

Test Report

Report No. : MTi260507034-0101E1
Date of issue : 2026-05-13
Applicant : Mid Ocean Brands B.V.
Product : String with 20 led lights
Model(s) : CX1462

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	String with 20 led lights	
Trademark	N/A	
Model name	CX1462	
Series Model(s)	N/A	
Standards	EN IEC 55015:2019+A11:2020 EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A2:2021 EN IEC 61547:2023	
Testing Information		
Date of test	2026-05-11 to 2026-05-13	
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:	String with 20 led lights
Model name:	CX1462
Series Model(s):	N/A
Model difference:	N/A
Electrical rating:	Input: DC 3V
Accessories:	N/A
Test sample(s) number:	MTi260507034-01-E001

1.2 Description of test modes

No.	Emission test modes
Mode1	Lighting

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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

Support equipment list

Description	Model	Serial No.	Manufacturer
/	/	/	/

Support cable list

Description	Length (m)	From	To
/	/	/	/

1.5 Measurement uncertainty

Measurement	Uncertainty
Radiated emissions (LLAS 9kHz~30MHz)	±2.8dB
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	LLAS radiated disturbance (9kHz-30MHz)	EN IEC 55015:2019+A11:2020	Table 8	Pass
2	Radiated disturbance (30MHz-1GHz)	EN IEC 55015:2019+A11:2020	Table 10	Pass
3	Electrostatic discharges	EN IEC 61547:2023	Contact Discharge: +/- 4kV Air Discharge: +/- 8kV	Pass
4	Radio-frequency electromagnetic fields	EN IEC 61547:2023	3V/m, 80%, 1kHz Amp. Mod.	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
LLAS radiated disturbance (9kHz-30MHz)						
1	Triple Loop Antenna	Laplace Instruments LTD	RF 300	9156	2025-03-18	2027-03-17
2	EMI Test Receiver	Rohde&schwarz	ESC17	101166	2026-03-10	2027-03-09
3	EMI Measurement Software	Farad	EZ-EMC Ver.EMEC-3A1	/	/	/
Radiated disturbance (30MHz-1GHz)						
1	EMI Test Receiver	Rohde&schwarz	ESC17	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 Measurement Software	Farad	EZ-EMC Ver.EMEC-3A1	/	/	/
Electrostatic discharges						
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
10	RS Test software	EM Trace	EM3 V1.1.10	/	/	/

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5 Emission Test Results (EMI)

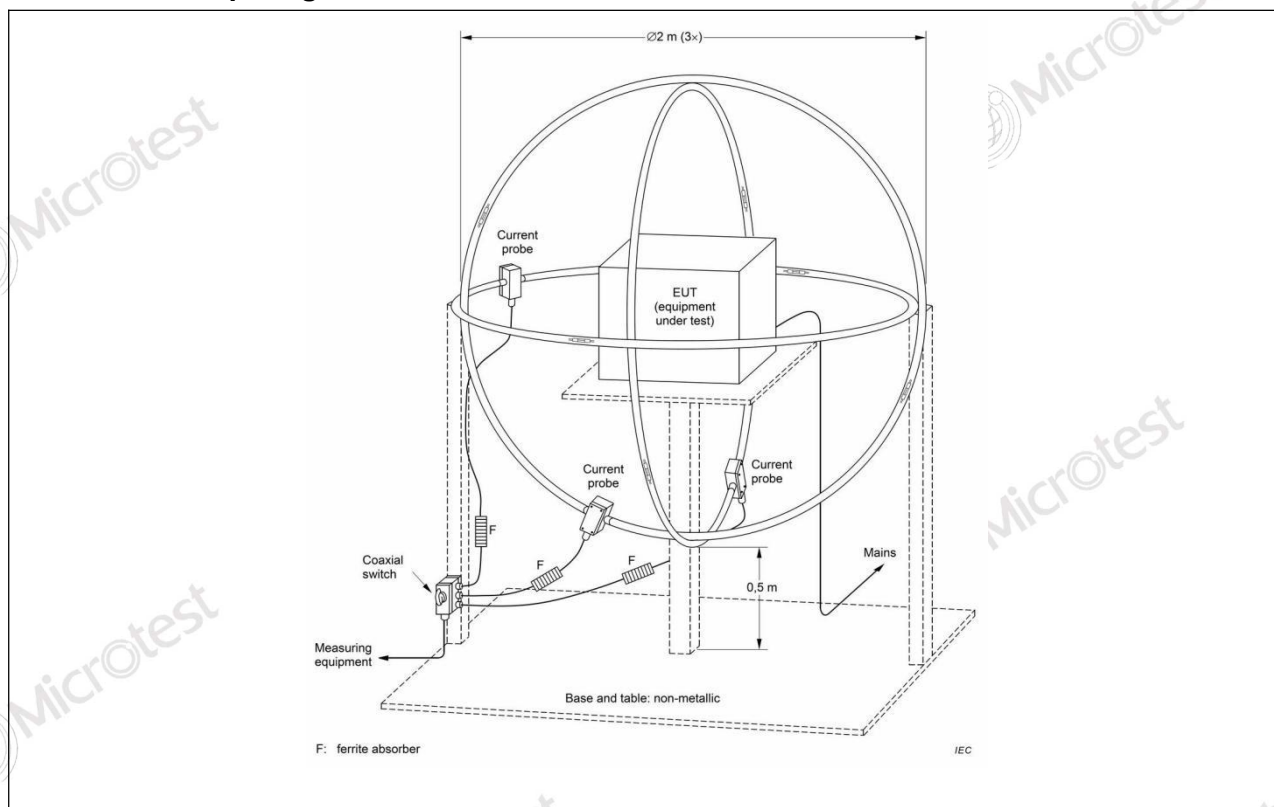
5.1 LLAS radiated disturbance (9kHz-30MHz)

Test Requirement:	Table 8		
Test Limit:	0.009MHz-0.07MHz	88dB(μA) quasi-peak	
	0.07MHz-0.15MHz	88dB(μA)-58dB(μA) quasi-peak	
	0.15MHz-3MHz	58dB(μA)-22dB(μA) quasi-peak	
	3MHz-30MHz	22dB(μA) quasi-peak	
	Detector:	Peak for pre-scan (200Hz resolution bandwidth) 0.009M to 0.15MHz Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz	
Test Method:	EN IEC 55015:2019+A11:2020		
Procedure:	An initial pre-scan was performed in the 2m loop antenna using the spectrum analyser in peak detection mode. The EUT was measured for X(A), Y(B), Z(C) polarities.		

5.1.1 E.U.T. Operation:

Operating Environment:					
Temperature:	25.5 °C	Humidity:	59 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

5.1.2 Test Setup Diagram:



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5.1.3 Test Data:

Mode1 / Axis: X



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuA	Limit dBuA	Over dB	Detector
1	*	1.3140	24.19	0.20	24.39	31.92	-7.53	QP
2		1.9300	16.37	0.20	16.57	27.30	-10.73	QP
3		3.2420	13.74	0.26	14.00	22.00	-8.00	QP
4		4.3740	9.57	0.24	9.81	22.00	-12.19	QP
5		8.9500	9.58	0.41	9.99	22.00	-12.01	QP
6		14.3300	8.76	0.49	9.25	22.00	-12.75	QP

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Mode1 / Axis: Y



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuA	Limit dBuA	Over dB	Detector
1		0.8420	17.69	-0.08	17.61	37.27	-19.66	QP
2		1.3099	19.08	0.06	19.14	31.96	-12.82	QP
3		3.7940	11.88	-0.16	11.72	22.00	-10.28	QP
4		8.1340	10.16	0.74	10.90	22.00	-11.10	QP
5		10.0820	9.20	-0.09	9.11	22.00	-12.89	QP
6	*	29.5500	10.56	1.98	12.54	22.00	-9.46	QP

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Mode1 / Axis: Z



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuA	Limit dBuA	Over dB	Detector
1	*	1.2860	21.24	-0.23	21.01	32.18	-11.17	QP
2		1.9500	11.94	-0.29	11.65	27.18	-15.53	QP
3		3.6380	9.18	0.27	9.45	22.00	-12.55	QP
4		8.0100	7.80	-0.50	7.30	22.00	-14.70	QP
5		13.5020	7.50	-0.76	6.74	22.00	-15.26	QP
6		20.8380	6.25	1.68	7.93	22.00	-14.07	QP

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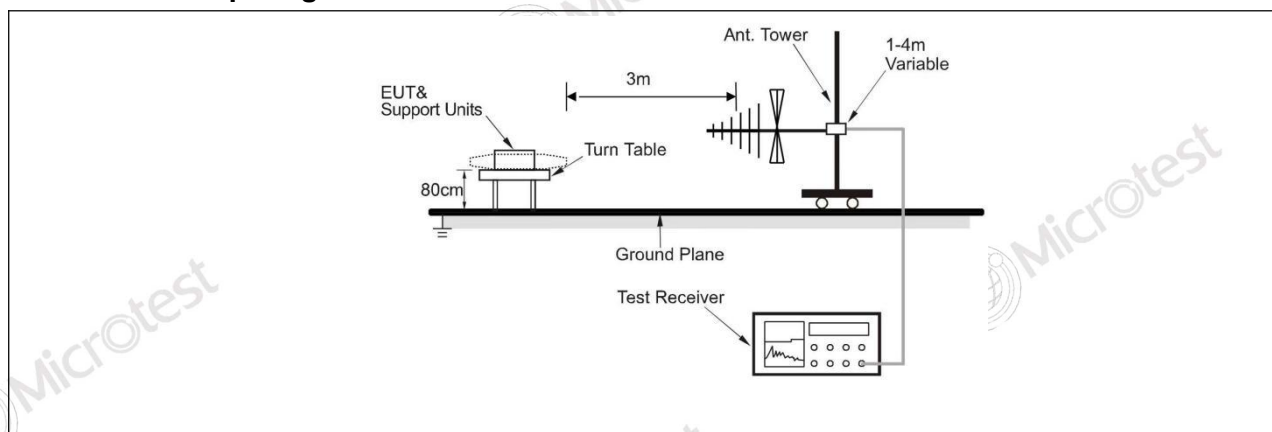
5.2 Radiated disturbance (30MHz-1GHz)

Test Requirement:	Table 10		
Test Limit:	FREQUENCY (MHz)	dB(μ V/m) At 10m	dB(μ V/m) At 3m
	30MHz-230MHz	30	40
	230MHz-1GHz	37	47
	Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz		
Test Method:	EN IEC 55015:2019+A11:2020		
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.		

5.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22 °C	Humidity:	58 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

5.2.2 Test Setup Diagram:

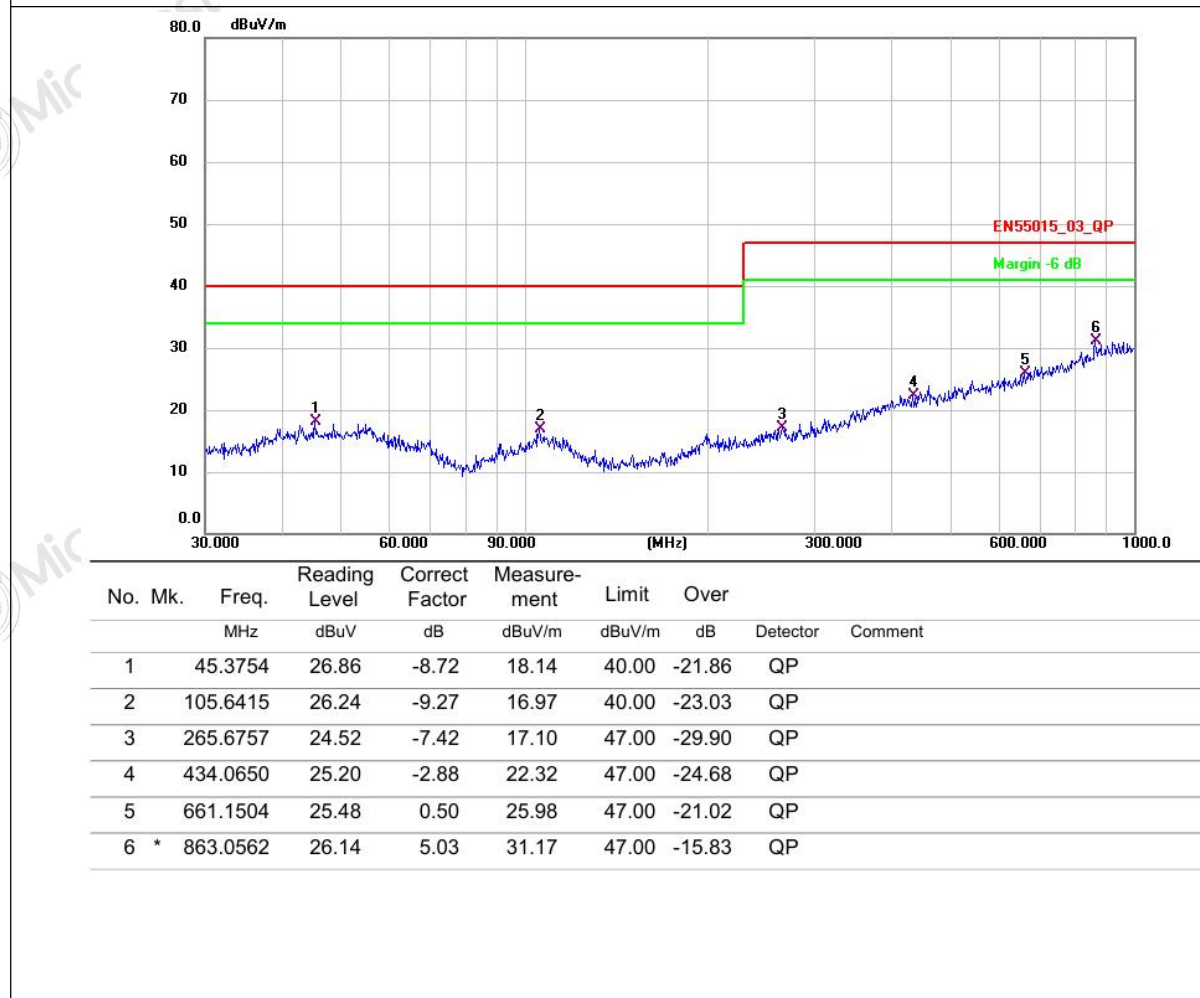


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5.2.3 Test Data:

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		51.8430	26.29	-8.24	18.05	40.00	-21.95	QP	
2		108.6470	26.33	-9.22	17.11	40.00	-22.89	QP	
3		256.5211	25.08	-7.80	17.28	47.00	-29.72	QP	
4		317.7011	25.05	-6.32	18.73	47.00	-28.27	QP	
5		426.5210	25.34	-2.83	22.51	47.00	-24.49	QP	
6	*	737.0714	26.73	1.96	28.69	47.00	-18.31	QP	

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6 Immunity Test Results (EMS)

Performance Criteria

General

For the various immunity tests that apply, the performance of the following functions shall be assessed, as far as applicable or specified by the manufacturer:

- the luminous intensity of the luminaire or of the light source(s);
- the control function, for example on/off switching, light level setting, colour adjustment, wireless control.

functions assessed and the performance criteria for each individual test shall be noted in the test report.

The effects of electromagnetic disturbances on the life of the equipment under test are excluded from this document.

Categorization of performance criteria

The following three categories of performance criteria apply.

a) Performance criterion A

During the test, no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.

b) Performance criterion B

During the test, the luminous intensity may change to any value. After the test, the luminous intensity shall be restored to its initial value within 1 min (30 min for high pressure gas discharge lamps). Regulating controls need not function during the test, but after the test, the mode of the control shall be the same as before the test, provided that during the test no mode changing commands were given.

For emergency lighting equipment designed to operate in high-risk task areas, after the test, the luminous intensity shall be restored to its initial value within 0,5 s.

c) Performance criterion C

During and after the test, any change of the luminous intensity is allowed and the light source(s) may be extinguished. After the test, within 30 min, all functions shall return to normal, if necessary by temporary interruption of the mains supply and/or operating the regulating control.

The following additional requirement applies to lighting equipment incorporating a starting device: after the test, the lighting equipment is switched off for 30 min and back on again. The lighting equipment shall start and operate as intended.

The application of the different performance criteria for the various types of tests and for different lighting equipment are specified in Clause 6.

Objective assessment of luminous intensity performance

A change of luminous intensity shall be checked by either one of the following requirements:

- no change of luminous intensity by visual observation, or
- the luminous intensity of a lighting equipment by measurement.

When being measured, the luminous intensity of lighting equipment shall be measured by means of an illuminance (lux) meter which is positioned in an axis perpendicular to the main plane of the lighting equipment, in its centre and at a distance for proper operation of the lux meter. The luminous intensity shall be deemed to be unchanged if the measured intensities during and after the test do not deviate by more than 15 %. In stand-by mode the change of the luminous intensity shall be less than 5 % of the maximum luminous intensity (100 % light output).

Care shall be taken to ensure the ambient light level does not influence the measurement results.

Precautions to achieve reproducible results given in the relevant light source performance standards shall be observed.

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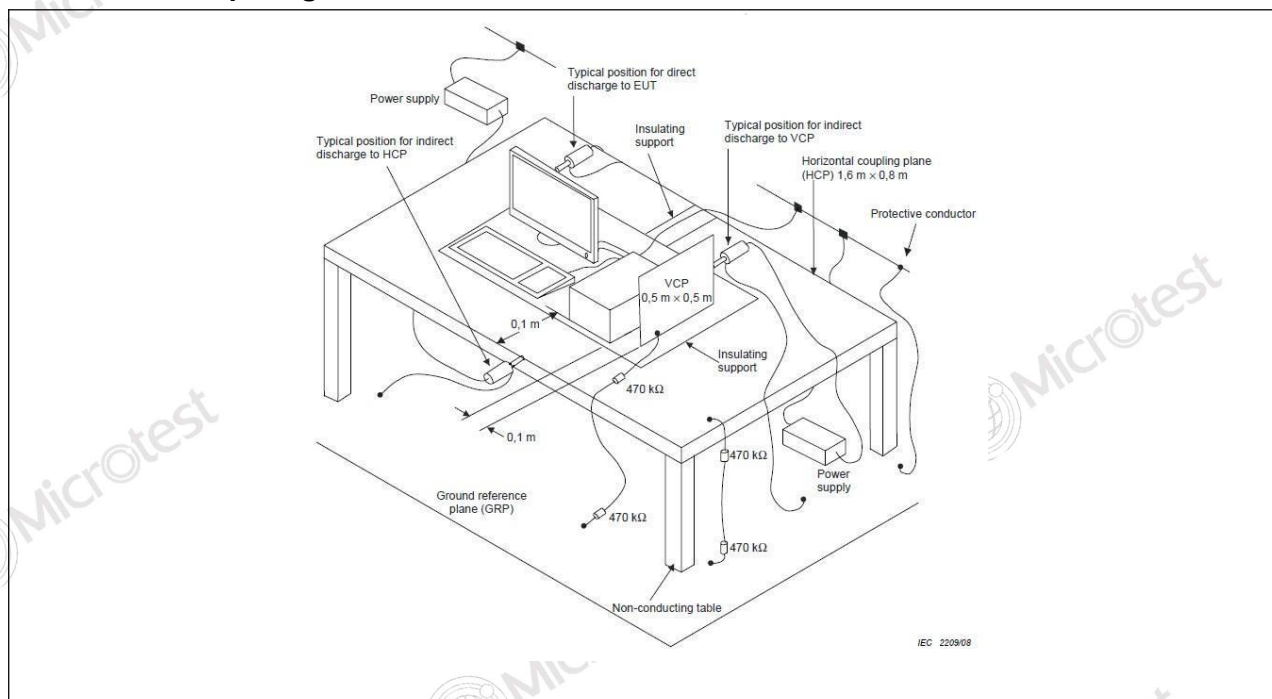
6.1 Electrostatic discharges

Test Requirement:	Contact Discharge: +/- 4kV Air Discharge: +/- 8kV
Test Method:	EN 61000-4-2: 2009
Procedure:	Discharge Impedance: 330Ω/150pF Number of Discharge: Minimum 10 times at each test point Discharge Mode: Single Discharge Discharge Period: 1 second minimum
Performance Criteria:	B

6.1.1 E.U.T. Operation:

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

6.1.2 Test Setup Diagram:



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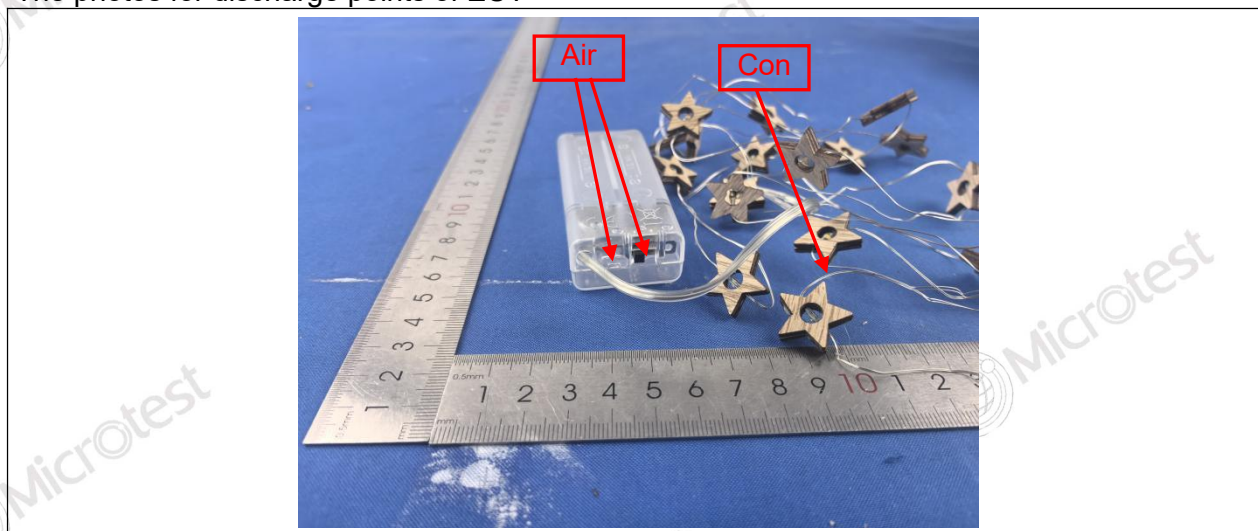
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6.1.3 Test Data:

Discharge type	Volt (kV)	Polarity	Test Point	Result/ Observations
Air discharge	2,4,8	+	1	A
Air discharge	2,4,8	-	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

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

The photos for discharge points of EUT



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

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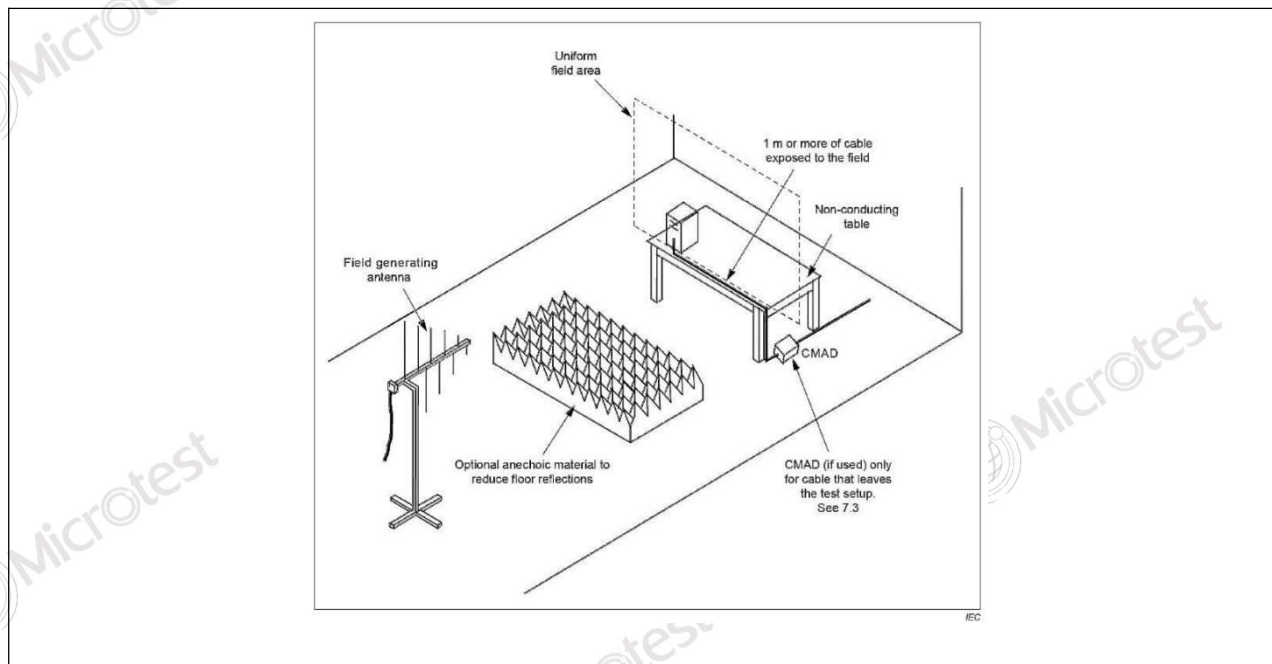
6.2 Radio-frequency electromagnetic fields

Test Requirement:	3V/m, 80%, 1kHz Amp. Mod.
Test Method:	EN IEC 61000-4-3: 2020
Procedure:	Frequency Range: 80MHz to 1GHz Antenna Polarisation: Vertical and Horizontal Modulation: 1kHz,80% Amp. Mod,1% increment
Performance Criteria:	A

6.2.1 E.U.T. Operation:

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

6.2.2 Test Setup Diagram:



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6.2.3 Test Data:

Frequency	Field Strength (V/m)	EUT face	Dwell time	Result/ Observations
80MHz-1GHz	3	Front	3s	A
80MHz-1GHz	3	Back	3s	A
80MHz-1GHz	3	Left	3s	A
80MHz-1GHz	3	Right	3s	A
80MHz-1GHz	3	Top	3s	A
80MHz-1GHz	3	Bottom	3s	A

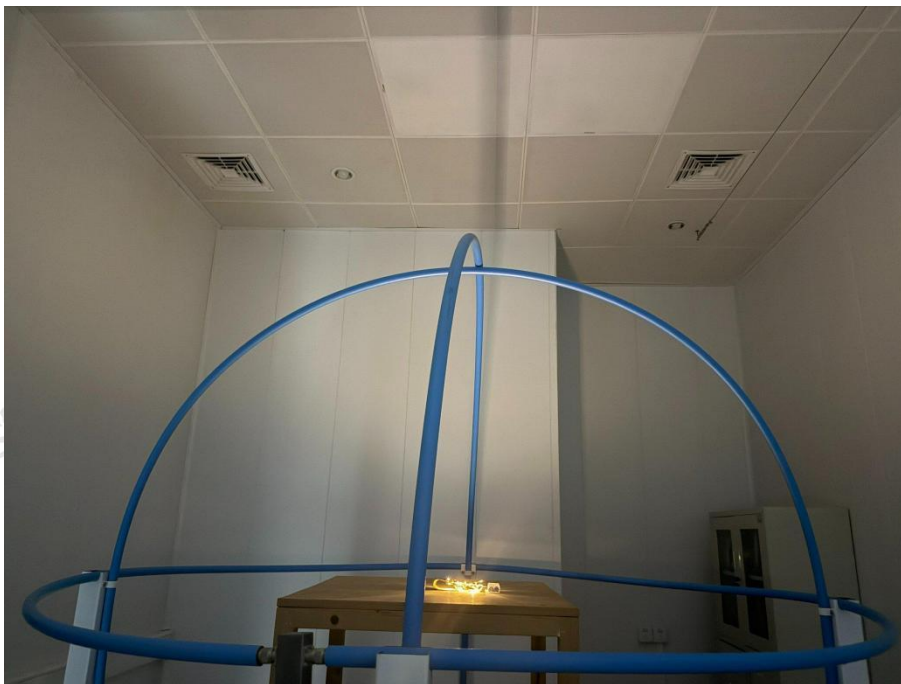
A: No degradation in the performance of the EUT was observed.

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Photographs of the test setup

LLAS radiated disturbance (9kHz-30MHz)



Radiated disturbance (30MHz-1GHz)



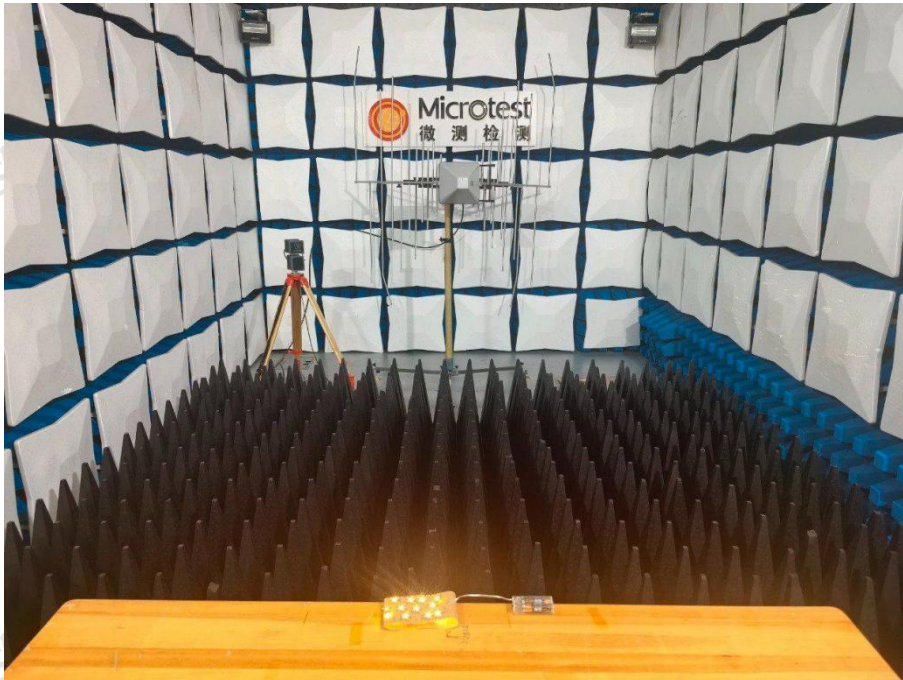
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Electrostatic discharges



Radio-frequency electromagnetic fields



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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 *****