FCC 47 CFR § 2.1093
IEEE Std 1528-2013

SAR EVALUATION REPORT

FOR

GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac, ANT+ and NFC

MODEL NUMBER: SM-A805F/DS, SM-A805F, SM-A805X, SM-A805F/DSM

FCC ID: A3LSMA805F

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ACCREDITED
Testing Laboratory

TL-637

Revision History

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Table of Contents

1. Attestation of Test Results 5

2. Test Specification, Methods and Procedures 6

3. Facilities and Accreditation 6

4. SAR Measurement System & Test Equipment 7

4.1. SAR Measurement System 7

4.2. SAR Scan Procedures 8

4.3. Test Equipment 10

5. Measurement Uncertainty 11

6. Device Under Test (DUT) Information 11

6.1. DUT Description 11

6.2. Wireless Technologies 12

6.3. Nominal and Maximum Output Power 13

6.4. General LTE SAR Test and Reporting Considerations 15

6.5. LTE (TDD) Considerations 17

6.6. LTE Carrier Aggregation 18

6.7. Proximity Sensor feature 21

6.7.1. Proximity Sensor Triggering Distance (KDB 616217 §6.2) 22

6.7.2. Proximity Sensor Coverage (KDB 616217 §6.3) 28

6.7.3. Proximity Sensor Tilt Angle Assessment (KDB 616217 §6.4) 29

6.7.4. Resulting test positions for SAR measurements 29

7. RF Exposure Conditions (Test Configurations) 30

8. Dielectric Property Measurements & System Check 32

8.1 Dielectric Property Measurements 32

8.2 System Check 38

9. Conducted Output Power Measurements 41

9.1 GSM 41

9.2 W-CDMA 43

9.3 LTE 48

9.3.1 LTE Rel.10 Carrier Aggregation 73

9.4 Wi-Fi 2.4 GHz (DTS Band) 74

9.5 Wi-Fi 5GHz (U-NII Bands) 75

9.6 Bluetooth 77

10. Measured and Reported (Scaled) SAR Results 78

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10.1 GSM 850 ... 80
10.2 GSM1900 ... 80
10.3 W-CDMA Band II ... 81
10.4 W-CDMA Band IV ... 81
10.5 W-CDMA Band V ... 82
10.6 LTE Band 2 (20MHz Bandwidth) ... 82
10.7 LTE Band 5 (10MHz Bandwidth) ... 83
10.8 LTE Band 12 (10MHz Bandwidth) ... 83
10.9 LTE Band 13 (10MHz Bandwidth) ... 84
10.10 LTE Band 26 (15MHz Bandwidth) ... 84
10.12 LTE Band 66 (20MHz Bandwidth) ... 85
10.13 LTE Band 41 (20MHz Bandwidth) ... 86
10.14 Wi-Fi (DTS Band) ... 87
10.15 Wi-Fi (U-NII Bands) ... 88
10.16 Bluetooth ... 90

11 SAR Measurement Variability ... 91

12 DUT Holder Perturbations ... 92

13 Simultaneous Transmission SAR Analysis ... 92
13.1 Sum of the SAR for WWAN & Wi-Fi & BT ... 94

Appendixes ... 95
4788886234-S1V1 FCC Report SAR_App A_Photos & Ant. Locations ... 95
4788886234-S1V1 FCC Report SAR_App B_Highest SAR Test Plots ... 95
4788886234-S1V1 FCC Report SAR_App C_System Check Plots ... 95
4788886234-S1V1 FCC Report SAR_App D_SAR Tissue Ingredients ... 95
4788886234-S1V1 FCC Report SAR_App E_Probe Cal. Certificates ... 95
4788886234-S1V1 FCC Report SAR_App F_Dipole Cal. Certificates ... 95

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1. Attestation of Test Results

Applicant Name	SAMSUNG ELECTRONICS CO.,LTD.
FCC ID	A3LSMA805F
Model Number	SM-A805F/DS, SM-A805F, SM-A805X, SM-A805F/DSM
Applicable Standards	FCC 47 CFR § 2.1093 Published RF exposure KDB procedures IEEE Std 1528-2013
SAR Limits (W/Kg)	
Exposure Category	Peak spatial-average(1g of tissue)
General population / Uncontrolled exposure	1.6

The Highest Reported SAR (W/kg)

RF Exposure Conditions		**Equipment Class**			
		Licensed	**DTS**	**U-NII**	**DSS(BT)**
Head		0.30	<0.10	<0.10	<0.10
Body-worn		0.71	<0.10	0.17	<0.10
Hotspot		1.36	<0.10	0.13	<0.10
Product Specific 10g		1.96	N/A	1.67	N/A
Simultaneous TX	Head	0.37	0.31	0.37	0.33
	Body-worn	0.90	0.88	0.90	0.88
	Hotspot	1.54	1.49	1.54	1.49
	Product Specific 10g	3.79	N/A	3.79	N/A
Date Tested		2/27/2019 to 4/5/2019			
Test Results		Pass			

UL Korea, Ltd. 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 Korea, Ltd. 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 Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. 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 IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released By:	Prepared By:
Justin Park Lead Test Engineer UL Korea, Ltd. Suwon Laboratory	Sunghoon Kim Test Engineer UL Korea, Ltd. Suwon Laboratory

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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
- 648474 D04 Handset SAR v01r03
- 690783 D01 SAR Listings on Grants v01r03
- 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
- 941225 D06 Hotspot Mode v02r01
- 941225 D07 UMPC Mini Tablet 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, 2016; Page 7, RF Exposure Procedures (Bluetooth Duty Factor)
- TCB workshop October, 2016; Page 18, RF Exposure Procedures (DUT Holder Perturbations)
- TCB workshop May, 2017; Page 6, RF Exposure Procedures (LTE Test Conditions)
- TCB workshop April, 2018; Page 3, RF Exposure Procedures (LTE DL CA SAR Test Exclusion Update)

3. Facilities and Accreditation

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

Suwon
SAR 1 Room
SAR 2 Room
SAR 3 Room
SAR 4 Room

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.
The full scope of accreditation can be viewed at http://www.iasonline.org/PDF/TL/TL-637.pdf.

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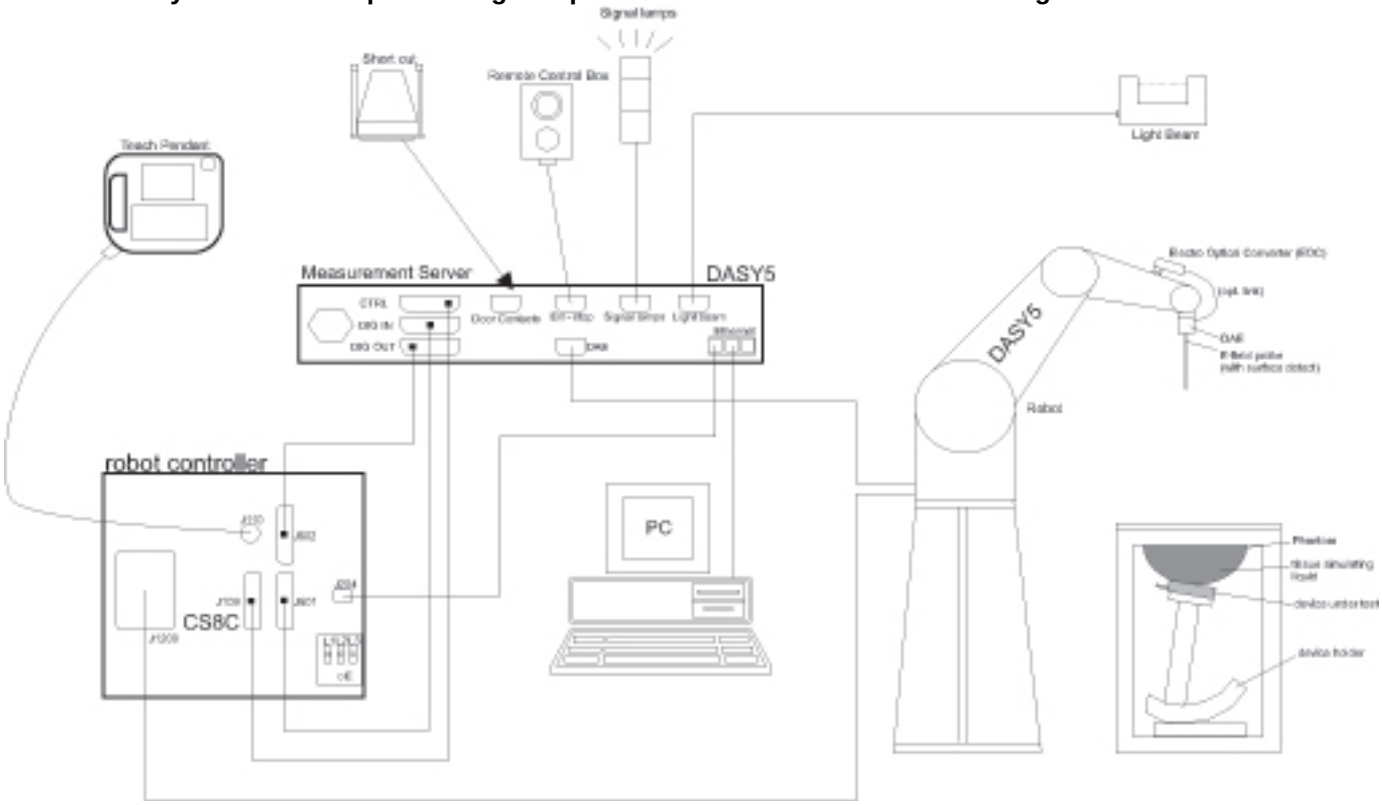
4. SAR Measurement System & Test Equipment

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.

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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.	

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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	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
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.

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4.3. Test Equipment

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

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E5071C	MY46522054	8-7-2019
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	6-26-2019
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3424	8-9-2019

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-7-2019
Power Sensor	Agilent	U2000A	MY54260010	8-7-2019
Power Sensor	Agilent	U2000A	MY54260007	8-7-2019
Power Amplifier	EXODUS	1410025-AMP2027-10003	10003	8-8-2019
Directional Coupler	Agilent	772D	MY52180193	8-7-2019
Directional Coupler	Agilent	778D	MY52180432	8-7-2019
Low Pass Filter	MICROLAB	LA-15N	03943	8-7-2019
Low Pass Filter	FILTRON	L14012FL	1410003S	8-7-2019
Attenuator	Agilent	8491B/003	MY39269292	8-7-2019
Attenuator	Agilent	8491B/010	MY39269315	8-7-2019
Attenuator	Agilent	8491B/020	MY39269298	8-7-2019
E-Field Probe (SAR1)	SPEAG	EX3DV4	7376	9-26-2019
E-Field Probe (SAR2)	SPEAG	EX3DV4	7330	1-31-2020
E-Field Probe (SAR3)	SPEAG	EX3DV4	7314	8-30-2019
E-Field Probe (SAR4)	SPEAG	EX3DV4	3991	5-24-2019
Data Acquisition Electronics (SAR1)	SPEAG	DAE4	1494	7-23-2019
Data Acquisition Electronics (SAR2)	SPEAG	DAE4	1447	3-15-2019
Data Acquisition Electronics (SAR2)	SPEAG	DAE4	912	11-16-2019
Data Acquisition Electronics (SAR3)	SPEAG	DAE4	1468	8-22-2019
Data Acquisition Electronics (SAR4)	SPEAG	DAE4	1259	7-26-2019
System Validation Dipole	SPEAG	D750V3	1122	2-19-2020
System Validation Dipole	SPEAG	D835V2	4d194	7-24-2020
System Validation Dipole	SPEAG	D1750V2	1125	2-16-2020
System Validation Dipole	SPEAG	D1900V2	5d199	3-15-2020
System Validation Dipole	SPEAG	D2450V2	939	10-16-2020
System Validation Dipole	SPEAG	D2600V2	1097	1-17-2020
System Validation Dipole	SPEAG	D5GHzV2	1184	8-21-2020
Thermometer (SAR1)	Lutron	MHB-382SD	AH.91463	8-8-2019
Thermometer (SAR2)	Lutron	MHB-382SD	AH.50215	8-13-2019
Thermometer (SAR3)	Lutron	MHB-382SD	AH.50213	8-14-2019
Thermometer (SAR4)	Lutron	MHB-382SD	AH.91478	8-8-2019

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	8-9-2019
Base Station Simulator	R & S	CMW500	150314	8-9-2019
Base Station Simulator	R & S	CMW500	162790	8-9-2019
Wireless Connectivity Tester	R & S	CMW270	100982	8-8-2019
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	8-7-2019

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations.
(D750V3, SN : 1122, D1750V2, SN : 1125, D1900, SN : 5d199 and D2600, SN : 1097)

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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): 163.0 mm x 76.0 mm Overall Diagonal: 175.0 mm Display Diagonal: 168.0 mm
Back Cover	☒ The Back Cover is not removable.
Battery Options	☒ The rechargeable battery is not user accessible
Wireless Router (Hotspot)	Wi-Fi Hotspot mode permits the device to share its cellular data connection with other Wi-Fi-enabled devices. ☒ Mobile Hotspot (Wi-Fi 2.4 GHz) ☒ Mobile Hotspot (Wi-Fi 5.8 GHz)
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 : Ch.36 – Ch.48, Ch.149 – Ch.165))
Test Sample Information	**No.** / **S/N** / **Notes** 1 / R38M10EX4RZ / Main Conducted 2 / R38M10EX58W / Main Conducted 3 / R38M308CK1A / Wi-Fi & BT Conducted 4 / R38M308E7PE / Wi-Fi & BT Conducted 5 / R38M10EX50P / SAR 6 / R38M10EX2DA / SAR 7 / R38M10EX4EH / SAR 8 / R38M10EZ6LM / SAR 9 / R38M10EX56Y / SAR 10 / R38M308CJ2B / SAR 11 / R38M308E7GV / SAR

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6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EGPRS (8PSK)	GPRS Multi-Slot Class: ☐ Class 8 - 1 Up, 4 Down ☐ Class 10 - 2 Up, 4 Down ☐ Class 12 - 4 Up, 4 Down ☒ Class 33 - 4 Up, 5 Down	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
	Does this device support DTM (Dual Transfer Mode)? ☐ Yes ☒ No			
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Category 24) HSUPA (Category 6) HSPA+ (DL only)		100%
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 12 FDD Band 13 FDD Band 17 FDD Band 26 FDD Band 66 TDD Band 41	QPSK 16QAM 64QAM Rel. 10 Carrier Aggregation (1 Uplink and 3 Downlinks)		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)		98.8% (802.11b) 98.7% (802.11g) 98.5% (802.11n 20MHz BW)
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80)		98.6% (802.11a) 98.5% (802.11n,ac 20MHz BW) 98.2% (802.11n,ac 40MHz BW) 99.1% (802.11ac 80MHz BW)
Bluetooth	2.4 GHz	Version 5.0 LE		76.9% (DH5)

Notes:

1. This device supports uplink-downlink configuration 0-6. The configuration with the highest duty cycle was used (Subframe Number 0 at 63.3%).
2. The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 76.9% and was considered and used for SAR Testing.
3. Duty cycle for Wi-Fi is referenced from the DTS and UNII report.

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6.3. Nominal and Maximum Output Power

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

RF Air interface	Antenna	Mode	Time Slots	Max. RF Output Power (dBm)	
				Tune-up Limit	Frame Pwr
GSM850	Main 1	Voice/GPRS	1	**34.0**	**25.0**
		GPRS	2	**31.0**	**25.0**
		GPRS	3	**28.5**	**24.2**
		GPRS	4	**27.0**	**24.0**
		EGPRS	1	**27.0**	**18.0**
		EGPRS	2	**24.5**	**18.5**
		EGPRS	3	**23.0**	**18.7**
		EGPRS	4	**21.0**	**18.0**
GSM1900	Main 1	Voice/GPRS	1	**30.8**	**21.8**
		GPRS	2	**27.8**	**21.8**
		GPRS	3	**26.0**	**21.7**
		GPRS	4	**24.8**	**21.8**
		EGPRS	1	**25.5**	**16.5**
		EGPRS	2	**23.5**	**17.5**
		EGPRS	3	**23.0**	**18.7**
		EGPRS	4	**21.5**	**18.5**

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
W-CDMA Band II	Main 1	R99	**24.0**	**19.0**
		HSDPA	**23.0**	**18.0**
		HSUPA	**23.5**	**18.5**
W-CDMA Band IV	Main 1	R99	**24.0**	**20.0**
		HSDPA	**23.0**	**19.0**
		HSUPA	**23.5**	**19.5**
W-CDMA Band V	Main 1	R99	**25.0**	
		HSDPA	**24.0**	
		HSUPA	**24.0**	

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
LTE Band 2	Main 1	QPSK	**24.5**	**19.5**
LTE Band 4*	Main 1	QPSK	**25.0**	**20.0**
LTE Band 5	Main 1	QPSK	**25.5**	
LTE Band 12	Main 1	QPSK	**25.0**	
LTE Band 13	Main 1	QPSK	**25.0**	
LTE Band 17*	Main 1	QPSK	**25.0**	
LTE Band 26	Main 1	QPSK	**25.0**	
LTE Band 66	Main 1	QPSK	**25.0**	**20.0**
LTE Band 41	Main 2	QPSK	**24.5**	

Notes:

1. The device utilizes power reduction under some portable hotspot conditions for SAR compliance. There is power reduction for WWAN bands (WCDMA Band II, IV, LTE Band 2, 4, 66). The reduced powers were confirmed via conducted power measurements the RF port. Detailed description of the hotspot power reduction mechanism is included in the operational description.
2. WWAN bands (WCDMA Band II, IV, LTE Band 2, 4, 66) has support to proximity sensor back-off function. it is operating during extremity (hand-held) use conditions. And This function is apply to phablet 10-g SAR exposure condition. Other Head and Body exposure conditions are performed SAR test at full power. The proximity sensor details explain in SAR report according to Section 6 in KDB 616217.
3. All back-off functions are not operating at the same time.
4. LTE QPSK configuration has the highest maximum average output power per 3GPP standard.
5. LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.
6. LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

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RF Air interface	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
WiFi 2.4 GHz (Ch.1 - Ch.11)	802.11b	**19.0**	**12.0**
	802.11g	**17.5**	**12.0**
	802.11n HT20	**17.5**	**12.0**
WiFi 2.4 GHz (Ch.12 - Ch.13)	802.11b	**8.0**	**8.0**
	802.11g	**8.0**	**8.0**
	802.11n HT20	**7.0**	**7.0**
WiFi 5 GHz (UNII-1)	802.11a	**16.5**	**12.0**
	802.11n HT20	**16.5**	**12.0**
	802.11n HT40	**16.0**	**12.0**
	802.11ac VHT20	**16.5**	**12.0**
	802.11ac VHT40	**16.0**	**12.0**
	802.11ac VHT80	**14.0**	**12.0**
WiFi 5 GHz (UNII-2A)	802.11a	**16.5**	**12.0**
	802.11n HT20	**16.5**	**12.0**
	802.11n HT40	**15.0**	**12.0**
	802.11ac VHT20	**16.5**	**12.0**
	802.11ac VHT40	**15.0**	**12.0**
	802.11ac VHT80	**14.0**	**12.0**
WiFi 5 GHz (UNII-2C)	802.11a	**14.5**	**12.0**
	802.11n HT20	**14.5**	**12.0**
	802.11n HT40	**16.0**	**12.0**
	802.11ac VHT20	**14.5**	**12.0**
	802.11ac VHT40	**16.0**	**12.0**
	802.11ac VHT80	**14.0**	**12.0**
WiFi 5 GHz (UNII-3)	802.11a	**16.0**	**12.0**
	802.11n HT20	**16.0**	**12.0**
	802.11n HT40	**16.0**	**12.0**
	802.11ac VHT20	**16.0**	**12.0**
	802.11ac VHT40	**16.0**	**12.0**
	802.11ac VHT80	**14.0**	**12.0**
Bluetooth		**15.0**	
Bluetooth LE		**12.0**	

Note(s):

This device uses an independent fixed level power reduction mechanism for WLAN operations during voice or VoIP held to ear scenarios. Per FCC Guidance, the held-to-ear exposure conditions were evaluated at reduced power according to the head SAR positions described in IEEE 1528-2013. Detailed descriptions of the power reduction mechanism are included in the operational description.

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6.4. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	18700 /1860	18675/ 1857.5	18650/ 1855	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7
	Mid	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880
	High	19100/ 1900	19125/ 1902.5	19150/ 1905	19175/ 1907.5	19185/ 1908.5	19193/ 1909.3
	Band 4	Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20050/ 1720	20025/ 1717.5	20000/ 1715	19975/ 1712.5	19965/ 1711.5	19957/ 1710.7
	Mid	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5
	High	20300/ 1745	20325/ 1747.5	20350/ 1750	20375/ 1752.5	20385/ 1753.5	20393/ 1754.3
	Band 5	Frequency range: 824 - 849 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			20450/ 829	20425/ 826.5	20415/ 825.5	20407/ 824.7
	Mid			20525/ 836.5	20525/ 836.5	20525/ 836.5	20525/ 836.5
	High			20600/ 844	20625/ 846.5	20635/ 847.5	20643/ 848.3
	Band 12	Frequency range: 699 – 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23060/ 704	23035/ 701.5	23025/ 700.5	23017/ 699.7
	Mid			23095/ 707.5	23095/ 707.5	23095/ 707.5	23095/ 707.5
	High			23130/ 711	23155/ 713.5	23165/ 714.5	23173/ 715.3
	Band 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		
	Band 17	Frequency range: 704 - 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23780/ 709	23755/ 706.5		
	Mid			23790/ 710	23790/ 710		
	High			23800/ 711	23825/ 713.5		

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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 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					

Band 66	Frequency range: 1710 - 1780 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low	132072/ 1720	132047/ 1717.5	132022/ 1715	131997/ 1712.5	131987/ 1711.5	131979/ 1710.7
Mid	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745
High	132572/ 1770	132597/ 1772.5	132622/ 1775	132647/ 1777.5	132657/ 1778.5	132665/ 1779.3

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:

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

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6.5. LTE (TDD) Considerations

According to KDB 941225 D05 SAR for LTE Devices, 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

<u>Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:</u>
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

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6.6. LTE Carrier Aggregation

DL Inter-Band (2CC & 3CC Max)

E-UTRA CA configuration (BCS)	E-UTRA Band	Bandwidth						Max Aggregated BW
		1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
CA_2A-4A (0)(1)(2)	Band 2	Yes	Yes	Yes	Yes	Yes	Yes	40 MHz
	Band 4			Yes	Yes	Yes	Yes	
	Band 2			Yes	Yes			20 MHz
	Band 4			Yes	Yes			
	Band 2			Yes	Yes	Yes	Yes	40 MHz
	Band 4			Yes	Yes	Yes	Yes	
CA_2A-5A (0)(1)	Band 2			Yes	Yes	Yes	Yes	30 MHz
	Band 5			Yes	Yes			
	Band 2			Yes	Yes			20 MHz
	Band 5			Yes	Yes			
CA_2A-12A (0)(1)(2)	Band 2			Yes	Yes	Yes	Yes	30 MHz
	Band 12			Yes	Yes			
	Band 2			Yes	Yes	Yes	Yes	30 MHz
	Band 12		Yes	Yes	Yes			
	Band 2			Yes	Yes			20 MHz
	Band 12			Yes	Yes			
CA_2A-13A (0)(1)	Band 2			Yes	Yes	Yes	Yes	30 MHz
	Band 13				Yes			
	Band 2			Yes	Yes			20 MHz
	Band 13				Yes			
CA_4A-5A (0)(1)	Band 4			Yes	Yes			20 MHz
	Band 5			Yes	Yes			
	Band 4			Yes	Yes	Yes	Yes	30 MHz
	Band 5			Yes	Yes			
CA_4A-12A (0)(1)(2)(3)(4)(5)	Band 4	Yes	Yes	Yes	Yes			20 MHz
	Band 12			Yes	Yes			
	Band 4	Yes	Yes	Yes	Yes	Yes	Yes	30 MHz
	Band 12			Yes	Yes			
	Band 4			Yes	Yes	Yes	Yes	30 MHz
	Band 12		Yes	Yes	Yes			
	Band 4			Yes	Yes			20 MHz
	Band 12			Yes	Yes			
	Band 4			Yes	Yes	Yes	Yes	30 MHz
	Band 12			Yes	Yes			
	Band 4			Yes	Yes	Yes		20 MHz
	Band 12			Yes				

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DL Inter-Band (2CC & 3CC Max) (Continued)

E-UTRA CA configuration (BCS)	E-UTRA Band	Bandwidth						Max Aggregated BW
		1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
CA_4A-13A (0)(1)	Band 4			Yes	Yes	Yes	Yes	30 MHz
	Band 13				Yes			
	Band 4			Yes	Yes			20 MHz
	Band 13				Yes			
CA_5A-41A (0)	Band 5			Yes	Yes			30 MHz
	Band 41						Yes	
CA_12A-66A (0)(1)(2)(3)(4)(5)	Band 12			Yes	Yes			20 MHz
	Band 66	Yes	Yes	Yes	Yes			
	Band 12			Yes	Yes			30 MHz
	Band 66	Yes	Yes	Yes	Yes	Yes	Yes	
	Band 12		Yes	Yes	Yes			30 MHz
	Band 66			Yes	Yes	Yes	Yes	
	Band 12			Yes	Yes			20 MHz
	Band 66			Yes	Yes			
	Band 12			Yes	Yes			30 MHz
	Band 66			Yes	Yes	Yes	Yes	
	Band 12			Yes				20 MHz
	Band 66			Yes	Yes	Yes		
CA_4A-12A-12A (0)	Band 4			Yes	Yes	Yes	Yes	40 MHz
	Band 12	12A-12A BCS0						

DL Inter-Band (Nom-Contiguous)

E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)		Max Aggregated BW
		1st Carrier	2nd Carrier	
CA_2A-2A (0)	Band 2	5, 10, 15, 20	5, 10, 15, 20	40 MHz
CA_4A-4A (0)(1)	Band 4	5, 10, 15, 20	5, 10, 15, 20	40 MHz
		5, 10	5, 10	20 MHz
CA_5A-5A (0)(1)	Band 5	5, 10	5, 10	20 MHz
		3	5	8 MHz
CA_12A-12A (0)	Band 12	5	5	10 MHz
CA_41A-41A (0)(1)	Band 41	10, 15, 20	10, 15, 20	40 MHz
		5, 10, 15, 20	5, 10, 15, 20	40 MHz
CA_66A-66A (0)	Band 66	5, 10, 15, 20	5, 10, 15, 20	40 MHz
CA_41A-41C (0)	Band 41	5, 10, 15, 20	41C BCS1	60 MHz
		41C BCS1	5, 10, 15, 20	60 MHz

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DL Inter-Band (Contiguous)

E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)		Max Aggregated BW
		1st Carrier	2nd Carrier	
CA_2C (0)	Band 2	5	20	40 MHz
		10	15, 20	
		15	10, 15, 20	
		20	5, 10, 15, 20	
CA_5B (0)(1)	Band 5	5, 10	10	20 MHz
		10	5	
		3	5	8 MHz
		5	3	
CA_12B (0)	Band 12	5	5, 10	15 MHz
CA_41C (0)(1)(2)(3)	Band 41	10	20	40 MHz
		15	15, 20	
		20	10, 15, 20	
		5, 10	20	40 MHz
		15	15, 20	
		20	5, 10, 15, 20	
		10	15, 20	40 MHz
		15	10, 15, 20	
		20	10, 15, 20	
		10	20	40 MHz
		20	20	
CA_66C (0)	Band 66	5	20	40 MHz
		10	15, 20	
		15	10, 15, 20	
		20	5, 10, 15, 20	

Note(s):

1. For supported channels, please refer to §6.4.

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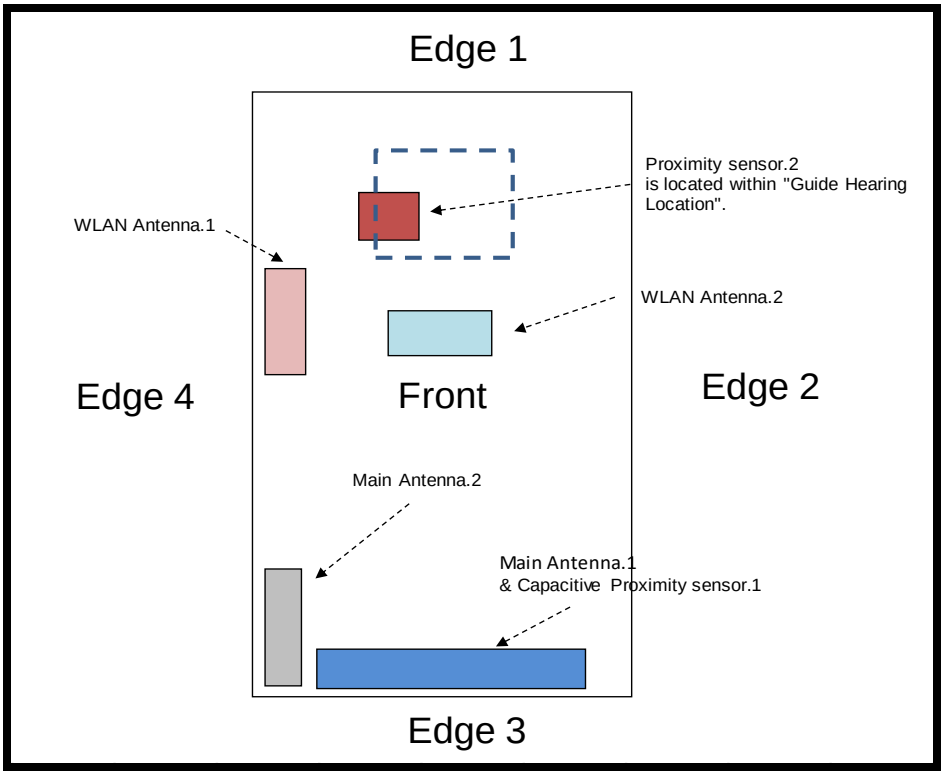
6.7. Proximity Sensor feature

The DUT has two proximity sensors to reduce the output power. The position of the sensors and antenna are as shown in the graphic.



Notes:

1. Proximity sensor.1 is related to only Main Antenna.1.
2. Proximity sensor.2 is related to both WLAN Antenna.1 and 2.

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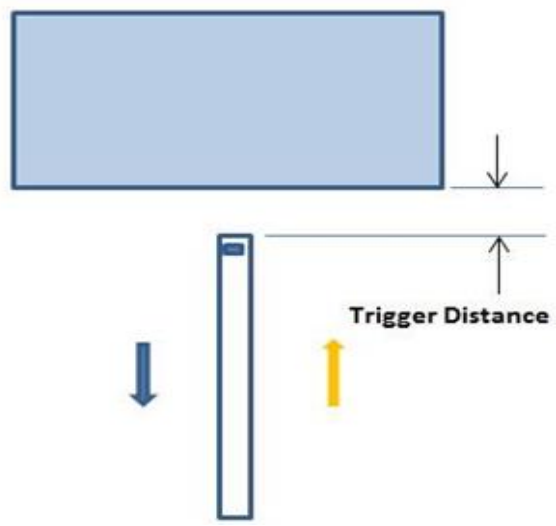
6.7.1. Proximity Sensor Triggering Distance (KDB 616217 §6.2)

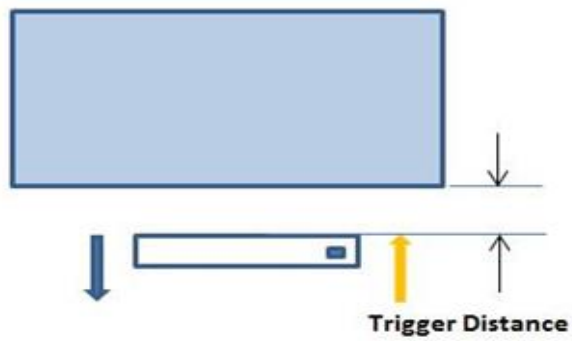
Front, Rear and Edge 3 of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger distance for resuming full power.

The 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 Trigger Distance Assessment
KDB 616217 §6.2, Edge 3



Proximity Sensor Trigger Distance Assessment
KDB 616217 §6.2, Rear, Front

LEGEND

→ Direction of DUT travel for determination of power reduction triggering point

→ Direction of DUT travel for determination of full power resumption triggering point

Summary of Trigger Distances

Tissue simulating liquid	Antenna	Trigger distance - Front		Trigger distance - Rear		Trigger distance – Edge 3	
		Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom
1750 Body	Main Ant.1	9 mm	9 mm	7 mm	7 mm	10 mm	10 mm
1900 Body	Main Ant.1	9 mm	9 mm	7 mm	7 mm	10 mm	10 mm
2450 Head	WLAN Ant.1	6 mm	6 mm	N/A		N/A	
5G Head	WLAN Ant.1	6 mm	6 mm	N/A		N/A	
2450 Head	WLAN Ant.2	5 mm	5 mm	N/A		N/A	
5G Head	WLAN Ant.2	5 mm	5 mm	N/A		N/A	

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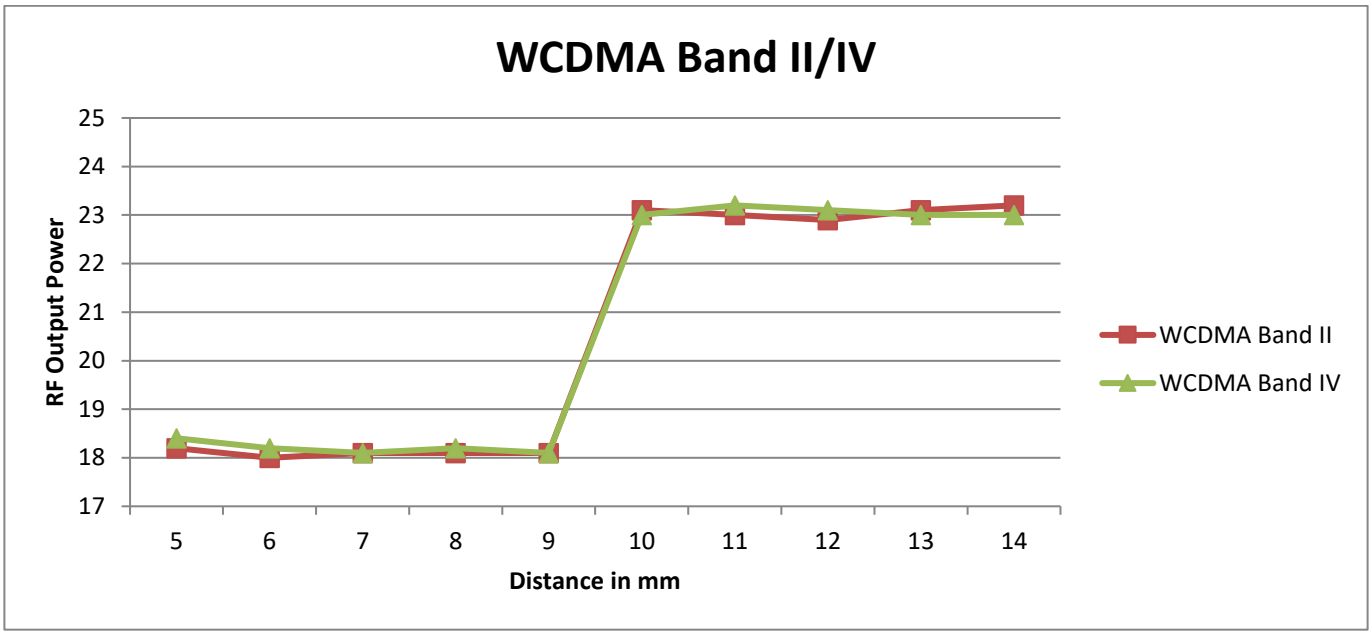
Proximity Sensor Triggering Distance Measurement Results

WCDMA Bands II / IV

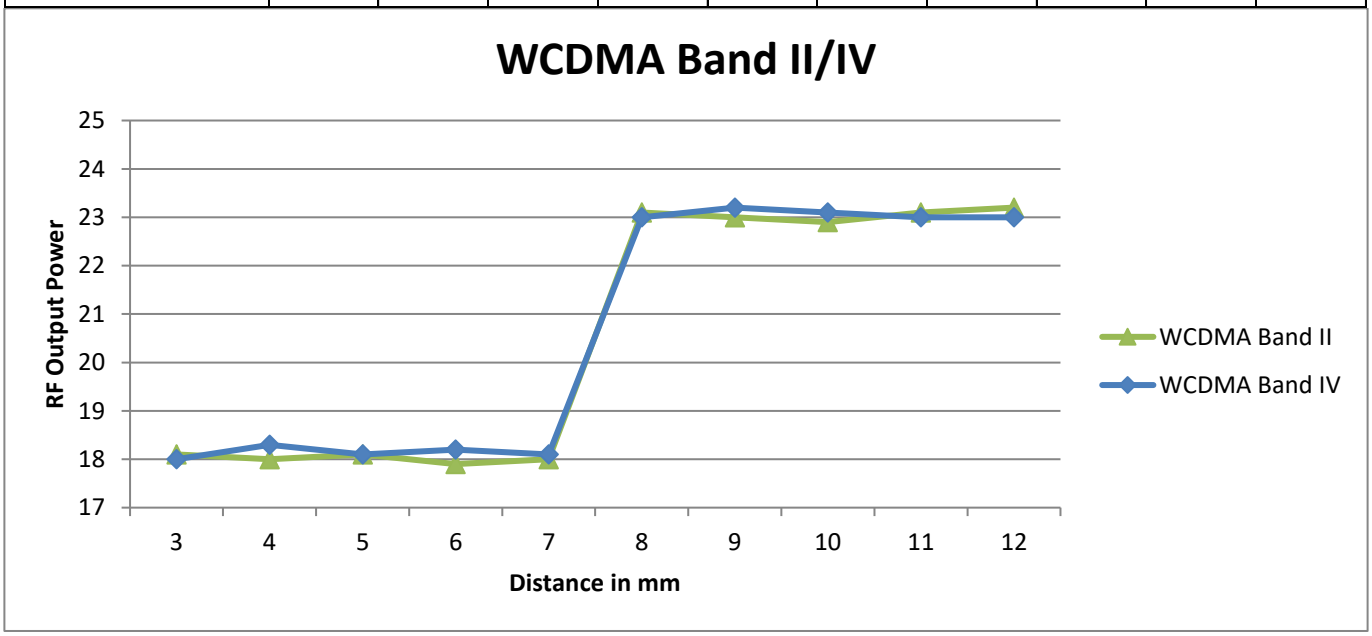
Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	5	6	7	8	9	10	11	12	13	14
WCDMA Band II	18.2	18.0	18.1	18.1	18.1	23.1	23.0	22.9	23.1	23.2
WCDMA Band IV	18.4	18.2	18.1	18.2	18.1	23.0	23.2	23.1	23.0	23.0



Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	3	4	5	6	7	8	9	10	11	12
WCDMA Band II	18.1	18.0	18.1	17.9	18.0	23.1	23.0	22.9	23.1	23.2
WCDMA Band IV	18.0	18.3	18.1	18.2	18.1	23.0	23.2	23.1	23.0	23.0



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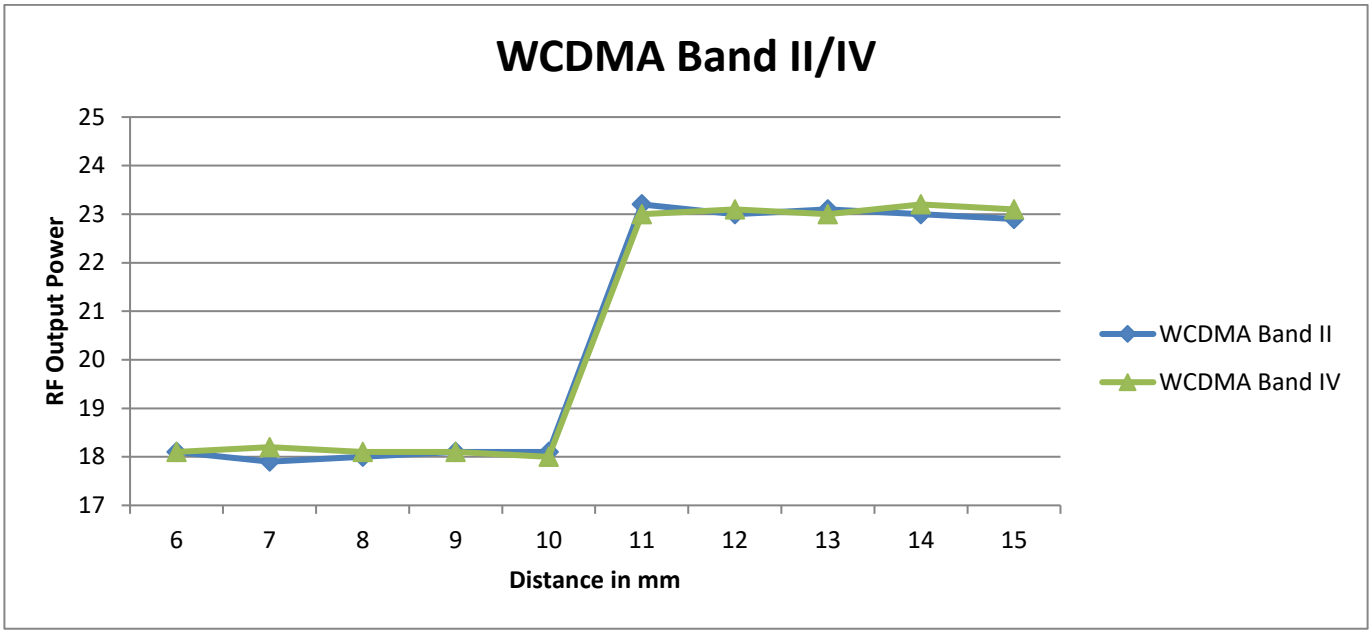
Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	6	7	8	9	10	11	12	13	14	15
WCDMA Band II	18.1	17.9	18.0	18.1	18.1	23.2	23.0	23.1	23.0	22.9
WCDMA Band IV	18.1	18.2	18.1	18.1	18.0	23.0	23.1	23.0	23.2	23.1



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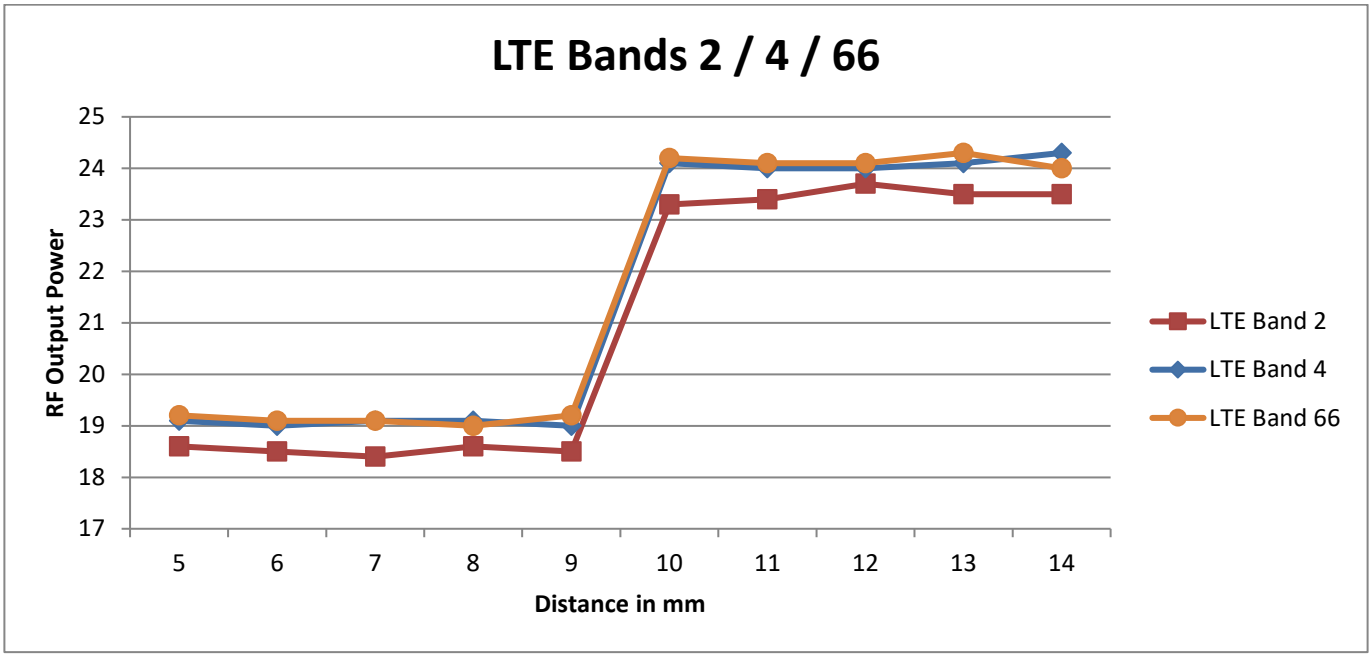
LTE Bands 2 / 4 / 66

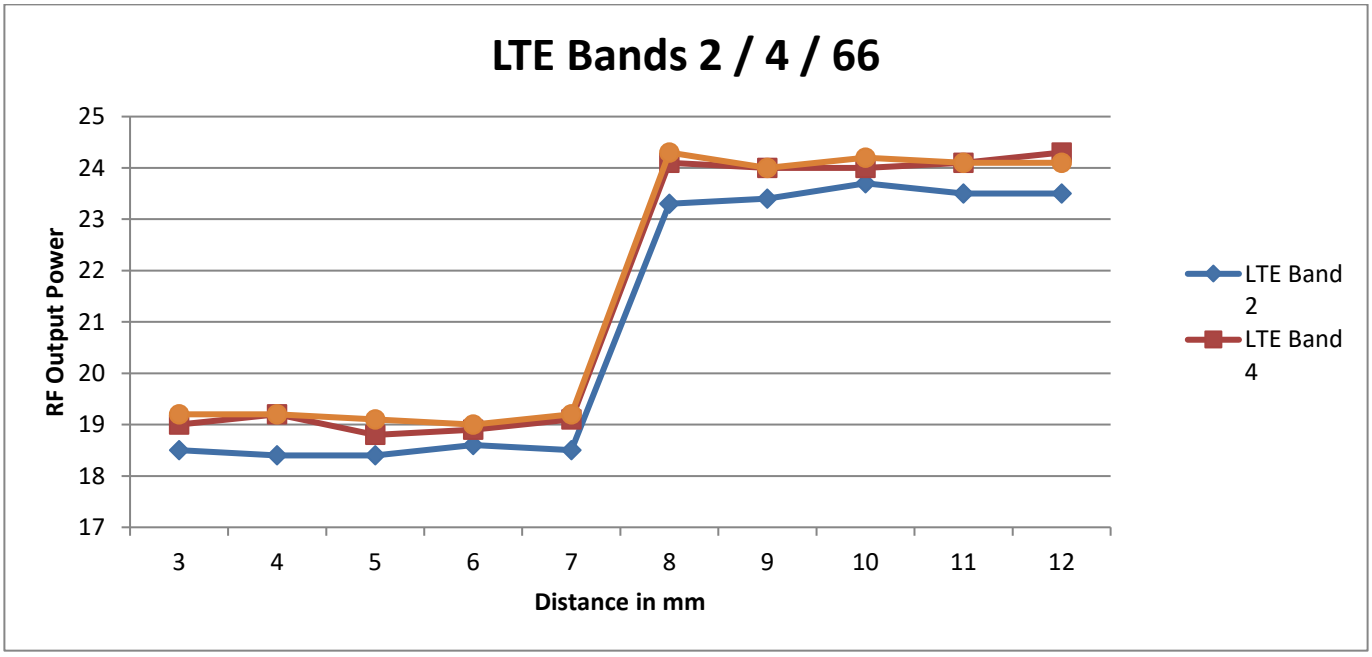
Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	5	6	7	8	9	10	11	12	13	14
LTE Band 2	18.6	18.5	18.4	18.6	18.5	23.3	23.4	23.7	23.5	23.5
LTE Band 4	19.1	19.0	19.1	19.1	19.0	24.1	24.0	24.0	24.1	24.3
LTE Band 66	19.2	19.1	19.1	19.0	19.2	24.2	24.1	24.1	24.3	24.0



Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	3	4	5	6	7	8	9	10	11	12
LTE Band 2	18.5	18.4	18.4	18.6	18.5	23.3	23.4	23.7	23.5	23.5
LTE Band 4	19.0	19.2	18.8	18.9	19.1	24.1	24.0	24.0	24.1	24.3
LTE Band 66	19.2	19.2	19.1	19.0	19.2	24.3	24.0	24.2	24.1	24.1



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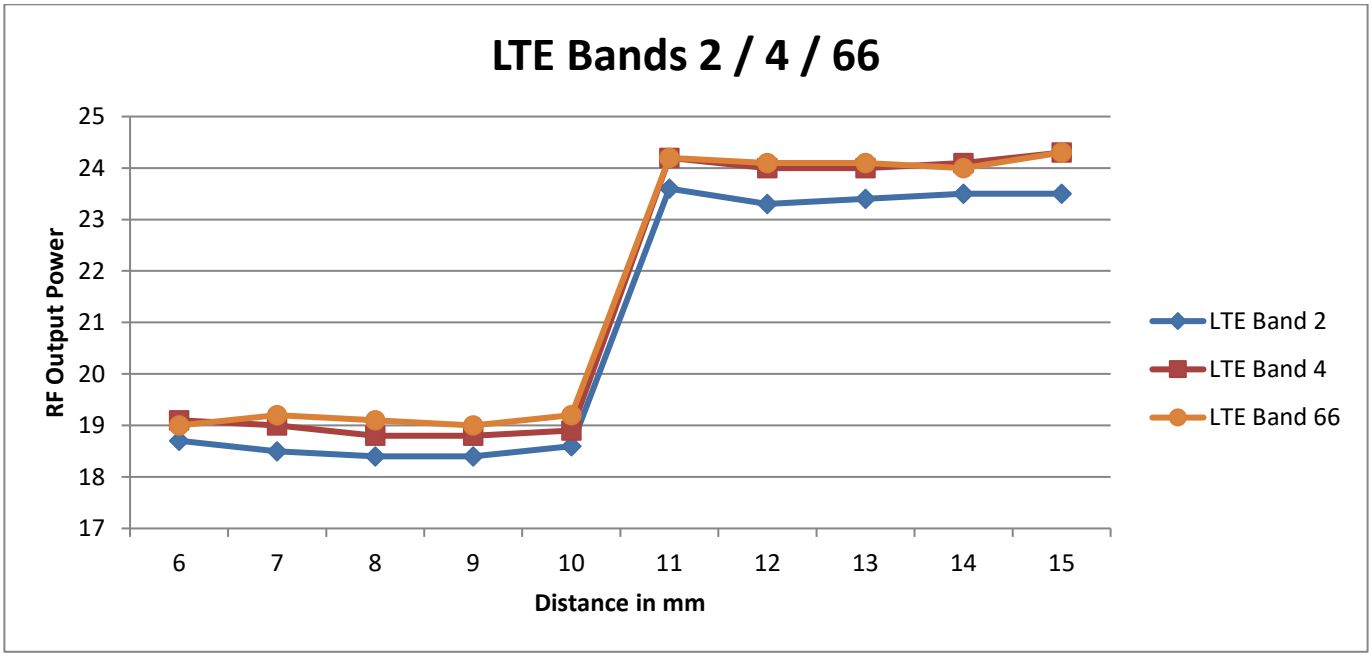
Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	6	7	8	9	10	11	12	13	14	15
LTE Band 2	18.7	18.5	18.4	18.4	18.6	23.6	23.3	23.4	23.5	23.5
LTE Band 4	19.1	19.0	18.8	18.8	18.9	24.2	24.0	24.0	24.1	24.3
LTE Band 66	19.0	19.2	19.1	19.0	19.2	24.2	24.1	24.1	24.0	24.3



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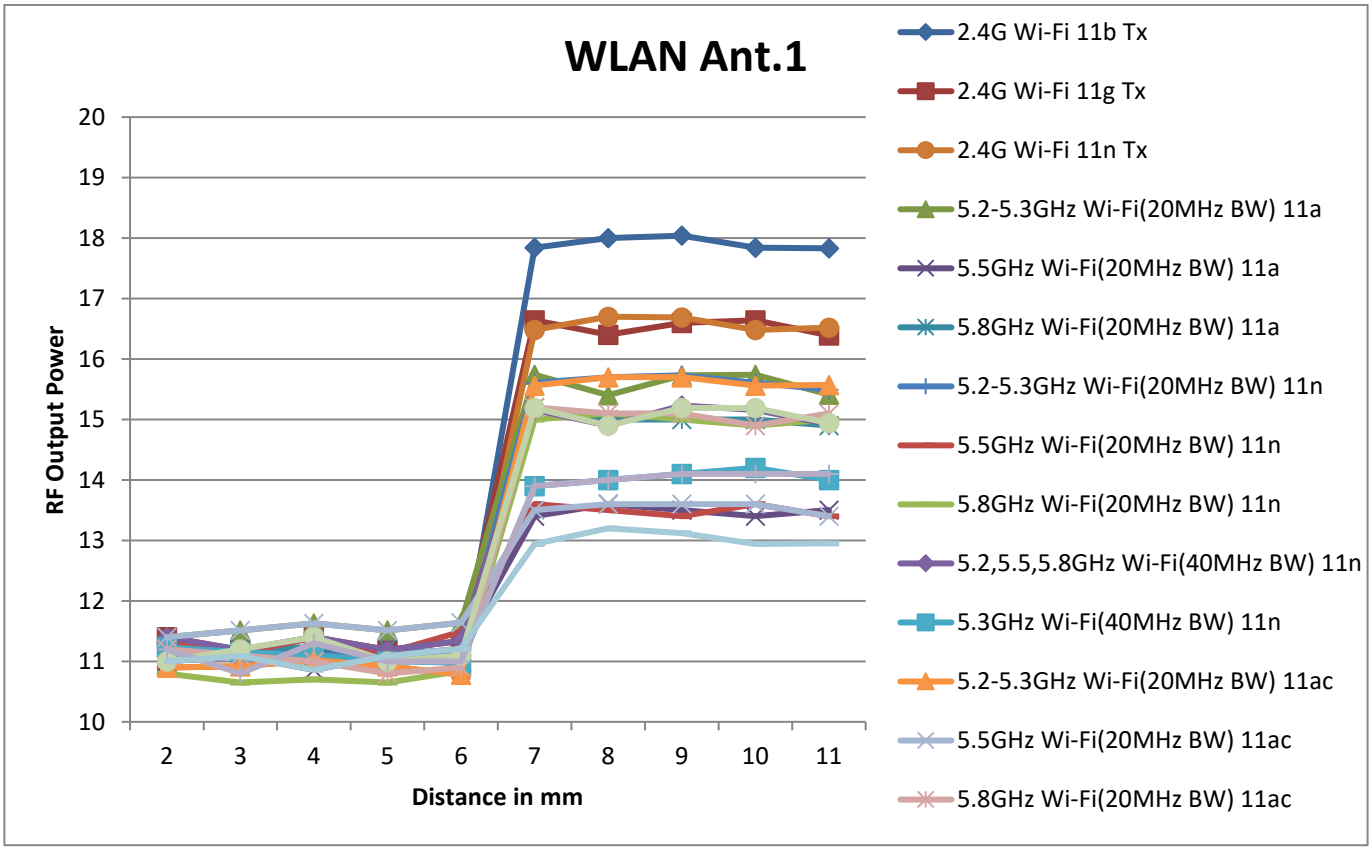
WLAN Ant.1 : 2.4GHz and 5GHz

Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	2	3	4	5	6	7	8	9	10	11
2.4G Wi-Fi 11b Tx	11.0	11.1	11.2	11.1	10.9	17.8	18.0	18.0	17.8	17.8
2.4G Wi-Fi 11g Tx	11.4	11.2	11.4	11.2	11.3	16.6	16.4	16.6	16.6	16.4
2.4G Wi-Fi 11n Tx	10.9	10.9	11.0	10.9	10.8	16.5	16.7	16.7	16.5	16.5
5.2-5.3GHz Wi-Fi(20MHz BW) 11a	11.4	11.5	11.6	11.5	11.6	15.7	15.4	15.7	15.7	15.4
5.5GHz Wi-Fi(20MHz BW) 11a	11.0	11.1	10.9	11.1	11.2	13.4	13.6	13.5	13.4	13.5
5.8GHz Wi-Fi(20MHz BW) 11a	11.1	11.2	11.2	11.2	11.1	15.2	15.0	15.0	15.0	14.9
5.2-5.3GHz Wi-Fi(20MHz BW) 11n	11.1	11.2	11.1	11.2	11.2	15.6	15.7	15.7	15.6	15.5
5.5GHz Wi-Fi(20MHz BW) 11n	11.3	11.1	11.4	11.1	11.5	13.6	13.5	13.4	13.6	13.4
5.8GHz Wi-Fi(20MHz BW) 11n	10.8	10.7	10.7	10.7	10.8	15.0	15.1	15.0	14.9	15.0
5.2,5.5,5.8GHz Wi-Fi(40MHz BW) 11n	11.4	11.2	11.4	11.2	11.3	15.2	14.9	15.2	15.2	14.9
5.3GHz Wi-Fi(40MHz BW) 11n	11.2	11.2	11.1	11.0	11.0	13.9	14.0	14.1	14.2	14.0
5.2-5.3GHz Wi-Fi(20MHz BW) 11ac	10.9	10.9	11.0	10.9	10.8	15.6	15.7	15.7	15.6	15.6
5.5GHz Wi-Fi(20MHz BW) 11ac	11.4	11.5	11.6	11.5	11.6	13.5	13.6	13.6	13.6	13.4
5.8GHz Wi-Fi(20MHz BW) 11ac	11.2	11.1	11.0	10.8	10.9	15.2	15.1	15.1	14.9	15.1
5.2,5.5,5.8GHz Wi-Fi(40MHz BW) 11ac	11.0	11.2	11.4	11.0	11.1	15.2	14.9	15.2	15.2	14.9
5.3GHz Wi-Fi(40MHz BW) 11ac	11.2	10.8	11.3	11.0	11.0	13.9	14.0	14.1	14.1	14.1
5GHz Wi-Fi(80MHz BW) 11ac	11.0	11.1	10.9	11.1	11.2	12.9	13.2	13.1	12.9	13.0



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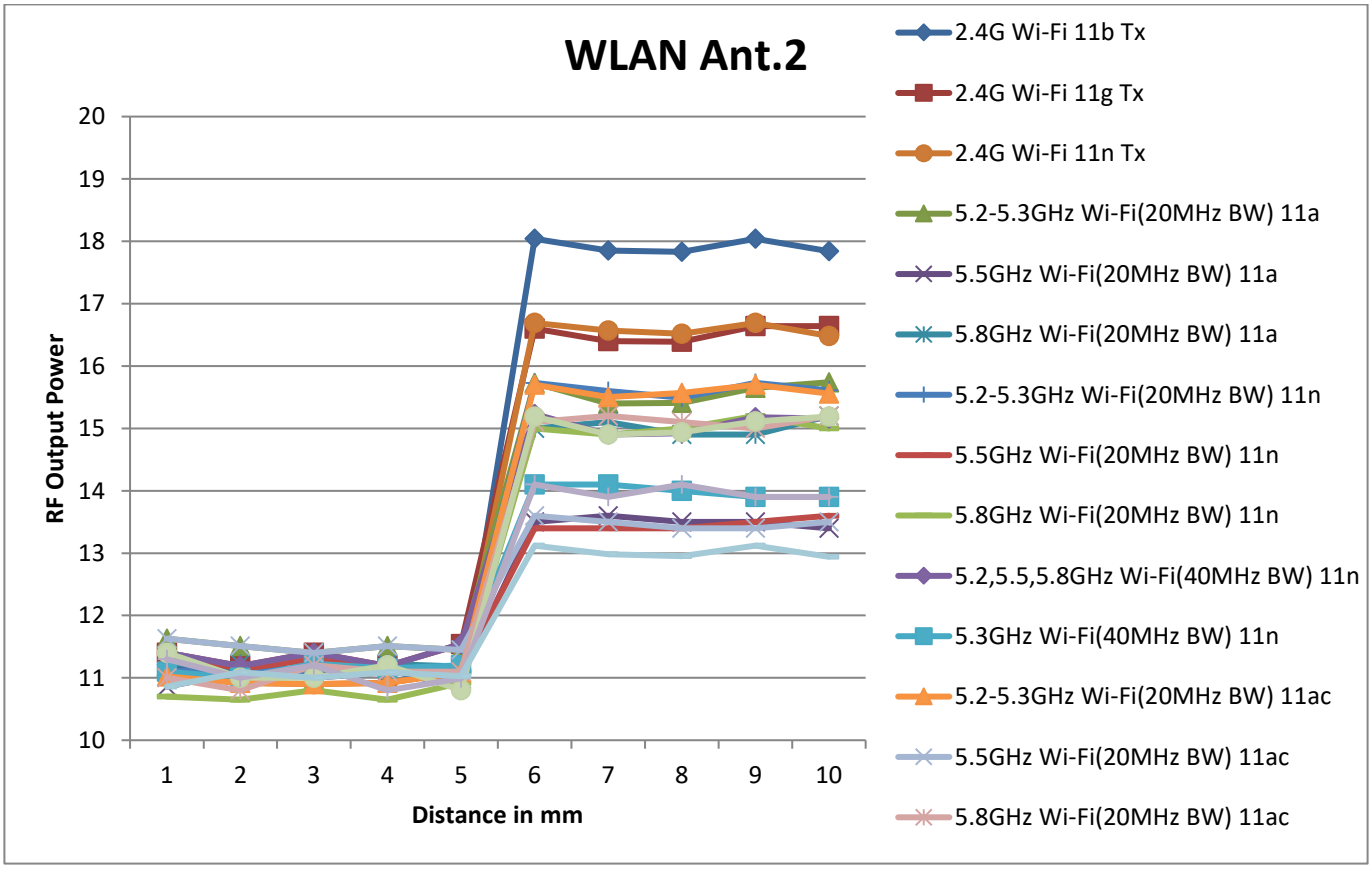
WLAN Ant.2 : 2.4GHz and 5GHz

Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	1	2	3	4	5	6	7	8	9	10
2.4G Wi-Fi 11b Tx	11.2	11.1	11.0	11.1	10.8	18.0	17.9	17.8	18.0	17.8
2.4G Wi-Fi 11g Tx	11.4	11.2	11.4	11.2	11.5	16.6	16.4	16.4	16.6	16.6
2.4G Wi-Fi 11n Tx	11.0	10.9	10.9	10.9	11.1	16.7	16.6	16.5	16.7	16.5
5.2-5.3GHz Wi-Fi(20MHz BW) 11a	11.6	11.5	11.4	11.5	11.5	15.7	15.4	15.4	15.7	15.7
5.5GHz Wi-Fi(20MHz BW) 11a	10.9	11.1	11.0	11.1	11.0	13.5	13.6	13.5	13.5	13.4
5.8GHz Wi-Fi(20MHz BW) 11a	11.2	11.2	11.1	11.2	11.2	15.0	15.1	14.9	14.9	15.2
5.2-5.3GHz Wi-Fi(20MHz BW) 11n	11.1	11.2	11.1	11.2	11.1	15.7	15.6	15.5	15.7	15.6
5.5GHz Wi-Fi(20MHz BW) 11n	11.4	11.1	11.3	11.1	11.1	13.4	13.4	13.4	13.5	13.6
5.8GHz Wi-Fi(20MHz BW) 11n	10.7	10.7	10.8	10.7	10.9	15.0	14.9	15.0	15.2	15.0
5.2,5.5,5.8GHz Wi-Fi(40MHz BW) 11n	11.4	11.2	11.4	11.2	11.5	15.2	14.9	14.9	15.2	15.2
5.3GHz Wi-Fi(40MHz BW) 11n	11.1	11.0	11.2	11.2	11.2	14.1	14.1	14.0	13.9	13.9
5.2-5.3GHz Wi-Fi(20MHz BW) 11ac	11.0	10.9	10.9	10.9	11.1	15.7	15.5	15.6	15.7	15.6
5.5GHz Wi-Fi(20MHz BW) 11ac	11.6	11.5	11.4	11.5	11.5	13.6	13.5	13.4	13.4	13.5
5.8GHz Wi-Fi(20MHz BW) 11ac	11.0	10.8	11.2	11.1	11.1	15.1	15.2	15.1	15.0	15.2
5.2,5.5,5.8GHz Wi-Fi(40MHz BW) 11ac	11.4	11.0	11.0	11.2	10.8	15.2	14.9	14.9	15.1	15.2
5.3GHz Wi-Fi(40MHz BW) 11ac	11.3	11.0	11.2	10.8	11.0	14.1	13.9	14.1	13.9	13.9
5GHz Wi-Fi(80MHz BW) 11ac	10.9	11.1	11.0	11.1	11.0	13.1	13.0	13.0	13.1	12.9



6.7.2. Proximity Sensor Coverage (KDB 616217 §6.3)

Except WLAN, As there is no spatial offset between the antenna and the proximity sensor element, proximity sensor coverage did not need to be assessed.

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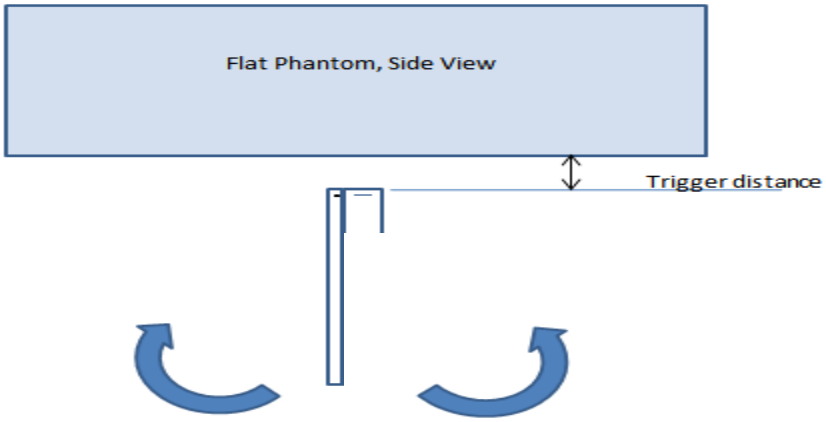
6.7.3. Proximity Sensor Tilt Angle Assessment (KDB 616217 §6.4)

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Edge 3 parallel to the base of the flat phantom for each band.

The EUT was rotated about Edge 3 for angles up to +/- 45°. If the output power increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up to +/- 45°.



Proximity sensor tilt angle asse ıent (Edge 3) KDB 616217 §6.4

Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering (Edge 3)

Band (MHz)	Minimum trigger distance measured according to KDB 616217 §6.2	Minimum distance at which power reduction was maintained over +/-45°	Power reduction status										
			-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°
1750	10 mm	10 mm	On	On	On	On	On	On	On	On	On	On	On
1900	10 mm	10 mm	On	On	On	On	On	On	On	On	On	On	On

6.7.4. Resulting test positions for SAR measurements

Wireless technologies	DUT Position	§6.2 Triggering Distance	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for SAR
WWAN (Main Ant.1)	Front	9 mm	N/A	N/A	8 mm
	Rear	7 mm	N/A	N/A	6 mm
	Edge 3	10 mm	N/A	10 mm	9 mm
WLAN Ant.1	Front	6 mm	N/A	70 mm	5 mm
WLAN Ant.2	Front	5 mm	N/A	70 mm	4 mm

Notes:

1. Worst case distance for WLAN SAR is not considered for body exposure condition. Because Power reduction is applied only voice or VoIP held to ear scenarios.
2. For WLAN, This proximity sensor is only operating in Head exposure condition. So tilt position of Head exposure was additional verified.

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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.

Wireless technologies	RF Exposure Conditions	DUT Configuration	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
WWAN (Main Ant.1)	Head	Configuration 1	0 mm	Left Touch	N/A	Yes	
				Left Tilt (7°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (7°)	N/A	Yes	
	Body	Configuration 1	15 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Hotspot	Configuration 1 & Configuration 2	10 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	< 25 mm	Yes	
				Edge 3 (Bottom)	< 25 mm	Yes	
				Edge 4 (Left)	< 25 mm	Yes	
	Product Specific 10g	Configuration 1 & Configuration 2	0 mm	Rear	Refer to notes 2 & 3		
				Front			
				Edge 1 (Top)			
				Edge 2 (Right)			
				Edge 3 (Bottom)			
				Edge 4 (Left)			
WWAN (Main Ant.2)	Head	Configuration 1	0 mm	Left Touch	N/A	Yes	
				Left Tilt (7°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (7°)	N/A	Yes	
	Body	Configuration 1	15 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Hotspot	Configuration 1 & Configuration 2	10 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	< 25 mm	Yes	
				Edge 4 (Left)	< 25 mm	Yes	
	Product Specific 10g	Configuration 1 & Configuration 2	0 mm	Rear	Refer to notes 2 & 3		
				Front			
				Edge 1 (Top)			
				Edge 2 (Right)			
				Edge 3 (Bottom)			
				Edge 4 (Left)			

Notes:

1. SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.
2. For Phablet devices: When hotspot mode applies, Product specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
3. For Phablet devices: When hotspot mode applies and power reduction applies to hotspot mode, Product Specific 10-g SAR is required for each test position that has an adjusted SAR to maximum power that is > 1.2 W/kg.
4. This device has not support to traditional earpiece. So we got guidance for the acceptable head SAR test configuration from FCC.
5. Tilt test is evaluated at 7 degree due to any point on the handset is in contact with the phantom.
6. This device has two configuration for user condition. Configuration.1 is normal condition. Configuration.2 is that camera part is up on phone. Configuration.2 is only operated during select to front camera in App of phone. So Configuration do not expect to work for Head / Body-worn exposure conditions. Therefore, We only consider for Hotspot / Product specific 10g exposure conditions with Configuration.2.

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Wireless technologies	RF Exposure Conditions	DUT Configuration	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
WLAN & BT (Ant.1)	Head	Configuration 1	0 mm	Left Touch	N/A	Yes	
				Left Tilt (7°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (7°)	N/A	Yes	
	Body	Configuration 1	15 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Hotspot	Configuration 1 & Configuration 2	10 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	> 25 mm	No	1
				Edge 4 (Left)	< 25 mm	Yes	
	Product Specific 10g	Configuration 1 & Configuration 2	0 mm	Rear	Refer to notes 2 & 3		
				Front			
				Edge 1 (Top)			
				Edge 2 (Right)			
				Edge 3 (Bottom)			
				Edge 4 (Left)			
WLAN (Ant.2)	Head	Configuration 1	0 mm	Left Touch	N/A	Yes	
				Left Tilt (7°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (7°)	N/A	Yes	
	Body	Configuration 1	15 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Hotspot	Configuration 1 & Configuration 2	10 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	> 25 mm	No	1
				Edge 4 (Left)	< 25 mm	Yes	
	Product Specific 10g	Configuration 1 & Configuration 2	0 mm	Rear	Refer to notes 2 & 3		
				Front			
				Edge 1 (Top)			
				Edge 2 (Right)			
				Edge 3 (Bottom)			
				Edge 4 (Left)			

Notes:

1. SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.
2. For Phablet devices: When hotspot mode applies, Product specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
3. For Phablet devices: When hotspot mode is not supported, Product specific 10-g SAR is required for all surfaces and edges with an antenna located at ≤ 25mm from that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions.
4. This device has not support to traditional earpiece. So we got guidance for the acceptable head SAR test configuration from FCC.
5. Tilt test is evaluated at 7 degree due to any point on the handset is in contact with the phantom.
6. This device has two configuration for user condition. Configuration.1 is normal condition. Configuration.2 is that camera part is up on phone. Configuration.2 is only operated during select to front camera in App of phone. So Configuration do not expect to work for Head / Body-worn exposure conditions. Therefore, We only consider for Hotspot / Product specific 10g exposure conditions with Configuration.2.

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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.

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

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Dielectric Property Measurements Results:

SAR 1 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2-27-2019	Body 2600	e'	51.6800	Relative Permittivity (ε_r):	51.68	52.51	-1.58	5
		e''	15.0200	Conductivity (σ):	2.17	2.16	0.49	5
	Body 2500	e'	51.8000	Relative Permittivity (ε_r):	51.80	52.64	-1.59	5
		e''	14.7400	Conductivity (σ):	2.05	2.02	1.42	5
	Body 2700	e'	51.3700	Relative Permittivity (ε_r):	51.37	52.38	-1.94	5
		e''	15.2200	Conductivity (σ):	2.28	2.30	-0.71	5
3-4-2019	Body 2600	e'	53.1300	Relative Permittivity (ε_r):	53.13	52.51	1.18	5
		e''	14.6500	Conductivity (σ):	2.12	2.16	-1.98	5
	Body 2500	e'	53.3900	Relative Permittivity (ε_r):	53.39	52.64	1.43	5
		e''	14.4600	Conductivity (σ):	2.01	2.02	-0.51	5
	Body 2700	e'	52.9000	Relative Permittivity (ε_r):	52.90	52.38	0.98	5
		e''	14.7800	Conductivity (σ):	2.22	2.30	-3.58	5
3-6-2019	Head 2600	e'	37.3500	Relative Permittivity (ε_r):	37.35	39.01	-4.26	5
		e''	13.2900	Conductivity (σ):	1.92	1.96	-2.08	5
	Head 2500	e'	37.5200	Relative Permittivity (ε_r):	37.52	39.14	-4.13	5
		e''	13.2700	Conductivity (σ):	1.84	1.85	-0.51	5
	Head 2700	e'	37.1900	Relative Permittivity (ε_r):	37.19	38.88	-4.36	5
		e''	13.2500	Conductivity (σ):	1.99	2.07	-3.92	5
4-1-2019	Body 2450	e'	51.5100	Relative Permittivity (ε_r):	51.51	52.70	-2.26	5
		e''	14.7300	Conductivity (σ):	2.01	1.95	2.90	5
	Body 2400	e'	51.7200	Relative Permittivity (ε_r):	51.72	52.77	-1.99	5
		e''	14.5200	Conductivity (σ):	1.94	1.90	2.09	5
	Body 2480	e'	51.4400	Relative Permittivity (ε_r):	51.44	52.66	-2.32	5
		e''	14.7900	Conductivity (σ):	2.04	1.99	2.38	5
4-2-2019	Head 5250	e'	37.0400	Relative Permittivity (ε_r):	37.04	35.93	3.08	5
		e''	15.8200	Conductivity (σ):	4.62	4.70	-1.79	5
	Head 5260	e'	37.0100	Relative Permittivity (ε_r):	37.01	35.92	3.03	5
		e''	15.8000	Conductivity (σ):	4.62	4.71	-1.94	5
	Head 5600	e'	36.5700	Relative Permittivity (ε_r):	36.57	35.53	2.92	5
		e''	15.5870	Conductivity (σ):	4.85	5.06	-4.09	5
	Head 5750	e'	36.4200	Relative Permittivity (ε_r):	36.42	35.36	2.99	5
		e''	15.9800	Conductivity (σ):	5.11	5.21	-2.01	5
	Head 5825	e'	36.3300	Relative Permittivity (ε_r):	36.33	35.30	2.92	5
		e''	15.9600	Conductivity (σ):	5.17	5.27	-1.91	5
4-4-2019	Body 2450	e'	51.7500	Relative Permittivity (ε_r):	51.75	52.70	-1.80	5
		e''	14.5300	Conductivity (σ):	1.98	1.95	1.51	5
	Body 2400	e'	52.0400	Relative Permittivity (ε_r):	52.04	52.77	-1.39	5
		e''	14.1700	Conductivity (σ):	1.89	1.90	-0.37	5
	Body 2480	e'	51.7300	Relative Permittivity (ε_r):	51.73	52.66	-1.77	5
		e''	14.5900	Conductivity (σ):	2.01	1.99	0.99	5
4-4-2019	Head 2600	e'	38.1200	Relative Permittivity (ε_r):	38.12	39.01	-2.28	5
		e''	14.1100	Conductivity (σ):	2.04	1.96	3.96	5
	Head 2500	e'	38.4800	Relative Permittivity (ε_r):	38.48	39.14	-1.68	5
		e''	13.8800	Conductivity (σ):	1.93	1.85	4.07	5
	Head 2700	e'	37.7400	Relative Permittivity (ε_r):	37.74	38.88	-2.94	5
		e''	14.3700	Conductivity (σ):	2.16	2.07	4.21	5

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SAR 2 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2-26-2019	Body 835	e'	53.2900	Relative Permittivity (ε_r):	53.29	55.20	-3.46	5
		e''	21.1800	Conductivity (σ):	0.98	0.97	1.38	5
	Body 820	e'	53.4400	Relative Permittivity (ε_r):	53.44	55.28	-3.32	5
		e''	21.2300	Conductivity (σ):	0.97	0.97	-0.05	5
	Body 850	e'	53.1100	Relative Permittivity (ε_r):	53.11	55.16	-3.71	5
		e''	21.1500	Conductivity (σ):	1.00	0.99	1.26	5
3-4-2019	Body 835	e'	54.3800	Relative Permittivity (ε_r):	54.38	55.20	-1.49	5
		e''	20.9200	Conductivity (σ):	0.97	0.97	0.13	5
	Body 820	e'	54.4500	Relative Permittivity (ε_r):	54.45	55.28	-1.50	5
		e''	20.9300	Conductivity (σ):	0.95	0.97	-1.46	5
	Body 850	e'	54.2800	Relative Permittivity (ε_r):	54.28	55.16	-1.59	5
		e''	20.9500	Conductivity (σ):	0.99	0.99	0.30	5
3-5-2019	Body 750	e'	57.4500	Relative Permittivity (ε_r):	57.45	55.55	3.43	5
		e''	23.2200	Conductivity (σ):	0.97	0.96	0.55	5
	Body 700	e'	57.8600	Relative Permittivity (ε_r):	57.86	55.74	3.81	5
		e''	23.7500	Conductivity (σ):	0.92	0.96	-3.63	5
	Body 790	e'	57.1100	Relative Permittivity (ε_r):	57.11	55.39	3.10	5
		e''	22.8300	Conductivity (σ):	1.00	0.97	3.80	5
3-6-2019	Head 1900	e'	38.8800	Relative Permittivity (ε_r):	38.88	40.00	-2.80	5
		e''	13.4600	Conductivity (σ):	1.42	1.40	1.57	5
	Head 1850	e'	39.0600	Relative Permittivity (ε_r):	39.06	40.00	-2.35	5
		e''	13.3000	Conductivity (σ):	1.37	1.40	-2.28	5
	Head 1910	e'	38.8400	Relative Permittivity (ε_r):	38.84	40.00	-2.90	5
		e''	13.5000	Conductivity (σ):	1.43	1.40	2.41	5

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SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
3-7-2019	Head 750	e'	41.4800	Relative Permittivity (ε_r):	41.48	41.96	-1.15	5
		e''	21.5300	Conductivity (σ):	0.90	0.89	0.53	5
	Head 700	e'	42.1700	Relative Permittivity (ε_r):	42.17	42.22	-0.11	5
		e''	21.8300	Conductivity (σ):	0.85	0.89	-4.45	5
	Head 790	e'	40.9800	Relative Permittivity (ε_r):	40.98	41.76	-1.86	5
		e''	21.3000	Conductivity (σ):	0.94	0.90	4.41	5
3-11-2019	Head 835	e'	41.2100	Relative Permittivity (ε_r):	41.21	41.50	-0.70	5
		e''	19.1800	Conductivity (σ):	0.89	0.90	-1.06	5
	Head 820	e'	41.3800	Relative Permittivity (ε_r):	41.38	41.60	-0.53	5
		e''	19.2000	Conductivity (σ):	0.88	0.90	-2.57	5
	Head 850	e'	41.0300	Relative Permittivity (ε_r):	41.03	41.50	-1.13	5
		e''	19.1600	Conductivity (σ):	0.91	0.92	-1.03	5
3-20-2019	Head 835	e'	40.5300	Relative Permittivity (ε_r):	40.53	41.50	-2.34	5
		e''	19.7400	Conductivity (σ):	0.92	0.90	1.83	5
	Head 820	e'	40.7000	Relative Permittivity (ε_r):	40.70	41.60	-2.17	5
		e''	19.8000	Conductivity (σ):	0.90	0.90	0.48	5
	Head 850	e'	40.3600	Relative Permittivity (ε_r):	40.36	41.50	-2.75	5
		e''	19.6600	Conductivity (σ):	0.93	0.92	1.55	5
3-21-2019	Head 750	e'	41.4500	Relative Permittivity (ε_r):	41.45	41.96	-1.22	5
		e''	21.8000	Conductivity (σ):	0.91	0.89	1.80	5
	Head 700	e'	41.9800	Relative Permittivity (ε_r):	41.98	42.22	-0.56	5
		e''	21.9800	Conductivity (σ):	0.86	0.89	-3.79	5
	Head 790	e'	40.7600	Relative Permittivity (ε_r):	40.76	41.76	-2.39	5
		e''	21.3300	Conductivity (σ):	0.94	0.90	4.55	5
4-2-2019	Body 5250	e'	48.6000	Relative Permittivity (ε_r):	48.60	48.95	-0.72	10
		e''	18.5200	Conductivity (σ):	5.41	5.35	1.00	5
	Body 5260	e'	48.5700	Relative Permittivity (ε_r):	48.57	48.94	-0.75	10
		e''	18.5400	Conductivity (σ):	5.42	5.36	1.08	5
	Body 5600	e'	48.0800	Relative Permittivity (ε_r):	48.08	48.48	-0.82	10
		e''	19.0100	Conductivity (σ):	5.92	5.76	2.75	5
	Body 5750	e'	47.7900	Relative Permittivity (ε_r):	47.79	48.27	-1.00	10
		e''	19.1500	Conductivity (σ):	6.12	5.94	3.15	5
	Body 5825	e'	47.6200	Relative Permittivity (ε_r):	47.62	48.20	-1.20	10
		e''	19.2300	Conductivity (σ):	6.23	6.00	3.81	5
4-5-2019	Body 5250	e'	47.3900	Relative Permittivity (ε_r):	47.39	48.95	-3.19	10
		e''	18.4800	Conductivity (σ):	5.39	5.35	0.78	5
	Body 5260	e'	47.3600	Relative Permittivity (ε_r):	47.36	48.94	-3.23	10
		e''	18.5000	Conductivity (σ):	5.41	5.36	0.86	5
	Body 5600	e'	46.8300	Relative Permittivity (ε_r):	46.83	48.48	-3.40	10
		e''	18.7600	Conductivity (σ):	5.84	5.76	1.40	5
	Body 5750	e'	46.5900	Relative Permittivity (ε_r):	46.59	48.27	-3.49	10
		e''	18.9000	Conductivity (σ):	6.04	5.94	1.80	5
	Body 5825	e'	46.4700	Relative Permittivity (ε_r):	46.47	48.20	-3.59	10
		e''	18.9700	Conductivity (σ):	6.14	6.00	2.40	5

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SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2-27-2019	Body 1900	e'	51.6000	Relative Permittivity (ε_r):	51.60	53.30	-3.19	5
		e''	14.9200	Conductivity (σ):	1.58	1.52	3.70	5
	Body 1850	e'	51.7200	Relative Permittivity (ε_r):	51.72	53.30	-2.96	5
		e''	14.9600	Conductivity (σ):	1.54	1.52	1.24	5
	Body 1910	e'	51.5800	Relative Permittivity (ε_r):	51.58	53.30	-3.23	5
		e''	14.9300	Conductivity (σ):	1.59	1.52	4.32	5
3-4-2019	Body 1750	e'	51.9200	Relative Permittivity (ε_r):	51.92	53.44	-2.85	5
		e''	14.9600	Conductivity (σ):	1.46	1.49	-2.05	5
	Body 1710	e'	51.9300	Relative Permittivity (ε_r):	51.93	53.54	-3.01	5
		e''	15.0200	Conductivity (σ):	1.43	1.46	-2.29	5
	Body 1755	e'	51.9200	Relative Permittivity (ε_r):	51.92	53.43	-2.82	5
		e''	14.9500	Conductivity (σ):	1.46	1.49	-2.04	5
3-4-2019	Body 1900	e'	51.6800	Relative Permittivity (ε_r):	51.68	53.30	-3.04	5
		e''	14.7800	Conductivity (σ):	1.56	1.52	2.73	5
	Body 1850	e'	51.7700	Relative Permittivity (ε_r):	51.77	53.30	-2.87	5
		e''	14.8500	Conductivity (σ):	1.53	1.52	0.50	5
	Body 1910	e'	51.6600	Relative Permittivity (ε_r):	51.66	53.30	-3.08	5
		e''	14.7600	Conductivity (σ):	1.57	1.52	3.13	5
3-6-2019	Head 1750	e'	38.5500	Relative Permittivity (ε_r):	38.55	40.08	-3.83	5
		e''	13.9000	Conductivity (σ):	1.35	1.37	-1.20	5
	Head 1710	e'	38.6300	Relative Permittivity (ε_r):	38.63	40.15	-3.78	5
		e''	14.0700	Conductivity (σ):	1.34	1.35	-0.64	5
	Head 1755	e'	38.5400	Relative Permittivity (ε_r):	38.54	40.08	-3.83	5
		e''	13.8800	Conductivity (σ):	1.35	1.37	-1.26	5
3-11-2019	Body 1750	e'	54.7100	Relative Permittivity (ε_r):	54.71	53.44	2.37	5
		e''	15.0800	Conductivity (σ):	1.47	1.49	-1.26	5
	Body 1710	e'	54.7600	Relative Permittivity (ε_r):	54.76	53.54	2.27	5
		e''	15.1300	Conductivity (σ):	1.44	1.46	-1.57	5
	Body 1755	e'	54.7100	Relative Permittivity (ε_r):	54.71	53.43	2.40	5
		e''	15.0700	Conductivity (σ):	1.47	1.49	-1.25	5
3-11-2019	Body 1900	e'	54.4600	Relative Permittivity (ε_r):	54.46	53.30	2.18	5
		e''	14.9400	Conductivity (σ):	1.58	1.52	3.84	5
	Body 1850	e'	54.5400	Relative Permittivity (ε_r):	54.54	53.30	2.33	5
		e''	15.0000	Conductivity (σ):	1.54	1.52	1.51	5
	Body 1910	e'	54.4400	Relative Permittivity (ε_r):	54.44	53.30	2.14	5
		e''	14.9300	Conductivity (σ):	1.59	1.52	4.32	5
3-19-2019	Body 1750	e'	54.1600	Relative Permittivity (ε_r):	54.16	53.44	1.35	5
		e''	15.0300	Conductivity (σ):	1.46	1.49	-1.59	5
	Body 1710	e'	54.2400	Relative Permittivity (ε_r):	54.24	53.54	1.30	5
		e''	15.1300	Conductivity (σ):	1.44	1.46	-1.57	5
	Body 1755	e'	54.1600	Relative Permittivity (ε_r):	54.16	53.43	1.37	5
		e''	15.0300	Conductivity (σ):	1.47	1.49	-1.51	5
3-19-2019	Body 1900	e'	53.9800	Relative Permittivity (ε_r):	53.98	53.30	1.28	5
		e''	14.9400	Conductivity (σ):	1.58	1.52	3.84	5
	Body 1850	e'	54.0700	Relative Permittivity (ε_r):	54.07	53.30	1.44	5
		e''	14.9400	Conductivity (σ):	1.54	1.52	1.11	5
	Body 1910	e'	53.9900	Relative Permittivity (ε_r):	53.99	53.30	1.29	5
		e''	14.9500	Conductivity (σ):	1.59	1.52	4.46	5

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SAR 4 Room_(Continued)

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
3-22-2019	Body 1750	e'	54.9900	Relative Permittivity (ε_r):	54.99	53.44	2.90	5
		e''	14.9500	Conductivity (σ):	1.45	1.49	-2.12	5
	Body 1710	e'	55.0500	Relative Permittivity (ε_r):	55.05	53.54	2.81	5
		e''	15.0200	Conductivity (σ):	1.43	1.46	-2.29	5
	Body 1755	e'	54.9800	Relative Permittivity (ε_r):	54.98	53.43	2.90	5
		e''	14.9400	Conductivity (σ):	1.46	1.49	-2.10	5
3-22-2019	Body 1900	e'	54.7300	Relative Permittivity (ε_r):	54.73	53.30	2.68	5
		e''	14.7800	Conductivity (σ):	1.56	1.52	2.73	5
	Body 1850	e'	54.8300	Relative Permittivity (ε_r):	54.83	53.30	2.87	5
		e''	14.8300	Conductivity (σ):	1.53	1.52	0.36	5
	Body 1910	e'	54.7100	Relative Permittivity (ε_r):	54.71	53.30	2.65	5
		e''	14.7800	Conductivity (σ):	1.57	1.52	3.27	5
3-25-2019	Body 750	e'	54.3800	Relative Permittivity (ε_r):	54.38	55.55	-2.10	5
		e''	23.7900	Conductivity (σ):	0.99	0.96	3.01	5
	Body 700	e'	54.5800	Relative Permittivity (ε_r):	54.58	55.74	-2.08	5
		e''	25.1200	Conductivity (σ):	0.98	0.96	1.93	5
	Body 790	e'	54.2500	Relative Permittivity (ε_r):	54.25	55.39	-2.06	5
		e''	23.0000	Conductivity (σ):	1.01	0.97	4.57	5
3-30-2019	Head 2450	e'	39.1600	Relative Permittivity (ε_r):	39.16	39.20	-0.10	5
		e''	13.2900	Conductivity (σ):	1.81	1.80	0.58	5
	Head 2400	e'	39.2200	Relative Permittivity (ε_r):	39.22	39.30	-0.20	5
		e''	13.2500	Conductivity (σ):	1.77	1.75	0.94	5
	Head 2480	e'	39.1200	Relative Permittivity (ε_r):	39.12	39.16	-0.11	5
		e''	13.3000	Conductivity (σ):	1.83	1.83	0.09	5

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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 2.5 mm.
  For 5 GHz band - Distance between probe sensors and phantom surface was set to 1.4 mm
- The dipole input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

Reference Target SAR Values

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

System Dipole	Serial No.	Cal. Date	Freq. (MHz)	Target SAR Values (W/kg)		
				1g/10g	Head	Body
D750V3	1122	2-19-2018	750	1g	8.22	8.63
				10g	5.35	5.72
D835V2	4d194	7-24-2018	835	1g	9.36	9.61
				10g	6.02	6.32
D1750V2	1125	2-16-2018	1750	1g	36.50	36.80
				10g	19.30	19.50
D1900V2	5d199	3-15-2018	1900	1g	40.40	39.60
				10g	21.10	20.80
D2450V2	939	10-16-2018	2450	1g	53.20	50.10
				10g	24.80	23.50
D2600V2	1097	1-17-2018	2600	1g	56.40	54.40
				10g	25.30	24.20
D5GHzV2	1184	8-21-2018	5250	1g	81.10	75.00
				10g	23.40	20.90
			5600	1g	85.00	78.60
				10g	24.40	22.00
			5750	1g	82.60	76.20
				10g	23.70	21.20

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations
(D750, SN : 1122, D1750, SN : 1125, D1900, SN : 5d199, D2600, SN : 1097)

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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 1 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
2-27-2019	D2600V2	1097	Body	1g	5.54	55.40	54.40	1.84	
				10g	2.48	24.80	24.20	2.48	
3-4-2019	D2600V2	1097	Body	1g	5.21	52.10	54.40	-4.23	1, 2
				10g	2.22	22.20	24.20	-8.26	
3-6-2019	D2600V2	1097	Head	1g	5.76	57.60	56.40	2.13	
				10g	2.53	25.30	25.30	0.00	
4-1-2019	D2450V2	939	Body	1g	5.22	52.20	50.10	4.19	
				10g	2.40	24.00	23.50	2.13	
4-2-2019	D5GHzV2 (5250)	1184	Head	1g	7.43	74.30	81.10	-8.38	3, 4
				10g	2.12	21.20	23.40	-9.40	
4-2-2019	D5GHzV2 (5600)	1184	Head	1g	7.98	79.80	85.00	-6.12	
				10g	2.25	22.50	24.40	-7.79	
4-2-2019	D5GHzV2 (5750)	1184	Head	1g	8.00	80.00	82.60	-3.15	
				10g	2.26	22.60	23.70	-4.64	
4-4-2019	D2450V2	939	Body	1g	5.28	52.80	50.10	5.39	
				10g	2.47	24.70	23.50	5.11	
4-4-2019	D2600V2	1097	Head	1g	5.75	57.50	56.40	1.95	
				10g	2.51	25.10	25.30	-0.79	

SAR 2 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
2-26-2019	D835V2	4d194	Body	1g	0.96	9.62	9.61	0.10	
				10g	0.63	6.31	6.32	-0.16	
3-4-2019	D835V2	4d194	Body	1g	0.95	9.54	9.61	-0.73	
				10g	0.62	6.22	6.32	-1.58	
3-5-2019	D750V3	1122	Body	1g	0.82	8.17	8.63	-5.33	5, 6
				10g	0.55	5.46	5.72	-4.55	
3-6-2019	D1900V2	5d199	Head	1g	4.01	40.10	40.40	-0.74	
				10g	2.08	20.80	21.10	-1.42	

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SAR 3 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
3-7-2019	D750V3	1122	Head	1g	0.83	8.33	8.22	1.34	
				10g	0.55	5.52	5.35	3.18	
3-11-2019	D835V2	4d194	Head	1g	0.94	9.42	9.36	0.64	
				10g	0.62	6.18	6.02	2.66	
3-20-2019	D835V2	4d194	Head	1g	0.97	9.70	9.36	3.63	7, 8
				10g	0.64	6.37	6.02	5.81	
3-21-2019	D750V3	1122	Head	1g	0.87	8.66	8.22	5.35	9, 10
				10g	0.58	5.75	5.35	7.48	
4-2-2019	D5GHzV2 (5250)	1184	Body	1g	7.63	76.30	75.00	1.73	
				10g	2.17	21.70	20.90	3.83	
4-2-2019	D5GHzV2 (5600)	1184	Body	1g	8.21	82.10	78.60	4.45	
				10g	2.25	22.50	22.00	2.27	
4-2-2019	D5GHzV2 (5750)	1184	Body	1g	7.70	77.00	76.20	1.05	
				10g	2.14	21.40	21.20	0.94	
4-5-2019	D5GHzV2 (5250)	1184	Body	1g	7.88	78.80	75.00	5.07	
				10g	2.20	22.00	20.90	5.26	
4-5-2019	D5GHzV2 (5600)	1184	Body	1g	8.45	84.50	78.60	7.51	
				10g	2.33	23.30	22.00	5.91	
4-5-2019	D5GHzV2 (5750)	1184	Body	1g	7.66	76.60	76.20	0.52	
				10g	2.13	21.30	21.20	0.47	

SAR 4 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
2-27-2019	D1900V2	5d199	Body	1g	4.05	40.50	39.60	2.27	
				10g	2.10	21.00	20.80	0.96	
3-4-2019	D1750V2	1125	Body	1g	3.64	36.40	36.80	-1.09	
				10g	1.95	19.50	19.50	0.00	
3-4-2019	D1900V2	5d199	Body	1g	4.14	41.40	39.60	4.55	
				10g	2.16	21.60	20.80	3.85	
3-6-2019	D1750V2	1125	Head	1g	3.40	34.00	36.50	-6.85	11, 12
				10g	1.81	18.10	19.30	-6.22	
3-11-2019	D1750V2	1125	Body	1g	3.64	36.40	36.80	-1.09	
				10g	1.93	19.30	19.50	-1.03	
3-11-2019	D1900V2	5d199	Body	1g	4.06	40.60	39.60	2.53	
				10g	2.11	21.10	20.80	1.44	
3-19-2019	D1750V2	1125	Body	1g	3.55	35.50	36.80	-3.53	
				10g	1.91	19.10	19.50	-2.05	
3-19-2019	D1900V2	5d199	Body	1g	3.84	38.40	39.60	-3.03	
				10g	2.00	20.00	20.80	-3.85	
3-22-2019	D1750V2	1125	Body	1g	3.60	36.00	36.80	-2.17	
				10g	1.92	19.20	19.50	-1.54	
3-22-2019	D1900V2	5d199	Body	1g	4.14	41.40	39.60	4.55	13, 14
				10g	2.16	21.60	20.80	3.85	
3-25-2019	D750V3	1122	Body	1g	0.88	8.84	8.63	2.43	
				10g	0.60	5.98	5.72	4.55	
3-30-2019	D2450V2	939	Head	1g	5.00	50.00	53.20	-6.02	15, 16
				10g	2.33	23.30	24.80	-6.05	

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9. Conducted Output Power Measurements

9.1 GSM

Per KDB 941225 D01 3G SAR Procedures:

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

GSM850 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	128	824.2	33.7	24.7	34.0	25.0
			190	836.6	33.7	24.7		
			251	848.8	33.7	24.6		
GPRS (GMSK)	CS1	1	128	824.2	33.6	24.6	34.0	25.0
			190	836.6	33.6	24.6		
			251	848.8	33.5	24.5		
		2	128	824.2	30.2	24.1	31.0	**25.0**
			190	836.6	29.8	23.8		
			251	848.8	29.9	23.9		
		3	128	824.2	28.0	23.8	28.5	24.2
			190	836.6	28.1	23.9		
			251	848.8	28.3	24.0		
		4	128	824.2	27.0	24.0	27.0	24.0
			190	836.6	26.6	23.6		
			251	848.8	26.7	23.7		
EGPRS (8PSK)	MCS5	1	128	824.2	26.5	17.4	27.0	18.0
			190	836.6	27.0	18.0		
			251	848.8	26.2	17.2		
		2	128	824.2	23.3	17.2	24.5	18.5
			190	836.6	23.7	17.7		
			251	848.8	23.0	17.0		
		3	128	824.2	21.9	17.6	23.0	18.7
			190	836.6	22.3	18.1		
			251	848.8	21.7	17.4		
		4	128	824.2	20.4	17.4	21.0	18.0
			190	836.6	20.8	17.8		
			251	848.8	20.2	17.2		

Notes:

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

- GMSK (GPRS) mode with 2 time slots for Max power, based on the Tune-up Procedure. Refer to §6.3.
- SAR is not required for EGPRS (8PSK) mode because the maximum output power and tune-up limit is ≤ 1/4dB higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is ≤ 1.2W/kg.

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GSM1900 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	512	1850.2	30.1	21.1	30.8	21.8
			661	1880.0	30.1	21.1		
			810	1909.8	30.0	21.0		
GPRS (GMSK)	CS1	1	512	1850.2	30.0	20.9	30.8	21.8
			661	1880.0	30.0	21.0		
			810	1909.8	29.9	20.9		
		2	512	1850.2	27.2	21.1	27.8	21.8
			661	1880.0	27.4	21.4		
			810	1909.8	27.4	21.4		
		3	512	1850.2	24.9	20.7	26.0	21.7
			661	1880.0	25.2	21.0		
			810	1909.8	25.3	21.1		
		4	512	1850.2	24.2	21.1	24.8	**21.8**
			661	1880.0	24.5	21.5		
			810	1909.8	24.6	21.6		
EGPRS (8PSK)	MCS5	1	512	1850.2	25.0	16.0	25.5	16.5
			661	1880.0	25.1	16.1		
			810	1909.8	24.8	15.8		
		2	512	1850.2	22.8	16.7	23.5	17.5
			661	1880.0	23.0	16.9		
			810	1909.8	23.1	17.1		
		3	512	1850.2	21.9	17.7	23.0	18.7
			661	1880.0	22.0	17.7		
			810	1909.8	22.3	18.1		
		4	512	1850.2	20.3	17.3	21.5	18.5
			661	1880.0	20.3	17.3		
			810	1909.8	20.7	17.7		

Notes:

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

- GMSK (GPRS) mode with 4 time slots for Max power, based on the Tune-up Procedure. Refer to §6.3.
- SAR is not required for EGPRS (8PSK) mode because the maximum output power and tune-up limit is ≤ 1/4dB higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is ≤ 1.2W/kg.

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9.2 W-CDMA

Release 99 Setup Procedures used to establish the test signals

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

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	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			

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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

HSPA+

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W-CDMA Band II Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Hotspot Reduced Average Power (dBm)			Proximity sensor Reduced Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	22.8	N/A	24.0	18.6	N/A	19.0	18.6	N/A	19.0
		9400	1880.0	22.7			18.4			18.4		
		9538	1907.6	22.9			18.4			18.4		
HSDPA	Subtest 1	9262	1852.4	21.8	0	23.0	17.6	0	18.0	17.5	0	18.0
		9400	1880.0	21.7			17.4			17.4		
		9538	1907.6	21.9			17.4			17.4		
	Subtest 2	9262	1852.4	21.8	0	23.0	17.6	0	18.0	17.5	0	18.0
		9400	1880.0	21.7			17.4			17.4		
		9538	1907.6	21.9			17.4			17.4		
	Subtest 3	9262	1852.4	21.4	0.5	22.5	17.1	0.5	17.5	17.1	0.5	17.5
		9400	1880.0	21.2			16.9			16.9		
		9538	1907.6	21.4			16.9			16.9		
	Subtest 4	9262	1852.4	21.3	0.5	22.5	17.1	0.5	17.5	17.1	0.5	17.5
		9400	1880.0	21.2			16.9			16.9		
		9538	1907.6	21.3			16.9			16.9		
HSUPA	Subtest 1	9262	1852.4	21.8	0	23.5	17.5	0	18.5	17.6	0	18.5
		9400	1880.0	21.7			17.4			17.4		
		9538	1907.6	21.8			17.4			17.4		
	Subtest 2	9262	1852.4	19.8	2	21.5	15.6	2	16.5	15.6	2	16.5
		9400	1880.0	19.7			15.4			15.4		
		9538	1907.6	19.9			15.4			15.4		
	Subtest 3	9262	1852.4	20.8	1	22.5	16.6	1	17.5	16.6	1	17.5
		9400	1880.0	20.8			16.4			16.4		
		9538	1907.6	20.9			16.4			16.4		
	Subtest 4	9262	1852.4	19.8	2	21.5	15.6	2	16.5	15.6	2	16.5
		9400	1880.0	19.7			15.4			15.4		
		9538	1907.6	19.8			15.4			15.4		
	Subtest 5	9262	1852.4	21.4	0	23.5	17.7	0	18.5	17.7	0	18.5
		9400	1880.0	21.1			17.6			17.6		
		9538	1907.6	21.4			17.6			17.5		

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W-CDMA Band IV Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Hotspot Reduced Average Power (dBm)			Proximity sensor Reduced Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	23.8	N/A	24.0	19.1	N/A	20.0	19.1	N/A	20.0
		1413	1732.6	23.3			19.2			19.2		
		1513	1752.6	23.5			19.4			19.4		
HSDPA	Subtest 1	1312	1712.4	22.8	0	23.0	18.2	0	19.0	18.1	0	19.0
		1413	1732.6	22.4			18.2			18.2		
		1513	1752.6	22.5			18.3			18.4		
	Subtest 2	1312	1712.4	22.8	0	23.0	18.0	0	19.0	18.2	0	19.0
		1413	1732.6	22.5			18.2			18.1		
		1513	1752.6	22.6			18.3			18.4		
	Subtest 3	1312	1712.4	22.3	0.5	22.5	17.6	0.5	18.5	17.6	0.5	18.5
		1413	1732.6	22.0			17.7			17.7		
		1513	1752.6	22.0			17.9			17.8		
	Subtest 4	1312	1712.4	22.3	0.5	22.5	17.5	0.5	18.5	17.7	0.5	18.5
		1413	1732.6	22.0			17.6			17.7		
		1513	1752.6	22.1			17.8			17.9		
HSUPA	Subtest 1	1312	1712.4	22.7	0	23.5	18.1	0	19.5	18.1	0	19.5
		1413	1732.6	22.6			18.3			18.3		
		1513	1752.6	22.6			18.4			18.5		
	Subtest 2	1312	1712.4	20.9	2	21.5	16.1	2	17.5	16.1	2	17.5
		1413	1732.6	20.6			16.3			16.3		
		1513	1752.6	20.6			16.4			16.5		
	Subtest 3	1312	1712.4	21.7	1	22.5	17.1	1	18.5	17.1	1	18.5
		1413	1732.6	21.6			17.3			17.3		
		1513	1752.6	21.7			17.5			17.5		
	Subtest 4	1312	1712.4	20.9	2	21.5	16.1	2	17.5	16.1	2	17.5
		1413	1732.6	20.6			16.3			16.3		
		1513	1752.6	20.8			16.5			16.5		
	Subtest 5	1312	1712.4	22.1	0	23.5	18.0	0	19.5	18.2	0	19.5
		1413	1732.6	22.0			18.0			18.3		
		1513	1752.6	22.1			18.2			18.5		

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W-CDMA Band V Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	23.9	N/A	25.0
		4183	836.6	23.9		
		4233	846.6	24.0		
HSDPA	Subtest 1	4132	826.4	22.9	0	24.0
		4183	836.6	22.9		
		4233	846.6	23.0		
	Subtest 2	4132	826.4	22.9	0	24.0
		4183	836.6	22.9		
		4233	846.6	23.0		
	Subtest 3	4132	826.4	22.5	0.5	23.5
		4183	836.6	22.3		
		4233	846.6	22.5		
	Subtest 4	4132	826.4	22.4	0.5	23.5
		4183	836.6	22.4		
		4233	846.6	22.5		
HSUPA	Subtest 1	4132	826.4	22.9	0	24.0
		4183	836.6	22.9		
		4233	846.6	23.0		
	Subtest 2	4132	826.4	21.0	2	22.0
		4183	836.6	20.9		
		4233	846.6	21.0		
	Subtest 3	4132	826.4	22.0	1	23.0
		4183	836.6	21.9		
		4233	846.6	22.0		
	Subtest 4	4132	826.4	20.9	2	22.0
		4183	836.6	20.9		
		4233	846.6	21.0		
	Subtest 5	4132	826.4	22.7	0	24.0
		4183	836.6	22.5		
		4233	846.6	22.4		

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9.3 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					

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1 Max power Results

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				Measured Pwr (dBm)				
				18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	22.8	22.8	22.6	0.0	24.5
		1	49	22.6	22.8	22.7	0.0	24.5
		1	99	22.7	22.8	22.8	0.0	24.5
		50	0	21.7	21.8	21.7	1.0	23.5
		50	24	21.7	21.8	21.8	1.0	23.5
		50	50	21.7	21.8	21.7	1.0	23.5
		100	0	21.7	21.7	21.8	1.0	23.5
	16QAM	1	0	22.1	22.3	22.2	1.0	23.5
		1	49	22.1	22.1	22.3	1.0	23.5
		1	99	22.1	22.2	22.2	1.0	23.5
		50	0	20.8	20.8	20.8	2.0	22.5
		50	24	20.8	20.9	20.9	2.0	22.5
		50	50	20.8	20.8	20.8	2.0	22.5
		100	0	20.7	20.8	20.8	2.0	22.5
	64QAM	1	0	21.3	21.1	21.1	2.0	22.5
		1	49	21.3	21.0	21.1	2.0	22.5
		1	99	21.4	21.1	21.1	2.0	22.5
		50	0	19.8	19.8	19.9	3.0	21.5
		50	24	19.8	19.9	20.0	3.0	21.5
		50	50	19.8	19.9	19.9	3.0	21.5
		100	0	19.8	19.8	19.9	3.0	21.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18675	18900	19125		
				1857.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	22.8	22.7	22.7	0.0	24.5
		1	37	22.8	22.7	22.7	0.0	24.5
		1	74	22.7	22.8	22.8	0.0	24.5
		36	0	21.8	21.8	21.7	1.0	23.5
		36	20	21.8	21.8	21.8	1.0	23.5
		36	39	21.7	21.8	21.8	1.0	23.5
		75	0	21.7	21.8	21.7	1.0	23.5
	16QAM	1	0	22.0	21.6	22.2	1.0	23.5
		1	37	22.1	21.6	22.1	1.0	23.5
		1	74	22.1	21.7	22.1	1.0	23.5
		36	0	20.9	20.8	20.9	2.0	22.5
		36	20	20.8	20.9	20.9	2.0	22.5
		36	39	20.8	20.9	20.9	2.0	22.5
		75	0	20.8	20.9	20.9	2.0	22.5
	64QAM	1	0	21.3	21.1	21.0	2.0	22.5
		1	37	21.3	21.1	20.9	2.0	22.5
		1	74	21.2	21.1	20.9	2.0	22.5
		36	0	19.9	19.9	19.9	3.0	21.5
		36	20	19.8	19.9	19.9	3.0	21.5
		36	39	19.8	19.9	19.9	3.0	21.5
		75	0	19.8	19.9	19.8	3.0	21.5

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LTE Band 2 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	22.8	22.6	22.7	0.0	24.5
		1	25	22.8	22.8	22.8	0.0	24.5
		1	49	22.8	22.8	22.8	0.0	24.5
		25	0	21.2	21.3	21.2	1.0	23.5
		25	12	21.3	21.3	21.2	1.0	23.5
		25	25	21.2	21.2	21.3	1.0	23.5
		50	0	21.2	21.2	21.2	1.0	23.5
	16QAM	1	0	21.7	22.2	21.8	1.0	23.5
		1	25	21.7	22.1	21.8	1.0	23.5
		1	49	21.6	22.1	21.7	1.0	23.5
		25	0	21.3	21.3	21.4	2.0	22.5
		25	12	21.3	21.4	21.3	2.0	22.5
		25	25	21.2	21.3	21.4	2.0	22.5
		50	0	21.2	21.3	21.3	2.0	22.5
	64QAM	1	0	21.0	21.2	20.9	2.0	22.5
		1	25	20.9	21.1	20.9	2.0	22.5
		1	49	20.9	21.1	20.9	2.0	22.5
		25	0	19.9	19.9	19.9	3.0	21.5
		25	12	19.9	19.9	19.9	3.0	21.5
		25	25	19.8	19.8	19.9	3.0	21.5
		50	0	19.7	19.8	19.9	3.0	21.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	22.8	22.8	22.5	0.0	24.5
		1	12	22.8	22.8	22.7	0.0	24.5
		1	24	22.8	22.8	22.8	0.0	24.5
		12	0	21.8	21.8	21.9	1.0	23.5
		12	7	21.8	21.8	21.9	1.0	23.5
		12	13	21.8	21.8	21.9	1.0	23.5
		25	0	21.2	21.2	21.3	1.0	23.5
	16QAM	1	0	22.2	21.9	21.9	1.0	23.5
		1	12	22.2	21.8	21.9	1.0	23.5
		1	24	22.2	21.8	21.9	1.0	23.5
		12	0	20.9	20.9	20.9	2.0	22.5
		12	7	21.0	20.9	20.9	2.0	22.5
		12	13	20.9	20.9	20.9	2.0	22.5
		25	0	20.8	20.8	20.8	2.0	22.5
	64QAM	1	0	21.0	20.7	21.1	2.0	22.5
		1	12	21.0	20.7	21.1	2.0	22.5
		1	24	21.0	20.7	21.0	2.0	22.5
		12	0	19.9	19.9	19.8	3.0	21.5
		12	7	19.9	19.9	19.8	3.0	21.5
		12	13	19.9	19.9	19.8	3.0	21.5
		25	0	19.8	19.8	19.9	3.0	21.5

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LTE Band 2 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	22.8	22.7	22.8	0.0	24.5
		1	8	22.8	22.8	22.8	0.0	24.5
		1	14	22.8	22.7	22.7	0.0	24.5
		8	0	21.8	21.8	21.9	1.0	23.5
		8	4	21.9	21.8	21.9	1.0	23.5
		8	7	21.8	21.8	21.9	1.0	23.5
		15	0	21.7	21.7	21.9	1.0	23.5
	16QAM	1	0	22.0	21.7	21.6	1.0	23.5
		1	8	22.1	21.8	21.7	1.0	23.5
		1	14	22.0	21.7	21.6	1.0	23.5
		8	0	20.9	20.8	20.9	2.0	22.5
		8	4	20.9	20.9	21.0	2.0	22.5
		8	7	20.9	20.9	21.0	2.0	22.5
		15	0	20.8	20.7	20.9	2.0	22.5
	64QAM	1	0	20.8	20.9	21.1	2.0	22.5
		1	8	20.9	21.0	21.2	2.0	22.5
		1	14	20.8	20.9	21.1	2.0	22.5
		8	0	19.8	19.8	19.9	3.0	21.5
		8	4	19.9	19.8	19.9	3.0	21.5
		8	7	19.8	19.8	19.9	3.0	21.5
		15	0	19.8	19.8	19.9	3.0	21.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18607	18900	19193		
				1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	22.8	22.8	22.8	0.0	24.5
		1	3	22.7	22.8	22.8	0.0	24.5
		1	5	22.7	22.7	22.8	0.0	24.5
		3	0	22.5	22.6	22.7	0.0	24.5
		3	1	22.6	22.7	22.7	0.0	24.5
		3	3	22.6	22.6	22.8	0.0	24.5
		6	0	21.8	21.8	21.9	1.0	23.5
	16QAM	1	0	21.6	21.8	22.0	1.0	23.5
		1	3	21.7	21.8	22.0	1.0	23.5
		1	5	21.6	21.7	22.0	1.0	23.5
		3	0	21.7	21.7	21.9	1.0	23.5
		3	1	21.8	21.7	21.9	1.0	23.5
		3	3	21.8	21.7	21.9	1.0	23.5
		6	0	20.9	20.9	20.8	2.0	22.5
	64QAM	1	0	21.0	20.8	20.9	2.0	22.5
		1	3	21.1	20.9	20.9	2.0	22.5
		1	5	21.0	20.8	20.9	2.0	22.5
		3	0	20.9	20.8	20.7	2.0	22.5
		3	1	21.0	20.9	20.7	2.0	22.5
		3	3	21.0	20.9	20.7	2.0	22.5
		6	0	19.7	20.0	19.9	3.0	21.5

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LTE Band 5 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				Measured Pwr (dBm)				
				[redacted]	20525	[redacted]		
				[redacted]	836.5 MHz	[redacted]		
10 MHz	QPSK	1	0	[redacted]	24.2	[redacted]	0.0	25.5
		1	25	[redacted]	24.0	[redacted]	0.0	25.5
		1	49	[redacted]	24.1	[redacted]	0.0	25.5
		25	0	[redacted]	23.1	[redacted]	1.0	24.5
		25	12	[redacted]	23.1	[redacted]	1.0	24.5
		25	25	[redacted]	23.1	[redacted]	1.0	24.5
		50	0	[redacted]	23.1	[redacted]	1.0	24.5
	16QAM	1	0	[redacted]	23.2	[redacted]	1.0	24.5
		1	25	[redacted]	23.1	[redacted]	1.0	24.5
		1	49	[redacted]	23.0	[redacted]	1.0	24.5
		25	0	[redacted]	21.9	[redacted]	2.0	23.5
		25	12	[redacted]	21.8	[redacted]	2.0	23.5
		25	25	[redacted]	21.7	[redacted]	2.0	23.5
		50	0	[redacted]	21.7	[redacted]	2.0	23.5
	64QAM	1	0	[redacted]	22.5	[redacted]	2.0	23.5
		1	25	[redacted]	22.4	[redacted]	2.0	23.5
		1	49	[redacted]	22.4	[redacted]	2.0	23.5
		25	0	[redacted]	21.7	[redacted]	3.0	22.5
		25	12	[redacted]	21.7	[redacted]	3.0	22.5
		25	25	[redacted]	21.6	[redacted]	3.0	22.5
		50	0	[redacted]	21.6	[redacted]	3.0	22.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20425	20525	20625		
				826.5 MHz	836.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	24.3	24.3	24.1	0.0	25.5
		1	12	24.2	24.2	24.1	0.0	25.5
		1	24	24.2	24.2	24.2	0.0	25.5
		12	0	23.2	23.1	23.0	1.0	24.5
		12	7	23.2	23.1	23.1	1.0	24.5
		12	13	23.2	23.1	23.1	1.0	24.5
		25	0	23.1	23.1	23.0	1.0	24.5
	16QAM	1	0	23.2	23.3	23.5	1.0	24.5
		1	12	23.2	23.2	23.5	1.0	24.5
		1	24	23.2	23.3	23.5	1.0	24.5
		12	0	22.3	22.3	22.2	2.0	23.5
		12	7	22.3	22.3	22.3	2.0	23.5
		12	13	22.3	22.2	22.3	2.0	23.5
		25	0	22.2	22.2	22.1	2.0	23.5
	64QAM	1	0	22.5	22.1	22.4	2.0	23.5
		1	12	22.4	22.0	22.4	2.0	23.5
		1	24	22.4	22.1	22.4	2.0	23.5
		12	0	21.3	21.2	21.1	3.0	22.5
		12	7	21.3	21.2	21.1	3.0	22.5
		12	13	21.3	21.1	21.2	3.0	22.5
		25	0	21.3	21.1	21.1	3.0	22.5

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LTE Band 5 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20415	20525	20635		
				825.5 MHz	836.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	24.3	24.1	24.1	0.0	25.5
		1	8	24.2	24.2	24.2	0.0	25.5
		1	14	24.2	24.1	24.3	0.0	25.5
		8	0	23.2	23.1	23.1	1.0	24.5
		8	4	23.2	23.1	23.1	1.0	24.5
		8	7	23.2	23.2	23.2	1.0	24.5
		15	0	23.2	23.1	23.1	1.0	24.5
	16QAM	1	0	23.5	23.1	22.9	1.0	24.5
		1	8	23.5	23.2	23.0	1.0	24.5
		1	14	23.4	23.1	22.9	1.0	24.5
		8	0	22.3	22.2	22.2	2.0	23.5
		8	4	22.3	22.2	22.2	2.0	23.5
		8	7	22.3	22.2	22.2	2.0	23.5
		15	0	22.2	22.1	22.2	2.0	23.5
	64QAM	1	0	22.4	22.4	22.3	2.0	23.5
		1	8	22.4	22.4	22.3	2.0	23.5
		1	14	22.4	22.4	22.2	2.0	23.5
		8	0	21.2	21.2	21.2	3.0	22.5
		8	4	21.2	21.2	21.3	3.0	22.5
		8	7	21.2	21.2	21.2	3.0	22.5
		15	0	21.3	21.1	21.2	3.0	22.5

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				20407	20525	20643		
				824.7 MHz	836.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	24.1	24.1	24.1	0.0	25.5
		1	3	24.2	24.2	24.2	0.0	25.5
		1	5	24.1	24.1	24.1	0.0	25.5
		3	0	24.0	24.0	23.9	0.0	25.5
		3	1	24.1	24.0	23.9	0.0	25.5
		3	3	24.1	24.1	23.9	0.0	25.5
		6	0	23.1	23.1	23.1	1.0	24.5
	16QAM	1	0	23.0	23.1	23.3	1.0	24.5
		1	3	23.1	23.2	23.3	1.0	24.5
		1	5	23.1	23.1	23.3	1.0	24.5
		3	0	23.2	23.1	23.0	1.0	24.5
		3	1	23.2	23.1	23.1	1.0	24.5
		3	3	23.3	23.1	23.0	1.0	24.5
		6	0	22.3	22.2	21.9	2.0	23.5
	64QAM	1	0	22.2	22.4	22.1	2.0	23.5
		1	3	22.3	22.5	22.2	2.0	23.5
		1	5	22.3	22.3	22.1	2.0	23.5
		3	0	22.0	22.3	22.1	2.0	23.5
		3	1	22.1	22.4	22.2	2.0	23.5
		3	3	22.1	22.4	22.2	2.0	23.5
		6	0	21.2	21.0	21.4	3.0	22.5

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

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LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				Measured Pwr (dBm)				
				[redacted]	23095	[redacted]		
				[redacted]	707.5 MHz	[redacted]		
10 MHz	QPSK	1	0	[redacted]	23.7	[redacted]	0.0	25
		1	25	[redacted]	23.8	[redacted]	0.0	25
		1	49	[redacted]	23.7	[redacted]	0.0	25
		25	0	[redacted]	22.8	[redacted]	1.0	24
		25	12	[redacted]	22.8	[redacted]	1.0	24
		25	25	[redacted]	22.8	[redacted]	1.0	24
		50	0	[redacted]	22.8	[redacted]	1.0	24
	16QAM	1	0	[redacted]	22.6	[redacted]	1.0	24
		1	25	[redacted]	22.7	[redacted]	1.0	24
		1	49	[redacted]	22.6	[redacted]	1.0	24
		25	0	[redacted]	21.9	[redacted]	2.0	23
		25	12	[redacted]	21.9	[redacted]	2.0	23
		25	25	[redacted]	21.8	[redacted]	2.0	23
		50	0	[redacted]	21.8	[redacted]	2.0	23
	64QAM	1	0	[redacted]	22.1	[redacted]	2.0	23
		1	25	[redacted]	22.1	[redacted]	2.0	23
		1	49	[redacted]	22.0	[redacted]	2.0	23
		25	0	[redacted]	21.0	[redacted]	3.0	22
		25	12	[redacted]	21.0	[redacted]	3.0	22
		25	25	[redacted]	20.9	[redacted]	3.0	22
		50	0	[redacted]	20.9	[redacted]	3.0	22

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23035	23095	23155		
				701.5 MHz	707.5 MHz	713.5 MHz		
5 MHz	QPSK	1	0	23.7	23.8	23.7	0.0	25
		1	12	23.7	23.9	23.7	0.0	25
		1	24	23.9	23.9	23.8	0.0	25
		12	0	22.8	22.8	22.6	1.0	24
		12	7	22.8	22.8	22.7	1.0	24
		12	13	22.7	22.8	22.7	1.0	24
		25	0	22.7	22.8	22.6	1.0	24
	16QAM	1	0	22.8	22.9	23.1	1.0	24
		1	12	22.8	22.9	23.1	1.0	24
		1	24	22.8	22.9	23.1	1.0	24
		12	0	21.9	22.0	21.8	2.0	23
		12	7	21.9	21.9	21.9	2.0	23
		12	13	21.8	21.9	21.8	2.0	23
		25	0	21.8	21.9	21.7	2.0	23
	64QAM	1	0	22.0	22.0	21.6	2.0	23
		1	12	22.0	22.0	21.6	2.0	23
		1	24	22.0	22.0	21.6	2.0	23
		12	0	20.8	21.0	20.8	3.0	22
		12	7	20.8	21.0	20.8	3.0	22
		12	13	20.8	21.0	20.8	3.0	22
		25	0	20.8	20.9	20.7	3.0	22

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LTE Band 12 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23025	23095	23165		
				700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	23.6	23.8	23.8	0.0	25
		1	8	23.7	23.8	23.8	0.0	25
		1	14	23.7	23.8	23.8	0.0	25
		8	0	22.6	22.8	22.7	1.0	24
		8	4	22.7	22.8	22.8	1.0	24
		8	7	22.7	22.8	22.7	1.0	24
		15	0	22.7	22.7	22.7	1.0	24
	16QAM	1	0	22.7	22.7	23.0	1.0	24
		1	8	22.7	22.7	23.1	1.0	24
		1	14	22.7	22.6	23.0	1.0	24
		8	0	21.7	21.9	21.8	2.0	23
		8	4	21.8	22.0	21.8	2.0	23
		8	7	21.8	21.9	21.8	2.0	23
		15	0	21.7	21.9	21.7	2.0	23
	64QAM	1	0	21.8	22.1	22.0	2.0	23
		1	8	21.9	22.1	22.1	2.0	23
		1	14	21.9	22.0	22.0	2.0	23
		8	0	20.8	20.8	20.8	3.0	22
		8	4	20.8	20.8	20.9	3.0	22
		8	7	20.9	20.9	20.8	3.0	22
		15	0	20.9	20.9	20.8	3.0	22
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23017	23095	23173		
				699.7 MHz	707.5 MHz	715.3 MHz		
1.4 MHz	QPSK	1	0	23.5	23.8	23.7	0.0	25
		1	3	23.6	23.8	23.7	0.0	25
		1	5	23.6	23.8	23.7	0.0	25
		3	0	23.5	23.7	23.5	0.0	25
		3	1	23.6	23.7	23.6	0.0	25
		3	3	23.6	23.7	23.6	0.0	25
		6	0	22.6	22.7	22.7	1.0	24
	16QAM	1	0	22.5	22.8	22.9	1.0	24
		1	3	22.6	22.8	22.9	1.0	24
		1	5	22.6	22.8	22.9	1.0	24
		3	0	22.8	22.8	22.7	1.0	24
		3	1	22.9	22.8	22.7	1.0	24
		3	3	22.8	22.8	22.7	1.0	24
		6	0	21.8	21.8	21.5	2.0	23
	64QAM	1	0	22.0	21.9	21.7	2.0	23
		1	3	22.1	21.9	21.8	2.0	23
		1	5	22.0	21.9	21.7	2.0	23
		3	0	21.9	21.9	21.6	2.0	23
		3	1	22.1	22.0	21.6	2.0	23
		3	3	22.0	22.0	21.6	2.0	23
		6	0	20.7	21.1	20.7	3.0	22

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

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LTE Band 13 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				Measured Pwr (dBm)				
				[redacted]	23230	[redacted]		
				[redacted]	782 MHz	[redacted]		
10 MHz	QPSK	1	0	[redacted]	23.5	[redacted]	0.0	25
		1	25	[redacted]	23.3	[redacted]	0.0	25
		1	49	[redacted]	23.2	[redacted]	0.0	25
		25	0	[redacted]	22.3	[redacted]	1.0	24
		25	12	[redacted]	22.3	[redacted]	1.0	24
		25	25	[redacted]	22.2	[redacted]	1.0	24
		50	0	[redacted]	22.2	[redacted]	1.0	24
	16QAM	1	0	[redacted]	22.5	[redacted]	1.0	24
		1	25	[redacted]	22.5	[redacted]	1.0	24
		1	49	[redacted]	22.5	[redacted]	1.0	24
		25	0	[redacted]	21.3	[redacted]	2.0	23
		25	12	[redacted]	21.4	[redacted]	2.0	23
		25	25	[redacted]	21.3	[redacted]	2.0	23
		50	0	[redacted]	21.3	[redacted]	2.0	23
	64QAM	1	0	[redacted]	22.4	[redacted]	2.0	23
		1	25	[redacted]	22.4	[redacted]	2.0	23
		1	49	[redacted]	22.3	[redacted]	2.0	23
		25	0	[redacted]	21.3	[redacted]	3.0	22
		25	12	[redacted]	21.3	[redacted]	3.0	22
		25	25	[redacted]	21.3	[redacted]	3.0	22
		50	0	[redacted]	21.3	[redacted]	3.0	22
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				[redacted]	23230	[redacted]		
				[redacted]	782 MHz	[redacted]		
5 MHz	QPSK	1	0	[redacted]	23.3	[redacted]	0.0	25
		1	12	[redacted]	23.3	[redacted]	0.0	25
		1	24	[redacted]	23.3	[redacted]	0.0	25
		12	0	[redacted]	22.2	[redacted]	1.0	24
		12	7	[redacted]	22.3	[redacted]	1.0	24
		12	13	[redacted]	22.3	[redacted]	1.0	24
		25	0	[redacted]	22.2	[redacted]	1.0	24
	16QAM	1	0	[redacted]	22.7	[redacted]	1.0	24
		1	12	[redacted]	22.7	[redacted]	1.0	24
		1	24	[redacted]	22.7	[redacted]	1.0	24
		12	0	[redacted]	21.4	[redacted]	2.0	23
		12	7	[redacted]	21.4	[redacted]	2.0	23
		12	13	[redacted]	21.4	[redacted]	2.0	23
		25	0	[redacted]	21.3	[redacted]	2.0	23
	64QAM	1	0	[redacted]	22.5	[redacted]	2.0	23
		1	12	[redacted]	22.5	[redacted]	2.0	23
		1	24	[redacted]	22.5	[redacted]	2.0	23
		12	0	[redacted]	21.3	[redacted]	3.0	22
		12	7	[redacted]	21.3	[redacted]	3.0	22
		12	13	[redacted]	21.3	[redacted]	3.0	22
		25	0	[redacted]	21.3	[redacted]	3.0	22

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

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LTE Band 26 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				Measured Pwr (dBm)				
				[redacted]	26865	[redacted]		
				[redacted]	831.5 MHz	[redacted]		
15 MHz	QPSK	1	0	[redacted]	24.0	[redacted]	0	25.0
		1	37	[redacted]	23.8	[redacted]	0	25.0
		1	74	[redacted]	23.8	[redacted]	0	25.0
		36	0	[redacted]	22.9	[redacted]	1	24.0
		36	20	[redacted]	22.9	[redacted]	1	24.0
		36	39	[redacted]	22.8	[redacted]	1	24.0
		75	0	[redacted]	22.8	[redacted]	1	24.0
	16QAM	1	0	[redacted]	22.8	[redacted]	1	24.0
		1	37	[redacted]	22.7	[redacted]	1	24.0
		1	74	[redacted]	22.7	[redacted]	1	24.0
		36	0	[redacted]	22.0	[redacted]	2	23.0
		36	20	[redacted]	21.9	[redacted]	2	23.0
		36	39	[redacted]	21.8	[redacted]	2	23.0
		75	0	[redacted]	21.9	[redacted]	2	23.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26740	26865	26990		
				819 MHz	831.5 MHz	844 MHz		
10 MHz	QPSK	1	0	23.9	23.9	23.9	0	25.0
		1	25	23.8	23.8	23.9	0	25.0
		1	49	23.8	23.8	23.9	0	25.0
		25	0	22.9	22.9	22.8	1	24.0
		25	12	22.9	22.9	22.8	1	24.0
		25	25	22.9	22.8	22.9	1	24.0
		50	0	22.9	22.9	22.8	1	24.0
	16QAM	1	0	23.0	22.8	23.1	1	24.0
		1	25	22.9	22.7	23.2	1	24.0
		1	49	22.7	22.7	23.0	1	24.0
		25	0	22.0	21.9	21.9	2	23.0
		25	12	22.1	21.9	21.9	2	23.0
		25	25	22.0	21.9	21.9	2	23.0
		50	0	22.0	21.9	21.8	2	23.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26715	26865	27015		
				816.5 MHz	831.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	23.9	23.9	24.0	0	25.0
		1	12	23.9	23.8	23.9	0	25.0
		1	24	23.9	23.8	24.0	0	25.0
		12	0	22.9	22.9	22.9	1	24.0
		12	7	22.9	22.9	22.9	1	24.0
		12	13	22.9	22.9	22.8	1	24.0
		25	0	22.9	22.9	22.9	1	24.0
	16QAM	1	0	23.4	22.9	23.0	1	24.0
		1	12	23.4	22.9	22.9	1	24.0
		1	24	23.3	22.9	22.9	1	24.0
		12	0	22.1	22.0	22.0	2	23.0
		12	7	22.1	22.0	22.0	2	23.0
		12	13	22.1	21.9	21.9	2	23.0
		25	0	22.0	21.8	21.9	2	23.0

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LTE Band 26 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26705	26865	27025		
				815.5 MHz	831.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	24.0	23.8	23.9	0	25.0
		1	8	24.0	23.8	24.0	0	25.0
		1	14	23.9	23.7	24.0	0	25.0
		8	0	22.9	22.8	22.9	1	24.0
		8	4	23.0	22.9	22.9	1	24.0
		8	7	23.0	22.9	22.9	1	24.0
		15	0	22.9	22.8	22.8	1	24.0
	16QAM	1	0	23.3	22.8	22.7	1	24.0
		1	8	23.3	22.9	22.7	1	24.0
		1	14	23.2	22.8	22.6	1	24.0
		8	0	22.0	21.9	21.9	2	23.0
		8	4	22.1	22.0	22.0	2	23.0
		8	7	22.1	21.9	22.0	2	23.0
		15	0	22.0	21.8	21.9	2	23.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26697	26865	27033		
				814.7 MHz	831.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	23.8	23.8	23.8	0	25.0
		1	3	23.9	23.8	23.9	0	25.0
		1	5	23.8	23.8	23.9	0	25.0
		3	0	23.7	23.6	23.7	0	25.0
		3	1	23.8	23.7	23.7	0	25.0
		3	3	23.8	23.7	23.7	0	25.0
		6	0	22.9	22.8	22.8	1	24.0
	16QAM	1	0	22.8	22.8	23.0	1	24.0
		1	3	22.9	22.9	23.1	1	24.0
		1	5	22.9	22.8	23.0	1	24.0
		3	0	23.0	22.8	22.8	1	24.0
		3	1	23.0	22.8	22.9	1	24.0
		3	3	23.0	22.8	22.8	1	24.0
		6	0	22.1	22.0	21.7	2	23.0

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

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LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	23.6	23.4	23.3	0.0	25
		1	49	23.3	23.2	23.2	0.0	25
		1	99	23.2	23.2	23.1	0.0	25
		50	0	22.5	22.3	22.2	1.0	24
		50	24	22.5	22.2	22.3	1.0	24
		50	50	22.3	22.2	22.2	1.0	24
		100	0	22.3	22.3	22.1	1.0	24
	16QAM	1	0	23.0	22.7	22.8	1.0	24
		1	49	22.7	22.6	22.8	1.0	24
		1	99	22.7	22.5	22.7	1.0	24
		50	0	21.6	21.3	21.3	2.0	23
		50	24	21.5	21.3	21.4	2.0	23
		50	50	21.4	21.3	21.3	2.0	23
		100	0	21.4	21.3	21.3	2.0	23
	64QAM	1	0	22.2	21.6	21.6	2.0	23
		1	49	22.0	21.5	21.6	2.0	23
		1	99	21.9	21.4	21.5	2.0	23
		50	0	20.6	20.4	20.4	3.0	22
		50	24	20.5	20.4	20.4	3.0	22
		50	50	20.4	20.3	20.3	3.0	22
		100	0	20.4	20.4	20.3	3.0	22
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597		
				1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	QPSK	1	0	23.6	23.4	23.4	0.0	25
		1	37	23.3	23.2	23.2	0.0	25
		1	74	23.4	23.3	23.2	0.0	25
		36	0	22.4	22.3	22.3	1.0	24
		36	20	22.4	22.2	22.2	1.0	24
		36	39	22.4	22.2	22.2	1.0	24
		75	0	22.4	22.2	22.2	1.0	24
	16QAM	1	0	22.9	22.8	22.4	1.0	24
		1	37	22.7	22.6	22.2	1.0	24
		1	74	22.8	22.6	22.1	1.0	24
		36	0	21.6	21.3	21.4	2.0	23
		36	20	21.6	21.3	21.3	2.0	23
		36	39	21.5	21.2	21.3	2.0	23
		75	0	21.5	21.3	21.3	2.0	23
	64QAM	1	0	21.8	22.0	21.8	2.0	23
		1	37	21.5	21.8	21.6	2.0	23
		1	74	21.5	21.9	21.5	2.0	23
		36	0	20.6	20.3	20.4	3.0	22
		36	20	20.6	20.3	20.3	3.0	22
		36	39	20.5	20.3	20.3	3.0	22
		75	0	20.5	20.4	20.3	3.0	22

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LTE Band 66 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	23.5	23.2	23.3	0.0	25
		1	25	23.3	23.2	23.2	0.0	25
		1	49	23.3	23.2	23.2	0.0	25
		25	0	22.4	22.2	22.2	1.0	24
		25	12	22.4	22.2	22.2	1.0	24
		25	25	22.4	22.2	22.2	1.0	24
		50	0	22.4	22.2	22.2	1.0	24
	16QAM	1	0	22.5	22.2	22.7	1.0	24
		1	25	22.4	22.1	22.6	1.0	24
		1	49	22.4	22.1	22.5	1.0	24
		25	0	21.6	21.4	21.4	2.0	23
		25	12	21.6	21.3	21.3	2.0	23
		25	25	21.5	21.3	21.3	2.0	23
		50	0	21.5	21.3	21.3	2.0	23
	64QAM	1	0	21.7	21.6	21.7	2.0	23
		1	25	21.6	21.4	21.5	2.0	23
		1	49	21.5	21.4	21.5	2.0	23
		25	0	20.6	20.4	20.4	3.0	22
		25	12	20.6	20.4	20.4	3.0	22
		25	25	20.5	20.4	20.4	3.0	22
		50	0	20.5	20.3	20.3	3.0	22

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131997	132322	132647		
				1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	QPSK	1	0	23.5	23.3	23.2	0.0	25
		1	12	23.4	23.3	23.1	0.0	25
		1	24	23.4	23.3	23.2	0.0	25
		12	0	22.4	22.2	22.2	1.0	24
		12	7	22.4	22.2	22.2	1.0	24
		12	13	22.4	22.2	22.2	1.0	24
		25	0	22.4	22.2	22.2	1.0	24
	16QAM	1	0	22.6	22.4	22.7	1.0	24
		1	12	22.5	22.3	22.7	1.0	24
		1	24	22.5	22.4	22.7	1.0	24
		12	0	21.5	21.3	21.4	2.0	23
		12	7	21.5	21.4	21.4	2.0	23
		12	13	21.5	21.3	21.3	2.0	23
		25	0	21.4	21.3	21.3	2.0	23
	64QAM	1	0	21.8	21.6	21.3	2.0	23
		1	12	21.7	21.5	21.2	2.0	23
		1	24	21.7	21.5	21.2	2.0	23
		12	0	20.5	20.4	20.3	3.0	22
		12	7	20.5	20.4	20.3	3.0	22
		12	13	20.4	20.4	20.3	3.0	22
		25	0	20.4	20.3	20.3	3.0	22

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LTE Band 66 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	23.4	23.2	23.1	0.0	25
		1	8	23.5	23.2	23.2	0.0	25
		1	14	23.4	23.1	23.1	0.0	25
		8	0	22.4	22.2	22.2	1.0	24
		8	4	22.4	22.2	22.2	1.0	24
		8	7	22.4	22.2	22.2	1.0	24
		15	0	22.3	22.2	22.2	1.0	24
	16QAM	1	0	22.8	22.3	22.1	1.0	24
		1	8	22.8	22.3	22.1	1.0	24
		1	14	22.8	22.2	22.1	1.0	24
		8	0	21.5	21.3	21.3	2.0	23
		8	4	21.6	21.3	21.4	2.0	23
		8	7	21.5	21.3	21.4	2.0	23
		15	0	21.5	21.2	21.3	2.0	23
	64QAM	1	0	21.6	21.5	21.5	2.0	23
		1	8	21.6	21.5	21.6	2.0	23
		1	14	21.5	21.4	21.5	2.0	23
		8	0	20.5	20.2	20.3	3.0	22
		8	4	20.5	20.3	20.3	3.0	22
		8	7	20.5	20.2	20.3	3.0	22
		15	0	20.5	20.3	20.3	3.0	22

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131979	132322	132665		
				1710.7 MHz	1745 MHz	1779.3 MHz		
1.4 MHz	QPSK	1	0	23.3	23.1	23.1	0.0	25
		1	3	23.4	23.1	23.2	0.0	25
		1	5	23.4	23.1	23.1	0.0	25
		3	0	23.3	23.1	23.0	0.0	25
		3	1	23.4	23.1	23.1	0.0	25
		3	3	23.4	23.1	23.1	0.0	25
		6	0	22.3	22.1	22.1	1.0	24
	16QAM	1	0	22.8	22.2	22.2	1.0	24
		1	3	22.7	22.2	22.3	1.0	24
		1	5	22.7	22.2	22.2	1.0	24
		3	0	22.5	22.3	22.2	1.0	24
		3	1	22.6	22.4	22.2	1.0	24
		3	3	22.6	22.4	22.2	1.0	24
		6	0	21.3	21.3	21.3	2.0	23
	64QAM	1	0	21.6	21.6	21.2	2.0	23
		1	3	21.6	21.7	21.3	2.0	23
		1	5	21.6	21.5	21.2	2.0	23
		3	0	21.3	21.5	21.2	2.0	23
		3	1	21.4	21.6	21.3	2.0	23
		3	3	21.4	21.6	21.3	2.0	23
		6	0	20.5	20.2	20.4	3.0	22

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2. Reduced power Results

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Hotspot Reduced Average Power (dBm)					Proximity sensor Reduced Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100			18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz			1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	18.4	18.5	18.3	0	19.5	18.3	18.4	18.3	0	19.5
		1	49	18.3	18.4	18.3	0	19.5	18.2	18.4	18.3	0	19.5
		1	99	18.3	18.3	18.3	0	19.5	18.3	18.4	18.2	0	19.5
		50	0	18.4	18.4	18.4	0	19.5	18.2	18.4	18.4	0	19.5
		50	24	18.4	18.4	18.4	0	19.5	18.3	18.5	18.4	0	19.5
		50	50	18.4	18.4	18.3	0	19.5	18.3	18.4	18.3	0	19.5
		100	0	18.4	18.3	18.4	0	19.5	18.3	18.4	18.3	0	19.5
	16QAM	1	0	18.9	19.0	18.8	0	19.5	18.9	18.9	18.8	0	19.5
		1	49	18.8	18.9	18.8	0	19.5	18.9	18.8	18.8	0	19.5
		1	99	18.9	19.0	18.7	0	19.5	18.9	18.8	18.7	0	19.5
		50	0	18.4	18.5	18.5	0	19.5	18.4	18.4	18.4	0	19.5
		50	24	18.5	18.6	18.5	0	19.5	18.5	18.5	18.5	0	19.5
		50	50	18.5	18.5	18.4	0	19.5	18.4	18.5	18.4	0	19.5
		100	0	18.5	18.5	18.5	0	19.5	18.4	18.5	18.4	0	19.5
	64QAM	1	0	18.8	18.9	18.6	0	19.5	18.9	18.9	18.6	0	19.5
		1	49	18.9	18.8	18.6	0	19.5	18.9	18.8	18.5	0	19.5
		1	99	18.9	18.8	18.4	0	19.5	18.9	18.8	18.5	0	19.5
		50	0	18.4	18.5	18.4	0	19.5	18.4	18.5	18.4	0	19.5
		50	24	18.4	18.6	18.4	0	19.5	18.4	18.6	18.4	0	19.5
		50	50	18.4	18.5	18.3	0	19.5	18.4	18.5	18.3	0	19.5
		100	0	18.3	18.5	18.4	0	19.5	18.3	18.5	18.3	0	19.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18675	18900	19125			18675	18900	19125		
				1857.5 MHz	1880 MHz	1902.5 MHz			1857.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	18.4	18.3	18.4	0	19.5	18.4	18.4	18.4	0	19.5
		1	37	18.5	18.3	18.4	0	19.5	18.4	18.4	18.3	0	19.5
		1	74	18.3	18.3	18.3	0	19.5	18.3	18.4	18.3	0	19.5
		36	0	18.4	18.3	18.3	0	19.5	18.4	18.3	18.3	0	19.5
		36	20	18.4	18.4	18.3	0	19.5	18.4	18.4	18.3	0	19.5
		36	39	18.3	18.3	18.4	0	19.5	18.3	18.4	18.3	0	19.5
		75	0	18.3	18.3	18.3	0	19.5	18.3	18.4	18.3	0	19.5
	16QAM	1	0	18.8	18.3	18.9	0	19.5	18.4	18.8	18.8	0	19.5
		1	37	18.9	18.4	18.8	0	19.5	18.5	18.8	18.7	0	19.5
		1	74	18.7	18.3	18.8	0	19.5	18.3	18.8	18.7	0	19.5
		36	0	18.6	18.5	18.4	0	19.5	18.5	18.4	18.5	0	19.5
		36	20	18.5	18.5	18.5	0	19.5	18.5	18.5	18.4	0	19.5
		36	39	18.5	18.5	18.4	0	19.5	18.5	18.4	18.5	0	19.5
		75	0	18.4	18.5	18.4	0	19.5	18.5	18.4	18.4	0	19.5
	64QAM	1	0	18.7	18.9	18.5	0	19.5	18.7	18.9	18.5	0	19.5
		1	37	18.7	18.8	18.5	0	19.5	18.7	18.9	18.4	0	19.5
		1	74	18.6	18.9	18.4	0	19.5	18.6	18.9	18.3	0	19.5
		36	0	18.4	18.5	18.5	0	19.5	18.5	18.5	18.4	0	19.5
		36	20	18.4	18.5	18.5	0	19.5	18.4	18.5	18.4	0	19.5
		36	39	18.4	18.5	18.5	0	19.5	18.4	18.5	18.4	0	19.5
		75	0	18.4	18.5	18.4	0	19.5	18.4	18.5	18.3	0	19.5

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LTE Band 2 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18650	18900	19150			18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz			1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	18.5	18.5	18.3	0	19.5	18.5	18.5	18.3	0	19.5
		1	25	18.4	18.4	18.3	0	19.5	18.5	18.4	18.3	0	19.5
		1	49	18.4	18.4	18.3	0	19.5	18.4	18.4	18.3	0	19.5
		25	0	18.4	18.4	18.4	0	19.5	18.5	18.4	18.3	0	19.5
		25	12	18.5	18.4	18.4	0	19.5	18.5	18.4	18.3	0	19.5
		25	25	18.3	18.4	18.4	0	19.5	18.4	18.4	18.3	0	19.5
		50	0	18.3	18.4	18.4	0	19.5	18.4	18.4	18.3	0	19.5
	16QAM	1	0	18.7	18.9	18.4	0	19.5	18.5	18.6	18.8	0	19.5
		1	25	18.6	18.8	18.3	0	19.5	18.5	18.5	18.7	0	19.5
		1	49	18.5	18.9	18.3	0	19.5	18.4	18.5	18.7	0	19.5
		25	0	18.6	18.5	18.5	0	19.5	18.6	18.6	18.5	0	19.5
		25	12	18.7	18.6	18.5	0	19.5	18.6	18.6	18.4	0	19.5
		25	25	18.5	18.5	18.4	0	19.5	18.5	18.6	18.5	0	19.5
		50	0	18.5	18.5	18.4	0	19.5	18.4	18.5	18.5	0	19.5
	64QAM	1	0	18.8	18.8	18.5	0	19.5	18.8	18.8	18.5	0	19.5
		1	25	18.8	18.7	18.5	0	19.5	18.7	18.7	18.5	0	19.5
		1	49	18.7	18.7	18.5	0	19.5	18.7	18.7	18.5	0	19.5
		25	0	18.5	18.5	18.5	0	19.5	18.5	18.5	18.5	0	19.5
		25	12	18.5	18.6	18.5	0	19.5	18.5	18.6	18.5	0	19.5
		25	25	18.4	18.5	18.5	0	19.5	18.4	18.5	18.5	0	19.5
		50	0	18.4	18.5	18.5	0	19.5	18.4	18.5	18.5	0	19.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18625	18900	19175			18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz			1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	18.4	18.4	18.3	0	19.5	18.5	18.4	18.3	0	19.5
		1	12	18.4	18.4	18.4	0	19.5	18.6	18.5	18.3	0	19.5
		1	24	18.4	18.4	18.3	0	19.5	18.5	18.4	18.3	0	19.5
		12	0	18.5	18.4	18.4	0	19.5	18.4	18.4	18.3	0	19.5
		12	7	18.5	18.4	18.4	0	19.5	18.5	18.4	18.4	0	19.5
		12	13	18.4	18.4	18.4	0	19.5	18.4	18.4	18.4	0	19.5
		25	0	18.5	18.4	18.3	0	19.5	18.5	18.4	18.4	0	19.5
	16QAM	1	0	18.9	18.6	18.5	0	19.5	18.6	18.6	18.9	0	19.5
		1	12	18.9	18.7	18.5	0	19.5	18.7	18.6	18.9	0	19.5
		1	24	18.9	18.6	18.5	0	19.5	18.7	18.6	18.9	0	19.5
		12	0	18.6	18.5	18.5	0	19.5	18.6	18.6	18.5	0	19.5
		12	7	18.7	18.6	18.5	0	19.5	18.6	18.6	18.6	0	19.5
		12	13	18.7	18.6	18.5	0	19.5	18.6	18.5	18.6	0	19.5
		25	0	18.6	18.5	18.4	0	19.5	18.5	18.5	18.5	0	19.5
	64QAM	1	0	18.4	18.7	18.7	0	19.5	18.4	18.7	18.7	0	19.5
		1	12	18.4	18.7	18.7	0	19.5	18.5	18.7	18.7	0	19.5
		1	24	18.5	18.7	18.7	0	19.5	18.4	18.7	18.7	0	19.5
		12	0	18.6	18.6	18.4	0	19.5	18.6	18.5	18.4	0	19.5
		12	7	18.5	18.6	18.4	0	19.5	18.6	18.6	18.4	0	19.5
		12	13	18.5	18.5	18.4	0	19.5	18.5	18.5	18.4	0	19.5
		25	0	18.4	18.5	18.4	0	19.5	18.5	18.5	18.4	0	19.5

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LTE Band 2 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18615	18900	19185			18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz			1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	18.3	18.3	18.3	0	19.5	18.3	18.3	18.3	0	19.5
		1	8	18.5	18.4	18.4	0	19.5	18.5	18.4	18.4	0	19.5
		1	14	18.4	18.3	18.3	0	19.5	18.4	18.3	18.3	0	19.5
		8	0	18.4	18.3	18.3	0	19.5	18.4	18.4	18.3	0	19.5
		8	4	18.4	18.4	18.4	0	19.5	18.4	18.4	18.4	0	19.5
		8	7	18.4	18.4	18.3	0	19.5	18.4	18.4	18.3	0	19.5
		15	0	18.4	18.4	18.3	0	19.5	18.4	18.4	18.3	0	19.5
	16QAM	1	0	18.4	18.5	18.7	0	19.5	18.4	18.5	18.7	0	19.5
		1	8	18.5	18.6	18.8	0	19.5	18.5	18.6	18.9	0	19.5
		1	14	18.4	18.5	18.7	0	19.5	18.3	18.5	18.7	0	19.5
		8	0	18.6	18.5	18.4	0	19.5	18.6	18.5	18.4	0	19.5
		8	4	18.6	18.5	18.5	0	19.5	18.6	18.5	18.5	0	19.5
		8	7	18.6	18.5	18.5	0	19.5	18.6	18.5	18.5	0	19.5
		15	0	18.5	18.4	18.4	0	19.5	18.5	18.4	18.5	0	19.5
	64QAM	1	0	18.7	18.6	18.5	0	19.5	18.7	18.7	18.5	0	19.5
		1	8	18.8	18.7	18.6	0	19.5	18.9	18.7	18.6	0	19.5
		1	14	18.7	18.6	18.5	0	19.5	18.7	18.6	18.5	0	19.5
		8	0	18.4	18.4	18.4	0	19.5	18.4	18.4	18.4	0	19.5
		8	4	18.5	18.4	18.5	0	19.5	18.5	18.4	18.5	0	19.5
		8	7	18.6	18.4	18.5	0	19.5	18.5	18.4	18.5	0	19.5
		15	0	18.5	18.5	18.5	0	19.5	18.5	18.5	18.5	0	19.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18607	18900	19193			18607	18900	19193		
				1850.7 MHz	1880 MHz	1909.3 MHz			1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	18.3	18.3	18.3	0	19.5	18.3	18.3	18.2	0	19.5
		1	3	18.4	18.3	18.3	0	19.5	18.4	18.4	18.3	0	19.5
		1	5	18.3	18.3	18.3	0	19.5	18.3	18.3	18.2	0	19.5
		3	0	18.3	18.3	18.2	0	19.5	18.3	18.2	18.2	0	19.5
		3	1	18.4	18.3	18.3	0	19.5	18.4	18.3	18.3	0	19.5
		3	3	18.4	18.4	18.3	0	19.5	18.4	18.3	18.3	0	19.5
		6	0	18.3	18.3	18.3	0	19.5	18.3	18.3	18.3	0	19.5
	16QAM	1	0	18.5	18.7	18.4	0	19.5	18.8	18.5	18.3	0	19.5
		1	3	18.5	18.8	18.5	0	19.5	18.8	18.6	18.4	0	19.5
		1	5	18.5	18.7	18.4	0	19.5	18.8	18.5	18.4	0	19.5
		3	0	18.6	18.5	18.3	0	19.5	18.6	18.4	18.5	0	19.5
		3	1	18.7	18.6	18.4	0	19.5	18.7	18.5	18.5	0	19.5
		3	3	18.6	18.6	18.4	0	19.5	18.6	18.5	18.5	0	19.5
		6	0	18.6	18.3	18.5	0	19.5	18.3	18.5	18.5	0	19.5
	64QAM	1	0	18.5	18.8	18.5	0	19.5	18.5	18.8	18.5	0	19.5
		1	3	18.6	18.9	18.6	0	19.5	18.6	18.9	18.6	0	19.5
		1	5	18.5	18.8	18.5	0	19.5	18.5	18.8	18.5	0	19.5
		3	0	18.5	18.7	18.3	0	19.5	18.5	18.7	18.2	0	19.5
		3	1	18.5	18.8	18.3	0	19.5	18.6	18.8	18.3	0	19.5
		3	3	18.5	18.7	18.3	0	19.5	18.5	18.7	18.3	0	19.5
		6	0	18.7	18.4	18.4	0	19.5	18.7	18.4	18.4	0	19.5

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LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Hotspot Reduced Average Power (dBm)					Proximity sensor Reduced Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572			132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	18.3	18.4	18.2	0	20.0	18.3	18.5	18.3	0	20.0
		1	49	18.2	18.4	17.9	0	20.0	18.3	18.4	18.0	0	20.0
		1	99	18.3	18.3	17.8	0	20.0	18.3	18.3	17.8	0	20.0
		50	0	18.4	18.6	18.2	0	20.0	18.4	18.5	18.3	0	20.0
		50	24	18.5	18.6	18.2	0	20.0	18.4	18.5	18.2	0	20.0
		50	50	18.4	18.5	18.0	0	20.0	18.4	18.5	18.0	0	20.0
		100	0	18.4	18.5	18.1	0	20.0	18.4	18.5	18.2	0	20.0
	16QAM	1	0	19.0	19.0	18.8	0	20.0	18.9	19.0	18.9	0	20.0
		1	49	18.9	18.9	18.5	0	20.0	18.8	18.9	18.6	0	20.0
		1	99	18.9	18.8	18.3	0	20.0	18.9	18.8	18.5	0	20.0
		50	0	18.6	18.6	18.3	0	20.0	18.5	18.6	18.4	0	20.0
		50	24	18.5	18.6	18.3	0	20.0	18.6	18.6	18.3	0	20.0
		50	50	18.5	18.6	18.1	0	20.0	18.5	18.5	18.1	0	20.0
		100	0	18.6	18.6	18.2	0	20.0	18.6	18.6	18.3	0	20.0
	64QAM	1	0	19.0	18.8	18.7	0	20.0	18.9	18.9	18.7	0	20.0
		1	49	19.0	18.7	18.4	0	20.0	18.9	18.7	18.4	0	20.0
		1	99	19.0	18.6	18.3	0	20.0	18.9	18.6	18.3	0	20.0
		50	0	18.6	18.7	18.4	0	20.0	18.6	18.7	18.4	0	20.0
		50	24	18.6	18.7	18.3	0	20.0	18.6	18.6	18.3	0	20.0
		50	50	18.5	18.6	18.2	0	20.0	18.5	18.6	18.2	0	20.0
		100	0	18.6	18.6	18.2	0	20.0	18.5	18.6	18.3	0	20.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597			132047	132322	132597		
				1717.5 MHz	1745 MHz	1772.5 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	QPSK	1	0	18.3	18.5	18.3	0	20.0	18.4	18.5	18.3	0	20.0
		1	37	18.2	18.5	18.1	0	20.0	18.3	18.5	18.0	0	20.0
		1	74	18.3	18.3	17.9	0	20.0	18.4	18.4	17.8	0	20.0
		36	0	18.4	18.5	18.2	0	20.0	18.4	18.5	18.2	0	20.0
		36	20	18.3	18.5	18.0	0	20.0	18.3	18.5	18.1	0	20.0
		36	39	18.4	18.5	18.0	0	20.0	18.4	18.5	18.0	0	20.0
		75	0	18.3	18.5	18.1	0	20.0	18.3	18.5	18.0	0	20.0
	16QAM	1	0	18.3	19.0	18.8	0	20.0	18.8	18.9	18.3	0	20.0
		1	37	18.3	18.9	18.5	0	20.0	18.7	18.9	18.0	0	20.0
		1	74	18.3	18.8	18.4	0	20.0	18.8	18.9	17.9	0	20.0
		36	0	18.5	18.6	18.4	0	20.0	18.5	18.6	18.3	0	20.0
		36	20	18.4	18.5	18.2	0	20.0	18.5	18.6	18.2	0	20.0
		36	39	18.5	18.5	18.2	0	20.0	18.5	18.5	18.2	0	20.0
		75	0	18.4	18.6	18.2	0	20.0	18.5	18.6	18.2	0	20.0
	64QAM	1	0	18.6	19.0	18.7	0	20.0	18.6	19.0	18.7	0	20.0
		1	37	18.5	18.9	18.4	0	20.0	18.5	18.9	18.4	0	20.0
		1	74	18.6	18.9	18.3	0	20.0	18.6	18.9	18.3	0	20.0
		36	0	18.6	18.6	18.3	0	20.0	18.5	18.9	18.3	0	20.0
		36	20	18.5	18.6	18.2	0	20.0	18.5	18.6	18.2	0	20.0
		36	39	18.6	18.6	18.1	0	20.0	18.5	18.5	18.2	0	20.0
		75	0	18.4	18.6	18.2	0	20.0	18.5	18.6	18.2	0	20.0

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LTE Band 66 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622			132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	18.2	18.5	18.1	0	20.0	18.2	18.4	18.1	0	20.0
		1	25	18.2	18.5	18.0	0	20.0	18.2	18.4	18.0	0	20.0
		1	49	18.2	18.3	17.9	0	20.0	18.2	18.3	17.9	0	20.0
		25	0	18.4	18.6	18.2	0	20.0	18.4	18.5	18.1	0	20.0
		25	12	18.3	18.5	18.1	0	20.0	18.3	18.5	18.1	0	20.0
		25	25	18.3	18.5	18.1	0	20.0	18.3	18.5	18.0	0	20.0
		50	0	18.3	18.5	18.1	0	20.0	18.3	18.5	18.1	0	20.0
	16QAM	1	0	18.4	18.9	18.2	0	20.0	18.4	18.4	18.6	0	20.0
		1	25	18.4	18.9	18.0	0	20.0	18.4	18.4	18.4	0	20.0
		1	49	18.4	18.8	17.9	0	20.0	18.4	18.3	18.3	0	20.0
		25	0	18.6	18.6	18.3	0	20.0	18.6	18.6	18.2	0	20.0
		25	12	18.5	18.6	18.2	0	20.0	18.6	18.6	18.2	0	20.0
		25	25	18.5	18.6	18.2	0	20.0	18.5	18.6	18.2	0	20.0
		50	0	18.5	18.6	18.2	0	20.0	18.5	18.6	18.2	0	20.0
	64QAM	1	0	18.5	18.7	18.5	0	20.0	18.5	18.7	18.5	0	20.0
		1	25	18.5	18.7	18.4	0	20.0	18.5	18.7	18.3	0	20.0
		1	49	18.5	18.6	18.3	0	20.0	18.4	18.6	18.3	0	20.0
		25	0	18.6	18.7	18.2	0	20.0	18.6	18.7	18.2	0	20.0
		25	12	18.5	18.7	18.2	0	20.0	18.5	18.6	18.2	0	20.0
		25	25	18.5	18.6	18.1	0	20.0	18.5	18.6	18.2	0	20.0
		50	0	18.5	18.6	18.1	0	20.0	18.5	18.6	18.2	0	20.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131997	132322	132647			131997	132322	132647		
				1712.5 MHz	1745 MHz	1777.5 MHz			1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	QPSK	1	0	18.3	18.7	18.2	0	20.0	18.2	18.5	18.1	0	20.0
		1	12	18.2	18.6	18.0	0	20.0	18.1	18.5	17.9	0	20.0
		1	24	18.3	18.6	18.0	0	20.0	18.3	18.5	17.9	0	20.0
		12	0	18.3	18.5	18.1	0	20.0	18.3	18.5	18.0	0	20.0
		12	7	18.3	18.5	18.0	0	20.0	18.2	18.5	17.9	0	20.0
		12	13	18.2	18.5	18.0	0	20.0	18.2	18.5	17.9	0	20.0
		25	0	18.3	18.5	18.1	0	20.0	18.3	18.5	18.0	0	20.0
	16QAM	1	0	18.9	18.8	18.3	0	20.0	18.9	18.7	18.3	0	20.0
		1	12	18.8	18.7	18.1	0	20.0	18.8	18.6	18.1	0	20.0
		1	24	18.9	18.7	18.2	0	20.0	18.9	18.7	18.1	0	20.0
		12	0	18.5	18.7	18.3	0	20.0	18.5	18.6	18.2	0	20.0
		12	7	18.5	18.7	18.1	0	20.0	18.5	18.6	18.1	0	20.0
		12	13	18.4	18.7	18.1	0	20.0	18.4	18.6	18.1	0	20.0
		25	0	18.5	18.6	18.2	0	20.0	18.5	18.5	18.1	0	20.0
	64QAM	1	0	18.7	18.8	18.1	0	20.0	18.7	18.8	18.1	0	20.0
		1	12	18.6	18.8	17.9	0	20.0	18.6	18.8	17.9	0	20.0
		1	24	18.7	18.8	17.9	0	20.0	18.7	18.8	17.9	0	20.0
		12	0	18.3	18.6	18.2	0	20.0	18.3	18.6	18.2	0	20.0
		12	7	18.3	18.6	18.1	0	20.0	18.3	18.6	18.1	0	20.0
		12	13	18.2	18.6	18.1	0	20.0	18.2	18.6	18.1	0	20.0
		25	0	18.4	18.6	18.1	0	20.0	18.4	18.6	18.1	0	20.0

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LTE Band 66 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657			131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz			1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	18.3	18.5	18.0	0	20.0	18.3	18.4	17.9	0	20.0
		1	8	18.3	18.6	18.1	0	20.0	18.3	18.5	17.9	0	20.0
		1	14	18.2	18.5	18.0	0	20.0	18.2	18.4	17.8	0	20.0
		8	0	18.3	18.5	18.0	0	20.0	18.2	18.5	17.9	0	20.0
		8	4	18.3	18.6	18.0	0	20.0	18.2	18.5	17.9	0	20.0
		8	7	18.3	18.6	18.0	0	20.0	18.2	18.5	17.9	0	20.0
		15	0	18.3	18.6	18.0	0	20.0	18.2	18.5	17.9	0	20.0
	16QAM	1	0	18.3	18.7	18.5	0	20.0	18.7	18.6	17.9	0	20.0
		1	8	18.3	18.7	18.5	0	20.0	18.8	18.6	17.9	0	20.0
		1	14	18.2	18.6	18.4	0	20.0	18.6	18.6	17.8	0	20.0
		8	0	18.5	18.6	18.1	0	20.0	18.4	18.6	18.0	0	20.0
		8	4	18.5	18.7	18.2	0	20.0	18.4	18.6	18.1	0	20.0
		8	7	18.5	18.7	18.2	0	20.0	18.4	18.6	18.1	0	20.0
		15	0	18.4	18.6	18.1	0	20.0	18.4	18.5	18.0	0	20.0
	64QAM	1	0	18.4	18.7	18.3	0	20.0	18.4	18.7	18.3	0	20.0
		1	8	18.5	18.7	18.3	0	20.0	18.5	18.7	18.3	0	20.0
		1	14	18.3	18.7	18.2	0	20.0	18.4	18.7	18.2	0	20.0
		8	0	18.4	18.5	18.0	0	20.0	18.4	18.5	18.0	0	20.0
		8	4	18.4	18.5	18.0	0	20.0	18.4	18.5	18.1	0	20.0
		8	7	18.4	18.5	18.0	0	20.0	18.4	18.5	18.1	0	20.0
		15	0	18.3	18.6	18.0	0	20.0	18.3	18.6	18.0	0	20.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131979	132322	132665			131979	132322	132665		
				1710.7 MHz	1745 MHz	1779.3 MHz			1710.7 MHz	1745 MHz	1779.3 MHz		
1.4 MHz	QPSK	1	0	18.2	18.6	18.0	0	20.0	18.2	18.4	17.8	0	20.0
		1	3	18.3	18.6	18.1	0	20.0	18.3	18.5	17.8	0	20.0
		1	5	18.2	18.6	18.0	0	20.0	18.2	18.4	17.8	0	20.0
		3	0	18.2	18.6	18.0	0	20.0	18.2	18.4	17.8	0	20.0
		3	1	18.3	18.6	18.0	0	20.0	18.2	18.5	17.9	0	20.0
		3	3	18.3	18.6	18.0	0	20.0	18.2	18.5	17.9	0	20.0
		6	0	18.2	18.6	18.0	0	20.0	18.2	18.4	17.8	0	20.0
	16QAM	1	0	18.4	19.0	18.2	0	20.0	18.4	18.9	17.9	0	20.0
		1	3	18.4	19.0	18.3	0	20.0	18.5	18.9	18.0	0	20.0
		1	5	18.4	19.0	18.2	0	20.0	18.4	18.8	18.0	0	20.0
		3	0	18.5	18.8	18.1	0	20.0	18.4	18.7	18.0	0	20.0
		3	1	18.6	18.9	18.2	0	20.0	18.4	18.7	18.1	0	20.0
		3	3	18.6	18.8	18.2	0	20.0	18.4	18.7	18.1	0	20.0
		6	0	18.5	18.5	18.2	0	20.0	18.4	18.4	18.1	0	20.0
	64QAM	1	0	18.7	18.6	18.0	0	20.0	18.5	18.8	18.0	0	20.0
		1	3	18.8	18.6	18.1	0	20.0	18.5	18.9	18.0	0	20.0
		1	5	18.7	18.5	18.1	0	20.0	18.5	18.8	17.9	0	20.0
		3	0	18.7	18.5	17.8	0	20.0	18.2	18.7	18.0	0	20.0
		3	1	18.7	18.6	17.9	0	20.0	18.3	18.8	18.1	0	20.0
		3	3	18.7	18.6	17.9	0	20.0	18.3	18.8	18.0	0	20.0
		6	0	18.2	18.7	18.0	0	20.0	18.3	18.4	18.2	0	20.0

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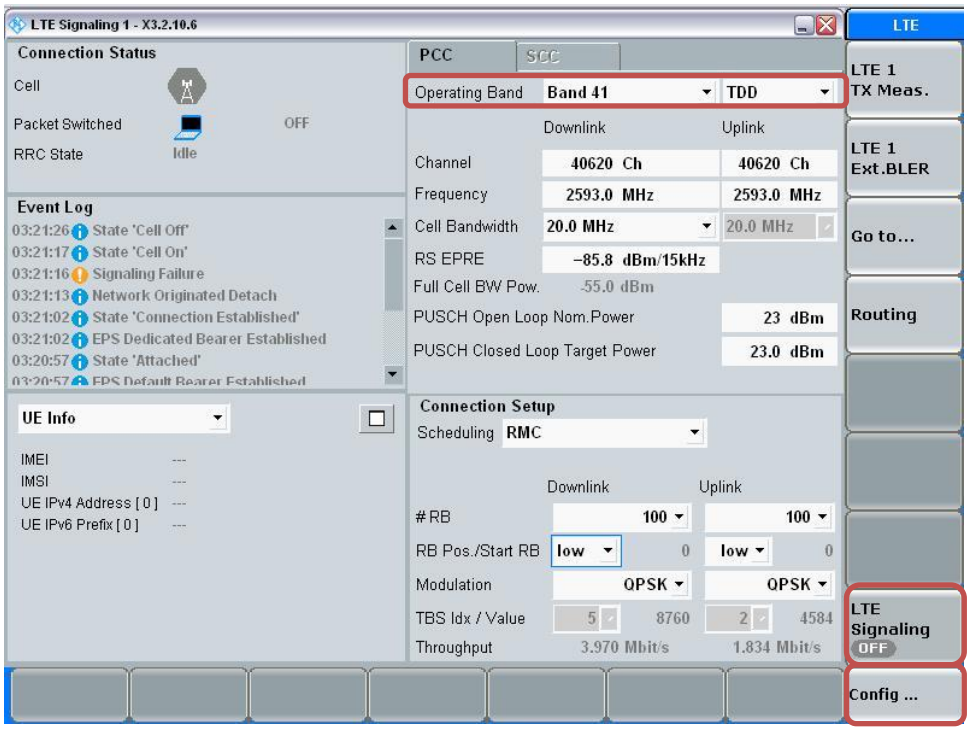
LTE Band TDD Measured Results

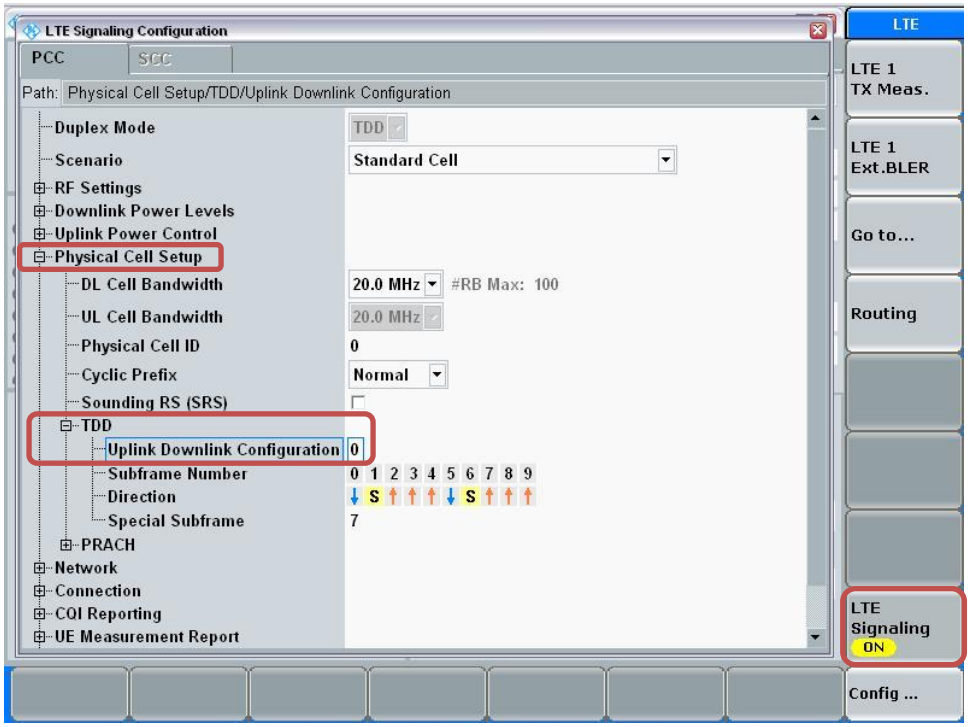
Procedure used to establish SAR test signal for LTE TDD Band

Set to CMW-500 with following parameters:

- Turn the LTE Signaling off using “ON | OFF” key
- Operating Band: Select Band 41 and TDD
- Go to “Config….”



- Go to “Physical Cell Setup”
- Select “TDD” and Set “Uplink Downlink Configuration” to “0”
- Turn the cell on using “ON | OFF” key



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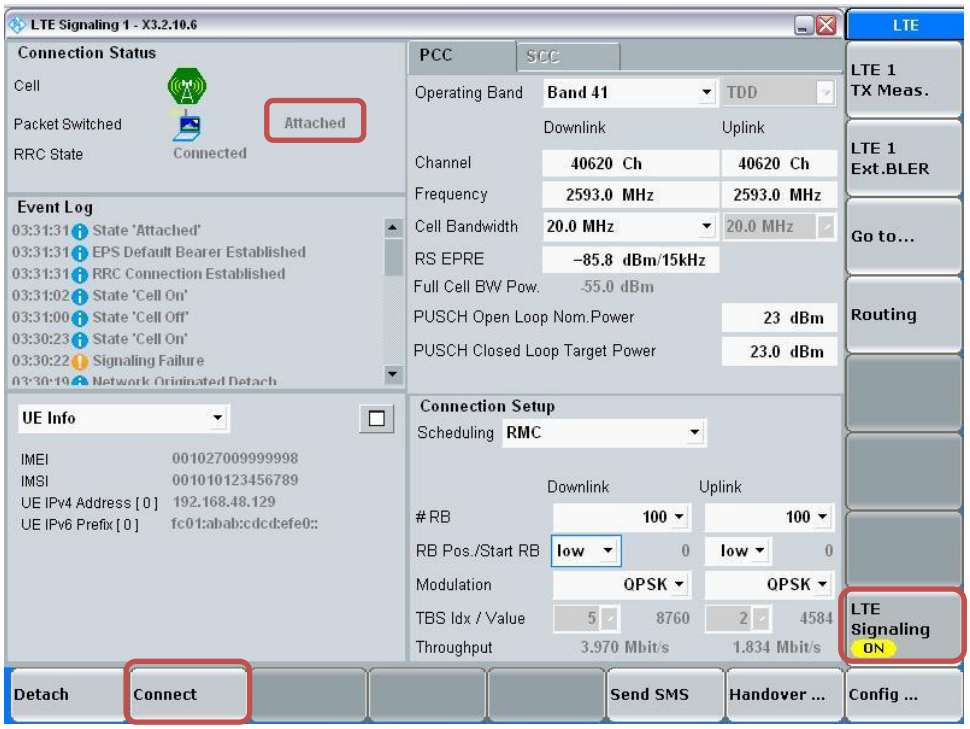
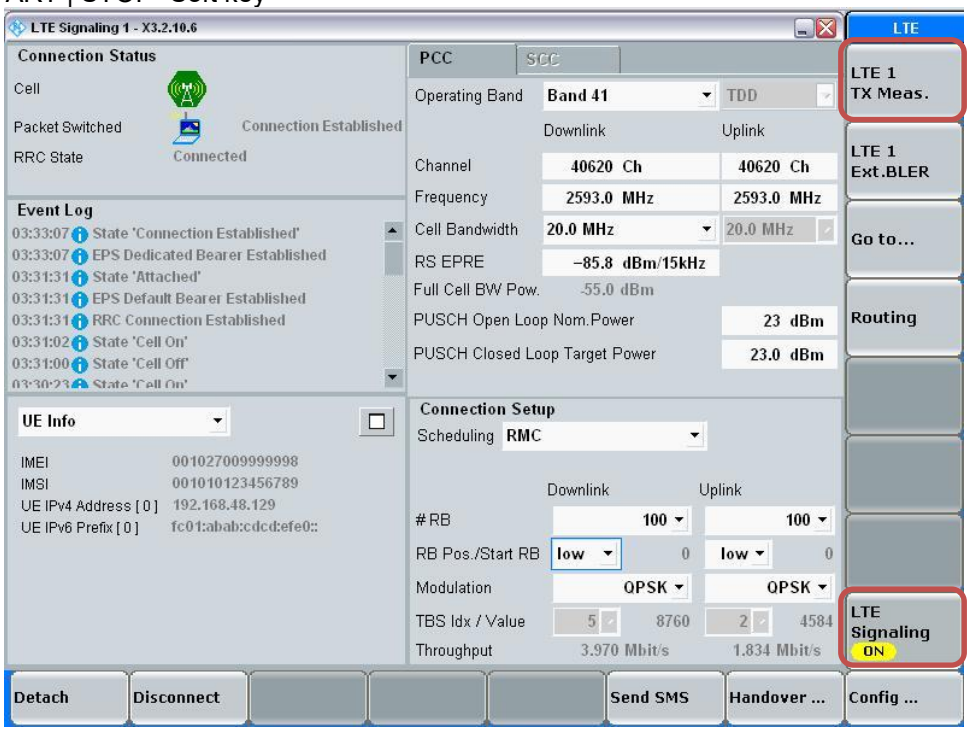
Connect to EUT

- Turn the cell on using “ON | OFF” key
- After EUT is Attached
- Select “Connect”



Max Power Setting

- Select “LTE 1 TX Meas.”
- Press “RESTART | STOP” Soft key



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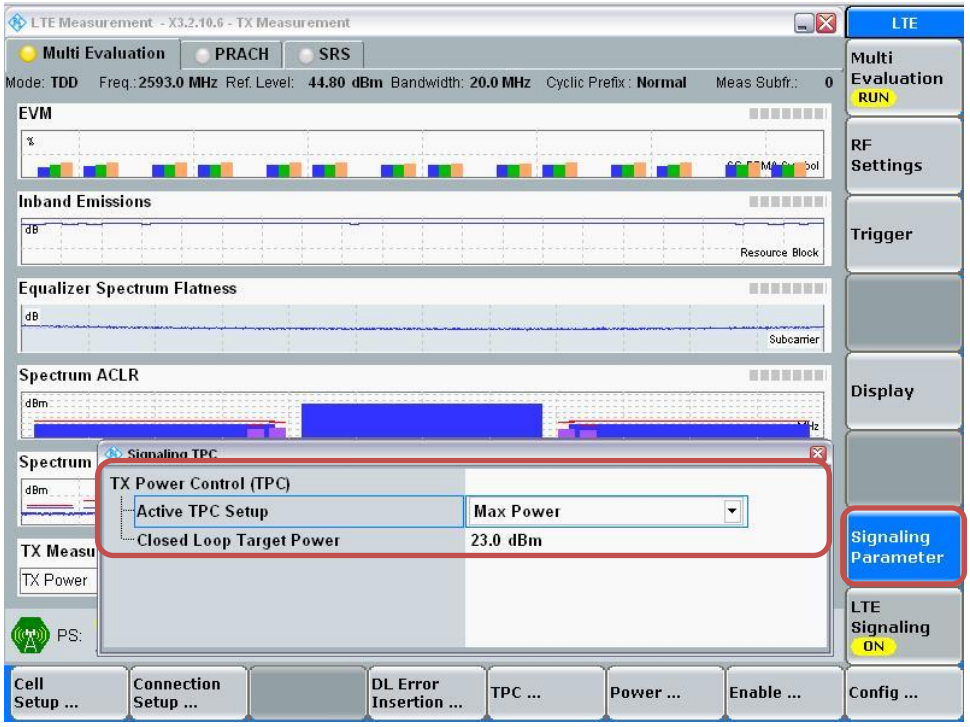
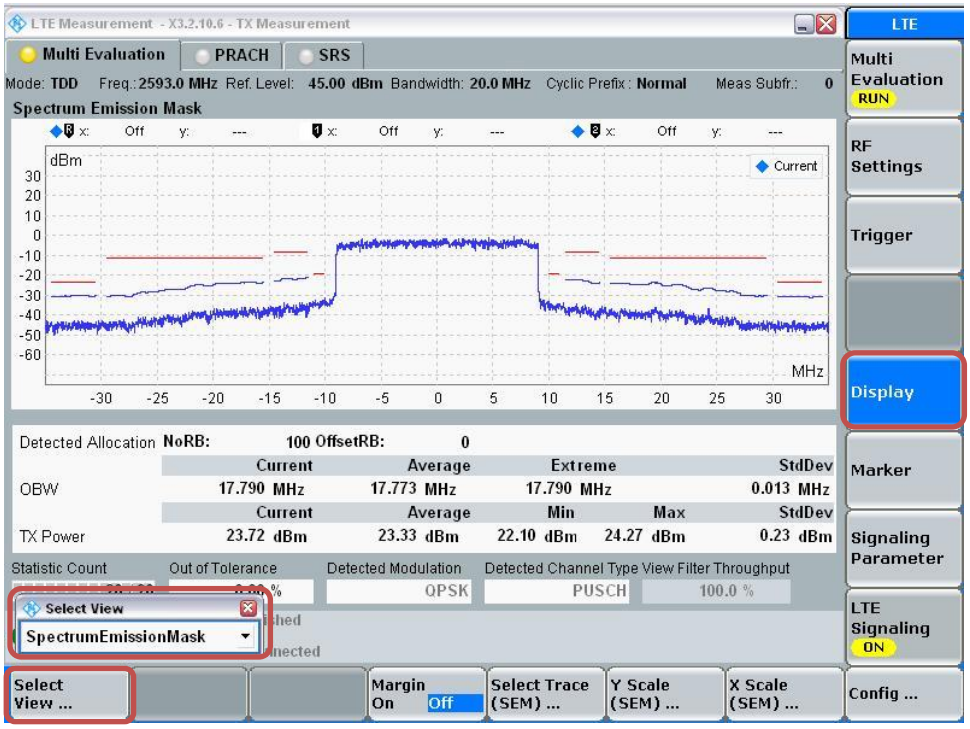
- Select “Signaling Parameter”
- Select “TX Power Control (TPC)” > Select “Active TPC Setup” to “Max Power” > Set “Closed Loop Target Power” to “23 dBm”



View TX Power

- Go to “Display”
- Select “Select View…”
- Select “Spectrum Emission Mask”



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LTE Band 41 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					MPR	Tune-up Limit
				Measured Pwr (dBm)						
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	23.5	23.6	23.3	23.5	23.4	0	24.5
		1	49	23.5	23.5	23.3	23.3	23.2	0	24.5
		1	99	23.4	23.4	23.3	23.2	23.1	0	24.5
		50	0	22.5	22.6	22.3	22.5	22.6	1	23.5
		50	24	22.5	22.5	22.3	22.4	22.4	1	23.5
		50	50	22.4	22.5	22.3	22.4	22.4	1	23.5
		100	0	22.4	22.5	22.3	22.4	22.5	1	23.5
	16QAM	1	0	22.6	22.6	22.1	22.7	22.5	1	23.5
		1	49	22.6	22.4	22.1	22.5	22.3	1	23.5
		1	99	22.5	22.4	22.2	22.5	22.2	1	23.5
		50	0	21.5	21.6	21.3	21.7	21.7	2	22.5
		50	24	21.6	21.5	21.4	21.5	21.6	2	22.5
		50	50	21.5	21.5	21.5	21.5	21.5	2	22.5
		100	0	21.4	21.5	21.4	21.5	21.5	2	22.5
	64QAM	1	0	21.5	21.9	21.2	21.6	21.9	2	22.5
		1	49	21.5	21.8	21.2	21.5	21.8	2	22.5
		1	99	21.5	21.7	21.3	21.3	21.6	2	22.5
		50	0	20.5	20.6	20.3	20.6	20.7	3	21.5
		50	24	20.6	20.6	20.4	20.5	20.6	3	21.5
		50	50	20.5	20.5	20.4	20.5	20.6	3	21.5
		100	0	20.5	20.5	20.4	20.5	20.5	3	21.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	23.5	23.6	23.2	23.5	23.2	0	24.5
		1	37	23.4	23.4	23.3	23.3	23.1	0	24.5
		1	74	23.3	23.4	23.2	23.2	23.0	0	24.5
		36	0	22.4	22.6	22.2	22.4	22.2	1	23.5
		36	20	22.4	22.5	22.2	22.4	22.3	1	23.5
		36	39	22.4	22.5	22.2	22.3	22.2	1	23.5
		75	0	22.3	22.5	22.2	22.3	22.2	1	23.5
	16QAM	1	0	22.5	22.6	22.2	22.6	22.4	1	23.5
		1	37	22.5	22.4	22.3	22.5	22.3	1	23.5
		1	74	22.4	22.4	22.2	22.4	22.1	1	23.5
		36	0	21.5	21.6	21.3	21.6	21.4	2	22.5
		36	20	21.5	21.6	21.3	21.5	21.4	2	22.5
		36	39	21.5	21.5	21.3	21.4	21.3	2	22.5
		75	0	21.4	21.6	21.4	21.5	21.4	2	22.5
	64QAM	1	0	21.4	21.2	21.5	21.5	21.0	2	22.5
		1	37	21.3	21.1	21.6	21.2	20.8	2	22.5
		1	74	21.2	21.0	21.6	21.2	20.8	2	22.5
		36	0	20.5	20.6	20.4	20.5	20.4	3	21.5
		36	20	20.5	20.6	20.4	20.4	20.4	3	21.5
		36	39	20.4	20.6	20.4	20.4	20.4	3	21.5
		75	0	20.4	20.6	20.3	20.4	20.4	3	21.5

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LTE Band 41 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	23.5	23.6	23.2	23.3	23.2	0	24.5
		1	25	23.5	23.5	23.2	23.3	23.2	0	24.5
		1	49	23.5	23.5	23.2	23.2	23.1	0	24.5
		25	0	22.0	22.0	21.8	21.9	21.9	1	23.5
		25	12	22.0	22.0	21.8	21.9	21.8	1	23.5
		25	25	22.0	22.0	21.8	21.8	21.9	1	23.5
		50	0	22.0	22.0	21.8	21.9	21.9	1	23.5
	16QAM	1	0	22.6	22.5	22.2	22.6	22.4	1	23.5
		1	25	22.6	22.5	22.3	22.5	22.3	1	23.5
		1	49	22.6	22.4	22.2	22.5	22.2	1	23.5
		25	0	21.5	21.6	21.3	21.5	21.5	2	22.5
		25	12	21.6	21.6	21.4	21.5	21.5	2	22.5
		25	25	21.5	21.5	21.4	21.5	21.5	2	22.5
		50	0	21.6	21.5	21.4	21.5	21.5	2	22.5
	64QAM	1	0	21.5	21.1	21.5	21.5	21.0	2	22.5
		1	25	21.5	21.1	21.6	21.5	20.9	2	22.5
		1	49	21.5	21.1	21.5	21.3	20.8	2	22.5
		25	0	20.4	20.5	20.3	20.3	20.5	3	21.5
		25	12	20.4	20.6	20.3	20.4	20.5	3	21.5
		25	25	20.4	20.5	20.3	20.3	20.6	3	21.5
		50	0	20.4	20.5	20.3	20.4	20.5	3	21.5

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)								
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr (dBm)				MPR	Tune-up Limit
				39750			40185	40620	41055	41490		
				2506 MHz			2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
5 MHz	QPSK	1	0	20.4	0	21.0	23.6	23.3	23.4	23.5	0	24.5
		1	12	20.4	0	21.0	23.6	23.3	23.5	23.4	0	24.5
		1	24	20.3	0	21.0	23.6	23.3	23.4	23.4	0	24.5
		12	0	20.5	0	21.0	22.5	22.3	22.3	22.3	1	23.5
		12	7	20.5	0	21.0	22.5	22.2	22.3	22.2	1	23.5
		12	13	20.5	0	21.0	22.5	22.3	22.2	22.2	1	23.5
		25	0	20.5	0	21.0	22.5	22.3	22.5	22.5	1	23.5
	16QAM	1	0	20.4	0	21.0	22.5	22.4	22.5	22.5	1	23.5
		1	12	20.4	0	21.0	22.5	22.4	22.6	22.4	1	23.5
		1	24	20.4	0	21.0	22.4	22.4	22.5	22.4	1	23.5
		12	0	20.6	0	21.0	21.5	21.2	21.4	21.4	2	22.5
		12	7	20.5	0	21.0	21.5	21.2	21.4	21.4	2	22.5
		12	13	20.5	0	21.0	21.5	21.2	21.4	21.4	2	22.5
		25	0	20.5	0	21.0	21.6	21.3	21.7	21.7	2	22.5
	64QAM	1	0	20.3	0	21.0	21.8	21.4	21.1	21.1	2	22.5
		1	12	20.4	0	21.0	21.8	21.4	21.1	21.1	2	22.5
		1	24	20.2	0	21.0	21.8	21.4	21.0	21.0	2	22.5
		12	0	20.7	0	21.0	20.6	20.2	20.4	20.4	3	21.5
		12	7	20.6	0	21.0	20.6	20.2	20.4	20.4	3	21.5
		12	13	20.6	0	21.0	20.6	20.2	20.4	20.4	3	21.5
		25	0	20.6	0	21.0	20.5	20.2	20.4	20.4	3	21.5

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9.3.1 LTE Rel.10 Carrier Aggregation

LTE Carrier Aggregation Down Link Combinations;

The DL CA power measurement conditions for various CC's combinations were determined according LTE DL CA SAR Test Exclusion guidance in TCB workshop note (April 2018). Only yellow highlighted cells need power measurement. The following power measurements were performed with a single carrier uplink; CA for this particular project only supports one (1) uplink and up to three (3) downlinks.

LTE Release 10 Carrier Aggregation

Index	2CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
2CC #1	2A-2A			-
2CC #2	2C			-
2CC #3	2A-4A			Y
2CC #4	2A-5A			Y
2CC #5	2A-12A			Y
2CC #6	2A-13A			Y
2CC #7	4A-4A			-
2CC #8	4A-5A			Y
2CC #9	4A-12A			Y
2CC #10	4A-13A			Y
2CC #11	5A-5A			-
2CC #12	5B			-
2CC #13	5A-41A			N
2CC #14	12A-12A			-
2CC #15	12B			-
2CC #16	12A-66A			Y
2CC #17	41A-41A			-
2CC #18	41C		3CC #1	-
2CC #19	66A-66A			-
2CC #20	66C			-

Index	3CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
3CC #1	41A-41C			Y
3CC #2	4A-12A-12A			-

DL CA Measured Results

E-UTRA CA configutation (BCS)		Bands			UL					DL									LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta
		PCC	SCC1	SCC2	PCC					PCC			SCC1			SCC2					
		1st	2nd	3rd	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)			
Inter-Band	2A-4A	2A	4A		QPSK	20	18900	1880	1/0	20	900	1960	20	2175	2132.5				22.8	22.7	-0.2
		4A	2A		QPSK	20	20050	1720	1/0	20	2050	2120	20	900	1960				23.6	23.6	0.0
	2A-5A	2A	5A		QPSK	20	18900	1880	1/0	20	900	1960	10	2525	881.5				22.8	22.7	-0.1
		5A	2A		QPSK	10	20450	829	1/0	10	2450	874	20	900	1960				24.3	23.7	-0.6
	2A-12A	2A	12A		QPSK	20	18900	1880	1/0	20	900	1960	10	5095	737.5				22.8	22.5	-0.3
		12A	2A		QPSK	10	23130	711	1/49	10	5130	741	20	900	1960				23.9	23.7	-0.2
	2A-13A	2A	13A		QPSK	20	18900	1880	1/0	20	900	1960	10	5230	751				22.8	22.7	-0.2
		13A	2A		QPSK	10	23230	782	1/0	10	751	5230	20	900	1960				23.5	23.7	0.1
	4A-5A	4A	5A		QPSK	20	20050	1720	1/0	20	2050	2120	10	2525	881.5				23.6	23.6	0.0
		5A	4A		QPSK	10	20450	829	1/0	10	2450	874	20	2175	2132.5				24.3	23.7	-0.6
	4A-12A	4A	12A		QPSK	20	20050	1720	1/0	20	2050	2120	10	5095	737.5				23.6	23.6	0.0
		12A	4A		QPSK	10	23130	711	1/49	10	5130	741	20	2175	2132.5				23.9	23.8	-0.1
	4A-13A	4A	13A		QPSK	20	20050	1720	1/0	20	2050	2120	10	5230	751				23.6	23.6	0.0
		13A	4A		QPSK	10	23230	782	1/0	10	751	5230	20	2175	2132.5				23.5	23.7	0.2
	5A-41A	5A	41A		QPSK	10	20450	829	1/0	10	2450	874	20	40620	2593				24.3	23.7	-0.6
	12A-66A	12A	66A		QPSK	10	23130	711	1/49	10	5130	741	20	66786	2145				23.9	23.7	-0.2
		66A	12A		QPSK	20	132072	1720	1/0	20	66536	2120	10	5095	737.5				23.6	23.7	0.2
	4A-12A-12A	4A	12A	12A	QPSK	20	20050	1720	1/0	20	2050	2120	5	5035	731.5	5	5155	743.5	23.6	23.5	-0.1
ra Non-contiguo	2A-2A	2A	2A		QPSK	20	18900	1880	1/0	20	900	1960	20	1100	1980				22.8	22.5	-0.3
	4A-4A	4A	4A		QPSK	20	20050	1720	1/0	20	2050	2120	20	2300	2145				23.6	23.6	0.0
	5A-5A	5A	5A		QPSK	10	20450	829	1/0	10	2450	874	10	2600	889				24.3	23.8	-0.5
	12A-12A	12A	12A		QPSK	5	23095	707.5	1/24	5	5095	737.5	5	5155	743.5				23.9	23.8	-0.1
	41A-41A	41A	41A		QPSK	20	40185	2549.5	1/0	20	40185	2549.5	20	41490	2680				23.6	23.6	0.0
	41A-41C	41A	41C	41C	QPSK	20	40185	2549.5	1/0	20	40185	2549.5	20	40620	2593	20	40818	2612.8	23.6	23.6	0.0
		41C	41C	41A	QPSK	20	40185	2549.5	1/0	20	40185	2549.5	20	40383	2569.3	20	40620	2593	23.6	23.6	0.0
	66A-66A	66A	66A		QPSK	20	132072	1720	1/0	20	66536	2120	20	67036	2170				23.6	23.7	0.2
ntra Contiguous	2C	2C	2C		QPSK	20	18900	1880	1/0	20	900	1960	20	1098	1979.8				22.8	22.5	-0.3
	5B	5B	5B		QPSK	10	20450	829	1/0	10	2450	874	10	2549	883.9				24.3	23.8	-0.5
	12B	12B	12B		QPSK	5	23035	701.5	1/24	5	5035	731.5	10	5107	738.7				23.9	23.8	-0.1
	66C	66C	66C		QPSK	20	132072	1720	1/0	20	66536	2120	20	66734	2139.8				23.6	23.7	0.2

Note:

1_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 dB.

2_When the same frequency band is used for both contiguous and non-contiguous in DL CA Intra band, power was measured using the configuration with the largest aggregated bandwidth and maximum output power among the contiguous and non-contiguous in DL CA Intra band configurations

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9.4 Wi-Fi 2.4 GHz (DTS Band)

Measured Results

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm)		
						Meas Pwr	Tune-up Limit	SAR Test (Yes/No)	Meas Pwr	Tune-up Limit	SAR Test (Yes/No)
WLAN Ant.1	2.4	802.11b	1 Mbps	1	2412.0	18.5	19.0	Yes	11.8	12.0	Yes
				6	2437.0	18.1			11.6		
				11	2462.0	18.3			11.8		
				12	2467.0	7.0	8.0	No	7.0	8.0	No
				13	2472.0	7.2			7.2		
		802.11g	6 Mbps	1	2412.0	Not Required	17.5	No	Not Required	12.0	No
				6	2437.0						
				11	2462.0						
				12	2467.0		8.0			8.0	
				13	2472.0						
		802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	17.5	No	Not Required	12.0	No
				6	2437.0						
				11	2462.0						
				12	2467.0		7.0			7.0	
				13	2472.0						

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm)		
						Meas Pwr	Tune-up Limit	SAR Test (Yes/No)	Meas Pwr	Tune-up Limit	SAR Test (Yes/No)
WLAN Ant.2	2.4	802.11b	1 Mbps	1	2412.0	18.3	19.0	Yes	11.5	12.0	Yes
				6	2437.0	18.0			11.0		
				11	2462.0	18.2			11.3		
				12	2467.0	7.2	8.0	No	7.2	8.0	No
				13	2472.0	7.1			7.1		
		802.11g	6 Mbps	1	2412.0	Not Required	17.5	No	Not Required	12.0	No
				6	2437.0						
				11	2462.0						
				12	2467.0		8.0			8.0	
				13	2472.0						
		802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	17.5	No	Not Required	12.0	No
				6	2437.0						
				11	2462.0						
				12	2467.0		7.0			7.0	
				13	2472.0						

Note(s):

1. SAR is not required for 802.11g/n modes when the adjusted SAR for 802.11b is < 1.2 W/kg.
2. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
3. Additionally, 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. Refer to §6.3.

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

Measured Results

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm)		
						Meas Pwr	Tune-up Limit	SAR Test (Yes/No)	Meas Pwr	Tune-up Limit	SAR Test (Yes/No)
WLAN Ant.1	5.3 (U-NII 2A)	802.11a	6 Mbps	52	5260.0	15.9	16.5	Yes	Not Required	12.0	No
				56	5280.0	15.8					
				60	5300.0	15.7					
				64	5320.0	16.0					
		802.11n (HT20)	6.5 Mbps	52	5260.0	15.6	16.5	No	Not Required	12.0	No
				56	5280.0	15.6					
				60	5300.0	15.5					
				64	5320.0	15.8					
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	12.0	No
				62	5310.0						
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	15.6	16.5	No	Not Required	12.0	No
				56	5280.0	15.6					
				60	5300.0	15.4					
				64	5320.0	15.8					
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	12.0	No
				62	5310.0						
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	14.0	No	11.6	12.0	Yes
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	Not Required	14.5	No	Not Required	12.0	No
				120	5600.0						
				124	5620.0						
				144	5720.0						
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	14.5	No	Not Required	12.0	No
				120	5600.0						
				124	5620.0						
				144	5720.0						
		802.11n (HT40)	13.5 Mbps	102	5510.0	15.6	16.0	Yes	Not Required	12.0	No
				118	5590.0	14.9					
				126	5630.0	14.9					
				142	5710.0	14.9					
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	14.5	No	Not Required	12.0	No
				120	5600.0						
				124	5620.0						
				144	5720.0						
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	15.6	16.0	No	Not Required	12.0	No
				118	5590.0	14.9					
				126	5630.0	14.8					
				142	5710.0	14.8					
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	14.0	No	11.4	12.0	Yes
				122	5610.0				11.3		
				138	5690.0				10.8		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	Not Required	16.0	Yes	Not Required	12.0	No
				157	5785.0						
				165	5825.0						
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No	Not Required	12.0	No
				157	5785.0						
				165	5825.0						
		802.11n (HT40)	13.5 Mbps	151	5755.0	15.1	16.0	Yes	Not Required	12.0	No
				159	5795.0	15.6					
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No	Not Required	12.0	No
				157	5785.0						
				165	5825.0						
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	15.0	16.0	No	Not Required	12.0	No
				159	5795.0	15.5					
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	14.0	No	11.3	12.0	Yes

Note(s):

1. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.
2. When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac/ax modes, the channel in the lower order/sequence 802.11 mode (i.e. a, g, n ac) is selected.
3. When UNII band 2A's specified maximum output power is higher or same than UNII band 1, begin SAR measurement in UNII band 2A; and if the highest reported SAR for UNII band 2A is
   - ≤ 1.2 W/kg, SAR is not required for UNII band 1
   - > 1.2 W/kg, both bands should be tested independently for SAR.

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Measured Results

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm)		
						Meas Pwr	Tune-up Limit	SAR Test (Yes/No)	Meas Pwr	Tune-up Limit	SAR Test (Yes/No)
WLAN Ant.2	5.3 (U-NII 2A)	802.11a	6 Mbps	52	5260.0	15.8	16.5	Yes	Not Required	12.0	No
				56	5280.0	15.9					
				60	5300.0	15.6					
				64	5320.0	15.7					
		802.11n (HT20)	6.5 Mbps	52	5260.0	15.6	16.5	No	Not Required	12.0	No
				56	5280.0	15.6					
				60	5300.0	15.5					
				64	5320.0	15.8					
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	12.0	No
				62	5310.0						
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	15.6	16.5	No	Not Required	12.0	No
				56	5280.0	15.6					
				60	5300.0	15.4					
				64	5320.0	15.5					
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	12.0	No
				62	5310.0						
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	14.0	No	10.5	12.0	Yes
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	Not Required	14.5	No	Not Required	12.0	No
				120	5600.0						
				124	5620.0						
				144	5720.0						
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	14.5	No	Not Required	12.0	No
				120	5600.0						
				124	5620.0						
				144	5720.0						
		802.11n (HT40)	13.5 Mbps	102	5510.0	15.3	16.0	Yes	Not Required	12.0	No
				118	5590.0	15.7					
				126	5630.0	15.4					
				142	5710.0	15.8					
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	14.5	No	Not Required	12.0	No
				120	5600.0						
				124	5620.0						
				144	5720.0						
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	15.3	16.0	No	Not Required	12.0	No
				118	5590.0	15.6					
				126	5630.0	15.3					
				142	5710.0	15.7					
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	14.0	No	11.4	12.0	Yes
				122	5610.0				11.6		
				138	5690.0				11.9		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	Not Required	16.0	Yes	Not Required	12.0	No
				157	5785.0						
				165	5825.0						
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No	Not Required	12.0	No
				157	5785.0						
				165	5825.0						
		802.11n (HT40)	13.5 Mbps	151	5755.0	15.1	16.0	Yes	Not Required	12.0	No
				159	5795.0	15.1					
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No	Not Required	12.0	No
				157	5785.0						
				165	5825.0						
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	15.1	16.0	No	Not Required	12.0	No
				159	5795.0	15.0					
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	14.0	No	11.5	12.0	Yes

Note(s):

1. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.
2. When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac/ax modes, the channel in the lower order/sequence 802.11 mode (i.e. a, g, n ac) is selected.
3. When UNII band 2A's specified maximum output power is higher or same than UNII band 1, begin SAR measurement in UNII band 2A; and if the highest reported SAR for UNII band 2A is
   - ≤ 1.2 W/kg, SAR is not required for UNII band 1
   - > 1.2 W/kg, both bands should be tested independently for SAR.

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9.6 Bluetooth

Measured Results

Band (GHz)	Mode	Ch #	Freq. (MHz)	Maximum Average Power (dBm)	
				Meas Pwr	Tune-up Limit
2.4	GFSK	0	2402	14.2	15.0
		39	2441	14.1	
		78	2480	13.5	
	EDR, 8-DPSK	0	2402	12.3	
		39	2441	12.0	
		78	2480	12.2	
	LE, GFSK-1M	0	2402	11.5	12.0
		19	2440	11.2	
		39	2480	11.2	
	LE, GFSK-2M	0	2402	11.2	
		19	2440	10.9	
		39	2480	11.0	

Note(s):

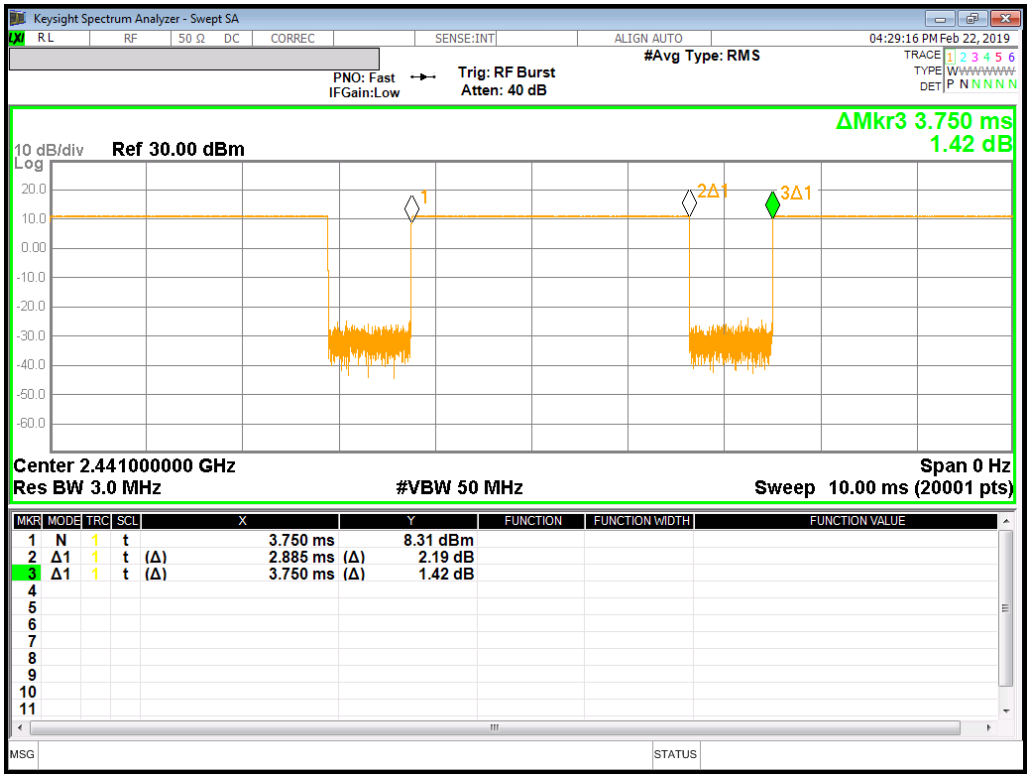
SAR test is evaluated at GFSK mode in Bluetooth

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH5	2.885	3.750	76.9%	1.30

Duty Cycle plots

GFSK



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10. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

Reported SAR(W/kg) for WWAN= Measured SAR *Tune-up Scaling Factor

Reported SAR(W/kg) for Wi-Fi and Bluetooth= Measured SAR * Tune-up scaling factor * Duty Cycle scaling factor

KDB 447498 D01 General RF Exposure Guidance:

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

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

KDB 648474 D04 Handset SAR:

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

KDB 648474 D04 Handset SAR (Phablet Only):

When hotspot mode does not apply, 10-g Extremity SAR is required for all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg .

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

KDB 941225 D01 SAR test for 3G devices:

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.

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KDB 248227 D01 SAR meas for 802.11:

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

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

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

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

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10.1 GSM 850

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Head	GPRS 2 Slot	N/A	0	Left Touch	190	836.6	31.0	29.8	0.082	0.109	1	
					Left Tilt	190	836.6	31.0	29.8	0.064	0.085		
					Right Touch	190	836.6	31.0	29.8	0.096	0.127		1
					Right Tilt	190	836.6	31.0	29.8	0.071	0.094		
	Body-worn	GPRS 2 Slot	N/A	15	Rear	190	836.6	31.0	29.8	0.110	0.146		2
					Front	190	836.6	31.0	29.8	0.082	0.109		
	Hotspot	GPRS 2 Slot	N/A	10	Rear	190	836.6	31.0	29.8	0.219	0.290		3
					Front	190	836.6	31.0	29.8	0.173	0.229		
					Edge 2	190	836.6	31.0	29.8	0.058	0.077		
					Edge 3	190	836.6	31.0	29.8	0.131	0.173		
					Edge 4	190	836.6	31.0	29.8	0.020	0.026		
Main.1	Hotspot	GPRS 2 Slot	N/A	10	Rear	190	836.6	31.0	29.8	0.187	0.248	2	

10.2 GSM1900

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Head	GPRS 4 Slot	N/A	0	Left Touch	661	1880.0	24.8	24.5	0.065	0.070	1	
					Left Tilt	661	1880.0	24.8	24.5	0.029	0.031		
					Right Touch	661	1880.0	24.8	24.5	0.110	0.119		4
					Right Tilt	661	1880.0	24.8	24.5	0.046	0.050		
	Body-worn	GPRS 4 Slot	N/A	15	Rear	661	1880.0	24.8	24.5	0.223	0.241		
					Front	661	1880.0	24.8	24.5	0.230	0.248		5
	Hotspot	GPRS 4 Slot	N/A	10	Rear	661	1880.0	24.8	24.5	0.454	0.490		
					Front	661	1880.0	24.8	24.5	0.509	0.549		
					Edge 2	661	1880.0	24.8	24.5	0.124	0.134		
					Edge 3	512	1850.2	24.8	24.2	1.170	1.356		6
						661	1880.0	24.8	24.5	1.160	1.252		
						810	1909.8	24.8	24.6	1.040	1.094		
					Edge 4	661	1880.0	24.8	24.5	0.043	0.046		
Main.1	Hotspot	GPRS 4 Slot	N/A	10	Edge 3	512	1850.2	24.8	24.2	1.090	1.263	2	

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Product Specific-10g	GPRS 4 Slot	N/A	0	Edge 3	512	1850.2	24.8	24.2	1.270	1.472	1	7
Main 1	Product Specific-10g	GPRS 4 Slot	N/A	0	Edge 3	512	1850.2	24.8	24.2	1.090	1.263	2	

Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

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10.3 W-CDMA Band II

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Main.1	Head	Rel.99 RMC	Off	0	Left Touch	9400	1880.0	24.0	22.7	0.125	0.167	1	
					Left Tilt	9400	1880.0	24.0	22.7	0.054	0.072		
					Right Touch	9400	1880.0	24.0	22.7	0.177	0.237		8
					Right Tilt	9400	1880.0	24.0	22.7	0.072	0.096		
	Body-worn	Rel.99 RMC	Off	15	Rear	9400	1880.0	24.0	22.7	0.353	0.473		9
					Front	9400	1880.0	24.0	22.7	0.322	0.431		
	Hotspot	Rel.99 RMC	On	10	Rear	9400	1880.0	19.0	18.4	0.194	0.223		
					Front	9400	1880.0	19.0	18.4	0.211	0.242		
					Edge 2	9400	1880.0	19.0	18.4	0.050	0.057		
					Edge 3	9400	1880.0	19.0	18.4	0.406	0.466		10
					Edge 4	9400	1880.0	19.0	18.4	0.049	0.056		
Main.1	Hotspot	Rel.99 RMC	On	10	Edge 3	9400	1880.0	19.0	18.4	0.377	0.433	2	

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Main.1	Product Specific-10g	Rel.99 RMC	Off	9	Edge 3	9400	1880.0	24.0	22.7	0.949	1.271	1	11
			On	0		9400	1880.0	19.0	18.4	0.733	0.842		
Main.1	Product Specific-10g	Rel.99 RMC	Off	9	Edge 3	9400	1880.0	24.0	22.7	0.941	1.260	2	

10.4 W-CDMA Band IV

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Head	Rel.99 RMC	Off	0	Left Touch	1413	1732.6	24.0	23.3	0.225	0.265	1	
					Left Tilt	1413	1732.6	24.0	23.3	0.080	0.094		
					Right Touch	1413	1732.6	24.0	23.3	0.227	0.267		12
					Right Tilt	1413	1732.6	24.0	23.3	0.087	0.102		
	Body-worn	Rel.99 RMC	Off	15	Rear	1413	1732.6	24.0	23.3	0.515	0.606		
					Front	1413	1732.6	24.0	23.3	0.538	0.633		13
	Hotspot	Rel.99 RMC	On	10	Rear	1413	1732.6	20.0	19.2	0.286	0.343		
					Front	1413	1732.6	20.0	19.2	0.365	0.437		
					Edge 2	1413	1732.6	20.0	19.2	0.052	0.062		
					Edge 3	1413	1732.6	20.0	19.2	0.479	0.574		14
					Edge 4	1413	1732.6	20.0	19.2	0.052	0.062		
Main.1	Hotspot	Rel.99 RMC	On	10	Edge 3	1413	1732.6	20.0	19.2	0.399	0.478	2	

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Main.1	Product Specific-10g	Rel.99 RMC	Off	8	Front	1413	1732.6	24.0	23.3	0.758	0.892	1	
			On	0		1413	1732.6	20.0	19.2	0.910	1.091		
			Off	9	Edge 3	1413	1732.6	24.0	23.3	1.050	1.236		
			On	0		1413	1732.6	20.0	19.2	1.410	1.691		15
Main.1	Product Specific-10g	Rel.99 RMC	On	0	Edge 3	1413	1732.6	20.0	19.2	1.410	1.691	2	

Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

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10.5 W-CDMA Band V

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Head	Rel.99 RMC	N/A	0	Left Touch	4183	836.6	25.0	23.9	0.135	0.173	1	
					Left Tilt	4183	836.6	25.0	23.9	0.119	0.153		
					Right Touch	4183	836.6	25.0	23.9	0.171	0.220		16
					Right Tilt	4183	836.6	25.0	23.9	0.118	0.152		
	Body-worn	Rel.99 RMC	N/A	15	Rear	4183	836.6	25.0	23.9	0.218	0.280		17
					Front	4183	836.6	25.0	23.9	0.176	0.226		
	Hotspot	Rel.99 RMC	N/A	10	Rear	4183	836.6	25.0	23.9	0.438	0.563		18
					Front	4183	836.6	25.0	23.9	0.387	0.497		
					Edge 2	4183	836.6	25.0	23.9	0.149	0.191		
					Edge 3	4183	836.6	25.0	23.9	0.305	0.392		
					Edge 4	4183	836.6	25.0	23.9	0.040	0.051		
Main.1	Hotspot	Rel.99 RMC	N/A	10	Rear	4183	836.6	25.0	23.9	0.435	0.559	2	

10.6 LTE Band 2 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Head	QPSK	Off	0	Left Touch	18900	1880.0	1	0	24.5	22.8	0.118	0.173	1	
								50	24	23.5	21.8	0.093	0.137		
					Left Tilt	18900	1880.0	1	0	24.5	22.8	0.053	0.078		
								50	24	23.5	21.8	0.040	0.059		
					Right Touch	18900	1880.0	1	0	24.5	22.8	0.161	0.236		19
								50	24	23.5	21.8	0.132	0.195		
					Right Tilt	18900	1880.0	1	0	24.5	22.8	0.068	0.100		
								50	24	23.5	21.8	0.056	0.083		
	Body-worn	QPSK	Off	15	Rear	18900	1880.0	1	0	24.5	22.8	0.354	0.519		20
								50	24	23.5	21.8	0.270	0.398		
					Front	18900	1880.0	1	0	24.5	22.8	0.341	0.500		
								50	24	23.5	21.8	0.269	0.396		
	Hotspot	QPSK	On	10	Rear	18900	1880.0	1	0	19.5	18.5	0.182	0.231		
								50	24	19.5	18.4	0.172	0.221		
					Front	18900	1880.0	1	0	19.5	18.5	0.192	0.243		
								50	24	19.5	18.4	0.179	0.230		
					Edge 2	18900	1880.0	1	0	19.5	18.5	0.050	0.063		
								50	24	19.5	18.4	0.046	0.060		
					Edge 3	18900	1880.0	1	0	19.5	18.5	0.445	0.564		21
								50	24	19.5	18.4	0.433	0.556		
					Edge 4	18900	1880.0	1	0	19.5	18.5	0.023	0.029		
								50	24	19.5	18.4	0.026	0.034		
Main.1	Hotspot	QPSK	On	10	Edge 3	18900	1880	1	0	19.5	18.5	0.434	0.550	2	

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		10-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
Main.1	Product Specific-10g	QPSK	Off	9	Edge 3	18900	1880.0	1	0	24.5	22.8	1.060	1.555		22
			On	0				1	0	19.5	18.4	0.873	1.115		
Main.1	Product Specific-10g	QPSK	Off	9	Edge 3	18900	1880	1	0	24.5	22.8	0.810	1.188	2	

Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

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10.7 LTE Band 5 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Head	QPSK	N/A	0	Left Touch	20525	836.5	1	0	25.5	24.2	0.096	0.130	1	
								25	12	24.5	23.1	0.079	0.108		
					Left Tilt	20525	836.5	1	0	25.5	24.2	0.091	0.123		
								25	12	24.5	23.1	0.076	0.104		
					Right Touch	20525	836.5	1	0	25.5	24.2	0.109	0.147		23
								25	12	24.5	23.1	0.097	0.133		
					Right Tilt	20525	836.5	1	0	25.5	24.2	0.073	0.099		
								25	12	24.5	23.1	0.066	0.090		
	Body-worn	QPSK	N/A	15	Rear	20525	836.5	1	0	25.5	24.2	0.179	0.242		24
								25	12	24.5	23.1	0.158	0.216		
					Front	20525	836.5	1	0	25.5	24.2	0.158	0.214		
								25	12	24.5	23.1	0.130	0.178		
	Hotspot	QPSK	N/A	10	Rear	20525	836.5	1	0	25.5	24.2	0.390	0.527		25
								25	12	24.5	23.1	0.340	0.465		
					Front	20525	836.5	1	0	25.5	24.2	0.337	0.456		
								25	12	24.5	23.1	0.297	0.406		
					Edge 2	20525	836.5	1	0	25.5	24.2	0.140	0.189		
								25	12	24.5	23.1	0.121	0.166		
					Edge 3	20525	836.5	1	0	25.5	24.2	0.229	0.310		
								25	12	24.5	23.1	0.199	0.272		
					Edge 4	20525	836.5	1	0	25.5	24.2	0.037	0.051		
								25	12	24.5	23.1	0.033	0.045		
Main.1	Hotspot	QPSK	N/A	10	Rear	20525	836.5	1	0	25.5	24.2	0.373	0.504	2	

10.8 LTE Band 12 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Head	QPSK	N/A	0	Left Touch	23095	707.5	1	25	25.0	23.8	0.069	0.092	1	
								25	12	24.0	22.8	0.054	0.070		
					Left Tilt	23095	707.5	1	25	25.0	23.8	0.072	0.096		26
								25	12	24.0	22.8	0.057	0.074		
					Right Touch	23095	707.5	1	25	25.0	23.8	0.069	0.092		
								25	12	24.0	22.8	0.056	0.073		
					Right Tilt	23095	707.5	1	25	25.0	23.8	0.058	0.077		
								25	12	24.0	22.8	0.047	0.061		
	Body-worn	QPSK	N/A	15	Rear	23095	707.5	1	25	25.0	23.8	0.157	0.208		27
								25	12	24.0	22.8	0.126	0.164		
					Front	23095	707.5	1	25	25.0	23.8	0.139	0.185		
								25	12	24.0	22.8	0.110	0.144		
	Hotspot	QPSK	N/A	10	Rear	23095	707.5	1	25	25.0	23.8	0.241	0.320		28
								25	12	24.0	22.8	0.194	0.253		
					Front	23095	707.5	1	25	25.0	23.8	0.173	0.230		
								25	12	24.0	22.8	0.140	0.183		
					Edge 2	23095	707.5	1	25	25.0	23.8	0.092	0.123		
								25	12	24.0	22.8	0.074	0.096		
					Edge 3	23095	707.5	1	25	25.0	23.8	0.129	0.171		
								25	12	24.0	22.8	0.104	0.136		
					Edge 4	23095	707.5	1	25	25.0	23.8	0.088	0.116		
								25	12	24.0	22.8	0.069	0.090		
Main.1	Hotspot	QPSK	N/A	10	Rear	23095	707.5	1	25	25.0	23.8	0.234	0.311	2	

Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

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10.9 LTE Band 13 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Head	QPSK	N/A	0	Left Touch	23230	782.0	1	0	25.0	23.5	0.120	0.169	1	
								25	0	24.0	22.3	0.096	0.142		
					Left Tilt	23230	782.0	1	0	25.0	23.5	0.105	0.148		
								25	0	24.0	22.3	0.081	0.120		
					Right Touch	23230	782.0	1	0	25.0	23.5	0.151	0.212		29
								25	0	24.0	22.3	0.121	0.179		
					Right Tilt	23230	782.0	1	0	25.0	23.5	0.118	0.166		
								25	0	24.0	22.3	0.088	0.130		
	Body-worn	QPSK	N/A	15	Rear	23230	782.0	1	0	25.0	23.5	0.237	0.333		30
								25	0	24.0	22.3	0.184	0.273		
					Front	23230	782.0	1	0	25.0	23.5	0.206	0.290		
								25	0	24.0	22.3	0.159	0.236		
	Hotspot	QPSK	N/A	10	Rear	23230	782.0	1	0	25.0	23.5	0.540	0.759		31
								25	0	24.0	22.3	0.331	0.491		
					Front	23230	782.0	1	0	25.0	23.5	0.363	0.510		
								25	0	24.0	22.3	0.280	0.415		
					Edge 2	23230	782.0	1	0	25.0	23.5	0.120	0.169		
								25	0	24.0	22.3	0.095	0.141		
					Edge 3	23230	782.0	1	0	25.0	23.5	0.243	0.342		
								25	0	24.0	22.3	0.184	0.273		
					Edge 4	23230	782.0	1	0	25.0	23.5	0.074	0.104		
								25	0	24.0	22.3	0.055	0.082		
Main.1	Hotspot	QPSK	N/A	10	Rear	23230	782.0	1	0	25.0	23.5	0.513	0.721	2	

10.10 LTE Band 26 (15MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Head	QPSK	N/A	0	Left Touch	26865	831.5	1	0	25.0	24.0	0.107	0.135	1	
								36	20	24.0	22.9	0.083	0.107		
					Left Tilt	26865	831.5	1	0	25.0	24.0	0.098	0.123		
								36	20	24.0	22.9	0.074	0.096		
					Right Touch	26865	831.5	1	0	25.0	24.0	0.127	0.160		32
								36	20	24.0	22.9	0.096	0.124		
					Right Tilt	26865	831.5	1	0	25.0	24.0	0.082	0.103		
								36	20	24.0	22.9	0.060	0.077		
	Body-worn	QPSK	N/A	15	Rear	26865	831.5	1	0	25.0	24.0	0.223	0.281		33
								36	20	24.0	22.9	0.172	0.222		
					Front	26865	831.5	1	0	25.0	24.0	0.190	0.239		
								36	20	24.0	22.9	0.148	0.191		
	Hotspot	QPSK	N/A	10	Rear	26865	831.5	1	0	25.0	24.0	0.451	0.568		34
								36	20	24.0	22.9	0.345	0.445		
					Front	26865	831.5	1	0	25.0	24.0	0.430	0.542		
								36	20	24.0	22.9	0.330	0.426		
					Edge 2	26865	831.5	1	0	25.0	24.0	0.133	0.168		
								36	20	24.0	22.9	0.103	0.133		
					Edge 3	26865	831.5	1	0	25.0	24.0	0.260	0.328		
								36	20	24.0	22.9	0.197	0.254		
					Edge 4	26865	831.5	1	0	25.0	24.0	0.036	0.045		
								36	20	24.0	22.9	0.029	0.038		
Main.1	Hotspot	QPSK	N/A	10	Rear	26865	831.5	1	0	25.0	24.0	0.419	0.528	2	

Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

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10.12 LTE Band 66 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
Main 1	Head	QPSK	Off	0	Left Touch	132072	1720.0	1	0	25.0	23.6	0.216	0.300	1	35
								50	0	24.0	22.5	0.174	0.248		
					Left Tilt	132072	1720.0	1	0	25.0	23.6	0.053	0.074		
								50	0	24.0	22.5	0.043	0.061		
					Right Touch	132072	1720.0	1	0	25.0	23.6	0.184	0.256		
								50	0	24.0	22.5	0.166	0.237		
					Right Tilt	132072	1720.0	1	0	25.0	23.6	0.081	0.113		
								50	0	24.0	22.5	0.064	0.091		
	Body-worn	QPSK	Off	15	Rear	132072	1720.0	1	0	25.0	23.6	0.467	0.649		
								50	0	24.0	22.5	0.371	0.529		
					Front	132072	1720.0	1	0	25.0	23.6	0.511	0.711		36
								50	0	24.0	22.5	0.404	0.576		
	Hotspot	QPSK	On	10	Rear	132322	1745.0	1	0	20.0	18.4	0.387	0.554		
								50	0	20.0	18.6	0.393	0.545		
					Front	132322	1745.0	1	0	20.0	18.4	0.461	0.660		
								50	0	20.0	18.6	0.465	0.645		
					Edge 2	132322	1745.0	1	0	20.0	18.4	0.073	0.104		
								50	0	20.0	18.6	0.078	0.108		
					Edge 3	132322	1745.0	1	0	20.0	18.4	0.545	0.781		37
								50	0	20.0	18.6	0.562	0.779		
					Edge 4	132322	1745.0	1	0	20.0	18.4	0.054	0.077		
								50	0	20.0	18.6	0.055	0.076		
Main.1	Hotspot	QPSK	On	10	Edge 3	132322	1745.0	1	0	20.0	18.4	0.426	0.610	2	

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		10-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
Main.1	Product Specific-10g	QPSK	Off	6	Rear	132072	1720.0	1	0	25.0	23.6	0.705	0.980	1	
			On	0		132322	1745.0	1	0	20.0	18.5	0.590	0.838		
			Off	8	Front	132072	1720.0	1	0	25.0	23.6	0.747	1.039		
			On	0		132322	1745.0	1	0	20.0	18.5	0.958	1.361		
			Off	9	Edge 3	132072	1720.0	1	0	25.0	23.6	0.987	1.373		
			On	0		132322	1745.0	1	0	20.0	18.5	1.380	1.960		38
Main.1	Product Specific-10g	QPSK	On	0	Edge 3	132322	1745	1	0	20.0	18.5	1.260	1.789	2	

Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

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10.13 LTE Band 41 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
Main 2	Head	QPSK	N/A	0	Left Touch	40185	2549.5	1	0	24.5	23.6	0.082	0.101	1	39
								50	0	23.5	22.6	0.062	0.076		
					Left Tilt	40185	2549.5	1	0	24.5	23.6	0.021	0.026		
								50	0	23.5	22.6	0.017	0.021		
					Right Touch	40185	2549.5	1	0	24.5	23.6	0.021	0.026		
								50	0	23.5	22.6	0.015	0.018		
					Right Tilt	40185	2549.5	1	0	24.5	23.6	0.012	0.015		
								50	0	23.5	22.6	0.007	0.009		
	Body-worn	QPSK	N/A	15	Rear	40185	2549.5	1	0	24.5	23.6	0.061	0.076		40
								50	0	23.5	22.6	0.038	0.047		
					Front	40185	2549.5	1	0	24.5	23.6	0.040	0.050		
								50	0	23.5	22.6	0.028	0.035		
	Hotspot	QPSK	N/A	10	Rear	40185	2549.5	1	0	24.5	23.6	0.120	0.149		41
								50	0	23.5	22.6	0.091	0.112		
					Front	40185	2549.5	1	0	24.5	23.6	0.096	0.119		
								50	0	23.5	22.6	0.071	0.088		
					Edge 2	40185	2549.5	1	0	24.5	23.6	0.012	0.015		
								50	0	23.5	22.6	0.008	0.009		
					Edge 3	40185	2549.5	1	0	24.5	23.6	0.103	0.128		
								50	0	23.5	22.6	0.079	0.097		
					Edge 4	40185	2549.5	1	0	24.5	23.6	0.117	0.145		
								50	0	23.5	22.6	0.083	0.102		
Main. 2	Hotspot	QPSK	N/A	10	Rear	40185	2549.5	1	0	24.5	23.6	0.113	0.140	2	

Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

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10.14 Wi-Fi (DTS Band)

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		A Note	B Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled			
SISO (WiFi Ant.1)	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	1	2412.0	0.002	98.8	12.0	11.8			1		
						Left Tilt	1	2412.0	0.003	98.8	12.0	11.8					
						Right Touch	1	2412.0	0.020	98.8	12.0	11.8	0.011	0.012		1	42
						Rightt Tilt	1	2412.0	0.004	98.8	12.0	11.8					
			Body-worn	Off	15	Rear	1	2412.0	0.004	98.8	19.0	18.5	<0.001	<0.001		1	
						Front	1	2412.0	0.002	98.8	19.0	18.5					
			Hotspot	Off	10	Rear	1	2412.0	0.009	98.8	19.0	18.5					
						Front	1	2412.0	0.005	98.8	19.0	18.5					
						Edge 4	1	2412.0	0.013	98.8	19.0	18.5	0.004	0.004		1	
Ant.1	2.4GHz	802.11b 1 Mbps	Hotspot	Off	10	Edge 4	1	2412.0	0.009	98.8	19.0	18.5	0.003	0.003	2		
SISO (WiFi Ant.2)	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	1	2412.0	0.002	98.8	12.0	11.5			1		
						Left Tilt	1	2412.0	0.003	98.8	12.0	11.5					
						Right Touch	1	2412.0	0.012	98.8	12.0	11.5	<0.001	<0.001		1	
						Rightt Tilt	1	2412.0	0.004	98.8	12.0	11.5					
			Body-worn	Off	15	Rear	1	2412.0	0.034	98.8	19.0	18.3	0.024	0.028		1	43
						Front	1	2412.0	0.001	98.8	19.0	18.3					
			Hotspot	Off	10	Rear	1	2412.0	0.082	98.8	19.0	18.3	0.070	0.083		1	44
						Front	1	2412.0	0.002	98.8	19.0	18.3					
						Edge 4	1	2412.0	0.010	98.8	19.0	18.3					
Ant.2	2.4GHz	802.11b 1 Mbps	Hotspot	Off	10	Rear	1	2412.0	0.058	98.8	19.0	18.3	0.047	0.056	2		

A-Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

B-Note(s):

1. When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
2. Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
3. Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
5. SAR testing is not required for OFDM mode(s) when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

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10.15 Wi-Fi (U-NII Bands)

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		A Note	B Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled			
SISO (WiFi Ant.1)	5.3 GHz U-NII 2A	802.11ac VHT80 29.3 Mbps	Head	On	0	Left Touch	58	5290.0	0.009	99.1	12.0	11.6					1		
						Left Tilt	58	5290.0	0.007	99.1	12.0	11.6							
						Right Touch	58	5290.0	0.060	99.1	12.0	11.6	0.035	0.039				1	45
						Rightt Tilt	58	5290.0	0.029	99.1	12.0	11.6							
		802.11a 6 Mbps	Body-worn	Off	15	Rear	64	5320.0	0.013	98.6	16.5	16.0							
						Front	64	5320.0	0.019	98.6	16.5	16.0	0.006	0.006				1	
			Product Specific 10-g	Off	0	Rear	64	5320.0	0.155	98.6	16.5	16.0							
						Front	64	5320.0	1.087	98.6	16.5	16.0			0.088	0.100		1	
						Edge 4	64	5320.0	0.396	98.6	16.5	16.0							
Ant.1	5.3 GHz U-NII 2A	802.11a 6 Mbps	Product Specific 10-g	Off	0	Front	64	5320.0	1.087	98.6	16.5	16.0			0.084	0.095	2		
SISO (WiFi Ant.2)	5.3 GHz U-NII 2A	802.11ac VHT80 29.3 Mbps	Head	On	0	Left Touch	58	5290.0	0.011	99.1	12.0	10.5	<0.001	<0.001			1	1	
						Left Tilt	58	5290.0	0.009	99.1	12.0	10.5							
						Right Touch	58	5290.0	0.005	99.1	12.0	10.5							
						Rightt Tilt	58	5290.0	0.007	99.1	12.0	10.5							
		802.11a 6 Mbps	Body-worn	Off	15	Rear	56	5280.0	0.334	98.6	16.5	15.9	0.146	0.171				1	46
						Front	56	5280.0	0.011	98.6	16.5	15.9							
			Product Specific 10-g	Off	0	Rear	56	5280.0	17.908	98.6	16.5	15.9			1.100	1.287			
						Front	56	5280.0	0.022	98.6	16.5	15.9							
						Edge 4	56	5280.0	0.092	98.6	16.5	15.9			0.014	0.017		2	
Ant.2	5.3 GHz U-NII 2A	802.11a 6 Mbps	Product Specific 10-g	Off	0	Rear	56	5280.0	17.908	98.6	16.5	15.9			1.430	1.673	2		47
						Front	56	5280.0	0.022	98.6	16.5	15.9							
						Edge 4	56	5280.0	0.177	98.6	16.5	15.9			0.024	0.028		2	

A-Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

B-Note(s):

1. When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
2. Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
3. Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

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Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		A Note	B Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled			
SISO (WiFi Ant.1)	5.5 GHz U-NII 2C	802.11ac VHT80 29.3 Mbps	Head	On	0	Left Touch	106	5530.0	0.017	99.1	12.0	11.4					1		
						Left Tilt	106	5530.0	0.007	99.1	12.0	11.4							
						Right Touch	106	5530.0	0.142	99.1	12.0	11.4	0.057	0.066				1	48
						Rightt Tilt	106	5530.0	0.050	99.1	12.0	11.4							
		802.11n HT40 13.5 Mbps	Body-worn	Off	15	Rear	102	5510.0	0.014	98.2	16.0	15.6							
						Front	102	5510.0	0.021	98.2	16.0	15.6	0.006	0.007				1	
			Product Specific 10-g	Off	0	Rear	102	5510.0	0.255	98.2	16.0	15.6							
						Front	102	5510.0	2.094	98.2	16.0	15.6			0.145	0.161		1	
						Edge 4	102	5510.0	0.433	98.2	16.0	15.6							
Ant.1	5.5 GHz U-NII 2C	802.11n HT40	Product Specific 10-g	Off	0	Front	102	5510.0	1.993	98.2	16.0	15.6			0.135	0.150	2		
SISO (WiFi Ant.2)	5.5 GHz U-NII 2C	802.11ac VHT80 29.3 Mbps	Head	On	0	Left Touch	138	5690.0	0.009	99.1	12.0	11.9					1		
						Left Tilt	138	5690.0	0.008	99.1	12.0	11.9							
						Right Touch	138	5690.0	0.007	99.1	12.0	11.9							
						Rightt Tilt	138	5690.0	0.010	99.1	12.0	11.9	<0.001	<0.001				1	
		802.11n HT40 13.5 Mbps	Body-worn	Off	15	Rear	142	5710.0	0.143	98.2	16.0	15.8	0.062	0.066				1	49
						Front	142	5710.0	0.008	98.2	16.0	15.8							
			Product Specific 10-g	Off	0	Rear	142	5710.0	4.025	98.2	16.0	15.8			0.363	0.390		1	
						Front	142	5710.0	0.015	98.2	16.0	15.8							
						Edge 4	142	5710.0	0.103	98.2	16.0	15.8							
Ant.2	5.5 GHz U-NII 2C	802.11n HT40	Product Specific 10-g	Off	0	Rear	142	5710.0	5.551	98.2	16.0	15.8			0.423	0.454	2	1	50
						Front	142	5710.0	0.018	98.2	16.0	15.8							
						Edge 4	142	5710.0	0.077	98.2	16.0	15.8							

A-Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

B-Note(s):

1. When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
2. Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
3. Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

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Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		A Note	B Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled			
SISO (WiFi Ant.1)	5.8 GHz U-NII 3	802.11ac VHT80 29.3 Mbps	Head	On	0	Left Touch	155	5775.0	0.012	99.1	12.0	11.3			1		
						Left Tilt	155	5775.0	0.013	99.1	12.0	11.3					
						Right Touch	155	5775.0	0.176	99.1	12.0	11.3	0.055	0.065		1	51
						Rightt Tilt	155	5775.0	0.044	99.1	12.0	11.3					
		802.11n HT40 13.5 Mbps	Body-worn	Off	15	Rear	159	5795.0	0.030	98.2	16.0	15.6					
						Front	159	5795.0	0.039	98.2	16.0	15.6	0.012	0.014		1	
			Hotspot	Off	10	Rear	151	5755.0	0.045	98.2	16.0	15.1					
						Front	151	5755.0	0.042	98.2	16.0	15.1					
						Edge 4	151	5755.0	0.109	98.2	16.0	15.1	0.040	0.050		1	
Ant.1	5.8 GHz U-NII 3	802.11n HT40	Hotspot	Off	10	Edge 4	151	5755.0	0.091	98.2	16.0	15.1	0.039	0.049	2		
SISO (WiFi Ant.2)	5.8 GHz U-NII 3	802.11ac VHT80 29.3 Mbps	Head	On	0	Left Touch	155	5775.0	0.009	99.1	12.0	11.5			1		
						Left Tilt	155	5775.0	0.014	99.1	12.0	11.5					
						Right Touch	155	5775.0	0.015	99.1	12.0	11.5	<0.001	<0.001		1	
						Rightt Tilt	155	5775.0	0.009	99.1	12.0	11.5					
		802.11n HT40 13.5 Mbps	Body-worn	Off	15	Rear	151	5755.0	0.168	98.2	16.0	15.1	0.070	0.088			52
						Front	151	5755.0	0.011	98.2	16.0	15.1				1	
			Hotspot	Off	10	Rear	151	5755.0	0.252	98.2	16.0	15.1	0.106	0.132		1	53
						Front	151	5755.0	0.012	98.2	16.0	15.1					
						Edge 4	151	5755.0	0.078	98.2	16.0	15.1					
Ant.2	5.8 GHz U-NII 3	802.11n HT40	Hotspot	Off	10	Rear	151	5755.0	0.215	98.2	16.0	15.1	0.090	0.112	2		

A-Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. DUT was tested for Configuration.2. Please refer to Test Configuration in Sec.7.

B-Note(s):

1. When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
2. Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
3. Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

10.16 Bluetooth

Antenna	Frequency Band	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Pow er (dBm)		1-g SAR (W/kg)		Note	Plot No.
									Tune-up limit	Meas.	Meas.	Scaled		
WiFi Ant.1	2.4GHz	GFSK	Head	0	Left Touch	0	2402.0	76.9	15.0	14.2	<0.001	<0.001	1	
					Left Tilt	0	2402.0	76.9	15.0	14.2	<0.001	<0.001		
					Right Touch	0	2402.0	76.9	15.0	14.2	0.018	0.028		54
					Right Tilt	0	2402.0	76.9	15.0	14.2	<0.001	<0.001		
		GFSK	Body-w orn	15	Rear	0	2402.0	76.9	15.0	14.2	<0.001	<0.001		
					Front	0	2402.0	76.9	15.0	14.2	<0.001	<0.001		
		GFSK	Hotspot	10	Rear	0	2402.0	76.9	15.0	14.2	<0.001	<0.001		
					Front	0	2402.0	76.9	15.0	14.2	0.001	0.002		
					Edge 4	0	2402.0	76.9	15.0	14.2	0.001	0.002		55

A-Note(s) for Sec.10:

1. DUT was tested for Configuration.1. Please refer to Test Configuration in Sec.7.
2. Configuration.2 was considered at DTS Ant.1.

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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.

Peak spatial-average (1g of tissue)

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
700	LTE Band 12	Hotspot	Rear	No	0.241	N/A	N/A
	LTE Band 13	Hotspot	Rear	No	0.540	N/A	N/A
835	GSM 850	Hotspot	Rear	No	0.219	N/A	N/A
	WCDMA Band V	Hotspot	Rear	No	0.438	N/A	N/A
	LTE Band 5	Hotspot	Rear	No	0.390	N/A	N/A
	LTE Band 26	Hotspot	Rear	No	0.451	N/A	N/A
1750	WCDMA Band IV	Body	Front	No	0.538	N/A	N/A
	LTE Band 66	Hotspot	Edge 3	No	0.562	N/A	N/A
1900	GSM 1900	Hotspot	Edge 3	Yes	1.170	1.16	1.01
	WCDMA Band II	Hotspot	Edge 3	No	0.406	N/A	N/A
	LTE Band 2	Hotspot	Edge 3	No	0.445	N/A	N/A
2400	Wi-Fi 802.11b/g/n	Hotspot	Rear	No	0.070	N/A	N/A
	Bluetooth	Head	Right Touch	No	0.018	N/A	N/A
2600	LTE Band 41	Hotspot	Rear	No	0.120	N/A	N/A
5300	Wi-Fi 802.11a/n	Body	Rear	No	0.146	N/A	N/A
5500	Wi-Fi 802.11a/n	Body	Rear	No	0.062	N/A	N/A
5800	Wi-Fi 802.11a/n	Hotspot	Rear	No	0.106	N/A	N/A

Peak spatial-average (10g of tissue)

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
1750	WCDMA Band IV	Product specific 10g	Edge 3	No	1.410	N/A	N/A
	LTE Band 66	Product specific 10g	Edge 3	No	1.380	N/A	N/A
1900	GSM 1900	Product specific 10g	Edge 3	No	1.270	N/A	N/A
	WCDMA Band II	Product specific 10g	Edge 3	No	0.949	N/A	N/A
	LTE Band 2	Product specific 10g	Edge 3	No	1.060	N/A	N/A
5300	Wi-Fi 802.11a/n	Product specific 10g	Rear	No	1.430	N/A	N/A
5500	Wi-Fi 802.11a/n	Product specific 10g	Rear	No	0.423	N/A	N/A

Note(s):

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

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12 DUT Holder Perturbations

In accordance with published DUT Holder Perturbations in Oct.2016 TCB workshop,

When Highest reported SAR is over 1.2 or 3.0 W/kg (1-g or 10-g respectively), Holder perturbation verification is required for each antenna, using the highest configuration among all applicable frequency bands. Both Head test and Body test (Edge 1-4 sides) are evaluated with DUT holder. Both Front and Rear sides are evaluated without DUT holder. (Details of test setup are refer to Appendix A.)

So we are only consider about Head test and Body test (Edge 1-4 sides).

Main Antenna

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	DUT Holder Perturbation (Yes/No)	Highest Reported SAR (W/kg)	SAR test without holder Scaled SAR (W/kg)	Deviation (%)
1900	GSM 1900	Hotspot	Edge 3	Yes	1.356	1.333	1.02

Note(s):

Both deviation should be within measurement uncertainty (22%).

13 Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations				
Head & Body-worn & Hotspot & Product Specific 10-g	1	GSM (Voice/GPRS)	+	DTS Ant.1 (and/or) DTS Ant.2		
	2	GSM (Voice/GPRS)	+	UNII Ant.1 (and/or) UNII Ant.2		
	3	GSM (Voice/GPRS)	+	BT		
	4	GSM (Voice/GPRS)	+	BT	+	UNII Ant.2
	5	GSM (Voice/GPRS)	+	***RSDB scenario***		
	6	W-CDMA	+	DTS Ant.1 (and/or) DTS Ant.2		
	7	W-CDMA	+	UNII Ant.1 (and/or) UNII Ant.2		
	8	W-CDMA	+	BT		
	9	W-CDMA	+	BT	+	UNII Ant.2
	10	W-CDMA	+	***RSDB scenario***		
	11	LTE	+	DTS Ant.1 (and/or) DTS Ant.2		
	12	LTE	+	UNII Ant.1 (and/or) UNII Ant.2		
	13	LTE	+	BT		
	14	LTE	+	BT	+	UNII Ant.2
	15	LTE	+	***RSDB scenario***		

Notes:
1. DTS supports Wi-Fi Direct, Hotspot and VoIP.
2. U-NII supports Wi-Fi Direct, Hotspot and VoIP.
3. GPRS, W-CDMA, LTE supports Hotspot and VoIP.
4. Only U-NII Ant.2 Radio can transmit simultaneously with Bluetooth Radio.
5. DTS Radio cannot transmit simultaneously with Bluetooth Radio.
6. DTS Radio can transmit simultaneously with UNII Radio in RSDB scenarios.
7. BT tethering is consider about each RF exposure conditions
8. GSM (Voice) is only consider in both Head & Body-worn exposure conditions.

RSDB scenarios

Mode	Scenario	# of TX	5GHz (UNII)		2.4GHz (DTS)	
			Ant1	Ant2	Ant1	Ant2
2.4GHz+5GHz RSDB Only	1	2	-	On	On	-

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Simultaneous transmission SAR test exclusion considerations

KDB 447498 D01 General RF Exposure Guidance provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Ratio (SPLSR)

Sum of SAR

To qualify for simultaneous transmission SAR test exclusion based upon Sum of SAR the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit. If the sum of the SARs is above the applicable limit then simultaneous transmission SAR test exclusion may still apply if the requirements of the SAR to Peak Location Ratio (SPLSR) evaluation are met.

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 reported 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 reported 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:

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

When an individual antenna transmits at on two bands simultaneously, the sum of the highest *reported* SAR for the frequency bands should be used to determine SAR_1.or SAR_2. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

The antennas in all antenna pairs that do not qualify for simultaneous transmission SAR test exclusion must be tested for SAR compliance, according to the enlarged zoom scan and volume scan post-processing procedures in KDB Publication 865664 D01

The antennas for the unlicensed transmitters are closely situated. As a result, the associated SAR hotspots are also closely situated. Some of the sum of SAR calculations yielded results over 1.6 W/kg. The SPSLR calculations for these situations were performed by treating the unlicensed SAR values as a single transmitter. The most conservative distance between all the unlicensed hotspots to the licensed hotspot was used for the value of *d* in the SPSLR calculation.

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Simultaneous transmission SAR measurement

When simultaneous transmission SAR measurements are required in different frequency bands not covered by a single probe calibration point then separate tests for each frequency band are performed. The tests are performed using enlarged zoom scans which are processed, by means of superposition, using the DASY5 volume scan postprocessing procedures to determine the 1-g SAR for the aggregate SAR distribution.

The spatial resolution used for all enlarged zoom scans is the same as used for the most stringent zoom scans. I.E. the scan parameters required for the highest frequency assessed are used for all enlarged zoom scans. The scans cover the complete area of the device to ensure all transmitting antennas and radiating structures are assessed.

DASY5 provides the ability to perform Multiband Evaluations according to the latest standards using the Volume Scan job as well as appropriate routines for the Post-processing.

In order to extract and process measurements within different frequency bands, the SEMCAD X Post-processor performs the combination and subsequent superposition of these measurement data via DASY5= Combined MultiBand Averaged SAR.

Combined Multi Band Averaged SAR allows - in addition to the data extraction - an evaluation of the 1 g, 10 g and/or arbitrary averaged mass SAR.
Power Scaling Factor is used to allow the volume scans to be scaled by a value other than "1", this is important when the results need to be scaled to different maximum power levels. The Power Scaling Factor is applied to each individual point of the scan. When power scaling is used in multi-band combinations the scaling factor is applied to each individual point of the first scan, the second factor is then applied to each individual point of the second scan and so on. The scans are then combined.

13.1 Sum of the SAR for WWAN & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)						∑ SAR (W/kg)								
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS Ant.1 + DTS Ant.2	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII Ant.1+ UNII Ant.2	WWAN + BT	WWAN + DTS Ant.1 + UNII Ant.2	WWAN + BT + UNII Ant.2
		1	2	3	4	5	6	1+2	1+3	1+2+3	1+4	1+5	1+4+5	1+6	1+2+5	1+5+6
Head (1g-SAR)	All positions	0.300	0.012	0.001	0.066	0.001	0.028	0.312	0.301	0.313	0.366	0.301	0.367	0.328	0.313	0.329
Body-Worn (1g-SAR)	All positions	0.711	0.001	0.028	0.014	0.171	0.001	0.712	0.739	0.740	0.725	0.882	0.896	0.712	0.883	0.883
Hotspot (1-g SAR)	All positions	1.356	0.004	0.083	0.050	0.132	0.002	1.360	1.439	1.443	1.406	1.488	1.538	1.358	1.492	1.490
Product Specific (10-g SAR)	All positions	1.960			0.161	1.673					2.121	3.633	3.794			

Conclusion:

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

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Appendixes

Refer to separated files for the following appendixes.

4788886234-S1V1 FCC Report SAR_App A_Photos & Ant. Locations

4788886234-S1V1 FCC Report SAR_App B_Highest SAR Test Plots

4788886234-S1V1 FCC Report SAR_App C_System Check Plots

4788886234-S1V1 FCC Report SAR_App D_SAR Tissue Ingredients

4788886234-S1V1 FCC Report SAR_App E_Probe Cal. Certificates

4788886234-S1V1 FCC Report SAR_App F_Dipole Cal. Certificates

END OF REPORT

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