

TEST REPORT

Report No. : 20260101G02702X

Sample Name : Wood Moisture Meter

Model No. : HT73

Applicant's name : Dongguan Habotest Instrument Technology Co., Ltd.



中认英泰检测技术有限公司

CQC INTIME TESTING TECHNOLOGY CO., LTD.

Applicant:	Dongguan Habotest Instrument Technology Co., Ltd.	
Address:	No.8, 4th Qinghu Xingye Road, Qingxi Town, Dongguan City, Guangdong Province, China	
Manufacturer:	Dongguan Habotest Instrument Technology Co., Ltd.	
Address:	No.8, 4th Qinghu Xingye Road, Qingxi Town, Dongguan City, Guangdong Province, China	
Factory:	Dongguan Habotest Instrument Technology Co., Ltd.	
Address:	No.8, 4th Qinghu Xingye Road, Qingxi Town, Dongguan City, Guangdong Province, China	
Test item:	refer to section 2.1	
Trade Mark:	HABOTEST	
Model/Type reference:		
EUT info:	refer to section 1.1	
Test data:	2026.01.22-2026.01.23	
Standard:	EN IEC 61326-1:2021	
Test Result:	PASS	
Testing laboratory: CQC Intime Testing Technology Co.,Ltd		
Laboratory's address: 20 Huayun Road, Suzhou Industrial Park, Jiangsu Province		
Compiled by:	Reviewed by:	Approved by:
<i>zhu kai</i>	<i>zhang weibin</i>	<i>shen zhiwen</i>
Date: 2026.03.17	Date: 2026.03.17	Date: 2026.03.17
Remarks: This report is only responsible for incoming samples and cannot be separately quoted from the test report.		

Contents

1	GENERAL INFORMATION	5
1.1	EUT DESCRIPTION	5
1.2	MODE OF OPERATION	5
1.3	LIST OF TEST AND MEASUREMENT INSTRUMENTS	5
1.4	MEASUREMENT UNCERTAINTY	6
2	GENERAL INFORMATION	7
2.1	TEST SUMMARY	7
2.2	MODE OF OPERATION DESCRIPTION OF SUPPORT UNITS	7
2.3	CONFIGURATION OF SYSTEM UNDER TEST	7
3	EMISSION TEST.....	8
3.1	MAINS TERMINAL DISTURBANCE VOLTAGE.....	8
3.1.1	LIMITS	8
3.1.2	TEST INSTRUMENTS	8
3.1.3	TEST PROCEDURES	8
3.1.4	TEST SETUP	9
3.1.5	TEST RESULTS	10
3.2	RADIATED ELECTROMAGNETIC DISTURBANCE MEASUREMENT	11
3.2.1	LIMITS	11
3.2.2	TEST INSTRUMENTS	11
3.2.3	TEST PROCEDURE.....	11
3.2.4	TEST SETUP	12
3.2.5	TEST RESULTS	13
4	IMMUNITY TEST.....	15
4.1	GENERAL DESCRIPTION.....	15
4.2	EVALUATION OF THE TEST RESULTS	15
4.3	ELECTROSTATIC DISCHARGE IMMUNITY (ESD)	16
4.3.1	TEST SPECIFICATION.....	16
4.3.2	TEST INSTRUMENT	16
4.3.3	TEST PROCEDURE.....	16
4.3.4	TEST SETUP	17
4.3.5	TEST RESULTS	18
4.4	RADIATED, RADIO FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY (RS)	19
4.4.1	TEST SPECIFICATION	19
4.4.2	TEST INSTRUMENT	19
4.4.3	TEST PROCEDURE.....	19
4.4.4	TEST SETUP	20
4.4.5	TEST RESULTS	21
4.5	ELECTRICAL FAST TRANSIENT/BURST IMMUNITY (EFT)	22
4.5.1	TEST SPECIFICATION.....	22
4.5.2	TEST INSTRUMENT	22
4.5.3	TEST PROCEDURE.....	22
4.5.4	TEST SETUP	23
4.5.5	TEST RESULTS	24
4.6	SURGE IMMUNITY	25
4.6.1	TEST SPECIFICATION	25
4.6.2	TEST INSTRUMENT	25
4.6.3	TEST PROCEDURE.....	25
4.6.4	TEST SETUP	26
4.6.5	TEST RESULTS	26

4.7	IMMUNITY TO CONDUCTED DISTURBANCES INDUCED BY RF FIELDS (CS).....	27
4.7.1	TEST SPECIFICATION	27
4.7.2	TEST INSTRUMENT	27
4.7.3	TEST PROCEDURE.....	27
4.7.4	TEST SETUP	28
4.7.5	TEST RESULTS	29
4.8	POWER FREQUENCY MAGNETIC FIELD IMMUNITY	30
4.8.1	TEST SPECIFICATION	30
4.8.2	TEST INSTRUMENT	30
4.8.3	TEST PROCEDURE.....	30
4.8.4	TEST SETUP	30
4.8.5	TEST RESULTS	31
4.9	VOLTAGE DIPS AND SHORT INTERRUPTIONS IMMUNITY	32
4.9.1	TEST SPECIFICATION	32
4.9.2	TEST INSTRUMENT	32
4.9.3	TEST PROCEDURE.....	32
4.9.4	TEST SETUP	32
4.9.5	TEST RESULTS	33
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	34

1 General Information

1.1 EUT Description

Product Name	Wood Moisture Meter
Brand Name	HABOTEST
Model No.	HT73
Rated Input	Battery: DC 3V (1.5Vx2)
Laboratory Number	20260101G02702X-1
Notes	- For more detailed features about the EUT, please refer to the manufacture's specification or the user's manual. - The EUT is classified Class B equipment according to CISPR 11. - Immunity test requirements for equipment- Table 1.

1.2 Mode of Operation

The EUT was tested together with the above additional components, and a configuration, which produced was selected and recorded in this report.

Test Mode 1: On Mode

1.3 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Test site

No	Name of testing site	Model/Specification	Calibration effective date	This use (√)
1	3m method anechoic chamber	FSAC318 9.2×6.2×6.3 (m) (NSA)	2027.04.13	√
2	Immunity 1 room	KRD553 5×5.8×3.2 (m)	2027.02.24	√
3	Immunity 2-room	KRD653 6.7×5.8×3.2 (m)	2027.01.07	√
4	Three meter semi anechoic chamber	9.1m*6.1m*5.85m (FU)	2029.04.15	√

Testing instruments and equipment

Instrument and equipment name	Model	Number	Manufacturer	Calibration validity period until
Radiated Electromagnetic Disturbance Measurement (30MHz-1GHz)				
Test Receiver	ESCI 7	ITCG240135	R&S	2027.01.04
Antenna	VULB 9160	ITCG240172	SCHWARZBECK	2027.01.09
E3(Software)	8.14818	ITCE240532	AUDIX	/
Electrostatic discharge immunity				
ESD Generators	NSG 437	ITCG240163	Teseq	2027.01.11
Radiated, radio frequency electromagnetic field immunity				
Signal generator	N5171B	ITCG240211	Keysight	2027.01.05
Power Meter	E4417A	ITCG240210	KEYSIGHT	2027.01.05
Power probe	E9323A	ITCG240208	Keysight	2027.01.05
Power probe	E9323A	ITCG240209	Keysight	2027.01.05
Power amplifier	HPABSC-1G6G100W	ITCG240344	Nanjing Huakai Electronic Technology Co., LTD	2027.01.05
power amplifier	CBA1G-600B	ITCG240207	TESEQ	2027.01.05
Transmitting Antenna	STLP 9128E special	ITCG240337	SCHWARZBECK	/
Transmitting Antenna	STLP9149	ITCG240334	SCHWARZBECK	/
BAT-EMC(Software)	3.18.0.26	ITCE240536	NEXIO	/
Power frequency magnetic field immunity				
PFM Simulator	MFS 1200	ITCG240268	3ctest	2027.01.04
PFM Coil	TXC30 1200A	ITCG240269	3ctest	2027.01.04

1.4 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Radiated Electromagnetic Disturbance Measurement	30MHz ~ 1000MHz	Uc = 4.5 dB (k=2)

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2 General Information

2.1 Test Summary

EMISSION		
Standard	Test Type	Result
EN IEC 61326-1:2021	Mains terminal disturbance voltage	N/A
	Radiated Electromagnetic Disturbance Measurement	PASS
IMMUNITY		
Standard	Test Type	Result
EN IEC 61326-1:2021	Electrostatic discharge immunity	PASS
	Radiated, radio frequency electromagnetic field immunity	PASS
	Electrical fast transient/burst immunity	N/A
	Surge immunity	N/A
	Immunity to conducted disturbances induced by RF fields	N/A
	Power frequency magnetic field immunity	PASS
	Voltage dips and short interruptions immunity	N/A

Note: N/A, Powered by internal battery, Not applicable.

2.2 Mode of Operation Description of Support Units

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

No.	Equipment	Model No.	Manufacturer	Serial No.
1	/	/	/	/

2.3 Configuration of System Under Test

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

Immunity: The equipment under test (EUT) was configured to have its highest possible susceptibility against the tested phenomena. The test modes were adapted accordingly in reference to the instructions for use.

3 EMISSION TEST

3.1 MAINS TERMINAL DISTURBANCE VOLTAGE

3.1.1 LIMITS

CISPR 11 :2015/AMD1 :2016/AMD2:2019		
Frequency range(MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66-56	56-46
0.5-5	56	46
5-30	60	50

NOTES:

1. The lower limit shall apply at the transition frequencies.

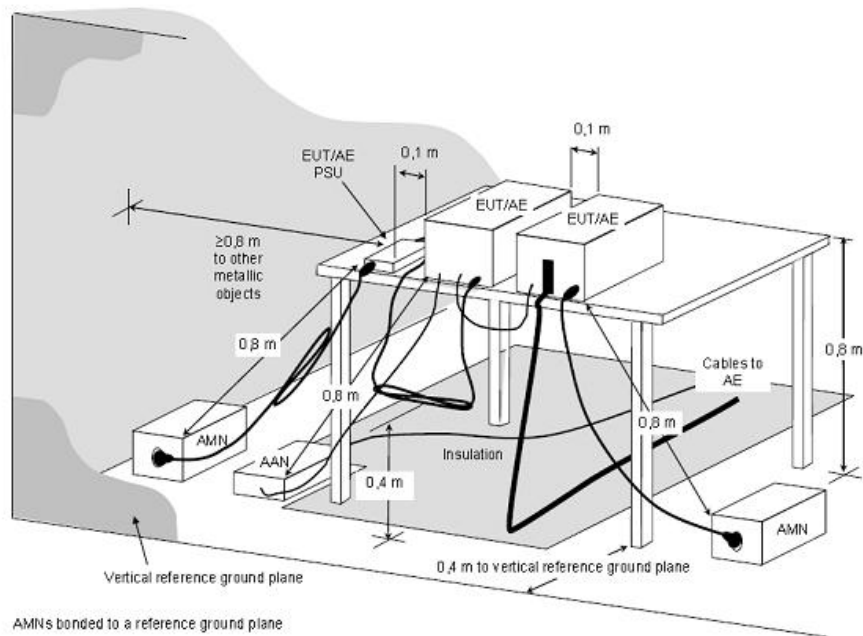
3.1.2 TEST INSTRUMENTS

See list of test equipment of this Section 1.3.

3.1.3 TEST PROCEDURES

- a. The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
- b. Floor standing equipment should be placed on non-conductive supports that are 0.1m above the ground.
- c. Connect EUT to the power mains through a Artificial Mains Network (AMN).
- d. All the support units are connecting to the other AMN.
- e. The AMN provides 50 ohm coupling impedance for the measuring instrument.
- f. The CISPR states that a 50 ohm, 50 micro-Henry AMN should be used.
- g. Both sides of AC line were checked for maximum conducted interference.
- h. The frequency range from 150 kHz to 30 MHz was searched
- i. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

3.1.4 TEST SETUP



NOTE The 0,8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be $\geq 0,8$ m.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

3.1.5 TEST RESULTS

Powered by internal battery, Not applicable.

3.2 RADIATED ELECTROMAGNETIC DISTURBANCE MEASUREMENT

3.2.1 LIMITS

CISPR 11 :2015/AMD1 :2016/AMD2:2019	
Frequency range (MHz)	Quasi peak limits(dBμV/m), for Class B ITE, at 3m measurement distance
30 - 230	40
230 - 300	47

3.2.2 TEST INSTRUMENTS

See list of test equipment of this Section 1.3.

3.2.3 TEST PROCEDURE

- The EUT was placed on a rotatable table top 0.8 meter above ground.
- Floor standing equipment should be placed on non-conductive supports that are 0.1m above the ground. The use of non-conductive supports is to prevent accidental grounding of EUT and distortion of the field.
- The EUT was set 3/10 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turn table (from 0 degree to 360 degree) to find the maximum reading.
- Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

Set the spectrum analyzer/ Receiver in the following setting as:

Below 1GHz:

RBW=120kHz / VBW=300kHz / Sweep time=AUTO

Above 1GHz::

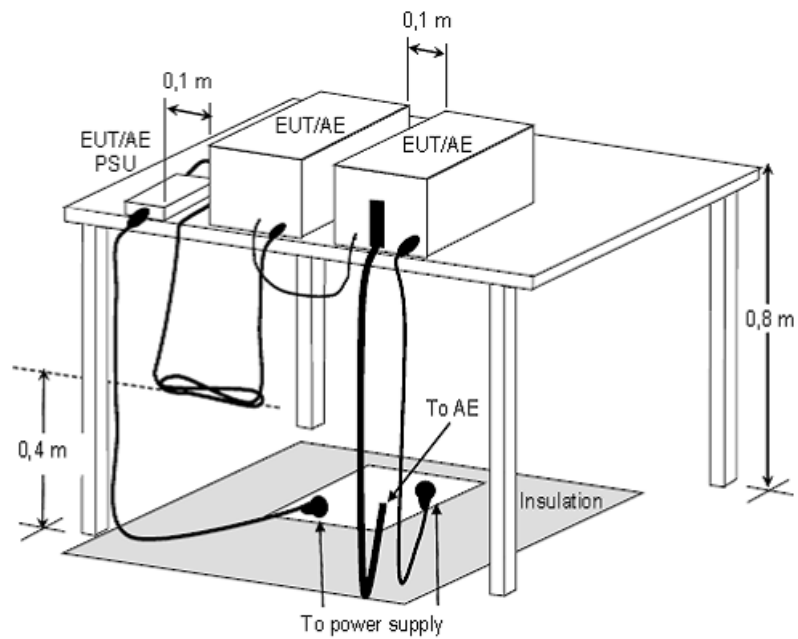
RBW=1MHz/ VBW=3MHz / Sweep time=AUTO

The test mode(s) described in Item 4.1 were scanned during the preliminary test:

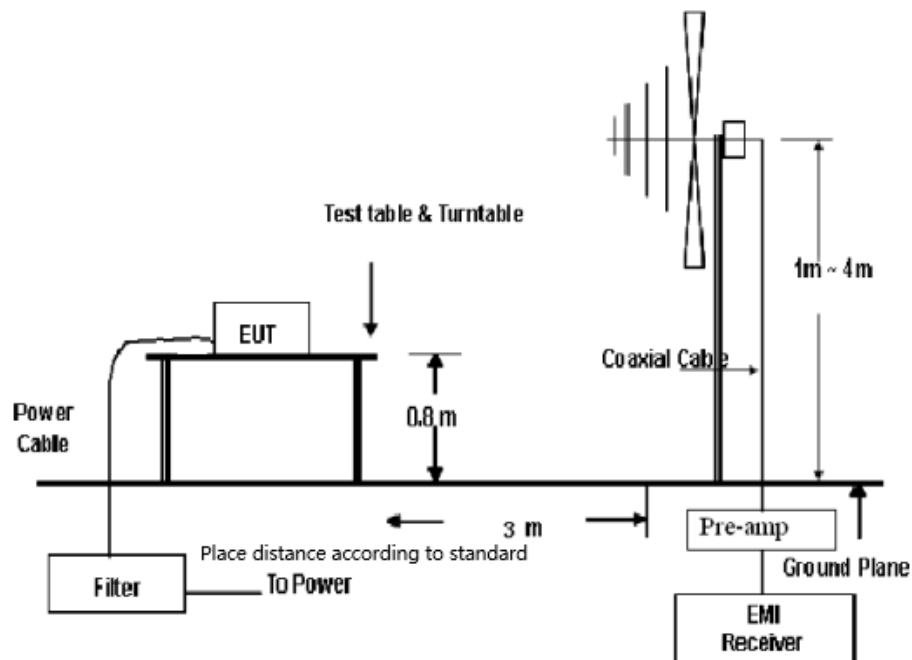
After the preliminary scan, we found the test mode described in Item 4.1 producing the highest emission level.

The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

3.2.4 TEST SETUP

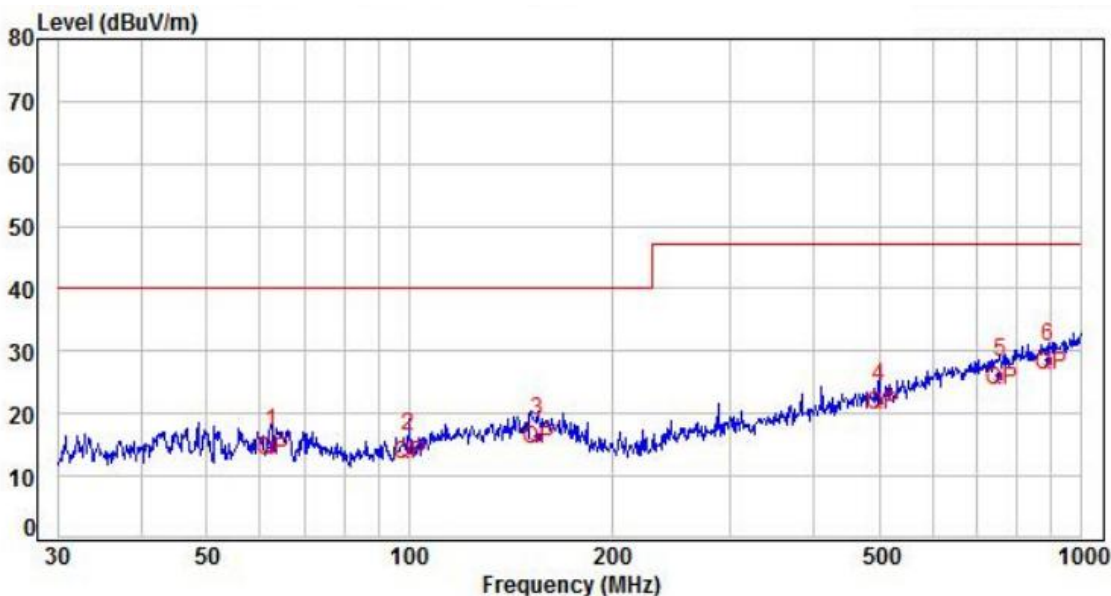


Below 1GHz



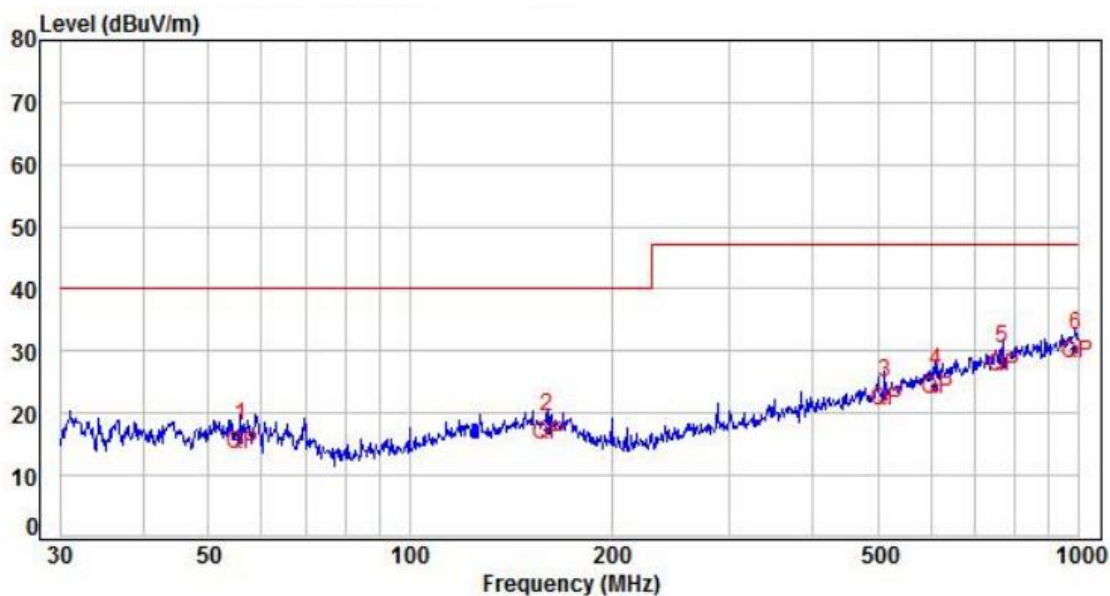
3.2.5 TEST RESULTS

Date: 2026.01.22
 Temp. /Hum. /Atm.: 23.4°C, 42%, 101kPa
 Test Voltage: DC 3V
 Mode:mode1, Horizontal



	Freq MHz	Reading dBuA	C.F dB	Result dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity	Remark
1	62.43	1.65	12.99	14.64	40.00	25.36	200	152	Horizontal	QP
2	99.88	2.42	11.76	14.18	40.00	25.82	195	201	Horizontal	QP
3	155.36	0.67	15.82	16.49	40.00	23.51	200	237	Horizontal	QP
4	501.18	2.27	19.79	22.06	47.00	24.94	195	158	Horizontal	QP
5	755.39	1.60	24.54	26.14	47.00	20.86	201	132	Horizontal	QP
6	893.86	2.28	26.18	28.46	47.00	18.54	200	59	Horizontal	QP

Date: 2026.01.22
 Temp. /Hum. /Atm.: 23.4°C, 42%, 101kPa
 Test Voltage: DC 3V
 Mode:mode1, Vertical



	Freq MHz	Reading dBuA	C.F dB	Result dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity	Remark

1	55.80	2.40	13.32	15.72	40.00	24.28	100	125	Vertical	QP
2	160.35	1.06	16.21	17.27	40.00	22.73	100	54	Vertical	QP
3	511.84	2.75	19.93	22.68	47.00	24.32	100	93	Vertical	QP
4	609.92	1.91	22.56	24.47	47.00	22.53	100	262	Vertical	QP
5	768.75	3.29	24.70	27.99	47.00	19.01	100	125	Vertical	QP
6	986.07	2.36	28.03	30.39	47.00	16.61	100	74	Vertical	QP

4 IMMUNITY TEST

4.1 GENERAL DESCRIPTION

Product Standard	EN IEC 61326-1:2021	
	Test Type	Minimum Requirement
Basic Standard, Specification, and Performance Criterion required	IEC 61000-4-2	Electrostatic discharge immunity – ESD: ±8kV air discharge, ±4kV Contact discharge, Performance Criterion B
	IEC 61000-4-3	Radiated, radio frequency electromagnetic field immunity – RS: Frequency range: 80 to 1000MHz, 1400 to 6000MHz Carrier signal: 3V/m, 80% AM(1kHz), Performance Criterion A
	IEC 61000-4-4	Electrical fast transient/burst immunity - EFT, AC Power Port: ±1kV Performance Criterion B
	IEC 61000-4-5	Surge immunity: For Power: 1.2/50 µs Open Circuit Voltage, 8/20 µs Short Circuit Current, AC Power Port at line to line: ±0.5kV; line to earth ±1kV; Performance Criterion B
	IEC 61000-4-6	Immunity to conducted disturbances induced by RF fields –CS: 0.15 to 80MHz; AC Power Port: 3V _{rms} ; Carrier signal: 80% AM(1kHz) Performance Criterion A
	IEC 61000-4-8	Power frequency magnetic field immunity 50/60Hz, 3A/m Performance Criterion A
	IEC 61000-4-11	Voltage Dips: i) 0% reduction: 0.5periods, Performance Criterion B ii) 0% reduction: 1periods, Performance Criterion B iii) 70% reduction: 25periods for 50Hz, Performance Criterion C 70% reduction: 30 periods for 60Hz, Performance Criterion C short interruptions: 0% reduction: 250periods for 50Hz, Performance Criterion C 0% reduction: 300periods for 60Hz, Performance Criterion C

4.2 Evaluation of the test results

- A) Performance criterion A: The equipment shall continue to operate as intended during and after the test.
- B) Performance criterion B: The equipment shall continue to operate as intended after the test..
- C) Performance criterion C: Loss OF FUNCTION is allowed, provided the function is self-recoverable or can be restored by the operation of the controls. Recovery procedure shall be included in the user documentation. No permanent damage to the equipment is allowed.

4.3 ELECTROSTATIC DISCHARGE IMMUNITY (ESD)

4.3.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Discharge Voltage:	Air Discharge: ± 8 kV (Direct) Contact Discharge: ± 4 kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	min. 10 times at each test point for each polarity
Discharge Mode:	Single Discharge 1 second minimum
Result:	Pass

4.3.2 TEST INSTRUMENT

See list of test equipment of this Section 1.3.

4.3.3 TEST PROCEDURE

The discharges shall be applied in two ways:

a) Contact discharges to the conductive surfaces and coupling planes:

The EUT shall be subjected to at least 10 indirect discharges to the center of the front edge of the Horizontal Coupling Plane (HCP), and 10 indirect discharges to the center of the front edge of the Vertical Coupling Plane (VCP). The remaining test points shall be selected on the conductive surfaces. If no direct contact test points are available, then discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

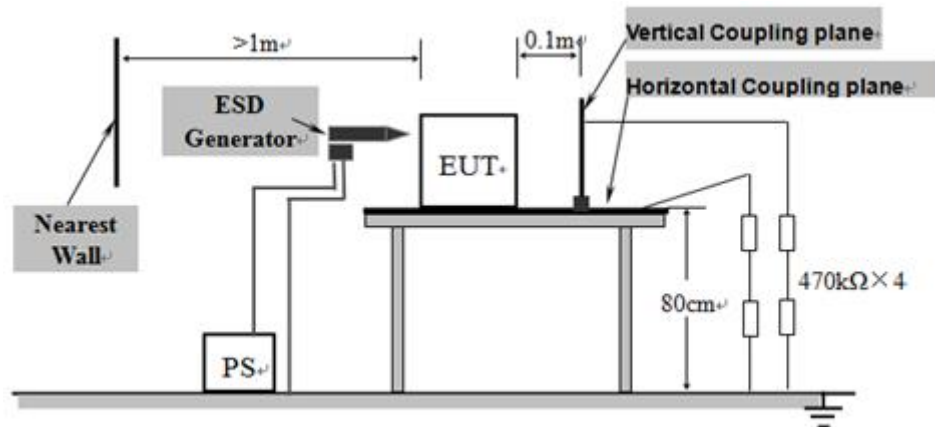
b) Air discharges at slots and apertures and insulating surfaces:

On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. Such points are tested using the air discharge method. This investigation should be restricted to those area normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

The basic test procedure was in accordance with IEC 61000-4-2:

- The EUT was positioned at 0.1 m minimum from all side of the HCP (dimensions 1.6m x 0.8m) and VCP (dimensions 0.5m x 0.5m).
- The support units were located another table 30 cm away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10 cm with EUT.
- The time interval between two successive single discharges was at least 1 second.
- Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
- At least ten single discharges (in the most sensitive polarity) were applied at the front edge of each HCP opposite the center point of each unit of the EUT and 0.1 meters from the front of the EUT. The long axis of the discharge electrode was in the plane of the HCP and perpendicular to its front edge during the discharge.
- At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane (VCP) in sufficiently different positions that the four faces of the EUT were

completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.



4.3.4 TEST SETUP

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

4.3.5 TEST RESULTS

Temperature	23.5°C	Humidity	41% RH
Pressure	101kPa	Mode	Mode1
Test Date	2026.01.22	Test Voltage	DC 3V

	Voltage	2 kV		4 kV		8 kV		Comply with criterion	Observation	Result
	Point\Polarity	+	—	+	—	+	—	---	---	---
Indirect contact discharge	HCP	---	---	✓	✓	---	---	A	NOTE(1)	Pass
	VCP	---	---	✓	✓	---	---	A	NOTE(1)	Pass
Direct contact discharge	Metal base	---	---	✓	✓	---	---	A	NOTE(1)	Pass
Air Discharge	Display screen and gap	✓	✓	✓	✓	✓	✓	A	NOTE(1)	Pass
	Other insulated enclosure and seams	✓	✓	✓	✓	✓	✓	A	NOTE(1)	Pass
NOTE: (1) There was no change compared with initial operation during and after the test. No unintentional response was found during the test.										

Test Conclusion: EUT meets standard requirements.

4.4 RADIATED, RADIO FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY (RS)

4.4.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-3
Frequency Range:	80 to 1000 MHz, 1400 to 6000MHz
Field Strength:	3V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of preceding frequency value
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5m
Result:	Pass

4.4.2 TEST INSTRUMENT

See list of test equipment of this Section 1.3.

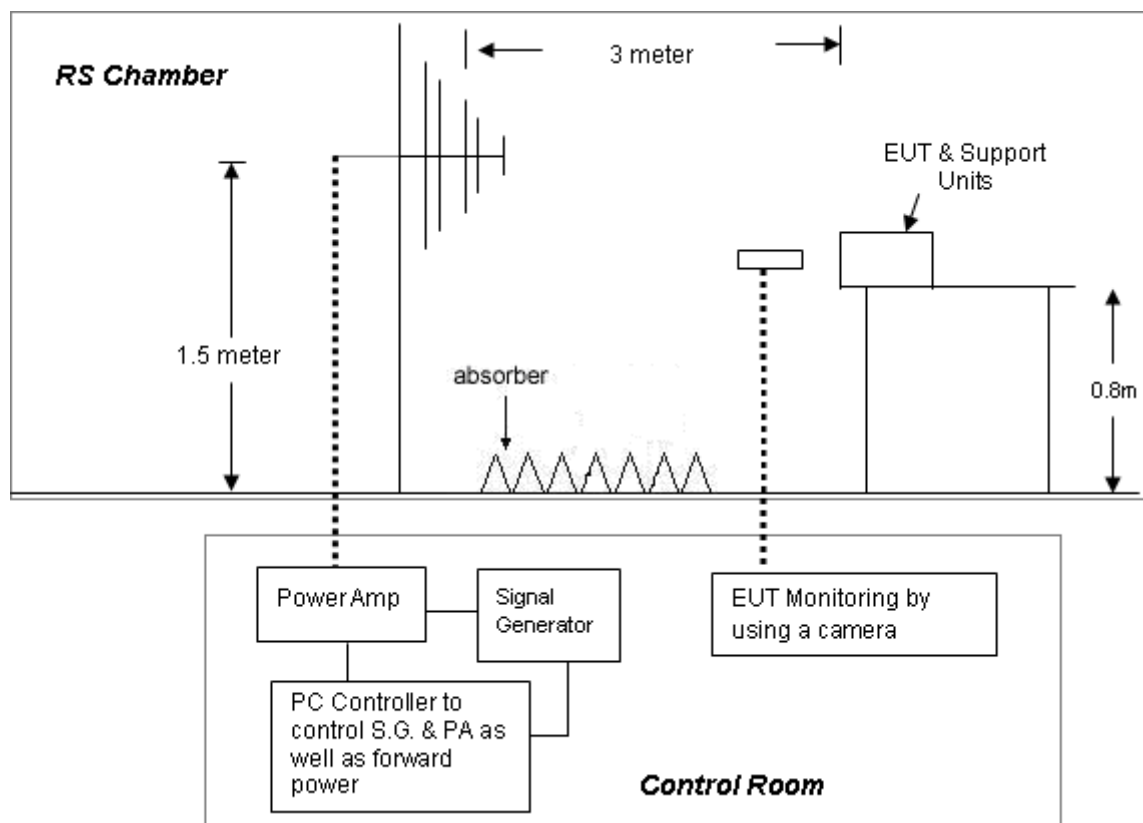
4.4.3 TEST PROCEDURE

The test procedure was in accordance with IEC 61000-4-3

- a) The testing was performed in a fully anechoic chamber. The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters.
- b) All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	3 V/m
2. Radiated Signal	80% AM Modulated with 1kHz
3. Scanning Frequency	80 to 1000 MHz, 1400 to 6000 MHz
4. 4 Dwell Time	3 Seconds
5. Frequency step size Δf :	1%
6. The rate of Swept of Frequency	1.5×10^{-3} decades/s
- c) The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- d) The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.
- e) In order to judge the EUT performance, a CCD camera is used to monitor EUT screen.

4.4.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLETOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

4.4.5 TEST RESULTS

Temperature	22.9°C	Humidity	43% RH
Pressure	101kPa	Dwell Time	3 sec.
Test Date	2026.01.23	Test Voltage	DC 3V
Mode	Mode 1		

Frequency (MHz)	Polarity	Face	Field Strength (V/m)	Comply with criterion	Observation	Result
80 to 1000	V&H	Front	3	A	NOTE(1)	Pass
	V&H	Rear	3	A	NOTE(1)	Pass
	V&H	Left	3	A	NOTE(1)	Pass
	V&H	Right	3	A	NOTE(1)	Pass
1400 to 6000	V&H	Front	3	A	NOTE(1)	Pass
	V&H	Rear	3	A	NOTE(1)	Pass
	V&H	Left	3	A	NOTE(1)	Pass
	V&H	Right	3	A	NOTE(1)	Pass
NOTE: (1) There was no change compared with initial operation during and after the test. No unintentional response was found during the test.						

Test Conclusion: EUT meets standard requirements.

4.5 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY (EFT)

4.5.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-4
Test Voltage:	AC Power Port: $\pm 1\text{kV}$
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz or 100 kHz
Impulse Wave-shape:	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	2 min
Result:	N/A

4.5.2 TEST INSTRUMENT

See list of test equipment of this Section 1.3.

4.5.3 TEST PROCEDURE

a) The EUT is placed on a table that is 0.8 meter height. A ground reference plane is placed on the table, and uses a 0.1m insulation between the EUT and ground reference plane. The minimum area of the ground reference plane is 1m*1m, and 0.65mm thick min, and projected beyond the EUT by at least 0.1m on all sides.

b) Test on I/O and communication ports:

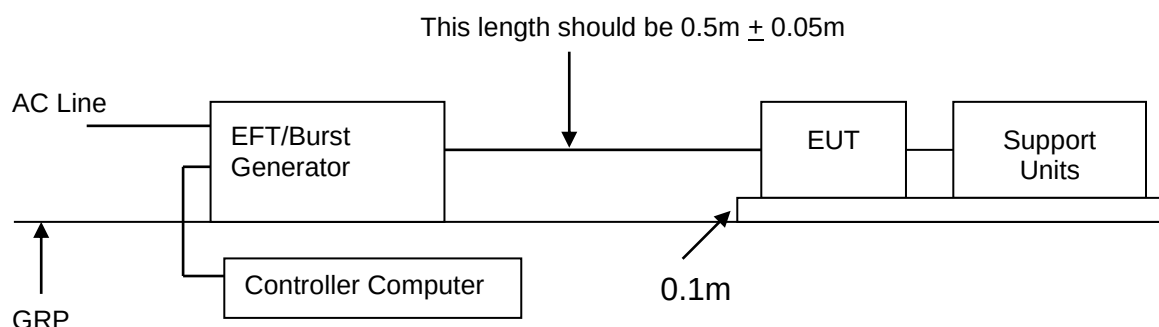
The EFT interference signal is through a coupling clamp device couples to the signal and control lines of the EUT with burst noise for 1minute.

c) Test on power supply ports:

The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal.

Each of the Line and Neutral conductors is impressed with burst noise for 1 minute. The length of the signal and power lines between the coupling device and the EUT is 0.5m.

4.5.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLETOP EQUIPMENT

The configuration consisted of a wooden table (0.1m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

4.5.5 TEST RESULTS

Powered by internal battery, Not applicable.

4.6 SURGE IMMUNITY

4.6.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-5
Wave-Shape:	For Power port: Combination Wave 1.2/50 μ s Open Circuit Voltage 8/20 μ s Short Circuit Current
Test Voltage:	AC Power Port line to line: ± 0.5 kV; line to earth: ± 1 kV
Surge Input/Output:	AC Power Line: L-N ,L-PE,N-PE
Generator Source Impedance:	line to line :2 ohm between networks; line to earth: 12 ohm between networks.
Polarity:	Positive/Negative
Phase Angle:	0°/ 90°/180°/ 270°
Pulse Repetition Rate:	1 time / min. (maximum)
Number of Tests:	5 positive and 5 negative at selected points
Result:	N/A

4.6.2 TEST INSTRUMENT

See list of test equipment of this Section 1.3.

4.6.3 TEST PROCEDURE

a) For EUT power supply:

The surge is applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

b) For test applied to unshielded un-symmetrically operated interconnection lines of EUT:

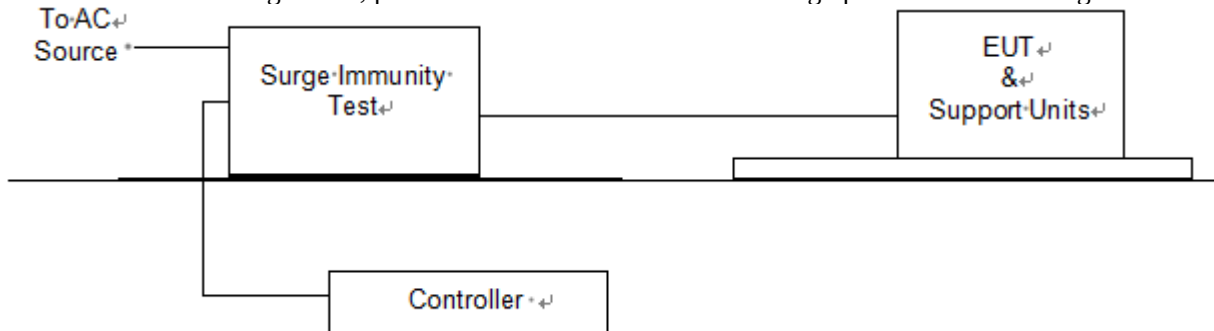
The surge was applied to the lines via the capacitive coupling. The coupling / decoupling networks didn't influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

c) For test applied to unshielded symmetrically operated interconnection / telecommunication lines of EUT:

The surge was applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor were not specified. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

4.6.4 TEST SETUP

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



4.6.5 TEST RESULTS

Powered by internal battery, Not applicable.

4.7 IMMUNITY TO CONDUCTED DISTURBANCES INDUCED BY RF FIELDS (CS)

4.7.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-6
Frequency Range:	0.15 MHz to 80 MHz
Field Strength:	3V _{rms}
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of preceding frequency value
Coupled cable:	Power Mains
Coupling device:	CDN- M2+M3
Result:	N/A

4.7.2 TEST INSTRUMENT

See list of test equipment of this Section 1.3.

4.7.3 TEST PROCEDURE

a) The EUT are placed on a table that is 0.8 meter height, and a Ground reference plane on the table, EUT are placed upon table and use a 10cm insulation between the EUT and Ground reference plane.

The test shell performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.

b) For Signal Ports and Telecommunication Ports

The disturbance signal is through a coupling and decoupling networks (CDN) or EM-clamp device couples to the signal and Telecommunication lines of the EUT.

c) For Input DC and AC Power Ports

The EUT is connected to the power mains through a coupling and decoupling networks for power supply lines. And directly couples the disturbances signal into EUT.

Used CDN-M2 for two wires or CDN-M3 for three wires.

d) All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	0.15 to 80MHz:3V _{rms}
2. Radiated Signal	AM 80% Modulated with 1kHz
3. Scanning Frequency	0.15MHz to 80MHz
4 Dwell Time	3 Seconds
5. Frequency step size Δf :	1%
6. The rate of Swept of Frequency	1.5 x 10 ⁻³ decade/s

The diagram illustrates a test setup for a cable under test (EUT) within a shielded environment. The EUT is represented by a central box containing a 'Balanced pair' and 'Unscreened non-balanced cable'. This box is situated on an 'Insulating support' with a height $h = 0,1 \text{ m}$. The entire setup is enclosed within a shielded area defined by a 'Ground reference plane' at the bottom and a top boundary. Dimensions are specified: a horizontal distance of $>0,5 \text{ m}$ from the left wall to the EUT, and a vertical distance of $>0,5 \text{ m}$ from the top boundary to the EUT. A horizontal dimension $0,1 \text{ m} < L < 0,3 \text{ m}$ is indicated between the EUT and the output components. Three output components are shown: 'CDN-T2' connected to 'To AE or telecommunication lines', 'CDN-M2' connected to 'Mains', and 'CDN-AF2' connected to 'AE'. A 'Test generator' block, consisting of an 'RF generator' and a transformer 'T2', is connected to the 'CDN-AF2' component via a dashed line. The diagram also shows various grounding points and connections to external systems.

2. The CDNs and / or EM clamp used for real test depends on ports and cables configuration of EUT.

NOTE:

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

4.7.5 TEST RESULTS

Powered by internal battery, Not applicable.

4.8 POWER FREQUENCY MAGNETIC FIELD IMMUNITY

4.8.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-8
Frequency Range:	50/60Hz
Field Strength:	3 A/m
Observation Time:	1 minute
Inductance Coil:	Square type, 1mx1m
Result:	Pass

4.8.2 TEST INSTRUMENT

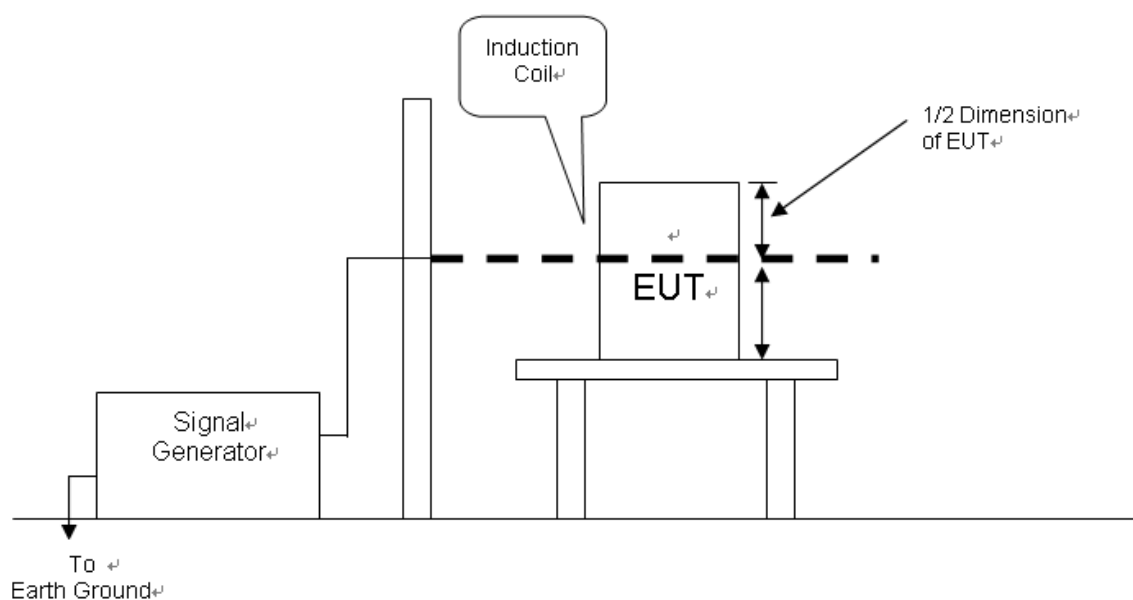
See list of test equipment of this Section 1.3.

4.8.3 TEST PROCEDURE

- The equipment is configured and connected to satisfy its functional requirements. It shall be placed on the GRP with the interposition of a 0.1m-thick insulating support.
- The equipment cabinets shall be connected to the safety earth directly on the GRP via the earth terminal of the EUT.
- The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.
- The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

4.8.4 TEST SETUP

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



NOTE:**TABLETOP EQUIPMENT**

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

FLOOR-STANDING EQUIPMENT

The equipment shall be subjected to the test magnetic field by using induction coils of suitable dimensions. The test shall be repeated by moving and shifting the induction coils, in order to test the whole volume of the EUT for each orthogonal direction. The test shall be repeated with the coil shifted to different positions along the side of the EUT, in steps corresponding to 50 % of the shortest side of the coil. The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

4.8.5 TEST RESULTS

Temperature	22.4°C	Humidity	44% RH
Pressure	101kPa	Mode	Mode 1
Test Date	2026.01.22	Test Voltage	DC 3V

DIRECTION	Frequency (Hz)	Field Strength (A/m)	Comply with criterion	Observation	Result
X	50	3	A	NOTE(1)	Pass
Y	50	3	A	NOTE(1)	Pass
Z	50	3	A	NOTE(1)	Pass
X	60	3	A	NOTE(1)	Pass
Y	60	3	A	NOTE(1)	Pass
Z	60	3	A	NOTE(1)	Pass

NOTE: (1) There was no change compared with initial operation during and after the test. No unintentional response was found during the test.

Test Conclusion: EUT meets standard requirements.

4.9 VOLTAGE DIPS AND SHORT INTERRUPTIONS IMMUNITY

4.9.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-11
Test duration time:	Minimum three test events in sequence
Interval between event:	Minimum 10 seconds, Times 3
Voltage dips:	0%reduction, 0.5 cycle Criterion: B, 0%reduction, 1 cycle Criterion: B, 70%reduction, 25/30 cycle Criterion: C.
Short interruptions:	0%reduction, 250/300 cycle Criterion: C.
Test cycle:	Interval(s) : 10s Times : 3

4.9.2 TEST INSTRUMENT

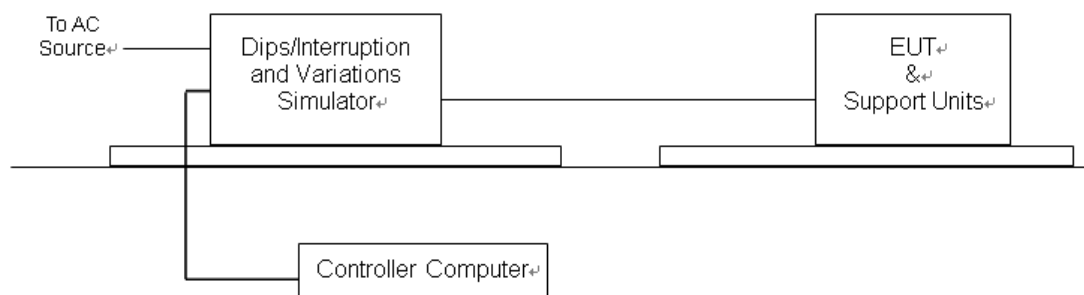
See list of test equipment of this Section 1.3.

4.9.3 TEST PROCEDURE

- The EUT and its load are placed on a wood table which is 0.8 meter above a metal ground plane measured 1m*1m min. And 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The power cord shall be used the shortest power cord as specified by the manufacturer.
- For Voltage Dips/ Interruptions test:
The selection of test voltage is based on the rated power range. If the operation range is large than 20% of lower power range, both end of specified voltage shall be tested.
Otherwise, the typical voltage specification is selected as test voltage.
The EUT is connected to the power mains through a coupling device that directly couples to the Voltage Dips and Interruption Generator.
- Recording the test result in test record form.

4.9.4 TEST SETUP

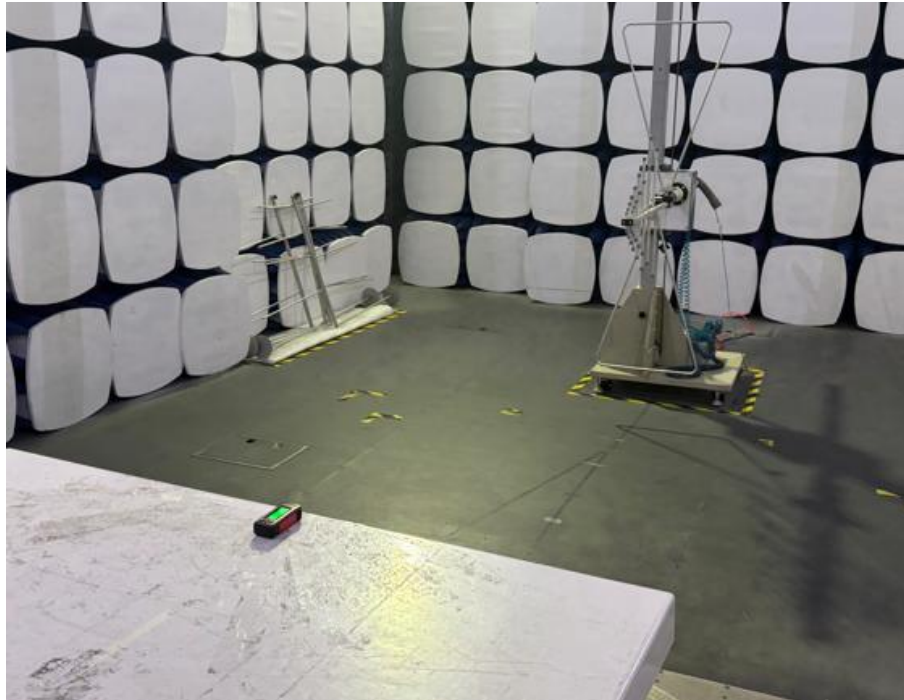
For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



4.9.5 TEST RESULTS

Powered by internal battery, Not applicable.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION



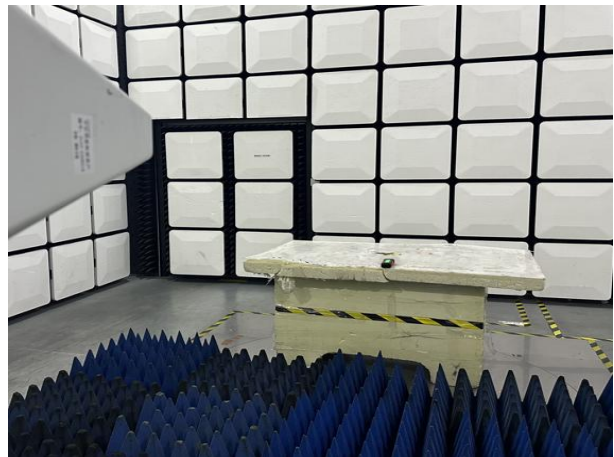
Radiated Electromagnetic Disturbance Measurement



Electrostatic discharge immunity



80-1000MHz



1400-6000MHz

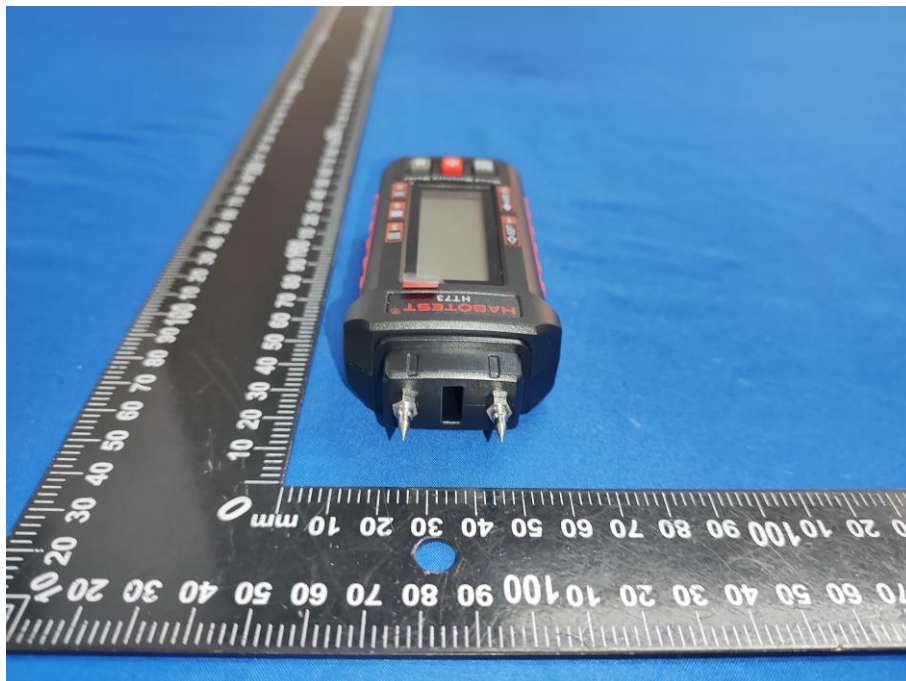
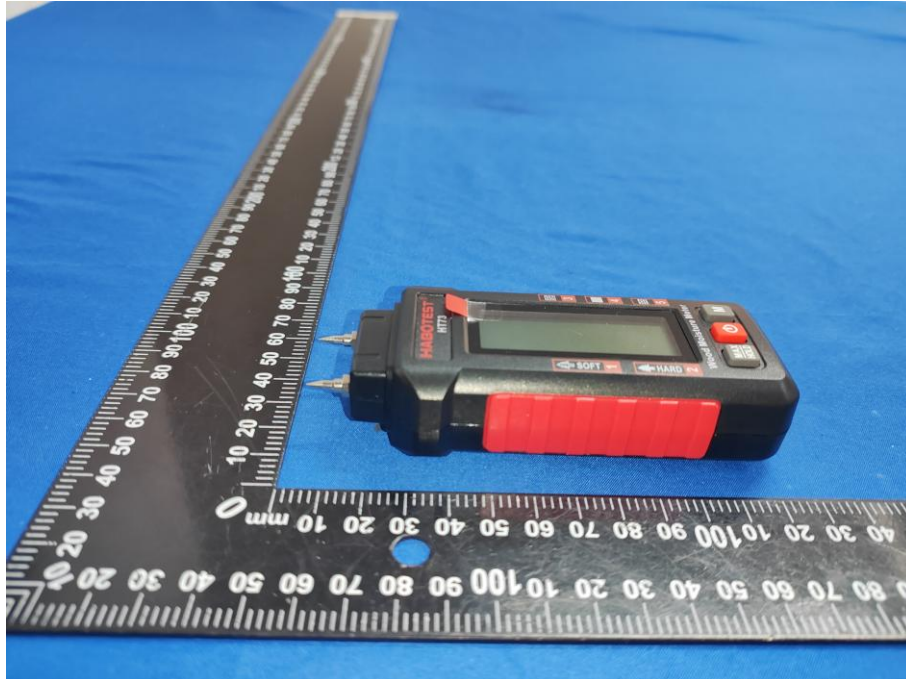
Radiated, radio frequency electromagnetic field immunity

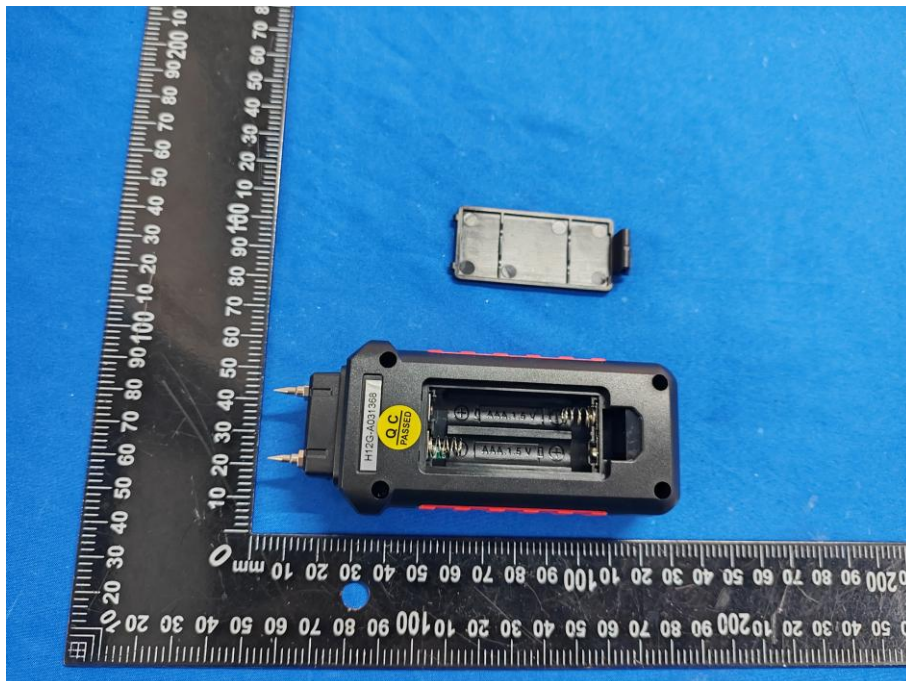


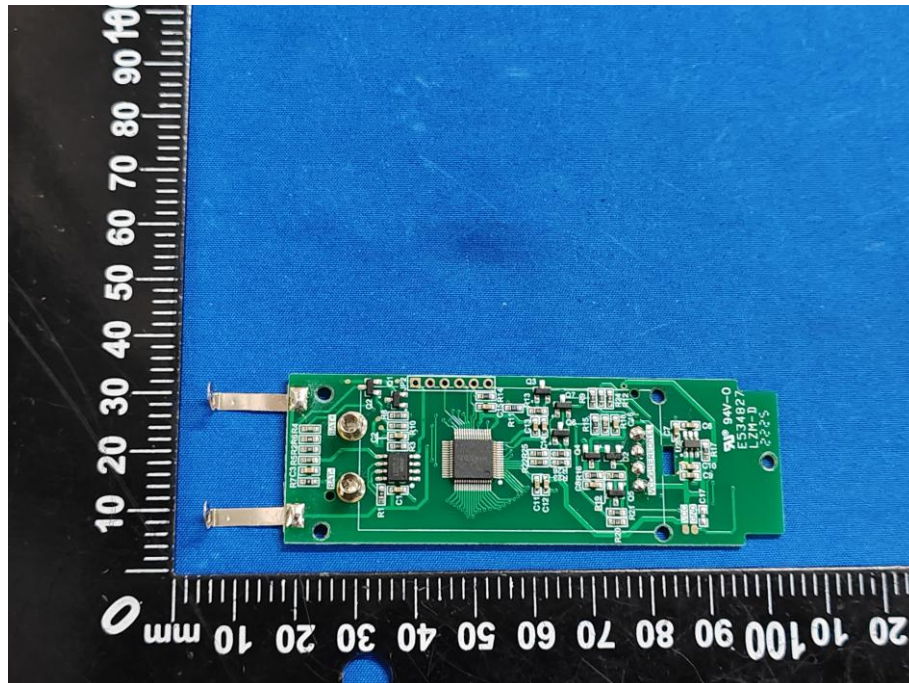
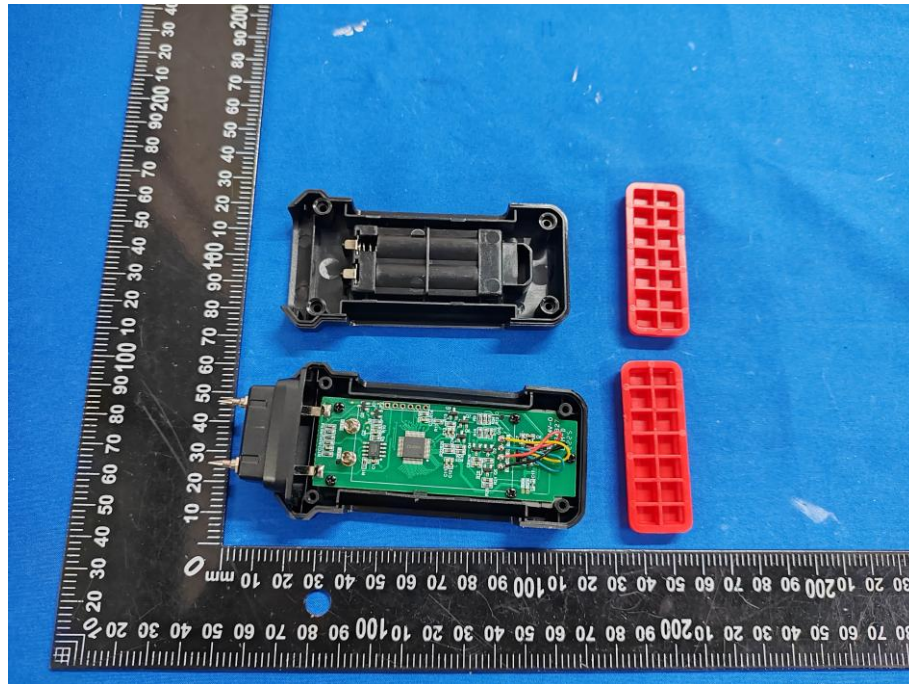
Power frequency magnetic field immunity

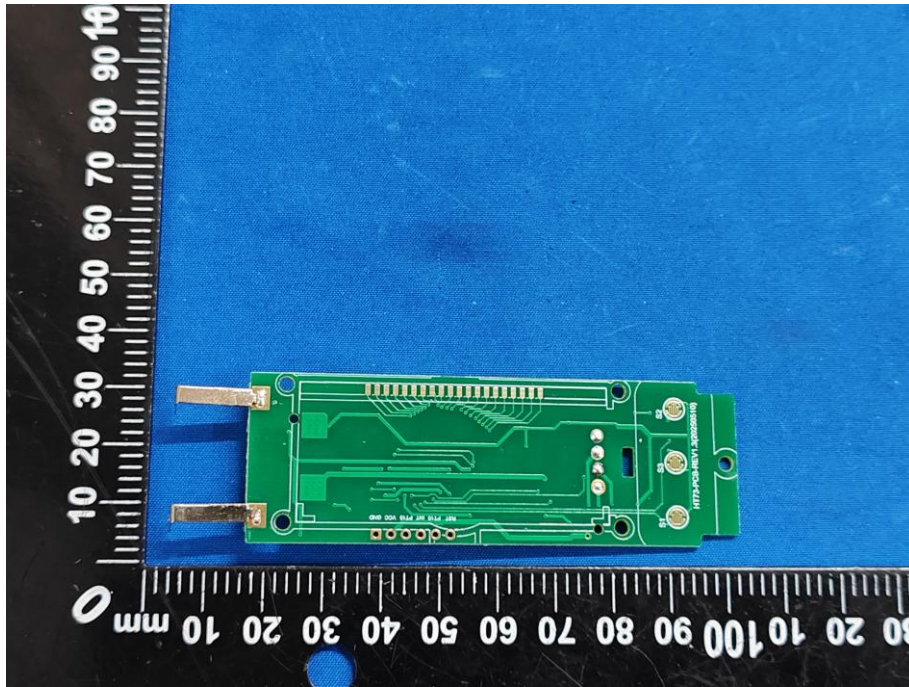
APPENDIX I - PHOTOGRAPHS OF EUT











—END OF REPORT—

Statement

1. The report is invalid without the special test seal of the test department.
2. Any changes, modifications, or partial photocopy of this report without the written approval of the laboratory shall be deemed invalid. The report shall be used properly and legally.
3. The test report is only responsible for the tested sample.
4. The representativeness and authenticity of the samples submitted for testing shall be the responsibility of the client.
5. The test results given in this test report should only be used for purposes of scientific research, teaching and internal quality control when the CMA mark is not presented.
6. Objections to the test result shall be submitted to the laboratory in written form within 10 days after receiving the report.

CQC Intime Testing Technology Co.,Ltd.

Address: No.1368, Wuzhong Road, Wuzhong Economic Development Zone 215104,
Suzhou, Jiangsu, China

Phone: 86-512-66508526

86-574-87561716

86-755-28713662

86-20-84147422/86-757-28839340

Complaint call: 86-512-66303621

E-mail: jszlb@cqc-it.com