

Test Report

Report No. : MTi260618013-0101E1
Date of issue : 2026-07-10
Applicant : Mid Ocean Brands B.V.
Product : Portable coffee machine
Model(s) : MO3228

Shenzhen Microtest Co., Ltd.



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Test Result Certification		
Applicant	Mid Ocean Brands B.V.	
Applicant Address	Unit 711- 716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.	
Manufacturer	Mid Ocean Brands B.V.	
Manufacturer Address	Unit 711- 716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.	
Product description		
Product name	Portable coffee machine	
Trademark	N/A	
Model name	MO3228	
Series Model(s)	N/A	
Standards	EN IEC 55014-1:2021 EN IEC 55014-2:2021 EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A2:2021	
Testing Information		
Date of test	2026-07-08 to 2026-07-08	
Test result	Pass	
Prepared by:	Lyla Cao	
Reviewed by:	David Lee	
Approved by:	Lewis Lian	



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1 General Description

1.1 Description of the EUT

Product name:	Portable coffee machine
Model name:	MO3228
Series Model(s):	N/A
Model difference:	N/A
Electrical rating:	Input: DC 5V/2A Battery: DC 3.7V 1800mAh
Accessories:	Cable: USB-A to USB-C cable (80cm)*1
Test sample(s) number:	MTi260618013-01-E001

1.2 Description of test modes

For test, the EUT has been pre-tested under the following test modes, Only the worst case data will be shown in the report.

No.	Emission test modes
Mode1	Charging
Mode2	Normal working

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1.3 Environmental Conditions

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

Temperature:	15°C ~ 35°C
Humidity:	20% RH ~ 75% RH (30% RH ~ 60% RH for ESD test)
Atmospheric pressure:	98 kPa ~ 101 kPa

1.4 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.

Support equipment list

Description	Model	Serial No.	Manufacturer
USB-A HUAWEI CHARGE (10W)	HW-050200C02	K95212KA103561	HUAWEI

Support cable list

Description	Length (m)	From	To
/	/	/	/

1.5 Measurement uncertainty

Measurement	Uncertainty
Conducted emissions (AMN 9kHz~150kHz)	±3.3dB
Conducted emissions (AMN 150kHz~30MHz)	±3.1dB
Radiated emissions (30MHz~1GHz)	±4.7dB
Temperature	±1 °C
Humidity	± 5 %

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

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2 Summary of Test Result

No.	Item	Standard	Requirement	Result
1	Disturbance voltage from AC mains port	EN IEC 55014-1:2021	EN IEC 55014-1, Table 6	Pass
2	Radiated disturbance (30MHz-1GHz)	EN IEC 55014-1:2021	EN IEC 55014-1, Table 9	Pass
3	Harmonic current emission	EN IEC 61000-3-2:2019+A1:2021	EN IEC 61000-3-2, Class A	N/A
4	Voltage fluctuations and flicker	EN 61000-3-3:2013+A2:2021	EN 61000-3-3, Clause 4	Pass
5	Electrostatic discharge	EN IEC 55014-2:2021	EN IEC 55014-2, Clause 7.2	Pass
6	Radio frequency electromagnetic fields	EN IEC 55014-2:2021	EN IEC 55014-2, Clause 7.2	Pass
7	Fast transients for AC power ports	EN IEC 55014-2:2021	EN IEC 55014-2, Clause 7.2	Pass
8	Surges for AC power ports	EN IEC 55014-2:2021	EN IEC 55014-2, Clause 7.2	Pass
9	Injected currents for AC power ports	EN IEC 55014-2:2021	EN IEC 55014-2, Clause 7.2	Pass

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3 Test Facilities and accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No.7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573
IC Registration No.:	21760
CABID:	CN0093

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4 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
Disturbance voltage from AC mains port						
1	EMI Test Receiver	Rohde&schwarz	ESCI3	101368	2026-03-10	2027-03-09
2	Artificial mains network	Schwarzbeck	NSLK 8127	183	2026-03-11	2027-03-10
3	Artificial Mains Network	Rohde & Schwarz	ESH2-Z5	100263	2026-03-10	2027-03-09
4	EMI Test Software	Farad	EZ-EMC	Ver. EMEC-3A1	/	/
Radiated disturbance (30MHz-1GHz)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2026-03-10	2027-03-09
2	TRILOG Broadband Antenna	schwarzbeck	VULB 9163	9163-1338	2025-05-23	2027-05-22
3	Amplifier	Hewlett-Packard	8447F	3113A06184	2026-03-10	2027-03-09
4	EMI Test Software	Farad	EZ-EMC	Ver. EMEC-3A1	/	/
Voltage fluctuations and flicker						
1	Harmonics & Flicker Analyser	Laplace Instruments LTD	AC 2000A	311216	2026-03-11	2027-03-10
2	Flicker test system	TTI	HA-PC Link Plus	V3.04	/	/
Electrostatic discharge						
1	Electrical Discharge Simulator	3CTEST	EDS 30V	ES031000420021	2026-03-17	2027-03-16
Radio frequency electromagnetic fields						
1	Power Amplifier	micotop	MPA-80-1000-250	MPA1903081	2026-03-09	2027-03-08
2	Matrix Switch	micotop	MSW-80-6000-RS	MPA1903083	2026-03-09	2027-03-08
3	Power Amplifier	micotop	MPA-1000-6000-75	MPA1903082	2026-03-09	2027-03-08
4	Audio Analyzer	Agilent	U8903A	MY52140004	2026-03-09	2027-03-08
5	Stacked Log. Per. Broadband Antenna	Schwarzbeck	STLP 9129	00113	/	/
6	MXG RF Signal Generator	Agilent	N5181A	MY47420567	2026-03-11	2027-03-10
7	Power Sensor	Agilent	E9304A H18	MY41497225	2026-03-09	2027-03-08
8	Power Sensor	Agilent	E9304A H18	MY41499117	2026-03-09	2027-03-08
9	EPM Series Power Meter	Agilent	E4419B	MY45102877	2026-03-09	2027-03-08

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No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
10	RS Test software	EM Trace	EM3	V1.2.8	/	/
Fast transients for AC power ports						
1	Electrical Fast Transient Generator	HTEC Instrument Ltd.	HEFT 51	153701	2026-03-09	2027-03-08
Surges for AC power ports						
1	Surge Generator	HTEC Instrument Ltd.	HCWG 51	153702	2026-03-09	2027-03-08
Injected currents for AC power ports						
1	Coupled Decoupling Network	Schloder	M2+M3-16A	A2210332/2015	2026-03-11	2027-03-10
2	Conducted immunity test system	Scholder	HELIA	V 1.2.0.0	/	/

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5 Evaluation Results (Evaluation)

5.1 Harmonic current emission

Test Requirement:	EN IEC 61000-3-2, Class A
Test Limit:	Not specified
Test Method:	EN IEC 61000-3-2:2019+A1:2021

5.1.1 Conclusion:

Refer to EN IEC 61000-3-2 clause 7.1:

"For the following categories of equipment, limits are not specified in this document:

- lighting equipment with a rated power less than but not equal to 5 W;
- equipment with a rated power of 75 W or less, other than lighting equipment;"

Since the rated power of the EUT is less than above described, it is deemed to comply with the requirement.

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6 Emission Test Results (EMI)

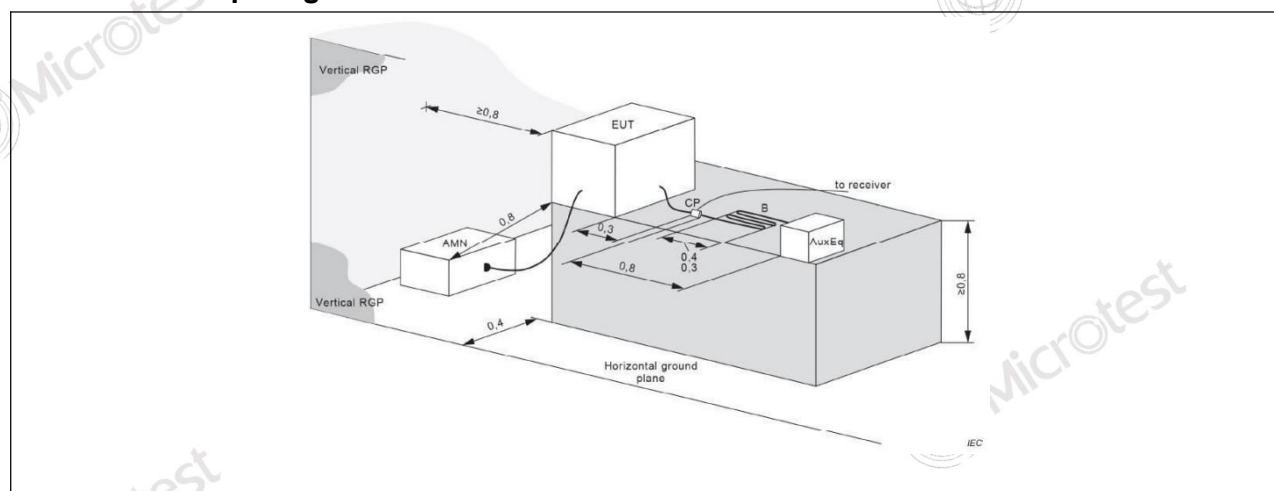
6.1 Disturbance voltage from AC mains port

Test Requirement:	EN IEC 55014-1, Table 6		
Test Limit:	Frequency range	P ≤ 700 W	
	MHz	Quasi-peak dBμV	Average dBμV
	0,15 to 0,35	Decreasing linearly with the logarithm of the frequency from:	
		66 to 59	59 to 49
	0,35 to 5	59	49
	5 to 30	64	54
	The lower limit applies at the transition frequencies. Key P = rated power of the motor only.		
Test Method:	CISPR 16-2-1:2014/AMD1:2017		
Procedure:	An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected. Remark: Level= Read Level+ Cable Loss+ LISN Factor		

6.1.1 E.U.T. Operation:

Operating Environment:					
Temperature:	26 °C	Humidity:	60 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

6.1.2 Test Setup Diagram:

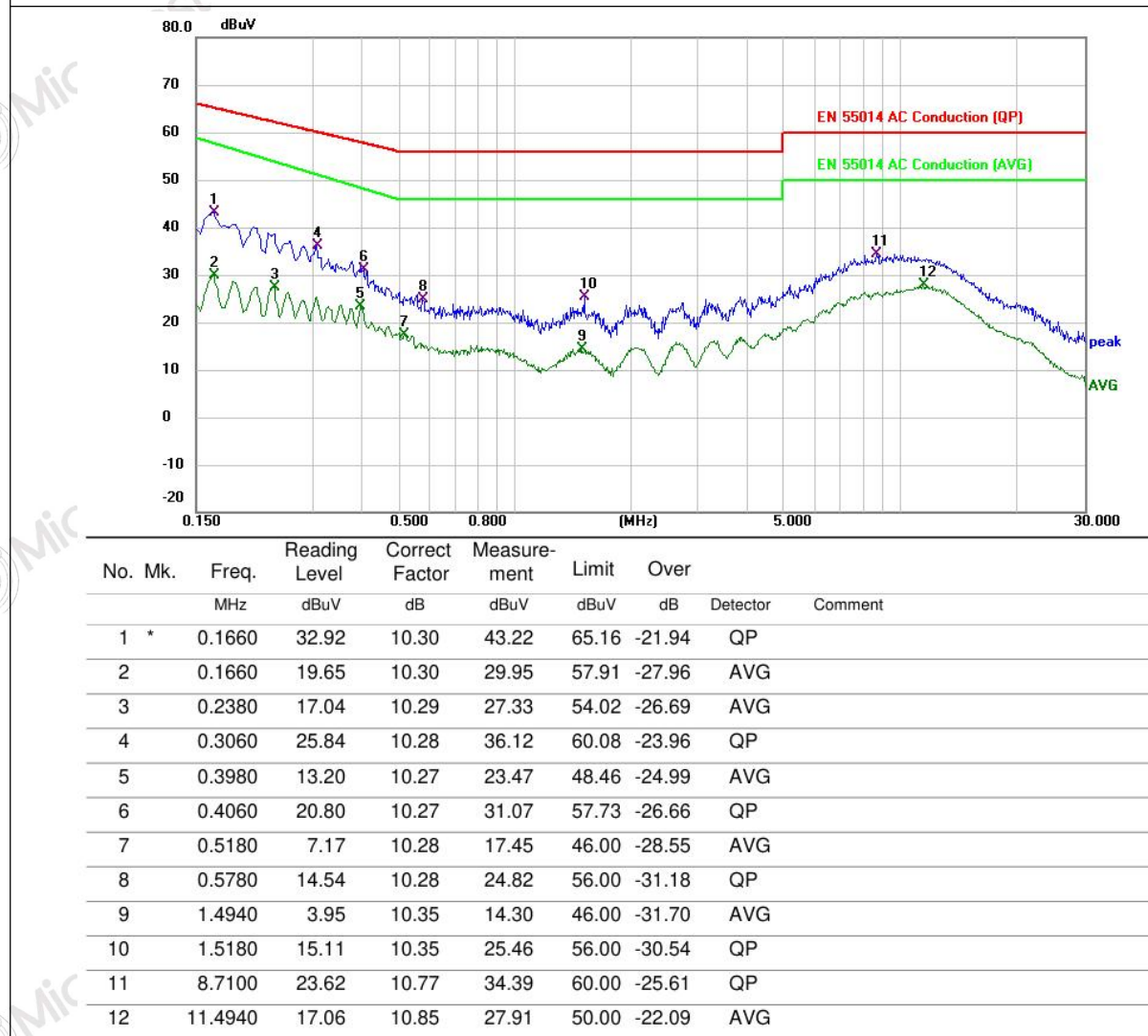


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6.1.3 Test Data:

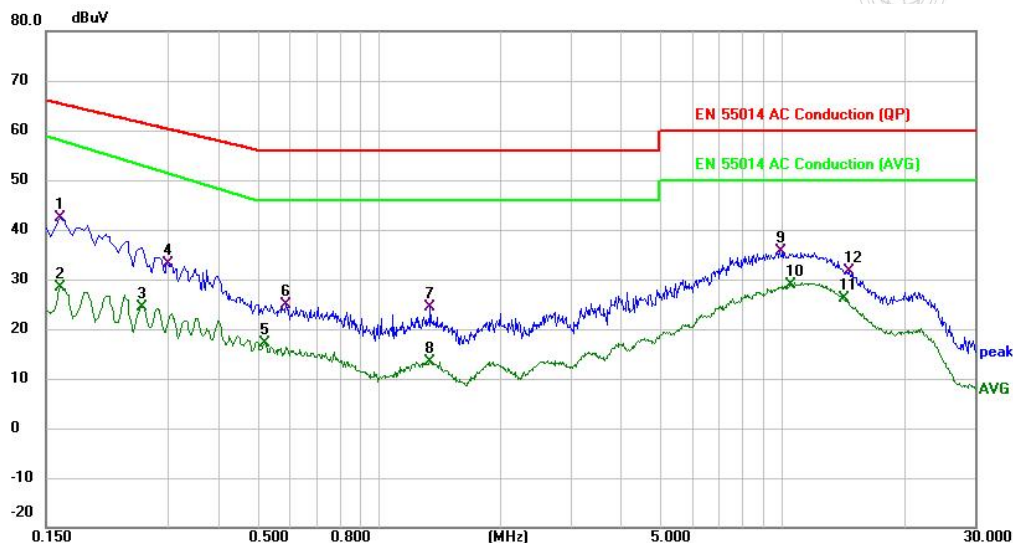
Mode1 / Line: Line



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Mode1 / Line: Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1620	32.14	10.31	42.45	65.36	-22.91	QP	
2		0.1620	18.08	10.31	28.39	58.17	-29.78	AVG	
3		0.2580	14.07	10.29	24.36	53.14	-28.78	AVG	
4		0.2980	22.95	10.29	33.24	60.30	-27.06	QP	
5		0.5220	6.89	10.28	17.17	46.00	-28.83	AVG	
6		0.5899	14.72	10.28	25.00	56.00	-31.00	QP	
7		1.3420	13.93	10.34	24.27	56.00	-31.73	QP	
8		1.3420	3.11	10.34	13.45	46.00	-32.55	AVG	
9		9.9060	24.70	10.84	35.54	60.00	-24.46	QP	
10	*	10.4980	18.03	10.85	28.88	50.00	-21.12	AVG	
11		14.1460	15.15	10.95	26.10	50.00	-23.90	AVG	
12		14.6180	20.78	10.96	31.74	60.00	-28.26	QP	

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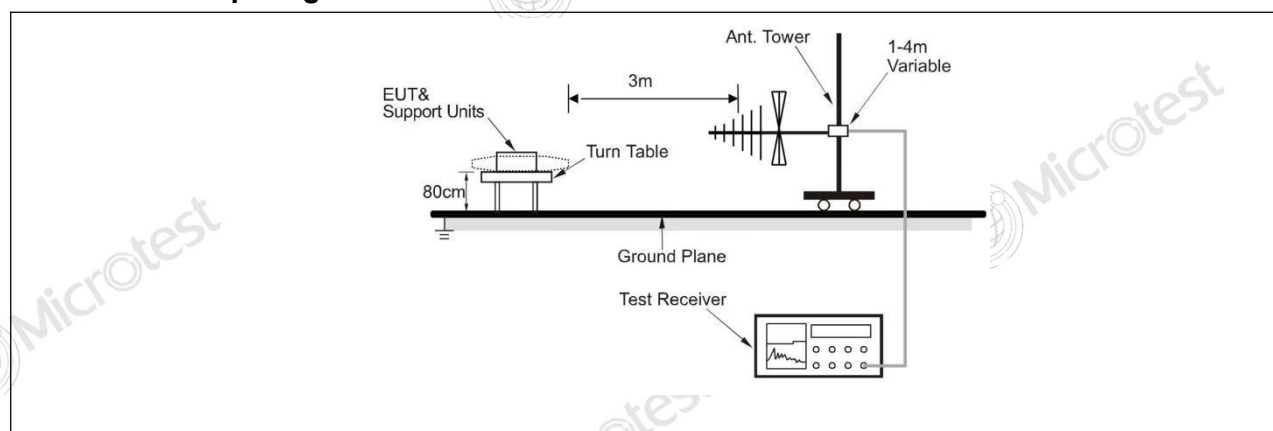
6.2 Radiated disturbance (30MHz-1GHz)

Test Requirement:	EN IEC 55014-1, Table 9		
Test Limit:	Frequency range (MHz)	Limits at 10m Quasi-peak (dBuV/m)	Limits at 3m Quasi-peak (dBuV/m)
	30 to 230	30	40
	230 to 1 000	37	47
	The lower limit is applies at the transition frequency.		
Test Method:	CISPR 16-2-3:2016/AMD1:2019		
Procedure:	An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor		

6.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	61 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1, Mode2				
Final test mode:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode1) is recorded in the report				

6.2.2 Test Setup Diagram:

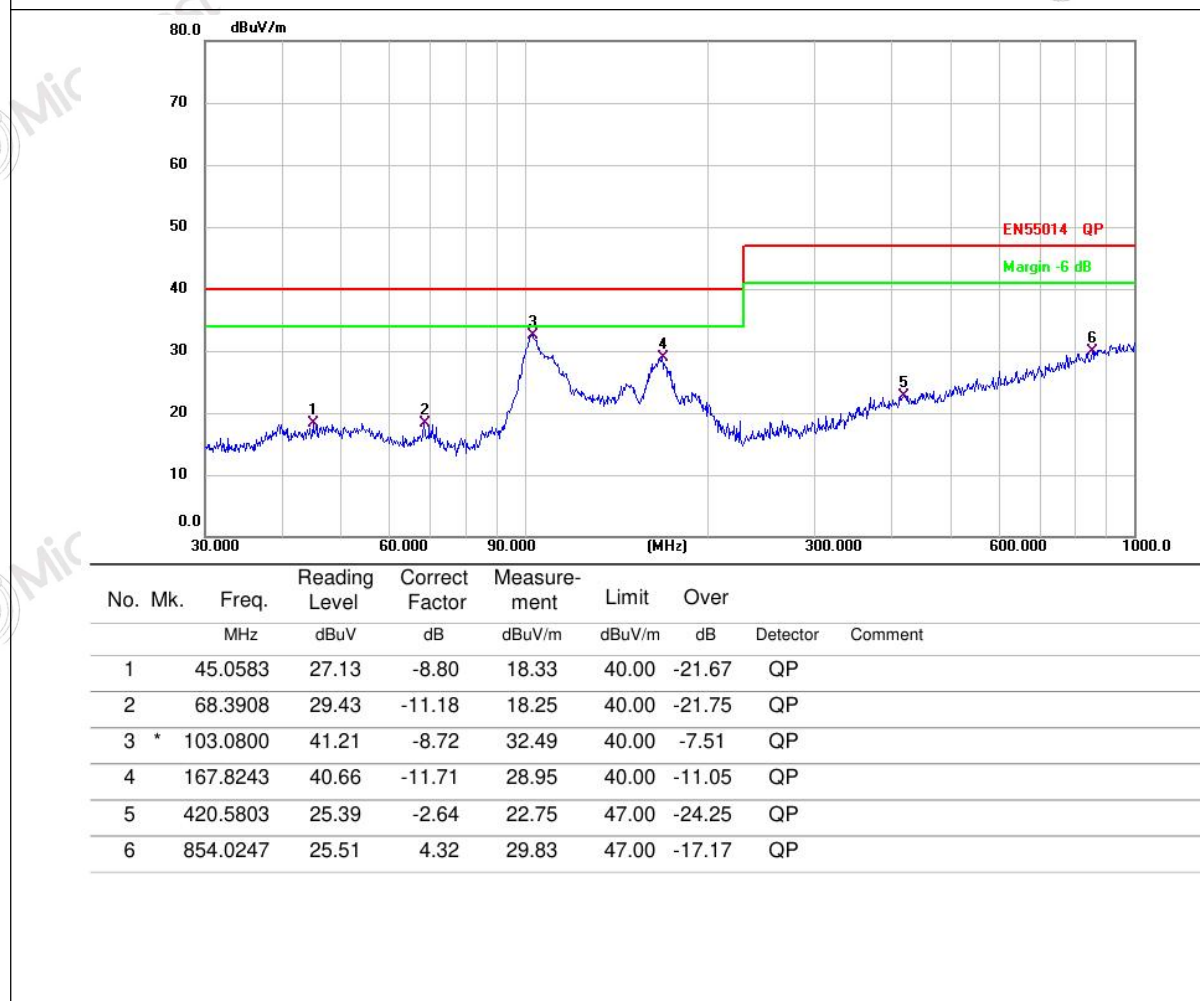


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6.2.3 Test Data:

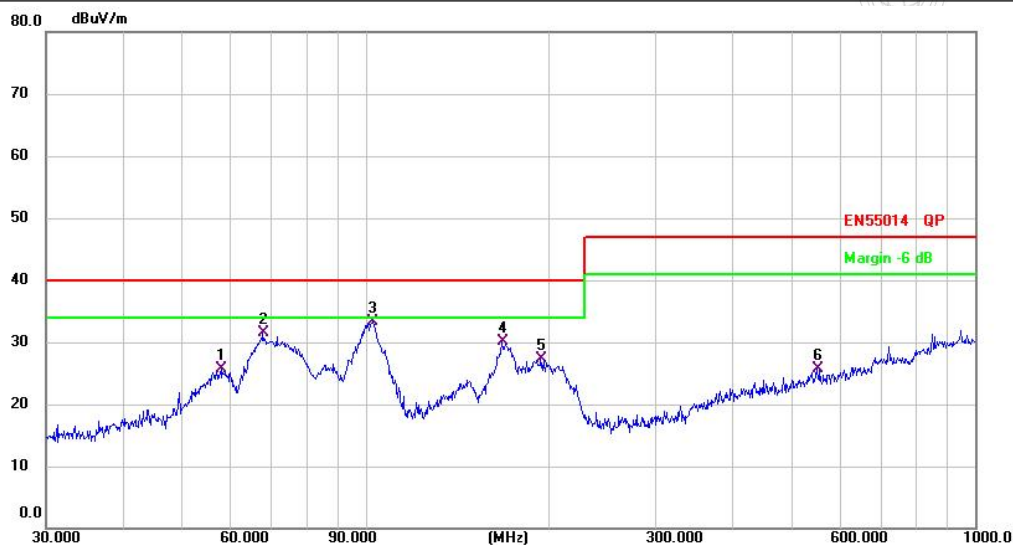
Mode1 / Polarization: Horizontal



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Mode1 / Polarization: Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		57.9993	34.78	-9.10	25.68	40.00	-14.32	QP	
2		67.9129	42.43	-10.95	31.48	40.00	-8.52	QP	
3	*	102.7192	42.00	-8.76	33.24	40.00	-6.76	QP	
4		167.2368	41.87	-11.73	30.14	40.00	-9.86	QP	
5		194.4534	36.71	-9.31	27.40	40.00	-12.60	QP	
6		550.9480	26.72	-0.94	25.78	47.00	-21.22	QP	

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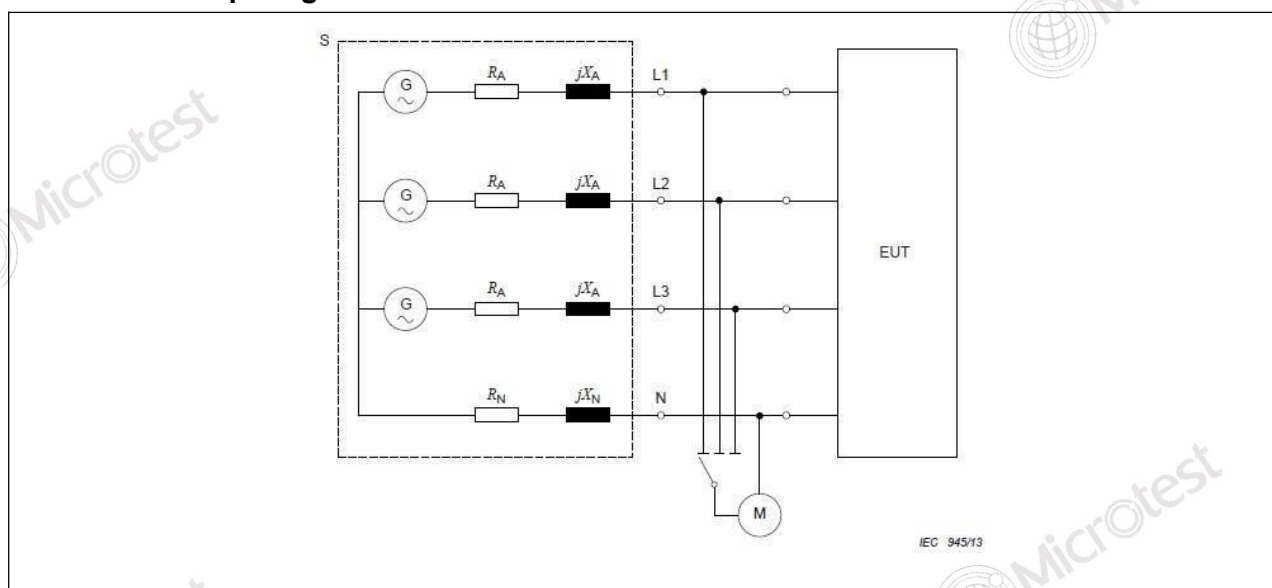
6.3 Voltage fluctuations and flicker

Test Requirement:	EN 61000-3-3, Clause 4
Test Limit:	EN 61000-3-3, Clause 5
Test Method:	EN 61000-3-3:2013+A2:2021

6.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	24 °C	Humidity:	51 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

6.3.2 Test Setup Diagram:



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6.3.3 Test Data:

HA-PC Link Plus. Software v4.00. Firmware v4.02

Tested On :08 July 2026 13:50 for 600 Seconds.

Tested by :Jeff

Load Power : 5.0 W 14.5 VA Power Factor 0.345

Load Current : 0.1 Arms 0.3 Apk Crest Factor 5.016

EN 61000-3-3:2013 - Voltage reduction is positive

Voltage Variations

Nominal Voltage: 230 Vrms

Highest Half-cycle level: +0.62%

Lowest Half-cycle level: +0.65%

d(max): 0.00% Limit: 4% PASS

t(max): 0.00seconds Limit: 500ms PASS

Steady State definition: >1000ms within +/- 0.2%

Largest d(c) change down: +0.00%

Largest d(c) change up: 0.00%

Largest d(c) change: +0.00% Limit: 3.3% PASS

Flicker

Short Term Flicker Pst: 0.00 Limit: 1.00 PASS

Pst Classifier Plt Calculation

Duration Flicker Interval Pst

0.1% 0.00

0.7% 0.00

1.0% 0.00

1.5% 0.00

2.2% 0.00

3% 0.00

4% 0.00

6% 0.00

8% 0.00

10% 0.00

13% 0.00

17% 0.00

30% 0.00

50% 0.00

80% 0.00

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7 Immunity Test Results (EMS)

Performance Criteria

Performance criterion A

The apparatus shall continue to operate as intended during the test.

No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. 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 from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion B

The apparatus shall continue to operate as intended after the test.

No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however no change of actual operating state or stored data is allowed to persist after the test. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion B/C

B: The apparatus shall continue to operate as intended after the test.

No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however no change of actual operating state or stored data is allowed to persist after the test. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

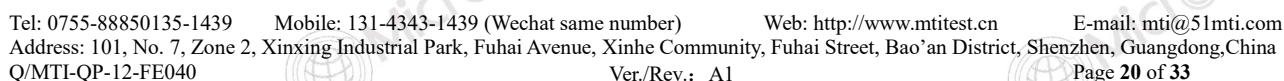
C: Temporary loss of function is allowed, provided the function is selfrecoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use. Performance criterion C may be applied to toys not using score or data entered by the user.

Performance criterion C

Temporary loss of function is allowed, provided the function is selfrecoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

7.1.1 E.U.T. Operation:

7.1.2 Test Setup Diagram:



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7.1.3 Test Data:

Discharge type	Volt (kV)	Polarity	Test Point	Result/ Observations
Air discharge	8	+	1	A
Air discharge	8	-	1	A
Contact discharge	4	+	2	A
Contact discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

Test Point: 1. All insulated enclosure and seams.

2. All accessible metal parts of the enclosure.

3. All side.

A: No degradation in the performance of the EUT was observed.

The photos for discharge points of EUT



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Note: Air is air discharge and Con is contact discharge.

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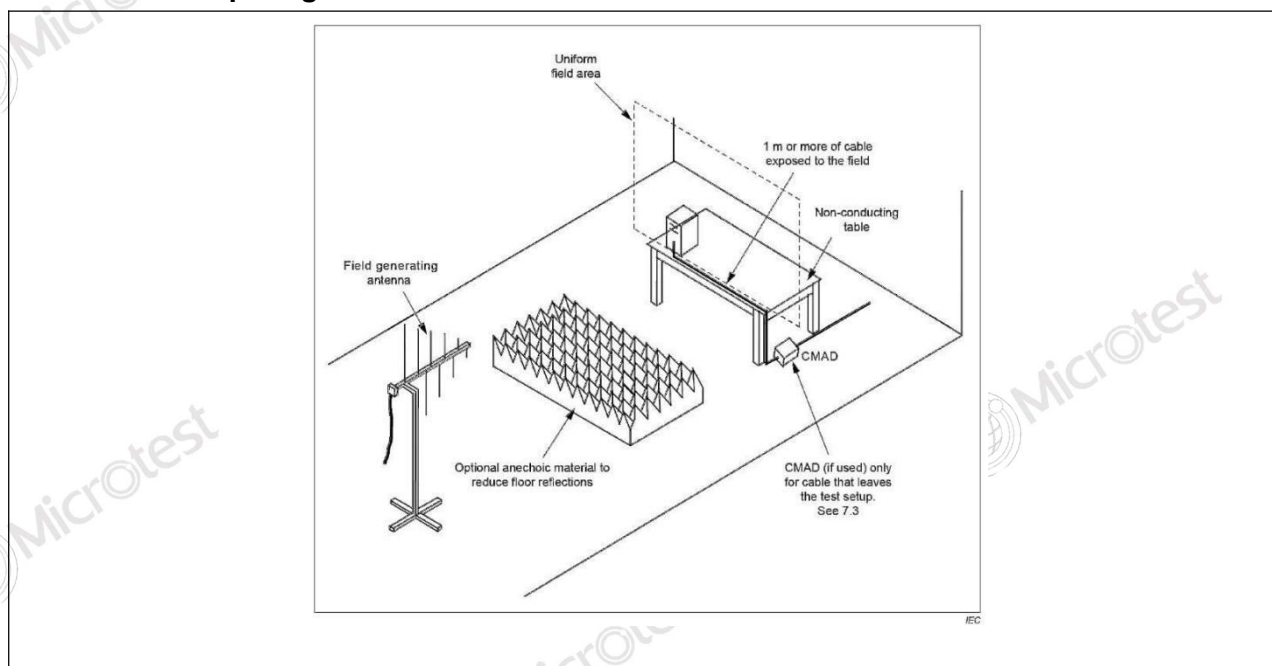
7.2 Radio frequency electromagnetic fields

Test Requirement:	EN IEC 55014-2, Clause 7.2
Test Method:	EN IEC 61000-4-3:2020
Procedure:	Frequency Range: 80MHz to 6GHz Antenna Polarisation: Vertical and Horizontal Signal: Modulation 1kHz, 80% AM, 1% increment, 3V/m(RMS) unmodulated
Performance Criteria:	A

7.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	24 °C	Humidity:	51 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1, Mode2				
Final test mode:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode1) is recorded in the report				

7.2.2 Test Setup Diagram:



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7.2.3 Test Data:

Frequency	Field Strength (V/m)	EUT face	Dwell time	Result/ Observations
80MHz-6GHz	3	Front	2s	A
80MHz-6GHz	3	Back	2s	A
80MHz-6GHz	3	Left	2s	A
80MHz-6GHz	3	Right	2s	A
80MHz-6GHz	3	Top	2s	A
80MHz-6GHz	3	Bottom	2s	A

A: No degradation in the performance of the EUT was observed.

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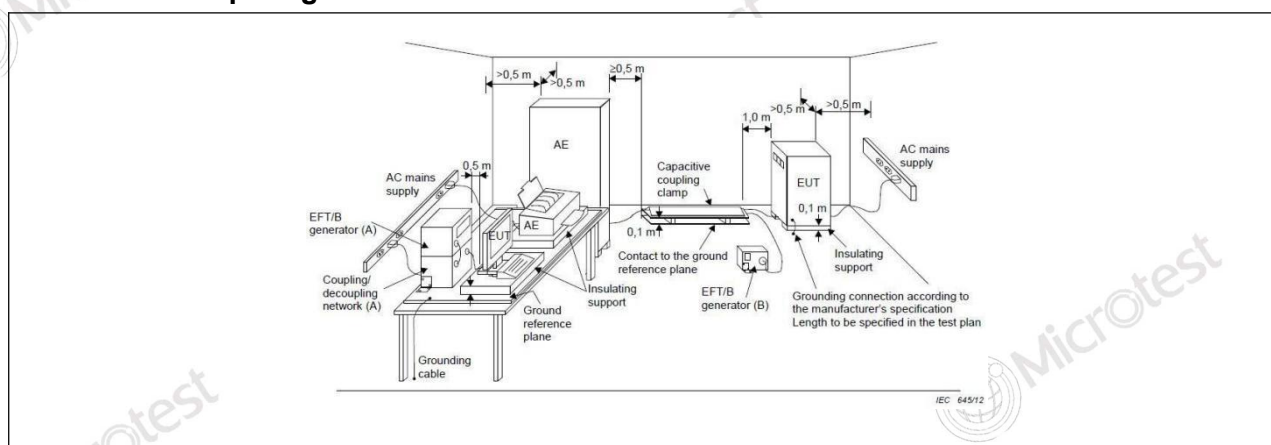
7.3 Fast transients for AC power ports

Test Requirement:	EN IEC 55014-2, Clause 7.2
Test Method:	EN 61000-4-4:2012
Procedure:	Repetition Frequency: 5kHz Burst Period: 300ms Test Duration: 2 minute per level & polarity Test Level: 1.0kV Polarity: Positive & Negative
Performance Criteria:	B

7.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	24 °C	Humidity:	51 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

7.3.2 Test Setup Diagram:



7.3.3 Test Data:

Port	Volt (kV)	Polarity	CDN/ Clamp	Result/ Observations
AC power port	1	+	CDN	A
AC power port	1	-	CDN	A

A: No degradation in the performance of the EUT was observed.

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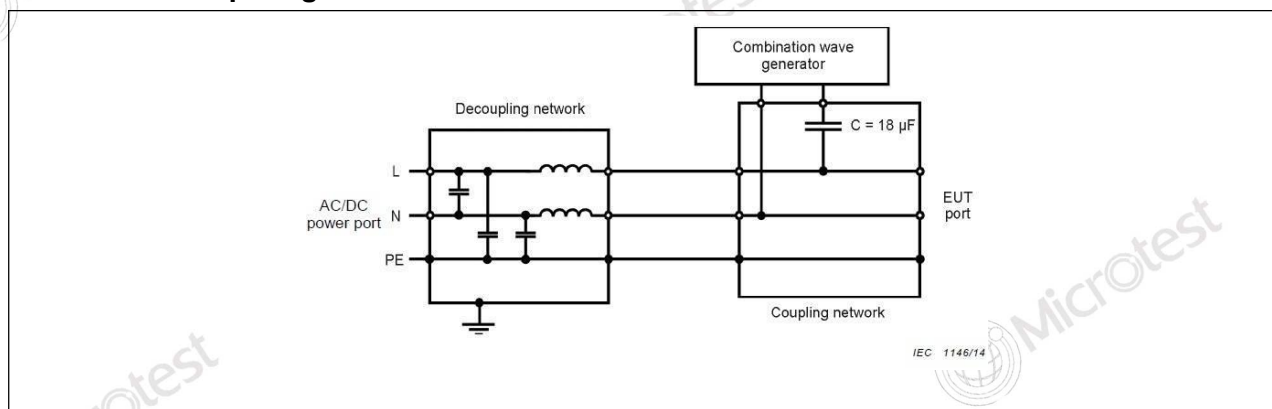
7.4 Surges for AC power ports

Test Requirement:	EN IEC 55014-2, Clause 7.2
Test Method:	EN 61000-4-5:2014+A1:2017
Procedure:	Interval: 60s between each surge Test Level: $\pm 1\text{kV}$ Live to Neutral Polarity: Positive & Negative Generator source impedance: 2Ω Trigger Mode: Internal No. of surges: 5 positive at 90° , 5 negative at 270° .
Performance Criteria:	B

7.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	24 °C	Humidity:	51 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

7.4.2 Test Setup Diagram:



7.4.3 Test Data:

Port	Volt (kV)	Polarity	Phase(degree)	Result/ Observations
L-N	1	+	90°	A
L-N	1	-	270°	A

A: No degradation in the performance of the EUT was observed.

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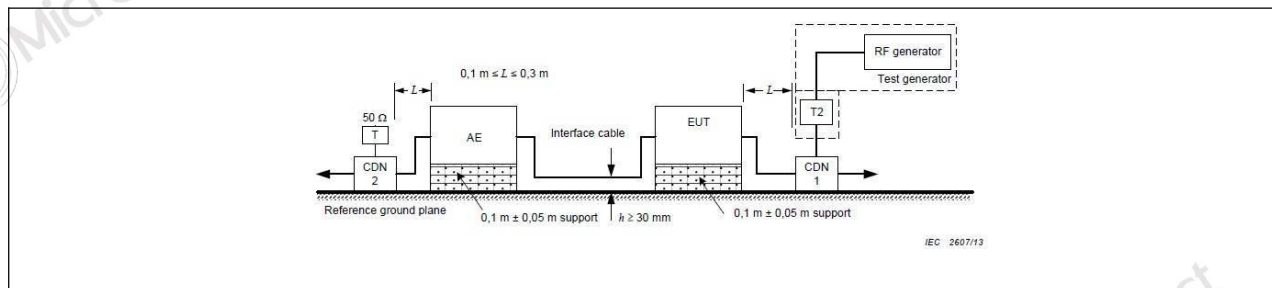
7.5 Injected currents for AC power ports

Test Requirement:	EN IEC 55014-2, Clause 7.2
Test Method:	EN 61000-4-6:2014
Procedure:	0,15 MHz to 80 MHz RF current common mode 1 kHz, 80 % AM 3 V (RMS) (unmodulated) 150 Ω source impedance
Performance Criteria:	A

7.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	24 °C	Humidity:	51 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

7.5.2 Test Setup Diagram:



7.5.3 Test Data:

Port	Strength (Vrms)	CDN/Clamp	Dwell Time	Result /Observation
AC port	3	CDN	2s	A

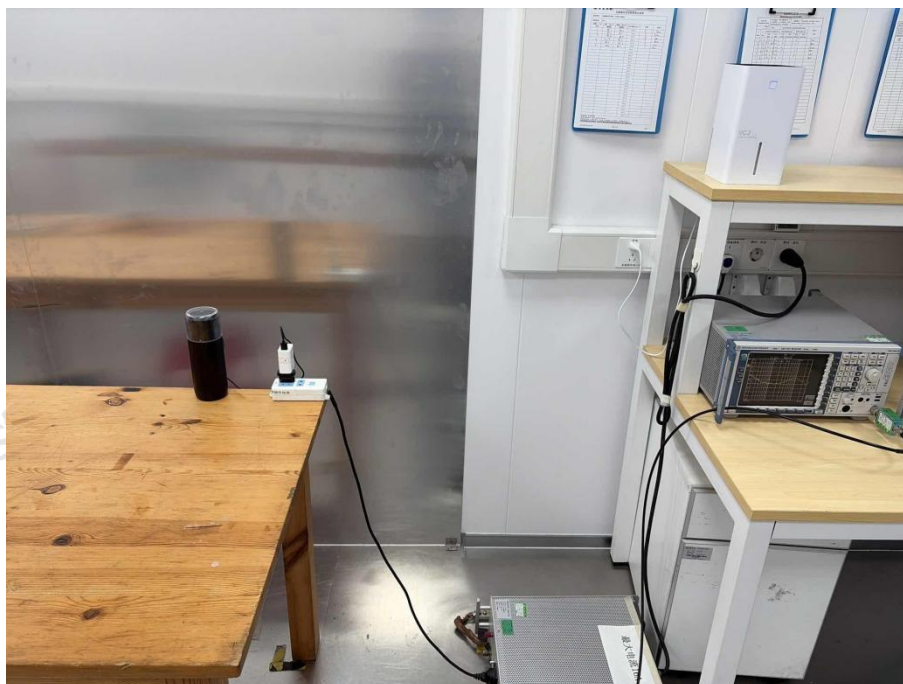
A: No degradation in the performance of the EUT was observed.

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Photographs of the test setup

Disturbance voltage from AC mains port



Radiated disturbance (30MHz-1GHz)



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Voltage fluctuations and flicker



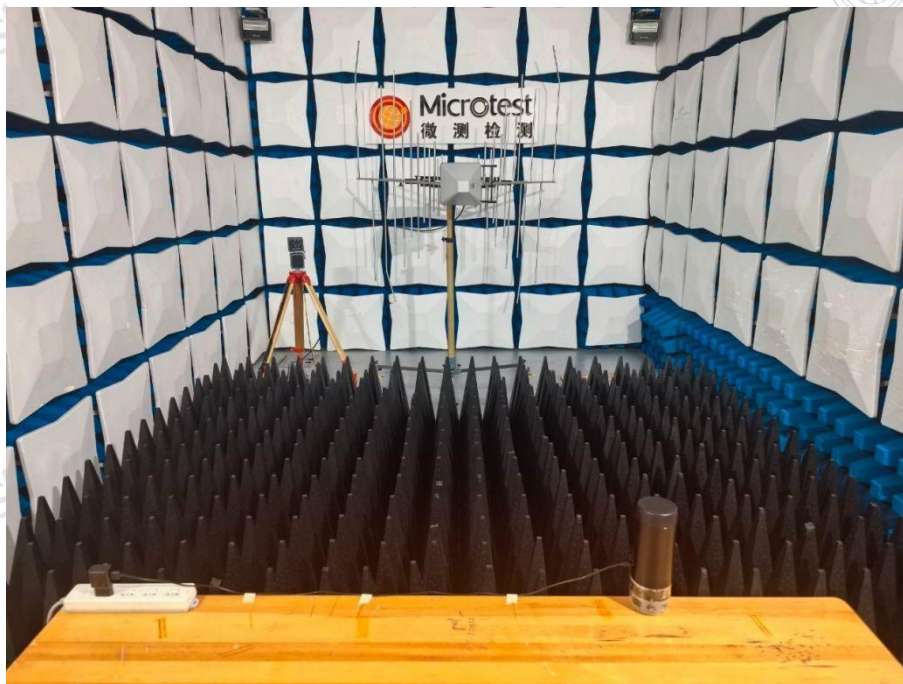
Electrostatic discharge



TEST REPORT

Report No.: MTi260618013-0101E1

Radio frequency electromagnetic fields



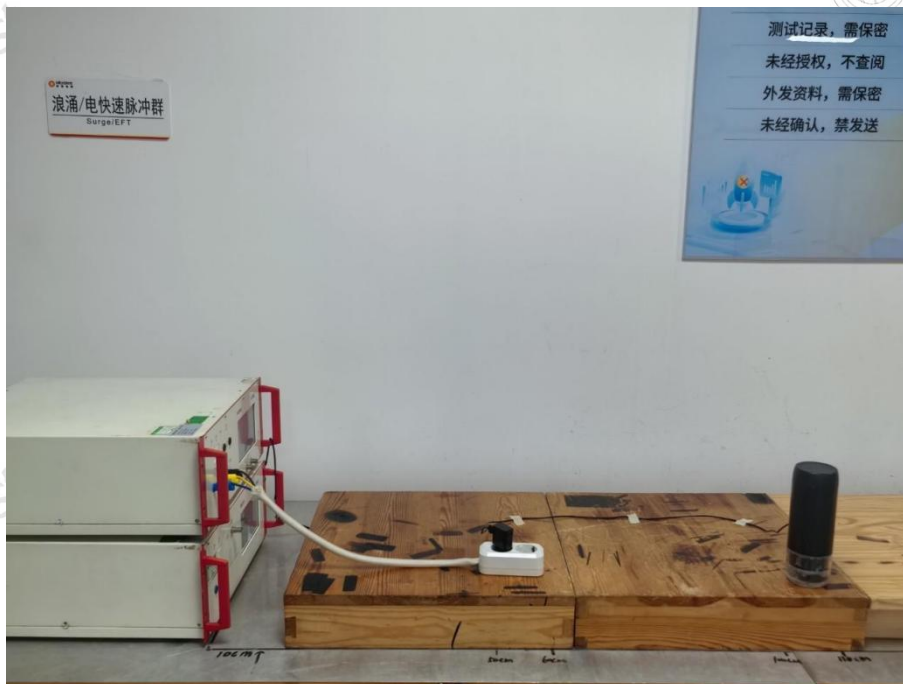
Fast transients for AC power ports



TEST REPORT

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Surges for AC power ports



Injected currents for AC power ports



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Photographs of the EUT

Refer to Appendix - EUT Photos

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Statement

1. This report is invalid without the seal and signature of the laboratory.
2. The test results of this report are only responsible for the samples submitted. Client shall be responsible for representativeness of the sample and authenticity of the material.
3. The report shall not be partially reproduced without the written consent of the Laboratory.
4. This report is invalid if transferred, altered or tampered with in any form without authorization.
5. The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
6. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

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