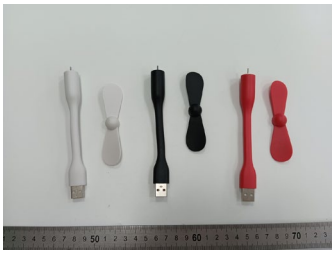
TEST REPORT

Test Report #	23A-008000(A5)	Date of Report Issue:	July 14, 2023
Date of Sample Received:	June 29, 2023	Pages:	Page 1 of 41

CLIENT INFORMATION:

Company:	Mid Ocean Brands B.V.
Address:	7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong



SAMPLE INFORMATION:

Product Name:	USB Fan		
Style No.:	MO9063	Labeled Age Grade:	-
Order No.(PO No.):	-	Client Request Age Grade:	-
Country of Origin:	-	Recommended Age Grade:	-
Country of Distribution:	Europe	Tested Age Grade:	-
Composition/Main Material:	PVC		
Testing Period:	07/04/2023-07/14/2023		

OVERALL RESULT: PASS

Please refer to the following pages for test result summary and appropriate notes.

QIMA (HANGZHOU) TESTING CO., LTD.

Ada Guo

Ada Guo
Assist Physical Laboratory Manager

Test(s) marked with 'φ' was subcontracted to external laboratory.
The test result(s) and conclusion(s) in this report relate only to the sample(s) as received and method /regulation section(s) tested as described herein. If it is not further specified in the report, the decision rule for stating conformity is based on the QIMA decision rule (https://www.qima.com/conditions-of-service#decisionRule).

TEST RESULTS SUMMARY:

At the request of the client, the following tests were conducted:

CONCLUSION	TEST(S) CONDUCTED
PASS	EN 55014-1 & 2-Electric Toys (D.C.)-Electromagnetic Compatibility (EMC)$^{\phi}$

Test(s) marked with 'ϕ' was subcontracted to external laboratory.
The test result(s) and conclusion(s) in this report relate only to the sample(s) as received and method /regulation section(s) tested as described herein. If it is not further specified in the report, the decision rule for stating conformity is based on the QIMA decision rule (https://www.qima.com/conditions-of-service#decisionRule).

DETAILED RESULTS:

SYSTEM DESCRIPTION

TEST MODE DESCRIPTION		
NO.	**TEST MODE DESCRIPTION**	**WORST**
1	Motor running	V
Note: 1. V means EMI worst mode.		

MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in measurement" (GUM) published by ISO.

- Uncertainty of Conducted Emission, Uc = ±2.9 dB
- Uncertainty of Radiated Emission, Uc = ±3.9dB

DETAILED RESULTS:

PRODUCT INFORMATION

Housing Type	Plastic and metal
Classification of apparatus	Category II
EUT Input Rating	DC 5V by adapter
Hardware Version	N/A
Software Version	N/A

I/O Port Information (☒Applicable ☐Not Applicable)

I/O Port of EUT			
I/O Port Type	**Number**	**Cable Description**	**Tested With**
USB	1	--	1

DETAILED RESULTS:

SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
Adapter	Jinbaotong	K-T10E0502000E	--	--	--

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

DETAILED RESULTS:

TEST FACILITY

Location	4-5/F A2 BLDG NO. 1213 HUOJU SOUTH ROAD PUYAN STREET BINJIANG DISTRICT HANGZHOU CHINA

DETAILED RESULTS:

TEST EQUIREMENT LIST

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Test Receiver	R&S	ESPI	101206	Aug. 04, 2022	Aug. 03, 2023
Artificial power network	R&S	ESH2-Z5	100086	Dec. 05, 2022	Dec. 04, 2023
Test software	R&S	ES-K1	Ver V1.71	N/A	N/A

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Test Receiver	R&S	ESCI	10096	Feb. 18, 2023	Feb. 17, 2024
Antenna	SCHWARZBECK	VULB9168	494	Jan. 05, 2023	Jan. 04, 2025
Test software	FARA	EZ-EMC	Ver.RA-03A	N/A	N/A

TEST EQUIPMENT OF POWER HARMONICS / VOLTAGE FLUCTUATION / FLICKER TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Signal Conditioning Unit	Schaffner	CCN1000-1	72431	Jun. 08, 2023	Jun. 07, 2024
AC Source	Schaffner	NSG1007	56825	Jun. 06, 2023	Jun. 05, 2024

TEST EQUIPMENT OF SURGE/EFT/DIPS TEST

Description	Manufacturer	Model	S/N	Cal. Date	Cal. Due
EFT Surge Generator	Schaffner	Modula 6150	34437	Jun. 08, 2023	Jun. 07, 2024

TEST EQUIPMENT OF ESD TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
ESD Simulator	Schaffner	NSG 438	782	Dec. 30, 2022	Dec. 29, 2023

DETAILED RESULTS:

TEST EQUIPMENT OF CS IMMUNITY TEST

Description	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Power Amplifier	AR	75A250	18464	N/A	N/A
CDN	ZHINAN	ZN3751	15004	Aug. 03, 2022	Aug. 02, 2024
6dB attenuator	ZHINAN	E-002	N/A	Aug. 04, 2022	Aug. 03, 2024
Power Sensor	R&S	URV5-Z4	100124	Mar. 24, 2023	Mar. 23, 2025
Power Meter	R&S	NRVD	8323781027	Mar. 24, 2023	Mar. 23, 2025
Signal Generator	R&S	E4421B	MY43351603	Feb. 17, 2023	Feb. 16, 2024

DETAILED RESULTS:

TEST SUNMMER LIST

Test item	Test Requirement	Test Method	Class/Severity	Result
Conducted emission	EN IEC 55014-1	EN IEC 55014-1	EN IEC 55014-1	Pass
Radiated emission	EN IEC 55014-1	EN IEC 55014-1	EN IEC 55014-1	Pass
Harmonic current emission	EN IEC 61000-3-2	EN IEC 61000-3-2	Class A	N/A
Voltage fluctuations & flicker	EN 61000-3-3	EN 61000-3-3	§5 of EN 61000-3-3	Pass
Electrostatic discharge immunity	EN IEC 55014-2	EN 61000-4-2	± 8.0 kV (Air Discharge) ± 4.0 kV (Contact Discharge) ± 4.0 kV (Indirect Discharge)	Pass
Radiated electromagnetic field immunity	EN IEC 55014-2	EN 61000-4-3	3V/m with 80% AM. 1kHz Modulation.	N/A
Electrical fast transient/burst Immunity	EN IEC 55014-2	EN 61000-4-4	+/- 1kV for Power Supply Lines	Pass
Surge immunity	EN IEC 55014-2	EN 61000-4-5	+/-1kV (Line to Line) +/-2kV (Line to Ground)	Pass
Immunity to Conducted Disturbances Induced by RF fields	EN IEC 55014-2	EN 61000-4-6	3V with 80% AM. 1 kHz Modulation for Power Supply Lines	Pass
Voltage dips and short interruptions immunity	EN IEC 55014-2	EN 61000-4-11	PHASE ANGLE 0, 45, 90, 135, 180,225, 270, 315 degrees	Pass

Note： N/A means not applicable.

DETAILED RESULTS:

EN IEC 55014-1 LINE CONDUCTED EMISSION TEST

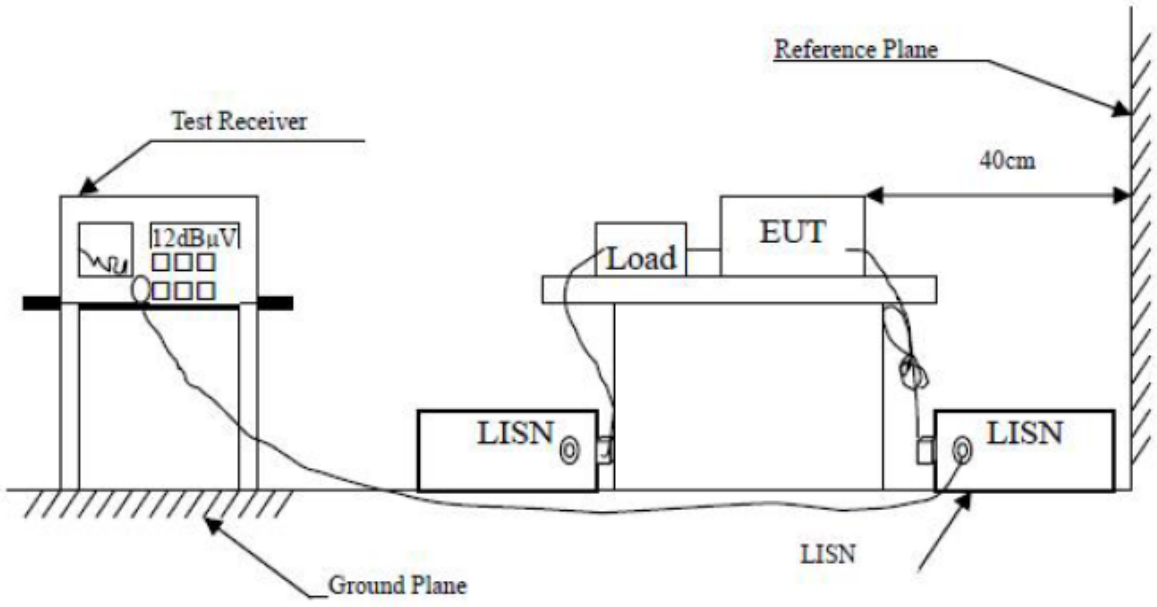
LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P. (dBuV)	Average (dBuV)
150kHz-500kHz	66-56	59-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

BLOCK DIAGRAM OF TEST SETUP



DETAILED RESULTS:

PROCEDURE OF LINE CONDUCTED EMISSION TEST

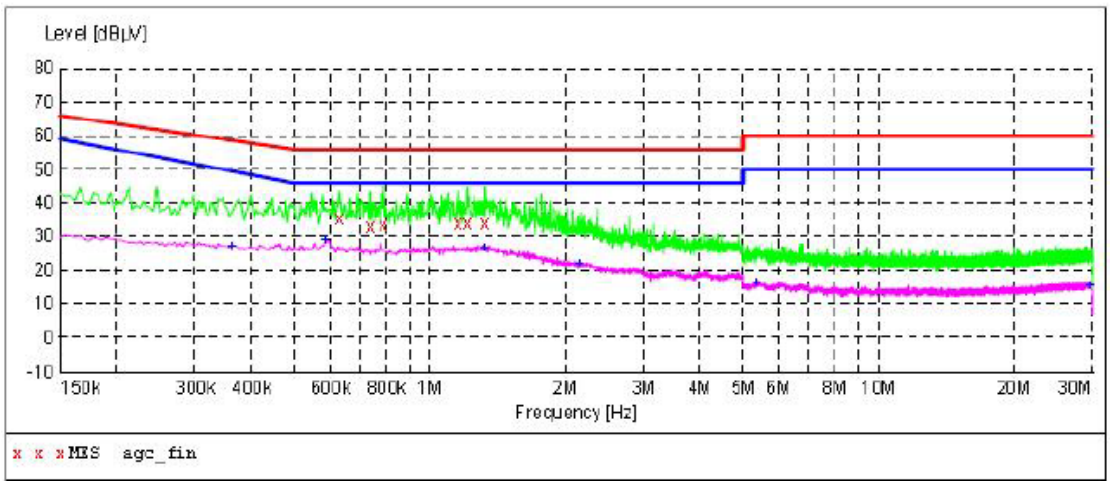
(1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN IEC 55014-1 (see Test Facility for the dimensions of the ground plane used).
When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 10cm non-conductive covering to insulate the EUT from the ground plane.
(2) Support equipment, if needed, was placed as per EN IEC 55014-1.
(3) All I/O cables were positioned to simulate typical actual usage as per EN IEC 55014-1.
(4) The EUT received AC 230V/50Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
(5) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50ohm load; the second scan had Line 1 connected to a 50ohm load and Line 2 connected to the Analyzer / Receiver.
(6) Analyzer / Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
(7) During the above scans, the emissions were maximized by cable manipulation.
(8) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
(9) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

Note: The recommended test voltages are 120V for the range 100V to 127V; and 230V for the range 200V to 240V; The test data of the worst case condition was reported on the Summary Data page.

DETAILED RESULTS:

TEST RESULT OF LINE CONDUCTED EMISSION TEST

LINE CONDUCTED EMISSION TEST-L



MEASUREMENT RESULT: "agc_fin"

2023/7/8 11:42

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.630000	35.40	6.2	56	20.6	QP	L1
0.738000	33.10	6.2	56	22.9	QP	L1
0.790000	33.50	6.2	56	22.5	QP	L1
1.158000	34.10	6.2	56	21.9	QP	L1
1.214000	33.90	6.2	56	22.1	QP	L1
1.326000	34.00	6.2	56	22.0	QP	L1

MEASUREMENT RESULT: "agc_fin2"

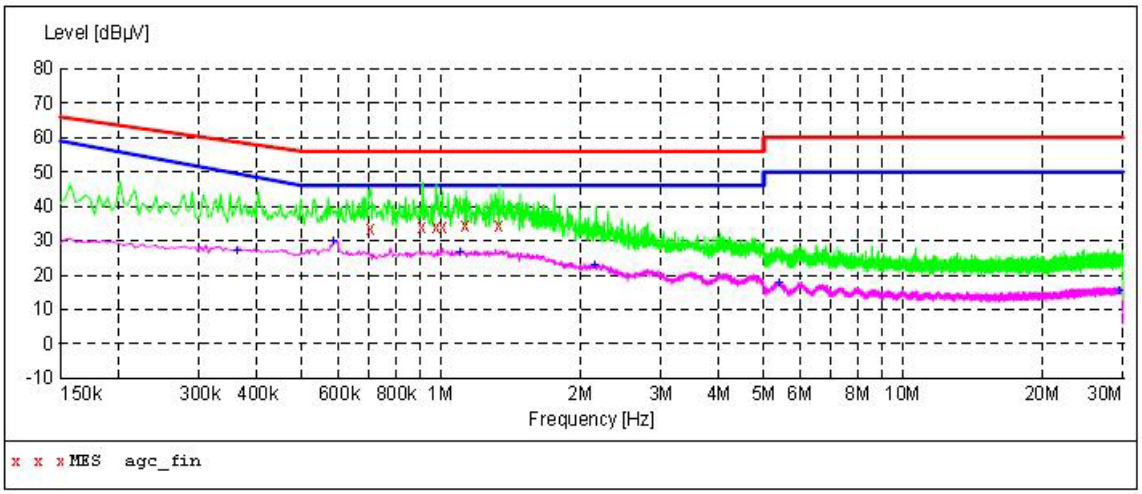
2023/7/8 11:42

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.362000	27.00	6.1	50	22.5	AV	L1
0.586000	28.60	6.2	46	17.4	AV	L1
1.322000	26.30	6.2	46	19.7	AV	L1
2.146000	21.80	6.2	46	24.2	AV	L1
5.362000	16.10	6.4	50	33.9	AV	L1
29.646000	15.50	9.1	50	34.5	AV	L1

RESULT: PASS

DETAILED RESULTS:

LINE CONDUCTED EMISSION TEST-N



MEASUREMENT RESULT: "agc_fin"

2023/7/8 11:38

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.706000	33.60	6.2	56	22.4	QP	N
0.914000	33.80	6.2	56	22.2	QP	N
0.978000	34.00	6.2	56	22.0	QP	N
1.010000	34.00	6.2	56	22.0	QP	N
1.134000	34.30	6.2	56	21.7	QP	N
1.338000	34.60	6.2	56	21.4	QP	N

MEASUREMENT RESULT: "agc_fin2"

2023/7/8 11:38

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.362000	27.20	6.1	50	22.3	AV	N
0.586000	29.80	6.2	46	16.2	AV	N
1.102000	26.60	6.2	46	19.4	AV	N
2.154000	22.60	6.2	46	23.4	AV	N
5.390000	17.40	6.4	50	32.6	AV	N
29.346000	15.40	9.1	50	34.6	AV	N

RESULT: PASS

Note：

Measurement Level (dBuV) = Receiver reading(dBuV)+Tansd(dB)

Transd(dB)=AMN Factor(dB)+Cable Loss(dB)+Attenuation(dB) for Attenuator

Margin= Limit-Level

DETAILED RESULTS:

EN IEC 55014-1 RADIATED EMISSION TEST

LIMITS OF RADIATED DISTURBANCES

AT 10M DISTANCES

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m Q.P.)
30-230	10	30.00
230-1000	10	37.00

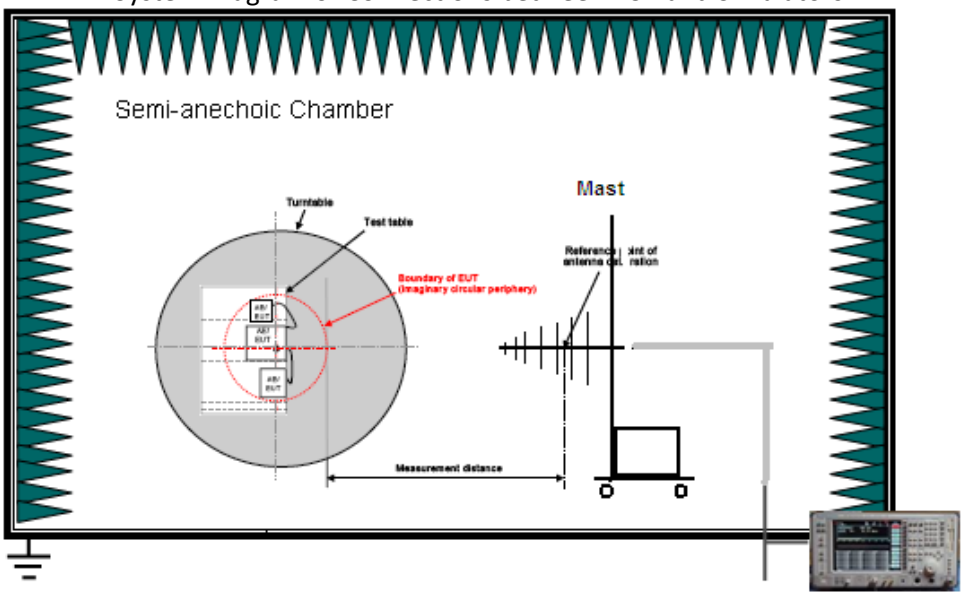
AT 3M DISTANCES

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m Q.P.)
30-230	3	40.00
230-1000	3	47.00

Note: The lower limit shall apply at the transition frequency.

BLOCK DIAGRAM OF TEST SETUP

System Diagram of Connections between EUT and Simulators



PROCEDURE OF RADIATED EMISSION TEST

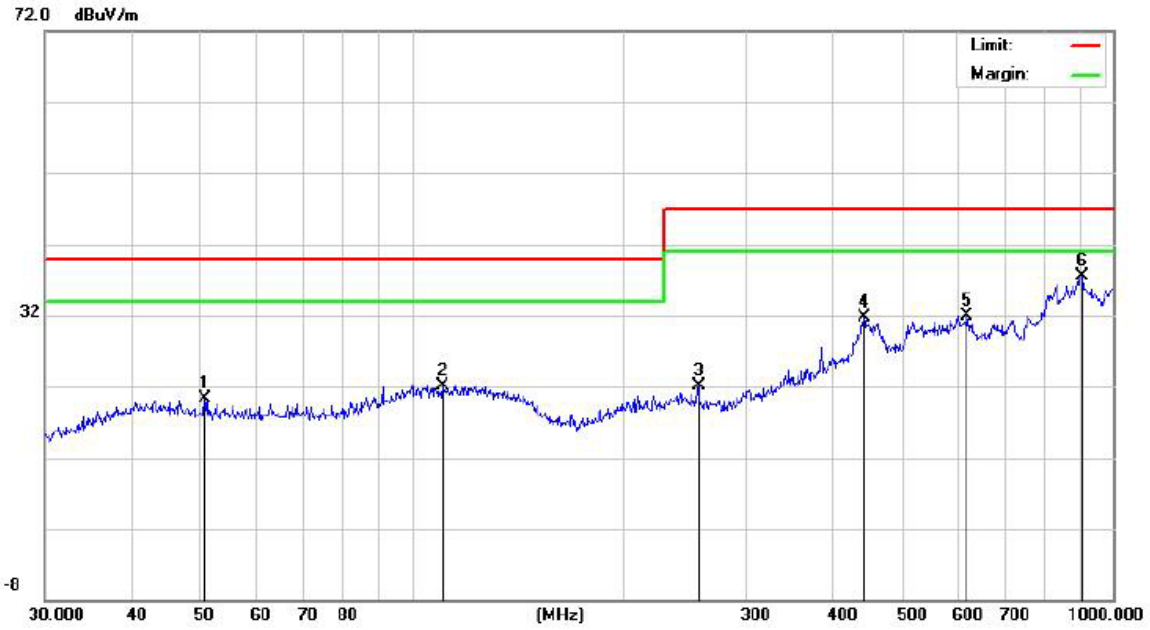
(1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per EN IEC 55014-1 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 10cm non-conductive covering to insulate the EUT from the ground plane.
(2) Support equipment, if needed, was placed as per EN IEC 55014-1.
(3) All I/O cables were positioned to simulate typical actual usage as per EN IEC 55014-1.
(4) The EUT was turned on.
(5) The antenna was placed at 3 meter away from the EUT as stated in EN IEC 55014-1. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
(6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
(7) The test mode(s) were scanned during the test.
(8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.

Note: The recommended test voltages are 120V for the range 100V to 127V; and 230V for the range 200V to 240V; The test data of the worst case condition was reported on the Summary Data page.

DETAILED RESULTS:

TEST RESULT OF RADIATED EMISSION TEST

Radiated Emission Test at 3m Distance-Horizontal

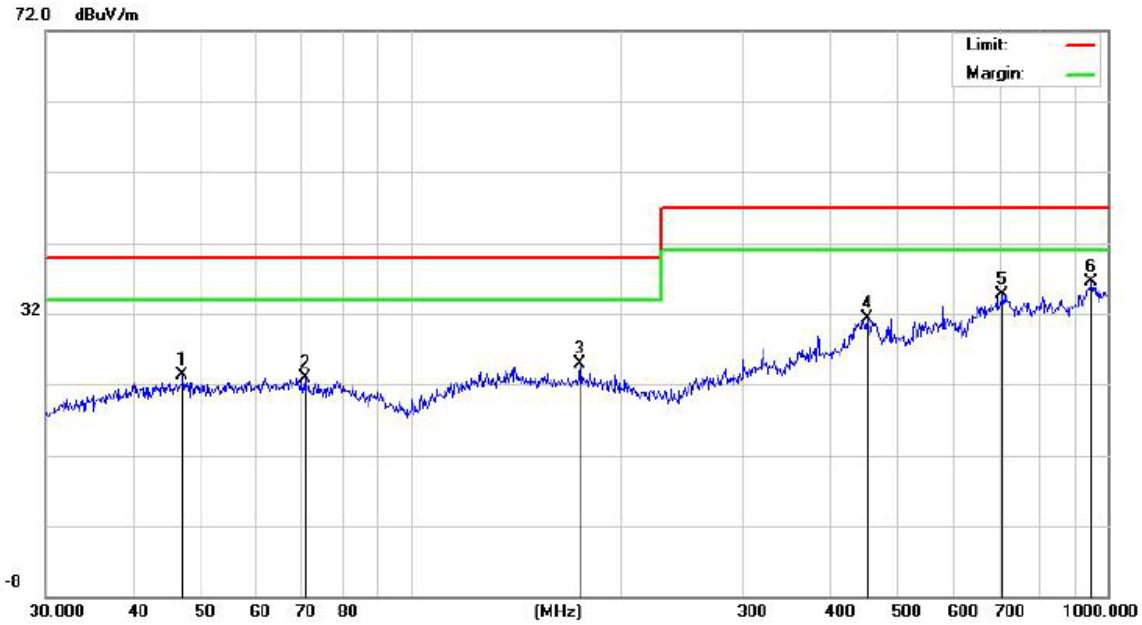


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		50.7637	7.14	13.15	20.29	40.00	-19.71	peak
2		110.5687	5.87	16.31	22.18	40.00	-17.82	peak
3		256.5210	7.22	14.90	22.12	47.00	-24.88	peak
4		441.7425	6.58	25.04	31.62	47.00	-15.38	peak
5		618.5368	6.70	25.19	31.89	47.00	-15.11	peak
6	*	903.3093	6.17	31.34	37.51	47.00	-9.49	peak

RESULT: PASS

DETAILED RESULTS:

Radiated Emission Test at 3m Distance-Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		47.1599	6.31	16.97	23.28	40.00	-16.72	peak
2		70.5836	5.99	16.99	22.98	40.00	-17.02	peak
3		175.0368	6.40	18.43	24.83	40.00	-15.17	peak
4		452.7197	5.73	25.53	31.26	47.00	-15.74	peak
5		706.6999	6.46	28.33	34.79	47.00	-12.21	peak
6	*	948.7610	5.84	30.65	36.49	47.00	-10.51	peak

RESULT: PASS

Note:

Level(dBuV/m) =Reading(dBuV)+Factor(dB/m)

Factor(dB/m) =Antenna Factor(dB/m) +Cable loss(dB)+Attenuation(dB)for Attenuator

Over= Measurement- Limit

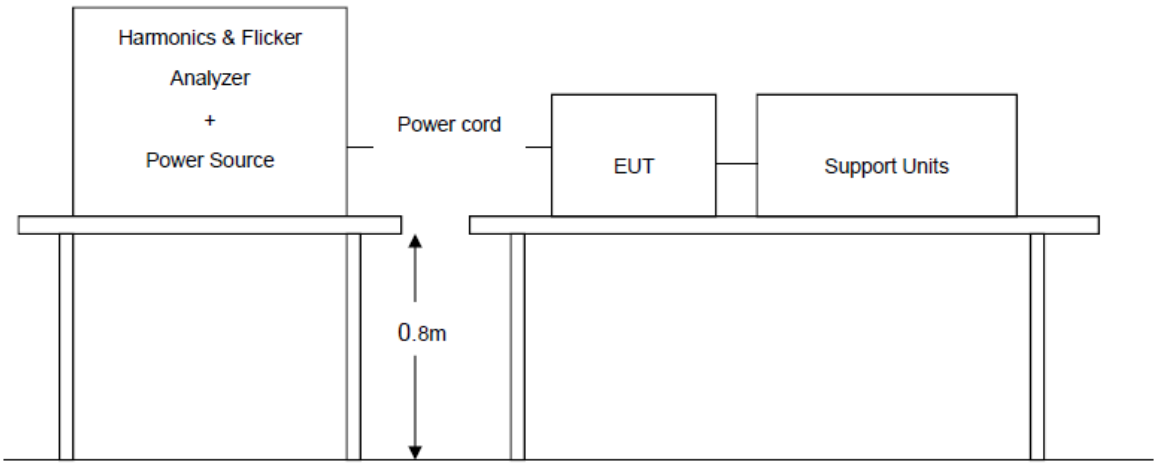
DETAILED RESULTS:

EN IEC 61000-3-2 POWER HARMONICS TEST

POWER HARMONICS MEASUREMENT

Port	AC mains
Basic Standard	EN IEC 61000-3-2
Limits	☒CLASS A; ☐CLASS B; ☐CLASSC; ☐CLASS D;
Temperature	23.6°C
Humidity	58.2% RH

BLOCK DIAGRAM OF TEST SETUP



RESULT

Note: Owning to the power of EUT is less than 75W, so test is not applicable.

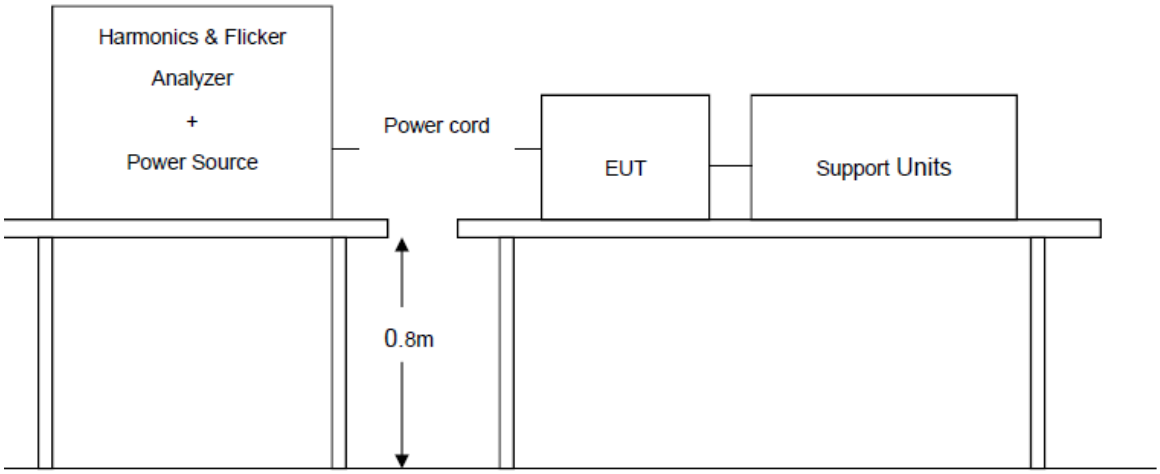
DETAILED RESULTS:

EN 61000-3-3 VOLTAGE FLUCTUATION / FLICKER TEST

VOLTAGE FLUCTUATION/FLICKER MEASUREMENT

Port	AC mains
Basic Standard	EN 61000-3-3
Limits	§5 of EN 61000-3-3
Temperature	23.6°C
Humidity	58.2% RH

BLOCK DIAGRAM OF TEST SETUP



DETAILED RESULTS:

RESULT

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

Test Parameter	Measurement Value	Limit	Remarks
Time(mS) > dt:	0.0	500.0	Pass
Highest dc (%):	0.00	3.30	Pass
Highest dmax (%):	0.00	4.00	Pass
Highest Pst (10 min. period):	0.261	1.0	Pass
Highest Plt (2 hr. period):	0.114	0.65	Pass

DETAILED RESULTS:

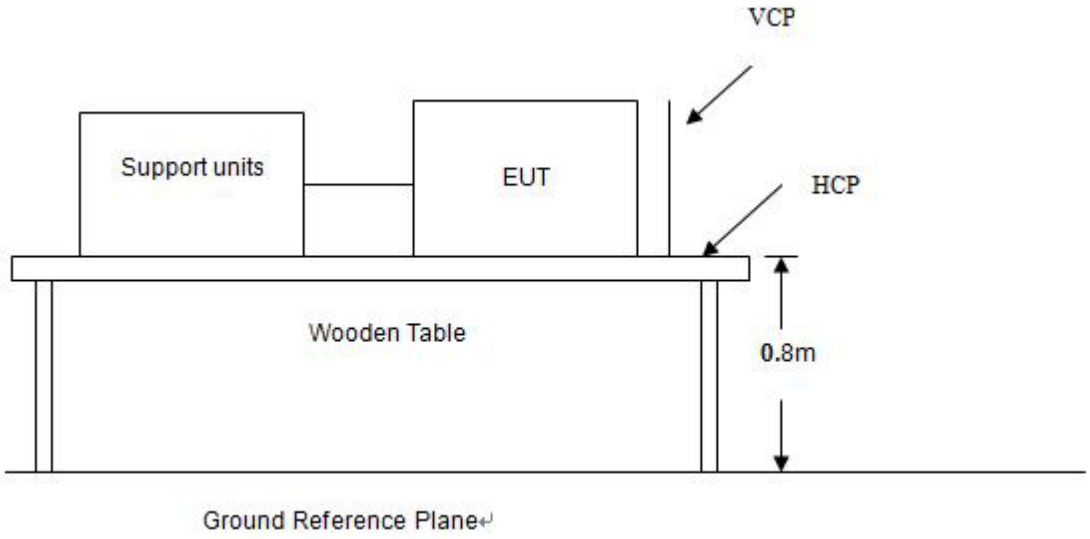
EN 61000-4-2 ESD IMMUNITY TEST

ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port	Enclosure
Basic Standard	EN 61000-4-2
Test Level	± 8.0 kV (Air Discharge) ± 4.0 kV (Contact Discharge) ± 4.0 kV (Indirect Discharge)
Standard require	B
Temperature	24 °C
Humidity	51% RH

BLOCK DIAGRAM OF TEST SETUP

(The 470 k ohm resistors are installed per standard requirement)

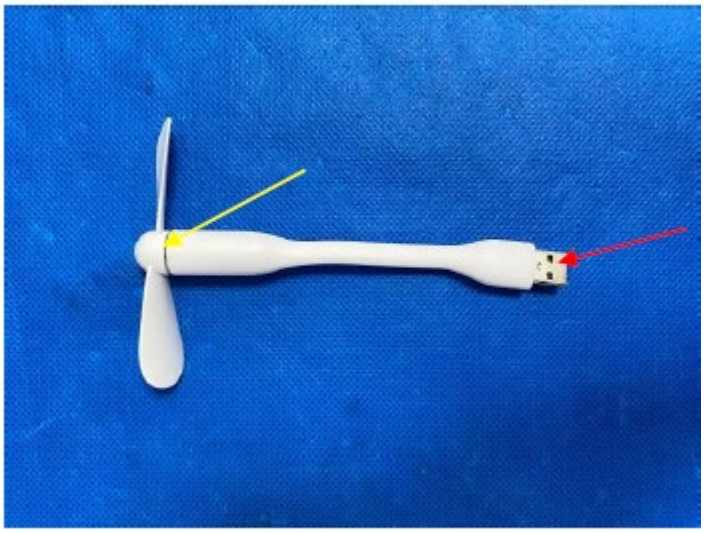


DETAILED RESULTS:

ESD LOCATION:

Red line: Contact discharge

Yellow line: Air discharge



DETAILED RESULTS:

TEST PROCEDURE

The EUT was located 0.1 m minimum from all side of the HCP.
The support units were located 1 m minimum away from the EUT.
EUT worked with resistance load, and make sure EUT worked normally.
Actives the communication function if the EUT with such port(s).
As per the requirement of EN IEC 55014-2: Contact discharge is the preferred test method. 20 discharges (10 with positive and 10 negative polarity) shall be applied on each accessible metal part of the enclosure.
In case of a non-conductive enclosure, discharges shall be applied on the horizontal or vertical coupling planes as specified in EN 61000-4-2.
Air discharges shall be used where contact discharges cannot be applied.
The following test condition was followed during the tests.
Note: As per the A2 to EN 61000-4-2, a bleed resistor cable is connected between the EUT and HCP during the test.

The electrostatic discharges were applied as follows:

Amount of Discharges	Voltage Coupling	Coupling	Result
Mini 20 /Point	± 4kV	Contact Discharge	A
Mini 20 /Point	± 4kV	Indirect Discharge HCP (Front)	A
Mini 20 /Point	± 4kV	Indirect Discharge HCP (Back)	A
Mini 20 /Point	± 4kV	Indirect Discharge HCP (Left)	A
Mini 20 /Point	± 4kV	Indirect Discharge HCP (Right)	A
Mini 20 /Point	± 4kV	Indirect Discharge VCP (Front)	A
Mini 20 /Point	± 4kV	Indirect Discharge VCP (Back)	A
Mini 20 /Point	± 4kV	Indirect Discharge VCP (Left)	A
Mini 20 /Point	± 4kV	Indirect Discharge HCP (Right)	A
Mini 20 /Point	± 8kV	Air Discharge	A

DETAILED RESULTS:

PERFORMANCE & RESULT

Criteria A:	The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
Criteria B:	The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
Criteria C:	Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒PASS ☐FAIL

Test(s) marked with 'ϕ' was subcontracted to external laboratory.
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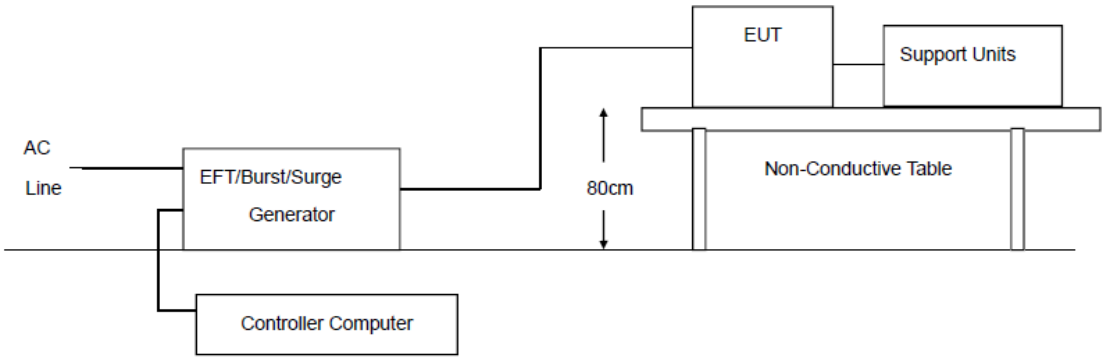
DETAILED RESULTS:

EN 61000-4-4 EFT IMMUNITY TEST

ELECTRICAL FAST TRANSIENTS/BURST IMMUNITY TEST

Port	On Power Supply Lines
Basic Standard	EN 61000-4-4
Test Level	+/- 1kV for Power Supply Lines
Standard require	B
Temperature	24 °C
Humidity	57% RH

BLOCK DIAGRAM OF TEST SETUP



DETAILED RESULTS:

TEST PROCEDURE

The EUT and support units were located on a wooden table 0.1m away from ground reference plane.
A 1.0meter long power cord was attached to EUT during the test.
The length of communication cable between communication port and clamp was keeping within 1 meter.
EUT worked with resistance load, and make sure EUT worked normally.
Related peripherals work during the test.
Recording the test result as shown in following table.

Test conditions:
Impulse Frequency: 5 kHz
Tr/Th: 5/50ns
Burst Duration: 15ms
Burst Period: 300ms

Inject Line	Voltage kV	Inject Method	Result
L+N	+/- 1	Direct	A

PERFORMANCE & RESULT

Criteria A:	The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
Criteria B:	The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
Criteria C:	Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒PASS ☐FAIL

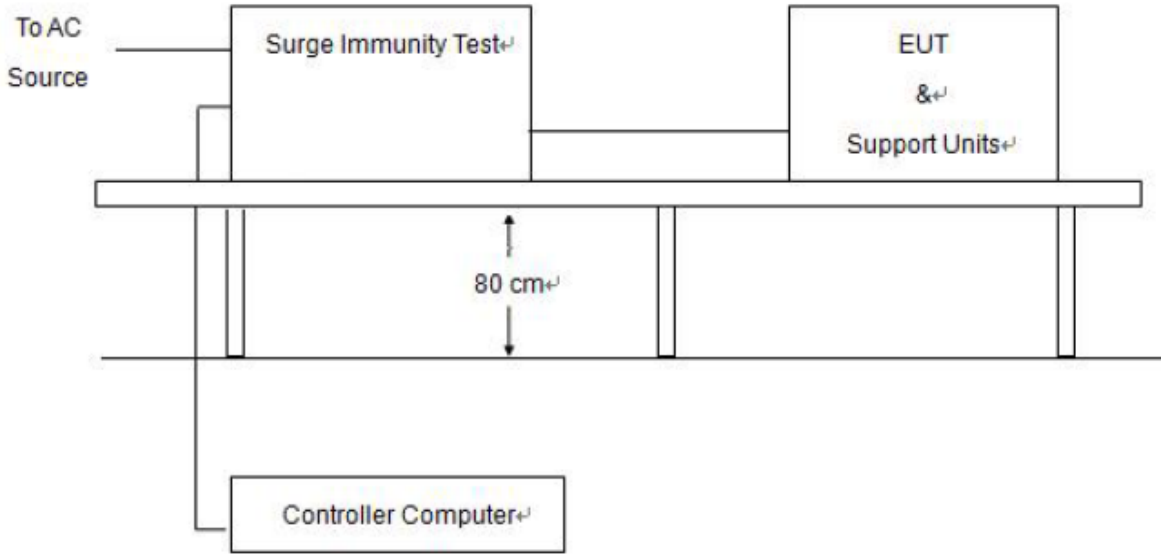
DETAILED RESULTS:

EN 61000-4-5 SURGE IMMUNITY TEST

SURGE IMMUNITY TEST

Port	On Power Supply Lines
Basic Standard	EN 61000-4-5
Requirements	+/- 1kV (Line to Line)
Standard require	B
Temperature	24°C
Humidity	57% RH

BLOCK DIAGRAM OF TEST SETUP



DETAILED RESULTS:

TEST PROCEDURE

The EUT and support units were located on a wooden table 0.1 m away from ground floor.
EUT worked with resistance load, and make sure EUT worked normally.
Recording the test result as shown in following table.

Test Condition:

Voltage Waveform	1.2/50 *us*
Current Waveform	8/20 *us*
Polarity	Positive/Negative
Phase angle	90°, 270°
Number of Test	5

Coupling Line	Voltage (kV)	Polarity	Coupling Method	Test Performance	Performance Result
L1-N	1.0	Positive	Capacitive	No function loss	A
L1-N	1.0	Negative	Capacitive	No function loss	A

PERFORMANCE & RESULT

Criteria A:	The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
Criteria B:	The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
Criteria C:	Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

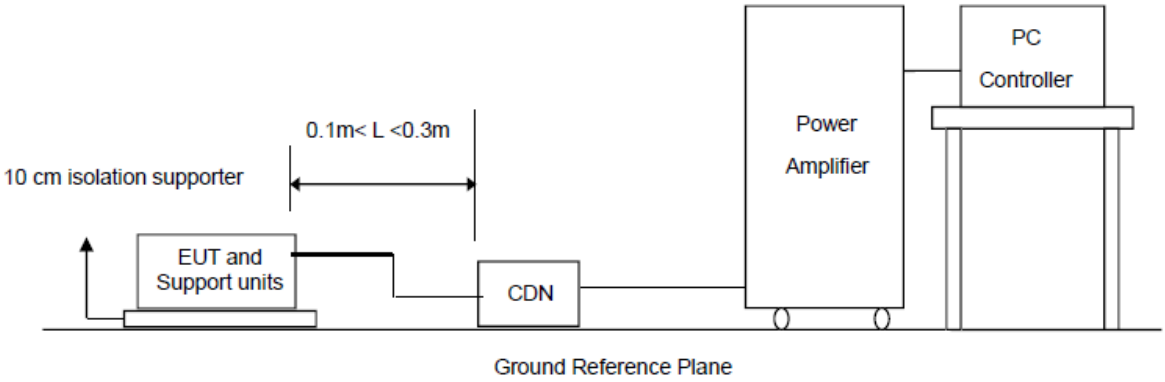
☒PASS ☐FAIL

DETAILED RESULTS:

EN 61000-4-6 CS IMMUNITY TEST

Port	On Power Supply Lines
Basic Standard	EN 61000-4-6
Requirements	3V with 80% AM. 1 kHz Modulation for Power supply lines
Standard require	A
Temperature	24 °C
Humidity	51% RH

BLOCK DIAGRAM OF TEST SETUP



DETAILED RESULTS:

TEST PROCEDURE

The EUT and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.
EUT worked with resistance load, and make sure EUT worked normally.
Related peripherals work during the test.
Setting the testing parameters of CS test software per EN 61000-4-6.
Recording the test result in following table.

Test conditions:

Frequency Range	0.15MHz-230MHz
Frequency Step	1% of fundamental
Dwell Time	1 sec

Power supply lines

Range (MHz)	Strength	Modulation	Result
0.15-230	3V	AM	A

PERFORMANCE & RESULT

Criteria A:	The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
Criteria B:	The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
Criteria C:	Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒PASS ☐FAIL

DETAILED RESULTS:

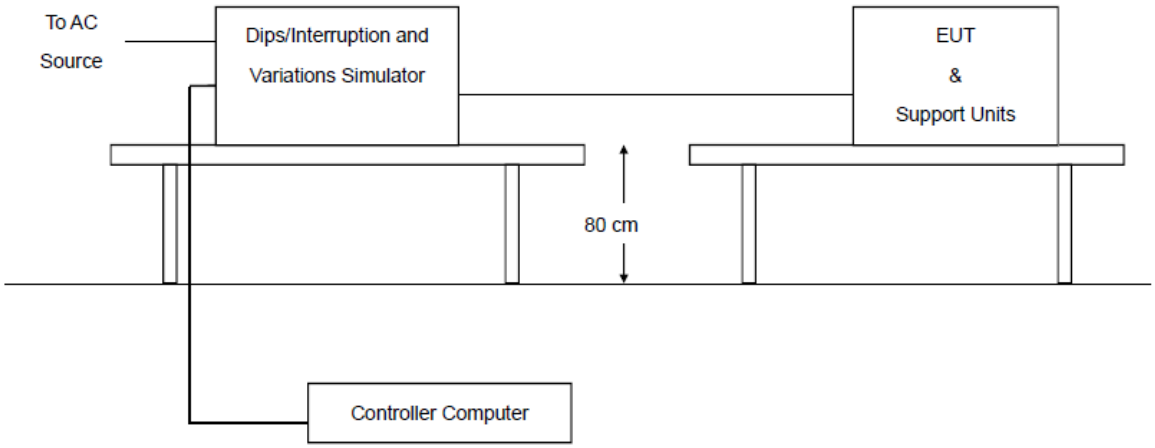
EN 61000-4-11 DIPS IMMUNITY TEST

VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS IMMUNITY TEST

Port	On Power Supply Lines
Basic Standard	EN 61000-4-11
Requirements	PHASE ANGLE 0, 45, 90, 135, 180, 225, 270, 315 degrees
Test Interval	Min. 10 sec.
Temperature	24 °C
Humidity	57% RH

	Test Level % U_T	Reduction (%)	Duration (periods)	Performance Criteria
Voltage Dips	0	100	0.5	C
	40	60	10.0	C
	70	30	25.0	C

BLOCK DIAGRAM OF TEST SETUP



DETAILED RESULTS:

TEST PROCEDURE

The EUT and support units were located on a wooden table, 0.1 m away from ground floor.
EUT worked with resistance load, and make sure EUT worked normally.
Setting the parameter of tests and then perform the test software of test simulator.
Conditions changes to occur at 0 degree crossover point of the voltage waveform.
Recording the test result in test record form.

Test conditions:
The duration with a sequence of three dips/interruptions with interval of 10 s minimum (Between each test event)

Voltage Dips:

	Test Level % U_T	Reduction (%)	Duration (periods)	Performance Criteria
Voltage Dips	0	100	0.5	B
	40	60	10.0	B
	70	30	25.0	C

INTERPRETATION

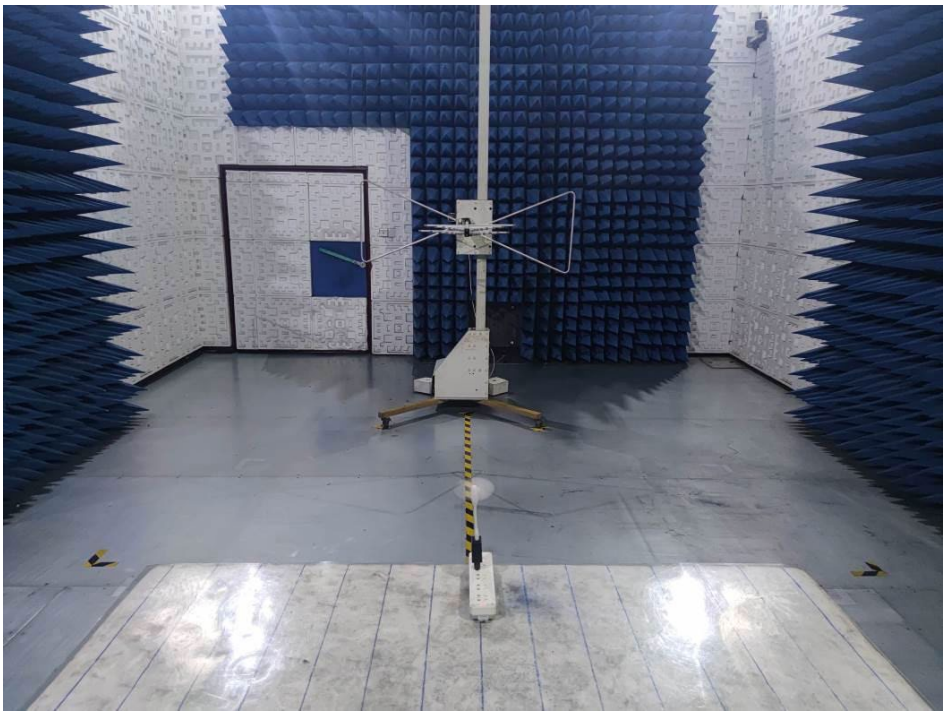
Criteria A:	The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
Criteria B:	The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
Criteria C:	Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒PASS ☐FAIL

PHOTOGRAPHS OF TEST SETUP

EN IEC 55014-1 CONDUCTED EMISSION TEST SETUP

EN IEC 55014-1 RADIATED EMISSION TEST SETUP



PHOTOGRAPHS OF TEST SETUP

EN 61000-3-3 VOLTAGE FLUCTUATION / FLICKER TEST SETUP

EN 61000-4-2 ESD IMMUNITY TEST SETUP

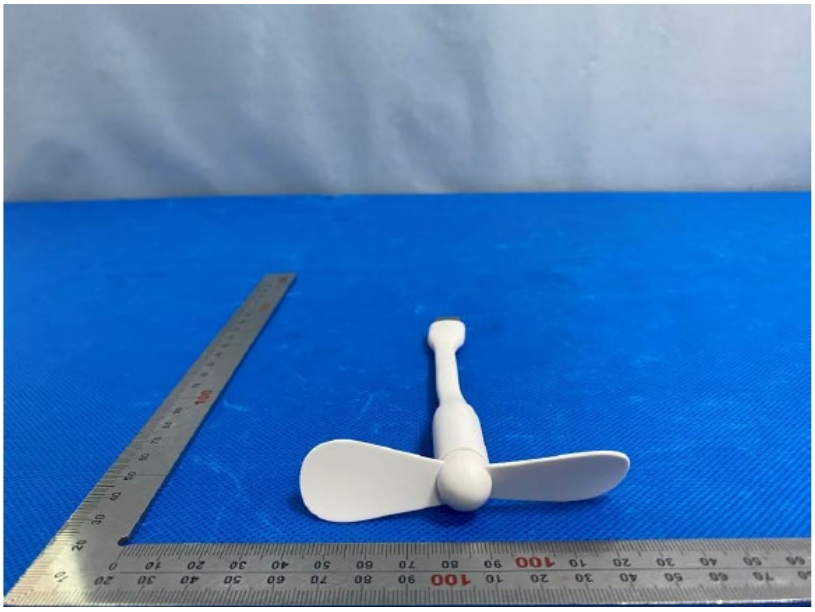
PHOTOGRAPHS OF TEST SETUP

EN 61000-4-4/-5/-11 EFT/SURGE/DIPS IMMUNITY TEST SETUP

EN 61000-4-6 CS IMMUNITY TEST SETUP

PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



BOTTOM VIEW OF EUT

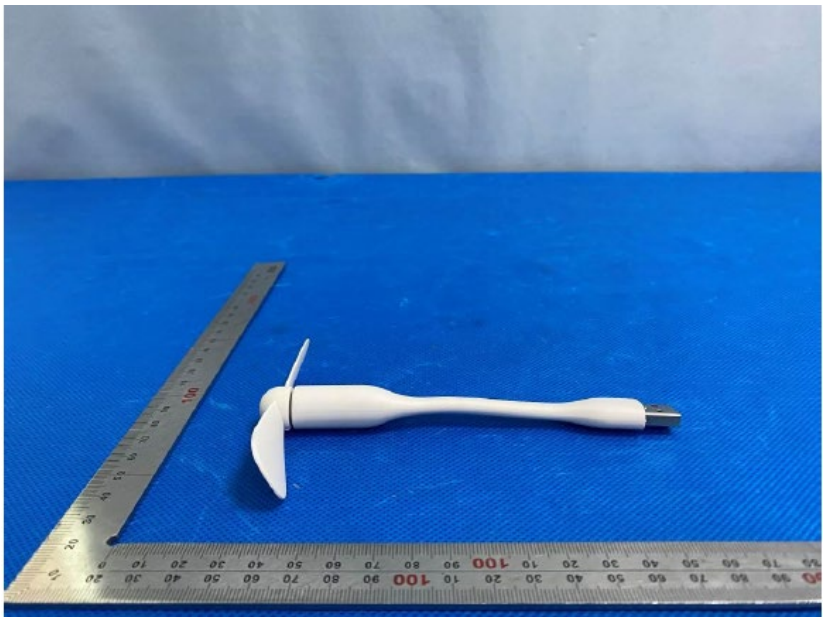
PHOTOGRAPHS OF EUT

FRONT VIEW OF EUT

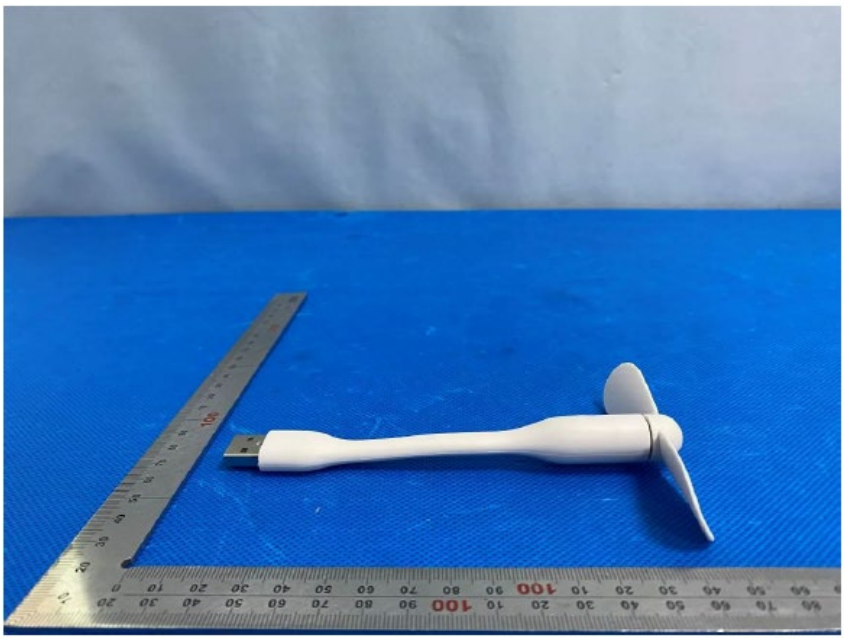
BACK VIEW OF EUT

PHOTOGRAPHS OF EUT

LEFT VIEW OF EUT



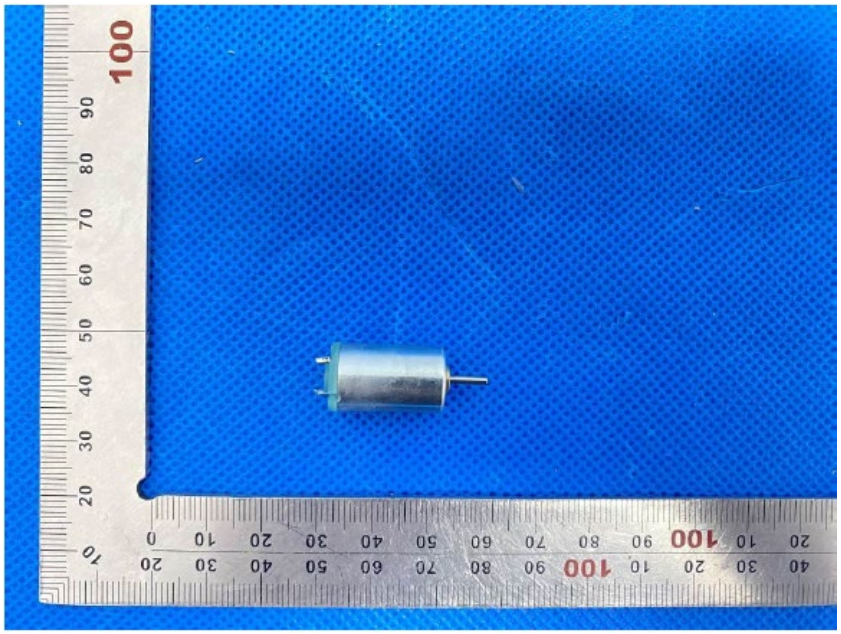
RIGHT VIEW OF EUT



PHOTOGRAPHS OF EUT

OPEN VIEW OF EUT

MOTOR VIEW OF EUT



SAMPLE PHOTO:

-End Report-