TEST REPORT

Reference No.	:	WTX25X02031523E
Applicant	:	BioPhysio UG
Address	:	Hellweg 2 59423 Unna Germany
Manufacturer	:	Shenzhen Linli Gifts & Technology Co., Ltd.
Address	:	2F, G Building, Jushunda Industrial Park, Hongxing Nan'an Community, Songgang Street, 518105 Baoan District, Shenzhen, Guangdong, China.
Product Name	:	Regulus MediLight PEN
Model No.	:	LLTL13047A
Standards	:	**EN IEC 55015:2019+A11:2020** **EN IEC 61547:2023**
Date of Receipt sample	:	2025-02-19
Date of Test	:	2025-02-19 to 2025-02-28
Date of Issue	:	2025-02-28
Test Report Form No.	:	WTX_EN IEC 55015_2019_B
Test Result	:	**Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

Prepared By:

Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

Tel.: +86-755-33663308 Fax.: +86-755-33663309 Email: sem@waltek.com.cn

Tested by:

Scott Zhang / Project Engineer

Approved by:

Evan Cai / Manager

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Report version

Version No.	Date of issue	Description
Rev.00	2025-02-28	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	Regulus MediLight PEN
Trade Name:	/
Model No.:	LLTL13047A
Adding Model(s):	/
Note: The test data is gathered from production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Power Supply:	DC 1.5V
Power Adaptor:	/
Cable:	/
Rated Power:	/
Rated Current:	/
Highest Internal Frequency:	Below 108MHz

1.2 Test Standards

The tests were performed according to following standards:

EN IEC 55015:2019+A11:2020: Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

EN IEC 61547:2023: Equipment for general lighting purposes - EMC immunity requirements

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

1.3 Test Location

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address:
1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70
Bao'an District, Shenzhen, Guangdong, China

1.4 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission/immunity level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

No	Title	Description
TM1	Working mode	Maximum brightness DC 1.5V

1.5 Measurement Uncertainty

Test Item	Measurement Uncertainty
LLAS radiated disturbance (9k-30MHz)	±3.6dB
Radiated Emissions (30M - 1000MHz)	30-200MHz：±4.52dB 200-1000MHz：±5.56dB

1.6 Test Equipment List and Details

LLAS radiated disturbance (9kHz-30MHz)					
Description	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Due. Date**
EMI Test Receiver	Rohde & Schwarz	ESCI	100525	2024-12-08	2025-12-07
Loop Antenna	ZHINAN	ZN30401	19037	2025-02-23	2026-02-22
EMI Test Software (Radiated Electromagnetic Disturbances)	Farad	EZ-EMC	3A1*CE-RE 1.1.4.3	/	/

Radiated disturbance (30MHz-1GHz)					
Description	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Due. Date**
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2025-02-23	2026-02-22
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2023-03-20	2026-03-19
Amplifier	HP	8447F	2805A03475	2025-02-23	2026-02-22
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2025-02-23	2026-02-22
EMI Test Software (Radiated Emission A)	Farad	EZ-EMC	RA-03A1 (1.1.4.2)	/	/

Electrostatic discharges					
Description	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Due. Date**
ESD Generator	LIONCEL	ESD-203B	0170901	2025-02-23	2026-02-22

Radio-frequency electromagnetic fields					
Description	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Due. Date**
Power Meter	Agilent	E4419B	GB42420578	2025-02-23	2026-02-22
Antenna	SCHWARZBECK	STLP 9129	9129 114	/	/
RF Power Amplifier	MicoTop	MPA-1000-6000-100	MPA1906238	2025-02-23	2026-02-22
RF Power Amplifier	MicoTop	MPA-80-1000-250	MPA1906239	2025-02-23	2026-02-22
Power Sensor	Agilent	E9304A	MY55081055	2025-02-23	2026-02-22
Power Sensor	Agilent	E9301A	MY52450001	2025-02-23	2026-02-22
Signal Generator	HP	8665B	3438A00604	2025-02-23	2026-02-22
Test Software (Radio frequency electromagnetic Field)	EMtrace	EM3	V1.2.6.2	/	/

Power frequency magnetic fields					
Description	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Due. Date**
Instantaneous PMF Generator Module	LIONCEL	PMF-801C-T	0171001	2025-02-23	2026-02-22
PMF Antenna	LIONCEL	PMF-801C-A	0180302	2025-02-23	2026-02-22
PMF Generator	LIONCEL	PMF-801C-C	0171101	2024-02-24	2025-02-23

2. SUMMARY OF TEST RESULTS

Item	Standard	Method	Result
LLAS radiated disturbance (9kHz-30MHz)	EN IEC 55015:2019+A11:2020	EN IEC 55015:2019+A11:2020	Compliant
Radiated disturbance (30MHz-1GHz)	EN IEC 55015:2019+A11:2020	EN IEC 55015:2019+A11:2020	Compliant
Electrostatic discharges	EN IEC 61547:2023	EN 61000-4-2: 2009	Compliant
Radio-frequency electromagnetic fields	EN IEC 61547:2023	EN IEC 61000-4-3: 2020	Compliant
Power frequency magnetic fields	EN IEC 61547:2023	EN 61000-4-8: 2010	Compliant

3. Emission Test Results (EMI)

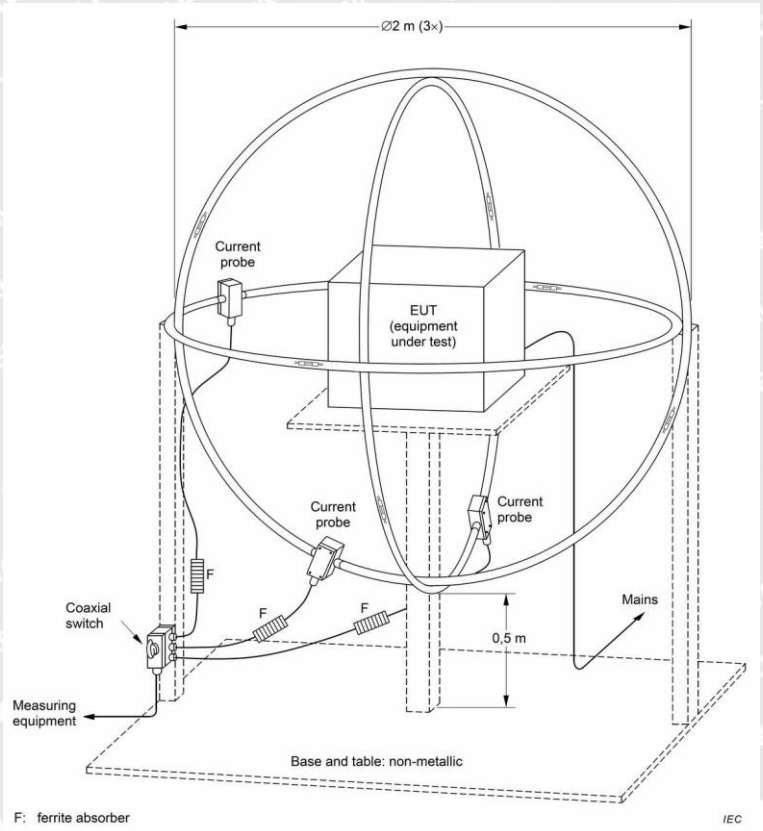
3.1 LLAS radiated disturbance (9kHz-30MHz)

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.		

3.1.1 E.U.T. Operation

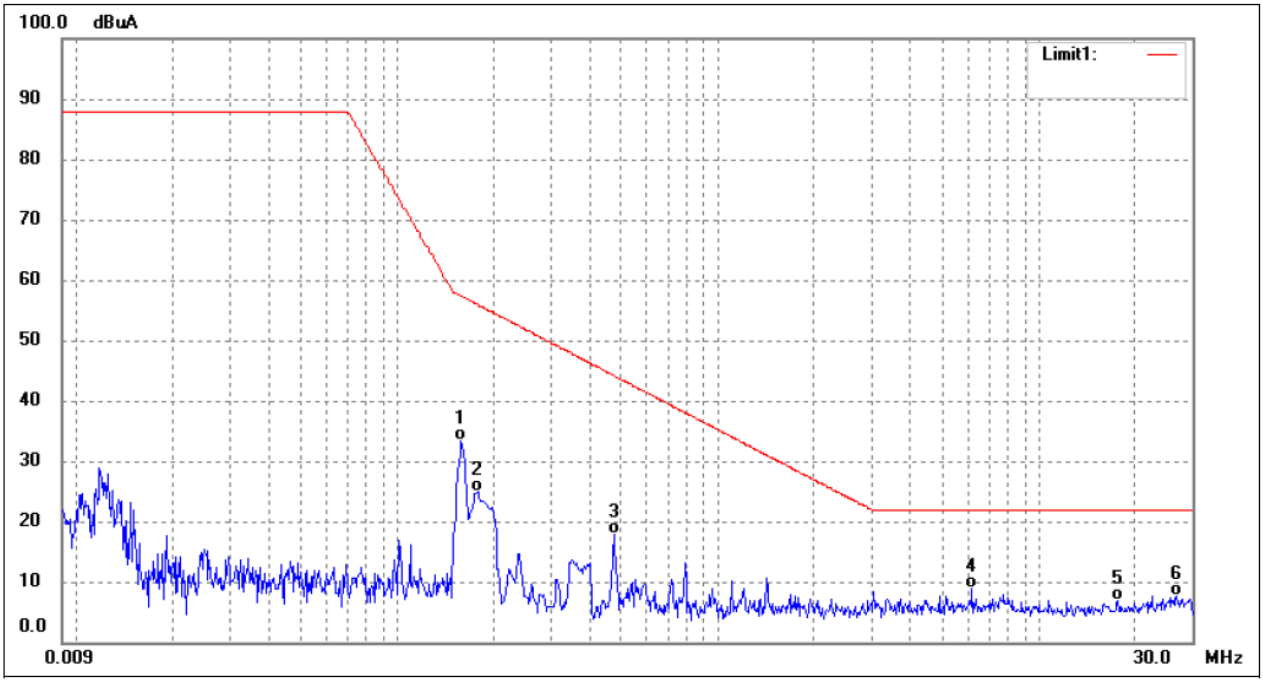
Environmental Conditions	
Temperature:	23.5 °C
Relative Humidity:	54 %
Atmospheric Pressure:	99.8 kPa
Test mode:	TM1

3.1.2 Basic Test Setup Block Diagram



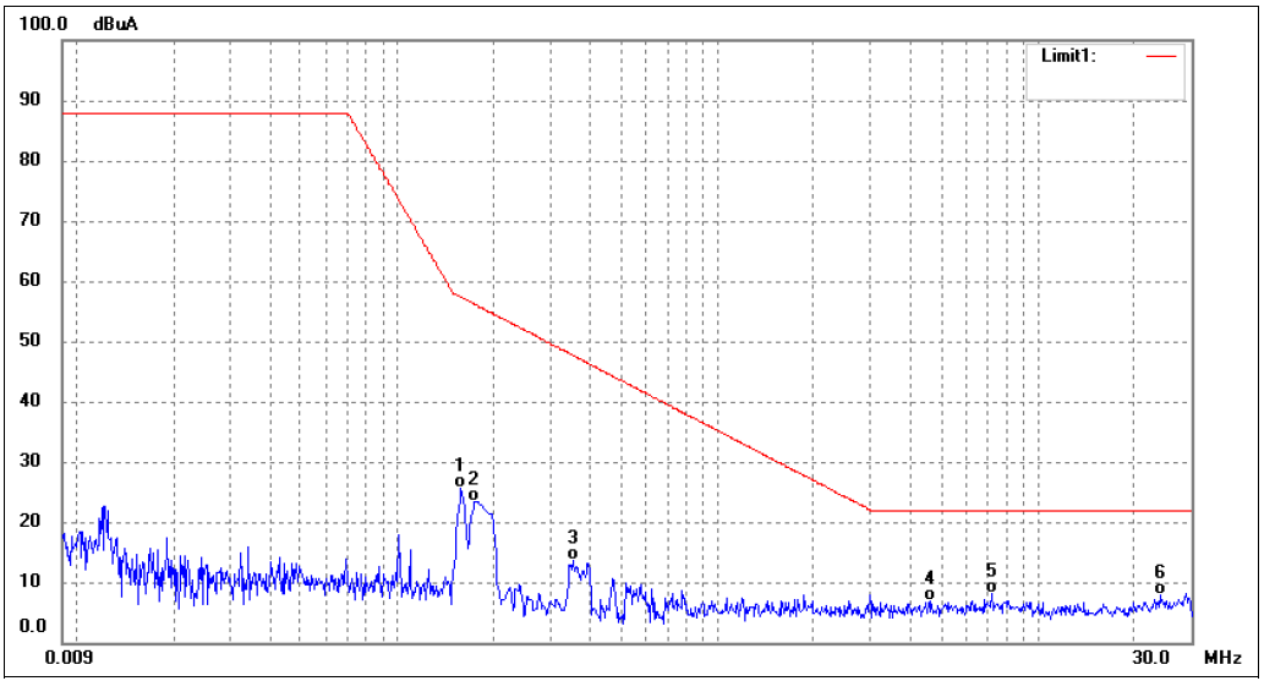
3.1.3 Summary of Test Results

TM1 / Axis: X



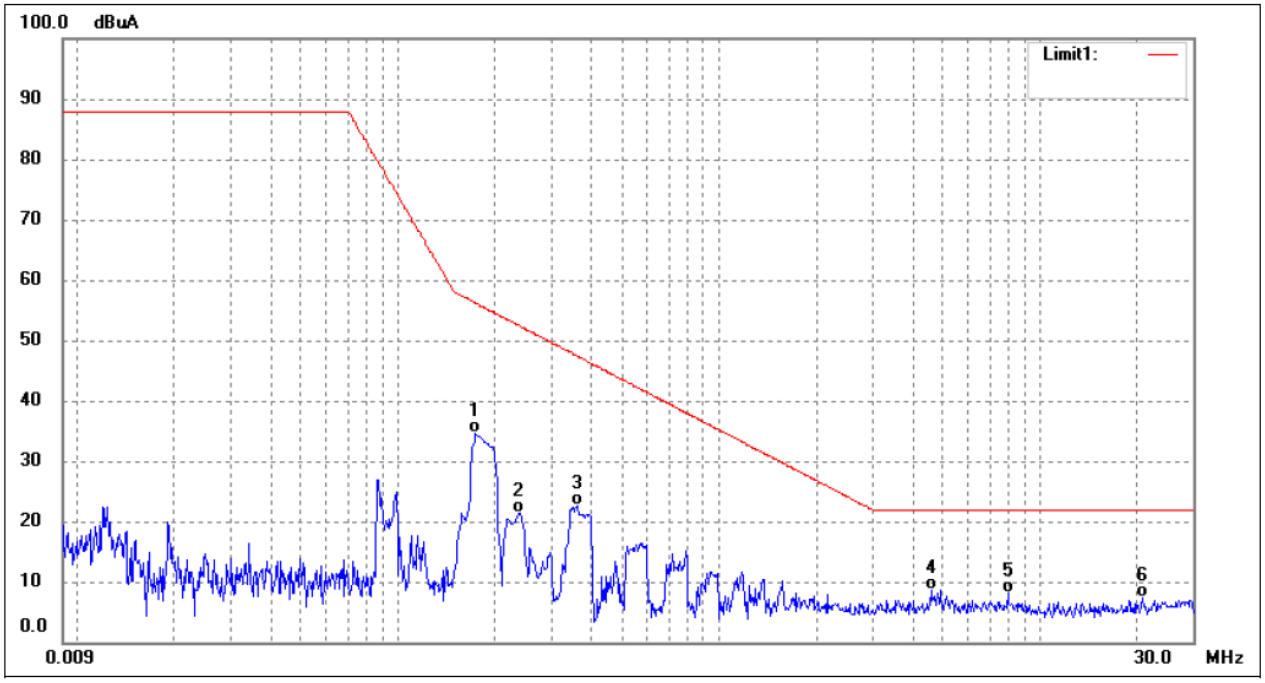
No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuA)	(dB)	(dBuA)	(dBuA)	(dB)	
1	0.1580	33.49	0.00	33.49	57.38	-23.89	QP
2	0.1780	24.95	0.00	24.95	55.94	-30.99	QP
3	0.4740	17.90	0.00	17.90	44.17	-26.27	QP
4*	6.1779	8.99	0.00	8.99	22.00	-13.01	QP
5	17.6299	6.80	0.00	6.80	22.00	-15.20	QP
6	26.9700	7.70	0.00	7.70	22.00	-14.30	QP

TM1 / Axis: Y



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuA)	(dB)	(dBuA)	(dBuA)	(dB)	
1	0.1580	25.61	0.00	25.61	57.38	-31.77	QP
2	0.1740	23.29	0.00	23.29	56.22	-32.93	QP
3	0.3540	13.52	0.00	13.52	47.68	-34.16	QP
4	4.5980	6.86	0.00	6.86	22.00	-15.14	QP
5*	7.1780	8.07	0.00	8.07	22.00	-13.93	QP
6	24.0660	7.85	0.00	7.85	22.00	-14.15	QP

TM1 / Axis: Z



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuA)	(dB)	(dBuA)	(dBuA)	(dB)	
1	0.1740	34.51	0.00	34.51	56.22	-21.71	QP
2	0.2380	21.31	0.00	21.31	52.45	-31.14	QP
3	0.3620	22.60	0.00	22.60	47.41	-24.81	QP
4*	4.5860	8.53	0.00	8.53	22.00	-13.47	QP
5	7.9620	8.19	0.00	8.19	22.00	-13.81	QP
6	20.9700	7.26	0.00	7.26	22.00	-14.74	QP

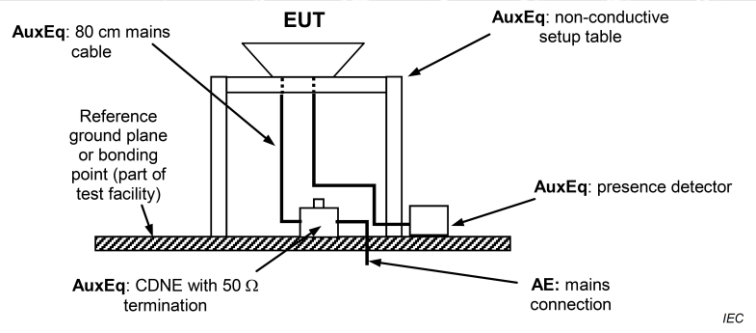
3.2 Radiated disturbance (30MHz-1GHz)

Test Requirement:	Table 10
Test Limit:	FREQUENCY (MHz) / dB(μV/m) At 10m / dB(μV/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.

3.2.1 E.U.T. Operation

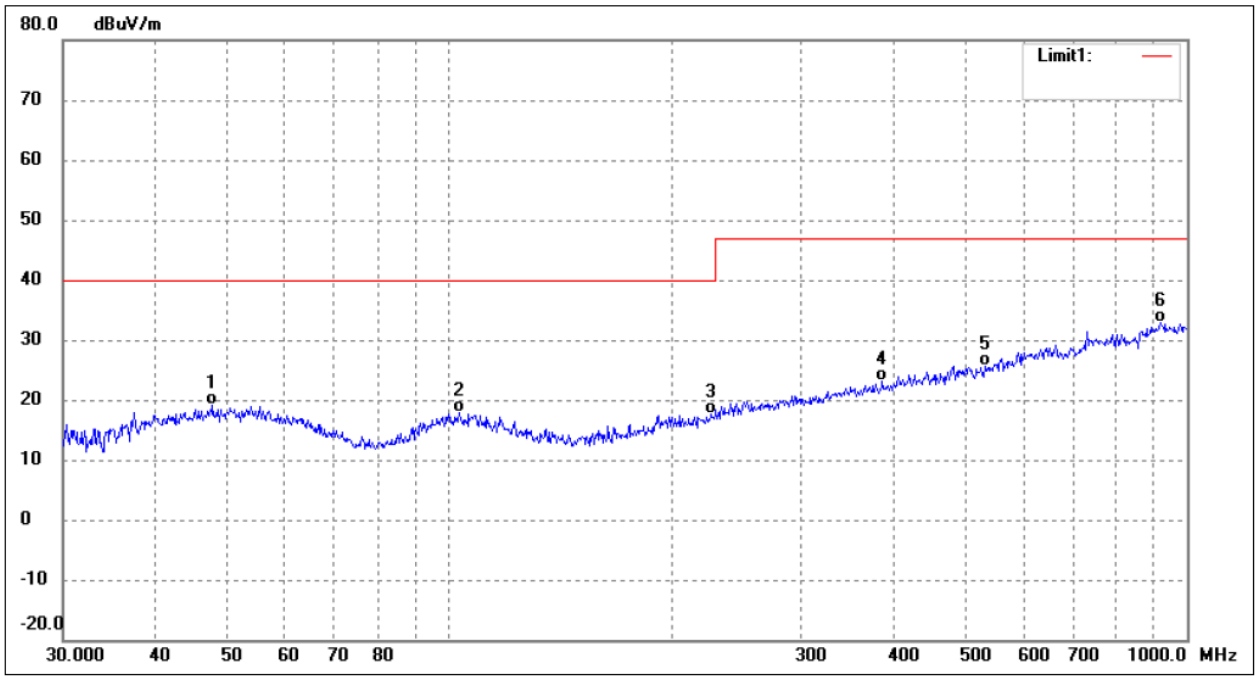
Environmental Conditions	
Temperature:	22.5 °C
Relative Humidity:	54 %
Atmospheric Pressure:	99.8 kPa
Test mode:	TM1

3.2.2 Basic Test Setup Block Diagram



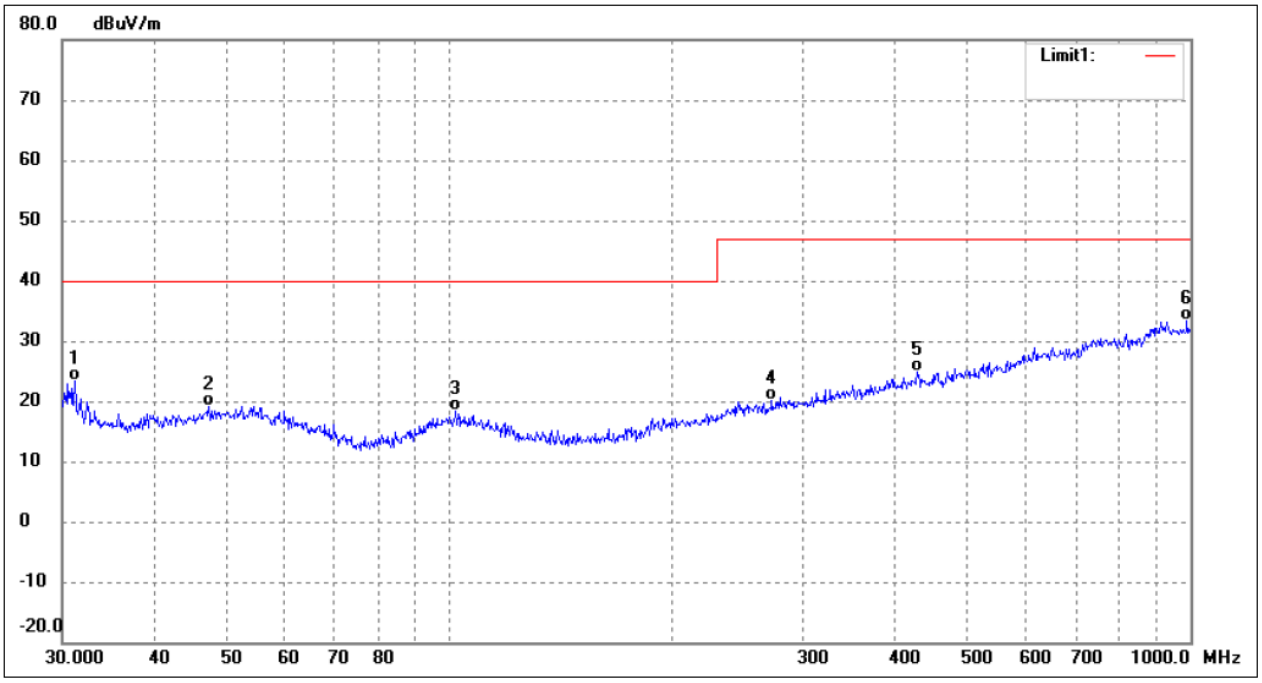
3.2.3 Summary of Test Results

TM1 / Polarization: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	47.8260	27.38	-8.33	19.05	40.00	-20.95	QP
2	103.0800	27.12	-9.15	17.97	40.00	-22.03	QP
3	226.8936	25.67	-8.02	17.65	40.00	-22.35	QP
4	386.6338	27.12	-4.02	23.10	47.00	-23.90	QP
5	531.9635	27.50	-1.77	25.73	47.00	-21.27	QP
6	919.2866	27.64	5.24	32.88	47.00	-14.12	QP

TM1 / Polarization: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	31.1798	34.97	-11.71	23.26	40.00	-16.74	QP
2	47.3255	27.59	-8.37	19.22	40.00	-20.78	QP
3	102.0014	27.49	-9.17	18.32	40.00	-21.68	QP
4	272.2776	26.73	-6.62	20.11	47.00	-26.89	QP
5	428.0193	28.18	-3.18	25.00	47.00	-22.00	QP
6	989.5355	28.10	5.32	33.42	47.00	-13.58	QP

4. Immunity Test Results (EMS)

Performance Criteria Description in EN IEC 61547

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.

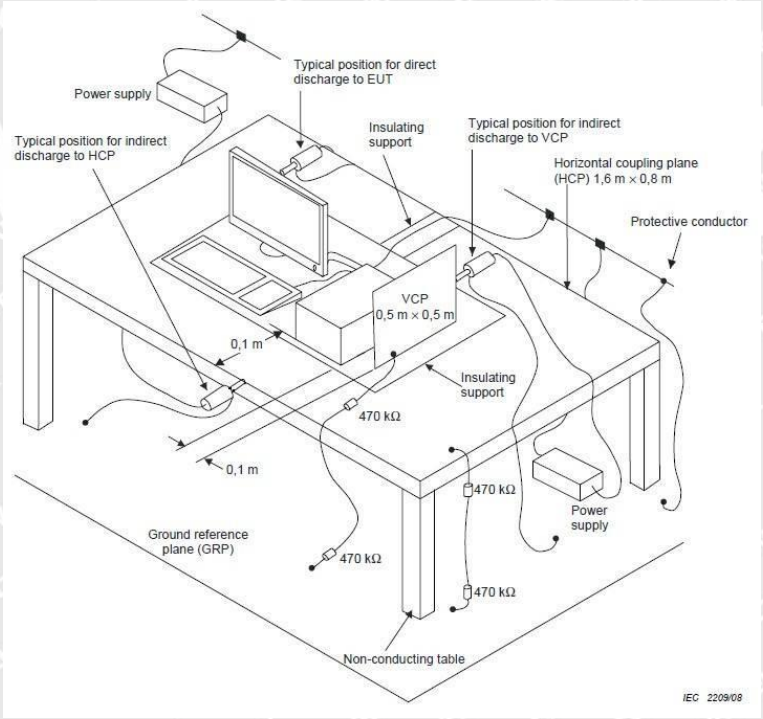
4.1 Electrostatic discharges

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

4.1.1 E.U.T. Operation

Environmental Conditions	
Temperature:	23.5 °C
Relative Humidity:	54 %
Atmospheric Pressure:	99.8 kPa
Test mode:	TM1

4.1.2 Basic Test Setup Block Diagram



4.1.3 Summary of Test Results

Discharge type	Volt (kV)	Polarity	Test Point	Result/ Observations
Air discharge	2,4,6,8	+	1	A
Air discharge	2,4,6,8	-	1	A
Contact discharge	2,4	+	2	A
Contact discharge	2,4	-	2	A
Horizontal Coupling	2,4	+	3	A
Horizontal Coupling	2,4	-	3	A
Vertical Coupling	2,4	+	3	A
Vertical Coupling	2,4	-	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.

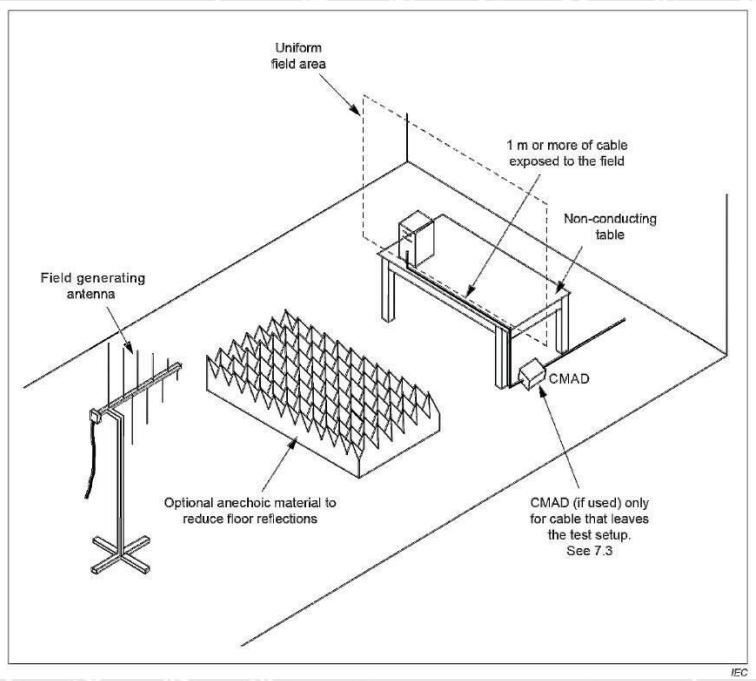
4.2 Radio-frequency electromagnetic fields

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

4.2.1 E.U.T. Operation

Environmental Conditions	
Temperature:	23.5 °C
Relative Humidity:	54 %
Atmospheric Pressure:	99.8 kPa
Test mode:	TM1

4.2.2 Basic Test Setup Block Diagram



4.2.3 Summary of Test Results

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

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

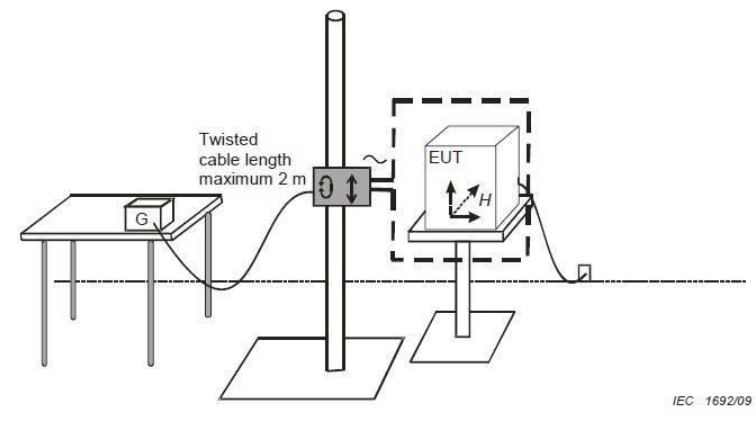
4.3 Power frequency magnetic fields

Test Requirement:	50/ 60Hz, 3 A/m
Test Method:	EN 61000-4-8: 2010
Procedure:	50/ 60Hz, 3 A/m
Performance Criteria:	A

4.3.1 E.U.T. Operation

Environmental Conditions	
Temperature:	23.5 °C
Relative Humidity:	54 %
Atmospheric Pressure:	99.8 kPa
Test mode:	TM1

4.3.2 Basic Test Setup Block Diagram



4.3.3 Summary of Test Results

Frequency	Strength (A/m)	Axial	Magnetic Field Type	Result/ Observations
50Hz/ 60Hz	3	X	Continuous filed	A
50Hz/ 60Hz	3	Y	Continuous filed	A
50Hz/ 60Hz	3	Z	Continuous filed	A

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

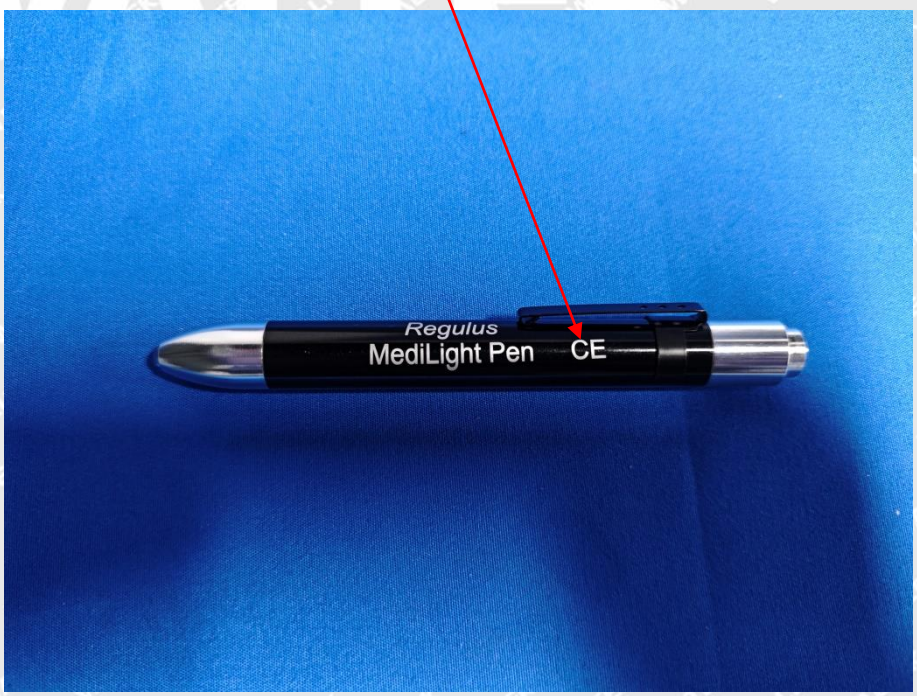
5. EXHIBIT 1 - PRODUCT LABELING

5.1 Proposed Label Format

Regulus MediLight PEN
Model: LLTL13047A
Brand: /
Importer Name: XXX
Importer Address: XXX
Shenzhen Linli Gifts & Technology Co., Ltd.
2F, G Building, Jushunda Industrial Park, Hongxing
Nan'an Community, Songgang Street, 518105
Baoan District, Shenzhen, Guangdong, China.

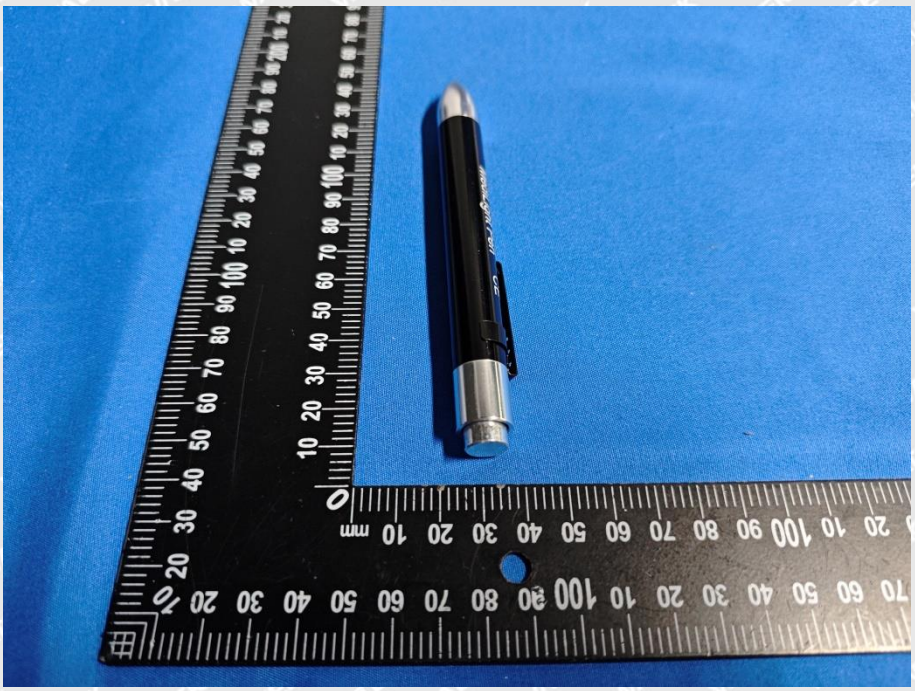
Specifications: Text is Black in color and is justified. Labels are printed in indelible ink on permanent adhesive backing or silk-screened onto the EUT or shall be affixed at a conspicuous location on the EUT. The 'CE' marking must be affixed to the EUT or to its data plate. Where this is not possible or not warranted on account of the nature of the apparatus, it must be affixed to the packaging, if any, and to the accompanying documents. The 'CE' marking must have a height of at least 5 mm. If the 'CE' marking is reduced or enlarged the proportions given in the above graduated drawing must be respected. The Importer name, address and Manufacturer name and address should indicate on marking label or packaging or in a document accompanying.

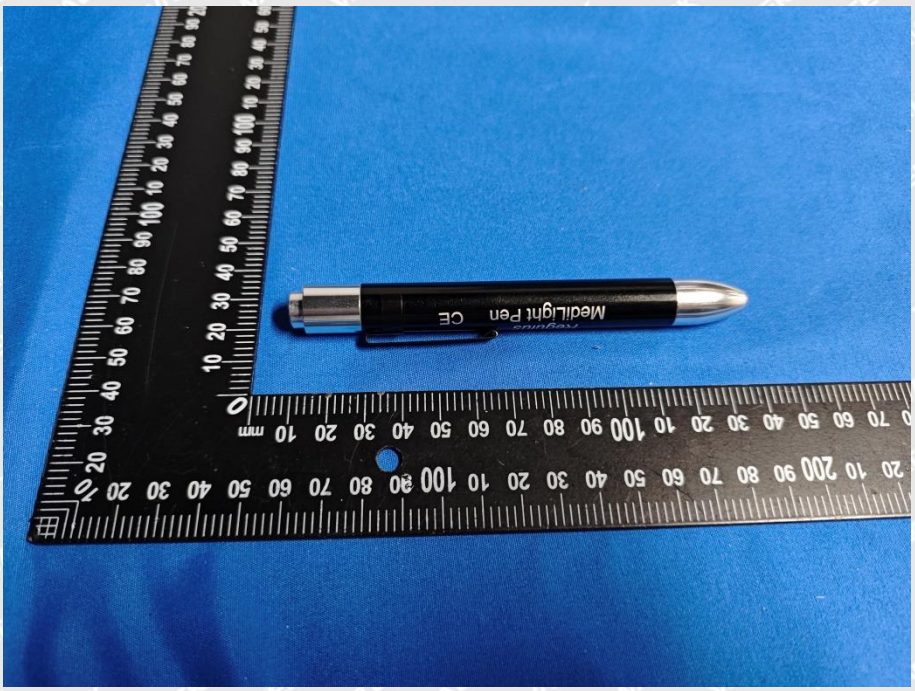
5.2 Proposed Label Location of EUT

Label Location	

6. EXHIBIT 2 - EUT PHOTOGRAPHS

External

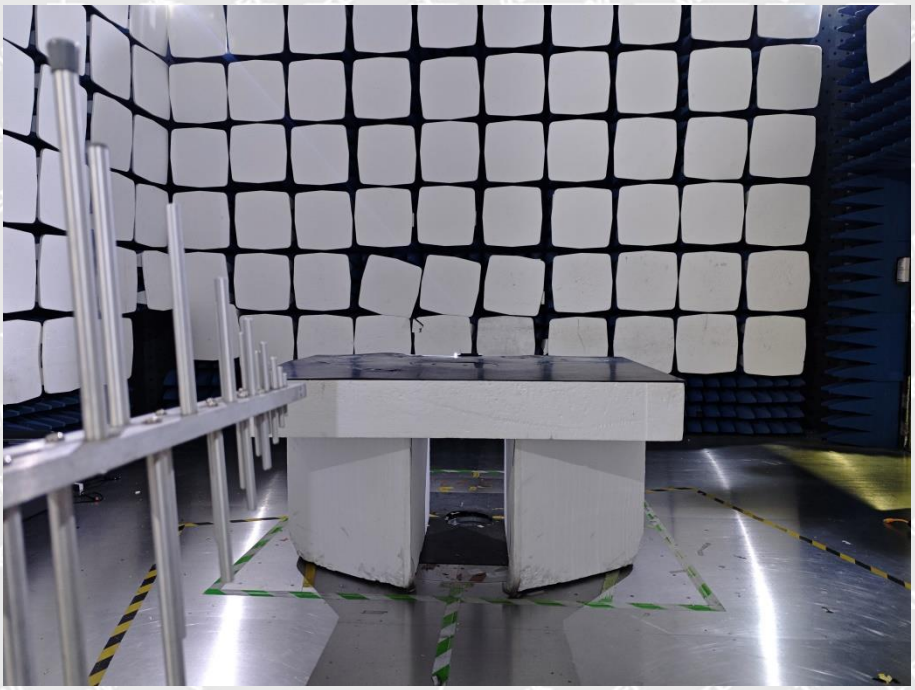



MediLight Pen
CE

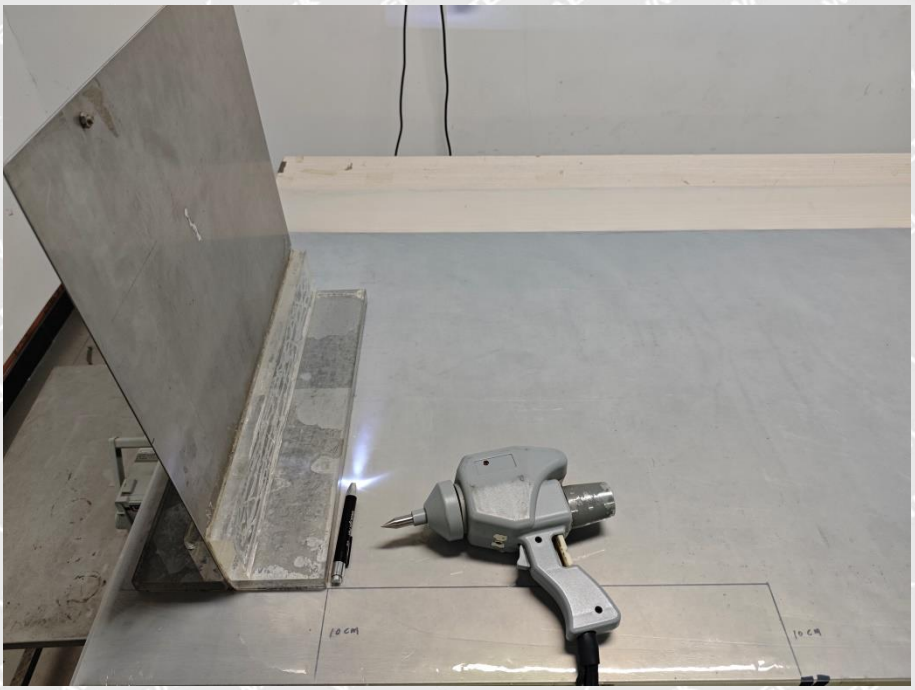
7. EXHIBIT 3 - TEST SETUP PHOTOGRAPHS

LLAS radiated disturbance (9kHz-30MHz)

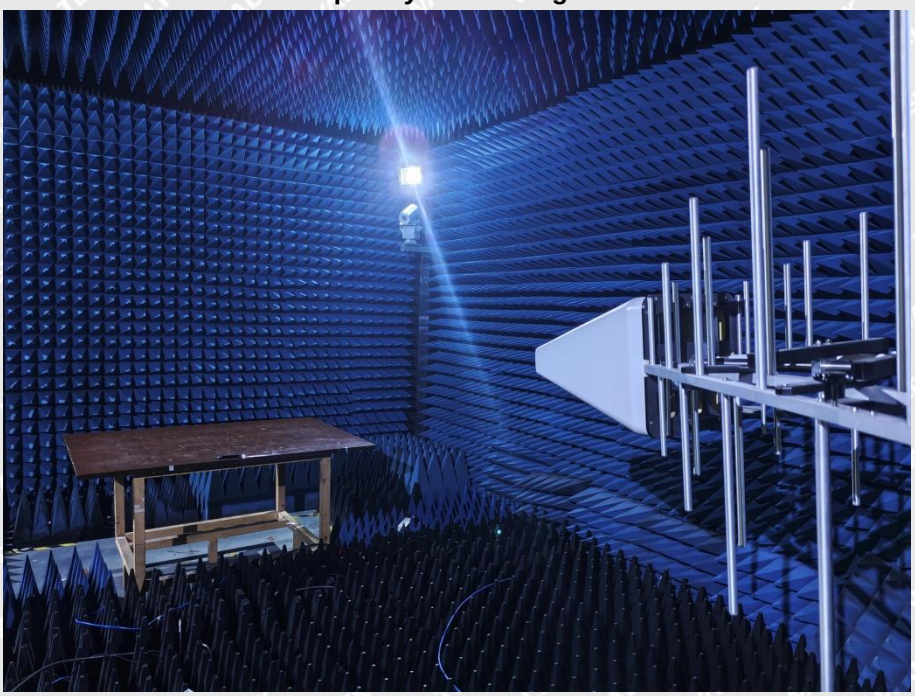
Radiated disturbance (30MHz-1GHz)



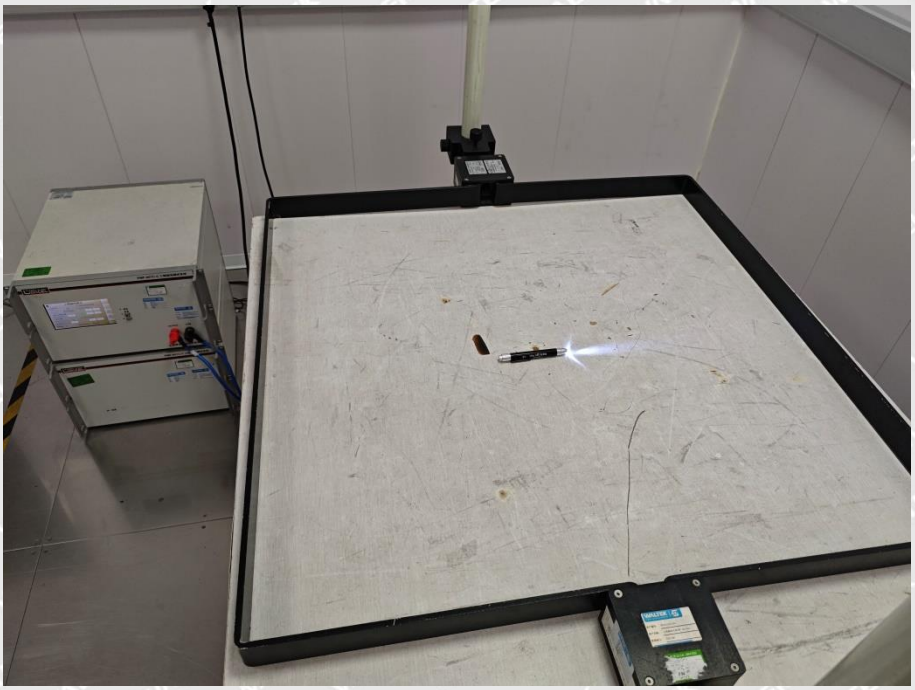
Electrostatic discharges



Radio-frequency electromagnetic fields



Power frequency magnetic fields



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