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检测
TESTING
CNAS L6478

TEST REPORT

Reference No.	:	WTF18F01100566E
Applicant	:	Mid Ocean Brands B.V.
Address	:	Unit 201, 2/F, Laford Centre, 838 Lai Chi Kok Road, Cheung Sha Wan, Kowloon, Hong Kong.
Manufacturer	:	114628
Product Name	:	wireless charging pad
Model No.	:	MO9309
Standards	:	EN 55011:2016 EN 61000-6-1:2007
Date of Receipt sample	:	2017-11-13
Date of Test	:	2017-11-14 to 2017-11-24
Date of Issue	:	2018-01-20
Test Report Form No.	:	WEO-55011A-01A
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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WALTEK SERVICES CO., LTD. WALTEK TEST REPORT

1 Test Summary

EMISSION (EN 55011:2016)			
Test Item	**Test Standard**	**Class / Severity**	**Result**
Radiation Emission	EN 55011:2016	Table 12	Pass

IMMUNITY (EN 61000-6-1:2007)				
Test Item	**Test Method**	**Class / Severity**	**Performance Criteria**	**Result**
Electrostatic Discharge(ESD)	IEC 61000-4-2:2008	±4 kV Contact ±8 kV Air	B	Pass
Radio-frequency electromagnetic fields (80MHz to 1GHz)	IEC 61000-4-3:2010	3V/m, 80%, 1kHz, Amp. Mod.	A	Pass
Radio-frequency electromagnetic fields (1.4GHz to 2.0GHz)	IEC 61000-4-3:2010	3V/m, 80%, 1kHz, Amp. Mod.	A	Pass
Radio-frequency electromagnetic fields (2.0GHz to 2.7GHz)	IEC 61000-4-3:2010	3V/m, 80%, 1kHz, Amp. Mod.	A	Pass

Remark:

Pass Test item meets 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	:	wireless charging pad
Model No.	:	MO9309
Remark	:	---

3.2 Details of E.U.T.

Technical Data	:	Input: DC 5V, 1.5A Output: DC 5V, 1A

3.3 Description of Support Units

The EUT has been tested as an independent unit. MO9309 is the test sample. All tests were performed in the condition of DC 5V input.

3.4 Standards Applicable for Testing

The tests were performed according to following standards:

EN 55011:2016	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
EN 61000-6-1:2007	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments

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: Radiation Emissio; ESD; Radio-frequency electromagnetic fields

Lab information: Waltek Services (Shenzhen) Co.,Ltd.

3.6 Abnormalities from Standard Conditions

None.

3.7 Other

This report is based on report No. WTF17S1195071E for adding applicant. Therefore it do not affect the EMC test items,the EUT is deemed to fulfil all the requirements and no further test has been performed.

4 Equipment Used during Test

Radiated Emission					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1.	Test Receiver	R&S	ESCI	101296	Valid
2.	Trilog Broadband Antenna	SCHWARZBECK	VULB 9160	9160-3325	Valid
3.	Amplifier	ANRITSU	MH648A	M43381	Valid
ESD					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1.	ESD Simulator	SCHLODER	SESD 216	606144	Valid
Radio-frequency electromagnetic fields					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
5.	signal generator	R&S	SMB100A	105942	Valid
1.	RF Power Amplifier	BONN Elektronik	BLWA0830-160/100/40D	128740	Valid
3.	Gestockte Breitband (Stacked) Log.-per. Antenna	SCHWARZBECK	STLP9128D	043	Valid
4.	Power Meter	R&S	NRP2	102031	Valid

4.1 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Radiated Emission	30MHz~1000MHz	±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 Radiated Emission

Test Requirement..... : EN 55011

Test Method..... : EN 55011

Test Limit..... : Table 12 of EN 55011

Test Result..... : Pass

Frequency Range..... : 0.15MHz to 30MHz, 30MHz to 1000MHz

5.1.1 E.U.T. Operation

Operating Environment:

Temperature..... : 23°C

Humidity..... : 53.8%RH

Atmospheric Pressure..... : 101.5 kPa

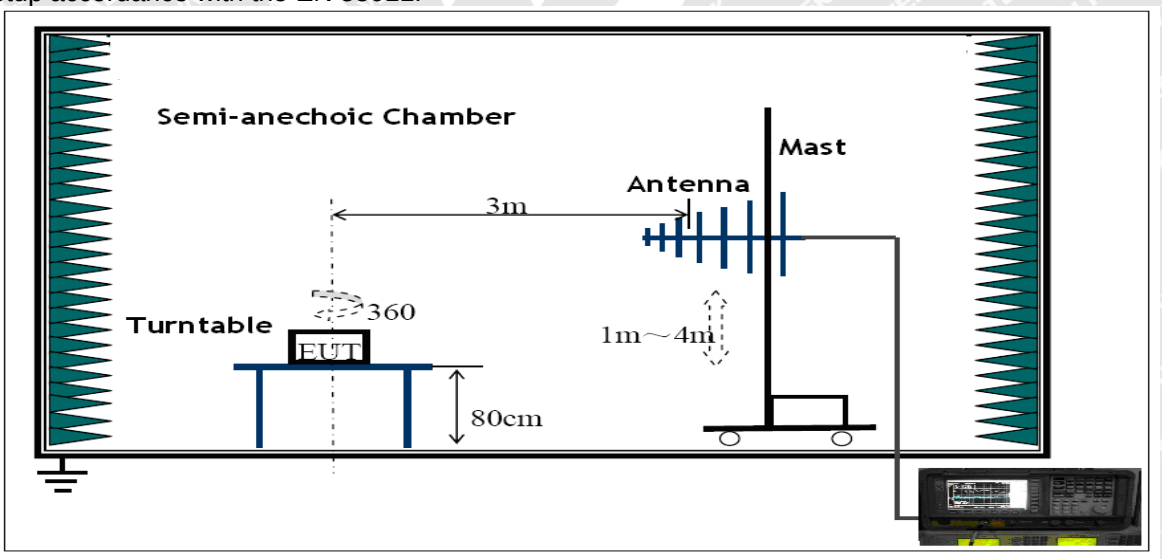
EUT Operation:

Input Voltage..... : DC 5V

Operating Mode..... : Discharging mode

5.1.2 Block Diagram of Test Setup

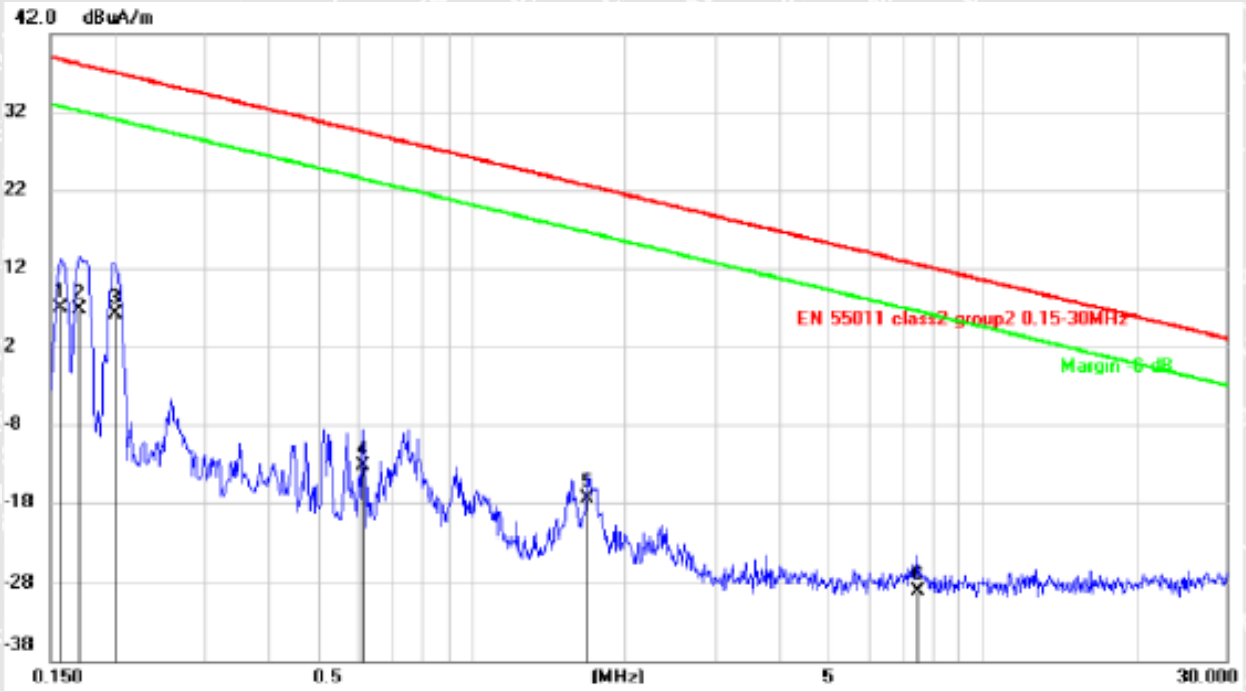
The Radiated Emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the EN 55011.



5.1.3 Radiated Emission Test Data, 0.15MHz to 30MHz

According to the data in section 5.1.3, the EUT complied with the EN 55011 standards.

Vertical Polarization



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree
		MHz	dBuA/m	dB	dBuA/m	dBuA/m	dB	Detector	cm	degree
1		0.1573	39.10	-32.16	6.94	38.68	-31.74	QP	100	0
2		0.1712	38.74	-32.09	6.65	38.10	-31.45	QP	100	360
3	*	0.1997	38.07	-31.95	6.12	37.06	-30.94	QP	100	0
4		0.6140	18.63	-31.85	-13.22	29.42	-42.64	QP	100	360
5		1.6891	14.07	-31.63	-17.56	22.55	-40.11	QP	100	0
6		7.4465	3.10	-32.25	-29.15	12.47	-41.62	QP	100	360

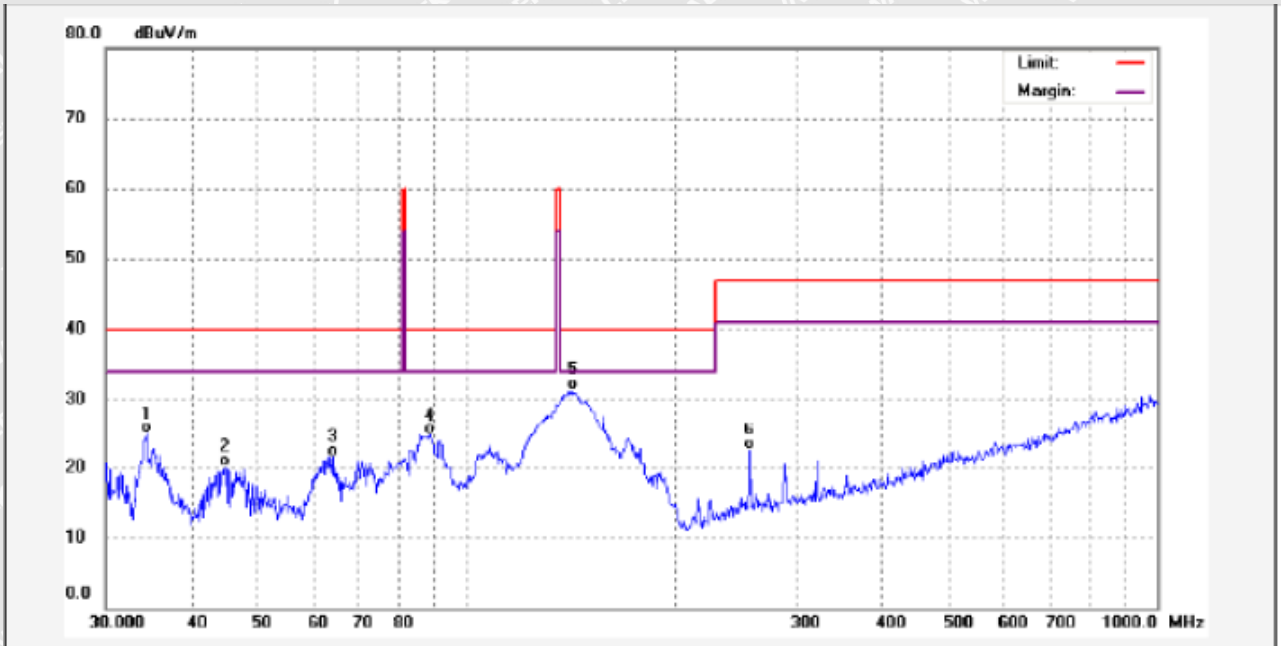
Horizontal Polarization

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree
		MHz	dBuA/m	dB	dBuA/m	dBuA/m	dB	Detector	cm	degree
1		0.1582	32.28	-32.16	0.12	38.64	-38.52	QP	100	360
2		0.1768	31.28	-32.07	-0.79	37.88	-38.67	QP	100	0
3	*	0.2029	31.58	-31.94	-0.36	36.95	-37.31	QP	100	360
4		0.3933	24.68	-31.76	-7.08	32.45	-39.53	QP	100	0
5		0.7549	20.74	-31.90	-11.16	28.02	-39.18	QP	100	360
6		1.5935	13.39	-31.64	-18.25	22.94	-41.19	QP	100	0

5.1.4 Radiated Emission Test Data, 30MHz to 1000MHz

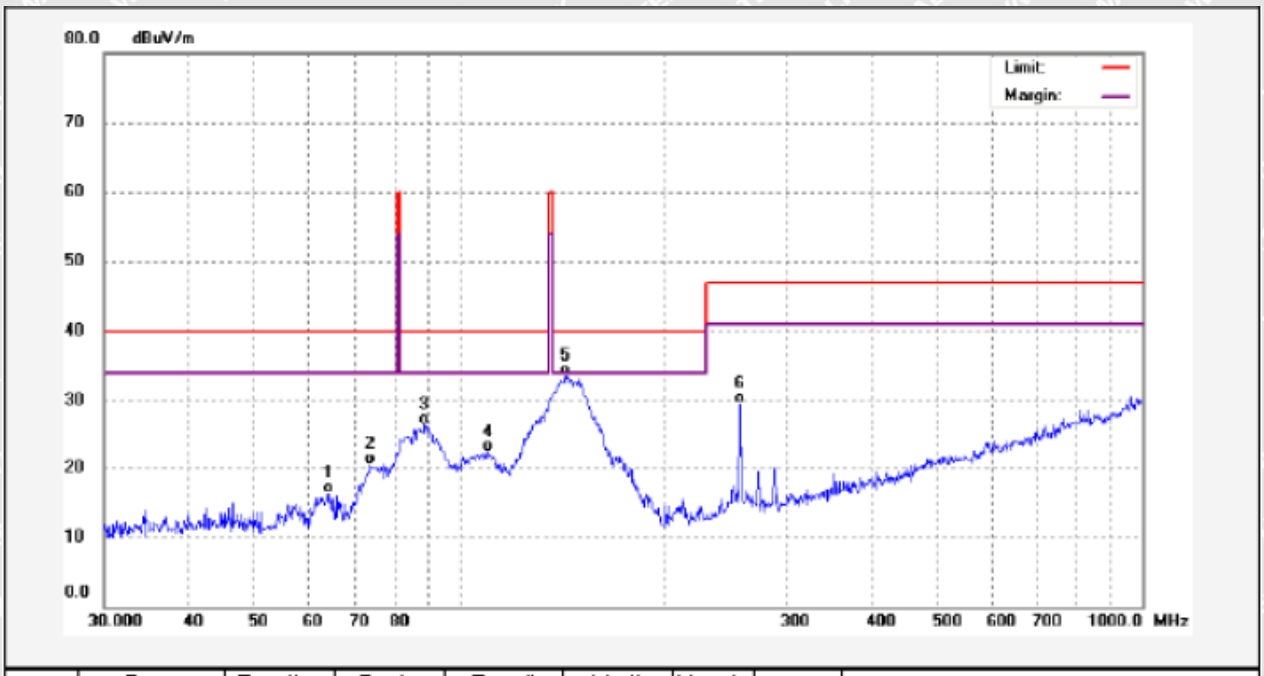
According to the data in section 5.1.4, the EUT complied with the EN 55011 standards.

Vertical Polarization



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	34.3964	41.93	-16.98	24.95	40.00	-15.05	QP	
2	44.7433	36.52	-16.49	20.03	40.00	-19.97	QP	
3	64.2074	38.69	-17.24	21.45	40.00	-18.55	QP	
4	88.6524	44.55	-19.82	24.73	40.00	-15.27	QP	
5	142.3243	46.49	-15.16	31.33	40.00	-8.67	QP	
6	257.4222	36.90	-14.36	22.54	47.00	-24.46	QP	

Horizontal Polarization



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	63.9828	33.56	-17.21	16.35	40.00	-23.65	QP	
2	73.8756	39.31	-18.88	20.43	40.00	-19.57	QP	
3	88.6524	46.30	-19.82	26.48	40.00	-13.52	QP	
4	109.7960	40.29	-17.93	22.36	40.00	-17.64	QP	
5	142.3243	48.70	-15.16	33.54	40.00	-6.46	QP	
6	257.4222	43.80	-14.36	29.44	47.00	-17.56	QP	

6 Immunity Test Results

6.1 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. 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 C: Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

For further details, please refer to EN 61000-6-1.

6.2 Electrostatic Discharge(ESD)

Test Requirement.....	:	EN 61000-6-1
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:

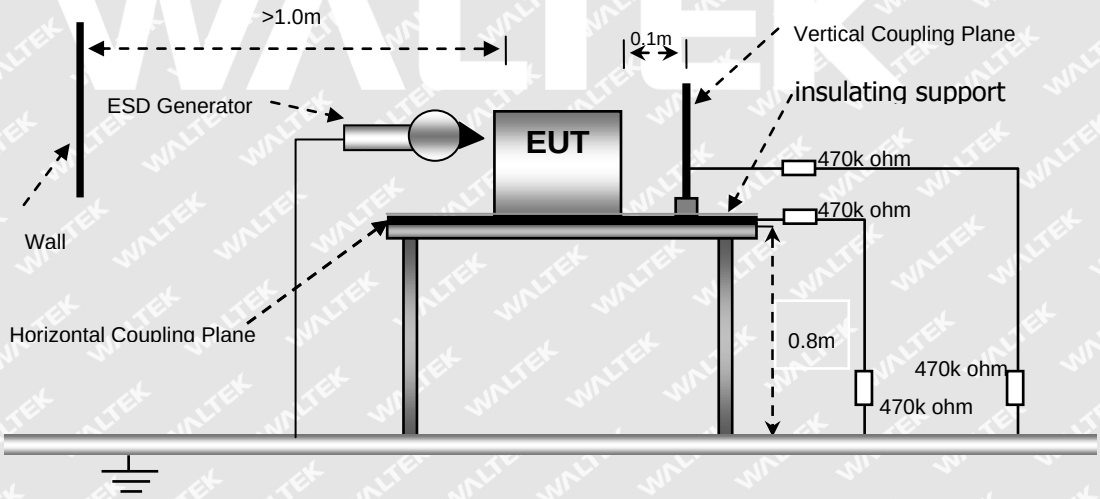
Temperature.....	:	22.3°C
Humidity.....	:	52.4%RH
Atmospheric Pressure.....	:	101.6kPa

EUT Operation:

Input Voltage	:	DC 5V
Operating Mode.....	:	Discharging mode

6.2.2 Block Diagram of Test 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
±8	B	1	N/A	Pass*
±4	B	2	Pass*	N/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
±4	B	1	Pass*	Pass*

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

6.3 Radio-frequency electromagnetic fields

Test Requirement ..... : EN 61000-6-1

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

Test Result ..... : Pass

Frequency Range ..... : 80MHz to 1GHz, 3V/m, 80%
1.4GHz to 2.0GHz, 3V/m, 80%
2.0GHz to 2.7GHz, 1V/m, 80%

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 ..... : 21.7°C

Humidity..... : 52.4%RH

Barometric Pressure..... : 102.4kPa

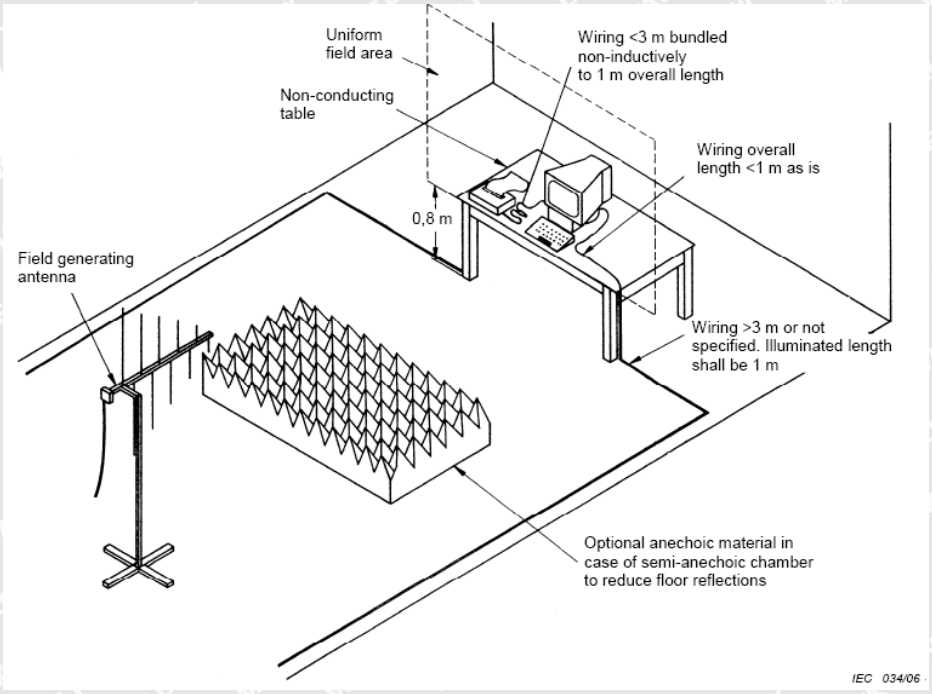
EUT Operation:

Input Voltage..... : DC 5V

Operating Mode..... : Discharging 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
80 to 1000MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
80 to 1000MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*

Frequency	Face of EUT	Antenna polarisation	Test Level	Step Size	Dwell Time	Performance Criterion	Result
1.4 to 2.0GHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
1.4 to 2.0GHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*

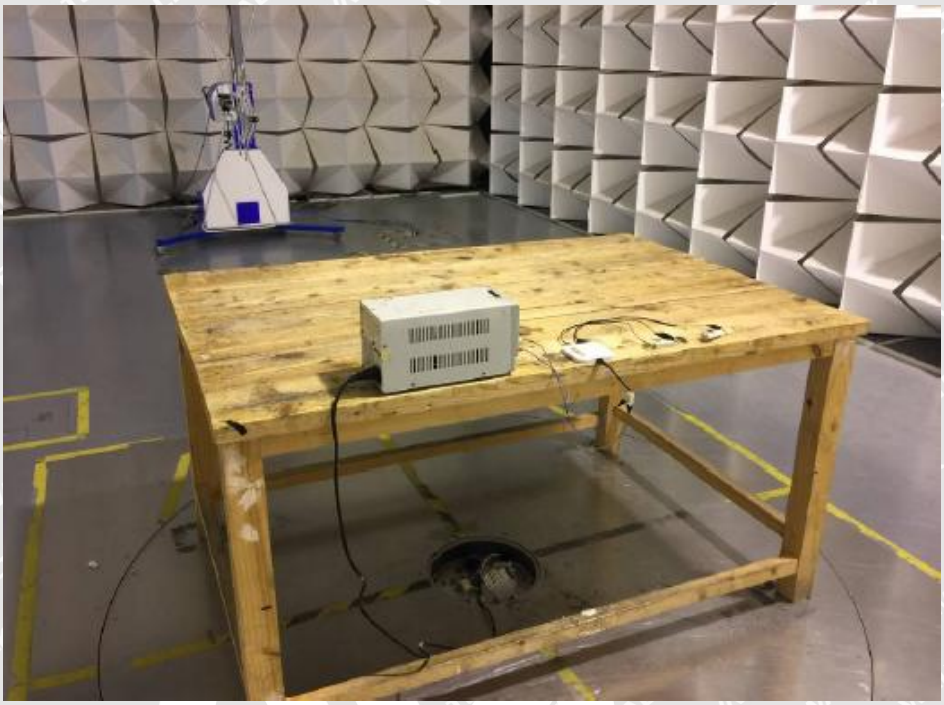
Frequency	Face of EUT	Antenna polarisation	Test Level	Step Size	Dwell Time	Performance Criterion	Result
2.0 to 2.7GHz	Front, Back, Left, Right	Horizontal	1V/m	1%	1s	A	Pass*
2.0 to 2.7GHz	Front, Back, Left, Right	Vertical	1V/m	1%	1s	A	Pass*

Remark:

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

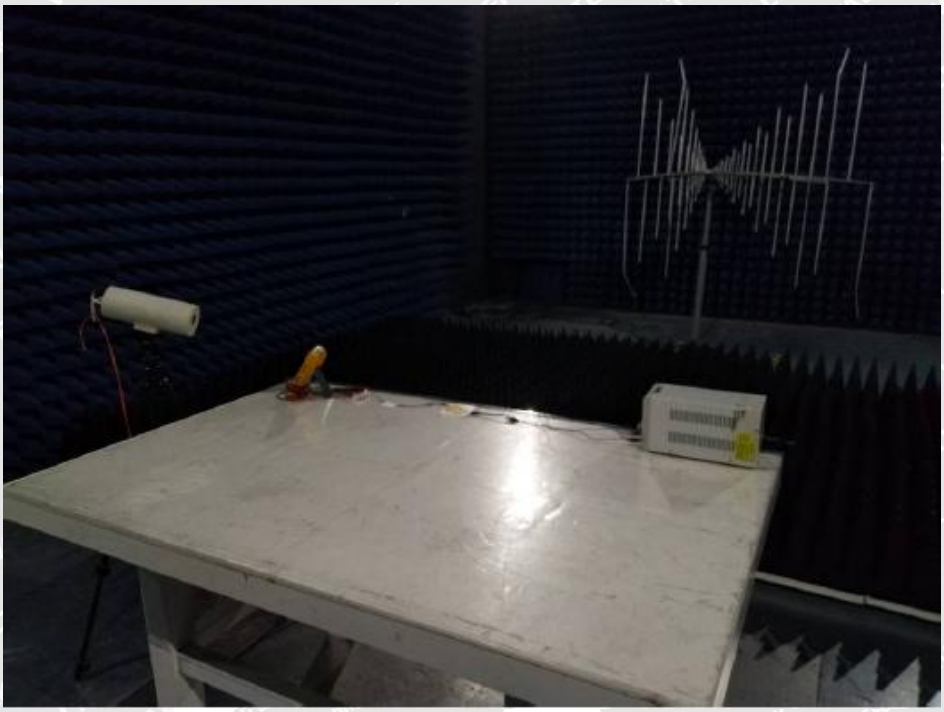
7 Photographs – Test Setup

7.1 Photograph –Radiated Emission Test Setup



7.2 Photograph –ESD Test Setup

7.3 Photograph - Radiated immunity Test Setup



8 Photographs – Constructional Details

8.1 EUT – External Photos

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