SAR EVALUATION REPORT

FCC 47 CFR § 2.1093
IEEE Std 1528-2013

For
Portable Computing Device

FCC ID: C3K1807
Model Name: 1807

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Revision History

Rev.	Date	Revisions	Revised By
V1	9/26/2017	Initial Issue	--
V2	10/2/2017	Section 1: Changed Equipment Class to PCB Section 4.3: Added Spectrum Analyzer Section 6.2: Updated Table Section 6.3: Updated Maximum Output Powers Section 9.5: Table updated Section 10.2: Updated Tune-up limit Appendix A: Updated Antenna Distance illustration	Coltyce Sanders
V3	10/16/2017	Section 6.7: Removed proximity sensor diagram (Already in appendix A)	Dave Weaver

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1. Attestation of Test Results

Applicant Name	Microsoft Corporation			
FCC ID	C3K1807			
Model Name	1807			
Applicable Standards	FCC 47 CFR § 2.1093 Published RF exposure KDB procedures IEEE Std 1528-2013			
Exposure Category	SAR Limits (W/Kg)			
	Peak spatial-average(1g of tissue)			
General population / Uncontrolled exposure	1.6			
RF Exposure Conditions	Equipment Class - Highest Reported SAR (W/kg)			
	PCB	DTS	NII	DSS
Standalone	1.450	0.341	1.298	0.044
Simultaneous TX Tablet Mode	1.590	1.590	1.567	1.567
Simultaneous TX Laptop Mode	0.900	0.900	0.900	0.501
Date Tested	8/17/2017 to 9/22/2017			
Test Results	Pass			

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.

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.

Approved & Released By:	Prepared By:
	
David Weaver Program Manager UL Verification Services Inc.	Tony Soares 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 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 447498 D03 Supplement C Cross-Reference v01
- 616217 D04 SAR for laptop and tablets v01r02
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02

In addition to the above, the following information was used:

- TCB workshop October, 2014; Page 36, RF Exposure Procedures Update (Overlapping LTE Bands)
- TCB workshop October, 2014; Page 37, RF Exposure Procedures Update (Other LTE Considerations)
- TCB workshop October, 2015; Page 6, RF Exposure Procedures (KDB 941225 D05A)
- TCB workshop October, 2016; Page 7, RF Exposure Procedures (Bluetooth Duty Factor)

Additional Guidance Manufacturer KDB inquiry

- KDB guidance related to radio output power. The device has a radio output power back off scheme that is based on tablet and laptop mode. Please see technical description documents for additional details.

3. Facilities and Accreditation

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

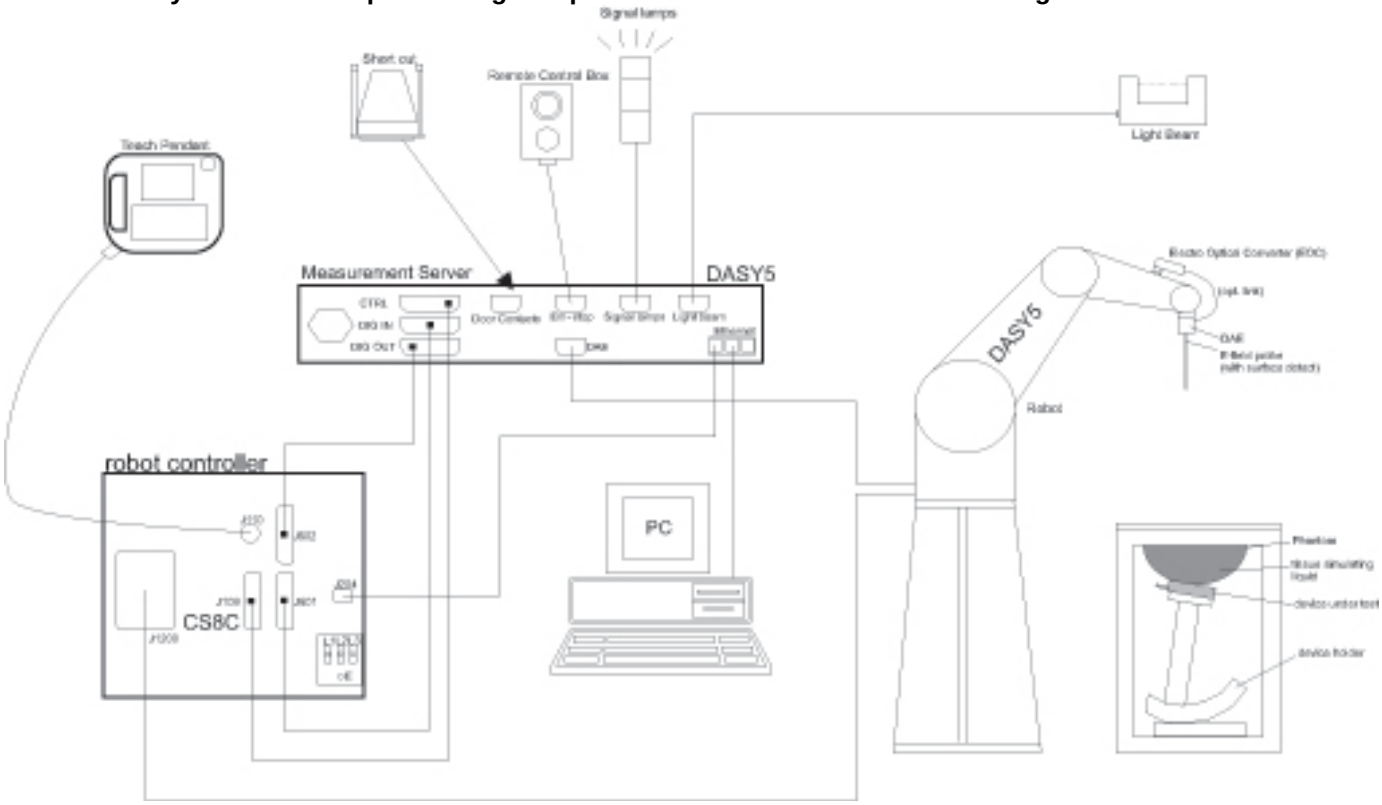
47173 Benicia Street	47266 Benicia Street
SAR Lab A	SAR Lab 1
SAR Lab B	SAR Lab 2
SAR Lab C	SAR Lab 3
SAR Lab D	SAR Lab 4
SAR Lab E	
SAR Lab F	
SAR Lab G	
SAR Lab H	

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	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
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 ≤ 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: Δx_{Zoom}, Δy_{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: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
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 *reported* SAR from the *area scan based 1-g SAR estimation* 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
S-Parameter Network Analyzer	Agilent	8753ES	MY40000980	5/10/2018
Dielectric Probe kit	SPEAG	DAK-3.5	1103	2/17/2018
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	11/8/2017
Thermometer	Control Company	Traceable 4242	122529162	11/11/2017
Thermometer (Liquid Check)	Traceable	15557603	160643192	7/25/2018

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Synthesized Signal Generator	Agilent	N5181A	MY50140630	5/16/2018
Power Meter	HP	437B	3125U12345	8/10/2018
Power Meter	HP	437B	3125U09516	9/27/2017
Power Sensor	Agilent	8481A	3318A92374	8/15/2018
Power Sensor*	Agilent	8481A	2702A76263	9/14/2017
Power Sensor	Agilent	8481A	2349A36506	9/29/2017
Amplifier	MITEQ	AMF-4D-00400600-50-30P	1622052	N/A
Bi-directional coupler	Werlatone, Inc.	C8060-102	2711	N/A
DC Power Supply	Xantrex	XHR 60-18	27519	N/A

Note(s):

*Equipment not used past calibration due date.

Lab Equipment

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
E-Field Probe (SAR Lab 2)	SPEAG	EX3DV4	3991	5/30/2018
E-Field Probe (SAR Lab 3)	SPEAG	EX3DV4	3902	5/30/2018
E-Field Probe (SAR Lab 4)	SPEAG	EX3DV4	3990	3/15/2018
Data Acquisition Electronics (SAR Lab 2)	SPEAG	DAE4	1433	3/8/2018
Data Acquisition Electronics (SAR Lab 3)	SPEAG	DAE4	1239	7/27/2018
Data Acquisition Electronics (SAR Lab 4)	SPEAG	DAE4	1258	5/12/2018
System Validation Dipole	SPEAG	D750V3	1024	5/12/2018
System Validation Dipole	SPEAG	D835V2	4d117	5/22/2018
System Validation Dipole	SPEAG	D1750V2	1050	4/18/2018
System Validation Dipole	SPEAG	D1900V2	5d140	4/19/2018
System Validation Dipole	SPEAG	D2300V2	1002	3/10/2018
System Validation Dipole	SPEAG	D2450V2	899	3/10/2018
System Validation Dipole	SPEAG	D2450V2	706	5/9/2018
System Validation Dipole	SPEAG	D2600V2	1036	3/10/2018
System Validation Dipole	SPEAG	D5GHzV2	1003	2/13/2018
System Validation Dipole	SPEAG	D5GHzV2	1138	9/22/2017
Thermometer (SAR Lab 2)	EXTECH	445703	CCS-237	7/13/2018
Thermometer (SAR Lab 3)	EXTECH	445703	CCS-234	7/14/2018
Thermometer (SAR Lab 4)	Traceable	15557603	170024385	12/23/2017

Other

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Power Meter	Agilent	N1912A	MY55196004	7/14/2018
Power Sensor	Agilent	N1921A	MY52260009	1/5/2018
Power Sensor	Agilent	N1921A	MY53260001	10/17/2017
Base Station Simulator	R & S	CMW500	124594	10/25/2017
Base Station Simulator	R & S	CMW500	135390	4/27/2018
Base Station Simulator	R & S	CMW500	132909	3/14/2018
Base Station Simulator	R & S	CMW500	125236	3/6/2018
Spectrum Analyzer	Agilent	E4440A	MY48250923	7/22/2018

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 and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Overall (Length x Width x Depth): 292 mm x 201 mm x 9 mm Overall Diagonal: 356 mm Display Diagonal: 334 mm		
Back Cover	☒ The Back Cover is not removable.		
Battery Options	☒ The rechargeable battery is not user accessible.		
Wi-Fi Direct	Wi-Fi Direct enabled devices transfer data directly between each other ☒ Wi-Fi Direct (Wi-Fi 2.4 GHz) ☒ Wi-Fi Direct (Wi-Fi 5 GHz)		
Test sample information	**S/N**	**IMEI**	**Notes**
	031937572953	Radiated/Conducted	WLAN
	032008172953	Radiated/Conducted	WLAN
	032004572953	Radiated/Conducted	WLAN
	029373473253	Radiated/Conducted	WWAN
	045172273253	Radiated/Conducted	WWAN
	013002173253	Radiated/Conducted	WWAN
Hardware Version	1703		
Software Version	15063.600		

6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating Mode	Duty Cycle used for SAR testing
W-CDMA (UMTS)	Band II Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Rel. 5) HSUPA (Rel. 6) DC-HSDPA (Rel. 8) HSPA+ (Rel. 7)	100%
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 7 FDD Band 12 FDD Band 13 FDD Band 26 FDD Band 29 (Rx Only) FDD Band 30 TDD Band 38 TDD Band 41	QPSK 16QAM ☒ Rel. 11 Carrier Aggregation 3CC (1 Uplink and 3 Downlinks). (Carrier Aggregation is only supported for downlink and not for uplink.)	100% (FDD) 63.3% (TDD)[1]
	Does this device support SV-LTE (1xRTT-LTE)? ☐ Yes ☒ No		
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20)	100%
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80)	100%
	Does this device support bands 5.60 ~ 5.65 GHz? ☒ Yes ☐ No		
	Does this device support Band gap channel? ☒ Yes ☐ No		
Bluetooth	2.4 GHz	Version 4.0 LE	77.22%

Notes:

1. This device supports TDD uplink-downlink configuration 0-6. The configuration with the highest duty cycle was used (config. 0 at 63.3%).

6.3. Maximum Output Power from Tune-up Procedure

RF Air interface	Mode	Max. RF Output Power (dBm)	Reduce RF Output Power (dBm)
W-CDMA Band II	R99	**25.0**	**16.0**
	HSDPA	**25.0**	**16.0**
	HSUPA	**25.0**	**16.0**
	DC-HSDPA	**25.0**	**16.0**
W-CDMA Band V	R99	**25.0**	**21.6**
	HSDPA	**25.0**	**21.6**
	HSUPA	**25.0**	**21.6**
	DC-HSDPA	**25.0**	**21.6**

RF Air interface	Mode	Max. RF Output Power (dBm)	Reduce RF Output Power (dBm)
LTE Band 2	QPSK	**25.0**	**15.5**
	16QAM	**23.0**	**15.5**
LTE Band 4	QPSK	**25.0**	**15.1**
	16QAM	**23.0**	**15.1**
LTE Band 5	QPSK	**25.0**	**21.0**
	16QAM	**24.0**	**21.0**
LTE Band 7	QPSK	**25.0**	**15.4**
	16QAM	**23.0**	**15.4**
LTE Band 12	QPSK	**25.0**	**22.0**
	16QAM	**24.0**	**22.0**
LTE Band 13	QPSK	**25.0**	**22.0**
	16QAM	**24.0**	**22.0**
LTE Band 26	QPSK	**25.0**	**21.4**
	16QAM	**24.0**	**21.4**
LTE Band 30	QPSK	**24.0**	**14.0**
	16QAM	**23.0**	**14.0**
LTE Band 38	QPSK	**25.0**	**17.2**
	16QAM	**24.0**	**17.2**
LTE Band 41	QPSK	**25.0**	**16.5**
	16QAM	**24.0**	**16.5**

RF Air interface	Mode	Channel	Max. RF Output Power (dBm)		Reduced RF Output Power (dBm)	
			Path A	Path B	Path A	Path B
WiFi 2.4 GHz	802.11b	1	**13.5**	**13.5**	**10.5**	**10.5**
	802.11b	2-10	**15.5**	**15.5**	**10.5**	**10.5**
	802.11b	11	**13.5**	**13.5**	**10.5**	**10.5**
	802.11b	12	**11.5**	**11.5**	**10.5**	**10.5**
	802.11b	13	**9.5**	**9.5**	**9.5**	**9.5**
	802.11g	1	**13.5**	**13.5**	**10.5**	**10.5**
	802.11g	2-10	**15.5**	**15.5**	**10.5**	**10.5**
	802.11g	11	**13.5**	**13.5**	**10.5**	**10.5**
	802.11g	12	**11.5**	**11.5**	**10.5**	**10.5**
	802.11g	13	**9.5**	**9.5**	**9.5**	**9.5**
	802.11n HT20	1	**13.5**	**13.5**	**10.5**	**10.5**
	802.11n HT20	2-10	**15.5**	**15.5**	**10.5**	**10.5**
	802.11n HT20	11	**13.5**	**13.5**	**10.5**	**10.5**
	802.11n HT20	12	**11.5**	**11.5**	**10.5**	**10.5**
	802.11n HT20	13	**9.5**	**9.5**	**9.5**	**9.5**
WiFi 5 GHz	802.11a	36-48	**11.5**	**11.5**	**9.0**	**9.0**
	802.11a	52-64	**15.5**	**15.5**	**9.0**	**9.0**
	802.11a	100-136	**15.5**	**15.5**	**9.0**	**9.0**
	802.11a	140	**14.5**	**14.5**	**9.0**	**9.0**
	802.11a	144	**13.5**	**13.5**	**9.0**	**9.0**
	802.11a	149-165	**15.5**	**15.5**	**11.0**	**11.0**
	802.11n HT20	36-48	**11.5**	**11.5**	**9.0**	**9.0**
	802.11n HT20	52-64	**15.5**	**15.5**	**9.0**	**9.0**
	802.11n HT20	100-136	**15.5**	**15.5**	**9.0**	**9.0**
	802.11n HT20	140	**14.5**	**14.5**	**9.0**	**9.0**
	802.11n HT20	144	**13.5**	**13.5**	**9.0**	**9.0**
	802.11n HT20	149-165	**15.5**	**15.5**	**11.0**	**11.0**
	802.11n HT40	36-48	**11.5**	**11.5**	**9.0**	**9.0**
	802.11n HT40	52-56	**12.5**	**12.5**	**9.0**	**9.0**
	802.11n HT40	60-64	**11.5**	**11.5**	**9.0**	**9.0**
	802.11n HT40	100-104	**12.5**	**12.5**	**9.0**	**9.0**
	802.11n HT40	108-136	**14.5**	**14.5**	**9.0**	**9.0**
	802.11n HT40	140-144	**12.5**	**12.5**	**9.0**	**9.0**
	802.11n HT40	149-161	**12.5**	**12.5**	**11.0**	**11.0**
	802.11ac VHT20	36-48	**11.5**	**11.5**	**9.0**	**9.0**
	802.11ac VHT20	52-64	**15.5**	**15.5**	**9.0**	**9.0**
	802.11ac VHT20	100-136	**15.5**	**15.5**	**9.0**	**9.0**
	802.11ac VHT20	140	**14.5**	**14.5**	**9.0**	**9.0**
	802.11ac VHT20	144	**13.5**	**13.5**	**9.0**	**9.0**
	802.11ac VHT20	149-165	**15.5**	**15.5**	**11.0**	**11.0**
	802.11ac VHT40	36-48	**11.5**	**11.5**	**9.0**	**9.0**
	802.11ac VHT40	52-56	**12.5**	**12.5**	**9.0**	**9.0**
	802.11ac VHT40	60-64	**11.5**	**11.5**	**9.0**	**9.0**
	802.11ac VHT40	100-104	**12.5**	**12.5**	**9.0**	**9.0**
	802.11ac VHT40	108-136	**14.5**	**14.5**	**9.0**	**9.0**
	802.11ac VHT40	140-144	**12.5**	**12.5**	**9.0**	**9.0**
	802.11ac VHT40	149-161	**12.5**	**12.5**	**11.0**	**11.0**
	802.11ac VHT80	36-112	**8.5**	**8.5**	**8.0**	**8.0**
	802.11ac VHT80	116-128	**11.5**	**11.5**	**8.0**	**8.0**
	802.11ac VHT80	132-144	**8.5**	**8.5**	**8.0**	**8.0**
	802.11ac VHT80	149-161	**8.5**	**8.5**	**10.0**	**10.0**
Bluetooth		All		**4.0**		
Bluetooth LE		All		**4.0**		

Notes:

1. Max Power for laptop mode.
2. Reduced Power for tablet mode.

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 7	Frequency range: 2500 - 2570 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20850 2510	20825 2507.5	20800 2505	20775 2502.5		
	Mid	21100 2535	21100 2535	21100 2535	21100 2535		
	High	21350 2560	21375 2562.5	21400 2565	21425 2567.5		
	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 13	Frequency range: 777 - 787 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				23205/ 779.5		
	Mid			23230/ 782	23230/ 782		
	High				23255/ 784.5		

General LTE SAR Test and Reporting Considerations (Continued)

Frequency range, Channel Bandwidth, Numbers and Frequencies

Band 26	Frequency range: 814 - 849 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low		26765/ 821.5	26740/ 819	26715/ 816.5	26705/ 815.5	26697/ 814.7
Mid		26865/ 831.5	26865/ 831.5	26865/ 831.5	26865/ 831.5	26865/ 831.5
High		26965/ 841.5	26990/ 844	27015/ 846.5	27025/ 847.5	27033/ 848.3

Band 30	Frequency range: 2305 - 2315 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low				27685/ 2307.5		
Mid			27710/ 2310	27710/ 2310		
High				27735/ 2312.5		

Band 38	Frequency range: 2570 - 2620 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low	37850/ 2580	37825/ 2577.5	37800/ 2575	37775/ 2572.5		
Mid	38000/ 2595	38000/ 2595	38000/ 2595	38000/ 2595		
High	38150 2610	38175/ 2612.5	38200/ 2615	38225/ 2617.5		

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					
Low-Mid	40185 / 2549.5					
Mid	40620 / 2593.0					
Mid-High	41055 / 2636.5					
High	41490 / 2680.0					

LTE transmitter and antenna implementation	Refer to Appendix A.

Maximum power reduction (MPR)

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

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

MPR Built-in by design
The manufacturer MPR values are always within the 3GPP maximum MPR allowance but may not follow the default MPR values.
A-MPR (additional MPR) was disabled during SAR testing

Power reduction	Yes
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.

Notes:
SAR Testing for LTE was performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

6.5. LTE Release 11 Carrier Aggregation

Combination	CA configuration	Bandwidth (MHz)											
		PCC						SCC1					
		20	15	10	5	3	1.4	20	15	10	5	3	1.4
Intra-Band non-contiguous	2A-2A	√	√	√	√			√	√	√	√		
	4A-4A	√	√	√	√			√	√	√	√		
Inter-Band non-contiguous	2A-4A	√	√	√	√	√	√	√	√	√	√		
	2A-5A	√	√	√	√					√	√		
	2A-12A	√	√	√	√					√	√	√	
	2A-13A	√	√	√	√					√			
	2A-29A	√	√	√	√					√	√		
	2A-30A	√	√	√	√					√	√		
	4A-5A	√	√	√	√					√	√		
	4A-12A	√	√	√	√	√	√			√	√	√	
	4A-13A	√	√	√	√					√			
	4A-29A	√	√	√	√					√	√		
	4A-30A	√	√	√	√					√	√		
	5A-30A			√	√					√	√		
	12A-30A			√	√					√	√		
	29A-30A			√	√					√	√		

Note(s):

For supported channels, please refer to §6.4

Combination	CA configuration	Bandwidth (MHz)																	
		PCC						SCC1						SCC2					
		20	15	10	5	3	1.4	20	15	10	5	3	1.4	20	15	10	5	3	1.4
Inter-Band non-contiguous	2A-2A-12A	√	√	√	√			√	√	√	√					√	√		
	2A-2A-13A	√	√	√	√			√	√	√	√					√			
	2A-2A-30A	√	√	√	√			√	√	√	√					√	√		
	2A-4A-5A	√	√	√	√			√	√	√	√					√	√		
	2A-4A-12A	√	√	√	√			√	√	√	√					√	√		
	2A-4A-13A	√	√	√	√			√	√	√	√					√			
	2A-5A-30A	√	√	√	√					√	√					√	√		
	2A-12A-30A	√	√	√	√					√	√					√	√		
	2A-29A-30A	√	√	√	√					√	√					√	√		
	4A-4A-12A	√	√	√	√			√	√	√	√					√	√		
	4A-4A-13A	√	√	√	√			√	√	√	√					√			
	4A-5A-30A	√	√	√	√					√	√					√	√		
	4A-12A-30A	√	√	√	√					√	√					√	√		
	4A-29A-30A	√	√	√	√					√	√					√	√		

Note(s):

For supported channels, please refer to §6.4

6.6. LTE (TDD) Considerations

According to KDB 941225 D05 SAR for LTE Devices v02r02, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

LTE TDD Bands support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Calculated Duty Cycle

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

Calculated Duty Cycle = Extended cyclic prefix in uplink x (T_s) x # of S + # of U

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = 5120 x [1/(15000 x 2048)] x 2 + 6 ms = 63.33%
where
T_s = 1/(15000 x 2048) seconds

Note(s):
This device supports uplink-downlink configurations 0-6. The configuration with highest duty cycle was used for SAR Testing: configuration 0 at 63.3% duty cycle and Special Subframe 7.

6.7. Power Reduction by Proximity Sensing

The DUT has a proximity sensor to reduce the output power. The position of the sensors and antenna are as shown in Appendix A.

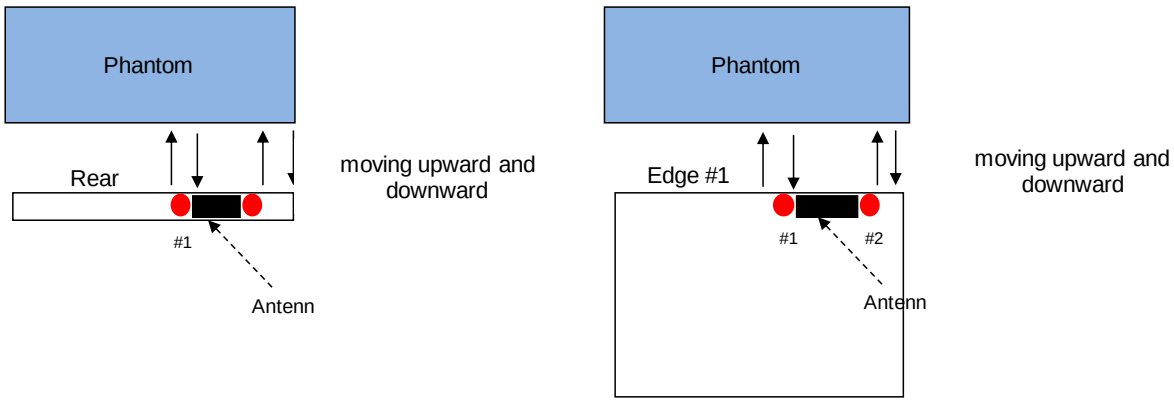
6.7.1. Proximity Sensor Triggering Distance and Tilt Angle Assessment

Procedures from KDB 616271 D04 §6.2 were followed, including verifying all values shown at +/- 5mm from that distance in 1mm increments. Edge 1 of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger distance for resuming full power. The values shown can be called T, the furthest distance where power backs off. Then at T-1, T-2, T-3, T-4, T-5 it was verified power back off was held, while at T+1, T+2, T+3, T+4, T+5 power was at the maximum with no back off. Broadband liquid was used to cover testing for all supported bands. Liquid was verified to meet MSL target specs +/- 5% for all bands.

The measurement was then repeated for the Rear surface.

The DUT featured a visual indicator on its display that showed the status of the proximity sensor (Triggered or not triggered). This was used to determine the status of the sensor during the proximity sensor assessment as monitoring the output power directly was not practical without affecting the measurement.

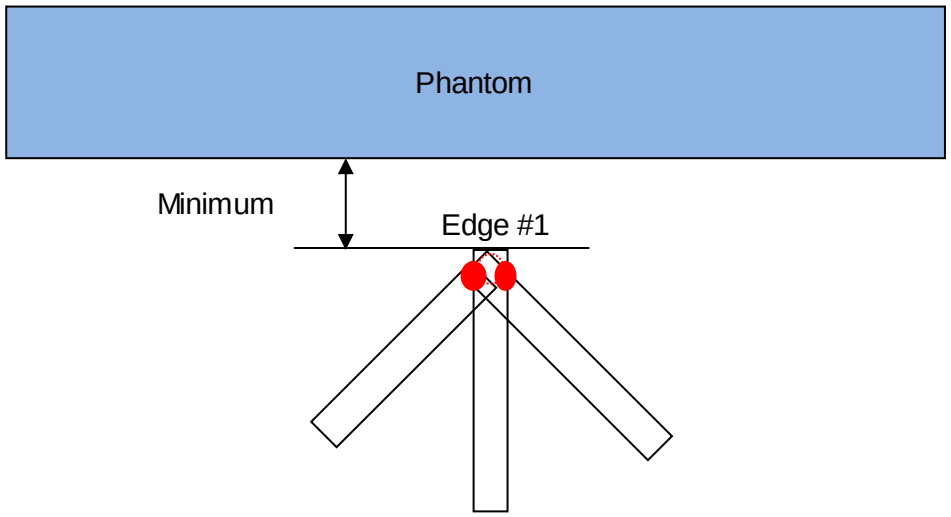
It was confirmed separately that the output power was altered according to the proximity sensor status indication. This was achieved by observing the proximity sensor status at the same time as monitoring the conducted power. Section 9 contains both the full and reduced conducted power measurements.



Proximity Sensor Triggering Distance and Tilt Angle Assessment (continued):

For tilt angel assessment, the DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Edge 1 parallel to the base of the flat phantom.

The EUT was rotated about Edge 1 for angles up to +/- 45°. If the proximity sensor did not trigger during the rotation, the DUT was moved 1mm toward the phantom and the rotation was repeated. This procedure was repeated until the power remained reduced for all angles up to +/- 45°.



Proximity sensor tilt angle assessment (Edge 1) KDB 616217 §6.4

Proximity Sensor Trigger Distance and Tilt Angle Assessment

Trigger Distance Measurements MBBL 600-6000	Sample: S-115-EV4-02						Sample: S-115-EV4-03					
	Measurement #1 (mm)		Measurement #2 (mm)		Measurement #3 (mm)		Measurement #1 (mm)		Measurement #2 (mm)		Measurement #3 (mm)	
Towards or Away from Phantom?	Towards	Away	Towards	Away	Towards	Away	Towards	Away	Towards	Away	Towards	Away
Position Tested												
Back	36	36										
Top	20	20										
Tilt: -45 (back towards phantom)	33	38										
Tilt: -35	38	40										
Tilt: -25	31	26	32	30	27	33						
Tilt: -10	23	27	28	31	25	28						
Tilt: 10	19	22	21	21	23	26						
Tilt: 25	18	20	17	20	19	22						
Tilt: 35	18	24	16	20	16	21						
Tilt: 45 (screen towards phantom)	14	16	15	16	15	15	15	15	14	14	15	15

The minimum trigger distance observed was 14mm. The SAR test distance is determine by taking the trigger distance and subtracting 1mm. SAR test distance used for Rear and Edge 1 is 13mm. All other edges that required SAR testing was tested at a separation distance of 0mm (DUT in direct contact with flat Phantom).

7. RF Exposure Conditions (Test Configurations)

Refer to Appendix A for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

7.1. Standalone SAR Test Exclusion Considerations

Since the *Dedicated Host Approach* is applied, the standalone SAR test exclusion procedure in KDB 447498 § 4.3.1 is applied in conjunction with KDB 616217 § 4.3 to determine the minimum test separation distance:

- When the separation distance from the antenna to an adjacent edge is ≤ 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.
- When the separation distance from the antenna to an adjacent edge is > 5 mm, the actual antenna-to-edge separation distance is applied to determine SAR test exclusion.

SAR Test Exclusion Calculations for WWAN Full Power Tablet Mode

Antennas < 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
WWAN (Low Band)															
W-CDMA 5	849.0	25.00	316	5	5	248	191.7	16.5		58.2 -MEASURE-	58.2 -MEASURE-	> 50 mm	> 50 mm	17.1 -MEASURE-	
LTE Band 5	849.0	25.00	316	5	5	248	191.7	16.5		58.2 -MEASURE-	58.2 -MEASURE-	> 50 mm	> 50 mm	17.1 -MEASURE-	
LTE Band 12	716.0	25.00	316	5	5	248	191.7	16.5		53.5 -MEASURE-	53.5 -MEASURE-	> 50 mm	> 50 mm	15.7 -MEASURE-	
LTE Band 13	787.0	25.00	316	5	5	248	191.7	16.5		56.1 -MEASURE-	56.1 -MEASURE-	> 50 mm	> 50 mm	16.5 -MEASURE-	
LTE Band 26	849.0	25.00	316	5	5	248	191.7	16.5		58.2 -MEASURE-	58.2 -MEASURE-	> 50 mm	> 50 mm	17.1 -MEASURE-	
WWAN (Mid/High Band)															
W-CDMA 2	1910.0	25.00	316	5	5	218.4	191.7	56.1		87.3 -MEASURE-	87.3 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 2	1910.0	25.00	316	5	5	218.4	191.7	56.1		87.3 -MEASURE-	87.3 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 4	1755.0	25.00	316	5	5	218.4	191.7	56.1		83.7 -MEASURE-	83.7 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 7	2570.0	25.00	316	5	5	218.4	191.7	56.1		101.3 -MEASURE-	101.3 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 30	2315.0	24.00	251	5	5	218.4	191.7	56.1		76.4 -MEASURE-	76.4 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 38	2620.0	25.00	316	5	5	218.4	191.7	56.1		102.3 -MEASURE-	102.3 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 41	2690.0	25.00	316	5	5	218.4	191.7	56.1		103.7 -MEASURE-	103.7 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
WWAN (Low Band)															
W-CDMA 5	849.0	25.00	316	5	5	248	191.7	16.5		< 50 mm	< 50 mm	1283.5 mW -EXEMPT-	964.8 mW -EXEMPT-	< 50 mm	
LTE Band 5	849.0	25.00	316	5	5	248	191.7	16.5		< 50 mm	< 50 mm	1283.5 mW -EXEMPT-	964.8 mW -EXEMPT-	< 50 mm	
LTE Band 12	716.0	25.00	316	5	5	248	191.7	16.5		< 50 mm	< 50 mm	1122.4 mW -EXEMPT-	853.7 mW -EXEMPT-	< 50 mm	
LTE Band 13	787.0	25.00	316	5	5	248	191.7	16.5		< 50 mm	< 50 mm	1207.9 mW -EXEMPT-	912.5 mW -EXEMPT-	< 50 mm	
LTE Band 26	849.0	25.00	316	5	5	248	191.7	16.5		< 50 mm	< 50 mm	1283.5 mW -EXEMPT-	964.8 mW -EXEMPT-	< 50 mm	
WWAN (Mid/High Band)															
W-CDMA 2	1910.0	25.00	316	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1792.5 mW -EXEMPT-	1525.5 mW -EXEMPT-	169.5 mW -MEASURE-	
LTE Band 2	1910.0	25.00	316	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1792.5 mW -EXEMPT-	1525.5 mW -EXEMPT-	169.5 mW -MEASURE-	
LTE Band 4	1755.0	25.00	316	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1797.2 mW -EXEMPT-	1530.2 mW -EXEMPT-	174.2 mW -MEASURE-	
LTE Band 7	2570.0	25.00	316	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1777.6 mW -EXEMPT-	1510.6 mW -EXEMPT-	154.6 mW -MEASURE-	
LTE Band 30	2315.0	24.00	251	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1782.6 mW -EXEMPT-	1515.6 mW -EXEMPT-	159.6 mW -MEASURE-	
LTE Band 38	2620.0	25.00	316	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1776.7 mW -EXEMPT-	1509.7 mW -EXEMPT-	153.7 mW -MEASURE-	
LTE Band 41	2690.0	25.00	316	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1775.5 mW -EXEMPT-	1508.5 mW -EXEMPT-	152.5 mW -MEASURE-	

SAR Test Exclusion Calculations for WWAN Reduced Power Tablet Mode

Antennas < 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
WWAN (Low Band)															
W-CDMA 5	849.0	21.60	145	5	5	248	191.7	16.5		26.7 -MEASURE-	26.7 -MEASURE-	> 50 mm	> 50 mm	7.9 -MEASURE-	
LTE Band 5	849.0	21.00	126	5	5	248	191.7	16.5		23.2 -MEASURE-	23.2 -MEASURE-	> 50 mm	> 50 mm	6.8 -MEASURE-	
LTE Band 12	716.0	22.00	158	5	5	248	191.7	16.5		26.7 -MEASURE-	26.7 -MEASURE-	> 50 mm	> 50 mm	7.9 -MEASURE-	
LTE Band 13	787.0	22.00	158	5	5	248	191.7	16.5		28 -MEASURE-	28 -MEASURE-	> 50 mm	> 50 mm	8.2 -MEASURE-	
LTE Band 26	849.0	21.40	138	5	5	248	191.7	16.5		25.4 -MEASURE-	25.4 -MEASURE-	> 50 mm	> 50 mm	7.5 -MEASURE-	
WWAN (Mid/High Band)															
W-CDMA 2	1910.0	16.00	40	5	5	218.4	191.7	56.1		11.1 -MEASURE-	11.1 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 2	1910.0	15.50	35	5	5	218.4	191.7	56.1		9.7 -MEASURE-	9.7 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 4	1755.0	15.10	32	5	5	218.4	191.7	56.1		8.5 -MEASURE-	8.5 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 7	2570.0	15.70	37	5	5	218.4	191.7	56.1		11.9 -MEASURE-	11.9 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 30	2315.0	14.00	25	5	5	218.4	191.7	56.1		7.6 -MEASURE-	7.6 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 38	2620.0	17.20	52	5	5	218.4	191.7	56.1		16.8 -MEASURE-	16.8 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
LTE Band 41	2690.0	16.50	45	5	5	218.4	191.7	56.1		14.8 -MEASURE-	14.8 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
WWAN (Low Band)															
W-CDMA 5	849.0	21.60	145	5	5	248	191.7	16.5		< 50 mm	< 50 mm	1283.5 mW -EXEMPT-	964.8 mW -EXEMPT-	< 50 mm	
LTE Band 5	849.0	21.00	126	5	5	248	191.7	16.5		< 50 mm	< 50 mm	1283.5 mW -EXEMPT-	964.8 mW -EXEMPT-	< 50 mm	
LTE Band 12	716.0	22.00	158	5	5	248	191.7	16.5		< 50 mm	< 50 mm	1122.4 mW -EXEMPT-	853.7 mW -EXEMPT-	< 50 mm	
LTE Band 13	787.0	22.00	158	5	5	248	191.7	16.5		< 50 mm	< 50 mm	1207.9 mW -EXEMPT-	912.5 mW -EXEMPT-	< 50 mm	
LTE Band 26	849.0	21.40	138	5	5	248	191.7	16.5		< 50 mm	< 50 mm	1283.5 mW -EXEMPT-	964.8 mW -EXEMPT-	< 50 mm	
WWAN (Mid/High Band)															
W-CDMA 2	1910.0	16.00	40	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1792.5 mW -EXEMPT-	1525.5 mW -EXEMPT-	169.5 mW -EXEMPT-	
LTE Band 2	1910.0	15.50	35	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1792.5 mW -EXEMPT-	1525.5 mW -EXEMPT-	169.5 mW -EXEMPT-	
LTE Band 4	1755.0	15.10	32	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1797.2 mW -EXEMPT-	1530.2 mW -EXEMPT-	174.2 mW -EXEMPT-	
LTE Band 7	2570.0	15.40	35	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1777.6 mW -EXEMPT-	1510.6 mW -EXEMPT-	154.6 mW -EXEMPT-	
LTE Band 30	2315.0	14.00	25	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1782.6 mW -EXEMPT-	1515.6 mW -EXEMPT-	159.6 mW -EXEMPT-	
LTE Band 38	2620.0	17.20	52	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1776.7 mW -EXEMPT-	1509.7 mW -EXEMPT-	153.7 mW -EXEMPT-	
LTE Band 41	2690.0	16.50	45	5	5	218.4	191.7	56.1		< 50 mm	< 50 mm	1775.5 mW -EXEMPT-	1508.5 mW -EXEMPT-	152.5 mW -EXEMPT-	

SAR Test Exclusion Calculations for WWAN Full Power Laptop Mode

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)	Calculated Threshold Value
		dBm	mW	Edge 3	Edge 3
WWAN (Low Band)					
W-CDMA 5	849.0	25.00	316	191.7	964.8 mW -EXEMPT-
LTE Band 5	849.0	25.00	316	191.7	964.8 mW -EXEMPT-
LTE Band 12	716.0	25.00	316	191.7	853.7 mW -EXEMPT-
LTE Band 13	787.0	25.00	316	191.7	912.5 mW -EXEMPT-
LTE Band 26	849.0	25.00	316	191.7	964.8 mW -EXEMPT-
WWAN (Mid/High Band)					
W-CDMA 2	1910.0	25.00	316	191.7	1525.5 mW -EXEMPT-
LTE Band 2	1910.0	25.00	316	191.7	1525.5 mW -EXEMPT-
LTE Band 4	1755.0	25.00	316	191.7	1530.2 mW -EXEMPT-
LTE Band 7	2570.0	25.00	316	191.7	1510.6 mW -EXEMPT-
LTE Band 30	2315.0	24.00	251	191.7	1515.6 mW -EXEMPT-
LTE Band 38	2620.0	25.00	316	191.7	1509.7 mW -EXEMPT-
LTE Band 41	2690.0	25.00	316	191.7	1508.5 mW -EXEMPT-

SAR Test Exclusion Calculations for WWAN Reduced Power Laptop Mode

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)	Calculated Threshold Value
		dBm	mW	Edge 3	Edge 3
WWAN (Low Band)					
W-CDMA 5	849.0	21.60	145	191.7	964.8 mW -EXEMPT-
LTE Band 5	849.0	21.00	126	191.7	964.8 mW -EXEMPT-
LTE Band 12	716.0	22.00	158	191.7	853.7 mW -EXEMPT-
LTE Band 13	787.0	22.00	158	191.7	912.5 mW -EXEMPT-
LTE Band 26	849.0	21.40	138	191.7	964.8 mW -EXEMPT-
WWAN (Mid/High Band)					
W-CDMA 2	1910.0	16.00	40	191.7	1525.5 mW -EXEMPT-
LTE Band 2	1910.0	15.50	35	191.7	1525.5 mW -EXEMPT-
LTE Band 4	1755.0	15.10	32	191.7	1530.2 mW -EXEMPT-
LTE Band 7	2570.0	15.40	35	191.7	1510.6 mW -EXEMPT-
LTE Band 30	2315.0	14.00	25	191.7	1515.6 mW -EXEMPT-
LTE Band 38	2620.0	17.20	52	191.7	1509.7 mW -EXEMPT-
LTE Band 41	2690.0	16.50	45	191.7	1508.5 mW -EXEMPT-

SAR Test Exclusion Calculations for WLAN Reduced Power Tablet Mode

Antennas < 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
WLAN /BT Path B															
Wi-Fi 2.4 GHz	2467	10.50	11	5	5	180.9	191.7	98.4		3.5 -MEASURE-	3.5 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.2 GHz	5240	9.00	8	5	5	180.9	191.7	98.4		3.7 -MEASURE-	3.7 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.3 GHz	5320	9.00	8	5	5	180.9	191.7	98.4		3.7 -MEASURE-	3.7 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.5 GHz	5720	9.00	8	5	5	180.9	191.7	98.4		3.8 -MEASURE-	3.8 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.8 GHz	5825	11.00	13	5	5	180.9	191.7	98.4		6.3 -MEASURE-	6.3 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Bluetooth	2480	4.00	3	5	5	180.9	191.7	98.4		0.9 -EXEMPT-	0.9 -EXEMPT-	> 50 mm	> 50 mm	> 50 mm	
WLAN Path A															
Wi-Fi 2.4 GHz	2467	10.50	11	5	5	93.6	191.7	182.6		3.5 -MEASURE-	3.5 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.2 GHz	5240	9.00	8	5	5	93.6	191.7	182.6		3.7 -MEASURE-	3.7 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.3 GHz	5320	9.00	8	5	5	93.6	191.7	182.6		3.7 -MEASURE-	3.7 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.5 GHz	5720	9.00	8	5	5	93.6	191.7	182.6		3.8 -MEASURE-	3.8 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.8 GHz	5825	11.00	13	5	5	93.6	191.7	182.6		6.3 -MEASURE-	6.3 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
WLAN/BT Path B															
Wi-Fi 2.4 GHz	2467	10.50	11	5	5	180.9	191.7	98.4		< 50 mm	< 50 mm	1404.5 mW -EXEMPT-	1512.5 mW -EXEMPT-	579.5 mW -EXEMPT-	
Wi-Fi 5.2 GHz	5240	9.00	8	5	5	180.9	191.7	98.4		< 50 mm	< 50 mm	1374.5 mW -EXEMPT-	1482.5 mW -EXEMPT-	549.5 mW -EXEMPT-	
Wi-Fi 5.3 GHz	5320	9.00	8	5	5	180.9	191.7	98.4		< 50 mm	< 50 mm	1374 mW -EXEMPT-	1482 mW -EXEMPT-	549 mW -EXEMPT-	
Wi-Fi 5.5 GHz	5720	9.00	8	5	5	180.9	191.7	98.4		< 50 mm	< 50 mm	1371.7 mW -EXEMPT-	1479.7 mW -EXEMPT-	546.7 mW -EXEMPT-	
Wi-Fi 5.8 GHz	5825	11.00	13	5	5	180.9	191.7	98.4		< 50 mm	< 50 mm	1371.2 mW -EXEMPT-	1479.2 mW -EXEMPT-	546.2 mW -EXEMPT-	
Bluetooth	2480	4.00	3	5	5	180.9	191.7	98.4		< 50 mm	< 50 mm	1404.3 mW -EXEMPT-	1512.3 mW -EXEMPT-	579.3 mW -EXEMPT-	
WLAN Path A															
Wi-Fi 2.4 GHz	2467	10.50	11	5	5	93.6	191.7	182.6		< 50 mm	< 50 mm	531.5 mW -EXEMPT-	1512.5 mW -EXEMPT-	1421.5 mW -EXEMPT-	
Wi-Fi 5.2 GHz	5240	9.00	8	5	5	93.6	191.7	182.6		< 50 mm	< 50 mm	501.5 mW -EXEMPT-	1482.5 mW -EXEMPT-	1391.5 mW -EXEMPT-	
Wi-Fi 5.3 GHz	5320	9.00	8	5	5	93.6	191.7	182.6		< 50 mm	< 50 mm	501 mW -EXEMPT-	1482 mW -EXEMPT-	1391 mW -EXEMPT-	
Wi-Fi 5.5 GHz	5720	9.00	8	5	5	93.6	191.7	182.6		< 50 mm	< 50 mm	498.7 mW -EXEMPT-	1479.7 mW -EXEMPT-	1388.7 mW -EXEMPT-	
Wi-Fi 5.8 GHz	5825	11.00	13	5	5	93.6	191.7	182.6		< 50 mm	< 50 mm	498.2 mW -EXEMPT-	1479.2 mW -EXEMPT-	1388.2 mW -EXEMPT-	

SAR Test Exclusion Calculations for WLAN Full Power Laptop Mode

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)	Calculated Threshold Value
		dBm	mW	Edge 3	Edge 3
WLAN/BT Path B					
Wi-Fi 2.4 GHz	2467	11.50	14	191.7	1512.5 mW -EXEMPT-
Wi-Fi 5.2 GHz	5240	15.50	35	191.7	1482.5 mW -EXEMPT-
Wi-Fi 5.3 GHz	5320	15.50	35	191.7	1482 mW -EXEMPT-
Wi-Fi 5.5 GHz	5720	15.50	35	191.7	1479.7 mW -EXEMPT-
Wi-Fi 5.8 GHz	5825	15.50	35	191.7	1479.2 mW -EXEMPT-
Bluetooth	2480	4.00	3	191.7	1512.3 mW -EXEMPT-
WLAN Path A					
Wi-Fi 2.4 GHz	2467	11.50	14	191.7	1512.5 mW -EXEMPT-
Wi-Fi 5.2 GHz	5240	15.50	35	191.7	1482.5 mW -EXEMPT-
Wi-Fi 5.3 GHz	5320	15.50	35	191.7	1482 mW -EXEMPT-
Wi-Fi 5.5 GHz	5720	15.50	35	191.7	1479.7 mW -EXEMPT-
Wi-Fi 5.8 GHz	5825	15.50	35	191.7	1479.2 mW -EXEMPT-

7.2. Required Test Configurations

The table below identifies the standalone test configurations required for this device according to the findings in Section 7.1:

Required Test Configurations for WWAN Full Power Tablet Mode:

Antenna	Test Configurations	Rear	Edge 1/ Slant (Top Edge)	Edge 2 (Right Edge)	Edge 3 (Bottom Edge)	Edge 4 (Left Edge)	Front
WWAN Low Band	W-CDMA Band V Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 5 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 12 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 13 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 26 Full Power	Yes	Yes	No	No	Yes	No
WWAN Mid/High Band	W-CDMA Band II Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 2 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 4 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 7 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 30 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 38 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 41 Full Power	Yes	Yes	No	No	Yes	No

Note(s):

Yes = Testing is required.

No = Testing is not required.

Required Test Configurations for WWAN Reduced Power Tablet Mode:

Antenna	Test Configurations	Rear	Edge 1 / Slant (Top Edge)	Edge 2 (Right Edge)	Edge 3 (Bottom Edge)	Edge 4 (Left Edge)	Front
WWAN Low Band	W-CDMA Band V Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 5 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 12 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 13 Full Power	Yes	Yes	No	No	Yes	No
	LTE Band 26 Full Power	Yes	Yes	No	No	Yes	No
WWAN Mid/High Band	W-CDMA Band II Full Power	Yes	Yes	No	No	No	No
	LTE Band 2 Full Power	Yes	Yes	No	No	No	No
	LTE Band 4 Full Power	Yes	Yes	No	No	No	No
	LTE Band 7 Full Power	Yes	Yes	No	No	No	No
	LTE Band 30 Full Power	Yes	Yes	No	No	No	No
	LTE Band 38 Full Power	Yes	Yes	No	No	No	No
	LTE Band 41 Full Power	Yes	Yes	No	No	No	No

Note(s):

Yes = Testing is required.

No = Testing is not required.

Required Test Configurations for WWAN Full Power Laptop Mode:

Antenna	Test Configurations	Edge 3 (Bottom Edge)
WWAN Low Band	W-CDMA Band V Full Power	No
	LTE Band 5 Full Power	No
	LTE Band 12 Full Power	No
	LTE Band 13 Full Power	No
	LTE Band 26 Full Power	No
WWAN Mid/High Band	W-CDMA Band II Full Power	No
	LTE Band 2 Full Power	No
	LTE Band 4 Full Power	No
	LTE Band 7 Full Power	No
	LTE Band 30 Full Power	No
	LTE Band 38 Full Power	No
	LTE Band 41 Full Power	No

Note(s):

Yes = Testing is required.

No = Testing is not required.

Required Test Configurations for WWAN Reduced Power Laptop Mode:

Antenna	Test Configurations	Edge 3 (Bottom Edge)
WWAN Low Band	W-CDMA Band V Full Power	No
	LTE Band 5 Full Power	No
	LTE Band 12 Full Power	No
	LTE Band 13 Full Power	No
	LTE Band 26 Full Power	No
WWAN Mid/High Band	W-CDMA Band II Full Power	No
	LTE Band 2 Full Power	No
	LTE Band 4 Full Power	No
	LTE Band 7 Full Power	No
	LTE Band 30 Full Power	No
	LTE Band 38 Full Power	No
	LTE Band 41 Full Power	No

Note(s):

Yes = Testing is required.

No = Testing is not required.

Required Test Configurations for WLAN Reduced Power Tablet Mode:

Antenna	Test Configurations	Rear	Edge 1 / Slant (Top Edge)	Edge 2 (Right Edge)	Edge 3 (Bottom Edge)	Edge 4 (Left Edge)	Front
WLAN MIMO Path A + Path B	Wi-Fi 2.4 GHz MIMO	Yes	Yes	No	No	No	No
	Wi-Fi 5.2 GHz MIMO	Yes	Yes	No	No	No	No
	Wi-Fi 5.3 GHz MIMO	Yes	Yes	No	No	No	No
	Wi-Fi 5.6 GHz MIMO	Yes	Yes	No	No	No	No
	Wi-Fi 5.8 GHz MIMO	Yes	Yes	No	No	No	No
	Bluetooth (Path B)	No	No	No	No	No	No

Note(s):

WLAN does not operate at Full power while in Tablet mode
Yes = Testing is required.

No = Testing is not required.

Required Test Configurations for WLAN Full Power Laptop Mode:

Antenna	Test Configurations	Edge 3 (Bottom Edge)
WLAN MIMO Path A + Path B	Wi-Fi 2.4 GHz MIMO	No
	Wi-Fi 5.2 GHz MIMO	No
	Wi-Fi 5.3 GHz MIMO	No
	Wi-Fi 5.6 GHz MIMO	No
	Wi-Fi 5.8 GHz MIMO	No
	Bluetooth (Path B)	No

Note(s):

Yes = Testing is required.

No = Testing is not required.

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 ± 2°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.

The dielectric constant (εr) and conductivity (σ) of typical tissue-equivalent media recipes are expected to be within ± 5% of the required target values; but for SAR measurement systems that have implemented the SAR error compensation algorithms documented in IEEE Std 1528-2013, to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters, the tolerance for εr and σ may be relaxed to ± 10%. This is limited to frequencies ≤ 3 GHz.

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 Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

Dielectric Property Measurements Results:

SAR Lab	Date	Band (MHz)	Tissue Type	Frequency (MHz)	Relative Permittivity (εr)			Conductivity (σ)		
					Measured	Target	Delta (%)	Measured	Target	Delta (%)
2	8/17/2017	2450	Body	2450	51.35	52.70	-2.56	2.03	1.95	4.05
				2400	51.46	52.77	-2.49	1.96	1.90	3.42
				2480	51.26	52.66	-2.66	2.05	1.99	2.90
2	9/7/2017	2300	Body	2300	52.56	52.90	-0.65	1.88	1.80	4.41
				2350	52.42	52.84	-0.79	1.94	1.85	4.98
				2400	52.28	52.77	-0.93	2.00	1.90	5.43
2	9/11/2017	2300	Body	2300	51.85	52.90	-1.99	1.83	1.80	1.69
				2350	51.68	52.84	-2.19	1.89	1.85	2.07
				2400	51.57	52.77	-2.28	1.96	1.90	3.00
2	9/22/2017	5600	Body	5600	49.13	48.48	1.35	5.71	5.76	-0.83
				5500	49.32	48.61	1.45	5.50	5.64	-2.65
				5725	48.97	48.31	1.37	5.86	5.91	-0.77
3	8/28/2017	1750	Body	1750	52.83	53.44	-1.14	1.56	1.49	4.77
				1710	52.91	53.54	-1.18	1.50	1.46	2.63
				1755	52.84	53.43	-1.10	1.56	1.49	4.89
3	8/31/2017	1900	Body	1900	51.11	53.30	-4.11	1.56	1.52	2.57
				1850	51.28	53.30	-3.79	1.51	1.52	-0.59
				1920	51.00	53.30	-4.32	1.57	1.52	3.49
3	9/5/2017	835	Body	835	55.41	55.20	0.38	1.02	0.97	4.95
				805	55.76	55.33	0.77	0.98	0.97	1.67
				905	54.76	55.00	-0.44	1.09	1.05	3.09
3	9/7/2017	1900	Body	1900	50.96	53.30	-4.39	1.57	1.52	3.55
				1850	51.07	53.30	-4.18	1.54	1.52	1.32
				1920	50.89	53.30	-4.52	1.60	1.52	5.00
3	9/7/2017	1750	Body	1750	52.05	53.44	-2.60	1.54	1.49	3.62
				1710	51.97	53.54	-2.94	1.50	1.46	2.91
				1755	52.03	53.43	-2.62	1.54	1.49	3.54
3	9/8/2017	750	Body	750	55.26	55.55	-0.52	1.03	0.96	6.43
				695	55.82	55.76	0.11	0.97	0.96	1.60
				790	54.95	55.39	-0.80	1.06	0.97	9.71
3	9/11/2017	1750	Body	1750	51.79	53.44	-3.09	1.48	1.49	-0.35
				1710	51.91	53.54	-3.05	1.45	1.46	-0.86
				1755	51.83	53.43	-2.99	1.49	1.49	0.12
3	9/11/2017	1900	Body	1900	51.62	53.30	-3.15	1.61	1.52	5.59
				1850	51.74	53.30	-2.93	1.56	1.52	2.43
				1920	51.50	53.30	-3.38	1.62	1.52	6.58
3	9/15/2017	2450	Body	2450	51.69	52.70	-1.92	2.00	1.95	2.67
				2400	51.77	52.77	-1.90	1.96	1.90	3.16
				2480	51.60	52.66	-2.02	2.03	1.99	2.10
3	9/18/2017	5200	Body	5200	48.01	49.02	-2.06	5.42	5.29	2.37
				5150	47.86	49.09	-2.50	5.33	5.24	1.71
				5350	47.98	48.82	-1.71	5.60	5.47	2.29
3	9/18/2017	5600	Body	5600	47.34	48.48	-2.35	5.93	5.76	3.00
				5500	47.61	48.61	-2.06	5.75	5.64	1.83
				5725	47.12	48.31	-2.46	6.09	5.91	3.02

Dielectric Property Measurements Results Cont:

SAR Lab	Date	Band (MHz)	Tissue Type	Frequency (MHz)	Relative Permittivity (εr)			Conductivity (σ)		
					Measured	Target	Delta (%)	Measured	Target	Delta (%)
3	9/22/2017	5600	Body	5600	36.67	35.53	3.20	4.92	5.06	-2.81
				5500	36.75	35.65	3.09	4.79	4.96	-3.31
				5725	36.52	35.39	3.19	5.04	5.19	-2.84
3	9/18/2017	5800	Body	5800	46.82	48.20	-2.86	6.18	6.00	3.05
				5700	46.97	48.34	-2.84	6.04	5.88	2.76
				5850	46.89	48.20	-2.72	6.29	6.00	4.87
4	8/21/2017	5800	Body	5800	47.26	48.20	-1.95	5.90	6.00	-1.72
				5700	47.61	48.34	-1.51	5.73	5.88	-2.55
				5850	47.41	48.20	-1.64	5.95	6.00	-0.85
4	8/22/2017	5600	Body	5600	46.86	48.48	-3.34	5.84	5.76	1.34
				5500	47.01	48.61	-3.30	5.72	5.64	1.25
				5725	46.66	48.31	-3.41	6.03	5.91	2.12
4	8/22/2017	5200	Body	5200	47.45	49.02	-3.20	5.36	5.29	1.25
				5150	47.66	49.09	-2.91	5.28	5.24	0.85
				5350	47.21	48.82	-3.29	5.55	5.47	1.53
4	9/1/2017	2600	Body	2600	50.32	52.51	-4.17	2.15	2.16	-0.45
				2495	50.58	52.64	-3.92	2.02	2.01	0.43
				2690	50.03	52.40	-4.52	2.27	2.29	-0.67
4	9/5/2017	2600	Body	2600	50.74	52.51	-3.37	2.19	2.16	1.44
				2495	51.11	52.64	-2.91	2.07	2.01	2.82
				2690	50.54	52.40	-3.54	2.30	2.29	0.47

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 ±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 ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 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.

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	Date	Tissue Type	Dipole Type _Serial #	Dipole Cal. Due Data	Measured Results for 1g SAR				Measured Results for 10g SAR				Plot No.
					Zoom Scan to 100 mW	Normalize to 1 W	Target (Ref. Value)	Delta ±10 %	Zoom Scan to 100 mW	Normalize to 1 W	Target (Ref. Value)	Delta ±10 %	
2	8/17/2017	Body	D2450V2 SN:899	3/10/2018	5.460	54.60	50.30	**8.55**	2.520	25.20	23.70	6.33	1,2
2	9/7/2017	Body	D2300V2 SN:1002	3/10/2018	5.090	50.90	47.90	6.26	2.420	24.20	23.10	4.76	
2	9/11/2017	Body	D2300V2 SN:1002	3/10/2018	4.430	44.30	47.90	**-7.52**	2.110	21.10	23.10	-8.66	3,4
2	9/22/2017	Body	D5GHzV2 SN:1003 (5.6 GHz)	2/13/2018	8.270	82.70	78.30	**5.62**	2.270	22.70	22.00	3.18	5,6
3	8/28/2017	Body	D1750V2 SN:1050	4/18/2018	3.880	38.80	37.68	2.97	2.060	20.60	19.92	3.41	
3	8/31/2017	Body	D1900V2 SN:5d140	4/19/2018	3.950	39.50	41.20	-4.13	2.020	20.20	21.52	-6.13	
3	9/5/2017	Body	D835V2 SN:4d117	5/22/2018	1.070	10.70	10.39	**2.98**	0.704	7.04	6.76	4.14	7,8
3	9/7/2017	Body	D1900V2 SN:5d140	4/19/2018	3.910	39.10	41.20	**-5.10**	2.010	20.10	21.52	-6.60	9,10
3	9/7/2017	Body	D1750V2 SN:1050	4/18/2018	3.590	35.90	37.68	**-4.72**	1.920	19.20	19.92	-3.61	11,12
3	9/8/2017	Body	D750V3 SN:1024	5/12/2018	0.909	9.09	8.59	**5.82**	0.606	6.06	5.65	7.26	13,14
3	9/11/2017	Body	D1750V2 SN:1050	4/18/2018	3.740	37.40	37.68	-0.74	1.980	19.80	19.92	-0.60	
3	9/11/2017	Body	D1900V2 SN:5d140	4/19/2018	4.010	40.10	41.20	-2.67	2.060	20.60	21.52	-4.28	
3	9/15/2017	Body	D2450V2 SN:706	5/9/2018	5.340	53.40	50.60	**5.53**	2.460	24.60	23.80	3.36	15,16
3	9/18/2017	Body	D5GHzV2 SN:1003 (5.2 GHz)	2/13/2018	7.670	76.70	70.50	**8.79**	2.150	21.50	19.80	8.59	17,18
3	9/18/2017	Body	D5GHzV2 SN:1003 (5.6 GHz)	2/13/2018	8.230	82.30	78.30	5.11	2.300	23.00	22.00	4.55	
3	9/18/2017	Body	D5GHzV2 SN:1003 (5.8 GHz)	2/13/2018	7.790	77.90	73.50	5.99	2.190	21.90	20.50	6.83	
3	9/22/2017	Body	D5GHzV2 SN:1003 (5.6 GHz)	2/13/2018	8.370	83.70	78.30	6.90	2.340	23.40	22.00	6.36	
4	8/21/2017	Body	D5GHzV2 SN:1138 (5.8 GHz)	9/22/2017	7.880	78.80	75.70	**4.10**	2.280	22.80	21.10	8.06	19,20
4	8/22/2017	Body	D5GHzV2 SN:1003 (5.6 GHz)	2/13/2018	8.190	81.90	78.30	4.60	2.270	22.70	22.00	3.18	
4	8/22/2017	Body	D5GHzV2 SN:1003 (5.2 GHz)	2/13/2018	7.690	76.90	70.50	**9.08**	2.170	21.70	19.80	9.60	21,22
4	9/1/2017	Body	D2600V2 SN:1036	3/10/2018	5.250	52.50	54.60	**-3.85**	2.270	22.70	24.50	-7.35	23,24
4	9/5/2017	Body	D2600V2 SN:1036	3/10/2018	5.660	56.60	54.60	3.66	2.460	24.60	24.50	0.41	

9. Conducted Output Power Measurements

9.1. 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
	βc/βd	8/15

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to Release 5 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			
	βc	2/15	11/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	11/15	15/8	15/4
	βhs	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			
	Ahs=βhs/βc	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 table C,11.1.3 of 3GPP TS 34.121-1 v13.
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
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	-
	βhs	22/15	12/15	30/15	4/15	5/15
	βed	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				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	E-DPDCCH	6	8	8	5	0
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	67
	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

DC-HSDPA Setup Procedures used to establish the test signals

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH _Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

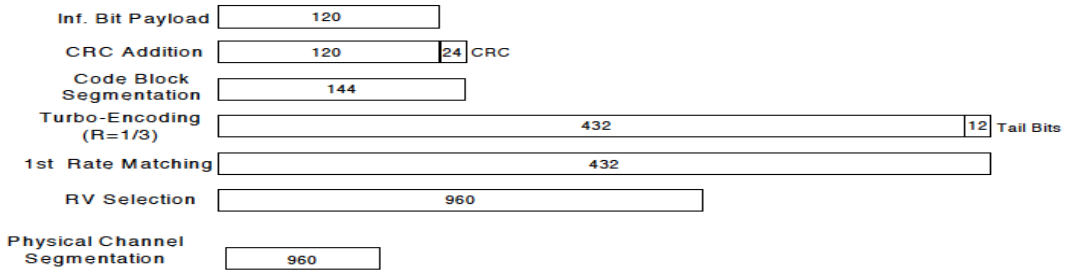


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 8 procedures in section 5.2 of 3GPP TS34.121. A summary of subtest settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 1			
	Power Control Algorithm	Algorithm2			
	βc	2/15	11/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs = βhs/ βc	30/15			

HSPA+ Release 7

Per KDB 941225 D01 §4.4, Power is measured for HSPA+ that supports uplink 16 QAM. Since 16QAM is not used for uplink, the RF conducted power measurements are not required.

W-CDMA Band II Measured Results

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Max. Meas. Avg Pwr (dBm)	Reduced Meas. Avg Pwr (dBm)
W-CDMA Band II	Rel 99	RMC, 12.2 kbps	9262	1852.4	N/A	23.6	14.0
			9400	1880.0	N/A	24.0	14.1
			9538	1907.6	N/A	23.8	14.3
	HSDPA	Subtest 1	9262	1852.4	0	22.7	14.0
			9400	1880.0	0	23.0	14.1
			9538	1907.6	0	22.7	14.1
		Subtest 2	9262	1852.4	0	22.7	13.9
			9400	1880.0	0	23.0	14.0
			9538	1907.6	0	22.7	14.2
		Subtest 3	9262	1852.4	0.5	22.1	13.9
			9400	1880.0	0.5	22.5	14.1
			9538	1907.6	0.5	22.2	14.1
		Subtest 4	9262	1852.4	0.5	22.1	13.9
			9400	1880.0	0.5	22.5	14.0
			9538	1907.6	0.5	22.2	14.2
	HSUPA	Subtest 1	9262	1852.4	0	22.5	12.6
			9400	1880.0	0	22.9	13.3
			9538	1907.6	0	22.7	12.6
		Subtest 2	9262	1852.4	2	20.5	10.5
			9400	1880.0	2	20.9	11.0
			9538	1907.6	2	20.6	11.1
		Subtest 3	9262	1852.4	1	21.5	11.8
			9400	1880.0	1	21.9	11.9
			9538	1907.6	1	21.7	11.6
		Subtest 4	9262	1852.4	2	20.5	10.5
			9400	1880.0	2	20.9	11.0
			9538	1907.6	2	20.6	11.1
		Subtest 5	9262	1852.4	0	22.5	12.6
			9400	1880.0	0	22.9	13.3
			9538	1907.6	0	22.7	12.6
	DC-HSDPA	Subtest 1	9262	1852.4	0	22.7	13.9
			9400	1880.0	0	23.0	14.0
			9538	1907.6	0	22.7	14.2
		Subtest 2	9262	1852.4	0	22.7	13.9
			9400	1880.0	0	23.0	14.0
			9538	1907.6	0	22.7	14.1
		Subtest 3	9262	1852.4	0.5	22.1	13.9
			9400	1880.0	0.5	22.5	14.0
			9538	1907.6	0.5	22.2	14.1
		Subtest 4	9262	1852.4	0.5	22.1	13.9
			9400	1880.0	0.5	22.5	14.0
			9538	1907.6	0.5	22.2	14.1

W-CDMA Band V Measured Results

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Max. Meas. Avg Pwr (dBm)	Reduced Meas. Avg Pwr (dBm)
W-CDMA Band V	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	24.1	21.5
			4183	836.6	N/A	24.1	21.5
			4233	846.6	N/A	24.0	21.6
	HSDPA	Subtest 1	4132	826.4	0	23.2	20.5
			4183	836.6	0	23.0	20.5
			4233	846.6	0	23.0	20.6
		Subtest 2	4132	826.4	0	23.2	20.5
			4183	836.6	0	23.0	20.5
			4233	846.6	0	23.0	20.6
		Subtest 3	4132	826.4	0.5	22.5	20.0
			4183	836.6	0.5	22.4	20.0
			4233	846.6	0.5	22.5	20.1
		Subtest 4	4132	826.4	0.5	22.5	20.0
			4183	836.6	0.5	22.4	20.0
			4233	846.6	0.5	22.5	20.1
	HSUPA	Subtest 1	4132	826.4	0	23.3	20.4
			4183	836.6	0	23.4	20.4
			4233	846.6	0	23.6	20.6
		Subtest 2	4132	826.4	2	21.4	18.4
			4183	836.6	2	21.1	18.5
			4233	846.6	2	21.6	18.6
		Subtest 3	4132	826.4	1	22.4	19.5
			4183	836.6	1	22.1	19.4
			4233	846.6	1	22.6	19.6
		Subtest 4	4132	826.4	2	21.4	18.4
			4183	836.6	2	21.1	18.5
			4233	846.6	2	21.6	18.6
		Subtest 5	4132	826.4	0	23.3	20.4
			4183	836.6	0	23.4	20.4
			4233	846.6	0	23.6	20.6
	DC-HSDPA	Subtest 1	4132	826.4	0	23.2	20.5
			4183	836.6	0	23.0	20.5
			4233	846.6	0	23.0	20.7
		Subtest 2	4132	826.4	0	23.2	20.5
			4183	836.6	0	23.0	20.5
			4233	846.6	0	23.0	20.6
		Subtest 3	4132	826.4	0.5	22.5	20.0
			4183	836.6	0.5	22.4	20.0
			4233	846.6	0.5	22.5	20.1
		Subtest 4	4132	826.4	0.5	22.5	20.0
			4183	836.6	0.5	22.4	20.0
			4233	846.6	0.5	22.5	20.1

9.2. 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 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

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 (subclause)	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	N/A
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36, 66, 70	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2, 6.6.3.3.19	41	5, 10, 15, 20	Table 6.2.4-4, Table 6.2.4-4a	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50 (NOTE1)	≤ 1 (NOTE1)
			15, 20	Table 6.2.4-18 (NOTE2)	
		65 (NOTE 3)	10,15,20	≥ 50	≤ 1 (NOTE 1)
			15,20	Table 6.2.4-18 (NOTE 2)	
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 6.6.3.3.2	13	10	Table 6.2.4-2	
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
NS_10		20	15, 20	Table 6.2.4-3	
NS_11	6.6.2.2.1 6.6.3.3.13	23	1.4, 3, 5, 10, 15, 20	Table 6.2.4-5	
NS_12	6.6.3.3.5	26	1.4, 3, 5, 10, 15	Table 6.2.4-6	
NS_13	6.6.3.3.6	26	5	Table 6.2.4-7	
NS_14	6.6.3.3.7	26	10, 15	Table 6.2.4-8	
NS_15	6.6.3.3.8	26	1.4, 3, 5, 10, 15	Table 6.2.4-9 Table 6.2.4-10	
NS_16	6.6.3.3.9	27	3, 5, 10	Table 6.2.4-11, Table 6.2.4-12, Table 6.2.4-13	
NS_17	6.6.3.3.10	28	5, 10	Table 5.6-1	N/A
NS_18	6.6.3.3.11	28	5	≥ 2	≤ 1
			10, 15, 20	≥ 1	≤ 4
NS_19	6.6.3.3.12	44	10, 15, 20	Table 6.2.4-14	
NS_20	6.2.2 6.6.2.2.1 6.6.3.3.14	23	5, 10, 15, 20	Table 6.2.4-15	
NS_21	6.6.2.2.1 6.6.3.3.15	30	5, 10	Table 6.2.4-16	
NS_22	6.6.3.3.16	42, 43	5, 10, 15, 20	Table 6.2.4-17	
NS_23	6.6.3.3.17	42, 43	5, 10, 15, 20	N/A	
NS_24	6.6.3.3.20	65 (NOTE 4)	5, 10, 15, 20	Table 6.2.4-19	
NS_25	6.6.3.3.21	65 (NOTE 4)	5, 10, 15, 20	Table 6.2.4-20	
NS_26	6.6.3.3.22	68	10, 15	Table 6.2.4-21	
NS_27	6.6.2.2.5, 6.6.3.3.23	48	5, 10, 15, 20	Table 6.2.4-22	
NS_28	6.2.2A, 6.6.3.3.24	46 (NOTE 5)	20	Table 6.2.4-23	
NS_29	6.2.2A, 6.6.2.3.1a, 6.6.3.3.25	46 (NOTE 5)	20	Table 6.2.4-24	
NS_30	6.2.2A, 6.6.3.3.26	46 (NOTE 5)	20	Table 6.2.4-25	
NS_31	6.2.2A, 6.6.3.3.27	46 (NOTE 5)	20	Table 6.2.4-26	
NS_32	-	-	-	-	-

NOTE 1: Applicable when the lower edge of the assigned E-UTRA UL channel bandwidth frequency is larger than or equal to the upper edge of PHS band (1915.7 MHz) + 4 MHz + the channel BW assigned, where channel BW is as defined in subclause 5.6. A-MPR for

LTE Band 2 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1860 MHz	1880 MHz	1900 MHz		1860 MHz	1880 MHz	1900 MHz
LTE Band 2	20	QPSK	1	0	0	24.3	24.4	24.4	0	13.9	14.0	14.0
			1	49	0	24.0	24.0	24.0	0	13.7	13.7	13.8
			1	99	0	24.0	23.9	23.5	0	13.7	13.6	13.8
			50	0	2	21.7	21.8	21.7	0	13.8	13.9	13.9
			50	24	2	21.6	21.7	21.6	0	13.8	13.8	13.9
			50	50	2	21.6	21.6	21.5	0	13.8	13.7	13.9
			100	0	2	21.7	21.7	21.6	0	13.8	13.8	13.8
		16QAM	1	0	2	22.2	22.2	22.4	0	13.8	13.9	14.4
			1	49	2	22.1	22.2	22.0	0	13.7	13.6	14.1
			1	99	2	22.1	21.9	22.0	0	13.7	13.6	14.3
			50	0	3	20.7	20.8	20.7	0	13.8	13.9	13.9
			50	24	3	20.7	20.8	20.7	0	13.8	13.8	13.8
			50	50	3	20.7	20.7	20.5	0	13.8	13.7	13.8
			100	0	3	20.7	20.7	20.6	0	13.8	13.8	13.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1857.5 MHz	1880 MHz	1902.5 MHz		1857.5 MHz	1880 MHz	1902.5 MHz
LTE Band 2	15	QPSK	1	0	0	23.6	23.8	23.7	0	13.9	14.0	14.0
			1	37	0	23.5	23.5	23.4	0	13.7	13.7	13.8
			1	74	0	23.5	23.4	23.4	0	13.7	13.6	13.8
			36	0	1	21.5	21.8	21.7	0	13.8	13.9	13.9
			36	20	1	21.5	21.7	21.6	0	13.8	13.8	13.9
			36	39	1	21.5	21.6	21.5	0	13.8	13.7	13.9
			75	0	1	21.5	21.7	21.6	0	13.8	13.8	13.8
		16QAM	1	0	1	21.5	21.8	21.7	0	13.8	13.9	14.4
			1	37	1	21.4	21.5	21.4	0	13.7	13.6	14.1
			1	74	1	21.5	21.4	21.4	0	13.7	13.6	14.3
			36	0	2	20.5	20.8	20.6	0	13.8	13.9	13.9
			36	20	2	20.6	20.7	20.6	0	13.8	13.8	13.8
			36	39	2	20.6	20.6	20.6	0	13.8	13.7	13.8
			75	0	2	20.5	20.7	20.6	0	13.8	13.8	13.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1855 MHz	1880 MHz	1905 MHz		1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	23.5	23.8	23.8	0	13.9	13.9	13.9
			1	25	0	23.4	23.6	23.6	0	13.8	13.7	13.8
			1	49	0	23.5	23.6	23.8	0	13.8	13.6	13.9
			25	0	2	21.5	21.8	21.7	0	13.9	13.8	14.0
			25	12	2	21.5	21.7	21.7	0	13.9	13.8	13.9
			25	25	2	21.5	21.6	21.6	0	13.8	13.7	13.9
			50	0	2	21.5	21.7	21.7	0	13.9	13.7	13.9
		16QAM	1	0	2	21.4	21.7	21.8	0	14.0	13.9	14.0
			1	25	2	21.4	21.5	21.6	0	13.8	13.7	13.9
			1	49	2	21.4	21.5	21.6	0	13.8	13.6	13.9
			25	0	3	20.5	20.7	20.8	0	14.0	13.9	14.0
			25	12	3	20.4	20.6	20.8	0	14.0	13.8	14.0
			25	25	3	20.5	20.6	20.7	0	13.9	13.7	14.0
			50	0	3	20.5	20.7	20.7	0	13.9	13.8	14.0

LTE Band 2 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1852.5 MHz	1880 MHz	1907.5 MHz		1852.5 MHz	1880 MHz	1907.5 MHz
LTE Band 2	5	QPSK	1	0	0	23.5	23.8	23.8	0	13.9	13.8	14.0
			1	12	0	23.5	23.6	23.6	0	13.8	13.7	13.9
			1	24	0	23.5	23.7	23.8	0	13.9	13.7	14.0
			12	0	2	21.5	21.7	21.6	0	13.8	13.8	13.9
			12	7	2	21.5	21.7	21.6	0	13.8	13.8	13.9
			12	13	2	21.5	21.6	21.6	0	13.9	13.7	13.9
			25	0	2	21.4	21.7	21.6	0	13.8	13.8	14.0
		16QAM	1	0	2	21.5	21.9	21.8	0	13.9	14.3	14.1
			1	12	2	21.5	21.8	21.7	0	13.9	14.3	14.1
			1	24	2	21.6	21.8	21.7	0	13.9	14.2	14.1
			12	0	3	20.5	20.8	20.7	0	13.9	13.9	14.0
			12	7	3	20.5	20.8	20.7	0	13.9	13.9	14.1
			12	13	3	20.5	20.7	20.7	0	13.9	13.9	14.0
			25	0	3	20.4	20.7	20.6	0	13.8	13.8	13.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1851.5 MHz	1880 MHz	1908.5 MHz		1851.5 MHz	1880 MHz	1908.5 MHz
LTE Band 2	3	QPSK	1	0	0	23.4	23.7	23.7	0	13.7	13.7	13.9
			1	8	0	23.5	23.8	23.7	0	13.8	13.8	14.0
			1	14	0	23.4	23.6	23.7	0	13.8	13.7	13.9
			8	0	2	21.4	21.6	21.6	0	13.8	13.7	13.9
			8	4	2	21.4	21.7	21.6	0	13.8	13.8	13.9
			8	7	2	21.4	21.7	21.6	0	13.8	13.7	13.9
			15	0	2	21.4	21.6	21.6	0	13.8	13.7	13.9
		16QAM	1	0	2	21.4	22.1	21.5	0	13.8	13.8	14.3
			1	8	2	21.5	22.1	21.6	0	13.9	13.8	14.4
			1	14	2	21.4	22.0	21.4	0	13.8	13.7	14.3
			8	0	3	20.4	20.8	20.7	0	13.8	13.8	14.0
			8	4	3	20.5	20.8	20.7	0	13.8	13.8	14.0
			8	7	3	20.5	20.7	20.7	0	13.8	13.8	14.0
			15	0	3	20.3	20.7	20.7	0	13.7	13.7	13.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1850.7 MHz	1880 MHz	1909.3 MHz		1850.7 MHz	1880 MHz	1909.3 MHz
LTE Band 2	1.4	QPSK	1	0	0	23.3	23.6	23.5	0	13.5	13.7	13.7
			1	3	0	23.4	23.6	23.6	0	13.6	13.7	13.7
			1	5	0	23.3	23.6	23.1	0	13.5	13.7	13.6
			3	0	0	23.3	23.6	23.8	0	13.6	13.6	13.6
			3	1	0	23.4	23.6	23.0	0	13.6	13.6	13.6
			3	3	0	23.4	23.6	23.0	0	13.7	13.6	13.6
			6	0	2	21.3	21.6	21.5	0	13.7	13.7	13.7
		16QAM	1	0	2	21.3	21.9	21.6	0	13.7	13.7	13.8
			1	3	2	21.4	22.0	21.6	0	13.8	13.8	13.8
			1	5	2	21.4	21.9	21.6	0	13.7	13.8	13.7
			3	0	2	21.5	21.8	21.6	0	13.9	13.7	13.7
			3	1	2	21.5	21.8	21.6	0	13.9	13.8	13.8
			3	3	2	21.5	21.8	21.6	0	13.9	13.7	13.7
			6	0	3	20.5	20.5	20.7	0	13.9	13.8	13.8

LTE Band 4 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1720 MHz	1732.5 MHz	1745 MHz		1720 MHz	1732.5 MHz	1745 MHz
LTE Band 4	20	QPSK	1	0	0		24.2		0		13.3	
			1	49	0		23.9		0		13.1	
			1	99	0		23.9		0		13.1	
			50	0	2		21.7		0		13.2	
			50	24	2		21.7		0		13.2	
			50	50	2		21.6		0		13.1	
			100	0	2		21.7		0		13.1	
		16QAM	1	0	2		22.2		0		13.8	
			1	49	2		22.0		0		13.6	
			1	99	2		21.9		0		13.6	
			50	0	3		20.7		0		13.2	
			50	24	3		20.7		0		13.2	
			50	50	3		20.6		0		13.1	
			100	0	3		20.7		0		13.2	

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1717.5 MHz	1732.5 MHz	1747.5 MHz		1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE Band 4	15	QPSK	1	0	0	23.8	23.7	23.9	0	13.3	13.2	13.4
			1	37	0	23.6	23.6	23.6	0	13.1	13.0	13.2
			1	74	0	23.7	23.6	23.6	0	13.1	13.0	13.2
			36	0	2	21.7	21.7	21.7	0	13.1	13.2	13.3
			36	20	2	21.6	21.6	21.7	0	13.1	13.1	13.2
			36	39	2	21.6	21.6	21.6	0	13.1	13.1	13.2
			75	0	2	21.6	21.6	21.6	0	13.1	13.1	13.2
		16QAM	1	0	2	22.1	21.7	22.2	0	13.6	13.1	13.8
			1	37	2	22.0	21.4	22.0	0	13.4	13.0	13.5
			1	74	2	21.9	21.5	22.0	0	13.4	13.0	13.5
			36	0	3	20.7	20.7	20.7	0	13.2	13.1	13.3
			36	20	3	20.6	20.7	20.7	0	13.2	13.1	13.2
			36	39	3	20.6	20.6	20.6	0	13.1	13.1	13.2
			75	0	3	20.6	20.6	20.7	0	13.1	13.1	13.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1715 MHz	1732.5 MHz	1750 MHz		1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	23.7	23.7	23.7	0	13.2	13.1	13.3
			1	25	0	23.6	23.6	23.6	0	13.1	13.0	13.1
			1	49	0	23.6	23.5	23.5	0	13.1	13.0	13.1
			25	0	2	21.6	21.7	21.7	0	13.1	13.2	13.2
			25	12	2	21.6	21.6	21.6	0	13.1	13.1	13.2
			25	25	2	21.5	21.6	21.6	0	13.1	13.1	13.2
			50	0	2	21.6	21.6	21.6	0	13.1	13.1	13.2
		16QAM	1	0	2	22.0	21.7	21.8	0	13.5	13.1	13.3
			1	25	2	21.9	21.5	21.6	0	13.4	13.0	13.2
			1	49	2	21.9	21.5	21.6	0	13.3	13.0	13.2
			25	0	3	20.6	20.7	20.7	0	13.1	13.2	13.3
			25	12	3	20.6	20.6	20.7	0	13.1	13.1	13.3
			25	25	3	20.6	20.6	20.7	0	13.1	13.1	13.3
			50	0	3	20.6	20.6	20.6	0	13.1	13.1	13.2

Note(s):

20 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

LTE Band 4 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1712.5 MHz	1732.5 MHz	1752.5 MHz		1712.5 MHz	1732.5 MHz	1752.5 MHz
LTE Band 4	5	QPSK	1	0	0	23.6	23.7	23.7	0	13.1	13.2	13.3
			1	12	0	23.5	23.6	23.6	0	13.1	13.1	13.2
			1	24	0	23.6	23.6	23.6	0	13.1	13.1	13.2
			12	0	2	21.5	21.6	21.6	0	13.1	13.1	13.2
			12	7	2	21.5	21.6	21.6	0	13.1	13.1	13.2
			12	13	2	21.5	21.6	21.6	0	13.1	13.1	13.2
			25	0	2	21.5	21.6	21.6	0	13.1	13.1	13.2
		16QAM	1	0	2	22.1	21.8	21.8	0	13.6	13.3	13.4
			1	12	2	22.0	21.7	21.7	0	13.6	13.2	13.3
			1	24	2	22.1	21.8	21.7	0	13.6	13.2	13.3
			12	0	3	20.7	20.7	20.6	0	13.2	13.2	13.3
			12	7	3	20.7	20.7	20.6	0	13.2	13.2	13.3
			12	13	3	20.7	20.6	20.6	0	13.2	13.1	13.2
			25	0	3	20.6	20.6	20.5	0	13.1	13.1	13.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1711.5 MHz	1732.5 MHz	1753.5 MHz		1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	23.5	23.6	23.5	0	13.0	13.1	13.1
			1	8	0	23.7	23.7	23.6	0	13.1	13.2	13.3
			1	14	0	23.5	23.5	23.5	0	13.0	13.0	13.1
			8	0	2	21.4	21.6	21.6	0	13.1	13.1	13.2
			8	4	2	21.5	21.6	21.6	0	13.1	13.1	13.2
			8	7	2	21.5	21.6	21.6	0	13.1	13.1	13.2
			15	0	2	21.5	21.6	21.5	0	13.0	13.1	13.2
		16QAM	1	0	2	21.9	21.5	21.6	0	13.1	13.4	13.1
			1	8	2	22.0	21.6	21.7	0	13.1	13.5	13.2
			1	14	2	21.9	21.4	21.5	0	13.0	13.4	13.0
			8	0	3	20.6	20.7	20.6	0	13.0	13.2	13.3
			8	4	3	20.6	20.7	20.6	0	13.1	13.2	13.3
			8	7	3	20.5	20.7	20.6	0	13.1	13.1	13.3
			15	0	3	20.5	20.6	20.5	0	13.0	13.1	13.2

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1710.7 MHz	1732.5 MHz	1754.3 MHz		1710.7 MHz	1732.5 MHz	1754.3 MHz
LTE Band 4	1.4	QPSK	1	0	0	23.4	23.5	23.5	0	13.0	13.0	13.1
			1	3	0	23.4	23.6	23.5	0	13.0	13.0	13.1
			1	5	0	23.4	23.5	23.4	0	13.0	13.0	13.0
			3	0	0	23.4	23.6	23.4	0	13.0	12.9	13.1
			3	1	0	23.5	23.6	23.5	0	13.0	13.0	13.1
			3	3	0	23.5	23.6	23.4	0	13.0	13.0	13.1
			6	0	2	21.4	21.5	21.5	0	13.0	13.0	13.1
		16QAM	1	0	2	21.4	21.9	21.6	0	13.3	13.0	13.1
			1	3	2	21.5	21.9	21.6	0	13.3	13.1	13.1
			1	5	2	21.5	21.9	21.6	0	13.3	13.0	13.1
			3	0	2	21.6	21.7	21.5	0	13.1	13.0	13.2
			3	1	2	21.6	21.7	21.6	0	13.2	13.1	13.3
			3	3	2	21.6	21.7	21.5	0	13.2	13.0	13.3
			6	0	3	20.6	20.4	20.6	0	12.8	13.1	13.2

LTE Band 5 Measured Results

SAR for LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 7 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						2510 MHz	2535 MHz	2560 MHz		2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	23.6	23.3	23.3	0	13.5	13.5	13.6
			1	49	0	23.3	23.1	23.2	0	13.3	13.4	13.5
			1	99	0	23.2	23.2	23.2	0	13.3	13.4	13.3
			50	0	2	21.5	21.3	21.3	0	13.5	13.5	13.6
			50	24	2	21.4	21.2	21.3	0	13.4	13.5	13.5
			50	50	2	21.3	21.2	21.3	0	13.3	13.5	13.4
			100	0	2	21.4	21.2	21.3	0	13.4	13.5	13.5
		16QAM	1	0	2	22.0	21.7	21.9	0	14.0	14.0	14.0
			1	49	2	21.7	21.7	21.7	0	13.7	13.9	13.8
			1	99	2	21.6	21.6	21.7	0	13.7	13.9	13.7
			50	0	3	20.5	20.3	20.4	0	13.5	13.5	13.6
			50	24	3	20.4	20.2	20.3	0	13.4	13.6	13.5
			50	50	3	20.3	20.2	20.3	0	13.4	13.5	13.4
			100	0	3	20.4	20.2	20.3	0	13.4	13.5	13.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						2507.5 MHz	2535 MHz	2562.5 MHz		2507.5 MHz	2535 MHz	2562.5 MHz
LTE Band 7	15	QPSK	1	0	0	23.6	23.3	23.3	0	13.5	13.5	13.6
			1	37	0	23.4	23.1	23.2	0	13.4	13.4	13.4
			1	74	0	23.3	23.1	23.1	0	13.3	13.4	13.3
			36	0	2	21.5	21.2	21.3	0	13.4	13.5	13.6
			36	20	2	21.4	21.2	21.3	0	13.4	13.5	13.5
			36	39	2	21.3	21.2	21.3	0	13.4	13.5	13.5
			75	0	2	21.4	21.2	21.3	0	13.4	13.4	13.5
		16QAM	1	0	2	22.0	21.6	21.3	0	13.9	13.8	13.5
			1	37	2	21.7	21.5	21.1	0	13.7	13.7	13.3
			1	74	2	21.7	21.5	21.1	0	13.7	13.7	13.2
			36	0	3	20.5	20.2	20.3	0	13.4	13.5	13.6
			36	20	3	20.4	20.3	20.3	0	13.4	13.5	13.5
			36	39	3	20.3	20.2	20.2	0	13.3	13.5	13.5
			75	0	3	20.4	20.2	20.3	0	13.4	13.5	13.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						2505 MHz	2535 MHz	2565 MHz		2505 MHz	2535 MHz	2565 MHz
LTE Band 7	10	QPSK	1	0	0	23.5	23.1	23.3	0	13.4	13.5	13.5
			1	25	0	23.4	23.1	23.2	0	13.3	13.5	13.4
			1	49	0	23.4	23.1	23.2	0	13.3	13.4	13.3
			25	0	2	21.5	21.2	21.3	0	13.4	13.5	13.5
			25	12	2	21.5	21.2	21.3	0	13.4	13.5	13.5
			25	25	2	21.4	21.2	21.3	0	13.4	13.4	13.4
			50	0	2	21.4	21.2	21.3	0	13.4	13.4	13.5
		16QAM	1	0	2	21.9	21.2	21.4	0	13.5	13.8	13.5
			1	25	2	21.8	21.0	21.3	0	13.4	13.8	13.3
			1	49	2	21.7	21.0	21.3	0	13.4	13.7	13.3
			25	0	3	20.5	20.2	20.4	0	13.5	13.5	13.6
			25	12	3	20.5	20.2	20.4	0	13.5	13.5	13.5
			25	25	3	20.4	20.2	20.3	0	13.5	13.5	13.4
			50	0	3	20.5	20.2	20.3	0	13.4	13.5	13.5

LTE Band 7 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						2502.5 MHz	2535 MHz	2567.5 MHz		2502.5 MHz	2535 MHz	2567.5 MHz
LTE Band 7	5	QPSK	1	0	0	23.5	23.2	23.3	0	13.4	13.5	13.5
			1	12	0	23.5	23.1	23.3	0	13.4	13.5	13.5
			1	24	0	23.4	23.1	23.3	0	13.3	13.4	13.4
			12	0	2	21.5	21.2	21.3	0	13.4	13.4	13.5
			12	7	2	21.5	21.2	21.3	0	13.4	13.5	13.5
			12	13	2	21.5	21.2	21.3	0	13.4	13.4	13.5
			25	0	2	21.5	21.2	21.3	0	13.4	13.5	13.4
		16QAM	1	0	2	21.6	21.7	21.5	0	13.9	13.7	13.6
			1	12	2	21.5	21.7	21.5	0	13.9	13.6	13.5
			1	24	2	21.5	21.6	21.4	0	13.9	13.6	13.5
			12	0	3	20.5	20.3	20.4	0	13.5	13.6	13.5
			12	7	3	20.5	20.3	20.4	0	13.5	13.6	13.5
			12	13	3	20.5	20.3	20.3	0	13.5	13.6	13.5
			25	0	3	20.4	20.2	20.3	0	13.5	13.5	13.4

LTE Band 12 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						704 MHz	707.5 MHz	711 MHz		704 MHz	707.5 MHz	711 MHz
LTE Band 12	10	QPSK	1	0	0		24.0		0		21.0	
			1	25	0		23.9		0		20.9	
			1	49	0		23.8		0		20.9	
			25	0	1		23.0		0		21.0	
			25	12	1		22.9		0		21.0	
			25	25	1		22.9		0		20.9	
			50	0	1		22.9		0		20.9	
		16QAM	1	0	1		23.0		0		21.4	
			1	25	1		22.9		0		21.3	
			1	49	1		22.8		0		21.2	
			25	0	2		22.1		0		21.0	
			25	12	2		22.0		0		21.0	
			25	25	2		21.9		0		20.9	
			50	0	2		21.9		0		21.0	
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						701.5 MHz	707.5 MHz	713.5 MHz		701.5 MHz	707.5 MHz	713.5 MHz
LTE Band 12	5	QPSK	1	0	0	24.0	24.0	24.0	0	20.9	21.0	21.1
			1	12	0	23.9	24.0	24.0	0	20.9	20.9	21.0
			1	24	0	23.9	23.9	23.9	0	20.9	20.9	21.0
			12	0	1	22.9	23.0	23.0	0	20.9	21.0	21.0
			12	7	1	22.9	22.9	23.0	0	20.9	20.9	21.0
			12	13	1	22.9	22.9	23.0	0	20.9	20.9	21.0
			25	0	1	22.9	22.9	22.9	0	20.9	20.9	21.0
		16QAM	1	0	1	23.1	23.1	23.5	0	21.5	21.1	21.1
			1	12	1	23.1	23.0	23.5	0	21.4	21.1	21.1
			1	24	1	23.1	23.0	23.5	0	21.4	21.1	21.0
			12	0	2	22.0	22.0	22.1	0	21.1	21.0	21.1
			12	7	2	22.0	22.0	22.1	0	21.0	21.0	21.0
			12	13	2	21.9	21.9	22.1	0	21.0	21.0	21.0
			25	0	2	21.9	21.8	22.0	0	21.0	20.9	20.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						700.5 MHz	707.5 MHz	714.5 MHz		700.5 MHz	707.5 MHz	714.5 MHz
LTE Band 12	3	QPSK	1	0	0	23.8	23.9	24.0	0	20.8	20.9	21.0
			1	8	0	23.9	24.0	24.1	0	20.9	21.0	21.0
			1	14	0	23.8	23.8	23.9	0	20.8	20.9	20.9
			8	0	1	22.8	22.9	22.9	0	20.8	20.9	20.9
			8	4	1	22.8	22.9	22.9	0	20.9	20.9	20.9
			8	7	1	22.8	22.9	22.9	0	20.8	21.0	20.9
			15	0	1	22.8	22.9	22.9	0	20.8	20.9	20.9
		16QAM	1	0	1	22.7	23.0	23.3	0	20.7	21.0	21.3
			1	8	1	22.8	23.0	23.4	0	20.8	21.0	21.4
			1	14	1	22.7	22.9	23.3	0	20.7	20.9	21.2
			8	0	2	21.9	21.9	22.0	0	20.9	21.0	21.0
			8	4	2	21.9	22.0	22.0	0	20.9	21.0	21.0
			8	7	2	21.9	22.0	22.0	0	20.9	21.0	21.0
			15	0	2	21.8	21.8	22.0	0	20.9	20.8	21.0

Note(s):

10 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

LTE Band 12 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						699.7 MHz	707.5 MHz	715.3 MHz		699.7 MHz	707.5 MHz	715.3 MHz
LTE Band 12	1.4	QPSK	1	0	0	23.8	23.8	23.8	0	20.8	20.9	20.8
			1	3	0	23.9	23.9	23.8	0	20.8	20.9	20.9
			1	5	0	23.8	23.8	23.7	0	20.8	20.8	20.8
			3	0	0	23.8	23.9	23.7	0	20.8	20.8	20.8
			3	1	0	23.9	23.9	23.8	0	20.8	20.9	20.9
			3	3	0	23.9	23.9	23.7	0	20.8	20.8	20.9
			6	0	1	22.8	22.8	22.7	0	20.7	20.9	20.8
		16QAM	1	0	1	23.2	22.9	22.8	0	21.1	20.9	20.8
			1	3	1	23.2	22.9	22.9	0	21.2	21.0	20.9
			1	5	1	23.1	22.9	22.8	0	21.1	20.9	20.8
			3	0	1	23.0	23.0	22.8	0	20.9	20.8	21.0
			3	1	1	23.0	23.1	22.8	0	21.0	20.9	21.0
			3	3	1	23.0	23.1	22.8	0	20.9	20.9	21.0
			6	0	2	21.7	22.0	21.9	0	20.6	21.0	21.0

LTE Band 13 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)	MPR	Reduced Meas. Avg Pwr (dBm)
						782 MHz		782 MHz
LTE Band 13	10	QPSK	1	0	0	24.1	0	22.0
			1	25	0	23.9	0	21.8
			1	49	0	23.9	0	21.8
			25	0	1	23.0	0	22.0
			25	12	1	23.0	0	22.0
			25	25	1	22.9	0	21.9
			50	0	1	23.0	0	21.9
		16QAM	1	0	1	23.0	0	21.9
			1	25	1	22.9	0	21.8
			1	49	1	22.8	0	21.7
			25	0	2	22.1	0	22.0
			25	12	2	22.1	0	22.0
			25	25	2	22.0	0	21.9
			50	0	2	22.0	0	21.9

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)	MPR	Reduced Meas. Avg Pwr (dBm)
						782 MHz		782 MHz
LTE Band 13	5	QPSK	1	0	0	24.1	0	22.0
			1	12	0	24.1	0	21.9
			1	24	0	24.0	0	21.9
			12	0	1	23.0	0	21.9
			12	7	1	23.0	0	21.9
			12	13	1	23.0	0	21.9
			25	0	1	23.0	0	22.0
		16QAM	1	0	1	23.2	0	22.0
			1	12	1	23.1	0	22.0
			1	24	1	23.1	0	22.0
			12	0	2	22.1	0	22.0
			12	7	2	22.1	0	22.0
			12	13	2	22.0	0	22.0
			25	0	2	21.9	0	22.0

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

LTE Band 26 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						821.5 MHz	831.5 MHz	841.5 MHz		821.5 MHz	831.5 MHz	841.5 MHz
LTE Band 26	15	QPSK	1	0	0		24.0		0		21.0	
			1	37	0		24.0		0		20.9	
			1	74	0		23.8		0		20.7	
			36	0	1		23.0		0		20.9	
			36	20	1		22.9		0		20.9	
			36	39	1		22.9		0		20.9	
			75	0	1		22.9		0		20.9	
		16QAM	1	0	1		23.4		0		20.9	
			1	37	1		23.3		0		20.7	
			1	74	1		23.1		0		20.6	
			36	0	2		22.0		0		20.9	
			36	20	2		21.9		0		20.9	
			36	39	2		21.8		0		20.8	
			75	0	2		21.9		0		20.9	

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						819 MHz	831.5 MHz	844 MHz		819 MHz	831.5 MHz	844 MHz
LTE Band 26	10	QPSK	1	0	0	24.0	24.0	24.0	0	21.0	20.9	21.0
			1	25	0	23.9	23.9	23.9	0	20.9	20.9	20.9
			1	49	0	23.9	23.9	23.9	0	20.8	20.8	20.9
			25	0	1	23.0	22.9	23.0	0	21.0	20.9	21.0
			25	12	1	23.0	22.9	23.0	0	21.0	20.9	21.0
			25	25	1	22.9	22.8	22.9	0	20.9	20.8	20.9
			50	0	1	23.0	22.9	23.0	0	21.0	20.9	21.0
		16QAM	1	0	1	23.1	23.3	23.0	0	21.3	20.9	21.1
			1	25	1	23.0	23.3	22.9	0	21.3	20.8	20.9
			1	49	1	22.9	23.2	22.8	0	21.2	20.7	20.9
			25	0	2	22.1	22.0	22.0	0	20.9	21.0	21.1
			25	12	2	22.1	22.0	22.0	0	21.0	20.9	21.1
			25	25	2	22.0	21.9	21.9	0	20.9	20.8	21.0
			50	0	2	22.0	21.9	22.0	0	20.9	20.9	21.0

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						816.5 MHz	831.5 MHz	846.5 MHz		816.5 MHz	831.5 MHz	846.5 MHz
LTE Band 26	5	QPSK	1	0	0	23.9	23.9	24.0	0	20.9	21.0	21.0
			1	12	0	23.9	23.9	23.9	0	20.8	20.9	21.0
			1	24	0	23.9	23.8	24.0	0	20.8	20.9	21.0
			12	0	1	22.9	22.9	22.9	0	20.8	20.9	21.0
			12	7	1	22.9	22.9	22.9	0	20.9	20.9	21.0
			12	13	1	22.9	22.9	22.9	0	20.8	20.8	21.0
			25	0	1	22.9	22.9	22.9	0	20.9	20.9	21.0
		16QAM	1	0	1	23.0	23.5	23.2	0	21.4	21.1	21.1
			1	12	1	22.9	23.4	23.1	0	21.3	21.0	21.1
			1	24	1	23.0	23.4	23.1	0	21.3	21.0	21.0
			12	0	2	22.0	22.1	22.0	0	21.0	20.9	21.0
			12	7	2	22.0	22.0	22.0	0	21.0	20.9	21.0
			12	13	2	21.9	22.0	22.0	0	21.0	20.9	21.0
			25	0	2	21.9	22.0	22.0	0	20.9	20.9	20.9

Note(s):

15 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

LTE Band 26 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						815.5 MHz	831.5 MHz	847.5 MHz		815.5 MHz	831.5 MHz	847.5 MHz
LTE Band 26	3	QPSK	1	0	0	23.9	23.9	23.8	0	20.9	20.8	20.9
			1	8	0	24.0	24.0	24.0	0	21.0	20.9	21.0
			1	14	0	23.8	23.9	23.9	0	20.8	20.8	20.9
			8	0	1	22.9	22.8	22.9	0	20.8	20.9	20.9
			8	4	1	22.9	22.9	22.9	0	20.9	20.9	20.9
			8	7	1	22.9	22.8	22.9	0	20.8	20.8	21.0
			15	0	1	22.9	22.9	22.9	0	20.8	20.8	20.9
		16QAM	1	0	1	22.9	23.3	22.8	0	21.3	20.8	21.0
			1	8	1	23.0	23.3	22.9	0	21.3	20.8	21.0
			1	14	1	22.9	23.2	22.8	0	21.2	20.7	20.9
			8	0	2	21.9	22.0	22.0	0	20.9	20.9	20.9
			8	4	2	22.0	21.9	22.0	0	20.9	21.0	21.0
			8	7	2	22.0	21.9	22.0	0	20.9	20.9	21.0
			15	0	2	21.8	21.9	22.0	0	20.9	20.9	20.9

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						814.7 MHz	831.5 MHz	848.3 MHz		814.7 MHz	831.5 MHz	848.3 MHz
LTE Band 26	1.4	QPSK	1	0	0	23.8	23.8	23.8	0	20.7	20.8	20.8
			1	3	0	23.8	23.9	23.9	0	20.8	20.8	20.9
			1	5	0	23.8	23.8	23.8	0	20.7	20.8	20.8
			3	0	0	23.8	23.8	23.8	0	20.7	20.8	20.8
			3	1	0	23.8	23.9	23.9	0	20.8	20.9	20.8
			3	3	0	23.8	23.8	23.8	0	20.8	20.8	20.8
			6	0	1	22.8	22.8	22.8	0	20.8	20.8	20.8
		16QAM	1	0	1	22.8	23.2	22.9	0	20.8	21.1	20.9
			1	3	1	22.9	23.2	23.0	0	20.9	21.1	20.9
			1	5	1	22.8	23.1	22.9	0	20.8	21.1	20.9
			3	0	1	23.0	23.0	22.9	0	20.9	20.9	20.9
			3	1	1	23.0	23.0	22.9	0	21.0	21.0	20.9
			3	3	1	23.0	23.0	23.0	0	21.0	20.9	20.9
			6	0	2	22.0	21.7	22.0	0	20.9	20.6	20.9

LTE Band 30 (10MHz Bandwidth)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)	MPR	Reduced Meas. Avg Pwr (dBm)
						2310 MHz		2310 MHz
LTE Band 30	10	QPSK	1	0	0	22.8	0	12.3
			1	25	0	22.8	0	12.2
			1	49	0	22.8	0	12.2
			25	0	1	21.9	0	12.2
			25	12	1	21.9	0	12.2
			25	25	1	21.8	0	12.2
			50	0	1	21.9	0	12.2
		16QAM	1	0	1	21.9	0	12.2
			1	25	1	21.9	0	12.1
			1	49	1	21.9	0	12.1
			25	0	2	21.0	0	12.3
			25	12	2	21.0	0	12.3
			25	25	2	20.9	0	12.2
			50	0	2	20.9	0	12.3

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)	MPR	Reduced Meas. Avg Pwr (dBm)
						2310 MHz		2310 MHz
LTE Band 30	5	QPSK	1	0	0	22.8	0	12.3
			1	12	0	22.8	0	12.2
			1	24	0	22.8	0	12.2
			12	0	1	21.8	0	12.2
			12	7	1	21.8	0	12.2
			12	13	1	21.8	0	12.2
			25	0	1	21.8	0	12.2
		16QAM	1	0	1	22.3	0	12.4
			1	12	1	22.3	0	12.4
			1	24	1	22.3	0	12.4
			12	0	2	21.0	0	12.3
			12	7	2	20.9	0	12.3
			12	13	2	21.0	0	12.3
			25	0	2	20.9	0	12.3

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

LTE Band 38 Max Power

SAR for LTE Band 38 Full Power (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 Full Power(Frequency range: 2496-2690 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 38 Reduced Power Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Reduced Meas. Avg Pwr (dBm)		
						2580 MHz	2595 MHz	2610 MHz
LTE Band 38	20	QPSK	1	0	0	17.2	17.2	17.1
			1	49	0	17.0	16.9	16.8
			1	99	0	16.9	16.7	16.9
			50	0	1	17.1	17.1	17.1
			50	24	1	17.0	16.9	16.9
			50	50	1	16.9	16.8	16.8
			100	0	1	17.0	17.0	16.9
		16QAM	1	0	1	17.2	17.0	17.1
			1	9	1	17.1	16.7	16.8
			1	99	1	17.0	16.5	16.8
			50	0	2	17.1	17.0	16.9
			50	24	2	17.0	16.9	16.8
			50	50	2	16.9	16.8	16.8
			100	0	2	17.0	16.9	16.8
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Reduced Meas. Avg Pwr (dBm)		
						2577.5 MHz	2595 MHz	2612.5 MHz
LTE Band 38	15	QPSK	1	0	0	17.2	17.0	17.0
			1	37	0	17.0	16.8	16.8
			1	74	0	16.9	16.7	16.8
			36	0	1	17.0	16.9	16.9
			36	20	1	17.0	16.9	16.9
			36	39	1	16.9	16.8	16.8
			75	0	1	17.0	16.8	16.8
		16QAM	1	0	1	17.1	17.0	17.0
			1	37	1	16.9	16.8	16.8
			1	74	1	16.8	16.6	16.9
			36	0	2	17.0	16.9	16.9
			36	20	2	17.0	16.8	16.9
			36	39	2	16.9	16.7	16.9
			75	0	2	17.0	16.9	16.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Reduced Meas. Avg Pwr (dBm)		
						2575 MHz	2595 MHz	2615 MHz
LTE Band 38	10	QPSK	1	0	0	17.0	17.0	16.8
			1	25	0	16.9	16.9	16.8
			1	49	0	16.8	16.8	16.8
			25	0	1	17.1	16.9	16.9
			25	12	1	17.0	16.9	16.9
			25	25	1	17.0	16.8	16.9
			50	0	1	17.0	16.9	16.9
		16QAM	1	0	1	17.2	17.0	16.8
			1	25	1	17.1	16.9	16.8
			1	49	1	17.1	16.8	16.8
			25	0	2	17.0	16.9	16.9
			25	12	2	17.0	16.9	16.8
			25	25	2	16.9	16.8	16.9
			50	0	2	17.0	16.9	16.9

LTE Band 38 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Reduced Meas. Avg Pwr (dBm)		
						2572.5 MHz	2595 MHz	2617.5 MHz
LTE Band 38	5	QPSK	1	0	0	17.0	17.0	16.9
			1	12	0	17.0	16.9	16.7
			1	24	0	16.9	16.9	16.8
			12	0	1	17.1	16.9	17.0
			12	7	1	17.0	17.0	17.0
			12	13	1	17.0	16.9	17.0
			25	0	1	17.0	16.9	16.9
		16QAM	1	0	1	17.1	16.9	16.9
			1	12	1	17.0	16.9	16.8
			1	24	1	17.0	16.8	16.8
			12	0	2	17.1	16.9	16.9
			12	7	2	17.1	16.9	17.0
			12	13	2	17.1	16.8	17.0
			25	0	2	17.0	16.9	16.9

Note(s):

20 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

LTE Band 41 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)					MPR	Reduced Meas. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	23.7	23.5	23.7	24.0	23.9	0	15.6	15.8	15.7	15.7	15.5
			1	49	0	23.5	23.3	23.6	23.6	23.8	0	15.5	15.6	15.4	15.5	15.2
			1	99	0	23.4	23.2	23.6	23.4	23.7	0	15.6	15.6	15.3	15.4	15.1
			50	0	1	22.7	22.4	22.6	22.9	22.9	0	15.6	15.7	15.6	15.6	15.4
			50	24	1	22.6	22.3	22.6	22.7	22.9	0	15.6	15.6	15.5	15.5	15.3
			50	50	1	22.5	22.3	22.6	22.5	22.8	0	15.5	15.5	15.4	15.4	15.1
			100	0	1	22.6	22.3	22.6	22.6	22.7	0	15.5	15.5	15.5	15.5	15.5
		16QAM	1	0	1	22.6	22.6	22.7	22.9	23.2	0	15.5	15.9	15.6	15.6	15.6
			1	49	1	22.4	22.3	22.4	22.5	23.1	0	15.4	15.7	15.4	15.3	15.4
			1	99	1	22.3	22.4	22.5	22.2	23.0	0	15.4	15.7	15.2	15.2	15.2
			50	0	2	21.6	21.4	21.6	21.9	21.9	0	15.6	15.8	15.5	15.6	15.4
			50	24	2	21.6	21.4	21.6	21.7	21.9	0	15.6	15.6	15.4	15.5	15.3
			50	50	2	21.5	21.3	21.6	21.6	21.8	0	15.5	15.6	15.3	15.4	15.2
			100	0	2	21.6	21.3	21.6	21.7	21.8	0	15.6	15.6	15.5	15.5	15.3

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)					MPR	Reduced Meas. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	15	QPSK	1	0	0	23.7	23.4	23.6	24.0	23.9	0	15.5	15.7	15.6	15.7	15.4
			1	37	0	23.6	23.2	23.5	23.6	23.9	0	15.4	15.6	15.4	15.5	15.2
			1	74	0	23.4	23.2	23.5	23.4	23.8	0	15.4	15.5	15.3	15.4	15.1
			36	0	1	22.6	22.3	22.6	22.7	22.9	0	15.4	15.7	15.5	15.6	15.3
			36	20	1	22.6	22.3	22.6	22.7	22.9	0	15.4	15.6	15.5	15.5	15.3
			36	39	1	22.5	22.2	22.6	22.5	22.9	0	15.4	15.6	15.4	15.4	15.2
			75	0	1	22.5	22.3	22.6	22.6	22.8	0	15.4	15.6	15.5	15.5	15.2
		16QAM	1	0	1	22.6	22.4	22.6	22.9	23.0	0	15.4	15.8	15.5	15.6	15.5
			1	37	1	22.4	22.3	22.4	22.6	22.8	0	15.3	15.6	15.3	15.4	15.2
			1	74	1	22.3	22.3	22.5	22.3	22.9	0	15.3	15.5	15.2	15.3	15.1
			36	0	2	21.6	21.3	21.6	21.8	21.9	0	15.4	15.7	15.5	15.5	15.4
			36	20	2	21.6	21.3	21.6	21.7	21.9	0	15.4	15.7	15.5	15.5	15.3
			36	39	2	21.5	21.2	21.5	21.5	21.9	0	15.4	15.6	15.3	15.4	15.2
			75	0	2	21.6	21.3	21.6	21.6	21.8	0	15.4	15.6	15.5	15.5	15.3

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)					MPR	Reduced Meas. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	10	QPSK	1	0	0	23.6	23.3	23.6	23.8	23.8	0	15.4	15.6	15.5	15.5	15.3
			1	25	0	23.6	23.2	23.5	23.7	23.8	0	15.5	15.5	15.4	15.4	15.2
			1	49	0	23.5	23.2	23.5	23.5	23.7	0	15.4	15.5	15.3	15.3	15.1
			25	0	1	22.6	22.3	22.6	22.7	22.8	0	15.4	15.7	15.5	15.4	15.3
			25	12	1	22.6	22.3	22.6	22.7	22.7	0	15.4	15.6	15.5	15.4	15.3
			25	25	1	22.5	22.2	22.6	22.6	22.7	0	15.4	15.6	15.4	15.3	15.2
			50	0	1	22.6	22.2	22.6	22.6	22.7	0	15.4	15.6	15.5	15.4	15.2
		16QAM	1	0	1	22.6	22.5	22.6	22.7	22.6	0	15.4	15.8	15.5	15.5	15.5
			1	25	1	22.6	22.4	22.6	22.6	22.7	0	15.4	15.7	15.4	15.4	15.4
			1	49	1	22.5	22.4	22.5	22.4	22.5	0	15.4	15.7	15.3	15.3	15.3
			25	0	2	21.5	21.3	21.7	21.7	21.7	0	15.4	15.7	15.5	15.4	15.3
			25	12	2	21.6	21.3	21.6	21.6	21.7	0	15.4	15.6	15.4	15.4	15.3
			25	25	2	21.5	21.3	21.6	21.5	21.7	0	15.4	15.6	15.4	15.3	15.2
			50	0	2	21.6	21.3	21.6	21.7	21.8	0	15.4	15.6	15.5	15.4	15.3

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)					MPR	Reduced Meas. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	5	QPSK	1	0	0	23.5	23.2	23.5	23.7	23.7	0	15.3	15.6	15.4	15.4	15.3
			1	12	0	23.6	23.3	23.5	23.6	23.7	0	15.4	15.6	15.3	15.3	15.2
			1	24	0	23.5	23.2	23.5	23.5	23.7	0	15.3	15.5	15.3	15.3	15.1
			12	0	1	22.5	22.2	22.5	22.6	22.8	0	15.4	15.6	15.4	15.4	15.3
			12	7	1	22.6	22.2	22.6	22.6	22.8	0	15.4	15.6	15.5	15.4	15.3
			12	13	1	22.5	22.2	22.6	22.6	22.7	0	15.4	15.6	15.4	15.3	15.2
			25	0	1	22.5	22.2	22.5	22.6	22.7	0	15.3	15.6	15.5	15.4	15.3
		16QAM	1	0	1	22.5	22.3	22.5	22.6	23.0	0	15.3	15.6	15.4	15.3	15.3
			1	12	1	22.5	22.3	22.4	22.5	23.0	0	15.3	15.6	15.3	15.3	15.3
			1	24	1	22.5	22.3	22.5	22.5	22.9	0	15.3	15.7	15.3	15.3	15.3
			12	0	2	21.5	21.3	21.6	21.6	21.8	0	15.3	15.7	15.5	15.4	15.3
			12	7	2	21.5	21.3	21.7	21.5	21.8	0	15.3	15.7	15.5	15.3	15.4
			12	13	2	21.5	21.3	21.6	21.5	21.7	0	15.3	15.6	15.4	15.3	15.3
			25	0	2	21.6	21.2	21.6	21.6	21.7	0	15.4	15.6	15.4	15.4	15.2

9.3. LTE Release 11 Carrier Aggregation

The following power measurements were performed with a single carrier uplink; CA for this device is only supported in the downlinks.
This device supports CA combinations of one (1) Uplink and up to three (3) Downlinks.

When carrier aggregation is limited to downlink only, uplink maximum output power (single carrier) is measured for the supported combinations of downlink carrier aggregation listed in the table below. In applying the power measurement procedures of KDB 941225 D05A for DL CA to qualify for UL SAR test exclusion, power measurement is required only for the subset in each row with the largest combination of frequency bands and CCs (highlighted in the table below).

E-UTRA CA configuration			
DL Intra-Band Non-Contiguous	DL Inter-Band (2 Bands, 2CC)	DL Inter-Band (2 Bands, 3CC)	DL Inter-Band (3 Bands, 3CC)
2A-2A			
4A-4A			
	2A-4A		
	2A-5A		2A-4A-5A
	2A-12A	2A-2A-12A	2A-4A-12A
	2A-13A	2A-2A-13A	2A-4A-13A
	2A-29A		
	2A-30A	2A-2A-30A	2A-5A-30A
			2A-12A-30A
			2A-29A-30A
	4A-5A		
	4A-12A	4A-4A-12A	
	4A-13A	4A-4A-13A	
	4A-29A		
	4A-30A		4A-5A-30A
			4A-12A-30A
			4A-29A-30A
	5A-30A		
	12A-30A		
	29A-30A		

Type	LTE CA combinations			PCC (UL)				SCC (DL)			LTE Rel 8 Tx. Power [dBm]	LTE Rel 11 Tx. Power [dBm]	Delta
	PCC	+	SCC	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)			
Intra-Band Non-Contiguous	2	+	2	20	18700	1860.0	1,0	20	1100	1980.0	24.5	24.5	0.2%
	4	+	4	20	20050	1720.0	1,0	20	2300	2145.0	24.4	24.4	0.3%
Inter-Band Non-Contiguous	2	+	4	20	18900	1880.0	1,0	20	2175	2132.5	24.5	24.4	-0.4%
	2	+	29	20	18900	1880.0	1,0	10	9715	722.5	24.5	24.5	-0.1%
	4	+	5	20	20175	1732.5	1,0	10	2525	881.5	24.3	24.3	0.0%
	4	+	29	20	20175	1732.5	1,0	10	9715	722.5	24.3	24.3	0.1%
	5	+	30	10	20525	836.5	1,0	10	9820	2355.0	24.00	24.02	0.1%
	12	+	30	10	23095	707.5	1,0	10	9820	2355.0	24.00	24.19	0.8%
	30	+	29	10	27710	2310.0	1,0	10	9715	722.5	23.83	23.80	-0.1%

Note:

Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a $^{1}/_{4}$ dBm

LTE Release 11 Carrier Aggregation (continued):

Type	LTE CA combinations					PCC (UL)					SCC1 (DL)			SCC2 (DL)			LTE Rel 8 Tx. Power [dBm]	LTE Rel 11 Tx. Power [dBm]	Delta
	PCC	+	SCC1	+	SCC2	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)			
Inter-Band Non-Contiguous	2	+	2	+	12	QPSK	20	18900	1880.0	1,0	20	1100	1980.0	10	5095	737.5	24.40	24.40	0.0%
	2	+	2	+	13	QPSK	20	18900	1880.0	1,0	20	1100	1980.0	10	5230	751.0	24.40	24.46	0.2%
	2	+	2	+	30	QPSK	20	18900	1880.0	1,0	20	1100	1980.0	10	9820	2355.0	24.40	24.48	0.3%
	2	+	4	+	5	QPSK	20	18900	1880.0	1,0	20	2300	2145.0	10	2525	881.5	24.40	24.47	0.3%
	2	+	4	+	12	QPSK	20	18900	1880.0	1,0	20	2300	2145.0	10	5095	737.5	24.40	24.47	0.3%
	2	+	4	+	13	QPSK	20	18900	1880.0	1,0	20	2300	2145.0	10	5230	751.0	24.40	24.46	0.2%
	2	+	5	+	30	QPSK	20	18900	1880.0	1,0	10	2525	881.5	10	9820	2355.0	24.40	24.47	0.3%
	2	+	12	+	30	QPSK	20	18900	1880.0	1,0	10	5095	737.5	10	9820	2355.0	24.40	24.56	0.7%
	2	+	29	+	30	QPSK	20	18900	1880.0	1,0	10	9715	722.5	10	9820	2355.0	24.40	24.47	0.3%
	4	+	4	+	12	QPSK	20	20050	1720.0	1,0	20	2300	2145.0	10	5095	737.5	24.20	24.32	0.5%
	4	+	4	+	13	QPSK	20	20050	1720.0	1,0	20	2300	2145.0	10	5230	751.0	24.20	24.31	0.5%
	4	+	5	+	30	QPSK	20	20175	1732.5	1,0	10	2525	881.5	10	9820	2355.0	24.20	24.32	0.5%
	4	+	12	+	30	QPSK	20	20175	1732.5	1,0	10	5095	737.5	10	9820	2355.0	24.20	24.22	0.1%
	4	+	29	+	30	QPSK	20	20175	1732.5	1,0	10	9715	722.5	10	9820	2355.0	24.20	24.24	0.2%

Note:

Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a $^{1}/_{4}$ dBm

9.4. Wi-Fi 2.4GHz (DTS Band)

MIMO Measured Results

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)		Max Output Power (dBm)		SAR Test (Yes/No)
					Path A	Path B	Path A	Path B	
MIMO 2.4	802.11b	1 Mbps	1	2412	10.1	10.2	10.5	10.5	Yes
			6	2437	10.4	10.3			
			11	2462	10.1	10.4			
	802.11g	6 Mbps	1	2412	9.4	10.4	10.5	10.5	No
			6	2437	9.6	9.9			
			11	2462	9.0	10.1			
	802.11n (HT20)	6.5 Mbps	1	2412	9.4	10.1	10.5	10.5	No
			6	2437	9.7	10.0			
			11	2462	9.0	10.3			

Note(s):

1. SAR is not required for Channels 12 and 13 because the tune-up limit and the measured output power for these two channels are no greater than those for the default test channels.

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

MIMO Measured Results

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)		Max Output Power (dBm)		SAR Test (Yes/No)
					Path A	Path B	Path A	Path B	
MIMO 5.2 (U-NII 1)	802.11a	6 Mbps	36	5180	Not Required	Not Required	9.0	9.0	No
			40	5200					
			44	5220					
			48	5240					
	802.11n (HT20)	6.5 Mbps	36	5180	Not Required	Not Required	9.0	9.0	No
			40	5200					
			44	5220					
			48	5240					
	802.11n (HT40)	13.5 Mbps	38	5190	9.0	9.0	9.0	9.0	Yes
			46	5230	9.0	8.7			
	802.11ac (VHT20)	6.5 Mbps	36	5180	Not Required	Not Required	9.0	9.0	No
			40	5200					
			44	5220					
			48	5240					
	802.11ac (VHT40)	13.5 Mbps	38	5190	9.0	9.0	9.0	9.0	No
			46	5230	9.0	8.8			
	802.11ac (VHT80)	29.3 Mbps	42	5210	Not Required	Not Required	8.0	8.0	No
MIMO 5.3 UNII-2A	802.11a	6 Mbps	52	5260	Not Required	Not Required	9.0	9.0	No
			56	5280					
			60	5300					
			64	5320					
	802.11n (HT20)	6.5 Mbps	52	5260	Not Required	Not Required	9.0	9.0	No
			56	5280					
			60	5300					
			64	5320					
	802.11n (HT40)	13.5 Mbps	54	5270	9.0	8.9	9.0	9.0	Yes
			62	5310	9.0	8.8			
	802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	Not Required	9.0	9.0	No
			56	5280					
			60	5300					
			64	5320					
	802.11ac (VHT40)	13.5 Mbps	54	5270	9.0	8.9	9.0	9.0	No
			62	5310	9.0	8.7			
	802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	Not Required	8.0	8.0	No

Note(s):

SAR Test reduction was applied in accordance with KDB 248227.

MIMO Measured Results (continued)

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)		Max Output Power (dBm)		SAR Test (Yes/No)
					Path A	Path B	Path A	Path B	
MIMO 5.5 UNII-2C	802.11a	6 Mbps	100	5500	Not Required	Not Required	9.0	9.0	No
			116	5580					
			136	5680					
			144	5720					
	802.11n (HT20)	6.5 Mbps	100	5500	Not Required	Not Required	9.0	9.0	No
			116	5580					
			136	5680					
			144	5720					
	802.11n (HT40)	13.5 Mbps	102	5510	8.5	8.6	9.0	9.0	Yes
			118	5590	8.7	8.6			
			134	5670	8.7	8.6			
	802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	Not Required	9.0	9.0	No
			116	5580					
			136	5680					
			144	5720					
	802.11ac (VHT40)	13.5 Mbps	102	5510	8.4	8.7	9.0	9.0	No
			118	5590	8.7	8.6			
			134	5670	8.6	8.7			
	802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	Not Required	8.0	8.0	No
			122	5610					
			138	5690					
MIMO 5.8 UNII-3	802.11a	6 Mbps	149	5745	Not Required	Not Required	11.0	11.0	No
			157	5785					
			165	5825					
	802.11n (HT20)	6.5 Mbps	149	5745	Not Required	Not Required	11.0	11.0	No
			157	5785					
			165	5825					
	802.11n (HT40)	13.5 Mbps	151	5755	10.7	10.7	11.0	11.0	Yes
			159	5795	10.9	10.7			
	802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	Not Required	11.0	11.0	No
			157	5785					
			165	5825					
	802.11ac (VHT40)	13.5 Mbps	151	5755	10.9	10.9	11.0	11.0	No
			159	5795	10.6	10.9			
	802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	Not Required	8.0	8.0	No

Note(s):

SAR Test reduction was applied in accordance with KDB 248227.

9.6. Bluetooth

Measured Results

Band (MHz)	Mode	Ch #	Freq. (MHz)	Measured Avg Power		Max Output Power (dBm)	SAR Test (Yes/No)
				(dBm)	(mW)	Path B	
2.4	GFSK	0	2402	2.1	1.62	4.0	Yes
		39	2441	2.3	1.70		
		78	2480	2.0	1.58		
	EDR, π/4 DQPSK	0	2402	2.1	1.62	4.0	No
		39	2441	2.2	1.66		
		78	2480	2.0	1.58		
	EDR, 8-DPSK	0	2402	2.1	1.62	4.0	No
		39	2441	2.2	1.66		
		78	2480	2.0	1.58		
	LE, GFSK	0	2402	2.0	1.58	4.0	No
		19	2440	2.0	1.58		
		39	2480	2.0	1.58		

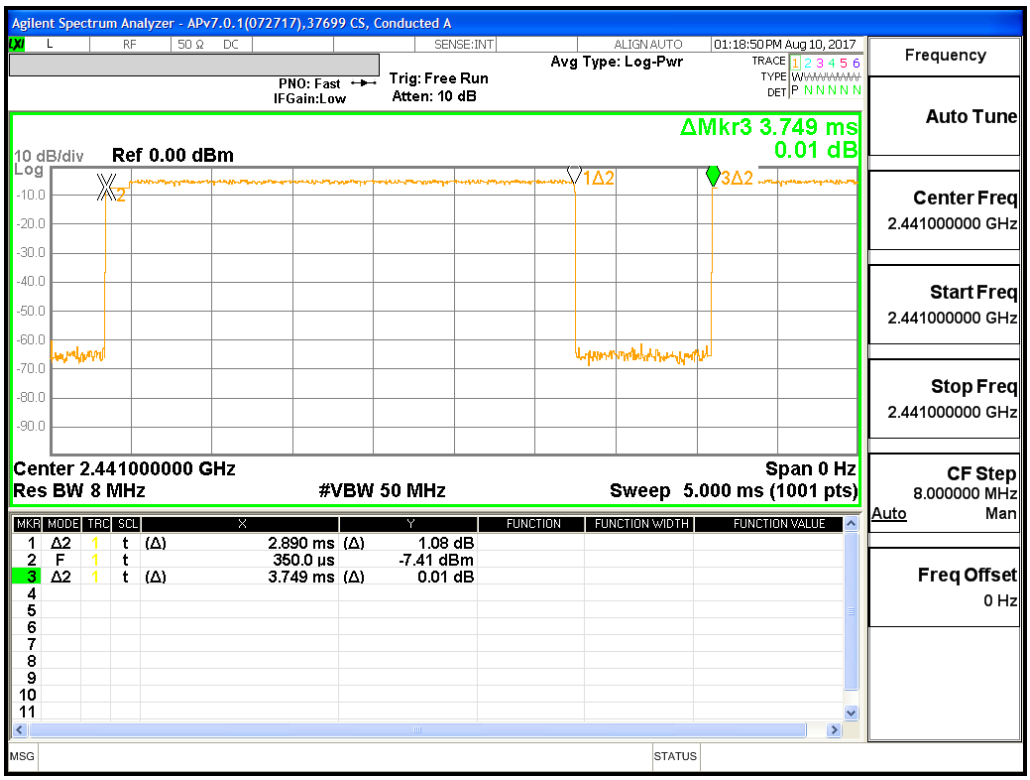
Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH5	2.895	3.749	77.22%	1.29
8PSK	3-DH5	2.89	3.749	77.09%	1.30

Duty Cycle plots

GFSK

8PSK



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 941225 D01 SAR test for 3G devices:

When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode

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.
- For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. 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; therefore, the requirement for H, M and L channels may not fully apply.

10.1. W-CDMA Band II

RF Exposure Conditions	Mode	Pwr Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	
Standalone	Rel 99 RMC	OFF	13	Rear	9262	1852.4	25.0	23.6	0.623	**0.860**	1
					9400	1880.0	25.0	24.0	0.636	0.801	
					9538	1907.6	25.0	23.8	0.615	0.811	
				Edge 1	9400	1880.0	25.0	24.0	0.364	0.458	
				Edge 1 Slant	9400	1880.0	25.0	24.0	0.326	0.410	
			0	Edge 2	9400	1880.0	25.0	24.0	0.102	0.128	
				Edge 3	9400	1880.0	25.0	24.0	0.058	0.073	
				Edge 4	9400	1880.0	25.0	24.0	0.245	0.308	
	Rel 99 RMC	ON	0	Rear	9262	1852.4	16.0	14.0	0.892	1.414	
					9400	1880.0	16.0	14.1	0.936	**1.450**	2
					9538	1907.6	16.0	14.3	0.889	1.315	
				Edge 1	9400	1880.0	16.0	14.1	0.153	0.237	
				Edge 1 Slant	9400	1880.0	16.0	14.1	0.160	0.248	

10.2. W-CDMA Band V

RF Exposure Conditions	Mode	Pwr Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	
Standalone	Rel 99 RMC	OFF	13	Rear	4183	836.6	25.0	24.1	0.363	0.447	
				Edge 1	4183	836.6	25.0	24.1	0.380	0.468	
				Edge 1 Slant	4183	836.6	25.0	24.1	0.291	0.358	
			0	Edge 2	4183	836.6	25.0	24.1	0.047	0.058	
				Edge 3	4183	836.6	25.0	24.1	0.033	0.041	
				Edge 4	4132	826.4	25.0	24.1	0.795	**0.978**	3
					4183	836.6	25.0	24.1	0.707	0.870	
					4233	846.6	25.0	24.0	0.722	0.909	
	Rel 99 RMC	ON	0	Rear	4132	826.4	21.6	21.5	1.360	**1.392**	4
					4183	836.6	21.6	21.5	1.350	1.381	
					4233	846.6	21.6	21.6	1.250	1.250	
				Edge 1	4132	826.4	21.6	21.5	1.130	1.156	
					4183	836.6	21.6	21.5	1.020	1.044	
					4233	846.6	21.6	21.6	1.030	1.030	
				Edge 1 Slant	4132	826.4	21.6	21.5	1.060	1.085	
					4183	836.6	21.6	21.5	1.030	1.054	
					4233	846.6	21.6	21.6	0.974	0.974	

10.3. LTE Band 2 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Pwr Back-off	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	
Standalone	QPSK	OFF	13	Rear	18900	1880.0	1	0	25.0	24.4	0.097	0.111	
							50	0	23.0	21.8	0.058	0.077	
				Edge 1	18900	1880.0	1	0	25.0	24.4	0.382	0.439	
							50	0	23.0	21.8	0.242	0.319	
				Edge 1 Slant	18700	1860.0	1	0	25.0	24.3	0.344	0.404	
					18900	1880.0	1	0	25.0	24.4	0.389	**0.447**	5
							50	0	23.0	21.8	0.239	0.315	
					19100	1900.0	1	0	25.0	24.4	0.360	0.413	
			0	Edge 2	18900	1880.0	1	0	25.0	24.4	0.123	0.141	
							50	0	23.0	21.8	0.074	0.098	
				Edge 3	18900	1880.0	1	0	25.0	24.4	0.076	0.087	
							50	0	23.0	21.8	0.043	0.057	
				Edge 4	18900	1880.0	1	0	25.0	24.4	0.250	0.287	
							50	0	23.0	21.8	0.159	0.210	
	QPSK	ON	0	Rear	18700	1860.0	1	0	15.5	13.9	0.773	1.122	
							50	0	15.5	13.8	0.784	**1.149**	6
					18900	1880.0	1	0	15.5	14.0	0.758	1.061	
							50	0	15.5	13.9	0.709	1.032	
					19100	1900.0	1	0	15.5	14.0	0.775	1.100	
							50	0	15.5	13.9	0.756	1.098	
							100	0	15.5	13.9	0.750	1.097	
				Edge 1	18900	1880.0	1	0	15.5	14.0	0.161	0.225	
							50	0	15.5	13.9	0.156	0.227	
				Edge 1 Slant	18900	1880.0	1	0	15.5	14.0	0.165	0.231	
							50	0	15.5	13.9	0.161	0.234	

10.4. LTE Band 4 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Pwr Back-off	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	
Standalone	QPSK	OFF	13	Rear	20175	1732.5	1	0	25.0	24.2	0.823	**0.989**	7
							50	0	23.0	21.7	0.440	0.594	
				Edge 1	20175	1732.5	1	0	25.0	24.2	0.363	0.436	
							50	0	23.0	21.7	0.215	0.290	
				Edge 1 Slant	20175	1732.5	1	0	25.0	24.2	0.396	0.476	
							50	0	23.0	21.7	0.247	0.333	
			0	Edge 2	20175	1732.5	1	0	25.0	24.2	0.118	0.142	
							50	0	23.0	21.7	0.065	0.088	
				Edge 3	20175	1732.5	1	0	25.0	24.2	0.023	0.028	
							50	0	23.0	21.7	0.011	0.015	
				Edge 4	20175	1732.5	1	0	25.0	24.2	0.358	0.430	
							50	0	23.0	21.7	0.227	0.306	
	OPSK	ON	0	Rear	20175	1732.5	1	0	15.1	13.3	0.645	0.985	
							50	0	15.1	13.2	0.645	**0.999**	8
							100	0	15.1	13.2	0.630	0.987	
				Edge 1	20175	1732.5	1	0	15.1	13.3	0.156	0.238	
							50	0	15.1	13.2	0.151	0.234	
				Edge 1 Slant	20175	1732.5	1	0	15.1	13.3	0.205	0.313	
							50	0	15.1	13.2	0.199	0.308	

10.5. LTE Band 5 (10MHz Bandwidth)

SAR for LTE Band 5 (Frequency Range: 824-849 MHz) is covered by LTE Band 26 (Frequency Range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

10.6. LTE Band 7 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Pwr Back-off	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	
Standalone	QPSK	OFF	13	Rear	21100	2535.0	1	0	25.0	23.3	0.519	0.769	
							50	0	23.0	21.3	0.323	0.480	
				Edge 1	21100	2535.0	1	0	25.0	23.3	0.362	0.537	
							50	0	23.0	21.3	0.228	0.339	
				Edge 1 Slant	21100	2535.0	1	0	25.0	23.3	0.424	0.629	
							50	0	23.0	21.3	0.270	0.401	
			0	Edge 2	21100	2535.0	1	0	25.0	23.3	0.058	0.086	
							50	0	23.0	21.3	0.034	0.051	
				Edge 3	21100	2535.0	1	0	25.0	23.3	0.002	0.003	
							50	0	23.0	21.3	<0.001	<0.001	
				Edge 4	20850	2510.0	1	0	25.0	23.6	0.637	0.881	
					21100	2535.0	1	0	25.0	23.3	0.719	1.066	
							50	0	23.0	21.3	0.458	0.681	
					21350	2560.0	1	0	25.0	23.3	0.982	**1.439**	9
	QPSK	ON	0	Rear	20850	2510.0	1	0	15.4	13.5	0.726	1.122	
							50	0	15.4	13.5	0.724	1.132	
					21100	2535.0	1	0	15.4	13.5	0.777	1.206	
							50	0	15.4	13.5	0.792	1.221	
					21350	2560.0	1	0	15.4	13.6	0.874	1.314	
							50	0	15.4	13.6	0.881	1.337	
							100	0	15.4	13.5	0.878	**1.350**	10
				Edge 1	21100	2535.0	1	0	15.4	13.5	0.242	0.376	
							50	0	15.4	13.5	0.242	0.373	
				Edge 1 Slant	21100	2535.0	1	0	15.4	13.5	0.266	0.413	
							50	0	15.4	13.5	0.269	0.415	

10.7. LTE Band 12 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Pwr Back-off	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	
Standalone	QPSK	OFF	13	Rear	23095	707.5	1	0	25.0	24.0	0.312	0.393	
							25	0	24.0	23.0	0.246	0.313	
				Edge 1	23095	707.5	1	0	25.0	24.0	0.253	0.319	
							25	0	24.0	23.0	0.195	0.248	
				Edge 1 Slant	23095	707.5	1	0	25.0	24.0	0.254	0.320	
							25	0	24.0	23.0	0.198	0.252	
			0	Edge 2	23095	707.5	1	0	25.0	24.0	0.033	0.042	
							25	0	24.0	23.0	0.028	0.036	
				Edge 3	23095	707.5	1	0	25.0	24.0	0.016	0.020	
							25	0	24.0	23.0	0.012	0.015	
				Edge 4	23095	707.5	1	0	25.0	24.0	0.467	**0.588**	11
							25	0	24.0	23.0	0.384	0.488	
	OPSK	ON	0	Rear	23095	707.5	1	0	22.0	21.0	1.020	1.278	
							25	0	22.0	21.0	1.020	**1.290**	12
							50	0	22.0	20.9	0.996	1.271	
				Edge 1	23095	707.5	1	0	22.0	21.0	0.723	0.906	
							25	0	22.0	21.0	0.777	0.983	
				Edge 1 Slant	23095	707.5	1	0	22.0	21.0	0.775	0.971	
							25	0	22.0	21.0	0.744	0.941	

10.8. LTE Band 13 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Pwr Back-off	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	
Standalone	QPSK	OFF	13	Rear	23230	782.0	1	0	25.0	24.1	0.306	0.380	
							25	0	24.0	23.0	0.235	0.294	
				Edge 1	23230	782.0	1	0	25.0	24.1	0.291	0.361	
							25	0	24.0	23.0	0.219	0.274	
				Edge 1 Slant	23230	782.0	1	0	25.0	24.1	0.253	0.314	
							25	0	24.0	23.0	0.194	0.243	
			0	Edge 2	23230	782.0	1	0	25.0	24.1	0.029	0.036	
							25	0	24.0	23.0	0.023	0.029	
				Edge 3	23230	782.0	1	0	25.0	24.1	0.024	0.030	
							25	0	24.0	23.0	0.018	0.023	
				Edge 4	23230	782.0	1	0	25.0	24.1	0.602	**0.747**	13
							25	0	24.0	23.0	0.458	0.573	
	OPSK	ON	0	Rear	23230	782.0	1	0	22.0	22.0	1.240	**1.249**	14
							25	0	22.0	22.0	1.200	1.203	
							50	0	22.0	21.9	1.170	1.200	
				Edge 1	23230	782.0	1	0	22.0	22.0	1.050	1.057	
							25	0	22.0	22.0	0.967	0.969	
							50	0	22.0	21.9	0.983	1.008	
				Edge 1 Slant	23230	782.0	1	0	22.0	22.0	1.110	1.118	
							25	0	22.0	22.0	1.170	1.173	
							50	0	22.0	21.9	1.130	1.159	

10.9. LTE Band 26 (15MHz Bandwidth)

RF Exposure Conditions	Mode	Pwr Back-off	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	
Standalone	QPSK	OFF	13	Rear	26865	831.5	1	0	25.0	24.0	0.373	0.466	
							36	0	24.0	23.0	0.297	0.378	
				Edge 1	26865	831.5	1	0	25.0	24.0	0.381	0.476	
							36	0	24.0	23.0	0.301	0.383	
				Edge 1 Slant	26865	831.5	1	0	25.0	24.0	0.385	0.481	
							36	0	24.0	23.0	0.310	0.395	
			0	Edge 2	26865	831.5	1	0	25.0	24.0	0.034	0.043	
							36	0	24.0	23.0	0.030	0.038	
				Edge 3	26865	831.5	1	0	25.0	24.0	0.031	0.039	
							36	0	24.0	23.0	0.025	0.032	
				Edge 4	26865	831.5	1	0	25.0	24.0	0.646	**0.808**	15
							36	0	24.0	23.0	0.514	0.655	
	OPSK	ON	0	Rear	26865	831.5	1	0	21.4	21.0	1.200	1.328	
							36	0	21.4	20.9	1.240	**1.382**	16
							75	0	21.4	20.9	1.200	1.356	
				Edge 1	26865	831.5	1	0	21.4	21.0	0.832	0.921	
							36	0	21.4	20.9	0.816	0.909	
							75	0	21.4	20.9	0.784	0.886	
				Edge 1 Slant	26865	831.5	1	0	21.4	21.0	0.841	0.931	
							36	0	21.4	20.9	0.889	0.991	
							75	0	21.4	20.9	0.843	0.952	

10.10. LTE Band 30 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Pwr Back-off	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	
Standalone	QPSK	OFF	13	Rear	27710	2310.0	1	0	24.0	22.8	0.453	0.593	
							25	0	23.0	21.9	0.360	0.467	
				Edge 1	27710	2310.0	1	0	24.0	22.8	0.421	0.551	
							25	0	23.0	21.9	0.333	0.432	
				Edge 1 Slant	27710	2310.0	1	0	24.0	22.8	0.398	0.521	
							25	0	23.0	21.9	0.310	0.402	
			0	Edge 2	27710	2310.0	1	0	24.0	22.8	0.150	0.196	
							25	0	23.0	21.9	0.113	0.147	
				Edge 3	27710	2310.0	1	0	24.0	22.8	0.018	0.024	
							25	0	23.0	21.9	0.016	0.021	
				Edge 4	27710	2310.0	1	0	24.0	22.8	0.918	**1.202**	17
							25	0	23.0	21.9	0.756	0.981	
							50	0	23.0	21.9	0.741	0.963	
	OPSK	ON	0	Rear	27710	2310.0	1	0	14.0	12.3	0.669	0.990	
							25	0	14.0	12.0	0.653	**1.035**	18
							50	0	14.0	12.2	0.627	0.949	
				Edge 1	27710	2310.0	1	0	14.0	12.3	0.184	0.272	
							25	0	14.0	12.0	0.182	0.288	
				Edge 1 Slant	27710	2310.0	1	0	14.0	12.3	0.221	0.327	
							25	0	14.0	12.0	0.219	0.347	

10.11. LTE Band 38 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Pwr Back-off	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	
Standalone	QPSK	ON	0	Rear	37850	2580.0	1	0	17.2	17.2	1.110	1.110	
							50	0	17.2	17.1	1.120	1.143	
							100	0	17.2	17.0	1.130	1.172	
					38000	2595.0	1	0	17.2	17.2	1.240	1.240	
							50	0	17.2	17.1	1.300	**1.327**	19
					38150	2610.0	1	0	17.2	17.1	1.210	1.227	
							50	0	17.2	17.1	1.260	1.289	
				Edge 1	38000	2595.0	1	0	17.2	17.2	0.395	0.395	
							50	0	17.2	17.0	0.397	0.414	
				Edge 1 Slant	38000	2595.0	1	0	17.2	17.2	0.429	0.429	
							50	0	17.2	17.0	0.421	0.439	

LTE Band 38 Max Power

SAR for LTE Band 38 Full power (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 Full Power (Frequency range: 2496-2690 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

10.12. LTE Band 41 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Pwr Back-off	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	
Standalone	QPSK	OFF	13	Rear	40620	2593.0	1	0	25.0	23.7	0.353	0.478	
							50	0	24.0	22.6	0.278	0.380	
				Edge 1	40620	2593.0	1	0	25.0	23.7	0.290	0.393	
							50	0	24.0	22.6	0.229	0.313	
				Edge 1 Slant	40620	2593.0	1	0	25.0	23.7	0.278	0.377	
							50	0	24.0	22.6	0.223	0.305	
			0	Edge 2	40620	2593.0	1	0	25.0	23.7	0.049	0.067	
							50	0	24.0	22.6	0.038	0.052	
				Edge 3	40620	2593.0	1	0	25.0	23.7	<0.001	<0.001	
							50	0	24.0	22.6	<0.001	<0.001	
				Edge 4	39750	2506.0	1	0	25.0	23.7	0.501	0.670	
					40185	2549.5	1	0	25.0	23.5	0.665	**0.942**	20
					40620	2593.0	1	0	25.0	23.7	0.683	0.926	
							50	0	24.0	22.6	0.541	0.740	
					41055	2636.5	1	0	25.0	24.0	0.671	0.841	
					41490	2680.0	1	0	25.0	23.9	0.457	0.589	
	QPSK	ON	0	Rear	39750	2506.0	1	0	16.5	15.6	0.720	0.878	
							50	0	16.5	15.6	0.722	0.894	
					40185	2549.5	1	0	16.5	15.8	0.843	0.981	
							50	0	16.5	15.7	0.844	1.015	
					40620	2593.0	1	0	16.5	15.7	1.090	1.313	
							50	0	16.5	15.6	1.090	**1.353**	21
					41055	2636.5	1	0	16.5	15.7	1.020	1.215	
							50	0	16.5	15.6	1.010	1.240	
					41490	2680.0	1	0	16.5	15.5	0.841	1.051	
							50	0	16.5	15.4	0.768	0.994	
							100	0	16.5	15.5	0.766	0.955	
				Edge 1	40620	2593.0	1	0	16.5	15.7	0.273	0.329	
							50	0	16.5	15.6	0.273	0.339	
				Edge 1 Slant	40620	2593.0	1	0	16.5	15.7	0.295	0.355	
							50	0	16.5	15.6	0.294	0.365	

10.13. Wi-Fi (DTS Band)

RF Exposure Conditions	Frequency Band	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)				1-g SAR (W/kg)				Plot No.
							Path A		Path B		Path A		Path B		
							Tune-up Limit	Meas.	Tune-up Limit	Meas.	Meas.	Scaled	Meas.	Scaled	
Standalone	2.4GHz	802.11b 1 Mbps	0	Rear	1	2412.0	10.5	10.1	10.5	10.2	0.311	**0.341**	0.214	0.229	22
					6	2437.0	10.5	10.4	10.5	10.3	0.323	0.331	0.244	0.255	
					11	2462.0	10.5	10.1	10.5	10.4	0.308	0.338	0.169	0.173	
				Edge 1	6	2437.0	10.5	10.4	10.5	10.3	0.187	0.191	0.092	0.096	
				Edge 1 Slant	6	2437.0	10.5	10.4	10.5	10.3	0.197	0.202	0.093	0.097	
				Edge 4	6	2437.0	10.5	10.4	10.5	10.3	0.013	0.013	0.004	0.005	

10.14. Wi-Fi (U-NII Band)

RF Exposure Conditions	Frequency Band	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)				1-g SAR (W/kg)				Plot No.
							Path A		Path B		Path A		Path B		
							Tune-up Limit	Meas.	Tune-up Limit	Meas.	Meas.	Scaled	Meas.	Scaled	
Standalone	5.2 GHz U-NII 1	802.11n HT40	0	Rear	38	5190.0	9.0	9.0	9.0	9.0	0.331	0.331	0.252	0.252	
				Edge 1	38	5190.0	9.0	9.0	9.0	9.0	0.690	0.690	1.220	**1.220**	23
					46	5230.0	9.0	9.0	9.0	8.7	0.554	0.554	1.060	1.136	
				Edge 1 Slant	38	5190.0	9.0	9.0	9.0	9.0	0.816	0.816	1.010	1.010	
					46	5230.0	9.0	9.0	9.0	8.7	0.678	0.678	0.929	0.995	
				Edge 4	38	5190.0	9.0	9.0	9.0	9.0	0.029	0.029			

RF Exposure Conditions	Frequency Band	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)				1-g SAR (W/kg)				Plot No.
							Path A		Path B		Path A		Path B		
							Tune-up Limit	Meas.	Tune-up Limit	Meas.	Meas.	Scaled	Meas.	Scaled	
Standalone	5.3 GHz U-NII 2A	802.11n HT40	0	Rear	54	5270.0	9.0	9.0	9.0	8.9	0.182	0.182	0.397	0.406	
				Edge 1	54	5270.0	9.0	9.0	9.0	8.9	0.525	0.525	1.120	1.146	
					62	5310.0	9.0	9.0	9.0	8.8	0.921	0.921	1.240	**1.298**	24
				Edge 1 Slant	54	5270.0	9.0	9.0	9.0	8.9	0.630	0.630	0.992	1.015	
					62	5310.0	9.0	9.0	9.0	8.8	0.663	0.663	1.010	1.058	
				Edge 4	54	5270.0	9.0	9.0	9.0	8.9	0.017	0.017			

RF Exposure Conditions	Frequency Band	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)				1-g SAR (W/kg)				Plot No.
							Path A		Path B		Path A		Path B		
							Tune-up Limit	Meas.	Tune-up Limit	Meas.	Meas.	Scaled	Meas.	Scaled	
Standalone	5.5 GHz U-NII 2C	802.11n HT40	0	Rear	110	5550.0	9.0	8.7	9.0	8.6	0.455	0.488	0.243	0.266	
				Edge 1	110	5550.0	9.0	8.7	9.0	8.6	0.742	0.795	0.611	0.670	
				Edge 1 Slant	102	5510.0	9.0	8.5	9.0	8.6	0.797	**0.894**	0.491	0.538	25
					110	5550.0	9.0	8.7	9.0	8.6	0.780	0.836	0.465	0.510	
					142	5710.0	9.0	8.7	9.0	8.6	0.731	0.783	0.238	0.261	
				Edge 4	110	5550.0	9.0	8.7	9.0	8.6	<0.001	<0.001			

RF Exposure Conditions	Frequency Band	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)				1-g SAR (W/kg)				Plot No.
							Path A		Path B		Path A		Path B		
							Tune-up Limit	Meas.	Tune-up Limit	Meas.	Meas.	Scaled	Meas.	Scaled	
Standalone	5.8 GHz U-NII-3	802.11n HT40	0	Rear	159	5795.0	11.0	10.9	11.0	10.7	0.425	0.435	0.155	0.166	
				Edge 1	151	5755.0	11.0	10.7	11.0	10.7	0.655	0.702	0.380	0.407	
					159	5795.0	11.0	10.9	11.0	10.7	0.723	0.740	0.317	0.340	
				Edge 1 Slant	151	5755.0	11.0	10.7	11.0	10.7	0.933	**1.000**	0.329	0.353	26
					159	5795.0	11.0	10.9	11.0	10.7	0.792	0.810	0.283	0.303	
				Edge 4	159	5795	11.0	10.9	11.0	10.7	<0.001	<0.001			

10.15. Bluetooth

RF Exposure Conditions	Frequency Band	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Path B		Path B		
							Tune-up Limit	Meas.	Meas.	Scaled	
Standalone	Bluetooth	GFSK DH5	0	Rear	0	2402.0	4.0	2.1	0.023	0.036	
					39	2441.0	4.0	2.3	0.021	0.031	
					78	2480.0	4.0	2.0	0.028	**0.044**	27
				Edge 1	39	2441.0	4.0	2.3	0.006	0.009	
				Edge 1 Slant	39	2441.0	4.0	2.3	0.003	0.005	
				Edge 2	39	2441.0	4.0	2.3	<0.001	<0.001	
				Edge 3	39	2441.0	4.0	2.3	<0.001	<0.001	
				Edge 4	39	2441.0	4.0	2.3	<0.001	<0.001	

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 <0.8 or 2 W/kg (1-g or 10-g respectively); steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.8 or 2 W/kg (1-g or 10-g respectively), 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 or 3.6 W/kg (~ 10% from the 1-g or 10-g respective SAR limit).
4) Perform a third repeated measurement only if the original, first, or second repeated measurement is ≥ 1.5 or 3.75 W/kg (1-g or 10-g respectively) 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)	First Repeated	
						Measured SAR (W/kg)	Largest to Smallest SAR Ratio
700	LTE Band 12	Standalone	Rear	No	1.020	N/A	N/A
	LTE Band 13	Standalone	Rear	Yes	1.240	1.220	1.02
850	WCDMA Band V	Standalone	Rear	Yes	1.360	1.310	1.04
	LTE Band 26	Standalone	Rear	No	1.240	N/A	N/A
1750	LTE Band 4	Standalone	Rear	Yes	0.823	0.719	1.14
1900	WCDMA Band II	Standalone	Rear	Yes	0.936	0.875	1.07
	LTE Band 2	Standalone	Rear	No	0.784	N/A	N/A
1700	LTE Band 4	Standalone	Rear	Yes	0.823	0.719	1.14
2300	LTE Band 30	Standalone	Edge 4	Yes	0.918	0.912	1.01
2400	Wi-Fi 802.11b/g/n	Standalone	Rear	No	0.323	N/A	N/A
	Bluetooth	Standalone	Rear	No	0.028	N/A	N/A
2500	LTE Band 7	Standalone	Edge 4	No	0.982	N/A	N/A
2600	LTE Band 38	Standalone	Rear	Yes	1.300	1.230	1.06
	LTE Band 41	Standalone	Rear	No	1.090	N/A	N/A
5200	Wi-Fi 802.11a/n/ac	Standalone	Edge 1	Yes	1.220	1.080	1.13
5300	Wi-Fi 802.11a/n/ac	Standalone	Edge 1	Yes	1.24	1.22	1.02
5500	Wi-Fi 802.11a/n/ac	Standalone	Edge 1 Slant	No	0.797	N/A	N/A
5800	Wi-Fi 802.11a/n/ac	Standalone	Edge 1 Slant	Yes	0.933	0.899	1.04

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 < 1.20.

12. Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

Laptop Mode

Path A Wi-Fi 2.4 GHz and Path B Wi-Fi 2.4 GHz and WWAN Low Band
Path A Wi-Fi 2.4 GHz and Path B Wi-Fi 2.4 GHz and WWAN Mid/High Band
Path A Wi-Fi 5 GHz and Path B Wi-Fi 5 GHz and WWAN Low Band
Path A Wi-Fi 5 GHz and Path B Wi-Fi 5 GHz and WWAN Mid/High Band
Path A Wi-Fi 2.4 GHz and Path B Bluetooth and WWAN Low Band
Path A Wi-Fi 2.4 GHz and Path B Bluetooth and WWAN Mid/High Band
Path A Wi-Fi 5 GHz and Path B Bluetooth and WWAN Low Band
Path A Wi-Fi 5 GHz and Path B Bluetooth and WWAN Mid/High Band

Tablet Mode (WLAN Path A is at Reduced Power. WLAN Path B is OFF. Path B Bluetooth is ON)

Path A Wi-Fi 2.4 GHz and WWAN Low Band
Path A Wi-Fi 2.4 GHz and WWAN Mid/High Band
Path A Wi-Fi 5 GHz and WWAN Low Band
Path A Wi-Fi 5 GHz and WWAN Mid/High Band
Path A Wi-Fi 2.4 GHz and Path B Bluetooth and WWAN Low Band
Path A Wi-Fi 2.4 GHz and Path B Bluetooth and WWAN Mid/High Band
Path A Wi-Fi 5 GHz and Path B Bluetooth and WWAN Low Band
Path A Wi-Fi 5 GHz and Path B Bluetooth and WWAN Mid/High Band

Transmission Mode	State of Sensors		TX Output Power		
	Keyboard Position	Proximity Sensor	WWAN	WLAN/BT Path B	WLAN Path A
Wi-Fi / Bluetooth	Laptop Mode	-	-	Full Power	Full Power
Wi-Fi /Bluetooth	Tablet Mode	-	-	Reduced power	Reduced power
Cellular Only	Laptop Mode	-	Full Power	-	-
Cellular Only	Laptop Mode	***Triggered***	Reduced Power	-	-
Cellular Only	Tablet Mode	-	Full Power	-	-
Cellular Only	Tablet Mode	***Triggered***	Reduced Power	-	-
Simultaneous: Wi-Fi/BT & Cellular	Laptop Mode	-	Full Power	Full Power	Full Power
Simultaneous: Wi-Fi /BT & Cellular	Laptop Mode	***Triggered***	Reduced Power	Full Power	Full Power
Simultaneous: Wi-Fi /BT & Cellular	Tablet Mode	-	Full Power	OFF	Reduced Power
Simultaneous: Wi-Fi/BT & Cellular	Tablet Mode	***Triggered***	Reduced Power	OFF	Reduced Power

SAR to Peak Location Ratio (SPLSR)

KDB 447498 D01 General RF Exposure Guidance explains how to calculate the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$$SPLSR = (SAR_1 + SAR_2)^{1.5} / Ri$$

Where:

SAR_1 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

SAR_2 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:

$$(SAR_1 + SAR_2)^{1.5} / Ri \leq 0.04$$

Estimated SAR for Simultaneous Transmission SAR Analysis

Considerations for SAR estimation

1. When standalone SAR test exclusion applies, standalone SAR must also be estimated to determine simultaneous transmission SAR test exclusion.
2. Dedicated Host Approach criteria for SAR test exclusion is likewise applied to SAR estimation, with certain distinctions between test exclusion and SAR estimation:
   - When the separation distance from the antenna to an adjacent edge is ≤ 5 mm, a distance of 5 mm is applied for SAR estimation; this is the same between test exclusion and SAR estimation calculations.
   - When the separation distance from the antenna to an adjacent edge is > 5 mm but ≤ 50 mm, the actual antenna-to-edge separation distance is applied for SAR estimation.
   - When the minimum test separation distance is > 50 mm, the estimated SAR value is 0.4 W/kg
3. Please refer to Estimated SAR Tables to see which test positions are inherently compliant as they consist of only estimated SAR values for all applicable transmitters and consequently will always have sum of SAR values < 1.2 W/kg. Simultaneous transmission SAR analysis was therefore not performed for these test positions.

Estimated SAR for WWAN Full Power Tablet Mode:

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
WWAN (Low Band)															
W-CDMA 5	849	25.00	316	5	5	248	191.7	16.5		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 5	849	25.00	316	5	5	248	191.7	16.5		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 12	716	25.00	316	5	5	248	191.7	16.5		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 13	787	25.00	316	5	5	248	191.7	16.5		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 26	849	25.00	316	5	5	248	191.7	16.5		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
WWAN (Mid/High Band)															
W-CDMA 2	1910	25.00	316	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 2	1910	25.00	316	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 4	1755	25.00	316	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 7	2570	25.00	316	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 30	2315	24.00	251	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 38	2620	25.00	316	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 41	2690	25.00	316	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	

Estimated SAR for WWAN Reduced Power Tablet Mode:

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
WWAN (Low Band)															
W-CDMA 5	849	21.60	145	5	5	248	191.7	16.5		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 5	849	21.00	126	5	5	248	191.7	16.5		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 12	716	22.00	158	5	5	248	191.7	16.5		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 13	787	22.00	158	5	5	248	191.7	16.5		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
LTE Band 26	849	21.40	138	5	5	248	191.7	16.5		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
WWAN (Mid/High Band)															
W-CDMA 2	1910	16.00	40	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
LTE Band 2	1910	15.50	35	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
LTE Band 4	1755	15.10	32	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
LTE Band 7	2570	15.40	35	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
LTE Band 30	2315	14.00	25	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
LTE Band 38	2620	17.20	52	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
LTE Band 41	2690	16.50	45	5	5	218.4	191.7	56.1		-MEASURE-	-MEASURE-	0.400	0.400	0.400	

Estimated SAR for WLAN Reduced Power Tablet Mode:

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
WLAN /BT Path B															
Wi-Fi 2.4 GHz	2467	10.50	11	5	5	180.9	191.7	98.4		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.2 GHz	5240	9.50	9	5	5	180.9	191.7	98.4		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.3 GHz	5320	9.50	9	5	5	180.9	191.7	98.4		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.5 GHz	5720	10.50	11	5	5	180.9	191.7	98.4		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.8 GHz	5825	11.50	14	5	5	180.9	191.7	98.4		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Bluetooth	2480	4.00	3	5	5	180.9	191.7	98.4		0.126	0.126	0.400	0.400	0.400	
WLAN Path A															
Wi-Fi 2.4 GHz	2467	10.50	11	5	5	93.6	191.7	182.6		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.2 GHz	5240	9.50	9	5	5	93.6	191.7	182.6		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.3 GHz	5320	9.50	9	5	5	93.6	191.7	182.6		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.5 GHz	5720	10.50	11	5	5	93.6	191.7	182.6		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.8 GHz	5825	11.50	14	5	5	93.6	191.7	182.6		-MEASURE-	-MEASURE-	0.400	0.400	0.400	

Estimated SAR for WLAN Full Power Laptop Mode:

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)	Estimated 1-g SAR Value (W/kg)
		dBm	mW	Edge 3	Edge 3
WLAN /BT Path B					
Wi-Fi 2.4 GHz	2467	15.50	35	191.7	0.400
Wi-Fi 5.2 GHz	5240	11.50	14	191.7	0.400
Wi-Fi 5.3 GHz	5320	15.50	35	191.7	0.400
Wi-Fi 5.5 GHz	5720	15.50	35	191.7	0.400
Wi-Fi 5.8 GHz	5825	15.50	35	191.7	0.400
Bluetooth	2480	4.00	3	191.7	0.400
WLAN Path A					
Wi-Fi 2.4 GHz	2467	15.50	35	191.7	0.400
Wi-Fi 5.2 GHz	5240	11.50	14	191.7	0.400
Wi-Fi 5.3 GHz	5320	15.50	35	191.7	0.400
Wi-Fi 5.5 GHz	5720	15.50	35	191.7	0.400
Wi-Fi 5.8 GHz	5825	15.50	35	191.7	0.400

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

Tablet Mode WWAN Full Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Mid Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	0.860		0.341		0.488	0.044	1.201	1.348	1.245	1.392
Edge 1	0.458		0.191		0.921	0.009	0.649	1.379	0.658	1.388
Edge 1 Slant	0.410		0.202		1.000	0.005	0.612	1.410	0.617	1.415
Edge 2	0.128		0.400		0.400	0.000	0.528	0.528	0.528	0.528
Edge 3	0.073		0.400		0.400	0.000	0.473	0.473	0.473	0.473
Edge 4	0.308		0.013		0.033	0.000	0.321	0.341	0.321	0.341

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Mid Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	1.450		0.341		0.488	0.044	1.791	1.938	1.835	1.982
Edge 1	0.237		0.191		0.921	0.009	0.428	1.158	0.437	1.167
Edge 1 Slant	0.248		0.202		1.000	0.005	0.450	1.248	0.455	1.253
Edge 2	0.128		0.400		0.400	0.000	0.528	0.528	0.528	0.528
Edge 3	0.073		0.400		0.400	0.000	0.473	0.473	0.473	0.473
Edge 4	0.308		0.013		0.033	0.000	0.321	0.341	0.321	0.341

SAR to Peak Location Separation Ratio (SPLSR) for WWAN Reduced power

Test Position	Standalone SAR (W/kg)				∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)
	WWAN	DTS	U-NII	Bluetooth					
	②	Path A ④	Path A ⑥	Path B ⑦					
Rear	1.450	0.341		0.044	② + ④ + ⑦	1.835			
	1.450	0.341		0.044	② + ④	1.791	135.9	0.02	No
	1.450	0.341		0.044	② + ⑦	1.494	40.8	0.04	No
	1.450	0.341		0.044	④ + ⑦	0.385	95.3	0.00	No
	1.450		0.488	0.044	② + ⑥ + ⑦	1.982			
	1.450		0.488	0.044	② + ⑥	1.938	134.8	0.02	No
	1.450		0.488	0.044	② + ⑦	1.494	40.8	0.04	No
	1.450		0.488	0.044	⑥ + ⑦	0.532	94.5	0.00	No

Test Position	Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
			W/kg	m	m	m		
Rear	WCDMA BII	②	1.750	0.094	-0.086	-0.181	② + ④	135.9
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181		
	WCDMA BII	②	1.750	0.094	-0.086	-0.181	① + ⑦	40.8
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181	④ + ⑦	95.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	WCDMA BII	②	1.750	0.094	-0.086	-0.181	② + ⑥	134.8
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180		
	WCDMA BII	②	1.750	0.094	-0.086	-0.181	② + ⑦	40.8
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180	⑥ + ⑦	94.5
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		

The Peak Location Separation Distance is computed by using the formula: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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

Tablet Mode WWAN Full Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Low Band ①	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	① + ④	① + ⑥	① + ④ + ⑦	① + ⑥ + ⑦
Rear	0.447		0.341		0.488	0.044	0.788	0.935	0.832	0.979
Edge 1	0.468		0.191		0.921	0.009	0.659	1.389	0.668	1.398
Edge 1 Slant	0.358		0.202		1.000	0.005	0.560	1.358	0.565	1.363
Edge 2	0.058		0.400		0.400	0.000	0.458	0.458	0.458	0.458
Edge 3	0.041		0.400		0.400	0.000	0.441	0.441	0.441	0.441
Edge 4	0.978		0.013		0.033	0.000	0.991	1.011	0.991	1.011

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Low Band ①	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	① + ④	① + ⑥	① + ④ + ⑦	① + ⑥ + ⑦
Rear	1.392		0.341		0.488	0.044	1.733	1.880	1.777	1.924
Edge 1	1.156		0.191		0.921	0.009	1.347	2.077	1.356	2.086
Edge 1 Slant	1.085		0.202		1.000	0.005	1.287	2.085	1.292	2.090
Edge 2	0.054		0.400		0.400	0.000	0.454	0.454	0.454	0.454
Edge 3	0.038		0.400		0.400	0.000	0.438	0.438	0.438	0.438
Edge 4	0.913		0.013		0.033	0.000	0.926	0.946	0.926	0.946

SAR to Peak Location Separation Ratio (SPLSR) for WWAN Reduced power

Test Position	Standalone SAR (W/kg)				∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)
	WWAN	DTS	U-NII	Bluetooth					
	①	Path A ④	Path A ⑥	Path B ⑦					
Rear	1.392	0.341		0.044	① + ④ + ⑦	1.777			
	1.392	0.341		0.044	① + ④	1.733	175.4	0.01	No
	1.392	0.341		0.044	① + ⑦	1.436	80.4	0.02	No
	1.392	0.341		0.044	④ + ⑦	0.385	95.3	0.00	No
	1.392		0.488	0.044	① + ⑥ + ⑦	1.924			
	1.392		0.488	0.044	① + ⑥	1.880	174.1	0.01	No
	1.392		0.488	0.044	① + ⑦	1.436	80.4	0.02	No
	1.392		0.488	0.044	⑥ + ⑦	0.532	94.5	0.00	No
Edge 1	1.156		0.921	0.009	① + ⑥ + ⑦	2.086			
	1.156		0.921	0.009	① + ⑥	2.077	151.0	0.02	No
	1.156		0.921	0.009	① + ⑦	1.165	90.3	0.01	No
	1.156		0.921	0.009	⑥ + ⑦	0.930	60.8	0.01	No
Edge 1 Slant	1.085		1.000	0.005	① + ⑥ + ⑦	2.090			
	1.085		1.000	0.005	① + ⑥	2.085	152.0	0.02	No
	1.085		1.000	0.005	① + ⑦	1.090	60.8	0.02	No
	1.085		1.000	0.005	⑥ + ⑦	1.005	91.3	0.01	No

Test Position	Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
			W/kg	m	m	m		
Rear	WCDMA BV	①	2.350	0.097	-0.125	-0.180	① + ④	175.4
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181		
	WCDMA BV	①	2.350	0.097	-0.125	-0.180	① + ⑦	80.4
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181	④ + ⑦	95.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	WCDMA BV	①	2.350	0.097	-0.125	-0.180	① + ⑥	174.1
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180		
	WCDMA BV	①	2.350	0.097	-0.125	-0.180	① + ⑦	80.4
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180	⑥ + ⑦	94.5
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
Edge 1	WCDMA BV	①	3.140	-0.005	-0.107	-0.182	① + ⑥	151.0
	Path A (5G)	⑥	2.720	-0.002	0.044	-0.183		
	WCDMA BV	①	3.140	-0.005	-0.107	-0.182	① + ⑦	90.3
	Path B (BT)	⑦	0.021	0.000	-0.017	-0.183		
	Path A (5G)	⑥	2.720	-0.002	0.044	-0.183	⑥ + ⑦	60.8
	Path B (BT)	⑦	0.021	0.000	-0.017	-0.183		
Edge 1 Slant	WCDMA BV	①	2.450	-0.003	-0.108	-0.182	① + ⑥	152.0
	Path A (5G)	⑥	2.690	-0.006	0.044	-0.184		
	WCDMA BV	①	2.450	-0.003	-0.108	-0.182	① + ⑦	60.8
	Path B (BT)	⑦	0.014	-0.001	-0.047	-0.183		
	Path A (5G)	⑥	2.690	-0.006	0.044	-0.184	⑥ + ⑦	91.3
	Path B (BT)	⑦	0.014	-0.001	-0.047	-0.183		

The Peak Location Separation Distance is computed by using the formula: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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

Tablet Mode WWAN Full Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Mid Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	0.111		0.341		0.488	0.044	0.452	0.599	0.496	0.643
Edge 1	0.439		0.191		0.921	0.009	0.630	1.360	0.639	1.369
Edge 1 Slant	0.447		0.202		1.000	0.005	0.649	1.447	0.654	1.452
Edge 2	0.141		0.400		0.400	0.000	0.541	0.541	0.541	0.541
Edge 3	0.087		0.400		0.400	0.000	0.487	0.487	0.487	0.487
Edge 4	0.287		0.013		0.033	0.000	0.300	0.320	0.300	0.320

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Mid Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	1.149		0.341		0.488	0.044	1.490	1.637	1.534	1.681
Edge 1	0.227		0.191		0.921	0.009	0.418	1.148	0.427	1.157
Edge 1 Slant	0.234		0.202		1.000	0.005	0.436	1.234	0.441	1.239
Edge 2	0.162		0.400		0.400	0.000	0.562	0.562	0.562	0.562
Edge 3	0.100		0.400		0.400	0.000	0.500	0.500	0.500	0.500
Edge 4	0.330		0.013		0.033	0.000	0.343	0.363	0.343	0.363

SAR to Peak Location Separation Ratio (SPLSR) for WWAN Reduced power

Test Position	Standalone SAR (W/kg)			∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)
	WWAN	U-NII	Bluetooth					
	②	Path A ⑥	Path B ⑦					
Rear	1.149	0.488	0.044	② + ⑥ + ⑦	1.681			
	1.149	0.488	0.044	② + ⑥	1.637	134.9	0.02	No
	1.149	0.488	0.044	② + ⑦	1.193	40.7	0.03	No
		0.488	0.044	⑥ + ⑦	0.532	94.5	0.00	No

Test Position	Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
			W/kg	m	m	m		
Rear	LTE Band 2	②	1.420	0.093	-0.086	-0.181	② + ⑥	134.9
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180		
	LTE Band 2	②	1.420	0.093	-0.086	-0.181	② + ⑦	40.7
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180	⑥ + ⑦	94.5
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		

The Peak Location Separation Distance is computed by using the formula: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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

Tablet Mode WWAN Full Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Mid Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	0.989		0.341		0.488	0.044	1.330	1.477	1.374	1.521
Edge 1	0.436		0.191		0.921	0.009	0.627	1.357	0.636	1.366
Edge 1 Slant	0.476		0.202		1.000	0.005	0.678	1.476	0.683	1.481
Edge 2	0.142		0.400		0.400	0.000	0.542	0.542	0.542	0.542
Edge 3	0.028		0.400		0.400	0.000	0.428	0.428	0.428	0.428
Edge 4	0.430		0.013		0.033	0.000	0.443	0.463	0.443	0.463

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Mid Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	0.999		0.341		0.488	0.044	1.340	1.487	1.384	1.531
Edge 1	0.238		0.191		0.921	0.009	0.429	1.159	0.438	1.168
Edge 1 Slant	0.313		0.202		1.000	0.005	0.515	1.313	0.520	1.318
Edge 2	0.156		0.400		0.400	0.000	0.556	0.556	0.556	0.556
Edge 3	0.031		0.400		0.400	0.000	0.431	0.431	0.431	0.431
Edge 4	0.472		0.013		0.033	0.000	0.485	0.505	0.485	0.505

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

SAR for LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

12.6. Sum of the SAR for LTE Band 7 & Wi-Fi & BT

Tablet Mode WWAN Full Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	High Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	0.769		0.341		0.488	0.044	1.110	1.257	1.154	1.301
Edge 1	0.537		0.191		0.921	0.009	0.728	1.458	0.737	1.467
Edge 1 Slant	0.629		0.202		1.000	0.005	0.831	1.629	0.836	1.634
Edge 2	0.086		0.400		0.400	0.000	0.486	0.486	0.486	0.486
Edge 3	0.003		0.400		0.400	0.000	0.403	0.403	0.403	0.403
Edge 4	1.439		0.013		0.033	0.000	1.452	1.472	1.452	1.472

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	High Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	1.350		0.341		0.488	0.044	1.691	1.838	1.735	1.882
Edge 1	0.376		0.191		0.921	0.009	0.567	1.297	0.576	1.306
Edge 1 Slant	0.415		0.202		1.000	0.005	0.617	1.415	0.622	1.420
Edge 2	0.086		0.400		0.400	0.000	0.486	0.486	0.486	0.486
Edge 3	0.003		0.400		0.400	0.000	0.403	0.403	0.403	0.403
Edge 4	1.439		0.013		0.033	0.000	1.452	1.472	1.452	1.472

SAR to Peak Location Separation Ratio (SPLSR) for WWAN Full power

Test Position	Standalone SAR (W/kg)				∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)
	WWAN ②	DTS Path A ④	U-NII Path A ⑥	Bluetooth Path B ⑦					
Edge 1 Slant	0.629		1.000	0.005	② + ⑥ + ⑦	1.634			
	0.629		1.000	0.005	② + ⑥	1.629	131.5	0.02	No
	0.629		1.000	0.005	② + ⑦	0.634	40.2	0.01	No
			1.000	0.005	⑥ + ⑦	1.005	91.3	0.01	No

Test Position	Mode		Peak SAR W/kg	X m	Y m	Z m	d: Calculated distance (mm)	
Edge 1 Slant	LTE Band 7	②	0.683	-0.001	-0.087	-0.184	② + ⑥	131.5
	Path A (5G)	⑥	2.690	-0.006	0.044	-0.184		
	LTE Band 7	②	0.683	-0.001	-0.087	-0.184	② + ⑦	40.2
	Path B (BT)	⑦	0.014	-0.001	-0.047	-0.183		
	Path A (5G)	⑥	2.690	-0.006	0.044	-0.184	⑥ + ⑦	91.3
	Path B (BT)	⑦	0.014	-0.001	-0.047	-0.183		

The Peak Location Separation Distance is computed by using the formula: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

SAR to Peak Location Separation Ratio (SPLSR) for WWAN Reduced power

Test Position	Standalone SAR (W/kg)				∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)
	WWAN	DTS	U-NII	Bluetooth					
	②	Path A ④	Path A ⑥	Path B ⑦					
Rear	1.350	0.341		0.044	② + ④ + ⑦	1.735			
	1.350	0.341		0.044	② + ④	1.691	134.4	0.02	No
	1.350	0.341		0.044	② + ⑦	1.394	39.1	0.04	No
		0.341		0.044	④ + ⑦	0.385	95.3	0.00	No
	1.350		0.488	0.044	② + ⑥ + ⑦	1.882			
	1.350		0.488	0.044	② + ⑥	1.838	133.5	0.02	No
	1.350		0.488	0.044	② + ⑦	1.394	39.1	0.04	No
			0.488	0.044	⑥ + ⑦	0.532	94.5	0.00	No

Test Position	Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
			W/kg	m	m	m		
Rear	LTE Band 7	②	1.770	0.089	-0.084	-0.181	② + ④	134.4
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181		
	LTE Band 7	②	1.770	0.089	-0.084	-0.181	② + ⑦	39.1
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181	④ + ⑦	95.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	LTE Band 7	②	1.770	0.089	-0.084	-0.181	② + ⑥	133.5
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180		
	LTE Band 7	②	1.770	0.089	-0.084	-0.181	② + ⑦	39.1
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180	⑥ + ⑦	94.5
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		

The Peak Location Separation Distance is computed by using the formula: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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

Tablet Mode WWAN Full Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Low Band ①	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	① + ④	① + ⑥	① + ④ + ⑦	① + ⑥ + ⑦
Rear	0.393		0.341		0.488	0.044	0.734	0.881	0.778	0.925
Edge 1	0.319		0.191		0.921	0.009	0.510	1.240	0.519	1.249
Edge 1 Slant	0.320		0.202		1.000	0.005	0.522	1.320	0.527	1.325
Edge 2	0.042		0.400		0.400	0.000	0.442	0.442	0.442	0.442
Edge 3	0.020		0.400		0.400	0.000	0.420	0.420	0.420	0.420
Edge 4	0.588		0.013		0.033	0.000	0.601	0.621	0.601	0.621

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Low Band ①	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	① + ④	① + ⑥	① + ④ + ⑦	① + ⑥ + ⑦
Rear	1.290		0.341		0.488	0.044	1.631	1.778	1.675	1.822
Edge 1	0.983		0.191		0.921	0.009	1.174	1.904	1.183	1.913
Edge 1 Slant	0.971		0.202		1.000	0.005	1.173	1.971	1.178	1.976
Edge 2	0.042		0.400		0.400	0.000	0.442	0.442	0.442	0.442
Edge 3	0.020		0.400		0.400	0.000	0.420	0.420	0.420	0.420
Edge 4	0.588		0.013		0.033	0.000	0.601	0.621	0.601	0.621

SAR to Peak Location Separation Ratio (SPLSR) for WWAN Reduced power

Test Position	Standalone SAR (W/kg)				∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)
	WWAN	DTS	U-NII	Bluetooth					
	①	Path A ④	Path A ⑥	Path B ⑦					
Rear	1.290	0.341		0.044	① + ④ + ⑦	1.675			
	1.290	0.341		0.044	① + ④	1.631	166.4	0.01	No
	1.290	0.341		0.044	① + ⑦	1.334	71.7	0.02	No
	1.290	0.341		0.044	④ + ⑦	0.385	95.3	0.00	No
	1.290		0.488	0.044	① + ⑥ + ⑦	1.822			
	1.290		0.488	0.044	① + ⑥	1.778	165.0	0.01	No
	1.290		0.488	0.044	① + ⑦	1.334	71.7	0.02	No
	1.290		0.488	0.044	⑥ + ⑦	0.532	94.5	0.00	No
Edge 1	0.983		0.921	0.009	① + ⑥ + ⑦	1.913			
	0.983		0.921	0.009	① + ⑥	1.904	148.0	0.02	No
	0.983		0.921	0.009	① + ⑦	0.992	87.3	0.01	No
	0.983		0.921	0.009	⑥ + ⑦	0.930	60.8	0.01	No
Edge 1 Slant	0.971		1.000	0.005	① + ⑥ + ⑦	1.976			
	0.971		1.000	0.005	① + ⑥	1.971	149.0	0.02	No
	0.971		1.000	0.005	① + ⑦	0.976	57.9	0.02	No
	0.971		1.000	0.005	⑥ + ⑦	1.005	91.3	0.01	No

Test Position	Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
			W/kg	m	m	m		
Rear	LTE Band 12	①	1.610	0.100	-0.116	-0.179	① + ④	166.4
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181		
	LTE Band 12	①	1.610	0.100	-0.116	-0.179	① + ⑦	71.7
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181	④ + ⑦	95.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	LTE Band 12	①	1.610	0.100	-0.116	-0.179	① + ⑥	165.0
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180		
	LTE Band 12	①	1.610	0.100	-0.116	-0.179	① + ⑦	71.7
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180	⑥ + ⑦	94.5
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
Edge 1	LTE Band 12	①	1.530	-0.003	-0.104	-0.182	① + ⑥	148.0
	Path A (5G)	⑥	2.720	-0.002	0.044	-0.183		
	LTE Band 12	①	1.530	-0.003	-0.104	-0.182	① + ⑦	87.3
	Path B (BT)	⑦	0.021	0.000	-0.017	-0.183		
	Path A (5G)	⑥	2.720	-0.002	0.044	-0.183	⑥ + ⑦	60.8
	Path B (BT)	⑦	0.021	0.000	-0.017	-0.183		
Edge 1 Slant	LTE Band 12	①	1.790	-0.005	-0.105	-0.181	① + ⑥	149.0
	Path A (5G)	⑥	2.690	-0.006	0.044	-0.184		
	LTE Band 12	①	1.790	-0.005	-0.105	-0.181	① + ⑦	57.9
	Path B (BT)	⑦	0.014	-0.001	-0.047	-0.183		
	Path A (5G)	⑥	2.690	-0.006	0.044	-0.184	⑥ + ⑦	91.3
	Path B (BT)	⑦	0.014	-0.001	-0.047	-0.183		

The Peak Location Separation Distance is computed by using the formula: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

12.8. Sum of the SAR for LTE Band 13 & Wi-Fi & BT

Tablet Mode WWAN Full Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Low Band ①	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	① + ④	① + ⑥	① + ④ + ⑦	① + ⑥ + ⑦
Rear	0.380		0.341		0.488	0.044	0.721	0.868	0.765	0.912
Edge 1	0.361		0.191		0.921	0.009	0.552	1.282	0.561	1.291
Edge 1 Slant	0.314		0.202		1.000	0.005	0.516	1.314	0.521	1.319
Edge 2	0.036		0.400		0.400	0.000	0.436	0.436	0.436	0.436
Edge 3	0.030		0.400		0.400	0.000	0.430	0.430	0.430	0.430
Edge 4	0.747		0.013		0.033	0.000	0.760	0.780	0.760	0.780

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Low Band ①	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	① + ④	① + ⑥	① + ④ + ⑦	① + ⑥ + ⑦
Rear	1.249		0.341		0.488	0.044	**1.590**	1.737	1.634	1.781
Edge 1	1.057		0.191		0.921	0.009	1.248	1.978	1.257	1.987
Edge 1 Slant	1.173		0.202		1.000	0.005	1.375	2.173	1.380	2.178
Edge 2	0.036		0.400		0.400	0.000	0.436	0.436	0.436	0.436
Edge 3	0.030		0.400		0.400	0.000	0.430	0.430	0.430	0.430
Edge 4	0.747		0.013		0.033	0.000	0.760	0.780	0.760	0.780

SAR to Peak Location Separation Ratio (SPLSR) for WWAN Reduced power

Test Position	Standalone SAR (W/kg)				∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)
	WWAN	DTS	U-NII	Bluetooth					
	①	Path A ④	Path A ⑥	Path B ⑦					
Rear	1.249	0.341		0.044	① + ④ + ⑦	1.634			
	1.249	0.341		0.044	① + ④	1.590	174.4	0.01	No
	1.249	0.341		0.044	① + ⑦	1.293	79.6	0.02	No
	1.249	0.341		0.044	④ + ⑦	0.385	95.3	0.00	No
	1.249		0.488	0.044	① + ⑥ + ⑦	1.781			
	1.249		0.488	0.044	① + ⑥	1.737	173.0	0.01	No
	1.249		0.488	0.044	① + ⑦	1.293	79.6	0.02	No
	1.249		0.488	0.044	⑥ + ⑦	0.532	94.5	0.00	No
Edge 1	1.057		0.921	0.009	① + ⑥ + ⑦	1.987			
	1.057		0.921	0.009	① + ⑥	1.978	149.1	0.02	No
	1.057		0.921	0.009	① + ⑦	1.066	88.5	0.01	No
	1.057		0.921	0.009	⑥ + ⑦	0.930	60.8	0.01	No
Edge 1 Slant	1.173		1.000	0.005	① + ⑥ + ⑦	2.178			
	1.173		1.000	0.005	① + ⑥	2.173	149.1	0.02	No
	1.173		1.000	0.005	① + ⑦	1.178	58.6	0.02	No
	1.173		1.000	0.005	⑥ + ⑦	1.005	91.3	0.01	No

Test Position	Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
			W/kg	m	m	m		
Rear	LTE Band 13	①	1.960	0.100	-0.124	-0.179	① + ④	174.4
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181		
	LTE Band 13	①	1.960	0.100	-0.124	-0.179	① + ⑦	79.6
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181	④ + ⑦	95.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	LTE Band 13	①	1.960	0.100	-0.124	-0.179	① + ⑥	173.0
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180		
	LTE Band 13	①	1.960	0.100	-0.124	-0.179	① + ⑦	79.6
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180	⑥ + ⑦	94.5
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
Edge 1	LTE Band 13	①	2.870	-0.008	-0.105	-0.181	① + ⑥	149.1
	Path A (5G)	⑥	2.720	-0.002	0.044	-0.183		
	LTE Band 13	①	2.870	-0.008	-0.105	-0.181	① + ⑦	88.5
	Path B (BT)	⑦	0.021	0.000	-0.017	-0.183		
	Path A (5G)	⑥	2.720	-0.002	0.044	-0.183	⑥ + ⑦	60.8
	Path B (BT)	⑦	0.021	0.000	-0.017	-0.183		
Edge 1 Slant	LTE Band 13	①	2.590	-0.011	-0.105	-0.181	① + ⑥	149.1
	Path A (5G)	⑥	2.690	-0.006	0.044	-0.184		
	LTE Band 13	①	2.590	-0.011	-0.105	-0.181	① + ⑦	58.6
	Path B (BT)	⑦	0.014	-0.001	-0.047	-0.183		
	Path A (5G)	⑥	2.690	-0.006	0.044	-0.184	⑥ + ⑦	91.3
	Path B (BT)	⑦	0.014	-0.001	-0.047	-0.183		

The Peak Location Separation Distance is computed by using the formula: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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

Tablet Mode WWAN Full Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Low Band ①	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	① + ④	① + ⑥	① + ④ + ⑦	① + ⑥ + ⑦
Rear	0.466		0.341		0.488	0.044	0.807	0.954	0.851	0.998
Edge 1	0.476		0.191		0.921	0.009	0.667	1.397	0.676	1.406
Edge 1 Slant	0.481		0.202		1.000	0.005	0.683	1.481	0.688	1.486
Edge 2	0.043		0.400		0.400	0.000	0.443	0.443	0.443	0.443
Edge 3	0.039		0.400		0.400	0.000	0.439	0.439	0.439	0.439
Edge 4	0.808		0.013		0.033	0.000	0.821	0.841	0.821	0.841

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	Low Band ①	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	① + ④	① + ⑥	① + ④ + ⑦	① + ⑥ + ⑦
Rear	1.382		0.341		0.488	0.044	1.723	1.870	1.767	1.914
Edge 1	0.921		0.191		0.921	0.009	1.112	1.842	1.121	1.851
Edge 1 Slant	0.991		0.202		1.000	0.005	1.193	1.991	1.198	1.996
Edge 2	0.043		0.400		0.400	0.000	0.443	0.443	0.443	0.443
Edge 3	0.039		0.400		0.400	0.000	0.439	0.439	0.439	0.439
Edge 4	0.808		0.013		0.033	0.000	0.821	0.841	0.821	0.841

SAR to Peak Location Separation Ratio (SPLSR) for WWAN Reduced power

Test Position	Standalone SAR (W/kg)				∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)
	WWAN ①	DTS Path A ④	U-NII Path A ⑥	Bluetooth Path B ⑦					
Rear	1.382	0.341		0.044	① + ④ + ⑦	1.767			
	1.382	0.341		0.044	① + ④	1.723	150.5	0.02	No
	1.382	0.341		0.044	① + ⑦	1.426	55.2	0.03	No
	1.382	0.341		0.044	④ + ⑦	0.385	95.3	0.00	No
	1.382		0.488	0.044	① + ⑥ + ⑦	1.914			
	1.382		0.488	0.044	① + ⑥	1.870	149.4	0.02	No
	1.382		0.488	0.044	① + ⑦	1.426	55.2	0.03	No
	1.382		0.488	0.044	⑥ + ⑦	0.532	94.5	0.00	No
Edge 1	0.921		0.921	0.009	① + ⑥ + ⑦	1.851			
	0.921		0.921	0.009	① + ⑥	1.842	149.0	0.02	No
	0.921		0.921	0.009	① + ⑦	0.930	88.3	0.01	No
	0.921		0.921	0.009	⑥ + ⑦	0.930	60.8	0.01	No
Edge 1 Slant	0.991		1.000	0.005	① + ⑥ + ⑦	1.996			
	0.991		1.000	0.005	① + ⑥	1.991	151.1	0.02	No
	0.991		1.000	0.005	① + ⑦	0.996	59.8	0.02	No
	0.991		1.000	0.005	⑥ + ⑦	1.005	91.3	0.01	No

Test Position	Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
			W/kg	m	m	m		
Rear	LTE Band 26	①	2.040	0.092	-0.100	-0.180	① + ④	150.5
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181		
	LTE Band 26	①	2.040	0.092	-0.100	-0.180	① + ⑦	55.2
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181	④ + ⑦	95.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	LTE Band 26	①	2.040	0.092	-0.100	-0.180	① + ⑥	149.4
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180		
	LTE Band 26	①	2.040	0.092	-0.100	-0.180	① + ⑦	55.2
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180	⑥ + ⑦	94.5
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
Edge 1	LTE Band 26	①	1.290	-0.003	-0.105	-0.181	① + ⑥	149.0
	Path A (5G)	⑥	2.720	-0.002	0.044	-0.183		
	LTE Band 26	①	1.290	-0.003	-0.105	-0.181	① + ⑦	88.3
	Path B (BT)	⑦	0.021	0.000	-0.017	-0.183		
	Path A (5G)	⑥	2.720	-0.002	0.044	-0.183	⑥ + ⑦	60.8
	Path B (BT)	⑦	0.021	0.000	-0.017	-0.183		
Edge 1 Slant	LTE Band 26	①	1.850	-0.002	-0.107	-0.182	① + ⑥	151.1
	Path A (5G)	⑥	2.690	-0.006	0.044	-0.184		
	LTE Band 26	①	1.850	-0.002	-0.107	-0.182	① + ⑦	59.8
	Path B (BT)	⑦	0.014	-0.001	-0.047	-0.183		
	Path A (5G)	⑥	2.690	-0.006	0.044	-0.184	⑥ + ⑦	91.3
	Path B (BT)	⑦	0.014	-0.001	-0.047	-0.183		

The Peak Location Separation Distance is computed by using the formula: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

12.10. Sum of the SAR for LTE Band 30 & Wi-Fi & BT

Tablet Mode WWAN Full Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	High Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	0.593		0.341		0.488	0.044	0.934	1.081	0.978	1.125
Edge 1	0.551		0.191		0.921	0.009	0.742	1.472	0.751	1.481
Edge 1 Slant	0.521		0.202		1.000	0.005	0.723	1.521	0.728	1.526
Edge 2	0.196		0.400		0.400	0.000	0.596	0.596	0.596	0.596
Edge 3	0.024		0.400		0.400	0.000	0.424	0.424	0.424	0.424
Edge 4	1.202		0.013		0.033	0.000	1.215	1.235	1.215	1.235

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	High Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	1.035		0.341		0.488	0.044	1.376	1.523	1.420	**1.567**
Edge 1	0.288		0.191		0.921	0.009	0.479	1.209	0.488	1.218
Edge 1 Slant	0.347		0.202		1.000	0.005	0.549	1.347	0.554	1.352
Edge 2	0.196		0.400		0.400	0.000	0.596	0.596	0.596	0.596
Edge 3	0.024		0.400		0.400	0.000	0.424	0.424	0.424	0.424
Edge 4	1.202		0.013		0.033	0.000	1.215	1.235	1.215	1.235

12.11. Sum of the SAR for LTE Band 38 & Wi-Fi & BT

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	High Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	1.327		0.341		0.488	0.044	1.668	1.815	1.712	1.859
Edge 1	0.414		0.191		0.921	0.009	0.605	1.335	0.614	1.344
Edge 1 Slant	0.439		0.202		1.000	0.005	0.641	1.439	0.646	1.444
Edge 2	0.400		0.400		0.400	0.000	0.800	0.800	0.800	0.800
Edge 3	0.400		0.400		0.400	0.000	0.800	0.800	0.800	0.800
Edge 4	0.400		0.013		0.033	0.000	0.413	0.433	0.413	0.433

LTE Band 38 Max Power

SAR for LTE Band 38 Full Power (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 Full Power (Frequency range: 2496-2690 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

SAR to Peak Location Separation Ratio (SPLSR) for WWAN Reduced power

Test Position	Standalone SAR (W/kg)				∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)
	WWAN	DTS	U-NII	Bluetooth					
	②	Path A ④	Path A ⑥	Path B ⑦					
Rear	1.327	0.341		0.044	② + ④ + ⑦	1.712			
	1.327	0.341		0.044	② + ④	1.668	135.4	0.02	No
	1.327	0.341		0.044	② + ⑦	1.371	40.3	0.04	No
	1.327	0.341		0.044	④ + ⑦	0.385	95.3	0.00	No
	1.327		0.488	0.044	② + ⑥ + ⑦	1.859			
	1.327		0.488	0.044	② + ⑥	1.815	134.3	0.02	No
	1.327		0.488	0.044	② + ⑦	1.371	40.3	0.04	No
	1.327		0.488	0.044	⑥ + ⑦	0.532	94.5	0.00	No

Test Position	Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
			W/kg	m	m	m		
Rear	LTE Band 38	②	2.650	0.094	-0.085	-0.181	② + ④	135.4
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181		
	LTE Band 38	②	2.650	0.094	-0.085	-0.181	② + ⑦	40.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181	④ + ⑦	95.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	LTE Band 38	②	2.650	0.094	-0.085	-0.181	② + ⑥	134.3
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180		
	LTE Band 38	②	2.650	0.094	-0.085	-0.181	② + ⑦	40.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180	⑥ + ⑦	94.5
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		

The Peak Location Separation Distance is computed by using the formula: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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

Tablet Mode WWAN Full Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	High Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	0.478		0.341		0.488	0.044	0.819	0.966	0.863	1.010
Edge 1	0.393		0.191		0.921	0.009	0.584	1.314	0.593	1.323
Edge 1 Slant	0.377		0.202		1.000	0.005	0.579	1.377	0.584	1.382
Edge 2	0.067		0.400		0.400	0.000	0.467	0.467	0.467	0.467
Edge 3	0.001		0.400		0.400	0.000	0.401	0.401	0.401	0.401
Edge 4	0.942		0.013		0.033	0.000	0.955	0.975	0.955	0.975

Tablet Mode WWAN Reduced Power + WLAN Reduced Power:

Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)			
	WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN + DTS + BT	WWAN+U-NII+BT
	High Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	② + ④	② + ⑥	② + ④ + ⑦	② + ⑥ + ⑦
Rear	1.353		0.341		0.488	0.044	1.694	1.841	1.738	1.885
Edge 1	0.339		0.191		0.921	0.009	0.530	1.260	0.539	1.269
Edge 1 Slant	0.365		0.202		1.000	0.005	0.567	1.365	0.572	1.370
Edge 2	0.067		0.400		0.400	0.000	0.467	0.467	0.467	0.467
Edge 3	0.001		0.400		0.400	0.000	0.401	0.401	0.401	0.401
Edge 4	0.942		0.013		0.033	0.000	0.955	0.975	0.955	0.975

SAR to Peak Location Separation Ratio (SPLSR) for WWAN Reduced power

Test Position	Standalone SAR (W/kg)				∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)
	WWAN	DTS	U-NII	Bluetooth					
	②	Path A ④	Path A ⑥	Path B ⑦					
Rear	1.353	0.341		0.044	② + ④ + ⑦	1.738			
	1.353	0.341		0.044	② + ④	1.694	135.4	0.02	No
	1.353	0.341		0.044	② + ⑦	1.397	40.3	0.04	No
	1.353	0.341		0.044	④ + ⑦	0.385	95.3	0.00	No
	1.353		0.488	0.044	② + ⑥ + ⑦	1.885			
	1.353		0.488	0.044	② + ⑥	1.841	134.3	0.02	No
	1.353		0.488	0.044	② + ⑦	1.397	40.3	0.04	No
	1.353		0.488	0.044	⑥ + ⑦	0.532	94.5	0.00	No

Test Position	Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
			W/kg	m	m	m		
Rear	LTE Band 41	②	2.300	0.094	-0.085	-0.181	② + ④	135.4
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181		
	LTE Band 41	②	2.300	0.094	-0.085	-0.181	② + ⑦	40.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (2.4G)	④	0.678	0.096	0.050	-0.181	④ + ⑦	95.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	LTE Band 41	②	2.300	0.094	-0.085	-0.181	② + ⑥	134.3
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180		
	LTE Band 41	②	2.300	0.094	-0.085	-0.181	② + ⑦	40.3
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		
	Path A (5G)	⑥	1.170	0.103	0.049	-0.180	⑥ + ⑦	94.5
	Path B (BT)	⑦	0.050	0.092	-0.045	-0.182		

The Peak Location Separation Distance is computed by using the formula: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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.

12.13. Sum of the SAR for WWAN & Wi-Fi & BT Laptop Mode

The worst case values for each transmission mode are assessed. As the sum of SAR for these modes are less than 1.6 W/kg, calculation for other modes is not required.

Laptop Mode WWAN Full & Reduced Power + WLAN Full Power:

Test Position	Standalone SAR (W/kg)							∑ 1-g SAR (W/kg)							
	WWAN		DTS		U-NII		BT	WWAN + DTS	WWAN + DTS	WWAN + U-NII	WWAN + U-NII	WWAN + DTS + BT	WWAN + DTS + BT	WWAN+U-NII+BT	WWAN+U-NII+BT
	Low Band ①	Mid/High Band ②	Path B ③	Path A ④	Path B ⑤	Path A ⑥	Path B ⑦	①+③+④	②+③+④	①+⑤+⑥	②+⑤+⑥	①+④+⑦	②+④+⑦	①+⑥+⑦	②+⑥+⑦
Edge 3	0.041	0.100	0.400	0.400	0.400	0.400	0.001	0.841	**0.900**	0.841	**0.900**	0.442	**0.501**	0.442	0.501

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

Appendixes

Refer to separated files for the following appendixes.

11735596-S1V1 SAR_App A Setup Photos

11735596-S1V1 SAR_App B System Check Plots

11735596-S1V1 SAR_App C Highest Test Plots

11735596-S1V1 SAR_App D Tissue Ingredients

11735596-S1V1 SAR_App E Probe Cal. Certificates

11735596-S1V1 SAR_App F Dipole Cal. Certificates

END OF REPORT