FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT1922-6, XT1922-7, XT1922-9
FCC ID	:	IHDT56XB1
STANDARD	:	FCC 47 CFR Part 2, 27D
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Mar. 20, 2018 and completely tested on Apr. 11, 2018. We, Sporton International (Shenzhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI/TIA-603-E and shown 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.

Eric Shih

TESTING
NVLAP LAB CODE 600156-0

Approved by: Eric Shih / Manager

Sporton International (Shenzhen) Inc.
1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City
Guangdong Province 518055 China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG832002C	Rev. 01	Initial issue of report	May 31, 2018

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
-	§2.1046	Conducted Output Power	Reporting Only	Not Required	-
-	-	Peak-to-Average Ratio	<13dB	Not Required	-
-	§27.50 (a)(3)	EIRP Power Density	EIRP < 250mW/5MHz	Not Required	-
-	§2.1049	Occupied Bandwidth	Reporting Only	Not Required	-
-	§2.1051 §27.53 (a)(4)	Conducted Band Edge Measurement	Refer standard	Not Required	-
-	§2.1051 §27.53 (a)(4)	Conducted Spurious Emission	< $70+10\log_{10}$(P[Watts])	Not Required	-
-	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within the band	Not Required	-
3.4	§2.1053 §27.53 (a)(4)	Radiated Spurious Emission	< $70+10\log_{10}$(P[Watts])	PASS	Under limit 7.94 dB at 11526.25 MHz

Remark: Not Required means the changes does not affect the test result.

1 General Description

1.1 Applicant

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

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	Motorola
Model Name	XT1922-6, XT1922-7, XT1922-9
FCC ID	IHDT56XB1
EUT supports Radios application	CDMA/EV-DO/GSM/GPRS/EGPRS/WCDMA/HSPA/ DC-HSDPA/HSPA+(16QAM uplink is not supported)/LTE WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 Bluetooth v3.0 + EDR/Bluetooth v4.0 LE/ Bluetooth v4.1 LE/Bluetooth v4.2 LE
IMEI Code	Radiation: 351864090040753
HW Version	DVT2
SW Version	jeter_oem_userdebug_8.0.0_OPP27.34_970_intcfg-test-keys_oem
EUT Stage	Identical Prototype

Remark:

1. For XT1922-6, XT1922-7, XT1922-9, they are the same product except model name different for market segment.
2. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
3. This is a variant report for XT1922-6, XT1922-7, XT1922-9. The product equality declaration could be referred to Appendix C. According to the difference, only the cases of RSE from original test report (Sporton Report Number FG7D1310C) were verified for the differences with the sample 1.
4. According to original test report, LTE Band 30 is the worst band of all CDMA/GSM/WCDMA/LTE Bands for RSE, so we only evaluate LTE band 30 to verify the differences.

1.4 Product Specification of Equipment Under Test

Product Feature	
Tx Frequency	LTE Band 30 : 2307.5 MHz ~ 2312.5 MHz
Rx Frequency	LTE Band 30 : 2352.5 MHz ~ 2357.5 MHz
Bandwidth	5MHz / 10MHz
Antenna Type/Gain	PIFA Antenna / 0.50dBi
Type of Modulation	QPSK / 16QAM / 64QAM

1.5 Specification of Accessory

Specification of Accessory				
AC Adapter 1	**Brand Name**	Motorola (Acbel)	**Model Name**	C-P35 SPN5945A
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
AC Adapter 2	**Brand Name**	Motorola (Salom)	**Model Name**	SSW-2919UMTJ C-P35 SPN5945A
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
Battery(sample 1/3)	**Brand Name**	Lenovo (SCUD)	**Model Name**	BL270
	Power Rating	3.85/4.4Vdc,4000mAh	**Type**	Li-ion
Battery(sample 2/4)	**Brand Name**	Lenovo (ATL)	**Model Name**	BL270
	Power Rating	3.85/4.4Vdc,4000mAh	**Type**	Li-ion
USB Cable 1	**Brand Name**	Motorola (Saibao)	**Model Name**	SLQ-A077A
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		
USB Cable 2	**Brand Name**	Motorola (Saibao)	**Model Name**	SLQ-A077A
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		

1.6 Modification of EUT

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

1.7 Testing Site

Sporton International (Shenzhen) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0) and the FCC designation No is CN5019.

Test Site	Sporton International (Shenzhen) Inc.	
Test Site Location	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan District Shenzhen City Guangdong Province 518055 China TEL: +86-755-3320-2398	
Test Site No.	**Sporton Site No.**	**FCC Test Firm Registration No.**
	03CH03-SZ	577730

Note: The test site complies with ANSI C63.4 2014 requirement.

1.8 Applied Standards

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

- 47 CFR Part 2, Part 27(D)
- ANSI/TIA-603-E
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01

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.

2 Test Configuration of Equipment Under Test

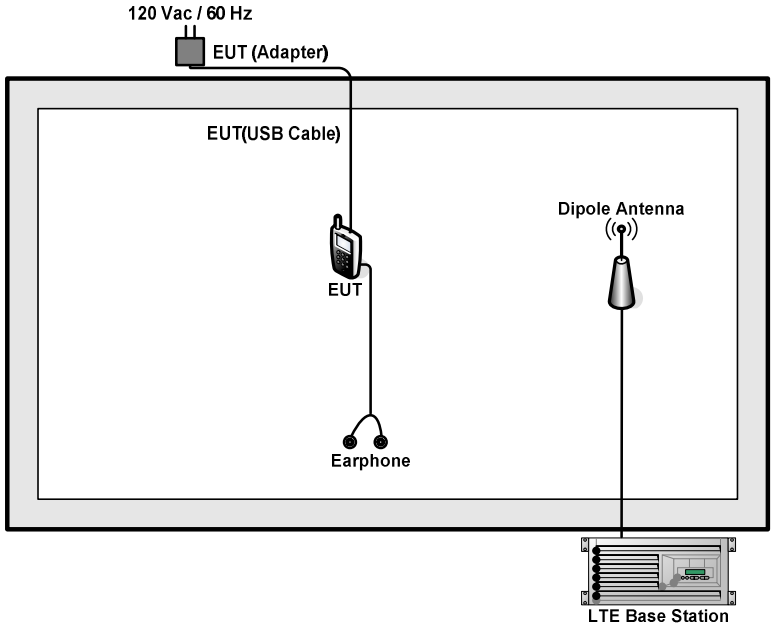
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

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

Conducted Test Cases	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Radiated Spurious Emission	30			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.	Earphone	Moto	Ashley ROW	N/A	Unshielded,1.2m	N/A

2.4 Frequency List of Low/Middle/High Channels

LTE Band 30 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	-	27710	-
	Frequency	-	2310	-
5	Channel	27685	27710	27735
	Frequency	2307.5	2310	2312.5

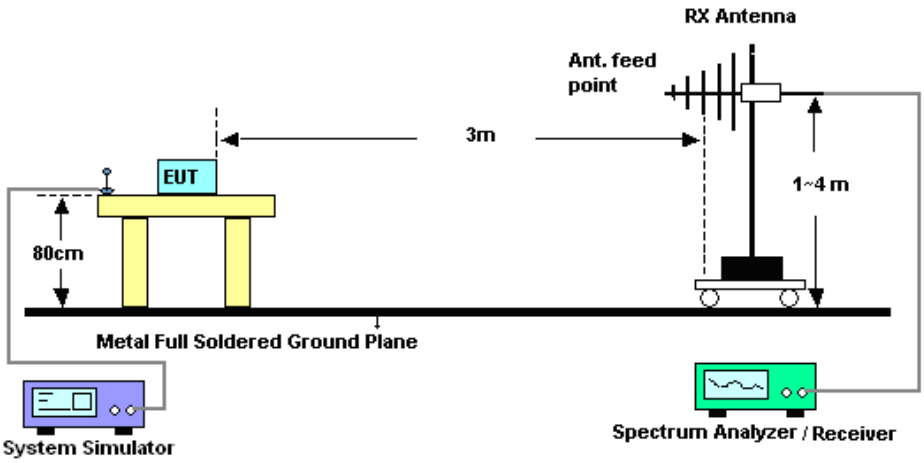
3 Radiated Test Items

3.1 Measuring Instruments

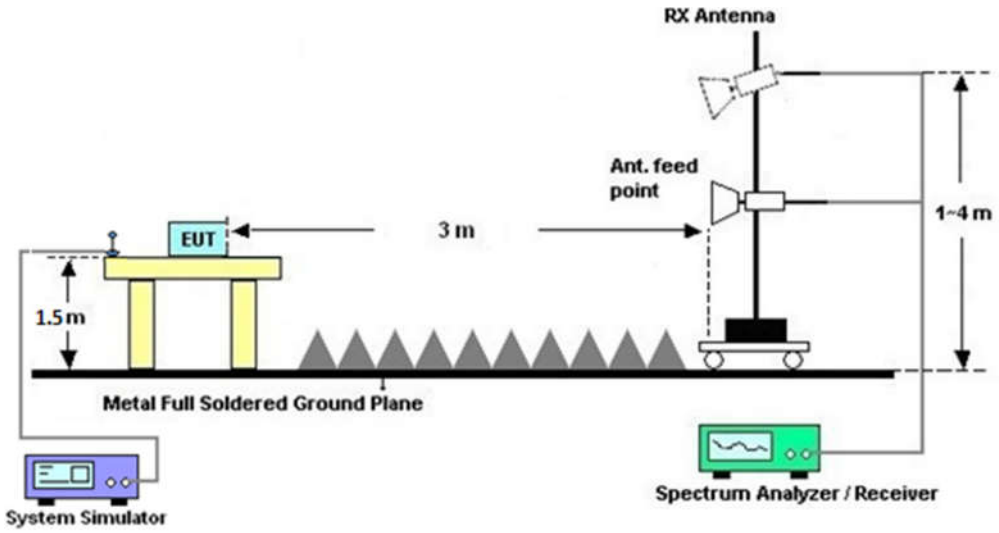
See list of measuring instruments of this test report.

3.2 Test Setup

3.2.1 For radiated test from 30MHz to 1GHz



3.2.2 For radiated test above 1GHz



3.3 Test Result of Radiated Test

Please refer to Appendix B.

3.4 Radiated Spurious Emission Measurement

3.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI/TIA-603-E. 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 70 + 10 log (P) dB.

3.4.2 Test Procedures

1. 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.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. 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.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 70 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [70 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [70 + 10log(P)] (dB)
    = -40dBm.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 20, 2017	Apr. 11, 2018	Apr. 19, 2018	Radiation (03CH03-SZ)
EXA Spectrum Anaiyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 20, 2017	Apr. 11, 2018	Apr. 19, 2018	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	May 14, 2017	Apr. 11, 2018	May 13, 2018	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120 D	9120D-1355	1GHz~18GHz	Jul. 09, 2017	Apr. 11, 2018	Jul. 08, 2018	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct. 19, 2017	Apr. 11, 2018	Oct. 18, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35 -HG	1871923	18GHz~40GHz	Jul. 18, 2017	Apr. 11, 2018	Jul. 17, 2018	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Jun. 16, 2017	Apr. 11, 2018	Jun. 15, 2018	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Dec. 27, 2017	Apr. 11, 2018	Dec. 26, 2018	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Apr. 11, 2018	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Apr. 11, 2018	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Apr. 11, 2018	NCR	Radiation (03CH03-SZ)

NCR: No Calibration Required

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))	3.0dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.6dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.8dB

Appendix A. Test Results of Radiated Test

Radiated Spurious Emission

LTE Band 30 / 5MHz / 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)
Lowest	4610.50	-57.22	-40	-17.22	-73.38	-64.27	5.64	12.69	H
	6915.75	-57.45	-40	-17.45	-78.28	-60.91	8.23	11.69	H
	9221.00	-53.01	-40	-13.01	-78.63	-56.79	8.12	11.90	H
	11526.25	-49.53	-40	-9.53	-78.55	-53.69	8.82	12.98	H
	4610.50	-58.96	-40	-18.96	-74.88	-66.01	5.64	12.69	V
	6915.75	-56.67	-40	-16.67	-78.76	-60.13	8.23	11.69	V
	9221.00	-53.60	-40	-13.60	-79.24	-57.38	8.12	11.90	V
	11526.25	-47.94	-40	-7.94	-77.1	-52.10	8.82	12.98	V

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

Appendix C. Product Equality Declaration

Motorola Mobility LLC.

222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

Product Equality Declaration

We, Motorola Mobility LLC. declare on our sole responsibility for the product of XT1922-6/XT1922-7/XT1922-9.

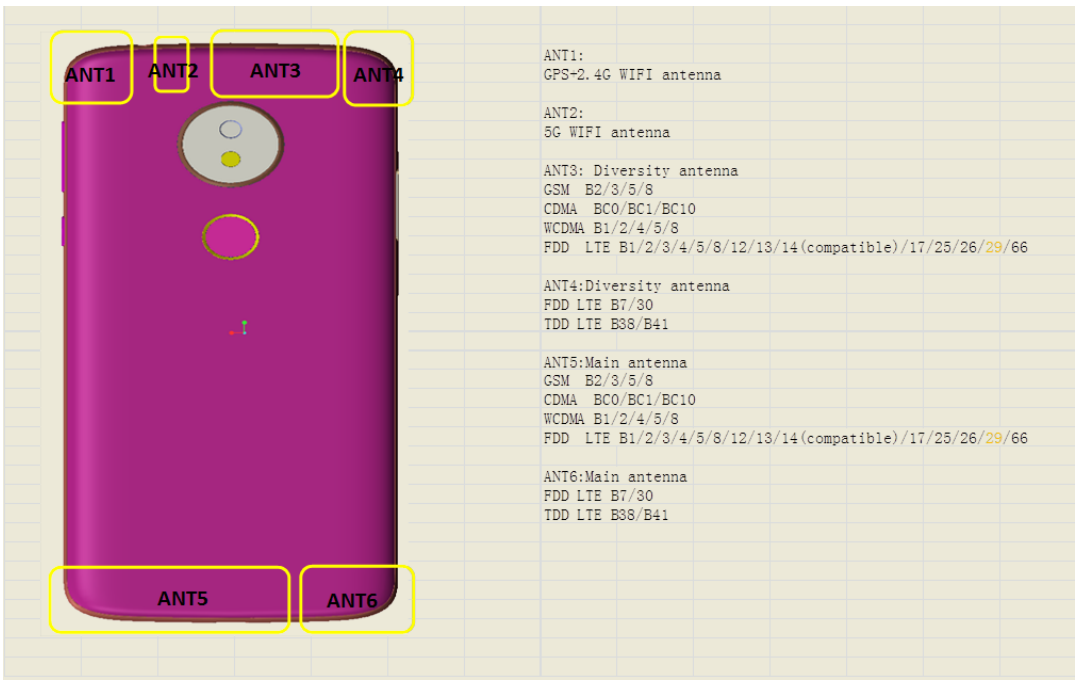
The detail differences between variant and original as below:

◆ Add 2nd source suppliers component

component	Original Sample	Variant Sample 1	Variant Sample 2	Variant Sample 3	Variant Sample 4
CPU	Qualcomm MSM-8920-9-720BNSP-TR-00-0-AA	Qualcomm MSM-8953-2-857NSP-TR-01-0-AB	Qualcomm MSM-8953-2-857NSP-TR-01-0-AB	Qualcomm MSM-8953-2-857NSP-TR-01-0-AB	Qualcomm MSM-8953-2-857NSP-TR-01-0-AB
Front Camera	Kingcome 06B5-L3100FF	Kingcome 06B5-L3100FF	Holitech PLQ8816M	Kingcome 06B5-L3100FF	Holitech PLQ8816M
Rear Camera	Truly CMC958-B13BA-E	Truly CMC958-B13BA-E	Holitech TLQ8817M	Truly CMC958-B13BA-E	Holitech TLQ8817M
Memory	Samsung KMGX6001BM-B514	Samsung KMGX6001BM-B514	Hynix H9TQ26ADFTBCUR-KUM	Samsung KMQE60013M-B318	Micron MT29TZZZ5D6DKFRL-107W.9A6
Battery	SCUD BL270 3.85V 4000mAh	SCUD BL270 3.85V 4000mAh	ATL BL270 3.85V 4000mAh	SCUD BL270 3.85V 4000mAh	ATL BL270 3.85V 4000mAh
PCB	EEK LLDM311B6-5	EEK LLDM311B6-5	MEIKO LLDM311B6-5	EEK LLDM311B6-5	MEIKO LLDM311B6-5
LCM	Tianma TM057JVSS12-00	Tianma TM057JVSS12-00	DJN 98-03057-6483B-H	Tianma TM057JVSS12-00	DJN 98-03057-6483B-H
Motor	AWA FS-3032	AWA FS-3032	DMEGC CHENJI DM-YX416-2	AWA FS-3032	DMEGC CHENJI DM-YX416-2
FPS	O-film ETW-0898-03	O-film ETW-0898-03	Kerr 9111-040006201	O-film ETW-0898-03	Kerr 9111-040006201

◆ Antenna difference

Sample 1 and 3 in the variant 4 Sample files are different from 5G WiFi Pattern, but others are the same as the original ones.



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,

Dai Lihua

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