



SAR EVALUATION REPORT

**FCC 47 CFR § 2.1093
IEEE Std 1528-2013**

For

GSM/CDMA/WCDMA/LTE PHONE + BLUETOOTH, with DTS/UNII a/b/g/n/ac & NFC

**FCC ID: ZNFLS991
Model Name: LG-LS991, LS991, LGLS991**

**Report Number: 15I20286-S1B
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NVLAP LAB CODE 200065-0

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Table of Contents

1.	Attestation of Test Results	5
2.	Test Specification, Methods and Procedures.....	6
3.	Facilities and Accreditation.....	6
4.	SAR Measurement System & Test Equipment	7
4.1.	<i>SAR Measurement System.....</i>	7
4.2.	<i>SAR Scan Procedures.....</i>	8
4.3.	<i>Test Equipment.....</i>	10
5.	Measurement Uncertainty.....	11
6.	Device Under Test (DUT) Information	12
6.1.	<i>DUT Description</i>	12
6.2.	<i>Wireless Technologies.....</i>	13
6.3.	<i>Nominal and Maximum Output Power.....</i>	14
6.4.	<i>General LTE SAR Test and Reporting Considerations.....</i>	16
7.	RF Exposure Conditions (Test Configurations).....	18
8.	Dielectric Property Measurements & System Check	19
8.1.	<i>Dielectric Property Measurements</i>	19
8.2.	<i>System Check.....</i>	23
9.	Conducted Output Power Measurements.....	27
9.1.	<i>GSM</i>	27
9.2.	<i>W-CDMA</i>	28
9.3.	<i>CDMA.....</i>	32
9.4.	<i>LTE.....</i>	34
9.5.	<i>Wi-Fi DTS (2.4 GHz) Band.....</i>	49
9.6.	<i>Wi-Fi U-NII (5 GHz) Bands.....</i>	50
9.7.	<i>Bluetooth</i>	51
10.	Measured and Reported (Scaled) SAR Results.....	52
10.1.	<i>GSM850.....</i>	54
10.2.	<i>GSM1900.....</i>	55
10.3.	<i>W-CDMA Band V</i>	56
10.4.	<i>W-CDMA Band II.....</i>	56
10.5.	<i>CDMA BC0.....</i>	57
10.6.	<i>CDMA BC1.....</i>	58
10.7.	<i>CDMA BC10.....</i>	59

10.8.	<i>LTE Band 2 (20MHz Bandwidth)</i>	60
10.9.	<i>LTE Band 4 (20MHz Bandwidth)</i>	60
10.10.	<i>LTE Band 5 (10MHz Bandwidth)</i>	60
10.11.	<i>LTE Band 12 (10MHz Bandwidth)</i>	61
10.12.	<i>LTE Band 25 (20MHz Bandwidth)</i>	62
10.13.	<i>LTE Band 26 (15MHz Bandwidth)</i>	63
10.14.	<i>LTE Band 41 (20MHz Bandwidth)</i>	64
10.15.	<i>Wi-Fi (DTS Band)</i>	65
10.16.	<i>Wi-Fi (U-NII Band)</i>	66
10.17.	<i>Bluetooth</i>	67
11.	SAR Measurement Variability	68
12.	Simultaneous Transmission SAR Analysis	69
12.1.	<i>Sum of the SAR for GSM850 & Wi-Fi & BT</i>	71
12.2.	<i>Sum of the SAR for GSM1900 & Wi-Fi & BT</i>	71
12.3.	<i>Sum of the SAR for WCDMA Band V & Wi-Fi & BT</i>	72
12.4.	<i>Sum of the SAR for WCDMA Band II & Wi-Fi & BT</i>	72
12.5.	<i>Sum of the SAR for CDMA BC0 & Wi-Fi & BT</i>	72
12.6.	<i>Sum of the SAR for CDMA BC1 & Wi-Fi & BT</i>	73
12.7.	<i>Sum of the SAR for CDMA BC10 & Wi-Fi & BT</i>	74
12.8.	<i>Sum of the SAR for LTE Band 2 & Wi-Fi & BT</i>	74
12.9.	<i>Sum of the SAR for LTE Band 4 & Wi-Fi & BT</i>	74
12.10.	<i>Sum of the SAR for LTE Band 5 & Wi-Fi & BT</i>	74
12.11.	<i>Sum of the SAR for LTE Band 12 & Wi-Fi & BT</i>	74
12.12.	<i>Sum of the SAR for LTE Band 25 & Wi-Fi & BT</i>	75
12.13.	<i>Sum of the SAR for LTE Band 26 & Wi-Fi & BT</i>	76
12.14.	<i>Sum of the SAR for LTE Band 41 & Wi-Fi & BT</i>	76
Appendixes	77
A_	<i>15I20286v0 SAR Photos & Ant. Locations</i>	77
B_	<i>15I20286v0 SAR System Check Plots</i>	77
C_	<i>15I20286v0 SAR Highest SAR Test Plots</i>	77
D_	<i>15I20286v0 SAR Tissue Ingredients</i>	77
E_	<i>15I20286v0 SAR Probe Cal. Certificates</i>	77
F_	<i>15I20286v1 SAR Dipole Cal. Certificates-1</i>	77
F_	<i>15I20286v1 SAR Dipole Cal. Certificates-2</i>	Error! Bookmark not defined.

1. Attestation of Test Results

Applicant Name	LG ELECTRONICS MOBILECOMM U.S.A., INC.			
FCC ID	ZNFLS991			
Model Name	LG-LS991, LS991, LGLS991			
Applicable Standards	FCC 47 CFR § 2.1093 Published RF exposure KDB procedures IEEE Std 1528-2013			
SAR Limits (W/Kg)				
Exposure Category	Peak spatial-average (1g of tissue)			
General population / Uncontrolled exposure	1.6			
The Highest Reported SAR (W/kg)				
RF Exposure Conditions	Equipment Class			
	Licensed	DTS	U-NII	DSS (BT)
Head	1.194	0.358	0.535	N/A
Body-worn	0.928	0.190	0.453	
Hotspot & Wi-Fi Direct				
Simultaneous Tx	1.496	1.480	1.496	
Date Tested	3/10/2015 to 3/26/2015 ; 5/9/2015			
Test Results	Pass			
<p>UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.</p> <p>Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government (NIST Handbook 150, Annex A). This report is written to support regulatory compliance of the applicable standards stated above.</p>				
Approved & Released By:		Prepared By:		
				
Bobby Bayani Senior Engineer UL Verification Services Inc.		Hung.Thai Laboratory Technician UL Verification Services Inc.		

2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528-2013, the following FCC Published RF exposure [KDB](#) procedures:

- 248227 D01 SAR meas for 802.11 v02
- 447498 D01 General RF Exposure Guidance v05r02
- 648474 D04 Handset SAR v01r02
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r03
- 865664 D02 RF Exposure Reporting v01r01
- 941225 D01 3G SAR Procedures v03
- 941225 D05 SAR for LTE Devices v02r03
- 941225 D06 Hotspot Mode v02

3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at

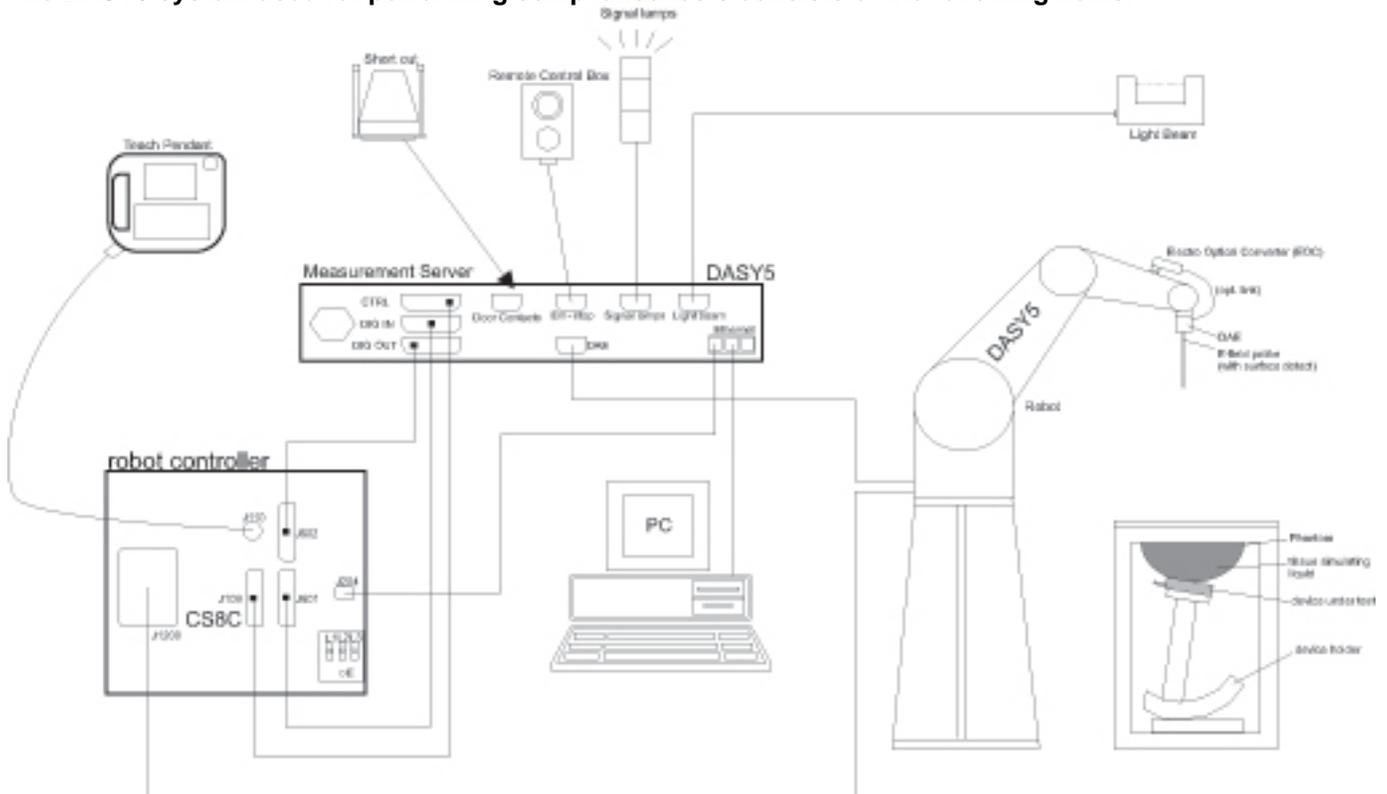
47173 Benicia Street	47266 Benicia Street
SAR Lab A	SAR Lab 1
SAR Lab B	SAR Lab 2
SAR Lab C	SAR Lab 3
SAR Lab D	SAR Lab 4
SAR Lab E	SAR Lab 5
SAR Lab F	
SAR Lab G	
SAR Lab H	

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY5 system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

		≤ 3 GHz	> 3 GHz	
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm *	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.				
* When zoom scan is required and the <i>reported</i> SAR from the area scan based <i>1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

Step 5: Z-Scan (FCC only)

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation the extrapolated distance should not be larger than the step size in Z-direction.

4.3. Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards.

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E753ES	MY4000980	4/7/2015
Dielectronic Probe kit	SPEAG	DAK-3.5	1082	9/16/2015
Dielectronic Probe kit	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	Control Company	Traceable	122529163	10/8/2015
Network Analyzer	Agilent	8753ES	MY40001647	7/17/2015
Dielectronic Probe kit	SPEAG	DAK-3.5	1087	11/11/2015
Dielectronic Probe kit	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	Traceable Calibration Control Co.	4242	122529162	10/8/2015

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Synthesized Signal Generator	Agilent	8665B	3438A00633	7/10/2015
Power Meter	HP	437B	3125U11347	8/27/2015
Power Meter	HP	437B	3125U16345	6/16/2015
Power Sensor	HP	8481A	2702A60780	6/16/2015
Power Sensor	HP	8481A	1926A16917	10/10/2015
Amplifier	MITEQ	AMF-4D-00400600-50-30P	1808938	N/A
Bi-directional coupler	Werlatone, Inc.	C8060-102	2710	N/A
DC Power Supply	HP	6296A	2841A-05955	N/A
E-Field Probe (SAR Lab B)	SPEAG	EX3DV4	3751	11/14/2015
E-Field Probe (SAR Lab C)	SPEAG	EX3DV4	3885	9/15/2015
E-Field Probe (SAR Lab G)	SPEAG	EX3DV4	3686	2/23/2016
Data Acquisition Electronics (SAR Lab B)	SPEAG	DAE3	500	5/15/2015
Data Acquisition Electronics (SAR Lab C)	SPEAG	DAE3	427	1/14/2016
Data Acquisition Electronics (SAR Lab G)	SPEAG	DAE4	1434	4/14/2015
Data Acquisition Electronics (SAR Lab G)	SPEAG	DAE4	1433	3/13/2016
System Validation Dipole	SPEAG	D750V3	1071	11/13/2015
System Validation Dipole	SPEAG	D835V2	4d002	11/13/2015
System Validation Dipole	SPEAG	D1750V2	1050	4/22/2015
System Validation Dipole	SPEAG	D1900V2	5d043	11/7/2015
System Validation Dipole	SPEAG	D2450V2	706	5/20/2015
System Validation Dipole	SPEAG	D2450V2	899	3/13/2016
System Validation Dipole	SPEAG	D2600V2	1006	9/10/2015
System Validation Dipole	SPEAG	D5GHzV2	1138	9/18/2015
Thermometer (SAR Lab B)	EXTECH	445703	CCS-235	6/3/2016
Thermometer (SAR Lab C)	EXTECH	445703	CCS-249	9/18/2016
Thermometer (SAR Lab G)	EXTECH	445703	CCS-179	1/7/2016

Other

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Power Meter	Agilent	N1912A	MY53060016	8/7/2015
Power Sensor	Agilent	N1921A	MY52020011	5/6/2015
Base Station Simulator	R & S	CMW500	135393	7/3/2015

5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Overall (Length x Width): 148.9 mm x 76.2 mm Overall Diagonal: 161 mm Display Diagonal: 139 mm
Battery Back Cover	<input checked="" type="checkbox"/> Normal Battery Cover <input checked="" type="checkbox"/> Smart Cover <input checked="" type="checkbox"/> Normal Battery Cover with NFC <input type="checkbox"/> Wireless Charger Battery Cover <input type="checkbox"/> Wireless Charger Battery Cover with NFC <input type="checkbox"/> The rechargeable battery is not user accessible.
Battery Options	<input checked="" type="checkbox"/> Standard – Lithium-ion battery, Rating 3.85Vdc, 11.6Wh <input type="checkbox"/> Extended (large capacity) <input type="checkbox"/> The rechargeable battery is not user accessible.
Accessory	Headset
Wireless Router (Hotspot)	Wi-Fi Hotspot mode permits the device to share its cellular data connection with other Wi-Fi-enabled devices. <input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 2.4 GHz) <input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 5 GHz) (UNII-3 only)
Wi-Fi Direct	Wi-Fi Direct enabled devices transfer data directly between each other <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 2.4 GHz) <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 5 GHz) (UNII-3 only)

6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode	Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EGPRS (8PSK)	GSM Voice: 12.5%; (E)GPRS: 1 Slot: 12.5%; 2 Slots: 25%;
	GPRS Multi-Slot Class: <input type="checkbox"/> Class 8 - One Up <input checked="" type="checkbox"/> Class 10 - Two Up <input type="checkbox"/> Class 12 - Four Up <input type="checkbox"/> Class 33 - Four Up DTM (Dual Transfer Mode): Not support		
W-CDMA (UMTS)	Band II Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Rel. 7) HSUPA (Rel. 6) HSPA+ (Rel. 6)	100%
CDMA2000	BC0 BC1 BC10	1xRTT (Voice & Data) 1xEV-DO Rel. 0 1xEV-DO Rev. A	100%
	Does this device SV-DO (1xRTT-1xEVDO)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
LTE (FDD)	Band 2 Band 4 Band 5 Band 12 Band 25 Band 26	QPSK 16QAM	100%
	Does this device SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
LTE (TDD)	Band 41	QPSK 16QAM	63.3%
	Does this device SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20) 802.11ac (VHT20)	100%
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80)	100%
	TDWR (Terminal Doppler Weather Radar): Supported.		
	Band gap channel : Not supported		
Bluetooth	2.4 GHz	Version 4.0 LE	N/A

6.3. Nominal and Maximum Output Power

KDB 447498 sec.4.1.(3) at the maximum rated output power and within the tune-up tolerance range specified for the product, but not more than 2 dB lower than the maximum tune-up tolerance limit

Upper limit (dB): -1.5 ~ 0.5		RF Output Power (dBm)	
RF Air interface	Mode	Target	Max. tune-up tolerance limit
GSM850	Voice	32.7	33.2
	GPRS 1 slot	32.7	33.2
	GPRS 2 slots	31.2	31.7
	EGPRS 1 slot	27.2	27.7
	EGPRS 2 slots	27.2	27.7
GSM1900	Voice	28.9	29.4
	GPRS 1 slot	28.9	29.4
	GPRS 2 slots	27.2	27.7
	EGPRS 1 slot	26.2	26.7
	EGPRS 2 slots	26.2	26.7
W-CDMA Band V	R99	23.2	23.7
	HSDPA	23.2	23.7
	HSUPA	23.2	23.7
W-CDMA Band II	R99	23.2	23.7
	HSDPA	23.2	23.7
	HSUPA	23.2	23.7
CDMA BC0	1xRTT	24.7	25.2
	1xEVDO Rel. 0	24.7	25.2
	1xEVDO Rev. A	24.7	25.2
CDMA BC1	1xRTT	24.4	24.9
	1xEVDO Rel. 0	24.4	24.9
	1xEVDO Rev. A	24.4	24.9
CDMA BC10	1xRTT	24.7	25.2
	1xEVDO Rel. 0	24.7	25.2
	1xEVDO Rev. A	24.7	25.2
LTE Band 2	QPSK	23.2	23.7
LTE Band 4	QPSK	23.2	23.7
LTE Band 5	QPSK	23.2	23.7
LTE Band 12	QPSK	23.2	23.7
LTE Band 25	QPSK	23.2	23.7
LTE Band 26	QPSK	23.2	23.7
LTE Band 41	QPSK	23.2	23.7

Upper limit (dB): -1.0 ~ 1.0		RF Output Power (dBm)	
RF Air interface	Mode	Target	Max. tune-up tolerance limit
WiFi 2.4 GHz	802.11b	15.0	16.0
	802.11g	14.0	15.0
	802.11n HT20	14.0	15.0
	802.11ac VHT20	12.0	13.0
WiFi 5 GHz	802.11a	13.0	14.0
	802.11n HT20	13.0	14.0
	802.11n HT40	11.0	12.0
	802.11ac VHT20	12.0	13.0
	802.11ac VHT40	11.0	12.0
	802.11ac VHT80	11.0	12.0
Bluetooth		9.5	11.0
Bluetooth LE		4.5	6.0

6.4. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	18700/1860	18675/1857.5	18650/1855	18625/1852.5	18615/1851.5	18607/1850.7
	Mid	18900/1880	18900/1880	18900/1880	18900/1880	18900/1880	18900/1880
	High	19100/1900	19125/1902.5	19150/1905	19175/1907.5	19185/1908.5	19193/1909.3
	Band 4	Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20050/1720	20025/1717.5	20000/1715	19975/1712.5	19965/1711.5	19957/1710.7
	Mid	20175/1732.5	20175/1732.5	20175/1732.5	20175/1732.5	20175/1732.5	20175/1732.5
	High	20300/1745	20325/1747.5	20350/1750	20375/1752.5	20385/1753.5	20393/1754.3
	Band 5	Frequency range: 824 - 849 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			20450/829	20425/826.5	20415/825.5	20407/824.7
	Mid			20525/836.5	20525/836.5	20525/836.5	20525/836.5
	High			20600/844	20625/846.5	20635/847.5	20643/848.3
	Band 12	Frequency range: 699 – 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23060/704	23035/701.5	23025/700.5	23017/699.7
	Mid			23095/707.5	23095/707.5	23095/707.5	23095/707.5
	High			23130/711	23155/713.5	23165/714.5	23173/715.3
	Band 25	Frequency range: 699 – 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	26140/1860	26115/1857.5	26090/1855	26065/1852.5	26055/1851.5	26047/1850.7
Mid	26365/1882.5	26365/1882.5	26365/1882.5	26365/1882.5	26365/1882.5	26365/1882.5	
High	26590/1905	26615/1907.5	26640/1910	26665/1912.5	26675/1913.5	26683/1914.3	
Band 26	Frequency range: 814 - 849 MHz						
	Channel Bandwidth						
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz	
Low		20025/1717.5	20000/1715	19975/1712.5	19965/1711.5	19957/1710.7	
Mid		20175/1732.5	20175/1732.5	20175/1732.5	20175/1732.5	20175/1732.5	
High		20325/1747.5	20350/1750	20375/1752.5	20385/1753.5	20393/1754.3	

Item	Description																																												
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 41	Frequency range: 2496 - 2690 MHz																																											
		Channel Bandwidth																																											
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																						
	Low	39750/ 2506.0	39725/ 2503.5	39700/ 2501	39675/ 2498.5																																								
	Low Mid	40185/ 2549.5	40173/ 2548.3	40160/ 2547.0	40148/ 2545.8																																								
	Mid	40620/ 2593.0	40620/ 2593.0	40620/ 2593.0	40620/ 2593.0																																								
	High Mid	41055/ 2636.5	41068/ 2547.8	41080/ 2639.0	41093/ 2640.3																																								
High	41490/ 2680.0	41515/ 2682.5	41540/ 2685.0	41565/ 2687.5																																									
LTE transmitter and antenna implementation	LTE Bands have one (2) Tx/Rx antenna Refer to Appendix A.																																												
Maximum power reduction (MPR)	<p align="center">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3</p> <table border="1" data-bbox="586 625 1398 800"> <thead> <tr> <th data-bbox="586 625 722 674" rowspan="2">Modulation</th> <th colspan="6" data-bbox="722 625 1284 661">Channel bandwidth / Transmission bandwidth (RB)</th> <th data-bbox="1284 625 1398 661" rowspan="2">MPR (dB)</th> </tr> <tr> <th data-bbox="722 661 820 718">1.4 MHz</th> <th data-bbox="820 661 917 718">3.0 MHz</th> <th data-bbox="917 661 1015 718">5 MHz</th> <th data-bbox="1015 661 1112 718">10 MHz</th> <th data-bbox="1112 661 1209 718">15 MHz</th> <th data-bbox="1209 661 1307 718">20 MHz</th> </tr> </thead> <tbody> <tr> <td data-bbox="586 718 722 747">QPSK</td> <td data-bbox="722 718 820 747">> 5</td> <td data-bbox="820 718 917 747">> 4</td> <td data-bbox="917 718 1015 747">> 8</td> <td data-bbox="1015 718 1112 747">> 12</td> <td data-bbox="1112 718 1209 747">> 16</td> <td data-bbox="1209 718 1307 747">> 18</td> <td data-bbox="1284 718 1398 747">≤ 1</td> </tr> <tr> <td data-bbox="586 747 722 777">16 QAM</td> <td data-bbox="722 747 820 777">≤ 5</td> <td data-bbox="820 747 917 777">≤ 4</td> <td data-bbox="917 747 1015 777">≤ 8</td> <td data-bbox="1015 747 1112 777">≤ 12</td> <td data-bbox="1112 747 1209 777">≤ 16</td> <td data-bbox="1209 747 1307 777">≤ 18</td> <td data-bbox="1284 747 1398 777">≤ 1</td> </tr> <tr> <td data-bbox="586 777 722 800">16 QAM</td> <td data-bbox="722 777 820 800">> 5</td> <td data-bbox="820 777 917 800">> 4</td> <td data-bbox="917 777 1015 800">> 8</td> <td data-bbox="1015 777 1112 800">> 12</td> <td data-bbox="1112 777 1209 800">> 16</td> <td data-bbox="1209 777 1307 800">> 18</td> <td data-bbox="1284 777 1398 800">≤ 2</td> </tr> </tbody> </table> <p data-bbox="573 814 1122 873">MPR Built-in by design A-MPR (additional MPR) was disabled during SAR testing</p>							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)																																						
	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																																						
Power reduction	No																																												
Spectrum plots for RB configurations	A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																												

7. RF Exposure Conditions (Test Configurations)

Refer to "SAR Photos and Ant locations" Appendix for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

Wireless technologies	RF Exposure Conditions	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
WWAN ANT. 1	Head	0 mm	Left Touch	N/A	Yes	
			Left Tilt (15°)	N/A	Yes	
			Right Touch	N/A	Yes	
			Right Tilt (15°)	N/A	Yes	
	Body	10 mm	Rear	N/A	Yes	
			Front	N/A	Yes	
	Hotspot	10 mm	Rear	< 25 mm	Yes	
			Front	< 25 mm	Yes	
			Edge 1 (Top)	> 25 mm	No	1
			Edge 2 (Right)	< 25 mm	Yes	
			Edge 3 (Bottom)	< 25 mm	Yes	
			Edge 4 (Left)	< 25 mm	Yes	
WWAN ANT. 2	Head	0 mm	Left Touch	N/A	Yes	
			Left Tilt (15°)	N/A	Yes	
			Right Touch	N/A	Yes	
			Right Tilt (15°)	N/A	Yes	
	Body	10 mm	Rear	N/A	Yes	
			Front	N/A	Yes	
	Hotspot	10 mm	Rear	< 25 mm	Yes	
			Front	< 25 mm	Yes	
			Edge 1 (Top)	> 25 mm	No	1
			Edge 2 (Right)	> 25 mm	No	1
			Edge 3 (Bottom)	< 25 mm	Yes	
			Edge 4 (Left)	< 25 mm	Yes	
WLAN ANT. 5	Head	0 mm	Left Touch	N/A	Yes	
			Left Tilt (15°)	N/A	Yes	
			Right Touch	N/A	Yes	
			Right Tilt (15°)	N/A	Yes	
	Body	10 mm	Rear	N/A	Yes	
			Front	N/A	Yes	
	Wi-Fi Direct	10 mm	Rear	< 25 mm	Yes	
			Front	< 25 mm	Yes	
			Edge 1 (Top)	< 25 mm	Yes	
			Edge 2 (Right)	< 25 mm	Yes	
			Edge 3 (Bottom)	> 25 mm	No	1
			Edge 4 (Left)	> 25 mm	No	1

Notes:

- SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.

8. Dielectric Property Measurements & System Check

8.1. Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within $\pm 2^\circ\text{C}$ of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	ϵ_r	σ (S/m)	ϵ_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

IEEE Standard 1528-2013

Refer to Table 3 within the IEEE Standard 1528-2013

**Dielectric Property Measurements Results:
SAR Lab B**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
3/16/2015	Body 835	e'	53.1500	Relative Permittivity (ϵ_r):	53.15	55.20	-3.71	5
		e"	21.7500	Conductivity (σ):	1.01	0.97	4.11	5
	Body 820	e'	53.2900	Relative Permittivity (ϵ_r):	53.29	55.28	-3.59	5
		e"	21.8700	Conductivity (σ):	1.00	0.97	2.96	5
	Body 850	e'	52.9800	Relative Permittivity (ϵ_r):	52.98	55.16	-3.95	5
		e"	21.6500	Conductivity (σ):	1.02	0.99	3.66	5
3/16/2015	Head 835	e'	40.6200	Relative Permittivity (ϵ_r):	40.62	41.50	-2.12	5
		e"	19.0100	Conductivity (σ):	0.88	0.90	-1.93	5
	Head 820	e'	40.8700	Relative Permittivity (ϵ_r):	40.87	41.60	-1.76	5
		e"	19.2700	Conductivity (σ):	0.88	0.90	-2.21	5
	Head 850	e'	40.4200	Relative Permittivity (ϵ_r):	40.42	41.50	-2.60	5
		e"	18.8400	Conductivity (σ):	0.89	0.92	-2.69	5
3/19/2015	Body 835	e'	53.0100	Relative Permittivity (ϵ_r):	53.01	55.20	-3.97	5
		e"	21.5100	Conductivity (σ):	1.00	0.97	2.96	5
	Body 820	e'	53.0800	Relative Permittivity (ϵ_r):	53.08	55.28	-3.97	5
		e"	21.5200	Conductivity (σ):	0.98	0.97	1.31	5
	Body 850	e'	52.9000	Relative Permittivity (ϵ_r):	52.90	55.16	-4.09	5
		e"	21.4400	Conductivity (σ):	1.01	0.99	2.65	5
3/19/2015	Head 835	e'	40.4100	Relative Permittivity (ϵ_r):	40.41	41.50	-2.63	5
		e"	19.5100	Conductivity (σ):	0.91	0.90	0.65	5
	Head 820	e'	40.5400	Relative Permittivity (ϵ_r):	40.54	41.60	-2.55	5
		e"	19.4800	Conductivity (σ):	0.89	0.90	-1.14	5
	Head 850	e'	40.2700	Relative Permittivity (ϵ_r):	40.27	41.50	-2.96	5
		e"	19.5600	Conductivity (σ):	0.92	0.92	1.03	5
3/19/2015	Body 2600	e'	50.4700	Relative Permittivity (ϵ_r):	50.47	52.51	-3.89	5
		e"	15.3100	Conductivity (σ):	2.21	2.16	2.43	5
	Body 2500	e'	50.8400	Relative Permittivity (ϵ_r):	50.84	52.64	-3.41	5
		e"	15.0200	Conductivity (σ):	2.09	2.02	3.35	5
	Body 2700	e'	50.1900	Relative Permittivity (ϵ_r):	50.19	52.38	-4.19	5
		e"	15.5400	Conductivity (σ):	2.33	2.30	1.38	5
3/21/2015	Head 2600	e'	39.5100	Relative Permittivity (ϵ_r):	39.51	39.01	1.28	5
		e"	13.7800	Conductivity (σ):	1.99	1.96	1.53	5
	Head 2500	e'	39.6800	Relative Permittivity (ϵ_r):	39.68	39.14	1.39	5
		e"	13.7600	Conductivity (σ):	1.91	1.85	3.17	5
	Head 2700	e'	39.0500	Relative Permittivity (ϵ_r):	39.05	38.88	0.43	5
		e"	14.0300	Conductivity (σ):	2.11	2.07	1.74	5
3/23/2015	Body 2600	e'	50.8200	Relative Permittivity (ϵ_r):	50.82	52.51	-3.22	5
		e"	14.9500	Conductivity (σ):	2.16	2.16	0.02	5
	Body 2500	e'	51.0600	Relative Permittivity (ϵ_r):	51.06	52.64	-3.00	5
		e"	14.8100	Conductivity (σ):	2.06	2.02	1.90	5
	Body 2700	e'	50.5600	Relative Permittivity (ϵ_r):	50.56	52.38	-3.48	5
		e"	15.0700	Conductivity (σ):	2.26	2.30	-1.69	5

SAR Lab C

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
3/10/2015	Body 835	e'	52.6400	Relative Permittivity (ϵ_r):	52.64	55.20	-4.64	5
		e"	21.8800	Conductivity (σ):	1.02	0.97	4.73	5
	Body 820	e'	52.7000	Relative Permittivity (ϵ_r):	52.70	55.28	-4.66	5
		e"	22.0600	Conductivity (σ):	1.01	0.97	3.86	5
	Body 850	e'	52.4700	Relative Permittivity (ϵ_r):	52.47	55.16	-4.87	5
		e"	21.6500	Conductivity (σ):	1.02	0.99	3.66	5

**Dielectric Property Measurements Results Continued:
SAR Lab G**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
3/12/2015	Head 1900	e'	38.9100	Relative Permittivity (ϵ_r):	38.91	40.00	-2.73	5
		e"	13.2400	Conductivity (σ):	1.40	1.40	-0.09	5
	Head 1850	e'	39.1000	Relative Permittivity (ϵ_r):	39.10	40.00	-2.25	5
		e"	13.3500	Conductivity (σ):	1.37	1.40	-1.91	5
	Head 1910	e'	38.8600	Relative Permittivity (ϵ_r):	38.86	40.00	-2.85	5
		e"	13.2600	Conductivity (σ):	1.41	1.40	0.59	5
3/12/2015	Body 1900	e'	51.8900	Relative Permittivity (ϵ_r):	51.89	53.30	-2.65	5
		e"	14.7000	Conductivity (σ):	1.55	1.52	2.17	5
	Body 1850	e'	51.9900	Relative Permittivity (ϵ_r):	51.99	53.30	-2.46	5
		e"	14.8400	Conductivity (σ):	1.53	1.52	0.43	5
	Body 1910	e'	51.8700	Relative Permittivity (ϵ_r):	51.87	53.30	-2.68	5
		e"	14.6700	Conductivity (σ):	1.56	1.52	2.50	5
3/16/2015	Head 1900	e'	38.6800	Relative Permittivity (ϵ_r):	38.68	40.00	-3.30	5
		e"	13.5700	Conductivity (σ):	1.43	1.40	2.40	5
	Head 1850	e'	38.8300	Relative Permittivity (ϵ_r):	38.83	40.00	-2.93	5
		e"	13.5500	Conductivity (σ):	1.39	1.40	-0.44	5
	Head 1910	e'	38.6400	Relative Permittivity (ϵ_r):	38.64	40.00	-3.40	5
		e"	13.6300	Conductivity (σ):	1.45	1.40	3.40	5
3/16/2015	Body 1900	e'	51.8800	Relative Permittivity (ϵ_r):	51.88	53.30	-2.66	5
		e"	14.7200	Conductivity (σ):	1.56	1.52	2.31	5
	Body 1850	e'	52.3200	Relative Permittivity (ϵ_r):	52.32	53.30	-1.84	5
		e"	14.8100	Conductivity (σ):	1.52	1.52	0.23	5
	Body 1910	e'	51.7000	Relative Permittivity (ϵ_r):	51.70	53.30	-3.00	5
		e"	14.7300	Conductivity (σ):	1.56	1.52	2.92	5
3/18/2015	Body 5180	e'	47.5500	Relative Permittivity (ϵ_r):	47.55	49.05	-3.05	5
		e"	18.8000	Conductivity (σ):	5.41	5.27	2.72	5
	Body 5200	e'	47.4300	Relative Permittivity (ϵ_r):	47.43	49.02	-3.24	5
		e"	18.8300	Conductivity (σ):	5.44	5.29	2.83	5
	Body 5600	e'	47.1200	Relative Permittivity (ϵ_r):	47.12	48.48	-2.80	5
		e"	19.2400	Conductivity (σ):	5.99	5.76	3.99	5
	Body 5800	e'	46.6400	Relative Permittivity (ϵ_r):	46.64	48.20	-3.24	5
		e"	19.3600	Conductivity (σ):	6.24	6.00	4.06	5
	Body 5825	e'	46.5800	Relative Permittivity (ϵ_r):	46.58	48.20	-3.36	5
		e"	19.3200	Conductivity (σ):	6.26	6.00	4.29	5
3/19/2015	Head 5180	e'	36.0100	Relative Permittivity (ϵ_r):	36.01	36.01	-0.01	5
		e"	15.9600	Conductivity (σ):	4.60	4.63	-0.73	5
	Head 5200	e'	35.9900	Relative Permittivity (ϵ_r):	35.99	35.99	0.00	5
		e"	15.9700	Conductivity (σ):	4.62	4.65	-0.72	5
	Head 5600	e'	35.1600	Relative Permittivity (ϵ_r):	35.16	35.53	-1.05	5
		e"	15.9400	Conductivity (σ):	4.96	5.06	-1.91	5
	Head 5800	e'	34.9200	Relative Permittivity (ϵ_r):	34.92	35.30	-1.08	5
		e"	16.1200	Conductivity (σ):	5.20	5.27	-1.35	5
	Head 5825	e'	34.8700	Relative Permittivity (ϵ_r):	34.87	35.30	-1.22	5
		e"	16.1800	Conductivity (σ):	5.24	5.27	-0.56	5

Dielectric Property Measurements Results Continued:

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
3/20/2015	Body 1900	e'	52.5200	Relative Permittivity (ϵ_r):	52.52	53.30	-1.46	5
		e"	14.5000	Conductivity (σ):	1.53	1.52	0.78	5
	Body 1850	e'	52.5900	Relative Permittivity (ϵ_r):	52.59	53.30	-1.33	5
		e"	14.5000	Conductivity (σ):	1.49	1.52	-1.87	5
	Body 1910	e'	52.5000	Relative Permittivity (ϵ_r):	52.50	53.30	-1.50	5
		e"	14.5400	Conductivity (σ):	1.54	1.52	1.59	5
3/21/2015	Head 1900	e'	38.2300	Relative Permittivity (ϵ_r):	38.23	40.00	-4.43	5
		e"	12.9500	Conductivity (σ):	1.37	1.40	-2.28	5
	Head 1850	e'	38.3600	Relative Permittivity (ϵ_r):	38.36	40.00	-4.10	5
		e"	13.1500	Conductivity (σ):	1.35	1.40	-3.38	5
	Head 1910	e'	38.1900	Relative Permittivity (ϵ_r):	38.19	40.00	-4.53	5
		e"	12.9800	Conductivity (σ):	1.38	1.40	-1.54	5
3/23/2015	Body 1750	e'	50.9000	Relative Permittivity (ϵ_r):	50.90	53.44	-4.75	5
		e"	15.6200	Conductivity (σ):	1.52	1.49	2.27	5
	Body 1710	e'	51.0100	Relative Permittivity (ϵ_r):	51.01	53.54	-4.73	5
		e"	15.4200	Conductivity (σ):	1.47	1.46	0.32	5
	Body 1755	e'	50.9000	Relative Permittivity (ϵ_r):	50.90	53.43	-4.73	5
		e"	15.6300	Conductivity (σ):	1.53	1.49	2.42	5
3/23/2015	Head 1750	e'	38.6000	Relative Permittivity (ϵ_r):	38.60	40.08	-3.70	5
		e"	13.5400	Conductivity (σ):	1.32	1.37	-3.76	5
	Head 1710	e'	38.6300	Relative Permittivity (ϵ_r):	38.63	40.15	-3.78	5
		e"	13.6000	Conductivity (σ):	1.29	1.35	-3.96	5
	Head 1755	e'	38.6000	Relative Permittivity (ϵ_r):	38.60	40.08	-3.69	5
		e"	13.5600	Conductivity (σ):	1.32	1.37	-3.54	5
3/24/2015	Body 2450	e'	50.4400	Relative Permittivity (ϵ_r):	50.44	52.70	-4.29	5
		e"	14.7200	Conductivity (σ):	2.01	1.95	2.83	5
	Body 2410	e'	50.6400	Relative Permittivity (ϵ_r):	50.64	52.76	-4.02	5
		e"	14.5600	Conductivity (σ):	1.95	1.91	2.29	5
	Body 2475	e'	50.3400	Relative Permittivity (ϵ_r):	50.34	52.67	-4.42	5
		e"	14.9000	Conductivity (σ):	2.05	1.99	3.29	5
3/25/2015	Head 2450	e'	40.9700	Relative Permittivity (ϵ_r):	40.97	39.20	4.52	5
		e"	13.4700	Conductivity (σ):	1.83	1.80	1.94	5
	Head 2410	e'	41.1300	Relative Permittivity (ϵ_r):	41.13	39.28	4.71	5
		e"	13.4200	Conductivity (σ):	1.80	1.76	2.15	5
	Head 2475	e'	40.8600	Relative Permittivity (ϵ_r):	40.86	39.17	4.32	5
		e"	13.6100	Conductivity (σ):	1.87	1.83	2.52	5
3/25/2015	Head 710	e'	43.0200	Relative Permittivity (ϵ_r):	43.02	42.17	2.02	5
		e"	22.9300	Conductivity (σ):	0.91	0.89	1.71	5
	Head 700	e'	43.1300	Relative Permittivity (ϵ_r):	43.13	42.22	2.16	5
		e"	23.0800	Conductivity (σ):	0.90	0.89	1.02	5
	Head 750	e'	42.5700	Relative Permittivity (ϵ_r):	42.57	41.96	1.45	5
		e"	22.4500	Conductivity (σ):	0.94	0.89	4.83	5
3/25/2015	Body 710	e'	54.2200	Relative Permittivity (ϵ_r):	54.22	55.70	-2.66	5
		e"	23.6100	Conductivity (σ):	0.93	0.96	-2.91	5
	Body 700	e'	54.5000	Relative Permittivity (ϵ_r):	54.50	55.74	-2.22	5
		e"	23.7700	Conductivity (σ):	0.93	0.96	-3.55	5
	Body 750	e'	53.9000	Relative Permittivity (ϵ_r):	53.90	55.55	-2.96	5
		e"	23.3100	Conductivity (σ):	0.97	0.96	0.93	5
5/9/2015	Head 2450	e'	38.0600	Relative Permittivity (ϵ_r):	38.06	39.20	-2.91	5
		e"	13.6000	Conductivity (σ):	1.85	1.80	2.93	5
	Head 2410	e'	38.2500	Relative Permittivity (ϵ_r):	38.25	39.28	-2.62	5
		e"	13.4500	Conductivity (σ):	1.80	1.76	2.38	5
	Head 2475	e'	37.9600	Relative Permittivity (ϵ_r):	37.96	39.17	-3.09	5
		e"	13.6600	Conductivity (σ):	1.88	1.83	2.89	5

8.2. System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 \pm 0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be \geq 15.0 cm for SAR measurements \leq 3 GHz and \geq 10.0 cm for measurements $>$ 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 3 mm.
For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

Reference Target SAR Values

The reference SAR values can be obtained from the calibration certificate of system validation dipoles

System Dipole	Serial No.	Cal. Date	Freq. (MHz)	Target SAR Values (W/kg)		
				1g/10g	Head	Body
D750V3	1071	11/13/2014	750	1g	8.22	8.52
				10g	5.39	5.64
D835V2	4d002	11/13/2014	835	1g	9.23	9.33
				10g	5.99	6.12
D1750V2	1050	4/22/2014	1750	1g	36.6	37.2
				10g	19.4	20.0
D1900V2	5d043	11/7/2014	1900	1g	40.6	40.0
				10g	21.1	21.3
D2450V2	706	5/20/2014	2450	1g	53.0	50.2
				10g	24.5	23.4
D2450V2	899	3/13/2015	2450	1g	51.6	48.8
				10g	23.7	22.7
D2600V2	1006	9/10/2014	2600	1g	58.6	56.3
				10g	26.1	25.1
D5GHzV2	1138	9/18/2014	5200	1g	81.4	75.4
				10g	22.3	21.0
		9/18/2014	5600	1g	85.1	81.9
				10g	24.2	22.6
		9/18/2014	5800	1g	80.6	75.2
				10g	23.0	20.8

System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

SAR Lab B

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta $\pm 10\%$	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
3/16/2015	D835V2	4d002	Body	1g	0.955	9.55	9.33	2.36	
				10g	0.628	6.28	6.12	2.61	
3/16/2015	D835V2	4d002	Head	1g	0.877	8.77	9.23	-4.98	1,2
				10g	0.574	5.74	5.99	-4.17	
3/19/2015	D835V2	4d002	Body	1g	0.964	9.64	9.33	3.32	
				10g	0.633	6.33	6.12	3.43	
3/19/2015	D835V2	4d002	Head	1g	0.929	9.29	9.23	0.65	
				10g	0.608	6.08	5.99	1.50	
3/19/2015	D2600V2	1006	Body	1g	6.010	60.1	56.3	6.75	3,4
				10g	2.650	26.5	25.1	5.58	
3/21/2015	D2600V2	1006	Head	1g	5.880	58.8	58.6	0.34	
				10g	2.600	26.0	26.1	-0.38	
3/23/2015	D2600V2	1006	Body	1g	5.680	56.8	56.3	0.89	
				10g	2.490	24.9	25.1	-0.80	

SAR Lab C

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta $\pm 10\%$	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
3/10/2015	D835V2	4d002	Body	1g	0.979	9.79	9.33	4.93	5,6
				10g	0.647	6.47	6.12	5.72	

SAR Lab G

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta $\pm 10\%$	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
3/12/2015	D1900V2	5d043	Head	1g	3.75	37.5	40.6	-7.64	7,8
				10g	1.93	19.3	21.1	-8.53	
3/12/2015	D1900V2	5d043	Body	1g	3.88	38.8	40.0	-3.00	
				10g	2.02	20.2	21.3	-5.16	
3/16/2015	D1900V2	5d043	Head	1g	4.12	41.2	40.6	1.48	
				10g	2.12	21.2	21.1	0.47	
3/16/2015	D1900V2	5d043	Body	1g	4.00	40.0	40.0	0.00	
				10g	2.08	20.8	21.3	-2.35	
3/18/2015	D5GHzV2 (5200 MHz)	1138	Body	1g	7.85	78.5	75.4	4.11	
				10g	2.21	22.1	21.0	5.24	
3/18/2015	D5GHzV2 (5600 MHz)	1138	Body	1g	8.53	85.3	81.9	4.15	
				10g	2.37	23.7	22.6	4.87	
3/18/2015	D5GHzV2 (5800 MHz)	1138	Body	1g	7.06	70.6	75.2	-6.12	
				10g	1.97	19.7	20.8	-5.29	
3/19/2015	D5GHzV2 (5200 MHz)	1138	Head	1g	7.63	76.3	81.4	-6.27	9,10
				10g	2.19	21.9	23.3	-6.01	
3/19/2015	D5GHzV2 (5600 MHz)	1138	Head	1g	8.21	82.1	85.1	-3.53	
				10g	2.31	23.1	24.2	-4.55	
3/19/2015	D5GHzV2 (5800 MHz)	1138	Head	1g	8.02	80.2	80.6	-0.50	
				10g	2.26	22.6	23.0	-1.74	
3/20/2015	D1900V2	5d043	Body	1g	3.97	39.7	40.0	-0.75	
				10g	2.06	20.6	21.3	-3.29	
3/21/2015	D1900V2	5d043	Head	1g	3.98	39.8	40.6	-1.97	
				10g	2.05	20.5	21.1	-2.84	
3/23/2015	D1750V2	1050	Body	1g	3.55	35.5	37.2	-4.57	11,12
				10g	1.90	19.0	20.0	-5.00	
3/23/2015	D1750V2	1050	Head	1g	3.69	36.9	36.6	0.82	
				10g	1.96	19.6	19.4	1.03	
3/24/2015	D2450V2	706	Body	1g	5.14	51.4	50.2	2.39	
				10g	2.38	23.8	23.4	1.71	
3/25/2015	D2450V2	706	Head	1g	5.43	54.3	53.0	2.45	13,14
				10g	2.47	24.7	24.5	0.82	
3/25/2015	D750V3	1071	Head	1g	0.876	8.76	8.22	6.57	15,16
				10g	0.572	5.72	5.39	6.12	
3/25/2015	D750V3	1071	Body	1g	0.833	8.33	8.52	-2.23	
				10g	0.553	5.53	5.64	-1.95	
5/9/2015	D2450V2	899	Head	1g	5.20	52.0	51.6	0.78	
				10g	2.37	23.7	23.9	-0.84	

9. Conducted Output Power Measurements

9.1. GSM

GSM850 Measured Results

Band	Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)	
850	GSM (Voice)	CS1	1	128	824.2	33.1	24.1	
				190	836.6	33.2	24.2	
				251	848.8	33.2	24.2	
	GPRS (GMSK)	CS1	1	1	128	824.2	33.1	24.1
					190	836.6	33.2	24.2
					251	848.8	33.2	24.2
			2	128	824.2	31.1	25.1	
				190	836.6	31.1	25.1	
				251	848.8	31.1	25.1	
	EGPRS (8PSK)	MCS5	1	1	128	824.2	26.9	17.9
					190	836.6	26.9	17.9
					251	848.8	26.9	17.9
2			128	824.2	26.9	20.9		
			190	836.6	26.9	20.9		
			251	848.8	26.9	20.9		

Notes:

The worst-case configuration and mode for SAR testing is determined to be as follows:

- Head & Body-worn Accessory: GMSK Voice Mode
- Hotspot mode: GMSK (GPRS) mode with 2 time slots, based on the output power measurements above
- SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode

GSM1900 Measured Results

Band	Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)	
1900	GSM (Voice)	CS1	1	512	1850.2	29.4	20.4	
				661	1880.0	29.4	20.4	
				810	1909.8	29.4	20.4	
	GPRS (GMSK)	CS1	1	1	512	1850.2	29.4	20.4
					661	1880.0	29.4	20.4
					810	1909.8	29.4	20.4
			2	512	1850.2	27.7	21.7	
				661	1880.0	27.7	21.7	
				810	1909.8	27.7	21.7	
	EGPRS (8PSK)	MCS5	1	1	512	1850.2	26.9	17.9
					661	1880.0	27.0	18.0
					810	1909.8	27.0	18.0
2			512	1850.2	25.6	19.6		
			661	1880.0	25.6	19.6		
			810	1909.8	25.6	19.6		

Notes:

The worst-case configuration and mode for SAR testing is determined to be as follows:

- Head & Body-worn Accessory: GMSK Voice Mode
- Hotspot mode: GMSK (GPRS) mode with 2 time slots, based on the output power measurements above
- SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode

9.2. W-CDMA

Release 99 Setup Procedures used to establish the test signals

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β_c/β_d	8/15

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to Release 7 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 1			
	Power Control Algorithm	Algorithm 2			
	β_c	2/15	11/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
MPR (dB)	0	0	0.5	0.5	
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
$A_{hs}=\beta_{hs}/\beta_c$	30/15				

HSPA (HSDPA & HSUPA) Setup Procedures used to establish the test signals

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSPA				
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2 kbps RMC				
	HSDPA FRC	H-Set 1				
	HSUPA Test	HSPA				
	Power Control Algorithm	Algorithm 2				Algorithm 1
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	15/1
	β_{hs}	22/15	12/15	30/15	4/15	5/15
	β_{ed}	1309/225	94/75	47/15	56/75	47/15
CM (dB)	1	3	2	3	1	
MPR (dB)	0	2	1	2	0	
HSDPA Specific Settings	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
A _{hs} = β_{hs}/β_c	30/15					
HSUPA Specific Settings	E-DPDCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E-TFCIs	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
Reference E-TFCI PO	27	27	27	27	27	
Maximum Channelization Codes	2xSF2				SF4	

HSPA+

Since 16QAM is not used for uplink, the uplink Category and release is same as HSUPA, i.e., CAT 6 Rel 6. Therefore, the RF conducted power is not measured.

Measured Results

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Avg Pwr (dBm)
W-CDMA Band II	Rel 99	RMC, 12.2 kbps	9262	1852.4	N/A	23.4
			9400	1880.0	N/A	23.5
			9538	1907.6	N/A	23.5
	HSDPA	Subtest 1	9262	1852.4	0	23.4
			9400	1880.0	0	23.5
			9538	1907.6	0	23.5
		Subtest 2	9262	1852.4	0	23.4
			9400	1880.0	0	23.4
			9538	1907.6	0	23.4
		Subtest 3	9262	1852.4	0.5	22.7
			9400	1880.0	0.5	22.7
			9538	1907.6	0.5	22.7
		Subtest 4	9262	1852.4	0.5	22.8
			9400	1880.0	0.5	22.8
			9538	1907.6	0.5	22.8
	HSUPA	Subtest 1	9262	1852.4	0	22.3
			9400	1880.0	0	22.3
			9538	1907.6	0	22.3
		Subtest 2	9262	1852.4	2	21.5
			9400	1880.0	2	21.5
			9538	1907.6	2	21.5
		Subtest 3	9262	1852.4	1	21.2
			9400	1880.0	1	21.2
			9538	1907.6	1	21.2
		Subtest 4	9262	1852.4	2	21.5
			9400	1880.0	2	21.5
			9538	1907.6	2	21.5
		Subtest 5	9262	1852.4	0	23.7
			9400	1880.0	0	23.7
			9538	1907.6	0	23.7

Measured Results

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Avg Pwr (dBm)	
W-CDMA Band V	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	23.6	
			4183	836.6	N/A	23.7	
			4233	846.6	N/A	23.7	
	HSDPA	Subtest 1	4132	826.4	0	23.4	
			4183	836.6	0	23.4	
			4233	846.6	0	23.5	
		Subtest 2	4132	826.4	0	23.3	
			4183	836.6	0	23.3	
			4233	846.6	0	23.3	
		Subtest 3	4132	826.4	0.5	22.7	
			4183	836.6	0.5	22.8	
			4233	846.6	0.5	22.8	
		Subtest 4	4132	826.4	0.5	22.6	
			4183	836.6	0.5	22.7	
			4233	846.6	0.5	22.7	
		HSUPA	Subtest 1	4132	826.4	0	22.6
				4183	836.6	0	22.7
				4233	846.6	0	22.7
	Subtest 2		4132	826.4	2	21.7	
			4183	836.6	2	21.7	
			4233	846.6	2	21.7	
	Subtest 3		4132	826.4	1	22.2	
			4183	836.6	1	22.2	
			4233	846.6	1	22.2	
	Subtest 4		4132	826.4	2	21.6	
			4183	836.6	2	21.7	
			4233	846.6	2	21.7	
	Subtest 5		4132	826.4	0	23.6	
			4183	836.6	0	23.7	
			4233	846.6	0	23.7	

9.3. CDMA

Call box setup procedure

- Protocol Rev > 6 (IS-2000-0)
- System ID: 331; NID: 65535, Reg. Ch. #.:
- Radio Config (RC) > Fwd11,Rvs8
- Service Option (SO) Setup > SO75 (Loopback)
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)
- Reverse Power Control Mode: 00-200 to 400 bps
- Smart blanking was disabled.

Measured Results

Band	Mode		Ch No.	Freq. (MHz)	Avg Pwr (dBm)
BC 0	1xRTT	RC1 SO55 (Loopback)	1013	824.70	25.2
			384	836.52	25.2
			777	848.31	25.2
		RC3 SO55 (Loopback)	1013	824.70	25.2
			384	836.52	25.2
			777	848.31	25.2
		RC3 SO32 (+F-SCH)	1013	824.70	25.2
			384	836.52	25.2
			777	848.31	25.2
	1xEVDO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK) RTAP Rate: 153.6 kbps	1013	824.70	24.8
			384	836.52	24.9
			777	848.31	24.9
	1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK RETAP: 4096	1013	824.70	24.8
			384	836.52	24.9
			777	848.31	24.9

Measured Results

Band	Mode		Ch No.	Freq. (MHz)	Avg Pwr (dBm)
BC 1	1xRTT	RC1 SO55 (Loopback)	25	1851.25	24.9
			600	1880.00	24.9
			1175	1908.75	24.9
		RC3 SO55 (Loopback)	25	1851.25	24.9
			600	1880.00	24.9
			1175	1908.75	24.9
		RC3 SO32 (+F-SCH)	25	1851.25	24.9
			600	1880.00	24.9
			1175	1908.75	24.9
	1xEVDO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK) RTAP Rate: 153.6 kbps	25	1851.25	24.6
			600	1880.00	24.7
			1175	1908.75	24.7
	1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK RETAP: 4096	25	1851.25	24.6
			600	1880.00	24.7
			1175	1908.75	24.7
Band	Mode		Ch No.	Freq. (MHz)	Avg Pwr (dBm)
BC 10	1xRTT	RC1 SO55 (Loopback)	476	817.9	25.2
			580	820.5	25.2
			684	823.1	25.2
		RC3 SO55 (Loopback)	476	817.9	25.2
			580	820.5	25.2
			684	823.1	25.2
		RC3 SO32 (+F-SCH)	476	817.9	25.2
			580	820.5	25.2
			684	823.1	25.2
	1xEVDO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK) RTAP Rate: 153.6 kbps	476	817.9	24.8
			580	820.5	24.9
			684	823.1	24.9
	1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK RETAP: 4096	476	817.9	24.8
			580	820.5	24.9
			684	823.1	24.9

9.4. LTE

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

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

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
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3	13	10	Table 6.2.4-2	Table 6.2.4-2
	6.6.3.3.2				
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
				See Table 6.2.4-3	
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

LTE Band 2 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							18700	18900	19100
							1860 MHz	1880 MHz	1900 MHz
LTE Band 2	20	QPSK	1	0	0	0	23.5	23.5	23.4
			1	49	0	0	23.4	23.5	23.4
			1	99	0	0	23.4	23.4	23.4
			50	0	1	1	22.1	22.4	22.3
			50	24	1	1	22.2	22.3	22.3
			50	50	1	1	22.2	22.3	22.2
			100	0	1	1	22.1	22.3	22.2
		16QAM	1	0	1	1	22.3	22.1	22.4
			1	49	1	1	22.3	22.2	22.6
			1	99	1	1	22.4	22.1	22.4
			50	0	2	2	20.9	21.4	21.3
			50	24	2	2	21.7	21.4	21.4
			50	50	2	2	21.3	21.3	21.2
			100	0	2	2	21.3	21.3	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							18675	18900	19125
							1857.5 MHz	1880 MHz	1902.5 MHz
LTE Band 2	15	QPSK	1	0	0	0	23.4	23.5	23.5
			1	37	0	0	23.3	23.5	23.4
			1	74	0	0	23.4	23.3	23.6
			36	0	1	1	22.1	22.4	22.5
			36	20	1	1	22.0	22.3	22.4
			36	39	1	1	22.0	22.3	22.1
			75	0	1	1	22.0	22.2	22.2
		16QAM	1	0	1	1	22.1	22.4	22.3
			1	37	1	1	21.9	22.2	22.3
			1	74	1	1	22.2	22.1	22.3
			36	0	2	2	21.0	21.4	21.4
			36	20	2	2	20.9	21.3	21.3
			36	39	2	2	21.0	21.2	21.1
			75	0	2	2	21.0	21.3	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							18650	18900	19150
							1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	0	23.4	23.4	23.3
			1	25	0	0	23.3	23.4	23.3
			1	49	0	0	23.1	23.2	23.2
			25	0	1	1	22.4	22.5	22.4
			25	12	1	1	22.3	22.5	22.3
			25	25	1	1	22.4	22.5	22.3
			50	0	1	1	22.4	22.5	22.3
		16QAM	1	0	1	1	22.1	22.3	22.3
			1	25	1	1	22.6	22.2	22.2
			1	49	1	1	22.7	21.9	22.2
			25	0	2	2	21.3	21.5	21.5
			25	12	2	2	21.2	21.6	21.4
			25	25	2	2	21.2	21.5	21.3
			50	0	2	2	21.2	21.5	21.3

LTE Band 2 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							18625	18900	19175
							1852.5 MHz	1880 MHz	1907.5 MHz
LTE Band 2	5	QPSK	1	0	0	0	23.5	23.3	23.1
			1	12	0	0	23.6	23.2	23.1
			1	24	0	0	23.4	23.3	23.3
			12	0	1	1	22.6	22.3	22.1
			12	7	1	1	22.5	22.2	22.1
			12	13	1	1	22.5	22.3	22.2
			25	0	1	1	22.6	22.3	22.1
		16QAM	1	0	1	1	22.5	22.3	22.1
			1	12	1	1	22.5	22.2	22.2
			1	24	1	1	22.4	22.3	22.2
			12	0	2	2	21.7	21.4	21.0
			12	7	2	2	21.7	21.3	21.0
			12	13	2	2	21.6	21.3	21.1
			25	0	2	2	21.6	21.3	21.0
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							18615	18900	19185
							1851.5 MHz	1880 MHz	1908.5 MHz
LTE Band 2	3	QPSK	1	0	0	0	23.4	23.4	23.1
			1	8	0	0	23.2	23.2	23.1
			1	14	0	0	23.2	23.3	23.3
			8	0	1	1	22.1	22.1	22.0
			8	4	1	1	22.1	22.1	22.2
			8	7	1	1	22.1	22.1	22.2
			15	0	1	1	22.1	22.1	22.2
		16QAM	1	0	1	1	22.0	22.3	22.2
			1	8	1	1	22.0	22.2	22.2
			1	14	1	1	21.9	22.3	22.3
			8	0	2	2	21.1	21.2	21.2
			8	4	2	2	21.1	21.2	21.2
			8	7	2	2	21.1	21.2	21.2
			15	0	2	2	21.0	21.2	21.1
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							18607	18900	19193
							1850.7 MHz	1880 MHz	1909.3 MHz
LTE Band 2	1.4	QPSK	1	0	0	0	23.4	23.5	23.3
			1	3	0	0	23.4	23.5	23.3
			1	5	0	0	23.4	23.4	23.3
			3	0	0	0	23.3	23.3	23.3
			3	1	0	0	23.4	23.5	23.3
			3	3	0	0	23.4	23.4	23.3
			6	0	1	1	22.4	22.2	22.2
		16QAM	1	0	1	1	22.4	22.3	22.0
			1	3	1	1	22.4	22.2	22.1
			1	5	1	1	22.3	22.2	22.1
			3	0	1	1	22.3	22.1	22.0
			3	1	1	1	22.3	22.1	22.0
			3	3	1	1	22.4	22.1	22.0
			6	0	2	2	21.4	21.2	21.1

LTE Band 4 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							20050	20175	20300
							1720 MHz	1732.5 MHz	1745 MHz
LTE Band 4	20	QPSK	1	0	0	0	23.6	23.6	23.5
			1	49	0	0	23.5	23.6	23.5
			1	99	0	0	23.5	23.5	23.4
			50	0	1	1	22.3	22.4	22.5
			50	24	1	1	22.4	22.4	22.3
			50	50	1	1	22.4	22.4	22.4
			100	0	1	1	22.3	22.3	22.3
		16QAM	1	0	1	1	22.2	22.6	22.5
			1	49	1	1	22.1	22.5	22.4
			1	99	1	1	22.2	22.5	22.3
			50	0	2	2	21.4	21.4	21.4
			50	24	2	2	21.4	21.5	21.4
			50	50	2	2	21.4	21.5	21.3
			100	0	2	2	21.4	21.4	21.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							20025	20175	20325
							1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE Band 4	15	QPSK	1	0	0	0	23.5	23.5	23.5
			1	37	0	0	23.5	23.5	23.6
			1	74	0	0	23.5	23.5	23.4
			36	0	1	1	22.3	22.4	22.5
			36	20	1	1	22.4	22.4	22.3
			36	39	1	1	22.4	22.4	22.4
			75	0	1	1	22.3	22.3	22.3
		16QAM	1	0	1	1	22.2	22.6	22.5
			1	37	1	1	22.1	22.5	22.4
			1	74	1	1	22.2	22.5	22.3
			36	0	2	2	21.4	21.4	21.4
			36	20	2	2	21.4	21.5	21.4
			36	39	2	2	21.4	21.5	21.3
			75	0	2	2	21.4	21.4	21.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							20000	20175	20350
							1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	0	23.1	23.1	23.0
			1	25	0	0	23.2	23.3	23.3
			1	49	0	0	23.0	23.1	23.1
			25	0	1	1	22.0	22.2	22.1
			25	12	1	1	22.2	22.2	22.1
			25	25	1	1	22.1	22.2	22.2
			50	0	1	1	22.1	22.1	22.2
		16QAM	1	0	1	1	22.3	22.0	21.7
			1	25	1	1	22.3	22.2	22.0
			1	49	1	1	22.3	22.0	21.8
			25	0	2	2	21.0	21.2	21.3
			25	12	2	2	21.2	21.3	21.4
			25	25	2	2	21.1	21.2	21.3
			50	0	2	2	21.0	21.2	21.2

LTE Band 4 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							19975	20175	20375
							1712.5 MHz	1732.5 MHz	1752.5 MHz
LTE Band 4	5	QPSK	1	0	0	0	23.4	23.5	23.4
			1	12	0	0	23.3	23.5	23.4
			1	24	0	0	23.3	23.4	23.3
			12	0	1	1	22.5	22.5	22.4
			12	7	1	1	22.4	22.5	22.4
			12	13	1	1	22.4	22.5	22.5
			25	0	1	1	22.5	22.5	22.5
		16QAM	1	0	1	1	22.3	22.4	22.3
			1	12	1	1	22.2	22.5	22.5
			1	24	1	1	22.3	22.4	22.5
			12	0	2	2	21.5	21.6	21.6
			12	7	2	2	21.5	21.6	21.6
			12	13	2	2	21.5	21.5	21.7
			25	0	2	2	21.6	21.5	21.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							19965	20175	20385
							1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	0	23.3	23.4	23.3
			1	8	0	0	23.3	23.4	23.4
			1	14	0	0	23.2	23.4	23.3
			8	0	1	1	22.3	22.3	22.2
			8	4	1	1	22.2	22.4	22.3
			8	7	1	1	22.2	22.3	22.3
			15	0	1	1	22.2	22.1	22.3
		16QAM	1	0	1	1	21.8	22.2	22.0
			1	8	1	1	21.8	22.3	22.1
			1	14	1	1	21.7	22.2	22.1
			8	0	2	2	21.4	21.1	21.4
			8	4	2	2	21.3	21.1	21.5
			8	7	2	2	21.3	21.1	21.5
			15	0	2	2	21.2	21.2	21.3
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							19957	20175	20393
							1710.7 MHz	1732.5 MHz	1754.3 MHz
LTE Band 4	1.4	QPSK	1	0	0	0	23.5	23.6	23.4
			1	3	0	0	23.4	23.5	23.4
			1	5	0	0	23.4	23.5	23.4
			3	0	0	0	23.4	23.5	23.3
			3	1	0	0	23.4	23.4	23.4
			3	3	0	0	23.4	23.3	23.4
			6	0	1	1	22.4	22.6	22.5
		16QAM	1	0	1	1	22.5	22.5	22.4
			1	3	1	1	22.6	22.6	22.4
			1	5	1	1	22.4	22.5	22.4
			3	0	1	1	22.4	22.5	22.5
			3	1	1	1	22.5	22.5	22.6
			3	3	1	1	22.5	22.5	22.7
			6	0	2	2	21.3	21.4	21.3

LTE Band 5 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							20450	20525	20600
							829 MHz	836.5 MHz	844 MHz
LTE Band 5	10	QPSK	1	0	0	0	23.4	23.5	23.3
			1	25	0	0	23.4	23.4	23.3
			1	49	0	0	23.3	23.3	23.3
			25	0	1	1	22.4	22.5	22.5
			25	12	1	1	22.4	22.4	22.4
			25	25	1	1	22.4	22.4	22.3
			50	0	1	1	22.3	22.4	22.3
		16QAM	1	0	1	1	22.2	22.3	22.2
			1	25	1	1	22.2	22.3	22.2
			1	49	1	1	22.2	22.3	22.0
			25	0	2	2	21.4	21.5	21.3
			25	12	2	2	21.4	21.5	21.3
			25	25	2	2	21.4	21.4	21.2
			50	0	2	2	21.3	21.3	21.3
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							20425	20525	20625
							826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 5	5	QPSK	1	0	0	0	23.3	23.5	23.4
			1	12	0	0	23.3	23.4	23.3
			1	24	0	0	23.4	23.4	23.3
			12	0	1	1	22.3	22.4	22.3
			12	7	1	1	22.3	22.4	22.2
			12	13	1	1	22.3	22.4	22.2
			25	0	1	1	22.3	22.3	22.3
		16QAM	1	0	1	1	22.2	22.3	22.2
			1	12	1	1	22.2	22.3	22.2
			1	24	1	1	22.2	22.3	22.1
			12	0	2	2	21.2	21.3	21.2
			12	7	2	2	21.2	21.3	21.2
			12	13	2	2	21.2	21.3	21.2
			25	0	2	2	21.1	21.2	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							20415	20525	20635
							825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	0	23.3	23.4	23.4
			1	8	0	0	23.3	23.4	23.2
			1	14	0	0	23.3	23.3	23.2
			8	0	1	1	22.4	22.4	22.3
			8	4	1	1	22.3	22.4	22.3
			8	7	1	1	22.3	22.4	22.2
			15	0	1	1	22.3	22.4	22.2
		16QAM	1	0	1	1	22.3	22.3	22.3
			1	8	1	1	22.2	22.2	22.2
			1	14	1	1	22.2	22.2	22.2
			8	0	2	2	21.3	21.4	21.3
			8	4	2	2	21.3	21.4	21.3
			8	7	2	2	21.3	21.3	21.2
			15	0	2	2	21.1	21.2	21.1

LTE Band 5 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							20407	20525	20643
							824.7 MHz	836.5 MHz	848.3 MHz
LTE Band 5	1.4	QPSK	1	0	0	0	23.3	23.4	23.3
			1	3	0	0	23.3	23.4	23.3
			1	5	0	0	23.3	23.4	23.2
			3	0	0	0	23.3	23.4	23.2
			3	1	0	0	23.3	23.4	23.3
			3	3	0	0	23.3	23.4	23.2
			6	0	1	1	22.2	22.3	22.2
		16QAM	1	0	1	1	22.0	22.2	22.0
			1	3	1	1	21.9	22.2	22.1
			1	5	1	1	22.0	22.2	22.0
			3	0	1	1	21.9	22.1	21.8
			3	1	1	1	21.9	22.1	21.9
			3	3	1	1	22.0	22.1	21.9
			6	0	2	2	21.2	21.3	21.2

LTE Band 12 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							23060	23095	23130
							704 MHz	707.5 MHz	711 MHz
LTE Band 12	10	QPSK	1	0	0	0	23.4	23.5	23.3
			1	25	0	0	23.4	23.4	23.3
			1	49	0	0	23.4	23.4	23.3
			25	0	1	1	22.4	22.4	22.3
			25	12	1	1	22.4	22.4	22.3
			25	25	1	1	22.3	22.4	22.3
			50	0	1	1	22.3	22.4	22.3
		16QAM	1	0	1	1	22.2	22.3	22.2
			1	25	1	1	22.3	22.3	22.2
			1	49	1	1	22.3	22.3	22.2
			25	0	2	2	21.4	21.5	21.3
			25	12	2	2	21.4	21.5	21.2
			25	25	2	2	21.3	21.4	21.2
			50	0	2	2	21.3	21.4	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							23035	23095	23155
							701.5 MHz	707.5 MHz	713.5 MHz
LTE Band 12	5	QPSK	1	0	0	0	23.4	23.4	23.4
			1	12	0	0	23.4	23.4	23.3
			1	24	0	0	23.4	23.4	23.3
			12	0	1	1	22.4	22.4	22.2
			12	6	1	1	22.4	22.4	22.3
			12	11	1	1	22.4	22.4	22.3
			25	0	1	1	22.3	22.4	22.3
		16QAM	1	0	1	1	22.4	22.5	22.3
			1	12	1	1	22.3	22.4	22.3
			1	24	1	1	22.3	22.4	22.3
			12	0	2	2	21.5	21.6	21.4
			12	6	2	2	21.4	21.6	21.4
			12	11	2	2	21.4	21.5	21.4
			25	0	2	2	21.3	21.5	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							23025	23095	23165
							700.5 MHz	707.5 MHz	714.5 MHz
LTE Band 12	3	QPSK	1	0	0	0	23.46	23.50	23.39
			1	7	0	0	23.44	23.50	23.34
			1	14	0	0	23.42	23.49	23.33
			8	0	1	1	22.46	22.56	22.34
			8	4	1	1	22.45	22.55	22.35
			8	7	1	1	22.44	22.54	22.30
			15	0	1	1	22.44	22.53	22.34
		16QAM	1	0	1	1	22.50	22.51	22.40
			1	7	1	1	22.49	22.49	22.40
			1	14	1	1	22.44	22.50	22.34
			8	0	2	2	21.46	21.57	21.43
			8	4	2	2	21.44	21.54	21.35
			8	7	2	2	21.42	21.53	21.42
			15	0	2	2	21.23	21.33	21.22

LTE Band 12 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							23017	23095	23173
							699.7 MHz	707.5 MHz	715.3 MHz
LTE Band 12	1.4	QPSK	1	0	0	0	23.5	23.5	23.5
			1	2	0	0	23.5	23.5	23.4
			1	5	0	0	23.4	23.5	23.4
			3	0	0	0	23.5	23.5	23.4
			3	1	0	0	23.4	23.6	23.4
			3	2	0	0	23.4	23.5	23.3
		16QAM	6	0	1	1	22.4	22.4	22.4
			1	0	1	1	22.3	22.4	22.3
			1	2	1	1	22.4	22.4	22.3
			1	5	1	1	22.3	22.4	22.3
			3	0	1	1	22.3	22.4	22.2
			3	1	1	1	22.3	22.3	22.2
			3	2	1	1	22.2	22.3	22.2
			6	0	2	2	21.5	21.6	21.5

LTE Band 25 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							26140	26365	26590
							1860 MHz	1882.5 MHz	1905 MHz
LTE Band 25	20	QPSK	1	0	0	0	23.5	23.6	23.5
			1	50	0	0	23.4	23.6	23.2
			1	99	0	0	23.4	23.4	23.4
			50	0	1	1	22.3	22.5	22.4
			50	25	1	1	22.4	22.4	22.2
			50	50	1	1	22.3	22.4	22.3
			100	0	1	1	22.5	22.6	22.3
		16QAM	1	0	1	1	22.3	22.4	22.4
			1	50	1	1	22.4	22.4	22.4
			1	99	1	1	22.3	22.4	22.3
			50	0	2	2	21.4	21.4	21.3
			50	25	2	2	21.4	21.4	21.2
			50	50	2	2	21.4	21.4	21.1
			100	0	2	2	21.3	21.4	21.1
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							26115	26365	26615
							1857.5 MHz	1882.5 MHz	1907.5 MHz
LTE Band 25	15	QPSK	1	0	0	0	23.5	23.6	23.4
			1	36	0	0	23.4	23.6	23.4
			1	74	0	0	23.4	23.4	23.4
			36	0	1	1	22.4	22.6	22.5
			36	18	1	1	22.4	22.6	22.4
			36	37	1	1	22.4	22.7	22.4
			75	0	1	1	22.4	22.7	22.4
		16QAM	1	0	1	1	22.4	22.7	22.7
			1	36	1	1	22.3	22.6	22.4
			1	74	1	1	22.4	22.6	22.5
			36	0	2	2	21.3	21.6	21.3
			36	18	2	2	21.2	21.6	21.2
			36	37	2	2	21.3	21.6	21.2
			75	0	2	2	21.3	21.6	21.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							26090	26365	26640
							1855 MHz	1882.5 MHz	1910 MHz
LTE Band 25	10	QPSK	1	0	0	0	23.3	23.4	23.1
			1	25	0	0	23.3	23.4	23.2
			1	49	0	0	23.2	23.3	23.4
			25	0	1	1	22.3	22.3	22.3
			25	12	1	1	22.3	22.5	22.3
			25	25	1	1	22.4	22.6	22.4
			50	0	1	1	22.3	22.5	22.3
		16QAM	1	0	1	1	22.2	22.3	22.3
			1	25	1	1	22.2	22.4	22.4
			1	49	1	1	22.0	22.3	22.3
			25	0	2	2	21.2	21.3	21.1
			25	12	2	2	21.3	21.5	21.1
			25	25	2	2	21.3	21.5	21.4
			50	0	2	2	21.2	21.5	21.1

LTE Band 25 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							26065	26365	26665
							1852.5 MHz	1882.5 MHz	1912.5 MHz
LTE Band 25	5	QPSK	1	0	0	0	23.5	23.5	23.3
			1	12	0	0	23.5	23.5	23.5
			1	24	0	0	23.2	23.5	23.5
			12	0	1	1	22.4	22.5	22.4
			12	6	1	1	22.4	22.6	22.5
			12	11	1	1	22.3	22.6	22.5
			25	0	1	1	22.0	22.7	22.5
		16QAM	1	0	1	1	22.4	22.4	22.3
			1	12	1	1	22.6	22.6	22.5
			1	24	1	1	22.5	22.7	22.6
			12	0	2	2	21.2	21.5	21.3
			12	6	2	2	21.3	21.6	21.4
			12	11	2	2	21.2	21.6	21.5
			25	0	2	2	21.2	21.6	21.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							26055	26365	26675
							1851.5 MHz	1882.5 MHz	1913.5 MHz
LTE Band 25	3	QPSK	1	0	0	0	23.5	23.5	23.5
			1	7	0	0	23.4	23.5	23.4
			1	14	0	0	23.4	23.5	23.4
			8	0	1	1	22.3	22.5	22.3
			8	4	1	1	22.3	22.5	22.4
			8	7	1	1	22.4	22.5	22.4
			15	0	1	1	22.3	22.4	22.3
		16QAM	1	0	1	1	22.4	22.4	22.4
			1	7	1	1	22.4	22.5	22.4
			1	14	1	1	22.4	22.5	22.4
			8	0	2	2	21.2	21.0	21.0
			8	4	2	2	21.3	21.2	21.0
			8	7	2	2	21.3	21.1	21.0
			15	0	2	2	21.2	21.1	21.0
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							26047	26365	26683
							1850.7 MHz	1882.5 MHz	1914.3 MHz
LTE Band 25	1.4	QPSK	1	0	0	0	23.5	23.5	23.5
			1	2	0	0	23.4	23.5	23.5
			1	5	0	0	23.4	23.5	23.4
			3	0	0	0	23.4	23.5	23.4
			3	1	0	0	23.4	23.4	23.4
			3	2	0	0	23.4	23.5	23.4
			6	0	1	1	22.3	22.3	22.3
		16QAM	1	0	1	1	22.5	22.6	22.6
			1	2	1	1	22.5	22.6	22.5
			1	5	1	1	22.5	22.6	22.5
			3	0	1	1	22.4	22.4	22.4
			3	1	1	1	22.4	22.5	22.4
			3	2	1	1	22.4	22.4	22.4
			6	0	2	2	21.2	21.5	21.3

LTE Band 26 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							26765	26865	26965
							821.5 MHz	831.5 MHz	841.5 MHz
LTE Band 26	15	QPSK	1	0	0	0	23.5	23.5	23.4
			1	37	0	0	23.4	23.5	23.4
			1	74	0	0	23.4	23.5	23.4
			36	0	1	1	22.5	22.5	22.4
			36	20	1	1	22.4	22.5	22.5
			36	39	1	1	22.4	22.5	22.5
		16QAM	75	0	1	1	22.4	22.5	22.4
			1	0	1	1	22.3	22.5	22.5
			1	37	1	1	22.3	22.4	22.4
			1	74	1	1	22.2	22.4	22.4
			36	0	2	2	21.5	21.6	21.5
			36	20	2	2	21.5	21.6	21.5
			36	39	2	2	21.5	21.5	21.5
			75	0	2	2	21.4	21.5	21.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							26740	26865	26990
							819 MHz	831.5 MHz	844 MHz
LTE Band 26	10	QPSK	1	0	0	0	23.4	23.5	23.3
			1	25	0	0	23.4	23.4	23.4
			1	49	0	0	23.4	23.4	23.3
			25	0	1	1	22.4	22.5	22.4
			25	12	1	1	22.4	22.5	22.4
			25	25	1	1	22.4	22.5	22.4
		16QAM	50	0	1	1	22.4	22.5	22.3
			1	0	1	1	22.4	22.4	22.3
			1	25	1	1	22.4	22.4	22.4
			1	49	1	1	22.4	22.4	22.3
			25	0	2	2	21.4	21.5	21.4
			25	12	2	2	21.5	21.5	21.4
			25	25	2	2	21.5	21.5	21.4
			50	0	2	2	21.5	21.5	21.3
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							26715	26865	27015
							816.5 MHz	831.5 MHz	846.5 MHz
LTE Band 26	5	QPSK	1	0	0	0	23.4	23.5	23.3
			1	12	0	0	23.4	23.5	23.3
			1	24	0	0	23.4	23.4	23.3
			12	0	1	1	22.5	22.5	22.5
			12	7	1	1	22.4	22.5	22.4
			12	13	1	1	22.4	22.4	22.3
		16QAM	25	0	1	1	22.4	22.5	22.4
			1	0	1	1	22.4	22.4	22.4
			1	12	1	1	22.4	22.5	22.3
			1	24	1	1	22.4	22.4	22.4
			12	0	2	2	21.3	21.5	21.3
			12	7	2	2	21.4	21.4	21.2
			12	13	2	2	21.4	21.4	21.3
			25	0	2	2	21.3	21.4	21.3

LTE Band 26 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)		
							26705	26865	27025
							815.5 MHz	831.5 MHz	847.5 MHz
LTE Band 26	3	QPSK	1	0	0	0	23.4	23.5	23.3
			1	8	0	0	23.3	23.5	23.3
			1	14	0	0	23.3	23.5	23.4
			8	0	1	1	22.4	22.5	22.4
			8	4	1	1	22.4	22.4	22.4
			8	7	1	1	22.3	22.4	22.4
		15	0	1	1	22.3	22.4	22.3	
		16QAM	1	0	1	1	22.4	22.5	22.4
			1	8	1	1	22.4	22.4	22.4
			1	14	1	1	22.4	22.4	22.3
			8	0	2	2	21.5	21.5	21.4
			8	4	2	2	21.4	21.5	21.4
			8	7	2	2	21.4	21.4	21.4
		15	0	2	2	21.4	21.4	21.3	
		Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)
26697	26865								27033
814.7 MHz	831.5 MHz								848.3 MHz
LTE Band 26	1.4	QPSK	1	0	0	0	23.4	23.5	23.2
			1	3	0	0	23.3	23.5	23.3
			1	5	0	0	23.3	23.4	23.3
			3	0	1	0	23.3	23.5	23.4
			3	1	1	0	23.3	23.5	23.4
			3	3	1	0	23.3	23.5	23.4
		6	0	1	1	22.3	22.5	22.4	
		16QAM	1	0	1	1	22.3	22.4	22.3
			1	3	1	1	22.2	22.3	22.3
			1	5	1	1	22.2	22.2	22.2
			3	0	2	1	22.1	22.3	22.1
			3	1	2	1	22.2	22.3	22.1
			3	3	2	1	22.2	22.3	22.1
		6	0	2	2	21.4	21.4	21.3	

LTE Band 41 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)				
							39750	40185	40620	41055	41490
							2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	0	23.3	23.3	23.5	23.3	23.3
			1	50	0	0	23.3	23.2	23.4	23.3	23.2
			1	99	0	0	23.3	23.3	23.4	23.3	23.2
			50	0	1	1	22.2	22.2	22.3	22.3	22.2
			50	25	1	1	22.1	22.2	22.3	22.2	22.2
			50	50	1	1	22.1	22.3	22.2	22.2	22.2
		16QAM	100	0	1	1	22.1	22.2	22.2	22.2	22.2
			1	0	1	1	22.4	22.4	22.4	22.3	22.0
			1	50	1	1	22.4	22.4	22.3	22.3	22.1
			1	99	1	1	22.2	22.3	22.2	22.2	22.0
			50	0	2	2	21.2	21.2	21.3	21.2	21.2
			50	25	2	2	21.1	21.2	21.3	21.2	21.1
LTE Band 41	15	QPSK	1	0	0	0	23.3	23.3	23.4	23.3	23.3
			1	36	0	0	23.3	23.3	23.3	23.3	23.3
			1	74	0	0	23.3	23.3	23.3	23.2	23.2
			36	0	1	1	22.3	22.3	22.4	22.3	22.3
			36	18	1	1	22.2	22.2	22.3	22.2	22.2
			36	37	1	1	22.2	22.2	22.3	22.2	22.2
		16QAM	75	0	1	1	22.2	22.2	22.3	22.2	22.2
			1	0	1	1	22.0	22.0	22.1	22.1	22.0
			1	36	1	1	22.0	22.0	22.1	22.1	22.0
			1	74	1	1	21.7	21.8	22.1	22.0	22.0
			36	0	2	2	21.2	21.2	21.3	21.3	21.2
			36	18	2	2	21.2	21.2	21.2	21.2	21.2
LTE Band 41	10	QPSK	36	37	2	2	21.2	21.2	21.2	21.2	21.2
			75	0	2	2	21.1	21.1	21.2	21.1	21.0
			1	0	0	0	23.2	23.3	23.4	23.3	23.3
			1	25	0	0	23.2	23.3	23.3	23.3	23.3
			1	49	0	0	23.2	23.2	23.3	23.3	23.2
			25	0	1	1	22.3	22.3	22.4	22.3	22.3
		16QAM	25	12	1	1	22.2	22.3	22.3	22.3	22.3
			25	25	1	1	22.2	22.3	22.2	22.2	22.1
			50	0	1	1	22.2	22.2	22.2	22.2	22.2
			1	0	1	1	22.0	22.3	22.3	22.3	22.2
			1	25	1	1	22.0	22.2	22.3	22.2	22.2
			1	49	1	1	21.8	22.2	22.2	22.2	22.2
16QAM	25	0	2	2	21.3	21.3	21.4	21.3	21.2		
	25	12	2	2	21.2	21.3	21.3	21.3	21.3		
	25	25	2	2	21.2	21.2	21.2	21.2	21.2		
	50	0	2	2	21.0	21.1	21.1	21.0	21.0		

LTE Band 41 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Meas. MPR	Avg Pwr (dBm)				
							39675	40148	40620	41093	41565
							2498.5 MHz	2545.8 MHz	2593 MHz	2640.3 MHz	2687.5 MHz
LTE Band 41	5	QPSK	1	0	0	0	23.3	23.3	23.3	23.3	23.3
			1	12	0	0	23.2	23.3	23.3	23.3	23.2
			1	24	0	0	23.2	23.2	23.3	23.2	23.2
			12	0	1	1	22.2	22.3	22.3	22.3	22.2
			12	7	1	1	22.2	22.2	22.3	22.2	22.2
			12	13	1	1	22.2	22.2	22.3	22.2	22.2
			25	0	1	1	22.1	22.1	22.2	22.2	22.1
		16QAM	1	0	1	1	22.3	22.3	22.4	22.3	22.2
			1	12	1	1	22.2	22.0	22.2	22.2	22.1
			1	24	1	1	22.2	22.0	22.2	22.2	22.1
			12	0	2	2	21.2	21.2	21.3	21.2	21.2
			12	7	2	2	21.2	21.2	21.2	21.2	21.2
			12	13	2	2	21.2	21.2	21.2	21.3	21.2
			25	0	2	2	21.1	21.2	21.2	21.1	21.1

Note(s):

10/5 MHz Bandwidths does not support at least three non-overlapping channels in certain channel bandwidths. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices

9.5. Wi-Fi DTS (2.4 GHz) Band

Measured Results

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Note(s)
2.4	802.11b	1 Mbps	1	2412	16.0	16.0	Yes	
			6	2437	16.0			
			11	2462	16.0			
	802.11g	6 Mbps	1	2412	Not Required	15.0	No	1
			6	2437				
			11	2462				
	802.11n (HT20)	MCS0	1	2412	Not Required	15.0	No	1
			6	2437				
			11	2462				
	802.11ac (HT20)	MCS0	1	2412	Not Required	13.0	No	1
			6	2437				
			11	2462				

Note(s):

- Output Power and SAR is not required for 802.11g/n/ac HT20 channels when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

9.6. Wi-Fi U-NII (5 GHz) Bands

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Note(s)
5.2 (U-NII 1)	802.11a	6 Mbps	36	5180	14.0	14.0	No	3
			40	5200	14.0	14.0		
			44	5220	14.0	14.0		
			48	5240	14.0	14.0		
	802.11n (HT20)	6.5 Mbps	36	5180	Not required	14.0	No	1
			40	5200		14.0		
			44	5220		14.0		
			48	5240		14.0		
	802.11n (HT40)	13.5 Mbps	38	5190	Not required	12.0	No	1
			46	5230		12.0		
	802.11ac (VHT20)	6.5 Mbps	36	5180	Not required	13.0	No	1
			40	5200		13.0		
			44	5220		13.0		
			48	5240		13.0		
802.11ac (VHT40)	13.5 Mbps	38	5190	Not required	12.0	No	1	
		46	5230		12.0			
802.11ac (VHT80)	29.3 Mbps	42	5210	Not required	12.0	No	1	
5.3 (U-NII 2A)	802.11a	6 Mbps	52	5260	14.0	14.0	Yes	
			56	5280	14.0	14.0		
			60	5300	14.0	14.0		
			64	5320	14.0	14.0		
	802.11n (HT20)	6.5 Mbps	52	5260	Not required	14.0	No	2
			56	5280		14.0		
			60	5300		14.0		
			64	5320		14.0		
	802.11n (HT40)	13.5 Mbps	54	5270	Not required	12.0	No	1
			62	5310		12.0		
	802.11ac (VHT20)	6.5 Mbps	52	5260	Not required	13.0	No	1
			56	5280		13.0		
			60	5300		13.0		
			64	5320		13.0		
802.11ac (VHT40)	13.5 Mbps	54	5270	Not required	12.0	No	1	
		62	5310		12.0			
802.11ac (VHT80)	29.3 Mbps	58	5290	Not required	12.0	No	1	

Note(s):

- Output Power and SAR measurement is not required for 802.11n/ac HT20/HT40/HT80 channels when the specified tune-up tolerances for 802.11n HT20/HT40 are lower than 802.11a by more than ½ dB and the measured SAR is ≤ 1.2 W/Kg.
- When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel in the lower order/sequence 802.11 mode (i.e. a, g, n then ac) is selected.
- When the specified maximum output power is the same for both UNII band I and UNII band 2A, begin SAR measurement in UNII band 2A; and if the highest *reported* SAR for UNII band 2A is
 - ≤ 1.2 W/kg, SAR is not required for UNII band I
 - > 1.2 W/kg, both bands should be tested independently for SAR.

5GHz Bands Continued

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Note(s)
5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	14.0	14.0	Yes	
			104	5520	14.0	14.0		
			112	5560	14.0	14.0		
			116	5580	14.0	14.0		
	802.11n (HT20)	6.5 Mbps	100	5500	Not required	14.0	No	2
			104	5520		14.0		
			112	5560		14.0		
			116	5580		14.0		
	802.11n (HT40)	13.5 Mbps	102	5510	Not required	12.0	No	1
			110	5550		12.0		
	802.11ac (VHT20)	6.5 Mbps	100	5500	Not required	13.0	No	1
			104	5520		13.0		
			112	5560		13.0		
			116	5580		13.0		
802.11ac (VHT40)	13.5 Mbps	102	5510	Not required	12.0	No	1	
		110	5550		12.0			
802.11ac (VHT80)	29.3 Mbps	106	5530	Not required	12.0	No	1	
5.8 (UNII-3 or §15.247)	802.11a	6 Mbps	132	5660	14.0	14.0	Yes	
			157	5785	14.0	14.0		
			165	5825	14.0	14.0		
	802.11n (HT20)	6.5 Mbps	132	5660	Not required	14.0	No	2
			157	5785		14.0		
			165	5825		14.0		
	802.11n (HT40)	13.5 Mbps	134	5670	Not required	12.0	No	1
			151	5755		12.0		
			159	5795		12.0		
	802.11ac (VHT20)	6.5 Mbps	132	5660	Not required	13.0	No	1
			157	5785		13.0		
			165	5825		13.0		
	802.11ac (VHT40)	13.5 Mbps	134	5670	Not required	12.0	No	1
			151	5755		12.0		
159			5795	12.0				
802.11ac (VHT80)	29.3 Mbps	138	5790	Not required	12.0	No	1	
		155	5775		12.0			

Note(s):

- Output Power and SAR measurement is not required for 802.11n/ac HT20/HT40/HT80 channels when the specified tune-up tolerances for 802.11n HT20/HT40 are lower than 802.11a by more than ½ dB and the measured SAR is ≤ 1.2 W/Kg.
- When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel in the lower order/sequence 802.11 mode (i.e. a, g, n then ac) is selected.
- When the specified maximum output power is the same for both UNII band I and UNII band 2A, begin SAR measurement in UNII band 2A; and if the highest reported SAR for UNII band 2A is
 - ≤ 1.2 W/kg, SAR is not required for UNII band I
 - > 1.2 W/kg, both bands should be tested independently for SAR.

9.7. Bluetooth

Maximum tune-up tolerance limit is 11 dBm from the rated nominal maximum output power. This power level qualifies for exclusion of SAR testing.

10. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

KDB 447498 D01 General RF Exposure Guidance:

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

KDB 648474 D04 Handset SAR:

With headset attached, when the reported SAR for body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Additional 1-g SAR testing at 5 mm is not required. For hotspot mode, 10-g extremity SAR is not required for the surfaces and edges since all 1-g reported SAR < 1.2 W/kg.

KDB 941225 D01 SAR test for 3G devices:

Body SAR is also measured for HSPA when the maximum average output of each RF channel with HSPA active is at least $\frac{1}{4}$ dB higher than that measured without HSPA using 12.2 kbps RMC or the maximum SAR for 12.2 kbps RMC is above 75% of the SAR limit. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 with power control algorithm 2.

KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is > 0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
- Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.
- Testing for 16-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.

KDB 248227 D01 SAR Measurements Procedures for 802.11 a/b/g Transmitters v02 (pg.6):

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the initial test position(s) by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The initial test position(s) is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the reported SAR for the initial test position is:

- ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- > 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions are tested.
 - For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
 - When it is unclear, all equivalent conditions must be tested.
- For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required test channels are considered.
 - The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.
- When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
- When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

To determine the initial test position, Area Scans were performed to determine the position with the *Maximum Value of SAR (measured)*. The position that produced the highest *Maximum Value of SAR* is considered the worst case position; thus used as the initial test position.

10.1. GSM850

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	Voice	0	Left Touch	190	836.6	33.2	33.2	0.284	0.284	
			Left Tilt	190	836.6	33.2	33.2	0.191	0.191	
			Right Touch	190	836.6	33.2	33.2	0.384	0.384	
			Right Tilt	190	836.6	33.2	31.1	0.200	0.324	
Head (VoIP)	GPRS 2 Slots	0	Left Touch	190	836.6	31.7	31.1	0.388	0.445	
			Left Tilt	190	836.6	31.7	31.1	0.263	0.302	
			Right Touch	190	836.6	31.7	31.1	0.529	0.607	1
			Right Tilt	190	836.6	31.7	31.1	0.282	0.324	
Body	Voice	10	Rear	190	836.6	33.2	33.2	0.350	0.350	
			Front	190	836.6	33.2	33.2	0.491	0.491	
Body (VoIP) & Hotspot	GPRS 2 Slots	10	Rear	190	836.6	31.7	31.1	0.545	0.626	
			Front	190	836.6	31.7	31.1	0.591	0.679	2
Hotspot	GPRS 2 Slots	10	Edge 2	190	836.6	31.7	31.1	0.469	0.538	
			Edge 3	190	836.6	31.7	31.1	0.352	0.404	
			Edge 4	190	836.6	31.7	31.1	0.243	0.279	

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head (VoIP)	GPRS 2 Slots	0	Right Touch	190	836.6	31.7	31.1	0.475	0.545	
Body (VoIP) & Hotspot	GPRS 2 Slots	10	Front	190	836.6	31.7	31.1	0.518	0.595	

10.2. GSM1900

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	Voice	0	Left Touch	661	1880.0	29.4	29.4	0.481	0.481	
			Left Tilt	661	1880.0	29.4	29.4	0.185	0.185	
			Right Touch	661	1880.0	29.4	29.4	0.237	0.237	
			Righttt Tilt	661	1880.0	29.4	29.4	0.151	0.151	
Head (VoIP)	GPRS 2 Slots	0	Left Touch	512	1850.2	27.7	27.7	0.715	0.715	
				661	1880.0	27.7	27.7	0.820	0.820	3
				810	1909.8	27.7	27.7	0.817	0.817	
			Left Tilt	661	1880.0	27.7	27.7	0.320	0.320	
			Right Touch	661	1880.0	27.7	27.7	0.406	0.406	
			Righttt Tilt	661	1880.0	27.7	27.7	0.263	0.263	
Body	Voice	10	Rear	661	1880.0	29.4	29.4	0.254	0.254	
			Front	661	1880.0	29.4	29.4	0.320	0.320	
Body (VoIP) & Hotspot	GPRS 2 Slots	10	Rear	661	1880.0	27.7	27.7	0.431	0.431	4
			Front	661	1880.0	27.7	27.7	0.254	0.254	
Hotspot	GPRS 2 Slots	10	Edge 3	661	1880.0	27.7	27.7	0.365	0.365	
			Edge 4	661	1880.0	27.7	27.7	0.489	0.489	5

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head (VoIP)	GPRS 2 Slots	0	Left Touch	661	1880.0	27.7	27.7	0.773	0.773	
Body (VoIP) & Hotspot	GPRS 2 Slots	10	Rear	661	1880.0	27.7	27.7	0.359	0.359	
Hotspot	GPRS 2 Slots	10	Edge 4	661	1880.0	27.7	27.7	0.398	0.398	

10.3. W-CDMA Band V

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	Rel 99 RMC 12.2 kbps	0	Left Touch	4183	836.6	23.7	23.7	0.312	0.312	6
			Left Tilt	4183	836.6	23.7	23.7	0.240	0.240	
			Right Touch	4183	836.6	23.7	23.7	0.425	0.425	
			Rightt Tilt	4183	836.6	23.7	23.7	0.267	0.267	
Body & Hotspot	Rel 99 RMC 12.2 kbps	10	Rear	4183	836.6	23.7	23.7	0.407	0.407	7
			Front	4183	836.6	23.7	23.7	0.627	0.627	
			Edge 3	4183	836.6	23.7	23.7	0.410	0.410	
			Edge 4	4183	836.6	23.7	23.7	0.129	0.129	

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	Rel 99 RMC 12.2 kbps	0	Right Touch	4183	836.6	23.7	23.7	0.395	0.395	
Body & Hotspot	Rel 99 RMC 12.2 kbps	10	Front	4183	836.6	23.7	23.7	0.398	0.398	

10.4. W-CDMA Band II

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	
						Tune-up limit	Meas.	Meas.	Scaled		
Head	Rel 99 RMC 12.2 kbps	0	Left Touch	9262	1852.4	23.7	23.4	0.896	0.960		
				9400	1880.0	23.7	23.5	0.861	0.902		
				9538	1907.6	23.7	23.5	0.843	0.883		
			Left Tilt	9400	1880.0	23.7	23.5	0.331	0.347		
				Right Touch	9400	1880.0	23.7	23.5	0.403		0.422
				Rightt Tilt	9400	1880.0	23.7	23.5	0.342		0.358
Body & Hotspot	Rel 99 RMC 12.2 kbps	10	Rear	9400	1880.0	23.7	23.5	0.540	0.565		
			Front	9400	1880.0	23.7	23.5	0.557	0.583		
			Edge 3	9400	1880.0	23.7	23.5	0.350	0.366		
			Edge 4	9400	1880.0	23.7	23.5	0.633	0.663		

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	Rel 99 RMC 12.2 kbps	0	Left Touch	9262	1852.4	23.7	23.4	0.912	0.977	9
Body & Hotspot	Rel 99 RMC 12.2 kbps	10	Front	9400	1880.0	23.7	23.5	0.402	0.421	
			Edge 4	9400	1880.0	23.7	23.5	0.580	0.607	

10.5. CDMA BC0

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	1xRTT (RC3 SO55)	0	Left Touch	384	836.5	25.2	25.2	0.404	0.404	
			Left Tilt	384	836.5	25.2	25.2	0.299	0.299	
			Right Touch	384	836.5	25.2	25.2	0.571	0.571	
			Right Tilt	384	836.5	25.2	25.2	0.368	0.368	
	1xEVDO (Rel. 0)	0	Left Touch	384	836.5	25.2	24.9	0.429	0.460	
			Left Tilt	384	836.5	25.2	24.9	0.322	0.345	
			Right Touch	384	836.5	25.2	24.9	0.617	0.661	10
			Right Tilt	384	836.5	25.2	24.9	0.369	0.395	
Body & Hotspot	1xRTT (RC3 SO32)	10	Rear	384	836.5	25.2	25.2	0.609	0.609	
			Front	1013	824.7	25.2	25.2	0.780	0.780	
				384	836.5	25.2	25.2	0.825	0.825	
				777	848.3	25.2	25.2	0.928	0.928	11
Hotspot	1xRTT (RC3 SO32)	10	Edge 2	384	836.5	25.2	25.2	0.570	0.570	
			Edge 3	384	836.5	25.2	25.2	0.508	0.508	
			Edge 4	384	836.5	25.2	25.2	0.300	0.300	

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	1xEVDO (Rel. 0)	0	Right Touch	384	836.5	25.2	24.9	0.570	0.611	
Body & Hotspot	1xRTT (RC3 SO32)	10	Front	777	848.3	25.2	25.2	0.845	0.845	

10.6. CDMA BC1

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	1xRTT (RC3 SO55)	0	Left Touch	25	1851.25	24.9	24.9	1.040	1.040	
				600	1880.00	24.9	24.9	1.130	1.130	
				1175	1908.75	24.9	24.9	1.080	1.080	
			Left Tilt	600	1880.00	24.9	24.9	0.523	0.523	
			Right Touch	600	1880.00	24.9	24.9	0.701	0.701	
	Right Tilt	600	1880.00	24.9	24.9	0.492	0.492			
	1xEVDO (Rel. 0)	0	Left Touch	25	1851.25	24.9	24.6	1.080	1.157	
				600	1880.00	24.9	24.7	1.130	1.183	
				1175	1908.75	24.9	24.7	1.140	1.194	12
			Left Tilt	600	1880.00	24.9	24.7	0.421	0.441	
Right Touch			600	1880.00	24.9	24.7	0.719	0.753		
Right Tilt	600	1880.00	24.9	24.7	0.511	0.535				
Body & Hotspot	1xRTT (RC3 SO32)	10	Rear	600	1880.00	24.9	24.9	0.502	0.502	
			Front	600	1880.00	24.9	24.9	0.464	0.464	
Hotspot	1xRTT (RC3 SO32)	10	Edge 3	600	1880.00	24.9	24.9	0.611	0.611	
			Edge 4	600	1880.00	24.9	24.9	0.723	0.723	13

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	1xEVDO (Rel. 0)	0	Left Touch	1175	1908.8	24.9	24.7	1.070	1.120	
Body & Hotspot	1xRTT (RC3 SO32)	10	Rear	600	1880.00	24.9	24.9	0.622	0.622	14
Hotspot	1xRTT (RC3 SO32)	10	Edge 4	600	1880.00	24.9	24.9	0.699	0.699	

10.7. CDMA BC10

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	1xRTT (RC3 SO55)	0	Left Touch	580	820.50	25.2	25.2	0.395	0.395	
			Left Tilt	580	820.50	25.2	25.2	0.307	0.307	
			Right Touch	580	820.50	25.2	25.2	0.544	0.544	
			Right Tilt	580	820.50	25.2	25.2	0.336	0.336	
Head	1xEVDO (Rel. 0)	0	Left Touch	580	820.50	25.2	24.9	0.397	0.425	
			Left Tilt	580	820.50	25.2	24.9	0.312	0.334	
			Right Touch	580	820.50	25.2	24.9	0.563	0.603	15
			Right Tilt	580	820.50	25.2	24.9	0.333	0.357	
Body & Hotspot	1xRTT (RC3 SO32)	10	Rear	580	820.50	25.2	25.2	0.758	0.758	
			Front	580	820.50	25.2	25.2	0.762	0.762	16
Hotspot	1xRTT (RC3 SO32)	10	Edge 2	580	820.50	25.2	25.2	0.546	0.546	17
			Edge 3	580	820.50	25.2	25.2	0.455	0.455	
			Edge 4	580	820.50	25.2	25.2	0.311	0.311	

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	1xEVDO (Rel. 0)	0	Right Touch	580	820.5	25.2	24.9	0.505	0.541	
Body & Hotspot	1xRTT (RC3 SO32)	10	Front	580	820.5	25.2	25.2	0.551	0.551	

10.8. LTE Band 2 (20MHz Bandwidth)

Covered by LTE Band 25 (refer to section 10.12.), due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

10.9. LTE Band 4 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	20050	1720.0	1	0	23.7	23.6	0.831	0.860	18
				20175	1732.5	1	0	23.7	23.6	0.950	0.977	
				20175	1732.5	50	0	22.7	22.4	0.650	0.693	
				20300	1745.0	1	0	23.7	23.5	0.852	0.884	
			Left Tilt	20175	1732.5	1	0	23.7	23.6	0.286	0.294	
				20175	1732.5	50	0	22.7	22.4	0.214	0.228	
			Right Touch	20175	1732.5	1	0	23.7	23.6	0.378	0.389	
				20175	1732.5	50	0	22.7	22.4	0.332	0.354	
			Right Tilt	20175	1732.5	1	0	23.7	23.6	0.356	0.366	
				20175	1732.5	50	0	22.7	22.4	0.269	0.287	
Body & Hotspot	QPSK	10	Rear	20175	1732.5	1	0	23.7	23.6	0.601	0.618	
				20175	1732.5	50	0	22.7	22.4	0.454	0.484	
			Front	20175	1732.5	1	0	23.7	23.6	0.690	0.709	
				20175	1732.5	50	0	22.7	22.4	0.518	0.552	
Hotspot	QPSK	10	Edge 3	20175	1732.5	1	0	23.7	23.6	0.523	0.538	
				20175	1732.5	50	0	22.7	22.4	0.387	0.413	
			Edge 4	20175	1732.5	1	0	23.7	23.6	0.587	0.603	
				20175	1732.5	50	0	22.7	22.4	0.447	0.477	

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	20175	1732.5	1	0	23.7	23.6	0.825	0.848	
Body & Hotspot	QPSK	10	Front	20175	1732.5	1	0	23.7	23.6	0.770	0.792	19

10.10. LTE Band 5 (10MHz Bandwidth)

Covered by LTE Band 26 (refer to section 10.13.), due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

10.11. LTE Band 12 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	23095	707.5	1	0	23.7	23.5	0.137	0.145	
						25	0	22.7	22.4	0.096	0.104	
			Left Tilt	23095	707.5	1	0	23.7	23.5	0.102	0.108	
						25	0	22.7	22.4	0.071	0.076	
			Right Touch	23095	707.5	1	0	23.7	23.5	0.174	0.184	20
						25	0	22.7	22.4	0.124	0.134	
			Right Tilt	23095	707.5	1	0	23.7	23.5	0.087	0.092	
						25	0	22.7	22.4	0.062	0.066	
Body & Hotspot	QPSK	10	Rear	23095	707.5	1	0	23.7	23.5	0.250	0.265	
						25	0	22.7	22.4	0.178	0.192	
			Front	23095	707.5	1	0	23.7	23.5	0.279	0.296	21
						25	0	22.7	22.4	0.199	0.215	
Hotspot	QPSK	10	Edge 2	23095	707.5	1	0	23.7	23.5	0.328	0.347	
						25	0	22.7	22.4	0.239	0.258	
			Edge 3	23095	707.5	1	0	23.7	23.5	0.114	0.121	
						25	0	22.7	22.4	0.081	0.087	
			Edge 4	23095	707.5	1	0	23.7	23.5	0.140	0.148	
						25	0	22.7	22.4	0.102	0.110	

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Right Touch	23095	707.5	1	0	23.7	23.5	0.163	0.173	
Body & Hotspot	QPSK	10	Front	23095	707.5	1	0	23.7	23.5	0.250	0.265	
Hotspot	QPSK	10	Edge 2	23095	707.5	1	0	23.7	23.5	0.351	0.372	22

10.12. LTE Band 25 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	26140	1860.0	1	0	23.7	23.5	0.977	1.023	
						50	0	22.7	22.3	0.760	0.833	
				26365	1882.5	1	0	23.7	23.6	0.985	1.008	
						50	0	22.7	22.5	0.805	0.843	
						100	0	22.7	22.6	0.792	0.810	
				26590	1905.0	1	0	23.7	23.5	0.915	0.958	
			50			0	22.7	22.4	0.745	0.798		
			Left Tilt	26365	1882.5	1	0	23.7	23.6	0.433	0.443	
						50	0	22.7	22.5	0.350	0.366	
			Right Touch	26365	1882.5	1	0	23.7	23.6	0.496	0.508	
						50	0	22.7	22.5	0.402	0.421	
			Right Tilt	26365	1882.5	1	0	23.7	23.6	0.418	0.428	
50	0	22.7				22.5	0.332	0.348				
Body & Hotspot	QPSK	10	Rear	26365	1882.5	1	0	23.7	23.6	0.644	0.659	
				26365	1882.5	50	0	22.7	22.5	0.533	0.558	
			Front	26365	1882.5	1	0	23.7	23.6	0.755	0.773	23
				26365	1882.5	50	0	22.7	22.5	0.624	0.653	
Hotspot	QPSK	10	Edge 3	26365	1882.5	1	0	23.7	23.6	0.437	0.447	
				26365	1882.5	50	0	22.7	22.5	0.354	0.371	
			Edge 4	26140	1860.0	1	0	23.7	23.5	0.645	0.675	
				26365	1882.5	1	0	23.7	23.6	0.814	0.833	
				26365	1882.5	50	0	22.7	22.5	0.675	0.707	
				26590	1905.0	1	0	23.7	23.5	0.808	0.846	24

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	26140	1860.0	1	0	23.7	23.5	1.110	1.162	25
Body & Hotspot	QPSK	10	Front	26365	1882.5	1	0	23.7	23.6	0.452	0.463	
Hotspot	QPSK	10	Edge 4	26590	1905.0	1	0	23.7	23.5	0.777	0.814	

10.13. LTE Band 26 (15MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	26865	831.5	1	0	23.7	23.5	0.308	0.323	
						36	0	22.7	22.5	0.239	0.249	
			Left Tilt	26865	831.5	1	0	23.7	23.5	0.233	0.244	
						36	0	22.7	22.5	0.183	0.191	
			Right Touch	26865	831.5	1	0	23.7	23.5	0.407	0.426	26
						36	0	22.7	22.5	0.322	0.336	
Right Tilt	26865	831.5	1	0	23.7	23.5	0.256	0.268				
			36	0	22.7	22.5	0.207	0.216				
Body & Hotspot	QPSK	10	Rear	26865	831.5	1	0	23.7	23.5	0.449	0.470	
						36	0	22.7	22.5	0.344	0.359	
			Front	26865	831.5	1	0	23.7	23.5	0.514	0.538	27
						36	0	22.7	22.5	0.419	0.437	
Hotspot	QPSK	10	Edge 2	26865	831.5	1	0	23.7	23.5	0.363	0.380	
						36	0	22.7	22.5	0.281	0.293	
			Edge 3	26865	831.5	1	0	23.7	23.5	0.355	0.372	28
						36	0	22.7	22.5	0.332	0.346	
			Edge 4	26865	831.5	1	0	23.7	23.5	0.185	0.194	
						36	0	22.7	22.5	0.140	0.146	

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Right Touch	26865	831.5	1	0	23.7	23.5	0.378	0.396	
Body	QPSK	0	Front	26865	831.5	1	0	23.7	23.5	0.440	0.461	

10.14. LTE Band 41 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.	
								Tune-up limit	Meas.	Meas.	Scaled		
Head	QPSK	0	Left Touch	40620	2593.0	1	0	23.7	23.5	0.016	0.017		
					2593.0	50	0	22.7	22.3	0.010	0.011		
			Left Tilt	40620	2593.0	1	0	23.7	23.5	0.017	0.018		
					2593.0	50	0	22.7	22.3	0.005	0.006		
			Right Touch	40620	2593.0	1	0	23.7	23.5	0.033	0.035	29	
					2593.0	50	0	22.7	22.3	0.024	0.027		
Right Tilt	40620	2593.0	1	0	23.7	23.5	0.020	0.021					
		2593.0	50	0	22.7	22.3	0.005	0.006					
Body & Hotspot	QPSK	10	Rear	40620	39750	2506.0	1	0	23.7	23.3	0.606	0.664	
					40185	2549.5	1	0	23.7	23.3	0.725	0.793	
					2593.0	1	0	23.7	23.5	0.784	0.821		
					2593.0	50	0	22.7	22.3	0.589	0.653		
			Front	40620	41055	2636.5	1	0	23.7	23.3	0.784	0.860	30
					41490	2680.0	1	0	23.7	23.3	0.743	0.818	
Hotspot	QPSK	10	Edge 2	40620	2593.0	1	0	23.7	23.5	0.047	0.049		
					2593.0	50	0	22.7	22.3	0.037	0.041		
			Edge 3	40620	2593.0	1	0	23.7	23.5	0.665	0.696	31	
					2593.0	50	0	22.7	22.3	0.499	0.553		
			Edge 4	40620	2593.0	1	0	23.7	23.5	0.042	0.044		
					2593.0	50	0	22.7	22.3	0.031	0.034		

Additional Tests with Smart Cover

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Body & Hotspot	QPSK	0	Right Touch	40620	2593.0	1	0	23.7	23.4	0.030	0.032	
Body & Hotspot	QPSK	10	Rear	41055	2636.5	1	0	23.7	23.3	0.630	0.691	

10.15. Wi-Fi (DTS Band)

Frequency Band	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Notes
								Tune-up limit	Meas.	Meas.	Scaled		
2.4GHz	802.11b 1 Mbps	Head	0	Left Touch	6	2437	0.351	16.0	16.0	0.286	0.286		4
				Left Tilt	6	2437	0.442	16.0	16.0	0.358	0.358	32	1
				Right Touch	6	2437	0.243	16.0	16.0				
				Rightt Tilt	6	2437	0.327	16.0	16.0				
	802.11b 1 Mbps	Body & Hotspot	10	Rear	6	2437	0.161	16.0	16.0	0.157	0.157		1
				Front	6	2437	0.092	16.0	16.0				
	802.11b 1 Mbps	Hotspot	10	Edge 1	6	2437	0.123	16.0	16.0				
				Edge 2	6	2437	0.039	16.0	16.0				

Additional Tests with Smart Cover

Frequency Band	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
2.4GHz	802.11b 1 Mbps	Head	0	Left Tilt	6	2437	0.442	16.0	16.0	0.334	0.334	
	802.11b 1 Mbps	Body & Hotspot	10	Rear	6	2437	0.161	16.0	16.0	0.190	0.190	33

Note(s):

- Highest reported SAR is ≤ 0.4 W/kg. Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is > 0.4 W/kg. Due to the highest reported SAR for this test position, other test positions in Head exposure condition were evaluated until a SAR ≤ 0.8 W/kg was reported.
- Testing for a second channel was required because the reported SAR for this test position was >0.8 W/kg.
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

10.16. Wi-Fi (U-NII Band)

Frequency Band	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Notes
								Tune-up limit	Meas.	Meas.	Scaled		
5.3 GHz U-NII 2A	802.11a 6 Mbps	Head	0	Left Touch	64	5320	0.825	14.0	14.0	0.473	0.473		2
				Left Tilt	64	5320	0.759	14.0	14.0	0.535	0.535	34	
				Right Touch	64	5320	0.670						
				Right Tilt	64	5320	0.756						
		Body-worn	10	Rear	64	5320	0.364	14.0	14.0	0.179	0.179		1
				Front	64	5320	0.239						

Additional Tests with Smart Cover

Frequency Band	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	
5.3 GHz U-NII 2A	802.11a 6 Mbps	Head	0	Left Tilt	64	5320	14.0	14.0	0.476	0.476	
		Body-worn	10	Rear	64	5320	14.0	14.0	0.453	0.453	35

Frequency Band	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Notes
								Tune-up limit	Meas.	Meas.	Scaled		
5.5 GHz U-NII 2C	802.11a 6 Mbps	Head	0	Left Touch	116	5580	0.742	14.0	14.0	0.519	0.519		2
				Left Tilt	116	5580	0.791	14.0	14.0	0.521	0.521	36	
				Right Touch	116	5580	0.666						
				Right Tilt	116	5580	0.720						
		Body-worn	10	Rear	116	5580	0.393	14.0	13.4	0.219	0.251	37	1
				Front	116	5580	0.242						

Additional Tests with Smart Cover

Frequency Band	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	
5.5 GHz U-NII 2C	802.11a 6 Mbps	Head	0	Left Tilt	116	5580	14.0	14.0	0.304	0.304	
		Body-worn	10	Rear	116	5580	14.0	14.0	0.210	0.210	

Frequency Band	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Power (dBm)		1-g SAR (W/kg)		Plot No.	Notes
								Tune-up limit	Meas.	Meas.	Scaled		
5.8 GHz U-NII 3	802.11a 6 Mbps	Head	0	Left Touch	165	5825	0.641						
				Left Tilt	165	5825	0.670	14.0	14.0	0.373	0.373	38	1
				Right Touch	165	5825	0.557						
				Right Tilt	165	5825	0.615						
		Body-worn & Hotspot	10	Rear	165	5825	0.337						
				Front	165	5825	0.153						
		Hotspot	10	Edge 1	157	5785	0.429	14.0	14.0	0.192	0.192		1
				Edge 2	157	5785	0.031						

Additional Tests with Smart Cover

Frequency Band	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	
5.8 GHz U-NII 2A	802.11a 6 Mbps	Head	0	Left Tilt	165	5825	14.0	14.0	0.321	0.321	
		Hotspot	10	Edge 1	157	5785	14.0	14.0	0.291	0.291	39

Note(s):

- Highest reported SAR is ≤ 0.4 W/kg. Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is > 0.4 W/kg. Due to the highest reported SAR for this test position, other test positions in Head exposure condition were evaluated until a SAR ≤ 0.8 W/kg was reported.
- Testing for a second channel was required because the reported SAR for this test position was >0.8 W/kg.
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

10.17. Bluetooth

Standalone SAR Test Exclusion Considerations & Estimated SAR

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$, for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

When the standalone SAR test exclusion is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

- $(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}/x}] \text{ W/kg}$ for test separation distances ≤ 50 mm;
where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.
- 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.

Body-worn Accessory Exposure Conditions

Max. tune-up tolerance limit		Min. test separation distance (mm)	Frequency (GHz)	SAR test exclusion Result*	Test Configuration	Estimated 1-g SAR (W/kg)
(dBm)	(mW)					
11.0	13	10	2.480	2.0	Rear/Front	0.264

Conclusion:

*: The computed value is < 3 ; therefore, Bluetooth qualifies for Standalone SAR test exclusion.

11. SAR Measurement Variability

In accordance with published RF Exposure KDB 865664 D01 SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the **ratio of largest to smallest SAR** for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
700	LTE Band 12	Body-Hotspot	Edge 2	No	0.351	N/A	N/A
850	GSM 850	Body-worn (VoIP)	Front	No	0.591	N/A	N/A
	WCDMA Band V	Body & Hotspot	Front	No	0.627	N/A	N/A
	CDMA BC0	Body & Hotspot	Front	Yes	0.928	0.911	1.02
	CDMA BC10	Body & Hotspot	Front	No	0.762	N/A	N/A
	LTE Band 5/26	Body & Hotspot	Front	No	0.514	N/A	N/A
1700	LTE Band 4	Head	Left Touch	Yes	0.950	0.922	1.03
1900	GSM 1900	Head (VoIP)	Left Touch	No	0.820	N/A	N/A
	WCDMA Band II	Head	Left Touch	No	0.896	N/A	N/A
	CDMA BC1	Head	Left Touch	Yes	1.140	1.120	1.02
	LTE Band 2/25	Head	Left Touch	No	0.985	N/A	N/A
2400	Wi-Fi 802.11b/g/n/ac	Head	Left Tilt	No	0.358	N/A	N/A
2600	LTE Band 41	Body	Rear	No	0.784	N/A	N/A
5300	Wi-Fi 802.11a/n/ac	Head	Left Tilt	No	0.535	N/A	N/A
5500	Wi-Fi 802.11a/n/ac	Head	Left Tilt	No	0.521	N/A	N/A
5800	Wi-Fi 802.11a/n/ac	Head	Left Tilt	No	0.373	N/A	N/A

Note(s):

Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20 .

12. Simultaneous Transmission SAR Analysis

KDB 447498 D01 General RF Exposure Guidance introduces a new formula for calculating the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$$\mathbf{SPLSR} = (\mathbf{SAR}_1 + \mathbf{SAR}_2)^{1.5} / \mathbf{Ri}$$

Where:

SAR₁ is the highest measured or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR₂ is the highest measured or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

Ri is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$

In order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$$(\mathbf{SAR}_1 + \mathbf{SAR}_2)^{1.5} / \mathbf{Ri} < 0.04$$

Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations				
Head	1	GSM (Voice)	+	DTS		
	2	GSM (Voice)	+	U-NII		
	3	GSM (GPRS/EDGE)	+	DTS		
	4	GSM (GPRS/EDGE)	+	U-NII		
	5	W-CDMA	+	DTS		
	6	W-CDMA	+	U-NII		
	7	CDMA	+	DTS		
	8	CDMA	+	U-NII		
	9	LTE	+	DTS		
	10	LTE	+	U-NII		
Body-w orn	11	GSM(Voice)	+	DTS		
	12	GSM(Voice)	+	U-NII		
	13	GSM(Voice)	+	BT		
	14	GSM(Voice)	+	U-NII	+	BT
	15	GSM(GPRS/EDGE)	+	DTS		
	16	GSM(GPRS/EDGE)	+	U-NII		
	17	GSM(GPRS/EDGE)	+	BT		
	18	GSM(GPRS/EDGE)	+	U-NII	+	BT
	19	W-CDMA	+	DTS		
	20	W-CDMA	+	U-NII		
	21	W-CDMA	+	BT		
	22	W-CDMA	+	U-NII	+	BT
	23	CDMA	+	DTS		
	24	CDMA	+	U-NII		
	25	CDMA	+	BT		
	26	CDMA	+	U-NII	+	BT
	27	LTE	+	DTS		
	28	LTE	+	U-NII		
	29	LTE	+	BT		
	30	LTE	+	U-NII	+	BT
Hotspot & Wi-Fi Direct	31	GSM(GPRS/EDGE)	+	DTS		
	32	GSM(GPRS/EDGE)	+	U-NII		
	33	W-CDMA	+	DTS		
	34	W-CDMA	+	U-NII		
	35	CDMA	+	DTS		
	36	CDMA	+	U-NII		
	37	LTE	+	DTS		
	38	LTE	+	U-NII		

Notes:

1. Only DTS supports Hotspot.
2. GPRS/EDGE, W-CDMA, CDMA and LTE support Hotspot.
3. VoIP is supported in GPRS/EDGE, W-CDMA, CDMA and LTE.
4. DTS Radio cannot transmit simultaneously w ith Bluetooth Radio.
5. U-NII Radio can transmit simultaneously w ith Bluetooth Radio.

12.1. Sum of the SAR for GSM850 & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN+DTS		①+③ WWAN+U-NII		①+④ WWAN+BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	0.445	0.286	0.519		0.731	No	0.964	No		
	Left Tilt	0.302	0.358	0.535		0.660	No	0.837	No		
	Right Touch	0.607	0.358	0.535		0.965	No	1.142	No		
	Right Tilt	0.324	0.358	0.535		0.682	No	0.859	No		
Body-worn & Hotspot	Rear	0.626	0.190	0.453	0.264	0.816	No	1079	No	0.890	No
	Front	0.679	0.190	0.453	0.264	0.869	No	1132	No	0.943	No
Hotspot	Edge 1	0.679	0.190	0.453		0.869	No	1132	No		
	Edge 2	0.538	0.190	0.453		0.728	No	0.991	No		
	Edge 3	0.404				0.404	No	0.404	No		
	Edge 4	0.279				0.279	No	0.279	No		

12.2. Sum of the SAR for GSM1900 & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN+DTS		①+③ WWAN+U-NII		①+④ WWAN+BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	0.820	0.286	0.519		1.106	No	1339	No		
	Left Tilt	0.320	0.358	0.535		0.678	No	0.855	No		
	Right Touch	0.406	0.358	0.535		0.764	No	0.941	No		
	Right Tilt	0.263	0.358	0.535		0.621	No	0.798	No		
Body-worn & Hotspot	Rear	0.431	0.190	0.453	0.264	0.621	No	0.884	No	0.695	No
	Front	0.320	0.190	0.453	0.264	0.510	No	0.773	No	0.584	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2		0.190	0.453							
	Edge 3	0.365				0.365	No	0.365	No		
	Edge 4	0.489				0.489	No	0.489	No		

12.3. Sum of the SAR for WCDMA Band V & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN +DTS		①+③ WWAN + U-NII		①+④ WWAN +BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	0.312	0.286	0.519		0.598	No	0.831	No		
	Left Tilt	0.240	0.358	0.535		0.598	No	0.775	No		
	Right Touch	0.425	0.358	0.535		0.783	No	0.960	No		
	Right Tilt	0.267	0.358	0.535		0.625	No	0.802	No		
Body-worn & Hotspot	Rear	0.407	0.190	0.453	0.264	0.597	No	0.860	No	0.671	No
	Front	0.627	0.190	0.453	0.264	0.817	No	1080	No	0.891	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2		0.190	0.453							
	Edge 3	0.410				0.410	No	0.410	No		
	Edge 4	0.129				0.129	No	0.129	No		

12.4. Sum of the SAR for WCDMA Band II & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN +DTS		①+③ WWAN + U-NII		①+④ WWAN +BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	0.977	0.286	0.519		1263	No	1496	No		
	Left Tilt	0.347	0.358	0.535		0.705	No	0.882	No		
	Right Touch	0.422	0.358	0.535		0.780	No	0.957	No		
	Right Tilt	0.358	0.358	0.535		0.716	No	0.893	No		
Body-worn & Hotspot	Rear	0.565	0.190	0.453	0.264	0.755	No	1018	No	0.829	No
	Front	0.583	0.190	0.453	0.264	0.773	No	1036	No	0.847	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2		0.190	0.453							
	Edge 3	0.366				0.366	No	0.366	No		
	Edge 4	0.663				0.663	No	0.663	No		

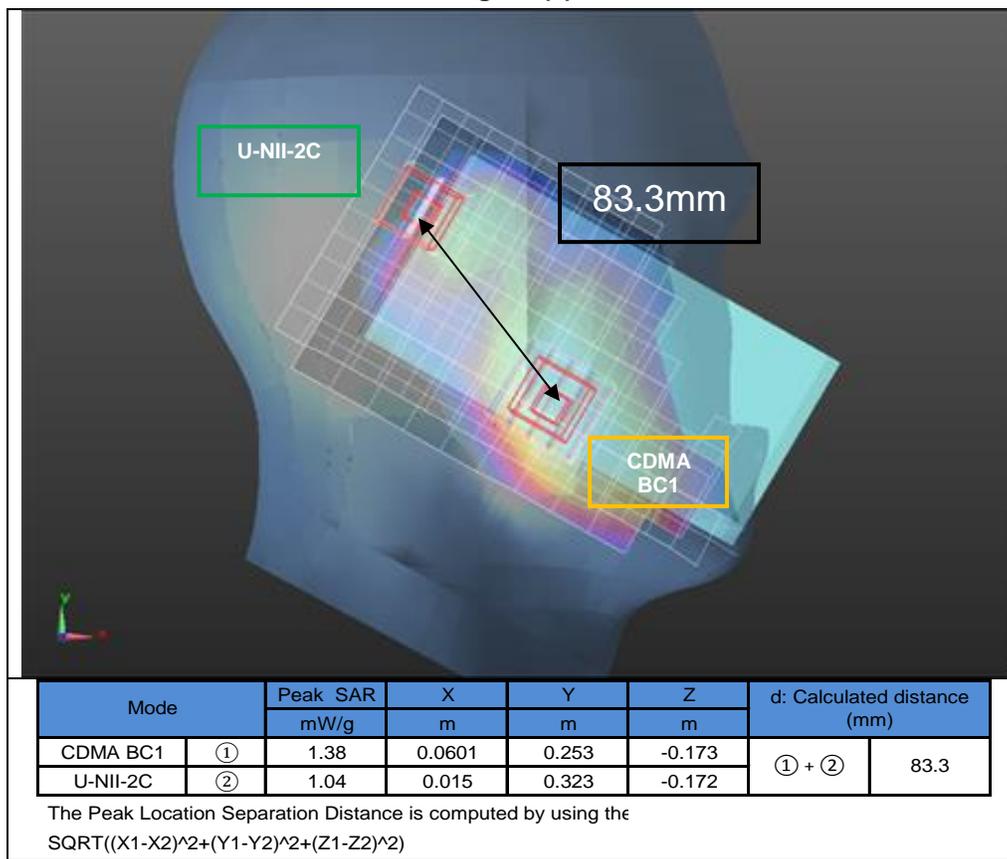
12.5. Sum of the SAR for CDMA BC0 & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN +DTS		①+③ WWAN + U-NII		①+④ WWAN +BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	0.460	0.286	0.519		0.746	No	0.979	No		
	Left Tilt	0.345	0.358	0.535		0.703	No	0.880	No		
	Right Touch	0.661	0.358	0.535		1019	No	1196	No		
	Right Tilt	0.395	0.358	0.535		0.753	No	0.930	No		
Body-worn & Hotspot	Rear	0.609	0.190	0.453	0.264	0.799	No	1062	No	0.873	No
	Front	0.928	0.190	0.453	0.264	1118	No	1381	No	1192	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2	0.570	0.190	0.453		0.760	No	1023	No		
	Edge 3	0.508				0.508	No	0.508	No		
	Edge 4	0.300				0.300	No	0.300	No		

12.6. Sum of the SAR for CDMA BC1 & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN+DTS		①+③ WWAN+U-NII		①+④ WWAN+BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	1.194	0.286	0.519		1480	No	1.713	Yes		
	Left Tilt	0.523	0.358	0.535		0.881	No	1058	No		
	Right Touch	0.753	0.358	0.535		1.111	No	1288	No		
	Right Tilt	0.701	0.358	0.535		1059	No	1236	No		
Body-worn & Hotspot	Rear	0.622	0.190	0.453	0.264	0.812	No	1075	No	0.886	No
	Front	0.464	0.190	0.453	0.264	0.654	No	0.917	No	0.728	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2		0.190	0.453							
	Edge 3	0.611				0.611	No	0.611	No		
	Edge 4	0.723				0.723	No	0.723	No		

Figure (1)



SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Worst-case combination		∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure	
	① WWAN	③ UNII						
Rear	1.194	0.519	① + ②	1.713	83.3	0.027	No	1

12.7. Sum of the SAR for CDMA BC10 & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN+DTS		①+③ WWAN+U-NII		①+④ WWAN+BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	0.425	0.286	0.519		0.711	No	0.944	No		
	Left Tilt	0.334	0.358	0.535		0.692	No	0.869	No		
	Right Touch	0.603	0.358	0.535		0.961	No	1.138	No		
	Right Tilt	0.357	0.358	0.535		0.715	No	0.892	No		
Body-worn & Hotspot	Rear	0.758	0.190	0.453	0.264	0.948	No	1211	No	1022	No
	Front	0.551	0.190	0.453	0.264	0.741	No	1004	No	0.815	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2	0.546	0.190	0.453		0.736	No	0.999	No		
	Edge 3	0.455				0.455	No	0.455	No		
	Edge 4	0.311				0.311	No	0.311	No		

12.8. Sum of the SAR for LTE Band 2 & Wi-Fi & BT

Covered by LTE Band 25 (refer to Section 12.13.) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

12.9. Sum of the SAR for LTE Band 4 & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN+DTS		①+③ WWAN+U-NII		①+④ WWAN+BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	0.977	0.286	0.519		1263	No	1496	No		
	Left Tilt	0.294	0.358	0.535		0.652	No	0.829	No		
	Right Touch	0.389	0.358	0.535		0.747	No	0.924	No		
	Right Tilt	0.366	0.358	0.535		0.724	No	0.901	No		
Body-worn & Hotspot	Rear	0.618	0.190	0.453	0.264	0.808	No	1071	No	0.882	No
	Front	0.792	0.190	0.453	0.264	0.982	No	1245	No	1056	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2		0.190	0.453							
	Edge 3	0.538				0.538	No	0.538	No		
	Edge 4	0.603				0.603	No	0.603	No		

12.10. Sum of the SAR for LTE Band 5 & Wi-Fi & BT

Covered by LTE Band 26 (refer to Section 12.14.) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

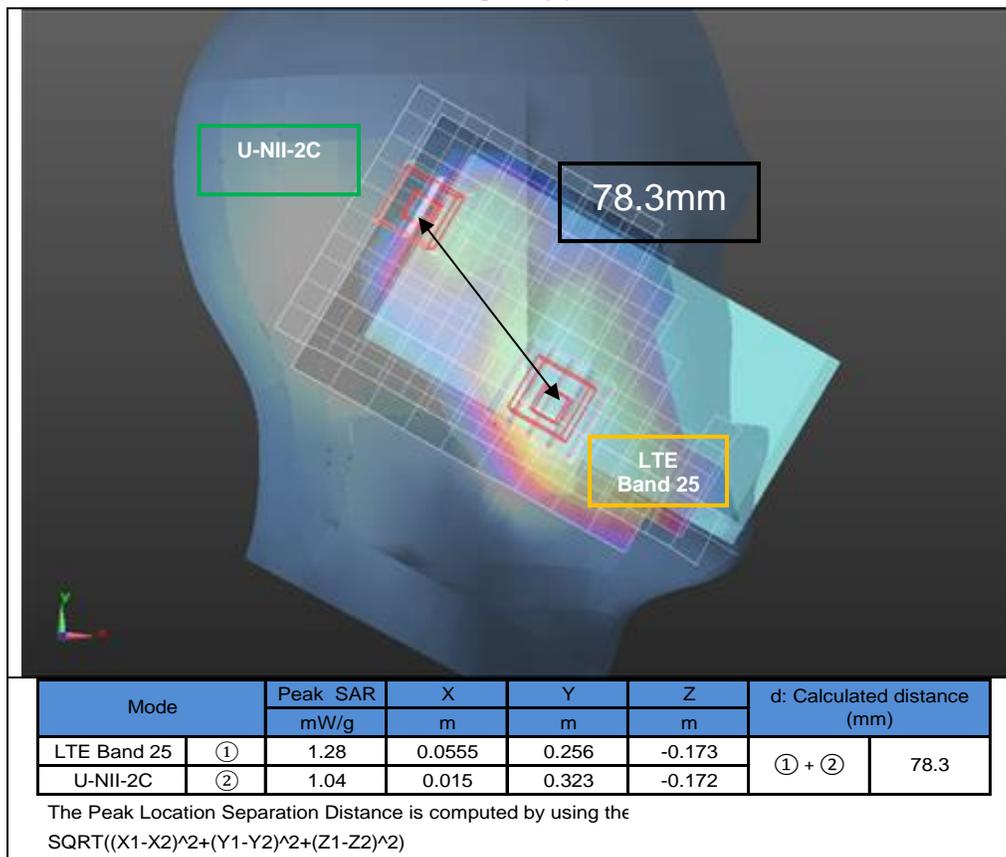
12.11. Sum of the SAR for LTE Band 12 & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN+DTS		①+③ WWAN+U-NII		①+④ WWAN+BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	0.145	0.286	0.519		0.431	No	0.664	No		
	Left Tilt	0.108	0.358	0.535		0.466	No	0.643	No		
	Right Touch	0.184	0.358	0.535		0.542	No	0.719	No		
	Right Tilt	0.092	0.358	0.535		0.450	No	0.627	No		
Body-worn & Hotspot	Rear	0.265	0.190	0.453	0.264	0.455	No	0.718	No	0.529	No
	Front	0.296	0.190	0.453	0.264	0.486	No	0.749	No	0.560	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2	0.372	0.190	0.453		0.562	No	0.825	No		
	Edge 3	0.121				0.121	No	0.121	No		
	Edge 4	0.148				0.148	No	0.148	No		

12.12. Sum of the SAR for LTE Band 25 & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN+DTS		①+③ WWAN+U-NII		①+④ WWAN+BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	1.162	0.286	0.519		1.448	No	1.681	Yes		
	Left Tilt	0.443	0.358	0.535		0.801	No	0.978	No		
	Right Touch	0.508	0.358	0.535		0.866	No	1.043	No		
	Right Tilt	0.428	0.358	0.535		0.786	No	0.963	No		
Body-worn & Hotspot	Rear	0.659	0.190	0.453	0.264	0.849	No	1.112	No	0.923	No
	Front	0.773	0.190	0.453	0.264	0.963	No	1.226	No	1.037	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2		0.190	0.453							
	Edge 3	0.447				0.447	No	0.447	No		
	Edge 4	0.846				0.846	No	0.846	No		

Figure (2)



SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Worst-case combination		∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	① WWAN	③ UNII					
Rear	1.162	0.519	① + ② 1.681	78.3	0.028	No	1

12.13. Sum of the SAR for LTE Band 26 & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN+DTS		①+③ WWAN+U-NII		①+④ WWAN+BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	0.323	0.286	0.519		0.609	No	0.842	No		
	Left Tilt	0.244	0.358	0.535		0.602	No	0.779	No		
	Right Touch	0.426	0.358	0.535		0.784	No	0.961	No		
	Right Tilt	0.268	0.358	0.535		0.626	No	0.803	No		
Body-worn & Hotspot	Rear	0.470	0.190	0.453	0.264	0.660	No	0.923	No	0.734	No
	Front	0.538	0.190	0.453	0.264	0.728	No	0.991	No	0.802	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2		0.190	0.453							
	Edge 3	0.372				0.372	No	0.372	No		
	Edge 4	0.194				0.194	No	0.194	No		

12.14. Sum of the SAR for LTE Band 41 & Wi-Fi & BT

RF Exposure conditions	Test Position	① WWAN	② DTS	③ U-NII	④ BT	①+② WWAN+DTS		①+③ WWAN+U-NII		①+④ WWAN+BT	
						∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Head	Left Touch	0.017	0.286	0.519		0.303	No	0.536	No		
	Left Tilt	0.018	0.358	0.535		0.376	No	0.553	No		
	Right Touch	0.035	0.358	0.535		0.393	No	0.570	No		
	Right Tilt	0.021	0.358	0.535		0.379	No	0.556	No		
Body-worn & Hotspot	Rear	0.860	0.190	0.453	0.264	1050	No	1313	No	1.124	No
	Front	0.089	0.190	0.453	0.264	0.279	No	0.542	No	0.353	No
Hotspot	Edge 1		0.190	0.453							
	Edge 2	0.049	0.190	0.453		0.239	No	0.502	No		
	Edge 3	0.696				0.696	No	0.696	No		
	Edge 4	0.044				0.044	No	0.044	No		

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because either the sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

Appendixes

Refer to separated files for the following appendixes.

A_15I20286v0 SAR Photos & Ant. Locations

B_15I20286v0 SAR System Check Plots

C_15I20286v0 SAR Highest SAR Test Plots

D_15I20286v0 SAR Tissue Ingredients

E_15I20286v0 SAR Probe Cal. Certificates

F_15I20286v1 SAR Dipole Cal. Certificates

END OF REPORT