

# FCC SAR Test Report

APPLICANT : Motorola Mobility LLC  
EQUIPMENT : Mobile Cellular Phone  
BRAND NAME : Motorola  
MODEL NAME : 10744  
FCC ID : IHDT56WH3  
STANDARD : FCC 47 CFR Part 2 (2.1093)  
ANSI/IEEE C95.1-1992  
IEEE 1528-2013

We, Sporton International (KunShan) 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 (KunShan) INC., the test report shall not be reproduced except in full.



Prepared by: Mark Qu / Manager



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**Sporton International (KunShan) INC.**  
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**Appendix A. Reference Report**



**1. Statement of Compliance**

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, 10744** are as follows.

**<1g SAR>:**

Equipment Class	Frequency Band		Highest SAR Summary			Highest Simultaneous Transmission 1g SAR (W/kg)
			Head (Separation 0mm)	Body-worn (Separation 10mm)	Hotspot (Separation 10mm)	
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.20	0.24	0.24	1.45
		GSM1900	<0.10	<b>1.19</b>	<b>1.15</b>	
	WCDMA	Band V	0.14	0.25	0.25	
		Band II	0.22	0.71	0.63	
	LTE	Band 5	0.22	0.29	0.29	
Band 7		0.51	0.38	0.35		
DTS	WLAN	2.4GHz WLAN	0.44	0.14	0.14	1.32
NII		5GHz WLAN	<b>0.94</b>	<0.10	<0.10	1.45
Date of Testing:			2017/4/12 ~ 2017/5/19			

**<10g SAR>:**

Equipment Class	Frequency Band		Highest SAR Summary	Highest Simultaneous Transmission 10g SAR (W/kg)
			Product Specific 10g SAR (W/kg) (Gap 0mm)	
Licensed	GSM	GSM1900	1.25	1.93
	WCDMA	Band II	<b>1.93</b>	
NII	WLAN	5GHz WLAN	0.63	1.93

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6W/kg as averaged over any 1 gram of tissue; 10-gram SAR for Product Specific 10g SAR, limit: 4.0W/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 (KunShan) INC.
Test Site Location	No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958

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 Applied

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 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01



## 4. Equipment Under Test (EUT) Information

### 4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	10744
FCC ID	IHDT56WH3
IMEI Code	SIM1: 355656080019078 SIM2: 355656080019086
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: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink is not supported) LTE: QPSK, 16QAM 802.11b/g/n HT20/HT40 802.11a/n HT20/HT40 Bluetooth v3.0+EDR/ Bluetooth v4.0 LE/ Bluetooth v4.1 LE NFC:ASK
HW Version	DVT2
SW Version	sanders_n-userdebug 7.1.1 NPS26.85 1826 intcfg.test-keys
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
<b>Remark:</b>	
<ol style="list-style-type: none"> <li>WLAN operation in 5600 MHz ~ 5650 MHz is notched.</li> <li>This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.</li> <li>This device 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).</li> <li>This device does not support DTM operation.</li> <li>This device supports GRPS/EGRPS mode up to multi-slot class 12.</li> <li>For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.</li> <li>When the phone is in talking mode and receiver worked, receiver on power table will be implemented immediately in WCDMA Band II, and LTE B5/7, all others WWAN bands and WLAN are default power table.</li> <li>The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device. When front or back body worn condition is detected, WCDMA Band II, and LTE B7 reduced power will be active. (P-sensor can't work at detecting presence of the user's body at the four edges of the device.)</li> <li>When operating in hotspot mode, GSM1900, WCDMA Band II, and LTE B7 reduced power will be active.</li> </ol>	



**4.2 General LTE SAR Test and Reporting Considerations**

Summarized necessary items addressed in KDB 941225 D05 v02r05																																														
FCC ID	IHDT56WH3																																													
Equipment Name	Mobile Cellular Phone																																													
Operating Frequency Range of each LTE transmission band	LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz																																													
Channel Bandwidth	LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz																																													
uplink modulations used	QPSK, and 16QAM																																													
LTE Voice / Data requirements	Voice and Data																																													
LTE Release Version	R10, Cat 6																																													
CA Support	Yes, Downlink only																																													
LTE MPR permanently built-in by design	<p align="center"><b>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 2</td> </tr> </tbody> </table>								Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)																																							
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16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1																																							
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2																																							
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																													
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																													
Power reduction applied to satisfy SAR compliance	Yes, 1. The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device. When front or back body worn condition is detected, WCDMA Band II, and LTE B7 reduced power will be active. (P-sensor can't work at detecting presence of the user's body at the four edges of the device.) 2. When operating in hotspot mode, GSM1900, WCDMA Band II, and LTE B7 reduced power will be active.																																													
LTE Carrier Aggregation Combinations	Intra-Band possible combinations as below page and the detail power verification please referred to as below page.																																													
LTE Carrier Aggregation Additional Information	This device does not support full CA features on 3GPP Release 10. It supports a maximum of 2 carriers in the downlink only. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.																																													
Transmission (H, M, L) channel numbers and frequencies in each LTE band																																														
LTE Band 5																																														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz																																							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)																																						
L	20407	824.7	20415	825.5	20425	826.5	20450	829																																						
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5																																						
H	20643	848.3	20635	847.5	20625	846.5	20600	844																																						
LTE Band 7																																														
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz																																							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)																																						
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510																																						
M	21100	2535	21100	2535	21100	2535	21100	2535																																						
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560																																						



LTE Carrier Aggregation Combinations	
Intra-Band Combinations	
Non contiguous	
(PCC) B7	(SCC) B7
	20M + 20M
	15M + 20M
	15M + 15M
	10M + 15M
	10M + 10M
	5M + 15M
	20M + 15M
	15M + 10M
	15M + 5M

**General Note:**

This device supports LTE Carrier Aggregation (CA) in the downlink only.



### **4.3 Re-use of Measured Data**

#### **4.3.1 Introduction Section**

This application re-uses data collected on a similar device. The subject device of this application (Model: 10744, FCC ID: IHDT56WH3) is electrically identical to the reference device (Model: 10742,10741, FCC ID: IHDT56WH2) for the portions of the circuitry corresponding to the data being re-used, as treated by KDB Publication 178919 D01.

#### **4.3.2 Difference Section**

For details concerning the similarity with respect to component placement, mechanical/electrical design etc., please refer to the Product Equality Declaration "PED" file.

The re-used RF data includes the following bands provided in Appendix A (Sporton SAR Report No. FA731705-01 for the reference device Model: 10742,10741, FCC ID: IHDT56WH2):

- GSM850/1900
- WCDMA Band V/II
- LTE Band 5/7
- 2.4GHz WLAN
- 5GHz WLAN
- 2.4GHz Bluetooth

Spot check for WWAN and WLAN are performed for ensure that SAR measurement for both device are the same. So, the original SAR value can represent this application.



**4.3.3 Spot Check Verification Data Section**

**<1g SAR>:**

Band	BW (MHz)	Modulation	RB Size	RB Offset	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Original model (FCC ID: IHDT56WH2)				Spot check model (FCC ID: IHDT56WH3)				Deviation
											Average Power (dBm)	Tune-Up Limit (dBm)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	Average Power (dBm)	Tune-Up Limit (dBm)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
LTE Band 7	20M	QPSK	1RB	99Offset	-	Left Cheek	0	Receiver On	21100	2535	23.75	24.00	0.483	0.512	23.75	24.00	0.549	0.582	12.03%
WLAN 2.4GHz	-	-	-	-	802.11b 1Mbps	Left Cheek	0	-	1	2412	15.18	15.50	0.395	0.436	15.18	15.50	0.337	0.372	-17.20%
WLAN 5.3GHz	-	-	-	-	802.11n-HT40 MCS0	Left Cheek	0	-	54	5270	13.75	14.50	0.674	0.935	13.75	14.50	0.568	0.788	-18.65%
WLAN 5.5GHz	-	-	-	-	802.11n-HT40 MCS0	Left Cheek	0	-	110	5550	14.15	14.50	0.505	0.639	14.15	14.50	0.427	0.540	-18.33%
WLAN 5.8GHz	-	-	-	-	802.11n-HT40 MCS0	Left Cheek	0	-	159	5795	13.96	14.50	0.709	0.937	13.96	14.50	0.718	0.949	1.26%
GSM 850	-	-	-	-	GPRS 2 Tx slots	Back	10	OFF	251	848.8	29.50	30.00	0.213	0.239	29.50	30.00	0.265	0.297	19.53%
GSM1900	-	-	-	-	GPRS 2 Tx slots	Back	10	OFF	512	1850.2	26.7	27.5	0.988	1.188	26.7	27.5	0.874	1.051	-13.04%
WCDMA Band V	-	-	-	-	RMC 12.2Kbps	Back	10	OFF	4182	836.4	23.37	23.5	0.243	0.250	23.37	23.5	0.289	0.298	16.11%
WCDMA Band II	-	-	-	-	RMC 12.2Kbps	Back	10	P-Sensor On	9400	1880	19.13	19.5	0.648	0.706	19.13	19.5	0.575	0.626	-12.78%
LTE Band 5	10M	QPSK	1RB	25Offset	-	Back	10	OFF	20525	836.5	22.8	23.5	0.244	0.287	22.8	23.5	0.302	0.355	19.15%

**<10g SAR>:**

Band	BW (MHz)	Modulation	RB Size	RB Offset	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Original model (FCC ID: IHDT56WH2)				Spot check model (FCC ID: IHDT56WH3)				Deviation
											Average Power (dBm)	Tune-Up Limit (dBm)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	Average Power (dBm)	Tune-Up Limit (dBm)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	
GSM1900	-	-	-	-	GPRS 2 Tx slots	Bottom Side	0	OFF	661	1880	27.09	27.5	1.140	1.253	27.09	27.5	1.080	1.187	-5.56%
WCDMA Band II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0	OFF	9400	1880	22.41	22.5	1.890	1.930	22.41	22.5	2.340	2.389	19.21%

**Note:** In the table above, all the deviation of SAR test results are compliant with uncertainty budget.

**4.3.4 Reference detail Section**

Equipment Class	Reference FCC ID	Folder Test/RF Exposure	Report Title/Section
PCE (2G/3G/4G)	IHDT56WH2	RF Exposure(FA731705-01)	All sections applicable
DTS (BLE)	IHDT56WH2	RF Exposure(FA731705-01)	All sections applicable
DSS(BER)	IHDT56WH2	RF Exposure(FA731705-01)	All sections applicable
DTS (WLAN)	IHDT56WH2	RF Exposure(FA731705-01)	All sections applicable
NII (WLAN)	IHDT56WH2	RF Exposure(FA731705-01)	All sections applicable

**5. Simultaneous Transmission Analysis**

No.	Simultaneous Transmission Configurations	Portable Handset			Note
		Head	Body-worn	Hotspot	
1.	GSM Voice + WLAN2.4GHz	Yes	Yes		
2.	GPRS/EDGE + WLAN2.4GHz	Yes	Yes	Yes	Hotspot
3.	WCDMA + WLAN2.4GHz	Yes	Yes	Yes	Hotspot
4.	LTE + WLAN2.4GHz	Yes	Yes	Yes	Hotspot
5.	GSM Voice + WLAN5.3/5.5GHz	Yes	Yes		
6.	GPRS/EDGE + WLAN5.3/5.5GHz	Yes	Yes		WWAN VoIP
7.	WCDMA + WLAN5.3/5.5GHz	Yes	Yes		WWAN VoIP
8.	LTE + WLAN5.3/5.5GHz	Yes	Yes		WWAN VoIP
9.	GSM Voice + WLAN5.2/5.8GHz	Yes	Yes		
10.	GPRS/EDGE + WLAN5.2/5.8GHz	Yes	Yes	Yes	WWAN VoIP
11.	WCDMA + WLAN5.2/5.8GHz	Yes	Yes	Yes	WWAN VoIP
12.	LTE + WLAN5.2/5.8GHz	Yes	Yes	Yes	WWAN VoIP
13.	GSM Voice + Bluetooth		Yes		
14.	GPRS/EDGE + Bluetooth		Yes		WWAN VoIP
15.	WCDMA + Bluetooth		Yes		WWAN VoIP
16.	LTE + Bluetooth		Yes		WWAN VoIP

**General Note:**

- This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
- EUT will choose each GSM, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- This device 2.4GHz WLAN/ 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
- EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment though they have independent antenna.
- WLAN 2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously.
- According to the EUT character, WLAN 5GHz and Bluetooth can't transmit simultaneously.
- Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
- The reported SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - Scalar SAR summation < 1.6W/kg.
  - $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$ , 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.
  - If  $SPLSR \leq 0.04$ , simultaneously transmission SAR measurement is not necessary.
  - Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
- For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
  - $(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})} / x] \text{ W/kg}$  for test separation distances  $\leq 50 \text{ mm}$ ; where  $x = 7.5$  for 1-g SAR, and  $x = 18.75$  for 10-g SAR.
  - When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
  - 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm.

**<1g SAR>**

Bluetooth Max Power (dBm)	Exposure Position	Body worn
	Test separation	10 mm
7	Estimated SAR (W/kg)	0.105

**<10g SAR>**

Bluetooth Max Power (dBm)	Exposure Position	Body worn
	Test separation	10 mm
7	Estimated SAR (W/kg)	0.042



**5.1 Head Exposure Conditions**

WWAN Band		Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM	GSM850	Right Cheek	0.196	0.436	0.937	0.63	1.13
		Right Tilted	0.109	0.436	0.937	0.55	1.05
		Left Cheek	0.165	0.436	0.937	0.60	1.10
		Left Tilted	0.100	0.436	0.937	0.54	1.04
	GSM1900	Right Cheek	0.057	0.436	0.937	0.49	0.99
		Right Tilted	0.052	0.436	0.937	0.49	0.99
		Left Cheek	0.087	0.436	0.937	0.52	1.02
		Left Tilted	0.045	0.436	0.937	0.48	0.98
WCDMA	Band II	Right Cheek	0.111	0.436	0.937	0.55	1.05
		Right Tilted	0.119	0.436	0.937	0.56	1.06
		Left Cheek	0.223	0.436	0.937	0.66	1.16
		Left Tilted	0.113	0.436	0.937	0.55	1.05
	Band V	Right Cheek	0.137	0.436	0.937	0.57	1.07
		Right Tilted	0.091	0.436	0.937	0.53	1.03
		Left Cheek	0.131	0.436	0.937	0.57	1.07
		Left Tilted	0.088	0.436	0.937	0.52	1.03
LTE	Band 5	Right Cheek	0.216	0.436	0.937	0.65	1.15
		Right Tilted	0.138	0.436	0.937	0.57	1.08
		Left Cheek	0.163	0.436	0.937	0.60	1.10
		Left Tilted	0.128	0.436	0.937	0.56	1.07
	Band 7	Right Cheek	0.266	0.436	0.937	0.70	1.20
		Right Tilted	0.348	0.436	0.937	0.78	1.29
		Left Cheek	0.512	0.436	0.937	0.95	1.45
		Left Tilted	0.186	0.436	0.937	0.62	1.12



**5.2 Hotspot Exposure Conditions**

WWAN Band		Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
			WWAN 1g SAR (W/kg)	2.4GHz WLAN 1g SAR (W/kg)	5GHz WLAN 1g SAR (W/kg)		
GSM	GSM850	Front	0.203	0.135	0.066	0.34	0.27
		Back	0.239	0.135	0.066	0.37	0.31
		Left side	0.176			0.18	0.18
		Right side	0.193	0.135	0.066	0.33	0.26
		Top side		0.135	0.066	0.14	0.07
		Bottom side	0.038			0.04	0.04
	GSM1900	Front	0.615	0.135	0.066	0.75	0.68
		Back	0.797	0.135	0.066	0.93	0.86
		Left side	0.083			0.08	0.08
		Right side	0.027	0.135	0.066	0.16	0.09
		Top side		0.135	0.066	0.14	0.07
		Bottom side	1.146			1.15	1.15
WCDMA	Band II	Front	0.414	0.135	0.066	0.55	0.48
		Back	0.576	0.135	0.066	0.71	0.64
		Left side	0.061			0.06	0.06
		Right side	0.022	0.135	0.066	0.16	0.09
		Top side		0.135	0.066	0.14	0.07
		Bottom side	0.633			0.63	0.63
	Band V	Front	0.219	0.135	0.066	0.35	0.29
		Back	0.250	0.135	0.066	0.39	0.32
		Left side	0.176			0.18	0.18
		Right side	0.248	0.135	0.066	0.38	0.31
		Top side		0.135	0.066	0.14	0.07
		Bottom side	0.064			0.06	0.06
LTE	Band 5	Front	0.234	0.135	0.066	0.37	0.30
		Back	0.287	0.135	0.066	0.42	0.35
		Left side	0.162			0.16	0.16
		Right side	0.192	0.135	0.066	0.33	0.26
		Top side		0.135	0.066	0.14	0.07
		Bottom side	0.049			0.05	0.05
	Band 7	Front	0.258	0.135	0.066	0.39	0.32
		Back	0.352	0.135	0.066	0.49	0.42
		Left side	0.227			0.23	0.23
		Right side	0.022	0.135	0.066	0.16	0.09
		Top side		0.135	0.066	0.14	0.07
		Bottom side	0.298			0.30	0.30



**5.3 Body-Worn Accessory Exposure Conditions**

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN 1g SAR (W/kg)	2.4GHz WLAN 1g SAR (W/kg)	5GHz WLAN 1g SAR (W/kg)	Bluetooth Estimated 1g SAR (W/kg)			
GSM	GSM850	Front	0.203	0.135	0.053	0.105	0.34	0.26	0.31
		Back	0.239	0.135	0.053	0.105	0.37	0.29	0.34
	GSM1900	Front	0.820	0.135	0.053	0.105	0.96	0.87	0.93
		Back	1.188	0.135	0.053	0.105	1.32	1.24	1.29
WCDMA	Band II	Front	0.515	0.135	0.053	0.105	0.65	0.57	0.62
		Back	0.706	0.135	0.053	0.105	0.84	0.76	0.81
	Band V	Front	0.219	0.135	0.053	0.105	0.35	0.27	0.32
		Back	0.250	0.135	0.053	0.105	0.39	0.30	0.36
LTE	Band 5	Front	0.234	0.135	0.053	0.105	0.37	0.29	0.34
		Back	0.287	0.135	0.053	0.105	0.42	0.34	0.39
	Band 7	Front	0.260	0.135	0.053	0.105	0.40	0.31	0.37
		Back	0.376	0.135	0.053	0.105	0.51	0.43	0.48



5.4 Product specific 10g SAR Exposure Conditions

WWAN Band		Exposure Position	1	2	3	1+2 Summed 10g SAR (W/kg)	1+3 Summed 10g SAR (W/kg)
			WWAN	5GHz WLAN	Bluetooth		
			10g SAR (W/kg)	10g SAR (W/kg)	Estimated 10g SAR (W/kg)		
GSM	GSM1900	Bottom Side	1.253		0.042	1.25	1.30
WCDMA	Band II	Back	1.568	0.055	0.042	1.62	1.61
		Bottom Side	1.930		0.042	1.93	1.97

Test Engineer: Nick Hu



## **6. 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 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [11] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [12] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [13] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.



**Appendix A. Reference Report**

Please refer to Sporton report number FA731705-01 which is issued separately.