MPE Test Report

Project Number: 3518006

Report Number: 3518006EMC01 **Revision Level:** 1

Client: Motorola Mobility Inc

Equipment Under Test: Smart Watch Wireless Charger

Model Name: SPN5485A

Model Number: SPN5485A

Applicable Standards: FCC, CFR47 Part 1, 1.1307(b), 1.1310
Industry Canada, RSS-102 Issue 4

Report issued on: 17 June 2014

Test Result: Compliant

Tested by: David J Schramm, EMC Manager

Reviewed by: Jeremy Pickens, Senior Engineer

Remarks:
This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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1 General Information

1.1 *Client Information*

Name:	Motorola Mobility Inc
Address:	PO Box 215 600 North US Highway 45
City, State, Zip, Country:	Libertyville IL, 60048, USA

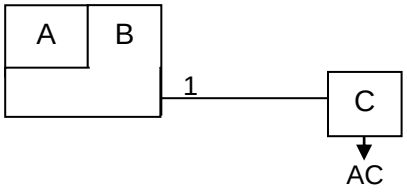
1.2 *Test Laboratory*

Name:	SGS North America, Inc.
Address:	620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country:	Suwanee, GA 30024, USA

1.3 *General Information of EUT*

Model Name:	SPN5485A
Model Number:	SPN5485A
FCC ID:	IHDT6QC2
IC ID:	109O-T6QC1
Serial Number:	P2 0069 C
Rated Voltage:	5V from external USB AC/DC adapter
Test Voltage:	5V from external USB AC/DC adapter
AC/DC Adapter:	SPN5681A
Frequency Range:	155-190kHz
Antenna Type:	Fixed, internal, embedded
Sample Received Date:	11 June 2014
Dates of testing:	16 June 2014

1.4 *EUT Connection Block Diagram*



1.5 *System Configurations*

Device reference	Manufacturer	Description	Model Number	Serial Number
A	Motorola	Smart Watch (1)	Moto 360	LXCX230221
B	Motorola	Wireless Charger	SPN5485A	P2 0069 C
C	Motorola	AC/DC Adapter	SPN5681A	NSN

1) For standby mode measurements, the smart watch was removed from the charger.

1.6 *Cable List*

Cable reference	Port Name	Start	End	Cable Length (m)	Ferrite installed?	Shielded?
1	Charging Port	Charger	AC/DC Adapter	1.8	No	No

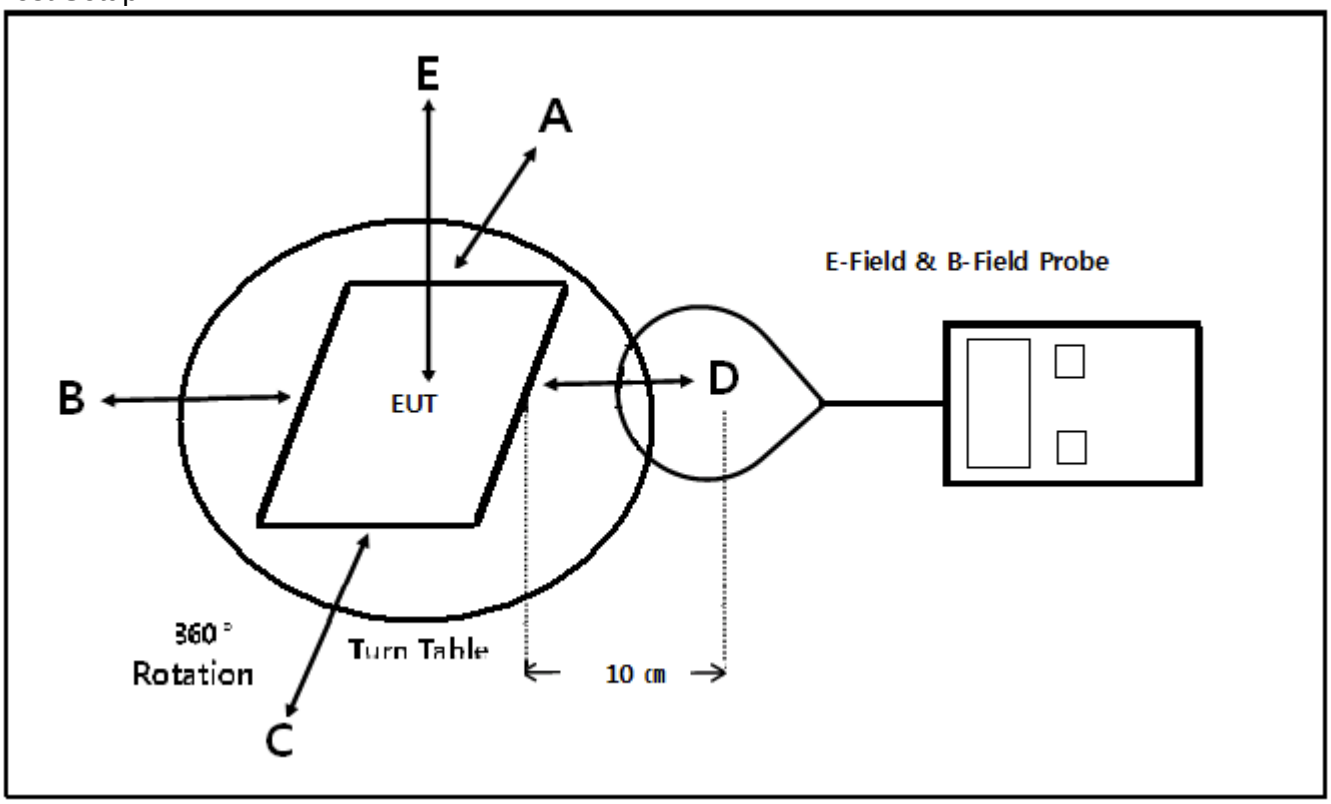
2 MPE Measurement

2.1 *Test Result*

Test Description	Basic Standards	Test Result
MPE	FCC Part 1.1310 and KDB 680106 D01 v02	Compliant

2.2 *Test Method*

Test Setup



a) The measurement probe was placed at test distance (10 ㎝) which is between the edge of the charger and the geometric center of probe.
b) Each face was measured while adjusting the battery voltage with an external power source.
c) The highest emission level was recorded and compared with the limit as soon as measurement of each point (A, B, C, D, E) was completed.

2.3 *Test Limit*

FCC RULES AND REGULATIONS PART 1 SECTION 1.1310 and KDB 680106 D01 v02

§1.1310 : The criteria listed in the following table shall be used to evaluate the environment 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 FCC part 2.1093 of this chapter

TABLE 1 - LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)
Limits for General Population / Uncontrolled Exposures

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Time (minutes)
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	0.73	2	30
300-1500	--	--	f/150	30
1500-100,000	--	--	1	30

f = frequency in MHz
* = Plane wave equivalent power density

Note 1 to Table 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that 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.

2.4 *Test Site*

3m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA

Environmental Conditions

Temperature: 21.7 °C
Relative Humidity: 50.1 %

2.5 *Test Equipment*

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
Exposure Level Tester	ELT-400	Narda	B092085	28-Jun-14
B-Field Probe	B-Field Probe 100cm^2	Narda	B092085	28-Jun-14
Probe Monitor	FM7004	AR	0339621	N/A
E-Field Probe	FP7003	AR	311407	13-Sep-14
Power Supply	382280	Extech	EA03	14-Mar-15

Note: The calibration period equipment is 1 year.

2.6 *Test Data: E-Field Strength*

Test Position		Test Distance (cm)	Test result (V/m) 4.3V	Test result (V/m) 3.8V	Test result (V/m) 3.4V	Test result (V/m) 2.8V	FCC Test Limit (V/m)	IC Test Limit (V/m)
A:	Front	10	8.1	6.6	6.0	6.9	614	280
B:	Left	10	5.8	5.1	4.8	5.3	614	280
C:	Back	10	5.6	5.2	5.0	4.8	614	280
D:	Right	10	6.6	5.8	5.3	6.0	614	280
E:	Top	10	8.2	7.1	6.5	7.5	614	280
F:	Bottom	10	8.5	7.0	6.0	7.0	614	280

When the load was removed from the charger, the field strength dropped.

2.7 *Test Data: H-Field Strength*

Test Position		Test Distance (cm)	Test result (A/m) 4.3V	Test result (A/m) 3.8V	Test result (A/m) 3.4V	Test result (A/m) 2.8V	FCC Test Limit (A/m)	FCC Test Limit (A/m)
A:	Front	10	0.24	0.22	0.17	0.26	1.63	2.19
B:	Left	10	0.15	0.13	0.13	0.16	1.63	2.19
C:	Back	10	0.31	0.25	0.21	0.38	1.63	2.19
D:	Right	10	0.17	0.16	0.14	0.20	1.63	2.19
E:	Top	10	0.30	0.25	0.22	0.36	1.63	2.19
F:	Bottom	10	0.23	0.20	0.18	0.28	1.63	2.19
C*:	Back	10				1.10	1.63	2.19

* - In this position, the load was removed from the charger and the maximum value was recorded

3 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	17 June 2014
1	Removed test setup photographs	18 June 2014