FCC SAR Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT1924-1, XT1924-2
FCC ID	:	IHDT56XA4
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.

Mark Qu

Approved by: Mark Qu / Manager

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA7D2201-02	Rev. 01	Initial issue of report	Mar. 07, 2018

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT1924-1, XT1924-2,** are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body-worn (Separation 5mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.34	0.99	0.99	1.53
		GSM1900	0.24	1.04	1.04	
	WCDMA	Band V	0.49	1.03	1.03	
		Band II	0.50	1.09	1.09	
	LTE	Band 5	0.53	0.96	0.96	
		Band 7	0.40	**1.20**	**1.20**	
		Band 38	0.26	1.13	1.13	
DTS	WLAN	2.4GHz WLAN	**0.96**	0.80	0.80	1.48
DSS	Bluetooth	2.4GHz Bluetooth				1.53

Equipment Class	Frequency Band		Highest SAR Summary
			Product Specific 10g SAR (W/kg) (Gap 0mm)
Licensed	GSM	GSM1900	2.96
	WCDMA	Band II	3.69
	LTE	Band 7	**3.77**
		Band 38	2.25
Date of Testing:			2017/12/27 ~ 2018/1/21

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) 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 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958

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 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	XT1924-1, XT1924-2
FCC ID	IHDT56XA4
IMEI Code	SIM1: 354130090008290 SIM2: 354130090008308
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 LTE Band 38: 2572.5 MHz ~ 2617.5 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 HSPA+ (16QAM uplink is not supported) LTE: QPSK, 16QAM WLAN 2.4GHz : 802.11b/g/n HT20 Bluetooth v3.0+EDR, Bluetooth v4.0 LE, Bluetooth v4.1 LE, Bluetooth v4.2 LE
HW Version	DVT2
SW Version	rhannah-userdebug 8.0.0 OPP27.66 1190 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

Remark:

1. 802.11n-HT40 is not supported in 2.4GHz WLAN.
2. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP).
3. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
4. This device does not support DTM operation and supports GRPS/EGRPS mode up to multi-slot class 12.
5. When the phone is in talking mode and receiver worked, all WWAN powers are full power.
6. When the phone is in talking mode and receiver worked, then power reduction will be implemented immediately in WLAN 2.4GHz.
7. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of GSM850/1900, WCDMA band II/V and LTE band 5/7/38.
8. 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, GSM850/1900, WCDMA band II/V and LTE band 5/7/38 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.)
9. This device hotspot reduced power and P-sensor reduced power level are the same. So only show one reduced power level for hotspot reduced power and P-sensor reduced power for this application.
10. P-sensor can detect handheld state, for bottom side of product specific 10g SAR condition, WCDMA band II reduced powers will be active. For GSM1900 and LTE band 7/38, the power levels are the same as the full power.
11. 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.
12. There are two different types of EUT. They are dual SIM card mobile (Model Name: XT1924-1) and single SIM card mobile (Model Name: XT1924-2). The others are the same including circuit design, PCB board, structure and all components. It is special to declare. After pre-scan two types of EUT, we found test result of the sample that dual SIM (Model Name: XT1924-1) was the worst, so we chose dual SIM card mobile to perform all test.

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	IHDT56XA4
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 LTE Band 38: 2572.5 MHz ~ 2617.5 MHz
Channel Bandwidth	LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz
Uplink Modulations Used	QPSK / 16QAM
LTE Voice / Data requirements	Data only
LTE Release Version	R10, Cat4
CA Support	Not Supported
LTE MPR permanently built-in by design	Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
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. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of LTE band 5/7/38. 2. 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 LTE band 5/7/38 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.)

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{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
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

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 Band 38

	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	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610

5. Re-use of Measured Data

5.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: XT1924-1, XT1924-2, FCC ID: IHDT56XA4) is electrically identical to the reference device (Model: XT1924-4, XT1924-5, FCC ID: IHDT56XA5 for WWAN Bands (except for LTE Band 38) and WLAN/Bluetooth, and Model: XT1924-3, FCC ID: IHDT56XA6 for LTE Band 38) for the portions of the circuitry corresponding to the data being re-used, as treated by KDB Publication 178919 D01.

5.2 Difference Section

The re-used RF data includes the following bands provided in Appendix A

a. Sporton SAR Report No. FA7D2201 for the reference device Model: XT1924-4, XT1924-5, FCC ID: IHDT56XA5 for WWAN Bands (except for LTE Band 38) and WLAN/Bluetooth.
   - GSM850/1900
   - WCDMA Band V/II
   - LTE Band 5/7
   - WLAN/Bluetooth

b. Sporton SAR Report No. FA7D2201-01 for the reference device Model: XT1924-3, FCC ID: IHDT56XA6 for LTE Band 38.
   - LTE Band 38

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

5.3 Spot Check Verification Data Section

Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Original model (FCC ID: IHDT56XA5)				Spot check model (FCC ID: IHDT56XA4)				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)	
WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Cheek	0	Reduced	11	2462	16.97	17.50	0.835	0.963	16.97	17.50	0.815	0.968	-2.42%
GSM850	-	-	-	-	GPRS 2 Tx slots	Back	5	Reduced	251	848.8	27.88	28.50	0.856	0.987	27.88	28.50	0.715	0.825	-16.41%
GSM1900	-	-	-	-	GPRS 4 Tx slots	Back	5	Reduced	661	1880	20.53	21.50	0.833	1.041	20.53	21.50	0.775	0.969	-6.92%
WCDMA Band V	-	-	-	-	RMC 12.2Kbps	Back	5	Reduced	4182	836.4	22.41	23.00	0.896	1.026	22.41	23.00	0.814	0.932	-9.16%
WCDMA Band II	-	-	-	-	RMC 12.2Kbps	Back	5	Reduced	9262	1852.4	17.10	17.50	0.998	1.094	17.10	17.50	0.938	1.028	-6.03%
LTE Band 5	10M	QPSK	1	25	-	Back	5	Reduced	20525	836.5	21.83	22.50	0.823	0.960	21.83	22.50	0.728	0.849	-11.56%
LTE Band 7	20M	QPSK	1	49	-	Back	5	Reduced	21350	2560	20.21	20.50	1.120	1.197	20.21	20.50	1.080	1.155	-3.51%

Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Original model (FCC ID: IHDT56XA6)				Spot check model (FCC ID: IHDT56XA4)				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 38	20M	QPSK	1	49	-	Back	5	Reduced	38000	2595	20.39	21.00	0.972	1.125	20.39	21.00	0.951	1.101	-2.13%

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

5.4 Reference detail Section

Reference FCC ID	Folder Test/RF Exposure	Report Title/Section
IHDT56XA5	RF Exposure(FA7D2201)	All sections applicable (WWAN Bands (except for LTE Band 38), WLAN/Bluetooth)
IHDT56XA6	RF Exposure(FA7D2201-01)	All sections applicable (Only LTE Band 38)

6. 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	WLAN Hotspot
3.	WCDMA + WLAN2.4GHz	Yes	Yes	Yes	WLAN Hotspot
4.	LTE + WLAN2.4GHz	Yes	Yes	Yes	WLAN Hotspot
5.	GSM Voice + Bluetooth		Yes		
6.	GPRS/EDGE + Bluetooth		Yes	Yes	BT Tethering
7.	WCDMA + Bluetooth		Yes	Yes	BT Tethering
8.	LTE + Bluetooth		Yes	Yes	BT Tethering

General Note:

1. Spot check for all WWAN bands and BT/WLAN are performed for this application and found the original SAR value can represent this application. So we chose the original data which released from original report (Sporton Report Number FA7D2201 and EA7D2201-01 or refer to Appendix A) to do co-located analysis.
2. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP).
3. EUT will choose each GSM, WCDMA, and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
4. This device WLAN 2.4GHz supports hotspot operation and Bluetooth support tethering applications.
5. WLAN 2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously.
6. The reported SAR summation is calculated based on the same configuration and test position.
7. 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.
8. For Bluetooth/WLAN 2.4GHz product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is <1.2W/kg. So simultaneous transmission 10g SAR is not required.
9. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
   i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
   ii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
   iii) 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.

Bluetooth Max Power	Exposure Position	Hotspot & Body worn
	Test separation	5 mm
9.0 dBm	Estimated 1g SAR (W/kg)	0.336 W/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	0.315	0.401	0.72
		Right Tilted	0.200	0.456	0.66
		Left Cheek	0.344	0.963	1.31
		Left Tilted	0.205	0.837	1.04
	GSM1900	Right Cheek	0.240	0.401	0.64
		Right Tilted	0.125	0.456	0.58
		Left Cheek	0.163	0.963	1.13
		Left Tilted	0.155	0.837	0.99
WCDMA	Band V	Right Cheek	0.487	0.401	0.89
		Right Tilted	0.316	0.456	0.77
		Left Cheek	0.486	0.963	1.45
		Left Tilted	0.295	0.837	1.13
	Band II	Right Cheek	0.495	0.401	0.90
		Right Tilted	0.227	0.456	0.68
		Left Cheek	0.350	0.963	1.31
		Left Tilted	0.321	0.837	1.16
LTE	Band 5	Right Cheek	0.533	0.401	0.93
		Right Tilted	0.331	0.456	0.79
		Left Cheek	0.514	0.963	**1.48**
		Left Tilted	0.311	0.837	1.15
	Band 7	Right Cheek	0.401	0.401	0.80
		Right Tilted	0.188	0.456	0.64
		Left Cheek	0.206	0.963	1.17
		Left Tilted	0.158	0.837	1.00
	Band 38	Right Cheek	0.257	0.401	0.66
		Right Tilted	0.092	0.456	0.55
		Left Cheek	0.115	0.963	1.08
		Left Tilted	0.093	0.837	0.93

6.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 Bluetooth Estimated 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+2 SPLSR	1+2 Case No	1+3 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.550	0.586	0.336	1.14			0.89
		Back	0.987	0.795	0.336	**1.78**	**0.02**	**#01**	1.32
		Left Side	0.413		0.336	0.41			0.75
		Right Side	0.377	0.795	0.336	1.17			0.71
		Top Side		0.785	0.336	0.79			0.34
		Bottom Side	0.183		0.336	0.18			0.52
	GSM1900	Front	0.303	0.586	0.336	0.89			0.64
		Back	1.041	0.795	0.336	**1.84**	**0.02**	**#02**	1.38
		Left Side	0.026		0.336	0.03			0.36
		Right Side	0.068	0.795	0.336	0.86			0.40
		Top Side		0.785	0.336	0.79			0.34
		Bottom Side	0.651		0.336	0.65			0.99
WCDMA	Band V	Front	0.851	0.586	0.336	1.44			1.19
		Back	1.026	0.795	0.336	**1.82**	**0.02**	**#03**	1.36
		Left Side	0.611		0.336	0.61			0.95
		Right Side	0.538	0.795	0.336	1.33			0.87
		Top Side		0.785	0.336	0.79			0.34
		Bottom Side	0.310		0.336	0.31			0.65
	Band II	Front	0.315	0.586	0.336	0.90			0.65
		Back	1.094	0.795	0.336	**1.89**	**0.02**	**#05**	1.43
		Left Side	0.053		0.336	0.05			0.39
		Right Side	0.067	0.795	0.336	0.86			0.40
		Top Side		0.785	0.336	0.79			0.34
		Bottom Side	0.654		0.336	0.65			0.99

WWAN Band		Exposure Position	1	2	3	1+2			1+3 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	Bluetooth				
			1g SAR (W/kg)	1g SAR (W/kg)	Estimated 1g SAR (W/kg)	Summed 1g SAR (W/kg)	SPLSR	Case No	
LTE	Band 5	Front	0.744	0.586	0.336	1.33			1.08
		Back	0.960	0.795	0.336	**1.76**	**0.02**	**#06**	1.30
		Left Side	0.557		0.336	0.56			0.89
		Right Side	0.580	0.795	0.336	1.38			0.92
		Top Side		0.785	0.336	0.79			0.34
		Bottom Side	0.253		0.336	0.25			0.59
	Band 7	Front	0.888	0.586	0.336	1.47			1.22
		Back	1.197	0.795	0.336	**1.99**	**0.02**	**#09**	**1.53**
		Left Side	0.127		0.336	0.13			0.46
		Right Side	0.438	0.795	0.336	1.23			0.77
		Top Side		0.785	0.336	0.79			0.34
		Bottom Side	1.101		0.336	1.10			1.44
	Band 38	Front	0.944	0.586	0.336	1.53			1.28
		Back	1.125	0.795	0.336	**1.92**	**0.02**	**#10**	1.46
		Left Side	0.132		0.336	0.13			0.47
		Right Side	0.388	0.795	0.336	1.18			0.72
		Top Side		0.785	0.336	0.79			0.34
		Bottom Side	1.116		0.336	1.12			1.45

6.3 Body-Worn Accessory Exposure Conditions

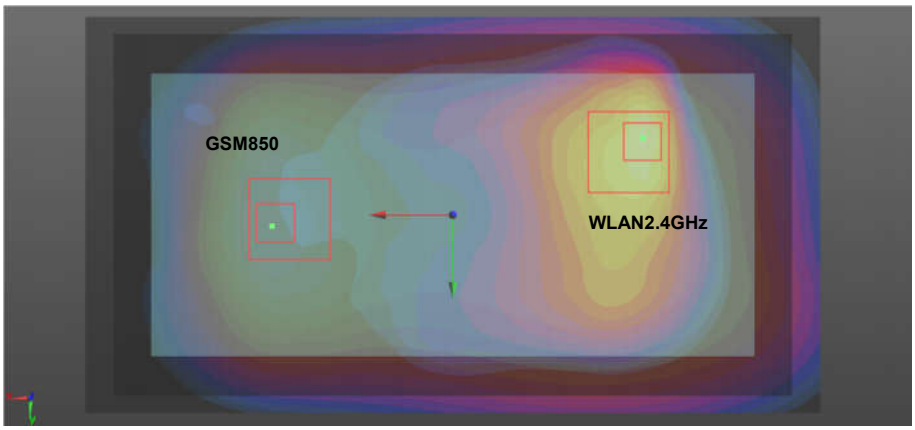
WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 Bluetooth Estimated 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	SPLSR	Case No
GSM	GSM850	Front	0.550	0.586	0.336	1.14	0.89		
		Back	0.987	0.795	0.336	**1.78**	1.32	**0.02**	**#01**
	GSM1900	Front	0.303	0.586	0.336	0.89	0.64		
		Back	1.041	0.795	0.336	**1.84**	1.38	**0.02**	**#02**
WCDMA	Band V	Front	0.851	0.586	0.336	1.44	1.19		
		Back	1.026	0.795	0.336	**1.82**	1.36	**0.02**	**#03**
	Band II	Front	0.315	0.586	0.336	0.90	0.65		
		Back	1.094	0.795	0.336	**1.89**	1.43	**0.02**	**#05**
LTE	Band 5	Front	0.744	0.586	0.336	1.33	1.08		
		Back	0.960	0.795	0.336	**1.76**	1.30	**0.02**	**#06**
	Band 7	Front	0.888	0.586	0.336	1.47	1.22		
		Back	1.197	0.795	0.336	**1.99**	1.53	**0.03**	**#09**
	Band 38	Front	0.944	0.586	0.336	1.53	1.28		
		Back	1.125	0.795	0.336	**1.92**	1.46	**0.02**	**#10**

6.4 SPLSR Evaluation and Analysis

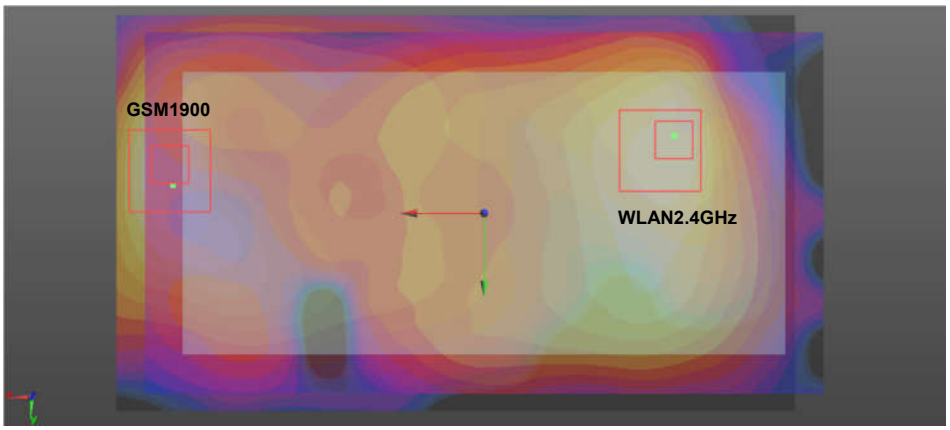
General Note:

1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of [(x1−x2)2 + (y1−y2)2 + (z1−z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

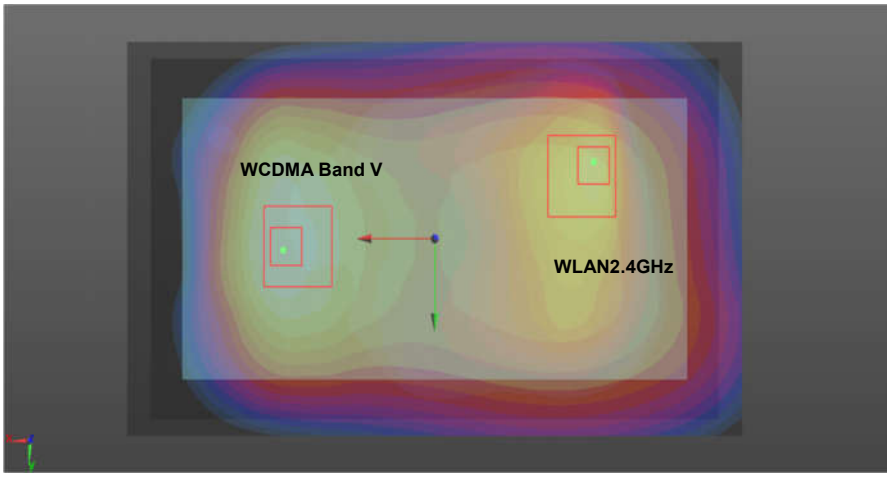
Case #01	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Back	0.987	5	7.49	0.45	0.54	129.1	1.78	0.02	Not required
	WLAN2.4GHz		0.795	5	-5.14	-2.24	0.37				



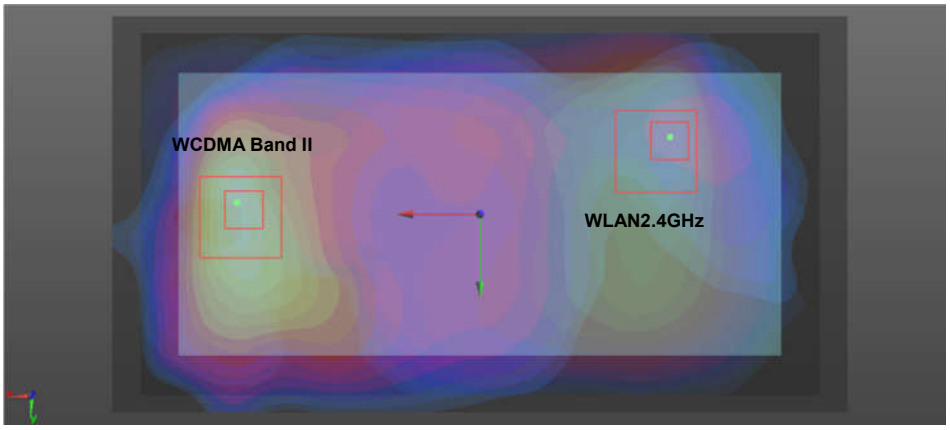
Case #02	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Back	1.041	5	8.25	-1.39	0.41	134.2	1.84	0.02	Not required
	WLAN2.4GHz		0.795	5	-5.14	-2.24	0.37				



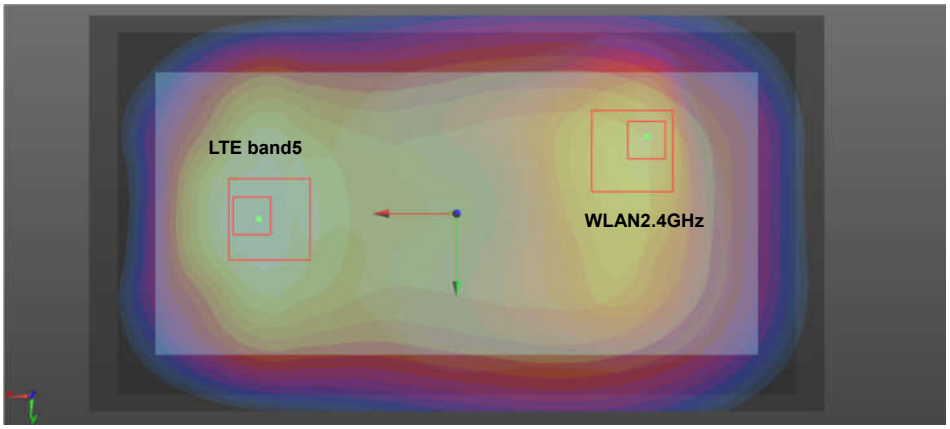
Case #03	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA Band V	Back	1.026	5	5.12	-0.02	0.41	105.0	1.82	0.02	Not required
	WLAN2.4GHz		0.795	5	-5.14	-2.24	0.37				



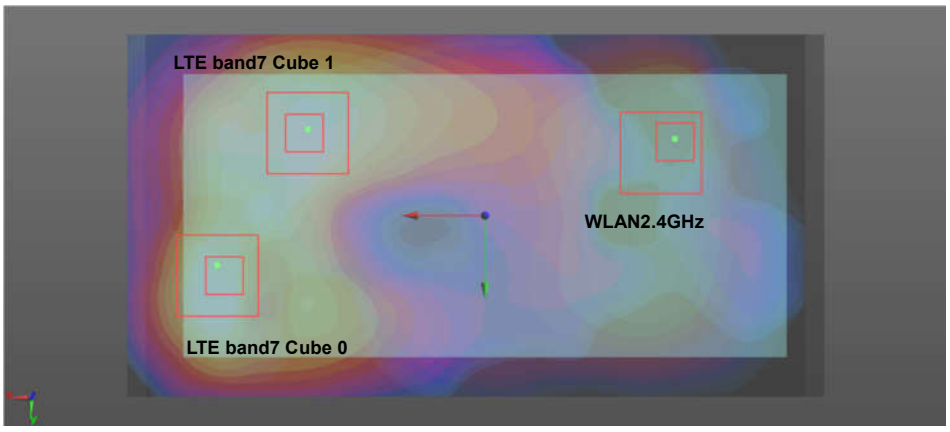
Case #05	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA Band II	Back	1.094	5	6.13	-0.14	0.42	114.6	1.89	0.02	Not required
	WLAN2.4GHz		0.795	5	-5.14	-2.24	0.37				



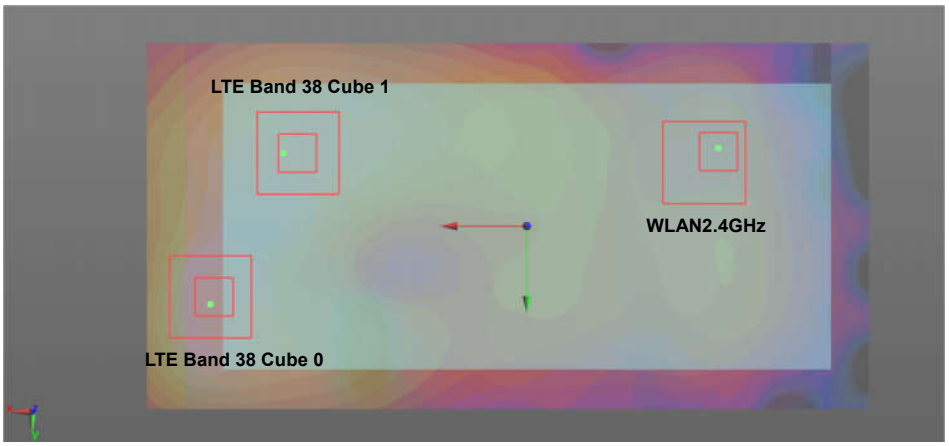
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #06	LTE Band 5	Back	0.960	5	5.73	-0.01	0.41	111.0	1.76	0.02	Not required
	WLAN2.4GHz		0.795	5	-5.14	-2.24	0.37				



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #09	LTE Band 7 Cube 0	Back	1.197	5	6.8	1.52	0.4	125.2	1.99	0.02	Not required
	WLAN2.4GHz		0.795	5	-5.14	-2.24	0.37				
	LTE Band 7 Cube 1		0.757	5	5	-2.08	0.38	101.4	1.55	0.02	Not required
	WLAN2.4GHz		0.795	5	-5.14	-2.24	0.37				



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #10	LTE Band 38 Cube 0	Back	1.125	5	8.12	1.84	0.4	138.7	1.92	0.02	Not required
	WLAN2.4GHz		0.795	5	-5.14	-2.24	0.37				
	LTE Band 38 Cube 1		0.781	5	6.30	-1.82	0.36	114.5	1.58	0.02	Not required
	WLAN2.4GHz		0.795	5	-5.14	-2.24	0.37				



Test Engineer: Nick Hu

7. Uncertainty Assessment

Pre KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

8. 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.

Appendix A. Reference Report

Please refer to Sporton report number FA7D2201 and FA7D2201-01 which are issued separately.