Spot Check Evaluation

APPLICANT	:	**Motorola Mobility LLC**
EQUIPMENT	:	**Mobile Cellular Phone**
BRAND NAME	:	**Motorola**
MODEL NAME	:	**XT2233-2**
FCC ID	:	**IHDT56AD3**
STANDARD	:	**47 CFR Part 2, 22(H), 24(E), 27(M)** **47 CFR Part 15 Subpart C §15.225** **47 CFR Part 15 Subpart C §15.247** **47 CFR Part 15 Subpart E §15.407**

We, Sporton International Inc. (ShenZhen), 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. (ShenZhen), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ACCREDITED Cert #5145.01

Sporton International Inc. (ShenZhen)

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055

People's Republic of China

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
212625-01	Rev. 01	Initial issue of report	Apr. 18, 2022

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	XT2233-2
FCC ID	IHDT56AD3
HW Version	DVT2
SW Version	S2SE32.1
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 (Chengyang)	**Model Name**	MC-201
AC Adapter 1(EU)	**Brand Name**	Motorola (Chengyang)	**Model Name**	MC-202
AC Adapter 1(UK)	**Brand Name**	Motorola (Chengyang)	**Model Name**	MC-203
AC Adapter 1(IN)	**Brand Name**	Motorola (Chengyang)	**Model Name**	MC-204
AC Adapter 1(AU)	**Brand Name**	Motorola (Chengyang)	**Model Name**	MC-205
AC Adapter 1(AR)	**Brand Name**	Motorola (Chengyang)	**Model Name**	MC-206
AC Adapter 1(CHILE)	**Brand Name**	Motorola (Chengyang)	**Model Name**	MC-209
AC Adapter 2(US)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-201
AC Adapter 2(EU)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-202
AC Adapter 2(UK)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-203
AC Adapter 2(AU)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-205
AC Adapter 2(AR)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-206
AC Adapter 2(CHILE)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-209
AC Adapter 3(IN)	**Brand Name**	Motorola (AOHAI)	**Model Name**	MC-204
AC Adapter 4(BR)	**Brand Name**	Motorola (Flex)	**Model Name**	MC-207
AC Adapter 5(BR)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-207
Battery 1	**Brand Name**	Motorola (ATL)	**Model Name**	ND50
Battery 2	**Brand Name**	Motorola (Jiade)	**Model Name**	ND50

Earphone 1	**Brand Name**	Motorola (Iyand)	**Model Name**	MH191
Earphone 2	**Brand Name**	Motorola (LCHSE)	**Model Name**	MH191
Earphone 3	**Brand Name**	Motorola (Xinlide)	**Model Name**	MH202
Earphone 4	**Brand Name**	Motorola (Juwei)	**Model Name**	MH202
USB Cable 1	**Brand Name**	Motorola (SUNTOPS)	**Model Name**	336258
USB Cable 2	**Brand Name**	Motorola (Yihuaxing)	**Model Name**	T365-012B
USB Cable 3	**Brand Name**	Motorola (I SHENG)	**Model Name**	SC18D33506
USB Cable 4	**Brand Name**	Motorola (I SHENG)	**Model Name**	SC18D38574

1.5 Modification of EUT

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

1.6 Testing Location

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	TH01-SZ	CN1256	421272

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH01-SZ	CN1256	421272

1.7 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH01-SZ	AUDIX	E3	6.2009-8-24

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: XT2233-2, FCC ID: IHDT56AD3) is electrically identical to the reference device (Model: XT2233-1, FCC ID: IHDT56AD2) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity, the FCC Part 15C (equipment class: DTS, DSS, DXX) and FCC Part 15E (equipment class: NII) and FCC Part 22, 24, 27 (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: IHDT56AD3 .

2.2 Model Difference Information

The **main** difference between FCC ID: IHDT56AD2 and FCC ID: IHDT56AD3 is as below:

- Remove WCDMA Band IV, LTE Band 4/12/13/26/66.
- Add LTE Band 20.

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2233-2_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	IHDT56AD2	Original Grant	FR212625A	IHDT56AD3	All sections applicable
	DTS (BLE)	2400~2483.5	IHDT56AD2	Original Grant	FR212625B	IHDT56AD3	All sections applicable
	DTS (WLAN)	2400~2483.5	IHDT56AD2	Original Grant	FR212625C	IHDT56AD3	All sections applicable
	DXX (NFC)	13.56	IHDT56AD2	Original Grant	FR212625D	IHDT56AD3	All sections applicable
15E	U-NII-1	5180~5240	IHDT56AD2	Original Grant	FR212625E	IHDT56AD3	All sections applicable
	U-NII-2A	5260~5320	IHDT56AD2	Original Grant	FR212625E	IHDT56AD3	All sections applicable
	U-NII-2C	5500~5720	IHDT56AD2	Original Grant	FR212625E	IHDT56AD3	All sections applicable
	U-NII-3	5745~5825	IHDT56AD2	Original Grant	FR212625F	IHDT56AD3	All sections applicable
	DFS	5260~5320 5500~5720	IHDT56AD2	Original Grant	FZ212625	IHDT56AD3	All sections applicable
22, 24, 27	PCE (GSM)	GSM 850/1900	IHDT56AD2	Original Grant	FG212625A	IHDT56AD3	All sections applicable
	PCE (WCDMA)	Band II, V	IHDT56AD2	Original Grant	FG212625A	IHDT56AD3	All sections applicable
	PCE (LTE)	B2/5/7/38/41	IHDT56AD2	Original Grant	FG212625B	IHDT56AD3	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	IHDT56AD2 Parent Worst Result	IHDT56AD3 Variant Check Result	Difference (dB)
Conducted Power (dBm)	BT BR/EDR	11.9	11.82	0.08
	BLE 1Mbps	8.56	8.4	0.16
	11b, 2.4GHz	22.13	21.92	0.21
	11g, 2.4GHz	23.87	23.59	0.28
	11n HT20, 2.4GHz	23.41	23.05	0.36
	11a, 5.2/5.3/5.5GHz	18.36	18.05	0.31
	11a, 5.8GHz	18.92	18.78	0.14
	11n HT20, 5.2/5.3/5.5GHz	18.33	17.95	0.38
	11n HT20, 5.8GHz	18.91	18.76	0.15
	11n HT40, 5.2/5.3/5.5GHz	17.79	17.42	0.37
	11n HT40, 5.8GHz	17.91	17.59	0.32
	11ac VHT20, 5.2/5.3/5.5GHz	17.32	17.14	0.18
	11ac VHT20, 5.8GHz	17.89	17.46	0.43
	11ac VHT40, 5.2/5.3/5.5GHz	16.91	16.45	0.46
	11ac VHT40, 5.8GHz	16.94	16.82	0.12
	11ac VHT80, 5.2/5.3/5.5GHz	16.85	16.49	0.36
	11ac VHT80, 5.8GHz	16.93	16.57	0.36
	GSM850	32.79	32.84	0.05
	EDGE850	26.01	26.11	0.10
	GSM1900	30.11	29.99	0.12
	EDGE1900	25.39	25.13	0.26
	WCDMA Band II	22.96	22.98	0.02
	WCDMA Band V	22.88	23.37	0.49
	LTE Band 2	23.36	22.45	0.91
	LTE Band 5	23.49	23.05	0.44
	LTE Band 7	23.30	22.66	0.64
	LTE Band 38	22.98	22.71	0.27
	LTE Band 41	23.08	22.76	0.32

Test Item	Mode	IHDT56AD2 Parent Worst Result	IHDT56AD3 Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBuV/m /dBm)	BT BR/EDR	-10.76	-13.30	2.54
	BLE 1Mbps	-6.01	-8.94	2.93
	11n HT20 CH11	-3.13	-6.09	2.96
	11n HT40 CH102	-3.25	-3.46	0.21
	11ac VHT80 CH155	-12.13	-13.46	1.33
	NFC	56.16	55.89	0.27
	Part22H GSM850	-45.40	-45.45	-0.05
	Part24E WCDMA Band II	-41.22	-41.46	-0.24
	Part24E LTE Band 2	-32.52	-34.83	-2.31
	Part27M LTE Band 7	-26.68	-26.70	-0.02
	Part27M LTE Band 41	-15.97	-16.41	-0.44

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.

The same DFS detection is used in the variant. Hence, there is no spot check data for DFS.

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	101078	10Hz~40GHz	Apr. 08, 2021	Mar. 29, 2022	Apr. 07, 2022	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04265	60.06.020.0077	0.4GHz~26.5GHz	Dec. 25, 2021	Mar. 29, 2022	Dec. 24, 2022	Conducted (TH01-SZ)
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Dec. 02, 2021	Apr. 07, 2022~ Apr. 08, 2022	Dec. 01, 2022	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 22, 2020	Apr. 07, 2022~ Apr. 08, 2022	Jun. 21, 2022	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Jul. 15, 2021	Apr. 07, 2022~ Apr. 08, 2022	Jul. 14, 2022	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 25, 2021	Apr. 07, 2022~ Apr. 08, 2022	Jul. 24, 2022	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 11, 2021	Apr. 07, 2022~ Apr. 08, 2022	Apr. 10, 2022	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 06, 2022	Apr. 07, 2022~ Apr. 08, 2022	Apr. 05, 2023	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5GHz	Oct. 16, 2021	Apr. 07, 2022~ Apr. 08, 2022	Oct. 15, 2022	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 15, 2021	Apr. 07, 2022~ Apr. 08, 2022	Oct. 14, 2022	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 21. 2021	Apr. 07, 2022~ Apr. 08, 2022	Jul. 20. 2022	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Apr. 07, 2022~ Apr. 08, 2022	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Apr. 07, 2022~ Apr. 08, 2022	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Apr. 07, 2022~ Apr. 08, 2022	NCR	Radiation (03CH01-SZ)

NCR: No Calibration Required.

-THE END