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/ax, NFC and WPT

MODEL NUMBER: SM-G780F/DSM, SM-G780F/DS, SM-G780F

FCC ID: A3LSMG780F

REPORT NUMBER: 4789551399-S1V3

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Prepared for
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IAS ACCREDITED

Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	8/20/2020	Initial Issue	--
V2	8/24/2020	Updated Sec.4.3. Calibration date.	SangHwa Lee
V3	8/29/2020	Added note.4 in Sec.6.4.	SangHwa Lee

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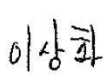
1. Attestation of Test Results

Applicant Name		SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID		A3LSMG780F			
Model Number		SM-G780F/DSM, SM-G780F/DS, SM-G780F			
Applicable Standards		FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures			
Exposure Category		SAR Limits (W/Kg)			
		Peak spatial-average (1g of tissue)		Product Specific 10g (10g of tissue)	
General population / Uncontrolled exposure		1.6		4.0	
RF Exposure Conditions		Equipment Class - The Highest Reported SAR (W/kg)			
		PCE	DTS	NII	DSS
Head		0.23	0.49	0.27	0.22
Body-worn		0.71	<0.10	0.46	<0.10
Hotspot		1.30	0.35	0.45	0.31
Product Specific 10g		2.94	N/A	1.92	N/A
Simultaneous TX	Head	1.30	1.30	1.30	1.03
	Body-worn	1.28	1.28	1.28	1.28
	Hotspot	1.34	1.34	1.34	1.34
	Product Specific 10g	N/A			
Date Tested		7/13/2020 to 8/20/2020			
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 Operations Leader UL Korea, Ltd. Suwon Laboratory	Sanghwa Lee Senior Laboratory Technician UL Korea, Ltd. Suwon Laboratory

1.1. The Highest Reported SAR for RF exposure conditions for each bands

Equipment Class	Band	The Highest Reported SAR (W/kg)			
		1g of tissue			10g of tissue
		Head Exposure condition	Body-worn Exposure condition	Hotspot Exposure condition	Product Specific Exposure condition
PCE	GSM 850	0.130	0.153	0.332	N/A
	GSM 1900	0.060	0.370	1.100	1.556
	WCDMA Band II	0.052	0.566	1.093	1.682
	WCDMA Band IV	0.130	**0.708**	1.179	**2.941**
	WCDMA Band V	**0.227**	0.277	0.483	N/A
	LTE Band 2	0.146	0.677	**1.301**	1.875
	LTE Band 4	N/A	N/A	N/A	N/A
	LTE Band 5	0.208	0.232	0.478	N/A
	LTE Band 12	0.216	0.351	0.457	N/A
	LTE Band 13	0.177	0.321	0.462	N/A
	LTE Band 17	N/A	N/A	N/A	N/A
	LTE Band 26	0.214	0.245	0.439	N/A
	LTE Band 41	0.073	0.098	0.196	N/A
	LTE Band 66	0.119	0.559	1.246	1.963
DTS	2.4GHz WLAN	**0.487**	**0.093**	**0.349**	N/A
UNII	5GHz WLAN	**0.274**	**0.457**	**0.449**	**1.917**
DSS	Bluetooth	**0.215**	**0.078**	**0.311**	N/A

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, ANSI C63.26-2015 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
- 971168 D01 Power Meas License Digital System v03r01

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)
- TCB workshop April, 2019 Page 19, RF Exposure Procedures (Tissue Simulating Liquids (TSL))

3. Facilities and Accreditation

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

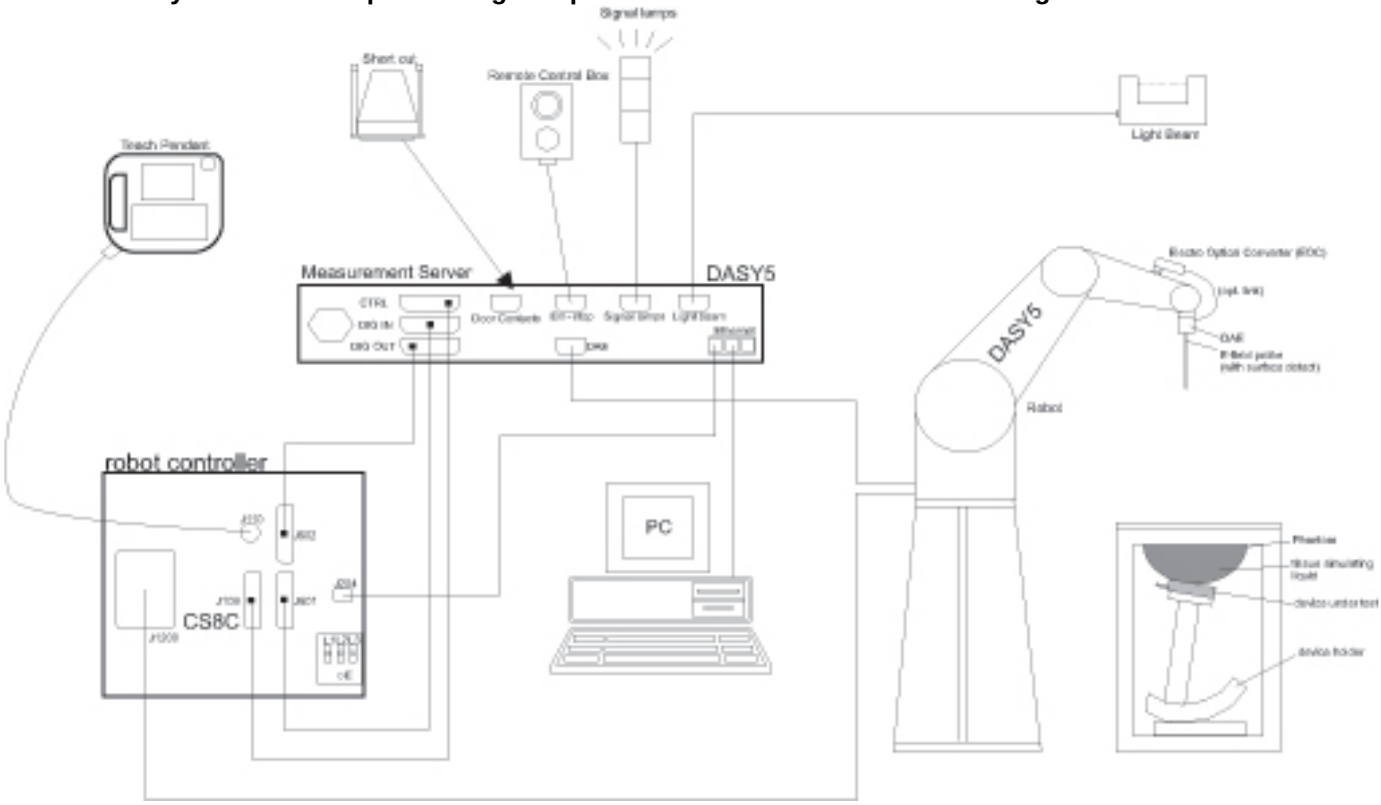
Suwon
SAR 1 Room
SAR 3 Room
SAR 4 Room
SAR 5 Room

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.
The full scope of accreditation can be viewed at https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf.

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

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



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

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

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

Step 2: Area Scan

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan

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

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

Step 4: Power drift measurement

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

Step 5: Z-Scan (FCC only)

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

4.3. Test Equipment

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

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date	Note
Network Analyzer	Agilent	E5071C	MY46522054	8-7-2020	1
				8-4-2021	
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	6-17-2021	
Shorting block	SPEAG	DAK-3.5 Short	SMDAK 200 BA	N/A	
Thermometer	LKM	DTM3000	3424	8-9-2020	1
				8-7-2021	

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date	Note
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-6-2020	1
				8-4-2021	
Power Sensor	Agilent	U2000A	MY54260010	8-9-2020	1
				8-4-2021	
Power Sensor	Agilent	U2000A	MY54260007	8-9-2020	1
				8-4-2021	
Power Amplifier	EXODUS	1410025-AMP2027-10003	10003	8-8-2020	1
				8-4-2021	
Directional Coupler	Agilent	772D	MY52180193	8-7-2020	1
				8-4-2021	
Directional Coupler	Agilent	778D	MY52180432	8-7-2020	1
				8-4-2021	
Low Pass Filter	MICROLAB	LA-15N	03943	8-7-2020	1
				8-4-2021	
Low Pass Filter	FILTRON	L14012FL	1410003S	8-7-2020	1
				8-4-2021	
Low Pass Filter	MICROLAB	LA-60N	03942	8-7-2020	1
				8-4-2021	
Attenuator	Agilent	8491B/003	MY39269292	8-7-2020	1
				8-4-2021	
Attenuator	Agilent	8491B/010	MY39269315	8-7-2020	1
Attenuator	R & S	8997 / OSP	-	8-6-2021	
Attenuator	Agilent	8491B/020	MY39269298	8-7-2020	1
				8-4-2021	
E-Field Probe (SAR1)	SPEAG	EX3DV4	7313	2-25-2021	
E-Field Probe (SAR3)	SPEAG	EX3DV4	7314	5-29-2021	
E-Field Probe (SAR3)	SPEAG	EX3DV4	7376	7-31-2021	
E-Field Probe (SAR4)	SPEAG	EX3DV4	7545	9-23-2020	
E-Field Probe (SAR5)	SPEAG	EX3DV4	3871	8-29-2020	
Data Acquisition Electronics (SAR1)	SPEAG	DAE4	1494	7-18-2020	1
Data Acquisition Electronics (SAR1)	SPEAG	DAE4	912	11-22-2020	
Data Acquisition Electronics (SAR3)	SPEAG	DAE4	1468	9-20-2020	
Data Acquisition Electronics (SAR3)	SPEAG	DAE4	1494	8-23-2021	
Data Acquisition Electronics (SAR4)	SPEAG	DAE4	1591	9-11-2020	
Data Acquisition Electronics (SAR5)	SPEAG	DAE4	1343	8-27-2020	
System Validation Dipole	SPEAG	D750V3	1122	2-24-2021	
System Validation Dipole	SPEAG	D835V2	4d174	2-24-2021	
System Validation Dipole	SPEAG	D1750V2	1125	2-21-2021	
System Validation Dipole	SPEAG	D1900V2	5d199	3-19-2021	
System Validation Dipole	SPEAG	D2450V2	939	7-25-2021	2
System Validation Dipole	SPEAG	D2600V2	1097	9-19-2020	
System Validation Dipole	SPEAG	D5GHzV2	1209	2-27-2021	
Thermometer (SAR1)	Lutron	MHB-382SD	AH.50215	8-8-2020	1
				8-7-2021	
Thermometer (SAR3)	Lutron	MHB-382SD	AH.50213	8-8-2020	1
				8-7-2021	
Thermometer (SAR4),(SAR5)	Lutron	MHB-382SD	AH.91463	8-8-2020	1
				8-7-2021	

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date	Note
Base Station Simulator	R & S	CMW500	150313	8-8-2020	1
				8-4-2021	
Base Station Simulator	R & S	CMW500	150314	8-8-2020	1
				8-4-2021	
Base Station Simulator	R & S	CMW500	162790	8-9-2020	1
				8-4-2021	
Wireless Connectivity Tester	R & S	CMW270	100982	8-5-2020	1
				8-3-2021	
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	8-7-2020	1
				8-3-2021	

Note(s):

1. Before the calibration period expired, it was recalibrated and used.
2. Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations. (D2450V2 (SN : 939))

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.

5.1. DECISION RULE

Decision rule for statement(s) of conformity is based on Procedures 1, Clause 4.4.2 in IEC Guide 115:2007.

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Refer to Appendix A.		
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 : Ch.1 – Ch.11) ☒ Mobile Hotspot (Wi-Fi 5.8 GHz_UNII-3 (Ch.149(20MHz)/Ch.151(40MHz)/Ch.155(80MHz)))		
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 5.2 GHz_UNII-1 (Ch.36 – 48), Wi-Fi 5.8 GHz_UNII-3 (Ch. 149 – 165))		
Test Sample Information	**No.**	**S/N**	**Notes**
	1	R38N605FLJW	Wi-Fi/BT Conduction
	2	R38N605FLEA	Main Conduction
	3	R38N605FL0J	Main Conduction
	4	43837048921e7ece	SAR
	5	R38N605FH2F	SAR
	6	R38N605FM6X	SAR
	7	R38N605FL4P	SAR
	8	R38N703SBKE	SAR
	9	R38N703SAHJ	SAR
	10	R38N705LMXB	SAR
	11	R38N705CJ4E	SAR

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) DC-HSDPA (Category 24) 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. 12 Carrier Aggregation (1 Uplink and 5 Downlinks)		100% (FDD) 63.3% (TDD) Power Class 3 Refer to Sec.6.6
	Does this device support SV-LTE (1xRTT-LTE)? ☐ Yes ☒ No			
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20) 802.11ax (HE20)		SISO mode : 99.8% (802.11b) MIMO mode : 99.8% (802.11b)
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80) 802.11ax (HE20) 802.11ax (HE40) 802.11ax (HE80)		SISO mode: 98.8% (802.11a) 99.7% (802. 11ac 80MHz BW) MIMO mode: 98.8% (802.11a) 99.7% (802.11ac 80MHz BW)
	Does this device support bands 5.60 ~ 5.65 GHz? ☒ Yes ☐ No			
	Does this device support Band gap channel(s)? ☒ Yes ☐ No			
Bluetooth	2.4 GHz	Version 5.0 LE		76.7% (DH5)
NFC	13.56 MHz	Type A/B/F		N/A[3]

Notes:

1. The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 76.7% and was considered and used for SAR Testing.
2. Duty cycle for Wi-Fi is referenced from the DTS and UNII report.
3. Measured Duty Cycle is not required due to SAR test exemption.

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)		Reduced. RF Output Power (Hotspot & Proximity sensor back-off) (dBm)	
				Tune-up Limit	Frame Pwr	Tune-up Limit	Frame Pwr
GSM850	Main 1 Ant.	Voice	1	**34.8**	**25.8**		
		GPRS	1	**34.8**	**25.8**		
		GPRS	2	**31.0**	**25.0**		
		GPRS	3	**29.0**	**24.7**		
		GPRS	4	**28.0**	**25.0**		
		EGPRS	1	**28.5**	**19.5**		
		EGPRS	2	**24.0**	**18.0**		
		EGPRS	3	**23.5**	**19.2**		
		EGPRS	4	**23.5**	**20.5**		
GSM1900	Main 1 Ant.	Voice	1	**32.5**	**23.5**	**30.0**	**21.0**
		GPRS	1	**32.5**	**23.5**	**30.0**	**21.0**
		GPRS	2	**27.5**	**21.5**	**25.5**	**19.5**
		GPRS	3	**26.5**	**22.2**	**24.5**	**20.2**
		GPRS	4	**25.0**	**22.0**	**23.5**	**20.5**
		EGPRS	1	**27.0**	**18.0**	**25.0**	**16.0**
		EGPRS	2	**23.0**	**17.0**	**20.5**	**14.5**
		EGPRS	3	**21.5**	**17.2**	**19.5**	**15.2**
		EGPRS	4	**20.5**	**17.5**	**18.5**	**15.5**

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (Hotspot & Proximity sensor back-off) (dBm)
W-CDMA Band Ⅱ	Main 1 Ant.	R99	**25.0**	**21.5**
		HSDPA	**25.0**	**21.0**
		HSUPA	**25.0**	**21.0**
		DC-HSDPA	**25.0**	**21.0**
W-CDMA Band Ⅳ	Main 1 Ant.	R99	**25.0**	**22.5**
		HSDPA	**23.5**	**22.5**
		HSUPA	**24.0**	**22.5**
		DC-HSDPA	**23.0**	**22.5**
W-CDMA Band Ⅴ	Main 1 Ant.	R99	**25.7**	
		HSDPA	**24.0**	
		HSUPA	**24.0**	
		DC-HSDPA	**24.0**	

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm) (Hotspot & Proximity sensor back-off)
LTE Band 2	Main 1 Ant.	QPSK	**25.0**	**22.0**
LTE Band 4	Main 1 Ant.	QPSK	**25.0**	**22.0**
LTE Band 5	Main 1 Ant.	QPSK	**26.0**	
LTE Band 12	Main 1 Ant.	QPSK	**26.0**	
LTE Bans 13	Main 1 Ant.	QPSK	**25.9**	
LTE Band 17	Main 1 Ant.	QPSK	**25.9**	
LTE Band 26	Main 1 Ant.	QPSK	**26.0**	
LTE Band 66	Main 1 Ant.	QPSK	**25.0**	**22.0**
LTE Band 41	Main 2 Ant.	QPSK	**23.0**	**20.0**

Normal WLAN mode

Maximum Power

Mode	Band		Max. RF Output Power (dBm)																	
			SISO (Ant.1)						SISO (Ant.2)						MIMO (Ant.1 + Ant.2)					
			a	b	g	n	ac	ax	a	b	g	n	ac	ax	a	b	g	n	ac	ax
2.4GHz	DTS	2450 MHz		19 Ch12 : 9 Ch13 : 3	18 Ch12 : 9 Ch13 : 3	18 Ch12 : 9 Ch13 : 3		18 Ch12 : 9 Ch13 : 3		19 Ch12 : 9 Ch13 : 3	18 Ch12 : 9 Ch13 : 3	18 Ch12 : 9 Ch13 : 3		18 Ch12 : 9 Ch13 : 3		22 Ch12 : 12 Ch13 : 6	21 Ch12 : 12 Ch13 : 6	20 Ch12 : 12 Ch13 : 6		21 Ch12 : 12 Ch13 : 6
5GHz (20MHz)	UNII-1	5200 MHz	18			17	17	17	18			17	17	17	21			20	20	20
	UNII-2A	5300 MHz	18			17	17	17	18			17	17	17	21			20	20	20
	UNII-2C	5500 MHz	18			17	17	17	18			17	17	17	21			20	20	20
	UNII-3	5800 MHz	18			17	17	17	18			17	17	17	21			20	20	20
5GHz (40MHz)	UNII-1	5200 MHz				16	16	16				16	16	16				19	19	19
	UNII-2A	5300 MHz				16	16	16				16	16	16				19	19	19
	UNII-2C	5500 MHz				16	16	16				16	16	16				19	19	19
	UNII-3	5800 MHz				16	16	16				16	16	16				19	19	19
5GHz (80MHz)	UNII-1	5200 MHz					14	14					14	14					17	17
	UNII-2A	5300 MHz					14	14					14	14					17	17
	UNII-2C	5500 MHz					14	14					14	14					17	17
	UNII-3	5800 MHz					14	14					14	14					17	17

Reduced Power – Receiver Active

Mode	Band		Max. RF Output Power (dBm)																	
			SISO (Ant.1)						SISO (Ant.2)						MIMO (Ant.1 + Ant.2)					
			a	b	g	n	ac	ax	a	b	g	n	ac	ax	a	b	g	n	ac	ax
2.4GHz	DTS	2450 MHz		15 Ch12 : 9 Ch13 : 3	15 Ch12 : 9 Ch13 : 3	15 Ch12 : 9 Ch13 : 3		15 Ch12 : 9 Ch13 : 3		15 Ch12 : 9 Ch13 : 3	15 Ch12 : 9 Ch13 : 3	15 Ch12 : 9 Ch13 : 3		15 Ch12 : 9 Ch13 : 3		18 Ch12 : 12 Ch13 : 6	18 Ch12 : 12 Ch13 : 6	18 Ch12 : 12 Ch13 : 6		18 Ch12 : 12 Ch13 : 6
5GHz (20MHz)	UNII-1	5200 MHz	11			11	11	11	11			11	11	11	14			14	14	14
	UNII-2A	5300 MHz	11			11	11	11	11			11	11	11	14			14	14	14
	UNII-2C	5500 MHz	11			11	11	11	11			11	11	11	14			14	14	14
	UNII-3	5800 MHz	11			11	11	11	11			11	11	11	14			14	14	14
5GHz (40MHz)	UNII-1	5200 MHz				11	11	11				11	11	11				14	14	14
	UNII-2A	5300 MHz				11	11	11				11	11	11				14	14	14
	UNII-2C	5500 MHz				11	11	11				11	11	11				14	14	14
	UNII-3	5800 MHz				11	11	11				11	11	11				14	14	14
5GHz (80MHz)	UNII-1	5200 MHz					11	11					11	11					14	14
	UNII-2A	5300 MHz					11	11					11	11					14	14
	UNII-2C	5500 MHz					11	11					11	11					14	14
	UNII-3	5800 MHz					11	11					11	11					14	14

RSDB WLAN mode

Maximum Power

Same as Maximum power of normal WLAN mode.

Reduced Power – RSDB with Receiver Active

Same as Reduced power – Receiver active of normal WLAN mode.

Note(s):.

1. This device uses an independent fixed level power reduction mechanism for WLAN mode operations during RCV operated Detailed descriptions of the power reduction mechanism are included in the operational description.
2. The per stream (antenna) power is the same for SISO and MIMO, but the total MIMO power is 3 dB higher than the individual stream (antenna) power. But this should not impact the simultaneous evaluation because it is already adding the SAR values, per stream (antenna)
3. WLAN mode supports RSDB operation. Detail of RSDB operation scenario is mentioned in Sec.12.

Bluetooth mode

Antenna	RF Air interface	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
BT Ant.1 (Ch.0)	Bluetooth (BDR)	**16.5**	**9.5**
	Bluetooth (EDR)	**14.0**	**9.0**
	Bluetooth LE 1Mbps	**6.0**	
	Bluetooth LE 2Mbps	**6.0**	
BT Ant.1 (Ch.1~78)	Bluetooth (BDR)	**17.5**	**10.5**
	Bluetooth (EDR)	**15.0**	**10.0**
BT Ant.1 (Ch.1~39)	Bluetooth LE 1Mbps	**7.0**	
	Bluetooth LE 2Mbps	**7.0**	
BT Ant.2 (Ch.0)	Bluetooth (BDR)	**16.5**	**9.5**
	Bluetooth (EDR)	**14.0**	**9.0**
	Bluetooth LE 1Mbps		
	Bluetooth LE 2Mbps		
BT Ant.2 (Ch.1~78)	Bluetooth (BDR)	**17.5**	**10.5**
	Bluetooth (EDR)	**15.0**	**10.0**
BT Ant.2 (Ch.1~39)	Bluetooth LE 1Mbps		
	Bluetooth LE 2Mbps		

Note(s):.

1. For Bluetooth mode, Both BT Ant.1 & BT Ant.2 are not work at the same time.
2. Bluetooth low energy works only at Ant.1

6.4. Power Back-off Operation

This device supports multiple power back-off modes: WWAN (Hotspot), WWAN (Proximity sensor), and WLAN (RCV). Each of the power back-off operates within specific exposure conditions for certain technologies. For full details on how each power back-off mode operates, refer to the Operational Description.

Power Back-off mode	Technologies Supported	Exposure Conditions Active			
		Head	Body-worn	Hotspot	Product Specific 10-g
WWAN (Hotspot)[1]	GSM 1900 W-CDMA B2/4 LTE B2/4/41/66	N/A	N/A	✓	N/A
WWAN (Proximity sensor)[1]	GSM 1900 W-CDMA B2/4 LTE B2/4/41/66	N/A	N/A	N/A	✓
WLAN (RCV)	Wi-Fi 2.4GHz Wi-Fi 5GHz	✓	N/A	N/A	N/A

Note(s):

1. Tune-up Limits for WWAN (Hotspot) and WWAN (Proximity Sensor) are all Reduced Average Powers. Please refer to Sec.9 for all conducted power measurements.
2. WWAN Back-off priority: Proximity Sensor → Hotspot
3. Body-worn SAR with ear-jack connected is not required due to Body-worn measured at max power is not over 1.2 W/kg.
4. For LTE Band 41, The Antenna & Sensor are located near corner side in device. But Product Specific 10-g SAR is not required for LTE Band 41 due to Hotspot SAR is not over 1.2 W/kg (scale up to maximum tune-up limit). So Product Specific 10-g SAR test was not performed using reduced power of Proximity sensor feature. Therefore, KDB inquiry is not required for additional test for Antenna & Sensor in the corner side.

Product Specific 10g Adjusted SAR Calculation

Wireless technologies	Max Tune-up Limit (dBm)	Reduced Tune-Up Limit (dBm)	Power Factor	Reported SAR Limit (W/kg)
GSM 1900	23.5	21.0	1.78	0.675
W-CDMA B2	25.0	21.5	2.24	0.536
W-CDMA B4	25.0	22.5	1.78	0.675
LTE B2	25.0	22.0	2.00	0.601
LTE B4	25.0	22.0	2.00	0.601
LTE B66	25.0	22.0	2.00	0.601
LTE B41	23.0	20.0	2.00	0.601

Note(s):

1. Tune-up limit powers for GSM 1900 are frame power(dBm).
2. Hotspot mode supports power reduction. When the measured SAR is scaled to the maximum tune-up limit, the adjusted SAR is < 1.2 W/kg. Therefore, Extremity SAR testing is not required for this band in accordance with KDB 648474 §2.5 b. Refer to §10 for Reported SAR results. If the Reported SAR 1g value in §10 is less than the Reported SAR Limit listed above, then Extremity SAR is not required.
3. LTE 50% RB is scaled up to the Max Tune-Up Limit with MPR included.
4. For Reported SAR limit in above table, it was calculated using Max tune-up Limit & Reduced Tune-up limit & Reported SAR 1.2 W/kg. (Reported SAR Limit = 1.2 W/kg / Power factor, Power factor = 10^((Max tune-up limit – Reduced tune-up limit)/10)

6.5. 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		

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 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

Band 41	Frequency range: 2496 - 2690 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low	39750 / 2506.0					
Low-Mid	40185 / 2549.5					
Mid	40620 / 2593.0					
Mid-High	41055 / 2636.5					
High	41490 / 2680.0					

LTE transmitter and antenna implementation

Refer to Appendix A.

Maximum power reduction (MPR)

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

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

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

Power reduction

Yes

Spectrum plots for RB configurations

A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.

Notes:

1. Maximum bandwidth 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.
2. LTE Band 41 test channels in accordance with October 2014 TCB workshop for all channels bandwidths.
3. SAR Testing for LTE was performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

6.6. 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

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

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

6.7. LTE Carrier Aggregation

DL Inter-Band

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	Yes			
	Band 2			Yes	Yes			20 MHz
	Band 13				Yes			
CA_2A-17A(0)	Band 2			Yes	Yes			20 MHz
	Band 17			Yes	Yes			
CA_2A-66A (0)(1)(2)	Band 2	Yes	Yes	Yes	Yes	Yes	Yes	40 MHz
	Band 66			Yes	Yes	Yes	Yes	
	Band 2			Yes	Yes			20 MHz
	Band 66			Yes	Yes			
	Band 2			Yes	Yes	Yes	Yes	40 MHz
	Band 66			Yes	Yes	Yes	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			

DL Inter-Band (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-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			
	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				
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_4A-17A(0)	Band 4			Yes	Yes			20 MHz
	Band 17			Yes	Yes			
CA_5A-41A(0)	Band 5			Yes	Yes			30 MHz
	Band 41						Yes	
CA_5A-66A(0)	Band 5			Yes	Yes			30 MHz
	Band 66			Yes	Yes	Yes	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_26A-41A(0)	Band 26			Yes	Yes	Yes		35 MHz
	Band 41			Yes	Yes	Yes	Yes	
CA_2A-4A-5A(0)	Band 2			Yes	Yes	Yes	Yes	50 MHz
	Band 4			Yes	Yes	Yes	Yes	
	Band 5			Yes	Yes			
CA_2A-4A-13A(0)	Band 2			Yes	Yes	Yes	Yes	50 MHz
	Band 4			Yes	Yes	Yes	Yes	
	Band 13				Yes			

DL Inter-Band (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-4A-12A(0)	Band 4	4A-4A BCS 0						50 MHz
	Band 12			Yes	Yes			
CA_4A-4A-17A(0)	Band 4	See CA_4A-4A (0)						50 MHz
	Band 17				Yes			
CA_5A-66A-66A(0)	Band 5			Yes	Yes			50 MHz
	Band 66	66A-66A BCS 0						
CA_12A-66A-66A(0)				Yes	Yes			50 MHz
		66A-66A BCS 0						

DL Inter-Band (Non-Contiguous)

E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)					Max Aggregated BW
		1st Carrier	2nd Carrier	3rd Carrier	4th Carrier	5th 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_41A-41A (0)(1)	Band 41	10, 15, 20	10, 15, 20				40 MHz
		5, 10, 15. 20	5, 10, 15. 20				
CA_66A-66A (0)	Band 66	5, 10, 15, 20	5, 10, 15, 20				40 MHz
CA_41C-41C	Band 41	41C BCS 0	41C BCS 0				80 MHz
CA_41A-41D	Band 41	5, 10, 15, 20	41D BCS 0				80 MHz
		41D BCS 0	5, 10, 15, 20				
CA_41C-41D	Band 41	41C BCS 0	41D BCS 0				100 MHz
		41D BCS 0	41C BCS 0				

DL Intra-Band (Contiguous)

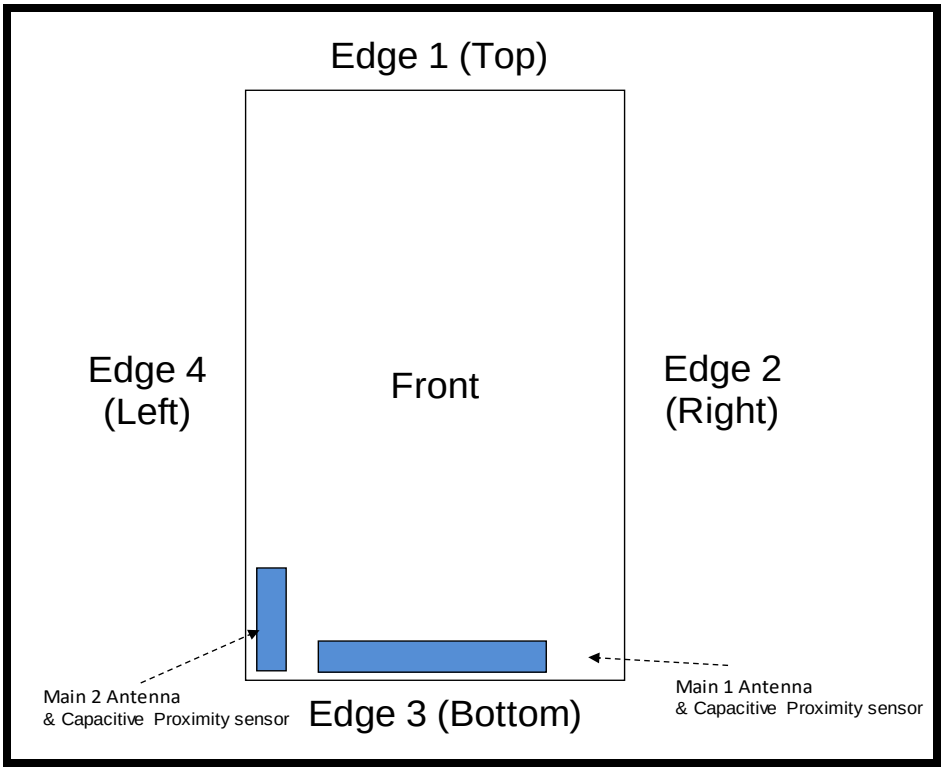
E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)					Max Aggregated BW
		1st Carrier	2nd Carrier	3rd Carrier	4th Carrier	5th Carrier	
CA_2C	Band 2	5	20				40 MHz
		10	15, 20				
		15	10, 15, 20				
		20	5, 10, 15, 20				
CA_66B (0)	Band 66	5	5, 10, 15				20 MHz
		10	5, 10				
		15	5				
CA_66C (0)	Band 66	5	20				40 MHz
		10	15, 20				
		15	10, 15, 20				
		20	5, 10, 15, 20				
CA_41C (0),(1),(2),(3)	Band 41	10	20				40 MHz
		15	15,20				
		20	10,15,20				
	Band 41	5,10	20				40 MHz
		15	15,20				
		20	5,10,15,20				
	Band 41	10	15,20				40 MHz
		15	10,15,20				
		20	10,15,20				
	Band 41	10	20				40 MHz
		20	20				
CA_41E (0)	Band 41	15,20	15,20	15,20	20		80 MHz

Note(s):

1. For supported channels, please refer to §6.5.

6.8. Proximity Sensor feature

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

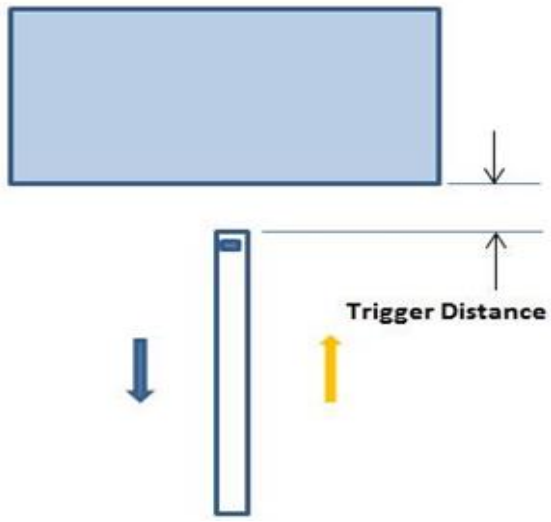


6.8.1. Proximity Sensor Triggering Distance (KDB 616217 §6.2)

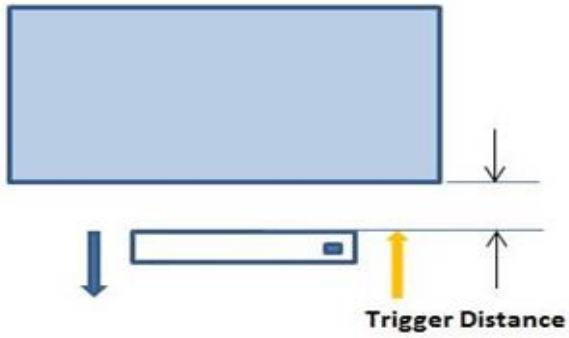
Rear, Front and Edge 3 of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger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

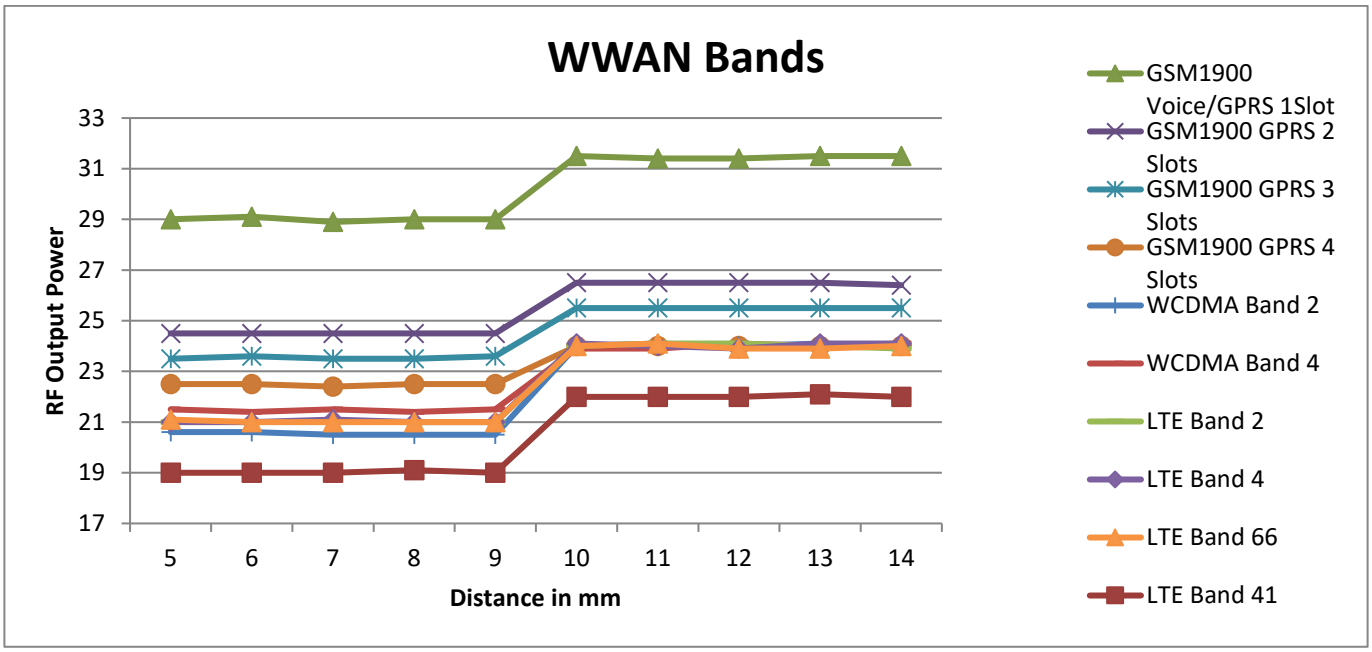
Tissue simulating liquid	Antenna	Trigger distance – Rear		Trigger distance - Front		Trigger distance – Edge 3	
		Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom
1750 Head	Main 1 Ant.	9 mm	9 mm	8 mm	8 mm	14 mm	14 mm
1900 Head	Main 1 Ant.	9 mm	9 mm	8 mm	8 mm	14 mm	14 mm
2600 Head	Main 2 Ant.	9 mm	9 mm	8 mm	8 mm	14 mm	14 mm

Proximity Sensor Triggering Distance Measurement Results

WWAN Bands

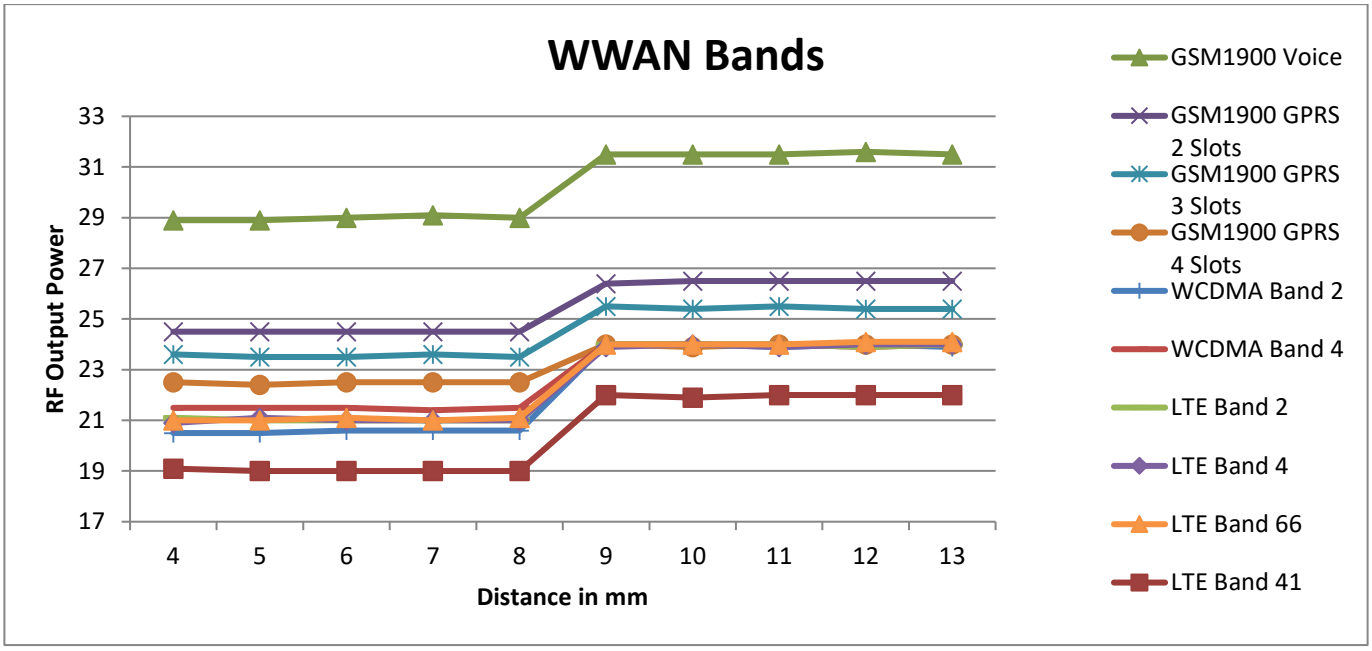
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	5	6	7	8	9	10	11	12	13	14
GSM1900 Voice/GPRS 1Slot	29.0	29.1	28.9	29.0	29.0	31.5	31.4	31.4	31.5	31.5
GSM1900 GPRS 2 Slots	24.5	24.5	24.5	24.5	24.5	26.5	26.5	26.5	26.5	26.4
GSM1900 GPRS 3 Slots	23.5	23.6	23.5	23.5	23.6	25.5	25.5	25.5	25.5	25.5
GSM1900 GPRS 4 Slots	22.5	22.5	22.4	22.5	22.5	24.0	24.0	24.0	24.0	24.0
WCDMA Band 2	20.6	20.6	20.5	20.5	20.5	24.0	24.1	24.0	24.1	24.0
WCDMA Band 4	21.5	21.4	21.5	21.4	21.5	23.9	23.9	24.1	24.0	24.1
LTE Band 2	21.0	21.0	21.0	21.0	21.0	24.0	24.1	24.1	24.0	23.9
LTE Band 4	21.0	21.0	21.1	21.0	21.0	24.1	24.0	23.9	24.1	24.1
LTE Band 66	21.1	21.0	21.0	21.0	21.0	24.0	24.1	23.9	23.9	24.0
LTE Band 41	19.0	19.0	19.0	19.1	19.0	22.0	22.0	22.0	22.1	22.0



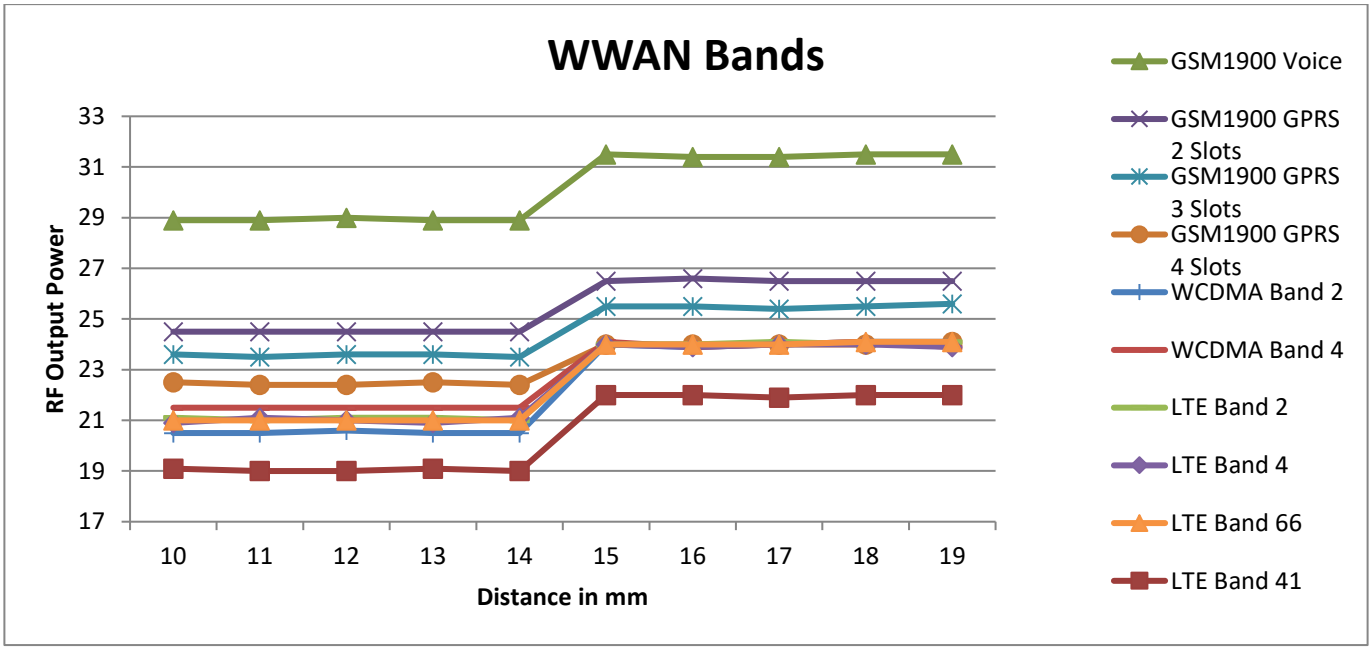
Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	4	5	6	7	8	9	10	11	12	13
GSM1900 Voice	28.9	28.9	29.0	29.1	29.0	31.5	31.5	31.5	31.6	31.5
GSM1900 GPRS 2 Slots	24.5	24.5	24.5	24.5	24.5	26.4	26.5	26.5	26.5	26.5
GSM1900 GPRS 3 Slots	23.6	23.5	23.5	23.6	23.5	25.5	25.4	25.5	25.4	25.4
GSM1900 GPRS 4 Slots	22.5	22.4	22.5	22.5	22.5	24.0	23.9	24.0	24.0	24.0
WCDMA Band 2	20.5	20.5	20.6	20.6	20.6	24.0	24.0	23.9	24.0	23.9
WCDMA Band 4	21.5	21.5	21.5	21.4	21.5	24.0	24.0	24.0	23.9	24.0
LTE Band 2	21.1	21.0	21.0	21.0	21.0	24.0	24.0	24.0	23.9	24.0
LTE Band 4	20.9	21.1	21.0	21.0	21.0	23.9	24.0	23.9	24.0	24.0
LTE Band 66	21.0	21.0	21.1	21.0	21.1	24.0	24.0	24.0	24.1	24.1
LTE Band 41	19.1	19.0	19.0	19.0	19.0	22.0	21.9	22.0	22.0	22.0



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

Distance to DUT vs. Output Power in dBm										
Distance (mm)	10	11	12	13	14	15	16	17	18	19
GSM1900 Voice	28.9	28.9	29.0	28.9	28.9	31.5	31.4	31.4	31.5	31.5
GSM1900 GPRS 2 Slots	24.5	24.5	24.5	24.5	24.5	26.5	26.6	26.5	26.5	26.5
GSM1900 GPRS 3 Slots	23.6	23.5	23.6	23.6	23.5	25.5	25.5	25.4	25.5	25.6
GSM1900 GPRS 4 Slots	22.5	22.4	22.4	22.5	22.4	24.0	24.0	24.0	24.0	24.1
WCDMA Band 2	20.5	20.5	20.6	20.5	20.5	24.0	23.9	24.0	24.1	24.1
WCDMA Band 4	21.5	21.5	21.5	21.5	21.5	24.1	23.9	24.0	24.1	23.9
LTE Band 2	21.1	21.0	21.1	21.1	21.0	24.0	24.0	24.1	24.0	24.1
LTE Band 4	20.9	21.1	21.0	20.9	21.1	24.0	23.9	24.0	24.0	23.9
LTE Band 66	21.0	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.1	24.1
LTE Band 41	19.1	19.0	19.0	19.1	19.0	22.0	22.0	21.9	22.0	22.0



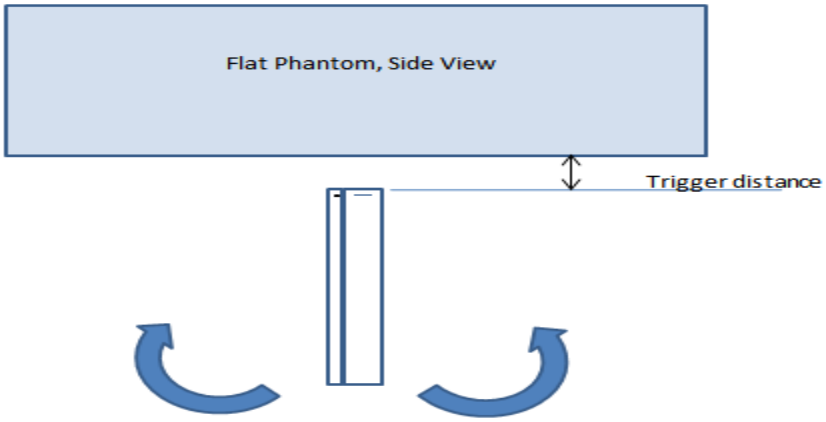
6.8.2. Proximity Sensor Coverage (KDB 616217 §6.3)

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

6.8.3. 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 assessment (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	14 mm	14 mm	On	On	On	On	On	On	On	On	On	On	On
1900	14 mm	14 mm	On	On	On	On	On	On	On	On	On	On	On
2600	14 mm	14 mm	On	On	On	On	On	On	On	On	On	On	On

6.8.4. 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 1 Ant & Main 2 Ant)	Rear	9 mm	N/A	N/A	8 mm
	Front	8 mm	N/A	N/A	7 mm
	Edge 3	14 mm	N/A	14 mm	13 mm

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	Antenaa	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
WWAN	Head	Main Ant.1 & Main Ant.2	0 mm	Left Touch	N/A	Yes	
				Left Tilt (15°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (15°)	N/A	Yes	
	Body	Main Ant.1 & Main Ant.2	15 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Hotspot	Main Ant.1	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	
	Hotspot	Main Ant.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 10-g	Main Ant.1 & Main Ant.2	0 mm	Rear	Refer to notes 2 & 3		
				Front			
				Edge 1 (Top)			
				Edge 2 (Right)			
				Edge 3 (Bottom)			
				Edge 4 (Left)			
WLAN/BT	Head	WiFi/BT Ant.1 & WiFi/BT Ant.2	0 mm	Left Touch	N/A	Yes	
				Left Tilt (15°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (15°)	N/A	Yes	
	Body	WiFi/BT Ant.1 & WiFi/BT Ant.2	15 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Hotspot	WiFi(2.4 GHz) /BT Ant.1 & WiFi(5 GHz) Ant.2	10 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	< 25 mm	Yes	
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	> 25 mm	No	1
				Edge 4 (Left)	< 25 mm	Yes	
	Hotspot	WiFi(2.4 GHz) /BT Ant.2 & Wi-Fi(5 GHz) Ant.1	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 10-g	WiFi/BT Ant.1 & WiFi/BT Ant.2	0 mm	Rear	Refer to notes 2 & 4		
				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 and adjusted SAR to maximum power that is > 1.2 W/kg.
4. 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.

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

SAR test were performed in All RF exposure conditions using Head tissue according to TCB workshop note of April. 2019.

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

Dielectric Property Measurements Results:

SAR 1 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
8-4-2020	Head 5250	e'	35.0500	Relative Permittivity (ε_r):	35.05	35.93	-2.46	5
		e''	16.5100	Conductivity (σ):	4.82	4.70	2.50	5
	Head 5260	e'	35.0300	Relative Permittivity (ε_r):	35.03	35.92	-2.48	5
		e''	16.5100	Conductivity (σ):	4.83	4.71	2.47	5
	Head 5600	e'	34.6900	Relative Permittivity (ε_r):	34.69	35.53	-2.37	5
		e''	16.6100	Conductivity (σ):	5.17	5.06	2.21	5
	Head 5750	e'	34.5200	Relative Permittivity (ε_r):	34.52	35.36	-2.38	5
		e''	16.6400	Conductivity (σ):	5.32	5.21	2.04	5
	Head 5825	e'	34.5700	Relative Permittivity (ε_r):	34.57	35.30	-2.07	5
		e''	16.8500	Conductivity (σ):	5.46	5.27	3.56	5
8-10-2020	Head 5250	e'	36.4900	Relative Permittivity (ε_r):	36.49	35.93	1.55	5
		e''	15.8900	Conductivity (σ):	4.64	4.70	-1.35	5
	Head 5260	e'	36.4600	Relative Permittivity (ε_r):	36.46	35.92	1.50	5
		e''	15.8900	Conductivity (σ):	4.65	4.71	-1.38	5
	Head 5600	e'	35.9700	Relative Permittivity (ε_r):	35.97	35.53	1.23	5
		e''	16.1200	Conductivity (σ):	5.02	5.06	-0.81	5
	Head 5750	e'	35.7400	Relative Permittivity (ε_r):	35.74	35.36	1.07	5
		e''	16.2100	Conductivity (σ):	5.18	5.21	-0.60	5
	Head 5825	e'	35.6000	Relative Permittivity (ε_r):	35.60	35.30	0.85	5
		e''	16.2400	Conductivity (σ):	5.26	5.27	-0.19	5

SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
7-27-2020	Head 835	e'	42.2400	Relative Permittivity (ε_r):	42.24	41.50	1.78	5
		e''	20.0400	Conductivity (σ):	0.93	0.90	3.38	5
	Head 820	e'	42.2700	Relative Permittivity (ε_r):	42.27	41.60	1.60	5
		e''	20.3000	Conductivity (σ):	0.93	0.90	3.02	5
	Head 850	e'	42.2000	Relative Permittivity (ε_r):	42.20	41.50	1.69	5
		e''	19.7800	Conductivity (σ):	0.93	0.92	2.17	5
7-27-2020	Head 1750	e'	40.6000	Relative Permittivity (ε_r):	40.60	40.08	1.29	5
		e''	13.9200	Conductivity (σ):	1.35	1.37	-1.06	5
	Head 1710	e'	40.6100	Relative Permittivity (ε_r):	40.61	40.15	1.16	5
		e''	14.0300	Conductivity (σ):	1.33	1.35	-0.92	5
	Head 1755	e'	40.6000	Relative Permittivity (ε_r):	40.60	40.08	1.31	5
		e''	13.9000	Conductivity (σ):	1.36	1.37	-1.12	5
7-27-2020	Head 1900	e'	40.4500	Relative Permittivity (ε_r):	40.45	40.00	1.13	5
		e''	13.7100	Conductivity (σ):	1.45	1.40	3.46	5
	Head 1850	e'	40.5200	Relative Permittivity (ε_r):	40.52	40.00	1.30	5
		e''	13.7700	Conductivity (σ):	1.42	1.40	1.18	5
	Head 1910	e'	40.4300	Relative Permittivity (ε_r):	40.43	40.00	1.08	5
		e''	13.7000	Conductivity (σ):	1.45	1.40	3.93	5
8-5-2020	Head 1900	e'	39.9800	Relative Permittivity (ε_r):	39.98	40.00	-0.05	5
		e''	13.3600	Conductivity (σ):	1.41	1.40	0.82	5
	Head 1850	e'	40.0500	Relative Permittivity (ε_r):	40.05	40.00	0.12	5
		e''	13.4500	Conductivity (σ):	1.38	1.40	-1.18	5
	Head 1910	e'	39.9700	Relative Permittivity (ε_r):	39.97	40.00	-0.08	5
		e''	13.3500	Conductivity (σ):	1.42	1.40	1.27	5
8-5-2020	Head 2450	e'	39.2700	Relative Permittivity (ε_r):	39.27	39.20	0.18	5
		e''	13.0400	Conductivity (σ):	1.78	1.80	-1.31	5
	Head 2400	e'	39.3100	Relative Permittivity (ε_r):	39.31	39.30	0.03	5
		e''	13.0300	Conductivity (σ):	1.74	1.75	-0.73	5
	Head 2480	e'	39.2300	Relative Permittivity (ε_r):	39.23	39.16	0.17	5
		e''	13.0700	Conductivity (σ):	1.80	1.83	-1.64	5
8-18-2020	Head 2450	e'	38.1100	Relative Permittivity (ε_r):	38.11	39.20	-2.78	5
		e''	13.5500	Conductivity (σ):	1.85	1.80	2.55	5
	Head 2400	e'	38.1900	Relative Permittivity (ε_r):	38.19	39.30	-2.82	5
		e''	13.5400	Conductivity (σ):	1.81	1.75	3.15	5
	Head 2480	e'	38.0500	Relative Permittivity (ε_r):	38.05	39.16	-2.84	5
		e''	13.5800	Conductivity (σ):	1.87	1.83	2.19	5

SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
7-27-2020	Head 750	e'	41.4500	Relative Permittivity (ε_r):	41.45	41.96	-1.22	5
		e''	20.8300	Conductivity (σ):	0.87	0.89	-2.73	5
	Head 700	e'	41.6100	Relative Permittivity (ε_r):	41.61	42.22	-1.44	5
		e''	21.8800	Conductivity (σ):	0.85	0.89	-4.23	5
	Head 790	e'	41.4300	Relative Permittivity (ε_r):	41.43	41.76	-0.78	5
		e''	20.1400	Conductivity (σ):	0.88	0.90	-1.28	5
7-27-2020	Head 835	e'	41.2900	Relative Permittivity (ε_r):	41.29	41.50	-0.51	5
		e''	19.4100	Conductivity (σ):	0.90	0.90	0.13	5
	Head 820	e'	41.3300	Relative Permittivity (ε_r):	41.33	41.60	-0.66	5
		e''	19.6700	Conductivity (σ):	0.90	0.90	-0.18	5
	Head 850	e'	41.2500	Relative Permittivity (ε_r):	41.25	41.50	-0.60	5
		e''	19.1700	Conductivity (σ):	0.91	0.92	-0.98	5
7-27-2020	Head 1750	e'	39.5600	Relative Permittivity (ε_r):	39.56	40.08	-1.31	5
		e''	13.8400	Conductivity (σ):	1.35	1.37	-1.63	5
	Head 1710	e'	39.5900	Relative Permittivity (ε_r):	39.59	40.15	-1.39	5
		e''	13.9400	Conductivity (σ):	1.33	1.35	-1.56	5
	Head 1755	e'	39.5600	Relative Permittivity (ε_r):	39.56	40.08	-1.29	5
		e''	13.8300	Conductivity (σ):	1.35	1.37	-1.62	5
7-27-2020	Head 1900	e'	39.4300	Relative Permittivity (ε_r):	39.43	40.00	-1.43	5
		e''	13.7200	Conductivity (σ):	1.45	1.40	3.53	5
	Head 1850	e'	39.5000	Relative Permittivity (ε_r):	39.50	40.00	-1.25	5
		e''	13.7300	Conductivity (σ):	1.41	1.40	0.88	5
	Head 1910	e'	39.4100	Relative Permittivity (ε_r):	39.41	40.00	-1.48	5
		e''	13.7200	Conductivity (σ):	1.46	1.40	4.08	5

SAR 5 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
7-30-2020	Head 2450	e'	38.9500	Relative Permittivity (ε_r):	38.95	39.20	-0.64	5
		e''	13.3100	Conductivity (σ):	1.81	1.80	0.73	5
	Head 2400	e'	39.0000	Relative Permittivity (ε_r):	39.00	39.30	-0.76	5
		e''	13.3000	Conductivity (σ):	1.77	1.75	1.32	5
	Head 2480	e'	38.9100	Relative Permittivity (ε_r):	38.91	39.16	-0.64	5
		e''	13.3400	Conductivity (σ):	1.84	1.83	0.39	5
8-10-2020	Head 2600	e'	38.4600	Relative Permittivity (ε_r):	38.46	39.01	-1.41	5
		e''	13.5000	Conductivity (σ):	1.95	1.96	-0.53	5
	Head 2500	e'	38.6200	Relative Permittivity (ε_r):	38.62	39.14	-1.32	5
		e''	13.4000	Conductivity (σ):	1.86	1.85	0.47	5
	Head 2700	e'	38.2600	Relative Permittivity (ε_r):	38.26	38.88	-1.61	5
		e''	13.5400	Conductivity (σ):	2.03	2.07	-1.81	5

8.2. System Check

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

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±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
D750V3	1122	2-24-2020	750	1g	8.54
				10g	5.59
D835V2	4d174	2-24-2020	835	1g	9.59
				10g	6.24
D1750V2	1125	2-21-2020	1750	1g	36.50
				10g	19.20
D1900V2	5d199	3-19-2020	1900	1g	40.50
				10g	21.00
D2450V2	939	7-25-2019	2450	1g	53.20
				10g	25.10
D2600V2	1097	9-19-2019	2600	1g	57.30
				10g	25.70
D5GHzV2	1209	2-27-2020	5250	1g	79.90
				10g	22.60
			5600	1g	83.60
				10g	23.60
			5750	1g	80.20
				10g	22.60

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations. (D2450V2 (SN : 939))

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			
8-4-2020	D5GHzV2 (5250)	1209	Head	1g	8.47	84.70	79.90	6.01	
				10g	2.42	24.20	22.60	7.08	
8-4-2020	D5GHzV2 (5600)	1209	Head	1g	8.53	85.30	83.60	2.03	
				10g	2.41	24.10	23.60	2.12	
8-4-2020	D5GHzV2 (5750)	1209	Head	1g	7.57	75.70	80.20	-5.61	
				10g	2.15	21.50	22.60	-4.87	
8-10-2020	D5GHzV2 (5250)	1209	Head	1g	7.64	76.40	79.90	-4.38	
				10g	2.18	21.80	22.60	-3.54	
8-10-2020	D5GHzV2 (5600)	1209	Head	1g	8.22	82.20	83.60	-1.67	
				10g	2.32	23.20	23.60	-1.69	
8-10-2020	D5GHzV2 (5750)	1209	Head	1g	7.36	73.60	80.20	-8.23	1, 2
				10g	2.08	20.80	22.60	-7.96	

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			
7-27-2020	D835V2	4d174	Head	1g	0.99	9.92	9.59	3.44	
				10g	0.65	6.47	6.24	3.69	
7-27-2020	D1750V2	1125	Head	1g	3.34	33.40	36.50	-8.49	3, 4
				10g	1.78	17.80	19.20	-7.29	
7-27-2020	D1900V2	5d199	Head	1g	3.99	39.90	40.50	-1.48	
				10g	2.06	20.60	21.00	-1.90	
8-5-2020	D1900V2	5d199	Head	1g	4.10	41.00	40.50	1.23	
				10g	2.13	21.30	21.00	1.43	
8-5-2020	D2450V2	939	Head	1g	5.23	52.30	53.20	-1.69	
				10g	2.44	24.40	25.10	-2.79	
8-18-2020	D2450V2	939	Head	1g	5.34	53.40	53.20	0.38	
				10g	2.48	24.80	25.10	-1.20	

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			
7-27-2020	D750V3	1122	Head	1g	0.80	8.03	8.54	-5.97	5, 6
				10g	0.53	5.33	5.59	-4.65	
7-27-2020	D835V2	4d174	Head	1g	0.89	8.91	9.59	-7.09	7, 8
				10g	0.59	5.85	6.24	-6.25	
7-27-2020	D1750V2	1125	Head	1g	3.42	34.20	36.50	-6.30	
				10g	1.82	18.20	19.20	-5.21	
7-27-2020	D1900V2	5d199	Head	1g	3.75	37.50	40.50	-7.41	9, 10
				10g	1.94	19.40	21.00	-7.62	

SAR 5 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			
7-30-2020	D2450V2	939	Head	1g	5.64	56.40	53.20	6.02	11, 12
				10g	2.60	26.00	25.10	3.59	
8-10-2020	D2600V2	1097	Head	1g	5.45	54.50	57.30	-4.89	13, 14
				10g	2.47	24.70	25.70	-3.89	

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	33.6	24.6	34.8	**25.8**
			190	836.6	33.2	24.2		
			251	848.8	33.8	24.8		
GPRS (GMSK)	CS1	1	128	824.2	33.7	24.7	34.8	**25.8**
			190	836.6	33.3	24.3		
			251	848.8	33.8	24.8		
		2	128	824.2	30.1	24.1	31.0	25.0
			190	836.6	29.2	23.2		
			251	848.8	29.3	23.3		
		3	128	824.2	28.2	23.9	29.0	24.7
			190	836.6	27.9	23.6		
			251	848.8	27.8	23.5		
		4	128	824.2	27.1	24.1	28.0	25.0
			190	836.6	26.8	23.8		
			251	848.8	26.7	23.7		
EGPRS (8PSK)	MCS5	1	128	824.2	26.9	17.9	28.5	19.5
			190	836.6	27.0	18.0		
			251	848.8	26.7	17.7		
		2	128	824.2	23.5	17.5	24.0	18.0
			190	836.6	23.4	17.4		
			251	848.8	23.4	17.4		
		3	128	824.2	22.7	18.4	23.5	19.2
			190	836.6	22.2	17.9		
			251	848.8	22.2	17.9		
		4	128	824.2	21.3	18.3	23.5	20.5
			190	836.6	21.3	18.3		
			251	848.8	21.1	18.1		

Notes:

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

- GMSK (GPRS) mode with 1 time slot 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.

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	31.0	22.0	32.5	**23.5**
			661	1880.0	31.2	22.2		
			810	1909.8	31.2	22.2		
GPRS (GMSK)	CS1	1	512	1850.2	31.0	22.0	32.5	**23.5**
			661	1880.0	31.1	22.1		
			810	1909.8	31.1	22.1		
		2	512	1850.2	26.0	20.0	27.5	21.5
			661	1880.0	26.6	20.6		
			810	1909.8	27.1	21.1		
		3	512	1850.2	25.1	20.8	26.5	22.2
			661	1880.0	25.4	21.1		
			810	1909.8	25.8	21.5		
		4	512	1850.2	24.1	21.1	25.0	22.0
			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	27.0	18.0
			661	1880.0	25.4	16.4		
			810	1909.8	25.2	16.2		
		2	512	1850.2	21.8	15.8	23.0	17.0
			661	1880.0	22.4	16.4		
			810	1909.8	22.0	16.0		
		3	512	1850.2	19.9	15.6	21.5	17.2
			661	1880.0	20.8	16.5		
			810	1909.8	20.5	16.2		
		4	512	1850.2	18.6	15.6	20.5	17.5
			661	1880.0	19.2	16.2		
			810	1909.8	18.8	15.8		

Notes:

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

- GMSK (GPRS) mode with 1 time slot for Max power & 1 time slot for Reduced 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.

GSM1900 Measured Results (Continued)

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Reduced Average Power (dBm) Hotspot back-off				Reduced Average Power (dBm) Proximity sensor back-off			
					Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	512	1850.2	27.7	18.7	30.0	**21.0**	27.9	18.9	30.0	**21.0**
			661	1880.0	28.0	19.0			28.6	19.6		
			810	1909.8	28.9	19.9			29.0	20.0		
GPRS (GMSK)	CS1	1	512	1850.2	28.8	19.8	30.0	**21.0**	29.0	20.0	30.0	**21.0**
			661	1880.0	28.5	19.5			28.6	19.6		
			810	1909.8	28.6	19.6			29.0	20.0		
		2	512	1850.2	24.0	18.0	25.5	19.5	24.4	18.4	25.5	19.5
			661	1880.0	24.7	18.7			24.7	18.7		
			810	1909.8	25.2	19.2			25.5	19.5		
		3	512	1850.2	22.9	18.6	24.5	20.2	23.3	19.0	24.5	20.2
			661	1880.0	23.6	19.3			23.7	19.4		
			810	1909.8	24.1	19.8			24.3	20.0		
		4	512	1850.2	22.3	19.3	23.5	20.5	22.6	19.6	23.5	20.5
			661	1880.0	22.8	19.8			23.1	20.1		
			810	1909.8	22.9	19.9			23.2	20.2		
EGPRS (8PSK)	MCS5	1	512	1850.2	23.9	14.9	25.0	16.0	23.9	14.9	25.0	16.0
			661	1880.0	24.4	15.4			24.4	15.4		
			810	1909.8	23.9	14.9			24.1	15.1		
		2	512	1850.2	19.5	13.5	20.5	14.5	19.7	13.7	20.5	14.5
			661	1880.0	20.0	14.0			20.2	14.2		
			810	1909.8	19.9	13.9			19.7	13.7		
		3	512	1850.2	18.2	13.9	19.5	15.2	18.2	13.9	19.5	15.2
			661	1880.0	18.8	14.5			18.7	14.4		
			810	1909.8	18.4	14.1			18.4	14.1		
		4	512	1850.2	17.0	14.0	18.5	15.5	17.2	14.2	18.5	15.5
			661	1880.0	17.6	14.6			17.5	14.5		
			810	1909.8	17.2	14.2			17.4	14.4		

Notes:

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

- GMSK (GPRS) mode with 1 time slot for Max power & 1 time slot for Reduced 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.

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			

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-DPDCH	6	8	8	5	0
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	67
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E-TFCIs	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
	Reference E-TFCI PO	27	27	27	27	27
	Maximum Channelization Codes	2xSF2				SF4

DC-HSDPA Setup Procedures used to establish the test signals

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

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

Table E.5.0: Levels for HSDPA connection setup

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

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

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

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

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

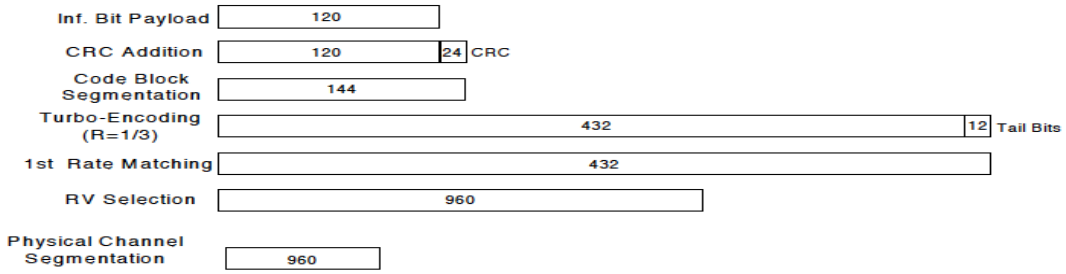


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

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

HSPA+

HSPA+ is only supported to down link. Therefore, the RF conducted power is not measured.

W-CDMA Band II Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Hotspot back-off			Reduced Average Power (dBm) Proximity sensor back-off		
				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	23.9	N/A	25.0	20.4	N/A	21.5	20.5	N/A	21.5
		9400	1880.0	24.2			20.7			20.7		
		9538	1907.6	24.3			20.8			20.8		
HSDPA	Subtest 1	9262	1852.4	22.9	0	25.0	20.3	0	21.0	20.5	0	21.0
		9400	1880.0	23.4			20.8			20.8		
		9538	1907.6	23.4			20.8			20.8		
	Subtest 2	9262	1852.4	22.6	0	25.0	20.4	0	21.0	20.5	0	21.0
		9400	1880.0	22.9			20.7			20.8		
		9538	1907.6	22.9			20.8			20.8		
	Subtest 3	9262	1852.4	22.0	0.5	24.5	20.5	0	21.0	20.5	0	21.0
		9400	1880.0	22.4			20.7			20.8		
		9538	1907.6	22.4			20.7			20.8		
	Subtest 4	9262	1852.4	21.8	1.0	24.0	20.4	0	21.0	20.5	0	21.0
		9400	1880.0	21.8			20.7			20.7		
		9538	1907.6	21.9			20.7			20.8		
HSUPA	Subtest 1	9262	1852.4	22.8	1	24.0	19.4	0	21.0	19.5	0	21.0
		9400	1880.0	22.4			19.6			19.6		
		9538	1907.6	22.2			19.6			19.6		
	Subtest 2	9262	1852.4	19.9	3	22.0	19.3	0	21.0	19.4	0	21.0
		9400	1880.0	20.3			19.6			19.6		
		9538	1907.6	20.2			19.6			19.6		
	Subtest 3	9262	1852.4	21.9	1	24.0	19.3	0	21.0	19.4	0	21.0
		9400	1880.0	22.2			19.6			19.6		
		9538	1907.6	22.2			19.6			19.6		
	Subtest 4	9262	1852.4	19.5	3	22.0	19.3	0	21.0	19.4	0	21.0
		9400	1880.0	20.2			19.6			19.6		
		9538	1907.6	20.2			19.6			19.6		
	Subtest 5	9262	1852.4	24.1	0	25.0	20.6	0	21.0	20.7	0	21.0
		9400	1880.0	24.3			20.8			20.9		
		9538	1907.6	24.3			20.8			20.8		
DC-HSDPA	Subtest 1	9262	1852.4	23.1	0	25.0	20.4	0	21.0	20.4	0	21.0
		9400	1880.0	23.5			20.8			20.8		
		9538	1907.6	23.4			20.7			20.7		
	Subtest 2	9262	1852.4	22.5	0	25.0	20.5	0	21.0	20.4	0	21.0
		9400	1880.0	23.0			20.8			20.8		
		9538	1907.6	22.9			20.7			20.7		
	Subtest 3	9262	1852.4	21.2	1.5	23.5	20.5	0	21.0	20.5	0	21.0
		9400	1880.0	21.5			20.8			20.8		
		9538	1907.6	21.4			20.7			20.7		
	Subtest 4	9262	1852.4	21.6	1.0	24.0	20.5	0	21.0	20.5	0	21.0
		9400	1880.0	22.0			20.8			20.8		
		9538	1907.6	21.9			20.7			20.8		

W-CDMA Band IV Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Hotspot back-off			Reduced Average Power (dBm) Proximity sensor back-off		
				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	24.2	N/A	25.0	22.0	N/A	22.5	21.9	N/A	22.5
		1413	1732.6	24.5			22.0			21.9		
		1513	1752.6	24.7			22.1			22.1		
HSDPA	Subtest 1	1312	1712.4	22.4	0	23.5	21.8	0	22.5	21.8	0	22.5
		1413	1732.6	22.6			22.0			22.0		
		1513	1752.6	23.0			22.1			22.2		
	Subtest 2	1312	1712.4	21.4	0	23.5	21.4	0	22.5	21.5	0	22.5
		1413	1732.6	21.6			21.6			21.7		
		1513	1752.6	21.9			21.9			21.9		
	Subtest 3	1312	1712.4	22.3	0.5	23.0	21.8	0	22.5	21.8	0	22.5
		1413	1732.6	22.6			21.9			21.9		
		1513	1752.6	22.9			22.1			22.1		
	Subtest 4	1312	1712.4	21.4	0.5	23.0	21.5	0	22.5	21.5	0	22.5
		1413	1732.6	21.7			21.6			21.7		
		1513	1752.6	21.9			21.9			21.9		
HSUPA	Subtest 1	1312	1712.4	22.3	0	24.0	20.9	0	22.5	20.9	0	22.5
		1413	1732.6	22.6			20.9			20.9		
		1513	1752.6	22.8			21.0			21.0		
	Subtest 2	1312	1712.4	19.3	2.5	21.5	19.3	1	21.5	19.3	1	21.5
		1413	1732.6	19.5			19.5			19.5		
		1513	1752.6	19.8			19.8			19.8		
	Subtest 3	1312	1712.4	22.3	1	23.0	20.7	0	22.5	20.7	0	22.5
		1413	1732.6	22.5			20.8			20.9		
		1513	1752.6	22.8			21.0			21.0		
	Subtest 4	1312	1712.4	19.3	2.5	21.5	19.3	1	21.5	19.3	1	21.5
		1413	1732.6	19.5			19.5			19.5		
		1513	1752.6	19.8			19.8			19.8		
	Subtest 5	1312	1712.4	23.6	0	24.0	21.9	0	22.5	22.0	0	22.5
		1413	1732.6	23.6			21.9			22.0		
		1513	1752.6	24.0			22.1			22.1		
DC-HSDPA	Subtest 1	1312	1712.4	22.4	0	23.0	21.9	0	22.5	22.0	0	22.5
		1413	1732.6	22.6			22.0			22.0		
		1513	1752.6	22.9			22.1			22.2		
	Subtest 2	1312	1712.4	21.4	0	23.0	21.5	0	22.5	21.5	0	22.5
		1413	1732.6	21.7			21.7			21.7		
		1513	1752.6	21.9			21.9			22.0		
	Subtest 3	1312	1712.4	20.3	0.5	22.5	20.5	0	22.5	20.5	0	22.5
		1413	1732.6	20.6			20.7			20.6		
		1513	1752.6	20.9			21.0			21.0		
	Subtest 4	1312	1712.4	21.4	0.5	22.5	21.5	0	22.5	21.5	0	22.5
		1413	1732.6	21.7			21.7			21.7		
		1513	1752.6	22.0			22.0			22.0		

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	24.9	N/A	25.7
		4183	836.6	24.8		
		4233	846.6	24.7		
HSDPA	Subtest 1	4132	826.4	23.5	0	24.0
		4183	836.6	23.5		
		4233	846.6	23.2		
	Subtest 2	4132	826.4	23.0	0	24.0
		4183	836.6	22.9		
		4233	846.6	22.6		
	Subtest 3	4132	826.4	22.4	0.5	23.5
		4183	836.6	22.3		
		4233	846.6	22.1		
	Subtest 4	4132	826.4	21.9	0.5	23.5
		4183	836.6	21.8		
		4233	846.6	21.6		
HSUPA	Subtest 1	4132	826.4	22.4	0	24.0
		4183	836.6	22.3		
		4233	846.6	22.0		
	Subtest 2	4132	826.4	21.4	2	22.0
		4183	836.6	21.3		
		4233	846.6	21.0		
	Subtest 3	4132	826.4	21.4	1	23.0
		4183	836.6	21.3		
		4233	846.6	21.0		
	Subtest 4	4132	826.4	21.4	2	22.0
		4183	836.6	21.3		
		4233	846.6	21.0		
	Subtest 5	4132	826.4	23.5	0	24.0
		4183	836.6	23.4		
		4233	846.6	23.2		
DC-HSDPA	Subtest 1	4132	826.4	23.5	0	24.0
		4183	836.6	23.3		
		4233	846.6	23.4		
	Subtest 2	4132	826.4	23.0	0	24.0
		4183	836.6	22.9		
		4233	846.6	22.9		
	Subtest 3	4132	826.4	21.5	0.5	23.5
		4183	836.6	21.3		
		4233	846.6	21.4		
	Subtest 4	4132	826.4	22.0	0.5	23.5
		4183	836.6	21.8		
		4233	846.6	21.9		

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

Maximum Output Power (Tune-up Limit) for LTE

According to April 2015 TCB workshop, SAR test exclusion can be applied for testing overlapping LTE bands as follows:

a) The maximum output power, including tolerance, for the smaller band must be ≤ the larger band to qualify for the SAR test exclusion.
b) The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.
   - LTE Band 4 (1710 – 1755 MHz) is covered by LTE Band 66 (1710 – 1780 MHz)
   - LTE Band 5 (824 – 849 MHz) is covered by LTE Band 26 (814 – 849 MHz)
   - LTE Band 17 (704 – 716 MHz) is covered by LTE Band 12 (699 – 716 MHz)

Maximum bandwidth does not support at least three non-overlapping channels in certain channel bandwidths.

When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices.

LTE QPSK configuration has the highest maximum average output power per 3GPP standard.

SAR measurement is not required for Higher order modulations. When the highest maximum output power for Higher order modulations are ≤ 0.5 dB higher than the QPSK or when the reported SAR for QPSK configuration is ≤ 1.45 W/kg.

1. Max power Results

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	24.1	24.3	23.8	0.0	25.0
		1	49	23.0	24.2	24.1	0.0	25.0
		1	99	24.0	23.2	23.4	0.0	25.0
		50	0	22.6	23.3	23.1	1.0	24.0
		50	24	22.3	23.3	23.2	1.0	24.0
		50	50	22.5	22.9	23.1	1.0	24.0
		100	0	22.6	23.3	23.1	1.0	24.0
	16QAM	1	0	23.3	23.5	23.0	1.0	24.0
		1	49	22.5	23.4	23.2	1.0	24.0
		1	99	23.4	22.7	22.9	1.0	24.0
		50	0	21.8	22.3	22.3	2.0	23.0
		50	24	21.5	22.3	22.2	2.0	23.0
		50	50	21.8	22.2	22.1	2.0	23.0
		100	0	21.8	22.3	22.2	2.0	23.0
	64QAM	1	0	22.0	22.3	22.4	2.0	23.0
		1	49	22.0	22.2	22.3	2.0	23.0
		1	99	22.2	22.4	22.3	2.0	23.0
		50	0	21.0	21.2	21.2	3.0	22.0
		50	24	21.0	21.2	21.1	3.0	22.0
		50	50	21.0	21.2	21.0	3.0	22.0
		100	0	21.0	21.2	21.1	3.0	22.0
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	23.9	24.1	23.6	0.0	25.0
		1	37	23.4	24.2	24.1	0.0	25.0
		1	74	22.9	22.9	23.0	0.0	25.0
		36	0	22.8	23.4	23.1	1.0	24.0
		36	20	22.6	23.3	23.3	1.0	24.0
		36	39	22.3	23.1	23.0	1.0	24.0
		75	0	22.5	23.2	23.0	1.0	24.0
	16QAM	1	0	23.1	23.5	22.9	1.0	24.0
		1	37	22.7	23.5	23.4	1.0	24.0
		1	74	22.3	22.4	22.5	1.0	24.0
		36	0	22.0	22.3	22.3	2.0	23.0
		36	20	21.8	22.2	22.2	2.0	23.0
		36	39	21.5	22.2	22.1	2.0	23.0
		75	0	21.8	22.2	22.2	2.0	23.0
	64QAM	1	0	22.1	22.2	22.2	2.0	23.0
		1	37	22.3	22.2	22.1	2.0	23.0
		1	74	22.1	22.0	22.0	2.0	23.0
		36	0	20.9	21.2	21.2	3.0	22.0
		36	20	20.8	21.2	21.1	3.0	22.0
		36	39	20.9	21.2	21.1	3.0	22.0
		75	0	20.9	21.1	21.1	3.0	22.0

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	23.9	24.1	24.1	0.0	25.0
		1	25	23.6	24.1	24.0	0.0	25.0
		1	49	22.9	23.2	23.3	0.0	25.0
		25	0	22.9	23.2	23.1	1.0	24.0
		25	12	22.8	23.2	23.1	1.0	24.0
		25	25	22.4	23.0	22.8	1.0	24.0
		50	0	22.8	23.2	23.0	1.0	24.0
	16QAM	1	0	23.0	23.5	23.4	1.0	24.0
		1	25	22.9	23.3	23.3	1.0	24.0
		1	49	22.2	22.7	22.8	1.0	24.0
		25	0	21.9	22.2	22.2	2.0	23.0
		25	12	21.9	22.2	22.1	2.0	23.0
		25	25	21.7	22.2	22.1	2.0	23.0
		50	0	21.9	22.2	22.1	2.0	23.0
	64QAM	1	0	21.9	22.3	22.1	2.0	23.0
		1	25	21.8	22.2	22.0	2.0	23.0
		1	49	21.9	22.3	22.0	2.0	23.0
		25	0	20.9	21.2	21.0	3.0	22.0
		25	12	20.8	21.1	21.0	3.0	22.0
		25	25	20.9	21.2	21.0	3.0	22.0
		50	0	20.8	21.1	21.0	3.0	22.0

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	23.8	24.2	24.0	0.0	25.0
		1	12	23.8	24.2	23.8	0.0	25.0
		1	24	23.4	23.8	23.5	0.0	25.0
		12	0	22.9	23.2	23.1	1.0	24.0
		12	7	22.8	23.2	23.0	1.0	24.0
		12	13	22.9	23.2	22.9	1.0	24.0
		25	0	22.9	23.2	22.9	1.0	24.0
	16QAM	1	0	23.2	23.3	23.4	1.0	24.0
		1	12	23.4	23.4	23.4	1.0	24.0
		1	24	23.0	23.2	23.1	1.0	24.0
		12	0	21.9	22.2	22.2	2.0	23.0
		12	7	21.9	22.2	22.2	2.0	23.0
		12	13	21.8	22.2	22.2	2.0	23.0
		25	0	21.8	22.2	22.1	2.0	23.0
	64QAM	1	0	21.7	22.5	22.2	2.0	23.0
		1	12	21.7	22.5	22.1	2.0	23.0
		1	24	21.9	22.4	22.3	2.0	23.0
		12	0	20.7	21.1	21.0	3.0	22.0
		12	7	20.7	21.0	20.9	3.0	22.0
		12	13	20.8	21.1	20.9	3.0	22.0
		25	0	20.7	21.0	20.9	3.0	22.0

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	23.9	24.2	24.1	0.0	25.0
		1	8	23.7	24.4	23.8	0.0	25.0
		1	14	23.8	24.2	23.7	0.0	25.0
		8	0	22.8	23.1	23.0	1.0	24.0
		8	4	22.8	23.1	23.0	1.0	24.0
		8	7	22.8	23.2	22.9	1.0	24.0
		15	0	22.8	23.1	22.9	1.0	24.0
	16QAM	1	0	23.2	23.4	23.1	1.0	24.0
		1	8	23.1	23.5	22.9	1.0	24.0
		1	14	23.1	23.5	22.8	1.0	24.0
		8	0	21.8	22.2	22.1	2.0	23.0
		8	4	21.9	22.2	22.0	2.0	23.0
		8	7	21.9	22.1	22.0	2.0	23.0
		15	0	21.8	22.1	22.1	2.0	23.0
	64QAM	1	0	21.9	22.3	22.1	2.0	23.0
		1	8	21.9	22.2	22.4	2.0	23.0
		1	14	21.8	22.3	22.2	2.0	23.0
		8	0	20.7	21.1	21.1	3.0	22.0
		8	4	20.7	21.0	21.0	3.0	22.0
		8	7	20.7	21.1	21.0	3.0	22.0
		15	0	20.8	21.1	21.1	3.0	22.0

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	23.4	24.0	24.0	0.0	25.0
		1	3	23.4	23.9	23.9	0.0	25.0
		1	5	23.5	24.0	24.0	0.0	25.0
		3	0	23.6	24.0	23.9	0.0	25.0
		3	1	23.7	24.0	23.9	0.0	25.0
		3	3	23.6	24.0	23.9	0.0	25.0
		6	0	22.7	23.1	23.1	1.0	24.0
	16QAM	1	0	22.4	23.1	23.2	1.0	24.0
		1	3	22.5	22.9	23.3	1.0	24.0
		1	5	22.5	23.1	23.2	1.0	24.0
		3	0	22.7	23.0	23.0	1.0	24.0
		3	1	22.7	22.9	23.1	1.0	24.0
		3	3	22.7	23.0	23.0	1.0	24.0
		6	0	21.7	22.2	21.9	2.0	23.0
	64QAM	1	0	21.8	22.2	22.1	2.0	23.0
		1	3	21.5	22.2	22.2	2.0	23.0
		1	5	21.8	22.2	21.8	2.0	23.0
		3	0	21.5	22.1	22.0	2.0	23.0
		3	1	21.6	22.1	22.0	2.0	23.0
		3	3	21.6	22.1	22.0	2.0	23.0
		6	0	20.6	21.1	21.1	3.0	22.0

LTE Band 5 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				[redacted]	20525	[redacted]		
					836.5 MHz			
10 MHz	QPSK	1	0		24.5		0.0	26.0
		1	25		24.4		0.0	26.0
		1	49		24.5		0.0	26.0
		25	0		23.4		1.0	25.0
		25	12		23.4		1.0	25.0
		25	25		23.4		1.0	25.0
		50	0		23.4		1.0	25.0
	16QAM	1	0		23.6		1.0	25.0
		1	25		23.4		1.0	25.0
		1	49		23.6		1.0	25.0
		25	0		22.3		2.0	24.0
		25	12		22.3		2.0	24.0
		25	25		22.4		2.0	24.0
		50	0		22.4		2.0	24.0
	64QAM	1	0		22.6		2.0	24.0
		1	25		22.4		2.0	24.0
		1	49		22.6		2.0	24.0
		25	0		21.5		3.0	23.0
		25	12		21.5		3.0	23.0
		25	25		21.5		3.0	23.0
		50	0		21.5		3.0	23.0

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	24.6	24.6	24.4	0.0	26.0
		1	12	24.7	24.8	24.3	0.0	26.0
		1	24	24.7	24.6	24.3	0.0	26.0
		12	0	23.6	23.6	23.4	1.0	25.0
		12	7	23.6	23.6	23.4	1.0	25.0
		12	13	23.6	23.6	23.4	1.0	25.0
		25	0	23.6	23.6	23.4	1.0	25.0
	16QAM	1	0	23.9	23.7	23.8	1.0	25.0
		1	12	23.9	23.7	23.8	1.0	25.0
		1	24	23.8	23.8	23.7	1.0	25.0
		12	0	22.6	22.6	22.4	2.0	24.0
		12	7	22.6	22.6	22.3	2.0	24.0
		12	13	22.6	22.6	22.3	2.0	24.0
		25	0	22.6	22.5	22.3	2.0	24.0
	64QAM	1	0	22.8	22.6	22.7	2.0	24.0
		1	12	22.5	22.8	22.5	2.0	24.0
		1	24	22.8	22.7	22.6	2.0	24.0
		12	0	21.6	21.5	21.3	3.0	23.0
		12	7	21.6	21.5	21.3	3.0	23.0
		12	13	21.6	21.5	21.3	3.0	23.0
		25	0	21.5	21.5	21.3	3.0	23.0

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	24.7	24.7	24.4	0.0	26.0
		1	8	24.9	24.4	24.6	0.0	26.0
		1	14	24.7	24.6	24.4	0.0	26.0
		8	0	23.7	23.6	23.4	1.0	25.0
		8	4	23.7	23.6	23.4	1.0	25.0
		8	7	23.6	23.6	23.4	1.0	25.0
		15	0	23.6	23.6	23.3	1.0	25.0
	16QAM	1	0	23.7	23.8	23.5	1.0	25.0
		1	8	23.8	23.8	23.8	1.0	25.0
		1	14	23.8	23.8	23.7	1.0	25.0
		8	0	22.7	22.6	22.3	2.0	24.0
		8	4	22.7	22.6	22.3	2.0	24.0
		8	7	22.7	22.6	22.3	2.0	24.0
		15	0	22.6	22.5	22.3	2.0	24.0
	64QAM	1	0	22.8	22.5	22.4	2.0	24.0
		1	8	23.0	22.8	22.3	2.0	24.0
		1	14	22.9	22.7	22.3	2.0	24.0
		8	0	21.7	21.5	21.3	3.0	23.0
		8	4	21.6	21.5	21.3	3.0	23.0
		8	7	21.7	21.5	21.2	3.0	23.0
		15	0	21.5	21.5	21.3	3.0	23.0

BW (MHz)	Mode	RB Allocation	RB offset	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	23.5	24.6	24.4	0.0	26.0
		1	3	24.6	24.7	24.4	0.0	26.0
		1	5	24.7	24.6	24.4	0.0	26.0
		3	0	24.6	24.6	24.4	0.0	26.0
		3	1	24.6	24.6	24.4	0.0	26.0
		3	3	24.6	24.6	24.4	0.0	26.0
		6	0	24.8	24.8	24.5	1.0	25.0
	16QAM	1	0	23.8	23.8	23.7	1.0	25.0
		1	3	23.8	23.8	23.7	1.0	25.0
		1	5	23.8	23.8	23.6	1.0	25.0
		3	0	23.6	23.6	23.4	1.0	25.0
		3	1	23.6	23.6	23.5	1.0	25.0
		3	3	23.6	23.6	23.4	1.0	25.0
		6	0	23.7	23.6	23.4	2.0	24.0
	64QAM	1	0	22.6	22.3	22.2	2.0	24.0
		1	3	22.6	22.2	22.2	2.0	24.0
		1	5	22.5	22.5	22.3	2.0	24.0
		3	0	22.4	22.3	22.2	2.0	24.0
		3	1	22.5	22.4	22.3	2.0	24.0
		3	3	22.4	22.4	22.2	2.0	24.0
		6	0	21.6	21.4	21.2	3.0	23.0

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]	24.4	[redacted]	0.0	26.0
		1	25	[redacted]	24.3	[redacted]	0.0	26.0
		1	49	[redacted]	24.3	[redacted]	0.0	26.0
		25	0	[redacted]	21.9	[redacted]	2.5	23.5
		25	12	[redacted]	21.8	[redacted]	2.5	23.5
		25	25	[redacted]	21.8	[redacted]	2.5	23.5
		50	0	[redacted]	21.9	[redacted]	2.5	23.5
	16QAM	1	0	[redacted]	22.1	[redacted]	2.5	23.5
		1	25	[redacted]	21.8	[redacted]	2.5	23.5
		1	49	[redacted]	21.9	[redacted]	2.5	23.5
		25	0	[redacted]	20.9	[redacted]	3.0	23.0
		25	12	[redacted]	20.9	[redacted]	3.0	23.0
		25	25	[redacted]	20.8	[redacted]	3.0	23.0
		50	0	[redacted]	20.8	[redacted]	3.0	23.0
	64QAM	1	0	[redacted]	21.1	[redacted]	3.0	23.0
		1	25	[redacted]	20.9	[redacted]	3.0	23.0
		1	49	[redacted]	21.0	[redacted]	3.0	23.0
		25	0	[redacted]	19.9	[redacted]	4.0	22.0
		25	12	[redacted]	19.8	[redacted]	4.0	22.0
		25	25	[redacted]	19.8	[redacted]	4.0	22.0
		50	0	[redacted]	19.9	[redacted]	4.0	22.0

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	24.5	24.4	24.3	0.0	26.0
		1	12	24.6	24.6	24.2	0.0	26.0
		1	24	24.6	24.4	24.3	0.0	26.0
		12	0	22.0	22.0	21.8	2.5	23.5
		12	7	22.0	21.9	21.8	2.5	23.5
		12	13	22.0	21.9	21.8	2.5	23.5
		25	0	22.0	21.9	21.8	2.5	23.5
	16QAM	1	0	22.1	22.2	22.3	2.5	23.5
		1	12	22.2	22.1	22.3	2.5	23.5
		1	24	22.2	22.2	22.1	2.5	23.5
		12	0	21.1	21.0	20.8	3.0	23.0
		12	7	21.1	21.0	20.8	3.0	23.0
		12	13	21.1	21.0	20.8	3.0	23.0
		25	0	21.0	20.9	20.7	3.0	23.0
	64QAM	1	0	20.9	21.3	21.0	3.0	23.0
		1	12	21.1	21.1	20.8	3.0	23.0
		1	24	21.0	21.1	21.0	3.0	23.0
		12	0	19.9	19.8	19.7	4.0	22.0
		12	7	19.9	19.8	19.7	4.0	22.0
		12	13	19.9	19.8	19.7	4.0	22.0
		25	0	19.9	19.8	19.7	4.0	22.0

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	24.5	24.5	24.3	0.0	26.0
		1	8	24.5	24.7	24.5	0.0	26.0
		1	14	24.5	24.5	24.3	0.0	26.0
		8	0	22.0	22.0	21.8	2.5	23.5
		8	4	22.0	21.9	21.7	2.5	23.5
		8	7	22.0	21.9	21.7	2.5	23.5
		15	0	22.0	21.9	21.7	2.5	23.5
	16QAM	1	0	22.3	22.1	21.9	2.5	23.5
		1	8	22.4	22.4	22.1	2.5	23.5
		1	14	22.2	22.3	21.8	2.5	23.5
		8	0	21.1	20.9	20.7	3.0	23.0
		8	4	21.0	20.9	20.7	3.0	23.0
		8	7	21.0	21.0	20.7	3.0	23.0
		15	0	21.0	20.8	20.7	3.0	23.0
	64QAM	1	0	21.1	20.9	20.7	3.0	23.0
		1	8	21.0	21.2	20.9	3.0	23.0
		1	14	21.0	21.0	21.0	3.0	23.0
		8	0	19.9	19.8	19.8	4.0	22.0
		8	4	19.8	19.8	19.8	4.0	22.0
		8	7	19.9	19.8	19.7	4.0	22.0
		15	0	19.8	19.8	19.7	4.0	22.0

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	24.4	24.4	24.2	0.0	26.0
		1	3	24.3	24.3	24.1	0.0	26.0
		1	5	24.4	24.4	24.2	0.0	26.0
		3	0	24.3	24.3	24.0	0.0	26.0
		3	1	24.4	24.3	24.0	0.0	26.0
		3	3	24.3	24.3	24.1	0.0	26.0
		6	0	22.0	21.9	21.6	2.5	23.5
	16QAM	1	0	22.1	22.1	21.6	2.5	23.5
		1	3	22.0	22.0	21.6	2.5	23.5
		1	5	22.1	22.1	21.8	2.5	23.5
		3	0	21.9	21.9	21.6	2.5	23.5
		3	1	21.9	22.0	21.5	2.5	23.5
		3	3	21.9	21.9	21.6	2.5	23.5
		6	0	21.0	20.9	20.7	3.0	23.0
	64QAM	1	0	20.8	21.0	20.9	3.0	23.0
		1	3	20.8	20.7	20.7	3.0	23.0
		1	5	20.9	21.0	20.7	3.0	23.0
		3	0	20.9	20.7	20.8	3.0	23.0
		3	1	20.9	20.7	20.8	3.0	23.0
		3	3	20.9	20.7	20.8	3.0	23.0
		6	0	20.0	19.8	19.7	4.0	22.0

LTE Band 13 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			
				Measured Pwr (dBm)		MPR	Tune-up Limit
				[redacted] 23230	[redacted]		
				782 MHz			
10 MHz	QPSK	1	0	24.7		0.0	25.9
		1	25	24.6		0.0	25.9
		1	49	24.6		0.0	25.9
		25	0	22.2		2.0	23.9
		25	12	22.2		2.0	23.9
		25	25	22.1		2.0	23.9
		50	0	22.2		2.0	23.9
	16QAM	1	0	22.3		2.0	23.9
		1	25	22.1		2.0	23.9
		1	49	22.2		2.0	23.9
		25	0	21.1		3.0	22.9
		25	12	21.1		3.0	22.9
		25	25	21.1		3.0	22.9
		50	0	21.1		3.0	22.9
	64QAM	1	0	21.3		3.0	22.9
		1	25	21.1		3.0	22.9
		1	49	21.1		3.0	22.9
		25	0	20.2		4.0	21.9
		25	12	20.2		4.0	21.9
		25	25	20.1		4.0	21.9
		50	0	20.1		4.0	21.9
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)		MPR	Tune-up Limit
				[redacted] 23230	[redacted]		
				782 MHz			
5 MHz	QPSK	1	0	24.7		0.0	25.9
		1	12	24.7		0.0	25.9
		1	24	24.7		0.0	25.9
		12	0	22.1		2.0	23.9
		12	7	22.1		2.0	23.9
		12	13	22.1		2.0	23.9
		25	0	22.1		2.0	23.9
	16QAM	1	0	22.3		2.0	23.9
		1	12	22.4		2.0	23.9
		1	24	22.3		2.0	23.9
		12	0	21.2		3.0	22.9
		12	7	21.2		3.0	22.9
		12	13	21.2		3.0	22.9
		25	0	21.1		3.0	22.9
	64QAM	1	0	21.2		3.0	22.9
		1	12	21.3		3.0	22.9
		1	24	21.2		3.0	22.9
		12	0	20.1		4.0	21.9
		12	7	20.0		4.0	21.9
		12	13	20.1		4.0	21.9
		25	0	20.1		4.0	21.9

LTE Band 26 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				[redacted]	26865	[redacted]		
				[redacted]	831.5 MHz	[redacted]		
15 MHz	QPSK	1	0	[redacted]	24.5	[redacted]	0.0	26.0
		1	37	[redacted]	24.2	[redacted]	0.0	26.0
		1	74	[redacted]	24.0	[redacted]	0.0	26.0
		36	0	[redacted]	23.6	[redacted]	1.0	25.0
		36	20	[redacted]	23.5	[redacted]	1.0	25.0
		36	39	[redacted]	23.5	[redacted]	1.0	25.0
		75	0	[redacted]	23.5	[redacted]	1.0	25.0
	16QAM	1	0	[redacted]	23.6	[redacted]	1.0	25.0
		1	37	[redacted]	23.6	[redacted]	1.0	25.0
		1	74	[redacted]	23.3	[redacted]	1.0	25.0
		36	0	[redacted]	22.5	[redacted]	2.0	24.0
		36	20	[redacted]	22.4	[redacted]	2.0	24.0
		36	39	[redacted]	22.4	[redacted]	2.0	24.0
		75	0	[redacted]	22.4	[redacted]	2.0	24.0
	64QAM	1	0	[redacted]	22.7	[redacted]	2.0	24.0
		1	37	[redacted]	22.8	[redacted]	2.0	24.0
		1	74	[redacted]	22.7	[redacted]	2.0	24.0
		36	0	[redacted]	22.7	[redacted]	3.0	23.0
		36	20	[redacted]	22.7	[redacted]	3.0	23.0
		36	39	[redacted]	22.7	[redacted]	3.0	23.0
		75	0	[redacted]	22.7	[redacted]	3.0	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	24.5	24.5	24.3	0.0	26.0
		1	25	24.4	24.4	24.2	0.0	26.0
		1	49	24.3	24.4	23.6	0.0	26.0
		25	0	23.3	23.4	23.2	1.0	25.0
		25	12	23.3	23.3	23.2	1.0	25.0
		25	25	23.3	23.3	23.2	1.0	25.0
		50	0	23.3	23.4	23.2	1.0	25.0
	16QAM	1	0	23.4	23.6	23.5	1.0	25.0
		1	25	23.3	23.3	23.4	1.0	25.0
		1	49	23.4	23.5	23.2	1.0	25.0
		25	0	22.3	22.4	22.2	2.0	24.0
		25	12	22.3	22.3	22.2	2.0	24.0
		25	25	22.3	22.3	22.2	2.0	24.0
		50	0	22.3	22.3	22.2	2.0	24.0
	64QAM	1	0	22.3	22.6	22.4	2.0	24.0
		1	25	22.2	22.3	22.3	2.0	24.0
		1	49	22.3	22.5	22.4	2.0	24.0
		25	0	21.3	21.5	21.4	3.0	23.0
		25	12	21.4	21.4	21.3	3.0	23.0
		25	25	21.3	21.4	21.3	3.0	23.0
		50	0	21.3	21.4	21.4	3.0	23.0

LTE Band 26 Measured Results (Continued)

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	24.4	24.4	24.2	0.0	26.0
		1	12	24.4	24.5	24.4	0.0	26.0
		1	24	24.4	24.4	24.0	0.0	26.0
		12	0	23.3	23.4	23.2	1.0	25.0
		12	7	23.3	23.3	23.2	1.0	25.0
		12	13	23.3	23.3	23.2	1.0	25.0
		25	0	23.3	23.3	23.1	1.0	25.0
	16QAM	1	0	23.6	23.5	23.4	1.0	25.0
		1	12	23.8	23.6	23.3	1.0	25.0
		1	24	23.6	23.5	23.5	1.0	25.0
		12	0	22.2	22.3	22.2	2.0	24.0
		12	7	22.2	22.3	22.2	2.0	24.0
		12	13	22.2	22.3	22.1	2.0	24.0
		25	0	22.2	22.3	22.1	2.0	24.0
	64QAM	1	0	22.4	22.5	22.7	2.0	24.0
		1	12	22.4	22.6	22.5	2.0	24.0
		1	24	22.6	22.5	22.5	2.0	24.0
		12	0	21.3	21.4	21.3	3.0	23.0
		12	7	21.3	21.4	21.2	3.0	23.0
		12	13	21.3	21.4	21.3	3.0	23.0
		25	0	21.3	21.4	21.2	3.0	23.0

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	24.4	24.4	24.2	0.0	26.0
		1	8	24.6	24.4	24.5	0.0	26.0
		1	14	24.4	24.4	24.2	0.0	26.0
		8	0	23.4	23.4	23.1	1.0	25.0
		8	4	23.4	23.4	23.1	1.0	25.0
		8	7	23.4	23.4	23.1	1.0	25.0
		15	0	23.3	23.3	23.1	1.0	25.0
	16QAM	1	0	23.4	23.5	23.3	1.0	25.0
		1	8	23.3	23.5	23.6	1.0	25.0
		1	14	23.4	23.4	23.4	1.0	25.0
		8	0	22.3	22.4	22.1	2.0	24.0
		8	4	22.3	22.4	22.1	2.0	24.0
		8	7	22.3	22.4	22.0	2.0	24.0
		15	0	22.2	22.3	22.1	2.0	24.0
	64QAM	1	0	22.5	22.6	21.9	2.0	24.0
		1	8	22.4	22.8	22.2	2.0	24.0
		1	14	22.3	22.7	22.0	2.0	24.0
		8	0	21.2	21.4	21.3	3.0	23.0
		8	4	21.2	21.4	21.3	3.0	23.0
		8	7	21.2	21.4	21.2	3.0	23.0
		15	0	21.3	21.4	21.2	3.0	23.0

LTE Band 26 Measured Results (Continued)

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	24.4	24.3	24.0	0.0	26.0
		1	3	24.4	24.2	23.9	0.0	26.0
		1	5	24.4	24.3	24.0	0.0	26.0
		3	0	24.1	24.2	23.9	0.0	26.0
		3	1	24.1	24.2	23.9	0.0	26.0
		3	3	24.1	24.2	23.9	0.0	26.0
		6	0	23.4	23.3	23.0	1.0	25.0
	16QAM	1	0	23.3	23.3	23.1	1.0	25.0
		1	3	23.3	22.9	23.0	1.0	25.0
		1	5	23.3	23.2	23.2	1.0	25.0
		3	0	23.1	23.2	22.9	1.0	25.0
		3	1	23.2	23.2	22.8	1.0	25.0
		3	3	23.1	23.2	22.9	1.0	25.0
		6	0	22.2	22.4	22.0	2.0	24.0
	64QAM	1	0	22.2	22.4	22.1	2.0	24.0
		1	3	22.2	22.4	22.2	2.0	24.0
		1	5	22.3	22.4	22.1	2.0	24.0
		3	0	22.2	22.3	22.0	2.0	24.0
		3	1	22.2	22.4	22.0	2.0	24.0
		3	3	22.3	22.4	22.0	2.0	24.0
		6	0	21.3	21.5	21.1	3.0	23.0

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	23.8	24.1	24.3	0.0	25
		1	49	23.8	24.1	24.1	0.0	25
		1	99	24.0	24.1	24.1	0.0	25
		50	0	22.9	23.1	23.2	1.0	24
		50	24	22.9	23.1	23.2	1.0	24
		50	50	22.9	23.1	23.2	1.0	24
		100	0	22.9	23.1	23.2	1.0	24
	16QAM	1	0	23.0	23.4	23.4	1.0	24
		1	49	22.9	23.3	23.2	1.0	24
		1	99	23.0	23.4	23.3	1.0	24
		50	0	21.9	22.1	22.2	2.0	23
		50	24	21.9	22.1	22.1	2.0	23
		50	50	21.8	22.1	22.1	2.0	23
		100	0	21.9	22.1	22.1	2.0	23
	64QAM	1	0	22.9	22.1	22.1	2.0	23
		1	49	22.1	22.1	22.1	2.0	23
		1	99	22.2	22.1	22.1	2.0	23
		50	0	21.0	21.3	21.6	3.0	22
		50	24	21.0	21.3	21.5	3.0	22
		50	50	21.0	21.3	21.5	3.0	22
		100	0	21.0	21.3	21.5	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	23.4	24.0	24.3	0.0	25
		1	37	23.7	24.1	24.2	0.0	25
		1	74	23.8	24.0	23.8	0.0	25
		36	0	22.9	23.3	23.4	1.0	24
		36	20	22.9	23.2	23.3	1.0	24
		36	39	22.9	23.2	23.2	1.0	24
		75	0	22.9	23.2	23.3	1.0	24
	16QAM	1	0	22.6	23.3	23.7	1.0	24
		1	37	22.8	23.2	23.7	1.0	24
		1	74	22.8	23.3	23.6	1.0	24
		36	0	21.8	22.2	22.3	2.0	23
		36	20	21.8	22.1	22.3	2.0	23
		36	39	21.8	22.1	22.2	2.0	23
		75	0	21.8	22.2	22.3	2.0	23
	64QAM	1	0	21.9	22.0	22.1	2.0	23
		1	37	21.8	22.1	22.1	2.0	23
		1	74	21.8	22.0	22.1	2.0	23
		36	0	20.7	20.8	21.1	3.0	22
		36	20	20.6	20.7	21.1	3.0	22
		36	39	20.6	20.7	21.1	3.0	22
		75	0	20.7	20.7	21.0	3.0	22

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	23.7	24.2	24.3	0.0	25
		1	25	23.6	24.0	24.1	0.0	25
		1	49	23.7	24.2	24.2	0.0	25
		25	0	22.7	23.1	23.2	1.0	24
		25	12	22.7	23.1	23.2	1.0	24
		25	25	22.7	23.1	23.2	1.0	24
		50	0	22.7	23.1	23.2	1.0	24
	16QAM	1	0	22.7	23.2	23.5	1.0	24
		1	25	22.6	23.1	23.4	1.0	24
		1	49	22.7	23.2	23.4	1.0	24
		25	0	21.7	22.1	22.2	2.0	23
		25	12	21.7	22.1	22.2	2.0	23
		25	25	21.7	22.1	22.2	2.0	23
		50	0	21.7	22.1	22.2	2.0	23
	64QAM	1	0	21.8	21.9	22.1	2.0	23
		1	25	21.6	21.8	22.0	2.0	23
		1	49	21.7	21.9	22.1	2.0	23
		25	0	20.7	20.8	21.1	3.0	22
		25	12	20.7	20.8	21.1	3.0	22
		25	25	20.6	20.8	21.1	3.0	22
		50	0	20.7	20.7	21.1	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	24.1	24.1	0.0	25
		1	12	23.6	24.3	24.3	0.0	25
		1	24	23.6	24.2	24.2	0.0	25
		12	0	22.6	23.1	23.1	1.0	24
		12	7	22.6	23.1	23.1	1.0	24
		12	13	22.6	23.1	23.1	1.0	24
		25	0	22.6	23.1	23.1	1.0	24
	16QAM	1	0	22.9	23.3	23.4	1.0	24
		1	12	23.1	23.5	23.4	1.0	24
		1	24	22.9	23.4	23.4	1.0	24
		12	0	21.6	22.1	22.2	2.0	23
		12	7	21.5	22.1	22.1	2.0	23
		12	13	21.5	22.1	22.1	2.0	23
		25	0	21.6	22.1	22.1	2.0	23
	64QAM	1	0	21.9	21.8	22.5	2.0	23
		1	12	21.9	21.8	22.4	2.0	23
		1	24	22.0	21.9	22.4	2.0	23
		12	0	20.7	20.7	21.1	3.0	22
		12	7	20.7	20.7	21.1	3.0	22
		12	13	20.7	20.8	21.1	3.0	22
		25	0	20.6	20.7	21.1	3.0	22

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	23.6	24.1	24.1	0.0	25
		1	8	23.7	23.9	24.3	0.0	25
		1	14	23.6	24.0	24.1	0.0	25
		8	0	22.6	23.1	23.1	1.0	24
		8	4	22.6	23.1	23.0	1.0	24
		8	7	22.5	23.1	23.0	1.0	24
		15	0	22.5	23.1	23.0	1.0	24
	16QAM	1	0	22.6	23.2	23.3	1.0	24
		1	8	22.8	23.3	23.3	1.0	24
		1	14	22.6	23.2	23.2	1.0	24
		8	0	21.5	22.1	22.0	2.0	23
		8	4	21.5	22.1	22.0	2.0	23
		8	7	21.5	22.1	22.0	2.0	23
		15	0	21.5	22.1	22.0	2.0	23
	64QAM	1	0	21.8	21.8	22.1	2.0	23
		1	8	21.8	22.0	22.3	2.0	23
		1	14	21.7	21.9	22.1	2.0	23
		8	0	20.6	20.7	21.1	3.0	22
		8	4	20.6	20.7	21.1	3.0	22
		8	7	20.6	20.7	21.1	3.0	22
		15	0	20.6	20.7	21.1	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	24.0	24.0	0.0	25
		1	3	23.3	23.8	23.9	0.0	25
		1	5	23.5	24.0	24.0	0.0	25
		3	0	23.4	23.9	23.9	0.0	25
		3	1	23.5	23.8	23.9	0.0	25
		3	3	23.4	24.0	23.9	0.0	25
		6	0	22.5	23.0	23.0	1.0	24
	16QAM	1	0	22.5	23.2	23.1	1.0	24
		1	3	22.6	23.1	23.3	1.0	24
		1	5	22.5	23.0	23.1	1.0	24
		3	0	22.4	23.0	22.9	1.0	24
		3	1	22.4	22.9	23.0	1.0	24
		3	3	22.5	23.0	22.9	1.0	24
		6	0	21.5	22.1	22.0	2.0	23
	64QAM	1	0	21.5	21.7	22.2	2.0	23
		1	3	21.5	21.8	22.0	2.0	23
		1	5	21.4	21.7	22.2	2.0	23
		3	0	21.6	21.6	22.0	2.0	23
		3	1	21.6	21.8	22.1	2.0	23
		3	3	21.6	21.7	22.0	2.0	23
		6	0	20.6	20.8	21.0	3.0	22

2. Reduced power Results

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				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	21.0	21.4	21.3	0.0	22.0	21.0	21.3	21.3	0.0	22.0
		1	49	20.7	21.3	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		1	99	21.2	21.0	21.1	0.0	22.0	21.1	21.3	21.0	0.0	22.0
		50	0	21.1	21.3	21.3	0.0	22.0	21.0	21.3	21.2	0.0	22.0
		50	24	20.8	21.3	21.2	0.0	22.0	21.0	21.2	21.2	0.0	22.0
		50	50	21.0	21.3	21.2	0.0	22.0	21.1	21.3	21.1	0.0	22.0
		100	0	21.1	21.3	21.2	0.0	22.0	21.1	21.3	21.2	0.0	22.0
	16QAM	1	0	21.4	21.8	21.6	0.0	22.0	21.4	21.6	21.7	0.0	22.0
		1	49	21.1	21.7	21.3	0.0	22.0	21.4	21.5	21.4	0.0	22.0
		1	99	21.6	21.5	21.4	0.0	22.0	21.5	21.7	21.5	0.0	22.0
		50	0	21.1	21.3	21.3	0.0	22.0	21.0	21.3	21.2	0.0	22.0
		50	24	20.8	21.3	21.2	0.0	22.0	21.0	21.3	21.2	0.0	22.0
		50	50	21.1	21.3	21.2	0.0	22.0	21.0	21.3	21.1	0.0	22.0
		100	0	21.1	21.3	21.2	0.0	22.0	21.1	21.3	21.1	0.0	22.0
	64QAM	1	0	21.2	21.4	21.5	0.0	22.0	21.1	21.5	21.6	0.0	22.0
		1	49	21.1	21.3	21.4	0.0	22.0	21.1	21.4	21.4	0.0	22.0
		1	99	21.3	21.6	21.4	0.0	22.0	21.2	21.5	21.4	0.0	22.0
		50	0	21.0	21.3	21.2	0.0	22.0	21.1	21.3	21.2	0.0	22.0
		50	24	21.0	21.3	21.1	0.0	22.0	21.1	21.3	21.2	0.0	22.0
		50	50	21.1	21.3	21.1	0.0	22.0	21.1	21.2	21.1	0.0	22.0
		100	0	21.1	21.3	21.1	0.0	22.0	21.1	21.3	21.1	0.0	22.0

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	21.0	21.3	21.3	0.0	22.0	21.0	21.2	21.3	0.0	22.0
		1	37	21.0	21.3	21.3	0.0	22.0	21.0	21.2	21.4	0.0	22.0
		1	74	20.7	20.7	20.9	0.0	22.0	20.8	21.0	21.1	0.0	22.0
		36	0	21.0	21.3	21.2	0.0	22.0	21.0	21.2	21.2	0.0	22.0
		36	20	21.0	21.3	21.2	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		36	39	20.9	21.3	21.2	0.0	22.0	21.0	21.2	21.1	0.0	22.0
		75	0	21.0	21.3	21.2	0.0	22.0	21.0	21.2	21.1	0.0	22.0
	16QAM	1	0	21.2	21.5	21.5	0.0	22.0	21.3	21.5	21.6	0.0	22.0
		1	37	21.3	21.6	21.6	0.0	22.0	21.5	21.6	21.6	0.0	22.0
		1	74	20.9	21.0	21.2	0.0	22.0	21.2	21.4	21.3	0.0	22.0
		36	0	21.0	21.3	21.3	0.0	22.0	20.9	21.2	21.2	0.0	22.0
		36	20	21.0	21.3	21.2	0.0	22.0	20.9	21.2	21.2	0.0	22.0
		36	39	20.9	21.3	21.2	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		75	0	21.0	21.3	21.2	0.0	22.0	20.9	21.2	21.1	0.0	22.0
	64QAM	1	0	21.0	21.4	21.3	0.0	22.0	21.0	21.3	21.4	0.0	22.0
		1	37	21.0	21.5	21.2	0.0	22.0	21.1	21.4	21.2	0.0	22.0
		1	74	21.0	21.2	21.1	0.0	22.0	21.1	21.2	21.2	0.0	22.0
		36	0	20.9	21.3	21.2	0.0	22.0	20.9	21.2	21.2	0.0	22.0
		36	20	20.9	21.3	21.2	0.0	22.0	20.9	21.2	21.2	0.0	22.0
		36	39	20.9	21.3	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		75	0	21.0	21.2	21.1	0.0	22.0	21.0	21.2	21.1	0.0	22.0

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	20.9	21.2	21.2	0.0	22.0	20.9	21.2	21.2	0.0	22.0
		1	25	20.9	21.1	21.0	0.0	22.0	20.8	21.1	21.0	0.0	22.0
		1	49	20.8	21.2	21.1	0.0	22.0	20.9	21.2	21.0	0.0	22.0
		25	0	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		25	12	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.0	0.0	22.0
		25	25	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.0	0.0	22.0
		50	0	20.9	21.3	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
	16QAM	1	0	21.1	21.6	21.6	0.0	22.0	21.0	21.5	21.5	0.0	22.0
		1	25	21.0	21.5	21.4	0.0	22.0	20.9	21.3	21.4	0.0	22.0
		1	49	21.0	21.5	21.5	0.0	22.0	21.0	21.5	21.4	0.0	22.0
		25	0	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		25	12	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		25	25	21.0	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		50	0	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
	64QAM	1	0	21.1	21.3	21.2	0.0	22.0	21.0	21.3	21.3	0.0	22.0
		1	25	21.0	21.1	21.0	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		1	49	21.1	21.3	21.1	0.0	22.0	21.0	21.3	21.2	0.0	22.0
		25	0	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		25	12	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		25	25	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		50	0	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0

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	20.9	21.2	21.1	0.0	22.0	20.8	21.1	21.1	0.0	22.0
		1	12	21.0	21.2	21.2	0.0	22.0	20.9	21.2	21.2	0.0	22.0
		1	24	21.0	21.3	21.2	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		12	0	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		12	7	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		12	13	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		25	0	20.9	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
	16QAM	1	0	21.1	21.6	21.4	0.0	22.0	21.2	21.6	21.4	0.0	22.0
		1	12	21.2	21.7	21.4	0.0	22.0	21.3	21.8	21.5	0.0	22.0
		1	24	21.2	21.5	21.3	0.0	22.0	21.4	21.5	21.5	0.0	22.0
		12	0	21.0	21.2	21.1	0.0	22.0	21.0	21.2	21.2	0.0	22.0
		12	7	21.0	21.2	21.1	0.0	22.0	21.0	21.2	21.1	0.0	22.0
		12	13	21.0	21.2	21.2	0.0	22.0	21.0	21.1	21.2	0.0	22.0
		25	0	21.0	21.2	21.1	0.0	22.0	20.9	21.1	21.1	0.0	22.0
	64QAM	1	0	20.9	21.6	21.3	0.0	22.0	21.2	21.3	21.1	0.0	22.0
		1	12	20.8	21.6	21.2	0.0	22.0	21.4	21.3	21.1	0.0	22.0
		1	24	21.1	21.5	21.4	0.0	22.0	21.2	21.4	21.2	0.0	22.0
		12	0	20.8	21.1	21.0	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		12	7	20.8	21.1	21.0	0.0	22.0	20.9	21.2	21.0	0.0	22.0
		12	13	20.9	21.2	21.0	0.0	22.0	20.9	21.2	21.0	0.0	22.0
		25	0	20.8	21.2	21.0	0.0	22.0	20.8	21.2	21.0	0.0	22.0

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	20.8	21.2	21.1	0.0	22.0	20.9	21.2	21.1	0.0	22.0
		1	8	20.9	21.2	21.3	0.0	22.0	20.9	21.1	21.3	0.0	22.0
		1	14	20.9	21.1	21.1	0.0	22.0	20.9	21.2	21.2	0.0	22.0
		8	0	20.8	21.1	21.0	0.0	22.0	20.8	21.2	21.0	0.0	22.0
		8	4	20.8	21.2	21.1	0.0	22.0	20.8	21.2	21.1	0.0	22.0
		8	7	20.8	21.2	21.1	0.0	22.0	20.8	21.2	21.1	0.0	22.0
		15	0	20.8	21.2	21.1	0.0	22.0	20.8	21.2	21.1	0.0	22.0
	16QAM	1	0	21.0	21.6	21.5	0.0	22.0	21.0	21.5	21.4	0.0	22.0
		1	8	21.1	21.5	21.6	0.0	22.0	21.2	21.6	21.4	0.0	22.0
		1	14	21.0	21.4	21.6	0.0	22.0	21.0	21.4	21.5	0.0	22.0
		8	0	20.8	21.2	21.1	0.0	22.0	20.8	21.2	21.1	0.0	22.0
		8	4	20.7	21.2	21.2	0.0	22.0	20.8	21.2	21.1	0.0	22.0
		8	7	20.8	21.3	21.1	0.0	22.0	20.9	21.2	21.0	0.0	22.0
		15	0	20.8	21.2	21.1	0.0	22.0	20.8	21.2	21.1	0.0	22.0
	64QAM	1	0	21.2	21.3	21.2	0.0	22.0	21.0	21.3	21.2	0.0	22.0
		1	8	21.0	21.3	21.4	0.0	22.0	21.0	21.4	21.4	0.0	22.0
		1	14	21.1	21.4	21.2	0.0	22.0	21.0	21.5	21.2	0.0	22.0
		8	0	20.8	21.1	21.1	0.0	22.0	20.7	21.2	21.1	0.0	22.0
		8	4	20.8	21.1	21.1	0.0	22.0	20.7	21.1	21.1	0.0	22.0
		8	7	20.8	21.1	21.0	0.0	22.0	20.7	21.1	21.1	0.0	22.0
		15	0	20.8	21.1	21.1	0.0	22.0	20.8	21.1	21.1	0.0	22.0

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	20.5	21.1	21.0	0.0	22.0	20.7	21.1	21.0	0.0	22.0
		1	3	20.5	20.9	20.9	0.0	22.0	20.7	21.0	21.0	0.0	22.0
		1	5	20.7	21.1	21.0	0.0	22.0	20.7	21.1	21.1	0.0	22.0
		3	0	20.6	21.0	20.9	0.0	22.0	20.7	21.1	21.0	0.0	22.0
		3	1	20.5	21.1	20.9	0.0	22.0	20.7	21.1	20.9	0.0	22.0
		3	3	20.6	21.0	21.0	0.0	22.0	20.7	21.1	21.0	0.0	22.0
		6	0	20.7	21.1	20.9	0.0	22.0	20.8	21.1	21.0	0.0	22.0
	16QAM	1	0	21.0	21.2	21.1	0.0	22.0	21.0	21.4	21.3	0.0	22.0
		1	3	21.0	21.2	21.1	0.0	22.0	20.9	21.3	21.1	0.0	22.0
		1	5	21.0	21.2	21.1	0.0	22.0	21.0	21.3	21.3	0.0	22.0
		3	0	20.8	21.1	21.0	0.0	22.0	20.7	21.1	21.1	0.0	22.0
		3	1	20.9	21.1	20.9	0.0	22.0	20.6	21.0	21.2	0.0	22.0
		3	3	20.8	21.1	21.0	0.0	22.0	20.7	21.1	21.1	0.0	22.0
		6	0	20.7	21.2	21.0	0.0	22.0	20.9	21.3	21.0	0.0	22.0
	64QAM	1	0	20.7	21.4	21.1	0.0	22.0	21.1	21.5	21.5	0.0	22.0
		1	3	20.5	21.1	21.2	0.0	22.0	21.4	21.4	21.5	0.0	22.0
		1	5	20.8	21.4	21.2	0.0	22.0	21.5	21.5	21.5	0.0	22.0
		3	0	20.6	21.1	21.1	0.0	22.0	21.3	21.3	21.3	0.0	22.0
		3	1	20.8	21.2	21.2	0.0	22.0	21.3	21.3	21.3	0.0	22.0
		3	3	20.7	21.2	21.2	0.0	22.0	21.3	21.3	21.3	0.0	22.0
		6	0	20.9	21.2	21.1	0.0	22.0	21.2	21.2	21.3	0.0	22.0

LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				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	20.8	20.8	21.1	0.0	22	20.8	20.8	21.1	0.0	22
		1	49	20.6	20.7	21.0	0.0	22	20.7	20.6	21.0	0.0	22
		1	99	20.6	20.8	21.1	0.0	22	20.6	20.8	21.1	0.0	22
		50	0	20.8	20.8	21.1	0.0	22	20.8	20.8	21.1	0.0	22
		50	24	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		50	50	20.7	20.8	21.1	0.0	22	20.6	20.8	21.1	0.0	22
		100	0	20.7	20.8	21.1	0.0	22	20.7	20.7	21.1	0.0	22
	16QAM	1	0	21.1	21.2	21.2	0.0	22	21.2	21.2	21.3	0.0	22
		1	49	20.9	21.1	21.1	0.0	22	20.9	21.0	21.2	0.0	22
		1	99	20.9	21.2	21.3	0.0	22	20.9	21.2	21.4	0.0	22
		50	0	20.8	20.8	21.1	0.0	22	20.7	20.7	21.1	0.0	22
		50	24	20.7	20.8	21.1	0.0	22	20.7	20.7	21.1	0.0	22
		50	50	20.6	20.8	21.1	0.0	22	20.6	20.7	21.1	0.0	22
		100	0	20.7	20.8	21.0	0.0	22	20.7	20.7	21.0	0.0	22
	64QAM	1	0	21.0	21.0	21.1	0.0	22	21.1	21.0	21.1	0.0	22
		1	49	20.9	20.9	21.1	0.0	22	20.8	20.9	21.0	0.0	22
		1	99	20.9	21.0	21.1	0.0	22	21.0	21.0	21.1	0.0	22
		50	0	20.7	20.7	21.0	0.0	22	20.7	20.7	20.9	0.0	22
		50	24	20.7	20.7	21.0	0.0	22	20.7	20.7	20.9	0.0	22
		50	50	20.6	20.7	21.0	0.0	22	20.6	20.7	20.9	0.0	22
		100	0	20.6	20.7	21.0	0.0	22	20.7	20.6	20.9	0.0	22
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	20.8	20.8	21.1	0.0	22	20.8	20.8	21.1	0.0	22
		1	37	20.6	20.7	21.3	0.0	22	20.9	20.8	21.1	0.0	22
		1	74	20.6	20.8	21.1	0.0	22	20.6	20.8	21.1	0.0	22
		36	0	20.8	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		36	20	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		36	39	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		75	0	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
	16QAM	1	0	21.0	21.0	21.4	0.0	22	21.1	21.1	21.3	0.0	22
		1	37	21.0	21.1	21.5	0.0	22	21.1	21.1	21.3	0.0	22
		1	74	20.9	21.0	21.3	0.0	22	20.9	21.1	21.2	0.0	22
		36	0	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		36	20	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		36	39	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		75	0	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
	64QAM	1	0	20.9	20.9	21.1	0.0	22	20.8	21.1	21.1	0.0	22
		1	37	20.8	20.9	21.2	0.0	22	20.7	21.2	21.1	0.0	22
		1	74	20.7	20.8	21.1	0.0	22	20.7	21.0	21.0	0.0	22
		36	0	20.7	20.7	21.0	0.0	22	20.6	20.7	21.0	0.0	22
		36	20	20.7	20.7	21.0	0.0	22	20.5	20.7	21.0	0.0	22
		36	39	20.6	20.7	20.9	0.0	22	20.5	20.7	21.0	0.0	22
		75	0	20.6	20.7	21.0	0.0	22	20.6	20.7	21.0	0.0	22

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	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		1	25	20.6	20.7	21.0	0.0	22	20.6	20.7	21.0	0.0	22
		1	49	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		25	0	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		25	12	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		25	25	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		50	0	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
	16QAM	1	0	20.9	21.1	21.5	0.0	22	21.0	21.1	21.3	0.0	22
		1	25	20.7	21.0	21.4	0.0	22	20.9	20.9	21.1	0.0	22
		1	49	20.8	21.1	21.5	0.0	22	21.0	21.1	21.2	0.0	22
		25	0	20.7	20.8	21.1	0.0	22	20.7	20.9	21.1	0.0	22
		25	12	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		25	25	20.7	20.8	21.1	0.0	22	20.7	20.9	21.1	0.0	22
		50	0	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
	64QAM	1	0	20.6	20.8	21.1	0.0	22	20.7	20.9	21.1	0.0	22
		1	25	20.5	20.7	21.0	0.0	22	20.5	20.8	21.0	0.0	22
		1	49	20.6	20.8	21.0	0.0	22	20.6	20.9	21.1	0.0	22
		25	0	20.6	20.7	21.0	0.0	22	20.6	20.7	21.0	0.0	22
		25	12	20.6	20.7	21.0	0.0	22	20.6	20.7	20.9	0.0	22
		25	25	20.6	20.7	21.0	0.0	22	20.5	20.7	21.0	0.0	22
		50	0	20.6	20.7	21.0	0.0	22	20.5	20.7	21.0	0.0	22

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	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		1	12	20.6	21.0	21.3	0.0	22	20.7	20.9	21.1	0.0	22
		1	24	20.7	20.9	21.1	0.0	22	20.7	20.9	21.2	0.0	22
		12	0	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		12	7	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		12	13	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
		25	0	20.7	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
	16QAM	1	0	21.1	21.2	21.4	0.0	22	21.1	21.0	21.5	0.0	22
		1	12	21.3	21.3	21.3	0.0	22	21.1	21.1	21.5	0.0	22
		1	24	21.1	21.3	21.4	0.0	22	21.2	21.1	21.4	0.0	22
		12	0	20.7	20.9	21.2	0.0	22	20.7	20.9	21.1	0.0	22
		12	7	20.7	20.8	21.2	0.0	22	20.7	20.9	21.0	0.0	22
		12	13	20.6	20.8	21.2	0.0	22	20.7	20.9	21.0	0.0	22
		25	0	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
	64QAM	1	0	21.0	20.8	21.2	0.0	22	20.7	21.1	21.1	0.0	22
		1	12	20.9	20.9	21.3	0.0	22	20.7	21.0	20.8	0.0	22
		1	24	20.9	20.9	21.2	0.0	22	20.8	21.0	21.1	0.0	22
		12	0	20.5	20.7	21.0	0.0	22	20.5	20.7	21.0	0.0	22
		12	7	20.5	20.7	21.0	0.0	22	20.5	20.7	21.0	0.0	22
		12	13	20.5	20.7	21.0	0.0	22	20.5	20.7	21.0	0.0	22
		25	0	20.5	20.7	21.0	0.0	22	20.5	20.7	21.0	0.0	22

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	20.6	20.8	21.1	0.0	22	20.7	20.9	21.1	0.0	22
		1	8	20.8	20.7	21.3	0.0	22	21.0	20.8	21.2	0.0	22
		1	14	20.7	20.7	21.2	0.0	22	20.8	20.8	21.2	0.0	22
		8	0	20.7	20.8	21.1	0.0	22	20.6	20.8	21.1	0.0	22
		8	4	20.6	20.7	21.1	0.0	22	20.6	20.8	21.1	0.0	22
		8	7	20.6	20.8	21.1	0.0	22	20.6	20.8	21.1	0.0	22
		15	0	20.6	20.8	21.1	0.0	22	20.6	20.8	21.1	0.0	22
	16QAM	1	0	20.7	21.2	21.5	0.0	22	20.9	21.3	21.4	0.0	22
		1	8	20.8	21.1	21.5	0.0	22	21.0	21.0	21.5	0.0	22
		1	14	20.9	21.1	21.5	0.0	22	21.0	21.1	21.4	0.0	22
		8	0	20.6	20.8	21.1	0.0	22	20.6	20.8	21.1	0.0	22
		8	4	20.6	20.8	21.2	0.0	22	20.7	20.8	21.1	0.0	22
		8	7	20.6	20.8	21.1	0.0	22	20.6	20.8	21.1	0.0	22
		15	0	20.6	20.8	21.1	0.0	22	20.7	20.8	21.1	0.0	22
	64QAM	1	0	20.8	20.8	21.0	0.0	22	20.9	20.8	21.0	0.0	22
		1	8	20.9	20.5	21.1	0.0	22	20.7	20.9	21.2	0.0	22
		1	14	20.8	20.8	21.2	0.0	22	20.6	20.9	21.2	0.0	22
		8	0	20.6	20.6	21.0	0.0	22	20.5	20.7	21.0	0.0	22
		8	4	20.5	20.6	21.0	0.0	22	20.5	20.7	21.0	0.0	22
		8	7	20.6	20.6	21.0	0.0	22	20.5	20.7	21.0	0.0	22
		15	0	20.5	20.6	21.1	0.0	22	20.5	20.7	21.0	0.0	22

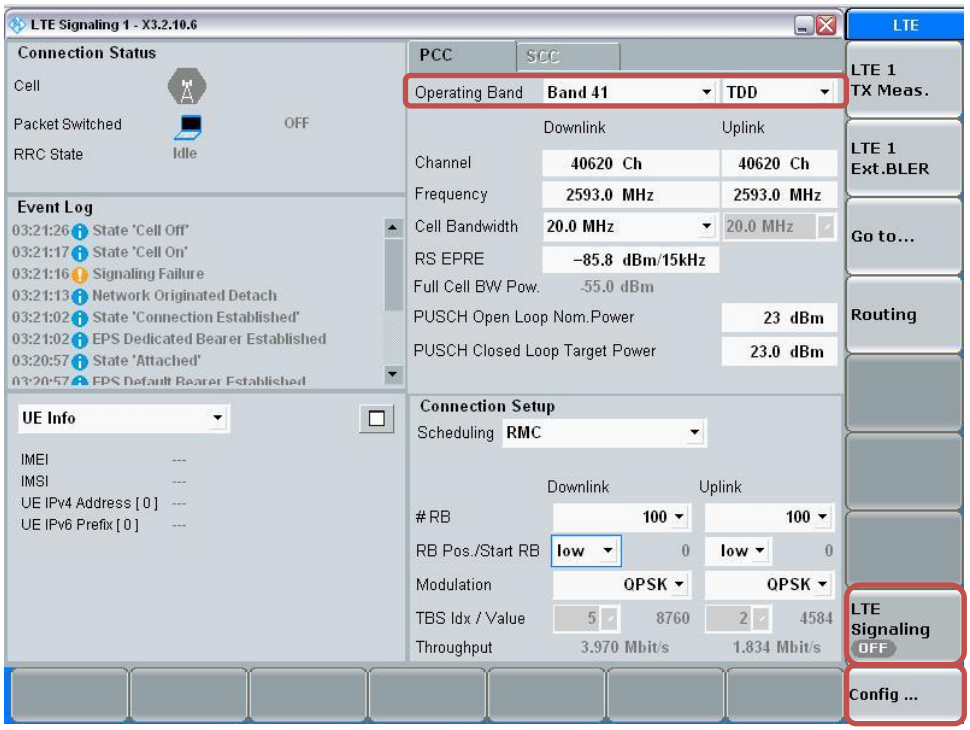
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131979	132322	132665			131979	132322	132665		
				1710.7 MHz	1745 MHz	1779.3 MHz			1710.7 MHz	1745 MHz	1779.3 MHz		
1.4 MHz	QPSK	1	0	20.4	20.7	21.0	0.0	22	20.6	20.7	21.0	0.0	22
		1	3	20.3	20.6	21.0	0.0	22	20.4	20.6	21.0	0.0	22
		1	5	20.4	20.8	21.1	0.0	22	20.6	20.7	21.1	0.0	22
		3	0	20.4	20.6	21.0	0.0	22	20.5	20.6	21.0	0.0	22
		3	1	20.4	20.7	21.0	0.0	22	20.4	20.6	21.0	0.0	22
		3	3	20.4	20.6	21.0	0.0	22	20.5	20.7	21.0	0.0	22
		6	0	20.5	20.7	21.0	0.0	22	20.6	20.7	21.0	0.0	22
	16QAM	1	0	20.8	20.8	21.2	0.0	22	21.0	20.8	21.2	0.0	22
		1	3	20.6	20.7	21.1	0.0	22	20.9	20.7	21.2	0.0	22
		1	5	20.8	20.8	21.2	0.0	22	21.0	20.8	21.3	0.0	22
		3	0	20.5	20.8	21.1	0.0	22	20.6	20.7	21.0	0.0	22
		3	1	20.7	20.7	20.9	0.0	22	20.7	20.7	21.0	0.0	22
		3	3	20.6	20.8	21.0	0.0	22	20.6	20.8	21.1	0.0	22
		6	0	20.5	20.8	21.1	0.0	22	20.6	20.9	21.2	0.0	22
	64QAM	1	0	20.5	20.5	20.9	0.0	22	20.7	20.8	21.3	0.0	22
		1	3	20.2	20.7	21.0	0.0	22	20.9	20.8	21.3	0.0	22
		1	5	20.5	20.5	21.0	0.0	22	20.9	20.9	21.3	0.0	22
		3	0	20.5	20.6	21.0	0.0	22	20.7	20.7	21.2	0.0	22
		3	1	20.5	20.7	21.0	0.0	22	20.7	20.7	21.2	0.0	22
		3	3	20.5	20.7	21.0	0.0	22	20.7	20.7	21.2	0.0	22
		6	0	20.4	20.8	20.9	0.0	22	20.8	20.7	21.1	0.0	22

LTE Band TDD Measured Results

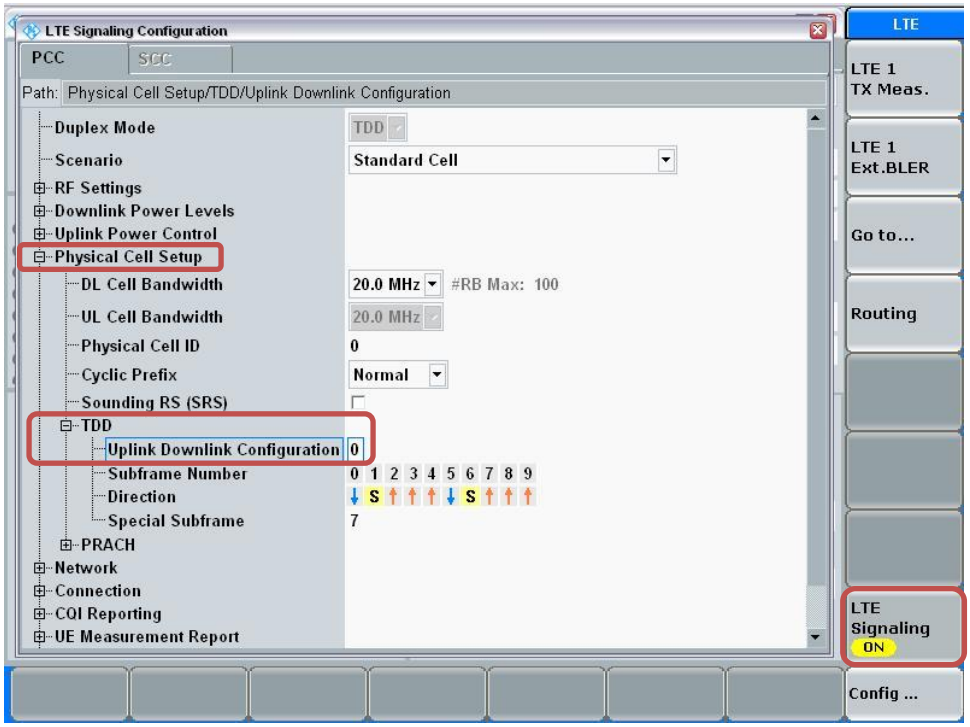
Procedure used to establish SAR test signal for LTE TDD Band

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….”

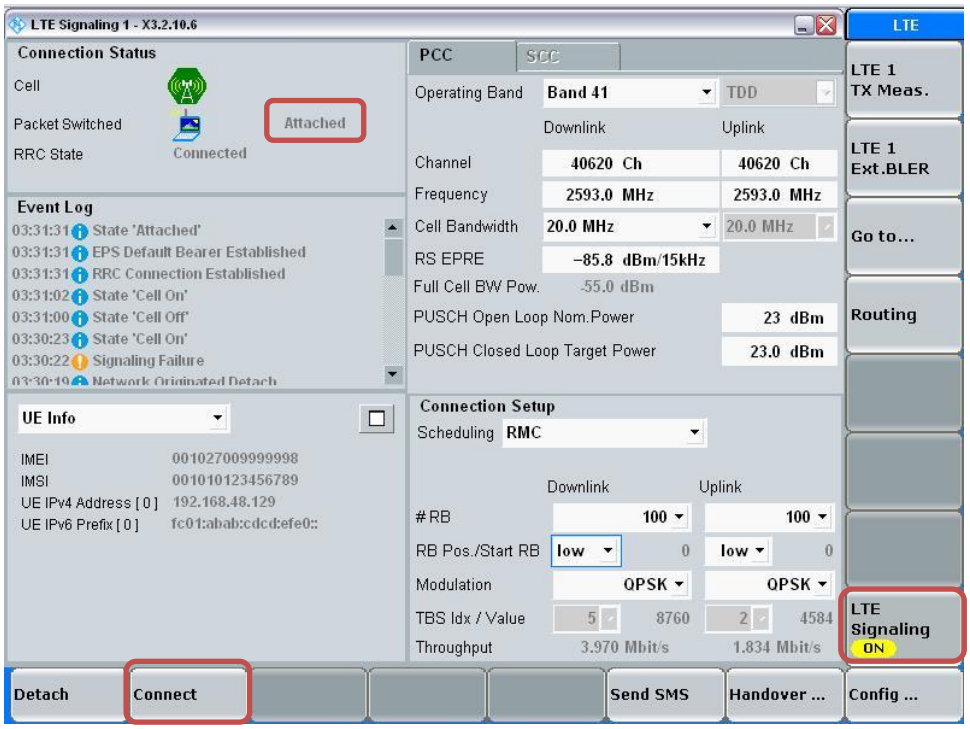


- Go to “Physical Cell Setup”
- Select “TDD” and Set “Uplink Downlink Configuration” to “0”
- Turn the cell on using “ON | OFF” key



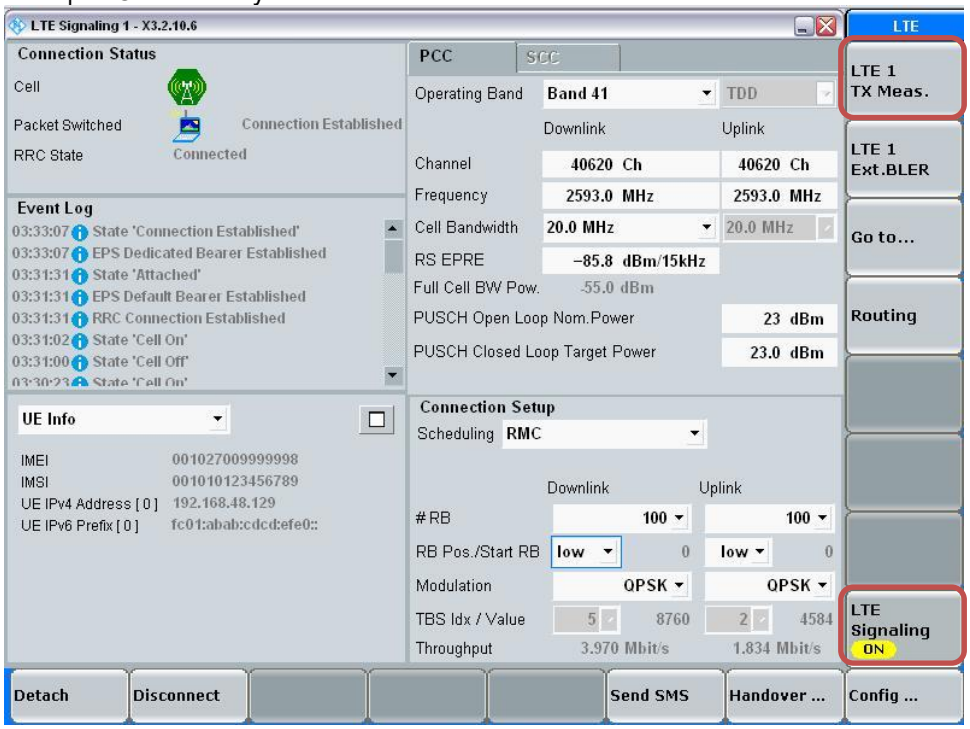
Connect to EUT

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

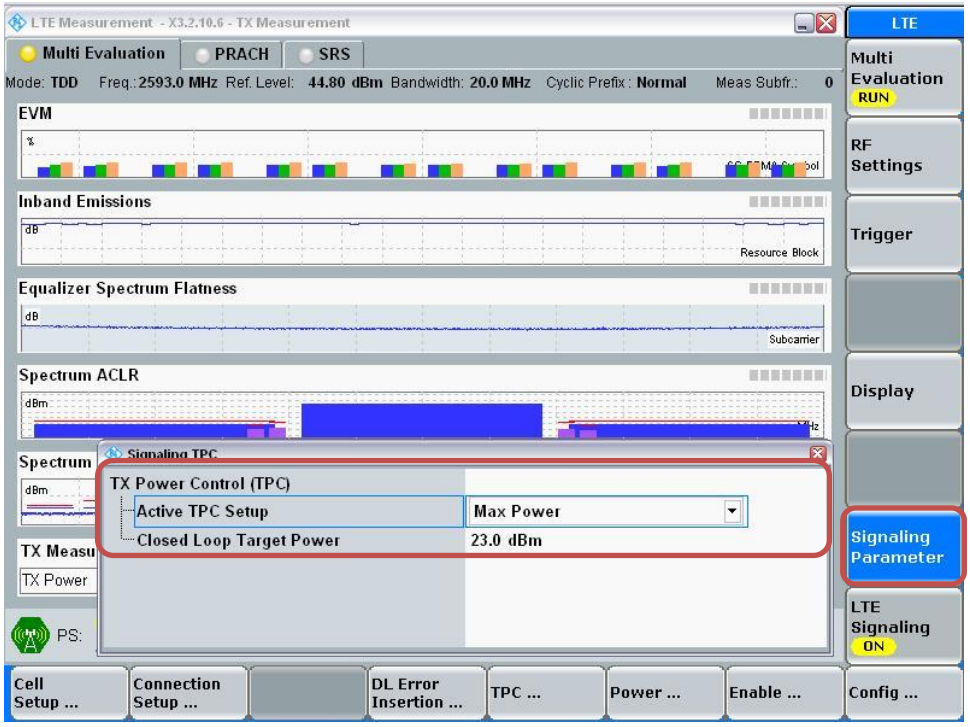


Max Power Setting

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

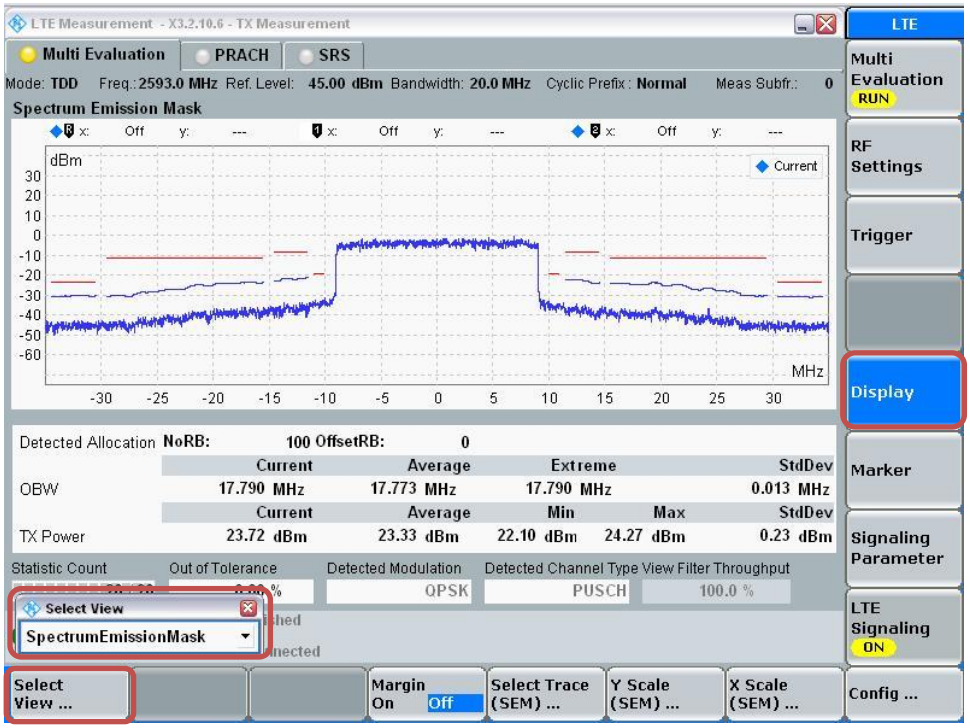


- Select “Signaling Parameter”
- Select “TX Power Control (TPC)” > Select “Active TPC Setup” to “Max Power” > Set “Closed Loop Target Power” to “23 dBm”



View TX Power

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



1. Max power Results

LTE Band 41 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						
				Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	21.4	21.6	21.9	21.6	21.7	0.0	23.0
		1	49	21.3	21.6	21.8	21.6	21.5	0.0	23.0
		1	99	21.3	21.5	21.8	21.6	21.5	0.0	23.0
		50	0	20.4	20.5	20.8	20.7	20.7	1.0	22.0
		50	24	20.4	20.5	20.8	20.6	20.6	1.0	22.0
		50	50	20.3	20.5	20.8	20.6	20.6	1.0	22.0
		100	0	20.3	20.5	20.8	20.6	20.7	1.0	22.0
	16QAM	1	0	20.4	20.7	21.2	20.6	20.5	1.0	22.0
		1	49	20.5	20.6	20.9	20.5	20.4	1.0	22.0
		1	99	20.5	20.4	21.1	20.6	20.5	1.0	22.0
		50	0	19.4	19.5	19.8	19.6	19.6	2.0	21.0
		50	24	19.4	19.4	19.8	19.5	19.5	2.0	21.0
		50	50	19.3	19.4	19.7	19.5	19.5	2.0	21.0
		100	0	19.3	19.5	19.8	19.5	19.5	2.0	21.0
	64QAM	1	0	20.0	19.3	20.4	19.6	19.2	2.0	21.0
		1	49	19.0	19.7	20.4	19.1	19.3	2.0	21.0
		1	99	19.5	19.7	19.6	19.5	19.3	2.0	21.0
		50	0	18.6	18.6	18.8	18.6	18.4	3.0	20.0
		50	24	18.5	18.5	18.8	18.5	18.4	3.0	20.0
		50	50	18.5	18.5	18.8	18.5	18.4	3.0	20.0
		100	0	18.5	18.6	18.8	18.5	18.4	3.0	20.0
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	21.5	21.6	21.8	21.6	21.5	0.0	23.0
		1	37	21.4	21.2	21.3	21.9	22.1	0.0	23.0
		1	74	21.4	21.5	21.7	21.5	21.5	0.0	23.0
		36	0	20.5	20.6	20.8	20.6	20.6	1.0	22.0
		36	20	20.5	20.6	20.8	20.6	20.5	1.0	22.0
		36	39	20.5	20.6	20.8	20.5	20.5	1.0	22.0
		75	0	20.5	20.6	20.8	20.5	20.5	1.0	22.0
	16QAM	1	0	20.3	20.1	20.9	20.7	20.1	1.0	22.0
		1	37	19.9	19.8	19.8	20.7	20.8	1.0	22.0
		1	74	20.1	20.2	20.8	20.4	20.4	1.0	22.0
		36	0	19.4	19.5	19.7	19.5	19.4	2.0	21.0
		36	20	19.4	19.4	19.7	19.4	19.4	2.0	21.0
		36	39	19.4	19.5	19.7	19.4	19.4	2.0	21.0
		75	0	19.4	19.5	19.7	19.5	19.4	2.0	21.0
	64QAM	1	0	19.4	19.4	19.8	19.4	19.2	2.0	21.0
		1	37	19.0	18.9	19.2	19.6	19.9	2.0	21.0
		1	74	19.5	19.3	19.7	19.4	19.1	2.0	21.0
		36	0	18.4	18.5	18.7	18.4	18.4	3.0	20.0
		36	20	18.4	18.5	18.7	18.3	18.4	3.0	20.0
		36	39	18.4	18.5	18.7	18.3	18.4	3.0	20.0
		75	0	18.4	18.5	18.7	18.4	18.3	3.0	20.0

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	21.5	21.5	21.8	21.5	20.6	0.0	23.0
		1	25	21.4	21.4	21.7	21.5	21.7	0.0	23.0
		1	49	21.4	21.5	21.7	21.5	21.8	0.0	23.0
		25	0	20.4	20.5	20.7	20.5	20.8	1.0	22.0
		25	12	20.4	20.5	20.6	20.5	20.7	1.0	22.0
		25	25	20.4	20.5	20.7	20.5	20.7	1.0	22.0
		50	0	20.4	20.5	20.7	20.5	20.7	1.0	22.0
	16QAM	1	0	20.2	20.6	20.7	20.5	20.8	1.0	22.0
		1	25	20.1	20.4	20.6	20.4	20.7	1.0	22.0
		1	49	20.2	20.5	20.7	20.4	20.6	1.0	22.0
		25	0	19.4	19.4	19.6	19.5	19.7	2.0	21.0
		25	12	19.4	19.4	19.5	19.4	19.7	2.0	21.0
		25	25	19.3	19.4	19.6	19.4	19.7	2.0	21.0
		50	0	19.3	19.4	19.6	19.4	19.7	2.0	21.0
	64QAM	1	0	19.2	19.3	19.5	19.4	19.3	2.0	21.0
		1	25	19.1	19.2	19.5	19.3	19.2	2.0	21.0
		1	49	19.2	19.3	19.5	19.3	19.3	2.0	21.0
		25	0	18.3	18.4	18.6	18.3	18.3	3.0	20.0
		25	12	18.4	18.4	18.5	18.3	18.3	3.0	20.0
		25	25	18.3	18.4	18.6	18.3	18.3	3.0	20.0
		50	0	18.4	18.4	18.6	18.4	18.3	3.0	20.0
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		
5 MHz	QPSK	1	0	21.4	21.6	21.7	21.5	21.4	0.0	23.0
		1	12	21.3	21.2	21.2	21.8	22.1	0.0	23.0
		1	24	21.4	21.5	21.7	21.5	21.4	0.0	23.0
		12	0	20.4	20.5	20.7	20.5	20.4	1.0	22.0
		12	7	20.3	20.5	20.8	20.5	20.3	1.0	22.0
		12	13	20.3	20.4	20.7	20.5	20.4	1.0	22.0
		25	0	20.4	20.5	20.7	20.4	20.4	1.0	22.0
	16QAM	1	0	20.5	20.4	20.7	20.6	20.3	1.0	22.0
		1	12	20.2	19.9	20.2	20.8	20.8	1.0	22.0
		1	24	20.5	20.4	20.7	20.6	20.3	1.0	22.0
		12	0	19.4	19.4	19.6	19.4	19.3	2.0	21.0
		12	7	19.3	19.4	19.7	19.4	19.2	2.0	21.0
		12	13	19.3	19.3	19.7	19.4	19.3	2.0	21.0
		25	0	19.3	19.4	19.6	19.3	19.3	2.0	21.0
	64QAM	1	0	19.4	19.5	19.7	19.4	19.5	2.0	21.0
		1	12	18.8	19.0	19.4	19.9	20.0	2.0	21.0
		1	24	19.3	19.6	19.6	19.4	19.5	2.0	21.0
		12	0	18.4	18.4	18.6	18.3	18.3	3.0	20.0
		12	7	18.3	18.4	18.7	18.3	18.2	3.0	20.0
		12	13	18.3	18.4	18.7	18.4	18.3	3.0	20.0
		25	0	18.4	18.4	18.5	18.3	18.3	3.0	20.0

2. Reduced power Results

LTE Band 41 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off							Reduced Average Power (dBm) Proximity sensor back-off						
				Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	18.6	18.7	18.9	18.8	18.7	0.0	20.0	18.3	18.5	18.8	18.5	18.4	0.0	20.0
		1	49	18.5	18.5	18.9	18.6	18.5	0.0	20.0	18.2	18.4	18.7	18.4	18.3	0.0	20.0
		1	99	18.5	18.6	18.8	18.6	18.5	0.0	20.0	18.2	18.4	18.7	18.3	18.3	0.0	20.0
		50	0	18.5	18.6	18.9	18.7	18.6	0.0	20.0	18.4	18.5	18.7	18.4	18.4	0.0	20.0
		50	24	18.5	18.6	18.9	18.6	18.5	0.0	20.0	18.4	18.5	18.7	18.4	18.3	0.0	20.0
		50	50	18.5	18.6	18.8	18.6	18.5	0.0	20.0	18.3	18.4	18.7	18.4	18.3	0.0	20.0
		100	0	18.5	18.6	18.9	18.6	18.5	0.0	20.0	18.4	18.5	18.7	18.4	18.4	0.0	20.0
	16QAM	1	0	18.8	18.7	19.0	18.6	18.8	0.0	20.0	18.8	18.9	18.6	18.5	18.6	0.0	20.0
		1	49	18.5	18.4	18.9	18.8	18.5	0.0	20.0	18.3	18.2	18.7	18.6	18.4	0.0	20.0
		1	99	18.5	18.7	18.7	18.8	18.5	0.0	20.0	18.4	18.3	18.5	18.4	18.5	0.0	20.0
		50	0	18.5	18.6	18.8	18.6	18.5	0.0	20.0	18.5	18.4	18.7	18.4	18.4	0.0	20.0
		50	24	18.5	18.5	18.9	18.6	18.5	0.0	20.0	18.4	18.4	18.6	18.4	18.3	0.0	20.0
		50	50	18.4	18.6	18.8	18.5	18.5	0.0	20.0	18.3	18.4	18.6	18.3	18.3	0.0	20.0
		100	0	18.5	18.6	18.8	18.6	18.5	0.0	20.0	18.4	18.5	18.6	18.4	18.3	0.0	20.0
	64QAM	1	0	18.4	18.8	19.0	18.6	18.3	0.0	20.0	18.4	18.7	18.9	18.3	18.4	0.0	20.0
		1	49	18.3	18.4	19.1	18.3	18.0	0.0	20.0	18.0	18.2	18.7	18.2	18.5	0.0	20.0
		1	99	18.3	18.7	18.9	18.4	18.2	0.0	20.0	18.2	18.4	18.5	18.1	18.6	0.0	20.0
		50	0	18.6	18.5	18.8	18.6	18.5	0.0	20.0	18.4	18.4	18.7	18.4	18.3	0.0	20.0
		50	24	18.5	18.5	18.7	18.6	18.5	0.0	20.0	18.4	18.4	18.7	18.4	18.3	0.0	20.0
		50	50	18.5	18.5	18.7	18.5	18.4	0.0	20.0	18.4	18.4	18.7	18.4	18.3	0.0	20.0
		100	0	18.5	18.5	18.7	18.6	18.5	0.0	20.0	18.4	18.4	18.7	18.4	18.4	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
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	18.4	18.4	18.7	18.5	18.4	0.0	20.0	18.5	18.5	18.7	18.4	18.3	0.0	20.0
		1	37	17.9	18.0	18.3	18.8	19.0	0.0	20.0	18.1	17.8	18.4	18.7	18.9	0.0	20.0
		1	74	18.2	18.4	18.6	18.3	18.3	0.0	20.0	18.3	18.3	18.6	18.3	18.2	0.0	20.0
		36	0	18.4	18.5	18.7	18.4	18.4	0.0	20.0	18.4	18.5	18.7	18.4	18.4	0.0	20.0
		36	20	18.4	18.5	18.7	18.4	18.4	0.0	20.0	18.4	18.5	18.7	18.4	18.3	0.0	20.0
		36	39	18.4	18.5	18.7	18.4	18.4	0.0	20.0	18.4	18.5	18.7	18.3	18.3	0.0	20.0
		75	0	18.4	18.5	18.7	18.4	18.4	0.0	20.0	18.4	18.5	18.7	18.4	18.3	0.0	20.0
	16QAM	1	0	18.4	18.3	18.4	18.3	18.1	0.0	20.0	18.5	18.6	18.6	18.1	18.4	0.0	20.0
		1	37	17.8	17.7	17.9	18.5	18.5	0.0	20.0	17.8	17.8	18.4	18.5	18.8	0.0	20.0
		1	74	18.1	18.5	18.3	18.4	18.3	0.0	20.0	18.8	18.6	18.6	18.4	18.2	0.0	20.0
		36	0	18.4	18.5	18.7	18.4	18.4	0.0	20.0	18.4	18.5	18.7	18.5	18.4	0.0	20.0
		36	20	18.3	18.5	18.7	18.3	18.3	0.0	20.0	18.4	18.4	18.7	18.4	18.3	0.0	20.0
		36	39	18.3	18.5	18.7	18.3	18.3	0.0	20.0	18.4	18.5	18.6	18.4	18.2	0.0	20.0
		75	0	18.4	18.4	18.7	18.3	18.3	0.0	20.0	18.4	18.5	18.6	18.4	18.3	0.0	20.0
	64QAM	1	0	18.4	18.4	18.5	18.4	18.2	0.0	20.0	18.2	18.1	18.4	18.5	18.5	0.0	20.0
		1	37	17.9	17.9	18.0	18.4	18.7	0.0	20.0	18.0	18.0	18.4	18.6	18.6	0.0	20.0
		1	74	18.3	18.3	18.5	18.1	18.2	0.0	20.0	18.2	18.4	18.8	18.0	18.0	0.0	20.0
		36	0	18.4	18.5	18.7	18.4	18.4	0.0	20.0	18.4	18.5	18.7	18.4	18.4	0.0	20.0
		36	20	18.4	18.5	18.7	18.4	18.3	0.0	20.0	18.4	18.5	18.6	18.3	18.3	0.0	20.0
		36	39	18.4	18.5	18.7	18.3	18.4	0.0	20.0	18.3	18.5	18.6	18.3	18.3	0.0	20.0
		75	0	18.4	18.5	18.7	18.4	18.3	0.0	20.0	18.4	18.4	18.6	18.4	18.3	0.0	20.0

LTE Band 41 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	18.5	18.4	18.7	18.4	18.3	0.0	20.0	18.3	18.5	18.6	18.4	18.3	0.0	20.0
		1	25	18.3	18.2	18.7	18.4	18.2	0.0	20.0	18.2	18.4	18.5	18.2	18.2	0.0	20.0
		1	49	18.4	18.4	18.6	18.3	18.3	0.0	20.0	18.3	18.4	18.6	18.3	18.3	0.0	20.0
		25	0	18.4	18.4	18.6	18.4	18.3	0.0	20.0	18.4	18.4	18.6	18.4	18.3	0.0	20.0
		25	12	18.4	18.4	18.5	18.4	18.4	0.0	20.0	18.4	18.4	18.5	18.3	18.4	0.0	20.0
		25	25	18.4	18.4	18.6	18.4	18.3	0.0	20.0	18.3	18.4	18.6	18.3	18.3	0.0	20.0
		50	0	18.4	18.4	18.6	18.4	18.3	0.0	20.0	18.3	18.4	18.6	18.3	18.3	0.0	20.0
	16QAM	1	0	18.4	18.6	18.5	18.4	18.5	0.0	20.0	18.3	18.3	18.8	18.4	18.2	0.0	20.0
		1	25	18.2	18.4	18.3	18.3	18.4	0.0	20.0	18.1	18.2	18.7	18.3	18.0	0.0	20.0
		1	49	18.3	18.5	18.4	18.3	18.5	0.0	20.0	18.2	18.3	18.7	18.3	18.1	0.0	20.0
		25	0	18.4	18.4	18.6	18.4	18.3	0.0	20.0	18.4	18.4	18.6	18.3	18.3	0.0	20.0
		25	12	18.4	18.4	18.5	18.3	18.3	0.0	20.0	18.4	18.3	18.5	18.3	18.4	0.0	20.0
		25	25	18.3	18.4	18.5	18.3	18.3	0.0	20.0	18.3	18.4	18.6	18.3	18.3	0.0	20.0
		50	0	18.4	18.4	18.6	18.4	18.3	0.0	20.0	18.3	18.4	18.6	18.4	18.3	0.0	20.0
	64QAM	1	0	18.6	18.3	18.6	18.5	18.3	0.0	20.0	18.3	18.4	18.6	18.3	18.4	0.0	20.0
		1	25	18.4	18.1	18.6	18.4	18.2	0.0	20.0	18.1	18.3	18.6	18.1	18.2	0.0	20.0
		1	49	18.5	18.3	18.6	18.4	18.2	0.0	20.0	18.2	18.4	18.5	18.2	18.3	0.0	20.0
		25	0	18.4	18.4	18.6	18.4	18.3	0.0	20.0	18.3	18.3	18.5	18.3	18.2	0.0	20.0
		25	12	18.4	18.4	18.5	18.3	18.3	0.0	20.0	18.2	18.2	18.5	18.3	18.3	0.0	20.0
		25	25	18.3	18.4	18.6	18.3	18.3	0.0	20.0	18.2	18.3	18.5	18.3	18.2	0.0	20.0
		50	0	18.3	18.4	18.6	18.4	18.3	0.0	20.0	18.3	18.3	18.6	18.3	18.2	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
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
5 MHz	QPSK	1	0	18.3	18.4	18.6	18.4	18.2	0.0	20.0	18.3	18.4	18.6	18.3	18.3	0.0	20.0
		1	12	18.0	17.9	18.1	18.9	18.0	0.0	20.0	17.9	17.8	18.4	18.9	18.9	0.0	20.0
		1	24	18.3	18.4	18.6	18.3	18.2	0.0	20.0	18.2	18.4	18.6	18.3	18.3	0.0	20.0
		12	0	18.3	18.4	18.6	18.3	18.2	0.0	20.0	18.3	18.4	18.6	18.3	18.3	0.0	20.0
		12	7	18.3	18.4	18.7	18.3	18.2	0.0	20.0	18.3	18.4	18.6	18.2	18.2	0.0	20.0
		12	13	18.3	18.3	18.7	18.3	18.2	0.0	20.0	18.3	18.4	18.6	18.3	18.2	0.0	20.0
		25	0	18.3	18.4	18.6	18.3	18.2	0.0	20.0	18.3	18.4	18.6	18.3	18.3	0.0	20.0
	16QAM	1	0	18.4	18.3	18.6	18.4	18.1	0.0	20.0	18.3	18.5	18.5	18.3	18.3	0.0	20.0
		1	12	17.9	17.7	18.1	18.8	18.6	0.0	20.0	17.6	17.7	18.2	18.9	18.8	0.0	20.0
		1	24	18.4	18.3	18.6	18.4	18.2	0.0	20.0	18.3	18.5	18.5	18.3	18.4	0.0	20.0
		12	0	18.3	18.3	18.6	18.3	18.2	0.0	20.0	18.3	18.4	18.6	18.3	18.2	0.0	20.0
		12	7	18.3	18.3	18.7	18.3	18.1	0.0	20.0	18.3	18.4	18.6	18.2	18.1	0.0	20.0
		12	13	18.2	18.3	18.6	18.3	18.2	0.0	20.0	18.2	18.4	18.7	18.3	18.2	0.0	20.0
		25	0	18.4	18.4	18.6	18.3	18.3	0.0	20.0	18.3	18.4	18.6	18.3	18.3	0.0	20.0
	64QAM	1	0	18.4	18.4	18.7	18.4	18.2	0.0	20.0	18.2	18.5	18.6	18.3	18.4	0.0	20.0
		1	12	18.0	17.8	18.3	18.8	18.4	0.0	20.0	18.0	18.2	18.9	18.8	18.6	0.0	20.0
		1	24	18.4	18.4	18.6	18.5	18.2	0.0	20.0	18.2	18.6	18.5	18.2	18.4	0.0	20.0
		12	0	18.3	18.4	18.6	18.3	18.3	0.0	20.0	18.2	18.3	18.5	18.2	18.2	0.0	20.0
		12	7	18.3	18.4	18.7	18.3	18.1	0.0	20.0	18.3	18.4	18.5	18.1	18.1	0.0	20.0
		12	13	18.2	18.3	18.7	18.3	18.2	0.0	20.0	18.3	18.4	18.6	18.2	18.1	0.0	20.0
		25	0	18.3	18.4	18.5	18.3	18.3	0.0	20.0	18.3	18.3	18.5	18.3	18.2	0.0	20.0

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 four (4) downlinks.

LTE Release 10 Carrier Aggregation

Index	2CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
2CC #1	CA_2A-2A			
2CC #2	CA_2C			
2CC #3	CA_2A-4A		3CC #1	O
2CC #4	CA_2A-5A		3CC #1	O
2CC #5	CA_2A-12A			O
2CC #6	CA_2A-13A		3CC #2	O
2CC #7	CA_2A-17A			O
2CC #8	CA_2A-66A			O
2CC #9	CA_4A-4A		3CC #3	O
2CC #10	CA_4A-5A		3CC #1	O
2CC #11	CA_4A-12A		3CC #3	O
2CC #12	CA_4A-13A		3CC #2	O
2CC #13	CA_4A-17A	B17 SCC only	3CC #4	
2CC #14	CA_5A-41A	B41 SCC only		
2CC #15	CA_5A-66A		3CC #5	O
2CC #16	CA_12A-66A		3CC #6	O
2CC #17	CA_26A-41A	B41 SCC only		
2CC #18	CA_41A-41A			
2CC #19	CA_41C		4CC #1	
2CC #20	CA_66A-66A		3CC #5	
2CC #21	CA_66B			
2CC #22	CA_66C			

Index	3CC	Restriction	Completely Covered by	Reverse
3CC #1	CA_2A-4A-5A			O
3CC #2	CA_2A-4A-13A			O
3CC #3	CA_4A-4A-12A			O
3CC #4	CA_4A-4A-17A	B17 SCC only		
3CC #5	CA_5A-66A-66A			O
3CC #6	CA_12A-66A-66A			O
3CC #7	CA_26A-41C	B41 SCC only		

Index	4CC	Restriction	Completely Covered by	Reverse
4CC #1	CA_41C-41C			
4CC #2	CA_41A-41D			
4CC #3	CA_41E			

Index	5CC	Restriction	Completely Covered by	Reverse
5CC #1	CA_41C-41D			

Note:

Only yellow highlight cells need power measurement according to LTE DL CA SAR test Exclusion in TCB workshop (April.2018).

1. DL CA output power results

	E-UTRA CA configuration (BCS)	Bands					UL					DL														LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta
		PCC	SCC1	SCC2	SCC3	SCC4	PCC					PCC			SCC1			SCC2			SCC3			SCC4					
		1st	2nd	3rd	4th	5th	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)			
2CC	2A-12A	2A	12A				QPSK	20	18900	1880.0	1/0	20	900	1960.0	10	5095	737.5										24.3	24.4	0.07
		12A	2A				QPSK	10	23095	707.5	1/0	10	5095	737.5	20	900	1960.0										24.4	24.4	0.03
	2A-17A	2A	17A				QPSK	20	18900	1880.0	1/0	20	900	1960.0	10	5790	740.0										24.3	24.4	0.05
		17A	2A				QPSK	10	23790	710.0	1/0	10	5790	740.0	20	900	1960.0										22.6	22.5	-0.06
	2A-66A	2A	66A				QPSK	20	18900	1880.0	1/0	20	900	1960.0	20	66786	2145.0										24.3	24.3	0.03
		66A	2A				QPSK	20	132572	1770.0	1/0	20	2170	67036.0	20	900	1960.0										24.3	24.4	0.06
	5A-41A	5A	41A				QPSK	10	20525	836.5	1/0	10	2525	881.5	20	40620.0	2593.0										24.3	24.3	0.01
	26A-41A	26A	41A				QPSK	15	26865	831.5	1/0	15	8865	876.5	20	40620.0	2593.0										24.6	24.6	0.05
3CC	2A-4A-5A	2A	4A	5A			QPSK	20	18900	1880.0	1/0	20	900	1960.0	20	2175	2132.5	10	2525	881.5							24.3	24.3	0.02
		4A	5A	2A			QPSK	20	20175	1732.6	1/0	20	2175	2132.5	10	2525	881.5	20	900	1960.0							23.9	24.0	0.11
		5A	2A	4A			QPSK	10	20525	836.5	1/0	10	2525	881.5	20	900	1960.0	20	2175	2132.5							24.3	24.3	-0.02
	2A-4A-13A	2A	4A	13A			QPSK	20	18900	1880.0	1/0	20	900	1960.0	20	2175	2132.5	10	5230	751.0							24.3	24.4	0.10
		4A	2A	13A			QPSK	20	20175	1732.6	1/0	20	2175	2132.5	20	900	1960.0	10	5230	751.0							23.9	23.9	-0.02
		13A	2A	4A			QPSK	10	23230	782.0	1/0	10	5230	751.0	20	900	1960.0	20	2175	2132.5							23.9	24.0	0.08
	4A-4A-12A	4A	4A	12A			QPSK	20	20300	1745.0	1/0	20	2300	2145.0	20	2050	2120.0	10	5095	737.5							23.9	24.0	0.12
		12A	4A	4A			QPSK	10	23095	707.5	1/0	10	5095	737.5	20	2175	2132.5	20	2300	2145.0							24.4	24.5	0.05
	4A-4A-17A	4A	4A	17A			QPSK	20	20300	1745.0	1/0	20	2300	2145.0	20	2050	2120.0	10	5790	740.0							23.9	24.0	0.13
	5A-66A-66A	5A	66A	66A			QPSK	10	20525	836.5	1/0	10	2525	881.5	20	66786	2145.0	20	67036	2170.0							24.5	24.5	0.01
		66A	5A	66A			QPSK	20	132572	1770.0	1/0	20	67036	2170.0	10	2525	881.5	20	66786	2145.0							24.3	24.4	0.14
	12A-66A-66A	12A	66A	66A			QPSK	10	23095	707.5	1/0	10	5095	737.5	20	66786	2145.0	20	67036	2170.0							24.4	24.4	0.04
		66A	66A	12A			QPSK	20	132572	1770.0	1/0	20	67036	2170.0	20	66536	2120.0	10	5095	737.5							24.3	24.4	0.11
	26A-41C	26A	41C	41C			QPSK	15	26865	831.5	1/0	15	8865	876.5	20	40620	2593.0	20	40818	2612.8							24.6	24.6	0.06
Intra non contiguous	2A-2A	2A	2A				QPSK	20	18900	1880.0	1/0	20	900	1960.0	20	1100	1980.0										24.3	24.3	0.03
	41A-41A	41A	41A				QPSK	20	40185	2549.5	1/0	20	40185	2549.5	20	2680	41490										24.1	24.2	0.09
	41C-41C	41C	41C	41C	41C		QPSK	20	40185	2549.5	1/0	20	40185	2549.5	20	2569.3	40383	20	40620	2593	20	40818	2612.8				24.1	24.2	0.05
	41A-41D	41A	41D	41D	41D		QPSK	20	40185	2549.5	1/0	20	40185	2549.5	20	2680	41490	20	41292	2660.2	20	41094	2640.4				24.1	24.1	0.03
		41D	41D	41D	41A		QPSK	20	40185	2549.5	1/0	20	40185	2549.5	20	2569.3	40383	20	40581	2589.1	20	41490	2680				24.1	24.1	0.03
	41C-41D	41C	41C	41D	41D	41D	QPSK	20	40185	2549.5	1/0	20	40185	2549.5	20	40383	2569.3	20	41490	2680.0	20	41292	2660.2	20	41094	2640.4	24.1	24.0	-0.09
		41D	41D	41D	41C	41C	QPSK	20	40185	2549.5	1/0	20	40185	2549.5	20	40383	2569.3	20	40581	2589.1	20	41490	2680	20	41292	2660.2	24.1	24.0	-0.11
Intra Contiguous	2C	2C	2C				QPSK	20	18900	1880.0	1/0	20	900	1960.0	20	1098	1979.8										24.3	24.4	0.12
	66B	66B	66B				QPSK	15	132597	1772.5	1/0	15	67061	2172.5	5	66968	2163.2										24.3	24.4	0.05
	66C	66C	66C				QPSK	20	132572	1770.0	1/0	20	67036	2170.0	20	66838	2150.2										24.3	24.3	0.03
	41E	41E	41E	41E	41E		QPSK	20	40185	2549.5	1/0	20	40185	2549.5	20	40383	2569.3	20	40581	2589.1	20	40779	2608.9				24.1	24.1	0.04

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

9.4. Wi-Fi 2.4 GHz (DTS Band)

When the RCV is active in a held-to-ear user scenario, the output power level is reduced. The maximum allowed output powers in all conditions are included in the maximum power document.
Refer to Operational Description for WLAN explanation.

Measured Results of Wi-Fi SISO

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Normal WLAN mode					
					Max.Average Power			Reduced Average Power		
					Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi SISO Ant.1	802.11b	1 Mbps	1	2412.0	18.1	19.0	Yes	14.5	15.0	Yes
			6	2437.0	18.1			14.4		
			11	2462.0	17.8			14.3		
			12	2467.0	8.8	9.0	No			
			13	2472.0	2.3	3.0				
	802.11g	6 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				
WiFi SISO Ant.2	802.11b	1 Mbps	1	2412.0	18.1	19.0	Yes	14.6	15.0	Yes
			6	2437.0	18.1			14.6		
			11	2462.0	18.2			14.6		
			12	2467.0	8.9	9.0	No			
			13	2472.0	3.0	3.0				
	802.11g	6 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				

Measured Results of Wi-Fi MIMO

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Normal WLAN mode					
					Max.Average Power			Reduced Average Power		
					Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi MIMO Ant.1	802.11b	1 Mbps	1	2412.0	18.0	19.0	Yes	14.4	15.0	Yes
			6	2437.0	17.8			14.2		
			11	2462.0	17.6			14.1		
			12	2467.0	8.6	9.0	No			
			13	2472.0	2.3	3.0				
	802.11g	6 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				
WiFi MIMO Ant.2	802.11b	1 Mbps	1	2412.0	17.8	19.0	Yes	14.2	15.0	Yes
			6	2437.0	17.7			14.1		
			11	2462.0	17.9			14.2		
			12	2467.0	8.5	9.0	No			
			13	2472.0	3.0	3.0				
	802.11g	6 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	18.0	No	Not Required	15.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0		9.0				
			13	2472.0		3.0				

Measured Results of RSDB operation

Same as measured results of normal power.

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 802.11n/g/ax 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.

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

When the RCV is active in a held-to-ear user scenario, the output power level is reduced. The maximum allowed output powers in all conditions are included in the maximum power document.
Refer to Operational Description for WLAN explanation.

Measured Results of Wi-Fi SISO Ant.1

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Reduced Tune-up Limit (dBm)	SAR Test (Yes/No)
SISO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260	17.5	18.0	Yes	Not Required	11.0	No
				56	5280	17.5					
				60	5300	17.7					
				64	5320	17.8					
		802.11n (HT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11n (HT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	11.0	No
				62	5310						
		802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	11.0	No
				62	5310						
		802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	14.0	No	10.7	11.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11ax (HE40)	14.6 Mbps	54	5270	Not Required	16.0	No	Not Required	11.0	No
				62	5310						
		802.11ax (HE80)	30.6 Mbps	58	5290	Not Required	14.0	No	Not Required	11.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	17.7	18.0	Yes	Not Required	11.0	No
				120	5600	17.8					
				124	5620	17.7					
				144	5720	17.6					
		802.11n (HT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11n (HT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	11.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	11.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	14.0	No	10.2	11.0	Yes
				122	5610				10.5		
				138	5690				10.3		
		802.11ax (HE20)	7.3 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11ax (HE40)	14.6 Mbps	102	5510	Not Required	16.0	No	Not Required	11.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ax (HE80)	30.6 Mbps	106	5530	Not Required	14.0	No	Not Required	11.0	No
				122	5610						
				138	5690						
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	17.4	18.0	Yes	Not Required	11.0	No
				157	5785	16.8					
				165	5825	17.1					
		802.11n (HT20)	6.5 Mbps	149	5745	Not Required	17.0	No	Not Required	11.0	No
				157	5785						
				165	5825						
		802.11n (HT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	11.0	No
				159	5795						
		802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	17.0	No	Not Required	11.0	No
				157	5785						
				165	5825						
		802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	11.0	No
				159	5795						
		802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	14.0	No	10.5	11.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745	Not Required	17.0	No	Not Required	11.0	No
				157	5785						
				165	5825						
		802.11ax (HE40)	14.6 Mbps	151	5755	Not Required	16.0	No	Not Required	11.0	No
				159	5795						
		802.11ax (HE80)	30.6 Mbps	155	5775	Not Required	14.0	No	Not Required	11.0	No

Measured Results of Wi-Fi SISO Ant.2

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Reduced Tune-up Limit (dBm)	SAR Test (Yes/No)
SISO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260	17.5	18.0	Yes	Not Required	11.0	No
				56	5280	17.4					
				60	5300	17.6					
				64	5320	17.8					
		802.11n (HT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11n (HT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	11.0	No
				62	5310						
		802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	11.0	No
				62	5310						
		802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	14.0	No	10.9	11.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11ax (HE40)	14.6 Mbps	54	5270	Not Required	16.0	No	Not Required	11.0	No
				62	5310						
		802.11ax (HE80)	30.6 Mbps	58	5290	Not Required	14.0	No	Not Required	11.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	17.3	18.0	Yes	Not Required	11.0	No
				120	5600	17.4					
				124	5620	17.4					
				144	5720	17.4					
		802.11n (HT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11n (HT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	11.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	11.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	14.0	No	10.8	11.0	Yes
				122	5610				10.3		
				138	5690				10.7		
		802.11ax (HE20)	7.3 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11ax (HE40)	14.6 Mbps	102	5510	Not Required	16.0	No	Not Required	11.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ax (HE80)	30.6 Mbps	106	5530	Not Required	14.0	No	Not Required	11.0	No
				122	5610						
				138	5690						
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	17.1	18.0	Yes	Not Required	11.0	No
				157	5785	16.6					
				165	5825	16.7					
		802.11n (HT20)	6.5 Mbps	149	5745	Not Required	17.0	No	Not Required	11.0	No
				157	5785						
				165	5825						
		802.11n (HT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	11.0	No
				159	5795						
		802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	17.0	No	Not Required	11.0	No
				157	5785						
				165	5825						
		802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	11.0	No
				159	5795						
		802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	14.0	No	10.0	11.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745	Not Required	17.0	No	Not Required	11.0	No
				157	5785						
				165	5825						
		802.11ax (HE40)	14.6 Mbps	151	5755	Not Required	16.0	No	Not Required	11.0	No
				159	5795						
		802.11ax (HE80)	30.6 Mbps	155	5775	Not Required	14.0	No	Not Required	11.0	No

Measured Results of Wi-Fi MIMO

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	MIMO Ant.1			MIMO Ant.2		
					Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
5.3 (UNII 2A)	802.11a	6 Mbps	52	5260	17.3	18.0	Yes	16.8	18.0	Yes
			56	5280	17.2			16.8		
			60	5300	17.5			17.0		
			64	5320	17.7			17.3		
	802.11n (HT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	17.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11n (HT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	16.0	No
			62	5310						
	802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	17.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	16.0	No
			62	5310						
	802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	14.0	No	Not Required	14.0	No
	802.11ax (HE20)	7.3 Mbps	52	5260	Not Required	17.0	No	Not Required	17.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11ax (HE40)	14.6 Mbps	54	5270	Not Required	16.0	No	Not Required	16.0	No
			62	5310						
	802.11ax (HE80)	30.6 Mbps	58	5290	Not Required	14.0	No	Not Required	14.0	No
5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	17.6	18.0	Yes	16.9	18.0	Yes
			120	5600	17.8			17.0		
			124	5620	17.7			17.0		
			144	5720	17.5			17.0		
	802.11n (HT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	17.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11n (HT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	16.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	17.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	16.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	14.0	No	Not Required	14.0	No
			122	5610						
			138	5690						
	802.11ax (HE20)	7.3 Mbps	100	5500	Not Required	17.0	No	Not Required	17.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11ax (HE40)	14.6 Mbps	102	5510	Not Required	16.0	No	Not Required	16.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ax (HE80)	30.6 Mbps	106	5530	Not Required	14.0	No	Not Required	14.0	No
			122	5610						
			138	5690						
5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	17.3	18.0	Yes	16.5	18.0	Yes
			157	5785	17.2			16.5		
			165	5825	17.5			16.6		
	802.11n (HT20)	6.5 Mbps	149	5745	Not Required	17.0	No	Not Required	17.0	No
			157	5785						
			165	5825						
	802.11n (HT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	16.0	No
			159	5795						
	802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	17.0	No	Not Required	17.0	No
			157	5785						
			165	5825						
	802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	16.0	No
			159	5795						
	802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	14.0	No	Not Required	14.0	No
	802.11ax (HE20)	7.3 Mbps	149	5745	Not Required	17.0	No	Not Required	17.0	No
			157	5785						
			165	5825						
	802.11ax (HE40)	14.6 Mbps	151	5755	Not Required	16.0	No	Not Required	16.0	No
			159	5795						
	802.11ax (HE80)	30.6 Mbps	155	5775	Not Required	14.0	No	Not Required	14.0	No

Measured Results of RSDB operation

Same as measured results of normal power.

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 then ax) is selected.
3. When the specified maximum output power is the same for both UNII band I and UNII band 2A, begin SAR measurement in UNII band 2A; and if the highest *reported* SAR for UNII band 2A is
   - ≤ 1.2 W/kg, SAR is not required for UNII band I
   - > 1.2 W/kg, both bands should be tested independently for SAR.

9.6. Bluetooth

Measured Results

Band (GHz)	Antenna	Mode	Ch #	Freq. (MHz)	Maximum Average Power (dBm)		Reduced Average Power (dBm)	
					Meas Pwr	Tune-up Limit	Meas Pwr	Tune-up Limit
2.4	1	BDR, GFSK	0	2402	15.0	16.5	7.5	9.5
			39	2441	16.2	17.5	9.1	10.5
			78	2480	15.3		8.4	
		EDR, 8-DPSK	0	2402	12.8	14.0	7.2	9.0
			39	2441	14.2	15.0	8.8	10.0
			78	2480	13.3		8.0	
		LE, GFSK-1M	0	2402	5.2	6.0		
			19	2440	6.7	7.0		
			39	2480	5.3			
		LE, GFSK-2M	0	2402	5.0	6.0		
			19	2440	6.6	7.0		
			39	2480	5.1			
	2	BDR, GFSK	0	2402	15.8	16.5	8.2	9.5
			39	2441	16.5	17.5	9.0	10.5
			78	2480	15.4		8.0	
		EDR, 8-DPSK	0	2402	13.7	14.0	7.8	9.0
			39	2441	14.5	15.0	8.6	10.0
			78	2480	13.4		7.5	
		LE, GFSK-1M	0	2402				
			19	2440				
			39	2480				
		LE, GFSK-2M	0	2402				
			19	2440				
			39	2480				

Note(s):

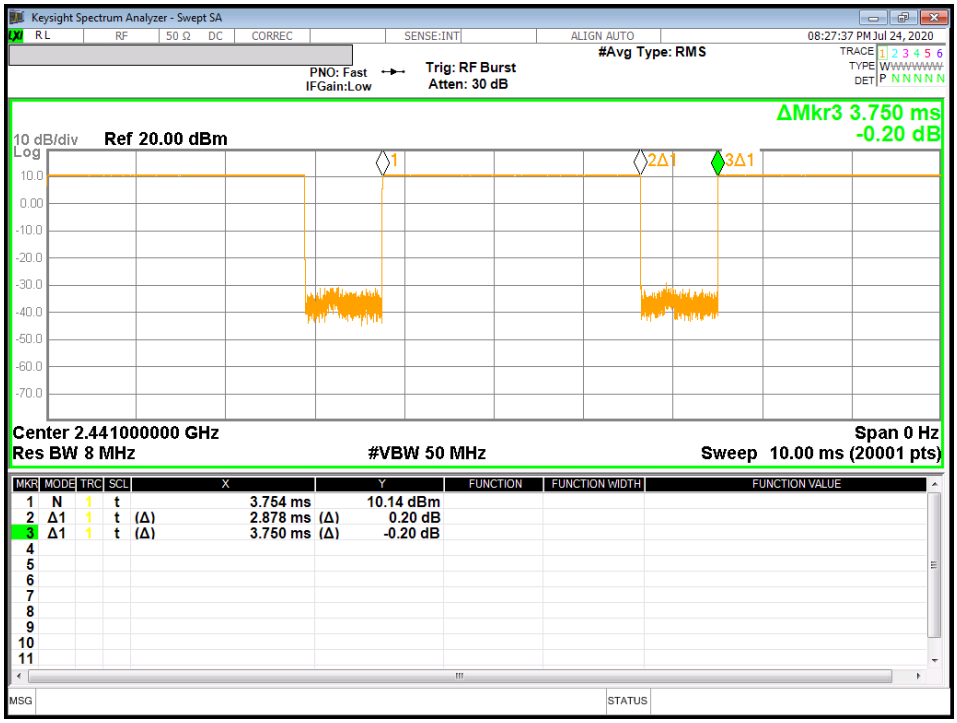
SAR test is evaluated at GFSK mode in Bluetooth

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH5	2.878	3.750	76.7%	1.30

Duty Cycle plots

GFSK



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
- Duty Cycle scaling factor = 1 / Duty cycle (%)

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):

For smart phones, with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm.
When hotspot mode does not apply, 10-g extremity 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. 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; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, Including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

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.

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*.

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)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	GPRS 1 Slot	N/A	0	Left Touch	190	836.6	34.8	33.3	0.063	0.088	
					Left Tilt	190	836.6	34.8	33.3	0.036	0.051	
					Right Touch	190	836.6	34.8	33.3	0.093	0.130	1
					Right Tilt	190	836.6	34.8	33.3	0.041	0.057	
	Body-worn	GPRS 1 Slot	N/A	15	Rear	190	836.6	34.8	33.3	0.109	0.153	2
					Front	190	836.6	34.8	33.3	0.097	0.135	
	Hotspot	GPRS 1 Slot	N/A	10	Rear	190	836.6	34.8	33.3	0.237	0.332	3
					Front	190	836.6	34.8	33.3	0.172	0.241	
					Edge 2	190	836.6	34.8	33.3	0.130	0.182	
					Edge 3	190	836.6	34.8	33.3	0.154	0.216	
					Edge 4	190	836.6	34.8	33.3	0.044	0.061	

10.2. GSM 1900

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	GPRS 1 Slot	Off	0	Left Touch	661	1880.0	32.5	31.1	0.044	0.060	4
					Left Tilt	661	1880.0	32.5	31.1	0.028	0.038	
					Right Touch	661	1880.0	32.5	31.1	0.034	0.046	
					Right Tilt	661	1880.0	32.5	31.1	0.027	0.038	
	Body-worn	GPRS 1 Slot	Off	15	Rear	661	1880.0	32.5	31.1	0.269	0.370	5
					Front	661	1880.0	32.5	31.1	0.224	0.308	
	Hotspot	GPRS 1 Slot	On	10	Rear	661	1880.0	30.0	28.5	0.416	0.592	
					Front	661	1880.0	30.0	28.5	0.424	0.603	
					Edge 2	661	1880.0	30.0	28.5	0.056	0.080	
					Edge 3	512	1850.2	30.0	28.8	0.766	1.012	
						661	1880.0	30.0	28.5	0.773	1.100	6
						810	1909.8	30.0	28.6	0.786	1.095	
					Edge 4	661	1880.0	30.0	28.5	0.040	0.057	
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	GPRS 1 Slot	Off	13	Edge 3	661	1880.0	32.5	31.1	0.309	0.425	
		GPRS 1 Slot	On	0	Edge 3	661	1880.0	30.0	28.6	1.120	1.556	7

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)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	Rel 99 RMC	Off	0	Left Touch	9400	1880.0	25.0	24.2	0.044	0.052	8
					Left Tilt	9400	1880.0	25.0	24.2	0.026	0.031	
					Right Touch	9400	1880.0	25.0	24.2	0.030	0.036	
					Rightt Tilt	9400	1880.0	25.0	24.2	0.025	0.030	
	Body-worn	Rel 99 RMC	Off	15	Rear	9400	1880.0	25.0	24.2	0.474	0.566	9
					Front	9400	1880.0	25.0	24.2	0.464	0.554	
	Hotspot	Rel 99 RMC	On	10	Rear	9400	1880.0	21.5	20.7	0.420	0.506	
					Front	9400	1880.0	21.5	20.7	0.439	0.529	
					Edge 2	9400	1880.0	21.5	20.7	0.066	0.080	
					Edge 3	9262	1852.4	21.5	20.4	0.766	0.979	
						9400	1880.0	21.5	20.7	0.867	1.044	
						9538	1907.6	21.5	20.8	0.925	1.093	10
					Edge 4	9400	1880.0	21.5	20.7	0.046	0.055	
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	Rel 99 RMC	Off	13	Edge 3	9400	1880.0	25.0	24.2	0.760	0.907	
			On	0	Edge 3	9400	1880.0	21.5	20.7	1.410	1.682	11

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)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	Rel 99 RMC	Off	0	Left Touch	1413	1732.6	25.0	24.5	0.116	0.130	12
					Left Tilt	1413	1732.6	25.0	24.5	0.075	0.083	
					Right Touch	1413	1732.6	25.0	24.5	0.100	0.112	
					Rightt Tilt	1413	1732.6	25.0	24.5	0.062	0.069	
	Body-worn	Rel 99 RMC	Off	15	Rear	1413	1732.6	25.0	24.5	0.633	0.708	13
					Front	1413	1732.6	25.0	24.5	0.606	0.678	
	Hotspot	Rel 99 RMC	On	10	Rear	1413	1732.6	22.5	22.0	0.565	0.634	
					Front	1413	1732.6	22.5	22.0	0.559	0.628	
					Edge 2	1413	1732.6	22.5	22.0	0.100	0.112	
					Edge 3	1312	1712.4	22.5	22.0	1.010	1.120	
						1413	1732.6	22.5	22.0	1.050	1.179	14
						1513	1752.6	22.5	22.1	0.851	0.939	
					Edge 4	1413	1732.6	22.5	22.0	0.088	0.099	
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	Rel 99 RMC	Off	13	Edge 3	1413	1732.6	25.0	24.5	0.828	0.926	
			On	0	Edge 3	1312	1712.4	22.5	21.9	2.550	2.941	15
						1413	1732.6	22.5	21.9	2.160	2.469	
						1513	1752.6	22.5	22.1	1.740	1.897	

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)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	Rel 99 RMC	N/A	0	Left Touch	4183	836.6	25.7	24.8	0.119	0.145	
					Left Tilt	4183	836.6	25.7	24.8	0.082	0.100	
					Right Touch	4183	836.6	25.7	24.8	0.186	0.227	16
					Rightt Tilt	4183	836.6	25.7	24.8	0.083	0.101	
	Body-worn	Rel 99 RMC	N/A	15	Rear	4183	836.6	25.7	24.8	0.227	0.277	17
					Front	4183	836.6	25.7	24.8	0.205	0.250	
	Hotspot	Rel 99 RMC	N/A	10	Rear	4183	836.6	25.7	24.8	0.396	0.483	18
					Front	4183	836.6	25.7	24.8	0.324	0.395	
					Edge 2	4183	836.6	25.7	24.8	0.262	0.320	
					Edge 3	4183	836.6	25.7	24.8	0.278	0.339	
					Edge 4	4183	836.6	25.7	24.8	0.078	0.095	

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)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	Off	0	Left Touch	18900	1880.0	1	0	25.0	24.3	0.124	0.146	19
								50	0	24.0	23.3	0.098	0.114	
					Left Tilt	18900	1880.0	1	0	25.0	24.3	0.046	0.054	
								50	0	24.0	23.3	0.034	0.040	
					Right Touch	18900	1880.0	1	0	25.0	24.3	0.070	0.083	
								50	0	24.0	23.3	0.058	0.068	
					Right Tilt	18900	1880.0	1	0	25.0	24.3	0.057	0.067	
								50	0	24.0	23.3	0.044	0.051	
	Body-worn	QPSK	Off	15	Rear	18900	1880.0	1	0	25.0	24.3	0.575	0.677	20
								50	0	24.0	23.3	0.458	0.537	
					Front	18900	1880.0	1	0	25.0	24.3	0.546	0.643	
								50	0	24.0	23.3	0.429	0.503	
	Hotspot	QPSK	On	10	Rear	18900	1880.0	1	0	22.0	21.4	0.514	0.595	
								50	0	22.0	21.3	0.511	0.596	
					Front	18900	1880.0	1	0	22.0	21.4	0.508	0.588	
								50	0	22.0	21.3	0.506	0.590	
					Edge 2	18900	1880.0	1	0	22.0	21.4	0.081	0.094	
								50	0	22.0	21.3	0.080	0.093	
					Edge 3	18700	1860.0	1	0	22.0	21.0	0.979	1.223	
								50	0	22.0	21.1	1.010	1.244	
						18900	1880.0	1	0	22.0	21.4	1.010	1.169	
								50	0	22.0	21.3	1.030	1.202	
								100	0	22.0	21.3	1.050	1.225	
						19100	1900.0	1	0	22.0	21.3	1.100	1.293	
								50	0	22.0	21.3	1.100	1.301	21
					Edge 4	18900	1880.0	1	0	22.0	21.4	0.059	0.069	
								50	0	22.0	21.3	0.056	0.065	
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)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	QPSK	Off	13	Edge 3	18900	1880.0	1	0	25.0	24.3	0.883	1.040	
								50	0	24.0	23.3	0.718	0.843	
			On	0	Edge 3	18900	1880.0	1	0	22.0	21.3	1.590	1.858	
								50	0	22.0	21.3	1.590	1.875	22

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)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	N/A	0	Left Touch	20525	836.5	1	0	26.0	24.5	0.114	0.160	
								25	25	25.0	23.4	0.090	0.130	
					Left Tilt	20525	836.5	1	0	26.0	24.5	0.074	0.104	
								25	25	25.0	23.4	0.059	0.085	
					Right Touch	20525	836.5	1	0	26.0	24.5	0.148	0.208	23
								25	25	25.0	23.4	0.121	0.175	
					Right Tilt	20525	836.5	1	0	26.0	24.5	0.066	0.093	
								25	25	25.0	23.4	0.055	0.080	
	Body-worn	QPSK	N/A	15	Rear	20525	836.5	1	0	26.0	24.5	0.165	0.232	24
								25	25	25.0	23.4	0.140	0.202	
					Front	20525	836.5	1	0	26.0	24.5	0.158	0.222	
								25	25	25.0	23.4	0.130	0.188	
	Hotspot	QPSK	N/A	10	Rear	20525	836.5	1	0	26.0	24.5	0.340	0.478	25
								25	25	25.0	23.4	0.296	0.428	
					Front	20525	836.5	1	0	26.0	24.5	0.259	0.364	
								25	25	25.0	23.4	0.226	0.326	
					Edge 2	20525	836.5	1	0	26.0	24.5	0.227	0.319	
								25	25	25.0	23.4	0.177	0.256	
					Edge 3	20525	836.5	1	0	26.0	24.5	0.214	0.301	
								25	25	25.0	23.4	0.185	0.267	
					Edge 4	20525	836.5	1	0	26.0	24.5	0.076	0.108	
								25	25	25.0	23.4	0.056	0.080	

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)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	N/A	0	Left Touch	23095	707.5	1	0	26.0	24.4	0.129	0.187	
								25	0	23.5	21.9	0.067	0.096	
					Left Tilt	23095	707.5	1	0	26.0	24.4	0.069	0.100	
								25	0	23.5	21.9	0.037	0.053	
					Right Touch	23095	707.5	1	0	26.0	24.4	0.149	0.216	26
								25	0	23.5	21.9	0.083	0.120	
					Right Tilt	23095	707.5	1	0	26.0	24.4	0.073	0.106	
								25	0	23.5	21.9	0.041	0.059	
	Body-worn	QPSK	N/A	15	Rear	23095	707.5	1	0	26.0	24.4	0.242	0.351	27
								25	0	23.5	21.9	0.134	0.194	
					Front	23095	707.5	1	0	26.0	24.4	0.214	0.311	
								25	0	23.5	21.9	0.117	0.169	
	Hotspot	QPSK	N/A	10	Rear	23095	707.5	1	0	26.0	24.4	0.315	0.457	28
								25	0	23.5	21.9	0.166	0.240	
					Front	23095	707.5	1	0	26.0	24.4	0.276	0.401	
								25	0	23.5	21.9	0.153	0.222	
					Edge 2	23095	707.5	1	0	26.0	24.4	0.216	0.313	
								25	0	23.5	21.9	0.122	0.177	
					Edge 3	23095	707.5	1	0	26.0	24.4	0.190	0.276	
								25	0	23.5	21.9	0.108	0.156	
					Edge 4	23095	707.5	1	0	26.0	24.4	0.132	0.192	
								25	0	23.5	21.9	0.071	0.103	

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)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	N/A	0	Left Touch	23230	782.0	1	0	25.9	24.7	0.119	0.155	
								25	0	23.9	22.2	0.067	0.099	
					Left Tilt	23230	782.0	1	0	25.9	24.7	0.067	0.088	
								25	0	23.9	22.2	0.038	0.056	
					Right Touch	23230	782.0	1	0	25.9	24.7	0.136	0.177	29
								25	0	23.9	22.2	0.080	0.119	
					Right Tilt	23230	782.0	1	0	25.9	24.7	0.069	0.090	
								25	0	23.9	22.2	0.037	0.055	
	Body-worn	QPSK	N/A	15	Rear	23230	782.0	1	0	25.9	24.7	0.246	0.321	30
								25	0	23.9	22.2	0.134	0.198	
					Front	23230	782.0	1	0	25.9	24.7	0.222	0.290	
								25	0	23.9	22.2	0.121	0.179	
	Hotspot	QPSK	N/A	10	Rear	23230	782.0	1	0	25.9	24.7	0.354	0.462	31
								25	0	23.9	22.2	0.195	0.289	
					Front	23230	782.0	1	0	25.9	24.7	0.308	0.402	
								25	0	23.9	22.2	0.169	0.250	
					Edge 2	23230	782.0	1	0	25.9	24.7	0.330	0.431	
								25	0	23.9	22.2	0.188	0.278	
					Edge 3	23230	782.0	1	0	25.9	24.7	0.222	0.290	
								25	0	23.9	22.2	0.121	0.179	
					Edge 4	23230	782.0	1	0	25.9	24.7	0.192	0.251	
								25	0	23.9	22.2	0.105	0.155	

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)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	N/A	0	Left Touch	26865	831.5	1	0	26.0	24.5	0.118	0.165	
								36	0	25.0	23.6	0.095	0.133	
					Left Tilt	26865	831.5	1	0	26.0	24.5	0.066	0.092	
								36	0	25.0	23.6	0.053	0.074	
					Right Touch	26865	831.5	1	0	26.0	24.5	0.153	0.214	32
								36	0	25.0	23.6	0.127	0.177	
					Right Tilt	26865	831.5	1	0	26.0	24.5	0.063	0.088	
								36	0	25.0	23.6	0.052	0.072	
	Body-worn	QPSK	N/A	15	Rear	26865	831.5	1	0	26.0	24.5	0.175	0.245	33
								36	0	25.0	23.6	0.147	0.205	
					Front	26865	831.5	1	0	26.0	24.5	0.160	0.224	
								36	0	25.0	23.6	0.135	0.188	
	Hotspot	QPSK	N/A	10	Rear	26865	831.5	1	0	26.0	24.5	0.314	0.439	34
								36	0	25.0	23.6	0.254	0.354	
					Front	26865	831.5	1	0	26.0	24.5	0.266	0.372	
								36	0	25.0	23.6	0.219	0.305	
					Edge 2	26865	831.5	1	0	26.0	24.5	0.170	0.238	
								36	0	25.0	23.6	0.152	0.212	
					Edge 3	26865	831.5	1	0	26.0	24.5	0.221	0.309	
								36	0	25.0	23.6	0.181	0.252	
					Edge 4	26865	831.5	1	0	26.0	24.5	0.084	0.118	
								36	0	25.0	23.6	0.085	0.118	

10.11. 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)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.2	Head	QPSK	Off	0	Left Touch	40620	2593.0	1	0	23.0	21.9	0.057	0.073	35
								50	0	22.0	20.8	0.040	0.052	
					Left Tilt	40620	2593.0	1	0	23.0	21.9	0.018	0.023	
								50	0	22.0	20.8	0.012	0.016	
					Right Touch	40620	2593.0	1	0	23.0	21.9	0.027	0.034	
								50	0	22.0	20.8	0.018	0.023	
					Right Tilt	40620	2593.0	1	0	23.0	21.9	0.025	0.032	
								50	0	22.0	20.8	0.018	0.023	
	Body-worn	QPSK	Off	15	Rear	40620	2593.0	1	0	23.0	21.9	0.059	0.075	
								50	0	22.0	20.8	0.045	0.059	
					Front	40620	2593.0	1	0	23.0	21.9	0.076	0.098	36
								50	0	22.0	20.8	0.060	0.078	
	Hotspot	QPSK	On	10	Rear	40620	2593.0	1	0	20.0	18.9	0.071	0.090	
								50	0	20.0	18.9	0.065	0.084	
					Front	40620	2593.0	1	0	20.0	18.9	0.087	0.111	
								50	0	20.0	18.9	0.088	0.114	
					Edge 3	40620	2593.0	1	0	20.0	18.9	0.151	0.193	
								50	0	20.0	18.9	0.152	0.196	37
					Edge 4	40620	2593.0	1	0	20.0	18.9	0.039	0.050	
								50	0	20.0	18.9	0.037	0.047	

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)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	Off	0	Left Touch	132572	1770.0	1	0	25.0	24.3	0.101	0.119	38
								50	0	24.0	23.2	0.075	0.090	
					Left Tilt	132572	1770.0	1	0	25.0	24.3	0.053	0.063	
								50	0	24.0	23.2	0.037	0.044	
					Right Touch	132572	1770.0	1	0	25.0	24.3	0.066	0.078	
								50	0	24.0	23.2	0.050	0.060	
					Right Tilt	132572	1770.0	1	0	25.0	24.3	0.048	0.056	
								50	0	24.0	23.2	0.035	0.042	
	Body-worn	QPSK	Off	15	Rear	132572	1770.0	1	0	25.0	24.3	0.474	0.559	39
								50	0	24.0	23.2	0.373	0.448	
					Front	132572	1770.0	1	0	25.0	24.3	0.401	0.473	
								50	0	24.0	23.2	0.317	0.380	
	Hotspot	QPSK	On	10	Rear	132572	1770.0	1	0	22.0	21.1	0.472	0.579	
								50	0	22.0	21.1	0.468	0.575	
					Front	132572	1770.0	1	0	22.0	21.1	0.461	0.565	
								50	0	22.0	21.1	0.459	0.564	
					Edge 2	132572	1770.0	1	0	22.0	21.1	0.063	0.077	
								50	0	22.0	21.1	0.062	0.077	
					Edge 3	132072	1720.0	1	0	22.0	20.8	0.847	1.115	
								50	0	22.0	20.8	0.865	1.144	
						132322	1745.0	1	0	22.0	20.8	0.928	1.236	
								50	0	22.0	20.8	0.943	1.246	40
						132572	1770.0	1	0	22.0	21.1	0.807	0.990	
								50	0	22.0	21.1	0.785	0.965	
								100	0	22.0	21.1	0.907	1.124	
					Edge 4	132572	1770.0	1	0	22.0	21.1	0.045	0.056	
								50	0	22.0	21.1	0.043	0.053	

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)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	QPSK	Off	13	Edge 3	132572	1770.0	1	0	25.0	24.3	0.566	0.667	
								50	0	24.0	23.2	0.438	0.526	
			On	0	Edge 3	132572	1770.0	1	0	22.0	21.1	1.590	1.963	41
								50	0	22.0	21.1	1.580	1.941	

10.13. 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)		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	0.225	99.8%	15.0	14.5				
						Left Tilt	1	2412.0	0.324	99.8%	15.0	14.5				
						Right Touch	1	2412.0	0.542	99.8%	15.0	14.5	0.391	0.436	2	
						Rightt Tilt	1	2412.0	0.604	99.8%	15.0	14.5	0.436	0.487		42
			Body-worn	Off	15	Rear	6	2437.0	0.066	99.8%	19.0	18.1	0.051	0.064	4	
						Front	6	2437.0	0.076	99.8%	19.0	18.1	0.062	0.077	1	
			Hotspot	Off	10	Rear	6	2437.0	0.162	99.8%	19.0	18.1	0.134	0.167	4	
						Front	6	2437.0	0.163	99.8%	19.0	18.1	0.118	0.147	4	
						Edge 1	6	2437.0	0.294	99.8%	19.0	18.1	0.241	0.300	1	
						Edge 4	6	2437.0	0.035	99.8%	19.0	18.1				
SISO (WiFi Ant.2)	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	6	2437.0	0.057	99.8%	15.0	14.6				
						Left Tilt	6	2437.0	0.056	99.8%	15.0	14.6				
						Right Touch	6	2437.0	0.351	99.8%	15.0	14.6	0.251	0.277	1	
						Rightt Tilt	6	2437.0	0.222	99.8%	15.0	14.6				
			Body-worn	Off	15	Rear	11	2462.0	0.043	99.8%	19.0	18.2	0.031	0.038	1	
						Front	11	2462.0	0.033	99.8%	19.0	18.2				
			Hotspot	Off	10	Rear	11	2462.0	0.098	99.8%	19.0	18.2	0.069	0.083	4	
						Front	11	2462.0	0.074	99.8%	19.0	18.2	0.065	0.079	4	
						Edge 4	11	2462.0	0.164	99.8%	19.0	18.2	0.117	0.143	1	
MIMO (WiFi Ant.1)	2.4GHz	802.11b 1 Mbps	Body-worn	Off	15	Rear	1	2412.0	0.094	99.8%	19.0	18.0	0.074	0.093	1	43
						Front	1	2412.0	0.089	99.8%	19.0	18.0				
			Hotspot	Off	10	Rear	1	2412.0	0.221	99.8%	19.0	18.0	0.181	0.230	4	
						Front	1	2412.0	0.225	99.8%	19.0	18.0	0.163	0.207	4	
						Edge 1	1	2412.0	0.310	99.8%	19.0	18.0	0.275	0.349	1	44
						Edge 4	1	2412.0	0.043	99.8%	19.0	18.0				
MIMO (WiFi Ant.2)	2.4GHz	802.11b 1 Mbps	Body-worn	Off	15	Rear	1	2412.0	0.094	99.8%	19.0	18.0				
						Front	1	2412.0	0.089	99.8%	19.0	18.0				
			Hotspot	Off	10	Rear	1	2412.0	0.221	99.8%	19.0	18.0				
						Front	1	2412.0	0.225	99.8%	19.0	18.0				
						Edge 1	1	2412.0	0.310	99.8%	19.0	18.0				
						Edge 4	1	2412.0	0.043	99.8%	19.0	18.0				

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.
6. For Body-worn and Hotspot exposure condition, MIMO SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

10.14. Wi-Fi (U-NII Bands)

U-NII 2A Results

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)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled		
SISO (WiFI Ant.1)	5.3 GHz U-NII 2A	802.11ac VHT 80 MCS 0	Head	On	0	Left Touch	58	5290.0	0.012	99.7%	11.0	10.7						
						Left Tilt	58	5290.0	0.010	99.7%	11.0	10.7						
						Right Touch	58	5290.0	0.069	99.7%	11.0	10.7	0.032	0.035			1	
						Right Tilt	58	5290.0	0.060	99.7%	11.0	10.7						
		802.11a 6 Mbps	Body-worn	Off	15	Rear	64	5320.0	0.937	98.8%	18.0	17.8	0.431	0.457				46
						Front	64	5320.0	0.053	98.8%	18.0	17.8	0.024	0.025			2	
			Product Specific 10-g	Off	0	Rear	64	5320.0	30.826	98.8%	18.0	17.8			1.450	1.537		
						Front	64	5320.0	0.526	98.8%	18.0	17.8						
						Edge 4	64	5320.0	3.980	98.8%	18.0	17.8			0.481	0.510	2	
SISO (WiFI Ant.2)	5.3 GHz U-NII 2A	802.11ac VHT 80 MCS 0	Head	On	0	Left Touch	58	5290.0	0.124	99.7%	11.0	10.9						
						Left Tilt	58	5290.0	0.134	99.7%	11.0	10.9						
						Right Touch	58	5290.0	0.553	99.7%	11.0	10.9						
						Right Tilt	58	5290.0	0.612	99.7%	11.0	10.9	0.236	0.245			1	45
		802.11a 6 Mbps	Body-worn	Off	15	Rear	64	5320.0	0.443	98.8%	18.0	17.8	0.221	0.235			1	
						Front	64	5320.0	0.281	98.8%	18.0	17.8						
			Product Specific 10-g	Off	0	Rear	64	5320.0	4.766	98.8%	18.0	17.8						
						Front	64	5320.0	10.858	98.8%	18.0	17.8			0.974	1.037	2	
						Edge 1	64	5320.0	2.428	98.8%	18.0	17.8						
						Edge 4	64	5320.0	26.930	98.8%	18.0	17.8			1.800	1.917		47
MIMO (WiFI Ant.1)	5.3 GHz U-NII 2A	802.11a 6 Mbps	Body-worn	Off	15	Rear	64	5320.0	0.512	98.8%	18.0	17.7						
						Front	64	5320.0	0.268	98.8%	18.0	17.7						
MIMO (WiFI Ant.2)	5.3 GHz U-NII 2A	802.11a 6 Mbps	Body-worn	Off	15	Rear	64	5320.0	0.512	98.8%	18.0	17.3	0.255	0.306			1	
						Front	64	5320.0	0.268	98.8%	18.0	17.3						

U-NII 2C Results

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)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled		
SISO (WiFI Ant.1)	5.5 GHz U-NII 2C	802.11ac VHT 80 MCS 0	Head	On	0	Left Touch	122	5610.0	0.011	99.7%	11.0	10.5						
						Left Tilt	122	5610.0	0.012	99.7%	11.0	10.5						
						Right Touch	122	5610.0	0.032	99.7%	11.0	10.5						
						Right Tilt	122	5610.0	0.033	99.7%	11.0	10.5	0.010	0.011			1	
		802.11a 6 Mbps	Body-worn	Off	15	Rear	120	5600.0	0.399	98.8%	18.0	17.8	0.207	0.219			1	
						Front	120	5600.0	0.061	98.8%	18.0	17.8						
			Product Specific 10-g	Off	0	Rear	120	5600.0	6.610	98.8%	18.0	17.8			1.250	1.322		50
						Front	120	5600.0	0.974	98.8%	18.0	17.8						
						Edge 4	120	5600.0	4.169	98.8%	18.0	17.8			0.375	0.397	2	
SISO (WiFI Ant.2)	5.5 GHz U-NII 2C	802.11ac VHT 80 MCS 0	Head	On	0	Left Touch	106	5530.0	0.140	99.7%	11.0	10.8						
						Left Tilt	106	5530.0	0.142	99.7%	11.0	10.8						
						Right Touch	106	5530.0	0.615	99.7%	11.0	10.8	0.260	0.274			1	48
						Right Tilt	106	5530.0	0.413	99.7%	11.0	10.8						
		802.11a 6 Mbps	Body-worn	Off	15	Rear	124	5620.0	0.275	98.8%	18.0	17.4	0.124	0.146			1	
						Front	124	5620.0	0.147	98.8%	18.0	17.4						
			Product Specific 10-g	Off	0	Rear	124	5620.0	2.923	98.8%	18.0	17.4						
						Front	124	5620.0	3.148	98.8%	18.0	17.4			0.452	0.531	2	
						Edge 1	124	5620.0	3.008	98.8%	18.0	17.4						
						Edge 4	124	5620.0	12.551	98.8%	18.0	17.4			0.878	1.032		
MIMO (WiFI Ant.1)	5.5 GHz U-NII 2C	802.11a 6 Mbps	Body-worn	Off	15	Rear	120	5600.0	0.624	98.8%	18.0	17.8						
						Front	120	5600.0	0.172	98.8%	18.0	17.8						
MIMO (WiFI Ant.2)	5.5 GHz U-NII 2C	802.11a 6 Mbps	Body-worn	Off	15	Rear	120	5600.0	0.624	98.8%	18.0	17.0	0.300	0.387			1	49
						Front	120	5600.0	0.172	98.8%	18.0	17.0						

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. For Body-worn exposure condition, MIMO SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

U-NII 3 Results

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)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
SISO (WiFI Ant.1)	5.8 GHz U-NII 3	802.11ac VHT 80 MCS 0	Head	On	0	Left Touch	155	5775.0	0.011	99.7%	11.0	10.5				
						Left Tilt	155	5775.0	0.008	99.7%	11.0	10.5				
						Right Touch	155	5775.0	0.020	99.7%	11.0	10.5				
						Right Tilt	155	5775.0	0.028	99.7%	11.0	10.5	0.006	0.006	1	
		802.11a 6 Mbps	Body-worn	Off	15	Rear	149	5745.0	0.189	98.8%	18.0	17.4	0.087	0.101	1	
						Front	149	5745.0	0.018	98.8%	18.0	17.4				
			Hotsopt	Off	10	Rear	149	5745.0	0.362	98.8%	18.0	17.4	0.158	0.183	1	
						Front	149	5745.0	0.028	98.8%	18.0	17.4				
						Edge 4	149	5745.0	0.114	98.8%	18.0	17.4				
SISO (WiFI Ant.2)	5.8 GHz U-NII 3	802.11ac VHT 80 MCS 0	Head	On	0	Left Touch	155	5775.0	0.033	99.7%	11.0	10.0				
						Left Tilt	155	5775.0	0.031	99.7%	11.0	10.0				
						Right Touch	155	5775.0	0.111	99.7%	11.0	10.0	0.035	0.045	1	51
						Right Tilt	155	5775.0	0.069	99.7%	11.0	10.0				
		802.11a 6 Mbps	Body-worn	Off	15	Rear	149	5745.0	0.304	98.8%	18.0	17.1	0.132	0.166	1	
						Front	149	5745.0	0.071	98.8%	18.0	17.1				
			Hotsopt	Off	10	Rear	149	5745.0	0.442	98.8%	18.0	17.1	0.211	0.266	1	
						Front	149	5745.0	0.136	98.8%	18.0	17.1				
						Edge 1	149	5745.0	0.127	98.8%	18.0	17.1				
						Edge 4	149	5745.0	0.240	98.8%	18.0	17.1				
MIMO (WiFI Ant.1)	5.8 GHz U-NII 3	802.11a 6 Mbps	Body-worn	Off	15	Rear	165	5825.0	0.429	98.8%	18.0	17.5				
						Front	165	5825.0	0.061	98.8%	18.0	17.5				
			Hotspot	Off	10	Rear	149	5745.0	0.605	98.8%	18.0	17.3				
						Front	149	5745.0	0.145	98.8%	18.0	17.3				
						Edge 1	149	5745.0	0.175	98.8%	18.0	17.3				
						Edge 4	149	5745.0	0.369	98.8%	18.0	17.3				
MIMO (WiFI Ant.2)	5.8 GHz U-NII 3	802.11a 6 Mbps	Body-worn	Off	15	Rear	165	5825.0	0.429	98.8%	18.0	16.6	0.204	0.284	1	52
						Front	165	5825.0	0.061	98.8%	18.0	16.6				
			Hotspot	Off	10	Rear	149	5745.0	0.605	98.8%	18.0	16.5	0.314	0.449		53
						Front	149	5745.0	0.145	98.8%	18.0	16.5				
						Edge 1	149	5745.0	0.175	98.8%	18.0	16.5				
						Edge 4	149	5745.0	0.369	98.8%	18.0	16.5	0.165	0.236	2	

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. For Body-worn and Hotspot exposure condition, MIMO SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

10.15. Bluetooth

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
BT Ant.1	2.4 GHz	GFSK	Head	On	0	Left Touch	39	2441.0	76.7%	10.5	9.1	0.057	0.102	
						Left Tilt	39	2441.0	76.7%	10.5	9.1	0.087	0.154	
						Right Touch	39	2441.0	76.7%	10.5	9.1	0.103	0.183	
						Right Tilt	39	2441.0	76.7%	10.5	9.1	0.121	0.215	54
			Body-worn	Off	15	Rear	39	2441.0	76.7%	17.5	16.2	0.045	0.078	
						Front	39	2441.0	76.7%	17.5	16.2	0.045	0.078	55
			Hotspot	Off	10	Rear	39	2441.0	76.7%	17.5	16.2	0.100	0.174	
						Front	39	2441.0	76.7%	17.5	16.2	0.102	0.177	
						Edge 1	39	2441.0	76.7%	17.5	16.2	0.179	0.311	56
						Edge 4	39	2441.0	76.7%	17.5	16.2	0.027	0.047	
BT Ant.2	2.4 GHz	GFSK	Head	On	0	Left Touch	39	2441.0	76.7%	10.5	9.0	0.017	0.030	
						Left Tilt	39	2441.0	76.7%	10.5	9.0	0.013	0.025	
						Right Touch	39	2441.0	76.7%	10.5	9.0	0.110	0.201	
						Right Tilt	39	2441.0	76.7%	10.5	9.0	0.062	0.114	
			Body-worn	Off	15	Rear	39	2441.0	76.7%	17.5	16.5	0.010	0.017	
						Front	39	2441.0	76.7%	17.5	16.5	0.008	0.012	
			Hotspot	Off	10	Rear	39	2441.0	76.7%	17.5	16.5	0.027	0.044	
						Front	39	2441.0	76.7%	17.5	16.5	0.021	0.034	
						Edge 4	39	2441.0	76.7%	17.5	16.5	0.044	0.072	

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	0.315	N/A	N/A
	LTE Band 13	Hotspot	Rear	No	0.354	N/A	N/A
835	GSM 850	Hotspot	Rear	No	0.237	N/A	N/A
	WCDMA Band V	Hotspot	Rear	No	0.396	N/A	N/A
	LTE Band 5	Hotspot	Rear	No	0.340	N/A	N/A
	LTE Band 26	Hotspot	Rear	No	0.314	N/A	N/A
1750	WCDMA Band IV	Hotspot	Edge 3	Yes	1.050	1.040	1.01
	LTE Band 66	Hotspot	Edge 3	No	0.943	N/A	N/A
1900	GSM 1900	Hotspot	Edge 3	No	0.786	N/A	N/A
	WCDMA Band II	Hotspot	Edge 3	No	0.925	N/A	N/A
	LTE Band 2	Hotspot	Edge 3	Yes	1.100	1.070	1.03
2400	Wi-Fi 802.11b/g/n	Head	Right Tilt	No	0.436	N/A	N/A
	Bluetooth	Hotspot	Edge 1	No	0.179	N/A	N/A
2600	LTE Band 41	Hotspot	Edge 3	No	0.152	N/A	N/A
5250	Wi-Fi 802.11a/ac	Body	Rear	No	0.431	N/A	N/A
5500	Wi-Fi 802.11a/ac	Body	Rear	No	0.300	N/A	N/A
5800	Wi-Fi 802.11a/ac	Hotspot	Rear	No	0.314	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	Yes	2.550	2.550	1.00
	LTE Band 66	Product Specific 10g	Edge 3	No	1.590	N/A	N/A
1900	GSM 1900	Product Specific 10g	Edge 3	No	1.120	N/A	N/A
	WCDMA Band II	Product Specific 10g	Edge 3	No	1.410	N/A	N/A
	LTE Band 2	Product Specific 10g	Edge 3	No	1.590	N/A	N/A
5250	Wi-Fi 802.11a/ac	Product Specific 10g	Edge 4	No	1.800	N/A	N/A
5500	Wi-Fi 802.11a/ac	Product Specific 10g	Rear	No	1.250	N/A	N/A

Note(s):

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

12. Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations						
Head & Body-worn & Product Specific 10-g	1	GSM(Voice/GPRS)	+	DTS_Ant.1	or/and	DTS_Ant.2		
	2	GSM(Voice/GPRS)	+	UNII_Ant.1	or/and	UNII_Ant.2		
	3	GSM(Voice/GPRS)	+	BT Ant.1	or	BT Ant.2		
	4	GSM(Voice/GPRS)	+	DTS_Ant.2	+	BT Ant.1		
	5	GSM(Voice/GPRS)	+	UNII_Ant.1	+	BT Ant.1	or	BT Ant.2
	6	GSM(Voice/GPRS)	+	UNII MIMO	+	BT Ant.1	or	BT Ant.2
	7	GSM(Voice/GPRS)	+	***RSDB scenarios (1- 4)***				
	8	GSM(Voice/GPRS)	+	***RSDB scenarios (1, 3)***		BT Ant.1		
	9	WCDMA or LTE	+	DTS_Ant.1	or/and	DTS_Ant.2		
	10	WCDMA or LTE	+	UNII_Ant.1	or/and	UNII_Ant.2		
	11	WCDMA or LTE	+	BT Ant.1	or	BT Ant.2		
	12	WCDMA or LTE	+	DTS_Ant.2	+	BT Ant.1		
	13	WCDMA or LTE	+	UNII_Ant.1	+	BT Ant.1	or	BT Ant.2
	14	WCDMA or LTE	+	UNII MIMO	+	BT Ant.1	or	BT Ant.2
	15	WCDMA or LTE	+	***RSDB scenarios (1- 4)***				
	16	WCDMA or LTE	+	***RSDB scenarios (1, 3)***	+	BT Ant.1		
Hotspot	17	GSM(GPRS)	+	DTS_Ant.1	or/and	DTS_Ant.2		
	18	GSM(GPRS)	+	UNII_Ant.1	or/and	UNII_Ant.2		
	19	GSM(GPRS)	+	BT Ant.1	or	BT Ant.2		
	20	GSM(GPRS)	+	DTS_Ant.2	+	BT Ant.1		
	21	GSM(GPRS)	+	UNII_Ant.1	+	BT Ant.1	or	BT Ant.2
	22	GSM(GPRS)	+	UNII MIMO	+	BT Ant.1	or	BT Ant.2
	23	GSM(GPRS)	+	***RSDB scenarios (1- 4)***				
	24	GSM(GPRS)	+	***RSDB scenarios (1, 3)***	+	BT Ant.1		
	25	WCDMA or LTE	+	DTS_Ant.1	or/and	DTS_Ant.2		
	26	WCDMA or LTE	+	UNII_Ant.1	or/and	UNII_Ant.2		
	27	WCDMA or LTE	+	BT Ant.1	or	BT Ant.2		
	28	WCDMA or LTE	+	DTS_Ant.2	+	BT Ant.1		
	29	WCDMA or LTE	+	UNII_Ant.1	+	BT Ant.1	or	BT Ant.2
	30	WCDMA or LTE	+	UNII MIMO	+	BT Ant.1	or	BT Ant.2
	31	WCDMA or LTE	+	***RSDB scenarios (1- 4)***				
	32	WCDMA or LTE	+	***RSDB scenarios (1, 3)***	+	BT Ant.1		

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. U-NII Radio can transmit simultaneously with Bluetooth Radio.
5. DTS Ant.2 Radio can transmit simultaneously with Bluetooth Ant.1 Radio.
6. DTS Radio can only transmit simultaneously with U-NII Radio in RSDB scenarios (1 - 4).
7. DTS and U-NII Radio can operating both SISO and MIMO modes.
8. BT Radio can operating Only SISO mode.
9. Bluetooth Ant.1 Radio can transmit simultaneously with certain RSDB scenarios (1, 3).
10. BT tethering is consider about each RF exposure conditions

RSDB scenarios

Mode	Scenario	# of TX	5GHz		2.4GHz	
			Ant1	Ant2	Ant1	Ant2
2.4GHz + 5GHz RSDB Only	1	2	On	-	-	On
2.4GHz + 5GHz RSDB & MIMO	2	3	On		On	On
	3	3	On	On	-	On
2.4GHz + 5GHz RSDB MIMO	4	4	On	On	On	On

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.

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.

12.1. Sum of the SAR for GSM 850 & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A : 1+2+3 B,C : 1+4	1+5	1+6	A : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A : 1+5+6+8 B,C : 1+7+8	A : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.130	0.487	0.277		0.035	0.274		0.215	0.201	0.617	0.407	0.894	0.165	0.404	0.439	0.345	0.331	0.622	0.380	0.366	0.654	0.640
B: Body-worn (1-g SAR)	Rear	0.153	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.217	0.191	0.246	0.610	0.388	0.540	0.231	0.170	0.269	0.688	0.627	0.618	0.557
	Front	0.135	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.212	0.173	0.228	0.592	0.370	0.522	0.213	0.147	0.251	0.670	0.604	0.600	0.534
C: Hotspot (1-g SAR)	Rear	0.332	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.499	0.415	0.562	0.515	0.598	0.781	0.506	0.376	0.589	0.689	0.559	0.955	0.825
	Front	0.241	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.388	0.320	0.448	0.424	0.507	0.690	0.418	0.275	0.497	0.601	0.458	0.867	0.724
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.182																					
	Edge 3	0.216																					
	Edge 4	0.061	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.361	0.204	0.410	0.244	0.327	0.297	0.108	0.133	0.251	0.291	0.316	0.344	0.369

12.2. Sum of the SAR for GSM 1900 & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.060	0.487	0.277		0.035	0.274		0.215	0.201	0.547	0.337	0.824	0.095	0.334	0.369	0.275	0.261	0.552	0.310	0.296	0.584	0.570
B: Body-worn (1-g SAR)	Rear	0.370	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.434	0.408	0.463	0.827	0.605	0.757	0.448	0.387	0.486	0.905	0.844	0.835	0.774
	Front	0.308	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.385	0.346	0.401	0.765	0.543	0.695	0.386	0.320	0.424	0.843	0.777	0.773	0.707
C: Hotspot (1-g SAR)	Rear	0.592	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.759	0.675	0.822	0.775	0.858	1.041	0.766	0.636	0.849	0.949	0.819	1.215	1.085
	Front	0.603	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.750	0.682	0.810	0.786	0.869	1.052	0.780	0.637	0.859	0.963	0.820	1.229	1.086
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.080																					
	Edge 3	1.100																					
	Edge 4	0.057	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.357	0.200	0.406	0.240	0.323	0.293	0.104	0.129	0.247	0.287	0.312	0.340	0.365
D: Product Specific (10-g SAR)	Rear					1.537	1.917																
	Front					1.537	1.037																
	Edge 1						1.917																
	Edge 2																						
	Edge 3	1.556																					
	Edge 4					0.510	1.917																

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For DTS and UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.052	0.487	0.277		0.035	0.274		0.215	0.201	0.539	0.329	0.816	0.087	0.326	0.361	0.267	0.253	0.544	0.302	0.288	0.576	0.562
B: Body-worn (1-g SAR)	Rear	0.566	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.630	0.604	0.659	1.023	0.801	0.953	0.644	0.583	0.682	1.101	1.040	1.031	0.970
	Front	0.554	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.631	0.592	0.647	1.011	0.789	0.941	0.632	0.566	0.670	1.089	1.023	1.019	0.953
C: Hotspot (1-g SAR)	Rear	0.506	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.673	0.589	0.736	0.689	0.772	0.955	0.680	0.550	0.763	0.863	0.733	1.129	0.999
	Front	0.529	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.676	0.608	0.736	0.712	0.795	0.978	0.706	0.563	0.785	0.889	0.746	1.155	1.012
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.080																					
	Edge 3	1.093																					
	Edge 4	0.053	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.353	0.196	0.402	0.236	0.319	0.289	0.100	0.125	0.243	0.283	0.308	0.336	0.361
D: Product Specific (10-g SAR)	Rear					1.537	1.917																
	Front					1.537	1.037																
	Edge 1						1.917																
	Edge 2																						
	Edge 3	1.682																					
	Edge 4					0.510	1.917																

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For DTS and UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.130	0.487	0.277		0.035	0.274		0.215	0.201	0.617	0.407	0.894	0.165	0.404	0.439	0.345	0.331	0.622	0.380	0.366	0.654	0.640
B: Body-worn (1-g SAR)	Rear	0.708	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.772	0.746	0.801	1.165	0.943	1.095	0.786	0.725	0.824	1.243	1.182	1.173	1.112
	Front	0.678	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.755	0.716	0.771	1.135	0.913	1.065	0.756	0.690	0.794	1.213	1.147	1.143	1.077
C: Hotspot (1-g SAR)	Rear	0.634	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.801	0.717	0.864	0.817	0.900	1.083	0.808	0.678	0.891	0.991	0.861	1.257	1.127
	Front	0.628	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.775	0.707	0.835	0.811	0.894	1.077	0.805	0.662	0.884	0.988	0.845	1.254	1.111
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.112																					
	Edge 3	1.179																					
	Edge 4	0.099	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.399	0.242	0.448	0.282	0.365	0.335	0.146	0.171	0.289	0.329	0.354	0.382	0.407
D: Product Specific (10-g SAR)	Rear					1.537	1.917																
	Front					1.537	1.037																
	Edge 1						1.917																
	Edge 2																						
	Edge 3	2.941																					
	Edge 4					0.510	1.917																

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

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.227	0.487	0.277		0.035	0.274		0.215	0.201	0.714	0.504	0.991	0.262	0.501	0.536	0.442	0.428	0.719	0.477	0.463	0.751	0.737
B: Body-worn (1-g SAR)	Rear	0.277	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.341	0.315	0.370	0.734	0.512	0.664	0.355	0.294	0.393	0.812	0.751	0.742	0.681
	Front	0.250	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.327	0.288	0.343	0.707	0.485	0.637	0.328	0.262	0.366	0.785	0.719	0.715	0.649
C: Hotspot (1-g SAR)	Rear	0.483	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.650	0.566	0.713	0.666	0.749	0.932	0.657	0.527	0.740	0.840	0.710	1.106	0.976
	Front	0.395	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.542	0.474	0.602	0.578	0.661	0.844	0.572	0.429	0.651	0.755	0.612	1.021	0.878
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.320																					
	Edge 3	0.339																					
	Edge 4	0.095	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.395	0.238	0.444	0.278	0.361	0.331	0.142	0.167	0.285	0.325	0.350	0.378	0.403

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For DTS and UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.146	0.487	0.277		0.035	0.274		0.215	0.201	0.633	0.423	0.910	0.181	0.420	0.455	0.361	0.347	0.638	0.396	0.382	0.670	0.656
B: Body-worn (1-g SAR)	Rear	0.677	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.741	0.715	0.770	1.134	0.912	1.064	0.755	0.694	0.793	1.212	1.151	1.142	1.081
	Front	0.643	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.720	0.681	0.736	1.100	0.878	1.030	0.721	0.655	0.759	1.178	1.112	1.108	1.042
C: Hotspot (1-g SAR)	Rear	0.596	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.763	0.679	0.826	0.779	0.862	1.045	0.770	0.640	0.853	0.953	0.823	1.219	1.089
	Front	0.590	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.737	0.669	0.797	0.773	0.856	1.039	0.767	0.624	0.846	0.950	0.807	1.216	1.073
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.094																					
	Edge 3	1.301																					
	Edge 4	0.069	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.369	0.212	0.418	0.252	0.335	0.305	0.116	0.141	0.259	0.299	0.324	0.352	0.377
D: Product Specific (10-g SAR)	Rear					1.537	1.917																
	Front					1.537	1.037																
	Edge 1						1.917																
	Edge 2																						
	Edge 3	1.875																					
	Edge 4					0.510	1.917																

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

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.208	0.487	0.277		0.035	0.274		0.215	0.201	0.695	0.485	0.972	0.243	0.482	0.517	0.423	0.409	0.700	0.458	0.444	0.732	0.718
B: Body-worn (1-g SAR)	Rear	0.232	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.296	0.270	0.325	0.689	0.467	0.619	0.310	0.249	0.348	0.767	0.706	0.697	0.636
	Front	0.222	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.299	0.260	0.315	0.679	0.457	0.609	0.300	0.234	0.338	0.757	0.691	0.687	0.621
C: Hotspot (1-g SAR)	Rear	0.478	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.645	0.561	0.708	0.661	0.744	0.927	0.652	0.522	0.735	0.835	0.705	1.101	0.971
	Front	0.364	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.511	0.443	0.571	0.547	0.630	0.813	0.541	0.398	0.620	0.724	0.581	0.990	0.847
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.319																					
	Edge 3	0.301																					
	Edge 4	0.108	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.408	0.251	0.457	0.291	0.374	0.344	0.155	0.180	0.298	0.338	0.363	0.391	0.416

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For DTS and UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.216	0.487	0.277		0.035	0.274		0.215	0.201	0.703	0.493	0.980	0.251	0.490	0.525	0.431	0.417	0.708	0.466	0.452	0.740	0.726
B: Body-worn (1-g SAR)	Rear	0.351	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.415	0.389	0.444	0.808	0.586	0.738	0.429	0.368	0.467	0.886	0.825	0.816	0.755
	Front	0.311	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.388	0.349	0.404	0.768	0.546	0.698	0.389	0.323	0.427	0.846	0.780	0.776	0.710
C: Hotspot (1-g SAR)	Rear	0.457	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.624	0.540	0.687	0.640	0.723	0.906	0.631	0.501	0.714	0.814	0.684	1.080	0.950
	Front	0.401	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.548	0.480	0.608	0.584	0.667	0.850	0.578	0.435	0.657	0.761	0.618	1.027	0.884
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.313																					
	Edge 3	0.276																					
	Edge 4	0.192	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.492	0.335	0.541	0.375	0.458	0.428	0.239	0.264	0.382	0.422	0.447	0.475	0.500

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

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.177	0.487	0.277		0.035	0.274		0.215	0.201	0.664	0.454	0.941	0.212	0.451	0.486	0.392	0.378	0.669	0.427	0.413	0.701	0.687
B: Body-worn (1-g SAR)	Rear	0.321	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.385	0.359	0.414	0.778	0.556	0.708	0.399	0.338	0.437	0.856	0.795	0.786	0.725
	Front	0.290	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.367	0.328	0.383	0.747	0.525	0.677	0.368	0.302	0.406	0.825	0.759	0.755	0.689
C: Hotspot (1-g SAR)	Rear	0.462	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.629	0.545	0.692	0.645	0.728	0.911	0.636	0.506	0.719	0.819	0.689	1.085	0.955
	Front	0.402	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.549	0.481	0.609	0.585	0.668	0.851	0.579	0.436	0.658	0.762	0.619	1.028	0.885
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.431																					
	Edge 3	0.290																					
	Edge 4	0.251	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.551	0.394	0.600	0.434	0.517	0.487	0.298	0.323	0.441	0.481	0.506	0.534	0.559

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For DTS and UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.214	0.487	0.277		0.035	0.274		0.215	0.201	0.701	0.491	0.978	0.249	0.488	0.523	0.429	0.415	0.706	0.464	0.450	0.738	0.724
B: Body-worn (1-g SAR)	Rear	0.245	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.309	0.283	0.338	0.702	0.480	0.632	0.323	0.262	0.361	0.780	0.719	0.710	0.649
	Front	0.224	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.301	0.262	0.317	0.681	0.459	0.611	0.302	0.236	0.340	0.759	0.693	0.689	0.623
C: Hotspot (1-g SAR)	Rear	0.439	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.606	0.522	0.669	0.622	0.705	0.888	0.613	0.483	0.696	0.796	0.666	1.062	0.932
	Front	0.372	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.519	0.451	0.579	0.555	0.638	0.821	0.549	0.406	0.628	0.732	0.589	0.998	0.855
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.238																					
	Edge 3	0.309																					
	Edge 4	0.118	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.418	0.261	0.467	0.301	0.384	0.354	0.165	0.190	0.308	0.348	0.373	0.401	0.426

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

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.073	0.487	0.277		0.035	0.274		0.215	0.201	0.560	0.350	0.837	0.108	0.347	0.382	0.288	0.274	0.565	0.323	0.309	0.597	0.583
B: Body-worn (1-g SAR)	Rear	0.075	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.139	0.113	0.168	0.532	0.310	0.462	0.153	0.092	0.191	0.610	0.549	0.540	0.479
	Front	0.098	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.175	0.136	0.191	0.555	0.333	0.485	0.176	0.110	0.214	0.633	0.567	0.563	0.497
C: Hotspot (1-g SAR)	Rear	0.090	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.257	0.173	0.320	0.273	0.356	0.539	0.264	0.134	0.347	0.447	0.317	0.713	0.583
	Front	0.114	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.261	0.193	0.321	0.297	0.380	0.563	0.291	0.148	0.370	0.474	0.331	0.740	0.597
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2																						
	Edge 3	0.196																					
	Edge 4	0.050	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.350	0.193	0.399	0.233	0.316	0.286	0.097	0.122	0.240	0.280	0.305	0.333	0.358

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For DTS and UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

12.12. Sum of the SAR for LTE Band 66 & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)												
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + DTS Ant.2+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.1	WWAN + UNII Ant.1+ BT Ant.2	WWAN + UNII MIMO+ BT Ant.1	WWAN + UNII MIMO+ BT Ant.2
		1	2	3	4	5	6	7	8	9	1+2	1+3	A, D : 1+2+3 B,C : 1+4	1+5	1+6	A, D : 1+5+6 B,C : 1+7	1+8	1+9	1+3+8	1+5+8	1+5+9	A, D : 1+5+6+8 B,C : 1+7+8	A, D : 1+5+6+9 B,C : 1+7+9
A: Head (1-g SAR)	All Position	0.119	0.487	0.277		0.035	0.274		0.215	0.201	0.606	0.396	0.883	0.154	0.393	0.428	0.334	0.320	0.611	0.369	0.355	0.643	0.629
B: Body-worn (1-g SAR)	Rear	0.559	0.064	0.038	0.093	0.457	0.235	0.387	0.078	0.017	0.623	0.597	0.652	1.016	0.794	0.946	0.637	0.576	0.675	1.094	1.033	1.024	0.963
	Front	0.473	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.012	0.550	0.511	0.566	0.930	0.708	0.860	0.551	0.485	0.589	1.008	0.942	0.938	0.872
C: Hotspot (1-g SAR)	Rear	0.579	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.746	0.662	0.809	0.762	0.845	1.028	0.753	0.623	0.836	0.936	0.806	1.202	1.072
	Front	0.565	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.712	0.644	0.772	0.748	0.831	1.014	0.742	0.599	0.821	0.925	0.782	1.191	1.048
	Edge 1		0.300		0.349		0.266	0.449	0.311														
	Edge 2	0.077																					
	Edge 3	1.246																					
	Edge 4	0.056	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.356	0.199	0.405	0.239	0.322	0.292	0.103	0.128	0.246	0.286	0.311	0.339	0.364

12.13. Sum of the SAR for WWAN & Wi-Fi (RSDB) & BT

RF Exposure	Test Position	Standalone SAR (W/kg)									∑ SAR (W/kg)					
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	WWAN +DTS Ant.2 +UNII Ant.1	WWAN +DTS MIMO +UNII Ant.1	WWAN +DTS Ant.2 +UNII MIMO	WWAN +DTS MIMO +UNII MIMO	WWAN +DTS Ant.2 +UNII Ant.1 +BT Ant.1	WWAN +DTS Ant.2 +UNII MIMO +BT Ant.1
		1	2	3	4	5	6	7	8	9	1+3+5	A : 1+2+3+5 B, C : 1+4+5	A : 1+3+5+6 B, C : 1+3+7	A : 1+2+3+5+6 B, C : 1+4+7	1+3+5+8	A : 1+3+5+6+8 B, C : 1+3+7+8
A: Head (1-g SAR)	All Position	0.227	0.487	0.277		0.035	0.274		0.215	0.201	0.539	1.026	0.813	1.300	0.754	1.028
B: Body-worn (1-g SAR)	All Position	0.708	0.077	0.038	0.093	0.457	0.235	0.387	0.078	0.017	1.203	1.258	1.133	1.188	1.281	1.211
C: Hotspot (1-g SAR)	Rear	0.634	0.167	0.083	0.230	0.183	0.266	0.449	0.174	0.044	0.900	1.047	1.166	1.313	1.074	1.340
	Front	0.628	0.147	0.079	0.207	0.183	0.266	0.449	0.177	0.034	0.890	1.018	1.156	1.284	1.067	1.333
	Edge 1		0.300		0.349		0.266	0.449	0.311							
	Edge 2	0.431														
	Edge 3	1.372														
	Edge 4	0.251	0.300	0.143	0.349	0.183	0.266	0.236	0.047	0.072	0.577	0.783	0.630	0.836	0.624	0.677

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For DTS and UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

Appendixes

Refer to separated files for the following appendixes.

4789551399-S1 FCC Report SAR_App A_Photos & Ant. Locations

4789551399-S1 FCC Report SAR_App B_Highest SAR Test Plots

4789551399-S1 FCC Report SAR_App C_System Check Plots

4789551399-S1 FCC Report SAR_App D_SAR Tissue Ingredients

4789551399-S1 FCC Report SAR_App E_Probe Cal. Certificates

4789551399-S1 FCC Report SAR_App F_Dipole Cal. Certificates

END OF REPORT