



FCC RF Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2321-3, XT2321-5
FCC ID : IHDT56AJ3
STANDARD : 47 CFR Part 2, 27
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)
TEST DATE(S) : Mar. 30, 2023

We, Sporton International Inc. (ShenZhen), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown 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



TABLE OF CONTENTS

REVISION HISTORY...3
SUMMARY OF TEST RESULT...4
1 GENERAL DESCRIPTION...5
1.1 Applicant...5
1.2 Manufacturer...5
1.3 Product Feature of Equipment Under Test...5
1.4 Product Specification of Equipment Under Test...5
1.5 Modification of EUT...6
1.6 Maximum EIRP Power and Emission Designator...6
1.7 Testing Location...6
1.8 Applicable Standards...7
1.9 Specification of Accessory...7
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST...8
2.1 Test Mode...8
2.2 Frequency List of Low/Middle/High Channels...8
3 CONDUCTED TEST ITEMS...9
3.1 Measuring Instruments...9
3.2 Test Setup...9
3.3 Test Result of Conducted Test...9
3.4 Conducted Output Power and EIRP...10
4 LIST OF MEASURING EQUIPMENT...11
5 UNCERTAINTY OF EVALUATION...12
APPENDIX A. TEST RESULTS OF CONDUCTED TEST



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG2D0913-05A	Rev. 01	Initial issue of report	Apr. 07, 2023



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (5G NR n38)	EIRP < 2Watt		

Remark: This is a variant report. For change note, please refer to XT2321-3, XT2321-5_Operational Description of Product Equality Declaration which is exhibit separately, the conducted power&EIRP of Band n38(40M) were tested, according to the results, 5G NR n41 covers n38 on the basis of the original report FG2D0913K.

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



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	XT2321-3, XT2321-5
FCC ID	IHDT56AJ3
IMEI Code	Conducted : 358041760025611/358041760025629
HW Version	DVT2
SW Version	T1TZ33.3-44
EUT Stage	Identical Prototype

The two model names XT2321-3, XT2321-5 are the same product except model name different for market segment.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n38 : 2570 MHz ~ 2620 MHz
Rx Frequency	5G NR n38: 2570 MHz ~ 2620 MHz
Bandwidth	n38 : 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 40MHz
SCS	30kHz
Antenna Gain	<Ant.0> n38 : -1.27 dBi <Ant. 1> n38 : -2.77 dBi <Ant. 2> n38 : -0.86 dBi <Ant. 3> n38 : -1.91 dBi
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

Remark:

1. The maximum EIRP is calculated from output power and antenna gain, only the maximum EIRP of is Ant.3 for 5G NR n38 is shown in the report.



1.5 Modification of EUT

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

1.6 Maximum EIRP Power and Emission Designator

5G NR n38		PI/2 BPSK / QPSK	16QAM / 64QAM / 256QAM
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Maximum EIRP(W)
40	2590.0 ~ 2600.0	0.1803	0.1432

Note: All modulations have been tested, only the worst test results of PSK & QAM are shown in the report.

1.7 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



1.8 Applicable Standards

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

- 47 CFR Part 2, 27
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

1.9 Specification of Accessory

Specification of Accessory				
AC Adapter	Brand Name	Motorola (Salom)	Model Name	MC-301
Battery 1	Brand Name	Motorola(ATL)	Model Name	PM29
Battery 2	Brand Name	Motorola(ATL)	Model Name	PM08
USB Cable 1	Brand Name	Motorola(Cabletech)	Model Name	SC18D13216
USB Cable 2	Brand Name	Motorola(Luxshare)	Model Name	SC18D13217
USB Cable 3	Brand Name	Motorola(Saibao)	Model Name	SC18D86732



2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted test items are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

Test Items	5G NR	Bandwidth (MHz)													Modulation				RB #		Test Channel		
		5	10	15	20	25	30	40	50	60	70	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Full	L	M
Max. Output Power	n38	-					v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
E.I.R.P	n38	-					v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
Note	1. The mark "v" means that this configuration is chosen for testing. 2. The mark "-" means that this bandwidth is not supported.																						

2.2 Frequency List of Low/Middle/High Channels

5G NR n38 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
40	Channel	518000	519000	520000
	Frequency	2590	2595	2600
30	Channel	517000	519000	521000
	Frequency	2585	2595	2605
25	Channel	516500	519000	521500
	Frequency	2582.5	2595	2607.5
20	Channel	516000	519000	522000
	Frequency	2580	2595	2610
15	Channel	515500	519000	522500
	Frequency	2577.5	2595	2612.5
10	Channel	515000	519000	523000
	Frequency	2575	2595	2615

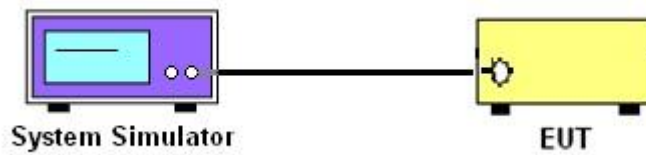
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.2 Test Setup

3.2.1 Conducted Output Power



3.3 Test Result of Conducted Test

Please refer to Appendix A.



3.4 Conducted Output Power and EIRP

3.4.1 Description of the Conducted Output Power Measurement and EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The EIRP of mobile transmitters must not exceed 2 Watts for 5G NR n38.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.



4 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. 07, 2022	Mar. 30, 2023	Apr. 06, 2023	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.007 7	0.4GHz~26.5GHz	Dec. 25, 2022	Mar. 30, 2023	Dec. 24, 2023	Conducted (TH01-SZ)

NCR: No Calibration Required



5 Uncertainty of Evaluation

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

----- THE END -----



Appendix A. Test Results of Conducted Test

Test Engineer :	Jung Kuo	Temperature :	22~23°C
		Relative Humidity :	40~42%

5G NR n38:

NR Band	SCS	BandWidth	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP (W)
38	30	40	518000	2590	DFT-s-OFDM PI/2 BPSK	50@25	24.24	22.33	0.1710
38	30	40	518000	2590	DFT-s-OFDM PI/2 BPSK	1@1	24.19	22.28	0.1690
38	30	40	518000	2590	DFT-s-OFDM PI/2 BPSK	1@104	24.3	22.39	0.1734
38	30	40	518000	2590	DFT-s-OFDM QPSK	50@25	24.22	22.31	0.1702
38	30	40	518000	2590	DFT-s-OFDM QPSK	1@1	24.24	22.33	0.1710
38	30	40	518000	2590	DFT-s-OFDM QPSK	1@104	24.27	22.36	0.1722
38	30	40	518000	2590	DFT-s-OFDM 16 QAM	50@25	23.29	21.38	0.1374
38	30	40	518000	2590	DFT-s-OFDM 16 QAM	1@1	23.34	21.43	0.1390
38	30	40	518000	2590	DFT-s-OFDM 16 QAM	1@104	23.24	21.33	0.1358
38	30	40	518000	2590	DFT-s-OFDM 64 QAM	50@25	21.83	19.92	0.0982
38	30	40	518000	2590	DFT-s-OFDM 64 QAM	1@1	21.89	19.98	0.0995
38	30	40	518000	2590	DFT-s-OFDM 64 QAM	1@104	21.79	19.88	0.0973
38	30	40	518000	2590	DFT-s-OFDM 256 QAM	50@25	19.75	17.84	0.0608
38	30	40	518000	2590	DFT-s-OFDM 256 QAM	1@1	19.35	17.44	0.0555
38	30	40	518000	2590	DFT-s-OFDM 256 QAM	1@104	19.45	17.54	0.0568
38	30	40	518000	2590	CP-OFDM QPSK	53@26	22.76	20.85	0.1216
38	30	40	518000	2590	CP-OFDM QPSK	1@1	22.74	20.83	0.1211
38	30	40	518000	2590	CP-OFDM QPSK	1@104	22.85	20.94	0.1242
38	30	40	519000	2595	DFT-s-OFDM PI/2 BPSK	50@25	24.47	22.56	0.1803
38	30	40	519000	2595	DFT-s-OFDM PI/2 BPSK	1@1	24.19	22.28	0.1690
38	30	40	519000	2595	DFT-s-OFDM PI/2 BPSK	1@104	24.34	22.43	0.1750
38	30	40	519000	2595	DFT-s-OFDM QPSK	50@25	24.28	22.37	0.1726
38	30	40	519000	2595	DFT-s-OFDM QPSK	1@1	24.24	22.33	0.1710
38	30	40	519000	2595	DFT-s-OFDM QPSK	1@104	24.32	22.41	0.1742
38	30	40	519000	2595	DFT-s-OFDM 16 QAM	50@25	23.22	21.31	0.1352
38	30	40	519000	2595	DFT-s-OFDM 16 QAM	1@1	23.26	21.35	0.1365
38	30	40	519000	2595	DFT-s-OFDM 16 QAM	1@104	23.47	21.56	0.1432
38	30	40	519000	2595	DFT-s-OFDM 64 QAM	50@25	21.76	19.85	0.0966
38	30	40	519000	2595	DFT-s-OFDM 64 QAM	1@1	21.9	19.99	0.0998
38	30	40	519000	2595	DFT-s-OFDM 64 QAM	1@104	21.79	19.88	0.0973
38	30	40	519000	2595	DFT-s-OFDM 256 QAM	50@25	19.78	17.87	0.0612
38	30	40	519000	2595	DFT-s-OFDM 256 QAM	1@1	19.34	17.43	0.0553
38	30	40	519000	2595	DFT-s-OFDM 256 QAM	1@104	19.51	17.6	0.0575
38	30	40	519000	2595	CP-OFDM QPSK	53@26	22.78	20.87	0.1222
38	30	40	519000	2595	CP-OFDM QPSK	1@1	22.75	20.84	0.1213
38	30	40	519000	2595	CP-OFDM QPSK	1@104	22.82	20.91	0.1233
38	30	40	520000	2600	DFT-s-OFDM PI/2 BPSK	50@25	24.26	22.35	0.1718
38	30	40	520000	2600	DFT-s-OFDM PI/2 BPSK	1@1	24.17	22.26	0.1683
38	30	40	520000	2600	DFT-s-OFDM PI/2 BPSK	1@104	24.19	22.28	0.1690
38	30	40	520000	2600	DFT-s-OFDM QPSK	50@25	24.14	22.23	0.1671
38	30	40	520000	2600	DFT-s-OFDM QPSK	1@1	24.22	22.31	0.1702



NR Band	SCS	BandWidth	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP (W)
38	30	40	520000	2600	DFT-s-OFDM QPSK	1@104	24.23	22.32	0.1706
38	30	40	520000	2600	DFT-s-OFDM 16 QAM	50@25	23.16	21.25	0.1334
38	30	40	520000	2600	DFT-s-OFDM 16 QAM	1@1	23.27	21.36	0.1368
38	30	40	520000	2600	DFT-s-OFDM 16 QAM	1@104	23.33	21.42	0.1387
38	30	40	520000	2600	DFT-s-OFDM 64 QAM	50@25	21.7	19.79	0.0953
38	30	40	520000	2600	DFT-s-OFDM 64 QAM	1@1	21.83	19.92	0.0982
38	30	40	520000	2600	DFT-s-OFDM 64 QAM	1@104	21.88	19.97	0.0993
38	30	40	520000	2600	DFT-s-OFDM 256 QAM	50@25	19.71	17.8	0.0603
38	30	40	520000	2600	DFT-s-OFDM 256 QAM	1@1	19.33	17.42	0.0552
38	30	40	520000	2600	DFT-s-OFDM 256 QAM	1@104	19.45	17.54	0.0568
38	30	40	520000	2600	CP-OFDM QPSK	53@26	22.64	20.73	0.1183
38	30	40	520000	2600	CP-OFDM QPSK	1@1	22.67	20.76	0.1191
38	30	40	520000	2600	CP-OFDM QPSK	1@104	22.67	20.76	0.1191