



Spot Check Evaluation

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2425-4
FCC ID : IHDT56AP7
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



Sporton International Inc. (ShenZhen)

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

People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
301717-04	Rev. 01	Initial issue of report	Nov. 14, 2023

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



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	XT2425-4
FCC ID	IHDT56AP7
IMEI Code	Conducted: 351966220010125/351966220011438 Radiation: 351966220008897/351966220010208
HW Version	DVT2
SW Version	UTA34.66
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 Site

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 518103 People's Republic of China TEL: +86-755-86066985		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH01-SZ 03CH05-SZ	CN1256	421272

1.6 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH01-SZ	AUDIX	E3	6.2009-8-24
2.	03CH05-SZ	AUDIX	E3	6.2009-8-24a1

1.7 Applicable Standards

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

- FCC KDB 484596 D01 Referencing Test Data v02r01
- 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
- ANSI C63.10-2013
- ANSI C63.26-2015

1.8 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	Brand Name	Motorola (Salcomp)	Model Name	MC-331
AC Adapter 1(EU)	Brand Name	Motorola (Salcomp)	Model Name	MC-332
AC Adapter 1(UK)	Brand Name	Motorola (Salcomp)	Model Name	MC-333
AC Adapter 1(AR)	Brand Name	Motorola (Salcomp)	Model Name	MC-336
AC Adapter 1(CHILE)	Brand Name	Motorola (Salcomp)	Model Name	MC-339
AC Adapter 2(US)	Brand Name	Motorola (Acbel)	Model Name	MC-331
AC Adapter 2(EU)	Brand Name	Motorola (Acbel)	Model Name	MC-332
AC Adapter 2(UK)	Brand Name	Motorola (Acbel)	Model Name	MC-333
AC Adapter 3(IN)	Brand Name	Motorola (AOHAI)	Model Name	MC-334
AC Adapter 3(IN local)	Brand Name	Motorola (Xihi)	Model Name	MC-334
Battery 1	Brand Name	Motorola (ATL)	Model Name	PC60
Battery 2	Brand Name	Motorola (sunwoda)	Model Name	PC60
USB Cable 1	Brand Name	Motorola (Juwei)	Model Name	JWUB1614-T03H
USB Cable 2	Brand Name	Motorola (saibao)	Model Name	STN-A128A

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: XT2425-4, FCC ID: IHDT56AP7) is electrically identical to the reference device (Model: XT2423-3, FCC ID: IHDT56AP2) 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 Referencing Test Data v02r01.

The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID: IHDT56AP7.

2.2 Model Difference Information

The **main** difference between FCC ID: IHDT56AP7 and FCC ID: IHDT56AP2 is as below:

- Change battery capacity is 6000mAh, and charge IC apply to 15W & 33W.

The **main** difference between FCC ID: IHDT56AP2 and FCC ID: IHDT56AP1 (Model: XT2423-1) is as below:

- Remove WCDMA Band IV, LTE B4/13/26/66.
- Add NFC function, LTE B20/41.

All the details of similarity and difference can be found in the confidential documents (XT2425-4_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	IHDT56AP2	Original Grant	3O1717-03	IHDT56AP7	All sections applicable
			IHDT56AP1		FR3O1717A		
	DTS (BLE)	2400~2483.5	IHDT56AP2	Original Grant	3O1717-03	IHDT56AP7	All sections applicable
			IHDT56AP1		FR3O1717B		
	DTS (WLAN)	2400~2483.5	IHDT56AP2	Original Grant	3O1717-03	IHDT56AP7	All sections applicable
			IHDT56AP1		FR3O1717C		
	DXX (NFC)	13.56	IHDT56AP2	Original Grant	FR3O1717-03	IHDT56AP7	All sections applicable
15E	U-NII	5180~5240	IHDT56AP2	Original Grant	3O1717-03	IHDT56AP7	All sections applicable
			IHDT56AP1		FR3O1717D		
		5260~5320	IHDT56AP2	Original Grant	3O1717-03	IHDT56AP7	All sections applicable
			IHDT56AP1		FR3O1717D FZ3O1717		
		5500~5720	IHDT56AP2	Original Grant	3O1717-03	IHDT56AP7	All sections applicable
			IHDT56AP1		FR3O1717D FZ3O1717		
		5745~5825	IHDT56AP2	Original Grant	3O1717-03	IHDT56AP7	All sections applicable
			IHDT56AP1		FR3O1717D		
22, 24, 27	PCE (GSM)	GSM 850/1900	IHDT56AP2	Original Grant	3O1717-03	IHDT56AP7	All sections applicable
			IHDT56AP1		FG3O1717A		
	PCE (WCDMA)	Band II, V	IHDT56AP2	Original Grant	3O1717-03	IHDT56AP7	All sections applicable
			IHDT56AP1		FG3O1717A		
	PCE (LTE)	B2/7/38	IHDT56AP2	Original Grant	3O1717-03	IHDT56AP7	All sections applicable
			IHDT56AP1		FG3O1717B		
	PCE (LTE)	B5/41	IHDT56AP2	Original Grant	FG3O1717-03	IHDT56AP7	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.

All test procedures follow the related section of parent report.

For any given test, the maximum identified difference between spot check and reference data shall be no larger than 25%, in linear units.

$$|\text{spot check data} - \text{reference data}| / |\text{reference data}| \leq 0.25$$

where “| |” is the absolute value of the measured quantity.



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

Test Item	Mode	IHDT56AP2 Parent Worst mode Test Result	IHDT56AP7 Variant Check Test Result	Difference	Limit
Conducted Power (dBm)	LTE Band 5	22.93	22.75	0.041	0.25
	LTE Band 41	22.95	22.57	0.084	0.25

Test Item	Mode	IHDT56AP1 Parent Worst mode Test Result	IHDT56AP7 Variant Check Test Result	Difference	Limit
Conducted Power (dBm)	BT BR/EDR	11.75	11.24	0.111	0.25
	BLE_1M	3.04	3.01	0.007	0.25
	BLE_2M	3.03	2.99	0.009	0.25
	11b_2.4G	20.78	20.07	0.151	0.25
	11g_2.4G	25.11	24.93	0.041	0.25
	11n20_2.4G	25.31	25.23	0.018	0.25
	11n40_2.4G	25.18	24.94	0.054	0.25
	11a_5G	17.84	17.63	0.047	0.25
	11n20_5G	17.84	17.45	0.086	0.25
	11n40_5G	16.87	16.64	0.052	0.25
	11ac80_5G	15.80	15.55	0.056	0.25
	GSM 850	32.39	32.10	0.065	0.25
	PCS1900	29.54	29.76	0.052	0.25
	WCDMA Band II	22.88	23.23	0.084	0.25
	WCDMA Band V	22.92	22.82	0.023	0.25
	LTE Band 2	22.91	22.97	0.014	0.25
	LTE Band 7	22.99	22.59	0.088	0.25
	LTE Band 38	23.03	22.60	0.094	0.25

For example:

BT BR/EDR (dBm): $mW = 10^{(dBm/10)}$

$$\begin{aligned} \text{Difference} &= |\text{spot check data} - \text{reference data}| / |\text{reference data}| \\ &= |10^{(11.24/10)} - 10^{(11.75/10)}| / |10^{(11.75/10)}| \\ &= 0.111 \end{aligned}$$

Test Item	Mode	IHDT56AP2 Parent Worst Result	IHDT56AP7 Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBuV/m)	BT BR/EDR	48.79	49.21	-0.42
	BLE	42.13	39.94	2.19
	11n20_2.4G	50.58	50.73	-0.15
	11n20_5G U-NII-2C	65.26	63.67	1.59
Radiated Spurious Emission (dBm)	GSM 850	-49.71	-47.73	-1.98
	WCDMA Band II	-53.61	-52.78	-0.83
	LTE Band 7	-51.24	-50.22	-1.02

Remark : The ECR was approved by FCC, although the RSE difference exceeds the 0.25 limit.



Test Item	Mode	IHDT56AP2 Parent Worst Result	IHDT56AP7 Variant Check Result	Difference	Limit
Field Strength (dBuV/m)	NFC 13.56MHz	56.61	55.07	0.162	0.25

For example:

Field Strength (dBuV/m), $\mu\text{V/m} = 10^{((\text{dBuV/m})/20)}$

$$\begin{aligned}\text{Difference} &= |\text{spot check data} - \text{reference data}| / |\text{reference data}| \\ &= |10^{((55.07)/20)} - 10^{((56.61)/20)}| / |10^{((56.61)/20)}| \\ &= 0.162\end{aligned}$$

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 v02r01 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. 06, 2023	Nov. 07, 2023	Apr. 05, 2024	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1339473	30MHz~40GHz	Dec. 27, 2022	Nov. 07, 2023	Dec. 26, 2023	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1542004	50MHz Bandwidth	Dec. 27, 2022	Nov. 07, 2023	Dec. 26, 2023	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04265	60.06.020.0077	0.4GHz~26.5GHz	Dec. 25, 2022	Nov. 07, 2023	Dec. 24, 2023	Conducted (TH01-SZ)
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Dec. 26, 2022	Oct. 31, 2023	Dec. 25, 2023	Radiation (03CH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 07, 2023	Oct. 31, 2023	Jul. 06, 2024	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jul. 28, 2022	Oct. 31, 2023	Jul. 27, 2024	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz~2GHz	Oct. 24, 2023	Oct. 31, 2023	Oct. 23, 2025	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 08, 2023	Oct. 31, 2023	Jul. 07, 2024	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Apr. 08, 2023	Oct. 31, 2023	Apr. 07, 2024	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000MHz	Apr. 04, 2023	Oct. 31, 2023	Apr. 03, 2024	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 18, 2023	Oct. 31, 2023	Oct. 17, 2024	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5GHz	Oct. 18, 2023	Oct. 31, 2023	Oct. 17, 2024	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 07, 2023	Oct. 31, 2023	Jul. 06, 2024	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	Oct. 18, 2023	Oct. 31, 2023	Oct. 17, 2024	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Oct. 31, 2023	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Oct. 31, 2023	NCR	Radiation (03CH01-SZ)
EMI Test Receiver	R&S	ESR7	102261	9kHz~7GHz	Apr. 04, 2023	Nov. 01, 2023	Apr. 03, 2024	Radiation (03CH05-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY59071191	10Hz~44GHz	Apr. 04, 2023	Nov. 01, 2023	Apr. 03, 2024	Radiation (03CH05-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jul. 28, 2022	Nov. 01, 2023	Jul. 27, 2024	Radiation (03CH05-SZ)
Log-periodic Antenna	SCHWARZBECK	VULB 9168	01001	20MHz~1.5GHz	Jul. 08, 2023	Nov. 01, 2023	Jul. 07, 2024	Radiation (03CH05-SZ)
Amplifier	EM Electronics	EM330	060756	0.01Hz~3000MHz	Apr. 04, 2023	Nov. 01, 2023	Apr. 03, 2024	Radiation (03CH05-SZ)
AC Power Source	APC	AFV-S-600	F119050013	N/A	Oct. 18, 2023	Nov. 01, 2023	Oct. 17, 2024	Radiation (03CH05-SZ)
Turn Table	EMEC	T-200-S-1	060925-T	0~360 degree	NCR	Nov. 01, 2023	NCR	Radiation (03CH05-SZ)
Antenna Mast	EMEC	MBS-400-1	060927	1 m~4 m	NCR	Nov. 01, 2023	NCR	Radiation (03CH05-SZ)

NCR: No Calibration Required.

4 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage $K=2$ to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Power	± 1.34 dB

Part 15C/15E:

Uncertainty of Radiated Emission Measurement (9 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.5dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.2dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.0dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.3dB
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Part 22/24/27:

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.48dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	3.53dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.02dB
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-THE END-