TEST REPORT

Reference No.	:	WTU22N10211822E
Applicant	:	LUMATEK LTD.
Address	:	Ewropa Business centre Level 3 – 701 Dun Karm Street Birkirkara BKR 9034 MALTA
Manufacturer	:	Same as applicant
Address	:	Same as applicant
Product Name	:	Lumatek Control Panel
Model No.	:	LUMM0019
Test specification	:	BS EN IEC 55015:2019+A11:2020 BS EN 61547:2009 BS EN IEC 61000-3-2:2019+A1:2021 BS EN 61000-3-3:2013+A1:2019+A2:2021
Date of Receipt sample	:	2022-10-25
Date of Test	:	2022-11-02 to 2022-11-03
Date of Issue	:	2022-12-08
Test Report Form No.	:	WEL-55015A-11B
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 compiler and approver.

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Tested by:

Shouyin Wang

Approved by:

(05)
Jianzhong Mao

1 Test Summary

EMISSION			
Test Item	**Test Standard**	**Class / Severity**	**Result**
Conducted Disturbance, 9kHz to 30MHz	BS EN IEC 55015:2019+A11:2020	Clause 4.3	Pass
Radiated Disturbance, 9kHz to 30MHz	BS EN IEC 55015:2019+A11:2020	Clause 4.5.2	Pass
Radiated Disturbance, 30MHz to 1GHz	BS EN IEC 55015:2019+A11:2020	Clause 4.5.3	Pass
Harmonic Current Emissions	BS EN IEC 61000-3-2:2019+A1:2021	Clause 7	N/A
Voltage Changes, Voltage Fluctuation and Flicker	BS EN 61000-3-3:2013+A1:2019+A2:2021	Clause 5	Pass
IMMUNITY（BS EN 61547:2009）			
Test Item	**Test Method**	**Performance Criteria**	**Result**
Electrostatic Discharge(ESD)	IEC 61000-4-2:2008	B	Pass
Radio-frequency Electromagnetic Fields (80MHz to 1GHz)	IEC 61000-4-3:2006+A1:2007	A	Pass
Fast Transients (EFT)	IEC 61000-4-4:2004	B	Pass
Surges	IEC 61000-4-5:2005	C	Pass
Injected Currents, 0.15MHz to 80MHz	IEC 61000-4-6:2008	A	Pass
Power-frequency Magnetic Field	IEC 61000-4-8:1993+A1:2000	A	N/A
Voltage Dips	IEC 61000-4-11:2004	C	Pass
Voltage short interruptions		B	Pass

Remark:

Pass	Test item meets the requirement
Fail	Test item does not meet the requirement
N/A	Test case does not apply to the test object

2 Contents

3 General Information

3.1 General Description of E.U.T.

Product Name ..... : Lumatek Control Panel

Model No. ..... : LUMM0019

Protection Class ..... : Class II

Remark..... :
1. The EUT (equipment under test) is an ordinary Lumatek Control Panel for Lighting and similar use. For the further information, refer to the user's manual.
2. Data of this report is based on the Report No. WTU22N10211821E.
3. For details information, refer to the section 3.2.
4. For the test results, the EUT had been tested with the rated input range. But only the worst case was shown in test report.

3.2 Details of E.U.T.

No.	Model	Rated Input	Max Current	Note
1.	LUMM0019	100-240V~, 50/60Hz	0.03A	/

3.3 Description of Support Units

The EUT has been tested as an independent unit. LUMM0019 is the tested sample. All tests were performed in the condition of 230V~, 50Hz input.

3.4 Standards Applicable for Testing

The tests were performed according to following standards:

BS EN IEC 55015:2019+A11:2020	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
BS EN 61547:2009	Equipment for general lightingpurposes — EMC immunity requirements
BS EN IEC 61000-3-2:2019+A1:2021	Electromagnetic compatibility (EMC) Part 3-2: Limits — Limits for harmonic current emissions (equipment input current ≤ 16 A per phase).
BS EN 61000-3-3:2013+A1:2019+A2:2021	Electromagnetic compatibility (EMC) Part 3-3: Limits — Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection.

3.5 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test items: ---

Lab information: ---
Address:---

3.6 Abnormalities from Standard Conditions

None.

4 Equipment Used during Test

Conducted Disturbance					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	EMI Test Receiver	R&S	ESCI	101406	Valid
2	TWO-LINE V-NETWORK	R&S	ENV216	101208	Valid
3	Current probe	R&S	EZ-17	0816.2063.02 -101282-fp	Valid
Radiated Disturbance(9kHz to 30MHz)					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	EMI Test Receiver	R&S	ESCI	101406	Valid
2	3-dimensional large loop antenna	SCHWARZBECK	HXYZ9170	256	Valid
Radiated Disturbance(30MHz to 1GHz)					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	EMI Test Receiver	R&S	ESR7	101777	Valid
2	TRILOG Biconic logarithmic periodic broadband antenna	SCHWARZBECK	VULB9163	01025	Valid
3	coupling-Decoupling Network	SCHWARZBECK	CDNE M3	00081	Valid
4	coupling-Decoupling Network	SCHWARZBECK	CDNE M2	00093	Valid
ESD					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	electrostatic discharge generator	TESEQ	NSG437	699	Valid
Radio-frequency Electromagnetic Fields					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	Power Amplifier	SKET	HAP_80M01G -250W	-	Valid
2	Power Amplifier	SKET	HAP_01G06G -75W	-	Valid
3	Stacked log periodic antenna	SKET	STLP 9129 Plus	-	Valid
4	Analog Signal Generator	Agilent	N5181A	MY48180307	Valid
5	Power meter	RS	NPR-Z11	106957	Valid
6	Power meter	RS	NPR-Z11	118349	Valid
7	Field strength probe	Narda	EP 601	811ZX10321	Valid

EFT & Voltage Dips and Interruptions					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	Multifunction Generator Systems	TESEQ	NSG3040	2094	Valid
2	Single way manual Step regulator	TESEQ	INA 6501	243	Valid
3	Capacitive coupling clamp	TESEQ	CDN3425	1858	Valid
Surges					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	Multifunction Generator Systems	TESEQ	NSG3060	1654	Valid
2	coupling-Decoupling Network	TESEQ	CDN3061	1485	Valid
Injected Currents					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	Test System for Conducted and Radiated Immunity	TESEQ	NSG4070	37519	Valid
2	Coupling and Decoupling Network	TESEQ	CDN M016	37358	Valid
3	Attenuator	TESEQ	ATN6075	36917	Valid
4	EM clamp	TESEQ	KEMZ801A	35529	Valid

4.1 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conducted Disturbance	9kHz~150kHz	±2.66dB	(1)
Conducted Disturbance	150kHz~30MHz	±2.66dB	(1)
Radiated Disturbance	9kHz~30MHz	±3.00dB	(1)
Radiated Disturbance	30MHz~1GHz	±5.03dB	(1)

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

5 Emission Test Results

5.1 Conducted Disturbance, 9kHz to 30MHz

Test Requirement..... : BS EN IEC 55015

Test Method..... : CIPR 16-2-1 and Clause 8.3 of BS EN IEC 55015

Test Result..... : Pass

Frequency Range..... : 9kHz to 30MHz

Class/Severity..... : Table 1 of BS EN IEC 55015

5.1.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 23.5°C

Humidity..... : 57%RH

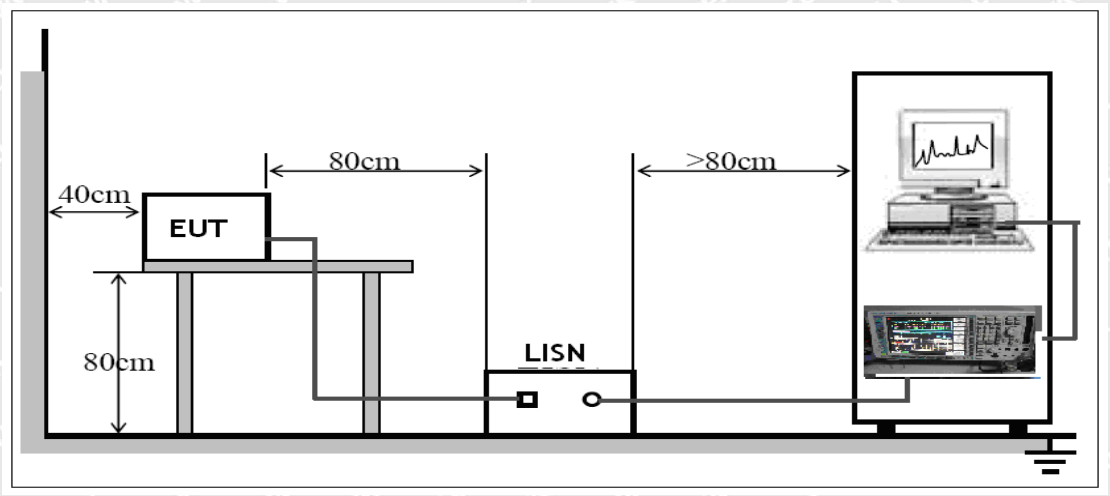
EUT Operation:

Input Voltage ..... : 230V~, 50Hz

Operating Mode..... : On mode

5.1.2 Block Diagram of Test Setup

The Conducted Disturbance tests were performed in accordance with the BS EN IEC 55015 standards.

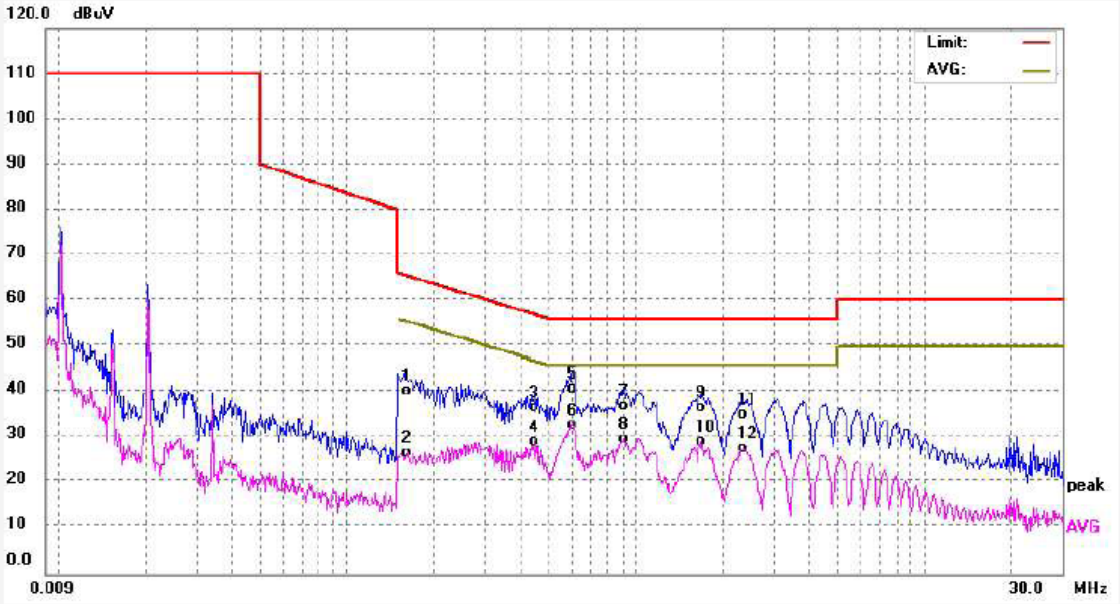


5.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

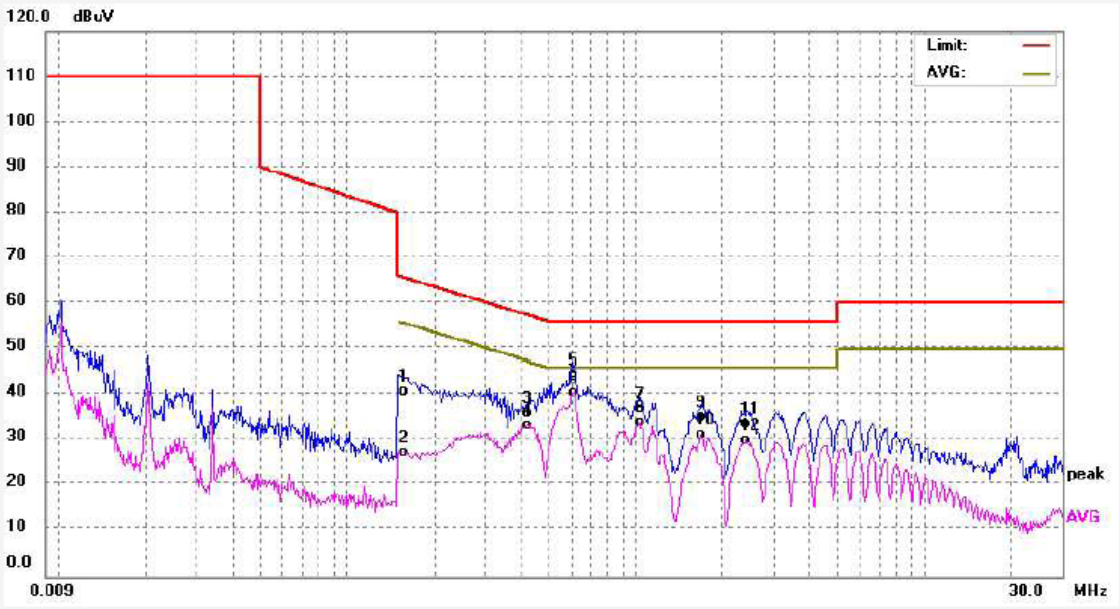
5.1.4 Electric Power Supply Interface Disturbance Voltage Test Data

Live Line



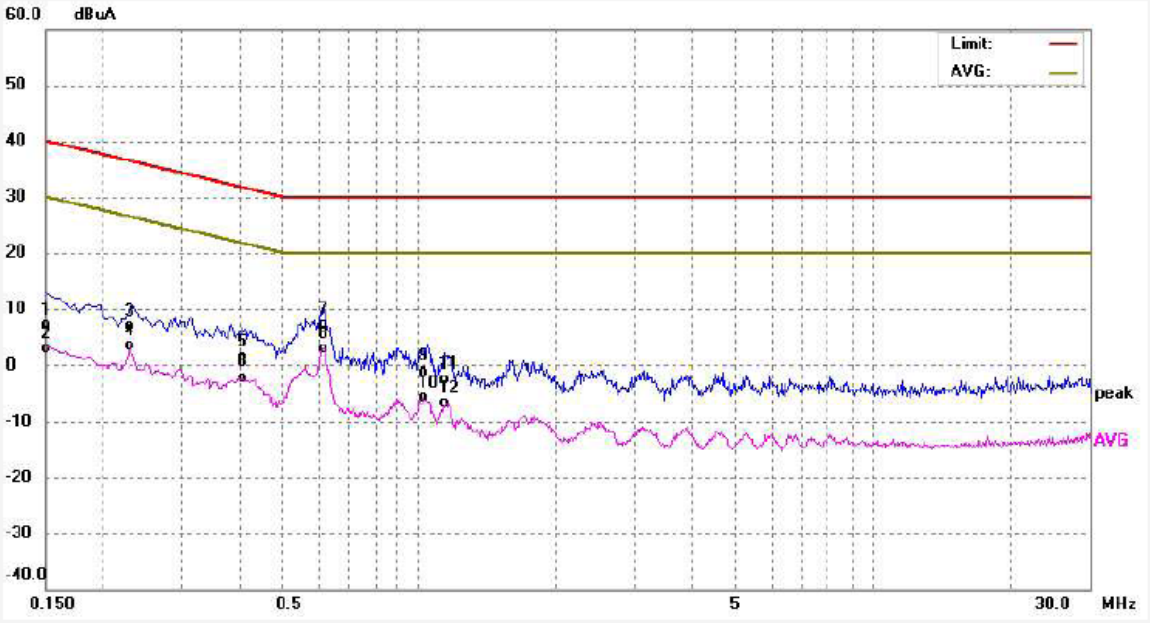
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1621	30.67	9.64	40.31	65.35	-25.04	QP	
2	0.1621	17.25	9.64	26.89	55.35	-28.46	AVG	
3	0.4461	27.19	9.63	36.82	56.95	-20.13	QP	
4	0.4461	19.66	9.63	29.29	46.95	-17.66	AVG	
5	0.6021	31.33	9.65	40.98	56.00	-15.02	QP	
6	0.6021	23.29	9.65	32.94	46.00	-13.06	AVG	
7	0.9141	27.50	9.66	37.16	56.00	-18.84	QP	
8	0.9141	20.12	9.66	29.78	46.00	-16.22	AVG	
9	1.6941	27.13	9.68	36.81	56.00	-19.19	QP	
10	1.6941	19.63	9.68	29.31	46.00	-16.69	AVG	
11	2.3781	25.54	9.69	35.23	56.00	-20.77	QP	
12	2.3781	17.93	9.69	27.62	46.00	-18.38	AVG	

Neutral Line



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1581	31.34	9.64	40.98	65.56	-24.58	QP	
2	0.1581	17.91	9.64	27.55	55.56	-28.01	AVG	
3	0.4221	26.61	9.63	36.24	57.41	-21.17	QP	
4	0.4221	23.87	9.63	33.50	47.41	-13.91	AVG	
5	0.6141	34.59	9.65	44.24	56.00	-11.76	QP	
6	0.6141	31.14	9.65	40.79	46.00	-5.21	AVG	
7	1.0341	27.45	9.66	37.11	56.00	-18.89	QP	
8	1.0341	24.32	9.66	33.98	46.00	-12.02	AVG	
9	1.6901	25.45	9.68	35.13	56.00	-20.87	QP	
10	1.6901	21.53	9.68	31.21	46.00	-14.79	AVG	
11	2.4181	23.98	9.69	33.67	56.00	-22.33	QP	
12	2.4181	20.38	9.69	30.07	46.00	-15.93	AVG	

5.1.5 Local Wired Ports Disturbance Current Test Data



No.	Freq. (MHz)	Reading (dBuA)	Factor (dB)	Result (dBuA)	Limit dBuA	Margin (dB)	Detector	Remark
1	0.1501	-32.99	40.21	7.22	39.99	-32.77	QP	
2	0.1501	-37.39	40.21	2.82	29.99	-27.17	AVG	
3	0.2300	-29.57	36.53	6.96	36.45	-29.49	QP	
4	0.2300	-33.25	36.53	3.28	26.45	-23.17	AVG	
5	0.4100	-30.92	32.40	1.48	31.65	-30.17	QP	
6	0.4100	-34.60	32.40	-2.20	21.65	-23.85	AVG	
7	0.6140	-22.31	29.47	7.16	30.00	-22.84	QP	
8	0.6140	-26.48	29.47	2.99	20.00	-17.01	AVG	
9	1.0260	-27.67	26.50	-1.17	30.00	-31.17	QP	
10	1.0260	-32.21	26.50	-5.71	20.00	-25.71	AVG	
11	1.1420	-28.74	26.30	-2.44	30.00	-32.44	QP	
12	1.1420	-33.02	26.30	-6.72	20.00	-26.72	AVG	

5.2 Radiated Disturbance, 9kHz to 30MHz

Test Requirement..... : BS EN IEC 55015

Test Method..... : CISPR 16-2-3 and Clause 9.3.2 of BS EN IEC 55015

Test Result..... : Pass

Frequency Range..... : 9kHz to 30MHz

Class/Severity..... : Table 7 and Table 8 of BS EN IEC 55015

5.2.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 23.5°C

Humidity..... : 57%RH

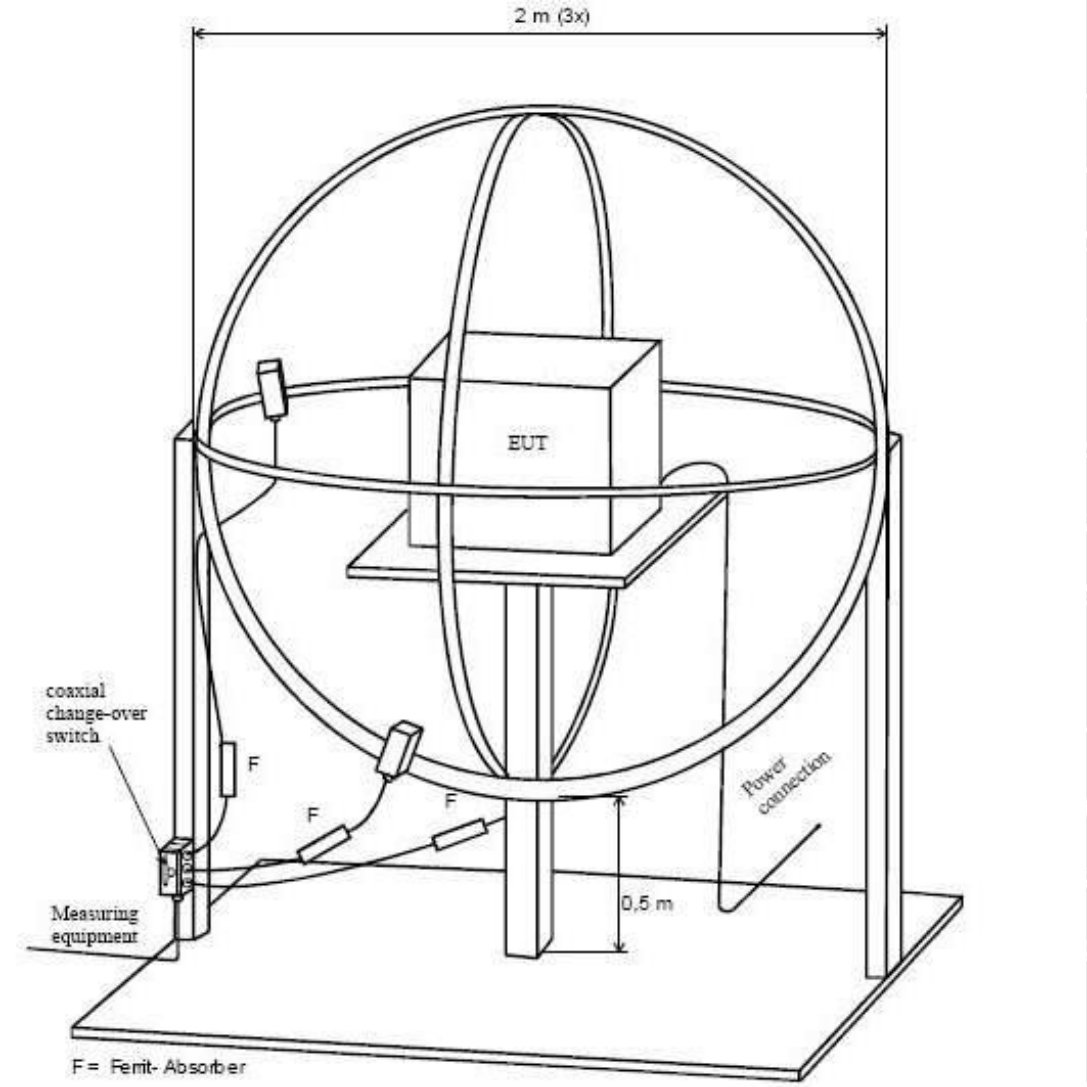
EUT Operation:

Input Voltage ..... : 230V~, 50Hz

Operating Mode..... : On mode

5.2.2 Block Diagram of Test Setup

The Radiated Disturbance (9kHz to 30MHz) test was performed in accordance with the BS EN IEC 55015 standards.

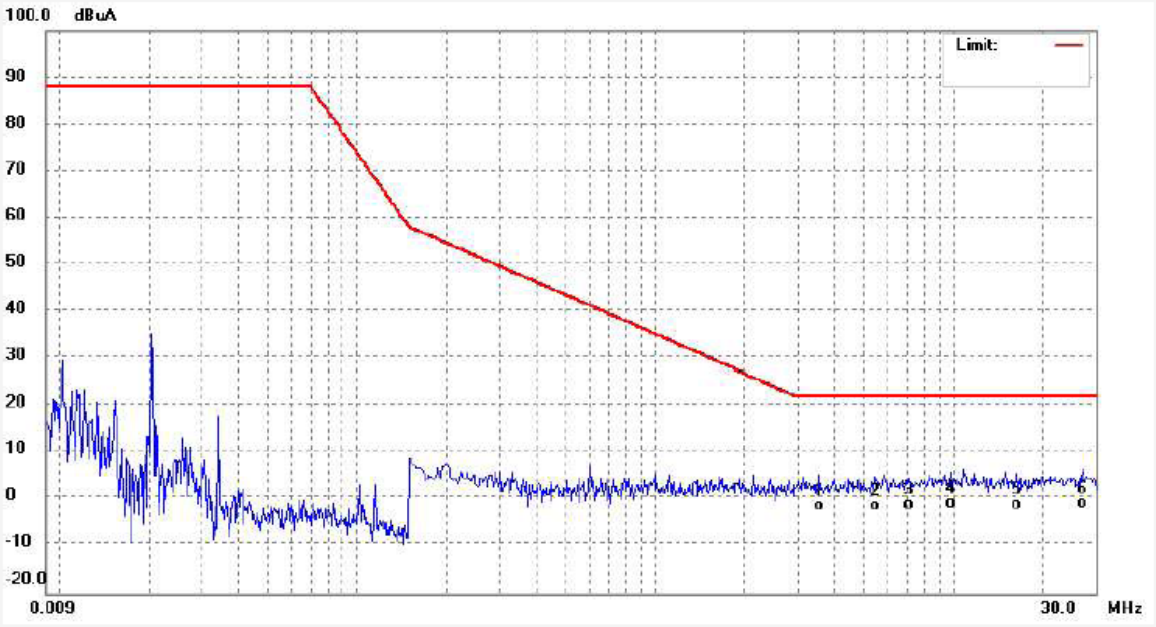


5.2.3 Measurement Data

According to the data in section 5.2.4, the EUT complied with the BS EN IEC 55015 standards.

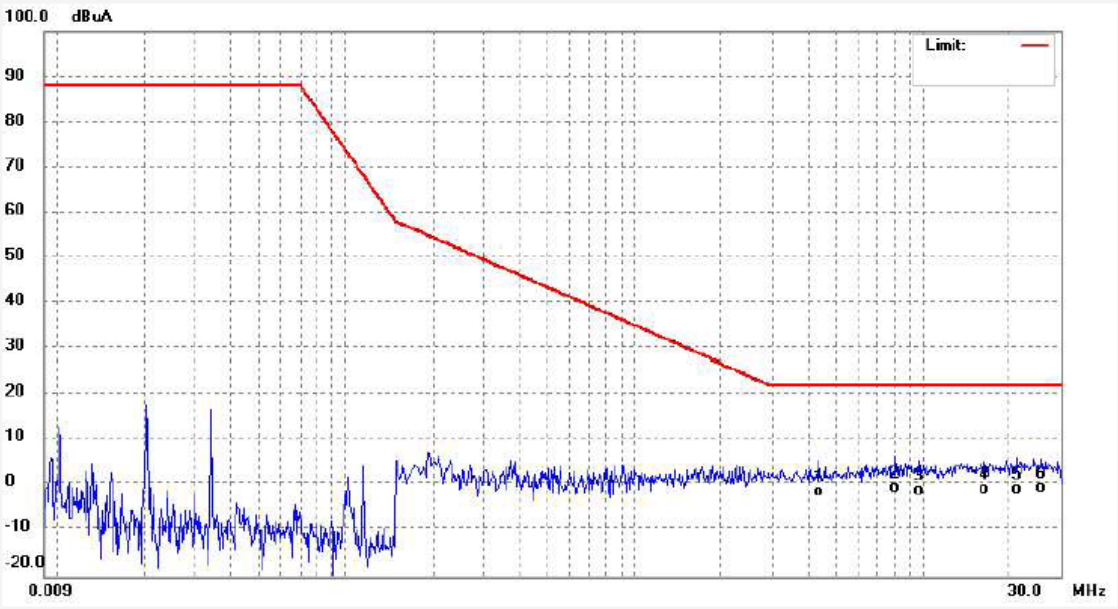
5.2.4 Radiated Disturbance Test Data, 9kHz to 30MHz

Loop X



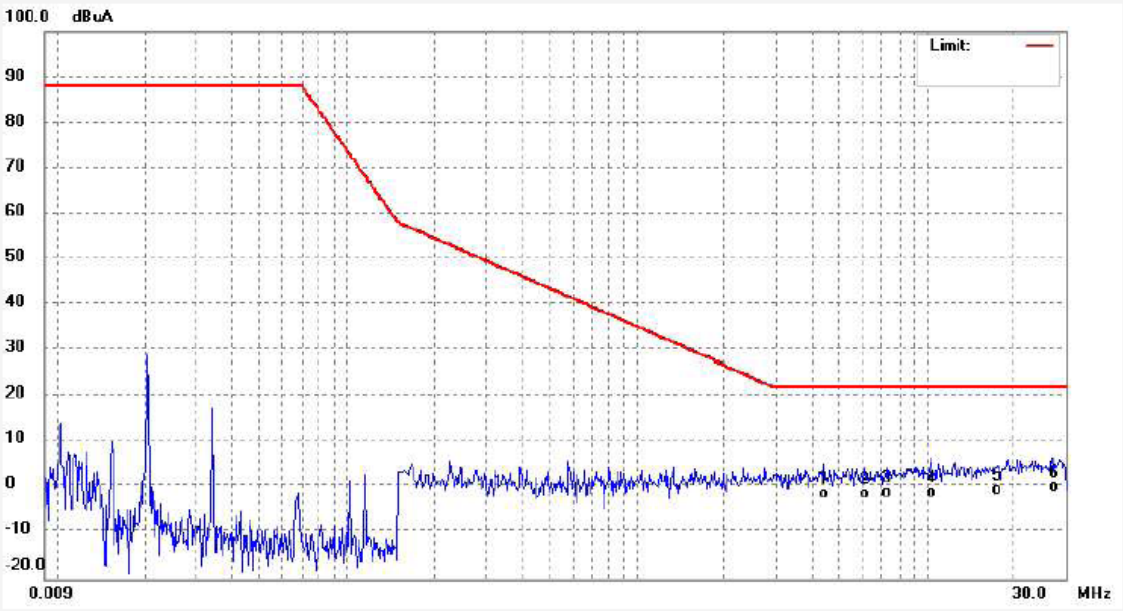
No.	Freq. (MHz)	Reading (dBuA)	Factor (dB)	Result (dBuA)	Limit dBuA	Margin (dB)	Detector	Remark
1	3.5581	-34.78	33.53	-1.25	22.00	-23.25	QP	
2	5.4780	-34.86	33.72	-1.14	22.00	-23.14	QP	
3	7.1061	-34.75	33.73	-1.02	22.00	-23.02	QP	
4	9.8061	-34.40	33.81	-0.59	22.00	-22.59	QP	
5	16.4461	-34.78	33.97	-0.81	22.00	-22.81	QP	
6	27.0341	-34.19	33.69	-0.50	22.00	-22.50	QP	

Loop Y



No.	Freq. (MHz)	Reading (dBuA)	Factor (dB)	Result (dBuA)	Limit dBuA	Margin (dB)	Detector	Remark
1	4.3541	-34.90	33.59	-1.31	22.00	-23.31	QP	
2	8.0221	-33.90	33.70	-0.20	22.00	-22.20	QP	
3	9.6861	-34.59	33.79	-0.80	22.00	-22.80	QP	
4	16.4100	-34.76	33.97	-0.79	22.00	-22.79	QP	
5	21.0621	-34.64	33.96	-0.68	22.00	-22.68	QP	
6	25.8621	-34.23	33.75	-0.48	22.00	-22.48	QP	

Loop Z



No.	Freq. (MHz)	Reading (dBuA)	Factor (dB)	Result (dBuA)	Limit dBuA	Margin (dB)	Detector	Remark
1	4.4061	-34.91	33.60	-1.31	22.00	-23.31	QP	
2	6.0741	-35.05	33.76	-1.29	22.00	-23.29	QP	
3	7.2781	-34.60	33.66	-0.94	22.00	-22.94	QP	
4	10.2861	-34.69	33.84	-0.85	22.00	-22.85	QP	
5	17.4741	-34.74	34.28	-0.46	22.00	-22.46	QP	
6	27.4461	-34.21	34.37	0.16	22.00	-21.84	QP	

5.3 Radiated Disturbance, 30MHz to 1GHz

Test Requirement..... : BS EN IEC 55015

Test Method..... : CISPR 16-2-3

Test Result..... : Pass

Frequency Range..... : 30MHz to 1GHz

Class/Severity..... : Table 10 of BS EN IEC 55015

5.3.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 21.7°C

Humidity..... : 53%RH

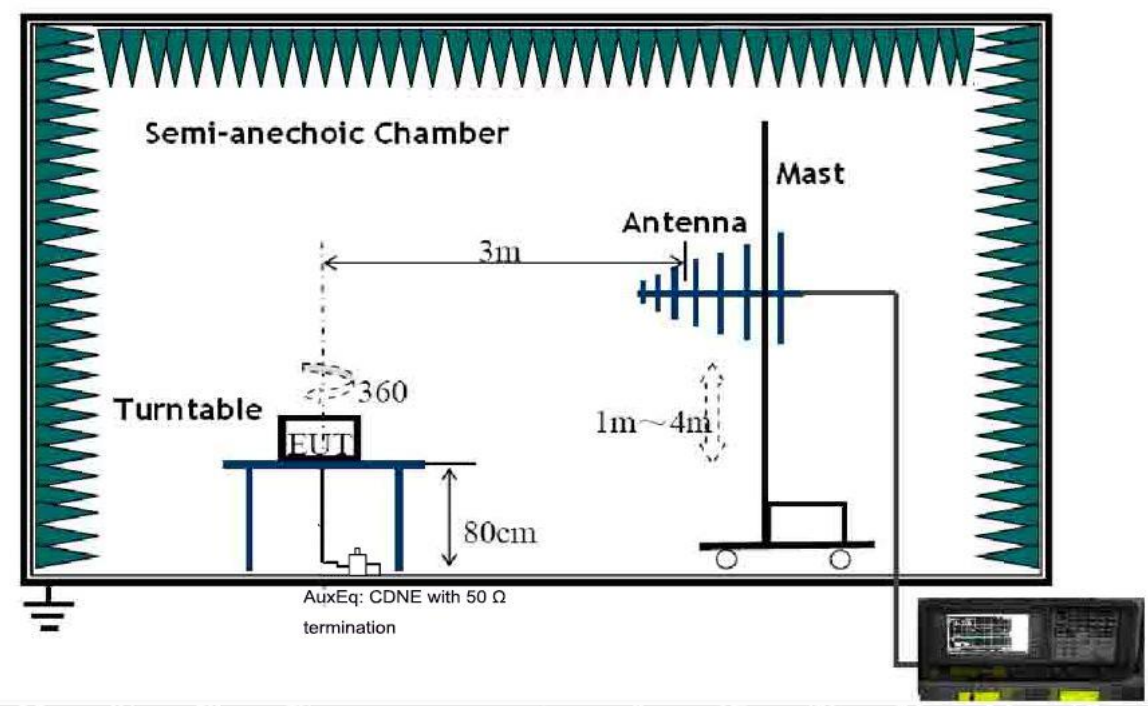
EUT Operation :

Input Voltage ..... : 230V~, 50Hz

Operating Mode..... : On mode

5.3.2 Block Diagram of Setup

The Radiated Disturbance tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the CISPR 16-2-3.

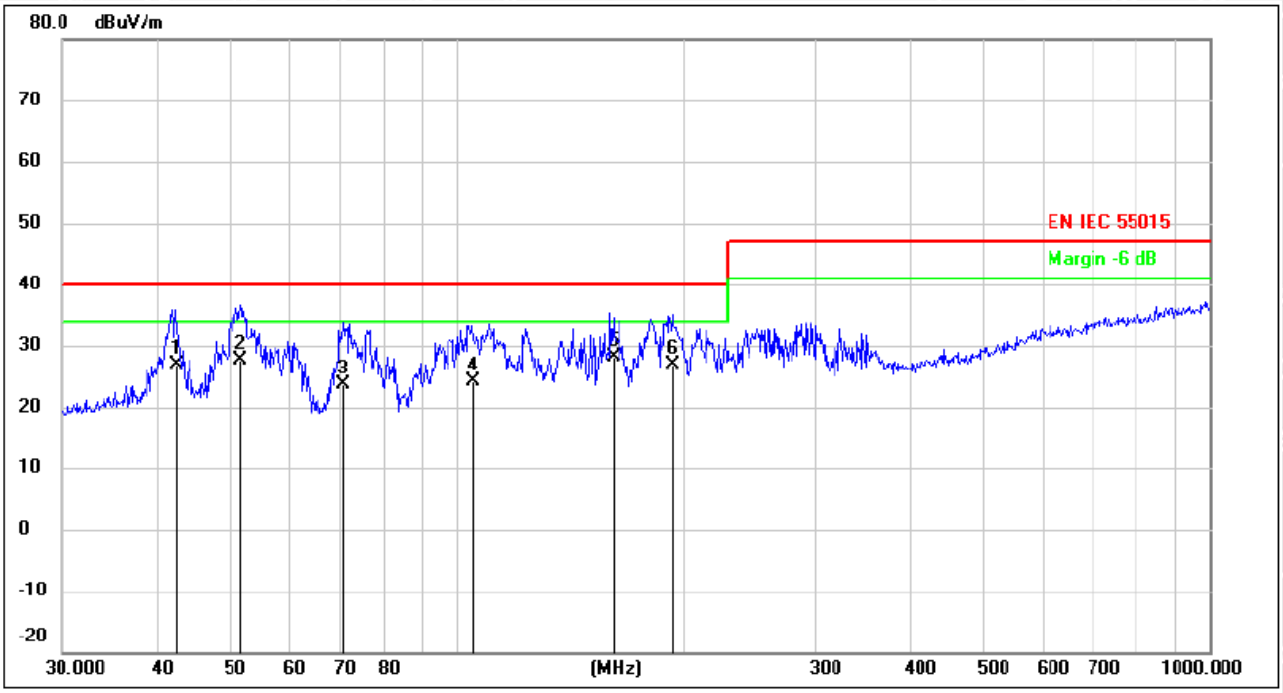


5.3.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for Horizontal & Vertical polarisation. Quasi-peak measurements were performed if peak emissions were within 6dB of the limit line. According to the data in section 5.3.4, the EUT complied with the BS EN IEC 55015 standards.

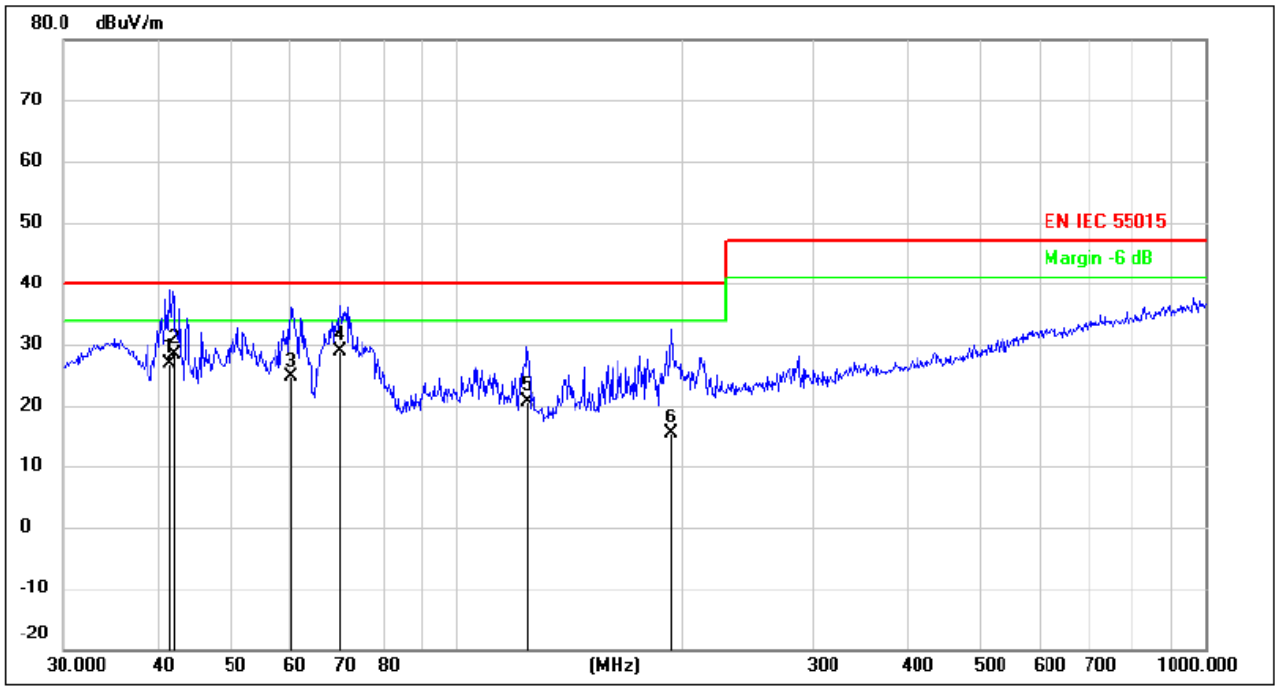
5.3.4 Radiated Disturbance Test Data, 30MHz to 1GHz

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	42.3021	13.12	13.87	26.99	40.00	-13.01	QP
2	51.6615	13.42	14.32	27.74	40.00	-12.26	QP
3	70.8315	13.89	9.77	23.66	40.00	-16.34	QP
4	104.9033	11.67	12.49	24.16	40.00	-15.84	QP
5	161.4741	18.60	9.51	28.11	40.00	-11.89	QP
6	193.7727	14.82	12.01	26.83	40.00	-13.17	QP

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	41.4215	13.16	13.70	26.86	40.00	-13.14	QP
2	41.8596	14.58	13.79	28.37	40.00	-11.63	QP
3	60.2801	11.62	13.08	24.70	40.00	-15.30	QP
4	70.0903	18.85	10.00	28.85	40.00	-11.15	QP
5	124.1330	10.60	10.09	20.69	40.00	-19.31	QP
6	193.7728	3.31	12.01	15.32	40.00	-24.68	QP

5.4 Harmonic Current Emissions

Test Requirement..... : BS EN IEC 61000-3-2

Test Method..... : BS EN IEC 61000-3-2

Test Result..... : N/A

Class/Severity..... : Class C

According to the Clause 7.1 in the BS EN IEC 61000-3-2 Limits for Class C equipment:

"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;"

The maximum rated input of the samples is less than 5W, so the limits of harmonics on AC main are not applied to the samples.

5.5 Voltage Changes, Voltage Fluctuation and Flicker

Test Requirement..... : BS EN 61000-3-3

Test Method..... : BS EN 61000-3-3

Test Result..... : Pass

According to BS EN 61000-3-3 which states:'' Incandescent lamp luminaires with ratings less than or equal to 1000 W and discharge and LED lamp luminaires with ratings less than or equal to 600 W, are deemed to comply with the dc, dmax and Tmax limits in this standard and are not required to be tested. And the EUT with ratings less than or eaual to 600 W, are deemed to comply with the dc, dmax and Tmax limits in this standard and are not required to be tested."

6 Immunity Test Results

6.1 Performance Criteria

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.

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. 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.

Performance criterion C: During and after the test, any change of the luminous intensity is allowed and the lamp(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.

6.2 Electrostatic Discharge (ESD)

Test Requirement.....	:	BS EN 61547
Test Method.....	:	IEC 61000-4-2
Test Result.....	:	Pass
Discharge Impedance.....	:	330Ω / 150pF
Discharge Voltage.....	:	Air Discharge: ±8kV Contact Discharge: ±4kV HCP & VCP: ±4kV
Polarity.....	:	Positive & Negative
Number of Discharge.....	:	Minimum 10 times at each test point
Discharge Mode	:	Single Discharge
Discharge Period.....	:	1 second minimum

6.2.1 E.U.T. Operation

Operating Environment:

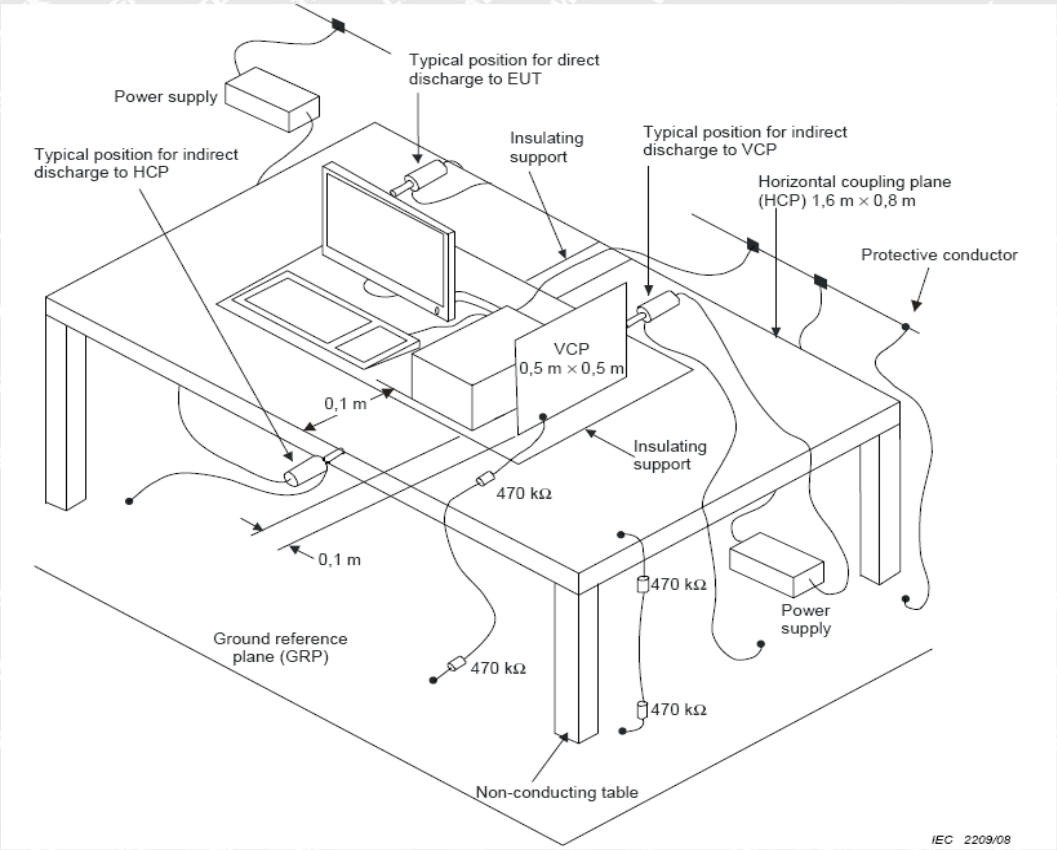
Temperature	:	23.6°C
Humidity	:	47.5%RH
Barometric Pressure	:	102.6kPa

EUT Operation:

Input Voltage.....	:	230V~, 50Hz
Operating Mode	:	On mode

6.2.2 Block Diagram of Setup

The ESD test was performed in accordance with the IEC 61000-4-2.



6.2.3 Direct Discharge Test Results

Observations: **Test points:** **1. All Exposed Surface & Seams;**
2. All metallic part

Direct Discharge			Test Results		
Applied Voltage (kV)	**Performance Criterion**	**Test Point**	**Contact Discharge**	**Air Discharge**	**Actual performance**
±2, ±4, ±8	B	1	N/A	Pass*	A
±4	B	2	Pass*	N/A	A

Remark:

* During the test no deviation was detected to the selected operation mode(s)

6.2.4 Indirect Discharge Test Results

Observations: **Test points:** **1. All sides.**

Indirect Discharge			Test Results		
Applied Voltage (kV)	Performance Criterion	Test Point	Horizontal Coupling	Vertical Coupling	Actual performance
±4	B	1	Pass*	Pass*	A

Remark:

* During the test no deviation was detected to the selected operation mode(s)

6.3 Radio-frequency Electromagnetic Fields, 80MHz to 1GHz

Test Requirement..... : BS EN 61547

Test Method..... : IEC 61000-4-3

Test Result..... : Pass

Frequency Range..... : 80MHz to 1GHz

Test level..... : 3V/m

Modulation..... : 80%, 1kHz Amplitude Modulation.

Face of EUT..... : Front, Back, Left, Right

Antenna polarisation..... : Horizontal& Vertical

6.3.1E.U.T. Operation

Operating Environment:

Temperature..... : 23.6°C

Humidity..... : 47.5%RH

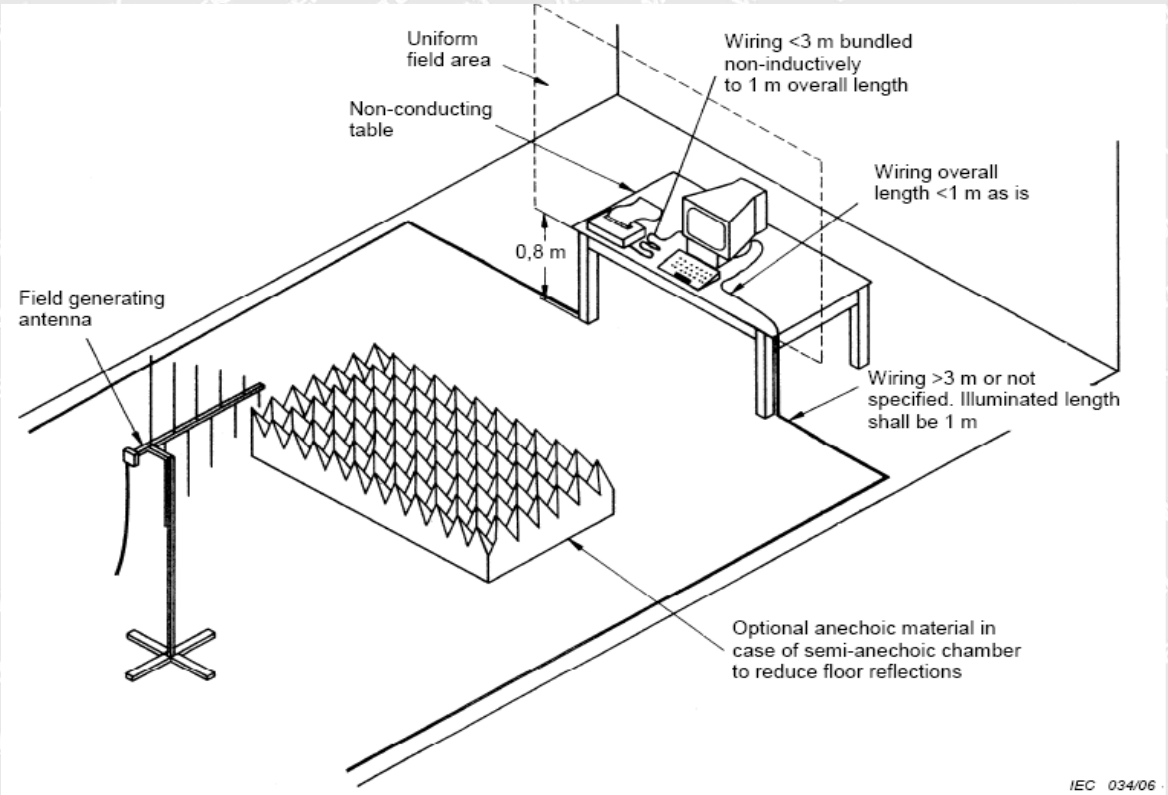
EUT Operation:

Input Voltage..... : 230V~, 50Hz

Operating Mode..... : On mode

6.3.2 Block Diagram of Setup

The Radio-frequency Electromagnetic Fields Immunity test was performed in accordance with the IEC 61000-4-3.



6.3.3 Test Results

Frequency	Face of EUT	Antenna polarisation	Test Level	Step Size	Dwell Time	Performance Criterion	Result	Actual perfor-mance
80 to 1000MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	3s	A	Pass*	A
80 to 1000MHz	Front, Back, Left, Right	Vertical	3V/m	1%	3s	A	Pass*	A

Remark:

* During the test no deviation was detected to the selected operation mode(s)

6.4 Fast Transients (EFT)

Test Requirement..... : BS EN 61547

Test Method..... : IEC 61000-4-4

Test Result..... : Pass

Test Level..... : 1.0kV on AC Mains, 0.5kV on signal/control lines

Polarity..... : Positive & Negative

Repetition Frequency.... : 5kHz

Burst Duration..... : 300ms

Test Duration..... : 2 minutes per level & polarity

6.4.1E.U.T. Operation

Operating Environment:

Temperature..... : 23.6°C

Humidity..... : 47.5%RH

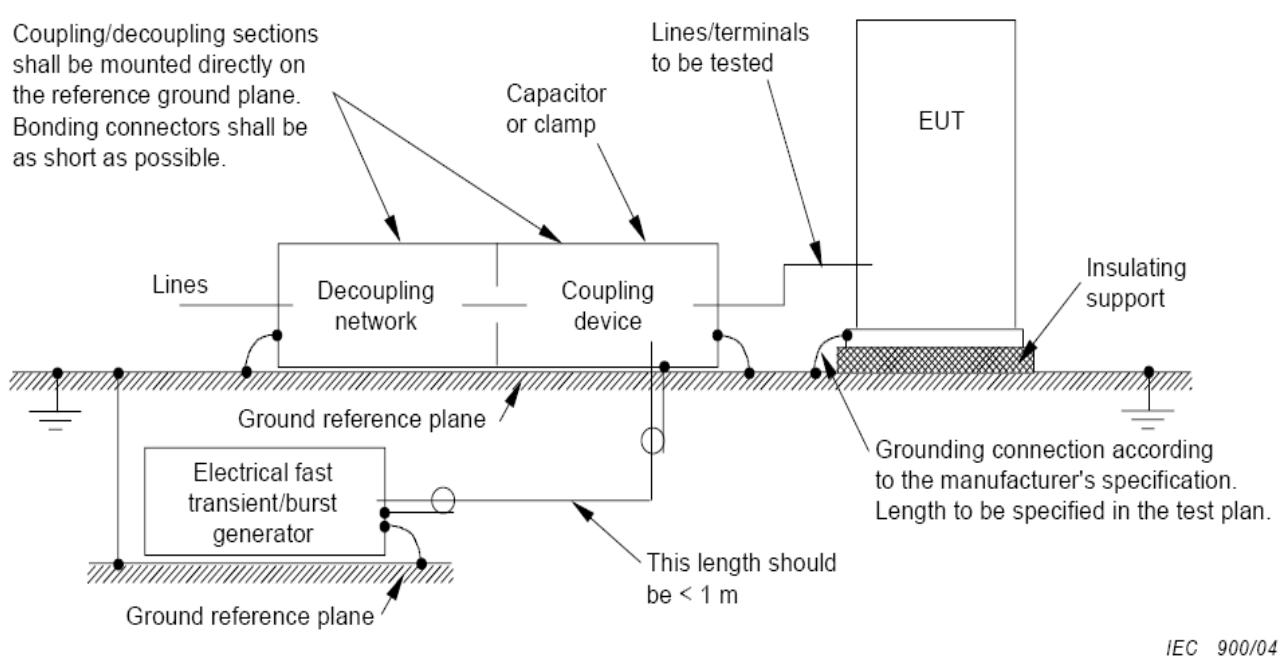
EUT Operation:

Input Voltage..... : 230V~, 50Hz

Operating Mode..... : On mode

6.4.2 Block Diagram of Setup

The Fast Transients Immunity test was performed in accordance with the IEC 61000-4-4.



6.4.3 Test Results

Test Port	Test Level(kV)	Performance Criterion	Result	Actual performance
Line-Neutral	±1.0	B	Pass*	A
Signal and Control Lines	±0.5	B	Pass*	A

Remark:

* During the test no deviation was detected to the selected operation mode(s)

6.5 Surges

Test Requirement..... : BS EN 61547

Test Method..... : IEC 61000-4-5

Test Result..... : Pass

Test level..... : Table 10 of BS EN 61547

Interval ..... : 60s between each surge

No. of surges ..... : 5 positive at 90°, 5 negative at 270°.

6.5.1E.U.T. Operation

Operating Environment:

Temperature ..... : 23.6°C

Humidity..... : 47.5%RH

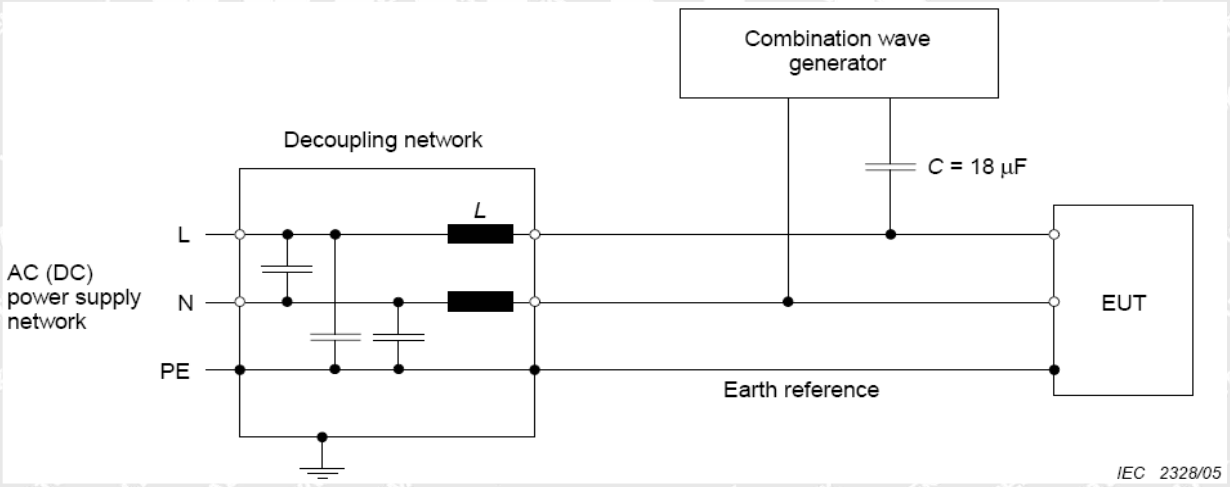
EUT Operation:

Input Voltage ..... : 230V~, 50Hz

Operating Mode..... : On mode

6.5.2Block Diagram of Setup

The Surges Immunity test was performed in accordance with the IEC 61000-4-5.



6.5.3Test Results

Test Port	Applied Voltage (kV)	Performance criterion	Result	Actual performance
Between Live And Neutral	±0.5	C	Pass*	A
Between Live And Earth	±0.5/1	C	N/A	N/A
Between Neutral And Earth	±0.5/1	C	N/A	N/A

Remark:

* During the test no deviation was detected to the selected operation mode(s)

6.6 Injected Currents Immunity, 0.15MHz to 80MHz

Test Requirement..... : BS EN 61547

Test Method..... : IEC 61000-4-6

Test Result..... : Pass

Frequency Range..... : 0.15MHz to 80MHz

Test level..... : 3V r.m.s. (unmodulated emf into 150 Ω)

Modulation..... : 80%, 1kHz Amplitude Modulation.

6.6.1E.U.T. Operation

Operating Environment:

Temperature ..... : 23.6°C

Humidity..... : 50.2%RH

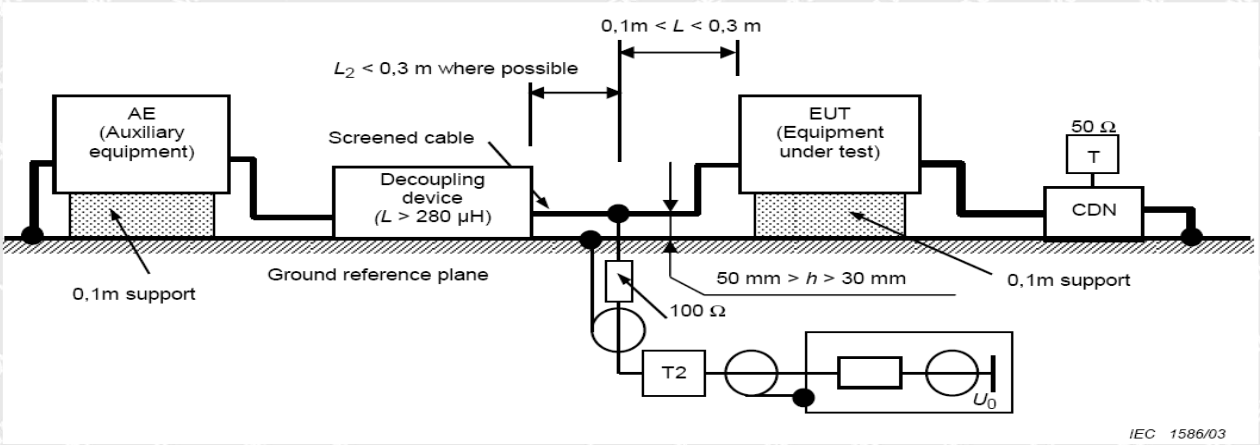
EUT Operation:

Input Voltage ..... : 230V~, 50Hz

Operating Mode..... : On mode

6.6.2 Block Diagram of Setup

The Injected Currents Immunity test was performed in accordance with the IEC 61000-4-6.



6.6.3Test Results

Frequency	Line	Test Level	Modulation	Step Size	Dwell Time	Performance Criterion	Result	Actual performance
0.15MHz to 80MHz	2 Wire AC Supply Cables	3Vr.m.s.	80%, 1kHz Amp. Mod.	1%	3s	A	Pass*	A
0.15MHz to 80MHz	Signal and Control Lines	3Vr.m.s.	80%, 1kHz Amp. Mod.	1%	3s	A	Pass*	A

Remark:

* During the test no deviation was detected to the selected operation mode(s)

6.7 Voltage Dips and Interruptions

Test Requirement..... : BS EN 61547

Test Method..... : IEC 61000-4-11

Test Result..... : Pass

Test Level(Voltage reduction) : 0%&70 % of U_T (Supply Voltage)

No. of Dips / Interruptions..... : 1 per Level at 20ms intervals

E.U.T. Operation

Operating Environment:

Temperature ..... : 23.6°C

Humidity..... : 47.5%RH

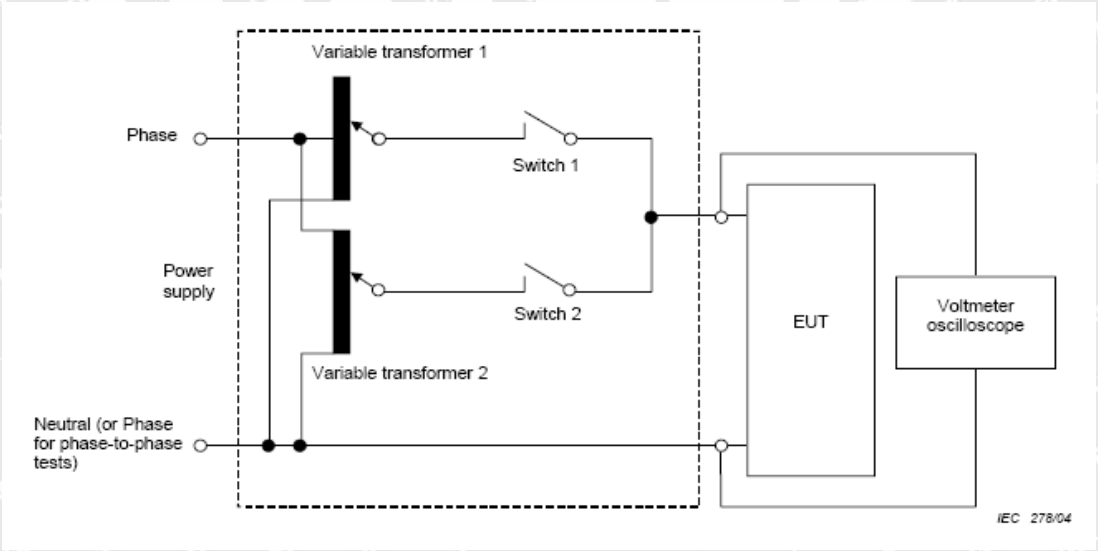
EUT Operation:

Input Voltage ..... : 230V~, 50Hz

Operating Mode..... : On mode

6.7.1 Block Diagram of Setup

The Voltage Dips and Interruptions Immunity test was performed in accordance with the IEC 61000-4-11.



6.7.2 Test Results

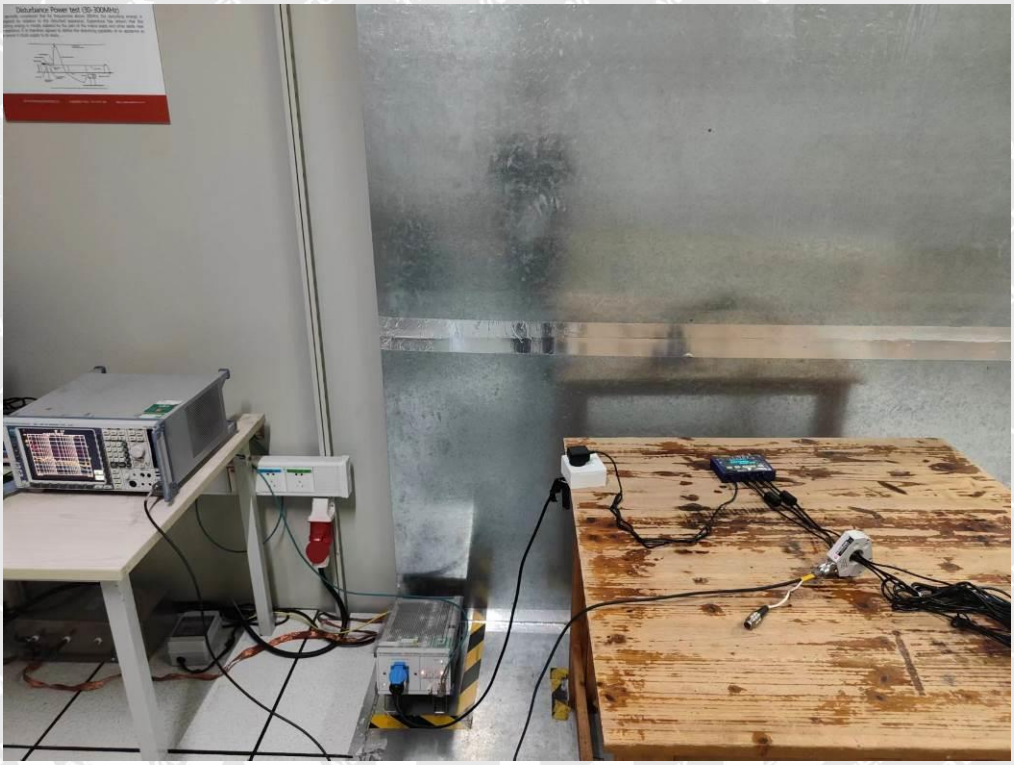
Test Level in %U_T	Phase	Performance criterion	Duration	Result	Actual performance
0	0° & 180°	B	0.5	Pass*	A
70	0° & 180°	C	10	Pass*	A

Remark:

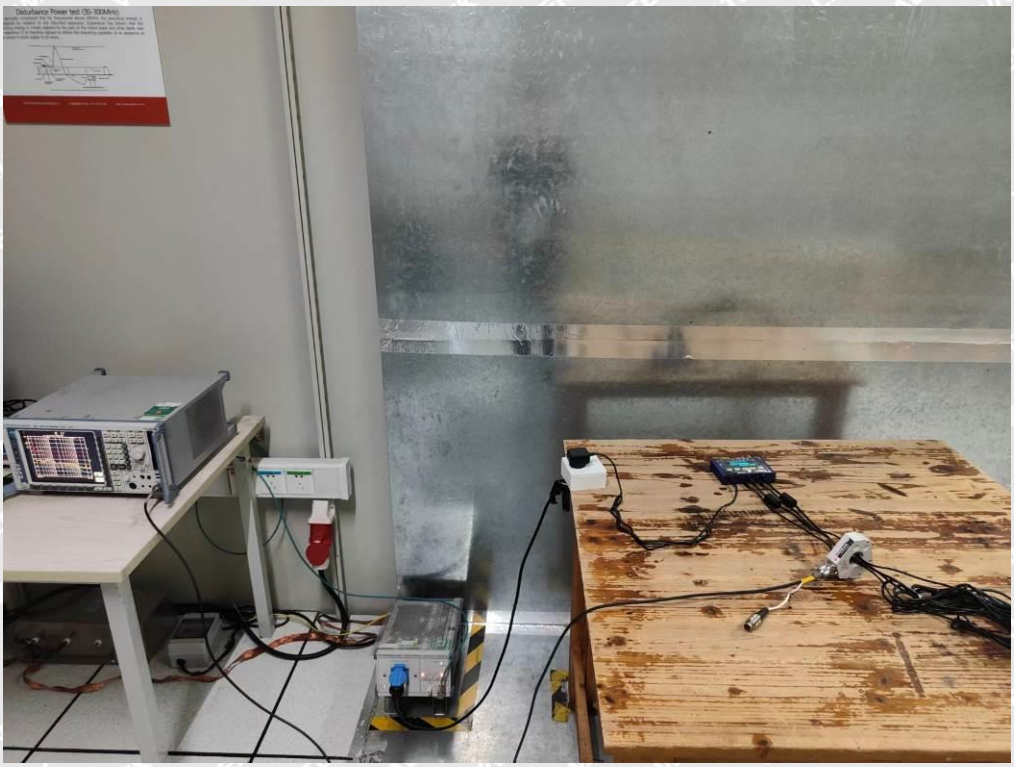
* During the test no deviation was detected to the selected operation mode(s).

7 Photographs – Test Setup

7.1 Photograph – Electric Power Supply Interface Disturbance Voltage Test Setup

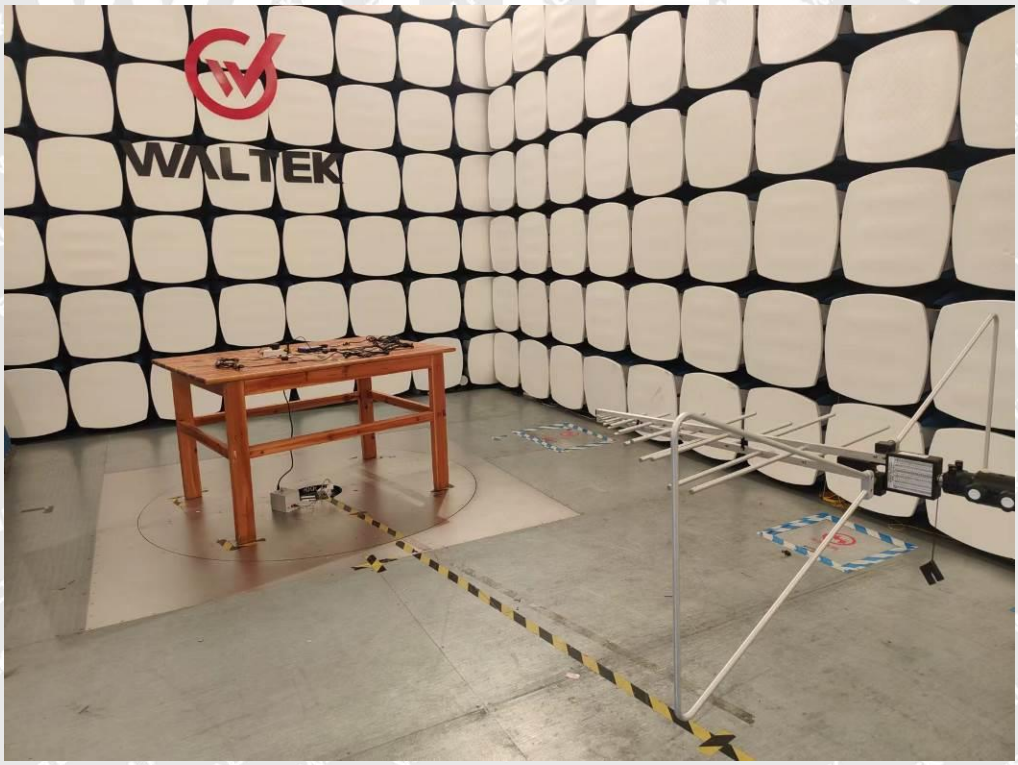


7.2 Photograph – Local Wired Ports Disturbance Current Test Setup



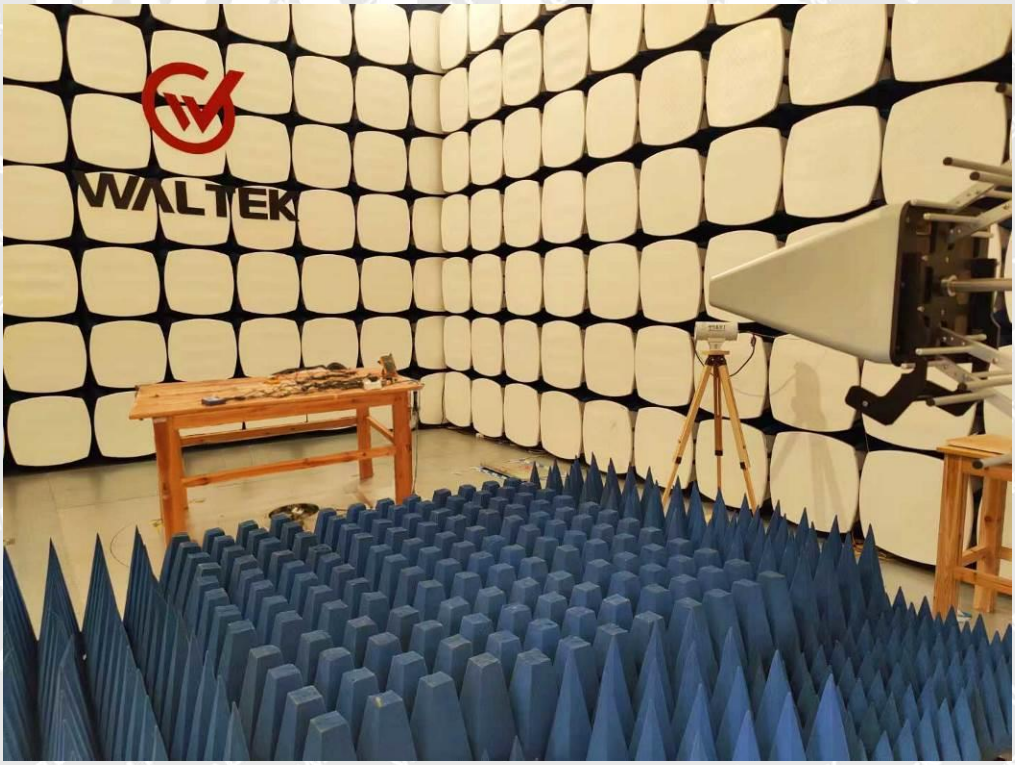
7.3 Photograph – Radiated Disturbance Test Setup, 9kHz to 30MHz

7.4 Photograph – Radiated Disturbance Test Setup, 30MHz to 1GHz



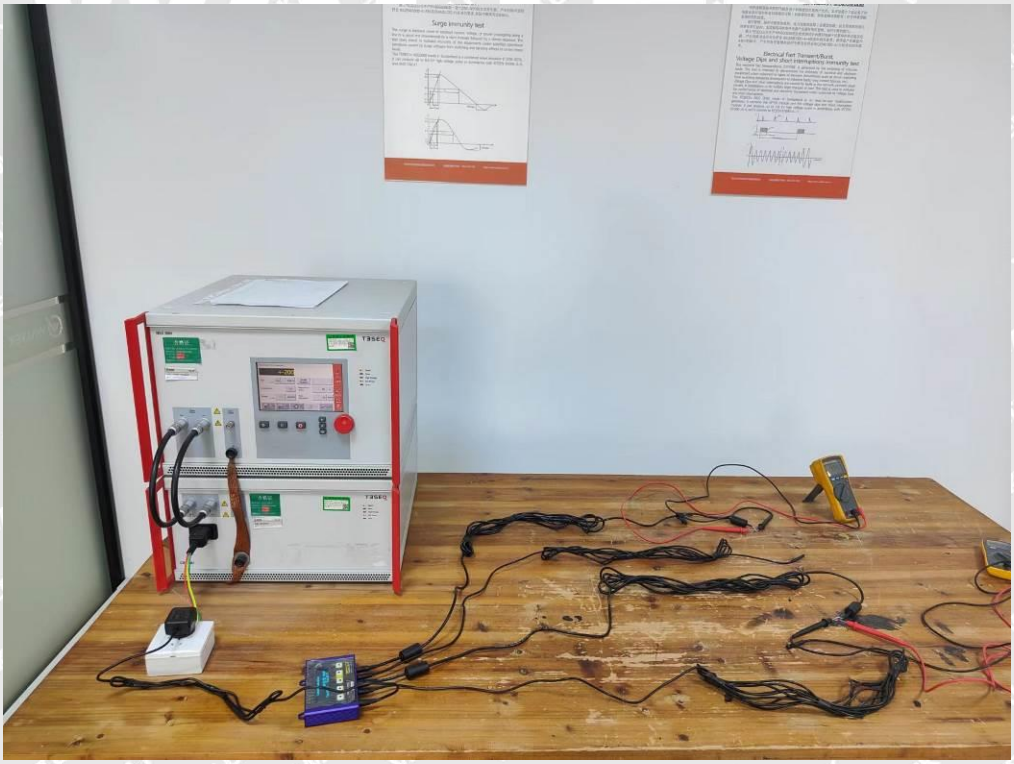
7.5 Photograph – ESD Immunity Test Setup

7.6 Photograph – Radio-frequency Electromagnetic Fields Immunity Test Setup

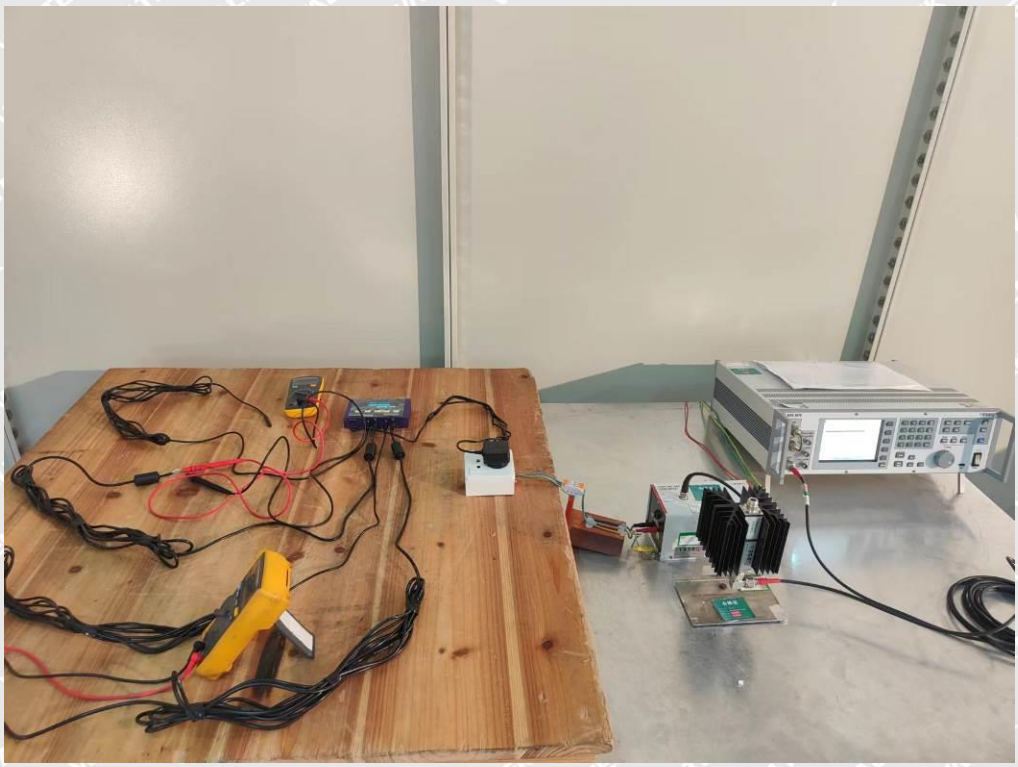


7.7 Photograph – EFT & Voltage Dips and Interruptions Immunity Test Setup

7.8 Photograph – Surges Immunity Test Setup



7.9 Photograph – Injected Currents Immunity Test Setup



8 Photographs – Constructional Details

8.1 EUT – Appearance View

======End of Report======