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, ANT+, NFC and WPT

MODEL NUMBER: SM-G981B/DS, SM-G981B

FCC ID: A3LSMG981B

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IAS ACCREDITED

Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	12/24/2019	Initial Issue	--
V2	1/10/2020	Revised Duty cycle for Wi-Fi in Sec.6.2	Eunji Choi

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1. Attestation of Test Results

Applicant Name		SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID		A3LSMG981B			
Model Number		SM-G981B/DS, SM-G981B			
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	U-NII	DSS
Head		0.34	0.72	< 0.10	0.66
Body-worn		0.97	0.11	0.39	< 0.10
Hotspot		1.35	0.48	0.58	0.22
Product Specific 10g		3.20	N/A	1.02	N/A
Simultaneous TX	Head	1.18	1.18	1.18	1.08
	Body-worn	1.43	1.31	1.43	1.43
	Hotspot	1.59	1.41	1.59	1.59
	Product Specific 10g	3.93	N/A	3.93	N/A
Date Tested		11/4/2019 to 12/22/2019			
Test Results		Pass			

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released By:	Prepared By:
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory	Eunji Choi Associate Test Engineer UL Korea, Ltd. Suwon Laboratory

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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	0.287	0.415	0.583	N/A
	GSM 1900	0.076	0.304	1.126	1.637
	WCDMA Band II	0.194	0.796	1.304	1.994
	WCDMA Band IV	0.181	**0.974**	**1.346**	**3.201**
	WCDMA Band V	0.232	0.460	0.761	N/A
	LTE Band 2	N/A	N/A	N/A	N/A
	LTE Band 4	N/A	N/A	N/A	N/A
	LTE Band 5	N/A	N/A	N/A	N/A
	LTE Band 12	0.228	0.301	0.430	N/A
	LTE Band 13	0.202	0.410	0.492	N/A
	LTE Band 17	N/A	N/A	N/A	N/A
	LTE Band 25	0.230	0.757	1.192	1.857
	LTE Band 26	**0.339**	0.518	0.810	N/A
	LTE Band 41	0.108	0.365	0.937	N/A
	LTE Band 66	0.259	0.944	1.258	2.611
DTS	2.4GHz WLAN	**0.718**	**0.106**	**0.479**	N/A
UNII	5GHz WLAN	**0.076**	**0.392**	**0.577**	**1.023**
DSS	Bluetooth	**0.660**	**0.061**	**0.223**	N/A

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2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528-2013, 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 May, 2017; Page 7, RF Exposure Procedures (LTE Band 41 Power Class 2)
- TCB workshop April, 2018; Page 3, RF Exposure Procedures (LTE DL CA SAR Test Exclusion Update)
- TCB workshop April, 2019; Page 10, Exposure Procedures (802.11ax SAR Testing)
- 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 http://www.iasonline.org/PDF/TL/TL-637.pdf.

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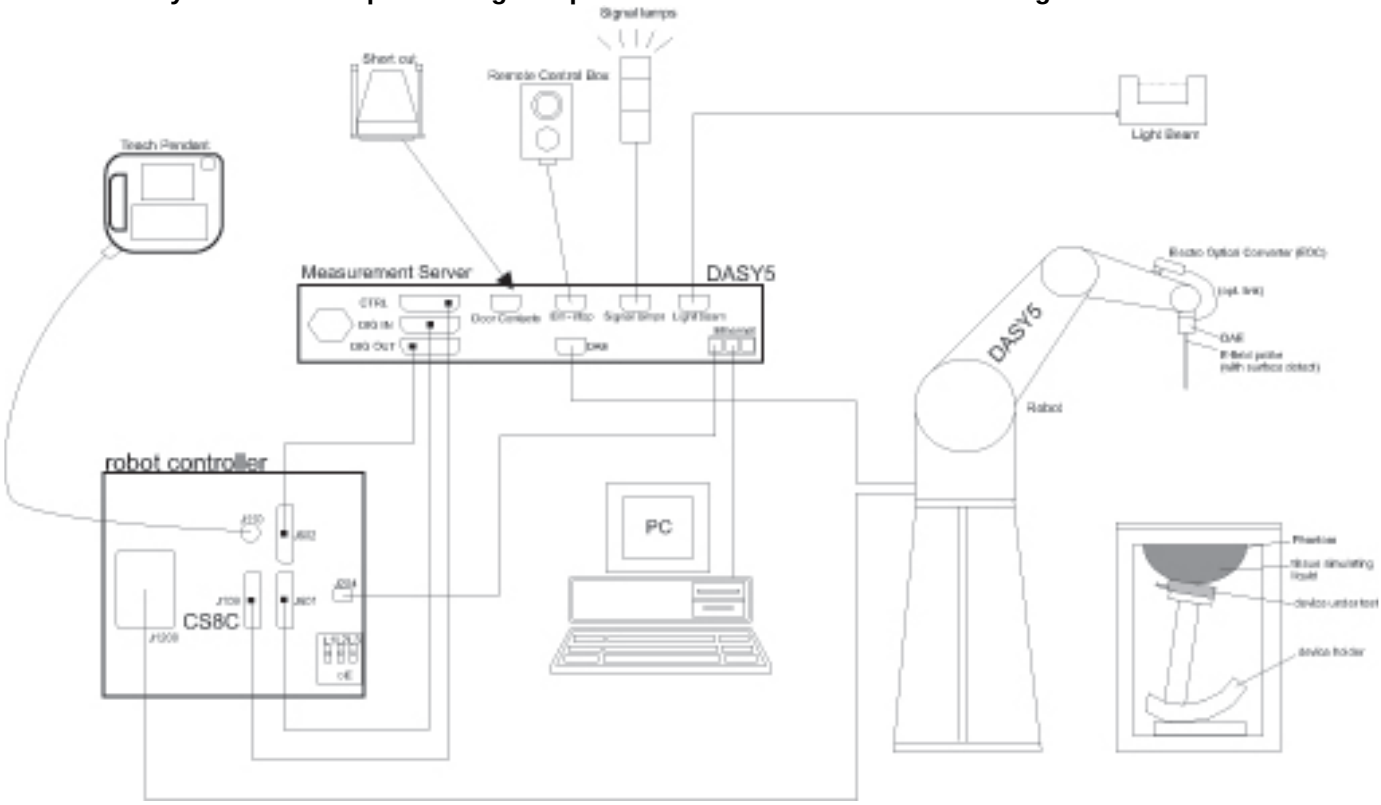
4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

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



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

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4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

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

Step 2: Area Scan

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

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

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

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Step 3: Zoom Scan

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

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

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

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

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

Step 4: Power drift measurement

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

Step 5: Z-Scan (FCC only)

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

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4.3. Test Equipment

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

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E5071C	MY46522054	8-7-2020
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	6-18-2020
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3424	8-9-2020

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-6-2020
Power Sensor	Agilent	U2000A	MY54260010	8-9-2020
Power Sensor	Agilent	U2000A	MY54260007	8-9-2020
Power Amplifier	EXODUS	1410025-AMP2027-10003	10003	8-8-2020
Directional Coupler	Agilent	772D	MY52180193	8-7-2020
Directional Coupler	Agilent	778D	MY52180432	8-7-2020
Low Pass Filter	MICROLAB	LA-15N	03943	8-7-2020
Low Pass Filter	FILTRON	L14012FL	1410003S	8-7-2020
Low Pass Filter	MICROLAB	LA-60N	03942	8-7-2020
Attenuator	Agilent	8491B/003	MY39269292	8-7-2020
Attenuator	Agilent	8491B/010	MY39269315	8-7-2020
Attenuator	Agilent	8491B/020	MY39269298	8-7-2020
E-Field Probe (SAR1)	SPEAG	EX3DV4	7376	9-27-2020
E-Field Probe (SAR3)	SPEAG	EX3DV4	7314	8-29-2020
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
Data Acquisition Electronics (SAR3)	SPEAG	DAE4	1468	9-20-2020
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	2-19-2020
System Validation Dipole	SPEAG	D835V2	4d174	1-23-2021
System Validation Dipole	SPEAG	D1750V2	1125	2-16-2020
System Validation Dipole	SPEAG	D1900V2	5d190	10-23-2020
System Validation Dipole	SPEAG	D2450V2	939	7-25-2021
System Validation Dipole	SPEAG	D2600V2	1097	9-19-2021
System Validation Dipole	SPEAG	D5GHzV2	1209	2-28-2021
Thermometer (SAR1)	Lutron	MHB-382SD	AH.91463	8-8-2020
Thermometer (SAR3)	Lutron	MHB-382SD	AH.50213	8-8-2020
Thermometer (SAR4),(SAR5)	Lutron	MHB-382SD	AJ.45903	5-17-2020

Others

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

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations.
(D750V3, SN : 1122, D1750V2, SN : 1125, D1900, SN : 5d190)

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5. Measurement Uncertainty

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

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	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) ☒ 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 GHz : Ch.36 – Ch.48, Ch.149 – Ch.161))		
Test Sample Information	**No.**	**S/N**	**Notes**
	1	R3CMA0BVGGR	Main Conducted
	2	R3CMA0BVGEP	Main Conducted
	3	R3CM8106MEX	Main Conducted
	4	R3CM8106MFL	Main Conducted
	5	R3CMA0BVTGX	Main Conducted
	6	R3CMA0BVGQV	Main Conducted
	7	38b95f7950197ece	Wi-Fi & BT Conducted
	8	397147485c1f7ece	Wi-Fi & BT Conducted
	9	R3CMA0D7LXL	SAR
	10	R3CMA0D7LME	SAR
	11	R3CMA0BVG7Y	SAR
	12	R3CMA0BVG8D	SAR
	13	R3CMA0D7WSB	SAR
	14	R3CM8106MCD	SAR
	15	R3CMA0D85AX	SAR
	16	R3CMB0DKFTA	SAR
	17	R3CMB0DKP4T	SAR
	18	R3CMB0DKPYM	SAR
	19	R3CM8106MGN	SAR
	20	R3CMA0BVTGX	SAR
	21	R3CMA0D7LXL	SAR
	22	R3CMA0D7LME	SAR
	23	R3CMA0D7LLD	SAR

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6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EGPRS (8PSK)	GPRS Multi-Slot Class: ☐ Class 8 - 1 Up, 4 Down ☐ Class 10 - 2 Up, 4 Down ☐ Class 12 - 4 Up, 4 Down ☒ Class 33 - 4 Up, 5 Down	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
	Does this device support DTM (Dual Transfer Mode)? ☐ Yes ☒ No			
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Category 24) HSUPA (Category 6) 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 25 FDD Band 26 FDD Band 66 TDD Band 41 [1]	QPSK 16QAM 64QAM 256QAM Rel. 15 Carrier Aggregation (1 Uplink and 4 Downlinks)		100% (FDD) 63.3% (TDD, Power class 3) 43.3% (TDD, Power class 2)
	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 99.7% (802.11b) MIMO Mode 98.2% (802.11g)
	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 98.2% (802.11a) 98.1% (802.11ac 80MHz BW) MIMO Mode 98.2% (802.11a) 98.0% (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		76.9% (DH5)

Notes:

1. For LTE Band 41, This device supports uplink-downlink configuration 0-6. The configuration with the highest duty cycle was used for Power class 3(uplink-downlink configuration 0 at 63.3%). Power class 2 does not support uplink-downlink configuration 0 and 6, therefore the highest available duty cycle was used for Power class 2(uplink-downlink configuration 1 at 43.3%).
2. The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 76.9% and was considered and used for SAR Testing.
3. For SAR evaluation of determined 802.11 modes according to KDB 248227, Duty cycle for Wi-Fi is referenced from DTS and UNII report.

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6.3. Nominal and Maximum Output Power

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

RF Air interface	Antenna	Mode	Time Slots	Max. RF Output Power (dBm)		Reduced. RF Output Power (dBm)	
				Tune-up Limit	Frame Pwr	Tune-up Limit	Frame Pwr
GSM850	Main Ant.1-1	Voice	1	**34.0**	**25.0**		
		GPRS	1	**34.0**	**25.0**		
		GPRS	2	**31.0**	**25.0**		
		GPRS	3	**30.0**	**25.7**		
		GPRS	4	**29.0**	**26.0**		
		EGPRS	1	**26.5**	**17.5**		
		EGPRS	2	**23.5**	**17.5**		
		EGPRS	3	**22.5**	**18.2**		
		EGPRS	4	**21.5**	**18.5**		
GSM1900	Main Ant.1-1	Voice	1	**31.0**	**22.0**	**30.0**	**21.0**
		GPRS	1	**31.0**	**22.0**	**30.0**	**21.0**
		GPRS	2	**27.5**	**21.5**	**26.5**	**20.5**
		GPRS	3	**26.0**	**21.7**	**25.0**	**20.7**
		GPRS	4	**25.0**	**22.0**	**24.0**	**21.0**
		EGPRS	1	**26.5**	**17.5**	**25.5**	**16.5**
		EGPRS	2	**23.0**	**17.0**	**22.0**	**16.0**
		EGPRS	3	**21.5**	**17.2**	**20.5**	**16.2**
		EGPRS	4	**20.5**	**17.5**	**19.5**	**16.5**

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
W-CDMA Band II	Main Ant.1-1	R99	**25.0**	**21.5**
		HSDPA	**23.5**	**21.0**
		HSUPA	**24.0**	**21.0**
		DC-HSDPA	**23.5**	**21.0**
W-CDMA Band IV	Main Ant.1-1	R99	**25.0**	**22.0**
		HSDPA	**24.0**	**21.0**
		HSUPA	**24.0**	**21.0**
		DC-HSDPA	**24.0**	**21.0**
W-CDMA Band V	Main Ant.1-1	R99	**25.5**	
		HSDPA	**23.5**	
		HSUPA	**23.0**	
		DC-HSDPA	**23.5**	

Note(s):

1. The device utilizes power reduction under some portable hotspot conditions for SAR compliance. There is power reduction for WWAN bands (GSM1900, WCDMA Band II, IV). The reduced powers were confirmed via conducted power measurements the RF port. Detailed description of the hotspot power reduction mechanism is included in the operational description.
2. WWAN bands (GSM1900, WCDMA Band II, IV) has support to proximity sensor back-off function. it is operating during extremity (hand-held) use conditions. And This function is applied to Product Specific 10-g SAR exposure condition. Other Head and Body exposure conditions are performed SAR test at full power. The proximity sensor details explain in SAR report according to Section 6 in KDB 616217.

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RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
LTE Band 2*	Main Ant.1-1	QPSK	**24.5**	**20.5**
LTE Band 4*	Main Ant.1-1	QPSK	**24.5**	**21.5**
LTE Band 5*	Main Ant.1-1	QPSK	**25.5**	
LTE Band 12	Main Ant.1-1	QPSK	**25.5**	
LTE Band 13	Main Ant.1-1	QPSK	**25.5**	
LTE Band 17*	Main Ant.1-1	QPSK	**25.5**	
LTE Band 25	Main Ant.1-1	QPSK	**24.5**	**20.5**
LTE Band 26	Main Ant.1-1	QPSK	**25.5**	
LTE Band 66	Main Ant.1-1	QPSK	**24.5**	**21.5**
LTE Band 41 -Power Class 3-	Main Ant.1-2	QPSK	**23.5**	
LTE Band 41 -Power Class 2-	Main Ant.1-2	QPSK	**26.5**	**23.5**

Note(s):

1. The device utilizes power reduction under some portable hotspot conditions for SAR compliance. There is power reduction for WWAN bands (LTE Band 2, 4, 25, 66, 41(PC2)). The reduced powers were confirmed via conducted power measurements the RF port. Detailed description of the hotspot power reduction mechanism is included in the operational description.
2. WWAN bands (LTE Band 2, 4, 25, 66) has support to proximity sensor back-off function. it is operating during extremity (hand-held) use conditions. And This function is applied to Product Specific 10-g SAR exposure condition. Other Head and Body exposure conditions are performed SAR test at full power. The proximity sensor details explain in SAR report according to Section 6 in KDB 616217.
3. LTE QPSK configuration has the highest maximum average output power per 3GPP standard.
4. LTE Band 2 (Frequency range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency range: 1850-1915 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.
5. LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and larger channel bandwidth.
6. LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.
7. LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

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RF Air interface	Mode	Normal WLAN mode pow er (dBm)		RSDB WLAN mode pow er (dBm)	
		Max. RF Output Power	Reduced. RF Output Power	Max. RF Output Power	Reduced. RF Output Power
WiFi 2.4 GHz (Ch.1)	802.11b	**19.0**	**16.0**	**16.0**	**14.0**
	802.11g	**16.0**	**16.0**	**16.0**	**14.0**
	802.11n HT20	**15.0**	**15.0**	**15.0**	**14.0**
	802.11ax HE20	**15.0**	**15.0**	**15.0**	**14.0**
WiFi 2.4 GHz (Ch.2 - Ch.10)	802.11b	**19.0**	**16.0**	**16.0**	**14.0**
	802.11g	**16.0**	**16.0**	**16.0**	**14.0**
	802.11n HT20	**16.0**	**16.0**	**16.0**	**14.0**
	802.11ax HE20	**16.0**	**16.0**	**16.0**	**14.0**
WiFi 2.4 GHz (Ch.11)	802.11b	**19.0**	**16.0**	**16.0**	**14.0**
	802.11g	**15.0**	**15.0**	**15.0**	**14.0**
	802.11n HT20	**15.0**	**15.0**	**15.0**	**14.0**
	802.11ax HE20	**15.0**	**15.0**	**15.0**	**14.0**
WiFi 2.4 GHz (Ch.12)	802.11b	**3.5**	**3.5**	**3.5**	**3.5**
	802.11g	**3.5**	**3.5**	**3.5**	**3.5**
	802.11n HT20	**3.5**	**3.5**	**3.5**	**3.5**
	802.11ax HE20	**3.5**	**3.5**	**3.5**	**3.5**
WiFi 2.4 GHz (Ch.13)	802.11b	**1.5**	**1.5**	**1.5**	**1.5**
	802.11g	**1.5**	**1.5**	**1.5**	**1.5**
	802.11n HT20	**1.5**	**1.5**	**1.5**	**1.5**
	802.11ax HE20	**1.5**	**1.5**	**1.5**	**1.5**
WiFi 5 GHz (UNII-1 & UNII-2A)	802.11a	**17.0**	**13.0**	**14.0**	**13.0**
	802.11n HT20	**17.0**	**13.0**	**14.0**	**13.0**
	802.11n HT40	**15.0**	**13.0**	**14.0**	**13.0**
	802.11ac VHT20	**17.0**	**13.0**	**14.0**	**13.0**
	802.11ac VHT40	**15.0**	**13.0**	**14.0**	**13.0**
	802.11ac VHT80	**14.0**	**13.0**	**14.0**	**13.0**
	802.11ax HE20	**17.0**	**13.0**	**14.0**	**13.0**
	802.11ax HE40	**15.0**	**13.0**	**14.0**	**13.0**
	802.11ax HE80	**14.0**	**13.0**	**14.0**	**13.0**
WiFi 5 GHz (UNII-2C)	802.11a	**15.0**	**13.0**	**14.0**	**13.0**
	802.11n HT20	**14.0**	**13.0**	**14.0**	**13.0**
	802.11n HT40	**13.0**	**13.0**	**13.0**	**13.0**
	802.11ac VHT20	**14.0**	**13.0**	**14.0**	**13.0**
	802.11ac VHT40	**13.0**	**13.0**	**13.0**	**13.0**
	802.11ac VHT80	**13.0**	**13.0**	**13.0**	**13.0**
	802.11ax HE20	**14.0**	**13.0**	**14.0**	**13.0**
	802.11ax HE40	**13.0**	**13.0**	**13.0**	**13.0**
	802.11ax HE80	**13.0**	**13.0**	**13.0**	**13.0**
WiFi 5 GHz (UNII-3)	802.11a	**17.0**	**13.0**	**14.0**	**13.0**
	802.11n HT20	**17.0**	**13.0**	**14.0**	**13.0**
	802.11n HT40	**15.0**	**13.0**	**14.0**	**13.0**
	802.11ac VHT20	**17.0**	**13.0**	**14.0**	**13.0**
	802.11ac VHT40	**15.0**	**13.0**	**14.0**	**13.0**
	802.11ac VHT80	**14.0**	**13.0**	**14.0**	**13.0**
	802.11ax HE20	**17.0**	**13.0**	**14.0**	**13.0**
	802.11ax HE40	**15.0**	**13.0**	**14.0**	**13.0**
	802.11ax HE80	**14.0**	**13.0**	**14.0**	**13.0**
Bluetooth		**17.5**			
Bluetooth-EDR		**12.0**			
Bluetooth-LE_1Mbps		**7.5**			
Bluetooth-LE_2Mbps		**9.0**			
Bluetooth-LE_500kbps		**7.5**			
Bluetooth-LE_125kbps		**7.5**			

Note(s):

1. This device uses an independent fixed level power reduction mechanism for only Normal 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).

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6.4. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	18700/ 1860	18675/ 1857.5	18650/ 1855	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7
	Mid	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880
	High	19100/ 1900	19125/ 1902.5	19150/ 1905	19175/ 1907.5	19185/ 1908.5	19193/ 1909.3
	Band 4	Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20050/ 1720	20025/ 1717.5	20000/ 1715	19975/ 1712.5	19965/ 1711.5	19957/ 1710.7
	Mid	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5
	High	20300/ 1745	20325/ 1747.5	20350/ 1750	20375/ 1752.5	20385/ 1753.5	20393/ 1754.3
	Band 5	Frequency range: 824 - 849 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			20450/ 829	20425/ 826.5	20415/ 825.5	20407/ 824.7
	Mid			20525/ 836.5	20525/ 836.5	20525/ 836.5	20525/ 836.5
	High			20600/ 844	20625/ 846.5	20635/ 847.5	20643/ 848.3
	Band 12	Frequency range: 699 – 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23060/ 704	23035/ 701.5	23025/ 700.5	23017/ 699.7
	Mid			23095/ 707.5	23095/ 707.5	23095/ 707.5	23095/ 707.5
	High			23130/ 711	23155/ 713.5	23165/ 714.5	23173/ 715.3
	Band 13	Frequency range: 777 - 787 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				23205/ 779.5		
	Mid			23230/ 782	23230/ 782		
	High				23255/ 784.5		
	Band 17	Frequency range: 704 - 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23780/ 709	23755/ 706.5		
	Mid			23790/ 710	23790/ 710		
	High			23800/ 711	23825/ 713.5		

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General LTE SAR Test and Reporting Considerations (Continued)

Frequency range, Channel Bandwidth, Numbers and Frequencies

Band 25	Frequency range: 1850 - 1915 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low	26140/ 1860	26115/ 1857.5	26090/ 1855	26065/ 1852.5	26055/ 1851.5	26047/ 1850.7
Mid	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5
High	26590/ 1905	26615/ 1907.5	26640/ 1910	26665/ 1912.5	26675/ 1913.5	26683/ 1914.3

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

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

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

LTE transmitter and antenna implementation

Refer to Appendix A.

Maximum power reduction (MPR)

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

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

MPR Built-in by design

The manufacturer MPR values are always within the 3GPP maximum MPR allowance but may not follow the default MPR values.

A-MPR (additional MPR) was disabled during SAR testing

Power reduction

Yes

Spectrum plots for RB configurations

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

Notes:

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

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6.5. LTE (TDD) Considerations

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

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

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

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

Calculated Duty Cycle

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

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

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

Note(s):
This device supports uplink-downlink configurations 0-6. The configuration with highest duty cycle was used for SAR Testing: configuration 0 at 63.3% duty cycle for Power class 3, configuration 1 at 43.3% duty cycle for Power class 2

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6.6. LTE Carrier Aggregation

DL Inter-Band (2CC Max)

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

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DL Inter-Band (2CC Max)_(Continued)

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

DL Inter-Band (3CC Max)

E-UTRA CA configuration (BCS)	E-UTRA Band	Bandwidth						Max Aggregated BW
		1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
CA_2A-4A-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			
CA_4A-4A-12A (0)	Band 4	See CA_4A-4A (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_12A-66A-66A (0)	Band 12			Yes	Yes			50 MHz
	Band 66	See CA_66A-66A (0)						
CA_5A-66A-66A (0)	Band 5			Yes	Yes			50 MHz
	Band 66	See CA_66A-66A (0)						
CA_26A-41C (0)	Band 26			Yes	Yes	Yes		55 MHz
	Band 41	See CA_41C (1)						

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DL Intra-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	
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
	Band 4	5,10	5,10			20 MHz
CA_41A-41A (0),(1)	Band 41	10,15,20	10,15,20			40 MHz
	Band 41	5,10,15,20	5,10,15,20			40 MHz
CA_66A-66A (0)	Band 66	5,10,15,20	5,10,15,20			40 MHz
CA_41A-41C (0)	Band 41	5,10,15,20	See CA_41C (1)			60 MHz
		See CA_41C (1)		5,10,15,20		
CA_41C-41C (0)	Band 41	See CA_41C (0)		See CA_41C (0)		80 MHz
	Band 41	See CA_41C (0)		See CA_41C (0)		
CA_41A-41D (0)	Band 41	5,10,15,20	See CA_41D (0)			80 MHz
	Band 41	See CA_41D (0)			5,10,15,20	

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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	
CA_2C (0)	Band 2	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_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_41D (0)	Band 41	10	20	15		60 MHz
		10	15,20	20		
		15	20	10,15		
		15	10,15,20	20		
		20	15,20	10		
		20	10,15,20	15,20		

Note(s):

1. For supported channels, please refer to §6.4.
2. This device supports DL 4X4 MIMO for LTE Band 4, 66. Please refer to Sec.9.3.1 for detailed LTE CA combination with 4X4 DL MIMO.

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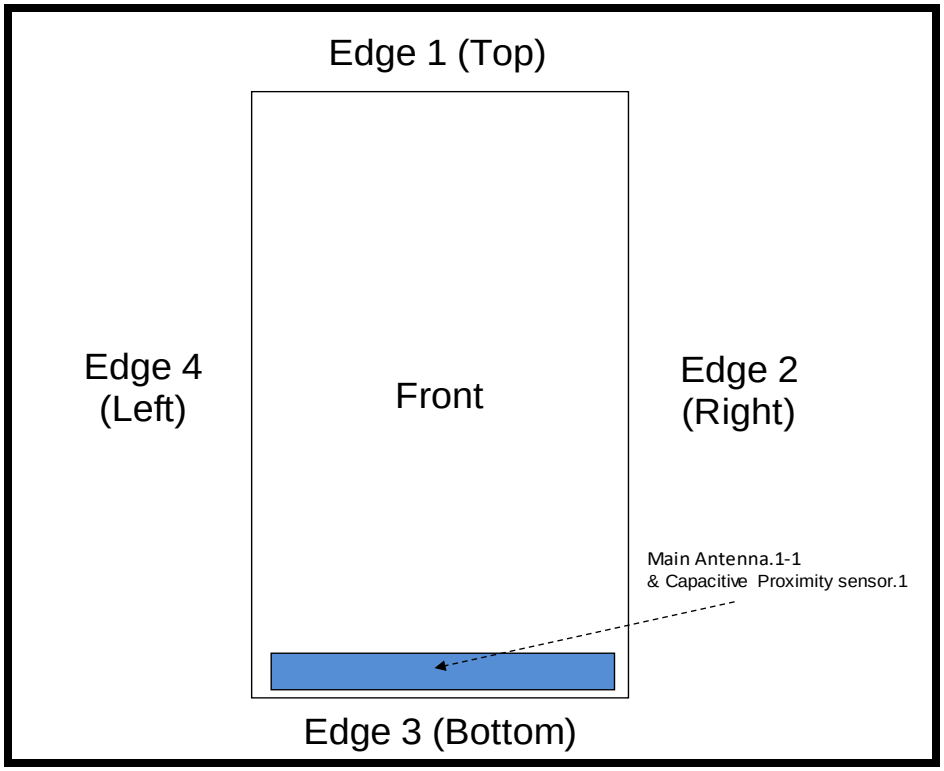
6.7. Proximity Sensor feature

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



Note(s):

1. Proximity sensor.1 is related to only Main Antenna.1-1.

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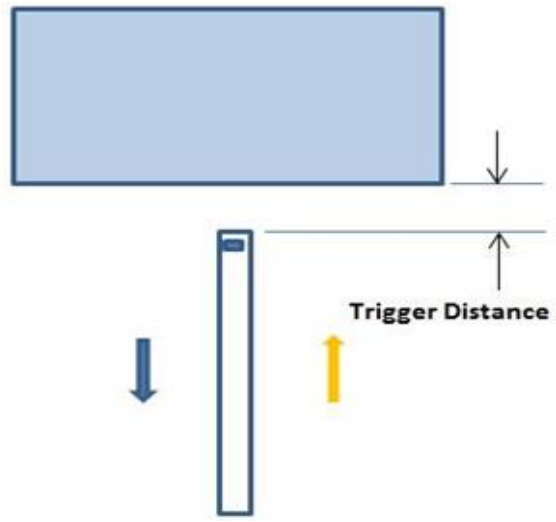
6.7.1. Proximity Sensor Triggering Distance (KDB 616217 §6.2)

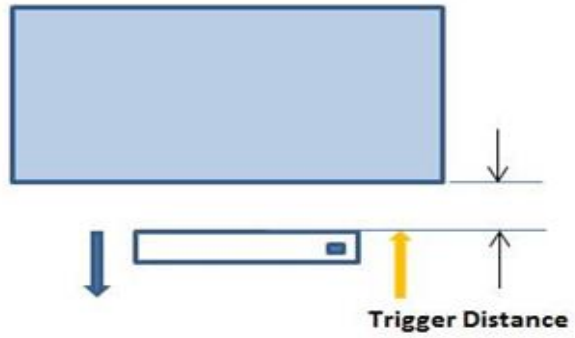
Rear, Front and Edge 3 of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger 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 - Front		Trigger distance - Rear		Trigger distance – Edge 3	
		Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom
1750 Head	Main Ant.1-1	8 mm	8 mm	8 mm	8 mm	14 mm	14 mm
1900 Head	Main Ant.1-1	8 mm	8 mm	8 mm	8 mm	14 mm	14 mm

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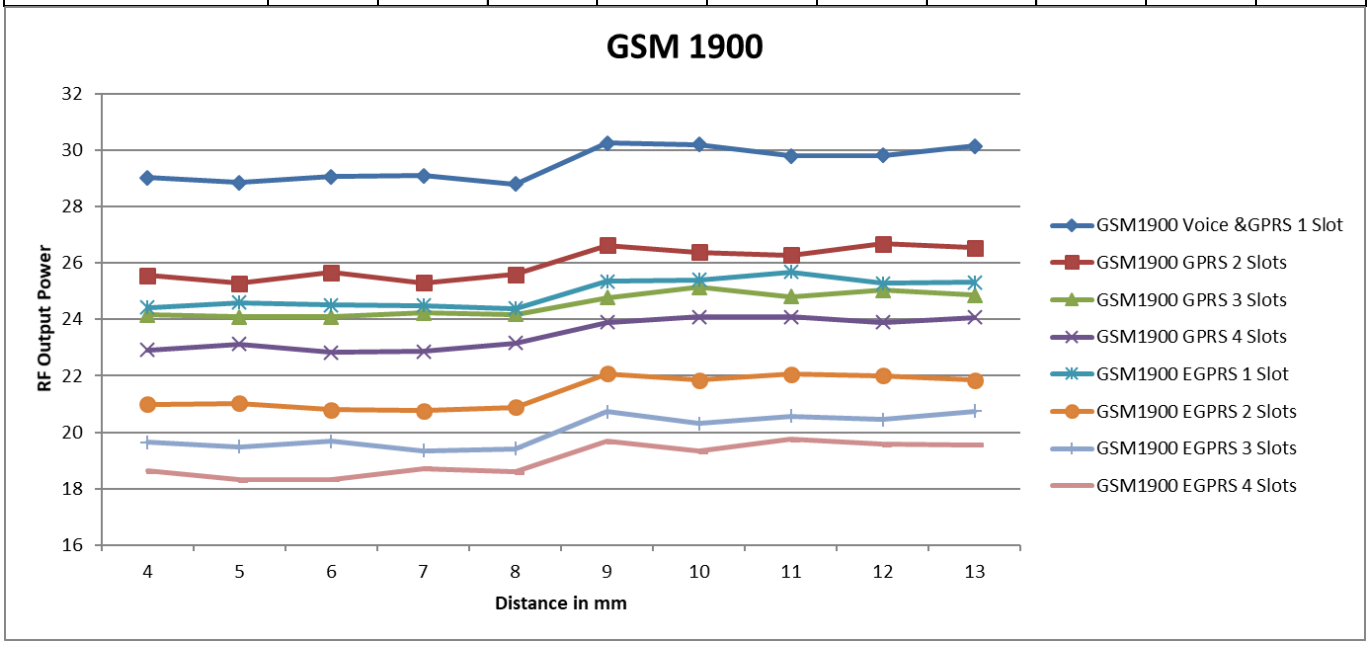
Proximity Sensor Triggering Distance Measurement Results

GSM 1900

Rear, 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
1900 Voice &GPRS 1 Slot	29.0	28.8	29.1	29.1	28.8	30.3	30.2	29.8	29.8	30.1
GSM1900 GPRS 2 Slots	25.6	25.3	25.7	25.3	25.6	26.6	26.4	26.3	26.7	26.5
GSM1900 GPRS 3 Slots	24.2	24.1	24.1	24.2	24.2	24.8	25.1	24.8	25.0	24.9
GSM1900 GPRS 4 Slots	22.9	23.1	22.8	22.9	23.2	23.9	24.1	24.1	23.9	24.1
GSM1900 EGPRS 1 Slot	24.4	24.6	24.5	24.5	24.4	25.3	25.4	25.7	25.3	25.3
GSM1900 EGPRS 2 Slots	21.0	21.0	20.8	20.8	20.9	22.1	21.8	22.1	22.0	21.9
GSM1900 EGPRS 3 Slots	19.7	19.5	19.7	19.4	19.4	20.7	20.3	20.6	20.4	20.8
GSM1900 EGPRS 4 Slots	18.6	18.3	18.3	18.7	18.6	19.7	19.3	19.8	19.6	19.6



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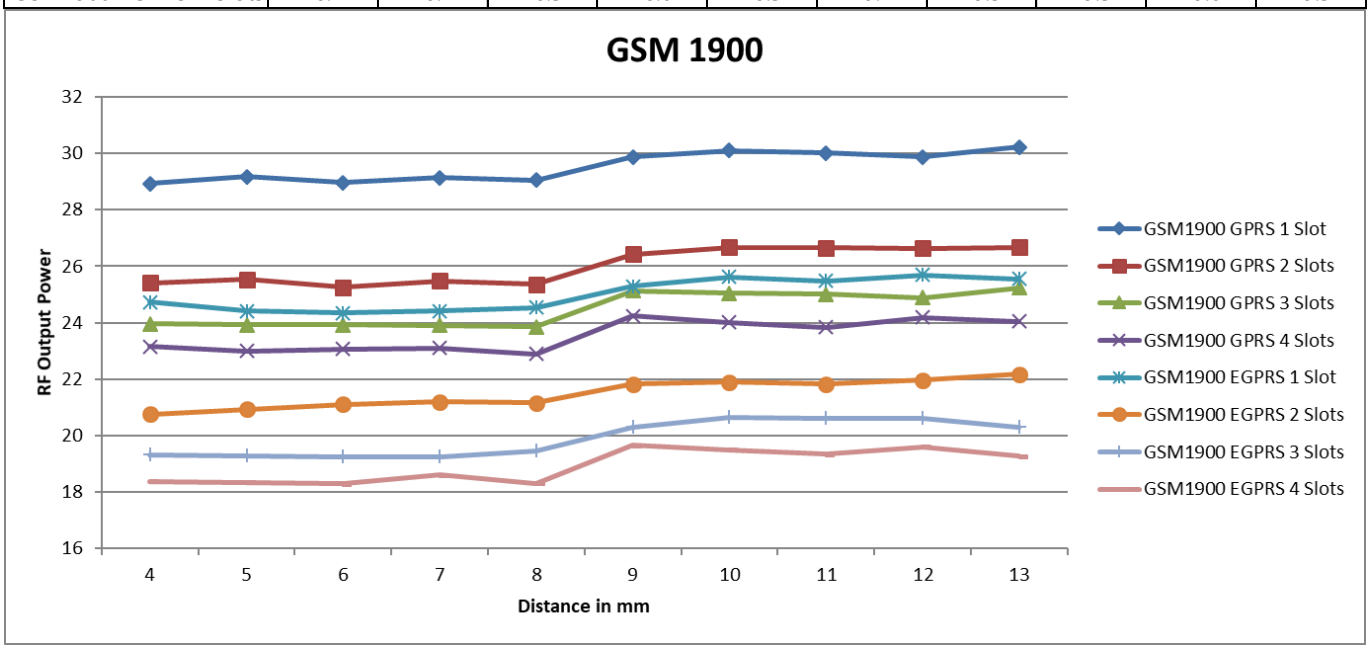
Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	4	5	6	7	8	9	10	11	12	13
GSM1900 GPRS 1 Slot	28.9	29.2	29.0	29.1	29.1	29.9	30.1	30.0	29.9	30.2
GSM1900 GPRS 2 Slots	25.4	25.5	25.3	25.5	25.4	26.4	26.7	26.7	26.6	26.7
GSM1900 GPRS 3 Slots	24.0	23.9	23.9	23.9	23.9	25.1	25.0	25.0	24.9	25.2
GSM1900 GPRS 4 Slots	23.2	23.0	23.1	23.1	22.9	24.2	24.0	23.8	24.2	24.1
GSM1900 EGPRS 1 Slot	24.7	24.4	24.4	24.4	24.5	25.3	25.6	25.5	25.7	25.6
GSM1900 EGPRS 2 Slots	20.8	20.9	21.1	21.2	21.2	21.8	21.9	21.8	22.0	22.2
GSM1900 EGPRS 3 Slots	19.3	19.3	19.3	19.3	19.5	20.3	20.7	20.6	20.6	20.3
GSM1900 EGPRS 4 Slots	18.4	18.4	18.3	18.6	18.3	19.7	19.5	19.3	19.6	19.3



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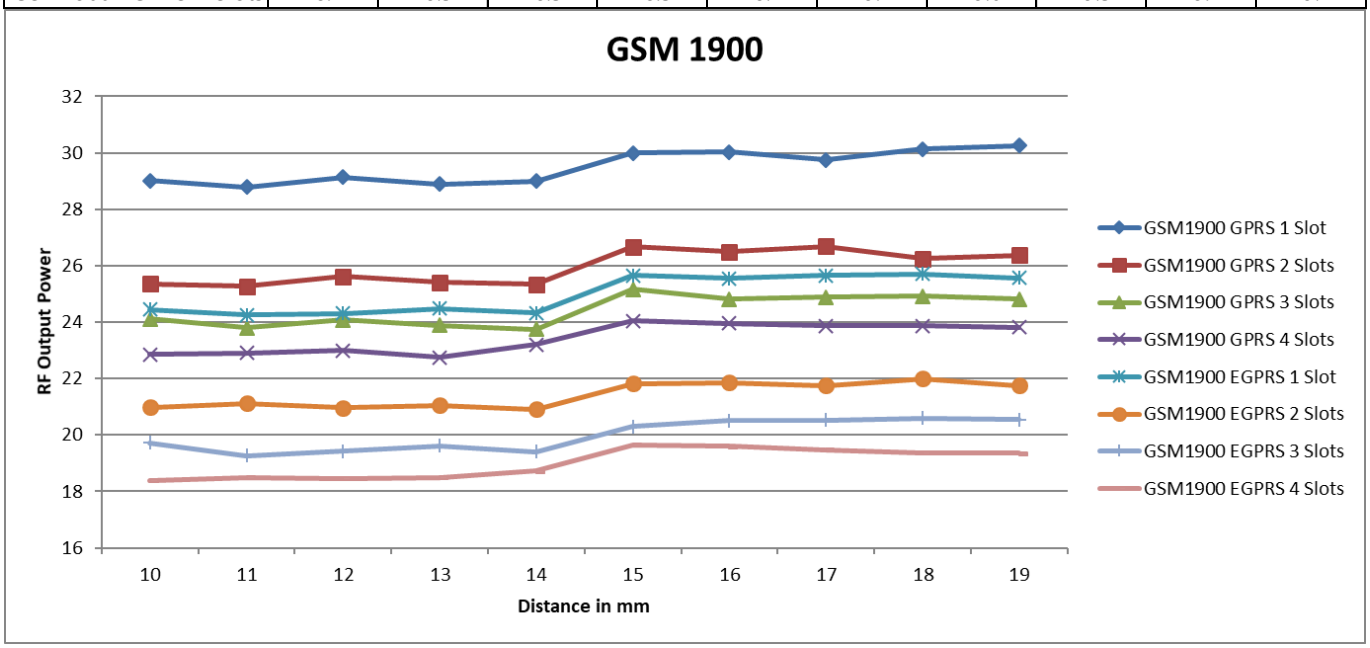
Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	10	11	12	13	14	15	16	17	18	19
GSM1900 GPRS 1 Slot	29.0	28.8	29.1	28.9	29.0	30.0	30.0	29.8	30.1	30.3
GSM1900 GPRS 2 Slots	25.4	25.3	25.6	25.4	25.3	26.7	26.5	26.7	26.3	26.4
GSM1900 GPRS 3 Slots	24.1	23.8	24.1	23.9	23.8	25.2	24.8	24.9	24.9	24.8
GSM1900 GPRS 4 Slots	22.9	22.9	23.0	22.8	23.2	24.1	24.0	23.9	23.9	23.8
GSM1900 EGPRS 1 Slot	24.5	24.3	24.3	24.5	24.3	25.7	25.6	25.7	25.7	25.6
GSM1900 EGPRS 2 Slots	21.0	21.1	21.0	21.1	20.9	21.8	21.9	21.8	22.0	21.8
GSM1900 EGPRS 3 Slots	19.7	19.3	19.4	19.6	19.4	20.3	20.5	20.5	20.6	20.5
GSM1900 EGPRS 4 Slots	18.4	18.5	18.5	18.5	18.7	19.7	19.6	19.5	19.4	19.4



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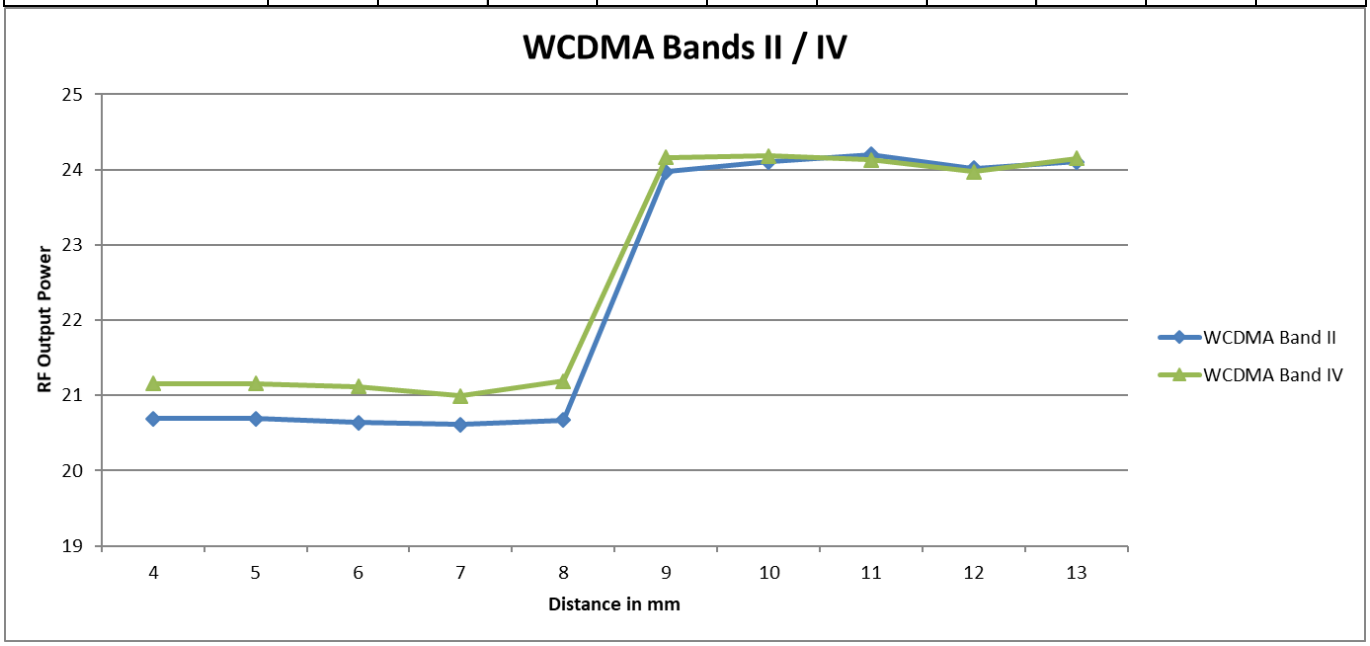
WCDMA Bands II / IV

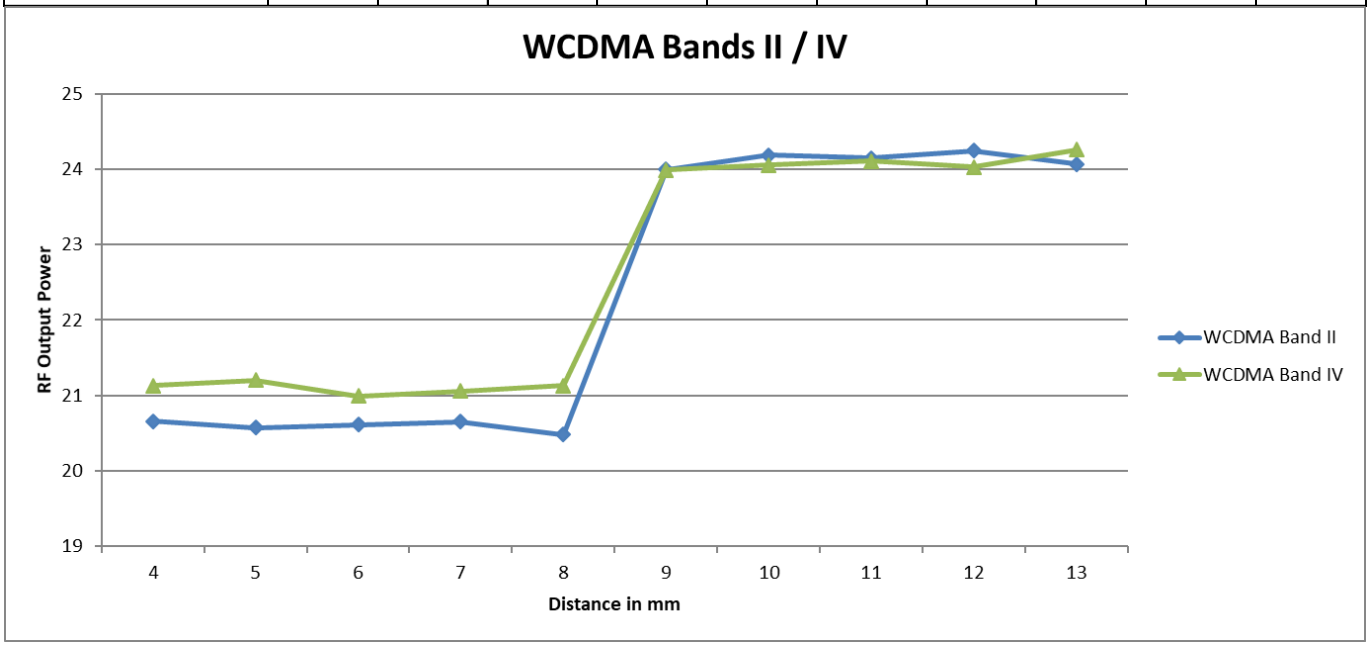
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	4	5	6	7	8	9	10	11	12	13
WCDMA Band II	20.7	20.7	20.6	20.6	20.7	24.0	24.1	24.2	24.0	24.1
WCDMA Band IV	21.2	21.2	21.1	21.0	21.2	24.2	24.2	24.1	24.0	24.2



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
WCDMA Band II	20.7	20.6	20.6	20.7	20.5	24.0	24.2	24.2	24.3	24.1
WCDMA Band IV	21.1	21.2	21.0	21.1	21.1	24.0	24.1	24.1	24.0	24.3



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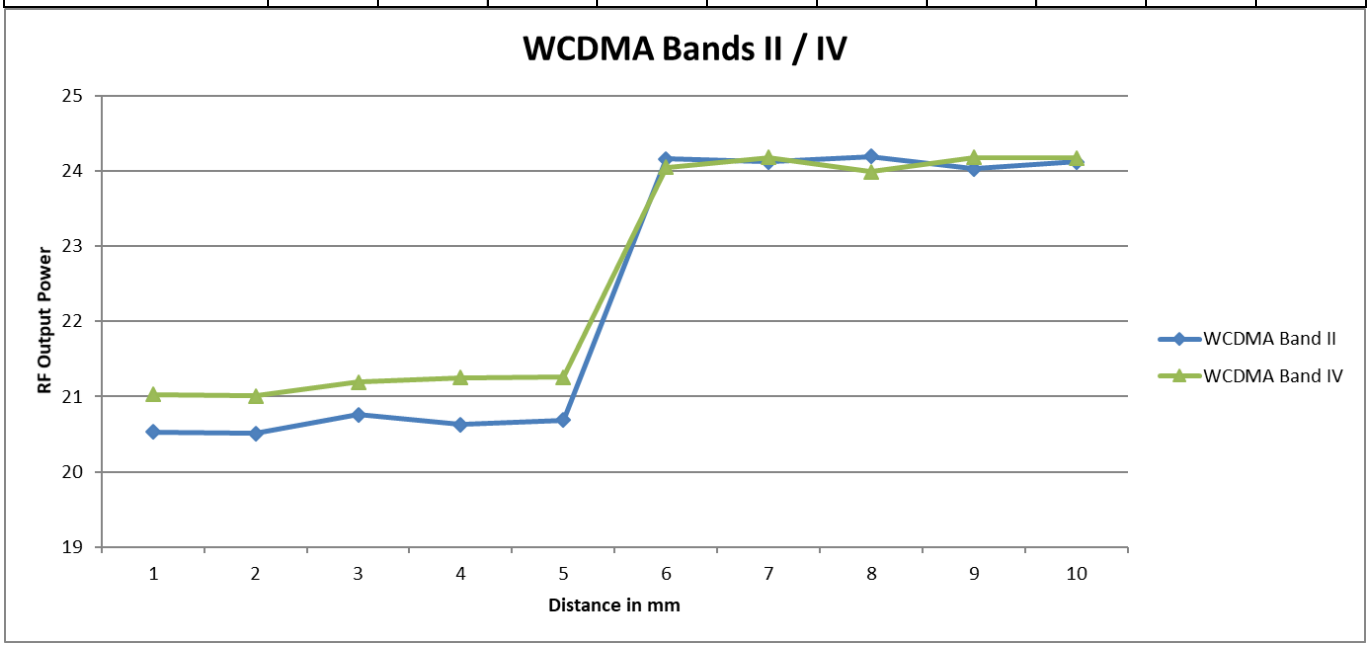
Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	10	11	12	13	14	15	16	17	18	19
WCDMA Band II	20.5	20.5	20.8	20.6	20.7	24.2	24.1	24.2	24.0	24.1
WCDMA Band IV	21.0	21.0	21.2	21.3	21.3	24.1	24.2	24.0	24.2	24.2



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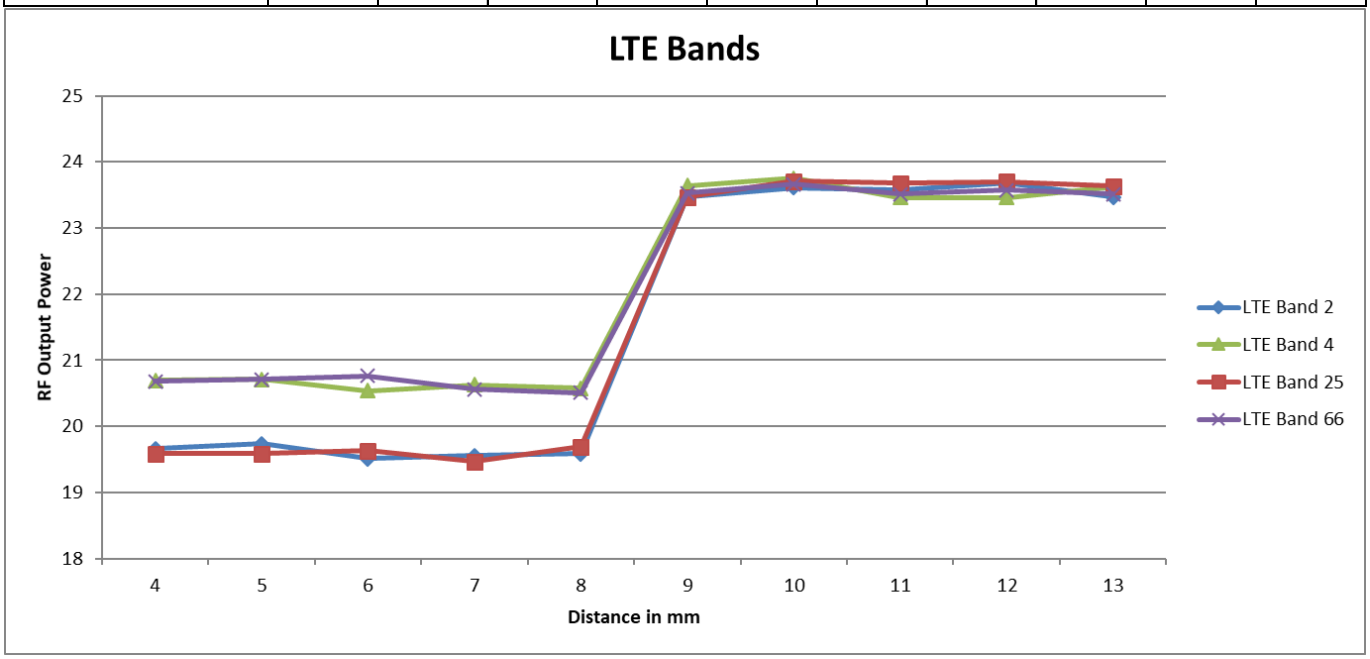
LTE Bands 2 / 4 / 25 / 66 (Main Ant.1-1)

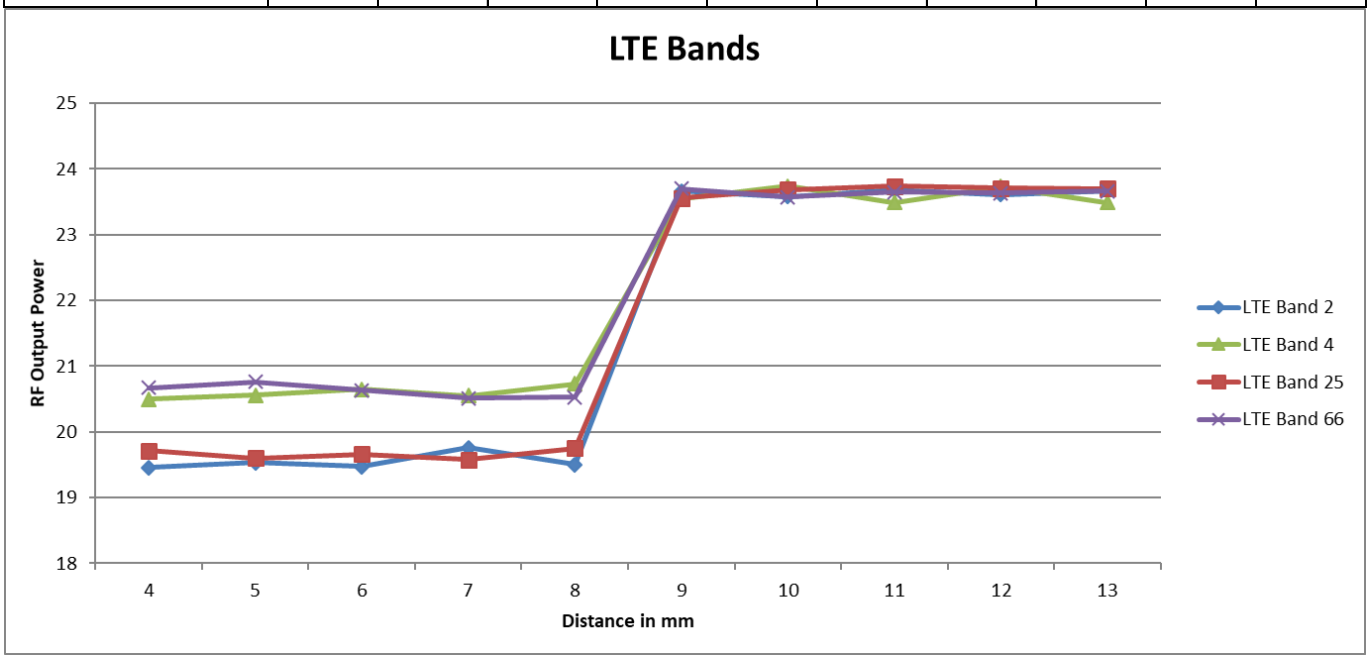
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	4	5	6	7	8	9	10	11	12	13
LTE Band 2	19.7	19.7	19.5	19.6	19.6	23.5	23.6	23.6	23.7	23.5
LTE Band 4	20.7	20.7	20.5	20.6	20.6	23.6	23.8	23.5	23.5	23.6
LTE Band 25	19.6	19.6	19.6	19.5	19.7	23.5	23.7	23.7	23.7	23.6
LTE Band 66	20.7	20.7	20.8	20.6	20.5	23.5	23.7	23.5	23.6	23.5



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
LTE Band 2	19.5	19.5	19.5	19.8	19.5	23.7	23.6	23.7	23.6	23.7
LTE Band 4	20.5	20.6	20.7	20.6	20.7	23.5	23.7	23.5	23.7	23.5
LTE Band 25	19.7	19.6	19.7	19.6	19.8	23.6	23.7	23.7	23.7	23.7
LTE Band 66	20.7	20.8	20.6	20.5	20.5	23.7	23.6	23.7	23.6	23.7



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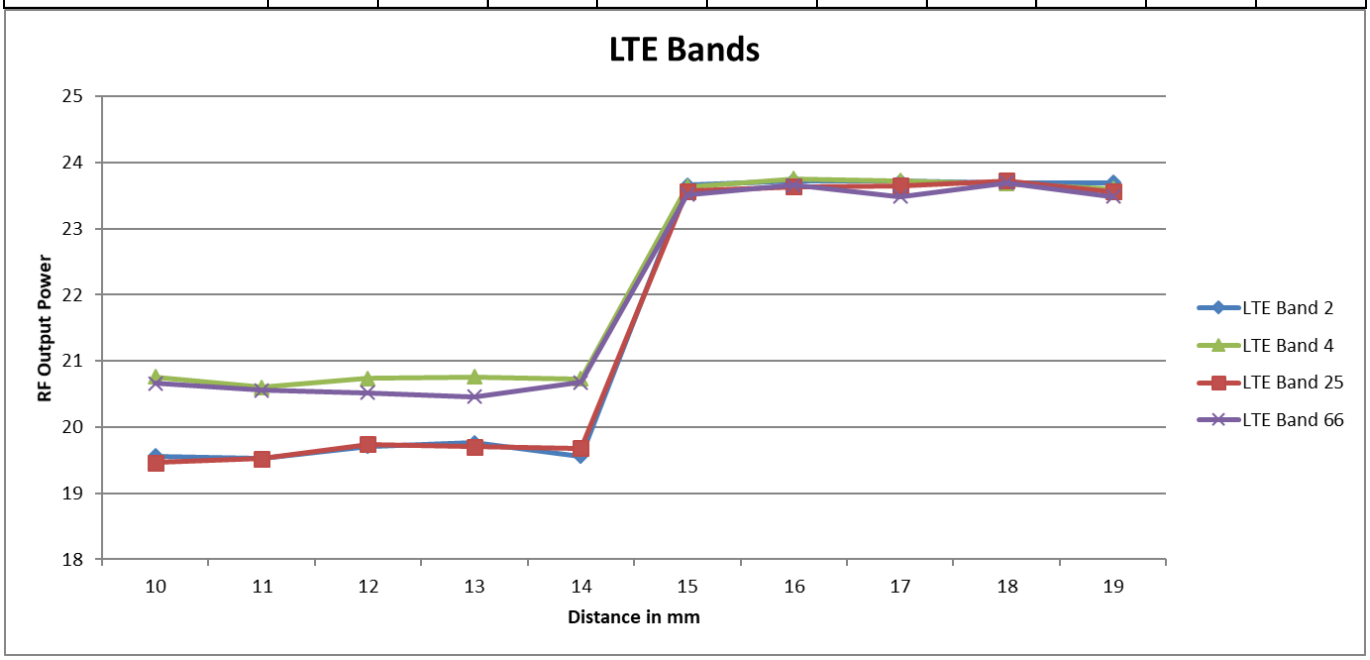
Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	10	11	12	13	14	15	16	17	18	19
LTE Band 2	19.6	19.5	19.7	19.8	19.6	23.7	23.7	23.7	23.7	23.7
LTE Band 4	20.8	20.6	20.7	20.8	20.7	23.6	23.8	23.7	23.7	23.6
LTE Band 25	19.5	19.5	19.7	19.7	19.7	23.6	23.6	23.7	23.7	23.6
LTE Band 66	20.7	20.6	20.5	20.5	20.7	23.5	23.7	23.5	23.7	23.5



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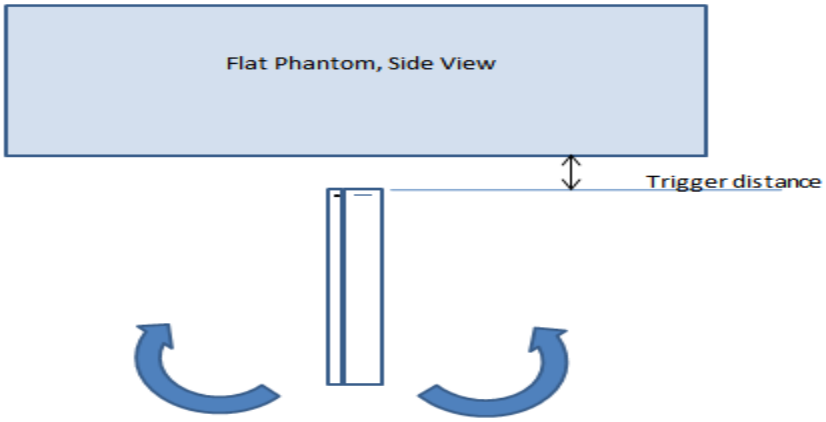
6.7.2. Proximity Sensor Coverage (KDB 616217 §6.3)

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

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

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

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



Proximity sensor tilt angle 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

6.7.4. Resulting test positions for SAR measurements

Wireless technologies	DUT Position	§6.2 Triggering Distance	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for SAR
WWAN (Main Ant.1-1)	Rear	8 mm	N/A	N/A	7 mm
	Front	8 mm	N/A	N/A	7 mm
	Edge 3	14 mm	N/A	14 mm	13 mm

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7. RF Exposure Conditions (Test Configurations)

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

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

Note(s):

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.

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8. Dielectric Property Measurements & System Check

8.1 Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized.

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

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

Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

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

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

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

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Dielectric Property Measurements Results:
SAR 1 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
11-18-2019	Head 5250	e'	34.2500	Relative Permittivity (ε_r):	34.25	35.93	-4.68	5
		e"	15.5400	Conductivity (σ):	4.54	4.70	-3.53	5
	Head 5260	e'	34.2300	Relative Permittivity (ε_r):	34.23	35.92	-4.71	5
		e"	15.5500	Conductivity (σ):	4.55	4.71	-3.49	5
	Head 5600	e'	33.8900	Relative Permittivity (ε_r):	33.89	35.53	-4.63	5
		e"	15.8000	Conductivity (σ):	4.92	5.06	-2.78	5
	Head 5750	e'	33.7400	Relative Permittivity (ε_r):	33.74	35.36	-4.59	5
		e"	15.9300	Conductivity (σ):	5.09	5.21	-2.31	5
	Head 5825	e'	33.6700	Relative Permittivity (ε_r):	33.67	35.30	-4.62	5
		e"	16.0000	Conductivity (σ):	5.18	5.27	-1.67	5
11-18-2019	Head 835	e'	41.6300	Relative Permittivity (ε_r):	41.63	41.50	0.31	5
		e"	19.9700	Conductivity (σ):	0.93	0.90	3.02	5
	Head 820	e'	41.6100	Relative Permittivity (ε_r):	41.61	41.60	0.02	5
		e"	20.1300	Conductivity (σ):	0.92	0.90	2.15	5
	Head 850	e'	41.6300	Relative Permittivity (ε_r):	41.63	41.50	0.31	5
		e"	19.8600	Conductivity (σ):	0.94	0.92	2.58	5
11-21-2019	Head 5250	e'	37.0800	Relative Permittivity (ε_r):	37.08	35.93	3.19	5
		e"	16.2600	Conductivity (σ):	4.75	4.70	0.94	5
	Head 5260	e'	37.0600	Relative Permittivity (ε_r):	37.06	35.92	3.17	5
		e"	16.2700	Conductivity (σ):	4.76	4.71	0.98	5
	Head 5600	e'	36.5600	Relative Permittivity (ε_r):	36.56	35.53	2.89	5
		e"	16.4600	Conductivity (σ):	5.13	5.06	1.28	5
	Head 5750	e'	36.3600	Relative Permittivity (ε_r):	36.36	35.36	2.82	5
		e"	16.5300	Conductivity (σ):	5.28	5.21	1.37	5
	Head 5825	e'	36.2100	Relative Permittivity (ε_r):	36.21	35.30	2.58	5
		e"	16.6000	Conductivity (σ):	5.38	5.27	2.02	5
11-25-2019	Head 5250	e'	36.9400	Relative Permittivity (ε_r):	36.94	35.93	2.80	5
		e"	16.4700	Conductivity (σ):	4.81	4.70	2.25	5
	Head 5260	e'	36.9200	Relative Permittivity (ε_r):	36.92	35.92	2.78	5
		e"	16.4800	Conductivity (σ):	4.82	4.71	2.28	5
	Head 5600	e'	36.4000	Relative Permittivity (ε_r):	36.40	35.53	2.44	5
		e"	16.6700	Conductivity (σ):	5.19	5.06	2.58	5
	Head 5750	e'	36.1700	Relative Permittivity (ε_r):	36.17	35.36	2.28	5
		e"	16.7600	Conductivity (σ):	5.36	5.21	2.78	5
	Head 5825	e'	36.0600	Relative Permittivity (ε_r):	36.06	35.30	2.15	5
		e"	16.8000	Conductivity (σ):	5.44	5.27	3.25	5
12-13-2019	Head 835	e'	40.2300	Relative Permittivity (ε_r):	40.23	41.50	-3.06	5
		e"	19.0500	Conductivity (σ):	0.88	0.90	-1.73	5
	Head 820	e'	40.4300	Relative Permittivity (ε_r):	40.43	41.60	-2.82	5
		e"	19.0900	Conductivity (σ):	0.87	0.90	-3.12	5
	Head 850	e'	40.0600	Relative Permittivity (ε_r):	40.06	41.50	-3.47	5
		e"	19.0000	Conductivity (σ):	0.90	0.92	-1.86	5
12-16-2019	Head 835	e'	42.1400	Relative Permittivity (ε_r):	42.14	41.50	1.54	5
		e"	19.2000	Conductivity (σ):	0.89	0.90	-0.95	5
	Head 820	e'	42.3000	Relative Permittivity (ε_r):	42.30	41.60	1.68	5
		e"	19.0600	Conductivity (σ):	0.87	0.90	-3.28	5
	Head 850	e'	42.0000	Relative Permittivity (ε_r):	42.00	41.50	1.20	5
		e"	19.1500	Conductivity (σ):	0.91	0.92	-1.08	5
12-20-2019	Head 835	e'	41.7900	Relative Permittivity (ε_r):	41.79	41.50	0.70	5
		e"	19.3700	Conductivity (σ):	0.90	0.90	-0.08	5
	Head 820	e'	41.9500	Relative Permittivity (ε_r):	41.95	41.60	0.84	5
		e"	19.4100	Conductivity (σ):	0.88	0.90	-1.50	5
	Head 850	e'	41.6300	Relative Permittivity (ε_r):	41.63	41.50	0.31	5
		e"	19.3400	Conductivity (σ):	0.91	0.92	-0.10	5

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SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
11-04-2019	Head 2450	e'	37.7400	Relative Permittivity (ε_r):	37.74	39.20	-3.72	5
		e''	13.4300	Conductivity (σ):	1.83	1.80	1.64	5
	Head 2400	e'	37.8200	Relative Permittivity (ε_r):	37.82	39.30	-3.76	5
		e''	13.4100	Conductivity (σ):	1.79	1.75	2.16	5
	Head 2480	e'	37.6900	Relative Permittivity (ε_r):	37.69	39.16	-3.76	5
		e''	13.4600	Conductivity (σ):	1.86	1.83	1.29	5
11-07-2019	Head 2450	e'	39.9100	Relative Permittivity (ε_r):	39.91	39.20	1.81	5
		e''	13.0100	Conductivity (σ):	1.77	1.80	-1.54	5
	Head 2400	e'	39.9700	Relative Permittivity (ε_r):	39.97	39.30	1.71	5
		e''	12.9900	Conductivity (σ):	1.73	1.75	-1.04	5
	Head 2480	e'	39.8500	Relative Permittivity (ε_r):	39.85	39.16	1.76	5
		e''	13.0200	Conductivity (σ):	1.80	1.83	-2.02	5
11-18-2019	Head 750	e'	41.8900	Relative Permittivity (ε_r):	41.89	41.96	-0.17	5
		e''	21.4000	Conductivity (σ):	0.89	0.89	-0.07	5
	Head 700	e'	42.0100	Relative Permittivity (ε_r):	42.01	42.22	-0.49	5
		e''	22.5700	Conductivity (σ):	0.88	0.89	-1.21	5
	Head 790	e'	41.6600	Relative Permittivity (ε_r):	41.66	41.76	-0.23	5
		e''	20.5000	Conductivity (σ):	0.90	0.90	0.48	5
11-18-2019	Head 835	e'	41.6300	Relative Permittivity (ε_r):	41.63	41.50	0.31	5
		e''	19.9700	Conductivity (σ):	0.93	0.90	3.02	5
	Head 820	e'	41.6100	Relative Permittivity (ε_r):	41.61	41.60	0.02	5
		e''	20.1300	Conductivity (σ):	0.92	0.90	2.15	5
	Head 850	e'	41.6300	Relative Permittivity (ε_r):	41.63	41.50	0.31	5
		e''	19.8600	Conductivity (σ):	0.94	0.92	2.58	5
11-18-2019	Head 1750	e'	39.6700	Relative Permittivity (ε_r):	39.67	40.08	-1.03	5
		e''	13.8700	Conductivity (σ):	1.35	1.37	-1.41	5
	Head 1710	e'	39.7500	Relative Permittivity (ε_r):	39.75	40.15	-0.99	5
		e''	13.9100	Conductivity (σ):	1.32	1.35	-1.77	5
	Head 1755	e'	39.6600	Relative Permittivity (ε_r):	39.66	40.08	-1.04	5
		e''	13.8700	Conductivity (σ):	1.35	1.37	-1.33	5
11-18-2019	Head 1900	e'	39.4200	Relative Permittivity (ε_r):	39.42	40.00	-1.45	5
		e''	13.7000	Conductivity (σ):	1.45	1.40	3.38	5
	Head 1850	e'	39.5500	Relative Permittivity (ε_r):	39.55	40.00	-1.13	5
		e''	13.7100	Conductivity (σ):	1.41	1.40	0.73	5
	Head 1910	e'	39.4100	Relative Permittivity (ε_r):	39.41	40.00	-1.48	5
		e''	13.7000	Conductivity (σ):	1.45	1.40	3.93	5
11-28-2019	Head 1900	e'	39.6200	Relative Permittivity (ε_r):	39.62	40.00	-0.95	5
		e''	13.7600	Conductivity (σ):	1.45	1.40	3.83	5
	Head 1850	e'	39.7300	Relative Permittivity (ε_r):	39.73	40.00	-0.68	5
		e''	13.8300	Conductivity (σ):	1.42	1.40	1.62	5
	Head 1910	e'	39.6000	Relative Permittivity (ε_r):	39.60	40.00	-1.00	5
		e''	13.7500	Conductivity (σ):	1.46	1.40	4.31	5
12-02-2019	Head 1900	e'	39.1800	Relative Permittivity (ε_r):	39.18	40.00	-2.05	5
		e''	13.7600	Conductivity (σ):	1.45	1.40	3.83	5
	Head 1850	e'	39.2500	Relative Permittivity (ε_r):	39.25	40.00	-1.88	5
		e''	13.8100	Conductivity (σ):	1.42	1.40	1.47	5
	Head 1910	e'	39.1600	Relative Permittivity (ε_r):	39.16	40.00	-2.10	5
		e''	13.7600	Conductivity (σ):	1.46	1.40	4.38	5
12-05-2019	Head 1750	e'	38.3900	Relative Permittivity (ε_r):	38.39	40.08	-4.23	5
		e''	14.1000	Conductivity (σ):	1.37	1.37	0.22	5
	Head 1710	e'	38.4500	Relative Permittivity (ε_r):	38.45	40.15	-4.22	5
		e''	14.2000	Conductivity (σ):	1.35	1.35	0.28	5
	Head 1755	e'	38.3800	Relative Permittivity (ε_r):	38.38	40.08	-4.23	5
		e''	14.0900	Conductivity (σ):	1.37	1.37	0.23	5
12-05-2019	Head 1900	e'	38.1500	Relative Permittivity (ε_r):	38.15	40.00	-4.63	5
		e''	13.8100	Conductivity (σ):	1.46	1.40	4.21	5
	Head 1850	e'	38.2200	Relative Permittivity (ε_r):	38.22	40.00	-4.45	5
		e''	13.9000	Conductivity (σ):	1.43	1.40	2.13	5
	Head 1910	e'	38.1300	Relative Permittivity (ε_r):	38.13	40.00	-4.67	5
		e''	13.8000	Conductivity (σ):	1.47	1.40	4.68	5
12-09-2019	Head 1900	e'	40.1900	Relative Permittivity (ε_r):	40.19	40.00	0.47	5
		e''	13.2300	Conductivity (σ):	1.40	1.40	-0.16	5
	Head 1850	e'	40.2200	Relative Permittivity (ε_r):	40.22	40.00	0.55	5
		e''	13.2700	Conductivity (σ):	1.37	1.40	-2.50	5
	Head 1910	e'	40.1800	Relative Permittivity (ε_r):	40.18	40.00	0.45	5
		e''	13.2400	Conductivity (σ):	1.41	1.40	0.44	5

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SAR 3 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
12-10-2019	Head 750	e'	41.3100	Relative Permittivity (ε_r):	41.31	41.96	-1.55	5
		e''	21.7200	Conductivity (σ):	0.91	0.89	1.42	5
	Head 700	e'	41.4800	Relative Permittivity (ε_r):	41.48	42.22	-1.75	5
		e''	22.8600	Conductivity (σ):	0.89	0.89	0.06	5
	Head 790	e'	41.2100	Relative Permittivity (ε_r):	41.21	41.76	-1.31	5
		e''	20.9500	Conductivity (σ):	0.92	0.90	2.69	5
12-16-2019	Head 2600	e'	38.5200	Relative Permittivity (ε_r):	38.52	39.01	-1.26	5
		e''	13.7500	Conductivity (σ):	1.99	1.96	1.31	5
	Head 2500	e'	38.7200	Relative Permittivity (ε_r):	38.72	39.14	-1.07	5
		e''	13.6600	Conductivity (σ):	1.90	1.85	2.42	5
	Head 2700	e'	38.3100	Relative Permittivity (ε_r):	38.31	38.88	-1.48	5
		e''	13.8100	Conductivity (σ):	2.07	2.07	0.15	5
12-19-2019	Head 2600	e'	39.6700	Relative Permittivity (ε_r):	39.67	39.01	1.69	5
		e''	13.4000	Conductivity (σ):	1.94	1.96	-1.27	5
	Head 2500	e'	39.7900	Relative Permittivity (ε_r):	39.79	39.14	1.67	5
		e''	13.3400	Conductivity (σ):	1.85	1.85	0.02	5
	Head 2700	e'	39.4900	Relative Permittivity (ε_r):	39.49	38.88	1.56	5
		e''	13.4900	Conductivity (σ):	2.03	2.07	-2.18	5

SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
11-18-2019	Head 1750	e'	39.7600	Relative Permittivity (ε_r):	39.76	40.08	-0.81	5
		e''	13.9900	Conductivity (σ):	1.36	1.37	-0.56	5
	Head 1710	e'	39.8000	Relative Permittivity (ε_r):	39.80	40.15	-0.86	5
		e''	14.0900	Conductivity (σ):	1.34	1.35	-0.50	5
	Head 1755	e'	39.7600	Relative Permittivity (ε_r):	39.76	40.08	-0.79	5
		e''	13.9800	Conductivity (σ):	1.36	1.37	-0.55	5
11-25-2019	Head 2450	e'	38.7000	Relative Permittivity (ε_r):	38.70	39.20	-1.28	5
		e''	13.5200	Conductivity (σ):	1.84	1.80	2.32	5
	Head 2400	e'	38.8000	Relative Permittivity (ε_r):	38.80	39.30	-1.26	5
		e''	13.5100	Conductivity (σ):	1.80	1.75	2.92	5
	Head 2480	e'	38.6500	Relative Permittivity (ε_r):	38.65	39.16	-1.31	5
		e''	13.5300	Conductivity (σ):	1.87	1.83	1.82	5
11-28-2019	Head 1750	e'	38.7900	Relative Permittivity (ε_r):	38.79	40.08	-3.23	5
		e''	13.7800	Conductivity (σ):	1.34	1.37	-2.05	5
	Head 1710	e'	38.8100	Relative Permittivity (ε_r):	38.81	40.15	-3.33	5
		e''	13.8500	Conductivity (σ):	1.32	1.35	-2.19	5
	Head 1755	e'	38.7900	Relative Permittivity (ε_r):	38.79	40.08	-3.21	5
		e''	13.7800	Conductivity (σ):	1.34	1.37	-1.98	5
11-28-2019	Head 2600	e'	37.7900	Relative Permittivity (ε_r):	37.79	39.01	-3.13	5
		e''	13.5000	Conductivity (σ):	1.95	1.96	-0.53	5
	Head 2500	e'	37.9700	Relative Permittivity (ε_r):	37.97	39.14	-2.98	5
		e''	13.4400	Conductivity (σ):	1.87	1.85	0.77	5
	Head 2700	e'	37.6200	Relative Permittivity (ε_r):	37.62	38.88	-3.25	5
		e''	13.5400	Conductivity (σ):	2.03	2.07	-1.81	5
12-01-2019	Head 1750	e'	39.2600	Relative Permittivity (ε_r):	39.26	40.08	-2.06	5
		e''	14.2700	Conductivity (σ):	1.39	1.37	1.43	5
	Head 1710	e'	39.3200	Relative Permittivity (ε_r):	39.32	40.15	-2.06	5
		e''	14.3500	Conductivity (σ):	1.36	1.35	1.34	5
	Head 1755	e'	39.2500	Relative Permittivity (ε_r):	39.25	40.08	-2.06	5
		e''	14.2600	Conductivity (σ):	1.39	1.37	1.44	5
12-04-2019	Head 1750	e'	39.1300	Relative Permittivity (ε_r):	39.13	40.08	-2.38	5
		e''	13.7300	Conductivity (σ):	1.34	1.37	-2.41	5
	Head 1710	e'	39.2200	Relative Permittivity (ε_r):	39.22	40.15	-2.31	5
		e''	13.7800	Conductivity (σ):	1.31	1.35	-2.69	5
	Head 1755	e'	39.1300	Relative Permittivity (ε_r):	39.13	40.08	-2.36	5
		e''	13.7200	Conductivity (σ):	1.34	1.37	-2.40	5
12-04-2019	Head 2450	e'	38.0000	Relative Permittivity (ε_r):	38.00	39.20	-3.06	5
		e''	13.5200	Conductivity (σ):	1.84	1.80	2.32	5
	Head 2400	e'	38.1100	Relative Permittivity (ε_r):	38.11	39.30	-3.02	5
		e''	13.5000	Conductivity (σ):	1.80	1.75	2.85	5
	Head 2480	e'	37.9300	Relative Permittivity (ε_r):	37.93	39.16	-3.15	5
		e''	13.5400	Conductivity (σ):	1.87	1.83	1.89	5

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SAR 4 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
12-11-2019	Head 835	e'	40.6300	Relative Permittivity (ε_r):	40.63	41.50	-2.10	5
		e''	20.0300	Conductivity (σ):	0.93	0.90	3.33	5
	Head 820	e'	40.6500	Relative Permittivity (ε_r):	40.65	41.60	-2.29	5
		e''	20.2400	Conductivity (σ):	0.92	0.90	2.71	5
	Head 850	e'	40.5900	Relative Permittivity (ε_r):	40.59	41.50	-2.19	5
		e''	19.8100	Conductivity (σ):	0.94	0.92	2.32	5
12-19-2019	Head 1750	e'	41.1100	Relative Permittivity (ε_r):	41.11	40.08	2.56	5
		e''	13.4600	Conductivity (σ):	1.31	1.37	-4.33	5
	Head 1710	e'	41.1600	Relative Permittivity (ε_r):	41.16	40.15	2.53	5
		e''	13.5200	Conductivity (σ):	1.29	1.35	-4.52	5
	Head 1755	e'	41.1100	Relative Permittivity (ε_r):	41.11	40.08	2.58	5
		e''	13.4600	Conductivity (σ):	1.31	1.37	-4.25	5

SAR 5 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
11-04-2019	Head 5250	e'	35.5800	Relative Permittivity (ε_r):	35.58	35.93	-0.98	5
		e''	16.0300	Conductivity (σ):	4.68	4.70	-0.48	5
	Head 5260	e'	35.5500	Relative Permittivity (ε_r):	35.55	35.92	-1.03	5
		e''	16.0400	Conductivity (σ):	4.69	4.71	-0.45	5
	Head 5600	e'	34.9800	Relative Permittivity (ε_r):	34.98	35.53	-1.56	5
		e''	16.2800	Conductivity (σ):	5.07	5.06	0.18	5
	Head 5750	e'	34.7800	Relative Permittivity (ε_r):	34.78	35.36	-1.65	5
		e''	16.3300	Conductivity (σ):	5.22	5.21	0.14	5
	Head 5825	e'	34.6400	Relative Permittivity (ε_r):	34.64	35.30	-1.87	5
		e''	16.3900	Conductivity (σ):	5.31	5.27	0.73	5
11-07-2019	Head 5250	e'	36.7900	Relative Permittivity (ε_r):	36.79	35.93	2.38	5
		e''	15.8200	Conductivity (σ):	4.62	4.70	-1.79	5
	Head 5260	e'	36.7700	Relative Permittivity (ε_r):	36.77	35.92	2.36	5
		e''	15.8400	Conductivity (σ):	4.63	4.71	-1.69	5
	Head 5600	e'	36.3000	Relative Permittivity (ε_r):	36.30	35.53	2.16	5
		e''	16.0400	Conductivity (σ):	4.99	5.06	-1.30	5
	Head 5750	e'	36.1100	Relative Permittivity (ε_r):	36.11	35.36	2.11	5
		e''	16.1300	Conductivity (σ):	5.16	5.21	-1.09	5
	Head 5825	e'	35.9800	Relative Permittivity (ε_r):	35.98	35.30	1.93	5
		e''	16.1800	Conductivity (σ):	5.24	5.27	-0.56	5
11-25-2019	Head 5250	e'	36.9200	Relative Permittivity (ε_r):	36.92	35.93	2.75	5
		e''	15.7000	Conductivity (σ):	4.58	4.70	-2.53	5
	Head 5260	e'	36.9000	Relative Permittivity (ε_r):	36.90	35.92	2.72	5
		e''	15.7100	Conductivity (σ):	4.59	4.71	-2.50	5
	Head 5600	e'	36.3700	Relative Permittivity (ε_r):	36.37	35.53	2.35	5
		e''	15.9200	Conductivity (σ):	4.96	5.06	-2.04	5
	Head 5750	e'	36.1400	Relative Permittivity (ε_r):	36.14	35.36	2.20	5
		e''	16.0300	Conductivity (σ):	5.13	5.21	-1.70	5
	Head 5825	e'	36.0400	Relative Permittivity (ε_r):	36.04	35.30	2.10	5
		e''	16.0800	Conductivity (σ):	5.21	5.27	-1.17	5
12-01-2019	Head 5250	e'	36.7900	Relative Permittivity (ε_r):	36.79	35.93	2.38	5
		e''	15.8300	Conductivity (σ):	4.62	4.70	-1.72	5
	Head 5260	e'	36.7700	Relative Permittivity (ε_r):	36.77	35.92	2.36	5
		e''	15.8400	Conductivity (σ):	4.63	4.71	-1.69	5
	Head 5600	e'	36.2500	Relative Permittivity (ε_r):	36.25	35.53	2.02	5
		e''	16.0600	Conductivity (σ):	5.00	5.06	-1.18	5
	Head 5750	e'	36.0400	Relative Permittivity (ε_r):	36.04	35.36	1.92	5
		e''	16.1600	Conductivity (σ):	5.17	5.21	-0.90	5
	Head 5825	e'	35.9100	Relative Permittivity (ε_r):	35.91	35.30	1.73	5
		e''	16.2100	Conductivity (σ):	5.25	5.27	-0.38	5
12-04-2019	Head 5250	e'	36.6300	Relative Permittivity (ε_r):	36.63	35.93	1.94	5
		e''	15.9700	Conductivity (σ):	4.66	4.70	-0.86	5
	Head 5260	e'	36.6100	Relative Permittivity (ε_r):	36.61	35.92	1.92	5
		e''	15.9800	Conductivity (σ):	4.67	4.71	-0.82	5
	Head 5600	e'	36.0900	Relative Permittivity (ε_r):	36.09	35.53	1.57	5
		e''	16.2000	Conductivity (σ):	5.04	5.06	-0.31	5
	Head 5750	e'	35.8300	Relative Permittivity (ε_r):	35.83	35.36	1.32	5
		e''	16.2700	Conductivity (σ):	5.20	5.21	-0.23	5
	Head 5825	e'	35.7100	Relative Permittivity (ε_r):	35.71	35.30	1.16	5
		e''	16.3200	Conductivity (σ):	5.29	5.27	0.30	5

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SAR 5 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
12-09-2019	Head 5250	e'	36.6800	Relative Permittivity (ε_r):	36.68	35.93	2.08	5
		e"	15.8200	Conductivity (σ):	4.62	4.70	-1.79	5
	Head 5260	e'	36.6500	Relative Permittivity (ε_r):	36.65	35.92	2.03	5
		e"	15.8300	Conductivity (σ):	4.63	4.71	-1.75	5
	Head 5600	e'	36.0800	Relative Permittivity (ε_r):	36.08	35.53	1.54	5
		e"	16.1000	Conductivity (σ):	5.01	5.06	-0.93	5
	Head 5750	e'	35.8200	Relative Permittivity (ε_r):	35.82	35.36	1.29	5
		e"	16.2300	Conductivity (σ):	5.19	5.21	-0.47	5
	Head 5825	e'	35.7000	Relative Permittivity (ε_r):	35.70	35.30	1.13	5
		e"	16.2900	Conductivity (σ):	5.28	5.27	0.12	5
12-13-2019	Head 5250	e'	37.1100	Relative Permittivity (ε_r):	37.11	35.93	3.28	5
		e"	16.1900	Conductivity (σ):	4.73	4.70	0.51	5
	Head 5260	e'	37.0900	Relative Permittivity (ε_r):	37.09	35.92	3.25	5
		e"	16.1900	Conductivity (σ):	4.74	4.71	0.48	5
	Head 5600	e'	36.5700	Relative Permittivity (ε_r):	36.57	35.53	2.92	5
		e"	16.4000	Conductivity (σ):	5.11	5.06	0.92	5
	Head 5750	e'	36.3500	Relative Permittivity (ε_r):	36.35	35.36	2.79	5
		e"	16.5000	Conductivity (σ):	5.28	5.21	1.18	5
	Head 5825	e'	36.2300	Relative Permittivity (ε_r):	36.23	35.30	2.63	5
		e"	16.5500	Conductivity (σ):	5.36	5.27	1.71	5
12-19-2019	Head 5180	e'	35.9300	Relative Permittivity (ε_r):	35.93	36.01	-0.23	5
		e"	16.0100	Conductivity (σ):	4.61	4.63	-0.42	5
	Head 5200	e'	35.8900	Relative Permittivity (ε_r):	35.89	35.99	-0.28	5
		e"	16.0300	Conductivity (σ):	4.63	4.65	-0.35	5
	Head 5600	e'	35.2000	Relative Permittivity (ε_r):	35.20	35.53	-0.94	5
		e"	16.3300	Conductivity (σ):	5.08	5.06	0.49	5
	Head 5800	e'	34.8800	Relative Permittivity (ε_r):	34.88	35.30	-1.19	5
		e"	16.4700	Conductivity (σ):	5.31	5.27	0.79	5
	Head 5825	e'	34.8300	Relative Permittivity (ε_r):	34.83	35.30	-1.33	5
		e"	16.4900	Conductivity (σ):	5.34	5.27	1.35	5

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8.2 System Check

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

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
  For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 2.5 mm.
  For 5 GHz band - Distance between probe sensors and phantom surface was set to 1.4 mm
- The dipole input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

Reference Target SAR Values

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

System Dipole	Serial No.	Cal. Date	Freq. (MHz)	Target SAR Values (W/kg)	
				1g/10g	Head
D750V3	1122	2-19-2018	750	1g	8.22
				10g	5.35
D835V2	4d174	1-23-2019	835	1g	9.28
				10g	6.04
D1750V2	1125	2-16-2018	1750	1g	36.50
				10g	19.30
D1900V2	5d190	10-23-2018	1900	1g	39.10
				10g	20.40
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	2-28-2019	5250	1g	78.70
				10g	22.60
			5600	1g	83.70
				10g	23.90
			5750	1g	80.30
				10g	23.00

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations
(D750, SN : 1122, D1750, SN : 1125, D1900, SN : 5d190)

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System Check Results

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

SAR 1 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
11-18-2019	D5GHzV2 (5250)	1209	Head	1g	7.56	75.60	78.70	-3.94	
				10g	2.16	21.60	22.60	-4.42	
11-18-2019	D5GHzV2 (5600)	1209	Head	1g	8.02	80.20	83.70	-4.18	
				10g	2.27	22.70	23.90	-5.02	
11-18-2019	D5GHzV2 (5750)	1209	Head	1g	7.70	77.00	80.30	-4.11	
				10g	2.18	21.80	23.00	-5.22	
11-19-2019	D835V2	4d174	Head	1g	0.93	9.27	9.28	-0.11	
				10g	0.61	6.09	6.04	0.83	
11-21-2019	D5GHzV2 (5250)	1209	Head	1g	8.15	81.50	78.70	3.56	
				10g	2.34	23.40	22.60	3.54	
11-21-2019	D5GHzV2 (5600)	1209	Head	1g	8.23	82.30	83.70	-1.67	
				10g	2.33	23.30	23.90	-2.51	
11-21-2019	D5GHzV2 (5750)	1209	Head	1g	8.69	86.90	80.30	8.22	
				10g	2.48	24.80	23.00	7.83	
11-25-2019	D5GHzV2 (5250)	1209	Head	1g	7.59	75.90	78.70	-3.56	
				10g	2.17	21.70	22.60	-3.98	
11-25-2019	D5GHzV2 (5600)	1209	Head	1g	8.33	83.30	83.70	-0.48	
				10g	2.34	23.40	23.90	-2.09	
11-25-2019	D5GHzV2 (5750)	1209	Head	1g	8.74	87.40	80.30	8.84	1,2
				10g	2.48	24.80	23.00	7.83	
12-13-2019	D835V2	4d174	Head	1g	0.88	8.76	9.28	-5.60	
				10g	0.58	5.75	6.04	-4.80	
12-16-2019	D835V2	4d174	Head	1g	0.90	9.01	9.28	-2.91	
				10g	0.59	5.93	6.04	-1.82	
12-20-2019	D835V2	4d174	Head	1g	0.91	9.06	9.28	-2.37	
				10g	0.60	5.95	6.04	-1.49	

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			
11-4-2019	D2450V2	939	Head	1g	5.31	53.10	53.20	-0.19	
				10g	2.47	24.70	25.10	-1.59	
11-7-2019	D2450V2	939	Head	1g	4.95	49.50	53.20	-6.95	3,4
				10g	2.30	23.00	25.10	-8.37	
11-18-2019	D750V3	1122	Head	1g	0.80	7.95	8.22	-3.28	
				10g	0.53	5.28	5.35	-1.31	
11-18-2019	D835V2	4d174	Head	1g	0.99	9.85	9.28	6.14	5,6
				10g	0.65	6.47	6.04	7.12	
11-18-2019	D1750V2	1125	Head	1g	3.37	33.70	36.50	-7.67	
				10g	1.79	17.90	19.30	-7.25	
11-18-2019	D1900V2	5d190	Head	1g	3.89	38.90	39.10	-0.51	
				10g	2.03	20.30	20.40	-0.49	
11-28-2019	D1900V2	5d190	Head	1g	3.95	39.50	39.10	1.02	
				10g	2.08	20.80	20.40	1.96	
12-2-2019	D1900V2	5d190	Head	1g	4.09	40.90	39.10	4.60	7,8
				10g	2.13	21.30	20.40	4.41	
12-5-2019	D1750V2	1125	Head	1g	3.52	35.20	36.50	-3.56	
				10g	1.87	18.70	19.30	-3.11	
12-5-2019	D1900V2	5d190	Head	1g	4.09	40.90	39.10	4.60	
				10g	2.12	21.20	20.40	3.92	
12-9-2019	D1900V2	5d190	Head	1g	3.83	38.30	39.10	-2.05	
				10g	2.01	20.10	20.40	-1.47	
12-10-2019	D750V3	1122	Head	1g	0.88	8.80	8.22	7.06	9,10
				10g	0.58	5.78	5.35	8.04	
12-16-2019	D2600V2	1097	Head	1g	5.75	57.50	57.30	0.35	
				10g	2.55	25.50	25.70	-0.78	
12-19-2019	D2600V2	1097	Head	1g	5.92	59.20	57.30	3.32	11,12
				10g	2.67	26.70	25.70	3.89	

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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			
11-18-2019	D1750V2	1125	Head	1g	3.63	36.30	36.50	-0.55	
				10g	1.92	19.20	19.30	-0.52	
11-25-2019	D2450V2	939	Head	1g	5.51	55.10	53.20	3.57	
				10g	2.55	25.50	25.10	1.59	
11-28-2019	D1750V2	1125	Head	1g	3.68	36.80	36.5	0.82	
				10g	1.94	19.40	19.3	0.52	
11-28-2019	D2600V2	1097	Head	1g	5.88	58.80	57.30	2.62	
				10g	2.65	26.50	25.70	3.11	
12-1-2019	D1750V2	1125	Head	1g	3.69	36.90	36.50	1.10	
				10g	1.96	19.60	19.30	1.55	
12-4-2019	D1750V2	1125	Head	1g	3.36	33.60	36.50	-7.95	13,14
				10g	1.77	17.70	19.30	-8.29	
12-4-2019	D2450V2	939	Head	1g	5.51	55.10	53.20	3.57	
				10g	2.54	25.40	25.10	1.20	
12-11-2019	D835V2	4d174	Head	1g	0.96	9.55	9.28	2.91	
				10g	0.62	6.19	6.04	2.48	
12-19-2019	D1750V2	1125	Head	1g	3.48	34.80	36.50	-4.66	
				10g	1.84	18.40	19.30	-4.66	

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			
11-4-2019	5GHzV2 (5250)	1209	Head	1g	8.21	82.10	78.70	4.32	
				10g	2.31	23.10	22.60	2.21	
11-4-2019	5GHzV2 (5600)	1209	Head	1g	8.48	84.80	83.70	1.31	
				10g	2.37	23.70	23.90	-0.84	
11-4-2019	5GHzV2 (5750)	1209	Head	1g	7.67	76.70	80.30	-4.48	
				10g	2.13	21.30	23.00	-7.39	
11-7-2019	5GHzV2 (5250)	1209	Head	1g	7.98	79.80	78.70	1.40	
				10g	2.26	22.60	22.60	0.00	
11-7-2019	5GHzV2 (5600)	1209	Head	1g	8.02	80.20	83.70	-4.18	
				10g	2.25	22.50	23.90	-5.86	
11-25-2019	5GHzV2 (5750)	1209	Head	1g	7.86	78.60	80.30	-2.12	
				10g	2.16	21.60	23.00	-6.09	
12-1-2019	5GHzV2 (5250)	1209	Head	1g	7.60	76.00	78.70	-3.43	
				10g	2.13	21.30	22.60	-5.75	
12-1-2019	5GHzV2 (5600)	1209	Head	1g	7.92	79.20	83.70	-5.38	15,16
				10g	2.19	21.90	23.90	-8.37	
12-1-2019	5GHzV2 (5750)	1209	Head	1g	7.64	76.40	80.30	-4.86	
				10g	2.12	21.20	23.00	-7.83	
12-4-2019	5GHzV2 (5250)	1209	Head	1g	7.47	74.70	78.70	-5.08	
				10g	2.08	20.80	22.60	-7.96	
12-4-2019	5GHzV2 (5600)	1209	Head	1g	8.13	81.30	83.70	-2.87	
				10g	2.26	22.60	23.90	-5.44	
12-4-2019	5GHzV2 (5750)	1209	Head	1g	7.65	76.50	80.30	-4.73	
				10g	2.11	21.10	23.00	-8.26	
12-9-2019	5GHzV2 (5250)	1209	Head	1g	7.76	77.60	78.70	-1.40	
				10g	2.15	21.50	22.60	-4.87	
12-9-2019	5GHzV2 (5600)	1209	Head	1g	8.49	84.90	83.70	1.43	
				10g	2.33	23.30	23.90	-2.51	
12-9-2019	5GHzV2 (5750)	1209	Head	1g	7.97	79.70	80.30	-0.75	
				10g	2.18	21.80	23.00	-5.22	
12-13-2019	5GHzV2 (5750)	1209	Head	1g	8.22	82.20	80.30	2.37	
				10g	2.31	23.10	23.00	0.43	
12-19-2019	5GHzV2 (5250)	1209	Head	1g	7.72	77.20	78.70	-1.91	
				10g	2.17	21.70	22.60	-3.98	
12-19-2019	5GHzV2 (5600)	1209	Head	1g	8.01	80.10	83.70	-4.30	
				10g	2.22	22.20	23.90	-7.11	
12-19-2019	5GHzV2 (5750)	1209	Head	1g	7.90	79.00	80.30	-1.62	
				10g	2.19	21.90	23.00	-4.78	

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9. Conducted Output Power Measurements

9.1 GSM

Per KDB 941225 D01 3G SAR Procedures:

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

GSM850 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	128	824.2	32.6	23.6	34.0	25.0
			190	836.6	32.6	23.5		
			251	848.8	32.8	23.7		
GPRS (GMSK)	CS1	1	128	824.2	32.5	23.5	34.0	25.0
			190	836.6	32.6	23.6		
			251	848.8	32.7	23.7		
		2	128	824.2	29.1	23.1	31.0	25.0
			190	836.6	29.1	23.1		
			251	848.8	29.4	23.4		
		3	128	824.2	28.2	23.9	30.0	25.7
			190	836.6	27.9	23.7		
			251	848.8	28.2	24.0		
		4	128	824.2	27.6	24.6	29.0	**26.0**
			190	836.6	27.6	24.6		
			251	848.8	27.7	24.7		
EGPRS (8PSK)	MCS5	1	128	824.2	25.1	16.1	26.5	17.5
			190	836.6	25.1	16.1		
			251	848.8	25.4	16.4		
		2	128	824.2	22.2	16.1	23.5	17.5
			190	836.6	22.2	16.2		
			251	848.8	22.5	16.5		
		3	128	824.2	21.4	17.1	22.5	18.2
			190	836.6	21.4	17.1		
			251	848.8	21.5	17.2		
		4	128	824.2	20.1	17.1	21.5	18.5
			190	836.6	20.1	17.1		
			251	848.8	20.4	17.4		

Note(s):

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

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

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GSM1900 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)				Reduced Average Power (dBm) Hotspot back-off				Reduced Average Power (dBm) Proximity sensor back-off			
					Measured		Tune-up Limit		Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	512	1850.2	29.8	20.8	31.0	22.0	29.2	20.1	30.0	21.0	29.0	20.0	30.0	21.0
			661	1880.0	29.8	20.7			29.0	20.0			29.0	20.0		
			810	1909.8	29.6	20.5			28.8	19.8			28.7	19.7		
GPRS (GMSK)	CS1	1	512	1850.2	29.9	20.8	31.0	22.0	29.2	20.1	30.0	21.0	29.1	20.1	30.0	21.0
			661	1880.0	29.8	20.8			29.1	20.1			29.1	20.1		
			810	1909.8	29.6	20.6			28.8	19.7			28.7	19.7		
		2	512	1850.2	27.2	21.2	27.5	21.5	25.6	19.6	26.5	20.5	25.5	19.5	26.5	20.5
			661	1880.0	27.0	21.0			25.7	19.6			25.6	19.6		
			810	1909.8	26.7	20.7			25.0	19.0			25.2	19.2		
		3	512	1850.2	25.1	20.8	26.0	21.7	23.8	19.5	25.0	20.7	23.7	19.5	25.0	20.7
			661	1880.0	25.1	20.8			23.9	19.6			23.8	19.6		
			810	1909.8	24.5	20.3			23.1	18.8			23.0	18.7		
		4	512	1850.2	23.8	20.8	25.0	**22.0**	22.6	19.6	24.0	**21.0**	22.6	19.5	24.0	**21.0**
			661	1880.0	23.8	20.8			22.7	19.7			22.7	19.7		
			810	1909.8	23.1	20.1			22.4	19.4			22.3	19.3		
EGPRS (8PSK)	MCS5	1	512	1850.2	25.5	16.5	26.5	17.5	24.8	15.7	25.5	16.5	24.6	15.6	25.5	16.5
			661	1880.0	25.6	16.6			24.8	15.8			24.7	15.7		
			810	1909.8	25.2	16.2			24.5	15.4			24.4	15.4		
		2	512	1850.2	22.1	16.0	23.0	17.0	21.2	15.1	22.0	16.0	21.1	15.1	22.0	16.0
			661	1880.0	22.1	16.1			21.0	15.0			21.0	15.0		
			810	1909.8	21.7	15.7			20.7	14.6			20.6	14.6		
		3	512	1850.2	20.8	16.5	21.5	17.2	20.0	15.7	20.5	16.2	19.9	15.7	20.5	16.2
			661	1880.0	20.8	16.5			20.0	15.8			20.0	15.7		
			810	1909.8	20.4	16.1			19.5	15.2			19.3	15.1		
		4	512	1850.2	19.8	16.7	20.5	17.5	18.7	15.7	19.5	16.5	18.7	15.7	19.5	16.5
			661	1880.0	19.9	16.8			18.8	15.8			18.8	15.8		
			810	1909.8	19.5	16.4			18.5	15.5			18.4	15.4		

Note(s):

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

- GMSK (GPRS) mode with 4 time slots for Max power & 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.

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9.2 W-CDMA

Release 99 Setup Procedures used to establish the test signals

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

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

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

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

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

The following 5 Sub-tests were completed according to Release 6 procedures in table C,11.1.3 of 3GPP TS 34.121-1 v13.
A summary of these settings are illustrated below:

	Mode	HSPA				
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2 kbps RMC				
	HSDPA FRC	H-Set 1				
	HSUPA Test	HSPA				
	Power Control Algorithm	Algorithm 2				Algorithm 1
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	-
	βhs	22/15	12/15	30/15	4/15	5/15
	βed	1309/225	94/75	47/15	56/75	47/15
	CM (dB)	1	3	2	3	1
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	E-DPCCH	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

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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.		

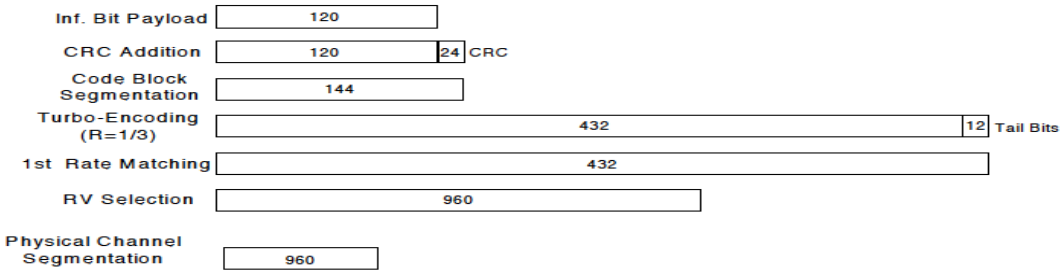

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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 support to down link. Therefore, the RF conducted power is not measured.

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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	23.6	N/A	25.0	19.9	N/A	21.5	19.9	N/A	21.5
		9400	1880.0	23.5			20.0			19.9		
		9538	1907.6	24.0			20.6			20.5		
HSDPA	Subtest 1	9262	1852.4	22.5	0	23.5	20.0	0	21.0	19.9	0	21.0
		9400	1880.0	22.5			20.0			20.0		
		9538	1907.6	23.0			20.5			20.5		
	Subtest 2	9262	1852.4	22.0	0	23.5	20.0	0	21.0	19.9	0	21.0
		9400	1880.0	22.0			19.9			19.9		
		9538	1907.6	22.5			20.5			20.5		
	Subtest 3	9262	1852.4	21.5	0.5	23.0	19.9	0	21.0	19.9	0	21.0
		9400	1880.0	21.5			19.9			19.9		
		9538	1907.6	22.0			20.5			20.5		
	Subtest 4	9262	1852.4	21.0	0.5	23.0	19.9	0	21.0	20.0	0	21.0
		9400	1880.0	21.0			19.9			19.9		
		9538	1907.6	21.5			20.5			20.6		
HSUPA	Subtest 1	9262	1852.4	22.3	0	24.0	18.9	0	21.0	18.9	0	21.0
		9400	1880.0	21.5			18.9			18.9		
		9538	1907.6	21.9			19.5			19.5		
	Subtest 2	9262	1852.4	19.4	4	20.0	18.9	0	21.0	18.9	0	21.0
		9400	1880.0	19.4			18.9			18.9		
		9538	1907.6	19.9			19.4			19.4		
	Subtest 3	9262	1852.4	21.4	1	23.0	18.8	0	21.0	18.8	0	21.0
		9400	1880.0	21.4			18.9			18.9		
		9538	1907.6	21.9			19.4			19.4		
	Subtest 4	9262	1852.4	19.4	4	20.0	18.9	0	21.0	18.8	0	21.0
		9400	1880.0	19.3			18.8			18.8		
		9538	1907.6	19.9			19.3			19.3		
	Subtest 5	9262	1852.4	23.6	0	24.0	20.0	0	21.0	20.0	0	21.0
		9400	1880.0	23.5			20.0			20.0		
		9538	1907.6	24.0			20.5			20.5		
DC-HSDPA	Subtest 1	9262	1852.4	22.6	0	23.5	20.1	0	21.0	20.0	0	21.0
		9400	1880.0	22.5			20.0			20.0		
		9538	1907.6	23.0			20.4			20.4		
	Subtest 2	9262	1852.4	22.1	0	23.5	20.0	0	21.0	19.7	0	21.0
		9400	1880.0	22.0			20.0			19.6		
		9538	1907.6	22.4			20.4			20.2		
	Subtest 3	9262	1852.4	20.7	0.5	23.0	20.1	0	21.0	19.2	0	21.0
		9400	1880.0	20.6			20.0			19.9		
		9538	1907.6	21.0			20.4			20.4		
	Subtest 4	9262	1852.4	21.2	0.5	23.0	20.1	0	21.0	19.3	0	21.0
		9400	1880.0	21.1			19.9			19.7		
		9538	1907.6	21.5			20.4			20.4		

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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	23.5	N/A	25.0	20.4	N/A	22.0	20.5	N/A	22.0
		1413	1732.6	23.6			20.4			20.5		
		1513	1752.6	23.9			20.8			20.8		
HSDPA	Subtest 1	1312	1712.4	23.7	0	24.0	20.6	0	21.0	20.6	0	21.0
		1413	1732.6	23.6			20.5			20.5		
		1513	1752.6	23.9			20.9			20.8		
	Subtest 2	1312	1712.4	20.6	2	22.0	20.6	0	21.0	20.5	0	21.0
		1413	1732.6	20.5			20.5			20.5		
		1513	1752.6	20.9			20.8			20.8		
	Subtest 3	1312	1712.4	21.7	0.5	23.5	20.5	0	21.0	20.5	0	21.0
		1413	1732.6	21.6			20.5			20.5		
		1513	1752.6	21.9			20.8			20.8		
	Subtest 4	1312	1712.4	20.6	2	22.0	20.5	0	21.0	20.6	0	21.0
		1413	1732.6	20.5			20.4			20.5		
		1513	1752.6	20.9			20.8			20.8		
HSUPA	Subtest 1	1312	1712.4	21.7	0	24.0	19.5	0	21.0	19.5	0	21.0
		1413	1732.6	21.6			19.5			19.5		
		1513	1752.6	21.8			19.8			19.8		
	Subtest 2	1312	1712.4	18.5	4	20.0	18.5	2	19.0	18.5	2	19.0
		1413	1732.6	18.5			18.5			18.5		
		1513	1752.6	18.8			18.7			18.8		
	Subtest 3	1312	1712.4	21.5	1	23.0	19.5	1	20.0	19.5	1	20.0
		1413	1732.6	21.5			19.3			19.4		
		1513	1752.6	21.8			19.7			19.7		
	Subtest 4	1312	1712.4	18.5	4	20.0	18.5	2	19.0	18.5	2	19.0
		1413	1732.6	18.5			18.4			18.4		
		1513	1752.6	18.8			18.8			18.8		
	Subtest 5	1312	1712.4	23.7	0	24.0	20.5	0	21.0	20.6	0	21.0
		1413	1732.6	23.6			20.5			20.5		
		1513	1752.6	23.9			20.8			20.9		
DC-HSDPA	Subtest 1	1312	1712.4	23.5	0	24.0	20.6	0	21.0	20.6	0	21.0
		1413	1732.6	23.7			20.7			20.7		
		1513	1752.6	24.0			21.0			21.0		
	Subtest 2	1312	1712.4	20.5	2	22.0	20.6	0	21.0	20.6	0	21.0
		1413	1732.6	20.6			20.7			20.7		
		1513	1752.6	21.0			20.9			20.9		
	Subtest 3	1312	1712.4	19.5	2	22.0	19.6	0	21.0	19.6	0	21.0
		1413	1732.6	19.6			19.7			19.7		
		1513	1752.6	19.9			20.0			20.0		
	Subtest 4	1312	1712.4	20.5	2	22.0	20.7	0	21.0	20.6	0	21.0
		1413	1732.6	20.7			20.7			20.8		
		1513	1752.6	21.0			21.0			20.9		

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W-CDMA Band V Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				Measured Pw r	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	23.7	N/A	25.5
		4183	836.6	23.9		
		4233	846.6	24.1		
HSDPA	Subtest 1	4132	826.4	22.3	0	23.5
		4183	836.6	22.4		
		4233	846.6	22.6		
	Subtest 2	4132	826.4	21.7	0	23.5
		4183	836.6	21.8		
		4233	846.6	22.1		
	Subtest 3	4132	826.4	21.2	0.5	23.0
		4183	836.6	21.3		
		4233	846.6	21.5		
	Subtest 4	4132	826.4	20.7	0.5	23.0
		4183	836.6	20.8		
		4233	846.6	21.1		
HSUPA	Subtest 1	4132	826.4	21.2	0	23.0
		4183	836.6	21.3		
		4233	846.6	21.5		
	Subtest 2	4132	826.4	20.2	2	21.0
		4183	836.6	20.3		
		4233	846.6	20.5		
	Subtest 3	4132	826.4	20.2	1	22.0
		4183	836.6	20.3		
		4233	846.6	20.5		
	Subtest 4	4132	826.4	20.2	2	21.0
		4183	836.6	20.3		
		4233	846.6	20.5		
	Subtest 5	4132	826.4	22.3	0	23.0
		4183	836.6	22.4		
		4233	846.6	22.6		
DC-HSDPA	Subtest 1	4132	826.4	22.3	0	23.5
		4183	836.6	22.4		
		4233	846.6	22.5		
	Subtest 2	4132	826.4	21.7	0	23.5
		4183	836.6	21.9		
		4233	846.6	21.8		
	Subtest 3	4132	826.4	20.2	1	22.5
		4183	836.6	20.4		
		4233	846.6	20.3		
	Subtest 4	4132	826.4	20.7	0.5	23.0
		4183	836.6	20.9		
		4233	846.6	20.8		

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9.3 LTE

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

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

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

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

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

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

Network Signalling value	Requirements (subclause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	N/A

<u>Maximum Output Power (Tune-up Limit) for LTE</u>

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 2 (1850 – 1910 MHz) is covered by LTE Band 25 (1850 – 1915 MHz)
- LTE Band 5 (824 – 849 MHz) is covered by LTE Band 26 (814 – 849 MHz)
- LTE Band 4 (1710 – 1755 MHz) is covered by LTE Band 66 (1710 – 1780 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.

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1. Max power Results

LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				[redacted]	23095	[redacted]		
				[redacted]	707.5 MHz	[redacted]		
10 MHz	QPSK	1	0	[redacted]	24.5	[redacted]	0.0	25.5
		1	25	[redacted]	24.3	[redacted]	0.0	25.5
		1	49	[redacted]	24.2	[redacted]	0.0	25.5
		25	0	[redacted]	23.9	[redacted]	1.0	24.5
		25	12	[redacted]	23.4	[redacted]	1.0	24.5
		25	25	[redacted]	23.4	[redacted]	1.0	24.5
		50	0	[redacted]	23.4	[redacted]	1.0	24.5
	16QAM	1	0	[redacted]	23.8	[redacted]	1.0	24.5
		1	25	[redacted]	23.6	[redacted]	1.0	24.5
		1	49	[redacted]	23.7	[redacted]	1.0	24.5
		25	0	[redacted]	22.4	[redacted]	2.0	23.5
		25	12	[redacted]	22.3	[redacted]	2.0	23.5
		25	25	[redacted]	22.4	[redacted]	2.0	23.5
		50	0	[redacted]	22.3	[redacted]	2.0	23.5
	64QAM	1	0	[redacted]	22.4	[redacted]	2.0	23.5
		1	25	[redacted]	22.4	[redacted]	2.0	23.5
		1	49	[redacted]	22.4	[redacted]	2.0	23.5
		25	0	[redacted]	21.2	[redacted]	3.0	22.5
		25	12	[redacted]	21.2	[redacted]	3.0	22.5
		25	25	[redacted]	21.3	[redacted]	3.0	22.5
		50	0	[redacted]	21.2	[redacted]	3.0	22.5
	256QAM	1	0	[redacted]	19.3	[redacted]	5.0	20.5
		1	25	[redacted]	19.3	[redacted]	5.0	20.5
		1	49	[redacted]	19.3	[redacted]	5.0	20.5
		25	0	[redacted]	19.1	[redacted]	5.0	20.5
		25	12	[redacted]	19.1	[redacted]	5.0	20.5
		25	25	[redacted]	19.1	[redacted]	5.0	20.5
		50	0	[redacted]	19.1	[redacted]	5.0	20.5

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	24.0	24.5	24.2	0.0	25.5
		1	12	24.5	24.5	24.3	0.0	25.5
		1	24	24.3	24.2	24.0	0.0	25.5
		12	0	23.9	23.5	23.2	1.0	24.5
		12	7	23.7	23.5	23.2	1.0	24.5
		12	13	23.7	23.5	23.2	1.0	24.5
		25	0	23.6	23.4	23.2	1.0	24.5
	16QAM	1	0	24.2	23.7	23.5	1.0	24.5
		1	12	24.2	23.7	23.5	1.0	24.5
		1	24	23.9	23.7	23.5	1.0	24.5
		12	0	22.5	22.4	22.3	2.0	23.5
		12	7	22.5	22.4	22.3	2.0	23.5
		12	13	22.6	22.4	22.2	2.0	23.5
		25	0	22.5	22.3	22.1	2.0	23.5
	64QAM	1	0	22.9	22.6	22.2	2.0	23.5
		1	12	22.8	22.6	22.3	2.0	23.5
		1	24	22.9	22.6	22.3	2.0	23.5
		12	0	21.4	21.2	21.0	3.0	22.5
		12	7	21.4	21.2	21.1	3.0	22.5
		12	13	21.4	21.2	21.1	3.0	22.5
		25	0	21.4	21.2	21.0	3.0	22.5
	256QAM	1	0	19.5	19.0	18.9	5.0	20.5
		1	12	19.8	18.9	19.1	5.0	20.5
		1	24	19.6	19.0	18.9	5.0	20.5
		12	0	19.3	19.1	18.9	5.0	20.5
		12	7	19.3	19.1	18.9	5.0	20.5
		12	13	19.3	19.1	18.9	5.0	20.5
		25	0	19.2	19.1	18.9	5.0	20.5

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LTE Band 12 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23025	23095	23165		
				700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	24.5	24.4	24.2	0.0	25.5
		1	8	24.5	24.3	24.3	0.0	25.5
		1	14	24.3	24.1	24.0	0.0	25.5
		8	0	23.7	23.5	23.2	1.0	24.5
		8	4	23.6	23.5	23.2	1.0	24.5
		8	7	23.6	23.4	23.2	1.0	24.5
		15	0	23.6	23.4	23.2	1.0	24.5
	16QAM	1	0	23.6	23.6	23.7	1.0	24.5
		1	8	24.2	23.7	23.9	1.0	24.5
		1	14	23.7	23.7	23.7	1.0	24.5
		8	0	22.5	22.4	22.2	2.0	23.5
		8	4	22.6	22.4	22.1	2.0	23.5
		8	7	22.5	22.4	22.1	2.0	23.5
		15	0	22.5	22.3	22.1	2.0	23.5
	64QAM	1	0	22.7	22.4	22.1	2.0	23.5
		1	8	22.4	22.4	21.9	2.0	23.5
		1	14	22.8	22.4	22.1	2.0	23.5
		8	0	21.3	21.3	21.0	3.0	22.5
		8	4	21.3	21.3	21.0	3.0	22.5
		8	7	21.3	21.3	21.0	3.0	22.5
		15	0	21.4	21.3	21.0	3.0	22.5
	256QAM	1	0	19.2	19.2	18.9	5.0	20.5
		1	8	19.6	19.4	18.9	5.0	20.5
		1	14	19.3	19.2	18.9	5.0	20.5
		8	0	19.2	19.1	19.0	5.0	20.5
		8	4	19.2	19.1	18.9	5.0	20.5
		8	7	19.3	19.1	18.9	5.0	20.5
		15	0	19.3	19.0	19.0	5.0	20.5

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	24.5	24.3	24.0	0.0	25.5
		1	3	24.5	24.2	24.0	0.0	25.5
		1	5	24.4	24.2	23.8	0.0	25.5
		3	0	24.4	24.2	23.9	0.0	25.5
		3	1	24.4	24.2	23.9	0.0	25.5
		3	3	24.3	24.2	23.9	0.0	25.5
		6	0	23.7	23.5	23.2	1.0	24.5
	16QAM	1	0	24.1	23.6	23.3	1.0	24.5
		1	3	24.0	23.5	23.3	1.0	24.5
		1	5	24.1	23.6	23.1	1.0	24.5
		3	0	23.8	23.4	23.1	1.0	24.5
		3	1	23.8	23.3	23.0	1.0	24.5
		3	3	23.7	23.3	23.1	1.0	24.5
		6	0	22.5	22.4	22.1	2.0	23.5
	64QAM	1	0	22.5	22.3	22.0	2.0	23.5
		1	3	22.4	22.2	22.1	2.0	23.5
		1	5	22.6	22.6	22.2	2.0	23.5
		3	0	22.3	22.6	22.3	2.0	23.5
		3	1	22.5	22.3	22.3	2.0	23.5
		3	3	22.4	22.2	22.3	2.0	23.5
		6	0	21.5	22.0	22.0	3.0	22.5
	256QAM	1	0	19.4	19.1	18.6	5.0	20.5
		1	3	19.2	18.9	18.7	5.0	20.5
		1	5	19.5	19.0	18.9	5.0	20.5
		3	0	19.2	18.9	18.7	5.0	20.5
		3	1	19.2	19.0	18.8	5.0	20.5
		3	3	19.2	19.0	18.7	5.0	20.5
		6	0	19.2	19.0	18.7	5.0	20.5

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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 782 MHz	[redacted]		
10 MHz	QPSK	1	0	[redacted]	24.1	[redacted]	0.0	25.5
		1	25	[redacted]	24.6	[redacted]	0.0	25.5
		1	49	[redacted]	24.6	[redacted]	0.0	25.5
		25	0	[redacted]	23.7	[redacted]	1.0	24.5
		25	12	[redacted]	23.7	[redacted]	1.0	24.5
		25	25	[redacted]	23.9	[redacted]	1.0	24.5
		50	0	[redacted]	23.7	[redacted]	1.0	24.5
	16QAM	1	0	[redacted]	23.4	[redacted]	1.0	24.5
		1	25	[redacted]	24.0	[redacted]	1.0	24.5
		1	49	[redacted]	23.9	[redacted]	1.0	24.5
		25	0	[redacted]	22.4	[redacted]	2.0	23.5
		25	12	[redacted]	22.4	[redacted]	2.0	23.5
		25	25	[redacted]	22.4	[redacted]	2.0	23.5
		50	0	[redacted]	22.4	[redacted]	2.0	23.5
	64QAM	1	0	[redacted]	22.3	[redacted]	2.0	23.5
		1	25	[redacted]	22.3	[redacted]	2.0	23.5
		1	49	[redacted]	22.4	[redacted]	2.0	23.5
		25	0	[redacted]	21.2	[redacted]	3.0	22.5
		25	12	[redacted]	21.2	[redacted]	3.0	22.5
		25	25	[redacted]	21.2	[redacted]	3.0	22.5
		50	0	[redacted]	21.2	[redacted]	3.0	22.5
	256QAM	1	0	[redacted]	19.2	[redacted]	5.0	20.5
		1	25	[redacted]	19.1	[redacted]	5.0	20.5
		1	49	[redacted]	19.1	[redacted]	5.0	20.5
		25	0	[redacted]	19.2	[redacted]	5.0	20.5
		25	12	[redacted]	19.2	[redacted]	5.0	20.5
		25	25	[redacted]	19.3	[redacted]	5.0	20.5
		50	0	[redacted]	19.2	[redacted]	5.0	20.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				[redacted]	23230 782 MHz	[redacted]		
5 MHz	QPSK	1	0	[redacted]	24.2	[redacted]	0.0	25.5
		1	12	[redacted]	24.2	[redacted]	0.0	25.5
		1	24	[redacted]	24.4	[redacted]	0.0	25.5
		12	0	[redacted]	23.4	[redacted]	1.0	24.5
		12	7	[redacted]	23.4	[redacted]	1.0	24.5
		12	13	[redacted]	23.4	[redacted]	1.0	24.5
		25	0	[redacted]	23.4	[redacted]	1.0	24.5
	16QAM	1	0	[redacted]	23.7	[redacted]	1.0	24.5
		1	12	[redacted]	24.2	[redacted]	1.0	24.5
		1	24	[redacted]	24.4	[redacted]	1.0	24.5
		12	0	[redacted]	22.5	[redacted]	2.0	23.5
		12	7	[redacted]	22.5	[redacted]	2.0	23.5
		12	13	[redacted]	22.5	[redacted]	2.0	23.5
		25	0	[redacted]	22.3	[redacted]	2.0	23.5
	64QAM	1	0	[redacted]	22.3	[redacted]	2.0	23.5
		1	12	[redacted]	22.3	[redacted]	2.0	23.5
		1	24	[redacted]	22.3	[redacted]	2.0	23.5
		12	0	[redacted]	21.2	[redacted]	3.0	22.5
		12	7	[redacted]	21.2	[redacted]	3.0	22.5
		12	13	[redacted]	21.2	[redacted]	3.0	22.5
		25	0	[redacted]	21.1	[redacted]	3.0	22.5
	256QAM	1	0	[redacted]	19.3	[redacted]	5.0	20.5
		1	12	[redacted]	19.6	[redacted]	5.0	20.5
		1	24	[redacted]	19.4	[redacted]	5.0	20.5
		12	0	[redacted]	19.2	[redacted]	5.0	20.5
		12	7	[redacted]	19.2	[redacted]	5.0	20.5
		12	13	[redacted]	19.2	[redacted]	5.0	20.5
		25	0	[redacted]	19.1	[redacted]	5.0	20.5

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LTE Band 25 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				26140	26365	26590		
				1860 MHz	1882.5 MHz	1905 MHz		
20 MHz	QPSK	1	0	23.1	23.1	23.5	0.0	24.5
		1	49	23.1	23.0	23.4	0.0	24.5
		1	99	23.0	23.0	23.3	0.0	24.5
		50	0	22.2	22.1	22.5	1.0	23.5
		50	24	22.1	22.1	22.4	1.0	23.5
		50	50	22.1	22.0	22.4	1.0	23.5
		100	0	22.1	22.1	22.4	1.0	23.5
	16QAM	1	0	22.6	22.5	22.8	1.0	23.5
		1	49	22.4	22.2	22.6	1.0	23.5
		1	99	22.5	22.3	22.7	1.0	23.5
		50	0	21.2	21.1	21.4	2.0	22.5
		50	24	21.1	21.1	21.5	2.0	22.5
		50	50	21.1	21.0	21.4	2.0	22.5
		100	0	21.1	21.0	21.4	2.0	22.5
	64QAM	1	0	21.5	21.3	21.6	2.0	22.5
		1	49	21.4	21.0	21.5	2.0	22.5
		1	99	21.4	21.1	21.5	2.0	22.5
		50	0	20.1	20.1	20.4	3.0	21.5
		50	24	20.1	20.0	20.4	3.0	21.5
		50	50	20.1	20.0	20.3	3.0	21.5
		100	0	20.0	20.0	20.4	3.0	21.5
	256QAM	1	0	19.7	19.7	19.8	3.0	21.5
		1	49	19.6	19.6	19.7	3.0	21.5
		1	99	19.7	19.6	19.8	3.0	21.5
		50	0	18.4	18.4	18.8	4.0	20.5
		50	24	18.4	18.4	18.8	4.0	20.5
		50	50	18.4	18.3	18.8	4.0	20.5
		100	0	18.4	18.4	18.7	4.0	20.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26115	26365	26615		
				1857.5 MHz	1882.5 MHz	1907.5 MHz		
15 MHz	QPSK	1	0	23.3	23.0	23.2	0.0	24.5
		1	37	23.4	22.9	23.4	0.0	24.5
		1	74	23.3	22.9	23.3	0.0	24.5
		36	0	22.4	22.0	22.3	1.0	23.5
		36	20	22.3	22.0	22.2	1.0	23.5
		36	39	22.3	21.9	22.2	1.0	23.5
		75	0	22.3	22.0	22.3	1.0	23.5
	16QAM	1	0	22.6	22.2	22.5	1.0	23.5
		1	37	22.7	22.2	22.6	1.0	23.5
		1	74	22.6	22.1	22.3	1.0	23.5
		36	0	21.3	21.0	21.3	2.0	22.5
		36	20	21.3	20.9	21.2	2.0	22.5
		36	39	21.3	20.9	21.2	2.0	22.5
		75	0	21.3	21.0	21.2	2.0	22.5
	64QAM	1	0	21.4	20.9	20.9	2.0	22.5
		1	37	21.4	20.9	20.9	2.0	22.5
		1	74	21.3	20.9	20.9	2.0	22.5
		36	0	20.0	19.9	19.9	3.0	21.5
		36	20	20.0	19.9	19.9	3.0	21.5
		36	39	20.0	20.0	19.9	3.0	21.5
		75	0	20.0	20.0	19.9	3.0	21.5
	256QAM	1	0	19.6	19.4	19.9	3.0	21.5
		1	37	19.5	19.4	19.8	3.0	21.5
		1	74	19.5	19.3	19.9	3.0	21.5
		36	0	18.4	18.4	18.8	4.0	20.5
		36	20	18.3	18.4	18.7	4.0	20.5
		36	39	18.3	18.4	18.7	4.0	20.5
		75	0	18.4	18.4	18.8	4.0	20.5

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LTE Band 25 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26090	26365	26640		
				1855 MHz	1882.5 MHz	1910 MHz		
10 MHz	QPSK	1	0	23.3	22.9	23.2	0.0	24.5
		1	25	23.2	22.9	23.2	0.0	24.5
		1	49	23.3	22.9	23.3	0.0	24.5
		25	0	22.3	22.0	22.2	1.0	23.5
		25	12	22.3	21.9	22.2	1.0	23.5
		25	25	22.3	21.9	22.2	1.0	23.5
		50	0	22.3	22.0	22.2	1.0	23.5
	16QAM	1	0	22.5	22.1	22.4	1.0	23.5
		1	25	22.3	21.9	22.3	1.0	23.5
		1	49	22.4	22.1	22.3	1.0	23.5
		25	0	21.3	21.0	21.3	2.0	22.5
		25	12	21.3	21.0	21.3	2.0	22.5
		25	25	21.3	21.0	21.2	2.0	22.5
		50	0	21.3	21.0	21.2	2.0	22.5
	64QAM	1	0	21.3	21.0	20.9	2.0	22.5
		1	25	21.2	21.0	20.9	2.0	22.5
		1	49	21.3	21.0	20.9	2.0	22.5
		25	0	20.1	20.0	19.9	3.0	21.5
		25	12	20.1	20.0	19.9	3.0	21.5
		25	25	20.1	20.0	19.9	3.0	21.5
		50	0	20.0	20.0	19.9	3.0	21.5
	256QAM	1	0	19.7	19.4	19.8	3.0	21.5
		1	25	19.6	19.3	19.6	3.0	21.5
		1	49	19.6	19.4	19.8	3.0	21.5
		25	0	18.4	18.3	18.8	4.0	20.5
		25	12	18.4	18.4	18.8	4.0	20.5
		25	25	18.4	18.3	18.8	4.0	20.5
		50	0	18.4	18.3	18.7	4.0	20.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26065	26365	26665		
				1852.5 MHz	1882.5 MHz	1912.5 MHz		
5 MHz	QPSK	1	0	23.3	22.8	23.1	0.0	24.5
		1	12	23.4	22.9	23.3	0.0	24.5
		1	24	23.3	22.9	23.2	0.0	24.5
		12	0	22.3	21.9	22.2	1.0	23.5
		12	7	22.3	21.9	22.1	1.0	23.5
		12	13	22.3	21.9	22.2	1.0	23.5
		25	0	22.3	21.9	22.2	1.0	23.5
	16QAM	1	0	22.5	22.3	22.3	1.0	23.5
		1	12	22.6	22.3	22.3	1.0	23.5
		1	24	22.6	22.3	22.3	1.0	23.5
		12	0	21.4	20.9	21.2	2.0	22.5
		12	7	21.4	20.9	21.2	2.0	22.5
		12	13	21.4	20.9	21.2	2.0	22.5
		25	0	21.3	20.9	21.2	2.0	22.5
	64QAM	1	0	21.5	20.9	21.1	2.0	22.5
		1	12	21.3	20.9	21.0	2.0	22.5
		1	24	21.4	20.9	21.1	2.0	22.5
		12	0	20.0	19.9	20.1	3.0	21.5
		12	7	20.0	19.9	20.1	3.0	21.5
		12	13	20.0	19.9	20.1	3.0	21.5
		25	0	20.0	19.9	20.1	3.0	21.5
	256QAM	1	0	21.3	19.7	20.0	3.0	21.5
		1	12	19.7	19.7	20.0	3.0	21.5
		1	24	19.7	19.7	20.0	3.0	21.5
		12	0	19.4	19.4	19.8	4.0	20.5
		12	7	19.4	19.4	19.8	4.0	20.5
		12	13	19.4	19.4	19.8	4.0	20.5
		25	0	18.3	18.3	18.8	4.0	20.5

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LTE Band 25 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26055	26365	26675		
				1851.5 MHz	1882.5 MHz	1913.5 MHz		
3 MHz	QPSK	1	0	23.2	22.9	23.2	0.0	24.5
		1	8	23.4	22.8	23.5	0.0	24.5
		1	14	23.2	22.9	23.3	0.0	24.5
		8	0	22.2	21.9	22.1	1.0	23.5
		8	4	22.2	21.9	22.1	1.0	23.5
		8	7	22.2	21.9	22.2	1.0	23.5
		15	0	22.2	21.9	22.1	1.0	23.5
	16QAM	1	0	22.3	22.3	22.4	1.0	23.5
		1	8	22.3	22.3	22.5	1.0	23.5
		1	14	22.3	22.3	22.4	1.0	23.5
		8	0	21.2	21.0	21.2	2.0	22.5
		8	4	21.2	21.0	21.2	2.0	22.5
		8	7	21.2	21.0	21.2	2.0	22.5
		15	0	21.2	20.9	21.2	2.0	22.5
	64QAM	1	0	21.2	20.7	20.7	2.0	22.5
		1	8	21.1	20.7	20.7	2.0	22.5
		1	14	21.1	20.8	20.9	2.0	22.5
		8	0	20.0	19.6	19.7	3.0	21.5
		8	4	20.0	19.7	19.7	3.0	21.5
		8	7	19.9	19.7	19.9	3.0	21.5
		15	0	20.0	19.7	19.8	3.0	21.5
	256QAM	1	0	19.5	19.3	19.5	3.0	21.5
		1	8	19.6	19.2	19.7	3.0	21.5
		1	14	19.5	19.3	19.6	3.0	21.5
		8	0	18.4	18.4	18.7	4.0	20.5
		8	4	18.4	18.3	18.6	4.0	20.5
		8	7	18.5	18.3	18.7	4.0	20.5
		15	0	18.4	18.4	18.7	4.0	20.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26047	26365	26683		
				1850.7 MHz	1882.5 MHz	1914.3 MHz		
1.4 MHz	QPSK	1	0	23.2	22.8	23.1	0.0	24.5
		1	3	23.1	22.7	23.0	0.0	24.5
		1	5	23.2	22.9	23.2	0.0	24.5
		3	0	23.1	22.8	23.1	0.0	24.5
		3	1	23.2	22.7	23.1	0.0	24.5
		3	3	23.1	22.8	23.1	0.0	24.5
		6	0	22.2	21.9	22.2	1.0	23.5
	16QAM	1	0	22.4	22.2	22.4	1.0	23.5
		1	3	22.2	22.1	22.3	1.0	23.5
		1	5	22.3	22.1	22.2	1.0	23.5
		3	0	22.2	21.9	22.1	1.0	23.5
		3	1	22.1	22.0	22.1	1.0	23.5
		3	3	22.2	21.9	22.1	1.0	23.5
		6	0	21.2	20.8	21.3	2.0	22.5
	64QAM	1	0	21.2	20.7	20.9	2.0	22.5
		1	3	21.3	20.9	20.8	2.0	22.5
		1	5	21.2	20.6	20.8	2.0	22.5
		3	0	20.9	20.5	20.9	2.0	22.5
		3	1	21.1	20.7	20.9	2.0	22.5
		3	3	21.0	20.6	20.8	2.0	22.5
		6	0	20.1	20.1	20.1	3.0	21.5
	256QAM	1	0	19.5	19.4	19.5	4.0	20.5
		1	3	19.1	19.1	19.5	4.0	20.5
		1	5	19.3	19.2	19.5	4.0	20.5
		3	0	19.4	19.1	19.5	4.0	20.5
		3	1	19.4	19.1	19.5	4.0	20.5
		3	3	19.4	19.1	19.5	4.0	20.5
		6	0	18.4	18.2	18.5	4.0	20.5

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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]	23.7	[redacted]	0.0	25.5
		1	37	[redacted]	23.8	[redacted]	0.0	25.5
		1	74	[redacted]	23.5	[redacted]	0.0	25.5
		36	0	[redacted]	21.3	[redacted]	3.0	22.5
		36	20	[redacted]	21.2	[redacted]	3.0	22.5
		36	39	[redacted]	21.2	[redacted]	3.0	22.5
		75	0	[redacted]	21.2	[redacted]	3.0	22.5
	16QAM	1	0	[redacted]	21.5	[redacted]	3.0	22.5
		1	37	[redacted]	21.5	[redacted]	3.0	22.5
		1	74	[redacted]	21.4	[redacted]	3.0	22.5
		36	0	[redacted]	20.2	[redacted]	4.0	21.5
		36	20	[redacted]	20.2	[redacted]	4.0	21.5
		36	39	[redacted]	20.2	[redacted]	4.0	21.5
		75	0	[redacted]	20.2	[redacted]	4.0	21.5
	64QAM	1	0	[redacted]	20.4	[redacted]	4.0	21.5
		1	37	[redacted]	20.4	[redacted]	4.0	21.5
		1	74	[redacted]	20.4	[redacted]	4.0	21.5
		36	0	[redacted]	19.2	[redacted]	5.0	20.5
		36	20	[redacted]	19.2	[redacted]	5.0	20.5
		36	39	[redacted]	19.2	[redacted]	5.0	20.5
		75	0	[redacted]	19.2	[redacted]	5.0	20.5
	256QAM	1	0	[redacted]	19.4	[redacted]	5.0	20.5
		1	37	[redacted]	19.5	[redacted]	5.0	20.5
		1	74	[redacted]	19.3	[redacted]	5.0	20.5
		36	0	[redacted]	18.1	[redacted]	6.0	19.5
		36	20	[redacted]	18.1	[redacted]	6.0	19.5
		36	39	[redacted]	18.1	[redacted]	6.0	19.5
		75	0	[redacted]	18.2	[redacted]	6.0	19.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26740	26865	26990		
				819 MHz	831.5 MHz	844 MHz		
10 MHz	QPSK	1	0	23.2	23.7	23.7	0.0	25.5
		1	25	23.2	23.6	23.7	0.0	25.5
		1	49	23.2	23.6	23.7	0.0	25.5
		25	0	20.7	21.2	21.2	3.0	22.5
		25	12	20.7	21.2	21.2	3.0	22.5
		25	25	20.7	21.2	21.2	3.0	22.5
		50	0	20.7	21.2	21.2	3.0	22.5
	16QAM	1	0	20.8	21.6	21.6	3.0	22.5
		1	25	20.7	21.3	21.5	3.0	22.5
		1	49	20.9	21.5	21.7	3.0	22.5
		25	0	19.8	20.2	20.2	4.0	21.5
		25	12	19.8	20.2	20.3	4.0	21.5
		25	25	19.8	20.2	20.3	4.0	21.5
		50	0	19.8	20.2	20.2	4.0	21.5
	64QAM	1	0	19.8	20.3	20.4	4.0	21.5
		1	25	19.8	20.3	20.4	4.0	21.5
		1	49	19.9	20.3	20.4	4.0	21.5
		25	0	18.7	19.2	19.3	5.0	20.5
		25	12	18.7	19.2	19.3	5.0	20.5
		25	25	18.8	19.2	19.3	5.0	20.5
		50	0	18.8	19.2	19.3	5.0	20.5
	256QAM	1	0	18.7	19.2	19.4	5.0	20.5
		1	25	18.7	19.2	19.4	5.0	20.5
		1	49	18.7	19.2	19.5	5.0	20.5
		25	0	17.8	18.3	18.2	6.0	19.5
		25	12	17.8	18.3	18.3	6.0	19.5
		25	25	17.8	18.3	18.3	6.0	19.5
		50	0	17.7	18.2	18.3	6.0	19.5

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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	23.1	23.6	23.6	0.0	25.5
		1	12	23.3	23.6	23.8	0.0	25.5
		1	24	23.1	23.5	23.7	0.0	25.5
		12	0	20.7	21.2	21.2	3.0	22.5
		12	7	20.7	21.1	21.2	3.0	22.5
		12	13	20.7	21.2	21.2	3.0	22.5
		25	0	20.6	21.2	21.2	3.0	22.5
	16QAM	1	0	21.0	21.5	21.5	3.0	22.5
		1	12	20.9	21.5	21.5	3.0	22.5
		1	24	21.1	21.5	21.5	3.0	22.5
		12	0	19.8	20.2	20.3	4.0	21.5
		12	7	19.8	20.2	20.3	4.0	21.5
		12	13	19.9	20.2	20.3	4.0	21.5
		25	0	19.7	20.2	20.2	4.0	21.5
	64QAM	1	0	21.2	20.4	20.3	4.0	21.5
		1	12	20.3	20.4	20.3	4.0	21.5
		1	24	20.3	20.4	20.3	4.0	21.5
		12	0	18.7	19.2	19.3	5.0	20.5
		12	7	18.8	19.2	19.3	5.0	20.5
		12	13	18.8	19.2	19.4	5.0	20.5
		25	0	18.7	19.2	19.3	5.0	20.5
	256QAM	1	0	19.2	19.3	19.3	5.0	20.5
		1	12	19.2	19.3	19.4	5.0	20.5
		1	24	19.3	19.3	19.4	5.0	20.5
		12	0	19.2	19.2	19.3	6.0	19.5
		12	7	19.2	19.2	19.3	6.0	19.5
		12	13	19.3	19.2	19.3	6.0	19.5
		25	0	18.2	18.2	18.2	6.0	19.5

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	23.1	23.6	23.7	0.0	25.5
		1	8	23.3	23.5	24.0	0.0	25.5
		1	14	23.1	23.6	23.7	0.0	25.5
		8	0	20.6	21.1	21.2	3.0	22.5
		8	4	20.6	21.1	21.1	3.0	22.5
		8	7	20.6	21.1	21.1	3.0	22.5
		15	0	20.6	21.1	21.2	3.0	22.5
	16QAM	1	0	20.7	21.5	21.6	3.0	22.5
		1	8	20.8	21.4	21.7	3.0	22.5
		1	14	20.8	21.4	21.6	3.0	22.5
		8	0	19.7	20.2	20.2	4.0	21.5
		8	4	19.7	20.2	20.2	4.0	21.5
		8	7	19.7	20.2	20.2	4.0	21.5
		15	0	19.7	20.2	20.2	4.0	21.5
	64QAM	1	0	19.8	20.3	20.3	4.0	21.5
		1	8	19.5	20.3	20.0	4.0	21.5
		1	14	19.8	20.4	20.2	4.0	21.5
		8	0	18.5	19.2	19.1	5.0	20.5
		8	4	18.5	19.1	19.1	5.0	20.5
		8	7	18.6	19.2	19.2	5.0	20.5
		15	0	18.6	19.2	19.2	5.0	20.5
	256QAM	1	0	18.6	19.5	19.1	5.0	20.5
		1	8	19.0	19.4	19.4	5.0	20.5
		1	14	18.8	19.4	19.2	5.0	20.5
		8	0	17.7	18.2	18.3	6.0	19.5
		8	4	17.6	18.2	18.2	6.0	19.5
		8	7	17.6	18.2	18.3	6.0	19.5
		15	0	17.6	18.1	18.2	6.0	19.5

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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	23.1	23.6	23.6	0.0	25.5
		1	3	23.0	23.6	23.5	0.0	25.5
		1	5	23.1	23.6	23.6	0.0	25.5
		3	0	23.1	23.6	23.6	0.0	25.5
		3	1	23.0	23.6	23.7	0.0	25.5
		3	3	23.0	23.6	23.6	0.0	25.5
		6	0	20.5	21.1	21.1	3.0	22.5
	16QAM	1	0	20.9	21.2	21.4	3.0	22.5
		1	3	20.8	21.2	21.3	3.0	22.5
		1	5	21.0	21.2	21.4	3.0	22.5
		3	0	20.7	21.2	21.2	3.0	22.5
		3	1	20.8	21.2	21.2	3.0	22.5
		3	3	20.7	21.2	21.2	3.0	22.5
		6	0	19.5	20.2	20.2	4.0	21.5
	64QAM	1	0	19.8	20.0	20.1	4.0	21.5
		1	3	19.6	20.3	20.2	4.0	21.5
		1	5	19.7	20.3	20.2	4.0	21.5
		3	0	19.6	20.0	20.3	4.0	21.5
		3	1	19.7	20.1	20.2	4.0	21.5
		3	3	19.6	20.2	20.3	4.0	21.5
		6	0	18.5	19.0	19.2	5.0	20.5
	256QAM	1	0	18.7	19.2	19.1	5.0	20.5
		1	3	18.0	19.1	19.3	5.0	20.5
		1	5	18.3	19.2	19.2	5.0	20.5
		3	0	18.5	19.1	19.2	5.0	20.5
		3	1	18.5	19.2	19.2	5.0	20.5
		3	3	18.6	19.1	19.2	5.0	20.5
		6	0	17.5	18.1	18.1	6.0	19.5

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LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	22.8	23.1	22.9	0.0	24.5
		1	49	22.7	23.0	22.8	0.0	24.5
		1	99	22.8	23.0	22.8	0.0	24.5
		50	0	21.8	22.0	21.9	1.0	23.5
		50	24	21.8	22.0	21.9	1.0	23.5
		50	50	21.8	22.0	21.9	1.0	23.5
		100	0	21.8	22.0	21.9	1.0	23.5
	16QAM	1	0	22.1	22.4	22.1	1.0	23.5
		1	49	22.0	22.3	21.9	1.0	23.5
		1	99	22.2	22.4	22.1	1.0	23.5
		50	0	20.8	21.0	20.9	2.0	22.5
		50	24	20.8	21.0	20.9	2.0	22.5
		50	50	20.8	21.0	20.9	2.0	22.5
		100	0	20.8	21.0	20.9	2.0	22.5
	64QAM	1	0	21.1	21.2	21.3	2.0	22.5
		1	49	21.0	21.1	21.1	2.0	22.5
		1	99	21.1	21.2	21.3	2.0	22.5
		50	0	19.9	20.0	19.9	3.0	21.5
		50	24	19.8	20.0	19.9	3.0	21.5
		50	50	19.8	20.0	19.9	3.0	21.5
		100	0	19.8	20.0	19.9	3.0	21.5
	256QAM	1	0	17.6	17.8	18.2	5.0	19.5
		1	49	17.8	17.7	18.1	5.0	19.5
		1	99	17.9	17.9	18.1	5.0	19.5
		50	0	17.5	17.5	18.0	5.0	19.5
		50	24	17.5	17.5	17.9	5.0	19.5
		50	50	17.5	17.5	17.9	5.0	19.5
		100	0	17.5	17.5	17.9	5.0	19.5
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	22.9	23.0	22.9	0.0	24.5
		1	37	23.0	22.9	23.1	0.0	24.5
		1	74	22.8	23.0	22.8	0.0	24.5
		36	0	21.9	22.1	21.9	1.0	23.5
		36	20	21.9	22.0	21.8	1.0	23.5
		36	39	21.9	22.1	21.8	1.0	23.5
		75	0	21.9	22.1	21.9	1.0	23.5
	16QAM	1	0	22.0	22.2	22.3	1.0	23.5
		1	37	22.2	22.2	22.4	1.0	23.5
		1	74	22.1	22.2	22.2	1.0	23.5
		36	0	20.8	21.0	20.9	2.0	22.5
		36	20	20.8	21.0	20.8	2.0	22.5
		36	39	20.8	21.0	20.8	2.0	22.5
		75	0	20.8	21.0	20.8	2.0	22.5
	64QAM	1	0	21.1	21.2	21.1	2.0	22.5
		1	37	21.2	21.2	21.2	2.0	22.5
		1	74	21.2	21.1	21.0	2.0	22.5
		36	0	19.9	20.1	19.9	3.0	21.5
		36	20	19.8	20.1	19.9	3.0	21.5
		36	39	19.8	20.1	19.9	3.0	21.5
		75	0	19.9	20.0	19.8	3.0	21.5
	256QAM	1	0	17.7	17.8	18.3	5.0	19.5
		1	37	17.8	17.8	18.2	5.0	19.5
		1	74	17.9	17.9	18.2	5.0	19.5
		36	0	17.7	17.7	18.0	5.0	19.5
		36	20	17.6	17.7	18.0	5.0	19.5
		36	39	17.6	17.6	18.0	5.0	19.5
		75	0	17.6	17.7	18.0	5.0	19.5

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LTE Band 66 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	22.9	23.0	22.8	0.0	24.5
		1	25	22.9	22.9	22.7	0.0	24.5
		1	49	22.9	23.0	22.8	0.0	24.5
		25	0	21.9	22.0	21.7	1.0	23.5
		25	12	21.9	22.0	21.8	1.0	23.5
		25	25	21.9	22.0	21.7	1.0	23.5
		50	0	21.9	22.0	21.8	1.0	23.5
	16QAM	1	0	22.0	22.4	22.1	1.0	23.5
		1	25	21.9	22.1	22.0	1.0	23.5
		1	49	22.1	22.3	22.1	1.0	23.5
		25	0	20.9	21.0	20.8	2.0	22.5
		25	12	20.9	21.0	20.8	2.0	22.5
		25	25	20.9	21.0	20.8	2.0	22.5
		50	0	20.9	21.0	20.7	2.0	22.5
	64QAM	1	0	21.1	21.2	20.9	2.0	22.5
		1	25	21.0	21.1	20.9	2.0	22.5
		1	49	21.0	21.3	21.0	2.0	22.5
		25	0	20.0	20.0	19.8	3.0	21.5
		25	12	19.9	20.0	19.8	3.0	21.5
		25	25	19.9	20.0	19.8	3.0	21.5
		50	0	19.9	20.0	19.8	3.0	21.5
	256QAM	1	0	17.7	18.0	18.0	5.0	19.5
		1	25	17.9	17.9	18.0	5.0	19.5
		1	49	17.8	17.8	17.9	5.0	19.5
		25	0	17.6	17.6	18.0	5.0	19.5
		25	12	17.6	17.6	18.0	5.0	19.5
		25	25	17.6	17.6	18.0	5.0	19.5
		50	0	17.6	17.6	18.0	5.0	19.5

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	22.9	23.0	22.7	0.0	24.5
		1	12	22.9	23.0	22.9	0.0	24.5
		1	24	23.0	23.0	22.8	0.0	24.5
		12	0	21.9	22.0	21.8	1.0	23.5
		12	7	21.9	22.0	21.8	1.0	23.5
		12	13	22.0	22.0	21.8	1.0	23.5
		25	0	21.9	22.0	21.8	1.0	23.5
	16QAM	1	0	22.2	22.1	22.0	1.0	23.5
		1	12	22.4	22.2	22.0	1.0	23.5
		1	24	22.2	22.1	22.1	1.0	23.5
		12	0	20.9	21.0	20.9	2.0	22.5
		12	7	20.9	21.0	20.9	2.0	22.5
		12	13	20.9	21.0	20.9	2.0	22.5
		25	0	20.9	20.9	20.8	2.0	22.5
	64QAM	1	0	21.2	21.3	20.9	2.0	22.5
		1	12	21.1	21.1	21.1	2.0	22.5
		1	24	21.1	21.3	20.9	2.0	22.5
		12	0	19.9	20.0	19.8	3.0	21.5
		12	7	19.9	20.0	19.8	3.0	21.5
		12	13	20.0	20.0	19.8	3.0	21.5
		25	0	19.9	20.0	19.8	3.0	21.5
	256QAM	1	0	17.7	17.9	18.2	5.0	19.5
		1	12	17.9	17.9	18.3	5.0	19.5
		1	24	17.9	17.9	18.2	5.0	19.5
		12	0	17.7	17.7	18.1	5.0	19.5
		12	7	17.7	17.6	18.1	5.0	19.5
		12	13	17.6	17.6	18.0	5.0	19.5
		25	0	17.6	17.6	18.0	5.0	19.5

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LTE Band 66 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	23.0	23.0	22.8	0.0	24.5
		1	8	23.2	22.9	23.1	0.0	24.5
		1	14	23.1	23.0	22.9	0.0	24.5
		8	0	22.0	22.0	21.8	1.0	23.5
		8	4	22.0	21.9	21.7	1.0	23.5
		8	7	22.0	21.9	21.8	1.0	23.5
		15	0	22.0	22.0	21.8	1.0	23.5
	16QAM	1	0	22.0	22.3	22.2	1.0	23.5
		1	8	22.1	22.3	22.4	1.0	23.5
		1	14	22.1	22.3	22.2	1.0	23.5
		8	0	20.9	21.0	20.8	2.0	22.5
		8	4	21.0	21.0	20.8	2.0	22.5
		8	7	20.9	21.0	20.8	2.0	22.5
		15	0	20.9	21.0	20.8	2.0	22.5
	64QAM	1	0	21.2	21.2	20.9	2.0	22.5
		1	8	20.8	21.4	21.0	2.0	22.5
		1	14	21.0	21.4	20.9	2.0	22.5
		8	0	19.9	20.0	19.8	3.0	21.5
		8	4	20.0	20.0	19.8	3.0	21.5
		8	7	20.0	20.0	19.8	3.0	21.5
		15	0	20.0	19.9	19.9	3.0	21.5
	256QAM	1	0	17.9	17.9	18.2	5.0	19.5
		1	8	17.9	17.9	18.2	5.0	19.5
		1	14	17.9	17.9	18.2	5.0	19.5
		8	0	17.6	17.6	18.1	5.0	19.5
		8	4	17.7	17.6	18.1	5.0	19.5
		8	7	17.6	17.6	18.1	5.0	19.5
		15	0	17.6	17.6	18.1	5.0	19.5

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	22.9	23.0	22.8	0.0	24.5
		1	3	22.9	22.8	22.6	0.0	24.5
		1	5	23.0	22.9	22.8	0.0	24.5
		3	0	22.8	22.8	22.7	0.0	24.5
		3	1	22.8	22.9	22.7	0.0	24.5
		3	3	22.9	22.9	22.7	0.0	24.5
		6	0	22.0	21.9	21.7	1.0	23.5
	16QAM	1	0	22.0	22.2	21.9	1.0	23.5
		1	3	21.8	22.1	21.8	1.0	23.5
		1	5	21.9	22.3	21.9	1.0	23.5
		3	0	21.8	21.9	21.7	1.0	23.5
		3	1	21.7	22.0	21.7	1.0	23.5
		3	3	21.7	22.0	21.7	1.0	23.5
		6	0	21.0	20.9	20.8	2.0	22.5
	64QAM	1	0	21.1	21.2	20.9	2.0	22.5
		1	3	21.0	21.0	21.1	2.0	22.5
		1	5	20.9	21.2	21.1	2.0	22.5
		3	0	21.0	20.9	20.9	2.0	22.5
		3	1	21.1	20.9	20.9	2.0	22.5
		3	3	21.0	21.0	20.9	2.0	22.5
		6	0	20.0	20.0	19.8	3.0	21.5
	256QAM	1	0	17.7	17.9	18.4	5.0	19.5
		1	3	17.9	17.9	18.4	5.0	19.5
		1	5	17.9	17.9	18.4	5.0	19.5
		3	0	17.8	17.7	18.2	5.0	19.5
		3	1	17.8	17.8	18.2	5.0	19.5
		3	3	17.8	17.8	18.2	5.0	19.5
		6	0	17.7	17.7	18.3	5.0	19.5

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2. Reduced power Results

LTE Band 25 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
				26140	26365	26590			26140	26365	26590		
				1860 MHz	1882.5 MHz	1905 MHz			1860 MHz	1882.5 MHz	1905 MHz		
20 MHz	QPSK	1	0	19.0	18.9	19.3	0.0	20.5	19.1	19.0	19.3	0.0	20.5
		1	49	18.7	18.9	19.2	0.0	20.5	18.8	18.9	19.2	0.0	20.5
		1	99	18.9	18.8	19.2	0.0	20.5	19.0	18.9	19.2	0.0	20.5
		50	0	19.0	18.9	19.3	0.0	20.5	19.1	19.0	19.3	0.0	20.5
		50	24	19.0	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		50	50	19.0	18.9	19.2	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		100	0	19.0	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
	16QAM	1	0	19.4	19.4	19.6	0.0	20.5	19.3	19.5	19.7	0.0	20.5
		1	49	19.1	19.2	19.4	0.0	20.5	19.2	19.2	19.4	0.0	20.5
		1	99	19.2	19.2	19.5	0.0	20.5	19.2	19.3	19.6	0.0	20.5
		50	0	19.0	19.0	19.3	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		50	24	19.0	19.0	19.3	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		50	50	18.9	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		100	0	19.0	19.0	19.2	0.0	20.5	19.0	19.0	19.3	0.0	20.5
	64QAM	1	0	19.2	19.3	19.6	0.0	20.5	19.2	19.4	19.8	0.0	20.5
		1	49	18.9	19.2	19.6	0.0	20.5	19.0	19.3	19.8	0.0	20.5
		1	99	19.1	19.2	19.5	0.0	20.5	19.1	19.3	19.7	0.0	20.5
		50	0	19.1	19.1	19.4	0.0	20.5	19.1	19.1	19.4	0.0	20.5
		50	24	19.1	19.1	19.4	0.0	20.5	19.1	19.1	19.4	0.0	20.5
		50	50	19.1	19.0	19.4	0.0	20.5	19.1	19.0	19.3	0.0	20.5
		100	0	19.1	19.0	19.4	0.0	20.5	19.1	19.0	19.3	0.0	20.5
	256QAM	1	0	19.3	19.3	19.1	0.0	20.5	18.9	19.3	19.2	0.0	20.5
		1	49	19.1	19.2	19.1	0.0	20.5	18.8	19.1	19.1	0.0	20.5
		1	99	19.2	19.2	19.1	0.0	20.5	18.9	19.2	19.1	0.0	20.5
		50	0	18.4	18.4	18.7	1.0	19.5	18.4	18.4	18.7	1.0	19.5
		50	24	18.4	18.3	18.6	1.0	19.5	18.4	18.4	18.7	1.0	19.5
		50	50	18.4	18.3	18.6	1.0	19.5	18.4	18.3	18.7	1.0	19.5
		100	0	18.4	18.3	18.6	1.0	19.5	18.4	18.3	18.7	1.0	19.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26115	26365	26615			26115	26365	26615		
				1857.5 MHz	1882.5 MHz	1907.5 MHz			1857.5 MHz	1882.5 MHz	1907.5 MHz		
15 MHz	QPSK	1	0	18.9	18.9	19.3	0.0	20.5	19.0	19.0	19.3	0.0	20.5
		1	37	19.1	18.8	19.5	0.0	20.5	19.1	18.8	19.6	0.0	20.5
		1	74	18.8	18.8	19.2	0.0	20.5	18.9	18.9	19.3	0.0	20.5
		36	0	18.9	18.9	19.3	0.0	20.5	19.0	19.0	19.3	0.0	20.5
		36	20	18.9	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		36	39	18.9	18.9	19.2	0.0	20.5	18.9	18.9	19.3	0.0	20.5
		75	0	18.9	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
	16QAM	1	0	19.2	19.2	19.7	0.0	20.5	19.2	19.3	19.8	0.0	20.5
		1	37	19.3	19.2	19.7	0.0	20.5	19.3	19.3	19.8	0.0	20.5
		1	74	19.1	19.1	19.6	0.0	20.5	19.1	19.2	19.8	0.0	20.5
		36	0	18.9	18.9	19.3	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		36	20	18.9	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		36	39	18.9	18.9	19.3	0.0	20.5	18.9	18.9	19.3	0.0	20.5
		75	0	18.9	18.9	19.3	0.0	20.5	18.9	18.9	19.3	0.0	20.5
	64QAM	1	0	19.2	19.3	19.5	0.0	20.5	19.1	19.1	19.5	0.0	20.5
		1	37	19.2	19.3	19.6	0.0	20.5	19.1	19.2	19.6	0.0	20.5
		1	74	19.1	19.2	19.4	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		36	0	19.0	19.1	19.5	0.0	20.5	19.0	19.1	19.5	0.0	20.5
		36	20	19.0	19.1	19.4	0.0	20.5	19.0	19.1	19.4	0.0	20.5
		36	39	19.0	19.0	19.4	0.0	20.5	18.9	19.0	19.4	0.0	20.5
		75	0	19.0	19.0	19.4	0.0	20.5	19.0	19.0	19.4	0.0	20.5
	256QAM	1	0	18.8	18.9	19.5	0.0	20.5	19.1	18.9	19.4	0.0	20.5
		1	37	18.9	18.9	19.5	0.0	20.5	19.0	19.0	19.3	0.0	20.5
		1	74	18.8	18.8	19.4	0.0	20.5	19.0	18.8	19.3	0.0	20.5
		36	0	18.3	18.4	18.7	1.0	19.5	18.4	18.3	18.6	1.0	19.5
		36	20	18.3	18.3	18.7	1.0	19.5	18.4	18.3	18.6	1.0	19.5
		36	39	18.3	18.3	18.6	1.0	19.5	18.4	18.3	18.6	1.0	19.5
		75	0	18.3	18.4	18.7	1.0	19.5	18.4	18.3	18.7	1.0	19.5

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LTE Band 25 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26090	26365	26640			26090	26365	26640		
				1855 MHz	1882.5 MHz	1910 MHz			1855 MHz	1882.5 MHz	1910 MHz		
10 MHz	QPSK	1	0	18.9	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		1	25	18.8	18.8	19.2	0.0	20.5	18.9	18.8	19.2	0.0	20.5
		1	49	18.8	18.8	19.2	0.0	20.5	18.9	18.8	19.2	0.0	20.5
		25	0	18.9	18.9	19.2	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		25	12	18.9	18.9	19.2	0.0	20.5	18.9	18.9	19.3	0.0	20.5
		25	25	18.9	18.9	19.2	0.0	20.5	19.0	18.9	19.2	0.0	20.5
		50	0	18.9	18.9	19.2	0.0	20.5	18.9	18.9	19.3	0.0	20.5
	16QAM	1	0	19.2	19.2	19.6	0.0	20.5	18.9	19.3	19.7	0.0	20.5
		1	25	19.0	19.0	19.5	0.0	20.5	18.8	19.1	19.6	0.0	20.5
		1	49	19.1	19.1	19.5	0.0	20.5	18.9	19.2	19.6	0.0	20.5
		25	0	19.0	18.9	19.3	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		25	12	19.0	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		25	25	19.0	18.9	19.3	0.0	20.5	19.0	19.0	19.3	0.0	20.5
		50	0	18.9	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
	64QAM	1	0	19.3	19.3	19.6	0.0	20.5	19.2	19.1	19.4	0.0	20.5
		1	25	19.2	19.1	19.5	0.0	20.5	19.1	18.9	19.3	0.0	20.5
		1	49	19.3	19.2	19.5	0.0	20.5	19.2	19.1	19.4	0.0	20.5
		25	0	19.1	19.0	19.4	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		25	12	19.1	19.0	19.4	0.0	20.5	19.0	19.0	19.3	0.0	20.5
		25	25	19.0	19.0	19.4	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		50	0	19.0	19.0	19.4	0.0	20.5	19.0	19.0	19.4	0.0	20.5
	256QAM	1	0	18.9	19.1	19.1	0.0	20.5	19.1	19.0	19.1	0.0	20.5
		1	25	18.8	18.9	19.1	0.0	20.5	19.0	18.9	19.0	0.0	20.5
		1	49	18.8	19.0	19.0	0.0	20.5	19.0	18.9	19.1	0.0	20.5
		25	0	18.4	18.3	18.6	1.0	19.5	18.4	18.4	18.7	1.0	19.5
		25	12	18.4	18.3	18.6	1.0	19.5	18.4	18.3	18.7	1.0	19.5
		25	25	18.4	18.3	18.6	1.0	19.5	18.4	18.3	18.7	1.0	19.5
		50	0	18.3	18.3	18.6	1.0	19.5	18.4	18.3	18.6	1.0	19.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26065	26365	26665			26065	26365	26665		
				1852.5 MHz	1882.5 MHz	1912.5 MHz			1852.5 MHz	1882.5 MHz	1912.5 MHz		
5 MHz	QPSK	1	0	18.9	18.8	19.2	0.0	20.5	19.0	18.9	19.2	0.0	20.5
		1	12	19.0	18.9	19.2	0.0	20.5	19.0	19.0	19.3	0.0	20.5
		1	24	18.9	18.8	19.2	0.0	20.5	19.0	18.9	19.2	0.0	20.5
		12	0	18.9	18.8	19.2	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		12	7	18.9	18.8	19.2	0.0	20.5	19.0	18.9	19.2	0.0	20.5
		12	13	18.9	18.8	19.2	0.0	20.5	19.0	18.9	19.2	0.0	20.5
		25	0	18.9	18.8	19.2	0.0	20.5	19.0	18.9	19.2	0.0	20.5
	16QAM	1	0	19.2	19.3	19.5	0.0	20.5	19.1	19.3	19.5	0.0	20.5
		1	12	19.2	19.2	19.6	0.0	20.5	19.2	19.2	19.6	0.0	20.5
		1	24	19.1	19.3	19.5	0.0	20.5	19.1	19.2	19.4	0.0	20.5
		12	0	19.0	19.0	19.2	0.0	20.5	19.1	19.0	19.3	0.0	20.5
		12	7	19.0	19.0	19.2	0.0	20.5	19.1	19.0	19.3	0.0	20.5
		12	13	19.0	19.0	19.2	0.0	20.5	19.1	19.0	19.3	0.0	20.5
		25	0	19.0	18.9	19.2	0.0	20.5	19.0	18.9	19.2	0.0	20.5
	64QAM	1	0	19.2	19.0	19.6	0.0	20.5	19.1	19.3	19.6	0.0	20.5
		1	12	19.1	19.3	19.3	0.0	20.5	19.2	19.1	19.4	0.0	20.5
		1	24	19.2	19.1	19.5	0.0	20.5	19.1	19.2	19.6	0.0	20.5
		12	0	19.1	18.9	19.3	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		12	7	19.1	18.9	19.3	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		12	13	19.1	18.9	19.4	0.0	20.5	19.0	19.0	19.3	0.0	20.5
		25	0	19.0	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
	256QAM	1	0	18.9	19.1	19.1	0.0	20.5	18.9	19.2	19.1	0.0	20.5
		1	12	19.1	19.3	19.1	0.0	20.5	19.2	19.2	19.0	0.0	20.5
		1	24	18.9	19.0	19.1	0.0	20.5	18.9	19.2	19.0	0.0	20.5
		12	0	18.4	18.3	18.6	1.0	19.5	18.4	18.4	18.6	1.0	19.5
		12	7	18.4	18.3	18.6	1.0	19.5	18.4	18.3	18.6	1.0	19.5
		12	13	18.4	18.3	18.6	1.0	19.5	18.4	18.3	18.6	1.0	19.5
		25	0	18.4	18.3	18.6	1.0	19.5	18.4	18.3	18.6	1.0	19.5

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LTE Band 25 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26055	26365	26675			26055	26365	26675		
				1851.5 MHz	1882.5 MHz	1913.5 MHz			1851.5 MHz	1882.5 MHz	1913.5 MHz		
3 MHz	QPSK	1	0	18.9	18.8	19.2	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		1	8	19.1	18.6	19.4	0.0	20.5	19.3	18.8	19.5	0.0	20.5
		1	14	18.9	18.8	19.2	0.0	20.5	19.1	18.9	19.3	0.0	20.5
		8	0	18.9	18.8	19.1	0.0	20.5	18.9	18.9	19.2	0.0	20.5
		8	4	18.9	18.8	19.1	0.0	20.5	18.9	18.8	19.2	0.0	20.5
		8	7	18.9	18.8	19.1	0.0	20.5	18.9	18.8	19.2	0.0	20.5
		15	0	18.9	18.8	19.2	0.0	20.5	19.0	18.9	19.2	0.0	20.5
	16QAM	1	0	19.1	19.1	19.5	0.0	20.5	19.1	19.2	19.5	0.0	20.5
		1	8	19.2	19.1	19.7	0.0	20.5	19.2	19.2	19.6	0.0	20.5
		1	14	19.1	19.1	19.7	0.0	20.5	19.0	19.1	19.5	0.0	20.5
		8	0	18.9	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		8	4	18.9	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		8	7	18.9	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		15	0	18.9	18.8	19.2	0.0	20.5	19.0	18.9	19.3	0.0	20.5
	64QAM	1	0	19.4	19.3	19.4	0.0	20.5	19.2	19.1	19.4	0.0	20.5
		1	8	19.0	19.4	19.6	0.0	20.5	19.0	19.2	19.5	0.0	20.5
		1	14	19.2	19.3	19.5	0.0	20.5	19.1	19.1	19.5	0.0	20.5
		8	0	19.0	18.9	19.3	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		8	4	19.0	18.9	19.3	0.0	20.5	19.0	19.0	19.4	0.0	20.5
		8	7	19.0	18.9	19.3	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		15	0	19.0	18.9	19.4	0.0	20.5	19.0	18.9	19.3	0.0	20.5
	256QAM	1	0	18.9	19.1	19.0	0.0	20.5	18.9	19.2	19.0	0.0	20.5
		1	8	19.0	19.1	19.0	0.0	20.5	19.0	19.0	19.0	0.0	20.5
		1	14	18.7	18.9	19.1	0.0	20.5	18.9	18.8	19.2	0.0	20.5
		8	0	18.4	18.3	18.6	1.0	19.5	18.4	18.3	18.6	1.0	19.5
		8	4	18.3	18.3	18.6	1.0	19.5	18.3	18.3	18.6	1.0	19.5
		8	7	18.4	18.3	18.6	1.0	19.5	18.4	18.3	18.6	1.0	19.5
		15	0	18.4	18.3	18.6	1.0	19.5	18.4	18.3	18.7	1.0	19.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26047	26365	26683			26047	26365	26683		
				1850.7 MHz	1882.5 MHz	1914.3 MHz			1850.7 MHz	1882.5 MHz	1914.3 MHz		
1.4 MHz	QPSK	1	0	18.8	18.8	19.1	0.0	20.5	18.9	18.8	19.2	0.0	20.5
		1	3	18.7	18.7	19.0	0.0	20.5	18.9	18.7	19.1	0.0	20.5
		1	5	18.8	18.8	19.2	0.0	20.5	18.9	18.8	19.2	0.0	20.5
		3	0	18.8	18.7	19.1	0.0	20.5	18.8	18.8	19.1	0.0	20.5
		3	1	18.7	18.7	19.1	0.0	20.5	18.9	18.8	19.1	0.0	20.5
		3	3	18.8	18.7	19.1	0.0	20.5	18.9	18.8	19.1	0.0	20.5
		6	0	18.8	18.8	19.1	0.0	20.5	18.9	18.8	19.2	0.0	20.5
	16QAM	1	0	19.0	19.1	19.3	0.0	20.5	19.2	19.0	19.4	0.0	20.5
		1	3	18.9	19.0	19.4	0.0	20.5	18.7	18.9	19.2	0.0	20.5
		1	5	18.9	19.1	19.4	0.0	20.5	19.2	19.0	19.4	0.0	20.5
		3	0	19.0	18.9	19.3	0.0	20.5	18.9	18.9	19.2	0.0	20.5
		3	1	19.0	19.0	19.3	0.0	20.5	19.1	18.9	19.1	0.0	20.5
		3	3	19.0	18.9	19.3	0.0	20.5	19.0	18.9	19.2	0.0	20.5
		6	0	19.0	18.7	19.2	0.0	20.5	19.0	18.9	19.2	0.0	20.5
	64QAM	1	0	19.2	19.1	19.6	0.0	20.5	19.1	19.4	19.3	0.0	20.5
		1	3	19.2	18.9	19.6	0.0	20.5	19.1	18.8	19.3	0.0	20.5
		1	5	19.2	19.1	19.6	0.0	20.5	19.1	19.0	19.3	0.0	20.5
		3	0	19.0	18.9	19.4	0.0	20.5	19.0	18.9	19.3	0.0	20.5
		3	1	19.1	19.0	19.5	0.0	20.5	19.2	19.0	19.3	0.0	20.5
		3	3	19.0	19.0	19.4	0.0	20.5	19.1	18.9	19.3	0.0	20.5
		6	0	19.1	18.8	19.3	0.0	20.5	19.2	18.9	19.3	0.0	20.5
	256QAM	1	0	18.5	18.8	19.0	1.0	19.5	18.9	18.7	19.2	1.0	19.5
		1	3	18.4	18.8	18.9	1.0	19.5	18.7	18.5	19.0	1.0	19.5
		1	5	18.5	18.7	18.9	1.0	19.5	18.9	18.7	19.1	1.0	19.5
		3	0	18.7	18.7	19.0	1.0	19.5	18.7	18.7	19.1	1.0	19.5
		3	1	18.8	18.7	19.0	1.0	19.5	18.8	18.8	19.1	1.0	19.5
		3	3	18.8	18.7	18.9	1.0	19.5	18.7	18.8	19.1	1.0	19.5
		6	0	18.2	18.3	18.5	1.0	19.5	18.3	18.3	18.5	1.0	19.5

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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	19.8	20.0	19.8	0.0	21.5	19.9	20.1	19.9	0.0	21.5
		1	49	19.6	19.9	19.8	0.0	21.5	19.6	20.0	19.8	0.0	21.5
		1	99	19.8	20.0	19.8	0.0	21.5	19.8	20.1	19.9	0.0	21.5
		50	0	19.8	20.0	19.8	0.0	21.5	19.8	20.0	19.9	0.0	21.5
		50	24	19.7	20.0	19.8	0.0	21.5	19.8	20.0	19.9	0.0	21.5
		50	50	19.7	19.9	19.8	0.0	21.5	19.8	20.0	19.9	0.0	21.5
		100	0	19.8	20.0	19.8	0.0	21.5	19.8	20.0	19.9	0.0	21.5
	16QAM	1	0	20.1	20.3	20.0	0.0	21.5	20.2	20.5	20.2	0.0	21.5
		1	49	19.9	20.1	19.7	0.0	21.5	20.0	20.2	19.9	0.0	21.5
		1	99	20.1	20.3	20.1	0.0	21.5	20.2	20.4	20.2	0.0	21.5
		50	0	19.8	20.0	19.8	0.0	21.5	19.8	20.0	19.9	0.0	21.5
		50	24	19.7	20.0	19.8	0.0	21.5	19.8	20.0	19.9	0.0	21.5
		50	50	19.7	20.0	19.8	0.0	21.5	19.8	20.0	19.9	0.0	21.5
		100	0	19.8	20.0	19.8	0.0	21.5	19.8	20.0	19.8	0.0	21.5
	64QAM	1	0	20.0	20.3	20.2	0.0	21.5	20.2	20.3	20.3	0.0	21.5
		1	49	19.8	20.1	20.1	0.0	21.5	20.1	20.0	20.2	0.0	21.5
		1	99	20.0	20.3	20.1	0.0	21.5	20.2	20.2	20.3	0.0	21.5
		50	0	19.8	20.0	19.9	0.0	21.5	19.8	20.0	19.9	0.0	21.5
		50	24	19.8	20.0	19.9	0.0	21.5	19.8	20.0	19.9	0.0	21.5
		50	50	19.8	20.0	19.8	0.0	21.5	19.8	20.0	19.8	0.0	21.5
		100	0	19.8	20.0	19.8	0.0	21.5	19.8	20.0	19.8	0.0	21.5
	256QAM	1	0	18.0	17.8	18.3	2.0	19.5	18.0	17.8	18.3	2.0	19.5
		1	49	17.7	17.7	18.1	2.0	19.5	17.8	17.8	18.1	2.0	19.5
		1	99	17.8	17.8	18.2	2.0	19.5	17.9	17.9	18.2	2.0	19.5
		50	0	17.5	17.5	18.0	2.0	19.5	17.6	17.6	18.0	2.0	19.5
		50	24	17.5	17.5	18.0	2.0	19.5	17.6	17.6	18.0	2.0	19.5
		50	50	17.5	17.5	18.0	2.0	19.5	17.6	17.6	18.0	2.0	19.5
		100	0	17.5	17.5	18.0	2.0	19.5	17.6	17.5	18.0	2.0	19.5
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	19.9	20.0	19.9	0.0	21.5	19.9	20.0	19.9	0.0	21.5
		1	37	19.9	19.8	20.1	0.0	21.5	19.9	19.7	19.9	0.0	21.5
		1	74	19.8	20.0	19.8	0.0	21.5	19.8	20.0	19.8	0.0	21.5
		36	0	19.9	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		36	20	19.8	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		36	39	19.8	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		75	0	19.8	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
	16QAM	1	0	20.1	20.3	20.1	0.0	21.5	20.0	20.3	20.2	0.0	21.5
		1	37	20.2	20.3	20.3	0.0	21.5	20.2	20.4	20.3	0.0	21.5
		1	74	20.0	20.3	20.1	0.0	21.5	20.0	20.3	20.2	0.0	21.5
		36	0	19.8	20.0	19.8	0.0	21.5	19.9	20.0	19.9	0.0	21.5
		36	20	19.8	20.0	19.8	0.0	21.5	19.8	20.0	19.8	0.0	21.5
		36	39	19.8	20.0	19.8	0.0	21.5	19.8	20.0	19.8	0.0	21.5
		75	0	19.8	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
	64QAM	1	0	20.1	20.2	19.9	0.0	21.5	20.2	20.4	20.1	0.0	21.5
		1	37	20.1	20.1	19.8	0.0	21.5	20.2	20.3	20.2	0.0	21.5
		1	74	20.1	20.1	19.8	0.0	21.5	20.1	20.3	20.0	0.0	21.5
		36	0	19.9	20.1	19.9	0.0	21.5	19.9	20.1	19.9	0.0	21.5
		36	20	19.8	20.1	19.9	0.0	21.5	19.8	20.0	19.9	0.0	21.5
		36	39	19.8	20.1	19.9	0.0	21.5	19.8	20.0	19.9	0.0	21.5
		75	0	19.9	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
	256QAM	1	0	17.9	17.6	18.2	2.0	19.5	17.9	17.8	18.2	2.0	19.5
		1	37	17.7	17.6	18.2	2.0	19.5	17.8	17.8	18.2	2.0	19.5
		1	74	17.7	17.6	18.2	2.0	19.5	17.8	17.8	18.2	2.0	19.5
		36	0	17.6	17.6	18.0	2.0	19.5	17.6	17.7	18.0	2.0	19.5
		36	20	17.6	17.6	18.0	2.0	19.5	17.6	17.6	18.0	2.0	19.5
		36	39	17.6	17.6	18.0	2.0	19.5	17.6	17.6	18.0	2.0	19.5
		75	0	17.6	17.6	18.0	2.0	19.5	17.7	17.6	18.0	2.0	19.5

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LTE Band 66 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622			132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	19.9	20.0	19.7	0.0	21.5	20.0	20.1	19.8	0.0	21.5
		1	25	19.8	19.9	19.7	0.0	21.5	19.9	20.0	19.7	0.0	21.5
		1	49	19.9	19.9	19.7	0.0	21.5	20.0	20.0	19.9	0.0	21.5
		25	0	19.9	19.9	19.7	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		25	12	19.8	19.9	19.7	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		25	25	19.8	19.9	19.7	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		50	0	19.9	19.9	19.7	0.0	21.5	19.9	20.0	19.8	0.0	21.5
	16QAM	1	0	20.0	20.3	19.9	0.0	21.5	20.2	20.4	20.1	0.0	21.5
		1	25	19.8	20.0	19.9	0.0	21.5	20.0	20.1	20.0	0.0	21.5
		1	49	20.0	20.2	20.0	0.0	21.5	20.2	20.3	20.2	0.0	21.5
		25	0	19.9	20.0	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		25	12	19.9	19.9	19.8	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		25	25	19.8	19.9	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		50	0	19.8	19.9	19.7	0.0	21.5	19.9	20.0	19.8	0.0	21.5
	64QAM	1	0	20.2	20.1	20.0	0.0	21.5	20.1	20.2	20.1	0.0	21.5
		1	25	19.9	20.0	19.9	0.0	21.5	19.9	20.1	20.0	0.0	21.5
		1	49	20.0	20.2	20.1	0.0	21.5	19.9	20.3	20.2	0.0	21.5
		25	0	20.0	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		25	12	19.9	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		25	25	19.9	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		50	0	19.9	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
	256QAM	1	0	17.9	17.8	18.1	2.0	19.5	17.8	17.8	18.3	2.0	19.5
		1	25	18.1	17.8	18.1	2.0	19.5	17.8	17.8	18.3	2.0	19.5
		1	49	18.0	17.7	18.1	2.0	19.5	17.7	17.7	18.2	2.0	19.5
		25	0	17.8	17.6	17.9	2.0	19.5	17.6	17.6	18.0	2.0	19.5
		25	12	17.8	17.6	17.9	2.0	19.5	17.6	17.5	17.9	2.0	19.5
		25	25	17.8	17.6	17.9	2.0	19.5	17.6	17.5	17.9	2.0	19.5
		50	0	17.8	17.5	17.9	2.0	19.5	17.6	17.6	18.0	2.0	19.5

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	19.9	19.8	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		1	12	20.0	19.8	19.8	0.0	21.5	20.1	19.9	19.8	0.0	21.5
		1	24	19.9	19.9	19.8	0.0	21.5	20.0	20.0	19.9	0.0	21.5
		12	0	19.9	19.9	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		12	7	19.9	19.9	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		12	13	19.9	19.9	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		25	0	19.9	19.9	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
	16QAM	1	0	20.2	20.2	19.9	0.0	21.5	20.3	20.3	20.1	0.0	21.5
		1	12	20.0	20.3	19.9	0.0	21.5	20.1	20.4	20.1	0.0	21.5
		1	24	20.2	20.2	20.0	0.0	21.5	20.3	20.3	20.1	0.0	21.5
		12	0	20.0	19.9	19.8	0.0	21.5	20.1	20.0	19.8	0.0	21.5
		12	7	20.0	19.9	19.8	0.0	21.5	20.1	20.0	19.8	0.0	21.5
		12	13	20.0	19.9	19.8	0.0	21.5	20.1	20.0	19.9	0.0	21.5
		25	0	19.9	19.9	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
	64QAM	1	0	20.2	20.1	19.9	0.0	21.5	20.3	20.1	19.9	0.0	21.5
		1	12	20.2	20.1	19.9	0.0	21.5	20.1	20.0	20.0	0.0	21.5
		1	24	20.2	20.2	19.9	0.0	21.5	20.2	20.2	20.0	0.0	21.5
		12	0	19.9	20.0	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		12	7	19.9	20.0	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		12	13	19.9	20.0	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		25	0	19.9	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
	256QAM	1	0	18.1	17.9	18.2	2.0	19.5	17.7	17.8	18.3	2.0	19.5
		1	12	17.9	17.9	18.1	2.0	19.5	17.8	17.8	18.3	2.0	19.5
		1	24	17.9	17.9	18.1	2.0	19.5	17.8	17.8	18.3	2.0	19.5
		12	0	17.6	17.6	18.0	2.0	19.5	17.6	17.7	18.0	2.0	19.5
		12	7	17.6	17.6	18.0	2.0	19.5	17.6	17.6	18.1	2.0	19.5
		12	13	17.6	17.6	18.0	2.0	19.5	17.6	17.6	18.0	2.0	19.5
		25	0	17.5	17.5	18.0	2.0	19.5	17.5	17.6	18.0	2.0	19.5

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LTE Band 66 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657			131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz			1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	20.0	19.9	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		1	8	20.1	19.8	19.9	0.0	21.5	20.1	19.9	20.0	0.0	21.5
		1	14	20.0	19.9	19.8	0.0	21.5	20.1	20.0	19.8	0.0	21.5
		8	0	19.9	19.8	19.6	0.0	21.5	20.0	19.9	19.7	0.0	21.5
		8	4	19.9	19.8	19.7	0.0	21.5	20.0	19.9	19.7	0.0	21.5
		8	7	19.9	19.8	19.6	0.0	21.5	19.9	19.9	19.7	0.0	21.5
		15	0	19.9	19.9	19.7	0.0	21.5	20.0	19.9	19.7	0.0	21.5
	16QAM	1	0	20.2	20.3	20.0	0.0	21.5	19.9	20.5	20.1	0.0	21.5
		1	8	20.1	20.3	20.3	0.0	21.5	20.2	20.3	20.3	0.0	21.5
		1	14	20.0	20.3	20.1	0.0	21.5	19.9	20.3	20.3	0.0	21.5
		8	0	19.9	20.0	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		8	4	19.9	20.0	19.7	0.0	21.5	20.1	20.1	19.8	0.0	21.5
		8	7	19.9	20.0	19.7	0.0	21.5	20.0	20.1	19.8	0.0	21.5
		15	0	19.9	19.9	19.7	0.0	21.5	20.0	19.9	19.8	0.0	21.5
	64QAM	1	0	20.4	20.1	19.9	0.0	21.5	20.3	20.1	19.8	0.0	21.5
		1	8	20.2	20.2	20.1	0.0	21.5	20.0	20.1	20.1	0.0	21.5
		1	14	20.2	20.2	20.0	0.0	21.5	20.2	20.2	20.0	0.0	21.5
		8	0	19.9	20.0	19.8	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		8	4	19.9	20.1	19.9	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		8	7	19.9	20.0	19.8	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		15	0	20.0	20.0	19.8	0.0	21.5	20.0	19.9	19.8	0.0	21.5
	256QAM	1	0	17.9	17.8	18.3	2.0	19.5	17.9	17.9	18.3	2.0	19.5
		1	8	17.8	17.8	18.3	2.0	19.5	17.9	17.9	18.3	2.0	19.5
		1	14	17.8	17.8	18.3	2.0	19.5	17.8	17.9	18.4	2.0	19.5
		8	0	17.6	17.5	18.0	2.0	19.5	17.6	17.6	18.0	2.0	19.5
		8	4	17.6	17.6	18.0	2.0	19.5	17.6	17.6	18.0	2.0	19.5
		8	7	17.6	17.6	18.0	2.0	19.5	17.6	17.6	18.0	2.0	19.5
		15	0	17.5	17.6	18.0	2.0	19.5	17.5	17.5	18.0	2.0	19.5

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	19.9	19.8	19.7	0.0	21.5	20.0	20.0	19.8	0.0	21.5
		1	3	19.8	19.7	19.6	0.0	21.5	19.9	19.8	19.7	0.0	21.5
		1	5	19.8	19.8	19.7	0.0	21.5	20.0	19.9	19.8	0.0	21.5
		3	0	19.8	19.7	19.6	0.0	21.5	19.9	19.8	19.7	0.0	21.5
		3	1	19.8	19.7	19.6	0.0	21.5	20.0	19.8	19.7	0.0	21.5
		3	3	19.8	19.8	19.6	0.0	21.5	20.0	19.8	19.7	0.0	21.5
		6	0	19.8	19.8	19.6	0.0	21.5	20.0	19.9	19.7	0.0	21.5
	16QAM	1	0	19.9	19.9	19.9	0.0	21.5	20.2	20.0	20.4	0.0	21.5
		1	3	19.7	19.9	19.7	0.0	21.5	20.1	20.0	20.0	0.0	21.5
		1	5	19.9	20.1	19.9	0.0	21.5	20.2	20.2	20.3	0.0	21.5
		3	0	20.0	19.8	19.7	0.0	21.5	20.1	20.0	19.8	0.0	21.5
		3	1	19.9	19.7	19.8	0.0	21.5	20.0	19.9	19.9	0.0	21.5
		3	3	20.0	19.8	19.8	0.0	21.5	20.1	20.0	19.8	0.0	21.5
		6	0	19.9	19.9	19.6	0.0	21.5	20.0	19.9	19.7	0.0	21.5
	64QAM	1	0	20.3	20.2	19.9	0.0	21.5	20.0	20.1	20.0	0.0	21.5
		1	3	20.4	19.8	19.8	0.0	21.5	19.9	19.9	20.2	0.0	21.5
		1	5	20.2	19.7	20.0	0.0	21.5	20.1	20.0	20.1	0.0	21.5
		3	0	20.0	20.0	19.7	0.0	21.5	19.9	20.0	19.8	0.0	21.5
		3	1	20.1	20.1	19.6	0.0	21.5	19.9	20.0	19.9	0.0	21.5
		3	3	20.0	20.1	19.7	0.0	21.5	20.0	20.1	19.8	0.0	21.5
		6	0	19.9	20.0	19.7	0.0	21.5	19.9	20.0	19.8	0.0	21.5
	256QAM	1	0	17.7	17.8	18.2	2.0	19.5	17.6	17.8	18.1	2.0	19.5
		1	3	17.8	17.8	18.2	2.0	19.5	17.5	17.8	18.1	2.0	19.5
		1	5	17.8	17.9	18.2	2.0	19.5	17.6	17.8	18.1	2.0	19.5
		3	0	17.7	17.7	18.1	2.0	19.5	17.7	17.7	18.1	2.0	19.5
		3	1	17.7	17.7	18.1	2.0	19.5	17.7	17.7	18.1	2.0	19.5
		3	3	17.7	17.7	18.1	2.0	19.5	17.7	17.7	18.1	2.0	19.5
		6	0	17.7	17.7	18.1	2.0	19.5	17.7	17.7	18.1	2.0	19.5

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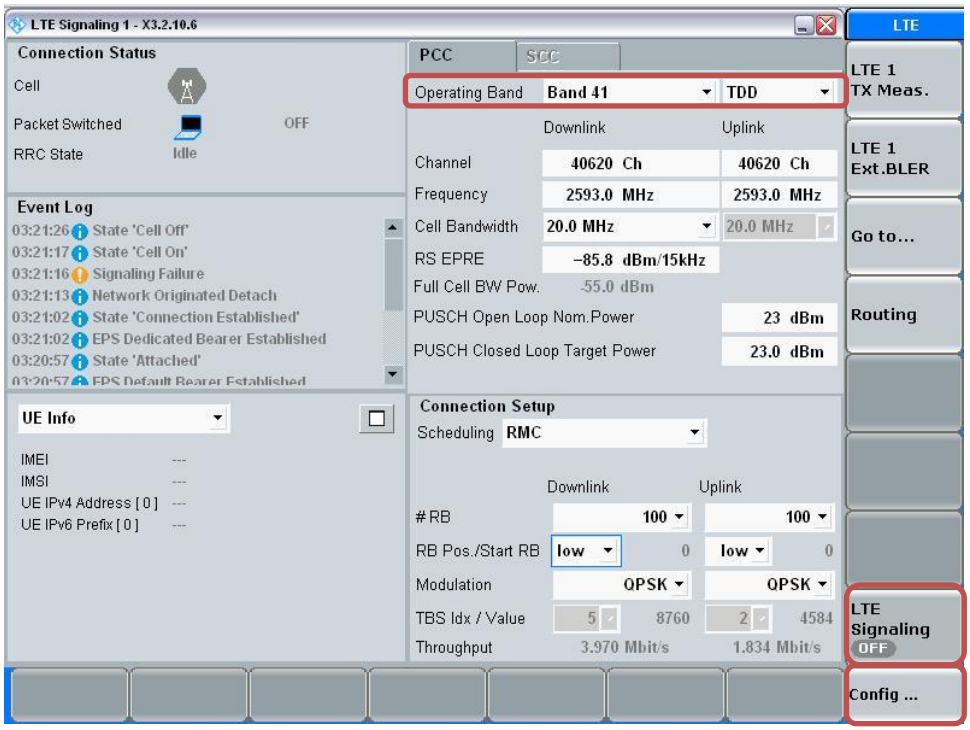
LTE Band TDD Measured Results

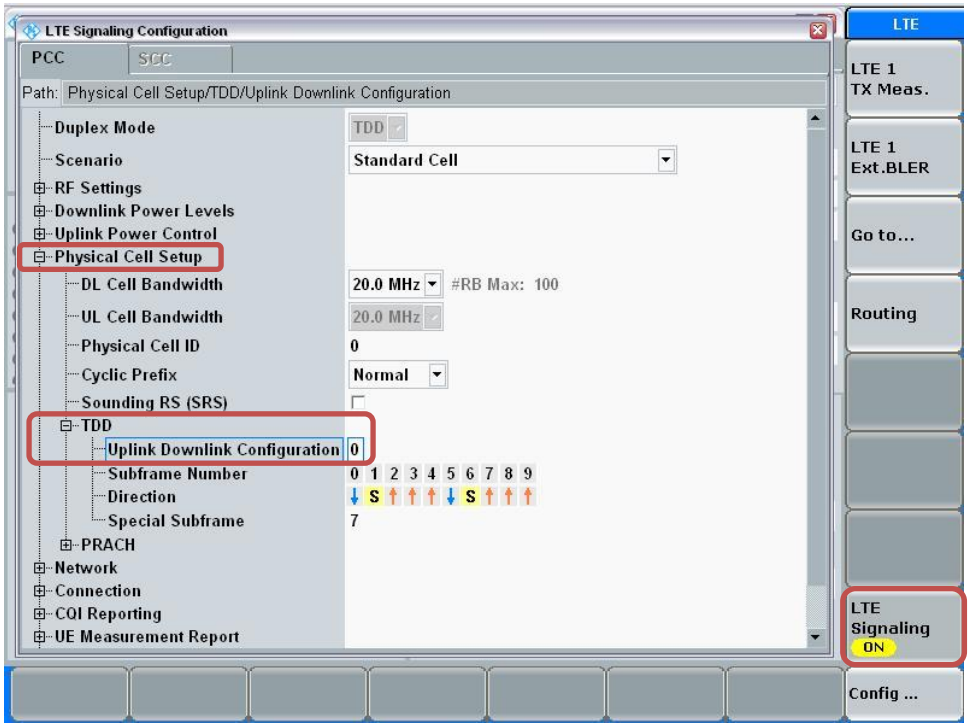
Procedure used to establish SAR test signal for LTE TDD Band

Set to CMW-500 with following parameters:

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



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



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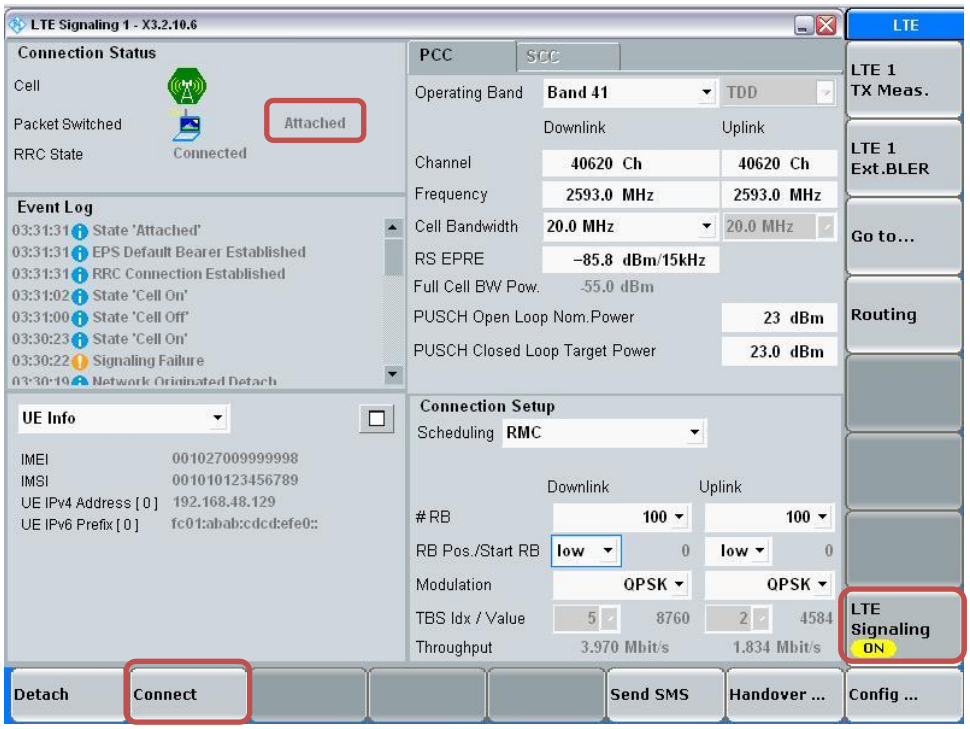
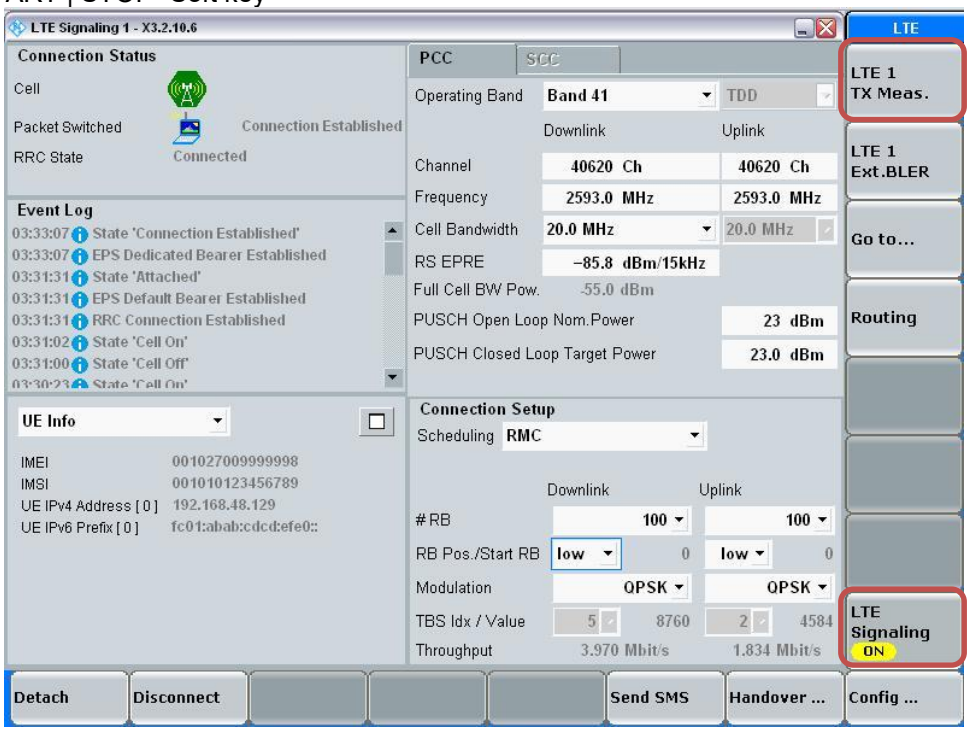
Connect to EUT

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



Max Power Setting

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



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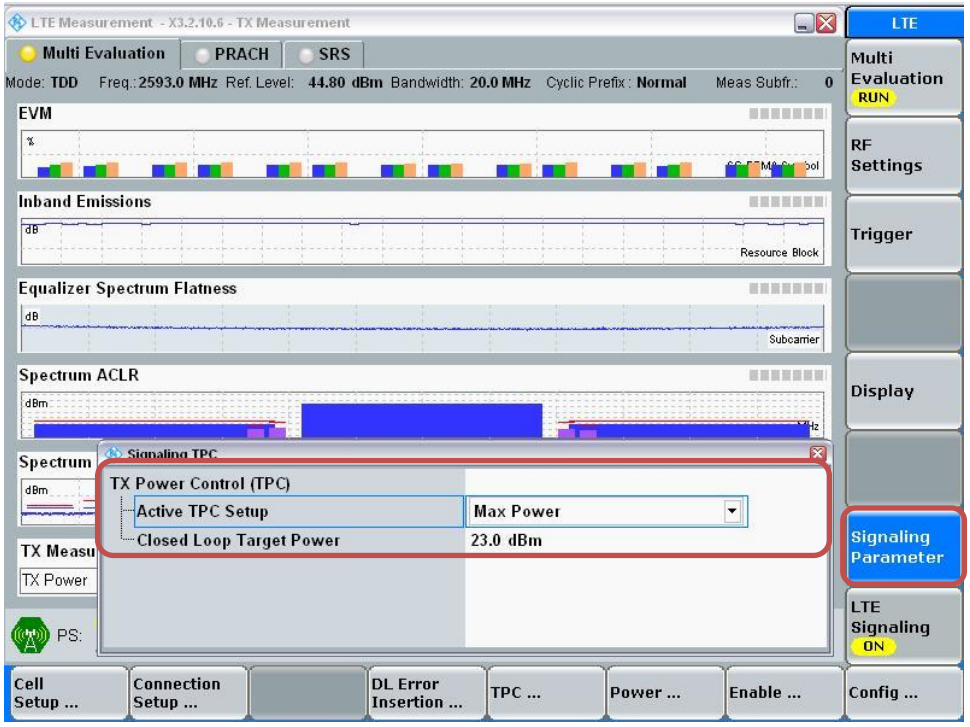
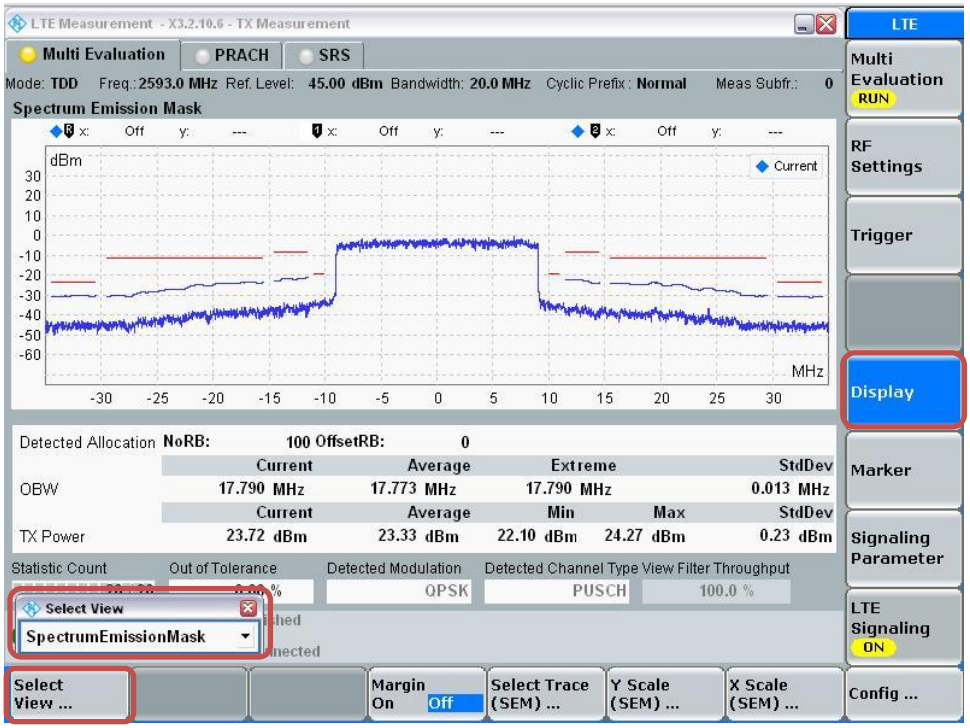
- Select “Signaling Parameter”
- Select “TX Power Control (TPC)” > Select “Active TPC Setup” to “Max Power” > Set “Closed Loop Target Power” to “23 dBm”



View TX Power

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



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1. Max power Results

LTE Band 41 – Power Class 3 - 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	22.2	21.9	21.8	22.2	22.1	0.0	23.5
		1	49	22.1	21.8	21.8	22.1	21.9	0.0	23.5
		1	99	22.2	21.8	21.8	22.0	21.9	0.0	23.5
		50	0	21.3	21.0	20.8	21.2	21.0	1.0	22.5
		50	24	21.2	20.9	20.9	21.1	20.9	1.0	22.5
		50	50	21.3	20.9	20.8	21.2	21.0	1.0	22.5
		100	0	21.3	20.9	20.8	21.2	21.0	1.0	22.5
	16QAM	1	0	21.3	21.1	21.0	21.1	21.4	1.0	22.5
		1	49	21.1	20.8	20.7	20.9	20.9	1.0	22.5
		1	99	21.3	21.1	20.8	21.1	21.0	1.0	22.5
		50	0	20.3	20.0	19.9	20.3	20.0	2.0	21.5
		50	24	20.2	20.0	19.9	20.2	20.0	2.0	21.5
		50	50	20.3	20.0	19.9	20.2	19.9	2.0	21.5
		100	0	20.3	20.0	19.8	20.2	20.0	2.0	21.5
	64QAM	1	0	20.3	19.8	20.1	19.9	20.5	2.0	21.5
		1	49	19.9	19.6	19.9	20.0	19.7	2.0	21.5
		1	99	20.5	20.1	20.0	19.9	19.8	2.0	21.5
		50	0	19.3	19.0	18.8	19.3	19.0	3.0	20.5
		50	24	19.3	19.0	18.8	19.2	19.0	3.0	20.5
		50	50	19.3	19.0	18.8	19.2	19.0	3.0	20.5
		100	0	19.3	19.0	18.8	19.3	19.0	3.0	20.5
	256QAM	1	0	16.7	16.6	16.5	17.4	17.0	5.0	18.5
		1	49	16.6	16.6	16.6	16.9	16.7	5.0	18.5
		1	99	16.5	16.7	16.9	16.8	16.5	5.0	18.5
		50	0	16.5	16.6	16.6	17.1	16.8	5.0	18.5
		50	24	16.6	16.6	16.6	17.0	16.8	5.0	18.5
		50	50	16.6	16.6	16.6	17.0	16.8	5.0	18.5
		100	0	16.6	16.6	16.6	17.0	16.9	5.0	18.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	22.2	21.9	21.9	22.2	22.0	0.0	23.5
		1	37	22.0	21.9	22.1	22.3	21.6	0.0	23.5
		1	74	22.2	21.9	21.7	22.0	21.9	0.0	23.5
		36	0	21.2	20.9	20.8	21.2	21.0	1.0	22.5
		36	20	21.2	21.0	20.8	21.1	21.0	1.0	22.5
		36	39	21.2	20.9	20.8	21.1	20.9	1.0	22.5
		75	0	21.2	21.0	20.8	21.1	20.9	1.0	22.5
	16QAM	1	0	21.1	20.9	20.5	21.2	20.9	1.0	22.5
		1	37	20.8	21.2	21.1	21.1	20.5	1.0	22.5
		1	74	21.0	20.7	20.8	21.1	20.8	1.0	22.5
		36	0	20.2	20.0	19.9	20.2	20.0	2.0	21.5
		36	20	20.2	20.0	19.8	20.2	20.0	2.0	21.5
		36	39	20.2	19.9	19.8	20.2	20.0	2.0	21.5
		75	0	20.2	20.0	19.9	20.2	20.0	2.0	21.5
	64QAM	1	0	19.7	19.7	20.4	20.2	20.1	2.0	21.5
		1	37	19.5	19.7	20.5	20.1	19.9	2.0	21.5
		1	74	20.3	19.7	20.1	20.0	19.6	2.0	21.5
		36	0	19.2	19.0	18.9	19.1	19.0	3.0	20.5
		36	20	19.2	18.9	18.8	19.1	19.0	3.0	20.5
		36	39	19.1	19.0	18.8	19.1	19.0	3.0	20.5
		75	0	19.1	18.9	18.8	19.1	18.9	3.0	20.5
	256QAM	1	0	16.7	16.6	16.8	17.3	16.8	5.0	18.5
		1	37	17.0	16.6	16.7	17.5	16.8	5.0	18.5
		1	74	16.8	16.6	16.7	17.2	16.8	5.0	18.5
		36	0	16.6	16.6	16.6	17.0	16.8	5.0	18.5
		36	20	16.6	16.6	16.6	17.0	16.8	5.0	18.5
		36	39	16.6	16.6	16.6	17.0	16.8	5.0	18.5
		75	0	16.7	16.6	16.6	17.1	16.8	5.0	18.5

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LTE Band 41 – Power Class 3 - 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	22.2	21.9	21.8	22.2	22.0	0.0	23.5
		1	25	22.0	21.8	21.8	22.0	21.8	0.0	23.5
		1	49	22.2	21.9	21.8	22.1	21.9	0.0	23.5
		25	0	21.2	20.9	20.8	21.2	21.0	1.0	22.5
		25	12	21.3	20.9	20.8	21.2	21.0	1.0	22.5
		25	25	21.2	20.9	20.8	21.2	20.9	1.0	22.5
		50	0	21.2	20.9	20.9	21.1	20.9	1.0	22.5
	16QAM	1	0	21.4	21.1	21.0	21.4	21.2	1.0	22.5
		1	25	21.3	21.0	20.9	21.2	21.1	1.0	22.5
		1	49	21.4	21.1	21.0	21.3	21.2	1.0	22.5
		25	0	20.3	20.0	19.9	20.2	19.9	2.0	21.5
		25	12	20.3	19.9	19.8	20.2	19.9	2.0	21.5
		25	25	20.2	19.9	19.9	20.1	19.9	2.0	21.5
		50	0	20.2	20.0	19.9	20.2	20.0	2.0	21.5
	64QAM	1	0	20.0	19.9	20.0	20.1	19.9	2.0	21.5
		1	25	19.9	19.8	19.9	19.9	19.8	2.0	21.5
		1	49	20.1	19.8	20.0	20.1	19.9	2.0	21.5
		25	0	19.2	19.0	18.8	19.1	18.9	3.0	20.5
		25	12	19.2	18.9	18.8	19.1	18.9	3.0	20.5
		25	25	19.2	19.0	18.8	19.1	18.9	3.0	20.5
		50	0	19.2	18.9	18.8	19.1	18.9	3.0	20.5
	256QAM	1	0	16.6	16.7	16.5	17.0	16.8	5.0	18.5
		1	25	16.5	16.6	16.5	16.9	16.7	5.0	18.5
		1	49	16.6	16.7	16.5	16.9	16.7	5.0	18.5
		25	0	16.6	16.6	16.6	17.0	16.9	5.0	18.5
		25	12	16.6	16.6	16.5	17.0	16.9	5.0	18.5
		25	25	16.6	16.5	16.5	17.0	16.8	5.0	18.5
		50	0	16.6	16.5	16.6	17.0	16.8	5.0	18.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
5 MHz	QPSK	1	0	22.2	21.9	21.8	22.2	21.9	0.0	23.5
		1	12	21.7	22.0	22.2	21.9	22.2	0.0	23.5
		1	24	22.2	21.9	21.8	22.1	21.9	0.0	23.5
		12	0	21.2	20.9	20.8	21.1	20.9	1.0	22.5
		12	7	21.1	21.0	20.8	21.1	20.8	1.0	22.5
		12	13	21.2	21.0	20.8	21.2	20.8	1.0	22.5
		25	0	21.2	21.0	20.8	21.1	20.9	1.0	22.5
	16QAM	1	0	21.1	21.1	20.9	21.1	20.8	1.0	22.5
		1	12	20.6	21.1	21.2	20.5	21.1	1.0	22.5
		1	24	21.1	21.1	20.9	21.1	20.8	1.0	22.5
		12	0	20.2	20.0	19.7	20.1	20.0	2.0	21.5
		12	7	20.2	20.0	19.8	20.1	19.9	2.0	21.5
		12	13	20.2	20.0	19.8	20.1	19.9	2.0	21.5
		25	0	20.2	20.0	19.8	20.1	19.9	2.0	21.5
	64QAM	1	0	20.3	20.0	19.7	20.2	19.9	2.0	21.5
		1	12	19.8	19.5	20.1	20.2	19.5	2.0	21.5
		1	24	20.3	20.0	19.6	20.3	19.8	2.0	21.5
		12	0	19.2	18.9	18.8	19.1	18.9	3.0	20.5
		12	7	19.1	19.0	18.8	19.0	18.9	3.0	20.5
		12	13	19.1	19.0	18.8	19.0	18.9	3.0	20.5
		25	0	19.1	18.8	18.9	19.1	18.8	3.0	20.5
	256QAM	1	0	16.7	16.6	16.8	17.1	16.9	5.0	18.5
		1	12	16.9	17.0	16.5	16.9	17.2	5.0	18.5
		1	24	16.7	16.8	16.8	17.1	16.9	5.0	18.5
		12	0	16.6	16.6	16.6	17.0	16.9	5.0	18.5
		12	7	16.6	16.5	16.6	17.1	16.9	5.0	18.5
		12	13	16.6	16.6	16.6	17.0	16.9	5.0	18.5
		25	0	16.6	16.6	16.6	17.0	16.9	5.0	18.5

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LTE Band 41 – Power Class 2 - 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	25.1	24.9	24.8	25.0	24.9	0.0	26.5
		1	49	25.0	24.7	24.6	24.9	24.8	0.0	26.5
		1	99	25.2	24.8	24.7	25.0	24.9	0.0	26.5
		50	0	24.2	24.0	23.8	24.2	23.9	1.0	25.5
		50	24	24.2	24.0	23.8	24.1	23.9	1.0	25.5
		50	50	24.2	24.0	23.8	24.1	23.9	1.0	25.5
		100	0	24.2	24.0	23.8	24.1	23.9	1.0	25.5
	16QAM	1	0	24.5	24.0	24.1	24.5	24.0	1.0	25.5
		1	49	24.5	23.9	24.0	24.4	23.8	1.0	25.5
		1	99	24.5	24.0	24.0	24.3	23.9	1.0	25.5
		50	0	23.2	23.1	22.9	23.2	23.0	2.0	24.5
		50	24	23.2	23.1	22.9	23.1	23.0	2.0	24.5
		50	50	23.3	23.0	22.8	23.1	22.9	2.0	24.5
		100	0	23.2	23.0	22.8	23.2	22.9	2.0	24.5
	64QAM	1	0	23.1	22.9	23.1	23.6	23.1	2.0	24.5
		1	49	23.0	22.8	23.0	23.5	22.9	2.0	24.5
		1	99	23.2	22.9	23.0	23.5	22.9	2.0	24.5
		50	0	21.8	21.8	21.8	22.2	21.9	3.0	23.5
		50	24	21.8	21.9	21.8	22.2	21.9	3.0	23.5
		50	50	21.8	21.8	21.8	22.2	21.8	3.0	23.5
		100	0	21.8	21.8	21.8	22.1	21.9	3.0	23.5
	256QAM	1	0	20.1	19.9	20.2	20.7	20.3	5.0	21.5
		1	49	20.0	19.8	20.0	20.6	20.3	5.0	21.5
		1	99	20.2	19.9	20.1	20.6	20.3	5.0	21.5
		50	0	19.7	19.7	19.7	20.2	19.8	5.0	21.5
		50	24	19.7	19.7	19.7	20.2	19.8	5.0	21.5
		50	50	19.7	19.7	19.7	20.1	19.8	5.0	21.5
		100	0	19.7	19.7	19.7	20.1	19.8	5.0	21.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	25.2	24.8	24.7	25.1	24.8	0.0	26.5
		1	37	24.9	24.5	24.9	24.6	24.2	0.0	26.5
		1	74	25.2	24.8	24.7	25.0	24.8	0.0	26.5
		36	0	24.2	23.9	23.8	24.1	23.9	1.0	25.5
		36	20	24.2	23.9	23.7	24.2	23.9	1.0	25.5
		36	39	24.2	23.9	23.8	24.1	23.9	1.0	25.5
		75	0	24.2	24.0	23.8	24.2	24.0	1.0	25.5
	16QAM	1	0	24.4	24.5	24.1	24.1	24.2	1.0	25.5
		1	37	24.2	24.2	24.4	23.7	24.0	1.0	25.5
		1	74	24.4	24.4	24.0	23.9	24.0	1.0	25.5
		36	0	23.2	23.0	22.9	23.2	22.9	2.0	24.5
		36	20	23.3	23.0	22.8	23.3	22.9	2.0	24.5
		36	39	23.2	22.9	22.8	23.1	22.9	2.0	24.5
		75	0	23.2	23.0	22.8	23.1	23.0	2.0	24.5
	64QAM	1	0	22.8	22.7	23.1	23.4	23.2	2.0	24.5
		1	37	22.8	22.8	22.9	23.4	23.2	2.0	24.5
		1	74	22.8	22.6	23.0	23.4	23.0	2.0	24.5
		36	0	21.9	21.7	21.8	22.3	21.8	3.0	23.5
		36	20	21.9	21.7	21.8	22.2	21.8	3.0	23.5
		36	39	21.9	21.7	21.8	22.3	21.8	3.0	23.5
		75	0	21.8	21.7	21.7	22.2	21.9	3.0	23.5
	256QAM	1	0	19.8	19.8	19.9	20.4	19.9	5.0	21.5
		1	37	19.7	20.0	19.8	20.4	20.0	5.0	21.5
		1	74	19.8	19.8	19.8	20.3	19.8	5.0	21.5
		36	0	19.7	19.7	19.7	20.1	19.8	5.0	21.5
		36	20	19.6	19.6	19.7	20.0	19.8	5.0	21.5
		36	39	19.7	19.6	19.7	20.1	19.8	5.0	21.5
		75	0	19.7	19.6	19.7	20.1	19.8	5.0	21.5

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LTE Band 41 – Power Class 2 - 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	25.1	24.7	24.7	25.1	24.8	0.0	26.5
		1	25	25.1	24.6	24.5	25.0	24.6	0.0	26.5
		1	49	25.1	24.7	24.6	25.1	24.8	0.0	26.5
		25	0	24.1	23.9	23.8	24.1	23.9	1.0	25.5
		25	12	24.1	23.9	23.8	24.1	23.8	1.0	25.5
		25	25	24.2	23.8	23.7	24.1	23.8	1.0	25.5
		50	0	24.1	23.9	23.8	24.0	23.9	1.0	25.5
	16QAM	1	0	24.2	24.1	24.2	24.4	23.8	1.0	25.5
		1	25	24.2	24.1	24.1	24.3	23.7	1.0	25.5
		1	49	24.2	24.1	24.1	24.3	23.7	1.0	25.5
		25	0	23.2	23.0	22.8	23.1	22.9	2.0	24.5
		25	12	23.2	23.0	22.8	23.1	22.9	2.0	24.5
		25	25	23.2	23.0	22.8	23.1	22.9	2.0	24.5
		50	0	23.1	22.9	22.8	23.1	22.9	2.0	24.5
	64QAM	1	0	23.0	22.9	23.1	23.5	22.8	2.0	24.5
		1	25	22.9	22.8	23.0	23.4	22.6	2.0	24.5
		1	49	22.9	22.9	23.0	23.5	22.7	2.0	24.5
		25	0	21.8	21.7	21.8	22.2	21.8	3.0	23.5
		25	12	21.8	21.7	21.7	22.2	21.8	3.0	23.5
		25	25	21.8	21.7	21.7	22.2	21.8	3.0	23.5
		50	0	21.8	21.8	21.7	22.2	21.8	3.0	23.5
	256QAM	1	0	19.5	19.6	20.1	20.0	19.9	5.0	21.5
		1	25	19.4	19.6	19.9	19.8	19.9	5.0	21.5
		1	49	19.6	19.7	19.9	19.9	19.9	5.0	21.5
		25	0	19.7	19.7	19.7	20.1	19.8	5.0	21.5
		25	12	19.7	19.7	19.7	20.1	19.8	5.0	21.5
		25	25	19.8	19.7	19.7	20.1	19.8	5.0	21.5
		50	0	19.7	19.7	19.7	20.1	19.7	5.0	21.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
5 MHz	QPSK	1	0	25.1	24.7	24.8	25.1	24.9	0.0	26.5
		1	12	25.3	24.8	25.2	25.2	25.0	0.0	26.5
		1	24	25.1	24.7	24.7	25.0	24.9	0.0	26.5
		12	0	24.3	23.8	23.8	24.1	23.9	1.0	25.5
		12	7	24.2	23.8	23.8	24.0	23.8	1.0	25.5
		12	13	24.2	23.9	23.8	24.0	23.9	1.0	25.5
		25	0	24.2	23.8	23.8	24.0	23.9	1.0	25.5
	16QAM	1	0	24.0	24.0	23.9	24.2	24.0	1.0	25.5
		1	12	23.9	23.5	24.2	24.1	23.7	1.0	25.5
		1	24	24.0	24.0	24.0	24.2	24.0	1.0	25.5
		12	0	23.3	22.9	22.9	23.2	22.9	2.0	24.5
		12	7	23.2	22.8	23.0	23.1	22.8	2.0	24.5
		12	13	23.3	22.9	22.9	23.1	22.9	2.0	24.5
		25	0	23.2	22.8	22.9	23.0	22.8	2.0	24.5
	64QAM	1	0	23.5	22.9	23.1	23.6	23.5	2.0	24.5
		1	12	23.3	23.2	23.1	23.5	23.7	2.0	24.5
		1	24	23.4	22.8	23.1	23.5	23.3	2.0	24.5
		12	0	21.7	21.7	21.7	22.1	21.9	3.0	23.5
		12	7	21.6	21.7	21.7	22.2	21.9	3.0	23.5
		12	13	21.7	21.7	21.7	22.2	21.9	3.0	23.5
		25	0	21.8	21.6	21.7	22.2	21.8	3.0	23.5
	256QAM	1	0	19.8	20.0	20.3	20.6	20.0	5.0	21.5
		1	12	20.1	20.4	20.0	20.9	20.4	5.0	21.5
		1	24	19.9	19.9	20.2	20.6	20.0	5.0	21.5
		12	0	19.7	19.6	19.6	20.1	19.8	5.0	21.5
		12	7	19.7	19.7	19.6	20.2	19.8	5.0	21.5
		12	13	19.7	19.7	19.6	20.1	19.8	5.0	21.5
		25	0	19.7	19.7	19.6	20.1	19.9	5.0	21.5

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2. Reduced power Results

LTE Band 41 – Power Class 2 - Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					MPR	Tune-up Limit
				Measured Pwr (dBm)						
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	22.2	21.9	21.9	22.2	22.0	0.0	23.5
		1	49	22.2	21.8	21.7	22.1	21.8	0.0	23.5
		1	99	22.2	21.9	21.8	22.1	21.9	0.0	23.5
		50	0	21.2	21.0	20.9	21.2	21.0	1.0	22.5
		50	24	21.2	21.0	20.8	21.2	21.0	1.0	22.5
		50	50	21.3	20.9	20.8	21.2	20.9	1.0	22.5
		100	0	21.2	21.0	20.8	21.2	21.0	1.0	22.5
	16QAM	1	0	20.9	20.6	20.8	21.0	21.4	1.0	22.5
		1	49	20.9	20.5	20.8	20.9	21.2	1.0	22.5
		1	99	21.0	20.6	20.8	20.9	21.3	1.0	22.5
		50	0	20.3	20.0	19.9	20.3	20.0	2.0	21.5
		50	24	20.2	20.0	19.9	20.2	20.0	2.0	21.5
		50	50	20.3	20.0	19.9	20.2	20.0	2.0	21.5
		100	0	20.3	20.0	19.9	20.2	20.0	2.0	21.5
	64QAM	1	0	20.5	20.6	19.7	20.6	20.3	2.0	21.5
		1	49	20.3	20.4	19.7	20.4	20.2	2.0	21.5
		1	99	20.5	20.5	19.7	20.5	20.2	2.0	21.5
		50	0	19.3	19.0	18.9	19.3	19.0	3.0	20.5
		50	24	19.2	19.1	18.9	19.3	19.1	3.0	20.5
		50	50	19.3	19.0	18.9	19.2	19.0	3.0	20.5
		100	0	19.3	19.0	18.9	19.3	19.0	3.0	20.5
	256QAM	1	0	17.0	17.0	17.1	17.3	17.3	5.0	18.5
		1	49	16.8	16.8	17.0	17.0	17.1	5.0	18.5
		1	99	17.0	16.9	17.0	17.2	17.2	5.0	18.5
		50	0	16.6	16.6	16.7	17.1	16.9	5.0	18.5
		50	24	16.6	16.6	16.7	17.0	16.8	5.0	18.5
		50	50	16.6	16.6	16.6	17.0	16.9	5.0	18.5
		100	0	16.6	16.6	16.6	17.0	16.9	5.0	18.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	22.2	22.0	21.8	22.2	22.0	0.0	23.5
		1	37	22.0	21.5	21.9	21.8	21.8	0.0	23.5
		1	74	22.1	22.0	21.7	22.0	21.9	0.0	23.5
		36	0	21.2	20.9	20.8	21.2	21.0	1.0	22.5
		36	20	21.2	20.9	20.7	21.2	20.9	1.0	22.5
		36	39	21.1	20.9	20.8	21.1	20.9	1.0	22.5
		75	0	21.2	21.0	20.8	21.2	21.0	1.0	22.5
	16QAM	1	0	21.2	20.9	20.6	21.2	20.8	1.0	22.5
		1	37	20.6	20.8	20.9	20.3	20.8	1.0	22.5
		1	74	21.2	20.8	20.5	21.0	20.7	1.0	22.5
		36	0	20.2	20.0	19.8	20.3	20.0	2.0	21.5
		36	20	20.3	20.0	19.7	20.3	19.9	2.0	21.5
		36	39	20.2	20.0	19.8	20.2	20.0	2.0	21.5
		75	0	20.2	20.0	19.8	20.2	20.0	2.0	21.5
	64QAM	1	0	20.4	20.2	20.1	20.4	20.2	2.0	21.5
		1	37	20.2	20.4	20.1	20.4	20.6	2.0	21.5
		1	74	20.5	20.1	20.1	20.3	20.2	2.0	21.5
		36	0	19.2	19.0	18.9	19.2	19.1	3.0	20.5
		36	20	19.2	18.9	18.9	19.1	18.9	3.0	20.5
		36	39	19.1	19.0	18.7	19.1	19.0	3.0	20.5
		75	0	19.2	19.0	18.8	19.2	18.9	3.0	20.5
	256QAM	1	0	16.7	17.0	16.7	16.8	17.4	5.0	18.5
		1	37	17.0	16.8	16.7	17.2	17.0	5.0	18.5
		1	74	16.7	16.9	16.6	16.8	17.3	5.0	18.5
		36	0	16.7	16.6	16.7	17.1	16.9	5.0	18.5
		36	20	16.6	16.6	16.7	17.0	16.9	5.0	18.5
		36	39	16.7	16.6	16.6	17.0	16.8	5.0	18.5
		75	0	16.7	16.6	16.7	17.0	16.8	5.0	18.5

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LTE Band 41 – Power Class 2 - 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	22.3	21.9	21.9	22.3	22.1	0.0	23.5
		1	25	22.1	21.8	21.7	22.1	21.9	0.0	23.5
		1	49	22.2	21.9	21.8	22.1	21.9	0.0	23.5
		25	0	21.2	20.9	20.8	21.2	21.0	1.0	22.5
		25	12	21.2	20.9	20.8	21.1	20.9	1.0	22.5
		25	25	21.2	20.9	20.8	21.1	20.9	1.0	22.5
		50	0	21.2	21.0	20.8	21.1	21.0	1.0	22.5
	16QAM	1	0	21.1	20.8	20.8	21.3	21.0	1.0	22.5
		1	25	21.1	20.8	20.7	21.3	20.8	1.0	22.5
		1	49	21.1	20.9	20.8	21.3	20.9	1.0	22.5
		25	0	20.2	19.9	19.8	20.2	19.9	2.0	21.5
		25	12	20.2	19.8	19.8	20.1	19.9	2.0	21.5
		25	25	20.2	19.9	19.8	20.1	19.9	2.0	21.5
		50	0	20.2	20.0	19.9	20.2	20.1	2.0	21.5
	64QAM	1	0	20.4	20.0	20.5	20.9	20.2	2.0	21.5
		1	25	20.4	20.0	20.4	20.8	20.1	2.0	21.5
		1	49	20.5	20.1	20.4	20.8	20.2	2.0	21.5
		25	0	19.2	18.9	18.9	19.3	19.0	3.0	20.5
		25	12	19.2	18.9	18.9	19.2	19.0	3.0	20.5
		25	25	19.2	18.9	18.9	19.2	18.9	3.0	20.5
		50	0	19.2	19.0	18.8	19.2	19.0	3.0	20.5
	256QAM	1	0	16.4	16.7	16.8	16.8	17.0	5.0	18.5
		1	25	16.2	16.6	16.7	16.5	17.0	5.0	18.5
		1	49	16.4	16.7	16.8	16.6	17.0	5.0	18.5
		25	0	16.7	16.6	16.6	17.0	16.9	5.0	18.5
		25	12	16.7	16.6	16.6	17.0	16.8	5.0	18.5
		25	25	16.7	16.7	16.6	17.0	16.9	5.0	18.5
		50	0	16.6	16.6	16.7	17.0	16.8	5.0	18.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
5 MHz	QPSK	1	0	22.1	22.0	21.8	22.2	22.0	0.0	23.5
		1	12	22.1	22.2	21.9	22.0	22.2	0.0	23.5
		1	24	22.1	21.9	21.7	22.1	21.9	0.0	23.5
		12	0	21.2	21.0	20.8	21.1	21.0	1.0	22.5
		12	7	21.1	20.9	20.8	21.0	21.0	1.0	22.5
		12	13	21.2	21.0	20.8	21.1	20.9	1.0	22.5
		25	0	21.1	20.9	20.8	21.0	21.0	1.0	22.5
	16QAM	1	0	21.1	20.9	20.9	21.2	20.9	1.0	22.5
		1	12	20.6	20.9	20.8	21.2	21.0	1.0	22.5
		1	24	21.1	20.9	20.9	21.1	21.0	1.0	22.5
		12	0	20.2	20.0	19.8	20.2	20.1	2.0	21.5
		12	7	20.2	20.0	19.8	20.1	20.1	2.0	21.5
		12	13	20.2	20.0	19.8	20.1	20.1	2.0	21.5
		25	0	20.1	20.0	19.8	20.1	20.0	2.0	21.5
	64QAM	1	0	20.7	20.5	20.2	20.6	20.5	2.0	21.5
		1	12	19.8	20.8	20.5	19.8	20.9	2.0	21.5
		1	24	20.6	20.6	20.0	20.5	20.6	2.0	21.5
		12	0	19.3	19.0	18.9	19.3	19.0	3.0	20.5
		12	7	19.2	19.0	18.9	19.2	19.0	3.0	20.5
		12	13	19.3	19.0	18.9	19.3	19.1	3.0	20.5
		25	0	19.2	19.0	18.8	19.2	19.1	3.0	20.5
	256QAM	1	0	16.9	16.9	17.1	17.4	17.3	5.0	18.5
		1	12	17.1	17.0	16.3	17.6	17.2	5.0	18.5
		1	24	16.9	16.9	17.1	17.3	17.2	5.0	18.5
		12	0	16.6	16.6	16.6	17.0	16.9	5.0	18.5
		12	7	16.7	16.6	16.6	17.1	16.9	5.0	18.5
		12	13	16.7	16.5	16.6	17.0	16.9	5.0	18.5
		25	0	16.6	16.6	16.5	17.1	16.8	5.0	18.5

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9.3.1 LTE Rel. 10 Carrier Aggregation

LTE Carrier Aggregation Down Link Combinations;

The DL CA power measurement conditions for various CC's combinations were determined according LTE DL CA SAR Test Exclusion guidance in TCB workshop note (April 2018). Only yellow highlighted cells need power measurement. The following power measurements were performed with a single carrier uplink; CA for this particular project only supports one (1) uplink and up to four (4) downlinks.

LTE Release 10 Carrier Aggregation

Index	2CC	Restriction	Completely Covered by	Reverse
2CC #1	2A-2A			
2CC #2	2C			
2CC #3	2A-4A		3CC #1	
2CC #4	2A-5A		3CC #1	
2CC #5	2A-12A			
2CC #6	2A-13A		3CC #2	
2CC #7	2A-17A			
2CC #8	2A-66A			
2CC #9	4A-4A		3CC #3	
2CC #10	4A-5A		3CC #1	
2CC #11	4A-12A		3CC #3	
2CC #12	4A-13A		3CC #2	
2CC #13	4A-17A		3CC #4	X
2CC #14	5A-41A			X
2CC #15	5A-66A		3CC #5	
2CC #16	12A-66A		3CC #6	
2CC #17	26A-41A			X
2CC #18	41A-41A			
2CC #19	41C		3CC #8	
2CC #20	66A-66A		3CC #5	
2CC #21	66B			
2CC #22	66C			

Index	3CC	Restriction	Completely Covered by	Reverse
3CC #1	2A-4A-5A			
3CC #2	2A-4A-13A			
3CC #3	4A-4A-12A	4A-12A-4A		
3CC #4	4A-4A-17A	4A-17A-4A		X
3CC #5	5A-66A-66A	66A-5A-66A		
3CC #6	12A-66A-66A	66A-12A-66A		
3CC#7	26A-41C			X
3CC #8	41A-41C			
3CC #9	41C-41A			
3CC #10	41D		4CC #2	

Index	4CC	Restriction	Completely Covered by	Reverse
4CC #1	41C-41C			
4CC #2	41A-41D			X

Note(s):

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

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LTE Release 10 Carrier Aggregation with 4x4 MIMO

Index	2CC	Restriction	Completely Covered by	Reverse
2CC #1	2A-[4A]		3CC #1	
2CC #2	2A-[66A]			
2CC #3	[4A]-[4A]			
2CC #4	[4A]-5A		3CC #1	
2CC #5	[4A]-12A			
2CC #6	[4A]-13A		3CC #2	
2CC #7	[4A]-17A			X
2CC #8	5A-[66A]		3CC #3	
2CC #9	12A-[66A]		3CC #4	
2CC #10	[66A]-[66A]		3CC #4	

Index	3CC	Restriction	Completely Covered by	Reverse
3CC #1	2A-[4A]-5A			
3CC #2	2A-[4A]-13A			
3CC #3	5A-[66A]-[66A]	[66A]-5A-[66A]		
3CC #4	12A-[66A]-[66A]	[66A]-12A-[66A]		

[*] is 4X4 MIMO configuration.

Note(s):

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

1. Single Carrier 4x4 Downlink MIMO

LTE Band	Bandwidth (MHz)	Channel	Frequency (MHz)	Modulation	RB/Offset	LTE Rel 8 Tx. Power [dBm]	4x4 DL MIMO LTE Rel 8 Tx. Power [dBm]	Delta
LTE Band 4	20	20175	1732.5	QPSK	1/0	22.8	22.8	-0.1
LTE Band 66	20	132322	1745	QPSK	1/0	23.1	22.9	-0.2

Note(s):

1. According to LTE Test Conditions in TCB workshop (May, 2017), SAR is excluded for LTE downlink 4x4 MIMO operation when uplink output with DL MIMO does not exceed highest uplink output power configuration without DL MIMO by more than a 1/4 dB. And for DL MIMO with carrier aggregation, the same SAR test exclusion procedure is considered.

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2. DL CA output power results

E-UTRA CA configutation (BCS)	Bands				UL					DL												LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta
	PCC	SCC1	SCC2	SCC3	PCC					PCC			SCC1			SCC2			SCC3					
	1st	2nd	3rd	4th	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)			
2A-12A	2A	12A			QPSK	20	18700	1860	1/0	20	700	1940	10	5095	737.5							23.3	23.2	-0.1
	12A	2A			QPSK	10	23095	707.5	1/0	10	5095	737.5	20	900	1960							24.5	24.5	0.0
2A-17A	2A	17A			QPSK	10	18650	1855	1/0	10	650	1935	10	5790	740							23.3	23.3	0.0
	17A	2A			QPSK	10	23790	710	1/0	10	5790	740	10	900	1960							24.3	24.3	-0.1
2A-66A	2A	66A			QPSK	20	18700	1860	1/0	20	700	1940	20	66786	2145							23.3	23.2	0.0
	66A	2A			QPSK	20	132322	1745	1/0	20	66786	2145	20	900	1960							23.1	23.1	0.0
5A-41A	5A	41A			QPSK	10	20525	836.5	1/0	10	2525	881.5	20	40620	2593							23.9	23.9	0.0
26A-41A	26A	41A			QPSK	15	26865	831.5	1/37	15	8865	876.5	20	40620	2593							23.8	23.8	0.0
2A-4A-5A	2A	4A	5A		QPSK	20	18700	1860	1/0	20	700	1940	20	2175	2132.5	10	2525	881.5				23.3	23.3	0.0
	4A	5A	2A		QPSK	20	20175	1732.5	1/0	20	2175	2132.5	10	2525	881.5	20	900	1960				22.8	22.8	0.0
	5A	2A	4A		QPSK	10	20525	836.5	1/0	10	2525	881.5	20	900	1960	20	2175	2132.5				23.9	23.9	0.0
2A-4A-13A	2A	4A	13A		QPSK	20	18700	1860	1/0	20	700	1940	20	2175	2132.5	10	5230	751				23.3	23.3	0.0
	4A	13A	2A		QPSK	20	20175	1732.5	1/0	20	2175	2132.5	10	5230	751	20	900	1960				22.8	22.8	0.0
	13A	2A	4A		QPSK	10	23230	782	1/25	10	5230	751	20	900	1960	20	2175	2132.5				24.6	24.6	0.0
4A-4A-12A	4A	4A	12A		QPSK	20	20300	1745	1/0	20	2300	2145	20	2050	2120	10	5095	737.5				23.0	23.0	0.0
	12A	4A	4A		QPSK	10	23095	707.5	1/0	10	5095	737.5	20	2050	2120	20	2300	2145				24.5	24.6	0.1
4A-4A-17A	4A	4A	17A		QPSK	20	20300	1745	1/0	20	2300	2145	20	2050	2120	10	5790	740				23.0	23.1	0.0
5A-66A-66A	5A	66A	66A		QPSK	10	20525	836.5	1/0	10	2525	881.5	20	66786	2145	20	67036	2170				23.9	23.9	0.0
	66A	66A	5A		QPSK	20	132322	1745	1/0	20	66786	2145	20	67036	2170	10	2525	881.5				23.1	23.0	-0.1
12A-66A-66A	12A	66A	66A		QPSK	10	23095	707.5	1/0	10	5095	737.5	20	66786	2145	20	67036	2170				24.5	24.5	0.0
	66A	66A	12A		QPSK	20	132322	1745	1/0	20	66786	2145	20	67036	2170	10	5095	737.5				23.1	23.0	-0.1
26A-41C	26A	41C	41C		QPSK	15	26865	831.5	1/37	15	8865	876.5	20	40620	2593	20	40818	2612.8				23.8	23.8	-0.1
2A-2A	2A	2A			QPSK	20	18700	1860	1/0	20	700	1940	20	1100	1980							23.3	23.3	0.0
41A-41A	41A	41A			QPSK	20	39750	2506	1/0	20	39750	2506	20	41490	2680							22.2	22.1	-0.2
41A-41C	41A	41C	41C		QPSK	20	39750	2506	1/0	20	39750	2506	20	41490	2680	20	41292	2660.2				22.2	22.1	-0.1
	41C	41C	41A		QPSK	20	39750	2506	1/0	20	39750	2506	20	39948	2525.8	20	41490	2680				22.2	22.2	0.0
41C-41C	41C	41C	41C	41C	QPSK	20	39750	2506	1/0	20	39750	2506	20	39948	2525.8	20	41490	2680	20	41492	2660.2	22.2	22.3	0.0
41A-41D	41A	41D	41D	41D	QPSK	20	39750	2506	1/0	20	39750	2506	20	41490	2680	20	41292	2660.2	20	41094	2640.4	22.2	22.2	0.0
2C	2C	2C			QPSK	20	18700	1860	1/0	20	700	1940	20	898	1959.8							23.3	23.3	0.0
66B	66B	66B			QPSK	15	132597	1772.5	1/37	15	67061	2172.5	5	66968	2163.2							23.1	23.2	0.0
66C	66C	66C			QPSK	20	132322	1745	1/0	20	66786	2145	20	66984	2164.8							23.1	23.2	0.1

Note(s):

1. Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a 1/4 dB.
2. When the same frequency band is used for both contiguous and non-contiguous in DL CA Intra band, power was measured using the configuration with the largest aggregated bandwidth and maximum output power among the contiguous and non-contiguous in DL CA Intra band configurations.

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3. DL CA with downlink 4X4 MIMO output power results

E-UTRA CA configutation (BCS)	Bands			UL					DL									LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta
	PCC	SCC1	SCC2	PCC					PCC			SCC1			SCC2					
	1st	2nd	3rd	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)			
2A-[66A]	2A	[66A]		QPSK	20	18700	1860	1/0	20	700	1940	20	66786	2145				23.3	23.2	0.0
	[66A]	2A		QPSK	20	132322	1745	1/0	20	66786	2145	20	900	1960				23.1	23.1	0.0
[4A]-12A	[4A]	12A		QPSK	20	20175	1732.5	1/0	20	2300	2145	10	5095	737.5				22.8	22.7	-0.2
	12A	[4A]		QPSK	10	23095	707.5	1/0	10	5095	737.5	20	2175	2132.5				24.5	24.4	-0.1
[4A]-17A	[4A]	17A		QPSK	20	20175	1732.5	1/0	20	2300	2145	10	5790	740				22.8	22.7	-0.1
2A-[4A]-5A	2A	[4A]	5A	QPSK	20	18700	1860	1/0	20	700	1940	20	2175	2132.5	10	2525	881.5	23.3	23.2	-0.1
	5A	2A	[4A]	QPSK	10	20525	836.5	1/0	10	2525	881.5	20	900	1960	20	2175	2132.5	23.9	24.0	0.0
	[4A]	5A	2A	QPSK	20	20175	1732.5	1/0	20	2300	2145	10	2525	881.5	20	900	1960	22.8	22.8	0.0
2A-[4A]-13A	2A	[4A]	13A	QPSK	20	18700	1860	1/0	20	700	1940	20	2175	2132.5	10	5230	751	23.3	23.2	-0.1
	13A	2A	[4A]	QPSK	10	23230	782	1/25	10	5230	751	20	900	1960	20	2175	2132.5	24.6	24.7	0.1
	[4A]	13A	2A	QPSK	20	20175	1732.5	1/0	20	2300	2145	10	5230	751	20	900	1960	22.8	22.9	0.0
5A-[66A]-[66A]	5A	[66A]	[66A]	QPSK	10	20525	836.5	1/0	10	2525	881.5	20	66786	2145	20	67036	2170	23.9	23.9	0.0
	[66A]	[66A]	5A	QPSK	20	132322	1745	1/0	20	66786	2145	20	67036	2170	10	2525	881.5	23.1	22.9	-0.1
12A-[66A]-[66A]	12A	[66A]	[66A]	QPSK	10	23095	707.5	1/0	10	5095	737.5	20	66786	2145	20	67036	2170	24.5	24.6	0.1
	[66A]	[66A]	12A	QPSK	20	132322	1745	1/0	20	66786	2145	20	67036	2170	10	5095	737.5	23.1	23.0	0.0
[4A]-[4A]	[4A]	[4A]		QPSK	20	20300	1745	1/0	20	2300	2145	20	2050	2120				23.0	23.0	-0.1

Note(s):

1. Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a 1/4 dB.
2. When the same frequency band is used for both contiguous and non-contiguous in DL CA Intra band, power was measured using the configuration with the largest aggregated bandwidth and maximum output power among the contiguous and non-contiguous in DL CA Intra band configurations.

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9.4 Wi-Fi 2.4 GHz (DTS Band)

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 Normal Wi-Fi

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Reduced. Output Power (dBm)	SAR Test (Yes/No)
Wi-Fi SISO Ant.1	802.11b	1 Mbps	1	2412.0	18.3	19.0	Yes	15.2	16.0	Yes
			6	2437.0	18.4	19.0		15.1	16.0	
			11	2462.0	18.2	19.0		15.1	16.0	
			12	2467.0	2.3	3.5	No	2.3	3.5	No
			13	2472.0	0.1	1.5		0.1	1.5	
	802.11g	6 Mbps	1	2412.0	Not Required	16.0	No	Not Required	16.0	No
			6	2437.0		16.0			16.0	
			11	2462.0		15.0			15.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	15.0	No	Not Required	15.0	No
			6	2437.0		16.0			16.0	
			11	2462.0		15.0			15.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	15.0	No	Not Required	15.0	No
			6	2437.0		16.0			16.0	
			11	2462.0		15.0			15.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	
Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Reduced. Output Power (dBm)	SAR Test (Yes/No)
Wi-Fi SISO Ant.2	802.11b	1 Mbps	1	2412.0	18.1	19.0	Yes	15.1	16.0	Yes
			6	2437.0	18.6	19.0		15.7	16.0	
			11	2462.0	18.3	19.0		15.3	16.0	
			12	2467.0	2.2	3.5	No	2.2	3.5	No
			13	2472.0	0.3	1.5		0.3	1.5	
	802.11g	6 Mbps	1	2412.0	Not Required	16.0	No	Not Required	16.0	No
			6	2437.0		16.0			16.0	
			11	2462.0		15.0			15.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	15.0	No	Not Required	15.0	No
			6	2437.0		16.0			16.0	
			11	2462.0		15.0			15.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	15.0	No	Not Required	15.0	No
			6	2437.0		16.0			16.0	
			11	2462.0		15.0			15.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	

Note(s):

1. SAR is not required for 802.11g/n/ax 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.

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Measured Results of RSDB Wi-Fi

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Reduced. Output Power (dBm)	SAR Test (Yes/No)
Wi-Fi SISO Ant.1	802.11b	1 Mbps	1	2412.0	15.2	16.0	Yes	13.2	14.0	Yes
			6	2437.0	15.1	16.0		13.4	14.0	
			11	2462.0	15.1	16.0		13.1	14.0	
			12	2467.0	2.3	3.5	No	2.3	3.5	No
			13	2472.0	0.1	1.5		0.1	1.5	
	802.11g	6 Mbps	1	2412.0	Not Required	16.0	No	Not Required	14.0	No
			6	2437.0		16.0			14.0	
			11	2462.0		15.0			14.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	15.0	No	Not Required	14.0	No
			6	2437.0		16.0			14.0	
			11	2462.0		15.0			14.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	15.0	No	Not Required	14.0	No
			6	2437.0		16.0			14.0	
			11	2462.0		15.0			14.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	
Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Reduced. Output Power (dBm)	SAR Test (Yes/No)
Wi-Fi SISO Ant.2	802.11b	1 Mbps	1	2412.0	15.1	16.0	Yes	13.4	14.0	Yes
			6	2437.0	15.7	16.0		13.5	14.0	
			11	2462.0	15.3	16.0		13.4	14.0	
			12	2467.0	2.2	3.5	No	2.2	3.5	No
			13	2472.0	0.3	1.5		0.3	1.5	
	802.11g	6 Mbps	1	2412.0	Not Required	16.0	No	Not Required	14.0	No
			6	2437.0		16.0			14.0	
			11	2462.0		15.0			14.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	15.0	No	Not Required	14.0	No
			6	2437.0		16.0			14.0	
			11	2462.0		15.0			14.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	15.0	No	Not Required	14.0	No
			6	2437.0		16.0			14.0	
			11	2462.0		15.0			14.0	
			12	2467.0		3.5			3.5	
			13	2472.0		1.5			1.5	

Note(s):

1. SAR is not required for 802.11g/n/ax 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.

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Measured Results of RSDB Wi-Fi (Continued)

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
Wi-Fi MIMO Ant.1	802.11g	6 Mbps	1	2412.0	15.2	16.0	Yes
			6	2437.0	15.3	16.0	
			11	2462.0	13.9	15.0	
			12	2467.0	2.1	3.5	
			13	2472.0	0.1	1.5	
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	15.0	No
			6	2437.0		16.0	
			11	2462.0		15.0	
			12	2467.0		3.5	
			13	2472.0		1.5	
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	15.0	No
			6	2437.0		16.0	
			11	2462.0		15.0	
			12	2467.0		3.5	
			13	2472.0		1.5	

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
Wi-Fi MIMO Ant.2	802.11g	6 Mbps	1	2412.0	15.0	16.0	Yes
			6	2437.0	15.0	16.0	
			11	2462.0	14.8	15.0	
			12	2467.0	2.3	3.5	
			13	2472.0	0.4	1.5	
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	15.0	No
			6	2437.0		16.0	
			11	2462.0		15.0	
			12	2467.0		3.5	
			13	2472.0		1.5	
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	15.0	No
			6	2437.0		16.0	
			11	2462.0		15.0	
			12	2467.0		3.5	
			13	2472.0		1.5	

Note(s):

1. SAR is not required for 802.11g/n/ax 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.
4. MIMO SAR test is required body-worn & Hotspot exposure condition of RSDB Wi-Fi mode.

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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.

SAR test is followed below guides according to KDB 248227;

1. For “Not required”, SAR Test reduction was applied from KDB 248227 guidance and TCB workshop guidance 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/n/ac/ax 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/n/ac/ax modes, the channel in the lower order/sequence 802.11 mode (i.e. a, n, ac, ax) is selected.
3. When UNII band 2A’s specified maximum output power is higher or same than UNII band 1, begin SAR measurement in UNII band 2A; and if the highest reported SAR for UNII band 2A is
   - ≤ 1.2 W/kg, SAR is not required for UNII band 1
   - > 1.2 W/kg, both bands should be tested independently for SAR.
4. When UNII band 1’s specified maximum output power is higher than UNII band 2A, begin SAR measurement in UNII band 1; and if the highest reported SAR for UNII band 1 is
   - ≤ 1.2 W/kg, SAR is not required for UNII band 2A
   - > 1.2 W/kg, both bands should be tested independently for SAR.

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Measured Results of Normal Wi-Fi SISO Ant.1

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
SISO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	16.7	17.0	Yes	Not Required	13.0	No
				56	5280.0	16.7			Not Required		
				60	5300.0	16.7			Not Required		
				64	5320.0	16.6			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	14.0	No	12.7	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	58	5290.0	Not Required	14.0	No	Not Required	13.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	13.5	15.0	Yes	Not Required	13.0	No
				120	5600.0	13.8			Not Required		
				124	5620.0	13.9			Not Required		
				144	5720.0	14.1			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	11.7	13.0	Yes
				122	5610.0	Not Required			11.8		
				138	5690.0	Not Required			12.2		
		802.11ax (HE20)	7.3 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	106	5530.0	Not Required	13.0	No	Not Required	13.0	No
				122	5610.0	Not Required			Not Required		
				138	5690.0	Not Required			Not Required		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	16.1	17.0	Yes	Not Required	13.0	No
				157	5785.0	16.2			Not Required		
				165	5825.0	16.1			Not Required		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	14.0	No	12.2	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	155	5775.0	Not Required	14.0	No	Not Required	13.0	No

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Measured Results of Normal Wi-Fi SISO Ant.2

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
SISO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	16.2	17.0	Yes	Not Required	13.0	No
				56	5280.0	16.3			Not Required		
				60	5300.0	16.4			Not Required		
				64	5320.0	16.3			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	14.0	No	12.3	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	58	5290.0	Not Required	14.0	No	Not Required	13.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	13.6	15.0	Yes	Not Required	13.0	No
				120	5600.0	13.7			Not Required		
				124	5620.0	13.9			Not Required		
				144	5720.0	14.0			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	11.9	13.0	Yes
				122	5610.0	Not Required			12.0		
				138	5690.0	Not Required			12.1		
		802.11ax (HE20)	7.3 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	106	5530.0	Not Required	13.0	No	Not Required	13.0	No
				122	5610.0	Not Required			Not Required		
				138	5690.0	Not Required			Not Required		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	15.9	17.0	Yes	Not Required	13.0	No
				157	5785.0	15.9			Not Required		
				165	5825.0	16.0			Not Required		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	14.0	No	11.9	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	155	5775.0	Not Required	14.0	No	Not Required	13.0	No

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Measured Results of Normal Wi-Fi MIMO Ant.1

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
MIMO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	16.6	17.0	Yes	Not Required	13.0	No
				56	5280.0	16.6			Not Required		
				60	5300.0	16.6			Not Required		
				64	5320.0	16.5			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	14.0	No	12.6	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	58	5290.0	Not Required	14.0	No	Not Required	13.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	13.5	15.0	Yes	Not Required	13.0	No
				120	5600.0	13.7			Not Required		
				124	5620.0	13.9			Not Required		
				144	5720.0	14.0			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	11.5	13.0	Yes
				122	5610.0	Not Required			11.8		
				138	5690.0	Not Required			12.1		
		802.11ax (HE20)	7.3 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	106	5530.0	Not Required	13.0	No	Not Required	13.0	No
				122	5610.0	Not Required			Not Required		
				138	5690.0	Not Required			Not Required		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	16.0	17.0	Yes	Not Required	13.0	No
				157	5785.0	16.1			Not Required		
				165	5825.0	16.1			Not Required		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	14.0	No	12.1	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	155	5775.0	Not Required	14.0	No	Not Required	13.0	No

Note(s):

1. MIMO SAR test is required body-worn & Hotspot exposure condition of Normal Wi-Fi mode & RSDB Wi-Fi mode.

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Measured Results of Normal Wi-Fi MIMO Ant.2

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
MIMO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	16.2	17.0	Yes	Not Required	13.0	No
				56	5280.0	16.2			Not Required		
				60	5300.0	16.3			Not Required		
				64	5320.0	16.2			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	14.0	No	12.3	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260.0	Not Required	17.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	58	5290.0	Not Required	14.0	No	Not Required	13.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	13.6	15.0	Yes	Not Required	13.0	No
				120	5600.0	13.7			Not Required		
				124	5620.0	13.8			Not Required		
				144	5720.0	13.9			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	11.9	13.0	Yes
				122	5610.0	Not Required			12.0		
				138	5690.0	Not Required			11.9		
		802.11ax (HE20)	7.3 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	106	5530.0	Not Required	13.0	No	Not Required	13.0	No
				122	5610.0	Not Required			Not Required		
				138	5690.0	Not Required			Not Required		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	15.9	17.0	Yes	Not Required	13.0	No
				157	5785.0	15.8			Not Required		
				165	5825.0	16.0			Not Required		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	14.0	No	11.8	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745.0	Not Required	17.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	155	5775.0	Not Required	14.0	No	Not Required	13.0	No

Note(s):

1. MIMO SAR test is required body-worn & Hotspot exposure condition of Normal Wi-Fi mode & RSDB Wi-Fi mode.

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Measured Results of RSDB Wi-Fi SISO Ant.1

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
SISO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	Not Required	14.0	Yes	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	13.7	14.0	No	12.7	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	58	5290.0	Not Required	14.0	No	Not Required	13.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	12.5	14.0	Yes	Not Required	13.0	No
				120	5600.0	12.8			Not Required		
				124	5620.0	12.8			Not Required		
				144	5720.0	13.0			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	11.7	13.0	Yes
				122	5610.0	Not Required			11.8		
				138	5690.0	Not Required			12.2		
		802.11ax (HE20)	7.3 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	106	5530.0	Not Required	13.0	No	Not Required	13.0	No
				122	5610.0	Not Required			Not Required		
				138	5690.0	Not Required			Not Required		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	Not Required	14.0	Yes	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	13.3	14.0	No	12.2	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	155	5775.0	Not Required	14.0	No	Not Required	13.0	No

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Measured Results of RSDB Wi-Fi SISO Ant.2

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
SISO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	Not Required	14.0	Yes	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	13.4	14.0	No	12.3	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	58	5290.0	Not Required	14.0	No	Not Required	13.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	12.5	14.0	Yes	Not Required	13.0	No
				120	5600.0	12.6			Not Required		
				124	5620.0	12.8			Not Required		
				144	5720.0	12.9			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	11.9	13.0	Yes
				122	5610.0	Not Required			12.0		
				138	5690.0	Not Required			12.1		
		802.11ax (HE20)	7.3 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	106	5530.0	Not Required	13.0	No	Not Required	13.0	No
				122	5610.0	Not Required			Not Required		
				138	5690.0	Not Required			Not Required		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	Not Required	14.0	Yes	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	12.7	14.0	No	11.9	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	155	5775.0	Not Required	14.0	No	Not Required	13.0	No

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Measured Results of RSDB Wi-Fi MIMO Ant.1

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
MIMO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	Not Required	14.0	Yes	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	13.6	14.0	No	12.6	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	58	5290.0	Not Required	14.0	No	Not Required	13.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	12.4	14.0	Yes	Not Required	13.0	No
				120	5600.0	12.6			Not Required		
				124	5620.0	12.8			Not Required		
				144	5720.0	13.0			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	11.5	13.0	Yes
				122	5610.0	Not Required			11.8		
				138	5690.0	Not Required			12.1		
		802.11ax (HE20)	7.3 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	106	5530.0	Not Required	13.0	No	Not Required	13.0	No
				122	5610.0	Not Required			Not Required		
				138	5690.0	Not Required			Not Required		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	Not Required	14.0	Yes	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	13.2	14.0	No	12.1	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	155	5775.0	Not Required	14.0	No	Not Required	13.0	No

Note(s):

1. MIMO SAR test is required body-worn & Hotspot exposure condition of Normal Wi-Fi mode & RSDB Wi-Fi mode.

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Measured Results of RSDB Wi-Fi MIMO Ant.2

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
MIMO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	Not Required	14.0	Yes	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	13.4	14.0	No	12.3	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260.0	Not Required	14.0	No	Not Required	13.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	54	5270.0	Not Required	14.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	58	5290.0	Not Required	14.0	No	Not Required	13.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	12.5	14.0	Yes	Not Required	13.0	No
				120	5600.0	12.7			Not Required		
				124	5620.0	12.7			Not Required		
				144	5720.0	12.9			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	11.9	13.0	Yes
				122	5610.0	Not Required			12.0		
				138	5690.0	Not Required			11.9		
		802.11ax (HE20)	7.3 Mbps	100	5500.0	Not Required	14.0	No	Not Required	13.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	102	5510.0	Not Required	13.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	106	5530.0	Not Required	13.0	No	Not Required	13.0	No
				122	5610.0	Not Required			Not Required		
				138	5690.0	Not Required			Not Required		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	Not Required	14.0	Yes	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	12.7	14.0	No	11.8	13.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745.0	Not Required	14.0	No	Not Required	13.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ax (HE40)	14.6 Mbps	151	5755.0	Not Required	14.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ax (HE80)	30.6 Mbps	155	5775.0	Not Required	14.0	No	Not Required	13.0	No

Note(s):

1. MIMO SAR test is required body-worn & Hotspot exposure condition of Normal Wi-Fi mode & RSDB Wi-Fi mode.

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9.6 Bluetooth

Measured Results

Band (GHz)	Mode	Ch #	Freq. (MHz)	Maximum Average Power (dBm)	
				Meas Pwr	Tune-up Limit
2.4	GFSK	0	2402	15.9	17.5
		39	2441	17.4	
		78	2480	15.8	
	EDR, 8-DPSK	0	2402	9.7	12.0
		39	2441	11.4	
		78	2480	9.9	
	LE, GFSK-1M	0	2402	6.1	7.5
		19	2440	6.8	
		39	2480	5.7	
	LE, GFSK-2M	0	2402	6.8	9.0
		19	2440	7.5	
		39	2480	6.0	

Note(s):

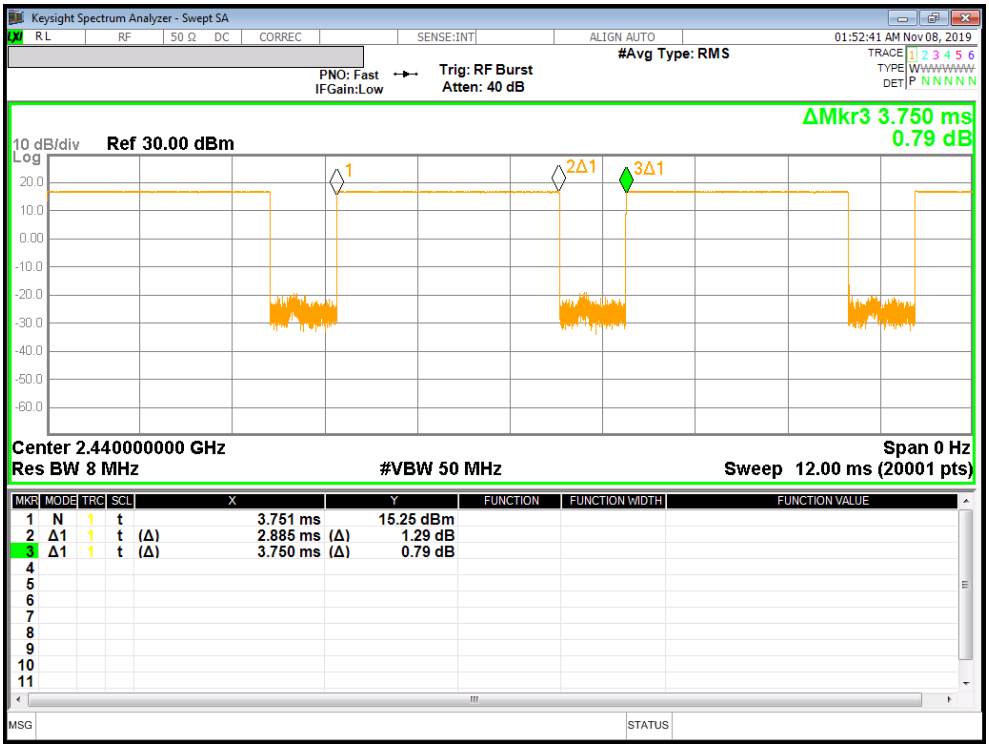
SAR test is evaluated at GFSK mode in Bluetooth.

Duty Factor Measured Results

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

Duty Cycle plots

GFSK



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10. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

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

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KDB 248227 D01 SAR meas for 802.11:

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

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

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

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

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10.1 GSM 850

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1-1	Head	GPRS 4 Slot	N/A	0	Left Touch	190	836.6	29.0	27.6	0.154	0.212	
					Left Tilt	190	836.6	29.0	27.6	0.093	0.127	
					Right Touch	190	836.6	29.0	27.6	0.209	0.287	1
					Right Tilt	190	836.6	29.0	27.6	0.112	0.154	
	Body-worn	GPRS 4 Slot	N/A	15	Rear	190	836.6	29.0	27.6	0.302	0.415	2
					Front	190	836.6	29.0	27.6	0.267	0.367	
	Hotspot	GPRS 4 Slot	N/A	10	Rear	190	836.6	29.0	27.6	0.424	0.583	3
					Front	190	836.6	29.0	27.6	0.348	0.478	
					Edge 2	190	836.6	29.0	27.6	0.378	0.520	
					Edge 3	190	836.6	29.0	27.6	0.272	0.374	
					Edge 4	190	836.6	29.0	27.6	0.128	0.176	

10.2 GSM1900

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1-1	Head	GPRS 4 Slot	Off	0	Left Touch	661	1880.0	25.0	23.8	0.059	0.076	4
					Left Tilt	661	1880.0	25.0	23.8	0.023	0.030	
					Right Touch	661	1880.0	25.0	23.8	0.031	0.041	
					Right Tilt	661	1880.0	25.0	23.8	0.027	0.035	
	Body-worn	GPRS 4 Slot	Off	15	Rear	661	1880.0	25.0	23.8	0.233	0.304	5
					Front	661	1880.0	25.0	23.8	0.213	0.278	
	Hotspot	GPRS 4 Slot	On	10	Rear	661	1880.0	24.0	22.7	0.370	0.500	
					Front	661	1880.0	24.0	22.7	0.338	0.457	
					Edge 2	661	1880.0	24.0	22.7	0.071	0.096	
					Edge 3	512	1850.2	24.0	22.6	0.605	0.835	
						661	1880.0	24.0	22.7	0.638	0.862	
						810	1909.8	24.0	22.4	0.777	1.126	6
					Edge 4	661	1880.0	24.0	22.7	0.068	0.091	
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.1-1	Product Specific 10-g	GPRS 4 Slot	Off	13	Edge 3	661	1880.0	25.0	23.8	0.291	0.380	
			On	0	Edge 3	661	1880.0	24.0	22.7	1.210	1.637	7

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10.3 W-CDMA Band II

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1-1	Head	Rel 99 RMC	Off	0	Left Touch	9400	1880.0	25.0	23.5	0.138	0.194	8
					Left Tilt	9400	1880.0	25.0	23.5	0.051	0.072	
					Right Touch	9400	1880.0	25.0	23.5	0.079	0.110	
					Rightt Tilt	9400	1880.0	25.0	23.5	0.066	0.092	
	Bod-worn	Rel 99 RMC	Off	15	Rear	9400	1880.0	25.0	23.5	0.568	0.796	9
					Front	9400	1880.0	25.0	23.5	0.485	0.680	
	Hotspot	Rel 99 RMC	On	10	Rear	9538	1907.6	21.5	20.6	0.505	0.628	
					Front	9538	1907.6	21.5	20.6	0.437	0.544	
					Edge 2	9538	1907.6	21.5	20.6	0.081	0.101	
					Edge 3	9262	1852.4	21.5	19.9	0.857	1.243	
						9400	1880.0	21.5	20.0	0.918	1.304	10
						9538	1907.6	21.5	20.6	1.010	1.257	
					Edge 4	9538	1907.6	21.5	20.6	0.080	0.100	
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.1-1	Product Specific 10-g	Rel 99 RMC	Off	7	Rear	9400	1880.0	25.0	23.5	0.994	1.394	
				7	Front	9400	1880.0	25.0	23.5	0.838	1.175	
				13	Edge 3	9400	1880.0	25.0	23.5	0.774	1.085	
			On	0	Rear	9538	1907.6	21.5	20.5	1.420	1.792	
					Front	9538	1907.6	21.5	20.5	1.320	1.666	
					Edge 3	9538	1907.6	21.5	20.5	1.580	1.994	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.1-1	Head	Rel 99 RMC	Off	0	Left Touch	1413	1732.6	25.0	23.6	0.131	0.181	12
					Left Tilt	1413	1732.6	25.0	23.6	0.057	0.079	
					Right Touch	1413	1732.6	25.0	23.6	0.089	0.123	
					Rightt Tilt	1413	1732.6	25.0	23.6	0.073	0.101	
	Bod-worn	Rel 99 RMC	Off	15	Rear	1312	1712.4	25.0	23.5	0.657	0.938	
						1413	1732.6	25.0	23.6	0.704	0.974	13
						1513	1752.6	25.0	23.9	0.709	0.906	
					Front	1413	1732.6	25.0	23.6	0.318	0.440	
	Hotspot	Rel 99 RMC	On	10	Rear	1312	1712.4	22.0	20.4	0.612	0.878	
						1413	1732.6	22.0	20.4	0.576	0.824	
						1513	1752.6	22.0	20.8	0.635	0.836	
					Front	1413	1732.6	22.0	20.4	0.379	0.542	
					Edge 2	1413	1732.6	22.0	20.4	0.092	0.131	
					Edge 3	1312	1712.4	22.0	20.4	0.938	1.346	14
						1413	1732.6	22.0	20.4	0.867	1.241	
						1513	1752.6	22.0	20.8	0.913	1.202	
					Edge 4	1413	1732.6	22.0	20.4	0.102	0.146	
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.1-1	Product Specific 10-g	Rel 99 RMC	Off	7	Rear	1413	1732.6	25.0	23.6	0.641	0.887	
				13	Edge 3	1413	1732.6	25.0	23.6	0.263	0.364	
			On	0	Rear	1413	1732.6	22.0	20.5	1.410	1.995	
				0	Edge 3	1312	1712.4	22.0	20.5	2.250	3.201	15
						1413	1732.6	22.0	20.5	1.940	2.745	
						1513	1752.6	22.0	20.8	1.980	2.587	

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10.5 W-CDMA Band V

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1-1	Head	Rel 99 RMC	N/A	0	Left Touch	4183	836.6	25.5	23.9	0.105	0.152	
					Left Tilt	4183	836.6	25.5	23.9	0.059	0.085	
					Right Touch	4183	836.6	25.5	23.9	0.160	0.232	16
					Rightt Tilt	4183	836.6	25.5	23.9	0.085	0.123	
	Bod-worn	Rel 99 RMC	N/A	15	Rear	4183	836.6	25.5	23.9	0.318	0.460	17
					Front	4183	836.6	25.5	23.9	0.285	0.413	
	Hotspot	Rel 99 RMC	N/A	10	Rear	4183	836.6	25.5	23.9	0.526	0.761	18
					Front	4183	836.6	25.5	23.9	0.382	0.553	
					Edge 2	4183	836.6	25.5	23.9	0.255	0.369	
					Edge 3	4183	836.6	25.5	23.9	0.306	0.443	
					Edge 4	4183	836.6	25.5	23.9	0.091	0.132	

10.6 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.1-1	Head	QPSK	N/A	0	Left Touch	23095	707.5	1	0	25.5	24.5	0.160	0.202	
								25	0	24.5	23.9	0.143	0.163	
					Left Tilt	23095	707.5	1	0	25.5	24.5	0.076	0.096	
								25	0	24.5	23.9	0.068	0.077	
					Right Touch	23095	707.5	1	0	25.5	24.5	0.180	0.228	19
								25	0	24.5	23.9	0.156	0.177	
					Right Tilt	23095	707.5	1	0	25.5	24.5	0.083	0.105	
								25	0	24.5	23.9	0.073	0.083	
	Body-worn	QPSK	N/A	15	Rear	23095	707.5	1	0	25.5	24.5	0.238	0.301	20
								25	0	24.5	23.9	0.201	0.229	
					Front	23095	707.5	1	0	25.5	24.5	0.214	0.271	
								25	0	24.5	23.9	0.188	0.214	
	Hotspot	QPSK	N/A	10	Rear	23095	707.5	1	0	25.5	24.5	0.340	0.430	21
								25	0	24.5	23.9	0.286	0.325	
					Front	23095	707.5	1	0	25.5	24.5	0.274	0.347	
								25	0	24.5	23.9	0.255	0.290	
					Edge 2	23095	707.5	1	0	25.5	24.5	0.233	0.295	
								25	0	24.5	23.9	0.229	0.260	
					Edge 3	23095	707.5	1	0	25.5	24.5	0.129	0.163	
								25	0	24.5	23.9	0.104	0.118	
					Edge 4	23095	707.5	1	0	25.5	24.5	0.185	0.234	
								25	0	24.5	23.9	0.153	0.174	

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10.7 LTE Band 13 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Pow er (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1-1	Head	QPSK	N/A	0	Left Touch	23230	782.0	1	25	25.5	24.6	0.157	0.191	
								25	25	24.5	23.9	0.105	0.121	
					Left Tilt	23230	782.0	1	25	25.5	24.6	0.092	0.112	
								25	25	24.5	23.9	0.069	0.080	
					Right Touch	23230	782.0	1	25	25.5	24.6	0.166	0.202	22
								25	25	24.5	23.9	0.120	0.138	
					Right Tilt	23230	782.0	1	25	25.5	24.6	0.088	0.107	
								25	25	24.5	23.9	0.063	0.073	
	Body-w orn	QPSK	N/A	15	Rear	23230	782.0	1	25	25.5	24.6	0.337	0.410	23
								25	25	24.5	23.9	0.219	0.253	
					Front	23230	782.0	1	25	25.5	24.6	0.224	0.273	
								25	25	24.5	23.9	0.204	0.235	
	Hotspot	QPSK	N/A	10	Rear	23230	782.0	1	25	25.5	24.6	0.404	0.492	24
								25	25	24.5	23.9	0.258	0.298	
					Front	23230	782.0	1	25	25.5	24.6	0.301	0.366	
								25	25	24.5	23.9	0.215	0.248	
					Edge 2	23230	782.0	1	25	25.5	24.6	0.349	0.425	
								25	25	24.5	23.9	0.239	0.276	
					Edge 3	23230	782.0	1	25	25.5	24.6	0.331	0.403	
								25	25	24.5	23.9	0.275	0.317	
					Edge 4	23230	782.0	1	25	25.5	24.6	0.155	0.189	
								25	25	24.5	23.9	0.130	0.150	

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10.8 LTE Band 25 (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.1-1	Head	QPSK	Off	0	Left Touch	26590	1905.0	1	0	24.5	23.5	0.181	0.230	25
								50	0	23.5	22.5	0.143	0.182	
					Left Tilt	26590	1905.0	1	0	24.5	23.5	0.105	0.134	
								50	0	23.5	22.5	0.083	0.105	
					Right Touch	26590	1905.0	1	0	24.5	23.5	0.110	0.140	
								50	0	23.5	22.5	0.086	0.109	
					Right Tilt	26590	1905.0	1	0	24.5	23.5	0.105	0.134	
								50	0	23.5	22.5	0.077	0.098	
	Body-worn	QPSK	Off	15	Rear	26590	1905.0	1	0	24.5	23.5	0.595	0.757	26
								50	0	23.5	22.5	0.463	0.589	
					Front	26590	1905.0	1	0	24.5	23.5	0.531	0.676	
								50	0	23.5	22.5	0.412	0.524	
	Hotspot	QPSK	On	10	Rear	26590	1905.0	1	0	20.5	19.3	0.484	0.645	
								50	0	20.5	19.3	0.486	0.645	
					Front	26590	1905.0	1	0	20.5	19.3	0.461	0.614	
								50	0	20.5	19.3	0.459	0.609	
					Edge 2	26590	1905.0	1	0	20.5	19.3	0.078	0.104	
								50	0	20.5	19.3	0.081	0.108	
					Edge 3	26140	1860.0	1	0	20.5	19.0	0.713	1.009	
								50	0	20.5	18.9	0.730	1.045	
						26365	1882.5	1	0	20.5	18.9	0.762	1.090	
								50	0	20.5	18.9	0.780	1.116	
						26590	1905.0	1	0	20.5	19.3	0.836	1.113	
								50	0	20.5	19.3	0.874	1.160	
								100	0	20.5	19.3	0.895	1.192	27
					Edge 4	26590	1905.0	1	0	20.5	19.3	0.081	0.108	
								50	0	20.5	19.3	0.081	0.107	

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.1-1	Product Specific 10-g	QPSK	Off	7	Rear	26590	1905.0	1	0	24.5	23.5	1.030	1.311	
								50	0	23.5	22.5	0.821	1.045	
				7	Front	26590	1905.0	1	0	24.5	23.5	0.902	1.148	
								50	0	23.5	22.5	0.720	0.916	
				13	Edge 3	26590	1905.0	1	0	24.5	23.5	0.972	1.237	
								50	0	23.5	22.5	0.784	0.997	
			On	0	Rear	26590	1905.0	1	0	20.5	19.3	1.280	1.684	
								50	0	20.5	19.3	1.310	1.713	
					Front	26590	1905.0	1	0	20.5	19.3	1.200	1.578	
								50	0	20.5	19.3	1.210	1.583	
					Edge 3	26590	1905.0	1	0	20.5	19.3	1.410	1.855	
								50	0	20.5	19.3	1.420	1.857	28

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10.9 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.1-1	Head	QPSK	N/A	0	Left Touch	26865	831.5	1	0	25.5	23.7	0.161	0.242	
								36	0	22.5	21.3	0.086	0.115	
					Left Tilt	26865	831.5	1	0	25.5	23.7	0.102	0.154	
								36	0	22.5	21.3	0.057	0.076	
					Right Touch	26865	831.5	1	0	25.5	23.7	0.225	0.339	29
								36	0	22.5	21.3	0.123	0.164	
					Right Tilt	26865	831.5	1	0	25.5	23.7	0.146	0.220	
								36	0	22.5	21.3	0.079	0.106	
	Body-worn	QPSK	N/A	15	Rear	26865	831.5	1	0	25.5	23.7	0.344	0.518	30
								36	0	22.5	21.3	0.195	0.260	
					Front	26865	831.5	1	0	25.5	23.7	0.275	0.414	
								36	0	22.5	21.3	0.164	0.219	
	Hotspot	QPSK	N/A	10	Rear	26865	831.5	1	0	25.5	23.7	0.538	0.810	31
								36	0	22.5	21.3	0.309	0.412	
					Front	26865	831.5	1	0	25.5	23.7	0.411	0.619	
								36	0	22.5	21.3	0.230	0.307	
					Edge 2	26865	831.5	1	0	25.5	23.7	0.315	0.474	
								36	0	22.5	21.3	0.176	0.235	
					Edge 3	26865	831.5	1	0	25.5	23.7	0.293	0.441	
								36	0	22.5	21.3	0.128	0.171	
					Edge 4	26865	831.5	1	0	25.5	23.7	0.144	0.217	
								36	0	22.5	21.3	0.076	0.101	

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10.10 LTE Band 41 (20MHz Bandwidth)

LTE Band 41 Power Class 3 SAR measured Results

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.1-2	Head	QPSK	N/A	0	Left Touch	39750	2506.0	1	0	23.5	22.2	0.057	0.076	
								50	0	22.5	21.3	0.047	0.061	
					Left Tilt	39750	2506.0	1	0	23.5	22.2	0.027	0.037	
								50	0	22.5	21.3	0.021	0.027	
					Right Touch	39750	2506.0	1	0	23.5	22.2	0.036	0.049	
								50	0	22.5	21.3	0.027	0.035	
					Right Tilt	39750	2506.0	1	0	23.5	22.2	0.049	0.066	
								50	0	22.5	21.3	0.036	0.047	
	Body-worn	QPSK	N/A	15	Rear	39750	2506.0	1	0	23.5	22.2	0.205	0.276	
								50	0	22.5	21.3	0.158	0.206	
					Front	39750	2506.0	1	0	23.5	22.2	0.166	0.223	
								50	0	22.5	21.3	0.131	0.171	
	Hotspot	QPSK	N/A	10	Rear	39750	2506.0	1	0	23.5	22.2	0.365	0.491	
								50	0	22.5	21.3	0.282	0.368	
					Front	39750	2506.0	1	0	23.5	22.2	0.345	0.464	
								50	0	22.5	21.3	0.272	0.355	
					Edge 3	39750	2506.0	1	0	23.5	22.2	0.663	0.891	
								50	0	22.5	21.3	0.523	0.682	
								100	0	22.5	21.3	0.535	0.709	
						40185	2549.5	1	0	23.5	21.9	0.645	0.937	32
								50	0	22.5	21.0	0.504	0.719	
						40620	2593.0	1	0	23.5	21.8	0.520	0.766	
								50	0	22.5	20.8	0.390	0.570	
						41055	2636.5	1	0	23.5	22.2	0.571	0.776	
								50	0	22.5	21.2	0.437	0.585	
						41490	2680.0	1	0	23.5	22.1	0.615	0.858	
								50	0	22.5	21.0	0.485	0.690	
					Edge 4	39750	2506.0	1	0	23.5	22.2	0.181	0.243	
								50	0	22.5	21.3	0.141	0.184	

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LTE Band 41 (20MHz Bandwidth) (Continued)

LTE Band 41 Power Class 2 SAR measured Results

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.1-2	Head	QPSK	Off	0	Left Touch	39750	2506.0	1	0	26.5	25.1	0.078	0.108	33
	Body-worn	QPSK	Off	15	Rear	39750	2506.0	1	0	26.5	25.1	0.264	0.365	34
	Hotspot	QPSK	On	10	Edge 3	40185	2549.5	1	0	23.5	21.9	0.406	0.582	

From May 2017 TCB Workshop, SAR tested were performed using Power Class 3. SAR test for Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination. According to the highest time average power for UL-DL configurations, configuration # 1 with duty cycle 43.3% is used for Power Class 2 SAR test.

Additional SAR testing for Power Class 2 is not required when;

- The *reported* SAR vs. output power can be linearly scaled with < 10% discrepancy between power classes and all *reported* SAR are < 1.4 W/kg

Reported SAR vs. Output Power linearly scaled

Antenna	RF Exposure Conditions	Power Class 2				Power Class 3				PC 2 linearly Scaled Reported SAR (W/kg)	Linearly scaled (%)
		Duty Cycle (%)	Tune-up Power (dBm)	Frame Avg. Power (mW)	Reported SAR (W/kg)	Duty Cycle (%)	Tune-up Power (dBm)	Frame Avg. Power (mW)	Reported SAR (W/kg)		
Main Ant.1-2	Head	43.3	26.5	193.4	0.108	63.3	23.5	141.7	0.076	0.079	3.9
	Body-worn	43.3	26.5	193.4	0.365	63.3	23.5	141.7	0.276	0.268	-2.9
	Hotspot	43.3	23.5	96.9	0.582	63.3	23.5	141.7	0.937	0.852	-9.1

Conclusion:

Simultaneous SAR test for Power Class 2 is not required base on the *reported* SAR < 1.4 W/kg and *reported* SAR vs. output power linearly scaled < 10%.

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10.11 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.1-1	Head	QPSK	Off	0	Left Touch	132322	1745.0	1	0	24.5	23.1	0.186	0.259	35
								50	0	23.5	22.0	0.138	0.193	
					Left Tilt	132322	1745.0	1	0	24.5	23.1	0.078	0.108	
								50	0	23.5	22.0	0.054	0.076	
					Right Touch	132322	1745.0	1	0	24.5	23.1	0.140	0.195	
								50	0	23.5	22.0	0.095	0.133	
					Right Tilt	132322	1745.0	1	0	24.5	23.1	0.068	0.095	
								50	0	23.5	22.0	0.055	0.077	
	Body-worn	QPSK	Off	15	Rear	132072	1720.0	1	0	24.5	22.8	0.568	0.833	
								50	0	23.5	21.8	0.452	0.663	
						132322	1745.0	1	0	24.5	23.1	0.651	0.907	
								50	0	23.5	22.0	0.593	0.831	
								100	0	23.5	22.0	0.468	0.659	
						132572	1770.0	1	0	24.5	22.9	0.651	0.944	36
								50	0	23.5	21.9	0.505	0.732	
					Front	132322	1745.0	1	0	24.5	23.1	0.441	0.614	
								50	0	23.5	22.0	0.340	0.477	
	Hotspot	QPSK	On	10	Rear	132072	1720.0	1	0	21.5	19.8	0.472	0.692	
								50	0	21.5	19.8	0.460	0.684	
						132322	1745.0	1	0	21.5	20.0	0.618	0.867	
								50	0	21.5	20.0	0.614	0.873	
								100	0	21.5	20.0	0.604	0.860	
						132572	1770.0	1	0	21.5	19.8	0.501	0.733	
								50	0	21.5	19.8	0.501	0.740	
					Front	132322	1745.0	1	0	21.5	20.0	0.424	0.595	
								50	0	21.5	20.0	0.418	0.594	
					Edge 2	132322	1745.0	1	0	21.5	20.0	0.106	0.149	
								50	0	21.5	20.0	0.102	0.145	
					Edge 3	132072	1720.0	1	0	21.5	19.8	0.816	1.196	
								50	0	21.5	19.8	0.816	1.213	
						132322	1745.0	1	0	21.5	20.0	0.857	1.202	
								50	0	21.5	20.0	0.860	1.223	
								100	0	21.5	20.0	0.857	1.220	
						132572	1770.0	1	0	21.5	19.8	0.851	1.244	
								50	0	21.5	19.8	0.852	1.258	37
					Edge 4	132322	1745.0	1	0	21.5	20.0	0.125	0.175	
								50	0	21.5	20.0	0.120	0.171	

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.1-1	Product Specific 10-g	QPSK	Off	7	Rear	132322	1745.0	1	0	24.5	23.1	0.764	1.064	
								50	0	23.5	22.0	0.603	0.845	
				13	Edge 3	132322	1745.0	1	0	24.5	23.1	0.687	0.957	
								50	0	23.5	22.0	0.541	0.758	
			On	0	Rear	132072	1720.0	50	0	21.5	19.8	1.370	2.011	
						132322	1745.0	1	0	21.5	20.1	1.430	1.990	
								50	0	21.5	20.0	1.450	2.031	
						132572	1770.0	50	0	21.5	19.9	1.500	2.174	
					Edge 3	132072	1720.0	1	0	21.5	19.9	1.790	2.611	38
								50	0	21.5	19.8	1.770	2.599	
						132322	1745.0	1	0	21.5	20.1	1.760	2.450	
								50	0	21.5	20.0	1.750	2.451	
								100	0	21.5	20.0	1.720	2.416	
						132572	1770.0	1	0	21.5	19.9	1.620	2.323	
								50	0	21.5	19.9	1.640	2.377	

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10.12 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 (Wi-Fi Ant.1)	2.4 GHz	802.11b 1 Mbps	Head	On	0	Left Touch	1	2412.0	0.364	99.7	16.0	15.2				
						Left Tilt	1	2412.0	0.415	99.7	16.0	15.2				
						Right Touch	1	2412.0	0.498	99.7	16.0	15.2	0.483	0.578		
						Rightt Tilt	1	2412.0	0.497	99.7	16.0	15.2	0.600	0.718	2	39
			Body-worn	Off	15	Rear	6	2437.0	0.128	99.7	19.0	18.4	0.092	0.106	1	40
						Front	6	2437.0	0.105	99.7	19.0	18.4				
			Hotspot	Off	10	Rear	6	2437.0	0.339	99.7	19.0	18.4	0.233	0.268	2	
						Front	6	2437.0	0.231	99.7	19.0	18.4				
						Edge 1	6	2437.0	0.562	99.7	19.0	18.4	0.417	0.479		41
						Edge 4	6	2437.0	0.080	99.7	19.0	18.4				
SISO (Wi-Fi Ant.2)	2.4 GHz	802.11b 1 Mbps	Head	On	0	Left Touch	6	2437.0	0.011	99.7	16.0	15.7				
						Left Tilt	6	2437.0	0.013	99.7	16.0	15.7				
						Right Touch	6	2437.0	0.034	99.7	16.0	15.7	0.030	0.033	1	
						Rightt Tilt	6	2437.0	0.017	99.7	16.0	15.7				
			Body-worn	Off	15	Rear	6	2437.0	0.100	99.7	19.0	18.6	0.090	0.099	1	
						Front	6	2437.0	0.008	99.7	19.0	18.6				
			Hotspot	Off	10	Rear	6	2437.0	0.288	99.7	19.0	18.6	0.238	0.261	1	
						Front	6	2437.0	0.013	99.7	19.0	18.6				
						Edge 1	6	2437.0	0.039	99.7	19.0	18.6				
						Edge 4	6	2437.0	0.082	99.7	19.0	18.6				

DTS RSDB mode

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		
MIMO (Wi-Fi Ant.1)	2.4 GHz	802.11g 6 Mbps	Body-worn	Off	15	Rear	6	2437.0	0.095	98.2	16.0	15.3	0.061	0.072	1	
						Front	6	2437.0	0.039	98.2	16.0	15.3				
MIMO (Wi-Fi Ant.2)						Rear	6	2437.0	0.095	98.2	16.0	15.0	0.066	0.084	1	
						Front	6	2437.0	0.039	98.2	16.0	15.0				
MIMO (Wi-Fi Ant.1+2)	2.4 GHz	802.11g 6 Mbps	Hotspot	Off	10	Rear	6	2437.0	0.199	98.2	16.0	15.0	0.158	0.201	1,6	42
						Front	6	2437.0	0.079	98.2	16.0	15.0				
						Edge 1	6	2437.0	0.140	98.2	16.0	15.0				
						Edge 4	6	2437.0	0.074	98.2	16.0	15.0				
SISO (Wi-Fi Ant.1)	2.4 GHz	802.11b 1 Mbps	Body-worn	Off	15	Rear	1	2412.0	0.082	99.7	16.0	15.2	0.060	0.072		
			Hotspot	Off	10	Rear	1	2412.0	0.182	99.7	16.0	15.2	0.145	0.174		
SISO (Wi-Fi Ant.2)	2.4 GHz	802.11b 1 Mbps	Body-worn	Off	15	Rear	6	2437.0	0.045	99.7	16.0	15.7	0.036	0.038		
			Hotspot	Off	10	Rear	6	2437.0	0.119	99.7	16.0	15.7	0.109	0.118		

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. Only one zoom-scan was evaluated at Wi-Fi Ant.2, when SAR test performed for Wi-Fi RSDB MIMO Hotspot exposure condition.
7. RSDB SAR test evaluated for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.
   For only Head exposure condition, Normal SAR values were considered for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.

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10.13 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 (Wi-Fi Ant.1)	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	58	5290.0	0.018	98.1	13.0	12.7						
						Left Tilt	58	5290.0	0.041	98.1	13.0	12.7	0.008	0.009			1	
						Right Touch	58	5290.0	0.028	98.1	13.0	12.7						
						Right Tilt	58	5290.0	0.034	98.1	13.0	12.7						
	5.3 GHz U-NII 2A	802.11a 6 Mbps	Body-worn	Off	15	Rear	60	5300.0	0.714	98.2	17.0	16.7	0.333	0.366			1	
						Front	60	5300.0	0.011	98.2	17.0	16.7						
			Product Specific 10-g	Off	0	Rear	60	5300.0	3.756	98.2	17.0	16.7			0.479	0.526	1	
						Front	60	5300.0	0.129	98.2	17.0	16.7						
						Edge 1	60	5300.0	0.287	98.2	17.0	16.7						
						Edge 4	60	5300.0	0.788	98.2	17.0	16.7						
SISO (Wi-Fi Ant.2)	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	58	5290.0	0.054	98.1	13.0	12.3						
						Left Tilt	58	5290.0	0.059	98.1	13.0	12.3						
						Right Touch	58	5290.0	0.091	98.1	13.0	12.3						
						Right Tilt	58	5290.0	0.131	98.1	13.0	12.3	0.063	0.076			1	43
	5.3 GHz U-NII 2A	802.11a 6 Mbps	Body-worn	Off	15	Rear	60	5300.0	0.194	98.2	17.0	16.4	0.073	0.085			1	
						Front	60	5300.0	0.028	98.2	17.0	16.4						
			Product Specific 10-g	Off	0	Rear	60	5300.0	7.191	98.2	17.0	16.4			0.877	1.023		44
						Front	60	5300.0	0.222	98.2	17.0	16.4						
						Edge 1	60	5300.0	1.129	98.2	17.0	16.4						
						Edge 4	60	5300.0	1.746	98.2	17.0	16.4			0.239	0.279	2	
MIMO (Wi-Fi Ant.1+Ant.2)	5.3 GHz U-NII 2A	802.11a 6 Mbps	Body-worn	Off	15	Rear	60	5300.0	0.757	98.2	17.0	16.6	0.348	0.392			1,5	45
						Front	60	5300.0	0.030	98.2	17.0	16.6						

U-NII 2A RSDB mode

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		
MIMO (Wi-Fi Ant.1+2)	5.3 GHz U-NII 2A	802.11ac VHT80	Body-worn	Off	15	Rear	58	5290.0	0.429	98.0	14.0	13.4	0.213	0.252	1,5	46
						Front	58	5290.0	0.020	98.0	14.0	13.4				
SISO (Wi-Fi Ant.1)	5.3 GHz U-NII 2A	802.11ac VHT80	Body-worn	Off	15	Rear	58	5290.0	0.191	98.1	14.0	13.7	0.093	0.101		
SISO (Wi-Fi Ant.2)	5.3 GHz U-NII 2A	802.11ac VHT80	Body-worn	Off	15	Rear	58	5290.0	0.303	98.1	14.0	13.4	0.137	0.162		

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. Only one zoom-scan was evaluated at Wi-Fi Ant.1, when SAR test performed for Wi-Fi MIMO mode.
6. RSDB SAR test evaluated for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.
   For only Head exposure condition, Normal SAR values were considered for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.

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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 (Wi-Fi Ant.1)	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	138	5690.0	0.016	98.1	13.0	12.2						
						Left Tilt	138	5690.0	0.023	98.1	13.0	12.2	<0.001	<0.001			1	
						Right Touch	138	5690.0	0.012	98.1	13.0	12.2						
						Right Tilt	138	5690.0	0.019	98.1	13.0	12.2						
	5.5 GHz U-NII 2C	802.11a 6 Mbps	Body-worn	Off	15	Rear	144	5720.0	0.540	98.2	15.0	14.1	0.218	0.274			1	
						Front	144	5720.0	0.009	98.2	15.0	14.1						
			Product Specific 10-g	Off	0	Rear	144	5720.0	11.428	98.2	15.0	14.1			0.583	0.732	1	47
						Front	144	5720.0	0.064	98.2	15.0	14.1						
						Edge 1	144	5720.0	0.566	98.2	15.0	14.1						
						Edge 4	144	5720.0	1.377	98.2	15.0	14.1						
SISO (Wi-Fi Ant.2)	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	138	5690.0	0.019	98.1	13.0	12.1						
						Left Tilt	138	5690.0	0.014	98.1	13.0	12.1						
						Right Touch	138	5690.0	0.028	98.1	13.0	12.1						
						Right Tilt	138	5690.0	0.034	98.1	13.0	12.1	0.009	0.011			1	48
	5.5 GHz U-NII 2C	802.11a 6 Mbps	Body-worn	Off	15	Rear	144	5720.0	0.172	98.2	15.0	14.0	0.061	0.079			1	
						Front	144	5720.0	0.014	98.2	15.0	14.0						
			Product Specific 10-g	Off	0	Rear	144	5720.0	3.741	98.2	15.0	14.0			0.312	0.404	1	
						Front	144	5720.0	0.182	98.2	15.0	14.0						
						Edge 1	144	5720.0	0.366	98.2	15.0	14.0						
						Edge 4	144	5720.0	1.113	98.2	15.0	14.0						
MIMO (Wi-Fi Ant.1+Ant.2)	5.5 GHz U-NII 2C	802.11a 6 Mbps	Body-worn	Off	15	Rear	144	5720.0	0.591	98.2	15.0	14.0	0.238	0.302			1,5	49
						Front	144	5720.0	0.012	98.2	15.0	14.0						

U-NII 2C RSDB mode

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		
MIMO (Wi-Fi Ant.1+2)	5.5 GHz U-NII 2C	802.11a 6Mbps	Body-worn	Off	15	Rear	144	5720.0	0.321	98.2	14.0	13.0	0.138	0.178	1,5	50
						Front	144	5720.0	0.013	98.2	14.0	13.0				
SISO (Wi-Fi Ant.1)	5.5 GHz U-NII 2C	802.11a 6Mbps	Body-worn	Off	15	Rear	144	5720.0	0.283	98.2	14.0	13.0	0.139	0.178		51
						Front	144	5720.0	0.011	98.2	14.0	13.0				
SISO (Wi-Fi Ant.2)	5.5 GHz U-NII 2C	802.11a 6Mbps	Body-worn	Off	15	Rear	144	5720.0	0.069	98.2	14.0	12.9	0.019	0.026		

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. Only one zoom-scan was evaluated at Wi-Fi Ant.1, when SAR test performed for Wi-Fi MIMO mode.
6. RSDB SAR test evaluated for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.
   For only Head exposure condition, Normal SAR values were considered for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.

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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 (Wi-Fi Ant.1)	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	155	5775.0	0.013	98.1	13.0	12.2				
						Left Tilt	155	5775.0	0.015	98.1	13.0	12.2				
						Right Touch	155	5775.0	0.018	98.1	13.0	12.2	<0.001	<0.001	1	
						Right Tilt	155	5775.0	0.017	98.1	13.0	12.2				
	5.8 GHz U-NII 3	802.11a 6 Mbps	Body-worn	Off	15	Rear	157	5785.0	0.547	98.2	17.0	16.2	0.212	0.261	1	
						Front	157	5785.0	0.013	98.2	17.0	16.2				
			Hotspot	Off	10	Rear	149	5745.0	1.036	98.2	17.0	16.1	0.423	0.533		
						Front	149	5745.0	0.021	98.2	17.0	16.1				
						Edge 1	149	5745.0	0.125	98.2	17.0	16.1				
						Edge 4	149	5745.0	0.232	98.2	17.0	16.1	0.095	0.120	2	
SISO (Wi-Fi Ant.2)	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	155	5775.0	0.019	98.1	13.0	11.9				
						Left Tilt	155	5775.0	0.017	98.1	13.0	11.9				
						Right Touch	155	5775.0	0.042	98.1	13.0	11.9	<0.001	<0.001	1	52
						Right Tilt	155	5775.0	0.034	98.1	13.0	11.9				
	5.8 GHz U-NII 3	802.11a 6 Mbps	Body-worn	Off	15	Rear	165	5825.0	0.197	98.2	17.0	16.0	0.098	0.126	1	
						Front	165	5825.0	0.012	98.2	17.0	16.0				
			Hotspot	Off	10	Rear	149	5745.0	0.271	98.2	17.0	15.9	0.119	0.155	1	
						Front	149	5745.0	0.015	98.2	17.0	15.9				
						Edge 1	149	5745.0	0.085	98.2	17.0	15.9				
						Edge 4	149	5745.0	0.119	98.2	17.0	15.9				
MIMO (Wi-Fi Ant.1+Ant.2)	5.8 GHz U-NII 3	802.11a 6 Mbps	Body-worn	Off	15	Rear	157	5785.0	0.564	98.2	17.0	16.1	0.268	0.337	1,5	53
						Front	157	5785.0	0.014	98.2	17.0	16.1				
			Hotspot	Off	10	Rear	149	5745.0	1.086	98.2	17.0	16.0	0.449	0.577	5	54
						Front	149	5745.0	0.031	98.2	17.0	16.0				
						Edge 1	149	5745.0	0.170	98.2	17.0	16.0				
						Edge 4	149	5745.0	0.278	98.2	17.0	16.0	0.120	0.154	2,5	

U-NII 3 RSDB mode

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		
MIMO (Wi-Fi Ant.1+2)	5.8 GHz U-NII 3	802.11ac VHT80	Body-worn	Off	15	Rear	155	5775.0	0.338	98.0	14.0	13.2	0.151	0.184	1,5	
						Front	155	5775.0	0.010	98.0	14.0	13.2				
			Hotspot	Off	10	Rear	155	5775.0	0.605	98.0	14.0	13.2	0.247	0.302	1,5	55
						Front	155	5775.0	0.016	98.0	14.0	13.2				
						Edge 1	155	5775.0	0.062	98.0	14.0	13.2				
						Edge 4	155	5775.0	0.134	98.0	14.0	13.2				
SISO (Wi-Fi Ant.1)	5.8 GHz U-NII 3	802.11ac VHT80	Body-worn	Off	15	Rear	155	5775.0	0.299	98.1	14.0	13.3	0.133	0.160		
			Hotspot		10	Rear	155	5775.0	0.511	98.1	14.0	13.3	0.227	0.273		
SISO (Wi-Fi Ant.2)	5.8 GHz U-NII 3	802.11ac VHT80	Body-worn	Off	15	Rear	155	5775.0	0.076	98.1	14.0	12.7	0.028	0.039		
			Hotspot		10	Rear	155	5775.0	0.151	98.1	14.0	12.7	0.076	0.103		

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. Only one zoom-scan was evaluated at Wi-Fi Ant.1, when SAR test performed for Wi-Fi MIMO mode.
6. RSDB SAR test evaluated for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.
   For only Head exposure condition, Normal SAR values were considered for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.

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10.14 Bluetooth

Antenna	Frequency Band	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Wi-Fi Ant.1	2.4 GHz	GFSK	Head	0	Left Touch	39	2441.0	76.9	17.5	17.4	0.285	0.378	
					Left Tilt	39	2441.0	76.9	17.5	17.4	0.373	0.494	
					Right Touch	39	2441.0	76.9	17.5	17.4	0.333	0.441	
					Rightt Tilt	39	2441.0	76.9	17.5	17.4	0.498	0.660	56
			Body-worn	15	Rear	39	2441.0	76.9	17.5	17.4	0.046	0.061	57
					Front	39	2441.0	76.9	17.5	17.4	0.032	0.042	
			Hotspot	10	Rear	39	2441.0	76.9	17.5	17.4	0.100	0.132	
					Front	39	2441.0	76.9	17.5	17.4	0.060	0.079	
					Edge 1	39	2441.0	76.9	17.5	17.4	0.168	0.223	58
					Edge 4	39	2441.0	76.9	17.5	17.4	0.022	0.029	

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11. SAR Measurement Variability

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

1) Repeated measurement is not required when the original highest measured SAR is <0.8 or 2 W/kg (1-g or 10-g respectively); steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.8 or 2 W/kg (1-g or 10-g respectively), repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 or 3.6 W/kg (~ 10% from the 1-g or 10-g respective SAR limit).
4) Perform a third repeated measurement only if the original, first, or second repeated measurement is ≥ 1.5 or 3.75 W/kg (1-g or 10-g respectively) and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Peak spatial-average (1g of tissue)

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
700	LTE Band 12	Hotspot	Rear	No	0.340	N/A	N/A
	LTE Band 13	Hotspot	Rear	No	0.404	N/A	N/A
835	GSM 850	Hotspot	Rear	No	0.424	N/A	N/A
	WCDMA Band V	Hotspot	Rear	No	0.526	N/A	N/A
	LTE Band 26	Hotspot	Rear	No	0.538	N/A	N/A
1750	WCDMA Band IV	Hotspot	Edge 3	Yes	0.938	0.911	1.03
	LTE Band 66	Hotspot	Edge 3	No	0.860	N/A	N/A
1900	GSM 1900	Hotspot	Edge 3	No	0.777	N/A	N/A
	WCDMA Band II	Hotspot	Edge 3	Yes	1.010	1.010	1.00
	LTE Band 25	Hotspot	Edge 3	No	0.895	N/A	N/A
2400	Wi-Fi 802.11b/g/n	Head	Right Tilt	No	0.600	N/A	N/A
	Bluetooth	Head	Right Tilt	No	0.498	N/A	N/A
2600	LTE Band 41	Hotspot	Edge 3	No	0.663	N/A	N/A
5250	Wi-Fi 802.11a/n	Body	Rear	No	0.348	N/A	N/A
5500	Wi-Fi 802.11a/n	Body	Rear	No	0.238	N/A	N/A
5800	Wi-Fi 802.11a/n	Hotspot	Rear	No	0.449	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	2.250	2.190	1.03
	LTE Band 66	Product specific 10g	Edge 3	No	1.790	N/A	N/A
1900	GSM1900	Product specific 10g	Edge 3	No	1.210	N/A	N/A
	WCDMA Band II	Product specific 10g	Edge 3	No	1.580	N/A	N/A
	LTE Band 25	Product specific 10g	Edge 3	No	1.420	N/A	N/A
5250	Wi-Fi 802.11a/n	Product specific 10g	Rear	No	0.877	N/A	N/A
5500	Wi-Fi 802.11a/n	Product specific 10g	Rear	No	0.583	N/A	N/A

Note(s):

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

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12. DUT Holder Perturbations

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

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

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

Peak spatial-average (1g of tissue)

Antenna	Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	DUT Holder Perturbation (Yes/No)	Highest Reported SAR (W/kg)	SAR test w ithout holder Scaled SAR (W/kg)	Deviation (%)
Main Ant.1-1	1750	WCDMA Band Ⅳ	Hotspot	Edge 3	Yes	1.346	1.342	-0.3
		LTE Band 66	Hotspot	Edge 3	Yes	1.258	1.215	-3.4
Main Ant.1-1	1900	WCDMA Band Ⅱ	Hotspot	Edge 3	Yes	1.304	1.243	-4.7

Peak spatial-average (10g of tissue)

Antenna	Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	DUT Holder Perturbation (Yes/No)	Highest Reported SAR (W/kg)	SAR test without holder Scaled SAR (W/kg)	Deviation (%)
Main Ant.1-1	1750	WCDMA Band IV	Product Specific 10g	Edge 3	Yes	3.201	3.115	-2.7

Note(s):

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

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13. Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations				
Head & Body-worn & Phablet-10g	1	GSM(Voice/GPRS)	+	DTS_Ant.1	+	DTS_Ant.2
	2	GSM(Voice/GPRS)	+	U-NII_Ant.1	+	U-NII_Ant.2
	3	GSM(Voice/GPRS)	+	BT		
	4	GSM(Voice/GPRS)	+	U-NII_Ant.1	+	BT
	5	GSM(Voice/GPRS)	+	U-NII_Ant.2	+	BT
	6	GSM(Voice/GPRS)	+	UNII_Ant.1 + UNII_Ant.2	+	BT
	7	GSM(Voice/GPRS)	+	***RSDB scenarios***		
	8	W-CDMA	+	DTS_Ant.1	+	DTS_Ant.2
	9	W-CDMA	+	U-NII_Ant.1	+	U-NII_Ant.2
	10	W-CDMA	+	BT		
	11	W-CDMA	+	U-NII_Ant.1	+	BT
	12	W-CDMA	+	U-NII_Ant.2	+	BT
	13	W-CDMA	+	UNII_Ant.1 + UNII_Ant.2	+	BT
	14	W-CDMA	+	***RSDB scenarios***		
	15	LTE	+	DTS_Ant.1	+	DTS_Ant.2
	16	LTE	+	U-NII_Ant.1	+	U-NII_Ant.2
	17	LTE	+	BT		
	18	LTE	+	U-NII_Ant.1	+	BT
	19	LTE	+	U-NII_Ant.2	+	BT
	20	LTE	+	UNII_Ant.1 + UNII_Ant.2	+	BT
	21	LTE	+	***RSDB scenarios***		
Hotspot	22	GSM(GPRS)	+	DTS_Ant.1	+	DTS_Ant.2
	23	GSM(GPRS)	+	U-NII_Ant.1	+	U-NII_Ant.2
	24	GSM(GPRS)	+	BT		
	25	GSM(GPRS)	+	U-NII_Ant.1	+	BT
	26	GSM(GPRS)	+	U-NII_Ant.2	+	BT
	27	GSM(GPRS)	+	UNII_Ant.1 + UNII_Ant.2	+	BT
	28	GSM(GPRS)	+	***RSDB scenarios***		
	29	W-CDMA	+	DTS_Ant.1	+	DTS_Ant.2
	30	W-CDMA	+	U-NII_Ant.1	+	U-NII_Ant.2
	31	W-CDMA	+	BT		
	32	W-CDMA	+	U-NII_Ant.1	+	BT
	33	W-CDMA	+	U-NII_Ant.2	+	BT
	34	W-CDMA	+	UNII_Ant.1 + UNII_Ant.2	+	BT
	35	W-CDMA	+	***RSDB scenarios***		
	36	LTE	+	DTS_Ant.1	+	DTS_Ant.2
	37	LTE	+	U-NII_Ant.1	+	U-NII_Ant.2
	38	LTE	+	BT		
	39	LTE	+	U-NII_Ant.1	+	BT
	40	LTE	+	U-NII_Ant.2	+	BT
	41	LTE	+	UNII_Ant.1 + UNII_Ant.2	+	BT
	42	LTE	+	***RSDB scenarios***		

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 Radio cannot transmit simultaneously with Bluetooth Radio.
6. DTS Radio can only transmit simultaneously with U-NII Radio in RSDB scenarios.
7. DTS and UNII Radio can be operating both SISO and MIMO modes.
8. BT tethering is considered 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	2	-	On	On	-
	3	2	On	-	On	-
	4	2	-	On	-	On
2.4GHz+5GHz RSDB&MIMO	5	3	On	On	On	-
	6	3	On	On	-	On
	7	3	On	-	On	On
	8	3	-	On	On	On
2.4GHz+5GHz RSDB MIMO	9	4	On	On	On	On

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Simultaneous transmission SAR test exclusion considerations

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

Sum of SAR

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

SAR to Peak Location Ratio (SPLSR)

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

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

Where:

SAR_1 is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR_2 is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

Ri is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of

$$[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$$

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

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

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

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

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

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Simultaneous transmission SAR measurement

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

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

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

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

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

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13.1 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	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.287	0.718	0.033	0.009	0.076		0.660	1.005	0.320	1.038	0.296	0.363	0.372	0.947	0.956	1.023	1.032
B : Body-Worn (1g-SAR)	All position	0.415	0.106	0.099	0.366	0.126	0.392	0.061	0.521	0.514	0.620	0.781	0.541	0.807	0.476	0.842	0.602	0.868
C : Hotspot (1-g SAR)	Rear	0.583	0.268	0.261	0.533	0.155	0.577	0.132	0.851	0.844	1.112	1.116	0.738	1.160	0.715	1.248	0.870	1.292
	Front	0.478	0.479	0.261	0.533	0.155	0.577	0.079	0.957	0.739	1.218	1.011	0.633	1.055	0.557	1.090	0.712	1.134
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2	0.520																
	Edge 3	0.374																
	Edge 4	0.176	0.479	0.261	0.120	0.155	0.154	0.029	0.655	0.437	0.916	0.296	0.331	0.330	0.205	0.325	0.360	0.359

13.2 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	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.076	0.718	0.033	0.009	0.076		0.660	0.794	0.109	0.827	0.085	0.152	0.161	0.736	0.745	0.812	0.821
B : Body-Worn (1g-SAR)	All position	0.304	0.106	0.099	0.366	0.126	0.392	0.061	0.410	0.403	0.509	0.670	0.430	0.696	0.365	0.731	0.491	0.757
C : Hotspot (1-g SAR)	Rear	0.500	0.268	0.261	0.533	0.155	0.577	0.132	0.768	0.761	1.029	1.033	0.655	1.077	0.632	1.165	0.787	1.209
	Front	0.457	0.479	0.261	0.533	0.155	0.577	0.079	0.936	0.718	1.197	0.990	0.612	1.034	0.536	1.069	0.691	1.113
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2	0.096																
	Edge 3	1.126																
	Edge 4	0.091	0.479	0.261	0.120	0.155	0.154	0.029	0.570	0.352	0.831	0.211	0.246	0.245	0.120	0.240	0.275	0.274
D : Product Specific 10-g (10-g SAR)	Rear				0.732	1.023												
	Front				0.732	1.023												
	Edge 1				0.732	1.023												
	Edge 2																	
	Edge 3	1.637																
	Edge 4				0.732	0.279												

Note(s):

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

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13.3 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	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.194	0.718	0.033	0.009	0.076		0.660	0.912	0.227	0.945	0.203	0.270	0.279	0.854	0.863	0.930	0.939
B : Body-Worn (1g-SAR)	All position	0.796	0.106	0.099	0.366	0.126	0.392	0.061	0.902	0.895	1.001	1.162	0.922	1.188	0.857	1.223	0.983	1.249
C : Hotspot (1-g SAR)	Rear	0.628	0.268	0.261	0.533	0.155	0.577	0.132	0.896	0.889	1.157	1.161	0.783	1.205	0.760	1.293	0.915	1.337
	Front	0.544	0.479	0.261	0.533	0.155	0.577	0.079	1.023	0.805	1.284	1.077	0.699	1.121	0.623	1.156	0.778	1.200
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2	0.101																
	Edge 3	1.304																
	Edge 4	0.100	0.479	0.261	0.120	0.155	0.154	0.029	0.579	0.361	0.840	0.220	0.255	0.254	0.129	0.249	0.284	0.283
D : Product Specific 10-g (10-g SAR)	Rear	1.792			0.732	1.023						2.524	2.815	3.547				
	Front	1.666			0.732	1.023						2.398	2.689	3.421				
	Edge 1				0.732	1.023												
	Edge 2																	
	Edge 3	1.994																
	Edge 4				0.732	0.279												

13.4 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	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.181	0.718	0.033	0.009	0.076		0.660	0.899	0.214	0.932	0.190	0.257	0.266	0.841	0.850	0.917	0.926
B : Body-Worn (1g-SAR)	All position	0.974	0.106	0.099	0.366	0.126	0.392	0.061	1.080	1.073	1.179	1.340	1.100	1.366	1.035	1.401	1.161	1.427
C : Hotspot (1-g SAR)	Rear	0.878	0.268	0.261	0.533	0.155	0.577	0.132	1.146	1.139	1.407	1.411	1.033	1.455	1.010	1.543	1.165	1.587
	Front	0.542	0.479	0.261	0.533	0.155	0.577	0.079	1.021	0.803	1.282	1.075	0.697	1.119	0.621	1.154	0.776	1.198
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2	0.131																
	Edge 3	1.346																
	Edge 4	0.146	0.479	0.261	0.120	0.155	0.154	0.029	0.625	0.407	0.886	0.266	0.301	0.300	0.175	0.295	0.330	0.329
D : Product Specific 10-g (10-g SAR)	Rear	1.995			0.732	1.023						2.727	3.018	3.750				
	Front				0.732	1.023												
	Edge 1				0.732	1.023												
	Edge 2																	
	Edge 3	3.201																
	Edge 4				0.732	0.279												

13.5 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	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.232	0.718	0.033	0.009	0.076		0.660	0.950	0.265	0.983	0.241	0.308	0.317	0.892	0.901	0.968	0.977
B : Body-Worn (1g-SAR)	All position	0.460	0.106	0.099	0.366	0.126	0.392	0.061	0.566	0.559	0.665	0.826	0.586	0.852	0.521	0.887	0.647	0.913
C : Hotspot (1-g SAR)	Rear	0.761	0.268	0.261	0.533	0.155	0.577	0.132	1.029	1.022	1.290	1.294	0.916	1.338	0.893	1.426	1.048	1.470
	Front	0.553	0.479	0.261	0.533	0.155	0.577	0.079	1.032	0.814	1.293	1.086	0.708	1.130	0.632	1.165	0.787	1.209
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2	0.369																
	Edge 3	0.443																
	Edge 4	0.132	0.479	0.261	0.120	0.155	0.154	0.029	0.611	0.393	0.872	0.252	0.287	0.286	0.161	0.281	0.316	0.315

Note(s):

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

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13.6 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	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.228	0.718	0.033	0.009	0.076		0.660	0.946	0.261	0.979	0.237	0.304	0.313	0.888	0.897	0.964	0.973
B : Body-Worn (1g-SAR)	All position	0.301	0.106	0.099	0.366	0.126	0.392	0.061	0.407	0.400	0.506	0.667	0.427	0.693	0.362	0.728	0.488	0.754
C : Hotspot (1-g SAR)	Rear	0.430	0.268	0.261	0.533	0.155	0.577	0.132	0.698	0.691	0.959	0.963	0.585	1.007	0.562	1.095	0.717	1.139
	Front	0.347	0.479	0.261	0.533	0.155	0.577	0.079	0.826	0.608	1.087	0.880	0.502	0.924	0.426	0.959	0.581	1.003
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2	0.295																
	Edge 3	0.163																
	Edge 4	0.234	0.479	0.261	0.120	0.155	0.154	0.029	0.713	0.495	0.974	0.354	0.389	0.388	0.263	0.383	0.418	0.417

13.7 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	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.202	0.718	0.033	0.009	0.076		0.660	0.920	0.235	0.953	0.211	0.278	0.287	0.862	0.871	0.938	0.947
B : Body-Worn (1g-SAR)	All position	0.410	0.106	0.099	0.366	0.126	0.392	0.061	0.516	0.509	0.615	0.776	0.536	0.802	0.471	0.837	0.597	0.863
C : Hotspot (1-g SAR)	Rear	0.492	0.268	0.261	0.533	0.155	0.577	0.132	0.760	0.753	1.021	1.025	0.647	1.069	0.624	1.157	0.779	1.201
	Front	0.366	0.479	0.261	0.533	0.155	0.577	0.079	0.845	0.627	1.106	0.899	0.521	0.943	0.445	0.978	0.600	1.022
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2	0.425																
	Edge 3	0.403																
	Edge 4	0.189	0.479	0.261	0.120	0.155	0.154	0.029	0.668	0.450	0.929	0.309	0.344	0.343	0.218	0.338	0.373	0.372

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.230	0.718	0.033	0.009	0.076		0.660	0.948	0.263	0.981	0.239	0.306	0.315	0.890	0.899	0.966	0.975
B : Body-Worn (1g-SAR)	All position	0.757	0.106	0.099	0.366	0.126	0.392	0.061	0.863	0.856	0.962	1.123	0.883	1.149	0.818	1.184	0.944	1.210
C : Hotspot (1-g SAR)	Rear	0.645	0.268	0.261	0.533	0.155	0.577	0.132	0.913	0.906	1.174	1.178	0.800	1.222	0.777	1.310	0.932	1.354
	Front	0.614	0.479	0.261	0.533	0.155	0.577	0.079	1.093	0.875	1.354	1.147	0.769	1.191	0.693	1.226	0.848	1.270
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2	0.108																
	Edge 3	1.192																
	Edge 4	0.108	0.479	0.261	0.120	0.155	0.154	0.029	0.587	0.369	0.848	0.228	0.263	0.262	0.137	0.257	0.292	0.291
D : Product Specific 10-g (10-g SAR)	Rear	1.713			0.732	1.023						2.445	2.736	3.468				
	Front	1.583			0.732	1.023						2.315	2.606	3.338				
	Edge 1				0.732	1.023												
	Edge 2																	
	Edge 3	1.857																
	Edge 4				0.732	0.279												

13.9 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	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.339	0.718	0.033	0.009	0.076		0.660	1.057	0.372	1.090	0.348	0.415	0.424	0.999	1.008	1.075	1.084
B : Body-Worn (1g-SAR)	All position	0.518	0.106	0.099	0.366	0.126	0.392	0.061	0.624	0.617	0.723	0.884	0.644	0.910	0.579	0.945	0.705	0.971
C : Hotspot (1-g SAR)	Rear	0.810	0.268	0.261	0.533	0.155	0.577	0.132	1.078	1.071	1.339	1.343	0.965	1.387	0.942	1.475	1.097	1.519
	Front	0.619	0.479	0.261	0.533	0.155	0.577	0.079	1.098	0.880	1.359	1.152	0.774	1.196	0.698	1.231	0.853	1.275
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2	0.474																
	Edge 3	0.441																
	Edge 4	0.217	0.479	0.261	0.120	0.155	0.154	0.029	0.696	0.478	0.957	0.337	0.372	0.371	0.246	0.366	0.401	0.400

Note(s):

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

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13.10 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	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.108	0.718	0.033	0.009	0.076		0.660	0.826	0.141	0.859	0.117	0.184	0.193	0.768	0.777	0.844	0.853
B : Body-Worn (1g-SAR)	All position	0.365	0.106	0.099	0.366	0.126	0.392	0.061	0.471	0.464	0.570	0.731	0.491	0.757	0.426	0.792	0.552	0.818
C : Hotspot (1-g SAR)	Rear	0.491	0.268	0.261	0.533	0.155	0.577	0.132	0.759	0.752	1.020	1.024	0.646	1.068	0.623	1.156	0.778	1.200
	Front	0.464	0.479	0.261	0.533	0.155	0.577	0.079	0.943	0.725	1.204	0.997	0.619	1.041	0.543	1.076	0.698	1.120
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2																	
	Edge 3	0.937																
	Edge 4	0.243	0.479	0.261	0.120	0.155	0.154	0.029	0.722	0.504	0.983	0.363	0.398	0.397	0.272	0.392	0.427	0.426

13.11 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	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A&D : 1+4+5 B&C : 1+6	1+7	1+4+7	1+5+7	A&D : 1+4+5+7 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.259	0.718	0.033	0.009	0.076		0.660	0.977	0.292	1.010	0.268	0.335	0.344	0.919	0.928	0.995	1.004
B : Body-Worn (1g-SAR)	All position	0.944	0.106	0.099	0.366	0.126	0.392	0.061	1.050	1.043	1.149	1.310	1.070	1.336	1.005	1.371	1.131	1.397
C : Hotspot (1-g SAR)	Rear	0.873	0.268	0.261	0.533	0.155	0.577	0.132	1.141	1.134	1.402	1.406	1.028	1.450	1.005	1.538	1.160	1.582
	Front	0.595	0.479	0.261	0.533	0.155	0.577	0.079	1.074	0.856	1.335	1.128	0.750	1.172	0.674	1.207	0.829	1.251
	Edge 1		0.479	0.261	0.533	0.155	0.577	0.223										
	Edge 2	0.149																
	Edge 3	1.258																
	Edge 4	0.175	0.479	0.261	0.120	0.155	0.154	0.029	0.654	0.436	0.915	0.295	0.330	0.329	0.204	0.324	0.359	0.358
D : Product Specific 10-g (10-g SAR)	Rear	2.174			0.732	1.023						2.906	3.197	3.929				
	Front				0.732	1.023												
	Edge 1				0.732	1.023												
	Edge 2																	
	Edge 3	2.611																
	Edge 4				0.732	0.279												

Note(s):

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

13.12 Sum of the SAR for WWAN & Wi-Fi (RSDB)

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)								
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	DTS MIMO	UNII MIMO	WWAN + DTS Ant.1 + UNII Ant.1	WWAN + DTS Ant.1 + UNII Ant.2	WWAN + DTS Ant.1 + UNII MIMO	WWAN + DTS Ant.2 + UNII Ant.1	WWAN + DTS Ant.2 + UNII Ant.2	WWAN + DTS Ant.2 + UNII MIMO	WWAN + DTS MIMO + UNII Ant.1	WWAN + DTS MIMO + UNII Ant.2	WWAN + DTS MIMO + UNII MIMO
		1	2	3	4	5	6	7	1+2+4	1+2+5	A : 1+2+4+5 B&C : 1+2+7	1+3+4	1+3+5	A : 1+3+4+5 B&C : 1+3+7	A : 1+2+3+4 B&C : 1+4+6	A : 1+2+3+5 B&C : 1+5+6	A : 1+2+3+4+5 B&C : 1+6+7
A : Head (1g-SAR)	All position	0.339	0.718	0.033	0.009	0.076			1.066	1.133	1.142	0.381	0.448	0.457	1.099	1.166	1.175
B : Body-Worn (1g-SAR)	All position	0.974	0.072	0.038	0.178	0.162	0.084	0.252	1.224	1.208	1.298	1.190	1.174	1.264	1.236	1.220	1.310
C : Hotspot (1-g SAR)	Rear	0.878	0.174	0.118	0.273	0.103	0.201	0.302	1.325	1.155	1.354	1.269	1.099	1.298	1.352	1.182	1.381
	Front	0.619	0.174	0.118	0.273	0.103	0.201	0.302	1.066	0.896	1.095	1.010	0.840	1.039	1.093	0.923	1.122
	Edge 1		0.174	0.118	0.273	0.103	0.201	0.302									
	Edge 2	0.520															
	Edge 3	1.346															
	Edge 4	0.243	0.174	0.118	0.273	0.103	0.201	0.302	0.690	0.520	0.719	0.634	0.464	0.663	0.717	0.547	0.746

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR (10-g SAR) is < 1.6 W/kg (4.0 W/kg).

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Appendixes

Refer to separated files for the following appendixes.

4789230288-S1V2 FCC Report SAR_App A_Photos & Ant. Locations

4789230288-S1V2 FCC Report SAR_App B_Highest SAR Test Plots

4789230288-S1V2 FCC Report SAR_App C_System Check Plots

4789230288-S1V2 FCC Report SAR_App D_SAR Tissue Ingredients

4789230288-S1V2 FCC Report SAR_App E_Probe Cal. Certificates

4789230288-S1V2 FCC Report SAR_App F_Dipole Cal. Certificates

END OF REPORT

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