Prüfbericht-Nr.: *Test report No.:*	**50057770 002**	**Auftrags-Nr.:** *Order No.:*	164072339	Seite 1 von 21 *Page 1 of 21*
Kunden-Referenz-Nr.: *Client reference No.:*	N/A	**Auftragsdatum:** *Order date.:*	24.08.2016	
Auftraggeber: *Client:*	**Lightcomm Technology Co., Ltd.** RM 1808 18/F, FO TAN INDUSTRIAL CENTRE, NOS. 26-28 AU PUI WAN STREET, FO TAN SHATIN NEW TERRITORIES HONG KONG			
Prüfgegenstand: *Test item:*	Tablet PC			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	DL1028W (DIGILAND)			
Auftrags-Inhalt: *Order content:*	FCC approval			
Prüfgrundlage: *Test specification:*	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209			

Wareneingangsdatum: *Date of receipt:*	29.08.2016	Refer to photo documents
Prüfmuster-Nr.: *Test sample No.:*	A000415310-002 A000415310-003	
Prüfzeitraum: *Testing period:*	01.09.2016 - 27.09.2016	
Ort der Prüfung: *Place of testing:*	Emtek (Shenzhen) Co., Ltd.	
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüfergebnis*: *Test result*:*	Pass	

geprüft von / *tested by:*

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*
28.11.2016	Andy Yan / Project Manager	

kontrolliert von / *reviewed by:*

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*
28.11.2016	Owen Tian / Technical Certifier	

Sonstiges / *Other:*

Only the 2.4GHz Wi-Fi 802.11 b/g/n(HT20)/n(HT40) function is reported in this test report.
FCC ID: XMF-MID1026IB

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged:*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhalt
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	1 = very good	2 = good	3 = satisfactory	4 = sufficient	5 = poor
	P(ass) = passed a.m. test specifications(s)		F(ail) = failed a.m. test specifications(s)	N/A = not applicable	N/T = not tested

TÜV Rheinland (Shenzhen) Co., Ltd., East of F/1, F/2 - F/4, Building 1, Cybio Technology Building, No.16 Kejibei 2nd Road, North Hi-tech Industry Park, Nanshan District, Shenzhen, P.R. China
http://www.tuv.com

Test Summary

5.1.1 ANTENNA REQUIREMENT
RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER
RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY
RESULT: Pass

5.1.4 6DB BANDWIDTH
RESULT: Pass

5.1.5 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHZ BANDWIDTH
RESULT: Pass

5.1.6 RADIATED SPURIOUS EMISSION
RESULT: Pass

5.1.7 CONDUCTED EMISSION ON AC MAINS
RESULT: Pass

Contents

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of Wi-Fi 802.11b/g/n of Conducted Testing

Appendix B: Test Results of Wi-Fi 802.11b/g/n of Radiated Spurious Emission and Conducted Emission on AC Mains

2 Test Sites

2.1 Test Facilities

Emtek (Shenzhen) Co., Ltd.

Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen Guangdong, China

FCC Registration No.: 406365

Test site Industry Canada No.: 4480A-2

The tests at the test sites have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Emtek (Shenzhen) Co., Ltd.

Radio Spectrum Test				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
Spectrum Analyzer	R&S	FSV40	132.1-3008K39-100967-AP	17.05.2017
Conducted Emission				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
Test Receiver	R&S	ESCI	26115-010-0027	17.05.2017
L.I.S.N.	R&S	ENV216	101161	17.05.2017
50Ω Coaxial Switch	Anritsu	MP59B	6100175589	17.05.2017
Voltage Probe	R&S	ESH2-Z3	100122	17.05.2017
Radiated Emission & Spurious Emission				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
EMI Test Receiver	R&S	ESU	1302.6005.26	17.05.2017
Loop Antenna	Schwarzbeck	FMZB 1519	1519-012	17.05.2017
Pre-Amplifier	HP	8447F	2944A07999	17.05.2017
Bilog Antenna	Schwarzbeck	VULB9163	142	17.05.2017
Pre-Amplifier	A.H.	PAM-0126	1415261	17.05.2017
Horn Antenna	Schwarzbeck	BBHA 9120	707	17.05.2017
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	17.05.2017
Cable	N/A	3M SF104-26.5	295838/4	17.05.2017
Cable	N/A	6M SF104-26.5	295840/4	17.05.2017
Cable	Schwarzbeck	AK9513	ACRX1	17.05.2017
Cable	Rosenberger	N/A	FP2RX2	17.05.2017
Cable	Schwarzbeck	AK9513	CRPX1	17.05.2017
Cable	Schwarzbeck	AK9513	CRRX2	17.05.2017
Cable	H+B	0.5M SF104-26.5	289147/4	17.05.2017
Cable	H+B	3M SF104-26.5	295838/4	17.05.2017
Cable	H+B	6M SF104-26.5	295840/4	17.05.2017

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table

Item	Extended Uncertainty
Conducted Emission	± 2.96 dB
Radiated Emission (up to 1GHz)	± 4.27 dB
Radiated Emission (above 1GHz)	± 4.96 dB
Antenna Port Emission	± 3.0 dB
Temperature	± 0.5 ℃
Humidity	± 3.0 %

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The Emtek (Shenzhen) Co., Ltd. Test facility located at Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen Guangdong, China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a 'Tablet PC' device. It supports 2.4GHz Wi-Fi 802.11 b/g/n and Bluetooth 4.2 (Dual mode) technology. This report is only for DTS with Wi-Fi function.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

Technical Specification	Value
Kind of Equipment	Tablet PC
Type Designation	DL1028W
Trade Mark	DIGILAND
FCC ID	XMF-MID1026IB
Operating Frequency	802.11b/g/n(HT20)/n(HT40): 2412 MHz to 2462 MHz
Operating Temperature Range	0 °C ~ +40 °C
Operating Voltage	DC 3.7V 6000mAh via internal rechargeable Li-Poly battery DC 5.0V 2.5A via AC/DC adapter for charging
Testing Voltage	Fully charged DC 3.7V internal rechargeable Li-Poly battery DC 5.0V 2.5A via AC/DC adapter with 120V/60Hz input
Type of Modulation	802.11b: DSSS(DBPSK/DQPSK/CCK) 802.11g/n: OFDM(BPSK/QPSK/16QAM/64QAM)
Data Rate	802.11b: 1/2/5.5/11 Mbps 802.11g: 6/9/12/18/24/36/48/54 Mbps 802.11n(HT20): MCS0 ~ MCS7 Mbps 802.11n(HT40): MCS0 ~ MCS7 Mbps
Channel Number	802.11b/g/n(HT20): 11 channels 802.11n(HT40): 7 channels
Channel Separation	5 MHz
Wireless Technology	Wi-Fi 802.11b/g/n
Antenna Type	Integral PIFA Antenna
Antenna Gain	-0.68dBi

Table 3: RF Channel and Frequency of Wi-Fi

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	/	/

Remark:

1. Test frequencies are lowest channel: 2412 MHz, middle channel: 2437 MHz and highest channel: 2462 MHz for 802.11b/g/n(HT20)
2. Test frequencies are lowest channel: 2422 MHz, middle channel: 2437 MHz and highest channel: 2452 MHz for 802.11n(HT40)

3.3 Independent Operation Modes

The basic operation modes are:

A. On, Wi-Fi Transmitting mode (2.4 GHz)
   a. Low Channel
   b. Middle Channel
   c. High Channel
B. On, Wi-Fi connecting mode
C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Block Diagram
- ID Label and Location Info
- User Manual
- Parts List
- Schematics
- Photo Document
- Operation Description

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model DL1028W in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 4: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Shielded HDMI Cable	N/A	N/A	N/A	150cm
Monitor	Lenovo	N/A	8#	N/A
AC Adapter	TEKA	TEKA018-0502500UK	N/A	Input: AC 100-240V ~ 50/60Hz 0.5A Max. Output: DC 5.0V ~ 2.5A

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

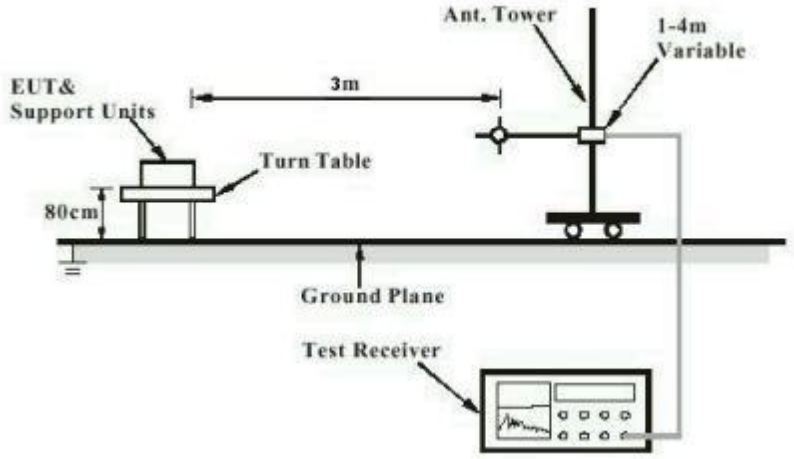


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

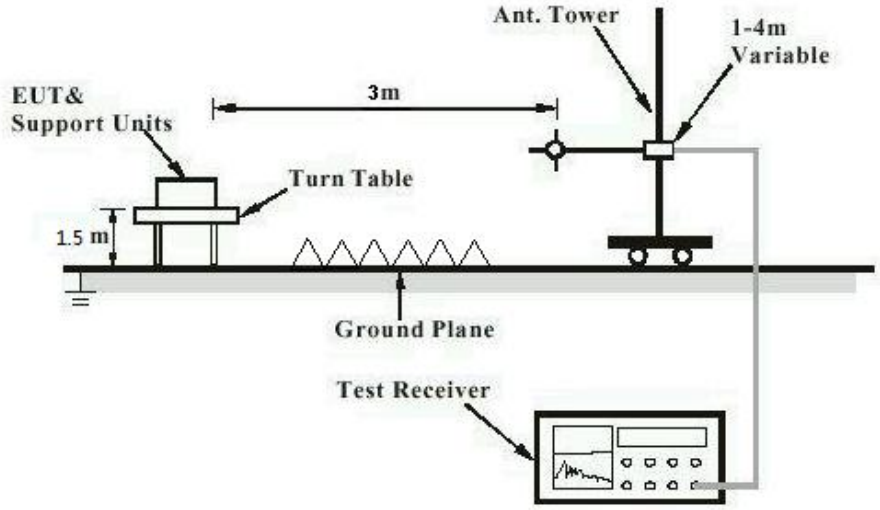


Diagram of Measurement Configuration for Mains Conduction Measurement

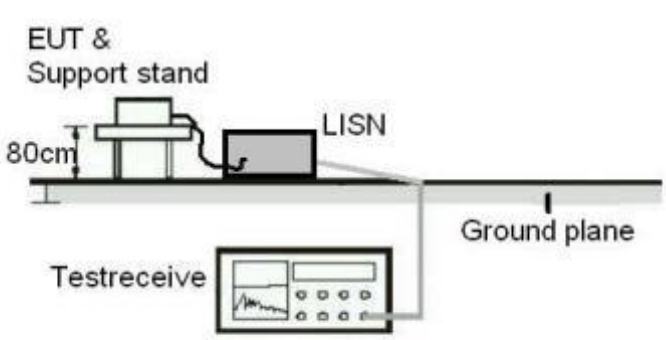
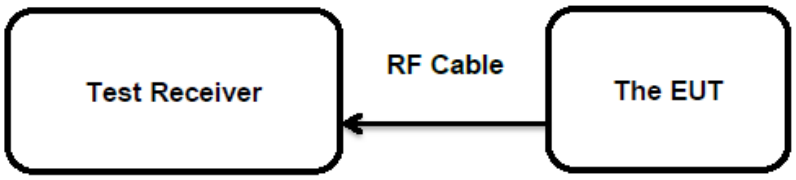


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Pass**

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is -0.68 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 Maximum Peak Conducted Output Power

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(b)(1)&(3)
Basic standard	:	ANSI C63.10: 2013
Limits	:	< 1.0 Watts
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	02.09.2016
Input voltage	:	Fully charged DC 3.7V internal rechargeable Li-Poly battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24 ℃
Relative humidity	:	50 %
Atmospheric pressure	:	101 kPa

Table 5: Test Result of Maximum Peak Conducted Output Power

Test Mode	Data Rate	Frequency (MHz)	Measured Power		Limit
			dBm	W	
802.11b	1 Mbps	2412	16.26	0.042	< 1W(30dBm)
		2437	15.44	0.035	
		2462	15.26	0.034	
802.11g	6 Mbps	2412	16.01	0.040	
		2437	16.47	0.044	
		2462	16.72	0.047	
802.11n (HT20)	MCS0 Mbps	2412	16.13	0.041	
		2437	17.53	0.057	
		2462	17.82	0.061	
802.11n (HT40)	MCS0 Mbps	2422	15.86	0.039	
		2437	16.08	0.041	
		2452	16.24	0.042	
Maximum Measured Value			17.82	0.061	

Note: The cable loss is taken into account in results.

For the measurement records, refer to the Appendix A.

5.1.3 Conducted Power Spectral Density

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(e)
Basic standard	:	ANSI C63.10: 2013
Limits	:	8 dBm / 3kHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	02.09.2016
Input voltage	:	Fully charged DC 3.7V internal rechargeable Li-Poly battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24 ℃
Relative humidity	:	50 %
Atmospheric pressure	:	101 kPa

Table 6: Test Result of Power Spectral Density

Test Mode	Data Rate	Frequency (MHz)	Measured Peak Power Spectral Density (dBm/3KHz)
802.11b	1 Mbps	2412	-8.52
		2437	-9.50
		2462	-8.95
802.11g	6 Mbps	2412	-15.25
		2437	-14.78
		2462	-15.72
802.11n (HT20)	MCS0 Mbps	2412	-16.39
		2437	-15.52
		2462	-16.07
802.11n (HT40)	MCS0 Mbps	2422	-19.84
		2437	-18.45
		2452	-19.95
Maximum Measured Value			-8.52

Note: The cable loss is taken into account in results.

For the measurement records, refer to the Appendix A.

5.1.4 6dB Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(a)(2)
Basic standard	:	ANSI C63.10: 2013
Limits	:	> 500 KHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	02.09.2016
Input voltage	:	Fully charged DC 3.7V internal rechargeable Li-Poly battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24 ℃
Relative humidity	:	50 %
Atmospheric pressure	:	101 kPa

Table 7: Test Result of 6dB Bandwidth

Test Mode	Data Rate	Frequency (MHz)	-6dB Bandwidth (MHz)	Limit (kHz)
802.11b	1 Mbps	2412	10.072	> 500
		2437	10.080	
		2462	10.072	
802.11g	6 Mbps	2412	16.382	
		2437	16.389	
		2462	16.397	
802.11n (HT20)	MCS0 Mbps	2412	17.598	
		2437	17.547	
		2462	17.554	
802.11n (HT40)	MCS0 Mbps	2422	35.890	
		2437	35.950	
		2452	35.890	
Minimum Measured Value			10.072	

For the measurement records, refer to the Appendix A.

5.1.5 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(d)
Basic standard	:	ANSI C63.10: 2013
Limits	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power);
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	02.09.2016
Input voltage	:	Fully charged DC 3.7V internal rechargeable Li-Poly battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24 ℃
Relative humidity	:	50 %
Atmospheric pressure	:	101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to following test plot, and compliance is achieved as well.

For the measurement records, refer to the Appendix A.

5.1.6 Radiated Spurious Emission

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(d) & FCC Part 15.205
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d)
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	20.09.2016 – 27.09.2016
Input voltage	:	Fully charged DC 3.7V internal rechargeable Li-Poly battery DC 5.0V 2.5A via AC/DC adapter with 120V/60Hz input
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24 ℃
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

Remark:
During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test set-up photos.

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to following test plot, and compliance is achieved as well.

Testing was carried out within frequency range 9kHz to the tenth harmonics.

For the measurement records, refer to the Appendix B.

5.1.7 Conducted Emission on AC Mains

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.207(a)
Basic standard	:	ANSI C63.10: 2013
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a)
Kind of test site	:	Shielded Room

Test Setup

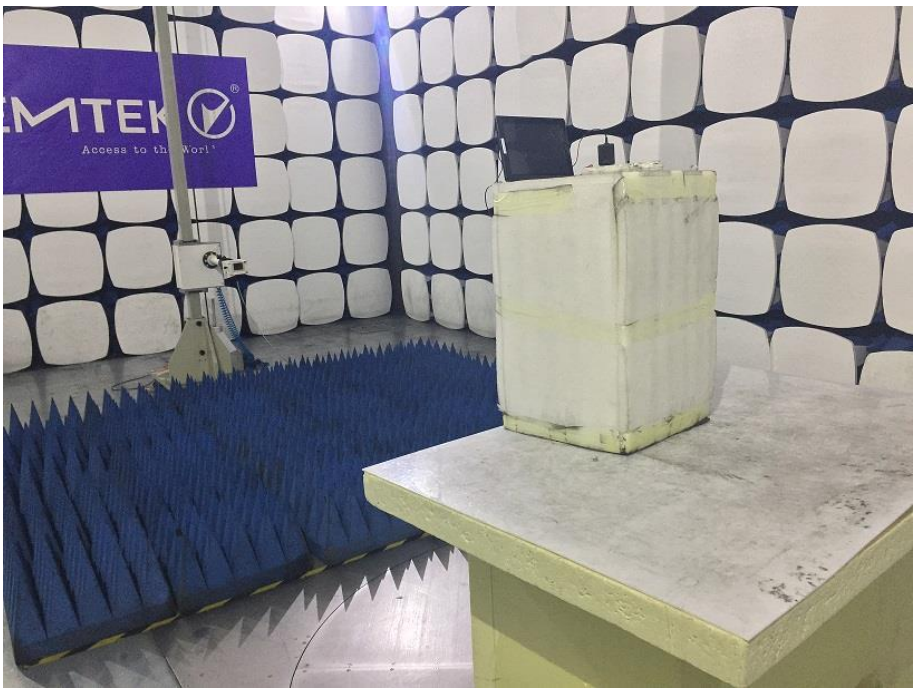
Date of testing	:	01.09.2016
Operation mode	:	B
Earthing	:	Not connected
Ambient temperature	:	22 ℃
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

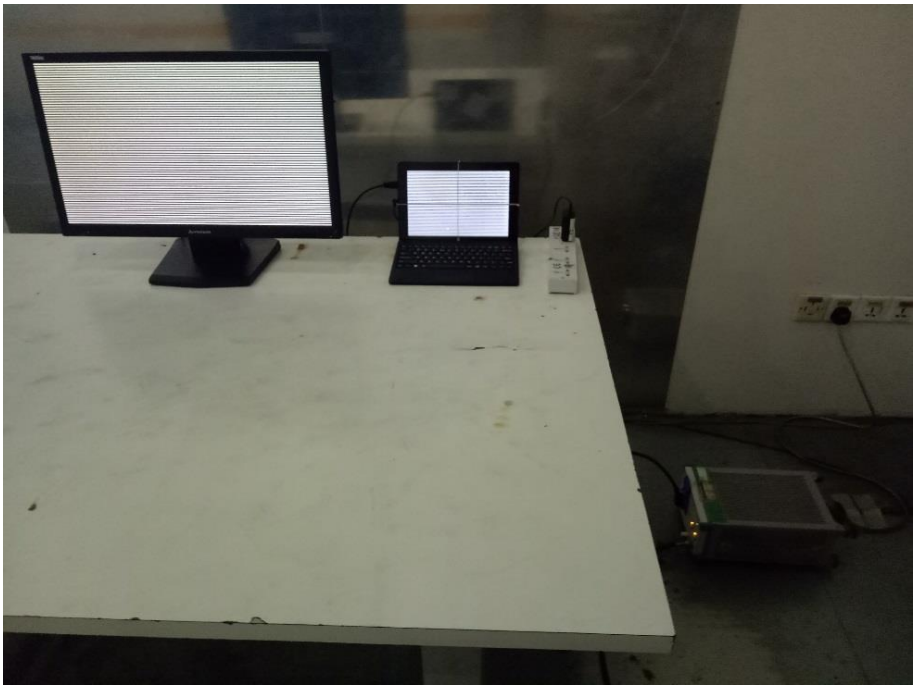
6 Photographs of the Test Set-Up

Photograph 1: Set-up for Radiated Spurious Emission (Up to 1GHz)

Photograph 2: Set-up for Radiated Spurious Emission (Above 1GHz)



Photograph 3: Set-up for Conducted Emission on AC Mains



7 List of Tables

8 List of Photographs