Spot Check Evaluation

APPLICANT	:	**Motorola Mobility LLC**
EQUIPMENT	:	**Mobile Cellular Phone**
BRAND NAME	:	**Motorola**
MODEL NAME	:	**XT2309-3**
FCC ID	:	**IHDT56AG9**
STANDARD	:	**47 CFR Part 2, 22(H), 24(E), 27(H), 27(L), 27(M), 27(Q), 90(S), 96** **47 CFR Part 15 Subpart C §15.247** **47 CFR Part 15 Subpart E §15.407**

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

Approved by: Jason Jia

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
2O2807-01	Rev. 01	Initial issue of report	Jan. 16, 2023

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	XT2309-3
FCC ID	IHDT56AG9
IMEI Code	Conducted: 351347720007731 Radiation: 351347720008168
HW Version	DVT2
SW Version	T1TB33.20
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. (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	CN1257	314309

1.6 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24al

1.7 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	**Brand Name**	Motorola (Chenyang)	**Model Name**	MC-681N
AC Adapter 2(US)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-681N
Battery	**Brand Name**	Motorola(SCUD)	**Model Name**	PB50
USB Cable 1	**Brand Name**	Motorola (Saibao)	**Model Name**	SC18D24968
USB Cable 2	**Brand Name**	Motorola (Saibao)	**Model Name**	SC18D71644
Wireless Charging dock	**Marketing Name**	TurboPower 15W Wireless Charging Stand	**Model Name**	MW - 03

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: XT2309-3, FCC ID: IHDT56AG9) is electrically identical to the reference device (Model: XT2309-2, FCC ID: IHDT56AH5) 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) and FCC Part 15E (equipment class: NII) and FCC Part 22, 24, 27, 90(equipment class: PCE) and FCC Part 96 (equipment class: CBE) 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: IHDT56AG9 .

2.2 Model Difference Information

The **main** difference between FCC ID: IHDT56AG9 and FCC ID: IHDT56AH5 is as below:

- Remove WCDMA XIX, LTE B17/19/20/25/28/32/42/43 and 5G NR n3/n8/n20/n28/n38/n40.
- Add LTE B14/71 and 5G NR n14/n48/n71.

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2309-3_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	IHDT56AH5	Original Grant	FR2O2807A	IHDT56AG9	All sections applicable
	DTS (BLE)	2400~2483.5	IHDT56AH5	Original Grant	FR2O2807B	IHDT56AG9	All sections applicable
	DTS (WLAN)	2400~2483.5	IHDT56AH5	Original Grant	FR2O2807C	IHDT56AG9	All sections applicable
	DXX (NFC)	13.56	IHDT56AH5	Original Grant	FR2O2807D	IHDT56AG9	All sections applicable
15E	NII	5180~5240 5260~5320 5500~5720 5745~5825	IHDT56AH5	Original Grant	FR2O2807E	IHDT56AG9	All sections applicable
	6XD	5925 ~ 7125	IHDT56AH5	Original Grant	FR2O2807F	IHDT56AG9	All sections applicable
	DFS	5260~5320 5500~5720	IHDT56AH5	Original Grant	FZ2O2807	IHDT56AG9	All sections applicable
22, 24, 27, 90	PCE (GSM)	GSM 850/1900	IHDT56AH5	Original Grant	FG2O2807A	IHDT56AG9	All sections applicable
	PCE (WCDMA)	Band II, IV, V	IHDT56AH5	Original Grant	FG2O2807A	IHDT56AG9	All sections applicable
	PCE (LTE)	B2/4/5/12/26/66	IHDT56AH5	Original Grant	FG2O2807B	IHDT56AG9	All sections applicable
	PCE (LTE)	B7/7C/38/41/ 41C	IHDT56AH5	Original Grant	FG2O2807C	IHDT56AG9	All sections applicable
	PCE (LTE)	B26 (90S)	IHDT56AH5	Original Grant	FG2O2807D	IHDT56AG9	All sections applicable
	CBE (LTE)	B48 (Part96)	IHDT56AH5	Original Grant	FG2O2807F	IHDT56AG9	All sections applicable
	PCE (5GNR)	n7/n66	IHDT56AH5	Original Grant	FG2O2807I	IHDT56AG9	All sections applicable
	PCE (5GNR)	n77/n78	IHDT56AH5	Original Grant	FG2O2807J	IHDT56AG9	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	IHDT56AH5 Parent Worst Result	IHDT56AG9 Variant Check Result	Difference (dB)
Conducted Power (dBm)	BT BR/EDR Ant1	13.39	12.71	-0.68
	BT BR/EDR Ant2	9.38	9.34	-0.04
	BLE 1Mbps Ant1	10.53	10.02	-0.51
	BLE 1Mbps Ant2	10.69	10.19	-0.5
	BLE 2Mbps Ant1	9.33	9.17	-0.16
	BLE 2Mbps Ant2	9.47	9.32	-0.15
	11b, 2.4GHz	24.80	24.62	-0.18
	11g, 2.4GHz	27.59	27.38	-0.21
	11n HT20, 2.4GHz	28.04	27.64	-0.4
	11n HT40, 2.4GHz	25.15	24.91	-0.24
	11ax HE20, 2.4GHz	28.09	27.37	-0.72
	11 ax HE 40, 2.4GHz	25.21	24.99	-0.22
	11a, 5.2GHz	19.70	19.54	-0.16
	11a, 5.3GHz	19.93	19.75	-0.18
	11a, 5.5GHz	19.70	19.53	-0.17
	11a, 5.8GHz	19.56	19.36	-0.2
	11n HT20, 5.2GHz	19.50	19.39	-0.11
	11n HT20, 5.3GHz	19.82	19.63	-0.19
	11n HT20, 5.5GHz	19.50	19.34	-0.16
	11n HT20, 5.8GHz	19.35	19.17	-0.18
	11ac VHT20, 5.2GHz	19.54	19.45	-0.09
	11ac VHT20, 5.3GHz	19.88	19.68	-0.2
	11ac VHT20, 5.5GHz	19.57	19.48	-0.09
	11ac VHT20, 5.8GHz	19.40	19.22	-0.18
	11ax HE20, 5.2GHz	19.61	19.49	-0.12
	11ax HE20, 5.3GHz	19.94	19.72	-0.22
	11ax HE20, 5.5GHz	19.64	19.54	-0.1
	11ax HE20, 5.8GHz	19.45	19.28	-0.17
	11n HT40, 5.2GHz	17.70	17.35	-0.35
	11n HT40, 5.3GHz	17.89	17.43	-0.46
	11n HT40, 5.5GHz	17.56	17.27	-0.29
	11n HT40, 5.8GHz	17.29	17.04	-0.25
	11ac VHT40, 5.2GHz	17.73	17.41	-0.32
	11ac VHT40, 5.3GHz	17.94	17.50	-0.44
	11ac VHT40, 5.5GHz	17.60	17.36	-0.24
	11ac VHT40, 5.8GHz	17.34	17.15	-0.19
	11ax HE40, 5.2GHz	17.83	17.52	-0.31
	11ax HE40, 5.3GHz	18.10	17.77	-0.33
	11ax HE40, 5.5GHz	17.75	17.60	-0.15
	11ax HE40, 5.8GHz	17.45	17.25	-0.2
	11ac VHT80, 5.2GHz	17.47	17.08	-0.39
	11ac VHT80, 5.3GHz	17.82	17.40	-0.42
	11ac VHT80, 5.5GHz	17.63	17.26	-0.37
	11ac VHT80, 5.8GHz	17.08	16.77	-0.31
	11ax HE80, 5.2GHz	17.51	17.19	-0.32
	11ax HE80, 5.3GHz	17.88	17.50	-0.38
	11ax HE80, 5.5GHz	17.65	17.43	-0.22
	11ax HE80, 5.8GHz	17.12	16.86	-0.26

	11ac VHT160, 5.3GHz	16.00	15.76	-0.24
	11ac VHT160, 5.5GHz	15.61	15.44	-0.17
	11ax HE160, 5.3GHz	16.07	15.96	-0.11
	11ax HE160, 5.5GHz	15.63	15.54	-0.09
	11a, U-NII-5	13.90	13.60	-0.3
	11a, U-NII-6	14.75	14.35	-0.4
	11a, U-NII-7	14.16	13.80	-0.36
	11a, U-NII-8	14.77	14.37	-0.4
	11ax HE20, U-NII-5	14.44	14.01	-0.43
	11ax HE20, U-NII-6	14.86	14.45	-0.41
	11ax HE20, U-NII-7	14.33	13.87	-0.46
	11ax HE20, U-NII-8	14.93	14.50	-0.43
	11ax HE40, U-NII-5	16.98	16.67	-0.31
	11ax HE40, U-NII-6	16.27	15.91	-0.36
	11ax HE40, U-NII-7	16.35	16.03	-0.32
	11ax HE40, U-NII-8	15.72	15.31	-0.41
	11ax HE80, U-NII-5	16.21	15.85	-0.36
	11ax HE80, U-NII-6	15.68	15.39	-0.29
	11ax HE80, U-NII-7	15.13	14.78	-0.35
	11ax HE80, U-NII-8	14.63	14.25	-0.38
	11ax HE160, U-NII-5	16.48	16.12	-0.36
	11ax HE160, U-NII-6	14.92	14.53	-0.39
	11ax HE160, U-NII-7	14.39	14.12	-0.27
	11ax HE160, U-NII-8	14.24	13.85	-0.39
	GSM850	32.94	32.94	0
	GSM1900	29.75	29.75	0
	WCDMA B5	23.42	23.23	-0.19
	WCDMA B2	23.63	23.06	-0.57
	WCDMA B4	23.61	23.13	-0.48
	LTE B5/26	23.06	22.87	-0.19
	LTE B2	22.66	22.66	0
	LTE B4/66	22.94	22.94	0
	LTE B7	22.77	22.77	0
	LTE B7C	22.24	21.51	-0.73
	LTE B12	23.09	22.84	-0.25
	LTE B41/38	25.59	25.33	-0.26
	LTE B41C	22.45	23.23	0.78
	LTE B48	23.51	23.42	0.09
	DC_66A_n7A	23.36	22.90	-0.46
	5G NR n66	22.97	22.90	-0.07
	Part 27O n77	25.92	25.88	-0.04
	Part 27O n78	26.01	23.98	-2.03

Test Item	Mode	IHDT56AH5 Parent Worst Result	IHDT56AG9 Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBm)	EDGE 850	-23.73	-25.47	-1.74
	WCDMA 1900	-41.66	-40.87	0.79
	LTE Band 48	-16.87	-17.37	-0.50
	DC_66A_n7A	-22.52	-23.29	-0.79

Test Item	Mode	IHDT56AH5 Parent Worst Result	IHDT56AG9 Variant Check Result	Difference (dB)
Field Strength (dBuV/m) @ 30m	NFC 13.56MHz	55.83	54.76	-1.07

Test Item	Mode	IHDT56AH5 Parent Worst Result (Adjusted Power) (dBm)	IHDT56AG9 Variant Check Result (Adjusted Power) (dBm)	Difference (dB)
CBP	UNII-6 BW160M CH Freq. 6430MHz	-62.26	-64.22	-1.96

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 and Part 96 EUD mechanism/software is used in the variant. Hence, there is no spot check data for DFS and Part 96 EUD hand-shaking mechanism.

The same CBP detection mechanism/software/antenna gain is used in the variant. Hence, all test cases refer to parent report for CBP.

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. 12, 2022	Jan. 06, 2023	Oct. 11, 2023	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	Aug. 25, 2022	Jan. 06, 2023	Aug. 24, 2023	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 05, 2023	Jan. 06, 2023	Jan. 04, 2024	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 05, 2023	Jan. 06, 2023	Jan. 04, 2024	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 12, 2022	Dec. 29, 2022	Oct. 11, 2023	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 16, 2022	Dec. 29, 2022	Oct. 15, 2023	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	May 24, 2022	Dec. 29, 2022	May 23, 2023	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1284	1GHz~18GHz	Jan. 05, 2022	Dec. 29, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Dec. 29, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 05, 2022	Dec. 29, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2022	Dec. 29, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18GA	060840	1Ghz-18Ghz	Oct. 12, 2022	Dec. 29, 2022	Oct. 11, 2023	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz-18Ghz	Oct. 12, 2022	Dec. 29, 2022	Oct. 11, 2023	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Dec. 29, 2022	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Dec. 29, 2022	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Dec. 29, 2022	NCR	Radiation (03CH04-KS)
Spectrum Analyzer	R&S	FSV30	101338	10Hz~30GHz	Apr. 12, 2022	Dec. 29, 2022	Apr. 11, 2023	CBP (DFS01-KS)
MXG-B RF Vector Signal Genertor	Keysight	5182B /5182BX07	MY56200417 /MY59360210	9kHz~7.2GHz	May 24, 2022	Dec. 29, 2022	May 23, 2023	CBP (DFS01-KS)
Vector Signal Generator	R&S	SMBV100A	258305	9kHz~6GHz	Jan. 06, 2022	Dec. 29, 2022	Jan. 05, 2023	CBP (DFS01-KS)
Combiner	MTJ Cooperation	MTJ7112	N/A	0.4-6GHz	NCR	Dec. 29, 2022	NCR	CBP (DFS01-KS)
Notebook	Dell	P78G	N/A	N/A	NCR	Dec. 29, 2022	NCR	CBP (DFS01-KS)

NCR: No Calibration Required.

-THE END-