



Spot Check Evaluation

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2231-2
FCC ID : IHDT56AC3
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27(M)
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.

Reviewed by: Derreck Chen / Supervisor

Approved by: Eric Shih / Manager



Sporton International Inc. (ShenZhen)

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People's Republic of China



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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 Cellular Phone
Brand Name	Motorola
Model Name	XT2231-2
FCC ID	IHDT56AC3
EUT supports Radios application	GSM/WCDMA/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE, GNSS, FM
HW Version	DVT2
SW Version	STA32.48
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 Modification of EUT

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



1.5 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



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: XT2231-2, FCC ID: IHDT56AC3) is electrically identical to the reference device (Model: XT2231-1, XT2231-5, FCC ID: IHDT56AC2) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity, the FCC Part 15C, 15E, 22, 24, 27 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: IHDT56AC3 .

2.2 Model Difference Information

The **main** difference between FCC ID: IHDT56AC2 and FCC ID: IHDT56AC3 is as below:

- Remove WCDMA Band IV and LTE Band 2/4/13/26/66.
- Add NFC and LTE Band 41

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2231-2_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	IHDT56AC2	Original Grant	FR1N1011A	IHDT56AC3	All sections applicable
	DTS (BLE)	2400~2483.5	IHDT56AC2	Original Grant	FR1N1011B	IHDT56AC3	All sections applicable
	DTS (WLAN)	2400~2483.5	IHDT56AC2	Original Grant	FR1N1011C	IHDT56AC3	All sections applicable
15E	U-NII-1	5180~5240	IHDT56AC2	Original Grant	FR1N1011D	IHDT56AC3	All sections applicable
	U-NII-2A	5260~5320	IHDT56AC2	Original Grant	FR1N1011D	IHDT56AC3	All sections applicable
	U-NII-2C	5500~5720	IHDT56AC2	Original Grant	FR1N1011D	IHDT56AC3	All sections applicable
	U-NII-3	5745~5825	IHDT56AC2	Original Grant	FR1N1011E	IHDT56AC3	All sections applicable
	DFS	5250~5350 5470~5725	IHDT56AC2	Original Grant	FZ1N1011	IHDT56AC3	All sections applicable
22, 24, 27	PCE (GSM)	GSM 850/1900	IHDT56AC2	Original Grant	FG1N1011A	IHDT56AC3	All sections applicable
	PCE (WCDMA)	Band II, V	IHDT56AC2	Original Grant	FG1N1011A	IHDT56AC3	All sections applicable
	PCE (LTE)	B5/7/38	IHDT56AC2	Original Grant	FG1N1011B	IHDT56AC3	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	IHDT56AC2 Parent Worst Result	IHDT56AC3 Variant Check Result	Difference (dB)
Conducted Power (dBm)	11b CH06	19.42	19.33	0.09
	11g CH06	24.26	24.06	0.20
	11gN20 CH06	24.65	24.60	0.05
	11a CH52	17.38	17.31	0.07
	11a CH149	16.81	16.38	0.43
	11aN20 CH60	16.99	16.57	0.42
	11aN20 CH149	15.82	15.72	0.1
	11aN40 CH54	15.99	15.53	0.46
	11aN40 CH151	15.15	14.72	0.43
	11aC20 CH52	15.98	15.52	0.46
	11aC20 CH149	15.16	14.72	0.44
	11aC40 CH54	15.87	15.48	0.39
	11aC40 CH151	15.11	14.68	0.43
	11aC80 CH122	15.42	14.97	0.45
	11aC80 CH155	14.58	14.50	0.08
	BT BR/EDR DH5 CH78	11.2	10.6	0.60
	BLE1Mbps CH19	-0.66	-1.2	0.54
	BLE2Mbps CH19	-0.62	-1.13	0.51
	Part 22H GSM850	32.61	32.61	0
	Part 24E GSM1900	29.50	29.50	0
	Part 22H WCDMA Band V	22.82	22.82	0
	Part 24E WCDMA Band II	22.80	22.80	0
	LTE Band 5	22.96	22.96	0
LTE Band 7	22.69	22.69	0	
LTE Band 38	23.26	23.26	0	



Test Item	Mode	IHDT56AC2 Parent Worst Result	IHDT56AC3 Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBm)	11n20_CH01	5.04	7.78	2.74
	11a CH140	2.09	5.93	3.84
	11ac CH155	11.42	11.92	0.5
	EDR	24.28	24.96	0.68
	BLE	8.29	8.37	0.08
	Part 22H-2G-3G	33.91	35.39	1.48
	Part 24E-2G-3G	33.24	35.74	2.5
	Part 27M-Band 7	26.44	26.96	0.52
	Part 27M-Band 38	22.30	25.30	3.0

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	101078	10Hz~40GHz	Apr. 08, 2021	Dec. 29, 2021	Apr. 07, 2022	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.00 77	0.4GHz~26.5G Hz	Dec. 25, 2021	Dec. 29, 2021	Dec. 24, 2022	Conducted (TH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 21, 2021	Jan. 01, 2022~ Jan. 14, 2022	Jul. 20, 2022	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 22, 2021	Jan. 01, 2022~ Jan. 14, 2022	Jun. 21, 2022	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz~2GHz	Jul. 15, 2021	Jan. 01, 2022~ Jan. 14, 2022	Jul. 14, 2022	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 25, 2021	Jan. 01, 2022~ Jan. 14, 2022	Jul. 24, 2022	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz~40GHz	Apr. 11, 2021	Jan. 01, 2022~ Jan. 14, 2022	Apr. 10, 2022	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 07, 2021	Jan. 01, 2022~ Jan. 14, 2022	Apr. 06, 2022	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-00 101800-30- 10P-R	1943528	1GHz~18GHz	Oct. 16, 2021	Jan. 01, 2022~ Jan. 14, 2022	Oct. 15, 2022	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5Gh z	Oct. 16, 2021	Jan. 01, 2022~ Jan. 14, 2022	Oct. 15, 2022	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-3 5-HG	1871923	18GHz~40GHz	Jul. 21, 2021	Jan. 01, 2022~ Jan. 14, 2022	Jul. 20, 2022	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	6160100019 85	N/A	NCR	Jan. 01, 2022~ Jan. 14, 2022	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jan. 01, 2022~ Jan. 14, 2022	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jan. 01, 2022~ Jan. 14, 2022	NCR	Radiation (03CH01-SZ)

NCR: No Calibration Required.

-THE END-