Variant FCC RF Test Report

APPLICANT	:	Lenovo Mobile Communication Technology Ltd.
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Lenovo
MODEL NAME	:	Lenovo K53b36, Lenovo K53b37
FCC ID	:	YCNK53B3
STANDARD	:	47 CFR Part 2, 22(H), 24(E), 27(L), 27(M)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

This is a variant report which is only valid together with the original test report. The product was received on Sep. 14, 2016 and completely tested on Oct. 08, 2016. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-D-2010 and the testing has shown the tested sample to be in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

James Huang

Prepared by: James Huang / Manager

Approved by: Jones Tsai / Manager

Testing Laboratory 2627

SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China

TABLE OF CONTENTS

REVISION HISTORY **3**

SUMMARY OF TEST RESULT **4**

1 GENERAL DESCRIPTION **5**

1.1. Applicant 5
1.2. Manufacturer 5
1.3. Product Feature of Equipment Under Test 5
1.4. Product Specification of Equipment Under Test 6
1.5. Modification of EUT 6
1.6. Maximum EIRP Power 7
1.7. Testing Location 8
1.8. Applicable Standards 8
1.9. Specification of Accessory 9

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST **10**

2.1 Test Mode 10
2.2 Connection Diagram of Test System 11
2.3 Support Unit used in test configuration and system 11
2.4 Frequency List of Low/Middle/High Channels 12

3 CONDUCTED TEST ITEMS **14**

3.1 Measuring Instruments 14
3.2 Test Setup 14
3.3 Test Result of Conducted Test 14
3.4 Conducted Output Power 14

4 RADIATED TEST ITEMS **15**

4.1 Measuring Instruments 15
4.2 Test Setup 15
4.3 Test Result of Radiated Test 15
4.4 Effective Isotropic Radiated Power 16
4.5 Radiated Spurious Emission 18

5 LIST OF MEASURING EQUIPMENT **19**

6 UNCERTAINTY OF EVALUATION **20**

APPENDIX A. TEST RESULTS OF CONDUCTED TEST

APPENDIX B. TEST RESULTS OF RADIATED TEST

APPENDIX C. TEST SETUP PHOTOGRAPHS

APPENDIX D. PRODUCT EQUALITY DECLARATION

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG691407B	Rev. 01	This is a variant report for Lenovo K53b36, Lenovo K53b37. The product equality declaration could be referred to Appendix D. Based on the similarity between two models, all Band Conducted Power, and worst cases of LTE Band 7 EIRP, and Spurious Emission from original test report (Sporton Report Number FG662005B) were verified for the differences.	Oct. 31, 2016

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
4.4	§27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 7)	EIRP < 2Watt	PASS	-
3.5	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 7)	< $55+10\log_{10}$(P[Watts])	PASS	Under limit 27.00 dB at 7584.000 MHz

1 General Description

1.1. Applicant

Lenovo Mobile Communication Technology Ltd.
No.999, Qishan North 2nd Road, Information & Optoelectronics Park, Torch Hi-tech Industry Development Zone, Xiamen, P. R. China

1.2. Manufacturer

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Lenovo
Model Name	Lenovo K53b36, Lenovo K53b37
FCC ID	YCNK53B3
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/ HSPA+(16QAM uplink is not supported)/LTE/ WLAN 2.4GHz 802.11b/g/n HT20/ Bluetooth v3.0 + EDR/Bluetooth v4.0 LE/Bluetooth v4.2 LE
IMEI Code	Conducted: 861901030037136/861901030037144 Radiation: 861901030036195/861901030036203 ERP/EIRP: 861901030037011/861901030037029
HW Version	82939_1_13
SW Version	K53_S016_160729_ROW
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are two different types of EUT. They are single SIM card mobile (Model Name: Lenovo K53b37) and dual SIM card mobile (Model Name: Lenovo K53b36). The others are the same including circuit design, PCB board, structure and all components. It is special to declare. According to the difference, the dual SIM card mobile is to perform full test for RF test.
3. After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose dual SIM1 card to perform all tests.

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz
Rx Frequency	LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7 : 2622.5MHz ~ 2687.5 MHz
Bandwidth	LTE Band 2 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 7 : 5MHz/ 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	LTE Band 2 : 23.33 dBm LTE Band 4 : 23.80 dBm LTE Band 5 : 24.70 dBm LTE Band 7 : 23.77 dBm
Type of Modulation	QPSK / 16QAM

1.5. Modification of EUT

No modifications are made to the EUT during all test items.

1.6. Maximum EIRP Power

LTE Band 7		QPSK	16QAM
BW (MHz)	**Frequency Range (MHz)**	**Maximum EIRP(W)**	**Maximum EIRP(W)**
5	2502.5 ~ 2567.5	0.1256	0.1067

1.7. Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.	
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958	
Test Site No.	**Sporton Site No.**	**FCC Registration No.**
	03CH03-KS	306251

1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 22(H), 24(E), 27(L), 27(M)
- ANSI / TIA / EIA-603-D-2010
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

1.9. Specification of Accessory

Specification of Accessory				
AC Adapter 1	**Brand Name**	Lenovo (Acbel)	**Model Name**	C-P35
	Power Rating	I/P: 100-240Vac, 300mA, O/P: 5.2Vdc, 2000mA		
AC Adapter 2	**Brand Name**	Lenovo (Huntkey)	**Model Name**	C-P35
	Power Rating	I/P: 100-240Vac, 500mA, O/P: 5.2Vdc, 2000mA		
Battery	**Brand Name**	Lenovo (SCUD)	**Model Name**	BL270
	Power Rating	3.85Vdc, 4000mAh		
Earphone	**Brand Name**	Lenovo (Cosonic)	**Model Name**	LS-118M
	Signal Line Type	1.1 meter, non-shielded cable, without ferrite core		
USB Cable 1	**Brand Name**	Lenovo(Starw)	**Model Name**	XJ-007070
	Signal Line Type	1.0 meter, non-shielded cable, without ferrite core		
USB Cable 2	**Brand Name**	Lenovo(Saibao)	**Model Name**	SWT-A053A
	Signal Line Type	1.0 meter, non-shielded cable, without ferrite core		
LCD Panel	**Brand Name**	O-FILM	**Model Name**	MTF-055-2594-03TMA
Camera_ Front	**Brand Name**	Q-Tech	**Model Name**	FX219BQS
Camera _ Rear	**Brand Name**	Sunny	**Model Name**	A16S05J-200
CTP Module	**Brand Name**	O-FILM	**Model Name**	Black：MCF-055-2594 White：MCF-055-2594 Golden：MCF-055-2594

2 Test Configuration of Equipment Under Test

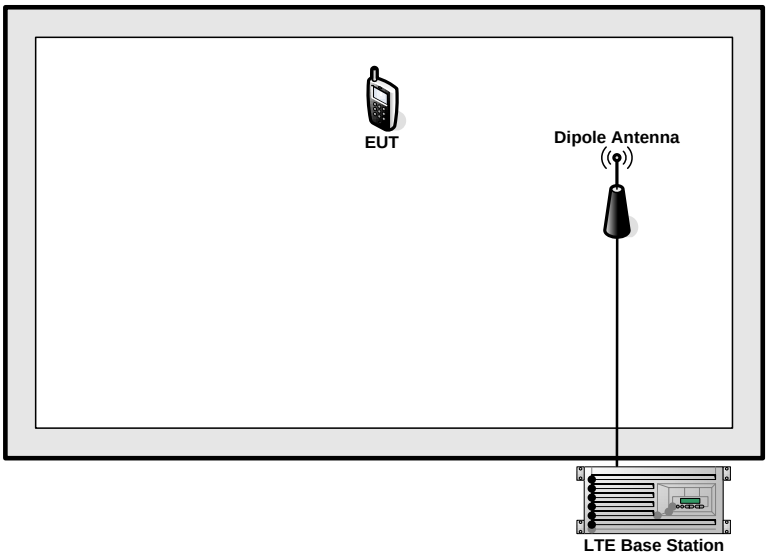
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v	v	v	v	v
E.R.P./ E.I.R.P.	7	-	-	v	-	-	-	v	v	v	-	-	v	v	v
Radiated Spurious Emission	7	-	-	-	-	v	-	v	-	v	-	-	-	v	-
Note	1. The mark "**v** " means that this configuration is chosen for testing. 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.														

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

2.4 Frequency List of Low/Middle/High Channels

LTE Band 2 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	18700	18900	19100
	Frequency	1860	1880	1900
15	Channel	18675	18900	19125
	Frequency	1857.5	1880	1902.5
10	Channel	18650	18900	19150
	Frequency	1855	1880	1905
5	Channel	18625	18900	19175
	Frequency	1852.5	1880	1907.5
3	Channel	18615	18900	19185
	Frequency	1851.5	1880	1908.5
1.4	Channel	18607	18900	19193
	Frequency	1850.7	1880	1909.3

LTE Band 4 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20050	20175	20300
	Frequency	1720	1732.5	1745
15	Channel	20025	20175	20325
	Frequency	1717.5	1732.5	1747.5
10	Channel	20000	20175	20350
	Frequency	1715	1732.5	1750
5	Channel	19975	20175	20375
	Frequency	1712.5	1732.5	1752.5
3	Channel	19965	20175	20385
	Frequency	1711.5	1732.5	1753.5
1.4	Channel	19957	20175	20393
	Frequency	1710.7	1732.5	1754.3

LTE Band 5 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	20450	20525	20600
	Frequency	829	836.5	844
5	Channel	20425	20525	20625
	Frequency	826.5	836.5	846.5
3	Channel	20415	20525	20635
	Frequency	825.5	836.5	847.5
1.4	Channel	20407	20525	20643
	Frequency	824.7	836.5	848.3

LTE Band 7 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20850	21100	21350
	Frequency	2510	2535	2560
15	Channel	20825	21100	21375
	Frequency	2507.5	2535	2562.5
10	Channel	20800	21100	21400
	Frequency	2505	2535	2565
5	Channel	20775	21100	21425
	Frequency	2502.5	2535	2567.5

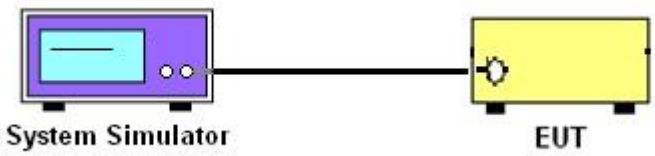
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.2 Test Setup

3.2.1 Conducted Output Power



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power

3.4.1 Description of the Conducted Output Power Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

3.4.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

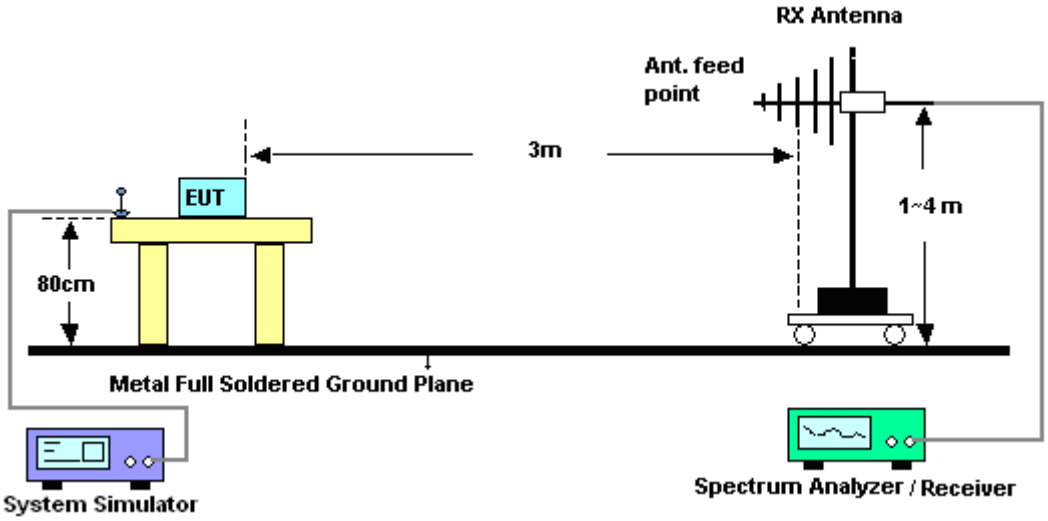
4 Radiated Test Items

4.1 Measuring Instruments

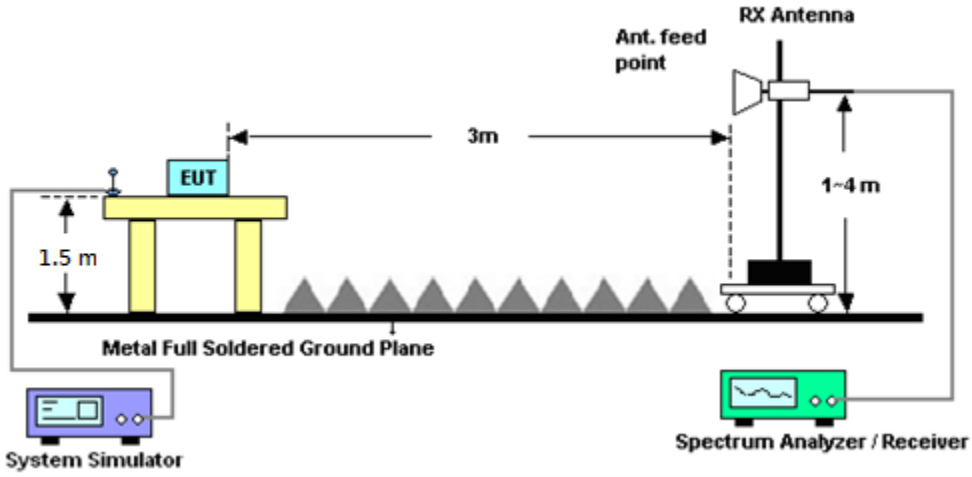
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 Effective Isotropic Radiated Power

4.4.1 Description of the EIRP Measurement

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-D-2010, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. Mobile and portable (hand-held) stations operating are limited to average EIRP of 2 watts with LTE band 7.

4.4.2 Test Procedures

1. The EUT was placed on a non-conductive rotating platform (0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz) in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
2. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-D. The EUT was replaced by the substitution antenna at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, EIRP = LVL + Correction factor and ERP = EIRP - 2.15. Take the record of the output power at substitution antenna.

	LTE Average					
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	3MHz	6MHz	10MHz	20MHz	30MHz	40MHz
RBW	30kHz	100kHz	100kHz	300kHz	300kHz	300kHz
VBW	100kHz	300kHz	300kHz	1MHz	1MHz	1MHz
Detector	RMS	RMS	RMS	RMS	RMS	RMS
Trace	Average	Average	Average	Average	Average	Average
Average Type	Power	Power	Power	Power	Power	Power
Sweep Count	100	100	100	100	100	100

4.5 Radiated Spurious Emission

4.5.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-D-2010. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 7

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.5.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
12. For Band 7:
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
    EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
    ERP (dBm) = EIRP - 2.15

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz; Max 30dB	Apr. 22, 2016	Oct. 08, 2016	Apr. 21, 2017	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz~2GHz	Apr. 16, 2016	Oct. 08, 2016	Apr. 15, 2017	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Apr. 16, 2016	Oct. 08, 2016	Apr. 15, 2017	Radiation (03CH03-KS)
SHF-EHF Horn	com-power	AH-840	101070	18GHz~40GHz	Oct. 10, 2015	Oct. 08, 2016	Oct. 09, 2016	Radiation (03CH03-KS)
Amplifier	SONOMA	310N	187289	9kHz~1GHz	Aug. 09, 2016	Oct. 08, 2016	Aug. 08, 2017	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02384	1~26.5GHz Gain 30dB	Oct. 24, 2015	Oct. 08, 2016	Oct. 23, 2016	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35 -HG	1887435	18GHz~40GHz	Jan. 20, 2016	Oct. 08, 2016	Jan. 19, 2017	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Oct. 08, 2016	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Oct. 08, 2016	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Oct. 08, 2016	NCR	Radiation (03CH03-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.5dB

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.5dB

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.6dB

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	22.83	22.77	22.90
20	1	49		22.93	23.05	22.92
20	1	99		22.48	22.97	22.77
20	50	0		21.96	21.87	22.01
20	50	24		22.00	22.11	22.10
20	50	50		21.87	21.98	22.00
20	100	0		21.95	22.06	22.02
20	1	0	16-QAM	21.95	22.12	21.83
20	1	49		22.22	21.87	21.85
20	1	99		21.57	22.23	21.78
20	50	0		20.92	20.94	20.99
20	50	24		20.98	21.07	21.09
20	50	50		20.86	21.05	21.04
20	100	0		20.83	20.98	21.03
15	1	0	QPSK	22.99	22.82	23.00
15	1	37		22.99	22.91	23.05
15	1	74		22.84	23.00	22.86
15	36	0		22.04	22.02	22.10
15	36	20		22.06	22.10	22.13
15	36	39		21.87	22.12	22.14
15	75	0		21.89	22.00	22.04
15	1	0	16-QAM	21.94	21.66	21.81
15	1	37		21.55	21.71	22.17
15	1	74		21.64	21.76	22.22
15	36	0		20.90	20.97	20.95
15	36	20		20.95	21.07	21.10
15	36	39		20.85	21.08	21.09
15	75	0		20.97	20.93	20.94

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	22.92	22.78	22.82
10	1	25		22.89	22.94	22.98
10	1	49		22.80	22.81	22.80
10	25	0		22.10	22.03	22.13
10	25	12		22.04	22.17	22.18
10	25	25		22.02	22.00	22.14
10	50	0		21.95	22.06	22.05
10	1	0	16-QAM	21.95	22.08	21.81
10	1	25		21.99	22.25	21.91
10	1	49		21.82	21.90	21.84
10	25	0		20.96	21.06	21.10
10	25	12		21.02	21.04	21.14
10	25	25		20.99	20.97	21.08
10	50	0		20.92	20.93	21.13
5	1	0	QPSK	22.96	22.79	23.05
5	1	12		23.06	22.78	23.16
5	1	24		22.76	23.21	22.89
5	12	0		21.93	21.98	22.05
5	12	7		22.05	22.12	22.10
5	12	13		22.11	22.01	22.07
5	25	0		22.02	21.99	22.20
5	1	0	16-QAM	21.81	21.61	21.86
5	1	12		21.59	21.50	21.82
5	1	24		22.15	21.65	21.77
5	12	0		20.90	20.85	21.03
5	12	7		20.85	21.04	21.18
5	12	13		20.91	21.03	21.05
5	25	0		20.90	20.97	21.28

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
3	1	0	QPSK	23.07	22.85	23.10
3	1	8		23.07	23.01	23.04
3	1	14		23.12	22.85	23.16
3	8	0		22.21	22.07	22.25
3	8	4		22.25	22.19	22.20
3	8	7		22.21	22.15	22.18
3	15	0		22.21	22.16	22.26
3	1	0	16-QAM	21.91	21.78	22.01
3	1	8		21.94	21.84	21.89
3	1	14		21.90	21.79	21.98
3	8	0		21.13	20.81	21.15
3	8	4		21.00	20.83	21.10
3	8	7		21.14	21.08	21.20
3	15	0		21.12	21.24	21.06
1.4	1	0	QPSK	23.06	23.08	23.10
1.4	1	3		23.18	23.23	23.16
1.4	1	5		22.89	23.06	23.00
1.4	3	0		23.20	23.12	23.21
1.4	3	1		23.24	23.16	23.18
1.4	3	3		23.24	23.16	23.33
1.4	6	0		22.21	22.11	22.24
1.4	1	0	16-QAM	21.86	21.96	22.10
1.4	1	3		21.90	21.89	22.02
1.4	1	5		21.87	21.83	21.96
1.4	3	0		22.15	22.01	22.09
1.4	3	1		22.19	22.15	22.18
1.4	3	3		22.19	22.15	22.15
1.4	6	0		21.13	21.07	21.23

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	23.35	23.47	23.47
20	1	49		23.39	23.63	23.80
20	1	99		23.28	23.37	23.32
20	50	0		22.62	22.61	22.71
20	50	24		22.57	22.57	22.58
20	50	50		22.48	22.52	22.57
20	100	0		22.57	22.59	22.65
20	1	0	16-QAM	22.53	22.39	22.55
20	1	49		22.42	22.39	22.30
20	1	99		22.36	22.24	22.34
20	50	0		21.48	21.53	21.64
20	50	24		21.55	21.67	21.52
20	50	50		21.58	21.58	21.52
20	100	0		21.50	21.53	21.59
15	1	0	QPSK	23.45	23.76	23.42
15	1	37		23.43	23.72	23.41
15	1	74		23.44	23.42	23.35
15	36	0		22.60	22.56	22.59
15	36	20		22.49	22.55	22.48
15	36	39		22.44	22.54	22.58
15	75	0		22.50	22.54	22.57
15	1	0	16-QAM	22.55	22.42	22.40
15	1	37		22.33	22.41	22.41
15	1	74		22.24	22.23	22.33
15	36	0		21.52	21.56	21.51
15	36	20		21.52	21.51	21.51
15	36	39		21.48	21.60	21.50
15	75	0		21.54	21.60	21.54

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	23.35	23.29	23.27
10	1	25		23.34	23.46	23.20
10	1	49		23.10	23.46	23.32
10	25	0		22.57	22.61	22.57
10	25	12		22.62	22.61	22.54
10	25	25		22.49	22.61	22.48
10	50	0		22.49	22.54	22.57
10	1	0	16-QAM	22.73	22.41	22.44
10	1	25		22.43	22.36	22.41
10	1	49		22.21	22.00	22.31
10	25	0		21.50	21.57	21.60
10	25	12		21.56	21.58	21.58
10	25	25		21.65	21.59	21.45
10	50	0		21.61	21.51	21.50
5	1	0	QPSK	23.46	23.44	23.37
5	1	12		23.33	23.54	23.32
5	1	24		23.12	23.27	23.40
5	12	0		22.55	22.54	22.53
5	12	7		22.42	22.58	22.50
5	12	13		22.48	22.56	22.65
5	25	0		22.47	22.59	22.61
5	1	0	16-QAM	22.37	22.32	22.40
5	1	12		22.21	22.16	22.20
5	1	24		22.29	22.32	22.43
5	12	0		21.42	21.61	21.31
5	12	7		21.47	21.61	21.38
5	12	13		21.53	21.45	21.40
5	25	0		21.51	21.50	21.57

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
3	1	0	QPSK	23.51	23.43	23.29
3	1	8		23.42	23.58	23.26
3	1	14		23.44	23.57	23.25
3	8	0		22.52	22.58	22.45
3	8	4		22.64	22.64	22.55
3	8	7		22.56	22.55	22.49
3	15	0		22.50	22.61	22.52
3	1	0	16-QAM	22.47	22.95	22.20
3	1	8		22.24	22.87	22.30
3	1	14		22.35	22.28	22.38
3	8	0		21.60	21.59	21.21
3	8	4		21.53	21.56	21.26
3	8	7		21.64	21.65	21.16
3	15	0		21.46	21.60	21.48
1.4	1	0	QPSK	23.30	23.54	23.53
1.4	1	3		23.55	23.57	23.66
1.4	1	5		23.40	23.46	23.57
1.4	3	0		23.42	23.62	23.56
1.4	3	1		23.51	23.60	23.69
1.4	3	3		23.51	23.59	23.58
1.4	6	0		22.45	22.58	22.57
1.4	1	0	16-QAM	22.49	22.42	22.18
1.4	1	3		22.44	22.35	22.42
1.4	1	5		22.53	22.40	22.32
1.4	3	0		22.43	22.59	22.36
1.4	3	1		22.53	22.62	22.58
1.4	3	3		22.45	22.68	22.66
1.4	6	0		21.32	21.54	21.49

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	24.12	24.40	24.25
10	1	25		24.57	24.56	24.43
10	1	49		24.37	24.25	24.32
10	25	0		23.59	23.46	23.49
10	25	12		23.51	23.43	23.41
10	25	25		23.49	23.42	23.44
10	50	0		23.44	23.43	23.41
10	1	0	16-QAM	23.25	23.07	23.06
10	1	25		23.29	23.23	23.17
10	1	49		22.96	23.19	23.03
10	25	0		22.47	22.54	22.48
10	25	12		22.59	22.53	22.42
10	25	25		22.62	22.47	22.48
10	50	0		22.60	22.33	22.46
5	1	0	QPSK	24.09	24.39	24.46
5	1	12		24.50	24.52	24.57
5	1	24		24.23	24.10	24.03
5	12	0		23.32	23.41	23.48
5	12	7		23.40	23.43	23.47
5	12	13		23.43	23.41	23.30
5	25	0		23.45	23.35	23.37
5	1	0	16-QAM	23.14	23.12	23.28
5	1	12		23.48	23.18	23.02
5	1	24		23.16	23.15	22.99
5	12	0		22.25	22.49	22.34
5	12	7		22.28	22.42	22.37
5	12	13		22.30	22.21	22.21
5	25	0		22.38	22.34	22.35

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
3	1	0	QPSK	24.37	24.37	24.68
3	1	8		24.42	24.40	24.32
3	1	14		24.43	24.59	24.34
3	8	0		23.38	23.41	23.50
3	8	4		23.51	23.44	23.44
3	8	7		23.62	23.43	23.50
3	15	0		23.59	23.46	23.40
3	1	0	16-QAM	23.03	23.21	23.56
3	1	8		23.06	23.21	22.86
3	1	14		23.27	23.36	23.68
3	8	0		22.58	22.52	22.41
3	8	4		22.76	22.46	22.35
3	8	7		22.65	22.46	22.42
3	15	0		22.55	22.38	22.51
1.4	1	0	QPSK	24.41	24.38	24.38
1.4	1	3		24.70	24.50	24.41
1.4	1	5		24.50	24.32	24.33
1.4	3	0		24.57	24.49	24.41
1.4	3	1		24.64	24.65	24.43
1.4	3	3		24.54	24.50	24.38
1.4	6	0		23.49	23.48	23.45
1.4	1	0	16-QAM	23.63	23.67	23.53
1.4	1	3		23.75	23.75	23.20
1.4	1	5		23.27	23.58	23.19
1.4	3	0		23.39	23.60	23.53
1.4	3	1		23.45	23.71	23.45
1.4	3	3		23.65	23.78	23.59
1.4	6	0		22.33	22.46	22.38

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	23.33	23.49	23.49
20	1	49		23.49	23.73	23.67
20	1	99		23.15	23.33	23.51
20	50	0		22.58	22.81	22.80
20	50	24		22.51	22.69	22.62
20	50	50		22.43	22.71	22.73
20	100	0		22.49	22.76	22.73
20	1	0	16-QAM	22.37	22.48	22.51
20	1	49		22.34	22.52	22.50
20	1	99		22.21	22.35	22.36
20	50	0		21.51	21.72	21.73
20	50	24		21.39	21.78	21.62
20	50	50		21.36	21.68	21.74
20	100	0		21.53	21.60	21.72
15	1	0	QPSK	23.37	23.55	23.73
15	1	37		23.35	23.77	23.77
15	1	74		23.17	23.71	23.69
15	36	0		22.52	22.75	22.87
15	36	20		22.60	22.78	22.82
15	36	39		22.47	22.84	22.73
15	75	0		22.49	22.79	22.84
15	1	0	16-QAM	22.51	22.40	22.75
15	1	37		22.30	22.67	22.58
15	1	74		22.24	22.53	22.43
15	36	0		21.49	21.69	21.70
15	36	20		21.51	21.81	21.69
15	36	39		21.36	21.73	21.70
15	75	0		21.48	21.61	21.64

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	23.35	23.45	23.51
10	1	25		23.53	23.68	23.70
10	1	49		23.19	23.69	23.50
10	25	0		22.44	22.85	22.79
10	25	12		22.59	22.82	22.68
10	25	25		22.54	22.82	22.69
10	50	0		22.58	22.79	22.78
10	1	0	16-QAM	22.33	22.65	22.90
10	1	25		22.33	22.56	22.80
10	1	49		22.34	22.61	22.53
10	25	0		21.41	21.80	21.75
10	25	12		21.51	21.92	21.89
10	25	25		21.55	21.70	21.71
10	50	0		21.58	21.72	21.81
5	1	0	QPSK	23.37	23.49	23.21
5	1	12		23.46	23.65	23.51
5	1	24		23.47	23.60	23.62
5	12	0		22.44	22.78	22.57
5	12	7		22.54	22.77	22.56
5	12	13		22.51	22.71	22.53
5	25	0		22.44	22.83	22.66
5	1	0	16-QAM	22.31	22.47	22.38
5	1	12		22.13	22.44	22.27
5	1	24		22.35	22.34	22.32
5	12	0		21.27	21.54	21.68
5	12	7		21.32	21.63	21.66
5	12	13		21.60	21.64	21.73
5	25	0		21.61	21.89	21.59

Appendix B. Test Results of Radiated Test

EIRP

LTE Band 7 / 5MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	24	20.71	0.1178	20.43	0.1104
Middle		1	12	20.99	0.1256	20.67	0.1167
Highest		1	24	20.86	0.1219	20.91	0.1233
Lowest	16QAM	1	24	19.80	0.0955	19.41	0.0873
Middle		1	0	20.28	0.1067	19.71	0.0935
Highest		1	0	19.79	0.0953	19.99	0.0998
Limit	EIRP < 2W			Result		PASS	

Radiated Spurious Emission

LTE Band 7 / 15MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5056	-65.00	-25	-40.00	-74.22	-71.56	2.41	8.97	H
	7584	-52.47	-25	-27.47	-66.17	-61.47	2.86	11.86	H
	10116	-57.28	-25	-32.28	-75.63	-66.18	3.21	12.11	H
	5056.68	-64.70	-25	-39.70	-73.41	-71.26	2.41	8.97	V
	7584	-52.00	-25	-27.00	-66.63	-61.00	2.86	11.86	V
	10116	-57.00	-25	-32.00	-76.4	-65.90	3.21	12.11	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Appendix D. Product Equality Declaration

Lenovo Mobile Communication Technology Ltd.
No.999, Qishan North 2nd Road, Information & Optoelectronics Park, Torch Hi-tech Industry Development Zone, Xiamen, P.R.China
Tel: 86-10-58866181; Fax: 86-10-56720293

Date: October 26, 2016

Product Equality Declaration

We, Lenovo Mobile Communication Technology Ltd., declare on our sole responsibility for the product of **Lenovo K53b36（Dual Sim）& Lenovo K53b37(Single Sim)** as below:

The differences between Lenovo K53b36（Dual Sim）& Lenovo K53b37(Single Sim) and previous as below:

Object		1st Source spec(G5.5)	2nd Source spec(G6.0)
LCD	The BLU code is not consistent	Item number code for TL055VDXP64-00	Item number code for TL055VDMP02-00
	BLU protective film color	wathet	carmine
	FPC shape difference	Bonding pad in FPC LCM appearance shape distance is 1.72, welding positioning hole is circular	Bonding pad in FPC LCM appearance shape distance is 2.52, the welding location hole for semicircle
	FPC jet printing on Mark is not consistent	sprinkle TL055VDXP64-00-FPC1	sprinkle TL055VDMP02-00-FPC1
	Glass border is not the same	1.0border	0.8border
	IC difference	Hx8399c	NT35596

And also **the variant test （2nd Source）reduces WCDMA Band Ⅱ power level comparing with the original test（2nd Source）.**

Except listings above, the others are all the same.

Should you have any questions or comments regarding this matter, please have my best attention.

Sincerely yours,

Weiting Sun

Contact Person: Sun weiting
COMPANY: Lenovo Mobile Communication Technology Ltd.
Tel: 86-10-58866181
Fax: 86-10-57874529
E-Mail: sunwt1@lenovo.com