



Spot Check Evaluation

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Phone
BRAND NAME : Motorola, Lenovo
MODEL NAME : XT2227-3, XT2227-4
FCC ID : IHDT56AD7
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27(M), 90(S)
47 CFR Part 15 Subpart C §15.247
47 CFR Part 15 Subpart B

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures 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 Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alex Wang

Approved by: Alex Wang / Manager



Sporton International Inc. (Kunshan)

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TABLE OF CONTENTS

REVISION HISTORY..... 3

1 GENERAL DESCRIPTION..... 4

 1.1 Applicant 4

 1.2 Manufacturer..... 4

 1.3 Product Feature of Equipment Under Test..... 4

 1.4 Specification of Accessory..... 5

 1.5 Modification of EUT 5

 1.6 Testing Location 6

2 RE-USE OF MEASURED DATA..... 7

 2.1 Introduction Section 7

 2.2 Model Difference Information 7

 2.3 Reference detail Section: 7

 2.4 Spot Check Verification Data Section..... 8

3 LIST OF MEASURING EQUIPMENT..... 10

APPENDIX A. SETUP PHOTOGRAPHS



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1N3013-02	Rev. 01	Initial issue of report	Feb. 11, 2022



1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago, IL60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago, IL60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	Motorola, Lenovo
Model Name	XT2227-3, XT2227-4
FCC ID	IHDT56AD7
EUT supports Radios application	GSM/WCDMA/LTE WLAN 2.4GHz 802.11b/g/n HT20 Bluetooth BR/EDR/LE GNSS and FM Receiver
HW Version	DVT2
SW Version	ROR31.83
EUT Stage	Identical Prototype

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 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	Brand Name	Motorola(Chenyang)	Model Name	MC-101
AC Adapter 1(EU)	Brand Name	Motorola(Chenyang)	Model Name	MC-102
AC Adapter 1(UK)	Brand Name	Motorola(Chenyang)	Model Name	MC-103
AC Adapter 1(IN)	Brand Name	Motorola(Chenyang)	Model Name	MC-104
AC Adapter 1(AU)	Brand Name	Motorola(Chenyang)	Model Name	MC-105
AC Adapter 1(AR)	Brand Name	Motorola(Chenyang)	Model Name	MC-106
AC Adapter 1(PRC)	Brand Name	Motorola(Chenyang)	Model Name	MC-108
AC Adapter 2(US)	Brand Name	Motorola(Aohai)	Model Name	MC-101
AC Adapter 2(EU)	Brand Name	Motorola(Aohai)	Model Name	MC-102
AC Adapter 2(UK)	Brand Name	Motorola(Aohai)	Model Name	MC-103
AC Adapter 2(AU)	Brand Name	Motorola(Aohai)	Model Name	MC-105
AC Adapter 2(AR)	Brand Name	Motorola(Aohai)	Model Name	MC-106
AC Adapter 2(IN)	Brand Name	Motorola(Aohai)	Model Name	MC-104
AC Adapter 3(US)	Brand Name	Motorola(Salcomp)	Model Name	MC-101
AC Adapter 3(EU)	Brand Name	Motorola(Salcomp)	Model Name	MC-102
AC Adapter 3(UK)	Brand Name	Motorola(Salcomp)	Model Name	MC-103
AC Adapter 3(AU)	Brand Name	Motorola(Salcomp)	Model Name	MC-105
AC Adapter 3(AR)	Brand Name	Motorola(Salcomp)	Model Name	MC-106
AC Adapter 3(PRC)	Brand Name	Motorola(Salcomp)	Model Name	MC-108
AC Adapter 3(Chile)	Brand Name	Motorola(Salcomp)	Model Name	MC-109
AC Adapter 4(UK)	Brand Name	Lenovo(Chenyang)	Model Name	SC-43
AC Adapter 5(EU)	Brand Name	Lenovo(Salom)	Model Name	SC-42
Battery 1	Brand Name	Motorola(ATL)	Model Name	NH50
Battery 2	Brand Name	Motorola(Sunwoda)	Model Name	NH50
Earphone 1	Brand Name	Motorola(NEW LEADER)	Model Name	NLD-EM313A-23SF
Earphone 2	Brand Name	Motorola(Ju wei)	Model Name	JWEP1185-ZN01H
USB Cable 1	Brand Name	Motorola(Washin)	Model Name	HX-ZN-13
USB Cable 2	Brand Name	Motorola(Ju wei)	Model Name	JWUB1498-ZN01H

1.5 Modification of EUT

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



1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH04-KS TH01-KS CO01-KS	CN1257	314309



2 Re-use of Measured Data

2.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: XT2227-3, XT2227-4, FCC ID: IHDT56AD7) is electrically identical to the reference device (Model: XT2227-1, FCC ID: IHDT56AD5) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity, the FCC Part15B (equipment class: Certification), FCC Part 15C (equipment class: DTS, DSS) and FCC Part 22, 24, 27, 90(equipment class: PCE) reuse the original model's result and do spot-check, following the FCC KDB 484596 D01 v01.

The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID: IHDT56AD7 .

2.2 Model Difference Information

The main difference between FCC ID: IHDT56AD5 and FCC ID: IHDT56AD7 is as below:

- Remove WCDMA Band IV and LTE Band 4/13/66.
- Add WCDMA Band XIX and LTE Band 18/19/20/41.

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2227-3, XT2227-4_Operational Description of Product Equality Declaration).

2.3 Reference detail Section:

Rule Part	Equipment Class	Frequency Band (MHz)	Reference FCC ID(Parent)	Type Grant/ Permissive Change	Reference Title	FCC ID Filling (Variant)	Report Title/Section
15C	DSS (BR/EDR)	2400~2483.5	IHDT56AD5	Original Grant	FR1N3013A	IHDT56AD7	All sections applicable
	DTS (BLE)	2400~2483.5	IHDT56AD5	Original Grant	FR1N3013B	IHDT56AD7	All sections applicable
	DTS (WLAN)	2400~2483.5	IHDT56AD5	Original Grant	FR1N3013C	IHDT56AD7	All sections applicable
22, 24, 27	PCE (GSM)	GSM 850/1900	IHDT56AD5	Original Grant	FG1N3013A	IHDT56AD7	All sections applicable
	PCE (WCDMA)	Band II, V	IHDT56AD5	Original Grant	FG1N3013A	IHDT56AD7	All sections applicable
	PCE (LTE)	B2/5/7/26/38	IHDT56AD5	Original Grant	FG1N3013B	IHDT56AD7	All sections applicable
90	PCE (LTE)	B26	IHDT56AD5	Original Grant	FG1N3013C	IHDT56AD7	All sections applicable
15B	Certification	-	IHDT56AD5	Original Grant	FC1N3013	IHDT56AD7	All sections applicable



2.4 Spot Check Verification Data Section

Conducted power test and radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model

Summary for power and RSE spot check for each rule entry and technology is listed as below:

Test Item	Mode	IHDT56AD5 Parent Worst Result	IHDT56AD7 Variant Check Result	Difference (dB)
Conducted Power (dBm)	WLAN 2.4GHz 802.11b	19.57	20.25	0.68
	WLAN 2.4GHz 802.11g	22.57	22.54	0.03
	WLAN 2.4GHz 802.11n20	22.62	22.61	0.01
	BT BR/EDR	8.84	8.81	0.03
	BLE1Mbps	7.02	6.93	0.09
	BLE2Mbps	7.08	6.88	0.20
	Part 22H GSM850	32.65	32.65	0
	Part 24E GSM1900	29.59	29.59	0
	Part 24E WCDMA Band II	23.43	23.43	0
	Part 22H WCDMA Band V	23.33	23.33	0
	Part 24E LTE Band 2	23.28	23.28	0
	Part 22H LTE Band 5	23.46	23.46	0
	Part 27M LTE Band 7	22.87	22.87	0
	Part 22H LTE Band 26	23.46	23.46	0
	Part 90S LTE Band 26	23.42	23.42	0
Part 27M LTE Band 38	23.16	23.16	0	

Test Item	Mode	IHDT56AD5 Parent Worst Result	IHDT56AD7 Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBm)	Part 22H GSM 850	-34.27	-33.60	0.67
	Part 22H EDGE 850	-35.08	-33.58	1.50
	Part 22H WCDMA Band V	-46.99	-44.90	2.09
	Part 24E GSM 1900	-30.05	-38.34	8.29
	Part 24E EDGE 1900	-36.07	-38.45	2.38
	Part 24E WCDMA Band II	-31.97	-30.86	1.11
	Part 24E LTE Band 2	-28.37	-27.50	0.87
	Part 27M LTE Band 7	-35.37	-35.30	0.07
	Part 22H LTE Band 26	-40.46	-36.28	4.18
Part 90S LTE Band 26	-44.63	-41.23	3.40	

Test Item	IHDT56AD5 Parent Worst Result	IHDT56AD7 Variant Check Result	Difference (dB)
Radiated Emission (dBuV/m)	-5.32	-12.92	7.6
Conducted Emission (dBuV)	-8.36	-7.86	0.5



Conclusion:

Radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

Based on the spot check test result, the test data from the original model is representative for the variant model. The power level and RSE spot check are shown within expected level compliant to limit line.

We are using power and ERP/EIRP measurements from the original parent model reports to list on the grant.

We confirm that the test data reuse policy of FCC KDB 484596 D01 Referencing Test Data v01 has been followed and the test data as referenced from the parent model report represents compliance with new FCC ID.



3 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 14, 2021	Feb. 07, 2022	Oct. 13, 2022	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	Aug. 26, 2021	Feb. 07, 2022	Aug. 25, 2022	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44G,MAX 30dB	Apr. 13, 2021	Feb. 07, 2022	Apr. 12, 2022	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Feb. 07, 2022	Oct. 29, 2022	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz~1GHz	May 30, 2021	Feb. 07, 2022	May 29, 2022	Radiation (03CH04-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 25, 2021	Feb. 07, 2022	Apr. 24, 2022	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Jan. 05, 2022	Feb. 07, 2022	Jan. 04 2023	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz~1GHz	Jan. 05, 2022	Feb. 07, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 05, 2022	Feb. 07, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00 101800-30-10P	2025788	1Ghz~18Ghz	Jul. 30, 2021	Feb. 07, 2022	Jul. 29, 2022	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5G Hz	Oct. 13, 2021	Feb. 07, 2022	Oct. 12, 2022	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Feb. 07, 2022	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Feb. 07, 2022	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Feb. 07, 2022	NCR	Radiation (03CH04-KS)
EMI Receiver	R&S	ESC17	100768	9kHz~7GHz;	Apr. 21, 2021	Jan. 27, 2022	Apr. 20, 2022	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 14, 2021	Jan. 27, 2022	Oct. 13, 2022	Conduction (CO01-KS)
AC LISN	R&S	ENV216	100334	9kHz~30MHz	Oct. 14, 2021	Jan. 27, 2022	Oct. 13, 2022	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 14, 2021	Jan. 27, 2022	Oct. 13, 2022	Conduction (CO01-KS)

NCR: No Calibration Required.

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