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CERTIFICATE of CONFORMITY

DATE OF ISSUE：March 29, 2022

Certificate No.: KTi220322E014C

Applicant	:	**Dongguan Deruichen Electronics Co., Ltd.**
Address	:	**Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan, Guangdong, China**
Product	:	**ALCOHOL DETECTOR**
Model No.	:	**C06, C07, C8, C9, C11, C22, C33, C66, C99**
Trademark	:	**N/A**

The submitted sample of the above products has been tested according with standards used for showing compliance with the essential requirements in the specified European Directives:

Electromagnetic Compatibility 2014/30/EU

Test Standard	:	**EN 61326-1:2013** **EN 61326-2-2:2013**
Test Report No.	:	**KTi220322E014**

The applicant of the certificate is authorized to use this certificate in connection with EU declaration of conformity to the Directive. The certificate is only applicable to the equipments described above.

Certified by:

Manager

SHENZHEN KAIXU TESTING TECHNOLOGY CO., LTD

SHENZHEN KAIXU TESTING TECHNOLOGY CO., LTD
ROOM 316, 3RD FLOOR, BUILDING A, JINBOLONG INDUSTRIAL PARK, LONGHUA STREET, LONGHUA DISTRICT, SHENZHEN
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EMC TEST REPORT

For

ALCOHOL DETECTOR

Model No.: C06, C07, C8, C9, C11, C22, C33, C66, C99

Prepared for	:	Dongguan Deruichen Electronics Co., Ltd.
Address	:	Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan,Guangdong, China

Prepared By	:	Shenzhen KAIXU Testing Technology Co., Ltd
Address	:	Room 316, 3rd Floor, Building A, Jinbolong Industrial Park, Longhua Street, Longhua District, Shenzhen

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Report Number	:	KTi220322E014
Date of Receipt	:	March 22, 2022
Date of Test	:	March 22-March 28, 2022
Date of Report	:	March 29, 2022

Table of Contents

Test Result Certification

Applicant's name:	Dongguan Deruichen Electronics Co., Ltd.
Address:	Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan, Guangdong,China
Manufacture's Name:	Dongguan Deruichen Electronics Co., Ltd.
Address:	Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan, Guangdong,China
Product name:	ALCOHOL DETECTOR
Model name:	C06, C07, C8, C9, C11, C22, C33, C66, C99
Trademark:	/
Standards:	EN 61326-1:2013 EN 61326-2-2:2013

This device described above has been tested by Shenzhen KAIXU Testing Technology Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the EMC requirements. And it is applicable only to the tested sample identified in the report.

Tested by:	Eric Zhang	
	Eric Zhang	March 29, 2022
Reviewed by:	Terry Huang	
	Terry Huang	March 29, 2022
Approved by:	Store Chu	
	Store Chu	March 29, 2022

SHENZHEN KAIXU TESTING TECHNOLOGY CO., LTD
KTi
APPROVAL

1 General Description

1.1 Description of EUT

Product name:	ALCOHOL DETECTOR
Model name:	C06
Series Model:	C07, C8, C9, C11, C22, C33, C66, C99
Different of series model:	Only the model name is different
Power supply:	DC 5V From USB or DC 3.7V From Battery
Adapter information:	N/A

1.2 Test mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test mode	Description
Mode 1	Charging+Working
Mode 2	Working
Mode 3	Charging
Note: The test modes were carried out for all operation modes. The final test mode of the EUT was the worst test mode for EMI, and its test data is showed.	

1.3 Test setup

See photographs of the test setup in the report for the actual setup and connections between EUT and support equipment.

1.4 Ancillary equipment

Equipment	Model	S/N	Manufacturer
Adapter	/	/	/

2 Summary of Test Result

No.	Test Standard	Description of Test	Result	Remark
Emission				
1	EN 61326-1: 2013	Conducted emission	Pass	
2		Radiated emission	Pass	
3	EN IEC 61000-3-2:2019/A1:2021	Harmonic current emission	N/A	
4	EN 61000-3-3:2013+A1:2019	Voltage fluctuations &flicker	N/A	
Immunity				
1	EN 61326-2-2: 2013	Electrostatic discharges (ESD)	Pass	
2		Radiated electromagnetic field disturbances (RS)	Pass	
3		Conducted disturbances (CS)	N/A	
4		Power frequency magnetic field	N/A	
5		Electrical fast transients/burst (EFT/S)	N/A	
6		Surges	N/A	
7		Voltage dips and interruptions	N/A	
8		Broadband Impulse noise disturbances repetitive	N/A	
9		Broadband Impulse noise disturbances isolated	N/A	
N/A: Mean not applicable.				

3 Test Facilities and Accreditations

3.1 Test laboratory

Test Site	Shenzhen KAIXU Testing Technology Co., Ltd
Test Site Location	Room 316, 3rd Floor, Building A, Jinbolong Industrial Park, Longhua Street, Longhua District, Shenzhen
Telephone:	(86-755)-85254458
Fax:	(86-755)-85254458
CNAS Registration No.:	/

3.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	20ºC~30ºC
Humidity	30%~70% (30%~60% for ESD)
Atmospheric pressure	98kPa~101kPa

3.3 Measurement uncertainty

Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(y)

Conducted emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	±1 degree
Humidity	± 5 %

3.4 Test software

Software name	Manufacturer	Model	Version
EMI Measurement Software	Farad	EZ-EMC	V1.1.4.2
Conducted immunity test system	Scholder	EN61000-4-6.exe	V1.3.0
Harmonics and flicker test system	TTI	HA-PC Link	V2.02
DIPS Test Firmware	Prima	DRP61011AG	V4.1.2
EFT Test Firmware	HTEC	HCOMPACT	V1.0.1
Surge Test Firmware	HTEC+	HCOMPACT	V1.0.1

4 List of test equipment

Radiation emission							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	MTI-E004	Rohde&schwarz	ESPI	1000314	2021/10/16	2022/10/15
2	Broadband antenna	MTI-E006	schwarabeck	VULB9163	872	2021/10/16	2022/10/15
3	Horn antenna	MTI-E007	schwarabeck	BBHA9120D	1201	2021/10/16	2022/10/15
4	amplifier	MTI-E014	America	8447D	3113A06150	2021/10/16	2022/10/15
5	amplifier	MTI-E034	Agilent	8449B	3008A02400	2021/10/16	2022/10/15
6	18-40GHz amplifier	MTI-E052	Chengdu step Micro Technology	ZLNA-18-40G-21	1608001	2021/10/16	2022/10/15
7	spectrum analyzer	MTI-E049	Rohde&schwarz	FSP-38	100019	2021/10/16	2022/10/15
8	15-40G Antenna	MTI-E053	Schwarzbeek	BBHA9170	BBHA9170582	2021/10/16	2022/10/15
9	Active Loop Antenna 9kHz - 30MHz	MTI-E051	Schwarzbeck	FMZB 1519 B	00044	2021/10/16	2022/10/15

Conduction emission							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Artificial power network	MTI-E037	Schwarzbeck	NSLK8127	NSLK8127#841	2021/10/16	2022/10/15
2	EMI Test Receiver	MTI-E003	Rohde&schwarz	ESCI	101368	2021/10/16	2022/10/15
3	Artificial power network	MTI-E058	Schwarzbeck	NSLK8127	NSLK8127#841	2021/10/16	2022/10/15

Conduction immunity							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Conduction Immunity Signal Generator	MTI-E015	Schloder	CDG6000	126A1343/2015	2021/10/16	2022/10/15
2	Coupled decoupling network	MTI-E016	Schloder	CDA M2/M3	A2210332/2015	2021/10/16	2022/10/15

Voltage dips, short interruptions and voltage variations immunity							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Drop generator	MTI-E025	Prima/China	DRP61011AG	PR15056303	2021/10/16	2022/10/15

Working frequency magnetic field immunity							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	power frequency magnetic field generator	MTI-E011	china HTEC	HPFMF 100	153703	2021/10/16	2022/10/15

Electrostatic discharge immunity							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	ESD Simulator	MTI-E008	Schloder	SESD 30000	509325	2021/10/16	2022/10/15

Surge immunity							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Surge Generator	MTI-E010	china HTEC	HCWG 51	153702	2021/10/16	2022/10/15

Harmonic & flicker emissions							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	AC power source	MTI-E023	shenzhen tongyuan	TY-8205	20150916809	2021/10/16	2022/10/15
2	Harmonic scintillation Analyzer	MTI-E013	Laplace	AC2000A	311216	2021/10/16	2022/10/15

Electrical Fast Transient/Burst immunity							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Electrical Fast Transient Generator	MTI-E009	HTEC	HEFT 51	153701	2021/10/16	2022/10/15

Radiated electromagnetic field immunity					
Equipment	Manufacturer	Model	Serial No.	Calibration date	Due date
Signal Generator	R&S	SMB100A	106148	2021/10/16	2022/10/15
RF Power Amplifier	BONN Elektronik	STLP9128D	128740	2021/10/16	2022/10/15
Gestockte Breitband (S tacked) Log. -per.Antenna	SCHWARZBECK	STLP9128D	043	2021/10/16	2022/10/15
Power Meter	R&S	NRP2	102031	2021/10/16	2022/10/15
Amplifier	NJNT	NTWPAS-2560 025	2560025	2021/10/16	2022/10/15
Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120D-667	2021/10/16	2022/10/15

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

5 Emission test

5.1 Conducted emission

5.1.1 Limits

Frequency (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79	66	66 - 56 *	56 - 46 *
0.5 -5	73	60	56	46
5 -30	73	60	60	50
Note 1: the tighter limit applies at the band edges. *Note 2: the limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.*				

5.1.2 Test Procedures

a)The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

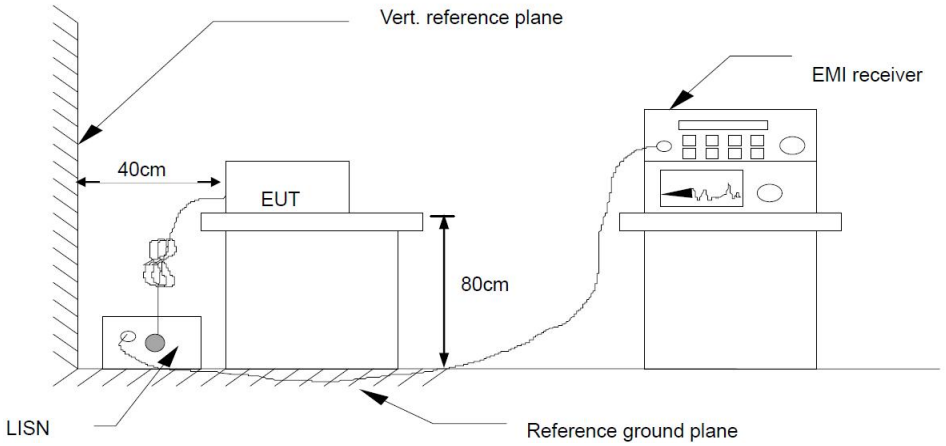
b)Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c)I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d)LISN is at least 80 cm from nearest part of EUT chassis.

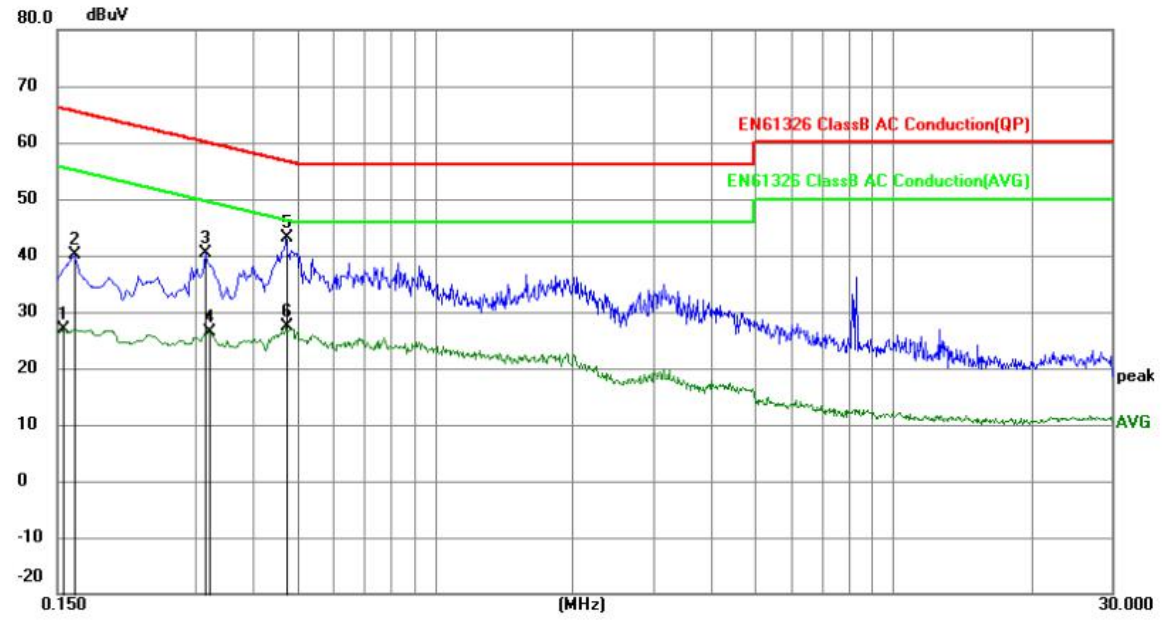
e)For the actual test configuration, please refer to the related Item – photographs of the test setup.

5.1.3 Test setup



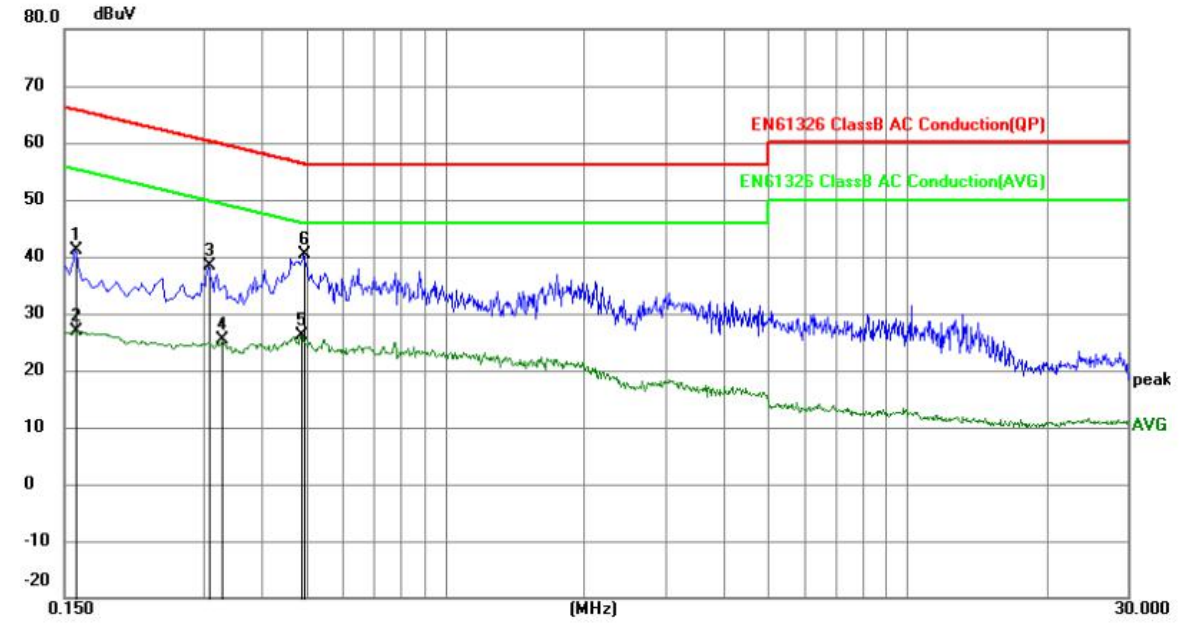
5.1.4 Test Result

EUT:	ALCOHOL DETECTOR	Model Number:	C06
Test voltage:	DC 5.0V	Test mode:	Mode 1
Pressure:	101kPa	Phase	N
Temperature:	26℃	Relative Humidity:	60%



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1545	14.41	12.49	26.90	55.75	-28.85	AVG	P	
2	0.1635	27.70	12.48	40.18	65.28	-25.10	peak	P	
3	0.3165	27.90	12.39	40.29	59.80	-19.51	peak	P	
4	0.3209	13.92	12.39	26.31	49.68	-23.37	AVG	P	
5	0.4740	30.65	12.36	43.01	56.44	-13.43	peak	P	
6	0.4740	15.04	12.36	27.40	46.44	-19.04	AVG	P	

EUT:	ALCOHOL DETECTOR	Model Number:	C06
Test voltage:	DC 5.0V	Test mode:	Mode 1
Pressure:	101kPa	Phase	L1
Temperature:	26℃	Relative Humidity:	60%



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1590	28.73	12.48	41.21	65.52	-24.31	peak	P	
2	0.1590	14.41	12.48	26.89	55.52	-28.63	AVG	P	
3	0.3075	25.91	12.39	38.30	60.04	-21.74	peak	P	
4	0.3300	12.91	12.39	25.30	49.45	-24.15	AVG	P	
5	0.4875	13.74	12.36	26.10	46.21	-20.11	AVG	P	
6	0.4965	27.94	12.36	40.30	56.06	-15.76	peak	P	

5.2 Radiated emission

5.2.1 Limits

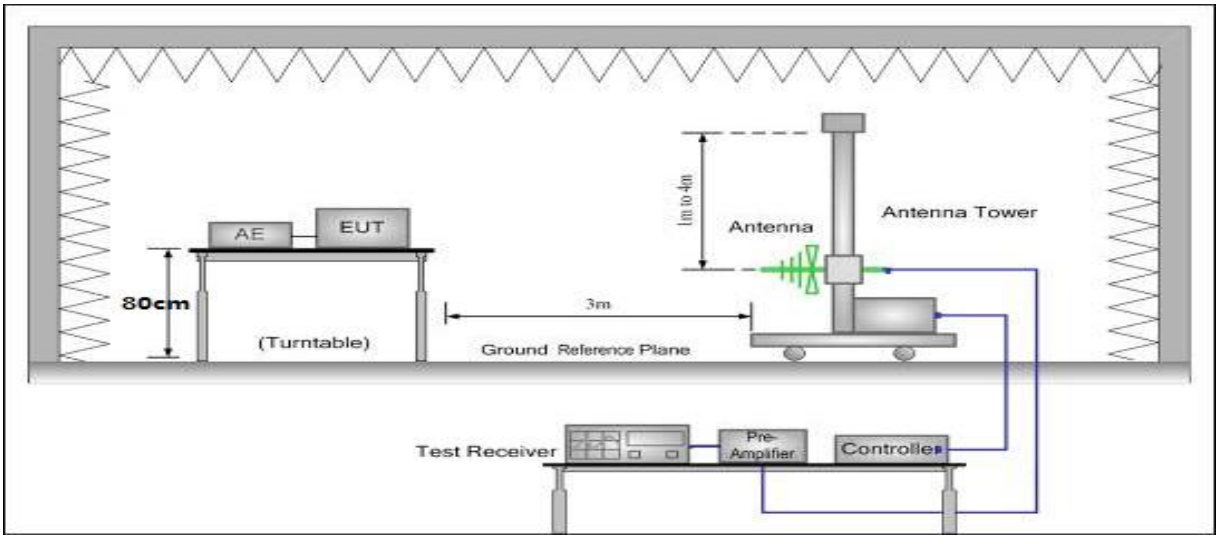
Frequency (MHz)	Class A (at 3m) dBμV/m		Class B (at 3m) dBμV/m	
	Quasi-peak		Quasi-peak	
30-230	50		40	
230-1000	57		47	
/	Peak	Average	Peak	Average
1000-3000	76	56	70	50
3000-6000	80	60	74	54

5.2.2 Test Procedures

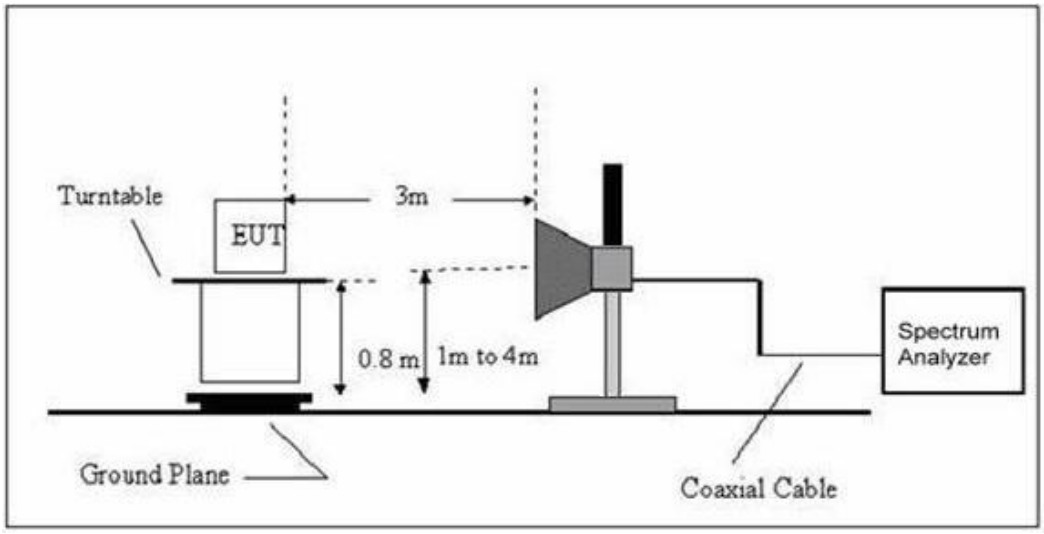
a)The radiated emission tests were performed in the 3 meters.
b)The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
c)The height of the test antenna shall vary between 1m to 4m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d)If the peak mode measured value compliance with and lower than quasi peak mode limit, the EUT shall be deemed to meet QP limits and then no additional QP mode measurement performed.
e)If the peak mode measured value compliance with and lower than average mode limit, the EUT shall be deemed to meet average limits and then no additional average mode measurement performed.
f) For the actual test configuration, please refer to the related item – EUT test photos.

5.2.3 Test Setup

Radiated emission test-up frequency for 30MHz - 1GHz



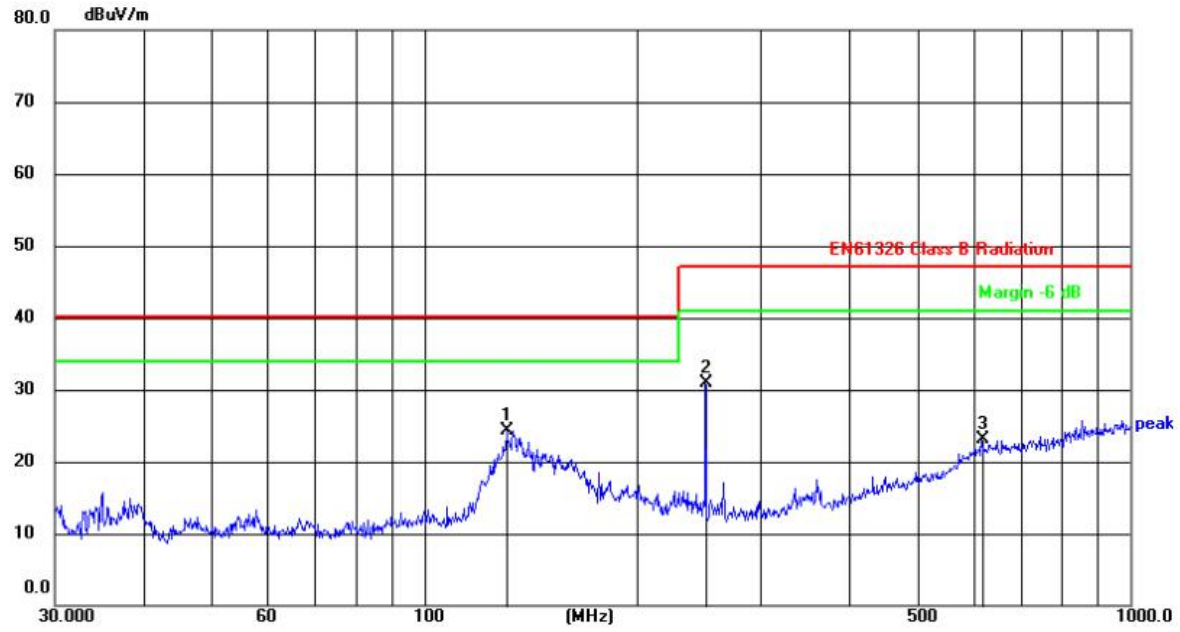
Radiated emission test-up frequency for above 1GHz



5.2.4 Test Result

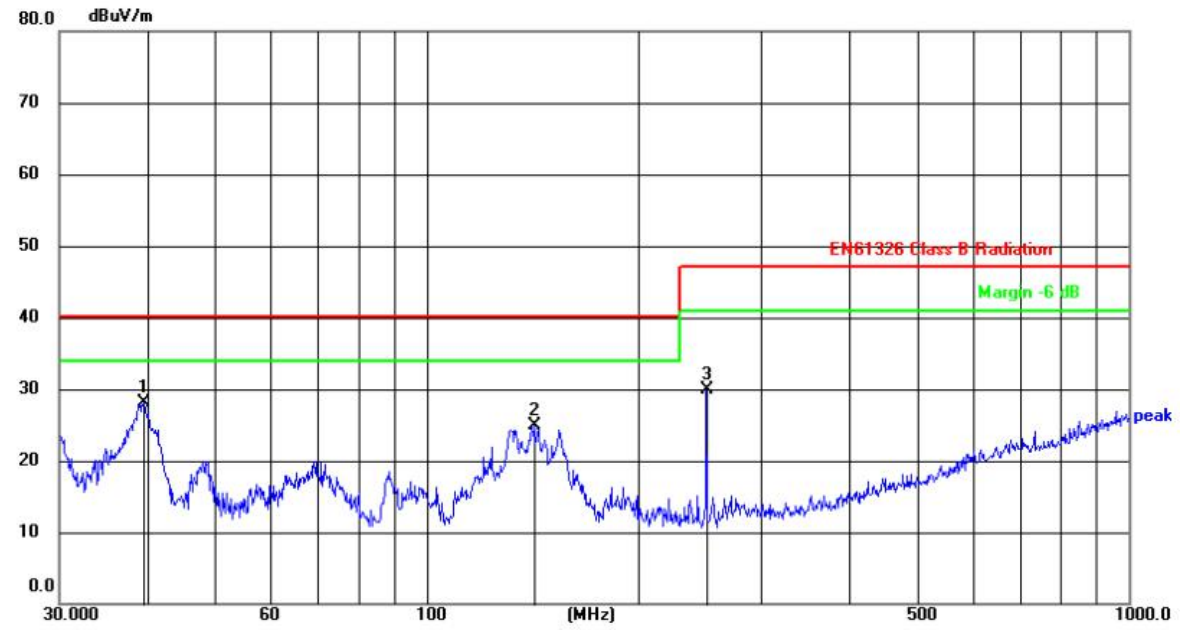
Note: the highest working frequency of EUT is below 108MHz.

EUT:	ALCOHOL DETECTOR	Model Number:	C06
Test voltage:	DC 3.7V	Test mode:	Mode 2
Pressure:	101kPa	Polarization:	Horizontal
Temperature:	25℃	Relative Humidity:	56%



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	130.8369	43.26	-18.93	24.33	40.00	-15.67	peak				
2	250.3012	49.17	-18.20	30.97	47.00	-16.03	peak				
3	616.3718	32.96	-9.76	23.20	47.00	-23.80	peak				

EUT:	ALCOHOL DETECTOR	Model Number:	C06
Test voltage:	DC 3.7V	Test mode:	Mode 2
Pressure:	101kPa	Polarization:	Vertical
Temperature:	25℃	Relative Humidity:	56%



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	39.5757	48.74	-20.64	28.10	40.00	-11.90	peak				
2	142.3243	43.79	-18.93	24.86	40.00	-15.14	peak				
3	250.3012	48.05	-18.20	29.85	47.00	-17.15	peak				

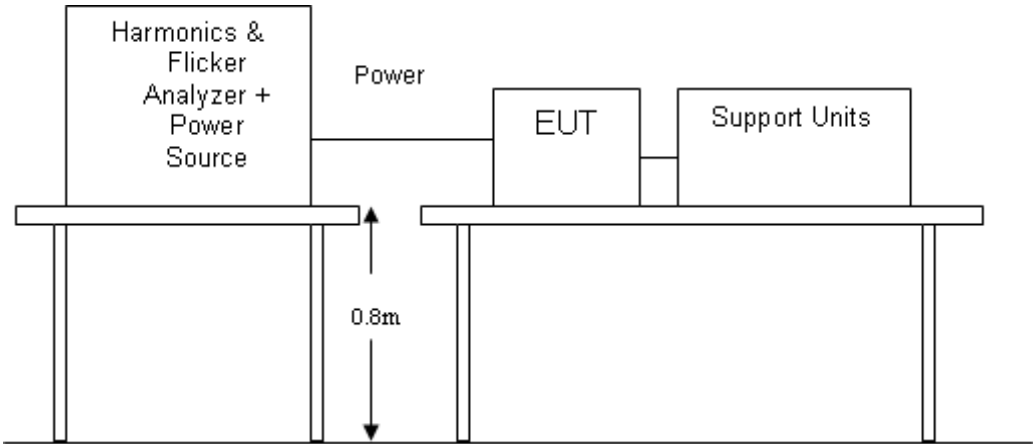
5.3 Harmonic current emission / Voltage fluctuations & flicker

5.3.1 Test Procedures

a)The EUT was installed and placed on a non-conductive table and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.

b)The correspondent test program of test instrument to measure the current harmonics / voltage fluctuations & flicker emanated from EUT. The measure time shall be not less than the time necessary for the EUT to be exercised.

5.3.2 Test Setup



5.3.3 Test Result

Harmonic current emission:

Not applicable (EUT Power supply by DC 5V From USB or DC 3.7V From Battery)

Voltage fluctuations & flicker:

Not applicable (EUT Power supply by DC 5V From USB or DC 3.7V From Battery)

6 Immunity test

6.1 Performance criteria

Performance criteria	
Performance criterion	Description
A	During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the EUT if used as intended.
B	After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the EUT if used as intended.
C	During and after testing, a temporary loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls or cycling of the power to the EUT by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.
Particular performance criteria: The particular performance criteria which are specified in the normative annexes take precedence over the corresponding parts of the general performance criteria. Where particular performance criteria for specific functions are not given, then the general performance criteria shall apply.	

6.2 Electrostatic discharge (ESD)

6.2.1. Test Procedures

a)The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

Contact discharge was applied to conductive surfaces and coupling planes of the EUT. During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second.

b)Vertical Coupling Plane (VCP):

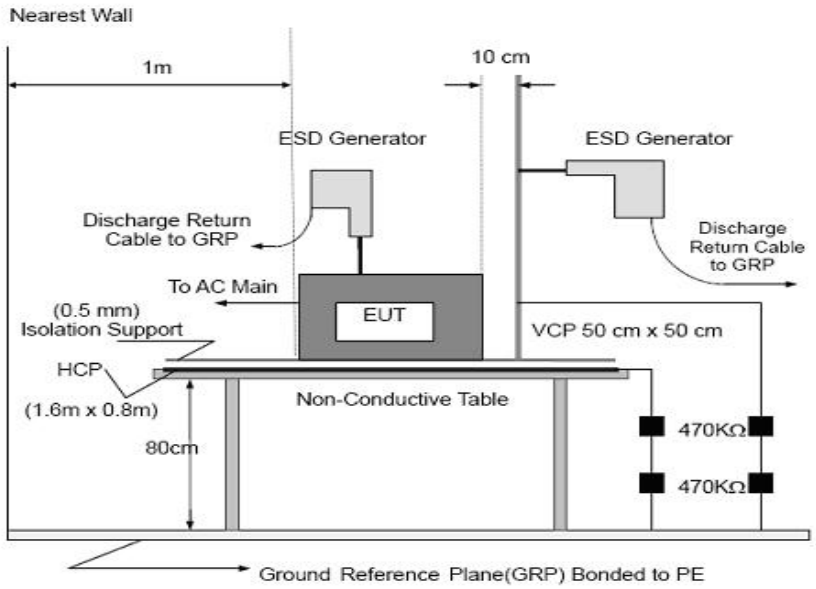
The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.

c)Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.

Air discharges at insulation surfaces of the EUT. It was at least ten single discharges with positive and negative at the same selected point. For the actual test configuration, please refer to the related Item –EUT Test Photos.

6.2.2. Test Setup



6.2.3. Test Result

Indirect discharge

Temperature:	25℃	Relative Humidity:	54%
Pressure:	101kPa	Test mode:	Mode 2

No.	Test Point	Contact discharge level (kV)	Number and polarity	Criterion met	Criterion Required	Result
1	VCP-Front side	☐..2 ☒..4 ☐..6 ☐..8	10 (+)	A	B	Compliance
			10 (-)	A		
2	VCP-Rear side	☐..2 ☒..4 ☐..6 ☐..8	10 (+)	A		
			10 (-)	A		
3	VCP-Left side	☐..2 ☒..4 ☐..6 ☐..8	10 (+)	A		
			10 (-)	A		
4	VCP-Right side	☐..2 ☒..4 ☐..6 ☐..8	10 (+)	A		
			10 (-)	A		
5	HCP	☐..2 ☒..4 ☐..6 ☐..8	10 (+)	A		
			10 (-)	A		

Direct discharge

No.	Test Point	Contact discharge level (kV)	Air discharge level (kV)	Number and polarity	Criterion met	Criterion Required	Result
1	Each nonconductive location touchable by hand	☐..2 ☐..4 ☐..6 ☐..8	☐..2 ☐..4 ☐..6 ☒..8	10 (+)	A	B	Compliance
				10 (-)	A		
2	Each conductive location touchable by hand	☐..2 ☐..4 ☐..6 ☐..8	☐..2 ☐..4 ☐..6 ☐..8	10 (+)	N/A		
				10 (-)	N/A		
Note1: Please see the photographs blew about the details of test points.							

6.3 Radiated electromagnetic field immunity (RS)

6.3.1. Test Procedures

a)The EUT and support equipment, which are placed on a table that is 0.8 meter above ground and the testing was performed in a fully-anechoic chamber.

b)The testing distance from antenna to the EUT was 3 meters.

c)The other condition as following manner:

i. The field strength level was 3V/m.

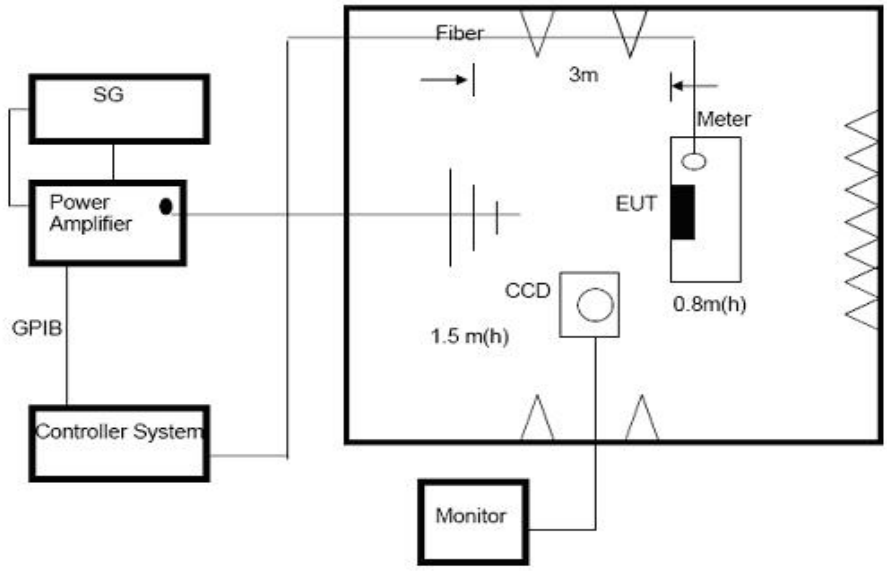
ii. The frequency range is swept from 80 MHz to 1000 MHz with the signal 80%amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.

d)The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

e)The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

f) For the actual test configuration, please refer to the related Item –EUT Test Photos.

6.3.2. Test setup



6.3.3. Test Result

Temperature:	25℃	Relative Humidity:	55%
Pressure:	101kPa	Test mode:	All mode

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Perform. Criteria	Measurement	Result
80-1000, 1400-2000	H / V	3 V/m (rms); AM Modulated 1000Hz, 80%; Steps 1%	Front	A	A	Compliance
			Rear			
			Left			
			Right			
2000-2700	H / V	1 V/m (rms); AM Modulated 1000Hz, 80%; Steps 1%	Front	A	A	Compliance
			Rear			
			Left			
			Right			

6.4 Conducted disturbances (CS)

6.4.1. Test Procedures

a)The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

b)The disturbance signal described below is injected to EUT through CDN.

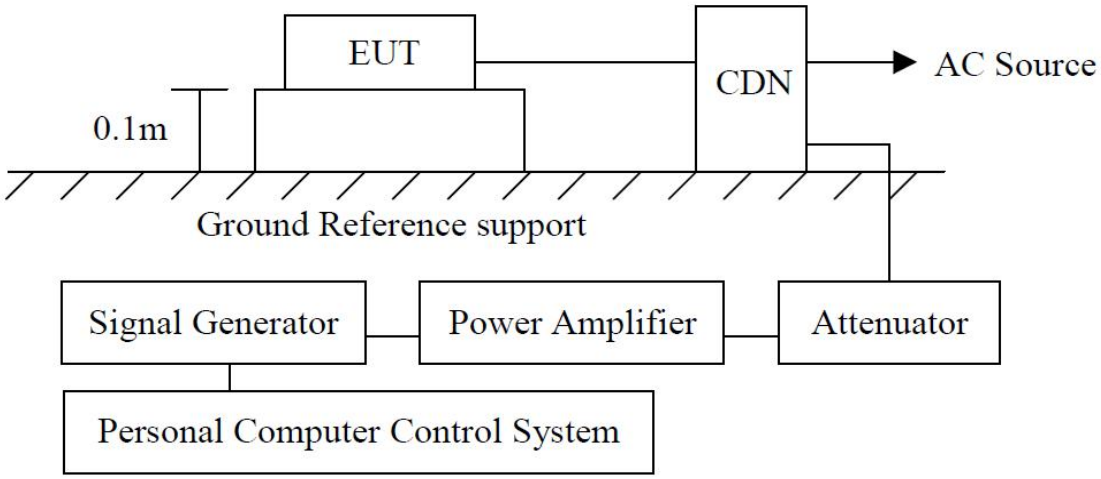
c)The EUT operates within its operational mode(s) under intended climatic conditions after power on.

d)The frequency range is swept from 0.150MHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.

e)The rate of sweep shall not exceed 1.5*10-3decades/s. Where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

f) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

6.4.2. Test Setup



6.4.3. Test Result

Not applicable (EUT Power supply by DC 5V From USB or DC 3.7V From Battery)

6.5 Power frequency magnetic field

6.5.1. Test Procedures

a)EUT connect the wires according to the typical configuration, and switch on the power supply for 15 minutes.

b)Turn on the instrument power switch and wait for the instrument to start.

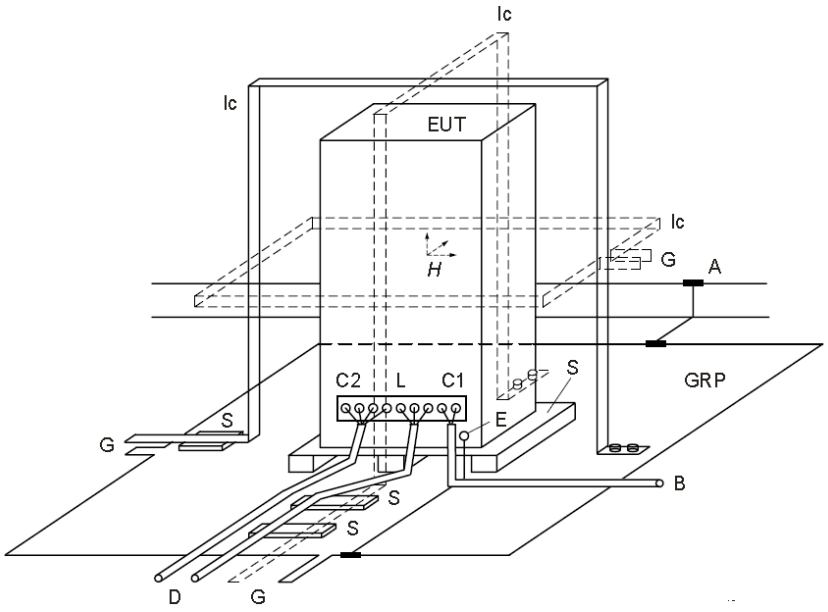
c)When the device is started, click the Setup icon to enter the settings screen

d)As shown below, for the settings screen, click the test time position and current position to set the test time and current

e)Set the correct test time and test current

f) Click Start to begin the test, while observing the status of EUT and recording

6.5.2. Test Setup



Components:

GRP	*Ground plane*	*A*	*Safety earth*
C1	*Power supply circuit*	*C2*	*Signal circuit*
S	*Insulating support*	*L*	*Communication line*
EUT	*Equipment under test*	*B*	*To power supply source*
Ic	*Inductive coil*	*D*	*To signal source, simulator*
E	*Earth terminal*	*G*	*To the test generator*

6.5.3. Test Result

N/A (EUT Power supply by DC 5V From USB or DC 3.7V From Battery)

6.6 Electrical fast transients/burst (EFT/S)

6.6.1. Test Procedures

a)The EUT and its simulators were placed on the ground reference plane and were insulated from it by a wood support 0.1m + 0.01m thick. The ground reference plane was 1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane was project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane was more than 0.5m. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables.

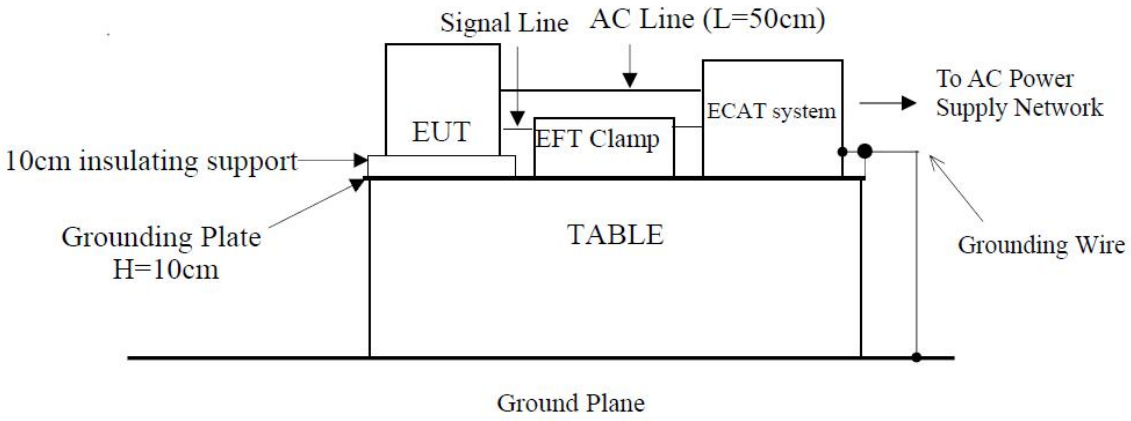
b)For input and AC power ports:

The EUT was connected to the power mains by using a coupling device that couples the EFT interference signal to AC power lines. Both positive transients and negative transients of test voltage were applied during compliance test and the duration of the test can't less than 1min.

c)For signal lines and control lines ports:

Ports which are intended to be connected to telecommunication networks (e.g. public switched telecommunication networks, integrated services digital networks, local area networks and similar networks.)

6.6.2. Test Setup



6.6.3. Test Result

Not applicable (EUT Power supply by DC 5V From USB or DC 3.7V From Battery)

6.7 Surges

6.7.1. Test Procedures

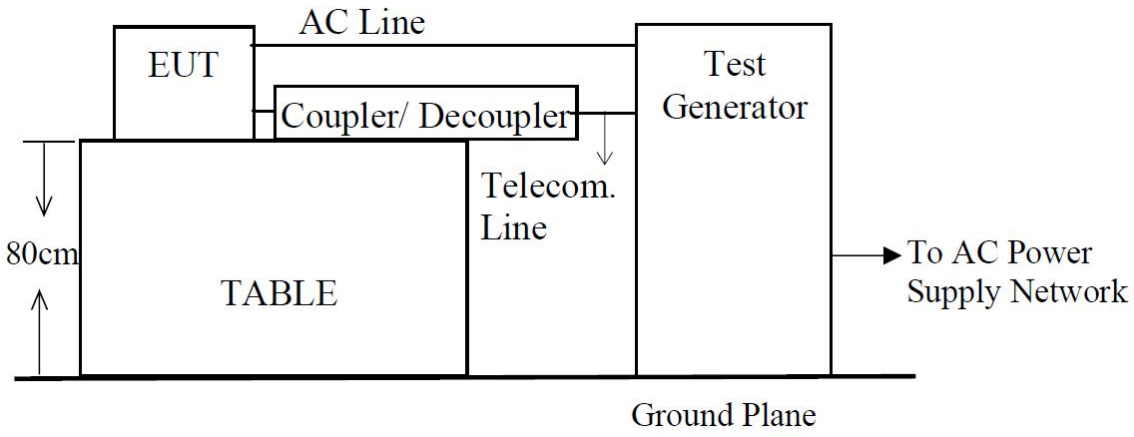
a)For line-to-line coupling mode, provide a 1kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points, and for active line / neutral lines to ground are same except test level is 2kV.

b)At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are applied during test.

c)Different phase angles are done individually.

d)Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

6.7.2. Test Setup



6.7.3. Test Result

Not applicable (EUT Power supply by DC 5V From USB or DC 3.7V From Battery)

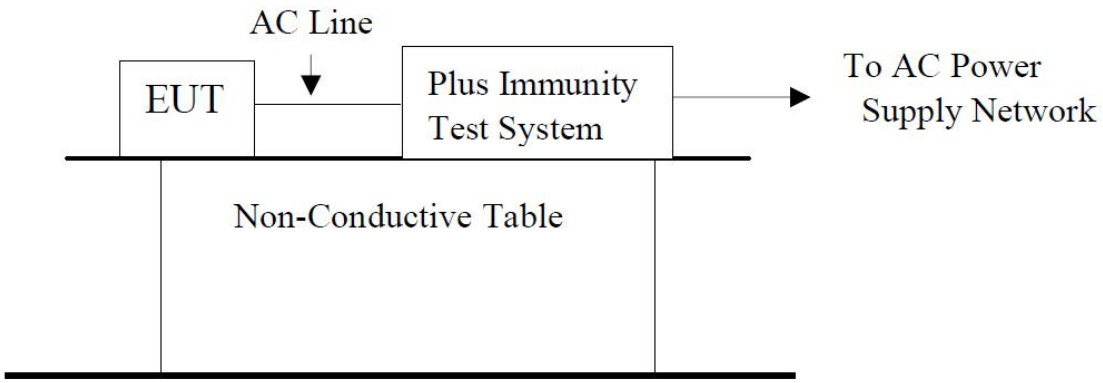
6.8 Voltage dips and interruptions

6.8.1. Test procedures

a)The interruptions are introduced at selected phase angles with specified duration.

b)Record any degradation of performance

6.8.2. Test setup



6.8.3. Test result

Not applicable (EUT Power supply by DC 5V From USB or DC 3.7V From Battery)

6.9 Broadband Impulse noise disturbances repetitive

6.9.1. Test procedures

a)The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

b)The disturbance signal described below is injected to EUT through CDN.

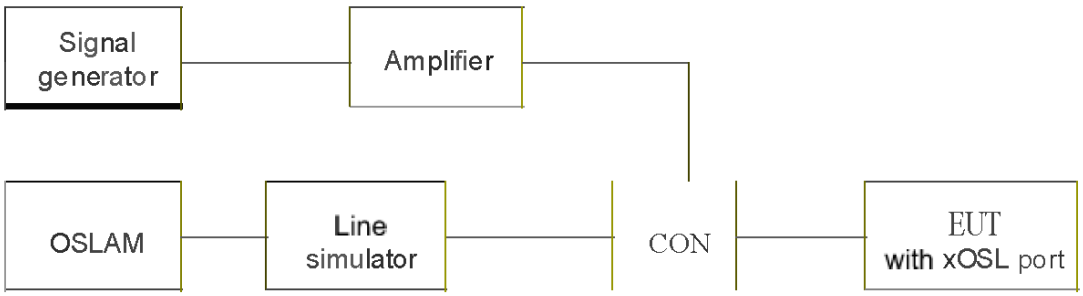
c)The EUT operates within its operational mode(s) under intended climatic conditions after power on.

d)The xOSL technology or 30 MHz, whichever is the lowest using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 128 kHz sine wave.

e)The rate of sweep shall not exceed 1.5*10-3decades/s. Where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

f) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

6.9.2. Test setup



6.9.3. Test result

N/A (EUT Power supply by DC 5V From USB or DC 3.7V From Battery)

6.10 Broadband Impulse noise disturbances isolated

6.10.1. Test procedures

a)The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

b)The disturbance signal described below is injected to EUT through CDN.

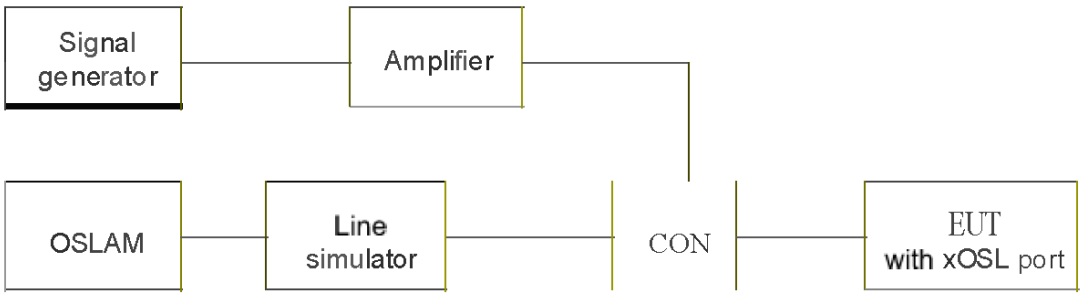
c)The EUT operates within its operational mode(s) under intended climatic conditions after power on.

d)The xOSL technology or 30 MHz, whichever is the lowest using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 128 kHz sine wave.

e)The rate of sweep shall not exceed 1.5*10-3decades/s. Where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

f) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

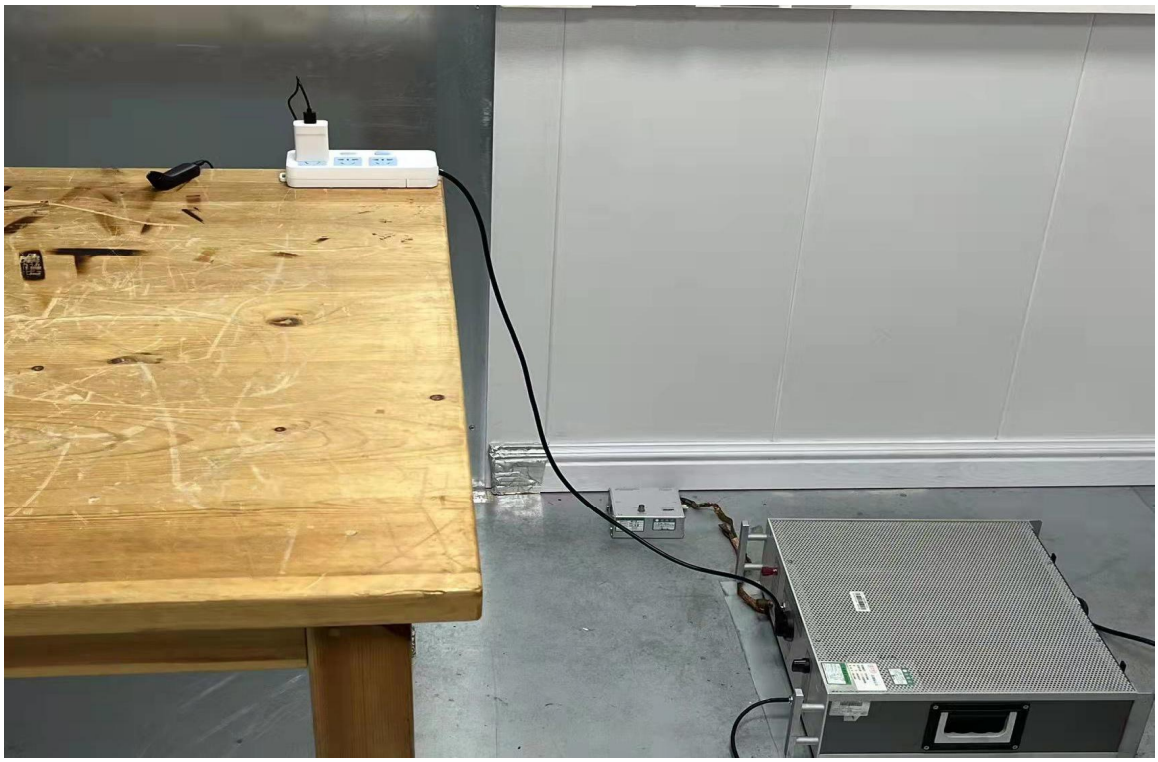
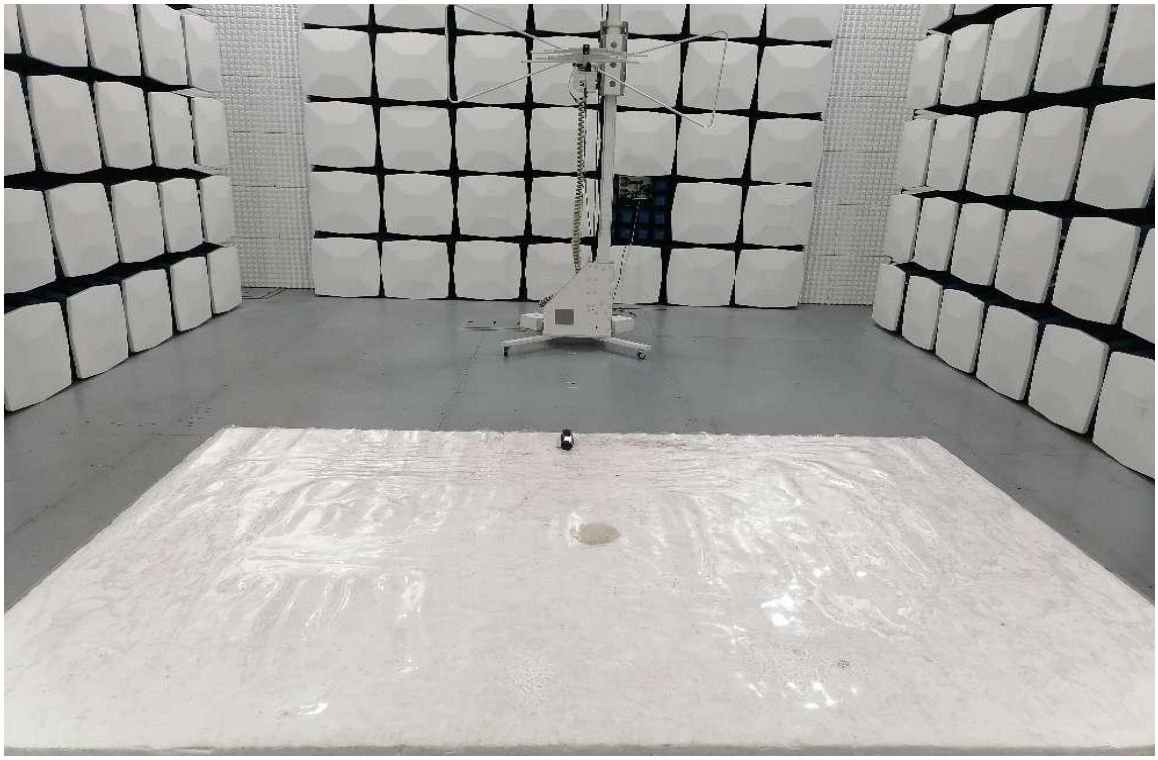
6.10.2. Test setup



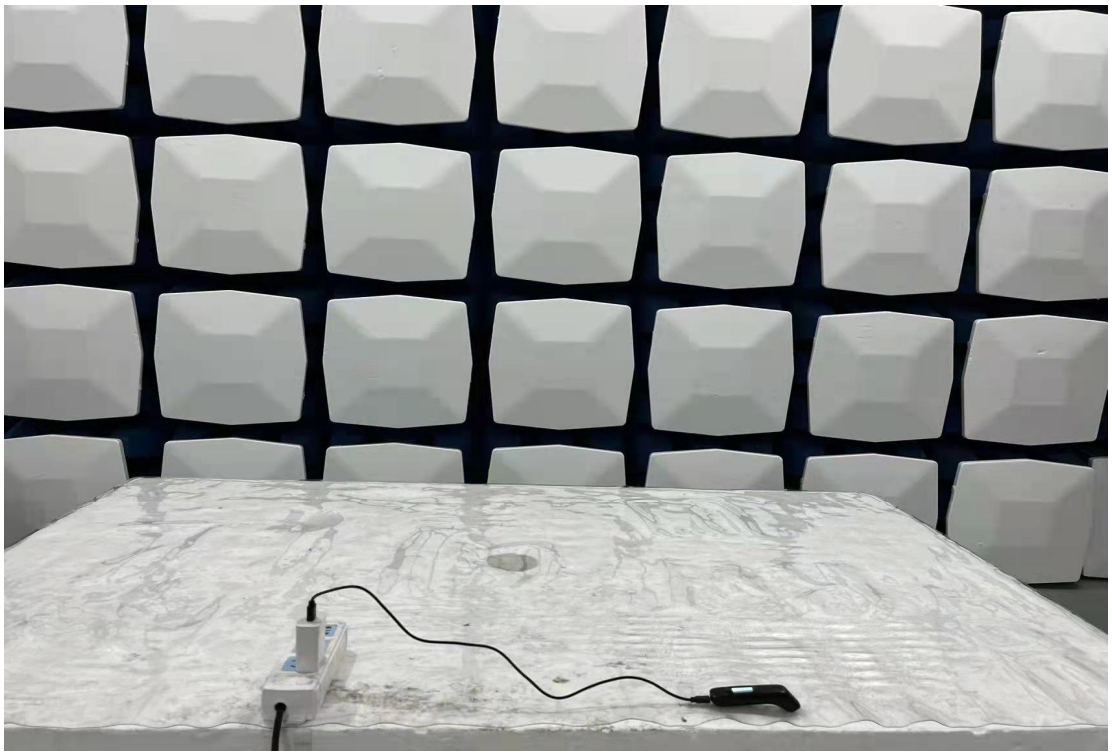
6.10.3. Test result

N/A (EUT Power supply by DC 5V From USB or DC 3.7V From Battery)

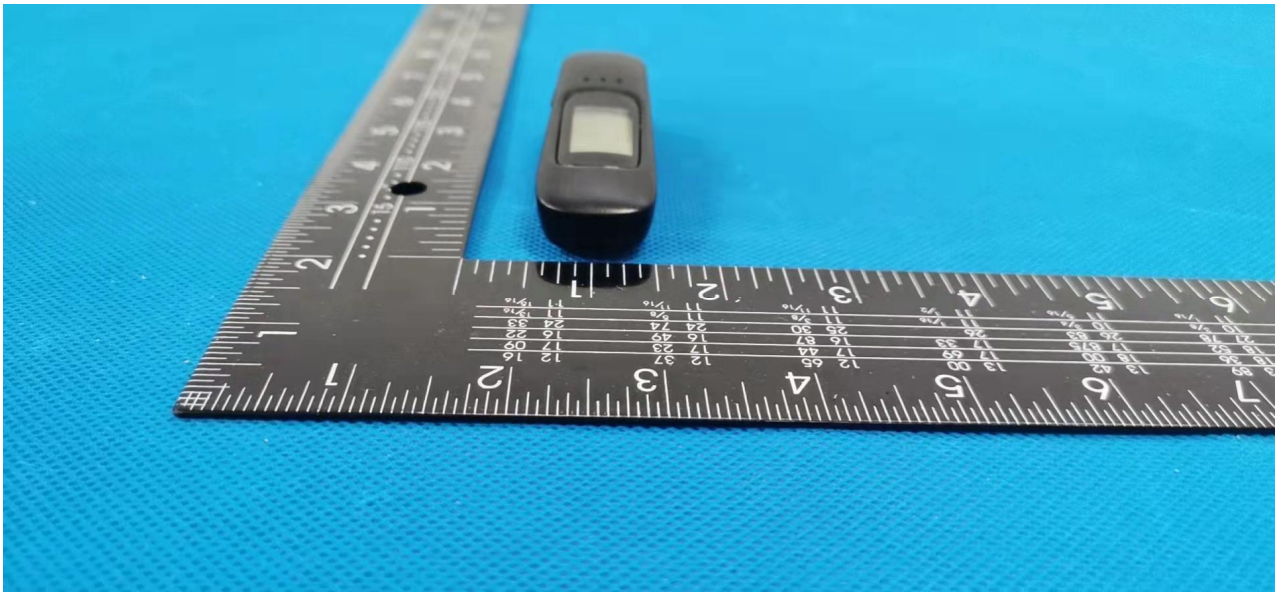
Test photographs of the EUT

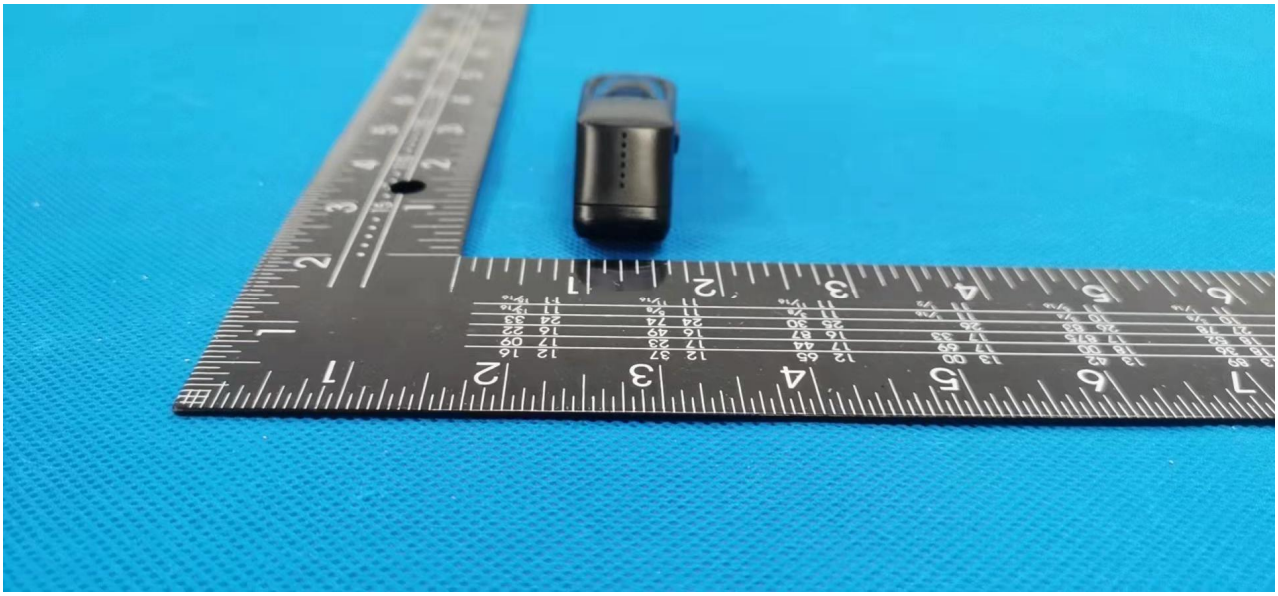
Conducted emission

Radiated emission


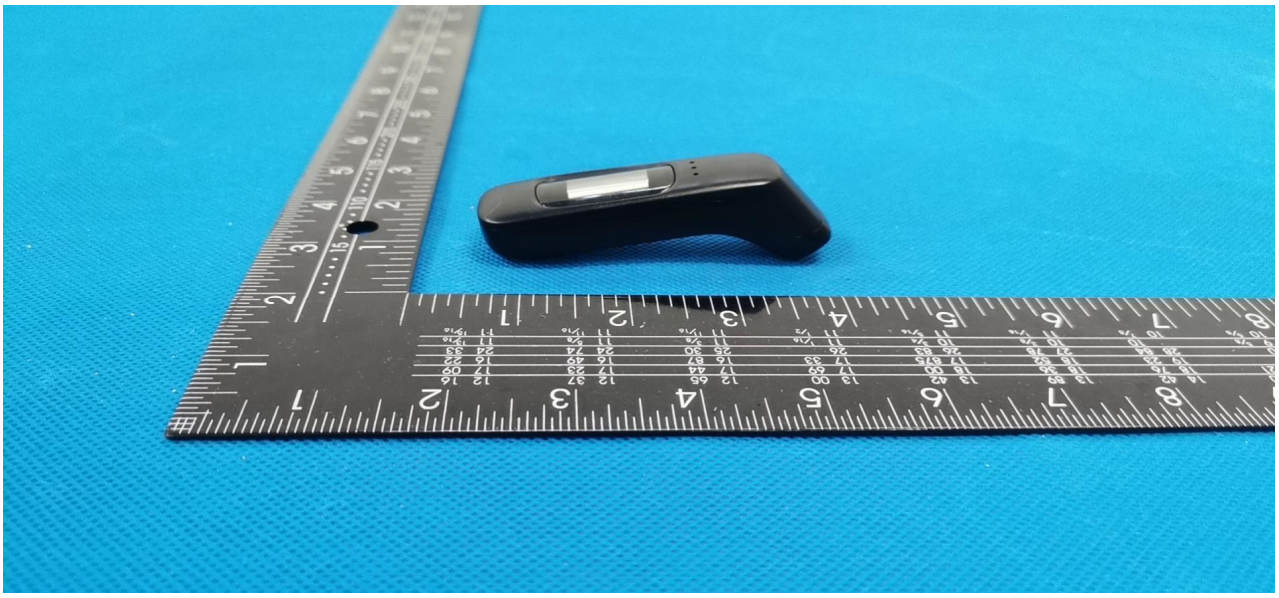
Electrostatic discharges (ESD)

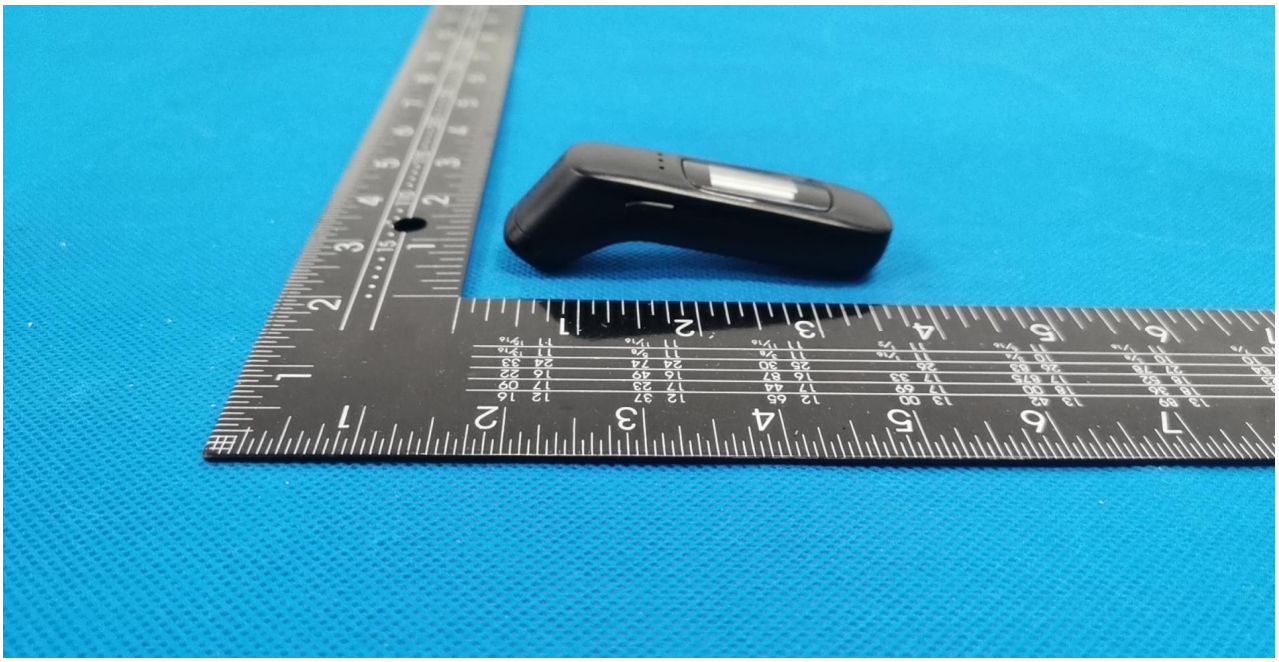
Radiated electromagnetic field disturbances (RS)


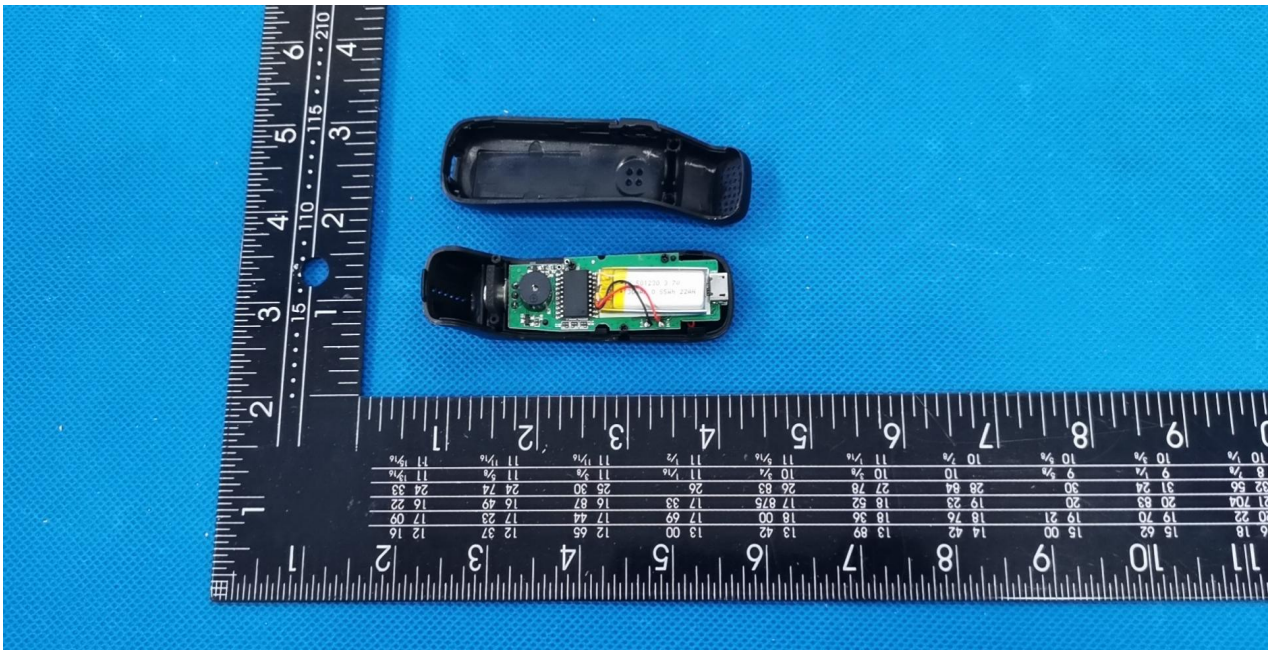
Photographs of the EUT

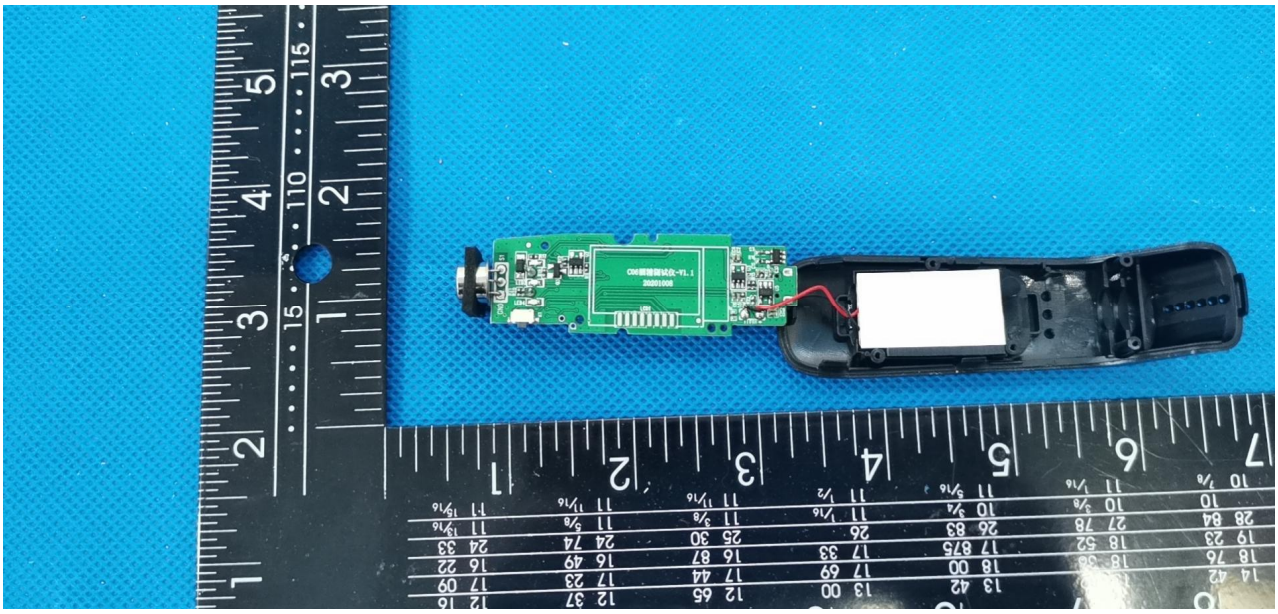


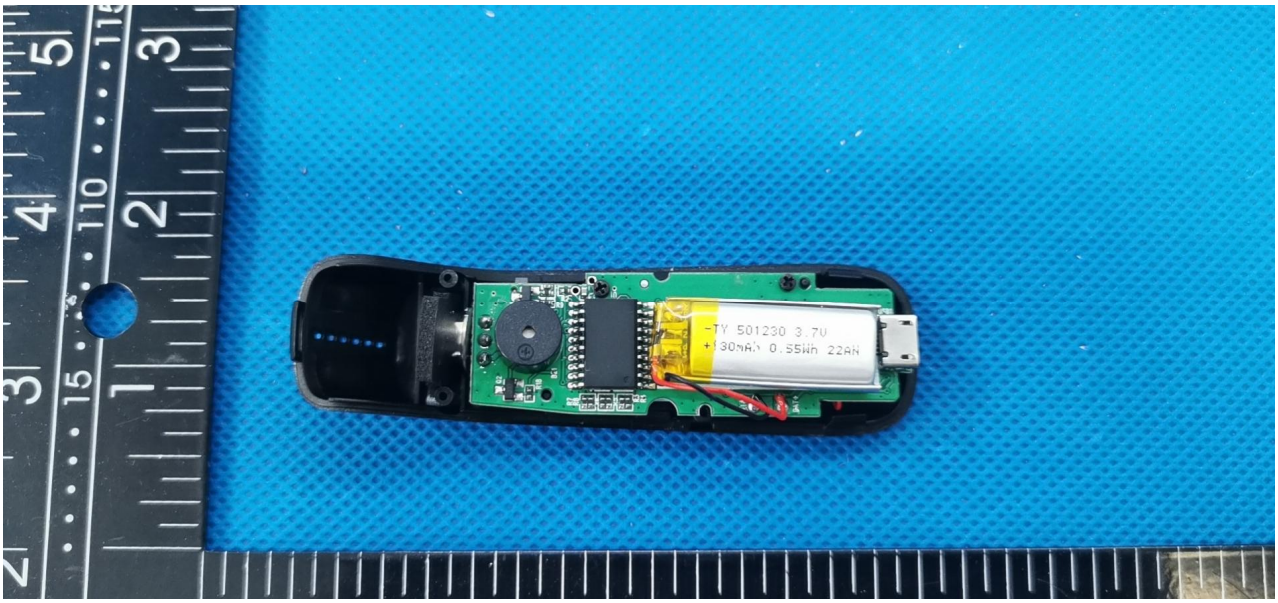












----END OF REPORT----

ZERTIFIKAT ◆ 認證證書 ◆ CERTIFICAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ СЕРТИФИКАЦИЯ

CERTIFICATE of CONFORMITY

DATE OF ISSUE: March 29, 2022

Certificate No.: KTi220322R016C

Applicant	:	**Dongguan Deruichen Electronics Co., Ltd.**
Address	:	**Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan, Guangdong, China**
Product	:	**ALCOHOL DETECTOR**
Model No.	:	**C06, C07, C8, C9, C11, C22, C33, C66, C99**
Trademark	:	**N/A**
Test Method	:	**IEC 62321-1:2013; IEC 62321-2:2013; IEC 62321-3-1:2013; IEC 62321-4:2013; IEC 62321-5:2013; IEC 62321-6:2015; IEC 62321-7-1:2015; IEC 62321-7-2:2017; IEC 62321-8:2017;**
Report No.	:	**KTi220322R016**

EC Council Directive 2011/65/EU and amendment Commission Delegation Directive (EU）2015/863 with effective from 22 July 2019 Restriction of the Use of Certain Hazardous Substance in Electrical and Electronic Equipment

The applicant of the certificate is authorized to use this certificate in connection with EU declaration of conformity to the Directive 2011/65/EU（RoHS）. The certificate is only applicable to the equipments described above.

Certified by:

Manager

SHENZHEN KAIXU TESTING TECHNOLOGY CO., LTD

SHENZHEN KAIXU TESTING TECHNOLOGY CO., LTD
ROOM 316, 3RD FLOOR, BUILDING A, JINBOLONG INDUSTRIAL PARK, LONGHUA STREET, LONGHUA DISTRICT, SHENZHEN
WEB: WWW.KTI-LAB.COM TEL: 0755-85254458 FAX: 0755-85254458 EMAIL: SERVICE@KTI-LAB.COM

KTi
凯 旭 检 测

RoHS TEST REPORT

Report Number: KTi220322R016

Applicant: Dongguan Deruichen Electronics Co., Ltd.

Address: Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan, Guangdong, China

Manufacture: Dongguan Deruichen Electronics Co., Ltd.

Address: Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan, Guangdong, China

EUT Description: ALCOHOL DETECTOR

Model: C06

Serial Model: C07, C8, C9, C11, C22, C33, C66, C99

Date of Receipt: 2022-03-22

Date of Test: 2022-03-22 to 2022-03-29

Date of Report: 2022-03-29

Test laboratory: Shenzhen KAIXU Testing Technology Co., Ltd

Test location: Room 316, 3rd Floor, Building A, Jinbolong Industrial Park, Longhua Street, Longhua District, Shenzhen

Test Conclusion:

Test Requested	Result
As specified by client, to determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent chromium(Cr^{6+}), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs), Dibutyl phthalate (DBP), Butyl benzyl phthalate(BBP), Bis(2-2thylhexyl) phthalate (DEHP) and Diisobutyl phthalate (DIBP) content in the submitted sample(s) in accordance with EU directive **2011/65/EU** and revised directive **(EU)2015/863 (RoHS2.0**).	**PASS**

****** FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S) ******

Signed for and on behalf of KAIXU Test International

SHENZHEN KAIXU TESTING TECHNOLOGY CO., LTD
KTi
APPROVAL

Tested by: Tom Chen Approved by: John Zhou

This test report is limited to the above client company and the product model only. The results shown in this Test Report refer only to the sample(s) tested unless otherwise stated and such sample(s) are retained for 30days only. It may not be duplicated without prior written consent of Shenzhen KAIXU Testing Technology Co., Ltd

Test Method:

1. With reference to IEC 62321-2:2013, review was performed for the samples disjointed from the submitted articles.
2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report

(1) With reference to IEC 62321-3-1:2013, screening by XRF spectroscopy.

(2) Wet chemical test method

a. With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
b. With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
c. With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
d. With reference to IEC 62321-7-1:2015 & IEC 62321-7-2:2017, determination of Hexavalent chromium by Colorimetric method using UV-Vis.
e. With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.

3. With reference to IEC 62321-8: 2017, determination of phthalates by GC-MS.

Test Result:

Part No.	Part Description:	Test item(s)	Results of XRF(1)	Results of Wet Chemical Testing(2) (mg/kg)	Conclusion on EU RoHS	Limit (mg/kg)
1	Black plastic case - lid	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
2	Transparent plastic case	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
3	Black soft plastic-USB line	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000

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Part No.	Part Description:	Test item(s)	Results of XRF(1)	Results of Wet Chemical Testing(2) (mg/kg)	Conclusion on EU RoHS	Limit (mg/kg)
4	Black plastic - USB port	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
5	Silver metal - USB Line port	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	NA	/	/	/
		PBDEs	NA	/	/	/
		DBP	NA	/	/	/
		BBP	NA	/	/	/
		DEHP	NA	/	/	/
		DIBP	NA	/	/	/
6	White plastic - USB port	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
7	Silver metal - USB micro port	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	NA	/	/	/
		PBDEs	NA	/	/	/
		DBP	NA	/	/	/
		BBP	NA	/	/	/
		DEHP	NA	/	/	/
		DIBP	NA	/	/	/

This test report is limited to the above client company and the product model only. The results shown in this Test Report refer only to the sample(s) tested unless otherwise stated and such sample(s) are retained for 30days only. It may not be duplicated without prior written consent of Shenzhen KAIXU Testing Technology Co., Ltd

Part No.	Part Description:	Test item(s)	Results of XRF(1)	Results of Wet Chemical Testing(2) (mg/kg)	Conclusion on EU RoHS	Limit (mg/kg)
8	Silver metal - sensor	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	NA	/	/	/
		PBDEs	NA	/	/	/
		DBP	NA	/	/	/
		BBP	NA	/	/	/
		DEHP	NA	/	/	/
		DIBP	NA	/	/	/
9	Metal screw	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr6+	BL	/	PASS	1000
		PBBs	NA	/	/	/
		PBDEs	NA	/	/	/
		DBP	NA	/	/	/
		BBP	NA	/	/	/
		DEHP	NA	/	/	/
		DIBP	NA	/	/	/
10	IC	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
11	PCB	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000

This test report is limited to the above client company and the product model only. The results shown in this Test Report refer only to the sample(s) tested unless otherwise stated and such sample(s) are retained for 30days only. It may not be duplicated without prior written consent of Shenzhen KAIXU Testing Technology Co., Ltd

Part No.	Part Description:	Test item(s)	Results of XRF(1)	Results of Wet Chemical Testing(2) (mg/kg)	Conclusion on EU RoHS	Limit (mg/kg)
12	Red plastic - LED Screen Line	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
13	Black plastic - LED Screen Line	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
14	Solder-PCB board	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr6+	BL	/	PASS	1000
		PBBs	NA	/	/	/
		PBDEs	NA	/	/	/
		DBP	NA	/	/	/
		BBP	NA	/	/	/
		DEHP	NA	/	/	/
		DIBP	NA	/	/	/
15	SMT resistor -PCB board	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000

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Part No.	Part Description:	Test item(s)	Results of XRF(1)	Results of Wet Chemical Testing(2) (mg/kg)	Conclusion on EU RoHS	Limit (mg/kg)
16	SMT capacitance - PCB board	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
17	Solder - IC Pin	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr6+	BL	/	PASS	1000
		PBBs	NA	/	/	/
		PBDEs	NA	/	/	/
		DBP	NA	/	/	/
		BBP	NA	/	/	/
		DEHP	NA	/	/	/
		DIBP	NA	/	/	/
18	White Plastic -LED Screen	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
19	Glass - LED Screen	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000

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Part No.	Part Description:	Test item(s)	Results of XRF(1)	Results of Wet Chemical Testing(2) (mg/kg)	Conclusion on EU RoHS	Limit (mg/kg)
20	Yellow insulating scotch tape-battery	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr6+	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
21	Red plastic - Battery Line	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
22	Black plastic - Battery Line	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
23	Solder-Battery pcb	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr6+	BL	/	PASS	1000
		PBBs	NA	/	/	/
		PBDEs	NA	/	/	/
		DBP	NA	/	/	/
		BBP	NA	/	/	/
		DEHP	NA	/	/	/
		DIBP	NA	/	/	/

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Part No.	Part Description:	Test item(s)	Results of XRF(1)	Results of Wet Chemical Testing(2) (mg/kg)	Conclusion on EU RoHS	Limit (mg/kg)
24	SMT resistor -battery pcb	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
25	SMT capacitance - battery pcb	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr^{6+}	BL	/	PASS	1000
		PBBs	BL	/	PASS	1000
		PBDEs	BL	/	PASS	1000
		DBP	/	N.D.	PASS	1000
		BBP	/	N.D.	PASS	1000
		DEHP	/	N.D.	PASS	1000
		DIBP	/	N.D.	PASS	1000
26	silvery metal-Battery shell	Pb	BL	/	PASS	1000
		Cd	BL	/	PASS	100
		Hg	BL	/	PASS	1000
		Cr6+	BL	/	PASS	1000
		PBBs	NA	/	/	/
		PBDEs	NA	/	/	/
		DBP	NA	/	/	/
		BBP	NA	/	/	/
		DEHP	NA	/	/	/
		DIBP	NA	/	/	/

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Remark:

(1) Pb=Lead,
Cd=Cadmium,
Hg=Mercury,
Cr=Chromium,
Br=Bromine,
PBBs=Polybrominated biphenyls,
PBDEs=Polybrominated diphenyl ethers.

(2) (a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr^{6+}.
(b) Results are obtained by XRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb,Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according toIEC62321-3-1:2013(unit: mg/kg).

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ< X <130+3σ≤OL	BL≤70-3σ< X <130+3σ≤OL	BL≤50-3σ< X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤ OL	BL≤500-3σ< X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤OL	BL≤500-3σ< X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ< X	BL≤700-3σ< X	BL≤500-3σ< X
Br	mg/kg	BL≤300-3σ< X	--	BL≤250-3σ< X

(c) OL=Over Limit, BL=Below Limit, X=inconclusive, LOD=Limit of Detection, NA=not applicable
(d) The XRF screening test for RoHS elements-The reading may be different to the actual content in the sample be of non-uniformity composition

(3) (a) mg/kg=ppm=0.0001%, N.D.=not detected(＜MDL)
(b) Unit and Method Detection Limit(MDL) in wet chemical test

Test Items	Pb	Hg	Cd	DBP	BBP	DEBP	DIBP
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	10	10	10	100	100	100	100

The MDL for single compound of PBBs &PBDEs is 20mg/kg, MDL of Cr6+ for metal sample is 0.10μg/cm² and MDL of Cr6+ for polymer & composite sample is 8mg/kg.

(c) Metal sample:

	CrVI concentration	Conclusion
1	> 0.13 μg/cm²	Positive
2	< 0.10 μg/cm²	Negative
3	0.10 μg/cm² ~ 0.13 μg/cm²	Inconclusive

- unavoidable coating variations may influence the determination
- Information on storage conditions and production date of the tested sample is unavailable and thus Cr^{6+} results represent status of the sample at the time of testing.

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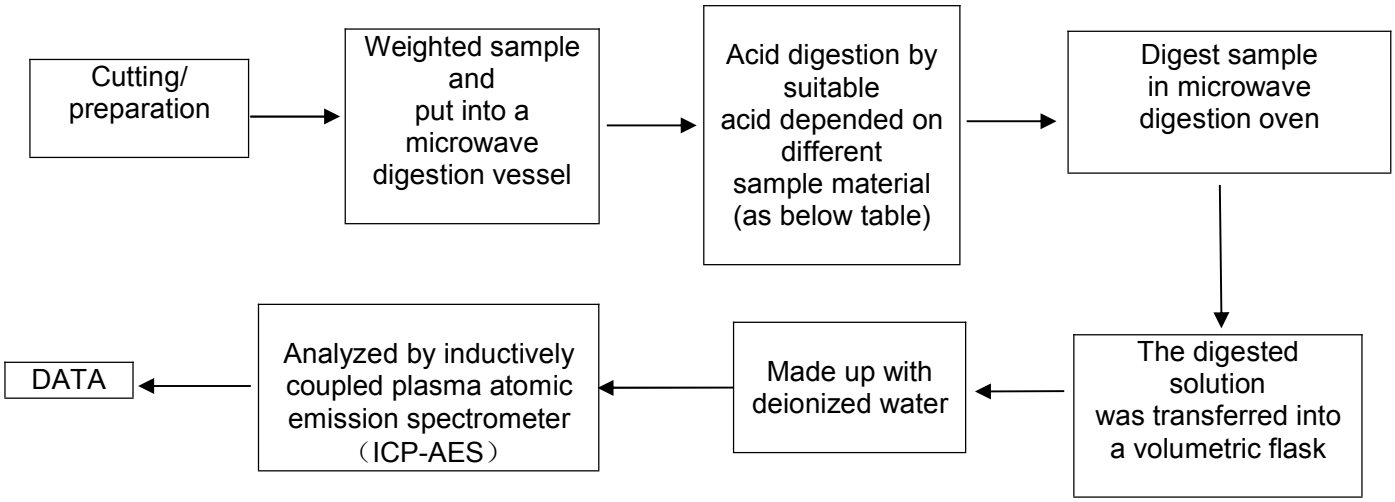
Appendix Ⅰ

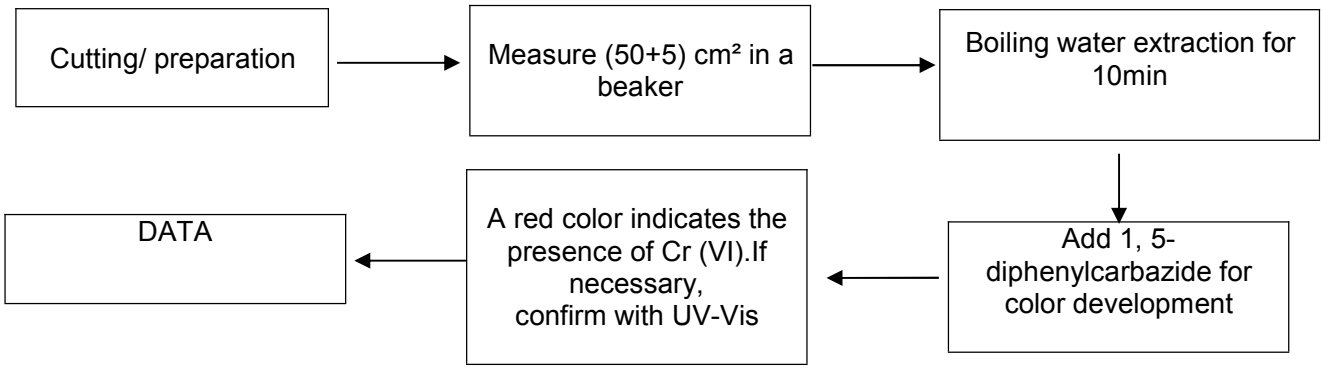
Test Flow chart

1. Test Flowchart for Cd / Pb /Hg content

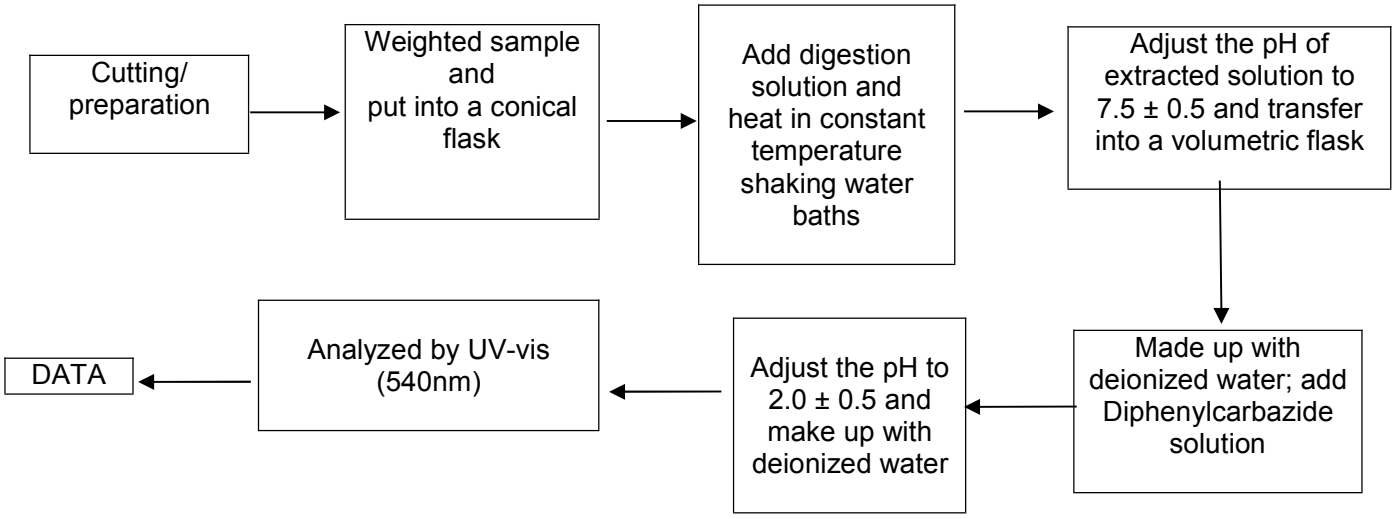
These samples were dissolved totally by pre-conditioning method according to below flow chart.



2. Test Flowchart for Cr6+ content (Metal material)



3. Test Flowchart for Cr6+ content (Non-metal material)



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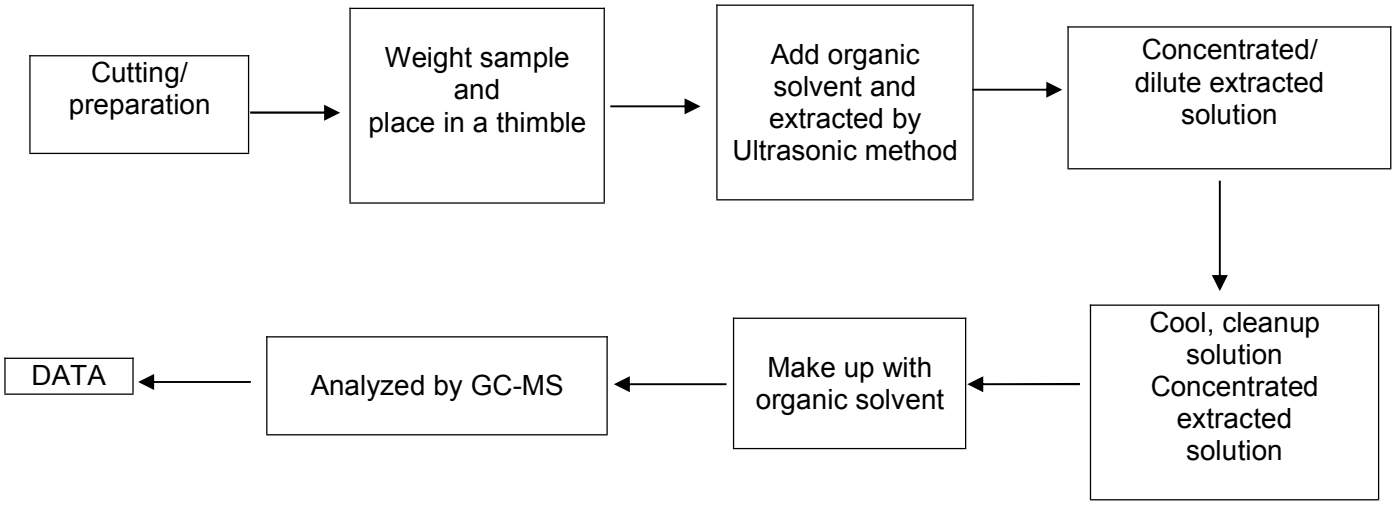
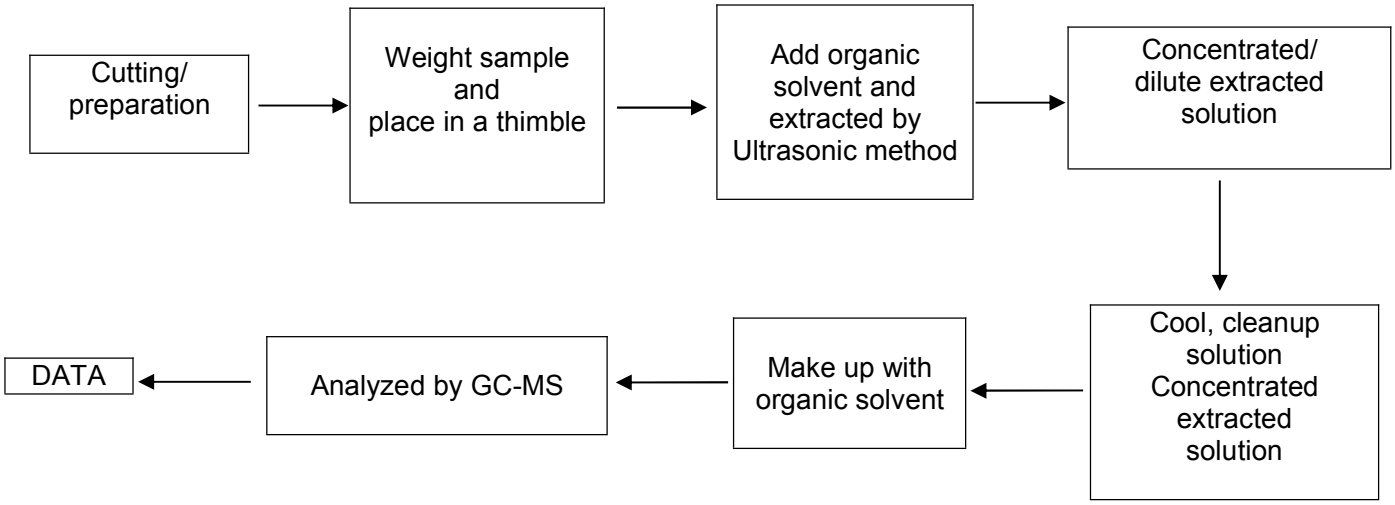
4. Test Flowchart for PBBs & PBDEs content



5. Test Flowchart for DEHP, BBP, DBP & DIBP content



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Tested sample photos

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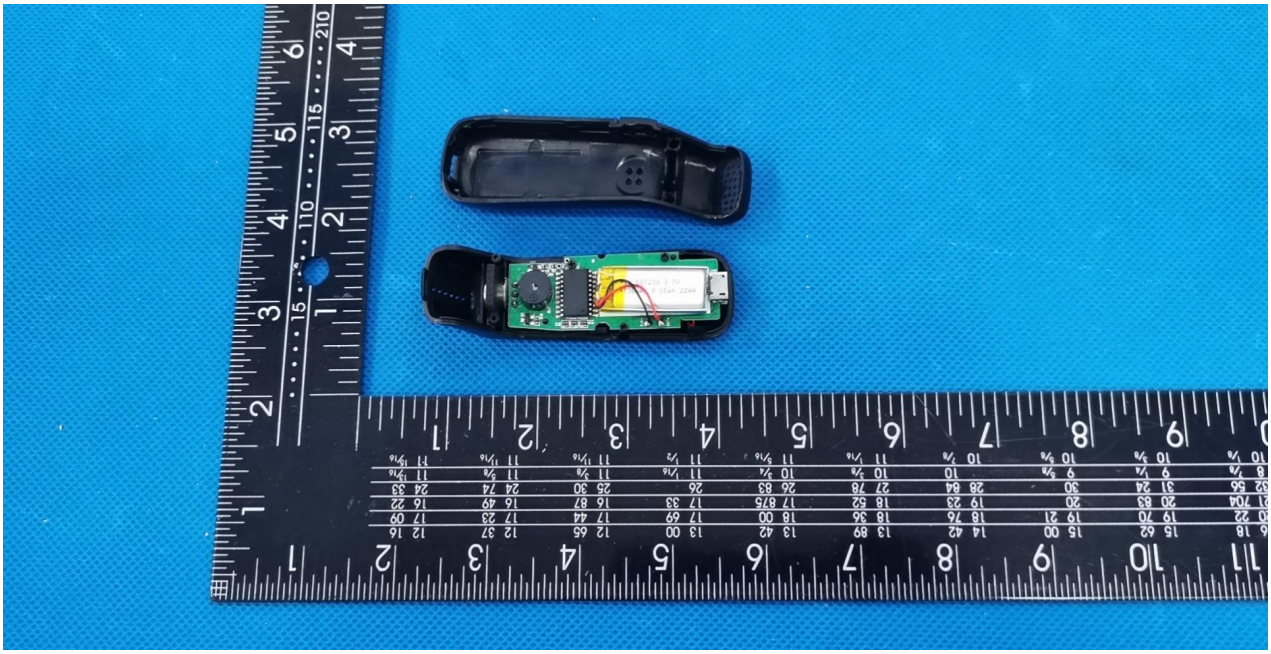

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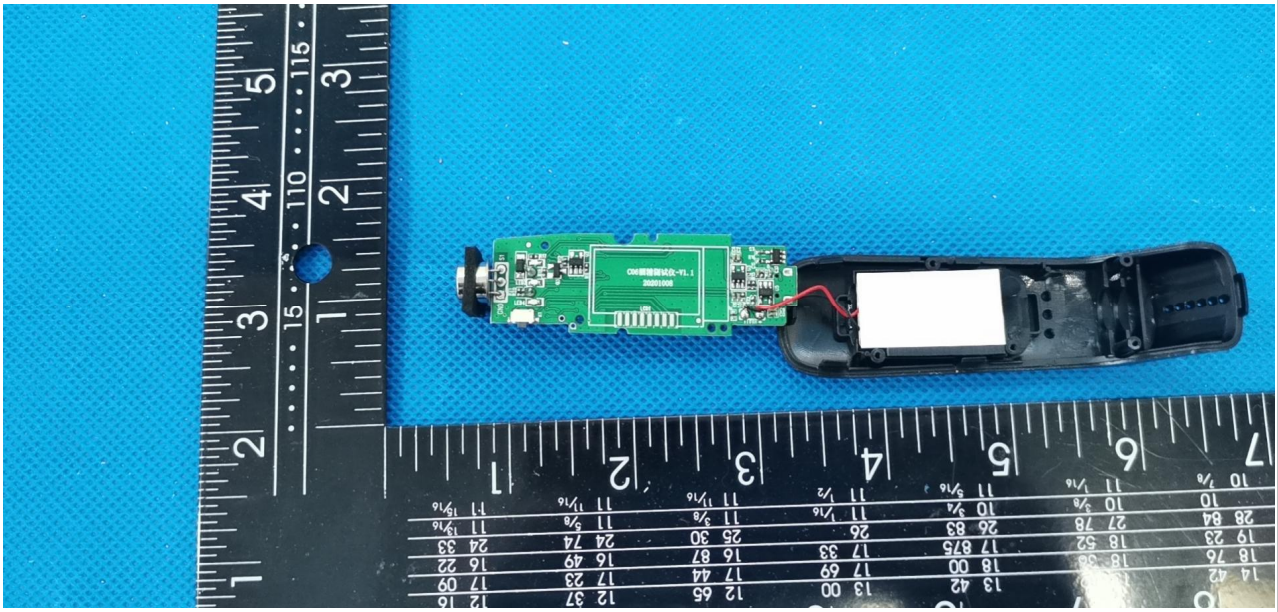

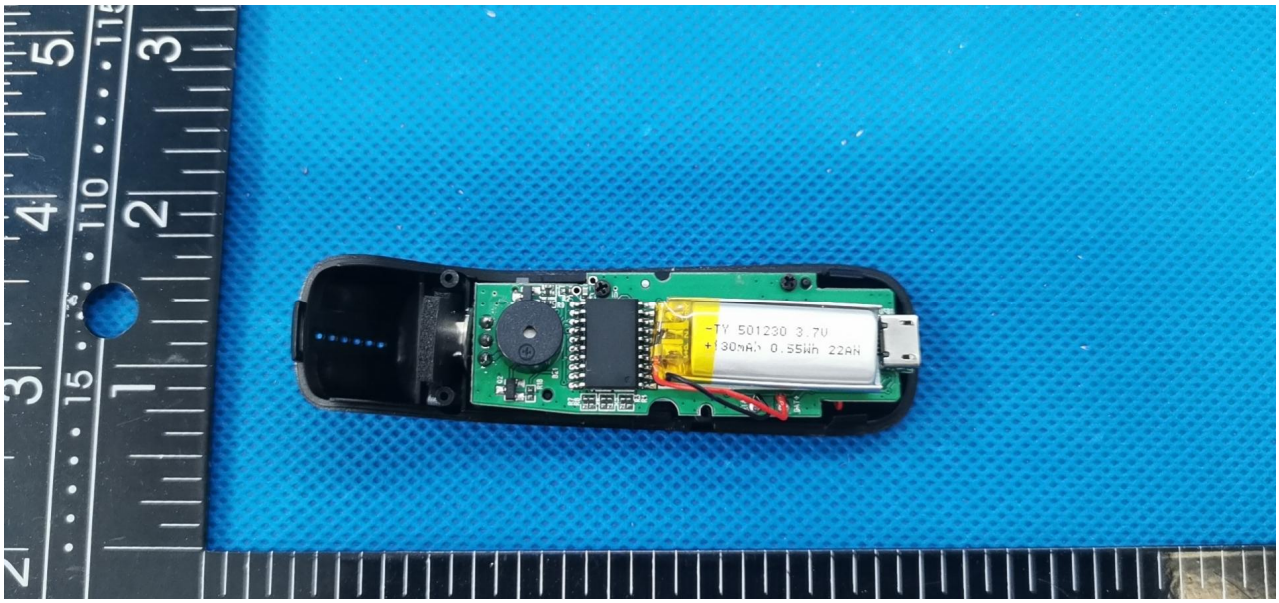

-------THE END OF REPORT-------

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FCC TEST REPORT

For

ALCOHOL DETECTOR

Model No.: C06, C07, C8, C9, C11, C22, C33, C66, C99

Prepared for	:	Dongguan Deruichen Electronics Co., Ltd.
Address	:	Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan,Guangdong, China

Prepared By	:	Shenzhen KAIXU Testing Technology Co., Ltd
Address	:	Room 316, 3rd Floor, Building A, Jinbolong Industrial Park, Longhua Street, Longhua District, Shenzhen

Tel	:	+86-755-85254458
Fax	:	+86-755-85254458
Web	:	www.kti-lab.com

Report Number	:	KTi220322E015
Date of Receipt	:	March 22, 2022
Date of Test	:	March 22-March 28, 2022
Date of Report	:	March 29, 2022

TABLE OF CONTENTS

Description Page

Test Result Certification

Applicant's name:	Dongguan Deruichen Electronics Co., Ltd.
Address:	Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan,Guangdong, China
Manufacture's Name:	Dongguan Deruichen Electronics Co., Ltd.
Address:	Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan,Guangdong, China
Product name:	ALCOHOL DETECTOR
Model name:	C06, C07, C8, C9, C11, C22, C33, C66, C99
Trademark:	/
Standards:	FCC Rules and Regulations Part 15 Subpart B: 2018 ANSI C63.4-2014

This device described above has been tested by Shenzhen KAIXU Testing Technology Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the EMC requirements. And it is applicable only to the tested sample identified in the report.

Tested by:	Eric Zhang	March 29, 2022
Reviewed by:	Terry Huang	March 29, 2022
Approved by:	Store Chu	March 29, 2022

SHENZHEN KAIXU TESTING TECHNOLOGY CO., LTD
APPROVAL

1 SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	**Standard**	**Limits**	**Results**
Power Line Conducted Emission Test	FCC Part 15: 2013 ANSI C63.4: 2014	Class B	PASS
Radiated Emission Test	FCC Part 15: 2013 ANSI C63.4: 2014	Class B	PASS
N/A is an abbreviation for Not Applicable.			

2 GENERAL INFORMATION

2.1 Description of EUT

Product name:	ALCOHOL DETECTOR
Model name:	C06
Series Model:	C07, C8, C9, C11, C22, C33, C66, C99
Different of series model:	Only the model name is different
Power supply:	DC 5V From USB or DC 3.7V From Battery
Adapter information:	N/A

2.2 Test mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test mode	Description
Mode 1	Charging+Working
Mode 2	Working
Mode 3	Charging
Note: The test modes were carried out for all operation modes. The final test mode of the EUT was the worst test mode for EMI, and its test data is showed.	

2.3 Test setup

See photographs of the test setup in the report for the actual setup and connections between EUT and support equipment.

2.4 Ancillary equipment

Equipment	Model	S/N	Manufacturer
Adapter	/	/	/

2.5 Test laboratory

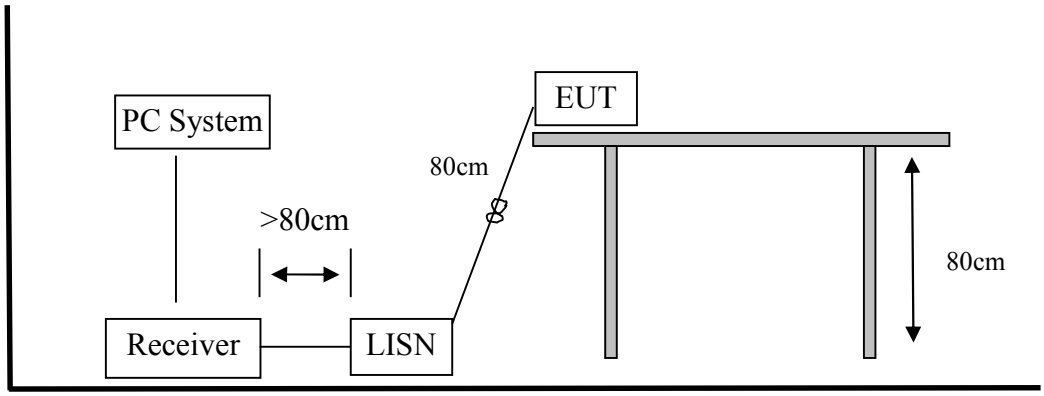
Test Site	Shenzhen KAIXU Testing Technology Co., Ltd
Test Site Location	Room 316, 3rd Floor, Building A, Jinbolong Industrial Park, Longhua Street, Longhua District, Shenzhen
Telephone:	(86-755)85254458
Fax:	(86-755) 85254458

3 POWER LINE CONDUCTED EMISSION TEST

3.1 Test Equipment

Conduction emission							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Artificial power network	MTI-E037	Schwarzbeck	NSLK8127	NSLK8127#841	2021/10/16	2022/10/15
2	EMI Test Receiver	MTI-E003	Rohde&schwarz	ESCI	101368	2021/10/16	2022/10/15
3	Artificial power network	MTI-E058	Schwarzbeck	NSLK8127	NSLK8127#841	2021/10/16	2022/10/15

3.2 Block Diagram of Test Setup



3.3 Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(□V)	Average Level dB(□V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. Emission level=Read level+LISN factor-Preamp factor+Cable loss
2* Decreasing linearly with logarithm of frequency.
3. The lower limit shall apply at the transition frequencies.

3.4 Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.5 Operating Condition of EUT

1.1.1. Setup the EUT and simulator as shown as Section 3.2.

1.1.2. Turn on the power of all equipment.

1.1.3. Let the EUT work in test mode (discharge) and 15 minutes after taking the test.

3.6 Test Procedure

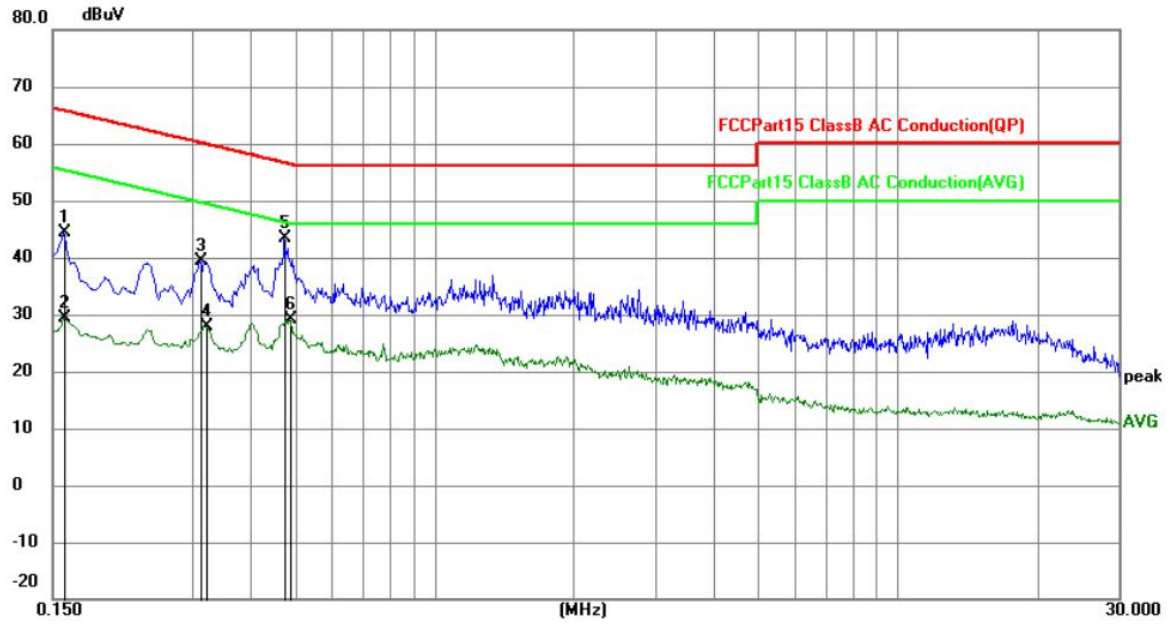
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N. #2), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2014 on conducted Emission test.

The bandwidth of test receiver (R&S TEST RECEIVER ESCI) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked. The test result are reported on Section 3.7.

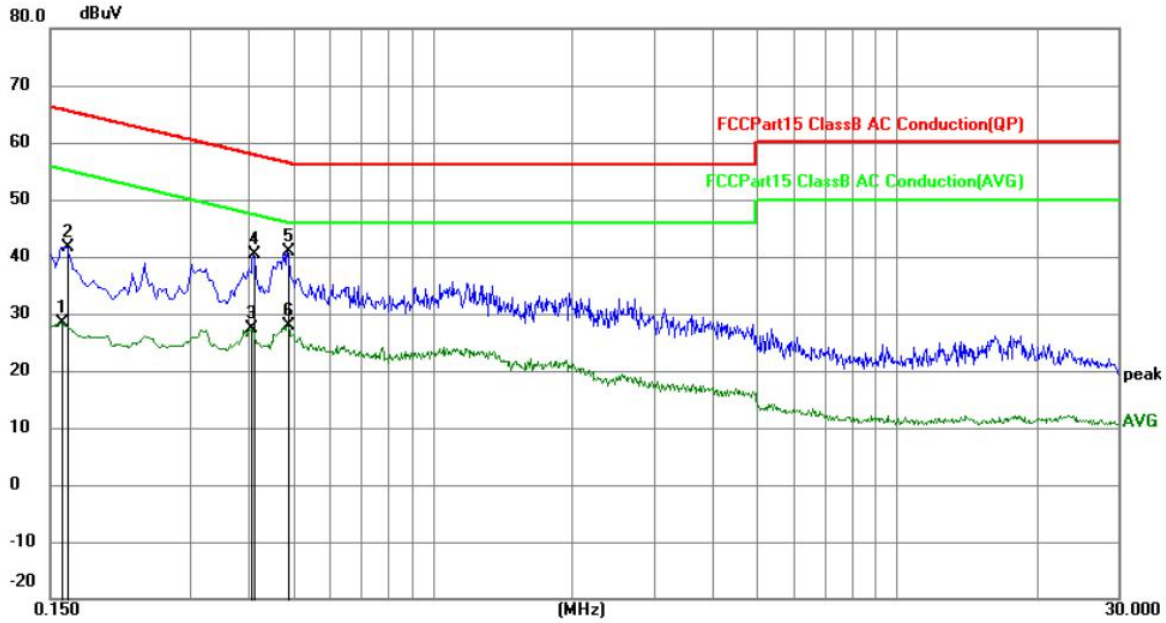
3.7 Conducted Disturbance at Mains Terminals Test Results: PASS

Temperature:	26℃	Relative Humidity:	60%
Pressure:	101kPa	Phase:	L
Test voltage:	DC 5V From USB	Test mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1590	31.83	12.48	44.31	65.52	-21.21	peak	P	
2	0.1590	16.91	12.48	29.39	55.52	-26.13	AVG	P	
3	0.3120	27.09	12.39	39.48	59.92	-20.44	peak	P	
4	0.3209	15.55	12.39	27.94	49.68	-21.74	AVG	P	
5	0.4740	31.11	12.36	43.47	56.44	-12.97	peak	P	
6	0.4875	16.70	12.36	29.06	46.21	-17.15	AVG	P	

Temperature:	26℃	Relative Humidity:	60%
Pressure:	101kPa	Phase:	N
Test voltage:	DC 5V From USB	Test mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1590	15.91	12.48	28.39	55.52	-27.13	AVG	P	
2	0.1635	29.20	12.48	41.68	65.28	-23.60	peak	P	
3	0.4065	14.89	12.37	27.26	47.72	-20.46	AVG	P	
4	0.4110	28.00	12.37	40.37	57.63	-17.26	peak	P	
5	0.4875	28.52	12.36	40.88	56.21	-15.33	peak	P	
6	0.4875	15.51	12.36	27.87	46.21	-18.34	AVG	P	

4 RADIATED EMISSION TEST

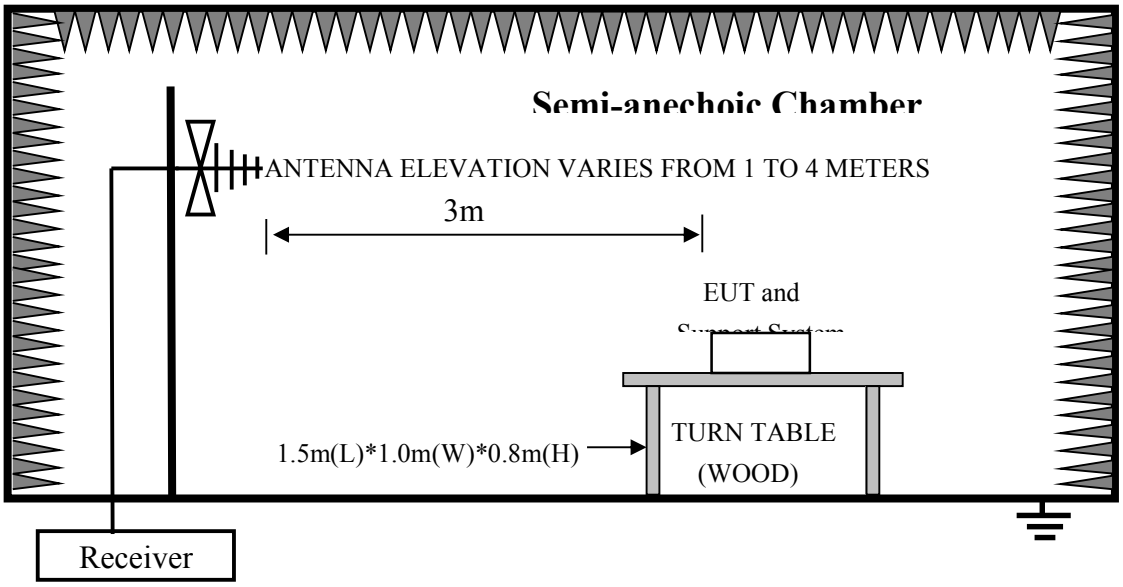
4.1 Test Equipment

4.1.1 For frequency range 30MHz~1000MHz and 1GHz~6GHz (At Semi Anechoic Chamber)

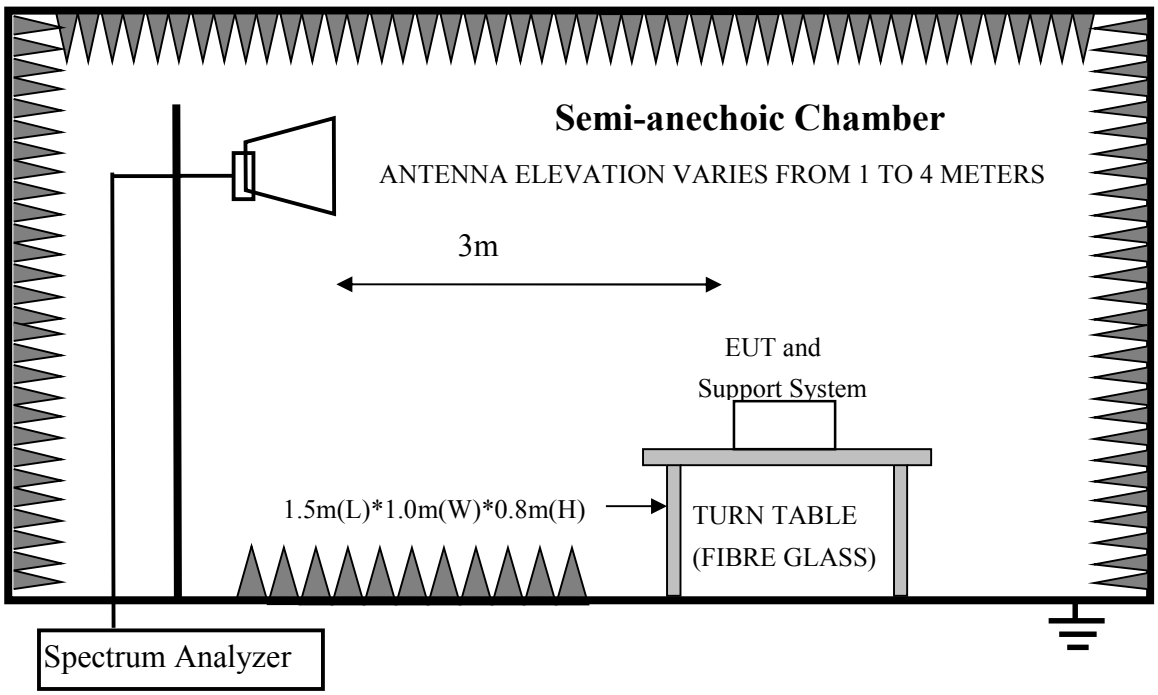
Radiation emission							
Item	Equipment name	Equipment No.	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	MTI-E004	Rohde&schwarz	ESPI	1000314	2021/10/16	2022/10/15
2	Broadband antenna	MTI-E006	schwarabeck	VULB9163	872	2021/10/16	2022/10/15
3	Horn antenna	MTI-E007	schwarabeck	BBHA9120D	1201	2021/10/16	2022/10/15
4	ALCOHOL DETECTOR	MTI-E014	America	8447D	3113A06150	2021/10/16	2022/10/15
5	ALCOHOL DETECTOR	MTI-E034	Agilent	8449B	3008A02400	2021/10/16	2022/10/15
6	18-40GHz ALCOHOL DETECTOR	MTI-E052	Chengdu step Micro Technology	ZLNA-18-40G-21	1608001	2021/10/16	2022/10/15
7	spectrum analyzer	MTI-E049	Rohde&schwarz	FSP-38	100019	2021/10/16	2022/10/15
8	15-40G Antenna	MTI-E053	Schwarzbeek	BBHA9170	BBHA9170582	2021/10/16	2022/10/15
9	Active Loop Antenna 9kHz - 30MHz	MTI-E051	Schwarzbeck	FMZB 1519 B	00044	2021/10/16	2022/10/15

4.2 Block Diagram of Test Setup

4.2.1 In Semi Anechoic Chamber (3m) Test Setup Diagram for 30MHz~1000MHz



4.2.2 In Semi Anechoic Chamber (3m) Test Setup Diagram for 1-5GHz



4.3 Radiated Emission Limit

Frequency MHz	Distance (Meters)	Field Strengths Limits dB(□V)/m
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0
1000 ~ 5000	3	74(Peak) 54(Average)

Remark: (1) Emission level = Read level+Antenna Factor-Preamp Factor +Cable Loss

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4 EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner that tends to maximize its emission characteristics in normal application.

1.1.4.Support Equipments : As Tested Supporting System Detail, in Section 2.2.

4.5 Operating Condition of EUT

1.1.5.Setup the EUT as shown in Section 4.2.

1.1.6.Turn on the power of all equipment.

1.1.7.Let the EUT work in test mode (Full Load) and 15 minutes after taking the test.

4.6 Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2014 on Radiated Emission test.

The bandwidth setting on the test receiver (ROHDE&SCHWARZ TEST RECEIVER ESPI) is 120 kHz.

The resolution bandwidth of the Agilent Spectrum Analyzer FSP-38 was set at 1MHz. (For above 1GHz)

The frequency range from 30MHz to 1000MHz was pre-scanned with a peak detector and all final readings of measurement from Test Receiver are Quasi-Peak values.

The frequency range from 1GHz to 5GHz was checked with peak and average detector, measurement distance is 3m in 3m chamber.

Finally, selected operating situations at Anechoic Chamber measurement, all the test results are listed in section 4.7.

4.7 Radiated Disturbance Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

For frequency range 30MHz~1000MHz

The EUT with the following test mode was tested and read Q.P values, the test results are listed in next pages.

Temperature: 25℃ Humidity: 56%

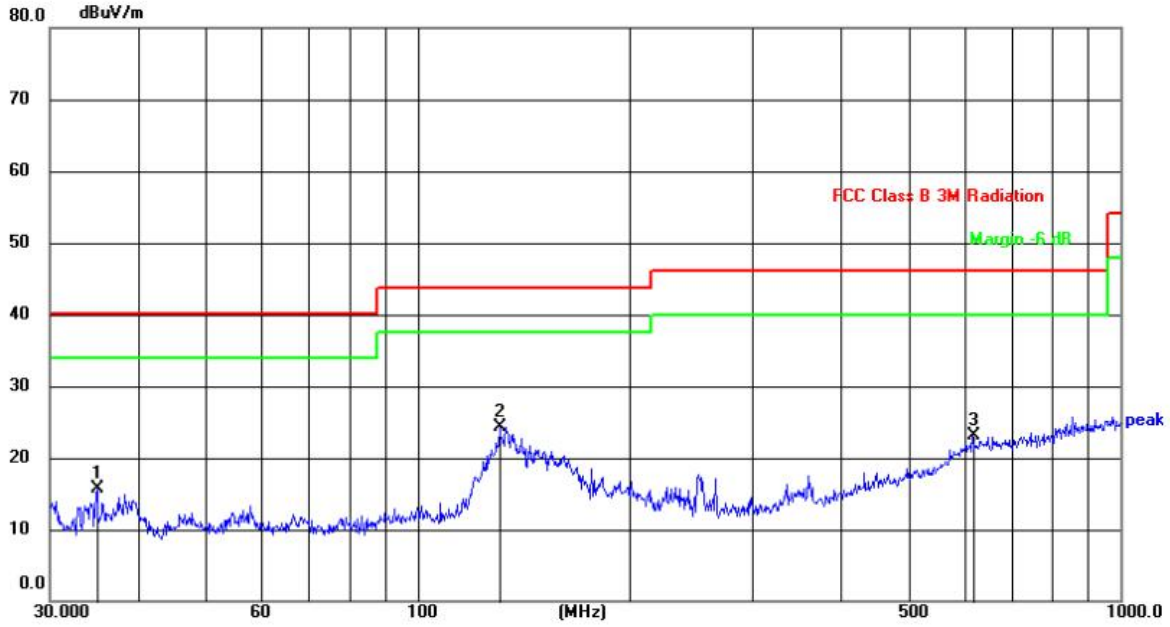
The details of test mode is as follows：

No.	Test Mode
1.	Mode 1

For frequency range 1GHz~5GHz

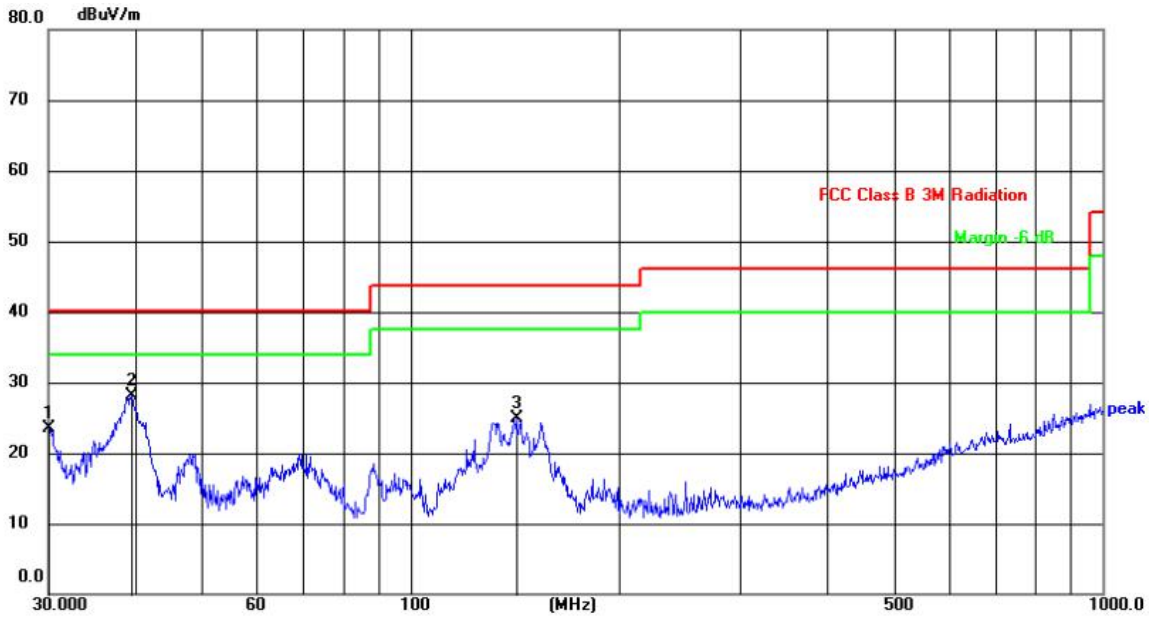
The highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. So the frequency rang 1GHz-5GHz radiation test not applicable.

Temperature:	25℃	Relative Humidity:	56%
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V	Test mode:	Mode 2



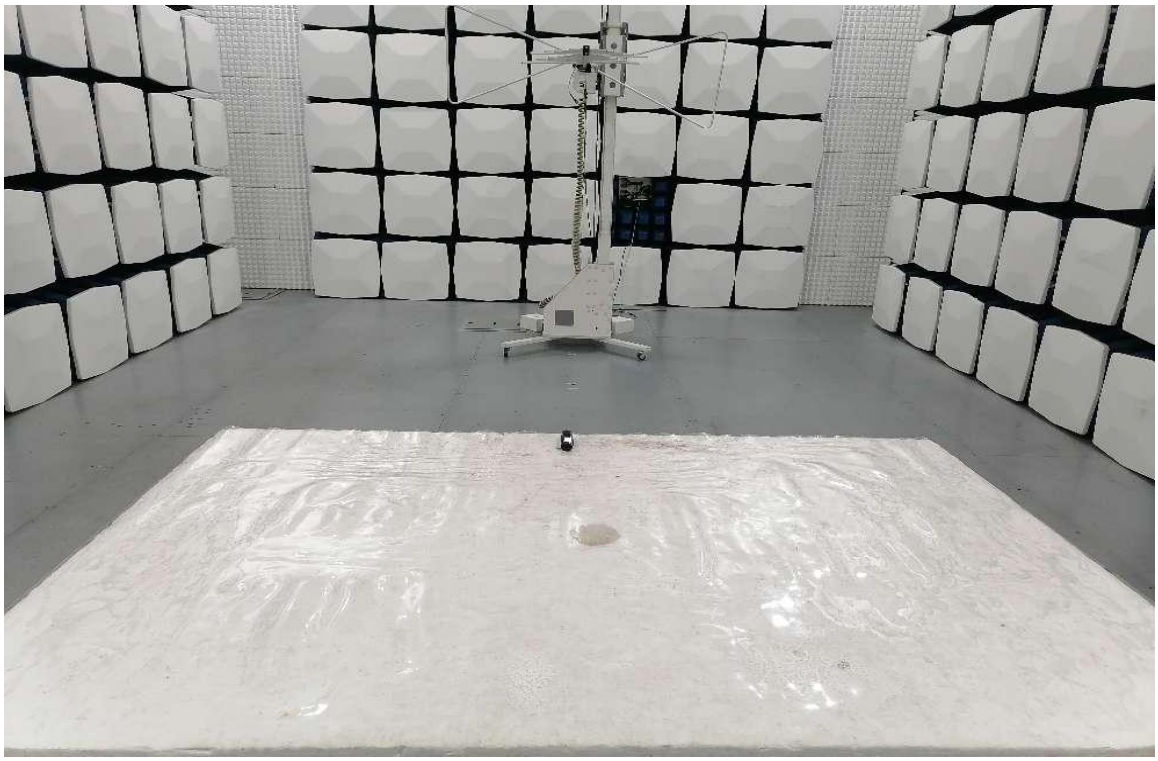
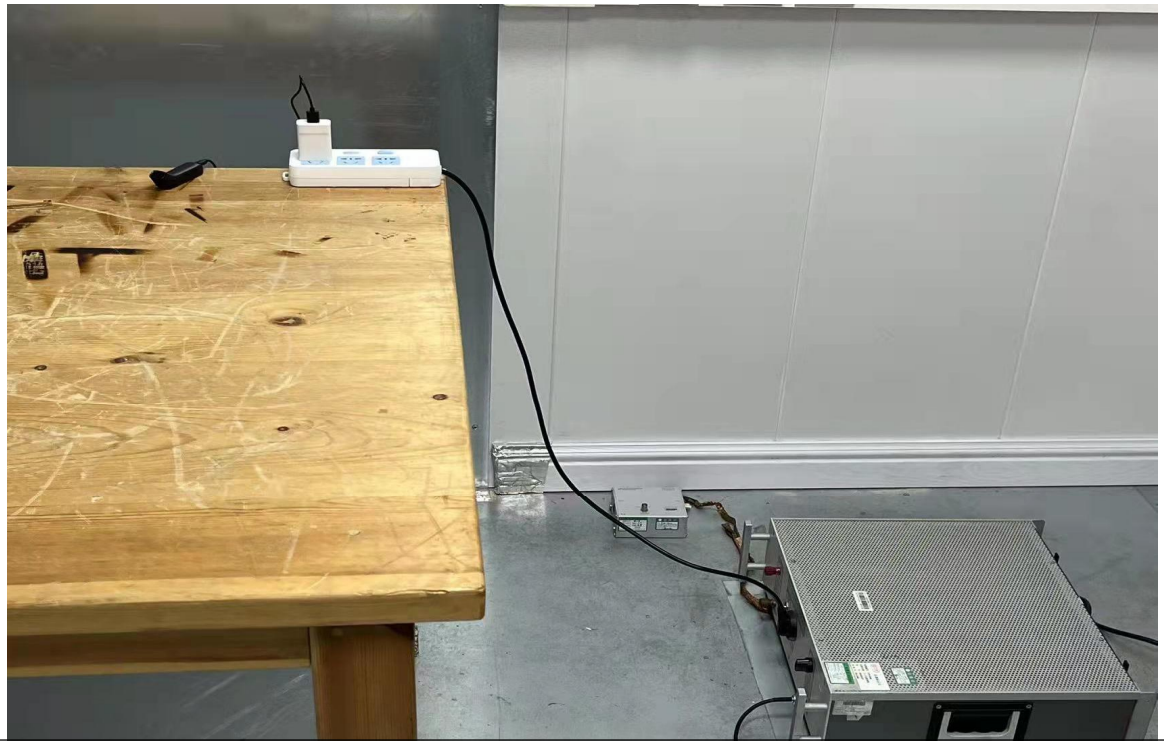
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	35.0048	36.93	-21.30	15.63	40.00	-24.37	peak				
2	130.8369	43.26	-18.93	24.33	43.50	-19.17	peak				
3	616.3718	32.96	-9.76	23.20	46.00	-22.80	peak				

Temperature:	25℃	Relative Humidity:	56%
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V	Test mode:	Mode 2

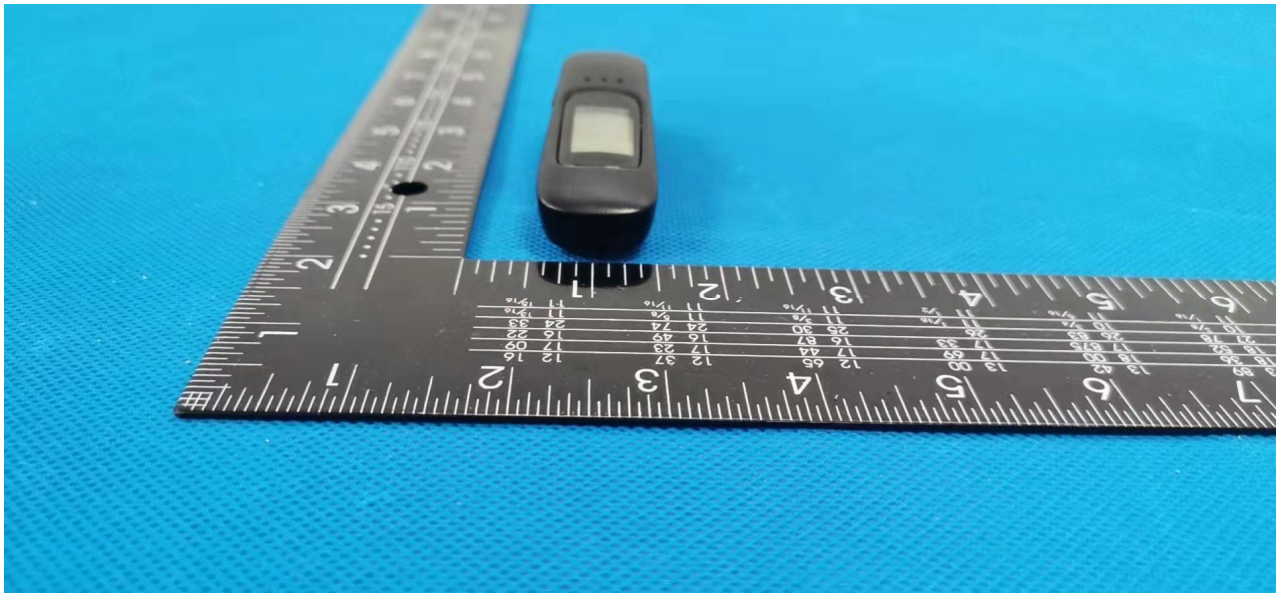


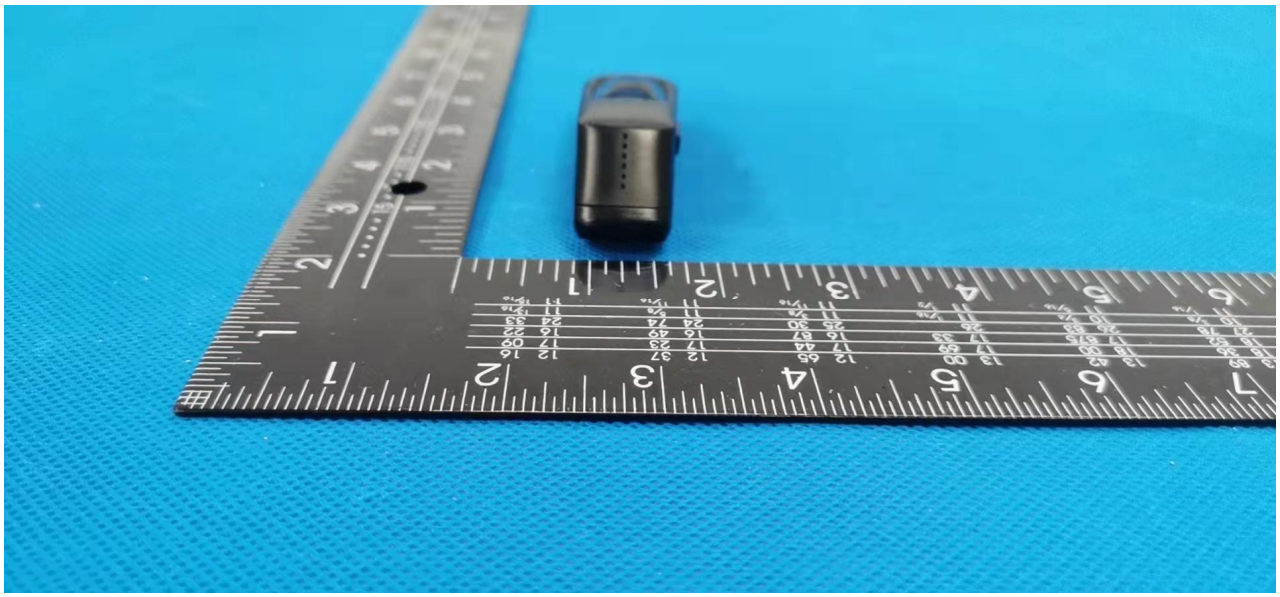
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	30.1051	45.08	-21.52	23.56	40.00	-16.44	peak				
2	39.5757	48.74	-20.64	28.10	40.00	-11.90	peak				
3	142.3243	43.79	-18.93	24.86	43.50	-18.64	peak				

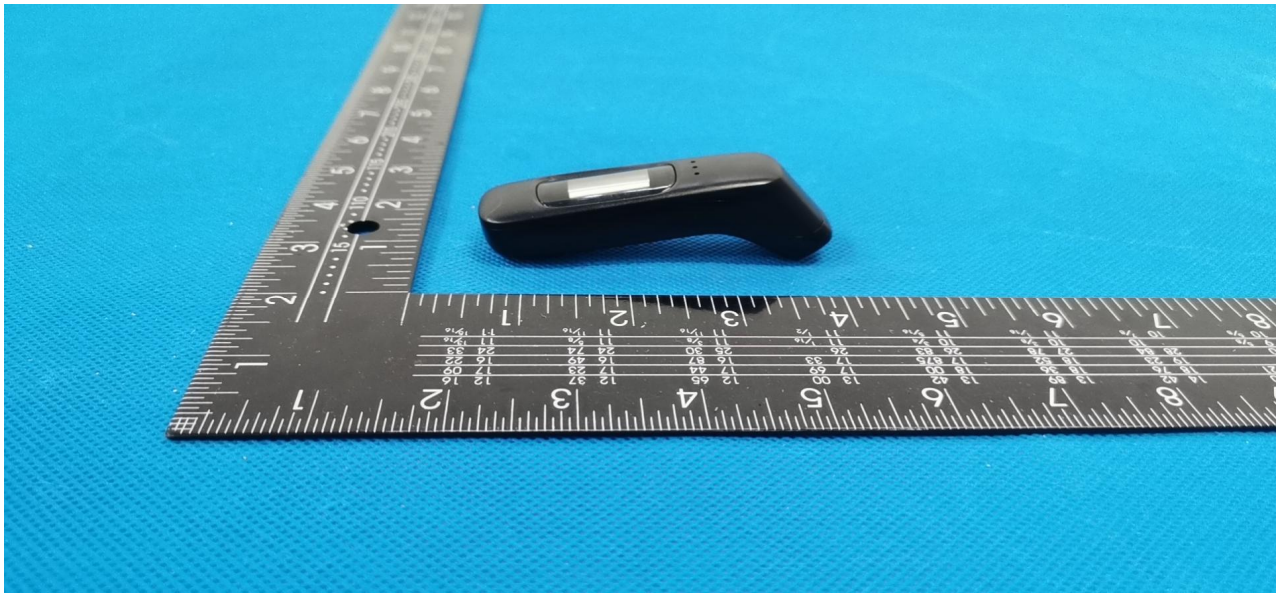
TEST PHOTOGRAPHS OF THE EUT

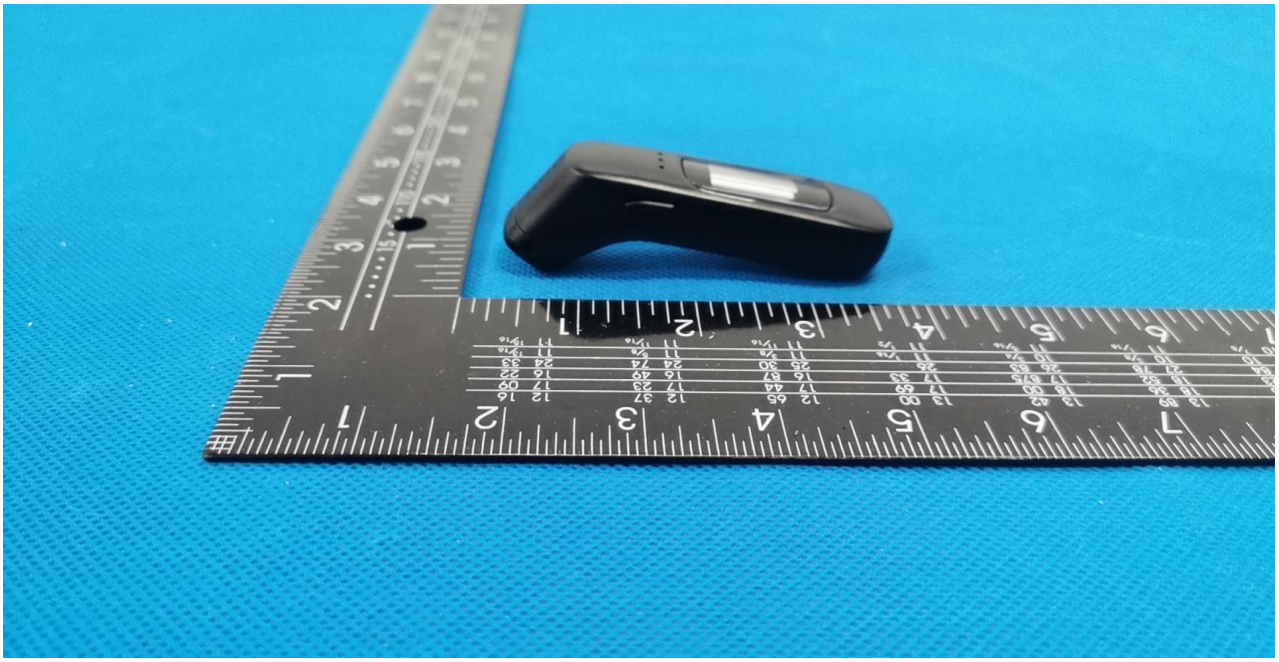
Radiated emission

Conducted emission


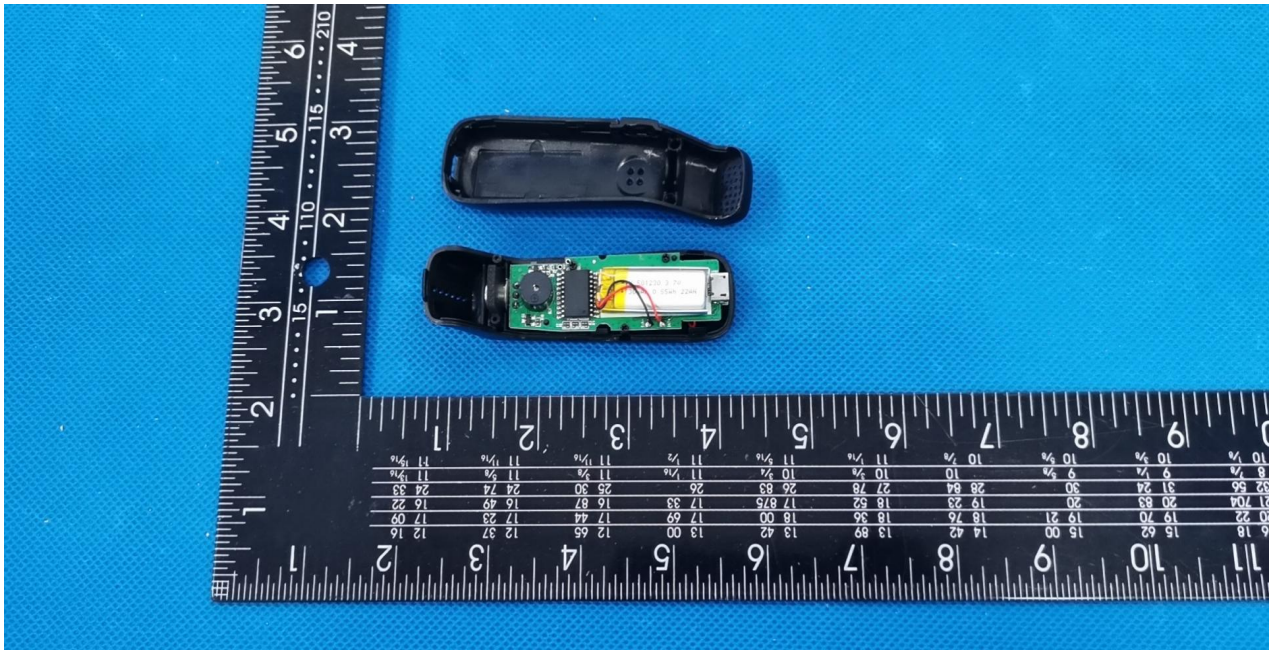
PHOTOGRAPHS OF THE EUT

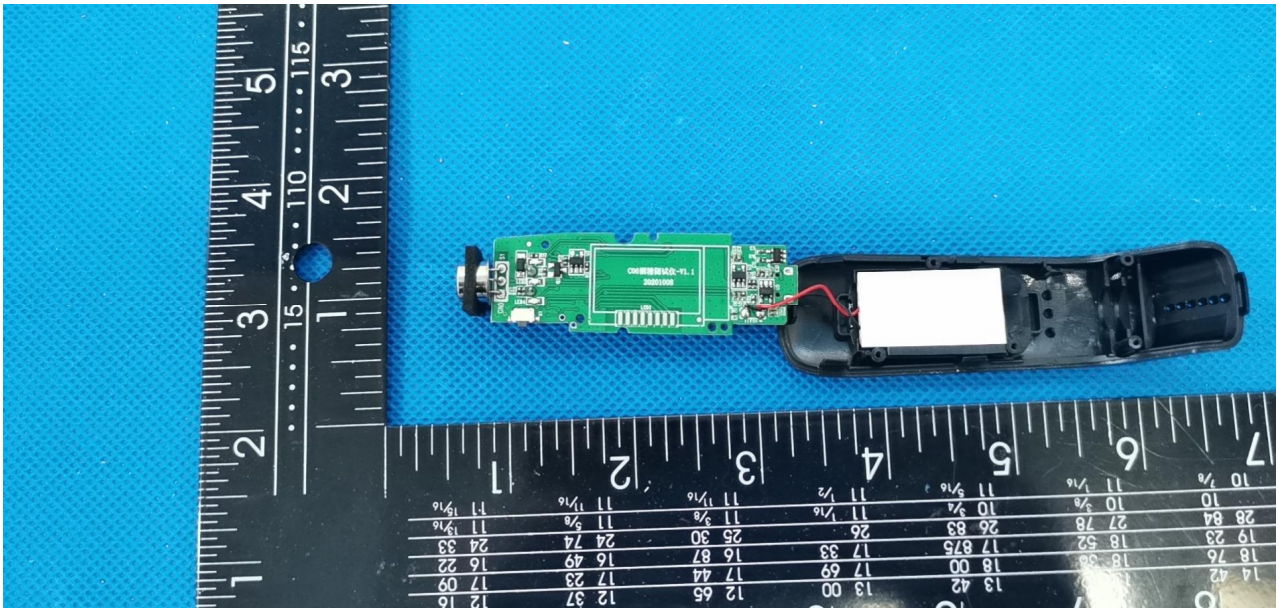


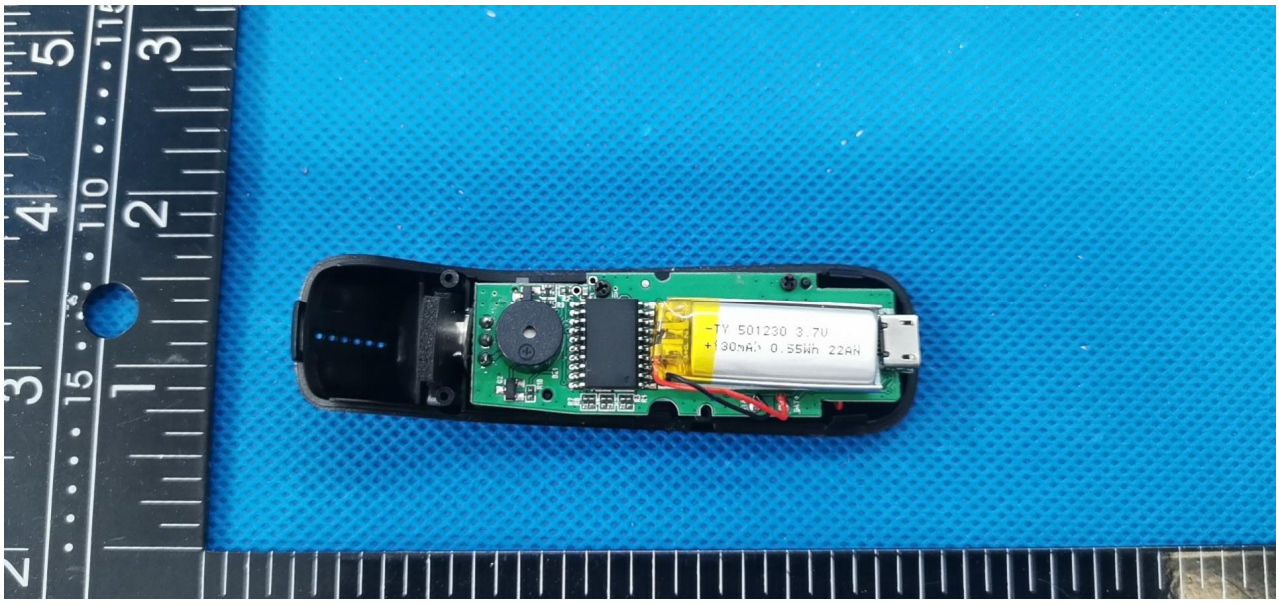












----END OF REPORT----

ZERTIFIKAT ◆ 認證證書 ◆ CERTIFICAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ СЕРТИФИКАЦИЯ

FCC Supplier's Declaration of Conformity

DATE OF ISSUE：March 29, 2022

Certificate No. : KTi220322E015C

Manufacturer/ Importer	:	**Dongguan Deruichen Electronics Co., Ltd.**
Address	:	**Deruichen Industrial Park, Wuxing Road, Changping Town, Dongguan, Guangdong, China**
Product	:	**ALCOHOL DETECTOR**
Model No.	:	**C06, C07, C8, C9, C11, C22, C33, C66, C99**
Trademark	:	**N/A**

Declare that our product has been completely compliance with the requirement of appropriate technical standards of FCC Rules and Regulations under 47 CFR Part 15 Subpart B, Measurement Procedure：ANSI C63.4:2014.

Report No.：KTi220322E015

TEST LABORATORY

Shenzhen KAIXU Testing Technology Co., Ltd.

Room 316, 3rd Floor, Building A, Jinbolong Industrial Park, Longhua Street, Longhua District, Shenzhen

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

It is understood that each unit marketed is identical to the device as tested, and any changes to the device that could adversely affect the emission characteristics will require retest.

Certified by:

Manager

SHENZHEN KAIXU TESTING TECHNOLOGY CO., LTD

SHENZHEN KAIXU TESTING TECHNOLOGY CO., LTD
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