

RF Exposure Evaluation Report

FCC ID : IHDT56AB1
EQUIPMENT : Mobile Cellular Phone
Brand Name : Motorola
Model Name : XT2201-1
Applicant : Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA
Manufacturer : Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA
STANDARD : FCC CFR 47 part 1, 1.1307(b) and 1.1310
KDB 680106 D01v03

We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in KDB 680106 D01v03 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 (Kunshan) Inc., the test report shall not be reproduced except in full.

Tony Zhang

Reviewed by: Tony Zhang / Supervisor

Kat Yin

Approved by: Kat Yin / Manager



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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA192317A	Rev. 01	Initial issue of report	Dec. 13, 2021
FA192317A	Rev. 02	Added test data of Wireless Charging to Stylus	Jan. 26, 2022



1. Description of Equipment Under Test (EUT)

Table with 2 columns: Feature Name, Value. Rows include EUT Type (Mobile Cellular Phone), Brand Name (Motorola), Model Name (XT2201-1), FCC ID (IHDT56AB1), Frequency Range (110KHz ~ 148 KHz), Modulation Type (ASK), HW Version (DVT2), SW Version (SSH32.79), EUT Stage (Identical Prototype), Date of Test (Nov. 12, 2021 ~ Jan. 26, 2022).

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.

2. Administration Data

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Table with 4 columns: Test Firm, Test Site Location, Test Site No., and three sub-columns for Test Site No. (Sporton Site No., FCC Designation No., FCC Test Firm Registration No.).



3. RF Exposure Limit Introduction

§ 1.1310 The criteria listed in table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency(RF) radiation as specified in § 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of § 2.1093 of this chapter.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	* 100	6
3.0-30	1842/f	4.89/f	* 900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	* 100	30
1.34-30	824/f	2.19/f	* 180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

(1) Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure. The phrase fully aware in the context of applying these exposure limits means that an exposed person has received written and/or verbal information fully explaining the potential for RF exposure resulting from his or her employment. With the exception of transient persons, this phrase also means that an exposed person has received appropriate training regarding work practices relating to controlling or mitigating his or her exposure. Such training is not required for transient persons, but they must receive written and/or verbal information and notification (for example, using signs) concerning their exposure potential and appropriate means available to mitigate their exposure. The phrase exercise control means that an exposed person is allowed to and knows how to reduce or avoid exposure by administrative or engineering controls and work practices, such as use of personal protective equipment or time averaging of exposure.

(2) General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

4. Test Mode

This device has been tested in the following charging conditions as below:

Test Mode	Test Setup Configuration	Charging Current Condition
TM1	Test w/ Client Device installed	< 1% Battery status
TM2	Test w/ Client Device installed	50% Battery status
TM3	Test w/ Client Device installed	Near 100% Battery status

5. Measurement Equipment

Instrument	Manufacturer	Model No.	Serial No.	Freq Rang	Last Cal.	Due Date
Electric and Magnetic field Probe-Analyzer	Narda S.T.S / PMM	EHP 200AC	170WX80309	3KHz~30MHz	Oct ,26, 2021	Oct ,25, 2022

6. RF Exposure Evaluation

- The device support Wireless Power Consortium (WPC or commonly referred to as Qi) standard EPP (Extended Power Profile) as a receiver, with a maximum power transfer of 9W to the phone. the device can be used in reverse, as a transmitter to another wireless charging receiver. In this case, up to 5W (BPP) can be transmitted to the external receiver.
- According to 202010 TCBC workshop, for portable devices that do not physically attach to phone, desktop WPT testing guidance from FCC KDB 680106 D01v03 is applied.
- The equipment under test was placed on a wooden desk inside of shield room. The isotropic field probe was used to measure the field strength for 6 EUT surfaces, the detail setup photo please refer to Appendix A.
- Per KDB 680106 D01v03, RF exposure should be evaluation at 10 cm for all positions to more conservatively when Wireless Charging to another phone. Emissions between 50 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 1.63 A/m and aggregate H-field strengths from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.
- Additional RF exposure should be evaluation at 15 cm surrounding the device and 20 cm away from the surface from all coils when Wireless Charging to Stylus. Emissions between 50 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 1.63 A/m and aggregate H-field strengths from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

<Wireless Charging to another phone>:

position Distance 10cm	H-Field measurement (A/m)						50% of MPE Limit
	A	B	C	D	E	F	
TM1	0.2065	0.2043	0.3885	0.3455	0.2039	0.2101	0.815
TM2	0.2009	0.2006	0.3651	0.3078	0.2032	0.2075	
TM3	0.1989	0.2006	0.2251	0.3075	0.2043	0.2065	



<Wireless Charging to Stylus>

position Distance	H-Field measurement (A/m)						50% of MPE Limit
	A(15cm)	B(15cm)	C(15cm)	D(15cm)	E(20cm)	F(20cm)	
TM1	0.0583	0.0585	0.0764	0.0692	0.0616	0.1409	0.815
TM2	0.0588	0.0563	0.0752	0.0686	0.0611	0.148	
TM3	0.0593	0.0575	0.0793	0.0679	0.0621	0.1431	

Conclusion:

The field strength limit refers to Part 1.1310 and the test result of exposure evaluation is compliant.

Test Engineer : Henry Wang