EN 55032:2015
EN 55035:2017
EN 61000-3-2:2014
EN 61000-3-3:2013

TEST REPORT

For

Eggplant Technologies Ltd.

Plat/Rm 1903 19/F, Lee Garden One 33 Hysan Avenue, Causeway Bay Hong Kong

Tested Model: MVSS0000

Multiple Model: MVDB0011, MVDB0012, MVDB0013, MVDB0021, MVDB0022, MVDB0023, MVDB0031, MVDB0032, MVDB0033, MVDB1011, MVDB1012, MVDB1013, MVDB1021, MVDB1022, MVDB1023, MVDB1031, MVDB1032, MVDB1033, MVDB2011, MVDB2012, MVDB2013, MVDB2021, MVDB2022, MVDB2023, MVDB2031, MVDB2032, MVDB2033, MVHH0011, MVHH0012, MVHH0013, MVHH0021, MVHH0022, MVHH0023, MVHH0031, MVHH0032, MVHH0033, MVRB0011, MVRB0012, MVRB0013, MVRB0021, MVRB0022, MVRB0023, MVRB0031, MVRB0032, MVRB0033, MVDS0001

Report Type:	**Product Type:**
Original Report	Move It Smart Sensor Module

Report Number:	RSZ200616006-EM-01
Report Date:	2020-07-09
Reviewed By:	Joson Xiao EMC Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Move It Smart Sensor Module
Tested Model	MVSS0000
Multiple Model	MVDB0011 , MVDB0012, MVDB0013, MVDB0021, MVDB0022, MVDB0023, MVDB0031, MVDB0032, MVDB0033, MVDB1011, MVDB1012, MVDB1013, MVDB1021, MVDB1022, MVDB1023, MVDB1031,MVDB1032,MVDB1033,MVDB2011,MVDB2012,MVDB2013, MVDB2021,MVDB2022,MVDB2023,MVDB2031,MVDB2032,MVDB2033, MVHH0011,MVHH0012,MVHH0013,MVHH0021,MVHH0022,MVHH0023, MVHH0031,MVHH0032,MVHH0033,MVRB0011,MVRB0012,MVRB0013, MVRB0021,MVRB0022,MVRB0023,MVRB0031, MVRB0032,MVRB0033, MVDS0001
Model Differences	Refer to the DoS letter
Voltage Range	DC 3.7V from battery
Highest operating frequency	64 MHz
Date of Test	2020-06-19 to 2020-06-24
Sample serial number	RSZ200616006-EM-S1 (Assigned by BACL, Shenzhen)
Received date	2020-06-16
Sample/EUT Status	Good condition

Objective

This test report is prepared on behalf of Eggplant Technologies Ltd. in accordance with EN 55032: Electromagnetic compatibility of multimedia equipment -Emission Requirements. EN 55035: Electromagnetic compatibility of multimedia equipment -Immunity requirements. EN 61000-3-2, Limits – Limits for harmonic current emissions (equipment input current up to and including 16 A per phase), and also in accordance with EN 61000-3-3, Limits Section 3; Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current<16A.

The objective is to determine the compliance of EUT with EN 55032, EN 55035, EN 61000-3-2 and EN 61000-3-3.

Related Submittal(s)/Grant(s)

No related submittal(s).

Performance criterion

Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment 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 equipment if used as intended.

Performance criterion B

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test. After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment 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), or recovery time, 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 equipment if used as intended.

Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

Test Methodology

All measurements contained in this report were conducted with CISPR 16-1-1:2010+A1:2010+A2:2014, specification for radio disturbance and immunity measuring apparatus and methods P1-1: radio disturbance and immunity measuring apparatus measuring apparatus. CISPR16-1-4:2010+A1:2012 , Specification for radio disturbance and immunity measuring apparatus and methods-Part 1-4: Radio disturbance and immunity measuring apparatus -Ancillary equipment -Radiated disturbances. CISPR 16-2-1:2014, specification for radio disturbance and immunity measuring apparatus and methods P2-1: methods of measurement of disturbance and immunity conducted disturbance measurements. CISPR 16-2-3:2010+A1:2010+A2:2014, specification for radio disturbance and immunity measuring apparatus and methods P2-3 methods of measurement of disturbances and immunity radiated disturbance measurements. CISPR 16-4-2:2011, Specification for radio disturbance and immunity measuring apparatus and methods-Part 4-2: Uncertainties, statistics and limit modeling-Uncertainty in EMC measurements.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 Meters.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will be taken into consideration for the test data recorded in the report

Item		Expanded Measurement uncertainty
Conducted Emissions	AC Mains	1.95 dB (k=2, 95% level of confidence)
Radiated emission	Below 1GHz	4.75 dB (k=2, 95% level of confidence)
	Above 1GHz	4.88 dB (k=2, 95% level of confidence)

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in normal mode.

EUT exercise software

No software was used.

Equipment Modifications

No modification was made to the EUT tested.

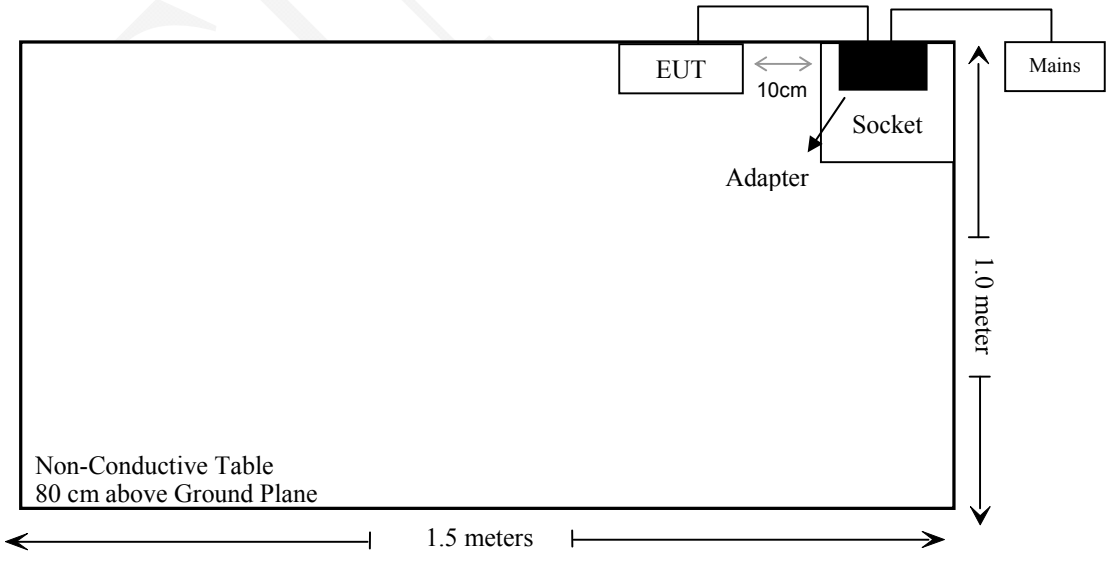
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
BULL	Socket	GN-415K	5503290068073

External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded un-detachable AC cable	1.0	socket	mains
Shielded detachable USB cable	1.0	Adapter	EUT

Block Diagram of Test Setup



SUMMARY OF TEST REPORT

EN 55032

RULE	DESCRIPTION	RESULTS
§ A.3	Conducted Disturbance at Mains Terminals	Compliance
§ A.2	Radiated Disturbance	Compliance

EN 55035

RULE	DESCRIPTION	RESULTS
§4.2.1	Electrostatic Discharge IEC 61000-4-2	Compliance
§4.2.2.2	Continuous Radiated Immunity IEC 61000-4-3	Compliance
§4.2.2.3	Continuous Conducted Immunity IEC 61000-4-6	Compliance
§4.2.3	Power Frequency Magnetic Fields IEC 61000-4-8	Compliance
§4.2.4	Electrical Fast Transients IEC 61000-4-4	Compliance
§4.2.5	Surges IEC 61000-4-5	Compliance
§4.2.6	Voltage Dips And Interruptions, IEC 61000-4-11	Compliance
§4.2.7	Broadband impulsive conducted disturbances	Not Applicable

EN 61000-3-2

Rule	Description	Results
§7	Harmonic Current Emissions	Compliance

EN 61000-3-3

Rule	Description	Results
§5	Voltage Fluctuation and Flicker	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EMI					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2019/7/9	2020/7/8
Rohde & Schwarz	LISN	ENV216	101613	2020/1/22	2021/1/21
Rohde & Schwarz	Transient Limitor	ESH3Z2	DE25985	2019/11/29	2020/11/28
Unknown	CE Cable	CE Cable	UF A210B-1-0720-504504	2019/11/29	2020/11/28
Rohde & Schwarz	CE Test software	EMC 32	V8.53.0	NCR	NCR
R&S	EMI Test Receiver	ESR3	102455	2019/7/9	2020/7/8
Sonoma instrument	Pre-amplifier	310 N	186238	2020/4/20	2021/4/20
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2017/12/22	2020/12/21
Unknown	Cable 2	RF Cable 2	F-03-EM197	2019/11/29	2020/11/28
Unknown	Cable	Chamber Cable 4	EC-007	2019/11/29	2020/11/28
Rohde & Schwarz	Auto test software	EMC 32	V9.10	NCR	NCR
EM TEST	Harmonics/flicker	DPA 500N	V0939105176	2020/1/22	2021/1/21
EM TEST	AC Source	ACS500	303276	2019/12/25	2020/12/25
EM Test	DPA.Control	V5.0.3.0	Unknown	NCR	NCR
EMS					
TESTQ	ESD Generator	NSG 438	005101	2019/7/23	2020/7/22
Yijia	Temperature & Humidity Meter	10316377	T-03-EM395	2019/10/14	2020/10/13
HP	Signal Generator	8665B	3744A01692	2019/8/13	2020/8/12
AR	Amplifier	500W1000B	0348446	2020/3/2	2021/3/1
AR	Amplifier	60S1G6	0348712	2020/3/2	2021/3/1
AR	Antenna	ATL80M1G	0348837	NCR	NCR
AR	Antenna	ATT700M12G	0349411	NCR	NCR
BACL	Test Software	VEE PRO	V2.3 VXE	NCR	NCR
HP	Signal Generator	8648C	3426A01345	2019/7/9	2020/7/8
A&R	Power Amplifier	15A250	13444	2020/3/2	2021/3/1
WEINSCHEL	6dB Attenuator	50-6	R4376	NCR	NCR
Com-Power Corporation	CDN	CDN M325E	521145	2019/7/9	2020/7/8
EM TEST	EMS Combination Tester	UCS 500 N5	V0939105172	2020/3/2	2021/3/1
EM TEST	AC Source	MV2616	V0939105173	2020/3/2	2021/3/1
EM TEST	IEC.Control	V5.0.9.0	Unknown	NCR	NCR
EM TEST	Loop Antenna	MS100	0809-05	2019/3/2	2022/3/1
EM TEST	Current Transformer	MC 2630	0309-59	2020/3/2	2021/3/1

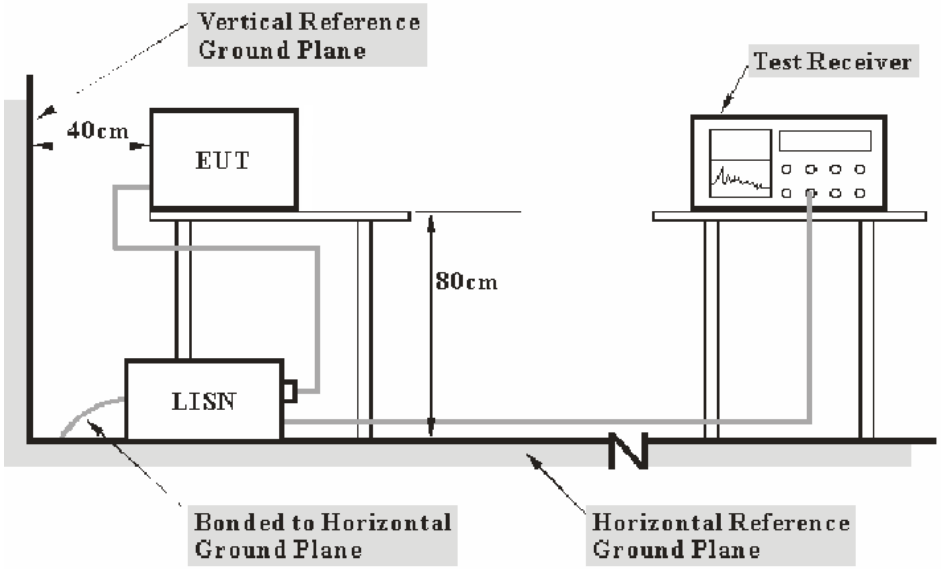
*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

EN 55032 §A.3 - CONDUCTED DISTURBANCE

Applicable Standard

According to EN 55032 §A.3

Test System Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is in according with CISPR 16-1-1:2010+A1:2010+A2:2014, CISPR 16-2-1:2014. The related limit was specified in the EN 55032 Class B.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All final data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Correction Factor = LISN/ISN VDF + Cable Loss + Transient Limiter Attenuation

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Results Summary

According to the recorded data in following table, the EUT complied with the limit of EN 55032 Class B

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

Test Data

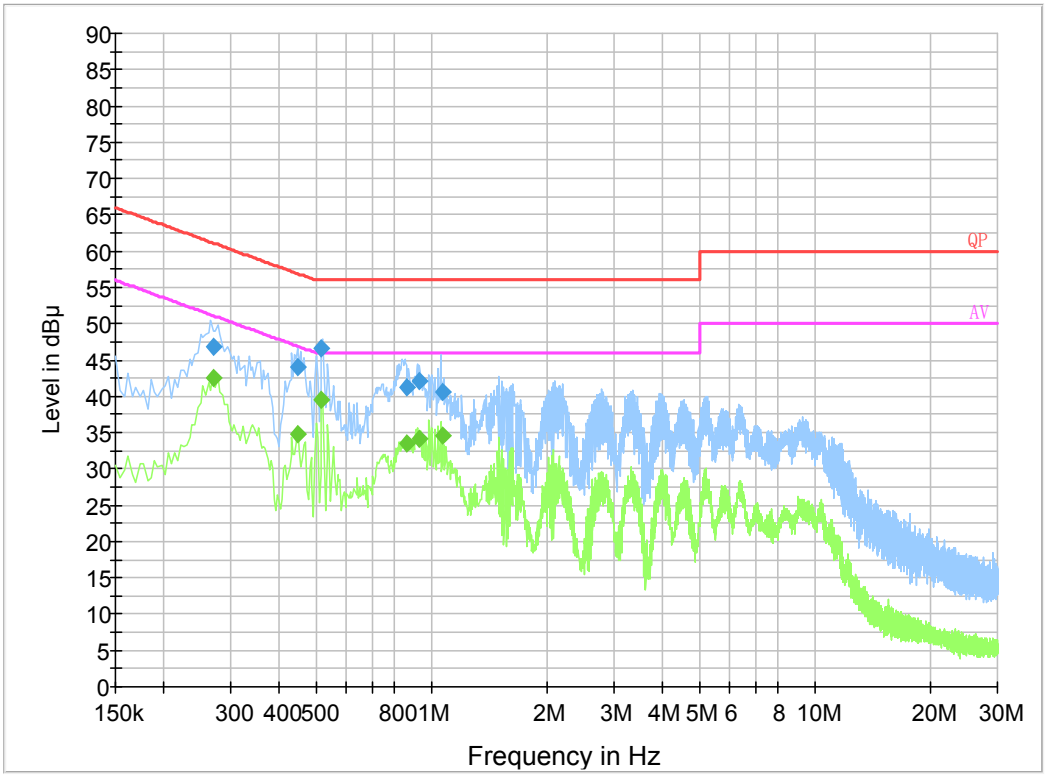
Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	65 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2020-06-20.

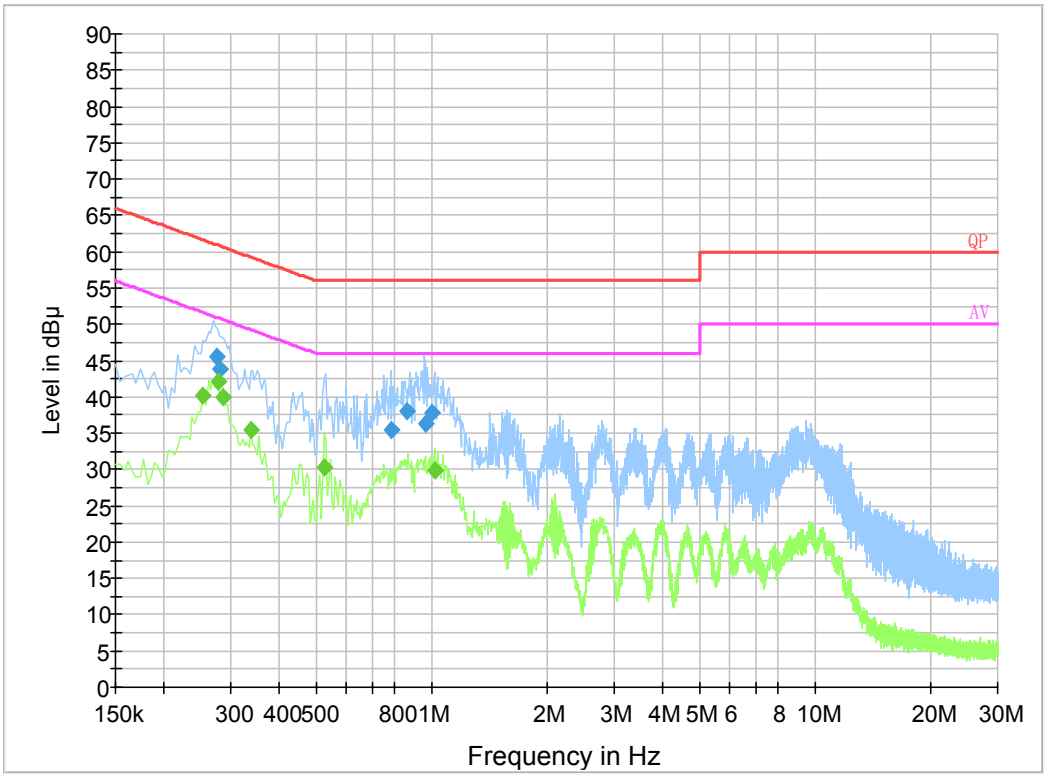
EUT Operation Mode: Charging

Line



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/Ave./QP)
0.269500	46.8	19.8	61.1	14.3	QP
0.447250	44.0	19.8	56.9	12.9	QP
0.518170	46.7	19.8	56.0	9.3	QP
0.861190	41.3	19.8	56.0	14.7	QP
0.931770	42.0	19.8	56.0	14.0	QP
1.073870	40.6	19.9	56.0	15.4	QP
0.269500	42.4	19.8	51.1	8.7	Ave.
0.447250	34.9	19.8	46.9	12.0	Ave.
0.518170	39.6	19.8	46.0	6.4	Ave.
0.861190	33.5	19.8	46.0	12.5	Ave.
0.931770	34.3	19.8	46.0	11.7	Ave.
1.073870	34.6	19.9	46.0	11.4	Ave.

Neutral:



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/Ave./QP)
0.274500	45.5	19.7	61.0	15.5	QP
0.281500	43.8	19.7	60.8	17.0	QP
0.786210	35.5	19.8	56.0	20.5	QP
0.864830	38.0	19.8	56.0	18.0	QP
0.967630	36.3	19.8	56.0	19.7	QP
1.006730	37.9	19.8	56.0	18.1	QP
0.254000	40.1	19.8	51.6	11.5	Ave.
0.278000	42.1	19.7	50.9	8.8	Ave.
0.286000	39.9	19.7	50.6	10.7	Ave.
0.338000	35.5	19.8	49.3	13.8	Ave.
0.526000	30.4	19.8	46.0	15.6	Ave.
1.018000	29.8	19.8	46.0	16.2	Ave.

Note:
1) Correction Factor =LISN/ISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter Attenuation
2) Corrected Amplitude = Reading + Correction Factor
3) Margin = Limit – Corrected Amplitude

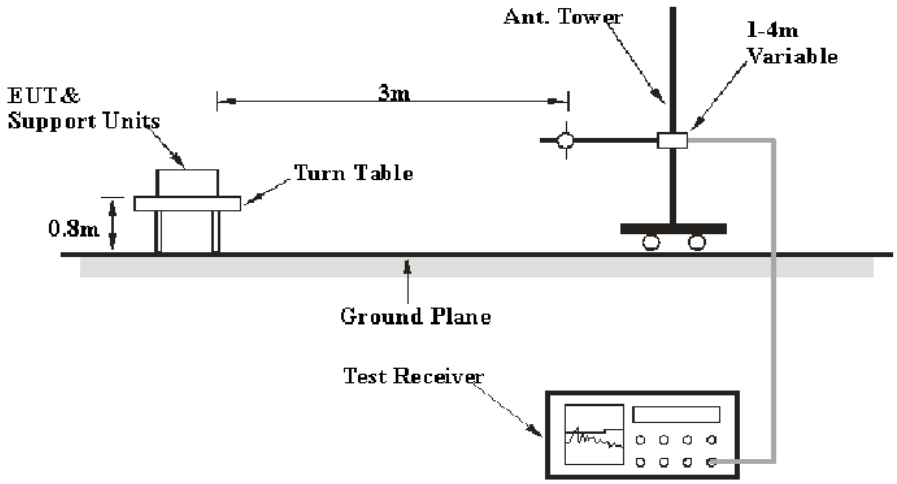
EN 55032 §A.2-RADIATED DISTURBANCE

Applicable Standard

EN 55032 §A.2

Test System Setup

Below 1 GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the CISPR16-1-4:2010+A1:2012, CISPR 16-2-3:2010+A1:2010+A2:2014. The limit was specified in EN 55032 Class B.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 1 GHz.

During the radiated emission test, the EMI test receiver Setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All final data was recorded in the Quasi-peak detection mode

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit for Class B. The equation for margin calculation is as follows:

Margin = Limit –Corrected Amplitude.

Test Results Summary

According to the data in the following table, the EUT complied with the limit of EN 55032 Class B

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL., $U_{(Lm)}$ is less than + U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

Test Data

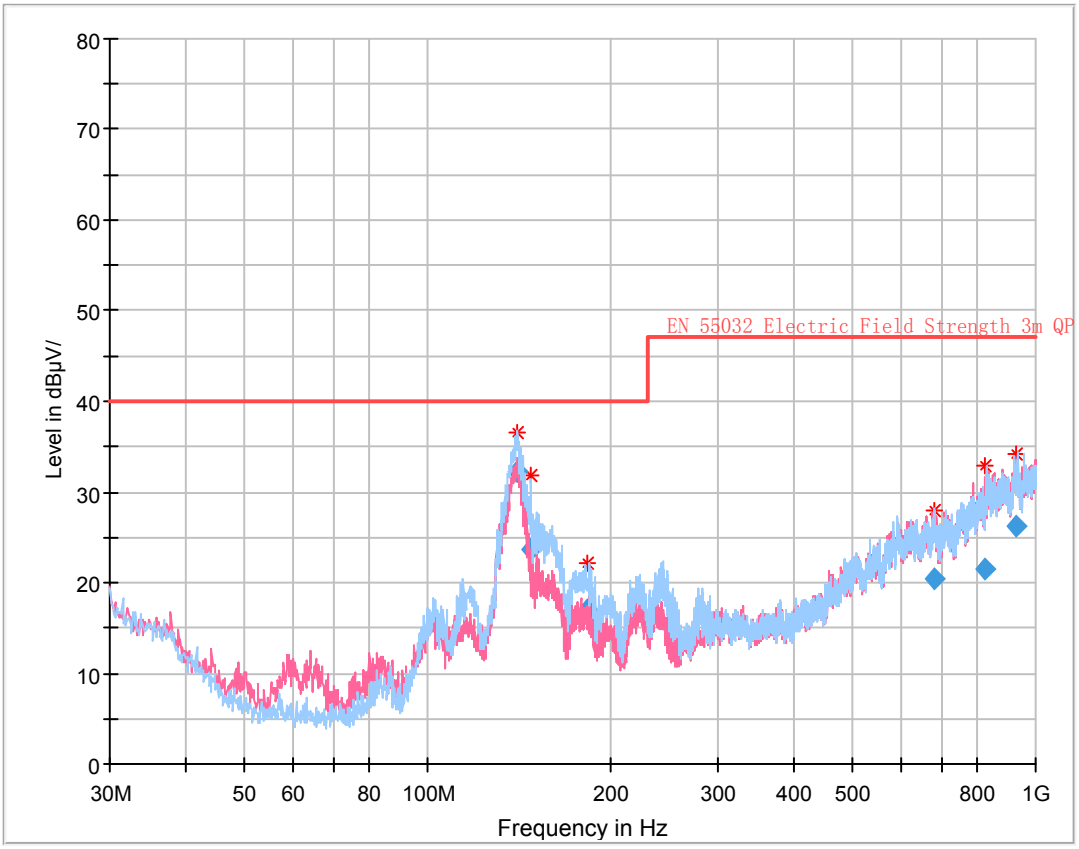
Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	66 %
ATM Pressure:	101.0 kPa

The testing was performed by Holland Yang on 2020-06-19

EUT Operation Mode: Charging

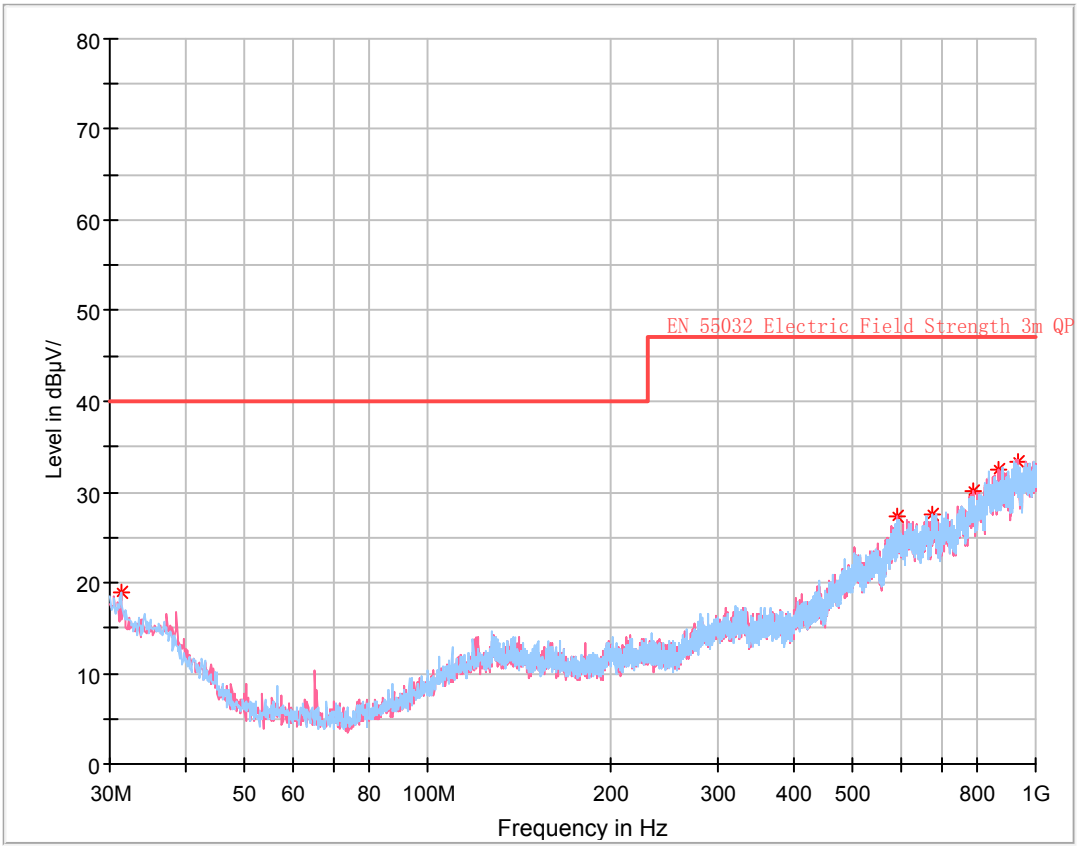
30 MHz~1 GHz



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna height (cm)	Antenna Polarity	Turntable position (degree)	Correction Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
140.753750	32.33	195.0	H	229.0	-14.2	40.00	7.67
147.529750	23.59	154.0	H	237.0	-14.2	40.00	16.41
183.472000	17.02	114.0	H	182.0	-15.2	40.00	22.98
681.213750	20.35	400.0	H	270.0	-1.4	47.00	26.65
828.164375	21.60	364.0	H	157.0	2.5	47.00	25.40
931.967875	26.23	341.0	H	215.0	4.8	47.00	20.77

EUT Operation Mode: Working

30 MHz~1 GHz



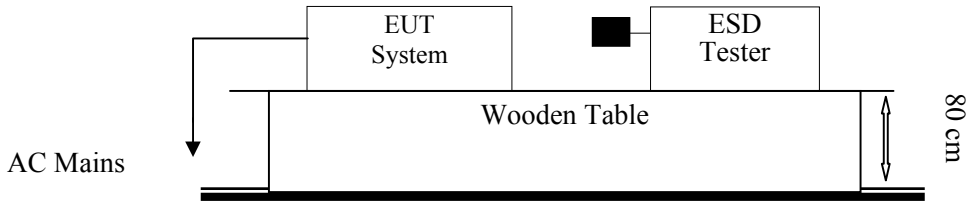
Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna height (cm)	Antenna Polarity	Turntable position (degree)	Correction Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
31.333750	19.00	100.0	H	102.0	-8.4	40.00	21.00
591.993750	27.38	300.0	V	155.0	-2.0	47.00	19.62
675.292500	27.54	300.0	H	267.0	-1.4	47.00	19.46
788.418750	30.14	200.0	V	109.0	1.3	47.00	16.86
869.050000	32.47	400.0	V	174.0	3.5	47.00	14.53
935.737500	33.41	100.0	V	238.0	4.8	47.00	13.59

Note:

1) Corrected Amplitude = Meter Reading + Correction Factor
2) Correction Factor = Antenna Factor + Cable Loss - Amplifier Gain
3) Margin = Limit – Corrected Amplitude

EN 55035 §4.2.1-ELECTROSTATIC DISCHARGES (IEC 61000-4-2)

Test System Setup



Remark: ■ is the tip of the electrode

IEC 61000-4-2 specifies that a tabletop EUT shall be placed on a non-conducting table which is 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.

For tabletop equipment, a 1.6 by 0.8-meter metal sheet (HCP) is placed on the table and connected to the ground plane via a metal strap with two 470 k Ohms resistors in series. The EUT and attached cables are isolated from this metal sheet by *0.5-millimeter* thick insulating material. A Vertical Coupling Plane (VCP) grounded on the ground plane through the same configuration as in the HCP is used.

Test Standard

EN 55035:2017 (IEC 61000-4-2:2008)
Air Discharge at ±2 kV; ±4 kV; ±8 kV
Contact Discharge at ±2 kV; ±4 kV

Test Level

Level	Test Voltage Contact Discharge (±kV)	Test Voltage Air Discharge (±kV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X.	Special	Special

Performance criterion: B

Test Procedure

Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Contact Discharge:

All the procedure shall be same as Section 8.3.1 of IEC 61000-4-2, except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

Indirect discharge for horizontal coupling plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1 m from the EUT and with the discharge electrode touching the coupling plane.

Indirect discharge for vertical coupling plane

At least 20 single discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m × 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Kiki Geng on 2020-06-24.

EUT Operation Mode: Charging

Table 1: Electrostatic Discharge Immunity (Air Discharge)

IEC 61000-4-2 Test Points		Test Levels							
		-2 kV	+2 kV	-4 kV	+4 kV	-8 kV	+8 kV	-15 kV	+15 kV
Front	(1 point)	A	A	A	A	A	A	/	/
Bottom	(2 points)	A	A	A	A	A	A	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

IEC 61000-4-2 Test Points	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
/	/	/	/	/	/	/	/	/

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

IEC 61000-4-2 Test Points	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Front Side	A	A	A	A	/	/	/	/
Back Side	A	A	A	A	/	/	/	/
Left Side	A	A	A	A	/	/	/	/
Right Side	A	A	A	A	/	/	/	/

Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)

IEC 61000-4-2 Test Points	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Front Side	A	A	A	A	/	/	/	/
Back Side	A	A	A	A	/	/	/	/
Left Side	A	A	A	A	/	/	/	/
Right Side	A	A	A	A	/	/	/	/

Note: represents air discharge, represents direct contact

Test Setup Photo

EUT Operation Mode: Working

Table 1: Electrostatic Discharge Immunity (Air Discharge)

IEC 61000-4-2 Test Points	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-8 kV	+8 kV	-15 kV	+15 kV
Top (1 point)	A	A	A	A	A	A	/	/
Bottom (1 point)	A	A	A	A	A	A	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

IEC 61000-4-2 Test Points	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
/	/	/	/	/	/	/	/	/

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

IEC 61000-4-2 Test Points	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Front Side	A	A	A	A	/	/	/	/
Back Side	A	A	A	A	/	/	/	/
Left Side	A	A	A	A	/	/	/	/
Right Side	A	A	A	A	/	/	/	/

Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)

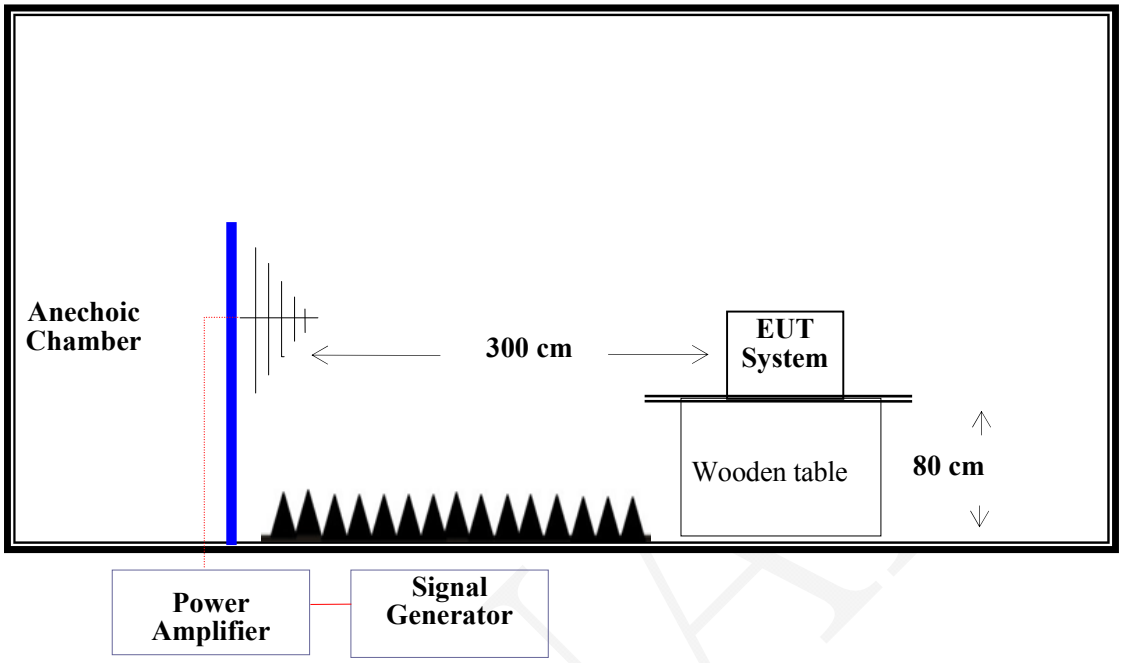
IEC 61000-4-2 Test Points	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Front Side	A	A	A	A	/	/	/	/
Back Side	A	A	A	A	/	/	/	/
Left Side	A	A	A	A	/	/	/	/
Right Side	A	A	A	A	/	/	/	/

Note: represents air discharge, represents direct contact

Test Setup Photo

EN 55035 §4.2.2.2-CONTINUOUS RADIATED IMMUNITY (IEC 61000-4-3)

Test System Setup



Test Standard

EN 55035:2017 (IEC 61000-4-3: 2006 + A1:2007 + A2:2010)
Test level 2 at 3V / m

Test Level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X.	Special

Performance Criterion: A

Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.
In order to judge the EUT performance, a CCD camera is used to monitor the EUT.

All the scanning conditions are as follows:

	Condition of Test	Remarks
1.	Field Strength	3 V/m (Test level 2)
2.	Radiated Signal	AM 80%, 1 kHz Modulation
3.	Scanning Frequency	80 – 1000 MHz,1800MHz,2600MHz, 3500MHz, 5000MHz
4.	Sweeping time of radiated	0.0015decade/s
5.	Dwell Time	1 sec.

Test Data

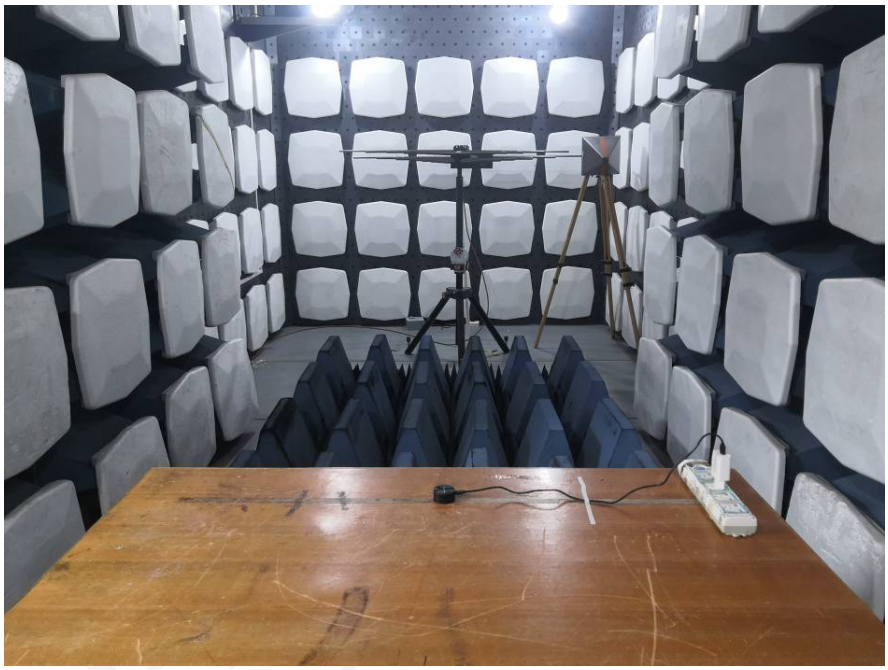
Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Kiki Geng on 2020-06-24.

EUT Operation Mode: Charging

Frequency (MHz)	Front Side (3 V/m)		Rear Side (3 V/m)		Left Side (3 V/m)		Right Side (3 V/m)	
	VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	A	A	A	A	A	A	A	A
1800	A	A	A	A	A	A	A	A
2600	A	A	A	A	A	A	A	A
3500	A	A	A	A	A	A	A	A
5000	A	A	A	A	A	A	A	A



Test Setup Photo

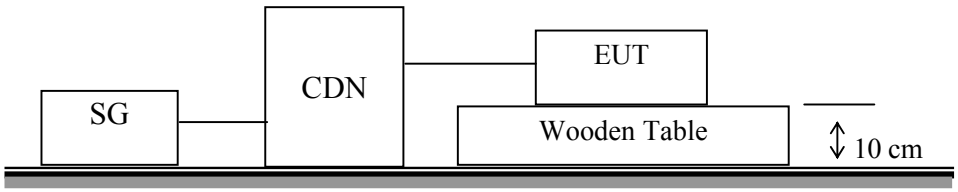
EUT Operation Mode: Working

Frequency (MHz)	Front Side (3 V/m)		Rear Side (3 V/m)		Left Side (3 V/m)		Right Side (3 V/m)	
	VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	A	A	A	A	A	A	A	A
1800	A	A	A	A	A	A	A	A
2600	A	A	A	A	A	A	A	A
3500	A	A	A	A	A	A	A	A
5000	A	A	A	A	A	A	A	A

Test Setup Photo

EN 55035 §4.2.2.3-CONTINUOUS CONDUCTED IMMUNITY (IEC 61000-4-6)

Test Setup



Test Standard

EN 55035:2017 (IEC 61000-4-6:2008)

Test Level

Frequency(MHz)	Voltage Level (r.m.s.) (V)
0.15 to 10	3
10 to 30	3 to 1
30 to 80	1

Performance Criterion: A

Test Procedure

1) Let the EUT work in test mode and test it.
2) The EUT are placed on an insulating support 0.1 m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3 m 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).
3) The disturbance signal described below is injected to EUT through CDN.
4) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
5) The frequency range is swept from 150 kHz to 80 MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.
6) 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.
7) An artificial ear and sound level meter are used to monitor the sound pressure level. RF communication test set is used to monitor the noise level.
8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

Test Data

Environmental Conditions

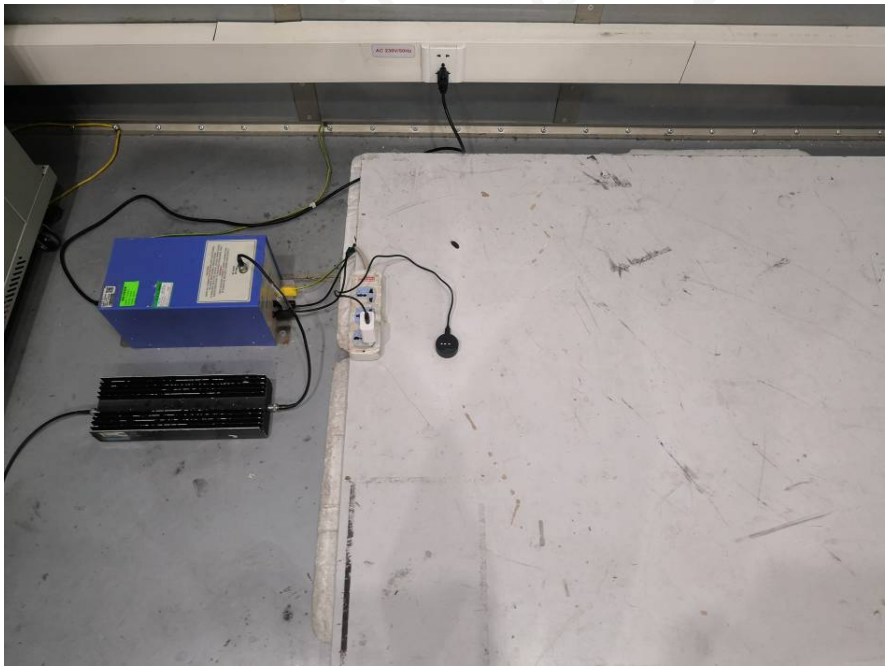
Temperature:	25 ℃
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Kiki Geng on 2020-06-24.

EUT Operation Mode: Charging

AC Mains
Modulation: Amplitude 80%, 1 kHz sine wave
Test Level:

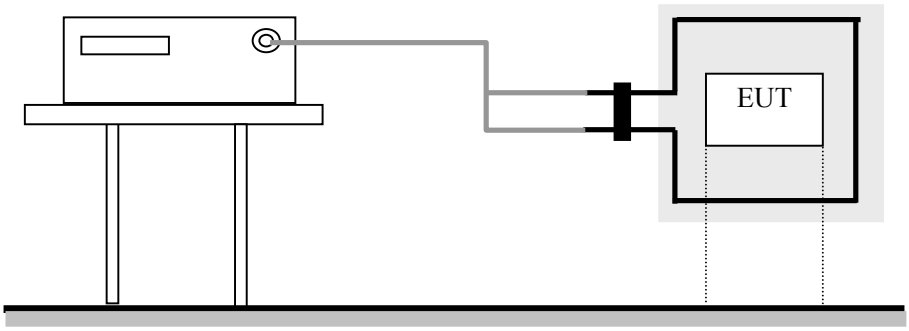
Frequency (MHz)	Voltage Level (r.m.s.) (V)	Pass	Fail
0.15 to 10	3	A	/
10 to 30	3 to 1	A	/
30 to 80	1	A	/
X	Special	/	/



Test Setup Photo

EN 55035 §4.2.3-POWER FREQUENCY MAGNETIC FIELDS (IEC 61000-4-8)

Test Setup



Test Standard

EN 55035:2017 (IEC 61000-4-8:2009)
Test level 1 at 1A/m

Test Level

Level	Magnetic Field Strength A/m
1	1
2	3
3	10
4	30
5	100
X.	Special

Performance criterion: A

Test Procedure

The EUT shall be subjected to the test magnetic field by using the induction coil of standard dimensions (1 m*1 m). The induction coil shall then be rotated by 90°in order to expose the EUT to the test field with different orientations.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Kiki Geng on 2020-06-24.

EUT Operation Mode: Charging

Level	Magnetic Field Strength A/m	X (Horizontal)	Y (Vertical)	Z (Special)
1	1	A	A	A
2	3	/	/	/
3	10	/	/	/
4	30	/	/	/
5	100	/	/	/
X	Special	/	/	/

Test Setup Photo

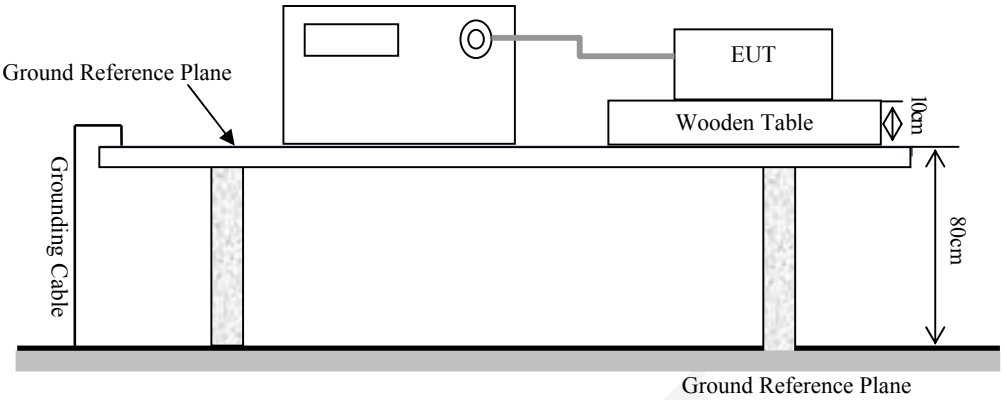
EUT Operation Mode: Working

Level	Magnetic Field Strength A/m	X (Horizontal)	Y (Vertical)	Z (Special)
1	1	A	A	A
2	3	/	/	/
3	10	/	/	/
4	30	/	/	/
5	100	/	/	/
X	Special	/	/	/

Test Setup Photo

EN 55035 §4.2.4-ELECTRICAL FAST TRANSIENTS (IEC 61000-4-4)

Test System Setup



Test Standard

EN 55035:2017 (IEC 61000-4-4:2012)
Test level 2 at ±1 kV for AC mains

Test Level

Open Circuit Output Test Voltage ±10%		
Level	**On Power Supply Lines**	**On I/O (Input/Output) Signal data and control lines**
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special

Performance Criterion: B

Test Procedure

The EUT was arranged for Power Line Coupling and for I/O Line Coupling through a capacitive clamp, where applicable. (Note: The I/O coupling test using a capacitive clamp is performed on the I/O interface cables that are longer in length than 3 meters.) A metal ground plane 2.4 meter by 2.0 meter was placed between the floor and the table and is connected to the earth by a 2.0 meter ground rod. The ground rod is connected to the test facility's electrical earth.

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Kiki Geng on 2020-06-24.

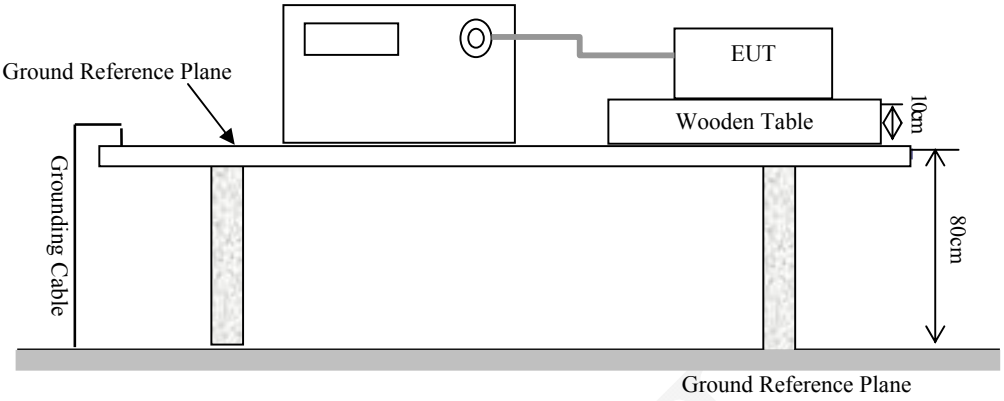
EUT Operation Mode: Charging

IEC 61000-4-4 Test Points		Test Levels (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
AC mains power input ports	L1	/	/	A	A	/	/	/	/
	N	/	/	A	A	/	/	/	/
	PE	/	/	/	/	/	/	/	/
	L1/N	/	/	A	A	/	/	/	/
	L1/PE	/	/	/	/	/	/	/	/
	N/PE	/	/	/	/	/	/	/	/
	L1/N/PE	/	/	/	/	/	/	/	/
Signal Port	/	/	/	/	/	/	/	/	/

Test Setup Photo

EN 55035 §4.2.5-SURGES (IEC 61000-4-5)

Test System Setup



Test Standard

EN 55035:2017 (IEC 61000-4-5:2005)
AC mains: Line to Line at ±0.5kV, ±1kV;

Test Level

Level	Open Circuit Output Test Voltage ±10%	Performance Criterion	
		AC Mains	Signal Port
1	0.5 kV	B	C
2	1 kV	B	C
3	2 kV	B	C
4	4 kV	B	C
X	Special	/	/

Test Procedure

1) For input a.c. power ports, provide a 1.2/50μs voltage surge (at open-circuit condition) and a 8/20 μs current surge into a short circuit.
2) For telecommunication port, provide a 10/700μs voltage surge (at open-circuit condition) and a 5/320 μs current surge into a short circuit.
3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
4) Different phase angles are done individually.
5) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Kiki Geng on 2020-06-24.

EUT Operation Mode: Charging

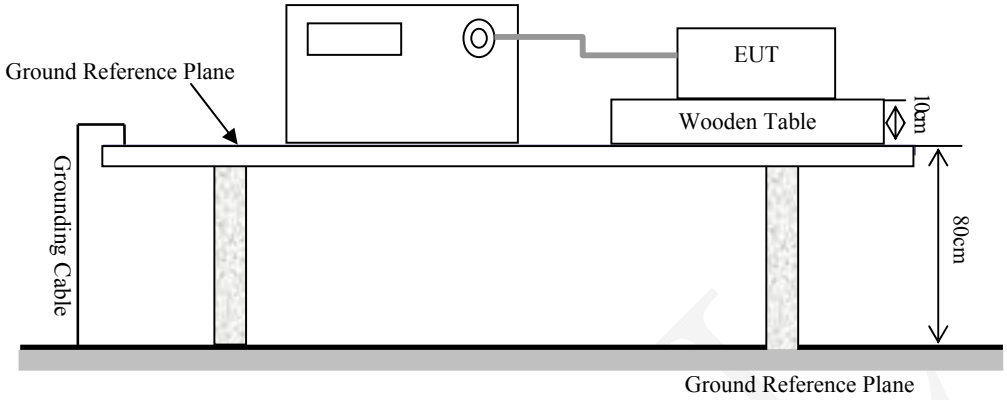
AC Mains Port

Level	Voltage	Poll	Path	Pass	Fail
1	0.5kV	±	L1/N	A	/
2	1kV	±	L1/N	A	/
3	2kV	±	L1/N, L1/PE, N/PE, L1/N/PE	/	/
4	4kV	±	L1/N, L1/PE, N/PE, L1/N/PE	/	/

Test Setup Photo

EN 55035 §4.2.6-VOLTAGE DIPS AND INTERRUPTIONS (IEC 61000-4-11)

Test Setup



Test Standard

EN 55035:2017 (IEC 61000-4-11:2004)
Test levels and Performance Criterion

Test Level	Voltage dip and short interruptions %UT	Duration (Periods)	Performance Criterion
1	>95	0.5	B
2	30	25	C
3	>95	250	C

Test Procedure

1) The interruption is introduced at selected phase angles with specified duration.
2) Record any degradation of performance.

Test Data

Environmental Conditions

Temperature:	24 ℃
Relative Humidity:	57 %
ATM Pressure:	101.0 kPa

The testing was performed by Kiki Geng on 2020-06-24.

EUT Operation Mode: Charging

Level	U2 (% Reduction)	Td(Periods)	Phase Angle	N	Pass	Fail
1	100	0.5	0/180	3	A	/
2	30	25	0/180	3	A	/
3	100	250	0/180	3	B	/

Note:"B" means The charging is stop and come back by self-restoring.

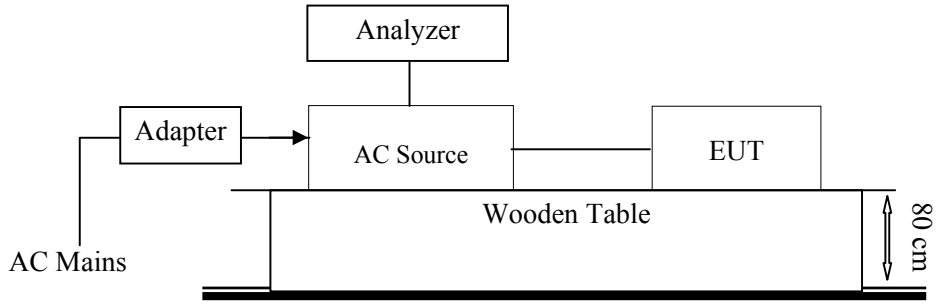
Test Setup Photo

EN 61000-3-2 – HARMONIC CURRENT EMISSIONS

According to EN 61000-3-2:2014 section 7: Equipment with a rated power of 75 W or less, other than lighting equipment, are not included in this standard.

EN 61000-3-3 – VOLTAGE FLUCTUATION AND FLICKER

Test System Setup



Test Standard

According to EN 61000-3-3:2013

Flicker Test Limits:

The limits shall be applicable to voltage fluctuations and flicker at the supply terminals of the equipment under test, measured or calculated according to clause 4 under test conditions described in clause 6 and annex A. Tests made to prove compliance with the limits are considered to be type tests.
The following limits apply:
– the value of Pst shall not be greater than 1,0;
– the value of Plt shall not be greater than 0,65;
– the value of d(t) during a voltage change shall not exceed 3,3 % for more than 500 ms;
– the relative steady-state voltage change, dc, shall not exceed 3,3 %;
– the maximum relative voltage change dmax, shall not exceed
a) 4 % without additional conditions;
b) 6 % for equipment which is:
– switched manually, or
– switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.
Note: The cycling frequency will be further limited by the Pst and Plt limit. For example: a dmax of 6 % producing a rectangular voltage change characteristic twice per hour will give a Plt of about 0.65.
c) 7 % for equipment which is
– attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
– switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.
In the case of equipment having several separately controlled circuits in accordance with 6.6, limits b) and

c) shall apply only if there is delayed or manual restart after a power supply interruption; for all equipment with automatic switching which is energized immediately on restoration of supply after a power supply interruption, limits a) shall apply; for all equipment with manual switching, limits b) or c) shall apply

depending on the rate of switching. Pst and Plt requirements shall not be applied to voltage changes caused by manual switching. The limits shall not be applied to voltage changes associated with emergency switching or emergency interruptions.

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

Date of test:	10:16 24.Jun 2020
Tester:	Kiki Geng
Standard used:	EN/IEC 61000-3-3 Flicker
Long time (Pst):	10 min
Observation time:	120 min (12 Flicker measurement)
Flicker meter:	230V / 50Hz
Customer:	Eggplant Technologies Ltd.
E. U. T.:	Move It Smart Sensor Module
Model:	MVSS0000
EUT operation mode:	Charging

Maximum Flicker results

	EUT values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.019	3.30	PASS
dmax [%]	0.061	4.00	PASS
dt [s]	0.000	0.50	PASS

Test Setup Photo

EXHIBIT A - PRODUCT CE LABELING

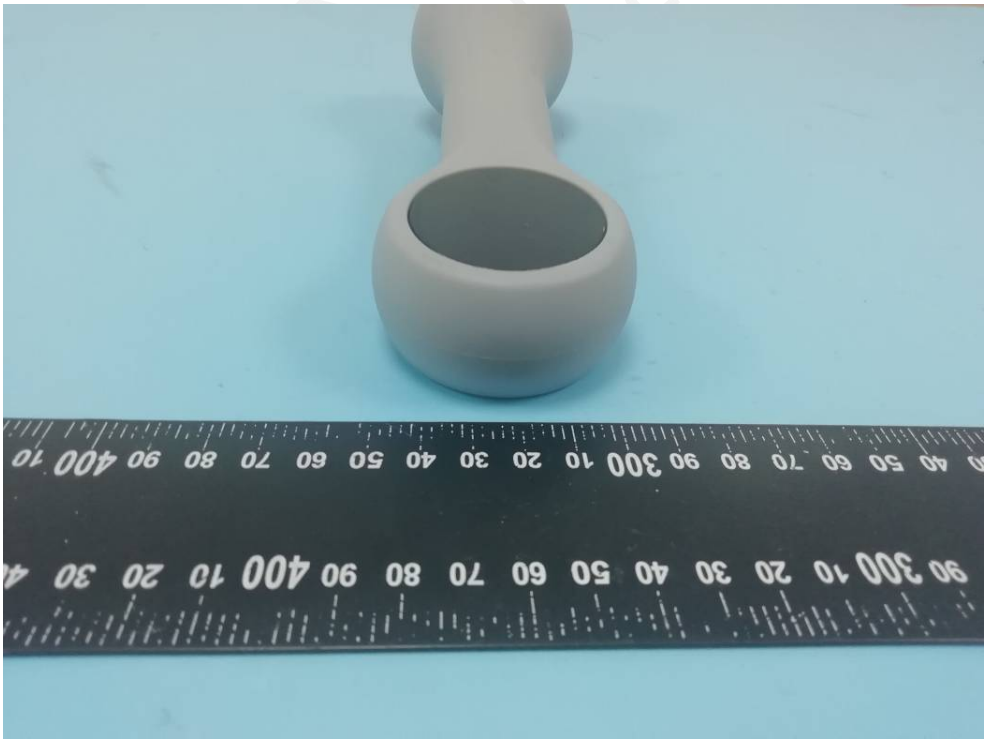
Proposed CE Label Format

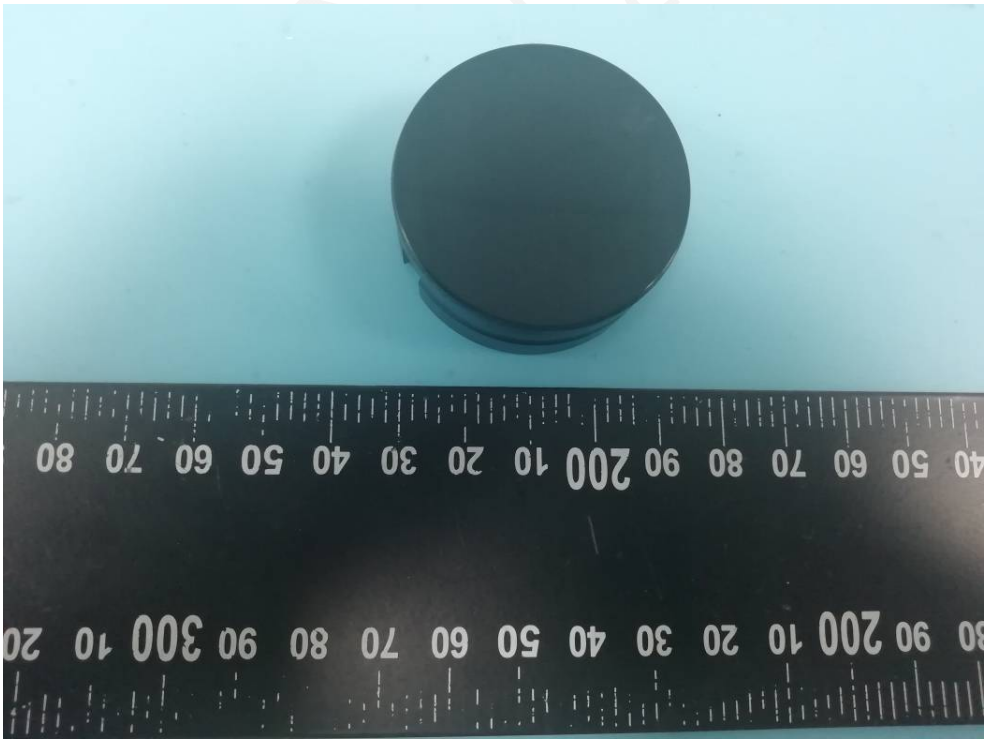
CE

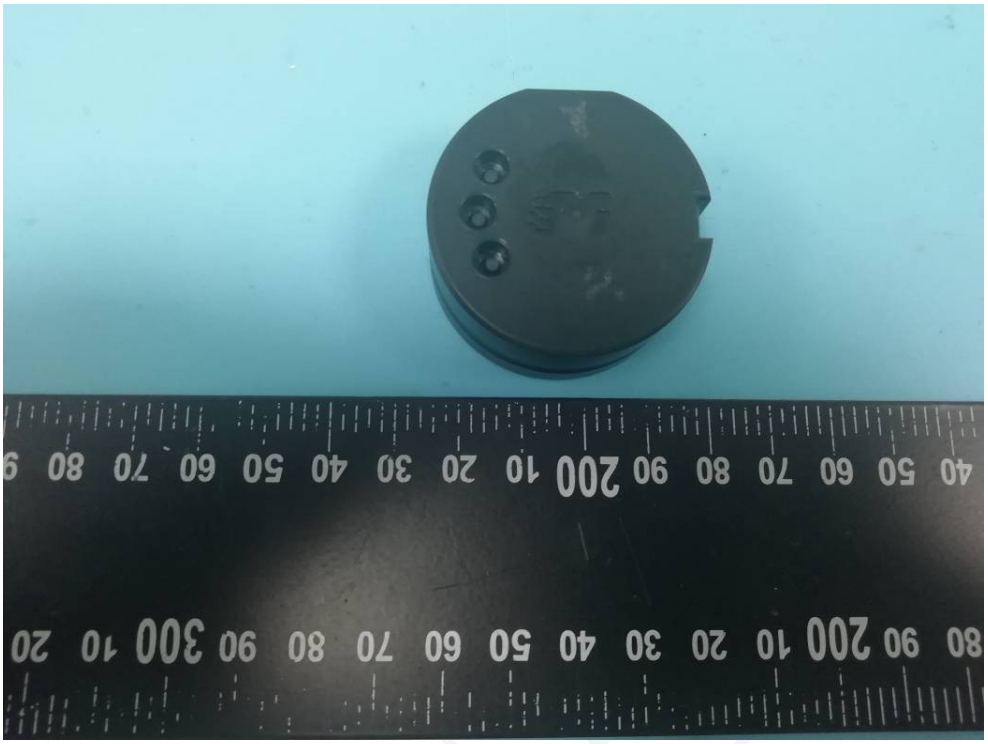
Specification: The CE marking shall be affixed visibly, legibly and indelibly to the apparatus or to its data plate. Where that is not possible or not warranted on account of the nature of the apparatus, it shall be affixed to the packaging and to the accompanying documents.

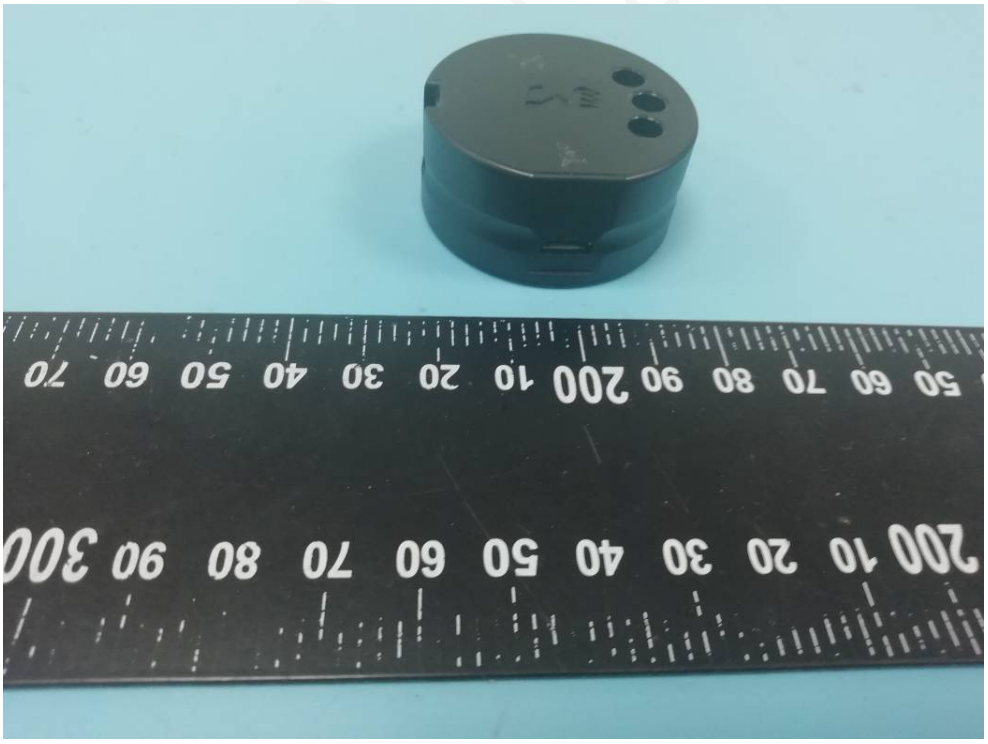
Proposed Location of Label on EUT

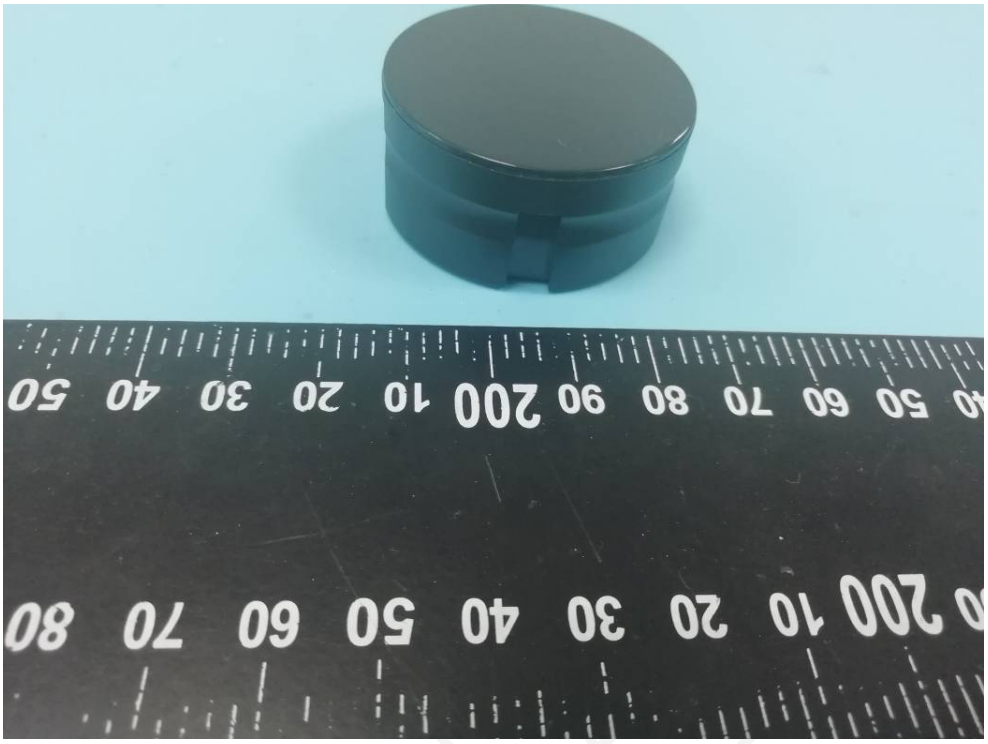
EXHIBIT B - EUT PHOTOGRAPHS

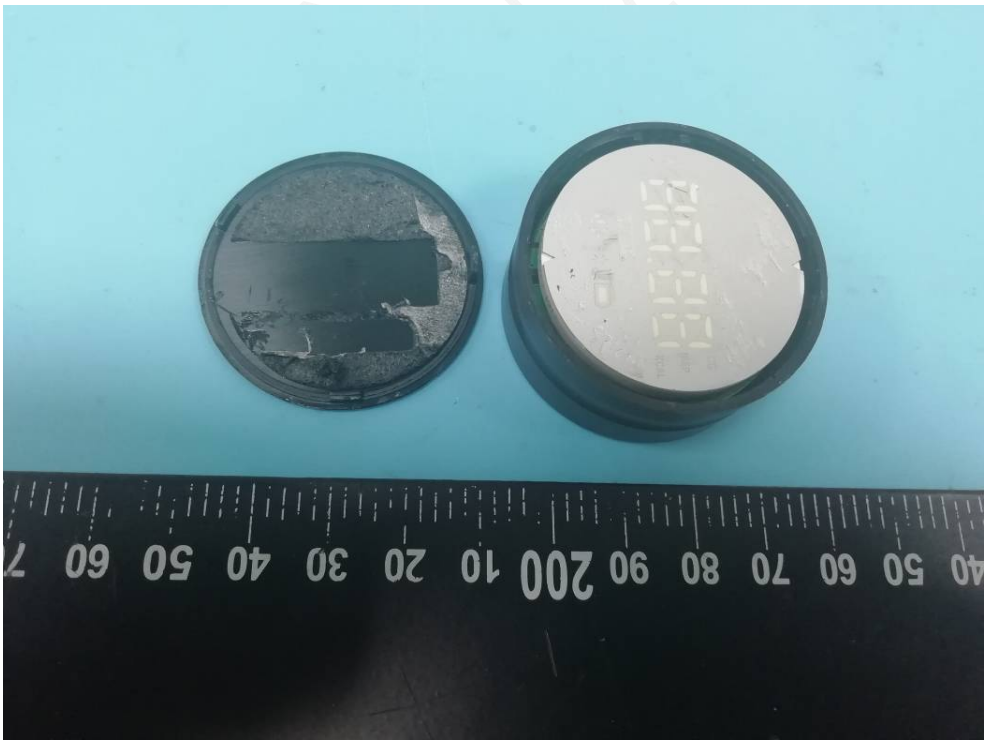


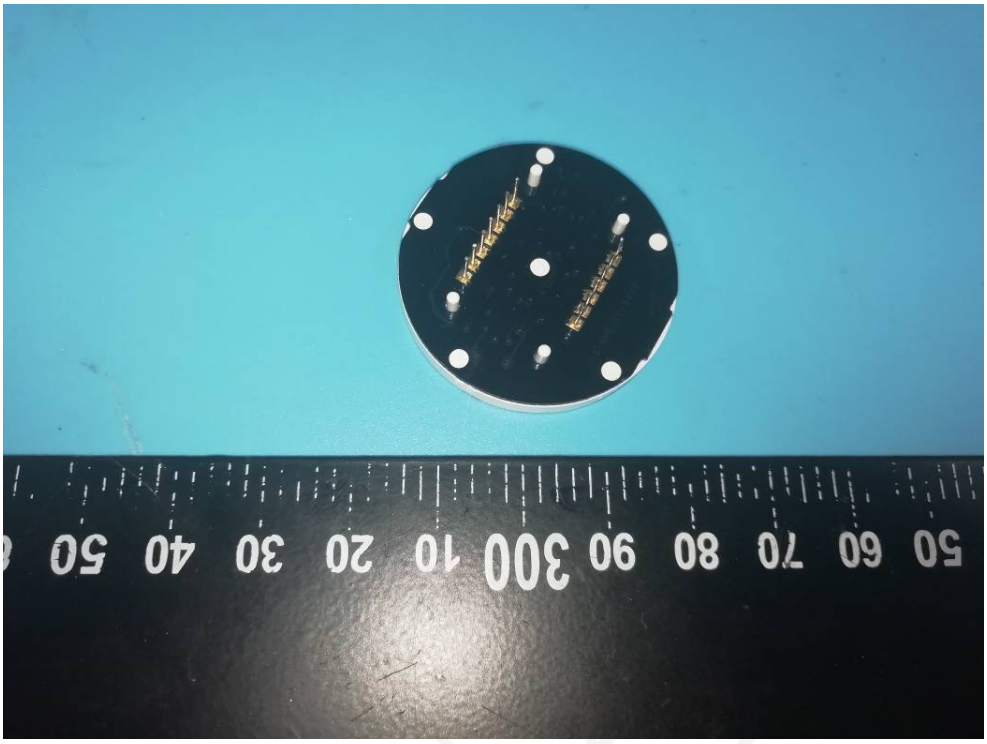


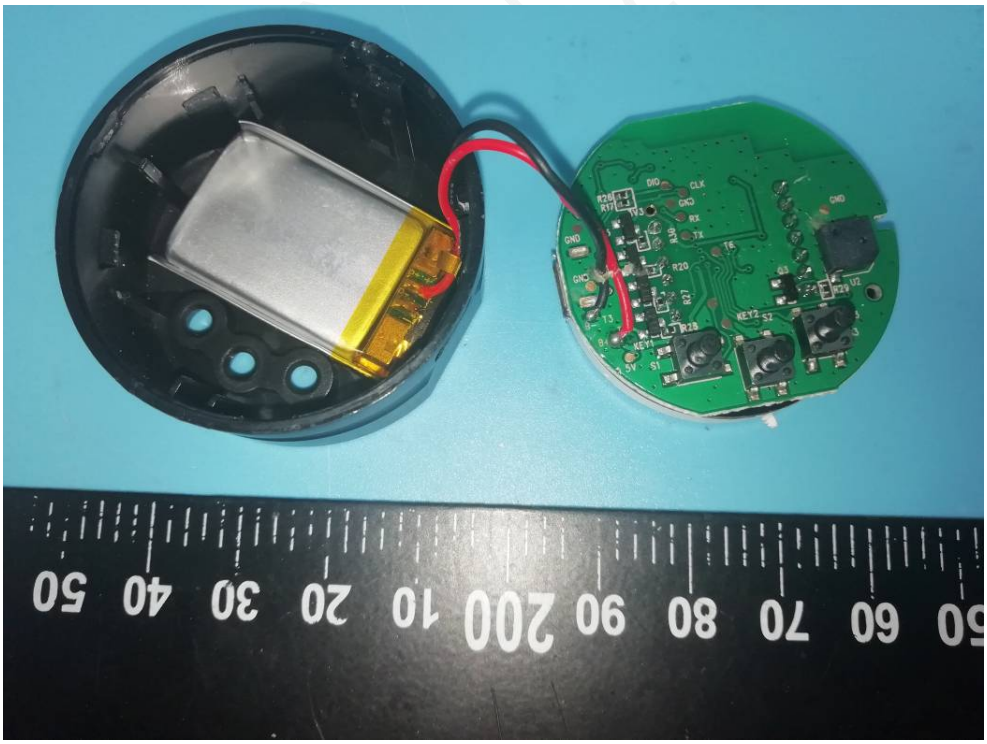


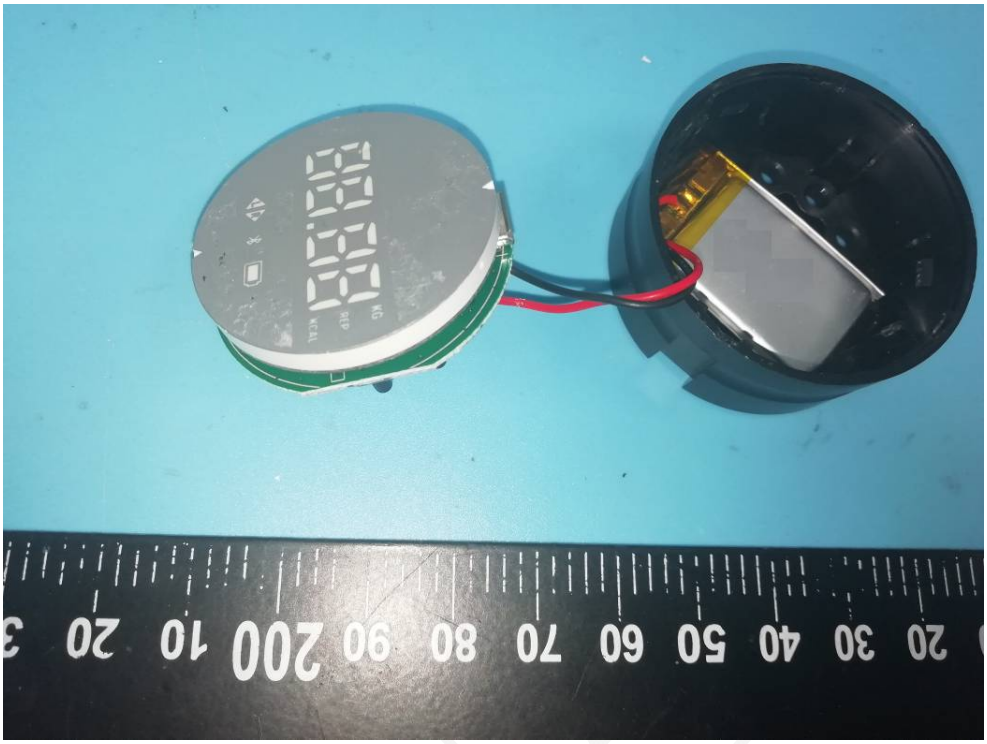


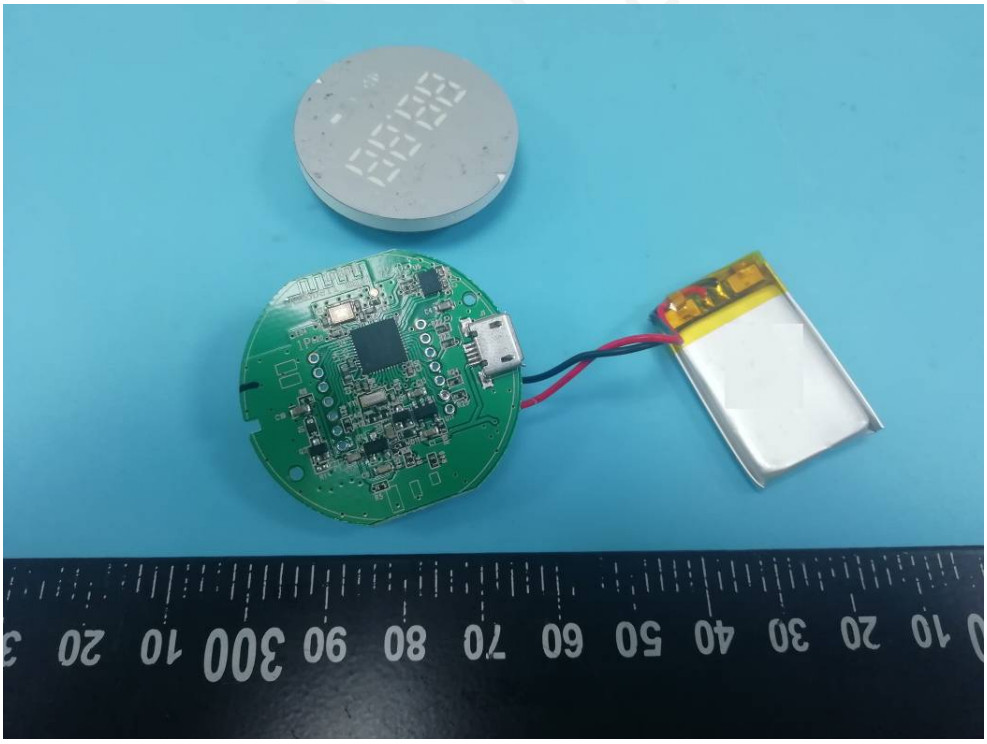


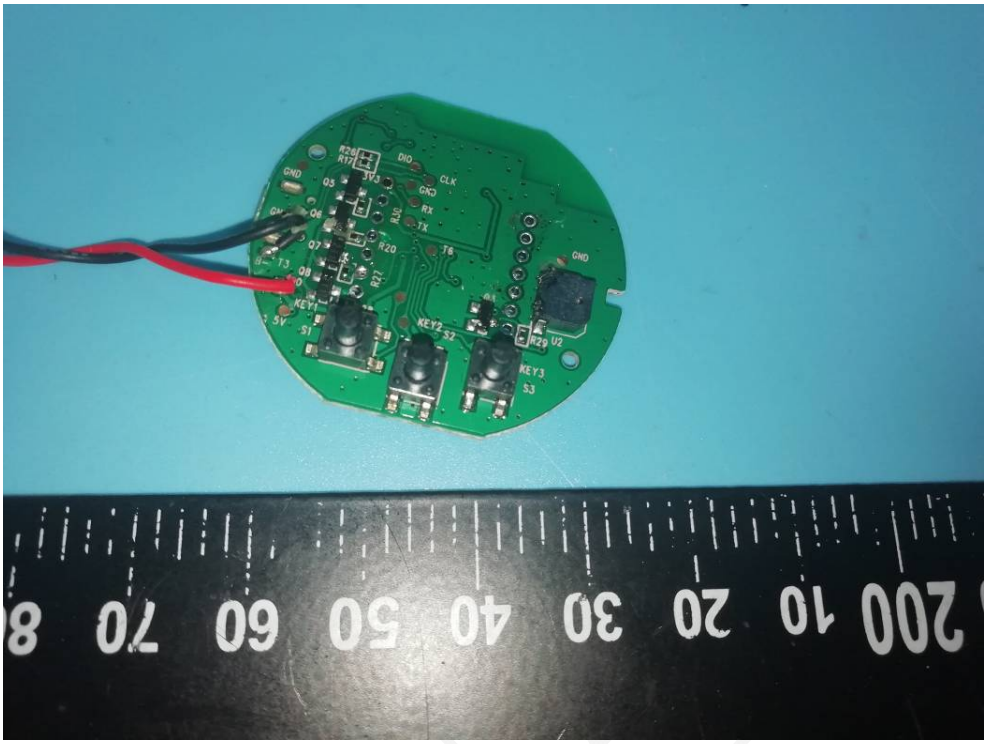












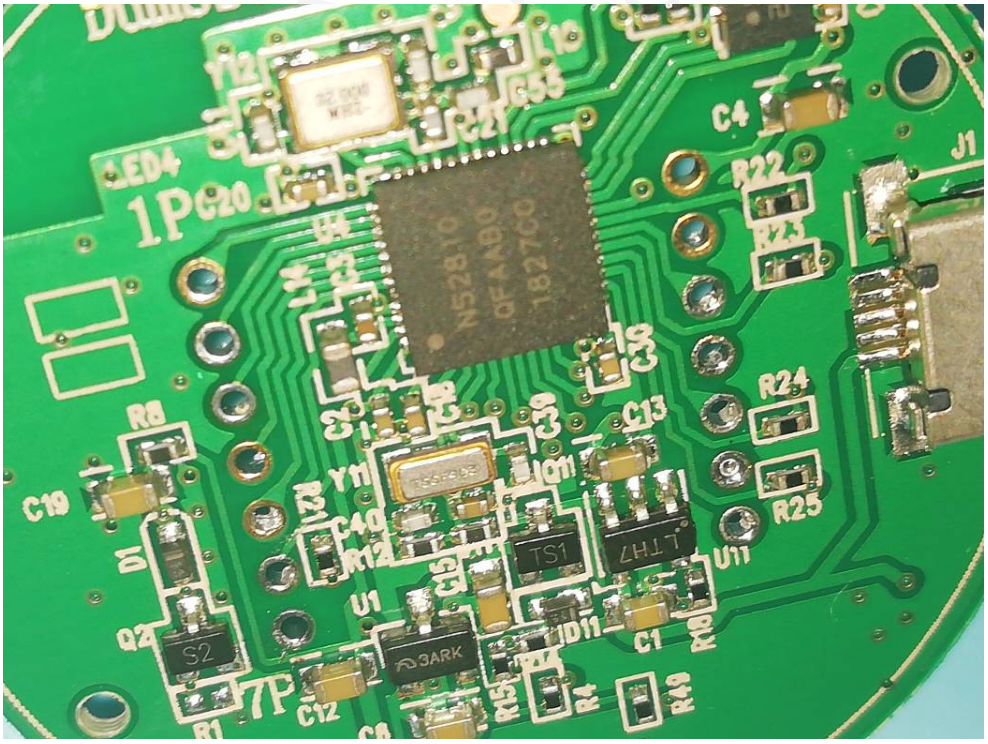
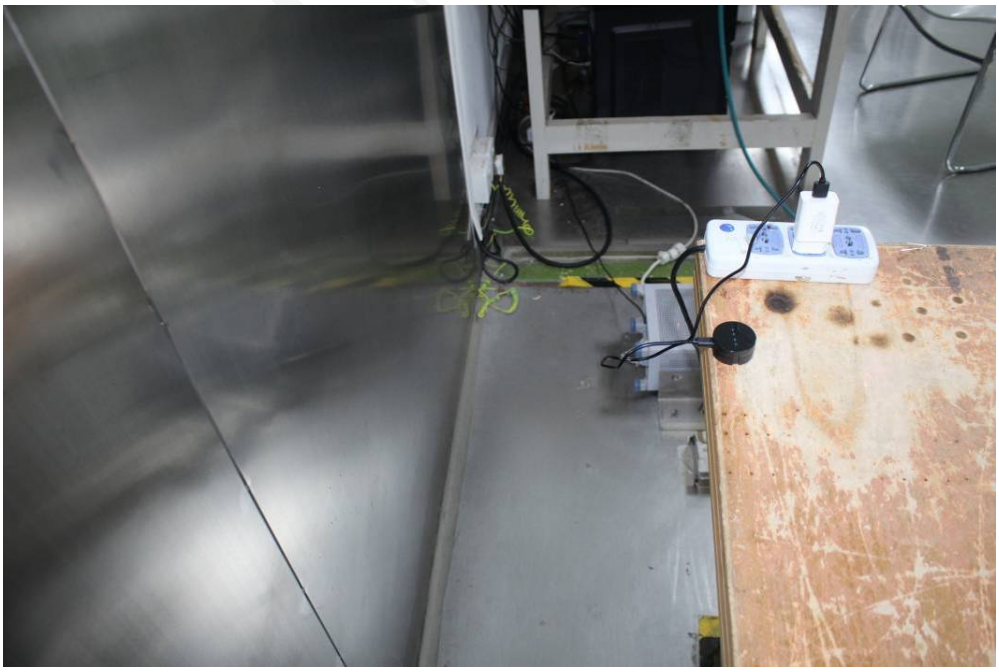


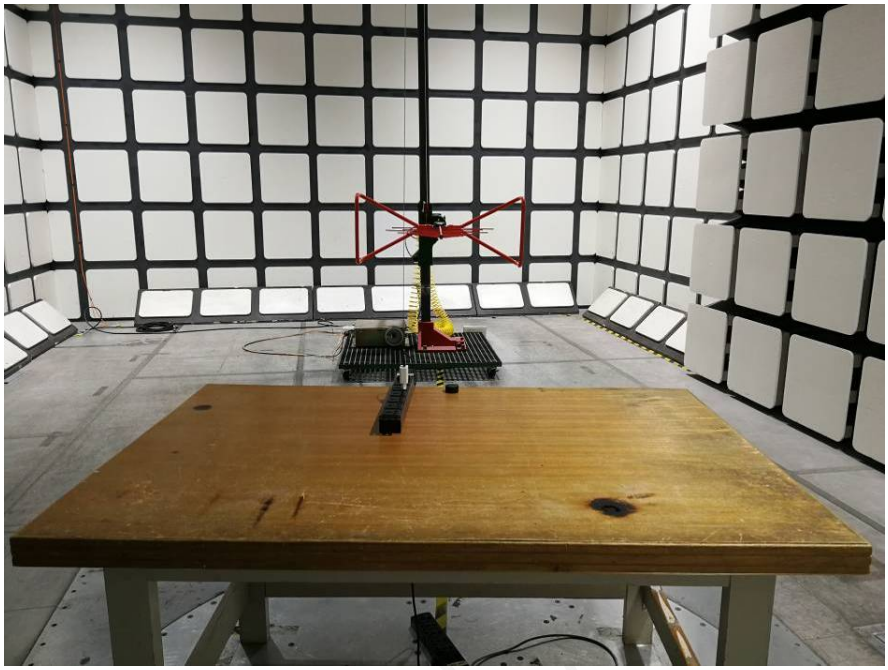
EXHIBIT C - TEST SETUP PHOTOGRAPHS

Conducted Disturbance at Mains Terminals - Front View

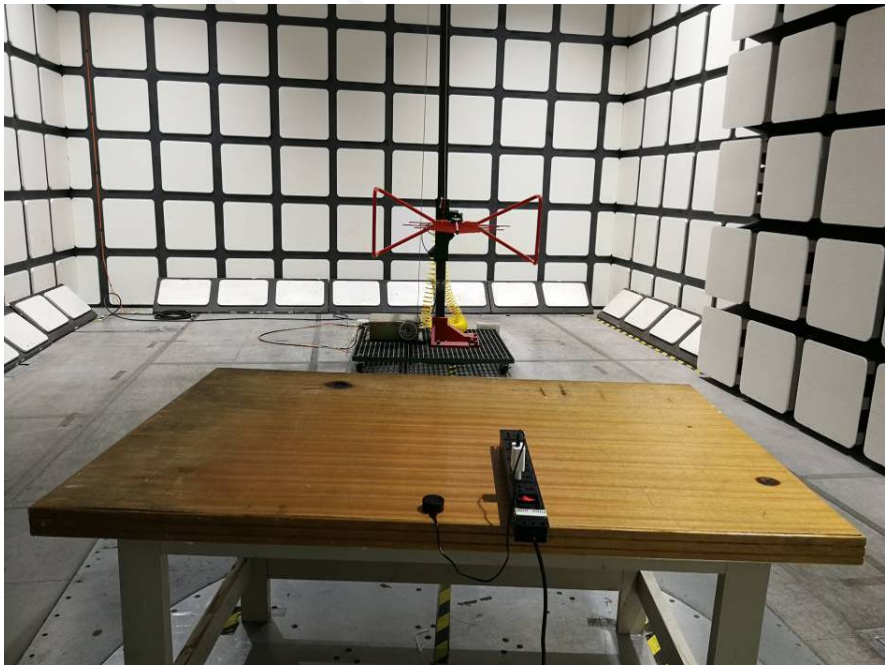
Conducted Disturbance at Mains Terminals - Side View



Radiated Emissions Front View (Below 1GHz)



Radiated Emissions Rear View (Below 1GHz)



Radiated Emissions (Below 1GHz)

PRODUCT SIMILARITY DECLARATION LETTER

Product Model Designation

A.	**Brand**	Move It
B.	**Product**	Move It Smart Sensor Module
C.	**Associated with Product Series**	Dumbbell: MVDB Hula Hoop: MVHH Resistance Band: MVRB
D.	**Model Number Abbreviation Definition and Number Range of Use**	MV = Move It (Brand) DB* = Dumbbell (Product Category) 0 = Product launch order (from 0-9) 0 = Version of hardware revision (from 1-9) 0 = Designation for feature or accessory bundle (from 1-9) 1 = Designation for product weight differentiation (from 1-9) ---------- Product Categories Abbreviations ---------- SS for smart sensor DB for dumbbell HH for hula hoop RB for resistance band
E.	**Sample List of Associated Model Numbers**	MVSS0000 The only difference among the Adding model is the model name.

MVDB0011	MVDB1011	MVDB2011	MVHH0011	MVRB0011
MVDB0012	MVDB1012	MVDB2012	MVHH0012	MVRB0012
MVDB0013	MVDB1013	MVDB2013	MVHH0013	MVRB0013
MVDB0021	MVDB1021	MVDB2021	MVHH0021	MVRB0021
MVDB0022	MVDB1022	MVDB2022	MVHH0022	MVRB0022
MVDB0023	MVDB1023	MVDB2023	MVHH0023	MVRB0023
MVDB0031	MVDB1031	MVDB2031	MVHH0031	MVRB0031
MVDB0032	MVDB1032	MVDB2032	MVHH0032	MVRB0032
MVDB0033	MVDB1033	MVDB2033	MVHH0033	MVRB0033
MVDS0001				

Oscar Wong

Eggplant Technologies Ltd.

Correspondent: Oscar Wong

2020.7.9

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

GRGTEST

CERTIFICATE OF COMPLIANCE

This Certificate of Compliance is hereby issued to the below named company. The test results of this report relate only to the tested sample identified in this report.

Technical Standard : FCC 47 CFR PART 15 SUBPART B AND ANSI C63.4 (2014)

General Information

Applicant : **Eggplant Technologies Limited**
Flat/Rm 1903 19/F, Lee Garden One,33 Hysan Avenue, Causeway Bay

Manufacturer : **Eggplant Technologies Limited**
Flat/Rm 1903 19/F, Lee Garden One,33 Hysan Avenue, Causeway Bay

Product Description

EUT Description : Move It Beat

Model Number : MVSS0000,MVDB0011,MVDB0012,MVDB0013,MVDB0021,MVDB0022,MVDB0023, MVDB0031,MVDB0032,MVDB0033,MVDB1011,MVDB1012,MVDB1013,MVDB1021, MVDB1022,MVDB1023,MVDB1031,MVDB1032,MVDB1033,MVDB2011,MVDB2012, MVDB2013,MVDB2021,MVDB2022,MVDB2023,MVDB2031,MVDB2032,MVDB2033, MVHH0011,MVHH0012,MVHH0013,MVHH0021,MVHH0022,MVHH0023,MVHH0031, MVHH0032,MVHH0033,MVRB0011,MVRB0012,MVRB0013,MVRB0021,MVRB0022, MVRB0023, MVRB0031, MVRB0032,MVRB0033

Brand Name : move it

Laboratory : No.1301, Guanguang Road , Xinlan Community, Guanlan Street , Longhua District, Shenzhen,518110,People's Republic of China
Tel: +86-755-61180008/ Fax: /

This device has been tested and found to comply with the stated standard(s), which is(are) required by the Federal Communications Committee. The test results are indicated in the test report and are applicable only to the tested sample identified in the report number: E20190815230001-1

GRG METROLOGY & TEST (SHENZHEN) CO.,LTD. GRGTEST APPROVED

Connie Yang / Manager
GRG Metrology & Test (Shenzhen) Co., Ltd.
Date: October 30,2019

TEST REPORT

Report No.: LCS190813073AR Date:2019.09.11 Page 1 of 13

Applicant : **Guangzhou Eggplant Software Technologies Co., Ltd.**

Address : **A1 Room 509~513, Yi He Mansion, No.411 Shou Gou Ling Road, Tian He District, Guangzhou, China**

Report on the submitted samples said to be:

Sample Name : **Move It beat**

Trade Mark : **move it**

Client's information : **N/A**

Style No. : **See page 2**

Testing Period : **August 22, 2019 ~ September 11, 2019**

Results : **Please refer to next page(s).**

TEST REQUEST	CONCLUSION
According to the customer's request, based on the performed tests on submitted sample, the result of Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, Dibuyl Phthalate(DBP), Benzylbutyl Phthalate(BBP), Bis(2-ethylhexyl) Phthalate(DEHP), Diispbutyl phthalate(DIBP) content comply with the limit as set of RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.	**Pass**

Signed for and on behalf of LCS

Lily Dan

TEST REPORT

Style No.	**MVSS0000, MVDB0011, MVDB0012, MVDB0013, MVDB0021, MVDB0022, MVDB0023, MVDB0031, MVDB0032, MVDB0033, MVDB1011, MVDB1012, MVDB1013, MVDB1021, MVDB1022, MVDB1023, MVDB1031, MVDB1032, MVDB1033, MVDB2011, MVDB2012, MVDB2013, MVDB2021, MVDB2022, MVDB2023, MVDB2031, MVDB2032, MVDB2033, MVHH0011, MVHH0012, MVHH0013, MVHH0021, MVHH0022, MVHH0023, MVHH0031, MVHH0032, MVHH0033, MVRB0011, MVRB0012, MVRB0013, MVRB0021, MVRB0022, MVRB0023, MVRB0031, MVRB0032, MVRB0033**

Results:

A.EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Test method: With reference to IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

Seq. No.	Tested Part(s)	Results						Date of sample submission/resubmission
		Cd	Pb	Hg	Cr▼	Br▼		
						PBBs	PBDEs	
1	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
2	Silver metal sheet	BL	BL	BL	X	/	/	2019-08-22
3	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
4	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
5	Black plastic sheet	BL	BL	BL	BL	X	X	2019-08-22
6	Silver metal sheet	X	BL	BL	BL	/	/	2019-08-22
7	Silver metal needle	OL	BL	BL	BL	/	/	2019-08-22
8	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
9	Ferrous metal sheet	BL	BL	BL	BL	BL	BL	2019-08-22
10	Silver metal sheet	OL	BL	BL	BL	/	/	2019-08-22
11	Silver metal sheet	OL	BL	BL	BL	/	/	2019-08-22
12	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
13	Silver iron	BL	BL	BL	X	/	/	2019-08-22
14	Green rubber sleeve	BL	BL	BL	BL	BL	BL	2019-08-22
15	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
16	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
17	White plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
18	Silver metal sheet	BL	BL	BL	BL	/	/	2019-08-22
19	Silver metal sheet	BL	BL	BL	BL	/	/	2019-08-22

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TEST REPORT

Seq. No.	Tested Part(s)	Results						Date of sample submission/resubmission
		Cd	Pb	Hg	Cr▼	Br▼		
						PBBs	PBDEs	
20	Yellow plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
21	Golden metal sheet	BL	BL	BL	BL	/	/	2019-08-22
22	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
23	Silver wire	BL	BL	BL	BL	/	/	2019-08-22
24	Black thread sleeve	BL	BL	BL	BL	BL	BL	2019-08-22
25	Red thread sleeve	BL	BL	BL	BL	BL	BL	2019-08-22
26	Silver wire	BL	BL	BL	BL	/	/	2019-08-22
27	Black plastic sheet	BL	BL	BL	BL	BL	BL	2019-08-22
28	Green metal sheet	BL	BL	BL	BL	/	/	2019-08-22
29	Ferrous IC	BL	BL	BL	BL	X	X	2019-08-22
30	Silver metal sheet	BL	BL	BL	BL	/	/	2019-08-22

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TEST REPORT

Note:

(1) Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(Ⅵ)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

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

Note:

BL = Below Limit

OL = Over Limit

X = Inconclusive

(2) 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) The maximum permissible limit is quoted from the document 2015/863/EC amending RoHS directive 2011/65/EU:

(4) ▼=For restricted substances PBBs and PBDEs, the results show the total Br content; The restricted substance was Cr(VI), and the results showed the total Cr content

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TEST REPORT

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(Ⅵ))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominated diphenylethers (PBDEs)	1000
Dibuyl Phthalate(DBP)	1000
Benzylbutyl Phthalate(BBP)	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	1000
Diispbutyl phthalate(DIBP)	1000

Disclaimers:

This XRF Screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

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TEST REPORT

B. EU RoHS Directive 2011/65/EU and its amendment Directives 2015/863/EU on Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DBP, BBP, DEHP, DIBP content.

Test method:

Lead(Pb) & Cadmium(Cd) Content:
With reference to IEC 62321-5:2013, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

Mercury(Hg) Content:
With reference to IEC 62321-4:2013+AMD1:2017 CSV, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

Hexavalent Chromium(Cr^{6+}) Content:
With reference to IEC 62321-7-1:2015 or IEC 62321-7-2:2017, by alkaline digestion and analysis was performed by UV-visible spectrophotometer (UV-Vis)

PBBs & PBDEs Content:
With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

BBP DBP DEHP & DIBP Content:

With reference to IEC 62321-8:2017, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

1) The test results of and Cadmium (Cd)

Item	Unit	MDL	Results				Limit
			6	10	7	11	
Cadmium Content (Cd)	mg/kg	2	N.D.	N.D.	N.D.	N.D.	100

2) The test results of Hexavalent Chromium (Cr^{6+})(metal)

Item	Unit	MDL	Results		Limit
			12	13	
Hexavalent Chromium (Cr^{6+})	ug/cm^2	0.10	N.D.	N.D.	1000

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TEST REPORT

Note:

- MDL = Method Detection Limit
- /= Not apply
- LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 μg/cm^2
- mg/kg = ppm=parts per million
- N.D.=Not Detected(<MDL or LOQ)
- *The sample is negative for Cr(VI)-The Cr(VI) concentration is below 0.10ug/cm^2
  The coating is considered a non-Cr(VI) based coating.

#1 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in glass of cathode ray tubes, electronic components and fluorescent tubes.

#2 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in electronic ceramic parts (e.g. piezoelectronic devices).

#3 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted as an alloying element in Copper containing up to 4% (40000ppm) by weight.

#4 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).

#5 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its amendments, Lead is exempted as an alloying element in Aluminum containing up to 0.4% (4000ppm) by weight.

#6 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its amendments, Cadmium and its compounds in electrical contact is exempted.

#7 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its Amendments，Lead is exempted in steel for machining purposes and in galvanised steel containing up to 0.35% (3500ppm)
by weight.

- Flow chart appendix is included.
- Photo appendix is included.

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TEST REPORT

3) The test results of DBP、BBP、DEHP & DIBP

Item	Unit	MDL	Results				Limit
			1	3	4	5	
Dibuyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Diispbutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000

Item	Unit	MDL	Results				Limit
			8	9	12	14	
Dibuyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Diispbutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000

Item	Unit	MDL	Results				Limit
			15	16	17	20	
Dibuyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000
Diispbutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	1000

Item	Unit	MDL	Results					Limit
			22	24	25	27	29	
Dibuyl Phthalate(DBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Diispbutyl phthalate(DIBP)	mg/kg	50	N.D.	N.D.	N.D.	N.D.	N.D.	1000

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TEST REPORT

4) The test results of PBBs & PBDEs

Item	Unit	MDL	Results		Limit
			5	29	
Polybrominated Biphenyls (PBBs)					
Monobromobiphenyl	mg/kg	5	N.D.	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	1000
Polybrominated Diphenylethers (PBDEs)(Mon-Deca)					
Monobromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	1000

Remark:

- mg/kg = ppm
- N.D. = Not detected
- MDL=Method detected limited
- Flow chart appendix is included
- Photo appendix is included.

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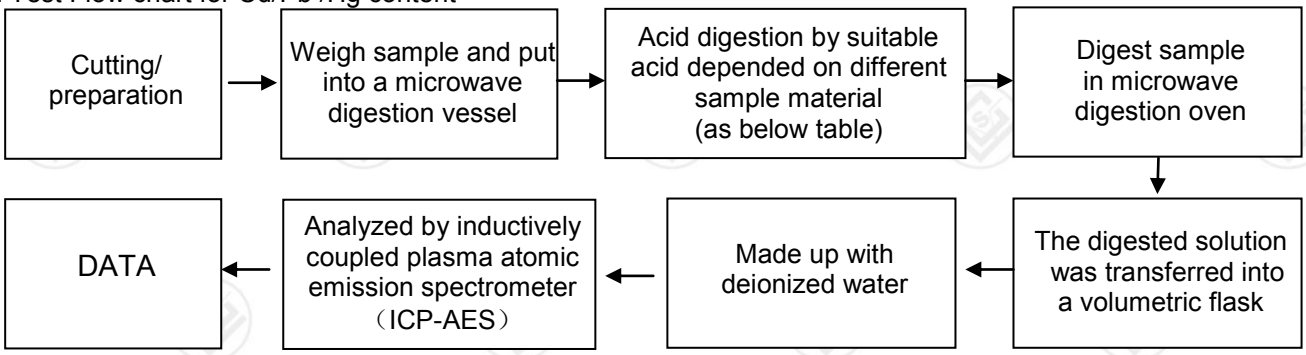
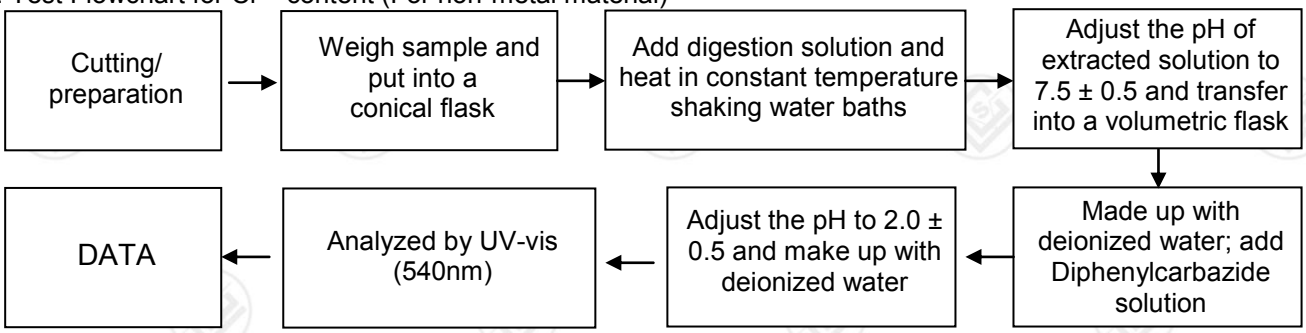
TEST REPORT

Appendix

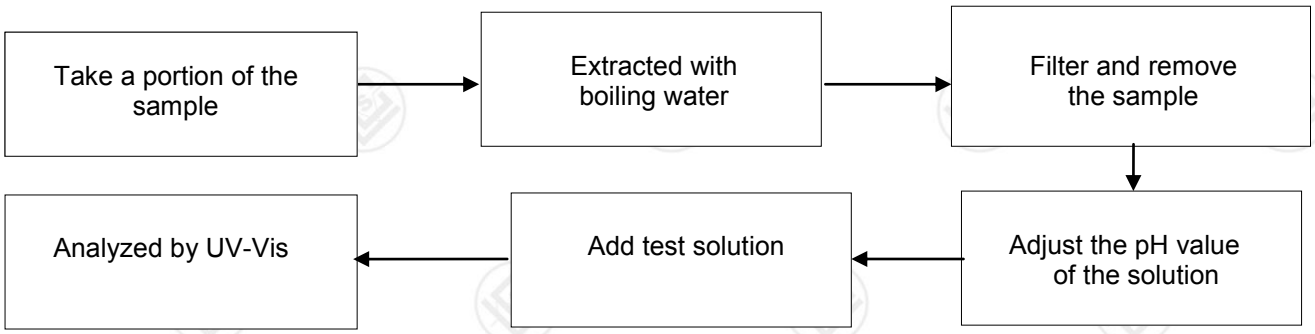
1. Test Flow chart for Cd/Pb /Hg content



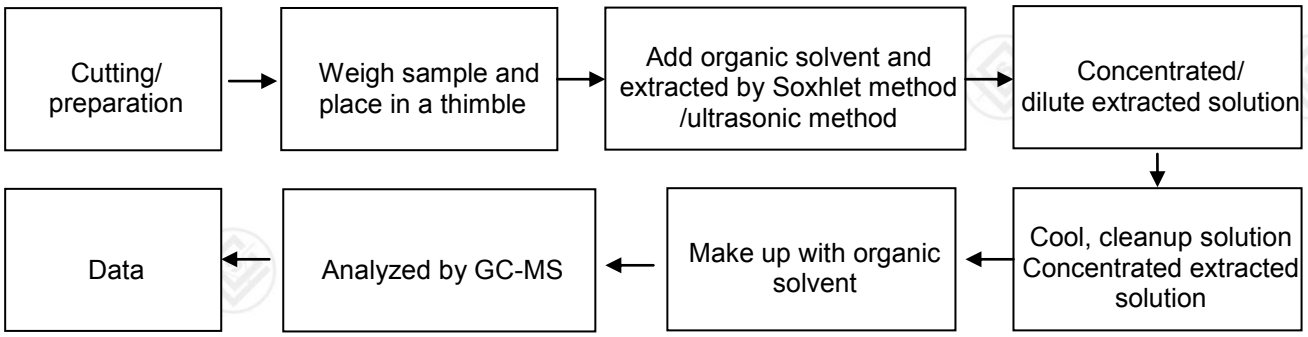
2. Test Flowchart for Cr^{6+} content (For non-metal material)



Test Flowchart for Cr^{6+} content (For metal material)



3. Test Flow chart for PBBs & PBDEs & DBP & BBP & DEHP & DIBP content



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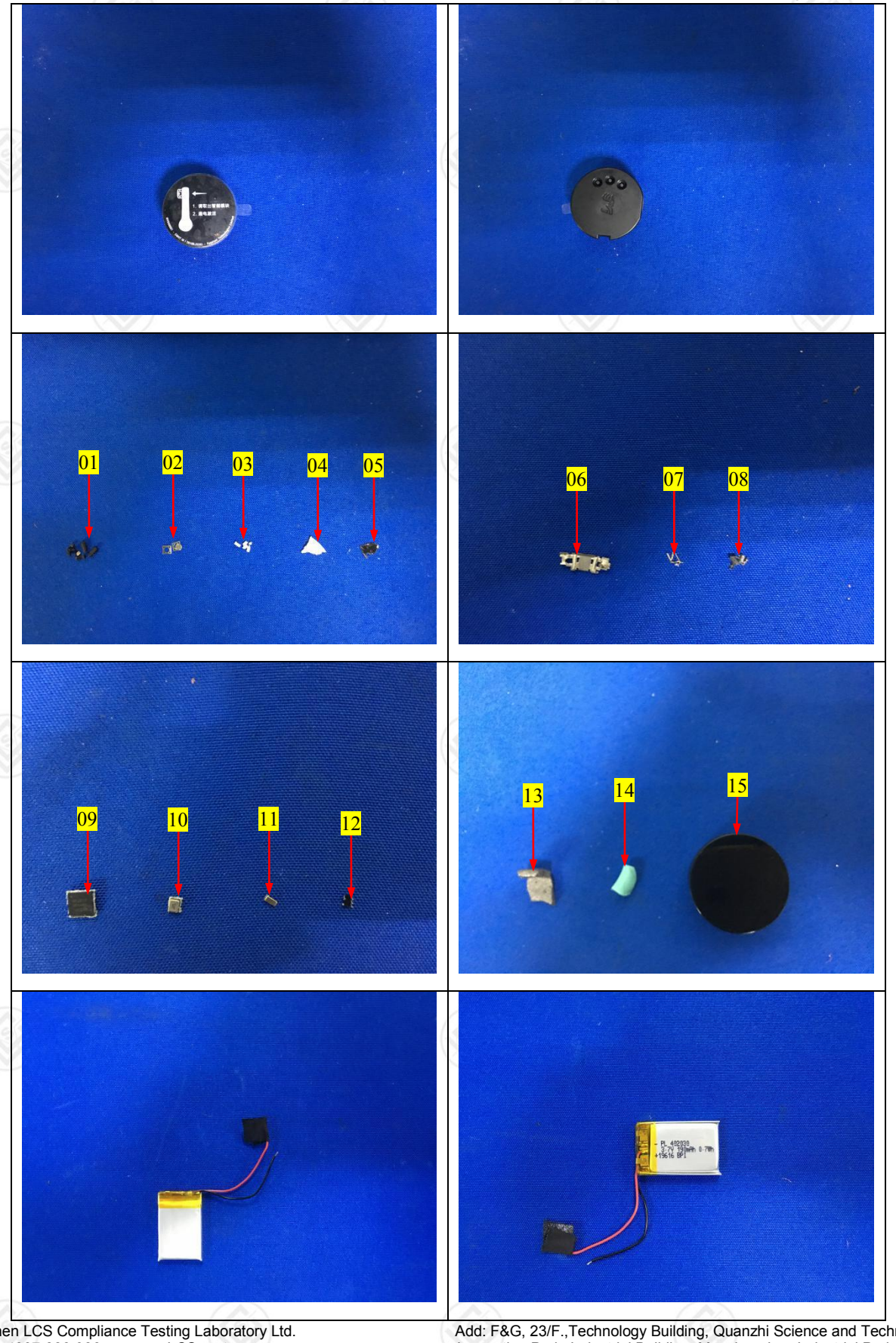
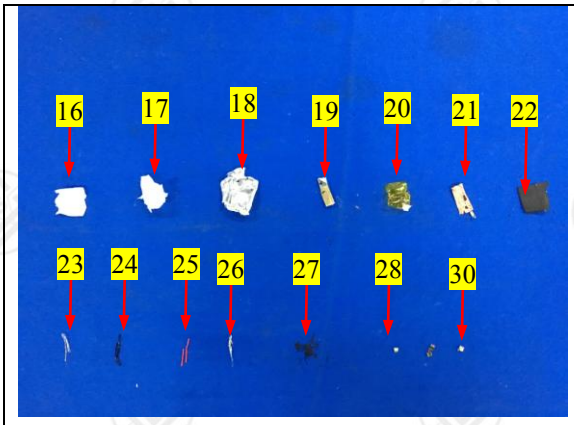
The photo of the sample

TEST REPORT

TEST REPORT



TEST REPORT



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

Statement:

1. The test report is considered invalidated without approval signature, special seal on the perforation.
2. The result(s) shown in this report refer only to the sample(s) tested.
3. Without written approval of LCS, this report can't be reproduced except in full.
4. The sample(s) and sample information was/were provided by the client who should be responsible for the authenticity which LCS hasn't verified.
5. In case of any discrepancy between the English version and Chinese version of the testing reports(if generated), the Chinese version shall prevail.