EMC TEST REPORT



Report No.: 15070474-FCC-E Supersede Report No.:N/A

Applicant	Worldlinks Communications, L.L.C.			
Product Name	PHONE			
Model No.	R50L			
Serial No.	N/A			
Test Standard	FCC Part 15 Subpart B Class B:2014, ANSI C63.4: 2014			
Test Date	July 30 to August 13 , 2015			
Issue Date	August 21, 2015			
Test Result	Pass Fail			
Equipment complied with the specification				
Equipment did not comply with the specification				
Winnie. Z	Thema	David	Huang	
Winnie Zhang		Davi	d Huang	
Test Engineer		Che	ecked By	
				c II

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Test result presented in this test report is applicable to the tested sample only

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

Zone A, Floor 1, Building 2 Wan Ye Long Technology Park

South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108

Phone: +86 0755 2601 4629801 Email: China@siemic.com.cn



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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope	
USA	EMC, RF/Wireless, SAR, Telecom	
Canada	EMC, RF/Wireless, SAR, Telecom	
Taiwan	EMC, RF, Telecom, SAR, Safety	
Hong Kong	RF/Wireless, SAR, Telecom	
Australia	EMC, RF, Telecom, SAR, Safety	
Korea	EMI, EMS, RF, SAR, Telecom, Safety	
Japan	EMI, RF/Wireless, SAR, Telecom	
Singapore	EMC, RF, SAR, Telecom	
Europe	EMC, RF, SAR, Telecom, Safety	



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1. Report Revision History

Report No.	Report Version	Description	Issue Date
15070474-FCC-E	NONE	Original	August 21, 2015

2. Customer information

Applicant Name	Worldlinks Communications, L.L.C.
Applicant Add	270 Center Drive Suite 230, Vernon Hills, IL. 60061
Manufacturer	Shenzhen VSDREAM Technology Co., Ltd
Manufacturer Add	4F, Headquarters Building, zhonghaixin Science&Technology Park,Bulan Road, Buji
	Ave, Longgang Dist., Shenzhen, Guangdong, China

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park
Lab Address	South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong
	China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0



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4. Equipment under Test (EUT) Information

Description of EUT:	PHONE

Main Model: R50L

Serial Model: N/A

GSM850: 0.08 dBi PCS1900: 0.8 dBi

UMTS-FDD Band V: 0.08 dBi UMTS-FDD Band IV: 0.73 dBi UMTS-FDD Band II: 0.89 dBi

Bluetooth/BLE: 0.93 dBi

WIFI(2.4G): 0.93 dBi

WIFI(5G): 1.82 dBi

LTE Band 2: 0.88 dBi LTE Band 4: 0.75 dBi LTE Band 5: 0.07 dBi LTE Band 7: 1.42 dBi LTE Band 17: -1.73 dBi

GPS:-0.32dBi

Battery:

Model:AAP5-815

Standard Voltage:4.35V Rated Capacity:2150mAh

Input Power: Charging Voltage Limited: 4.35V

Adapter:

Model:KA25-0501000US

Input: AC100-240V; 50/60Hz; 0.25A

Output: DC 5.0V,1000mA

Trade Name: REDDOTMOBILE

FCC ID: 2ADNIR50L

Date EUT received: July 20, 2015



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Equipment Category: JBP

GSM / GPRS: GMSK

EGPRS: GMSK, 8PSK

UMTS-FDD: QPSK, 16QAM 802.11a/b/g/n: DSSS, OFDM

Type of Modulation:

Bluetooth: GFSK, π /4DQPSK, 8DPSK

BLE: GFSK

LTE Band: QPSK, 16QAM

GPS:BPSK

GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz

PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz

UMTS-FDD Band V TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz

UMTS-FDD Band IV TX:1712.4 \sim 1752.6 MHz; UMTS-FDD Band II TX:1852.4 \sim 1907.6 MHz;

RX: 1932.4 ~ 1987.6 MHz

WIFI:802.11b/g/n(20M): 2412-2462 MHz

WIFI:802.11n(40M): 2422-2452 MHz

WIFI:802.11a,n(20,40M): 5150-5250 MH

Bluetooth& BLE: 2402-2480 MHz

LTE Band 2 TX: $1852.5 \sim 1907.5$ MHz; RX: $1932.5 \sim 1987.5$ MHz LTE Band 4 TX: $1712.5 \sim 1752.5$ MHz; RX: $2112.5 \sim 2152.5$ MHz LTE Band 5 TX: $826.5 \sim 846.5$ MHz; RX: $871.5 \sim 891.5$ MHz

LTE Band 7 TX: 2502.5 ~ 2567.5 MHz; RX : 2622.5 ~ 2687.5 MHz LTE Band 17 TX: 706.5 ~ 713.5 MHz; RX : 736.5 ~ 743.5 MHz

GPS RX:1575.42 MHz

GSM 850: 124CH PCS1900: 299CH

UMTS-FDD Band V: 102CH
UMTS-FDD Band IV: 202CH
UMTS-FDD Band II: 277CH
WIFI:802.11b/g/n(20M): 11CH

WIFI :802.11n(40M): 7CH

Bluetooth: 79CH

BLE: 40CH GPS:1CH

RF Operating Frequency (ies):

Number of Channels:



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Port:	Power Port,	Earpl	hone Port,	USB	Port

GPRS/EGPRS Multi-slot class 8/10/12



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5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§15.107; ANSI C63.4: 2014	AC Power Line Conducted Emissions	Compliance
§15.109; ANSI C63.4: 2014	Radiated Emissions	Compliance

Measurement Uncertainty

Emissions			
Test Item Description Uncertainty			
Band Edge and Radiated Spurious Emissions	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB	
-	-	-	



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6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	25°C
Relative Humidity	50%
Atmospheric Pressure	1008mbar
Test date :	August 08, 2015
Tested By:	Winnie Zhang

Requirement(s):

Spec	Item	Requirement		Applicable	
47CFR§15.	a)	For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 [mu] H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.			>
107		Frequency ranges	Limit (
		(MHz)	QP	Average	
		0.15 ~ 0.5	66 – 56	56 – 46	
		0.5 ~ 5	56	46	
		5 ~ 30	60	50	
Test Setup Vertical Ground Reference Plane Test Receiver Horizontal Ground Reference Plane					
Note: 1.Support units were connected to second LISN. 2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.					
Procedure	 The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table. The power supply for the EUT was fed through a 50Ω /50mH EUT LISN, connected to 				
	filte	ered mains.			



Yes

Test Data

Test Plot

□_{N/A}

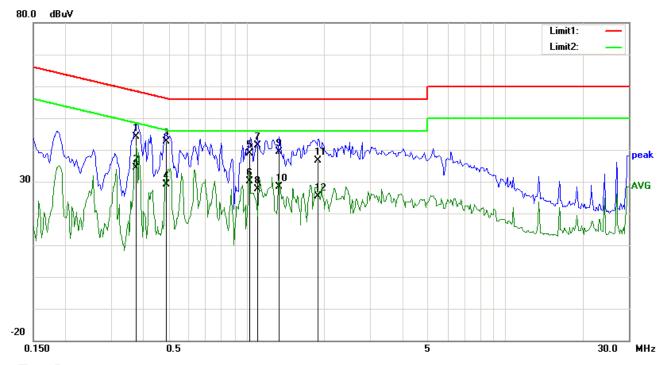
Yes (See below)

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	3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss
	coaxial cable.
	4. All other supporting equipment were powered separately from another main supply.
	5. The EUT was switched on and allowed to warm up to its normal operating condition.
	6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power)
	over the required frequency range using an EMI test receiver.
	7. High peaks, relative to the limit line, The EMI test receiver was then tuned to the
	selected frequencies and the necessary measurements made with a receiver bandwidt
	setting of 10 kHz.
	8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power).
Remark	
Result	Pass Fail



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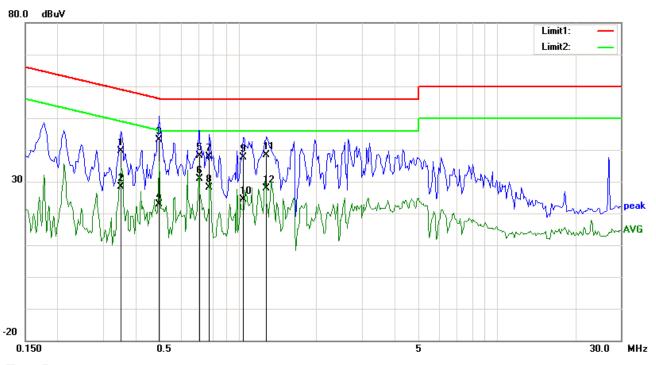
Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Comment
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)	
1	L1	0.3766	34.11	QP	10.03	44.14	58.35	-14.21	
2	L1	0.3766	24.23	AVG	10.03	34.26	48.35	-14.09	
3	L1	0.4898	32.50	QP	10.03	42.53	56.17	-13.64	
4	L1	0.4898	19.02	AVG	10.03	29.05	46.17	-17.12	
5	L1	1.0265	28.73	QP	10.03	38.76	56.00	-17.24	
6	L1	1.0265	20.22	AVG	10.03	30.25	46.00	-15.75	
7	L1	1.1031	31.23	QP	10.03	41.26	56.00	-14.74	
8	L1	1.1031	17.56	AVG	10.03	27.59	46.00	-18.41	
9	L1	1.3375	29.33	QP	10.03	39.36	56.00	-16.64	
10	L1	1.3375	18.44	AVG	10.03	28.47	46.00	-17.53	
11	L1	1.8961	26.54	QP	10.04	36.58	56.00	-19.42	
12	L1	1.8961	15.32	AVG	10.04	25.36	46.00	-20.64	



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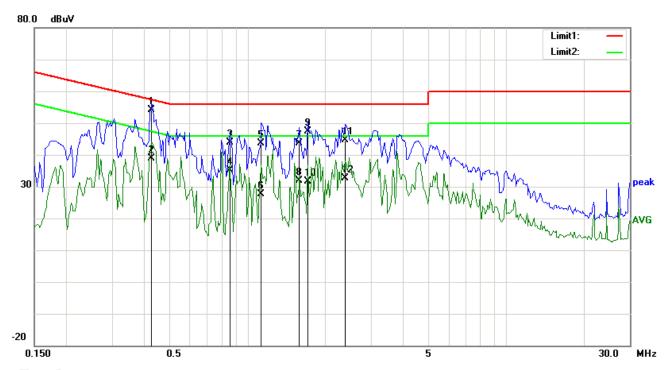
Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency Reading		Detector	Corrected	Result	Limit	Margin	Comment
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)	
1	N	0.3531	29.52	QP	10.02	39.54	58.89	-19.35	
2	N	0.3531	18.32	AVG	10.02	28.34	48.89	-20.55	
3	N	0.4938	33.23	QP	10.02	43.25	56.10	-12.85	
4	N	0.4938	12.94	AVG	10.02	22.96	46.10	-23.14	
5	N	0.7047	28.17	QP	10.02	38.19	56.00	-17.81	
6	N	0.7047	20.78	AVG	10.02	30.80	46.00	-15.20	
7	N	0.7750	27.88	QP	10.03	37.91	56.00	-18.09	
8	N	0.7750	18.16	AVG	10.03	28.19	46.00	-17.81	
9	N	1.0484	27.51	QP	10.03	37.54	56.00	-18.46	
10	N	1.0484	14.34	AVG	10.03	24.37	46.00	-21.63	
11	N	1.2867	28.43	QP	10.03	38.46	56.00	-17.54	
12	N	1.2867	17.82	AVG	10.03	27.85	46.00	-18.15	



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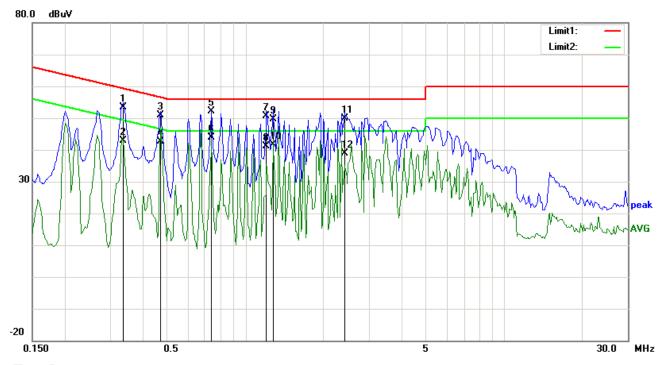
Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency Reading		Detector	Corrected	Result	Limit	Margin	Comment
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)	
1	L1	0.4273	44.00	QP	10.03	54.03	57.31	-3.28	
2	L1	0.4273	28.95	AVG	10.03	38.98	47.31	-8.33	
3	L1	0.8531	33.94	QP	10.03	43.97	56.00	-12.03	
4	L1	0.8531	25.03	AVG	10.03	35.06	46.00	-10.94	
5	L1	1.1305	33.56	QP	10.03	43.59	56.00	-12.41	
6	L1	1.1305	17.56	AVG	10.03	27.59	46.00	-18.41	
7	L1	1.5875	33.52	QP	10.04	43.56	56.00	-12.44	
8	L1	1.5875	21.86	AVG	10.04	31.90	46.00	-14.10	
9	L1	1.7086	37.27	QP	10.04	47.31	56.00	-8.69	
10	L1	1.7086	21.52	AVG	10.04	31.56	46.00	-14.44	
11	L1	2.3922	34.67	QP	10.05	44.72	56.00	-11.28	
12	L1	2.3922	22.57	AVG	10.05	32.62	46.00	-13.38	



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Test Data

Phase Neutral Plot at 240Vac, 60Hz

No.	P/L	Frequency Readin		Detector	Corrected	Result	Limit	Margin	Comment
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)	
1	N	0.3375	43.28	QP	10.02	53.30	59.26	-5.96	
2	N	0.3375	32.77	AVG	10.02	42.79	49.26	-6.47	
3	N	0.4703	40.93	QP	10.02	50.95	56.51	-5.56	
4	N	0.4703	32.72	AVG	10.02	42.74	46.51	-3.77	
5	N	0.7398	42.07	QP	10.02	52.09	56.00	-3.91	
6	N	0.7398	33.79	AVG	10.02	43.81	46.00	-2.19	
7	N	1.2086	40.72	QP	10.03	50.75	56.00	-5.25	
8	N	1.2086	31.16	AVG	10.03	41.19	46.00	-4.81	
9	N	1.2789	39.61	QP	10.03	49.64	56.00	-6.36	
10	N	1.2789	31.54	AVG	10.03	41.57	46.00	-4.43	
11	N	2.4195	39.82	QP	10.04	49.86	56.00	-6.14	
12	N	2.4195	28.76	AVG	10.04	38.80	46.00	-7.20	



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6.2 Radiated Emissions

Temperature	23°C
Relative Humidity	55%
Atmospheric Pressure	1031mbar
Test date :	July 31, 2015
Tested By:	Winnie Zhang

Requirement(s):

Spec	Item	tem Requirement Applicable				
47CFR§15.	a)	Except higher limit as specified else emissions from the low-power radio exceed the field strength levels spe the level of any unwanted emission the fundamental emission. The tigh edges	V			
109(d)	,	Frequency range (MHz)	Field Strength (μV/m)			
		30 - 88	100			
		88 – 216	150			
		216 960	200			
		Above 960	500			
Test Setup	Ant. Tower Support Units Turn Table Ground Plane Test Receiver					
Procedure	 The EUT was switched on and allowed to warm up to its normal operating condition. The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: Vertical or horizontal polarization (whichever gave the higher emission level 					



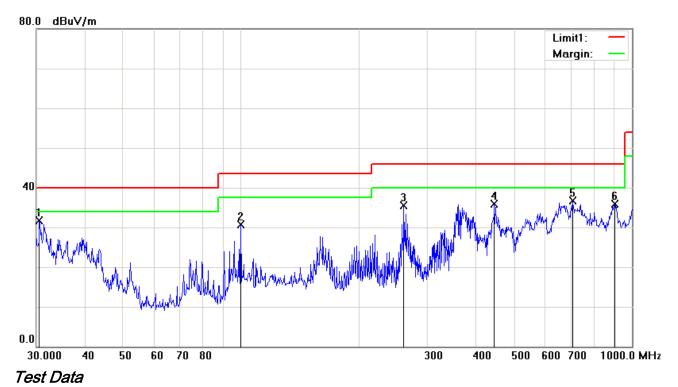
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			over a full rotation of the EUT) was chosen.
		b.	The EUT was then rotated to the direction that gave the maximum
			emission.
		C.	Finally, the antenna height was adjusted to the height that gave the maximum
			emission.
	3.	The res	solution bandwidth and video bandwidth of test receiver/spectrum analyzer is
		120 kH	z for Quasiy Peak detection at frequency below 1GHz.
	4.	The reso	olution bandwidth of test receiver/spectrum analyzer is 1MHz and video
		bandwi	dth is 3MHz with Peak detection for Peak measurement at frequency above
		1GHz.	
		The re	solution bandwidth of test receiver/spectrum analyzer is 1MHz and the video
		bandw	vidth with Peak detection for Average Measurement as below at frequency
		above	1GHz.
		■ 1 kH	Hz (Duty cycle < 98%) □ 10 Hz (Duty cycle > 98%)
	5.	Steps 2	2 and 3 were repeated for the next frequency point, until all selected frequency
		points \	were measured.
Remark			
Result	☑ Pa	ISS	☐ Fail
	7		
Test Data	Yes		N/A
Test Plot	Yes (S	See belo	w) N/A



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Below 1GHz



Horizontal Polarity Plot @3m

No.	P/L	Frequency	Readin g	Detector	Corrected	Result	Limit	Margin	Height	Degree	Comme nt
		(MHz)	(dBuV/ m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	()	
1	Н	30.5306	32.46	peak	-0.66	31.80	40.00	-8.20	153	0	
2	Н	99.8777	41.44	peak	-10.83	30.61	43.50	-12.89	200	149	
3	Н	261.0583	44.10	peak	-8.68	35.42	46.00	-10.58	100	229	
4	Н	444.8514	39.08	peak	-3.20	35.88	46.00	-10.12	100	109	
5	Н	704.2261	35.22	peak	1.47	36.69	46.00	-9.31	100	248	
6	Н	903.3094	31.12	peak	4.73	35.85	46.00	-10.15	200	317	

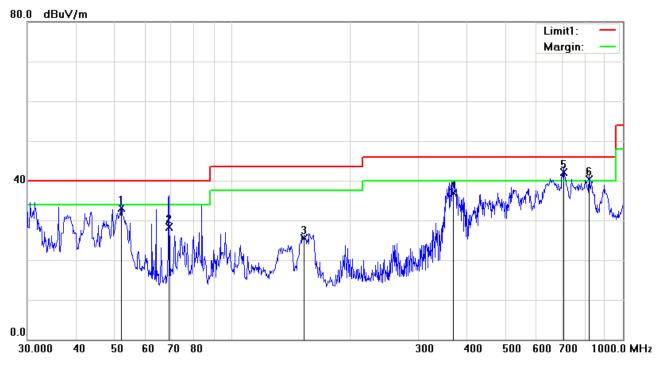
Above 1GHz

Note: The frequency that above 1GHz is mainly from the environment noise.



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Below 1GHz



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency	Readin g	Detector	Corrected	Result	Limit	Margin	Height	Degree	Comme nt
		(MHz)	(dBuV/ m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	()	
1	V	52.2079	46.55	QP	-13.44	33.11	40.00	-6.89	100	168	
2	V	69.1141	41.90	QP	-13.66	28.24	40.00	-11.76	200	214	
3	V	152.6641	33.90	QP	-8.37	25.53	43.50	-17.97	200	214	
4	V	368.1116	42.01	QP	-5.04	36.97	46.00	-9.03	100	243	
5	V	704.2261	40.65	QP	1.47	42.12	46.00	-3.88	100	257	
6	V	818.8341	36.77	QP	3.44	40.21	46.00	-5.79	100	104	

Above 1GHz

Note: The frequency that above 1GHz is mainly from the environment noise.



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Annex A. TEST INSTRUMENT

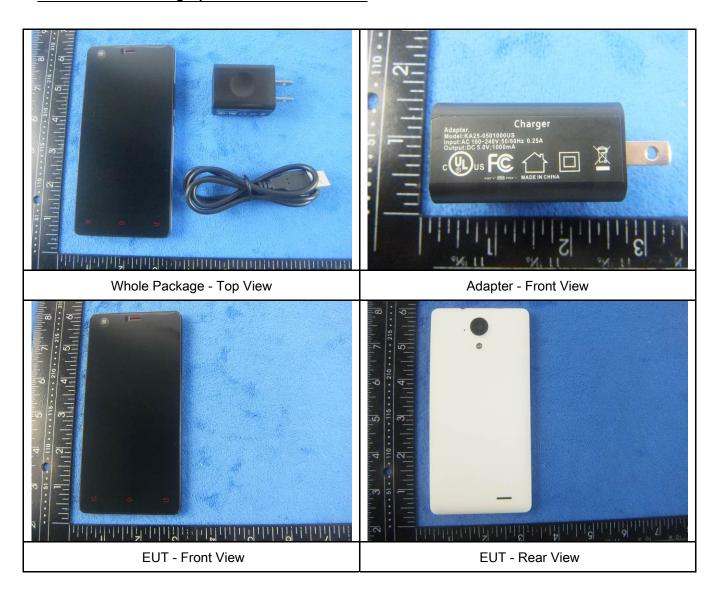
Instrument	Model	Serial #	Cal Date	Cal Due	In use	
AC Line Conducted Emissions						
EMI test receiver	ESCS30	8471241027	09/18/2014	09/17/2015	•	
Line Impedance Stabilization Network	LI-125A	191106	09/26/2014	09/25/2015	>	
Line Impedance Stabilization Network	LI-125A	191107	09/26/2014	09/25/2015	<u><</u>	
LISN	ISN T800	34373	09/26/2014	09/25/2015	<	
Transient Limiter	LIT-153	531118	09/02/2014	09/01/2015	<	
Radiated Emissions						
EMI test receiver	ESL6	100262	09/18/2014	09/17/2015	>	
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/02/2014	09/01/2015	>	
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/25/2015	03/24/2016	\	
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/22/2014	09/21/2015	\	
Double Ridge Horn Antenna	AH-118	71259	09/25/2014	09/24/2015	\(\z\)	



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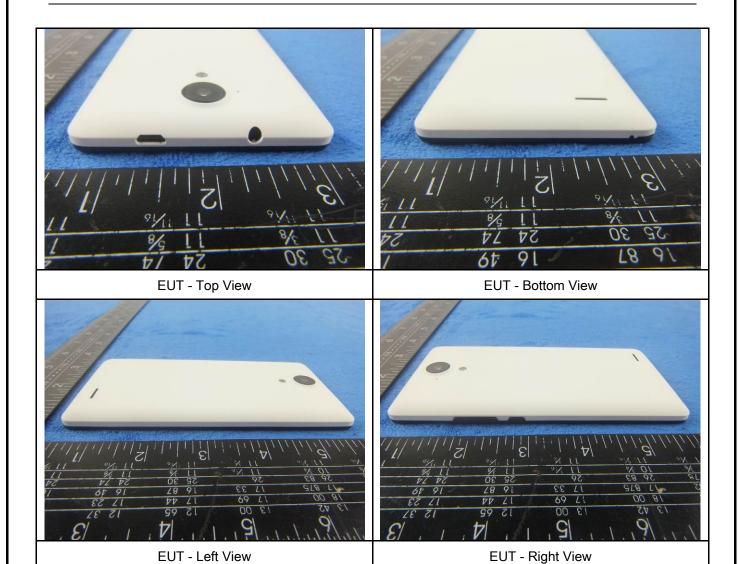
Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo





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Annex B.ii. Photograph: EUT Internal Photo



Cover Off - Top View 1



Cover Off - Top View 2



Battery - Top View



Battery - Bottom View



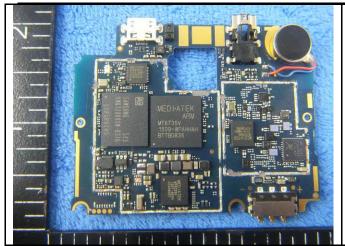
Mainbard with Shielding - Front View



Mainbard with Shielding - Rear View



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Mainboard without shielding - Front View

Mainbard without Shielding - Rear View





LCD - Front View

LCD - Rear View



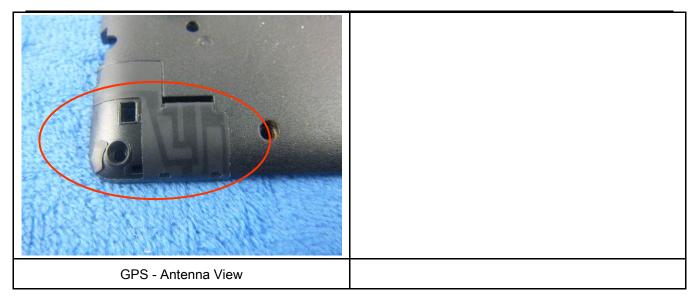


GSM/PCS/UMTS-FDD/LTE Antenna View

WIFI/BT/BLE - Antenna View



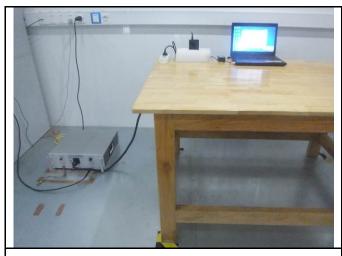
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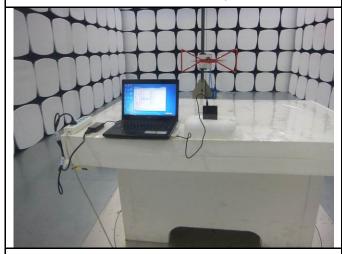
Annex B.iii. Photograph: Test Setup Photo



Conducted Emissions Test Setup - Front View



Conducted Emissions Test Setup - Side View



Radiated Spurious Emissions Test Setup Below 1GHz



Radiated Spurious Emissions Test Setup Above 1GHz

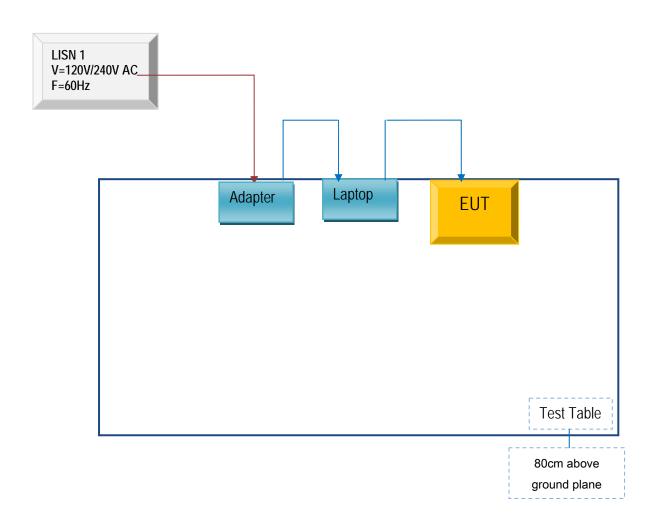


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Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

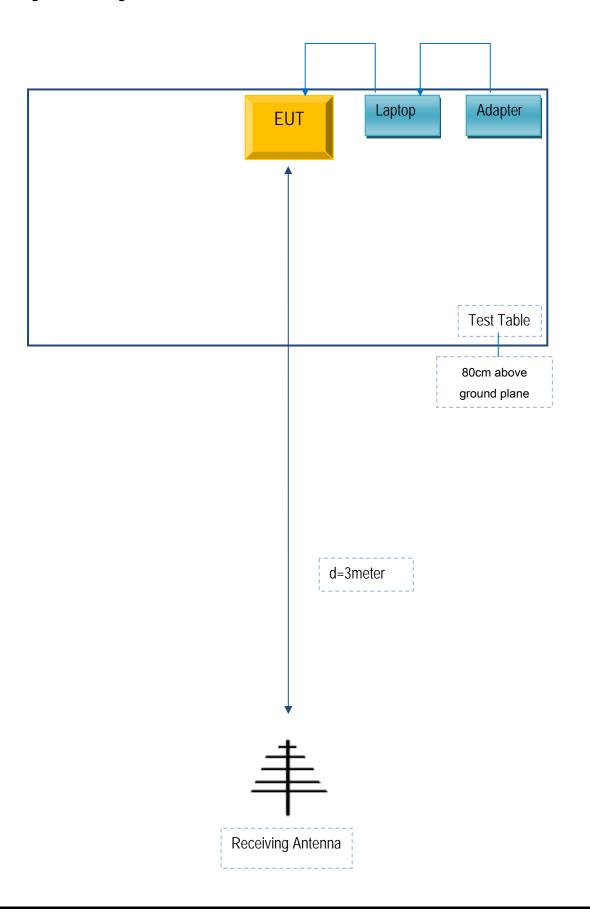
Block Configuration Diagram for Conducted Emissions





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Block Configuration Diagram for Radiated Emissions





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Annex C. il. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Manufacturer	Equipment Description	Model	Calibration Date	Calibration Due Date
Lenovo	Lenovo Laptop	E40& 0579A52	N/A	N/A



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Annex D. User Manual / Block Diagram / Schematics / Partlist

Please see Attachment



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Annex E. DECLARATION OF SIMILARITY

N/A