	13.02	20.29	40.00	-19.71	peak			
3		112.5244	10.45	11.78	22.23	43.50	-21.27	peak			
4	*	289.0021	23.80	13.11	36.91	46.00	-9.09	peak			
5		566.6223	8.85	18.95	27.80	46.00	-18.20	peak			
6		955.4381	9.15	23.72	32.87	46.00	-13.13	peak			

Note:1. *:Maximum data; x:Over limit; !:over margin.
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

Vertical:



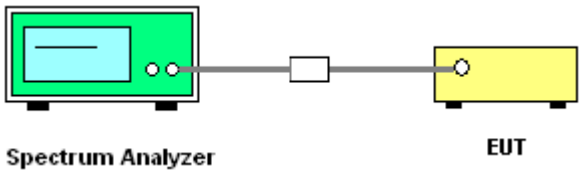
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	44.7433	15.01	13.74	28.75	40.00	-11.25	peak			
2		99.8777	16.22	10.60	26.82	43.50	-16.68	peak			
3		132.2206	14.95	13.36	28.31	43.50	-15.19	peak			
4		234.1684	19.28	11.87	31.15	46.00	-14.85	peak			
5		316.5890	15.65	13.79	29.44	46.00	-16.56	peak			
6		490.7447	14.35	17.39	31.74	46.00	-14.26	peak			

Note:1. *:Maximum data; x:Over limit; !:over margin.
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

Note:

Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6.3.4. Test Specification

Test Requirement:	FCC Part15 C Section 15.215(c)
Test Method:	ANSI C63.10: 2013
Limit:	N/A
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW≥ 1% of the 20 dB bandwidth; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold. 4. Measure and record the results in the test report.
Test setup:	
Test Mode:	Refer to section 4.1 for details
Test results:	PASS

6.3.5. Test Instruments

RF Test Room						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Spectrum Analyzer	Agilent	E4440A	GTS533	June 28 2017	June 27 2018

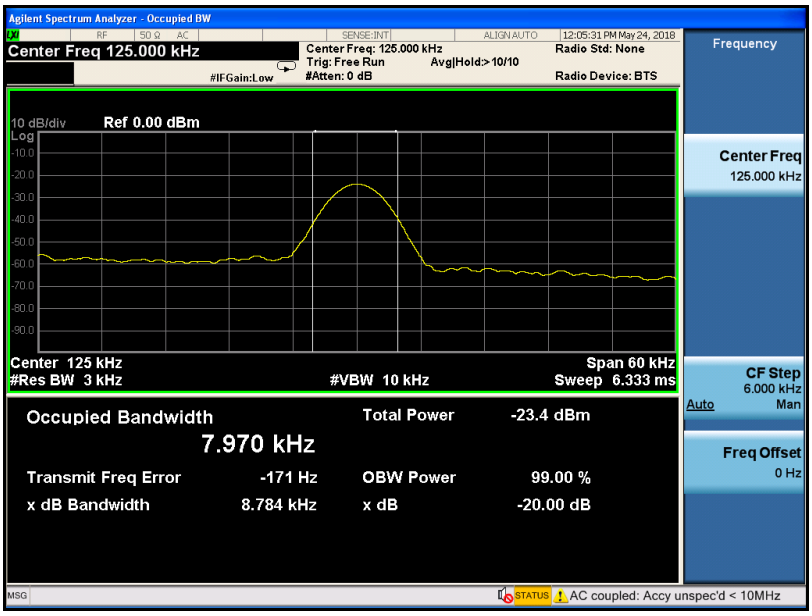
Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.3.6. Test data

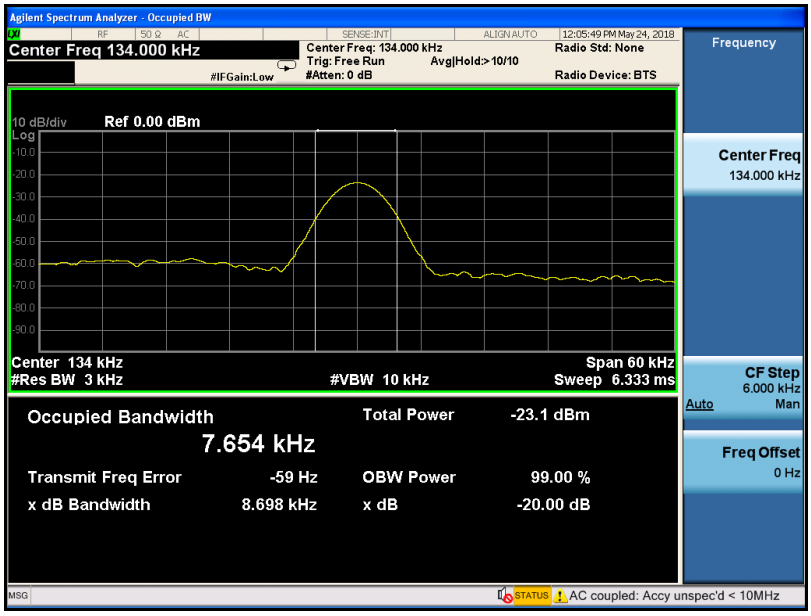
Frequency(KHz)	20dB Occupy Bandwidth (kHz)	Limit (kHz)	Conclusion
125.0	8.784	---	PASS
134.2	8.698	---	PASS

Test plots as follows:

Channel 125.0KHz

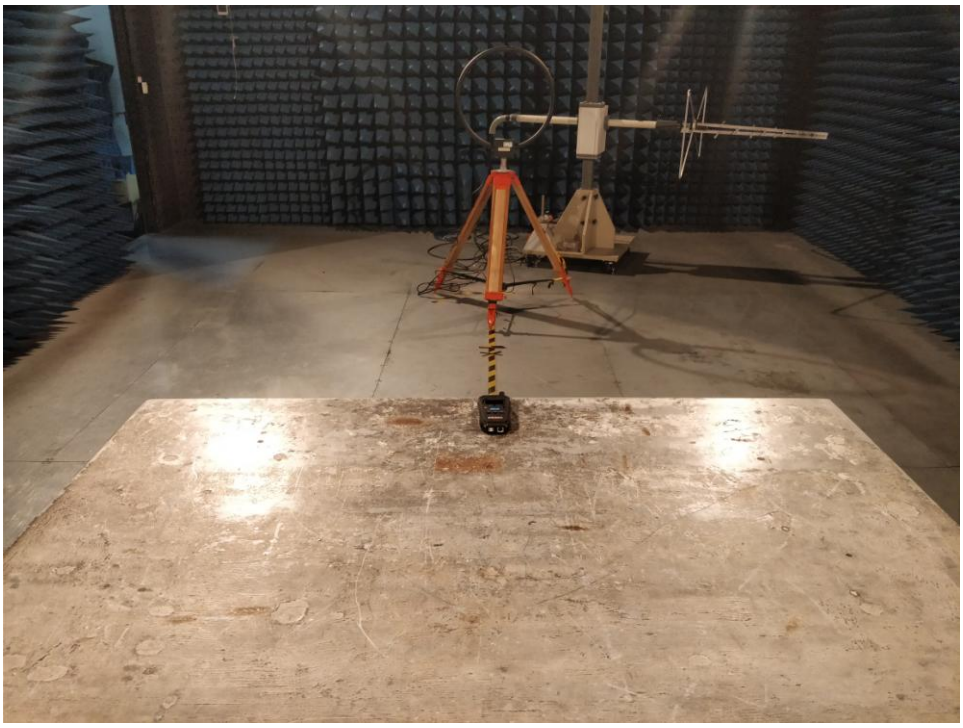


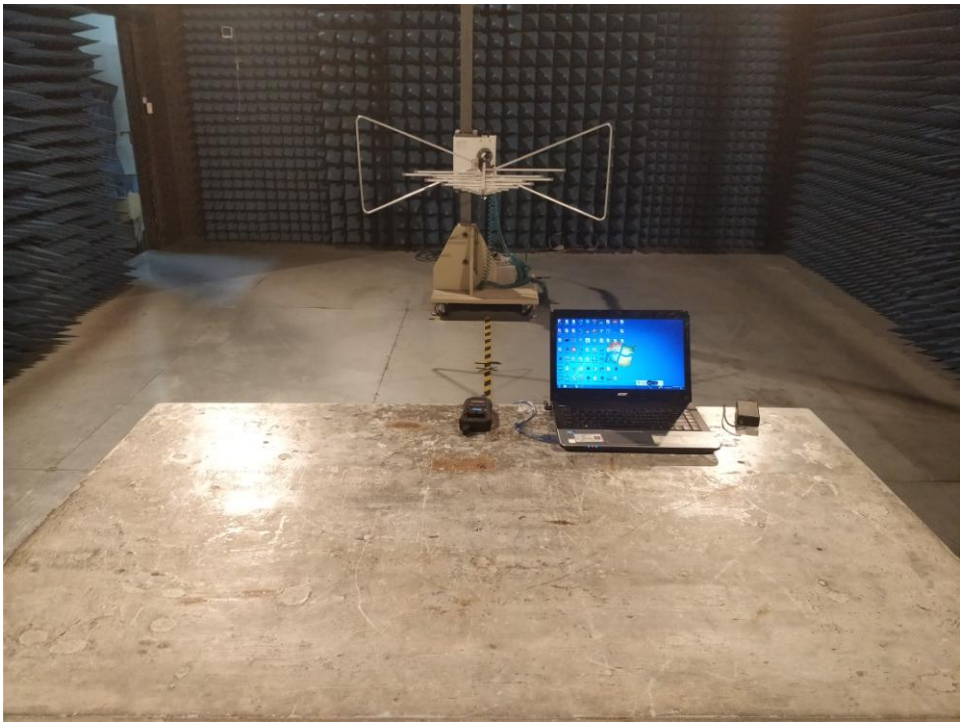
Channel 134.2KHz



Appendix A: Photographs of Test Setup

Radiated Emission





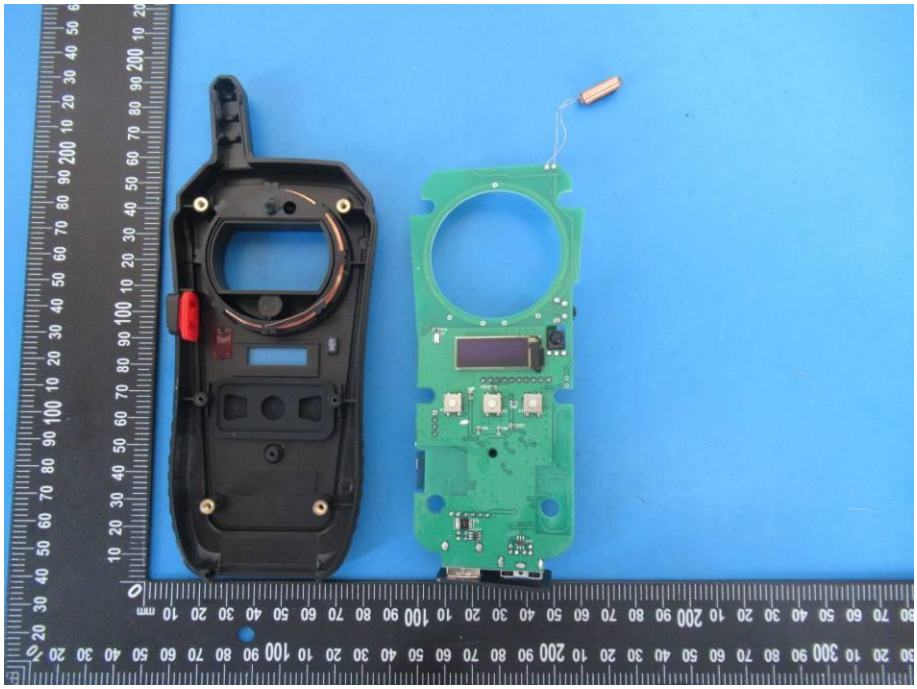
Conducted Emission

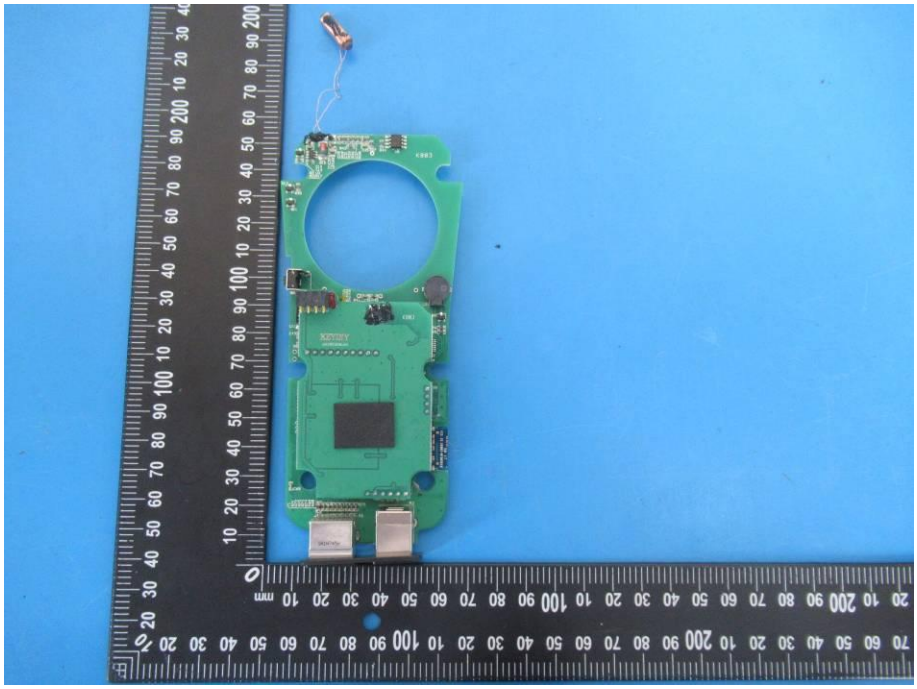
Appendix B: Photographs of EUT

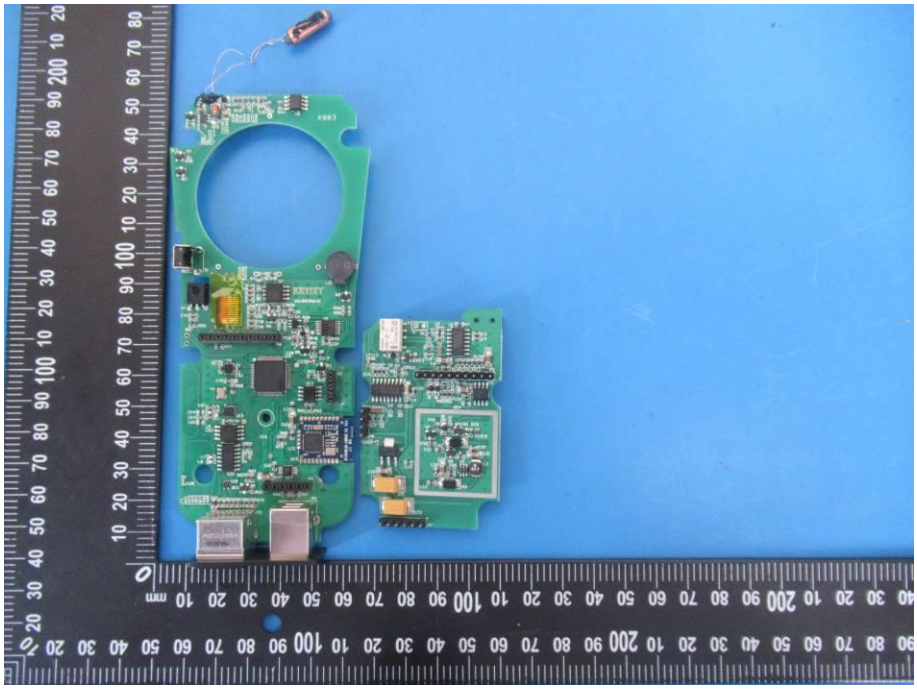
External Photos

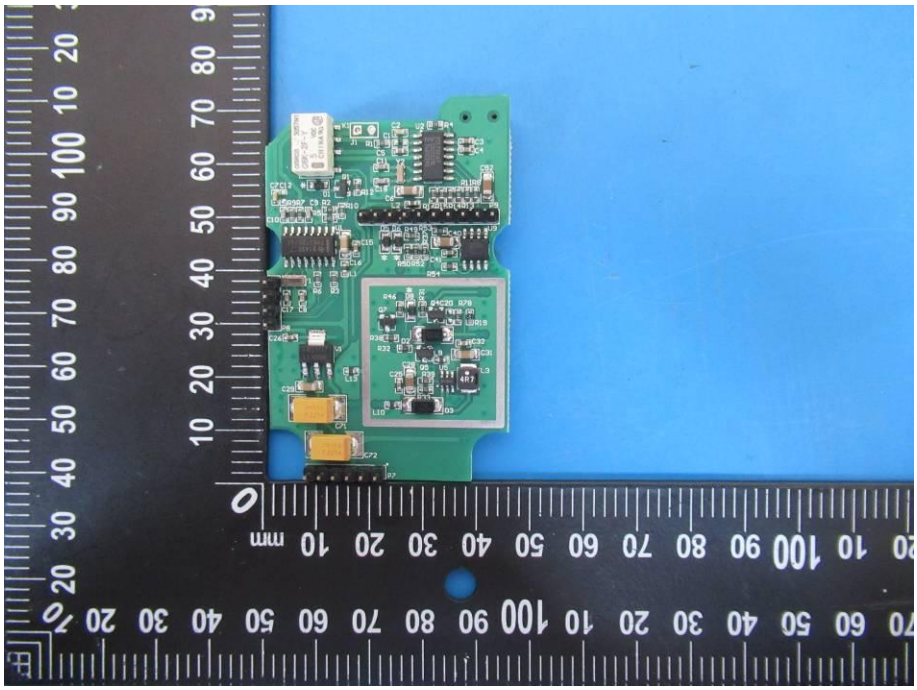

KEYDIY

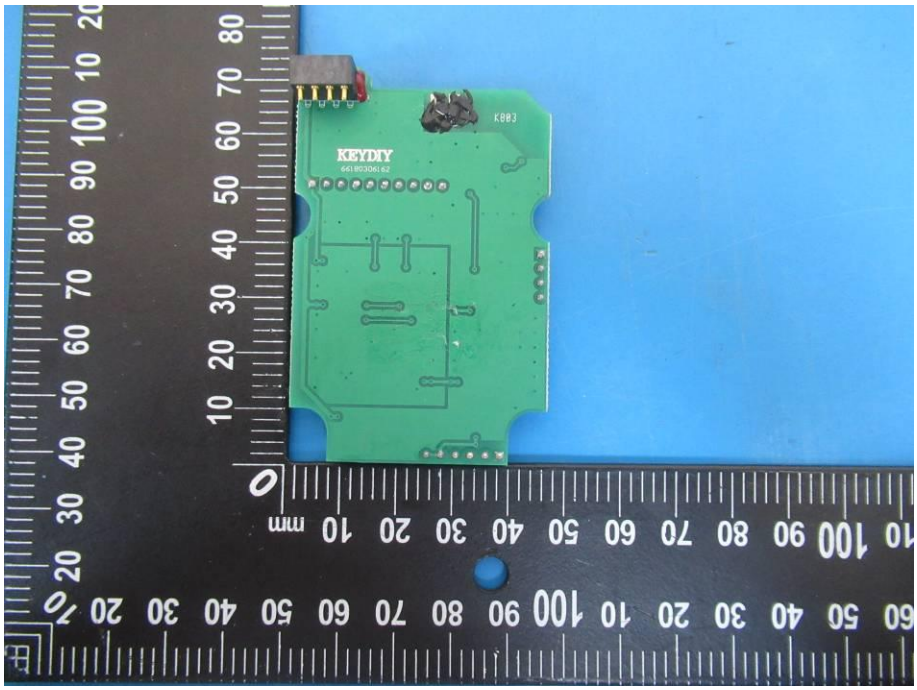
Internal Photos

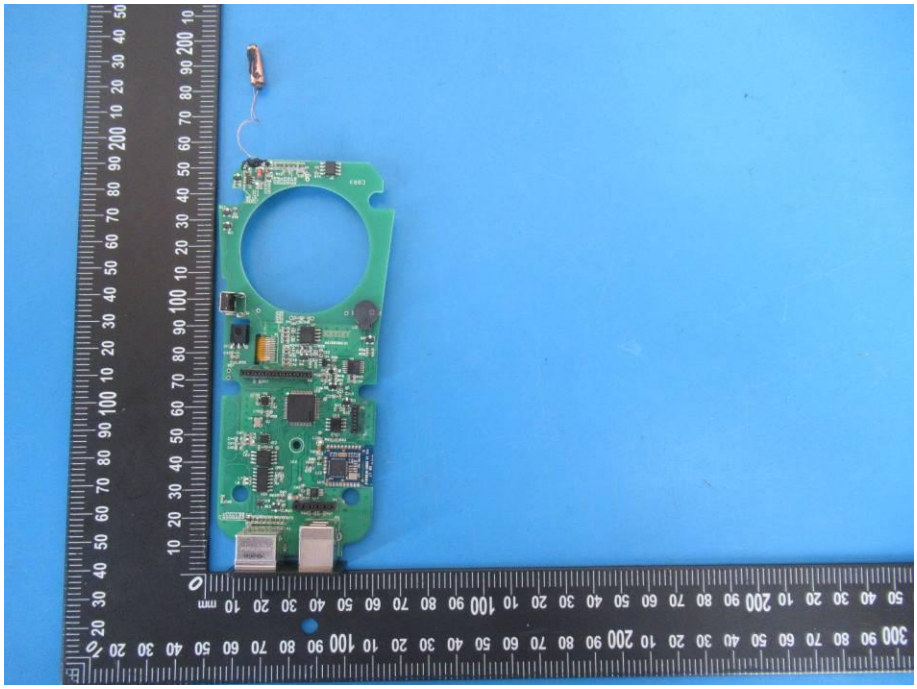


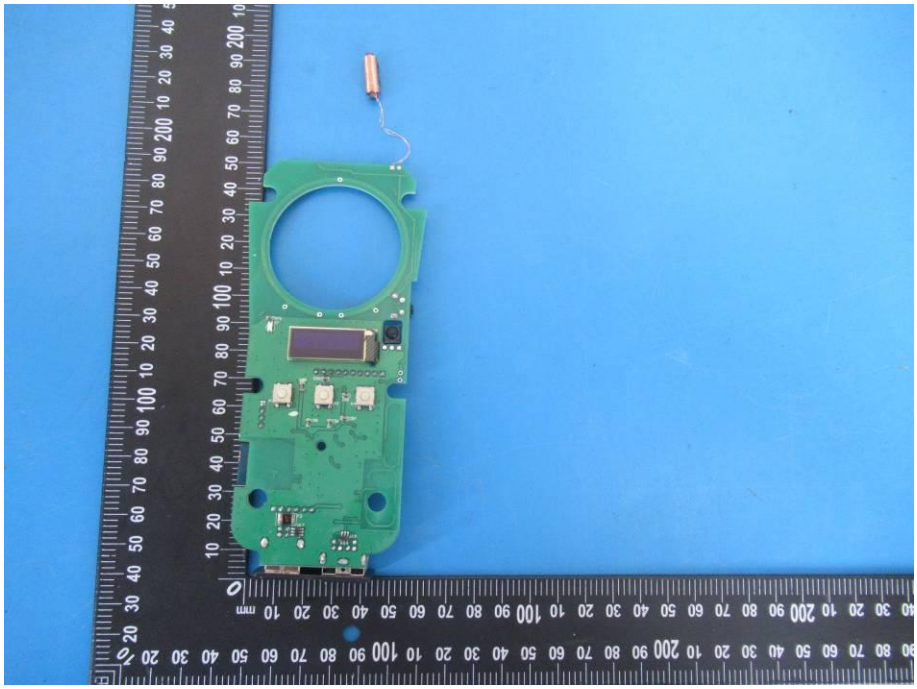







KEYDIY





********END OF REPORT********