



中国认可  
国际互认  
检测  
TESTING  
CNAS L6478



# TEST REPORT

Reference No. .... : WTF19F09067895E  
 Applicant..... : Mid Ocean Brands B.V.  
 Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon,  
 Hong Kong  
 Manufacturer ..... : 109979  
 Product Name..... : Bamboo Charging Cable  
 Model No..... : MO9888  
 Standards..... : EN 55032:2015  
 EN 55024:2010+A1:2015  
 Date of Receipt sample .... : 2019-09-30  
 Date of Test..... : 2019-09-30 to 2019-10-08  
 Date of Issue..... : 2019-10-10  
 Test Report Form No. .... : WEI-55032A-03A  
 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.

**Prepared By:**

**Waltek Services (Foshan) Co., Ltd.**

Address: No.13-19, 2/F., 2nd Building, Sunlink International Machinery City,  
 Chencun, Shunde District, Foshan, Guangdong, China

Tel:+86-757-23811398 Fax:+86-757-23811381 E-mail:info@waltek.com.cn

Compiled by:

Roy Hong / Project Engineer

Approved by:



Chen Yang / Manager

## 1 Test Summary

EMISSION				
Test Item	Test Standard	Class / Severity	Result	
Radiated Emission, 30MHz to 1000MHz	EN 55032:2015	Table A.4 Table 12	Pass	
IMMUNITY (EN 55024:2010+A1:2015)				
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	IEC 61000-4-3:2010	3V/m, 80%, 1kHz, Amp. Mod.	A	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

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### 3 General Information

#### 3.1 General Description of E.U.T.

Product Name ..... : Bamboo Charging Cable  
 Model No. .... : MO9888  
 Remark ..... : ---

#### 3.2 Details of E.U.T.

Technical Data ..... : DC 5V, 2A

#### 3.3 Description of Support Units

The EUT has been tested as an independent unit. MO9888 is the test sample. All tests were performed in the condition of DC 5V, powered by USB port of Notebook.

#### 3.4 Standards Applicable for Testing

The tests were performed according to following standards:

EN 55032:2015                      Electromagnetic compatibility of multimedia equipment —  
 Emission Requirements

EN 55024:2010+A1:2015        Information technology equipment — Immunity characteristics — Limits  
 and methods of measurement.

#### 3.5 Special Accessories and Auxiliary Equipment

Item	Equipment	Technical Data	Manufacturer	Model No.	Serial No.
1.	Notebook	AC 230V/50Hz	Lenovo	ThinkPad Edge E430	00426-OEM-8992662- 00400

### 3.6 Test Facility

The test facility has a test site registered with the following organizations:

- **ISED – Registration No.: 21895**

Waltek Services (Foshan) Co., Ltd. has been registered and fully described in a report filed with the Innovation, Science and Economic Development Canada (ISED). The acceptance letter from the ISED is maintained in our files. Registration ISED number: 21895, March 12, 2019

- **FCC – Registration No.: 820106**

Waltek Services (Foshan) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 820106, August 16, 2018

- **NVLAP – Lab Code: 600191-0**

Waltek Services (Foshan) Co., Ltd. EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 600191-0.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

### 3.7 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: ---

### 3.8 Abnormalities from Standard Conditions

None.

#### 4 Equipment Used during Test

Radiated Emission					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	EMI Test Receiver	R&S	ESR7	101566	Valid
2.	Active Loop Antenna	SCHWARZBECK	FMZB1519B	00004	Valid
3.	Trilog Broadband Antenna	SCHWARZBECK	VULB 9162	9162-117	Valid
ESD					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	ESD Simulator	TESEQ	NSG437	521	Valid
Radio-frequency electromagnetic fields					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	RF Power Amplifier	OPHIR	5225R	1051/1712	Valid
2.	RF Power Amplifier	OPHIR	5293RE	1051/171.	Valid
3.	Stacked double logarithmic periodic antenna	SCHWARZBECK	STLP9128E-SPECIAL	STLP9128E	Valid
4.	Stacked double logarithmic periodic antenna	SCHWARZBECK	STLP 9149	STLP 9149 #476	Valid
5.	RF signal generator	Agilent	N5181A	MY48080720	Valid
6.	Power meter	RS	NRP6A	101133	Valid
7.	Power meter	RS	NRP6A	101134	Valid
8.	Electric field probe	Narda S.T.S/PMM	EP 601	---	Valid

#### 4.1 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Radiated Emission	30MHz~1GHz	±4.56dB	(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, 30 MHz to 1GHz

Test Requirement.....	: EN 55032
Test Method .....	: EN 55032
Test Limit .....	: Table A.4 of EN 55032
Test Result.....	: Pass
Frequency Range.....	: 30MHz to 1000MHz
Class.....	: Class B

#### 5.1.1 E.U.T. Operation

##### Operating Environment:

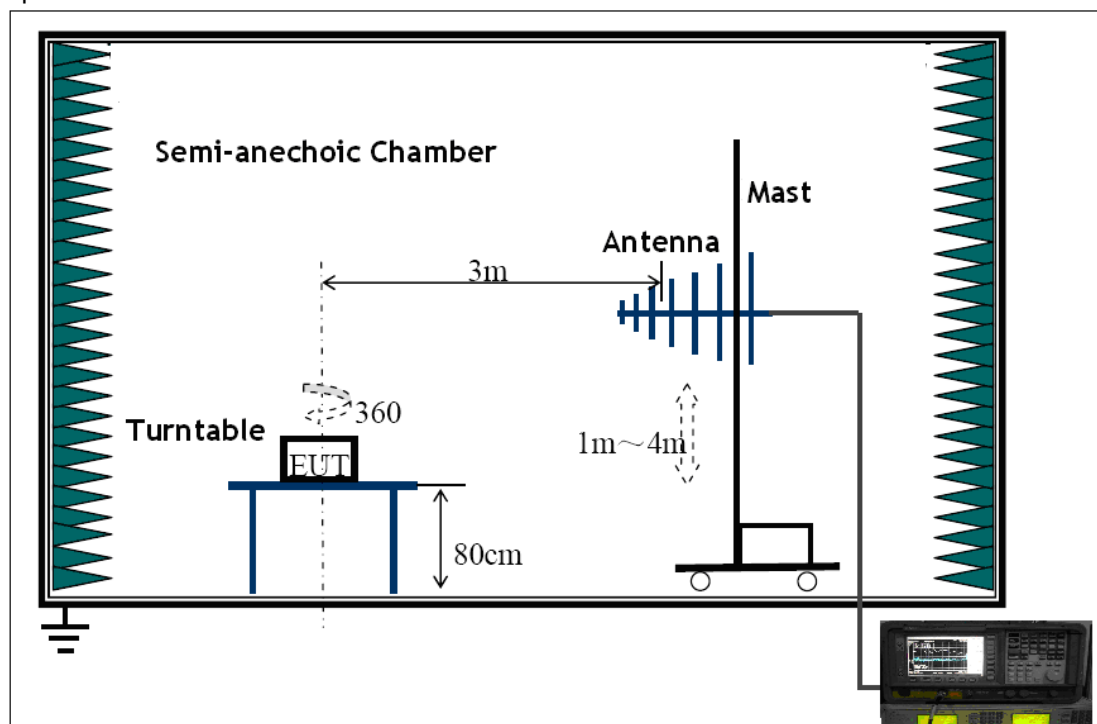
Temperature .....	: 23.2°C
Humidity.....	: 35.6%RH
Atmospheric Pressure.....	: 101.2kPa

##### EUT Operation:

Input Voltage .....	: DC 5V
Operating Mode.....	: Working Mode

#### 5.1.2 Block Diagram of Test Setup

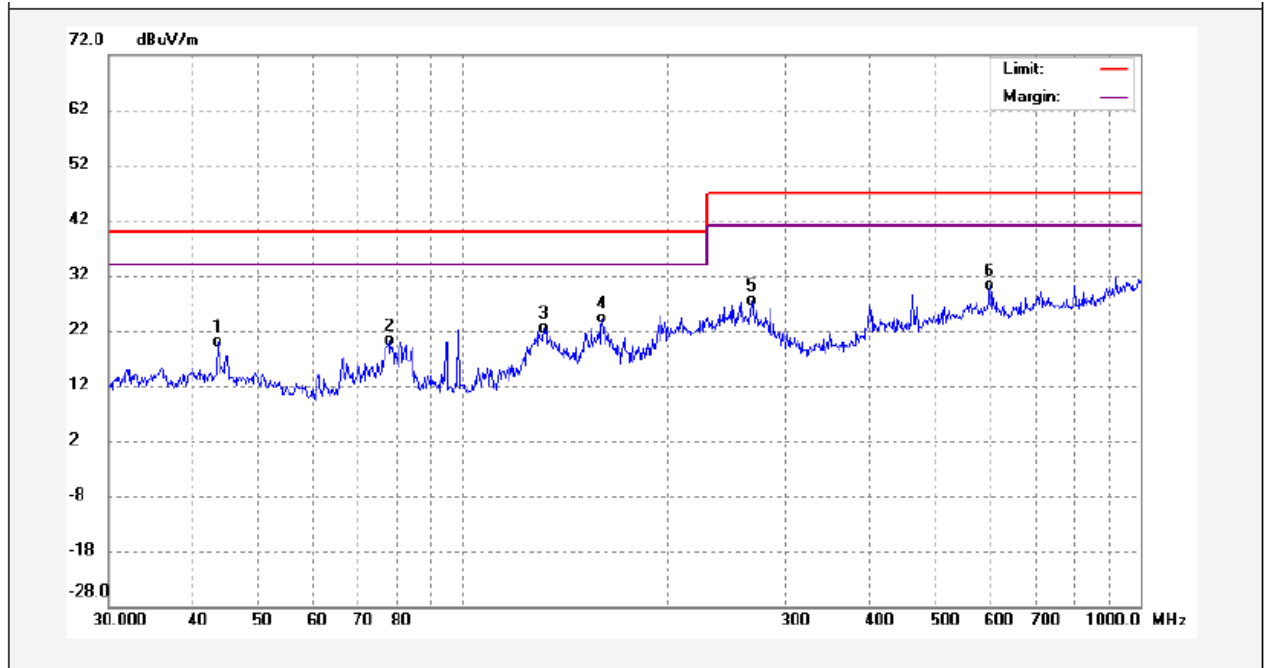
The Radiated Emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the CISPR 16-2-3.



### 5.1.3 Radiated Emission Test Data

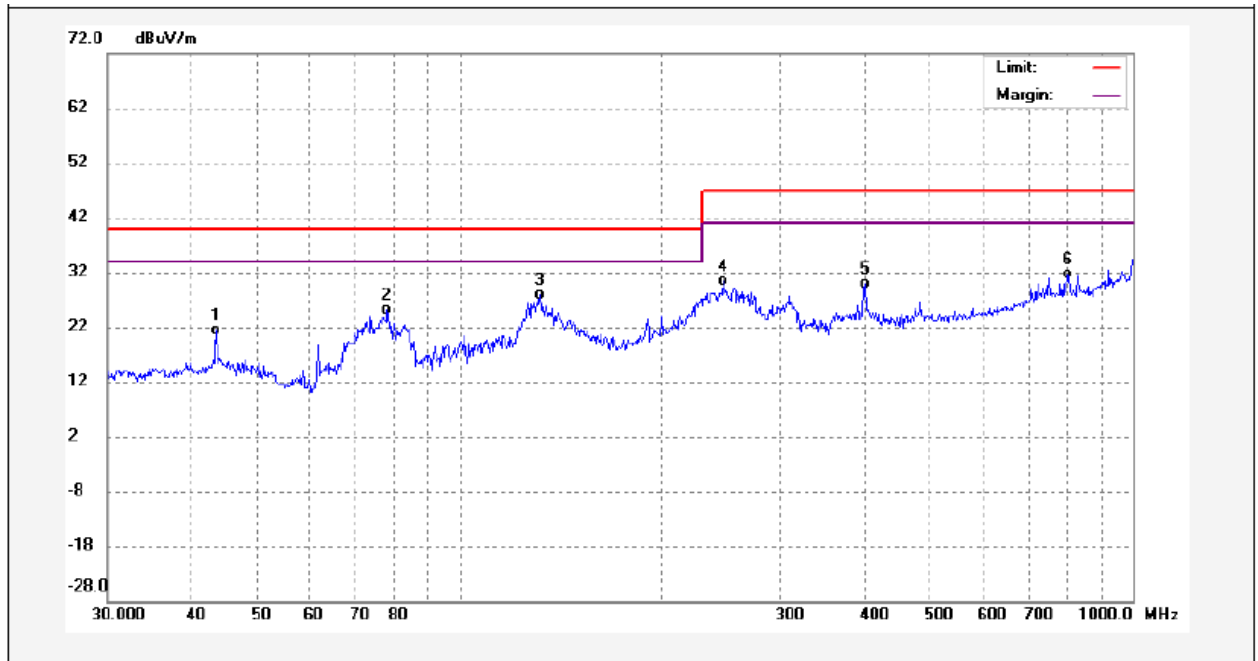
According to the data in section 5.2.3, the EUT complied with the EN 55032 standards.

#### Vertical Polarization:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	43.5057	5.14	14.63	19.77	40.00	-20.23	QP	
2	77.8654	10.36	9.67	20.03	40.00	-19.97	QP	
3	131.7577	12.15	10.34	22.49	40.00	-17.51	QP	
4	160.3456	13.15	11.00	24.15	40.00	-15.85	QP	
5	266.6089	11.28	16.11	27.39	47.00	-19.61	QP	
6	599.3212	7.56	22.51	30.07	47.00	-16.93	QP	



**Horizontal Polarization:**

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	43.5057	6.28	15.16	21.44	40.00	-18.56	QP	
2	78.1389	15.67	9.40	25.07	40.00	-14.93	QP	
3	131.7577	17.74	10.17	27.91	40.00	-12.09	QP	
4	245.9509	15.11	15.31	30.42	47.00	-16.58	QP	
5	400.4319	11.40	18.42	29.82	47.00	-17.18	QP	
6	801.7863	6.36	25.32	31.68	47.00	-15.32	QP	

## 6 Immunity Test Results

### 6.1 Performance Criteria

**Performance criterion A:** The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

**Performance criterion B:** After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.

**Performance criterion C:** Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

## 6.2 Electrostatic Discharge (ESD)

<b>Test Requirement</b> .....	:	EN 55024
<b>Test Method</b> .....	:	IEC 61000-4-2
<b>Test Result</b> .....	:	Pass
<b>Discharge Impedance</b> .....	:	330Ω / 150pF
<b>Discharge Voltage</b> .....	:	Air Discharge: ±8kV Contact Discharge: ±4kV HCP & VCP: ±4kV
<b>Polarity</b> .....	:	Positive & Negative
<b>Number of Discharge</b> .....	:	Minimum 10 times at each test point
<b>Discharge Mode</b> .....	:	Single Discharge
<b>Discharge Period</b> .....	:	1 second minimum

### 6.2.1 E.U.T. Operation

#### Operating Environment:

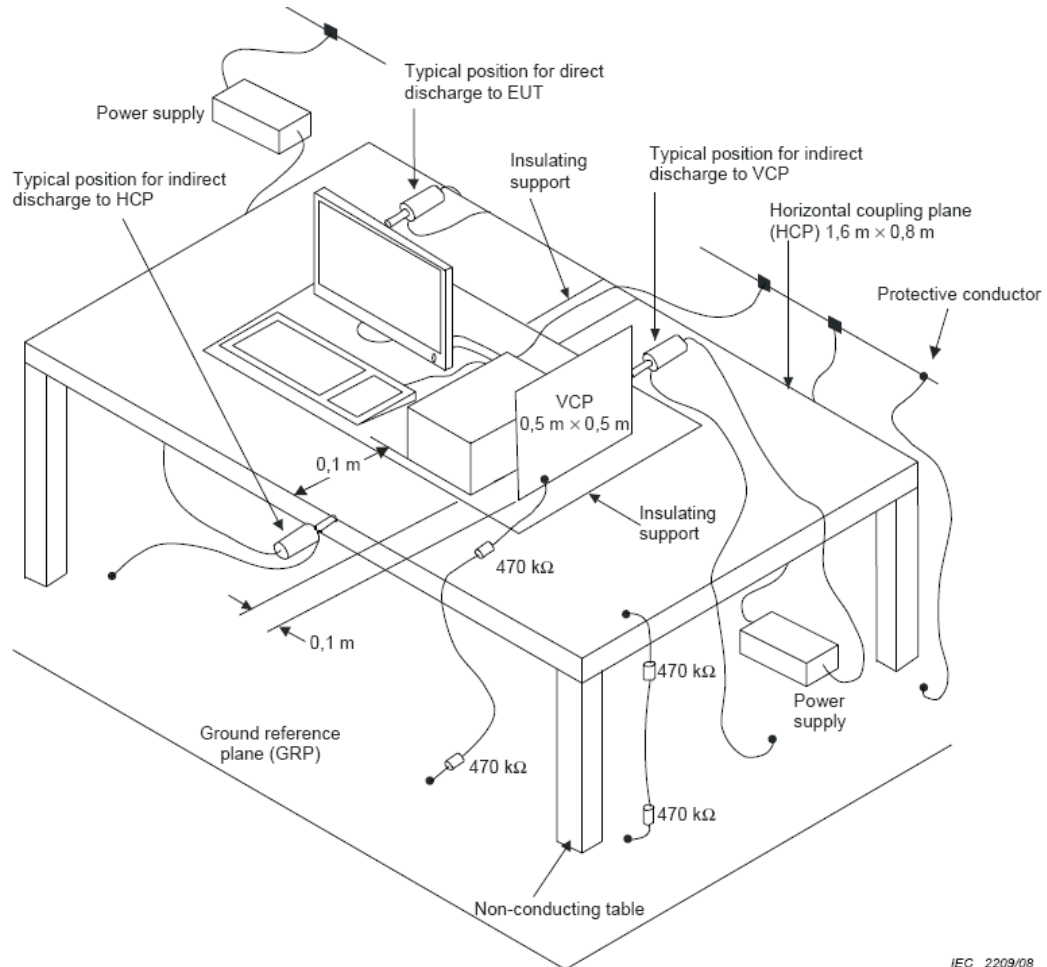
<b>Temperature</b> .....	:	23.4°C
<b>Humidity</b> .....	:	49.1%RH
<b>Barometric Pressure</b> .....	:	101.1kPa

#### EUT Operation:

<b>Input Voltage</b> .....	:	DC 5V
<b>Operating Mode</b> .....	:	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
±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, 80MHz to 1GHz

Test Requirement .....	EN 55024
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

#### 6.3.1 E.U.T. Operation

##### Operating Environment:

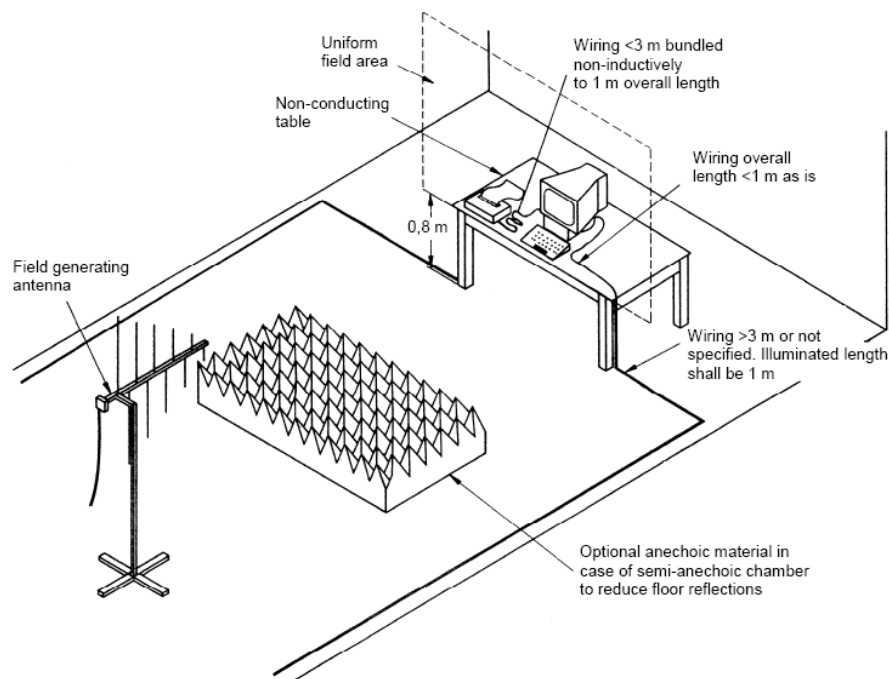
Temperature.....	22.9°C
Humidity .....	48.3%RH
Barometric Pressure.....	100.4kPa

##### EUT Operation:

Input Voltage.....	DC 5V
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.



IEC 034/06

### 6.3.3 Test Results

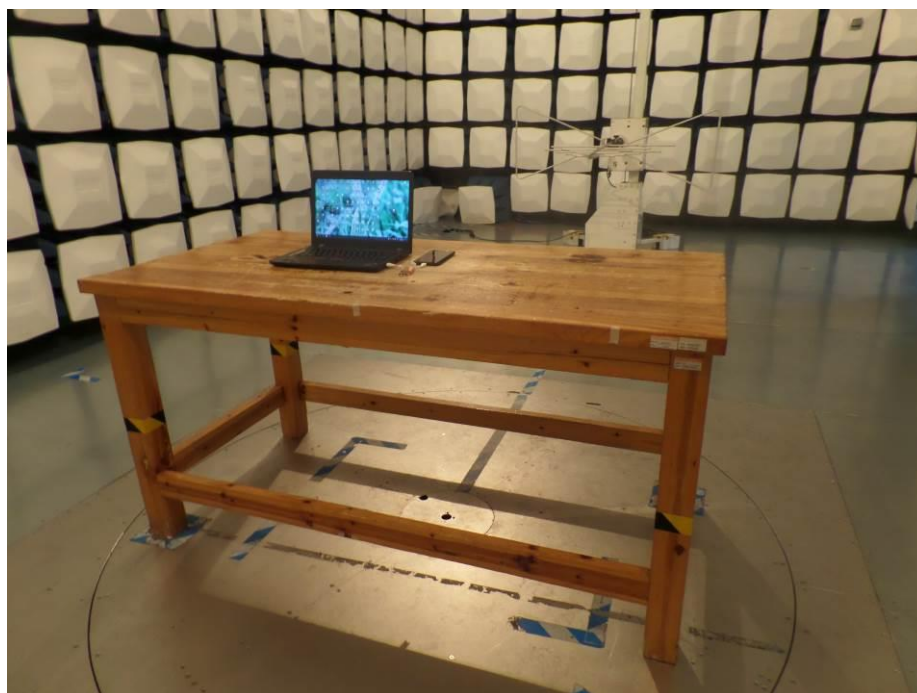
Frequency	Face of EUT	Antenna polarisation	Test Level	Step Size	Dwell Time	Performance Criterion	Result
80 to 1000MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
80 to 1000MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*

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 Immunity Test Setup





### 7.3 Photograph – Radio-Frequency Electromagnetic Field Test Setup



## 8 Photographs – Constructional Details

### 8.1 EUT – External View



## 8.2 EUT – Internal View



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