FCC Test Report

APPLICANT	:	TCL Communication Ltd.
EQUIPMENT	:	LTE / UMTS / GSM Band Mobile Phone
MODEL NAME	:	7053J
FCC ID	:	2ACCJB033
STANDARD	:	FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	:	Certification

The product was received on Sep. 16, 2015 and testing was completed on Oct. 29, 2015. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2009 and has been 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 (SHENZHEN) INC., the test report shall not be reproduced except in full.

Prepared by: Andy Yeh / Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
2353

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC591604-01	Rev. 01	This is a variant product of 7053E, The product equality declaration could be referred to Appendix B. All the test cases were performed on original report which can be referred to Sporton Report Number FC591604 (Model name: 7053E; FCC ID: 2ACCJB034). Based on the original test report, only the worst cases of radiated emission were verified for the differences.	Nov. 23, 2015

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.09 dB at 165.810 MHz for Quasi-Peak

1. General Description

1.1. Applicant

TCL Communication Ltd.
5F, C-Tower, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area, Shanghai, 201203, P. R. China

1.2. Manufacturer

TCL Communication Ltd.
5F, C-Tower, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area, Shanghai, 201203, P. R. China

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	LTE / UMTS / GSM Band Mobile Phone
Model Name	7053J
FCC ID	2ACCJB033
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
IMEI	Radiation:014467000000542/014467000000559
HW Version	PIO
SW Version	V1.0
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4. Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 7 : 2622.5MHz ~ 2687.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS : 1.57542 GHz
Antenna Type	WWAN : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GPS : Internal Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA : QPSK (Uplink) HSDPA/DC-HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM uplink is not supported DC-HSDPA : 64QAM LTE: QPSK / 16QAM 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : π /4-DQPSK Bluetooth (3Mbps) : 8-DPSK GPS : BPSK

1.5. Specification of Accessory

Specification of Accessory				
AC Adapter	**Brand Name**	TENPAO	**Model Name**	UC11US
	Power Rating	I/P: 100-240Vac, 200mA, O/P: 5Vdc, 1000mA		
	P/N	CBA0058AG0C2		
Battery	**Brand Name**	JIADE	**Model Name**	TLp021CF
	Power Rating	3.8Vdc, 2150mAh		
	S/N	C2150009CFJ004UV		
USB Cable 1	**Brand Name**	JUWEI	**Model Name**	CDA0000025C2
	Signal Line Type	1.0meter,shielded cable, without ferrite core		
USB Cable 2	**Brand Name**	JUWEI	**Model Name**	CDA0000026C2
	Signal Line Type	1.0meter,shielded cable, without ferrite core		
Earphone 1	**Brand Name**	JUWEI	**Model Name**	CCB0023A10C1
	Signal Line Type	1.2meter,non-shielded cable, without ferrite core		
Earphone 2	**Brand Name**	JUWEI	**Model Name**	CCB0023B10C1
	Signal Line Type	1.2meter,non-shielded cable, without ferrite core		

1.6. Modification of EUT

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

1.7. Test Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755- 3320-2398	
Test Site No.	**Sporton Site No.**	**FCC Registration No.**
	03CH01-SZ	831040

1.8. Applicable Standards

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

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2009

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2009 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following tables are showing the test modes as the worst cases and recorded in this report.

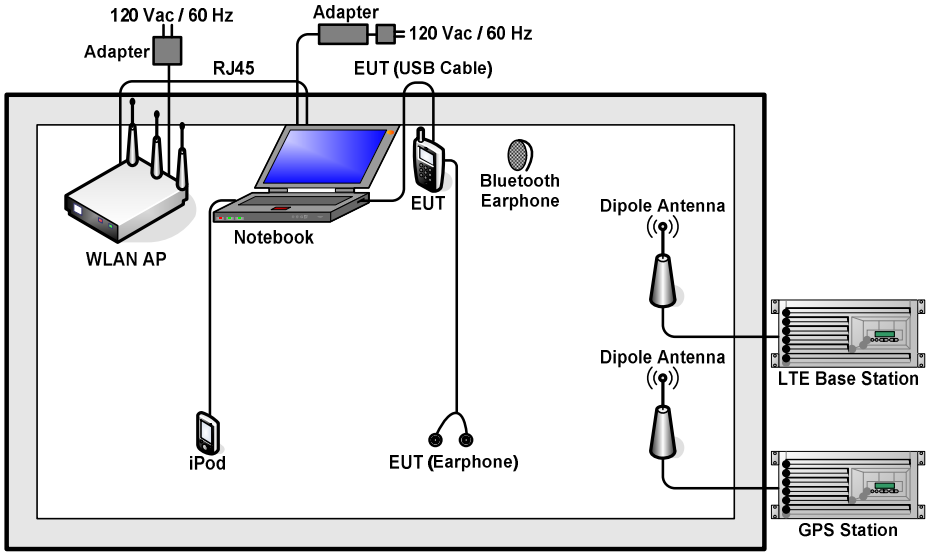
Item	EUT Configuration	Test Condition
		EMI RE
1.	Data application transferred mode (EUT with notebook)	☒

Abbreviations:

- EMI RE: EUT radiated emissions

Test Items	EUT Configure Mode	Function Type
Radiated Emissions	1	Mode 1 : LTE Band 2 Idle + Bluetooth Idle + WLAN Idle + Earphone 1 + SD Card + USB Cable 1 (Data Link with Notebook) + GPS Rx + SIM1
Remark: Data Link with Notebook means data application transferred mode between EUT and Notebook.		

2.2. Connection Diagram of Test System



2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	ASUSTek	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 2.7 m with Core
4.	Bluetooth Earphone	Samsung	HS3000	A3LHS3000	N/A	N/A
5.	Notebook	Lenovo	E540	FCC Doc	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	iPod	Apple	MC525 ZP/A	FCC Doc	Shielded, 1.0 m	N/A

2.4. EUT Operation Test Setup

The EUT was in LTE idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Data application is transferred between Notebook and EUT via USB cable.
2. Execute "GPS Test" to make the EUT receive continuous signals from GPS station.

3. Test Result

3.1. Test of Radiated Emission Measurement

3.1.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.1.2. Measuring Instruments

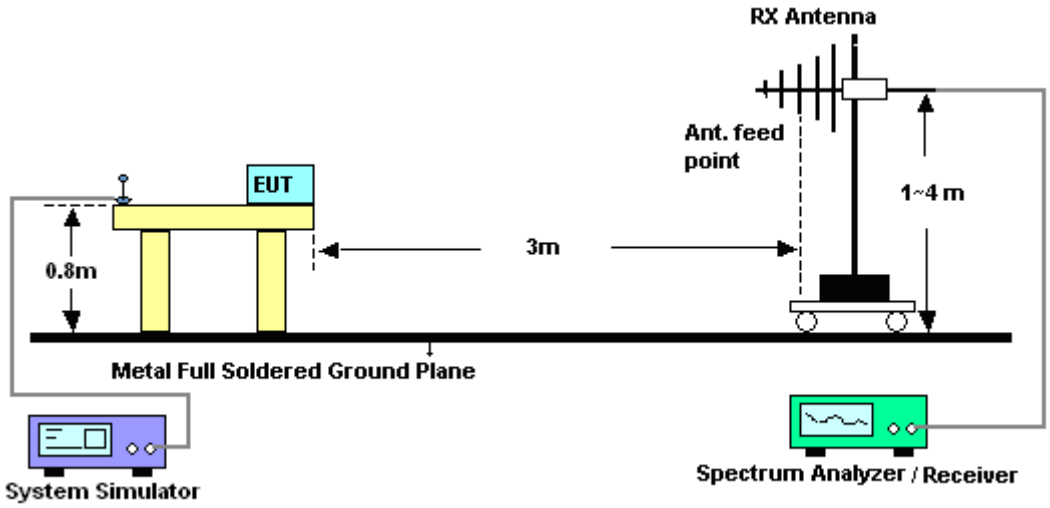
The measuring equipment is listed in the section 4 of this test report.

3.1.3. Test Procedures

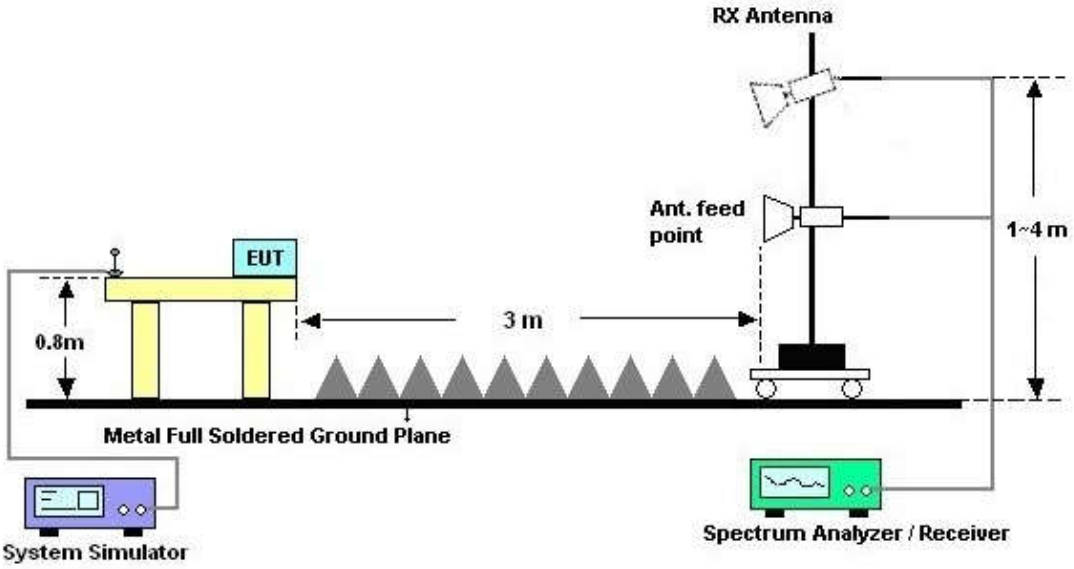
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dBμV/m) = 20 log Emission level (μV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.1.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz

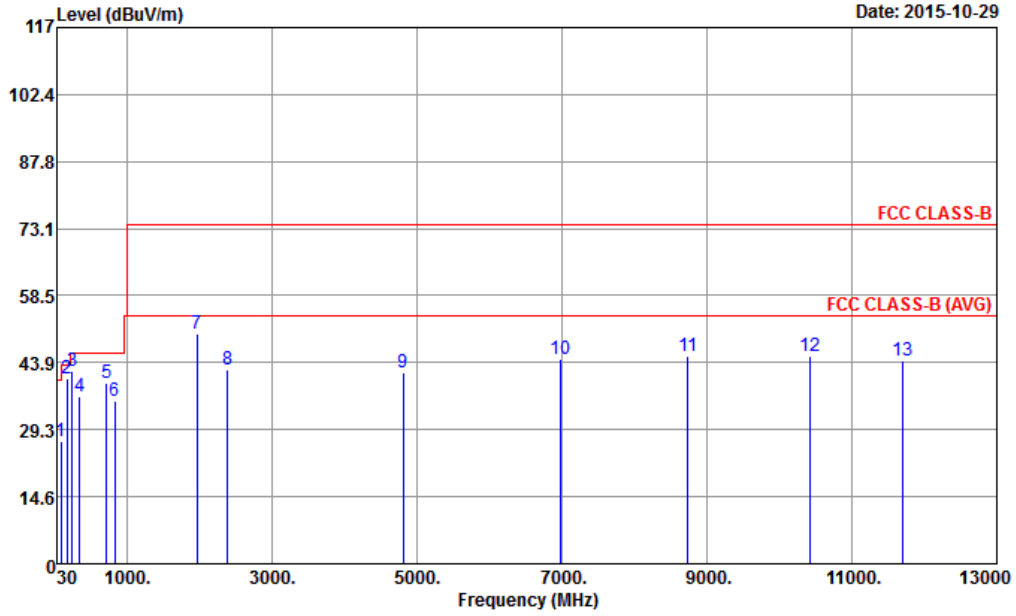


For radiated emissions above 1GHz



3.1.5. Test Result of Radiated Emission

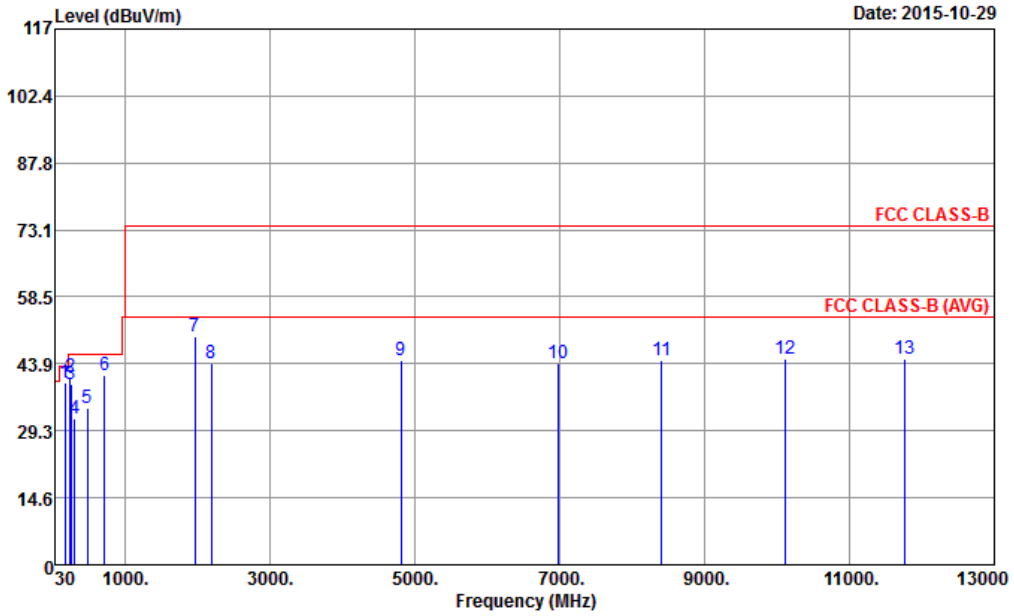
Test Mode :	Mode 1	**Temperature :**	23~25°C
Test Engineer :	Jeff Yao	**Relative Humidity :**	48~52%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	LTE Band 2 Idle + Bluetooth Idle + WLAN Idle + Earphone 1 + SD Card + USB Cable 1 (Data Link with Notebook) + GPS Rx + SIM1		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH01-SZ
Condition : FCC CLASS-B 3m LF_ANT_141107 HORIZONTAL

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	84.54	26.63	-13.37	40.00	41.11	10.32	1.04	25.84	---	---	Peak
2	165.81	40.41	-3.09	43.50	52.46	12.00	1.38	25.43	180	220	QP
3	240.06	42.00	-4.00	46.00	53.34	12.25	1.57	25.16	195	245	QP
4	345.50	36.42	-9.58	46.00	45.17	14.69	1.95	25.39	---	---	Peak
5	715.80	39.37	-6.63	46.00	42.36	20.64	2.71	26.34	---	---	Peak
6	825.00	35.54	-10.46	46.00	36.42	22.27	2.94	26.09	---	---	Peak
7	1960.00	50.22			72.55	31.74	4.57	58.64	---	---	Peak
8	2390.00	42.52	-31.48	74.00	63.45	32.60	5.10	58.63	---	---	Peak
9	4806.00	41.60	-32.40	74.00	58.08	34.39	7.43	58.30	---	---	Peak
10	6984.00	44.65	-29.35	74.00	56.44	36.11	9.27	57.17	---	---	Peak
11	8738.00	45.38	-28.62	74.00	55.72	36.48	10.93	57.75	100	0	Peak
12	10432.00	45.18	-28.82	74.00	53.50	38.45	12.25	59.02	---	---	Peak
13	11694.00	44.42	-29.58	74.00	52.46	39.31	12.60	59.95	---	---	Peak

Test Mode :	Mode 1	Temperature :	23~25°C
Test Engineer :	Jeff Yao	Relative Humidity :	48~52%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 2 Idle + Bluetooth Idle + WLAN Idle + Earphone 1 + SD Card + USB Cable 1 (Data Link with Notebook) + GPS Rx + SIM1		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH01-SZ
Condition : FCC CLASS-B 3m LF_ANT_141107 VERTICAL

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	165.54	39.79	-3.71	43.50	51.84	12.00	1.38	25.43	100	0	Peak
2	239.25	41.15	-4.85	46.00	52.52	12.23	1.57	25.17	---	---	Peak
3	254.10	39.44	-6.56	46.00	50.48	12.53	1.57	25.14	---	---	Peak
4	300.00	31.95	-14.05	46.00	41.18	14.10	1.71	25.04	---	---	Peak
5	479.90	34.33	-11.67	46.00	39.84	18.59	2.13	26.23	---	---	Peak
6	720.00	41.54	-4.46	46.00	44.43	20.73	2.71	26.33	---	---	Peak
7	1960.00	49.95			72.28	31.74	4.57	58.64	---	---	Peak
8	2190.00	44.04	-29.96	74.00	65.48	32.39	4.84	58.67	---	---	Peak
9	4804.00	44.57	-29.43	74.00	61.05	34.39	7.43	58.30	---	---	Peak
10	6982.00	44.10	-29.90	74.00	55.89	36.11	9.27	57.17	---	---	Peak
11	8412.00	44.81	-29.19	74.00	54.94	36.25	11.07	57.45	---	---	Peak
12	10120.00	45.02	-28.98	74.00	53.67	38.19	12.08	58.92	---	---	Peak
13	11766.00	45.13	-28.87	74.00	53.18	39.36	12.61	60.02	100	0	Peak

4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver&SA	Agilent Technologies	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2015	Oct. 29, 2015	May 25, 2016	Radiation (03CH01-SZ)
Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz;Max 30dBm	Jun. 07, 2015	Oct. 29, 2015	Jun. 06, 2016	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	23188	30MHz-2GHz	Oct. 17, 2015	Oct. 29, 2015	Oct. 16, 2016	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 17, 2015	Oct. 29, 2015	Oct. 16, 2016	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9kHz~3000MHz / 30 dB	Jan. 28, 2015	Oct. 29, 2015	Jan. 27, 2016	Radiation (03CH01-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Jan. 28, 2015	Oct. 29, 2015	Jan. 27, 2016	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Oct. 29, 2015	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Oct. 29, 2015	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Oct. 29, 2015	NCR	Radiation (03CH01-SZ)

5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.8 dB**

Appendix B. product equality declaration

5F, C-Tower, No. 232, Liang Jing Road,
ZhangJiang High-Tech Park,
Pudong Area,Shanghai,201203,P.R.China
TEL: +86(0)21 61460666
FAX: +86(0)21 61460602

Declaration of changes from Initial to Variant

General: 7053J is a variant product of 7053E

- **SOFTWARE MODIFICATIONS:**
  - Protocol Stack changes: No
  - MMS/STK/USAT/USIM changes: No
  - DM/SUPL/VT/FUMO/SWP/HCI: No (indicated the changed items if yes)
  - Other changes detailed: No

- **HARDWARE MODIFICATIONS:**
  - Band changes: Yes
  - 7053E (GSM 850/900/1800/1900 UMTS 850/1700/1900/2100 LTE B2/B4/B5/B7/B12/B17)
  - 7053J (GSM 850/900/1800/1900 UMTS 850/900/1900/2100 LTE B1/B2/B3/B4/B7/B28)
  - PCB Layout changes: No
  - Main RF components changes:

	Antenna	AP	Modem	Transceiver	Power Amplifier	Rx SAW Filter	ASM
GSM850	NO	No	No	No	NO	NO	NO
GSM900	NO	No	No	No	NO	NO	NO
GSM1800	NO	No	No	No	NO	NO	NO
GSM1900	NO	No	No	No	NO	NO	NO

	Antenna	AP	Modem	Transceiver	Power Amplifier	Tx SAW Filter	Rx SAW Filter	Duplexer	ASM
UMTS2100	NO	no	No	No	NO	NO	no	NO	NO
UMTS1900	NO	No	No	No	no	no	No	no	no
UMTS1700	no	NA	NA	NA	NA	NA	NA	NA	NA
UMTS900	NO	No	No	No	NO	NO	YES	YES	NO
UMTS850	NO	No	No	No	No	No	no	No	No

	Antenna	AP	Modem	Transceiver	Power Amplifier	Tx SAW Filter	Rx SAW Filter	Duplexer	ASM
LTE Band 1	NO	NO	NO	NO	NO	YES	YES	YES	NO
LTE Band 2	NO	NO	NO	NO	NO	NO	NO	NO	NO

LTE Band 3	NO	NO	NO	NO	NO	YES	YES	YES	NO
LTE Band 4	NO	NO	NO	NO	NO	NO	NO	NO	NO
LTE Band 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
LTE Band 7	NO	NO	NO	NO	NO	NO	NO	NO	NO
LTE Band 12	NA	NA	NA	NA	NA	NA	NA	NA	NA
LTE Band 17	NA	NA	NA	NA	NA	NA	NA	NA	NA
LTE Band 28	NO	NO	NO	NO	NO	YES	YES	YES	NO

	Antenna	**AP**	**Modem**	**Transceiver**	**Power Amplifier**	**Balun**	**Band pass filter**	**Diplexer**
Bluetooth	NO	No	No	No	No	No	No	No
Wi-Fi	NO	No	No	No	No	No	No	No

- FM changes: No
- LCD/ Speaker/ Camera/ Vibrator changes: (indicated the changed items if yes) No
- Other changes detailed: NO

- **MECHANICAL MODIFICATIONS:**
  - Use new metal front/back cover or keypad: No
  - Mechanical shell changes:
    Whole size of EUT: No
    Distance of Ear reference point to bottom of handset: No
    Other trinkets to change the surface of handset: No
  - Other changes detailed: No

APPROVED BY:
Project Manager: Tiffany Tang
Signature:

Date: 2015-11-06