FCC SAR Test Report

APPLICANT	:	Motorola Mobility, LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	9397
FCC ID	:	IHDT56VD5
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had 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., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.)

Table of Contents

1. Statement of Compliance **4**
2. Administration Data **5**
3. Guidance Standard **5**
4. Equipment Under Test (EUT) Information **6**
5. Re-use of Measured Data **7**
6. Simultaneous Transmission Analysis **8**
6.1 Head Exposure Conditions 9
6.2 Hotspot Exposure Conditions 10
6.3 Body-Worn Accessory Exposure Conditions 11
7. References **12**

Appendix A. SAR Reference Report
Appendix B. Test Setup Photos

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA651022	Rev. 01	Initial issue of report	Jun. 03, 2016

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Motorola Mobility, LLC, Mobile Cellular Phone, 9397 are as follows.

Equipment Class	Frequency Band	Highest 1g SAR Summary			Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation 10mm)	Hotspot (Separation 10mm)	
		1g SAR (W/kg)			
Licensed	GSM850	0.71	0.92	0.92	1.54
	GSM1900	0.48	0.98	0.98	
	WCDMA II	0.79	1.37	1.37	
	WCDMA V	0.47	0.72	0.72	
	LTE Band 5	0.37	0.61	0.61	
	LTE Band 7	0.74	1.13	1.13	
DTS	2.4GHz WLAN	0.39	0.17	0.17	1.54
DSS	Bluetooth		0.07		1.43

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications

2. Administration Data

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Motorola Mobility, LLC
Address	222 W. Merchandise Mart Plaza, Chicago IL 60654 USA

Manufacturer	
Company Name	Motorola Mobility, LLC
Address	222 W. Merchandise Mart Plaza, Chicago IL 60654 USA

3. Guidance Standard

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

4. Equipment Under Test (EUT) Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	9397
FCC ID	IHDT56VD5
IMEI Code	354140070005232
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	· GSM/GPRS/EGPRS · RMC/AMR 12.2Kbps · HSDPA · HSUPA · DC-HSDPA · LTE: QPSK, 16QAM · 802.11b/g/n HT20 · Bluetooth with EDR / LE
HW Version	DVT2-A
SW Version	fastboot_harpia_oem_userdebug_6.0.1_MPI24.201_1781_intcfg-test-keys.tar
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

5. Re-use of Measured Data

1. Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model 9397, FCC ID IHDT56VD5) is electrically identical to the reference device (Model 7383, FCC ID IHDT56VD4) for the portions of the circuitry corresponding to the data being re-used, as treated by KDB Publication 178919 D01.

2. Difference Section

For details concerning the similarity with respect to component placement, mechanical/electrical design etc., please refer to the Operational Description.

The re-used SAR data includes the following bands provided in Appendix A (Sporton SAR Report No. FA651006 for the reference device Model 7383, FCC ID IHDT56VD4):
- GSM850/1900, WCDMA B2 /B5, LTE B5/B7, 2.4GHz WLAN and Bluetooth.

3. Spot Check Verification Data Section

In order to confirm hardware similarity of the subject device with the reference device, spot check measurements were performed on the subject device for SAR , the test result were consistent with FCC ID IHDT56VD4.

Assertions concerning the similarity of these devices are based on representations by the applicant. The applicant accepts full responsibility for the validity of the similarity claim, and for the determination that verification test data are sufficient to support it.

4. Reference detail Section:

Equipment Class	Reference FCC ID	Folder Test/RF Exposure	Report Title/Section
PCE	IHDT56VD4	RF Exposure (FA651006)	All sections applicable
DTS	IHDT56VD4	RF Exposure (FA651006)	All sections applicable
DSS	IHDT56VD4	RF Exposure (FA651006)	All sections applicable

6. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset		
		Head	Body-worn	Hotspot
1.	GSM Voice + WLAN2.4GHz	Yes	Yes	
2.	GPRS/EDGE + WLAN2.4GHz	Yes	Yes	Yes
3.	WCDMA + WLAN2.4GHz	Yes	Yes	Yes
4.	LTE + WLAN2.4GHz	Yes	Yes	Yes
5.	GSM Voice + Bluetooth		Yes	
6.	GPRS/EDGE + Bluetooth		Yes	
7.	WCDMA+ Bluetooth		Yes	
8.	LTE + Bluetooth		Yes	

General Note:

1. This device 2.4GHz WLAN supports Hotspot operation and WiFi Direct (Group Client / Group Owner).
2. The worst case WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
3. 2.4GHz WLAN and Bluetooth cannot transmit simultaneously.
4. The Scaled SAR summation is calculated based on the same configuration and test position.
5. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.

6.1 Head Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)
GSM	GSM850	Right Cheek	0.709	0.179	**0.89**
		Right Tilted	0.311	0.159	**0.47**
		Left Cheek	0.438	0.392	**0.83**
		Left Tilted	0.306	0.318	**0.62**
	GSM1900	Right Cheek	0.326	0.179	**0.51**
		Right Tilted	0.187	0.159	**0.35**
		Left Cheek	0.476	0.392	**0.87**
		Left Tilted	0.226	0.318	**0.54**
WCDMA	WCDMA II	Right Cheek	0.654	0.179	**0.83**
		Right Tilted	0.316	0.159	**0.48**
		Left Cheek	0.792	0.392	**1.18**
		Left Tilted	0.341	0.318	**0.66**
	WCDMA V	Right Cheek	0.467	0.179	**0.65**
		Right Tilted	0.314	0.159	**0.47**
		Left Cheek	0.404	0.392	**0.80**
		Left Tilted	0.309	0.318	**0.63**
LTE	LTE Band 5	Right Cheek	0.374	0.179	**0.55**
		Right Tilted	0.230	0.159	**0.39**
		Left Cheek	0.351	0.392	**0.74**
		Left Tilted	0.260	0.318	**0.58**
	LTE Band 7	Right Cheek	0.254	0.179	**0.43**
		Right Tilted	0.249	0.159	**0.41**
		Left Cheek	0.739	0.392	**1.13**
		Left Tilted	0.160	0.318	**0.48**

6.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.693	0.111	**0.80**
		Back	0.917	0.174	**1.09**
		Left side	0.778		**0.78**
		Right side	0.764	0.097	**0.86**
		Top side		0.105	**0.11**
		Bottom side	0.068		**0.07**
	GSM1900	Front	0.684	0.111	**0.80**
		Back	0.980	0.174	**1.15**
		Left side	0.454		**0.45**
		Right side	0.326	0.097	**0.42**
		Top side		0.105	**0.11**
		Bottom side	0.311		**0.31**
WCDMA	WCDMA II	Front	1.191	0.111	**1.30**
		Back	1.366	0.174	**1.54**
		Left side	0.691		**0.69**
		Right side	0.549	0.097	**0.65**
		Top side		0.105	**0.11**
		Bottom side	0.472		**0.47**
	WCDMA V	Front	0.549	0.111	**0.66**
		Back	0.720	0.174	**0.89**
		Left side	0.637		**0.64**
		Right side	0.669	0.097	**0.77**
		Top side		0.105	**0.11**
		Bottom side	0.080		**0.08**
LTE	LTE Band 5	Front	0.490	0.111	**0.60**
		Back	0.605	0.174	**0.78**
		Left side	0.563		**0.56**
		Right side	0.596	0.097	**0.69**
		Top side		0.105	**0.11**
		Bottom side	0.062		**0.06**
	LTE Band 7	Front	0.860	0.111	**0.97**
		Back	1.134	0.174	**1.31**
		Left side	0.438		**0.44**
		Right side	0.095	0.097	**0.19**
		Top side		0.105	**0.11**
		Bottom side	0.795		**0.80**

6.3 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 Bluetooth 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.693	0.111	0.015	**0.80**	**0.71**
		Back	0.917	0.174	0.067	**1.09**	**0.98**
	GSM1900	Front	0.684	0.111	0.015	**0.80**	**0.70**
		Back	0.980	0.174	0.067	**1.15**	**1.05**
WCDMA	WCDMA II	Front	1.191	0.111	0.015	**1.30**	**1.21**
		Back	1.366	0.174	0.067	**1.54**	**1.43**
		Back with Headset	1.312	0.174	0.067	**1.49**	**1.38**
	WCDMA V	Front	0.549	0.111	0.015	**0.66**	**0.56**
		Back	0.720	0.174	0.067	**0.89**	**0.79**
LTE	LTE Band 5	Front	0.490	0.111	0.015	**0.60**	**0.51**
		Back	0.605	0.174	0.067	**0.78**	**0.67**
	LTE Band 7	Front	0.860	0.111	0.015	**0.97**	**0.88**
		Back	1.134	0.174	0.067	**1.31**	**1.20**

7. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

[6] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[7] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.

[8] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015

[9] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015

[10] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

[11] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[12] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.